Spiny Dogfish Advisory Panel (AP) Informational Document - August 2015
Prepared by Jason Didden, Council Staff

****Note - Data Sources for the following are generally from unpublished standard NMFS databases unless noted…everything should be considered preliminary at this point.**

Basic Biology

Spiny dogfish (*Squalus acanthias*) is a coastal shark with populations on the continental shelves of northern and southern temperate zones throughout the world. It is the most abundant shark in the western north Atlantic and ranges from Labrador to Florida, but is most abundant from Nova Scotia to Cape Hatteras, North Carolina. Its major migrations on the northwest Atlantic shelf are north and south, but it also migrates inshore and offshore seasonally in response to changes in water temperature. Spiny dogfish have a long life, late maturation, a long gestation period, and low fecundity, making them generally vulnerable to depletion, as they cannot quickly rebuild their numbers. Fish, squid, and ctenophores dominate the stomach contents of spiny dogfish collected during the Northeast Fisheries Science Center (NEFSC) bottom trawl surveys but they 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: http://www.nefsc.noaa.gov/publications/tm/tm203/tm203.pdf.

Status of the Stock

Reports on "Stock Status," including Stock Assessment Workshop (SAW) reports, Stock Assessment Review Committee (SARC) panelist reports and peer-review panelist reports are available online at the NEFSC website: http://www.nefsc.noaa.gov/nefsc/saw/. The NEFSC is currently updating the dogfish stock assessment, but at this point the 2013 assessment update provides the most recent scientific characterization of stock conditions. An assessment update was not done in 2014 because of mechanical issues with the survey vessel in 2014 that led to incomplete sampling. The 2013 assessment update (available at http://www.mafmc.org/ssc-meetings/september-2013) indicated that the spiny dogfish stock was not overfished, and that overfishing was not occurring. In updating the assessment, the NEFSC estimated a 97% probability that the stock is not overfished and a 91% probability that overfishing was not occurring. Female spawning stock biomass and pup indices are provided below. When the 2015 update becomes available it will be forwarded to the AP.

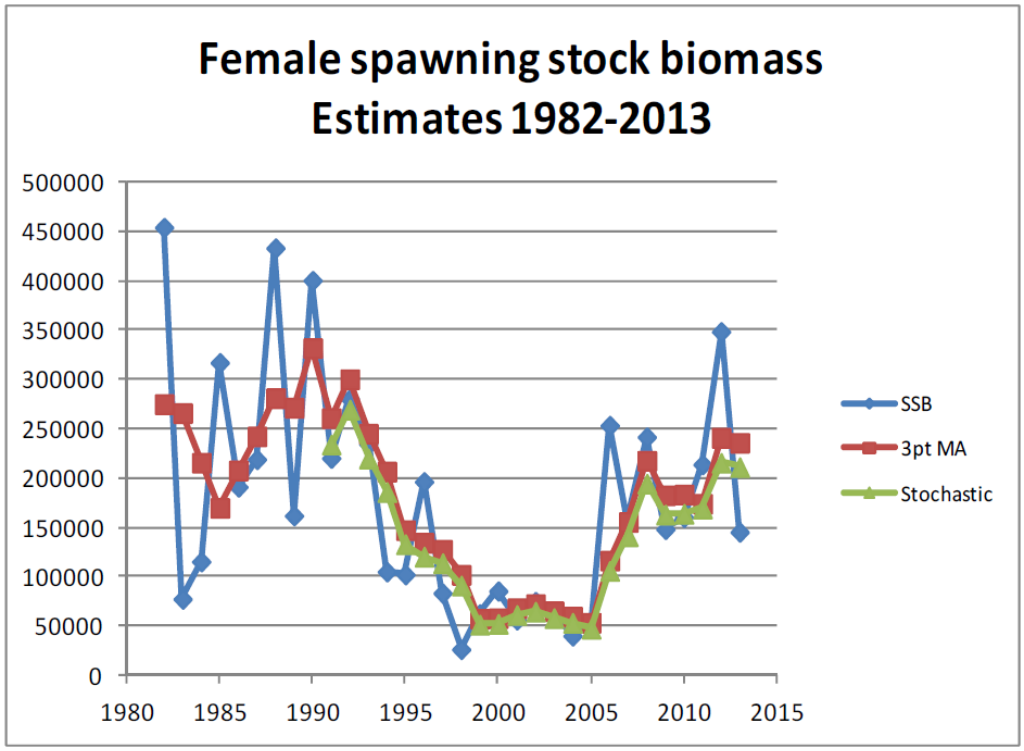

Figure 1. Comparison of alterative swept area estimates of female spawning stock biomass, 1982-2013. Stochastic SSB estimates are available for 1991 to 2013. Year refers to the terminal year in a 3 point moving average.

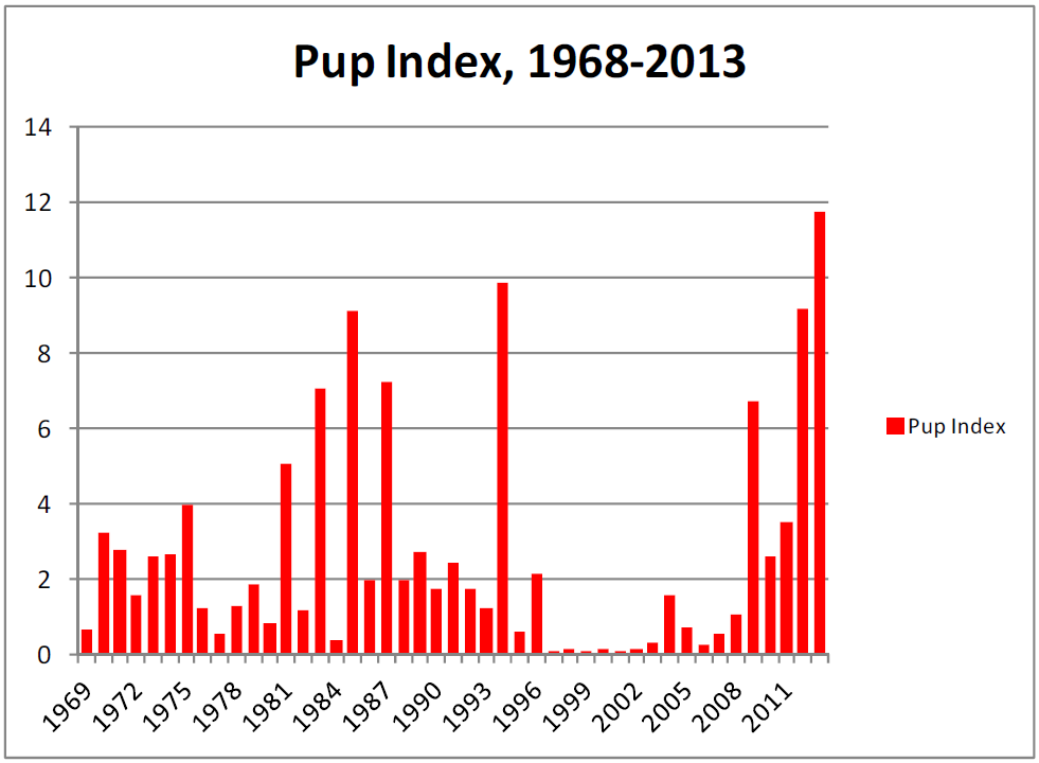

Figure 2. Estimated swept area biomass (mt) of total pups (spiny dogfish<36 cm) captured in the NEFSC spring bottom trawl survey, 1968-2013.

Fishery Performance

At the onset of the domestic commercial fishery in the early 1990's, population biomass for the Northwest Atlantic stock of spiny dogfish was at its highest estimated level (approx. 1.2 billion lb). A large scale unregulated fishery developed and quickly depleted the stock of mature female spiny dogfish such that in 1997 a stock assessment showed that the stock was overfished (NEFSC 1997). The Spiny Dogfish FMP was developed in 1998 and implemented in 2000 in order to halt further depletion of mature female spiny dogfish and allow the stock to recover to a sustainable level. Because the directed commercial fishery concentrated on mature females, rebuilding required elimination of that directed fishery. The rebuilding program was successful and in 2010 NMFS communicated the rebuilt status of the stock to the Councils.

The current (2015) quotas are derived from the recommendations of the Council's Scientific and Statistical Committee (SSC) for Acceptable Biological Catch (ABC), and how various components of fishing mortality are handled by the spiny dogfish fishery management plan, as described in the table below. The trip limit is 5,000 pounds in Federal waters however individual states may set more restrictive possession limits.

Table 1. May 2015 to April 2016 Spiny Dogfish Specifications

2015 Measures	Basis	M lb
OFL		
ABC	*Constant F (0.19528)*	62.413
Canadian Landings	*= ave 2009-2011*	0.143
Domestic ABC	*= ABC - Canadian Landings*	62.270
ACL	*= Domestic ABC*	62.270
Mgmt Uncertainty Buffer	*Ave of quota overages (pct) in 2010-2011*	0.000
ACT	*= Domestic ACL - management uncertainty*	62.270
U.S. Discards	*= ave 2002-2011*	11.605
TAL	*ACT - Discards*	50.664
U.S. Rec Landings	*= ave 2010-2011*	0.053
Comm Quota	*TAL - Rec Landings*	50.611522

OFL = Overfishing Level; ABC = Acceptable Biological Catch; ACL = Annual Catch Limit; ACT = Annual Catch Target; TAL = Total Allowable Landings; Rec = Recreational; Comm = Commercial; M lb = Millions of pounds.

The following pages provide information landings and prices since 2000 (page 4), the progression of landings through the year for the last several years (page 5), landings by state, month, and gear for 2012-2014 (page 6), and vessel activity by several categories of vessels based on landings since 2000 (page 7).

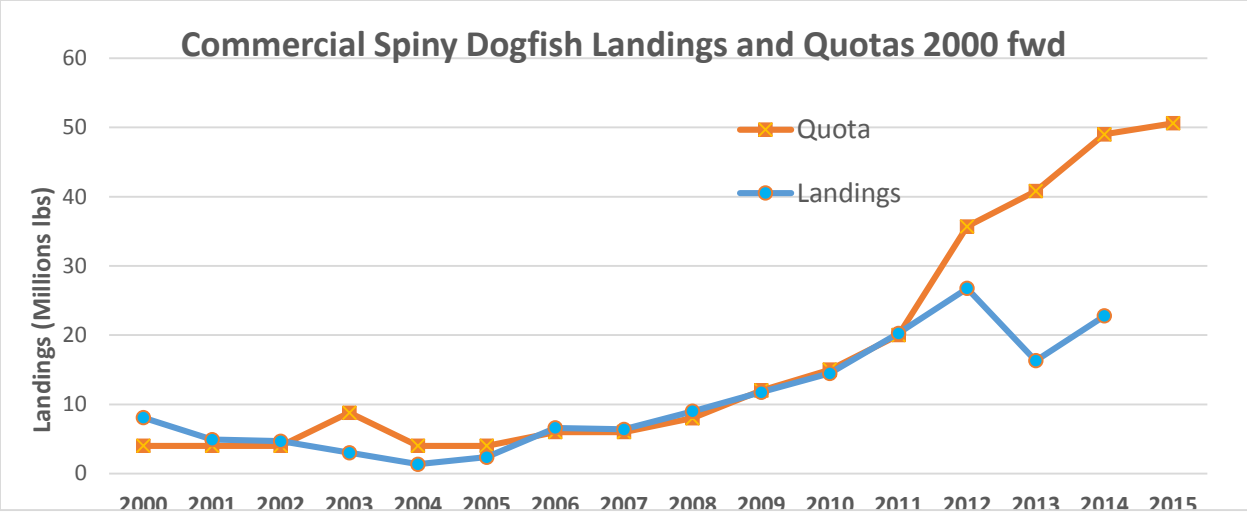

Figure 3. Spiny Dogfish Landings and Quotas 2000-2014. 2014 = May 1, 2014 to April 30, 2015.
Source: Unpublished NMFS dealer reports

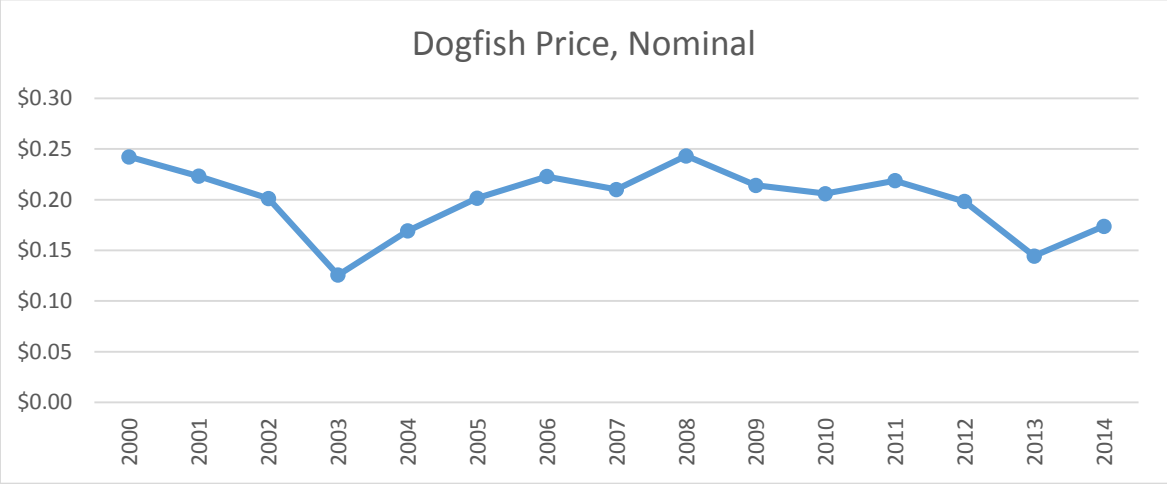

Figure 4. U.S. Spiny Dogfish fishing year ex-vessel prices (Nominal)
Source: Unpublished NMFS dealer reports

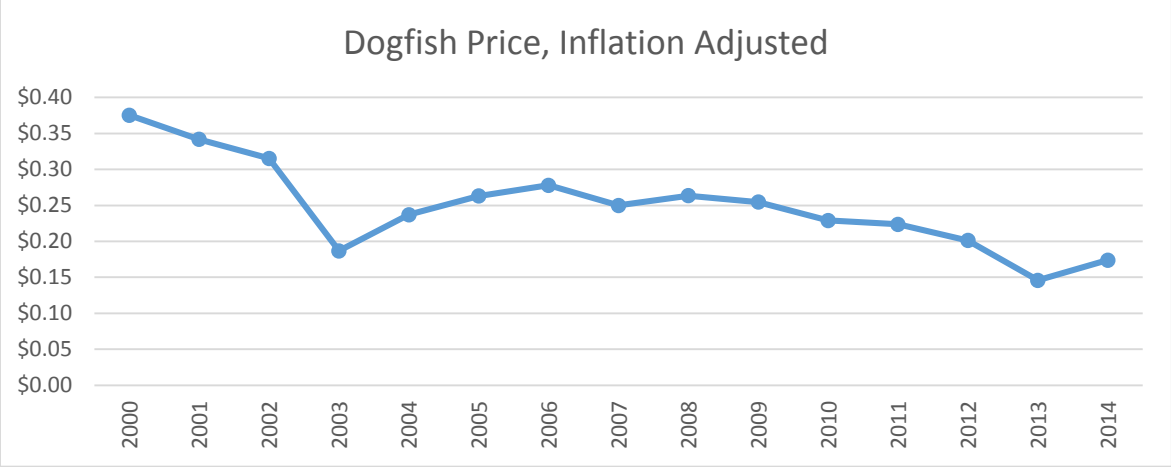

Figure 5. U.S. Spiny Dogfish fishing year ex-vessel prices (Producer Price Index adjusted, 2014 dollars)
Source: Unpublished NMFS dealer reports

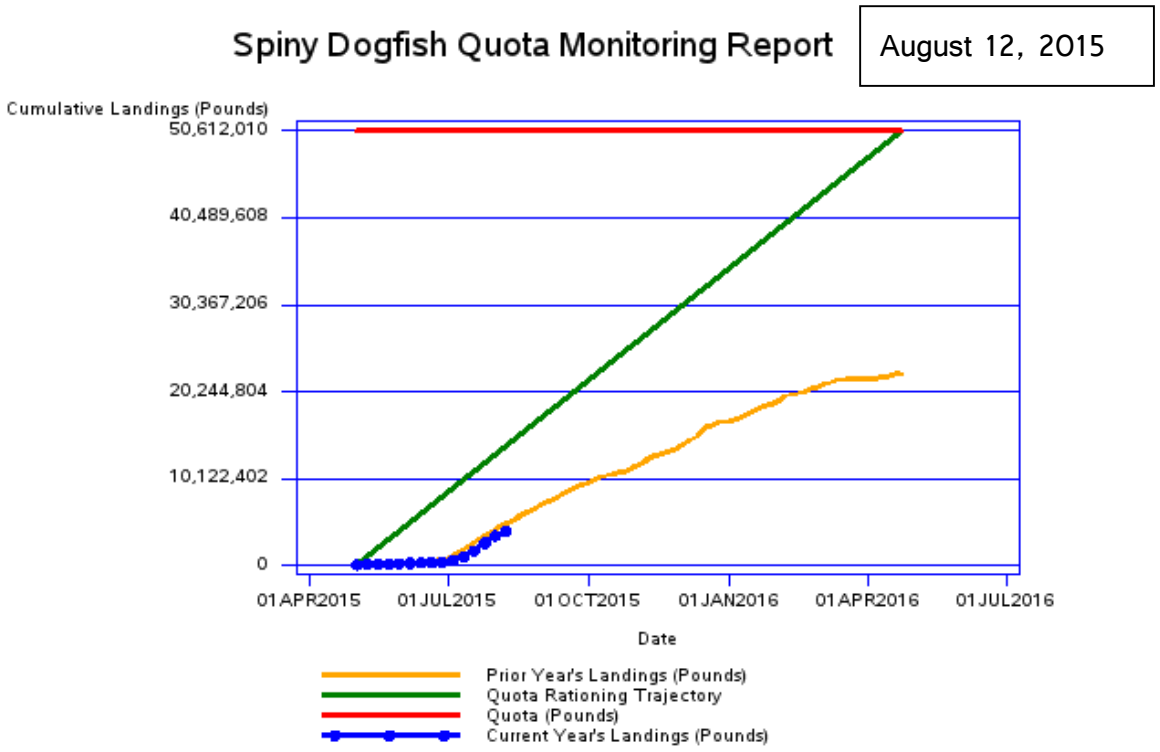

Figure 6. Spiny Dogfish Landings (Blue = 2015-2016 Fishing Year; Orange = 2014-2015 Fishing Year) (Current and Last Year)

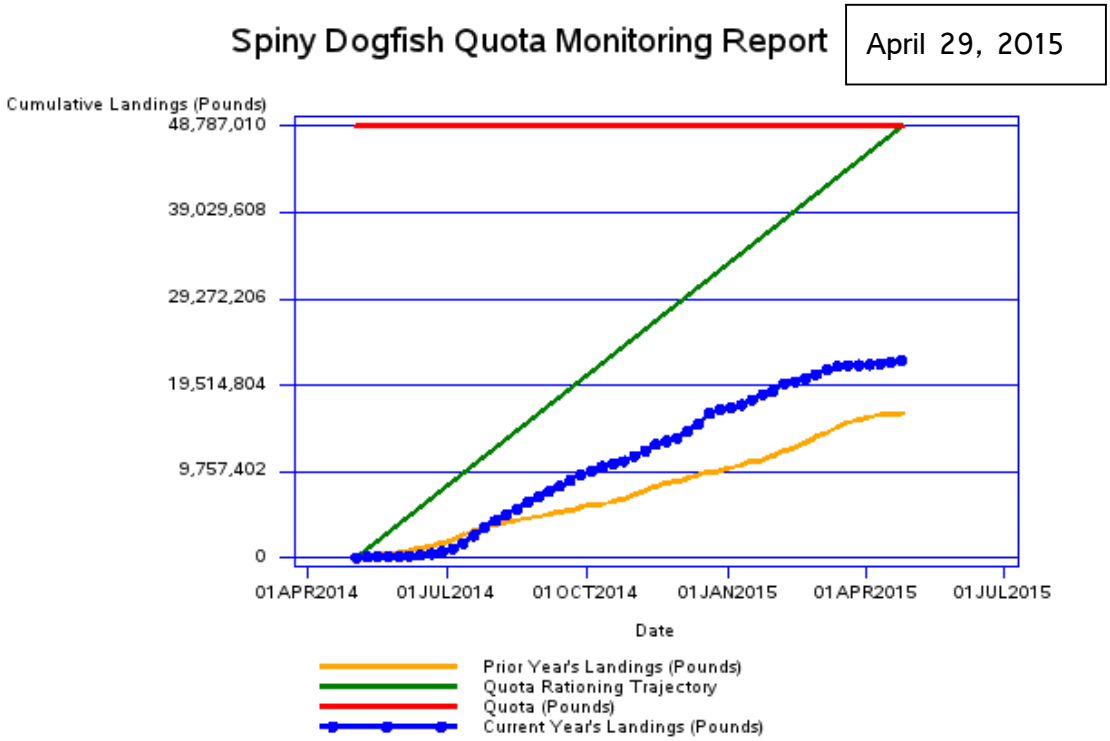

Figure 7. Spiny Dogfish Landings (Blue = 2014-2015 Fishing Year; Orange = 2013-2014 Fishing Year) (Last Year and Year Before)

Table 2. 2012-2014 Calendar Year dogfish landings by state

YEAR	CT	MA	MD	ME	NC	NH	NJ	NY	RI	VA	Other/NA	Total
2012	97,312	13,116,375	1,146,921	226,770	2,177,177	1,811,900	1,531,811	304,486	1,351,344	1,580,651	12,654	23,357,401
2013	21,990	6,216,753	1,121,019	106,610	3,134,810	515,448	1,780,265	82,291	1,000,503	2,157,096	141	16,136,926
2014	21,779	9,436,021	1,049,183	206,933	5,460,146	1,704,651	2,202,747	69,194	694,527	2,553,537	8,857	23,407,575

Source: unpublished NEFSC dealer reports

Table 3. 2012-2014 Calendar Year dogfish landings by month.

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	2,455,965	96,632	134,576	78,289	634,001	1,447,374	3,748,793	3,828,929	4,153,819	2,056,165	2,288,758	2,434,100
2013	1,900,676	1,604,985	1,721,861	942,463	598,222	1,124,305	1,906,873	978,338	1,218,308	1,258,877	1,615,281	1,266,737
2014	1,311,494	2,405,429	1,923,287	696,878	189,940	634,675	3,142,880	2,917,483	2,832,268	1,816,382	2,187,645	3,349,214

Source: unpublished NEFSC dealer reports

Table 4. 2012-2014 Calendar Year dogfish landings by gear.

YEAR	GILL_NET_SINK__OTHER	GILL_NET_SET__STAKE__SEA_BASS	UNKNOWN	LONGLINE__BOTTOM	TRAWL_OTTER_BOTTOM_FISH	HAND_LINE__OTHER	POTS___TRAPS_OTHER	DREDGE__OTHER	Other
2012	11,828,026	2,038,129	1,943,624	3,665,784	1,470,162	1,679,561	375,722	92,292	264,101
2013	8,839,470	2,707,710	1,548,630	858,259	1,335,529	634,092	27,215	85,129	100,892
2014	10,106,427	5,404,446	2,915,679	1,753,834	1,831,855	983,672	29,619	82,222	299,821

Table 5. Number of vessels active in various annual landing ranges (pounds per vessel per year)

YEAR	Vessels 200,000+	Vessels 100,000 - 200,000	Vessels 50,000 - 100,000	Vessels 10,000 - 50,000
2000	30	24	25	122
2001	4	12	11	32
2002	2	14	8	31
2003	4	5	3	11
2004	0	0	0	43
2005	0	0	2	65
2006	0	0	8	117
2007	1	5	17	74
2008	0	11	18	107
2009	0	11	42	191
2010	0	22	42	124
2011	2	55	71	140
2012	20	40	56	181
2013	10	29	42	83
2014	29	34	40	86

Source: unpublished NEFSC dealer reports