SEDAR28-DW02: South Carolina experimental stocking of Cobia *Rachycentrom canadum*

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There were minor changes to the tables and the document text. The final analysis did not change.

South Carolina Experimental Stocking of Cobia *Rachycentron canadum*

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Abstract

The South Carolina Department of Natural Resources has been experimentally spawning wild cobia adults captured in local waters, rearing larvae to a number of juvenile sizes and stocking them back in the same systems. All fish released into the wild are identifiable using a unique genetic tag (microsatellites) and differentiated from wild fish when they are collected in the recreational fishery. Size permitting; fish were also tagged with external dart tags prior to release to make them identifiable to anglers. Fish enter SC waters to spawn in April and are available to recreational anglers at a legal minimum size of 33-inch fork length. This size represents a three-year-old fish (when full recruitment occurs). In order to determine the contribution of stocked fish to the local population, fin clips are removed from fish sampled at fishing tournaments, collected from charterboat captains, recreational fishermen and from SCDNR staff. Stocking contributions are determined and analyzed as a general contribution to the sampled population, as well as to specific yearclasses as determined by otolith-based age determination. Contributions are also evaluated by inshore and offshore collections.

Stocking Information

Cobia juveniles were stocked with genetic tags between 2005 and 2009. Stocking numbers varied in each year with the majority of fish being stocked in 2007 (Table 1). In 2005 fish were released in four groups from two genetic families: small juveniles in summer (n=3,200; 56 mm TL), large juveniles in fall (n=516; 230 mm TL), yearlings in summer with external tags (n=385; 545 mm TL) and two year olds in summer with external tags (41; 808 mm TL). The 2007 YC fish were released in three different experimental groups: small juveniles, large juveniles and yearlings. A total of 53,264 small juveniles were released on 4 occasions in summer from two genetic families (WMC 20-6A, WMC 20-4). In addition, a group of large juveniles was released in September (409; 250 mm TL; WMC 20-6) and one group of yearlings was released in May of 2008 with external tags (59; 541 mm TL; WMC 20-6). Cobia juveniles produced in 2008 were released in two different experimental groups in the fall: large juveniles (2,000; 249 mm TL; HML118) and yearlings with external tags (54; 530 mm TL; WMC20-5). For the 2009 YC, one experimental group of large juveniles (1,392; 235 mm TL; HML118) was released with external tags in October.

Release Date	Release Location	Juveniles (n)	Mean TL (mm)	Year Class	Genetic Group
7/05/2005	Colleton River	3,200	56	2005	NWL2
9/05/2005	Colleton River	516	230	2005	NWL5
6/01/2006	Colleton River	385	545	2005	NWL5
6/20/2007	Colleton River	41	808	2005	NWL5
6/28/2007	Colleton River	28,363	63	2007	WMC 20-6A
7/11/2007	Colleton River	5,485	102	2007	WMC 20-6A
7/24/2007	Colleton River	16,264	101	2007	WMC 20-4
8/3/2007	Colleton River	3,152	127	2007	WMC 20-4
9/19/2007	Colleton River	409	250	2007	WMC 20-6
5/07/2008	Colleton River	59	541	2007	WMC 20-6
11/08/2008	Colleton River	2,000	249	2008	HML118

Release Date	Release Location	Juveniles (n)	Mean TL (mm)	Year Class	Genetic Group
10/23/2009	Colleton River	54	530	2008	WMC20-5
10/13/2009	Colleton River	1,392	235	2009	HML118
Total		**61,320**	**Range 56-808**		**8 Families**

2007 Summary of Captured Fish

Total Contribution to South Carolina/Georgia Collections

Genetics Assignment	Sample (n)	Contribution (%)
Wild	337	99.1
Cultured	3	0.9
Multiple recapture	2	---
Fingerlings	25	---
Unknown	59	---
Total	426	100%

2008 Summary of Captured Fish

Total Contribution to South Carolina/Georgia Collections

Genetics Assignment	Sample (n)	Contribution (%)
Wild	343	99.4
Cultured	2	0.6
Unknown	16	---
Total	361	100%

2009 Summary of Captured Fish

Total Contribution to South Carolina/Georgia Collections

Genetics Assignment	Sample (n)	Contribution (%)
Wild (+2 duplicates)	215	97.7
Cultured	6	2.3
Unknown	27	---
Total	248	100%

2010 Summary of Captured Fish

Total Contribution to South Carolina / Georgia

Genetics Assignment	Sample (n)	Contribution (%)

Wild	242	92.7
Cultured	19	7.3
Duplicate Samples	3	--
Unknown	6	--
Total	270	100%

2011 Summary of Captured Fish

Total Contribution to South Carolina / Georgia

Genetics Assignment	No.	% Contribution
Wild	267	95.4
Cultured	13	4.6
Duplicate Samples	3	--
Unknown	8	--
Total	291	100

These tables illustrate the contribution of stocked cobia to the wild population captured in waters both inshore and offshore of southern South Carolina-Northern Georgia. Cobia stocked in South Carolina waters return annually during spawning, and join aggregations with wild fish. The data presented above shows an increasing contribution as the relatively large number of fish stocked in 2007 enter the recreational creel in 2009 and are fully recruited in 2010. We expect these contributions to decrease as the 2007 yearclass move through the fishery. Cobia are primarily collected during the spawning season and we have little genetic data from outside the April-July period. It is unknown whether these fish move into other states waters or where they remain during the rest of the year.