

Estimate of the 2015 Harvest
of Spring Coastal Migrant Striped Bass in Chesapeake Bay

Prepared by

Jeffrey Horne

Maryland Department of Natural Resources
Fisheries Service
Annapolis, MD

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Introduction

This report presents the estimates of the 2015 Maryland and Virginia spring harvest of coastal migrant striped bass in Chesapeake Bay. 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. ASMFC Addendum IV required a 25% reduction in the spring trophy season for 2015. The new Maryland regulations included a minimum size limit of 28 inches and a no take slot from 36 to 40 inches from April 18 to May 15. Addendum IV also required a 20.5% reduction in the summer/fall fishery. Maryland regulations were two fish at 20 inches (only one over 28 inches) from May 16 to December 20th. Results of the 2015 calculations are summarized in Table 1.

Methods

Estimation of harvest.

- Maryland 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.
- NOAA Marine Recreational Information Program (MRIP) survey provided preliminary estimates of harvest for Maryland private/rental boats, in numbers of fish, for Waves 2 and 3 (Table 1).
- VMRC provided the preliminary estimate of Virginia migratory striped bass harvest.

Harvest apportioned by time.

- The migrant harvest season overlaps parts of both Wave 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 18 and June 15.
- All Wave 2 landings occurred in the last 2 weeks of the wave.
- 2-week interval proportions for Wave 3 landings were developed as the proportions of the harvest registered in the Maryland charter boat logbook reports (Table 1).
- Total Maryland striped bass harvest per interval was calculated as charter boat harvest + private/rental harvest (Table 1).

Harvest apportioned by length.

- Data from the MD DNR Volunteer Charter Boat 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 2015 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 preliminary estimate of the migrant harvest for Virginia's portion of Chesapeake Bay was provided by VMRC, based on mandatory reporting by recreational anglers and charter boat captains.

Results and Discussion

The estimate of the 2015 Chesapeake Bay spring migrant harvest is 30,533 fish, a decrease compared to 2014 and below the 2006-2015 average of 42,351 fish (Table 4). The Maryland portion of the Chesapeake Bay migrant harvest is 30,496 migrants (Table 1). The Maryland charter boat migrant harvest is 5,771 fish. The Maryland private boat migrant harvest is 24,725 fish. The VMRC preliminary estimate of the spring 2015 migrant harvest in Virginia is 37 fish. Annual spring migrant harvest by length group is similar for 2013 and 2014 (Figure 1). As required by ASMFC Addendum IV, new regulations imposed a slot limit for April 18 to May 15 and a new minimum size for May 16-December 20 to achieve a harvest reduction in 2015. The 2015 length frequency distribution and volunteer charter survey data reflected this change in regulations (Table 2, Figure 1).

The decrease in migratory striped bass harvest relative to 2014 occurred mostly in the charter sector. The MRIP estimates of waves 2 and 3 private boat trips in 2015 were slightly less than 2014, but the waves 2 and 3 harvest estimate were similar to 2014, indicating a slight increase in private angler success (Figure 2 and 3). The MD DNR Creel Survey documented a similar increase in angler success (Figure 4). The MRIP estimates of charter boat trips and harvest decreased compared to 2014, however, harvest per trip was similar to 2014 (Figure 2 and 3).

References

- Barker, L. S., A. Sharov. 2004. Estimate of the 2004 Harvest and 2005 Quota for Spring Coastal Migrant Striped Bass in Chesapeake Bay.
- Dorazio, R. M., K. A. Hattala, C. B. McCollough and J. E. Skjaveland. 1994. Tag recovery estimates of migration of striped bass from spawning areas of Chesapeake Bay. *Transactions of the American Fisheries Society* 123: 150-163.
- Jones, P. 2003. Estimates of the harvest of coastal migrant striped bass in Chesapeake Bay in the spring of 2003. Report to the ASMFC Striped Bass Technical Committee, November 2003.
- Sharov, A., L. S. Barker, and L. Warner. 2005. Estimate of the 2005 Harvest and 2006 Quota for Spring Coastal Migrant Striped Bass in Chesapeake Bay. Maryland Department of Natural Resources, Annapolis MD.

Table 1. 2015 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 VMRC reported migrant harvest.* Shaded time intervals outside of the April 18th 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 1-17	0	0	0	0	0	0	0				
	Apr 18-30	100	1,982	6,252	8,234	1,805	5,695	7,500				
Wave 3	May 1-15	17	3,481	16,698	20,179	2,990	14,343	17,333				
	May 16-31	31	6,331	30,450	36,781	715	3,441	4,156				
	June 1-15	23	4,740	22,592	27,332	261	1,246	1,507				
	June 16-30	29	5,855	28,486	34,341							
	<i>Wave 3 total</i>	<i>100</i>	<i>20,407</i>	<i>98,226</i>	<i>118,633</i>							
Season total (Apr 18 – June 15)			16,534	75,992	92,526	5,771	24,725	30,496			37	30,533

* – Numbers may not sum due to rounding

1 – Data from MD DNR charter logbooks and SAFIS (9/15/15)

2 – Data from MRIP (retrieved from NOAA NMFS website 9/15/15)

3 – Data from VMRC (Jill Ramsey, VMRC, Pers. Comm. 9/25/15)

Table 2. Length distribution, in inches, of the 2015 Maryland striped bass spring season harvest as voluntarily reported by charter boat captains, by 2-week intervals between April 18 and June 15. Shaded areas represent no-take size groups.

Length Group	April 18-30	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	0	0	0
20	0	0	82	27	109
21	0	0	71	41	112
22	0	0	53	35	88
23	0	0	38	34	72
24	0	0	38	22	60
25	0	0	15	12	27
26	0	0	17	12	29
27	0	0	19	12	31
28	1	2	12	7	22
29	5	13	15	6	39
30	0	11	6	5	22
31	2	6	9	5	22
32	3	6	10	4	23
33	4	15	4	0	23
34	7	38	11	2	58
35	48	113	5	0	166
36	6	25	8	0	39
37	0	0	2	0	2
38	0	3	0	0	3
39	0	2	0	0	2
40	26	75	0	0	101
41	53	84	2	0	139
42	32	55	1	0	88
43	15	15	0	0	30
44	17	19	1	0	37
45	10	5	0	0	15
46	7	3	0	0	10
47	6	1	0	0	7
48	2	1	0	0	3
49	0	0	0	0	0
50	0	1	0	0	1
51	1	3	0	0	4
52	2	0	0	0	2
53	0	0	0	0	0
54	0	0	0	0	0
55	1	0	0	0	1
56	0	0	0	0	0
n	249	496	419	224	1,388

Table 3. 2015 Maryland spring striped bass migrant harvest, distributed among 1 inch length groups (length as total length).*

Length Group	Apr 18-30			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	1	3	4	2	9	10
29	8	24	32	18	84	102
30	0	0	0	22	104	125
31	6	19	26	16	78	94
32	12	38	50	21	102	124
33	20	63	83	66	315	381
34	41	128	169	195	934	1,129
35	311	982	1,293	646	3,099	3,745
36	42	132	174	154	738	892
37	0	0	0	0	0	0
38	0	0	0	20	96	116
39	8	24	32	14	65	79
40	203	640	843	516	2,475	2,991
41	417	1,315	1,731	582	2,793	3,376
42	253	797	1,050	383	1,838	2,221
43	119	375	494	105	503	607
44	135	426	561	133	638	771
45	80	251	331	35	168	203
46	56	176	231	21	101	455
47	48	151	198	7	34	41
48	16	50	66	7	34	41
49	0	0	0	0	0	0
50	0	0	0	7	34	41
51	8	25	33	21	101	122
52	16	50	66	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	8	25	33	0	0	0
56	0	0	0	0	0	0
n	1,805	5,695	7,500	2,990	14,343	17,333

*Note: numbers may not sum due to rounding.

Table 3. 2015 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	18	22	2	8	10
21	5	25	31	4	20	25
22	6	31	37	6	28	34
23	7	35	43	9	44	53
24	12	57	69	10	46	56
25	8	36	44	8	40	49
26	14	65	79	13	64	77
27	24	115	139	21	101	122
28	23	112	135	19	91	110
29	44	210	254	25	117	141
30	25	122	147	30	141	171
31	53	253	306	41	195	236
32	76	368	444	43	204	247
33	38	182	219	0	0	0
34	121	584	705	31	147	178
35	62	296	358	0	0	0
36	106	510	616	0	0	0
37	28	134	162	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	30	144	173	0	0	0
42	15	72	87	0	0	0
43	0	0	0	0	0	0
44	15	72	88	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	715	3,441	4,156	261	1,246	1,508

*Note: numbers may not sum due to rounding.

Table 4. Harvest of migrant striped bass in the spring fishery from 1992-2015 (Individual estimates not available for all sectors prior to 2006). Average was only calculated for 2006-2015 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
Avg (2006-15)	11,809	29,950	596	42,351

Figure 1. Comparison of Maryland’s 2013 through 2015 spring striped bass migrant harvests, apportioned by length.

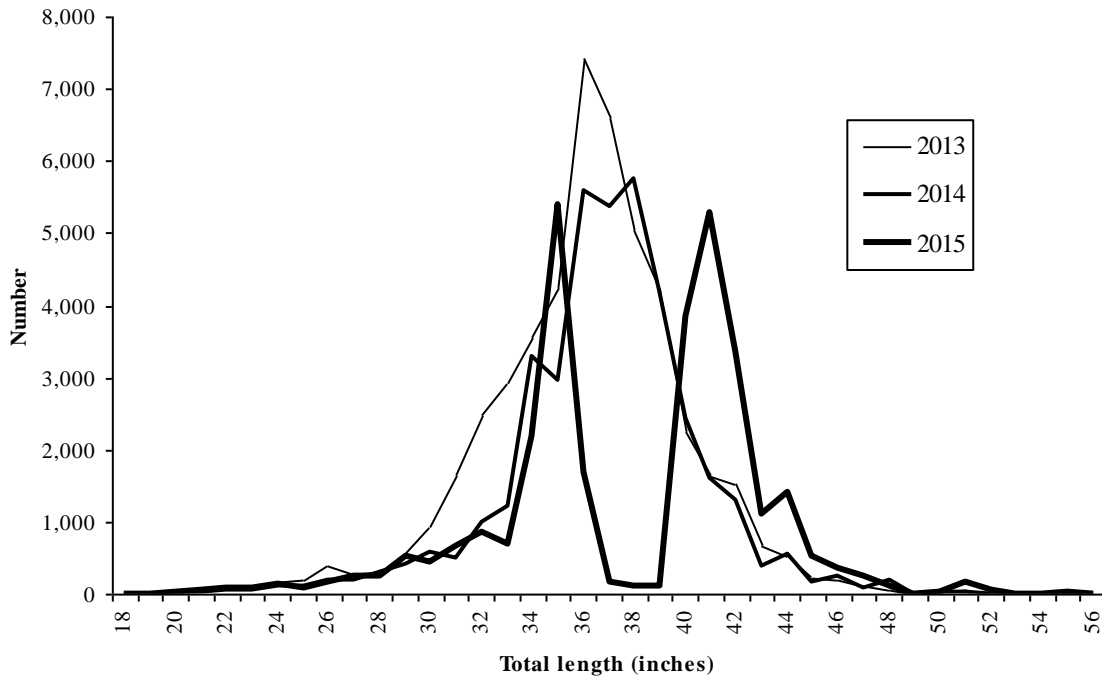


Figure 2. Total number of trips in Maryland’s portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2015 for for-hire and private/rental boats according to MRFSS/MRIP data.

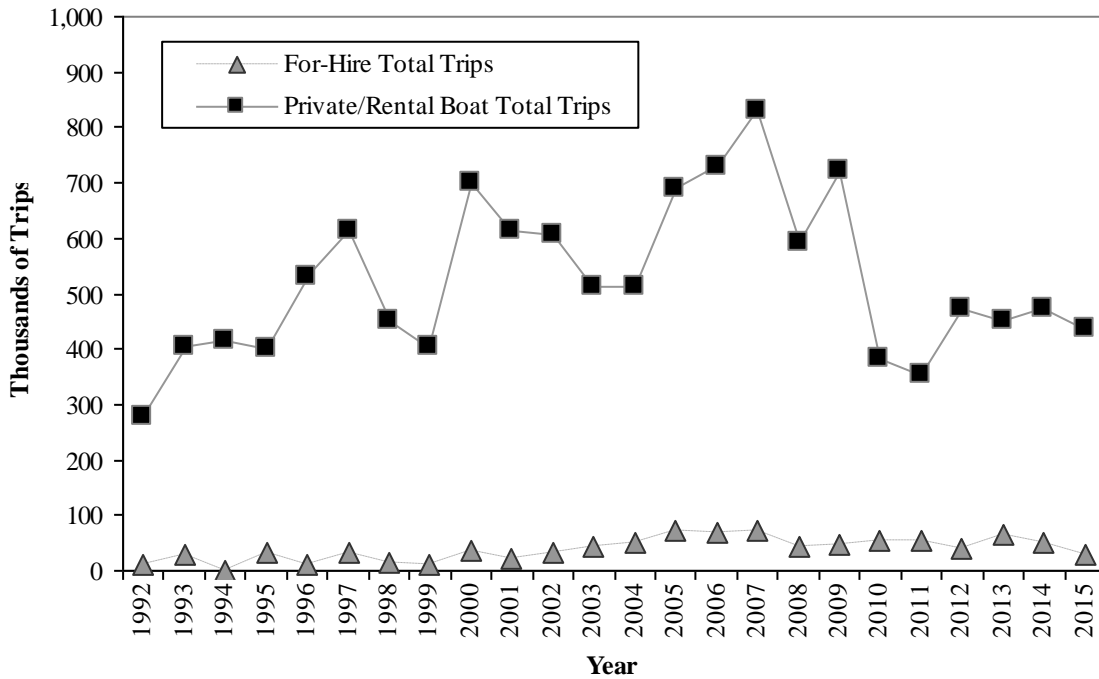


Figure 3. Harvest of striped bass in Maryland's portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2015 for for-hire and private/rental boats according to MRFSS/MRIP data. Data includes migrant and resident striped bass.

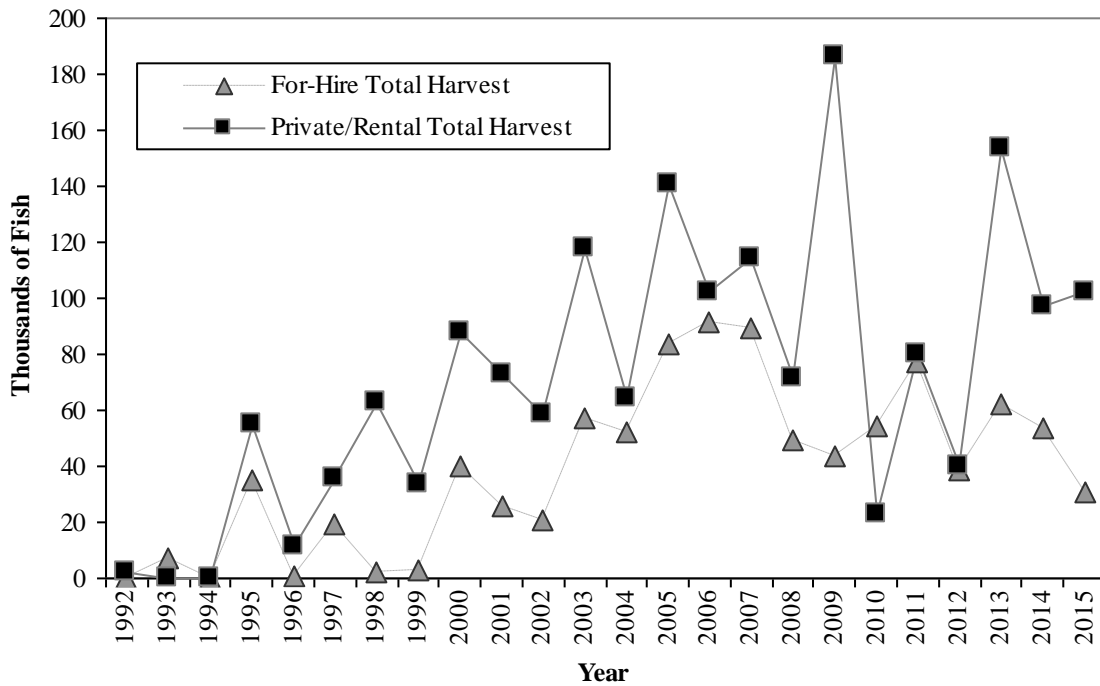


Figure 4. Harvest per angler trip of striped bass in Maryland's portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2015 for for-hire and private/rental boats according to the MRFSS/MRIP data and private boats from the DNR Creel Survey (2007-2015). Data includes migrant and resident striped bass.

