



Golden Tilefish Fishery Information Document

February 2020

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for golden tilefish with an emphasis on 2019. Data sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources, including previous Fishery Information Documents, please visit <http://www.mafmc.org/tilefish/>.

Key Facts

- There has been no change to the status of the golden tilefish stock in 2019; the stock is not overfished and overfishing is not occurring.
- In 2019, 1.4 million pounds (landed weight) of golden tilefish were landed with an ex-vessel value (revenues) of \$5.4 million. This represented a decrease in golden tilefish landings of approximately <1% and an increase in ex-vessel value of 10%, respectively, when compared to 2018. For 2019, the mean price for golden tilefish was \$3.81 per pound, which represents a 15% increase from 2018 (\$3.31 per pound).
- According to VTR data, party/charter vessel landed 2,733 golden tilefish in 2019. This represented a 62% decrease from 2018 (7,101 fish landed).

Basic Biology

The information presented in this section can also be found in the Tilefish Fishery Management Plan (FMP) (MAFMC, 2001; <http://www.mafmc.org/fisheries/fmp/tilefish>). 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

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 achieve larger sizes than females, but do live as long (Turner 1986). The largest male reported by Turner was 44.1 inches at 20 years old, and the largest female was 39 years at 40.2 inches FL (fork length). 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 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 (total length) 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).

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 squat lobster (*Munida*) and spider crabs (*Euprognatha*) 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

There has been no change to the status of the golden tilefish stock in 2019; the stock is not overfished and overfishing is not occurring.

Biological Reference Points

The biological reference points for golden tilefish were updated during the 2017 stock assessment update (Nitschke 2017), as a result of a change to the recruitment penalty used in the assessment model (i.e., likelihood constant turned off).¹ The fishing mortality threshold for golden tilefish is $F_{38\%}$ (as $F_{MSY\ proxy}$) = 0.310, and $SSB_{38\%}$ ($SSB_{MSY\ proxy}$) is 21 million pounds (9,492 mt).

Stock Status

The last assessment update was completed in February 2017. Fishing mortality in 2016 was estimated at $F=0.249$; 20% below the fishing mortality threshold of $F=0.310$ ($F_{MSY\ proxy}$). SSB in 2016 was estimated at 18.69 million pounds (8,479 mt), and was at 89% of the biomass target ($SSB_{MSY\ proxy}$). As such, the golden tilefish stock was not overfished and overfishing was not occurring in 2016, relative to the newly updated biological reference points.

Data Update

The NEFSC is developing a golden tilefish data update through 2019. The update will contain recent trends in the golden tilefish fishery, including, commercial landings, catch per unit effort, and commercial landings by market category (size composition). The update will be posted at the Council's website (<http://www.mafmc.org/>) as soon as it is available.

Management System and Fishery Performance

Management

There have been no changes to the overall golden tilefish management system since the Individual Fishing Quota (IFQ) system was implemented in 2009 (Amendment 1). However,

¹ Incorporation of likelihood constants into the objective function can cause biases in assessment models. This bias can result in reductions in the estimated recruitment and biomass. For additional details see: Nitschke 2017; Golden Tilefish, *Lopholatilus chamaeleonticeps*, stock assessment update through 2016 in the Middle Atlantic-Southern New England Region. NMFS/NEFSC, Woods Hole, MA. Available at: <http://www.mafmc.org/council-events/2017/march-2017-ssc-meeting>.

Framework 2 to the Tilefish FMP (implemented in 2018) made several changes to the management system intended to improve and simplify the administration of the golden tilefish fishery. These changes include removing an outdated reporting requirement, proscribing allowed gear for the recreational fishery, modifying the incidental trip landings, requiring commercial golden tilefish be landed with the head attached, and revising how assumed discards are accounted for when setting harvest limits.

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 Tilefish FMP, including subsequent Amendments and Frameworks, are available on the Council website at: <http://www.mafmc.org/fisheries/fmp/tilefish>.

Commercial Fishery

In 2019, 1.4 million pounds (landed weight) of golden tilefish were landed with an ex-vessel value (revenues) of \$5.4 million. This represented a decrease in golden tilefish landings of approximately <1% and an increase in ex-vessel value of 10%, respectively, when compared to 2018. For 2019, the mean price for golden tilefish (unadjusted) was \$3.81 per pound, this represented a 15% increase from 2018 (\$3.31 per pound).

For the 1970 to 2019 calendar years, golden tilefish landings have ranged from 128 thousand pounds live weight (1970) to 8.7 million pounds (1979). For the 2001 to 2018 period, golden tilefish landings have averaged 1.8 million pounds live weight, ranging from 1.1 (2016) to 2.5 (2004) million pounds. In 2019, commercial golden tilefish landings were 1.5 million pounds live weight (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 an Open Access Commercial/Incidental Tilefish 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 2005-2020 fishing years (FYs). Commercial golden tilefish landings have been below the commercial quota specified each year since the Tilefish FMP was first implemented except for FY 2003/2004 (not shown in

Table 1), and 2010. In 2003 and 2004, the commercial quota was exceeded by 0.3 (16%) and 0.6 (31%) million pounds respectively.²

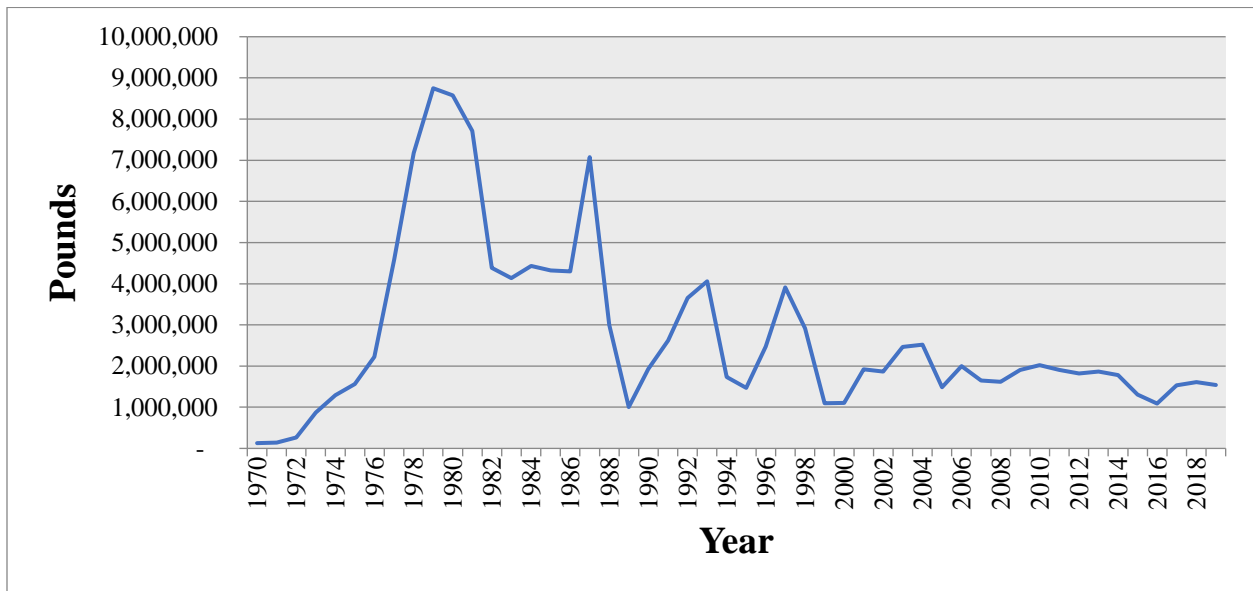


Figure 1. Commercial U.S. Golden Tilefish Landings (live weight) from Maine-Virginia, 1970-2019 (calendar year). Source: 1970-1993 Tilefish FMP; 1994-2018 NMFS unpublished dealer data.

Golden tilefish are primarily caught by longline and bottom otter trawl. Based on dealer data from 2015-2019, the bulk of the golden tilefish landings are taken by longline gear (97%) followed by bottom trawl gear (2%). No other gear had any significant commercial landings. Minimal catches were also recorded for hand line and gillnets (Table 2).

² 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.

Table 1. Summary of management measures and landings for fishing year 2005-2020.

Management Measures	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ABC (m lb)	-	-	-	-	-	-	-	-	2.013	2.013	1.766	1.898	1.898	1.636	1.636	1.636
TAL (m lb)	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	1.627	1.627	1.627
Com. quota-(m lb)	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	1.627	1.626	1.626
Com. landings	1.497	1.898	1.777	1.672	1.887	1.997	1.946	1.856	1.839	1.830	1.354	1.060	1.487	1.626	1.562	-
Com. overage/underage (m lb)	-0.498	-0.097	-0.218	-0.323	-0.108	+0.002	-0.049	-0.139	-0.156	-0.165	-0.401	-0.827	-0.401	<-0.001	-0.064	-
Incidental trip limit (lb)	133	300	300	300	300	300	300	500	500	500	500	500	500	500	500	500
Rec. possession limit	-	-	-	-	-	8 ^b	8 ^b	8 ^b	8 ^b	8 ^b	8 ^b	8 ^b	8 ^b	8 ^b	8 ^b	8 ^b

^a Fishing year 2005 (November 1, 2004 – October 31, 2005). ^b Eight fish per person per trip.

Table 2. Golden tilefish commercial landings ('000 pounds live weight) by gear, Maine through Virginia, 2015-2019 (calendar year).

Gear	Pounds	Percent
Otter Trawl Bottom, Fish	143	2.0
Otter Trawl Bottom, Other	1	*
Gillnet, Anchored/Sink/Other	17	*
Lines Hand	23	*
Lines Long Set with Hooks	6,885	97.3
Pot & Trap	1	*
Dredge, other	*	*
Unknown, Other Combined Gears	4	*
All Gear	7,074	100.0

Note: * = less than 1,000 pounds or less than 1 percent. Source: NMFS unpublished dealer data.

Approximately 56 percent of the landings for 2019 were caught in statistical area 537; statistical area 616 had 38 percent; statistical areas 539 and 613 each had 2 percent (Table 3). NMFS statistical areas are shown in Figure 2.

For the 1999 to 2019 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, 1996-2019 (calendar year).

Year	525	526	537	539	612	613	616	622	626	Other
1996	0.05	5.21	64.04	0.39	*	1.09	27.81	0.01	-	1.40
1997	0.03	0.67	79.51	0.02	*	2.59	16.41	0.01	*	0.74
1998	1.26	2.19	81.95	0.04	0.02	5.45	8.55	*	*	0.53
1999	0.97	0.22	55.79	0.02	0.22	3.71	36.60	0.02	0.02	0.43
2000	0.36	3.79	46.10	0.01	0.05	2.36	43.94	0.47	0.14	2.78
2001	0.23	3.09	23.92	*	0.01	3.16	68.96	*	0.10	0.52
2002	0.12	8.73	35.86	0.07	0.01	18.50	36.54	0.02	0.02	0.14
2003	0.88	1.81	38.48	0.10	-	11.85	46.51	0.05	0.05	0.26
2004	1.03	2.59	62.85	0.05	5.28	0.70	25.95	0.03	0.06	1.66
2005	0.12	0.25	62.99	0.02	0.03	6.11	25.68	0.03	0.20	4.56
2006	*	1.54	64.30	0.50	1.24	0.71	30.09	0.04	0.05	1.53
2007	0.02	0.42	57.61	0.01	-	5.53	33.93	0.85	0.45	1.18
2008	1.09	0.06	44.07	0.01	-	4.62	46.94	2.05	0.02	1.14
2009	2.17	0.01	42.62	1.30	0.04	4.37	46.12	1.34	1.16	0.88
2010	0.01	0.01	57.14	0.55	0.02	8.39	32.83	0.69	0.04	0.31
2011	0.02	*	53.06	0.01	-	3.12	39.98	0.31	0.06	3.44
2012	0.01	0.01	52.54	0.03	*	0.58	43.92	0.20	0.10	2.62
2013	*	0.67	56.22	1.06	0.03	0.68	35.39	1.21	4.59	0.16
2014	0.01	0.52	49.36	1.89	0.01	1.29	42.85	2.67	0.35	1.06
2015	3.06	0.98	30.00	2.55	-	0.01	55.02	2.34	5.53	1.50
2016	1.03	4.77	32.33	0.01	-	0.98	54.50	0.17	5.81	0.39
2017	0.01	5.45	27.73	2.69	0.01	0.94	55.33	0.16	5.49	2.19
2018	*	1.65	46.99	3.27	-	0.06	41.18	0.57	6.13	0.15
2019	0.01	1.38	55.55	1.86	-	1.69	38.40	0.07	0.33	0.70
All	0.49	1.85	53.80	0.62	0.43	3.71	36.31	0.49	1.06	1.22

Note: - = no landings; * = less than 0.01 percent. Source: NMFS unpublished VTR data.

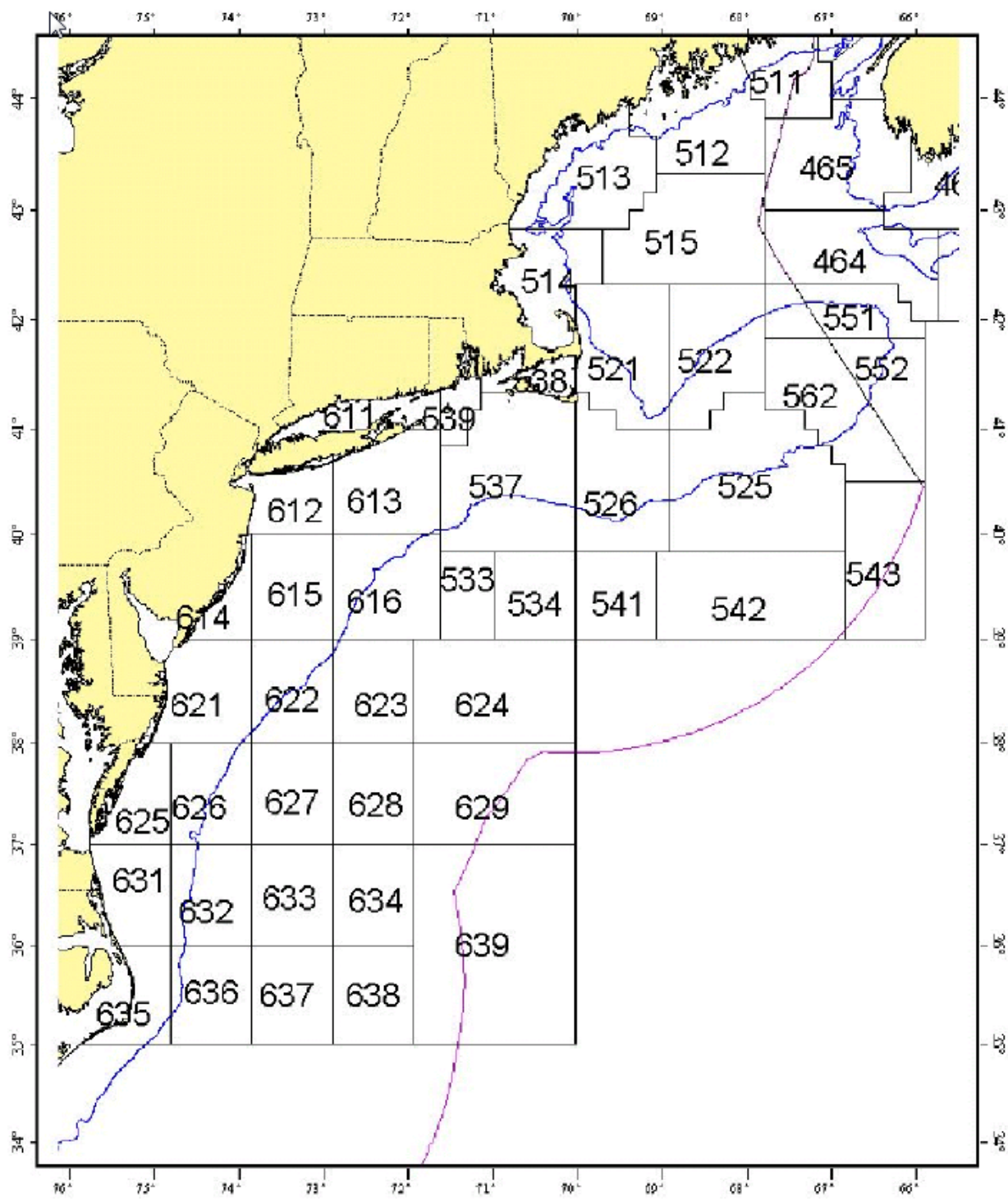


Figure 2. NMFS Statistical Areas.

Table 4. Golden tilefish commercial landings (1,000 live weight) by month and year, Maine through Virginia, 1999-2019 (calendar year).

Year	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
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	145	114	141	204	150	129	156	201	184	217	39	138	1,818
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	52	91	93	88	119	150	127	91	112	68	64	1,089
2017	110	55	68	193	195	187	128	134	105	180	47	133	1,535
2018	81	135	125	194	149	213	165	148	134	103	64	98	1,607
2019	91	106	131	130	234	163	131	137	158	119	40	96	1,536
Total	2,570	3,002	4,209	3,737	3,312	3,054	2,727	2,924	2,749	3,005	1,903	2,892	36,082
Avg. 10-19	104	99	156	182	181	168	153	148	132	152	60	111	1,646

Source: NMFS unpublished dealer data.

Table 5. Percent of golden tilefish commercial landings (live weight) by month and year, Maine through Virginia, 1999-2019 (calendar year).

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	7.98	6.28	7.74	11.23	8.24	7.08	8.60	11.05	10.13	11.94	2.15	7.58	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	3.95	4.80	8.40	8.51	8.12	10.96	13.77	11.65	7.42	10.31	6.20	5.91	100.00
2017	7.14	3.58	4.46	12.57	12.71	12.19	8.32	8.72	6.87	11.72	3.05	8.69	100.00
2018	5.26	8.77	8.12	12.63	9.74	13.86	10.72	9.65	8.72	6.70	4.18	6.38	100.00
2019	5.94	6.88	8.55	8.47	15.26	10.65	8.51	8.92	10.27	7.78	2.62	6.25	100.00
Total	7.12	8.32	11.66	10.36	9.18	8.46	7.56	8.10	7.62	8.33	5.27	8.02	100.00

Source: NMFS unpublished dealer data.

Commercial golden tilefish landings (landed weight) have ranged from 1.0 million pounds in 2016 (calendar year) to 2.3 million pounds in 2004 from 1999-2019. Commercial golden tilefish ex-vessel revenues have ranged from \$2.5 million in 2000 to \$5.9 million in 2013 from 1999-2019. In 2019, 1.4 million pounds of tilefish were landed with an ex-vessel value (revenues) of \$5.4 million.

From 1999-2018, the mean price for golden tilefish (adjusted) has ranged from \$1.10 per pound in 2004 to \$4.06 per pound in 2016 (Figure 3). For 2019, the mean price for golden tilefish (unadjusted) was \$3.81 per pound.

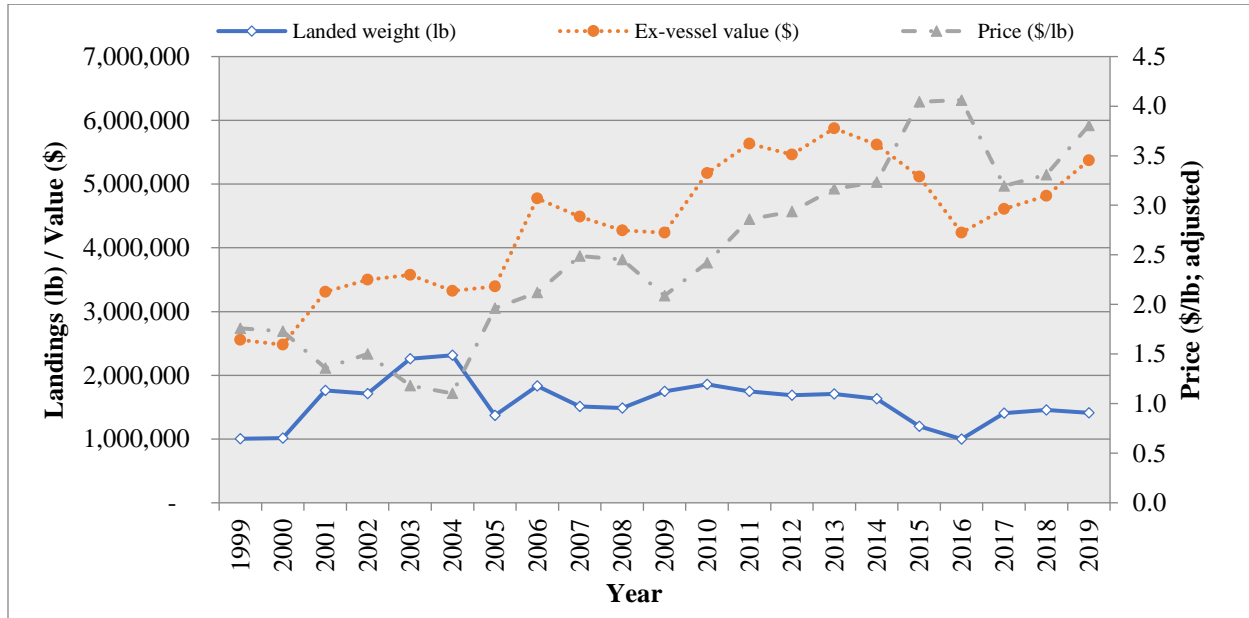


Figure 3. Landings (landed weight), ex-vessel value, and price for golden tilefish, Maine through Virginia combined, 1999-2019 (calendar year). Note: Price data have been adjusted by the GDP deflator indexed for 2018. (2019 – unadjusted as GDP deflator for that year was not available when this figure was produced.) Source: NMFS unpublished dealer data.

The 2015 through 2019 coastwide average ex-vessel price per pound for all market categories combined was \$3.72. 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 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, 2015-2019 (calendar year).

Market category	Landed weight (pounds)	Value (\$)	Price (\$/pound)	Approximate market size range (pounds)
Extra large	330,664	151,711	4.58	> 25
Large	1,533,249	7,678,687	5.01	7 – 24
Large/medium ^a	790,054	3,383,838	4.28	5 – 7
Medium	1,800,409	6,360,181	3.53	3.5 – 5
Small or kittens	1,779,704	4,669,761	2.62	2 – 3.5
Extra small	203,740	456,816	2.24	< 2
Unclassified	56,048	125,515	2.24	---
All	6,493,848	24,187,509	3.72	---

^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. Source: NMFS unpublished dealer data.

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/fisheries/fmp/tilefish>). Additional information on "Community Profiles for the Northeast US Fisheries" can be found at <https://www.nefsc.noaa.gov/read/socialsci/communitySnapshots.php>.

To examine recent landings patterns among ports, 2018-2019 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.

Table 7. Top ports of landing (live weight) for golden tilefish, based on NMFS 2018-2019 dealer data (calendar year). Since this table includes only the “top ports,” it may not include all of the landings for the year.

Port	2018		2019	
	Landings (pounds)	# Vessels	Landings (pounds)	# Vessels
Montauk, NY	985,037 (977,049)	16 (3)	909,882 (906,163)	16 (3)
Barnegat Light/Long Beach, NJ	403,583 (403,583)	5 (5)	398,374 (398,374)	5 (5)
Hampton Bays, NY	171,220 (C)	5 (C)	201,246 (C)	5 (C)
Point Judith, RI	30,669 (0)	62 (0)	5,763 (C)	5 (C)

^aValues in parentheses correspond to IFQ vessels. Note: C = Confidential. Source: NMFS unpublished dealer data.

Table 8. Ports that generated 1% or greater of total revenues from golden tilefish, 2015-2019 (calendar year).

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	192,455	105,709	55%
Ocean City	NJ	25,018	4,565	18%
Montauk	NY	85,288,503	13,766,717	16%
Hampton Bays	NY	30,239,738	3,448,598	11%
Barnegat & Barnegat Light/Long Beach	NJ	127,124,297	6,357,297	5%
Lynnhaven	VA	419,638	20,183	5%
Shinnecock	NY	5,476,653	243,972	4%

Source: NMFS unpublished dealer data.

In 2018 there were 76 federally permitted dealers who bought golden tilefish from 138 vessels that landed this species from Maine through Virginia. In addition, 49 dealers bought golden tilefish from 106 vessels in 2019. These dealers bought approximately \$4.9 and \$5.4 million of golden tilefish in 2018 and 2019, 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 2018-2019 (calendar year).

Number of dealers	MA		RI		CT		NY		NJ		VA		Other	
	'18	'19	'18	'19	'18	'19	'18	'19	'18	'19	'18	'19	'18	'19
	8	4	13	8	10	9	20	16	16	8	4	C	4	4

Note: C = Confidential. Source: NMFS unpublished dealer data.

Table 10. Dealer dependence on golden tilefish, 2015-2019 (calendar year).

Number of dealers	Relative dependence on tilefish
69	<5%
4	5% - 10%
1	10% - 25%
3	25% - 50%
2	50% - 75%
1	90%+

Source: NMFS unpublished dealer data.

According to VTR data, none to very little (0.03%) discarding was reported by longline vessels that targeted golden tilefish from 2017-2019 (Table 11). In addition, the 2014 golden tilefish stock assessment (NEFSC 2014) and stock assessment update (Nitschke 2017) indicate that golden tilefish discards in the trawl and longline fishery appear to be a minor component of the catch.

Table 11. Catch disposition for directed golden tilefish trips^a, Maine through Virginia, 2017, 2018, and 2019 (calendar year).

(2017)

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	1,177,980	100.00%	93.47%	0	0.00%	0.00%	1,177,980	0.00
SPINY DOGFISH	60,462	100.00%	4.80%	0	0.00%	0.00%	60,462	0.00
SMOOTH DOGFISH	10,774	100.00%	0.85%	0	0.00%	0.00%	10,774	0.00
CONGER EEL	3,166	86.36%	0.25%	500	13.64%	43.03%	3,666	0.16
BLUELINE TILEFISH	2,798	100.00%	0.22%	0	0.00%	0.00%	2,798	0.00
YELLOWFIN TUNA	1,573	97.22%	0.12%	45	2.78%	3.87%	1,618	0.03
BLACK BELLIED ROSEFISH	980	99.80%	0.08%	2	0.20%	0.17%	982	0.00
SILVER HAKE (WHITING)	779	100.00%	0.06%	0	0.00%	0.00%	779	0.00
MAKO SHORTFIN SHARK	435	100.00%	0.03%	0	0.00%	0.00%	435	0.00
DOLPHIN FISH	333	86.95%	0.03%	50	13.05%	4.30%	383	0.15
BLUEFIN TUNA	251	100.00%	0.02%	0	0.00%	0.00%	251	0.00
ANGLER	173	100.00%	0.01%	0	0.00%	0.00%	173	0.00
BARRELFISH	151	100.00%	0.01%	0	0.00%	0.00%	151	0.00
BLACK SEA BASS	119	100.00%	0.01%	0	0.00%	0.00%	119	0.00
BLACKFIN TUNA	92	100.00%	0.01%	0	0.00%	0.00%	92	0.00
WRECKFISH	87	100.00%	0.01%	0	0.00%	0.00%	87	0.00
SUMMER FLOUNDER	50	100.00%	0.00%	0	0.00%	0.00%	50	0.00
MAKO SHARK	31	100.00%	0.00%	0	0.00%	0.00%	31	0.00
FISH OTHER	17	100.00%	0.00%	0	0.00%	0.00%	17	0.00
RED HAKE	2	0.40%	0.00%	500	99.60%	43.03%	502	250.00
POLLOCK	0	0.00%	0.00%	65	100.00%	5.59%	65	--
ALL SPECIES	1,260,253	99.91%	100.00%	1,162	0.09%	100.00%	1,261,415	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 = 120. Source: NMFS unpublished VTR data.

(2018)

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	1,247,057	100.00%	94.55%	0	0.00%	--	1,247,057	0.00
SPINY DOGFISH	58,560	100.00%	4.44%	0	0.00%	--	58,560	0.00
SMOOTH DOGFISH	6,321	100.00%	0.48%	0	0.00%	--	6,321	0.00
CONGER EEL	2,386	100.00%	0.18%	0	0.00%	--	2,386	0.00
BLUELINE TILEFISH	2,213	100.00%	0.17%	0	0.00%	--	2,213	0.00
DOLPHIN FISH	458	100.00%	0.03%	0	0.00%	--	458	0.00
SILVER HAKE (WHITING)	438	100.00%	0.03%	0	0.00%	--	438	0.00
SILVER HAKE (WHITING)	438	100.00%	0.03%	0	0.00%	--	438	0.00
BLACK BELLIED ROSEFISH	370	100.00%	0.03%	0	0.00%	--	370	0.00
SKATES OTHER	298	100.00%	0.02%	0	0.00%	--	298	0.00
BLUEFISH	217	100.00%	0.02%	0	0.00%	--	217	0.00
ANGLER	133	100.00%	0.01%	0	0.00%	--	133	0.00
YELLOWFIN TUNA	60	100.00%	0.00%	0	0.00%	--	60	0.00
WHITE HAKE	27	100.00%	0.00%	0	0.00%	--	27	0.00
TRIGGERFISH	20	100.00%	0.00%	0	0.00%	--	20	0.00
ALL SPECIES	1,318,996	100.00%	100.00%	0	0.00%	--	1,318,996	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 = 93. Source: NMFS unpublished VTR data.

(2019)

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	1,316,702	100.00%	95.87%	0	0.00%	--	1,316,702	0.00
SPINY DOGFISH	41,605	100.00%	3.03%	0	0.00%	--	41,605	0.00
SMOOTH DOGFISH	5,315	100.00%	0.39%	0	0.00%	--	5,315	0.00
BLUELINE TILEFISH	3,551	100.00%	0.26%	0	0.00%	--	3,551	0.00
CONGER EEL	2,134	100.00%	0.16%	0	0.00%	--	2,134	0.00
YELLOWFIN TUNA	2,086	100.00%	0.15%	0	0.00%	--	2,086	0.00
BIG EYE TUNA	734	100.00%	0.05%	0	0.00%	--	734	0.00
SAND TILEFISH	506	100.00%	0.04%	0	0.00%	--	506	0.00
DOLPHIN FISH	455	100.00%	0.03%	0	0.00%	--	455	0.00
ANGLER	119	100.00%	0.01%	0	0.00%	--	119	0.00
SKATES OTHER	80	100.00%	0.01%	0	0.00%	--	80	0.00

ALBACORE TUNA	50	100.00%	0.00%	0	0.00%	--	50	0.00
BLACK BELLIED ROSEFISH	44	100.00%	0.00%	0	0.00%	--	44	0.00
SILVER HAKE (WHITING)	43	100.00%	0.00%	0	0.00%	--	43	0.00
SHKIPJACK TUNA	24	100.00%	0.00%	0	0.00%	--	24	0.00
BLACK SEA BASS	9	100.00%	0.00%	0	0.00%	--	9	0.00
ALL SPECIES	1,373,457	100.00%	100.00%	0	0.00%	--	1,373,457	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 = 92. Source: NMFS unpublished VTR data.

Golden tilefish incidental commercial fishery landings in FY 2020 are slightly behind FY 2019 landings for the same time period (Figure 4; for data reported through January 22, 2020). Incidental golden tilefish commercial landings for the last six fishing years are shown in Table 12.

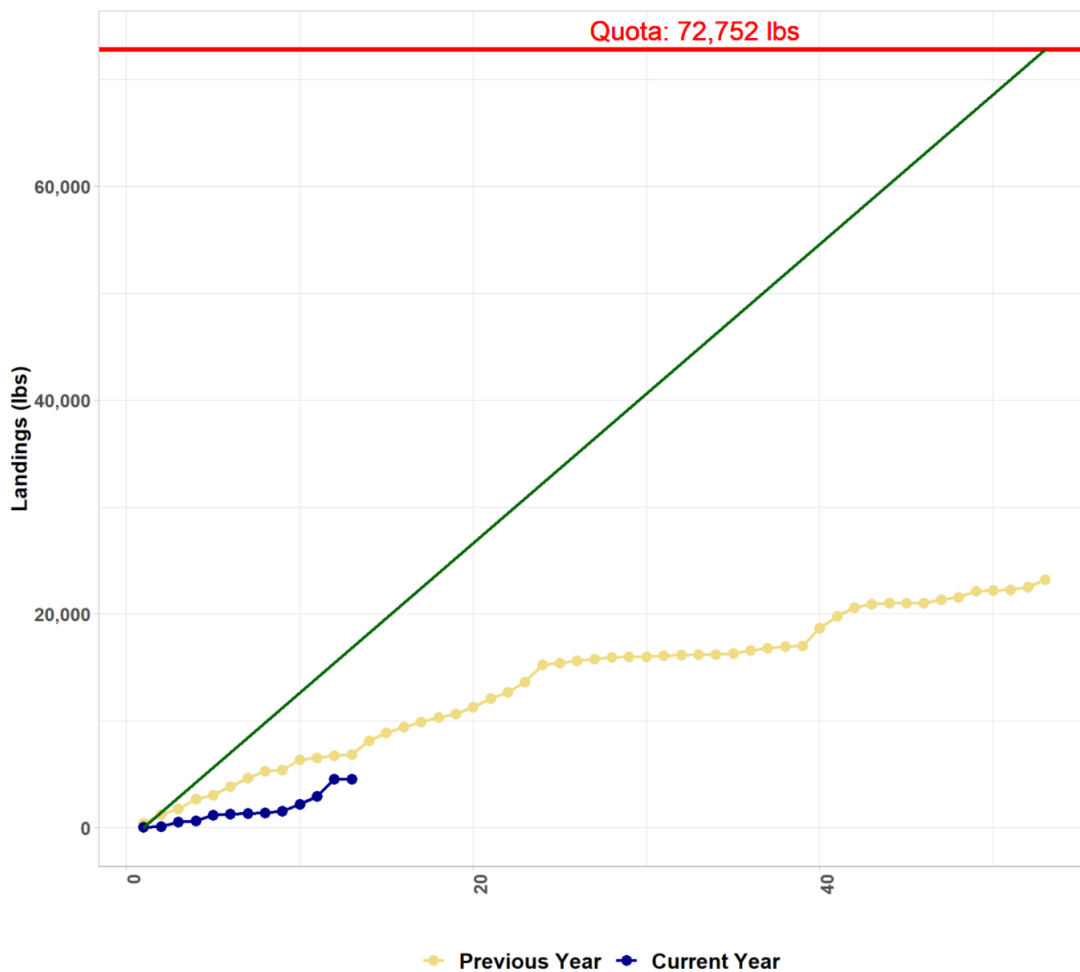


Figure 4. Incidental commercial landings for 2020 fishing year (FY) to date (for data reported through January 22, 2020). Blue Line = FY 2020, Yellow Line = FY 2019.

Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/quota-monitoring-greater-atlantic-region>.

Table 12. Incidental golden tilefish commercial landings for fishing year 2013-2019.

Fishing year	Landings (pounds)	Incidental quota (pounds)	Percent of quota landed (%)
2013	36,442	99,750	37
2014	44,594	99,750	45
2015	18,839	87,744	21
2016	20,929	94,357	22
2017	60,409	94,357	64
2018	61,254	72,752	84
2019	22,246	72,752	31

Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/quota-monitoring-greater-atlantic-region>.

Recreational Fishery

According to vessel trip report (VTR) data, party/charter vessel landed 2,733 golden tilefish in 2019. This represented a 62% decrease from 2018 (7,101 fish landed).

A small recreational fishery briefly occurred during the mid-1970's, with less than 100,000 pounds landed annually (MAFMC 2001). Subsequent recreational catches have been low for the 1982 - 2019 period, ranging from zero for most years to approximately 213,000 fish in 2010 according to NMFS recreational statistics (Table 13). In 2019, approximately 11,000 fish were landed.

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). 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 the late 1990s, averaging 2.8 fish for the 1996-2019 period.

According to VTR data, for the 1996-2019 period, the largest amount of golden tilefish caught by party/charter vessels were made by New Jersey vessels (48,499; average = 2,021), followed by New York (12,513; average = 521), Virginia (1,057; average = 44), Delaware (846; average = 35), Massachusetts (496; average = 21), and Maryland (495; average = 24; 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 1996-2019 period (135 discarded fish in total). 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 increased 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.³ 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).

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³ Bandit gear is a vertical hook and line gear with rods attached to the vessel when in use. Manual, electric, or hydraulic reels may be used to retrieve lines.

Table 13. Recreational golden tilefish data from the NMFS recreational statistics databases, 1982-2019 (calendar year).

Year	Landed no. A and B1				Released no. B2			
	Party/charter		Private/rental		Party/charter		Private/rental	
1982	0		2,225	(102.0)	0		0	
1983	0		0		0		0	
1984	0		0		0		0	
1985	0		0		0		0	
1986	0		0		0		0	
1987	0		0		0		0	
1988	0		0		0		0	
1989	0		0		0		0	
1990	0		0		0		0	
1991	0		0		0		0	
1992	0		0		0		0	
1993	0		0		0		0	
1994	555	(101.6)	0		0		0	
1995	0		0		0		0	
1996	1,765	(80.5)	0		0		0	
1997	0		0		0		0	
1998	0		0		0		0	
1999	0		0		0		0	
2000	0		0		0		0	
2001	98	(101.4)	0		0		0	
2002	0		122,443	(85.7)	0		8,163	(85.7)
2003	967	(75.2)	0		0		0	
2004	55	(102.2)	0		0		0	
2005	0		0		0		0	
2006	471	(103.7)	0		0		0	
2007	1,837	(71.4)	0		0		0	
2008	0		0		0		0	
2009	168	(89.8)	0		0		0	
2010	4,754	(81.9)	213,382	(98.4)	0		0	
2011	0		0		0		0	
2012	0		0		0		0	
2013	1,145	(0)	0		0		0	
2014	0		0		0		0	
2015	0		0		0		0	
2016	0		26,691	(70.4)	0		0	
2017	0		59,413	(59.4)	0		0	
2018	7,925	(80.3)	893	(102.9)	4	(106.8)	0	
2019	0		10,503	(64.4)	0		0	

Source: Recreational Fisheries Statistics Queries: <https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index>. PSE (proportional standard error) values in parenthesis 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. 2019 values are preliminary.

Table 14. Number of golden tilefish kept by party/charter anglers and mean effort from Maine through Virginia, 1996-2019 (calendar year).

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	6,958	3.1
2015	8,297	4.2
2016	5,919	4.1
2017	7,014	4.6
2018	7,101	3.9
2019	2,733	3.4
All	64,049	2.8

Source: NMFS unpublished VTR data.

Table 15. Number of golden tilefish caught by party/charter vessels by state, 1996-2019 (calendar year).

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	39	12	41	6,560
2014	0	0	0	3	957	5,716	180	40	73	6,969
2015	14	0	0	0	637	7,376	100	56	174	8,357
2016	0	0	0	0	676	5,073	69	43	67	5,928
2017	0	0	0	0	424	6,373	118	76	38	7,029
2018	0	0	0	0	1,202	5,573	46	87	193	7,101
2019	0	0	0	0	845	1,771	29	30	58	2,733
All	14	496	182	3	12,513	48,499	846	574	1,057	64,184

Source: NMFS unpublished VTR data.

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