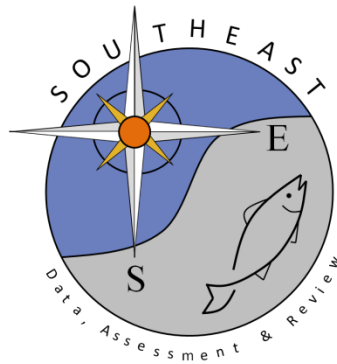# South Carolina Department of Natural Resources Fisheries Dependent Data Reconciliation Overview

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SEDAR68OA-WP03

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South Carolina Department of Natural Resources Fisheries Dependent Data Reconciliation Overview

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Purpose: To give a brief overview of the project undertaken by personnel at the NOAA-Beaufort Lab and SCDNR to reconcile incomplete SCDNR fishery-dependent data used in SEDAR.

Background: Outside of NMFS, the major life history data provider to SEDAR South Atlantic assessments is the South Carolina Department of Natural Resources (SCDNR). SCDNR provides data from fishery-dependent and fishery-independent surveys. Data inputs include length and weight, age, and reproduction, with SCDNR being the sole provider of reproduction data for many assessments. Due to their prominent role in the South Atlantic for reef fish reproduction expertise, they collect samples from various sources, including the Southeast Reef Fish Survey (SERFS), a collaborative effort between the Marine Resources Monitoring, Assessment, and Prediction program (MARMAP), the Southeast Area Monitoring and Assessment Program – South Atlantic (SEAMAP-SA), and the Southeast Fishery Independent Survey (SEFIS), as well as recreational and commercial fishery-dependent surveys dating back to the late 1970's.

Over the past several decades, SCDNR frequently received reproductive tissues and/or ageing structure samples from fishery-dependent sources, but complete data were not generally provided with the samples. Thus, there were data gaps in the SCDNR database. Additionally, QA/QC data corrections made in the Southeast Region Headboat Survey bio-profile database (SRHS) or Trip Interview Program System (TIPS) have not been provided to SCDNR, resulting in incorrect or conflicting information provided for SEDAR. To provide more complete datasets, SEDAR life history data compilers, typically from NMFS, have historically filled in the data as much as possible using their access to the SRHS or TIP databases. Once the missing data values were added, the datasets were submitted for the assessment, however, the corrections were rarely sent back to SCDNR for database updates. This process has been repeated for most South Atlantic SEDAR assessments to date, duplicating effort and increasing potential errors.

In order to increase efficiency during the SEDAR data compilation process, NMFS personnel worked with SCDNR to fill the gaps in fishery-dependent data. Since SCDNR does not have access to NMFS databases, they could not fill in the missing information independently. While not under the deadline of an assessment, NMFS personnel provided a more comprehensive search and review to aid in reconciling missing or updated data within SCDNR's internal database.

Process: SCDNR provided their fishery-dependent data to NMFS's Biology & Life History staff in the Beaufort Lab in the winter of 2020. Two personnel (A. Ostrowski and T. McCulloch) began filling missing data during the Spring of 2021, using several variables (i.e date, species, length/weight, location, source, etc.) to match records in the fishery-dependent databases (SRHS or TIPS). The incomplete data were found and corrected based on those matches using various methods [e.g., queries in Beaufort Inventory (BFTi), TIPS or SRHS] and returned to SCDNR for upload into their internal database.

NMFS staff attempted to fill specific types of data gaps, including fishery type and fishery mode, interview numbers, SRHS areas or NMFS statistical grids, county and state landed, collection methods, and sample conditions. If further information was needed, a request with the data was sent to TIPS (NMFS, S. Beggerly) or North Carolina Division of Marine Fisheries (NCDMF, M. Seward). That information was compiled with the data during the summer and fall of 2021 and sent back to SCDNR during fall of 2021.

After an initial meeting between SCDNR and NMFS to discuss findings, SCDNR requested further clarification on specific collections as they arose.   Both labs expect the process to continue for the upcoming year until the SCDNR database is as complete as possible, but recognize that it is a continually evolving process. Discussions are upcoming on aspects important to age compositions for SEDAR assessments (e.g., sample method type, randomly collected, and bias types) and how the collection techniques can be classified within those categories.

Results: Initial results from corrections of the data as applied to the SEDAR 68 OA dataset show an increased number of recreational fishery samples and trips from 1982-1992. Between the SEDAR 68 Scamp and Yellowmouth Grouper Research Track assessment and the operational assessment, there was an increase of 409 samples and 245 trips made available for analysis (Table 1).   This change will impact the age compositions for the recreational sector during that time period, requiring a new analysis by the SEDAR data compiler.   The primary recreational data (Headboat, SRHS) from that time period were difficult to verify, and likely underwent many QA/QC corrections between when data were originally provided to SCDNR and this data reconciliation project. There was little impact on commercial age composition tables, primarily because samples provided through the TIPS program began in the late 1980's/early 1990's when the data collection systems were more refined.

SEDAR68-OA has been the first assessment conducted since the data reconciliation project was undertaken, but we suspect that similar increases in sample sizes and trip counts will be observed in future assessments of other species with starting years in the 1970's or 1980's. The reduction in data gaps from previous assessments points to the importance of collaboration between data providers to ensure the best, most accurate data are provided to the assessment team for their analyses.

Table 1: Recreational Age composition tables for SEDAR 68 Research Track (left) and Operational assessment (right) with number of samples followed by the number of trips in parentheses for a given state and fishing mode. The red box highlights the years where there was an increase in sample sizes due to the data reconciliation project as well as the overall change in samples and trips. Total number of samples and trips is located on the bottom right of each table, highlighted in yellow.

Research Track

Number of Recreational samples and (number of Trips intercepted)

Year/State	Headboat FL	Headboat GA	Headboat NC	Headboat SC	Charter Boat FL	Charter Boat NC	Private Boat FL	Private Boat NC	Grand total
1979	5(3)								5(3)
1980	33(19)		6(3)	2(2)					41(24)
1981	52(33)	1(1)	3(1)						56(35)
1982	3(3)		2(2)						5(5)
1983	6(4)			1(1)					7(5)
1984	1(1)								1(1)
1985									
1986									
1987									
1988									
1989				5(3)					5(3)
1990									
1991			1(1)						1(1)
1992									
1993			1(1)						1(1)
1994									
1995	3(2)			9(1)					12(3)
1996	1(1)	1(1)	4(3)	119(42)					125(47)
1997			2(1)						2(1)
1998									
1999									
2000				1(1)					1(1)
2001	1(1)				6(4)				7(5)
2002				4(3)	44(22)				48(25)
2003			1(1)		60(33)				61(34)
2004			3(3)		87(42)				90(45)
2005	3(1)		12(11)		86(42)				101(54)
2006	4(4)	3(3)		26(26)	59(17)				92(50)
2007	8(6)	1(1)	4(4)	33(33)	15(5)				61(49)
2008	5(4)		1(1)	17(17)					23(22)
2009	15(12)	2(2)	2(1)	40(22)	9(3)				68(40)
2010	7(4)	1(1)	7(6)	27(17)	2(1)	7(2)		2(1)	53(32)
2011	2(2)	1(1)	()	6(6)	1(1)				10(10)
2012	25(13)		10(6)	11(7)					46(26)
2013	19(10)		17(11)	25(13)	2(1)				63(35)
2014	16(12)	1(1)	19(9)	6(4)			1(1)		43(27)
2015	16(8)		11(7)	2(2)					29(17)
2016	43(19)	1(1)	5(5)	6(6)				2(1)	57(32)
2017	14(9)		6(4)	5(4)	3(3)				28(20)
2018	6(3)		8(5)	13(8)				5(4)	32(20)
Grand total	288(174)	12(12)	125(86)	358(218)	374(174)	7(2)	1(1)	9(6)	**1174(673)**

Operational Assessment

Number of Recreational samples and (number of Trips intercepted)

Year/State	Headboat FL	Headboat GA	Headboat NC	Headboat SC	Charter Boat FL	Charter Boat NC	Private Boat FL	Private Boat NC	Grand total
1979	5(3)								5(3)
1980	33(19)		6(3)	2(2)					41(24)
1981	52(33)		4(2)						56(35)
1982	27(17)		13(4)						40(21)
1983	38(25)		11(5)	18(12)					67(42)
1984	49(34)			11(8)					60(42)
1985	22(19)		3(3)	32(18)					57(40)
1986	9(9)		9(5)	4(3)					22(17)
1987	1(1)		2(1)	1(1)					4(3)
1988	1(1)		4(1)	5(5)					10(7)
1989			2(1)	82(39)					84(40)
1990			15(11)	4(1)					19(12)
1991			47(20)	7(5)					54(25)
1992	6(6)		2(2)	3(3)					11(11)
1993	1(1)		2(2)	3(3)					6(6)
1994				2(1)					2(1)
1995	3(2)			13(4)					16(6)
1996	1(1)	1(1)	4(3)	135(46)					141(51)
1997			2(1)						2(1)
1998									
1999									
2000				1(1)					1(1)
2001	1(1)				6(4)				7(5)
2002				4(3)	44(22)				48(25)
2003			1(1)		60(33)				61(34)
2004			3(3)		87(42)				90(45)
2005	3(1)		11(10)		86(42)				100(53)
2006	4(4)	3(3)		26(26)	59(17)				92(50)
2007	8(6)	1(1)	4(4)	33(33)	15(5)				61(49)
2008	8(5)		1(1)	17(17)					26(23)
2009	14(12)	2(2)	2(1)	40(22)	9(3)				67(40)
2010	7(4)	1(1)	7(6)	27(17)	2(1)	7(2)		2(1)	53(32)
2011	2(2)	1(1)		6(6)					9(9)
2012	23(11)		10(6)	11(7)					44(24)
2013	19(10)		17(11)	25(13)	2(1)				63(35)
2014	16(12)	1(1)	19(9)	6(4)			1(1)		43(27)
2015	16(8)		11(7)	2(2)					29(17)
2016	42(19)	1(1)	5(5)	6(6)					54(31)
2017	14(9)		3(2)	8(6)	3(3)				28(20)
2018	6(3)		5(3)	17(11)				5(4)	33(21)
2019	22(2)			4(3)					32(6)
2020								1(1)	1(1)
Grand total	453(280)	11(11)	225(133)	555(328)	373(173)	7(2)	1(1)	14(7)	**1639(935)**