

Black Seabass Length Frequencies and Condition of Released Fish from At-Sea Headboat Observer Surveys, 2004 to 2010.

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For:

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From 2004 to 2010, headboats in South Carolina and North Carolina participated in an at-sea observer survey. From 2005 to 2009, headboats along the Atlantic coast of Florida and Georgia also participated in an at-sea observer survey. The purpose of the Headboat At-Sea Survey was to collect detailed information on both harvested and discarded fish during recreational fishing trips on board working headboats. This report is a summary of information collected on the size, release condition, and final disposition of black seabass collected by trained observers during at-sea surveys on board headboats. While this information is specific to the recreational headboat fishery, it provides valuable information on the size of discarded fish from the recreational fishery, which historically has not been collected in other surveys of recreational fishing.

Sample Methods

Vessels were randomly selected each month from six sample regions: northeast Florida (Broward to Duval counties), southeast Florida (Dade to Indian River counties), Florida Keys (Monroe County), Georgia, South Carolina, and North Carolina. Funding for the Florida Keys was discontinued after 2007. Numbers of sampled headboat trips by state, region and year are presented in table 1. Operators from selected vessels were contacted by state biologists and a trip was arranged. 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. For each fish, biologists recorded the species, disposition, size (fork length in mm), and the condition of fish that were released (Florida only). Release conditions were not recorded in South Carolina, Georgia, or North Carolina.

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.

Release conditions were coded (FL only) as:

Good = 1: fish swam toward bottom immediately upon entry into the water;
Fair = 2: fish was disoriented upon release and slowly swam towards the bottom;
Poor = 3: fish was very disoriented upon release and remained at the surface;
Dead = 4: fish was either dead or unresponsive upon entering the water;
Eaten = 5: fish was eaten by a bird, another fish, or a marine mammal;
Unobserved = 9: unable to observe fish, not applicable.

Trip level information for each trip included the area fished, duration of fishing (to the nearest half hour), number of anglers, and minimum and maximum depths (feet, Florida only) of the fishing sites. Area fished was coded differently for Atlantic and Gulf coast regions.

Area fished for North Carolina, South Carolina, Georgia, and southeast Florida and northeast Florida were coded as:

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

Area fished for the Florida Keys were coded as:

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

A brief interview with each angler observed during a trip was also conducted to collect information on primary and secondary target species, angler avidity, and state and county of residence.

Data Analysis

Catch data from the Keys, southeast Florida, and northeast Florida were pooled, while data from Georgia, South Carolina, and North Carolina were treated independently. For annual length frequency graphs, fish lengths (in mm fork length) were converted to centimeters and lengths were placed in 1 cm length bin categories (100 cm bin = fish 99.51cm to 100.50cm). The sample size, mean, minimum, and maximum length for each coast and year are also reported. Also presented are the number and percent of released fish by release condition for Florida.

For east Florida at-sea observer trips, numbers of black seabass observed as harvested and released were compared with numbers of fish reported by vessel operators on logbook trip reports for the same trip for a total of 137 trips that caught and/or released black sea bass. For sampled at-sea trips where less than 100% of all anglers could be observed, the catch rate of observed anglers was multiplied times the total number of anglers on the vessel to expand catch for the entire vessel. A paired t-test was used to test for significant differences ($\alpha=0.05$).

Results

Length frequency histograms for harvested and released (discarded) black seabass by year are presented in figures below. Summary statistics for harvested fish and released fish are presented

in tables 2 and 3. Release conditions for observed released fish for Florida are presented in table 4.

For the comparison between observed at-sea and self-reported logbook catches on the east coast of Florida, there was a significant difference between self reported and observed catches for black seabass. On average, self-reported harvest was over-reported by 12.6 fish ($p < .0001$), and self-reported released catch was underreported by 20.9 fish ($p = .0008$, Table 5 all trips pooled).

Table 1: Sampled headboat at-sea observer trips by year, state, and region.

Number of Sampled Headboat Trips						
	Keys	SE FL	NE FL	GA	SC	NC
2003	0	0	0	0	6	21
2004	0	0	0	3	29	55
2005	34	95	43	6	58	97
2006	52	71	38	7	45	88
2007	46	71	49	8	52	91
2008	0	72	56	3	39	78
2009	0	76	52	9	34	69
2010	0	72	48	3	26	83
Total	132	457	286	39	289	582

Table 2. Summary statistics for **harvested** Atlantic coast black seabass lengths.

State	Year	Number measured	Minimum (mm FL)	Maximum (mm FL)	Mean (mm FL)
Florida	2005	472	123	452	290.2
	2006	746	103	420	288.2
	2007	453	166	432	309.3
	2008	245	104	497	313.9
	2009	395	218	483	321.3
	2010	1,600	208	555	324.6
Georgia	2006	103	258	413	297
	2007	19	290	385	325
	2008	14	315	424	344
	2009	242	223	556	331
	2010	45	280	427	336
South Carolina	2004	186	190	435	296
	2005	216	225	415	288
	2006	231	165	441	283
	2007	100	264	415	315
	2008	42	258	372	319
	2009	77	301	380	325
	2010	51	301	405	333
North Carolina	2004	457	240	535	296
	2005	989	239	482	291
	2006	498	201	510	298
	2007	354	243	439	309
	2008	207	234	461	335
	2009	143	208	400	322
	2010	811	222	503	335

Table 3. Summary statistics for **released alive** Atlantic coast black seabass lengths.

State	Year	Number measured	Minimum (mm FL)	Maximum (mm FL)	Mean (mm FL)
Florida	2005	829	55	392	217.8
	2006	961	135	372	227.8
	2007	1,362	106	374	235.3
	2008	1,742	109	401	242.3
	2009	2,274	102	363	246.6
	2010	5,998	104	395	249.8
Georgia	2005	45	170	268	243
	2006	242	164	305	226
	2007	100	180	305	253
	2008	50	169	301	262
	2009	143	197	372	271
	2010	30	184	300	278
South Carolina	2004	264	112	340	210
	2005	563	117	291	205
	2006	785	99	296	210
	2007	1,080	113	331	219
	2008	956	102	311	217
	2009	1,404	102	323	230
	2010	924	92	531	230
North Carolina	2004	510	60	347	203
	2005	1,343	81	328	195
	2006	1,927	88	326	210
	2007	2,866	101	393	220
	2008	2,290	101	324	217
	2009	2,568	95	336	225
	2010	4,105	112	355	237

Table 4. Florida Atlantic coast black seabass release conditions. Release condition not collected in NC, SC or GA.

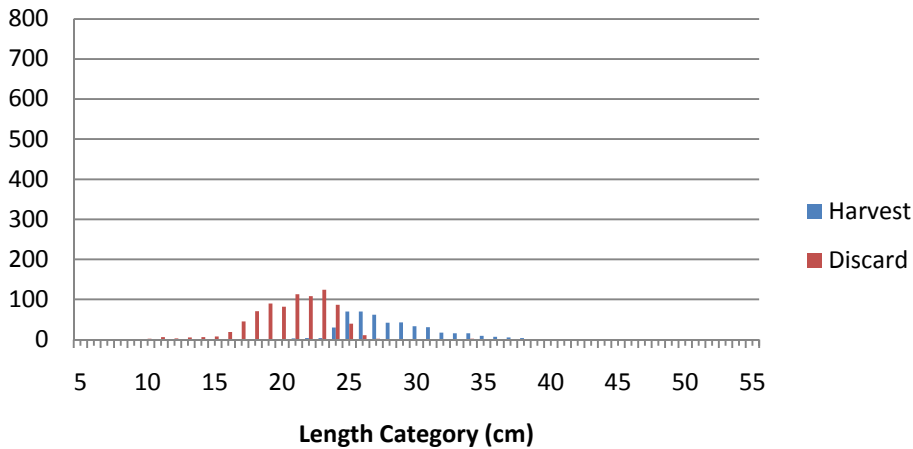
Year	Good		Fair		Poor		Eaten		Dead	
	N	%	N	%	N	%	N	%	N	%
2005	852	92.1	34	3.7	22	2.4	14	1.5	3	0.3
2006	972	92.9	45	4.3	22	2.1	6	0.6	1	0.1
2007	1365	93.9	38	2.6	39	2.7	12	0.8	0	0
2008	1670	92.9	54	3.0	42	2.3	29	1.6	3	0.2
2009	2221	95.7	30	1.3	47	2.0	23	1.0	0	0
2010	5746	95.6	123	2.0	75	1.2	66	1.0	3	0.05

Table 5. Results of paired t-tests between 1) trips where 100% of anglers were observed; 2) trips where a subset of anglers were observed and catch was expanded to all anglers; and 3) all trips pooled. Numbers of trips in each comparison is given as n, and * indicates significant differences.

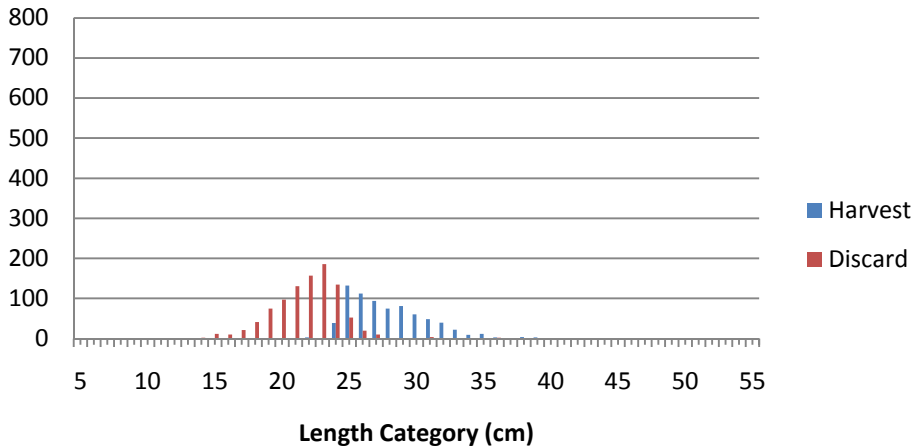
	100% Anglers Observed		Expanded Catch		All Trips Pooled	
	Mean Difference (p)	n	Mean Difference (p)	n	Mean Difference (p)	n
Harvest	13.824* (<0.01)	68	11.314* (<0.01)	69	12.559* (<0.0001)	137
Released Alive	-25.62* (<0.01)	68	-16.31 (0.09)	69	-20.93* (<0.001)	137

Figures 1-27. Black seabass length frequencies from at-sea headboat observer trips. All lengths are mid-line.

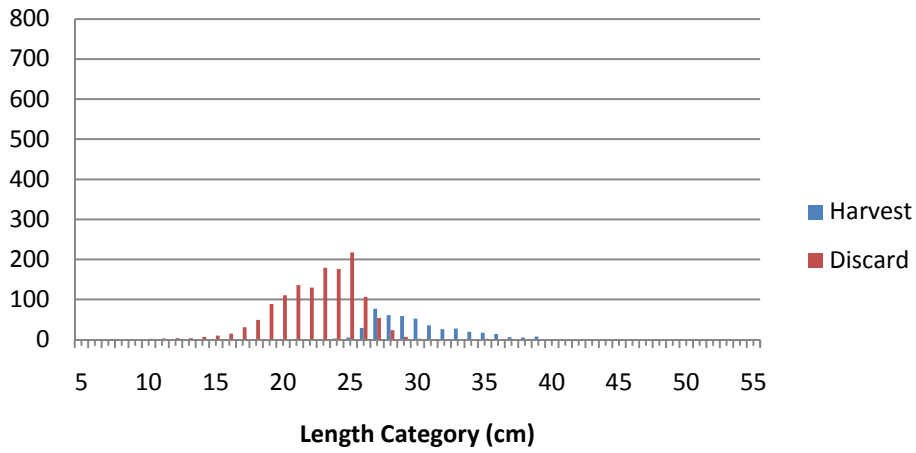
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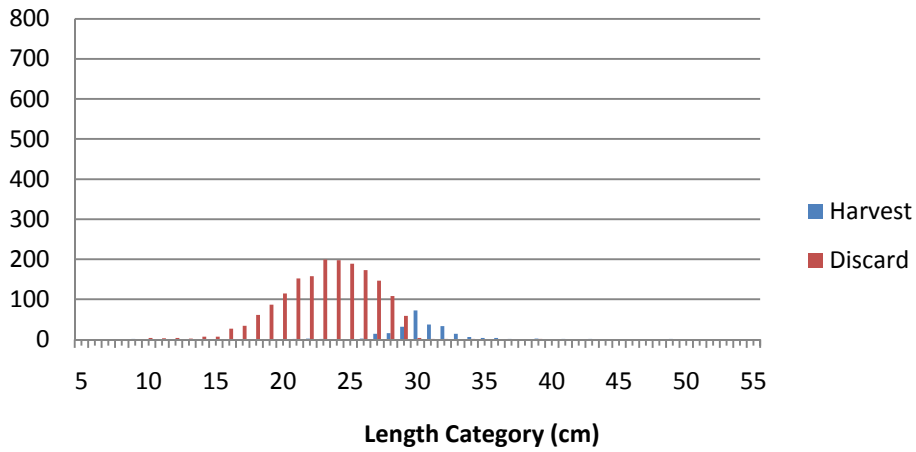
2006 East Florida



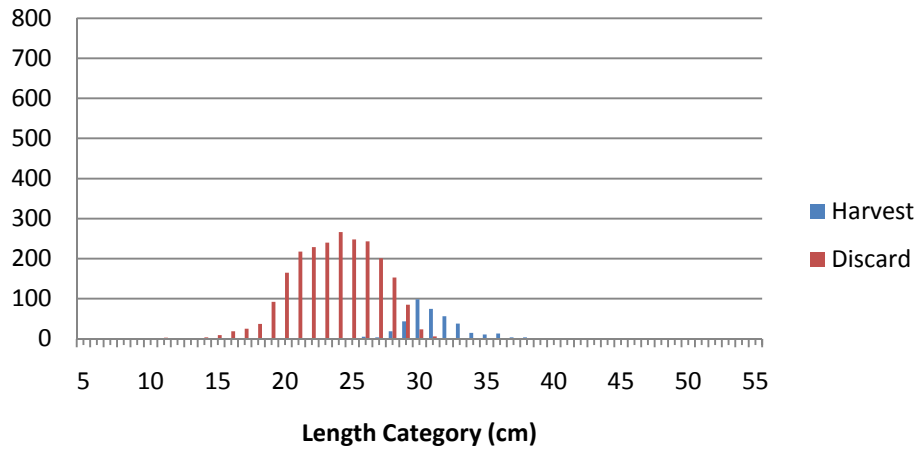
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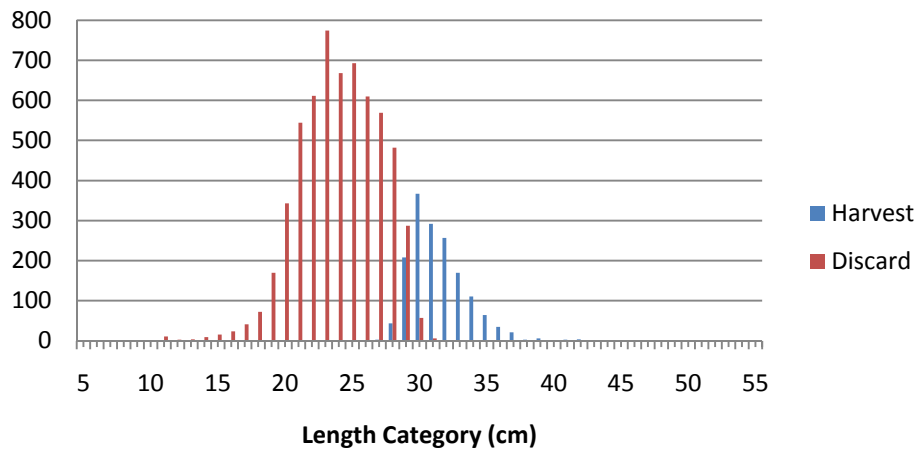
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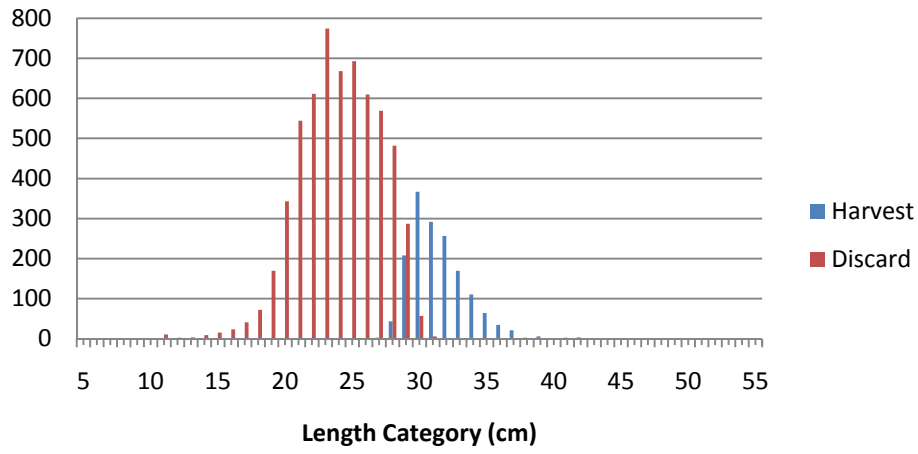
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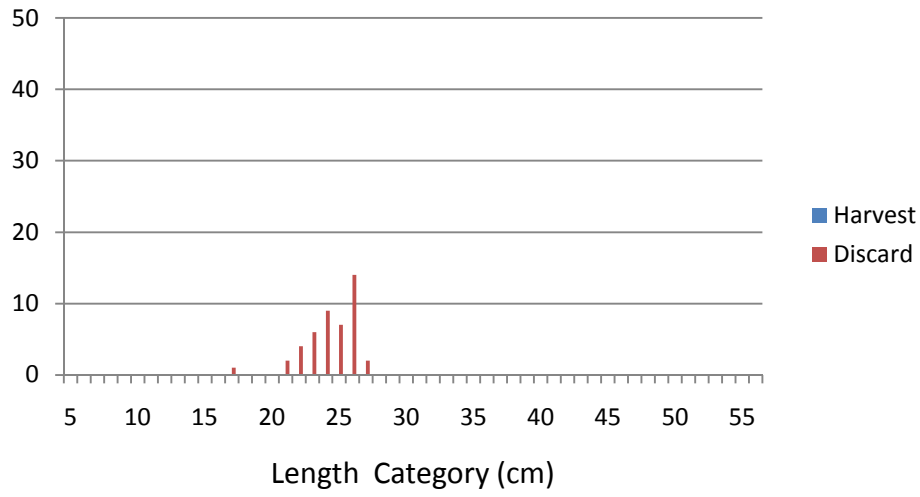
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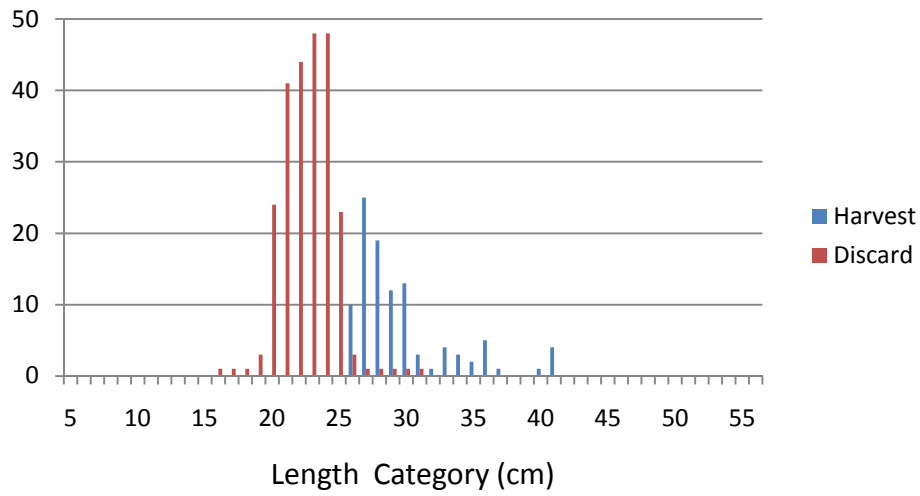
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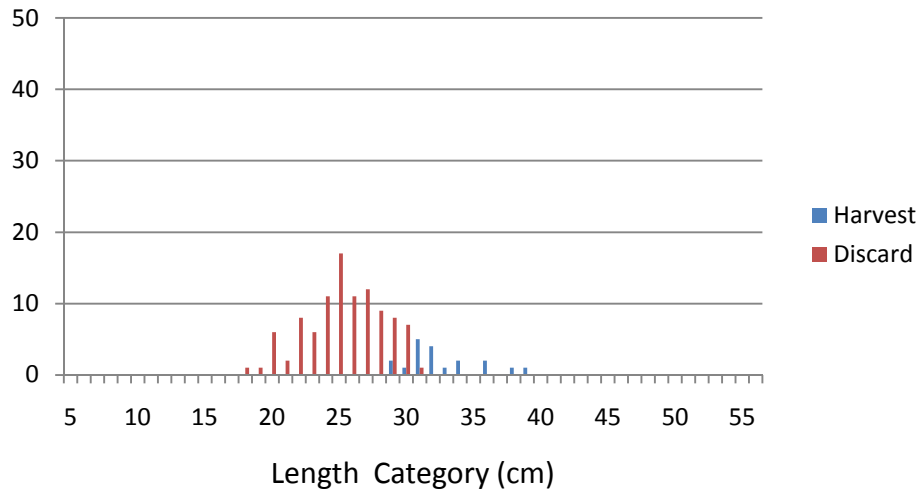
2005 Georgia



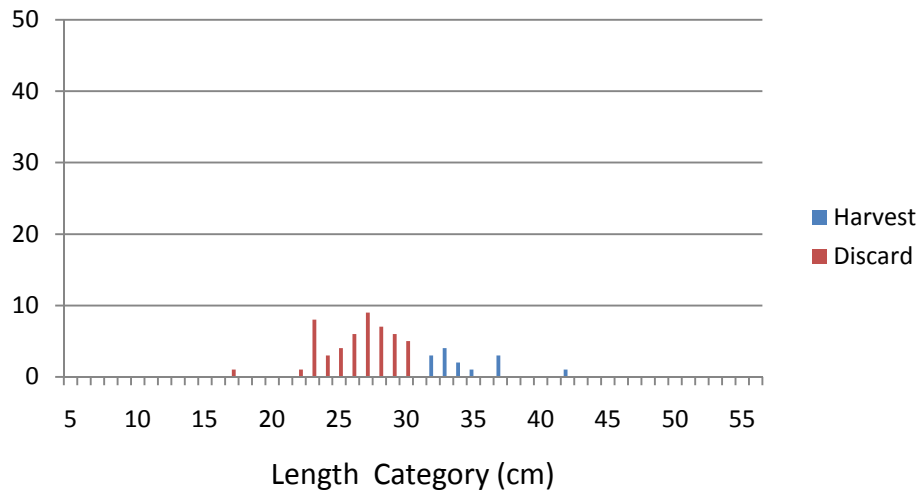
2006 Georgia



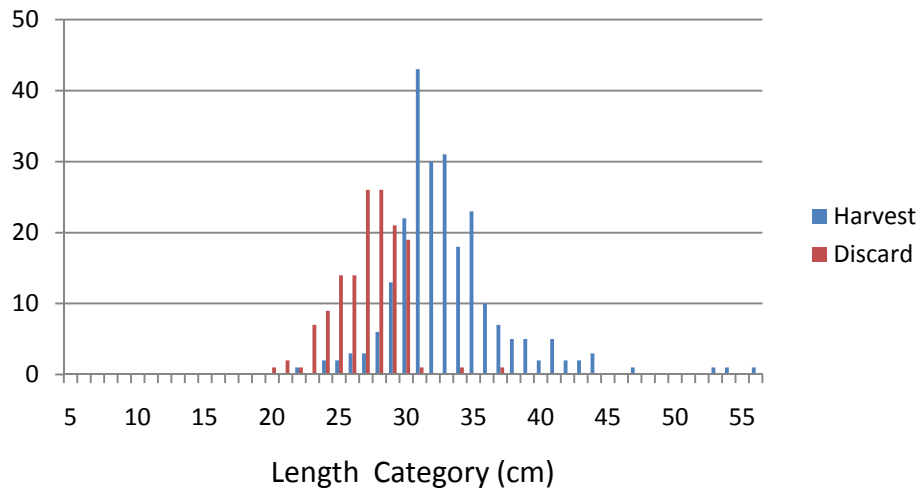
2007 Georgia



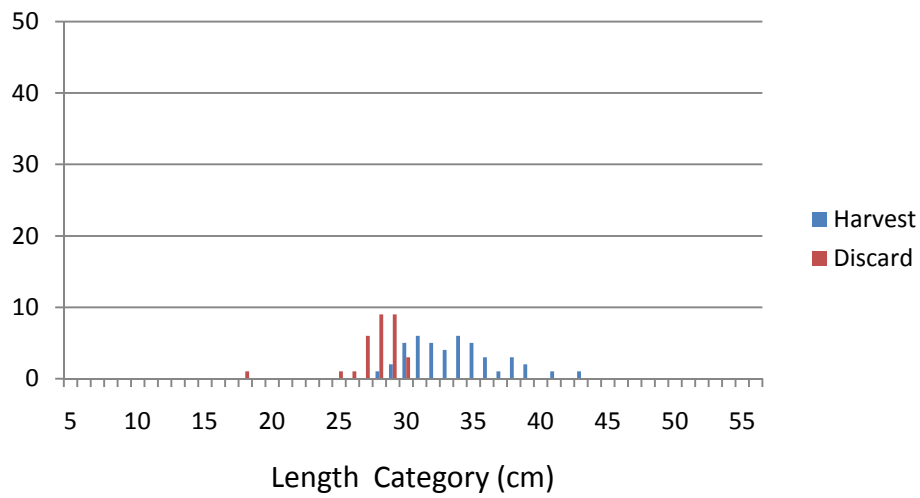
2008 Georgia



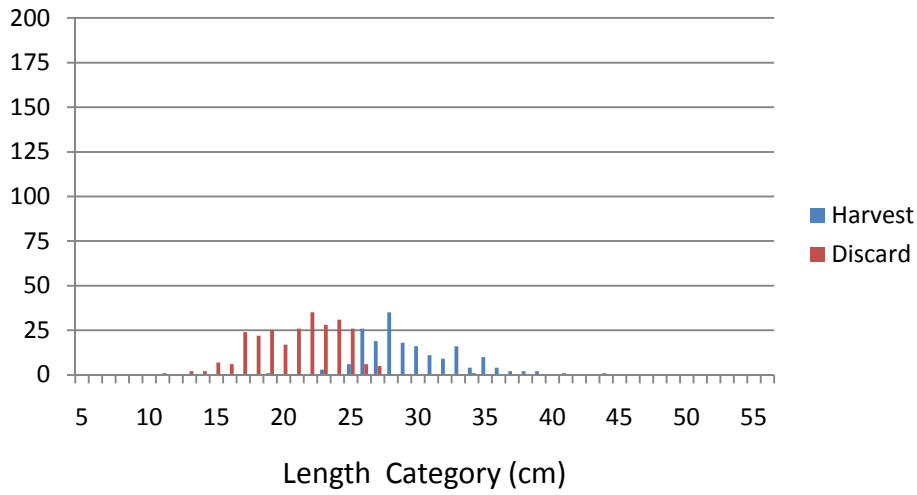
2009 Georgia



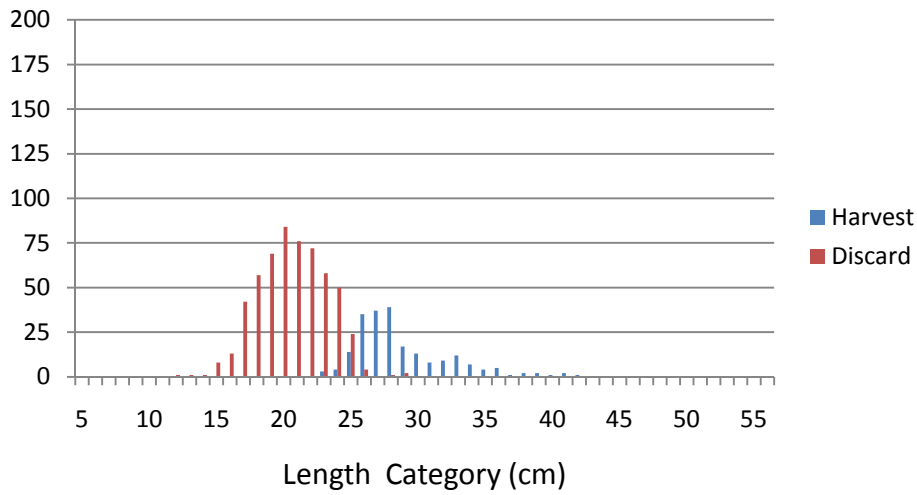
2010 Georgia



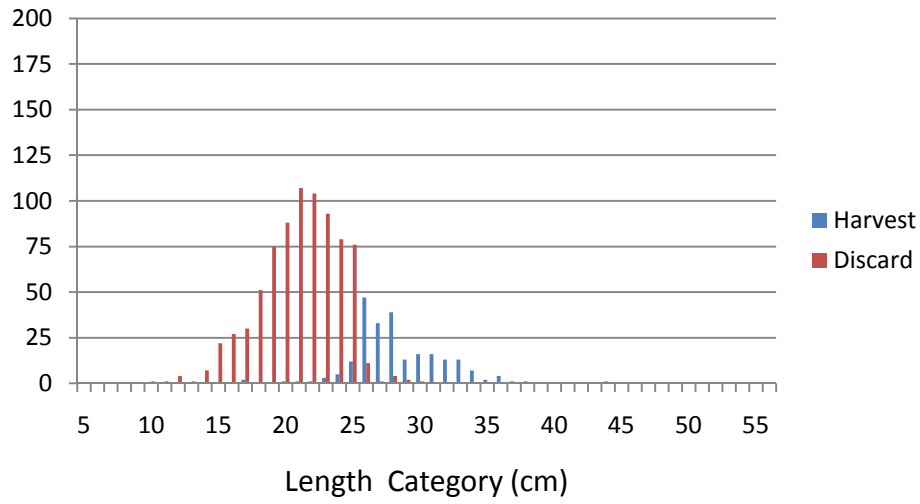
2004 South Carolina



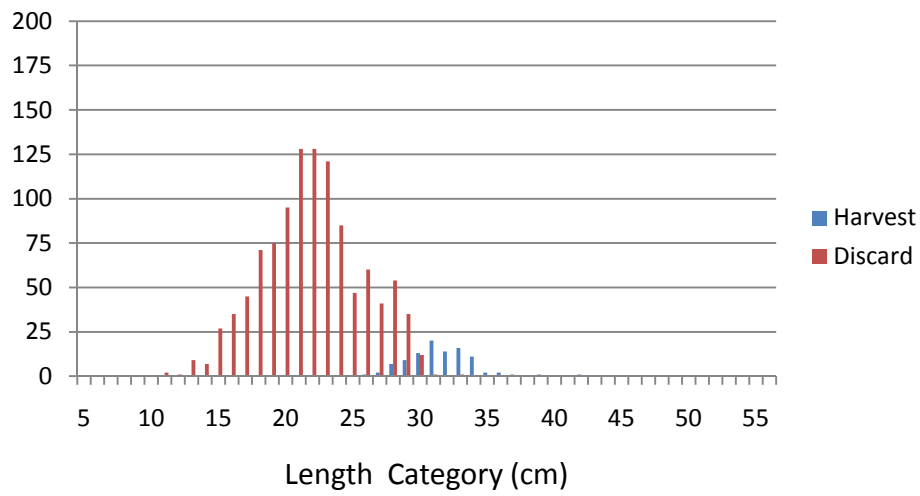
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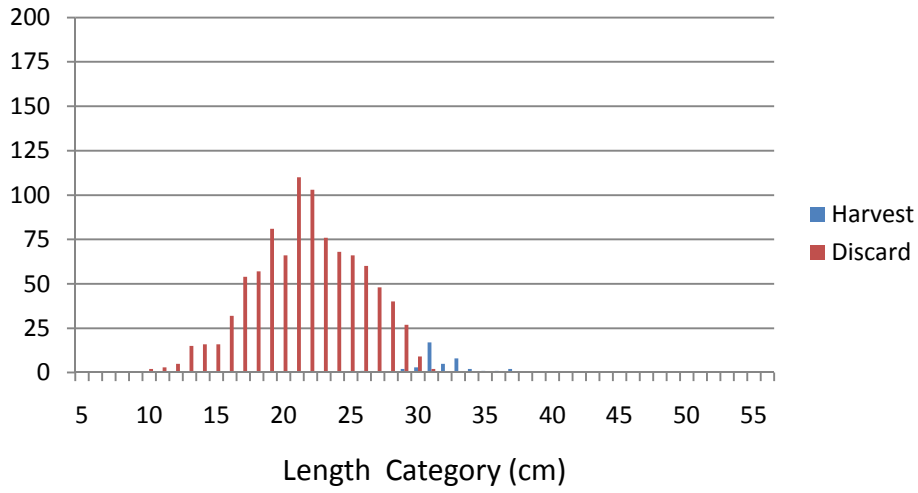
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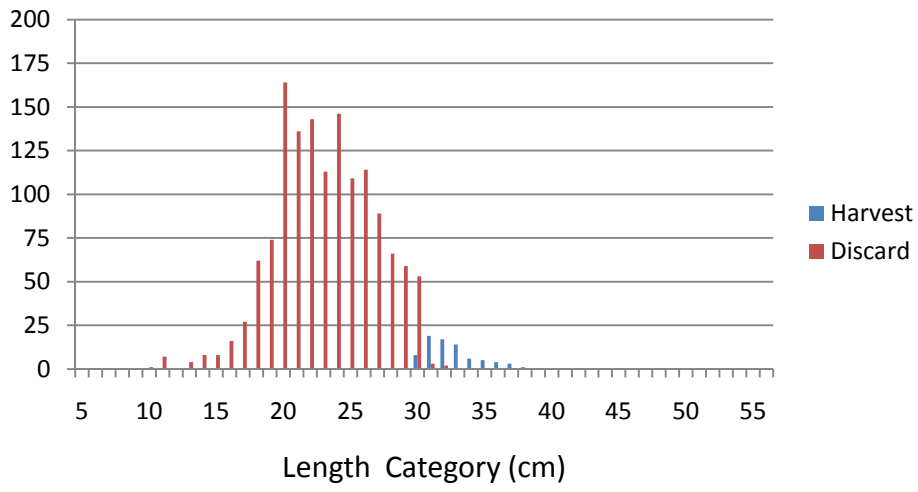
2007 South Carolina



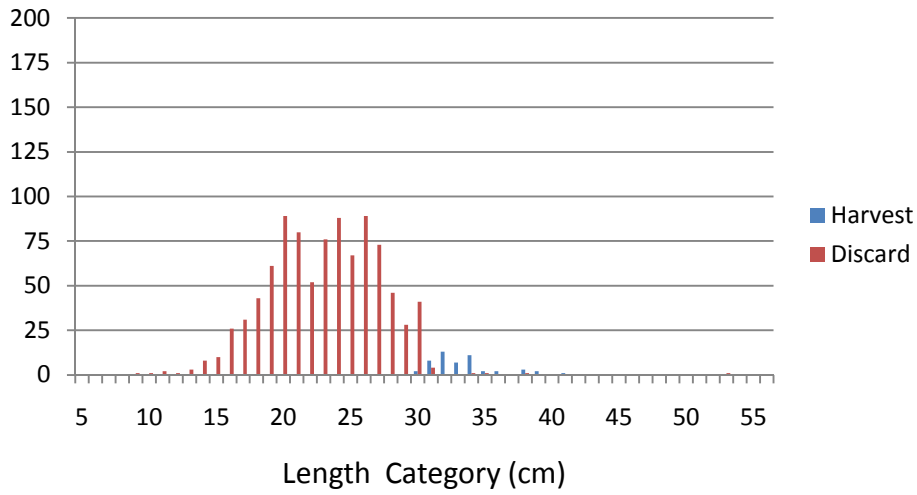
2008 South Carolina



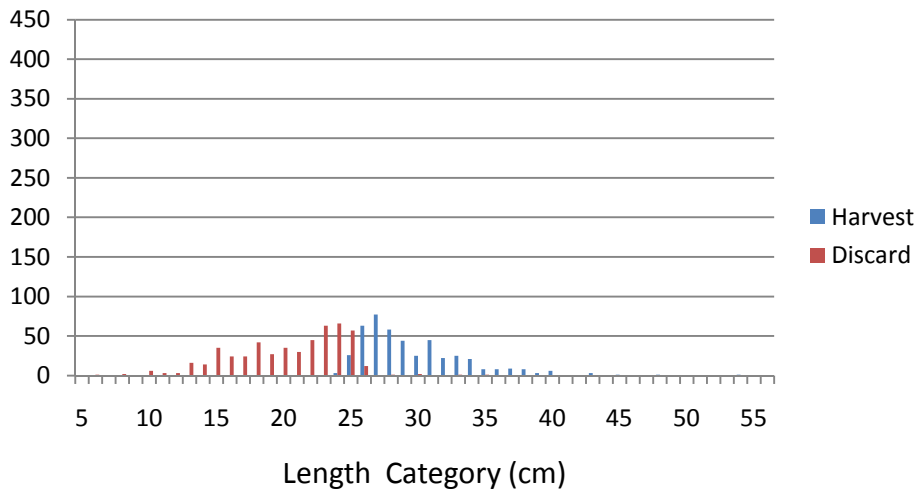
2009 South Carolina



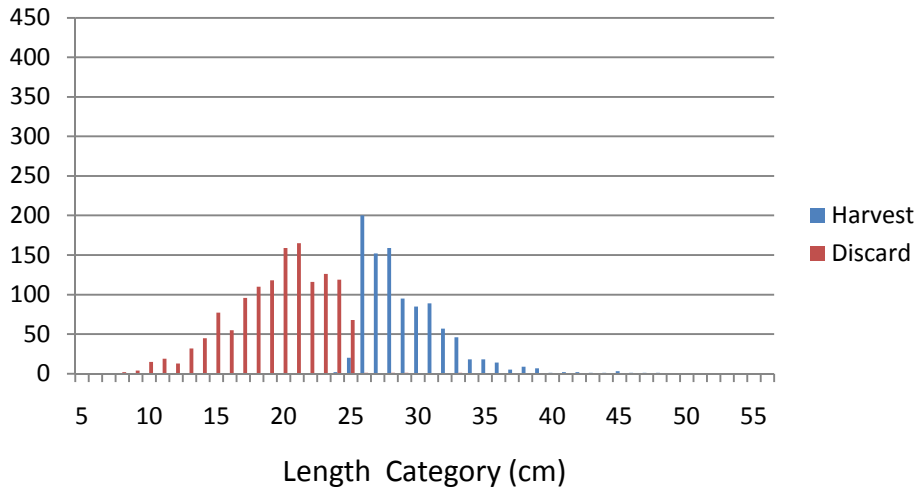
2010 South Carolina



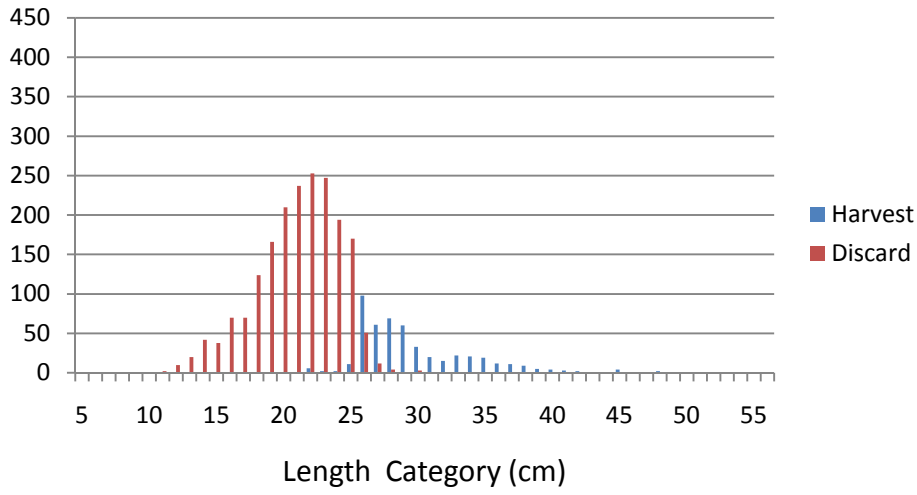
2004 North Carolina



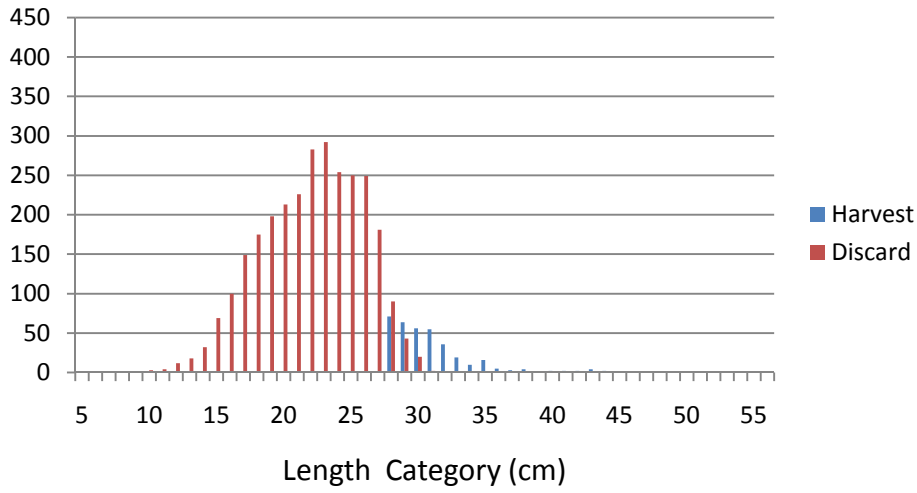
2005 North Carolina



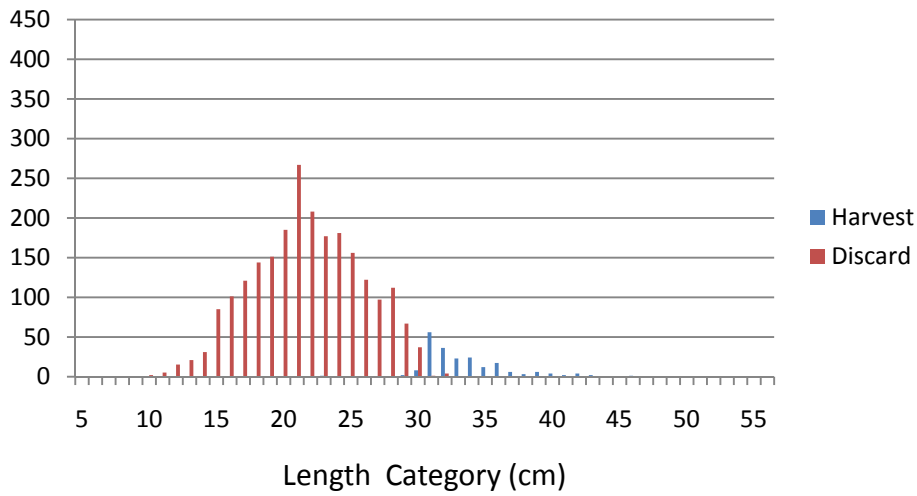
2006 North Carolina



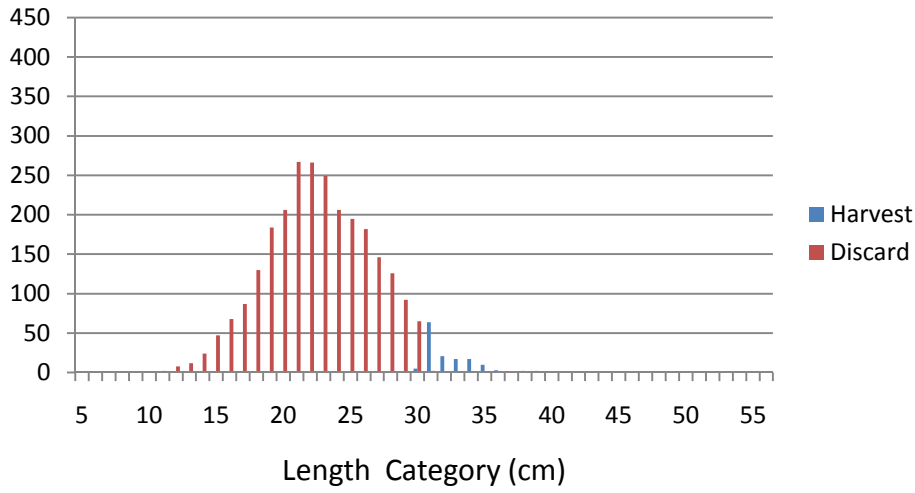
2007 North Carolina



2008 North Carolina



2009 North Carolina



2010 North Carolina

