Golden Tilefish AP Information Document - January 2012 - Staff

Note - Data Sources for the following are generally from unpublished NMFS Survey, Dealer, VTR, Permit, and MRFSS databases unless noted.

Management System

The Fishery Management Plan (FMP) which initiated the management for this species became effective November 1, 2001 (66 FR 49136; September 26, 2001) and included management and administrative measures to ensure effective management of the tilefish resource. The FMP established a stock rebuilding strategy and total allowable landings (TAL) as the primary control on fishing mortality. This constant harvest strategy (905 mt) was expected to eliminate overfishing and rebuild the tilefish stock in the ten year rebuilding time frame. The FMP also implemented a limited entry program and a tiered commercial quota allocation of the overall TAL. Amendment 1 to the Golden Tilefish FMP created an IFQ (Individual Fishing Quota) program that took effect on November 1, 2009 (74 FR 42580; September 24, 2009).

Basic Biology

The information presented in this section can also be found in the Tilefish FMP (MAFMC, 2001; http://www.mafmc.org/fmp/history/tilefish.htm). Golden tilefish (*Lopholatilus chamaeleonticeps*) are found along the outer continental shelf and slope from Nova Scotia, Canada to Surinam on the northern coast of South America (Dooley 1978 and Markle et al. 1980) in depths of 250 to 1500 feet. In the southern New England/mid-Atlantic area, tilefish generally occur at depths of 250 to 1200 feet and at temperatures from 48°F to 62°F or 8.9°C to 16.7°C (Nelson and Carpenter 1968; Low et al. 1983; Grimes et al. 1986).

Katz et al. (1983) studied stock structure of tilefish from off the Yucatan Peninsula in Mexico to the southern New England region using both biochemical and morphological information. They identified two stocks -- one in the mid-Atlantic/southern New England and the other in the Gulf of Mexico and the south of Cape Hatteras.

Tilefish are shelter seeking and perhaps habitat limited. There are indications that at least some of the population is relatively nonmigratory (Turner 1986). Warme et al. (1977) first reported that tilefish occupied excavations in submarine canyon walls along with a variety of other fishes and invertebrates, and they referred to these areas as "pueblo villages." Valentine et al. (1980) described tilefish use of scour depressions around boulders for shelter. Able et al. (1982) observed tilefish use of vertical burrows in Pleistocene clay substrates in the Hudson Canyon area, and Grimes et al. (1986) found vertical burrows to be the predominant type of shelter used by tilefish in the mid-Atlantic/southern New England region. Able et al. (1982) suggested that sediment type might control the distribution and abundance of the species, and the longline fishery for tilefish in the Hudson Canyon area is primarily restricted to areas with Pleistocene clay substrate (Turner 1986).

Lengths at age suggest that males grow faster than females, but the observed ages showed that females live longer. The largest male was 44.1 inches at 20 years old, and the largest female was 39 years at 40.2 inches FL. The oldest fish was a 46 year old female of 33.5 inches, while the oldest male was 41.3 inches and 29 years. On average, tilefish (sexes combined) grow about 3.5 to 4 inches fork length (FL) per year for the first four years, and thereafter growth slows, especially for females. After age 3, mean last back-calculated lengths of males were larger than those of females. At age 4 males and females averaged 19.3 and 18.9 inches FL, respectively, and by the tenth year males averaged 32.3 while females averaged 26.4 inches FL (Turner 1986). The largest male was 44.1 inches at 20 years old, and the largest female was 39 years at 40.2 inches FL. The oldest fish was a 46 year old female of 33.5 inches, while the oldest male was 41.3 inches and 29 years (Turner 1986).

The size of sexual maturity of tilefish collected off New Jersey in 1971-73 was 24-26 inches TL in females and 26-28 inches TL in males (Morse 1981). Idelberger (1985) reported that 50% of females were mature at about 20 inches FL, a finding consistent with studies of the South Atlantic stock, where some males delayed participating in spawning for 2-3 years when they were 4-6 inches larger (Erickson and Grossman 1986). Grimes et al. (1988) reported that in the late 1970s and early 1980s, both sexes were sexually mature at about 19-26 inches FL and 5-7 years of age; the mean size at 50% maturity varied with the method used and between sexes. Grimes et al. (1986) estimated that 50% of the females were mature at about 19 inches FL using a visual method and about 23 inches FL using a histological method. For males, the visual method estimated 50% maturity at 24 inches FL while the histological method estimated 50% maturity at 21 inches FL. The visual method is consistent with NEFSC estimates for other species (O'Brien et al. 1993). Grimes *et al.* (1988) reported that the mean size and age of maturity in males (but not females) was reduced after 4-5 years of heavy fishing effort. Vidal (2009) conducted an aging study to evaluate changes in growth curves since 1982, the last time the reproductive biology was evaluated by Grimes et al (1988). Histological results from Vidal's study indicate that size at 50% maturity was 18 inches for females and 19 inches for males. Vidal (in 48th SAW Assessment Report - NEFSC 2009a) summarizes the following:

> "*These results show a significant decrease in size and age at maturation since the last evaluation of this stock in the early 1980's (Grimes et al. 1986). An environment in which survival rates are low for potentially reproducing individuals, often favors selection of individuals that are able to reproduce at smaller sizes and younger ages (Hutchings 1993; Reznick et al. 1990). In a hook fishery, it is assumed that the smallest fish in the population are less vulnerable to the gear depending on the hook size. In this fishery, hook size has been intentionally increased to avoid catch of the smallest fish in the population. The fact that such dramatic changes have manifested in this stock may suggest a density-dependent effect of decreased population size. It is uncertain at this point in time, whether these changes are consequences of phenotypic plasticity or selection towards genotypes with lower size and age at maturation.*"

Nothing is known about the diets and feeding habits of tilefish larvae, but they probably prey on zooplankton. The examination of stomach and intestinal contents by various investigators reveal

that tilefish feed on a great variety of food items (Collins 1884, Linton 1901a and 1901b, and Bigelow and Schroeder 1953). Among those items identified by Linton (1901a and 1901b) were several species of crabs, mollusks, annelid worms, polychaetes, sea cucumbers, anemones, unicates and fish bones. Bigelow and Schroeder (1953) identified shrimp, sea urchins and several species of fishes in tilefish stomachs. Freeman and Turner (1977) reported examining nearly 150 tilefish ranging in length from 11.5 to 41.5 inches. Crustaceans were the principal food items of tilefish with the squat lobster (*Munida*) and spider crabs (*Euprognatha*) were by far the most important crustaceans. The authors report that crustaceans were the most important food item regardless of the size of tilefish, but that small tilefish fed more on mollusks and echinoderms than larger tilefish. Tilefish burrows provide habitat for numerous other species of fish and invertebrates (Able et al. 1982 and Grimes et al. 1986) and in this respect they are similar to "pueblo villages" (Warme et al. 1977).

Able et al. (1982) and Grimes et al. (1986) concluded that a primary function of tilefish burrows was predator avoidance. The NEFSC database only notes goosefish as a predator. While tilefish are sometimes preyed upon by spiny dogfish and conger eels, by far the most important predator of tilefish is other tilefish (Freeman and Turner 1977). It is also probable that large bottom-dwelling sharks of the genus *Carcharhinus*, especially the dusky and sandbar, prey upon free swimming tilefish.

Status of the Stock

A surplus production model (ASPIC) was used in the 2009 Golden tilefish stock assessment (48th SAW). The ASPIC surplus production model has been the basis of the stock assessment for the last three assessments. The assessment summary report and the entire assessment report can be found at http://www.nefsc.noaa.gov/publications/crd/crd0910/crd0910.pdf and http://www.nefsc.noaa.gov/publications/crd/crd0915/, respectively.

The Golden tilefish stock is not overfished and overfishing is not occurring (Figures 1 and 2). The 2009 SARC 48 updated reference points derived from the SARC 48 are: B_{MSY} = 11,400 mt, F_{MSY} = 0.16 and MSY = 1,868 mt. The updated biomass reference points (B_{MSY} and K) increased by 21% from the 2005 SAW 41 estimates, updated F_{MSY} decreased by 24%, and updated MSY decreased by 6%. The current 2009 assessment provides a more optimistic evaluation of stock status in 2004 than did the 2005 SAW 41 assessment. Furthermore, based on the 2009 assessment model results and updated reference points, fishing mortality (F) in 2008 is estimated to be 0.06, 38% of F_{MSY} and stock biomass (B) in 2008 is estimated to be 11,910 mt, 4% above B_{MSY}.

The SARC 48 review panel accepted the ASPIC model but concluded that the biomass estimates for recent years are over-optimistic because "*trends in commercial VTR CPUE declined recently in a manner consistent with the passage of the strong 1999 cohort through the population (an interpretation further supported by the length frequency data). The current assessment model (ASPIC) does not account for those factors. Much of the confidence interval around the 2008 biomass estimate falls below the updated B_{MSY} listed above. Based on these considerations there is no convincing evidence that the stock has rebuilt to levels above B_{TARGET}.*" Furthermore, the

48th SAW Assessment Summary Report states that: *"The SARC48 Review Panel concluded that the tilefish projections are useful for displaying the extent of uncertainty in future stock size, but not for predicting future stock size. They noted that the projections were highly variable depending on both the assumed future trend in commercial CPUE and to small changes in the magnitude of the assumed CPUE values. They also concluded that for the most recent years (e.g., 2008) the biomass estimates from the ASPIC model are likely overestimates and that the estimates are more uncertain than the model suggests."* (NEFSC 2009b). *(SARC reports are available at http://www.nefsc.noaa.gov/saw/reports.html under the heading "SARC 48 Panelist Reports")."*

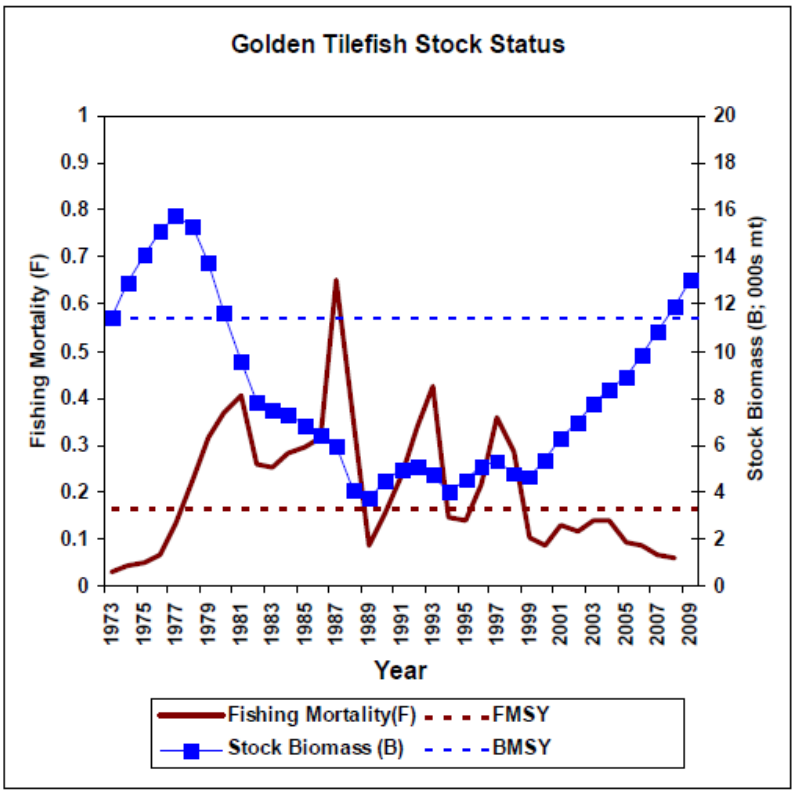

Figure 1. Estimates of tilefish stock biomass (1973-2009) and fishing mortality rate (1973-2008) derived from the ASPIC model. The two horizontal dashed lines represent the Biological Reference Points for the overfishing threshold (F_{MSY}, lower red line) and biomass target (B_{MSY}, upper blue line). Source: 48th SAW Assessment Summary Report, NEFSC.

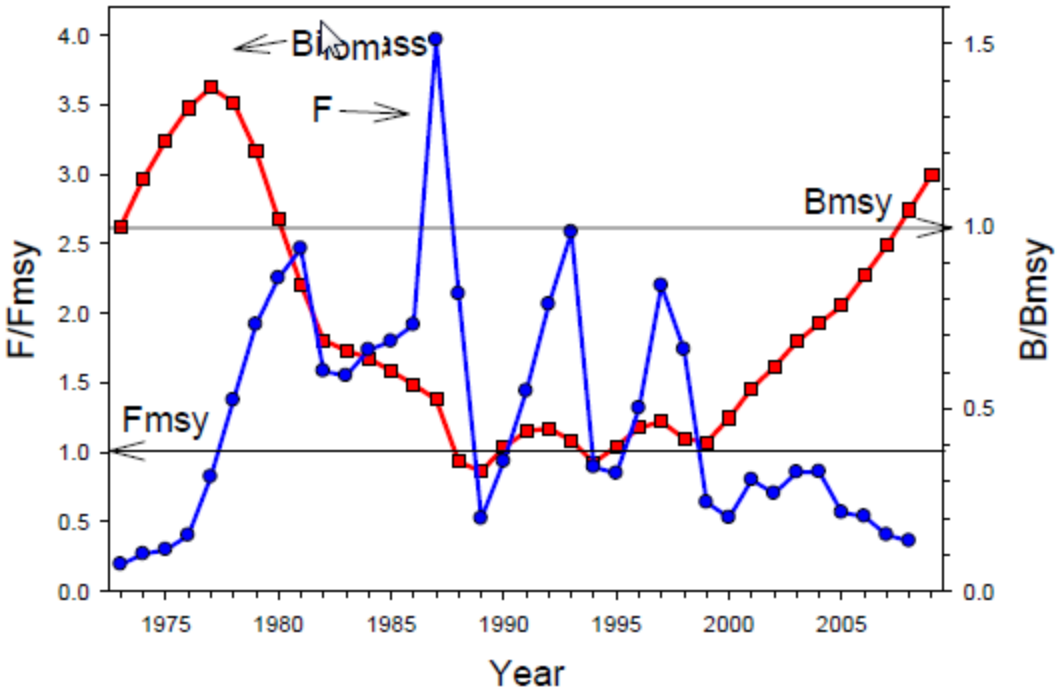

Figure 2. Estimates of tilefish B/B_{MSY} ratios (1973-2009) and F/F_{MSY} ratios (1973-2008). Estimates are from the 'base' ASPIC run which fixed the B1/K ratio at 0.5 and used three CPUE series (Turner, Weighout, and VTR) for tilefish. Source: 48th SAW Assessment Summary Report, NEFSC.

Fishery Performance

For the 1970 to 2011 period golden tilefish landings have ranged from 128 thousand pounds (1970) to 8.7 million pounds (1979). Since 2001, golden tilefish landings have ranged from 1.6 (2011) to 2.7 (2004) million pounds (Figure 3).

The principal measure used to manage golden tilefish is monitoring via dealer weighout data that is submitted weekly. A vessel fishing under a tilefish IFQ Allocation Permit must submit a tilefish catch report by using the interactive voice response (IVR) phone line system within 48 hours after returning to port and offloading.

The directed fishery is managed via an IFQ program. If a permanent IFQ allocation is exceeded, including any overage that results from tilefish landed by a lessee in excess of the lease amount, the permanent allocation will be reduced by the amount of the overage in the subsequent fishing year. If a permanent IFQ allocation overage is not deducted from the appropriate allocation before the IFQ allocation permit is issued for the subsequent fishing year, a revised IFQ allocation permit reflecting the deduction of the overage will be issued. If the allocation cannot be reduced in the subsequent fishing year because the full allocation had already been landed or transferred, the IFQ allocation permit would indicate a reduced allocation for the amount of the overage in the next fishing year.

A vessel that holds a Commercial/Incidental Permit can possess up to 500 lb live weight (455 lb gutted) at one time without an IFQ Allocation Permit. If the incidental harvest exceeds 5 percent of the TAL for a given fishing year, the incidental trip limit of 500 lb may be reduced in the following fishing year.

Table 1 summarizes the tilefish management measures for the 2002-2011 fishing years (FY). With the exception of FY 2003, 2004, and 2010 commercial tilefish landings have been below the commercial quota specified each year since the Tilefish FMP was first implemented. As a result of the decision of the Hadaja v. Evans lawsuit, the permitting and reporting requirements for the FMP were postponed for close to a year (May 15, 2003 through May 31, 2004). During that time period, it was not mandatory for permitted tilefish vessels to report their landings. In addition, during that time period, vessels that were not part of the tilefish limited entry program also landed tilefish.

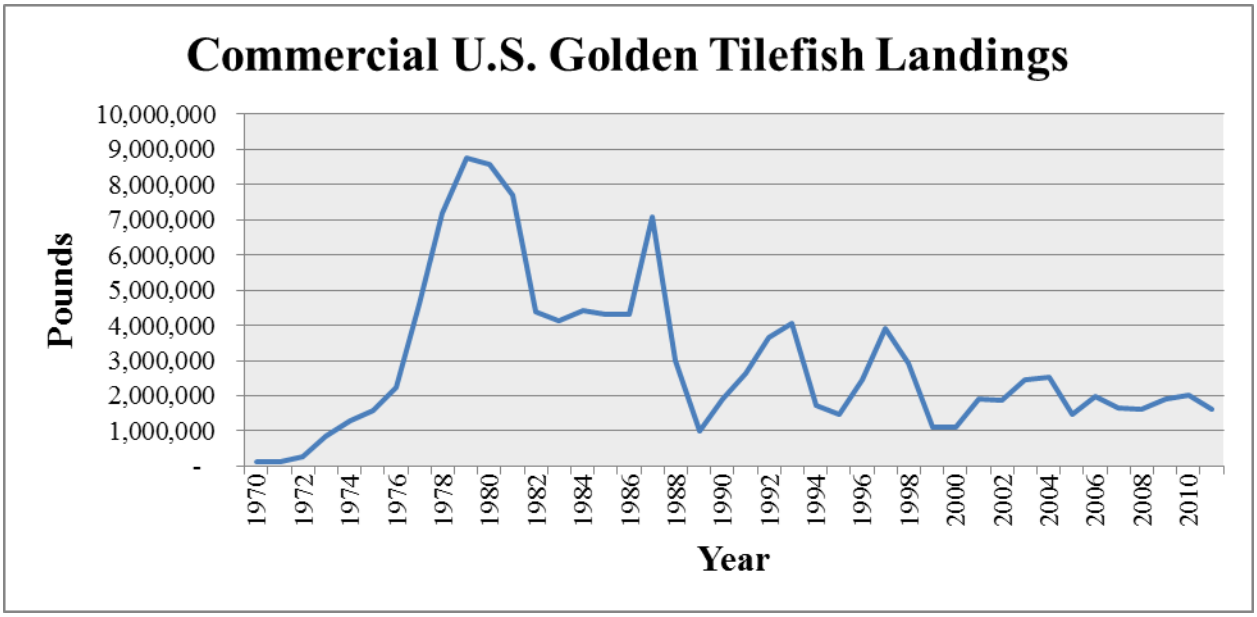

Figure 3. Commercial U.S. Golden Tilefish Landings (Pounds) from Maine-Virginia, 1970-2011. Source: 1970-1993 Tilefish FMP. 1994-2011 NMFS unpublished dealer data, as of November 9, 2011.

Table 1. Summary of management measures and landings for FY[a] 2002 through 2012.

Management measures	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TAL (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995
Com. quota-initial (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995
Com. quota-adjusted (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995
Com. landings	1.935	2.318[b]	2.647[b]	1.497	1.897	1.777	1.672	1.887	1.997	1.892	-
Com. overage/underage (m lb)	-0.060	+0.323	+0.652	-0.498	-0.098	-0.218	-0.323	-0.108	+0.002	-0.103	-
Incidental trip limit (lb)	300	300	300	133	300	300	300	300	300	300	500
Rec. possession limit	-	-	-	-	-	-	-	-	8[c]	8[c]	8[c]

[a] FY 2002 (November 1, 2001 - October 31, 2002).
[b] Lawsuit period (see text above).
[c] Eight fish per person per trip.

Tilefish are primarily caught by longline and bottom otter trawl. Based on dealer data from 2007 through 2011, the bulk of the tilefish landings are taken by longline gear (95%) followed by bottom trawl gear (2%). No other gear had any significant commercial landings. Minimal catches were also recorded for hand line, dredge (other), gillnets, and lobster pot/traps (Table 2).

Table 2. Tilefish commercial landings ('000 lb live weight) by gear, Maine through Virginia, 2007-2011 combined.

Gear	Pounds	Percent
Otter Trawl Bottom, Fish	132	2
Otter Trawl Bottom, Scallop	1	*
Otter Trawl Bottom, Other	3	*
Otter Trawl, Midwater	2	*
Gillnet, Anchored/Sink/Other	19	*
Pots and Traps, Lobster, Inshore/Offshore Combined	*	*
Pots and Traps, Fish/Other Combined	*	*
Lines Hand	22	*
Lines Long Set with Hooks	8,349	95
Dredge, Other	20	*
Unknown, Other Combined Gears	279	3
All Gear	8,828	100

Note: * = less than 1,000 pounds or less than 1 percent.
Source: NMFS unpublished dealer data, as of November 9, 2011.

Nearly 55 percent of the landings for 2010 were caught in statistical area 537, which includes Atlantis and Block Canyons; statistical area 616 had 33 percent of the landings, which includes Hudson Canyon; and statistical area 613 had 7 percent of the landings (Table 3). Less than 1 percent of the total landings were caught in statistical areas 525 (includes Oceanographer, Lydonia, and Gilbert Canyons) and 526 (includes Hydrographer and Veatch Canyons). NMFS statistical areas are shown in Figure 4.

Table 3. Tilefish percent landings by statistical area and year, 1996-2010.

Year	Unk	525	526	536	537	539	612	613	616	622	626	Other
1996	19.81	0.07	5.16	-	43.86	0.38	*	1.06	27.88	0.01	-	1.77
1997	23.29	0.03	0.67	-	56.20	0.02	*	2.59	16.40	0.01	*	0.78
1998	16.21	1.24	2.15	-	65.83	0.04	-	5.44	8.53	*	*	0.54
1999	2.57	0.97	0.22	-	55.06	0.01	0.11	3.68	36.78	0.02	0.02	0.55
2000	*	0.36	3.79	-	46.09	0.01	0.05	2.37	43.92	0.47	0.14	2.79
2001	-	0.23	3.09	-	23.91	*	0.01	3.16	68.96	*	0.10	0.52
2002	-	0.55	8.62	-	35.76	0.07	0.01	15.21	39.41	0.02	0.02	0.32
2003	-	0.88	1.81	-	38.50	0.10	-	11.82	46.39	0.05	0.06	0.40
2004	-	1.02	2.59	-	61.60	0.06	5.27	0.71	25.89	0.04	0.08	2.73
2005	-	0.10	0.21	-	66.68	0.02	1.26	5.26	22.28	0.04	0.18	3.96
2006	-	*	1.52	1.93	61.38	0.49	1.22	0.69	30.03	0.04	0.09	2.61
2007	-	0.02	0.42	4.76	54.74	0.01	-	5.49	31.97	0.84	0.46	1.29
2008	-	1.09	0.06	8.15	39.53	*	-	4.61	43.21	2.06	0.06	1.23
2009	-	2.13	0.01	4.11	42.02	1.28	0.04	4.30	41.14	1.45	1.15	2.37
2010	-	0.01	0.01	2.65	54.50	0.55	0.02	7.19	33.48	0.68	0.04	0.87
All	5.70	0.58	2.00	1.21	51.25	0.20	0.71	4.70	31.71	0.31	0.14	1.49

Note: - = no landings; * = less than 0.01 percent.
Source: NMFS unpublished vessel trip report data, as of June 8, 2011.

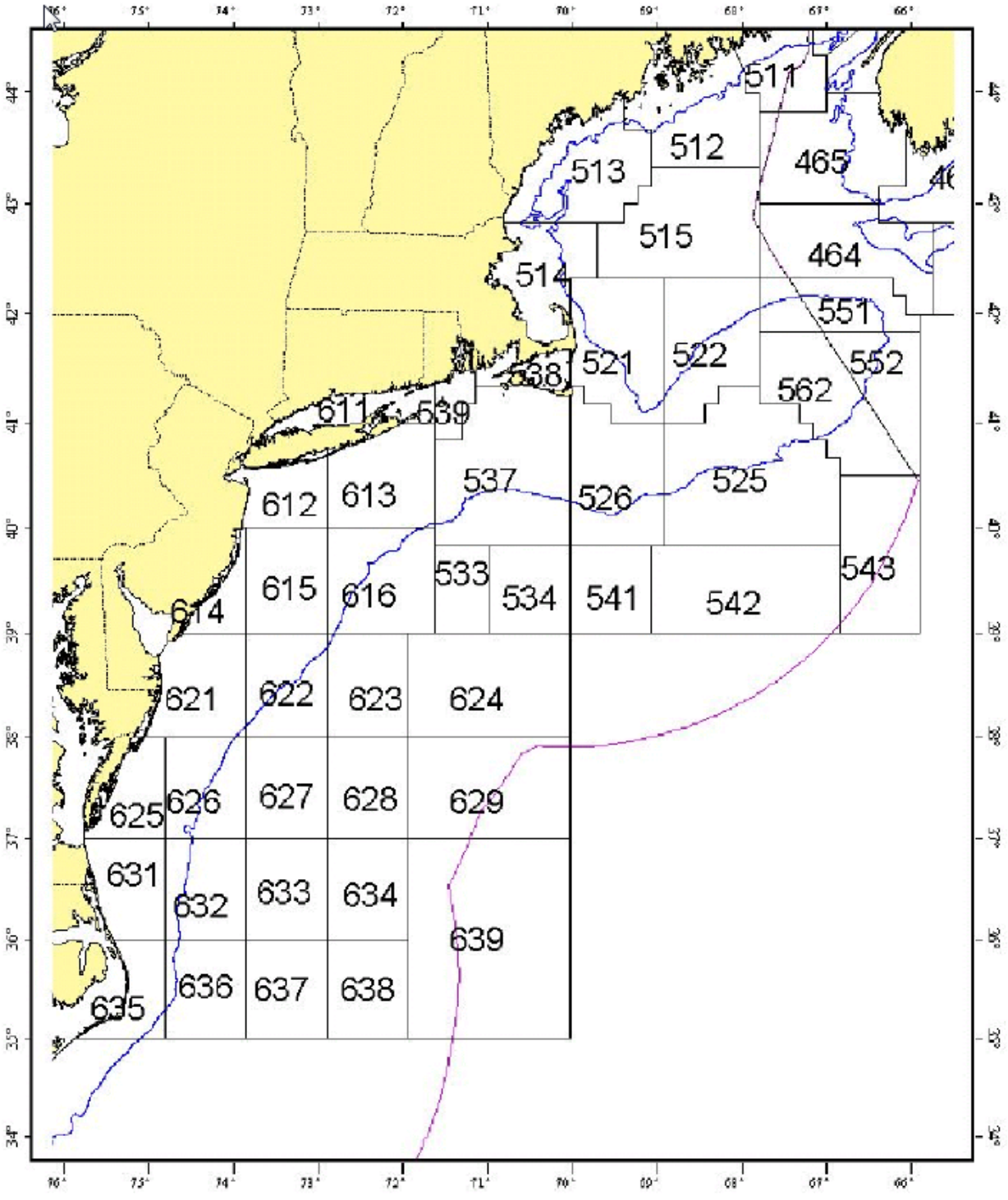

Figure 4. NMFS Statistical Areas.

Commercial tilefish ex-vessel revenues have ranged from $2.5 to $5.2 million for the 1999 through 2010 period. The mean price for tilefish (adjusted) has ranged from $1.37/lb in 2001 to $2.95/lb in 2005 (Figure 5). In 2011, 1.9 million pounds of golden tilefish were landed generating $5.2 million in revenues ($2.8/lb).

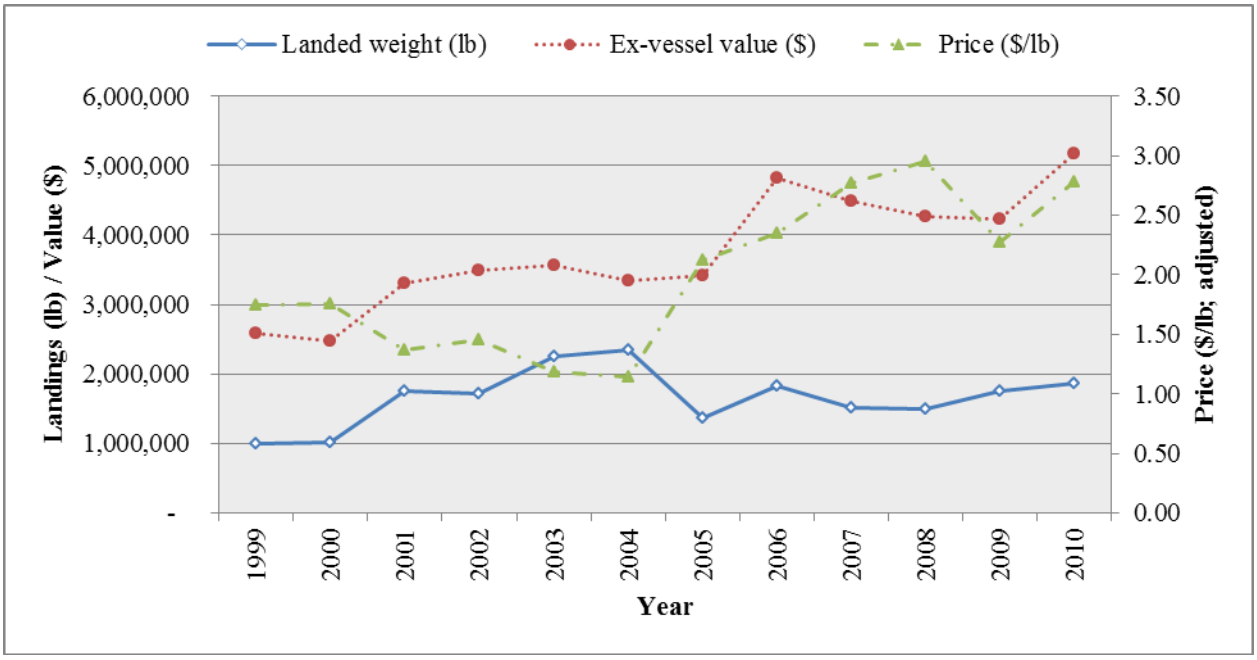

Figure 5. Landings, ex-vessel value, and price for tilefish, Maine through Virginia combined, 1999-2010. Source: NMFS unpublished dealer data, as of November 9, 2011. Note: Prices were adjusted to 2010 values using the Bureau of Labor Statistics Producer Price Index.

The 2007 through 2011 coastwide average ex-vessel price per pound for all market categories combined was $2.82, $2.97 for extra large, $3.42 for large, $2.75 for medium, $2.11 for kittens, $1.77 for small-kittens; $1.84 for small, and $3.11 for unclassified. Price differentials for the 2007 through 2011 period combined indicate that the ex-vessel price per pound for extra large tilefish was 68 percent and 61 percent greater than for small-kittens and small size categories, respectively. Price differentials for the same time period indicate that large tilefish was 93 percent and 86 percent greater than for small-kittens and small size categories, respectively. This price differential indicates that larger fish tend to bring higher prices (Table 4). Nevertheless, even though there is a price differential for various sizes of tilefish landed, tilefish fishermen land all fish caught as the survival rate of discarded fish is very low (L. Nolan 2006; Kitts et al. 2007).

Table 4. Landings, ex-vessel value, and price of tilefish by size category, from Maine thought Virginia, 2007 through 2011.

Size Category	Landings ('000 lb)	Value ($1,000)	Price ($/lb)
Extra large	154,232	457,545	2.97
Large	2,545,450	8,697,762	3.42
Medium	2,402,875	6,610,825	2.75
Kittens	1,648,808	3,478,723	2.11
Small-Kittens	153,798	272,024	1.77
Small	310,089	571,485	1.84
Unclassified	891,646	2,773,358	3.11
All	8,106,898	22,861,722	2.82

Source: NMFS unpublished dealer data, as of November 9, 2011.

The ports and communities that are dependent on tilefish are fully described in Amendment 1 to the FMP (section 6.5; MAFMC 2009; found at http://www.mafmc.org/fmp/pdf/Tilefish_Amend_1_Vol_1.pdf). Additional information on "Community Profiles for the Northeast US Fisheries" can be found at http://www.nefsc.noaa.gov/read/socialsci/community_profiles/.

To examine recent landings patterns among ports, 2010-2011 NMFS dealer data are used. The top commercial landings ports for tilefish are shown in Table 5. A “top port” is defined as any port that landed at least 10,000 lb of golden tilefish. Ports that received 1% or greater of their total revenue from tilefish are shown in Table 6.

Table 5. Top ports of landing (in lb) for golden tilefish, based on NMFS 2010 - 2011 dealer data. Since this table includes only the “top ports,” it may not include all of the landings for the year. (Note: values in parenthesis correspond to IFQ vessels).

Port	2010		2011	
	Landings	# Vessels	Landings	# Vessels
MONTAUK, NY	1,321,973 (1,308,329)	21 (4)	1,037,177 (1,033,581)	15 (4)
BARNEGAT LIGHT/LONG BEACH, NJ	389,074 (370,486)	9 (6)	354,651 (354,405)	7 (5)
HAMPTON BAYS, NY	262,119 (C)	7 (1)	221,228 (C)	4 (1)
POINT JUDITH, RI	32,945 (0)	52 (0)	10,580 (0)	51 (0)

Note: C = Confidential.
Source: NMFS unpublished dealer data, as of November 9, 2011.

Table 6. Ports that generated 1% or greater of total revenues from golden tilefish, 2007-2011.

Port	State
BARNEGAT	NEW JERSEY
BARNEGAT LIGHT /LONG BEACH	NEW JERSEY
MONTAUK	NEW YORK
HAMPTON BAYS	NEW YORK
MATTICUT	NEW YORK
SHINNECOCK	NEW YORK
OTHER, R.I.	RHODE ISLAND

Source: NMFS unpublished dealer data, as of November 9, 2011.

In 2011 there were 61 Federally permitted dealers who bought golden tilefish from 120 vessels that landed this species from Maine through Virginia. In addition, 63 dealers bought tilefish from 135 vessels that landed this species from Maine through Virginia in 2010. These dealers bought approximately $5.2 and $4.7 of tilefish in 2010 and 2011, respectively, and are distributed by state as indicated in Table 7. Table 8 shows relative dealer dependence on tilefish.

Table 7. Dealers reporting buying golden tilefish, by state in 2010 - 2011.

# of Dealers	MA		RI		CT		NY		NJ		MD		VA		Other	
	'10	'11	'10	'11	'10	'11	'10	'11	'10	'11	'10	'11	'10	'11	'10	'11
	14	10	13	9	6	6	17	17	7	12	C	3	C	5	4	1

Note: C = Confidential.
Source: NMFS unpublished dealer data, as of November 9, 2011.

Table 8. Dealer dependence on tilefish, 2007-2011.

Number of Dealers	Relative Dependence on Tilefish
74	<5%
3	10% - 25%
1	25% - 50%
1	50% - 75%

Source: NMFS unpublished dealer data, as of November 9, 2011.

According to VTR data, very little (< 0.1%) discarding was reported by longline vessels that targeted tilefish for the 2001 through 2010 period (Table 9). In addition, the 2009 stock

assessment indicates that recent observer directed tilefish longline trips also suggest that discards of tilefish is minimal. Observer trawl data for the 1989 through 2008 period indicates that discard to kept ratios for trawl trips that either kept or discarded tilefish in the observer data varied from 0 in 1993 to 1.4 in 2001 (NEFSC 2009a). The Standardized Bycatch Reporting Methodology (SBRM) 3-year Review Report - - 2011 indicates that 16,806 (SBRM 2009; July 2007-June 2008), 6,835 (SBRM 2010; July 2008-June 2009), and 16,349 (SBMR 2011; July 2009-June 2010) pounds of the tilefish species group (blueline, golden, and NK tilefish) were discarded according to Vessel Trip Report landings data. The bulk of the discards occurred mostly from small mesh bottom otter trawls (Wigley et al. 2011).

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Table 9. Catch disposition for directed tilefish trips[a], Maine through Virginia, 2001-2010 combined.

Common Name	Kept lb	% species	% total	Discarded lb	% species	% total	Total lb	Disc: Kept Ratio
TILEFISH	16,251,124	100.00%	99.76%	200	0.00%	1.36%	16,251,324	0.00
SPINY DOGFISH	5,771	30.18%	0.04%	13,350	69.82%	91.03%	19,121	2.31
SILVER HAKE	4,226	100.00%	0.03%	0	0.00%	0.00%	4,226	0.00
CONGER EEL	3,925	97.52%	0.02%	100	2.48%	0.68%	4,025	0.03
SANDBAR SHARK	3,536	100.00%	0.02%	0	0.00%	0.00%	3,536	0.00
SKATES	3,136	86.25%	0.02%	500	13.75%	3.41%	3,636	0.16
BLACK BELLIED ROSEFISH	2,979	100.00%	0.02%	0	0.00%	0.00%	2,979	0.00
GROUPER	2,630	100.00%	0.02%	0	0.00%	0.00%	2,630	0.00
ANGLER	2,225	99.78%	0.01%	5	0.22%	0.03%	2,230	0.00
DOGFISH SMOOTH	1,699	100.00%	0.01%	0	0.00%	0.00%	1,699	0.00
BLUELINE TILEFISH	1,645	100.00%	0.01%	0	0.00%	0.00%	1,645	0.00
BLUEFISH	998	66.62%	0.01%	500	33.38%	3.41%	1,498	0.50
YELLOWFIN TUNA	699	100.00%	0.00%	0	0.00%	0.00%	699	0.00
BLACK SEA BASS	612	100.00%	0.00%	0	0.00%	0.00%	612	0.00
MIX RED & WHITE HAKE	516	100.00%	0.00%	0	0.00%	0.00%	516	0.00
SAND TILEFISH	468	100.00%	0.00%	0	0.00%	0.00%	468	0.00
AMERICAN EEL	460	100.00%	0.00%	0	0.00%	0.00%	460	0.00
BLUEFIN TUNA	440	100.00%	0.00%	0	0.00%	0.00%	440	0.00
MAKO SHORTFIN SHARK	434	100.00%	0.00%	0	0.00%	0.00%	434	0.00
MAKO SHARK	342	100.00%	0.00%	0	0.00%	0.00%	342	0.00
PORBEAGLE SHARK	299	100.00%	0.00%	0	0.00%	0.00%	299	0.00
POLLOCK	282	100.00%	0.00%	0	0.00%	0.00%	282	0.00
WHITE HAKE	252	100.00%	0.00%	0	0.00%	0.00%	252	0.00
SUMMER FLOUNDER	250	100.00%	0.00%	0	0.00%	0.00%	250	0.00
DOLPHIN FISH	198	100.00%	0.00%	0	0.00%	0.00%	198	0.00
RED HAKE	187	94.92%	0.00%	10	5.08%	0.07%	197	0.05
DUSKY SHARK	148	100.00%	0.00%	0	0.00%	0.00%	148	0.00
CUSK	147	100.00%	0.00%	0	0.00%	0.00%	147	0.00
OTHER FISH	136	100.00%	0.00%	0	0.00%	0.00%	136	0.00

Table 9 (continued). Catch disposition for directed tilefish trips[a], Maine through Virginia, 2001-2010 combined.

Common Name	Kept lb	% species	% total	Discarded lb	% species	% total	Total lb	Disc: Kept Ratio
ALBACORE TUNA	109	100.00%	0.00%	0	0.00%	0.00%	109	0.00
COD	100	100.00%	0.00%	0	0.00%	0.00%	100	0.00
REDFISH	72	100.00%	0.00%	0	0.00%	0.00%	72	0.00
JOHN DORY	40	100.00%	0.00%	0	0.00%	0.00%	40	0.00
LOLIGO SQUID	20	100.00%	0.00%	0	0.00%	0.00%	20	0.00
AMBER JACK	18	100.00%	0.00%	0	0.00%	0.00%	18	0.00
BUTTERFISH	15	100.00%	0.00%	0	0.00%	0.00%	15	0.00
ALL SPECIES	16,290,138	99.91%	100.00%	14,665	0.09%	100.00%	16,304,803	0.00

[a] Directed trips for tilefish were defined as trips comprising 75 percent or more by weight of tilefish landed.
Source: NMFS unpublished vessel trip report data.
Number of trips = 1,183.

Recreational Fishery

A small recreational fishery briefly occurred during the mid 1970's, with less than 100,000 pounds annually (MAFMC 2000). Subsequent recreational catches have been low for the 1982 - 2008 period, ranging from zero for most years to less than 15,000 pounds in 2007 according to MRFSS data (Table 10).

VTR data indicates that the number of tilefish caught by party/charter vessels from Maine through Virginia is low, ranging from 81 fish in 1996 to 1,856 fish in 2010 (Table 11). Mean party/charter effort ranged from less than one fish per angler in 1999 throughout 2002 and 2005 to approximately eight fish per angler in 1998, averaging 1.3 fish for the entire time series.

According to VTR data, for the 1996 through 2010 period, the largest amount of tilefish caught by party/charter vessels were made by New Jersey vessels (5,398), followed by New York (4,066), Virginia (509), Maryland (202), Rhode Island (181), and Delaware 163. Party/charter boats from New Jersey have shown a significant uptrend in the number of tilefish caught in the last six years while the boats from Rhode Island and Delaware have shown a significant downward trend in the number of fish caught for the same time period (Table 12).

The number of tilefish discarded by recreational anglers is low. According to VTR data, on average, approximately two fish per year were discarded by party/charter recreational anglers for the 1996 through 2010 period. The quantity of tilefish discarded by party/charter recreational anglers ranged from zero in most years to 13 in 2010.

Recreational anglers typically fish for tilefish when tuna fishing especially during the summer months (Freeman, pers. comm. 2006). However, some for hire vessels from New Jersey and

New York are tilefish fishing in the winter months (Caputi pers. comm. 2006). In addition, recreational boats in Virginia are also reported to be fishing for tilefish (Pride pers. comm. 2006). However, it is not known with certainty how many boats may be targeting tilefish.

Anglers are highly unlikely to catch tilefish while targeting tuna on tuna fishing trips. However, these boats may fish for tilefish at any time during a tuna trip (i.e., when the tuna limit has been reached, on the way out or on the way in from a tuna fishing trip, or at any time when tuna fishing is slow). While fishing for tuna recreational anglers may trawl using rod and reel (including downriggers), handline, and bandit gear. Rod and reel is the typical gear used in the recreational tilefish fishery. Because tilefish are found in relatively deep waters, electric reels may be used to facilitate landing (Freeman and Turner 1977).

Table 10. Recreational tilefish data from marine recreational fishery statistics survey (MRFSS).

Year	no. of fish measured	Landed no. A and B1	Released no. B2	A and B1 kg	A and B1 lb
1982	0	984	0	98	216
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	0	0	0	0	0
1986	0	0	0	0	0
1987	0	0	0	0	0
1988	0	0	0	0	0
1989	0	0	0	0	0
1990	0	0	0	0	0
1991	0	0	0	0	0
1992	0	0	0	0	0
1993	0	0	0	0	0
1994	0	608	0	0	0
1995	0	0	0	0	0
1996	0	10,167	0	0	0
1997	0	0	0	0	0
1998	0	0	0	0	0
1999	0	0	0	0	0
2000	0	0	0	0	0
2001	0	148	0	0	0
2002	0	20,068	1,338	0	0
2003	18	722	0	2,126	4,687
2004	3	112	0	317	699
2005	0	0	0	0	0
2006	0	1,208	0	0	0
2007	2	1,151	0	6,720	14,815
2008	0	0	0	0	0

1 kg = 2.20462 lb.
Source: Table modified from SAW 48 (NEFSC 2009b; fishery statistics from Maine through North Carolina).

Table 11. Number of tilefish kept by party/charter anglers and mean effort from Maine through Virginia, 1996 through 2010.

Year	Number of tilefish kept	Mean effort
1996	81	1.4
1997	400	7.5
1998	243	8.1
1999	91	0.4
2000	147	0.5
2001	222	0.6
2002	862	0.9
2003	994	1.6
2004	890	1.3
2005	548	0.9
2006	478	1.2
2007	1,135	1.3
2008	1,110	1.3
2009	1,451	1.3
2010	1,843	2.0
All	10,495	1.3

Source: NMFS unpublished vessel trip report data, as of July 14, 2011.

Table 12. Number of tilefish caught by party/charter vessels by state, 1996 through 2010.

Year	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	All
1996	0	0	0	0	0	81	0	0	0	0	81
1997	0	0	0	0	0	400	0	0	0	0	400
1998	0	0	0	1102	0	141	0	0	0	0	243
1999	0	0	0	1	0	88	0	0	2	0	91
2000	0	0	0	0	0	108	39	0	0	0	147
2001	0	0	0	0	0	122	101	0	0	0	223
2002	0	0	0	0	0	441	423	0	0	0	864
2003	0	0	0	3	0	86	905	0	0	0	994
2004	0	0	0	0	0	12	636	0	0	254	902
2005	0	0	0	72	0	82	368	14	0	16	552
2006	0	0	0	0	0	265	66	2	133	12	478
2007	0	0	0	0	0	447	459	88	5	138	1,137
2008	0	0	0	3	0	488	545	22	32	10	1,100
2009	0	0	0	0	0	720	675	18	7	31	1,451
2010	0	0	0	0	0	585	1,181	19	23	48	1,856
All	0	0	0	181	0	4,066	5,398	163	202	509	10,519

Source: NMFS unpublished vessel trip report data, as of July 14, 2011

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