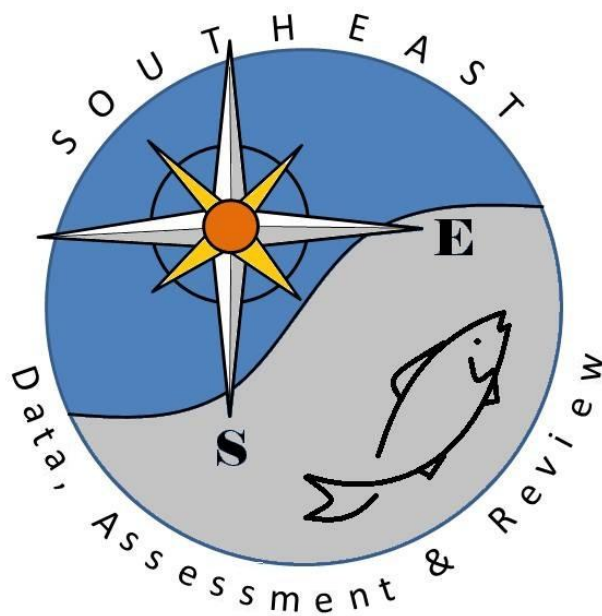


# Characterization of Greater Amberjack Discards in Recreational For-Hire Fisheries

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## **Characterization of Greater Amberjack Discards in Recreational For-Hire Fisheries**

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Fisheries observer monitoring projects have been conducted intermittently on recreational for-hire vessels, including headboats and charter vessels, in the Gulf of Mexico. The primary purpose of for-hire fishery observer surveys has been to collect detailed information on discards during recreational hook-and-line fishing. Information collected from observer surveys has had limited geographic coverage and is specific to the for-hire sector of the recreational fishery. However, information on the size and condition of recreational discards is not collected in larger region-wide surveys that only sample harvested catch during dockside intercept interviews from the recreational fishery as a whole. This report is a summary of available information on the size, release condition, and final disposition of greater amberjack collected by trained fishery observers aboard headboat and charter vessels operating in the Gulf of Mexico.

### **Data Sources**

Fishery observer coverage in the Gulf of Mexico has been concentrated in the eastern Gulf of Mexico (Florida and Alabama), with a small amount of coverage in Texas (Table 1). Coverage across years has come from several funding sources. While changes were made over time to improve fishery observer methods, project PI's were careful to ensure that data collected through different funding sources were compatible and could be combined for use in future stock assessments.

Fishery observer coverage on headboats was first funded in the Gulf of Mexico through Gulf FIN in 2004 (Alabama) and was expanded in 2005-2007 to also include the west coast of Florida. Funding was discontinued after 2007 to preserve dockside surveys and biological sampling programs with reduced budgets.

In June 2009, the state of Florida received a Cooperative Research Program grant through NMFS SERO and a larger federal grant specifically to monitor red snapper discards in the recreational fishery. The combined grants provided funding for fishery observer coverage on both headboat and charter vessels in areas adjacent to the Florida Panhandle and Tampa Bay through 2013. Methods implemented by the state of Florida were kept compatible with methods used in the GulfFIN monitoring program so that the two time-series could be combined.

From September 2010 through August 2011 a pilot study was funded by the Marine Recreational Information Program (MRIP), which included testing methods to validate logbook trip reports submitted by selected charter vessels with federal Gulf of Mexico reef fish permits. The study was conducted in the Florida Panhandle and the Corpus Christi area of Texas. Florida and Texas were cooperative partners in the pilot study, and validation methods to employ fishery observers on charter vessels in Texas were kept compatible with fishery observer methods already in use in

Florida. The full report for this pilot study is available at:

[http://www.st.nmfs.noaa.gov/Assets/recreational/pdf/Charter Boat Logbook Project report.pdf](http://www.st.nmfs.noaa.gov/Assets/recreational/pdf/Charter_Boat_Logbook_Project_report.pdf)

### **Sample Methods**

The spatial and temporal coverage of for-hire fishery observer surveys in the Gulf of Mexico is provided in Table 1. Methods employed were consistent among years and areas and allowed for meaningful comparisons. Vessels were randomly selected each month from a list of cooperative vessels. Vessel operators cooperated in the program by allowing observers to accompany passengers during one scheduled trip each week that their vessel was selected. Dependent upon the number of customers on board, one or two observers accompanied passengers during a scheduled headboat trip, and one observer was employed during charter vessel surveys. If there were too many anglers on a sampled trip to accurately keep track of, fishery observers selected a sub-sample of anglers that could be observed for 100% of their fishing time. The captain and mates assisted fishery observers by making sure all fish caught by observed anglers were seen by one of the fishery observers before they were stored in the fish hold or released overboard. Observers would assist with de-hooking fish for data collection, but were not permitted to influence the decision to keep or release a fish.

The following catch and trip level information was collected consistently among years and areas that at-sea observer coverage was in place. For each fish caught by an observed angler, the observer recorded the species, disposition, size (mid-line length in mm), and condition upon release.

Disposition was coded as:

- 1: thrown back alive, legal;
- 2: thrown back alive, not legal;
- 3: plan to eat;
- 4: used for bait or plan to use for bait;
- 5: sold or plan to sell;
- 6: thrown back dead or plan to throw away.

Condition upon release was coded as:

- 1 (good): fish swam toward bottom immediately upon entry into the water;
- 2 (fair): fish was disoriented upon release and slowly swam towards the bottom;
- 3 (poor): fish was very disoriented upon release and remained at the surface;
- 4 (dead) fish was either dead or unresponsive upon entering the water;
- 5 (preyed): fish was preyed upon by a bird, another fish, or a marine mammal;
- 6 (unob./na): unable to observe released fish or not applicable if fish was not released.

Trip level information collected for each trip included the area fished, duration of fishing (to the nearest half hour), number of anglers observed, number of anglers on the vessel, area fished, and minimum and maximum depths (feet) of the fishing sites.

Area fished for Alabama was coded as:

- 1: 3 miles or less from shore; or
- 2: more than 3 miles from shore

Area fished for Florida and Texas was coded as:

- 3: 10 miles or less from shore; or
- 4: more than 10 miles from shore.

*Characterization of Trips duration:*

Sampled trips were categorized into the following trip-types based on the duration of the sampled trip:

- Single-Day Trips (<24 hours)
  - Half-Day: < 6 hours
  - Three-Quarter-Day: 6 to 8.5 hours
  - Full-day: 9 or more hours
- Multi-Day Trips (>24 hours)

Multi-day trips typically take place offshore in fishing grounds that are not accessible during single-day trips. Fishery observer coverage for multi-day trips was only available for headboats originating from the west Florida peninsula, and only a small number of headboats operating from this region routinely offer multi-day trips to offshore areas such as the Florida Middle Grounds. Multi-day charter trips are rare and no fishery observer coverage for multi-day charter trips was available.

*Sample Weighting*

The number of headboat trips sampled in Florida and Alabama by year, month, and trip type are provided in tables 2-3. It was important to appropriately weight sample data for headboats before characterizing discards because multi-day headboat trips were over sampled in fishery observer surveys relative to total effort. Headboat vessels in the Gulf of Mexico are required to submit logbook reports for each fishing trip to NMFS as part of the Southeast Headboat Survey, and proportional fishing effort for half-day, three-quarter day, full-day and multi-day trips was used to weight fishery observer data. To obtain the sample weight ( $W_t$ ), proportional fishing effort for a given trip type was divided by the proportional sampling effort for the same trip type:

$$W_t = (N_t/N) / (n_t/n)$$

Where  $N_t/N$  is the number of trips of type  $t$  divided by total number of trips reported on logbook trip reports, and  $n_t/n$  is the number of trips of type  $t$  sampled during fishery observer surveys divided by the total number of sampled trips. Trip-types with  $W_t < 1$  are down-weighted to account for oversampling, and trip-types with  $W_t > 1$  are inflated to account for undersampling. Separate weights were generated for two areas:

1. Northwest Florida, including offshore areas adjacent to Alabama east to Panama City, FL
2. Southwest Florida, including the Florida Middle grounds and offshore areas adjacent to Crystal River, FL south to Naples, FL

The numbers of charter vessel trips sampled in Florida and Texas by year, month, and trip type (Florida) are provided in tables 4-5. Multi-day charter trips are rare and were not sampled during fishery observer surveys; therefore, weighting fishery observer data for charter trips was less crucial. However, biases may exist if half, three-quarter, and full-day trips were sampled

disproportionately. Since charter fishing effort estimates by trip type are not available, fishery observer data for charter trips was not weighted.

#### *Characterization of Discards:*

Fish mid-line lengths were placed in one cm length bin categories (100 cm bin = fish 99.51cm to 100.50cm). Fish in each length bin category were summed by region, trip-type, and disposition. Disposition categories included harvested and discarded. For each trip-type in each region, counts of fish in each length bin were multiplied times a weighting factor (if available). The weighted proportion of fish in a single length bin ( $p_x$ ) was calculated as follows:

$$p_x = \frac{(\sum L_H)W_H + (\sum L_Q)W_Q + (\sum L_F)W_F + (\sum L_M)W_M}{\sum_{bin (i=1....n)} [(\sum L_H)W_H + (\sum L_Q)W_Q + (\sum L_F)W_F + (\sum L_M)W_M]}$$

Where  $L_H$  equals the number of fish in length bin  $x$  for a given disposition in a given region observed during half-day trips (H); and  $W_H$  is the weighting factor for half-day trips in the same region.  $Q = \frac{3}{4}$ -day trips,  $F$  = full-day trips, and  $M$  = multi-day trips. The denominator is the sum of all numerators for length bin 1 to length bin  $n$ .

Discard proportions were calculated by summing the numbers of observed fish harvested and discarded in each region by year and trip type. Sums were multiplied by the weighting factor (if available) for each respective trip-type. The overall discard proportion ( $p_d$ ) was calculated as:

$$p_d = \text{weighted discard sum} / (\text{weighted discard sum} + \text{weighted harvest sum})$$

Discards were also summed by release condition for each trip type and region and multiplied by the appropriate weighting factor (if available).

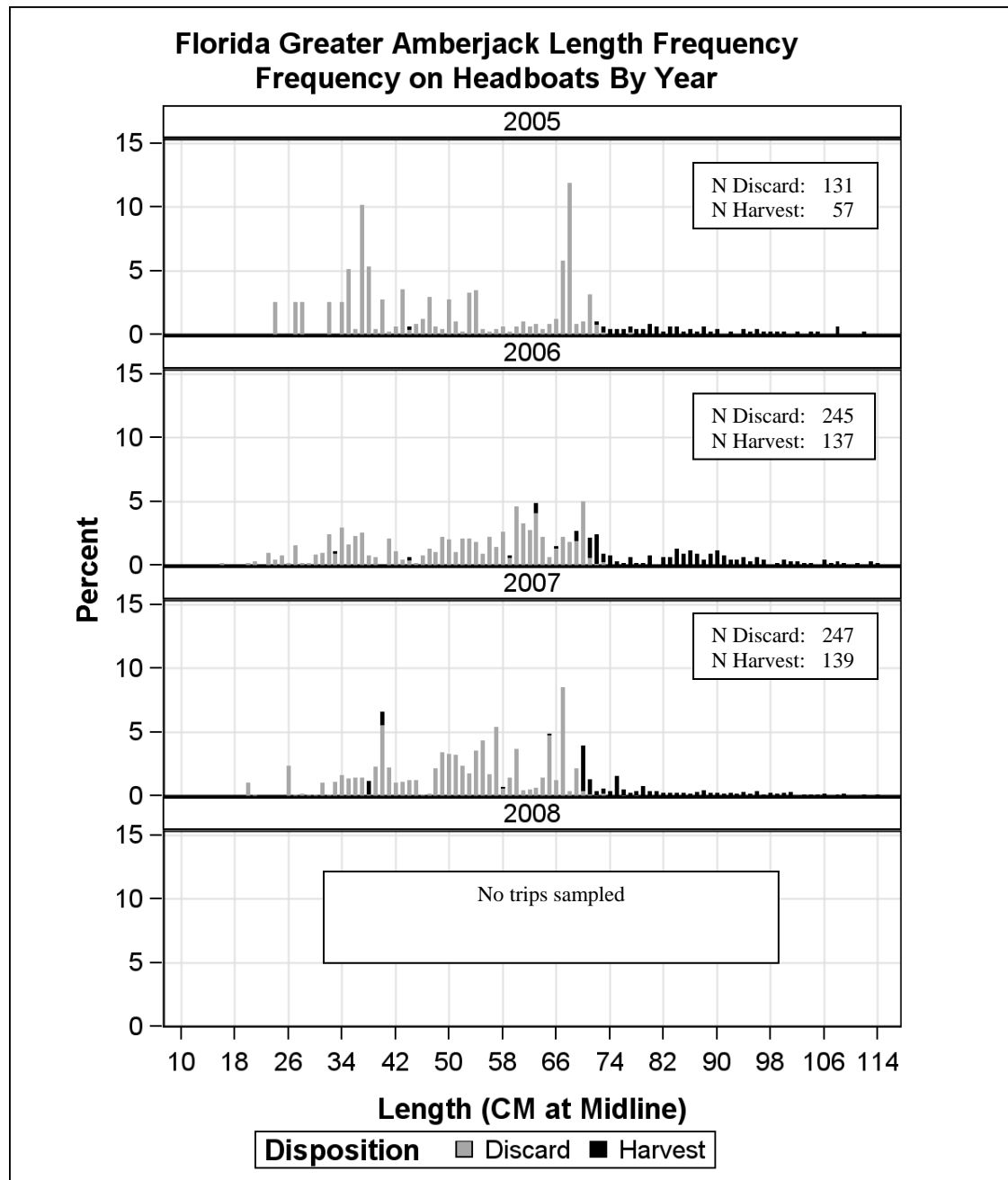
## **Results**

The numbers and mean lengths of greater amberjack measured by fishery observers on headboat and charter vessel trips by year are provided in Tables 6 - 8. Length frequency histograms for fish caught (harvested and discarded) from headboats by year in Florida and Alabama are presented in Figures 1a through 1c. Length frequency histograms for greater amberjack caught from charter vessels are presented in Figures 2 (Florida) and 3 (Texas). For Florida, cumulative percentages of discards by length are also presented in Figures 4 and 5.

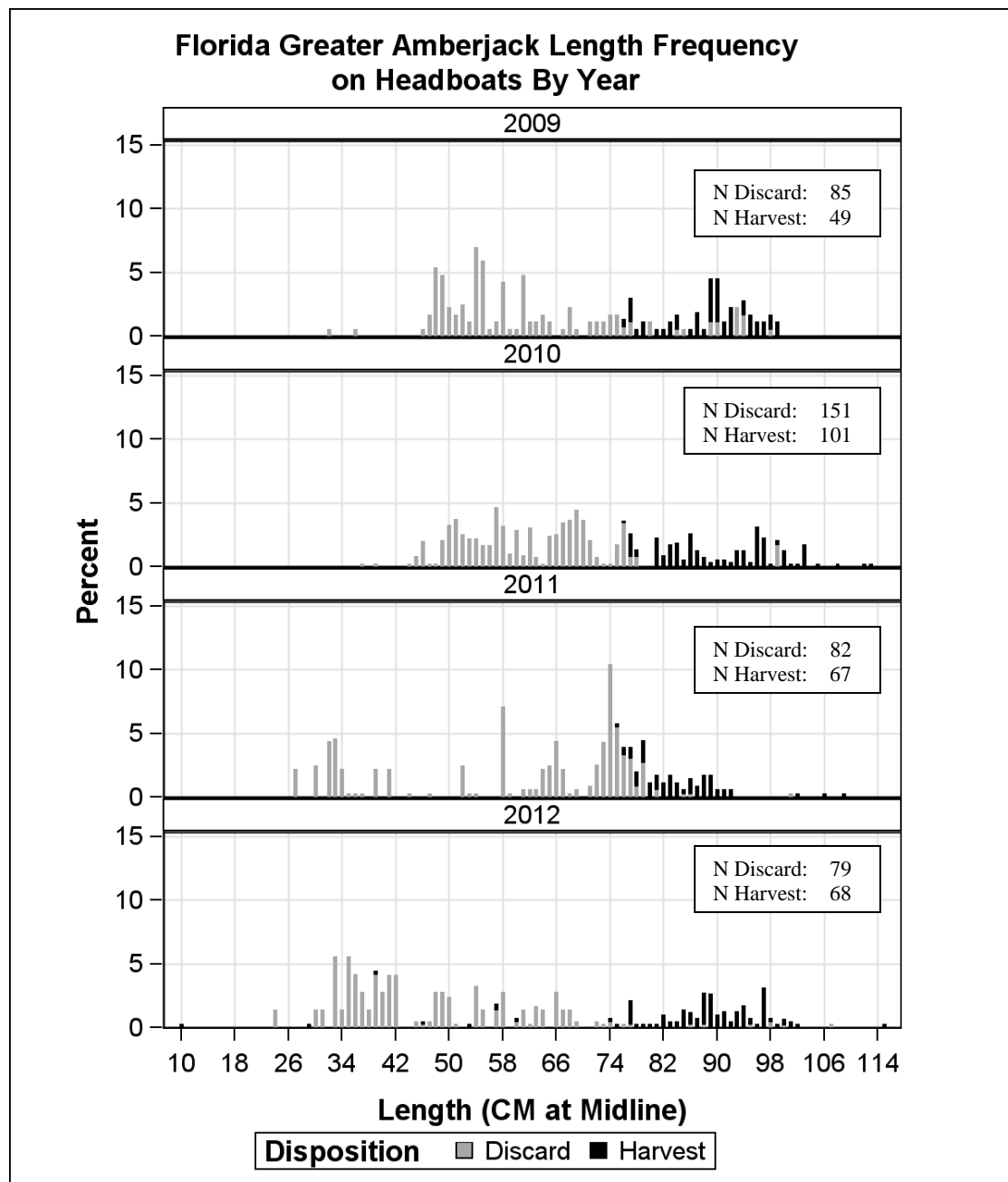
Depth distributions for sampled trips in Florida that were positive for greater amberjack (harvest, release, or both) are presented in Figures 6-7. The mean depth for sampled trips was 127 feet for headboats (Figure 6) and 156 feet for charter vessels (Figure 7).

Numbers and percentages of greater amberjack discards by release condition are presented in Table 9 for headboats and Table 10 for charter vessels. The majority of greater amberjacks were released in good condition (>90% for headboats and charter vessels in Florida, and >70% for headboats in Alabama). The majority of greater amberjacks observed on headboats and charter vessels were released. In Alabama, no greater amberjacks were harvested from headboats (Table

11). In Florida, the percentage of amberjacks harvested ranged between 19% and 30% of observed fish from headboats (Table 11), and 36% to 47% from charter boats (Table 12). The number of amberjack observed on charter vessels in Texas was low (N=17), and 76.5% were harvested (Table 12).

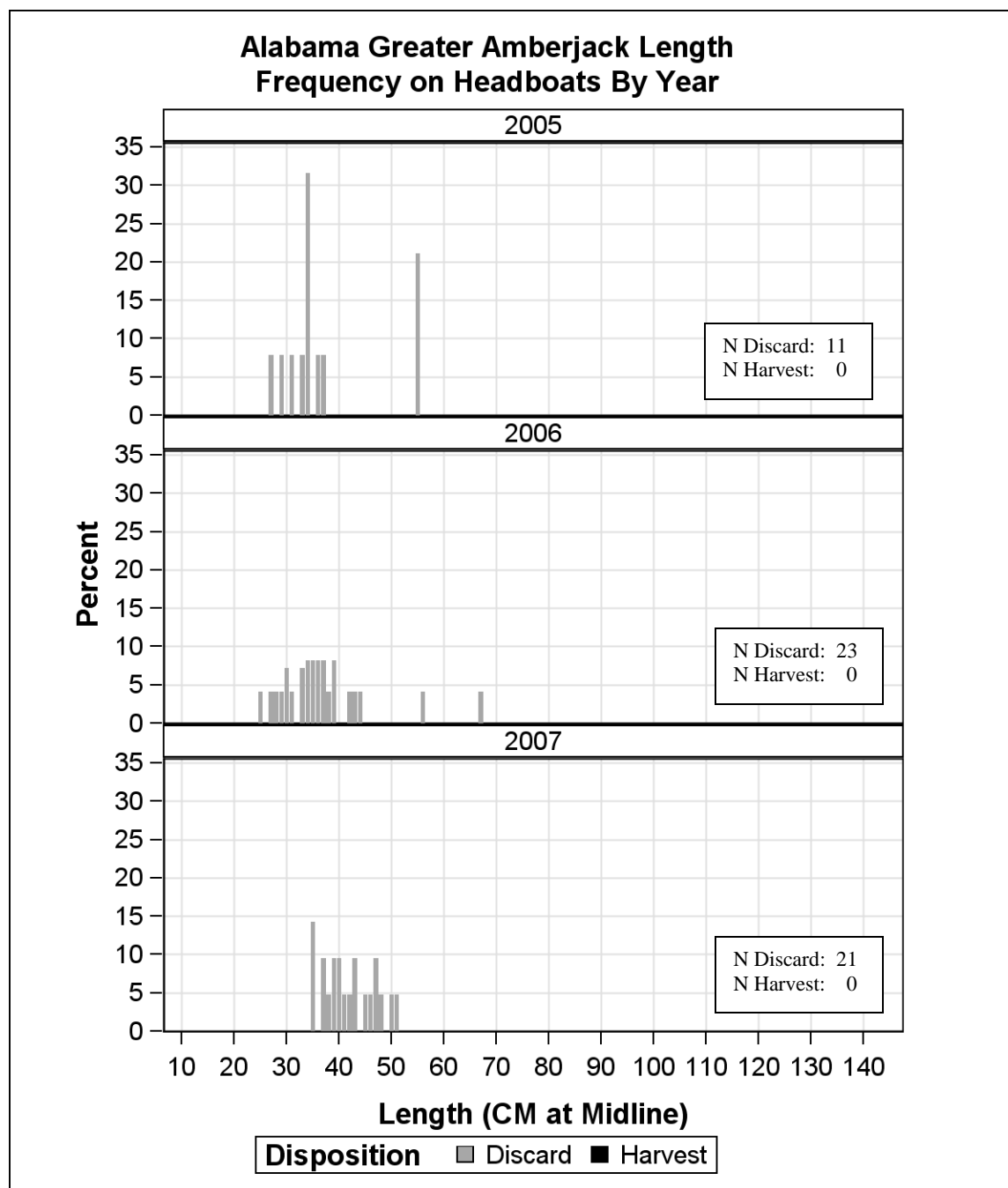


**Figure 1a.** Weighted length frequency of greater amberjack that were measured by fishery observers on headboats in Florida during 2005-2008. Harvest includes fish that were either retained or released dead, and discard includes all live fish that were released. N = the actual (unweighted) numbers of fish observed.

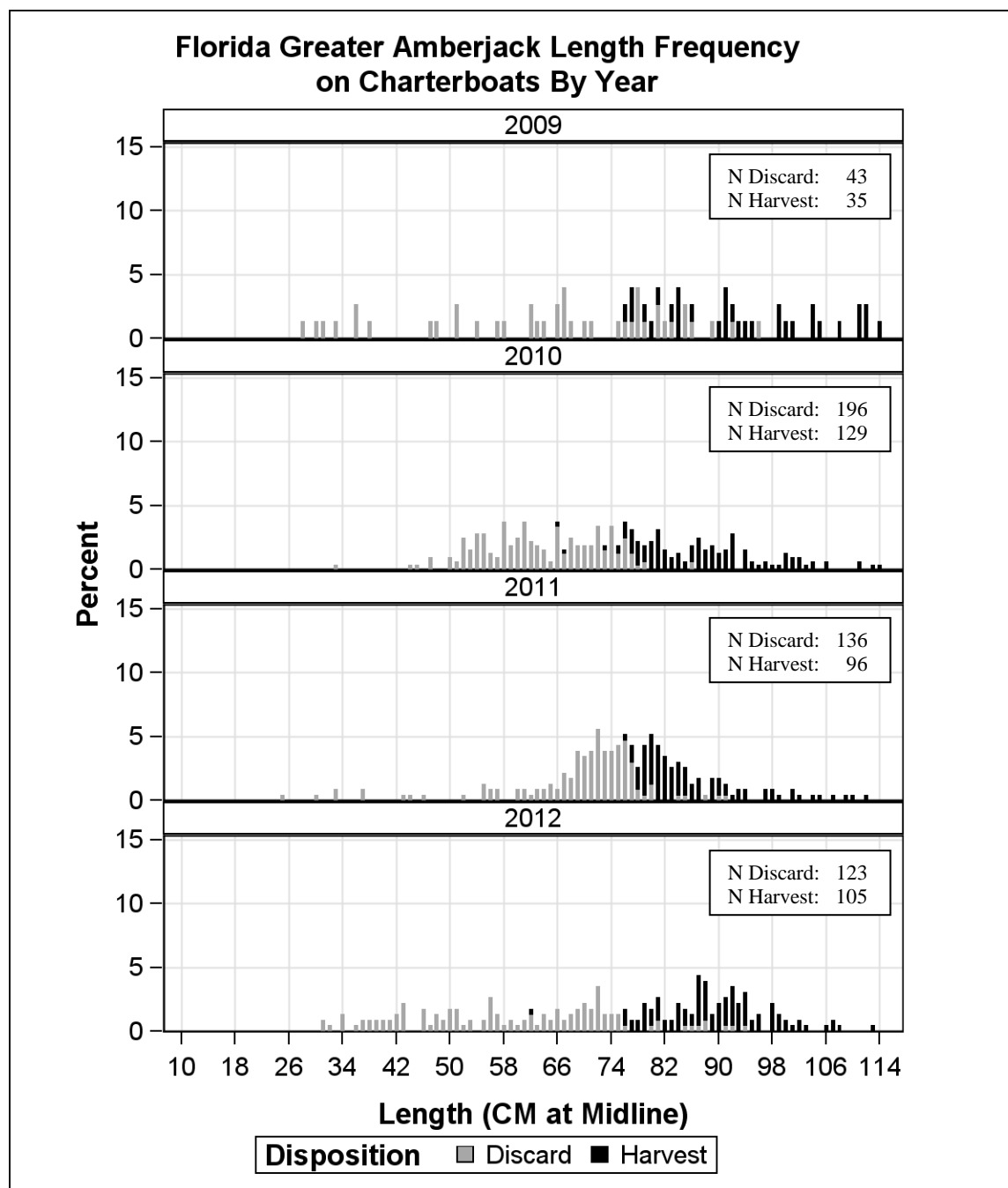


**Figure 1b.** Weighted length frequency of greater amberjack that were measured by fishery observers on headboats during 2009 (June-December) and 2010-2012 in Florida. Harvest includes fish that were either retained or released dead, and discard includes all live fish that were released. N = the actual (unweighted) numbers of fish observed.

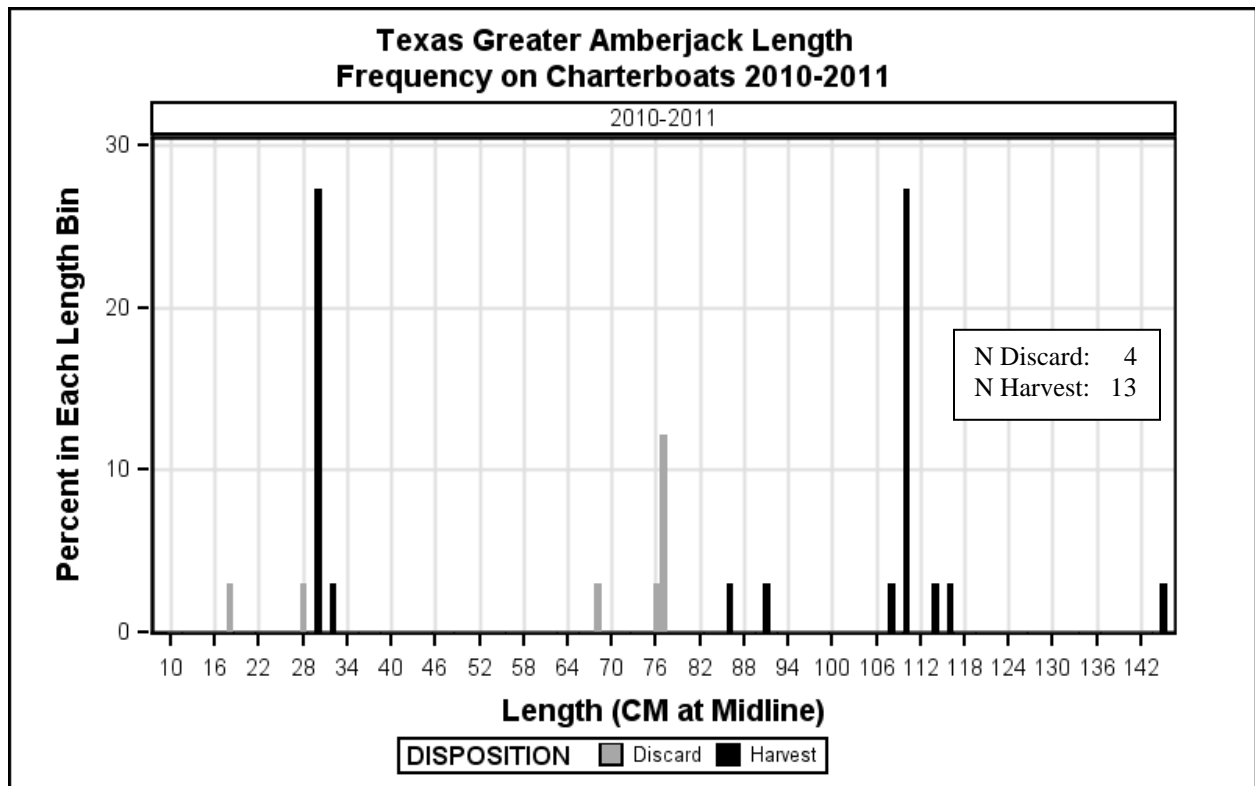




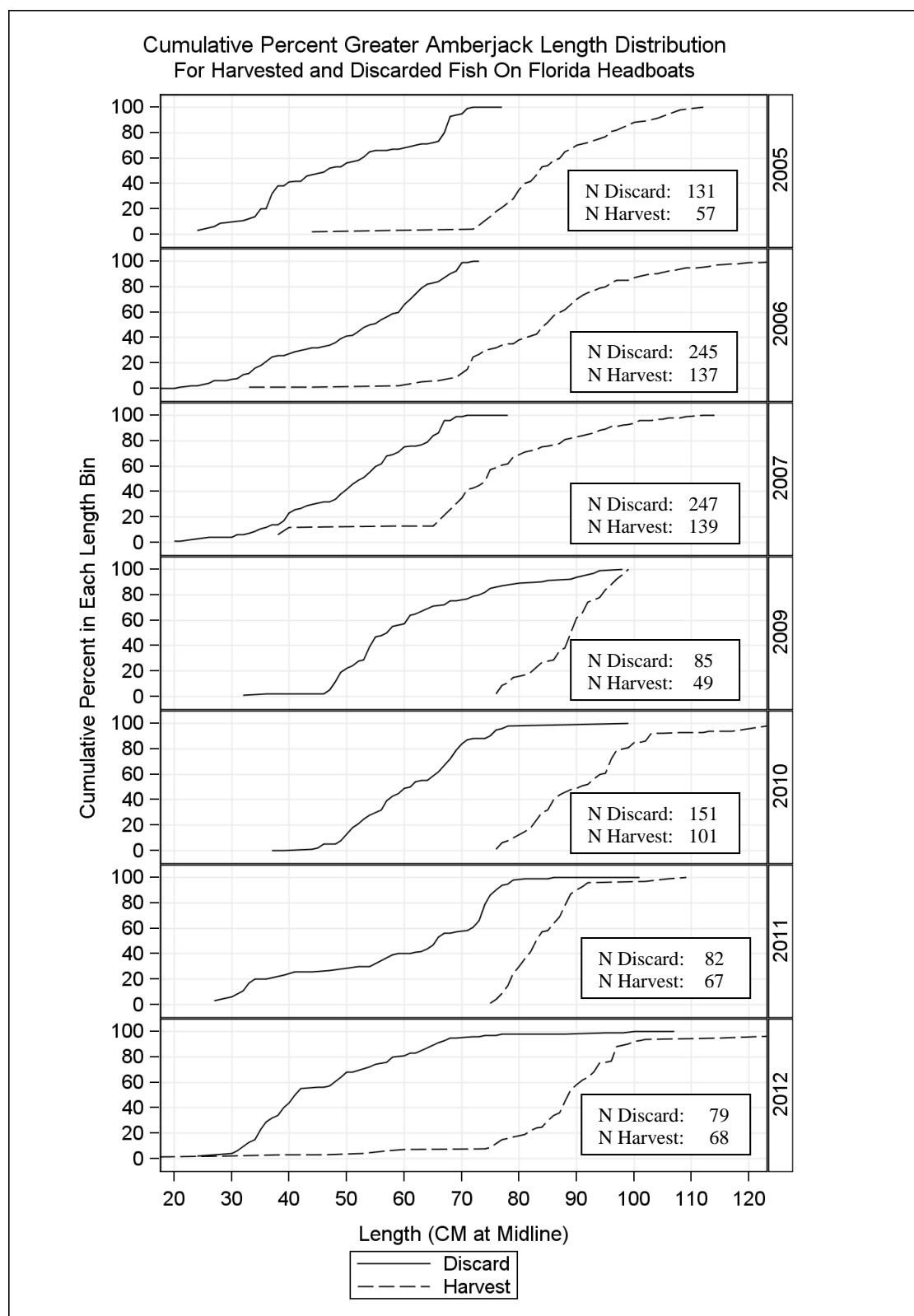
**Figure 1c.** Weighted length frequency of greater amberjack that were measured by fishery observers on headboats during 2005-2007 in Alabama. Harvest includes fish that were either retained or released dead, and discard includes all live fish that were released. N = the actual (unweighted) numbers of fish observed.



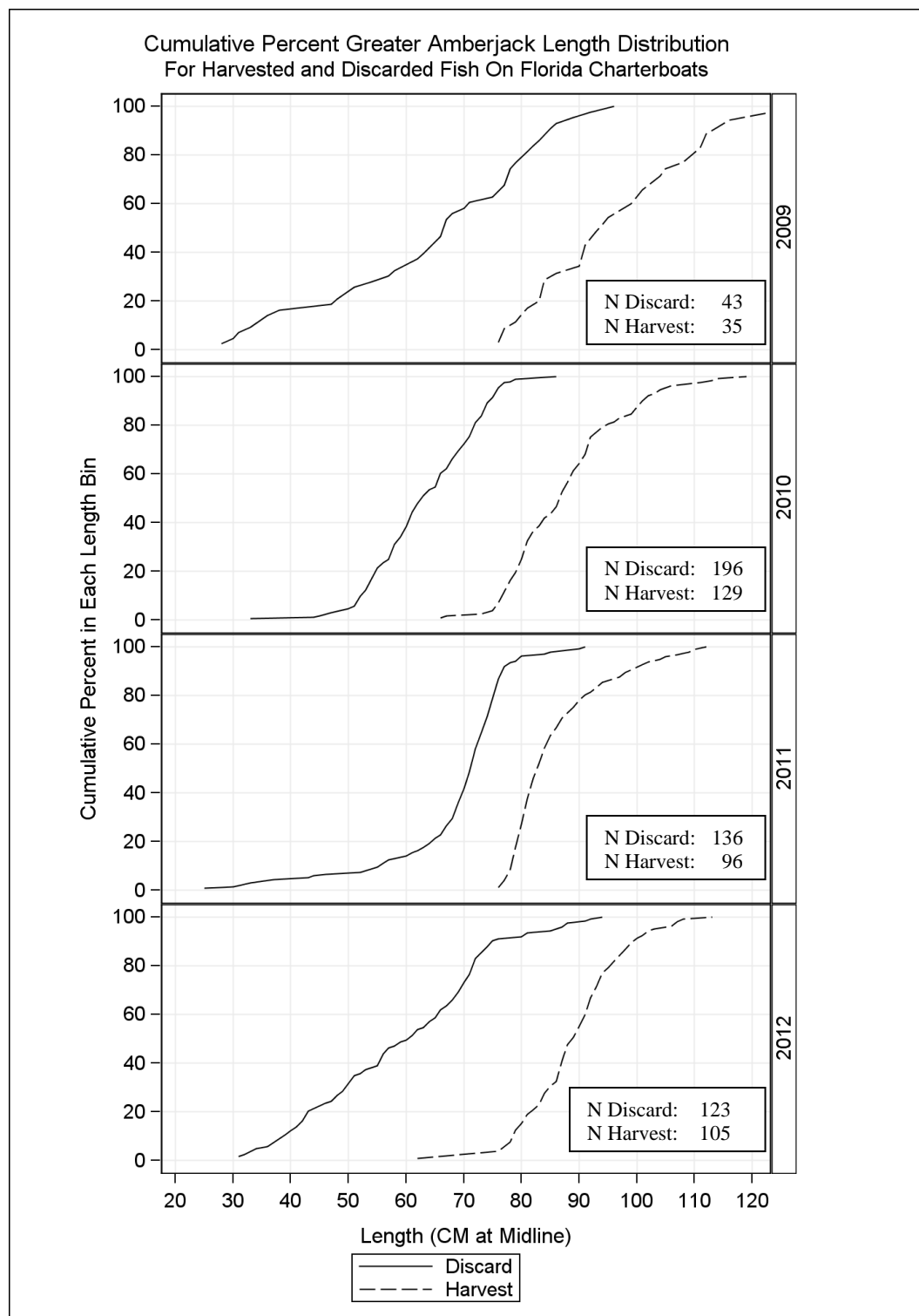
**Figure 2.** Unweighted length frequency of greater amberjack that were measured by fishery observers on charter vessels during 2009 (June-December) and 2010-2012 in Florida. Harvest includes fish that were either retained or released dead, and discard includes all live fish that were released. N = numbers of fish observed.



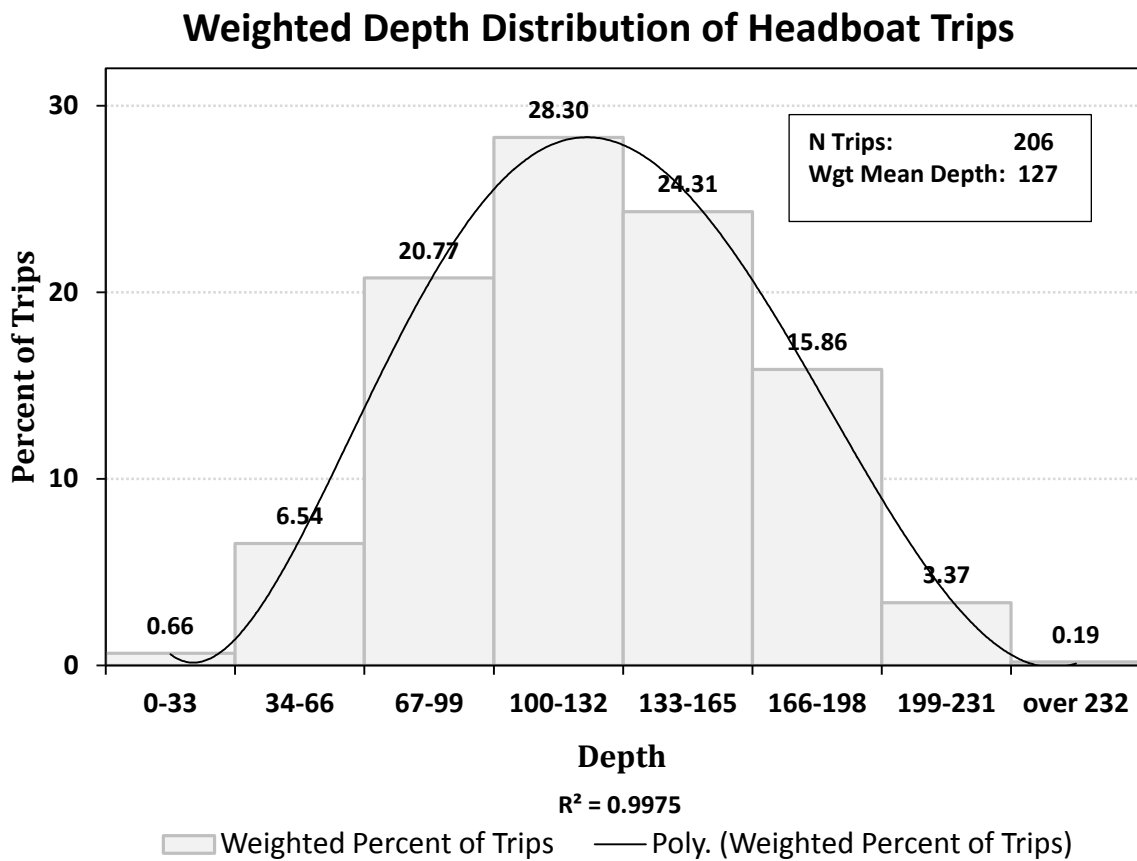
**Figure 3.** Unweighted length frequency of greater amberjack measured by at-sea observers on federally permitted charterboats operating from Corpus Christi, Texas, from September 2010 through August 2011. Harvest includes fish that were either retained or released dead, and discard includes all live fish that were released. N = numbers of fish observed.



**Figure 4.** Weighted cumulative percentage of greater amberjack by length measured by fishery observers on headboats in Florida from 2005-2012. Harvest includes fish that were either retained or released dead, and discard includes all live fish that were released. N = numbers of fish observed.

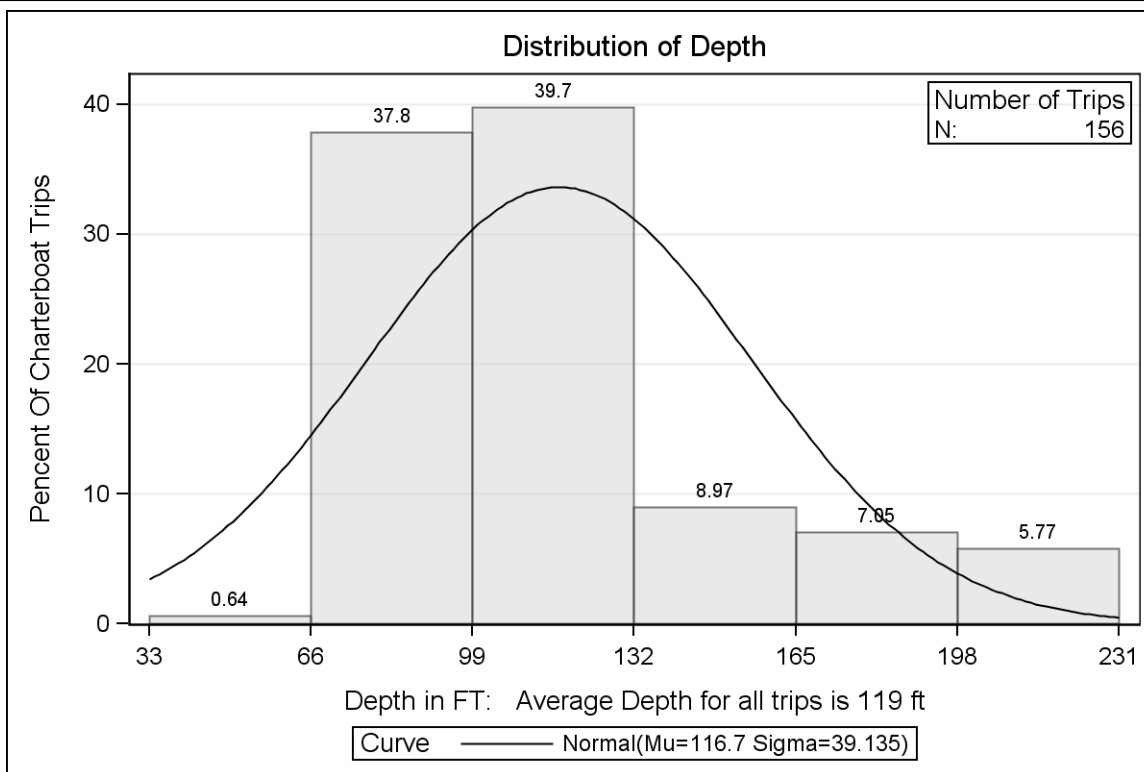


**Figure 5.** Weighted cumulative percentage of greater amberjack by length measured by fishery observers on charterboats in Florida from 2005-2012. Harvest includes fish that were either retained or released dead, and discard includes all live fish that were released. N = numbers of fish observed.



| Year | Number of Trips | Avg. Depth in ft | Min   | Max    |
|------|-----------------|------------------|-------|--------|
| 2005 | 31              | 120              | 80    | 322    |
| 2006 | 40              | 120              | 37    | 526    |
| 2007 | 28              | 136              | 16    | 204    |
| 2009 | 18              | 136              | 65.62 | 188.77 |
| 2010 | 29              | 144              | 78.74 | 204.5  |
| 2011 | 32              | 128              | 77.1  | 232.94 |
| 2012 | 28              | 120              | 52.49 | 195.21 |

**Figure 6.** Weighted depth distribution for headboat trips sampled in Florida that were positive for greater amberjack (harvested, released or both).



| Year | Number of Trips | Avg. Depth in ft | Min   | Max    |
|------|-----------------|------------------|-------|--------|
| 2009 | 27              | 120              | 44.29 | 238.4  |
| 2010 | 44              | 120              | 66.93 | 264.92 |
| 2011 | 37              | 112              | 71.08 | 196.85 |
| 2012 | 48              | 120              | 72.18 | 383.85 |

**Figure 7.** Unweighted depth distribution for charter vessel trips sampled in Florida that were positive for greater amberjack (harvested, released or both).

**Table 1.** Spatial and geographic coverage of for-hire fishery observer programs in the Gulf of Mexico. Black = headboat coverage only, dark gray = charter and headboat coverage, light gray = charter boat coverage only.

| <b>Year</b>             | <b>West Florida, Naples to Port Charlotte</b> | <b>West Florida, Tampa Bay to Panhandle</b> | <b>Alabama</b> | <b>Mississippi</b> | <b>Louisiana</b> | <b>Texas</b> |
|-------------------------|---|---|----------------|--------------------|------------------|--------------|
| <b>2004</b>             |   |   |                |                    |                  |              |
| <b>2005</b>             |   |   |                |                    |                  |              |
| <b>2006</b>             |   |   |                |                    |                  |              |
| <b>2007</b>             |   |   |                |                    |                  |              |
| <b>2008</b>             |   |   |                |                    |                  |              |
| <b>2009<sup>1</sup></b> |   |   |                |                    |                  |              |
| <b>2010<sup>2</sup></b> |   |   |                |                    |                  |              |
| <b>2011<sup>2</sup></b> |   |   |                |                    |                  |              |
| <b>2012</b>             |   |   |                |                    |                  |              |

<sup>1</sup>Coverage was limited to June-December, 2009.

<sup>2</sup>Coverage in Texas was limited to ports near Corpus Christi from Sept. 2010-Aug. 2011.



**Table 2.** Headboat trips sampled by month and year in Florida.

| <b>Year</b> | <b>Type</b>  | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> | <b>Total</b> |
|-------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| 2005        | Half Day     | 1          | 2          | 2          | 2          | 3          | 1          | 2          | 5          | 1          | 1          | 1          | 2          | <b>23</b>    |
|             | ¾ Day        | 0          | 6          | 6          | 6          | 6          | 10         | 9          | 5          | 5          | 9          | 7          | 4          | <b>73</b>    |
|             | Full Day     | 0          | 1          | 1          | 4          | 2          | 1          | 1          | 0          | 1          | 2          | 1          | 1          | <b>15</b>    |
|             | Multi-day    | 0          | 1          | 0          | 2          | 3          | 2          | 2          | 2          | 2          | 2          | 1          | 3          | <b>20</b>    |
|             | <b>Total</b> | 1          | 10         | 9          | 14         | 14         | 14         | 14         | 12         | 9          | 14         | 10         | 10         | <b>131</b>   |
| 2006        | Half Day     | 2          | 3          | 1          | 4          | 4          | 1          | 2          | 5          | 2          | 1          | 2          | 1          | <b>28</b>    |
|             | ¾ Day        | 7          | 7          | 8          | 4          | 8          | 7          | 7          | 6          | 8          | 6          | 6          | 9          | <b>83</b>    |
|             | Full Day     | 0          | 0          | 3          | 2          | 0          | 5          | 1          | 1          | 1          | 1          | 1          | 0          | <b>15</b>    |
|             | Multi-day    | 1          | 2          | 2          | 2          | 1          | 2          | 3          | 3          | 2          | 2          | 1          | 2          | <b>23</b>    |
|             | <b>Total</b> | 10         | 12         | 14         | 12         | 13         | 15         | 13         | 15         | 13         | 10         | 10         | 12         | <b>149</b>   |
| 2007        | Half Day     | 2          | 3          | 3          | 3          | 3          | 3          | 3          | 2          | 0          | 2          | 2          | 0          | <b>26</b>    |
|             | ¾ Day        | 6          | 5          | 6          | 6          | 7          | 4          | 5          | 7          | 9          | 7          | 7          | 10         | <b>79</b>    |
|             | Full Day     | 1          | 1          | 2          | 1          | 1          | 3          | 1          | 1          | 0          | 1          | 0          | 0          | <b>12</b>    |
|             | Multi-day    | 1          | 1          | 2          | 1          | 1          | 2          | 1          | 2          | 1          | 4          | 5          | 3          | <b>24</b>    |
|             | <b>Total</b> | 10         | 10         | 13         | 11         | 12         | 12         | 10         | 12         | 10         | 14         | 14         | 13         | <b>141</b>   |
| 2009        | Half Day     |            |            |            |            |            | 0          | 2          | 1          | 1          | 0          | 0          | 0          | <b>4</b>     |
|             | ¾ Day        |            |            |            |            |            | 8          | 6          | 8          | 6          | 6          | 6          | 3          | <b>43</b>    |
|             | Full Day     |            |            |            |            |            | 7          | 4          | 0          | 1          | 0          | 1          | 0          | <b>13</b>    |
|             | Multi-day    |            |            |            |            |            | 0          | 1          | 2          | 1          | 2          | 1          | 1          | <b>8</b>     |
|             | <b>Total</b> |            |            |            |            |            | 15         | 14         | 11         | 9          | 8          | 9          | 6          | <b>72</b>    |
| 2010        | Half Day     | 0          | 1          | 0          | 0          | 3          | 1          | 5          | 2          | 1          | 0          | 0          | 0          | <b>13</b>    |
|             | ¾ Day        | 4          | 3          | 3          | 6          | 3          | 5          | 3          | 5          | 7          | 6          | 1          | 2          | <b>48</b>    |
|             | Full Day     | 1          | 2          | 2          | 1          | 0          | 4          | 5          | 1          | 1          | 1          | 3          | 0          | <b>21</b>    |
|             | Multi-day    | 1          | 1          | 1          | 2          | 0          | 3          | 1          | 0          | 1          | 0          | 0          | 2          | <b>12</b>    |
|             | <b>Total</b> | 6          | 7          | 6          | 9          | 6          | 13         | 14         | 8          | 10         | 7          | 4          | 4          | <b>94</b>    |
| 2011        | Half Day     | 0          | 0          | 2          | 1          | 5          | 4          | 2          | 2          | 1          | 4          | 1          | 8          | <b>30</b>    |
|             | ¾ Day        | 4          | 7          | 6          | 6          | 3          | 5          | 7          | 6          | 5          | 5          | 6          | 7          | <b>67</b>    |
|             | Full Day     | 0          | 0          | 0          | 1          | 0          | 6          | 0          | 0          | 1          | 0          | 0          | 0          | <b>8</b>     |
|             | Multi-day    | 0          | 1          | 0          | 3          | 0          | 3          | 2          | 1          | 1          | 2          | 1          | 1          | <b>15</b>    |
|             | <b>Total</b> | 4          | 8          | 8          | 11         | 8          | 18         | 11         | 9          | 8          | 11         | 8          | 16         | <b>120</b>   |
| 2012        | Half Day     | 1          | 4          | 2          | 2          | 4          | 5          | 5          | 5          | 2          | 2          | 0          | 3          | <b>35</b>    |
|             | ¾ Day        | 8          | 3          | 3          | 7          | 4          | 3          | 5          | 4          | 4          | 5          | 6          | 5          | <b>57</b>    |
|             | Full Day     | 1          | 1          | 0          | 0          | 0          | 3          | 0          | 0          | 0          | 0          | 0          | 0          | <b>5</b>     |
|             | Multi-day    | 0          | 1          | 1          | 1          | 0          | 2          | 3          | 1          | 1          | 0          | 1          | 1          | <b>12</b>    |
|             | <b>Total</b> | 10         | 9          | 6          | 10         | 8          | 13         | 13         | 10         | 7          | 7          | 7          | 9          | <b>109</b>   |

**Table 3.** Headboat trips by month and year in Alabama.

|      |               | Jan      | Feb      | Mar      | Apr      | May      | Jun      | Jul      | Aug      | Sep      | Oct      | Nov      | Dec      | Total     |
|------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| 2005 | Half Day      | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 1        | 0        | 1         |
|      | Three/Quarter | 0        | 0        | 2        | 4        | 5        | 7        | 6        | 2        | 0        | 1        | 0        | 0        | 27        |
|      | Full Day      | 0        | 0        | 0        | 0        | 1        | 1        | 0        | 1        | 0        | 0        | 0        | 0        | 3         |
|      | Multiday      | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         |
|      | <b>Total</b>  | <b>0</b> | <b>0</b> | <b>2</b> | <b>4</b> | <b>6</b> | <b>8</b> | <b>6</b> | <b>3</b> | <b>0</b> | <b>1</b> | <b>1</b> | <b>0</b> | <b>31</b> |
| 2006 | Half Day      | 0        | 0        | 0        | 1        | 1        | 3        | 0        | 1        | 0        | 0        | 0        | 0        | 6         |
|      | Three/Quarter | 0        | 0        | 3        | 2        | 7        | 3        | 6        | 3        | 3        | 1        | 0        | 0        | 28        |
|      | Full Day      | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         |
|      | Multiday      | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         |
|      | <b>Total</b>  | <b>0</b> | <b>0</b> | <b>3</b> | <b>3</b> | <b>8</b> | <b>6</b> | <b>6</b> | <b>4</b> | <b>3</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>34</b> |
| 2007 | Half Day      | 0        | 0        | 0        | 0        | 0        | 2        | 1        | 1        | 0        | 0        | 0        | 0        | 4         |
|      | Three/Quarter | 0        | 0        | 2        | 1        | 1        | 4        | 5        | 2        | 2        | 1        | 0        | 0        | 18        |
|      | Full Day      | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         |
|      | Multiday      | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0         |
|      | <b>Total</b>  | <b>0</b> | <b>0</b> | <b>2</b> | <b>1</b> | <b>1</b> | <b>6</b> | <b>6</b> | <b>3</b> | <b>2</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>22</b> |

**Table 4.** Charter vessel trips sampled by month and year in Florida.

| <b>Year</b> | <b>Type</b>       | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> | <b>Total</b> |
|-------------|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| 2009        | Half Day          |            |            |            |            |            | 1          | 0          | 0          | 1          | 0          | 1          | 0          | 3            |
|             | $\frac{3}{4}$ Day |            |            |            |            |            | 5          | 3          | 5          | 8          | 4          | 3          | 1          | 29           |
|             | Full Day          |            |            |            |            |            | 1          | 8          | 1          | 5          | 3          | 4          | 1          | 23           |
|             | Multi-day         |            |            |            |            |            | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0            |
|             | <b>Total</b>      |            |            |            |            |            | 7          | 11         | 6          | 14         | 7          | 8          | 3          | 56           |
| 2010        | Half Day          | 1          | 0          | 1          | 1          | 0          | 4          | 2          | 2          | 1          | 1          | 4          | 1          | 18           |
|             | $\frac{3}{4}$ Day | 3          | 3          | 4          | 3          | 5          | 6          | 4          | 4          | 5          | 10         | 7          | 2          | 56           |
|             | Full Day          | 0          | 1          | 1          | 0          | 5          | 5          | 1          | 0          | 0          | 8          | 5          | 0          | 26           |
|             | Multi-day         | 0          | 1          | 0          | 0          | 0          | 1          | 0          | 0          | 0          | 0          | 0          | 0          | 2            |
|             | <b>Total</b>      | 4          | 5          | 6          | 4          | 10         | 16         | 7          | 6          | 6          | 19         | 16         | 3          | 102          |
| 2011        | Half Day          | 0          | 3          | 6          | 1          | 4          | 4          | 1          | 0          | 4          | 4          | 2          | 3          | 32           |
|             | $\frac{3}{4}$ Day | 3          | 5          | 4          | 6          | 8          | 8          | 7          | 10         | 8          | 5          | 5          | 8          | 77           |
|             | Full Day          | 2          | 0          | 0          | 2          | 0          | 5          | 2          | 1          | 1          | 4          | 1          | 1          | 19           |
|             | Multi-day         | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0            |
|             | <b>Total</b>      | 5          | 8          | 10         | 9          | 12         | 17         | 10         | 11         | 13         | 13         | 8          | 12         | 128          |
| 2012        | Half Day          | 3          | 0          | 3          | 0          | 0          | 4          | 3          | 1          | 1          | 7          | 1          | 3          | 26           |
|             | $\frac{3}{4}$ Day | 3          | 8          | 3          | 5          | 7          | 5          | 8          | 10         | 4          | 7          | 10         | 4          | 74           |
|             | Full Day          | 0          | 1          | 2          | 3          | 3          | 1          | 4          | 1          | 4          | 2          | 3          | 1          | 25           |
|             | Multi-day         | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0            |
|             | <b>Total</b>      | 6          | 9          | 8          | 8          | 10         | 10         | 15         | 12         | 9          | 16         | 14         | 8          | 125          |

**Table 5.** Numbers of charter trips sampled per month and sampled trips expressed as a percentage of total effort reported on logbook trip reports. Table copied from final report for the MRIP Gulf of Mexico For-Hire Logbook Pilot Study available at:  
[http://www.st.nmfs.noaa.gov/Assets/recreational/pdf/Charter\\_Boat\\_Logbook\\_Project\\_report.pdf](http://www.st.nmfs.noaa.gov/Assets/recreational/pdf/Charter_Boat_Logbook_Project_report.pdf)

|       | <b>Texas</b> |                          | <b>Florida</b> |                          |
|-------|--------------|--------------------------|----------------|--------------------------|
|       | <b>Total</b> | <b>Percent Validated</b> | <b>Total</b>   | <b>Percent Validated</b> |
| Sep   | 5            | 7.0%                     | 4              | 0.65%                    |
| Oct   | 4            | 9.5%                     | 15             | 1.3%                     |
| Nov   | 0            | 0                        | 13             | 3.5%                     |
| Dec   | 0            | 0                        | 0              | 0                        |
| Jan   | 0            | 0                        | 1              | 4.8%                     |
| Feb   | 0            | 0                        | 4              | 3.2%                     |
| Mar   | 2            | 7.7%                     | 6              | 0.63%                    |
| Apr   | 1            | 10.0%                    | 7              | 0.57%                    |
| May   | 4            | 10.3%                    | 8              | 0.55%                    |
| Jun   | 9            | 6.1%                     | 12             | 0.31%                    |
| Jul   | 11           | 4.2%                     | 9              | 0.26%                    |
| Aug   | 9            | 5.4%                     | 10             | 0.62%                    |
| Total | 45           | 5.8%                     | 87             | 0.60%                    |

**Table 6.** Numbers, minimum/maximum length and mean length of greater amberjack measured by fishery observers on headboat trips in Florida.

| Year                             | Disposition | Number Measured | Length (midline in cm) |         |      |               |
|----------------------------------|-------------|-----------------|------------------------|---------|------|---------------|
|                                  |             |                 | Minimum                | Maximum | Mean | Weighted Mean |
| 2005                             | Discard     | 131             | 24                     | 77      | 54   | 49            |
|                                  | Harvest     | 57              | 44                     | 112     | 86   | 86            |
| 2006                             | Discard     | 245             | 16                     | 73      | 50   | 52            |
|                                  | Harvest     | 137             | 33                     | 126     | 88   | 85            |
| 2007                             | Discard     | 247             | 20                     | 78      | 53   | 52            |
|                                  | Harvest     | 139             | 38                     | 114     | 84   | 75            |
| -----2008 no trips sampled ----- |             |                 |                        |         |      |               |
| 2009                             | Discard     | 85              | 32                     | 98      | 65   | 62            |
|                                  | Harvest     | 49              | 76                     | 99      | 89   | 89            |
| 2010                             | Discard     | 151             | 37                     | 99      | 59   | 62            |
|                                  | Harvest     | 101             | 76                     | 126     | 91   | 92            |
| 2011                             | Discard     | 82              | 27                     | 101     | 65   | 60            |
|                                  | Harvest     | 67              | 75                     | 109     | 85   | 85            |
| 2012                             | Discard     | 79              | 24                     | 107     | 54   | 47            |
|                                  | Harvest     | 68              | 10                     | 145     | 85   | 89            |

**Table 7.** Numbers, minimum/maximum length and mean length of greater amberjack measured by fishery observers on headboat trips in Alabama.

| Year | Disposition | Number Measured | Length (midline in cm) |         |      |               |
|------|-------------|-----------------|------------------------|---------|------|---------------|
|      |             |                 | Minimum                | Maximum | Mean | Weighted Mean |
| 2005 | Discard     | 11              | 27                     | 55      | 35   | 38            |
|      | Harvest     | -               | -                      | -       | -    | -             |
| 2006 | Discard     | 23              | 25                     | 67      | 37   | 37            |
|      | Harvest     | -               | -                      | -       | -    | -             |
| 2007 | Discard     | 21              | 35                     | 51      | 42   | 42            |
|      | Harvest     | -               | -                      | -       | -    | -             |

**Table 8.** Numbers, minimum/maximum length and mean length of greater amberjack measured by fishery observers on charter vessels in Florida.

| Year | Disposition | Number Measured | Length (midline in cm) |         |      |
|------|-------------|-----------------|------------------------|---------|------|
|      |             |                 | Minimum                | Maximum | Mean |
| 2009 | Discard     | 43              | 28                     | 96      | 65   |
|      | Harvest     | 35              | 76                     | 127     | 96   |
| 2010 | Discard     | 196             | 33                     | 86      | 64   |
|      | Harvest     | 129             | 66                     | 119     | 88   |
| 2011 | Discard     | 136             | 25                     | 91      | 69   |
|      | Harvest     | 96              | 76                     | 112     | 86   |
| 2012 | Discard     | 123             | 31                     | 94      | 60   |
|      | Harvest     | 105             | 62                     | 113     | 89   |

**Table 9.** Unweighted and weighted numbers and percents of greater amberjack discards observed on headboats in Florida and Alabama by year and release condition. Weighted values are in bold.

|                                   |      | Good         |              | Fair        |              | Poor        |             | Dead        |             | Eaten       |              |
|-----------------------------------|------|--------------|--------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|--------------|
|                                   | Area | N            | %            | N           | %            | N           | %           | N           | %           | N           | %            |
| 2005                              | FL   | 143          | 90.50        | 5           | 3.17         | 3           | 1.90        | 4           | 2.53        | 3           | 1.90         |
|                                   |      | <b>32.83</b> | <b>86.63</b> | <b>2.64</b> | <b>6.96</b>  | <b>0.21</b> | <b>0.57</b> | <b>1.14</b> | <b>3.02</b> | <b>1.07</b> | <b>2.83</b>  |
|                                   | AL   | 9.00         | 81.82        | 2.00        | 18.18        | 0           | 0           | 0           | 0           | 0           | 0            |
|                                   |      | <b>6.39</b>  | <b>71.01</b> | <b>2.61</b> | <b>28.99</b> | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>     |
| 2006                              | FL   | 290          | 97.64        | 2           | 0.67         | 2           | 0.67        | 2           | 0.67        | 1           | 0.34         |
|                                   |      | <b>93.99</b> | <b>98.9</b>  | <b>0.3</b>  | <b>0.31</b>  | <b>0.3</b>  | <b>0.31</b> | <b>0.3</b>  | <b>0.31</b> | <b>0.15</b> | <b>0.16</b>  |
|                                   | AL   | 16.00        | 72.73        | 2.00        | 9.09         | 0           | 0           | 0           | 0           | 4.00        | 18.18        |
|                                   |      | <b>11.76</b> | <b>71.29</b> | <b>1.40</b> | <b>8.52</b>  | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>3.33</b> | <b>20.18</b> |
| 2007                              | FL   | 286          | 97.95        | 4           | 1.37         | 1           | 0.34        | 0           | 0           | 1           | 0.34         |
|                                   |      | <b>69.47</b> | <b>96.63</b> | <b>1.61</b> | <b>2.25</b>  | <b>0.76</b> | <b>1.05</b> | <b>0</b>    | <b>0</b>    | <b>0.05</b> | <b>0.07</b>  |
|                                   | AL   | 286          | 97.95        | 4           | 1.37         | 0           | 0           | 0           | 0           | 1.00        | 4.76         |
|                                   |      | <b>12.82</b> | <b>85.71</b> | <b>1.42</b> | <b>9.52</b>  | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0.71</b> | <b>4.76</b>  |
| ----- 2008 no trips sampled ----- |      |              |              |             |              |             |             |             |             |             |              |
| 2009                              | FL   | 100          | 93.46        | 2           | 1.87         | 4           | 3.74        | 0           | 0           | 1           | .94          |
|                                   |      | <b>18.13</b> | <b>91.14</b> | <b>1.22</b> | <b>6.15</b>  | <b>0.43</b> | <b>2.17</b> | <b>0</b>    | <b>0</b>    | <b>.11</b>  | <b>0.54</b>  |
| 2010                              | FL   | 167          | 98.24        | 0           | 0            | 2           | 1.18        | 1           | 0.59        | 0           | 0            |
|                                   |      | <b>46.70</b> | <b>99.30</b> | <b>0</b>    | <b>0</b>     | <b>0.22</b> | <b>0.47</b> | <b>.11</b>  | <b>0.24</b> | <b>0</b>    | <b>0</b>     |
| 2011                              | FL   | 77           | 92.77        | 4           | 4.82         | 2           | 2.41        | 0           | 0           | 0           | 0            |
|                                   |      | <b>29.21</b> | <b>97.81</b> | <b>0.44</b> | <b>1.46</b>  | <b>0.22</b> | <b>0.73</b> | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>     |
| 2012                              | FL   | 84           | 93.33        | 1           | 1.11         | 4           | 4.44        | 1           | 1.11        | 0           | 0            |
|                                   |      | <b>51.28</b> | <b>94.97</b> | <b>0.17</b> | <b>0.33</b>  | <b>1.53</b> | <b>2.93</b> | <b>1.01</b> | <b>1.87</b> | <b>0</b>    | <b>0</b>     |

**Table 10.** Number and percent by release condition of greater amberjack discards observed on charter vessels in Florida from 2005-2012.

|      | Good |       | Fair |      | Poor |      | Dead |      | Eaten |      |
|------|------|-------|------|------|------|------|------|------|-------|------|
|      | N    | %     | N    | %    | N    | %    | N    | %    | N     | %    |
| 2009 | 63   | 95.45 | 0    | 0    | 2    | 3.03 | 1    | 1.52 | 0     | 0    |
| 2010 | 227  | 97.43 | 1    | 0.43 | 3    | 1.29 | 1    | 0.43 | 1     | 0.43 |
| 2011 | 130  | 97.74 | 3    | 2.26 | 0    | 0    | 0    | 0    | 0     | 0    |
| 2012 | 113  | 98.6  | 0    | 0    | 0    | 0    | 0    | 0    | 2     | 1.74 |

**Table 11.** Number of greater amberjack observed on headboats in Florida and Alabama that were either harvested or released, and weighted percentage that were harvested.

|      |    | Harvested | Released | Total | Weighted Harvest | Weighted Released | Weighted Percentage Harvested |
|------|----|-----------|----------|-------|------------------|-------------------|-------------------------------|
| 2005 | FL | 78        | 164      | 242   | 10.28            | 38.32             | 21.15                         |
|      | AL | 0         | 11       | 11    | 0                | 9.00              | 0                             |
| 2006 | FL | 190       | 304      | 494   | 35.61            | 96.08             | 27.04                         |
|      | AL | 0         | 22       | 22    | 0                | 16.49             | 0                             |
| 2007 | FL | 150       | 296      | 446   | 14.83            | 72.09             | 17.06                         |
|      | AL | 0         | 21       | 291   | 0                | 14.95             | 0                             |
| 2009 | FL | 90        | 135      | 225   | 11.07            | 25.75             | 30.07                         |
| 2010 | FL | 103       | 184      | 287   | 19.34            | 53.10             | 26.70                         |
| 2011 | FL | 67        | 90       | 157   | 7.32             | 31.57             | 18.82                         |
| 2012 | FL | 68        | 92       | 160   | 21.28            | 54.31             | 27.78                         |

**Table 12.** Unweighted number of greater amberjack observed on charter vessels in Florida and Texas that were harvested or released, and percentage that were harvested.

|           | Area | Harvested | Released | Total | Percent Harvested |
|-----------|------|-----------|----------|-------|-------------------|
| 2009      | FL   | 74        | 95       | 169   | 43.79             |
| 2010      | FL   | 132       | 236      | 368   | 35.87             |
| 2011      | FL   | 97        | 136      | 233   | 41.63             |
| 2010-2011 | TX   | 25        | 8        | 33    | 75.76             |
| 2012      | FL   | 109       | 125      | 234   | 46.58             |