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Fishery Resource Grant Program Final Report

Project title: Characterization of Sturgeon and Other Regulatory Discards in Virginia's Spring Striped Bass and Other Gill Net Fisheries

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Give a brief summary of the project.

The striped bass anchored gill net fishery in Virginia is of great importance to Virginia's commercial finfishermen. Anchored gill nets are the predominant gear for striped bass in Virginia's coastal and estuarine waters. Reflecting this, they also have the highest rate of Atlantic Sturgeon bycatch (85%) in Virginia waters when compared to other gear types (NMFS). This could cause potentially serious problems because the Atlantic sturgeon has recently been undergoing a Biological Status Review for possible listing under the Endangered Species Act. Recognizing this as a possible threat to a very important fishery, Virginia commercial fishermen propose continued proactive sturgeon data collection to help lay the foundation for restoration and protection of the species so it may fulfill its proper place in the Chesapeake Bay and connected marine and estuarine ecosystems.

We proposed to continue to document Atlantic Sturgeon (relative abundance), mortality, age distribution, genetic diversity, essential fish habitat (EFH) and habitat area of particular concern (HAPC) as well as other data that is vitally needed by fishery management through a cooperative study with Virginia Sea Grant (VaSG). All goals included in this study were accomplished.

What work did you intend to do, and how did you plan to accomplish it?

We intended to conduct a survey in the James River in Cobham Bay in February and March and in Burwell's Bay from the last part of March to the end of May duplicating efforts conducted by the FRG given to Mr. Place in 2005 and 2006. A total of 51 trips were to be conducted, 3 trips per week for the 17 week period with 3900 ft of 5, 6, 7, 8, 10, and 12 inch webbing run during each day.

What was accomplished?

Fifty-one days of fishing were accomplished as contracted. Samples were collected from 3/10/07- 5/24/07 in the Burwell Bay area. Samples were not taken in Cobham Bay because previous years of data were only taken from Burwell's Bay and time area overlap was desired between years. All six rigs specified in proposal were fished on each set unless damage or other unforeseen problem occurred that required removal for repair. In addition, data was collected on other nets set for striped bass and other species. On hundred and seventy five sturgeon were collected with 15 mortalities (9%) with 66% occurring in 10 inch net under the warmest water conditions fished. 140 fish were held for 3 days or more and none died. All data was entered into preexisting access program in format used for 05-06 dataset. The dataset was subsequently turned over to Chris Hager

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used copies to

at VaSG for further analysis and incorporation into information formats to be delivered to management councils and committees. George will be presenting at Maryland Watermen's in January 08 and will be submitting again for funding to continue the Sturgeon restoration program in 08. Some of the major preliminary accomplishments of the project were the collection of a ripe running adult male in late may and the implantation of 7 additional fish with sonic devices to be used to identify essential habitat including spawning grounds. This brings total number of fish to 13.

To accomplish this we:

- 1) Observed bycatch in nets being fished for striped bass in the spring. Net composition was recorded and species identified, counted, and total length measured. Time of day, gear location, relevant gear parameters, and physical conditions (water temp., clarity, tidal condition) will also be recorded.
- 2) Condition was not established based on physical reaction to stimulus (Davies, 2004) due to a lack of time in study. Instead fish were given to Chris Hager to conduct gear manipulation studies to benefit management at ASMFC level.
- 3) Sturgeon captured were all measured and weighed and PIT tags inserted if not present. USFWS T bar Floy © were also applied.
- 4) Sturgeon of appropriate size (7) were turned over to Sea Grant/VIMS/USFWS in order to continue cooperative tracking studies investigating habitat use and location of the spawning grounds.
- 5) DNA was collected from 175 fish and will be delivered to geneticists in order to continue to refine stock structure.
- 6) Quantify temporal populations using tag returns is still not possible at this stage.
- 7) Poisson (log linear) regression were not used to examine external parameters influencing sturgeon interactions. Instead sturgeon were delivered to VIMS and used under controlled conditions to investigate how gear characteristics effect retention of sturgeon.
- 8) Broodstock of Chesapeake Bay origin was collected and two fish delivered to Maryland DNR. Sperm from a ripe running male was also collected and sent to Maryland to assist with captive breeding program.

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its newly formed regulatory statutes. This proactive effort will hopefully protect Virginia striped bass fisheries with timely and scientifically derived data that would be instrumental in reducing interactions with sturgeon and provide data that will help improve the striped bass fishery in coming years.

13. What is the purpose (objectives) of the project?

The general objective is to protect and enhance Virginia's striped bass and other fisheries by providing good advice to management that will lead to optimal levels of sustainability.

Specific objectives:

First is to continue the evaluation of Atlantic Sturgeon interaction with anchored gill nets in Virginia's Spring striped bass fishery.

Second is to evaluate sturgeon interactions in the striped bass fishery and to some extent, other anchored gill net fisheries after the striped bass regulations change on March 26

Third is to determine the effects of various mesh sizes, water temperature, and set times on bycatch composition from February to June 1.

Fourth is to collect samples of sturgeon DNA so that geneticists can accurately determine the amount of genetic diversity remaining in the population which in turn will guide them in the proper course of management and restoration of the species.

Fifth is to collect calcified structures (pectoral spines) from sturgeon before release so that various studies on age distribution of the stock can be continued.

Sixth is to gather critical relative population abundance data on sturgeon in Virginia waters.

Seventh, in the event of significant sturgeon mortality, is to collect baseline sturgeon bycatch data in order to develop spatial, temporal and/or gear alteration techniques to reduce or eliminate sturgeon bycatch mortality in Virginia.

Eighth is to begin determination of whether striped bass discard mortality is actually equal to the commercial discard mortality rate assumed by ASMFC when calculating the TAC's and quota allotted to Virginia's commercial fishery.

Ninth is to engage Virginia's commercial fishermen in the proactive collection of vital data and adult sturgeon for tracking studies being conducted by Virginia Sea Grant, USFWS, and VIMS. In addition, fishermen may eventually play a critical role in the collection of genetically diverse brood stock needed for restoration.