Butterfish AP Informational Document - APRIL 2014
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****Note - Data Sources for the following are generally from unpublished NMFS Survey, Dealer, VTR, Permit, and MRFSS databases unless noted…everything should be considered preliminary.**

Basic Biology

Butterfish (*Peprilus triacanthus*) are distributed from the Florida to Nova Scotia, occasionally straying as far north as the Gulf of St Lawrence (Bigelow and Schroeder 2002). Butterfish is a fast growing species that schools by size, makes seasonal inshore and offshore movements, and seldom attains an age greater than 3 years but can occasionally live up to 6 years. Butterfish mature at age 1, spawn during the summer months (June-August), and begin schooling at about 60 mm (Bigelow and Schroeder 2002). They exhibit a planktivorous diet, feeding mainly on zooplankton, ctenophores, chaetognaths, euphausiids and other organisms. Butterfish are preyed upon by a large number of medium-sized predatory fishes such as bluefish, weakfish, and spiny dogfish, large pelagic fish including swordfish, marine mammals including pilot whales and common dolphins, seabirds such as greater shearwaters and northern gannets, and invertebrates such as squid (http://www.nefsc.noaa.gov/publications/tm/tm145/tm145.pdf). Recent assessments have explored consumption of butterfish by a subset of key finfish predators but estimates for marine mammals, birds, and invertebrates are not available.

Status of the Stock

The butterfish stock was most recently assessed at SARC 58 (2014, but utilizing data through 2012). The SARC independent peer review panel accepted the assessment and its reference points. For the entirety of the time series used (1989-2012), the stock has been above the biomass target (the spawning stock size that results in maximum sustainable yield) and no overfishing has occurred. There are always potential improvements to be further explored in the future, but the reviewers were generally complementary of the assessment. An assessment summary is available at: http://nefsc.noaa.gov/publications/crd/crd1403/. The assessment results were also generally compatible with the "simple empirical analysis" that the NMFS' Northeast Fisheries Science Center conducted in recent years to support butterfish management while the new assessment was being developed.

Fishery Performance (See Figure 1)

Atlantic butterfish were landed primarily by US fishermen from the late 1800's (when formal record keeping began) until 1962 (Murawski and Waring 1979). Reported landings averaged about 3,000 mt from 1920-1962 (Waring 1975). Beginning in 1963, vessels from Japan, Poland and the USSR began to exploit butterfish along the edge of the continental shelf during the late-autumn through early spring. Reported foreign landings of butterfish increased from 750 mt in

1965 to 15,000 mt in 1969, and then to about 32,000 mt in 1973. With the advent of extended jurisdiction in US waters, reported foreign catches declined sharply from 14,000 mt in 1976 to 2,000 mt in 1978. Foreign landings were completely phased out by 1987.

During the period 1965-1977, domestic butterfish landings averaged about 1,800 mt. From 1978-1987, average US landings averaged around 5,500 mt, with a historical peak of slightly less than 12,000 mt landed in 1984. The domestic market developed to supply butterfish to the Japanese market. A combination of lower abundance and market conditions are reported to be the cause for lower landings in the 1990s. Local availabilities in 2001 led to substantial landings by Seafreeze but the market was not supportive of high-volume sales and it took several years to reduce their butterfish inventory. Regulations precluded resumption of a directed fishery from 2005 until January 16, 2013, when a limited directed fishery was re-established. 2013 landings remained low (fishermen reported that mostly small butterfish were available in the winter when butterfish condition is optimal for the export market). Early 2014 has seen more directed butterfish fishing.

Discards have historically been a major source of mortality and estimates are available in the assessments.

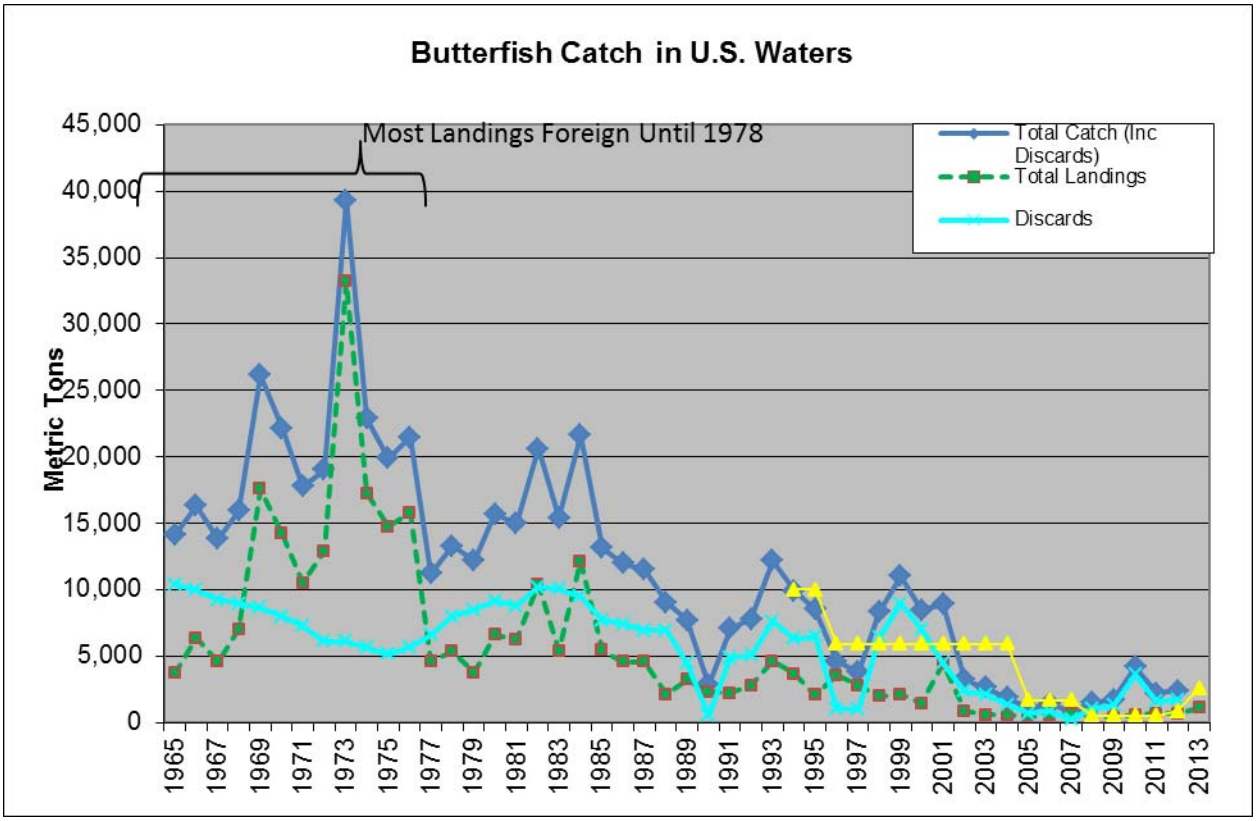

Figure 1. Butterfish catch within 200 miles of U.S. Coast (2013 Preliminary).
Source: SAW/SARC 49, unpublished NEFSC dealer reports

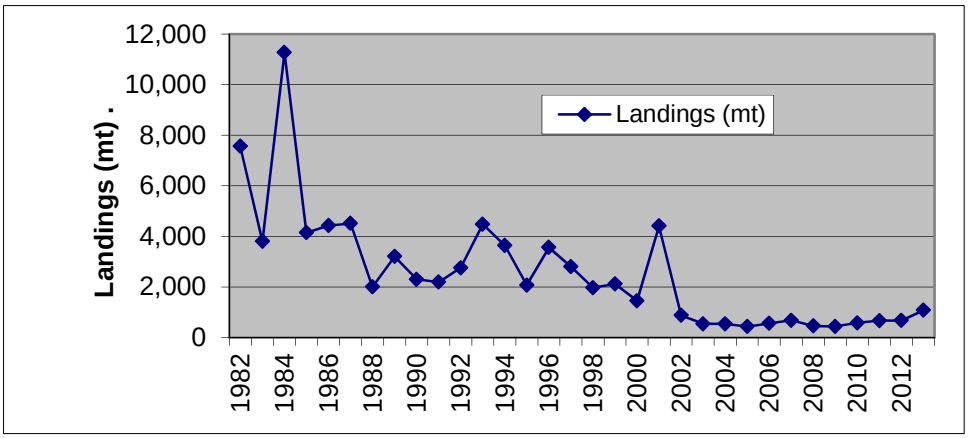

Figure 2. U.S. Butterfish landings.
Source: unpublished NEFSC dealer reports

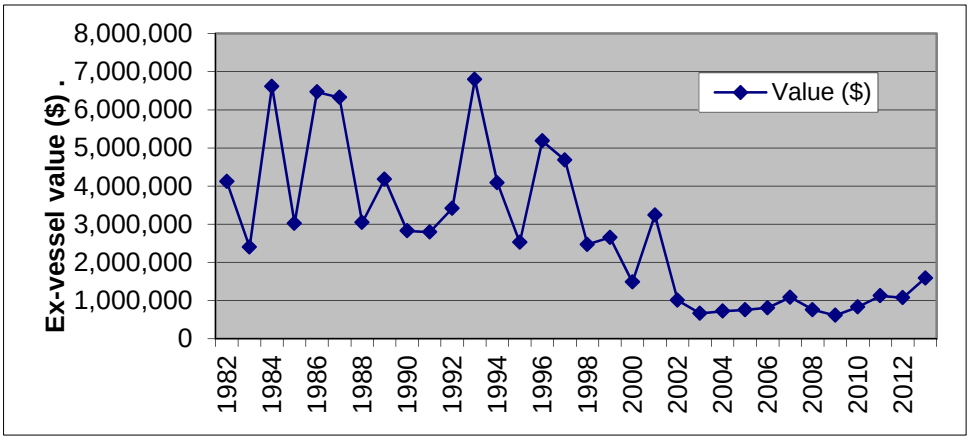

Figure 3. U.S. Butterfish ex-vessel revenues (nominal)
Source: unpublished NEFSC dealer reports

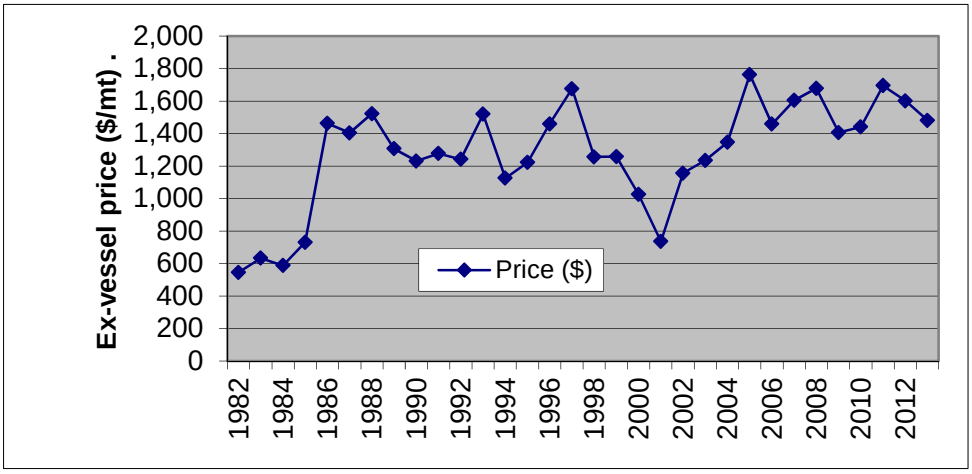

Figure 4. U.S. Butterfish ex-vessel prices (Nominal)
Source: Unpublished NMFS dealer reports

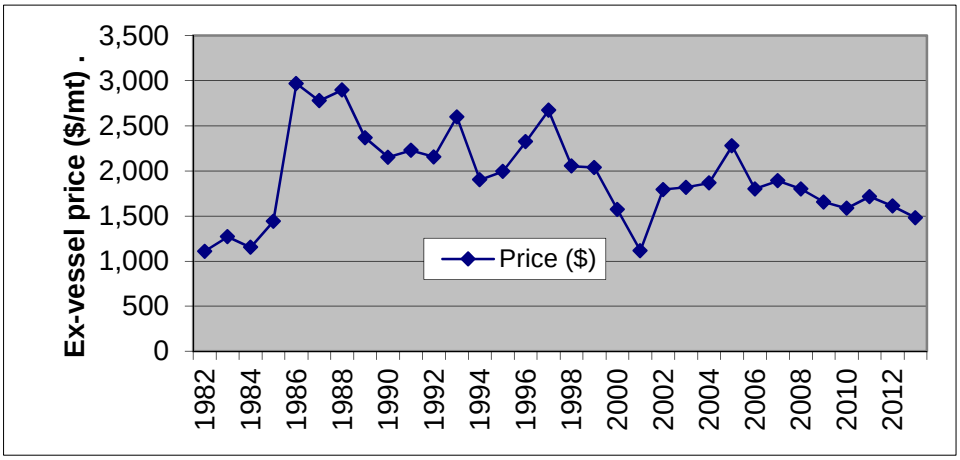

Figure 5. U.S. Butterfish ex-vessel prices (Producer Price Index adjusted, 2014 dollars)
Source: Unpublished NMFS dealer reports

Butterfish Landings (Blue = 2014 to date, Orange = 2013)

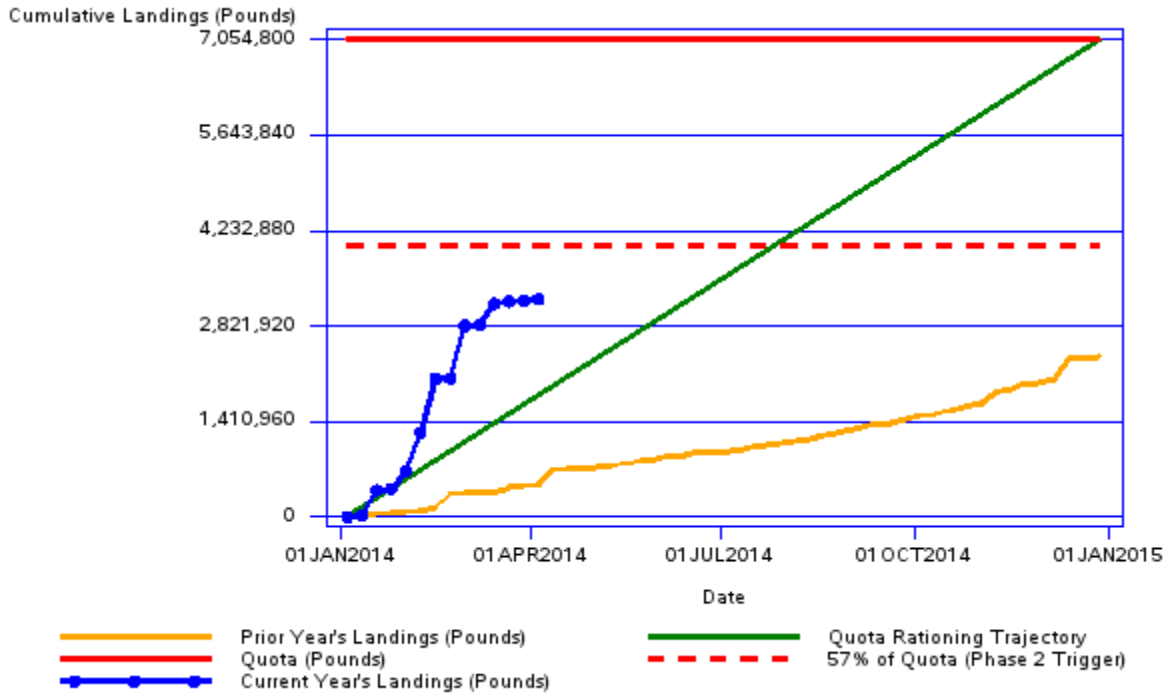

Figure 6. 2014 Landings to Date (April 5, 2014)
source: http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm

2014 Butterfish Discard Cap for the Longfin Squid Fishery to Date

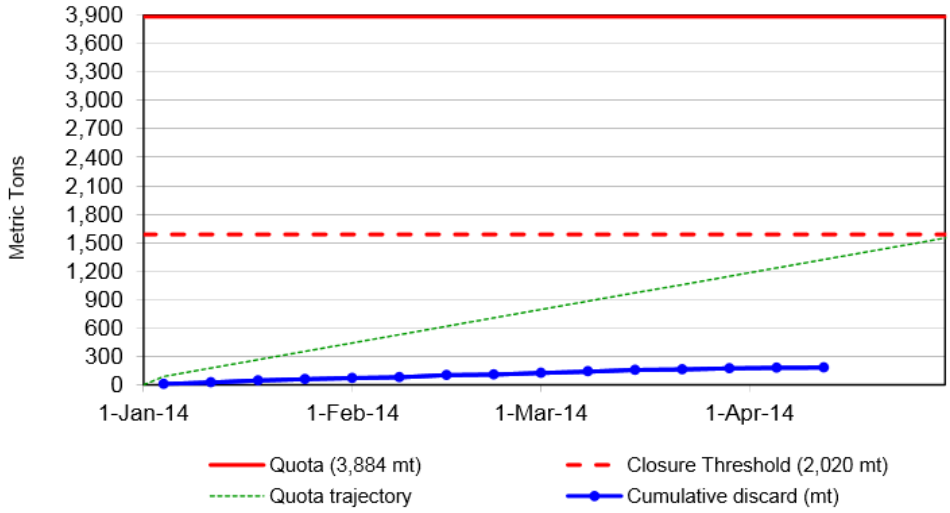

Figure 7. 2014 Butterfish/Loligo Cap to Date (April 5, 2014)
source: http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm

2013 Butterfish Discard Cap for the Longfin Squid Fishery

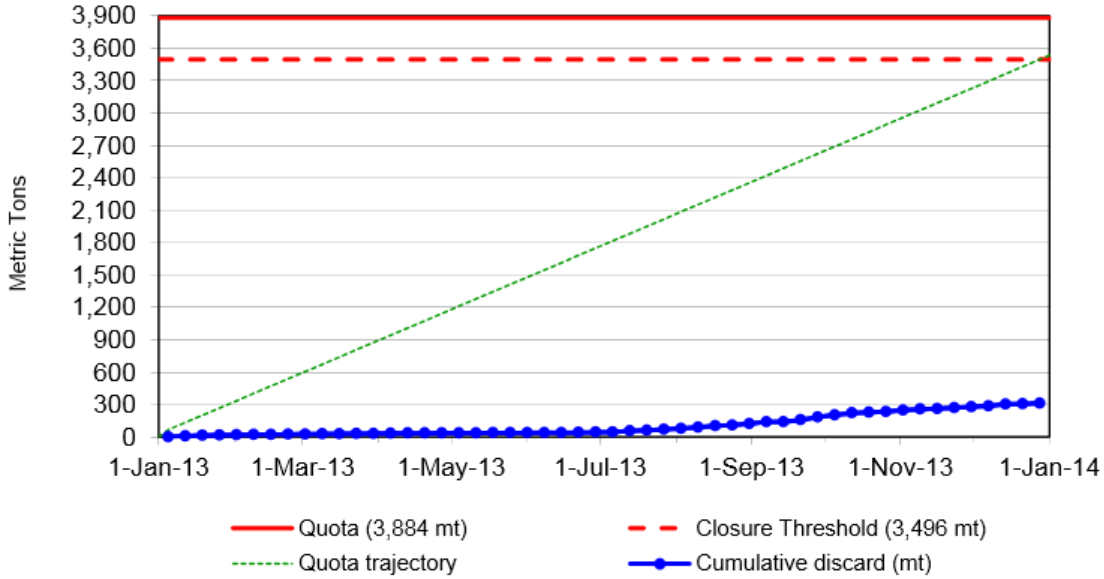

Figure 8. 2013 Butterfish/Loligo Cap
source: http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm

Specification Performance

Through 2012, dealer data triggered in-season management actions that instituted low trip limits when 80% of the landings quota was landed. With the resumption of a directed fishery in 2013, a 3-phase system of first no trip limits then sequentially lowered trip limits was instituted. Table 1 lists the performance of the butterfish fishery relative to the relevant specifications.

Table 1. Butterfish Performance. (mt)

Year	Harvest (only commercial)	Quota	Percent of Quota Landed	ABC	Discards	Total Catch	Percent of ABC Caught
2003	536	5,900	9%		2,114	2,649	
2004	537	5,900	9%		1,320	1,857	
2005	428	1,681	25%		648	1,076	
2006	554	1,681	33%		839	1,393	
2007	678	1,681	40%		241	919	
2008	451	500	90%		1,029	1,480	
2009	435	500	87%	1,500	1,298	1,733	116%
2010	576	500	115%	1,500	3,576	4,152	277%
2011	664	500	133%	1,811	1,555	2,219	123%
2012	671	872	77%	4,200	1,726	2,397	57%
2013	1,074	2,570	42%	8,400	NA	NA	NA

2009 was the first year that the SSC provided an ABC recommendation. 2011 was the first year of the butterfish cap, which directly controls most discards. Any ABC overages from 2012 on must be repaid pound for pound.

Source: Unpublished NMFS dealer reports

The system that manages the new directed fishery begins with large closure buffers at the start of the year and then reduces the closure buffers as the year progresses. The year starts with no trip limits for directed permits using 3" or greater mesh, and then steps down to 5,000 pounds and then 600 pounds as a final backstop. Incidental permits have a 600 pound trip limit at all times.

While final discard estimates are not yet available for 2013, discards in the longfin squid fishery, which historically accounts for most butterfish discards, were approximately 312.4 metric tons. Therefore, a total ABC overage appears unlikely.

The recently implemented Framework 8 will allow NMFS to shift quota between landings and the butterfish discard cap (in either direction) near the end of each year if one has extra quota and the other appears constrained.

Table 2. 2013 Atlantic butterfish landings (mt) by state (more than 10 Metric Tons)

*Since states with low landings are not included, Percent column may not total 100%

State	Records	Metric Tons	Percent
RI	3766	711	66%
NY	3105	172	16%
NJ	691	75	7%
MA	453	57	5%
CT	651	50	5%

Source: unpublished NEFSC dealer reports

Table 3. 2013 Atlantic butterfish landings (mt) by month.

MONTH	Metric Tons	Percent
1	33	3%
2	125	12%
3	49	5%
4	122	11%
5	57	5%
6	45	4%
7	62	6%
8	87	8%
9	82	8%
10	87	8%
11	149	14%
12	175	16%

Source: unpublished NEFSC dealer reports

Table 4. Vessels active in various annual landing ranges (pounds per vessel)

YEAR	Vessels 200,000+	Vessels 50,000 - 200,000	Vessels 10,000 - 50,000	Vessels 1,000 - 10,000
1982	29	31	35	107
1983	9	33	67	111
1984	41	35	47	100
1985	11	36	52	122
1986	7	14	52	113
1987	8	38	40	86
1988	4	15	54	86
1989	7	29	40	99
1990	1	22	58	110
1991	5	15	45	96
1992	7	25	32	90
1993	12	30	36	108
1994	6	20	40	124
1995	3	11	63	141
1996	6	15	86	129
1997	6	12	77	169
1998	2	14	69	153
1999	2	10	72	143
2000	1	9	54	159
2001	4	6	72	130
2002	0	3	46	123
2003	0	0	20	115
2004	0	0	24	96
2005	0	1	11	93
2006	0	1	24	91
2007	0	3	36	95
2008	0	1	21	98
2009	0	2	17	81
2010	0	1	37	81
2011	0	2	36	91
2012	0	1	38	87
2013	1	1	46	81

Source: unpublished NEFSC dealer reports