Estimate of the 2007 Harvest of Spring Coastal Migrant Striped Bass in Chesapeake Bay

Prepared by

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This report presents the calculation of the 2007 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 2007 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 (Table 1).
- NOAA MRFSS survey provided estimates of harvest for MD private/rental boats for Waves 2 and 3 (Table 1).
- VMRC provided the preliminary estimate of VA 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 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 Maryland DNR charter boat creel 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 Maryland volunteer private angler survey were used to develop the length frequency distribution of the Maryland private angler catch and the Virginia catch (Table 2B).
- Each interval's harvest was distributed among each 2-week interval's length frequency distribution.
- The number of migrants harvested in Maryland during this period 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 the migrant and resident harvest for each 2-week interval, distributed among interval-specific length groups (Table 3).
- The total 2007 Maryland spring harvest of coastal migrant striped bass in Chesapeake Bay was calculated as the sum over all length groups and 2-week intervals.
- 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 (740 fish).

Statement of harvest estimate.

The estimate of the 2007 Chesapeake Bay spring migrant harvest is 36,328 fish. The Maryland coastal migrant harvest is 35,588 migrants (Table 1). The VMRC preliminary estimate of the spring 2007 migrant harvest in Virginia is 740 fish. The 2007 Chesapeake Bay spring migrant harvest was a 46% reduction from the 2006 harvest (67,771 fish). This reduction was achieved by the slot limit imposed in Maryland (Figure 1).

References

Barker LS, A Sharov 2004. Estimate of the 2004 Harvest and 2005 Quota for Spring Coastal Migrant Striped Bass in Chesapeake Bay.

Dorazio RM, KA Hattala, CB McCollough and JE Skjeveland. 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, Barker LS 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.

2007 Chesapeake Bay spring striped bass migrant harvest, distributed among 2-week intervals, based on data from Maryland charter boat log reports, MRFSS Maryland recreational harvest estimate and VMRC reported migrant harvest (estimate as of 10/1/07). Table 1.

	Interval	Charter Harvest (% by interval)	Md Charter Harvest	Md Private Harvest	Md Total Harvest	Md Charter Migrants	Md Private Migrants	Md Total Migrants	Va Migrants	CBay Total Migrants
C overW	Apr 1-20	0	0	0	0	0	0	0		
Wave Z	Apr 21-30	100	6,364	14,766	21,130	3,612	8,627	12,239		
	May 1-15	0.19	6,541	18,833	25,374	4,178	12,622	16,799		
	May 16-31	0.25	8,435	24,286	32,721	1,270	3,190	4,460		
Wave 3	June 1-15	0.27	9,387	27,027	36,414	299	1,790	2,089		
	June 16-30	0.29	9,847	28,351						
	Wave 3 total	1.00	34,210	98,497					740	
	Season total		30,727	84,912	115,639	6,359	26,229	35,588	740	36,328

Table 2A. Length distribution of the 2007 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.)

LGrp	Apr 15-30	May 1-15	May 16-31	June 1-15	Total
17	0	0	1	3	4
18	0	0	104	140	244
19	0	0	267	282	549
20	0	0	175	221	396
21	0	0	144	141	285
22	0	1	153	125	279
23	0	4	113	82	199
24	0	3	136	87	226
25	0	3	75	62	140
26	1	1	72	62	136
27	3	1	57	41	102
28	64	37	43	41	185
29	217	122	40	25	404
30	259	144	46	22	471
31	283	152	50	7	492
32	336	186	37	6	565
33	423	307	36	5	771
34	446	375	46	2	869
35	383	389	31	0	803
36	8	19	24	3	54
37	2	6	29	0	37
38	1	3	20	0	24
39	3	2	11	0	16
40	0	4	8	0	12
41	20	57	5	0	82
42	62	99	5	0	166
43	33	35	0	0	68
44	14	31	1	0	46
45	6	15	1	0	22
46	5	6	0	0	11
47	2	0	0	0	2
48	0	3	0	0	3
49	2	2	0	0	4
50	0	0	0	0	0
51	1	0	0	0	1
52	0	1	0	0	1
n	2574	2008	1730	1357	7669

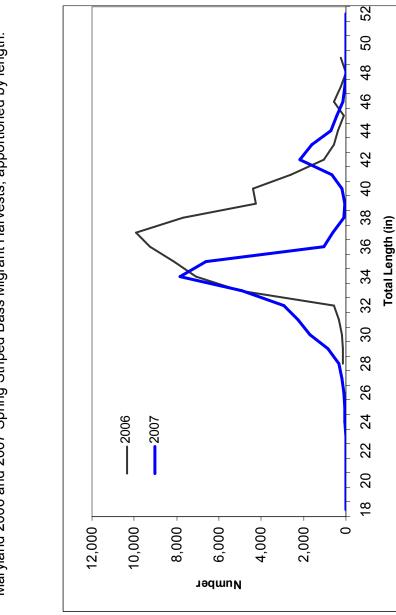
Table 2B. Length distribution of the 2007 Maryland striped bass spring season harvest as voluntarily reported by private anglers, by 2-week intervals between April 21 and June 15. (Shaded areas represent no-take size groups.)

LGrp	Apr 15-30	May 1-15	May 16-31	June 1-15	Total
17	0	0	0	2	2
18	0	0	20	4	24
19	0	0	26	5	31
20	0	0	16	10	26
21	0	0	11	6	17
22	0	0	17	6	23
23	0	0	15	6	21
24	0	0	15	8	23
25	0	0	8	4	12
26	1	0	8	4	13
27	0	2	10	1	13
28	3	2	3	3	11
29	36	10	4	1	51
30	37	17	5	3	62
31	34	19	3	3	59
32	48	21	2	1	72
33	55	36	3	1	95
34	82	49	7	1	139
35	43	48	4	0	95
36	2	3	5	0	10
37	1	3	2	0	6
38	0	0	0	0	0
39	0	0	0	0	0
40	0	2	0	0	2
41	2	3	1	0	6
42	17	12	1	0	30
43	4	17	0	0	21
44	3	6	0	0	9
45	3	3	0	0	6
46	1	1	0	0	2
47	1	0	0	0	1
48	0	2	0	0	2
49					0
n	373	256	186	69	884

2007 Maryland spring striped bass harvest, distributed among 1-cm length groups (length as total length).

Table 3.

	LGrp		Apr 21-30			May 1-15			May 16-31			June 1-15	
0 0	(in)	Charter	Private	Total	Charter	Private	Total	Charter	Private	Total	Charter	Private	Total
0 0	18	0	0	0	0	0	0	0	0	0	0	0	0
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0 0 0 0 0 14 0 14 15 14 15 15 15 0 0 0 14 15	23	0	0	0	0	0	0	7	0	7	7	0	7
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0 2 2 0 0 0 19 55 74 23 0 1 1 0 1 1 2 34 27 50 77 9 1 2 34 27 50 77 9 4 15 34 27 50 77 9 4 15 20 77 14 21 21 36 15 36 15 15 36 17 15 27 10 138 13 24 15 24<	25	0	0	0	0	0	_	12	0	12	14	0	14
1 0 1 0 12 12 23 109 132 24 0 104 275 36 15 19 34 27 50 77 36 15 104 275 379 77 142 214 27 50 77 36 155 179 410 589 131 360 441 63 183 246 43 38 271 521 791 192 541 732 94 152 246 19 488 19 38 19 18 38 19 488 19 38 19 488 19 488 19 38 19 488 19 488 19 488 19 488 19 488 19 488 19 488 19 488 19 488 19 488 19 488 19 19 488 19	26	0	2	2	0	0	0	19	55	74	23	0	23
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	u	3,612	8,627	12,239	4,178	12,622	16,799	1,270	3,190	4,460	299	1,790	2,089



Maryland 2006 and 2007 Spring Striped Bass Migrant Harvests, apportioned by length. Figure 1.