

Recreational Survey Data for Spanish Mackerel and Cobia in the Atlantic and the Gulf of Mexico from the MRFSS and TPWD Surveys

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Recreational Survey Data for Spanish Mackerel and Cobia in the Atlantic and the Gulf of Mexico from the MRFSS and TPWD Surveys

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INTRODUCTION

Recreational survey data for spanish mackerel and cobia from the Marine Recreational Fishery Statistics Survey (MRFSS) and the Texas Parks and Wildlife Department (TPWD) surveys in the Atlantic and the Gulf of Mexico are presented, including summaries of catch estimates. Issues addressed include the allocation of the spanish mackerel landings in the Keys into the Gulf of Mexico or Atlantic Ocean, the split of cobia landings along the east coast of Florida, the calibration of MRFSS charterboat estimates back in time, 1981-1985 adjustments and substitutions, MRIP vs MRFSS estimates for 2004-2011, and estimating recreational landings in weight from the surveys.

MRFSS

The MRFSS began in 1981 and provides information on participation, effort, and species-specific catch. Data are collected to provide catch and effort estimates in two-month periods ("waves") for each recreational fishing mode (shore fishing, private/rental boat, charterboat, or headboat/charterboat combined) and area of fishing (inshore, state Territorial Seas, U.S. Exclusive Economic Zone) in each state, except TX. MRFSS was conducted in TX through only 1985 and did not include all modes in all years. Starting in 1986, MRFSS stopped covering Headboats in the Gulf of Mexico and South Atlantic. In recent years MRFSS has begun to re-incorporate headboats in some states, but these headboat estimates are not official. Official headboat estimates for the South Atlantic and Gulf of Mexico come from the Headboat Survey. Before 1986, charterboats and headboats were combined as one mode in the South Atlantic and the Gulf of Mexico. In the mid and North Atlantic, charterboats and headboats remained combined until 2003. Beginning in 2004, the charter and headboat modes in these regions were separated. No survey was conducted in wave 1 of 1981. Survey data for TX in 1981-1985, Wave 4, are no longer available. Catch estimates are made for strata used in the intercepts: fish landed whole and observed by the samplers ("Type A"), fish reported as killed by the fishers ("Type B1") and fish reported as released alive by the fishers ("Type B2").

For Hire Survey and calibration of old method estimates with the new method.

Two surveys within MRFSS provide the information described above: the "traditional" MRFSS and the For-Hire Survey (FHS), or "new charterboat method," discussed below. The traditional MRFSS design is based on an intercept survey of anglers and telephone survey of coastal households and has been used since the inception of the MRFSS. It applies to all fishing modes included in the survey. For 1981-1985 in TX to ME and for 1981-2003 in VA to ME, the traditional MRFSS covered charterboats and headboats as a combined mode.

In 1998, the FHS began providing estimates for charterboats in the Gulf of Mexico. The traditional MRFSS and FHS operate concurrently, but the FHS estimates have been phased in as the "official" charterboat estimates starting with LA through FL West Coast in 2000. (This was expanded to the FL East Coast in 2003 and to GA through ME starting in wave 2 of 2005.) There are also 'unofficial' FHS estimates from GA-ME in 2004. This new method was needed because of the low number of charterboat anglers contacted in the traditional telephone survey of coastal households.

In the FHS, directories of charterboats are developed for each state and are continuously updated. Each week, a sample of 10% of the listed charterboats are surveyed by telephone to ask about their fishing effort during the previous week, including the number of vessel trips, the number of anglers, areas fished and other information. Validation surveys by field samplers directly observe some charterboat effort on the docks to allow correction of over and under-reporting of trips in the telephone survey.

The MRFSS intercept survey of anglers at boat access sites is conducted as usual, encountering some charterboats. This allows calculation of a correction factor for charterboat trips on unlisted boats (not in the charterboat directory): (total intercepted cbt angler trips) / (intercepted cbt angler trips on listed boats).

Thus the estimate of total charterboat angler trips for an area of fishing is:

Estimated total charterboat angler trips =
 (total charterboat angler trips on listed boats) * (correction factor for trips on unlisted boats) where the total charterboat angler trips on listed boats is based on the 10% sample in the telephone survey and corrected for over/under reporting by the validation survey.

The FHS estimates of catch then follow in the same manner as for the traditional MRFSS, with the mean catch per trip coming from the MRFSS intercept survey. The pilot study of new charterboat methods in the Gulf of Mexico found that the annual effort at the state and Gulf level were not significantly different between the pilot study and the traditional MRFSS. However, the effort from the new charterboat methods differed from the traditional MRFSS in the distributions of effort by area and season.

Conversion factors have been estimated to calibrate the traditional MRFSS charterboat estimates with the FHS for 1986-1997 in the Gulf of Mexico (SEDAR7-AW-03, Diaz and Phares, 2004), for 1986-2003 in the South Atlantic (SEDAR16-DW-15, Sminkey, 2008), and for 1981-2003 in the mid-Atlantic (SEDAR17-Data Workshop Report, 2008). 1986-2003 South Atlantic calibration factors were updated in 2011 (SEDAR25-Data Workshop Report, 2011). The relationship between the old charterboat method estimates of angler trips and the FHS was used to estimate the conversion factors. Since these factors are based on effort, they can be applied to all species' landings. Table 1 shows the conversion factors and standard errors (in parentheses) for all regions available (Gulf through mid-Atlantic).

Conversion factors for 1981-1985 for the South Atlantic and Gulf of Mexico are discussed and presented in a separate working paper (SEDAR28-DW-12).

Producing landings estimates in weight

In the MRFSS, landings estimates are produced both in number and weight. However, MRFSS weight estimates must be treated with caution due to the occurrence of missing weight estimates in some strata. MRFSS weight estimates are calculated by multiplying the estimated number harvested in a cell (year/wave/state/mode/area/species) by the mean weight of the measured fish in that cell. When there are no fish measured in the cell (fish were gutted or too big for the sampler to weigh, harvest was all self-reported, etc.) estimates of landings in number are provided but there are no corresponding estimates of landings in weight. The MRFSS spanish mackerel and cobia estimates of landings in weight are used when provided by the survey. In cases where there is an estimate of landings in number but not weight, the Southeast

Fisheries Science Center has used the MRFSS sample data to obtain an average weight using the following hierarchy: species, region, year, state, mode, and wave (SEDAR22-DW16). The minimum number of weights used at each level of substitution is 30 fish, except for the final species level, where the minimum is 1 fish. Average weights are then multiplied by the landings estimates in number to obtain estimates of landings in weight. These estimates are provided in pounds whole weight. The hierarchy used for each estimate of weight is recorded in the variable 'lbsestSEC_source' and uses the first letter of each variable used from the hierarchy (species, region, year, state, mode, and wave). For example an estimate with 'lbsestSEC_source'=srys, would have used an average weight from the combined samples in for the strata defined by that species, region, year, and state. All modes and

waves in that stratum would have been included. Tables 2 and 3 show the estimated landings in weight from the MRFSS survey by year and 'lbsestSEC_source' for spanish mackerel and cobia, respectively.

Post-stratification of Florida estimates

Official MRFSS Florida estimates are divided into two estimates by coasts, Florida east coast (FLE) and Florida west coast (FLW). FLE includes the area from the GA/Florida border to the Miami-Dade/Monroe county line. FLW includes Monroe county through the AL/Florida border. Unofficial post-stratified estimates are available that break up the state in to five regions (fl_reg):

fl_reg=1 Panhandle of Florida (Escambia to Dixie counties)

fl_reg=2 Florida peninsula (Levy to Collier counties)

fl_reg=3 Florida Keys (Monroe county)

fl_reg=4 Southeast Florida (Miami-Dade to Indian River counties)

fl_reg=5 Northeast Florida (Brevard to Nassau counties)

Tables 4 and 5 show the post-stratified Florida estimates by year and fl_reg for spanish mackerel and cobia, respectively. The Monroe county (fl_reg=3) landings for spanish mackerel need to be allocated to the Gulf of Mexico or to the Atlantic group. The Northeast Florida (fl_reg=5) landings for cobia need to be allocated to the Gulf of Mexico or to the Atlantic group.

New MRIP estimates vs. MRFSS estimates

Revised catch and effort estimates, based on an improved estimation method, were released on January 25, 2012. These estimates are available for the Atlantic and Gulf Coasts for January 2004 through October 2011. This new estimation method, developed as part of the Marine Recreational Information Program (MRIP), provides more accurate data by removing potential biases that were included in our previous estimates. To learn more about the peer-reviewed re-estimation process, along with any implications for fisheries science and management, visit www.countmyfish.noaa.gov. (NOAA Fisheries, Office of Science and Technology).

Since new MRIP estimates are only available for a portion of the recreational time series that the MRFSS covers, calibration factors between the MRFSS estimates and the MRIP estimates must be developed in order to maintain one consistent time series for the recreational estimates. To that end a calibration workshop is planned for the spring that will address this important data need. For now, the MRFSS estimates provide a long time series with consistent methodologies from 1981 to 2011. Tables 6 and 7 show the differences between the MRIP estimates and the MRFSS estimates for the time period 2004-2011 for spanish mackerel and cobia, respectively.

Issues and corresponding adjustments to the MRFSS estimates

The following issues need to be addressed for the MRFSS dataset. None of the proposed adjustments have been applied to the data presented in this document.

As previously discussed, the MRFSS began in 1981, wave 2. In the Gulf of Mexico and east coast of Florida, catch needs to be estimated for 1981, wave 1. One method used in SEDARs 10 and 12 (gag and red grouper) is to fill this gap by determining the proportion of wave 1 to other waves in years 1982-1984 by fishing mode and area. These proportions were then used to estimate wave 1 in 1981 from the estimated catches in other waves of that year.

Texas data from the MRFSS is only available from 1981-1985 and is sporadic, not covering all modes and waves. For SEDAR 16 (king mackerel) boat modes from MRFSS Texas were not used. Instead, TPWD data, which covers charter and private modes from 1983 (May 15) -2011, were used to fill in these modes between 1981-1983 (thru May 14). Texas shore mode estimates from the MRFSS were used. Tables 8 and 9 show the available Texas data from the MRFSS for spanish mackerel and cobia, respectively.

In the South Atlantic, 1981-1985 charter and headboat modes were combined into one single mode for estimation purposes. Since the NMFS Headboat Survey (HBS) began in this region in 1981, the MRFSS combined charter/headboat mode must be split in order to not double estimate the headboat mode for these years. For spanish mackerel, which is considered a low profile species in the headboat catches, the NMFS Headboat Survey personnel have proposed using the HBS estimates starting in 1984 due to inconsistent forms between 1981-1983 requiring spanish mackerel to be entered as a write-in. Therefore, spanish mackerel MRFSS charter/headboat mode should

only be split for 1984-1985. For cobia, which is considered a high profile species in headboat catch, the NMFS Headboat Survey personnel have proposed using the HBS estimates starting in 1981 since captains were more likely to include this species as a write-in. Therefore, cobia MRFSS charter/headboat mode should be split for 1981-1985.

One method for splitting out the MRFSS charter/headboat mode in these years is to use a ratio of HBS headboat angler trip estimates to MRFSS charterboat angler trip estimates for 1986-1990. A similar method (using landings data instead of effort data) has been used in the past (SEDAR 25- black sea bass). The ratio can be developed by wave and state (or state equivalent to match HBS areas to MRFSS states) and then apply a mean ratio to the 1981-1985 estimates to strip out the headboat component when needed.

TPWD

The TPWD Sport-boat Angling Survey was implemented in 1983 and samples fishing trips made by sport-boat anglers fishing in Texas marine waters. All sampling takes place at recreational boat access sites. The raw data includes information on catch, effort and length composition of the catch for sampled boat-trips. These data are used by TPWD to generate recreational catch and effort estimates. The survey is designed to estimate landings and effort by high-use (May 15-November 20) and low-use seasons (November 21-May 14). SEFSC personnel disaggregates the TPWD seasonal estimates into waves (2 month period) using the TPWD intercept data, in order to be compatible with MRFSS. Only private boat and charterboat fishing are surveyed. Most of the sampled trips are private boats fishing in bay/pass because these represent most of the fishing effort, but all trips (private, charterboat, ocean, bay/pass) are sampled. Charterboat trips in ocean waters are the least encountered in the survey.

Producing landings estimates in weight

In the TPWD survey, landings estimates are produced only in number of fish. In addition, the TPWD sample data does not provide weights, only lengths of the intercepted fish. TPWD length-weight equations were applied to the lengths in order to obtain weights. In order to obtain estimated landings in weight, a similar method used to fill in the missing weights in MRFSS (described above) is applied to the TPWD landings. The hierarchy used for TPWD is expanded to include area fished (species, region, year, state, mode, wave, and area). This is equivalent to the MRFSS estimate of weight provided by that survey. Tables 10 and 11 show the estimated landings in weight from the TPWD survey by year and 'lbsestSEC_source' for spanish mackerel and cobia, respectively.

Issues and corresponding adjustments to the TPWD estimates

The following issues need to be addressed for the TPWD dataset. None of the proposed adjustments have been applied to the data presented in this document.

The TPWD survey begins with the high-use season in 1983 (May15, 1983). Charter and private mode estimates need to be filled in for this state and these modes back to 1981. One method used in the past (SEDAR 16- king mackerel) is to use averages from TPWD 1983-1985 to fill in the missing estimates. In addition, headboat landings from TX from 1981-1985 are not covered by any survey. HBS 1986-1988 average landings can be used to fill in this time period.

TPWD does not estimate discards.

CATCH ESTIMATES

Tables 12-26 show the MRFSS catch estimates and CVs by mode and by state for spanish mackerel and cobia in the Gulf of Mexico and Atlantic. In the tables, estimated A+B1 is the catch that was killed and B2 is the catch that was released alive. Tabulated estimates use the new charterboat method (FHS) or are calibrated to the new using the discussed calibration factors. CVs for the calibrated charterboat and charter+headboat in 1981-1997 do include the variance associated with the calibration factor. Tables 27 and 28 show the TPWD landings estimates by mode for spanish mackerel and cobia in the state of Texas.

References:

General overview of the MRFSS has been adapted from the following:

Recreational Survey Data for Gag and Black Grouper in the Gulf of Mexico. Patty Phares, Vivian Matter, and Steve Turner. National Marine Fisheries Service, Southeast Fisheries Science Center, Sustainable Fisheries Division, January, 2006. Sustainable Fisheries Division Contribution No. SFD-2006-008. SEDAR10-DW-26.

Estimated Conversion Factors for Calibrating MRFSS Charterboat Landings and Effort Estimates for the Gulf of Mexico in 1981-1997 with the For Hire Survey Estimates with Application to Red Snapper Landings. Guillermo A. Diaz and Patty Phares. National Marine Fisheries Service, Southeast Fisheries Science Center, Sustainable Fisheries Division, August, 2004. Sustainable Fisheries Division Contribution No. SFD-2004-036. SEDAR7-AW-03

Estimated conversion factors for calibrating MRFSS charterboat landings and effort estimates from the Southeastern US (North Carolina to Florida-east coast) in 1981-2003 with For-Hire Survey estimates with application to King Mackerel landings. Tom Sminkey. National Marine Fisheries Service, Office of Science and Technology, February 2008. SEDAR16-DW-15.

Estimated Recreational Catch in Weight: Method for Filling in Missing Weight Estimates from the Recreational Surveys with Application to Yellowedge Grouper, Tilefish (golden), and Blueline Tilefish. Vivian M. Matter and Stephen C. Turner. National Marine Fisheries Service, Southeast Fisheries Science Center, Sustainable Fisheries Division, March, 2010. Sustainable Fisheries Division Contribution No. SFD-2010-003. SEDAR22-DW-16.

Table 1. MRFSS charterboat conversion factors and standard errors (in parentheses).

Table 1a) Apply to 1986 – 1997 charterboat mode in LA, MS, and AL

Area	WAVE					
	1	2	3	4	5	6
Inshore	1.26 (1.31)	1.54 (1.27)	3.82 (1.26)	4.67 (1.26)	3.28 (1.27)	1.48 (1.28)
< 3 miles	0.74 (1.37)	0.75 (1.26)	1.49 (1.25)	2.28 (1.24)	0.64 (1.28)	0.52 (1.40)
> 3 miles	0.44 (1.28)	0.63 (1.24)	2.23 (1.23)	1.87 (1.24)	1.26 (1.23)	0.53 (1.28)

Table 1b) Apply to 1986- 1997 charterboat mode in FLW

Area	WAVE					
	1	2	3	4	5	6
Inshore	3.17 (0.16)	5.31 (0.16)	5.71 (0.16)	5.33 (0.16)	3.49 (0.16)	3.70 (0.16)
< 10 miles	0.95 (0.16)	1.10 (0.16)	1.78 (0.16)	0.70 (0.16)	0.48 (0.16)	0.98 (0.16)
> 10 miles	0.38 (0.16)	0.58 (0.16)	0.77 (0.16)	0.73 (0.16)	0.59 (0.16)	0.55 (0.16)

Table 1c) Apply to 1986- 2002 charterboat mode in FLE

*FHS began in the east coast of Florida in 2003.

Area	Wave					
	1	2	3	4	5	6
INSHORE	1.600 (0.65)	2.786 (0.65)	2.201 (0.65)	2.894 (0.65)	1.630 (0.65)	2.386 (0.65)
OCEAN	0.664 (0.10)	0.852 (0.10)	0.828 (0.10)	1.006 (0.10)	0.478 (0.10)	0.549 (0.10)

Table 1d) Apply to 1986- 2003 charterboat mode in GA and SC

Area	Wave				
	2	3	4	5	6
INSHORE	1.635 (0.90)	3.100 (0.90)	2.092 (0.90)	0.931 (0.90)	0.757 (0.90)
OCEAN	0.939 (0.36)	1.272 (0.33)	2.161 (0.32)	0.835 (0.33)	0.638 (0.36)

Table 1e) Apply to 1986- 2003 charterboat mode in NC

Area	Wave				
	2	3	4	5	6
INSHORE	11.850 (3.48)	10.026 (2.63)	6.616(2.84)	3.766 (2.84)	9.415 (3.11)
OCEAN	2.188 (0.58)	2.504 (0.58)	1.565 (0.60)	2.102 (0.60)	0.661 (0.60)

Table 1f) Apply to 1981-2003 charterboat mode in the mid-Atlantic

*originally only said to apply to 1986-2003 data, but the cbt/hbt combined mode in sub_reg=5 was consistent from 1981-2003 and there is no HBS data providing headboat estimates in this sub-region.

State	Wave				
	2	3	4	5	6
DE / MD	1.294 (0.52)	1.599 (0.54)	1.930 (0.54)	0.861 (0.52)	1.171 (0.56)
NJ	1.289 (0.36)	1.179 (0.34)	1.644 (0.34)	0.809 (0.34)	1.115 (0.36)
NY	1.187 (0.48)	2.048 (0.54)	2.665 (0.48)	1.210 (0.51)	0.617 (0.48)
VA	0.770 (0.25)	0.680 (0.21)	0.761 (0.21)	0.324 (0.22)	0.313 (0.22)

Table 2. Spanish mackerel MRFSS estimates of landings (whole weight in pounds) with missing weights filled in by year and source. North-Atlantic through Gulf of Mexico (sub-regions 4-7). 2011 is a partial year.

Sum of lbsest_SEC	lbsest_SECsource						Grand Total
YEAR	MRFSSest	s	sr	sry	srys	srysm	
1981	3,580,776	6,613					3,587,389
1982	5,142,665						5,142,665
1983	3,283,529				10,042		3,293,571
1984	2,696,183						2,696,183
1985	2,209,815					36,669	2,246,483
1986	8,134,264					1,315	8,135,578
1987	4,727,441						4,727,441
1988	5,443,735					13,337	5,457,073
1989	3,263,233						3,263,233
1990	4,416,850	623					4,417,473
1991	5,240,551						5,240,551
1992	5,584,259					1,244	5,585,503
1993	3,471,461						3,471,461
1994	3,336,642						3,336,642
1995	2,625,719					5,398	2,631,117
1996	2,998,725			1,700			3,000,424
1997	3,723,778			80,930			3,804,709
1998	3,000,766				2,140		3,002,906
1999	3,705,723					81	3,705,804
2000	4,816,119						4,816,119
2001	5,448,703						5,448,703
2002	5,267,770			6,379			5,274,150
2003	4,225,371	5,214					4,230,585
2004	4,530,456	2,068					4,532,524
2005	3,254,225						3,254,225
2006	4,055,966			761	1,271		4,057,998
2007	4,446,926						4,446,926
2008	4,781,785						4,781,785
2009	3,748,247						3,748,247
2010	4,418,252				1,901		4,420,153
2011	3,530,434						3,530,434
Grand Total	129,110,372	14,518	89,770	5,312	10,122	57,962	129,288,057

Table 3. Cobia MRFSS estimates of landings (whole weight in pounds) with missing weights filled in by year and source. Mid-Atlantic through Gulf of Mexico (sub-regions 5-7). 2011 is a partial year.

Sum of lbsest_SEC	lbsest_SECsource					Grand Total
YEAR	MRFSSest	sr	sry	srys	srysm	
1981	1,050,917					1,050,917
1982	1,474,332					1,474,332
1983	1,177,856	4,375	118,502			1,300,733
1984	1,828,876	54,473				1,883,349
1985	1,329,236	11,267				1,340,503
1986	1,999,909			13,474		2,013,384
1987	1,459,656					1,459,656
1988	1,618,702	154,946	9,831			1,783,480
1989	2,160,915		84,448			2,245,363
1990	1,333,936	33,201	58,053			1,425,190
1991	2,083,360	71,098				2,154,458
1992	1,968,613	35,608				2,004,221
1993	1,782,706					1,782,706
1994	1,835,665	28,854				1,864,518
1995	1,528,939		56,070			1,585,009
1996	2,215,573	298,363	15,470			2,529,405
1997	3,310,355	47,992				3,358,347
1998	1,725,060					1,725,060
1999	1,986,115					1,986,115
2000	1,888,954				1,022	1,889,976
2001	1,953,108					1,953,108
2002	1,481,067	52,434	214		3,087	1,536,802
2003	2,569,120	34,751				2,603,872
2004	2,259,424			17,162		2,276,587
2005	2,411,189	5,854	37,131			2,454,174
2006	1,960,652	195,670		46,869		2,203,191
2007	2,220,661	158	2,443			2,223,262
2008	1,954,074	107,191	38,171	11,494		2,110,930
2009	1,453,555					1,453,555
2010	2,457,259	46,406				2,503,665
2011	2,236,238	113,231				2,349,469
Grand Total	58,716,022	1,295,872	420,333	88,999	4,108	60,525,334

Table 4. Spanish mackerel MRFSS estimates of landings (number of fish) by year and Florida region. (fl_reg=3 is Monroe county). 2011 is a partial year.

Sum of ab1	FL_REG					Grand Total
YEAR	1	2	3	4	5	Grand Total
1981	137,469	580,940	16,814	360,670	78,746	1,174,638
1982	223,504	144,900	0	152,996	17,894	539,294
1983	200,125	364,706		66,787	49,759	681,377
1984	15,720	239,919	27,316	118,042	129,297	530,294
1985	255,342	207,814		65,493	18,666	547,316
1986	1,826,083	3,901,038	101,529	83,730	111,320	6,023,700
1987	514,119	770,070	13,376	77,052	42,506	1,417,123
1988	742,221	471,182	0	133,942	91,859	1,439,205
1989	347,997	434,056	1,855	35,583	170,111	989,602
1990	269,371	791,262	363	95,027	128,341	1,284,364
1991	502,016	724,008	34,426	254,664	261,008	1,776,123
1992	737,972	1,240,173	7,276	70,740	300,642	2,356,803
1993	570,608	691,342	289	136,114	81,202	1,479,554
1994	481,808	720,017	9,804	154,666	96,843	1,463,137
1995	228,796	366,196	8,705	121,843	85,021	810,560
1996	102,404	824,723	35,070	185,183	56,519	1,203,900
1997	74,064	813,231	9,138	54,805	191,158	1,142,395
1998	150,429	803,832	9,178	90,481	150,681	1,204,600
1999	224,877	956,162	12,288	198,110	125,324	1,516,760
2000	497,142	835,901	8,283	401,825	142,833	1,885,984
2001	1,045,947	1,071,848	3,277	686,947	77,144	2,885,164
2002	460,568	1,347,472	2,367	845,727	74,278	2,730,413
2003	334,948	986,528	8,054	759,546	25,530	2,114,605
2004	538,700	1,130,863	16,517	488,947	43,806	2,218,832
2005	259,692	717,043	8,407	624,476	52,448	1,662,066
2006	251,298	1,479,565	24,123	391,878	47,596	2,194,461
2007	436,342	1,126,144	19,568	552,523	49,916	2,184,493
2008	629,857	1,024,990	49,805	510,168	56,692	2,271,511
2009	283,147	966,252	36,981	332,515	43,481	1,662,376
2010	223,510	1,101,803	6,162	516,865	47,280	1,895,620
2011	527,935	656,225	4,795	374,877	4,682	1,568,514
Grand Total	13,094,008	27,490,204	475,766	8,942,221	2,852,584	52,854,783

Table 5. Cobia MRFSS estimates of landings (number of fish) by year and Florida region. (fl_reg=5 runs from Brevard to Nassau counties). 2011 is a partial year.

Sum of ab1	FL_REG					Grand Total
	1	2	3	4	5	
1981	13,729	6,225	15,109			35,064
1982	8,253	22,525	18,252		33,637	82,667
1983		15,410		3,575	6,706	25,690
1984	3,023	11,230	15,422	8,365	11,325	49,366
1985	18,650	4,427	3,531	10,463	15,552	52,624
1986	22,491	22,217	16,923	2,140	4,014	67,785
1987	22,576	3,808	6,766	4,746	15,146	53,041
1988	22,186	5,144	17,762	14,374	3,290	62,756
1989	11,389	9,112	2,055	7,488	22,644	52,687
1990	6,402	7,577	3,107	5,834	7,551	30,471
1991	13,656	19,869	11,028	5,378	3,843	53,774
1992	11,556	14,243	9,991	4,894	34,524	75,208
1993	12,846	11,976	2,826	5,698	15,358	48,704
1994	10,848	16,759	7,388	7,345	10,953	53,294
1995	10,934	14,326	9,144	2,831	3,804	41,039
1996	27,126	9,278	9,592	2,201	18,656	66,853
1997	16,160	34,485	9,885	10,576	11,730	82,836
1998	5,535	20,329	3,249	6,436	15,693	51,243
1999	7,641	18,666	656	7,254	21,702	55,920
2000	10,270	19,334	1,036	12,056	6,608	49,304
2001	13,574	21,144	1,985	8,697	7,062	52,463
2002	7,552	16,971	556	8,261	8,945	42,284
2003	8,273	24,896	2,921	20,062	10,107	66,259
2004	6,969	15,367	1,508	7,966	4,995	36,805
2005	6,313	20,237	1,358	3,318	8,635	39,860
2006	4,147	9,566	5,588	11,848	17,571	48,721
2007	8,849	14,434	938	9,897	15,777	49,895
2008	10,728	12,156	312	8,347	11,692	43,235
2009	6,469	6,765	179	13,153	6,423	32,990
2010	10,426	5,405	2,369	18,528	26,437	63,165
2011	6,801	4,246	530	23,994	20,566	56,137
Grand Total	345,374	438,127	181,968	255,725	400,947	1,622,140

Table 6. Spanish mackerel MRIP vs MRFSS estimates of landings (number of fish) for the Gulf of Mexico and Atlantic coast combined 2004-2011. See accompanying graph below table. 2011 is a partial year.

Estimate Status	Year	Fishing Year	Common Name	MRFSS Unweighted Total Harvest (A+B1)	MRIP Weighted Total Harvest (A+B1)	Difference: MRIP - MRFSS	% Change from MRFSS	MRIP Weighted PSE
FULL YEAR	2004	Calendar Year (Jan 1 - Dec 31)	SPANISH MACKEREL	3,147,025	2,920,724	-226,301	-7.19%	8.3
FULL YEAR	2005	Calendar Year (Jan 1 - Dec 31)	SPANISH MACKEREL	2,265,937	2,147,916	-118,021	-5.21%	8.8
FULL YEAR	2006	Calendar Year (Jan 1 - Dec 31)	SPANISH MACKEREL	2,750,780	2,418,348	-332,433	-12.1%	10.6
FULL YEAR	2007	Calendar Year (Jan 1 - Dec 31)	SPANISH MACKEREL	2,931,842	2,412,405	-519,437	-17.7%	7.4
FULL YEAR	2008	Calendar Year (Jan 1 - Dec 31)	SPANISH MACKEREL	3,326,684	3,303,561	-23,123	-0.70%	10.2
FULL YEAR	2009	Calendar Year (Jan 1 - Dec 31)	SPANISH MACKEREL	2,604,375	2,664,251	59,876	2.30%	8.2
FULL YEAR	2010	Calendar Year (Jan 1 - Dec 31)	SPANISH MACKEREL	2,882,382	2,662,881	-219,501	-7.62%	7.5
PART YEAR	2011	Calendar Year (Jan 1 - Dec 31)	SPANISH MACKEREL	2,589,161	2,273,981	-315,180	-12.2%	7.8

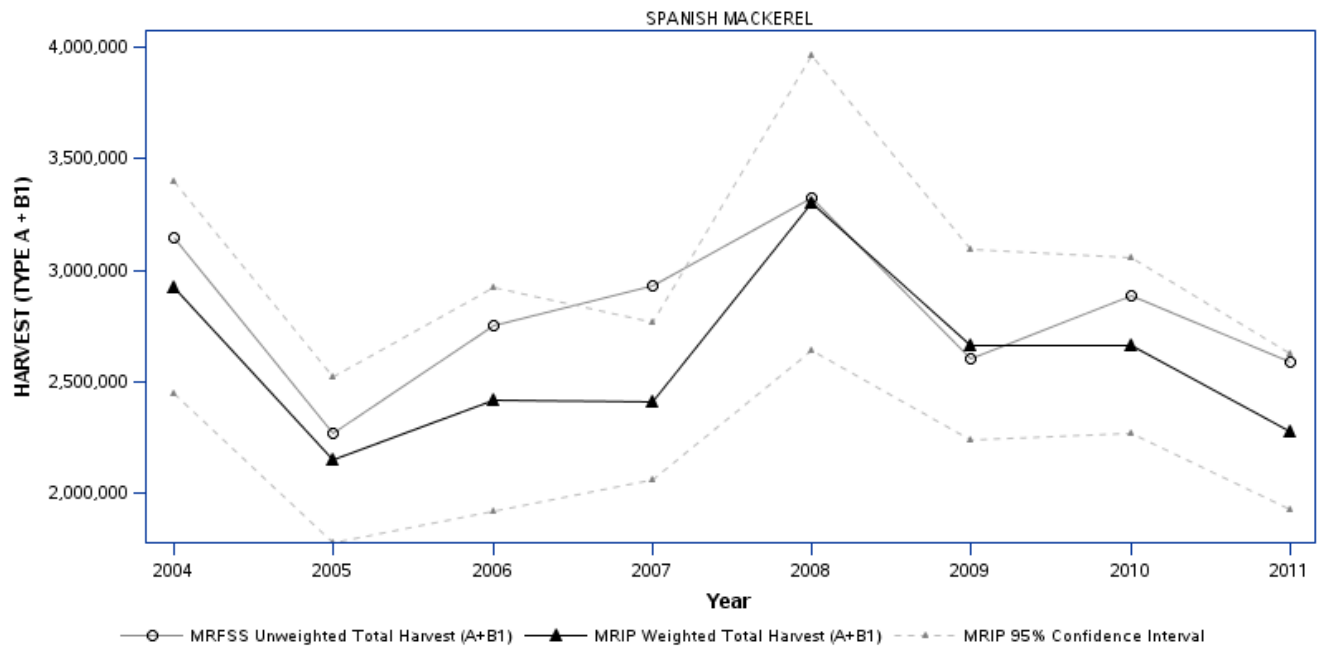


Table 7. Cobia MRIP vs MRFSS estimates of landings (number of fish) for the Gulf of Mexico and Atlantic coast combined 2004-2011. See accompanying graph below table. 2011 is a partial year.

Estimate Status	Year	Fishing Year	Common Name	MRFSS Unweighted Total Harvest (A+B1)	MRIP Weighted Total Harvest (A+B1)	Difference: MRIP - MRFSS	% Change from MRFSS	MRIP Weighted PSE
FULL YEAR	2004	Calendar Year (Jan 1 - Dec 31)	COBIA	83,164	96,796	13,632	16.4%	17.2
FULL YEAR	2005	Calendar Year (Jan 1 - Dec 31)	COBIA	97,198	84,874	-12,323	-12.7%	16.3
FULL YEAR	2006	Calendar Year (Jan 1 - Dec 31)	COBIA	94,901	93,353	-1,548	-1.63%	15.7
FULL YEAR	2007	Calendar Year (Jan 1 - Dec 31)	COBIA	89,646	94,433	4,787	5.34%	13.0
FULL YEAR	2008	Calendar Year (Jan 1 - Dec 31)	COBIA	81,112	71,722	-9,390	-11.6%	14.7
FULL YEAR	2009	Calendar Year (Jan 1 - Dec 31)	COBIA	66,818	67,714	895	1.34%	13.3
FULL YEAR	2010	Calendar Year (Jan 1 - Dec 31)	COBIA	96,165	81,461	-14,704	-15.3%	12.2
PART YEAR	2011	Calendar Year (Jan 1 - Dec 31)	COBIA	91,680	73,804	-17,876	-19.5%	17.7

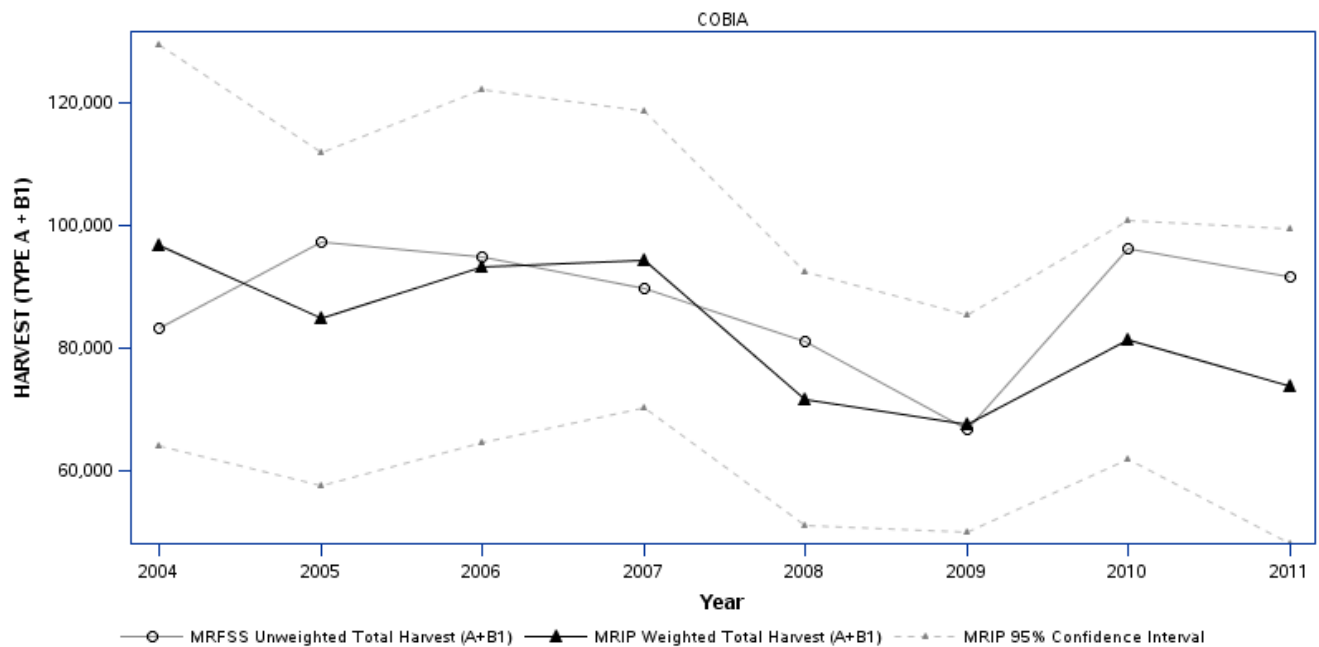


Table 8. Spanish mackerel MRFSS estimates of catch (number of fish) by year and mode for Texas. AB1 is landings and B2 is discards.

YEAR	new_moden		Shore		Total Sum of ab1	Total Sum of b2
	Priv		Shore			
	Sum of ab1	Sum of b2	Sum of ab1	Sum of b2		
1981	25,713	1,714	36,179	0	61,891	1,714
1982			35,854	0	35,854	0
1983			2,217	2,003	2,217	2,003
1984			3,444	1,516	3,444	1,516
1985	2,062	0	3,721	0	5,783	0
Grand Total	27,775	1,714	81,414	3,519	109,189	5,233

Table 9. Cobia MRFSS estimates of catch (number of fish) by year and mode for Texas. AB1 is landings and B2 is discards.

YEAR	new_moden Data	
	Sum of ab1	Sum of b2
1984	0	1,878
Grand Total	0	1,878

Table 10. Spanish mackerel TPWD estimates of landings (whole weight in pounds) by year and source. 2011 is a partial year.

cyear	sry	srys	srysm	srysmw	srysmwa	Grand Total
1983		1,633	324	5,699		7,657
1984		180	1,459	9,638		11,276
1985		79	161	1,895	5,500	7,635
1986		157	302	4,815		5,274
1987		649	1,450	6,955	3,890	12,944
1988		179	86	769	1,576	2,610
1989		26	24	2,182	1,936	4,167
1990		296	1,304	4,244		5,843
1991		737	796	2,358	20,444	24,336
1992			1,064	2,481	3,450	6,996
1993		444	416	899	1,376	3,136
1994		186	1,533	5,715	4,306	11,740
1995		231		963	23,269	24,462
1996		35	579	4,254	19,278	24,146
1997		543	463	2,335	8,677	12,018
1998		66	413	639	12,901	14,018
1999		529	866	461	10,562	12,417
2000		601	2,733		11,201	14,535
2001		14	312	2,624		2,951
2002		1,909	1,226	596	5,992	9,723
2003		523	1,795	4,229	4,827	11,374
2004		90	1,836	2,238	14,058	18,223
2005		529	1,858	4,598	12,201	19,185
2006			3,522	2,776	17,369	23,667
2007			2,703	2,150	11,993	16,847
2008			334	4,198	1,289	5,820
2009		142		3,600	7,713	11,455
2010			451	642	21,719	22,812
2011	1,257					1,257
Grand Total	1,257	9,777	28,010	83,955	225,525	348,525

Table 11. Cobia TPWD estimates of landings (whole weight in pounds) by year and source. 2011 is a partial year.

cyear	sry	srys	srysm	srysmw	srysmwa	Grand Total
1983	22,921					22,921
1984	8,577					8,577
1985	12,623					12,623
1986	5,786					5,786
1987		12,990				12,990
1988	8,328					8,328
1989	5,877					5,877
1990	9,572					9,572
1991	19,327					19,327
1992			64,611			64,611
1993	10,033					10,033
1994			19,339			19,339
1995			15,795			15,795
1996		10,892	20,254	11,467	30,837	73,450
1997		9,939	19,130	5,808	18,994	53,870
1998		6,008	17,523	1,447	23,844	48,822
1999		18,206	19,759			37,965
2000		2,930	10,272	10,894		24,096
2001		3,965	23,868			27,833
2002		16,489				16,489
2003		3,439	8,691	3,112	11,703	26,945
2004		4,615	28,084			32,699
2005		2,079	18,954			21,033
2006		3,168	15,395	16,556		35,119
2007		8,475	20,325			28,800
2008		8,197	11,621	25,066		44,884
2009		7,318	10,783	4,871	26,716	49,688
2010		6,033	18,515			24,548
Grand Total	103,044	124,744	342,918	79,222	112,093	762,020

Table 12. Estimated MRFSS A+B1 catch (number of fish killed) and coefficients of variations (CV) by mode for spanish mackerel in the Gulf of Mexico. Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	Cbt		Cbt/Hbt		Priv		Shore		All Modes	
	A+B1	CV	A+B1	CV	A+B1	CV	A+B1	CV	A+B1	CV
1981			942,170	0.33	790,783	0.22	353,171	0.28	2,086,124	0.18
1982			1,569,489	0.29	1,576,510	0.29	283,874	0.18	3,429,874	0.19
1983			582,555	0.39	1,222,084	0.24	614,142	0.23	2,418,780	0.16
1984			385,137	0.25	272,316	0.27	272,610	0.34	930,062	0.16
1985			388,053	0.25	534,283	0.17	246,748	0.26	1,169,083	0.13
1986	354,699	0.25			2,536,448	0.12	3,498,704	0.25	6,389,851	0.14
1987	335,781	0.22			824,869	0.09	608,050	0.18	1,768,700	0.09
1988	125,666	0.36			1,070,955	0.10	258,849	0.19	1,455,470	0.09
1989	196,290	0.22			694,372	0.09	236,696	0.17	1,127,358	0.08
1990	203,674	0.25			703,798	0.10	678,748	0.13	1,586,219	0.08
1991	86,893	0.21			1,043,554	0.09	576,463	0.16	1,706,910	0.08
1992	99,051	0.26			988,084	0.05	1,296,872	0.08	2,384,008	0.05
1993	76,330	0.24			356,467	0.10	1,050,065	0.09	1,482,862	0.07
1994	166,952	0.23			424,917	0.08	817,555	0.07	1,409,423	0.06
1995	337,320	0.24			313,021	0.14	396,766	0.14	1,047,107	0.10
1996	130,534	0.27			463,174	0.11	638,295	0.12	1,232,003	0.08
1997	159,434	0.38			494,843	0.15	591,042	0.12	1,245,318	0.10
1998	127,348	0.09			404,157	0.11	632,420	0.12	1,163,926	0.08
1999	121,573	0.10			630,435	0.09	823,952	0.09	1,575,961	0.06
2000	213,272	0.11			584,505	0.10	916,551	0.09	1,714,328	0.06
2001	170,786	0.09			772,196	0.09	1,534,160	0.09	2,477,142	0.06
2002	131,692	0.10			721,118	0.09	1,109,254	0.09	1,962,065	0.06
2003	171,765	0.10			572,993	0.08	759,608	0.11	1,504,366	0.07
2004	145,007	0.17			811,107	0.08	1,163,978	0.10	2,120,093	0.06
2005	74,642	0.10			516,654	0.10	542,403	0.15	1,133,698	0.09
2006	153,888	0.12			828,730	0.09	953,302	0.12	1,935,920	0.07
2007	180,510	0.10			626,828	0.08	900,176	0.12	1,707,514	0.07
2008	181,974	0.09			751,027	0.08	939,781	0.11	1,872,782	0.06
2009	142,452	0.10			622,000	0.10	651,848	0.11	1,416,299	0.07
2010	141,661	0.07			685,817	0.09	881,400	0.11	1,708,879	0.07
2011	250,764	0.08			545,744	0.09	903,147	0.12	1,699,654	0.07
Grand Total	4,479,958	0.04	3,867,404	0.16	23,383,789	0.03	25,130,629	0.04	56,861,780	0.02

Table 13. Estimated MRFSS A+B1 catch (number of fish killed) and coefficients of variations (CV) by mode for spanish mackerel in the Atlantic (Maine through East Florida). Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	Cbt		Cbt/Hbt		Hbt		Priv		Shore		All Modes		
	A+B1	CV	A+B1	CV	A+B1	CV	A+B1	CV	A+B1	CV	A+B1	CV	
1981			40,296	0.35			349,075	0.23	355,506	0.33	744,877	0.19	
1982			249,426	0.40			578,430	0.43	138,062	0.36	965,918	0.28	
1983			10,865	0.30			76,628	0.38	42,745	0.32	130,237	0.25	
1984			49,586	0.28			863,422	0.35	46,772	0.26	959,779	0.32	
1985			97,374	0.34			386,695	0.25	25,596	0.36	509,665	0.20	
1986	246,504	0.34	7,557	0.65			444,802	0.17	236,952	0.27	935,814	0.14	
1987	290,214	0.24	1,520	0.87			840,540	0.08	61,993	0.26	1,194,268	0.08	
1988	341,499	0.17					1,313,489	0.08	229,179	0.18	1,884,167	0.07	
1989	259,830	0.18	16,482	0.43			625,845	0.08	329,392	0.16	1,231,549	0.07	
1990	334,240	0.18	7,519	0.32			844,047	0.07	205,034	0.23	1,390,840	0.07	
1991	265,031	0.16	121,587	0.27			878,390	0.07	371,735	0.13	1,636,743	0.06	
1992	183,395	0.16	16,699	0.37			876,840	0.06	268,612	0.11	1,345,545	0.05	
1993	105,780	0.16	71,577	0.44			658,016	0.07	144,019	0.12	979,392	0.06	
1994	278,943	0.13	46,562	0.65			740,346	0.06	184,092	0.12	1,249,943	0.06	
1995	162,406	0.23	45,891	0.88			452,803	0.13	91,108	0.17	752,209	0.11	
1996	308,155	0.19					537,987	0.12	121,870	0.18	968,013	0.09	
1997	283,592	0.19					701,013	0.10	167,613	0.15	1,152,218	0.08	
1998	153,412	0.17	3,329	0.77			407,694	0.12	123,553	0.15	687,988	0.08	
1999	381,480	0.18	342	1.00			582,922	0.10	143,992	0.12	1,108,736	0.08	
2000	143,912	0.15	7,459	0.72			1,016,514	0.09	265,497	0.15	1,433,382	0.07	
2001	98,926	0.20	5,854	1.13			912,579	0.09	285,821	0.12	1,303,181	0.07	
2002	155,832	0.21					1,082,016	0.10	196,952	0.12	1,434,801	0.08	
2003	83,912	0.32	4,603	0.56			883,282	0.09	269,466	0.11	1,241,263	0.07	
2004	30,441	0.20					731,262	0.10	224,742	0.23	986,445	0.09	
2005	97,863	0.24					802,514	0.10	231,861	0.16	1,132,238	0.08	
2006	50,916	0.24				60	0.99	531,004	0.11	232,881	0.19	814,861	0.09
2007	36,827	0.26					894,853	0.10	292,649	0.15	1,224,329	0.08	
2008	203,620	0.28					964,034	0.09	286,247	0.13	1,453,902	0.08	
2009	223,413	0.26				8	1.00	736,446	0.09	228,209	0.14	1,188,075	0.08
2010	93,698	0.13					663,676	0.08	416,129	0.12	1,173,503	0.06	
2011	94,203	0.13					508,616	0.13	286,687	0.17	889,506	0.09	
Grand Total	4,908,046	0.05	804,527	0.16	68	0.88	21,885,780	0.03	6,504,965	0.04	34,103,386	0.02	

Table 14. Estimated MRFSS A+B1 catch (number of fish killed) and coefficients of variations (CV) by mode for cobia in the Gulf of Mexico. Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	Cbt		Cbt/Hbt		Priv		Shore		All Modes	
	A+B1	CV	A+B1	CV	A+B1	CV	A+B1	CV	A+B1	CV
1981			16,264	0.52	67,182	0.30	1,723	1.00	85,169	0.26
1982			15,299	0.35	89,371	0.19	11,502	0.45	116,172	0.16
1983			19,773	0.29	64,232	0.24	3,397	1.00	87,402	0.19
1984			14,511	0.31	43,517	0.27	795	0.79	58,823	0.21
1985			11,381	0.27	29,085	0.34	4,327	0.78	44,793	0.24
1986	6,860	0.34			64,520	0.20			71,380	0.19
1987	10,543	0.42			38,009	0.21	2,101	1.00	50,653	0.19
1988	13,942	0.43			50,857	0.18	2,503	1.00	67,302	0.17
1989	4,939	0.34			36,885	0.29	1,747	1.00	43,570	0.25
1990	6,600	0.45			34,900	0.22			41,501	0.20
1991	25,458	0.28			29,337	0.27	7,939	1.00	62,734	0.21
1992	8,155	0.37			30,563	0.17	8,131	0.51	46,849	0.16
1993	21,554	0.42			27,780	0.20	6,316	0.38	55,651	0.19
1994	13,573	0.32			39,791	0.13	5,932	0.38	59,295	0.12
1995	10,585	0.49			36,041	0.22	3,578	0.52	50,205	0.19
1996	26,583	0.35			26,888	0.22	14,964	0.56	68,434	0.20
1997	19,242	0.31			72,253	0.20	6,148	0.52	97,643	0.16
1998	7,470	0.15			28,199	0.17	1,926	0.80	37,595	0.14
1999	4,626	0.18			31,895	0.14	3,637	0.43	40,158	0.12
2000	4,536	0.28			31,059	0.17	7,213	0.41	42,808	0.14
2001	10,249	0.22			34,036	0.18	4,424	0.58	48,709	0.15
2002	7,100	0.16			23,259	0.16	4,948	0.45	35,308	0.13
2003	10,511	0.24			39,408	0.15	1,735	0.74	51,654	0.12
2004	14,400	0.18			35,193	0.17	875	1.00	50,468	0.13
2005	9,984	0.26			41,290	0.18	2,082	0.71	53,356	0.15
2006	8,144	0.30			38,014	0.16	3,854	0.58	50,013	0.14
2007	12,424	0.23			31,207	0.16			43,631	0.14
2008	10,549	0.44			24,343	0.20	4,379	0.58	39,271	0.19
2009	4,471	0.36			19,334	0.22			23,805	0.19
2010	2,743	0.19			15,031	0.25	3,180	0.59	20,955	0.20
2011	5,014	0.15			27,502	0.25	1,011	1.00	33,527	0.21
Grand Total	280,256	0.08	77,227	0.17	1,200,982	0.04	120,368	0.14	1,678,833	0.03

Table 15. Estimated MRFSS A+B1 catch (number of fish killed) and coefficients of variations (CV) by mode for cobia in the Atlantic (NY through FLE). Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	Cbt		Cbt/Hbt		Priv		Shore		All Modes	
	A+B1	CV	A+B1	CV	A+B1	CV	A+B1	CV	A+B1	CV
1981					4,364	0.71			4,364	0.71
1982					41,316	0.44			41,316	0.44
1983			737	0.46	11,947	0.47			12,684	0.45
1984			2,253	0.39	23,153	0.28	5,944	0.60	31,350	0.24
1985			9,976	0.53	28,548	0.27	7,094	0.51	45,618	0.22
1986	8,335	0.53	1,472	0.58	21,025	0.29	5,364	1.00	36,196	0.26
1987	737	0.40			24,989	0.22	3,439	0.69	29,165	0.21
1988	779	0.48			25,585	0.24	397	1.00	26,760	0.23
1989	2,660	0.45	105	0.87	40,176	0.34	2,422	0.63	45,362	0.31
1990	2,300	0.38			25,893	0.20			28,193	0.18
1991	1,836	0.82	971	0.65	26,195	0.24	2,124	0.35	31,126	0.21
1992	2,857	0.24			44,561	0.12	6,476	0.41	53,894	0.11
1993	5,928	0.30			24,910	0.19	475	1.00	31,313	0.16
1994	2,886	0.30			23,370	0.18	1,492	0.60	27,748	0.15
1995	6,401	0.41			13,766	0.28	2,482	0.53	22,648	0.21
1996	7,538	0.65			38,520	0.20	195	1.00	46,253	0.20
1997	4,485	0.41			28,299	0.20	5,093	0.80	37,877	0.19
1998	5,998	0.31			28,043	0.17	226	1.00	34,267	0.15
1999	4,325	0.30			35,687	0.18	762	0.72	40,774	0.16
2000	2,793	0.44			30,789	0.21			33,582	0.20
2001	3,776	0.27			24,365	0.20	1,634	0.81	29,775	0.17
2002	3,640	0.27	108	1.08	18,990	0.20	4,085	0.53	26,824	0.16
2003	5,004	0.27	74	1.08	52,715	0.16	1,322	0.71	59,116	0.15
2004	2,859	0.19			28,202	0.23			31,061	0.21
2005	3,825	0.25			34,880	0.25	5,136	0.69	43,841	0.21
2006	6,392	0.17			37,175	0.17	1,320	1.00	44,888	0.15
2007	3,232	0.24			42,783	0.16			46,015	0.15
2008	4,952	0.19			34,041	0.22	2,848	0.87	41,841	0.19
2009	3,334	0.21			36,533	0.16	3,147	0.87	43,013	0.15
2010	7,008	0.21			66,611	0.12	1,591	0.76	75,211	0.11
2011	11,967	0.21			42,064	0.19	4,122	0.51	58,153	0.15
Grand Total	115,848	0.08	15,696	0.35	959,495	0.04	69,189	0.17	1,160,228	0.04

Table 16. Estimated MRFSS B2 catch (number released alive) and coefficients of variations (CV) by mode for spanish mackerel in the Gulf of Mexico. Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	Cbt		Cbt/Hbt		Priv		Shore		All Modes	
	B2	CV	B2	CV	B2	CV	B2	CV	B2	CV
1981			6,371	1.00	30,247	0.43	42,872	0.43	79,489	0.30
1982			33,938	0.73	20,734	0.52	483,958	0.51	538,630	0.46
1983					33,953	0.46	1,144,786	0.61	1,178,739	0.60
1984			9,794	0.58	36,422	0.75	13,898	0.54	60,113	0.48
1985			393	1.00	76,648	0.45	63,611	0.45	140,652	0.32
1986	34,884	0.35			1,477,188	0.16	2,497,470	0.33	4,009,542	0.22
1987	11,982	0.88			208,933	0.16	191,520	0.36	412,436	0.19
1988	22,312	0.43			541,171	0.16	154,673	0.35	718,156	0.14
1989	81,812	0.37			279,559	0.22	134,107	0.34	495,478	0.16
1990	55,639	0.63			533,147	0.21	1,579,443	0.18	2,168,229	0.14
1991	10,840	0.37			409,828	0.14	813,299	0.27	1,233,967	0.18
1992	65,660	0.59			489,251	0.08	1,125,772	0.14	1,680,682	0.10
1993	51,089	0.48			185,858	0.15	812,998	0.13	1,049,945	0.10
1994	17,571	0.54			229,742	0.14	409,293	0.14	656,606	0.10
1995	49,663	0.39			256,240	0.46	257,388	0.23	563,291	0.24
1996	11,968	0.49			273,371	0.12	404,150	0.22	689,489	0.14
1997	48,643	0.38			263,843	0.15	541,915	0.18	854,401	0.13
1998	71,196	0.18			218,006	0.14	457,726	0.18	746,928	0.12
1999	23,635	0.18			479,096	0.10	731,813	0.09	1,234,544	0.07
2000	41,917	0.19			574,323	0.43	880,679	0.15	1,496,920	0.19
2001	41,348	0.30			633,266	0.09	1,170,206	0.11	1,844,820	0.08
2002	49,595	0.37			550,088	0.08	1,320,444	0.10	1,920,128	0.07
2003	38,521	0.13			789,883	0.10	1,382,511	0.13	2,210,915	0.09
2004	52,585	0.15			978,413	0.07	1,152,183	0.10	2,183,180	0.06
2005	34,611	0.20			689,650	0.12	660,290	0.15	1,384,552	0.09
2006	124,055	0.27			1,270,961	0.08	1,616,030	0.14	3,011,047	0.09
2007	70,219	0.22			723,266	0.09	1,316,444	0.13	2,109,929	0.09
2008	41,797	0.19			621,731	0.08	1,595,897	0.18	2,259,425	0.13
2009	73,526	0.24			778,837	0.08	719,450	0.10	1,571,813	0.06
2010	90,247	0.13			833,521	0.07	1,349,821	0.11	2,273,588	0.07
2011	74,264	0.12			754,533	0.07	980,972	0.12	1,809,768	0.07
Grand Total	1,289,578	0.07	50,495	0.52	15,241,709	0.03	26,005,620	0.05	42,587,401	0.03

Table 17. Estimated MRFSS B2 catch (number released alive) and coefficients of variations (CV) by mode for spanish mackerel in the Atlantic (Maine through East Florida). Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	Cbt		Cbt/Hbt		Hbt		Priv		Shore		All Modes	
	B2	CV	B2	CV	B2	CV	B2	CV	B2	CV	B2	CV
1981							7,798	0.61	54,191	0.57	61,990	0.51
1982									6,613	0.60	6,613	0.60
1983			118	1.00			4,089	0.66	1,236	1.00	5,443	0.54
1984			1,410	0.68			20,229	0.60	4,498	0.70	26,138	0.48
1985			4,561	0.50			48,408	0.59	3,116	0.62	56,085	0.52
1986	23,610	0.52	24	1.39			23,805	0.30	274,730	0.51	322,168	0.43
1987	5,978	0.44					47,777	0.32	4,683	0.63	58,438	0.27
1988	7,197	0.64					32,721	0.27	27,506	0.86	67,424	0.38
1989	10,302	0.40					146,204	0.33	81,307	0.45	237,813	0.26
1990	6,262	0.43	131	1.39			119,839	0.18	36,855	0.40	163,086	0.16
1991	19,170	0.29	11,537	0.73			236,006	0.14	117,339	0.27	384,051	0.12
1992	15,686	0.30					267,235	0.10	56,148	0.23	339,069	0.09
1993	1,524	0.55	5,179	1.08			188,991	0.12	53,547	0.24	249,241	0.11
1994	76,618	0.18	2,859	0.60			437,416	0.14	252,202	0.20	769,095	0.11
1995	25,733	0.24					230,623	0.14	85,088	0.26	341,444	0.12
1996	45,724	0.29	438	0.92			221,716	0.13	135,685	0.20	403,563	0.10
1997	48,855	0.19					199,947	0.12	165,116	0.18	413,917	0.09
1998	17,623	0.23					206,699	0.14	42,143	0.21	266,464	0.12
1999	40,499	0.20					336,560	0.11	122,842	0.17	499,902	0.09
2000	20,108	0.30					671,565	0.11	122,203	0.18	813,875	0.09
2001	10,983	0.47					425,743	0.16	72,440	0.22	509,166	0.14
2002	31,155	0.24	951	0.95			675,918	0.16	82,781	0.21	790,805	0.14
2003	9,923	0.34					594,122	0.12	265,352	0.39	869,396	0.15
2004	9,382	0.30					330,178	0.11	125,969	0.36	465,530	0.13
2005	15,506	0.25					444,079	0.14	249,921	0.27	709,506	0.13
2006	7,186	0.27					243,932	0.13	81,336	0.29	332,453	0.12
2007	10,166	0.28			51	1.00	477,675	0.11	120,320	0.20	608,213	0.09
2008	81,550	0.23					647,546	0.09	336,814	0.25	1,065,910	0.10
2009	31,110	0.31					329,108	0.11	151,505	0.18	511,723	0.09
2010	12,374	0.42					401,538	0.12	275,636	0.19	689,548	0.10
2011	10,759	0.19					321,179	0.16	195,611	0.28	527,550	0.14
Grand Total	594,983	0.06	27,208	0.39	51	1.00	8,338,644	0.03	3,604,732	0.07	12,565,619	0.03

Table 18. Estimated MRFSS B2 catch (number released alive) and coefficients of variations (CV) by mode for cobia in the Gulf of Mexico. Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	Cbt		Cbt/Hbt		Priv		Shore		All Modes	
	B2	CV	B2	CV	B2	CV	B2	CV	B2	CV
1981					8,114	0.59	3,115	1.00	11,229	0.51
1982			2,837	1.00	13,136	0.49			15,973	0.44
1983			354	1.00					354	1.00
1984			1,602	0.48	5,382	0.82	1,878	0.83	8,862	0.54
1985			112	1.01	1,013	1.00			1,125	0.91
1986	1,409	0.72			41,084	0.42			42,493	0.40
1987	4,089	0.85			18,829	0.25			22,918	0.26
1988	14,080	0.58			58,742	0.23			72,822	0.21
1989	2,726	0.55			64,112	0.28	4,629	0.65	71,467	0.25
1990	12,401	0.53			74,503	0.19	1,580	0.84	88,484	0.17
1991	40,839	0.52			162,235	0.23	29,688	0.61	232,762	0.20
1992	12,587	0.55			83,448	0.14	3,780	0.72	99,814	0.14
1993	14,605	0.59			54,984	0.16	6,489	0.42	76,077	0.17
1994	21,742	0.27			80,056	0.14	13,566	0.32	115,363	0.11
1995	19,030	0.33			56,344	0.21	6,717	0.36	82,092	0.17
1996	32,660	0.36			59,180	0.21	6,238	0.50	98,078	0.18
1997	13,541	0.46			97,080	0.14	7,166	0.41	117,788	0.13
1998	3,653	0.31			72,496	0.11	20,059	0.34	96,209	0.11
1999	10,086	0.28			79,735	0.11	9,241	0.30	99,063	0.10
2000	11,657	0.36			95,067	0.11	14,193	0.35	120,917	0.10
2001	4,499	0.24			91,281	0.11	30,556	0.29	126,336	0.10
2002	7,156	0.15			110,167	0.10	10,975	0.30	128,298	0.09
2003	5,502	0.16			60,654	0.12	9,703	0.35	75,859	0.11
2004	7,535	0.17			61,207	0.13	6,713	0.46	75,455	0.12
2005	4,831	0.18			45,322	0.14	5,237	0.45	55,390	0.13
2006	4,207	0.24			49,889	0.15	4,546	0.59	58,643	0.14
2007	10,464	0.19			59,632	0.14	3,721	0.58	73,817	0.12
2008	10,249	0.16			86,490	0.11	25,626	0.27	122,365	0.10
2009	3,346	0.25			56,190	0.15	5,380	0.50	64,916	0.13
2010	2,203	0.24			38,901	0.14	7,426	0.56	48,529	0.14
2011	5,423	0.21			62,690	0.15	10,144	0.35	78,257	0.13
Grand Total	280,519	0.11	4,905	0.60	1,847,964	0.04	248,366	0.11	2,381,754	0.03

Table 19. Estimated MRFSS B2 catch (number released alive) and coefficients of variations (CV) by mode for cobia in the Atlantic (NY through FLE). Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	Cbt		Cbt/Hbt		Priv		Shore		All Modes	
	B2	CV	B2	CV	B2	CV	B2	CV	B2	CV
1981									0	0.00
1982					2,446	1.00			2,446	1.00
1983							1,423	1.00	1,423	1.00
1984			203	1.00	33,716	1.00	2,612	1.00	36,531	0.93
1985			394	1.08	4,628	0.47	14,860	0.58	19,882	0.45
1986					8,422	0.78			8,422	0.78
1987					2,203	0.63			2,203	0.63
1988	228	0.70			5,766	0.34			5,994	0.33
1989	625	1.02			3,709	0.55	760	0.71	5,094	0.43
1990	320	1.01			7,984	0.37	316	1.00	8,621	0.35
1991	144	0.77	1,049	0.80	22,046	0.27	7,767	0.47	31,006	0.23
1992	447	0.92			21,972	0.25	2,406	0.59	24,826	0.22
1993	129	1.07			12,647	0.29	1,310	0.73	14,086	0.27
1994	56	1.14	1,525	0.60	11,382	0.26	4,052	0.42	17,015	0.21
1995	1,659	0.90			8,243	0.36	3,167	0.51	13,069	0.28
1996	2,014	0.40			13,851	0.27	1,309	0.86	17,174	0.23
1997	3,383	0.58			13,399	0.25	7,382	0.36	24,164	0.20
1998	4,915	0.45			21,692	0.33	5,342	0.45	31,948	0.24
1999	511	0.61			30,583	0.20	11,172	0.34	42,266	0.17
2000	330	0.55			12,255	0.29	3,146	0.52	15,731	0.25
2001	937	0.41			30,653	0.18	5,194	0.46	36,784	0.17
2002	360	0.56	707	0.59	19,342	0.23	5,811	0.33	26,220	0.19
2003	1,173	0.57			37,977	0.24	13,781	0.36	52,930	0.20
2004	2,507	0.46			27,614	0.18	1,694	0.60	31,814	0.17
2005	1,649	0.44			38,491	0.21	4,701	0.44	44,842	0.19
2006	6,114	0.23			53,887	0.24	8,044	0.58	68,045	0.20
2007	1,159	0.37			39,795	0.19	2,006	0.62	42,960	0.18
2008	1,710	0.29			24,140	0.20	2,844	0.44	28,694	0.17
2009	7,724	0.35			34,960	0.21	7,709	0.33	50,393	0.16
2010	2,684	0.30			72,075	0.15	6,478	0.35	81,237	0.13
2011	8,727	0.47			39,824	0.16	4,715	0.26	53,266	0.15
Grand Total	49,508	0.13	3,878	0.36	655,702	0.07	129,999	0.11	839,087	0.06

Table 20. Estimated MRFSS A+B1 (number of fish killed) and B2 catch (number released alive) by state for spanish mackerel in the Gulf of Mexico. Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	LA		MS		AL		FLW		All States	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1981	7,488	0	982,028	3,592	202,860	846	831,858	73,338	2,024,233	77,775
1982	84,548	8,785	1,643,612	36,147	1,297,633	0	368,227	493,697	3,394,020	538,630
1983	71,930	8,785	759,588	2,194	1,016,700	3,378	568,345	1,162,379	2,416,563	1,176,736
1984	17,240	0	386,015	33,181	241,219	2,792	282,145	22,625	926,619	58,598
1985	123,379	60,792	402,201	11,857	173,467	0	464,254	68,003	1,163,300	140,652
1986	9,089	290	208,547	3,204	311,608	50,114	5,860,607	3,955,934	6,389,851	4,009,542
1987	75,979	22,893	234,666	11,871	174,427	12,871	1,283,628	364,801	1,768,700	412,436
1988	40,808	68,674	95,852	6,346	103,710	6,264	1,215,100	636,871	1,455,470	718,156
1989	88,929	30,423	49,979	19,653	208,767	11,822	779,683	433,580	1,127,358	495,478
1990	63,938	72,048	57,524	56,762	409,940	158,990	1,054,818	1,880,429	1,586,219	2,168,229
1991	76,606	67,028	109,936	11,263	253,256	120,853	1,267,112	1,034,824	1,706,910	1,233,967
1992	128,721	55,508	55,236	7,402	207,620	36,174	1,992,430	1,581,598	2,384,008	1,680,682
1993	30,137	18,963	27,653	18,591	147,612	57,919	1,277,460	954,472	1,482,862	1,049,945
1994	13,606	7,751	74,499	14,690	108,496	42,787	1,212,822	591,378	1,409,423	656,606
1995	26,965	15,788	164,645	18,592	252,332	176,956	603,165	351,955	1,047,107	563,291
1996	17,116	17,737	78,155	3,124	171,059	77,733	965,673	590,894	1,232,003	689,489
1997	53,358	23,916	176,917	3,683	130,738	25,009	884,306	801,792	1,245,318	854,401
1998	8,679	12,690	59,863	6,299	141,830	18,311	953,553	709,629	1,163,926	746,928
1999	31,371	30,437	39,987	6,973	311,125	110,981	1,193,478	1,086,153	1,575,961	1,234,544
2000	152,644	211,291	30,650	10,160	185,036	57,491	1,345,998	1,217,977	1,714,328	1,496,920
2001	7,415	22,632	19,586	2,414	328,050	114,862	2,122,090	1,704,912	2,477,142	1,844,820
2002	20,098	32,144	25,475	7,129	106,283	15,875	1,810,209	1,864,980	1,962,065	1,920,128
2003	24,964	24,790	40,395	2,005	122,477	99,671	1,316,529	2,084,450	1,504,366	2,210,915
2004	17,935	14,026	17,261	3,634	398,206	252,880	1,686,692	1,912,641	2,120,093	2,183,180
2005	44,151	49,774	10,126	1,628	94,272	58,262	985,150	1,274,888	1,133,698	1,384,552
2006	30,133	32,548	8,455	10,959	142,947	88,503	1,754,384	2,879,037	1,935,920	3,011,047
2007	15,982	21,251	10,269	65	99,175	30,289	1,582,088	2,058,324	1,707,514	2,109,929
2008	5,458	17,994	26,430	1,801	135,788	35,686	1,705,107	2,203,944	1,872,782	2,259,425
2009	16,547	29,638	19,204	7,121	94,983	74,436	1,285,566	1,460,618	1,416,299	1,571,813
2010	8,715	12,364	4,170	3,256	365,191	188,323	1,330,803	2,069,646	1,708,879	2,273,588
2011	7,578	30,300	47,336	6,174	457,292	170,134	1,187,449	1,603,160	1,699,654	1,809,768
Grand Total	1,321,506	1,021,261	5,866,257	331,768	8,394,096	2,100,211	41,170,732	39,128,929	56,752,591	42,582,169

Table 21. Estimated MRFSS A+B1 (number of fish killed) and B2 catch (number released alive) by state for spanish mackerel in the South Atlantic (NC through FLE). Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	FLE		GA		SC		NC		All States	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1981	476,943	56,374	1,786	0	30,126	0	231,744	5,616	740,599	61,990
1982	172,582	6,613	408	0	21,619	0	771,310	0	965,918	6,613
1983	117,404	4,927	2,113	515	3,995	0	6,724	0	130,237	5,443
1984	247,694	21,797	3,604	0	88,985	1,410	619,496	2,931	959,779	26,138
1985	84,160	23,316	4,810	0	38,796	5,017	381,899	27,753	509,665	56,085
1986	194,664	20,469	25,343	605	162,502	12,200	545,075	288,871	927,584	322,144
1987	118,184	7,197	21,234	2,916	77,053	5,158	967,070	29,219	1,183,540	44,490
1988	225,050	18,334	4,554	2,456	96,387	27,121	1,456,485	19,513	1,782,476	67,424
1989	207,018	83,682	7,444	391	156,517	76,292	763,030	67,162	1,134,008	227,527
1990	222,748	35,520	32,051	0	125,445	27,362	941,067	79,126	1,321,310	142,008
1991	517,204	190,605	2,546	93	145,665	19,770	786,798	142,058	1,452,213	352,526
1992	369,511	113,062	25,929	3,869	68,724	17,236	792,669	186,245	1,256,832	320,411
1993	217,243	74,052	12,829	0	102,976	15,825	488,837	82,359	821,885	172,237
1994	251,619	136,041	15,899	0	154,709	215,456	642,107	275,425	1,064,335	626,922
1995	206,819	129,469	16,726	2,594	34,655	15,654	358,780	159,134	616,980	306,850
1996	242,202	167,411	28,672	301	209,467	94,645	417,101	113,169	897,442	375,525
1997	245,761	166,699	28,396	0	115,563	68,000	693,981	156,222	1,083,701	390,921
1998	241,257	87,804	28,161	7,593	78,310	34,303	300,112	86,259	647,839	215,960
1999	323,430	188,847	9,756	495	35,441	47,113	660,998	223,086	1,029,625	459,540
2000	546,276	352,542	20,887	16,637	28,504	47,396	744,856	312,141	1,340,523	728,716
2001	768,209	283,345	11,103	3,235	43,501	9,711	440,334	165,791	1,263,147	462,082
2002	921,275	552,180	2,273	9,051	24,177	9,206	469,642	205,632	1,417,367	776,068
2003	784,385	445,965	14,967	6,919	24,861	223,108	387,495	165,871	1,211,708	841,863
2004	532,956	213,577	6,151	3,374	131,581	110,681	284,613	120,553	955,301	448,185
2005	676,973	367,862	12,140	8,983	70,273	153,584	331,536	174,140	1,090,921	704,569
2006	439,324	192,010	2,441	6,609	42,867	33,328	305,343	89,912	789,975	321,860
2007	601,335	197,856	13,795	27,643	104,660	83,513	491,357	277,707	1,211,147	586,719
2008	566,397	353,098	14,519	6,823	58,465	93,009	686,501	541,716	1,325,882	994,645
2009	375,512	175,042	6,306	627	60,925	49,472	703,393	241,466	1,146,135	466,607
2010	565,361	331,919	4,732	66	95,929	55,561	472,124	272,387	1,138,146	659,933
2011	379,157	156,556	10,409	6,340	110,766	137,259	354,691	179,221	855,023	479,376
Grand Total	11,838,651	5,154,168	391,981	118,135	2,543,445	1,688,391	17,497,167	4,690,684	32,271,244	11,651,378

Table 22. Estimated MRFSS A+B1 (number of fish killed) and B2 catch (number released alive) by state for spanish mackerel in the Mid-Atlantic (NY through VA). Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	VA		MD		DE		NJ		NY		All States	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1986	5,405	24	394	0			2,432	0			8,230	24
1987	1,520	13,947	7,791	0					1,417	0	10,727	13,947
1988	101,691	0									101,691	0
1989	72,742	10,286					23,217	0	1,262	0	97,222	10,286
1990	61,893	20,822	1,874	0	319	0	2,495	0	2,546	257	69,127	21,078
1991	57,450	25,154	70,744	1,747	2,199	1,092	35,144	2,674	7,671	0	173,208	30,666
1992	68,254	18,072	8,058	0	207	0	10,549	0	1,645	0	88,713	18,072
1993	73,832	70,081	77,348	5,179			3,457	1,160	2,681	0	157,319	76,420
1994	140,063	90,372	37,634	0			7,910	50,743	0	1,059	185,608	142,173
1995	86,899	24,467	48,329	1,562			0	1,269	0	7,297	135,228	34,594
1996	69,399	28,037					1,172	0			70,571	28,037
1997	68,517	22,658			0	338					68,517	22,996
1998	32,484	49,429	3,433	1,075	186	0	4,046	0			40,149	50,504
1999	75,935	36,276	1,177	0	226	0	1,335	2,670	0	1,415	78,674	40,361
2000	71,249	82,227	14,541	1,656	0	608	1,088	0	4,453	0	91,331	84,492
2001	29,590	30,158	7,080	7,265	0	825	0	4,907	802	1,657	37,473	44,813
2002	17,433	9,886	0	4,850							17,433	14,736
2003	17,063	20,539	9,119	6,994							26,182	27,533
2004	20,525	13,738	7,751	753			1,531	0			29,806	14,491
2005	20,525	0	20,792	4,937							41,317	4,937
2006	21,303	8,973	3,118	1,620			465	0			24,886	10,594
2007	821	7,837	12,360	13,657							13,181	21,494
2008	121,773	66,593	5,777	4,672			470	0			128,020	71,265
2009	16,560	24,848	24,725	6,906			655	13,363			41,940	45,116
2010	28,686	29,615	6,671	0							35,357	29,615
2011	25,607	48,174	8,877	0							34,483	48,174
Grand Total	1,307,222	752,217	377,590	62,872	3,138	2,864	95,966	76,785	22,478	11,683	1,806,394	906,421

Table 23. Estimated MRFSS A+B1 (number of fish killed) and B2 catch (number released alive) by state for spanish mackerel in the North-Atlantic (ME through CT). Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	CT		RI		MA		All States	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1981					4,277	0	4,277	0
1989			320	0			320	0
1990			403	0			403	0
1991	4,173	0	78	0	7,071	859	11,322	859
1992					0	586	0	586
1993					188	584	188	584
1999			438	0			438	0
2000					1,528	667	1,528	667
2001					2,561	2,271	2,561	2,271
2003					3,373	0	3,373	0
2004					1,338	2,853	1,338	2,853
Grand Total	4,173	0	1,238	0	20,337	7,820	25,748	7,820

Table 24. Estimated MRFSS A+B1 (number of fish killed) and B2 catch (number released alive) by state for cobia in the Gulf of Mexico. Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	LA		MS		AL		FLW		All States	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1981	46,421	969	869	0	4,137	0	33,742	10,260	85,169	11,229
1982	50,353	6,477	6,214	2,696	10,041	0	49,564	6,800	116,172	15,973
1983	44,789	354	14,966	0	12,139	0	15,508	0	87,402	354
1984	19,865	0	432	5,161	5,851	1,103	32,675	720	58,823	6,984
1985	14,939	1,013	0	112	5,340	0	24,513	0	44,793	1,125
1986	6,394	351	1,980	572	2,218	445	60,788	41,125	71,380	42,493
1987	4,906	4,942	3,490	131	4,820	273	37,438	17,572	50,653	22,918
1988	8,385	7,361	6,260	3,408	7,396	10,325	45,261	51,728	67,302	72,822
1989	12,354	0	5,911	20,879	2,563	1,826	22,742	48,762	43,570	71,467
1990	15,003	22,027	1,079	6,748	5,854	15,488	19,564	44,220	41,501	88,484
1991	13,329	17,465	58	29,461	5,406	18,081	43,940	167,754	62,734	232,762
1992	2,345	5,591	2,671	11,467	5,099	13,461	36,734	69,294	46,849	99,814
1993	3,330	4,905	4,694	10,802	19,602	11,062	28,026	49,309	55,651	76,077
1994	12,297	14,008	2,419	8,642	9,937	18,424	34,642	74,290	59,295	115,363
1995	8,658	5,676	4,793	20,878	2,732	4,812	34,022	50,725	50,205	82,092
1996	14,782	6,485	1,885	15,145	5,800	1,280	45,968	75,169	68,434	98,078
1997	27,567	30,468	5,963	12,820	3,548	4,788	60,565	69,712	97,643	117,788
1998	3,252	3,494	3,088	1,458	2,751	3,362	28,504	87,894	37,595	96,209
1999	6,008	2,735	1,310	3,773	5,720	860	27,120	91,695	40,158	99,063
2000	6,457	11,133	3,137	4,851	2,480	10,145	30,734	94,787	42,808	120,917
2001	3,637	5,742	3,035	3,293	5,147	5,348	36,891	111,953	48,709	126,336
2002	4,256	2,561	3,034	3,716	2,951	3,589	25,067	118,431	35,308	128,298
2003	10,003	2,805	1,703	4,290	3,504	2,223	36,444	66,540	51,654	75,859
2004	13,585	3,762	7,513	5,316	5,533	1,683	23,837	64,695	50,468	75,455
2005	21,030	1,529	986	698	3,452	2,252	27,888	50,910	53,356	55,390
2006	28,059	2,731	653	2,851	2,038	7,568	19,263	45,493	50,013	58,643
2007	12,359	5,629	2,679	4,418	4,407	5,792	24,186	57,977	43,631	73,817
2008	12,246	6,684	2,195	3,786	1,602	6,762	23,228	105,133	39,271	122,365
2009	3,735	1,807	1,627	478	5,029	9,782	13,414	52,849	23,805	64,916
2010	1,582	685	0	1,403	1,215	3,086	18,158	43,354	20,955	48,529
2011	9,431	3,604	4,489	6,389	8,035	15,003	11,572	53,260	33,527	78,257
Grand Total	441,356	182,996	99,130	195,645	166,346	178,823	972,001	1,822,412	1,678,833	2,379,875

Table 25. Estimated MRFSS A+B1 (number of fish killed) and B2 catch (number released alive) by state for cobia in the South Atlantic (NC through FLE). Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	FLE		GA		SC		NC		All States	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1981							2,941	0	2,941	0
1982	34,347	2,446	1,539	0	1,532	0	3,898	0	41,316	2,446
1983	11,847	0	687	0			0	1,423	12,534	1,423
1984	19,403	33,919	2,333	0	3,926	0	5,688	2,612	31,350	36,531
1985	26,065	0	524	188	4,834	2,345	1,322	1,859	32,745	4,392
1986	6,154	0	814	0	4,999	0	14,506	8,422	26,473	8,422
1987	19,304	1,283	968	233	2,296	0	5,843	687	28,410	2,203
1988	17,688	0	555	0	3,044	4,384	5,472	1,610	26,760	5,994
1989	30,975	1,091	2,414	0	3,055	1,794	6,460	585	42,904	3,470
1990	13,535	2,220	777	0	789	0	7,871	3,687	22,972	5,907
1991	9,172	8,244			6,093	0	4,842	6,615	20,108	14,859
1992	39,171	18,278	1,231	46	2,442	2,876	5,294	3,027	48,139	24,227
1993	21,055	11,436					5,871	1,245	26,926	12,682
1994	18,286	4,141			1,260	1,932	4,203	2,912	23,749	8,986
1995	6,604	5,023			2,489	1,452	6,473	3,319	15,566	9,794
1996	20,682	13,116	383	0	3,659	1,490	7,179	1,941	31,904	16,547
1997	22,187	13,179	62	0	2,016	3,422	5,111	4,231	29,375	20,832
1998	21,955	15,998			1,621	1,854	6,643	5,071	30,219	22,922
1999	28,347	13,713	227	0	4,533	6,233	1,858	6,328	34,966	26,273
2000	20,063	3,245	0	59	68	271	3,227	4,249	23,358	7,823
2001	16,387	17,500	430	0			3,588	8,836	20,405	26,336
2002	16,764	9,901	84	0	697	1,067	5,908	5,025	23,453	15,993
2003	30,326	11,115	33	509	19,644	14,280	6,094	8,761	56,097	34,664
2004	13,026	11,361	1,915	482	4,782	6,783	8,045	6,127	27,769	24,753
2005	12,110	9,949	24	0	961	2,386	16,557	9,834	29,651	22,169
2006	29,557	26,925			2,166	5,597	4,722	6,955	36,445	39,476
2007	25,769	12,569	1,356	33	5,684	13,667	2,900	8,337	35,709	34,607
2008	20,298	7,616	10,535	1,036	1,895	4,962	2,447	8,051	35,175	21,664
2009	19,960	22,732	45	0	3,806	83	7,549	16,738	31,360	39,553
2010	44,970	42,271	2,302	119	3,347	3,505	14,705	15,758	65,323	61,654
2011	44,581	27,918	2,836	2,283	0	1,142	6,849	11,531	54,266	42,874
Grand Total	660,587	347,187	32,072	4,988	91,640	81,527	184,066	165,775	968,365	599,477

Table 26. Estimated MRFSS A+B1 (number of fish killed) and B2 catch (number released alive) by state for cobia in the Mid-Atlantic (NY through VA). Charterboat and cbt/hbt estimates use the new method or are calibrated to the new method. 2011 is a partial year.

YEAR	VA		MD		DE		NJ		NY		All States	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1981	1,423	0									1,423	0
1983			150	0							150	0
1985	5,814	411	7,058	4,082			0	9,849	0	1,147	12,873	15,490
1986	3,756	0	1,169	0			4,799	0			9,724	0
1987	755	0									755	0
1989	2,374	1,624	84	0							2,458	1,624
1990	5,221	2,714									5,221	2,714
1991	10,215	15,273	802	873							11,018	16,147
1992	5,756	599									5,756	599
1993	4,387	1,405									4,387	1,405
1994	3,999	6,882			0	827			0	320	3,999	8,029
1995	7,082	3,275									7,082	3,275
1996	14,349	627									14,349	627
1997	8,502	3,332									8,502	3,332
1998	4,049	9,026									4,049	9,026
1999	5,352	15,993	456	0							5,808	15,993
2000	10,224	7,908									10,224	7,908
2001	9,370	10,448									9,370	10,448
2002	3,371	10,227									3,371	10,227
2003	1,900	14,931	1,119	3,336							3,019	18,267
2004	3,292	7,061									3,292	7,061
2005	14,135	22,673			55	0					14,190	22,673
2006	8,041	28,569					403	0			8,443	28,569
2007	10,306	8,353									10,306	8,353
2008	6,666	6,839					0	190			6,666	7,030
2009	11,653	10,840									11,653	10,840
2010	9,845	13,532	43	0			0	6,052			9,888	19,583
2011	3,887	10,392									3,887	10,392
Grand Total	175,724	212,935	10,882	8,290	55	827	5,201	16,091	0	1,467	191,863	239,611

Table 27. Estimated TPWD landings (number of fish killed) by mode for spanish mackerel in the state of Texas. 2011 is a partial year.

cyear	Cbt	Priv	All Modes
1983	801	2,942	3,743
1984	98	5,472	5,570
1985	40	3,353	3,393
1986	76	2,448	2,524
1987	378	7,797	8,175
1988	95	1,291	1,386
1989	17	2,526	2,543
1990	172	3,274	3,446
1991	357	9,626	9,983
1992		2,561	2,561
1993	223	1,417	1,640
1994	93	5,336	5,429
1995	86	8,401	8,487
1996	15	9,234	9,249
1997	264	5,070	5,334
1998	27	5,545	5,572
1999	223	4,403	4,626
2000	262	5,119	5,381
2001	7	1,465	1,472
2002	896	3,685	4,581
2003	214	4,356	4,570
2004	43	8,293	8,336
2005	232	7,926	8,158
2006	823	9,336	10,159
2007	603	6,529	7,132
2008	133	2,443	2,576
2009	64	4,912	4,976
2010	264	11,175	11,439
2011	440	474	914
Grand Total	6,946	146,409	153,355

Table 28. Estimated TPWD landings (number of fish killed) by mode for cobia in the state of Texas. 2011 is a partial year.

cyear	Cbt	Priv	All Modes
1983	81	1,192	1,273
1984		533	533
1985	43	743	786
1986	10	316	326
1987	151	670	821
1988		521	521
1989		312	312
1990		440	440
1991		1,005	1,005
1992		2,735	2,735
1993	285	229	514
1994		1,166	1,166
1995		817	817
1996	489	2,693	3,182
1997	446	2,033	2,479
1998	266	1,964	2,230
1999	813	927	1,740
2000	135	956	1,091
2001	192	1,173	1,365
2002	357	643	1,000
2003	178	1,140	1,318
2004	203	1,225	1,428
2005	109	972	1,081
2006	146	1,519	1,665
2007	422	982	1,404
2008	405	1,776	2,181
2009	319	1,665	1,984
2010	261	759	1,020
Grand Total	5,311	31,106	36,417