Spiny Dogfish AP Information Document - 2013

Management System

The Spiny Dogfish Fishery Management Plan (FMP) was implemented in 2000 establishing joint management authority over the fishery in federal waters for the Mid-Atlantic and New England Fishery Management Councils. Amendment 2, (effective 1/1/2012) incorporated the development of annual catch limits (ACLs) and accountability measures (AMs) into the specification process. Specifying spiny dogfish management measures is a joint process conducted by the two Councils. The Council's Scientific and Statistical Committee (SSC) reviews assessment results, and the Advisory Panel's fishery performance report, and determines the acceptable biological catch (ABC) for the upcoming year. The Spiny Dogfish Monitoring Committee develops and recommends specific coastwide management measures (commercial quota, trip limit) that will achieve the catch target and makes further adjustments to total catch as needed based on management uncertainty. Finally, the Councils meet to develop recommendations to be submitted to the National Marine Fisheries Service. Table 1 below illustrates how the management measures for 2013 - 2015 were calculated based on the Councils' recommendations.

Table1. Derivation of spiny dogfish quotas for 2013 through 2015. All values are in lbs.

2013 Measures	Basis	M lb
OFL	*F_{MSY} (0.2439)*	67.576
ABC	*Constant F (0.19528)*	54.474
Canadian Landings	*= ave 2009-2011*	0.179
Domestic ABC	*= ABC – Canadian Landings*	54.295
ACL	*= Domestic ABC*	54.295
Mgmt Uncertainty Buffer	*Ave of quota overages (pct) in 2010-2011 (4.0%)*	1.697
ACT	*= Domestic ACL – management uncertainty*	52.598
U.S. Discards	*= ave 2002-2011*	11.698
TAL	*ACT – Discards*	40.900
U.S. Rec Landings	*= ave 2010-2011*	0.058
Comm Quota	*TAL – Rec Landings*	40.841896

2014 Measures	Basis	M lb
OFL		
ABC	*Constant F (0.19528)*	55.455
Canadian Landings	*= ave 2009-2011*	0.179
Domestic ABC	*= ABC – Canadian Landings*	55.277
ACL	*= Domestic ABC*	55.277
Mgmt Uncertainty Buffer	*Ave of quota overages (pct) in 2010-2011 (4.0%)*	1.737
ACT	*= Domestic ACL – management uncertainty*	53.540
U.S. Discards	*= ave 2002-2011*	11.698
TAL	*ACT – Discards*	41.842
U.S. Rec Landings	*= ave 2010-2011*	0.058
Comm Quota	*TAL – Rec Landings*	41.783807

Table 1 continued

2015 Measures	Basis	M lb
OFL		
ABC	*Constant F (0.19528)*	55.241
Canadian Landings	*= ave 2009-2011*	0.179
Domestic ABC	*= ABC - Canadian Landings*	55.063
ACL	*= Domestic ABC*	55.063
Mgmt Uncertainty Buffer	*Ave of quota overages (pct) in 2010-2011 (4.0%)*	1.728
ACT	*= Domestic ACL - management uncertainty*	53.335
U.S. Discards	*= ave 2002-2011*	11.698
TAL	*ACT - Discards*	41.637
U.S. Rec Landings	*= ave 2010-2011*	0.058
Comm Quota	*TAL - Rec Landings*	41.578491

Spiny Dogfish Biology

Reports on "Stock Status," including annual assessment updates, 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. EFH Source Documents, which include details on stock characteristics and ecological relationships, are available at the following website: http://www.nefsc.noaa.gov/nefsc/habitat/efh/.

Figure 1 below provides a snapshot of several relevant characteristics of the spiny dogfish stock that influence management of the commercial fishery. Among these are: 1) Spiny dogfish are slow growing and, therefore, recovery of an overly exploited stock can require prolonged rebuilding. 2) Males and females grow at different rates and to different maximum sizes such that the largest fish in the population are almost all female and these are more valuable to the commercial fishery. 3) Litter size, or fecundity, increases with age such that productivity can be markedly hampered by an absence of large females in the stock. 4) Maturity is delayed (12-21 years) in females such that the immature stock is susceptible to mortality for a prolonged period before contributing to stock production.

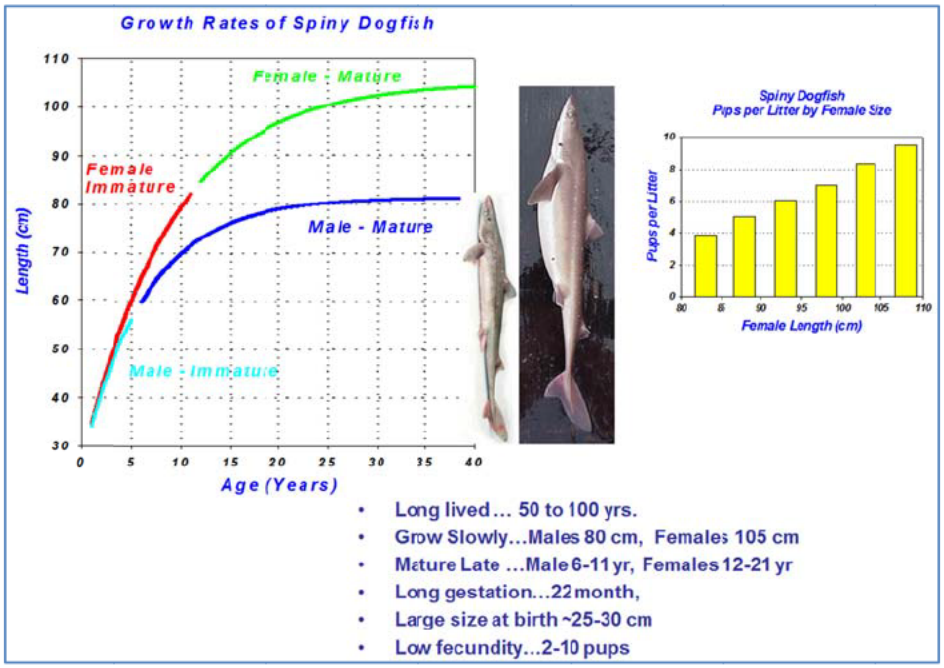


Figure 1. Summary of biological characteristics spiny dogfish relevant to the species' commercial fisheries exploitation (from Rago 2010 unpubl.).

Historical Stock Condition

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 suspension of the directed fishery. The rebuilding program was highly successful and in 2010 the Northeast Regional Office (NERO) of NMFS communicated the *rebuilt* status of the stock to the Councils.

Current Status of the Stock

Not Overfished

The Bmsy reference point defines when the stock is rebuilt (above Bmsy) and overfished (below ½ Bmsy). For spiny dogfish, Bmsy (proxy) is the spawning stock biomass that maximizes recruitment (SSBmax) in a Ricker type (dome-shaped) stock-recruitment model. SSBmax is estimated to be 159,288 mt (351 M lb) with ½ of that target corresponding to the biomass threshold (79,644 mt; 175.5 M lb).

An updated assessment for 2013 was not available at the time this document was prepared. In September 2012, the Northeast Fisheries Science Center (NEFSC) assessment update indicated SSB for 2012 was 215,444 mt (474.972 M lb), about 35% above SSB_{max} (159,288 mt). This estimate was associated with a *100% probability that the stock was not overfished*.

Overfishing not Occurring

The fishing mortality reference point above which overfishing is occurring is $F_{msy} = 0.2439$. All accountable sources of removals contribute to the estimate of fishing mortality (F) under the current assessment. For the most recent complete fishing year (2011), these include U.S. commercial landings (20.900 M lb), Canadian and Distant Water Fleet commercial landings (588k lb), U.S. dead discards (10.554 M lb), and U.S. recreational landings (71k lb). Total removals in 2011 were approximately 32.113 M lb corresponding to an F estimate of 0.148, well below $F_{msy} = 0.2439$. In updating the assessment, the NEFSC estimated a *100% probability that overfishing was not occurring* ($F_{2011} < F_{threshold}$).

Fishery Performance

Table 2 provides the coastwide quotas and landings for the spiny dogfish fishery since the establishment of the FMP in 2000. Toward the end of the federal rebuilding schedule that ended in 2010, substantial increases in stock biomass allowed for an increase in the federal quota in 2009 to 12 M lb while still maintaining the rebuilding fishing mortality rate. Under the interstate FMP, quota increases began earlier in 2006 – 2008 (Table 3). Note that in 2010-2011, the commercial quota implemented in state waters was lower than for federal waters. Both quotas were based on the same technical advice, however, the state water quota reflects reductions for overages in accordance with Addendum 2 to the ISFMP. Similar accountability measures will be applied in federal waters in accordance with Amendment 2 to the federal FMP.

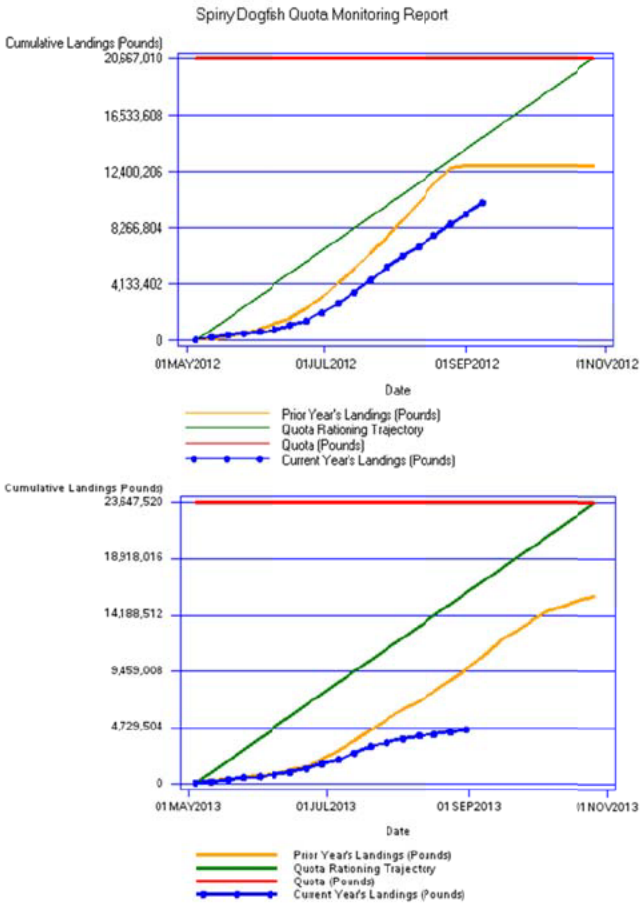
Federal and interstate quotas differed in four of nine years since 2003. The larger of the two quotas was exceeded four times by an average of 7.8%. For the current 2012 fishing year, the commercial fishery is on track to underharvest the quota in Period 1 (Figure 3). If this trend continues to the end of the fishing year, it would be the first time the stock was declared to be rebuilt that the quota is under-harvested. A major purpose for the AP Fishery Performance Report will be to explain non-biological constraints on landings.

Table 2. Summary of spiny dogfish landings relative to the quota(s) for 2000 - 2011.

Fishing year (May 1 - Apr 30)	Quota (M lb)		Landings (M lb)
	Federal	States'	
2000	4.0	n/a	8.2
2001	4.0	n/a	5.1
2002	4.0	n/a	4.8
2003	4.0	8.8	3.2
2004	4.0	4.0	1.5
2005	4.0	4.0	2.6
2006	4.0	6.0	6.6
2007	4.0	6.0	6.5
2008	4.0	8.0	9.0
2009	12.0	12.0	11.8
2010	15.0	14.4	14.5
2011	20.0	19.5	22.5
2012	35.7	35.7	28.0*

* *From quota monitoring webpage*

Figure 2. Comparison of 2011(top) and 2012 (bottom) commercial landings in mid-September from the NMFS quota monitoring website



Landings History

The catch history fo the fishery since 1989 is illustrate in Figure 2. The largest landings occurred during the unregulated fishery of the 1990s. The gradual increase in landings since 2005 is consistent with increasing biomass during rebuilding. A significant increase in landings occurred in 2011 when the quota for the rebuilt stock was increased to 20 M lb.

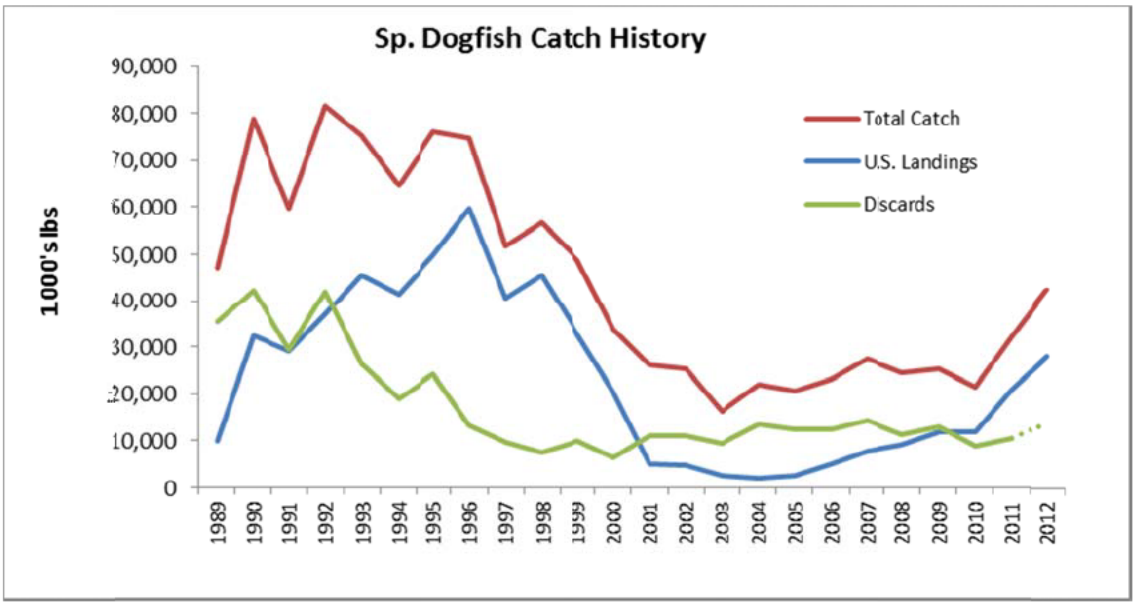


Figure 3. History of spiny dogfish landings and discards and total catch fro 1989 – 2012. From NMFS 2012 and Dealer reports.

Landings by Gear

Certain commercial gear types are associated with the retention of spiny dogfish in federal waters. The catch o spiny dogfish by gear in FY2012 i s given in T able 4. Spiny dogfish landings came mostly from sink gillnets (67.58%), bottom otter tra ls (20.23%), hook and line (11.58%), as well as unknown or other gear (0.58%).

Table 3. Commercial gear types associated with spiny dogfish harvest in FY2012. Note that total VTR landings are less than total dealer-reported landings. This is because vessels with state issued permits only are not required to co plete VTRs.

Gear	Lbs	Pct
GILL NET	12,367,393	71.7%
TRAWL, OTTER, BOTTOM	1,791,693	10.4%
HOOK AND LINE	3,067,743	17.8%
OTHER	29,962	0.2%
Total	17,256,791	100.0%

Source: Vessel Trip Reports

Landings by Area

The Northeast Region is divided into 46 statistical areas for federal fisheries management (Figure 4). According to VTR data, six statistical areas collectively accounted for 73.04 % of spiny dogfish landings in 2010, with each contributing greater than 5.0 % of the total (Table 5). These areas also represented 73.5% of the trips that landed spiny dogfish suggesting that resource availability as expressed by catch per trip is fairly consistent through the range where harvest occurs.

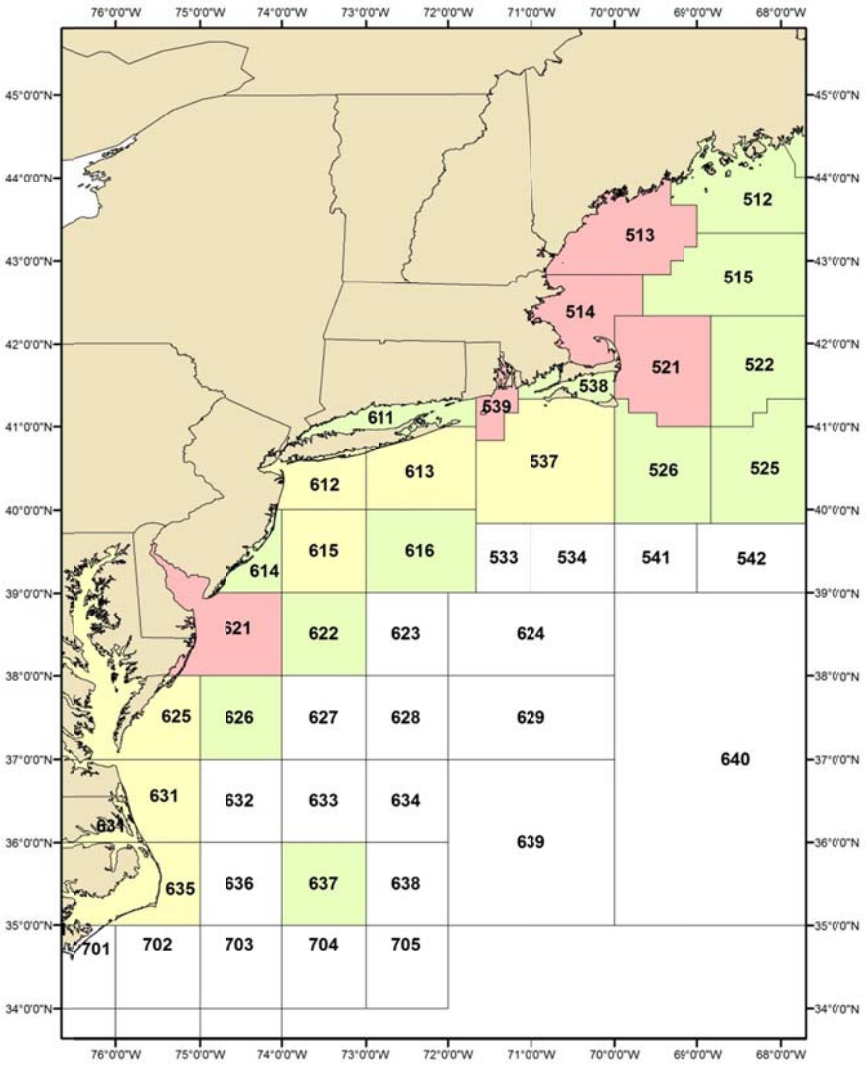


Figure 4. NMFS Northeast statistical areas. Shaded areas indicate where spiny dogfish harvest occurs. Red areas comprise 5% or more of harvest, yellow areas 1% to 5% of harvest, and green areas less than 1%.

Table 5. Statistical areas that accounted for >1 % of the spiny dogfish catch and/or trips in FY2010 VTR data. Shading (red or green) is provided for reference with Figure 4.

STATAREA	Trips	lbs	Pct Trips	Pct Lbs
514	3,487	4,684,764	29.1%	27.1%
521	2,262	4,354,554	18.9%	25.2%
513	1,839	1,892,981	15.3%	11.0%
621	559	1,083,718	4.7%	6.3%
539	933	927,956	7.8%	5.4%
631	268	674,602	2.2%	3.9%
615	294	646,755	2.5%	3.7%
612	476	617,641	4.0%	3.6%
537	560	540,071	4.7%	3.1%
625	211	442,140	1.8%	2.6%
635	120	433,391	1.0%	2.5%
613	313	353,403	2.6%	2.0%

Source: Vessel Trip Report database

Canadian Commercial Spiny Dogfish Landings

Historic Canadian commercial landings have been low relative to landings from the U.S. commercial fishery (Table 1). In 2001, following the implementation of the U.S. Federal FMP, Canadian landings exceeded U.S. landings for the first time. In 2008, Canadian landings were about 3.5 M lb, but in 2009 landings dropped precipitously to about 250,000 lb. In 2010, the increased availability of U.S. spiny dogfish continued to constrain demand for Canadian product (pers. comm. Barndollar[1] and Marder[2] 2011) even though Canada has allowed a directed fishery under a 2,500 mt (5.512 M lb) quota with no trip limits. In 2010 Canadian landings dropped further to 13,000 lb.

Recreational Landings

As previously stated, no significant recreational fishery exists for spiny dogfish. Some retention of recreationally caught spiny dogfish does occur, however. Recreational landings are provided in the 2012 assessment update.

Landings by State

Commercial harvest has historically been dominated by Massachusetts (Table 6). Starting in 2007, dogfish landings from Virginia were greater than or approximately equivalent to those of Massachusetts. State-by-state landings since 2007 are influenced by the regional allocation of commercial quota through the ASMFC's Interstate FMP. Currently, the ISFMP allocates 58% of the annual quota to a northern region (Maine –Connecticut), and the remaining 42% among

[1] Steve Barndollar was on the MAFMC's Spiny Dogfish Advisory Panel and is the owner of Seatrade Int'l, one of the primary processors of U.S. and Canadian spiny dogfish on the Atlantic Coast. He attended the Spiny Dogfish Monitoring Committee meeting in September 2011.

[2] Brian Marder is the owner of Marder Trawling, Inc., a major processor of U.S. and Canadian spiny dogfish on the Atlantic Coast. He attended the Spiny Dogfish Monitoring Committee meeting in September 2011.

states from New York – North Carolina (NY 2.707%; NJ 7.644%; DE 0.896%; MD 5.920%; VA 10.795%, NC 14.036%).

In fishing year 2011, Massachusetts accounted for 43.6% of coastwide landings (Table 12). North Carolina (13.1%), Virginia (10.7%), New Hampshire (7.9%), and New Jersey (7.8%) were also important landings states. No other states contributed more than 5% of annual landings.

Table 6. Commercial landings (1,000s lb) of spiny dogfish by state from fishing years 1989 through 2011.

Year	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1989	4,962	0	5,100	47	24	13	1,434	0	714	18	0	9,903
1990	6,251	185	20,304	2,968	9	44	4,754	0	5,150	62	41	32,475
1991	2,059	0	13,523	1,901	22	74	2,382	6	3,338	165	1,463	29,049
1992	1,818	405	17,457	2,116	9	140	1,493	0	1,877	220	8,635	37,165
1993	3,408	1,639	26,189	1,554	170	100	707	0	1,893	379	8,806	45,509
1994	1,788	2,610	23,181	603	85	475	1,422	63	2,233	665	6,929	41,447
1995	1,683	2,094	28,789	414	408	815	2,581	0	7,752	1,065	9,525	50,068
1996	904	1,135	27,208	1,518	619	1,381	5,833	0	4,820	4,832	10,304	60,055
1997	437	999	21,417	682	282	312	3,831	0	2,105	3,945	5,924	40,460
1998	288	1,935	24,866	1,906	241	1,704	7,091	2	2,199	5,004	3,928	45,476
1999	28	1,233	14,824	1,237	87	2,868	6,586	0	808	1,750	3,601	32,760
2000	1	2,279	5,545	130	12	145	5	0	0	72	12	20,407
2001	0	529	3,912	395	7	62	17	0	0	178	0	5,056
2002	1	349	3,800	455	6	49	1	0	2	114	0	4,839
2003	0	175	2,006	141	2	41	0	0	5	451	520	2,579
2004	3	0	1,094	129	60	42	7	0	1	39	20	2,160
2005	31	162	1,826	173	93	44	1	0	11	66	10	2,535
2006	180	633	2,744	518	62	11	3	0	16	2,286	144	5,212
2007	99	185	2,796	523	23	21	10	0	25	2,575	167	7,723
2008	49	1,370	3,559	239	10	23	50	0	114	2,479	1,416	9,057
2009	594	1,885	3,881	940	92	192	1,342	14	175	1,487	1,708	11,752
2010	229	1,214	6,442	708	107	468	1,208	8	542	1,731	1,887	14,543
2011	349	1,646	9,069	1,265	187	407	1,628	31	1,265	2,237	2,727	20,811

Source: NMFS Commercial Fisheries Database.

Landings by Month

Under the current federal FMP, the annual commercial quota is allocated seasonally to two half-year periods. Period 1 (May 1 – Oct 31) is allocated 57.9% of the quota and Period 2 is allocated 42.1% of the quota. This allocation scheme was implemented as part of the rebuilding plan in order to match seasonal availability of the resource with the historic landings patterns by communities over the fishing year. Upon implementation of Amendment 3 to the FMP, there will be no seasonal allocation of the federal coastwide quota. The elimination of this provision is being implemented to minimize conflicts with the ASMFC plan which allocates the coastwide quota by state and region, rendering moot any federal attempt to use seasons as a proxy for regional allocation.

In fishing year 2011, spiny dogfish were landed in all months with peak landings occurring in June-August of Period 1 and Nov – Jan of Period 2 (Table 13).

Table 1. Spiny dogfish landings (lb) by month in FY2011.

	Month	Landings(lb)	Pct of Total
Period 1	May	668,690	3.21%
	Jun	2,289,432	11.00%
	Jul	4,842,812	23.27%
	Aug	5,101,594	24.51%
	Sep	27,861	0.13%
	Oct	153	0.00%
	Total	12,930,542	62.13%
Period 2	Nov	2,678,766	12.87%
	Dec	1,894,919	9.11%
	Jan	2,990,281	14.37%
	Feb	102,685	0.49%
	Mar	135,241	0.65%
	Apr	78,289	0.38%
	Total	7,880,181	37.87%
	Grand Total	20,810,723	100.00%

Source: NEFSC NMFS Commercial Fisheries Database, SEFSC General Canvass Data

6.4.3 Commercial Fishery Value

Unpublished NMFS dealer reports indicate that the total ex-vessel value of commercially landed spiny dogfish in calendar year 2011 was about $4.646 million, and in fishing year 2011 was about $4.456 million. The approximate price/lb of spiny dogfish was $0.22 and $0.21 in those timeframes, respectively (Table 8).

Table 8. Ex-vessel value and price per pound of commercially landed spiny dogfish, Maine - North Carolina combined, 2000-2011.

Calendar Year	Value ($1,000)	Price ($/lb)	Fishing Year	Value ($1,000)	Price ($/lb)
2000	4,342	0.21	2000	1,989	0.24
2001	1,137	0.22	2001	1,147	0.23
2002	989	0.20	2002	970	0.20
2003	364	0.14	2003	415	0.12
2004	311	0.14	2004	260	0.17
2005	479	0.19	2005	545	0.21
2006	1,188	0.23	2006	1,434	0.22
2007	1,508	0.20	2007	1,360	0.20
2008	2,207	0.24	2008	2,157	0.24
2009	2,544	0.21	2009	2,360	0.22
2010	2,674	0.22	2010	3,119	0.21
2011	4,646	0.22	2011	4,456	0.21

Source: NMFS Commercial Fisheries Database

In FY2011, 174 vessels with federal dogfish permits were reported in the dealer data to have had dogfish revenues greater than 5% of total revenue (dogfish revenue range $100 to 51,029, average = $14,454; dogfish rev / total rev range 5.0% to 100%, average = 41.0%).

Commercial Vessel and Dealer Activity

According to unpublished NMFS permit file data, 2,743 vessels were issued federal spiny dogfish permits in 2011, while 326 of these vessels contributed to overall landings. The distribution of permitted and active vessels by home port state is given in Table 10. Most of the active vessels were from Massachusetts (31.6%), New Jersey (14.7%), New Hampshire (11.4%), Rhode Island (9.8%), New York (8.0%), North Carolina (6.7%), and Virginia (5.8%). The remaining 39 vessels from all other states comprised 12.0% of the total.

Table 2. Federally permitted dogfish vessel activity by home port state in FY2011. Active vessels are defined as vessels identified in the dealer reports as having landed spiny dogfish in FY2011.

State	Permitted Vessels	Pct of Total	State	Active Vessels	Pct of Total
MA	1,012	36.89%	MA	103	31.60%
NJ	404	14.73%	NJ	48	14.72%
RI	176	6.42%	NH	37	11.35%
NY	283	10.32%	RI	32	9.82%
NC	157	5.72%	NY	26	7.98%
VA	126	4.59%	NC	22	6.75%
NH	131	4.78%	VA	19	5.83%
ME	303	11.05%	ME	16	4.91%
MD	41	1.49%	MD	13	3.99%
CT	51	1.86%	CT	8	2.45%
DE	26	0.95%	Other	2	0.61%
PA	17	0.62%	**Total**	**326**	**100.00%**
FL	11	0.40%			
Other	5	0.18%			
Total	**2,743**	**100.00%**			

Source: NMFS permit data, Commercial Fisheries Database

NMFS permit data indicate that 311 dealers possessed federal spiny dogfish dealer permits in 2010 while dealer reports indicate 76 of those dealers actually bought spiny dogfish. The distribution of permitted and active dealers by state is given in Table 11. Most of the active dealers were from the states of Massachusetts (27.63%), New York (21.05%), Rhode Island (13.16%), North Carolina (13.16%), New Jersey, (9.21%), Virginia (6.58), and Maine (3.95%) with the remaining four dealers in other states comprising 5.26% of the total.

Table 3. Federally permitted spiny dogfish dealers by state in FY2011. Active dealers are defined as dealers identified in the federal dealer reports as having bought spiny dogfish in FY2011.

State	Permitted Dealers	Pct of Total
MA	85	27.33%
NY	68	21.86%
NJ	39	12.54%
RI	33	10.61%
NC	25	8.04%
ME	20	6.43%
VA	18	5.79%
MD	8	2.57%
NH	7	2.25%
CT	3	0.96%
PA	3	0.96%
Other	2	0.64%
Total	**311**	**100.00%**

State	Active Dealers	Pct of Total
MA	21	27.63%
NY	16	21.05%
RI	10	13.16%
NC	10	13.16%
NJ	7	9.21%
VA	5	6.58%
ME	3	3.95%
Other	4	5.26%
Total	**76**	**100.00%**

Source: NMFS permit data, Commercial Fisheries Database

Port and Community Description

Spiny dogfish landings were reported from a total of 68 unique ports in the dealer data. Landings by port for FY2011 are given in Table 15. Gloucester, MA accounted for the largest share of total FY2011 landings (16.37%), followed by Chatham, MA (16.27%), Scituate, MA (6.00%), New Bedford, MA (5.99%), and VA Beach/Lynnhaven, VA (5.50%). No other port comprised greater than 5% of total landings.

Spiny dogfish revenue was calculated as a % of total port revenue and was both greater than $100,000 and greater than 1% of port revenue in Virginia Beach/Lynnhaven, VA (9.7%), Rye, NH (6.2%), Scituate, MA (7.6%), and Seabrook, NH (5.4%). Port descriptions for these ports from the NEFSC's "Community Profiles for the Northeast US Fisheries" are provided in Appendix 1. A complete set of profiles is online:
http://www.nefsc.noaa.gov/read/socialsci/communityProfiles.html

Table 4. Commercial landings (lb) and value of spiny dogfish by port for fishing year 2011.

Port	Landings (lb)	Pct of Total	Value ($)	Pct of Total	Total Port Value ($)	Dogfish Value / Port Value
GLOUCESTER, MASSACHUSETTS	2,864,652	16.37%	570,141	14.62%	45,509,416	1.3%
CHATHAM, MASSACHUSETTS	2,846,747	16.27%	546,656	14.02%	14,218,775	3.8%
SCITUATE, MASSACHUSETTS	1,049,300	6.00%	231,160	5.93%	3,060,331	7.6%
NEW BEDFORD, MASSACHUSETTS	1,048,340	5.99%	302,517	7.76%	289,648,827	0.1%
VIRGINIA BEACH/LYNNHAVEN, VIRGINIA	962,000	5.50%	221,255	5.67%	2,286,877	9.7%
OCEAN CITY, MARYLAND	806,402	4.61%	189,602	4.86%	5,032,587	3.8%
BARNEGAT LIGHT/LONG BEACH, NEW JERSEY	779,662	4.46%	181,377	4.65%	23,688,379	0.8%
POINT JUDITH, RHODE ISLAND	700,592	4.00%	123,671	3.17%	30,697,930	0.4%
POINT PLEASANT, NEW JERSEY	636,570	3.64%	144,866	3.71%	19,392,086	0.7%
LITTLE COMPTON, RHODE ISLAND	556,233	3.18%	125,692	3.22%	3,369,617	3.7%
PORTSMOUTH, NEW HAMPSHIRE	537,737	3.07%	124,327	3.19%	4,737,034	2.6%
RYE, NEW HAMPSHIRE	536,330	3.07%	144,805	3.71%	2,347,292	6.2%
SEABROOK, NEW HAMPSHIRE	451,521	2.58%	121,179	3.11%	2,234,730	5.4%
All Others (55)	3,719,465	21.26%	873,160	22.39%	301,429,058	0.29%
Total	**17,495,551**	**100.00%**	**3,900,408**	**100.00%**	**747,652,939**	**0.52%**

Source: Unpublished NMFS dealer reports

Bycatch

Discards of non-target species in the directed spiny dogfish fishery are difficult to characterize since defining the directed fishery can be done a number of ways. Gear-specific landings data suggest that catch composition varies among gears and that some gear (e.g., bottom longline) are more likely to produce catches that are predominantly spiny dogfish, while other gear (e.g., bottom trawls) are characterized by a more diverse catch. Discards have been tabulated for observed trips in 2011 where any dogfish were retained and are summarized in Table 7.

On gillnet trips, spiny dogfish comprised 61.09% of total observed discards, with other major discard species including lobster (11.20%), and winter skate (5.35%), and seven other species comprising between 1% and 5% of discards (Table 7) with 56 other species less than 1% each, but in aggregate 6.70% of total discards.

On observed bottom longline trips, a total of 19 species besides spiny dogfish were accounted for in the discards. Atlantic cod comprised 29.90% of discards, spiny dogfish 28.30%, thorny skate 27.90%, and five other species comprising between 1% and 5% of discards (Table 7) and twelve other species less than 1% each, but in aggregate 3.40% of total discards.

On observed trawl trips, spiny dogfish comprised 30.41% of discards, little skate 13.36%, and winter skate 10.36%, and red hake 5.13%. Thirteen other species comprised between 1 and 5% of discards (Table 7), and 92 additional discard species were less than 1% each, but in aggregate, 13.90% of total discards.

The species composition would likely be different if only trips that directed on spiny dogfish were considered. Those trips represent a subset of the trips where any amount of spiny dogfish was landed and would likely include a smaller suite of bycatch species.

Table 5. Discards associated with the dominant gear types used to harvest spiny dogfish in Fishing Year 2011 as reported in northeast fisheries observer program (NEFOP) data when any spiny dogfish were landed. Species comprising 1% or more of the discards by gear are shown. Stock status for each discard species is also indicated (see below)

Hook and Line			Gill Net, Sink			Trawl, Otter, Bottom		
Discard Species	**Discards (lb)**	**Pct Of Total for this Gear**	**Discard Species**	**Discards (lb)**	**Pct Of Total for this Gear**	**Discard Species**	**Discards (lb)**	**Pct Of Total for this Gear**
COD, ATLANTIC [d,e]	955	29.90%	DOGFISH, SPINY [a,b]	53,272	61.09%	DOGFISH, SPINY [a,b]	111,986	30.41%
DOGFISH, SPINY [a,b]	905	28.30%	LOBSTER [a,b]	9,770	11.20%	SKATE, LITTLE [a,b]	49,211	13.36%
SKATE, THORNY [a,d]	893	27.90%	SKATE, WINTER [a,b]	6,995	8.02%	SKATE, WINTER [a,b]	38,136	10.36%
SKATE, WINTER [a,b]	99	3.10%	SKATE, BARNDOOR [a,b]	2,249	2.58%	HAKE, RED [a,b]	18,891	5.13%
BASS, STRIPED[A,B]	75	2.30%	MONKFISH [a,b]	2,196	2.52%	SKATE, NK [n/a]	17,701	4.81%
LOBSTER [a,b]	72	2.30%	SKATE, THORNY [a,d]	1,712	1.96%	HAKE, SILVER [a,b]	16,420	4.46%
SKATE, BARNDOOR [a,b]	48	1.50%	SKATE, LITTLE [a,b]	1,526	1.75%	CRAB, HORSESHOE[C,F]	11,924	3.24%
OCEAN POUT [d,b]	41	1.30%	RAVEN, SEA [n/a]	1,339	1.54%	HAKE, SPOTTED[n/a]	7,900	2.15%
OTHER (12 sp.)	108	3.40%	BLUEFISH [a,b]	1,217	1.40%	SCALLOP, SEA [a,b]	5,868	1.59%
			COD, ATLANTIC [d,e]	1,063	1.22%	FLOUNDER, WINTER [mixed - a,d,b]	5,746	1.56%
			OTHER (56 sp.)	5.866	6.70%	STARFISH, SEASTAR,NK [n/a]	5,559	1.51%
						SKATE, BARNDOOR [a,b]	5,543	1.51%
						BUTTERFISH [a,d]	5,513	1.50%
						LOBSTER [a,b]	4,962	1.35%
						FLOUNDER, WINDOWPANE[d,e]	3,997	1.09%
						FLOUNDER, SUMMER [a,b]	3,850	1.05%
						FLOUNDER, FOURSPOT [n/a]	3,821	1.04%
						OTHER (92 sp.)	51,244	13.90%
Total	**3,088**	**100%**	**Total**	**81,339**	**100%**	**Total**	**368,271**	**100%**

[a] not overfished, [b] overfishing not occurring, [c] overfished is unknown, [d] overfished, [e] overfishing is occurring, [f] overfishing unknown, [n/a] not applicable; [A,B] not overfished, no overfishing (ASMFC), [C,F] status unknown (ASMFC)

Source: Northeast Fishery Observer Program, 3rd Quarter 2012 NMFS Fish Stock Sustainability Index