ASMFC Spiny Dogfish Technical Committee
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A Preliminary Update on the Status of Spiny Dogfish, 2002

by

ASMFC Dogfish Technical Committee

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Massachusetts Marine Fisheries

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ASMFC Spiny Dogfish Technical Report.

The Spiny Dogfish Technical Committee held a conference call on August 21, 2002 to review the 2002 NEFSC survey results for dogfish. The call commenced at 1 PM. Present on the call were Chris Batsavage (NC DMF), Steven Correia (MA DMF, Chair), Megan Gamble (ASMFC, Plan Coordinator), Clare McBane (NH FG), Matt Gates (CT DMF) Chris Powell (RI DFW), Paul Rago (NEFSC), Rich Seagraves (MAFMC), Jeff Tinsman (DE DFW) and Bryon Young (NY DEC). The committee reviewed the 2002 NEFSC spring survey data for spiny dogfish.

Total Biomass
Annual biomass estimates for spiny dogfish (thousands of metric tons) based on area swept spring surveys, 1968-2002 are presented in Table 1. As in previous reports, descriptions of population trends are based on three point moving averages in order to reduce the influence of annual survey variability. Total biomass in 2000-2002 is similar to previous years (Figure 1). The steep rate of decline in total biomass appears to have slowed in recent years.

Female Biomass
The timeseries of female biomass index covers the period 1982-2002. The 2000-2002 biomass index for females ≥ 80 CM is similar in magnitude to the 1999-2000 index (Figure 2). The 3 point moving average appears to have stabilized since 1999, and remains near the timeseries low. This index represents the population of mature females. The biomass index for intermediate sized females 36-79 cm is also similar to values observed in 2000 and 2001 (Figure 3).

Male Biomass
Biomass of males ≥ 80 cm in 2002 remains near the low 2001 value (Figure 4). The decline in the three point moving average appears to have halted near the timeseries low. Biomass of intermediate sized males (36-79) in 2002 is similar in value to 2001 (Figure 5).

Pup biomass
Pup biomass (female and males < 36 cm) remains extremely low for the sixth consecutive year (Figure 6). The poor pup production is less than expected based on size composition and abundance of females population that generated these yearclasses. Whether low pup production is a function of lower survivability or lower birth rates is unknown. Recent work conducted by Northeast Fishery Science Center and Massachusetts Marine Fisheries to examine estimate pup production/ embryos by size has not been completed.

Female abundance at length composition.
Abundance at length is based on a three year moving average of the NEFSC spring survey stratified mean number at length index. The 2000-2002 distribution of abundance at length for the 50-65 cm range has declined from 1998-2000 and 1999-2001 (Figure 7). This decline is consistent with poor pup production observed in 1997 and 1998. Abundance at length in the 65-80 cm range is similar to the most recent period. A slight increase in abundance in the 78-80cm is likely survey variability. The abundance at length for >80 cm group is similar to previous 1998-2000 and 1999-2001 periods. The abundance of the >80 cm size range appears to have stabilized, but remains at low abundance compared to abundance prior to expansion of the fishery in the early 1990's (Figure 8).

Male abundance at length composition.
The distribution of abundance at length for males for 2002 is similar to the most recent years, with the exception of continuing decline in the 55-60 cm range (Figure 9). Again, the continuing decline in abundance of this size group likely represents the growth of the poor 1997 and 1998 yearclasses. The abundance indices of males greater than 80 cm and less than 50 cm is similar to abundance observed in 1999-2001 and 1998-2000

Projections
Although 2002 survey data were available, projections could not be updated using the new data. Insufficient time was available to develop other data, such as characterizing the length structure of the catches, necessary for updating the projections in time for August Management Board meeting. Given the status of the resource, the Technical Committee does not expect the updated projections to substantially change when updated. The projections provided at the May Management Board Meeting remain sufficient for comparing the various management alternatives. Updated projections will be available at the September 19, 2002 meeting of the Spiny Dogfish Monitoring Committee.

Impact of expanding Canadian Fishery on Projections
Canadian landings have increased from 426 mt in 1996 to 3,755 mt in 2001 while USA landings have decreased from 27,241 to 2,298 mt (Table 2). In 2002, Canadians set a spiny dogfish quota at 3,200 mt for the Nova Scotia and Bay of Fundy. The fix gear fishery quota is 2,500 mt (vessels under 14 meters) and an additional 700 mt has been set aside for a Scientific sampling program. Canadian vessels from other fleets will be limited to catches consistent with historical landings. The quota will either reduce Canadian landings slightly or cap the landings near 2001 Canadian landings (3,577 mt).

Canadian landings are not explicitly included in the projection models but are modeled in the projected discards. Implied discards are projected by applying the historical discards to landings ratio to projected landings. When the projection model was originally developed, Canadian landings were a negligible fraction of the USA landings. It was assumed that the projections based on USA landings were sufficient to characterize the pattern of fishing mortality. The recent increase in Canadian landings violates that assumption. Ignoring Canadian landings may lead to longer rebuilding times as the total catch may result in fishing mortality rates that are higher than projected from the USA landings quota. Canadian quota can be explicitly taken into account by taking Canadian landings into consideration when setting the USA quota, i.e., USA quota = total quota-Canadian quota. Another option is to have Canada and USA co-manage the stock as a Trans-boundary stock. The Technical Committee will try to modify the projection model to account for the increase in Canadian landings.

Other issues regarding discards
The Technical Committee notes that management changes to fisheries that significantly interact with spiny dogfish, notably Northeast Multispecies, are expected in the near future. This will also impact discarding of spiny dogfish. These anticipated changes are also not modeled in the projections. At this time, the Technical Committee can not project what the impact of changes to other FMP will have on spiny dogfish.

Other Business
The meeting opened the floor for nominations to the vice chair position. Nominations were not made and the vice chair position remains vacant. The Technical Committee adjourned the conference call at 1:53 PM.

Table 1. Biomass estimates for spiny dogfish (thousands of metric tons) based on area swept by NEFSC trawl during spring surveys, 1968-2002.

Year	Lengths >= 80 cm			Lengths 36 to 79 cm			Length <= 35 cm			All Lengths
	Females	Males	Total	Females	Males	Total	Females	Males	Total	
1968			41.4			110.4			1.52	153.3
1969			27.4			69.3			0.66	97.3
1970			36.7			33.0			3.19	72.9
1971			103.8			27.6			2.76	134.2
1972			126.6			145.9			1.55	274.1
1973			178.7			165.3			2.58	346.5
1974			221.9			179.6			2.66	404.1
1975			105.1			125.0			3.97	234.0
1976			96.3			120.8			1.20	218.3
1977			77.3			68.0			0.53	145.9
1978			87.4			131.2			1.24	219.8
1979			52.3			18.6			1.82	72.7
1980	104.7	15.3	168.1	16.8	72.2	123.5	0.32	0.39	0.84	292.4
1981	266.5	24.4	293.8	25.5	75.1	100.6	2.14	2.80	5.06	399.5
1982	454.0	34.6	488.6	61.6	143.3	204.9	0.48	0.69	1.17	694.6
1983	77.7	30.1	107.8	36.7	98.5	135.3	3.09	3.95	7.03	250.1
1984	115.6	27.5	143.1	33.4	88.0	121.4	0.14	0.21	0.35	264.9
1985	317.0	125.5	442.6	102.5	502.5	605.0	4.01	5.10	9.10	1056.7
1986	191.3	3.5	194.8	51.9	29.6	81.5	0.84	1.11	1.96	278.2
1987	219.1	90.5	309.6	61.5	171.7	233.1	2.46	4.76	7.22	550.0
1988	433.1	26.2	459.4	93.3	153.6	247.0	0.89	1.09	1.98	708.4
1989	162.1	40.5	202.6	100.4	158.2	258.6	1.14	1.54	2.68	463.9
1990	400.3	70.7	471.0	163.5	303.1	466.6	0.68	1.03	1.71	939.3
1991	220.4	30.0	250.3	108.4	186.3	294.7	0.98	1.43	2.41	547.4
1992	280.5	41.9	322.4	179.9	231.9	411.8	0.73	1.00	1.73	735.9
1993	234.6	27.8	262.5	104.1	198.5	302.6	0.55	0.65	1.21	566.3
1994	105.3	37.1	142.4	108.3	254.2	362.5	4.28	5.54	9.82	514.8
1995	102.4	29.5	131.9	154.0	174.5	328.5	0.25	0.35	0.59	460.9
1996	196.5	33.4	229.9	201.7	334.8	536.4	0.98	1.14	2.12	768.5
1997	83.7	17.5	101.2	205.2	209.1	414.3	0.05	0.05	0.10	515.5
1998	26.7	22.9	49.7	69.0	236.4	305.4	0.05	0.08	0.13	355.2
1999	62.7	20.4	83.1	140.8	256.4	397.2	0.02	0.03	0.05	480.4
2000	85.8	11.7	97.5	91.5	166.2	257.7	0.07	0.09	0.16	355.4
2001	56.7	16.7	73.4	71.4	160.5	231.9	0.04	0.03	0.07	305.4
2002	75.2	19.0	94.2	131.5	246.3	377.8	0.06	0.06	0.12	472.1

Notes: Total equals sum of males and females plus unsexed dogfish. Data for dogfish prior to 1980 are currently not available by sex.

Table 2. Canadian and USA landing of spiny dogfish, 1996-2001.

Year	Canadian landings (mt)	USA landings (mt)
1996	426	27,241
1997	447	18,353
1998	1,079	20,628
1999	2,465	14,860
2000	2,677	9,255
2001	3,755	2,298

Figure 1. NEFSC Area Swept Biomass index of spiny dogfish, both sexes combined.

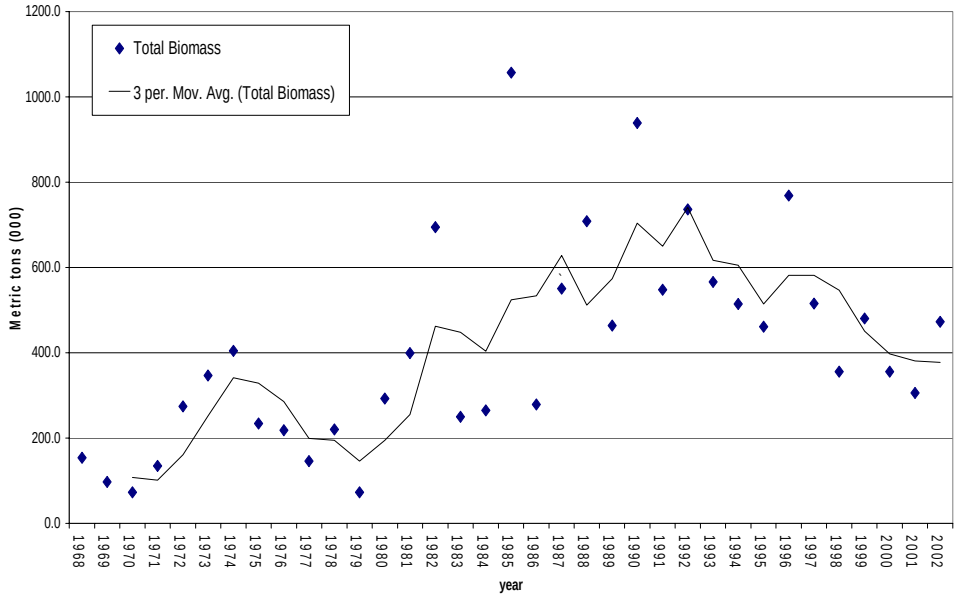

Figure 2. NEFSC Area Swept Biomass Index of Females Dogfish >= 80 cm.

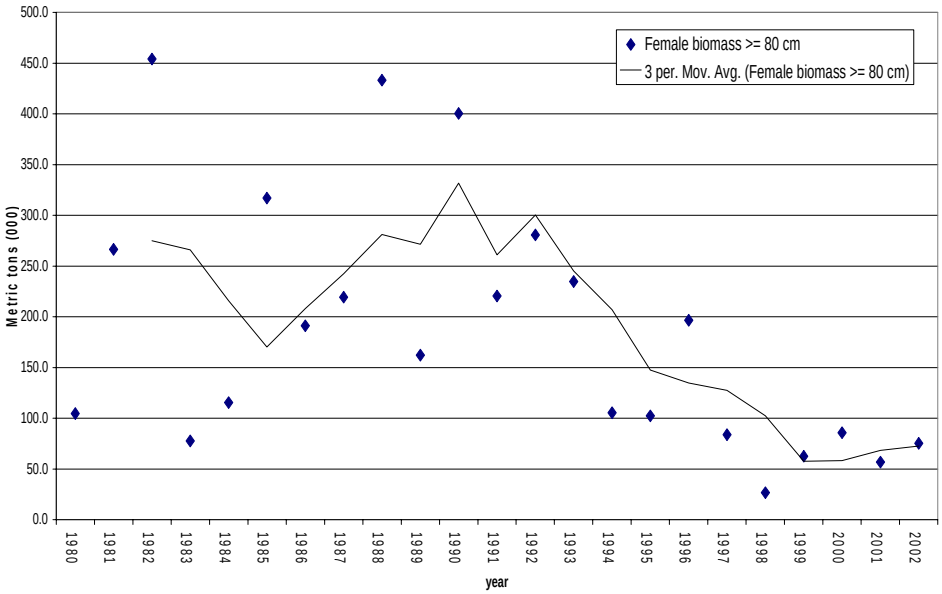

Figure 3. NEFSC Area Swept Biomass Index of Females Spiny Dogfish 36-79 cm.

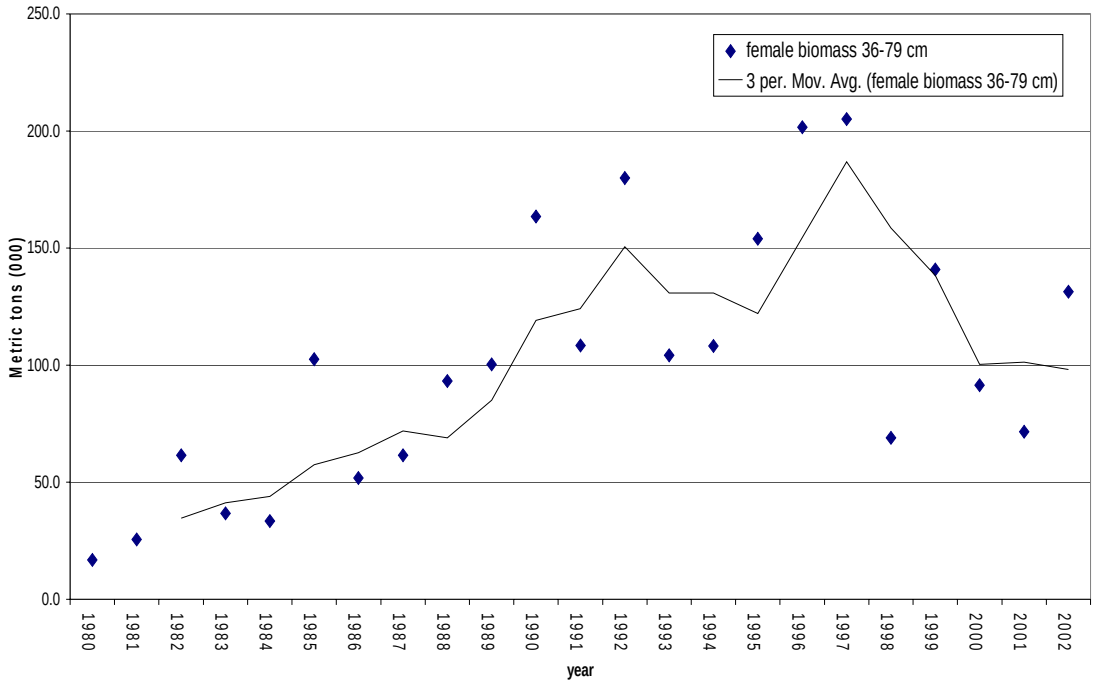

Figure 4. NEFSC Area Swept Biomass index of male spiny dogfish >= 80 cm.

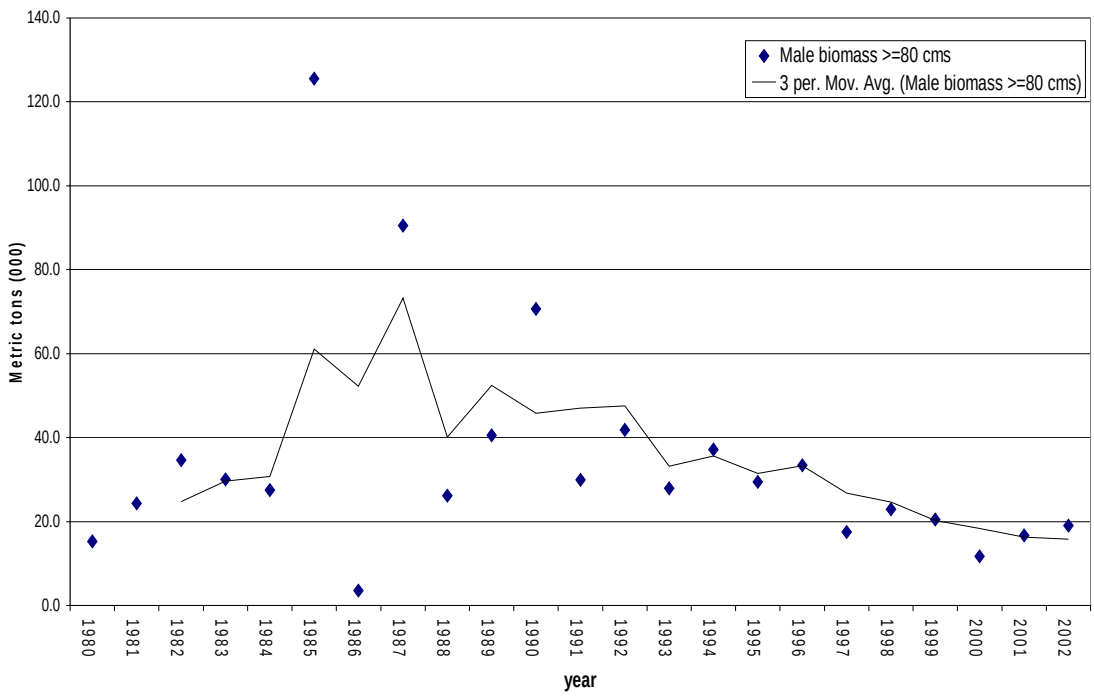

Figure 5. NEFSC Area Swept Biomass Index of Male Spiny Dogfish, 36-79 cm

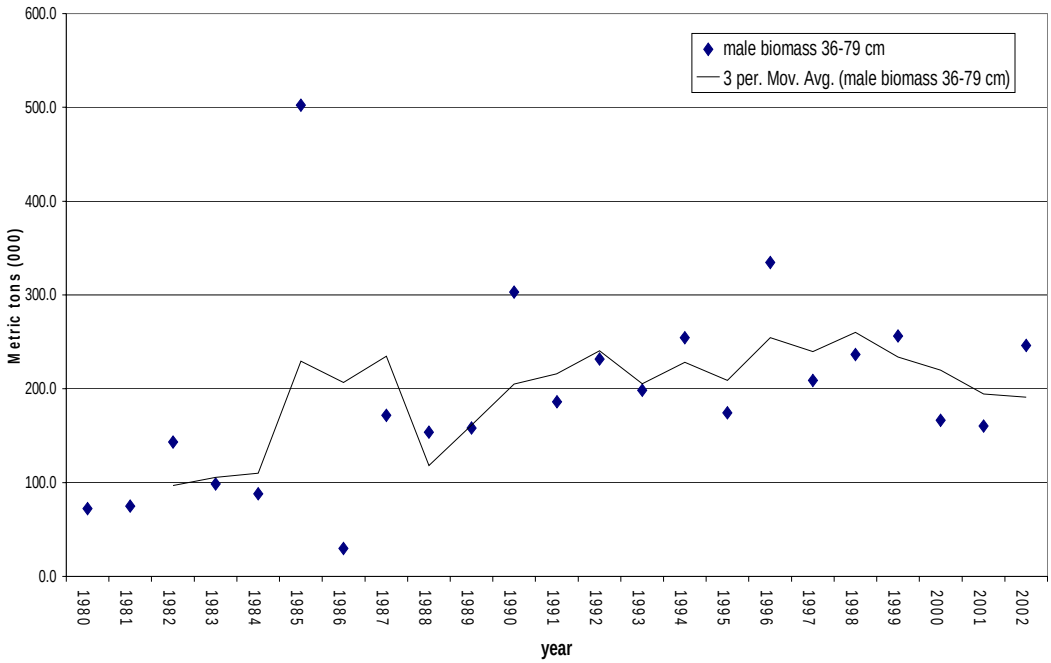

Figure 6. NEFSC Area Swept Biomass Index of Pups. Both Sexes combined < 36 cm,

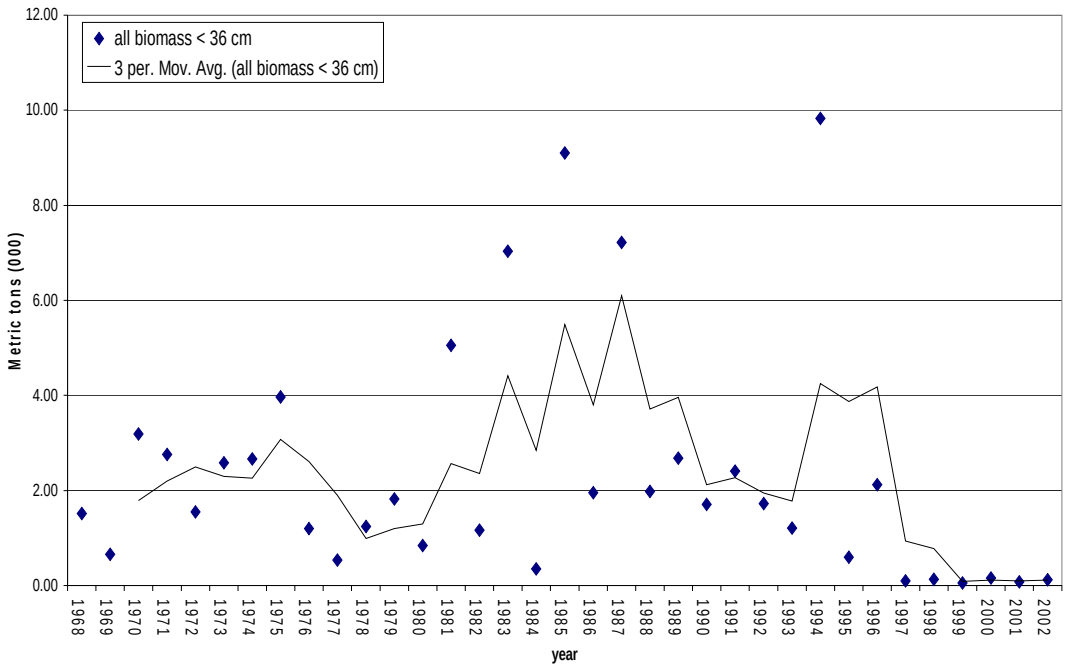

Figure 7. Summary of 3-yr average abundance at length for female spiny dogfish from NEFSC spring surveys.

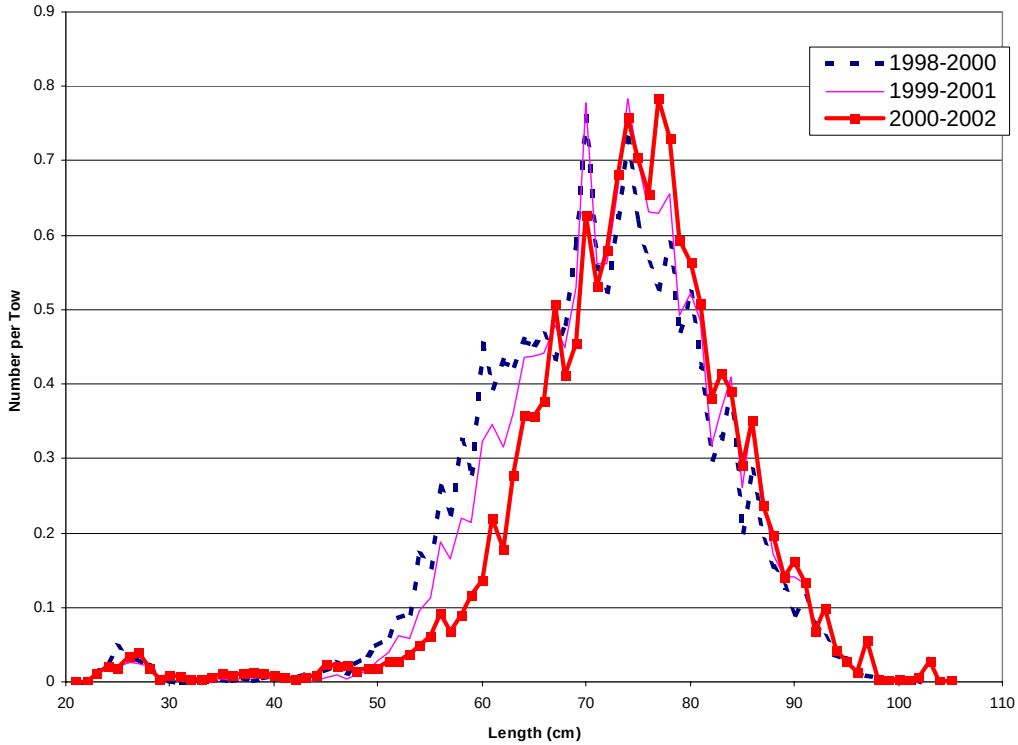

Figure 8. Comparison of 3-year Average Length Frequencies: 1987-1989 vs 2000-2002

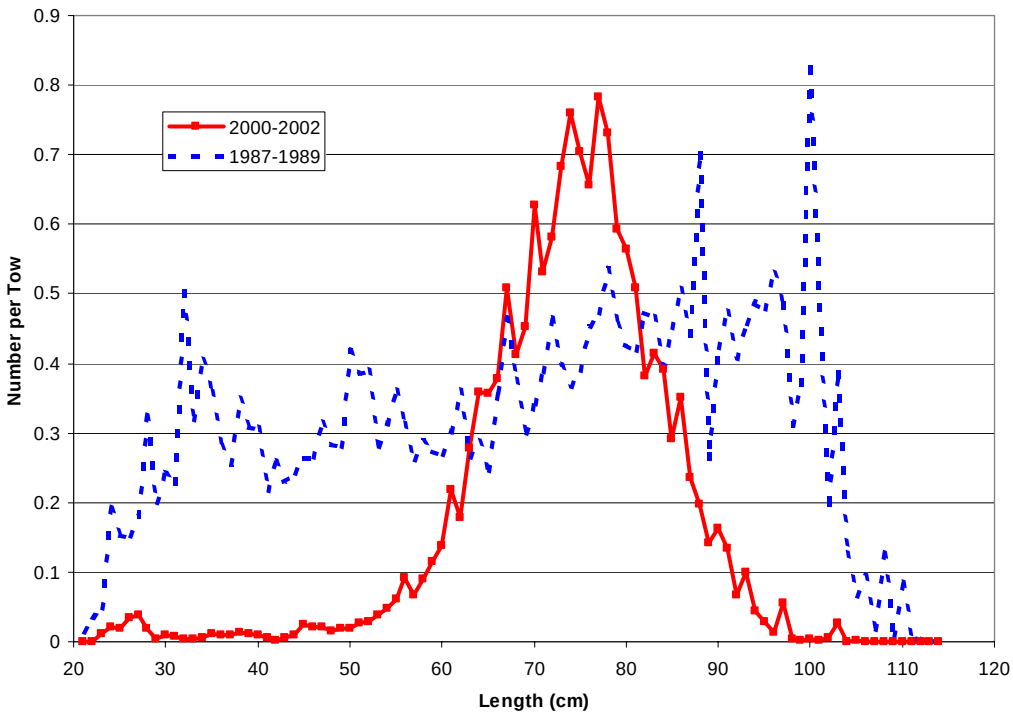

Figure 9. Summary of 3-yr average abundance at length for male spiny dogfish from NEFSC spring surveys.