ASAP BASE RUN (F08_BASE_T5.REP)

```
Age Structured Assessment Program (ASAP) Version 2.0
Start time for run: Thu Mar 20 13:54:36 2008

obj_fun       = 2432.1
```

Component	Lambda	obj_fun
__Catch_Fleet_1	10	2043.75
Catch_Fleet_Total	10	2043.75
Discard_Fleet_Total	0	0
__Index_Fit_1	1	60.3058
__Index_Fit_2	1	41.137
__Index_Fit_3	1	29.3885
__Index_Fit_4	1	24.6812
__Index_Fit_5	1	1.52122
__Index_Fit_6	1	18.1862
__Index_Fit_7	1	2.50131
__Index_Fit_8	1	-6.82516
__Index_Fit_9	1	-49.274
__Index_Fit_10	1	-36.0871
__Index_Fit_11	1	11.1283
__Index_Fit_12	1	-7.49735
__Index_Fit_13	1	-37.3766
__Index_Fit_14	1	26.59
__Index_Fit_15	1	-16.7199
__Index_Fit_16	1	10.2498
__Index_Fit_17	1	-24.5756
__Index_Fit_18	1	-5.86537
__Index_Fit_19	1	-33.9867
__Index_Fit_20	1	-46.5534
__Index_Fit_21	1	16.2196
__Index_Fit_22	1	-1.02528
__Index_Fit_23	1	-36.1572
__Index_Fit_24	1	-48.7597
__Index_Fit_25	1	9.03927
__Index_Fit_26	1	-12.5549
__Index_Fit_27	1	3.06733
__Index_Fit_28	1	9.92303
__Index_Fit_29	1	43.3967
__Index_Fit_30	1	29.4228
__Index_Fit_31	1	-4.5913
__Index_Fit_32	1	-10.0133
__Index_Fit_33	1	-21.8198
__Index_Fit_34	1	19.6959
__Index_Fit_35	1	73.8095
__Index_Fit_36	1	19.844
__Index_Fit_37	1	-2.64469
__Index_Fit_38	1	-4.71552
__Index_Fit_39	1	-31.8191
Index_Fit_Total	39	11.2457
Catch_Age_Comps	see_below	308.56
Discard_Age_Comps	see_below	0
Survey_Age_Comps	see_below	0
__Sel_Param_1	1	0.863394
__Sel_Param_2	1	3.3608

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__Sel_Param_3                    1          1.03693
__Sel_Param_4                    1          2.20092
Sel_Params_Total                 4          7.46205
Index_Sel_Params_Total           0          0
q_year1_Total                    0          0
q_devs_Total                     390000         0
__Fmult_year1_fleet_1            1          0.659681
Fmult_year1_fleet_Total          1          0.659681
Fmult_devs_fleet_Total           0          0
N_year_1                         1          60.4297
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   28.7442
1983   33   23.4986
1984   43   15.9284
1985   379   521.988
1986   39   30.8231
1987   46   24.0466
1988   663   3022.23
1989   92   422.065
1990   2270   2540.09
1991   58   35.5184
1992   173   610.607
1993   415   226.366
1994   106   74.3798
1995   75   147.862
1996   222   65.0925
1997   267   240.79
1998   151   245.995
1999   187   228.668
2000   125   155.017
2001   215   168.078
2002   61   77.8285
2003   236   685.159
2004   139   176.307
2005   368   736.875
2006   194   210.521
 Total   6588   10714.5

 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  19367.1  -0.211396
1983  26466  25834.1  0.242253
1984  26057  25525.9  0.206445
1985  20432  20682.4  -0.122114
1986  20866  20991.6  -0.0601668
1987  18312  18204.7  0.0589384
1988  21761  21474.1  0.133067
1989  10314  9969.74  0.340321
1990  7976  7517.96  0.5929
1991  11316  11128.7  0.167288
1992  11805  12112.1  -0.257497
1993  10781  11199.4  -0.381715
1994  12182  12337.4  -0.1271
1995  10495  9883.26  0.602067
1996  11643  11489.9  0.132658
1997  10325  10533.6  -0.200542
1998  11641  11695.6  -0.0469193
1999  10851  10769.8  0.0753135
2000  13756  13901.1  -0.105196
2001  11932  12097.7  -0.138288
2002  11308  11564  -0.224434
2003  12927  13324.6  -0.303678
2004  13832  14177.2  -0.247146
2005  13444  13500  -0.041658
2006  12853  12857.6  -0.00360121
```
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
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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  2
selectivity choice = -1
 year, obs index, pred index, standardized residual
1992  7.15  3.16304  2.77823
1993  6.5  3.24178  2.3698
1994  3.76  3.64624  0.104657
1995  6.07  4.36675  1.12188
1996  22.17  4.91778  5.12972
1997  3.86  3.52732  0.307016
1998  1.68  3.59798  -2.59428
1999  2.11  3.92443  -2.11382
2000  0.7  3.03344  -4.99513
2001  3.07  3.79754  -0.724475
2002  2.77  3.57498  -0.86903
2003  8.17  4.03331  2.40455
2004  1.45  2.87259  -2.32883
2005  2.96  4.33083  -1.29639
2006  2.64  2.14577  0.706093
index number 2
units = 2
month = 1
starting and ending ages for selectivity = 3  3
selectivity choice = -1
 year, obs index, pred index, standardized residual
1992  4.74  3.85823  0.701143
1993  6.7  3.14297  2.57848
1994  7.2  3.53907  2.41932
1995  4.59  4.14529  0.347144
1996  8.33  7.8728  0.192293
1997  4.8  9.25791  -2.23757
1998  3.25  7.14545  -2.68368
1999  4.8  7.36054  -1.45632
2000  6.52  8.20581  -0.783374
2001  5.33  6.29553  -0.567136
2002  10.74  8.08377  0.967831
2003  14.36  7.71695  2.1155
2004  8.68  8.73891  -0.0230396
2005  4.03  6.20619  -1.47084
2006  9.06  9.32924  -0.0997554
index number 3
```

```
units = 2
month = 1
starting and ending ages for selectivity = 4   4
selectivity choice = -1
 year, obs index, pred index, standardized residual
1992  0.33  0.43957  -0.976644
1993  0.31  0.565482  -2.04764
1994  0.82  0.545626  1.38769
1995  0.25  0.660864  -3.31137
1996  0.6  0.885932  -1.32753
1997  1.04  2.04526  -2.3038
1998  2.29  3.34906  -1.29489
1999  2.9  2.70213  0.240733
2000  4.96  3.07227  1.63166
2001  6.42  3.31135  2.25528
2002  5.58  2.84875  2.29019
2003  8.48  3.89589  2.6495
2004  4.56  3.78241  0.636878
2005  3.07  4.22825  -1.09044
2006  4.29  2.96325  1.26039
index number 4
units = 2
month = 1
starting and ending ages for selectivity = 5   5
selectivity choice = -1
 year, obs index, pred index, standardized residual
1992  0.04  0.0405787  -0.048931
1993  0.05  0.0770519  -1.47314
1994  0.26  0.118014  2.69068
1995  0.02  0.122756  -6.18089
1996  0.12  0.117134  0.0823584
1997  0.43  0.204667  2.52895
1998  0.42  0.740608  -1.9322
1999  0.84  1.288  -1.45608
2000  2.51  1.18823  2.54742
2001  2.44  1.29046  2.16992
2002  2.26  1.62483  1.124
2003  2.67  1.5227  1.91305
2004  1.64  2.13066  -0.891596
2005  1.34  2.03259  -1.41926
2006  2.47  2.23162  0.345716
index number 5
units = 2
month = 1
starting and ending ages for selectivity = 6   8
selectivity choice = -1
 year, obs index, pred index, standardized residual
1992  0.04  0.0369633  0.268951
1993  0.04  0.0164468  3.02749
1994  0.01  0.0263973  -3.30656
1996  0.03  0.0371273  -0.726099
1997  0.15  0.0455082  4.06302
1998  0.12  0.11962  0.0107914
1999  0.41  0.444185  -0.272805
2000  1.08  0.984701  0.314683
2001  1.34  1.09454  0.689259
2002  1.33  1.40645  -0.190374
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2003  1.96  1.94811   0.0207343
2004  1.44  2.19696  -1.43899
2005  1.49  2.74884  -2.08612
2006  2.6  2.9017  -0.37398
index number 6
units = 2
month = 1
starting and ending ages for selectivity = 2  2
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  0.7  0.607028   0.369901
1983  0.32  0.590939  -1.59218
1984  0.17  0.94034  -4.43979
1985  0.55  0.411521   0.752903
1986  1.48  0.546534   2.58583
1987  0.47  0.659924  -0.880957
1988  0.6  0.484104   0.557113
1989  0.06  0.132534  -2.05708
1990  0.63  0.266326   2.23489
1991  0.79  0.385753   1.86069
1992  0.77  0.308088   2.37767
1993  0.73  0.315757   2.17538
1994  0.35  0.355153  -0.0379369
1995  0.79  0.425332   1.60716
1996  1.08  0.479005   2.11031
1997  0.29  0.34357  -0.439999
1998  0.27  0.350452  -0.676965
1999  0.22  0.38225  -1.43398
2000  0.19  0.295465  -1.14607
2001  0.48  0.369891   0.676383
2002  0.34  0.348212  -0.0619517
2003  0.54  0.392855   0.825764
2004  0.3  0.279798   0.180959
2005  0.26  0.421834  -1.25613
2006  0.04  0.209003  -4.29191
index number 7
units = 2
month = 1
starting and ending ages for selectivity = 3  3
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  1.43  0.880047   1.26009
1983  0.39  0.779923  -1.79894
1984  0.33  0.603862  -1.56846
1985  1.56  0.927726   1.34899
1986  0.43  0.416326   0.0838841
1987  0.43  0.481866  -0.295598
1988  0.81  0.701762   0.372326
1989  0.23  0.381867  -1.316
1990  0.03  0.121554  -3.6318
1991  0.27  0.293617  -0.217657
1992  0.41  0.364524   0.305163
1993  0.5  0.296946   1.3525
1994  0.53  0.33437   1.19566
1995  0.27  0.391645  -0.965425
1996  0.56  0.743818  -0.736814
1997  0.67  0.874683  -0.691971
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1998  0.52  0.675099  -0.677555
1999  0.74  0.69542  0.161282
2000  1.03  0.77528  0.737409
2001  0.89  0.594799  1.04606
2002  0.89  0.76375  0.397091
2003  1.29  0.729094  1.48109
2004  1.45  0.825648  1.46177
2005  0.65  0.586357  0.267468
2006  1.04  0.881422  0.429431
index number 8
units = 2
month = 1
starting and ending ages for selectivity = 4   4
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  0.12  0.0954294  0.594687
1983  0.19  0.218937  -0.367963
1984  0.09  0.128517  -0.924729
1985  0.21  0.0934103  2.10279
1986  0.2  0.15014  0.744309
1987  0.02  0.0526082  -2.5104
1988  0.07  0.0853021  -0.513178
1989  0.02  0.0725865  -3.34597
1990  0.06  0.0518028  0.381311
1992  0.01  0.0420305  -3.72693
1993  0.04  0.0540699  -0.782337
1994  0.04  0.0521713  -0.689555
1995  0.02  0.0631901  -2.98613
1996  0.12  0.0847105  0.903956
1997  0.09  0.195563  -2.01444
1998  0.32  0.320228  -0.00185237
1999  0.48  0.258371  1.60775
2000  0.63  0.293762  1.98039
2001  1.02  0.316623  3.03657
2002  0.74  0.27239  2.59418
2003  0.59  0.372515  1.19362
2004  0.85  0.361664  2.21808
2005  0.58  0.404294  0.936747
2006  0.24  0.283338  -0.430888
index number 9
units = 2
month = 1
starting and ending ages for selectivity = 5   5
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  0.02  0.0237056  -0.441214
1983  0.03  0.0319525  -0.163664
1984  0.05  0.0479511  0.108608
1985  0.04  0.0263726  1.08124
1986  0.02  0.0200818  -0.0106003
1987  0.01  0.0250139  -2.37985
1988  0.02  0.0124052  1.23975
1989  0.01  0.0115623  -0.376812
1991  0.02  0.0130602  1.10618
1994  0.01  0.012651  -0.610384
1997  0.01  0.0219401  -2.03952
1998  0.06  0.0793926  -0.726951
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1999  0.13  0.138073  -0.156383
2000  0.12  0.127377  -0.154853
2001  0.2  0.138336  0.956859
2002  0.31  0.17418  1.49637
2003  0.29  0.163232  1.49177
2004  0.27  0.228405  0.43426
2005  0.15  0.217891  -0.969134
2006  0.25  0.239228  0.114322
index number 10
units = 2
month = 1
starting and ending ages for selectivity = 6   8
selectivity choice = -1
 year, obs index, pred index, standardized residual
1983  0.02  0.0188945  0.147593
1984  0.02  0.01364  0.99344
1985  0.02  0.0165861  0.485823
1986  0.01  0.0112334  -0.301895
1992  0.01  0.00445949  2.09615
1995  0.01  0.0052904  1.65266
1998  0.02  0.0144318  0.846975
1999  0.03  0.0535894  -1.5059
2000  0.17  0.118801  0.930172
2001  0.1  0.132052  -0.721667
2002  0.19  0.169683  0.29356
2003  0.2  0.235032  -0.418957
2004  0.16  0.265055  -1.31021
2005  0.17  0.331637  -1.73456
2006  0.2  0.35008  -1.45318
index number 11
units = 2
month = 1
starting and ending ages for selectivity = 3   3
selectivity choice = -1
 year, obs index, pred index, standardized residual
1983  1.52  1.42787  0.112763
1984  1.46  1.10554  0.501528
1985  1.39  1.69846  -0.361433
1986  0.8  0.762201  0.0872867
1987  0.83  0.882189  -0.109972
1988  0.58  1.28477  -1.43425
1989  0.62  0.699114  -0.216576
1990  0.21  0.222539  -0.104585
1991  0.38  0.537547  -0.625495
1992  0.84  0.667363  0.414901
1993  1.04  0.543643  1.16982
1994  0.8  0.612157  0.482628
1995  0.67  0.717015  -0.122304
1996  1.16  1.36177  -0.289196
1997  1.24  1.60135  -0.461191
1998  1.29  1.23596  0.0771791
1999  2.13  1.27316  0.928057
2000  1.73  1.41937  0.356908
2001  1.2  1.08894  0.175131
2002  1.36  1.39826  -0.0500306
2003  1.17  1.33481  -0.237659
2004  1.31  1.51158  -0.258113
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2005  1.49  1.07349  0.591258
2006  1.14  1.61369  -0.626666
index number 12
units = 2
month = 1
starting and ending ages for selectivity = 4  4
selectivity choice = -1
 year, obs index, pred index, standardized residual
1983  0.4  0.556078  -0.594114
1984  0.34  0.326422  0.0734985
1985  0.43  0.237253  1.0724
1986  0.46  0.381342  0.338191
1987  0.11  0.13362  -0.350788
1988  0.2  0.216659  -0.144283
1989  0.18  0.184363  -0.0431863
1990  0.05  0.131574  -1.74486
1991  0.03  0.0583192  -1.19877
1992  0.09  0.106753  -0.307859
1993  0.25  0.137332  1.08033
1994  0.03  0.13251  -2.67886
1995  0.09  0.160497  -1.04319
1996  0.28  0.215156  0.475055
1997  0.57  0.49671  0.2482
1998  1.14  0.813349  0.608865
1999  1.63  0.656236  1.64074
2000  1.49  0.746127  1.24729
2001  1.22  0.804191  0.751596
2002  0.93  0.691844  0.533485
2003  0.86  0.946152  -0.172171
2004  1.03  0.918591  0.20644
2005  1.37  1.02687  0.519911
2006  0.54  0.71965  -0.517925
index number 13
units = 2
month = 1
starting and ending ages for selectivity = 5  5
selectivity choice = -1
 year, obs index, pred index, standardized residual
1983  0.03  0.0677471  -1.46901
1984  0.12  0.101668  0.298961
1985  0.07  0.0559165  0.405105
1986  0.05  0.0425785  0.289758
1987  0.11  0.0530356  1.3156
1988  0.03  0.026302  0.237238
1989  0.03  0.024515  0.364124
1991  0.04  0.0276909  0.66324
1993  0.03  0.017513  0.970676
1994  0.01  0.0268233  -1.77937
1995  0.01  0.027901  -1.85041
1996  0.02  0.0266231  -0.515854
1997  0.04  0.0465185  -0.272259
1998  0.29  0.168332  0.980939
1999  0.33  0.292749  0.216007
2000  0.31  0.27007  0.248669
2001  0.4  0.293306  0.559496
2002  0.37  0.369305  0.00338905
2003  0.35  0.346091  0.0202528
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2004  0.25  0.484276  -1.19239
2005  0.66  0.461984  0.643286
2006  0.47  0.507223  -0.13745
index number 14
units = 2
month = 1
starting and ending ages for selectivity = 3  3
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  1.584  0.954509  0.913434
1983  0.599  0.845914  -0.622449
1984  0.078  0.654956  -3.83735
1985  1.26  1.00622  0.405596
1986  0.522  0.451552  0.261448
1987  0.64  0.522637  0.365331
1988  1.005  0.76114  0.501207
1989  0.363  0.414177  -0.237851
1990  0.021  0.131839  -3.31292
1991  0.05  0.31846  -3.33892
1992  0.342  0.395367  -0.261498
1993  0.492  0.322072  0.764103
1994  1.217  0.362661  2.18331
1995  1.302  0.424783  2.01993
1996  0.686  0.806754  -0.292404
1997  1.279  0.948692  0.53876
1998  1.212  0.73222  0.908807
1999  0.878  0.754261  0.273949
2000  1.659  0.840879  1.22544
2001  1.026  0.645126  0.83673
2002  1.511  0.828373  1.08395
2003  1.44  0.790784  1.0809
2004  0.283  0.895507  -2.0774
2005  0.351  0.63597  -1.07187
2006  2.44  0.956001  1.68976
index number 15
units = 2
month = 1
starting and ending ages for selectivity = 4  4
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  0.142  0.126831  0.203737
1983  0.45  0.290978  0.786275
1984  0.067  0.170806  -1.68767
1985  0.036  0.124147  -2.23249
1986  0.185  0.199544  -0.136479
1987  0.013  0.0699189  -3.03399
1988  0.123  0.113371  0.147013
1989  0.102  0.0964711  0.100501
1990  0.081  0.0688485  0.293123
1991  0.012  0.0305166  -1.68321
1992  0.09  0.0558607  0.860121
1993  0.065  0.0718616  -0.180979
1994  0.048  0.0693383  -0.663279
1995  0.053  0.0839829  -0.830136
1996  0.114  0.112585  0.0225302
1997  0.181  0.259913  -0.652552
1998  0.659  0.4256  0.788482
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1999  1.112  0.343388  2.11907
2000  1.205  0.390425  2.03241
2001  0.73   0.420808  0.993427
2002  0.397  0.36202   0.166338
2003  0.624  0.495092  0.417316
2004  0.323  0.48067   -0.716896
2005  1.029  0.537328  1.17172
2006  0.975  0.37657   1.71562
index number 16
units = 2
month = 1
starting and ending ages for selectivity = 4   4
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  0.405  0.479015  -0.302689
1983  1.662  1.09897   0.745968
1984  0.625  0.645103  -0.0570911
1985  0.267  0.46888   -1.01548
1986  1.895  0.75364   1.66283
1987  0.679  0.264071  1.70312
1988  0.663  0.42818   0.788496
1989  0.429  0.364353  0.294552
1990  0.317  0.260028  0.357274
1992  0.288  0.210975  0.561248
1993  0.186  0.271408  -0.681455
1994  0.478  0.261878  1.08516
1995  0.076  0.317187  -2.5766
1996  0.506  0.425211  0.313701
1997  1.282  0.981641  0.481415
1998  1.508  1.60741   -0.115128
1999  0.59   1.29691   -1.42038
2000  0.94   1.47456   -0.811947
2001  2.303  1.58931   0.668896
2002  1.083  1.36728   -0.42035
2003  1.302  1.86987   -0.652764
2004  1.254  1.8154    -0.667192
2005  1.455  2.02939   -0.600035
2006  2.049  1.42223   0.658456
index number 17
units = 2
month = 1
starting and ending ages for selectivity = 5   5
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  0.012  0.0428687  -2.29613
1983  0.02   0.0577822  -1.9133
1984  0.154  0.0867138  1.03576
1985  0.127  0.0476917  1.76629
1986  0.04   0.0363156  0.174265
1987  0.214  0.0452346  2.80267
1988  0.011  0.0224333  -1.28518
1989  0.006  0.0209091  -2.25139
1990  0.016  0.0235281  -0.6954
1991  0.011  0.0236179  -1.37798
1992  0.006  0.00786646  -0.488444
1994  0.03   0.0228778  0.488769
1997  0.114  0.0396761  1.90338
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1998   0.351   0.143572   1.61214
1999   0.262   0.249688   0.0868004
2000   0.379   0.230346   0.898006
2001   0.494   0.250164   1.22706
2002   0.307   0.314984   -0.0463011
2003   0.178   0.295185   -0.912184
2004   0.256   0.413044   -0.862695
2005   0.136   0.39403   -1.91839
2006   1.35   0.432615   2.05227
index number 18
units = 2
month = 1
starting and ending ages for selectivity = 3   3
selectivity choice = -1
 year, obs index, pred index, standardized residual
1984   0.271   0.286586   -0.100845
1985   0.325   0.440288   -0.547514
1986   0.1   0.197583   -1.22809
1987   0.086   0.228688   -1.76373
1988   0.223   0.333048   -0.723364
1989   0.049   0.181229   -2.35873
1990   0.022   0.0576881   -1.73848
1991   0.189   0.139347   0.549635
1992   0.188   0.172999   0.149965
1993   0.151   0.140927   0.124499
1994   0.314   0.158688   1.23073
1995   0.051   0.18587   -2.33218
1996   0.266   0.353007   -0.510344
1997   0.507   0.415114   0.3606
1998   0.594   0.320394   1.11328
1999   0.593   0.330038   1.05676
2000   0.726   0.367939   1.22564
2001   0.34   0.282284   0.335485
2002   1.264   0.362467   2.25261
2003   1.016   0.346019   1.94249
2004   0.818   0.391843   1.32729
2005   0.264   0.278278   -0.0949888
2006   0.36   0.418312   -0.270732
index number 19
units = 2
month = 1
starting and ending ages for selectivity = 4   4
selectivity choice = -1
 year, obs index, pred index, standardized residual
1984   0.044   0.0756012   -0.976141
1985   0.04   0.0549492   -0.572629
1986   0.082   0.088321   -0.133917
1987   0.014   0.0309471   -1.43048
1988   0.035   0.0501795   -0.649685
1989   0.024   0.0426995   -1.03899
1990   0.013   0.0304733   -1.53631
1991   0.029   0.0135071   1.37793
1992   0.021   0.0247247   -0.29446
1993   0.015   0.031807   -1.35549
1994   0.025   0.0306901   -0.369811
1995   0.02   0.037172   -1.11778
1996   0.086   0.0498315   0.984105
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1997   0.057   0.115041   -1.2664
1998   0.503   0.188377   1.77119
1999   0.385   0.151988   1.67614
2000   0.524   0.172807   2.00052
2001   0.365   0.186255   1.21328
2002   0.465   0.160235   1.92132
2003   0.395   0.219135   1.06255
2004   0.41   0.212751   1.18308
2005   0.15   0.237829   -0.831209
2006   0.068   0.166675   -1.61681
index number 20
units = 2
month = 1
starting and ending ages for selectivity = 5   5
selectivity choice = -1
 year, obs index, pred index, standardized residual
1985   0.058   0.022186   1.73302
1986   0.008   0.0168939   -1.34805
1987   0.004   0.021043   -2.99411
1988   0.009   0.0104359   -0.266944
1989   0.016   0.00972683   0.897545
1990   0.006   0.0109452   -1.08409
1991   0.028   0.0109869   1.68706
1992   0.004   0.00365945   0.160469
1993   0.018   0.00694865   1.7165
1994   0.018   0.0106427   0.947676
1995   0.005   0.0110703   -1.43338
1996   0.023   0.0105633   1.40323
1997   0.036   0.0184572   1.20478
1998   0.116   0.0667891   0.995559
1999   0.139   0.116154   0.32381
2000   0.074   0.107156   -0.667648
2001   0.12   0.116375   0.0553137
2002   0.233   0.146529   0.836431
2003   0.232   0.137319   0.945752
2004   0.194   0.192146   0.0173143
2005   0.033   0.183301   -3.09213
2006   0.065   0.201251   -2.03812
index number 21
units = 2
month = 1
starting and ending ages for selectivity = 3   3
selectivity choice = -1
 year, obs index, pred index, standardized residual
1985   0.571   1.10752   -1.19472
1986   0.339   0.497009   -0.689988
1987   1.17   0.57525   1.28032
1988   1.067   0.837762   0.436189
1989   0.884   0.455872   1.19428
1990   0.029   0.145111   -2.90381
1991   0.674   0.350519   1.17908
1992   0.826   0.435168   1.15572
1993   0.57   0.354494   0.85651
1994   0.827   0.399169   1.31362
1995   0.3   0.467544   -0.800183
1996   0.384   0.887968   -1.51176
1997   0.887   1.04419   -0.294233
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1998  0.681  0.805931  -0.303755
1999  0.269  0.83019   -2.03231
2000  0.679  0.925528  -0.558585
2001  0.395  0.710069  -1.05764
2002  2.689  0.911763  1.95044
2003  3.087  0.87039   2.28311
2004  1.459  0.985656  0.707286
2005  0.385  0.699992  -1.07811
2006  1.093  1.05224   0.0685397
index number 22
units = 2
month = 1
starting and ending ages for selectivity = 4   4
selectivity choice = -1
 year, obs index, pred index, standardized residual
1985  0.331  0.337018  -0.0324959
1986  0.528  0.541697  -0.0461848
1987  0.298  0.189807  0.813481
1988  0.223  0.307765  -0.580984
1989  0.481  0.261888  1.09637
1990  0.095  0.186901  -1.22036
1991  0.11   0.0828426  0.511329
1992  0.34   0.151644  1.45608
1993  0.366  0.195081  1.13472
1994  0.152  0.188231  -0.385543
1995  0.085  0.227986  -1.77928
1996  0.117  0.30563   -1.73161
1997  1.188  0.705578  0.93958
1998  1.373  1.15536   0.311232
1999  1.054  0.932186  0.221484
2000  1.484  1.05987   0.607001
2001  0.871  1.14236   -0.489088
2002  1.137  0.982766  0.262893
2003  1.93   1.34401   0.652574
2004  1.319  1.30486   0.0194359
2005  0.755  1.45867   -1.18764
2006  0.744  1.02227   -0.572998
index number 23
units = 2
month = 1
starting and ending ages for selectivity = 5   5
selectivity choice = -1
 year, obs index, pred index, standardized residual
1985  0.072  0.0683598  0.0935607
1986  0.075  0.0520536  0.65862
1987  0.072  0.0648378  0.188953
1988  0.033  0.0321551  0.0467722
1989  0.037  0.0299704  0.379984
1990  0.015  0.0337245  -1.46106
1991  0.042  0.0338531  0.38888
1992  0.036  0.0112755  2.09352
1993  0.046  0.0214103  1.37917
1994  0.039  0.0327924  0.312645
1995  0.024  0.0341099  -0.633952
1996  0.012  0.0325477  -1.79942
1997  0.042  0.0568705  -0.546618
1998  0.373  0.205791  1.0725
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1999  0.321  0.357895  -0.196206
2000  0.346  0.33017  0.084454
2001  0.341  0.358577  -0.0906388
2002  0.436  0.451488  -0.0629518
2003  0.479  0.423109  0.223749
2004  0.407  0.592044  -0.675849
2005  0.44  0.564791  -0.450271
2006  0.355  0.620097  -1.00585
index number 24
units = 2
month = 1
starting and ending ages for selectivity = 6   8
selectivity choice = -1
 year, obs index, pred index, standardized residual
1985  0.025  0.0190733  0.487974
1986  0.009  0.0129179  -0.65172
1987  0.007  0.0073911  -0.0980446
1988  0.003  0.0112748  -2.38761
1989  0.003  0.0040968  -0.561922
1990  0.001  0.00406497  -2.52908
1991  0.012  0.00631831  1.15679
1992  0.022  0.0051282  2.62625
1993  0.025  0.00228178  4.31715
1994  0.007  0.0036623  1.16827
1995  0.009  0.00608371  0.706223
1996  0.005  0.00515095  -0.0536377
1997  0.005  0.0063137  -0.420702
1998  0.04  0.0165959  1.58648
1999  0.075  0.0616252  0.354215
2000  0.127  0.136615  -0.131611
2001  0.191  0.151853  0.413621
2002  0.134  0.195127  -0.67773
2003  0.183  0.270276  -0.703241
2004  0.203  0.304801  -0.732988
2005  0.119  0.381367  -2.10029
2006  0.151  0.402575  -1.7684
index number 25
units = 2
month = 1
starting and ending ages for selectivity = 4   4
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  1.74  0.334045  2.97624
1983  0.52  0.766374  -0.699428
1984  0.42  0.449867  -0.123888
1985  0.49  0.326977  0.729498
1986  0.28  0.525557  -1.13553
1987  0.51  0.184152  1.83702
1988  0.37  0.298595  0.386675
1989  0.24  0.254084  -0.102843
1990  0.07  0.181332  -1.71653
1991  0.12  0.0803742  0.722793
1992  0.08  0.147125  -1.09873
1993  0.41  0.189268  1.394
1994  0.22  0.182622  0.335802
1995  0.03  0.221193  -3.60287
1996  0.2  0.296524  -0.710192
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1997  1.03  0.684555  0.736764
1998  0.96  1.12094  -0.279505
1999  0.36  0.904411  -1.66124
2000  1.91  1.0283  1.11666
2001  1.24  1.10832  0.202462
2002  0.63  0.953484  -0.747327
2003  1.38  1.30397  0.102203
2004  2.08  1.26598  0.895416
2005  1.3  1.41521  -0.153128
2006  1.38  0.991806  0.595678
index number 26
units = 2
month = 1
starting and ending ages for selectivity = 5   5
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  0.2  0.0551176  2.32429
1983  0.07  0.0742923  -0.107322
1984  0.11  0.11149  -0.0242702
1985  0.1  0.0613186  0.88201
1986  0.02  0.046692  -1.52898
1987  0.13  0.0581594  1.45055
1988  0.02  0.0288431  -0.660287
1992  0.01  0.0101141  -0.020466
1993  0.11  0.019205  3.14747
1994  0.07  0.0294147  1.56354
1997  0.01  0.0510127  -2.9386
1998  0.03  0.184595  -3.27668
1999  0.09  0.321031  -2.29342
2000  0.35  0.296162  0.301213
2001  0.45  0.321643  0.605588
2002  0.3  0.404984  -0.541134
2003  0.4  0.379528  0.0947449
2004  0.49  0.531062  -0.145125
2005  0.78  0.506616  0.778232
2006  0.69  0.556226  0.388659
index number 27
units = 2
month = 1
starting and ending ages for selectivity = 2   2
selectivity choice = -1
 year, obs index, pred index, standardized residual
1990  0.17  0.196744  -0.26348
1991  0.07  0.284968  -2.53174
1992  0.15  0.227595  -0.751887
1993  0.11  0.23326  -1.35556
1994  0.08  0.262363  -2.14188
1995  0.2  0.314207  -0.814649
1996  0.41  0.353856  0.265577
1997  0.17  0.253807  -0.722749
1998  0.07  0.25889  -2.35866
1999  0.26  0.28238  -0.14891
2000  0.63  0.218269  1.91157
2001  0.42  0.27325  0.775216
2002  0.81  0.257236  2.06856
2003  1.48  0.290215  2.93803
2004  0.54  0.206696  1.73183
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2005  0.55  0.311622  1.02455
2006  0.19  0.154398  0.37419
index number 28
units = 2
month = 1
starting and ending ages for selectivity = 3  8
selectivity choice = -1
 year, obs index, pred index, standardized residual
1990  0.1  0.103487  -0.0618175
1991  0.08  0.249976  -2.05466
1992  0.18  0.310344  -0.982347
1993  0.14  0.252811  -1.0658
1994  0.05  0.284672  -3.13665
1995  0.22  0.333434  -0.749877
1996  0.53  0.633263  -0.321019
1997  0.52  0.744677  -0.647635
1998  0.36  0.574758  -0.843703
1999  0.61  0.592058  0.0538383
2000  1.89  0.660049  1.89719
2001  0.55  0.506393  0.148971
2002  1.11  0.650233  0.964423
2003  2.25  0.620727  2.32239
2004  1.53  0.70293  1.40261
2005  1.89  0.499206  2.40087
2006  1.09  0.750414  0.673217
index number 29
units = 2
month = 1
starting and ending ages for selectivity = 2  2
selectivity choice = -1
 year, obs index, pred index, standardized residual
1988  3.06  5.42727  -1.03338
1989  0.51  1.48584  -1.9284
1990  1.44  2.98577  -1.31505
1991  2.69  4.32465  -0.856231
1992  3  3.45396  -0.254115
1993  5.69  3.53994  0.855886
1994  1.07  3.9816  -2.36969
1995  2.93  4.76838  -0.878256
1996  5.1  5.3701  -0.0930659
1997  8.25  3.85175  1.37361
1998  5.8  3.92891  0.702413
1999  6.12  4.28538  0.64264
2000  3.91  3.31244  0.299095
2001  3.32  4.14683  -0.401034
2002  9.11  3.90379  1.52823
2003  5.61  4.40428  0.436372
2004  6.27  3.1368  1.24898
2005  5.99  4.72916  0.426219
2006  5.74  2.34313  1.61578
index number 30
units = 2
month = 1
starting and ending ages for selectivity = 3  3
selectivity choice = -1
 year, obs index, pred index, standardized residual
1988  1.03  1.28013  -0.392065
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1989  0.18  0.69659  -2.44041
1990  0.11  0.221735 -1.26418
1991  0.27  0.535607 -1.23528
1992  0.57  0.664953 -0.277866
1993  0.2  0.54168  -1.79682
1994  0.08  0.609947 -3.6633
1995  0.28  0.714426 -1.68921
1996  2.7  1.35685  1.24088
1997  5.25  1.59557  2.14782
1998  2.67  1.23149  1.39555
1999  3.46  1.26856  1.80949
2000  1.82  1.41424  0.45489
2001  1.18  1.08501  0.151344
2002  4.13  1.39321  1.95968
2003  2.55  1.32999  1.17386
2004  2.49  1.50612  0.906643
2005  1.24  1.06962  0.266563
2006  3.22  1.60786  1.25241
index number 31
units = 2
month = 1
starting and ending ages for selectivity = 4  4
selectivity choice = -1
 year, obs index, pred index, standardized residual
1990  0.03  0.0703169 -1.53615
1991  0.02  0.0311674 -0.800056
1992  0.06  0.0570521  0.0908548
1993  0.01  0.0733942 -3.59461
1995  0.05  0.085774  -0.973274
1996  0.18  0.114986   0.808184
1997  1.02  0.265456   2.42755
1998  0.29  0.434677  -0.729869
1999  0.65  0.350712   1.1127
2000  0.45  0.398751   0.218046
2001  0.41  0.429783  -0.0849794
2002  1.28  0.369741   2.23946
2003  0.57  0.505651   0.216027
2004  0.57  0.490921   0.26934
2005  0.53  0.548788  -0.06282
2006  0.48  0.384602   0.39959
index number 32
units = 2
month = 1
starting and ending ages for selectivity = 5  8
selectivity choice = -1
 year, obs index, pred index, standardized residual
1992  0.02  0.0100584  1.23951
1993  0.01  0.0190992 -1.1669
1994  0.02  0.0292526 -0.685714
1995  0.16  0.030428   2.99328
1996  0.05  0.0290343  0.980218
1997  0.18  0.0507316  2.28382
1998  0.04  0.183577  -2.74792
1999  0.18  0.319262  -1.03344
2000  0.22  0.29453   -0.526144
2001  0.15  0.31987   -1.36567
2002  0.81  0.402753   1.26004
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2003  0.51  0.377436  0.542834
2004  0.43  0.528136  -0.370719
2005  0.32  0.503825  -0.81857
2006  0.4  0.553161  -0.584631
index number 33
units = 2
month = 1
starting and ending ages for selectivity = 1  1
selectivity choice = -1
 year, obs index, pred index, standardized residual
1985  0.24  0.0902408  1.76399
1986  0.172  0.11012  0.804176
1987  0.075  0.0796273  -0.107966
1988  0.015  0.0223054  -0.715548
1990  0.032  0.0632745  -1.22945
1991  0.036  0.051137  -0.632968
1992  0.013  0.0523304  -2.51145
1993  0.084  0.0584357  0.654429
1994  0.132  0.0697654  1.14995
1995  0.023  0.0760495  -2.15665
1996  0.069  0.0543406  0.430711
1997  0.033  0.0550736  -0.923626
1999  0.044  0.0463034  -0.0920175
2000  0.012  0.058005  -2.84145
2001  0.021  0.0544841  -1.71932
2002  0.442  0.061394  3.55988
2004  0.255  0.0659176  2.43972
2005  0.067  0.0326682  1.29535
2006  0.098  0.0617742  0.832229
index number 34
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  1.50466  0.741577
1983  5.01  2.43677  1.29981
1984  1.58  1.06929  0.704101
1985  1.26  1.41737  -0.212238
1986  1.26  1.72959  -0.571268
1987  0.39  1.25067  -2.10145
1988  0.54  0.35034  0.78026
1989  1.24  0.695903  1.04174
1990  2.54  0.993821  1.69223
1991  2.64  0.803183  2.14594
1992  0.89  0.821928  0.143494
1993  0.5  0.91782  -1.09536
1994  2.41  1.09577  1.42137
1995  0.63  1.19447  -1.15369
1996  0.81  0.8535  -0.0943377
1997  0.89  0.865013  0.0513553
1998  0.73  0.942684  -0.461101
1999  0.53  0.727263  -0.570611
2000  0.57  0.911054  -0.845726
2001  0.47  0.855753  -1.08068
2002  0.77  0.964284  -0.405753
2003  0.44  0.686553  -0.802342
```

```
2004  1.3  1.03533  0.410522
2005  0.35  0.513103  -0.689873
2006  0.8  0.970255  -0.347959
index number 35
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  12.7428  -2.37838
1983  17.699  20.6369  -0.276948
1984  13.31  9.05571  0.69452
1985  12.843  12.0036  0.121899
1986  59.526  14.6478  2.52856
1987  7.584  10.5918  -0.6024
1988  1.763  2.96701  -0.938727
1989  2.855  5.89356  -1.30707
1990  4.733  8.41659  -1.03811
1991  7.337  6.8021  0.136515
1992  8.487  6.96085  0.357493
1993  4.145  7.77295  -1.13387
1994  22.311  9.27999  1.58196
1995  13.067  10.1159  0.461637
1996  6.493  7.22823  -0.193448
1997  7.997  7.32573  0.158109
1998  14.983  7.98352  1.1353
1999  8.565  6.15914  0.594661
2000  9.874  7.71565  0.444812
2001  13.543  7.24731  1.12755
2002  5.406  8.16645  -0.743941
2003  8.18  5.81437  0.615602
2004  6.993  8.76817  -0.407959
2005  2.198  4.34543  -1.22915
2006  9.658  8.21702  0.291388
index number 36
units = 2
month = 1
starting and ending ages for selectivity = 1  1
selectivity choice = -1
 year, obs index, pred index, standardized residual
1988  0.17  0.482823  -1.88247
1989  1  0.959063  0.0753784
1990  1.28  1.36964  -0.122066
1991  1  1.10691  -0.183175
1992  1.1  1.13274  -0.0528985
1993  2.55  1.2649  1.26435
1994  1.66  1.51014  0.170628
1995  4.95  1.64617  1.98542
1996  1.66  1.17626  0.621232
1997  1.65  1.19212  0.586172
1998  0.67  1.29917  -1.1942
1999  1.03  1.00228  0.0491955
2000  0.95  1.25557  -0.502939
2001  0.62  1.17936  -1.15959
2002  1.51  1.32893  0.230352
2003  0.6  0.946177  -0.821442
2004  0.9  1.42685  -0.831055
```

```
2005  3.11  0.707136  2.67109
2006  0.81  1.33716  -0.903985
index number 37
units = 2
month = 1
starting and ending ages for selectivity = 1  1
selectivity choice = -1
 year, obs index, pred index, standardized residual
1982  0.55  0.436653  0.416182
1983  0.96  0.707155  0.551266
1984  0.18  0.310308  -0.982139
1985  0.59  0.411321  0.650567
1986  0.39  0.50193  -0.45502
1987  0.07  0.362944  -2.96793
1988  0.06  0.101669  -0.951067
1989  0.31  0.201952  0.772827
1990  0.44  0.288408  0.761748
1991  0.76  0.233084  2.13145
1992  0.99  0.238524  2.56664
1993  0.23  0.266352  -0.26463
1994  0.75  0.317993  1.54738
1995  0.93  0.346636  1.77977
1996  0.11  0.247687  -1.46378
1997  0.17  0.251028  -0.702895
1998  0.38  0.273568  0.59263
1999  0.21  0.211053  -0.00901634
2000  0.22  0.264389  -0.33145
2001  0.12  0.248341  -1.31162
2002  0.06  0.279836  -2.77696
2003  0.18  0.199239  -0.183126
2004  0.36  0.300455  0.326062
2005  0.16  0.148903  0.129625
2006  0.31  0.281569  0.173475
index number 38
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  0.330346  -0.0573819
1987  0.26  0.238872  0.152842
1988  0.01  0.0669136  -3.4279
1989  0.14  0.132915  0.0936567
1990  0.36  0.189816  1.15426
1991  0.38  0.153405  1.63583
1992  0.37  0.156985  1.54614
1993  0.05  0.1753  -2.2623
1994  0.57  0.209288  1.80686
1995  0.3  0.228139  0.493815
1996  0.08  0.163015  -1.28368
1997  0.22  0.165214  0.516463
1998  0.39  0.180049  1.39387
1999  0.35  0.138904  1.66659
2000  0.21  0.174008  0.33905
2001  0.14  0.163446  -0.279231
2002  0.13  0.184174  -0.628207
2003  0.21  0.131129  0.84926
```

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2004  0.27  0.197745  0.561654
2005  0.01  0.0980007  -4.11602
2006  0.17  0.185315  -0.155558
index number 39
units = 2
month = 1
starting and ending ages for selectivity = 1  1
selectivity choice = -1
 year, obs index, pred index, standardized residual
1990  0.02  0.036712  -1.09532
1992  0.01  0.0303622  -2.00286
1993  0.01  0.0339045  -2.20186
1994  0.04  0.0404779  -0.0214205
1995  0.03  0.044124  -0.695757
1996  0.02  0.0315285  -0.820827
1997  0.04  0.0319538  0.405021
1999  0.03  0.0268653  0.199027
2000  0.09  0.0336545  1.77392
2001  0.01  0.0316117  -2.07559
2002  0.11  0.0356209  2.0334
2003  0.05  0.0253614  1.22412
2004  0.1  0.0382455  1.73331
2005  0.04  0.0189541  1.34687
2006  0.04  0.0358415  0.197965


Input and Estimated effective sample sizes for index 1
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 2
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
```

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2006  0  0
 Total  0  0
Input and Estimated effective sample sizes for index 3
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 4
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 5
1992  0  0
1993  0  0
1994  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 6
1982  0  0
1983  0  0
1984  0  0
1985  0  0
```

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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 7
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 8
1982  0  0
1983  0  0
1984  0  0
1985  0  0
1986  0  0
1987  0  0
1988  0  0
```

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1989  0  0
1990  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 9
1982  0  0
1983  0  0
1984  0  0
1985  0  0
1986  0  0
1987  0  0
1988  0  0
1989  0  0
1991  0  0
1994  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 10
1983  0  0
1984  0  0
1985  0  0
1986  0  0
1992  0  0
1995  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
```

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Input and Estimated effective sample sizes for index 11
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 12
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
1983  0  0
1984  0  0
1985  0  0
1986  0  0
```

```
1987  0  0
1988  0  0
1989  0  0
1991  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 14
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 15
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
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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 16
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
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 17
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
1994  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 18
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 19
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 20
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 21
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 22
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 23
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 24
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
```

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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 25
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 26
1982  0  0
1983  0  0
1984  0  0
1985  0  0
1986  0  0
1987  0  0
1988  0  0
1992  0  0
1993  0  0
1994  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 27
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 28
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 29
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
```

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2006  0  0
 Total  0  0
Input and Estimated effective sample sizes for index 30
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 31
1990  0  0
1991  0  0
1992  0  0
1993  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 32
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 33
1985  0   0
1986  0   0
1987  0   0
1988  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
1999  0   0
2000  0   0
2001  0   0
2002  0   0
2004  0   0
2005  0   0
2006  0   0
 Total   0   0
Input and Estimated effective sample sizes for index 34
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 35
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 36
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 37
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 38
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 39
1990  0  0
1992  0  0
1993  0  0
1994  0  0
1995  0  0
1996  0  0
1997  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
 N/A
 Index number 2
 N/A
 Index number 3
```

```
N/A
Index number 4
N/A
Index number 5
N/A
Index number 6
N/A
Index number 7
N/A
Index number 8
N/A
Index number 9
N/A
Index number 10
N/A
Index number 11
N/A
Index number 12
N/A
Index number 13
N/A
Index number 14
N/A
Index number 15
N/A
Index number 16
N/A
Index number 17
N/A
Index number 18
N/A
Index number 19
N/A
Index number 20
N/A
Index number 21
N/A
Index number 22
N/A
Index number 23
N/A
Index number 24
N/A
Index number 25
N/A
Index number 26
N/A
Index number 27
N/A
Index number 28
N/A
Index number 29
N/A
Index number 30
N/A
Index number 31
N/A
```

```
Index number 32
N/A
Index number 33
N/A
Index number 34
N/A
Index number 35
N/A
Index number 36
N/A
Index number 37
N/A
Index number 38
N/A
Index number 39
N/A


Index Selectivity at Age
 0 1 0 0 0 0 0 0
 0 0 1 0 0 0 0 0
 0 0 0 1 0 0 0 0
 0 0 0 0 1 0 0 0
 0 0 0 0 0 1 1 1
 0 1 0 0 0 0 0 0
 0 0 1 0 0 0 0 0
 0 0 0 1 0 0 0 0
 0 0 0 0 1 0 0 0
 0 0 0 0 0 1 1 1
 0 0 1 0 0 0 0 0
 0 0 0 1 0 0 0 0
 0 0 0 0 1 0 0 0
 0 0 1 0 0 0 0 0
 0 0 0 1 0 0 0 0
 0 0 0 1 0 0 0 0
 0 0 0 0 1 0 0 0
 0 0 1 0 0 0 0 0
 0 0 0 1 0 0 0 0
 0 0 0 0 1 0 0 0
 0 0 1 0 0 0 0 0
 0 0 0 1 0 0 0 0
 0 0 0 0 1 0 0 0
 0 0 0 0 0 1 1 1
 0 0 0 1 0 0 0 0
 0 0 0 0 1 0 0 0
 0 1 0 0 0 0 0 0
 0 0 1 0 0 0 0 0
 0 1 0 0 0 0 0 0
 0 0 1 0 0 0 0 0
 0 0 0 1 0 0 0 0
 0 0 0 0 1 0 0 0
 1 0 0 0 0 0 0 0
 1 0 0 0 0 0 0 0
 1 0 0 0 0 0 0 0
 1 0 0 0 0 0 0 0
 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  42223.2  26071.1  0.625936
3  22193.6  12144.6  0.782736
4  2871.67  3605.15  -0.295312
5  613.233  1037.69  -0.682885
6  278.133  298.335  -0.0910306
7  86.5266  85.767  0.0114464
8  34.2466  34.6052  -0.0135258


Fleet Obs, Initial, and Stadardized Residual for Fmult
1  1.04658  1  0.0591107


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
 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
 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
 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
 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
24  0
25  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
24  0
25  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
 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
18  0
19  0
20  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
 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
22  0
23  0
24  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
 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
 index 14 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 15 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 16 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
 index 17 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
 index 18 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 19 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 20 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
 index 21 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
 index 22 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
 index 23 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
 index 24 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
 index 25 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 26 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
 index 27 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 28 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 29 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 30 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 31 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
 index 32 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 33 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 34 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 35 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 36 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 37 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 38 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 39 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


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

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

End of Deviations Section

Selectivity by age and year for each fleet
 fleet 1 selectivity at age
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0413693 0.538843 0.96936 0.998834 0.999957 0.999998 1 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
```

```
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1
 0.0139015 0.158404 0.71534 0.971058 0.997774 0.999834 0.999988 1


Fmult by year for each fleet
1982    1.04658
1983    1.47154
1984    1.53676
1985    1.49015
1986    1.7454
1987    1.39761
1988    1.95195
1989    1.67219
1990    1.33065
1991    1.61674
1992    1.58005
1993    1.4054
1994    1.33018
1995    1.61383
1996    1.34096
1997    0.878117
1998    0.816099
1999    0.678098
2000    0.725304
2001    0.565204
2002    0.477099
2003    0.453508
2004    0.471593
2005    0.490137
2006    0.427629


Directed F by age and year for each fleet
 fleet 1 directed F at age
 0.0432965 0.563944 1.01452 1.04536 1.04654 1.04658 1.04658 1.04658
 0.0608767 0.792931 1.42646 1.46983 1.47148 1.47154 1.47154 1.47154
 0.0635745 0.82807 1.48967 1.53496 1.53669 1.53675 1.53676 1.53676
 0.0616465 0.802956 1.44449 1.48841 1.49009 1.49015 1.49015 1.49015
 0.072206 0.940497 1.69192 1.74337 1.74533 1.7454 1.7454 1.7454
 0.0578183 0.753094 1.35479 1.39598 1.39755 1.39761 1.39761 1.39761
 0.0807507 1.05179 1.89214 1.94967 1.95186 1.95194 1.95195 1.95195
 0.0691773 0.901047 1.62095 1.67024 1.67212 1.67219 1.67219 1.67219
 0.0550481 0.717011 1.28988 1.3291 1.33059 1.33065 1.33065 1.33065
 0.0668834 0.871169 1.5672 1.61486 1.61667 1.61674 1.61674 1.61674
 0.0653657 0.8514 1.53164 1.57821 1.57998 1.58005 1.58005 1.58005
 0.0581406 0.757292 1.36234 1.40377 1.40534 1.4054 1.4054 1.4054
 0.0550286 0.716758 1.28942 1.32863 1.33012 1.33018 1.33018 1.33018
 0.0224348 0.255638 1.15444 1.56713 1.61024 1.61357 1.61382 1.61383
 0.0186414 0.212414 0.959241 1.30215 1.33797 1.34074 1.34094 1.34096
 0.0122072 0.139098 0.628152 0.852702 0.876161 0.877971 0.878106 0.878117
 0.011345 0.129274 0.583788 0.79248 0.814282 0.815963 0.81609 0.816099
 0.00942661 0.107414 0.485071 0.658473 0.676589 0.677986 0.67809 0.678098
 0.0100828 0.114891 0.518839 0.704312 0.723689 0.725183 0.725295 0.725304
 0.00785721 0.0895309 0.404313 0.548846 0.563946 0.56511 0.565198 0.565204
 0.00663241 0.0755746 0.341288 0.463291 0.476037 0.47702 0.477093 0.477099
 0.00630446 0.0718377 0.324412 0.440383 0.452498 0.453433 0.453503 0.453508
 0.00655588 0.0747025 0.33735 0.457945 0.470543 0.471515 0.471588 0.471593
```

```
 0.00681366 0.0776399 0.350615 0.475952 0.489046 0.490056 0.490131 0.490137
 0.0059447 0.0677383 0.3059 0.415253 0.426677 0.427558 0.427624 0.427629
Discard F by age and year for each fleet
 fleet 1 Discard F at age
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
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 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0
Total F
 0.0432965 0.563944 1.01452 1.04536 1.04654 1.04658 1.04658 1.04658
 0.0608767 0.792931 1.42646 1.46983 1.47148 1.47154 1.47154 1.47154
 0.0635745 0.82807 1.48967 1.53496 1.53669 1.53675 1.53676 1.53676
 0.0616465 0.802956 1.44449 1.48841 1.49009 1.49015 1.49015 1.49015
 0.072206 0.940497 1.69192 1.74337 1.74533 1.7454 1.7454 1.7454
 0.0578183 0.753094 1.35479 1.39598 1.39755 1.39761 1.39761 1.39761
 0.0807507 1.05179 1.89214 1.94967 1.95186 1.95194 1.95195 1.95195
 0.0691773 0.901047 1.62095 1.67024 1.67212 1.67219 1.67219 1.67219
 0.0550481 0.717011 1.28988 1.3291 1.33059 1.33065 1.33065 1.33065
 0.0668834 0.871169 1.5672 1.61486 1.61667 1.61674 1.61674 1.61674
 0.0653657 0.8514 1.53164 1.57821 1.57998 1.58005 1.58005 1.58005
 0.0581406 0.757292 1.36234 1.40377 1.40534 1.4054 1.4054 1.4054
 0.0550286 0.716758 1.28942 1.32863 1.33012 1.33018 1.33018 1.33018
 0.0224348 0.255638 1.15444 1.56713 1.61024 1.61357 1.61382 1.61383
 0.0186414 0.212414 0.959241 1.30215 1.33797 1.34074 1.34094 1.34096
 0.0122072 0.139098 0.628152 0.852702 0.876161 0.877971 0.878106 0.878117
 0.011345 0.129274 0.583788 0.79248 0.814282 0.815963 0.81609 0.816099
 0.00942661 0.107414 0.485071 0.658473 0.676589 0.677986 0.67809 0.678098
 0.0100828 0.114891 0.518839 0.704312 0.723689 0.725183 0.725295 0.725304
 0.00785721 0.0895309 0.404313 0.548846 0.563946 0.56511 0.565198 0.565204
 0.00663241 0.0755746 0.341288 0.463291 0.476037 0.47702 0.477093 0.477099
 0.00630446 0.0718377 0.324412 0.440383 0.452498 0.453433 0.453503 0.453508
 0.00655588 0.0747025 0.33735 0.457945 0.470543 0.471515 0.471588 0.471593
 0.00681366 0.0776399 0.350615 0.475952 0.489046 0.490056 0.490131 0.490137
 0.0059447 0.0677383 0.3059 0.415253 0.426677 0.427558 0.427624 0.427629

Average F for ages 3 to 5
```

```
Freport unweighted in .std and MCMC files
year    unweighted   Nweighted    Bweighted
1982  1.03547  1.01873  1.02567
1983  1.45592  1.43838  1.44286
1984  1.52044  1.50115  1.50738
1985  1.47433  1.45024  1.4543
1986  1.72687  1.70867  1.71504
1987  1.38278  1.36125  1.36579
1988  1.93123  1.90025  1.905
1989  1.65444  1.6311   1.63477
1990  1.31652  1.30496  1.3096
1991  1.59958  1.57309  1.578
1992  1.56328  1.53773  1.54127
1993  1.39048  1.37055  1.37561
1994  1.31606  1.29667  1.30173
1995  1.44394  1.232    1.26369
1996  1.19979  1.00534  1.029
1997  0.785672  0.679438  0.690909
1998  0.730183  0.670307  0.691404
1999  0.606711  0.555429  0.577432
2000  0.648946  0.591884  0.616171
2001  0.505702  0.473633  0.488283
2002  0.426872  0.39157   0.40506
2003  0.405764  0.378845  0.392856
2004  0.421946  0.393166  0.408061
2005  0.438537  0.421346  0.434706
2006  0.38261   0.35137   0.367


Population Numbers at the Start of the Year
 52426.1 42223.2 22193.6 2871.67 613.233 278.133 86.5266 34.2466
 84903.3 41104.1 19668.6 6588.25 826.569 176.303 79.9592 34.7205
 37256.6 65407.5 15228.6 3867.35 1240.43 155.369 33.1375 21.5548
 49384.6 28624.3 23396 2810.91 682.226 218.443 27.3591 9.63081
 60263.4 38015.4 10499.2 4518.03 519.491 125.873 40.3011 6.82435
 43576.3 45902.5 12152 1583.09 647.077 74.2565 17.9911 6.73564
 12206.7 33673 17697.5 2566.91 320.906 130.963 15.028 5.00417
 24247 9218.73 9630.18 2184.28 299.103 37.3108 15.2254 2.32889
 34627.2 18524.9 3065.44 1558.85 336.568 46.0013 5.73792 2.69962
 27984.9 26831.9 7404.63 690.949 337.851 72.8358 9.95448 1.82584
 28638 21429.8 9192.82 1264.78 112.529 54.9232 11.8398 1.91495
 31979.1 21963.2 7488.6 1627.07 213.673 18.977 9.26168 2.31946
 38179.3 24703.5 8432.36 1569.94 327.266 42.9099 3.81074 2.32559
 41618.3 29584.9 9876.77 1901.52 340.415 70.856 9.28987 1.3285
 29738.1 33318.3 18758.1 2549.11 324.824 55.6968 11.5546 1.73112
 30139.2 23897.8 22058.4 5884.88 567.563 69.7773 11.9316 2.84552
 32845.5 24376.5 17025.1 9636.33 2053.78 193.483 23.7442 5.02774
 25339.7 26588.2 17537.6 7774.91 3571.77 744.831 70.0513 10.4157
 31743.4 20551.7 19551.6 8839.9 3295.07 1486.57 309.566 33.4401
 29816.6 25728.6 15000 9527.83 3578.57 1308.31 589.364 135.972
 33598.1 24220.7 19260.8 8196.77 4505.82 1666.99 608.736 337.457
 23921.2 27325.9 18386.8 11209.7 4222.59 2291.79 847.044 480.752
 36073.6 19462 20821.8 10883.2 5908.55 2198.89 1192.32 690.745
 17877.8 29341.6 14787.2 12166 5636.57 3021.81 1123.49 962.05
 33806.1 14537.7 22228.3 8526.21 6188.53 2829.87 1515.59 1045.91

q by index
 index 1 q over time
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2006  0.000100201
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1992   7.46703e-05
1993   7.46703e-05
1994   7.46703e-05
1995   7.46703e-05
1996   7.46703e-05
1997   7.46703e-05
1998   7.46703e-05
1999   7.46703e-05
2000   7.46703e-05
2001   7.46703e-05
2002   7.46703e-05
2003   7.46703e-05
2004   7.46703e-05
2005   7.46703e-05
2006   7.46703e-05
 index 25 q over time
1982   0.000116324
1983   0.000116324
1984   0.000116324
1985   0.000116324
1986   0.000116324
1987   0.000116324
1988   0.000116324
1989   0.000116324
1990   0.000116324
1991   0.000116324
1992   0.000116324
1993   0.000116324
1994   0.000116324
1995   0.000116324
1996   0.000116324
1997   0.000116324
1998   0.000116324
1999   0.000116324
2000   0.000116324
2001   0.000116324
2002   0.000116324
2003   0.000116324
2004   0.000116324
2005   0.000116324
2006   0.000116324
 index 26 q over time
1982   8.98802e-05
1983   8.98802e-05
1984   8.98802e-05
1985   8.98802e-05
1986   8.98802e-05
1987   8.98802e-05
1988   8.98802e-05
1992   8.98802e-05
1993   8.98802e-05
1994   8.98802e-05
1997   8.98802e-05
1998   8.98802e-05
1999   8.98802e-05
2000   8.98802e-05
2001   8.98802e-05
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2002  8.98802e-05
2003  8.98802e-05
2004  8.98802e-05
2005  8.98802e-05
2006  8.98802e-05
 index 27 q over time
1990  1.06205e-05
1991  1.06205e-05
1992  1.06205e-05
1993  1.06205e-05
1994  1.06205e-05
1995  1.06205e-05
1996  1.06205e-05
1997  1.06205e-05
1998  1.06205e-05
1999  1.06205e-05
2000  1.06205e-05
2001  1.06205e-05
2002  1.06205e-05
2003  1.06205e-05
2004  1.06205e-05
2005  1.06205e-05
2006  1.06205e-05
 index 28 q over time
1990  3.37594e-05
1991  3.37594e-05
1992  3.37594e-05
1993  3.37594e-05
1994  3.37594e-05
1995  3.37594e-05
1996  3.37594e-05
1997  3.37594e-05
1998  3.37594e-05
1999  3.37594e-05
2000  3.37594e-05
2001  3.37594e-05
2002  3.37594e-05
2003  3.37594e-05
2004  3.37594e-05
2005  3.37594e-05
2006  3.37594e-05
 index 29 q over time
1988  0.000161176
1989  0.000161176
1990  0.000161176
1991  0.000161176
1992  0.000161176
1993  0.000161176
1994  0.000161176
1995  0.000161176
1996  0.000161176
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1998  0.000161176
1999  0.000161176
2000  0.000161176
2001  0.000161176
2002  0.000161176
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2003  0.000161176
2004  0.000161176
2005  0.000161176
2006  0.000161176
 index 30 q over time
1988  7.2334e-05
1989  7.2334e-05
1990  7.2334e-05
1991  7.2334e-05
1992  7.2334e-05
1993  7.2334e-05
1994  7.2334e-05
1995  7.2334e-05
1996  7.2334e-05
1997  7.2334e-05
1998  7.2334e-05
1999  7.2334e-05
2000  7.2334e-05
2001  7.2334e-05
2002  7.2334e-05
2003  7.2334e-05
2004  7.2334e-05
2005  7.2334e-05
2006  7.2334e-05
 index 31 q over time
1990  4.51081e-05
1991  4.51081e-05
1992  4.51081e-05
1993  4.51081e-05
1995  4.51081e-05
1996  4.51081e-05
1997  4.51081e-05
1998  4.51081e-05
1999  4.51081e-05
2000  4.51081e-05
2001  4.51081e-05
2002  4.51081e-05
2003  4.51081e-05
2004  4.51081e-05
2005  4.51081e-05
2006  4.51081e-05
 index 32 q over time
1992  8.9385e-05
1993  8.9385e-05
1994  8.9385e-05
1995  8.9385e-05
1996  8.9385e-05
1997  8.9385e-05
1998  8.9385e-05
1999  8.9385e-05
2000  8.9385e-05
2001  8.9385e-05
2002  8.9385e-05
2003  8.9385e-05
2004  8.9385e-05
2005  8.9385e-05
2006  8.9385e-05
```

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 index 33 q over time
1985  1.82731e-06
1986  1.82731e-06
1987  1.82731e-06
1988  1.82731e-06
1990  1.82731e-06
1991  1.82731e-06
1992  1.82731e-06
1993  1.82731e-06
1994  1.82731e-06
1995  1.82731e-06
1996  1.82731e-06
1997  1.82731e-06
1999  1.82731e-06
2000  1.82731e-06
2001  1.82731e-06
2002  1.82731e-06
2004  1.82731e-06
2005  1.82731e-06
2006  1.82731e-06
 index 34 q over time
1982  2.87006e-05
1983  2.87006e-05
1984  2.87006e-05
1985  2.87006e-05
1986  2.87006e-05
1987  2.87006e-05
1988  2.87006e-05
1989  2.87006e-05
1990  2.87006e-05
1991  2.87006e-05
1992  2.87006e-05
1993  2.87006e-05
1994  2.87006e-05
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1997  2.87006e-05
1998  2.87006e-05
1999  2.87006e-05
2000  2.87006e-05
2001  2.87006e-05
2002  2.87006e-05
2003  2.87006e-05
2004  2.87006e-05
2005  2.87006e-05
2006  2.87006e-05
 index 35 q over time
1982  0.000243063
1983  0.000243063
1984  0.000243063
1985  0.000243063
1986  0.000243063
1987  0.000243063
1988  0.000243063
1989  0.000243063
1990  0.000243063
1991  0.000243063
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1992  0.000243063
1993  0.000243063
1994  0.000243063
1995  0.000243063
1996  0.000243063
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1999  0.000243063
2000  0.000243063
2001  0.000243063
2002  0.000243063
2003  0.000243063
2004  0.000243063
2005  0.000243063
2006  0.000243063
 index 36 q over time
1988  3.95539e-05
1989  3.95539e-05
1990  3.95539e-05
1991  3.95539e-05
1992  3.95539e-05
1993  3.95539e-05
1994  3.95539e-05
1995  3.95539e-05
1996  3.95539e-05
1997  3.95539e-05
1998  3.95539e-05
1999  3.95539e-05
2000  3.95539e-05
2001  3.95539e-05
2002  3.95539e-05
2003  3.95539e-05
2004  3.95539e-05
2005  3.95539e-05
2006  3.95539e-05
 index 37 q over time
1982  8.32894e-06
1983  8.32894e-06
1984  8.32894e-06
1985  8.32894e-06
1986  8.32894e-06
1987  8.32894e-06
1988  8.32894e-06
1989  8.32894e-06
1990  8.32894e-06
1991  8.32894e-06
1992  8.32894e-06
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1997  8.32894e-06
1998  8.32894e-06
1999  8.32894e-06
2000  8.32894e-06
2001  8.32894e-06
2002  8.32894e-06
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2003  8.32894e-06
2004  8.32894e-06
2005  8.32894e-06
2006  8.32894e-06
 index 38 q over time
1986  5.4817e-06
1987  5.4817e-06
1988  5.4817e-06
1989  5.4817e-06
1990  5.4817e-06
1991  5.4817e-06
1992  5.4817e-06
1993  5.4817e-06
1994  5.4817e-06
1995  5.4817e-06
1996  5.4817e-06
1997  5.4817e-06
1998  5.4817e-06
1999  5.4817e-06
2000  5.4817e-06
2001  5.4817e-06
2002  5.4817e-06
2003  5.4817e-06
2004  5.4817e-06
2005  5.4817e-06
2006  5.4817e-06
 index 39 q over time
1990  1.06021e-06
1992  1.06021e-06
1993  1.06021e-06
1994  1.06021e-06
1995  1.06021e-06
1996  1.06021e-06
1997  1.06021e-06
1999  1.06021e-06
2000  1.06021e-06
2001  1.06021e-06
2002  1.06021e-06
2003  1.06021e-06
2004  1.06021e-06
2005  1.06021e-06
2006  1.06021e-06


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 =  0.0592209 0.489379 0.383148 0.050457 0.010782 0.00489029
0.00152136 0.000602143
Year 2 Obs  =  0.103612 0.598342 0.229546 0.0458839 0.0145793 0.00679528
0.000336608 0.000904635
Year 2 Pred =  0.102057 0.463542 0.310881 0.105598 0.0132553 0.00282735
0.00128229 0.000556808
Year 3 Obs  =  0.0942382 0.521666 0.303281 0.0624068 0.0162689 0.00186435
7.84991e-05 0.000196248
Year 3 Pred =  0.0410321 0.666849 0.215747 0.0555328 0.0178208 0.00223216
0.000476081 0.000309674
```

```
Year 4 Obs  =   0.0558107 0.392743 0.482878 0.0474579 0.0133215 0.00676819
0.000805737 0.000214863
Year 4 Pred =   0.0734577 0.397929 0.454732 0.0553941 0.0134514 0.00430712
0.000539449 0.000189894
Year 5 Obs  =   0.0563748 0.497562 0.320918 0.109789 0.00917325 0.0040641
0.0016837 0.000435439
Year 5 Pred =   0.102635 0.57463 0.214828 0.0935601 0.0107625 0.0026078
0.000834946 0.000141385
Year 6 Obs  =   0.0361216 0.546812 0.344315 0.0523557 0.0172825 0.000794231
0.000921308 0.00139785
Year 6 Pred =   0.0644045 0.646281 0.242203 0.0320152 0.0130931 0.00150255
0.000364043 0.000136293
Year 7 Obs  =   0.0204602 0.529056 0.374768 0.0549979 0.016574 0.00311406
0.000488985 0.000540457
Year 7 Pred =   0.0229019 0.538329 0.373879 0.0548102 0.00685486 0.00279753
0.000321017 0.000106896
Year 8 Obs  =   0.063287 0.315776 0.48164 0.111543 0.0232711 0.00362582
0.000593315 0.000263696
Year 8 Pred =   0.0942143 0.322615 0.460312 0.105718 0.0144832 0.0018067
0.00073726 0.000112772
Year 9 Obs  =   0.131557 0.624327 0.155018 0.0705274 0.0156649 0.00212645
0.000567054 0.000212645
Year 9 Pred =   0.122267 0.631862 0.149391 0.0771245 0.0166611 0.00227725
0.00028405 0.000133642
Year 10 Obs  =   0.0470108 0.570563 0.335697 0.0348471 0.0101911 0.00150284
0.000140891 4.69638e-05
Year 10 Pred =   0.0737896 0.644374 0.244576 0.0231181 0.0113094 0.00243818
0.000333227 6.11202e-05
Year 11 Obs  =   0.0686058 0.561535 0.302207 0.0564193 0.00757272 0.00351053
0.000100301 5.01505e-05
Year 11 Pred =   0.0794587 0.545587 0.323407 0.0450847 0.00401318 0.00195879
0.000422258 6.8295e-05
Year 12 Obs  =   0.0682494 0.596718 0.297482 0.0300616 0.0038772 0.00239006
0.00106225 0.000159337
Year 12 Pred =   0.0871078 0.568989 0.274343 0.0604773 0.00794637 0.000705756
0.000344443 8.62611e-05
Year 13 Obs  =   0.0809769 0.51226 0.345857 0.0485466 0.0101345 0.00128535
0.00069211 0.000247182
Year 13 Pred =   0.0907913 0.567534 0.276807 0.0523202 0.0109126 0.00143085
0.000127071 7.75481e-05
Year 14 Obs  =   0.0383395 0.377437 0.472962 0.0802409 0.0257108 0.00498672
0.000259051 6.47626e-05
Year 14 Pred =   0.0562998 0.40852 0.420033 0.0940353 0.0170324 0.00354833
0.00046525 6.65332e-05
Year 15 Obs  =   0.00868307 0.371174 0.497293 0.0956745 0.0223509 0.00380554
0.000857587 0.000160798
Year 15 Pred =   0.0262955 0.306257 0.562529 0.09071 0.0117171 0.00201116
0.000417258 6.25143e-05
Year 16 Obs  =   0.00206925 0.175541 0.554973 0.217202 0.0381432 0.011036
0.000758725 0.0002759
Year 16 Pred =   0.020685 0.175913 0.587926 0.193638 0.019004 0.00233947
0.000400078 9.54138e-05
Year 17 Obs  =   0.00299222 0.148481 0.42423 0.348627 0.0651639 0.00917614
0.00126338 6.64938e-05
Year 17 Pred =   0.0211014 0.168677 0.432836 0.304215 0.0660169 0.00622781
0.000764353 0.00016185
```

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Year 18 Obs  =   0.0127178 0.153527 0.439854 0.282322 0.0815767 0.0251546
0.00386453 0.000983699
Year 18 Pred =   0.015123 0.172531 0.432152 0.241122 0.112938 0.0235858
0.00221848 0.00032986
Year 19 Obs  =   0.00135811 0.0949441 0.49182 0.288289 0.0943885 0.0228409
0.00456818 0.00179023
Year 19 Pred =   0.017965 0.126056 0.450238 0.255008 0.0968687 0.0437648
0.00911462 0.000984591
Year 20 Obs  =   0.000832829 0.218655 0.360388 0.282935 0.0978952 0.0274833
0.00931254 0.00249849
Year 20 Pred =   0.0167107 0.158 0.359582 0.290776 0.111479 0.0408196
0.0183904 0.0042429
Year 21 Obs  =   0.0218685 0.0912526 0.435038 0.308651 0.104679 0.0256472
0.0108538 0.00200997
Year 21 Pred =   0.0166133 0.132027 0.418901 0.229068 0.128653 0.0476744
0.0174114 0.00965223
Year 22 Obs  =   0.019559 0.119544 0.372829 0.30222 0.119242 0.0425162
0.0175955 0.00649449
Year 22 Pred =   0.0106871 0.1348 0.364041 0.285904 0.110063 0.0598345
0.0221175 0.0125532
Year 23 Obs  =   0.00730276 0.0718673 0.386841 0.319956 0.130153 0.0524843
0.020748 0.010647
Year 23 Pred =   0.0152638 0.0908152 0.388194 0.260872 0.144712 0.0539427
0.0292534 0.0169475
Year 24 Obs  =   0.0172803 0.13655 0.262167 0.285301 0.155593 0.0739879
0.0359712 0.03315
Year 24 Pred =   0.0078072 0.141127 0.282852 0.29861 0.14133 0.0758907
0.0282189 0.0241643
Year 25 Obs  =   0.0148916 0.0835802 0.395291 0.255419 0.140028 0.067753
0.0290036 0.014034
Year 25 Pred =   0.0143006 0.0680254 0.420181 0.2082 0.15448 0.070758
0.0379004 0.0261555

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
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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    0.149933     0.314057
  Fmax    0.279354     0.506019
  F30%SPR 0.233529     0.436013
  F40%SPR 0.159166     0.327017
  Fmsy    0.279356     0.506023    SSBmsy    65713    MSY    16683.6
  Fcurrent 0.38261     0.666407


Stock-Recruitment Relationship Parameters
 alpha     = 33252.3
 beta      = 0.0266636
 unexpl    = 269287
 steepness = 1
Spawning Stock, Obs Recruits(year+1), Pred Recruits(year+1), standardized
residual
init  xxxx  52426.1  33252.2  0.963802
1982  23323.7  84903.3  33252.3  1.9844
1983  21896.3  37256.6  33252.3  0.240711
1984  19715.1  49384.6  33252.2  0.837283
1985  16626.9  60263.4  33252.2  1.25874
1986  15792.8  43576.3  33252.2  0.572402
1987  17258.9  12206.7  33252.2  -2.12146
1988  10160.4  24247    33252.2  -0.668587
1989  6341.52  34627.2  33252.2  0.0857779
1990  8811.5   27984.9  33252.2  -0.365078
1991  8781.53  28638    33252.2  -0.31624
1992  9619.62  31979.1  33252.2  -0.0826387
```

```
1993  10714.1  38179.3  33252.2   0.292504
1994  13549.5  41618.3  33252.2   0.47508
1995  18950.7  29738.1  33252.2  -0.236449
1996  20991.7  30139.2  33252.3  -0.208085
1997  21747.5  32845.5  33252.3  -0.0260564
1998  24144    25339.7  33252.3  -0.575281
1999  24936.4  31743.4  33252.3  -0.0983053
2000  27156.5  29816.6  33252.3  -0.230869
2001  31933.9  33598.1  33252.3   0.0219008
2002  36026    23921.2  33252.3  -0.697226
2003  39927.8  36073.6  33252.3   0.172402
2004  39008    17877.8  33252.3  -1.31369
2005  37606.1  33806.1  33252.3   0.03497
2006  38568.8       xxxx   33252.3
```

```
Root Mean Square Error computed from Standardized Residuals
Component                 #resids       RMSE
_Catch_Fleet_1             25           0.250838
Catch_Fleet_Total          25           0.250838
_Discard_Fleet_1           0            0
Discard_Fleet_Total        0            0
_Index_1                   15           2.47422
_Index_2                   15           1.54923
_Index_3                   15           1.82645
_Index_4                   15           2.29378
_Index_5                   14           1.78194
_Index_6                   25           1.85506
_Index_7                   25           1.20796
_Index_8                   24           1.8581
_Index_9                   20           1.0392
_Index_10                  15           1.1527
_Index_11                  24           0.536144
_Index_12                  24           0.960525
_Index_13                  22           0.851905
_Index_14                  25           1.57969
_Index_15                  25           1.23703
_Index_16                  24           0.959367
_Index_17                  22           1.48635
_Index_18                  23           1.25775
_Index_19                  23           1.24994
_Index_20                  22           1.42834
_Index_21                  22           1.31644
_Index_22                  22           0.893067
_Index_23                  22           0.857093
_Index_24                  22           1.5647
_Index_25                  25           1.28614
_Index_26                  20           1.57465
_Index_27                  17           1.56556
_Index_28                  17           1.45712
_Index_29                  19           1.13238
_Index_30                  19           1.59104
_Index_31                  16           1.38172
_Index_32                  15           1.46736
_Index_33                  19           1.65396
_Index_34                  25           1.00526
_Index_35                  25           1.03288
_Index_36                  19           1.08328
```

```
_Index_37                          25          1.30295
_Index_38                          21          1.57414
_Index_39                          15          1.39922
Index_Total                       802          1.39533
Nyear1                              7          0.473077
Fmult_Year1                         1          0.0591107
_Fmult_devs_Fleet_1                 0          0
Fmult_devs_Total                    0          0
Recruit_devs                        0          0
Fleet_Sel_params                    4          1.64315
Index_Sel_params                    0          0
q_year1                             0          0
q_devs                              0          0
SRR_steepness                       0          0
SRR_unexpl_S                        0          0

Projections not requested

that's all
```