

APPENDIX 3

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

Fisheries Assessment Toolbox Georges Bank Cod - 2001 Assessment, 2000 TY

Run Number 8 3/29/2001 4:23:31 PM

FACT Version 1.4.7

Georges Bank Cod - 2001 Assessment, 2000 TY 1978 - 2001

Input Parameters and Options Selected

Natural mortality is a matrix below

Oldest age (not in the plus group) is 9

For all years prior to the terminal year (23), backcalculated

stock sizes for the following ages used to estimate

total mortality (Z) for age 9 : 4 5 6 7 8

This method for estimating F on the oldest age is generally used when a flat-topped partial recruitment curve is thought to be characteristic of the stock.

F for age 10 + is then calculated from the following

ratios of F[age 10 +] to F[age 9]

1978	1
1979	1
1980	1
1981	1
1982	1
1983	1
1984	1
1985	1
1986	1
1987	1
1988	1
1989	1
1990	1
1991	1
1992	1
1993	1
1994	1
1995	1
1996	1
1997	1
1998	1
1999	1
2000	1

Stock size of the 10 + group is then calculated using the following method: CATCH EQUATION

Partial recruitment estimate for 2001

1	0.0027
2	0.334
3	0.8209
4	1
5	1
6	1
7	1
8	1
9	1

Objective function is $\sum w*(\text{LOG}(\text{OBS})-\text{LOG}(\text{PRED}))^2$

Indices normalized (by dividing by mean observed value)

before tuning to VPA stock sizes

Downweighting is None or Uniform

Biomass estimates (other than SSB) reflect mean stock sizes.

SSB calculated as in the NEFSC projection program

(see note below SSB table for description of the algorithm).

Initial estimates of parameters for the Marquardt algorithm

and lower and upper bounds on the parameter estimates:

Par. Initial Est Lower Bnd Upper Bnd

N 1	2.00E+03	1.00E+00	1.00E+06
N 2	9.00E+03	1.00E+00	1.00E+06
N 3	4.00E+03	1.00E+00	1.00E+06
N 4	5.00E+03	1.00E+00	1.00E+06
N 5	2.00E+03	1.00E+00	1.00E+06
N 6	2.00E+03	1.00E+00	1.00E+06
N 7	2.00E+03	1.00E+00	1.00E+06
N 8	1.00E+03	1.00E+00	1.00E+06
q spr_361	1.00E-04	0.00E+00	1.00E+00
q spr_362	1.00E-04	0.00E+00	1.00E+00
q spr_363	1.00E-04	0.00E+00	1.00E+00
q spr_364	1.00E-04	0.00E+00	1.00E+00
q spr_365	1.00E-04	0.00E+00	1.00E+00
q spr_366	1.00E-04	0.00E+00	1.00E+00
q spr_367	1.00E-04	0.00E+00	1.00E+00
q spr_368	1.00E-04	0.00E+00	1.00E+00
q spr_411	1.00E-04	0.00E+00	1.00E+00
q spr_412	1.00E-04	0.00E+00	1.00E+00
q spr_413	1.00E-04	0.00E+00	1.00E+00
q spr_414	1.00E-04	0.00E+00	1.00E+00
q spr_415	1.00E-04	0.00E+00	1.00E+00
q spr_416	1.00E-04	0.00E+00	1.00E+00
q spr_417	1.00E-04	0.00E+00	1.00E+00
q spr_418	1.00E-04	0.00E+00	1.00E+00
q sp_can1	1.00E-04	0.00E+00	1.00E+00
q sp_can2	1.00E-04	0.00E+00	1.00E+00
q sp_can3	1.00E-04	0.00E+00	1.00E+00
q sp_can4	1.00E-04	0.00E+00	1.00E+00
q sp_can5	1.00E-04	0.00E+00	1.00E+00
q sp_can6	1.00E-04	0.00E+00	1.00E+00
q sp_can7	1.00E-04	0.00E+00	1.00E+00
q sp_can8	1.00E-04	0.00E+00	1.00E+00
q us0aut1	1.00E-04	0.00E+00	1.00E+00
q us1aut2	1.00E-04	0.00E+00	1.00E+00
q us2aut3	1.00E-04	0.00E+00	1.00E+00
q us3aut4	1.00E-04	0.00E+00	1.00E+00
q us4aut5	1.00E-04	0.00E+00	1.00E+00
q us5aut6	1.00E-04	0.00E+00	1.00E+00

The following indices of abundance are available

1	spr_361
2	spr_362
3	spr_363
4	spr_364
5	spr_365
6	spr_366
7	spr_367
8	spr_368
9	spr_411
10	spr_412
11	spr_413
12	spr_414
13	spr_415
14	spr_416
15	spr_417
16	spr_418
17	sp_can1
18	sp_can2
19	sp_can3
20	sp_can4
21	sp_can5

22 sp_can6
 23 sp_can7
 24 sp_can8
 25 us0aut1
 26 us1aut2
 27 us2aut3
 28 us3aut4
 29 us4aut5
 30 us5aut6

The Indices that will be used in this run are:

1 spr_361
 2 spr_362
 3 spr_363
 4 spr_364
 5 spr_365
 6 spr_366
 7 spr_367
 8 spr_368
 9 spr_411
 10 spr_412
 11 spr_413
 12 spr_414
 13 spr_415
 14 spr_416
 15 spr_417
 16 spr_418
 17 sp_can1
 18 sp_can2
 19 sp_can3
 20 sp_can4
 21 sp_can5
 22 sp_can6
 23 sp_can7
 24 sp_can8
 25 us0aut1
 26 us1aut2
 27 us2aut3
 28 us3aut4
 29 us4aut5
 30 us5aut6

Obs Indices (before transformation) by index and year; with Index means

	1978	1979	1980	1981	1982	1983	1984
spr_361	0.00	0.00	0.00	0.00	0.51	0.33	0.40
spr_362	0.00	0.00	0.00	0.00	5.44	1.95	0.43
spr_363	0.00	0.00	0.00	0.00	9.50	3.02	0.76
spr_364	0.00	0.00	0.00	0.00	8.32	0.80	1.24
spr_365	0.00	0.00	0.00	0.00	6.21	0.70	0.42
spr_366	0.00	0.00	0.00	0.00	0.29	0.44	0.40
spr_367	0.00	0.00	0.00	0.00	1.87	0.03	0.21
spr_368	0.00	0.00	0.00	0.00	0.37	0.22	0.00
spr_411	0.37	0.43	0.03	2.30	0.00	0.00	0.00
spr_412	0.19	1.30	2.22	1.85	0.00	0.00	0.00
spr_413	5.53	0.28	2.69	2.81	0.00	0.00	0.00
spr_414	0.97	1.85	0.21	1.68	0.00	0.00	0.00
spr_415	0.78	0.55	1.71	0.11	0.00	0.00	0.00
spr_416	0.14	0.24	0.37	0.88	0.00	0.00	0.00
spr_417	0.71	0.08	0.19	0.26	0.00	0.00	0.00
spr_418	0.07	0.14	0.03	0.13	0.00	0.00	0.00

sp_can1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sp_can2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sp_can3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sp_can4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sp_can5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sp_can6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sp_can7	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sp_can8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
us0aut1	0.15	0.40	0.11	0.28	0.26	0.36	1.28
us1aut2	0.24	1.85	1.63	0.82	3.53	0.58	0.85
us2aut3	3.43	0.39	1.68	0.56	2.25	1.91	1.09
us3aut4	0.69	4.06	0.16	0.77	1.56	0.24	0.74
us4aut5	0.25	0.96	1.69	0.05	0.59	0.07	0.07
us5aut6	0.17	0.34	0.32	0.26	0.05	0.12	0.03

	1985	1986	1987	1988	1989	1990	1991
spr_361	0.11	0.87	0.02	0.72	0.31	0.17	1.03
spr_362	2.65	0.41	1.61	0.61	1.41	0.92	0.53
spr_363	0.66	1.84	0.38	3.15	0.67	1.74	0.69
spr_364	1.11	0.37	0.76	0.41	1.58	0.67	0.93
spr_365	1.41	0.54	0.06	0.64	0.24	0.91	0.48
spr_366	0.27	0.62	0.18	0.06	0.35	0.13	0.33
spr_367	0.19	0.06	0.14	0.04	0.05	0.14	0.05
spr_368	0.18	0.13	0.03	0.05	0.04	0.01	0.04
spr_411	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_412	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_413	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_414	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_415	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_416	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_417	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_418	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sp_can1	0.00	0.60	0.25	0.28	1.63	0.42	1.18
sp_can2	0.00	2.27	2.13	1.01	2.78	2.44	1.16
sp_can3	0.00	2.81	0.93	4.66	1.38	3.78	1.84
sp_can4	0.00	0.37	1.09	0.58	2.85	2.08	2.15
sp_can5	0.00	0.65	0.34	1.02	0.36	3.87	1.05
sp_can6	0.00	0.44	0.12	0.13	0.42	0.42	1.31
sp_can7	0.00	0.26	0.22	0.08	0.05	0.93	0.16
sp_can8	0.00	0.04	0.08	0.17	0.10	0.12	0.22
us0aut1	0.18	1.00	0.08	0.20	0.55	0.25	0.16
us1aut2	1.91	0.18	2.28	0.41	0.87	2.80	0.36
us2aut3	0.68	0.84	0.13	1.35	0.44	1.05	1.62
us3aut4	0.93	0.07	0.33	0.11	0.90	0.16	1.81
us4aut5	0.83	0.11	0.01	0.20	0.06	0.51	0.41
us5aut6	0.02	0.08	0.05	0.03	0.19	0.05	0.29

	1992	1993	1994	1995	1996	1997	1998
spr_361	0.12	0.01	0.12	0.05	0.07	0.29	0.11
spr_362	1.25	0.40	0.27	0.38	0.21	0.44	0.67
spr_363	0.47	1.31	0.20	0.85	0.74	0.17	1.30
spr_364	0.17	0.21	0.22	0.53	1.25	0.49	0.85
spr_365	0.27	0.09	0.03	0.60	0.17	0.42	0.75
spr_366	0.14	0.14	0.01	0.11	0.21	0.05	0.53
spr_367	0.16	0.03	0.04	0.23	0.03	0.13	0.10
spr_368	0.02	0.03	0.00	0.03	0.02	0.02	0.03
spr_411	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_412	0.00	0.00	0.00	0.00	0.00	0.00	0.00

spr_413	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_414	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_415	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_416	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_417	0.00	0.00	0.00	0.00	0.00	0.00	0.00
spr_418	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sp_can1	0.11	0.00	0.00	0.07	0.14	0.32	0.01
sp_can2	2.86	0.00	0.00	0.67	0.49	0.53	0.67
sp_can3	1.77	0.00	0.00	1.50	2.31	0.55	0.95
sp_can4	0.80	0.00	0.00	0.86	4.02	1.25	0.35
sp_can5	0.98	0.00	0.00	0.60	1.09	1.23	0.35
sp_can6	0.60	0.00	0.00	0.19	0.79	0.27	0.28
sp_can7	0.43	0.00	0.00	0.04	0.33	0.06	0.07
sp_can8	0.12	0.00	0.00	0.05	0.08	0.03	0.02
us0aut1	0.04	0.04	0.18	0.07	0.16	0.02	0.01
us1aut2	0.41	0.41	0.97	0.41	0.24	0.24	0.24
us2aut3	0.18	0.95	0.53	0.66	1.81	0.20	0.32
us3aut4	0.27	0.17	0.38	0.43	1.25	0.41	0.11
us4aut5	0.03	0.10	0.02	0.15	0.09	0.14	0.13
us5aut6	0.03	0.04	0.03	0.07	0.05	0.06	0.05

1999 2000 2001 Average

spr_361	0.21	0.22	0.00	0.299
spr_362	0.29	0.81	0.00	1.088
spr_363	0.61	0.83	0.00	1.520
spr_364	0.51	1.14	0.00	1.134
spr_365	0.24	0.37	0.00	0.767
spr_366	0.12	0.10	0.00	0.236
spr_367	0.06	0.03	0.00	0.189
spr_368	0.03	0.02	0.00	0.075
spr_411	0.00	0.00	0.00	0.783
spr_412	0.00	0.00	0.00	1.390
spr_413	0.00	0.00	0.00	2.827
spr_414	0.00	0.00	0.00	1.180
spr_415	0.00	0.00	0.00	0.784
spr_416	0.00	0.00	0.00	0.407
spr_417	0.00	0.00	0.00	0.310
spr_418	0.00	0.00	0.00	0.092
sp_can1	0.33	0.10	0.00	0.418
sp_can2	0.32	0.44	0.06	1.274
sp_can3	1.49	1.05	0.64	1.833
sp_can4	1.09	3.92	0.42	1.559
sp_can5	0.41	1.71	1.11	1.055
sp_can6	0.26	0.78	0.52	0.466
sp_can7	0.15	0.40	0.26	0.246
sp_can8	0.01	0.24	0.17	0.104
us0aut1	0.07	0.07	0.02	0.247
us1aut2	0.34	0.14	0.57	0.928
us2aut3	1.03	0.15	0.54	0.991
us3aut4	0.35	0.31	0.07	0.679
us4aut5	0.04	0.25	0.08	0.285
us5aut6	0.04	0.09	0.03	0.104

Catch at age (thousands) -
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1978 1979 1980 1981 1982 1983 1984

1	02	34	89	27	331	108	81
2	393	1989	3777	3205	9138	4286	1307
3	7748	900	5828	4221	3824	8063	3423
4	2303	4870	500	2464	2787	2456	3336
5	830	1212	2308	235	2000	1055	840
6	131	458	1076	1406	281	776	516
7	345	77	445	417	673	95	458
8	47	253	87	123	213	235	44
9	40	04	167	130	71	100	171
10	15	48	10	62	83	65	121

1+	11854	9845	14287	12290	19401	17239	10297

	1985	1986	1987	1988	1989	1990	1991

1	134	156	26	10	00	07	52
2	6426	1326	7473	1577	2088	4942	1525
3	2443	4573	1406	8022	2922	5042	3243
4	1368	797	2121	1012	4155	1882	3281
5	1885	480	279	1497	331	2264	1458
6	412	627	252	244	541	229	1088
7	218	87	270	161	82	245	126
8	203	72	63	197	43	36	70
9	21	47	38	50	50	17	23
10	97	29	24	47	18	38	23

1+	13207	8194	11952	12817	10230	14702	10889

	1992	1993	1994	1995	1996	1997	1998

1	70	04	02	00	01	03	00
2	4177	1033	398	392	207	517	739
3	2170	4246	1526	1058	903	639	1188
4	1038	1115	1825	692	1234	881	423
5	1482	440	394	290	241	794	324
6	404	472	96	44	123	131	237
7	309	159	137	26	15	84	39
8	34	143	46	15	03	16	14
9	33	32	38	02	05	09	06
10	10	17	06	01	00	01	04

1+	9727	7661	4468	2520	2732	3075	2974

	1999	2000					

1	02	06					
2	285	811					
3	1927	710					
4	706	1024					
5	201	306					
6	97	72					
7	119	38					
8	16	25					
9	02	02					
10	03	01					

1+	3358	2995					

CAA Summary for ages 4 - 10

1978	1979	1980	1981	1982	1983	1984
3711	6922	4593	4837	6108	4782	5486
1985	1986	1987	1988	1989	1990	1991
4204	2139	3047	3208	5220	4711	6069
1992	1993	1994	1995	1996	1997	1998
3310	2378	2542	1070	1621	1916	1047
1999	2000					
1144	1468					

Weight at age (mid year) in kg -
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	1978	1979	1980	1981	1982	1983	1984
1	0.707	0.889	0.836	0.882	0.765	0.971	1.053
2	1.310	1.494	1.460	1.495	1.402	1.490	1.635
3	2.461	2.149	2.468	2.358	2.664	2.377	2.451
4	3.469	4.211	3.668	3.415	3.834	3.309	3.619
5	4.336	4.888	5.647	5.213	5.352	4.637	5.083
6	5.787	7.178	6.676	7.222	6.511	6.393	6.582
7	7.374	9.183	8.390	8.565	9.363	7.964	8.909
8	8.492	10.313	9.089	9.888	9.897	10.286	10.104
9	11.785	11.699	8.432	14.170	12.503	11.227	11.303
10	13.200	12.625	15.400	18.565	16.723	14.554	15.356
	1985	1986	1987	1988	1989	1990	1991
1	0.907	0.929	0.726	0.786	0.809	0.831	1.114
2	1.418	1.475	1.481	1.520	1.617	1.560	1.627
3	2.086	2.447	2.495	2.359	2.269	2.462	2.548
4	3.887	3.660	4.187	3.511	3.772	3.522	3.420
5	5.087	5.603	5.810	5.401	5.396	4.892	4.769
6	6.412	7.191	7.726	6.647	6.694	6.333	5.891
7	8.097	8.915	8.949	8.776	8.222	8.456	7.410
8	10.236	9.955	10.013	9.987	10.718	10.648	10.520
9	11.418	12.687	11.414	11.143	11.665	12.580	9.686
10	13.494	14.104	15.000	15.298	17.111	14.526	15.373
	1992	1993	1994	1995	1996	1997	1998
1	1.148	0.872	0.906	0.906	0.882	0.954	0.579
2	1.542	1.534	1.459	1.471	1.507	1.577	1.483
3	2.464	2.253	2.168	2.095	2.435	2.321	2.302
4	3.843	3.333	3.657	3.830	3.387	3.532	3.497
5	4.704	4.967	4.804	5.492	4.912	4.103	4.735
6	6.156	6.379	7.432	7.384	6.622	6.019	5.934
7	7.509	7.510	8.013	10.715	8.369	8.050	8.185
8	9.846	9.217	9.368	11.617	8.438	8.631	8.610
9	12.059	9.699	9.698	10.383	12.883	11.870	12.684
10	19.025	13.236	16.659	14.953	12.002	12.795	14.606
	1999	2000					

1	0.830	1.055
2	1.565	1.710
3	2.223	2.437
4	3.452	3.558
5	4.891	4.836
6	6.422	5.923
7	7.341	7.406
8	9.685	8.498
9	12.153	8.267
10	13.735	10.594

January 1 Biomass Weights -
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	1978	1979	1980	1981	1982	1983	1984
1	0.486	0.694	0.625	0.700	0.548	0.748	0.907
2	1.023	1.028	1.139	1.118	1.112	1.068	1.260
3	1.881	1.678	1.920	1.855	1.996	1.826	1.911
4	2.922	3.219	2.808	2.903	3.007	2.969	2.933
5	3.370	4.118	4.876	4.373	4.275	4.216	4.101
6	4.594	5.579	5.712	6.386	5.826	5.849	5.525
7	6.235	7.290	7.760	7.562	8.223	7.201	7.547
8	7.235	8.721	9.136	9.108	9.207	9.814	8.970
9	10.004	9.967	9.325	11.349	11.119	10.541	10.783
10	13.200	12.625	15.400	18.565	16.723	14.554	15.356
	1985	1986	1987	1988	1989	1990	1991
1	0.711	0.736	0.502	0.548	0.583	0.594	0.947
2	1.222	1.157	1.173	1.050	1.127	1.123	1.163
3	1.847	1.863	1.918	1.869	1.857	1.995	1.994
4	3.087	2.763	3.201	2.960	2.983	2.827	2.902
5	4.291	4.667	4.611	4.755	4.353	4.296	4.098
6	5.709	6.048	6.579	6.214	6.013	5.846	5.368
7	7.300	7.561	8.022	8.234	7.393	7.524	6.850
8	9.549	8.978	9.448	9.454	9.699	9.357	9.432
9	10.741	11.396	10.660	10.563	10.793	11.612	10.156
10	13.494	14.104	15.000	15.298	17.111	14.526	15.373
	1992	1993	1994	1995	1996	1997	1998
1	0.993	0.674	0.711	0.702	0.660	0.765	0.352
2	1.311	1.327	1.128	1.154	1.168	1.179	1.189
3	2.002	1.864	1.824	1.748	1.893	1.870	1.905
4	3.129	2.866	2.870	2.882	2.664	2.933	2.849
5	4.011	4.369	4.001	4.482	4.337	3.728	4.090
6	5.418	5.478	6.076	5.956	6.031	5.437	4.934
7	6.651	6.799	7.149	8.924	7.861	7.301	7.019
8	8.542	8.319	8.388	9.648	9.509	8.499	8.325
9	11.263	9.772	9.454	9.862	12.234	10.008	10.463
10	19.025	13.236	16.659	14.953	12.002	12.795	14.606
	1999	2000					
1	0.578	0.934					
2	0.952	1.191					

3	1.816	1.953
4	2.819	2.812
5	4.136	4.086
6	5.514	5.382
7	6.600	6.896
8	8.903	7.898
9	10.229	8.948
10	13.735	10.594

SSB Weights -

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	1978	1979	1980	1981	1982	1983	1984
1	0.486	0.694	0.625	0.700	0.548	0.748	0.907
2	1.023	1.028	1.139	1.118	1.112	1.068	1.260
3	1.881	1.678	1.920	1.855	1.996	1.826	1.911
4	2.922	3.219	2.808	2.903	3.007	2.969	2.933
5	3.370	4.118	4.876	4.373	4.275	4.216	4.101
6	4.594	5.579	5.712	6.386	5.826	5.849	5.525
7	6.235	7.290	7.760	7.562	8.223	7.201	7.547
8	7.235	8.721	9.136	9.108	9.207	9.814	8.970
9	10.004	9.967	9.325	11.349	11.119	10.541	10.783
10	13.200	12.625	15.400	18.565	16.723	14.554	15.356
	1985	1986	1987	1988	1989	1990	1991
1	0.711	0.736	0.502	0.548	0.583	0.594	0.947
2	1.222	1.157	1.173	1.050	1.127	1.123	1.163
3	1.847	1.863	1.918	1.869	1.857	1.995	1.994
4	3.087	2.763	3.201	2.960	2.983	2.827	2.902
5	4.291	4.667	4.611	4.755	4.353	4.296	4.098
6	5.709	6.048	6.579	6.214	6.013	5.846	5.368
7	7.300	7.561	8.022	8.234	7.393	7.524	6.850
8	9.549	8.978	9.448	9.454	9.699	9.357	9.432
9	10.741	11.396	10.660	10.563	10.793	11.612	10.156
10	13.494	14.104	15.000	15.298	17.111	14.526	15.373
	1992	1993	1994	1995	1996	1997	1998
1	0.993	0.674	0.711	0.702	0.660	0.765	0.352
2	1.311	1.327	1.128	1.154	1.168	1.179	1.189
3	2.002	1.864	1.824	1.748	1.893	1.870	1.905
4	3.129	2.866	2.870	2.882	2.664	2.933	2.849
5	4.011	4.369	4.001	4.482	4.337	3.728	4.090
6	5.418	5.478	6.076	5.956	6.031	5.437	4.934
7	6.651	6.799	7.149	8.924	7.861	7.301	7.019
8	8.542	8.319	8.388	9.648	9.509	8.499	8.325
9	11.263	9.772	9.454	9.862	12.234	10.008	10.463
10	19.025	13.236	16.659	14.953	12.002	12.795	14.606
	1999	2000					
1	0.578	0.934					
2	0.952	1.191					
3	1.816	1.953					
4	2.819	2.812					
5	4.136	4.086					
6	5.514	5.382					
7	6.600	6.896					

8	8.903	7.898
9	10.229	8.948
10	13.735	10.594

Computed (Ri vard)from midyear weights: Jan 1 Weights -
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	1978	1979	1980	1981	1982	1983	1984
1	0.486	0.694	0.625	0.700	0.548	0.748	0.907
2	1.023	1.028	1.139	1.118	1.112	1.068	1.260
3	1.881	1.678	1.920	1.855	1.996	1.826	1.911
4	2.922	3.219	2.808	2.903	3.007	2.969	2.933
5	3.370	4.118	4.876	4.373	4.275	4.216	4.101
6	4.594	5.579	5.712	6.386	5.826	5.849	5.525
7	6.235	7.290	7.760	7.562	8.223	7.201	7.547
8	7.235	8.721	9.136	9.108	9.207	9.814	8.970
9	10.004	9.967	9.325	11.349	11.119	10.541	10.783
10	13.200	12.625	15.400	18.565	16.723	14.554	15.356

	1985	1986	1987	1988	1989	1990	1991
1	0.711	0.736	0.502	0.548	0.583	0.594	0.947
2	1.222	1.157	1.173	1.050	1.127	1.123	1.163
3	1.847	1.863	1.918	1.869	1.857	1.995	1.994
4	3.087	2.763	3.201	2.960	2.983	2.827	2.902
5	4.291	4.667	4.611	4.755	4.353	4.296	4.098
6	5.709	6.048	6.579	6.214	6.013	5.846	5.368
7	7.300	7.561	8.022	8.234	7.393	7.524	6.850
8	9.549	8.978	9.448	9.454	9.699	9.357	9.432
9	10.741	11.396	10.660	10.563	10.793	11.612	10.156
10	13.494	14.104	15.000	15.298	17.111	14.526	15.373

	1992	1993	1994	1995	1996	1997	1998
1	0.993	0.674	0.711	0.702	0.660	0.765	0.352
2	1.311	1.327	1.128	1.154	1.168	1.179	1.189
3	2.002	1.864	1.824	1.748	1.893	1.870	1.905
4	3.129	2.866	2.870	2.882	2.664	2.933	2.849
5	4.011	4.369	4.001	4.482	4.337	3.728	4.090
6	5.418	5.478	6.076	5.956	6.031	5.437	4.934
7	6.651	6.799	7.149	8.924	7.861	7.301	7.019
8	8.542	8.319	8.388	9.648	9.509	8.499	8.325
9	11.263	9.772	9.454	9.862	12.234	10.008	10.463
10	19.025	13.236	16.659	14.953	12.002	12.795	14.606

	1999	2000	2001				
1	0.578	0.934	0.665				
2	0.952	1.191	1.191				
3	1.816	1.953	2.454				
4	2.819	2.812	3.041				
5	4.136	4.086	4.501				
6	5.514	5.382	5.724				
7	6.600	6.896	6.518				
8	8.903	7.898	7.953				
9	10.229	8.948	9.143				
10	13.735	10.594	10.594				

Percent Mature (females) -	D: \GBcod\assess_2001\vpa\gbcod_2000_new_15_gcaa. 9						
	1978	1979	1980	1981	1982	1983	1984
1	07	07	07	07	13	13	13
2	34	34	34	34	47	47	47
3	78	78	78	78	84	84	84
4	96	96	96	96	97	97	97
5	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100
10	100	100	100	100	100	100	100
	1985	1986	1987	1988	1989	1990	1991
1	13	28	28	28	28	12	12
2	47	67	67	67	67	52	52
3	84	91	91	91	91	90	90
4	97	98	98	98	98	99	99
5	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100
10	100	100	100	100	100	100	100
	1992	1993	1994	1995	1996	1997	1998
1	12	12	02	02	02	13	13
2	52	52	39	39	39	57	57
3	90	90	95	95	95	92	92
4	99	99	100	100	100	100	100
5	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100
10	100	100	100	100	100	100	100
	1999	2000					
1	13	13					
2	57	57					
3	92	92					
4	100	100					
5	100	100					
6	100	100					
7	100	100					
8	100	100					
9	100	100					
10	100	100					

Natural Mortality	D: \GBcod\assess_2001\vpa\gbcod_2000_new_15_gcaa. 9						
	1978	1979	1980	1981	1982	1983	1984
1	.200	.200	.200	.200	.200	.200	.200
2	.200	.200	.200	.200	.200	.200	.200
3	.200	.200	.200	.200	.200	.200	.200

4	.200	.200	.200	.200	.200	.200	.200
5	.200	.200	.200	.200	.200	.200	.200
6	.200	.200	.200	.200	.200	.200	.200
7	.200	.200	.200	.200	.200	.200	.200
8	.200	.200	.200	.200	.200	.200	.200
9	.200	.200	.200	.200	.200	.200	.200
10	.000	.000	.000	.000	.000	.000	.000

1985 1986 1987 1988 1989 1990 1991

1	.200	.200	.200	.200	.200	.200	.200
2	.200	.200	.200	.200	.200	.200	.200
3	.200	.200	.200	.200	.200	.200	.200
4	.200	.200	.200	.200	.200	.200	.200
5	.200	.200	.200	.200	.200	.200	.200
6	.200	.200	.200	.200	.200	.200	.200
7	.200	.200	.200	.200	.200	.200	.200
8	.200	.200	.200	.200	.200	.200	.200
9	.200	.200	.200	.200	.200	.200	.200
10	.000	.000	.000	.000	.000	.000	.000

1992 1993 1994 1995 1996 1997 1998

1	.200	.200	.200	.200	.200	.200	.200
2	.200	.200	.200	.200	.200	.200	.200
3	.200	.200	.200	.200	.200	.200	.200
4	.200	.200	.200	.200	.200	.200	.200
5	.200	.200	.200	.200	.200	.200	.200
6	.200	.200	.200	.200	.200	.200	.200
7	.200	.200	.200	.200	.200	.200	.200
8	.200	.200	.200	.200	.200	.200	.200
9	.200	.200	.200	.200	.200	.200	.200
10	.000	.000	.000	.000	.000	.000	.000

1999 2000

1	.200	.200
2	.200	.200
3	.200	.200
4	.200	.200
5	.200	.200
6	.200	.200
7	.200	.200
8	.200	.200
9	.200	.000
10	.000	.000

Sex Ratio (Percent Female) -
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1978 1979 1980 1981 1982 1983 1984

1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2	0.5	0.5	0.5	0.5	0.5	0.5	0.5
3	0.5	0.5	0.5	0.5	0.5	0.5	0.5
4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
7	0.5	0.5	0.5	0.5	0.5	0.5	0.5
8	0.5	0.5	0.5	0.5	0.5	0.5	0.5

	1985	1986	1987	1988	1989	1990	1991
9	0.5	0.5	0.5	0.5	0.5	0.5	0.5
10	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2	0.5	0.5	0.5	0.5	0.5	0.5	0.5
3	0.5	0.5	0.5	0.5	0.5	0.5	0.5
4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
7	0.5	0.5	0.5	0.5	0.5	0.5	0.5
8	0.5	0.5	0.5	0.5	0.5	0.5	0.5
9	0.5	0.5	0.5	0.5	0.5	0.5	0.5
10	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1992	1993	1994	1995	1996	1997	1998
1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2	0.5	0.5	0.5	0.5	0.5	0.5	0.5
3	0.5	0.5	0.5	0.5	0.5	0.5	0.5
4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
7	0.5	0.5	0.5	0.5	0.5	0.5	0.5
8	0.5	0.5	0.5	0.5	0.5	0.5	0.5
9	0.5	0.5	0.5	0.5	0.5	0.5	0.5
10	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1999	2000					
1	0.5	0.5					
2	0.5	0.5					
3	0.5	0.5					
4	0.5	0.5					
5	0.5	0.5					
6	0.5	0.5					
7	0.5	0.5					
8	0.5	0.5					
9	0.5	0.5					
10	0.5	0.5					

pF is 0.1667
pM is 0.1667

Residual Sum of Squares from Marquardt Algorithm

Number 1
RSS 1514.57639172604
Lambda 1.00E-02

Number 2
RSS 1298.73889597029
Lambda 1.00E-03

Number 3
RSS 1119.1436575763
Lambda 1.00E-01

Number 4

RSS	979.647508060233
Lambda	1.00E-02
Number 5	
RSS	548.944014438341
Lambda	1.00E+00
Number 6	
RSS	306.483091644223
Lambda	1.00E-01
Number 7	
RSS	239.473790548727
Lambda	1.00E+01
Number 8	
RSS	232.88678319881
Lambda	1.00E+00
Number 9	
RSS	232.737807590689
Lambda	1.00E-01
Number 10	
RSS	232.7373988461
Lambda	1.00E-02
Number 11	
RSS	232.737366302349
Lambda	1.00E-03
Number 12	
RSS	232.737360083598
Lambda	1.00E-04

RESULTS

Approximate Statistics Assuming Linearity Near Solution
Sum of Squares: 232.737360083598
Mean Square Residuals: 0.58330

	PAR.	EST.	STD. ERR.	T-STATISTIC	C. V.
N 1	1.71E+03	1.34E+03	1.27E+00	0.78	
N 2	4.00E+03	1.42E+03	2.82E+00	0.35	
N 3	4.15E+03	1.31E+03	3.17E+00	0.32	
N 4	8.91E+02	3.30E+02	2.70E+00	0.37	
N 5	1.84E+03	6.38E+02	2.87E+00	0.35	
N 6	1.02E+03	3.25E+02	3.15E+00	0.32	
N 7	4.32E+02	1.36E+02	3.18E+00	0.31	
N 8	3.15E+02	1.05E+02	2.99E+00	0.33	
q spr_361	5.56E-05	9.93E-06	5.60E+00	0.18	
q spr_362	7.04E-05	1.25E-05	5.63E+00	0.18	
q spr_363	9.27E-05	1.64E-05	5.65E+00	0.18	
q spr_364	1.79E-04	3.16E-05	5.64E+00	0.18	
q spr_365	3.19E-04	5.66E-05	5.64E+00	0.18	
q spr_366	1.09E-03	1.94E-04	5.63E+00	0.18	
q spr_367	1.59E-03	2.83E-04	5.64E+00	0.18	
q spr_368	4.79E-03	8.97E-04	5.34E+00	0.19	
q spr_411	1.54E-05	5.90E-06	2.61E+00	0.38	

q spr_412	5. 47E-05	2. 10E-05	2. 61E+00	0. 38
q spr_413	5. 74E-05	2. 20E-05	2. 61E+00	0. 38
q spr_414	1. 19E-04	4. 58E-05	2. 61E+00	0. 38
q spr_415	2. 20E-04	8. 44E-05	2. 61E+00	0. 38
q spr_416	3. 94E-04	1. 51E-04	2. 61E+00	0. 38
q spr_417	7. 27E-04	2. 79E-04	2. 61E+00	0. 38
q spr_418	2. 62E-03	1. 00E-03	2. 61E+00	0. 38
q sp_can1	5. 35E-05	1. 16E-05	4. 60E+00	0. 22
q sp_can2	8. 26E-05	1. 73E-05	4. 78E+00	0. 21
q sp_can3	1. 42E-04	2. 95E-05	4. 81E+00	0. 21
q sp_can4	2. 50E-04	5. 22E-05	4. 79E+00	0. 21
q sp_can5	5. 29E-04	1. 11E-04	4. 78E+00	0. 21
q sp_can6	1. 31E-03	2. 73E-04	4. 78E+00	0. 21
q sp_can7	2. 77E-03	5. 80E-04	4. 78E+00	0. 21
q sp_can8	7. 89E-03	1. 65E-03	4. 78E+00	0. 21
q us0aut1	4. 61E-05	7. 47E-06	6. 17E+00	0. 16
q us1aut2	6. 78E-05	1. 07E-05	6. 31E+00	0. 16
q us2aut3	1. 01E-04	1. 60E-05	6. 33E+00	0. 16
q us3aut4	1. 60E-04	2. 53E-05	6. 32E+00	0. 16
q us4aut5	2. 65E-04	4. 20E-05	6. 31E+00	0. 16
q us5aut6	8. 66E-04	1. 37E-04	6. 31E+00	0. 16

Catchability Estimates in Original Units

	Estimate	Std. Err.	C. V.
	-----	-----	-----
q spr_361	1. 66E-05	2. 97E-06	0. 18
q spr_362	7. 66E-05	1. 36E-05	0. 18
q spr_363	1. 41E-04	2. 50E-05	0. 18
q spr_364	2. 02E-04	3. 59E-05	0. 18
q spr_365	2. 44E-04	4. 34E-05	0. 18
q spr_366	2. 57E-04	4. 56E-05	0. 18
q spr_367	3. 02E-04	5. 35E-05	0. 18
q spr_368	3. 58E-04	6. 70E-05	0. 19
q spr_411	1. 21E-05	4. 62E-06	0. 38
q spr_412	7. 61E-05	2. 92E-05	0. 38
q spr_413	1. 62E-04	6. 23E-05	0. 38
q spr_414	1. 41E-04	5. 40E-05	0. 38
q spr_415	1. 72E-04	6. 61E-05	0. 38
q spr_416	1. 61E-04	6. 17E-05	0. 38
q spr_417	2. 25E-04	8. 64E-05	0. 38
q spr_418	2. 40E-04	9. 21E-05	0. 38
q sp_can1	2. 24E-05	4. 86E-06	0. 22
q sp_can2	1. 05E-04	2. 20E-05	0. 21
q sp_can3	2. 60E-04	5. 41E-05	0. 21
q sp_can4	3. 90E-04	8. 14E-05	0. 21
q sp_can5	5. 58E-04	1. 17E-04	0. 21
q sp_can6	6. 09E-04	1. 28E-04	0. 21
q sp_can7	6. 81E-04	1. 43E-04	0. 21
q sp_can8	8. 18E-04	1. 71E-04	0. 21
q us0aut1	1. 14E-05	1. 85E-06	0. 16
q us1aut2	6. 29E-05	9. 97E-06	0. 16
q us2aut3	1. 01E-04	1. 59E-05	0. 16
q us3aut4	1. 09E-04	1. 72E-05	0. 16
q us4aut5	7. 55E-05	1. 20E-05	0. 16
q us5aut6	8. 98E-05	1. 42E-05	0. 16

Summary of Residuals
spr_36

Tuned to: 1-Jan and number

For ages: 1

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0		0		1	0.000	0.000	00
1979	0.000	0.000	0		0		1	0.000	0.000	00
1980	0.000	0.000	0		0		1	0.000	0.000	00
1981	0.000	0.000	0		0		1	0.000	0.000	00
1982	0.508	0.291	0.529		-0.029	1		0.558	0.731	17470
1983	0.332	0.160	0.102		-0.627	1		0.729	0.954	9615
1984	0.402	0.456	0.295		0.420	1		-0.125	-0.164	27390
1985	0.111	0.144	-0.991		-0.730	1		-0.261	-0.342	8672
1986	0.872	0.711	1.069		0.866	1		0.203	0.266	42751
1987	0.020	0.272	-2.721		-0.094	1		-2.627	-3.440	16376
1988	0.720	0.390	0.878		0.265	1		0.613	0.803	23448
1989	0.310	0.261	0.036		-0.137	1		0.173	0.227	15689
1990	0.173	0.153	-0.546		-0.669	1		0.123	0.161	9218
1991	1.027	0.297	1.232		-0.007	1		1.239	1.623	17866
1992	0.123	0.110	-0.892		-0.998	1		0.106	0.139	6632
1993	0.008	0.140	-3.562		-0.758	1		-2.804	-3.671	8433
1994	0.125	0.105	-0.875		-1.049	1		0.174	0.228	6300
1995	0.050	0.072	-1.800		-1.424	1		-0.376	-0.492	4331
1996	0.073	0.127	-1.411		-0.860	1		-0.551	-0.722	7612
1997	0.291	0.172	-0.029		-0.555	1		0.526	0.689	10325
1998	0.111	0.053	-0.989		-1.733	1		0.744	0.974	3179
1999	0.212	0.121	-0.344		-0.903	1		0.560	0.733	7291
2000	0.221	0.081	-0.305		-1.301	1		0.996	1.305	4896
2001	0.000	0.000	0		0		0	0.000	0.000	00

Partial Variance: 1.145

spr_36

Tuned to: 1-Jan and number

For ages: 2

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0		0		1	0.000	0.000	00
1979	0.000	0.000	0		0		1	0.000	0.000	00
1980	0.000	0.000	0		0		1	0.000	0.000	00
1981	0.000	0.000	0		0		1	0.000	0.000	00
1982	5.435	2.594	1.608		0.868	1		0.740	0.969	33865
1983	1.952	1.072	0.584		-0.015	1		0.599	0.784	14004
1984	0.431	0.595	-0.926		-0.603	1		-0.323	-0.423	7774
1985	2.653	1.712	0.891		0.453	1		0.438	0.574	22352
1986	0.409	0.534	-0.979		-0.711	1		-0.268	-0.350	6979
1987	1.612	2.670	0.393		0.897	1		-0.504	-0.660	34860
1988	0.609	1.025	-0.581		-0.060	1		-0.521	-0.682	13384
1989	1.410	1.470	0.259		0.300	1		-0.041	-0.054	19188
1990	0.922	0.984	-0.166		-0.101	1		-0.065	-0.086	12845
1991	0.528	0.577	-0.724		-0.634	1		-0.090	-0.118	7540
1992	1.252	1.117	0.140		0.026	1		0.115	0.150	14580
1993	0.399	0.411	-1.004		-0.974	1		-0.030	-0.039	5366
1994	0.272	0.528	-1.385		-0.722	1		-0.663	-0.868	6901
1995	0.382	0.395	-1.048		-1.014	1		-0.034	-0.045	5156
1996	0.214	0.272	-1.627		-1.388	1		-0.239	-0.312	3545
1997	0.437	0.477	-0.912		-0.825	1		-0.088	-0.115	6231
1998	0.665	0.647	-0.492		-0.520	1		0.027	0.036	8450
1999	0.291	0.199	-1.320		-1.698	1		0.378	0.495	2603
2000	0.807	0.457	-0.300		-0.868	1		0.568	0.744	5968
2001	0.000	0.000	0		0		0	0.000	0.000	00

Partial Variance: 0.158

spr_36

Tuned to: 1-Jan and number

For ages: 3

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0		0		1	0.000	0.000	00
1979	0.000	0.000	0		0		1	0.000	0.000	00
1980	0.000	0.000	0		0		1	0.000	0.000	00
1981	0.000	0.000	0		0		1	0.000	0.000	00
1982	9.502	1.482	1.833		-0.025	1		1.858	2.433	10513
1983	3.017	2.743	0.686		0.590	1		0.095	0.125	19458
1984	0.761	1.069	-0.692		-0.352	1		-0.341	-0.446	7587
1985	0.663	0.730	-0.829		-0.733	1		-0.096	-0.126	5182
1986	1.844	1.760	0.193		0.147	1		0.047	0.062	12485
1987	0.378	0.636	-1.390		-0.871	1		-0.520	-0.680	4514
1988	3.150	3.070	0.729		0.703	1		0.026	0.034	21779
1989	0.666	1.343	-0.825		-0.124	1		-0.701	-0.918	9531
1990	1.737	1.948	0.134		0.248	1		-0.115	-0.150	13821
1991	0.689	0.852	-0.792		-0.579	1		-0.213	-0.279	6045
1992	0.468	0.676	-1.178		-0.811	1		-0.367	-0.480	4794
1993	1.306	1.150	-0.152		-0.279	1		0.127	0.167	8158
1994	0.200	0.488	-2.028		-1.137	1		-0.891	-1.167	3459
1995	0.854	0.746	-0.577		-0.712	1		0.136	0.178	5290
1996	0.736	0.545	-0.725		-1.026	1		0.301	0.394	3867
1997	0.170	0.383	-2.189		-1.379	1		-0.810	-1.061	2715
1998	1.298	0.653	-0.158		-0.845	1		0.687	0.899	4634
1999	0.609	0.881	-0.915		-0.545	1		-0.369	-0.483	6250
2000	0.830	0.264	-0.605		-1.751	1		1.145	1.500	1873
2001	0.000	0.000	0		0		0	0.000	0.000	00

Partial Variance: 0.453

spr_36

Tuned to: 1-Jan and number

For ages: 4

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0		0		1	0.000	0.000	00
1979	0.000	0.000	0		0		1	0.000	0.000	00
1980	0.000	0.000	0		0		1	0.000	0.000	00
1981	0.000	0.000	0		0		1	0.000	0.000	00
1982	8.324	1.269	1.993		0.112	1		1.881	2.463	6266
1983	0.796	1.042	-0.354		-0.085	1		-0.269	-0.353	5148
1984	1.238	1.748	0.088		0.433	1		-0.345	-0.452	8635
1985	1.110	0.631	-0.021		-0.587	1		0.566	0.741	3115
1986	0.365	0.411	-1.133		-1.014	1		-0.119	-0.156	2032
1987	0.763	1.232	-0.396		0.083	1		-0.479	-0.627	6084
1988	0.409	0.491	-1.021		-0.838	1		-0.183	-0.239	2423
1989	1.583	2.141	0.333		0.635	1		-0.302	-0.395	10573
1990	0.674	1.045	-0.520		-0.082	1		-0.438	-0.573	5159
1991	0.929	1.367	-0.200		0.187	1		-0.387	-0.506	6753
1992	0.168	0.408	-1.909		-1.023	1		-0.887	-1.161	2015
1993	0.205	0.397	-1.709		-1.050	1		-0.660	-0.864	1961
1994	0.216	0.574	-1.656		-0.680	1		-0.976	-1.278	2837
1995	0.534	0.294	-0.753		-1.351	1		0.597	0.782	1451
1996	1.247	0.683	0.095		-0.507	1		0.602	0.788	3374
1997	0.489	0.476	-0.842		-0.869	1		0.027	0.035	2349
1998	0.848	0.333	-0.291		-1.225	1		0.934	1.223	1645
1999	0.510	0.551	-0.800		-0.723	1		-0.077	-0.101	2719
2000	1.141	0.683	0.006		-0.507	1		0.513	0.672	3373
2001	0.000	0.000	0		0		0	0.000	0.000	00

Partial Variance: 0.496

spr_36

Tuned to: 1-Jan and number

For ages: 5

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0		0		1	0.000	0.000	00
1979	0.000	0.000	0		0		1	0.000	0.000	00
1980	0.000	0.000	0		0		1	0.000	0.000	00
1981	0.000	0.000	0		0		1	0.000	0.000	00
1982	6.208	1.148	2.092		0.404	1		1.688	2.210	4697
1983	0.697	0.638	-0.095		-0.184	1		0.089	0.117	2608
1984	0.422	0.487	-0.596		-0.454	1		-0.142	-0.186	1992
1985	1.412	0.990	0.611		0.256	1		0.355	0.465	4051
1986	0.540	0.321	-0.350		-0.871	1		0.521	0.682	1312
1987	0.062	0.230	-2.513		-1.202	1		-1.311	-1.717	943
1988	0.644	0.749	-0.175		-0.024	1		-0.151	-0.198	3062
1989	0.235	0.261	-1.182		-1.077	1		-0.105	-0.138	1068
1990	0.912	1.197	0.174		0.445	1		-0.272	-0.356	4897
1991	0.479	0.616	-0.471		-0.218	1		-0.252	-0.330	2521
1992	0.273	0.626	-1.033		-0.203	1		-0.830	-1.087	2560
1993	0.090	0.174	-2.148		-1.485	1		-0.663	-0.868	710
1994	0.033	0.146	-3.139		-1.659	1		-1.480	-1.938	597
1995	0.599	0.164	-0.247		-1.542	1		1.295	1.695	671
1996	0.174	0.137	-1.482		-1.719	1		0.238	0.311	562
1997	0.422	0.402	-0.596		-0.645	1		0.049	0.064	1645
1998	0.755	0.275	-0.015		-1.024	1		1.009	1.321	1126
1999	0.238	0.236	-1.169		-1.180	1		0.011	0.014	964
2000	0.370	0.388	-0.728		-0.681	1		-0.047	-0.061	1587
2001	0.000	0.000	0		0		0	0.000	0.000	00

Partial Variance: 0.634

spr_36

Tuned to: 1-Jan and number

For ages: 6

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0		0		1	0.000	0.000	00
1979	0.000	0.000	0		0		1	0.000	0.000	00
1980	0.000	0.000	0		0		1	0.000	0.000	00
1981	0.000	0.000	0		0		1	0.000	0.000	00
1982	0.293	0.153	0.217		-0.435	1		0.652	0.854	594
1983	0.443	0.523	0.631		0.796	1		-0.165	-0.216	2036
1984	0.400	0.303	0.530		0.252	1		0.278	0.364	1181
1985	0.265	0.224	0.119		-0.053	1		0.171	0.224	871
1986	0.618	0.414	0.964		0.563	1		0.401	0.525	1611
1987	0.179	0.164	-0.273		-0.361	1		0.088	0.115	640
1988	0.064	0.133	-1.304		-0.570	1		-0.734	-0.961	519
1989	0.351	0.296	0.399		0.227	1		0.171	0.224	1153
1990	0.130	0.148	-0.592		-0.467	1		-0.124	-0.163	575
1991	0.328	0.503	0.331		0.759	1		-0.428	-0.560	1961
1992	0.142	0.191	-0.504		-0.209	1		-0.295	-0.386	745
1993	0.138	0.194	-0.534		-0.195	1		-0.339	-0.443	755
1994	0.006	0.047	-3.722		-1.610	1		-2.112	-2.765	184
1995	0.107	0.034	-0.793		-1.939	1		1.146	1.500	132
1996	0.208	0.074	-0.123		-1.162	1		1.039	1.361	287
1997	0.050	0.062	-1.555		-1.333	1		-0.221	-0.290	242
1998	0.533	0.161	0.815		-0.379	1		1.194	1.563	629
1999	0.119	0.161	-0.681		-0.379	1		-0.302	-0.396	629

2000	0.102	0.156	-0.834	-0.413	1	-0.421	-0.551	607
2001	0.000	0.000	0	0	0	0.000	0.000	00

Partial Variance: 0.58

spr_36

Tuned to: 1-Jan and number

For ages: 7

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1979	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1980	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1981	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1982	1.866	0.509	2.289	0.990	1	1	1.299	1.701	1687	
1983	0.027	0.070	-1.939	-0.993	1	1	-0.947	-1.239	232	
1984	0.209	0.291	0.099	0.431	1	1	-0.332	-0.435	965	
1985	0.192	0.151	0.015	-0.227	1	1	0.241	0.316	500	
1986	0.062	0.103	-1.120	-0.611	1	1	-0.509	-0.667	340	
1987	0.136	0.227	-0.333	0.182	1	1	-0.515	-0.675	752	
1988	0.037	0.089	-1.632	-0.750	1	1	-0.881	-1.154	296	
1989	0.050	0.062	-1.320	-1.120	1	1	-0.200	-0.262	204	
1990	0.143	0.137	-0.279	-0.322	1	1	0.043	0.057	454	
1991	0.054	0.080	-1.252	-0.866	1	1	-0.386	-0.505	264	
1992	0.159	0.187	-0.175	-0.010	1	1	-0.165	-0.216	621	
1993	0.029	0.074	-1.865	-0.943	1	1	-0.922	-1.208	244	
1994	0.044	0.058	-1.456	-1.187	1	1	-0.269	-0.352	191	
1995	0.234	0.019	0.211	-2.292	1	1	2.503	3.277	63	
1996	0.028	0.021	-1.921	-2.216	1	1	0.295	0.386	68	
1997	0.134	0.037	-0.345	-1.621	1	1	1.276	1.671	124	
1998	0.102	0.024	-0.621	-2.064	1	1	1.442	1.888	80	
1999	0.064	0.091	-1.090	-0.736	1	1	-0.354	-0.463	300	
2000	0.026	0.129	-2.004	-0.384	1	1	-1.620	-2.121	427	
2001	0.000	0.000	0	0	0	0	0.000	0.000	00	

Partial Variance: 1.015

spr_36

Tuned to: 1-Jan and number

For ages: 8

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1979	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1980	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1981	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1982	0.368	0.183	1.597	0.897	1	1	0.700	0.917	511	
1983	0.219	0.276	1.075	1.309	1	1	-0.234	-0.306	772	
1984	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1985	0.180	0.134	0.880	0.588	1	1	0.292	0.382	375	
1986	0.125	0.076	0.516	0.016	1	1	0.500	0.655	212	
1987	0.033	0.072	-0.822	-0.042	1	1	-0.780	-1.021	200	
1988	0.049	0.133	-0.417	0.577	1	1	-0.994	-1.301	371	
1989	0.040	0.035	-0.636	-0.768	1	1	0.132	0.172	97	
1990	0.013	0.033	-1.755	-0.805	1	1	-0.950	-1.244	93	
1991	0.041	0.054	-0.609	-0.328	1	1	-0.281	-0.367	150	
1992	0.020	0.036	-1.337	-0.715	1	1	-0.622	-0.814	102	
1993	0.034	0.082	-0.775	0.092	1	1	-0.866	-1.134	229	
1994	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1995	0.028	0.012	-0.980	-1.854	1	1	0.874	1.144	33	
1996	0.018	0.010	-1.417	-1.995	1	1	0.578	0.757	28	
1997	0.020	0.015	-1.312	-1.593	1	1	0.281	0.368	42	

1998	0.031	0.009	-0.882	-2.104	1	1.222	1.600	25
1999	0.030	0.011	-0.895	-1.942	1	1.047	1.371	30
2000	0.020	0.049	-1.312	-0.412	1	-0.900	-1.179	138
2001	0.000	0.000	0	0	0	0.000	0.000	00

Partial Variance: 0.584

spr_41

Tuned to: 1-Jan and number

For ages: 1

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.372	0.334	-0.745	-0.853	1	0.107	0.140	27711		
1979	0.428	0.283	-0.604	-1.017	1	0.413	0.541	23512		
1980	0.031	0.242	-3.223	-1.173	1	-2.050	-2.684	20109		
1981	2.302	0.499	1.078	-0.451	1	1.529	2.003	41393		
1982	0.000	0.000	0	0	1	0.000	0.000	00		
1983	0.000	0.000	0	0	1	0.000	0.000	00		
1984	0.000	0.000	0	0	1	0.000	0.000	00		
1985	0.000	0.000	0	0	1	0.000	0.000	00		
1986	0.000	0.000	0	0	1	0.000	0.000	00		
1987	0.000	0.000	0	0	1	0.000	0.000	00		
1988	0.000	0.000	0	0	1	0.000	0.000	00		
1989	0.000	0.000	0	0	1	0.000	0.000	00		
1990	0.000	0.000	0	0	1	0.000	0.000	00		
1991	0.000	0.000	0	0	1	0.000	0.000	00		
1992	0.000	0.000	0	0	1	0.000	0.000	00		
1993	0.000	0.000	0	0	1	0.000	0.000	00		
1994	0.000	0.000	0	0	1	0.000	0.000	00		
1995	0.000	0.000	0	0	1	0.000	0.000	00		
1996	0.000	0.000	0	0	1	0.000	0.000	00		
1997	0.000	0.000	0	0	1	0.000	0.000	00		
1998	0.000	0.000	0	0	1	0.000	0.000	00		
1999	0.000	0.000	0	0	1	0.000	0.000	00		
2000	0.000	0.000	0	0	1	0.000	0.000	00		
2001	0.000	0.000	0	0	0	0.000	0.000	00		

Partial Variance: 2.46

spr_41

Tuned to: 1-Jan and number

For ages: 2

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.192	0.325	-1.980	-1.453	1	-0.527	-0.690	4270		
1979	1.298	1.726	-0.068	0.217	1	-0.285	-0.373	22686		
1980	2.217	1.462	0.467	0.051	1	0.416	0.545	19219		
1981	1.852	1.247	0.287	-0.109	1	0.396	0.519	16383		
1982	0.000	0.000	0	0	1	0.000	0.000	00		
1983	0.000	0.000	0	0	1	0.000	0.000	00		
1984	0.000	0.000	0	0	1	0.000	0.000	00		
1985	0.000	0.000	0	0	1	0.000	0.000	00		
1986	0.000	0.000	0	0	1	0.000	0.000	00		
1987	0.000	0.000	0	0	1	0.000	0.000	00		
1988	0.000	0.000	0	0	1	0.000	0.000	00		
1989	0.000	0.000	0	0	1	0.000	0.000	00		
1990	0.000	0.000	0	0	1	0.000	0.000	00		
1991	0.000	0.000	0	0	1	0.000	0.000	00		
1992	0.000	0.000	0	0	1	0.000	0.000	00		
1993	0.000	0.000	0	0	1	0.000	0.000	00		
1994	0.000	0.000	0	0	1	0.000	0.000	00		
1995	0.000	0.000	0	0	1	0.000	0.000	00		

1996	0.000	0.000	0	0	1	0.000	0.000	00
1997	0.000	0.000	0	0	1	0.000	0.000	00
1998	0.000	0.000	0	0	1	0.000	0.000	00
1999	0.000	0.000	0	0	1	0.000	0.000	00
2000	0.000	0.000	0	0	1	0.000	0.000	00
2001	0.000	0.000	0	0	0	0.000	0.000	00

Partial Variance: 0.252

spr_41

Tuned to: 1-Jan and number

For ages: 3

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	5.531	4.144	0.671		0.383	1		0.289	0.378	25527
1979	0.275	0.510	-2.330		-1.713	1		-0.617	-0.808	3140
1980	2.690	2.723	-0.050		-0.037	1		-0.012	-0.016	16774
1981	2.811	2.000	-0.006		-0.346	1		0.340	0.446	12318
1982	0.000	0.000	0		0		1	0.000	0.000	00
1983	0.000	0.000	0		0		1	0.000	0.000	00
1984	0.000	0.000	0		0		1	0.000	0.000	00
1985	0.000	0.000	0		0		1	0.000	0.000	00
1986	0.000	0.000	0		0		1	0.000	0.000	00
1987	0.000	0.000	0		0		1	0.000	0.000	00
1988	0.000	0.000	0		0		1	0.000	0.000	00
1989	0.000	0.000	0		0		1	0.000	0.000	00
1990	0.000	0.000	0		0		1	0.000	0.000	00
1991	0.000	0.000	0		0		1	0.000	0.000	00
1992	0.000	0.000	0		0		1	0.000	0.000	00
1993	0.000	0.000	0		0		1	0.000	0.000	00
1994	0.000	0.000	0		0		1	0.000	0.000	00
1995	0.000	0.000	0		0		1	0.000	0.000	00
1996	0.000	0.000	0		0		1	0.000	0.000	00
1997	0.000	0.000	0		0		1	0.000	0.000	00
1998	0.000	0.000	0		0		1	0.000	0.000	00
1999	0.000	0.000	0		0		1	0.000	0.000	00
2000	0.000	0.000	0		0		1	0.000	0.000	00
2001	0.000	0.000	0		0		0	0.000	0.000	00

Partial Variance: 0.212

spr_41

Tuned to: 1-Jan and number

For ages: 4

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.972	1.117	-0.194		-0.055	1		-0.140	-0.183	7933
1979	1.852	1.955	0.450		0.505	1		-0.055	-0.072	13889
1980	0.212	0.247	-1.715		-1.563	1		-0.153	-0.200	1756
1981	1.685	1.191	0.356		0.009	1		0.347	0.454	8460
1982	0.000	0.000	0		0		1	0.000	0.000	00
1983	0.000	0.000	0		0		1	0.000	0.000	00
1984	0.000	0.000	0		0		1	0.000	0.000	00
1985	0.000	0.000	0		0		1	0.000	0.000	00
1986	0.000	0.000	0		0		1	0.000	0.000	00
1987	0.000	0.000	0		0		1	0.000	0.000	00
1988	0.000	0.000	0		0		1	0.000	0.000	00
1989	0.000	0.000	0		0		1	0.000	0.000	00
1990	0.000	0.000	0		0		1	0.000	0.000	00
1991	0.000	0.000	0		0		1	0.000	0.000	00
1992	0.000	0.000	0		0		1	0.000	0.000	00
1993	0.000	0.000	0		0		1	0.000	0.000	00

1994	0.000	0.000	0	0	1	0.000	0.000	00
1995	0.000	0.000	0	0	1	0.000	0.000	00
1996	0.000	0.000	0	0	1	0.000	0.000	00
1997	0.000	0.000	0	0	1	0.000	0.000	00
1998	0.000	0.000	0	0	1	0.000	0.000	00
1999	0.000	0.000	0	0	1	0.000	0.000	00
2000	0.000	0.000	0	0	1	0.000	0.000	00
2001	0.000	0.000	0	0	0	0.000	0.000	00

Partial Variance: 0.061

spr_41

Tuned to: 1-Jan and number

For ages: 5

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.778	0.496	-0.008		-0.458	1		0.450	0.590	2877
1979	0.547	0.760	-0.360		-0.031	1		-0.330	-0.431	4411
1980	1.705	1.200	0.777		0.426	1		0.351	0.460	6965
1981	0.106	0.170	-2.002		-1.529	1		-0.472	-0.618	986
1982	0.000	0.000	0		0		1	0.000	0.000	00
1983	0.000	0.000	0		0		1	0.000	0.000	00
1984	0.000	0.000	0		0		1	0.000	0.000	00
1985	0.000	0.000	0		0		1	0.000	0.000	00
1986	0.000	0.000	0		0		1	0.000	0.000	00
1987	0.000	0.000	0		0		1	0.000	0.000	00
1988	0.000	0.000	0		0		1	0.000	0.000	00
1989	0.000	0.000	0		0		1	0.000	0.000	00
1990	0.000	0.000	0		0		1	0.000	0.000	00
1991	0.000	0.000	0		0		1	0.000	0.000	00
1992	0.000	0.000	0		0		1	0.000	0.000	00
1993	0.000	0.000	0		0		1	0.000	0.000	00
1994	0.000	0.000	0		0		1	0.000	0.000	00
1995	0.000	0.000	0		0		1	0.000	0.000	00
1996	0.000	0.000	0		0		1	0.000	0.000	00
1997	0.000	0.000	0		0		1	0.000	0.000	00
1998	0.000	0.000	0		0		1	0.000	0.000	00
1999	0.000	0.000	0		0		1	0.000	0.000	00
2000	0.000	0.000	0		0		1	0.000	0.000	00
2001	0.000	0.000	0		0		0	0.000	0.000	00

Partial Variance: 0.241

spr_41

Tuned to: 1-Jan and number

For ages: 6

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.142	0.181	-1.057		-0.811	1		-0.246	-0.322	1127
1979	0.236	0.258	-0.548		-0.458	1		-0.090	-0.118	1604
1980	0.374	0.404	-0.086		-0.008	1		-0.078	-0.102	2515
1981	0.879	0.581	0.769		0.354	1		0.414	0.542	3614
1982	0.000	0.000	0		0		1	0.000	0.000	00
1983	0.000	0.000	0		0		1	0.000	0.000	00
1984	0.000	0.000	0		0		1	0.000	0.000	00
1985	0.000	0.000	0		0		1	0.000	0.000	00
1986	0.000	0.000	0		0		1	0.000	0.000	00
1987	0.000	0.000	0		0		1	0.000	0.000	00
1988	0.000	0.000	0		0		1	0.000	0.000	00
1989	0.000	0.000	0		0		1	0.000	0.000	00
1990	0.000	0.000	0		0		1	0.000	0.000	00
1991	0.000	0.000	0		0		1	0.000	0.000	00

1992	0.000	0.000	0	0	1	0.000	0.000	00
1993	0.000	0.000	0	0	1	0.000	0.000	00
1994	0.000	0.000	0	0	1	0.000	0.000	00
1995	0.000	0.000	0	0	1	0.000	0.000	00
1996	0.000	0.000	0	0	1	0.000	0.000	00
1997	0.000	0.000	0	0	1	0.000	0.000	00
1998	0.000	0.000	0	0	1	0.000	0.000	00
1999	0.000	0.000	0	0	1	0.000	0.000	00
2000	0.000	0.000	0	0	1	0.000	0.000	00
2001	0.000	0.000	0	0	0	0.000	0.000	00

Partial Variance: 0.09

spr_41

Tuned to: 1-Jan and number

For ages: 7

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.712	0.318	0.832		0.027	1		0.805	1.054	1414
1979	0.084	0.181	-1.310		-0.538	1		-0.772	-1.011	804
1980	0.186	0.202	-0.513		-0.426	1		-0.088	-0.115	899
1981	0.258	0.244	-0.183		-0.237	1		0.055	0.072	1085
1982	0.000	0.000	0		0		1	0.000	0.000	00
1983	0.000	0.000	0		0		1	0.000	0.000	00
1984	0.000	0.000	0		0		1	0.000	0.000	00
1985	0.000	0.000	0		0		1	0.000	0.000	00
1986	0.000	0.000	0		0		1	0.000	0.000	00
1987	0.000	0.000	0		0		1	0.000	0.000	00
1988	0.000	0.000	0		0		1	0.000	0.000	00
1989	0.000	0.000	0		0		1	0.000	0.000	00
1990	0.000	0.000	0		0		1	0.000	0.000	00
1991	0.000	0.000	0		0		1	0.000	0.000	00
1992	0.000	0.000	0		0		1	0.000	0.000	00
1993	0.000	0.000	0		0		1	0.000	0.000	00
1994	0.000	0.000	0		0		1	0.000	0.000	00
1995	0.000	0.000	0		0		1	0.000	0.000	00
1996	0.000	0.000	0		0		1	0.000	0.000	00
1997	0.000	0.000	0		0		1	0.000	0.000	00
1998	0.000	0.000	0		0		1	0.000	0.000	00
1999	0.000	0.000	0		0		1	0.000	0.000	00
2000	0.000	0.000	0		0		1	0.000	0.000	00
2001	0.000	0.000	0		0		0	0.000	0.000	00

Partial Variance: 0.459

spr_41

Tuned to: 1-Jan and number

For ages: 8

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.065	0.016	-0.343		-1.739	1		1.397	1.829	67
1979	0.139	0.203	0.413		0.795	1		-0.381	-0.500	846
1980	0.031	0.141	-1.085		0.432	1		-1.516	-1.985	588
1981	0.132	0.080	0.365		-0.136	1		0.501	0.656	334
1982	0.000	0.000	0		0		1	0.000	0.000	00
1983	0.000	0.000	0		0		1	0.000	0.000	00
1984	0.000	0.000	0		0		1	0.000	0.000	00
1985	0.000	0.000	0		0		1	0.000	0.000	00
1986	0.000	0.000	0		0		1	0.000	0.000	00
1987	0.000	0.000	0		0		1	0.000	0.000	00
1988	0.000	0.000	0		0		1	0.000	0.000	00
1989	0.000	0.000	0		0		1	0.000	0.000	00

1990	0.000	0.000	0	0	1	0.000	0.000	00
1991	0.000	0.000	0	0	1	0.000	0.000	00
1992	0.000	0.000	0	0	1	0.000	0.000	00
1993	0.000	0.000	0	0	1	0.000	0.000	00
1994	0.000	0.000	0	0	1	0.000	0.000	00
1995	0.000	0.000	0	0	1	0.000	0.000	00
1996	0.000	0.000	0	0	1	0.000	0.000	00
1997	0.000	0.000	0	0	1	0.000	0.000	00
1998	0.000	0.000	0	0	1	0.000	0.000	00
1999	0.000	0.000	0	0	1	0.000	0.000	00
2000	0.000	0.000	0	0	1	0.000	0.000	00
2001	0.000	0.000	0	0	0	0.000	0.000	00

Partial Variance: 1.7

sp_can

Tuned to: 1-Jan and number

For ages: 1

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1979	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1980	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1981	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1982	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1983	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1984	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1985	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1986	0.600	0.957	0.360	0.827	1	-0.467	-0.612	42751		
1987	0.250	0.367	-0.515	-0.132	1	-0.383	-0.501	16376		
1988	0.280	0.525	-0.402	0.227	1	-0.629	-0.823	23448		
1989	1.630	0.351	1.360	-0.175	1	1.535	2.009	15689		
1990	0.420	0.206	0.004	-0.707	1	0.710	0.930	9218		
1991	1.180	0.400	1.037	-0.045	1	1.082	1.416	17866		
1992	0.110	0.148	-1.336	-1.036	1	-0.300	-0.393	6632		
1993	0.000	0.000	0	0	1	0.000	0.000	00		
1994	0.000	0.000	0	0	1	0.000	0.000	00		
1995	0.070	0.097	-1.788	-1.462	1	-0.326	-0.427	4331		
1996	0.140	0.170	-1.095	-0.898	1	-0.197	-0.258	7612		
1997	0.320	0.231	-0.268	-0.593	1	0.325	0.426	10325		
1998	0.010	0.071	-3.734	-1.771	1	-1.963	-2.570	3179		
1999	0.330	0.163	-0.237	-0.941	1	0.704	0.922	7291		
2000	0.100	0.110	-1.431	-1.339	1	-0.092	-0.120	4896		
2001	0.000	0.000	0	0	0	0.000	0.000	00		

Partial Variance: 0.809

sp_can

Tuned to: 1-Jan and number

For ages: 2

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1979	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1980	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1981	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1982	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1983	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1984	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1985	0.000	0.000	0	0	0	1	0.000	0.000	0.000	00
1986	2.270	0.735	0.578	-0.550	1	1.128	1.477	6979		
1987	2.130	3.669	0.514	1.058	1	-0.544	-0.712	34860		

1988	1.010	1.409	-0.232	0.101	1	-0.333	-0.436	13384
1989	2.780	2.020	0.781	0.461	1	0.319	0.418	19188
1990	2.440	1.352	0.650	0.060	1	0.590	0.773	12845
1991	1.160	0.794	-0.093	-0.473	1	0.379	0.497	7540
1992	2.860	1.535	0.809	0.186	1	0.623	0.815	14580
1993	0.000	0.000	0	0	1	0.000	0.000	00
1994	0.000	0.000	0	0	1	0.000	0.000	00
1995	0.670	0.543	-0.642	-0.853	1	0.211	0.276	5156
1996	0.490	0.373	-0.955	-1.227	1	0.272	0.357	3545
1997	0.530	0.656	-0.877	-0.664	1	-0.213	-0.279	6231
1998	0.670	0.889	-0.642	-0.359	1	-0.283	-0.371	8450
1999	0.320	0.274	-1.381	-1.537	1	0.155	0.203	2603
2000	0.440	0.628	-1.063	-0.707	1	-0.356	-0.466	5968
2001	0.060	0.421	-3.055	-1.106	1	-1.949	-2.552	4003

Partial Variance: 0.538

sp_can

Tuned to: 1-Jan and number

For ages: 3

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1979	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1980	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1981	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1982	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1983	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1984	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1985	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1986	2.810	3.244	0.427	0.571	0.571	1	-0.144	-0.188	12485	
1987	0.930	1.173	-0.678	-0.446	-0.446	1	-0.232	-0.304	4514	
1988	4.660	5.659	0.933	1.127	1.127	1	-0.194	-0.254	21779	
1989	1.380	2.477	-0.284	0.301	0.301	1	-0.585	-0.766	9531	
1990	3.780	3.591	0.724	0.673	0.673	1	0.051	0.067	13821	
1991	1.840	1.571	0.004	-0.154	-0.154	1	0.158	0.207	6045	
1992	1.770	1.246	-0.035	-0.386	-0.386	1	0.351	0.460	4794	
1993	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1994	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1995	1.500	1.375	-0.200	-0.288	-0.288	1	0.087	0.114	5290	
1996	2.310	1.005	0.231	-0.601	-0.601	1	0.832	1.090	3867	
1997	0.550	0.706	-1.204	-0.955	-0.955	1	-0.249	-0.326	2715	
1998	0.950	1.204	-0.657	-0.420	-0.420	1	-0.237	-0.310	4634	
1999	1.490	1.624	-0.207	-0.121	-0.121	1	-0.086	-0.113	6250	
2000	1.050	0.487	-0.557	-1.326	-1.326	1	0.769	1.007	1873	
2001	0.640	1.079	-1.052	-0.530	-0.530	1	-0.522	-0.684	4152	

Partial Variance: 0.18

sp_can

Tuned to: 1-Jan and number

For ages: 4

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1979	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1980	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1981	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1982	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1983	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1984	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1985	0.000	0.000	0	0	0	0	1	0.000	0.000	00

1986	0.370	0.793	-1.438	-0.677	1	-0.762	-0.997	2032
1987	1.090	2.373	-0.358	0.420	1	-0.778	-1.019	6084
1988	0.580	0.945	-0.989	-0.501	1	-0.488	-0.639	2423
1989	2.850	4.123	0.603	0.972	1	-0.369	-0.484	10573
1990	2.080	2.012	0.288	0.255	1	0.033	0.043	5159
1991	2.150	2.634	0.321	0.524	1	-0.203	-0.266	6753
1992	0.800	0.786	-0.667	-0.685	1	0.018	0.023	2015
1993	0.000	0.000	0	0	1	0.000	0.000	00
1994	0.000	0.000	0	0	1	0.000	0.000	00
1995	0.860	0.566	-0.595	-1.014	1	0.418	0.548	1451
1996	4.020	1.316	0.947	-0.170	1	1.117	1.462	3374
1997	1.250	0.916	-0.221	-0.532	1	0.311	0.407	2349
1998	0.350	0.642	-1.494	-0.888	1	-0.606	-0.793	1645
1999	1.090	1.060	-0.358	-0.386	1	0.028	0.036	2719
2000	3.920	1.316	0.922	-0.170	1	1.092	1.430	3373
2001	0.420	0.347	-1.312	-1.501	1	0.190	0.248	891

Partial Variance: 0.371

sp_can

Tuned to: 1-Jan and number

For ages: 5

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0		0		1	0.000	0.000	00
1979	0.000	0.000	0		0		1	0.000	0.000	00
1980	0.000	0.000	0		0		1	0.000	0.000	00
1981	0.000	0.000	0		0		1	0.000	0.000	00
1982	0.000	0.000	0		0		1	0.000	0.000	00
1983	0.000	0.000	0		0		1	0.000	0.000	00
1984	0.000	0.000	0		0		1	0.000	0.000	00
1985	0.000	0.000	0		0		1	0.000	0.000	00
1986	0.650	0.732	-0.484		-0.366	1		-0.119	-0.155	1312
1987	0.340	0.526	-1.132		-0.696	1		-0.436	-0.571	943
1988	1.020	1.708	-0.034		0.482	1		-0.515	-0.675	3062
1989	0.360	0.596	-1.075		-0.571	1		-0.504	-0.660	1068
1990	3.870	2.731	1.300		0.951	1		0.349	0.456	4897
1991	1.050	1.406	-0.005		0.287	1		-0.292	-0.382	2521
1992	0.980	1.428	-0.074		0.303	1		-0.376	-0.493	2560
1993	0.000	0.000	0		0		1	0.000	0.000	00
1994	0.000	0.000	0		0		1	0.000	0.000	00
1995	0.600	0.374	-0.564		-1.036	1		0.471	0.617	671
1996	1.090	0.313	0.033		-1.214	1		1.246	1.632	562
1997	1.230	0.918	0.153		-0.139	1		0.293	0.383	1645
1998	0.350	0.628	-1.103		-0.519	1		-0.585	-0.766	1126
1999	0.410	0.538	-0.945		-0.674	1		-0.271	-0.355	964
2000	1.710	0.885	0.483		-0.175	1		0.658	0.862	1587
2001	1.110	1.024	0.051		-0.030	1		0.081	0.106	1835

Partial Variance: 0.298

sp_can

Tuned to: 1-Jan and number

For ages: 6

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0		0		1	0.000	0.000	00
1979	0.000	0.000	0		0		1	0.000	0.000	00
1980	0.000	0.000	0		0		1	0.000	0.000	00
1981	0.000	0.000	0		0		1	0.000	0.000	00
1982	0.000	0.000	0		0		1	0.000	0.000	00
1983	0.000	0.000	0		0		1	0.000	0.000	00

1984	0.000	0.000	0	0	1	0.000	0.000	00
1985	0.000	0.000	0	0	1	0.000	0.000	00
1986	0.440	0.982	-0.058	0.744	1	-0.803	-1.051	1611
1987	0.120	0.390	-1.358	-0.179	1	-1.179	-1.544	640
1988	0.130	0.316	-1.278	-0.388	1	-0.890	-1.165	519
1989	0.420	0.702	-0.105	0.409	1	-0.514	-0.673	1153
1990	0.420	0.351	-0.105	-0.286	1	0.181	0.237	575
1991	1.310	1.195	1.033	0.940	1	0.092	0.121	1961
1992	0.600	0.454	0.252	-0.027	1	0.279	0.365	745
1993	0.000	0.000	0	0	1	0.000	0.000	00
1994	0.000	0.000	0	0	1	0.000	0.000	00
1995	0.190	0.081	-0.898	-1.757	1	0.859	1.124	132
1996	0.790	0.175	0.527	-0.980	1	1.507	1.973	287
1997	0.270	0.147	-0.547	-1.151	1	0.605	0.792	242
1998	0.280	0.383	-0.510	-0.197	1	-0.314	-0.410	629
1999	0.260	0.383	-0.584	-0.197	1	-0.388	-0.508	629
2000	0.780	0.370	0.514	-0.231	1	0.745	0.976	607
2001	0.520	0.623	0.109	0.290	1	-0.181	-0.237	1023

Partial Variance: 0.583

sp_can

Tuned to: 1-Jan and number

For ages: 7

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1979	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1980	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1981	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1982	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1983	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1984	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1985	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1986	0.260	0.232	0.057	-0.058	0.057	0.057	1	0.115	0.150	340
1987	0.220	0.512	-0.111	0.735	0.735	0.735	1	-0.845	-1.107	752
1988	0.080	0.202	-1.122	-0.197	-0.197	-0.197	1	-0.925	-1.211	296
1989	0.050	0.139	-1.592	-0.568	-0.568	-0.568	1	-1.025	-1.342	204
1990	0.930	0.309	1.331	0.231	0.231	0.231	1	1.100	1.441	454
1991	0.160	0.180	-0.429	-0.313	-0.313	-0.313	1	-0.116	-0.152	264
1992	0.430	0.423	0.560	0.543	0.543	0.543	1	0.017	0.022	621
1993	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1994	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1995	0.040	0.043	-1.815	-1.739	-1.739	-1.739	1	-0.076	-0.100	63
1996	0.330	0.047	0.295	-1.663	-1.663	-1.663	1	1.958	2.564	68
1997	0.060	0.084	-1.410	-1.069	-1.069	-1.069	1	-0.341	-0.447	124
1998	0.070	0.054	-1.256	-1.511	-1.511	-1.511	1	0.255	0.334	80
1999	0.150	0.205	-0.494	-0.183	-0.183	-0.183	1	-0.310	-0.406	300
2000	0.400	0.291	0.487	0.169	0.169	0.169	1	0.318	0.417	427
2001	0.260	0.294	0.057	0.181	0.181	0.181	1	-0.124	-0.163	432

Partial Variance: 0.635

sp_can

Tuned to: 1-Jan and number

For ages: 8

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1979	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1980	0.000	0.000	0	0	0	0	1	0.000	0.000	00
1981	0.000	0.000	0	0	0	0	1	0.000	0.000	00

1982	0.000	0.000	0	0	1	0.000	0.000	00
1983	0.000	0.000	0	0	1	0.000	0.000	00
1984	0.000	0.000	0	0	1	0.000	0.000	00
1985	0.000	0.000	0	0	1	0.000	0.000	00
1986	0.040	0.173	-0.951	0.515	1	-1.466	-1.920	212
1987	0.080	0.163	-0.258	0.456	1	-0.715	-0.936	200
1988	0.170	0.304	0.496	1.076	1	-0.580	-0.759	371
1989	0.100	0.079	-0.035	-0.269	1	0.234	0.307	97
1990	0.120	0.076	0.147	-0.307	1	0.454	0.594	93
1991	0.220	0.123	0.753	0.170	1	0.583	0.763	150
1992	0.120	0.083	0.147	-0.217	1	0.364	0.477	102
1993	0.000	0.000	0	0	1	0.000	0.000	00
1994	0.000	0.000	0	0	1	0.000	0.000	00
1995	0.050	0.027	-0.728	-1.356	1	0.627	0.822	33
1996	0.080	0.023	-0.258	-1.497	1	1.238	1.621	28
1997	0.030	0.035	-1.239	-1.094	1	-0.145	-0.189	42
1998	0.020	0.021	-1.645	-1.605	1	-0.039	-0.051	25
1999	0.010	0.024	-2.338	-1.444	1	-0.894	-1.170	30
2000	0.240	0.113	0.840	0.087	1	0.753	0.986	138
2001	0.170	0.258	0.496	0.912	1	-0.416	-0.545	315

Partial Variance: 0.567

us0aut

Tuned to: 1-Jan and number

For ages: 1

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.152	0.316	-0.489		0.246	1		-0.735	-0.962	27711
1979	0.395	0.268	0.469		0.081	1		0.388	0.508	23512
1980	0.114	0.229	-0.770		-0.075	1		-0.695	-0.910	20109
1981	0.280	0.472	0.123		0.647	1		-0.524	-0.686	41393
1982	0.261	0.199	0.054		-0.216	1		0.270	0.353	17470
1983	0.362	0.110	0.381		-0.813	1		1.194	1.564	9615
1984	1.283	0.312	1.647		0.234	1		1.412	1.849	27390
1985	0.179	0.099	-0.322		-0.916	1		0.594	0.777	8672
1986	1.002	0.488	1.399		0.679	1		0.720	0.943	42751
1987	0.076	0.187	-1.178		-0.280	1		-0.898	-1.176	16376
1988	0.204	0.267	-0.194		0.079	1		-0.272	-0.357	23448
1989	0.550	0.179	0.799		-0.323	1		1.122	1.469	15689
1990	0.251	0.105	0.014		-0.855	1		0.869	1.138	9218
1991	0.157	0.204	-0.453		-0.193	1		-0.260	-0.341	17866
1992	0.040	0.076	-1.809		-1.184	1		-0.625	-0.818	6632
1993	0.035	0.096	-1.952		-0.944	1		-1.008	-1.320	8433
1994	0.178	0.072	-0.326		-1.236	1		0.909	1.190	6300
1995	0.067	0.049	-1.309		-1.610	1		0.302	0.395	4331
1996	0.160	0.087	-0.436		-1.046	1		0.611	0.800	7612
1997	0.022	0.118	-2.438		-0.742	1		-1.696	-2.221	10325
1998	0.006	0.036	-3.654		-1.920	1		-1.734	-2.271	3179
1999	0.070	0.083	-1.260		-1.089	1		-0.171	-0.224	7291
2000	0.070	0.056	-1.260		-1.488	1		0.227	0.297	4896
2001	0.020	0.020	-2.540		-2.540	1		0.000	0.000	1710

Partial Variance: 0.767

us1aut

Tuned to: 1-Jan and number

For ages: 2

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.237	0.268	-1.365		-1.240	1		-0.126	-0.164	4270
1979	1.845	1.426	0.688		0.430	1		0.257	0.337	22686

1980	1.625	1.209	0.561	0.265	1	0.296	0.388	19219
1981	0.820	1.030	-0.123	0.105	1	-0.228	-0.299	16383
1982	3.525	2.129	1.335	0.831	1	0.504	0.660	33865
1983	0.577	0.881	-0.474	-0.052	1	-0.422	-0.553	14004
1984	0.850	0.489	-0.088	-0.641	1	0.553	0.724	7774
1985	1.909	1.405	0.722	0.416	1	0.306	0.401	22352
1986	0.181	0.439	-1.632	-0.748	1	-0.884	-1.157	6979
1987	2.279	2.192	0.899	0.860	1	0.039	0.051	34860
1988	0.414	0.842	-0.807	-0.097	1	-0.710	-0.930	13384
1989	0.875	1.207	-0.059	0.263	1	-0.322	-0.421	19188
1990	2.798	0.808	1.104	-0.138	1	1.243	1.627	12845
1991	0.364	0.474	-0.936	-0.671	1	-0.265	-0.348	7540
1992	0.408	0.917	-0.822	-0.012	1	-0.811	-1.061	14580
1993	0.412	0.337	-0.811	-1.011	1	0.201	0.263	5366
1994	0.970	0.434	0.045	-0.760	1	0.804	1.053	6901
1995	0.406	0.324	-0.827	-1.051	1	0.224	0.293	5156
1996	0.245	0.223	-1.333	-1.426	1	0.093	0.122	3545
1997	0.240	0.392	-1.352	-0.862	1	-0.491	-0.642	6231
1998	0.236	0.531	-1.368	-0.557	1	-0.811	-1.062	8450
1999	0.336	0.164	-1.017	-1.735	1	0.718	0.940	2603
2000	0.140	0.375	-1.893	-0.905	1	-0.988	-1.294	5968
2001	0.571	0.252	-0.485	-1.304	1	0.819	1.072	4003

Partial Variance: 0.375

us2aut

Tuned to: 1-Jan and number

For ages: 3

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	3.434	2.566	1.242		0.951	1	0.291	0.381		25527
1979	0.391	0.316	-0.930		-1.144	1	0.214	0.281		3140
1980	1.677	1.686	0.526		0.531	1	-0.006	-0.007		16774
1981	0.564	1.238	-0.565		0.222	1	-0.787	-1.031		12318
1982	2.250	1.057	0.820		0.064	1	0.756	0.989		10513
1983	1.910	1.956	0.655		0.680	1	-0.024	-0.032		19458
1984	1.089	0.763	0.094		-0.262	1	0.356	0.466		7587
1985	0.682	0.521	-0.374		-0.643	1	0.269	0.352		5182
1986	0.843	1.255	-0.163		0.236	1	-0.399	-0.522		12485
1987	0.128	0.454	-2.043		-0.781	1	-1.262	-1.652		4514
1988	1.353	2.190	0.311		0.792	1	-0.482	-0.631		21779
1989	0.437	0.958	-0.819		-0.034	1	-0.785	-1.028		9531
1990	1.046	1.389	0.054		0.338	1	-0.284	-0.371		13821
1991	1.624	0.608	0.494		-0.489	1	0.983	1.287		6045
1992	0.175	0.482	-1.733		-0.721	1	-1.012	-1.325		4794
1993	0.949	0.820	-0.044		-0.190	1	0.146	0.191		8158
1994	0.532	0.348	-0.623		-1.048	1	0.424	0.556		3459
1995	0.664	0.532	-0.400		-0.623	1	0.222	0.291		5290
1996	1.811	0.389	0.602		-0.936	1	1.538	2.014		3867
1997	0.196	0.273	-1.622		-1.290	1	-0.332	-0.435		2715
1998	0.321	0.466	-1.128		-0.755	1	-0.373	-0.488		4634
1999	1.026	0.628	0.035		-0.456	1	0.491	0.642		6250
2000	0.154	0.188	-1.861		-1.661	1	-0.200	-0.262		1873
2001	0.538	0.417	-0.612		-0.865	1	0.253	0.332		4152

Partial Variance: 0.414

us3aut

Tuned to: 1-Jan and number

For ages: 4

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
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1978	0.691	0.861	0.017	0.237	1	-0.221	-0.289	7933
1979	4.058	1.508	1.787	0.797	1	0.990	1.296	13889
1980	0.162	0.191	-1.433	-1.270	1	-0.163	-0.213	1756
1981	0.774	0.919	0.130	0.302	1	-0.171	-0.225	8460
1982	1.559	0.680	0.831	0.001	1	0.829	1.086	6266
1983	0.242	0.559	-1.033	-0.195	1	-0.838	-1.097	5148
1984	0.740	0.938	0.086	0.322	1	-0.236	-0.310	8635
1985	0.929	0.338	0.313	-0.697	1	1.010	1.323	3115
1986	0.067	0.221	-2.321	-1.124	1	-1.197	-1.567	2032
1987	0.329	0.661	-0.725	-0.028	1	-0.697	-0.913	6084
1988	0.108	0.263	-1.839	-0.948	1	-0.891	-1.166	2423
1989	0.904	1.148	0.285	0.525	1	-0.239	-0.313	10573
1990	0.161	0.560	-1.439	-0.193	1	-1.246	-1.632	5159
1991	1.814	0.733	0.982	0.076	1	0.906	1.186	6753
1992	0.274	0.219	-0.907	-1.133	1	0.226	0.296	2015
1993	0.174	0.213	-1.360	-1.160	1	-0.200	-0.262	1961
1994	0.383	0.308	-0.574	-0.791	1	0.217	0.284	2837
1995	0.433	0.158	-0.450	-1.461	1	1.012	1.325	1451
1996	1.248	0.366	0.608	-0.618	1	1.226	1.605	3374
1997	0.414	0.255	-0.494	-0.980	1	0.485	0.635	2349
1998	0.109	0.179	-1.827	-1.336	1	-0.491	-0.643	1645
1999	0.352	0.295	-0.658	-0.833	1	0.175	0.229	2719
2000	0.310	0.366	-0.786	-0.618	1	-0.168	-0.220	3373
2001	0.070	0.097	-2.266	-1.949	1	-0.317	-0.414	891

Partial Variance: 0.528

us4aut

Tuned to: 1-Jan and number

For ages: 5

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.253	0.217	-0.119		-0.270	1		0.151	0.198	2877
1979	0.964	0.333	1.219		0.157	1		1.062	1.390	4411
1980	1.686	0.526	1.779		0.614	1		1.165	1.525	6965
1981	0.052	0.074	-1.691		-1.341	1		-0.350	-0.458	986
1982	0.589	0.355	0.727		0.220	1		0.507	0.663	4697
1983	0.068	0.197	-1.435		-0.368	1		-1.067	-1.397	2608
1984	0.069	0.151	-1.416		-0.638	1		-0.778	-1.019	1992
1985	0.825	0.306	1.064		0.072	1		0.992	1.298	4051
1986	0.106	0.099	-0.993		-1.055	1		0.062	0.081	1312
1987	0.008	0.071	-3.548		-1.386	1		-2.162	-2.830	943
1988	0.200	0.231	-0.352		-0.208	1		-0.144	-0.189	3062
1989	0.060	0.081	-1.557		-1.261	1		-0.297	-0.388	1068
1990	0.507	0.370	0.577		0.262	1		0.315	0.413	4897
1991	0.412	0.190	0.370		-0.402	1		0.773	1.012	2521
1992	0.030	0.193	-2.234		-0.387	1		-1.847	-2.419	2560
1993	0.100	0.054	-1.047		-1.669	1		0.622	0.815	710
1994	0.016	0.045	-2.848		-1.843	1		-1.005	-1.316	597
1995	0.153	0.051	-0.619		-1.725	1		1.107	1.449	671
1996	0.087	0.042	-1.183		-1.903	1		0.720	0.942	562
1997	0.143	0.124	-0.689		-0.829	1		0.140	0.183	1645
1998	0.129	0.085	-0.790		-1.208	1		0.418	0.547	1126
1999	0.041	0.073	-1.936		-1.363	1		-0.572	-0.749	964
2000	0.255	0.120	-0.111		-0.865	1		0.754	0.987	1587
2001	0.079	0.139	-1.285		-0.720	1		-0.565	-0.740	1835

Partial Variance: 0.838

us5aut

Tuned to: 1-Jan and number

For ages: 6

Year	Obs.	Pred.	Ln Scd.	Obs.	Ln Scd.	Pred.	Wt.	Wt. Res.	Std. Res.	Pred.
1978	0.173	0.101	0.512		-0.025	1		0.538	0.704	1127
1979	0.336	0.144	1.174		0.328	1		0.846	1.107	1604
1980	0.321	0.226	1.129		0.778	1		0.351	0.459	2515
1981	0.265	0.324	0.937		1.140	1		-0.203	-0.266	3614
1982	0.054	0.053	-0.653		-0.665	1		0.012	0.016	594
1983	0.115	0.183	0.105		0.567	1		-0.461	-0.604	2036
1984	0.033	0.106	-1.151		0.022	1		-1.173	-1.536	1181
1985	0.024	0.078	-1.455		-0.282	1		-1.173	-1.535	871
1986	0.077	0.145	-0.303		0.333	1		-0.636	-0.832	1611
1987	0.049	0.057	-0.756		-0.590	1		-0.165	-0.217	640
1988	0.028	0.047	-1.309		-0.799	1		-0.510	-0.668	519
1989	0.194	0.103	0.625		-0.002	1		0.627	0.821	1153
1990	0.055	0.052	-0.640		-0.697	1		0.058	0.075	575
1991	0.286	0.176	1.013		0.529	1		0.484	0.634	1961
1992	0.029	0.067	-1.274		-0.439	1		-0.835	-1.094	745
1993	0.044	0.068	-0.864		-0.425	1		-0.439	-0.575	755
1994	0.025	0.016	-1.411		-1.840	1		0.429	0.562	184
1995	0.068	0.012	-0.423		-2.168	1		1.745	2.285	132
1996	0.054	0.026	-0.651		-1.392	1		0.741	0.970	287
1997	0.060	0.022	-0.552		-1.563	1		1.011	1.324	242
1998	0.049	0.056	-0.758		-0.608	1		-0.149	-0.196	629
1999	0.035	0.056	-1.075		-0.608	1		-0.466	-0.611	629
2000	0.087	0.055	-0.174		-0.643	1		0.468	0.613	607
2001	0.031	0.092	-1.221		-0.122	1		-1.099	-1.438	1023

Partial Variance: 0.564

Partial variance (and proportion of total) by index

Index	Partial Variance	Proportion
spr_36 1	1.145	0.064
spr_36 2	0.158	0.009
spr_36 3	0.453	0.025
spr_36 4	0.496	0.028
spr_36 5	0.634	0.035
spr_36 6	0.58	0.032
spr_36 7	1.015	0.056
spr_36 8	0.584	0.032
spr_41 1	2.46	0.137
spr_41 2	0.252	0.014
spr_41 3	0.212	0.012
spr_41 4	0.061	0.003
spr_41 5	0.241	0.013
spr_41 6	0.09	0.005
spr_41 7	0.459	0.026
spr_41 8	1.7	0.094
sp_can 1	0.809	0.045
sp_can 2	0.538	0.03
sp_can 3	0.18	0.01
sp_can 4	0.371	0.021
sp_can 5	0.298	0.017
sp_can 6	0.583	0.032
sp_can 7	0.635	0.035
sp_can 8	0.567	0.031
us0aut 1	0.767	0.043
us1aut 2	0.375	0.021
us2aut 3	0.414	0.023

us3aut 4	0.528	0.029
us4aut 5	0.838	0.047
us5aut 6	0.564	0.031

Standardized residuals by index and year; with row/column/grand means

	1978	1979	1980	1981	1982	1983	1984
spr_361	0.000	0.000	0.000	0.000	0.731	0.954	-0.164
spr_362	0.000	0.000	0.000	0.000	0.969	0.784	-0.423
spr_363	0.000	0.000	0.000	0.000	2.433	0.125	-0.446
spr_364	0.000	0.000	0.000	0.000	2.463	-0.353	-0.452
spr_365	0.000	0.000	0.000	0.000	2.210	0.117	-0.186
spr_366	0.000	0.000	0.000	0.000	0.854	-0.216	0.364
spr_367	0.000	0.000	0.000	0.000	1.701	-1.239	-0.435
spr_368	0.000	0.000	0.000	0.000	0.917	-0.306	0.000
spr_411	0.140	0.541	-2.684	2.003	0.000	0.000	0.000
spr_412	-0.690	-0.373	0.545	0.519	0.000	0.000	0.000
spr_413	0.378	-0.808	-0.016	0.446	0.000	0.000	0.000
spr_414	-0.183	-0.072	-0.200	0.454	0.000	0.000	0.000
spr_415	0.590	-0.431	0.460	-0.618	0.000	0.000	0.000
spr_416	-0.322	-0.118	-0.102	0.542	0.000	0.000	0.000
spr_417	1.054	-1.011	-0.115	0.072	0.000	0.000	0.000
spr_418	1.829	-0.500	-1.985	0.656	0.000	0.000	0.000
sp_can1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can4	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can6	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can7	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can8	0.000	0.000	0.000	0.000	0.000	0.000	0.000
us0aut1	-0.962	0.508	-0.910	-0.686	0.353	1.564	1.849
us1aut2	-0.164	0.337	0.388	-0.299	0.660	-0.553	0.724
us2aut3	0.381	0.281	-0.007	-1.031	0.989	-0.032	0.466
us3aut4	-0.289	1.296	-0.213	-0.225	1.086	-1.097	-0.310
us4aut5	0.198	1.390	1.525	-0.458	0.663	-1.397	-1.019
us5aut6	0.704	1.107	0.459	-0.266	0.016	-0.604	-1.536
Col Avg	0.190	0.153	-0.204	0.079	1.146	-0.161	-0.121
	1985	1986	1987	1988	1989	1990	1991
spr_361	-0.342	0.266	-3.440	0.803	0.227	0.161	1.623
spr_362	0.574	-0.350	-0.660	-0.682	-0.054	-0.086	-0.118
spr_363	-0.126	0.062	-0.680	0.034	-0.918	-0.150	-0.279
spr_364	0.741	-0.156	-0.627	-0.239	-0.395	-0.573	-0.506
spr_365	0.465	0.682	-1.717	-0.198	-0.138	-0.356	-0.330
spr_366	0.224	0.525	0.115	-0.961	0.224	-0.163	-0.560
spr_367	0.316	-0.667	-0.675	-1.154	-0.262	0.057	-0.505
spr_368	0.382	0.655	-1.021	-1.301	0.172	-1.244	-0.367
spr_411	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_412	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_413	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_414	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_415	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_416	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_417	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_418	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can1	0.000	-0.612	-0.501	-0.823	2.009	0.930	1.416
sp_can2	0.000	1.477	-0.712	-0.436	0.418	0.773	0.497

sp_can3	0.000	-0.188	-0.304	-0.254	-0.766	0.067	0.207
sp_can4	0.000	-0.997	-1.019	-0.639	-0.484	0.043	-0.266
sp_can5	0.000	-0.155	-0.571	-0.675	-0.660	0.456	-0.382
sp_can6	0.000	-1.051	-1.544	-1.165	-0.673	0.237	0.121
sp_can7	0.000	0.150	-1.107	-1.211	-1.342	1.441	-0.152
sp_can8	0.000	-1.920	-0.936	-0.759	0.307	0.594	0.763
us0aut1	0.777	0.943	-1.176	-0.357	1.469	1.138	-0.341
us1aut2	0.401	-1.157	0.051	-0.930	-0.421	1.627	-0.348
us2aut3	0.352	-0.522	-1.652	-0.631	-1.028	-0.371	1.287
us3aut4	1.323	-1.567	-0.913	-1.166	-0.313	-1.632	1.186
us4aut5	1.298	0.081	-2.830	-0.189	-0.388	0.413	1.012
us5aut6	-1.535	-0.832	-0.217	-0.668	0.821	0.075	0.634
Col Avg	0.346	-0.242	-1.006	-0.618	-0.100	0.156	0.209

	1992	1993	1994	1995	1996	1997	1998
spr_361	0.139	-3.671	0.228	-0.492	-0.722	0.689	0.974
spr_362	0.150	-0.039	-0.868	-0.045	-0.312	-0.115	0.036
spr_363	-0.480	0.167	-1.167	0.178	0.394	-1.061	0.899
spr_364	-1.161	-0.864	-1.278	0.782	0.788	0.035	1.223
spr_365	-1.087	-0.868	-1.938	1.695	0.311	0.064	1.321
spr_366	-0.386	-0.443	-2.765	1.500	1.361	-0.290	1.563
spr_367	-0.216	-1.208	-0.352	3.277	0.386	1.671	1.888
spr_368	-0.814	-1.134	0.000	1.144	0.757	0.368	1.600
spr_411	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_412	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_413	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_414	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_415	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_416	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_417	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_418	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can1	-0.393	0.000	0.000	-0.427	-0.258	0.426	-2.570
sp_can2	0.815	0.000	0.000	0.276	0.357	-0.279	-0.371
sp_can3	0.460	0.000	0.000	0.114	1.090	-0.326	-0.310
sp_can4	0.023	0.000	0.000	0.548	1.462	0.407	-0.793
sp_can5	-0.493	0.000	0.000	0.617	1.632	0.383	-0.766
sp_can6	0.365	0.000	0.000	1.124	1.973	0.792	-0.410
sp_can7	0.022	0.000	0.000	-0.100	2.564	-0.447	0.334
sp_can8	0.477	0.000	0.000	0.822	1.621	-0.189	-0.051
us0aut1	-0.818	-1.320	1.190	0.395	0.800	-2.221	-2.271
us1aut2	-1.061	0.263	1.053	0.293	0.122	-0.642	-1.062
us2aut3	-1.325	0.191	0.556	0.291	2.014	-0.435	-0.488
us3aut4	0.296	-0.262	0.284	1.325	1.605	0.635	-0.643
us4aut5	-2.419	0.815	-1.316	1.449	0.942	0.183	0.547
us5aut6	-1.094	-0.575	0.562	2.285	0.970	1.324	-0.196
Col Avg	-0.409	-0.639	-0.447	0.775	0.903	0.044	0.021

	1999	2000	2001
spr_361	0.733	1.305	0.000
spr_362	0.495	0.744	0.000
spr_363	-0.483	1.500	0.000
spr_364	-0.101	0.672	0.000
spr_365	0.014	-0.061	0.000
spr_366	-0.396	-0.551	0.000
spr_367	-0.463	-2.121	0.000
spr_368	1.371	-1.179	0.000
spr_411	0.000	0.000	0.000
spr_412	0.000	0.000	0.000

spr_413	0.000	0.000	0.000
spr_414	0.000	0.000	0.000
spr_415	0.000	0.000	0.000
spr_416	0.000	0.000	0.000
spr_417	0.000	0.000	0.000
spr_418	0.000	0.000	0.000
sp_can1	0.922	-0.120	0.000
sp_can2	0.203	-0.466	-2.552
sp_can3	-0.113	1.007	-0.684
sp_can4	0.036	1.430	0.248
sp_can5	-0.355	0.862	0.106
sp_can6	-0.508	0.976	-0.237
sp_can7	-0.406	0.417	-0.163
sp_can8	-1.170	0.986	-0.545
us0aut1	-0.224	0.297	0.000
us1aut2	0.940	-1.294	1.072
us2aut3	0.642	-0.262	0.332
us3aut4	0.229	-0.220	-0.414
us4aut5	-0.749	0.987	-0.740
us5aut6	-0.611	0.613	-1.438
Col Avg	0.000	0.251	-0.386

Percent of total sum of squares by index and year; with row/column sums

	1978	1979	1980	1981	1982	1983	1984
spr_361	0.000	0.000	0.000	0.000	0.134	0.228	0.007
spr_362	0.000	0.000	0.000	0.000	0.235	0.154	0.045
spr_363	0.000	0.000	0.000	0.000	1.484	0.004	0.050
spr_364	0.000	0.000	0.000	0.000	1.521	0.031	0.051
spr_365	0.000	0.000	0.000	0.000	1.224	0.003	0.009
spr_366	0.000	0.000	0.000	0.000	0.183	0.012	0.033
spr_367	0.000	0.000	0.000	0.000	0.726	0.385	0.047
spr_368	0.000	0.000	0.000	0.000	0.211	0.024	0.000
spr_411	0.005	0.073	1.805	1.005	0.000	0.000	0.000
spr_412	0.119	0.035	0.074	0.067	0.000	0.000	0.000
spr_413	0.036	0.163	0.000	0.050	0.000	0.000	0.000
spr_414	0.008	0.001	0.010	0.052	0.000	0.000	0.000
spr_415	0.087	0.047	0.053	0.096	0.000	0.000	0.000
spr_416	0.026	0.004	0.003	0.074	0.000	0.000	0.000
spr_417	0.278	0.256	0.003	0.001	0.000	0.000	0.000
spr_418	0.838	0.063	0.988	0.108	0.000	0.000	0.000
sp_can1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can4	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can6	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can7	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can8	0.000	0.000	0.000	0.000	0.000	0.000	0.000
us0aut1	0.232	0.065	0.207	0.118	0.031	0.613	0.857
us1aut2	0.007	0.028	0.038	0.022	0.109	0.077	0.131
us2aut3	0.036	0.020	0.000	0.266	0.245	0.000	0.055
us3aut4	0.021	0.421	0.011	0.013	0.295	0.302	0.024
us4aut5	0.010	0.484	0.583	0.052	0.110	0.489	0.260
us5aut6	0.124	0.307	0.053	0.018	0.000	0.091	0.591
++	1.828	1.968	3.829	1.942	6.507	2.413	2.160

	1985	1986	1987	1988	1989	1990	1991
spr_361	0.029	0.018	2.965	0.161	0.013	0.006	0.660
spr_362	0.083	0.031	0.109	0.117	0.001	0.002	0.003
spr_363	0.004	0.001	0.116	0.000	0.211	0.006	0.019
spr_364	0.137	0.006	0.098	0.014	0.039	0.082	0.064
spr_365	0.054	0.117	0.739	0.010	0.005	0.032	0.027
spr_366	0.013	0.069	0.003	0.231	0.013	0.007	0.079
spr_367	0.025	0.111	0.114	0.334	0.017	0.001	0.064
spr_368	0.037	0.107	0.261	0.424	0.007	0.388	0.034
spr_411	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_412	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_413	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_414	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_415	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_416	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_417	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_418	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can1	0.000	0.094	0.063	0.170	1.012	0.217	0.503
sp_can2	0.000	0.547	0.127	0.048	0.044	0.150	0.062
sp_can3	0.000	0.009	0.023	0.016	0.147	0.001	0.011
sp_can4	0.000	0.249	0.260	0.102	0.059	0.000	0.018
sp_can5	0.000	0.006	0.082	0.114	0.109	0.052	0.037
sp_can6	0.000	0.277	0.597	0.340	0.114	0.014	0.004
sp_can7	0.000	0.006	0.307	0.368	0.451	0.520	0.006
sp_can8	0.000	0.924	0.219	0.145	0.024	0.089	0.146
us0aut1	0.151	0.223	0.346	0.032	0.541	0.325	0.029
us1aut2	0.040	0.336	0.001	0.217	0.044	0.663	0.030
us2aut3	0.031	0.068	0.684	0.100	0.265	0.035	0.415
us3aut4	0.438	0.615	0.209	0.341	0.025	0.667	0.352
us4aut5	0.423	0.002	2.008	0.009	0.038	0.043	0.256
us5aut6	0.591	0.174	0.012	0.112	0.169	0.001	0.101
++	2.056	3.989	9.344	3.404	3.346	3.301	2.920
	1992	1993	1994	1995	1996	1997	1998
spr_361	0.005	3.378	0.013	0.061	0.130	0.119	0.238
spr_362	0.006	0.000	0.189	0.000	0.024	0.003	0.000
spr_363	0.058	0.007	0.341	0.008	0.039	0.282	0.203
spr_364	0.338	0.187	0.409	0.153	0.156	0.000	0.375
spr_365	0.296	0.189	0.941	0.720	0.024	0.001	0.437
spr_366	0.037	0.049	1.917	0.564	0.464	0.021	0.612
spr_367	0.012	0.366	0.031	2.692	0.037	0.700	0.894
spr_368	0.166	0.322	0.000	0.328	0.144	0.034	0.642
spr_411	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_412	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_413	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_414	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_415	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_416	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_417	0.000	0.000	0.000	0.000	0.000	0.000	0.000
spr_418	0.000	0.000	0.000	0.000	0.000	0.000	0.000
sp_can1	0.039	0.000	0.000	0.046	0.017	0.045	1.655
sp_can2	0.167	0.000	0.000	0.019	0.032	0.020	0.034
sp_can3	0.053	0.000	0.000	0.003	0.298	0.027	0.024
sp_can4	0.000	0.000	0.000	0.075	0.536	0.041	0.158
sp_can5	0.061	0.000	0.000	0.096	0.667	0.037	0.147
sp_can6	0.033	0.000	0.000	0.317	0.976	0.157	0.042

sp_can7	0.000	0.000	0.000	0.003	1.647	0.050	0.028
sp_can8	0.057	0.000	0.000	0.169	0.659	0.009	0.001
us0aut1	0.168	0.437	0.355	0.039	0.160	1.236	1.293
us1aut2	0.282	0.017	0.278	0.022	0.004	0.103	0.282
us2aut3	0.440	0.009	0.077	0.021	1.017	0.047	0.060
us3aut4	0.022	0.017	0.020	0.440	0.646	0.101	0.104
us4aut5	1.466	0.166	0.434	0.526	0.223	0.008	0.075
us5aut6	0.300	0.083	0.079	1.308	0.236	0.439	0.010

++	4.005	5.228	5.085	7.610	8.136	3.482	7.313
	1999	2000	2001	++			

spr_361	0.135	0.427	0.000	8.726
spr_362	0.061	0.139	0.000	1.203
spr_363	0.059	0.564	0.000	3.454
spr_364	0.003	0.113	0.000	3.779
spr_365	0.000	0.001	0.000	4.829
spr_366	0.039	0.076	0.000	4.422
spr_367	0.054	1.127	0.000	7.736
spr_368	0.471	0.348	0.000	3.949
spr_411	0.000	0.000	0.000	2.889
spr_412	0.000	0.000	0.000	0.296
spr_413	0.000	0.000	0.000	0.249
spr_414	0.000	0.000	0.000	0.071
spr_415	0.000	0.000	0.000	0.283
spr_416	0.000	0.000	0.000	0.106
spr_417	0.000	0.000	0.000	0.539
spr_418	0.000	0.000	0.000	1.997
sp_can1	0.213	0.004	0.000	4.076
sp_can2	0.010	0.054	1.633	2.946
sp_can3	0.003	0.254	0.117	0.986
sp_can4	0.000	0.512	0.015	2.027
sp_can5	0.032	0.186	0.003	1.628
sp_can6	0.065	0.239	0.014	3.188
sp_can7	0.041	0.044	0.007	3.477
sp_can8	0.343	0.244	0.074	3.102
us0aut1	0.013	0.022	0.000	7.493
us1aut2	0.221	0.419	0.288	3.662
us2aut3	0.103	0.017	0.028	4.040
us3aut4	0.013	0.012	0.043	5.153
us4aut5	0.141	0.244	0.137	8.188
us5aut6	0.093	0.094	0.519	5.504

++	2.114	5.141	2.878	100.000
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STOCK NUMBERS (Jan 1) in thousands -
D:\GBcod\assess_2001\vpa\gbcod_2000_new_15_gcaa.9

	1978	1979	1980	1981	1982	1983	1984
1	27711	23512	20109	41393	17470	9615	27390
2	4270	22686	19219	16383	33865	14004	7774
3	25527	3140	16774	12318	10513	19458	7587
4	7933	13889	1756	8460	6266	5148	8635
5	2877	4411	6965	986	4697	2608	1992
6	1127	1604	2515	3614	594	2036	1181

7	1414	804	899	1085	1687	232	965
8	67	846	588	334	511	772	104
9	147	12	463	403	162	226	419
10	50	135	25	174	171	133	268

1+	71122	71040	69315	85150	75937	54232	56316
	1985	1986	1987	1988	1989	1990	1991

1	8672	42751	16376	23448	15689	9218	17866
2	22352	6979	34860	13384	19188	12845	7540
3	5182	12485	4514	21779	9531	13821	6045
4	3115	2032	6084	2423	10573	5159	6753
5	4051	1312	943	3062	1068	4897	2521
6	871	1611	640	519	1153	575	1961
7	500	340	752	296	204	454	264
8	375	212	200	371	97	93	150
9	46	124	108	107	126	40	44
10	190	69	62	91	41	82	40

1+	45354	67916	64540	65481	57670	47184	43183
	1992	1993	1994	1995	1996	1997	1998

1	6632	8433	6300	4331	7612	10325	3179
2	14580	5366	6901	5156	3545	6231	8450
3	4794	8158	3459	5290	3867	2715	4634
4	2015	1961	2837	1451	3374	2349	1645
5	2560	710	597	671	562	1645	1126
6	745	755	184	132	287	242	629
7	621	244	191	63	68	124	80
8	102	229	56	33	28	42	25
9	60	53	58	04	13	21	20
10	16	25	08	02	00	01	12

1+	32124	25935	20591	17134	19357	23696	19801
	1999	2000	2001				

1	7291	4896	1710				
2	2603	5968	4003				
3	6250	1873	4152				
4	2719	3373	891				
5	964	1587	1835				
6	629	607	1023				
7	300	427	432				
8	30	138	315				
9	08	10	91				
10	11	05	12				

1+	20805	18885	14464				

FI SHING MORTALITY -							
	1978	1979	1980	1981	1982	1983	1984

1	0.00	0.00	0.00	0.00	0.02	0.01	0.00

2	0.11	0.10	0.24	0.24	0.35	0.41	0.21
3	0.41	0.38	0.48	0.48	0.51	0.61	0.69
4	0.39	0.49	0.38	0.39	0.68	0.75	0.56
5	0.38	0.36	0.46	0.31	0.64	0.59	0.63
6	0.14	0.38	0.64	0.56	0.74	0.55	0.66
7	0.31	0.11	0.79	0.55	0.58	0.60	0.74
8	1.49	0.40	0.18	0.52	0.62	0.41	0.63
9	0.36	0.44	0.51	0.44	0.66	0.67	0.60
10	0.36	0.44	0.51	0.44	0.66	0.67	0.60

	1985	1986	1987	1988	1989	1990	1991
1	0.02	0.00	0.00	0.00	0.00	0.00	0.00
2	0.38	0.24	0.27	0.14	0.13	0.55	0.25
3	0.74	0.52	0.42	0.52	0.41	0.52	0.90
4	0.66	0.57	0.49	0.62	0.57	0.52	0.77
5	0.72	0.52	0.40	0.78	0.42	0.72	1.02
6	0.74	0.56	0.57	0.73	0.73	0.58	0.95
7	0.66	0.33	0.51	0.92	0.59	0.91	0.75
8	0.91	0.47	0.43	0.88	0.68	0.56	0.72
9	0.71	0.54	0.49	0.73	0.58	0.63	0.87
10	0.71	0.54	0.49	0.73	0.58	0.63	0.87

	1992	1993	1994	1995	1996	1997	1998
1	0.01	0.00	0.00	0.00	0.00	0.00	0.00
2	0.38	0.24	0.07	0.09	0.07	0.10	0.10
3	0.69	0.86	0.67	0.25	0.30	0.30	0.33
4	0.84	0.99	1.24	0.75	0.52	0.54	0.33
5	1.02	1.15	1.31	0.65	0.64	0.76	0.38
6	0.91	1.17	0.86	0.46	0.64	0.91	0.54
7	0.80	1.27	1.57	0.60	0.28	1.38	0.78
8	0.46	1.18	2.36	0.71	0.12	0.54	0.94
9	0.95	1.11	1.30	0.71	0.54	0.66	0.40
10	0.95	1.11	1.30	0.71	0.54	0.66	0.40

	1999	2000
1	0.00	0.00
2	0.13	0.16
3	0.42	0.54
4	0.34	0.41
5	0.26	0.24
6	0.19	0.14
7	0.58	0.10
8	0.89	0.22
9	0.32	0.22
10	0.32	0.22

Average F for	2, 8	3, 8	4, 8	5, 8	6, 8		
	1978	1979	1980	1981	1982	1983	1984
2, 8	0.46	0.32	0.45	0.44	0.59	0.56	0.59
3, 8	0.52	0.35	0.49	0.47	0.63	0.59	0.65
4, 8	0.54	0.35	0.49	0.47	0.65	0.58	0.64
5, 8	0.58	0.31	0.52	0.49	0.64	0.54	0.66
6, 8	0.65	0.30	0.54	0.55	0.65	0.52	0.68

	1985	1986	1987	1988	1989	1990	1991
2,8	0.69	0.46	0.44	0.66	0.50	0.62	0.77
3,8	0.74	0.49	0.47	0.74	0.57	0.63	0.85
4,8	0.74	0.49	0.48	0.79	0.60	0.65	0.84
5,8	0.76	0.47	0.48	0.83	0.60	0.69	0.86
6,8	0.77	0.45	0.50	0.84	0.66	0.68	0.81

	1992	1993	1994	1995	1996	1997	1998
2,8	0.73	0.98	1.15	0.50	0.37	0.65	0.49
3,8	0.79	1.10	1.33	0.57	0.42	0.74	0.55
4,8	0.81	1.15	1.47	0.63	0.44	0.83	0.59
5,8	0.80	1.19	1.52	0.61	0.42	0.90	0.66
6,8	0.72	1.21	1.60	0.59	0.35	0.94	0.75

	1999	2000
2,8	0.40	0.26
3,8	0.45	0.28
4,8	0.45	0.22
5,8	0.48	0.18
6,8	0.55	0.16

Average F weighted by N for 2,8 3,8 4,8 5,8 6,8

	1978	1979	1980	1981	1982	1983	1984
2,8	0.36	0.27	0.39	0.38	0.45	0.56	0.51
3,8	0.39	0.43	0.49	0.46	0.59	0.62	0.63
4,8	0.36	0.44	0.49	0.44	0.65	0.65	0.59
5,8	0.33	0.34	0.51	0.52	0.63	0.55	0.66
6,8	0.27	0.32	0.61	0.56	0.62	0.52	0.69

	1985	1986	1987	1988	1989	1990	1991
2,8	0.51	0.44	0.32	0.43	0.33	0.56	0.68
3,8	0.72	0.52	0.46	0.57	0.51	0.56	0.87
4,8	0.71	0.54	0.48	0.73	0.57	0.62	0.85
5,8	0.73	0.52	0.48	0.79	0.59	0.71	0.97
6,8	0.75	0.52	0.52	0.83	0.71	0.71	0.91

	1992	1993	1994	1995	1996	1997	1998
2,8	0.57	0.72	0.54	0.27	0.32	0.33	0.23
3,8	0.82	0.93	0.98	0.39	0.42	0.53	0.36
4,8	0.92	1.08	1.27	0.70	0.54	0.66	0.40
5,8	0.95	1.18	1.33	0.62	0.60	0.81	0.46
6,8	0.83	1.19	1.37	0.53	0.54	1.02	0.58

	1999	2000
2,8	0.33	0.28
3,8	0.38	0.37
4,8	0.32	0.31
5,8	0.30	0.20
6,8	0.33	0.14

Average F for weighted by Catch for 2,8 3,8 4,8 5,8 6,8

	1978	1979	1980	1981	1982	1983	1984	
2,8	0.39	0.37	0.43	0.41	0.48	0.57	0.58	
3,8	0.40	0.44	0.50	0.47	0.60	0.63	0.63	
4,8	0.38	0.45	0.52	0.46	0.65	0.66	0.60	
5,8	0.38	0.36	0.54	0.53	0.63	0.56	0.66	
6,8	0.38	0.36	0.66	0.56	0.63	0.52	0.70	
	1985	1986	1987	1988	1989	1990	1991	
2,8	0.55	0.48	0.34	0.53	0.44	0.57	0.79	
3,8	0.72	0.53	0.47	0.58	0.52	0.57	0.87	
4,8	0.71	0.54	0.49	0.74	0.58	0.64	0.86	
5,8	0.73	0.52	0.48	0.79	0.61	0.72	0.97	
6,8	0.76	0.53	0.53	0.83	0.71	0.74	0.92	
	1992	1993	1994	1995	1996	1997	1998	
2,8	0.64	0.84	0.96	0.42	0.43	0.51	0.31	
3,8	0.83	0.94	1.05	0.48	0.46	0.59	0.37	
4,8	0.92	1.09	1.28	0.71	0.54	0.69	0.42	
5,8	0.96	1.18	1.37	0.63	0.62	0.83	0.48	
6,8	0.85	1.19	1.46	0.55	0.59	1.06	0.59	
	1999	2000						
2,8	0.37	0.34						
3,8	0.39	0.41						
4,8	0.34	0.35						
5,8	0.35	0.21						
6,8	0.44	0.15						

Biomass Weighted F

	1978	1979	1980	1981	1982	1983	1984	
	0.31	0.29	0.39	0.32	0.47	0.52	0.41	
	1985	1986	1987	1988	1989	1990	1991	
	0.53	0.29	0.33	0.42	0.35	0.53	0.56	
	1992	1993	1994	1995	1996	1997	1998	
	0.57	0.66	0.55	0.30	0.30	0.31	0.27	
	1999	2000						
	0.28	0.24						

BACKCALCULATED PARTIAL RECRUITMENT

	1978	1979	1980	1981	1982	1983	1984
1	0.00	0.00	0.01	0.00	0.03	0.02	0.00
2	0.07	0.21	0.31	0.43	0.48	0.55	0.28
3	0.27	0.78	0.61	0.85	0.70	0.82	0.93
4	0.26	1.00	0.48	0.69	0.92	1.00	0.75
5	0.26	0.74	0.58	0.54	0.86	0.79	0.84

6	0.09	0.77	0.81	1.00	1.00	0.73	0.89
7	0.21	0.23	1.00	0.98	0.79	0.80	1.00
8	1.00	0.82	0.23	0.93	0.83	0.55	0.84
9	0.24	0.90	0.64	0.78	0.90	0.90	0.81
10	0.24	0.90	0.64	0.78	0.90	0.90	0.81

	1985	1986	1987	1988	1989	1990	1991
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1	0.02	0.01	0.00	0.00	0.00	0.00	0.00
2	0.42	0.41	0.47	0.15	0.18	0.61	0.25
3	0.81	0.91	0.74	0.57	0.57	0.57	0.88
4	0.73	1.00	0.85	0.67	0.78	0.57	0.76
5	0.79	0.91	0.69	0.85	0.57	0.79	1.00
6	0.81	0.99	1.00	0.80	1.00	0.64	0.93
7	0.72	0.58	0.89	1.00	0.80	1.00	0.74
8	1.00	0.83	0.75	0.96	0.92	0.61	0.71
9	0.78	0.96	0.86	0.79	0.79	0.69	0.85
10	0.78	0.96	0.86	0.79	0.79	0.69	0.85

	1992	1993	1994	1995	1996	1997	1998
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1	0.01	0.00	0.00	0.00	0.00	0.00	0.00
2	0.37	0.19	0.03	0.12	0.10	0.07	0.11
3	0.68	0.67	0.28	0.33	0.46	0.22	0.36
4	0.83	0.78	0.53	1.00	0.81	0.39	0.36
5	1.00	0.91	0.55	0.87	1.00	0.55	0.41
6	0.90	0.92	0.37	0.61	1.00	0.66	0.57
7	0.78	1.00	0.66	0.81	0.43	1.00	0.83
8	0.45	0.93	1.00	0.95	0.19	0.39	1.00
9	0.93	0.87	0.55	0.95	0.85	0.48	0.42
10	0.93	0.87	0.55	0.95	0.85	0.48	0.42

	1999	2000
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1	0.00	0.00
2	0.14	0.30
3	0.47	1.00
4	0.38	0.75
5	0.29	0.44
6	0.21	0.26
7	0.64	0.19
8	1.00	0.41
9	0.35	0.41
10	0.35	0.41

MEAN BIOMASS (using catch mean weights at age)

	1978	1979	1980	1981	1982	1983	1984
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1	17756	18930	15201	33078	11990	8411	26099
2	4816	29255	22650	19782	36452	15601	10449
3	47057	5118	29978	21113	20017	31666	12313
4	20817	42243	4894	21839	16000	10999	21920
5	9449	16495	28841	4033	17037	8352	6888
6	5533	8742	11357	18264	2510	9170	5214
7	8154	6341	4785	6532	10957	1273	5563
8	275	6555	4453	2347	3458	5943	717
9	1326	107	2801	4217	1355	1693	3264
10	553	1376	303	2611	2091	1408	3101

1+	115735	135163	125263	133816	121866	94515	95528
	1985	1986	1987	1988	1989	1990	1991
1	7070	35926	10766	16700	11504	6940	18010
2	24024	8344	41185	17250	26451	14074	9866
3	7020	21790	8386	36581	16162	24297	9347
4	8106	5192	18430	5809	27816	12975	14785
5	13463	5247	4126	10556	4299	15692	6948
6	3621	8109	3448	2246	5021	2530	6863
7	2718	2353	4828	1564	1165	2323	1262
8	2321	1538	1486	2266	691	696	1031
9	341	1107	894	774	1020	345	260
10	1838	751	735	985	533	880	406

1+	70522	90356	94285	94730	94659	80753	68777
	1992	1993	1994	1995	1996	1997	1998
1	6861	6663	5173	3556	6085	8926	1668
2	17054	6662	8841	6591	4690	8505	10818
3	7809	11349	5011	8925	7415	4957	8268
4	4809	3823	5495	3590	8152	5875	4457
5	6955	1934	1481	2485	1866	4336	4041
6	2764	2620	840	715	1287	879	2638
7	2948	961	719	467	455	501	416
8	735	1145	190	249	204	259	131
9	428	285	290	30	120	163	193
10	201	203	77	21	04	14	147

1+	50565	35644	28116	26628	30277	34414	32777
	1999	2000					
1	5484	4679					
2	3471	8559					
3	10370	3221					
4	7258	8991					
5	3777	6211					
6	3349	3050					
7	1533	2728					
8	176	958					
9	77	74					
10	130	48					

1+	35625	38517	00
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Summaries for ages	2, 8	3, 8	4, 8	5, 8	6, 8		
	1978	1979	1980	1981	1982	1983	1984
2, 8	96100	114750	106958	93910	106430	83004	63064
3, 8	91284	85495	84308	74128	69978	67403	52615
4, 8	44227	80377	54330	53016	49961	35737	40303
5, 8	23410	38134	49436	31176	33961	24738	18382

6, 8	13962	21638	20595	27144	16924	16386	11494
	1985	1986	1987	1988	1989	1990	1991
2, 8	61273	52572	81890	76271	81603	72588	50101
3, 8	37248	44228	40704	59021	55152	58514	40235
4, 8	30229	22438	32319	22440	38990	34217	30889
5, 8	22123	17247	13888	16631	11175	21242	16103
6, 8	8660	12000	9762	6075	6876	5549	9156
	1992	1993	1994	1995	1996	1997	1998
2, 8	43074	28493	22577	23021	24069	25312	30768
3, 8	26020	21831	13736	16430	19379	16806	19950
4, 8	18211	10481	8724	7505	11964	11849	11681
5, 8	13402	6659	3229	3915	3811	5975	7225
6, 8	6447	4725	1749	1430	1946	1639	3184
	1999	2000					
2, 8	29933	33717					
3, 8	26462	25158					
4, 8	16093	21937					
5, 8	8834	12946					
6, 8	5058	6735					

Catch BIOMASS (using catch mean weights)

	1978	1979	1980	1981	1982	1983	1984
1	01	30	75	24	254	105	85
2	517	2982	5546	4819	12909	6441	2148
3	19229	1950	14524	10049	10291	19393	8500
4	8054	20709	1849	8483	10823	8241	12205
5	3628	5970	13154	1233	10835	4948	4321
6	761	3314	7272	10266	1855	5014	3439
7	2562	710	3789	3610	6373	765	4137
8	409	2631	794	1229	2133	2438	450
9	475	47	1422	1859	899	1137	1955
10	198	606	154	1151	1388	946	1858
1+	35834	38948	48578	42723	57759	49429	39099
	1985	1986	1987	1988	1989	1990	1991
1	122	145	19	08	00	06	58
2	9185	1967	11136	2407	3389	7793	2496
3	5167	11305	3539	19120	6687	12541	8400
4	5385	2949	8967	3596	15847	6696	11383
5	9720	2717	1634	8203	1802	11225	7081
6	2679	4558	1969	1644	3671	1467	6521
7	1787	781	2441	1437	682	2106	947
8	2113	724	636	1999	467	388	747
9	243	603	438	565	590	216	226
10	1309	409	360	719	308	552	354
1+	37709	26159	31139	39697	33443	42990	38211

	1992	1993	1994	1995	1996	1997	1998
1	81	04	02	00	01	03	00
2	6493	1594	582	578	313	818	1100
3	5417	9718	3351	2229	2213	1493	2755
4	4051	3783	6821	2688	4223	3145	1490
5	7100	2230	1936	1613	1198	3304	1547
6	2529	3074	725	328	825	802	1421
7	2355	1221	1127	282	126	693	324
8	338	1346	447	177	25	140	123
9	405	317	377	21	65	108	77
10	190	225	100	15	02	09	58

1+ 28958 23510 15468 7931 8992 10514 8894

	1999	2000
1	02	06
2	448	1393
3	4321	1749
4	2455	3674
5	989	1488
6	626	428
7	883	282
8	158	214
9	25	17
10	41	11

1+ 9946 9262

Summaries for ages	2, 8	3, 8	4, 8	5, 8	6, 8		
	1978	1979	1980	1981	1982	1983	1984
2, 8	35160	38264	46927	39689	55219	47241	35200
3, 8	34643	35283	41381	34870	42310	40800	33053
4, 8	15414	33333	26857	24822	32019	21407	24553
5, 8	7360	12624	25009	16339	21196	13166	12348
6, 8	3732	6654	11855	15105	10361	8218	8027
	1985	1986	1987	1988	1989	1990	1991
2, 8	36035	25002	30322	38405	32545	42216	37573
3, 8	26850	23035	19186	35999	29156	34423	35078
4, 8	21683	11730	15647	16879	22469	21882	26678
5, 8	16298	8780	6680	13283	6622	15186	15295
6, 8	6578	6063	5046	5080	4820	3960	8214
	1992	1993	1994	1995	1996	1997	1998
2, 8	28283	22965	14989	7894	8923	10394	8758
3, 8	21790	21371	14407	7316	8611	9576	7659
4, 8	16373	11654	11056	5087	6397	8083	4904
5, 8	12322	7871	4236	2399	2175	4938	3414
6, 8	5221	5640	2300	786	976	1634	1868

1999 2000

2, 8	9879	9228
3, 8	9431	7835
4, 8	5111	6087
5, 8	2656	2412
6, 8	1667	924

Jan 1 BIOMASS (using Jan 1 mean weights)

	1978	1979	1980	1981	1982	1983	1984
1	13468	16318	12568	28975	9574	7192	24843
2	4368	23322	21891	18317	37658	14956	9795
3	48016	5269	32207	22850	20985	35531	14500
4	23180	44708	4932	24560	18841	15283	25327
5	9695	18165	33960	4310	20080	10996	8170
6	5175	8951	14365	23078	3463	11908	6524
7	8818	5860	6978	8208	13868	1673	7281
8	486	7376	5376	3038	4708	7575	935
9	1469	124	4322	4574	1799	2381	4521
10	658	1701	387	3229	2862	1934	4123

1+	115332	131792	136985	141138	133837	109430	106019
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	1985	1986	1987	1988	1989	1990	1991
1	6166	31465	8221	12849	9147	5475	16919
2	27314	8074	40891	14053	21625	14425	8770
3	9572	23260	8658	40706	17699	27573	12054
4	9616	5615	19476	7174	31539	14585	19598
5	17385	6125	4347	14561	4651	21036	10332
6	4973	9746	4212	3228	6931	3363	10524
7	3649	2573	6033	2438	1512	3418	1807
8	3585	1904	1889	3511	938	872	1417
9	489	1410	1156	1127	1358	468	444
10	2570	974	930	1388	701	1184	608

1+	85318	91147	95811	101035	96101	92400	82472
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	1992	1993	1994	1995	1996	1997	1998
1	6586	5684	4480	3040	5024	7898	1119
2	19114	7121	7784	5951	4141	7347	10048
3	9597	15206	6309	9246	7320	5078	8828
4	6305	5621	8142	4182	8987	6890	4687
5	10270	3104	2388	3009	2437	6134	4606
6	4036	4138	1115	787	1733	1316	3102
7	4128	1661	1368	566	538	905	559
8	871	1902	471	315	270	360	212
9	672	515	546	43	161	205	212
10	311	336	138	29	06	19	178

1+	61889	45286	32740	27168	30616	36152	33550
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	1999	2000
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1	4214	4573
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2	2478	7107
3	11350	3658
4	7665	9486
5	3988	6486
6	3467	3270
7	1982	2945
8	266	1092
9	83	90
10	152	53

1+ 35645 38759

Summaries for ages 2, 8 3, 8 4, 8 5, 8 6, 8

 1978 1979 1980 1981 1982 1983 1984

2, 8	99738	113650	119708	104360	119603	97923	72533
3, 8	95370	90328	97817	86043	81945	82967	62738
4, 8	47354	85059	65610	63193	60960	47436	48238
5, 8	24174	40351	60678	38633	42119	32153	22911
6, 8	14479	22186	26718	34323	22039	21157	14741

 1985 1986 1987 1988 1989 1990 1991

2, 8	76093	57298	85505	85670	84895	85272	64501
3, 8	48779	49223	44614	71617	63270	70847	55731
4, 8	39207	25963	35956	30912	45571	43274	43678
5, 8	29592	20348	16480	23738	14032	28689	24080
6, 8	12207	14223	12133	9177	9381	7653	13748

 1992 1993 1994 1995 1996 1997 1998

2, 8	54321	38752	27577	24056	25425	28029	32040
3, 8	35206	31631	19793	18105	21284	20683	21993
4, 8	25609	16425	13483	8859	13964	15605	13165
5, 8	19305	10804	5341	4677	4977	8715	8478
6, 8	9035	7700	2954	1668	2540	2581	3873

 1999 2000

2, 8	31195	34043
3, 8	28718	26935
4, 8	17368	23278
5, 8	9703	13792
6, 8	5715	7306

SSB AT THE START OF THE SPAWNING SEASON -MALES AND FEMALES (MT) (using SSB mean weights)

 1978 1979 1980 1981 1982 1983 1984

1	912	1104	850	1962	1200	902	3122
2	1411	7540	6911	5784	16138	6347	4303
3	33839	3730	22412	15924	15649	26066	10500
4	20179	38255	4300	21375	15792	12655	21656
5	8796	16541	30441	3962	17468	9636	7118
6	4892	8127	12487	20325	2961	10514	5653
7	8094	5563	5914	7240	12174	1464	6221

8	366	6672	5047	2693	4108	6842	815
9	1339	111	3841	4111	1557	2059	3957
10	620	1580	355	3000	2562	1729	3731

1+	80447	89224	92560	86373	89609	78214	67075
	1985	1986	1987	1988	1989	1990	1991

1	773	8515	2226	3480	2477	635	1963
2	11650	5031	25331	8897	13718	6615	4228
3	6878	18777	7103	32838	14540	22023	9033
4	8075	4842	17023	6133	27186	12815	16506
5	14908	5434	3936	12373	4195	18059	8431
6	4252	8583	3704	2763	5934	2953	8688
7	3163	2355	5363	2023	1326	2842	1542
8	2980	1702	1701	2931	811	769	1214
9	420	1245	1030	965	1193	408	372
10	2282	890	857	1229	637	1067	526

1+	55382	57374	68273	73633	72016	68186	52504
	1992	1993	1994	1995	1996	1997	1998

1	763	660	87	59	97	993	141
2	9022	3442	2904	2212	1545	3986	5446
3	7442	11476	5186	8150	6400	4297	7431
4	5246	4564	6403	3570	7973	6095	4287
5	8379	2477	1857	2612	2118	5225	4179
6	3351	3291	934	705	1506	1093	2743
7	3495	1300	1018	495	496	695	475
8	780	1512	307	271	256	319	175
9	555	414	425	37	142	178	192
10	266	279	111	26	05	17	167

1+	39299	29413	19233	18136	20538	22898	25236
	1999	2000					

1	530	575					
2	1337	3814					
3	9422	2973					
4	7007	8571					
5	3692	6028					
6	3250	3089					
7	1742	2799					
8	222	1017					
9	77	86					
10	144	51					

1+	27422	29003					