

Final Estimate for 2018 of
Spring Harvest of Coastal Migrant Striped Bass in Chesapeake Bay

Prepared by
Jeffrey Horne

Maryland Department of Natural Resources
Fishing and Boating Services
Annapolis, MD

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INTRODUCTION

This report presents the final estimates of the 2018 Maryland and Virginia spring harvest of coastal migrant striped bass in Chesapeake Bay (Table 1). The method used to determine coastal migrants in Maryland was presented in detail in Jones (2003), Barker and Sharov (2004), and Sharov et al. (2005). This report is submitted yearly to the Atlantic States Marine Fisheries Commission (ASMFC) as an appendix to the annual compliance reporting, and as an appendix to the recreational fishing section of the Chesapeake Bay Finfish Investigations Federal Aid Report to the U. S. Fish and Wildlife Service (USFWS).

ASMFC implemented Addendum IV to the Striped Bass Management Plan in 2014 in order to reduce fishing mortality to a level at or below the target. Addendum IV manages the trophy season as part of the coastal fishery and requires a 25% reduction in harvest. Therefore, Maryland has managed the trophy fishery with a minimum size limit of 35 inches. Addendum IV also required a Chesapeake Bay reduction of 20.5% in the summer/fall fishery. The regulations were two fish \geq 19 inches (only one over 28 inches) from May 16 to December 15th.

METHODS

Estimation of harvest

Maryland Department of Natural Resources (MD DNR) charter boat logbook reports provided the census values of daily charter boat harvest in numbers of fish (Table 1). Due to increased online reporting of charter boat logbook data, Standard Atlantic Fisheries Information System (SAFIS) data were also used for the charter calculation. The NOAA Marine Recreational Information Program (MRIP) survey provided final estimates of harvest for Maryland private and rental boats, in numbers of fish, for Wave 2 (March/April) and Wave 3

(May/June; Table 1). The Virginia Marine Resources Commission (VMRC) provided mandatory spring season striped bass reporting data.

Harvest apportioned by time

The migrant harvest season overlaps parts of both Waves 2 and 3 of the MRIP survey. Length distribution of the harvest is known to change over this time period, so total harvest was apportioned into 2-week intervals between April 21 and June 15. All Wave 2 landings for striped bass occurred in the last 2 weeks of the wave. The 2-week interval proportions for Wave 3 landings were developed as the proportions of the harvest recorded in the Maryland charter boat logbook and SAFIS reports (Table 1). Total Maryland striped bass harvest per interval was calculated as charter boat harvest (MD DNR) + private and rental harvest (MRIP; Table 1).

Harvest apportioned by length

Data from the MD DNR Volunteer Charter Boat Survey and Charter Creel Survey were used to develop the length frequency distribution of the Maryland charter boat catch for each 2-week interval (Table 2). Data from the Volunteer Charter Boat Survey were also used to develop the length frequency distribution for the Maryland private angler catch due to small samples of fish reported in the Volunteer Angler Survey. Harvest in each interval was distributed by the length frequency distribution for each 2-week interval. The number of migrants harvested in Maryland during the spring trophy season was determined by applying length-specific migration probabilities. These probabilities were derived from the estimate of the number of striped bass tagged on the spawning grounds in Maryland that migrate to the Atlantic coast before December of the first year at large (Dorazio et al. 1994). The result was a migrant and resident harvest estimate for each 2-week interval, distributed among interval-specific length groups (Table 3). The total 2018 Maryland spring harvest of coastal migrant striped bass in Chesapeake Bay was

calculated as the sum of migrants over all length groups and 2-week intervals from both sectors (charter and private). The estimate of the migrant harvest for Virginia's portion of Chesapeake Bay was calculated by applying the same length-specific migration probabilities to the length frequency data provided by VMRC, based on mandatory reporting by recreational anglers and charter boat captains.

RESULTS and DISCUSSION

MD DNR charter boat estimates of harvest were queried on 1/17/19. The total charter boat harvest was 458 fish from April 21 to April 30, 1,954 fish from May 1 to May 15, 7,077 fish from May 16 to May 31 and 8,206 fish from June 1 to June 15. Final MRIP private and rental boat estimates were downloaded on 5/16/19. Private and rental boat total harvest was 0 fish from April 21 to April 30, 11,455 fish from May 1 to May 15, 42,546 fish from May 16 to May 31 and 49,092 fish from June 1 to June 15 (Table 1).

The final estimate of the 2018 Chesapeake Bay spring migrant harvest is 17,198 fish, a decrease compared to 2017 and below the 2006-2018 average of 40,990 fish (Table 4). The Maryland portion of the Chesapeake Bay migrant harvest is 17,104 migrants (Table 1). The Maryland charter boat migrant harvest is 2,867 fish. The Maryland private boat migrant harvest is 14,237 fish. The estimate of the spring 2018 migrant harvest in Virginia is 94 fish. Annual spring migrant harvest by length group has shifted to slightly larger fish compared to 2016 and 2017 (Figure 1). As required by ASMFC Addendum IV, an increased minimum size limit of 35 inches for April 15 to May 15 and a minimum size of 19 inches for May 16 to December 15th was in place for 2018. The length frequency distribution and Volunteer Charter Boat Survey data reflected this change in regulations (Table 2, Figure 1).

REFERENCES

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Table 1. 2018 Chesapeake Bay spring striped bass migrant harvest, distributed among 2-week intervals, based on data from Maryland charter boat logbook reports, MRIP Maryland recreational harvest estimate and VA calculated migrant harvest.* Shaded time intervals outside of the April 21st to June 15th season are shown to demonstrate partitioning of the total harvest.

	Interval	Charter Harvest (% by interval) ¹	MD Charter Harvest ¹	MD Private Harvest ²	MD Total Harvest	MD Charter Migrants	MD Private Migrants	MD Total Migrants	VA Migrants ³	Bay Total Migrants		
Wave 2	Apr 1-20	0	0	0	0	0	0	0				
	Apr 21-30	100	458	0	458	451	0	451				
Wave 3	May 1-15	7	1,954	11,455	13,409	1,900	11,140	13,040				
	May 16-31	26	7,077	42,546	49,623	313	1,883	2,196				
	June 1-15	30	8,206	49,092	57,298	203	1,214	1,417				
	June 16-30	37	10,049	60,546	70,595							
	<i>Wave 3 total</i>	<i>100</i>	<i>27,286</i>	<i>163,639</i>	<i>190,925</i>							
Season total (Apr 21 – June 15)			17,695	103,093	120,788	2,867	14,237	17,104			94	17,198

* – Numbers may not sum due to rounding

1 – Data from MD DNR charter logbooks and SAFIS (1/17/19)

2 – Data from MRIP (retrieved from NOAA NMFS website 5/16/19)

3 – Data from VMRC (Alex Aspinwall, VMRC, Pers. Comm. 5/16/19)

Table 2. Length distribution, in inches, of the 2018 Maryland striped bass spring season harvest as voluntarily reported by charter boat captains by 2-week intervals between April 21 and June 15. Shaded areas represent no-take size groups.

Length Group	April 21-30	May 1-15	May 16-31	June 1-15	Total
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	54	69	123
20	0	0	97	104	201
21	0	0	72	96	168
22	0	0	64	96	160
23	0	0	40	74	114
24	0	0	54	49	103
25	0	0	18	35	53
26	0	0	22	25	47
27	0	0	24	12	36
28	0	0	15	9	24
29	0	0	7	3	10
30	0	0	7	7	14
31	0	0	5	2	7
32	0	0	1	0	1
33	0	0	3	2	5
34	0	0	0	0	0
35	1	5	1	0	7
36	0	5	1	2	8
37	0	9	0	0	9
38	1	19	2	0	22
39	5	33	0	0	38
40	3	33	2	0	38
41	6	34	0	0	40
42	3	26	0	0	29
43	2	13	0	0	15
44	3	9	0	0	12
45	1	3	0	0	4
46	5	4	0	0	9
47	1	6	0	0	7
48	1	2	0	0	3
49	2	1	0	0	3
50	0	0	0	0	0
51	2	1	0	0	3
52	0	1	0	0	1
53	0	0	0	0	0
54	1	0	0	0	1
55	0	0	0	0	0
56	0	0	0	0	0
n	37	204	489	585	1315

Table 3. 2018 Maryland spring striped bass migrant harvest, distributed among 1 inch length groups (length as total length).*

Length Group	Apr 21-30			May 1-15		
	Charter	Private	Total	Charter	Private	Total
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	10	0	10	39	229	268
36	0	0	0	42	246	288
37	0	0	0	79	465	545
38	12	0	12	173	1,013	1,186
39	60	0	60	306	1,794	2,100
40	36	0	36	310	1,816	2,126
41	73	0	73	322	1,886	2,208
42	37	0	37	247	1,449	1,696
43	25	0	25	124	727	850
44	37	0	37	86	504	590
45	12	0	12	29	168	197
46	62	0	62	38	225	263
47	12	0	12	57	337	394
48	12	0	12	19	112	131
49	25	0	25	10	56	66
50	0	0	0	0	0	0
51	25	0	25	10	56	66
52	0	0	0	10	56	66
53	0	0	0	0	0	0
54	12	0	12	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
n	451	0	451	1,900	11,140	13,040

*Note: numbers may not sum due to rounding.

Table 3. 2018 Maryland spring striped bass migrant harvest, distributed among 1 inch length groups (length as total length).* Continued.

Length Group	May 16-31			June 1-15		
	Charter	Private	Total	Charter	Private	Total
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	4	26	30	4	26	31
21	5	31	36	7	40	46
22	7	44	52	11	64	75
23	7	45	52	13	80	93
24	16	97	113	14	85	99
25	9	52	61	16	98	114
26	17	101	118	19	111	129
27	29	174	202	14	84	98
28	28	167	195	16	97	113
29	20	118	137	8	49	57
30	28	170	199	27	164	192
31	28	168	196	11	65	76
32	7	44	51	0	0	0
33	27	163	190	18	105	122
34	0	0	0	0	0	0
35	12	71	83	0	0	0
36	13	76	89	25	147	172
37	0	0	0	0	0	0
38	27	165	193	0	0	0
39	0	0	0	0	0	0
40	28	171	199	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
n	313	1,883	2,196	203	1,214	1,416

*Note: numbers may not sum due to rounding.

Table 4. Harvest of migrant striped bass in the spring fishery from 1992-2018 (Individual estimates not available for all sectors prior to 2006). Average was only calculated for 2006-2018 due to techniques used to calculate migrant harvest.

Year	MD Charter Migrant Harvest	MD Private Migrant Harvest	VA Migrant Harvest	Total Migrant Harvest
1992				1,013
1993				2,719
1994				3,672
1995				42,634
1996				11,613
1997				21,222
1998				10,021
1999				17,051
2000				26,748
2001				25,728
2002				14,839
2003		43,248	242	43,900
2004		31,218	186	31,404
2005		64,345	1,319	65,664
2006	15,570	47,878	4,323	67,771
2007	9,359	26,229	740	36,328
2008	13,106	22,785	275	36,166
2009	12,740	77,799	243	90,782
2010	12,504	7,261	82	19,847
2011	13,673	22,616	145	36,434
2012	9,335	8,796	77	18,208
2013	13,724	34,810	23	48,557
2014	12,311	26,599	11	38,921
2015	5,771	24,725	37	30,533
2016	9,524	64,615	169	74,308
2017	4,370	18,483	39	22,892
2018	2,867	14,237	94	17,198
Avg (2006-18)	10,373	30,135	481	40,990

Figure 1. Comparison of Maryland's 2015 through 2018 spring striped bass migrant harvests, apportioned by length.

