

NORTHERN SHRIMP TABLES

Table A4-1. NSTC recommendations made and actions taken by the ASMFC Northern Shrimp Section for management of the Gulf of Maine northern shrimp fishery, 1987–2007 (adapted from Clark et al. 2000)

Fishing Season	Recommendations	Actions Taken
1987	<ul style="list-style-type: none"> • Extension of season to maximum allowed • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (182 days) • Continuation of mesh regulations
1988	<ul style="list-style-type: none"> • Restriction of season to winter and spring • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (183 days) • Continuation of mesh regulations, except 0.25 inch tolerance in codend eliminated
1989	<ul style="list-style-type: none"> • Extension of season to maximum allowed • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (182 days) • Continuation of mesh regulations • Shrimp separator trawls required in April and May
1990	<ul style="list-style-type: none"> • Extension of season to maximum allowed • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (182 days) • Continuation of mesh regulations • Shrimp separator trawls required in December, April, and May
1991	<ul style="list-style-type: none"> • Extension of season to maximum allowed • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (182 days) • Continuation of mesh regulations • Shrimp separator trawls required throughout season
1992	<ul style="list-style-type: none"> • Restriction of season from January – March • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (153 days). December 16, 1991 – May 15, 1992. • No fishing on Sundays • Continuation of mesh regulations • Shrimp separator trawls required throughout season • Finfish excluder devices required April 1 – May 15
1993	<ul style="list-style-type: none"> • Restriction of season from January – March • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (138 days). December 14, 1992 – April 30, 1993 • No fishing on Sundays • Continuation of mesh regulations • Finfish excluder devices and separator panels required
1994	<ul style="list-style-type: none"> • Restriction of season from January – March • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (122 days) December 15, 1993 – April 15, 1994. • Continuation of mesh regulations • Finfish excluder devices
1995	<ul style="list-style-type: none"> • Restriction of season from January – March • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (128 days). December 1, 1994 – April 30, 1995. • No fishing Fridays or Sundays (state choice) • Continuation of mesh regulations • Finfish excluder devices required
1996	<ul style="list-style-type: none"> • Extension of season to maximum allowed • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (152 days). December 1, 1995 – May 31, 1996 for mobile gear; no fishing one day per week. • Open season (121 days). January 1 – May 31, 1996 for fixed gear (traps) • Continuation of mesh regulations • Finfish excluder devices required

Table A4-1 continued.

1997	<ul style="list-style-type: none"> • Restriction of effort in December, April, and May • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (156 days). December 1, 1996 – May 31. Two 5-day and four 4-day blocks of no fishing. Trap gear may be left untended. • Continuation of mesh regulations • Finfish excluder devices required
1998	<ul style="list-style-type: none"> • Restriction of effort in February – March • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (105 days). December 1, 1997 – May 22, 1998 for mobile gear; no fishing weekends except March 14 – 15 and December 25-31 and March 16 – 31. • Open season (65 days). January 1 – March 15 for trap gear. No fishing on Sundays except March 15. • Continuation of mesh regulations • Finfish excluder devices required
1999	<ul style="list-style-type: none"> • Restriction of season to 40 days during February – March • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (90 days). December 15, 1998 – May 25, 1999 for mobile gear. No fishing on weekends plus December 24-25, December 28 – January 1, January 27-29, February 24-26, March 17-31, and April 29-30. • Open season (61 days). January 10 – March 10 for trap gear. • Continuation of mesh regulations • Finfish excluder devices required
2000	<ul style="list-style-type: none"> • No fishing; closed season 	<ul style="list-style-type: none"> • Open season (51 days). January 15 – March 15. No fishing on Sundays. • Continuation of mesh regulations • Finfish excluder devices required
2001	<ul style="list-style-type: none"> • Restriction of season to 61 days • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (83 days). January 9 – April 30. March 18-April 15 no fishing. Experimental offshore fishery in May. • Continuation of mesh regulations • Finfish excluder devices required
2002	<ul style="list-style-type: none"> • No fishing; closed season 	<ul style="list-style-type: none"> • Open season (25 days). February 15 – March 11. • Continuation of mesh regulations • Finfish excluder devices required
2003	<ul style="list-style-type: none"> • No fishing; closed season 	<ul style="list-style-type: none"> • Open season (38 days). January 15 – February 27. No fishing on Fridays. • Continuation of mesh regulations • Finfish excluder devices required
2004	<ul style="list-style-type: none"> • No fishing; closed season 	<ul style="list-style-type: none"> • Open season (40 days). January 19 – March 12. No fishing on weekends. • Continuation of mesh regulations • Finfish excluder devices required • No mechanical shaking of net on vessel
2005	<ul style="list-style-type: none"> • Landings should not exceed 2,500 metric tons • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (70 days). December 19 – 30, no fishing on Friday and Saturday; January 3 – March 25, no fishing on weekends. • Continuation of mesh regulations • Finfish excluder devices required • No mechanical shaking of net on vessel
2006	<ul style="list-style-type: none"> • Landings should not exceed 5,200 metric tons • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (140 days). December 12 – April 30. • 2007 fishing season tentatively set at 140 days. • Continuation of mesh regulations • No mechanical shakers allowed on vessel
2007	<ul style="list-style-type: none"> • No recommendation against 140-day season • Continuation of mesh regulations 	<ul style="list-style-type: none"> • Open season (151 days). December 1 – April 30. • 2008 fishing season tentatively set at 151 days. • Continuation of mesh regulations • No mechanical shakers allowed on vessel

Table A5-1. Commercial landings (mt) of northern shrimp in the western Gulf of Maine.
1 mt =2,205 lbs.

Year	Maine		Massachusetts		New Hampshire		Total mt		Total lbs		\$/Lb
1958	2.3		0.0		0.0		2.3		5,072		0.32
1959	5.4		2.3		0.0		7.7		16,979		0.29
1960	40.4		0.5		0.0		40.9		90,185		0.23
1961	30.4		0.5		0.0		30.9		68,135		0.20
1962	159.7		16.3		0.0		176.0		388,080		0.15
1963	244.0		10.4		0.0		254.4		560,952		0.12
1964	419.4		3.1		0.0		422.5		931,613		0.12
1965	947.0		8.0		0.0		955.0		2,105,775		0.12
1966	1,737.8		10.5		18.1		1,766.4		3,894,912		0.14
1967	3,141.1		10.0		20.0		3,171.1		6,992,276		0.12
1968	6,515.0		51.9		43.1		6,610.0		14,575,050		0.11
1969	10,992.9		1,772.9		58.1		12,823.9		28,276,700		0.12
1970	7,712.8		2,902.1		54.4		10,669.3		23,525,807		0.20
1971	8,354.7		2,723.8		50.8		11,129.3		24,540,107		0.19
1972	7,515.6		3,504.5		74.8		11,094.9		24,464,255		0.19
1973	5,476.7		3,868.2		59.9		9,404.8		20,737,584		0.27
1974	4,430.7		3,477.3		36.7		7,944.7		17,518,064		0.32
1975	3,177.0		2,080.2		29.5		5,286.7		11,657,174		0.26
1976	617.2		397.8		7.3		1,022.3		2,254,172		0.34
1977	148.0		236.9		2.3		387.2		853,776		0.55
1978	0.0		0.0		0.0		0.0		0		0.24
1979	32.9		451.3		2.3		486.5		1,072,733		0.33
1980	71.4		260.3		7.4		339.1		747,716		0.65
1981	528.6		538.1		4.5		1,071.2		2,361,996		0.64
1982	883.2 *853.3		658.5 *655.3		32.8 *21.6		1,574.5 *1,530.2		3,471,773 *3,374,091		0.60
1983	1,022.0 892.5		508.0 458.4		36.5 46.2		1,566.5 1,397.1		3,454,133 3,080,606		0.67
1984	2,564.7 2,394.9		565.3 525.1		96.8 30.7		3,226.8 2,950.7		7,115,094 6,506,294		0.49
1985	2,956.9 2,946.4		1,030.6 968.0		207.4 216.5		4,194.9 4,130.9		9,249,755 9,108,635		0.44
1986	3,407.3 3,268.2		1,085.6 1,136.3		191.1 230.5		4,684.0 4,635.0		10,328,220 10,220,175		0.63
1987	3,534.2 3,673.2		1,338.7 1,422.2		152.5 157.8		5,025.4 5,253.2		11,081,007 11,583,306		1.10
1988	2,272.4 2,257.2		631.5 619.6		173.1 154.5		3,077.0 3,031.3		6,784,785 6,684,017		1.10
1989	2,542.6 2,384.0		749.6 699.9		314.3 231.5		3,606.5 3,315.4		7,952,333 7,310,457		0.98
1990	2,961.5 3,236.1		993.2 974.3		447.3 451.2		4,402.0 4,661.6		9,706,410 10,278,828		0.72
1991	2,431.1 2,488.1		727.6 801.1		208.2 282.2		3,366.9 3,571.4		7,424,015 7,874,937		0.93
1992	2,973.9 3,054.1		291.6 289.1		100.1 100.0		3,365.6 3,443.6		7,421,148 7,593,138		0.99
1993	1,562.8 1,492.2		300.3 292.8		441.1 357.4		2,304.7 2,142.9		5,081,864 4,725,095		1.03
1994	2,815.5 2,239.3		374.4 247.5		520.9 428.0		3,710.8 2,914.8		8,182,314 6,427,134		0.79
1995	5,022.7		678.8		764.9		6,466.4		14,258,412		0.88
1996	7,737.0		658.0		771.0		9,166.1		20,211,251		0.72
1997	6,050.0		362.8		666.3		7,079.1		15,609,416		0.82
1998	3,482.0		247.2		445.2		4,174.4		9,204,552		0.94
1999	1,523.4		75.7		217.0		1,816.1		4,004,501		0.93
2000	2,067.3		109.9		212.3		2,389.5		5,268,848		0.79
2001	1,073.4		49.2		206.4		1,329.1		2,930,666		0.86
2002**	364.8		7.7		51.2		423.7		934,259		1.07
2003**	1,081.20		23.1		106.7		1,211.00		2,670,255		0.87
2004**	1,756.00		17.5		175.2		1,948.70		4,296,884		0.46
2005**	2,214.60		48.6		289.9		2,553.20		5,629,806		0.56
2006**	1,762.50		25.2		88.9		1,876.60		4,137,903		

*Computed on a seasonal basis (includes December of the previous year).

**Includes removals by experimental studies

2005 and 2006 are preliminary.

Table A5-2. Landings (metric tons) in the Gulf of Maine northern shrimp fishery by state and month. 1 mt = 2,205 lbs.

	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Other</u>	<u>Total</u>		<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Other</u>	<u>Total</u>		
1987 Season, 182 days, Dec 1 - May 31																			
Maine	485.9	906.2	1,192.7	672.9	287.6	127.9	7.0	3,680.2											
Mass.	103.5	260.0	384.9	310.2	180.8	182.8	5.7	1,427.9											
N.H.	18.4	53.6	62.8	15.7	7.3	0.0	0.1	157.9											
Total	607.8	1,219.8	1,640.4	998.8	475.7	310.7	12.8	5,266.0											
1988 Season, 183 days, Dec 1 - May 31																			
Maine	339.7	793.9	788.1	243.6	24.6	67.3	1.2	2,258.4											
Mass.	14.4	225.8	255.0	104.9	8.6	10.9	0.0	619.6											
N.H.	13.0	72.6	53.7	14.9	0.3	0.0	3.1	157.6											
Total	367.1	1,092.3	1,096.8	363.4	33.5	78.2	4.3	3,035.6											
1989 Season, 182 days, Dec 1 - May 31																			
Maine	353.6	770.5	700.6	246.4	218.7	94.2		2,384.0											
Mass.	26.2	197.5	154.9	104.8	160.9	55.6		699.9											
N.H.	28.5	106.9	77.0	15.4	3.7	0.0		231.5											
Total	408.3	1,074.9	932.5	366.6	383.3	149.8		3,315.4											
1990 Season, 182 days, Dec 1 - May 31																			
Maine	512.4	778.2	509.7	638.5	514.0	282.8	0.1	3,235.7											
Mass.	75.6	344.4	184.8	100.2	158.9	110.0	4.3	978.2											
N.H.	111.3	191.7	116.1	30.7	1.4			451.2											
Total	699.3	1,314.3	810.6	769.4	674.3	392.8	4.4	4,665.1											
1991 Season, 182 days, Dec 1 - May 31																			
Maine	238.2	509.1	884.0	454.9	251.7	148.2	2.0	2,488.1											
Mass.	90.5	174.7	175.9	131.2	93.3	133.8	1.6	801.0											
N.H.	107.3	104.4	33.8	27.8	7.8	1.0		282.1											
Total	436.0	788.2	1,093.7	613.9	352.8	283.0	3.6	3,571.2											
1992 Season, 153 days, Dec 15 - May 15																			
Maine	181.1	880.9	1,278.9	462.5	163.6	87.2		3,054.2											
Mass.	17.1	148.2	73.3	47.5	2.9		0.1	289.1											
N.H.	33.4	47.0	11.9	6.8	1.0			100.1											
Total	231.6	1,076.1	1,364.1	516.8	167.5	87.2	0.4	3,443.7											
1993 Season, 138 days, Dec 14 - April 30																			
Maine	100.9	369.0	597.0	297.5	127.8			1,492.2											
Mass.	19.6	82.0	81.9	62.3	42.0	5.0		292.8											
N.H.	33.5	85.4	101.7	77.0	59.8			357.4											
Total	154.0	536.4	780.6	436.8	229.6	5.0	0.4	2,142.8											
1994 Season, 122 days, Dec 15 - Apr 15																			
Maine	171.5	647.7	971.9	399.5	48.7			2,239.3											
Mass.	27.1	68.0	100.8	38.8	12.8			247.5											
N.H.	117.2	124.3	128.7	49.6	8.2			428.0											
Total	315.8	840.0	1,201.4	487.9	69.7			2,914.8											
1995 Season, 128 days, Dec 1 - Apr 30, 1 day per week off																			
Maine	747.6	1,397.7	1,338.2	912.0	627.2			5,022.7											
Mass.	210.7	154.0	104.1	111.0	99.0			678.8											
N.H.	160.6	186.8	118.3	158.5	140.7			764.9											
Total	1,118.9	1,738.5	1,560.6	1,181.5	866.9			6,466.4											
1996 Season, 152 days, Dec 1 - May 31, 1 day per week off																			
Maine	1,124.1	1,678.3	3,004.6	785.2	350.4	794.5		7,737.1											
Mass.	167.9	106.7	188.7	67.8	66.5	60.3		657.9											
N.H.	189.8	169.5	234.0	81.9	78.8	17.1		771.1											
Total	1,481.8	1,954.5	3,427.3	934.9	495.7	871.9		9,166.1											
1997 Season, 156 days, Dec 1 - May 27, two 5-day and four 4-day blocks off																			
Maine	1,178.5	1,114.9	1,713.1	758.4	754.8	530.3		6,050.0											
Mass.	90.2	110.4	111.4	49.0	1.2	0.5		362.7											
N.H.	185.6	104.1	140.1	108.6	85.8	42.2		666.4											
Total	1,454.3	1,329.4	1,964.6	916.0	841.8	573.0		7,079.1											
1998 Season, 105 days, Dec 8-May 22, weekends off except Mar 14-15, Dec 25-31 and Mar 16-31 off.																			
Maine	511.1	926.8	1,211.1	401.7	228.7	202.6		3,482.0											
Mass.	49.1	78.0	90.5	14.3	15.3	0.0		247.2											
N.H.	89.4	106.9	143.5	54.3	49.0	2.1		445.2											
Total	649.6	1,111.7	1,445.1	470.3	293.0	204.7		4,174.4											
1999 Season, 90 days, Dec 15 - May 25, weekends, Dec 24 - Jan 3, Jan 27-31, Feb 24-28, Mar 16-31, and Apr 29 - May 2 off.																			
Maine	79.9	192.7	590.8	240.6	204.5	214.9		1,523.4											
Mass.	25.0	23.8	16.0	2.5	8.4			75.7											
N.H.	46.5	63.2	52.2	10.0	36.5	8.6		217.0											
Total	151.4	279.7	659.0	253.1	249.4	223.5		1,816.1											
2000 Season, 51 days, Jan 17 - Mar 15, Sundays off																			
Maine	607.4	1,271.4	188.5					2,067.3											
Mass.	17.4	78.7	13.8					109.9											
N.H.	39.6	131.1	41.6					212.3											
Total	664.4	1,481.2	243.9					2,389.5											
2001 Season, 83 days, Jan 9 - Apr 30, Mar 18 - Apr 16 off, experimental offshore fishery in May																			
Maine	576.0	433.5	37.1	26.5	0.3			1,073.4											
Mass.	38.5	8.9	1.9	0.0	0.0			49.2											
N.H.	127.9	37.4	12.1	29.0	0.0			206.4											
Total	742.4	479.8	51.1	55.5	0.3			1,329.1											
2002 Season, 25 days, Feb 15 - Mar 11																			
Maine	285.5	76.7						364.8											
Mass.	5.3	2.3						7.7											
N.H.	38.0	13.3						51.2											
Total	328.8	92.4						423.7											

Table A5-2 continued.

	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Other</u>	<u>Season Total</u>
2003 Season, 38 days, Jan 15 - Feb 27, Fridays off								
Maine	477.5	602.4	1.2				0.02	1,081.2
Mass.	10.5	12.6						23.1
N.H.	28.2	78.5						106.7
Total	516.2	693.5					0.02	1,211.0
2004 Season, 40 days, Jan 19 - Mar 12, Saturdays and Sundays off								
Maine	1.8	522.3	846.5	378.0	4.7	2.7	0.02	1,756.0
Mass.		5.2	10.1	2.1				17.5
N.H.		27.3	87.4	60.5				175.2
Total	1.8	554.8	944.0	440.7	4.7	2.7	0.02	1,948.7
**2005 Season, 70 days, Dec 19 - 30, Fri-Sat off, Jan 3 - Mar 25, Sat-Sun off								
Maine	75.0	377.8	871.2	890.6				2,214.6
Mass.	5.9	8.1	25.7	8.9				48.6
N.H.	17.3	53.5	175.4	43.7				289.9
Total	98.2	439.4	1,072.3	943.3				2,553.2
**2006 Season, 140 days, Dec 12 - Apr 30								
Maine	132.6	553.7	723.1	276.3	76.9			1,762.5
Mass.	4.5	8.0	6.4	6.3	0.0			25.2
N.H.	3.4	27.9	7.6	43.6	6.5			89.0
Total	140.4	589.6	737.1	326.2	83.3			1,876.6

* Preliminary data

Table A5-3. Landings (mt) in the Maine northern shrimp fishery by gear type and month, 2001 - 2006. 1 mt = 2,205 lbs.

	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Other</u>	<u>Season</u>	
								<u>Total</u>	<u>% of season total</u>
2001 Season, 83 days, Jan 9 - Apr 30, Mar 18 - Apr 16 off, experimental offshore fishery in May									
Trawl	532.8	360.6	31.4	26.4	0.3			951.5	89%
Trap	43.2	72.9	5.7	0.1	0			121.9	11%
Total	576.0	433.5	37.1	26.5	0.3			1,073.4	
2002 Season, 25 days, Feb 15 - Mar 11									
Trawl			245.3	70.1			2.5	318.0	87%
Trap			40.2	6.6			0	46.8	13%
Total			285.5	76.7			2.5	364.8	
2003 Season, 38 days, Jan 15 - Feb 27, Fridays off									
Trawl	411.3	465.6	1.2				0.02	878.1	81%
Trap	66.2	136.9	0				0	203.1	19%
Total	477.5	602.4	1.2				0.02	1,081.2	
2004 Season, 40 days, Jan 19 - Mar 12, Saturdays and Sundays off									
Trawl	1.8	510.5	807.2	361.587	4.7	2.7	0.02	1,688.4	96%
Trap		11.8	39.3	16.4	0	0	0	67.6	4%
Total	1.8	522.3	846.5	378.0	4.7	2.7	0.0	1,756.0	
*2005 Season, 70 days, Dec 19 - 30, Fri-Sat off, Jan 3 - Mar 25, Sat-Sun off									
Trawl	75.0	369.2	743.4	633.793				1,821.4	82%
Trap	0	8.6	127.8	256.8				393.2	18%
Total	75.0	377.8	871.2	890.6				2,214.6	
*2006 Season, 140 days, Dec 12 - Apr 30									
Trawl	132.4	540.4	607.2	211.4	76.1			1,567.5	89%
Trap	0.1	13.3	115.9	64.9	0.7			194.9	11%
Total	132.6	553.7	723.1	276.3	76.9			1,762.5	

* Preliminary data

Table A5-4. Distribution of fishing effort (number of trawl trips) in the Gulf of Maine northern shrimp fishery.

	Season							Total
	Dec	Jan	Feb	Mar	Apr	May	Other	
1987 Season, 182 days, Dec 1 - May 31								
Maine	993	2,373	3,073	2,241	617	340	16	9,653
Mass.	325	354	414	426	283	317	164	2,283
N.H.	67	164	175	95	28		32	561
Total	1,385	2,891	3,662	2,762	928	657		12,285
1988 Season, 183 days, Dec 1 - May 31								
Maine	972	2,183	2,720	1,231	193	122		7,421
Mass.	28	326	426	315	26	57		1,178
N.H.	72	231	236	99	3			641
Total	1,072	2,740	3,382	1,645	222	179		9,240
1989 Season, 182 days, Dec 1 - May 31								
Maine	958	2,479	2,332	936	249	84		7,038
Mass.	103	479	402	254	297	102		1,637
N.H.	120	369	312	69	16			886
Total	1,181	3,327	3,046	1,259	562	186		9,561
1990 Season, 182 days, Dec 1 - May 31								
Maine	1,036	1,710	1,529	1,986	897	238		7,396
Mass.	147	459	273	202	175	118		1,374
N.H.	178	363	284	157	6			988
Total	1,361	2,532	2,086	2,345	1,078	356		9,758
1991 Season, 182 days, Dec 1 - May 31								
Maine	568	1,286	2,070	1,050	438	139		5,551
Mass.	264	416	401	231	154	147		1,613
N.H.	279	285	135	82	22	1		804
Total	1,111	1,987	2,606	1,363	614	287		7,968
1992 Season, 153 days, Dec 15 - May 15								
Maine	411	1,966	2,700	1,222	318	141		6,758
Mass.	59	337	145	101	41			683
N.H.	96	153	76	29	3			357
Total	566	2,456	2,921	1,352	362	141		7,798
1993 Season, 138 days, Dec 14 - April 30								
Maine	249	1,102	1,777	1,032	227			4,387
Mass.	60	200	250	185	72			767
N.H.	76	246	275	256	151			1,004
Total	385	1,548	2,302	1,473	450			6,158
1994 Season, 122 days, Dec 15 - April 15								
Maine	265	1,340	1,889	1,065	122			4,681
Mass.	58	152	147	83	15			455
N.H.	169	228	266	173	18			854
Total	492	1,720	2,302	1,321	155			5,990
1995 Season, 128 days, Dec 1 - Apr 30, 1 day per week off								
Maine	879	2,341	2,641	1,337	694			7,892
Mass.	145	385	275	157	109			1,071
N.H.	189	331	279	359	344			1,502
Total	1,213	3,057	3,195	1,853	1,147			10,465
1996 Season, 152 days, Dec 1 - May 31, 1 day per week off								
Maine	1,341	2,030	3,190	1,461	444	457		8,923
Mass.	299	248	325	269	106	126		1,373
N.H.	331	311	389	248	155	61		1,495
Total	1,971	2,589	3,904	1,978	705	644		11,791
1997 Season, 156 days, Dec 1 - May 31, two 5-day and four 4-day blocks off								
Maine	1,674	1,753	2,737	1,178	793	530		8,665
Mass.	184	226	245	114	7	1		777
N.H.	277	245	301	218	189	62		1,292
Total	2,135	2,224	3,283	1,510	989	593		10,734
1998 Season, 105 days, Dec 8-May 22, weekends off except Mar 14-15, Dec 25-31 and Mar 16-31 off.								
Maine	852	1,548	1,653	725	346	189		5,313
Mass.	94	200	148	70	3	1		515
N.H.	141	216	182	134	83	22		778
Total	1,086	1,964	1,983	929	432	212		6,606
1999 Season, 90 days, Dec 15 - May 25, weekends, Dec 24 - Jan 3, Jan 27-31, Feb 24-28, Mar 16-31, and Apr 29 - May 2 off.								
Maine	190	556	1,125	553	324	172		2,920
Mass.	39	57	71	9	40			216
N.H.	82	192	213	44	123	21		675
Total	311	805	1,409	606	487	193		3,811
2000 Season, 51 days, Jan 17 - Mar 15, Sundays off								
Maine	653	1,838	401					2,892
Mass.	23	100	27					150
N.H.	36	179	78					293
Total	712	2,117	506					3,335
2001 Season, 83 days, Jan 9 - Apr 30, Mar 18 - Apr 15 off, experimental offshore fishery in May								
Maine	1,531	1,230	116	39	6			2,922
Mass.	111	47	11	1				170
N.H.	305	145	27	30				507
Total	1,947	1,422	154	70	6			3,599
2002 Season, 25 days, Feb 15 - Mar 11								
Maine	573	221					14	808
Mass.	13	9					1	22
N.H.	126	53						179
Total	712	283					15	1,010

Table A5-4 continued.

	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Other</u>	<u>Season Total</u>
2003 Season, 38 days, Jan 15 - Feb 27, Fridays off								
Maine	773	1,020					49	1,842
Mass.	35	39						74
N.H.	82	159						241
Total	890	1,218					49	2,157
2004 Season, 40 days, Jan 19 - Mar 12, Saturdays and Sundays off								
Maine	7	601	949	373	21	14	2	1,967
Mass.		9	32	8				49
N.H.		49	143	69				261
Total	7	659	1,124	450	21	14	2	2,277
**2005 Season, 70 days, Dec 19 - 30, Fri-Sat off, Jan 3 - Mar 25, Sat-Sun off								
Maine	147	665	945	801				2,558
Mass.	13	20	62	26				121
N.H.	26	86	224	76				412
Total	186	771	1,231	903				3,091
**2006 Season, 140 days, Dec 12 - Apr 30								
Maine	137	487	551	231	66			1,472
Mass.	8	13	15	13	0			49
N.H.	8	28	22	57	10			125
Total	153	528	588	301	76			1,646

* Preliminary data

Table A5-5. Distribution of fishing trips in the Maine northern shrimp fishery by gear type and month, 2001 – 2006.

	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Other</u>	<u>Season</u>	
								<u>Total</u>	<u>% of total</u>
2001									
Trawl		1,531	1,230	116	39	6		2,922	83%
Trap		191	347	68	1			607	17%
Total		1,722	1,577	184	40	6		3,529	
2002									
Trawl			573	221			14	808	77%
Trap			193	55				248	23%
Total			766	276			14	1,056	
2003									
Trawl		773	1,020				49	1,842	72%
Trap		253	466					719	28%
Total		1,026	1,486					2,561	
2004									
Trawl	7	601	949	373	21	14	2	1,967	82%
Trap		77	244	106	0	0	0	427	18%
Total	7	678	1,193	479	21	14	2	2,394	
*2005									
Trawl	147	665	945	801				2,558	75%
Trap	0	20	362	476				858	25%
Total	147	685	1,307	1,277				3,416	
*2006									
Trawl	137	487	551	231	66			1,472	70%
Trap	3	82	325	210	10			630	30%
Total	140	569	876	441	76			2,102	

* preliminary data

Table A5-6. Sample size (number of shrimp lengths measured) for Gulf of Maine northern shrimp port samples. (Samples were taken in 1997 – 2000 but data were not available for analysis here.)

Month	State	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	2001	2002	2003	2004	2005	2006
Dec	Maine	212	67	318	497		502	820	417	278	394	1149	904					912	1115
	Mass.	92	441	287	101		446	205		310	269	1611	1528					0	0
	NH		602	884	370	639	761	760	306	331	541	560	389					504	557
Jan	Maine	326	519	849	825	1204	460	2191	2327	2136	1717	1498	2718	5188	4418	2,670	3384	3091	
	Mass.	1108		426	354	741	1137	819	642	789	903	1342	1231	741	748	0	0	100	
	NH	283	876	672	674	631	990	953	551	427	418	499	450	794	735	358	1363	561	
Feb	Maine	642	283	187	667	898	190	2816	2058	1915	2722	1420	4862	3518	2618	3355	3,557	6504	3124
	Mass.	776	195	161	512	900	515	726	198	714	277	835	1709	854	573	1,643	821	0	541
	NH	585	788	459	517	551	513	336	480	422	439	370	355	648	455	697	629	872	766
Mar	Maine	368	205	127	506	571	1407	1419	1570	1502	1572	944	3378	1147	927		1,891	4596	3253
	Mass.	830	388	414	149		232	358	652	1133	607	633	633	283	138		212	932	531
	NH	91	298	499	75		639	508	97	97	375	550	598	205	532		294	472	1004
Apr	Maine	38	58			303		1076	526	108	563	2789	2882	1203					1115
	Mass.	647	236	245	81	313	103	377		1009	104			0					95
	NH									107		362	186	510					461
May	Maine				751	1218	226	1031	287				5638						
	Mass. NH	429		75		1382	127	216					648						
Jun	Maine																		
	Mass. NH		436																
Total		5,998	6,259	5,603	6,079	9,351	8,248	14,611	10,111	11,556	11,076	13,977	27,903	15,091	5,243	11,596	10,432	19,539	16,314

Table A5-7. Observed northern shrimp discards from the shrimp trawl fishery and other small-mesh fisheries in the Gulf of Maine. (1 lb = 0.45 kg.)

Shrimp Trawl Fishery

<u>Year</u>	<u>observed no. of trips</u>	<u>total lbs shrimp discarded</u>	<u>total lbs shrimp landed</u>	<u>% Discarded</u>
1989	40	24.0	44,519	0.05%
1990	31	30.0	44,350	0.07%
1991	49	135.0	54,011	0.25%
1992	77	24.0	71,602	0.03%
1993	78	30.0	65,651	0.05%
1994	77	795.0	85,118	0.93%
1995	62	488.0	80,455	0.61%
1996	29	0.0	38,089	0.00%
1997	15	220.0	16,192	1.36%
2001	2	0.0	1,250	0.00%
2003	7	0.0	3,478	0.00%
2004	11	100.6	16,510	0.61%
2005	10	0.0	10,945	0.00%
2006	12	0.0	9,850	0.00%

Herring Fishery

<u>Year</u>	<u>observed no. of trips</u>	<u>total lbs shrimp discarded</u>	<u>lbs shrimp discarded per trip</u>	<u>kg shrimp discarded per trip</u>
1995	13	1.0	0.1	0.03
1997	1	0.0	0.0	0.00
1998	1	0.0	0.0	0.00
1999	2	0.0	0.0	0.00
2000	3	0	0.0	0.00
2003	8	0	0.0	0.00
2004	88	1.1	0.0	0.01
2005	130	203.0	1.6	0.71
2006	14	16.0	1.1	0.52

Whiting (silver hake) Fishery

<u>Year</u>	<u>observed no. of trips</u>	<u>total lbs shrimp discarded</u>	<u>lbs shrimp discarded per trip</u>	<u>kg shrimp discarded per trip</u>
1995	23	2,273	98.8	44.83
1996	44	6,044	137.4	62.31
1999	14	0	0.0	0.00
2000	7	3	0.4	0.19
2001	2	0	0.0	0.00
2002	16	0	0.0	0.00
2003	3	3	1.0	0.45
2004	31	0	0.0	0.00
2005	7	0	0.0	0.00
2006	4	0	0.0	0.00

Table A5-8. CPUE in lbs/hour towing from Maine port sampling, and catch/trip from NMFS weighout and logbook data for all three states. (1 lb = 0.45 kg)

Year	Maine pounds per hour towing				lb/trip	kg/trip
	Inshore	Offshore	Combined			
	(<55 Fa)	(>55 Fa)	lbs/hr	kg/hr		
1991	94	152	140	6.3	988	45
1992	132	93	117	5.3	974	44
1993	82	129	92	4.2	767	35
1994	139	149	141	6.4	1,073	49
1995	172	205	193	8.8	1,362	62
1996	340	203	251	11.4	1,714	78
1997	206	192	194	8.8	1,454	66
1998	158	151	154	7.0	1,317	60
1999	159	146	152	6.9	1,067	48
2000	288	337	292	13.2	1,444	65
2001	100	135	109	4.9	740	34
2002	223	91	194	8.8	831	38
2003	174	215	182	8.3	1,029	47
2004	361	310	351	15.9	1,821	83
*2005	235	212	228	10.3	1,541	70
*2006	572	345	499	22.6	2,252	102

(*preliminary data)

Table A6-1. NSTC state/federal summer survey loge-transformed, stratified mean numbers and weights, per tow*, of northern shrimp. (1 kg = 2.2 lb)

<u>Year</u>	<u>N Tows</u>	<u>Age-1.5 Number</u>	<u>>22 mm** Number</u>	<u>>22 mm** Weight (kg)</u>	<u>Total Number</u>	<u>Total Weight (kg)</u>
1984		18	316	3.4	1,152	10.5
1985	44	337	1,184	11.7	1,849	17.7
1986	40	358	860	10.0	1,695	19.6
1987	41	342	854	9.5	1,533	14.8
1988	41	828	298	3.4	1,269	12.8
1989	43	276	564	6.1	1,883	17.0
1990	43	142	1,127	12.0	1,624	18.1
1991	43	482	657	8.0	1,255	11.7
1992	45	282	397	4.8	955	9.4
1993	46	757	250	2.8	1,156	9.1
1994	43	368	243	2.7	984	8.7
1995	35	292	628	7.0	1,449	13.3
1996	32	232	358	4.0	776	8.8
1997	40	374	245	2.8	762	7.7
1998	35	134	170	1.9	583	6.3
1999	42	114	174	1.9	398	5.8
2000	35	450	283	3.2	807	6.4
2001	36	18	146	1.5	451	4.3
2002	38	1,164	261	2.9	1,446	9.2
2003	37	11	173	1.7	564	5.5
2004	35	286	519	5.3	887	10.2
2005	46	1,753	871	10.3	3,661	23.3
2006	29	423	2,703	28.8	9,996	66.0
Mean	40	410	577	6.3	1,615	13.7
Median	41	337	358	4.0	1,156	10.2

*Based on strata 1, 3, 5, 6, 7 and 8.

**Will be fully recruited to the winter fishery.

Table A6-2. Summary of results from Collie-Sissenwine Analysis (CSA) of Gulf of Maine northern shrimp.

Fishing Season	New Recruits (millions)	Fully- Recruited (millions)	F (NR+FR)	Biomass		Exploitation Rate
				(1000 mt)	million lbs	
1985	839	777	0.28	11.7	25.8	22%
1986	855	949	0.26	15.3	33.8	20%
1987	652	1,089	0.32	15.9	35.1	24%
1988	510	984	0.19	13.8	30.4	15%
1989	820	963	0.20	12.3	27.1	15%
1990	803	1,140	0.30	15.0	33.1	22%
1991	545	1,126	0.24	15.9	35.0	19%
1992	406	1,021	0.23	13.9	30.6	18%
1993	367	881	0.19	11.4	25.2	15%
1994	559	801	0.25	9.2	20.3	20%
1995	913	822	0.50	12.1	26.8	35%
1996	900	816	0.73	13.9	30.5	47%
1997	557	643	1.06	10.0	22.0	57%
1998	479	322	0.73	5.6	12.3	47%
1999	357	300	0.46	4.7	10.4	32%
2000	263	324	0.51	4.7	10.5	35%
2001	337	275	0.30	4.4	9.7	22%
2002	265	353	0.08	4.7	10.4	7%
2003	560	442	0.14	5.8	12.8	11%
2004	421	681	0.23	8.0	17.6	18%
2005	938	684	0.18	13.0	28.7	14%
2006	4,330	1,058	0.03	32.1	70.9	3%
2007	6,363	4,052		71.5	157.6	
Overall average			0.34	14.1		24%
1985-94 average			0.25	13.4		19%

Table A6-3. Summary of results from surplus production analysis (ASPIC) for Gulf of Maine northern shrimp (1 kg = 2.2 lbs., 1 mt = 2,205 lbs)

Fishing Season	Input				Results			
	Fall (kg/tow)	Maine (kg/tow)	Summer (kg/tow)	Catch (mt)	Biomass (mt)	F	B/Bmsy	F/Fmsy
1968	3.20	45.8		5,708	44,700	0.13	1.49	0.72
1969	2.70	31.2		12,140	43,250	0.31	1.44	1.72
1970	3.70	40.8		11,330	35,970	0.35	1.20	1.93
1971	3.00	9.4		10,590	29,980	0.39	1.00	2.17
1972	3.30	7.0		11,220	24,710	0.53	0.82	2.94
1973	1.90	7.8		9,691	18,400	0.63	0.61	3.52
1974	0.80	4.9		8,024	12,800	0.80	0.43	4.46
1975	0.90	6.7		6,142	7,757	1.18	0.26	6.58
1976	0.60	4.8		1,387	3,309	0.44	0.11	2.46
1977	0.20	1.6		372	2,990	0.11	0.10	0.62
1978	0.40	3.2		17	3,753	0.00	0.12	0.02
1979	0.50	4.4		487	5,209	0.08	0.17	0.46
1980	0.50	2.7		339	6,624	0.05	0.22	0.25
1981	1.50	3.0		1,071	8,662	0.11	0.29	0.63
1982	0.30			1,530	10,460	0.14	0.35	0.75
1983	1.00			1,397	12,230	0.10	0.41	0.58
1984	1.90		10.47	2,951	14,550	0.20	0.48	1.09
1985	1.60		17.69	4,131	15,650	0.26	0.52	1.47
1986	2.50		19.61	4,635	15,670	0.30	0.52	1.68
1987	1.70		15.40	5,266	15,140	0.36	0.50	2.03
1988	1.20		12.76	3,036	13,820	0.21	0.46	1.19
1989	1.80		16.95	3,315	14,680	0.22	0.49	1.23
1990	2.00		18.12	4,665	15,400	0.31	0.51	1.73
1991	0.90		11.68	3,571	14,790	0.24	0.49	1.33
1992	0.60		9.43	3,444	15,250	0.22	0.51	1.23
1993	1.60		9.14	2,143	15,950	0.13	0.53	0.70
1994	2.20		8.69	2,915	18,180	0.15	0.60	0.85
1995	1.80		13.29	6,466	19,930	0.34	0.66	1.90
1996	1.10		8.77	9,166	18,120	0.60	0.60	3.32
1997	1.30		7.73	7,079	13,040	0.65	0.43	3.60
1998	2.30		6.33	4,174	9,171	0.50	0.30	2.80
1999	2.54		5.78	1,816	7,567	0.23	0.25	1.29
2000	1.28		6.39	2,390	8,203	0.29	0.27	1.61
2001	0.87		4.33	1,329	8,373	0.15	0.28	0.82
2002	0.17		9.16	424	9,802	0.04	0.33	0.21
2003	0.95		5.45	1,211	12,630	0.09	0.42	0.49
2004	0.83		10.23	1,949	15,250	0.12	0.51	0.66
2005	1.84		23.29	2,553	17,570	0.14	0.58	0.77
2006	2.77		65.95	1,877	19,620	0.09	0.65	0.50
2007					22,650		0.75	
Average	1.54			4,153	15,545	0.29		
				1971-74 average	21,473	0.59		
				1985-94 average	15,453	0.24		
				2004-06 average	17,480	0.12		

Table A10-1. Species and sizes of consistent pandalid predators

Common Name	Scientific Name	Size	Size Cut-offs
Thorny Skate	<i>Raja radiata</i>	M	>30 and <=60
		L	>60 and <=80
		XL	>80
Silver Hake	<i>Merluccius bilinearis</i>	S	<=20
		M	>20 and <=40
Atlantic cod	<i>Gadus morhua</i>	M	>20 and <=50
		L	>50 and <=80
Pollock	<i>Pollachius virens</i>	M	>20 and <=50
		L	>50 and <=80
White Hake	<i>Urophycis tenuis</i>	M	>20 and <=40
		L	>40 and <=60
Red Hake	<i>Urophycis chuss</i>	M	>20 and <=40
		L	>40
Four-spot Flounder	<i>Paralichthys oblongus</i>	M	>20 and <=40
Windowpane	<i>Scophthalmus aquosus</i>	M	>20 and <=40
Longhorn Sculpin	<i>Myoxocephalus</i>	S	<=25
	<i>octodecemspinosus</i>	M	>25 and <=50
Sea Raven	<i>Hemitripterus americanus</i>	S	<=25