

Estimate of the 2012 Harvest
of Spring Coastal Migrant Striped Bass in Chesapeake Bay

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This report presents the calculation of the 2012 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 2012 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 Marine Recreational Information Program (MRIP) 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 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 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 Charter Boat Volunteer 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 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.
- 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 2012 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 2012 Chesapeake Bay spring migrant harvest is 16,846 fish, a 52% decrease compared to 2011 and below the 2006-2012 average (Table 4). The Maryland portion of the Chesapeake Bay migrant harvest is 16,769 migrants (Table 1). The Maryland charter boat migrant harvest is 7,454 fish. The Maryland private boat migrant harvest is 9,315 fish. The VMRC preliminary estimate of the spring 2012 migrant harvest in Virginia is 77 fish. Spring migrant harvest by length group is similar in each year from 2008 to 2012 (Figure 1).

The decrease in migratory striped bass harvest relative to 2011 occurred in both the charter and private sector. The MRIP estimate of waves 2 and 3 private boat trips in 2012 was higher than 2011, but the waves 2 and 3 harvest estimate decreased, indicating a decrease in private angler success (Figure 2 and 3). The MD DNR Creel Survey also documented a similar decrease in angler success (Figure 4). The MRIP estimates of charter boat trips and harvest decreased compared to previous years (Figure 2 and 3). MD DNR charter boat logbooks documented a decrease in 2012 charter trips (2,653 trips) compared to 2011 (3,552 trips) of approximately 25%.

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. 2012 Chesapeake Bay spring striped bass migrant harvest, distributed among 2-week intervals, based on data from Maryland charter boat log book reports, MRIP Maryland recreational harvest estimate and VMRC reported 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		
	Apr 21-30	100	5,800	5,209	11,009	4,367	3,922	8,288	
Wave 3	May 1-15	18	3,562	6,216	9,778	2,335	4,075	6,410	
	May 16-31	28	5,500	9,669	15,169	610	1,073	1,683	
	June 1-15	25	4,978	8,633	13,611	142	246	388	
	June 16-30	29	5,867	10,014	15,881				
	<i>Wave 3 total</i>	<i>100</i>	<i>19,907</i>	<i>34,531</i>	<i>54,438</i>				
Season total		19,840	29,726	49,566	7,454	9,315	16,769	77	16,846

* – Numbers may not sum due to rounding
1 – Data from MD DNR charter logbooks (9/18/12)
2 – Data from MRIP (retrieved from NOAA NMFS website 9/18/12)
3 – Data from VMRC (Joe Grist, VMRC, Pers. Comm. 9/18/12)

Table 2. Length distribution of the 2012 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	2	0	2
18	0	0	43	65	108
19	0	0	53	103	156
20	0	0	64	94	158
21	0	0	66	80	146
22	0	0	44	70	114
23	0	0	55	47	102
24	0	0	70	53	123
25	0	0	44	33	77
26	0	0	55	29	84
27	0	0	40	17	57
28	27	31	18	11	87
29	56	57	15	7	135
30	79	64	18	6	167
31	94	79	15	3	191
32	165	99	16	3	283
33	168	104	11	2	285
34	226	120	15	1	362
35	260	89	12	0	361
36	271	108	7	2	388
37	205	59	3	0	267
38	194	65	2	0	261
39	127	30	0	0	157
40	62	22	1	0	85
41	41	6	0	0	47
42	23	7	0	0	30
43	14	5	0	0	19
44	12	0	0	0	12
45	2	4	0	0	6
46	1	0	0	0	1
47	3	0	0	0	3
48	3	1	0	0	4
49	0	0	0	0	0
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	0	0	0	0	0
n	2,033	950	669	626	4,278

Table 3. 2012 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	10	9	19	15	26	41
29	31	28	59	41	72	113
30	63	57	120	67	117	184
31	104	93	197	115	200	315
32	238	214	452	188	328	516
33	299	269	568	244	425	669
34	471	423	893	328	573	902
35	604	543	1,147	272	474	746
36	678	609	1,287	355	620	975
37	538	484	1,022	204	355	559
38	526	472	998	231	404	635
39	351	315	666	109	190	299
40	173	156	329	81	141	222
41	116	104	219	22	39	61
42	65	58	124	26	45	71
43	40	36	75	19	33	51
44	34	31	65	0	0	0
45	6	5	11	15	26	41
46	3	3	5	0	0	0
47	9	8	16	0	0	0
48	9	8	16	4	7	10
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	4,367	3,922	8,288	2,335	4,075	6,410

*Note: numbers may not sum due to rounding.

Table 3. 2012 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	2	3	4	2	4	6
21	3	5	7	3	5	9
22	3	5	8	4	8	12
23	6	10	16	5	8	13
24	12	21	33	9	15	24
25	12	21	33	9	15	24
26	24	42	66	12	21	33
27	27	48	75	11	19	31
28	19	33	52	11	19	31
29	24	42	66	11	19	29
30	41	73	114	13	23	36
31	48	84	132	9	16	25
32	67	117	184	12	21	33
33	56	99	156	10	17	27
34	90	158	248	6	10	16
35	80	141	222	0	0	0
36	50	89	139	14	24	38
37	23	40	63	0	0	0
38	16	27	43	0	0	0
39	0	0	0	0	0	0
40	8	14	22	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	610	1,073	1,683	142	246	388

*Note: numbers may not sum due to rounding.

Table 4. Harvest of migrant striped bass in the spring fishery from 1992-2012 (Individual estimates not available for all sectors prior to 2006). Average was only calculated for 2006-2012 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	12,566	22,616	145	35,327
2012	7,454	9,315	77	16,846
Avg (2006-12)	11,900	30,555	841	43,295

Figure 1. Comparison of Maryland’s 2008 through 2012 spring striped bass migrant harvests, apportioned by length.

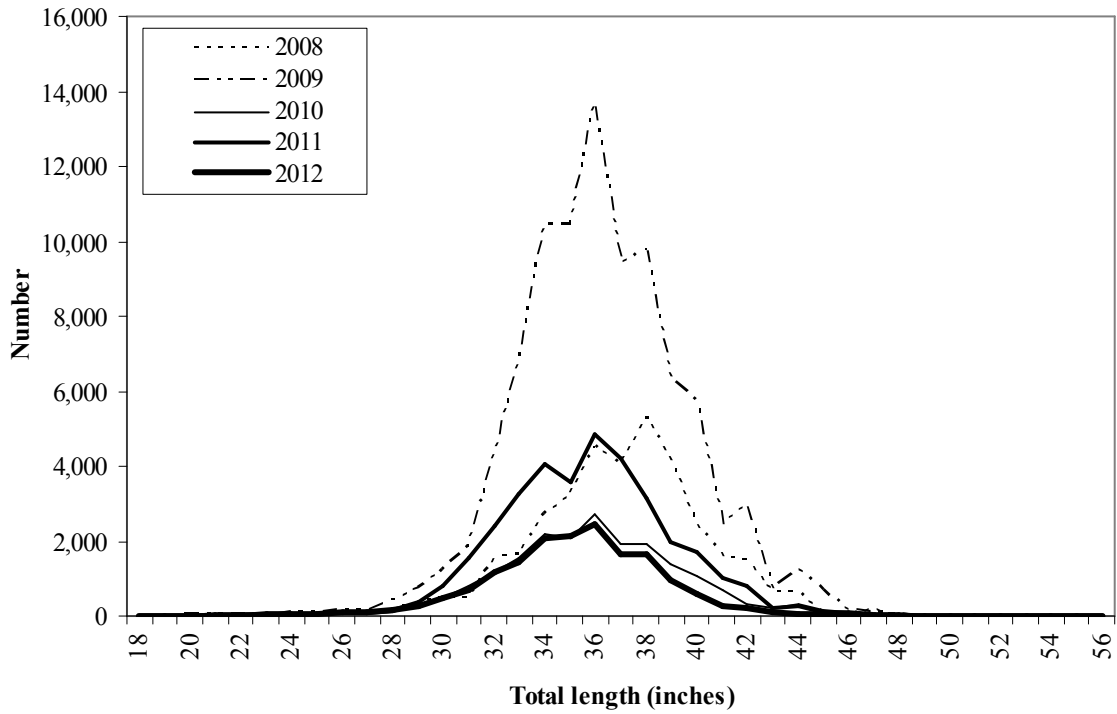


Figure 2. Total number of trips in Maryland’s portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2012 for for-hire and private/rental boats according to MRFSS/MRIP data.

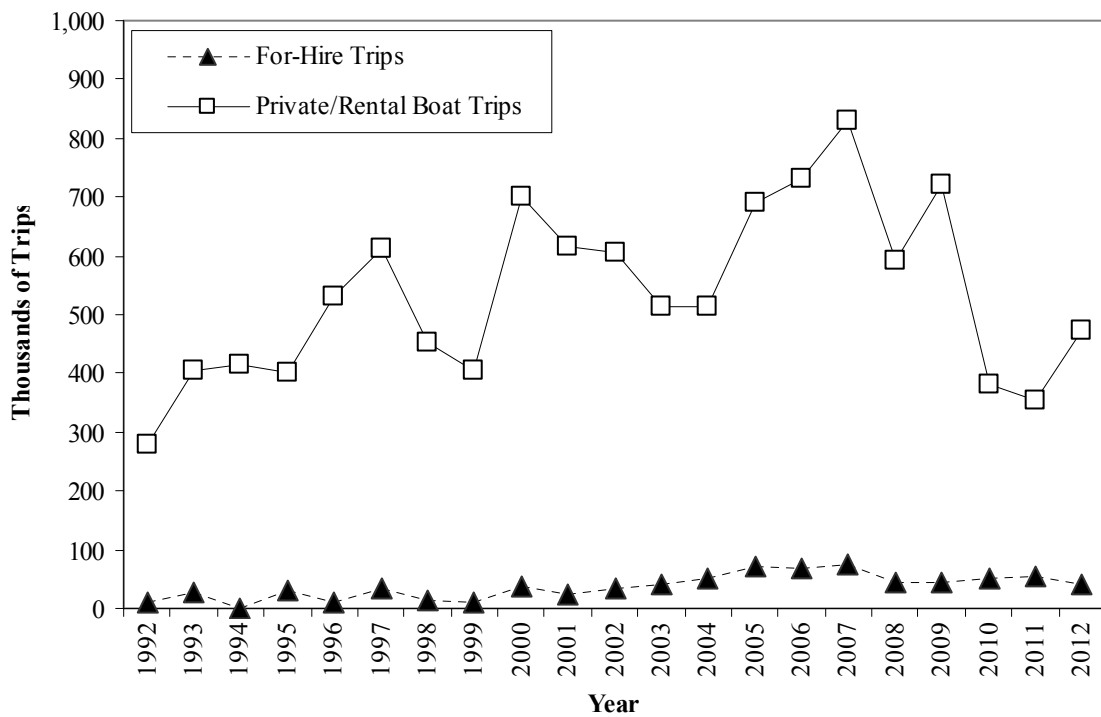


Figure 3. Harvest of striped bass in Maryland's portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2012 for for-hire and private/rental boats according to MRFSS/MRIP data. Data includes migrant and resident striped bass.

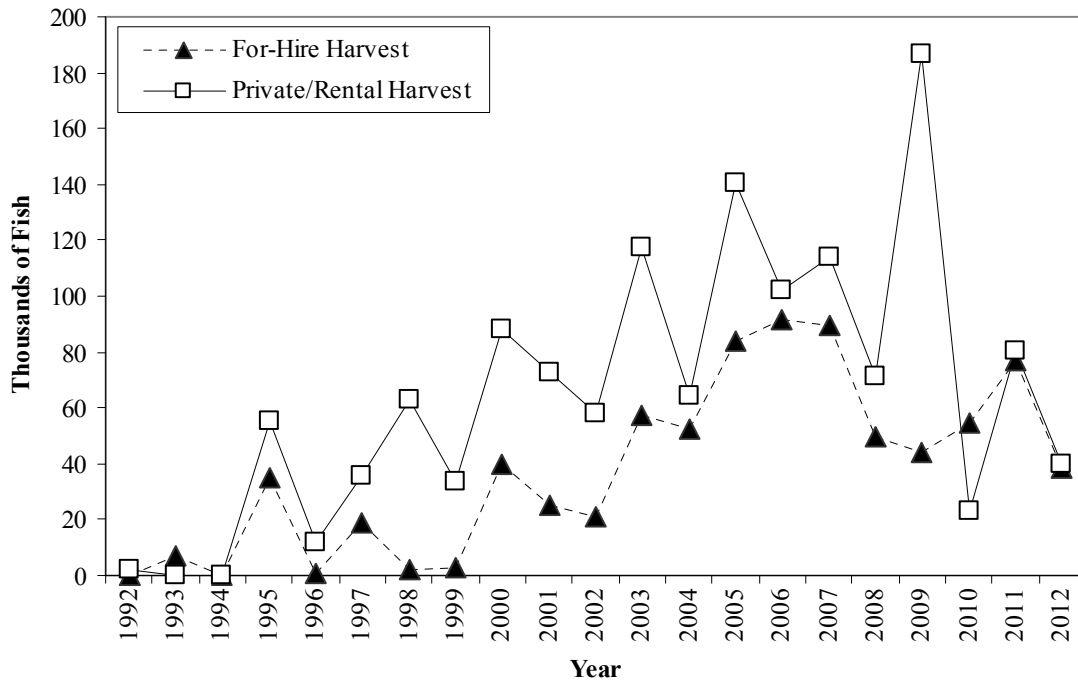


Figure 4. Harvest per angler trip of striped bass in Maryland's portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2012 for for-hire and private/rental boats according to the MRFSS/MRIP data and private boats from the DNR Creel Survey (2007-2012). Data includes migrant and resident striped bass.

