

Golden Tilefish - Advisory Panel Information Document¹

February 2017

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 golden tilefish resource. 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). The commercial golden tilefish fisheries (IFQ and incidental) are managed using catch and landings limits, commercial quotas, trip limits, gear regulations, permit requirements, and other provisions as prescribed by the FMP. While there is no direct recreational allocation, Amendment 1 implemented a recreational possession limit of eight golden tilefish per angler per trip, with no minimum fish length. Golden tilefish was under a stock rebuilding strategy beginning in 2001 until it was declared rebuilt in 2014. The Golden Tilefish FMP, including subsequent Amendments and Frameworks, are available on the Council website at: <http://www.mafmc.org/fisheries/fmp/tilefish>.

Basic Biology

The information presented in this section can also be found in the Golden Tilefish FMP (MAFMC, 2001; <http://www.mafmc.org/fmp/history/tilefish.htm>). Golden tilefish (*Lopholatilus chamaeleonticeps*; tilefish from this point forward in this section) 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). Warne et al. (1977) first reported

¹ This document was prepared by the MAFMC staff. Data employed in the preparation of this document are from unpublished National Marine Fisheries Service (NMFS) Dealer, Vessel Trip Reports (VTRs), Permit, and Marine Recreational Statistics (MRFSS/MRIP) databases.

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).

Males achieved larger sizes than females, but they apparently did not live as long (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. 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 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 (Northeast Fisheries Science Center) 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 (NEFSC 2009).

"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, tunicates 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" (Warne 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

The golden tilefish stock assessment was peer reviewed and approved for use by management at Stock Assessment Workshop 58 (SAW 58; NEFSC 2014). A statistical catch at age model called ASAP (Age Structured Assessment Program) was used in this assessment to incorporate newly available length and age data to better characterize the population dynamics of the stock. The golden tilefish resource is not overfished and overfishing is not occurring in 2012. SSB was estimated to be 11.53 million pounds (5,229 mt) in 2012, about 101% of the biomass target $SSB_{MSY} \text{ proxy} = SSB_{25\%} = 11.36$ million pounds (5,153 mt). The fishing mortality rate was estimated to be 0.275 in 2012, below the fishing mortality threshold $F_{MSY} \text{ proxy} = F_{25\%} = 0.370$. The golden tilefish stock was previously under a rebuilding plan, but was declared rebuilt by NMFS in 2014 based on SAW 58. The assessment report can be found at: <http://nefsc.noaa.gov/publications/crd/crd1404/>.

Assessment Update

The NEFSC is developing a golden tilefish assessment update through 2016. The update will contain recent trends in the golden tilefish fishery, including, commercial landings, stock size, fishing mortality rate, catch per unit effort, commercial landings by market category (size composition), and landings by area. The update will be posted at the Council's website (<http://www.mafmc.org/>) as soon as it is available.

Fishery Performance

For the 1970 to 2016 calendar years, golden tilefish landings have ranged from 128 thousand pounds (1970) to 8.7 million pounds (1979). For the 2001 to 2016 period, golden tilefish landings have averaged 1.8 million pounds, ranging from 1.1 (2016) to 2.5 (2004) million pounds (Figure 1).

The principal measure used to manage golden tilefish is monitoring via dealer weighout data that is submitted weekly. The directed fishery is managed via an IFQ program. If a permanent IFQ allocation is exceeded, including any overage that results from golden 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 pounds live weight (455 pounds 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 pounds may be reduced in the following fishing year.

Table 1 summarizes the golden tilefish management measures for the 2002-2017 fishing years (FYs). With the exception of FY 2003, 2004, and 2010 commercial golden tilefish landings have been below the commercial quota specified each year since the Golden 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 golden tilefish vessels to report their landings. In addition, during that time period, vessels that were not part of the golden tilefish limited entry program also landed golden tilefish.

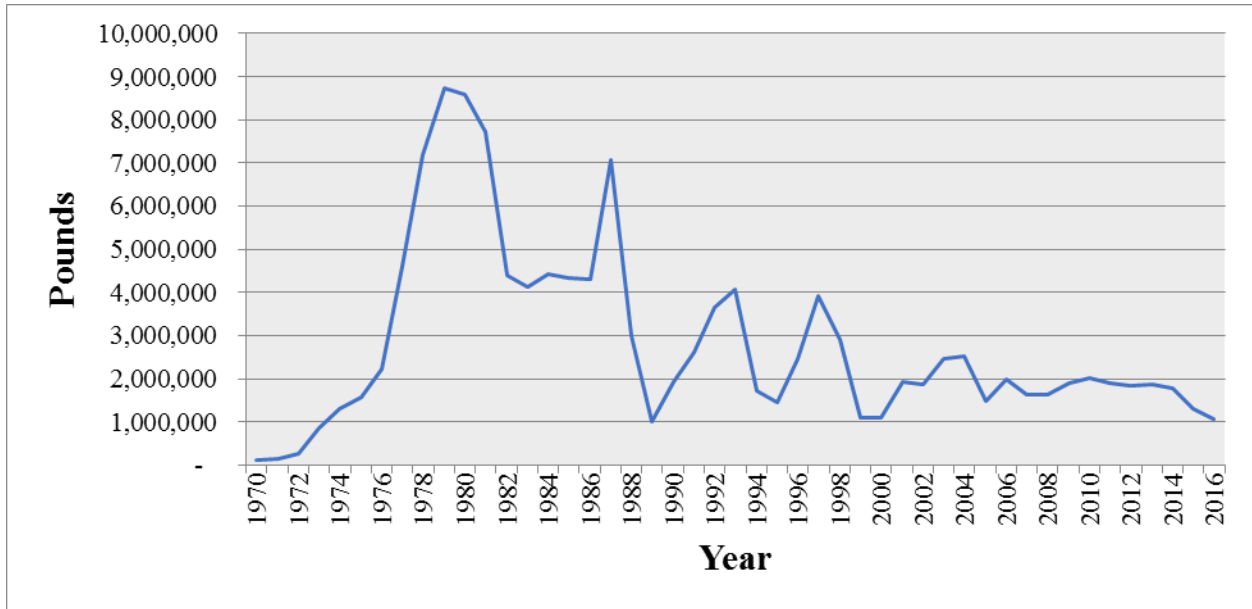


Figure 1. Commercial U.S. Golden Tilefish Landings (live weight) from Maine-Virginia, 1970-2016.
 Source: 1970-1993 Golden Tilefish FMP. 1994-2016 NMFS unpublished dealer data.

Golden tilefish are primarily caught by longline and bottom otter trawl. Based on dealer data from 2012 through 2016, the bulk of the golden tilefish landings are taken by longline gear (98%) followed by bottom trawl gear (~1%). No other gear had any significant commercial landings. Minimal catches were also recorded for hand line and gillnets (Table 2).

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Table 1. Summary of management measures and landings for FY^a 2002 through 2017.

Management measures	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
ABC (m lb)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.013	2.013	1.766	1.898	1.898
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	1.995	1.995	1.755	1.887	1.887
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	1.995	1.995	1.755	1.887	1.887
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	1.995	1.995	1.755	1.887	1.887
Com. landings	1.935	2.318 ^b	2.622 ^b	1.497	1.897	1.777	1.672	1.887	1.997	1.946	1.874	1.841	1.830	1.354	1.043	-
Com. overage/underage (m lb)	-0.060	+0.323	+0.627	-0.498	-0.098	-0.218	-0.323	-0.108	+0.002	-0.049	-0.121	-0.154	-0.165	-0.401	-0.844	-
Incidental trip limit (lb)	300	300	300	133	300	300	300	300	300	300	500	500	500	500	500	500
Rec. possession limit	-	-	-	-	-	-	-	-	8 ^c	8 ^c	8 ^c	8 ^c	8 ^c	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.

Table 2. Golden tilefish commercial landings ('000 pounds live weight) by gear, Maine through Virginia, 2012-2016 combined.

Gear	pounds	Percent
Otter Trawl Bottom, Fish	95	1.2
Otter Trawl Bottom, Other	*	*
Gillnet, Anchored/Sink/Other	16	*
Lines Hand	38	*
Lines Long Set with Hooks	7,705	97.9
Pot & Trap	*	*
Dredge	5	*
Unknown, Other Combined Gears	6,9	*
All Gear	7,866	100.0

Note: * = less than 1,000 pounds or less than 1 percent.

Approximately 55 percent of the landings for 2016 were caught in statistical area 616; statistical area 537 had 32 percent; statistical area 626 had 6 percent; and statistical areas 526 had 5 percent (Table 3). NMFS statistical areas are shown in Figure 2.

For the 1999 to 2016 period, commercial golden tilefish landings are spread across the years with no strong seasonal variation (Tables 4 and 5). However, in recent years, a slight downward trend in the proportion of golden tilefish landed during the winter period (November-February) and a slight upward trend in the proportion of golden tilefish landed during the May-June period are evident when compared to earlier years (Table 5).

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Table 3. Golden tilefish percent landings by statistical area and year, 1996-2016.

Year	Unk	513	525	526	533	536	537	539	612	613	614	615	616	622	626	Other
1996	19.76	0.14	0.07	5.15	0.61	-	43.76	0.38	*	1.06	-	-	27.82	0.01	-	1.24
1997	23.29	0.39	0.03	0.67	0.01	-	56.21	0.02	*	2.59	-	*	16.40	0.01	*	0.37
1998	16.21	*	1.24	2.15	0.04	-	65.84	0.04	-	5.44	-	0.03	8.53	*	*	0.46
1999	2.57	*	0.97	0.22	0.01	-	55.07	0.01	0.11	3.68	-	0.16	36.78	0.02	0.02	0.38
2000	*	-	0.36	3.76	0.99	-	45.64	0.01	0.05	2.35	-	1.26	43.49	0.47	0.14	1.49
2001	-	0.03	0.23	3.09	0.01	-	23.91	*	0.01	3.16	-	0.02	68.96	*	0.10	0.46
2002	-	-	0.12	8.73	-	-	35.86	0.07	0.01	15.39	-	*	39.64	0.02	0.02	0.13
2003	-	-	0.88	1.79	0.08	-	38.45	0.10	-	11.84	0.01	*	46.47	0.05	0.05	0.28
2004	-	*	1.02	2.59	0.01	-	61.66	0.06	5.28	0.70	-	0.02	25.91	0.03	0.06	2.64
2005	-	-	0.12	0.24	1.98	-	61.74	0.02	0.03	5.99	-	1.81	25.17	0.03	0.20	2.66
2006	-	-	*	1.54	*	1.96	61.69	0.50	1.24	0.71	-	0.07	30.09	0.04	0.05	2.09
2007	-	-	0.02	0.40	*	4.56	52.45	0.01	-	5.26	4.95	0.38	30.00	0.81	0.41	0.78
2008	-	-	1.02	0.05	*	7.61	36.83	*	-	4.30	6.92	0.94	40.27	1.91	0.02	0.13
2009	-	-	2.06	0.01	-	3.97	40.53	1.23	0.04	4.15	4.90	0.01	39.67	1.27	1.11	1.04
2010	-	-	0.01	0.01	0.01	-	57.13	0.55	0.02	7.28	*	0.05	33.94	0.69	0.04	0.26
2011	-	2.86	0.02	*	-	-	53.06	0.01	-	3.12	-	0.37	39.98	0.31	0.06	0.21
2012	-	-	0.01	0.01	-	-	52.54	0.03	*	0.58	-	2.58	43.92	0.20	0.10	0.03
2013	-	-	*	0.67	-	-	56.23	1.06	0.03	0.69	-	0.01	35.39	1.21	4.59	0.13
2014	-	-	0.01	0.43	*	-	48.55	1.92	0.01	1.31	-	0.34	43.62	2.72	0.36	0.74
2015	-	-	3.06	0.98	*	-	30.00	2.55	-	0.01	-	*	54.02	2.34	5.53	1.50
2016	-	-	1.06	4.88	-	-	31.74	0.01	-	0.96	0.09	*	54.75	0.17	5.97	0.37
All	4.29	0.18	0.55	1.72	0.15	0.77	49.80	0.38	0.48	3.83	0.71	0.33	34.76	0.52	0.69	0.85

Note: - = no landings; * = less than 0.01 percent.

Table 4. Golden tilefish commercial landings (1,000 live pounds) by month and year, Maine through Virginia, 199-2016.

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1999	118	114	124	103	93	91	55	106	83	59	77	75	1,096
2000	52	105	159	101	107	99	34	91	42	107	96	112	1,105
2001	107	151	159	188	153	179	177	157	156	156	161	176	1,920
2002	143	232	257	144	164	117	107	141	148	146	68	200	1,866
2003	183	181	295	254	209	185	152	180	210	202	189	223	2,463
2004	197	355	514	332	132	77	113	119	183	187	120	189	2,519
2005	127	159	235	168	33	57	92	129	96	94	141	158	1,487
2006	159	245	324	108	127	142	86	138	129	141	169	228	1,996
2007	122	118	192	147	141	96	131	133	125	174	77	189	1,646
2008	235	206	202	173	124	123	62	90	101	90	109	104	1,619
2009	90	145	185	200	219	211	184	157	156	127	94	134	1,902
2010	128	152	274	216	195	157	149	157	156	186	119	137	2,025
2011	152	95	269	234	203	137	160	127	120	194	65	150	1,905
2012	146	114	142	207	151	131	158	203	186	221	39	139	1,837
2013	106	119	174	245	226	193	152	152	126	169	74	126	1,863
2014	114	93	146	183	187	233	214	172	134	153	46	102	1,777
2015	68	70	144	128	181	146	130	127	123	89	41	62	1,308
2016	43	53	91	71	110	119	130	135	91	96	81	60	1,082
Total	2,289	2,708	3,885	3,201	2,756	2,493	2,286	2,516	2,365	2,591	1,766	2,562	31,415

Table 5. Percent of golden tilefish commercial landings (live pounds) by month and year, Maine through Virginia, 1999-2016.

Year	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1999	10.75	10.38	11.28	9.41	8.50	8.29	4.99	9.66	7.55	5.36	6.98	6.86	100.00
2000	4.68	9.48	14.41	9.13	9.67	8.95	3.05	8.26	3.78	9.71	8.70	10.18	100.00
2001	5.59	7.88	8.30	9.77	7.95	9.32	9.24	8.16	8.13	8.11	8.40	9.14	100.00
2002	7.64	12.43	13.76	7.70	8.78	6.28	5.74	7.57	7.92	7.85	3.63	10.70	100.00
2003	7.44	7.33	11.98	10.31	8.47	7.52	6.18	7.32	8.52	8.19	7.68	9.05	100.00
2004	7.81	14.11	20.42	13.20	5.25	3.06	4.47	4.74	7.26	7.43	4.76	7.49	100.00
2005	8.54	10.70	15.78	11.28	2.24	3.82	6.16	8.66	6.44	6.32	9.46	10.60	100.00
2006	7.95	12.30	16.22	5.39	6.38	7.10	4.33	6.93	6.46	7.06	8.46	11.41	100.00
2007	7.43	7.15	11.67	8.93	8.58	5.85	7.94	8.08	7.61	10.60	4.68	11.47	100.00
2008	14.53	12.72	12.47	10.68	7.68	7.58	3.81	5.59	6.25	5.55	6.73	6.42	100.00
2009	4.72	7.62	9.74	10.50	11.52	11.08	9.66	8.26	8.22	6.69	4.93	7.04	100.00
2010	6.33	7.51	13.51	10.67	9.62	7.73	7.37	7.75	7.69	9.17	5.90	6.75	100.00
2011	7.96	4.96	14.13	12.26	10.66	7.20	8.40	6.66	6.31	10.18	3.42	7.87	100.00
2012	7.95	6.23	7.71	11.26	8.21	7.12	8.60	11.06	10.15	12.01	2.15	7.55	100.00
2013	5.67	6.39	9.34	13.17	12.14	10.37	8.18	8.17	6.75	9.07	3.97	6.78	100.00
2014	6.42	5.26	8.21	10.32	10.51	13.12	12.05	9.65	7.54	8.62	2.58	5.72	100.00
2015	5.21	5.38	10.98	9.79	13.87	11.16	9.91	9.72	9.40	6.97	3.12	4.73	100.00
2016	3.96	4.88	8.39	6.56	10.18	11.04	12.04	12.50	8.44	8.90	7.53	5.57	100.00
Total	7.29	8.62	12.37	10.19	8.77	7.93	7.28	8.01	7.53	8.25	5.62	8.15	100.00

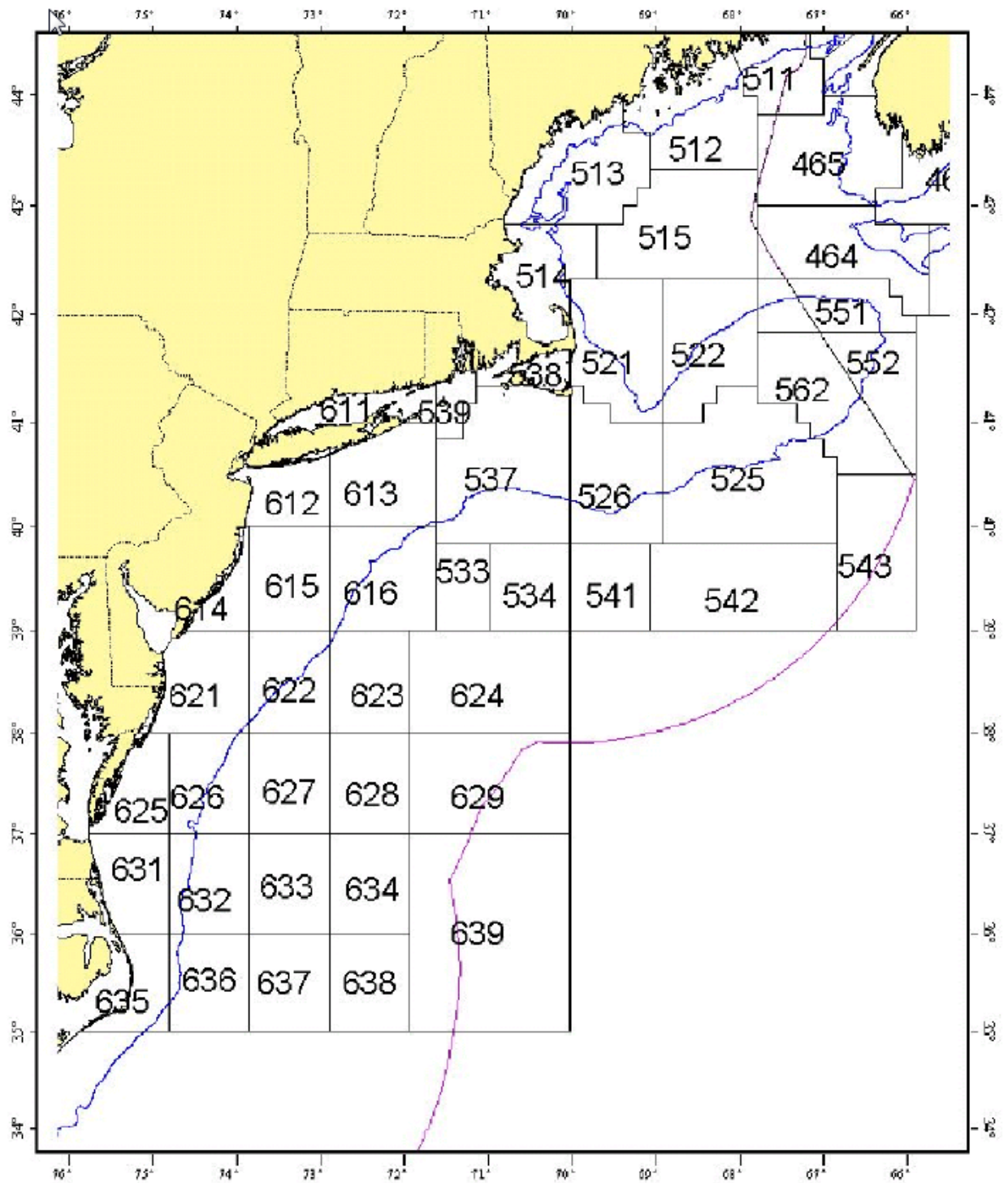


Figure 2. NMFS Statistical Areas.

Commercial golden tilefish ex-vessel revenues have ranged from \$2.5 (year 2000) to \$5.9 (year 2013) million for the 1999 through 2016 period. The mean price for golden tilefish (adjusted) has ranged from \$1.16 per pound in 2004 to \$4.29 per pound in 2016 (Figure 3).

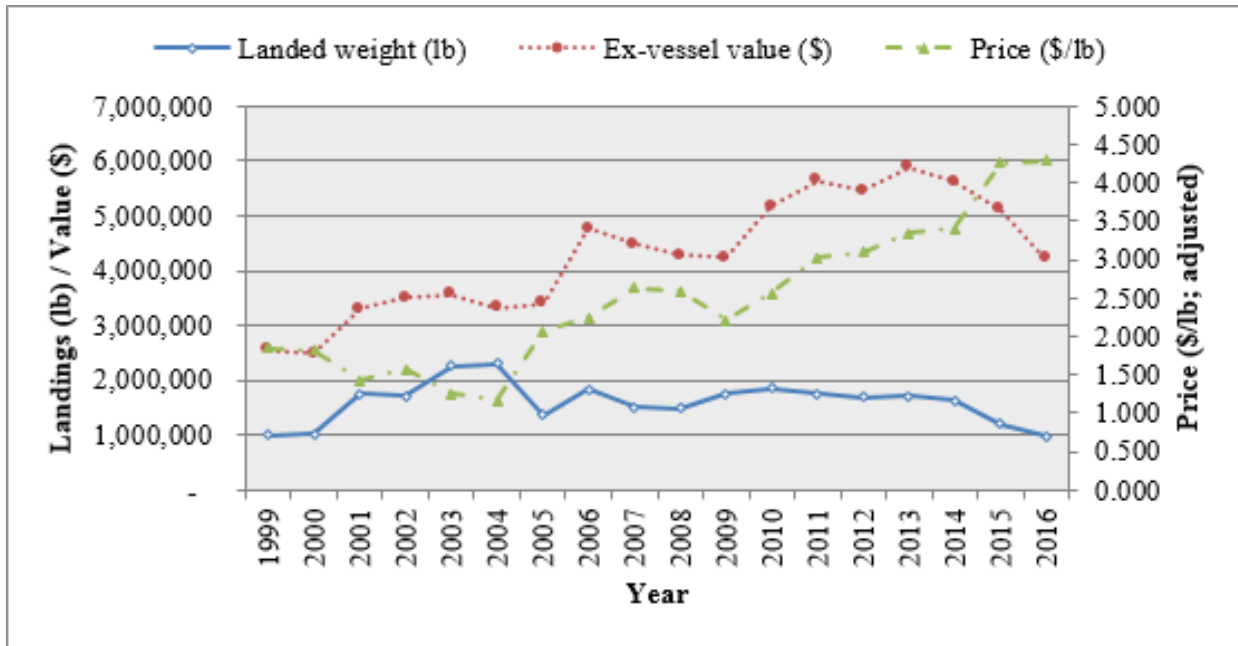


Figure 3. Landings, ex-vessel value, and price for golden tilefish, Maine through Virginia combined, 1999-2015. Note: Price data have been adjusted by the GDP deflator indexed for 2015.

The 2012 through 2016 coastwide average ex-vessel price per pound for all market categories combined was \$3.64. Price differential indicates that larger fish tend to bring higher prices (Table 6). Nevertheless, even though there is a price differential for various sizes of golden tilefish landed, golden tilefish fishermen land all fish caught as the survival rate of discarded fish is very low (L. Nolan 2006; Kitts et al. 2007). Furthermore, Amendment 1 to the Golden Tilefish FMP prohibited the practice of highgrading (MAFMC 2009).

Table 6. Landings, ex-vessel value, and price of golden tilefish by size category, from Maine thought Virginia, 2012 through 2016.

Market Category	Landed Weight (pounds)	Value (\$)	Price (\$/pound)	Approximate Market Size Range (pounds)
Extra large	378,374	1,618,674	4.28	> 25
Large	2,355,186	9,953,295	4.23	7 – 24
Large/Medium ^a	506,822	2,148,597	4.24	5 -7
Medium	2,054,232	6,999,306	3.41	3.5 – 5
Small or Kittens	1,360,231	3,770,760	2.77	2 – 3.5
Extra small	134,910	322,814	2.39	< 2
Unclassified	428,391	1,463,497	3.42	---
All	7,218,146	26,276,943	3.64	---

^aLarge/medium code was implemented on May 1, 2016. Prior to that, golden tilefish sold in the large/medium range were sold as unclassified fish.

The ports and communities that are dependent on golden 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](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, 2015-2016 NMFS dealer data are used. The top commercial landings ports for golden tilefish are shown in Table 7. A "top port" is defined as any port that landed at least 10,000 pounds of golden tilefish. Ports that received 1% or greater of their total revenue from golden tilefish are shown in Table 8.

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Table 7. Top ports of landing (in pounds) for golden tilefish, based on NMFS 2015 - 2016 dealer data. Since this table includes only the “top ports,” it may not include all of the landings for the year.

Port	2015		2016	
	Landings (pounds)	# Vessels	Landings (pounds)	# Vessels
Montauk, NY	822,746 (821,198) ^a	7 (3)	519,130 (514,426)	14 (3)
Barnegat Light/Long Beach, NJ	362,981 (361,250)	10 (8)	329,076 (326,815)	9 (7)
Hampton Bays, NY	56,940 (C)	3 (1)	208,661 (C)	6 (1)
Point Judith, RI	4,953 (0)	47 (0)	11,730 (0)	48 (0)
Shinnecock, NY	C (C)	1 (1)	7,286 (C)	4 (1)
East Hampton, NY	C (C)	1 (1)	0 (0)	0 (0)

^aValues in parenthesis correspond to IFQ vessels.

Note: C = Confidential.

Table 8. Ports that generated 1% or greater of total revenues from golden tilefish, 2012-2016.

Port	State	Ex-vessel revenue all species combined	Ex-vessel revenue golden tilefish	Golden tilefish contribution to total port ex-vessel revenues
East Hampton	NY	396,012	94,023	24%
Montauk	NY	77,880,005	14,188,019	18%
Hampton Bays	NY	26,562,371	2,280,189	9%
Barnegat Light/Long Beach	NJ	106,203,298	5,027,414	5%
Shinnecock	NY	5,629,862	252,519	4%
Other Monmouth	NJ	1,018,053	8,918	1%

In 2015 there were 49 federally permitted dealers who bought golden tilefish from 97 vessels that landed this species from Maine through Virginia. In addition, 53 dealers bought golden tilefish from 104 vessels in 2016. These dealers bought approximately \$5.1 and \$4.2 million of

golden tilefish in 2015 and 2016, respectively, and are distributed by state as indicated in Table 9. Table 10 shows relative dealer dependence on golden tilefish.

Table 9. Dealers reporting buying golden tilefish, by state in 2015 - 2016.

# of Dealers	MA		RI		CT		NY		NJ		VA		Other	
	'15	'16	'15	'16	'15	'16	'15	'16	'15	'16	'15	'15	'15	'16
	6	7	9	9	7	6	14	17	7	12	4	C	2	1

Note: C = Confidential.

Table 10. Dealer dependence on golden tilefish, 2012-2016.

Number of Dealers	Relative Dependence on Tilefish
72	<5%
6	5%-10%
4	10% - 25%
2	25% - 50%
1	50% - 75%
2	90%+

According to VTR data, very little (< 0.3%) discarding was reported by longline vessels that targeted golden tilefish for the 2005 through 2014 period (Table 11). In addition, the 2014 golden tilefish stock assessment indicates that golden tilefish discards in the trawl and longline fishery are negligible (NEFSC 2014).

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Table 11. Catch disposition for directed golden tilefish trips^a, Maine through Virginia, 2005-2014 combined.

Common Name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept Ratio
GOLDEN TILEFISH	15,549,080	100.00%	99.08%	0	0.00%	0.00%	15,549,080	0.00
SPINY DOGFISH	94,828	85.55%	0.60%	16,018	14.45%	37.63%	110,846	0.17
BLUELINE TILEFISH	15,388	100.00%	0.10%	0	0.00%	0.00%	15,388	0.00
CONGER EEL	9,013	93.87%	0.06%	589	6.13%	1.38%	9,602	0.07
BLACK BELLIED ROSEFISH	4,269	100.00%	0.03%	0	0.00%	0.00%	4,269	0.00
SKATES, OTHER	3,201	67.66%	0.02%	1,530	32.34%	3.59%	4,731	0.48
SNOWY GROUPER	3,100	100.00%	0.02%	0	0.00%	0.00%	3,100	0.00
TILEFISH, OTHER	2,692	100.00%	0.02%	0	0.00%	0.00%	2,692	0.00
DOGFISH SMOOTH	2,634	76.26%	0.02%	820	23.74%	1.93%	3,454	0.31
EEL, OTHER	1,809	100.00%	0.01%	0	0.00%	0.00%	1,809	0.00
WRECKFISH	1,240	100.00%	0.01%	0	0.00%	0.00%	1,240	0.00
BLUEFISH	898	22.63%	0.01%	3,070	77.37%	7.21%	3,968	3.42
MONKFISH	742	100.00%	0.00%	0	0.00%	0.00%	742	0.00
YELLOWFIN TUNA	680	100.00%	0.00%	0	0.00%	0.00%	680	0.00
DOLPHIN FISH	627	100.00%	0.00%	0	0.00%	0.00%	627	0.00
BLACK SEA BASS	563	100.00%	0.00%	0	0.00%	0.00%	563	0.00
MAKO SHORTFIN SHARK	524	100.00%	0.00%	0	0.00%	0.00%	524	0.00
BLUEFIN TUNA	440	91.67%	0.00%	40	8.33%	0.09%	480	0.09
RED HAKE	438	79.20%	0.00%	115	20.80%	0.27%	553	0.26
SILVER HAKE (WHITING)	300	93.75%	0.00%	20	6.25%	0.05%	320	0.07
MAKO SHARK, OTHER	284	89.03%	0.00%	35	10.97%	0.08%	319	0.12
FISH, OTHER	218	100.00%	0.00%	0	0.00%	0.00%	218	0.00
AMERICAN EEL	150	100.00%	0.00%	0	0.00%	0.00%	150	0.00
REDFISH	147	100.00%	0.00%	0	0.00%	0.00%	147	0.00
MIX RED & WHITE HAKE	125	100.00%	0.00%	0	0.00%	0.00%	125	0.00
CUSK	97	100.00%	0.00%	0	0.00%	0.00%	97	0.00
ALBACORE TUNA	75	100.00%	0.00%	0	0.00%	0.00%	75	0.00
PORBEAGLE SHARK	75	100.00%	0.00%	0	0.00%	0.00%	75	0.00
WHITE HAKE	74	100.00%	0.00%	0	0.00%	0.00%	74	0.00

Table 11 (continued). Catch disposition for directed golden tilefish trips^a, Maine through Virginia, 2005-2014 combined.

Common Name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept Ratio
SUMMER FLOUNDER	72	100.00%	0.00%	0	0.00%	0.00%	72	0.00
BLACK WHITING	24	100.00%	0.00%	0	0.00%	0.00%	24	0.00
AMBER JACK	18	100.00%	0.00%	0	0.00%	0.00%	18	0.00
POLLOCK	17	100.00%	0.00%	0	0.00%	0.00%	17	0.00
TIGER SHARK	0	0.00%	0.00%	10,400	100.00%	24.43%	10,400	--
SKATE BARNDOR	0	0.00%	0.00%	3,881	100.00%	9.12%	3,881	--
DOGFISH CHAIN	0	0.00%	0.00%	2,722	100.00%	6.39%	2,722	--
JONAH CRAB	0	0.00%	0.00%	1,273	100.00%	2.99%	1,273	--
LOBSTER	0	0.00%	0.00%	775	100.00%	1.82%	775	--
BLUE SHARK	0	0.00%	0.00%	725	100.00%	1.70%	725	--
SKATE ROSETTE	0	0.00%	0.00%	398	100.00%	0.93%	398	--
HAMMERHEAD SHARK	0	0.00%	0.00%	100	100.00%	0.23%	100	--
SHARK, OTHER	0	0.00%	0.00%	60	100.00%	0.14%	60	--
ALL SPECIES	15,693,842	99.73%	100.00%	42,571	0.27%	100.00%	15,736,413	0.00

^a Directed trips for golden tilefish were defined as trips comprising 75 percent or more by weight of golden tilefish landed. Number of trips = 1,161.

Golden tilefish incidental commercial fishery landings in FY 2017 are slightly ahead of FY 2016 landings (Figure 4; as of week ending January 21, 2017). Incidental golden tilefish commercial landings for the last four fishing years are shown in Table 12.

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Incidental Golden Tilefish Quota Monitoring Report

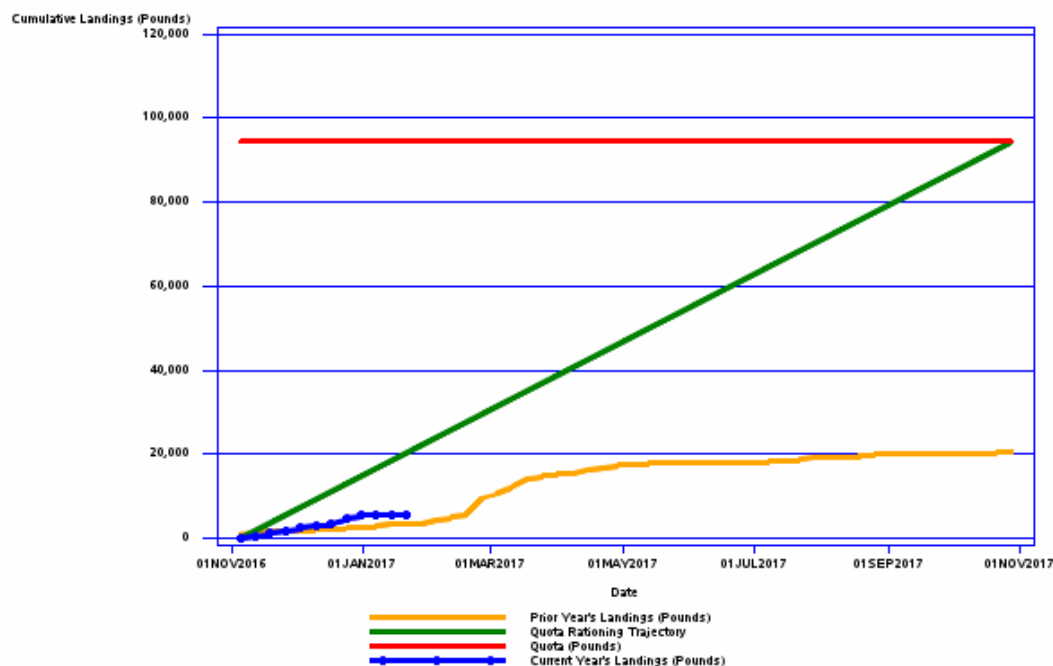


Figure 4. Incidental commercial landings for 2017 FY to date (Through January 21, 2017).
Blue Line = FY 2017, Orange Line = FY 2016.

Source: http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm.

Table 12. Incidental commercial landings for 2012-2016 fishing years.

Fishing Year	Landings (pounds)	Incidental Quota (pounds)	Percent of Quota Landed (%)
2012	36,330	99,750	36
2013	36,442	99,750	37
2014	44,594	99,750	45
2015	18,839	87,744	21
2016	20,929	94,357	22

Source: http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm.

Recreational Fishery

A small recreational fishery briefly occurred during the mid 1970's, with less than 100,000 pounds annually (MAFMC 2001). Subsequent recreational catches have been low for the 1982 - 2016 period, ranging from zero for most years to approximately 30,000 fish in 2010 according to NMFS recreational statistics (Table 13). In 2016, approximately 8,500 fish were landed.

Vessel trip report (VTR) data indicates that the number of golden tilefish kept by party/charter vessels from Maine through Virginia is low, ranging from 81 fish in 1996 to 8,297 fish in 2015 (Table 14). In 2016, party/charter anglers kept 5,778 fish. 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 2.5 fish for the 1996-2016 period.

According to VTR data, for the 1996 through 2016 period, the largest amount of golden tilefish caught by party/charter vessels were made by New Jersey vessels (34,643), followed by New York (10,001), Virginia (768), Delaware (628), Massachusetts (496), Maryland (381), Rhode Island (182), New Hampshire (14), and Connecticut (3). Party/charter boats from New Jersey have shown a significant uptrend in the number of golden tilefish caught during the time series while the boats from Rhode Island have shown a significant downward trend in the number of fish caught (Table 15).

The number of golden tilefish discarded by recreational anglers is low. According to VTR data, on average, approximately 6 fish per year were discarded by party/charter recreational anglers for the 1996 through 2016 period. The quantity of golden tilefish discarded by party/charter recreational anglers ranged from zero in most years to 60 in 2015.

Recreational anglers typically fish for golden 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 golden tilefish fishing in the winter months (Caputi pers. comm. 2006). In addition, recreational boats in Virginia are also reported to be fishing for golden tilefish (Pride pers. comm. 2006). However, it is not known with certainty how many boats may be targeting golden tilefish. Nevertheless, accounting for information presented in the Fishery Performance Reports (2012-2014) and a brief internet search conducted by Council Staff in 2014 indicates that there have been approximately 10 headboats actively engaged in the tilefish fishery in the Mid-Atlantic canyons in recent years. It is estimated that approximately 4 of these boats conducted direct tilefish fishing trips, while the other 6 boats may have caught tilefish while targeting tuna/swordfish or fishing for assorted deep water species. In addition, it appears that recreational interest onboard headboats for tilefish has increase in the last few years as seen in the FPRs, internet search conducted by Council staff, and recent VTR recreational party/charter statistics (MAFMC 2014).

Anglers are highly unlikely to catch golden tilefish while targeting tuna on tuna fishing trips. However, these boats may fish for golden 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 golden tilefish fishery. Because golden tilefish are found in relatively deep waters, electric reels may be used to facilitate landing (Freeman and Turner 1977).

Table 13. Recreational golden tilefish data from the NMFS recreational statistics databases, 1982-2016.

Year	Landed no. A and B1				Released no. B2	
	party/charter		Private		private	
1982	0		984	(72.4)	0	
1983	0		0		0	
1984	0		0		0	
1985	0		0		0	
1986	0		0		0	
1987	0		0		0	
1988	0		0		0	
1989	0		0		0	
1990	0		0		0	
1991	0		0		0	
1992	0		0		0	
1993	0		0		0	
1994	608	(100.0)	0		0	
1995	0		0		0	
1996	6,842	(50.9)	0		0	
1997	0		0		0	
1998	0		0		0	
1999	0		0		0	
2000	0		0		0	
2001	148	(100.0)	0		0	
2002	0		20,068	(59.4)	1,338	(100.0)
2003	722	(69.1)	0		0	
2004	62	(99.3)	0		0	
2005	0		0		0	
2006	541	(100.4)	0		0	
2007	1,330	(78.3)	0		0	
2008	0		0		0	
2009	177	(87.8)	0		0	
2010	2,812	(90.5)	27,514	(77.2)	0	
2011	0		0		0	
2012	0		0		0	
2013	1,248	(100.0)	0		0	
2014	0		0		0	
2015	0		0		0	
2016	0		8,449	(106.4)	0	

Source: Recreational Fisheries Statistics Queries: <http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/queries/index>. PSE (proportional standard error) expresses the standard error of an estimate as a percentage of the estimate and is a measure of precision. A PSE value greater than 50 indicates a very imprecise estimate. 2016 values are preliminary.

Table 14. Number of golden tilefish kept by party/charter anglers and mean effort from Maine through Virginia, 1996 through 2016.

Year	Number of golden 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	172	0.7
2002	774	0.9
2003	991	1.6
2004	737	1.2
2005	498	0.9
2006	477	1.2
2007	1,077	1.2
2008	1,100	1.3
2009	1,451	1.3
2010	1,866	2.0
2011	2,938	3.4
2012	6,424	2.8
2013	6,560	3.2
2014	6,856	3.2
2015	8,297	4.2
2016	5,778	4.1
All	46,958	2.5

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Table 15. Number of golden tilefish caught by party/charter vessels by state, 1996 through 2016.

Year	NH	MA	RI	CT	NY	NJ	DE	MD	VA	All
1996	0	0	0	0	81	0	0	0	0	81
1997	0	0	0	0	400	0	0	0	0	400
1998	0	0	102	0	141	0	0	0	0	243
1999	0	0	1	0	88	0	0	2	0	91
2000	0	0	0	0	108	39	0	0	0	147
2001	0	0	0	0	122	51	0	0	0	173
2002	0	0	0	0	401	373	0	0	0	774
2003	0	0	3	0	86	902	0	0	0	991
2004	0	0	0	0	12	628	0	0	104	744
2005	0	0	72	0	82	318	14	0	16	502
2006	0	0	0	0	265	65	2	133	12	477
2007	0	0	0	0	447	459	88	5	80	1,079
2008	0	0	3	0	488	545	22	32	10	1,100
2009	0	0	0	0	720	675	18	7	31	1,451
2010	0	0	0	0	595	1,194	19	23	48	1,879
2011	0	496	0	0	720	1,654	60	5	14	2,949
2012	0	0	1	0	1,116	5,146	42	23	98	6,426
2013	0	0	0	0	1,900	4,568	78	12	41	6,599
2014	0	0	0	3	957	5,677	116	40	73	6,866
2015	14	0	0	0	637	7,376	100	56	174	8,357
2016	0	0	0	0	635	4,973	69	43	67	5,787
All	14	496	182	3	10,001	34,643	628	381	768	47,116

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