



## Mid-Atlantic Fishery Management Council

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman

Christopher M. Moore, Ph.D., Executive Director

# MEMORANDUM

**Date:** July 27, 2023  
**To:** Council  
**From:** Jason Didden  
**Subject:** 2024-2026 Longfin Squid Specifications

The Mackerel, Squid, and Butterfish Monitoring Committee met via webinar on July 27, 2023 to review longfin squid specifications and make recommendations based on the Scientific and Statistical Committee's (SSC) status-quo 23,400 metric ton (MT) Acceptable Biological Catch (ABC) for longfin squid. The Monitoring Committee's Atlantic mackerel discussions are summarized in the Atlantic mackerel briefing materials tab.

Members of the Monitoring Committee on the call included Jason Didden, Carly Bari, Lisa Hendrickson, Kiersten Curti, and Daniel Hocking. Other attendees included Alissa Wilson, Brad Schondelmeier, Gerry O' Neill, James Boyle, Katie Almeida, Maria Fenton, Meghan Lapp, Melissa Smith, Renee Zobel, "dj," and "Todd."

The only change from status-quo longfin squid specifications recommended by the Monitoring Committee is to update the discard set aside to be 506.3 metric tons based on the average of the annual discard percent of catch from 2007-2022 (since trimester-based management). Currently 468 MT are set-aside for discards. This set-aside would be consistent with past practices and, based on recent discard estimates, should set enough catch aside to avoid ABC overages. The Monitoring Committee noted that in the future, additional exploration of discard details (why/when/where?) may be useful. The Monitoring Committee also briefly discussed the recent scup discard report given future related actions may impact the squid fishery.

The resulting specifications would be for the longfin squid ABC to be 23,400 MT, and for the Initial Optimum Yield (IOY)/Domestic Annual Harvest (DAH)/ Domestic Annual Processing (DAP) to be 22,893.7 MT.

Additional supporting materials in this tab include the staff ABC memo to the SSC, the Advisory Panel Fishery Performance Report, and the staff Fishery Information Document. The summary of the SSC meeting relating to longfin squid is in the Committee Reports tab.



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## **MEMORANDUM**

**Date:** July 14, 2023  
**To:** Chris Moore, Executive Director  
**From:** Jason Didden, staff  
**Subject:** Status quo recommended for 2024-2026 Longfin Squid ABCs

### **Current Measures and Review of Prior SSC Recommendations**

The primary measures used in the longfin squid fishery to control catch include a discard set-aside, limited access (tiered), and weekly monitoring that is coupled to closure triggers and post-closure trip limits.

The current Acceptable Biological Catch (ABC) of 23,400 metric tons (MT) is based on catch in the year of the highest exploitation ratio (1993) from the 2010 assessment. That year is still the highest ratio, but catch in 1993 is now estimated to have been 23,950 MT (due to revised discards). The SSC concluded a 23,400 MT annual catch appears to be sustainable based on empirical evidence. They have noted that considering exploitation on a seasonal basis (rather than annual) may call into question whether stock exploitation has been persistently low.

### **Recent Catch and Landings**

Recent landings have been typically variable but 2022 landings were higher than any since 1999. Discards are consistently a very small component of catch.

### **Stock Status and Biological Reference Points**

There is no overfishing reference point. Biomass has never declined below the overfished threshold. While the meaningfulness of the stocks reference point may be questioned, there appears to be no long-term trend in annualized biomass and the terminal year's (2022) biomass was relatively high.

### **Staff Recommendation**

Staff recommends the current ABC of 23,400 MT be maintained until there is an assessment to justify a change. Staff also notes that the sources cited in regard to “two” cohorts (Brodziak and Macy, 1996; Macy and Brodziak, 2001) suggest several assessments may be needed throughout the year to capture the large number of possible micro-cohorts resulting from continuous spawning. Additional information on fishery performance and management measures can be found in the 2023 Fishery Information Document and the 2023 Fishery Performance Report developed by the Mackerel-Squid-Butterfish (MSB) Advisory Panel (AP).



## **Longfin Squid Fishery Performance Report July 2023**

The Mid-Atlantic Fishery Management Council's (Council) Mackerel-Squid-Butterfish (MSB) Advisory Panel (AP) met via webinar to review the Longfin Squid and Atlantic Mackerel Fishery Information Documents and develop Fishery Performance Reports. Separate reports were created for each species/fishery. The primary purpose of the report is to contextualize catch histories for the Scientific and Statistical Committee (SSC) by providing information about fishing effort, market trends, environmental changes, and other factors. AP member comments are not consensus or majority statements – the summary below may represent the perspective of one or multiple AP members. Some staff follow-up information has been added and noted where applicable.

**Advisory Panel members present:** Dan Farnham Jr, Eleanor Bochenek, Emerson Hasbrouck, Greg DiDomenico, Jeff Kaelin, Katie Almeida, Meghan Lapp, Pam Lyons Gromen, Peter Kaizer, and Robert Ruhle

Others present: Jason Didden, Peter Hughes, Mark Holliday, Alissa Wilson, BB, Brad Schondelmeier, Carly Bari, Hannah Hart, Jessica Blaylock, Maria Fenton, and Mark Binsted.

Trigger questions posed to the AP to generate discussion:

1. What factors have influenced recent catch (markets, environment, regulations, etc.)?
2. Are the current fishery regulations appropriate? How could they be improved?
3. What would you recommend as research priorities?
4. What else is important for the Council to know?

### **Market/Economic Conditions**

High production early in 2022 meant processors had substantial product stocked. There were some sluggish sales in 2022, higher inventory, and still some COVID-19 hangover, resulting in lower prices. Lower prices/demand and quality issues impacted the ability of some smaller boats to move product.

Some smaller boats were less active in early summer 2023 versus the early summer of 2022.

There are two markets – fresh and frozen. It's expensive to hold frozen product and expensive to ship, affecting price that processors can offer to vessels. Diesel prices were very high in 2022, affecting costs for both vessels and processors.

In response to discussion, advisors noted that squid size can impact price depending on markets and demand, but this discussion was not centered around key factors affecting 2022/2023 production.

## **Environmental Conditions**

Nothing remarkable was reported, but discussion noted that the “Squid Squad” is investigating connections between squids and environmental conditions (the initial focus was just *Illex*). The Squid Squad meets regularly and integrates industry observations and environmental analyses from participating scientists at NMFS’ Northeast Fisheries Science Center. See related materials at <https://www.mafmc.org/briefing/february-2023> for additional information on the Squid Squad and related research.

## **Management Issues**

Area/gear limitations negatively affect fishing/landings. Scup, Tilefish, and Fixed/Mobile Gear Restricted Areas (GRAs) have made longfin squid fishing more difficult. Large mesh requirements on George’s Bank also restrict targeting of longfin squid in areas where fishermen have been seeing signs of longfin squid in recent years. The [Northeast Canyons and Seamounts Marine Monument](#) may negatively impact access to areas where longfin squid could have been caught. The Monument also acts as a fence because you’d have to spend the time and fuel to get to the other (eastern) side.

Windfarm development continues to be a major concern for the longfin squid fishery given expanding potential overlap between wind farm areas and squid fishery areas. Concerns involve both fleet displacement and effects on squid mortality/behavior from installation and/or operation of turbines/facilities.

There was a question and discussion regarding why the minimum mesh requirement is only 1 7/8 inches in Trimester 2 (May-August) versus 2 1/8 inches the rest of the year and a recommendation to make the 2 1/8 inch requirement effective year-round. As follow-up, staff reviewed the history behind the mesh requirement, and before Amendment 10 implementation (2010), the year-round requirement was 1 7/8 inches. A year-round 2 1/8 inch requirement was considered but public comments indicated that due to summer spawning of longfin squid, the economic losses due to larger mesh sizes would be highest in Trimester 2 so the increase to 2 1/8 inches was limited to Trimesters 1 and 3. Amendment 10 noted “Given the lack of selectivity information for *Loligo*, the Council concluded the only way to determine practicability was to proceed with a modest mesh size increase and then evaluate the impacts of the mesh increase after it has been in effect for two years. The results of the practicability assessment would be used for subsequent decisions to lower, maintain, or raise the minimum codend mesh size requirement for the *Loligo* fishery.” Staff noted an ongoing concern has been that if catch per unit of effort is lowered through mesh size increases, and effort increases in response, mesh measures with good intent have the potential to worsen discards. Discussion noted that Vessel Trip Reports (VTRs) could be examined to determine if vessels are still using mesh less than 2 1/8 inches during Trimester 2. Staff notes that an evaluation of the effectiveness of current mesh regulations is part of the Council’s current research priorities for longfin squid.

Bycatch information is useful to have in the Fishery Information Document. Discards in the longfin squid fishery remain high despite a Council research priority to address discards and warrant additional attention. Monitoring trends in bycatch could be important given climate impacts on bycaught non-target species of concern and their distributions. Staff notes that a

variety of bycatch-reduction approaches have been researched over the years partly in response to Council research priorities. To the best of staff's knowledge, these efforts have not yet found an effective and practicable solution (e.g. Bayse et al 2017: <https://onlinelibrary.wiley.com/doi/abs/10.1111/jai.13381>).

The Marine Stewardship Council has reviewed bycatch information for longfin squid and potential bycatch species of concern and certified the longfin squid fishery as sustainable (<https://fisheries.msc.org/en/fisheries/u.s.-northeastern-coast-longfin-inshore-squid-and-northern-shortfin-squid-bottom-trawl-fishery>). Discards in the longfin squid fishery have been reviewed numerous times and been reduced to the extent practicable. For butterfish, higher catches are likely just a reflection of the robust butterfish stock. Management should not hold the longfin squid fishery to a higher standard that is not considered for other fisheries/sectors.

There was discussion regarding the reason for most butterfish discards – as follow-up staff found that for the subset of trips analyzed, most butterfish discards (88%) had “no market” indicated for the discard reason (either size or unspecified market considerations). There was also discussion of whether discarding patterns have generally shifted over time, but such analyses would require a separate investigation to ensure findings were representative of the fishery.

### **Other Issues**

The main consideration should be that the assessment indicates the stock is lightly fished.

Fishermen are seeing scallopers that have jumped into longfin fishing and groundfish sector boats that are rigging up for longfin – activation of latent effort is still a concern, but seems unlikely that the Agency would approve of latent permit reductions in longfin squid given recent rejection of similar measures for *Illex*.

Especially until we have completed the upcoming research track assessment, it's unnecessary to investigate every potential criticism of squid management (including the potential for managing based on sub-annual cohorts).

### **Research Priorities**

The assessment should consider escapement-type approaches accounting for the footprint of the stock and fishery. Cohort-based analyses were found to be not practicable in the *Illex* assessment. It needs to be more clearly described how the existing evidence supports two primary cohorts (which happen to align with the surveys).

Dynamic natural mortality among cohorts should be investigated in the research track assessment.

Investigate NEFSC survey catchability for longfin.

### **Additional Public Input**

No additional input was provided.



## Longfin Squid (*Doryteuthis pealeii*) Fishery Information Document

July 2023

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for longfin squid (“longfin” hereafter, formerly known as “*Loligo*”), with an emphasis on 2022. Data sources for Fishery Information Documents include 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/msb>.

### Key Facts

- Landings have been typically variable and well below the annual quota in recent years. Considerable variability is expected in abundance, availability, and landings for any squid fishery.
- A management track assessment for Longfin was conducted in 2023. Based on 2022 data the stock was not overfished. The two-year average of the combined spring and fall NEFSC surveys showed continued variability, ending relatively high in 2022. Overfishing reference points are not available. A research track assessment will begin soon for review in early 2026.
- 2022 longfin landings and revenues increased substantially compared to 2021, and 2022 revenues set a new record for the fishery, slightly eclipsing 2016.
- Average annual prices in 2021 and 2022 were very similar, but prices fell considerably at the end of 2022. Average annual prices are still below pre-Covid levels.
- 2023 landings to date have been lower than 2022. Trimester 1 2023 landings were less than half of trimester 1 2022’s landings, but as of early July, trimester 2 of 2023 was on a path to catch its quota.
- Similar to previous analyses, about 1/3 of catch on observed longfin trips is discarded. Butterfish, scup, sea robin, *Illex*, longfin, little skate, and spotted hake represented 67% of the discards based on raw observer data.

### Basic Biology

Longfin is a neritic (from the shore to the edge of the continental shelf), semi-pelagic schooling cephalopod species primarily distributed between Georges Bank and Cape Hatteras, NC. The squid, and the fishery, generally occur offshore in the winter and inshore during the summer, with mixing and migrations from one to the other in spring and fall. Spawning/ recruitment occurs year-round with seasonal peaks in cohorts. The average lifespan of a cohort is about six

months. Individuals hatched inshore during the summer are taken in the winter offshore fishery and those hatched in the winter are taken in the inshore summer fishery. Age data indicate that NEFSC spring surveys (March-April) capture longfin that were hatched during the previous six months, in the fall, and those caught in the NEFSC fall surveys (September-October) were hatched during the previous spring. Longfin attach egg masses to the bottom substrate and fixed objects. Fishing and spawning mortality occur concurrently inshore during late spring through fall. The locations of spawning sites offshore at other times of the year are not well understood. Additional life history information is detailed in the Essential Fish Habitat (EFH) document for the species, located at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>.

### Status of the Stock

Based on the 2023 management track assessment, longfin was not overfished in 2022 but there are no overfishing reference points available (available at [https://apps-nefsc.fisheries.noaa.gov/saw/sasi/sasi\\_report\\_options.php](https://apps-nefsc.fisheries.noaa.gov/saw/sasi/sasi_report_options.php)). See Figure 1 for trends in biomass and catch from the last assessment through 2022. If considered separately, the cohorts represented by the spring and fall surveys would have been well-above their potential individual proxy biomass thresholds in 2022.

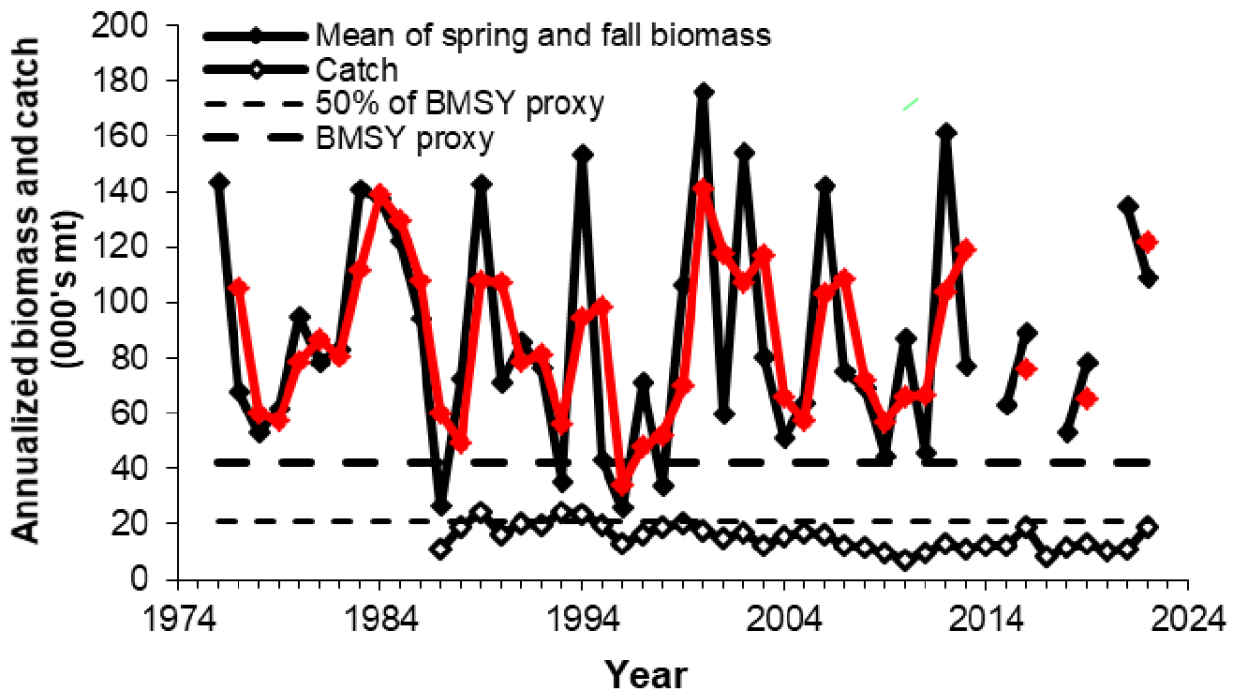


Figure 1. Longfin annualized biomass estimates (averages of the NEFSC spring and fall survey biomasses, in MT), in relation to the biomass target (42,205 MT) and biomass threshold (50% of target), and annual catches. The red line represents the two-year moving average of the annualized biomass estimates. Biomass estimates are q-adjusted swept area estimates.

## Management System and Fishery Performance

### *Management*

The Council established management of longfin in 1978 and the management unit includes all federal East Coast waters.

Access is limited with several moratorium permit categories. The quota is divided into three, 4-month trimesters (T) - 43% (T1 Jan-Apr), 17% (T2 May-Aug), and 40% (T3 Sept-Dec). Unused quota can roll over into later trimesters within a year depending on the amount of longfin landed. Underages from T1 that are greater than 25% are reallocated to trimesters 2 and 3 (split equally between both trimesters) of the same year. However, the T2 quota may only be increased 50% above its base and the remaining portion of the underage is reallocated to T3. Any underages for T1 that are less than 25% of the T1 quota are applied only to T3 of the same year. Any overages for T1 and T2 are subtracted from T3 of the same year as needed.

The 2023 longfin ABC is 23,400 MT, with a commercial quota of 22,932 MT (reduced to account for discards). Weekly monitoring, closure triggers, and trip limits are used to avoid substantial overages (measures modified occasionally based on performance).

Recreational catch of longfin is believed to be negligible relative to commercial catch. There are no recreational regulations except for party/charter vessel permits and VTR reporting. MRIP does not collect information on invertebrates, but social media indicates recreational fishing (private and for-hire) for longfin occurs.

### *Commercial Fishery*

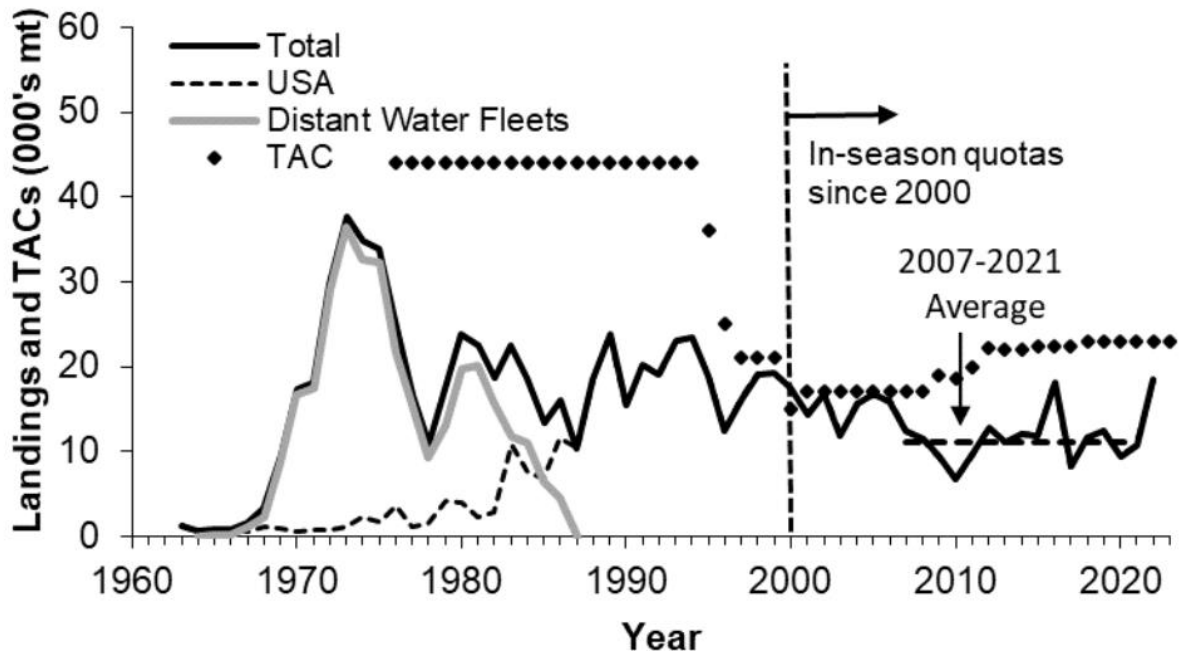
Figure 2 describes longfin landings 1963-2022. Figures 3-4 include domestic landings, ex-vessel revenues (2022 dollars<sup>1</sup>), and prices (2022 dollars) since 1996. Figure 5 highlights the drop in longfin prices at the end of 2022. Figure 6 illustrates preliminary landings throughout the year for 2022 and 2021 and Figures 7/8 illustrate preliminary landings for trimesters 1/2 for 2023 and 2022.

Table 1 describes 2022 longfin landings by state and table 2 describes 2021 and 2022 longfin landings by NMFS Statistical Areas. Almost all landings that have gear identified are bottom trawl.

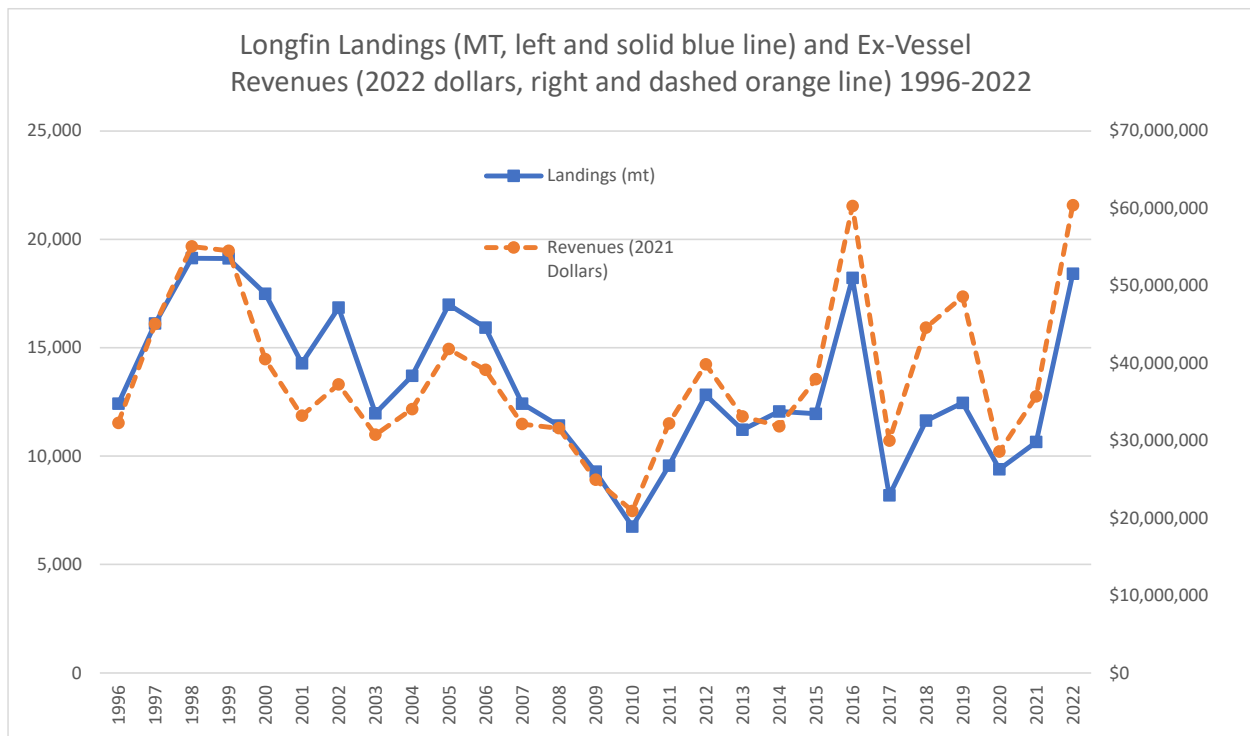
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<sup>1</sup> Unless noted otherwise, revenues/prices are provided as inflation-adjusted “2022 dollars” via the Gross Domestic Product Implicit Price Deflator.

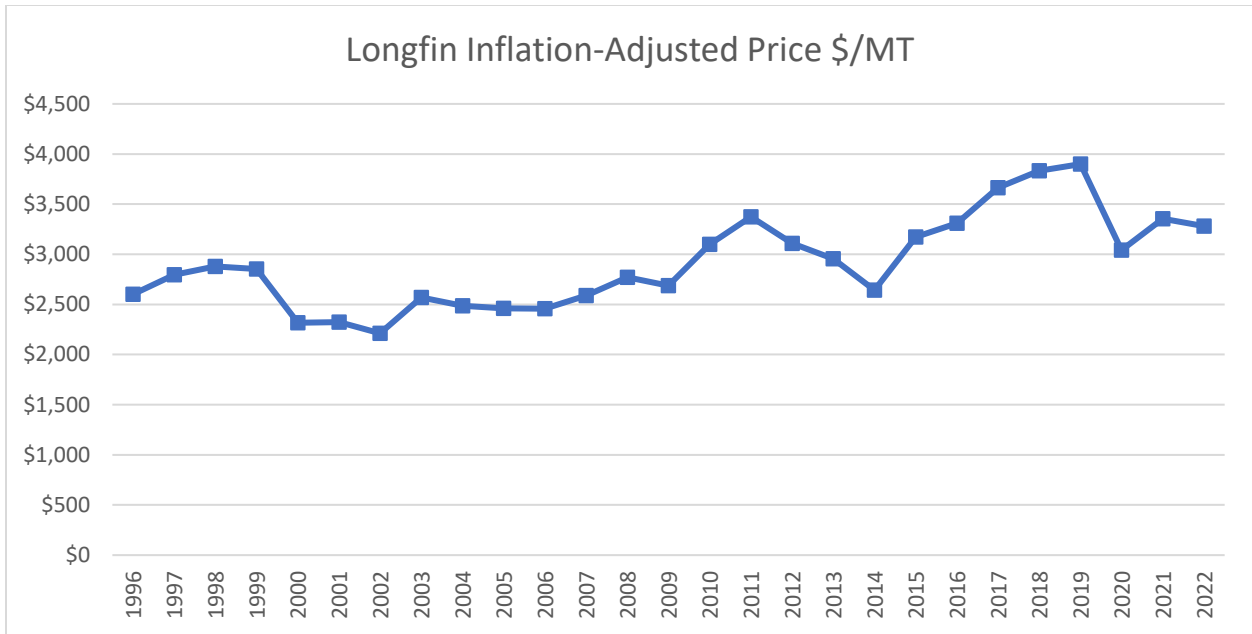




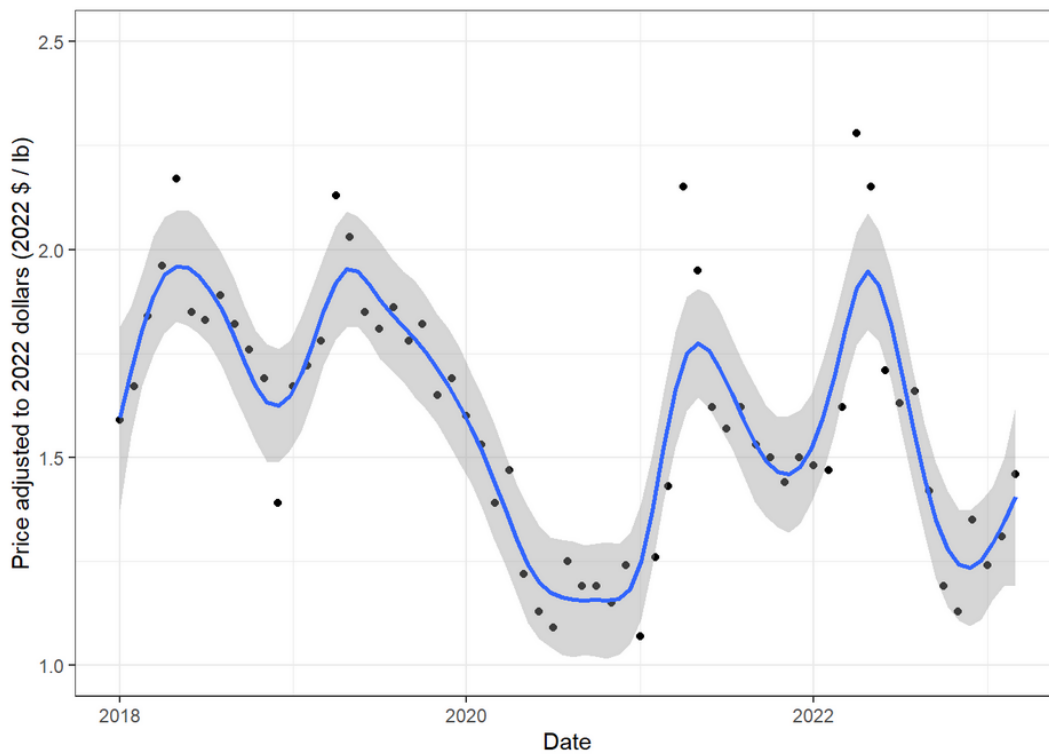
**Figure 2.** Landings of longfin, by USA and international fleets, on the Northeast USA continental shelf during 1963-2022 and annual TACs during 1974-2022. In-season quotas were quarterly-based during 2001-2006 and trimester-based during 2000 and 2007-current.



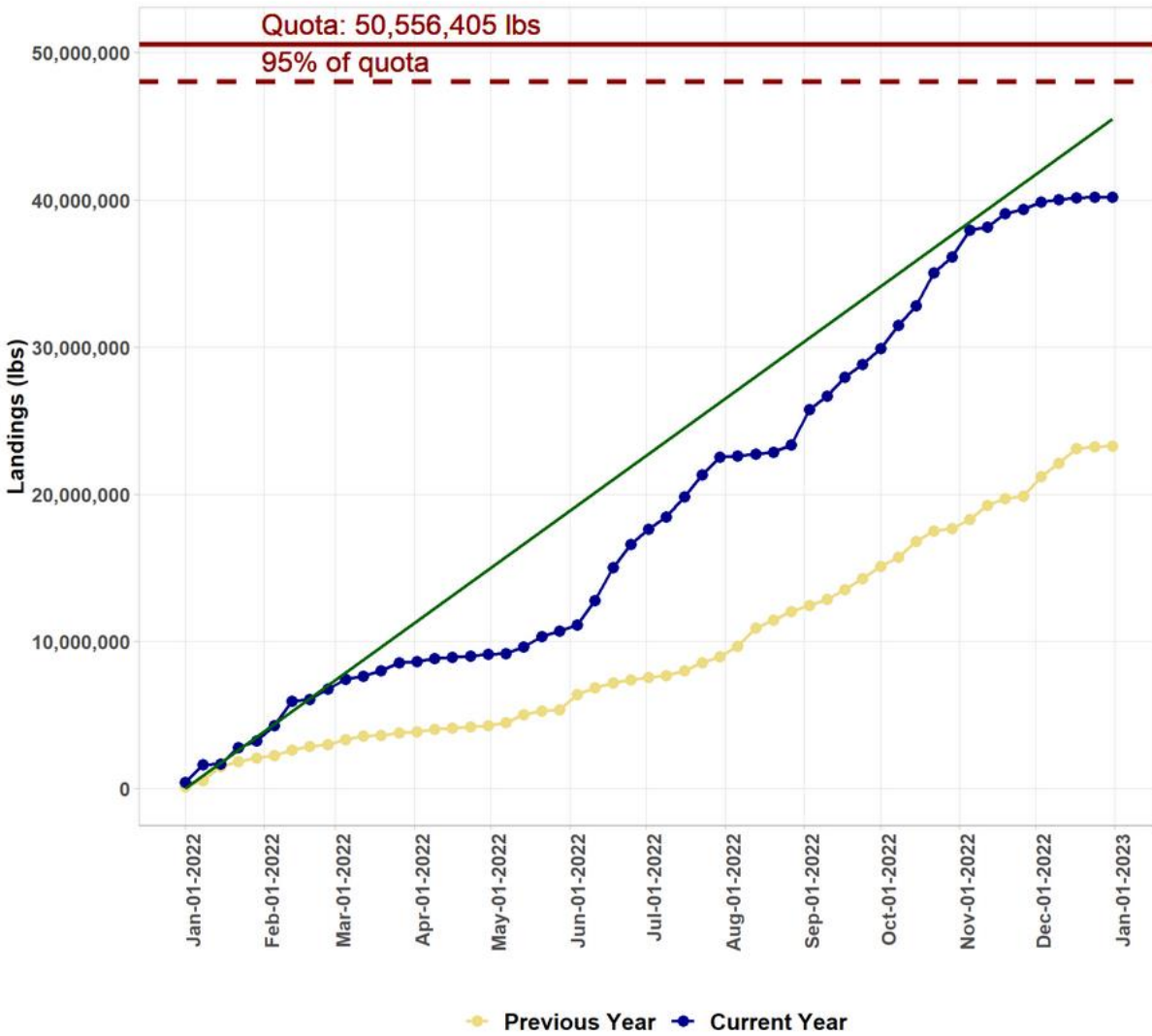
**Figure 3.** U.S. Longfin Landings and Longfin Ex-Vessel Values 1996-2022. Source: NMFS unpublished dealer data.



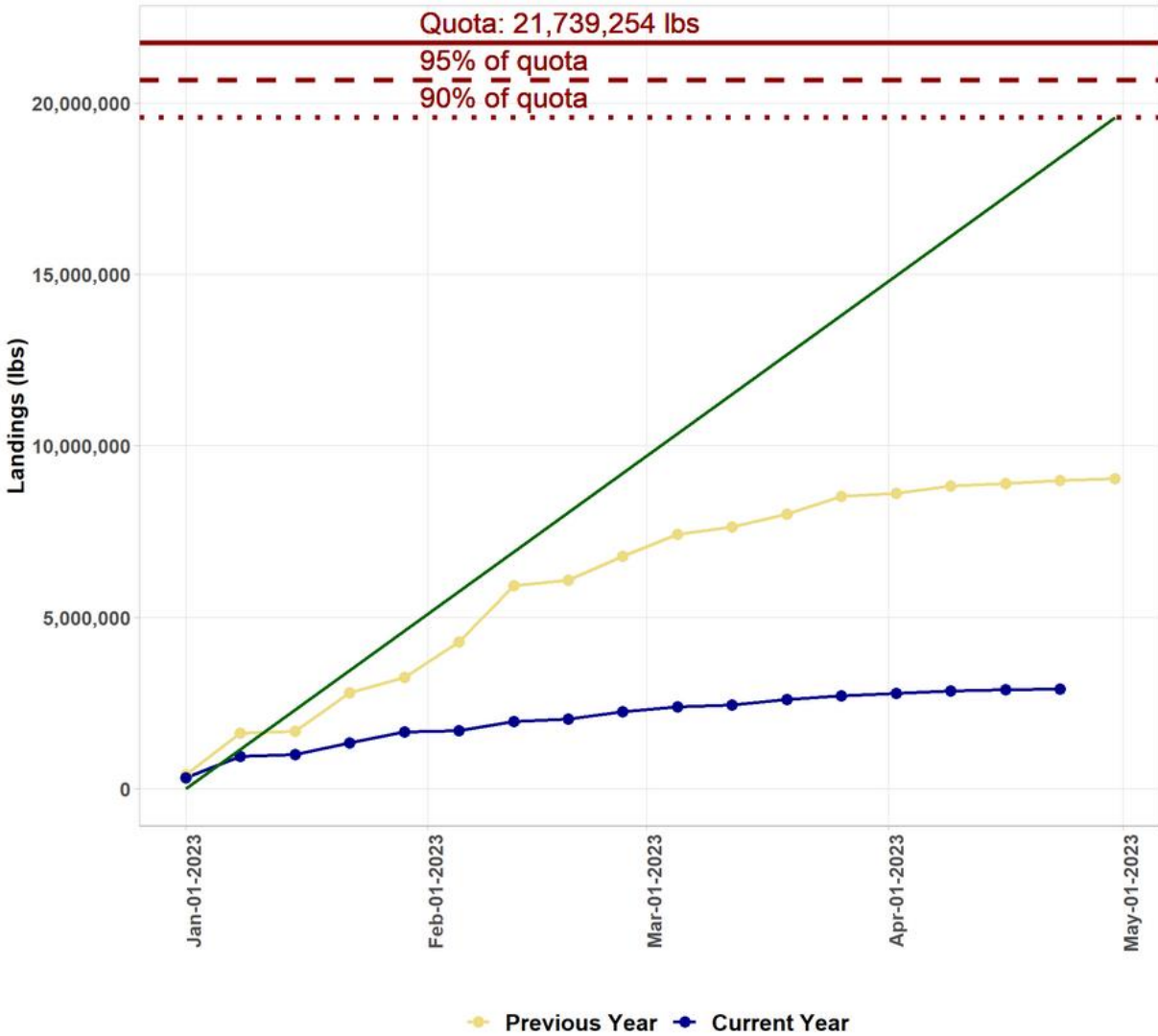
**Figure 4.** Annual Ex-Vessel Longfin Prices 1996-2022 Adjusted to 2022 Dollars Source: NMFS unpublished dealer data.



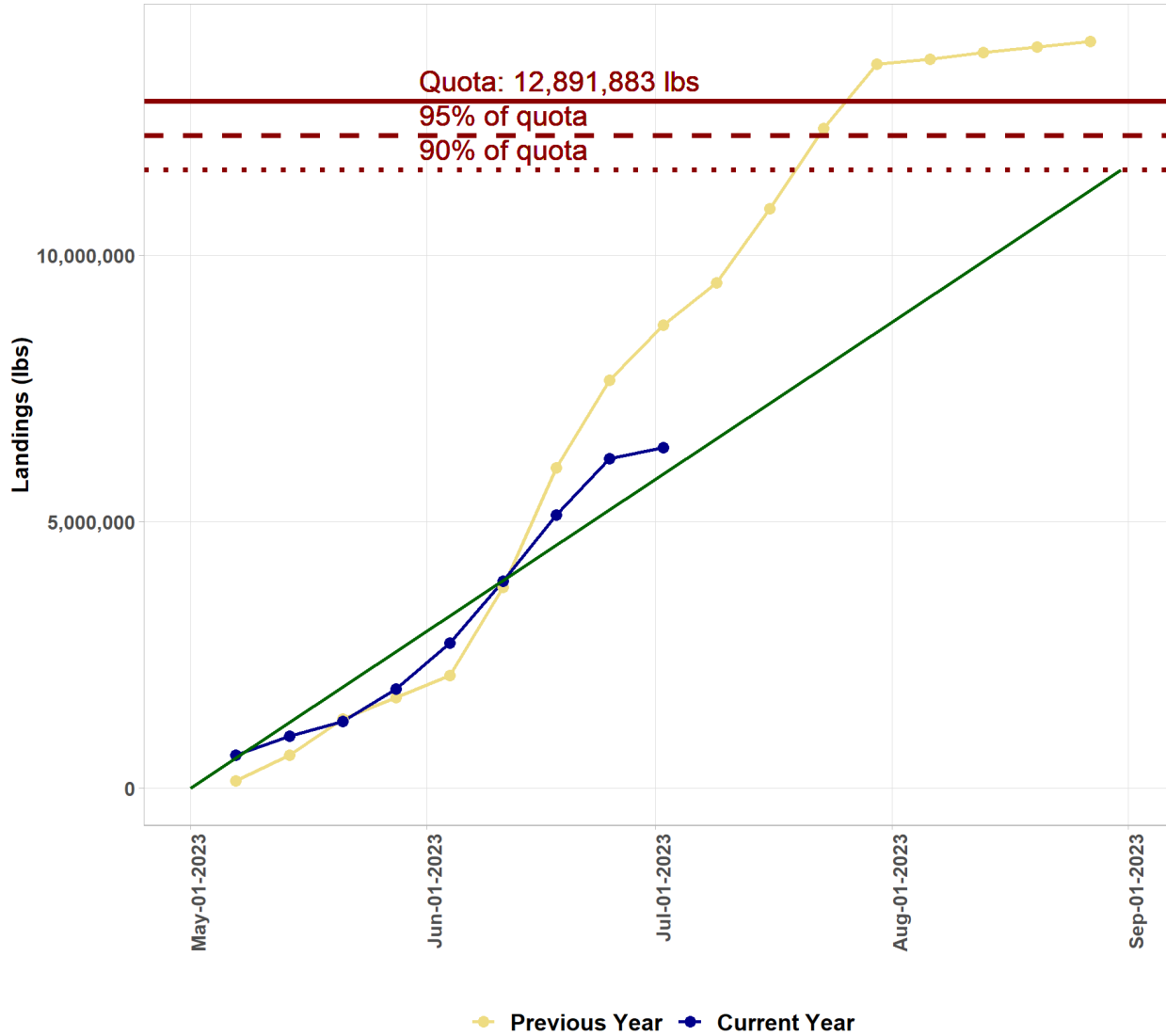
**Figure 5.** Recent monthly Ex-Vessel Longfin Prices through March 2023 (dots are monthly average prices with trend-smoother illustrated). Source: NMFS unpublished dealer data.



**Figure 6.** U.S. Preliminary Weekly Longfin landings; 2022 in blue, 2021 in yellow-orange. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>.



**Figure 7.** U.S. Preliminary Weekly Trimester 1 Longfin landings; 2023 Trimester 1 in blue, 2022 Trimester 1 in yellow-orange. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>.



**Figure 8.** U.S. Preliminary Weekly Trimester 2 Longfin landings; 2023 Trimester 2 in blue, 2022 Trimester 2 in yellow-orange. Through July 6, 2023. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>.

**Table 1.** Commercial Longfin landings (live wt) by state in 2022. Source: NMFS unpublished dealer data.

State	Metric Tons
RI	11,787
NJ	2,258
NY	2,059
MA	1,680
CT	456
Other	165
Total	18,406

**Table 2.** Commercial longfin landings by statistical area in 2021 and 2022. Source: NMFS unpublished VTR data.

2021		2022	
Stat Area	Metric Tons	Stat Area	Metric Tons
537	2,267	537	4,516
613	2,115	613	2,862
616	1,574	616	2,481
622	1,216	622	1,821
626	472	626	1,609
539	408	631/632	978
526	340	538	590
538	264	539	465
611	254	526	388
525	230	611	306
612	152	623	305
167	124	612	217
Other	725	525	176
Total	10,141	562	143
		Other	744
		Total	17,601

Note: VTR expected to be lower than dealer database due to state landings.

### *Non-Target Catches and Discards*

Environmental Assessments for longfin specifications developed by staff include tables of incidental catches with a directed fishery definition of at least 40% of retained catch being longfin squid. Since the Standardized Bycatch Reporting Methodology focuses on discards of managed stocks rather than discards in managed fisheries, staff analyses of discards vary fishery by fishery depending on data availability and historical practices. Staff updated previous analyses with 2021-2022 data – 2020 data was severely impacted by Covid-19. 2021-2022 coverage improved but still only averaged 153 observed longfin squid trips versus the 394 observed annually 2017-2019.

Using discard ratio data from these observed hauls and 2021-2022 average longfin landings (14,624 MT), Table 3 below approximates annual catch/discards in the directed longfin squid fishery from 2021-2022, for species with extrapolated annual catch of at least 10,000 pounds. The method used for the estimates in the table is a custom staff analysis, and is best considered as a relative indicator of species that may be affected by the fishery rather than precise amounts. On the trips identified in this analysis, the 2021-2022 overall discard rate (raw observer data) was 34% (similar to previous analyses).

The observer program creates individual records for some species of interest, mostly larger pelagics and/or less common sharks/rays, as well as tagged fish. Non-expanded counts of these individual fish records from the same trips are provided in Table 4 below.

The longfin squid fishery is also subject to a butterfish discard cap, which has not affected the longfin squid fishery in recent years – weekly monitoring reports are available at <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>.

Table 3. Longfin Target/Non-Target Catches

NE Fisheries Science Center Common Name	Pounds Observed Caught	Pounds Observed Discarded	Of all discards observed, percent that comes from given species	Percent of given species that was discarded	Pounds of given species caught per mt longfin Kept	Pounds of given species discarded per mt longfin Kept	Rough Annual Catch (pounds) based on 2-year (2021-2022) average of longfin landings (14,624 mt)	Rough Annual Discards (pounds) based on 3-year (2021-2022) average of longfin landings (14,624 mt)
SQUID, ATL LONG-FIN	3,611,912	112,343	6%	3%	2,275	71	33,275,343	1,034,980
BUTTERFISH	608,147	579,258	29%	95%	383	365	5,602,659	5,336,512
SCUP	196,035	164,263	8%	84%	123	103	1,806,008	1,513,303
SQUID, SHORT-FIN	193,786	128,182	6%	66%	122	81	1,785,284	1,180,897
SEA ROBIN, NORTHERN	154,652	154,652	8%	100%	97	97	1,424,757	1,424,757
HAKE, SILVER (WHITING)	105,192	62,946	3%	60%	66	40	969,096	579,902
SKATE, LITTLE	102,443	100,907	5%	99%	65	64	943,777	929,625
HAKE, SPOTTED	94,096	93,250	5%	99%	59	59	866,877	859,077
DOGFISH, SMOOTH	64,557	56,898	3%	88%	41	36	594,741	524,183
SKATE, WINTER (BIG)	62,081	57,322	3%	92%	39	36	571,928	528,091
DOGFISH, SPINY	61,795	61,735	3%	100%	39	39	569,296	568,743
FLOUNDER, SUMMER	54,327	25,611	1%	47%	34	16	500,495	235,949
SEA BASS, BLACK	46,526	36,259	2%	78%	29	23	428,630	334,039
HAKE, RED (LING)	45,971	43,986	2%	96%	29	28	423,517	405,228
SCALLOP, SEA	30,049	26,851	1%	89%	19	17	276,833	247,366
BASS, STRIPED	29,741	28,621	1%	96%	19	18	273,993	263,679
SQUID, NK	26,228	23,625	1%	90%	17	15	241,630	217,648
BLUEFISH	20,094	1,887	0%	9%	13	1	185,121	17,387
SKATE, NK	18,225	16,270	1%	89%	11	10	167,902	149,885
SEA ROBIN, STRIPED	14,567	14,413	1%	99%	9	9	134,198	132,778
SEAWEED, NK	14,098	14,098	1%	100%	9	9	129,878	129,878
MACKEREL, ATLANTIC	13,300	9,409	0%	71%	8	6	122,526	86,684
DORY, BUCKLER (JOHN)	13,251	5,900	0%	45%	8	4	122,081	54,353
FLOUNDER, FOURSPOT	12,893	12,893	1%	100%	8	8	118,779	118,779
MONKFISH (GOOSEFISH)	12,789	6,931	0%	54%	8	4	117,824	63,849
SKATE, CLEARNOSE	10,396	10,331	1%	99%	7	7	95,777	95,172
SKATE, LITTLE/WINTER, NK	9,247	9,226	0%	100%	6	6	85,192	84,999
FLOUNDER, WINTER	8,905	8,751	0%	98%	6	6	82,036	80,623
SKATE, BARNDOR	8,546	8,546	0%	100%	5	5	78,731	78,731
MENHADEN, ATLANTIC	7,400	7,120	0%	96%	5	4	68,176	65,594
CHUB MACKEREL	6,710	6,677	0%	100%	4	4	61,814	61,515



Table 3. Longfin Target/Non-Target Catches (continued)

NE Fisheries Science Center Common Name	Pounds Observed Caught	Pounds Observed Discarded	Of all discards observed, percent that comes from given species	Percent of given species that was discarded	Pounds of given species caught per mt longfin Kept	Pounds of given species discarded per mt longfin Kept	Rough Annual Catch (pounds) based on 2-year (2021-2022) average of longfin landings (14,624 mt)	Rough Annual Discards (pounds) based on 3-year (2021-2022) average of longfin landings (14,624 mt)
HAKE, MIX SIL/OFF	5,656	4,667	0%	83%	4	3	52,105	42,999
STARFISH, SEASTAR, NK	5,241	5,241	0%	100%	3	3	48,285	48,285
LONG-FIN EGGS	4,957	4,957	0%	100%	3	3	45,664	45,664
DOGFISH, CHAIN	4,503	4,503	0%	100%	3	3	41,482	41,482
BOARFISH, DEEPBODY	4,338	4,338	0%	100%	3	3	39,962	39,962
SEA ROBIN, NK	4,310	4,310	0%	100%	3	3	39,702	39,702
CRAB, JONAH	4,150	4,118	0%	99%	3	3	38,233	37,941
CRAB, LADY	3,928	3,928	0%	100%	2	2	36,186	36,186
WEAKFISH	3,907	3,510	0%	90%	2	2	35,998	32,334
CRAB, HORSESHOE	3,654	3,617	0%	99%	2	2	33,659	33,323
CRAB, ROCK	3,115	3,115	0%	100%	2	2	28,701	28,701
HAKE, NK	3,112	2,543	0%	82%	2	2	28,666	23,431
FISH, NK	2,813	2,630	0%	94%	2	2	25,915	24,231
BEARDFISH	2,568	2,568	0%	100%	2	2	23,661	23,661
SKATE, ROSETTE	2,368	2,368	0%	100%	1	1	21,817	21,817
KINGFISH, NORTHERN	2,235	1,308	0%	59%	1	1	20,587	12,047
RAY, BULLNOSE	2,157	2,157	0%	100%	1	1	19,868	19,868
CRAB, SPIDER, NK	2,053	2,053	0%	100%	1	1	18,912	18,912
SHAD, AMERICAN	1,797	1,786	0%	99%	1	1	16,559	16,455
TAUTOG (BLACKFISH)	1,758	1,619	0%	92%	1	1	16,199	14,915
LOBSTER, AMERICAN	1,744	1,301	0%	75%	1	1	16,068	11,986
HAKE, MIX RED/WHITE/SPOTD/SOUTH	1,711	1,573	0%	92%	1	1	15,760	14,489
TILEFISH, GOLDEN	1,354	432	0%	32%	1	0	12,474	3,984
SCAD, ROUGH	1,320	1,320	0%	100%	1	1	12,161	12,161
PUFFER, NORTHERN	1,280	1,264	0%	99%	1	1	11,791	11,647
ALEWIFE	1,271	1,271	0%	100%	1	1	11,709	11,709
EEL, CONGER	1,254	607	0%	48%	1	0	11,553	5,596
DOGFISH, NK	1,233	1,233	0%	100%	1	1	11,359	11,359
SEA ROBIN, ARMORED	1,223	1,223	0%	100%	1	1	11,267	11,267
TILEFISH, BLUELINE	1,093	407	0%	37%	1	0	10,071	3,751

Table 4. Counts (not expanded) in Individual Animal Records on all observed “longfin” trips, 2021-2022

COMNAME	count
SHARK, SANDBAR (BROWN)	132
BONITO, ATLANTIC	130
STINGRAY, ROUGHTAIL	118
SHARK, ATL ANGEL	94
RAY, TORPEDO	66
MOLA, OCEAN SUNFISH	62
SWORDFISH	41
SHARK, CARCHARHINID,N	37
TUNA, NK	34
SHARK, TIGER	29
SHARK, NK	28
SHARK, HAMMERHEAD, SC	23
STURGEON, ATLANTIC	19
SHARK, THRESHER	15
STINGRAY, NK	13
SHARK, BASKING	12
TUNA, LITTLE (FALSE A	12
AMBERJACK, NK	11
SHARK, BLUE (BLUE DOG	10
SHARK, WHITE	9
RAY, BUTTERFLY, SPINY	8
STINGRAY, BLUNTNOSE	8
BARRACUDA, NK	6
MOLA, NK	6
TUNA, YELLOWFIN	5
COBIA	4
GROUPE, NK	4
SHARK, SPINNER	4
MACKEREL, FRIGATE	3
SHARK, GREENLAND	3
SHARK, PORBEAGLE (MAC	3
SHARK, SILKY	3
SHARK, BLACK TIP	2
SHARK, PELAGIC	2
SHARK, SAND TIGER	2
TUNA, BIG EYE	2
TUNA, BLUEFIN	2
DOLPHINFISH (MAHI MAH	1
RAY, BUTTERFLY, NK	1
RAY, NK	1
SHARK, CARCHARHINID,	1
SHARK, HAMMERHEAD, NK	1
SHARK, HAMMERHEAD,NK	1
STURGEON, NK	1
TUNA, SKIPJACK	1

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