A Summary of Greater Amberjack Discard Data from Recreational Fishery Surveys on the East Coast of Florida

Benjamin Duffin

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A Summary of Greater Amberjack Discard Data from Recreational Fishery Surveys on the East Coast of Florida

Prepared by:
Benjamin Duffin
Florida Fish and Wildlife Conservation Commission
Fish and Wildlife Research Institute
Saint Petersburg, FL

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Detailed information on the size and release condition of discarded fish is not collected in traditional dockside surveys of recreational fisheries. At-sea observer surveys have been implemented to fill this data gap, providing valuable information on the size and condition of discarded fish. These surveys have been conducted on headboat vessels in the south Atlantic Ocean since 2004 and on charter vessels from along the east coast of Florida from 2012 to 2017, with enhanced coverage for the years 2013, 2014, and 2015. In this region, most headboat trips and a portion of charter trips engage in bottom fishing for reef fish species, including greater amberjack (*Seriola dumerili*), and other bottom dwelling fish. This report provides a summary of available information that characterize headboat and charter trips and the disposition of greater amberjack retained and released by recreational headboats and charter boats along the South Atlantic coast from Nassau County to the waters in the South Atlantic along the Florida Keys.

Sample Methods

Cooperative vessels were randomly selected each month from three regions in Florida: the Florida Keys (Monroe County), southeast Florida (Dade to Indian River County), and northeast Florida (Nassau to Brevard County). Operators from selected vessels were contacted by state biologists and were scheduled for a single sampling trip in a selected week. Dependent upon the number of customers on board, one or two biologists accompanied passengers during the scheduled trip. The captain and mates cooperated by making sure fish caught by their anglers were observed by one of the biologists before they were stored in the fish hold or released overboard. Biologists would assist with dehooking fish for data collection, but were not permitted to influence the decision to keep or release a fish.

Data Elements

Trip Level Elements
Trip level information for each trip included the area fished, duration of fishing (to the nearest half hour), number of anglers, and depths (meters) of the fishing sites. Site specific fishing depths have been recorded beginning in 2010.

Area fished for southeast and northeast Florida and trips originating in the Florida Keys in the South Atlantic was coded as:
1: 3 miles or less from shore; or

2: more than 3 miles from shore

Characterization of Trips duration:

- Half-day (<6 hours)
- Three-quarter day (6 to 8.5 hours)
- Full day (9 or more hours)
- Multiday (24 or more hours)

Fish Level Elements
Disposition codes are recorded for all fish and represent the final fate (e.g. kept or discarded) of each observed fish.

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.

Historically, released condition is an observation of immediate mortality, and fish coded as "Good" swam down from the surface of the water immediately and fish coded as "Fair" swam down in a disoriented fashion. Other release conditions have been considered immediate mortality.

Release Condition was coded as:
1: Good
2: Fair
3: Bad
4: Dead
5: Eaten
9: Unobserved

Barotrauma has been recorded since 2010 as a record of injury in captured fish as a result of rapid depressurization.

Barotrauma was coded as:
B: Bladder inflated
I: Intestines visible
P: Exopthalmia (pop-eyes)
S: Stomach everted
X: External bleeding
N: No visible signs

Results

Number of observed headboat and charter recreational fishing trips positive for greater amberjack in the South Atlantic are summarized by year and vessel type (Table 1). Summarized station level depths recorded for individual recreational headboat and charter trips that caught greater amberjack on the east coast of Florida are summarized in Table 2. No depths recorded prior to 2010 are included, as these depths correspond with the trip as a whole and not the stations where greater amberjack were captured.

A total of 998 greater amberjack were captured during observed trips on the east coast of Florida from 2005 to 2017. Barotrauma injury was recorded for 11.3% of the 674 fish that were checked for injury. Of the 570 discarded fish, 2.6% were dead based on surface observations (conditions "Bad" or "Dead"). Observed barotrauma condition and release condition with respect to depth are shown in Figures 1 and 2, respectively. Lastly, the relationship between depth and greater amberjack fork length is shown in Figure 3, with corresponding model statistics shown below the graph.

Table 1. Number of observer trips where greater amberjack were caught on the east coast of Florida, by year and vessel type.

YEAR	HEADBOAT	CHARTER
2005	24	-
2006	12	-
2007	22	-
2008	20	-
2009	14	-
2010	8	-
2011	7	-
2012	8	1
2013	4	33
2014	15	37
2015	23	38
2016	15	4
2017	9	5
TOTAL	**181**	**118**

Table 2. Summary statistics of station level depths (in meters) for observed trips that caught greater amberjack on the east coast of Florida.

YEAR	HEADBOAT				CHARTER			
	Min	Mean	Max	Trips	Min	Mean	Max	Trips
2010	7	12.7	24	2	-	-	-	-
2011	15	31.6	44	7	-	-	-	-
2012	23	32.6	60	8	27	27	27	1
2013	6	32.6	51	4	9	38.6	89	33
2014	21	27	50	15	5	46.9	183	37
2015	18	31.3	63	23	16	34.7	110	38
2016	17	30.4	42	15	16	59.5	107	4
2017	12	28.3	41	9	37	69.3	112	5

Figure 1. Boxplots of observed post-release condition for discarded greater amberjack, by depth (in meters). The number of observation for each release category is inset in the figure.

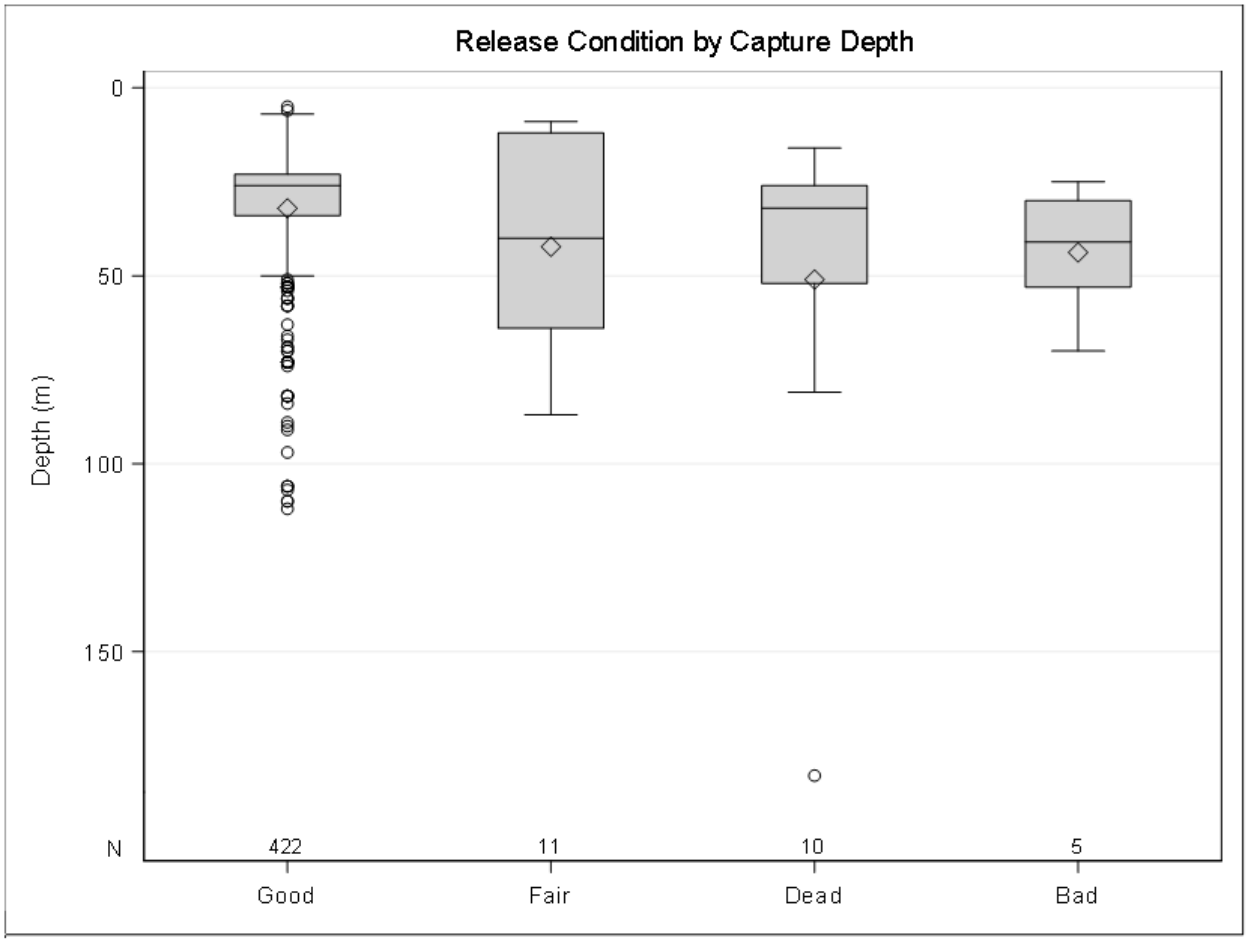


Figure 2. Boxplots of observed barotrauma for discarded greater amberjack, by depth (in meters). The number of observation for each release category is inset in the figure.

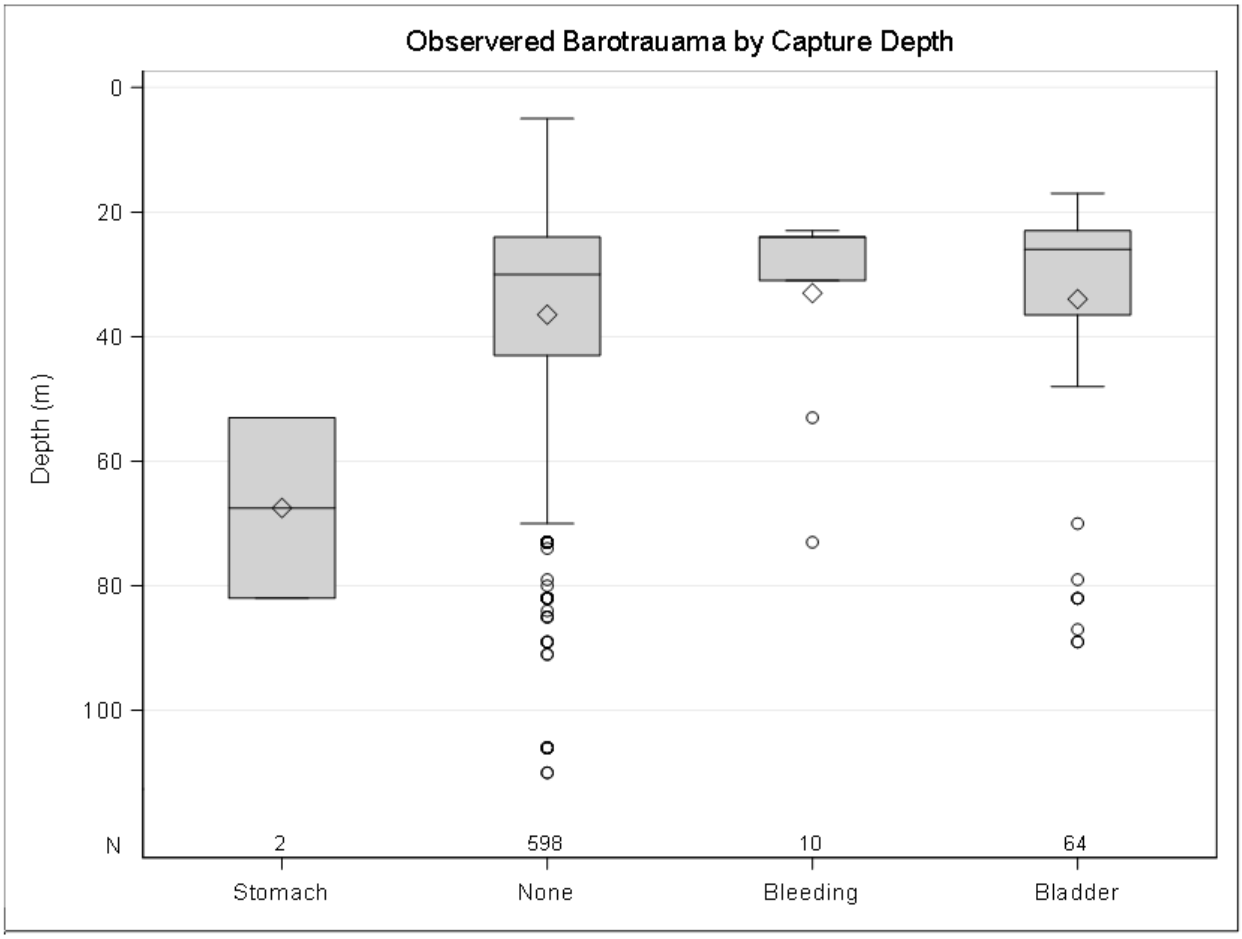
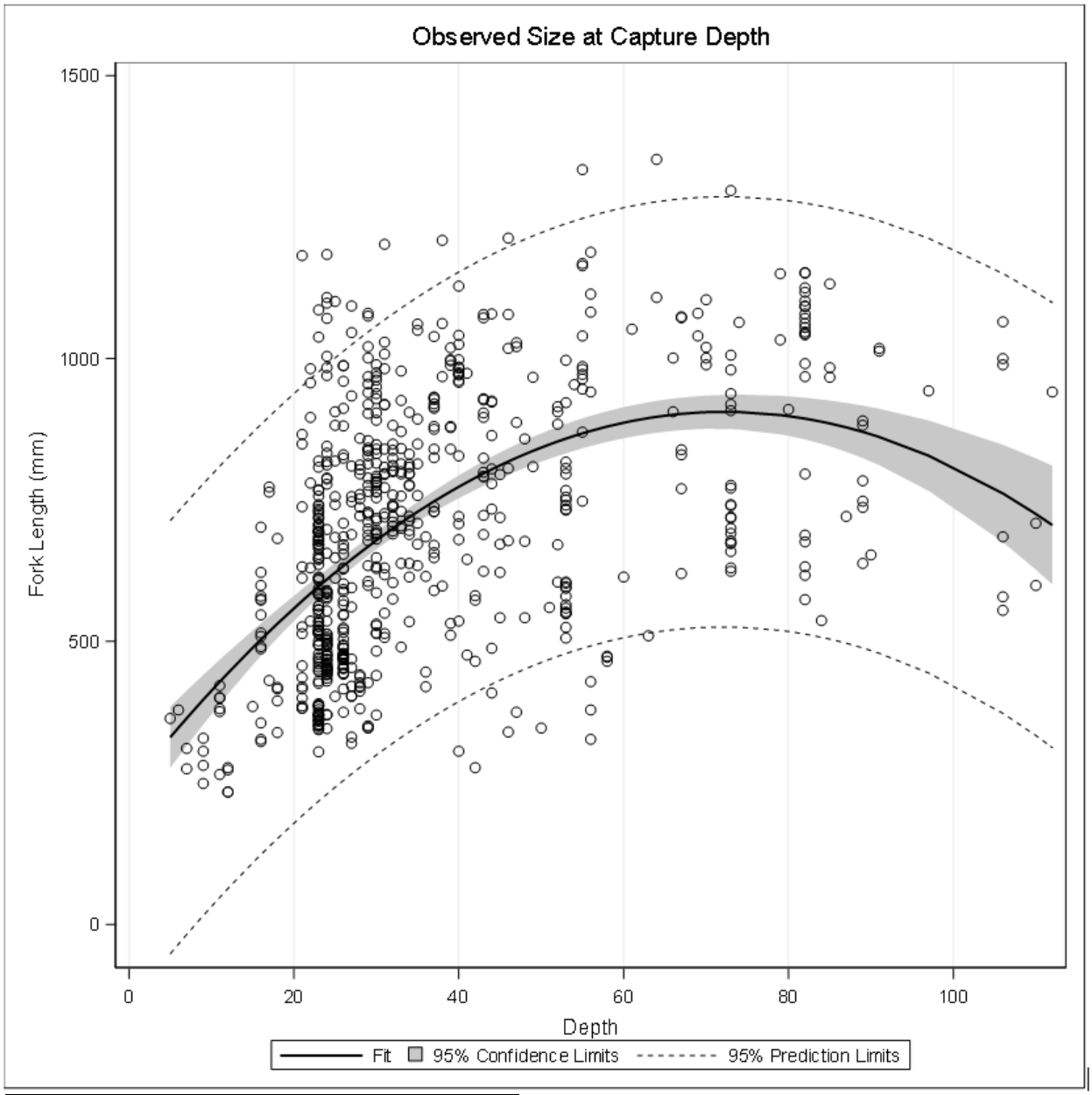


Figure 3. Observed relationship between fork length and depth of greater amberjack captured on the east coast of Florida.



Root MSE	193.05061	*R-Square*	0.2752
Mean Fork Length	696.10780	*Adj R-Sq*	0.2731