

Tables

Table C4.6-1. Commercial landings (MT) and percent of annual total by state and year. A) Landings (MT); B) Percent of total.

A)	Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	FL	Total
	1981	18.1	109.8	12.4	615.9	1,701.1	477.0	153.5	1,121.2	7,662.9	86.3	11,958.2
	1982	10.4	80.2	11.6	570.2	940.5	587.2	113.0	974.9	5,466.9	79.9	8,834.8
	1983	3.1	74.3	19.4	385.6	985.5	409.1	176.9	1,176.1	4,642.0	53.4	7,925.4
	1984	2.2	76.0	14.2	219.8	1,248.1	354.9	147.4	956.6	5,892.6	57.1	8,968.9
	1985	1.4	74.0	12.8	175.2	1,374.4	449.4	143.4	944.5	4,454.9	60.0	7,690.0
	1986	2.6	57.9	6.2	163.2	1,455.4	328.2	152.7	904.5	6,490.7	49.3	9,610.7
	1987	0.8	35.7	13.4	149.3	949.9	262.1	166.4	890.3	5,220.2	55.8	7,743.9
	1988	1.7	8.8	1.1	56.5	1,058.2	240.7	377.7	668.2	6,845.6	52.2	9,310.7
	1989	0.9	4.4	1.0	46.9	661.6	240.5	337.4	465.0	4,588.5	77.7	6,423.9
	1990	0.8	11.2	0.6	9.0	439.2	278.1	300.4	547.7	2,631.8	62.2	4,281.0
	1991	0.9	11.3	9.7	50.6	532.6	225.6	148.9	480.7	2,408.0	74.8	3,943.1
	1992	1.4	13.7	1.6	76.2	426.7	164.4	174.8	249.5	2,205.6	67.1	3,381.0
	1993	0.5	4.5	0.7	40.1	378.5	88.3	82.5	493.5	1,954.7	65.5	3,108.8
	1994		8.2	5.0	45.1	315.4	118.8	63.9	587.1	1,583.0	81.5	2,808.0
	1995	0.2	23.9	2.9	78.2	393.4	127.6	31.5	673.6	1,865.8	22.8	3,219.9
	1996	0.0	19.7	3.1	165.7	372.9		60.2	719.9	1,804.3	2.0	3,147.8
	1997	0.0	14.1	5.0	152.7	470.1	253.5	87.4	706.7	1,615.3	5.3	3,310.1
	1998	0.2	35.0	6.6	225.2	818.6	250.7	110.9	845.5	1,521.4	6.8	3,820.9
	1999	1.2	57.3	10.1	222.2	585.7	199.7	101.4	759.3	1,187.3	7.9	3,132.1
	2000	0.2	85.9	3.6	160.0	486.0	149.1	94.5	618.2	847.8	4.3	2,449.6
	2001	0.1	49.7	3.1	262.5	379.9	85.1	84.3	508.9	889.2	4.9	2,267.7
	2002	0.4	55.7	4.6	233.1	391.5	78.4	50.5	518.9	829.3	2.6	2,165.0
	2003	0.2	28.7	1.4	65.5	154.3	41.5	21.5	208.4	385.0	1.2	907.7
	2004	0.0	17.4	2.8	80.9	92.8	23.3	19.8	161.9	310.9	1.2	711.0
	2005		18.9	2.8	49.8	29.2	32.1	16.2	176.9	191.2	3.3	520.4
	2006	3.9	20.2	3.2	69.3	93.7	15.6	23.2	85.2	164.6	2.7	481.6
	2007	0.2	9.3	0.9	39.3	74.6	11.1	12.6	156.7	79.6	3.5	387.8

Table C4.6-1 (continued). Commercial landings (MT) and percent of annual total by state and year. A) Landings (MT); B) Percent of total.

B)	Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	FL
	1981	0.15	0.92	0.1	5.15	14.23	3.99	1.28	9.38	64.08	0.72
	1982	0.12	0.91	0.13	6.45	10.65	6.65	1.28	11.03	61.88	0.9
	1983	0.04	0.94	0.24	4.87	12.43	5.16	2.23	14.84	58.57	0.67
	1984	0.02	0.85	0.16	2.45	13.92	3.96	1.64	10.67	65.7	0.64
	1985	0.02	0.96	0.17	2.28	17.87	5.84	1.86	12.28	57.93	0.78
	1986	0.03	0.6	0.06	1.7	15.14	3.41	1.59	9.41	67.54	0.51
	1987	0.01	0.46	0.17	1.93	12.27	3.38	2.15	11.5	67.41	0.72
	1988	0.02	0.09	0.01	0.61	11.37	2.59	4.06	7.18	73.52	0.56
	1989	0.01	0.07	0.02	0.73	10.3	3.74	5.25	7.24	71.43	1.21
	1990	0.02	0.26	0.01	0.21	10.26	6.5	7.02	12.79	61.48	1.45
	1991	0.02	0.29	0.25	1.28	13.51	5.72	3.78	12.19	61.07	1.9
	1992	0.04	0.41	0.05	2.25	12.62	4.86	5.17	7.38	65.24	1.98
	1993	0.02	0.14	0.02	1.29	12.18	2.84	2.65	15.87	62.88	2.11
	1994	0	0.29	0.18	1.61	11.23	4.23	2.28	20.91	56.37	2.9
	1995	0.01	0.74	0.09	2.43	12.22	3.96	0.98	20.92	57.95	0.71
	1996	0	0.63	0.1	5.26	11.85	0	1.91	22.87	57.32	0.06
	1997	0	0.43	0.15	4.61	14.2	7.66	2.64	21.35	48.8	0.16
	1998	0.01	0.92	0.17	5.89	21.42	6.56	2.9	22.13	39.82	0.18
	1999	0.04	1.83	0.32	7.09	18.7	6.38	3.24	24.24	37.91	0.25
	2000	0.01	3.51	0.15	6.53	19.84	6.09	3.86	25.24	34.61	0.18
	2001	0	2.19	0.14	11.58	16.75	3.75	3.72	22.44	39.21	0.22
	2002	0.02	2.57	0.21	10.77	18.08	3.62	2.33	23.97	38.3	0.12
	2003	0.02	3.16	0.15	7.22	17	4.57	2.37	22.96	42.41	0.13
	2004	0	2.45	0.39	11.38	13.05	3.28	2.78	22.77	43.73	0.17
	2005	0	3.63	0.54	9.57	5.61	6.17	3.11	33.99	36.74	0.63
	2006	0.81	4.19	0.66	14.39	19.46	3.24	4.82	17.69	34.18	0.56
	2007	0.05	2.4	0.23	10.13	19.24	2.86	3.25	40.41	20.53	0.9

Table C4.6-2. Estimated commercial discards of weakfish by year.

Year	MT	Number at age (thousands)							Total N (thousands)
		0	1	2	3	4	5	6+	
1982	604.54	1,231.2	2,020.8	1,173.3	54.4	4.2	1.4	0.3	4,485.5
1983	417.29	338.2	1,573.2	769.2	120.3	4.6	1.1	0.2	2,806.7
1984	681.34	1,431.7	2,911.0	845.0	83.8	5.6	1.3	0.3	5,278.7
1985	386.55	664.1	1,363.0	572.2	112.6	5.6	1.3	0.3	2,719.2
1986	431.77	339.1	1,578.3	778.0	127.1	7.7	1.8	0.3	2,832.4
1987	364.28	226.6	1,280.0	809.8	93.3	6.9	1.7	0.4	2,418.5
1988	326.02	66.5	1,209.9	698.0	89.8	34.3	8.2	1.5	2,108.3
1989	311.71	434.5	1,459.2	508.9	27.0	4.7	1.1	0.2	2,435.7
1990	190.16	107.7	615.1	353.6	81.4	4.6	1.0	0.2	1,163.6
1991	200.09	112.8	692.2	365.5	64.1	19.0	4.4	0.9	1,259.0
1992	216.62	280.0	873.6	364.0	35.2	3.3	0.8	0.2	1,557.1
1993	416.35	126.9	1,205.4	586.8	53.9	5.5	1.2	0.2	1,980.0
1994	989.57	219.6	378.5	934.1	355.7	127.7	3.0	0.9	2,019.4
1995	715.83	810.6	576.6	421.3	125.0	42.3	1.3	0.5	1,977.7
1996	985.21	1,026.3	643.9	403.4	608.1	138.3	28.9	1.4	2,850.4
1997	864.41	81.8	488.9	550.9	229.7	318.1	35.3	8.6	1,713.3
1998	762.07	262.1	300.5	296.3	309.3	79.7	70.2	26.9	1,345.1
1999	746.42	2,347.4	416.1	104.1	123.7	183.6	15.9	15.1	3,205.9
2000	548.36	0.6	249.3	618.2	465.0	133.0	40.4	6.0	1,512.6
2001	1,138.70	1,153.2	2,124.5	734.4	305.0	297.4	104.1	34.7	4,753.5
2002	470.07	1,310.0	2,093.7	456.0	155.0	25.6	5.8	2.4	4,048.6
2003	238.22	2.9	19.6	157.6	127.5	34.4	8.2	3.7	353.9
2004	209.44	17.2	98.5	276.6	110.9	5.5	4.6	2.5	515.9
2005	173.91	0.6	33.6	307.3	202.0	24.2	0.4	0.2	568.2
2006	199.00	54.5	230.1	187.8	245.5	30.9	0.4	0.0	749.1
2007	193.27	43.1	288.7	548.4	254.3	16.3	3.3	0.0	1,154.1

Table C4.6-3. Recreational harvest and percent of annual total by state and year. A) Harvest (thousands of fish); B) Percent of total.
 *Florida values have been corrected for sand seatrout and weakfish-sand seatrout hybrids.

A)	Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	SC	GA	FL*	Total
	1981	5.95	18.37	18.71	275.12	1,028.79	122.74	177.76	7,484.78	204.23	2.58	2.43	0.00	9,341.46
	1982	0.00	18.61	11.77	88.23	104.07	217.82	440.15	715.89	200.05	17.34	0.00	11.65	1,825.58
	1983	2.73	74.61	6.36	36.93	2,857.09	1,009.90	595.29	354.85	387.87	6.81	17.21	69.64	5,419.29
	1984	2.24	0.00	1.56	20.13	1,026.04	593.11	104.06	782.85	489.47	7.84	0.00	103.34	3,130.63
	1985	0.00	17.09	2.87	89.54	812.84	365.69	305.80	505.22	217.67	61.79	4.81	8.92	2,392.24
	1986	0.00	4.60	7.32	34.58	2,500.62	914.49	1,947.39	2,418.05	611.36	78.32	18.13	27.16	8,562.01
	1987	0.00	0.00	0.78	7.45	1,666.62	638.34	824.88	1,015.41	624.16	18.84	10.80	13.58	4,820.87
	1988	0.00	0.00	0.00	13.22	642.03	974.71	1,163.77	2,297.05	438.15	1.83	0.00	20.92	5,551.68
	1989	0.00	0.00	0.00	6.44	303.29	254.17	226.51	357.86	190.19	6.81	8.25	30.08	1,383.59
	1990	0.00	0.41	0.00	3.06	216.39	179.84	370.53	286.46	91.30	8.03	2.27	18.54	1,176.81
	1991	0.00	0.00	18.70	28.07	545.67	366.46	221.24	351.95	140.83	19.62	4.95	24.97	1,722.45
	1992	0.00	9.62	0.43	5.28	311.66	100.56	137.26	265.65	35.49	23.50	1.75	14.71	905.91
	1993	0.00	0.00	2.46	12.61	203.92	235.31	238.77	108.39	106.74	7.36	14.75	31.57	961.88
	1994	0.00	0.00	0.00	1.87	591.57	300.21	332.85	169.74	177.97	46.86	0.72	46.23	1,668.01
	1995	0.00	1.57	0.00	22.31	671.85	406.73	88.70	226.68	62.48	29.90	22.44	11.95	1,544.60
	1996	0.00	0.00	0.00	16.32	1,104.25	633.92	183.41	193.86	90.70	5.70	5.41	7.55	2,241.13
	1997	0.00	1.42	0.52	112.99	1,028.33	647.53	162.90	557.81	184.95	2.04	44.20	18.29	2,760.97
	1998	0.62	0.00	2.18	21.39	920.56	455.60	290.05	463.53	191.18	15.84	0.72	6.44	2,368.11
	1999	0.00	2.30	1.61	18.35	583.88	224.31	340.10	229.21	127.16	3.94	1.68	26.18	1,558.71
	2000	0.00	0.71	7.34	42.41	760.28	311.55	475.35	286.75	71.25	5.59	4.18	30.28	1,995.68
	2001	0.00	2.30	0.72	28.13	736.07	72.45	302.72	175.87	158.61	0.00	3.32	11.14	1,491.32
	2002	0.00	1.42	1.80	24.96	492.88	121.88	100.47	178.11	90.17	90.25	0.85	16.67	1,119.45
	2003	0.11	0.30	0.44	9.23	151.10	20.12	41.05	86.11	153.75	4.16	1.57	6.28	474.24
	2004	0.00	0.00	0.00	7.60	183.65	6.97	29.65	103.18	237.40	153.59	9.82	10.50	742.34
	2005	0.00	1.01	0.00	0.36	1,053.01	19.03	22.16	30.35	163.27	129.58	5.76	18.28	1,442.80
	2006	0.00	3.30	0.00	9.12	417.53	11.16	0.47	58.81	153.70	7.12	3.50	19.62	684.33
	2007	0.00	0.00	0.00	7.12	209.31	4.18	10.32	44.49	114.33	71.23	4.71	26.05	491.74

Table C4.6-3 (continued). Recreational harvest and percent of annual total by state and year. A) Harvest (thousands of fish); B) Percent of total. *Florida values have been corrected for sand seatrout and weakfish-sand seatrout hybrids.

B)	Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	SC	GA	FL*
	1981	0.06	0.20	0.20	2.95	11.01	1.31	1.90	80.12	2.19	0.03	0.03	0.00
	1982	0.00	1.02	0.64	4.83	5.70	11.93	24.11	39.21	10.96	0.95	0.00	0.64
	1983	0.05	1.38	0.12	0.68	52.72	18.64	10.98	6.55	7.16	0.13	0.32	1.29
	1984	0.07	0.00	0.05	0.64	32.77	18.95	3.32	25.01	15.63	0.25	0.00	3.30
	1985	0.00	0.71	0.12	3.74	33.98	15.29	12.78	21.12	9.10	2.58	0.20	0.37
	1986	0.00	0.05	0.09	0.40	29.21	10.68	22.74	28.24	7.14	0.91	0.21	0.32
	1987	0.00	0.00	0.02	0.15	34.57	13.24	17.11	21.06	12.95	0.39	0.22	0.28
	1988	0.00	0.00	0.00	0.24	11.56	17.56	20.96	41.38	7.89	0.03	0.00	0.38
	1989	0.00	0.00	0.00	0.47	21.92	18.37	16.37	25.86	13.75	0.49	0.60	2.17
	1990	0.00	0.03	0.00	0.26	18.39	15.28	31.49	24.34	7.76	0.68	0.19	1.58
	1991	0.00	0.00	1.09	1.63	31.68	21.28	12.84	20.43	8.18	1.14	0.29	1.45
	1992	0.00	1.06	0.05	0.58	34.40	11.10	15.15	29.32	3.92	2.59	0.19	1.62
	1993	0.00	0.00	0.26	1.31	21.20	24.46	24.82	11.27	11.10	0.77	1.53	3.28
	1994	0.00	0.00	0.00	0.11	35.47	18.00	19.95	10.18	10.67	2.81	0.04	2.77
	1995	0.00	0.10	0.00	1.44	43.50	26.33	5.74	14.68	4.04	1.94	1.45	0.77
	1996	0.00	0.00	0.00	0.73	49.27	28.29	8.18	8.65	4.05	0.25	0.24	0.34
	1997	0.00	0.05	0.02	4.09	37.25	23.45	5.90	20.20	6.70	0.07	1.60	0.66
	1998	0.03	0.00	0.09	0.90	38.87	19.24	12.25	19.57	8.07	0.67	0.03	0.27
	1999	0.00	0.15	0.10	1.18	37.46	14.39	21.82	14.71	8.16	0.25	0.11	1.68
	2000	0.00	0.04	0.37	2.12	38.10	15.61	23.82	14.37	3.57	0.28	0.21	1.52
	2001	0.00	0.15	0.05	1.89	49.36	4.86	20.30	11.79	10.64	0.00	0.22	0.75
	2002	0.00	0.13	0.16	2.23	44.03	10.89	8.97	15.91	8.05	8.06	0.08	1.49
	2003	0.02	0.06	0.09	1.95	31.86	4.24	8.66	18.16	32.42	0.88	0.33	1.33
	2004	0.00	0.00	0.00	1.02	24.74	0.94	3.99	13.90	31.98	20.69	1.32	1.41
	2005	0.00	0.07	0.00	0.02	72.98	1.32	1.54	2.10	11.32	8.98	0.40	1.27
	2006	0.00	0.48	0.00	1.33	61.01	1.63	0.07	8.59	22.46	1.04	0.51	2.87
	2007	0.00	0.00	0.00	1.45	42.56	0.85	2.10	9.05	23.25	14.49	0.96	5.30

Table C5.1-1. Sample size and parameter estimates for weakfish length-weight equations.

Region	Year	Season	N	a	b
North	2004	Early	1,553	1.593E-08	3.0510
North	2004	Late	2,290	3.612E-08	2.9091
North	2005	Early	810	1.599E-08	3.0394
North	2005	Late	3,466	8.150E-08	2.7815
North	2006	Early	1,031	1.472E-08	3.0707
North	2006	Late	3,112	7.565E-08	2.8010
North	2007	Early	1,631	5.396E-08	2.8649
North	2007	Late	3,889	4.376E-08	2.8852
South	2004	Early	568	4.386E-08	2.8971
South	2004	Late	596	2.991E-08	2.9554
South	2005	Early	480	2.309E-08	2.9913
South	2005	Late	574	2.889E-08	2.9510
South	2006	Early	488	1.538E-08	3.0586
South	2006	Late	475	3.604E-08	2.9178
South	2007	Early	298	1.648E-08	3.0575
South	2007	Late	266	4.537E-08	2.8882

Table C5.1-2. Commercial biological sample substitution matrix.

	2004 Early	2004 Late	2005 Early	2005 Late	2006 Early	2006 Late	2007 Early	2007 Late
MA Trawl	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	NY Trawl PLUS MD and NJ Trawl 16+	Combined in "Other"	Combined in "Other"
MA Other	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"
RI Float trap	2003 RI Float trap E and L combined	2003 RI Float trap E and L combined	Combined in "Other"	Direct	Combined in "Other"	Direct	Combined in "Other"	Combined in "Other"
RI Trawl	VA Pound 16+	MD Trawl 16+ AND VA Pound 16+	VA 2006 Early Pound 16+	MD 2005 Late Trawl 16+	NJ Pound 16+	NY Trawl PLUS MD and NJ Trawl 16+	NJ Trawl 16+	NJ Trawl PLUS pound 16+
RI Gill	Combined in "Other"	VA Gill 16+ AND 2005 VA Gill 16+	Combined in "Other"	VA Gill 16+	Combined in "Other"	NJ Gill 16+	Combined in "Other"	NY Gill 16+
RI Other	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"
CT Trawl	Combined in "Other"	MD Trawl 16+ AND VA Pound 16+	Combined in "Other"	Combined in "Other"	NJ Pound 16+	Combined in "Other"	Combined in "Other"	Combined in "Other"
CT Other	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"
NY Gill	VA Gill 16+	VA Gill 16+ AND 2005 VA Gill 16+	VA Gill 16+	NY Gill PLUS VA Gill 16+	Direct	Direct	Combined in "Other"	Direct
NY Trawl	VA Pound 16+	MD Trawl 16+ AND VA Pound 16+	VA 2006 Early Pound 16+	Direct	NJ Pound 16+	NY Trawl PLUS MD and NJ Trawl 16+	Combined in "Other"	NJ 2007 Late Trawl PLUS Pound 16+
NY Other	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"
NJ Gill	VA Gill 13+	VA Gill 13+	VA Gill 13+	MD Gill 13+	Direct	Direct	Direct	Direct
NJ Pound	Combined in "Other"	Combined in "Other"	VA Pound 13+	Combined in "Other"	Direct	Direct	Direct	Direct
NJ Trawl	VA Pound 13+	MD Trawl 12+	Combined in "Other"	MD Trawl 12+	NJ Pound 13+	Direct	Direct	Direct
NJ Other	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"
DE Gill	Direct	VA Gill 12+	Direct	VA Gill 12+	Direct	VA Gill 12+	DE 2006 Early Gill	Combined in "Other"
DE Hand	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"
DE Other	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"

Table C5.1-2 (continued). Commercial biological sample substitution matrix.

MD Gill	Combined in "Other"	Combined in "Other"	Combined in "Other"	Direct	Combined in "Other"	Direct	Combined in "Other"	Direct
MD Pound	Combined in "Other"	MD Pound PLUS VA Pound 12+	Combined in "Other"	Direct	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"
MD Trawl	Combined in "Other"	Direct	Combined in "Other"	Direct	Combined in "Other"	Direct	Combined in "Other"	Direct
MD Other	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"
VA Gill	Direct	Direct	Direct	Direct	Direct	Direct	Direct	Direct
VA Haul sne	Direct	Direct	Direct	Direct	Direct	Direct	Direct	Direct
VA Pound	Direct	Direct	Direct	Direct	Direct	Direct	Direct	Direct
VA Other	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"	Combined in "Other"
NC Bch sne	Direct	Direct	Direct	Direct	Direct	Direct	Direct	Direct
NC Est GN	Direct	Direct	Direct	Direct	Direct	Direct	Direct	Direct
NC LH Sne	Direct	Direct	Direct	Direct	Direct	Direct	Direct	Direct
NC Sink gill	Direct	Direct	Direct	Direct	Direct	Direct	Direct	Direct
NC Pound	Direct	Direct	Direct	Direct	Direct	Direct	Direct	Direct
NC Trawl	Direct	Direct	Direct	Direct	Direct	Direct	Direct	Direct
NC Other	Combined NC data	Combined NC data	Combined NC data	Combined NC data	Combined NC data	Combined NC data	Combined NC data	Combined NC data
SC Other	No harvest	No harvest	No harvest	No harvest	No harvest	No harvest	No harvest	No harvest
GA Other	No harvest	No harvest	No harvest	No harvest	No harvest	No harvest	No harvest	No harvest
FL Other	Combined NC data	Combined NC data	Combined NC data	Combined NC data	Combined NC data	Combined NC data	Combined NC data	Combined NC data

Table C5.1-3. Biological sampling intensity by state and season for recent years.

Year	Season	Source2	AGES			LENGTHS		
			Comm	Recr	Fish Ind	Comm	Recr	Fish Ind
2004	Early	MA						
		RI						
		CT						
		NY					1	
		NJ	11				6	
		DE	46			782		
		MD	12					
		VA	354			1408	126	
		NC	353			5129	31	
		SC					11	
		GA						
		FL					15	
		NEFSC						
		CHESMAP			263			271
		NEAMAP						
SEAMAP				246		246		
2004	Early Total		776		509	7319	190	517
2004	Late	MA						
		RI	4					
		CT						
		NY					4	
		NJ	46				61	
		DE			533		13	533
		MD	136			105	44	
		VA	55			1848	45	
		NC	295			3312	142	
		SC					38	
		GA					15	
		FL					14	
		NEFSC			476			563
		CHESMAP			811			837
		NEAMAP						
SEAMAP				316		316		
2004	Late Total		532		2136	5265	376	2249
2005	Early	MA						
		RI					1	
		CT						
		NY						
		NJ	13				2	
		DE	43			573	12	
		MD	18					
		VA	217			1000	294	
		NC	295			5529	37	
		SC						
		GA					25	
		FL					13	
		NEFSC						
		CHESMAP			99			99
		NEAMAP						
SEAMAP				185		185		
2005	Early Total		586		284	7102	383	284

Table C5.1-3 (continued). Biological sampling intensity by state and season for recent years.

Year	Season	Source2	AGES			LENGTHS		
			Comm	Recr	Fish Ind	Comm	Recr	Fish Ind
2005	Late	MA						
		RI	60			59		
		CT						
		NY				400	6	
		NJ	135				131	
		DE			601		29	601
		MD	260			301	30	
		VA	244			3046	51	
		NC	293			3266	117	
		SC					31	
		GA					4	
		FL					25	
		NEFSC				594		648
		CHESMAP				1005		1020
NEAMAP								
SEAMAP				286		285		
2005	Late Total		932		2486	7013	424	2554
2006	Early	MA						
		RI	5					
		CT						
		NY					1	
		NJ	43			350	17	
		DE	79			117	5	
		MD						
		VA	361			1738	51	
		NC	800			6337	95	
		SC					3	
		GA						
		FL					37	
		NEFSC						
		CHESMAP				167		171
NEAMAP								
SEAMAP				120		121		
2006	Early Total		1283		287	8542	209	292
2006	Late	MA						
		RI	38			38	3	
		CT						
		NY				41	4	
		NJ	257			380	69	
		DE			481		11	481
		MD	180			176		
		VA	253			3540	8	
		NC	696			2246	149	
		SC					75	
		GA					1	
		FL					13	
		NEFSC				1171		1198
		CHESMAP				550		557
NEAMAP				494		494		
SEAMAP				197		197		
2006	Late Total		1386		2893	6383	330	2927

Table C5.1-3 (continued). Biological sampling intensity by state and season for recent years.

Year	Season	Source2	AGES			LENGTHS		
			Comm	Recr	Fish Ind	Comm	Recr	Fish Ind
2007	Early	MA						
		RI						
		CT						
		NY						
		NJ	350			370	8	
		DE	159				2	
		MD						
		VA	280			997	4	
		NC	298			3455	14	
		SC					25	
		GA					4	
		FL					11	
		NEFSC						
		CHESMAP			120			120
NEAMAP								
SEAMAP								
2007	Early Total		1087		120	4822	68	120
2007	Late	MA						
		RI						
		CT						
		NY				61		
		NJ	193			183	30	
		DE			446		6	446
		MD	276			204	7	
		VA	142			1831	5	
		NC	270			2653	65	
		SC					150	
		GA					5	
		FL					27	
		NEFSC			682			748
		CHESMAP			434			434
NEAMAP			564			572		
SEAMAP								
2007	Late Total		881		2126	4932	295	2200

Table C5.1-4. Number of observed commercial hauls with weakfish discards by year and gear type.

Year	Gillnet	Otter trawl	Other	Total
1994	92	19		111
1995	158	140		298
1996	99	137	1	236
1997	63	33	1	96
1998	68	5		73
1999	26	29		55
2000	41	12		53
2001	26	53		79
2002	15	42		57
2003	6	53		59
2004	7	110		117
2005	4	34		38
2006	1	35	1	36
2007	5	77	1	82
Total	611	779	4	1390

Table C5.2-1. Coastwide recreational weakfish harvest and discards and percent standard error (PSE). Estimates from Florida are not corrected for weakfish/sand seatrout hybrids.

Year	Harvest (A+B1)		Harvest (A+B1)		Discard (B2)	
	Numbers	NumPSE	Pounds	LbsPSE	Numbers	DiscPSE
1981	9,344,461	35.4	16,105,028	15.7	284,848	49.2
1982	1,854,090	14.8	8,285,326	15.3	190,580	48.8
1983	5,642,950	12.8	11,730,619	12.3	273,319	35.3
1984	3,520,811	13.7	7,013,781	21.1	248,229	27.3
1985	2,419,670	9.4	5,489,026	10.6	356,154	34.9
1986	8,664,122	8.3	10,141,786	9.2	2,309,464	16.4
1987	4,871,532	11	6,749,890	14.3	848,274	18.9
1988	5,626,268	11.9	6,331,649	11.2	820,115	34.6
1989	1,495,391	8	2,177,237	7.7	179,177	16.6
1990	1,232,253	6.8	1,347,260	8.1	439,555	12.3
1991	1,812,691	6.8	2,130,563	7.4	788,789	17.7
1992	960,151	7.5	1,398,980	8.5	707,658	12.6
1993	1,079,275	7.3	1,102,340	9.3	1,139,284	10.2
1994	1,826,495	7.7	1,795,517	9.5	3,102,455	7.1
1995	1,588,079	8	1,855,548	8.7	4,108,344	6.9
1996	2,269,330	8.4	2,925,392	10.5	5,036,968	7.1
1997	2,815,654	7.6	3,692,716	7.5	4,016,709	5.8
1998	2,386,345	6.7	4,044,974	7.6	3,311,050	7
1999	1,651,554	7	3,143,427	8	2,826,435	6.6
2000	2,089,202	7.6	4,154,794	9.2	4,870,876	5.8
2001	1,526,583	7.1	2,722,630	7.9	3,708,952	5.8
2002	1,171,889	9.2	2,192,607	8.1	2,117,876	6.7
2003	497,571	8.9	864,962	11.5	1,600,485	8.5
2004	777,856	11.8	926,962	12.4	1,888,567	9.1
2005	1,503,540	10.9	1,587,378	11.5	2,344,871	10
2006	745,135	11.2	919,662	14.1	2,416,228	9.9
2007	584,569	14.4	692,392	15.8	1,427,669	13.7

Table C5.3-1. Weakfish catch at age matrix (thousands of fish) for all four fishery sectors combined.

Year	Age					
	1	2	3	4	5	6+
1982	9,914.20	12,967.00	5,473.00	2,778.20	721.60	639.50
1983	8,004.00	12,869.10	5,822.70	2,780.00	568.20	424.10
1984	10,444.20	14,736.90	6,521.10	3,045.30	484.50	254.50
1985	14,153.20	11,262.30	3,246.10	1,171.00	212.90	55.10
1986	18,610.70	15,778.40	4,942.40	1,823.70	264.10	52.10
1987	16,256.30	14,343.10	4,347.10	1,485.20	145.40	11.00
1988	8,161.90	16,140.80	10,545.30	6,092.00	1,050.50	70.70
1989	3,705.00	5,304.90	4,333.50	2,922.30	626.20	84.60
1990	9,510.10	4,890.10	2,093.60	1,204.80	591.40	89.10
1991	9,795.90	5,825.60	2,750.00	1,373.60	463.40	57.30
1992	5,179.50	6,046.00	2,211.00	1,255.00	527.80	65.00
1993	4,974.80	6,357.00	2,179.80	1,138.60	401.10	48.20
1994	3,761.88	4,347.41	3,561.04	1,563.46	204.05	39.79
1995	4,336.27	3,727.71	3,566.71	1,637.76	198.10	54.28
1996	2,498.83	2,689.49	5,033.34	3,174.23	1,379.29	100.14
1997	1,716.38	2,394.16	2,913.23	5,522.01	1,523.11	410.19
1998	1,270.62	2,138.27	3,983.12	2,019.16	2,928.80	909.47
1999	1,412.62	1,300.41	2,256.60	3,326.01	725.65	1,145.02
2000	1,376.99	1,727.14	1,985.75	1,663.66	1,528.22	403.05
2001	2,420.66	2,953.08	1,474.09	1,219.89	658.73	485.92
2002	2,591.74	1,070.50	2,695.67	823.88	388.16	231.49
2003	335.59	949.93	959.71	718.40	209.46	254.18
2004	852.25	1,511.95	667.85	115.80	49.72	38.35
2005	334.26	1,771.52	1,255.15	191.46	10.19	27.12
2006	747.26	637.33	959.20	252.90	15.49	11.94
2007	616.61	1,148.02	507.63	135.20	25.23	5.78

Table C6.2-1. Young of year indices of abundance.

Year	MA CPUE	MA CV	RI CPUE	RI RelCV	CT 0 CPUE	CT 0 RelCV	CT Fall 1+ CPUE	CT Fall 1+ RelCV	CT Spring 1+ CPUE	NY CPUE	NY 95% CI
1981	1.87	90.65	5.04	12.71							
1982	0.77	45.59	4.11	13.23							
1983	1.14	67.91	0.79	21.39							
1984	0.15	85.24	0.38	39.39	1.00	0.17	0.53	0.18	0.02		
1985	15.19	100.00	2.37	16.38	6.19	0.10	0.24	0.23	0.00		
1986	2.67	85.00	0.70	21.73	13.16	0.09	0.24	0.24	0.10		
1987	0.00	0.00	0.33	37.25	0.63	0.22	0.11	0.36	0.02	0.6	0.40 - 0.82
1988	0.00	0.00	0.90	29.22	3.49	0.12	0.06	0.41	0.05	0.1	0.05 - 0.17
1989	1.40	94.95	0.42	34.23	8.69	0.11	0.02	0.70	0.04	1.4	0.91 - 1.96
1990	0.00	0.00	2.45	21.14	5.56	0.10	0.08	0.34	0.07	0.6	0.34 - 0.80
1991	0.07	63.83	1.66	26.62	11.95	0.08	0.31	0.28	0.28	20.6	15.30 - 27.73
1992	0.02	100.00	2.35	20.56	3.05	0.12	0.18	0.30	0.12	3.3	2.17 - 4.73
1993	0.00	0.00	1.30	27.13	4.08	0.09	0.12	0.28	0.10	1.0	0.68 - 1.46
1994	0.16	86.60	1.57	26.78	11.19	0.08	0.06	0.41	0.04	8.3	5.53 - 12.35
1995	0.63	66.44	0.09	60.52	5.22	0.12	0.70	0.18	0.18	1.6	1.16 - 2.14
1996	0.26	92.32	6.34	20.24	15.23	0.08	0.56	0.21	0.19	24.5	15.72 - 37.86
1997	0.57	75.87	6.69	16.08	12.38	0.08	0.89	0.16	0.42	18.8	12.97 - 26.91
1998	0.28	80.00	1.39	24.91	5.02	0.12	0.28	0.29	0.37	1.0	0.69 - 1.44
1999	0.32	53.45	1.00	23.98	30.93	0.07	0.39	0.22	0.45	8.4	5.87 - 11.94
2000	1.10	69.55	2.10	19.30	63.31	0.07	0.30	0.26	0.18	15.9	10.33 - 24.13
2001	1.11	74.24	2.39	21.41	40.09	0.07	0.52	0.21	0.27	16.2	10.70 - 24.24
2002	0.06	100.00	2.07	19.74	41.35	0.06	0.16	0.31	0.16	12.2	7.75 - 18.82
2003	1.82	52.41	16.54	13.15	49.41	0.07	0.07	0.57	0.04	7.0	4.45 - 10.76
2004	0.08	100.00	0.40	35.92	58.98	0.06	0.21	0.24	0.15	5.5	3.67 - 8.11
2005	0.74	71.90	8.64	16.29	25.86	0.07	0.12	0.39	0.27	32.0	15.60 - 64.51
2006	2.93	83.59	0.16	43.05	1.05	0.25	0.29	0.37	0.14	8.7	5.66 - 13.13
2007	0.16		4.83	16.80	63.93	0.06	0.06	0.54	0.11	12.07	8.03 - 17.94

Table C6.2-1 (continued). Young of year indices of abundance.

Year	DE CPUE	DE 95% CI	MD Ches Bay CPUE	MD Coast CPUE	VIMS CPUE	NC 0 CPUE	NC 0 95% CI	NC 1+ CPUE	NC 1+ 95% CI
1981	5.98	4.39 - 8.05			6.02				
1982	11.49	9.15 - 14.36			10.95				
1983	4.47	3.43 - 5.76			10.85				
1984	6.67	4.90 - 8.96			6.05				
1985	9.35	7.11 - 12.22			37.04				
1986	12.94	10.02 - 16.64			4.62				
1987	5.98	4.45 - 7.95			17.85	1.01	0.40 - 1.88	14.07	8.70 - 22.40
1988	4.73	3.35 - 6.53			21.72	23.8	12.89 - 43.29	12.09	7.10 - 20.15
1989	11.11	8.40 - 14.6	0.44	0.87	21.27	4.04	2.18 - 6.99	3.51	2.08 - 5.60
1990	8.73	6.52 - 11.59	0.95	1.72	30.01	9.23	4.50 - 18.01	5.98	3.78 - 9.21
1991	20.07	15.73 - 25.54	0.78	1.89	15.32	3.77	1.62 - 7.70	4.67	2.87 - 7.29
1992	14.72	11.06 - 19.49	3.24	1.81	15.91	14.34	8.68 - 23.29	6.3	3.61 - 10.57
1993	14.79	11.01 - 19.75	1.59	0.91	15.42	1.67	0.83 - 2.91	20.63	14.09 - 30.00
1994	11.47	8.43 - 15.49	2.33	1.84	7.04	20.6	12.10 - 34.61	16.56	10.54 - 25.73
1995	13.49	10.01 - 18.06	5.95	4.44	11.00	14.3	8.85 - 22.75	14.32	8.67 - 23.26
1996	11.93	8.67 - 16.30	6.40	3.18	7.42	38.01	25.67 - 56.04	9.69	6.02 - 15.27
1997	15.40	11.14 - 21.16	4.28	3.06	14.82	16.57	10.54 - 25.73	19.05	11.66 - 30.76
1998	11.35	8.61 - 14.87	5.87	2.80	9.95	31.41	19.46 - 50.34	3.05	1.41 - 5.81
1999	13.51	10.23 - 17.76	3.26	2.76	16.25	59.65	43.93 - 80.86	15.91	10.57 - 23.73
2000	14.16	10.55 - 18.9	6.54	2.34	11.09	35.22	24.27 - 50.92	51.52	34.21 - 77.35
2001	7.57	5.60 - 10.12	8.10	2.56	11.52	5.17	2.98 - 8.59	9.9	5.48 - 17.34
2002	5.96	4.25 - 8.23	3.92	0.61	8.59	4	2.16 - 6.93	3.78	2.02 - 6.58
2003	10.44	7.58 - 14.26	4.89	5.64	5.42	10.98	7.20 - 16.52	3.22	1.83 - 5.29
2004	8.39	6.00 - 11.59	1.62	3.39	10.47	9.4	5.44 - 15.81	4.35	2.06 - 8.36
2005	16.84	12.02 - 23.45	3.55	4.98	7.10	9.05	5.22 - 15.24	4.31	2.04 - 8.30
2006	5.35	3.93 - 7.19	2.41	1.50	6.20	7.4	3.80 - 13.70	29.71	17.63 - 49.64
2007	13.70	10.07 - 18.52	1.64	2.32	14.37	12.93	7.28 - 22.44	4.3	2.41 - 7.22

Table C7.2-1. Comparison of model fit statistics for various sensitivity runs and the preferred model run. Tuning indices used are as follows: Base = All available aged and young of year indices; FI+YOY = All aged fishery independent indices plus all YOY indices; FI only = All aged fishery independent indices only; FD+YOY = All fishery dependent aged indices plus all YOY indices; FD only = Fishery dependent indices only; Scores = indices selected by assigning scores to a set of survey criteria; Preferred = the WTC preferred model run

	Base	FI+YOY	FI only	FD+YOY	FD only	Scores	Preferred
Residual Sum of Squares	1042.95	939.705	572.098	460.518	78.3876	676.472	446.968
Number of Residuals	633	512	293	340	121	367	359
Number of Parameters	6	6	6	6	6	6	6
Degrees of Freedom	627	506	287	334	115	361	353
Mean Squared Residual	1.66339	1.85712	1.99337	1.3788	0.681631	1.87388	1.2662
Standard Deviation	1.28973	1.36276	1.41187	1.17422	0.82561	1.3689	1.12526

Table C7.3-1. Index values for tuning indices used in the preferred ADAPT VPA model run. DE = Delaware 30-foot trawl, NJ = New Jersey ocean trawl, NC = North Carolina gillnet, MRFSS = recreational harvest, Rec = recreational catch.

Year	Index											
	DE 1	DE 2	DE 3	DE 4	DE 5	DE 6+	NJ 1	NJ 2	NJ 3	NJ 4	NJ 5	NJ 6+
1982	4.71	7.33	3.02	1.45	0.24	0.33	0	0	0	0	0	0
1983	5.39	8	3.34	1.57	0.2	0.18	0	0	0	0	0	0
1984	2.99	5.32	2.42	1.15	0.13	0.07	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0.0356	0.026	0.0057	0.0024	0.0003	0
1991	27.1588	3.6382	0.6383	0	0	0	0.0745	0.0523	0.0099	0.0023	0.0001	0
1992	21.1512	2.6081	0.0318	0.0318	0	0	0.0892	0.3206	0.0585	0.0007	0	0
1993	50.2801	25.422	3.9002	0.5169	0	0	0.0405	0.1103	0.0445	0.0181	0.0014	0
1994	113.4222	68.536	23.6497	0.9653	0	0	0.2556	0.1489	0.0316	0	0	0
1995	75.2633	53.4866	15.7403	5.4251	0.0764	0	0.0398	0.1607	0.0702	0.0082	0	0
1996	44.0437	48.3017	111.1071	23.8182	6.387	0.1331	0.0543	0.0434	0.1177	0.0273	0.0107	0.0009
1997	33.4142	25.0014	13.5633	34.5991	2.9623	0.474	0.1323	0.0342	0.0466	0.1339	0.0116	0
1998	23.3566	24.6266	20.3749	11.5955	20.7062	1.3252	0.0087	0.044	0.0679	0.035	0.0821	0.0113
1999	42.0661	20.1604	17.031	6.7402	2.5878	4.0331	0.0222	0.0396	0.0302	0.0053	0.0015	0.0012
2000	97.8468	50.3831	23.6377	5.7446	0.6592	0.9418	0.0397	0.1255	0.1011	0.2153	0.0112	0.0002
2001	13.1139	42.6313	18.7718	5.5263	0.5702	0.0877	0.0047	0.0788	0.1381	0.0582	0.0137	0.0029
2002	89.3537	23.3228	27.9672	3.8367	0.4039	0	0.1398	0.0546	0.0239	0.0029	0	0
2003	50.1607	13.9835	1.2183	0.4237	0	0	0.0416	0.0407	0.0021	0.0003	0	0
2004	26.3628	22.4048	0.1089	0	0	0	0.0591	0.1735	0.0726	0.0129	0.0002	0
2005	12.0686	14.5354	2.3872	0	0	0	0.0977	0.0934	0.0099	0.0008	0	0
2006	58.3793	37.1285	10.0217	0.7848	0	0	0.0746	0.0747	0.0161	0	0	0
2007	23.4698	17.4276	2.0963	0.1644	0	0	0.0926	0.0122	0.0009	0.0001	0	0
2008	40.9767	4.4014	0.5579	0	0	0	0.0591	0.1735	0.0726	0.0129	0.0002	0

Table C7.3-1 (continued). Index values for tuning indices used in the preferred ADAPT VPA model run. DE = Delaware 30-foot trawl, NJ = New Jersey ocean trawl, NC = North Carolina gillnet, MRFSS = recreational harvest, Rec = recreational catch.

Year	Index										
	NC 1	NC 2	NC 3	NC 4	NC 5	NC 6+	MRFSS 3	MRFSS 4	MRFSS 5	MRFSS 6+	Rec 2-6+
1982	0	0	0	0	0	0	0.1865	0.2176	0.2131	0.1066	0.2021
1983	0	0	0	0	0	0	0.0084	0.0588	0.0671	0.063	0.5109
1984	0	0	0	0	0	0	0.1771	0.1631	0.1165	0.0326	0.3001
1985	0	0	0	0	0	0	0.1033	0.0919	0.0632	0.0172	0.2777
1986	0	0	0	0	0	0	0.0933	0.0758	0.0525	0.0175	0.7681
1987	0	0	0	0	0	0	0.3885	0.1329	0.0664	0.0102	0.5178
1988	0	0	0	0	0	0	0.2272	0.1262	0.0707	0.0101	0.5738
1989	0	0	0	0	0	0	0.1498	0.1915	0.129	0.0291	0.1673
1990	0	0	0	0	0	0	0.0527	0.0527	0.0341	0.0093	0.1557
1991	0	0	0	0	0	0	0.0574	0.0309	0.0177	0.0044	0.1778
1992	0	0	0	0	0	0	0.053	0.0485	0.0265	0.0088	0.1928
1993	0	0	0	0	0	0	0.037	0.0328	0.0287	0.0082	0.1651
1994	0	0	0	0	0	0	0.03	0.0258	0.0172	0.0043	0.3849
1995	0	0	0	0	0	0	0.0355	0.0659	0.0304	0	0.5079
1996	0	0	0	0	0	0	0.0271	0.0588	0.0407	0.0045	0.6054
1997	0	0	0	0	0	0	0.0137	0.0504	0.1054	0.0321	0.5177
1998	0	0	0	0	0	0	0.0151	0.0605	0.0958	0.0302	0.5297
1999	0	0	0	0	0	0	0.0162	0.0647	0.1024	0.0323	0.4101
2000	0	0	0	0	0	0	0.0105	0.0264	0.0632	0.0474	0.4585
2001	0.148	1.4886	0.3694	0.1459	0.1127	0	0.0109	0.0274	0.0328	0.0711	0.2818
2002	0.1729	0.2674	1.0873	0.2423	0.0569	0.0089	0.0368	0.0263	0.0158	0.0158	0.2379
2003	0.1454	0.3669	0.345	0.6802	0.0583	0	0.0051	0.0462	0.0205	0.0154	0.1162
2004	0.2269	0.5946	0.584	0.1885	0.0722	0	0.0094	0.0047	0.0047	0.0047	0.1154
2005	0.1719	0.4862	0.6925	0.1747	0.0343	0.0009	0.0135	0.0058	0.0021	0.002	0.2243
2006	0.1974	0.3766	0.5534	0.213	0.0543	0.0008	0.0489	0.0384	0.0058	0.0001	0.1704
2007	0.1597	0.2564	0.179	0.114	0.052	0.0008	0.0084	0.0196	0.0088	0.0009	0.0884
2008	0	0	0	0	0	0	0.0113	0.0054	0.0026	0.0003	0.13

Table C7.3-2. Fishing mortality estimates from preferred run of ADAPT VPA.

	Ages 4-5					Ages 1-5			
	Unweighted	N Wtd	B Wtd	C Wtd		Unweighted	N Wtd	B Wtd	C Wtd
1982	1.4015	1.4015	1.4015	1.4015	1982	0.9182	0.5433	0.7299	0.6642
1983	1.6135	1.6135	1.6135	1.6135	1983	1.0231	0.5748	0.9195	0.7473
1984	2.2116	2.2116	2.2116	2.2116	1984	1.446	0.7622	1.2146	1.0228
1985	1.3506	1.3506	1.3506	1.3506	1985	0.8896	0.4477	0.6967	0.5392
1986	1.7287	1.7287	1.7287	1.7287	1986	1.0526	0.5097	0.758	0.5867
1987	0.6618	0.6618	0.6618	0.6618	1987	0.5303	0.4564	0.4913	0.4651
1988	1.7955	1.7955	1.7955	1.7955	1988	1.2169	0.9216	1.2525	1.0414
1989	1.1127	1.1127	1.1127	1.1127	1989	0.7895	0.5474	0.8092	0.7008
1990	0.7645	0.7645	0.7645	0.7645	1990	0.6204	0.5395	0.6247	0.5453
1991	0.8351	0.8351	0.8351	0.8351	1991	0.7222	0.5875	0.7466	0.6137
1992	1.0256	1.0256	1.0256	1.0256	1992	0.7219	0.3824	0.749	0.5401
1993	1.3097	1.3097	1.3097	1.3097	1993	0.7349	0.3042	0.5366	0.4193
1994	0.9848	0.9848	0.9848	0.9848	1994	0.5337	0.1994	0.3409	0.3293
1995	0.3237	0.3237	0.3237	0.3237	1995	0.2635	0.21	0.2348	0.2365
1996	0.5304	0.5304	0.5304	0.5304	1996	0.3328	0.2403	0.3384	0.3145
1997	0.5634	0.5634	0.5634	0.5634	1997	0.3699	0.3003	0.3954	0.4159
1998	0.7208	0.7208	0.7208	0.7208	1998	0.4395	0.3655	0.501	0.4669
1999	0.6693	0.6693	0.6693	0.6693	1999	0.4402	0.3837	0.5308	0.4768
2000	0.8219	0.8219	0.8219	0.8219	2000	0.5525	0.4075	0.6482	0.5633
2001	1.0366	1.0366	1.0366	1.0366	2001	0.7686	0.6293	0.8023	0.6666
2002	1.3437	1.3437	1.3437	1.3437	2002	1.0447	0.9078	1.1444	0.988
2003	2.3915	2.3915	2.3915	2.3915	2003	1.4689	0.6538	1.5688	1.4585
2004	2.1654	2.1654	2.1654	2.1654	2004	1.2523	0.4319	0.6936	0.666
2005	2.0733	2.0733	2.0733	2.0733	2005	1.2511	0.579	0.8919	0.9359
2006	1.3175	1.3175	1.3175	1.3175	2006	0.8194	0.2876	0.5168	0.6327
2007	0.5101	0.4784	0.4828	0.4779	2007	0.3309	0.1288	0.2034	0.2287

Table C7.3-2. Bootstrap mean and 80% confidence intervals for estimates of fishing mortality and spawning stock biomass in 2005 using different terminal years.

Fishing mortality in 2005			
Terminal		Lower	Upper
year	Mean	80% CI	80% CI
2005	0.39	0.2475	0.5333
2006	0.94	0.6487	1.2235
2007	2.04	1.9222	2.1584

Spawning stock biomass (MT) in 2005			
Terminal		Lower	Upper
year	Mean	80% CI	80% CI
2005	4,889	3,738	6,040
2006	3,045	2,574	3,516
2007	2,265	2,182	2,347

Table C8.2-1. Mid-Atlantic private boat catch of weakfish in number (MIDN*1000), catch in weight (MIDW, mt) private boat effort (MIDEF, Trips*1000), abundance index in number (RELNT) and weight (RELWT).

YEAR	midN	midw	midef	RelNt	RELWT
1981	4592	5549.44	6032	0.76	0.92
1982	1218	2712.6	6028	0.20	0.45
1983	4328	4066.56	8472	0.51	0.48
1984	2365	2285.49	7881	0.30	0.29
1985	1942	1748.5	6994	0.28	0.25
1986	7683	3501.05	10003	0.77	0.35
1987	4429	2566.2	8554	0.52	0.30
1988	5085	2481.36	8862	0.57	0.28
1989	1130	810.72	6756	0.17	0.12
1990	1227	551.67	7881	0.16	0.07
1991	1549	784.17	8713	0.18	0.09
1992	1331	621.36	6904	0.19	0.09
1993	1445	437.5	8750	0.17	0.05
1994	3498	908.7	9087	0.38	0.10
1995	4358	1115.53	8581	0.51	0.13
1996	5354	1680.36	8844	0.61	0.19
1997	5035	1750.5	9725	0.52	0.18
1998	4571	1984.9	8630	0.53	0.23
1999	3254	1428.3	7935	0.41	0.18
2000	5192	2038.32	11324	0.46	0.18
2001	3376	1318.02	11982	0.28	0.11
2002	2272	1050.61	9551	0.24	0.11
2003	1311	451.44	11286	0.12	0.04
2004	1279	332.52	11084	0.12	0.03
2005	2631	821.1	11730	0.22	0.07
2006	2066	484.92	12123	0.17	0.04
2007	1109	251.02	12551	0.09	0.02
2008	1510	374.18	11693	0.13	0.03

Table C8.2-2. Delaware trawl survey index of weakfish in mean number (DEN) and weight (DEW) per tow and New Jersey trawl survey index of weakfish in mean number (NJN) and weight (NJW) per tow.

YEAR	DEN	DEW	NJN	NJW
1989			0.10	0.12
1990	4.27	1.15	0.08	0.08
1991	2.68	2.63	0.12	0.08
1992	29.80	3.80	0.31	0.12
1993	93.00	11.31	0.17	0.07
1994	74.70	14.84	0.41	0.12
1995	189.80	23.93	0.32	0.14
1996	77.00	42.56	0.28	0.14
1997	78.69	20.04	0.39	0.19
1998	50.55	21.44	0.22	0.10
1999	81.36	12.66	0.22	0.08
2000	67.59	20.68	0.53	0.13
2001	32.31	13.58	0.18	0.10
2002	15.62	14.43	0.24	0.07
2003	22.52	4.65	0.04	0.02
2004	16.93	4.30	0.13	0.06
2005	47.93	2.91	0.23	0.06
2006	19.69	5.20	0.11	0.03
2007	23.07	2.80	0.14	0.04

Table C8.2-3. Scaled Delaware trawl survey index in number (ADEN) and weight (ADEW) per tow, scaled New Jersey trawl survey index in number (ANJN), and weight (ANJN), recreational cpue in number (RelNt) and weight (RelWt) and the blended indicies in number (WKN) and weight (WKW), 1981 to 2008.

YEAR	ADEN	ANJN	RelNt	WKN	ANJW	RELWT	ADEW	WKW
1981			0.761	0.761		0.920		0.920
1982			0.202	0.202		0.450		0.450
1983			0.511	0.511		0.480		0.480
1984			0.300	0.300		0.290		0.290
1985			0.278	0.278		0.250		0.250
1986			0.768	0.768		0.350		0.350
1987			0.518	0.518		0.300		0.300
1988			0.574	0.574		0.280		0.280
1989		0.159	0.167	0.163	0.258	0.120		0.189
1990	0.029	0.127	0.156	0.104	0.172	0.070	0.018	0.087
1991	0.018	0.191	0.178	0.129	0.172	0.090	0.042	0.101
1992	0.203	0.493	0.193	0.296	0.258	0.090	0.061	0.136
1993	0.632	0.270	0.165	0.356	0.151	0.050	0.181	0.127
1994	0.508	0.652	0.385	0.515	0.258	0.100	0.237	0.198
1995	1.291	0.509	0.508	0.769	0.301	0.130	0.383	0.271
1996	0.524	0.445	0.605	0.525	0.301	0.190	0.681	0.391
1997	0.535	0.620	0.518	0.558	0.409	0.180	0.321	0.303
1998	0.344	0.350	0.530	0.408	0.215	0.230	0.343	0.263
1999	0.553	0.350	0.410	0.438	0.172	0.180	0.203	0.185
2000	0.460	0.843	0.459	0.587	0.280	0.180	0.331	0.263
2001	0.220	0.286	0.282	0.263	0.215	0.110	0.217	0.181
2002	0.106	0.382	0.238	0.242	0.151	0.110	0.231	0.164
2003	0.153	0.064	0.116	0.111	0.043	0.040	0.074	0.052
2004	0.115	0.207	0.115	0.146	0.129	0.030	0.069	0.076
2005	0.326	0.366	0.224	0.305	0.129	0.070	0.047	0.082
2006	0.134	0.175	0.170	0.160	0.065	0.040	0.083	0.063
2007	0.157	0.223	0.088	0.156	0.086	0.020	0.045	0.050
2008			0.129	0.129		0.032		0.032

Table C8.2-4. Coast-wide weakfish harvest and discards in number (CATCHN) and weight (CATCHW, MT), relative fishing mortality in number (RELFN) and weight (RelWt)), ages 1+I fishing mortality in numbers (FN) and weight (FW) and fishing mortality rates due to discards in number (FDISN) and weight (FDISW), 1981 to 2008.

YEAR	CATCHN	HARVN	DISN	CATCHW	HARVW	DISCARDS	RELFN	RELFW	FN	FW	FDISW	FDISN
1981	49379	44693.2	4685.8	20199	19269.1	929.9	102517.3	29487.6	0.687	0.708	0.033	0.065
1982	32493	27988.7	4504.3	13408	12593.3	814.7	91155.2	28834.4	0.611	0.692	0.042	0.085
1983	30043	27210.7	2832.3	13849	13247.3	601.7	74093.5	35971.4	0.496	0.863	0.038	0.047
1984	35487	30184.0	5303.0	13010	12151.1	858.9	122844.4	48185.2	0.823	1.156	0.076	0.123
1985	30045	27290.8	2754.2	10720	10180.1	539.9	57461.9	35733.3	0.385	0.858	0.043	0.035
1986	41471	38409.5	3061.5	14863	14211.5	651.5	64504.2	45732.3	0.432	1.098	0.048	0.032
1987	36587	34080.3	2506.7	11311	10805.5	505.5	67035.7	39003.5	0.449	0.936	0.042	0.031
1988	42062	39871.7	2190.3	12690	12182.4	507.6	114155.0	54115.1	0.765	1.299	0.052	0.040
1989	16977	14523.4	2453.6	7865	7411.9	453.1	127118.6	57034.1	0.852	1.369	0.079	0.123
1990	18379	17171.7	1207.3	5165	4892.5	272.5	157820.3	54900.1	1.057	1.318	0.070	0.069
1991	20266	18930.9	1335.1	5206	4909.4	296.6	95359.6	43816.6	0.639	1.052	0.060	0.042
1992	15284	13659.3	1624.7	4320	4015.3	304.7	46879.4	32799.3	0.314	0.787	0.056	0.033
1993	15100	13010.5	2089.5	4011	3608.4	402.6	34677.5	24635.1	0.232	0.591	0.059	0.032
1994	12442	8954.2	3487.8	4659	3622.3	1036.7	19379.5	19835.1	0.130	0.476	0.106	0.036
1995	12936	9560.1	3375.9	4840	4062.1	777.9	19996.5	14623.5	0.134	0.351	0.056	0.035
1996	13819	8818.2	5000.8	5536	4474.6	1061.4	25534.7	15960.8	0.171	0.383	0.073	0.062
1997	13631	10622.8	3008.2	5911	4985.8	925.2	28239.7	20897.0	0.189	0.502	0.079	0.042
1998	12762	10486.2	2275.8	6468	5655.8	812.2	30190.0	28905.1	0.202	0.694	0.087	0.036
1999	9771	4815.7	4955.3	5347	4557.7	789.3	19072.0	23853.9	0.128	0.572	0.085	0.065
2000	8922	6938.3	1983.7	4956	4334.2	621.8	21005.5	22313.3	0.141	0.536	0.067	0.031
2001	9853	4734.6	5118.4	4698	3503	1195.0	39064.1	27270.1	0.262	0.654	0.166	0.136
2002	8922	4667.8	4254.2	3662	3159.8	502.2	50568.9	33866.6	0.339	0.813	0.111	0.162
2003	2905	2395.7	509.3	1563	1300.6	262.4	22633.0	24345.8	0.152	0.584	0.098	0.027
2004	3350	2655.9	694.1	1350	1112.1	237.9	14854.4	17111.7	0.100	0.411	0.072	0.021
2005	3637	2843.0	794.0	1450	1240.8	209.2	15641.5	20080.3	0.105	0.482	0.070	0.023
2006	2698	1723.5	974.5	1134	898.7	235.3	17093.1	20100.4	0.115	0.482	0.100	0.041
2007	2513	1222.8	1290.2	967	752.2	214.8	17630.0	23508.9	0.118	0.564	0.125	0.061
2008	1348	957.6	390.4	811	556.4	254.6	10444.1	25343.8	0.070	0.608	0.191	0.020

Table C8.2-5. Method of scaling relative fishing mortality rates in numbers (RelNt) and weight (RelWt) from 1981 to 2008 (Table 4) to units of instantaneous fishing mortality (F). Annual instantaneous F estimates (ages 1+, number weighted and biomass weighted) were taken from the ADAPT VPA run, tuned to the Delaware trawl, SEAMAP trawl indices and cpue from the Mid-Atlantic recreational fishery from 1982 to 1985. The scalars to convert relative F to units of instantaneous F (FNt, FWt) from 1981 to 2008 (Tables 4) were derived from the average (1982-1985) F estimates from the VPA to the corresponding relative F estimates.

Number Weighted F (ages 1+)

YEAR	VPA FN	RelFnt
1982	0.54	91,155
1983	0.58	74,094
1984	0.76	122,844
1985	0.45	57,462
Average	0.58	86,389

Scalar = 0.58 / 86,389 = 0.000067

Biomass Weighted F (ages 1+)

Year	VPA FW	RelFwt
1982	0.73	28,834
1983	0.92	35,971
1984	1.22	48,185
1985	0.70	35,733
Average	0.89	37,131

Scalar = 0.89 / 37,131 = 0.000024

Table C8.2-6. Coast-wide age 1+ weakfish stock size in number (BION*1000), weight (BIOW, MT), harvest in weight (MT) and surplus production (SURP, MT), 1981 to 2008.

YEAR	CATCHW	BIOW	BION	SURP
1981	20199	28541.7	71890.3	11032.3
1982	13408	19375.0	53202.7	10074.7
1983	13849	16041.7	60518.5	9057.3
1984	13010	11250.0	43116.1	14260.0
1985	10720	12500.0	78040.0	11761.7
1986	14863	13541.7	95958.1	13404.7
1987	11311	12083.3	81460.3	8998.5
1988	12690	9770.8	54994.6	8665.0
1989	7865	5745.8	19933.2	6039.2
1990	5165	3920.0	17381.4	6195.6
1991	5206	4950.6	31719.7	5743.4
1992	4320	5487.9	48660.9	5616.1
1993	4011	6784.0	64991.3	7013.9
1994	4659	9786.9	95823.7	8662.6
1995	4840	13790.6	96554.4	5501.5
1996	5536	14452.1	80773.9	2869.9
1997	5911	11786.0	72043.1	3448.6
1998	6468	9323.6	63092.9	6484.3
1999	5347	9339.9	76466.1	5261.7
2000	4956	9254.6	63394.8	2879.6
2001	4698	7178.2	37645.8	2025.2
2002	3662	4505.4	26333.2	1831.6
2003	1563	2675.0	19157.0	2175.2
2004	1350	3287.2	33660.1	1071.5
2005	1450	3008.8	34704.8	791.9
2006	1134	2350.7	23558.4	497.2
2007	967	1713.9	21274.8	586.4
2008	811	1333.3	19264.0	810.7

Table C9.2-1. Abundance indices of striped bass (STRIPrec2) from the MRFSS catch/trip, striped bass abundance from SCAM, summer flounder abundance (FLUKE), bluefish abundance (BLUE), dogfish abundance (DGFISH), mean deviation in sea surface temperature (devtemp, C) and the deviations in the winter North Atlantic Oscillation Index (NAO), 1981-2008.

YEAR	STRIP2	STRIPREC2	fluke	BLUE	DGFISH	devTEMP	NAO
1981	463	160.59	0.64	0.67	0.20	0.50	2.05
1982	463	283.40	0.54	0.69	0.20	0.08	0.80
1983	333	292.84	1.12	0.70	0.36	-0.01	3.42
1984	245	226.72	1.23	0.53	0.84	0.09	1.60
1985	232	321.18	0.63	0.54	0.10	0.59	-0.63
1986	337	406.20	0.77	0.71	1.50	-0.21	0.50
1987	412	321.18	0.83	0.78	0.90	0.09	-0.75
1988	495	755.73	0.62	0.43	1.30	-0.41	0.72
1989	628	774.62	0.10	0.46	2.30	0.09	5.08
1990	1375	1180.83	0.38	0.53	0.90	0.29	3.96
1991	1918	1719.28	0.61	0.38	1.90	0.39	1.03
1992	2329	2427.78	0.55	0.38	1.50	-0.51	3.28
1993	2621	2635.60	0.93	0.27	1.40	0.29	2.67
1994	3052	5308.99	0.66	0.26	1.50	0.49	3.03
1995	3496	6584.28	0.64	0.26	0.70	0.69	3.96
1996	3865	7500.60	0.75	0.25	0.43	-0.91	-3.78
1997	4498	9730.00	0.67	0.29	0.86	-0.81	-0.17
1998	4372	9918.93	0.86	0.24	0.69	0.39	0.72
1999	4421	8955.38	0.90	0.24	0.82	1.29	1.70
2000	4982	9153.76	0.70	0.31	0.60	0.89	2.80
2001	6934	7084.95	0.84	0.36	2.70	0.89	-1.89
2002	7133	8360.24	0.53	0.33	2.80	1.19	0.76
2003	7669	8483.05	0.64	0.36	3.40	0.69	0.20
2004	8028	9304.90	0.63	0.46	4.40	0.39	-0.07
2005	6927	9824.46	0.77	0.41	4.10	0.69	0.12
2006	5915	12110.54	0.56	0.38	4.45	0.89	-1.09
2007	5915	8039.06	0.59	0.41	4.36	0.69	2.80
2008	5915	5923.02	0.71	0.43	3.73	1.09	2.11

Table C9.2-2. Weakfish juvenile indices from Rhode Island (RI0), Connecticut (CT0), New York (NY0), New Jersey (NJ0), Delaware (DE0), Maryland (MD0), Virginia (VA0) and North Carolina (NC0) 1981 to 2007

YEAR	RI0	CT0	NY0	NJ0	DE0	MD0	VA0	NC0
1981	39.00				5.98		6.02	
1982	19.60				11.49		10.95	
1983	3.10				4.47		10.85	
1984	5.00	1.00			6.67		6.05	
1985	19.20	6.19			9.35		37.04	
1986	2.00	13.16			12.94		4.62	
1987	1.30	0.63	0.60		5.98		17.85	12.14
1988	10.90	3.49	0.10	25.71	4.73		21.72	105.50
1989	1.20	8.69	1.40	43.37	11.11	0.44	21.27	14.20
1990	27.30	5.56	0.60	14.71	8.73	0.95	30.00	50.20
1991	25.40	11.95	20.60	27.09	20.07	0.78	15.32	36.90
1992	14.50	3.05	3.30	5.95	14.72	3.24	15.91	42.70
1993	7.50	4.08	1.00	23.88	14.79	1.59	15.42	8.70
1994	15.20	11.19	8.30	37.14	11.47	2.33	7.04	68.10
1995	0.30	5.22	1.60	77.48	13.49	5.95	11.00	38.20
1996	116.10	15.23	24.50	46.27	11.93	6.40	7.42	72.40
1997	88.80	12.38	18.80	21.75	15.40	4.28	14.82	32.80
1998	13.20	5.02	1.00	3.04	11.35	5.87	9.95	70.40
1999	3.70	30.93	8.40	25.32	13.51	3.26	16.25	100.00
2000	9.40	63.31	15.90	0.09	14.16	6.54	11.09	63.00
2001	19.30	40.10	16.20	21.68	7.57	8.10	11.52	30.30
2002	8.40	41.35	12.20	39.31	5.96	3.92	8.59	22.00
2003	198.00	49.41	7.00	72.72	10.44	4.89	5.42	23.90
2004	1.88	58.98	5.50	68.38	8.39	1.62	10.47	28.80
2005	129.50	25.86	32.00	70.64	16.84	3.55	7.10	28.80
2006	0.36	1.05	8.70	9.03	5.35	2.41	6.20	39.10
2007		63.93			13.70	1.64		56.80

Table C9.2-3. Scaled weakfish juvenile indices from Rhode Island (ARI0), Connecticut (ACT0), New York (ANY0), New Jersey (NJ0), Delaware (ADE0), Maryland (AMD0), Virginia (AVA0), and North Carolina (ANC0), blended age 0 index (REC0), age 1 abundance (NVPA) and juvenile relative mortality (z0), 1981-2007.

YEAR	ARI0	ACT0	ANY0	NJ0	ADE0	AMD0	AVA0	ANC0	REC0	nvpa	z0
1981	43.29				18.54		15.35		25.73	45	1.74
1982	21.76				35.62		27.92		28.43	41	1.94
1983	3.44				13.86		27.67		14.99	44.1	1.22
1984	5.55	1.66			20.68		15.43		13.88	63.4	0.78
1985	21.31	10.28			28.99		94.45		48.25	70.9	1.92
1986	2.22	21.85			40.11		11.78		18.04	54.4	1.20
1987	1.44	1.05	2.13		18.54		45.52	8.98	12.94	26.3	1.59
1988	12.10	5.79	0.36	25.71	14.66		55.39	78.07	27.44	20.8	2.58
1989	1.33	14.43	4.97	43.37	34.44	4.11	54.24	10.51	20.92	26.7	2.06
1990	30.30	9.23	2.13	14.71	27.06	8.87	76.50	37.15	25.74	29.5	2.17
1991	28.19	19.84	73.13	27.09	62.22	7.29	39.07	27.31	35.52	35.6	2.30
1992	16.10	5.06	11.72	5.95	45.63	30.26	40.57	31.60	23.36	36.7	1.85
1993	8.33	6.77	3.55	23.88	45.85	14.85	39.32	6.44	18.62	49.3	1.33
1994	16.87	18.58	29.47	37.14	35.56	21.76	17.95	50.39	28.46	23.4	2.50
1995	0.33	8.67	5.68	77.48	41.82	55.57	28.05	28.27	30.73	29.7	2.34
1996	128.87	25.28	86.98	46.27	36.98	59.78	18.92	53.58	57.08	16.2	3.56
1997	98.57	20.55	66.74	21.75	47.74	39.98	37.79	24.27	44.67	11.4	3.67
1998	14.65	8.33	3.55	3.04	35.19	54.83	25.37	52.10	24.63	9.4	3.27
1999	4.11	51.34	29.82	25.32	41.88	30.45	41.44	74.00	37.29	12.5	3.40
2000	10.43	105.10	56.45	0.09	43.90	61.08	28.28	46.62	43.99	6.3	4.25
2001	21.42	66.57	57.51	21.68	23.47	75.65	29.38	22.42	39.76	6	4.19
2002	9.32	68.64	43.31	39.31	18.48	36.61	21.90	16.28	31.73	6.4	3.90
2003	219.78	82.02	24.85	72.72	32.36	45.67	13.82	17.69	63.61	8.8	4.28
2004	2.09	97.91	19.53	68.38	26.01	15.13	26.70	21.31	34.63	4.7	4.30
2005	143.75	42.93	113.60	70.64	52.20	33.16	18.11	21.31	61.96	6.7	4.53
2006	0.40	1.74	30.89	9.03	16.59	22.51	15.81	28.93	15.74	4.5	3.55
2007		106.12			42.47	15.32		42.03	51.49		

Table C9.3-1. Pearson correlation (r) matrix relating the three weakfish response variables consisting of surplus production (SURPT) blended weakfish biomass (WkW) and juvenile mortality (Z0) with each of the 10 potential explanatory variables. The P value indicates the level of statistical significance.

<i>Explanatory Variable</i>	<i>Response Variable</i>					
	SURPt		WkW		Z0	
	r	P	r	P	r	P
Striprec2	-0.75	0.0001*	-0.44	0.02*	0.88	0.0001*
Fluke	-0.30	0.13	0.20	0.31	-0.18	0.37
Menhaden	0.76	0.0001*	0.47	0.01*	-0.68	0.0001*
Bluefish	0.44	0.02**	0.47	0.01**	-0.57	0.002**
Spiny Dogfish	-0.64	0.0003*	-0.65	0.0003*	0.57	0.002*
DeviationsTemperature	-0.30	0.12	-0.32	0.10	-0.36	0.07
NAO	0.23	0.25	-0.002	0.99	-0.43	0.03*
FWt	0.51	0.0007**	0.06	0.74	-0.55	0.003**
Discards	.		.		-0.22	0.27
Fdisn	.		.		0.01	0.95

- * a statistically significant (P < 0.05) correlation with dependent variable.
- ** a statistically significant (P < 0.05) correlation with dependent variable but in an implausible direction.

Table C9.3-2. Three stepwise regression models with weakfish surplus production (SURPt), weakfish biomass (WkW) and juvenile mortality (Z0) used as response variables. The explanatory variables included a blended predator index (Tpred) of striped bass and spiny dogfish, bluefish, and fluke as well as mean annual water temperature, deviations in the North Atlantic Oscillation Index, fishing mortality (FWt) and discards (Disn). Given below are the explanatory variables that were selected by the stepwise model. The slope (b) of the regression, its standard error (SEb), Pearson correlation coefficient (r) and the probability (P) level associated with each explanatory variable.

<i>Variable</i>	<i>Response Variables</i>											
	SURPt				WkW				Z0			
	b	SEb	r	P	b	SEb	r	P	b	SEb	r	P
Tpred	-0.84	0.16	-0.80	0.0001	-0.37	0.08	0.79	0.0002	0.29	0.04	0.84	0.0001
FWt					-0.44	0.15	0.79	0.007				

Table C9.3-3. Parameter estimates (r, K, C) and steady-state overfishing thresholds (Fmsy, Fcoll, Bmsy) for weakfish derived from the Gompertz Surplus Production Model (see equation 6 in text) with and without the inclusion of blended predation from striped bass and spiny dogfish. These models were fitted by nonlinear iterative reweighting least squares, 1981-2008. The standard error (SE) is given for each parameter estimate, as well as the coefficient of determination (r^{**2}).

Parameters	<i>Straight Gompertz</i>		<i>Gompertz with Predation</i>	
	Mean	SE	Mean	SE
r	0.26	0.10	0.54	0.05
K	156,095 mt	50,116 mt	52,466 mt	4,722 mt
C*			-0.31	0.05
r^{**2}	0.54		0.84	

Equilibrium Overfishing Thresholds

Fmsy	0.26	0.10	0.54	0.05
Fcoll	0.71	0.27	1.47	0.25
Bmsy	57,388 mt	18,394 mt	19,289 mt	1,736 mt

- * C = exponent for predation effects

Table C9.3-4. Parameter estimates (A,B) of the Ricker Stock-Recruitment (S-R) model for weakfish (see equation 6 in text) with and without the inclusion of blended predation from striped bass and spiny dogfish. These alpha (A) and beta (B) parameters were estimated by nonlinear iterative reweighting least squares, 1981-2008. The standard error (SE) is given for each parameter estimate, as well as the coefficient of determination (r^{**2}).

Parameters	<i>Straight Ricker</i>		<i>Ricker with Predation</i>	
	Mean	SE	Mean	SE
A	0.016	0.004	0.00048	0.002
B	-0.00015	0.000027	-0.00008	0.00003
C*			0.00011	0.00004
r^{**2}	0.52		0.81	

- * C = exponent for predation effects

Table C9.3-5. Estimated weakfish predation losses (DT, MT), predation mortality (MP), fishing mortality (FW), total mortality (Z), fishing to total mortality ratio (FZ ratio), non-equilibrium FMSY, non-equilibrium BMSY, fraction maximum spawning potential (MSP) based on the Steele-Henderson production model with blended predation from striped bass and weakfish.

YEAR	DT	MP	FW	Ztotal	FZRATIO	FMSY	FCOLL	BMSY	msp
1981	467.83	0.02	0.71	0.83	0.86	0.78	2.12	20274.63	0.42
1982	532.68	0.03	0.69	0.82	0.84	0.77	2.10	20209.78	0.35
1983	810.11	0.06	0.86	1.02	0.84	0.75	2.04	19932.36	0.24
1984	1521.90	0.13	1.16	1.38	0.84	0.70	1.90	19220.57	0.27
1985	355.71	0.03	0.86	0.98	0.87	0.77	2.10	20386.76	0.29
1986	2817.90	0.22	1.10	1.42	0.77	0.64	1.73	17924.56	0.26
1987	1700.80	0.16	0.94	1.19	0.79	0.68	1.85	19041.67	0.21
1988	2492.42	0.32	1.30	1.72	0.76	0.58	1.57	18250.05	0.12
1989	3216.11	0.67	1.37	2.13	0.64	0.41	1.11	17526.36	0.08
1990	1185.29	0.27	1.32	1.68	0.78	0.61	1.65	19557.18	0.11
1991	2798.77	0.54	1.05	1.69	0.62	0.46	1.26	17943.69	0.12
1992	2831.72	0.46	0.79	1.35	0.58	0.50	1.36	17910.75	0.15
1993	3182.35	0.38	0.59	1.08	0.55	0.54	1.47	17560.12	0.21
1994	5304.54	0.45	0.48	1.03	0.46	0.51	1.38	15437.92	0.30
1995	5088.90	0.36	0.35	0.81	0.43	0.55	1.51	15653.57	0.31
1996	5200.18	0.40	0.38	0.88	0.44	0.53	1.45	15542.29	0.25
1997	7015.28	0.66	0.50	1.27	0.40	0.41	1.11	13727.19	0.20
1998	6435.14	0.69	0.69	1.48	0.47	0.40	1.08	14307.32	0.20
1999	6124.05	0.66	0.57	1.33	0.43	0.41	1.12	14618.42	0.20
2000	5866.88	0.71	0.54	1.35	0.40	0.39	1.06	14875.58	0.16
2001	7287.29	1.25	0.65	2.00	0.33	0.23	0.62	13455.18	0.10
2002	5879.04	1.64	0.81	2.55	0.32	0.15	0.42	14863.43	0.06
2003	3602.11	1.21	0.58	1.89	0.31	0.24	0.65	17140.36	0.07
2004	5663.27	1.80	0.41	2.31	0.18	0.13	0.36	15079.20	0.07
2005	4990.96	1.86	0.48	2.44	0.20	0.12	0.34	15751.50	0.05
2006	4076.38	2.01	0.48	2.59	0.19	0.11	0.29	16666.09	0.04
2007	2034.71	1.34	0.56	2.00	0.28	0.21	0.57	18707.76	0.03
2008	1061.03	0.80	0.61	1.50	0.40	0.36	0.98	19681.44	0.03

Table C9.3-6. Parameter estimates (r , K , c , A) and weakfish steady-state overfishing thresholds (F_{msy} , F_{coll} , B_{msy}) derived from the Steele-Henderson Production Model (see equation 9 in text) with blended predation from striped bass and spiny dogfish fitted by nonlinear least squares and by nonlinear iterative reweighting least squares, 1981-2008. The standard error (SE) is given for each parameter estimate, as well as the coefficient of determination (r^{**2}).

Parameters	<i>Least Squares</i>		<i>Iterative Reweighting</i>	
	Mean	SE	Mean	SE
r	0.75	0.22	0.72	0.09
K	49,095 mt	13,620 mt	46,264 mt	5,410 mt
c	1.35	0.53	1.28	0.23
A	5,364 mt	1,810 mt	4,034 mt	715 mt
r**2	0.84		0.94	
<i>Equilibrium Overfishing Thresholds</i>				
Fmsy	0.75	0.22	0.72	0.09
Fcoll	2.04	0.60	1.96	0.25
Bmsy	18,050 mt	5,001 mt	17,009 mt	1,989 mt

Table C9.3-7. Weakfish losses due to predation (DT, MT), coast-wide harvest (HARVW, MT) and discards (discards, MT), 1981-2008.

YEAR	DISCARDS	HARVW	DT
1981	929.9	19269.1	467.83
1982	814.7	12593.3	532.68
1983	601.7	13247.3	810.11
1984	858.9	12151.1	1521.90
1985	539.9	10180.1	355.71
1986	651.5	14211.5	2817.90
1987	505.5	10805.5	1700.80
1988	507.6	12182.4	2492.42
1989	453.1	7411.9	3216.11
1990	272.5	4892.5	1185.29
1991	296.6	4909.4	2798.77
1992	304.7	4015.3	2831.72
1993	402.6	3608.4	3182.35
1994	1036.7	3622.3	5304.54
1995	777.9	4062.1	5088.90
1996	1061.4	4474.6	5200.18
1997	925.2	4985.8	7015.28
1998	812.2	5655.8	6435.14
1999	789.3	4557.7	6124.05
2000	621.8	4334.2	5866.88
2001	1195.0	3503.0	7287.29
2002	502.2	3159.8	5879.04
2003	262.4	1300.6	3602.11
2004	237.9	1112.1	5663.27
2005	209.2	1240.8	4990.96
2006	235.3	898.7	4076.38
2007	214.8	752.2	2034.71
2008	254.6	556.4	1061.03

Table C10.4-1. Summary of catch-and-release mortality experiment results.

Study	Malchoff and Heins 1997	Swihart et al. 2000	Swihart 2000	Gearhart 2002
Location	NY, Great South Bay	VA, Chesapeake Bay Mouth	VA, Chesapeake Bay Mouth	NC estuaries
Dates	Aug 14 – Sept 8, 1995	June, 1995	July 29-Aug 5, 1999	2000-2001, April-Nov
Mode	Pier	Boat	Pier	Boat
Bait type	Bait and artificial (no difference)	Bait	Artificials	Artificials and bait
Water temperature range °C	22 – 27	Mean = 23	26.7 - 30.8 Mean =28.7	13.8 -26.5
Mortality range	0 – 6.5%			0.0-32.1%
Mean mortality	2.6%, 95% CI = 0.6-7.0%	2%	14.5%	10.4-17.6% (high vs low salinity)
Fish Size	Mostly sublegal (< 405 mm) 315-425 mm	235-338 mm, mean = 283 mm	225-382 mm, mean = 298 mm	Not reported
N	90; 4 trials	360	145	180
Trial	72 h	Up to 23 days All deaths < 61 h	96 h	72 h

Table C10.4-2. Correlations of initial weight based indices (based on Uphoff 2006a) and other indicators of stock status. Shading indicates $P < 0.05$. EBI = exploitable biomass index. WRI = MRFSS catch per trip index. NJGM EBI is based on geometric mean counts during August and October rounds. NJPT EBI is based on proportion of tows with weakfish during August and October rounds. VPA B = biomass from converged portion of “best” VPA in Kahn (2006; run 20). Losses = all estimated fishery-related losses. All data are for 1981-2006, but N varies due to time-series.

		WRI	DE EBI	NJGM EBI	NJPT EBI	VPA B
DE EBI	r	0.75				
	P	0.0005				
	N	17				
NJGM EBI	r	0.21	0.48			
	P	0.39	0.05			
	N	18	17			
NJPT EBI	r	0.59	0.43	0.59		
	P	0.01	0.09	0.01		
	N	18	17	18		
VPA B	r	0.34	0.54	0.56	0.20	
	P	0.16	0.09	0.06	0.45	
	N	19	11	12	12	
Losses	r	0.91	0.54	-0.24	0.09	0.33
	P	<0.0001	0.02	0.32	0.72	0.17
	N	26	17	18	18	19
Grand NJGM	r	0.82	0.92	0.70		
Grand NJPT	r	0.92	0.85		0.49	

Table C10.4-3. Correlations of revised NJ EBI with indicators of weakfish biomass. Shading indicates $P < 0.05$. EBI = exploitable biomass index. WRI = MRFSS catch per trip index. P = proportion of tows with weakfish, W = mean weight of all weakfish, E = exploitable fraction of weight. VPA B = biomass from converged portion of “best” VPA in Kahn (2006; run 20). Losses = all estimated fishery-related losses. Grand Mean = average of Z+2 transformed WRI, DE EBI, and each of the trial NJ EBI. All data are for 1989-2006, but N varies due to time-series.

Indicators	Correlation	NJ Index			
		Aug P*W	Aug P*W*E	Oct P*W	Oct P*W*E
WRI	r	0.54674	0.6212	0.33207	0.5899
	P	0.0189	0.0059	0.1782	0.01
	N	18	18	18	18
DE	r	0.63182	0.42801	0.57519	0.35851
	P	0.0065	0.0865	0.0157	0.1576
	N	17	17	17	17
Losses	r	0.70675	0.42839	0.25463	0.09881
	P	0.001	0.0761	0.3079	0.6965
	N	18	18	18	18
VPA B	r	0.65561	0.07927	0.34805	0.319
	P	0.0206	0.8065	0.2676	0.3122
	N	12	12	12	12
Grand mean	r	0.84511	0.81844	0.78084	0.78199

Table C10.4-4. Harvest-related loss estimates used for biomass dynamic models.

Year	Commercial harvest MT	Commercial discards MT	Recreational harvest MT	Recreational discards mt	Total Harvest Losses
1981	11,958.5	925.5	7305.2	4.3	20,193.4
1982	8,835.3	811.8	3758.2	2.9	13,408.2
1983	7,926.6	597.6	5321.0	4.1	13,849.3
1984	8,969.2	855.2	3181.4	3.7	13,009.5
1985	7,690.0	534.6	2489.8	5.3	10,719.7
1986	9,610.8	616.9	4600.3	34.6	14,862.6
1987	7,743.9	492.8	3061.7	12.7	11,311.1
1988	9,310.7	495.3	2872.0	12.3	12,690.3
1989	6,424.3	450.4	987.6	2.7	7,864.9
1990	4,281.2	265.9	611.1	6.6	5,164.8
1991	3,943.0	284.8	966.4	11.8	5,206.0
1992	3,381.0	294.1	634.6	10.6	4,320.3
1993	3,108.8	385.5	500.0	17.1	4,011.5
1994	2,808.0	990.2	814.4	46.5	4,659.2
1995	3,219.9	716.3	841.7	61.6	4,839.5
1996	3,148.0	985.8	1326.9	75.6	5,536.3
1997	3,310.3	864.9	1675.0	60.3	5,910.5
1998	3,820.7	762.5	1834.8	49.7	6,467.7
1999	3,132.2	746.9	1425.8	42.4	5,347.3
2000	2,449.7	548.7	1884.6	73.1	4,956.1
2001	2,267.8	1,139.4	1235.0	55.6	4,697.8
2002	2,165.1	470.4	994.6	31.8	3,661.8
2003	907.8	238.4	392.3	24.0	1,562.5
2004	691.2	209.6	420.5	28.3	1,349.6
2005	520.4	174.0	720.0	35.2	1,449.6
2006	481.7	199.1	417.2	36.2	1,134.2

Table C10.4-5. Rescaled indices (z-transformed based on common time period + 2 to remove values less than zero), striped bass and Atlantic menhaden biomass estimates (mt), and their ratio used as inputs in weakfish biomass dynamic models.

Year	MRFSS	NJ	DE	Bass Biomass	Menhaden Biomass	Menhaden:Bass
1981	15.4			8789	686249	78.1
1982	7.7			10020	877809	87.6
1983	8.2			7159	551590	77.0
1984	5.0			7534	555868	73.8
1985	4.2			9003	704552	78.3
1986	6.0			11302	778336	68.9
1987	5.2			15597	898324	57.6
1988	4.7			21091	507110	24.0
1989	2.1	2.6		28134	844023	30.0
1990	1.3	1.8	0.9	33116	862413	26.0
1991	1.6	1.7	1.0	37770	805784	21.3
1992	1.6	2.7	1.1	47590	806223	16.9
1993	1.1	1.5	1.8	55335	1062836	19.2
1994	1.9	2.7	2.2	65038	743954	11.4
1995	2.3	3.0	3.0	82562	854719	10.4
1996	3.3	3.1	4.8	96180	739099	7.7
1997	3.2	4.2	2.7	105788	636684	6.0
1998	4.0	2.0	2.8	96550	575810	6.0
1999	3.1	1.6	2.0	95744	482853	5.0
2000	3.1	2.8	2.7	100037	522825	5.2
2001	2.0	2.3	2.1	98382	643163	6.5
2002	2.0	1.5	2.1	100019	491495	4.9
2003	0.8	0.2	1.2	99256	693816	7.0
2004	0.7	1.3	1.2	95472	475986	5.0
2005	1.3	1.2	1.1	94438	496006	5.3
2006	0.9	0.5	1.3	88366	449784	5.1

Table C10.5-1. AIC_c for 12 modeled hypotheses. N = 60 for all models.

Hypothesis	Production fc	Predator-prey fc	K	AICc	Delta AICc	Aikike wt
Depensatory	Gompertz	Bass biomass & menhaden:bass	5	-31.9	0	0.978
Depensatory	Gompertz	Bass biomass only	5	-23.3	8.6	0.013
Predator-prey	Gompertz	Type II weakfish:bass	6	-22.5	9.4	0.009
Depensatory	Schaefer	Bass biomass & menhaden:bass	5	0.8	32.7	0.000
Predator-prey	Schaefer	Type II weakfish:bass	6	10.2	42.1	0.000
Predator-prey	Schaefer	Type III weakfish:bass	6	10.3	42.3	0.000
Fishing	Schaefer	None	4	13.6	45.6	0.000
Predator-prey	Schaefer	Type I weakfish:bass	5	14.1	46.1	0.000
Fishing	Gompertz	None	4	16.1	48.0	0.000
Depensatory	Schaefer	Bass biomass	5	16.3	48.2	0.000
Predator-prey	Gompertz	Type III weakfish:bass	6	19.7	51.6	0.000
Predator-prey	Gompertz	Type I weakfish:bass	5	26.9	58.8	0.000

Table C10.5-2. Parameter estimates and their distribution based on jackknifing. N = 60. Original is the base run with all data.

Statistic	r	K	B ₁₉₈₁	c
Mean	0.482	51,481	81,631	0.288
Median	0.482	51,521	82,471	0.292
Maximum	0.484	51,788	82,473	0.292
Minimum	0.469	48,698	70,164	0.242
5th%	0.481	51,511	79,980	0.272
95th%	0.483	51,555	82,472	0.292
Original	0.482	51,521	82,472	0.292

Table C10.5-3. Parameter estimates and their distribution based on bootstrapping. N = 500, excluding the initial run. Original is the base run with all data.

Statistic	r	k	B ₁₉₈₁	c
Mean	0.48190	51522	82472	0.2924
Median	0.48190	51521	82472	0.2924
Min	0.48190	51521	82466	0.2923
Max	0.48195	51529	82472	0.2924
5th%	0.48190	51521	82472	0.2924
95th%	0.48192	51525	82472	0.2924
Original				
1	0.48190	51521	82472	0.2924

Table C10.5-4. Estimates of model parameters when blocks of years were removed from the beginning of the time-series or biomass in 1981 was constrained to be less than K. MSR = mean of the squared residuals.

Treatment	year 0	r	K	Bo	c	MSR
All	1981	0.48	51521	82472	0.29	0.087
1982 +	1982	0.47	48672	70534	0.24	0.090
1983 +	1983	0.47	47339	47392	0.25	0.089
1984 +	1984	0.46	47748	42343	0.27	0.112
1985 +	1985	0.44	45979	35334	0.21	0.106
1986 +	1986	0.34	59197	30501	0.20	0.110
1987 +	1987	0.35	58297	21384	0.20	0.106
1988 +	1988	0.35	59365	18352	0.24	0.108
1989 +	1989	0.33	78130	12951	0.35	0.089
Constrain K	1981	0.31	72800	67907	0.26	0.102

Table C10.5-5. Changes in GDR model parameters when different weights were assigned to released MRFSS weakfish catch in the WRI and recreational discard losses.

Weight assigned (kg)	r	k	Bo	c
Base - 0.15	0.48	51521	82472	0.29
Discard = 0.2	0.44	56783	62349	0.28
Discard = 0.3	0.44	58539	55852	0.31
Discard = 0.4	0.41	57148	79360	0.27
Harvest wt (median=0.7)	0.43	61322	49899	0.34

Table C10.6-1. Predicted mean weight-at-age of 340 mm weakfish sampled in the NEFSC fall trawl survey during 1992-2006. Slopes and intercepts describe ln-transformed total length (cm).

Year	Intercept	Slope	Predicted kg
1992	-11.60	3.02	0.39
1993	-11.82	3.08	0.38
1994	-11.34	2.95	0.39
1995	-11.38	2.94	0.37
1996	-11.35	2.93	0.36
1997	-11.39	2.94	0.35
1998	-11.32	2.93	0.37
1999	-11.47	2.98	0.38
2000	-11.25	2.90	0.36
2001	-11.54	2.99	0.37
2002	-11.67	3.02	0.36
2003	-10.54	2.67	0.32
2004	-11.35	2.92	0.35
2005	-11.39	2.93	0.35
2006	-11.49	2.96	0.35

Table C10.6-2. Statistics and parameter estimates of predicted weight of weakfish at 340 mm (Q_{wt}) during 1992-2006. Models tested for linear trend of Q_{wt} with year (Model = Year), striped bass biomass estimates (Model = Bass), and the ratio of menhaden to striped bass biomass (Model = Ratio). Statistics and parameter estimates are presented for all years and with a potential outlier removed.

Model	r^2	P	Slope	Slope SE	Intercept	Intercept SE
<u>All years</u>						
Year	0.57	0.0011	-0.003	0.0007	6.36	1.45
Bass	0.51	0.0027	$-7.2 \cdot 10^{-07}$	$1.94 \cdot 10^{-07}$	0.43	0.02
Ratio	0.41	0.0107	0.0025	0.0008	0.34	0.01
<u>2003 removed</u>						
Year	0.62	0.0009	-0.00256	0.0006	5.48	1.16
Bass	0.61	0.0010	$-6.3 \cdot 10^{-07}$	$1.46 \cdot 10^{-07}$	0.42	0.01
Ratio	0.56	0.0020	0.0024	0.0006	0.35	0.01

Table C10.6-3. Estimates of annual biomass of food consumed per biomass of striped bass (Ct) from three Chesapeake Bay bioenergetics studies. Years = years included in bioenergetics estimates; 1955-1959 = Griffin (2001) and Griffin and Margraf (2003); 1990-1992 = Hartman and Brandt (1995a: 1995b); and 1998-2000 = Overton (2003). Shading highlights minimum, maximum, and median estimates of Ct.

Years	1955-1959	1990-1992	1998-2000	1998-2001	1998-2002
Region	Bay	Bay	Upper Bay	Middle Bay	Lower Bay
Age	Ct	Ct	Ct	Ct	Ct
2	6.2	6.3	4.1	6.2	7.9
3	5.6	5.6	5.1	6.1	5.3
4	5.1	5.5	5.6	6.2	6.3
5	4.7	5.4	5.5	6.2	5.9
6	4.3	5.0	5.1	4.2	4.9

Table C10.6-4. Annual percentage of striped bass stomachs with food (SSt; Overton et al. 2008) and model estimates of weakfish biomass consumed per striped bass biomass (Dt / Pt) annually. MR_t = time category assigned to menhaden: striped bass (> 10 = 1 or < 10 = 0).

Year	SSt (%)	MR _t	Dt / Pt
1994	99	0	0.026
1995	100	0	0.028
1996	74	0	0.038
2000	84	1	0.056
2002	77	1	0.060
2003	84	1	0.042
2005	23	1	0.059
2006	28	1	0.056
2007	81	1	0.057

Table C10.6-5. Summary of results of final multiple regression models describing the relationships of annual weakfish biomass consumed (Dt / Pt) and percentage of striped bass stomachs with food (SSt; Overton et al. 2008)

Dependent	1 / (Dt / Pt)
Independent	SSt
Slope	0.20442
Slope SE	0.041
Intercept	15.35
Intercept SE	3.31
Category	N/A
Category SE	N/A
Slope shift	-0.16
Slope Shift SE	0.03
P	0.0013
R ²	0.89

Table C10.7-1. Comparison of AIC_c for Gompertz production models excluding and including additional loss terms that describe striped bass related or additional bycatch estimates. GDR is the model selected to represent biomass dynamics.

Model	Loss fc	K	AICc	Delta AICc	Aikike wt
GDR	Bass biomass & menhaden:bass	5	-41	0	0.908
Added Bycatch	Constant * estimated bycatch	5	17	58	0.000
Fishery Only	No additional losses	5	16	57	0.000
Added Bycatch	Power fc since 1996	6	-24	16	0.000
Added Bycatch	Linear since 1996	6	-27	14	0.001
Added Bycatch	Quadratic since 1996	7	-34	7	0.031
Added Bycatch	Constant addition since 1996	5	-35	5	0.060

Table C11.3-1. Results of correlation analysis between Atlantic Multidecadal Oscillation (AMO) and weakfish commercial landings. A) NMFS landings only; B) Landings from Joseph (1972) for years 1929 to 1949 and NMFS landings 1950 to present.

	No lag	1 yr lag	2 yr lag	3 yr lag	4 yr lag	5 yr lag	6 yr lag	7 yr lag	8 yr lag	9 yr lag	10 yr lag
A)											
r	-0.62416	-0.68332	-0.73352	-0.77764	-0.8094	-0.8303	-0.81922	-0.78916	-0.74835	-0.68789	-0.61433
P	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
N	54	55	56	57	58	58	58	58	57	56	55
B)											
r	-0.15067	-0.23159	-0.2832	-0.31004	-0.33631	-0.34733	-0.35973	-0.37929	-0.38121	-0.37908	-0.35678
P	0.2131	0.0555	0.0193	0.0101	0.0054	0.0043	0.0032	0.002	0.0019	0.0022	0.0044
N	70	69	68	68	67	66	65	64	64	63	62

Table C11.3-2. Correlation of NEFSC weakfish food habit data with biomass weighted Z for ages 1-5 estimated by ADAPT. * = strong negative correlation at $\alpha = 0.10$; ** = strong positive correlation $\alpha = 0.10$.

		Amphi_Iso	Crab_Shrimp	Empty	Forage
5"	r	0.5184	-0.7412	0.7706	0.7413
	P	0.1023	0.009*	0.0055**	0.009**
	N	11	11	11	11
6"	r	0.6154	-0.7411	0.7178	-0.6568
	P	0.0438**	0.0091*	0.0129**	0.0281*
	N	11	11	11	11
7"	r	0.6320	-0.5050	0.6198	-0.2746
	P	0.037**	0.1131	0.0419**	0.4138
	N	11	11	11	11
8"	r	0.8188	-0.1846	0.1784	-0.7272
	P	0.0021**	0.5868	0.5996	0.0112*
	N	11	11	11	11
9"	r	0.7016	-0.6440	0.4331	-0.5495
	P	0.0161**	0.0325*	0.1834	0.08*
	N	11	11	11	11
10"	r	0.6694	-0.5237	0.8578	-0.8543
	P	0.0243**	0.0983*	0.0007**	0.0008*
	N	11	11	11	11
11"	r	0.2441	-0.4096	0.7312	-0.1466
	P	0.4695	0.2110	0.0106**	0.6672
	N	11	11	11	11
12"	r	-0.1972	0.0005	0.1715	-0.2782
	P	0.5610	0.9989	0.6142	0.4075
	N	11	11	11	11
All	r	0.6764	-0.6086	0.7993	-0.7305
	P	0.0223**	0.0469*	0.0032**	0.0107*
	N	11	11	11	11

Table C12.4-1. Comparison of reference point estimates and weakfish stock status determinations under equilibrium and non-equilibrium conditions from ADAPT VPA, the full Steele-Henderson production model incorporating predation, and the Gompertz production model incorporating predation-competition losses as a function of striped bass biomass and the menhaden:striped bass ratio (GDR). Fishing mortality rates are numbers weighted for ADAPT and biomass weighted for Steele-Henderson and GDR.

Model	Reference point	Equilibrium Conditions		Non-equilibrium Conditions	
		Threshold value	2007 value exceeds threshold*	Threshold value	2007 value exceeds threshold*
ADAPT VPA	F _{20%}	0.42	Yes	--	--
	SSB _{20%}	10,179 MT	Yes	--	--
Steele-Henderson	F _{MSY}	0.72	No	0.36	Yes
	SSB _{MSY}	17,009 MT	Yes	19,681 MT	Yes
	MSP			20%	Yes
GDR	F _{MSY}	0.48	No	Z _{MSY} = 0.48	Yes
	SSB _{MSY}	18,941 MT	Yes	--	--
	MSP			20%	Yes

* "Exceeds" interpreted here as $F_{2007} > F_{\text{threshold}}$ or $SSB_{2007} < SSB_{\text{threshold}}$

Table C13.2-1. Relative weakfish recruitment (Rec0), fully recruited fishing mortality (F) and natural mortality (M) used in the HCM projections of weakfish SSB among the three scenarios from 1980 to 2020.

	Rec0	Scenario 1		Scenario 2		Scenario 3	
		F	M	F	M	F	M
1980	230	1.29	0.25	1.29	0.25	1.29	0.25
1981	55.7	1.73	0.25	1.73	0.25	1.73	0.25
1982	18.4	1.40	0.25	1.40	0.25	1.4	0.25
1983	35	1.61	0.25	1.61	0.25	1.61	0.25
1984	33.9	2.21	0.25	2.21	0.25	2.21	0.25
1985	18.3	1.35	0.25	1.35	0.25	1.35	0.25
1986	8	1.73	0.25	1.73	0.25	1.73	0.25
1987	5.9	2.66	0.25	2.66	0.25	2.66	0.25
1988	7.4	1.81	0.25	1.81	0.25	1.81	0.25
1989	1.9	2.12	0.25	2.12	0.25	2.12	0.25
1990	5.7	2.76	0.25	2.76	0.25	2.76	0.25
1991	5.5	0.84	0.25	0.84	0.25	0.84	0.25
1992	43.4	1.03	0.25	1.03	0.25	1.03	0.25
1993	88.6	0.71	0.25	0.71	0.25	0.71	0.25
1994	28.5	0.98	0.25	0.98	0.25	0.98	0.25
1995	10.7	0.32	0.25	0.32	0.25	0.32	0.25
1996	17.1	0.53	0.25	0.53	0.25	0.53	0.25
1997	14.7	0.56	0.25	0.56	0.25	0.56	0.25
1998	4.6	0.72	0.25	0.45	0.25	0.45	0.25
1999	17.3	2.67	0.25	1.02	0.65	0.37	0.65
2000	4	2.82	0.25	1.17	0.65	0.52	0.75
2001	9.8	2.04	0.25	1.19	0.65	0.54	0.75
2002	11.7	2.34	0.25	0.99	0.65	0.34	0.95
2003	3.6	2.38	0.25	1.03	0.65	0.38	1.00
2004	4.6	2.06	0.25	1.11	0.65	0.46	1.00
2005	12	2.52	0.25	1.17	0.65	0.52	1.00
2006	5.7	2.47	0.25	1.12	0.65	0.47	1.00
2007	21.5	2.13	0.25	1.08	0.65	0.43	1.00
2008	8.5	2.20	0.25	1.08	0.65	0.43	1.00
2009	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2010	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2011	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2012	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2013	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2014	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2015	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2016	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2017	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2018	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2019	16.5	2.20	0.25	1.08	0.65	0.43	1.00
2020	16.5	2.20	0.25	1.08	0.65	0.43	1.00