

Recreational Survey Data for Yellowedge Grouper, Tilefish (golden),
and Blueline Tilefish in the Gulf of Mexico
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INTRODUCTION

Catch estimates for yellowedge grouper, tilefish (golden), and blueline tilefish from recreational fisheries surveys in the Gulf of Mexico are presented.

OVERVIEW OF THE RECREATIONAL SURVEYS

Estimates of recreational catch for marine fish species in the Gulf of Mexico beginning in 1981 are obtained by a combination of results from three surveys:

- the Marine Recreational Fishery Statistics Survey (MRFSS) conducted by the NOAA Fisheries (NMFS).
- the Texas Marine Sport-Harvest Monitoring Program by the Texas Parks and Wildlife Department (TPWD).
- the Headboat Survey (HBS) conducted by NMFS, Southeast Fisheries Science Center, Beaufort, NC.

These three surveys together provide estimates of catch in numbers (and sometimes weight), estimates of effort, length and weight samples, and catch-effort observations for shore-based and boat fishing. The combined coverage is continuous beginning in 1981 with only minor gaps (see table below).

Recreational Surveys available for Gulf and Atlantic: MRFSS, Headboat, and TPWD

Survey	Area	Timeframe	Mode*
MRFSS	1. TX (not all modes/waves) 2. ME-VA 3. NC-LA 4. USVI 5. PR	1. 1981-1985 2. 1981-present (except 1981, wave 1) 3. 1981-present (except 1981, wave 1) 4. 2000 5. 2000-present	1. SH, HB/CH, PR 2. SH, HB/CH, PR 3. SH, CH, PR 4. SH, CH, PR 5. SH, CH, PR
Headboat	1. NC-FLE (incl. Keys) 2. FLW-TX	1. 1972- present 2. 1986-present	1. HB 2. HB
TPWD	TX	1983-present	CH, PR

*mode abbreviations (SH=shore, HB=headboat, CH=charterboat, PR=private/rental)

The MRFSS and the TPWD survey are both sampling-based, while the Headboat Survey strives to be a census of headboats using logbooks. The strata, data gathered and quantities estimated also differ. Strata for estimates of catch from the three surveys can be made comparable by summing (e.g., summing Headboat Survey estimates into bi-monthly "waves" to match

MRFSS and TPWD). Other differences, such as the lack of estimate of released fish in the Headboat Survey and different measures of effort, must also be addressed.

MRFSS

The MRFSS 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 has not covered Headboats in the Gulf of Mexico and South Atlantic. Before 1986, charterboats and headboats were combined as one mode. No survey was conducted in wave 1 of 1981. Survey data for TX in 1981-1985, Wave 4, are no longer available. (Note: the MRFSS has re-incorporated headboats in some states, but headboat estimates provided are not considered official.) 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").

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 all years 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 some states. 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.) This new method was needed because of the low number of charterboat anglers contacted in the traditional telephone survey of coastal households.

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

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 in 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 were estimated by Diaz and Phares to calibrate the traditional MRFSS charterboat estimates for 1981-1997 with the FHS in the Gulf of Mexico (Diaz and Phares, 2004). In addition to the official FHS estimates for 2000-2003, estimates were also made for 1998-1999 using the FHS methodology. Thus the relationship between the old charterboat method estimates of trips and the FHS for 1998-2003 was used to estimate the conversion factors. The following are the conversion factors and standard errors (in parentheses):

Apply to 1986 – 1997 charterboat mode in AL, LA, and MS

	WAVE					
Area	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)

Apply to 1986- 1997 charterboat mode in FLW

	WAVE					
Area	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)

Apply to 1981-1985 combined Charterboat+Headboat mode in LA, MS, AL, and FLW

Wave					
1	2	3	4	5	6
1.45 (1.10)	1.31 (1.10)	1.63 (1.10)	1.34 (1.10)	2.67 (1.10)	1.58 (1.10)

Reference:

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.

Headboat Survey (HBS)

The Headboat Survey covers the Gulf of Mexico headboats starting in 1986. (At the same time, the MRFSS combined charter+headboat mode estimates changed to charterboat only for the Gulf and South Atlantic states.)

Total catch per trip is reported in logbooks provided to all headboats in TX through NC. Agents collect these logbook trip reports and sample some trips to gather size data. Reporting via the logbooks is mandatory. Although in some years compliance was low, especially in South Florida, it has increased significantly in the past 2 years (30-40%) after a selection letter was sent to headboat owners outlining the reporting requirements and consequences for not reporting. The HBS creates substitutes for missing reports based on data for similar vessels or time periods, thus providing estimates of total catch by month (or groups of months) and area. Each vessel is assigned to one of 26 Gulf of Mexico and South Atlantic areas, based on the port from which the vessel operates and the general fishing area. (There are areas that are not used anymore, including a few very general geographic areas and one for the Bahamas).

The survey was inconsistent in LA in 2002-2006 due to lack of funding in 2002-2004 and the effects of Hurricane Katrina in 2005 and 2006. There were no trip reports collected in LA in 2002. 2001 trip reports were used (by the HBS) as a substitute to generate estimates numbers caught (though there are some minor differences between the resulting estimates for the two years). In 2003, there were only a few trip reports but they were still used to generate the estimates. From 2004 to 2006 there were no trip reports or fish sampled, and no substitutes were used, so there are no estimates or samples

from 2004 to 2006. However, the MRFSS For-Hire Survey included the vessels usually covered by the HBS in their charter mode estimates for these years thereby eliminating this hole in the headboat mode estimates.

TX Parks and Wildlife Survey (TPWD)

TPWD estimates provided to NMFS were revised in 2008. TPWD has sent NMFS its seasonal estimates for all years since 1983. These have been disaggregated into waves to more closely match MRFSS by using the “fish” file sample data from TPWD. Shore mode is not included in the survey. 1983-1985 are incomplete and do not include headboats. The number of discards is not estimated in the TPWD survey.

CATCH ESTIMATES

In the following catch tables, estimated A+B1 is the catch that was killed and B2 is the catch that was released alive. These MRFSS labels are applied to comparable estimates from the Headboat Survey (HBS) and the Texas Parks and Wildlife Department (TPWD). In the MRFSS intercepts, Type A is the catch that was seen and identified by the interviewer. Type B is the catch that was not seen by the interviewer but was reported by the angler. Type B1 is the type B catch reported dead (released dead, used as bait, eaten, etc.) and type B2 is the type B catch reported as released alive.

The tabulated MRFSS estimates use the new charterboat method (FHS) for 1998-2009. The charterboat estimates for 1986-1997 and charter+headboat estimates for 1981-1985 are calibrated to the new method using the conversion factors estimated in Diaz and Phares. They include all of sub_reg=7 or the Gulf of Mexico, which includes Monroe county in West Florida. The tabulated HBS catch estimates do not include headboat areas 12 and 17 (Atlantic based Florida Keys vessels).

Estimates from 2009 are incomplete. MRFSS wave 5 estimates, HBS 2009 estimates, and TPWD 2009 estimates were not available as of the date of this document. No substitutions were made, however, because of the small number of fish (sometimes zero) that are present in the data in most recent years. As previously stated, HBS and TPWD surveys do not estimate discards. No substitutions were made, however, and discards are assumed to be zero from these surveys.

Catch estimates for yellowedge grouper, tilefish (golden), and blueline tilefish are tabulated by survey, mode of fishing, and state in the following tables.

By Survey

Table 1. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by source survey for **yellowedge grouper** in the Gulf of Mexico.

Table 2. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by source survey for **tilefish (golden)** in the Gulf of Mexico.

Table 3. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by source survey for **blueline tilefish** in the Gulf of Mexico.

By Mode

Table 4. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by mode of fishing for **yellowedge grouper** in the Gulf of Mexico.

Table 5. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by mode of fishing for **tilefish (golden)** in the Gulf of Mexico.

Table 6. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by mode of fishing for **blueline tilefish** in the Gulf of Mexico.

By State

Table 7. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by state for **yellowedge grouper** in the Gulf of Mexico.

Table 8. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by state for **tilefish (golden)** in the Gulf of Mexico.

Table 9. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by state for **blueline tilefish** in the Gulf of Mexico.

General overview of the recreational surveys 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.

Table 1. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by source survey for **yellowedge grouper** in the Gulf of Mexico.

YEAR	HBS		MRFSS		TPWD		Total	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1982			16,056	0			16,056	0
1984					21		21	
1986	121		0	2,134	44		165	2,134
1987	497		797	0			1,294	0
1988	949						949	
1989	325		1,667	0			1,992	0
1990	599						599	
1991	364		362	11,139			726	11,139
1992	130						130	
1993	84		1,226	0			1,310	0
1994	57		0	322			57	322
1995	101						101	
1996	26		0	876			26	876
1997	73		173	1,144			246	1,144
1998	63		342	0			405	0
1999	6		158	219			164	219
2000	6		0	1,314			6	1,314
2001	6		222	15			228	15
2002	4		415	0			419	0
2003	11		51	0			62	0
2004	10		126	0			136	0
2005	32		6,328	0			6,360	0
2006	21		223	0			244	0
2007	43		116	0			159	0
2008	43		120	0			163	0
2009			640	0			640	0
Grand Total	3,571		29,026	17,163	65		32,662	17,163

Table 2. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by source survey for **tilefish (golden)** in the Gulf of Mexico.

YEAR	HBS		MRFSS		Total	
	A+B1	B2	A+B1	B2	A+B1	B2
1981			49,441	0	49,441	0
1987			4,107	0	4,107	0
1990			678	0	678	0
1992	1		741	0	742	0
1995	1				1	
1998	1				1	
2000			43	66	43	66
2001	5		66	0	71	0
2005			608	31	608	31
2006			0	317	0	317
2008			93	0	93	0
Grand Total	8		55,778	413	55,786	413

Table 3. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by source survey for **blueline tilefish** in the Gulf of Mexico.

YEAR	HBS		MRFSS		Total	
	A+B1	B2	A+B1	B2	A+B1	B2
1986	100				100	
1987	148		570	0	718	0
1988	371				371	
1989	679				679	
1990	861				861	
1991	213		0	1,894	213	1,894
1992	1				1	
1993	21		765	0	786	0
1994	19				19	
1995	4				4	
1996	16				16	
1997	15		217	0	232	0
1998	3				3	
1999	5		943	0	948	0
2000	44		30	0	74	0
2001	8		160	0	168	0
2002	104		58	0	162	0
2003	14		760	81	774	81
2004	29		1,109	0	1,138	0
2005	34		1,479	0	1,513	0
2006	3		232	0	235	0
2007			2,479	0	2,479	0
2008	31		5,492	0	5,523	0
2009			2,150	0	2,150	0
Grand Total	2,723		16,443	1,976	19,166	1,976

Table 4. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by mode of fishing for **yellowedge grouper** in the Gulf of Mexico.

YEAR	Cbt		Hbt		Priv		Total	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1982					16,056	0	16,056	0
1984					21		21	
1986			121		44	2,134	165	2,134
1987	797	0	497				1,294	0
1988			949				949	
1989			325		1,667	0	1,992	0
1990			599				599	
1991	362	0	364		0	11,139	726	11,139
1992			130				130	
1993	456	0	84		770	0	1,310	0
1994	0	322	57				57	322
1995			101				101	
1996			26		0	876	26	876
1997	173	0	73		0	1,144	246	1,144
1998	342	0	63				405	0
1999	158	219	6				164	219
2000			6		0	1,314	6	1,314
2001	222	15	6				228	15
2002	415	0	4				419	0
2003	51	0	11				62	0
2004	126	0	10				136	0
2005	1,136	0	32		5,192	0	6,360	0
2006	223	0	21				244	0
2007	116	0	43				159	0
2008	120	0	43				163	0
2009	199	0			441	0	640	0
Grand Total	4,898	556	3,571		24,192	16,607	32,662	17,163

Table 5. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by mode of fishing for **tilefish (golden)** in the Gulf of Mexico.

YEAR	Cbt		Hbt		Priv		Shore		Total	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1981					39,205	0	10,236	0	49,441	0
1987	4,107	0							4,107	0
1990	678	0							678	0
1992			1		741	0			742	0
1995			1						1	
1998			1						1	
2000	43	66							43	66
2001	66	0	5						71	0
2005	89	31			519	0			608	31
2006	0	317							0	317
2008	93	0							93	0
Grand Total	5,076	413	8		40,466	0	10,236	0	55,786	413

Table 6. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by mode of fishing for **blueline tilefish** in the Gulf of Mexico.

YEAR	Cbt		Hbt		Priv		Total	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1986			100				100	
1987	570	0	148				718	0
1988			371				371	
1989			679				679	
1990			861				861	
1991			213		0	1,894	213	1,894
1992			1				1	
1993			21		765	0	786	0
1994			19				19	
1995			4				4	
1996			16				16	
1997	217	0	15				232	0
1998			3				3	
1999	943	0	5				948	0
2000	30	0	44				74	0
2001	160	0	8				168	0
2002	58	0	104				162	0
2003	760	81	14				774	81
2004	483	0	29		626	0	1,138	0
2005	1,479	0	34				1,513	0
2006	232	0	3				235	0
2007	2,479	0					2,479	0
2008	589	0	31		4,903	0	5,523	0
2009	172	0			1,978	0	2,150	0
Grand Total	8,171	81	2,723		8,272	1,894	19,166	1,976

Table 7. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by state for **yellowedge grouper** in the Gulf of Mexico.

YEAR	TX		LA		AL		FLW		Total	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1982							16,056	0	16,056	0
1984	21								21	
1986	165						0	2,134	165	2,134
1987	495				2		797	0	1,294	0
1988	765		184						949	
1989	323				1		1,668	0	1,992	0
1990	596				3				599	
1991	359				3		364	11,139	726	11,139
1992	127				3				130	
1993	60		4		20		1,226	0	1,310	0
1994	45		9	322	3				57	322
1995	94		7						101	
1996	25				1		0	876	26	876
1997	70				3		173	1,144	246	1,144
1998	62				1		342	0	405	0
1999	6		0	219			158	0	164	219
2000	6						0	1,314	6	1,314
2001	6				112	0	110	15	228	15
2002	3				1		415	0	419	0
2003	10				1		51	0	62	0
2004	7				3		126	0	136	0
2005	27		839	0	5,194	0	300	0	6,360	0
2006	16		137	0	5		86	0	244	0
2007	21		28	0	19		91	0	159	0
2008	15		3				145	0	163	0
2009			514	0			126	0	640	0
Grand Total	3,324		1,726	542	5,375	0	22,237	16,621	32,662	17,163

Table 8. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by state for **tilefish (golden)** in the Gulf of Mexico.

YEAR	TX		LA		AL		FLW		Total	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1981							49,441	0	49,441	0
1987							4,107	0	4,107	0
1990					678	0			678	0
1992	1						741	0	742	0
1995					1				1	
1998	1								1	
2000							43	66	43	66
2001	5						66	0	71	0
2005					519	0	89	31	608	31
2006							0	317	0	317
2008			64	0			29	0	93	0
Grand Total	7		64	0	1,199	0	54,516	413	55,786	413

Table 9. Estimated landings (# of fish killed—A+B1) and discards (# of fish released alive—B2) by state for **blueline tilefish** in the Gulf of Mexico.

YEAR	TX		LA		AL		FLW		Total	
	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2	A+B1	B2
1986	47		4		5		44		100	
1987	6				40		672	0	718	0
1988	24		104		201		42		371	
1989	2		18		166		493		679	
1990			9		610		242		861	
1991	14		2		154		43	1,894	213	1,894
1992					1				1	
1993					20		766	0	786	0
1994					18		1		19	
1995					4				4	
1996					10		6		16	
1997	1				13		218	0	232	0
1998					3				3	
1999					1		947	0	948	0
2000	4				15		55	0	74	0
2001					1		167	0	168	0
2002	48				1		113	0	162	0
2003	3						771	81	774	81
2004							1,138	0	1,138	0
2005	22				3		1,488	0	1,513	0
2006	2				1		232	0	235	0
2007							2,479	0	2,479	0
2008					5		5,518	0	5,523	0
2009							2,150	0	2,150	0
Grand Total	173		137		1,272		17,584	1,976	19,166	1,976