

Calculated discards of golden and blueline tilefish and yellowedge grouper from commercial vertical line and longline fishing vessels in the Gulf of Mexico

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Introduction

In August 2001, the Southeast Fisheries Science Center (SEFSC) initiated a program to collect discard data from commercial fishing vessels landing federally managed species in the Gulf of Mexico and US South Atlantic. A reporting form was developed as a supplement to the mandatory coastal logbook forms for commercial vessels with federal fishing permits (Poffenberger and McCarthy, 2004). Discard data from the SEFSC coastal fisheries logbook program were used to calculate the number of golden and blueline tilefish and yellowedge grouper that were discarded during the period January 1, 2002 through December 31, 2009.

Data collection for the discard logbook program involves, each year, a 20% sample of vessels with federal fishing permits. To assure that the sample was representative of permitted vessels, the universe of those vessels was stratified by region and gear fished. A random sample, weighted by vessel effort reported the previous year, was selected from each stratum. Region was defined as the Gulf of Mexico (Gulf-side of the Florida Keys-Dry Tortugas to the Texas-Mexico border) and the South Atlantic (which extends from the North Carolina-Virginia border to the ocean-side of the Florida Keys-Dry Tortugas). Fishing gear strata included handline, electric reel (bandit rig), trolling, longline, trap, gillnet, and diving. The selected fishers were instructed to complete a supplemental discard form for every fishing trip that they made. Trips with no discards were reported as such.

Reported data included the numbers of discards by species, estimated condition of the fish when released, reason for release (due to regulations or unmarketable/unwanted), and the fishing area where the animal was discarded. There are six options for the condition of released fish: all animals are dead, majority of the animals are dead, all animals are alive when released, majority of animals are alive, the fish are kept but not sold, and the condition of the animals is unknown. To calculate species specific discard rates, discard data were matched to the landings and effort data reported (for the appropriate trip) to the coastal logbook program.

Methods

The available discard data were explored to determine their utility in calculating total yearly tilefish species and yellowedge grouper discards. The number of trips reporting tilefish species or yellowedge grouper discards was examined for all year and gear combinations. Closed seasons due to quota limits have occurred yearly since 2004 (yellowedge grouper) and 2005 (tilefish species). The number of discard trips by open or closed season was also examined.

Of the tilefish species, only blueline, golden, and unclassified tilefish were reported to the discard logbook program. Yellowedge grouper discards were also reported. Discard reports that included tilefish or yellowedge grouper were submitted for trips that fished either vertical line (handline or electric reel/bandit

rig) or longline gear. No discards of tilefish species or yellowedge grouper were reported from vessels fishing other types of gear.

Too few trips reported tilefish discards for any reliable discard calculation to be completed (Table 1). Those data could not be provided categorized by year and deep-water season due to confidentiality restrictions. Only yellowedge grouper discards were calculated, although the available discard reports were very limited for that species, as well. Then number of vertical line deep-water grouper closed season trips reporting yellowedge grouper discards ranged from 13 to 40 during the period 2004-2009. Only 1-2 deep-water grouper open season vertical line trips reported yellowedge grouper discards each year during 2003-2009. Yellowedge grouper discards were never reported by longline vessels fishing during deep-water grouper open season. Deep-water grouper closed season yellowedge grouper discards were reported during only two years from longline vessels.

Due to the small number of trips reporting yellowedge grouper discards, the calculation of discards was limited to simple ratio estimation. All available data were pooled by gear (vertical line and longline only) and the mean discard rate for each year and deep-water grouper season (open or closed) was calculated. Mean discard rates were then applied to the yearly gear-specific effort for each deep-water grouper season. Effort for longlines was defined as total hooks fished per year. Vertical line effort was total hook hours fished. Discards were calculated for years prior to 2002 by applying gear-specific mean discard rates calculated for deep-water open and closed seasons for all years (2002-2009) to the year/deep-water season specific effort by gear.

Results and Discussion

During the period 2002-2009, discard forms were submitted for 12,665 Gulf of Mexico vertical line trips. Of those trips, discards (of any species) were reported on 75.3% of trips. Discard forms were submitted for 1,426 Gulf of Mexico longline trips during the same period; 964 trips (67.6%) reported discards. There were 62,883 Gulf of Mexico vertical line (handline and electric reel/bandit rig) trips and 9,298 longline trips reported during 2002-2009 to the coastal logbook program. Blueline tilefish landings were reported for 1,197 vertical line and 829 longline trips. Golden tilefish landings were reported for 444 vertical line and 1,515 longline trips. Landings of all other tilefish species were reported from fewer than 80 vertical line and longline trips combined. Yellowedge grouper landings were reported from 2,231 vertical line and 2,391 longline trips. Multiple gears may be reported for single trips, however, only trips that could be unambiguously categorized to a single gear were used in the above summaries.

Yearly yellowedge grouper discard totals for each gear are included in Table 2. The number of calculated discards was low in every year for both gears, particularly longline. The deep-water grouper fishery was not closed prior to 2004, therefore, discards from 1990-2001 were calculated using the mean 2002-2009 deep-water grouper open season discard rate. No vertical line discards were reported during 2002. Discards were reported by longline vessels for deep-water grouper closed season in 2004 and 2007 only. No deep-water grouper open season discards were reported for longline trips; therefore, discards prior to 2002 could not be calculated for longline vessels.

The release condition of reported discarded yellowedge grouper is provided in Table 3 for vertical line data reported yearly and for longlines with all years combined due to small sample size. In all cases, 55% or more yellowedge grouper were reported as “all dead” or “majority dead”. In 2007-08, approximately 40% of vertical line yellowedge grouper discards were reported as “all alive” or “majority alive”. Over 98% of yellowedge discards from longline vessels were reported as “majority dead” when discarded.

Fishers were requested to report the reason fish were discarded. The majority (>87%) of discards were due to regulatory restrictions. Beginning in 2008, the discard reason categories were expanded to include “not legal size” and “out of season”. During both 2008 and 2009 over 90% of discards were reported as out of season.

The number of trips reporting yellowedge grouper and tilefish discards in the Gulf of Mexico was low. This was particularly true of the tilefish species and the deep-water grouper open season yellowedge grouper data. Given that the observed discard observations were so few, the discard rate of yellowedge grouper may be poorly characterized. Even with the limited available data, it does appear likely that the majority of yellowedge grouper discards occur during closed seasons and that yellowedge grouper discards are likely to be limited.

An additional concern associated with these data is the high percentage of trips that report “no discards”. Vessels selected to report discards must submit discard logbooks or report no discards to remain in permit compliance. The percentage of longline trips reporting no discards for a trip has ranged from 20 to 42 percent and vertical line trips reporting no discards has increased from approximately 14% to 35% in recent years. Such high rates of “no discards” reports seems unlikely, suggesting that discards have been underreported in general. Given the small sample size of yellowedge discards and the overall underreporting of discards, the calculated discards reported here should be used with caution.

Literature Cited

Poffenberger, J. and K. McCarthy. 2004. Estimates of red snapper discards by vessels with Federal permits in the Gulf of Mexico. SEDAR 7-DW-22.

Table 1. Tilefish reported trips and discards, all years (2002-2009) all areas in the Gulf of Mexico. Number of discards per trip differed between open and closed seasons, however so few vessels reported tilefish discards that those data cannot be presented if stratified by open/closed season due to confidentiality restrictions.

Species	Gear	Total trips reporting discards	Total discards reported
Blueline Tilefish	Vertical lines	3	68
	Longline	13	3,498
Golden tilefish	Vertical lines	3	981
	Longline	11	3,509

Table 2. Calculated yearly commercial vertical line and longline vessel yellowedge grouper discards by year. Discards are reported in number of fish.

Year	Vertical Line Discards	Longline Discards
1990	219	#
1991	700	#
1992	776	#
1993	305	#
1994	357	#
1995	428	#
1996	383	#
1997	587	#
1998	562	#
1999	641	#
2000	619	#
2001	618	#
2002	0	0
2003	*	0
2004	426	4,163
2005	892	0
2006	619	0
2007	4,435	*
2008	197	0
2009	21	0

#could not be calculated

*confidential data, but very few discards

Table 3. Percent of reported yellowedge grouper discards by estimated condition at release from commercial vessels.

Region	Year	All Dead	Majority Dead	All Alive	Majority Alive	Kept	Unknown	Unreported	N Fish
	2002	No discards reported							
	2003	Confidential data							
Vertical Line	2004	80.8%	15.3%	1.5%	0.6%	1.2%	0.6%	0.0%	339
	2005	83.9%	12.9%	0.7%	0.0%	2.6%	0.0%	0.0%	155
	2006	88.3%	10.1%	1.6%	0.0%	0.0%	0.0%	0.0%	248
	2007	44.2%	11.6%	9.1%	30.7%	0.2%	1.1%	3.2%	473
	2008	47.0%	12.9%	39.0%	1.1%	0.0%	0.0%	0.0%	549
	2009	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	137
	N Fish	1,227	223	267	153	10	7	15	1,902
Longline		0.0%	98.53%	0.0%	0.92%	0.0%	0.55%	0.0%	545

Table 4. Percent of reported yellowedge grouper discards by reason for discard from commercial vessels.

Region	Year	Not legal size	Out of season	Other regulations	Market conditions	Unreported	N Fish
	2002	No discards reported					
	2003	0.0%	0.0%	0.0%	0.0%	100.0%	1
	2004	0.0%	0.0%	100.0%	0.0%	0.0%	339
Vertical Line	2005	0.0%	0.0%	94.8%	5.2%	0.0%	155
	2006	0.0%	0.0%	87.5%	0.0%	12.5%	248
	2007	0.0%	0.0%	100.0%	0.0%	0.0%	473
	2008	3.5%	92.5%	4.0%	0.0%	0.0%	549
	2009	0.0%	91.2%	2.9%	5.8%	0.0%	137
N Fish	19	633	1,202	16	32	1,902	
Longline		0.0%	0.0%	100.0%	0.0%	0.0%	545