

# **Overview of North Carolina Spiny Dogfish Regulations and Commercial Landings**

North Carolina Division of Marine Fisheries

Information Paper

North Carolina Department of Environment  
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Division of Marine Fisheries  
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## **Overview of North Carolina Spiny Dogfish Regulations and Commercial Landings<sup>1</sup>**

Prior to 2000 there were no regulatory measures in place to control harvest of spiny dogfish along the east coast of the United States. In April 1998 the National Marine Fisheries Service (NMFS) declared spiny dogfish overfished, which resulted in the development of the federal Fishery Management Plan (FMP) for spiny dogfish. The federal spiny dogfish fishery is jointly managed by the Mid-Atlantic and New England Fishery Management Councils (MAFMC and NEFMC). In May 1999 the Atlantic States Marine Fisheries Commission (ASMFC) Policy Board approved the development of an interstate management plan for spiny dogfish within state waters.

Implementation of federal regulations did not begin until May 2000 at the beginning of the 2000/01 fishing year. The Federal FMP is based on a constant fishing mortality strategy to allow low bycatch landings in the initial stages with increased landings as the mature female portion of the stock rebuilds. In 2000/01 the allowed harvest was 4 million pounds with 58% allocated to Period I from May 1 to October 31 and 42% allocated to Period II from November 1 to April 30, and daily harvest limits of 600 pounds and 300 pounds respectively. In August 2000, the ASMFC Spiny Dogfish and Coastal Shark Board took emergency action to close state waters to commercial harvest, landings, and possession of spiny dogfish when federal waters were closed due to the fishery landing its quota. In 2001 the North Carolina Division of Marine Fisheries (DMF) issued proclamations to close state waters to the harvest of spiny dogfish to remain in compliance with the ASMFC emergency action.

The DMF continued to issue proclamations to close state waters to the harvest of spiny dogfish throughout 2002 until the ASMFC Interstate FMP for Spiny Dogfish was finalized. The ASMFC FMP was developed and a public comment period was conducted in the summer of 2002. The North Carolina Marine Fisheries Commission (MFC) provided comments for the ASMFC to consider prior to adoption of the Spiny Dogfish FMP. The MFC supported the overfishing definition of the spawning stock biomass (SSB) and a rebuilding schedule with a constant harvest strategy capped at a 8.82 million pound quota to both conserve the resource and optimize harvest. The MFC preferred utilizing the historical landings period from 1994-2000 as the reference period because of concerns over the accuracy of the reporting of landings prior to 1994. The MFC strongly supported changing the fishing year to January 1 – December 31 to alleviate some of the inequity in harvest along the entire east coast with a state-by-state allocation. Also, the MFC felt that quota overages should be deducted accordingly and transfer allowances between states should be provided within a single fishing year. The MFC also supported a 3,000-pound trip or possession limit for the entire fishing year.

The ASMFC Interstate FMP for Spiny Dogfish was finalized in November 2002 and implementation began in the 2003/04 fishing year (ASMFC 2002). There are a few ways that the interstate FMP differs from the federal FMP. The ASMFC FMP considers a quota payback provision, which deducts overages from the same period in the following fishing year and quota rollovers are prohibited until the stock rebuilds to the target SSB.

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<sup>1</sup>Presented to the Spiny Dogfish CAP on March 12, 2008.

Also, the ASMFC FMP allows special permits to be issued for biomedical research only and limits the number of dogfish that can be taken under the special permit (1,000 fish). Dogfish harvested for dissection or educational purposes can be taken from the commercial quota until it is fully harvested. The reference period to determine the seasonal allocations was years 1990-1997, allocating 58% to Period I (May-Oct) and 42% to Period II (Nov-Apr) (Table 1). North Carolina landings accounted for 15.28% of the total coastwide landings of spiny dogfish during the reference period and North Carolina had the second highest landings of spiny dogfish after Massachusetts along the east coast during the 1990-1997 time series (Figure 1).

Table 1. Spiny dogfish percent annual landings by state, 1990-2001 (ASMFC 2002). The reference period of 1990-1997 is used in the ASMFC Interstate Fishery Management Plan.

Year	NC	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA
1990	0.13	19.60	0.57	54.83	4.01	0.07	0.06	13.99	0.00	6.72	0.02
1991	5.04	6.94	0.00	49.88	10.88	0.03	0.27	9.35	0.02	17.00	0.60
1992	23.23	4.63	1.08	49.44	5.46	0.06	0.42	6.82	0.00	8.24	0.62
1993	18.83	7.54	3.51	57.36	4.11	0.03	0.20	1.65	0.00	3.84	2.92
1994	21.94	4.48	6.42	57.40	1.31	0.42	0.59	2.79	0.00	3.53	1.11
1995	15.08	3.50	4.43	60.17	1.20	0.62	1.96	5.00	0.13	6.55	1.37
1996	22.26	1.53	1.82	45.17	1.90	1.19	2.10	7.80	0.00	12.05	4.18
1997	16.89	1.00	2.24	48.11	2.25	0.77	1.09	8.77	0.00	9.39	9.49
1998	10.46	0.58	3.99	52.52	3.73	0.56	3.07	13.29	0.00	5.06	6.73
1999	10.98	0.10	3.66	44.05	3.95	0.26	4.29	11.59	0.00	6.30	14.82
2000*	16.82	0.04	11.06	27.30	1.45	0.14	9.01	24.74	0.00	2.13	7.32
2001*	0.01	0.01	7.79	79.72	8.03	0.16	1.36	0.35	0.00	0.00	2.57
% 1990-97 combined	15.28	4.22	3.34	51.06	3.47	0.44	1.83	8.56	0.02	7.39	4.38

\*Landings were constrained by the Federal Spiny Dogfish FMP and ASMFC Emergency Action.

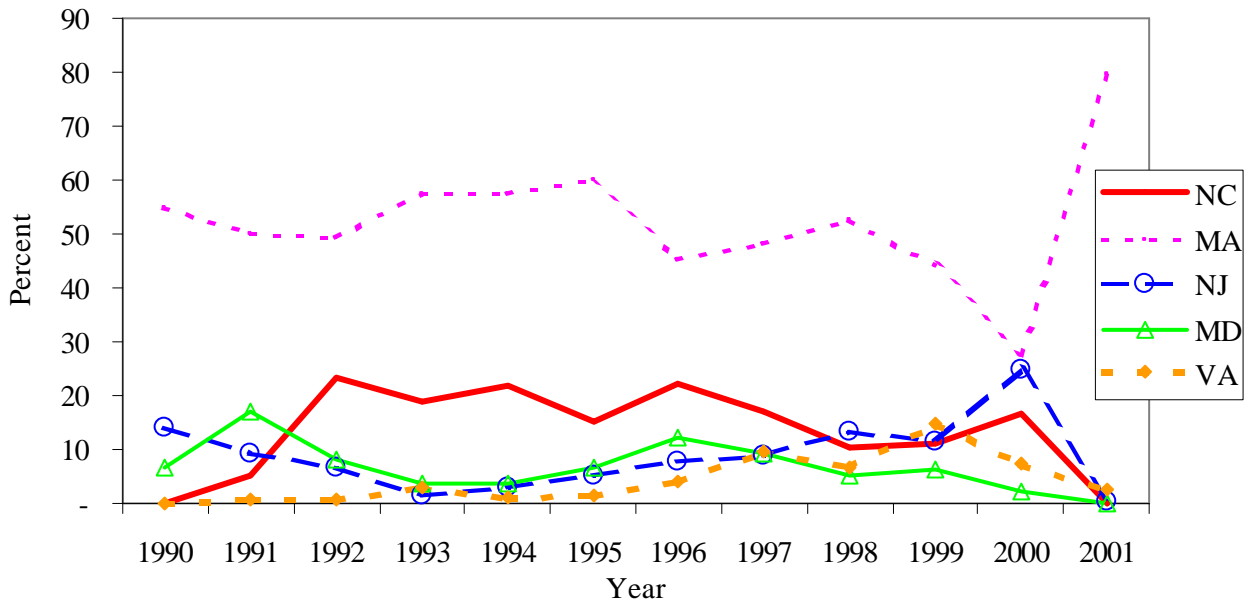


Figure 1. Spiny dogfish percent annual landings by state from 1990-1997. Showing the top five states accounting for 87% of the entire landings (ASMFC 2002).

The NMFS implemented a commercial quota of 4 million pounds with trip limits of 600 pounds in period one and 300 pounds in period two for the 2003/04 fishing year in federal waters. The states, independent from the ASMFC, agreed to maintain the commercial harvest below 4.4 million pounds although the ASMFC approved an 8.8 million pound commercial quota for the 2003/04 fishing year (ASMFC 2004). Each of the seasonal quotas was cut in half to bring the total harvest quota closer to the federally specified quota. The states continued to have the ability to implement trip limits up to 7,000 pounds. The trip limits enabled some states to continue a small-scale directed fishery in state waters during the 2003/04 fishing year. North Carolina established a 4,000 pound trip limit for the 2003/04 fishing year, which resulted in landings of 520,163 pounds (NC DMF Trip Ticket Program). This was the last fishing year to have any significant amount of spiny dogfish landings in North Carolina.

The ASMFC Spiny Dogfish and Coastal Sharks Management Board approved a commercial quota of 4 million pounds with trip limits of 600 pounds for Period I and 300 pounds for Period II for the 2004/05 fishing year. These actions were taken in response to the results and recommendations of the 37th Stock Assessment Review Committee and the ASMFC's Spiny Dogfish Technical Committee. North Carolina opened spiny dogfish

harvest on December 8, 2004 with 600 and 300-pound trip limits for each harvest period. In August 2005, the MFC convened the first Spiny Dogfish Compliance Advisory Panel (CAP) meeting. The charge of the committee was to advise the MFC as to whether or not North Carolina should go out of compliance with the ASMFC Spiny Dogfish FMP. Total spiny dogfish landings from North Carolina for the 2004/05 fishing year was 20,442 pounds (NC DMF Trip Ticket Program).

In November 2005 the ASMFC Spiny Dogfish and Coastal Sharks Management Board approved Addendum I to the Interstate Fishery Management Plan for Spiny Dogfish (ASMFC 2006a). Addendum I provided the Board with the authority, but not the requirement, to establish spiny dogfish specifications for up to five years. The Mid-Atlantic and New England Fishery Management Councils took similar action under Framework 1 to the FMP, recommending the adoption of multi-year management measures without the requirement of annual review to NMFS for final approval.

The ASMFC Spiny Dogfish and Coastal Sharks Management Board approved a commercial quota of 4 million pounds with trip limits of 600 pounds for Period I and 300 pounds for Period II for the 2005/06 fishing year (ASMFC 2007a). These actions were taken in response to the results and recommendations of the recent stock assessment. North Carolina allowed a 600-pound trip limit in Period I and 300-pound trip limit in Period II. According to fishermen comments, a 300-pound trip limit had essentially the same impact as a moratorium on the dogfish fishery in North Carolina. There is little demand for small quantities of North Carolina dogfish because northern processing facilities require large volumes of product in order to operate efficiently. Fishermen indicated a trip limit approaching 4,000 pounds would be necessary to make the fishery feasible (DMF 2006). North Carolina spiny dogfish landings for the 2005/06 fishing year were 9,903 pounds (NC DMF Trip Ticket Program).

In May 2006 the 43<sup>rd</sup> Stock Assessment Review Committee (SARC) of the Southern Demersal Working Group and ASMFC Spiny Dogfish Technical Committee developed the spiny dogfish stock assessment for 2006 (ASMFC 2006b). The 43<sup>rd</sup> SARC determined that the coastwide population was not overfished, and overfishing was not occurring (ASMFC 2006b). The SARC updated the  $F_{\text{threshold}}$  value to 0.39. The 2006 fishing mortality rate (0.128) did exceed the rebuilding target of 0.03 but was below the new threshold value. Full F on the female exploitable stock varied between 0.08 and 0.47 between 1990 and 2005. Even with the lower landings since 2001, fishing mortality rates on the fully recruited female stock component remained above the rebuilding target (0.03). The current estimate of full F on dogfish in 2005 was 0.128 (0.09-0.174; 80% confidence interval). Female spawning stock size dropped to below 100,000 mt in 1997, declined to about 50,000 mt in 1998 and remained below 100,000 mt through 2004. The

extremely high estimate in 2006 raised the 3-year average female SSB estimate to 106,000 mt. An analytical model to express survey indices of biomass in absolute scale and in turn to provide estimates of fishing mortality rates was developed (ASMFC 2006b).

The MFC Spiny Dogfish CAP met in August 2006 and discussed sampling needs for spiny dogfish. The group reviewed a proposal from Massachusetts to the ASMFC requesting an increase in the spiny dogfish quota. The CAP felt the proposal was unfair to North Carolina and other Mid-Atlantic states because of where the quota split would occur between the Period I and II seasons. The Panel felt Rhode Island landings are actually from Massachusetts' fishermen and most of the dogfish would be harvested in the MA-RI waters well before reaching North Carolina waters in Period II. The Panel decided that a letter should be sent to the ASMFC expressing these concerns.

The Spiny Dogfish and Coastal Sharks Management Board final specifications for the 2006/07 fishing season included a commercial quota of 6 million pounds and allowed state's to set their own possession limits at the beginning of Period II (ASMFC 2007b). The line separating the states allowed separate harvest during Period I and II also changed for the 2006/07 fishing year. Quota allocation remained the same at 58% for Period I and included states from Maine to Connecticut and 42% for Period II including states from New York to North Carolina. Spiny dogfish landings from North Carolina for the 2006/07 fishing year were 141,177 pounds (NC DMF Trip Ticket program).

One of the objectives of the ASMFC Interstate FMP for Spiny Dogfish is to allocate the available resource in a biologically sustainable manner that is equitable to all the fishermen. There has been a shift in the allocation of spiny dogfish landings since the inception of the ASMFC FMP in 2002 (Table 2). Since the fishing year begins on May 1<sup>st</sup> it gives more opportunity for the northern states to intercept spiny dogfish because of their seasonal migration northward in the spring (Table 3 and Figure 2). By the time spiny dogfish return to the southern end of their migration the timing is in Period II and most of the quota has already been taken before dogfish reach North Carolina (Table 4). The states that gained the most in percent of the quota harvested from the regulatory changes were Virginia (11.99%), Massachusetts (10.53%), Rhode Island (3.80%), New Hampshire (2.81%), and Connecticut (4.02%)(Table 4). The states that lost the most in percent of the quota harvested from the regulatory changes included North Carolina (11.02%), New Jersey (8.50%), Maryland (7.24%), and Maine (2.58%) (Table 4).

Table 2. Percent allocation of spiny dogfish landings for the reference period (1990-1997) and the 2003/04 to 2006/07 fishing years Period I and Period II separated by state. Percentages based on data taken from NERO weekly quota and monitoring reports as shown in the annual Interstate Fishery Management Plan for Spiny Dogfish (ASMFC 2004, 2006a, 2007a, and 2007b).

	Reference period	2003/04	2004/05	2005/06	2006/07
Period I	58	82.88	82.96	93.83	66.53
Period II	42	17.12	17.04	6.17	33.47

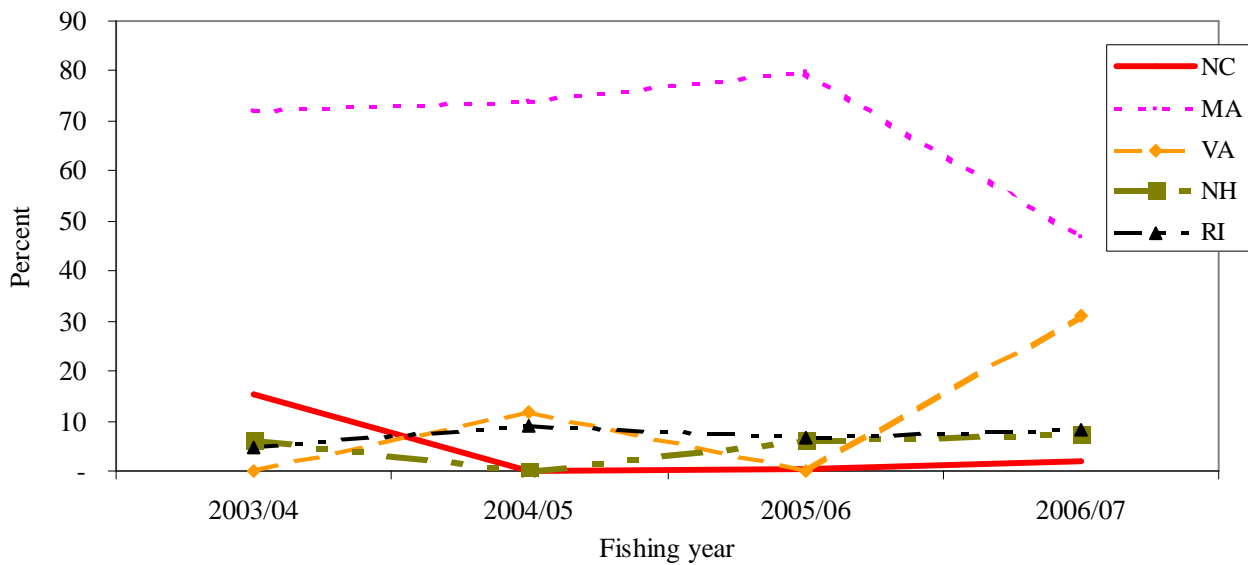


Figure 2. Spiny dogfish percent annual landings by state for fishing years 2003/04 through 2006/07. Showing the top five states accounting for 94% of the

entire landings. Data taken from NERO weekly quota and monitoring reports as shown in the annual Interstate Fishery Management Plan for Spiny Dogfish (ASMFC 2004, 2006a, 2007a, and 2007b).

Table 3. Spiny dogfish percent annual landings by state for fishing years 2003/04 through 2006/07. Data taken from NERO weekly quota and monitoring reports as shown in the annual Interstate Fishery Management Plan for Spiny Dogfish (ASMFC 2004, 2006a, 2007a, and 2007b).

Fishing year (May 1 - Apr 30)	NC	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA
2003-04	15.39	0.00	6.37	71.80	4.70	0.02	1.37	0.00	0.00	0.17	0.17
2004-05	0.06	0.20	0.02	73.85	8.88	2.32	2.59	0.23	0.00	0.03	11.82
2005-06	0.38	1.21	6.16	79.70	6.75	3.69	1.77	0.02	0.01	0.21	0.09
2006-07	2.04	2.89	7.64	46.82	8.19	0.99	0.18	0.06	0.00	0.15	31.04
May 2003-Apr 2007 combined	4.27	1.64	6.15	61.60	7.28	1.46	1.03	0.06	0.00	0.15	16.37

Table 4. Spiny dogfish percent annual landings combined for the reference period (1990-1997) and fishing years after inception of the ASMFC Interstate Fishery Management Plan for Spiny Dogfish (ASMFC 2002, 2004, 2006a, 2007a, and 2007b) ranked in order of highest to lowest by state.

Rank	1990-1997		2003/04-2006/07	
	State	Percent	State	Percent
1	MA	51.06	MA	61.60
2	NC	15.28	VA	16.37
3	NJ	8.56	RI	7.28
4	MD	7.39	NH	6.15
5	VA	4.38	NC	4.27
6	ME	4.22	ME	2.58
7	RI	3.47	CT	1.46
8	NH	3.34	NY	1.03
9	NY	1.83	MD	0.14
10	CT	0.44	NJ	0.06
11	DE	0.02	DE	0.00

The ASMFC Interstate FMP for Spiny Dogfish introduced a quota payback provision, which intended to deduct overages from the same period the following fishing year. A quota overage occurred during the 2006/07 fishing year. Landings by state showed that the northern states harvested more than their arranged allotment (58%) but the landings occurred in Period II. So although the payback provision specified it must come from the same period in which the overage occurred, states that were not allotted landings for Period II created the overage. In May 2007 the Board recommended that the 384,737-pound overage be removed both from Period II and from the northern state allocation. By separating the quota into periods and region it is difficult to determine how to equitably deal with overages on a state level because of both the geographical and seasonal division associated with the quota.

The current system that separates the quota into regions and seasons is not working because spiny dogfish are found in both areas and periods at the same time. The two key problems with the ASMFC Interstate FMP that may be resolved with state by state allocation of the spiny dogfish resource, which include: 1) equitable allocation; and 2) quota overage or transfer provisions. State by state allocation of the spiny dogfish resource would allow a more equitable distribution of the spiny dogfish resource closer to the historical reference period before the regulatory changes. State by state allocation of spiny dogfish harvest would also allow managers to more specifically determine where quota paybacks or transfers need to occur. The ASMFC Spiny Dogfish and Coastal Shark Management Board did select an adaptive management approach in the FMP, which allows them to consider changes to the management strategy before the start of a new fishing year (ASMFC 2002). One of the measures allowed for consideration under the adaptive management strategy is

state-by-state allocation of the coastwide quota. Since the spiny dogfish population is not considered overfished and overfishing is not occurring it may in the best interest of all states to consider a more equitable allocation of the resource as the annual quota allowance increases.

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