

APPENDIX 4

Full Listing of ADAPT VPA Calibration Output and Diagnostics for Georges Bank Cod

VPA Version 2.3.1

Model ID: Georges Bank Cod - 2001 Assessment 2001 TY

Input File: C:\LOB\GBCOD\ASSESS_2005\VPA\TY2004\TY2004_GRPED_MAT.DAT

Date of Run: 11-AUG-2005

Time of Run: 11:58

Levenburg-Marquardt Algorithm Completed 5 Iterations
Residual Sum of Squares = 324.636

Number of Residuals = 523
Number of Parameters = 8
Degrees of Freedom = 515
Mean Squared Residual = 0.630361
Standard Deviation = 0.793953

Number of Years = 27
Number of Ages = 10
First Year = 1978
Youngest Age = 1
Oldest True Age = 9

Number of Survey Indices Available = 30
Number of Survey Indices Used in Estimate = 30

VPA Classic Method - Auto Estimated Q's

Stock Numbers Predicted in Terminal Year Plus One (2005)

Age	Stock Predicted	Std. Error	CV
1	10398.156	0.595969E+04	0.573148E+00
2	17373.054	0.632078E+04	0.363826E+00
3	1502.088	0.467500E+03	0.311233E+00
4	1498.629	0.429089E+03	0.286321E+00
5	1037.229	0.299127E+03	0.288390E+00
6	1186.622	0.364641E+03	0.307293E+00
7	787.359	0.301170E+03	0.382507E+00
8	105.995	0.492835E+02	0.464961E+00

Catchability Values for Each Survey Used in Estimate

INDEX	Catchability	Std. Error	CV
1	0.144671E-04	0.315442E-05	0.218041E+00
2	0.658076E-04	0.615660E-05	0.935545E-01
3	0.138672E-03	0.172033E-04	0.124058E+00
4	0.228568E-03	0.353337E-04	0.154587E+00
5	0.283697E-03	0.457353E-04	0.161212E+00
6	0.292377E-03	0.442526E-04	0.151354E+00
7	0.318676E-03	0.575268E-04	0.180518E+00
8	0.373921E-03	0.628297E-04	0.168029E+00
9	0.120505E-04	0.901928E-05	0.748457E+00
10	0.760932E-04	0.182309E-04	0.239586E+00
11	0.162350E-03	0.356721E-04	0.219723E+00
12	0.140752E-03	0.165648E-04	0.117688E+00
13	0.172199E-03	0.403401E-04	0.234265E+00

14	0.160600E-03	0.229899E-04	0.143150E+00
15	0.224100E-03	0.717176E-04	0.320025E+00
16	0.238894E-03	0.148723E-03	0.622548E+00
17	0.186510E-04	0.487676E-05	0.261474E+00
18	0.773206E-04	0.195865E-04	0.253315E+00
19	0.231101E-03	0.284388E-04	0.123058E+00
20	0.387317E-03	0.557697E-04	0.143990E+00
21	0.614360E-03	0.874400E-04	0.142327E+00
22	0.759648E-03	0.155481E-03	0.204675E+00
23	0.868003E-03	0.193330E-03	0.222730E+00
24	0.107767E-02	0.230349E-03	0.213747E+00
25	0.129290E-04	0.267327E-05	0.206766E+00
26	0.607287E-04	0.768718E-05	0.126582E+00
27	0.104068E-03	0.129460E-04	0.124399E+00
28	0.124037E-03	0.186995E-04	0.150757E+00
29	0.923788E-04	0.171431E-04	0.185573E+00
30	0.107259E-03	0.157744E-04	0.147068E+00

-- Non-Linear Least Squares Fit --

Default Tolerances Used

Scaled Gradient Tolerance = 6.055454E-06
Scaled Step Tolerance = 3.666853E-11
Relative Function Tolerance = 3.666853E-11
Absolute Function Tolerance = 4.930381E-32

VPA Method Options

- Catchability Values Estimated as an Analytic Function of N
- Pope Approximation Used in Cohort Solution
- Plus Group Backward Calculation Method Used
- Rivard Weights Used for JAN-1 Biomass
- Rivard Weights Used for SSB Biomass
- Rivard Weights Calculation Used 5 Years for Terminal Year Plus One

- Heincke Rule Used in F-Oldest Calculation
- F-Oldest Calculation in Years Prior to Terminal Year
Uses Stock Sizes in Ages 4 to 9
- Calculation of Population of Age 1 In Year 2005
= Stock Estimate

Stock Estimates

Age 1
Age 2
Age 3
Age 4
Age 5
Age 6
Age 7
Age 8

Full F in Terminal Year = 0.2361

F in Oldest True Age in Terminal Year = 0.2361

Full F Calculated Using Classic Method

Age	Input Partial Recruitment	Calc Partial Recruitment	Fishing Mortality	Used In Full F	Comments
1	0.000	0.000	0.0000	NO	Stock Estimate in T+1
2	0.150	0.053	0.0185	NO	Stock Estimate in T+1
3	0.600	0.504	0.1761	NO	Stock Estimate in T+1
4	1.000	0.507	0.1770	YES	Stock Estimate in T+1
5	1.000	0.525	0.1834	YES	Stock Estimate in T+1
6	1.000	0.671	0.2345	YES	Stock Estimate in T+1
7	1.000	1.000	0.3495	YES	Stock Estimate in T+1
8	1.000	0.676	0.2361	NO	Input PR * Full F
9	1.000	0.676	0.2361		Input PR * Full F

Catch At Age - Input Data

AGE	1978	1979	1980	1981	1982
1	2.0	34.0	89.0	27.0	331.0
2	393.0	1989.0	3777.0	3205.0	9138.0
3	7748.0	900.0	5828.0	4221.0	3824.0
4	2303.0	4870.0	500.0	2464.0	2787.0
5	830.0	1212.0	2308.0	235.0	2000.0
6	131.0	458.0	1076.0	1406.0	281.0
7	345.0	77.0	445.0	417.0	673.0
8	47.0	253.0	87.0	123.0	213.0
9	40.0	4.0	167.0	130.0	71.0
10	15.0	48.0	10.0	62.0	83.0
AGE	1983	1984	1985	1986	1987
1	108.0	81.0	134.0	156.0	26.0
2	4286.0	1307.0	6426.0	1326.0	7473.0
3	8063.0	3423.0	2443.0	4573.0	1406.0
4	2456.0	3336.0	1368.0	797.0	2121.0
5	1055.0	840.0	1885.0	480.0	279.0
6	776.0	516.0	412.0	627.0	252.0
7	95.0	458.0	218.0	87.0	270.0
8	235.0	44.0	203.0	72.0	63.0
9	100.0	171.0	21.0	47.0	38.0
10	65.0	121.0	97.0	29.0	24.0
AGE	1988	1989	1990	1991	1992
1	10.0	0.0	7.0	52.0	70.0
2	1577.0	2088.0	4942.0	1525.0	4177.0
3	8022.0	2922.0	5042.0	3243.0	2170.0
4	1012.0	4155.0	1882.0	3281.0	1038.0
5	1497.0	331.0	2264.0	1458.0	1482.0
6	244.0	541.0	229.0	1088.0	404.0
7	161.0	82.0	245.0	126.0	309.0
8	197.0	43.0	36.0	70.0	34.0
9	50.0	50.0	17.0	23.0	33.0
10	47.0	18.0	38.0	23.0	10.0

Catch At Age - Input Data

AGE	1993	1994	1995	1996	1997
1	4.0	2.0	0.1	1.0	3.0
2	1033.0	398.0	392.0	207.0	517.0
3	4246.0	1526.0	1058.0	903.0	639.0
4	1115.0	1825.0	692.0	1234.0	881.0
5	440.0	394.0	290.0	241.0	794.0
6	472.0	96.0	44.0	123.0	131.0
7	159.0	137.0	26.0	15.0	84.0
8	143.0	46.0	15.0	3.0	16.0
9	32.0	38.0	2.0	5.0	9.0
10	17.0	6.0	1.0	0.0	1.0
AGE	1998	1999	2000	2001	2002
1	0.2	2.0	14.0	0.1	0.0
2	739.0	285.0	752.0	685.0	51.0
3	1188.0	1927.0	687.0	2382.0	967.0
4	423.0	706.0	1062.0	643.0	1347.0
5	324.0	201.0	284.0	597.0	318.0
6	237.0	97.0	75.0	166.0	331.0
7	39.0	119.0	42.0	45.0	67.0
8	14.0	16.0	37.0	22.0	17.0
9	6.0	2.0	4.0	11.0	8.0
10	4.0	3.0	1.0	2.0	5.0
AGE	2003	2004			
1	0.2	0.0			
2	71.0	31.0			
3	371.0	319.0			
4	754.0	222.0			
5	751.0	264.0			
6	124.0	230.0			
7	122.0	49.0			
8	23.0	41.0			
9	6.0	10.0			
10	3.0	4.0			

Weight At Age - Input Data

AGE	1978	1979	1980	1981	1982
1	0.7070	0.8890	0.8360	0.8820	0.7650
2	1.3100	1.4940	1.4600	1.4950	1.4020
3	2.4610	2.1490	2.4680	2.3580	2.6640
4	3.4690	4.2110	3.6680	3.4150	3.8340
5	4.3360	4.8880	5.6470	5.2130	5.3520
6	5.7870	7.1780	6.6760	7.2220	6.5110
7	7.3740	9.1830	8.3900	8.5650	9.3630
8	8.4920	10.3130	9.0890	9.8880	9.8970
9	11.7850	11.6990	8.4320	14.1700	12.5030
10	13.2000	12.6250	15.4000	18.5650	16.7230
AGE	1983	1984	1985	1986	1987
1	0.9710	1.0530	0.9070	0.9290	0.7260
2	1.4900	1.6350	1.4180	1.4750	1.4810
3	2.3770	2.4510	2.0860	2.4470	2.4950
4	3.3090	3.6190	3.8870	3.6600	4.1870
5	4.6370	5.0830	5.0870	5.6030	5.8100
6	6.3930	6.5820	6.4120	7.1910	7.7260
7	7.9640	8.9090	8.0970	8.9150	8.9490
8	10.2860	10.1040	10.2360	9.9550	10.0130
9	11.2270	11.3030	11.4180	12.6870	11.4140
10	14.5540	15.3560	13.4940	14.1040	15.0000
AGE	1988	1989	1990	1991	1992
1	0.7860	0.8090	0.8310	1.1140	1.1480
2	1.5200	1.6170	1.5600	1.6270	1.5420
3	2.3590	2.2690	2.4620	2.5480	2.4640
4	3.5110	3.7720	3.5220	3.4200	3.8430
5	5.4010	5.3960	4.8920	4.7690	4.7040
6	6.6470	6.6940	6.3330	5.8910	6.1560
7	8.7760	8.2220	8.4560	7.4100	7.5090
8	9.9870	10.7180	10.6480	10.5200	9.8460
9	11.1430	11.6650	12.5800	9.6860	12.0590
10	15.2980	17.1110	14.5260	15.3730	19.0250

Weight At Age - Input Data

AGE	1993	1994	1995	1996	1997
1	0.8720	0.9060	0.9060	0.8820	0.9540
2	1.5340	1.4590	1.4710	1.5070	1.5770
3	2.2530	2.1680	2.0950	2.4350	2.3210
4	3.3330	3.6570	3.8300	3.3870	3.5320
5	4.9670	4.8040	5.4920	4.9120	4.1030
6	6.3790	7.4320	7.3840	6.6220	6.0190
7	7.5100	8.0130	10.7150	8.3690	8.0500
8	9.2170	9.3680	11.6170	8.4380	8.6310
9	9.6990	9.6980	10.3830	12.8830	11.8700
10	13.2360	16.6590	14.9530	12.0020	12.7950
AGE	1998	1999	2000	2001	2002
1	0.5790	0.8300	0.9560	0.8800	0.5510
2	1.4830	1.5650	1.6960	1.5160	1.7680
3	2.3020	2.2230	2.4610	2.3490	2.2650
4	3.4970	3.4520	3.5330	3.1570	3.0680
5	4.7350	4.8910	4.7310	4.3590	4.2900
6	5.9340	6.4220	5.7970	5.5160	5.3450
7	8.1850	7.3410	7.5300	6.3230	6.7590
8	8.6100	9.6850	8.5960	8.1780	8.4280
9	12.6840	12.1530	8.5170	9.7660	9.7110
10	14.6060	13.7350	12.8310	11.9510	12.1270
AGE	2003	2004			
1	0.5240	0.7040			
2	1.9410	1.9500			
3	2.3530	2.5860			
4	3.0340	3.1920			
5	4.0310	4.0900			
6	4.9540	5.0320			
7	6.1780	5.9450			
8	7.9240	7.8380			
9	9.2390	9.2730			
10	10.7440	12.2190			

JAN-1 Weights at Age - Input Data

AGE	1978	1979	1980	1981	1982
1	0.4864	0.6937	0.6252	0.6996	0.5481
2	1.0228	1.0277	1.1393	1.1180	1.1120
3	1.8814	1.6779	1.9202	1.8554	1.9957
4	2.9224	3.2192	2.8076	2.9031	3.0068
5	3.3700	4.1178	4.8764	4.3728	4.2752
6	4.5940	5.5789	5.7125	6.3861	5.8260
7	6.2354	7.2899	7.7604	7.5617	8.2231
8	7.2350	8.7206	9.1359	9.1083	9.2069
9	10.0039	9.9673	9.3252	11.3486	11.1189
10	13.2000	12.6250	15.4000	18.5650	16.7230
AGE	1983	1984	1985	1986	1987
1	0.7483	0.9074	0.7112	0.7358	0.5017
2	1.0676	1.2600	1.2219	1.1566	1.1730
3	1.8255	1.9110	1.8468	1.8628	1.9184
4	2.9690	2.9330	3.0866	2.7631	3.2009
5	4.2164	4.1012	4.2907	4.6668	4.6114
6	5.8494	5.5246	5.7090	6.0482	6.5794
7	7.2009	7.5469	7.3003	7.5606	8.0220
8	9.8137	8.9704	9.5495	8.9781	9.4481
9	10.5410	10.7825	10.7409	11.3958	10.6596
10	14.5540	15.3560	13.4940	14.1040	15.0000
AGE	1988	1989	1990	1991	1992
1	0.5480	0.5826	0.5939	0.9469	0.9931
2	1.0505	1.1274	1.1234	1.1628	1.3106
3	1.8691	1.8571	1.9953	1.9937	2.0022
4	2.9597	2.9830	2.8269	2.9017	3.1292
5	4.7554	4.3526	4.2957	4.0983	4.0109
6	6.2144	6.0128	5.8458	5.3683	5.4183
7	8.2343	7.3927	7.5236	6.8504	6.6510
8	9.4538	9.6985	9.3567	9.4317	8.5416
9	10.5629	10.7934	11.6117	10.1556	11.2632
10	15.2980	17.1110	14.5260	15.3730	19.0250

JAN-1 Weights at Age - Input Data

AGE	1993	1994	1995	1996	1997
1	0.6741	0.7110	0.7025	0.6596	0.7652
2	1.3270	1.1279	1.1544	1.1685	1.1794
3	1.8639	1.8237	1.7483	1.8926	1.8702
4	2.8657	2.8704	2.8816	2.6638	2.9326
5	4.3690	4.0015	4.4815	4.3374	3.7278
6	5.4778	6.0758	5.9559	6.0306	5.4374
7	6.7994	7.1495	8.9238	7.8611	7.3012
8	8.3193	8.3877	9.6482	9.5086	8.4990
9	9.7722	9.4544	9.8625	12.2336	10.0080
10	13.2360	16.6590	14.9530	12.0020	12.7950
AGE	1998	1999	2000	2001	2002
1	0.3522	0.5806	0.7592	0.6208	0.2936
2	1.1894	0.9519	1.1865	1.2039	1.2473
3	1.9053	1.8157	1.9625	1.9960	1.8530
4	2.8490	2.8190	2.8025	2.7874	2.6845
5	4.0895	4.1357	4.0412	3.9243	3.6802
6	4.9343	5.5144	5.3248	5.1084	4.8269
7	7.0189	6.6001	6.9540	6.0543	6.1060
8	8.3253	8.9035	7.9438	7.8473	7.3000
9	10.4631	10.2292	9.0822	9.1623	8.9116
10	14.6060	13.7350	12.8310	11.9510	12.1270
AGE	2003	2004	2005		
1	0.2717	0.4904	0.4871		
2	1.0342	1.0106	1.1365		
3	2.0396	2.2430	2.0188		
4	2.6215	2.7457	2.7283		
5	3.5167	3.5244	3.7374		
6	4.6101	4.5038	4.8748		
7	5.7464	5.4360	6.0593		
8	7.3184	6.9440	7.4707		
9	8.8242	8.5057	8.8972		
10	10.7440	12.1760	11.9658		

SSB Weight At Age - Input Data

AGE	1978	1979	1980	1981	1982
1	0.4864	0.6937	0.6252	0.6996	0.5481
2	1.0228	1.0277	1.1393	1.1180	1.1120
3	1.8814	1.6779	1.9202	1.8554	1.9957
4	2.9224	3.2192	2.8076	2.9031	3.0068
5	3.3700	4.1178	4.8764	4.3728	4.2752
6	4.5940	5.5789	5.7125	6.3861	5.8260
7	6.2354	7.2899	7.7604	7.5617	8.2231
8	7.2350	8.7206	9.1359	9.1083	9.2069
9	10.0039	9.9673	9.3252	11.3486	11.1189
10	13.2000	12.6250	15.4000	18.5650	16.7230
AGE	1983	1984	1985	1986	1987
1	0.7483	0.9074	0.7112	0.7358	0.5017
2	1.0676	1.2600	1.2219	1.1566	1.1730
3	1.8255	1.9110	1.8468	1.8628	1.9184
4	2.9690	2.9330	3.0866	2.7631	3.2009
5	4.2164	4.1012	4.2907	4.6668	4.6114
6	5.8494	5.5246	5.7090	6.0482	6.5794
7	7.2009	7.5469	7.3003	7.5606	8.0220
8	9.8137	8.9704	9.5495	8.9781	9.4481
9	10.5410	10.7825	10.7409	11.3958	10.6596
10	14.5540	15.3560	13.4940	14.1040	15.0000
AGE	1988	1989	1990	1991	1992
1	0.5480	0.5826	0.5939	0.9469	0.9931
2	1.0505	1.1274	1.1234	1.1628	1.3106
3	1.8691	1.8571	1.9953	1.9937	2.0022
4	2.9597	2.9830	2.8269	2.9017	3.1292
5	4.7554	4.3526	4.2957	4.0983	4.0109
6	6.2144	6.0128	5.8458	5.3683	5.4183
7	8.2343	7.3927	7.5236	6.8504	6.6510
8	9.4538	9.6985	9.3567	9.4317	8.5416
9	10.5629	10.7934	11.6117	10.1556	11.2632
10	15.2980	17.1110	14.5260	15.3730	19.0250

SSB Weight At Age - Input Data

AGE	1993	1994	1995	1996	1997
1	0.6741	0.7110	0.7025	0.6596	0.7652
2	1.3270	1.1279	1.1544	1.1685	1.1794
3	1.8639	1.8237	1.7483	1.8926	1.8702
4	2.8657	2.8704	2.8816	2.6638	2.9326
5	4.3690	4.0015	4.4815	4.3374	3.7278
6	5.4778	6.0758	5.9559	6.0306	5.4374
7	6.7994	7.1495	8.9238	7.8611	7.3012
8	8.3193	8.3877	9.6482	9.5086	8.4990
9	9.7722	9.4544	9.8625	12.2336	10.0080
10	13.2360	16.6590	14.9530	12.0020	12.7950
AGE	1998	1999	2000	2001	2002
1	0.3522	0.5806	0.7592	0.6208	0.2936
2	1.1894	0.9519	1.1865	1.2039	1.2473
3	1.9053	1.8157	1.9625	1.9960	1.8530
4	2.8490	2.8190	2.8025	2.7874	2.6845
5	4.0895	4.1357	4.0412	3.9243	3.6802
6	4.9343	5.5144	5.3248	5.1084	4.8269
7	7.0189	6.6001	6.9540	6.0543	6.1060
8	8.3253	8.9035	7.9438	7.8473	7.3000
9	10.4631	10.2292	9.0822	9.1623	8.9116
10	14.6060	13.7350	12.8310	11.9510	12.1270
AGE	2003	2004			
1	0.2717	0.4904			
2	1.0342	1.0106			
3	2.0396	2.2430			
4	2.6215	2.7457			
5	3.5167	3.5244			
6	4.6101	4.5038			
7	5.7464	5.4360			
8	7.3184	6.9440			
9	8.8242	8.5057			
10	10.7440	12.1760			

Natural Mortality - Input Data

AGE	1978	1979	1980	1981	1982
1	0.2000	0.2000	0.2000	0.2000	0.2000
2	0.2000	0.2000	0.2000	0.2000	0.2000
3	0.2000	0.2000	0.2000	0.2000	0.2000
4	0.2000	0.2000	0.2000	0.2000	0.2000
5	0.2000	0.2000	0.2000	0.2000	0.2000
6	0.2000	0.2000	0.2000	0.2000	0.2000
7	0.2000	0.2000	0.2000	0.2000	0.2000
8	0.2000	0.2000	0.2000	0.2000	0.2000
9	0.2000	0.2000	0.2000	0.2000	0.2000
10	0.2000	0.2000	0.2000	0.2000	0.2000
AGE	1983	1984	1985	1986	1987
1	0.2000	0.2000	0.2000	0.2000	0.2000
2	0.2000	0.2000	0.2000	0.2000	0.2000
3	0.2000	0.2000	0.2000	0.2000	0.2000
4	0.2000	0.2000	0.2000	0.2000	0.2000
5	0.2000	0.2000	0.2000	0.2000	0.2000
6	0.2000	0.2000	0.2000	0.2000	0.2000
7	0.2000	0.2000	0.2000	0.2000	0.2000
8	0.2000	0.2000	0.2000	0.2000	0.2000
9	0.2000	0.2000	0.2000	0.2000	0.2000
10	0.2000	0.2000	0.2000	0.2000	0.2000
AGE	1988	1989	1990	1991	1992
1	0.2000	0.2000	0.2000	0.2000	0.2000
2	0.2000	0.2000	0.2000	0.2000	0.2000
3	0.2000	0.2000	0.2000	0.2000	0.2000
4	0.2000	0.2000	0.2000	0.2000	0.2000
5	0.2000	0.2000	0.2000	0.2000	0.2000
6	0.2000	0.2000	0.2000	0.2000	0.2000
7	0.2000	0.2000	0.2000	0.2000	0.2000
8	0.2000	0.2000	0.2000	0.2000	0.2000
9	0.2000	0.2000	0.2000	0.2000	0.2000
10	0.2000	0.2000	0.2000	0.2000	0.2000

Natural Mortality - Input Data

AGE	1993	1994	1995	1996	1997
1	0.2000	0.2000	0.2000	0.2000	0.2000
2	0.2000	0.2000	0.2000	0.2000	0.2000
3	0.2000	0.2000	0.2000	0.2000	0.2000
4	0.2000	0.2000	0.2000	0.2000	0.2000
5	0.2000	0.2000	0.2000	0.2000	0.2000
6	0.2000	0.2000	0.2000	0.2000	0.2000
7	0.2000	0.2000	0.2000	0.2000	0.2000
8	0.2000	0.2000	0.2000	0.2000	0.2000
9	0.2000	0.2000	0.2000	0.2000	0.2000
10	0.2000	0.2000	0.2000	0.2000	0.2000
AGE	1998	1999	2000	2001	2002
1	0.2000	0.2000	0.2000	0.2000	0.2000
2	0.2000	0.2000	0.2000	0.2000	0.2000
3	0.2000	0.2000	0.2000	0.2000	0.2000
4	0.2000	0.2000	0.2000	0.2000	0.2000
5	0.2000	0.2000	0.2000	0.2000	0.2000
6	0.2000	0.2000	0.2000	0.2000	0.2000
7	0.2000	0.2000	0.2000	0.2000	0.2000
8	0.2000	0.2000	0.2000	0.2000	0.2000
9	0.2000	0.2000	0.2000	0.2000	0.2000
10	0.2000	0.2000	0.2000	0.2000	0.2000
AGE	2003	2004			
1	0.2000	0.2000			
2	0.2000	0.2000			
3	0.2000	0.2000			
4	0.2000	0.2000			
5	0.2000	0.2000			
6	0.2000	0.2000			
7	0.2000	0.2000			
8	0.2000	0.2000			
9	0.2000	0.2000			
10	0.2000	0.2000			

Proportion of Natural Mortality Before Spawning = 0.1667
 Proportion of Fishing Mortality Before Spawning = 0.1667

Maturity - Input Data

AGE	1978	1979	1980	1981	1982
1	0.0700	0.0700	0.0700	0.0700	0.1300
2	0.3400	0.3400	0.3400	0.3400	0.4700
3	0.7800	0.7800	0.7800	0.7800	0.8400
4	0.9600	0.9600	0.9600	0.9600	0.9700
5	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
AGE	1983	1984	1985	1986	1987
1	0.1300	0.1300	0.1300	0.2800	0.2800
2	0.4700	0.4700	0.4700	0.6700	0.6700
3	0.8400	0.8400	0.8400	0.9100	0.9100
4	0.9700	0.9700	0.9700	0.9800	0.9800
5	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
AGE	1988	1989	1990	1991	1992
1	0.2800	0.2800	0.1200	0.1200	0.1200
2	0.6700	0.6700	0.5200	0.5200	0.5200
3	0.9100	0.9100	0.9000	0.9000	0.9000
4	0.9800	0.9800	0.9900	0.9900	0.9900
5	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000

Maturity - Input Data

AGE	1993	1994	1995	1996	1997
1	0.1200	0.0200	0.0200	0.0200	0.1300
2	0.5200	0.3900	0.3900	0.3900	0.5700
3	0.9000	0.9500	0.9500	0.9500	0.9200
4	0.9900	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
AGE	1998	1999	2000	2001	2002
1	0.1300	0.1300	0.0300	0.0300	0.0300
2	0.5700	0.5700	0.4400	0.4400	0.4400
3	0.9200	0.9200	0.9500	0.9500	0.9500
4	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
AGE	2003	2004			
1	0.0700	0.0700			
2	0.3400	0.3400			
3	0.7900	0.7900			
4	0.9600	0.9600			
5	1.0000	1.0000			
6	1.0000	1.0000			
7	1.0000	1.0000			
8	1.0000	1.0000			
9	1.0000	1.0000			
10	1.0000	1.0000			

Input Partial Recruitment

AGE

1	0.0000
2	0.1500
3	0.6000
4	1.0000
5	1.0000
6	1.0000
7	1.0000
8	1.0000
9	1.0000

Input F-Plus Ratio

YEAR

1978	1.0000
1979	1.0000
1980	1.0000
1981	1.0000
1982	1.0000
1983	1.0000
1984	1.0000
1985	1.0000
1986	1.0000
1987	1.0000
1988	1.0000
1989	1.0000
1990	1.0000
1991	1.0000
1992	1.0000
1993	1.0000
1994	1.0000
1995	1.0000
1996	1.0000
1997	1.0000
1998	1.0000
1999	1.0000
2000	1.0000
2001	1.0000
2002	1.0000
2003	1.0000
2004	1.0000

SURVEY - INPUT DATA

INDEX	1	2	3	4	5
SURVEY TAG	spr_36	spr_36	spr_36	spr_36	spr_36
AGE	1	2	3	4	5
TIME	JAN-1	JAN-1	JAN-1	JAN-1	JAN-1
TYPE	NUMBERS	NUMBERS	NUMBERS	NUMBERS	NUMBERS
RETRO FLAG	1	1	1	1	1
1978	0.0000	0.0000	0.0000	0.0000	0.0000
1979	0.0000	0.0000	0.0000	0.0000	0.0000
1980	0.0000	0.0000	0.0000	0.0000	0.0000
1981	0.0000	0.0000	0.0000	0.0000	0.0000
1982	0.5079	5.4354	9.5019	8.3244	6.2080
1983	0.3315	1.9518	3.0170	0.7962	0.6970
1984	0.4022	0.4310	0.7607	1.2382	0.4223
1985	0.1111	2.6531	0.6633	1.1103	1.4123
1986	0.8715	0.4090	1.8444	0.3652	0.5400
1987	0.0197	1.6125	0.3784	0.7633	0.0621
1988	0.7202	0.6088	3.1496	0.4088	0.6435
1989	0.3104	1.4104	0.6664	1.5831	0.2351
1990	0.1734	0.9215	1.7371	0.6742	0.9119
1991	1.0266	0.5278	0.6887	0.9289	0.4788
1992	0.1227	1.2524	0.4682	0.1681	0.2729
1993	0.0085	0.3988	1.3061	0.2053	0.0895
1994	0.1248	0.2724	0.2000	0.2165	0.0332
1995	0.0495	0.3817	0.8539	0.5340	0.5990
1996	0.0730	0.2139	0.7362	1.2472	0.1742
1997	0.2908	0.4371	0.1702	0.4886	0.4223
1998	0.1113	0.6652	1.2980	0.8478	0.7549
1999	0.2123	0.2909	0.6090	0.5097	0.2382
2000	0.2207	0.8066	0.8298	1.1411	0.3703
2001	0.0610	0.2350	0.7940	0.1600	0.3830
2002	0.0650	0.0930	0.3830	0.9930	0.2390
2003	0.0160	0.2130	0.2710	0.6230	0.6960
2004	0.6370	0.0580	0.5790	1.4070	1.3540
2005	0.0120	0.4840	0.1380	0.6310	0.2740

SURVEY - INPUT DATA

INDEX	6	7	8	9	10
SURVEY TAG	spr_36	spr_36	spr_36	spr_41	spr_41
AGE	6	7	8	1	2
TIME	JAN-1	JAN-1	JAN-1	JAN-1	JAN-1
TYPE	NUMBERS	NUMBERS	NUMBERS	NUMBERS	NUMBERS
RETRO FLAG	1	1	1	1	1
1978	0.0000	0.0000	0.0000	0.3717	0.1918
1979	0.0000	0.0000	0.0000	0.4283	1.2977
1980	0.0000	0.0000	0.0000	0.0312	2.2170
1981	0.0000	0.0000	0.0000	2.3022	1.8522
1982	0.2929	1.8657	0.3685	0.0000	0.0000
1983	0.4431	0.0272	0.2186	0.0000	0.0000
1984	0.4004	0.2088	0.0000	0.0000	0.0000
1985	0.2654	0.1919	0.1799	0.0000	0.0000
1986	0.6179	0.0617	0.1251	0.0000	0.0000
1987	0.1794	0.1355	0.0328	0.0000	0.0000
1988	0.0640	0.0370	0.0492	0.0000	0.0000
1989	0.3511	0.0505	0.0395	0.0000	0.0000
1990	0.1304	0.1431	0.0129	0.0000	0.0000
1991	0.3281	0.0541	0.0406	0.0000	0.0000
1992	0.1424	0.1587	0.0196	0.0000	0.0000
1993	0.1382	0.0293	0.0344	0.0000	0.0000
1994	0.0057	0.0441	0.0000	0.0000	0.0000
1995	0.1067	0.2336	0.0280	0.0000	0.0000
1996	0.2085	0.0277	0.0181	0.0000	0.0000
1997	0.0498	0.1339	0.0201	0.0000	0.0000
1998	0.5326	0.1016	0.0309	0.0000	0.0000
1999	0.1193	0.0636	0.0305	0.0000	0.0000
2000	0.1024	0.0255	0.0201	0.0000	0.0000
2001	0.1770	0.0230	0.0180	0.0000	0.0000
2002	0.2250	0.0390	0.0000	0.0000	0.0000
2003	0.0640	0.0800	0.0120	0.0000	0.0000
2004	0.8930	0.1790	0.2610	0.0000	0.0000
2005	0.2050	0.1270	0.0300	0.0000	0.0000

SURVEY - INPUT DATA

INDEX	11	12	13	14	15
SURVEY TAG	spr_41	spr_41	spr_41	spr_41	spr_41
AGE	3	4	5	6	7
TIME	JAN-1	JAN-1	JAN-1	JAN-1	JAN-1
TYPE	NUMBERS	NUMBERS	NUMBERS	NUMBERS	NUMBERS
RETRO FLAG	1	1	1	1	1

1978	5.5309	0.9715	0.7776	0.1416	0.7123
1979	0.2751	1.8515	0.5466	0.2355	0.0836
1980	2.6896	0.2123	1.7050	0.3737	0.1855
1981	2.8108	1.6849	0.1059	0.8786	0.2582
1982	0.0000	0.0000	0.0000	0.0000	0.0000
1983	0.0000	0.0000	0.0000	0.0000	0.0000
1984	0.0000	0.0000	0.0000	0.0000	0.0000
1985	0.0000	0.0000	0.0000	0.0000	0.0000
1986	0.0000	0.0000	0.0000	0.0000	0.0000
1987	0.0000	0.0000	0.0000	0.0000	0.0000
1988	0.0000	0.0000	0.0000	0.0000	0.0000
1989	0.0000	0.0000	0.0000	0.0000	0.0000
1990	0.0000	0.0000	0.0000	0.0000	0.0000
1991	0.0000	0.0000	0.0000	0.0000	0.0000
1992	0.0000	0.0000	0.0000	0.0000	0.0000
1993	0.0000	0.0000	0.0000	0.0000	0.0000
1994	0.0000	0.0000	0.0000	0.0000	0.0000
1995	0.0000	0.0000	0.0000	0.0000	0.0000
1996	0.0000	0.0000	0.0000	0.0000	0.0000
1997	0.0000	0.0000	0.0000	0.0000	0.0000
1998	0.0000	0.0000	0.0000	0.0000	0.0000
1999	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000
2001	0.0000	0.0000	0.0000	0.0000	0.0000
2002	0.0000	0.0000	0.0000	0.0000	0.0000
2003	0.0000	0.0000	0.0000	0.0000	0.0000
2004	0.0000	0.0000	0.0000	0.0000	0.0000
2005	0.0000	0.0000	0.0000	0.0000	0.0000

SURVEY - INPUT DATA

INDEX	16	17	18	19	20
SURVEY TAG	spr_41	sp_can	sp_can	sp_can	sp_can
AGE	8	1	2	3	4
TIME	JAN-1	JAN-1	JAN-1	JAN-1	JAN-1
TYPE	NUMBERS	NUMBERS	NUMBERS	NUMBERS	NUMBERS
RETRO FLAG	1	1	1	1	1
1978	0.0651	0.0000	0.0000	0.0000	0.0000
1979	0.1386	0.0000	0.0000	0.0000	0.0000
1980	0.0310	0.0000	0.0000	0.0000	0.0000
1981	0.1321	0.0000	0.0000	0.0000	0.0000
1982	0.0000	0.0000	0.0000	0.0000	0.0000
1983	0.0000	0.0000	0.0000	0.0000	0.0000
1984	0.0000	0.0000	0.0000	0.0000	0.0000
1985	0.0000	0.0000	0.0000	0.0000	0.0000
1986	0.0000	0.6000	2.2700	2.8100	0.3700
1987	0.0000	0.2500	2.1300	0.9300	1.0900
1988	0.0000	0.2800	1.0100	4.6600	0.5800
1989	0.0000	1.6300	2.7800	1.3800	2.8500
1990	0.0000	0.4200	2.4400	3.7800	2.0800
1991	0.0000	1.1800	1.1600	1.8400	2.1500
1992	0.0000	0.1100	2.8600	1.7700	0.8000
1993	0.0000	0.0000	0.0000	0.0000	0.0000
1994	0.0000	0.0000	0.0000	0.0000	0.0000
1995	0.0000	0.0700	0.6700	1.5000	0.8600
1996	0.0000	0.1400	0.4900	2.3100	4.0200
1997	0.0000	0.3200	0.5300	0.5500	1.2500
1998	0.0000	0.0100	0.6700	0.9500	0.3500
1999	0.0000	0.3300	0.3200	1.4900	1.0900
2000	0.0000	0.1000	0.4400	1.0500	3.9200
2001	0.0000	0.0000	0.0600	0.6400	0.4200
2002	0.0000	0.0100	0.0900	0.5700	2.0500
2003	0.0000	0.0000	0.0200	0.3000	0.6500
2004	0.0000	0.5356	0.0956	0.3920	0.4232
2005	0.0000	0.0000	0.0000	0.0000	0.0000

SURVEY - INPUT DATA

INDEX	21	22	23	24	25
SURVEY TAG	sp_can	sp_can	sp_can	sp_can	us0aut
AGE	5	6	7	8	1
TIME	JAN-1	JAN-1	JAN-1	JAN-1	JAN-1
TYPE	NUMBERS	NUMBERS	NUMBERS	NUMBERS	NUMBERS
RETRO FLAG	1	1	1	1	1
1978	0.0000	0.0000	0.0000	0.0000	0.1516
1979	0.0000	0.0000	0.0000	0.0000	0.3953
1980	0.0000	0.0000	0.0000	0.0000	0.1145
1981	0.0000	0.0000	0.0000	0.0000	0.2797
1982	0.0000	0.0000	0.0000	0.0000	0.2610
1983	0.0000	0.0000	0.0000	0.0000	0.3620
1984	0.0000	0.0000	0.0000	0.0000	1.2829
1985	0.0000	0.0000	0.0000	0.0000	0.1791
1986	0.6500	0.4400	0.2600	0.0400	1.0019
1987	0.3400	0.1200	0.2200	0.0800	0.0761
1988	1.0200	0.1300	0.0800	0.1700	0.2037
1989	0.3600	0.4200	0.0500	0.1000	0.5495
1990	3.8700	0.4200	0.9300	0.1200	0.2508
1991	1.0500	1.3100	0.1600	0.2200	0.1571
1992	0.9800	0.6000	0.4300	0.1200	0.0405
1993	0.0000	0.0000	0.0000	0.0000	0.0351
1994	0.0000	0.0000	0.0000	0.0000	0.1784
1995	0.6000	0.1900	0.0400	0.0500	0.0668
1996	1.0900	0.7900	0.3300	0.0800	0.1599
1997	1.2300	0.2700	0.0600	0.0300	0.0216
1998	0.3500	0.2800	0.0700	0.0200	0.0064
1999	0.4100	0.2600	0.1500	0.0100	0.0701
2000	1.7100	0.7800	0.4000	0.2400	0.0701
2001	1.1100	0.5200	0.2600	0.1700	0.0195
2002	0.6800	1.2200	0.4000	0.1700	0.0280
2003	1.2100	0.3200	0.3400	0.1600	0.2340
2004	0.4509	0.3876	0.0738	0.1175	0.3269
2005	0.0000	0.0000	0.0000	0.0000	1.6853

SURVEY - INPUT DATA

INDEX	26	27	28	29	30
SURVEY TAG	us1aut	us2aut	us3aut	us4aut	us5aut
AGE	2	3	4	5	6
TIME	JAN-1	JAN-1	JAN-1	JAN-1	JAN-1
TYPE	NUMBERS	NUMBERS	NUMBERS	NUMBERS	NUMBERS
RETRO FLAG	1	1	1	1	1
1978	0.2368	3.4335	0.6908	0.2528	0.1731
1979	1.8454	0.3912	4.0577	0.9636	0.3355
1980	1.6251	1.6770	0.1621	1.6865	0.3206
1981	0.8199	0.5636	0.7739	0.0525	0.2648
1982	3.5250	2.2500	1.5590	0.5890	0.0540
1983	0.5773	1.9095	0.2418	0.0678	0.1152
1984	0.8495	1.0893	0.7402	0.0691	0.0328
1985	1.9091	0.6818	0.9287	0.8251	0.0242
1986	0.1813	0.8426	0.0667	0.1055	0.0766
1987	2.2789	0.1285	0.3290	0.0082	0.0487
1988	0.4137	1.3528	0.1080	0.2003	0.0280
1989	0.8747	0.4370	0.9038	0.0600	0.1937
1990	2.7984	1.0464	0.1611	0.5071	0.0547
1991	0.3636	1.6244	1.8141	0.4124	0.2855
1992	0.4076	0.1752	0.2742	0.0305	0.0290
1993	0.4124	0.9489	0.1743	0.1000	0.0437
1994	0.9699	0.5316	0.3826	0.0165	0.0253
1995	0.4056	0.6643	0.4334	0.1534	0.0679
1996	0.2447	1.8106	1.2485	0.0872	0.0541
1997	0.2399	0.1958	0.4144	0.1430	0.0597
1998	0.2362	0.3209	0.1093	0.1292	0.0486
1999	0.3355	1.0262	0.3518	0.0411	0.0354
2000	0.1397	0.1542	0.3096	0.2549	0.0871
2001	0.5710	0.5378	0.0705	0.0788	0.0306
2002	0.0470	0.3810	0.4590	0.0590	0.0550
2003	0.4780	0.7070	1.3960	1.6270	0.1180
2004	0.1663	0.3092	0.2005	0.1556	0.0824
2005	0.7448	0.1358	0.7101	0.2520	0.3215

Additional Output Files

Population File C:\LOB\GBCOD\ASSESS_2005\VPA\TY2004\TY2004_GRPED_MAT.PP2
 Auxilliary File C:\LOB\GBCOD\ASSESS_2005\VPA\TY2004\TY2004_GRPED_MAT.AUX
 Covariance File C:\LOB\GBCOD\ASSESS_2005\VPA\TY2004\TY2004_GRPED_MAT.CV
 Residuals File C:\LOB\GBCOD\ASSESS_2005\VPA\TY2004\TY2004_GRPED_MAT.RSD
 Log File C:\LOB\GBCOD\ASSESS_2005\VPA\TY2004\TY2004_GRPED_MAT.LOG

Estimation Results

JAN-1 Population Numbers

AGE	1978	1979	1980	1981	1982
1	27713.	23513.	20104.	41392.	17471.
2	4268.	22688.	19220.	16380.	33865.
3	25526.	3139.	16776.	12319.	10510.
4	7947.	13888.	1755.	8461.	6266.
5	2878.	4422.	6964.	985.	4698.
6	1124.	1605.	2524.	3613.	594.
7	1434.	802.	900.	1093.	1686.
8	67.	862.	587.	334.	517.
9	146.	12.	477.	402.	162.
10	55.	149.	29.	192.	189.
=====					
Total	71158.	71082.	69336.	85171.	75959.
=====					
AGE	1983	1984	1985	1986	1987
1	9615.	27391.	8669.	42747.	16376.
2	14004.	7774.	22353.	6977.	34857.
3	19458.	7588.	5182.	12486.	4512.
4	5145.	8635.	3115.	2032.	6085.
5	2609.	1990.	4051.	1312.	943.
6	2037.	1181.	869.	1611.	640.
7	232.	965.	500.	339.	752.
8	772.	104.	376.	212.	199.
9	231.	419.	45.	124.	109.
10	150.	297.	209.	77.	69.
=====					
Total	54252.	56344.	45370.	67918.	64541.
=====					
AGE	1988	1989	1990	1991	1992
1	23446.	15673.	9184.	17849.	6641.
2	13384.	19187.	12832.	7513.	14566.
3	21777.	9531.	13819.	6034.	4771.
4	2422.	10571.	5159.	6752.	2006.
5	3063.	1067.	4895.	2521.	2559.
6	519.	1153.	574.	1959.	745.
7	296.	205.	455.	263.	620.
8	371.	97.	93.	151.	101.
9	106.	126.	40.	44.	60.
10	99.	45.	90.	44.	18.
=====					
Total	65483.	57654.	47142.	43129.	32088.
=====					

JAN-1 Population Numbers

AGE	1993	1994	1995	1996	1997
1	8183.	5252.	3248.	5928.	10096.
2	5374.	6696.	4298.	2659.	4852.
3	8147.	3465.	5122.	3165.	1990.
4	1943.	2828.	1456.	3236.	1774.
5	703.	582.	664.	566.	1533.
6	755.	178.	120.	281.	245.
7	244.	191.	58.	58.	119.
8	228.	56.	32.	24.	34.
9	52.	57.	4.	13.	17.
10	28.	9.	2.	0.	2.
=====					
Total	25656.	19313.	15005.	15930.	20662.
AGE	1998	1999	2000	2001	2002
1	4577.	12809.	7928.	3436.	3352.
2	8263.	3747.	10486.	6478.	2813.
3	3505.	6097.	2810.	7904.	4684.
4	1051.	1795.	3248.	1679.	4316.
5	655.	478.	831.	1698.	793.
6	537.	243.	209.	423.	850.
7	82.	225.	111.	103.	196.
8	21.	32.	77.	53.	44.
9	13.	5.	12.	29.	24.
10	9.	7.	3.	5.	15.
=====					
Total	18714.	25438.	25713.	21810.	17087.
AGE	2003	2004	2005		
1	2283.	21220.	10398.		
2	2745.	1869.	17373.		
3	2257.	2183.	1502.		
4	2960.	1512.	1499.		
5	2315.	1741.	1037.		
6	361.	1216.	1187.		
7	397.	184.	787.		
8	100.	214.	106.		
9	21.	61.	139.		
10	10.	21.	53.		
=====					
Total	13448.	30220.	34081.		

Fishing Mortality Calculated

AGE	1978	1979	1980	1981	1982
1	0.0001	0.0016	0.0049	0.0007	0.0212
2	0.1073	0.1019	0.2448	0.2437	0.3541
3	0.4087	0.3811	0.4844	0.4759	0.5143
4	0.3861	0.4903	0.3780	0.3884	0.6763
5	0.3839	0.3608	0.4561	0.3061	0.6358
6	0.1378	0.3789	0.6370	0.5622	0.7404
7	0.3091	0.1122	0.7911	0.5476	0.5818
8	1.4850	0.3921	0.1789	0.5227	0.6068
9	0.3573	0.4336	0.4835	0.4375	0.6504
10	0.3573	0.4336	0.4835	0.4375	0.6504
AGE	1983	1984	1985	1986	1987
1	0.0125	0.0033	0.0172	0.0040	0.0018
2	0.4129	0.2056	0.3823	0.2358	0.2704
3	0.6124	0.6903	0.7360	0.5188	0.4222
4	0.7498	0.5568	0.6643	0.5681	0.4865
5	0.5923	0.6282	0.7220	0.5178	0.3961
6	0.5466	0.6593	0.7418	0.5623	0.5710
7	0.6032	0.7430	0.6571	0.3336	0.5057
8	0.4104	0.6317	0.9080	0.4697	0.4311
9	0.6400	0.5903	0.7067	0.5344	0.4825
10	0.6400	0.5903	0.7067	0.5344	0.4825
AGE	1988	1989	1990	1991	1992
1	0.0005	0.0000	0.0008	0.0032	0.0117
2	0.1395	0.1281	0.5545	0.2540	0.3811
3	0.5227	0.4137	0.5162	0.9013	0.6985
4	0.6195	0.5699	0.5161	0.7701	0.8484
5	0.7768	0.4197	0.7157	1.0193	1.0214
6	0.7321	0.7308	0.5810	0.9512	0.9150
7	0.9184	0.5853	0.9052	0.7539	0.8010
8	0.8832	0.6754	0.5561	0.7213	0.4635
9	0.7243	0.5707	0.6169	0.8476	0.9129
10	0.7243	0.5707	0.6169	0.8476	0.9129

Fishing Mortality Calculated

AGE	1993	1994	1995	1996	1997
1	0.0005	0.0004	0.0000	0.0002	0.0003
2	0.2388	0.0679	0.1062	0.0900	0.1253
3	0.8581	0.6669	0.2591	0.3789	0.4384
4	1.0060	1.2491	0.7449	0.5471	0.7961
5	1.1764	1.3810	0.6592	0.6359	0.8494
6	1.1755	0.9104	0.5214	0.6606	0.8918
7	1.2710	1.5801	0.6759	0.3354	1.5173
8	1.1843	2.3661	0.7249	0.1463	0.7324
9	1.0928	1.2733	0.7053	0.5598	0.8405
10	1.0928	1.2733	0.7053	0.5598	0.8405
AGE	1998	1999	2000	2001	2002
1	0.0001	0.0002	0.0020	0.0000	0.0000
2	0.1041	0.0878	0.0826	0.1243	0.0202
3	0.4693	0.4297	0.3150	0.4050	0.2590
4	0.5886	0.5705	0.4484	0.5504	0.4230
5	0.7909	0.6257	0.4746	0.4919	0.5858
6	0.6692	0.5812	0.5047	0.5685	0.5626
7	0.7412	0.8778	0.5393	0.6560	0.4739
8	1.2899	0.7995	0.7631	0.6112	0.5582
9	0.6702	0.6051	0.4627	0.5301	0.4633
10	0.6702	0.6051	0.4627	0.5301	0.4633
AGE	2003	2004			
1	0.0001	0.0000			
2	0.0290	0.0185			
3	0.2005	0.1761			
4	0.3306	0.1770			
5	0.4440	0.1834			
6	0.4769	0.2345			
7	0.4156	0.3495			
8	0.2933	0.2361			
9	0.3852	0.2361			
10	0.3852	0.2361			

Average Fishing Mortality For Ages 2- 8

Year	Average F	N Weighted	Biomass Wtd	Catch Wtd
------	-----------	------------	-------------	-----------

1978	0.4597	0.3644	0.3702	0.3908
1979	0.3168	0.2731	0.3503	0.3742
1980	0.4529	0.3919	0.4508	0.4310
1981	0.4352	0.3762	0.4337	0.4061
1982	0.5871	0.4534	0.5278	0.4804
1983	0.5611	0.5575	0.5773	0.5748
1984	0.5878	0.5119	0.5730	0.5769
1985	0.6874	0.5122	0.6015	0.5525
1986	0.4580	0.4436	0.4811	0.4775
1987	0.4404	0.3229	0.3763	0.3426
1988	0.6560	0.4329	0.5451	0.5274
1989	0.5033	0.3325	0.4311	0.4385
1990	0.6207	0.5608	0.5904	0.5676
1991	0.7673	0.6862	0.7926	0.7880
1992	0.7327	0.5686	0.6854	0.6381
1993	0.9872	0.7200	0.8581	0.8485
1994	1.1745	0.5500	0.8201	0.9682
1995	0.5274	0.2920	0.3925	0.4266
1996	0.3992	0.3782	0.4493	0.4680
1997	0.7644	0.4379	0.6154	0.6456
1998	0.6647	0.2897	0.4092	0.4539
1999	0.5675	0.3675	0.4642	0.4641
2000	0.4468	0.2153	0.3003	0.3329
2001	0.4868	0.3330	0.3963	0.4041
2002	0.4118	0.3034	0.3709	0.3986
2003	0.3128	0.2609	0.3262	0.3501
2004	0.1965	0.1576	0.1894	0.1948

Average Fishing Mortality For Ages 3- 8

Year	Average F	N Weighted	Biomass Wtd	Catch Wtd
------	-----------	------------	-------------	-----------

1978	0.5184	0.3926	0.3822	0.4006
1979	0.3526	0.4303	0.4143	0.4439
1980	0.4876	0.4877	0.4969	0.4996
1981	0.4672	0.4572	0.4741	0.4648
1982	0.6259	0.5918	0.6076	0.5985
1983	0.5858	0.6244	0.6070	0.6295
1984	0.6516	0.6283	0.6304	0.6332
1985	0.7382	0.7183	0.7242	0.7200
1986	0.4950	0.5241	0.5214	0.5258
1987	0.4687	0.4623	0.4734	0.4654
1988	0.7421	0.5710	0.6247	0.5824
1989	0.5658	0.5058	0.5347	0.5187
1990	0.6317	0.5640	0.5978	0.5743
1991	0.8529	0.8698	0.8771	0.8759
1992	0.7913	0.8214	0.8508	0.8356
1993	1.1119	0.9351	0.9982	0.9443
1994	1.3589	0.9922	1.1088	1.0572
1995	0.5976	0.3992	0.4729	0.4857
1996	0.4507	0.4827	0.5067	0.4991
1997	0.8709	0.7043	0.7791	0.7512
1998	0.7582	0.5519	0.5995	0.5701
1999	0.6474	0.4856	0.5275	0.4991
2000	0.5075	0.4063	0.4326	0.4189
2001	0.5472	0.4470	0.4662	0.4539
2002	0.4771	0.3766	0.4136	0.4050
2003	0.3601	0.3368	0.3598	0.3607
2004	0.2261	0.1945	0.2034	0.1997

Average Fishing Mortality For Ages 4- 8

Year	Average F	N Weighted	Biomass Wtd	Catch Wtd
------	-----------	------------	-------------	-----------

1978	0.5404	0.3621	0.3554	0.3835
1979	0.3469	0.4375	0.4163	0.4521
1980	0.4882	0.4921	0.5030	0.5197
1981	0.4654	0.4412	0.4734	0.4547
1982	0.6482	0.6511	0.6397	0.6526
1983	0.5804	0.6460	0.6029	0.6594
1984	0.6438	0.5918	0.6123	0.5956
1985	0.7386	0.7080	0.7214	0.7105
1986	0.4903	0.5362	0.5237	0.5413
1987	0.4781	0.4833	0.4858	0.4857
1988	0.7860	0.7284	0.7589	0.7362
1989	0.5962	0.5728	0.5817	0.5782
1990	0.6548	0.6230	0.6497	0.6371
1991	0.8432	0.8535	0.8704	0.8622
1992	0.8099	0.9187	0.9077	0.9266
1993	1.1626	1.0972	1.1286	1.1016
1994	1.4973	1.2862	1.3179	1.2956
1995	0.6653	0.7070	0.6925	0.7104
1996	0.4651	0.5615	0.5635	0.5663
1997	0.9574	0.8470	0.8737	0.8561
1998	0.8160	0.6753	0.6953	0.6854
1999	0.6909	0.6085	0.6341	0.6165
2000	0.5460	0.4636	0.4760	0.4665
2001	0.5756	0.5308	0.5326	0.5329
2002	0.5207	0.4655	0.4802	0.4728
2003	0.3921	0.3869	0.3954	0.3942
2004	0.2361	0.2028	0.2107	0.2090

Average Fishing Mortality For Ages 5- 8

Year	Average F	N Weighted	Biomass Wtd	Catch Wtd
------	-----------	------------	-------------	-----------

1978	0.5789	0.3275	0.3260	0.3792
1979	0.3110	0.3422	0.3347	0.3593
1980	0.5158	0.5104	0.5131	0.5377
1981	0.4847	0.5155	0.5275	0.5296
1982	0.6412	0.6299	0.6233	0.6316
1983	0.5381	0.5514	0.5331	0.5566
1984	0.6655	0.6631	0.6737	0.6652
1985	0.7572	0.7315	0.7399	0.7337
1986	0.4708	0.5175	0.5114	0.5244
1987	0.4759	0.4755	0.4849	0.4839
1988	0.8276	0.7905	0.8010	0.7925
1989	0.6028	0.5852	0.6084	0.6131
1990	0.6895	0.7147	0.7177	0.7192
1991	0.8614	0.9686	0.9521	0.9725
1992	0.8002	0.9538	0.9270	0.9631
1993	1.2018	1.1890	1.1920	1.1894
1994	1.5594	1.3906	1.4244	1.4217
1995	0.6453	0.6439	0.6439	0.6468
1996	0.4446	0.6118	0.5928	0.6282
1997	0.9977	0.8939	0.9228	0.9077
1998	0.8728	0.7456	0.7478	0.7522
1999	0.7211	0.6784	0.6974	0.6914
2000	0.5704	0.5036	0.5189	0.5103
2001	0.5819	0.5164	0.5241	0.5193
2002	0.5451	0.5630	0.5579	0.5645
2003	0.4074	0.4394	0.4346	0.4412
2004	0.2509	0.2144	0.2206	0.2212

Average Fishing Mortality For Ages 6- 8

Year	Average F	N Weighted	Biomass Wtd	Catch Wtd
------	-----------	------------	-------------	-----------

1978	0.6440	0.2658	0.2876	0.3719
1979	0.2944	0.3169	0.3135	0.3571
1980	0.5357	0.6045	0.5854	0.6549
1981	0.5442	0.5564	0.5552	0.5566
1982	0.6430	0.6201	0.6120	0.6245
1983	0.5200	0.5163	0.5023	0.5225
1984	0.6780	0.6939	0.6989	0.6957
1985	0.7690	0.7533	0.7653	0.7601
1986	0.4552	0.5173	0.5086	0.5285
1987	0.5026	0.5226	0.5168	0.5258
1988	0.8445	0.8258	0.8394	0.8313
1989	0.6638	0.7066	0.7018	0.7093
1990	0.6808	0.7103	0.7232	0.7350
1991	0.8088	0.9147	0.9016	0.9193
1992	0.7265	0.8356	0.8196	0.8473
1993	1.2103	1.1962	1.1983	1.1968
1994	1.6189	1.4038	1.4591	1.4793
1995	0.6407	0.5955	0.6145	0.6046
1996	0.3808	0.5741	0.5483	0.6151
1997	1.0472	1.0649	1.0912	1.1082
1998	0.9001	0.6992	0.7139	0.7089
1999	0.7528	0.7286	0.7428	0.7484
2000	0.6024	0.5642	0.5784	0.5762
2001	0.6119	0.5880	0.5912	0.5894
2002	0.5316	0.5465	0.5435	0.5481
2003	0.3952	0.4271	0.4183	0.4334
2004	0.2734	0.2478	0.2492	0.2523

Back Calculated Partial Recruitment

AGE	1978	1979	1980	1981	1982
1	0.0001	0.0033	0.0062	0.0013	0.0286
2	0.0723	0.2079	0.3095	0.4334	0.4783
3	0.2752	0.7773	0.6123	0.8466	0.6946
4	0.2600	1.0000	0.4778	0.6908	0.9134
5	0.2585	0.7359	0.5766	0.5446	0.8587
6	0.0928	0.7728	0.8052	1.0000	1.0000
7	0.2081	0.2288	1.0000	0.9741	0.7857
8	1.0000	0.7998	0.2261	0.9299	0.8195
9	0.2406	0.8845	0.6111	0.7783	0.8784
10	0.2406	0.8845	0.6111	0.7783	0.8784
AGE	1983	1984	1985	1986	1987
1	0.0167	0.0044	0.0190	0.0071	0.0031
2	0.5506	0.2767	0.4210	0.4151	0.4736
3	0.8168	0.9291	0.8106	0.9132	0.7394
4	1.0000	0.7494	0.7316	1.0000	0.8520
5	0.7899	0.8455	0.7952	0.9116	0.6937
6	0.7289	0.8873	0.8169	0.9898	1.0000
7	0.8044	1.0000	0.7236	0.5872	0.8857
8	0.5473	0.8503	1.0000	0.8268	0.7550
9	0.8536	0.7945	0.7783	0.9407	0.8450
10	0.8536	0.7945	0.7783	0.9407	0.8450
AGE	1988	1989	1990	1991	1992
1	0.0005	0.0000	0.0009	0.0032	0.0115
2	0.1519	0.1753	0.6125	0.2492	0.3731
3	0.5692	0.5662	0.5702	0.8842	0.6838
4	0.6745	0.7798	0.5701	0.7555	0.8305
5	0.8459	0.5743	0.7906	1.0000	1.0000
6	0.7971	1.0000	0.6419	0.9332	0.8957
7	1.0000	0.8009	1.0000	0.7397	0.7842
8	0.9616	0.9242	0.6144	0.7076	0.4537
9	0.7886	0.7810	0.6815	0.8316	0.8938
10	0.7886	0.7810	0.6815	0.8316	0.8938

Back Calculated Partial Recruitment

AGE	1993	1994	1995	1996	1997
1	0.0004	0.0002	0.0000	0.0003	0.0002
2	0.1879	0.0287	0.1426	0.1362	0.0826
3	0.6751	0.2819	0.3479	0.5735	0.2889
4	0.7915	0.5279	1.0000	0.8282	0.5247
5	0.9256	0.5836	0.8849	0.9627	0.5598
6	0.9249	0.3847	0.7000	1.0000	0.5878
7	1.0000	0.6678	0.9074	0.5078	1.0000
8	0.9318	1.0000	0.9731	0.2215	0.4827
9	0.8598	0.5381	0.9468	0.8474	0.5539
10	0.8598	0.5381	0.9468	0.8474	0.5539
AGE	1998	1999	2000	2001	2002
1	0.0000	0.0002	0.0026	0.0000	0.0000
2	0.0807	0.1000	0.1082	0.1894	0.0346
3	0.3639	0.4896	0.4128	0.6174	0.4421
4	0.4563	0.6499	0.5877	0.8390	0.7221
5	0.6132	0.7128	0.6219	0.7498	1.0000
6	0.5188	0.6621	0.6614	0.8666	0.9605
7	0.5746	1.0000	0.7067	1.0000	0.8090
8	1.0000	0.9108	1.0000	0.9317	0.9530
9	0.5196	0.6893	0.6063	0.8080	0.7910
10	0.5196	0.6893	0.6063	0.8080	0.7910
AGE	2003	2004			
1	0.0002	0.0000			
2	0.0608	0.0529			
3	0.4204	0.5040			
4	0.6933	0.5066			
5	0.9310	0.5249			
6	1.0000	0.6711			
7	0.8714	1.0000			
8	0.6150	0.6756			
9	0.8077	0.6756			
10	0.8077	0.6756			

JAN-1 Biomass

AGE	1978	1979	1980	1981	1982
1	13480.	16311.	12569.	28958.	9576.
2	4365.	23316.	21898.	18312.	37658.
3	48025.	5267.	32213.	22856.	20976.
4	23223.	44709.	4929.	24564.	18842.
5	9698.	18210.	33960.	4307.	20085.
6	5165.	8954.	14419.	23076.	3459.
7	8942.	5847.	6982.	8264.	13866.
8	486.	7517.	5362.	3041.	4764.
9	1461.	124.	4446.	4560.	1802.
10	723.	1887.	440.	3558.	3169.
=====					
Total	115568.	132142.	137217.	141497.	134196.
=====					
AGE	1983	1984	1985	1986	1987
1	7195.	24855.	6166.	31454.	8216.
2	14951.	9795.	27313.	8069.	40888.
3	35520.	14500.	9571.	23260.	8656.
4	15276.	25326.	9614.	5616.	19478.
5	10999.	8162.	17382.	6125.	4348.
6	11914.	6526.	4963.	9745.	4212.
7	1669.	7286.	3652.	2563.	6031.
8	7572.	931.	3591.	1906.	1879.
9	2434.	4519.	485.	1415.	1158.
10	2185.	4554.	2817.	1080.	1029.
=====					
Total	109716.	106454.	85554.	91232.	95895.
=====					
AGE	1988	1989	1990	1991	1992
1	12848.	9131.	5454.	16901.	6595.
2	14060.	21631.	14415.	8736.	19091.
3	40703.	17699.	27574.	12030.	9552.
4	7168.	31533.	14584.	19593.	6277.
5	14566.	4645.	21028.	10332.	10266.
6	3228.	6934.	3357.	10518.	4036.
7	2438.	1512.	3421.	1802.	4121.
8	3509.	939.	873.	1420.	865.
9	1117.	1356.	468.	445.	675.
10	1521.	774.	1309.	673.	345.
=====					
Total	101160.	96155.	92484.	82449.	61823.

JAN-1 Biomass

AGE	1993	1994	1995	1996	1997
1	5516.	3734.	2282.	3910.	7725.
2	7131.	7553.	4962.	3107.	5723.
3	15184.	6319.	8955.	5989.	3721.
4	5567.	8117.	4196.	8621.	5202.
5	3072.	2327.	2975.	2455.	5715.
6	4133.	1079.	713.	1696.	1334.
7	1661.	1363.	522.	457.	868.
8	1894.	471.	310.	232.	289.
9	510.	539.	43.	156.	172.
10	367.	150.	32.	0.	24.
=====					
Total	45036.	31652.	24990.	26623.	30775.
AGE	1998	1999	2000	2001	2002
1	1612.	7437.	6019.	2133.	984.
2	9828.	3567.	12441.	7799.	3509.
3	6678.	11069.	5514.	15777.	8679.
4	2994.	5059.	9102.	4680.	11587.
5	2679.	1975.	3357.	6664.	2917.
6	2649.	1341.	1114.	2161.	4103.
7	578.	1486.	774.	626.	1198.
8	178.	286.	609.	417.	321.
9	140.	49.	107.	268.	211.
10	131.	99.	38.	64.	179.
=====					
Total	27467.	32369.	39075.	40589.	33688.
AGE	2003	2004	2005		
1	620.	10406.	5065.		
2	2839.	1889.	19744.		
3	4603.	4896.	3032.		
4	7759.	4152.	4089.		
5	8141.	6136.	3877.		
6	1666.	5476.	5785.		
7	2279.	998.	4771.		
8	732.	1488.	792.		
9	182.	519.	1233.		
10	111.	255.	634.		
=====					
Total	28931.	36216.	49021.		

Mean Biomass

AGE	1978	1979	1980	1981	1982
1	17758.	18931.	15197.	33077.	11990.
2	4814.	29257.	22651.	19777.	36451.
3	47055.	5116.	29981.	21114.	20010.
4	20860.	42241.	4890.	21843.	16002.
5	9451.	16546.	28839.	4029.	17042.
6	5521.	8746.	11415.	18261.	2505.
7	8287.	6326.	4789.	6592.	10954.
8	276.	6708.	4441.	2351.	3515.
9	1319.	108.	2912.	4210.	1365.
10	554.	1398.	319.	2631.	2134.
=====					
Total	115897.	135377.	125434.	133886.	121969.
AGE	1983	1984	1985	1986	1987
1	8411.	26100.	7068.	35923.	10766.
2	15601.	10449.	24026.	8341.	41181.
3	31665.	12313.	7020.	21792.	8382.
4	10991.	21919.	8106.	5192.	18433.
5	8355.	6879.	13462.	5247.	4127.
6	9174.	5217.	3611.	8107.	3448.
7	1269.	5569.	2720.	2342.	4826.
8	5940.	712.	2327.	1540.	1476.
9	1754.	3274.	339.	1116.	899.
10	1478.	3148.	1852.	765.	746.
=====					
Total	94638.	95580.	70530.	90366.	94285.
AGE	1988	1989	1990	1991	1992
1	16699.	11492.	6914.	17994.	6871.
2	17250.	26449.	14055.	9825.	17035.
3	36576.	16161.	24294.	9320.	7756.
4	5804.	27809.	12975.	14782.	4776.
5	10559.	4292.	15685.	6947.	6951.
6	2246.	5024.	2524.	6855.	2764.
7	1564.	1165.	2327.	1256.	2940.
8	2264.	691.	697.	1035.	729.
9	769.	1022.	347.	263.	436.
10	993.	540.	895.	417.	208.
=====					
Total	94724.	94645.	80712.	68692.	50466.

Mean Biomass

AGE	1993	1994	1995	1996	1997
1	6466.	4312.	2667.	4738.	8728.
2	6673.	8570.	5446.	3478.	6532.
3	11325.	5024.	8605.	5850.	3413.
4	3761.	5461.	3608.	7722.	3967.
5	1897.	1404.	2447.	1884.	3896.
6	2615.	797.	630.	1249.	899.
7	961.	714.	417.	377.	457.
8	1136.	189.	244.	174.	191.
9	284.	289.	29.	115.	127.
10	206.	78.	21.	0.	15.
=====					
Total	35324.	26838.	24114.	25587.	28226.
AGE	1998	1999	2000	2001	2002
1	2402.	9635.	6863.	2741.	1674.
2	10566.	5096.	15492.	8387.	4464.
3	5882.	10056.	5404.	13931.	8508.
4	2542.	4320.	8443.	3728.	9856.
5	1968.	1590.	2858.	5343.	2355.
6	2128.	1084.	870.	1629.	3179.
7	437.	1011.	593.	439.	965.
8	96.	197.	423.	298.	259.
9	114.	40.	74.	203.	168.
10	87.	68.	28.	45.	131.
=====					
Total	26222.	33097.	41047.	36743.	31559.
AGE	2003	2004			
1	1084.	13539.			
2	4762.	3274.			
3	4376.	4705.			
4	6969.	4021.			
5	6880.	5915.			
6	1301.	4962.			
7	1829.	840.			
8	625.	1361.			
9	144.	459.			
10	84.	207.			
=====					
Total	28054.	39284.			

Spawning Stock Biomass

AGE	1978	1979	1980	1981	1982
1	913.	1104.	850.	1960.	1200.
2	1410.	7538.	6913.	5782.	16137.
3	33845.	3729.	22417.	15928.	15642.
4	20219.	38255.	4297.	21379.	15793.
5	8798.	16585.	30442.	3958.	17473.
6	4882.	8130.	12541.	20322.	2957.
7	8215.	5550.	5918.	7296.	12172.
8	367.	6810.	5034.	2696.	4165.
9	1331.	112.	3967.	4100.	1564.
10	659.	1698.	392.	3199.	2750.
=====					
Total	80639.	89512.	92771.	86621.	89852.
AGE	1983	1984	1985	1986	1987
1	903.	3123.	773.	8512.	2224.
2	6344.	4303.	11649.	5027.	25329.
3	26058.	10500.	6878.	18776.	7101.
4	12648.	21655.	8075.	4842.	17024.
5	9639.	7110.	14906.	5434.	3937.
6	10520.	5655.	4242.	8582.	3704.
7	1460.	6226.	3166.	2345.	5361.
8	6840.	811.	2985.	1705.	1691.
9	2116.	3961.	417.	1252.	1034.
10	1899.	3992.	2422.	956.	919.
=====					
Total	78426.	67335.	55513.	57432.	68324.
AGE	1988	1989	1990	1991	1992
1	3479.	2473.	633.	1961.	764.
2	8902.	13721.	6610.	4211.	9011.
3	32836.	14540.	22024.	9011.	7401.
4	6128.	27180.	12814.	16501.	5218.
5	12377.	4189.	18051.	8432.	8375.
6	2764.	5937.	2947.	8681.	3351.
7	2024.	1327.	2845.	1537.	3488.
8	2930.	811.	769.	1218.	775.
9	958.	1193.	409.	373.	561.
10	1304.	681.	1143.	565.	287.
=====					
Total	73700.	72053.	68245.	52490.	39229.

Spawning Stock Biomass

AGE	1993	1994	1995	1996	1997
1	640.	72.	44.	76.	971.
2	3447.	2817.	1839.	1155.	3090.
3	11456.	5195.	7881.	5166.	3078.
4	4508.	6375.	3584.	7612.	4406.
5	2442.	1788.	2578.	2136.	4798.
6	3286.	896.	632.	1469.	1112.
7	1300.	1013.	451.	418.	652.
8	1504.	307.	266.	219.	248.
9	411.	422.	37.	137.	145.
10	296.	117.	28.	0.	21.
Total	29289.	19003.	17340.	18387.	18521.
AGE	1998	1999	2000	2001	2002
1	203.	935.	175.	62.	29.
2	5325.	1938.	5222.	3251.	1488.
3	5495.	9169.	4808.	13550.	7638.
4	2625.	4450.	8169.	4129.	10444.
5	2271.	1721.	3000.	5938.	2559.
6	2292.	1177.	990.	1901.	3614.
7	494.	1241.	685.	543.	1071.
8	139.	242.	518.	364.	283.
9	121.	43.	96.	237.	188.
10	113.	87.	34.	56.	160.
Total	19078.	21003.	23697.	30033.	27474.
AGE	2003	2004			
1	42.	705.			
2	929.	619.			
3	3402.	3633.			
4	6818.	3743.			
5	7313.	5756.			
6	1488.	5093.			
7	2056.	911.			
8	674.	1383.			
9	165.	483.			
10	100.	237.			
Total	22987.	22564.			

Catch Biomass

AGE	1978	1979	1980	1981	1982
1	1.	30.	74.	24.	253.
2	515.	2972.	5514.	4791.	12811.
3	19068.	1934.	14384.	9953.	10187.
4	7989.	20508.	1834.	8415.	10685.
5	3599.	5924.	13033.	1225.	10704.
6	758.	3288.	7183.	10154.	1830.
7	2544.	707.	3734.	3572.	6301.
8	399.	2609.	791.	1216.	2108.
9	471.	47.	1408.	1842.	888.
10	198.	606.	154.	1151.	1388.
=====					
Total	35543.	38624.	48109.	42343.	57156.
=====					
AGE	1983	1984	1985	1986	1987
1	105.	85.	122.	145.	19.
2	6386.	2137.	9112.	1956.	11068.
3	19166.	8390.	5096.	11190.	3508.
4	8127.	12073.	5317.	2917.	8881.
5	4892.	4270.	9589.	2689.	1621.
6	4961.	3396.	2642.	4509.	1947.
7	757.	4080.	1765.	776.	2416.
8	2417.	445.	2078.	717.	631.
9	1123.	1933.	240.	596.	434.
10	946.	1858.	1309.	409.	360.
=====					
Total	48879.	38667.	37270.	25904.	30884.
=====					
AGE	1988	1989	1990	1991	1992
1	8.	0.	6.	58.	80.
2	2397.	3376.	7710.	2481.	6441.
3	18924.	6630.	12413.	8263.	5347.
4	3553.	15673.	6628.	11221.	3989.
5	8085.	1786.	11075.	6953.	6971.
6	1622.	3621.	1450.	6409.	2487.
7	1413.	674.	2072.	934.	2320.
8	1967.	461.	383.	736.	335.
9	557.	583.	214.	223.	398.
10	719.	308.	552.	354.	190.
=====					
Total	39246.	33113.	42504.	37632.	28559.

Catch Biomass

AGE	1993	1994	1995	1996	1997
1	3.	2.	0.	1.	3.
2	1585.	581.	577.	312.	815.
3	9566.	3308.	2217.	2199.	1483.
4	3716.	6674.	2650.	4180.	3112.
5	2185.	1893.	1593.	1184.	3258.
6	3011.	713.	325.	815.	788.
7	1194.	1098.	279.	126.	676.
8	1318.	431.	174.	25.	138.
9	310.	369.	21.	64.	107.
10	225.	100.	15.	0.	13.
=====					
Total	23115.	15168.	7850.	8905.	10393.
AGE	1998	1999	2000	2001	2002
1	0.	2.	13.	0.	0.
2	1096.	446.	1275.	1038.	90.
3	2735.	4284.	1691.	5595.	2190.
4	1479.	2437.	3752.	2030.	4133.
5	1534.	983.	1344.	2602.	1364.
6	1406.	623.	435.	916.	1769.
7	319.	874.	316.	285.	453.
8	121.	155.	318.	180.	143.
9	76.	24.	34.	107.	78.
10	58.	41.	13.	24.	61.
=====					
Total	8825.	9869.	9191.	12778.	10281.
AGE	2003	2004			
1	0.	0.			
2	138.	60.			
3	873.	825.			
4	2288.	709.			
5	3027.	1080.			
6	614.	1157.			
7	754.	291.			
8	182.	321.			
9	55.	93.			
10	32.	49.			
=====					
Total	7964.	4585.			

Catch Numbers

AGE	1978	1979	1980	1981	1982
1	2.0	34.0	89.0	27.0	331.0
2	393.0	1989.0	3777.0	3205.0	9138.0
3	7748.0	900.0	5828.0	4221.0	3824.0
4	2303.0	4870.0	500.0	2464.0	2787.0
5	830.0	1212.0	2308.0	235.0	2000.0
6	131.0	458.0	1076.0	1406.0	281.0
7	345.0	77.0	445.0	417.0	673.0
8	47.0	253.0	87.0	123.0	213.0
9	40.0	4.0	167.0	130.0	71.0
10	15.0	48.0	10.0	62.0	83.0
Total	11854.0	9845.0	14287.0	12290.0	19401.0
AGE	1983	1984	1985	1986	1987
1	108.0	81.0	134.0	156.0	26.0
2	4286.0	1307.0	6426.0	1326.0	7473.0
3	8063.0	3423.0	2443.0	4573.0	1406.0
4	2456.0	3336.0	1368.0	797.0	2121.0
5	1055.0	840.0	1885.0	480.0	279.0
6	776.0	516.0	412.0	627.0	252.0
7	95.0	458.0	218.0	87.0	270.0
8	235.0	44.0	203.0	72.0	63.0
9	100.0	171.0	21.0	47.0	38.0
10	65.0	121.0	97.0	29.0	24.0
Total	17239.0	10297.0	13207.0	8194.0	11952.0
AGE	1988	1989	1990	1991	1992
1	10.0	0.0	7.0	52.0	70.0
2	1577.0	2088.0	4942.0	1525.0	4177.0
3	8022.0	2922.0	5042.0	3243.0	2170.0
4	1012.0	4155.0	1882.0	3281.0	1038.0
5	1497.0	331.0	2264.0	1458.0	1482.0
6	244.0	541.0	229.0	1088.0	404.0
7	161.0	82.0	245.0	126.0	309.0
8	197.0	43.0	36.0	70.0	34.0
9	50.0	50.0	17.0	23.0	33.0
10	47.0	18.0	38.0	23.0	10.0
Total	12817.0	10230.0	14702.0	10889.0	9727.0

Catch Numbers

AGE	1993	1994	1995	1996	1997
1	4.0	2.0	0.1	1.0	3.0
2	1033.0	398.0	392.0	207.0	517.0
3	4246.0	1526.0	1058.0	903.0	639.0
4	1115.0	1825.0	692.0	1234.0	881.0
5	440.0	394.0	290.0	241.0	794.0
6	472.0	96.0	44.0	123.0	131.0
7	159.0	137.0	26.0	15.0	84.0
8	143.0	46.0	15.0	3.0	16.0
9	32.0	38.0	2.0	5.0	9.0
10	17.0	6.0	1.0	0.0	1.0
Total	7661.0	4468.0	2520.1	2732.0	3075.0
AGE	1998	1999	2000	2001	2002
1	0.2	2.0	14.0	0.1	0.0
2	739.0	285.0	752.0	685.0	51.0
3	1188.0	1927.0	687.0	2382.0	967.0
4	423.0	706.0	1062.0	643.0	1347.0
5	324.0	201.0	284.0	597.0	318.0
6	237.0	97.0	75.0	166.0	331.0
7	39.0	119.0	42.0	45.0	67.0
8	14.0	16.0	37.0	22.0	17.0
9	6.0	2.0	4.0	11.0	8.0
10	4.0	3.0	1.0	2.0	5.0
Total	2974.2	3358.0	2958.0	4553.1	3111.0
AGE	2003	2004			
1	0.2	0.0			
2	71.0	31.0			
3	371.0	319.0			
4	754.0	222.0			
5	751.0	264.0			
6	124.0	230.0			
7	122.0	49.0			
8	23.0	41.0			
9	6.0	10.0			
10	3.0	4.0			
Total	2225.2	1170.0			

Surplus Production

Average Adjustment Factor (Delta) = 1.0000

Year	Biomass	Delta Biomass	Catch Biomass	Surplus Production
1978	115567.835	16574.108	35542.710	52116.818
1979	132141.944	5074.845	38624.318	43699.163
1980	137216.788	4279.954	48109.417	52389.371
1981	141496.743	-7300.737	42343.113	35042.376
1982	134196.005	-24480.388	57155.858	32675.470
1983	109715.618	-3261.278	48879.166	45617.888
1984	106454.340	-20900.344	38666.814	17766.470
1985	85553.996	5678.046	37269.609	42947.655
1986	91232.043	4662.638	25903.792	30566.430
1987	95894.681	5265.124	30883.709	36148.833
1988	101159.806	-5004.805	39245.626	34240.821
1989	96155.001	-3671.030	33112.831	29441.801
1990	92483.971	-10034.836	42503.786	32468.950
1991	82449.135	-20625.668	37632.314	17006.646
1992	61823.467	-16787.802	28558.802	11771.000
1993	45035.665	-13383.335	23114.512	9731.177
1994	31652.330	-6662.449	15168.322	8505.873
1995	24989.881	1633.249	7849.733	9482.982
1996	26623.131	4152.354	8904.768	13057.122
1997	30775.485	-3308.894	10393.174	7084.280
1998	27466.591	4902.460	8824.847	13727.306
1999	32369.051	6705.705	9868.593	16574.298
2000	39074.756	1513.960	9191.119	10705.079
2001	40588.716	-6900.238	12777.549	5877.311
2002	33688.478	-4757.192	10280.887	5523.695
2003	28931.286	7284.259	7963.726	15247.985
2004	36215.546	12805.404	4585.425	17390.829
2005	49020.949			

Summary of Survey Indices Used in the Estimate

INDEX	Survey Tag	Age	Time	Type	Catchability	Std. Error	CV
1	spr_36	1	JAN-1	NUMBER	0.1447E-04	0.3154E-05	0.2180E+00
2	spr_36	2	JAN-1	NUMBER	0.6581E-04	0.6157E-05	0.9355E-01
3	spr_36	3	JAN-1	NUMBER	0.1387E-03	0.1720E-04	0.1241E+00
4	spr_36	4	JAN-1	NUMBER	0.2286E-03	0.3533E-04	0.1546E+00
5	spr_36	5	JAN-1	NUMBER	0.2837E-03	0.4574E-04	0.1612E+00
6	spr_36	6	JAN-1	NUMBER	0.2924E-03	0.4425E-04	0.1514E+00
7	spr_36	7	JAN-1	NUMBER	0.3187E-03	0.5753E-04	0.1805E+00
8	spr_36	8	JAN-1	NUMBER	0.3739E-03	0.6283E-04	0.1680E+00
9	spr_41	1	JAN-1	NUMBER	0.1205E-04	0.9019E-05	0.7485E+00
10	spr_41	2	JAN-1	NUMBER	0.7609E-04	0.1823E-04	0.2396E+00
11	spr_41	3	JAN-1	NUMBER	0.1624E-03	0.3567E-04	0.2197E+00
12	spr_41	4	JAN-1	NUMBER	0.1408E-03	0.1656E-04	0.1177E+00
13	spr_41	5	JAN-1	NUMBER	0.1722E-03	0.4034E-04	0.2343E+00
14	spr_41	6	JAN-1	NUMBER	0.1606E-03	0.2299E-04	0.1432E+00
15	spr_41	7	JAN-1	NUMBER	0.2241E-03	0.7172E-04	0.3200E+00
16	spr_41	8	JAN-1	NUMBER	0.2389E-03	0.1487E-03	0.6225E+00
17	sp_can	1	JAN-1	NUMBER	0.1865E-04	0.4877E-05	0.2615E+00
18	sp_can	2	JAN-1	NUMBER	0.7732E-04	0.1959E-04	0.2533E+00
19	sp_can	3	JAN-1	NUMBER	0.2311E-03	0.2844E-04	0.1231E+00
20	sp_can	4	JAN-1	NUMBER	0.3873E-03	0.5577E-04	0.1440E+00
21	sp_can	5	JAN-1	NUMBER	0.6144E-03	0.8744E-04	0.1423E+00
22	sp_can	6	JAN-1	NUMBER	0.7596E-03	0.1555E-03	0.2047E+00
23	sp_can	7	JAN-1	NUMBER	0.8680E-03	0.1933E-03	0.2227E+00
24	sp_can	8	JAN-1	NUMBER	0.1078E-02	0.2303E-03	0.2137E+00
25	us0aut	1	JAN-1	NUMBER	0.1293E-04	0.2673E-05	0.2068E+00
26	us1aut	2	JAN-1	NUMBER	0.6073E-04	0.7687E-05	0.1266E+00
27	us2aut	3	JAN-1	NUMBER	0.1041E-03	0.1295E-04	0.1244E+00
28	us3aut	4	JAN-1	NUMBER	0.1240E-03	0.1870E-04	0.1508E+00
29	us4aut	5	JAN-1	NUMBER	0.9238E-04	0.1714E-04	0.1856E+00
30	us5aut	6	JAN-1	NUMBER	0.1073E-03	0.1577E-04	0.1471E+00

Survey Index: 1 Tag: spr_36 AGE = 1
 Time = JAN-1 Type = NUMBER
 Catchability = 0.144671E-04 % Variance Contribution = 8.0839
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.400933E+00	N/A
1979	N/A	0.340171E+00	N/A
1980	N/A	0.290853E+00	N/A
1981	N/A	0.598827E+00	N/A
1982	0.507900E+00	0.252748E+00	0.697891E+00
1983	0.331500E+00	0.139097E+00	0.868453E+00
1984	0.402200E+00	0.396271E+00	0.148503E-01
1985	0.111100E+00	0.125419E+00	-0.121230E+00
1986	0.871500E+00	0.618430E+00	0.343032E+00
1987	0.197000E-01	0.236907E+00	-0.248705E+01
1988	0.720200E+00	0.339191E+00	0.752966E+00
1989	0.310400E+00	0.226741E+00	0.314053E+00
1990	0.173400E+00	0.132862E+00	0.266290E+00
1991	0.102660E+01	0.258223E+00	0.138018E+01
1992	0.122700E+00	0.960747E-01	0.244616E+00
1993	0.850000E-02	0.118387E+00	-0.263389E+01

1994	0.124800E+00	0.759853E-01	0.496172E+00
1995	0.495000E-01	0.469861E-01	0.521206E-01
1996	0.730000E-01	0.857600E-01	-0.161093E+00
1997	0.290800E+00	0.146057E+00	0.688637E+00
1998	0.111300E+00	0.662123E-01	0.519363E+00
1999	0.212300E+00	0.185314E+00	0.135951E+00
2000	0.220700E+00	0.114691E+00	0.654563E+00
2001	0.610000E-01	0.497096E-01	0.204677E+00
2002	0.650000E-01	0.485004E-01	0.292815E+00
2003	0.160000E-01	0.330272E-01	-0.724742E+00
2004	0.637000E+00	0.306985E+00	0.729971E+00
2005	0.120000E-01	0.150431E+00	-0.252860E+01

Survey Index: 2 Tag: spr_36 AGE = 2
Time = JAN-1 Type = NUMBER
Catchability = 0.658076E-04 % Variance Contribution = 1.4882
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.280872E+00	N/A
1979	N/A	0.149305E+01	N/A
1980	N/A	0.126485E+01	N/A
1981	N/A	0.107790E+01	N/A
1982	0.543540E+01	0.222856E+01	0.891578E+00
1983	0.195180E+01	0.921582E+00	0.750415E+00
1984	0.431000E+00	0.511600E+00	-0.171435E+00
1985	0.265310E+01	0.147098E+01	0.589799E+00
1986	0.409000E+00	0.459110E+00	-0.115575E+00
1987	0.161250E+01	0.229389E+01	-0.352461E+00
1988	0.608800E+00	0.880749E+00	-0.369283E+00
1989	0.141040E+01	0.126263E+01	0.110677E+00
1990	0.921500E+00	0.844435E+00	0.873347E-01
1991	0.527800E+00	0.494391E+00	0.653897E-01
1992	0.125240E+01	0.958585E+00	0.267359E+00
1993	0.398800E+00	0.353636E+00	0.120192E+00
1994	0.272400E+00	0.440662E+00	-0.481006E+00
1995	0.381700E+00	0.282868E+00	0.299656E+00
1996	0.213900E+00	0.174981E+00	0.200831E+00
1997	0.437100E+00	0.319330E+00	0.313936E+00
1998	0.665200E+00	0.543772E+00	0.201558E+00
1999	0.290900E+00	0.246577E+00	0.165305E+00
2000	0.806600E+00	0.690031E+00	0.156091E+00
2001	0.235000E+00	0.426302E+00	-0.595562E+00
2002	0.930000E-01	0.185126E+00	-0.688435E+00
2003	0.213000E+00	0.180626E+00	0.164861E+00
2004	0.580000E-01	0.122989E+00	-0.751651E+00
2005	0.484000E+00	0.114328E+01	-0.859571E+00

Survey Index: 3 Tag: spr_36 AGE = 3
Time = JAN-1 Type = NUMBER
Catchability = 0.138672E-03 % Variance Contribution = 2.6169
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.353973E+01	N/A
1979	N/A	0.435263E+00	N/A
1980	N/A	0.232631E+01	N/A
1981	N/A	0.170827E+01	N/A

1982	0.950190E+01	0.145751E+01	0.187476E+01
1983	0.301700E+01	0.269824E+01	0.111664E+00
1984	0.760700E+00	0.105218E+01	-0.324377E+00
1985	0.663300E+00	0.718643E+00	-0.801378E-01
1986	0.184440E+01	0.173151E+01	0.631588E-01
1987	0.378400E+00	0.625701E+00	-0.502921E+00
1988	0.314960E+01	0.301986E+01	0.420659E-01
1989	0.666400E+00	0.132164E+01	-0.684740E+00
1990	0.173710E+01	0.191636E+01	-0.982125E-01
1991	0.688700E+00	0.836766E+00	-0.194738E+00
1992	0.468200E+00	0.661601E+00	-0.345767E+00
1993	0.130610E+01	0.112969E+01	0.145101E+00
1994	0.200000E+00	0.480496E+00	-0.876501E+00
1995	0.853900E+00	0.710315E+00	0.184106E+00
1996	0.736200E+00	0.438832E+00	0.517385E+00
1997	0.170200E+00	0.275913E+00	-0.483113E+00
1998	0.129800E+01	0.486055E+00	0.982258E+00
1999	0.609000E+00	0.845419E+00	-0.328014E+00
2000	0.829800E+00	0.389648E+00	0.755941E+00
2001	0.794000E+00	0.109612E+01	-0.322450E+00
2002	0.383000E+00	0.649528E+00	-0.528211E+00
2003	0.271000E+00	0.312989E+00	-0.144050E+00
2004	0.579000E+00	0.302718E+00	0.648501E+00
2005	0.138000E+00	0.208297E+00	-0.411713E+00

Survey Index: 4 Tag: spr_36 AGE = 4
Time = JAN-1 Type = NUMBER
Catchability = 0.228568E-03 % Variance Contribution = 4.0634
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.181635E+01	N/A
1979	N/A	0.317440E+01	N/A
1980	N/A	0.401246E+00	N/A
1981	N/A	0.193400E+01	N/A
1982	0.832440E+01	0.143230E+01	0.175991E+01
1983	0.796200E+00	0.117602E+01	-0.390037E+00
1984	0.123820E+01	0.197367E+01	-0.466234E+00
1985	0.111030E+01	0.711962E+00	0.444362E+00
1986	0.365200E+00	0.464545E+00	-0.240613E+00
1987	0.763300E+00	0.139088E+01	-0.600038E+00
1988	0.408800E+00	0.553590E+00	-0.303198E+00
1989	0.158310E+01	0.241617E+01	-0.422797E+00
1990	0.674200E+00	0.117922E+01	-0.559079E+00
1991	0.928900E+00	0.154333E+01	-0.507699E+00
1992	0.168100E+00	0.458496E+00	-0.100339E+01
1993	0.205300E+00	0.444028E+00	-0.771415E+00
1994	0.216500E+00	0.646358E+00	-0.109376E+01
1995	0.534000E+00	0.332819E+00	0.472796E+00
1996	0.124720E+01	0.739746E+00	0.522349E+00
1997	0.488600E+00	0.405442E+00	0.186567E+00
1998	0.847800E+00	0.240185E+00	0.126124E+01
1999	0.509700E+00	0.410226E+00	0.217115E+00
2000	0.114110E+01	0.742343E+00	0.429936E+00
2001	0.160000E+00	0.383741E+00	-0.874793E+00
2002	0.993000E+00	0.986562E+00	0.650466E-02
2003	0.623000E+00	0.676536E+00	-0.824398E-01
2004	0.140700E+01	0.345645E+00	0.140380E+01
2005	0.631000E+00	0.342538E+00	0.610922E+00

Survey Index: 5 Tag: spr_36 AGE = 5
 Time = JAN-1 Type = NUMBER
 Catchability = 0.283697E-03 % Variance Contribution = 4.4191
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.816376E+00	N/A
1979	N/A	0.125461E+01	N/A
1980	N/A	0.197571E+01	N/A
1981	N/A	0.279398E+00	N/A
1982	0.620800E+01	0.133283E+01	0.153854E+01
1983	0.697000E+00	0.740091E+00	-0.599880E-01
1984	0.422300E+00	0.564618E+00	-0.290434E+00
1985	0.141230E+01	0.114930E+01	0.206069E+00
1986	0.540000E+00	0.372333E+00	0.371780E+00
1987	0.621000E-01	0.267483E+00	-0.146031E+01
1988	0.643500E+00	0.868954E+00	-0.300368E+00
1989	0.235100E+00	0.302780E+00	-0.252997E+00
1990	0.911900E+00	0.138873E+01	-0.420616E+00
1991	0.478800E+00	0.715216E+00	-0.401302E+00
1992	0.272900E+00	0.726110E+00	-0.978596E+00
1993	0.895000E-01	0.199471E+00	-0.801430E+00
1994	0.332000E-01	0.165003E+00	-0.160341E+01
1995	0.599000E+00	0.188354E+00	0.115694E+01
1996	0.174200E+00	0.160576E+00	0.814355E-01
1997	0.422300E+00	0.434966E+00	-0.295521E-01
1998	0.754900E+00	0.185859E+00	0.140160E+01
1999	0.238200E+00	0.135493E+00	0.564190E+00
2000	0.370300E+00	0.235643E+00	0.451995E+00
2001	0.383000E+00	0.481758E+00	-0.229406E+00
2002	0.239000E+00	0.224901E+00	0.608037E-01
2003	0.696000E+00	0.656774E+00	0.580097E-01
2004	0.135400E+01	0.493948E+00	0.100839E+01
2005	0.274000E+00	0.294259E+00	-0.713320E-01

Survey Index: 6 Tag: spr_36 AGE = 6
 Time = JAN-1 Type = NUMBER
 Catchability = 0.292377E-03 % Variance Contribution = 3.8952
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.328734E+00	N/A
1979	N/A	0.469263E+00	N/A
1980	N/A	0.737976E+00	N/A
1981	N/A	0.105648E+01	N/A
1982	0.292900E+00	0.173581E+00	0.523190E+00
1983	0.443100E+00	0.595506E+00	-0.295616E+00
1984	0.400400E+00	0.345371E+00	0.147846E+00
1985	0.265400E+00	0.254189E+00	0.431610E-01
1986	0.617900E+00	0.471071E+00	0.271318E+00
1987	0.179400E+00	0.187182E+00	-0.424626E-01
1988	0.640000E-01	0.151886E+00	-0.864250E+00
1989	0.351100E+00	0.337170E+00	0.404840E-01
1990	0.130400E+00	0.167913E+00	-0.252840E+00
1991	0.328100E+00	0.572836E+00	-0.557280E+00
1992	0.142400E+00	0.217766E+00	-0.424782E+00
1993	0.138200E+00	0.220609E+00	-0.467690E+00
1994	0.570000E-02	0.519060E-01	-0.220897E+01

1995	0.106700E+00	0.349919E-01	0.111490E+01
1996	0.208500E+00	0.822092E-01	0.930671E+00
1997	0.498000E-01	0.717337E-01	-0.364945E+00
1998	0.532600E+00	0.156960E+00	0.122178E+01
1999	0.119300E+00	0.711089E-01	0.517430E+00
2000	0.102400E+00	0.611511E-01	0.515538E+00
2001	0.177000E+00	0.123698E+00	0.358308E+00
2002	0.225000E+00	0.248559E+00	-0.995809E-01
2003	0.640000E-01	0.105639E+00	-0.501144E+00
2004	0.893000E+00	0.355494E+00	0.921079E+00
2005	0.205000E+00	0.346942E+00	-0.526147E+00

Survey Index: 7 Tag: spr_36 AGE = 7
Time = JAN-1 Type = NUMBER
Catchability = 0.318676E-03 % Variance Contribution = 5.5409
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.457008E+00	N/A
1979	N/A	0.255579E+00	N/A
1980	N/A	0.286693E+00	N/A
1981	N/A	0.348285E+00	N/A
1982	0.186570E+01	0.537353E+00	0.124474E+01
1983	0.272000E-01	0.738722E-01	-0.999120E+00
1984	0.208800E+00	0.307654E+00	-0.387599E+00
1985	0.191900E+00	0.159411E+00	0.185490E+00
1986	0.617000E-01	0.108031E+00	-0.560135E+00
1987	0.135500E+00	0.239576E+00	-0.569897E+00
1988	0.370000E-01	0.943718E-01	-0.936325E+00
1989	0.505000E-01	0.651819E-01	-0.255209E+00
1990	0.143100E+00	0.144884E+00	-0.123902E-01
1991	0.541000E-01	0.838090E-01	-0.437706E+00
1992	0.158700E+00	0.197458E+00	-0.218512E+00
1993	0.293000E-01	0.778353E-01	-0.977008E+00
1994	0.441000E-01	0.607644E-01	-0.320544E+00
1995	0.233600E+00	0.186379E-01	0.252841E+01
1996	0.277000E-01	0.185385E-01	0.401585E+00
1997	0.133900E+00	0.378943E-01	0.126229E+01
1998	0.101600E+00	0.262393E-01	0.135378E+01
1999	0.636000E-01	0.717282E-01	-0.120271E+00
2000	0.255000E-01	0.354857E-01	-0.330451E+00
2001	0.230000E-01	0.329434E-01	-0.359296E+00
2002	0.390000E-01	0.625186E-01	-0.471902E+00
2003	0.800000E-01	0.126364E+00	-0.457138E+00
2004	0.179000E+00	0.585140E-01	0.111812E+01
2005	0.127000E+00	0.250912E+00	-0.680917E+00

Survey Index: 8 Tag: spr_36 AGE = 8
Time = JAN-1 Type = NUMBER
Catchability = 0.373921E-03 % Variance Contribution = 3.6528
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.251103E-01	N/A
1979	N/A	0.322305E+00	N/A
1980	N/A	0.219474E+00	N/A
1981	N/A	0.124855E+00	N/A
1982	0.368500E+00	0.193498E+00	0.644173E+00

1983	0.218600E+00	0.288514E+00	-0.277500E+00
1984	N/A	0.388243E-01	N/A
1985	0.179900E+00	0.140593E+00	0.246529E+00
1986	0.125100E+00	0.793827E-01	0.454833E+00
1987	0.328000E-01	0.743461E-01	-0.818303E+00
1988	0.492000E-01	0.138800E+00	-0.103714E+01
1989	0.395000E-01	0.361873E-01	0.875930E-01
1990	0.129000E-01	0.348743E-01	-0.994522E+00
1991	0.406000E-01	0.562922E-01	-0.326788E+00
1992	0.196000E-01	0.378817E-01	-0.658939E+00
1993	0.344000E-01	0.851448E-01	-0.906297E+00
1994	N/A	0.209779E-01	N/A
1995	0.280000E-01	0.120219E-01	0.845474E+00
1996	0.181000E-01	0.910802E-02	0.686757E+00
1997	0.201000E-01	0.127342E-01	0.456431E+00
1998	0.309000E-01	0.798330E-02	0.135340E+01
1999	0.305000E-01	0.120120E-01	0.931818E+00
2000	0.201000E-01	0.286446E-01	-0.354244E+00
2001	0.180000E-01	0.198796E-01	-0.993239E-01
2002	N/A	0.164223E-01	N/A
2003	0.120000E-01	0.373907E-01	-0.113652E+01
2004	0.261000E+00	0.801159E-01	0.118105E+01
2005	0.300000E-01	0.396337E-01	-0.278483E+00

Survey Index: 9 Tag: spr_41 AGE = 1
 Time = JAN-1 Type = NUMBER
 Catchability = 0.120505E-04 % Variance Contribution = 2.0707
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.371700E+00	0.333961E+00	0.107064E+00
1979	0.428300E+00	0.283348E+00	0.413147E+00
1980	0.312000E-01	0.242269E+00	-0.204963E+01
1981	0.230220E+01	0.498798E+00	0.152942E+01
1982	N/A	0.210529E+00	N/A
1983	N/A	0.115863E+00	N/A
1984	N/A	0.330078E+00	N/A
1985	N/A	0.104469E+00	N/A
1986	N/A	0.515127E+00	N/A
1987	N/A	0.197334E+00	N/A
1988	N/A	0.282532E+00	N/A
1989	N/A	0.188866E+00	N/A
1990	N/A	0.110669E+00	N/A
1991	N/A	0.215089E+00	N/A
1992	N/A	0.800263E-01	N/A
1993	N/A	0.986116E-01	N/A
1994	N/A	0.632927E-01	N/A
1995	N/A	0.391375E-01	N/A
1996	N/A	0.714346E-01	N/A
1997	N/A	0.121660E+00	N/A
1998	N/A	0.551522E-01	N/A
1999	N/A	0.154359E+00	N/A
2000	N/A	0.955329E-01	N/A
2001	N/A	0.414061E-01	N/A
2002	N/A	0.403989E-01	N/A
2003	N/A	0.275103E-01	N/A
2004	N/A	0.255706E+00	N/A
2005	N/A	0.125303E+00	N/A

Survey Index: 10 Tag: spr_41 AGE = 2
 Time = JAN-1 Type = NUMBER
 Catchability = 0.760932E-04 % Variance Contribution = 0.2122
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.191800E+00	0.324771E+00	-0.526667E+00
1979	0.129770E+01	0.172640E+01	-0.285447E+00
1980	0.221700E+01	0.146254E+01	0.415980E+00
1981	0.185220E+01	0.124638E+01	0.396135E+00
1982	N/A	0.257688E+01	N/A
1983	N/A	0.106562E+01	N/A
1984	N/A	0.591561E+00	N/A
1985	N/A	0.170089E+01	N/A
1986	N/A	0.530868E+00	N/A
1987	N/A	0.265241E+01	N/A
1988	N/A	0.101841E+01	N/A
1989	N/A	0.145997E+01	N/A
1990	N/A	0.976418E+00	N/A
1991	N/A	0.571663E+00	N/A
1992	N/A	0.110841E+01	N/A
1993	N/A	0.408908E+00	N/A
1994	N/A	0.509536E+00	N/A
1995	N/A	0.327079E+00	N/A
1996	N/A	0.202330E+00	N/A
1997	N/A	0.369241E+00	N/A
1998	N/A	0.628762E+00	N/A
1999	N/A	0.285116E+00	N/A
2000	N/A	0.797881E+00	N/A
2001	N/A	0.492931E+00	N/A
2002	N/A	0.214060E+00	N/A
2003	N/A	0.208858E+00	N/A
2004	N/A	0.142212E+00	N/A
2005	N/A	0.132197E+01	N/A

Survey Index: 11 Tag: spr_41 AGE = 3
 Time = JAN-1 Type = NUMBER
 Catchability = 0.162350E-03 % Variance Contribution = 0.1785
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.553090E+01	0.414415E+01	0.288653E+00
1979	0.275100E+00	0.509585E+00	-0.616461E+00
1980	0.268960E+01	0.272353E+01	-0.125375E-01
1981	0.281080E+01	0.199995E+01	0.340345E+00
1982	N/A	0.170638E+01	N/A
1983	N/A	0.315896E+01	N/A
1984	N/A	0.123184E+01	N/A
1985	N/A	0.841352E+00	N/A
1986	N/A	0.202717E+01	N/A
1987	N/A	0.732540E+00	N/A
1988	N/A	0.353550E+01	N/A
1989	N/A	0.154731E+01	N/A
1990	N/A	0.224358E+01	N/A
1991	N/A	0.979644E+00	N/A
1992	N/A	0.774570E+00	N/A
1993	N/A	0.132259E+01	N/A

1994	N/A	0.562541E+00	N/A
1995	N/A	0.831602E+00	N/A
1996	N/A	0.513763E+00	N/A
1997	N/A	0.323026E+00	N/A
1998	N/A	0.569050E+00	N/A
1999	N/A	0.989775E+00	N/A
2000	N/A	0.456181E+00	N/A
2001	N/A	0.128329E+01	N/A
2002	N/A	0.760436E+00	N/A
2003	N/A	0.366433E+00	N/A
2004	N/A	0.354407E+00	N/A
2005	N/A	0.243864E+00	N/A

Survey Index: 12 Tag: spr_41 AGE = 4
Time = JAN-1 Type = NUMBER
Catchability = 0.140752E-03 % Variance Contribution = 0.0512
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.971500E+00	0.111851E+01	-0.140915E+00
1979	0.185150E+01	0.195480E+01	-0.542917E-01
1980	0.212300E+00	0.247088E+00	-0.151743E+00
1981	0.168490E+01	0.119096E+01	0.346949E+00
1982	N/A	0.882015E+00	N/A
1983	N/A	0.724192E+00	N/A
1984	N/A	0.121539E+01	N/A
1985	N/A	0.438427E+00	N/A
1986	N/A	0.286067E+00	N/A
1987	N/A	0.856503E+00	N/A
1988	N/A	0.340901E+00	N/A
1989	N/A	0.148788E+01	N/A
1990	N/A	0.726163E+00	N/A
1991	N/A	0.950387E+00	N/A
1992	N/A	0.282342E+00	N/A
1993	N/A	0.273433E+00	N/A
1994	N/A	0.398028E+00	N/A
1995	N/A	0.204951E+00	N/A
1996	N/A	0.455537E+00	N/A
1997	N/A	0.249671E+00	N/A
1998	N/A	0.147906E+00	N/A
1999	N/A	0.252617E+00	N/A
2000	N/A	0.457136E+00	N/A
2001	N/A	0.236308E+00	N/A
2002	N/A	0.607526E+00	N/A
2003	N/A	0.416612E+00	N/A
2004	N/A	0.212849E+00	N/A
2005	N/A	0.210936E+00	N/A

Survey Index: 13 Tag: spr_41 AGE = 5
Time = JAN-1 Type = NUMBER
Catchability = 0.172199E-03 % Variance Contribution = 0.2029
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.777600E+00	0.495525E+00	0.450595E+00
1979	0.546600E+00	0.761524E+00	-0.331604E+00
1980	0.170500E+01	0.119922E+01	0.351893E+00
1981	0.105900E+00	0.169589E+00	-0.470884E+00

1982	N/A	0.809001E+00	N/A
1983	N/A	0.449222E+00	N/A
1984	N/A	0.342713E+00	N/A
1985	N/A	0.697602E+00	N/A
1986	N/A	0.225999E+00	N/A
1987	N/A	0.162357E+00	N/A
1988	N/A	0.527439E+00	N/A
1989	N/A	0.183782E+00	N/A
1990	N/A	0.842934E+00	N/A
1991	N/A	0.434123E+00	N/A
1992	N/A	0.440735E+00	N/A
1993	N/A	0.121075E+00	N/A
1994	N/A	0.100154E+00	N/A
1995	N/A	0.114328E+00	N/A
1996	N/A	0.974667E-01	N/A
1997	N/A	0.264016E+00	N/A
1998	N/A	0.112813E+00	N/A
1999	N/A	0.822418E-01	N/A
2000	N/A	0.143031E+00	N/A
2001	N/A	0.292418E+00	N/A
2002	N/A	0.136511E+00	N/A
2003	N/A	0.398650E+00	N/A
2004	N/A	0.299817E+00	N/A
2005	N/A	0.178610E+00	N/A

Survey Index: 14 Tag: spr_41 AGE = 6
Time = JAN-1 Type = NUMBER
Catchability = 0.160600E-03 % Variance Contribution = 0.0757
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.141600E+00	0.180570E+00	-0.243112E+00
1979	0.235500E+00	0.257761E+00	-0.903224E-01
1980	0.373700E+00	0.405362E+00	-0.813282E-01
1981	0.878600E+00	0.580313E+00	0.414763E+00
1982	N/A	0.953460E-01	N/A
1983	N/A	0.327105E+00	N/A
1984	N/A	0.189709E+00	N/A
1985	N/A	0.139623E+00	N/A
1986	N/A	0.258754E+00	N/A
1987	N/A	0.102817E+00	N/A
1988	N/A	0.834296E-01	N/A
1989	N/A	0.185204E+00	N/A
1990	N/A	0.922329E-01	N/A
1991	N/A	0.314653E+00	N/A
1992	N/A	0.119617E+00	N/A
1993	N/A	0.121178E+00	N/A
1994	N/A	0.285114E-01	N/A
1995	N/A	0.192207E-01	N/A
1996	N/A	0.451567E-01	N/A
1997	N/A	0.394026E-01	N/A
1998	N/A	0.862167E-01	N/A
1999	N/A	0.390594E-01	N/A
2000	N/A	0.335897E-01	N/A
2001	N/A	0.679460E-01	N/A
2002	N/A	0.136531E+00	N/A
2003	N/A	0.580264E-01	N/A
2004	N/A	0.195269E+00	N/A
2005	N/A	0.190571E+00	N/A

Survey Index: 15 Tag: spr_41 AGE = 7
 Time = JAN-1 Type = NUMBER
 Catchability = 0.224100E-03 % Variance Contribution = 0.3786
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.712300E+00	0.321378E+00	0.795882E+00
1979	0.836000E-01	0.179729E+00	-0.765405E+00
1980	0.185500E+00	0.201609E+00	-0.832737E-01
1981	0.258200E+00	0.244921E+00	0.527968E-01
1982	N/A	0.377878E+00	N/A
1983	N/A	0.519485E-01	N/A
1984	N/A	0.216349E+00	N/A
1985	N/A	0.112101E+00	N/A
1986	N/A	0.759697E-01	N/A
1987	N/A	0.168475E+00	N/A
1988	N/A	0.663643E-01	N/A
1989	N/A	0.458373E-01	N/A
1990	N/A	0.101886E+00	N/A
1991	N/A	0.589363E-01	N/A
1992	N/A	0.138857E+00	N/A
1993	N/A	0.547355E-01	N/A
1994	N/A	0.427308E-01	N/A
1995	N/A	0.131066E-01	N/A
1996	N/A	0.130366E-01	N/A
1997	N/A	0.266481E-01	N/A
1998	N/A	0.184521E-01	N/A
1999	N/A	0.504408E-01	N/A
2000	N/A	0.249543E-01	N/A
2001	N/A	0.231665E-01	N/A
2002	N/A	0.439644E-01	N/A
2003	N/A	0.888617E-01	N/A
2004	N/A	0.411483E-01	N/A
2005	N/A	0.176447E+00	N/A

Survey Index: 16 Tag: spr_41 AGE = 8
 Time = JAN-1 Type = NUMBER
 Catchability = 0.238894E-03 % Variance Contribution = 1.4326
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.651000E-01	0.160427E-01	0.140067E+01
1979	0.138600E+00	0.205917E+00	-0.395880E+00
1980	0.310000E-01	0.140219E+00	-0.150922E+01
1981	0.132100E+00	0.797687E-01	0.504428E+00
1982	N/A	0.123624E+00	N/A
1983	N/A	0.184328E+00	N/A
1984	N/A	0.248044E-01	N/A
1985	N/A	0.898235E-01	N/A
1986	N/A	0.507167E-01	N/A
1987	N/A	0.474989E-01	N/A
1988	N/A	0.886780E-01	N/A
1989	N/A	0.231196E-01	N/A
1990	N/A	0.222808E-01	N/A
1991	N/A	0.359644E-01	N/A
1992	N/A	0.242022E-01	N/A
1993	N/A	0.543980E-01	N/A
1994	N/A	0.134026E-01	N/A

1995	N/A	0.768066E-02	N/A
1996	N/A	0.581901E-02	N/A
1997	N/A	0.813571E-02	N/A
1998	N/A	0.510044E-02	N/A
1999	N/A	0.767435E-02	N/A
2000	N/A	0.183007E-01	N/A
2001	N/A	0.127009E-01	N/A
2002	N/A	0.104920E-01	N/A
2003	N/A	0.238885E-01	N/A
2004	N/A	0.511851E-01	N/A
2005	N/A	0.253215E-01	N/A

Survey Index: 17 Tag: sp_can AGE = 1
Time = JAN-1 Type = NUMBER
Catchability = 0.186510E-04 % Variance Contribution = 4.4226
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.516884E+00	N/A
1979	N/A	0.438550E+00	N/A
1980	N/A	0.374969E+00	N/A
1981	N/A	0.772010E+00	N/A
1982	N/A	0.325844E+00	N/A
1983	N/A	0.179325E+00	N/A
1984	N/A	0.510875E+00	N/A
1985	N/A	0.161691E+00	N/A
1986	0.600000E+00	0.797283E+00	-0.284280E+00
1987	0.250000E+00	0.305422E+00	-0.200234E+00
1988	0.280000E+00	0.437287E+00	-0.445799E+00
1989	0.163000E+01	0.292316E+00	0.171850E+01
1990	0.420000E+00	0.171286E+00	0.896919E+00
1991	0.118000E+01	0.332902E+00	0.126542E+01
1992	0.110000E+00	0.123860E+00	-0.118671E+00
1993	N/A	0.152625E+00	N/A
1994	N/A	0.979606E-01	N/A
1995	0.700000E-01	0.605747E-01	0.144618E+00
1996	0.140000E+00	0.110562E+00	0.236064E+00
1997	0.320000E+00	0.188298E+00	0.530297E+00
1998	0.100000E-01	0.853612E-01	-0.214431E+01
1999	0.330000E+00	0.238907E+00	0.323017E+00
2000	0.100000E+00	0.147860E+00	-0.391097E+00
2001	N/A	0.640858E-01	N/A
2002	0.100000E-01	0.625269E-01	-0.183301E+01
2003	N/A	0.425788E-01	N/A
2004	0.535600E+00	0.395766E+00	0.302563E+00
2005	N/A	0.193936E+00	N/A

Survey Index: 18 Tag: sp_can AGE = 2
Time = JAN-1 Type = NUMBER
Catchability = 0.773206E-04 % Variance Contribution = 5.3764
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.330010E+00	N/A
1979	N/A	0.175425E+01	N/A
1980	N/A	0.148613E+01	N/A
1981	N/A	0.126648E+01	N/A
1982	N/A	0.261844E+01	N/A

1983	N/A	0.108281E+01	N/A
1984	N/A	0.601104E+00	N/A
1985	N/A	0.172833E+01	N/A
1986	0.227000E+01	0.539431E+00	0.143702E+01
1987	0.213000E+01	0.269520E+01	-0.235350E+00
1988	0.101000E+01	0.103484E+01	-0.242922E-01
1989	0.278000E+01	0.148353E+01	0.628030E+00
1990	0.244000E+01	0.992168E+00	0.899861E+00
1991	0.116000E+01	0.580885E+00	0.691623E+00
1992	0.286000E+01	0.112629E+01	0.931894E+00
1993	N/A	0.415504E+00	N/A
1994	N/A	0.517755E+00	N/A
1995	0.670000E+00	0.332355E+00	0.701074E+00
1996	0.490000E+00	0.205594E+00	0.868503E+00
1997	0.530000E+00	0.375197E+00	0.345426E+00
1998	0.670000E+00	0.638904E+00	0.475229E-01
1999	0.320000E+00	0.289716E+00	0.994213E-01
2000	0.440000E+00	0.810752E+00	-0.611187E+00
2001	0.600000E-01	0.500883E+00	-0.212203E+01
2002	0.900000E-01	0.217513E+00	-0.882449E+00
2003	0.200000E-01	0.212227E+00	-0.236192E+01
2004	0.956000E-01	0.144506E+00	-0.413146E+00
2005	N/A	0.134330E+01	N/A

Survey Index: 19 Tag: sp can AGE = 3
Time = JAN-1 Type = NUMBER
Catchability = 0.231101E-03 % Variance Contribution = 1.2688
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.589907E+01	N/A
1979	N/A	0.725379E+00	N/A
1980	N/A	0.387687E+01	N/A
1981	N/A	0.284687E+01	N/A
1982	N/A	0.242898E+01	N/A
1983	N/A	0.449669E+01	N/A
1984	N/A	0.175348E+01	N/A
1985	N/A	0.119764E+01	N/A
1986	0.281000E+01	0.288562E+01	-0.265536E-01
1987	0.930000E+00	0.104275E+01	-0.114432E+00
1988	0.466000E+01	0.503268E+01	-0.769370E-01
1989	0.138000E+01	0.220255E+01	-0.467534E+00
1990	0.378000E+01	0.319368E+01	0.168552E+00
1991	0.184000E+01	0.139449E+01	0.277234E+00
1992	0.177000E+01	0.110258E+01	0.473330E+00
1993	N/A	0.188266E+01	N/A
1994	N/A	0.800760E+00	N/A
1995	0.150000E+01	0.118376E+01	0.236770E+00
1996	0.231000E+01	0.731326E+00	0.115014E+01
1997	0.550000E+00	0.459818E+00	0.179088E+00
1998	0.950000E+00	0.810025E+00	0.159397E+00
1999	0.149000E+01	0.140891E+01	0.559566E-01
2000	0.105000E+01	0.649359E+00	0.480559E+00
2001	0.640000E+00	0.182672E+01	-0.104881E+01
2002	0.570000E+00	0.108246E+01	-0.641353E+00
2003	0.300000E+00	0.521606E+00	-0.553130E+00
2004	0.392000E+00	0.504488E+00	-0.252282E+00
2005	N/A	0.347133E+00	N/A

Survey Index: 20 Tag: sp_can AGE = 4
 Time = JAN-1 Type = NUMBER
 Catchability = 0.387317E-03 % Variance Contribution = 1.7371
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.307788E+01	N/A
1979	N/A	0.537914E+01	N/A
1980	N/A	0.679926E+00	N/A
1981	N/A	0.327723E+01	N/A
1982	N/A	0.242709E+01	N/A
1983	N/A	0.199280E+01	N/A
1984	N/A	0.334445E+01	N/A
1985	N/A	0.120645E+01	N/A
1986	0.370000E+00	0.787189E+00	-0.754965E+00
1987	0.109000E+01	0.235689E+01	-0.771166E+00
1988	0.580000E+00	0.938079E+00	-0.480806E+00
1989	0.285000E+01	0.409429E+01	-0.362274E+00
1990	0.208000E+01	0.199823E+01	0.401073E-01
1991	0.215000E+01	0.261524E+01	-0.195887E+00
1992	0.800000E+00	0.776938E+00	0.292507E-01
1993	N/A	0.752422E+00	N/A
1994	N/A	0.109528E+01	N/A
1995	0.860000E+00	0.563975E+00	0.421922E+00
1996	0.402000E+01	0.125353E+01	0.116532E+01
1997	0.125000E+01	0.687036E+00	0.598512E+00
1998	0.350000E+00	0.407003E+00	-0.150887E+00
1999	0.109000E+01	0.695143E+00	0.449815E+00
2000	0.392000E+01	0.125793E+01	0.113662E+01
2001	0.420000E+00	0.650263E+00	-0.437122E+00
2002	0.205000E+01	0.167177E+01	0.203959E+00
2003	0.650000E+00	0.114642E+01	-0.567424E+00
2004	0.423200E+00	0.585709E+00	-0.324978E+00
2005	N/A	0.580444E+00	N/A

Survey Index: 21 Tag: sp can AGE = 5
 Time = JAN-1 Type = NUMBER
 Catchability = 0.614360E-03 % Variance Contribution = 1.6973
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.176790E+01	N/A
1979	N/A	0.271692E+01	N/A
1980	N/A	0.427850E+01	N/A
1981	N/A	0.605050E+00	N/A
1982	N/A	0.288630E+01	N/A
1983	N/A	0.160270E+01	N/A
1984	N/A	0.122271E+01	N/A
1985	N/A	0.248886E+01	N/A
1986	0.650000E+00	0.806306E+00	-0.215490E+00
1987	0.340000E+00	0.579247E+00	-0.532783E+00
1988	0.102000E+01	0.188176E+01	-0.612406E+00
1989	0.360000E+00	0.655686E+00	-0.599578E+00
1990	0.387000E+01	0.300737E+01	0.252190E+00
1991	0.105000E+01	0.154884E+01	-0.388713E+00
1992	0.980000E+00	0.157243E+01	-0.472823E+00
1993	N/A	0.431964E+00	N/A
1994	N/A	0.357321E+00	N/A

1995	0.600000E+00	0.407891E+00	0.385931E+00
1996	0.109000E+01	0.347736E+00	0.114249E+01
1997	0.123000E+01	0.941940E+00	0.266828E+00
1998	0.350000E+00	0.402487E+00	-0.139729E+00
1999	0.410000E+00	0.293417E+00	0.334563E+00
2000	0.171000E+01	0.510297E+00	0.120926E+01
2001	0.111000E+01	0.104327E+01	0.620006E-01
2002	0.680000E+00	0.487034E+00	0.333759E+00
2003	0.121000E+01	0.142228E+01	-0.161638E+00
2004	0.450900E+00	0.106967E+01	-0.863858E+00
2005	N/A	0.637232E+00	N/A

Survey Index: 22 Tag: sp_can AGE = 6
Time = JAN-1 Type = NUMBER
Catchability = 0.759648E-03 % Variance Contribution = 3.5100
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.854107E+00	N/A
1979	N/A	0.121923E+01	N/A
1980	N/A	0.191739E+01	N/A
1981	N/A	0.274492E+01	N/A
1982	N/A	0.450993E+00	N/A
1983	N/A	0.154723E+01	N/A
1984	N/A	0.897334E+00	N/A
1985	N/A	0.660427E+00	N/A
1986	0.440000E+00	0.122392E+01	-0.102304E+01
1987	0.120000E+00	0.486331E+00	-0.139940E+01
1988	0.130000E+00	0.394628E+00	-0.111041E+01
1989	0.420000E+00	0.876027E+00	-0.735142E+00
1990	0.420000E+00	0.436268E+00	-0.380013E-01
1991	0.131000E+01	0.148833E+01	-0.127626E+00
1992	0.600000E+00	0.565795E+00	0.586979E-01
1993	N/A	0.573181E+00	N/A
1994	N/A	0.134861E+00	N/A
1995	0.190000E+00	0.909152E-01	0.737097E+00
1996	0.790000E+00	0.213594E+00	0.130796E+01
1997	0.270000E+00	0.186377E+00	0.370652E+00
1998	0.280000E+00	0.407811E+00	-0.376013E+00
1999	0.260000E+00	0.184753E+00	0.341660E+00
2000	0.780000E+00	0.158881E+00	0.159114E+01
2001	0.520000E+00	0.321389E+00	0.481177E+00
2002	0.122000E+01	0.645801E+00	0.636115E+00
2003	0.320000E+00	0.274469E+00	0.153484E+00
2004	0.387600E+00	0.923635E+00	-0.868343E+00
2005	N/A	0.901415E+00	N/A

Survey Index: 23 Tag: sp_can AGE = 7
Time = JAN-1 Type = NUMBER
Catchability = 0.868003E-03 % Variance Contribution = 4.1565
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.124479E+01	N/A
1979	N/A	0.696141E+00	N/A
1980	N/A	0.780888E+00	N/A
1981	N/A	0.948651E+00	N/A
1982	N/A	0.146363E+01	N/A

1983	N/A	0.201212E+00	N/A
1984	N/A	0.837981E+00	N/A
1985	N/A	0.434200E+00	N/A
1986	0.260000E+00	0.294253E+00	-0.123757E+00
1987	0.220000E+00	0.652551E+00	-0.108726E+01
1988	0.800000E-01	0.257048E+00	-0.116724E+01
1989	0.500000E-01	0.177541E+00	-0.126718E+01
1990	0.930000E+00	0.394632E+00	0.857230E+00
1991	0.160000E+00	0.228277E+00	-0.355386E+00
1992	0.430000E+00	0.537833E+00	-0.223763E+00
1993	N/A	0.212006E+00	N/A
1994	N/A	0.165509E+00	N/A
1995	0.400000E-01	0.507656E-01	-0.238340E+00
1996	0.330000E+00	0.504947E-01	0.187722E+01
1997	0.600000E-01	0.103216E+00	-0.542476E+00
1998	0.700000E-01	0.714702E-01	-0.207852E-01
1999	0.150000E+00	0.195372E+00	-0.264270E+00
2000	0.400000E+00	0.966552E-01	0.142032E+01
2001	0.260000E+00	0.897305E-01	0.106387E+01
2002	0.400000E+00	0.170287E+00	0.853981E+00
2003	0.340000E+00	0.344187E+00	-0.122394E-01
2004	0.738000E-01	0.159379E+00	-0.769927E+00
2005	N/A	0.683430E+00	N/A

Survey Index: 24 Tag: sp can AGE = 8
Time = JAN-1 Type = NUMBER
Catchability = 0.107767E-02 % Variance Contribution = 3.8280
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	N/A	0.723701E-01	N/A
1979	N/A	0.928909E+00	N/A
1980	N/A	0.632541E+00	N/A
1981	N/A	0.359844E+00	N/A
1982	N/A	0.557678E+00	N/A
1983	N/A	0.831522E+00	N/A
1984	N/A	0.111895E+00	N/A
1985	N/A	0.405202E+00	N/A
1986	0.400000E-01	0.228788E+00	-0.174391E+01
1987	0.800000E-01	0.214272E+00	-0.985219E+00
1988	0.170000E+00	0.400035E+00	-0.855753E+00
1989	0.100000E+00	0.104295E+00	-0.420514E-01
1990	0.120000E+00	0.100511E+00	0.177229E+00
1991	0.220000E+00	0.162239E+00	0.304558E+00
1992	0.120000E+00	0.109178E+00	0.945094E-01
1993	N/A	0.245395E+00	N/A
1994	N/A	0.604602E-01	N/A
1995	0.500000E-01	0.346481E-01	0.366779E+00
1996	0.800000E-01	0.262501E-01	0.111436E+01
1997	0.300000E-01	0.367009E-01	-0.201605E+00
1998	0.200000E-01	0.230086E-01	-0.140134E+00
1999	0.100000E-01	0.346197E-01	-0.124184E+01
2000	0.240000E+00	0.825560E-01	0.106716E+01
2001	0.170000E+00	0.572948E-01	0.108759E+01
2002	0.170000E+00	0.473305E-01	0.127864E+01
2003	0.160000E+00	0.107763E+00	0.395238E+00
2004	0.117500E+00	0.230901E+00	-0.675550E+00
2005	N/A	0.114228E+00	N/A

Survey Index: 25 Tag: us0aut AGE = 1
 Time = JAN-1 Type = NUMBER
 Catchability = 0.129290E-04 % Variance Contribution = 9.9559
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.151600E+00	0.358307E+00	-0.860144E+00
1979	0.395300E+00	0.304005E+00	0.262602E+00
1980	0.114500E+00	0.259930E+00	-0.819838E+00
1981	0.279700E+00	0.535161E+00	-0.648850E+00
1982	0.261000E+00	0.225877E+00	0.144531E+00
1983	0.362000E+00	0.124309E+00	0.106887E+01
1984	0.128290E+01	0.354141E+00	0.128718E+01
1985	0.179100E+00	0.112085E+00	0.468688E+00
1986	0.100190E+01	0.552680E+00	0.594874E+00
1987	0.761000E-01	0.211720E+00	-0.102322E+01
1988	0.203700E+00	0.303129E+00	-0.397511E+00
1989	0.549500E+00	0.202634E+00	0.997605E+00
1990	0.250800E+00	0.118736E+00	0.747750E+00
1991	0.157100E+00	0.230769E+00	-0.384536E+00
1992	0.405000E-01	0.858603E-01	-0.751420E+00
1993	0.351000E-01	0.105800E+00	-0.110335E+01
1994	0.178400E+00	0.679068E-01	0.965893E+00
1995	0.668000E-01	0.419907E-01	0.464255E+00
1996	0.159900E+00	0.766422E-01	0.735400E+00
1997	0.216000E-01	0.130529E+00	-0.179890E+01
1998	0.640000E-02	0.591728E-01	-0.222416E+01
1999	0.701000E-01	0.165612E+00	-0.859722E+00
2000	0.701000E-01	0.102497E+00	-0.379914E+00
2001	0.195000E-01	0.444246E-01	-0.823378E+00
2002	0.280000E-01	0.433440E-01	-0.436963E+00
2003	0.234000E+00	0.295158E-01	0.207039E+01
2004	0.326900E+00	0.274347E+00	0.175260E+00
2005	0.168530E+01	0.134438E+00	0.252860E+01

Survey Index: 26 Tag: uslaut AGE = 2
 Time = JAN-1 Type = NUMBER
 Catchability = 0.607287E-04 % Variance Contribution = 3.7314
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.236800E+00	0.259194E+00	-0.903623E-01
1979	0.184540E+01	0.137781E+01	0.292197E+00
1980	0.162510E+01	0.116723E+01	0.330936E+00
1981	0.819900E+00	0.994712E+00	-0.193270E+00
1982	0.352500E+01	0.205656E+01	0.538845E+00
1983	0.577300E+00	0.850456E+00	-0.387410E+00
1984	0.849500E+00	0.472115E+00	0.587425E+00
1985	0.190910E+01	0.135745E+01	0.341021E+00
1986	0.181300E+00	0.423677E+00	-0.848818E+00
1987	0.227890E+01	0.211685E+01	0.737654E-01
1988	0.413700E+00	0.812774E+00	-0.675312E+00
1989	0.874700E+00	0.116518E+01	-0.286751E+00
1990	0.279840E+01	0.779263E+00	0.127845E+01
1991	0.363600E+00	0.456235E+00	-0.226954E+00
1992	0.407600E+00	0.884603E+00	-0.774852E+00
1993	0.412400E+00	0.326343E+00	0.234045E+00

1994	0.969900E+00	0.406652E+00	0.869235E+00
1995	0.405600E+00	0.261036E+00	0.440708E+00
1996	0.244700E+00	0.161476E+00	0.415675E+00
1997	0.239900E+00	0.294685E+00	-0.205684E+00
1998	0.236200E+00	0.501804E+00	-0.753532E+00
1999	0.335500E+00	0.227547E+00	0.388267E+00
2000	0.139700E+00	0.636776E+00	-0.151692E+01
2001	0.571000E+00	0.393400E+00	0.372561E+00
2002	0.470000E-01	0.170838E+00	-0.129057E+01
2003	0.478000E+00	0.166686E+00	0.105350E+01
2004	0.166300E+00	0.113497E+00	0.382019E+00
2005	0.744800E+00	0.105504E+01	-0.348221E+00

Survey Index: 27 Tag: us2aut AGE = 3
Time = JAN-1 Type = NUMBER
Catchability = 0.104068E-03 % Variance Contribution = 3.6038
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.343350E+01	0.265643E+01	0.256596E+00
1979	0.391200E+00	0.326648E+00	0.180336E+00
1980	0.167700E+01	0.174581E+01	-0.402105E-01
1981	0.563600E+00	0.128199E+01	-0.821821E+00
1982	0.225000E+01	0.109380E+01	0.721270E+00
1983	0.190950E+01	0.202492E+01	-0.586895E-01
1984	0.108930E+01	0.789617E+00	0.321742E+00
1985	0.681800E+00	0.539314E+00	0.234439E+00
1986	0.842600E+00	0.129943E+01	-0.433191E+00
1987	0.128500E+00	0.469565E+00	-0.129588E+01
1988	0.135280E+01	0.226629E+01	-0.515966E+00
1989	0.437000E+00	0.991841E+00	-0.819629E+00
1990	0.104640E+01	0.143816E+01	-0.318006E+00
1991	0.162440E+01	0.627960E+00	0.950417E+00
1992	0.175200E+00	0.496506E+00	-0.104167E+01
1993	0.948900E+00	0.847790E+00	0.112671E+00
1994	0.531600E+00	0.360593E+00	0.388140E+00
1995	0.664300E+00	0.533063E+00	0.220093E+00
1996	0.181060E+01	0.329326E+00	0.170436E+01
1997	0.195800E+00	0.207062E+00	-0.559259E-01
1998	0.320900E+00	0.364765E+00	-0.128125E+00
1999	0.102620E+01	0.634454E+00	0.480854E+00
2000	0.154200E+00	0.292415E+00	-0.639925E+00
2001	0.537800E+00	0.822597E+00	-0.424979E+00
2002	0.381000E+00	0.487446E+00	-0.246379E+00
2003	0.707000E+00	0.234886E+00	0.110193E+01
2004	0.309200E+00	0.227178E+00	0.308255E+00
2005	0.135800E+00	0.156319E+00	-0.140716E+00

Survey Index: 28 Tag: us3aut AGE = 4
Time = JAN-1 Type = NUMBER
Catchability = 0.124037E-03 % Variance Contribution = 5.2927
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.690800E+00	0.985685E+00	-0.355487E+00
1979	0.405770E+01	0.172266E+01	0.856747E+00
1980	0.162100E+00	0.217745E+00	-0.295111E+00
1981	0.773900E+00	0.104953E+01	-0.304651E+00

1982	0.155900E+01	0.777271E+00	0.696010E+00
1983	0.241800E+00	0.638191E+00	-0.970527E+00
1984	0.740200E+00	0.107105E+01	-0.369477E+00
1985	0.928700E+00	0.386362E+00	0.877012E+00
1986	0.667000E-01	0.252096E+00	-0.132960E+01
1987	0.329000E+00	0.754790E+00	-0.830381E+00
1988	0.108000E+00	0.300418E+00	-0.102304E+01
1989	0.903800E+00	0.131119E+01	-0.372080E+00
1990	0.161100E+00	0.639928E+00	-0.137933E+01
1991	0.181410E+01	0.837524E+00	0.772895E+00
1992	0.274200E+00	0.248813E+00	0.971570E-01
1993	0.174300E+00	0.240962E+00	-0.323859E+00
1994	0.382600E+00	0.350760E+00	0.868869E-01
1995	0.433400E+00	0.180612E+00	0.875311E+00
1996	0.124850E+01	0.401440E+00	0.113464E+01
1997	0.414400E+00	0.220022E+00	0.633105E+00
1998	0.109300E+00	0.130342E+00	-0.176063E+00
1999	0.351800E+00	0.222618E+00	0.457605E+00
2000	0.309600E+00	0.402849E+00	-0.263281E+00
2001	0.705000E-01	0.208245E+00	-0.108310E+01
2002	0.459000E+00	0.535380E+00	-0.153926E+00
2003	0.139600E+01	0.367138E+00	0.133563E+01
2004	0.200500E+00	0.187572E+00	0.666512E-01
2005	0.710100E+00	0.185886E+00	0.134027E+01

Survey Index: 29 Tag: us4aut AGE = 5
Time = JAN-1 Type = NUMBER
Catchability = 0.923788E-04 % Variance Contribution = 8.0197
Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.252800E+00	0.265832E+00	-0.502661E-01
1979	0.963600E+00	0.408531E+00	0.858107E+00
1980	0.168650E+01	0.643341E+00	0.963736E+00
1981	0.525000E-01	0.909789E-01	-0.549814E+00
1982	0.589000E+00	0.434001E+00	0.305379E+00
1983	0.678000E-01	0.240992E+00	-0.126820E+01
1984	0.691000E-01	0.183854E+00	-0.978585E+00
1985	0.825100E+00	0.374239E+00	0.790609E+00
1986	0.105500E+00	0.121241E+00	-0.139068E+00
1987	0.820000E-02	0.870990E-01	-0.236291E+01
1988	0.200300E+00	0.282953E+00	-0.345464E+00
1989	0.600000E-01	0.985928E-01	-0.496654E+00
1990	0.507100E+00	0.452205E+00	0.114572E+00
1991	0.412400E+00	0.232892E+00	0.571419E+00
1992	0.305000E-01	0.236439E+00	-0.204797E+01
1993	0.100000E+00	0.649526E-01	0.431512E+00
1994	0.165000E-01	0.537290E-01	-0.118059E+01
1995	0.153400E+00	0.613328E-01	0.916733E+00
1996	0.872000E-01	0.522876E-01	0.511446E+00
1997	0.143000E+00	0.141636E+00	0.958634E-02
1998	0.129200E+00	0.605203E-01	0.758383E+00
1999	0.411000E-01	0.441199E-01	-0.709025E-01
2000	0.254900E+00	0.767312E-01	0.120056E+01
2001	0.788000E-01	0.156872E+00	-0.688518E+00
2002	0.590000E-01	0.732333E-01	-0.216113E+00
2003	0.162700E+01	0.213862E+00	0.202916E+01
2004	0.155600E+00	0.160842E+00	-0.331314E-01
2005	0.252000E+00	0.958180E-01	0.966979E+00

Survey Index: 30 Tag: us5aut AGE = 6
 Time = JAN-1 Type = NUMBER
 Catchability = 0.107259E-03 % Variance Contribution = 5.0369
 Residual = LN(Observed) - LN(Predicted)

Year	Observed	Predicted	Residual
1978	0.173100E+00	0.120596E+00	0.361420E+00
1979	0.335500E+00	0.172150E+00	0.667257E+00
1980	0.320600E+00	0.270727E+00	0.169082E+00
1981	0.264800E+00	0.387571E+00	-0.380923E+00
1982	0.540000E-01	0.636783E-01	-0.164859E+00
1983	0.115200E+00	0.218462E+00	-0.639944E+00
1984	0.328000E-01	0.126700E+00	-0.135139E+01
1985	0.242000E-01	0.932495E-01	-0.134893E+01
1986	0.766000E-01	0.172813E+00	-0.813613E+00
1987	0.487000E-01	0.686679E-01	-0.343603E+00
1988	0.280000E-01	0.557198E-01	-0.688130E+00
1989	0.193700E+00	0.123691E+00	0.448521E+00
1990	0.547000E-01	0.615992E-01	-0.118785E+00
1991	0.285500E+00	0.210146E+00	0.306441E+00
1992	0.290000E-01	0.798879E-01	-0.101333E+01
1993	0.437000E-01	0.809308E-01	-0.616246E+00
1994	0.253000E-01	0.190418E-01	0.284168E+00
1995	0.679000E-01	0.128368E-01	0.166572E+01
1996	0.541000E-01	0.301586E-01	0.584365E+00
1997	0.597000E-01	0.263156E-01	0.819170E+00
1998	0.486000E-01	0.575811E-01	-0.169572E+00
1999	0.354000E-01	0.260864E-01	0.305298E+00
2000	0.871000E-01	0.224334E-01	0.135651E+01
2001	0.306000E-01	0.453788E-01	-0.394044E+00
2002	0.550000E-01	0.911843E-01	-0.505550E+00
2003	0.118000E+00	0.387538E-01	0.111346E+01
2004	0.824000E-01	0.130413E+00	-0.459124E+00
2005	0.321500E+00	0.127276E+00	0.926639E+00

Retrospective Summary

Average Fishing Mortality

Ages = 4 - 8

	1978	1979	1980	1981	1982
1996	0.5404	0.3468	0.4882	0.4654	0.6482
1997	0.5404	0.3468	0.4882	0.4654	0.6482
1998	0.5404	0.3468	0.4882	0.4654	0.6482
1999	0.5404	0.3469	0.4882	0.4654	0.6482
2000	0.5404	0.3469	0.4882	0.4654	0.6482
2001	0.5404	0.3469	0.4882	0.4654	0.6482
2002	0.5404	0.3469	0.4882	0.4654	0.6482
2003	0.5404	0.3469	0.4882	0.4654	0.6482
2004	0.5404	0.3469	0.4882	0.4654	0.6482
	1983	1984	1985	1986	1987
1996	0.5804	0.6437	0.7384	0.4900	0.4776
1997	0.5804	0.6437	0.7385	0.4901	0.4778
1998	0.5804	0.6438	0.7386	0.4902	0.4780
1999	0.5804	0.6438	0.7386	0.4903	0.4780
2000	0.5804	0.6438	0.7386	0.4903	0.4780
2001	0.5804	0.6438	0.7386	0.4903	0.4780
2002	0.5804	0.6438	0.7386	0.4903	0.4781
2003	0.5804	0.6438	0.7386	0.4903	0.4781
2004	0.5804	0.6438	0.7386	0.4903	0.4781
	1988	1989	1990	1991	1992
1996	0.7844	0.5940	0.6507	0.8323	0.7942
1997	0.7851	0.5950	0.6524	0.8371	0.7950
1998	0.7857	0.5958	0.6539	0.8408	0.8039
1999	0.7858	0.5960	0.6544	0.8420	0.8069
2000	0.7859	0.5961	0.6545	0.8424	0.8081
2001	0.7860	0.5962	0.6547	0.8429	0.8094
2002	0.7860	0.5962	0.6548	0.8431	0.8098
2003	0.7860	0.5962	0.6548	0.8432	0.8098
2004	0.7860	0.5962	0.6548	0.8432	0.8099
	1993	1994	1995	1996	1997
1996	1.0902	1.1886	0.4538	0.2157	
1997	1.1059	1.2918	0.4562	0.2649	0.3530
1998	1.1385	1.4130	0.5705	0.3727	0.5883
1999	1.1500	1.4532	0.6130	0.4166	0.7541
2000	1.1550	1.4719	0.6364	0.4392	0.8399
2001	1.1604	1.4883	0.6561	0.4557	0.9137
2002	1.1624	1.4963	0.6641	0.4638	0.9510
2003	1.1626	1.4972	0.6650	0.4649	0.9569
2004	1.1626	1.4973	0.6653	0.4651	0.9574

	1998	1999	2000	2001	2002
1996					
1997					
1998	0.3334				
1999	0.4924	0.3043			
2000	0.6107	0.4244	0.2638		
2001	0.7127	0.5542	0.4000	0.3788	
2002	0.8002	0.6656	0.5134	0.5181	0.4442
2003	0.8161	0.6911	0.5445	0.5741	0.5168
2004	0.8160	0.6909	0.5460	0.5756	0.5207

	2003	2004
1996		
1997		
1998		
1999		
2000		
2001		
2002		
2003	0.3874	
2004	0.3921	0.2361

Spawning Stock Biomass

	1978	1979	1980	1981	1982
1996	80640.	89513.	92773.	86624.	89856.
1997	80639.	89512.	92772.	86623.	89854.
1998	80639.	89512.	92772.	86622.	89853.
1999	80639.	89512.	92772.	86622.	89852.
2000	80639.	89512.	92772.	86622.	89852.
2001	80639.	89512.	92771.	86622.	89852.
2002	80639.	89512.	92771.	86621.	89852.
2003	80639.	89512.	92771.	86621.	89852.
2004	80639.	89512.	92771.	86621.	89852.

	1983	1984	1985	1986	1987
1996	78433.	67345.	55526.	57472.	68410.
1997	78430.	67340.	55521.	57453.	68366.
1998	78428.	67337.	55516.	57440.	68339.
1999	78427.	67336.	55514.	57435.	68331.
2000	78427.	67336.	55514.	57434.	68328.
2001	78427.	67335.	55513.	57432.	68326.
2002	78426.	67335.	55513.	57432.	68324.
2003	78426.	67335.	55513.	57432.	68324.
2004	78426.	67335.	55513.	57432.	68324.

	1988	1989	1990	1991	1992
1996	73848.	72262.	68530.	53108.	40960.
1997	73771.	72168.	68426.	52861.	40068.
1998	73725.	72094.	68313.	52633.	39521.

1999	73711.	72071.	68277.	52559.	39365.
2000	73707.	72064.	68265.	52533.	39304.
2001	73703.	72056.	68250.	52503.	39257.
2002	73700.	72053.	68245.	52491.	39233.
2003	73700.	72053.	68245.	52490.	39230.
2004	73700.	72053.	68245.	52490.	39229.

1993 1994 1995 1996 1997

1996	32966.	25262.	28239.	35078.	
1997	31066.	22225.	24004.	30055.	33363.
1998	29858.	20038.	19869.	23551.	26177.
1999	29554.	19491.	18584.	21239.	24274.
2000	29425.	19281.	18144.	20117.	21898.
2001	29335.	19072.	17471.	18863.	20114.
2002	29295.	19014.	17363.	18443.	18736.
2003	29290.	19005.	17346.	18400.	18507.
2004	29289.	19003.	17340.	18387.	18521.

1998 1999 2000 2001 2002

1996					
1997					
1998	27732.				
1999	27430.	30298.			
2000	23722.	25512.	25466.		
2001	21768.	24178.	26096.	28986.	
2002	19496.	21691.	24924.	31813.	28041.
2003	19073.	21107.	24089.	30860.	28061.
2004	19078.	21003.	23697.	30033.	27474.

2003 2004

1996		
1997		
1998		
1999		
2000		
2001		
2002		
2003	23087.	
2004	22987.	22564.

Total Population Numbers

1978 1979 1980 1981 1982

1996	71159.	71082.	69338.	85174.	75963.
1997	71158.	71082.	69337.	85172.	75961.
1998	71158.	71082.	69337.	85171.	75960.
1999	71158.	71082.	69336.	85171.	75960.
2000	71158.	71082.	69336.	85171.	75959.
2001	71158.	71082.	69336.	85171.	75959.
2002	71158.	71082.	69336.	85171.	75959.
2003	71158.	71082.	69336.	85171.	75959.
2004	71158.	71082.	69336.	85171.	75959.

	1983	1984	1985	1986	1987
1996	54256.	56350.	45390.	68014.	64634.
1997	54254.	56350.	45382.	67959.	64582.
1998	54253.	56346.	45376.	67932.	64554.
1999	54252.	56345.	45373.	67924.	64547.
2000	54252.	56345.	45372.	67922.	64544.
2001	54252.	56344.	45371.	67920.	64543.
2002	54252.	56344.	45370.	67919.	64541.
2003	54252.	56344.	45370.	67918.	64541.
2004	54252.	56344.	45370.	67918.	64541.

	1988	1989	1990	1991	1992
1996	65600.	57719.	47575.	45057.	35037.
1997	65542.	57794.	47358.	43862.	33524.
1998	65503.	57711.	47246.	43347.	32484.
1999	65492.	57682.	47204.	43203.	32289.
2000	65490.	57671.	47180.	43173.	32136.
2001	65485.	57657.	47157.	43149.	32116.
2002	65484.	57654.	47143.	43132.	32092.
2003	65483.	57654.	47142.	43129.	32088.
2004	65483.	57654.	47142.	43129.	32088.

	1993	1994	1995	1996	1997
1996	30919.	28346.	22779.	22709.	23740.
1997	28730.	26392.	21516.	22377.	23185.
1998	26707.	22575.	18555.	20319.	22625.
1999	26154.	20963.	17477.	20561.	25078.
2000	26096.	20293.	16526.	18577.	22799.
2001	25697.	19442.	15808.	17527.	22426.
2002	25665.	19340.	15060.	16194.	20980.
2003	25658.	19323.	15017.	15853.	20727.
2004	25656.	19313.	15005.	15930.	20662.

	1998	1999	2000	2001	2002
1996					
1997	17368.				
1998	18068.	22785.			
1999	21039.	22294.	22659.		
2000	18978.	20262.	18171.	14669.	
2001	19827.	23740.	21369.	16372.	10937.
2002	19031.	26961.	25657.	20600.	14650.
2003	18829.	26151.	26021.	21644.	16141.
2004	18714.	25438.	25713.	21810.	17087.

	2003	2004	2005		
1996					
1997					
1998					
1999					
2000					
2001					

2002	13642.			
2003	12894.	40314.		
2004	13448.	30220.	34081.	

Age 1 Population

	1978	1979	1980	1981	1982
1996	27714.	23514.	20105.	41395.	17471.
1997	27714.	23514.	20105.	41393.	17471.
1998	27713.	23513.	20105.	41393.	17471.
1999	27713.	23513.	20105.	41392.	17471.
2000	27713.	23513.	20105.	41392.	17471.
2001	27713.	23513.	20104.	41392.	17471.
2002	27713.	23513.	20104.	41392.	17471.
2003	27713.	23513.	20104.	41392.	17471.
2004	27713.	23513.	20104.	41392.	17471.
	1983	1984	1985	1986	1987
1996	9616.	27393.	8685.	42826.	16390.
1997	9615.	27395.	8677.	42777.	16383.
1998	9615.	27393.	8673.	42756.	16378.
1999	9615.	27392.	8672.	42750.	16377.
2000	9615.	27392.	8671.	42749.	16376.
2001	9615.	27391.	8670.	42748.	16376.
2002	9615.	27391.	8669.	42747.	16376.
2003	9615.	27391.	8669.	42747.	16376.
2004	9615.	27391.	8669.	42747.	16376.
	1988	1989	1990	1991	1992
1996	23486.	15643.	9563.	19423.	8012.
1997	23471.	15765.	9285.	18405.	7478.
1998	23454.	15715.	9240.	17982.	6858.
1999	23450.	15694.	9222.	17872.	6782.
2000	23449.	15685.	9207.	17862.	6653.
2001	23446.	15675.	9196.	17857.	6654.
2002	23446.	15673.	9185.	17850.	6643.
2003	23446.	15673.	9184.	17849.	6641.
2004	23446.	15673.	9184.	17849.	6641.
	1993	1994	1995	1996	1997
1996	11030.	9978.	3639.	6346.	7618.
1997	10082.	9815.	3968.	7046.	7343.
1998	8910.	7654.	4128.	7411.	8465.
1999	8517.	6495.	4369.	8535.	10720.
2000	8583.	5872.	3967.	7329.	10066.
2001	8201.	5347.	3946.	6867.	10553.
2002	8190.	5271.	3280.	6147.	10197.
2003	8186.	5260.	3251.	5841.	10224.
2004	8183.	5252.	3248.	5928.	10096.

	1998	1999	2000	2001	2002
1996					
1997	1169.				
1998	2325.	10684.			
1999	3286.	7768.	7444.		
2000	3091.	7420.	4626.	2467.	
2001	4244.	10202.	4976.	1556.	1651.
2002	4634.	14073.	6624.	2273.	1906.
2003	4640.	13429.	7650.	3019.	2541.
2004	4577.	12809.	7928.	3436.	3352.
	2003	2004	2005		
1996					
1997					
1998					
1999					
2000					
2001					
2002	4464.				
2003	2506.	31771.			
2004	2283.	21220.	10398.		

In the Retrospective Analysis
The Following Survey Indices Have Predicted
Index Value Set to Zero in Terminal Year + 1

--- None ---

Plus Group Diagnostic Report

Calculation Method Selected = Backward

Year	Population Backward	Population Forward	F Forward	F Backward	Ratio
1978	55.	55.	0.357261	0.357261	1.000000
1979	149.	115.	0.608523	0.433611	0.712563
1980	29.	58.	0.210783	0.483479	2.293732
1981	192.	279.	0.279688	0.437513	1.564290
1982	189.	385.	0.270101	0.650345	2.407783
1983	150.	310.	0.261847	0.639963	2.444036
1984	297.	295.	0.594380	0.590152	0.992887
1985	209.	324.	0.398449	0.706447	1.772992
1986	77.	196.	0.177569	0.534122	3.007966
1987	69.	194.	0.146344	0.482293	3.295608
1988	100.	192.	0.312576	0.722555	2.311616
1989	45.	157.	0.134713	0.567701	4.214138
1990	91.	171.	0.279681	0.613108	2.192170
1991	44.	124.	0.228322	0.840457	3.681023
1992	18.	96.	0.121488	0.904399	7.444325
1993	29.	90.	0.233378	0.985927	4.224600
1994	12.	75.	0.092100	0.835984	9.076949
1995	4.	82.	0.013544	0.356673	26.335142
1996	0.	70.	0.000100	0.215676	2156.755751
1997	14.	71.	N/A	N/A	