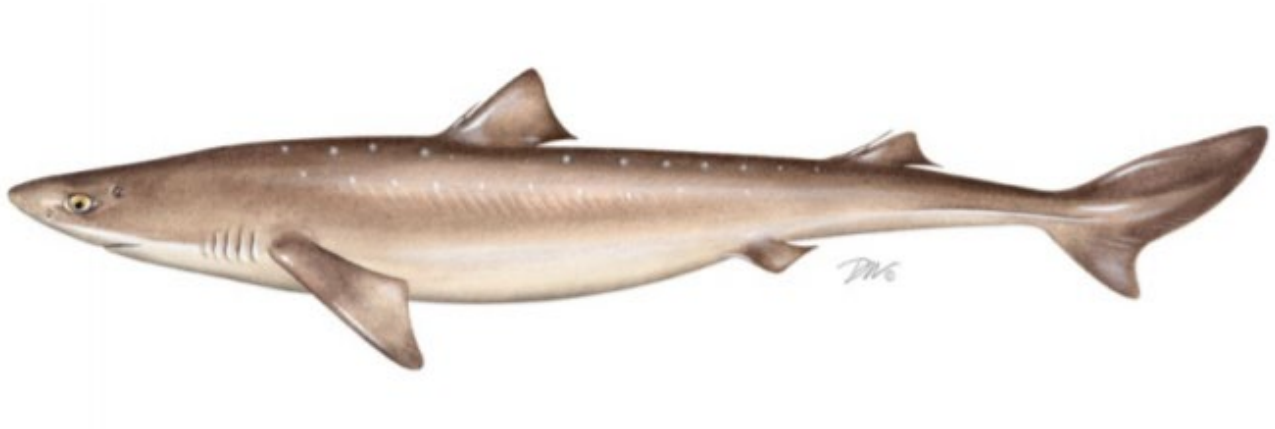
ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR SPINY DOGFISH
(Squalus acanthias)

2011/2012 FISHING YEAR



Prepared by the Plan Review Team

Approved by the South Atlantic Management Board

Table of Contents

I. Status of the Fishery Management Plan

Date of FMP Approval:	November 2002
Amendments	None
Addenda	Addendum I (November 2005) Addendum II October 2008) Addendum III (April 2011) Addendum IV (August 2012)
Management Unit:	Entire coastwide distribution of the resource from the estuaries eastward to the inshore boundary of the EEZ
States With Declared Interest:	Maine - Florida
Active Boards/Committees:	Spiny Dogfish and Coastal Shark Management Board, Advisory Panel, Technical Committee, and Plan Review Team

a) Goals and Objectives

The Interstate Fishery Management Plan for Spiny Dogfish (FMP) established the following goals and objectives.

2.2. GOALS
The goal of the Interstate Fishery Management Plan for Spiny Dogfish is:
"To promote stock rebuilding and management of the spiny dogfish fishery in a manner that is biologically, economically, socially, and ecologically sound."

2.3 OBJECTIVES
In support of this goal, the following objectives are recommended for the Interstate FMP:

1. *Reduce fishing mortality and rebuild the female portion of the spawning stock biomass to prevent recruitment failure and support a more sustainable fishery.*
2. *Coordinate management activities between state, federal and Canadian waters to ensure complementary regulations throughout the species range.*
3. *Minimize the regulatory discards and bycatch of spiny dogfish within state waters.*
4. *Allocate the available resource in biologically sustainable manner that is equitable to all the fishers.*
5. *Obtain biological and fishery related data from state waters to improve the spiny dogfish stock assessment that currently depends upon data from the federal bottom trawl survey.*

b) Fisheries Management Plan Summary

In 1998, NMFS declared spiny dogfish overfished and initiated the development of a joint fishery management plan (FMP) between the Mid-Atlantic (MAFMC) and New England Fishery Management Councils (NEFMC) in 1999. NMFS partially approved the federal Fishery Management Plan in September 1999, but implementation did not begin until May 2000, the start of the 2000-2001 fishing year.

In August 2000, ASMFC took emergency action to close state waters to the commercial harvest, landing, and possession of spiny dogfish when the federal waters closed in response to the quota being fully harvested. With the emergency action in place, the Commission had time to develop an interstate FMP, which prevented the undermining of the federal FMP and prevented further overharvest of the coastwide spiny dogfish population. Needing additional time to complete the interstate FMP, the ASMFC extended the emergency action twice through January 2003. During that time, the majority of spiny dogfish landings were from state waters because states had either no possession limits or less conservative possession limits than those of the federal FMP. The Interstate FMP for Spiny Dogfish was approved by ASMFC in November 2002 and was implemented for the 2003-2004 fishing year. In general, the ASMFC and Council FMP's strive to promote stock rebuilding and management of the spiny dogfish fishery in a manner that is biologically, economically, socially, and ecologically sound.

Both the ASMFC and Council FMP's established an annual quota that gets allocated seasonally between two periods (57.9% from May 1 to October 31 and 42.1% from November 1 to April 30). The seasonal periods can have separate possession limits that are specified on an annual basis. Both the Council and ASMFC FMP's also include paybacks for quota overages, allow for a five percent quota rollover once the stock is rebuilt, and allow for up to 1,000 spiny dogfish to be harvested for biomedical supply.

In November 2005, the Spiny Dogfish and Coastal Sharks Management Board approved Addendum I to the Interstate FMP for Spiny Dogfish. Addendum I provides the Board with the authority, but not the requirement, to establish spiny dogfish specifications (quota and possession limits) for up to five years. The Mid-Atlantic and New England Fishery Management Councils took similar action under Framework 1, recommending the adoption of multi-year management measures without the requirement of annual review to NOAA Fisheries for final approval. Framework 1 to the federal Spiny Dogfish FMP, which will allow the specification of commercial quotas and other management measures for up to five years, became effective February 21, 2006.

Addendum II, approved October 2008, established regional quotas in place of the FMP's seasonal allocation. Under Addendum II, the annual quota is divided regionally with 58% allocated to the states of Maine to Connecticut, 26% allocated to the states of New York to Virginia, and the remaining 16% allocated to North Carolina. The Board allocated a specific percentage to North Carolina because spiny dogfish are not available to their fishermen until late into the fishing season when most of the quota has already been harvested. The North Carolina allocation will allow fishermen and processors to plan fishing operations based on a specific amount of dogfish. Regional overage paybacks were also included in Addendum II to maintain the conservation goals of the plan. Any overage of a region and/or state quota is subtracted from that region/state the subsequent fishing year.

The Commission's Spiny Dogfish and Coastal Sharks Management Board (Board) approved Addendum III to the Interstate Fishery Management Plan for Spiny Dogfish (Addendum III) in March 2011. Addendum III did not apply to the 2009/2010 fishing season and was not effective until the 2011/2012 fishing season. The Addendum divided the southern region annual quota of 42% into state-specific shares. It also allowed for quota transfer between states, rollovers of up to five percent, state-specified possession limits, and includes a three-year reevaluation of the measures. The Addendum's provisions apply only to states in the southern region (New York through North Carolina) and do not modify the northern region allocation. The states of Maine to Connecticut continue to share 58% of the annual quota as specified in Addendum II.

Addendum IV to the Interstate Fishery Management Plan for Spiny Dogfish (Addendum IV) was approved in August 2012. This Addendum addressed the differences in the definitions of overfishing between the NEFMC, MAFMC and the ASMFC. The Board adopted the fishing mortality threshold

to be consistent with the federal plan. Overfishing is defined as an F rate that exceeds the $F_{threshold}$. The $F_{threshold}$ is defined as F_{MSY} (or a reasonable proxy thereof) and based upon the best available science. The maximum fishing mortality threshold (F_{MSY}) or a reasonable proxy may be defined as a function of (but not limited to): total stock biomass, SSB, total pup production, and may include males, females, both, or combinations and ratios thereof which provide the best measure of productive capacity for spiny dogfish. This definition is consistent with the federal Spiny Dogfish FMP. Currently F_{MSY} = 0.2439. **This addendum and F_{MSY} apply to the spiny dogfish fishery on or after August 2012, so they do not apply to the fishery for the year this document is reviewing.**

II. Status of the Stock and Assessment Advice

Overfishing definition: $F_{target} = 0.207$; allows for the production of 1.5 female pups per female that will recruit to the spawning stock biomass (SSB).

$F_{threshold} = 0.325$; allows for the production of one female pup per female that will recruit to the SSB.

Overfished Definition: $SSB_{target} = 159{,}288$ *mt* (351 million pounds); level of biomass that would maximize recruitment to the population (100% SSBmax).

$SSB_{threshold} = 79{,}644$ *mt* (175 million pounds); 50% of SSBmax

Spiny dogfish are not overfished and overfishing is not occurring:

Spiny dogfish was declared 'rebuilt' in 2008 when SSB exceeded the target for the first time since the ASMFC began managing spiny dogfish in 2002. Prior to the 'rebuilt' status, quotas were based on the short term target $F_{rebuild}$ = 0.11. The FMP allows for quotas based on F_{target} (as opposed to the more conservative $F_{rebuild}$) "once the mature female portion of the spawning stock has reached the target". Target and threshold F and SSB were updated in the 2010 Northeast Fisheries Science Center (NEFSC) Biological Reference Points for Spiny Dogfish (BRP) report. The updated fishing mortality target is 0.207 and the threshold is 0.325. The updated SSB target and threshold are 159,288 and 79,644 metric tons (mt), respectively.

The most recent estimates of SSB are from the NEFSC Update on the Status of Spiny Dogfish in 2012 and Initial Evaluation of Alternative Harvest Strategies report. The 2012 NEFSC report estimates that SSB continued to exceed the target in 2011 (for the fourth year in a row) at 215,744 metric tons.

The NEFSC Update on the Status of Spiny Dogfish in 2012 and Initial Evaluation of Alternative Harvest Strategies report also provides the most recent estimate of F. F was 0.11 in 2011 and has and has been consistently below the fishing mortality target in recent years. As such, spiny dogfish are not overfished and overfishing is not occurring. Unfortunately, record low pup production from 1997 to 2003 has left a recruitment deficit that will cause SSB to drop around 2012. The amplitude of this drop increases as fishing mortality increases and still occurs when fishing mortality is hypothetically zero.

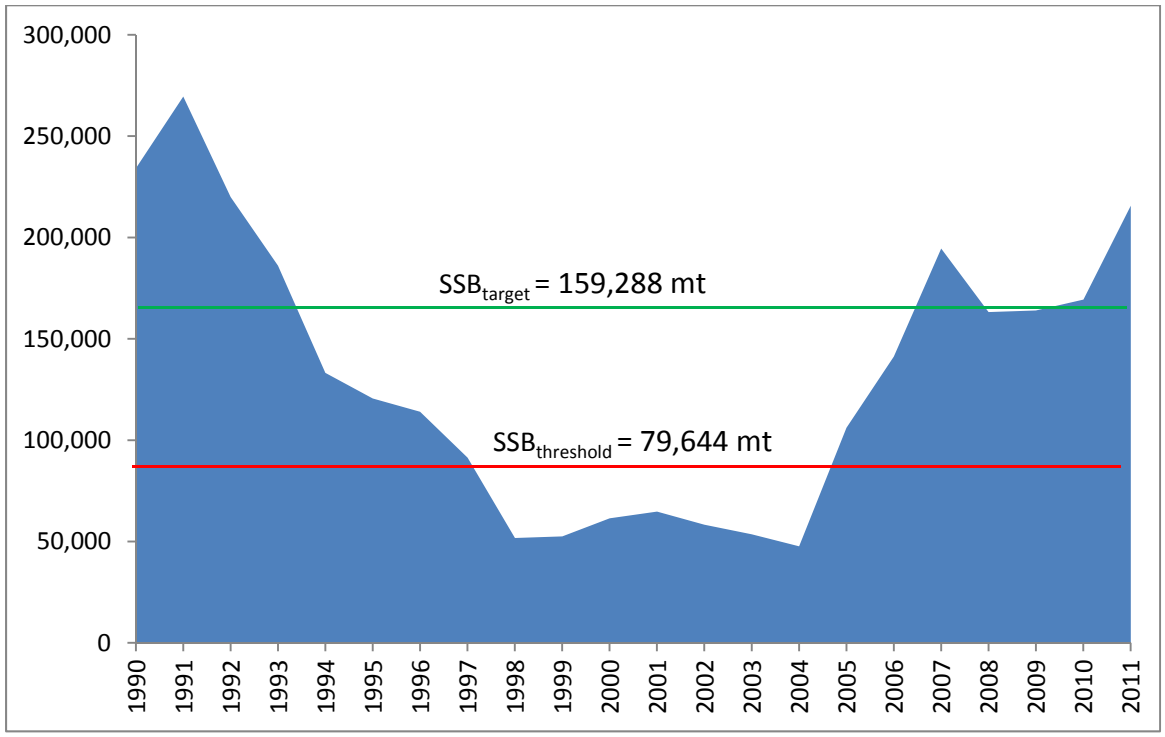


Figure 1: Spiny dogfish spawning stock biomass, 1990 – 2011. Source: NEFSC Update on the Status of Spiny Dogfish in 2012 and Initial Evaluation of Alternative Harvest Strategies.

Table 1: Spawning stock biomass and fishing mortality in the spiny dogfish fishery, 1990 – 2011. Source: NEFSC Update on the Status of Spiny Dogfish in 2012 and Initial Evaluation of Alternative Harvest Strategies.

Year	Female SSB (mt)	F rate
1991	234,229	0.082
1992	269,624	0.177
1993	220,002	0.327
1994	186,132	0.465
1995	133,264	0.418
1996	120,664	0.355
1997	114,091	0.234
1998	91,458	0.306
1999	51,821	0.289
2000	52,562	0.152
2001	61,552	0.109
2002	64,844	0.165
2003	58,376	0.168
2004	53,625	0.474
2005	47,719	0.128
2006	106,180	0.088

2007	141,351	0.09
2008	194,616	0.11
2009	163,256	0.113
2010	164,066	0.093
2011	169,415	0.114

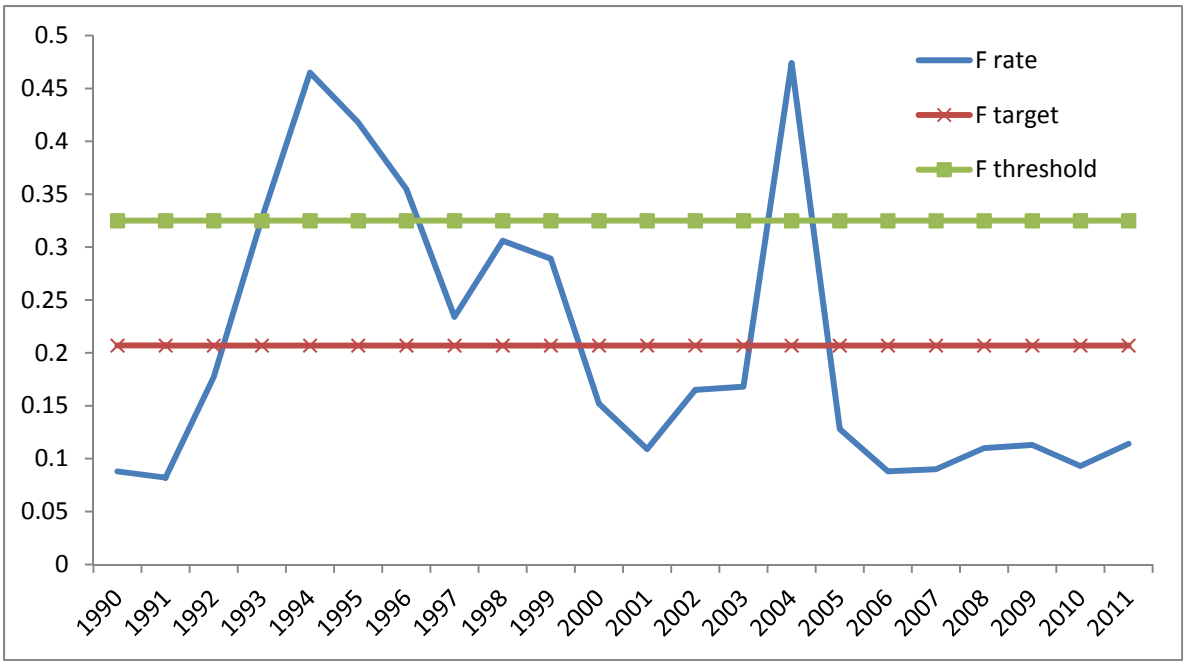


Figure 2: Fishing mortality rates in the spiny dogfish fishery, 1990 – 2011. Source: NEFSC Update on the Status of Spiny Dogfish in 2012 and Initial Evaluation of Alternative Harvest Strategies.

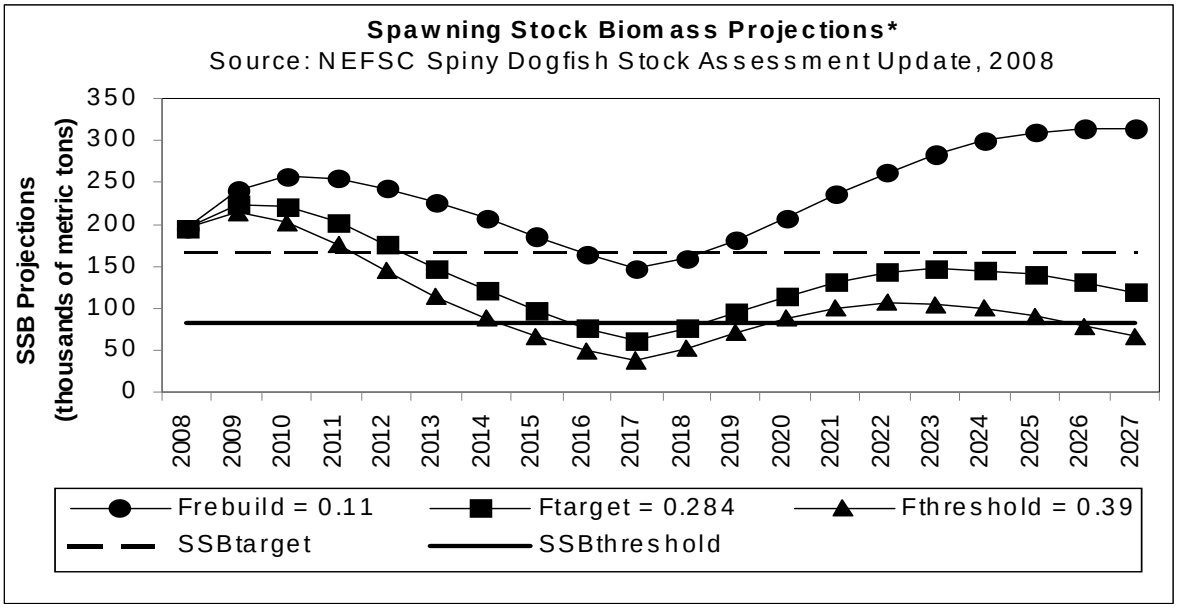


Figure 3: Spawning stock biomass (SSB) projections for the spiny dogfish fishery, 2008-2027. Source: NEFSC Update on the Status of Spiny Dogfish in 2010 and Initial Evaluation of Harvest Strategies.

III. Status of the Fishery

Specifications
The spiny dogfish commercial fishery runs from May 1 – April 30. The coastwide quota was set at 20 million pounds with a maximum of 3,000 pound possession limits for the 2011/2012 fishing season (May 1, 2011 – April 30, 2012), following recommendations from the ASMFC TC and MAFMC Monitoring Committee (Appendix A).

Quotas
Prior to reductions for overages in the 2010/2011 fishing season, the 2011/2012 20 million pound coastwide quota was allocated with 11,600,000 pounds (58%) to states from Maine – Connecticut (Northern Region), 5,592,400 pounds (26%) to New York – Virginia (Southern Region), and 2,807,200 pounds (16%) to North Carolina. Addendum III further divided the Southern region into state-specific quotas as follows: 541,400 pounds (2.707%) to New York, 1,528,800 pounds (7.644%) to New Jersey, 179,200 pounds (0.896 %) to Delaware, 1,184,000 pounds (5.920%) to Maryland, 2,159,000 pounds (10.795%) to Virginia and the remaining 2,807,200 pounds (14.036%) to North Carolina. Addendum II specifies that when the quota allocated to a region or state is exceeded in a fishing season, the amount over the allocation will be deducted from the corresponding region or state in the subsequent fishing season. There was a 454,547 pound overage in the Northern Region, 27,912 pound overage in the Southern Region, and 68,648 pound overage in North Carolina during the 2010/2011 fishing season. Table 2 shows the final 2011/2012 quotas after being adjusted for the previous year's overages.

Table 2: Regional quotas for May 1, 2011 - April 30, 2012 fishing season.

Region/State	2011/2012 Quotas	2010/2011 Overages	2011/2012 Adjusted Quotas
Northern	11,600,000	454,547	11,145,453
New York	541,400	27,912[1]	538,698
New Jersey	1,528,800		1,521,170
Delaware	179,200		178,306
Maryland	1,184,000		1,178,091
Virginia	2,159,000		2,148,224
North Carolina	2,807,200	68,648	2,738,552

Landings
There was a 454,547 and 27,912 pound overage in the Northern and Southern Region, respectively, during the 2010/2011 fishing season (Table 2). Overages from the 2010/2011 fishing season were primarily the result of late reports and an increased rate of landings at the

[1] State-specific quotas had not been established prior to 2011/2012.

end of the season. North Carolina landed 68,648 pounds more than their allocation during the 2010/2011 fishing season.

Commercial landings totaled 20,346,473 pounds during the 2011/2012 fishing season (Table 3). The increase coincides with the increased commercial quota set by the Board for the 2011/2012 fishing season. Massachusetts (9,048,875 pounds), New Hampshire (1,332,781 pounds), North Carolina (2,538,995 pounds), Virginia (2,794,578 pounds), and New Jersey (1,881,019 pounds) had the most significant commercial landings during the 2011/2012 fishing season.

Table 3: Commercial landings of spiny dogfish on the Atlantic coast, 2011/2012 fishing year. Source: ACCSP Data Warehouse.

State Landed	Pounds
DE	9,901
MD	489,413
NJ	1,881,019
NY	452,114
VA	2,794,578
CT	186,967
MA	9,048,875
ME	345,267
NH	1,332,781
RI	1,266,563
NC	2,538,995
Total	20,346,473

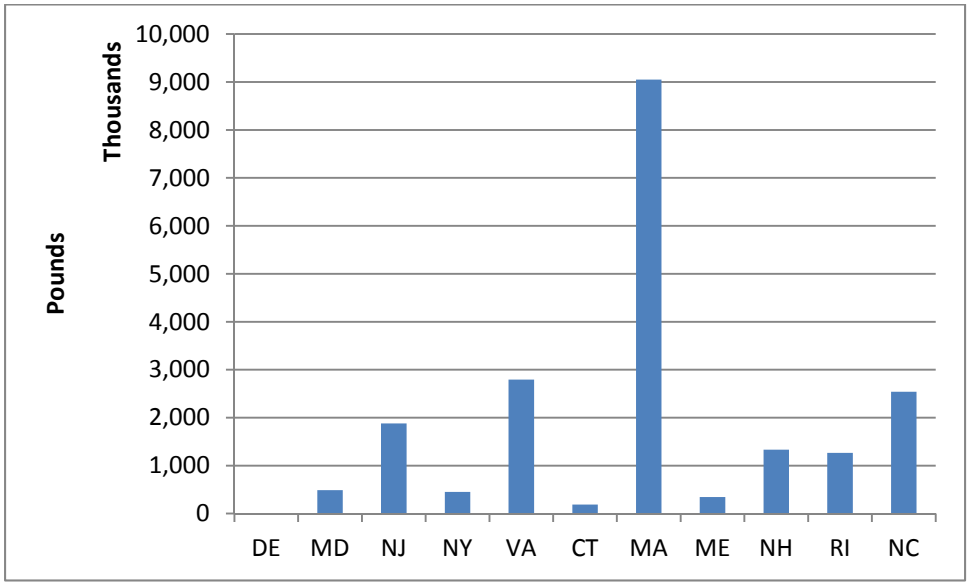


Figure 4: Commercial landings of spiny dogfish on the Atlantic coast, 2011/2012. Source: ACCSP Data Warehouse.

Recreational harvest of spiny dogfish on the Atlantic coast for the 2011/2012 fishing year remained insignificant at 200,711 pounds. This is less than 1% of total landings of spiny dogfish.

Canadian landings declined from 113 mt in 2009 to 6 mt in 2010, but returned to 124 mt in 2011. The Canadian and foreign fleets in 2011 collectively accounted for only 267 mt.

Table 4: Landings of spiny dogfish off the Atlantic coast by Canada and foreign fleets, 1991-2011.

Year	Canada (mt)	Foreign Fleets (mt)	Total (mt)
1991	307	234	541
1992	868	67	935
1993	1,435	27	1462
1994	1,820	2	1822
1995	956	14	970
1996	431	236	667
1997	446	214	660
1998	1,055	607	1662
1999	2,091	554	2645
2000	2,741	402	3143
2001	3,820	677	4497
2002	3,584	474	4058
2003	1,302	643	1945
2004	2,362	330	2692
2005	2,270	330	2600
2006	2,439	10	2449
2007	2,384	31	2415
2008	1,572	131	1703
2009	113	82	195
2010	6	127	133
2011	124	143	267

Total dead discards were 4,325 metric tons (9,534,895 pounds) in 2011. Total dead discards have been between 4,000 and 6,000 metric tons since 1996 (Table 5) despite significant management changes and large fluctuations in annual landings.

Table 5: Dead discards (metric tons) in the spiny dogfish commercial fishery on the Atlantic coast of the United States, 1981-2011. Source: NEFSC 2012 Update on the Status of Spiny Dogfish and Initial Evaluation of Harvest at F_{msy} Proxy.

Year	Otter trawl	Sink gill net	Scallop dredge	Line gear	Total dead discards

1981	18,180	1,608	na	na	19,788
1982	21,455	1,336	na	na	22,791
1983	21,094	1,213	na	na	22,307
1984	19,813	1,475	na	na	21,288
1985	16,677	1,362	na	na	18,039
1986	15,873	1,465	na	na	17,338
1987	14,525	1,459	na	na	15,984
1988	14,476	1,540	na	na	16,015
1989	14,143	1,608	na	na	15,751
1990	17,121	1,819	na	na	18,940
1991	9,661	3,309	24	10	13,004
1992	16,309	1,786	620	65	18,779
1993	8,642	2,944	157	4	11,747
1994	6,954	866	542	na	8,362
1995	8,499	2,019	284	na	10,801
1996	4,701	1,167	91	na	5,959
1997	3,352	698	149	na	4,199
1998	2,634	590	90	na	3,313
1999	3,843	602	31	na	4,475
2000	1,364	1,405	11	na	2,780
2001	2,460	2,161	23	na	4,643
2002	2,770	1,499	44	402	4,714
2003	1,927	1,624	77	0	3,628
2004	4,150	1,209	40	50	5,448
2005	3,758	1,001	11	118	4,887
2006	3,886	1,011	10	13	4,920
2007	4,058	1,540	45	7	5,650
2008	2,802	1,459	178	26	4,465
2009	3,505	1,462	273	84	5,323
2010	2,782	716	147	51	3,695
2011	3,270	849	170	36	4,325

Total commercial landings in 2011 are estimated to be 92% female. Females composed an average of 93.5% of commercial catch since 2000 (NEFSC Update 2012).

IV. Status of Research and Monitoring

Under the Interstate Fishery Management for Spiny Dogfish, the states are not required to conduct any fishery dependent or independent studies. The Interstate FMP requires an annual review of recruitment, spawning stock biomass, and fishing mortality. The annual review relies heavily on the NEFSC's spring trawl survey data to determine the annual status of the stock. States are encouraged to submit any spiny dogfish information collected while surveying for other species. Research and monitoring information from state reports follows. States that are

did not include research/monitoring information in their reports are not listed below. Please see individual reports for more information.

Maine:
The spring portion of the 2011 Maine-New Hampshire Inshore Trawl Survey was conducted in the near shore waters of the Gulf of Maine. A total of 15 spiny dogfish were collected, 5 females and 10 males were caught. Males ranged from 27 to 75 cm and the females 31 to 79 cm.
The fall portion of the 2011 Trawl survey saw 1648 dogfish. There were 1139 males at lengths ranging from 26 cm to 85 cm with the majority ranging between 72 and 78 cm. A total of 509 females were sampled at lengths ranging between 24 and 92 cm, numbers were distributed fairly evenly within this range. All dogfish collected in the survey were released alive.

Delaware:
Delaware has two fisheries independent surveys that have the potential for taking spiny dogfish. The first is a 30-foot bottom trawl that was deployed monthly in Delaware Bay at nine fixed stations from March through December in 2011. These surveys have been conducted annually since 1990, and before that from 1966-1971 and 1979-1984 using essentially the same gear type. A total of 92 spiny dogfish was taken in 2011 in 90 tows of this gear, and most of these were taken in December (60) with the others being taken in April (7), May (6) and November (19).

The second fishery independent survey that has the potential for taking spiny dogfish is the 16-foot bottom trawl which is deployed monthly at 39 fixed stations in Delaware River and Delaware Bay and at 12 fixed stations in Delaware's Inland Bays. This survey is conducted from April through October. This gear includes a 0.5-inch mesh liner in the cod end of the trawl and it targets primarily juvenile fishes. There were no spiny dogfish taken with this gear in 2011 from either the Delaware Bay or Delaware's Inland Bays.

Virginia
The intercept component of the Marine Recreational Fishing Statistic Survey (MRFSS) program interviews anglers to collect demographic information and individual catch data. The raw intercept files demonstrate few spiny dogfish have been encountered during surveys of anglers intercepted in Virginia. Beginning in 2010 a new Marine Recreational Information Program (MRIP) was initiated to provide recreational fishing estimates based on angler intercepts. The estimates for MRIP are available from 2004 through 2011. Type A+B1 harvest based on MRIP estimates range from a low in 2007 of 13 fish, to a high in 2011 of 4,937 fish.

North Carolina
Fishery dependent sampling of North Carolina commercial fisheries has been ongoing since 1982 (conducted under Title III of the Interjurisdictional Fisheries Act and funded in part by the US Department of Commerce, National Marine Fisheries Service). Predominate fisheries sampled included the ocean gill net fishery, estuarine gill net fishery, winter trawl fishery, long haul seine/swipe net fisheries, beach haul seines and pound net fisheries. The ocean gill net fishery is responsible for the majority of the spiny dogfish landings in North Carolina. Spiny dogfish were sampled from 65 ocean gill net, one winter trawl and one beach seine catch in the 2011/2012 fishing year. The majority of the fishing effort ranged from northeast of Oregon Inlet to Beaufort Inlet. A total of 2461 fish were measured and ranged in length from 681 to 1074 mm total length (TL) with a mean of 876 mm TL.

Spiny dogfish were not sampled during the 2011 or 2012 Cooperative Winter Striped Bass Tagging Cruise due to the use of hook and line gear to capture striped bass instead of the usual trawl gear. The spiny dogfish work conducted during past cruises was in cooperation with the ASMFC, Mid-Atlantic Fishery Management Council, the National Marine Fisheries Service-Northeast Fisheries Science Center, the North Carolina Division of Marine Fisheries and East Carolina University.

The NCDMF initiated a fisheries independent gill net survey in 2001 and expanded its coverage in 2008 to include the Cape Fear River and the near shore Atlantic Ocean from New River Inlet south to the South Carolina state line. The objective of this project is to provide annual, independent, relative-abundance indices for key estuarine species in the Pamlico Sound, near shore Atlantic Ocean, Pamlico, Pungo, Neuse, and Cape Fear rivers. These indices can also be incorporated into stock assessments and used to improve bycatch estimates, evaluate management measures, and evaluate habitat usage. Results from this project will be used by the NCDMF and other Atlantic coast fishery management agencies to evaluate the effectiveness of current management measures and to identify additional measures that may be necessary to conserve marine and estuarine stocks. Developing fishery independent indices of abundance for target species allows the NCDMF to assess the status of these stocks without relying solely on commercial and recreational fishery dependent data. The survey employs a stratified random sampling design and utilizes multiple mesh gill nets (3.0 inch to 6.5 inch stretched mesh, by ½ inch increments). Catches of spiny dogfish in the Pamlico Sound portion of this survey are minimal. During the 2011/2012 fishing year, a total of 103 spiny dogfish were captured. They ranged from 569 to 992 mm TL with an average of 856 mm TL. Catches of spiny dogfish in the Cape Fear River were minimal with only two fish being captured. In the near shore Atlantic Ocean sampling 703 individuals were captured. They ranged from 610 to 930 mm TL with an average total length of 768 mm. Catch data from the Cape Fear and New River independent gill net project is up to date through July 2012, individuals captured in sampling are represented for the 2011/2012 fishing year. The near shore Atlantic Ocean catches represent preliminary data from May and December, 2011 and February and March, 2012.

South Carolina

Fishery dependent data is collected through the Marine Recreational Fisheries Statistics Survey (MRFSS), the South Carolina State Finfish Survey (SFS), and a SCDNR-managed mandatory trip reporting system for licensed charter boat operators. Commercial landings and effort are monitored though logbooks and trip tickets. There is limited data available on recreational catches of spiny dogfish due to the low number of anglers interviewed have caught or harvested spiny dogfish.

Data collected from the charter boat fishery includes, effort, species targeted, species encountered and species captured. A total of 1,173 spiny dogfish were captured in 2011, with 39 (280 lbs.) of them harvested.

The SCDNR's on-going nearshore bottom longline survey program documents the annual presence of spiny dogfish in South Carolina's nearshore coastal waters, typically beginning in mid-November. Relative abundance and residence time of spiny dogfish along the coast in

general, may be related to winter water temperatures along the east coast, with colder winters resulting in larger spiny dogfish populations and longer residence times in South Carolina waters than in more moderate temperature years. Adult females, many being pregnant, seem to make up a majority of the fish taken by sampling gear in this program, suggesting that South Carolina waters may play a role as valuable over-wintering grounds for this species.

Georgia
Each month, a 40-foot flat otter trawl with neither a turtle excluder device nor bycatch reduction device is deployed at 42 stations across six estuaries. At each station, a standard 15 minute tow is made. During this report period, 504 tows/observations were conducted, totaling 127.00 hours of tow time. Two spiny dogfish were captured in two separate trawls during February. Lengths for these fish were 790 mm TL and 830 mm TL.

V. Status of Management Measures and Issues

Fishery Management Plan
Interstate Specifications for the 2011/2012 fishing season (See III Status of the Fishery on page 7 of this report for more details):
Coastwide quota: 20 million pounds
Maximum possession limit: 3,000 pounds

The Northern Region (MA – CT) was closed on September 1, 2011.
New Jersey closed January 8, 2012.
Virginia closed December 7, 2011.

Federal specifications
Coastwide quota: 20 million pounds; Maximum possession limit: 3,000 pounds; Regional allocation; Period 1 (May – October) closed on August 26, 2011; Period 2 (November – April) closed on January 13, 2012.

Canadian Regulations
Spiny dogfish is listed as a "groundfish" in the Canada Department of Fisheries and Oceans (DFO) Atlantic Fishery Regulations and managed under their groundfish plan. In the Canadian Maritimes region (New Brunswick, Nova Scotia, and Prince Edward Island), a total allowable catch (TAC) of 2,500 mt has been established for a directed spiny dogfish using fixed gears (longline, handline and gillnet) and Canadian landings have been significantly below this level for the past few years.

Other groundfish fleets are permitted bycatch only. The inshore and offshore dragger fleets are permitted to retain bycatch in the amount of 25 mt for vessels less than 65 feet and vessels larger in size have an annual cap of 10 mt. With the re-opening of the US east coast fishery and the subsequent reduction in market demand from US buyers, there is very little targeting of spiny dogfish in Canadian waters at this time.

Marine Stewardship Council (MSC) Certification

On August 30, 2012, the United States east coast spiny dogfish fishery was awarded MSC certification as a sustainable and well-managed fishery following an independent, third-party assessment by the certification body. The Marine Stewardship Council focuses on two standards to certify their seafood: sustainable fishing and seafood traceability. The spiny dogfish fishery on the east coast of the United States is the first US Atlantic fishery to be certified.

VI. Implementation of FMP Compliance Requirements

The mandatory components of the Interstate Fishery Management Plan are:

- There are no management measures for the recreational fishery.
- States must close the fishery when the commercial quota is projected to be harvested in their region. (*4.1.2 Semi-Annual Quota Allocation* of FMP*)*
- Possession limits cannot exceed the maximum specified by the Board during the annual specification setting process. (*4.1.2.1 Annual Process for Setting Fishery Specifications* of FMP)
- States may issue exempted fishing permits for the purpose of biomedical supply not to exceed 1,000 spiny dogfish per year. States must report the amount of dogfish harvested under special permits annually. (*4.1.6 Biomedical Supply* of FMP)
- Up to 1,000 spiny dogfish may be taken for biomedical harvest per year.
- Finning is prohibited. (*4.1.7 Prohibition of Finning* of FMP)
- State permitted dealers must report weight weekly. (*4.1.4 Data Collection and Reporting Requirements* of FMP)
- States must report weight weekly to NMFS. (*4.1.4.2 Quota Monitoring* of FMP)

Biomedical Harvest

In 2011, Mount Desert Island Biological Labs (MDIBL) was the only special license holder that collected dogfish for biomedical supply. A total of 197 spiny dogfish were collected from May 24 – August 25, 2011 from Maine coastal waters. Average centimeters per trip ranged from 76 to 88 cm. All dogfish were used for biomedical research at MDIBL.

Scientific/Educations Permits

Maine Department of Marine Resources (ME DMR) operates a public aquarium at its Boothbay Harbor laboratory facility. The Marine Resources Aquarium did not receive any spiny dogfish during the 2011 season.

Eight scientific or educational collection permits were issued in North Carolina during the 2011-2012 fishing season with sharks as a target species. Of these eight permits three spiny dogfish were captured and only one was released. The average weight of the three was 7 kg (15 lb) and they were captured in trawl gear.

VII. PRT Recommendations

State Compliance

Connecticut and New York have not submitted reports. All other states with a declared interest in the management of spiny dogfish, have submitted reports, and have regulations in place that meet or exceed the requirements of the Interstate Fisheries Management Plan for Spiny Dogfish.

There were some landings and late reports that came in during the two weeks after the Northern Region closed (Table 6). The closure lag and/or landings during these closed periods are thought to be a result of federal waters remaining open while state waters were closed (Table 7). Some states regulations stipulate possession limits and open seasons that mirror federal regulations or require federal permits (whose conditions control fishing in state waters) to meet the requirements of the FMP.

Table 6: Late reports and landings in Northern Region during 2011/2012 fishing season. Source: NOAA Fisheries Weekly Quota and Landings website quota report archives.

	Aug 27 – Sept 2		Sept 3 – Sept 10	
Northern Region (Closed on August 26, 2011)	Previous Weeks Updates	Weekly Landings	Previous Weeks Updates	Weekly Landings
ME	0	0	2,985	0
NH	0	0	3,000	0
MA	4,400	130,050	0	0
RI	40	32,679	0	0
CT	375	0	0	0
Total	4,815	162,729	5,985	0

Table 7: ASMFC and NMFS open and closed dates for the 2011/2012 spiny dogfish fishing season by 2 week period.

Jurisdiction		**ASMFC**		**NMFS**
Region		**Northern**	**Southern States**	**EEZ**
May	**1**	O	O	O
	15	O	O	O
June	**1**	O	O	O
	15	O	O	O
July	**1**	O	O	O
	15	O	O	O
Aug	**1**	O	O	O
	15	O	O	O
Sep	**1**	C	O	C
	15	C	O	C
Oct	**1**	C	O	C
	15	C	O	C
Nov	**1**	C	O	O
	15	C	O	O
Dec	**1**	C	O	O
	15	C	O	O

	1	C	O	O
Jan	**15**	C	O	C
	1	C	O	C
Feb	**15**	C	O	C
	1	C	O	C
Mar	**15**	C	O	C
	1	C	O	C
Apr	**15**	C	O	C

De Minimis

The ASMFC Interstate Fisheries Management Program Charter defines de minimis as "a situation in which, under the existing condition of the stock and scope of the fishery, conservation, and enforcement actions taken by an individual state would be expected to contribute insignificantly to a coastwide conservation program required by a Fishery Management Plan or amendment" (ASMFC 2000).

Under the Spiny Dogfish FMP, a state may be granted de minimis status if a state's commercial landings of spiny dogfish are less than 1% of the coastwide commercial total. If a state meets this criterion, the state will be exempt from biological monitoring of the commercial spiny dogfish fishery. All states, including those granted de minimis status, will continue to report any spiny dogfish commercial or recreational landings within their jurisdiction.

When the spiny dogfish Interstate FMP was implemented in 2003, Maine, Delaware, South Carolina, Georgia, and Florida were granted de minimis status. To achieve de minimis status the FMP requires, "a state's commercial landings of spiny dogfish to be less than 1% of the coastwide commercial total." When given de minimis status, a state is exempted from biological monitoring of the commercial spiny dogfish fishery, but must continue to report both commercial and recreational spiny dogfish landings.

Delaware, South Carolina, Georgia, and Florida are requesting de minimis status for the 2012/2013 fishing season and meet the FMP requirements for achieving this status (Table 8). The PRT recommends granting all of these states de minimis status.

Table 8: Percent landing by state during 2011/2012 fishing season. * indicates a state that qualifies for *de minimis*. Source: ACCSP Data Warehouse.

State	Landings	Coastwide Landings	% of Coastwide Landings
ME	345,267	20,346,473	1.70%
NH	1,332,781		6.55%
MA	9,048,875		44.47%

RI	1,266,563		6.22%
CT*	186,967		0.92%
NY	452,114		2.22%
NJ	1,881,019		9.25%
DE*	9,901		0.05%
MD	489,413		2.41%
VA	2,794,578		13.74%
NC	2,538,995		12.48%
SC*	0		0.00%
GA*	0		0.00%
FL*	0		0.00%

Table 9: State-by-state compliance with the Interstate Fishery Management Plan for Spiny Dogfish.

	Report Submitted (Due July 1)	**De Minimis Request**	**Biomedical Permit Harvest**	**Finning Prohibition**	**Possession limits**
Maine	Yes	No	Yes: 197 Collected	Yes	3,000 lb
New Hampshire	Yes	No	No	Yes	3,000 lb
Massachusetts	Yes	No	No	No	3,000 lb
Rhode Island	Yes	No	No	Yes	3,000 lb
Connecticut	No	No	No	Yes	3.000 lb
New York	No	No	No	Yes	3,000 lb
New Jersey	Yes	No	No	Yes	3000 lb
Delaware	No	Yes, recommended	No	Yes	3,000 lb
Maryland	Yes	No	No	Yes	3,000 lb
Virginia	Yes	No	No	Yes	3,000 lb

North Carolina	Yes	No	No	Yes	3,000 lb
South Carolina	Yes	Yes, Recommended	No	Yes	3,000 lb
Georgia	Yes	Yes, Recommended	No	Yes	1 fish bag limit / 30" min size
Florida	Yes	Yes, Recommended	Prohibit harvest, possession, purchase, sale, or exchange of spiny dogfish.		

Research Priorities

- Determine area, season, and gear specific discard mortality estimates coast wide in the recreational, commercial, and non-directed (bycatch) fisheries. (SR 88)

- Monitor the level of effort and harvest in other fisheries as a result of no directed fishery for spiny dogfish. (SR 88)

- Characterize and quantify bycatch of spiny dogfish in other fisheries. (SR 88)

- Increase observer trips to document the level of incidental capture of spiny dogfish during the spawning stock rebuilding period. (SR 88)

- Conduct a coast wide tagging study to explore stock structure, migration, and mixing rates. (2010 TRAC, SR 88)

- Standardize age determination along the entire East Coast. Conduct an ageing workshop for spiny dogfish, encouraging participation by NEFSC, NCDMF, Canada DFO, other interested agencies, academia, and other international investigators with an interest in dogfish ageing (US and Canada Pacific Coast, ICES). (SR 88)

References

NEFSC. 2012. Update on the status of spiny dogfish and initial evaluation of alternative harvest strategies. Report to MAFMC SSC September 19, 2012. 44 p.

Special Report No. 88 of the Atlantic States Marine Fisheries Commission. 2008. Prioritized research needs in support of interjurisdictional fisheries management.
< http://www.safmc.net/Portals/0/FEP/AppendAFEPVolIVInterResNeeds08.pdf>

TRAC (Transboundary Resource Assessment Committee) Spiny Dogfish Review Proceedings. 2010.
< http://www.mar.dfo-mpo.gc.ca/science/TRAC/trac.html>

APPENDIX A.

Atlantic States Marine Fisheries Commission
Spiny Dogfish Technical Committee
September 24, 2010
Specification Recommendations for May 2011 – April 2012 Spiny Dogfish Fishing Season

This report summarizes the recommendations and discussions from a joint meeting of the Atlantic States Marine Fisheries Commission (ASMFC) Spiny Dogfish Technical Committee (TC) and the Mid-Atlantic Fishery Management Council (MAFMC) Spiny Dogfish Monitoring Committee (MC). The meeting was held in Warwick Rhode Island on September 24, 2010. This report only summarizes recommendations of the TC. Please see the MC report for their recommendations and details on the federal process.

TC Attendance:
J. Armstrong (MAFMC), P. Rago (NMFS NEFSC), Angel Willey (MD DNR), C. Gray (NC DMF), R. Babb (NJ DEP), E. Schneider (RI DFW), M. Gates (CT DEP), E. Bryant (NMFS NERO), S. Newlin (DE DFW), and C. Vonderweidt (ASMFC Staff).

MC Attendance (not on TC):
Dan McKiernan (MADMF)

Observers:
Louis Julliard (AML International), Steve Barndollar (Seatrade), Kristian Kristensen (Zeus Packing).

TC Recommendations:
The TC recommends a 20 million pound quota with 3,000 pound possession limits for the 2011/2012 fishing season *only*. The TC recommends setting a single year specifications to allow for an additional year of dead discards estimates and the Canadian landings when setting the 2012/2013+ specifications (discussed at length below).

Background and Discussion:
Biomass estimates in 2009 (163,256 mt) and 2010 (164,066 mt) exceed the biomass target (159,288 mt). Fishing mortality (F) is estimated to be F = 0.113 in 2009 which is well below the target (0.207) and threshold (0.325) F rates. Therefore spiny dogfish are not overfished and overfishing is not occurring.

While spiny dogfish have rebuilt, the stock is expected to decrease below the target biomass around 2014 because of record low recruitment from 1997 – 2003. The magnitude of this drop increases with fishing mortality and occurs even when fishing mortality is zero.

The TC agreed that setting the quota based on F75%target is reasonable because it allows for a considerable increase in quota while minimizing the future SSB decline. They agreed that a quota based on Fthreshold (0.325) is inappropriate because the stock does not stabilize at or near Bmsy in the near future under Fthreshold. Setting the quota based on F75%target is generally consistent with the recommendations of the MAFMC Science and Statistical Committee (SSC). The TC is not bound

by SSC recommendations but they agreed that setting consistent quotas between state and federal waters is beneficial. After agreeing that the quota should be set based on F75%target; the TC discussed discards, Canadian catch, and the recreational fishery.

Quota:

The equation used by the TC to calculate the 2011/2012 (and previous years) quota is:

Quota = Total catch (based on Frate) – estimated dead discards – estimated Canadian landings – estimated recreational landings

Total catch based F75%target = 15,341 metric tons.

Discards
For the last few years, dead discards have been estimated as a proportion of the total catch. However, discards have remained around 5,000 metric tons since 1996 independent of increases or decreases in total catch (Table 1). As such, the TC felt that using the most recent year (2009) dead discards for the 2011/2012 estimate is more appropriate than discards based on a percent of total catch. The TC discussed using an average of the last 3 years dead discards, but agreed that an average does not change the value significantly (difference of 68 metric tons), and is inconsistent with methods (using most recent year rather than an average) used to estimate Canadian and recreational landings (see Canadian Landings and Recreational Landings sections of this report).

Table 10: Total dead discards and total catch in the spiny dogfish fishery off the east coast of the United States. 1996-2009.

Year	Total Dead Discards (mt)	Total Catch (mt)
1996	6,025	33,852
1997	4,366	23,443
1998	3,435	25,764
1999	4,581	22,134
2000	2,917	15,321
2001	5,063	11,882
2002	5,049	11,510
2003	4,225	7,380
2004	6,146	9,925
2005	5,589	9,382
2006	5,688	10,480
2007	6,510	12,512
2008	5,088	11,113
2009	5,897	11,503

The TC also agrees that discards are likely to be less than 5,896 metric tons (2009 value) in 2010 because of fishing restrictions under Amendment 16 the Northeast Multispecies Groundfish FMP (Amendment 16). Amendment 16 establishes sectors, allows for higher possession limits, and reduces harvest levels for groundfish species. As a result, the number of otter trawl days-at-sea are likely to decrease because these vessels can land more groundfish per trip under higher trip limits.

The higher possession limits also give fishermen an incentive to bring in only higher value species and avoid species such as dogfish and skates that take up valuable space in their holds.

Canadian Landings
Canadian landings dropped significantly from 1,572 mt in 2008 to 113 mt in 2009 and are likely to remain at this low level in 2010. Preliminary information suggests that as of September 19, 2010 landings were less than 6 metric tons (pers. comm. Zeus Packing). The Canadian fishery generally occurs between May and October, and as such, a significant increase above 6 mt's is unlikely. The drop in Canadian landings is thought to be a result of market issues related to reduced demand in Europe. Industry representatives at the meeting commented that there are too few processing facilities left in Canada to allow for a large increase in landings. If European demand increases, it will likely take several years before Canadian processors are able to process large amounts of dogfish.

The TC agrees that the most recent years Canadian landings (113 mt in 2009) should be used as the value to calculate the 2011/2012 quota.

Recreational Landings
Recreational Landings account for around 1-2% of total landings. The TC agreed that the most recent years recreational landings should be used. This approach is consistent with the method used by the TC in previous years. Recreational landings were estimated to be 34 mt in 2009.

2011/2012Annual Quota

Total catch F75%target	15,341 mt
Estimated dead discards	-5,897 mt
Estimated Canadian landings	-113 mt
Estimated recreational landings	-34 mt
	= 9,297 mt (20,496,166 pounds)

The TC agreed to round down to 20 million pounds to provide a slight buffer for Canadian landings and dead discards. TC members agreed that a small buffer is appropriate for the 2011/2012 fishing season but may be unnecessary in future years, once the impacts of Amendment 16 are known and the Canadian fishery has stabilized.

The TC's unanimous recommendation for the 2011/2012 annual quota is 20 million pounds.

Possession Limits
The TC recommends that the Board continue with a 3,000 pound possession limit for the 2010/2011 fishing season because a 3,000 limit allowed fishermen to harvest the entire quota in past years without exceeding the target F. The TC agrees that there is little scientific justification for a large or small possession limit and setting the amounts is a policy/management decision.

Other Business
The TC noted that the Marine Stewardship Council (MSC) is scheduled to meet with several members of the TC and Board in late 2010 to potentially certify spiny dogfish. Members noted that MSC certification is likely to increase European demand for dogfish which could benefit US fishermen and processors in the future.