

Estimate of the 2014 Harvest
of Spring Coastal Migrant Striped Bass in Chesapeake Bay

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This report presents the estimates of the 2014 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 2014 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, 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 19 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 2014 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 2014 Chesapeake Bay spring migrant harvest is 38,921 fish, a decrease compared to 2013 and below the 2006-2014 average of 43,668 fish (Table 4). The Maryland portion of the Chesapeake Bay migrant harvest is 38,910 migrants (Table 1). The Maryland charter boat migrant harvest is 12,311 fish. The Maryland private boat migrant harvest is 26,599 fish. The VMRC preliminary estimate of the spring 2014 migrant harvest in Virginia is 11 fish. Annual spring migrant harvest by length group is similar from 2010 to 2014 (Figure 1).

The decrease in migratory striped bass harvest relative to 2013 occurred in both the charter and private sectors. The MRIP estimate of waves 2 and 3 private boat trips in 2014 was similar to 2013, 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 documented a similar decrease in angler success (Figure 4). The MRIP estimates of charter boat trips decreased compared to 2013, which resulted in a decrease in harvest compared to 2013 (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. 2014 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 19th 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 1-18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| | Apr 19-30 | 100 | 4,883 | 2,001 | 6,884 | 4,356 | 1,785 | 6,141 | | | | |
| Wave 3 | May 1-15 | 25 | 7,592 | 23,718 | 31,310 | 6,576 | 20,542 | 27,118 | | | | |
| | May 16-31 | 27 | 8,258 | 25,615 | 33,873 | 934 | 2,899 | 3,833 | | | | |
| | June 1-15 | 23 | 7,070 | 21,820 | 28,890 | 445 | 1,373 | 1,818 | | | | |
| | June 16-30 | 25 | 7,911 | 23,718 | 31,629 | | | | | | | |
| | <i>Wave 3 total</i> | <i>100</i> | <i>30,831</i> | <i>94,871</i> | <i>125,702</i> | | | | | | | |
| Season total (Apr 19 – June 15) | | | 27,803 | 73,154 | 100,957 | 12,311 | 26,599 | 38,910 | | | 11 | 38,921 |

* – Numbers may not sum due to rounding

1 – Data from MD DNR charter logbooks and SAFIS (8/27/14)

2 – Data from MRIP (retrieved from NOAA NMFS website 8/27/14)

3 – Data from VMRC (Joe Grist, VMRC, Pers. Comm. 9/29/14)

Table 2. Length distribution, in inches, of the 2014 Maryland striped bass spring season harvest as voluntarily reported by charter boat captains, by 2-week intervals between April 19 and June 15. Shaded areas represent no-take size groups.

| Length Group | April 19-30 | May 1-15 | May 16-31 | June 1-15 | Total |
|---------------------|--------------------|-----------------|------------------|------------------|--------------|
| 17 | 0 | 0 | 0 | 2 | 2 |
| 18 | 0 | 0 | 62 | 31 | 93 |
| 19 | 0 | 0 | 100 | 45 | 145 |
| 20 | 0 | 0 | 90 | 39 | 129 |
| 21 | 0 | 0 | 77 | 42 | 119 |
| 22 | 0 | 0 | 103 | 43 | 146 |
| 23 | 0 | 0 | 55 | 39 | 94 |
| 24 | 0 | 0 | 66 | 46 | 112 |
| 25 | 0 | 0 | 35 | 25 | 60 |
| 26 | 0 | 1 | 27 | 35 | 63 |
| 27 | 0 | 0 | 18 | 24 | 42 |
| 28 | 1 | 3 | 13 | 25 | 42 |
| 29 | 2 | 10 | 18 | 16 | 46 |
| 30 | 7 | 5 | 16 | 18 | 46 |
| 31 | 6 | 12 | 10 | 7 | 35 |
| 32 | 10 | 21 | 15 | 9 | 55 |
| 33 | 19 | 42 | 9 | 2 | 72 |
| 34 | 41 | 108 | 20 | 1 | 170 |
| 35 | 77 | 90 | 6 | 0 | 173 |
| 36 | 103 | 175 | 5 | 0 | 283 |
| 37 | 111 | 150 | 8 | 0 | 269 |
| 38 | 113 | 155 | 8 | 1 | 277 |
| 39 | 80 | 107 | 9 | 0 | 196 |
| 40 | 60 | 62 | 2 | 0 | 124 |
| 41 | 42 | 42 | 0 | 0 | 84 |
| 42 | 29 | 31 | 3 | 0 | 63 |
| 43 | 9 | 10 | 0 | 0 | 19 |
| 44 | 18 | 13 | 0 | 0 | 31 |
| 45 | 5 | 4 | 0 | 0 | 9 |
| 46 | 3 | 7 | 0 | 0 | 10 |
| 47 | 1 | 1 | 1 | 0 | 3 |
| 48 | 7 | 4 | 0 | 0 | 11 |
| 49 | 0 | 0 | 0 | 0 | 0 |
| 50 | 0 | 1 | 0 | 0 | 1 |
| 51 | 1 | 1 | 0 | 0 | 2 |
| 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 | 745 | 1,055 | 776 | 450 | 3,026 |

Table 3. 2014 Maryland spring striped bass migrant harvest, distributed among 1 inch length groups (length as total length).*

| Length Group | Apr 19-30 | | | 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 | 1 | 1 |
| 27 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | 1 | 0 | 1 | 3 | 9 | 11 |
| 29 | 3 | 1 | 4 | 14 | 43 | 57 |
| 30 | 13 | 5 | 18 | 10 | 31 | 42 |
| 31 | 15 | 6 | 21 | 33 | 104 | 138 |
| 32 | 33 | 14 | 47 | 76 | 239 | 315 |
| 33 | 78 | 32 | 110 | 189 | 590 | 779 |
| 34 | 196 | 80 | 277 | 567 | 1,772 | 2,340 |
| 35 | 411 | 168 | 580 | 528 | 1,648 | 2,176 |
| 36 | 592 | 243 | 835 | 1,105 | 3,451 | 4,555 |
| 37 | 670 | 274 | 944 | 994 | 3,104 | 4,098 |
| 38 | 703 | 288 | 922 | 1,059 | 3,309 | 4,368 |
| 39 | 508 | 208 | 716 | 746 | 2,329 | 3,075 |
| 40 | 376 | 158 | 543 | 437 | 1,366 | 1,804 |
| 41 | 272 | 111 | 383 | 299 | 933 | 1,231 |
| 42 | 189 | 77 | 266 | 221 | 692 | 913 |
| 43 | 59 | 24 | 83 | 72 | 224 | 295 |
| 44 | 118 | 48 | 166 | 93 | 291 | 385 |
| 45 | 33 | 13 | 46 | 29 | 90 | 119 |
| 46 | 20 | 8 | 28 | 50 | 157 | 208 |
| 47 | 7 | 3 | 9 | 7 | 22 | 30 |
| 48 | 46 | 19 | 65 | 29 | 90 | 119 |
| 49 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50 | 0 | 0 | 0 | 7 | 22 | 30 |
| 51 | 7 | 3 | 9 | 7 | 22 | 30 |
| 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 | 4,356 | 1,785 | 6,142 | 6,575 | 20,542 | 27,117 |

*Note: numbers may not sum due to rounding.

Table 3. 2014 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 | 3 | 9 | 12 | 2 | 6 | 8 |
| 21 | 4 | 12 | 16 | 3 | 10 | 13 |
| 22 | 9 | 27 | 36 | 5 | 17 | 22 |
| 23 | 8 | 23 | 31 | 8 | 24 | 32 |
| 24 | 15 | 45 | 60 | 15 | 46 | 61 |
| 25 | 12 | 38 | 51 | 13 | 40 | 53 |
| 26 | 15 | 47 | 62 | 29 | 90 | 119 |
| 27 | 16 | 49 | 65 | 31 | 97 | 128 |
| 28 | 18 | 55 | 73 | 50 | 156 | 206 |
| 29 | 37 | 115 | 152 | 49 | 150 | 198 |
| 30 | 48 | 148 | 195 | 79 | 244 | 323 |
| 31 | 41 | 128 | 169 | 43 | 131 | 174 |
| 32 | 81 | 251 | 331 | 72 | 221 | 292 |
| 33 | 60 | 186 | 245 | 20 | 61 | 80 |
| 34 | 155 | 482 | 637 | 11 | 35 | 47 |
| 35 | 52 | 161 | 213 | 0 | 0 | 0 |
| 36 | 47 | 145 | 191 | 0 | 0 | 0 |
| 37 | 78 | 243 | 321 | 0 | 0 | 0 |
| 38 | 81 | 251 | 332 | 15 | 46 | 61 |
| 39 | 93 | 288 | 380 | 0 | 0 | 0 |
| 40 | 21 | 65 | 86 | 0 | 0 | 0 |
| 41 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42 | 32 | 98 | 130 | 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 | 11 | 33 | 44 | 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 | 934 | 2,899 | 3,833 | 445 | 1,373 | 1,818 |

*Note: numbers may not sum due to rounding.

Table 4. Harvest of migrant striped bass in the spring fishery from 1992-2014 (Individual estimates not available for all sectors prior to 2006). Average was only calculated for 2006-2014 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 |
| Avg (2006-14) | 12,480 | 30,530 | 658 | 43,668 |

Figure 1. Comparison of Maryland’s 2010 through 2014 spring striped bass migrant harvests, apportioned by length.

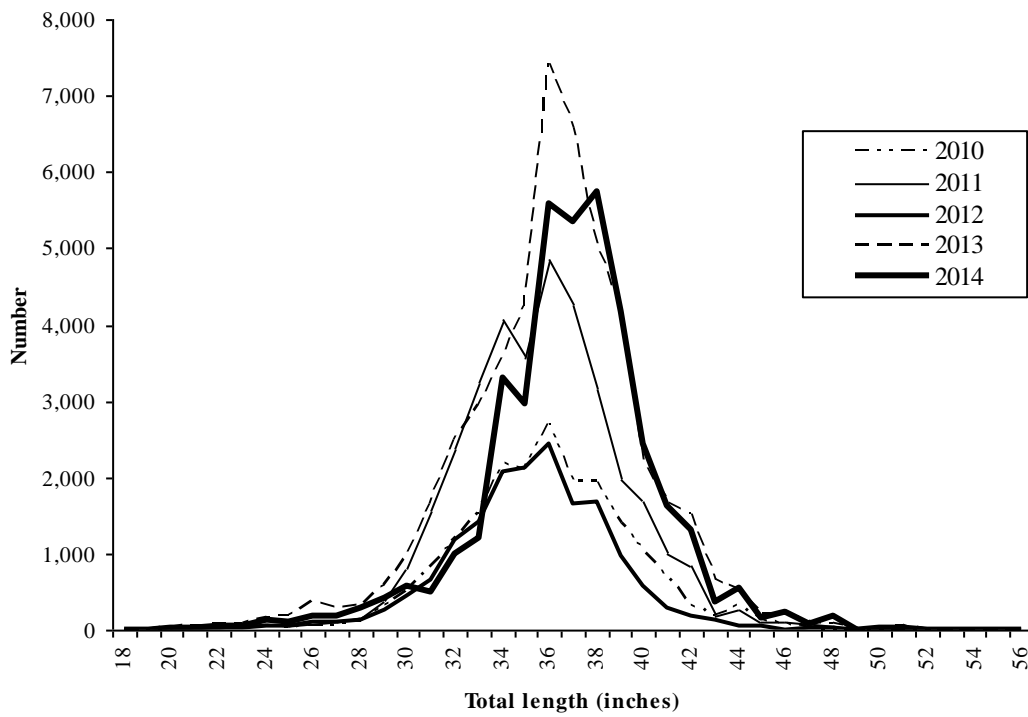


Figure 2. Total number of trips in Maryland’s portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2014 for for-hire and private/rental boats according to MRFSS/MRIP data.

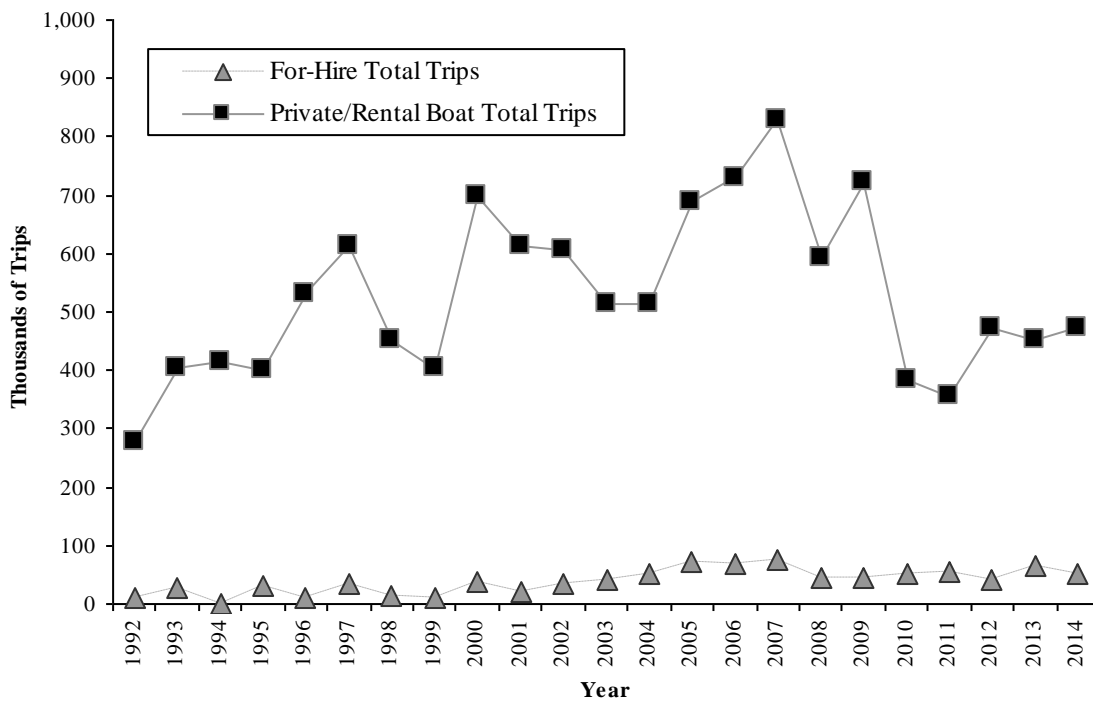


Figure 3. Harvest of striped bass in Maryland's portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2014 for for-hire and private/rental boats according to MRFSS/MRIP data. Data includes migrant and resident striped bass.

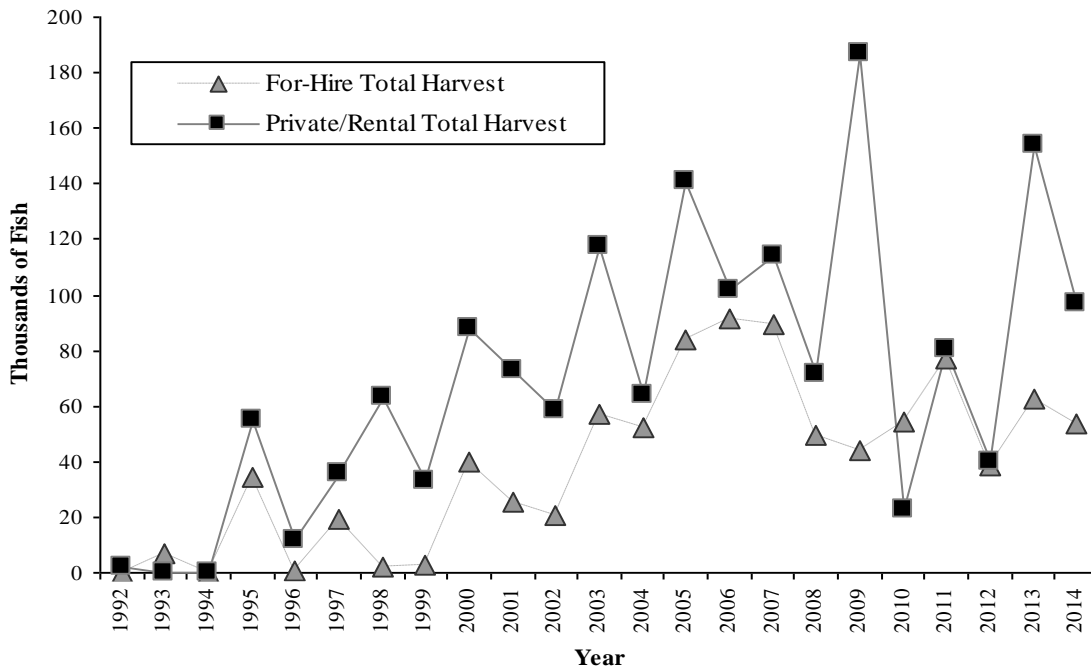


Figure 4. Harvest per angler trip of striped bass in Maryland's portion of Chesapeake Bay, Waves 2 and 3, from 1992 to 2014 for for-hire and private/rental boats according to the MRFSS/MRIP data and private boats from the DNR Creel Survey (2007-2014). Data includes migrant and resident striped bass.

