

**Bycatch Working Group Discussion**  
**February 11, 2011**  
**NMFS Sturgeon Workshop; Alexandria, VA**

**Summary of General Discussion:**

**Area-specific bycatch information – what we know and information needs**

Maine - Bycatch is not a big issue in Maine; rare in trawl fishery. The pelagic fishery has mandatory requirement to report catch and bycatch. Fisheries or activities with known sturgeon bycatch include:

- Maine inshore trawl survey - primarily Atlantics but some shortnose as well
- Northern shrimp fishery and various gillnet fisheries– Atlantics and shortnose
- A number of inshore small-mesh bait gillnet fisheries – Atlantics, but do not know the extent
- Recreational hook and line – don't know the extent but consider this to be an acute problem (e.g., recreational striper fishery in southern Maine).

Other items/Suggestions/Follow-up –

Mike Brown is working with ASMFC on a NFWF grant to develop inshore bycatch sampling.

Circle hooks may be a way to minimize/mitigate bycatch on hook gear.

Compare old observer data with new for consistency as well as any observed changes in bycatch.

New Hampshire – there is some sturgeon bycatch (species?) in the recreational fisheries on live bait.

This appears to be a chronic issue.

Other items/Suggestions/Follow-up –

Circle hooks may be a way to minimize/mitigate bycatch on hook gear.

Connecticut –

- The directed shad fishery - mandatory volunteer information reporting (that is the way that it is worded) so there is no way to know if there is honest reporting of what is being caught
- Drift gillnet fisheries – gear is tended continuously so the expected mortality is low and no stake nets are allowed
- Long Island Sound bottom trawl fishery - some interaction with Atlantics; the frequency is unknown but expected to be low and mortality probably low
- No commercial trawl fisheries are observed; these fish in a different manner than the fishery independent surveys so catch of sturgeon in the surveys cannot be used to estimate sturgeon bycatch in the commercial trawl fisheries.

Other items/Suggestions/Follow-up –

Information needed on sturgeon bycatch in the shad and LIS bottom trawl fisheries, e.g., rate of incidence, fate of sturgeon, etc.

New York –

- LIS trawl fishery – some bycatch, 5 or 6 (Atlantics per year?)
- NYS commercial shad fishery - closed at this point but was a problem in past
- Recreational bycatch - hook and line for stripers on the south shore of Long Island catch sturgeon, although this was the first year of seeing so many Atlantics hooked by striper

fishermen (perhaps due to where sand lance were present this fall); get reports of 100s of sturgeon caught/snagged on recreational gear off of Fire Island, reports from other Long Island areas such as Far Rockaway. Also reports of shortnose caught on hook and line gear in the Hudson River.

Other items/Suggestions/Follow-up –

Trawl induced mortality might be underestimated, inshore fisheries not observed (\*note – federal permit holders who fish inshore are subject to NMFS Observer program).

Trawl induced mortality depends on what is in the trawl with the sturgeon (see E. Pikitch report for NYDEC); need to look at post release mortality from trawls.

Per ASMFC Bycatch Report (2007), bycatch mortality in trawls is low because trawl tow times are low; need targeted sampling for bycatch mortality in gillnet gear and need to keep track of it.

Concerns raised about putting “too much faith” in NMFS Observer program given limitations of the program (e.g., given priorities for allocating observer coverage, may not get adequate coverage to observe sturgeon bycatch, overall a low number of trips are observed).

Recommend working with the NMFS Observer Program with respect to priorities for observer coverage, and work with states to identify ways to (better) observe state water fisheries.

Need to look at post-release mortality of sturgeon caught in recreational fisheries.

Circle hooks may be a way to minimize/mitigate bycatch on hook gear.

Delaware Bay and coast–

- Shad fishery/Atlantics (in recent years has turned into more of a striped bass fishery) – there is a voluntary logbook program for the fishery; reporting varies but thinks the data is good, overall. Have reports of 40-500 Atlantic sturgeon caught in the spring fishery (primarily Bay, only about 2% are reported to have been caught in the river). No information to suggest that shortnose sturgeon are or would be caught in this component of the fishery (see below for more information on shortnose sturgeon and the shad fishery). Gear is 5” mesh and there are overnight soaks. There appears to be extremely low bycatch mortality based on the available information. The fishery usually occurs in the spring, only, but will occur in the fall if there is any quota left-over.
- Shad fishery/Shortnose - shortnose sturgeon are foul hooked/snagged by shad fishermen using shad darts during the spawning season around Scudder’s Falls (particularly at the wing dam) which is the principle spawning area for this species. Don’t know the effects to shortnose from these events but (certainly) possibly disrupting spawning.
- Dogfish fishery – Delaware has not had landings of spiny dogfish for last couple of years given management of that species. However, there is an increased quota for this year, so landings are expected (from coastal fishery). Management has tried to keep landing limits low which should result in shorter soak times to reduce sturgeon bycatch and mortality of caught sturgeon. Gillnet gear is used in the spiny dogfish fishery.

Other items/Suggestions/Follow-up –

Need an independent assessment of the shad fishery. Unreported mortality likely occurring, particularly if fishers can’t get out to check gear (e.g., due to weather). Modifications to gear might be helpful. Consider closing the area around Scudder’s Falls to shad fishing during shortnose sturgeon spawning season.

### Maryland –

- MD reward program – see incidental catch of Atlantics in almost all gears; pound nets, gillnets targeting striped bass (range of mesh sizes), crab pots, fyke nets.
- The reward program does not pay for fish in the summer, and participants are always discouraged from tying sturgeon by the tail.

### Other items/Suggestions/Follow-up –

Need better information to determine which fishery is (the most) problematic.

Changes in allowed mesh sizes may be a way to minimize sturgeon bycatch.

The Reward program has provided a lot of information on bycatch and sturgeon in the Maryland portion of the Chesapeake Bay. But, if Atlantics are listed, it is unlikely that people will continue to report (e.g., MD does not receive reports on shortnose sturgeon). The reward program is a cheap way of getting information and that amount of fishing effort cannot be reproduced. Takes will still occur even without the reward program so not having a reward program once (if) Atlantics are ESA-listed would just be a lost opportunity for data collection.

### Virginia –

- Bycatch occurs in gillnet gear used in the striped bass gillnet fishery, and have also had some sturgeon bycatch in crab pots in the James River
- K. Place report (2005) examined all aspects of bycatch in Virginia's marine and riverine fisheries.

### Other items/Suggestions/Follow-up –

We need more information about gear specifications and how they retain sturgeon. In the striped bass fishery, changing the mesh size from 5.5 to 6 inch resulted in more sturgeon bycatch. Raising the footrope of sink gillnet gear could allow sturgeon to pass underneath (for fisheries targeting pelagic species). For monkfish gillnet gear, one study found that using tie-down gear resulted in more sturgeon bycatch than stand up gear. However, in a separate study, using stand up gear resulted in an increased catch of marine mammals and a decreased catch of the targeted species (monkfish). Bottom line - gear modifications with regional and temporal variations are needed.

Nets made with light twine for shad were effective at reducing skate bycatch and there was no sturgeon bycatch in this modified gear.

Virginia Reward Program – provided a lot of information on sturgeon bycatch.

There needs to be a process to address potential gear modification issues with managers; a planning process by which we can get to some of these targeted studies. Permit folks, state and federal managers need to work with the states and researchers to address bycatch needs once (if) Atlantic sturgeon is listed.

Regulating fisheries as a result of an ESA-listing may affect the opportunity to gather information on trends and population size of Atlantic sturgeon populations.

### North Carolina –

- For the Roanoke River, Atlantic sturgeon are incidentally caught in a number of fisheries. The greatest take occurs in the large-mesh flounder fishery, but the amount of take varies by year. Also, soak times in the fishery have been reduced by 80% (in some areas) to address sea turtle bycatch so those changes should also benefit sturgeon
- The winter beach seine fishery for striped bass takes sturgeon (adults and subadults) but do not see mortalities

- There is a small mesh gillnet fishery (3-4 inches) that occasionally takes Atlantic sturgeons but the nets must be tended for more than half of the year and effort usually goes down during that time
- There are floating nets for shad in January to April
- Have little interaction and no known mortality of sturgeon in shrimp and crab trawls
- Limited hook and line interactions; have a couple of reports of bank anglers catching sturgeon, e.g., 2 reports of sturgeon caught from the Tar-Pamlico and 2 sturgeon from the Roanoke.

Other items/Suggestions/Follow-up –

Have 23 years of data on Atlantic sturgeon captures from trawling offshore; no mortalities but there is a maximum tow time of 30 minutes and most tows are 10 - 15 minutes.

Jeff Gearhart's study on spiny dog fisheries had sturgeon encounters; 75 caught in a NMFS tow at one time.

Need to review encounter rates in experimental trawls/fisheries independent studies to decide if encounter rate is sufficient.

Need to look at what size sturgeon will pass through a turtle excluder device (TED).

South Carolina –

- There are no ocean gillnet fisheries off of SC
- Have bycatch of Atlantic and shortnose sturgeon in the shad sink gillnet fisheries (~5.5 inch stretched mesh) occurring in the rivers; high flow areas near the river mouths is where the majority of the sturgeon bycatch is observed
- A meeting with the commercial fishermen is anticipated to get their input on a solution to the sturgeon bycatch problem in the fishery; some use drift nets which are not known to be a bycatch concern for sturgeon
- South Carolina is currently working with NMFS on a Habitat Conservation Plan for a section 10(a)(1)(B) permit (aka "incidental take" permit) given bycatch of shortnose sturgeon in the shad fishery. The fishery occurs January-April so spawning sturgeon could be taken
- Fishermen are required to report bycatch but compliance is likely a problem because fishers are concerned about the repercussions.

Other items/Suggestions/Follow-up –

Need a new study of sturgeon bycatch for South Carolina fisheries. The last one was conducted in 1996 and it was only for one river system.

The ASMFC has asked the Striped Bass Plan Development Team to look at the possibility of establishing a hook and line commercial fishery as an alternative to the gillnet fishery.

Consider closing areas to fishing to reduce bycatch.

Georgia -

- The Savannah River shrimp fishery has little to no interaction with sturgeon. Have had a bycatch observation study with trained observers familiar with the fishery and fishermen behavior. Of 144 tows, only saw 1 Atlantic sturgeon (tows are 2.5 to 3 hours). Of the 1584 tows conducted on the state's research vessel (rigged the same way as the commercial gear without a TED) only 1 sturgeon was seen in the last 11 years
- 2/3 -3/4 of state waters are closed to trawling
- The shad fishery has both sink gillnet and drift gillnet components. The sink net fishery occurs primarily above the head of tide. The drift net fishery occurs primarily within 10km of the river

mouth. A three year study of sturgeon bycatch focused on the sink net fishery was conducted. There are no legal requirements about soak times but most guys check once/day. For Years 1 and 2, there were low numbers of shortnose sturgeon bycatch in sink nets (~ 50/year but note both years were drought years). The third year was a wet year and a small number of fishermen caught a lot of shortnose sturgeon; often 20 or 30 in a net so ~ 400-500 shortnose caught in that year. There were very few mortalities; about 1.3% mortality which contradicts the Stein et al., paper of 10% and Collins et al., paper of 16% mortality. Georgia has now closed that area of the river (rkm 180-212) where bycatch of spawning shortnose sturgeon occurred. Catch rates (of sturgeon) are lower downriver, and nets are tended constantly and fished off of the bottom so mortality is less of a concern. For Atlantics, only three Atlantic sturgeon (juveniles) were seen in the 3 years of study for the shad sink gillnet fishery. More Atlantics are seen below the head of tide.

Other items/Suggestions/Follow-up –

Need to better understand likelihood of mortality for captured fish and the factors that affect mortality in the sink gillnet gear. For the Collins et al. study, most of the mortality occurred at the end of the season while the most recent study was near the spawning grounds in cold water, early in the run. Georgia is working with NMFS per section 10 of the ESA (Habitat Conservation Plan and Incidental take permit) to address the sturgeon bycatch problem.

Florida – There is very limited bycatch information.

- Have a few anecdotal records of either species caught in bait shrimp trawls in some rivers and creeks (e.g., one young-of year and one adult Atlantic sturgeon in the lower creeks of the St. Johns River)
- Some sturgeon caught by fishermen in trap nets in the St. Johns River
- 1996-1998 was the last time a systematic questioning was conducted; suspect fishermen catch more sturgeon than they speak of.

Other items/Suggestions/Follow-up –

Conduct a small study to determine whether smaller sturgeon can pass through TEDs of shrimp trawls.

General Discussion including Suggestions/Follow-up -

Coastal gillnet fisheries in many states are executed in similar ways; in terms of sturgeon bycatch, see mostly subadult Atlantic sturgeon (50-70 lb fish). Do not see too many adult sized fish.

Sturgeon bycatch mortality is very different for anchored versus non-anchored nets. Soak time is a key issue. Temperature is important in determining appropriate soak times; overnight soaks run into predation issues with isopods. Also, Collins paper on bycatch mortality found that bycatch mortality went from 2% to 14% when water temperatures hit 17-18°C. So bycatch and bycatch mortality is a function of temperature and soak time together. Salinity and oxygen levels may also be important (also see ASMFC bycatch report, 2007).

Atlantics appear to move seasonally (temporally) as a “slug” of fish along the coast. We need to better understand these movements (e.g., need more coastal arrays). Having good telemetry data on when Atlantics are coming into the system could help to determine the best method(s) for addressing Atlantic sturgeon bycatch.

The addition of genetic assignments to individual fish is crucial (mixed stock analysis).

Post release mortality - Chris Hager study and one in the James River demonstrated low post release mortality, possibly from handling or other stressors rather than from commercial gear.

Inshore fisheries are observed off of NJ but the information is not in the national observer database.

Reporting should be mandatory to inform how accurate reports have been.

Changes in gear could be made to reduce sturgeon bycatch but need to keep in mind affects upon other species (e.g., not using tie-downs on monkfish gillnet gear may reduce Atlantic sturgeon bycatch but has been shown to increase marine mammal bycatch).