

**ASAP ALTERNATIVE RUN (F08 SVAge comp.REP)**

Age Structured Assessment Program (ASAP) Version 2.0  
 Start time for run: Fri Mar 28 11:36:11 2008

obj\_fun = 28952.5

Component	Lambda	obj_fun
__Catch_Fleet_1	10	2064.51
Catch_Fleet_Total	10	2064.51
Discard_Fleet_Total	0	0
__Index_Fit_1	1	92.1493
__Index_Fit_2	1	46.612
__Index_Fit_3	1	35.2325
__Index_Fit_4	1	114.635
__Index_Fit_5	1	161.785
__Index_Fit_6	1	6.96195
__Index_Fit_7	1	33.4007
__Index_Fit_8	1	41.3422
__Index_Fit_9	1	29.1583
__Index_Fit_10	1	47.2661
__Index_Fit_11	1	14.3711
__Index_Fit_12	1	79.8653
__Index_Fit_13	1	27.0557
Index_Fit_Total	13	729.835
Catch_Age_Comps	see_below	374.972
Discard_Age_Comps	see_below	0
Survey_Age_Comps	see_below	25688.1
__Sel_Param_1	1	0.865894
__Sel_Param_2	1	3.68963
__Sel_Param_3	1	1.0393
__Sel_Param_4	1	2.34366
Sel_Params_Total	4	7.93848
__Index_Sel_Param_1	1	0.943825
__Index_Sel_Param_2	1	1.1233
__Index_Sel_Param_3	1	0.907767
__Index_Sel_Param_4	1	1.99006
__Index_Sel_Param_5	1	0.199202
__Index_Sel_Param_6	1	6.51157
__Index_Sel_Param_9	1	0.461552
__Index_Sel_Param_10	1	0.168969
__Index_Sel_Param_17	1	0.168969
__Index_Sel_Param_18	1	0.486765
__Index_Sel_Param_25	1	0.696264
__Index_Sel_Param_26	1	0.323948
__Index_Sel_Param_27	1	0.168969
__Index_Sel_Param_31	1	0.889978
__Index_Sel_Param_32	1	3.65449
__Index_Sel_Param_35	1	0.168969
__Index_Sel_Param_36	1	0.668816
__Index_Sel_Param_41	1	0.885887
__Index_Sel_Param_42	1	1.93495
__Index_Sel_Param_43	1	2.55251
Index_Sel_Params_Total	20	24.9068
q_year1_Total	0	0
q_devs_Total	130000	0

__Fmult_year1_fleet_1	1	0.658164
Fmult_year1_fleet_Total	1	0.658164
Fmult_devs_fleet_Total	0	0
N_year_1	1	61.573
Recruit_devs	0	0
SRR_steepness	0	0
SRR_unexpl_stock	0	0
Fmult_Max_penalty	1000	0
F_penalty	0	0

Input and Estimated effective sample sizes for fleet 1

1982	31	23.5065
1983	33	24.0389
1984	43	13.3083
1985	379	170.647
1986	39	8.22219
1987	46	22.2347
1988	663	101.747
1989	92	332.309
1990	2270	117.262
1991	58	12.9326
1992	173	79.6955
1993	415	65.9631
1994	106	50.6206
1995	75	39.4668
1996	222	76.4549
1997	267	49.0351
1998	151	177.214
1999	187	281.54
2000	125	223.883
2001	215	203.151
2002	61	54.7536
2003	236	135.97
2004	139	172.464
2005	368	193.59
2006	194	98.8826
Total	6588	2728.89

Input and Estimated effective Discard sample sizes for fleet 1

1982	0	1e+15
1983	0	1e+15
1984	0	1e+15
1985	0	1e+15
1986	0	1e+15
1987	0	1e+15
1988	0	1e+15
1989	0	1e+15
1990	0	1e+15
1991	0	1e+15
1992	0	1e+15
1993	0	1e+15
1994	0	1e+15
1995	0	1e+15
1996	0	1e+15
1997	0	1e+15
1998	0	1e+15
1999	0	1e+15

2000	0	1e+15
2001	0	1e+15
2002	0	1e+15
2003	0	1e+15
2004	0	1e+15
2005	0	1e+15
2006	0	1e+15
Total	0	2.5e+16

Observed and predicted total fleet catch by year and standardized residual  
fleet 1 total catches

1982	18963	19195.4	-0.122109
1983	26466	25384.5	0.418271
1984	26057	24981.1	0.422708
1985	20432	19975.4	0.226549
1986	20866	21116.4	-0.119568
1987	18312	18546.2	-0.127383
1988	21761	20876.8	0.41585
1989	10314	9091.06	1.26525
1990	7976	7506.94	0.607599
1991	11316	10926.1	0.351494
1992	11805	12213.1	-0.340726
1993	10781	11630.2	-0.760129
1994	12182	11615.4	0.477441
1995	10495	9694.19	0.795698
1996	11643	12176.9	-0.449456
1997	10325	11128.2	-0.750974
1998	11641	12038.1	-0.336266
1999	10851	11082	-0.211188
2000	13756	14265.1	-0.364303
2001	11932	12220.1	-0.239148
2002	11308	11778.5	-0.40871
2003	12927	13369.7	-0.337545
2004	13832	14125	-0.210103
2005	13444	13611.2	-0.123878
2006	12853	12852.4	0.000429028

Observed and predicted total fleet Discards by year and standardized residual  
fleet 1 total Discards

1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0

2001 0 0 0  
2002 0 0 0  
2003 0 0 0  
2004 0 0 0  
2005 0 0 0  
2006 0 0 0

Index data

index number 1

units = 2

month = 1

starting and ending ages for selectivity = 2 8

selectivity choice = -1

year, obs index, pred index, standardized residual

1992 12.3 7.54009 3.07796  
1993 13.6 7.5266 3.72116  
1994 12.05 7.94022 2.62358  
1995 10.93 9.75436 0.715749  
1996 31.25 15.3005 4.49167  
1997 10.28 17.1287 -3.21123  
1998 7.76 17.7966 -5.22063  
1999 11.06 18.139 -3.11172  
2000 15.77 18.2803 -0.929082  
2001 18.6 17.2825 0.462099  
2002 22.68 19.1877 1.05174  
2003 35.64 21.965 3.04432  
2004 17.77 23.1879 -1.67382  
2005 12.89 24.5117 -4.04237  
2006 21.06 24.687 -0.999438

index number 2

units = 2

month = 1

starting and ending ages for selectivity = 2 8

selectivity choice = -1

year, obs index, pred index, standardized residual

1982 2.27 1.91575 0.816747  
1983 0.95 1.93498 -3.42444  
1984 0.66 1.95525 -5.22789  
1985 2.38 1.53323 2.11673  
1986 2.14 1.3136 2.34926  
1987 0.93 1.40755 -1.99492  
1988 1.5 1.4356 0.211244  
1989 0.32 0.645859 -3.3805  
1990 0.72 0.486179 1.89024  
1991 1.08 0.748915 1.76227  
1992 1.2 0.763812 2.17463  
1993 1.27 0.759139 2.47709  
1994 0.93 0.804313 0.698939  
1995 1.09 0.983287 0.495969  
1996 1.76 1.5628 0.572031  
1997 1.06 1.75865 -2.4371  
1998 1.19 1.79967 -1.9912  
1999 1.6 1.82963 -0.645577  
2000 2.14 1.84582 0.71187  
2001 2.69 1.73105 2.12197  
2002 2.47 1.93159 1.18358  
2003 2.91 2.20818 1.32851

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2004  3.03  2.33121  1.26204
2005  1.81  2.43755  -1.43288
2006  1.77  2.48776  -1.63861
index number 3
units = 2
month = 1
starting and ending ages for selectivity = 1 5
selectivity choice = -1
  year, obs index, pred index, standardized residual
1982  2.5  2.83958  -0.42046
1983  2.89  3.134  -0.267579
1984  2.08  3.09466  -1.31161
1985  1.9  2.32043  -0.659919
1986  1.44  2.56687  -1.90826
1987  0.9  2.50345  -3.37727
1988  0.89  1.90144  -2.50611
1989  0.57  0.889314  -1.46844
1990  0.89  1.12052  -0.760373
1991  1.7  1.45783  0.507342
1992  2.32  1.41421  1.6341
1993  1.07  1.41529  -0.923279
1994  1.53  1.52757  0.00525775
1995  2.4  1.8926  0.784102
1996  1.96  2.29038  -0.514251
1997  2.91  2.16618  0.974491
1998  4.51  2.1654  2.42209
1999  3.78  2.10084  1.93911
2000  3.19  2.01919  1.50973
2001  2.89  2.06634  1.10749
2002  2.55  2.28008  0.369349
2003  2.87  2.3916  0.60198
2004  4.07  2.48299  1.6314
2005  2.49  2.54735  -0.0751662
2006  2.77  2.23649  0.706268
index number 4
units = 2
month = 1
starting and ending ages for selectivity = 3 4
selectivity choice = -1
  year, obs index, pred index, standardized residual
1982  1.726  1.24583  1.56931
1983  1.049  1.38311  -1.33097
1984  0.145  0.930165  -8.94696
1985  1.296  1.15572  0.551437
1986  0.707  0.607022  0.73393
1987  0.653  0.674727  -0.157559
1988  1.128  0.909554  1.03615
1989  0.465  0.563767  -0.927141
1990  0.102  0.19859  -3.20725
1991  0.062  0.306259  -7.68898
1992  0.432  0.404173  0.320513
1993  0.557  0.374742  1.90782
1994  1.265  0.446179  5.01644
1995  1.355  0.503381  4.76661
1996  0.8  1.00688  -1.10716
1997  1.46  1.46212  -0.0069917
1998  1.871  1.50234  1.05636

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1999  1.99  1.36515  1.81417
2000  2.864  1.46892  3.21411
2001  1.756  1.24145  1.66919
2002  1.908  1.35371  1.65211
2003  2.064  1.62709  1.14496
2004  0.606  1.80873  -5.26384
2005  1.38  1.61231  -0.748946
2006  3.415  1.85697  2.93268
index number 5
units = 2
month = 1
starting and ending ages for selectivity = 3 4
selectivity choice = -1
  year, obs index, pred index, standardized residual
1982  1.682  1.1546  1.81109
1983  0.779  1.11461  -1.72453
1984  0.394  0.783503  -3.30908
1985  1.935  1.05004  2.94253
1986  0.893  0.481363  2.97472
1987  0.674  0.627016  0.347831
1988  0.435  0.811326  -3.00052
1989  0.333  0.490955  -1.86874
1990  0.011  0.147002  -12.4799
1991  0.294  0.288147  0.0968051
1992  0.186  0.371367  -3.32844
1993  0.508  0.334744  2.00789
1994  0.076  0.401853  -8.01658
1995  0.506  0.440068  0.672034
1996  1.396  0.931751  1.9462
1997  1.859  1.26955  1.83583
1998  0.852  1.141  -1.40596
1999  1.319  1.07479  0.985626
2000  2.797  1.15028  4.27722
2001  1.39  0.926286  1.95379
2002  1.48  1.08518  1.49369
2003  1.51  1.25529  0.889314
2004  1.591  1.38718  0.659915
2005  3.399  1.15449  5.19801
2006  4.304  1.51026  5.04126
index number 6
units = 2
month = 1
starting and ending ages for selectivity = 3 5
selectivity choice = -1
  year, obs index, pred index, standardized residual
1984  0.315  0.418658  -0.738427
1985  0.423  0.494647  -0.406154
1986  0.19  0.253925  -0.752793
1987  0.104  0.291746  -2.67744
1988  0.267  0.377594  -0.89959
1989  0.089  0.237528  -2.54806
1990  0.041  0.0863973  -1.93479
1991  0.246  0.134117  1.5746
1992  0.213  0.167657  0.621342
1993  0.184  0.156116  0.42657
1994  0.357  0.187551  1.6708
1995  0.076  0.21128  -2.65398

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1996  0.375  0.420964  -0.300115
1997  0.6  0.602624  -0.0113271
1998  1.213  0.641634  1.65303
1999  1.117  0.649477  1.40748
2000  1.324  0.680338  1.72827
2001  0.825  0.586594  0.885264
2002  1.962  0.655437  2.84596
2003  1.643  0.749426  2.03755
2004  1.422  0.870724  1.27317
2005  0.447  0.806745  -1.53263
2006  0.493  0.937668  -1.66874
index number 7
units = 2
month = 1
starting and ending ages for selectivity = 1 8
selectivity choice = -1
  year, obs index, pred index, standardized residual
1984  0.999  2.28158  -2.1437
1985  1.191  1.60968  -0.781933
1986  1.719  1.64716  0.110808
1987  1.401  1.70786  -0.514095
1988  1.42  1.53774  -0.206768
1989  0.14  0.633396  -3.91808
1990  0.87  0.649399  0.759102
1991  1.26  0.952706  0.725654
1992  1.02  0.927476  0.246827
1993  1.109  0.933631  0.446805
1994  0.55  0.97366  -1.48252
1995  0.541  1.2111  -2.09179
1996  2.191  1.71041  0.642762
1997  2.5  1.71748  0.97451
1998  1.719  1.71488  0.00622259
1999  2.68  1.72983  1.13637
2000  1.91  1.68011  0.332875
2001  4.417  1.65216  2.55254
2002  6.121  1.84153  3.11777
2003  3.388  2.05019  1.30384
2004  1.954  2.08166  -0.164273
2005  2.41  2.24897  0.179503
2006  1.316  2.11573  -1.23244
index number 8
units = 2
month = 1
starting and ending ages for selectivity = 3 4
selectivity choice = -1
  year, obs index, pred index, standardized residual
1982  0.59  0.828087  -0.87993
1983  0.53  0.788703  -1.03182
1984  0.59  0.556906  0.149842
1985  0.3  0.751753  -2.38447
1986  0.64  0.340038  1.64155
1987  0.39  0.44981  -0.370352
1988  0.24  0.579866  -2.28981
1989  0.07  0.350098  -4.17834
1990  0.12  0.103059  0.395037
1991  0.09  0.206938  -2.1612
1992  0.52  0.266142  1.73859

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1993  0.29  0.239277  0.499042
1994  0.03  0.287466 -5.86603
1995  0.2   0.313927 -1.17025
1996  1.04  0.668171  1.14842
1997  0.99  0.905061  0.232841
1998  0.45  0.802239 -1.50073
1999  2.26  0.758655  2.83339
2000  1.69  0.811475  1.90428
2001  0.93  0.64998  0.929889
2002  1.78  0.767453  2.18374
2003  2.57  0.884125  2.76977
2004  2.08  0.976386  1.96303
2005  2.07  0.806251  2.4475
2006  1.57  1.06968  0.996014
index number 9
units = 2
month = 1
starting and ending ages for selectivity = 1 8
selectivity choice = -1
  year, obs index, pred index, standardized residual
1990  0.29  0.27472  0.140505
1991  0.15  0.397241 -2.52797
1992  0.34  0.402362 -0.437131
1993  0.26  0.399074 -1.11216
1994  0.17  0.428745 -2.40118
1995  0.08  0.524055 -4.87879
1996  0.96  0.773908  0.559322
1997  0.73  0.847535 -0.387505
1998  0.43  0.863277 -1.80907
1999  0.9   0.868505  0.0924629
2000  2.61  0.876343  2.83281
2001  0.98  0.832595  0.423112
2002  2.03  0.928122  2.03146
2003  3.78  1.04224  3.34417
2004  2.17  1.10641  1.74848
2005  2.49  1.14161  2.02424
2006  1.32  1.15027  0.357257
index number 10
units = 2
month = 1
starting and ending ages for selectivity = 1 8
selectivity choice = -1
  year, obs index, pred index, standardized residual
1988  4.26  6.23688 -0.989507
1989  1.69  3.64041 -1.99185
1990  2.86  4.60006 -1.2336
1991  3.97  5.46561 -0.82987
1992  4.75  5.43199 -0.348242
1993  8.46  5.3459  1.19148
1994  2.83  6.04261 -1.96899
1995  8.37  7.37571  0.328257
1996  9.69  8.17946  0.439888
1997  16.35  7.95322  1.87059
1998  9.47  8.05435  0.420285
1999  11.44  7.64338  1.04678
2000  7.35  7.79363 -0.152124
2001  5.68  7.95066 -0.872944

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2002 16.84 8.77206 1.69287
2003 9.84 8.92621 0.252986
2004 10.66 9.91036 0.189271
2005 11.19 9.42065 0.446761
2006 10.65 8.75713 0.507956
index number 11
units = 2
month = 1
starting and ending ages for selectivity = 1 1
selectivity choice = -1
year, obs index, pred index, standardized residual
1986 0.32 0.321593 -0.0128915
1987 0.26 0.247873 0.123988
1988 0.01 0.0517732 -4.26807
1989 0.14 0.126369 0.265899
1990 0.36 0.188631 1.67763
1991 0.38 0.164607 2.17159
1992 0.37 0.174796 1.94647
1993 0.05 0.16301 -3.06756
1994 0.57 0.214904 2.53196
1995 0.3 0.25164 0.456276
1996 0.08 0.170399 -1.96264
1997 0.22 0.166241 0.727278
1998 0.39 0.172739 2.11384
1999 0.35 0.130116 2.56846
2000 0.21 0.166588 0.601119
2001 0.14 0.179157 -0.640156
2002 0.13 0.194362 -1.04395
2003 0.21 0.143261 0.992688
2004 0.27 0.230624 0.40917
2005 0.01 0.117019 -6.38476
2006 0.17 0.125215 0.793671
index number 12
units = 2
month = 1
starting and ending ages for selectivity = 1 1
selectivity choice = -1
year, obs index, pred index, standardized residual
1982 3.408 12.1543 -3.30058
1983 17.699 19.3591 -0.232713
1984 13.31 7.97112 1.33079
1985 12.843 14.1176 -0.245609
1986 59.526 14.3118 3.69972
1987 7.584 11.031 -0.972531
1988 1.763 2.30405 -0.694743
1989 2.855 5.62376 -1.7597
1990 4.733 8.39461 -1.48741
1991 7.337 7.32547 0.00408205
1992 8.487 7.7789 0.226139
1993 4.145 7.2544 -1.45283
1994 22.311 9.56384 2.19879
1995 13.067 11.1987 0.400496
1996 6.493 7.58322 -0.402886
1997 7.997 7.39821 0.202019
1998 14.983 7.68738 1.7322
1999 8.565 5.79051 1.01612
2000 9.874 7.41364 0.743885

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2001 13.543 7.973 1.37522
2002 5.406 8.64963 -1.22
2003 8.18 6.37553 0.64691
2004 6.993 10.2634 -0.995903
2005 2.198 5.20765 -2.239
2006 9.658 5.57243 1.42752
index number 13
units = 2
month = 1
starting and ending ages for selectivity = 1 1
selectivity choice = -1
year, obs index, pred index, standardized residual
1982 2.27 1.43516 1.19013
1983 5.01 2.28589 2.03679
1984 1.58 0.94122 1.34458
1985 1.26 1.66699 -0.726548
1986 1.26 1.68992 -0.762014
1987 0.39 1.30253 -3.13019
1988 0.54 0.272059 1.77948
1989 1.24 0.664046 1.62105
1990 2.54 0.991224 2.44249
1991 2.64 0.864982 2.89634
1992 0.89 0.918522 -0.0818803
1993 0.5 0.85659 -1.3974
1994 2.41 1.12929 1.96765
1995 0.63 1.32233 -1.92452
1996 0.81 0.895417 -0.260231
1997 0.89 0.873571 0.0483633
1998 0.73 0.907716 -0.565568
1999 0.53 0.683736 -0.66111
2000 0.57 0.875393 -1.11365
2001 0.47 0.941442 -1.80318
2002 0.77 1.02134 -0.733226
2003 0.44 0.752815 -1.394
2004 1.3 1.21189 0.182176
2005 0.35 0.614913 -1.4628
2006 0.8 0.657985 0.507276

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Input and Estimated effective sample sizes for index 1

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1992 100 118.621
1993 100 21.273
1994 100 8.3919
1995 100 70.7126
1996 100 3.73205
1997 100 17.5172
1998 100 955.085
1999 100 129.711
2000 100 24.3779
2001 100 41.3227
2002 100 33.9329
2003 100 1118.94
2004 100 49.8274
2005 100 230.662
2006 100 718.924

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Total 1500 3543.03

Input and Estimated effective sample sizes for index 2

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1982 200 51.6129

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1983	200	492.46
1984	200	5.42513
1985	200	111.26
1986	200	28.2404
1987	200	107.991
1988	200	131.313
1989	200	39.8793
1990	200	5.71901
1991	200	18.3413
1992	200	19.4127
1993	200	225.433
1994	200	19.172
1995	200	9.31537
1996	200	5.83828
1997	200	106.614
1998	200	2745.17
1999	200	39.8192
2000	200	50.9268
2001	200	34.6435
2002	200	27.118
2003	200	176.445
2004	200	88.7468
2005	200	44.076
2006	200	26.6085
Total	5000	4611.59

Input and Estimated effective sample sizes for index 3

1982	200	22.494
1983	200	39.9825
1984	200	124.415
1985	200	93.8825
1986	200	286.114
1987	200	25.506
1988	200	43.8008
1989	200	4.95657
1990	200	18.8502
1991	200	8.51814
1992	200	14.4996
1993	200	12.6568
1994	200	11.4063
1995	200	37.2978
1996	200	31.7089
1997	200	45.8043
1998	200	25.3096
1999	200	30.619
2000	200	39.2675
2001	200	21.8385
2002	200	21.2653
2003	200	47.0809
2004	200	38.8658
2005	200	401.613
2006	200	222.287
Total	5000	1670.04

Input and Estimated effective sample sizes for index 4

1982	100	107.977
1983	100	34.2916
1984	100	5.83164
1985	100	8.77213

1986	100	19.0612
1987	100	12.5322
1988	100	29.2407
1989	100	34607.8
1990	100	2.45753
1991	100	6.54163
1992	100	17.3549
1993	100	39.7699
1994	100	8.7098
1995	100	5.46338
1996	100	132.138
1997	100	16.7582
1998	100	33.3017
1999	100	7.7066
2000	100	284.199
2001	100	108.154
2002	100	10.4753
2003	100	19.1446
2004	100	20.3479
2005	100	4.99488
2006	100	99.5416
Total	2500	35642.6

Input and Estimated effective sample sizes for index 5

1982	100	26.4813
1983	100	6301.02
1984	100	4.66732
1985	100	22.8855
1986	100	490.263
1987	100	34.8278
1988	100	13.1016
1989	100	20.5499
1990	100	0.433317
1991	100	80.3202
1992	100	14.2691
1993	100	70.9197
1994	100	10.7228
1995	100	7.65234
1996	100	100.16
1997	100	24.4156
1998	100	147.934
1999	100	53.4174
2000	100	52.3684
2001	100	40.2889
2002	100	20.8741
2003	100	27.4651
2004	100	6.28849
2005	100	78.6932
2006	100	39.3887

Total 2500 7689.41

Input and Estimated effective sample sizes for index 6

1984	100	9.13474
1985	100	20.5963
1986	100	22.8604
1987	100	73.253
1988	100	265.783
1989	100	4.79719
1990	100	58.9697

1991	100	13.6972
1992	100	759.943
1993	100	25.6803
1994	100	36.2781
1995	100	18.1394
1996	100	4.18949
1997	100	20.8085
1998	100	95.9122
1999	100	132.763
2000	100	37.8285
2001	100	53.1015
2002	100	49.1044
2003	100	38.8114
2004	100	72.3484
2005	100	10.7314
2006	100	12.4136
Total	2300	1837.14

Input and Estimated effective sample sizes for index 7

1984	100	23.5731
1985	100	24.5881
1986	100	295.131
1987	100	20.4856
1988	100	98.9566
1989	100	17.2652
1990	100	28.0577
1991	100	93.5366
1992	100	44.9739
1993	100	22.3697
1994	100	13.7288
1995	100	47.3238
1996	100	14.6902
1997	100	46.4665
1998	100	6.9553
1999	100	14.1178
2000	100	77.6051
2001	100	10.2087
2002	100	22.811
2003	100	53.259
2004	100	54.7589
2005	100	48.8162
2006	100	132.062

Total 2300 1211.74

Input and Estimated effective sample sizes for index 8

1982	100	11.0587
1983	100	382.381
1984	100	174.553
1985	100	6823.36
1986	100	33599.3
1987	100	29080.3
1988	100	10.4817
1989	100	8.10245
1990	100	2.53957
1991	100	7.14768
1992	100	2.43217
1993	100	3.2546
1994	100	11.7998
1995	100	8.42092

1996	100	26.7721
1997	100	14.6238
1998	100	67.447
1999	100	49.8549
2000	100	76.8843
2001	100	80.2997
2002	100	158.454
2003	100	91.7159
2004	100	10.3535
2005	100	1880.05
2006	100	14.2005

Total 2500 72595.8

Input and Estimated effective sample sizes for index 9

1990	100	61.7963
1991	100	7.81849
1992	100	46.9289
1993	100	25.0137
1994	100	15.7169
1995	100	4.25525
1996	100	42.3328
1997	100	124.66
1998	100	22.7039
1999	100	311.244
2000	100	117.854
2001	100	18.2379
2002	100	21.649
2003	100	21.733
2004	100	79.7948
2005	100	49.0442
2006	100	44.3416

Total 1700 1015.12

Input and Estimated effective sample sizes for index 10

1988	100	15.9629
1989	100	9.63008
1990	100	27.4182
1991	100	9.8401
1992	100	7.73236
1993	100	8.41824
1994	100	19.669
1995	100	16.654
1996	100	40.1803
1997	100	10.6752
1998	100	4.79342
1999	100	11.8347
2000	100	7.16788
2001	100	6.8386
2002	100	7.87276
2003	100	8.6866
2004	100	3.80159
2005	100	11.1216
2006	100	5.62824

Total 1900 233.926

Input and Estimated effective sample sizes for index 11

1986	0	0
1987	0	0
1988	0	0
1989	0	0

1990 0 0  
1991 0 0  
1992 0 0  
1993 0 0  
1994 0 0  
1995 0 0  
1996 0 0  
1997 0 0  
1998 0 0  
1999 0 0  
2000 0 0  
2001 0 0  
2002 0 0  
2003 0 0  
2004 0 0  
2005 0 0  
2006 0 0  
Total 0 0

Input and Estimated effective sample sizes for index 12

1982 0 0  
1983 0 0  
1984 0 0  
1985 0 0  
1986 0 0  
1987 0 0  
1988 0 0  
1989 0 0  
1990 0 0  
1991 0 0  
1992 0 0  
1993 0 0  
1994 0 0  
1995 0 0  
1996 0 0  
1997 0 0  
1998 0 0  
1999 0 0  
2000 0 0  
2001 0 0  
2002 0 0  
2003 0 0  
2004 0 0  
2005 0 0  
2006 0 0  
Total 0 0

Input and Estimated effective sample sizes for index 13

1982 0 0  
1983 0 0  
1984 0 0  
1985 0 0  
1986 0 0  
1987 0 0  
1988 0 0  
1989 0 0  
1990 0 0  
1991 0 0  
1992 0 0

1993 0 0  
 1994 0 0  
 1995 0 0  
 1996 0 0  
 1997 0 0  
 1998 0 0  
 1999 0 0  
 2000 0 0  
 2001 0 0  
 2002 0 0  
 2003 0 0  
 2004 0 0  
 2005 0 0  
 2006 0 0  
 Total 0 0

Survey proportions at age by index

Index number 1  
 Year 1992 Obs = -1 0.581582 0.385385 0.027027 0.003003 0.001001 0.002002 0  
 Year 1992 Pred = -1 0.526066 0.414236 0.0536325 0.00346755 0.00212635  
 0.000405328 6.63787e-05  
 Year 1993 Obs = -1 0.478 0.493 0.023 0.004 0.001 0.001 0  
 Year 1993 Pred = -1 0.56015 0.36281 0.0692043 0.00706614 0.000441028  
 0.000269053 5.96403e-05  
 Year 1994 Obs = -1 0.311688 0.597403 0.0679321 0.021978 0 0 0.000999001  
 Year 1994 Pred = -1 0.499552 0.416628 0.0717824 0.0108515 0.00106977  
 6.6426e-05 4.94682e-05  
 Year 1995 Obs = -1 0.555 0.42 0.023 0.002 0 0 0  
 Year 1995 Pred = -1 0.540384 0.359103 0.0866966 0.0118912 0.00173584  
 0.000170247 1.84288e-05  
 Year 1996 Obs = -1 0.709 0.267 0.019 0.004 0.001 0 0  
 Year 1996 Pred = -1 0.416511 0.515979 0.0592757 0.00718042 0.000908248  
 0.00013147 1.42758e-05  
 Year 1997 Obs = -1 0.375 0.467 0.101 0.042 0.011 0.004 0  
 Year 1997 Pred = -1 0.252928 0.585266 0.151113 0.00947107 0.00106652  
 0.000133847 2.14578e-05  
 Year 1998 Obs = -1 0.216216 0.419419 0.295295 0.0540541 0.013013 0.001001  
 0.001001  
 Year 1998 Pred = -1 0.23927 0.420389 0.289355 0.0477964 0.0028274  
 0.000316232 4.60082e-05  
 Year 1999 Obs = -1 0.191191 0.434434 0.262262 0.0760761 0.025025 0.00500501  
 0.00600601  
 Year 1999 Pred = -1 0.244192 0.4109 0.22607 0.101867 0.0159164 0.000935299  
 0.000119724  
 Year 2000 Obs = -1 0.044044 0.413413 0.315315 0.159159 0.049049 0.011011  
 0.00800801  
 Year 2000 Pred = -1 0.182813 0.432864 0.246545 0.0919479 0.0393207 0.0061045  
 0.000404293  
 Year 2001 Obs = -1 0.165 0.287 0.345 0.131 0.043 0.02 0.009  
 Year 2001 Pred = -1 0.247326 0.341186 0.260826 0.0985928 0.0348261 0.0147959  
 0.00244707  
 Year 2002 Obs = -1 0.122 0.474 0.246 0.1 0.037 0.014 0.007  
 Year 2002 Pred = -1 0.240036 0.402623 0.196528 0.103884 0.0373384 0.0131066  
 0.00648377  
 Year 2003 Obs = -1 0.229 0.403 0.238 0.075 0.029 0.011 0.015  
 Year 2003 Pred = -1 0.22773 0.384238 0.240356 0.0830553 0.0418388 0.0149462  
 0.00783506



Year 2004 Obs = -1 0.082 0.488 0.257 0.092 0.035 0.023 0.023  
Year 2004 Pred = -1 0.159106 0.398477 0.258511 0.116053 0.0382669 0.0191611  
0.0104242  
Year 2005 Obs = -1 0.22977 0.312687 0.237762 0.103896 0.0539461 0.025974  
0.035964  
Year 2005 Pred = -1 0.242318 0.278297 0.268979 0.125439 0.0537445 0.0176153  
0.0136072  
Year 2006 Obs = -1 0.125 0.43 0.204 0.117 0.063 0.027 0.034  
Year 2006 Pred = -1 0.122069 0.444393 0.19618 0.136059 0.0605469 0.0257855  
0.0149668  
Index number 2  
Year 1982 Obs = -1 0.308 0.63 0.053 0.009 0 0 0  
Year 1982 Pred = -1 0.364832 0.543278 0.0557618 0.0216204 0.00698379  
0.00620704 0.00131655  
Year 1983 Obs = -1 0.336327 0.41018 0.199601 0.0319361 0.010978 0 0.010978  
Year 1983 Pred = -1 0.344348 0.438862 0.189591 0.0165956 0.00634841  
0.00204836 0.00220647  
Year 1984 Obs = -1 0.258 0.5 0.136 0.076 0 0.015 0.015  
Year 1984 Pred = -1 0.533872 0.323845 0.100436 0.0366616 0.00316524  
0.00120945 0.000810519  
Year 1985 Obs = -1 0.231231 0.655656 0.0880881 0.017017 0.00800801 0 0  
Year 1985 Pred = -1 0.279052 0.604579 0.0850175 0.0222218 0.00799992  
0.000689907 0.000440237  
Year 1986 Obs = -1 0.692 0.201 0.093 0.009 0.005 0 0  
Year 1986 Pred = -1 0.57459 0.272812 0.13141 0.0155396 0.0040056 0.0014404  
0.000203464  
Year 1987 Obs = -1 0.505 0.462 0.022 0.011 0 0 0  
Year 1987 Pred = -1 0.539631 0.402679 0.0393118 0.0158581 0.00184913  
0.000476103 0.00019537  
Year 1988 Obs = -1 0.4 0.54 0.047 0.013 0 0 0  
Year 1988 Pred = -1 0.413543 0.488949 0.0870301 0.0071714 0.00285325  
0.000332326 0.000120666  
Year 1989 Obs = -1 0.187812 0.718282 0.0629371 0.030969 0 0 0  
Year 1989 Pred = -1 0.188365 0.639815 0.147324 0.0218977 0.00177909  
0.000707032 0.00011224  
Year 1990 Obs = -1 0.875 0.042 0.083 0 0 0 0  
Year 1990 Pred = -1 0.61683 0.201671 0.148156 0.028646 0.00419883  
0.000340749 0.0001569  
Year 1991 Obs = -1 0.731 0.25 0 0.019 0 0 0  
Year 1991 Pred = -1 0.601254 0.352186 0.0265105 0.0164079 0.00312882  
0.000458092 5.42881e-05  
Year 1992 Obs = -1 0.642 0.342 0.008 0 0.008 0 0  
Year 1992 Pred = -1 0.508347 0.434368 0.0516098 0.00325111 0.00198408  
0.000377913 6.18817e-05  
Year 1993 Obs = -1 0.575 0.394 0.031 0 0 0 0  
Year 1993 Pred = -1 0.543641 0.3821 0.0668844 0.00665393 0.000413312  
0.000251948 5.5842e-05  
Year 1994 Obs = -1 0.376 0.57 0.043 0.011 0 0 0  
Year 1994 Pred = -1 0.482746 0.436895 0.069078 0.0101745 0.000998238  
6.19358e-05 4.61187e-05  
Year 1995 Obs = -1 0.725 0.248 0.018 0 0 0 0.009  
Year 1995 Pred = -1 0.524749 0.378406 0.0838368 0.0112038 0.00162766  
0.000159512 1.72647e-05  
Year 1996 Obs = -1 0.614 0.318 0.068 0 0 0 0  
Year 1996 Pred = -1 0.399172 0.536605 0.056571 0.00667684 0.000840508  
0.00012157 1.31992e-05  
Year 1997 Obs = -1 0.274 0.632 0.085 0.009 0 0 0

Year 1997 Pred = -1 0.24114 0.605504 0.14347 0.00876115 0.000981856  
0.000123125 1.97366e-05  
Year 1998 Obs = -1 0.227227 0.437437 0.269269 0.0500501 0.00800801  
0.00800801 0  
Year 1998 Pred = -1 0.231613 0.441587 0.278927 0.044891 0.00264281  
0.000295357 4.29659e-05  
Year 1999 Obs = -1 0.137862 0.462537 0.2997 0.0809191 0.012987 0.00599401 0  
Year 1999 Pred = -1 0.23698 0.43272 0.218478 0.0959183 0.0149152 0.000875785  
0.000112092  
Year 2000 Obs = -1 0.0890891 0.481481 0.294294 0.0560561 0.0700701  
0.00900901 0  
Year 2000 Pred = -1 0.177228 0.455372 0.238015 0.0864878 0.0368087  
0.00571006 0.000378124  
Year 2001 Obs = -1 0.178 0.331 0.379 0.074 0.019 0.015 0.004  
Year 2001 Pred = -1 0.241712 0.361834 0.253841 0.0934891 0.0328652 0.0139519  
0.00230721  
Year 2002 Obs = -1 0.138 0.36 0.3 0.126 0.04 0.012 0.024  
Year 2002 Pred = -1 0.233407 0.42484 0.190303 0.0980109 0.0350588 0.0122969  
0.00608244  
Year 2003 Obs = -1 0.185814 0.442557 0.202797 0.0999001 0.044955 0.020979  
0.002997  
Year 2003 Pred = -1 0.221742 0.405993 0.233059 0.0784662 0.0393379 0.0140418  
0.00736008  
Year 2004 Obs = -1 0.0988024 0.478044 0.280439 0.0888224 0.0169661  
0.0199601 0.0169661  
Year 2004 Pred = -1 0.154917 0.421022 0.250654 0.109637 0.0359781 0.018001  
0.00979193  
Year 2005 Obs = -1 0.144 0.359 0.32 0.083 0.055 0.028 0.011  
Year 2005 Pred = -1 0.238526 0.297268 0.263665 0.119804 0.0510844 0.0167303  
0.012922  
Year 2006 Obs = -1 0.022977 0.587413 0.135864 0.140859 0.0509491 0.033966  
0.027972  
Year 2006 Pred = -1 0.118575 0.468434 0.18977 0.128235 0.0567919 0.0241675  
0.014026  
Index number 3  
Year 1982 Obs = 0.22 0.608 0.16 0.012 0 -1 -1 -1  
Year 1982 Pred = 0.202524 0.487367 0.276398 0.0243867 0.00932384 -1 -1 -1  
Year 1983 Obs = 0.332 0.505 0.118 0.042 0.003 -1 -1 -1  
Year 1983 Pred = 0.292272 0.420969 0.20433 0.0758797 0.00654963 -1 -1 -1  
Year 1984 Obs = 0.0869131 0.667333 0.206793 0.033966 0.004995 -1 -1 -1  
Year 1984 Pred = 0.121873 0.667889 0.154296 0.0411351 0.0148064 -1 -1 -1  
Year 1985 Obs = 0.311 0.421 0.242 0.026 0 -1 -1 -1  
Year 1985 Pred = 0.287867 0.365089 0.301244 0.0364146 0.00938562 -1 -1 -1  
Year 1986 Obs = 0.271271 0.576577 0.0760761 0.0760761 0 -1 -1 -1  
Year 1986 Pred = 0.263811 0.582232 0.105281 0.0435932 0.00508332 -1 -1 -1  
Year 1987 Obs = 0.0780781 0.644645 0.222222 0.033033 0.022022 -1 -1 -1  
Year 1987 Pred = 0.208486 0.600756 0.17073 0.0143277 0.00569932 -1 -1 -1  
Year 1988 Obs = 0.067 0.697 0.202 0.034 0 -1 -1 -1  
Year 1988 Pred = 0.0573339 0.618228 0.278383 0.0425942 0.003461 -1 -1 -1  
Year 1989 Obs = 0.544 0.368 0.088 0 0 -1 -1 -1  
Year 1989 Pred = 0.299208 0.27087 0.3504 0.0693564 0.0101655 -1 -1 -1  
Year 1990 Obs = 0.494 0.427 0.034 0.045 0 -1 -1 -1  
Year 1990 Pred = 0.354471 0.529929 0.0659852 0.0416702 0.00794486 -1 -1 -1  
Year 1991 Obs = 0.447 0.494 0.053 0 0.006 -1 -1 -1  
Year 1991 Pred = 0.237756 0.611592 0.136435 0.00882828 0.005388 -1 -1 -1  
Year 1992 Obs = 0.427 0.448 0.108 0.013 0.004 -1 -1 -1  
Year 1992 Pred = 0.260259 0.543638 0.176912 0.018069 0.00112241 -1 -1 -1

Year 1993 Obs = 0.215 0.748 0.028 0.009 0 -1 -1 -1  
Year 1993 Pred = 0.242525 0.577384 0.154554 0.0232558 0.0022814 -1 -1 -1  
Year 1994 Obs = 0.48951 0.437562 0.0589411 0.00699301 0.00699301 -1 -1 -1  
Year 1994 Pred = 0.296233 0.503293 0.173472 0.0235774 0.00342441 -1 -1 -1  
Year 1995 Obs = 0.388 0.483 0.117 0.008 0.004 -1 -1 -1  
Year 1995 Pred = 0.279969 0.539821 0.148254 0.0282349 0.00372076 -1 -1 -1  
Year 1996 Obs = 0.056 0.633 0.291 0.02 0 -1 -1 -1  
Year 1996 Pred = 0.156656 0.539303 0.276108 0.0250219 0.00291215 -1 -1 -1  
Year 1997 Obs = 0.058 0.443 0.392 0.1 0.007 -1 -1 -1  
Year 1997 Pred = 0.161597 0.387644 0.370707 0.0755051 0.00454668 -1 -1 -1  
Year 1998 Obs = 0.0840841 0.472472 0.361361 0.0730731 0.00900901 -1 -1 -1  
Year 1998 Pred = 0.167974 0.381149 0.276757 0.150271 0.0238485 -1 -1 -1  
Year 1999 Obs = 0.0559441 0.457542 0.393606 0.0819181 0.010989 -1 -1 -1  
Year 1999 Pred = 0.130414 0.408658 0.284189 0.123342 0.0533974 -1 -1 -1  
Year 2000 Obs = 0.0690691 0.376376 0.382382 0.125125 0.047047 -1 -1 -1  
Year 2000 Pred = 0.173722 0.320789 0.31391 0.141041 0.0505374 -1 -1 -1  
Year 2001 Obs = 0.041958 0.470529 0.321678 0.127872 0.037962 -1 -1 -1  
Year 2001 Pred = 0.182566 0.400941 0.228582 0.137847 0.0500626 -1 -1 -1  
Year 2002 Obs = 0.024 0.459 0.337 0.137 0.043 -1 -1 -1  
Year 2002 Pred = 0.179493 0.391522 0.271405 0.104506 0.0530744 -1 -1 -1  
Year 2003 Obs = 0.063 0.456 0.359 0.087 0.035 -1 -1 -1  
Year 2003 Pred = 0.126133 0.405389 0.282678 0.13949 0.0463101 -1 -1 -1  
Year 2004 Obs = 0.088 0.366 0.337 0.162 0.047 -1 -1 -1  
Year 2004 Pred = 0.195577 0.287993 0.298084 0.152549 0.0657976 -1 -1 -1  
Year 2005 Obs = 0.064 0.458 0.217 0.189 0.072 -1 -1 -1  
Year 2005 Pred = 0.0967287 0.451936 0.214507 0.163549 0.0732797 -1 -1 -1  
Year 2006 Obs = 0.112112 0.26026 0.44044 0.126126 0.0610611 -1 -1 -1  
Year 2006 Pred = 0.117891 0.261163 0.392931 0.136836 0.091179 -1 -1 -1  
Index number 4  
Year 1982 Obs = -1 -1 0.918 0.082 -1 -1 -1 -1  
Year 1982 Pred = -1 -1 0.887604 0.112396 -1 -1 -1 -1  
Year 1983 Obs = -1 -1 0.571 0.429 -1 -1 -1 -1  
Year 1983 Pred = -1 -1 0.652325 0.347675 -1 -1 -1 -1  
Year 1984 Obs = -1 -1 0.538 0.462 -1 -1 -1 -1  
Year 1984 Pred = -1 -1 0.723262 0.276738 -1 -1 -1 -1  
Year 1985 Obs = -1 -1 0.972 0.028 -1 -1 -1 -1  
Year 1985 Pred = -1 -1 0.852159 0.147841 -1 -1 -1 -1  
Year 1986 Obs = -1 -1 0.738 0.262 -1 -1 -1 -1  
Year 1986 Pred = -1 -1 0.627247 0.372753 -1 -1 -1 -1  
Year 1987 Obs = -1 -1 0.98 0.02 -1 -1 -1 -1  
Year 1987 Pred = -1 -1 0.892504 0.107496 -1 -1 -1 -1  
Year 1988 Obs = -1 -1 0.891 0.109 -1 -1 -1 -1  
Year 1988 Pred = -1 -1 0.819944 0.180056 -1 -1 -1 -1  
Year 1989 Obs = -1 -1 0.781 0.219 -1 -1 -1 -1  
Year 1989 Pred = -1 -1 0.778769 0.221231 -1 -1 -1 -1  
Year 1990 Obs = -1 -1 0.206 0.794 -1 -1 -1 -1  
Year 1990 Pred = -1 -1 0.524563 0.475437 -1 -1 -1 -1  
Year 1991 Obs = -1 -1 0.806 0.194 -1 -1 -1 -1  
Year 1991 Pred = -1 -1 0.915024 0.0849761 -1 -1 -1 -1  
Year 1992 Obs = -1 -1 0.792 0.208 -1 -1 -1 -1  
Year 1992 Pred = -1 -1 0.872155 0.127845 -1 -1 -1 -1  
Year 1993 Obs = -1 -1 0.883 0.117 -1 -1 -1 -1  
Year 1993 Pred = -1 -1 0.822398 0.177602 -1 -1 -1 -1  
Year 1994 Obs = -1 -1 0.962 0.038 -1 -1 -1 -1  
Year 1994 Pred = -1 -1 0.836774 0.163226 -1 -1 -1 -1  
Year 1995 Obs = -1 -1 0.961 0.039 -1 -1 -1 -1  
Year 1995 Pred = -1 -1 0.785339 0.214661 -1 -1 -1 -1

Year 1996 Obs = -1 -1 0.857143 0.142857 -1 -1 -1 -1  
Year 1996 Pred = -1 -1 0.884906 0.115094 -1 -1 -1 -1  
Year 1997 Obs = -1 -1 0.876 0.124 -1 -1 -1 -1  
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Year 1986 Pred	=	-1	-1	0.626783	0.324061	0.0491556	-1	-1	-1
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Year 1989 Obs	=	-1	-1	0.55045	0.26973	0.17982	-1	-1	-1
Year 1989 Pred	=	-1	-1	0.772633	0.190958	0.036408	-1	-1	-1
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0.0165941 0.00902661  
Year 2005 Obs = 0.02 0.22 0.39 0.21 0.07 0.06 0.01 0.02  
Year 2005 Pred = 0.0214864 0.258824 0.285464 0.246868 0.111935 0.0477221  
0.015629 0.0120714  
Year 2006 Obs = 0 0.178218 0.356436 0.217822 0.168317 0.049505 0.019802  
0.00990099  
Year 2006 Pred = 0.0228183 0.130327 0.455641 0.179975 0.12136 0.053739  
0.0228681 0.0132718  
Index number 10  
Year 1988 Obs = 0.04 0.72 0.24 0 0 0 0 0  
Year 1988 Pred = 0.10567 0.551345 0.289759 0.0474307 0.00395567 0.00158734  
0.000185532 6.74548e-05  
Year 1989 Obs = 0.59 0.3 0.11 0 0 0 0 0  
Year 1989 Pred = 0.441879 0.193564 0.292246 0.061885 0.00930973 0.000762868  
0.000304239 4.83613e-05  
Year 1990 Obs = 0.45 0.5 0.04 0.01 0 0 0 0  
Year 1990 Pred = 0.521992 0.377602 0.0548761 0.0370746 0.00725516 0.00107257  
8.73483e-05 4.02734e-05  
Year 1991 Obs = 0.25 0.68 0.07 0 0 0 0 0  
Year 1991 Pred = 0.383375 0.477187 0.124244 0.00860076 0.00538763 0.00103619  
0.000152242 1.8066e-05  
Year 1992 Obs = 0.232323 0.636364 0.121212 0.010101 0 0 0 0  
Year 1992 Pred = 0.409624 0.414023 0.157251 0.0171824 0.00109549 0.000674296  
0.000128886 2.11326e-05  
Year 1993 Obs = 0.30303 0.676768 0.020202 0 0 0 0 0  
Year 1993 Pred = 0.388157 0.447146 0.139696 0.0224879 0.00226428 0.000141854  
8.67762e-05 1.92586e-05  
Year 1994 Obs = 0.584158 0.376238 0.029703 0 0.00990099 0 0 0  
Year 1994 Pred = 0.452725 0.372182 0.149722 0.0217703 0.00324537 0.000321142  
1.99954e-05 1.49087e-05  
Year 1995 Obs = 0.59 0.35 0.03 0.01 0.02 0 0 0  
Year 1995 Pred = 0.434301 0.405195 0.12988 0.0264628 0.00357924 0.00052445  
5.15772e-05 5.58983e-06  
Year 1996 Obs = 0.168317 0.524752 0.277228 0.019802 0.00990099 0 0 0  
Year 1996 Pred = 0.265189 0.441749 0.263962 0.0255916 0.00305704 0.000388137  
5.6337e-05 6.12476e-06  
Year 1997 Obs = 0.10101 0.505051 0.323232 0.0606061 0.010101 0 0 0  
Year 1997 Pred = 0.266079 0.308847 0.344716 0.075114 0.00464246 0.000524746  
6.60348e-05 1.05992e-05  
Year 1998 Obs = 0.0707071 0.616162 0.282828 0.030303 0 0 0 0  
Year 1998 Pred = 0.273007 0.299752 0.254031 0.147563 0.0240365 0.00142722  
0.000160065 2.33157e-05  
Year 1999 Obs = 0.09 0.53 0.3 0.06 0.01 0.01 0 0

Year 1999 Pred = 0.2167 0.328569 0.266682 0.123826 0.0550212 0.00862921  
 0.000508468 6.51653e-05  
 Year 2000 Obs = 0.128713 0.524752 0.247525 0.0594059 0.019802 0.00990099  
 0.00990099 0  
 Year 2000 Pred = 0.272094 0.243119 0.277666 0.133468 0.0490856 0.0210699  
 0.00328003 0.000217493  
 Year 2001 Obs = 0.11 0.58 0.21 0.07 0.02 0.01 0 0  
 Year 2001 Pred = 0.286844 0.304817 0.202825 0.130855 0.0487771 0.0172944  
 0.0073676 0.00121998  
 Year 2002 Obs = 0.09 0.54 0.25 0.08 0.03 0.01 0 0  
 Year 2002 Pred = 0.282048 0.29769 0.24085 0.0992163 0.0517175 0.0186584  
 0.00656743 0.00325277  
 Year 2003 Obs = 0.0594059 0.564356 0.257426 0.0594059 0.019802 0.019802  
 0.00990099 0.00990099  
 Year 2003 Pred = 0.204304 0.317726 0.258579 0.136508 0.0465158 0.0235203  
 0.00842519 0.00442194  
 Year 2004 Obs = 0.0808081 0.59596 0.232323 0.0505051 0.020202 0.010101  
 0.010101 0  
 Year 2004 Pred = 0.29623 0.21107 0.254979 0.139602 0.0618014 0.0204548  
 0.0102701 0.005594  
 Year 2005 Obs = 0.277228 0.534653 0.108911 0.049505 0.019802 0.00990099 0 0  
 Year 2005 Pred = 0.15812 0.357473 0.198029 0.161528 0.0742837 0.0319465  
 0.0104994 0.00812017  
 Year 2006 Obs = 0.0792079 0.534653 0.29703 0.049505 0.019802 0.00990099  
 0.00990099 0  
 Year 2006 Pred = 0.182016 0.195109 0.342611 0.127644 0.0872978 0.0389939  
 0.016652 0.00967701  
 Index number 11  
 N/A  
 Index number 12  
 N/A  
 Index number 13  
 N/A

Index Selectivity at Age

0.0612985 0.308279 0.752582 0.95406 0.993013 0.998989 0.999871 1  
 0.0384494 0.319544 0.846508 0.984796 0.998688 0.999889 0.999991 1  
 0.340174 0.99113 0.999959 1 1 1 1 1  
 0 0 0.696733 0.999999 0 0 0 0  
 0 0 0.999999 0.68619 0 0 0 0  
 0 0 0.615634 0.768747 1 0 0 0  
 0.0603079 0.675801 0.985445 0.999545 0.999986 1 1 1  
 0 0 1 0.623561 0 0 0 0  
 0.0494111 0.37117 0.870175 0.987033 0.998845 0.999899 0.999992 1  
 0.540556 0.762086 0.897378 0.960081 0.98541 0.995068 0.998669 1  
 1 0 0 0 0 0 0 0  
 1 0 0 0 0 0 0 0  
 1 0 0 0 0 0 0 0

Deviations section: only applicable if associated lambda > 0

Nyear1 observed, expected, standardized residual

2 41325.1 26197.7 0.591731  
 3 23229.6 12015.3 0.855858  
 4 2049.47 3640.42 -0.745861  
 5 783.58 1079.1 -0.415446  
 6 252.807 319.652 -0.304574  
 7 224.667 94.6859 1.12174

8 47.6525 39.8523 0.232067

Fleet Obs, Initial, and Standardized Residual for Fmult

1 1.01667 1 0.0214614

Standardized Residuals for Fmult\_devs by fleet and year

N/A

Index Obs, Initial, and Standardized Residual for q\_year1

N/A

Standardized Residuals for catchability deviations by index and year

index 1 q\_devs standardized residuals

2 0

3 0

4 0

5 0

6 0

7 0

8 0

9 0

10 0

11 0

12 0

13 0

14 0

15 0

index 2 q\_devs standardized residuals

2 0

3 0

4 0

5 0

6 0

7 0

8 0

9 0

10 0

11 0

12 0

13 0

14 0

15 0

16 0

17 0

18 0

19 0

20 0

21 0

22 0

23 0

24 0

25 0

index 3 q\_devs standardized residuals

2 0

3 0

4 0

5 0

6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0  
14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0  
21 0  
22 0  
23 0  
24 0  
25 0

index 4 q\_devs standardized residuals

2 0  
3 0  
4 0  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0  
14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0  
21 0  
22 0  
23 0  
24 0  
25 0

index 5 q\_devs standardized residuals

2 0  
3 0  
4 0  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0

13 0  
14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0  
21 0  
22 0  
23 0  
24 0  
25 0

index 6 q\_devs standardized residuals

2 0  
3 0  
4 0  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0  
14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0  
21 0  
22 0  
23 0

index 7 q\_devs standardized residuals

2 0  
3 0  
4 0  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0  
14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0  
21 0

22 0  
23 0  
index 8 q\_devs standardized residuals

2 0  
3 0  
4 0  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0  
14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0  
21 0  
22 0  
23 0  
24 0  
25 0

index 9 q\_devs standardized residuals

2 0  
3 0  
4 0  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0  
14 0  
15 0  
16 0  
17 0

index 10 q\_devs standardized residuals

2 0  
3 0  
4 0  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0

14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
index 11 q\_devs standardized residuals  
2 0  
3 0  
4 0  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0  
14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0  
21 0  
index 12 q\_devs standardized residuals  
2 0  
3 0  
4 0  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0  
14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0  
21 0  
22 0  
23 0  
24 0  
25 0  
index 13 q\_devs standardized residuals  
2 0  
3 0  
4 0  
5 0

6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0  
13 0  
14 0  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0  
21 0  
22 0  
23 0  
24 0  
25 0

Obs, Initial, and Standardized Residual for SRR steepness  
N/A

Obs, Initial, and Standardized Residual for SRR unexpl S  
N/A

End of Deviations Section

Selectivity by age and year for each fleet

fleet 1 selectivity at age

0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0383937	0.569993	0.977781	0.999316	0.999979	0.999999	1	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1
0.0119196	0.149396	0.718876	0.973843	0.998159	0.999874	0.999992	1



Fmult by year for each fleet

1982 1.01667  
1983 1.44772  
1984 1.56668  
1985 1.66922  
1986 1.86084  
1987 1.49672  
1988 1.994  
1989 1.73682  
1990 1.58354  
1991 1.89415  
1992 1.86993  
1993 1.6404  
1994 1.43306  
1995 1.93142  
1996 1.60304  
1997 0.978431  
1998 0.888182  
1999 0.751541  
2000 0.834523  
2001 0.673641  
2002 0.581336  
2003 0.527712  
2004 0.521252  
2005 0.52825  
2006 0.428633

Directed F by age and year for each fleet

fleet 1 directed F at age  
0.0390337 0.579494 0.99408 1.01597 1.01665 1.01667 1.01667 1.01667  
0.0555832 0.825188 1.41555 1.44673 1.44769 1.44772 1.44772 1.44772  
0.0601505 0.892994 1.53187 1.5656 1.56664 1.56668 1.56668 1.56668  
0.0640874 0.951441 1.63213 1.66807 1.66918 1.66922 1.66922 1.66922  
0.0714446 1.06067 1.8195 1.85957 1.8608 1.86084 1.86084 1.86084  
0.0574648 0.853122 1.46347 1.4957 1.49669 1.49672 1.49672 1.49672  
0.076557 1.13656 1.94969 1.99263 1.99396 1.994 1.994 1.994  
0.066683 0.989975 1.69823 1.73563 1.73679 1.73682 1.73682 1.73682  
0.0607982 0.902609 1.54836 1.58246 1.58351 1.58354 1.58354 1.58354  
0.0727236 1.07965 1.85207 1.89286 1.89411 1.89415 1.89415 1.89415  
0.0717935 1.06584 1.82838 1.86865 1.86989 1.86993 1.86993 1.86993  
0.0629812 0.935019 1.60396 1.63928 1.64037 1.6404 1.6404 1.6404  
0.0550206 0.816835 1.40122 1.43208 1.43303 1.43306 1.43306 1.43306  
0.0230218 0.288547 1.38845 1.8809 1.92786 1.93118 1.9314 1.93142  
0.0191077 0.239489 1.15239 1.56111 1.60009 1.60284 1.60303 1.60304  
0.0116625 0.146174 0.703371 0.952839 0.97663 0.978308 0.978423 0.978431  
0.0105868 0.132691 0.638492 0.86495 0.886547 0.88807 0.888174 0.888182  
0.00895809 0.112278 0.540265 0.731883 0.750157 0.751446 0.751535 0.751541  
0.00994721 0.124675 0.599919 0.812695 0.832987 0.834418 0.834517 0.834523  
0.00802956 0.10064 0.484265 0.656021 0.672401 0.673556 0.673636 0.673641  
0.00692931 0.0868496 0.417909 0.56613 0.580266 0.581263 0.581331 0.581336  
0.00629014 0.0788384 0.37936 0.513909 0.526741 0.527646 0.527708 0.527712  
0.00621313 0.0778732 0.374716 0.507618 0.520292 0.521186 0.521248 0.521252  
0.00629654 0.0789186 0.379746 0.514432 0.527277 0.528183 0.528245 0.52825  
0.00510914 0.0640362 0.308134 0.417421 0.427844 0.428579 0.428629 0.428633

Discard F by age and year for each fleet

fleet 1 Discard F at age  
0 0 0 0 0 0 0 0



1985	1.65646	1.6369	1.64029
1986	1.84662	1.83221	1.83712
1987	1.48529	1.46688	1.46951
1988	1.97876	1.9558	1.9592
1989	1.72355	1.70518	1.7078
1990	1.57144	1.56307	1.56709
1991	1.87968	1.85596	1.85952
1992	1.85564	1.83233	1.83471
1993	1.62787	1.60898	1.61237
1994	1.42211	1.40539	1.40842
1995	1.73241	1.47674	1.51053
1996	1.43786	1.19031	1.21094
1997	0.877613	0.747913	0.757708
1998	0.796663	0.727086	0.74853
1999	0.674102	0.615854	0.63962
2000	0.748534	0.682587	0.710033
2001	0.604229	0.563724	0.580894
2002	0.521435	0.474103	0.489852
2003	0.473337	0.43399	0.449618
2004	0.467542	0.43252	0.448102
2005	0.473818	0.452504	0.466889
2006	0.384466	0.349794	0.364892

Population Numbers at the Start of the Year

50033.9	41325.1	23229.6	2049.47	783.58	252.807	224.667	47.6525
79692.8	39396.1	18953.3	7038.16	607.506	232.113	74.8854	80.6651
32813.6	61719.3	14132.5	3767.55	1356.11	116.942	44.6793	29.9418
58115.9	25297.2	20689	2500.81	644.565	231.767	19.9854	12.7527
45915.4	44627.6	7998.48	3311.74	386.176	99.4241	35.7488	5.04967
45409.9	44909.9	12650.4	1061.58	422.277	49.1802	12.6614	5.19556
9484.77	35102.2	15666.7	2397	194.768	77.3985	9.0139	3.27287
23150.6	7193.16	9223	1825.48	267.558	21.7118	8.62764	1.36961
34556.9	17731.4	2188.37	1381.91	263.477	38.573	3.13	1.44122
30155.8	26623.9	5886.88	380.905	232.47	44.2764	6.48187	0.768155
32022.3	22957.7	7405	756.281	46.9785	28.6355	5.45373	0.893017
29863.2	24401.4	6474.08	974.117	95.5611	5.92869	3.61366	0.800927
39370.1	22957.5	7843	1065.93	154.818	15.1711	0.941199	0.700831
46100.1	30507.9	8304.6	1581.54	208.413	30.2415	2.96339	0.320738
31216.8	36884.6	18717.1	1696.15	197.404	24.8202	3.58959	0.389728
30455.2	25074.4	23767.2	4840.66	291.489	32.6278	4.09113	0.655788
31645.6	24645.5	17737.4	9630.49	1528.39	89.8708	10.0428	1.46093
23837	25636.4	17670.6	7668.97	3320.07	515.647	30.2744	3.87481
30518.7	19342	18760.1	8428.66	3020.13	1283.8	199.134	13.1866
32821.4	24739.3	13979.7	8430.16	3061.62	1074.99	456.306	75.4582
35606.7	26657	18315.6	7052.21	3581.54	1279.59	448.77	221.975
26245.3	28951	20009.4	9873.4	3277.93	1641.36	585.833	307.064
42249.9	21353.1	21906.2	11210.4	4835.26	1584.82	792.853	431.282
21437.6	34377.1	16172.7	12330.2	5524.67	2352.88	770.5	595.106
22939.2	17441.5	26009.7	9057.35	6035.26	2669.65	1135.94	659.252

q by index

index 1 q over time	
1992	0.000560461
1993	0.000560461
1994	0.000560461
1995	0.000560461
1996	0.000560461

1997 0.000560461  
1998 0.000560461  
1999 0.000560461  
2000 0.000560461  
2001 0.000560461  
2002 0.000560461  
2003 0.000560461  
2004 0.000560461  
2005 0.000560461  
2006 0.000560461

index 2 q over time

1982 5.29284e-05  
1983 5.29284e-05  
1984 5.29284e-05  
1985 5.29284e-05  
1986 5.29284e-05  
1987 5.29284e-05  
1988 5.29284e-05  
1989 5.29284e-05  
1990 5.29284e-05  
1991 5.29284e-05  
1992 5.29284e-05  
1993 5.29284e-05  
1994 5.29284e-05  
1995 5.29284e-05  
1996 5.29284e-05  
1997 5.29284e-05  
1998 5.29284e-05  
1999 5.29284e-05  
2000 5.29284e-05  
2001 5.29284e-05  
2002 5.29284e-05  
2003 5.29284e-05  
2004 5.29284e-05  
2005 5.29284e-05  
2006 5.29284e-05

index 3 q over time

1982 3.37882e-05  
1983 3.37882e-05  
1984 3.37882e-05  
1985 3.37882e-05  
1986 3.37882e-05  
1987 3.37882e-05  
1988 3.37882e-05  
1989 3.37882e-05  
1990 3.37882e-05  
1991 3.37882e-05  
1992 3.37882e-05  
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1997 3.37882e-05  
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index 4 q over time

1982 6.83234e-05  
1983 6.83234e-05  
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2006 6.83234e-05

index 5 q over time

1982 4.68664e-05  
1983 4.68664e-05  
1984 4.68664e-05  
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2006 4.68664e-05

index 6 q over time

1984 3.23216e-05  
1985 3.23216e-05  
1986 3.23216e-05  
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2006 3.23216e-05

index 7 q over time

1984 3.62562e-05  
1985 3.62562e-05  
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index 8 q over time

1982 3.37891e-05  
1983 3.37891e-05  
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2006 3.37891e-05

index 9 q over time

1990 2.31569e-05  
1991 2.31569e-05  
1992 2.31569e-05  
1993 2.31569e-05  
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2002 2.31569e-05  
2003 2.31569e-05  
2004 2.31569e-05  
2005 2.31569e-05  
2006 2.31569e-05

index 10 q over time

1988 0.000128544  
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2004 0.000128544  
2005 0.000128544  
2006 0.000128544

index 11 q over time

1986 5.45856e-06

1987 5.45856e-06  
1988 5.45856e-06  
1989 5.45856e-06  
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2002 5.45856e-06  
2003 5.45856e-06  
2004 5.45856e-06  
2005 5.45856e-06  
2006 5.45856e-06

index 12 q over time

1982 0.000242921  
1983 0.000242921  
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2005 0.000242921  
2006 0.000242921

index 13 q over time

1982 2.86838e-05  
1983 2.86838e-05  
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 2003 2.86838e-05  
 2004 2.86838e-05  
 2005 2.86838e-05  
 2006 2.86838e-05

Proportions of catch at age by fleet  
 fleet 1

Year 1 Obs = 0.146845 0.533716 0.27888 0.0256925 0.00901297 0.00318751  
 0.00184106 0.000824357  
 Year 1 Pred = 0.0513598 0.491732 0.398533 0.0356207 0.0136243 0.00439569  
 0.0039064 0.00082856  
 Year 2 Obs = 0.103612 0.598342 0.229546 0.0458839 0.0145793 0.00679528  
 0.000336608 0.000904635  
 Year 2 Pred = 0.0903823 0.4702 0.307665 0.115427 0.00996629 0.00380791  
 0.00122853 0.00132334  
 Year 3 Obs = 0.0942382 0.521666 0.303281 0.0624068 0.0162689 0.00186435  
 7.84991e-05 0.000196248  
 Year 3 Pred = 0.0351405 0.677824 0.208033 0.0559939 0.0201605 0.00173852  
 0.000664228 0.000445131  
 Year 4 Obs = 0.0558107 0.392743 0.482878 0.0474579 0.0133215 0.00676819  
 0.000805737 0.000214863  
 Year 4 Pred = 0.0918882 0.401264 0.434567 0.0530069 0.0136659 0.0049139  
 0.000423727 0.000270382  
 Year 5 Obs = 0.0563748 0.497562 0.320918 0.109789 0.00917325 0.0040641  
 0.0016837 0.000435439  
 Year 5 Pred = 0.0924713 0.674898 0.156781 0.0654444 0.00763323 0.00196525  
 0.000706623 9.98135e-05  
 Year 6 Obs = 0.0361216 0.546812 0.344315 0.0523557 0.0172825 0.000794231  
 0.000921308 0.00139785  
 Year 6 Pred = 0.0636797 0.655715 0.249685 0.021163 0.00842079 0.000980731  
 0.000252487 0.000103608  
 Year 7 Obs = 0.0204602 0.529056 0.374768 0.0549979 0.016574 0.00311406  
 0.000488985 0.000540457  
 Year 7 Pred = 0.0169801 0.589054 0.336018 0.0517995 0.00420993 0.00167299  
 0.000194837 7.07438e-05  
 Year 8 Obs = 0.063287 0.315776 0.48164 0.111543 0.0232711 0.00362582  
 0.000593315 0.000263696  
 Year 8 Pred = 0.0956689 0.293961 0.495269 0.0988857 0.0144974 0.00117644  
 0.000467484 7.42115e-05  
 Year 9 Obs = 0.131557 0.624327 0.155018 0.0705274 0.0156649 0.00212645  
 0.000567054 0.000212645  
 Year 9 Pred = 0.12849 0.67366 0.111213 0.0709001 0.0135217 0.0019796  
 0.000160635 7.39647e-05  
 Year 10 Obs = 0.0470108 0.570563 0.335697 0.0348471 0.0101911 0.00150284  
 0.000140891 4.69638e-05

Year 10 Pred = 0.0824055 0.696157 0.198802 0.0129663 0.00791536 0.00150757  
 0.000220702 2.6155e-05  
 Year 11 Obs = 0.0686058 0.561535 0.302207 0.0564193 0.00757272 0.00351053  
 0.000100301 5.01505e-05  
 Year 11 Pred = 0.0900669 0.620978 0.259357 0.0267036 0.00165917 0.00101135  
 0.000192614 3.15395e-05  
 Year 12 Obs = 0.0682494 0.596718 0.297482 0.0300616 0.0038772 0.00239006  
 0.00106225 0.000159337  
 Year 12 Pred = 0.079083 0.652267 0.229935 0.0349171 0.00342633 0.000212574  
 0.000129568 2.87174e-05  
 Year 13 Obs = 0.0809769 0.51226 0.345857 0.0485466 0.0101345 0.00128535  
 0.00069211 0.000247182  
 Year 13 Pred = 0.0954296 0.587489 0.273478 0.0375545 0.00545618 0.000534675  
 3.31706e-05 2.46993e-05  
 Year 14 Obs = 0.0383395 0.377437 0.472962 0.0802409 0.0257108 0.00498672  
 0.000259051 6.47626e-05  
 Year 14 Pred = 0.0628503 0.460095 0.381638 0.0826585 0.0109896 0.0015956  
 0.000156361 1.69236e-05  
 Year 15 Obs = 0.00868307 0.371174 0.497293 0.0956745 0.0223509 0.00380554  
 0.000857587 0.000160798  
 Year 15 Pred = 0.0256037 0.341667 0.56519 0.0595162 0.00700105 0.000880909  
 0.000127407 1.38328e-05  
 Year 16 Obs = 0.00206925 0.175541 0.554973 0.217202 0.0381432 0.011036  
 0.000758725 0.0002759  
 Year 16 Pred = 0.0184486 0.178549 0.634345 0.157775 0.00964452 0.00108068  
 0.000135514 2.17223e-05  
 Year 17 Obs = 0.00299222 0.148481 0.42423 0.348627 0.0651639 0.00917614  
 0.00126338 6.64938e-05  
 Year 17 Pred = 0.0180279 0.166009 0.457522 0.305855 0.0493113 0.00290272  
 0.000324395 4.71899e-05  
 Year 18 Obs = 0.0127178 0.153527 0.439854 0.282322 0.0815767 0.0251546  
 0.00386453 0.000983699  
 Year 18 Pred = 0.0129023 0.165534 0.451615 0.244462 0.107641 0.0167375  
 0.000982765 0.000125784  
 Year 19 Obs = 0.00135811 0.0949441 0.49182 0.288289 0.0943885 0.0228409  
 0.00456818 0.00179023  
 Year 19 Pred = 0.0163637 0.123053 0.462971 0.25739 0.0937349 0.0398898  
 0.00618787 0.000409764  
 Year 20 Obs = 0.000832829 0.218655 0.360388 0.282935 0.0978952 0.0274833  
 0.00931254 0.00249849  
 Year 20 Pred = 0.0181602 0.164124 0.374195 0.283605 0.104831 0.0368531  
 0.0156445 0.00258711  
 Year 21 Obs = 0.0218685 0.0912526 0.435038 0.308651 0.104679 0.0256472  
 0.0108538 0.00200997  
 Year 21 Pred = 0.0171921 0.155254 0.440431 0.215136 0.111299 0.0398153  
 0.013965 0.00690753  
 Year 22 Obs = 0.019559 0.119544 0.372829 0.30222 0.119242 0.0425162  
 0.0175955 0.00649449  
 Year 22 Pred = 0.0108833 0.145323 0.420349 0.264599 0.0895318 0.0448906  
 0.0160237 0.00839888  
 Year 23 Obs = 0.00730276 0.0718673 0.386841 0.319956 0.130153 0.0524843  
 0.020748 0.010647  
 Year 23 Pred = 0.0159763 0.0977808 0.420512 0.274708 0.120769 0.0396359  
 0.0198308 0.0107873  
 Year 24 Obs = 0.0172803 0.13655 0.262167 0.285301 0.155593 0.0739879  
 0.0359712 0.03315

Year 24 Pred = 0.00805196 0.156292 0.30768 0.299232 0.136646 0.0582727  
 0.0190843 0.0147401  
 Year 25 Obs = 0.0148916 0.0835802 0.395291 0.255419 0.140028 0.067753  
 0.0290036 0.014034  
 Year 25 Pred = 0.00783156 0.0725494 0.464405 0.208487 0.141728 0.0627791  
 0.0267152 0.0155045

Proportions of Discards at age by fleet  
 fleet 1

Year 1 Obs = 0 0 0 0 0 0 0 0  
 Year 1 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 2 Obs = 0 0 0 0 0 0 0 0  
 Year 2 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 3 Obs = 0 0 0 0 0 0 0 0  
 Year 3 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 4 Obs = 0 0 0 0 0 0 0 0  
 Year 4 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 5 Obs = 0 0 0 0 0 0 0 0  
 Year 5 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 6 Obs = 0 0 0 0 0 0 0 0  
 Year 6 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 7 Obs = 0 0 0 0 0 0 0 0  
 Year 7 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 8 Obs = 0 0 0 0 0 0 0 0  
 Year 8 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 9 Obs = 0 0 0 0 0 0 0 0  
 Year 9 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 10 Obs = 0 0 0 0 0 0 0 0  
 Year 10 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 11 Obs = 0 0 0 0 0 0 0 0  
 Year 11 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 12 Obs = 0 0 0 0 0 0 0 0  
 Year 12 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 13 Obs = 0 0 0 0 0 0 0 0  
 Year 13 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 14 Obs = 0 0 0 0 0 0 0 0  
 Year 14 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 15 Obs = 0 0 0 0 0 0 0 0  
 Year 15 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 16 Obs = 0 0 0 0 0 0 0 0  
 Year 16 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 17 Obs = 0 0 0 0 0 0 0 0  
 Year 17 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 18 Obs = 0 0 0 0 0 0 0 0  
 Year 18 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 19 Obs = 0 0 0 0 0 0 0 0  
 Year 19 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 20 Obs = 0 0 0 0 0 0 0 0  
 Year 20 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 21 Obs = 0 0 0 0 0 0 0 0  
 Year 21 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 22 Obs = 0 0 0 0 0 0 0 0  
 Year 22 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 23 Obs = 0 0 0 0 0 0 0 0  
 Year 23 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15  
 Year 24 Obs = 0 0 0 0 0 0 0 0  
 Year 24 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15

Year 25 Obs = 0 0 0 0 0 0 0 0  
 Year 25 Pred = 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15 1e-15

F Reference Points Using Final Year Selectivity and Freport options

refpt	F	slope to plot on SRR				
F0.1	0.150496	0.314039				
Fmax	0.280941	0.506466				
F30%SPR	0.23454	0.436015				
F40%SPR	0.159777	0.327007				
Fmsy	0.280937	0.506459	SSBmsy	65694.7	MSY	16712.6
Fcurrent	0.384466	0.666036				

Stock-Recruitment Relationship Parameters

alpha = 33271.7  
 beta = 0.0171332  
 unexpl = 269444  
 steepness = 1

Spawning Stock, Obs Recruits(year+1), Pred Recruits(year+1), standardized residual

Year	SS	Obs	Pred	Residual
init	xxxx	50033.9	33271.7	0.863699
1982	23028.1	79692.8	33271.7	1.84909
1983	20985.5	32813.6	33271.7	-0.0293473
1984	17756.9	58115.9	33271.7	1.18068
1985	14902.8	58915.4	33271.7	1.20961
1986	15047.3	45409.9	33271.7	0.658417
1987	15983.6	9484.77	33271.7	-2.6568
1988	9224.05	23150.6	33271.6	-0.767785
1989	5408.63	34556.9	33271.6	0.0802391
1990	7480.19	30155.8	33271.6	-0.208157
1991	7347.33	32022.3	33271.6	-0.0810195
1992	8459.78	29863.2	33271.6	-0.228796
1993	9320.08	39370.1	33271.6	0.356284
1994	12162.4	46100.1	33271.7	0.690353
1995	18524.2	31216.8	33271.7	-0.134955
1996	20952.1	30455.2	33271.7	-0.187244
1997	21391.5	31645.6	33271.7	-0.106076
1998	23275	23837	33271.7	-0.70593
1999	23246.8	30518.7	33271.7	-0.182834
2000	24171.5	32821.4	33271.7	-0.028848
2001	28086.2	35606.7	33271.7	0.143588
2002	32456.5	26245.3	33271.7	-0.502181
2003	36786.4	42249.9	33271.7	0.505727
2004	37365.9	21437.6	33271.7	-0.930519
2005	37693.1	22939.2	33271.7	-0.7872
2006	39173.3	xxxx	33271.7	

Root Mean Square Error computed from Standardized Residuals

Component	#resids	RMSE
_Catch_Fleet_1	25	0.478577
Catch_Fleet_Total	25	0.478577
_Discard_Fleet_1	0	0
Discard_Fleet_Total	0	0
_Index_1	15	2.9409
_Index_2	25	2.08431
_Index_3	25	1.39818
_Index_4	25	3.27278
_Index_5	25	3.85238

_Index_6	23	1.61452
_Index_7	23	1.49045
_Index_8	25	2.15759
_Index_9	17	2.05723
_Index_10	19	1.07253
_Index_11	21	2.24145
_Index_12	25	1.50986
_Index_13	25	1.52569
Index_Total	293	2.23831
Nyear1	7	0.677861
Fmult_Year1	1	0.0214614
_Fmult_devs_Fleet_1	0	0
Fmult_devs_Total	0	0
Recruit_devs	0	0
Fleet_Sel_params	4	1.71411
Index_Sel_params	68	0.728852
q_year1	0	0
q_devs	0	0
SRR_steepness	0	0
SRR_unexpl_S	0	0

Projections not requested

that's all