

Estimate of the 2011 Harvest  
of Spring Coastal Migrant Striped Bass in Chesapeake Bay

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This report presents the calculation of the 2011 Maryland spring harvest of coastal migrant striped bass in Chesapeake Bay. The method used to estimate the spring trophy season harvest in Maryland was presented in detail in Jones (2003), Barker and Sharov (2004), and Sharov et al. (2005). Results of the 2011 calculations are summarized in Table 1. The specific steps used in the calculation are as follows:

*Estimation of harvest.*

- Maryland charter boat logbook reports provided the census values of daily charter boat harvest in numbers of fish (Table 1).
- NOAA MRFSS survey provided estimates of harvest for Maryland private/rental boats 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 MRFSS 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 16 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 Maryland DNR Charter Boat Volunteer Survey were used to develop the length frequency distribution of the Maryland charter boat catch for each 2-week interval (Table 2A). Data from the Charter Boat Volunteer 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 (Table 2B).
- 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 2011 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 2011 Chesapeake Bay spring migrant harvest is 35,327 fish, below the 2006-2011 average (Table 4). The Maryland portion of the Chesapeake Bay migrant harvest is 35,182 migrants (Table 1). The Maryland charter boat migrant harvest is 12,566 fish. The Maryland private boat migrant harvest is 22,616 fish. The VMRC preliminary estimate of the spring 2011 migrant harvest in Virginia is 145 fish. Spring migrant harvest by length group is similar in each year from 2006 to 2011 (Figure 1).

The increase in migratory striped bass harvest relative to 2010 occurred in the private sector. The charter boat estimate of migrant harvest has been consistent since 2008 (Table 4).

## **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. Skjveland. 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.** 2011 Chesapeake Bay spring striped bass migrant harvest, distributed among 2-week intervals, based on data from Maryland charter boat log book reports, MRFSS Maryland recreational harvest estimate and VMRC reported migrant harvest (estimate as of 9/15/11). \* Shaded areas represent no harvest (before April 16<sup>th</sup>), no migrant harvest (after June 15<sup>th</sup>), or no data.

Interval	Charter Harvest (% by interval) <sup>1</sup>	MD Charter Harvest <sup>1</sup>	MD Private Harvest <sup>2</sup>	MD Total Harvest	MD Charter Migrants	MD Private Migrants	MD Total Migrants	VA Migrants <sup>3</sup>	Bay Total Migrants
<b>Wave 2</b>	Apr 1-15	0	0	0	0	0	0		
	Apr 16-30	100	7,815	7,282	15,097	5,929	11,454		
<b>Wave 3</b>	May 1-15	27	7,640	19,673	27,313	5,478	19,585		
	May 16-31	25	7,074	18,216	25,290	802	2,867		
	June 1-15	22	6,225	16,030	22,255	357	1,276		
	June 16-30	26	7,357	18,944	26,301				
	<i>Wave 3 total</i>	<i>100</i>	<i>28,296</i>	<i>72,863</i>	<i>101,159</i>				
<b>Season total</b>		28,754	61,201	89,955	12,566	22,616	35,182	145	35,327

\* – Numbers may not sum due to rounding

1 – Data from Maryland DNR charter logbooks

2 – Data from MRFSS

3 – Data from VMRC

**Table 2A.** Length distribution of the 2011 Maryland striped bass spring season harvest as voluntarily reported by charter boat captains, by 2-week intervals between April 16 and June 15. (Shaded areas represent no-take size groups.)

<b>Length Group</b>	<b>April 16-30</b>	<b>May 1-15</b>	<b>May 16-31</b>	<b>June 1-15</b>	<b>Total</b>
17	0	0	1	0	1
18	0	0	129	108	237
19	0	0	204	147	351
20	0	0	187	129	316
21	0	0	214	123	337
22	0	0	153	95	248
23	0	0	105	65	170
24	0	0	88	84	172
25	0	0	46	26	72
26	0	0	35	46	81
27	0	0	25	40	65
28	20	29	23	15	87
29	63	63	16	24	166
30	125	84	23	33	265
31	185	133	41	24	383
32	242	183	36	13	474
33	288	218	30	7	543
34	357	221	30	6	614
35	321	180	13	0	514
36	432	209	22	2	665
37	329	188	15	2	534
38	262	125	12	2	401
39	186	73	5	0	264
40	119	75	4	0	198
41	76	42	2	0	120
42	56	39	0	0	95
43	25	4	1	0	30
44	23	11	0	0	34
45	8	5	0	0	13
46	12	3	0	0	15
47	7	3	0	0	10
48	1	3	0	0	4
49	1	0	0	0	1
50	0	0	0	0	0
51	0	0	0	0	0
52	0	0	0	0	0
53	0	0	0	0	0
54	0	0	0	0	0
55	0	0	0	0	0
56	1	0	0	0	1
<b>n</b>	<b>3,139</b>	<b>1,891</b>	<b>1,460</b>	<b>991</b>	<b>7,481</b>

**Table 2B.** Length distribution of the 2011 Maryland striped bass spring harvest as reported by private anglers in 2 week intervals between April 16 and June 15. Due to small sample sizes, the length frequency distribution below was not used in 2011. Length frequency from Volunteer Charter Boat Survey (Table 2A) was used instead. Shaded areas represent no-take size groups.

<b>Length Group</b>	<b>April 16-30</b>	<b>May 1-15</b>	<b>May 16-31</b>	<b>June 1-15</b>	<b>TOTAL</b>
17	0	0	0	0	0
18	0	0	1	4	5
19	0	0	6	3	9
20	0	0	1	2	3
21	0	0	2	2	4
22	0	0	5	3	8
23	0	0	4	2	6
24	0	0	1	1	2
25	0	0	0	0	0
26	0	0	0	0	0
27	0	0	1	0	1
28	0	0	1	2	3
29	0	0	0	0	0
30	2	0	1	0	3
31	3	2	0	0	5
32	5	1	0	1	7
33	7	1	2	0	10
34	9	3	0	0	12
35	10	1	0	0	11
36	6	8	0	0	14
37	6	1	0	0	7
38	7	3	0	0	10
39	4	0	0	0	4
40	1	0	0	0	1
41	0	1	0	0	1
42	0	0	0	0	0
43	0	0	0	0	0
44	0	0	0	0	0
45	0	0	0	0	0
46	0	1	0	0	1
47	0	0	0	0	0
48	0	0	0	0	0
49	0	0	0	0	0
<b>n</b>	<b>60</b>	<b>22</b>	<b>25</b>	<b>20</b>	<b>127</b>

**Table 3.** 2011 Maryland spring striped bass migrant harvest, distributed among 1 inch length groups (length as total length).\*

Length Group	Apr 16-30			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	6	6	12	15	39	54
29	30	28	58	49	126	176
30	87	81	168	95	244	339
31	178	166	344	208	535	743
32	305	284	589	374	964	1,338
33	448	417	865	550	1,417	1,967
34	649	605	1,253	652	1,678	2,330
35	651	607	1,258	592	1,525	2,118
36	943	879	1,822	741	1,907	2,648
37	754	703	1,457	699	1,801	2,500
38	619	577	1,197	480	1,235	1,714
39	448	418	866	286	735	1,021
40	290	271	561	297	765	1,062
41	187	174	361	168	432	599
42	138	129	267	156	403	559
43	62	58	120	16	41	58
44	57	53	110	44	114	158
45	20	19	38	20	52	72
46	30	28	58	12	31	43
47	17	16	34	12	31	43
48	2	2	5	12	31	43
49	2	2	5	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	2	2	5	0	0	0
<b>n</b>	<b>5,929</b>	<b>5,525</b>	<b>11,454</b>	<b>5,478</b>	<b>14,107</b>	<b>19,586</b>

\*Note: numbers may not sum due to rounding.

**Table 3.** 2011 Maryland spring striped bass migrant harvest, distributed among 1 inch length groups (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	3	7	10	2	6	9
21	5	13	18	4	10	14
22	6	15	21	5	12	17
23	7	17	23	5	14	19
24	9	23	32	11	28	39
25	7	19	26	5	14	19
26	9	23	32	15	39	55
27	10	26	36	21	54	75
28	14	37	51	12	31	43
29	15	39	53	29	75	104
30	31	80	111	58	149	207
31	77	198	275	58	150	208
32	88	227	316	41	106	148
33	91	234	325	27	71	98
34	106	273	379	28	71	98
35	51	132	183	0	0	0
36	93	241	334	11	28	39
37	67	172	239	12	30	41
38	55	142	197	12	31	43
39	23	60	84	0	0	0
40	19	49	68	0	0	0
41	10	25	34	0	0	0
42	0	0	0	0	0	0
43	5	12	17	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
<b>n</b>	<b>802</b>	<b>2,065</b>	<b>2,866</b>	<b>357</b>	<b>919</b>	<b>1,276</b>

\*Note: numbers may not sum due to rounding.

**Table 4.** Harvest of migrant striped bass in the spring fishery from 1992-2011 (Individual estimates not available for all sectors prior to 2006). Average was only calculated for 2006-2011 due to techniques used to calculate migrant harvest.

<b>Year</b>	<b>MD Charter Migrant Harvest</b>	<b>MD Private Migrant Harvest</b>	<b>VA Migrant Harvest</b>	<b>Total Migrant Harvest</b>
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	12,566	22,616	145	35,327
<b>Avg (2006-11)</b>	<b>12,641</b>	<b>34,095</b>	<b>968</b>	<b>47,704</b>

**Figure 1.** Comparison of Maryland's 2006 through 2011 spring striped bass migrant harvests, apportioned by length. 2007 is omitted due to slot length regulations in place that year.

