



Spiny Dogfish Fishery Information Document

July 2022

This Fishery Information Document provides an overview of the biology, stock condition, management system, and fishery performance for spiny dogfish (*Squalus acanthias*) with an emphasis on recent data. Data sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and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. Due to various database issues, 2022 landings data are less certain than would be the case in most years. For more resources, including previous Fishery Information Documents, please visit <http://www.mafmc.org/dogfish>.

Key Facts

- The 2021 fishing year continued the recent declining landings trend. 2021 fishing year landings were about 10.1 million pounds; 2020 fishing year landings were about 12.8 million pounds.
- The current 2022 fishing year quota is 29.6 million pounds (same as previous year).
- The Spiny Dogfish Research Track Assessment Peer Review has been delayed until later in the year, so the current plan is to set 1-year (2023) specifications.
- Updates of the spring trawl survey results and pup index through 2022 are included. The 2022 data point for female spawners is the lowest in the time series.
- Staff has concerns about this stock, including whether the ongoing assessment may find the stock was previously estimated to be overly productive, and whether the stock may be overfished.

Basic Biology

Spiny dogfish is the most abundant shark in the western north Atlantic and ranges from Labrador to Florida, being most abundant from Nova Scotia to Cape Hatteras, North Carolina. Migrations are believed to primarily occur in response to changes in water temperature. Spiny dogfish have a long life, late maturation, a long gestation period, and relatively low fecundity, making them generally vulnerable to depletion. Fish, squid, and ctenophores dominate the stomach contents of spiny dogfish collected during the Northeast Fisheries Science Center (NEFSC) bottom trawl surveys, but spiny dogfish are opportunistic and have been found to consume a wide variety of prey. More detailed life history information can be found in the essential fish habitat (EFH) source document for spiny dogfish at: <https://www.fisheries.noaa.gov/region/new-england-mid-atlantic#science>.¹

Status of the Stock

Based on the current biomass reference point and an assessment update considering data through spring of 2018² (available at <http://www.mafmc.org/ssc-meetings/2018/sept-11>), the spiny dogfish stock is not overfished or experiencing overfishing. The 2018 biomass was 67% of the target. Fishing mortality in 2017, the most recent year available, was 83% of the overfishing threshold. A research track assessment has begun and is scheduled for review in late 2022. NEFSC staff provided updated NEFSC spring trawl data (the chief determinant of biomass in the assessment) through 2022. See Figures 1/2 (female spawning stock biomass/pup indices). The two vertical blue lines align the shared 1982-2022 years in the two figures below.

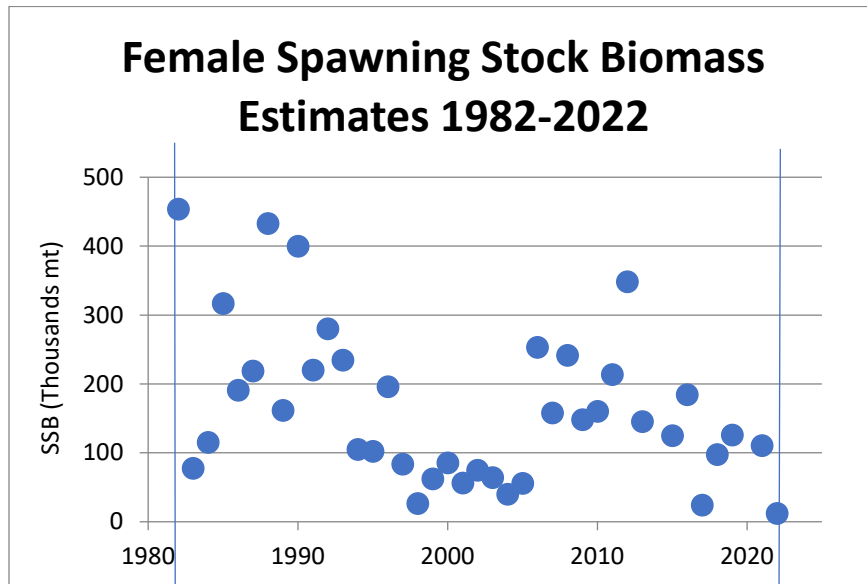


Figure 1. Female Spawning Stock Biomass Estimates 1982-2022, NEFSC Spring Trawl

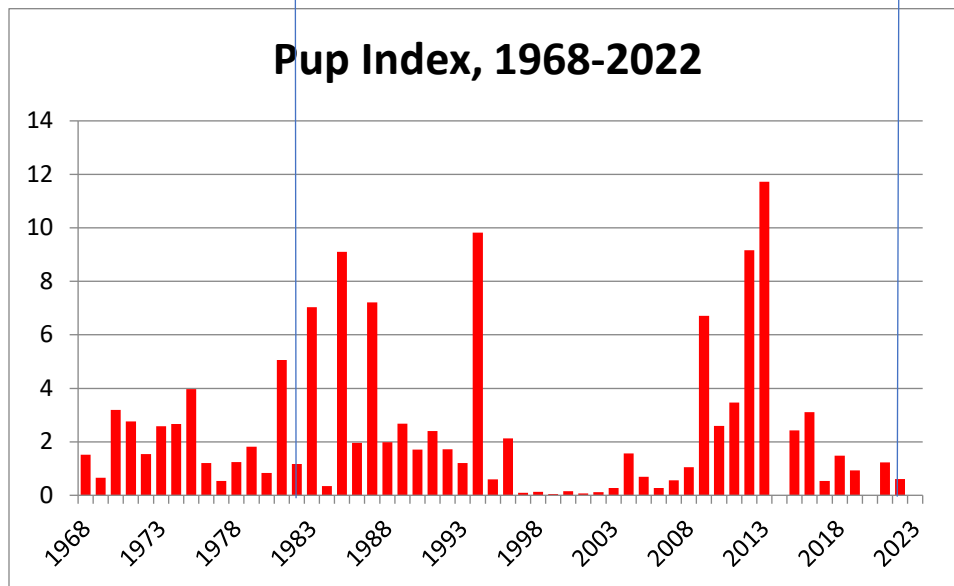


Figure 2. NEFSC Spring Trawl Pup Index 1968-2022

Management System and Fishery Performance

Management

The Council established management of spiny dogfish in 2000 and the management unit includes all federal East Coast waters. Quotas are set based on the current science and Council's risk policy to avoid overfishing and rebuild stocks if/when necessary.

Access to the fishery is not limited, but a federal permit must be obtained to fish in federal waters and there are various permit conditions (e.g. trip limit and reporting). There is a federal trip limit of 7,500 pounds (increased from 6,000 for the 2022 fishing year). Some states mirror the federal trip limit, but states can set their own trip limits. The annual quota has been allocated to state shares through the Atlantic States Marine Fisheries Commission (<http://www.asmfc.org/species/spiny-dogfish>).

Spiny Dogfish specifications are generally set for multiple years, but with the research track assessment delayed, the plan is to just set 2023 fishing year specifications for now. Once management track assessment results are available in 2023, those results will be utilized as soon as practicable.

Commercial Fishery (Recreational catch comprises a relatively low portion of fishing mortality)

Figure 3 and Table 1 illustrate spiny dogfish landings for the 2000-2021 fishing years relative to the quotas in those years. The Advisory Panel has previously noted that the fishery is subject to strong market constraints given weak demand.

Figure 4 provides inflation-adjusted spiny dogfish ex-vessel prices in "real" 2021 dollars.

Figure 5 illustrates preliminary landings from the 2022 and 2021 fishing years relative to the current quota. The last blue (2022) data point is typically the most incomplete.

Tables 2-4 provide information on landings in the 2019-2021 fishing years by state, month, and gear type.

Table 5 provides information on the numbers of participating vessels that have at least one federal permit. State-only vessels are not included, but the table should still illustrate overall trends in participation.

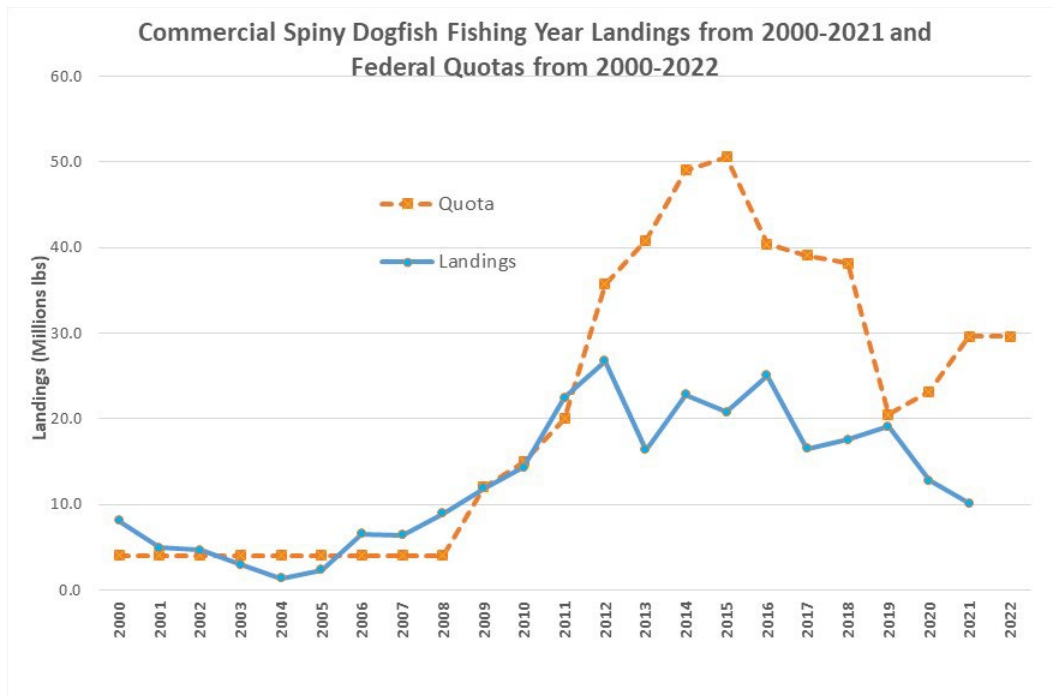


Figure 3. Annual spiny dogfish landings and federal quotas since 2000 Source: NMFS unpublished dealer data.³

Table 1. Annual spiny dogfish landings and federal quotas since 2000 Source: NMFS unpublished dealer data.³

Fishing year	Fed Quota (M lb)	Landings (M lb)
2000	4.0	8.1
2001	4.0	4.9
2002	4.0	4.7
2003	4.0	3.0
2004	4.0	1.3
2005	4.0	2.3
2006	4.0	6.6
2007	4.0	6.4
2008	4.0	8.9
2009	12.0	11.9
2010	15.0	14.4
2011	20.0	22.5
2012	35.7	26.8
2013	40.8	16.4
2014	49.0	22.8
2015	50.6	20.8
2016	40.4	25.0
2017	39.1	16.5
2018	38.2	17.6
2019	20.5	19.1
2020	23.2	12.8
2021	29.6	10.1
2022	29.6	

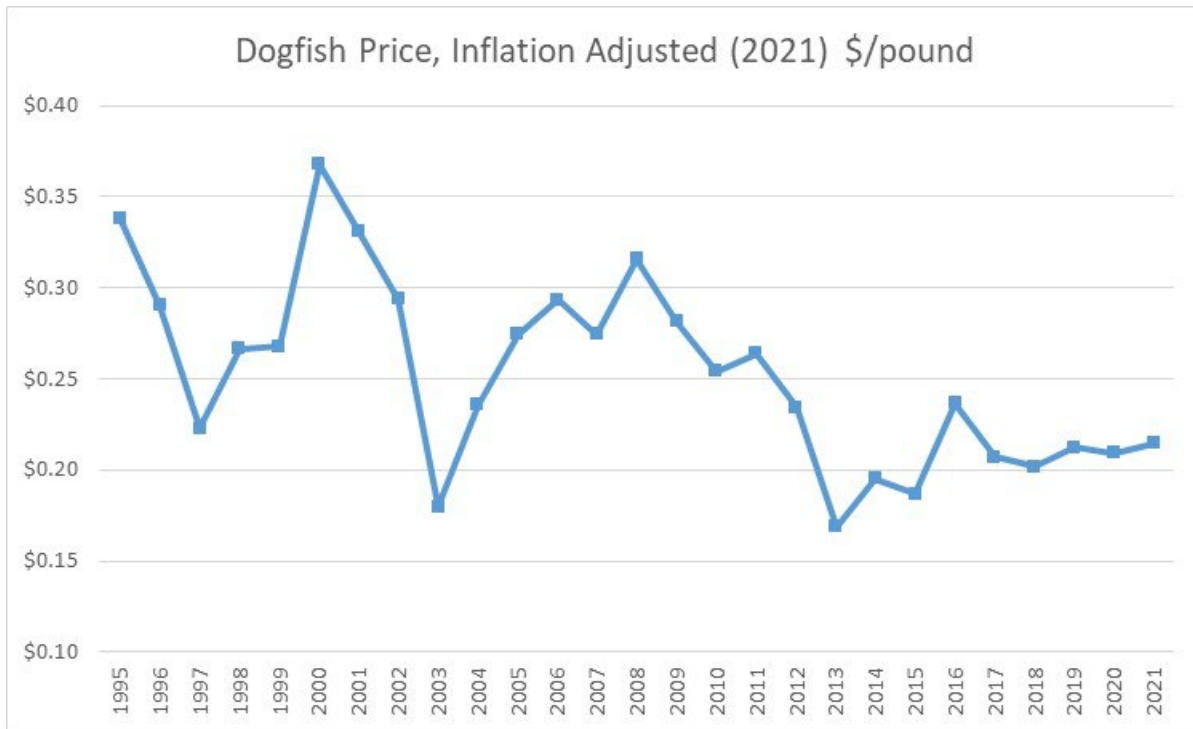


Figure 4. Price of spiny dogfish (\$/live pound) (adjusted to 2021 “real” dollars using the GDP deflator, 1995-2021 fishing years. Given the difference between fishing year and the calendar year used for inflation adjusting, adjusted prices are approximate. Source: NMFS unpublished dealer data.³

THIS SPACE LEFT BLANK

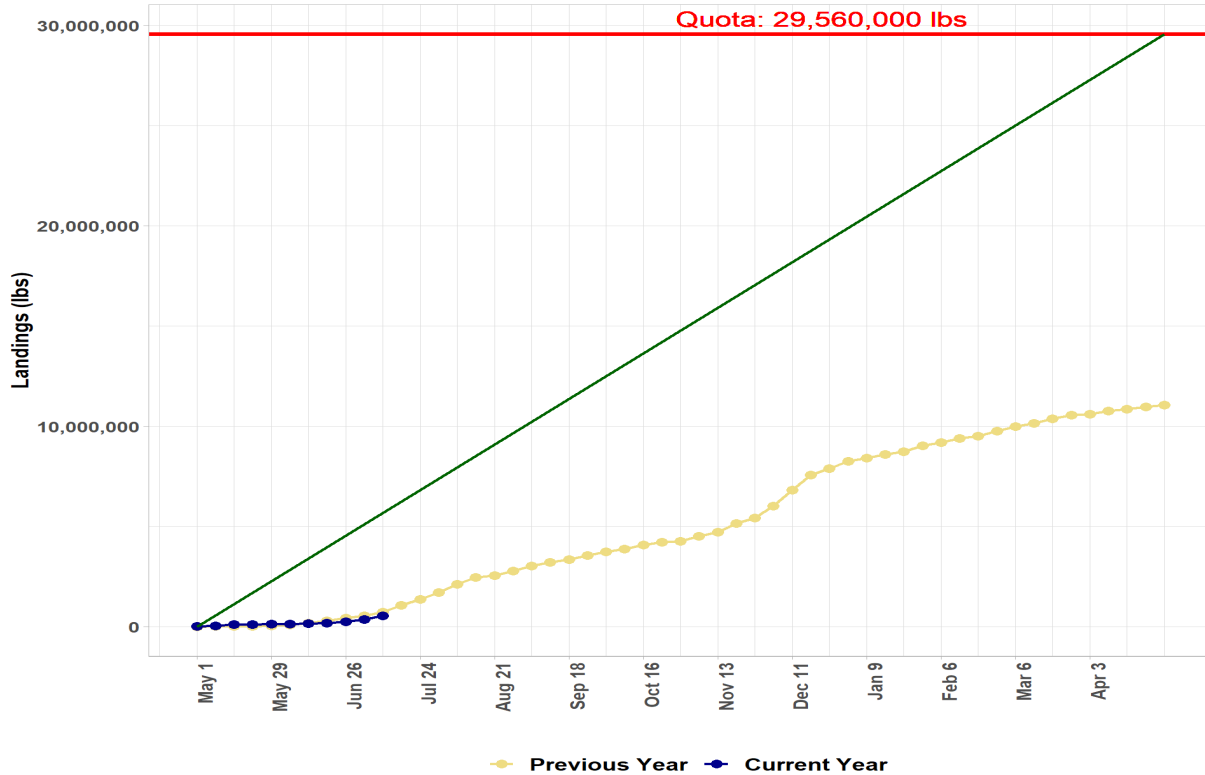


Figure 5. Preliminary Spiny dogfish landings; the 2022 fishing year (Starts May 1) is in blue through July 22, 2022, and the 2021 fishing year is in yellow-orange. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region> .³

Table 2. Commercial Spiny Dogfish landings (live weight – millions of pounds) by state for 2019-2021 fishing years. Source: NMFS unpublished dealer data.³

fishyear	MA	VA	NJ	Other (NC,NH, MD, RI,CT, NY)	Total
2019	6.6	7.4	1.9	3.1	19.1
2020	6.6	2.9	2.0	1.4	12.8
2021	3.8	3.5	1.6	1.2	10.1

Table 3. Commercial Spiny Dogfish landings (live weight – millions of pounds) by months for 2019-2021 fishing years. Source: NMFS unpublished dealer data.³

fishyear	May-June	July-Aug	Sept-Oct	Nov-Dec	Jan-Feb	Mar-April	Total
2019	0.3	5.0	2.6	4.1	4.2	2.8	19.1
2020	0.3	4.6	2.4	3.0	1.6	0.7	12.8
2021	0.5	2.4	1.3	3.0	1.6	1.3	10.1

Table 4. Commercial Spiny Dogfish landings (live weight – millions of pounds) by gear for 2019-2021 fishing years. Source: NMFS unpublished dealer data.³

fishyear	GILL_NET_SINK_OTHER	UNKNOWN	LOGLINE_BOTTOM	GILL_NET_SET_STAKE_SEA_BASS	HAND_LINE_OTHER	TRAWL_OTTER_BOTTOM_FISH	Other	Total
2019	12.1	3.0	1.3	1.5	0.5	0.5	0.3	19.1
2020	9.1	1.3	1.8	0.1	0.0	0.4	0.0	12.8
2021	8.7	0.2	0.5	0.1	0.1	0.3	0.2	10.1

Table 5. Participation by fishing year of federally-permitted vessels. State-only vessels are not included. Source: NMFS unpublished dealer data.³

YEAR	Vessels 200,000+	Vessels 100,000 - 199,999	Vessels 50,000 - 99,999	Vessels 10,000 - 49,999	Total with at least 10,000 pounds landings
2000	16	10	8	43	77
2001	4	12	10	33	59
2002	2	14	8	31	55
2003	4	5	3	17	29
2004	0	0	0	42	42
2005	0	0	1	67	68
2006	0	4	11	114	129
2007	1	2	21	72	96
2008	0	5	20	119	144
2009	0	11	42	166	219
2010	0	26	54	124	204
2011	1	48	73	135	257
2012	25	55	56	146	282
2013	10	27	45	87	169
2014	27	38	38	81	184
2015	31	33	36	59	159
2016	52	26	14	45	137
2017	28	27	24	32	111
2018	28	26	20	35	109
2019	29	25	21	29	104
2020	23	27	15	22	87
2021	15	27	11	26	79

References

¹ Stehlik, Linda. 2007. Essential Fish Habitat source document: Spiny Dogfish, *Squalus acanthias*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-203; 52 p.

² NEFSC 2018. Spiny Dogfish Assessment Update. Available at <http://www.mafmc.org/ssc-meetings/2018/sept-11>.

³ Unpublished NMFS dealer and/or Vessel Trip Report data.

END OF DOCUMENT