

Golden Tilefish RTA



New Fishery Dependent and Independent Data Sources

SSC Meeting

14 May 2024

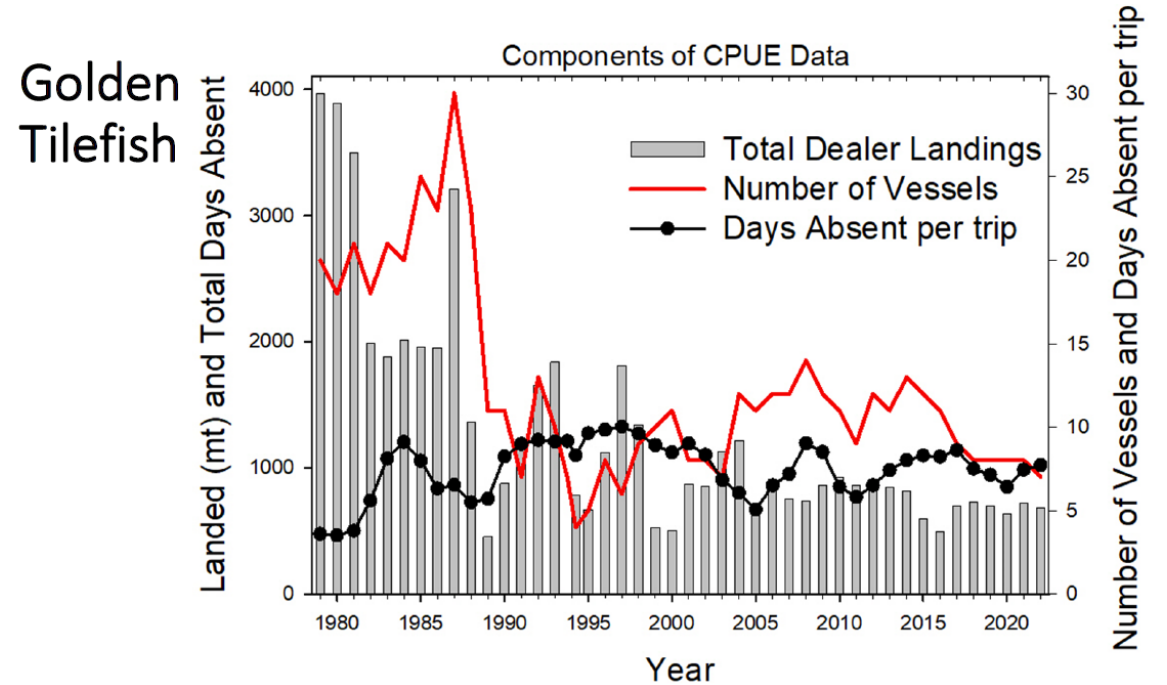
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Today

- Brief overview of new fishery dependent and independent data sources evaluated/developed during the 2024 RTA for GTF
 - Add VTR to CAMS LPUE index
 - Developed recreational landings time series
 - Developed a discard time series
 - Survey indices
 - Longline surveys
 - Longline study fleet
 - CPUE index from trawl gear (e.g., observer data, study fleet data)

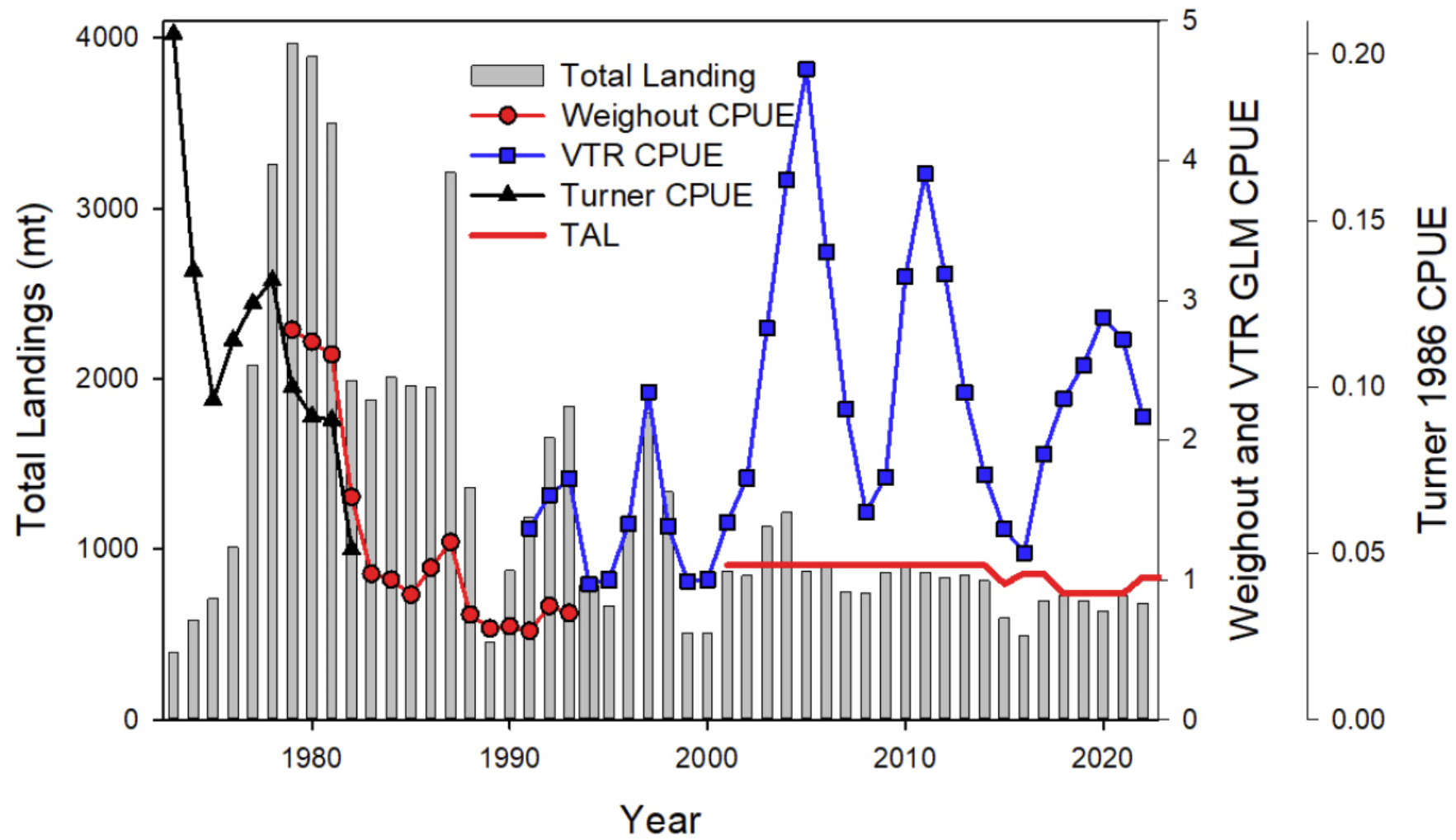
Add VTR to CAMS LPUE index

- Directed golden tilefish LPUE
 - Past GTFA used NEFSC VTR data to calculate LPUE index

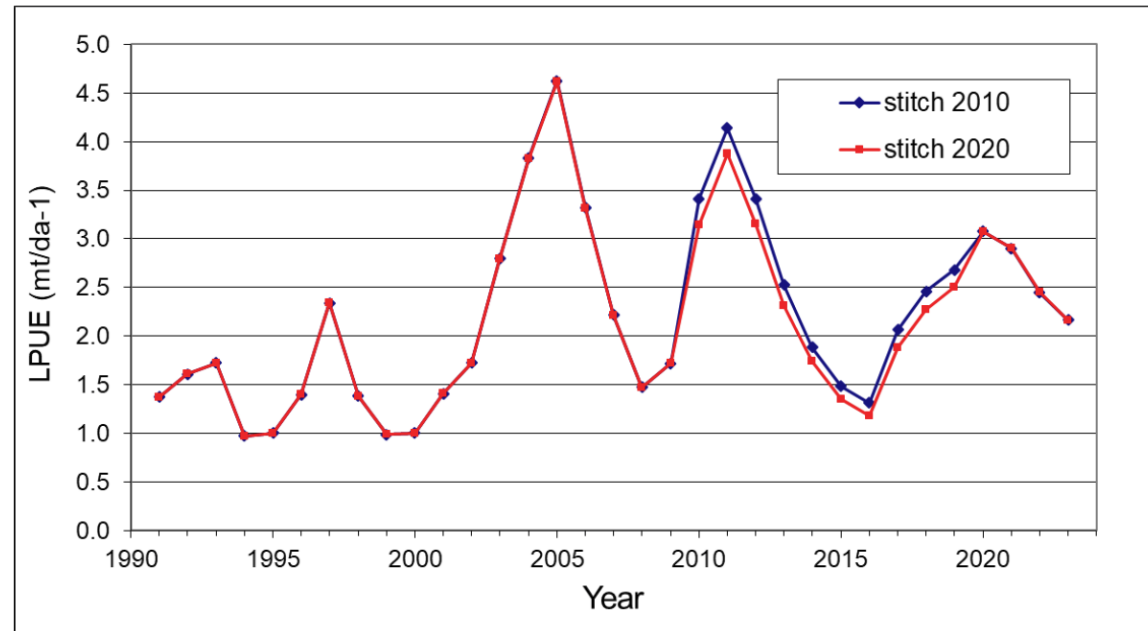
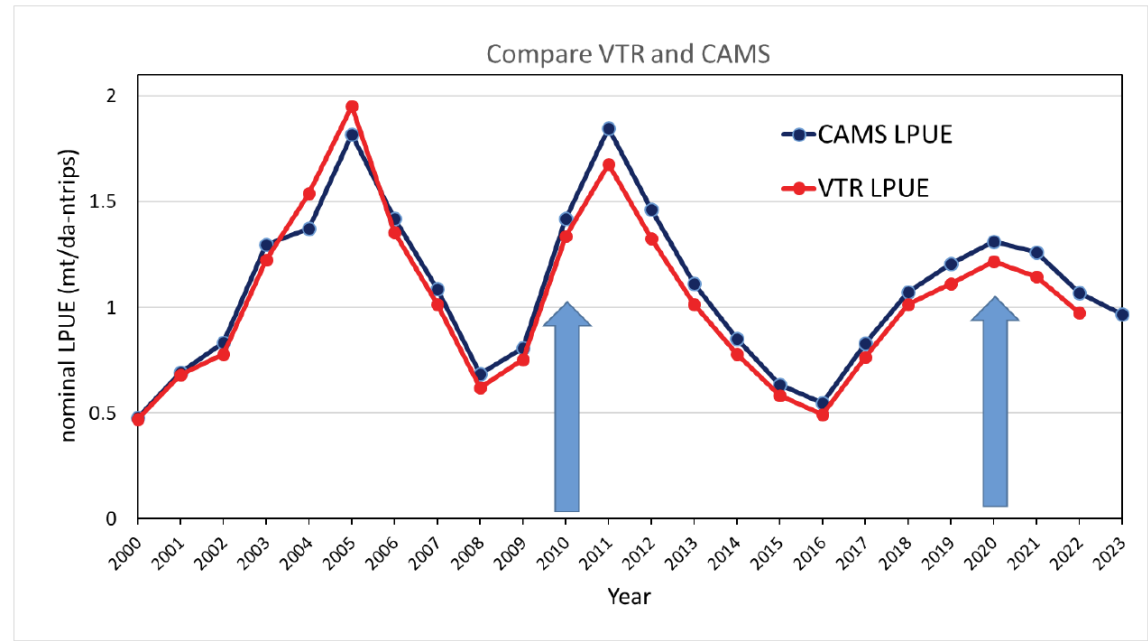


Add VTR to CAMS LPUE index

- New CAMS – Catch Accounting and Monitoring System
 - All-inclusive database
 - VTR data source at the NEFSC will be discontinued
- LPUE data over time
 - 1973-1981 Turner's
 - 1979-1993 Weighout DA LPUE series
 - 1991-2022 VTR DA LPUE
 - 2010-present & future CAMS DA LPUE
 - VTR-CAMS is not a change in the data source
 - It is a change in the underlying database which requires a stitching of the older VTR series with the new all-inclusive database



There was some concern that stitching in the CAMS series in 2020 would put a relatively larger abrupt shift into the series at the end of the time series



RTWG recommends the 2010 stitch going forward

Recreational Data

- Time series not available for prior assessments
 - Typically, it was said . . .
 - Not estimated as part of removals
 - Not able to produce a reliable time series of recreational catches
 - Recreational catches were considered negligible and/or
 - Recreational catches appear to be a minor component of total removals
- Developed a best estimate of recreational catches based on:
 - VTR party and charter data
 - LPS private data
 - Turner (1986) estimates

Table 38. Recreational catch time series, 1971-2022.

Year	mt	Number of fish*	Basics	Year	mt	Number of fish*	Basics
1971	3		Assumed "minimum" value for the 1973-1982 period (below).	1997	3		Assumed "minimum" 3 mt value. VTR party/charter estimates (Table 15) not used due to potential issues with reporting rates discussed in section 1.2.1.1.
1972	39		Assumed ramp up value. Mid-point between assumed 3 mt (1971) and 75 mt (1973).	1998	3		
1973	75		Catch estimates developed by Turner (1986).	1999	3		
1974	100			2000	3		
1975	60			2001	3		
1976	50			2002	3		
1977	25			2003	3		
1978	5			2004	3		
1979	5			2005	3		
1980	3			2006	3		
1981	3			2007	5	1,685	
1982	3			2008	3	1,183	
1983	3		Assumed "minimum" value estimated by Turner (1986) in the early 1980s when the fishery steadily decreased to minimum values in the 1973-1982 period.	2009	3	1,905	
1984	3			2010	4	2,063	
1985	3			2011	11	4,469	
1986	3			2012	21	8,279	
1987	3			2013	18	6,965	
1988	3			2014	17	7,627	
1989	3			2015	23	9,204	
1990	3			2016	14	6,541	
1991	3			2017	16	9,380	
1992	3			2018	16	8,731	
1993	3		2019	17	7,900		
1994	3		Assumed "minimum" 3 mt value. VTR party/charter estimates (Table 15) not used due to processing errors discussed in section 2.2.1.1.	2020	15	6,593	
1995	3			2021	22	10,064	
1996	3			2022	22	9,454	

*See Table 39 for additional details on the number of fish calculations.

Table 39. Recreational catch by mode used to derive the number of fish and mt for years 2007-2022 in Table 38 (shaded area).

Year	mt (rounded)	VTR #s		LPS #s by state	No. fish Total	mt	Commercial mean wt (kg)
		Party	Charter	Private			
1996	3 minimum	81					
1997	3 minimum	380	20				
1998	3 minimum	120	21				
1999	3 minimum	91					
2000	3 minimum	145	2				
2001	3 minimum	219	3				0.858
2002	3 minimum	853	9				1.220
2003	3 minimum	431	563				1.589
2004	3 minimum	603	287				2.011
2005	3 minimum	370	178	26	574	1.46	2.546
2006	3 minimum	301	177	27	505	1.64	3.239
2007	5	875	260	550	1,685	5.02	2.980
2008	3	904	196	83	1,183	2.64	2.233
2009	3	1,301	150	454	1,905	3.29	1.725
2010	4	1,712	154	197	2,063	4.02	1.948
2011	11	2,472	466	1531	4,469	10.77	2.410
2012	21	5,793	631	1855	8,279	21.05	2.542
2013	18	6,210	350	405	6,965	17.54	2.518
2014	17	5,600	1,358	669	7,627	16.74	2.195
2015	23	7,656	889	659	9,204	22.84	2.482
2016	14	5,420	499	622	6,541	13.60	2.079
2017	16	6,679	335	2366	9,380	15.81	1.686
2018	16	3,822	3,288	1621	8,731	15.98	1.830
2019	17	4,543	881	2476	7,900	17.25	2.184
2020	15	2,876	590	3127	6,593	14.81	2.247
2021	22	5,763	1,206	3095	10,064	21.54	2.140
2022	22	4,371	1,410	3673	9,454	22.24	2.352

Table 40. Estimated proportion of recreational and commercial landings assuming recreational time series in Table 38, 2005-2022.

Year	Recreational	Commercial
2005	0.4%	99.6%
2006	0.3%	99.7%
2007	0.7%	99.3%
2008	0.4%	99.6%
2009	0.4%	99.6%
2010	0.4%	99.6%
2011	1.2%	98.8%
2012	2.5%	97.5%
2013	2.0%	98.0%
2014	2.0%	98.0%
2015	3.7%	96.3%
2016	2.7%	97.3%
2017	2.2%	97.8%
2018	2.1%	97.9%
2019	2.4%	97.6%
2020	2.3%	97.7%
2021	2.9%	97.1%
2022	3.2%	96.8%

Recreational Data Update

- LPS kept values for GTF, BLT, STF, Unclassified
- Method used for applying a proportion of “unclassified” tilefish to golden tilefish

Year	mt (recreational)	Proportion of Total Landings	
		Recreational	Commercial
2007	56	0.7%	99.3%
2008	34	0.4% 0.5%	99.6% 99.5%
2009	34	0.4% 0.5%	99.6% 99.5%
2010	45	0.4% 0.5%	99.6% 99.5%
2011	11 12	1.2% 1.4%	98.8% 98.6%
2012	21	2.5%	97.5%
2013	18	2.0%	98.0%
2014	17	2.0%	98.0%
2015	23	3.7%	96.3%
2016	14 13	2.7% 2.6%	97.3% 97.4%
2017	16	2.2% 2.3%	97.8% 97.7%
2018	16	2.1% 2.2%	97.9% 97.8%
2019	17	2.4%	97.6%
2020	15	2.3%	97.7%
2021	22	2.9%	97.1%
2022	22	3.2%	96.8%

Commercial Discards

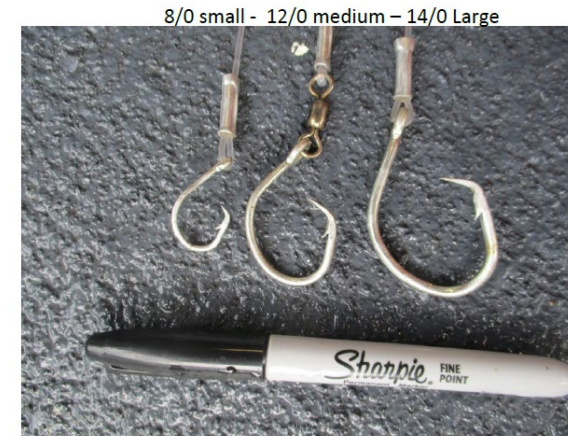
- Considered low in the directed and incidental fisheries
- Not estimated as part of removals in past assessments
- FMP has 300-500 pound trip limit to allow for incidental landings outside the IFQ directed fishery
- CAMS will be estimating discards on a trip bases into the future
- Median discards, longline = 2.3 mt
- Median discards, Lg/Sm trawl and gillnet = 3.9 mt

Survey Indices: Longline Surveys

- Pilot tilefish survey – 2017
- Dedicated GTF survey – 2020
- Presently, biomass index of abundance = commercial LPUE
- Surveys = standardize effort, reduce uncertainty associated with index of abundance
- Provide information on incoming year class strength?
- Inform dome shape selectivity used in assessment?

Survey Indices: Longline Surveys

- Hook selectivity; 150 hooks/station; 1 nautical mile
- 2017 pilot: 30 (20%) small, 90 (60%) medium, 30 (20%) large
- 2020 GTF survey: 75 (50%) small, 75 (50%) medium
- Catch rates by hook size:
 - 2017 Pilot
 - 59% small - 27% medium – 14% large
 - Small hooks caught 2.2 times more fish (#s) than medium hooks
 - Small hooks caught 4.2 times more fish (#s) than large hooks
 - 2020 survey
 - 70% small - 30% medium
 - Small hooks caught 2.4 times more fish (#s) than medium hooks



Survey Indices: Longline Surveys

- 2017 Pilot
30 (20%) small, 90 (60%) medium, 30 (20%) Large
- 2020 Golden survey
75 (50%) small – 75 (50%) medium

	small	medium
pilot	30	90
adjustment	2.50000	0.83333
2020	75	75



Annual stratified mean numbers per haul indices and estimated (CVs)

	2017	2020
Combined Hooks	13.28 (0.30)	11.06 (0.40)
Regular Hooks	4.80 (0.31)	3.86 (0.41)
Small Hooks	11.35 (0.25)	10.24 (0.28)

- Decrease in abundance b/w 2017 and 2020
- Stratified index at length suggests a relatively large 1- or 2-years classes present in 2017

Survey Indices: Longline Surveys

- Results of the hook size selectivity comparison and to a lesser extent the spatial & depth refuge effects are consistent with a dome shaped selectivity pattern
- The degree of doming (descending right side) remains more elusive since a flat-topped selectivity assumption may not be justified in the survey



Survey Indices: Longline Study Fleet

- Longline study fleet investigation
- Past benchmark concluded that a simple DA-1 was best effort metric from VTR due to data limitations
- Conclusions:
 - Study fleet analysis using a finer effort metrics on a haul-by-haul basis seem to support DA-1 metric
 - DF based on number of hook miles could be used as an effort metric instead of DA?
 - Soak time seem to have a weak relationship with catch
 - Depth and bycatch could also help with explaining some of the variability in LPUE?

Survey Indices: Study Fleet and Observer Data From Trawl Gear

- The RTWG examined study fleet and observer data from trawl gear to develop a CPUE index and compare this new index to existing indices from the tilefish assessment
- The results suggest that there may be some value in using these data to understand the abundance of fish slightly smaller than those captured in the targeted fishery and the longline LPUE index
- Potentially use index as a qualitative indicator?

Thank you!

- For additional information . . .
- Stock Assessment Support Information (SASINF) <https://apps-nefsc.fisheries.noaa.gov/saw/sasi.php>



Stock Assessment Support Information (SASINF)

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