

Final Report of Fishery Resource Grant Project 2011

Conducted by George Trice

Project Title: Testing Raised Footlines in Virginia's Striped Bass Fishery: A Gear Based Method of Reducing Sturgeon Interactions in Anchored Gill Nets.

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Brief Summary

This project was conducted over a period of 39 days using two different net configurations and hanging methods in order to test methodologies to reduce the bycatch of Atlantic Sturgeon while not affecting the Striped Bass fishery. Nets were hung using conventional methods allowing the net to rest on the bottom of the waters. Experimental nets were also hung to float 3' from the bottom. All nets were hung using mesh sizes ranging from 5.5" to 8". All catch was recorded and compared to determine the effects of the different hanging methods.

Methods

In this project, nets were hung using mesh sizes of 5.5", 6", 7" and 8". Nets were hung in 300' sections. The sections were then tied together to make a total length of 600'. The 5.5" and 6" sections were tied together and the 7" and 8" sections were tied together. Each net was hung using conventional gill net methods that allow the net to sink completely. An identical net of each mesh size was also hung using an experimental method of raised footlines, thereby creating a "float net". Nets having the raised footlines were floated 3' from the bottom.

All nets were set over a 24 hour period. Gear location, water temperature and effecting conditions such as severe weather and tides were recorded. All catch was identified, measured and counted. All sturgeon caught were measured and DNA was collected from each. All released sturgeon were also given a T tag and PIT tag. 11 of the captured sturgeon were also implanted with a transmitter. Any sturgeon mortalities were given a T tag and taken to VIMS for further research purposes. All data collected was recorded and analyzed to determine the efficiency of the compared nets and their interactions with Atlantic Sturgeon and other species.

Nets set in the conventional sink method in 10" and 12" mesh sizes and dependent nets of various mesh sizes were also set and data was recorded for these nets as well.

Analysis

The total catch for each net was calculated and compared. It was found that the Striped Bass catch was not greatly affected by the use of the floating net. Some mesh sizes in float nets only resulted in a reduction of striped bass catch of approximately 10%. However, in the 6" and 7" float nets striped bass catches were reduced by approximately 37%. In the 5.5" nets, the sinking net caught 86 and the float net caught 78. In the 6" nets, the sinking net caught 94 and the float net caught 59. In the 7" nets, the sinking net caught 60 and the float net caught 38. In the 8" nets, the sinking net caught 36 and the float net caught 40. The sturgeon bycatch, however, was greatly affected by the different hanging methods. The float method caught significantly less sturgeon. A total of 52 sturgeon were caught using the two listed methods and of those 52 only 14 were caught in the floating nets. The 5.5" sink net caught 11 sturgeon and the 5.5" float net caught 3. The 6" sink net caught 10 sturgeon and the float net caught 2. The 7" sink net caught 8 sturgeon and the float net caught 6. The 8" sink net caught 9 sturgeon and the float net caught 3. In addition to these conclusions it should also be noted that the floating nets greatly increased the non-native blue catfish catch.

Conclusion

Upon completion of this project it appears that use of floating nets can aid in lowering the Atlantic Sturgeon bycatch, often while not greatly affecting the Striped Bass Fishery. It is recommended that a heavier lead line be used on the floating net to keep it from dragging. It is believed that the dragging of this net may have affected the catch and further research using heavier lead lines is suggested.

Importantly, for the 8th year in a row, the FRG sturgeon project has documented significant Atlantic Sturgeon abundance in the tidal James River and that Atlantic Sturgeon gill net bycatch mortality is a small percentage of the interactions seen in each year of our project. To that point, it should also be noted that of the sturgeon mortalities that did occur, most are not attributable to the temporal, spatial and physical characteristics of a normally prosecuted striped bass fishery.

For example, when Virginia's March 25th prohibition of large mesh nets signals the end of Virginia's spring striped bass fishery on coastal migrants (fish > 28"), our project allowed continued use of the mesh sizes, unlike the actual striped bass fishery. There are also many other mesh restrictions in other Virginia fisheries that, unlike our project, would by definition not result in sturgeon interactions.

There are also many other temporal, spatial and physical differences in our project when compared to Virginia's actual Striped Bass and other gill net fisheries. Water temperatures and water quality are just one key example. Simply put, a normal fishery would often fish at different times and places than where we set our gear which we have temporally, spatially and physically standardized for the purposes of the project.

The significance of the fact that we have documented Chesapeake Bay Atlantic Sturgeon abundance far in excess of any previous scientific observations cannot be overestimated. Similarly, DNA and other sturgeon samples collected by our project are many times larger than any other collections by any other government or scientific efforts in the Chesapeake Bay region. When combined with samples collected

by our partners in the Virginia Sturgeon Partnership we have documented the existence of at least 1500 to 2000 different sturgeons in the Chesapeake Bay region. To those points, it should be added that our project also captured and released the first gravid female captured by Virginia watermen and witnessed by Virginia scientists and regulators in the Chesapeake system for many years. Other watermen have frequently captured gravid females throughout the Chesapeake system, but seldom, if ever before, has this been documented by authorities.

Lastly, we suggest further research to categorize and refine the significance of the many observations and discoveries we have made during these FRG funded sturgeon projects. We recommend continued collection of Atlantic Sturgeon DNA for analysis by our partners in the scientific and regulatory community, especially because of the implications of the proposed listing of the species under the Endangered Species Act. These data collections and subsequent analyses are crucial for the species, the fishery and for proper regulations based on known population parameters and other important data. Otherwise, Virginia's fisheries and other Virginia interests may be subjected to unwarranted regulatory actions based on poorly informed guesses, instead of the irrefutable data this FRG project has enabled.

Signature_____Date_____