

Estimate of the 2013 Harvest
of Spring Coastal Migrant Striped Bass in Chesapeake Bay

Prepared by

Jeffrey Horne

Maryland Department of Natural Resources
Fisheries Service
Annapolis, MD

January 23, 2014

This report presents the estimates of the 2013 Maryland and Virginia 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 2013 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). Due to increased online reporting of charter boat logbook data, Standard Atlantic Fisheries Information System (SAFIS) data was also used for the charter calculation.
- 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 20 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 2013 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 2013 Chesapeake Bay spring migrant harvest is 48,557 fish, an increase compared to 2012 and slightly above the 2006-2013 average (Table 4). The Maryland portion of the Chesapeake Bay migrant harvest is 48,534 migrants (Table 1). The Maryland charter boat migrant harvest is 13,724 fish. The Maryland private boat migrant harvest is 34,810 fish. The VMRC preliminary estimate of the spring 2013 migrant harvest in Virginia is 23 fish. Annual spring migrant harvest by length group is similar from 2009 to 2013 (Figure 1).

The 2011 and 2012 MD migrant harvest numbers were updated to include SAFIS data. The 2011 harvest increased 0.29% from 35,182 migrants to 36,289 migrants. The 2012 harvest increased 7.51% from 16,769 migrants to 18,131 migrants. Online reporting through SAFIS did not affect migrant harvest numbers for 2010 and earlier.

The increase in migratory striped bass harvest relative to 2012 occurred in both the charter and private sectors. The MRIP estimate of waves 2 and 3 private boat trips in 2013 was slightly lower than 2012, but the waves 2 and 3 harvest estimate increased, indicating an 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 increased compared to previous years (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. 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. 2013 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 20th 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 1-19	0	0	0	0	0	0	0				
	Apr 20-30	100	7,254	5,531	12,785	5,915	4,510	10,425				
Wave 3	May 1-15	20	7,783	30,002	37,785	6,067	23,389	29,456				
	May 16-31	21	7,859	31,502	39,361	1,294	5,186	6,480				
	June 1-15	24	9,336	36,002	45,338	447	1,725	2,172				
	June 16-30	35	13,432	52,504	65,936							
	<i>Wave 3 total</i>	<i>100</i>	<i>38,410</i>	<i>150,010</i>	<i>188,420</i>							
Season total (Apr 20 – June 15)			32,232	103,038	135,270	13,724	34,810	48,534			23	48,557

* – Numbers may not sum due to rounding

1 – Data from MD DNR charter logbooks and SAFIS (11/19/13)

2 – Data from MRIP (retrieved from NOAA NMFS website 11/1/13)

3 – Data from VMRC (Joe Grist, VMRC, Pers. Comm. 9/24/13)

Table 2. Length distribution of the 2013 Maryland striped bass spring season harvest as voluntarily reported by charter boat captains, by 2-week intervals between April 20 and June 15. Shaded areas represent no-take size groups.

Length Group	April 20-30	May 1-15	May 16-31	June 1-15	Total
17	0	0	2	0	2
18	0	0	63	30	93
19	0	0	103	79	182
20	0	0	100	58	158
21	0	0	94	115	209
22	0	0	117	92	209
23	0	0	90	63	153
24	0	0	93	81	174
25	0	0	68	54	122
26	0	0	87	69	156
27	0	0	45	31	76
28	10	18	26	18	72
29	31	37	34	13	115
30	39	58	24	16	137
31	49	76	32	18	175
32	101	125	30	5	261
33	102	126	26	3	257
34	130	135	21	2	288
35	155	149	19	0	323
36	238	240	33	1	512
37	210	195	31	1	437
38	176	160	9	0	345
39	135	125	13	0	273
40	68	73	3	0	144
41	61	48	3	0	112
42	54	48	1	0	103
43	31	19	0	0	50
44	26	14	0	0	40
45	14	5	0	0	19
46	9	6	0	0	15
47	8	2	0	0	10
48	3	2	0	0	5
49	1	0	0	0	1
50	3	0	0	0	3
51	1	2	0	0	3
52	1	0	0	0	1
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	1,656	1,663	1,167	749	5,235

Table 3. 2013 Maryland spring striped bass migrant harvest, distributed among 1 inch length groups (length as total length).*

Length Group	Apr 20-30			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	4	10	11	42	52
29	26	20	46	33	129	162
30	48	36	84	76	293	369
31	83	63	146	138	530	668
32	224	171	395	296	1,141	1,437
33	279	213	492	368	1,420	1,788
34	416	317	733	461	1,778	2,239
35	553	422	975	568	2,190	2,758
36	914	697	1,612	985	3,798	4,783
37	847	646	1,493	840	3,239	4,079
38	732	558	1,290	711	2,741	3,452
39	573	437	1,009	566	2,184	2,750
40	292	223	515	335	1,291	1,626
41	264	201	465	222	855	1,077
42	235	179	414	223	859	1,082
43	135	103	238	89	341	430
44	114	87	200	65	252	317
45	61	47	108	23	90	114
46	39	30	69	28	108	136
47	35	27	62	9	36	45
48	13	10	23	9	36	45
49	4	3	8	0	0	0
50	13	10	23	0	0	0
51	4	3	8	9	36	45
52	4	3	8	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	5,915	4,510	10,425	6,067	23,389	29,457

*Note: numbers may not sum due to rounding.

Table 3. 2013 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	8	10	2	8	11
21	3	12	16	7	27	34
22	6	25	31	9	35	44
23	8	31	39	10	39	49
24	13	52	65	21	81	101
25	15	61	76	22	86	109
26	31	124	155	45	175	221
27	25	101	126	32	124	156
28	22	90	113	29	111	140
29	44	177	221	31	121	152
30	45	181	226	56	215	271
31	83	334	417	87	335	421
32	102	410	512	32	122	153
33	109	438	548	23	90	113
34	103	414	517	18	70	88
35	104	418	522	0	0	0
36	195	781	976	11	42	53
37	192	770	963	11	44	56
38	58	231	288	0	0	0
39	85	340	425	0	0	0
40	20	79	99	0	0	0
41	20	80	100	0	0	0
42	7	27	33	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	1,294	5,186	6,479	447	1,725	2,172

*Note: numbers may not sum due to rounding.

Table 4. Harvest of migrant striped bass in the spring fishery from 1992-2013 (Individual estimates not available for all sectors prior to 2006). Average was only calculated for 2006-2013 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
Avg (2006-13)	12,501	31,022	739	44,262

*2011 and 2012 charter harvest adjusted to include records from SAFIS. 2013 includes SAFIS reporting.

Figure 1. Comparison of Maryland’s 2009 through 2013 spring striped bass migrant harvests, apportioned by length.

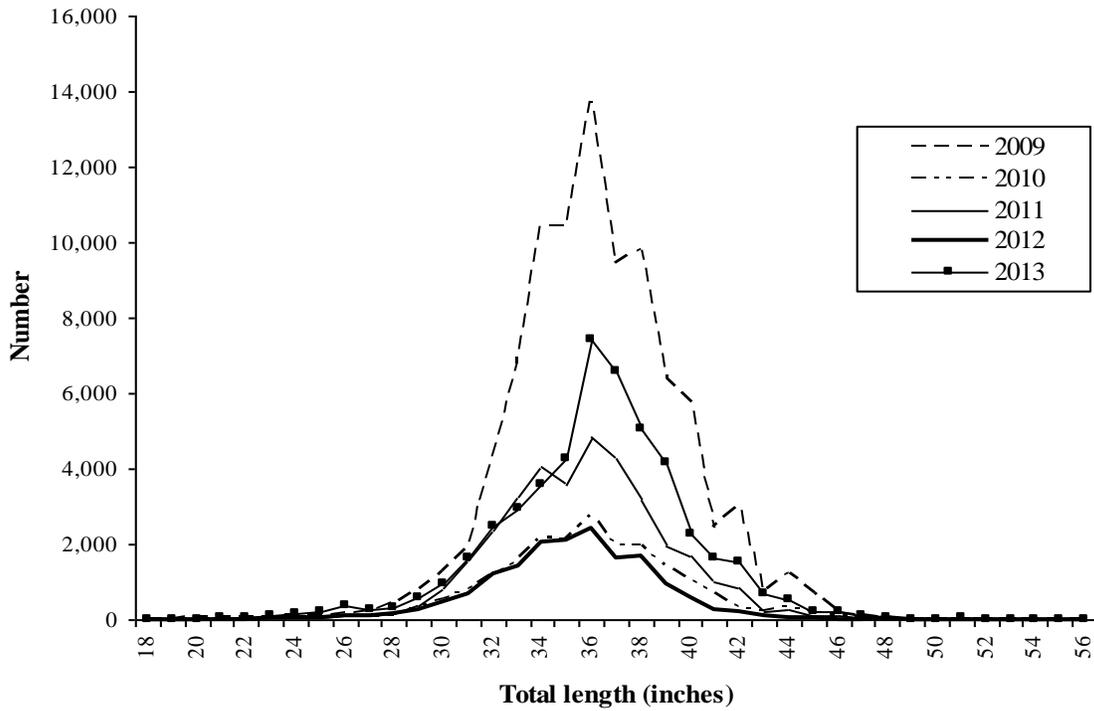


Figure 2. Total number of trips in Maryland’s portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2013 for for-hire and private/rental boats according to MRFSS/MRIP data.

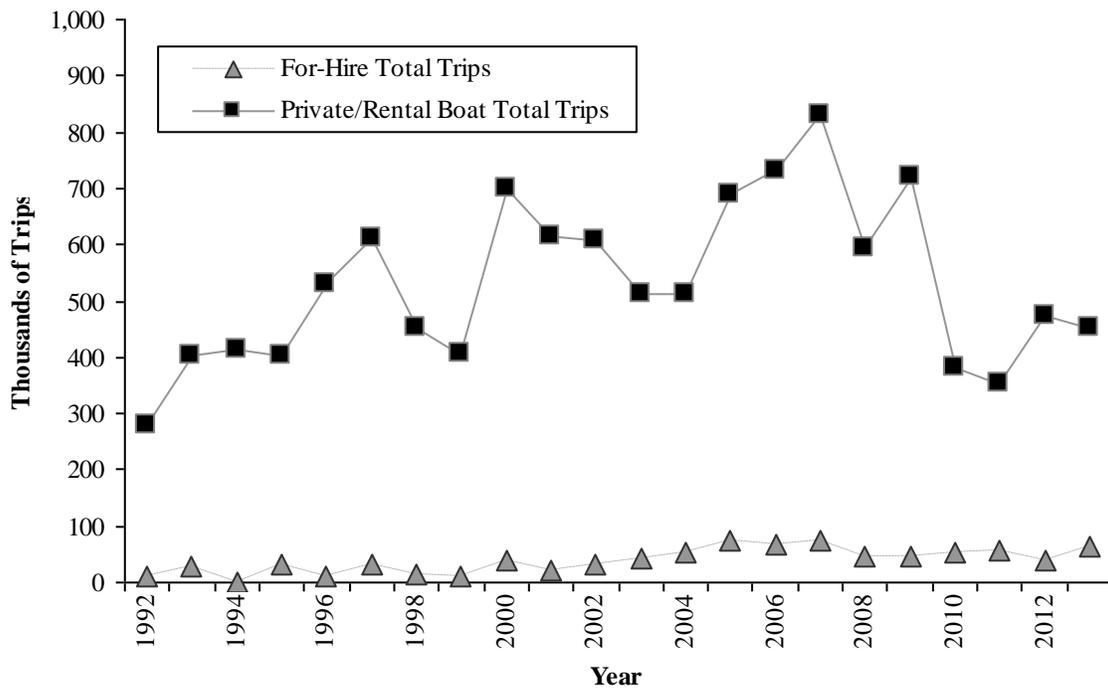


Figure 3. Harvest of striped bass in Maryland's portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2013 for for-hire and private/rental boats according to MRFSS/MRIP data. Data includes migrant and resident striped bass.

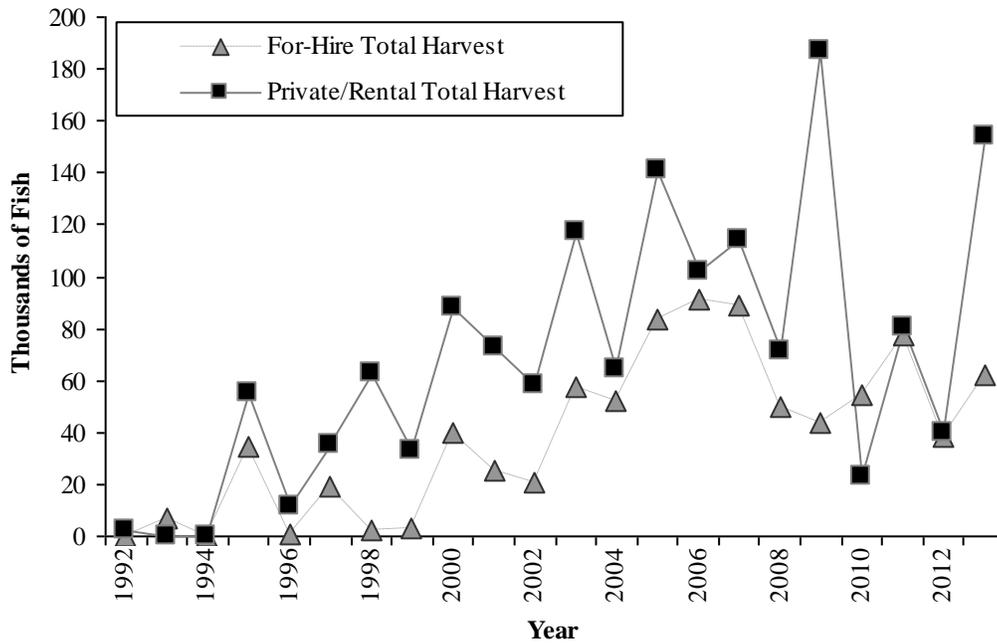


Figure 4. Harvest per angler trip of striped bass in Maryland's portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2013 for for-hire and private/rental boats according to the MRFSS/MRIP data and private boats from the DNR Creel Survey (2007-2013). Data includes migrant and resident striped bass.

