

File = y2000r0c2.6m1s111111111_000.dat

ASAP3 run on Monday, 04 Nov 2019 at 10:35:36

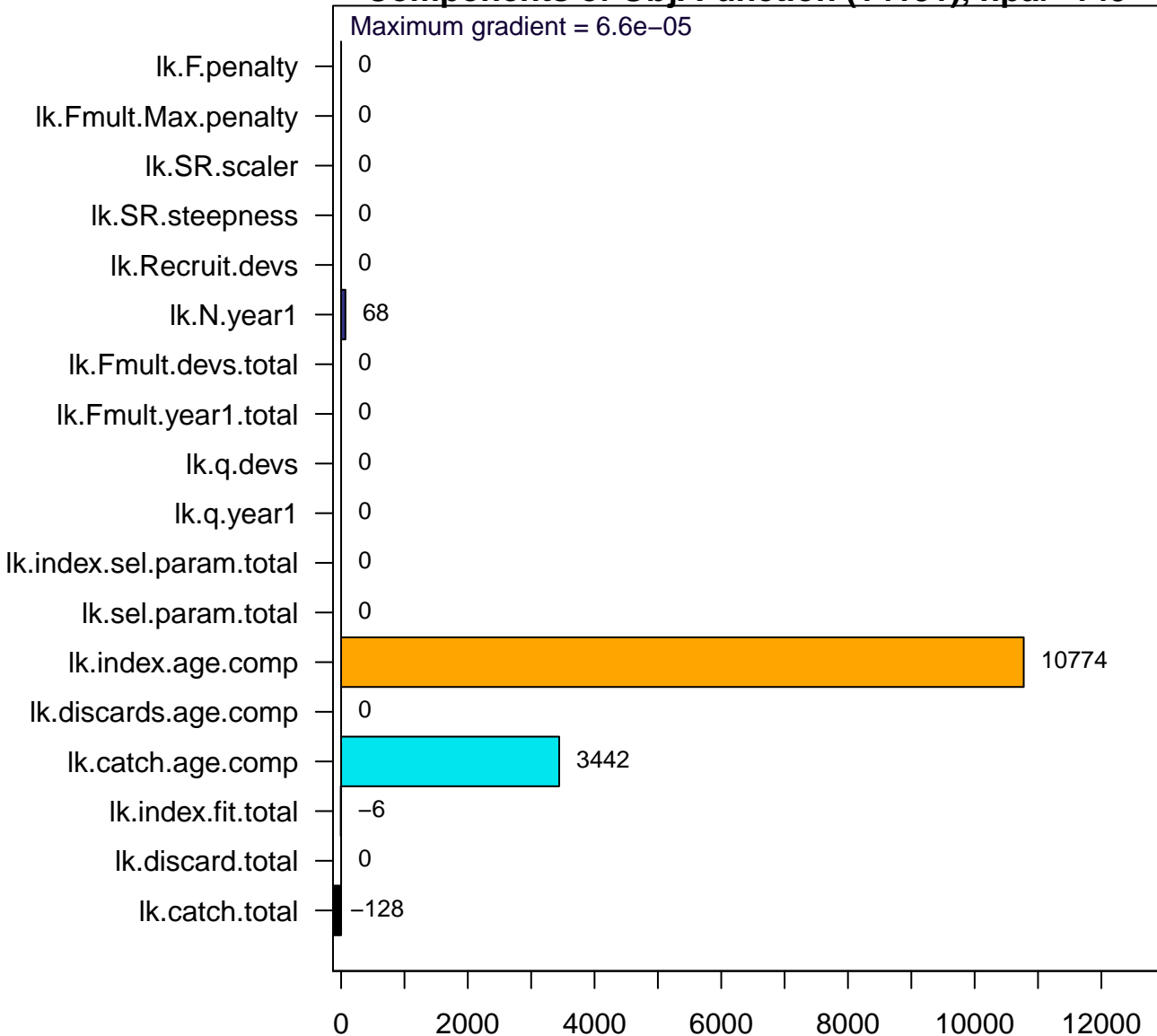
chris.legault\Documents\Working\ICES-WKFORBIAS 2019\WhiteHake\Rose\w

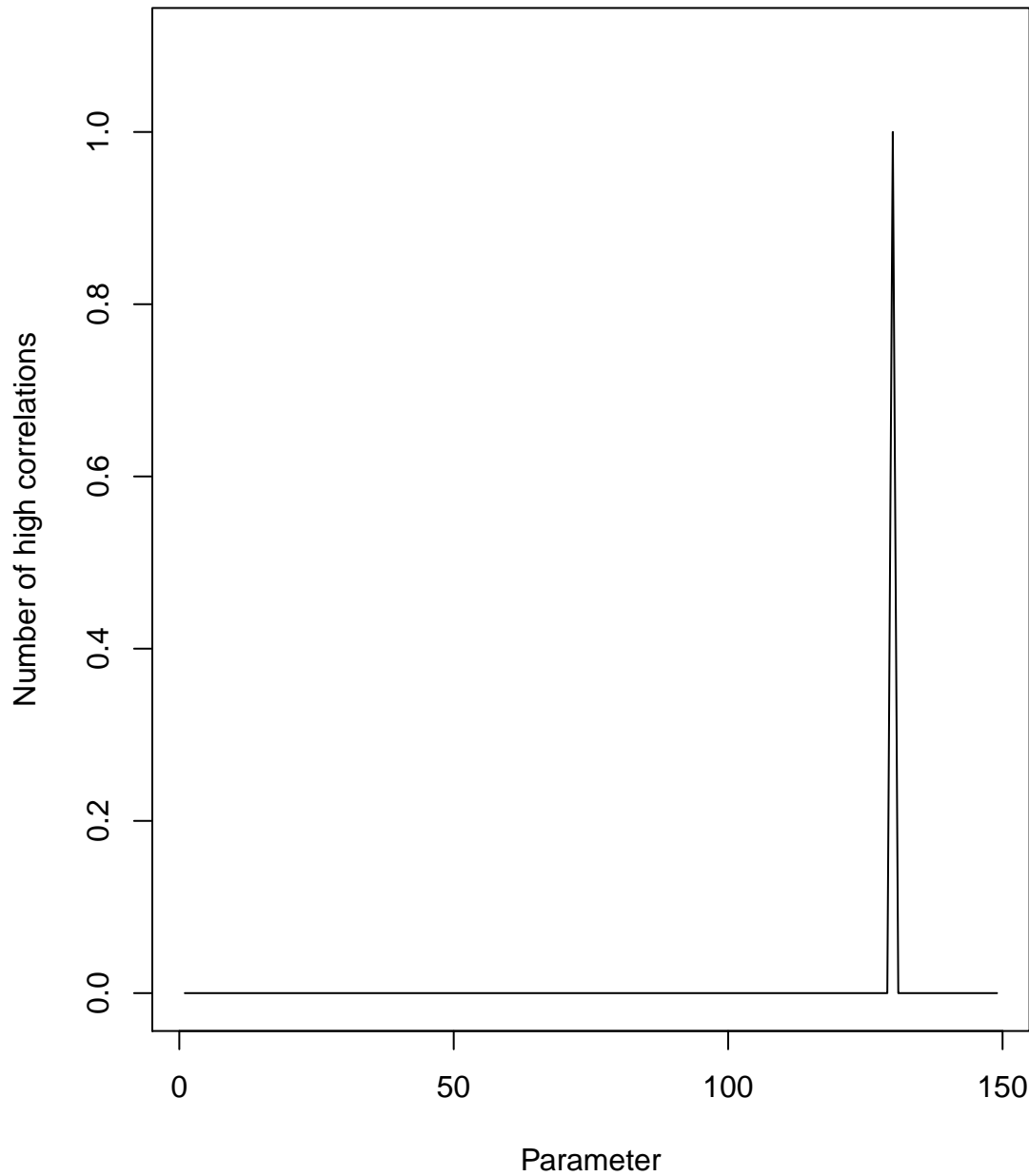
ASAPplots version = 0.2.14

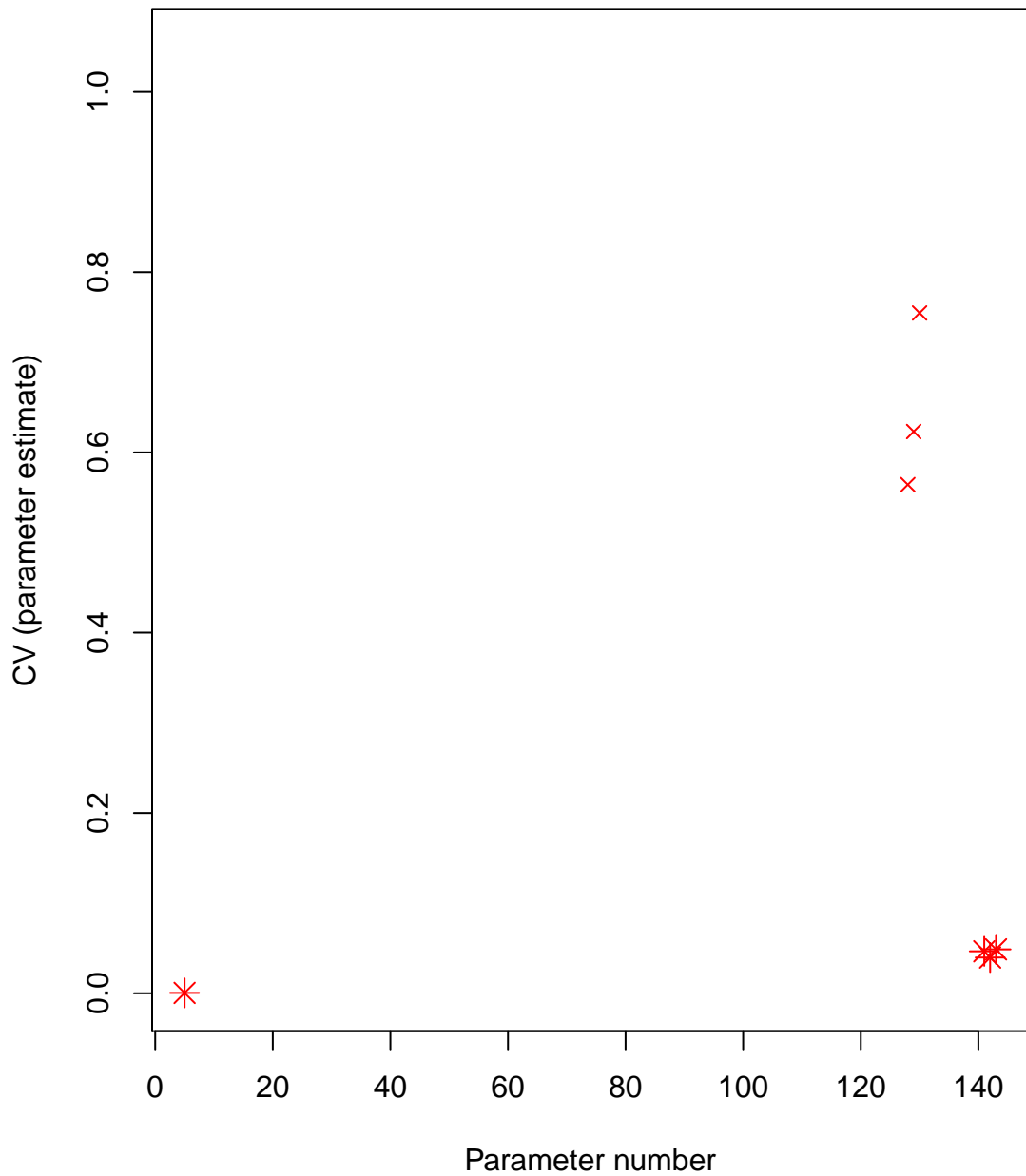
npar = 149, maximum gradient = 6.55445e-005

Components of Obj. Function (14151), npar=149

Maximum gradient = 6.6×10^{-5}



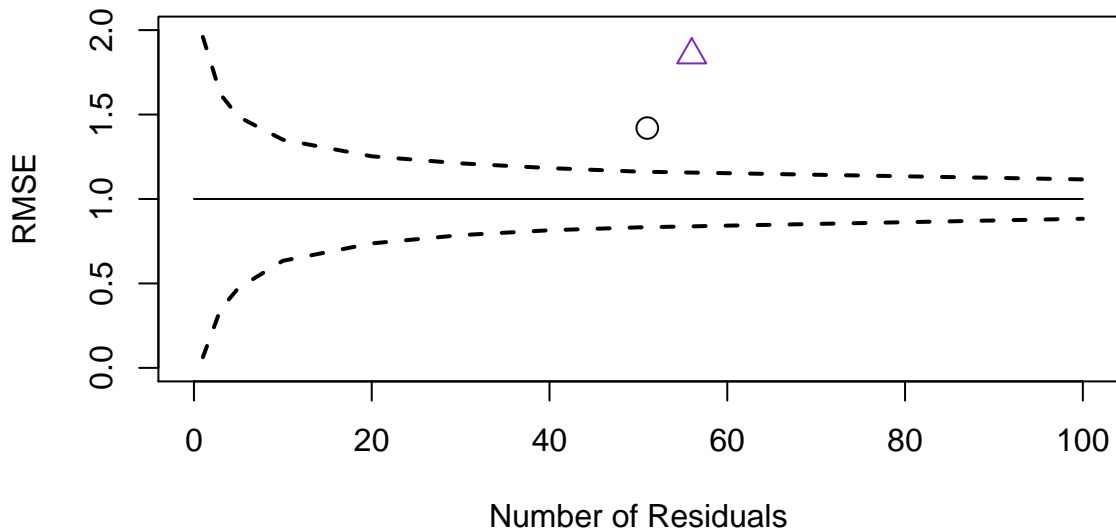




Root Mean Square Error computed from Standardized Residuals

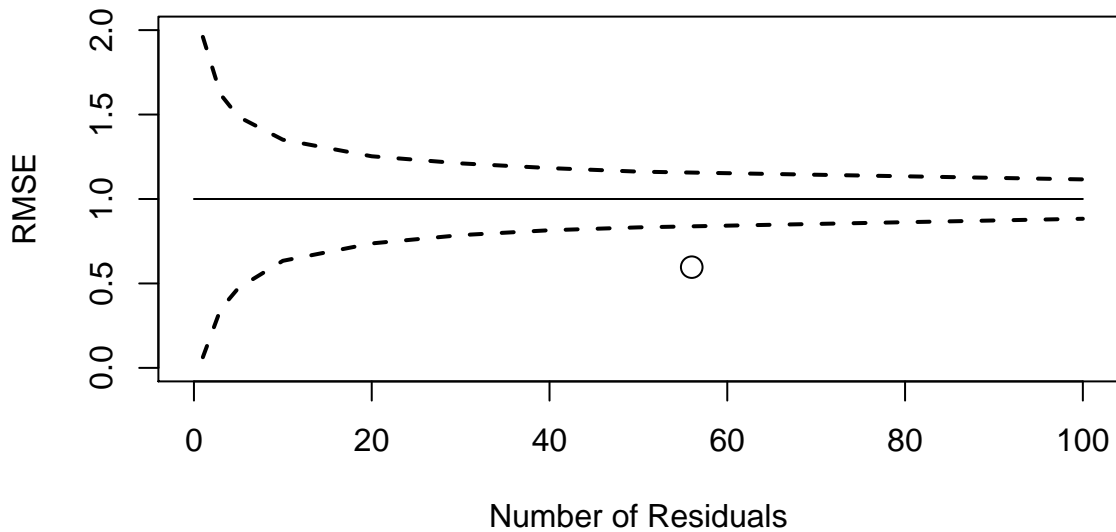
Component	# resids	RMSE
catch.tot	56	0.597
discard.tot	0	0
ind01	51	1.42
ind02	56	1.85
ind.total	107	1.66
N.year1	8	0.661
Fmult.year1	0	0
Fmult.devs.total	0	0
recruit.devs	0	0
fleet.sel.params	0	0
index.sel.params	0	0
q.year1	0	0
q.devs	0	0
SR.steepness	0	0
SR.scaler	0	0

Root Mean Square Error for Indices



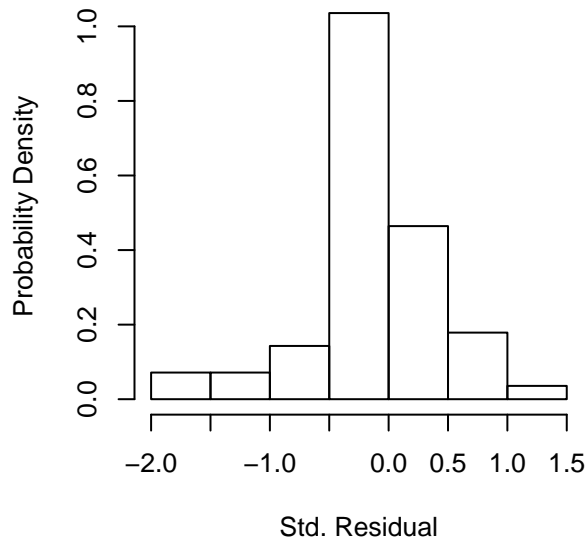
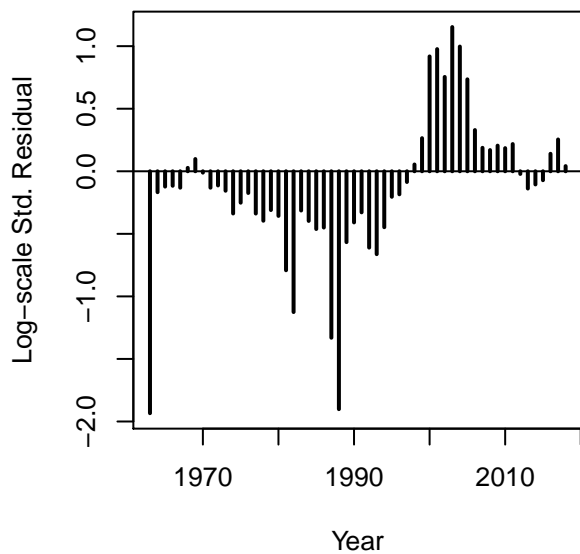
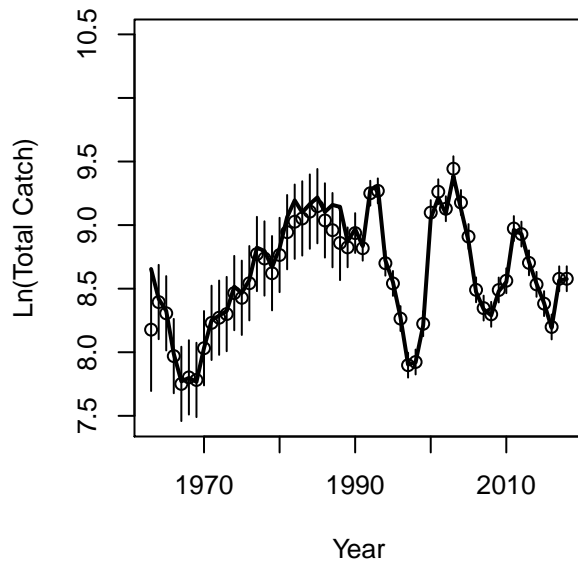
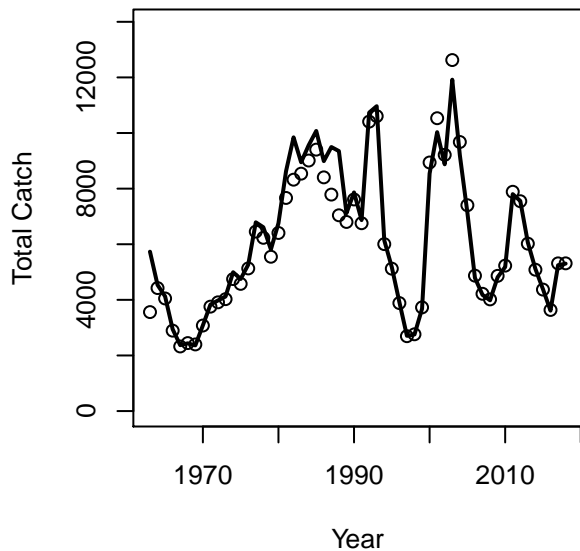
+ ind total
△ INDEX-2
○ INDEX-1

Root Mean Square Error for Catch



○ catch.tot

Fleet 1 Catch (FLEET-1)

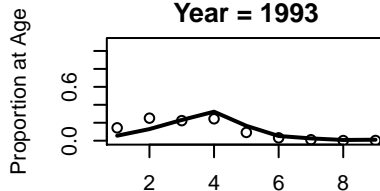


Catch

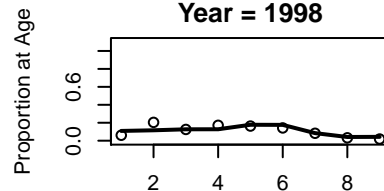
Fleet 1
FLEET-1



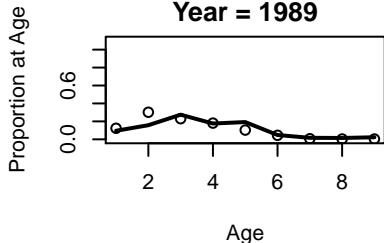
Year = 1993



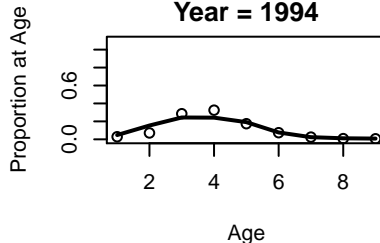
Year = 1998



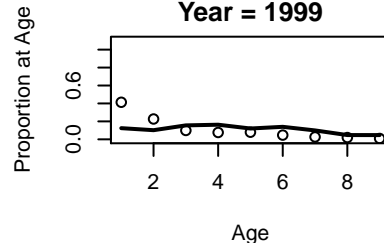
Year = 1989



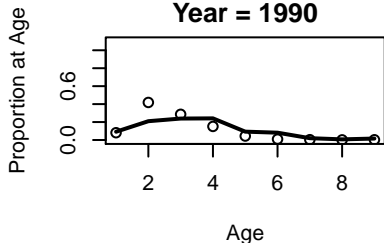
Year = 1994



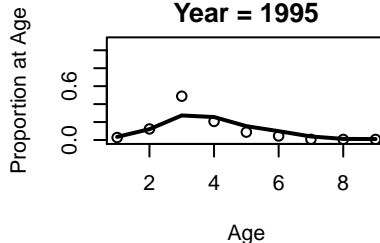
Year = 1999



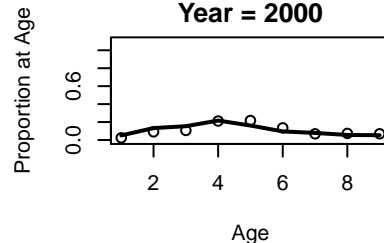
Year = 1990



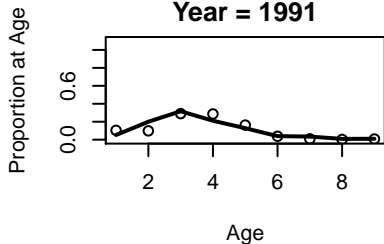
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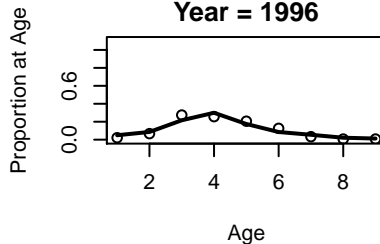
Year = 2000



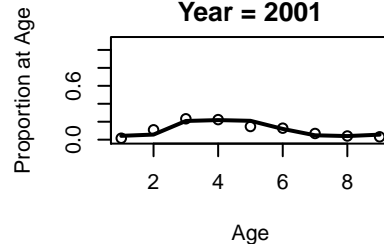
Year = 1991



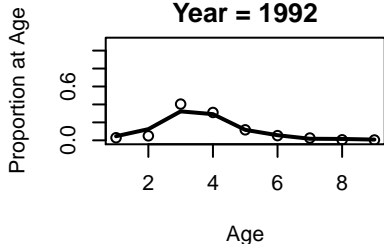
Year = 1996



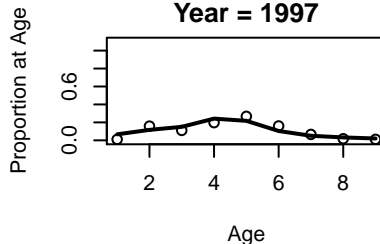
Year = 2001



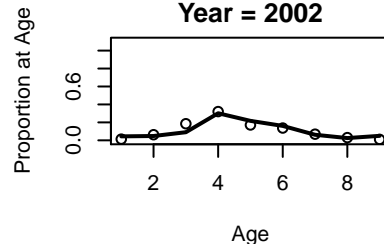
Year = 1992



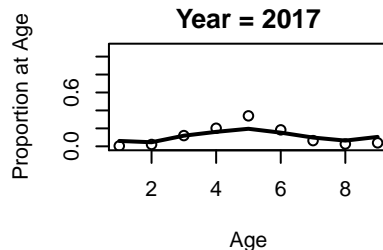
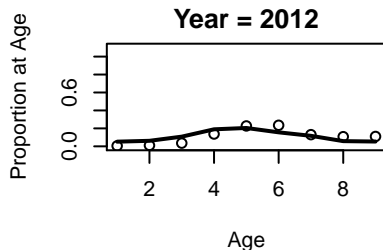
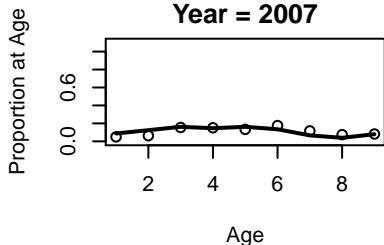
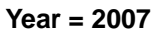
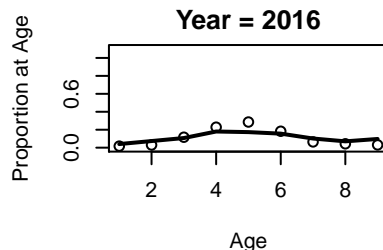
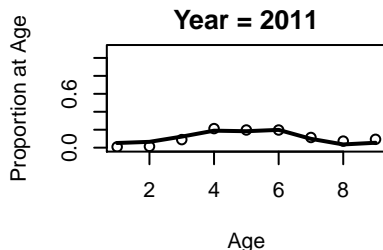
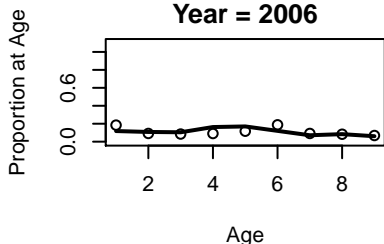
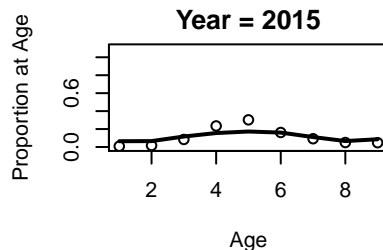
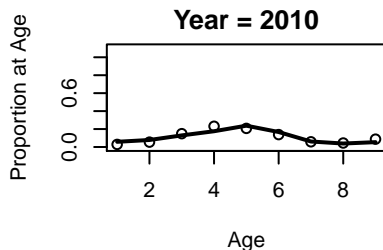
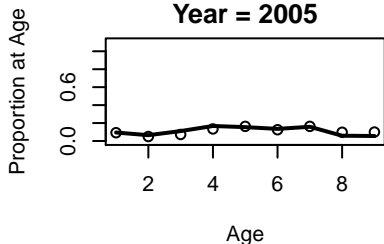
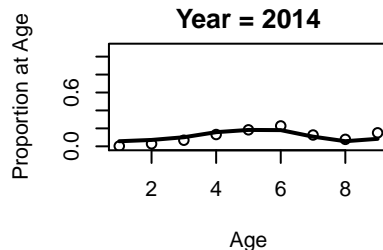
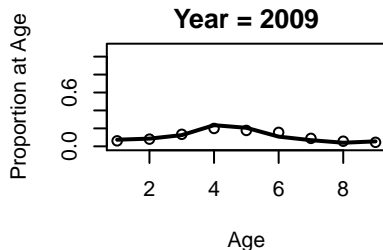
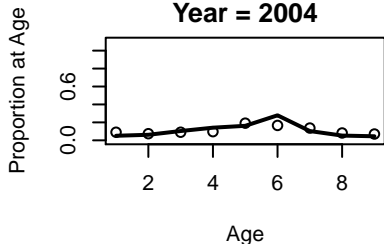
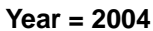
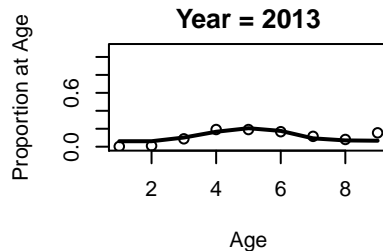
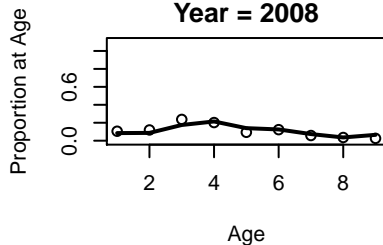
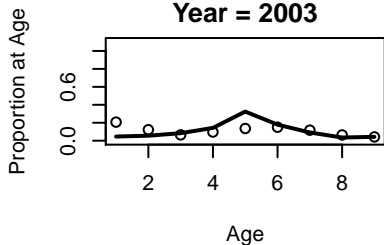
Year = 1997



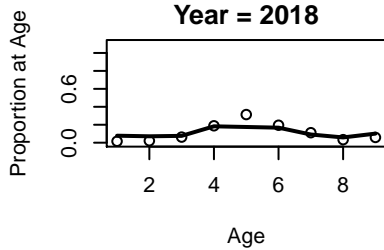
Year = 2002



Year = 2008

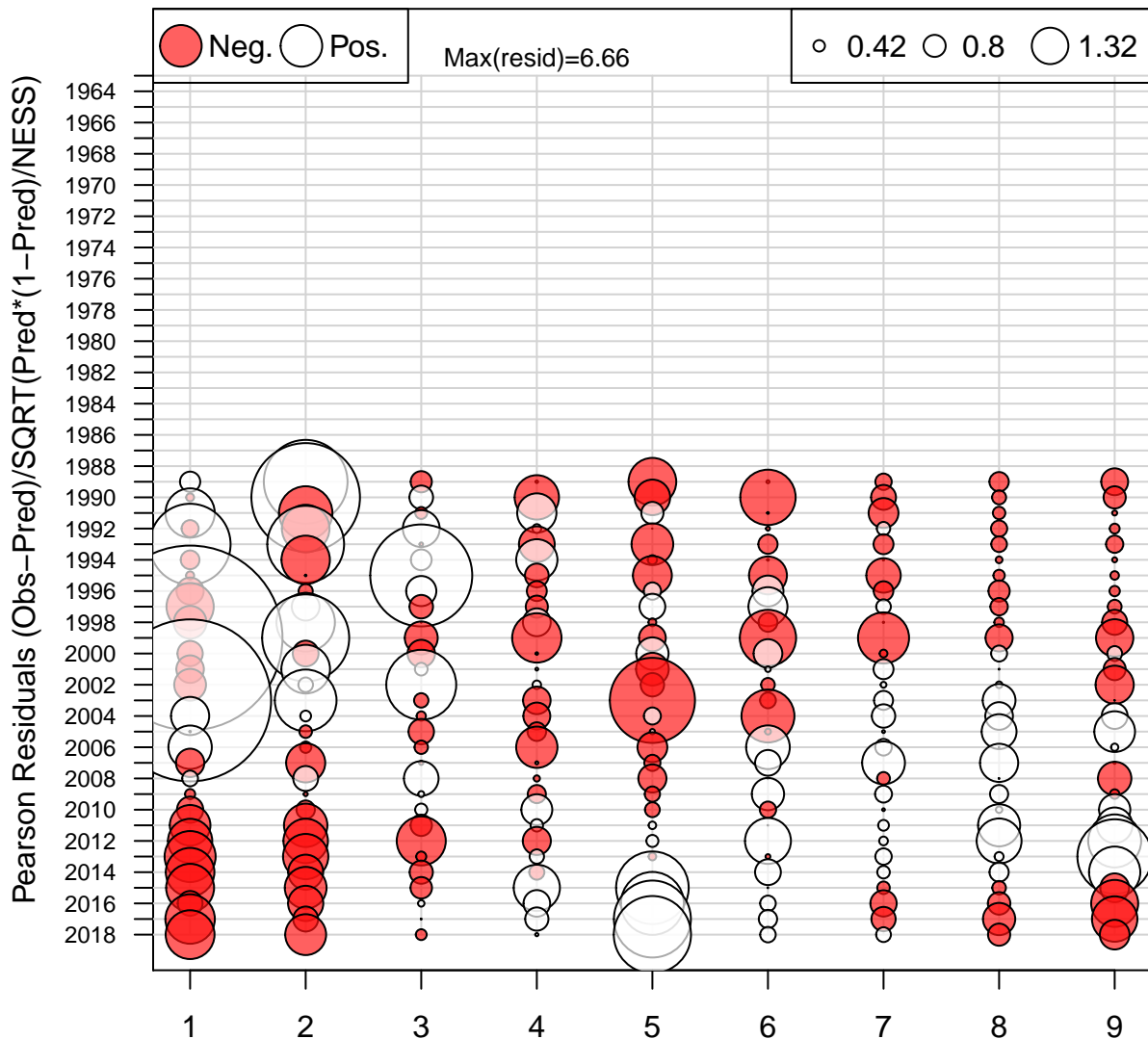


Year = 2018



Catch

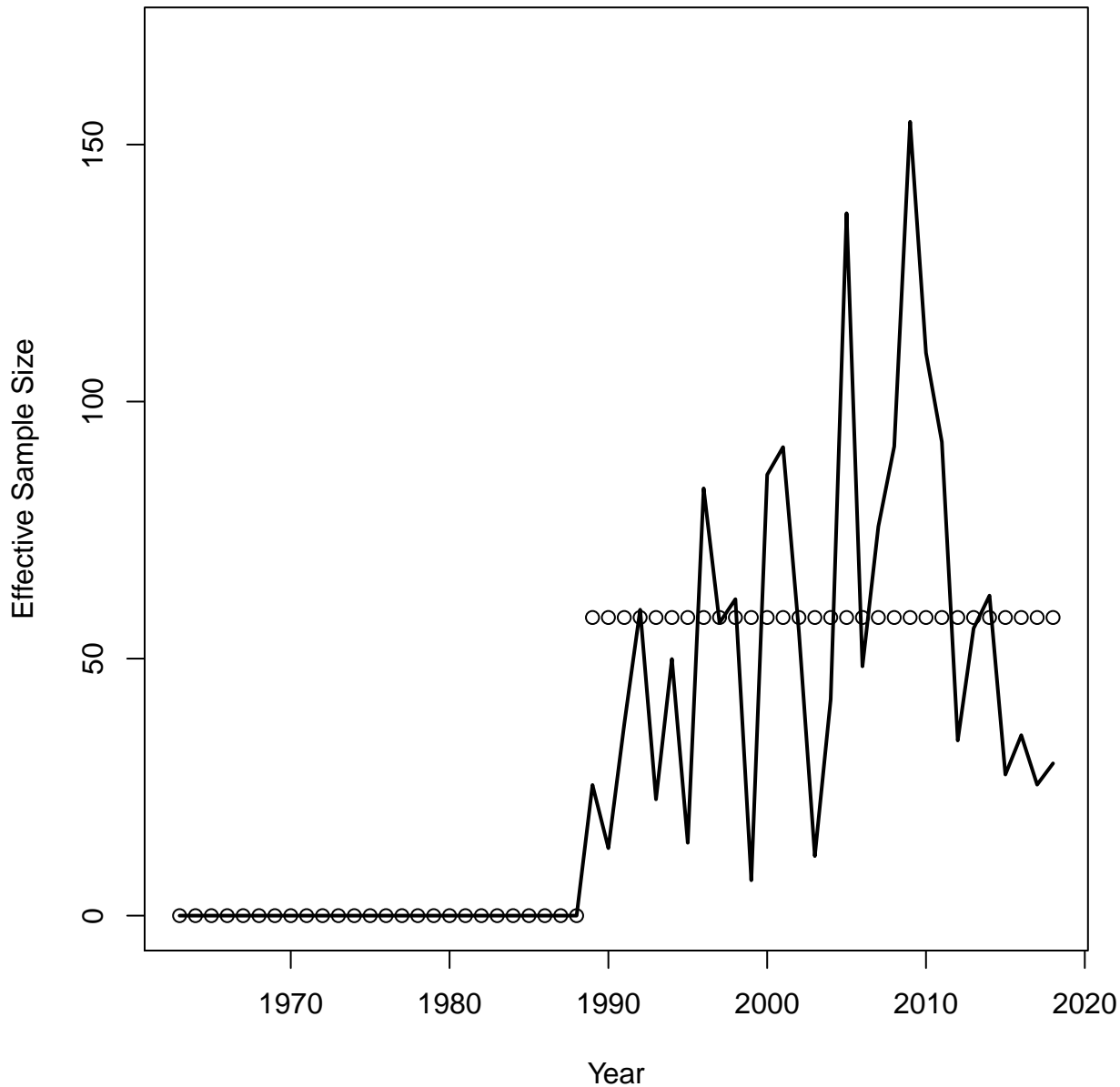
Age Comp Residuals for Catch by Fleet 1 (FLEET-1)



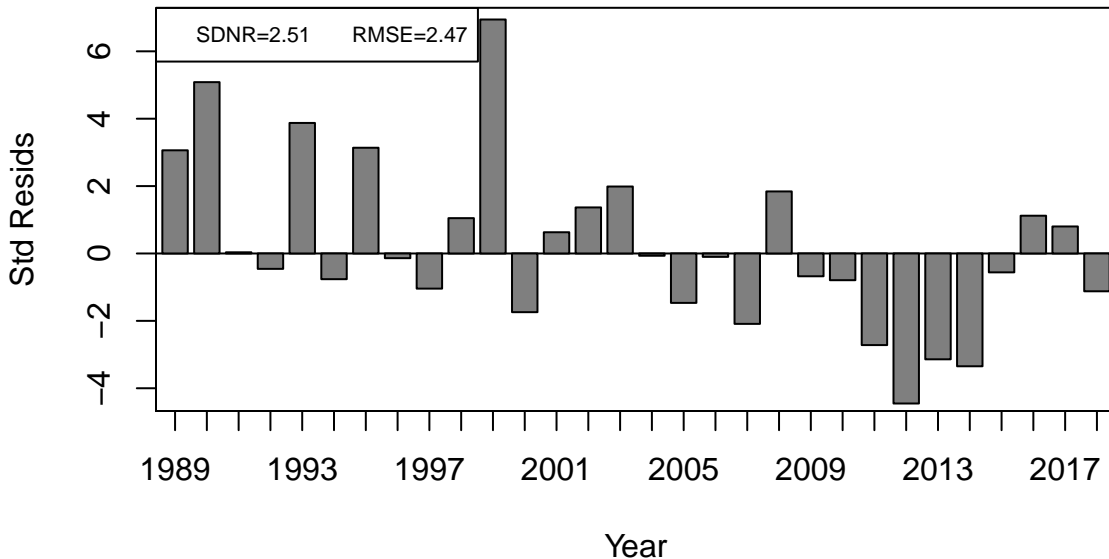
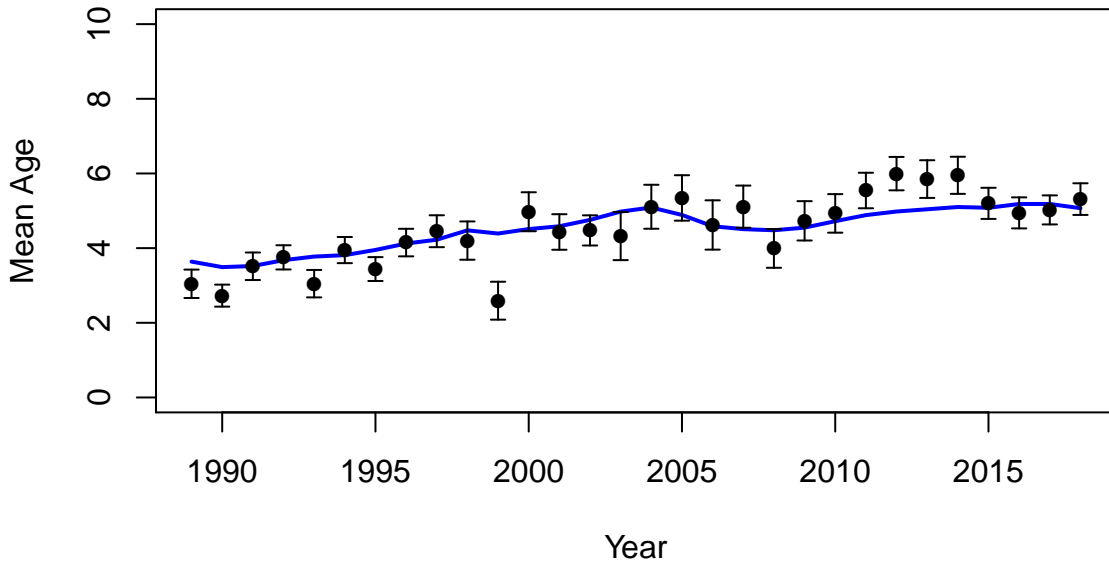
Age

Mean resid = -0.03 SD(resid) = 1.27

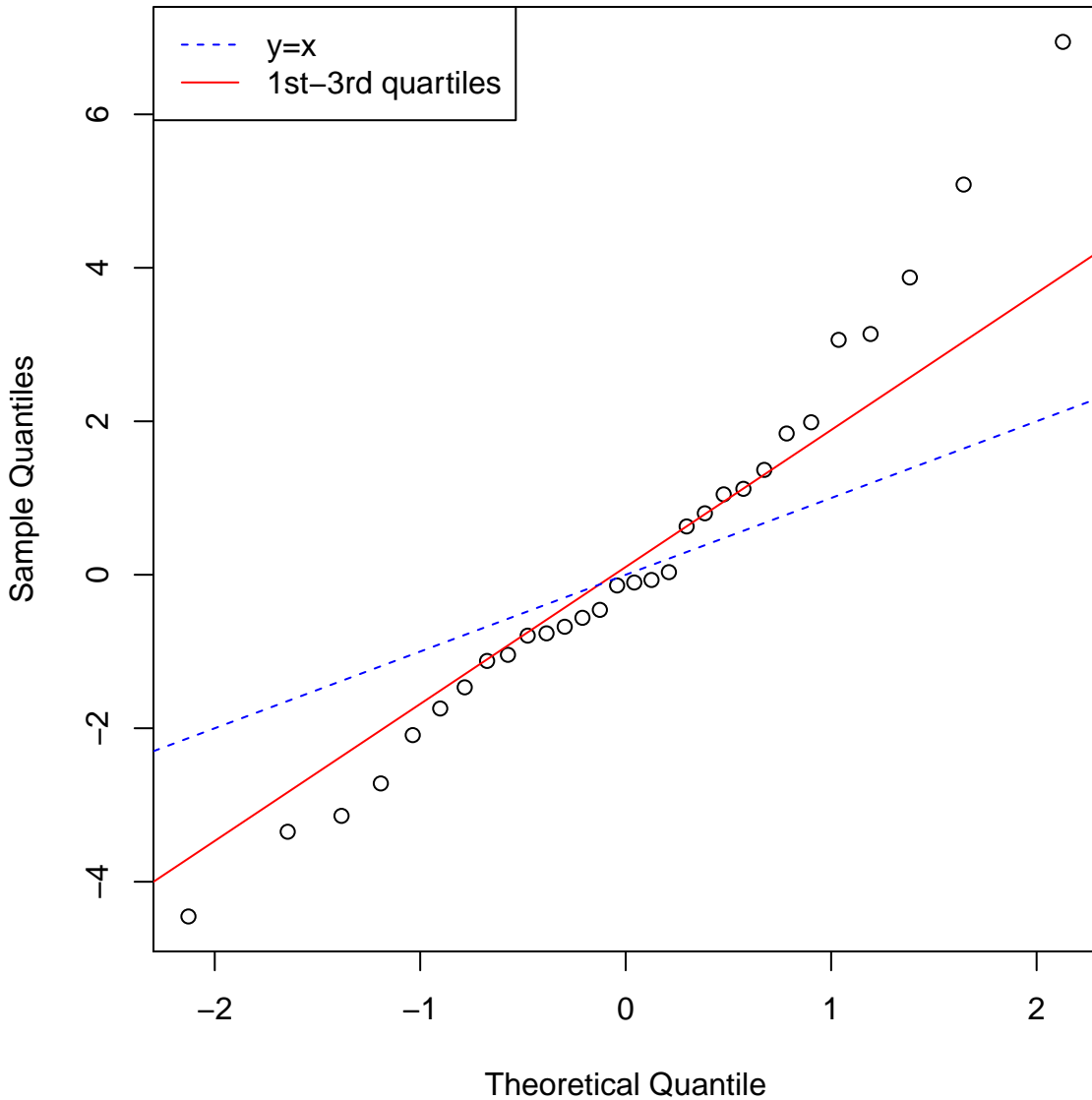
Catch Neff Fleet 1 (FLEET-1)



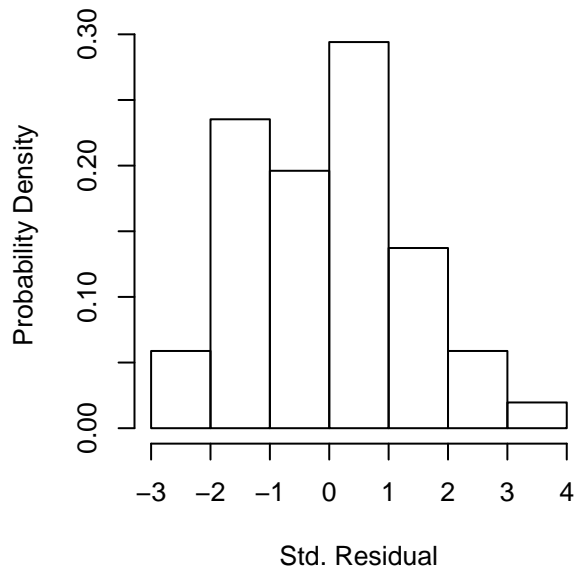
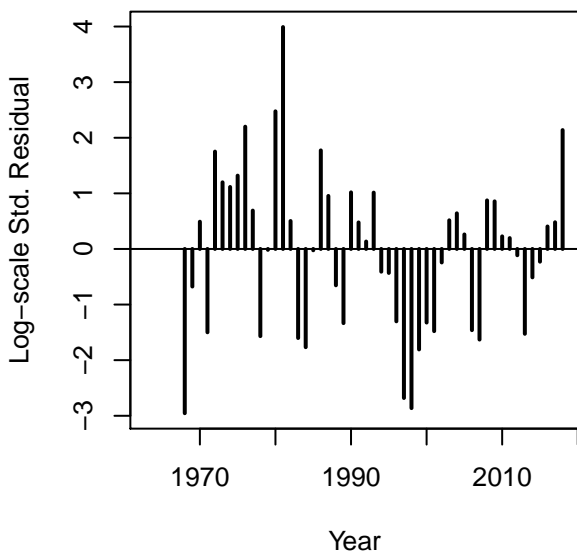
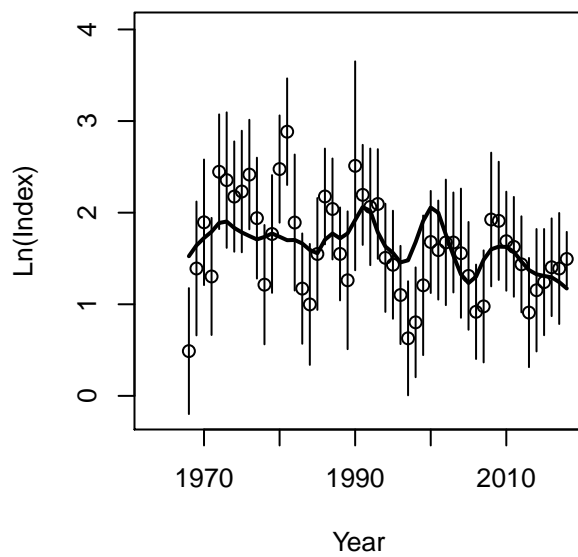
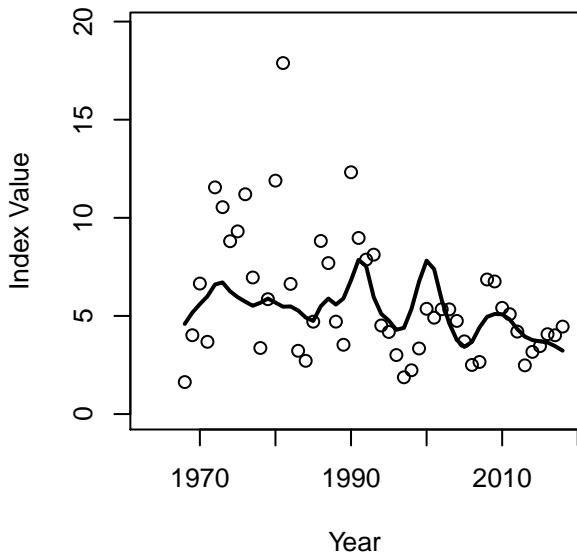
Catch Fleet 1 (FLEET-1) ESS = 58



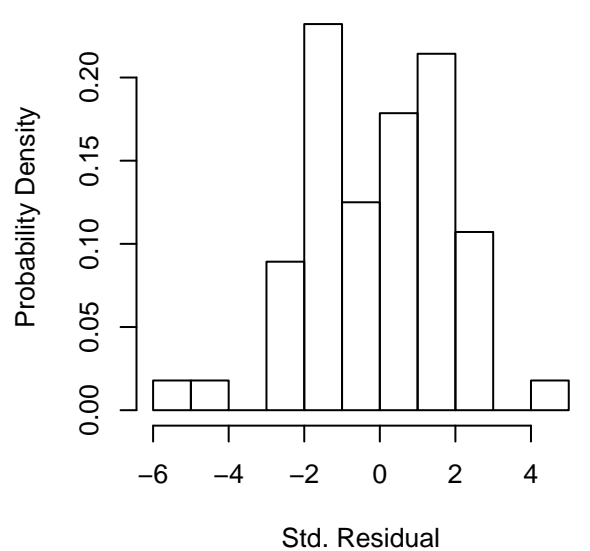
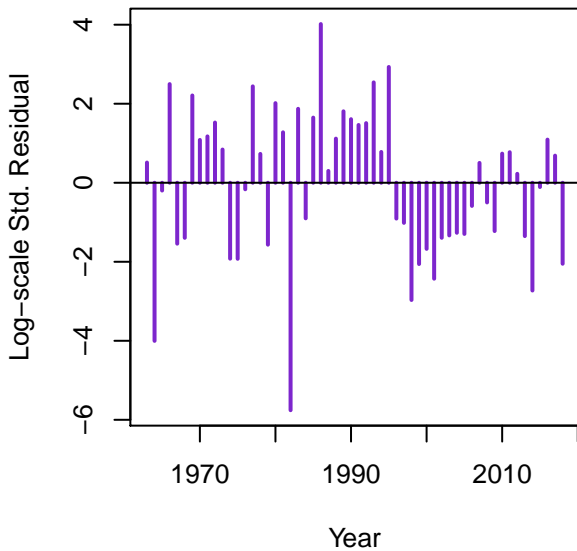
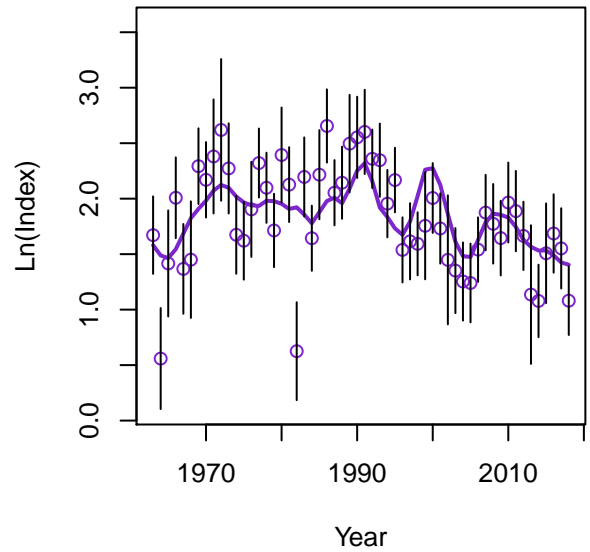
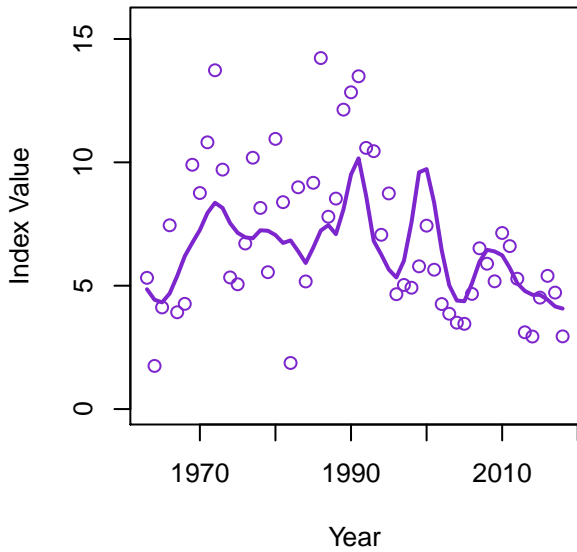
Catch Fleet 1 (FLEET-1) ESS = 58



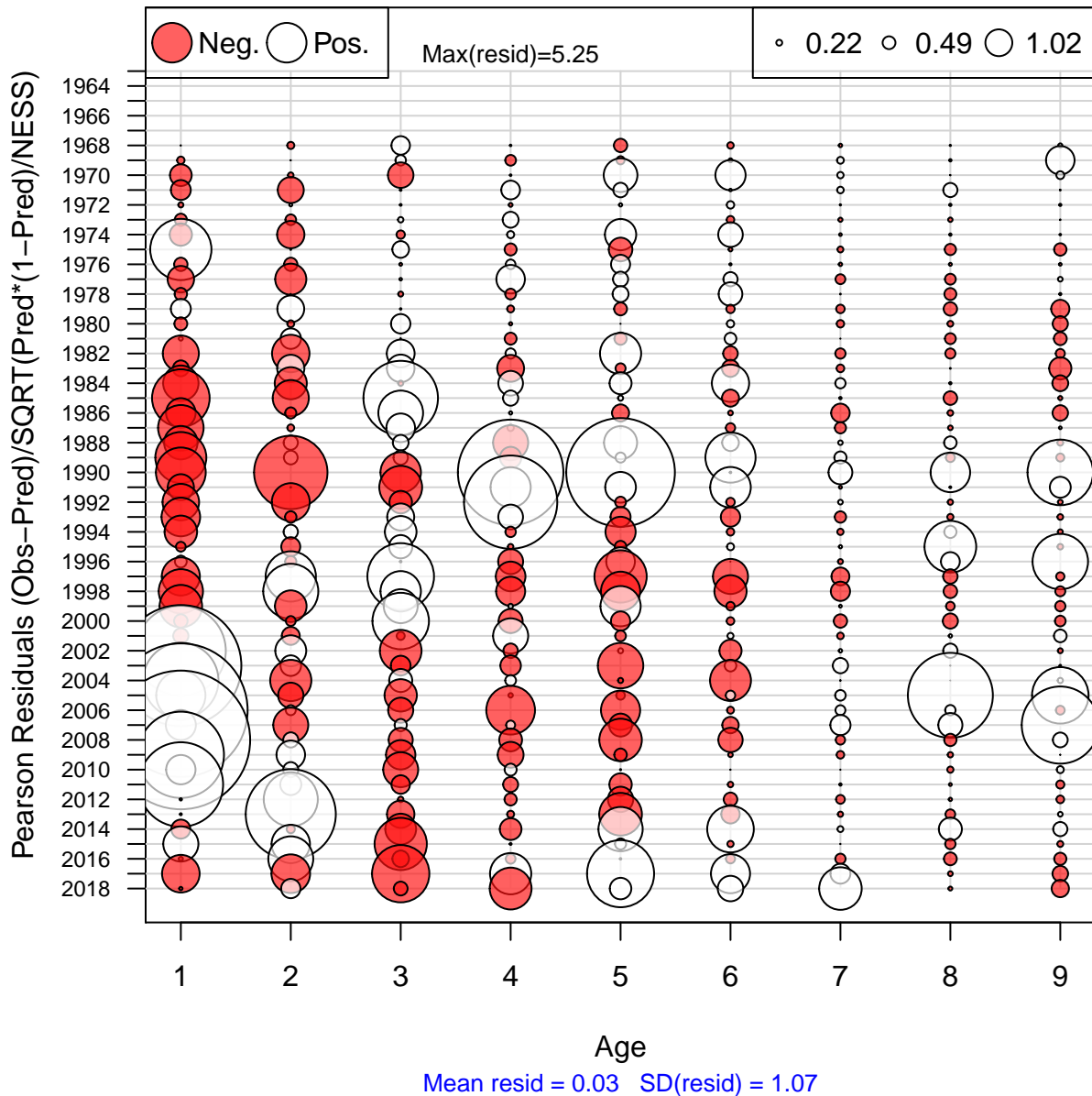
Index 1 (INDEX-1)



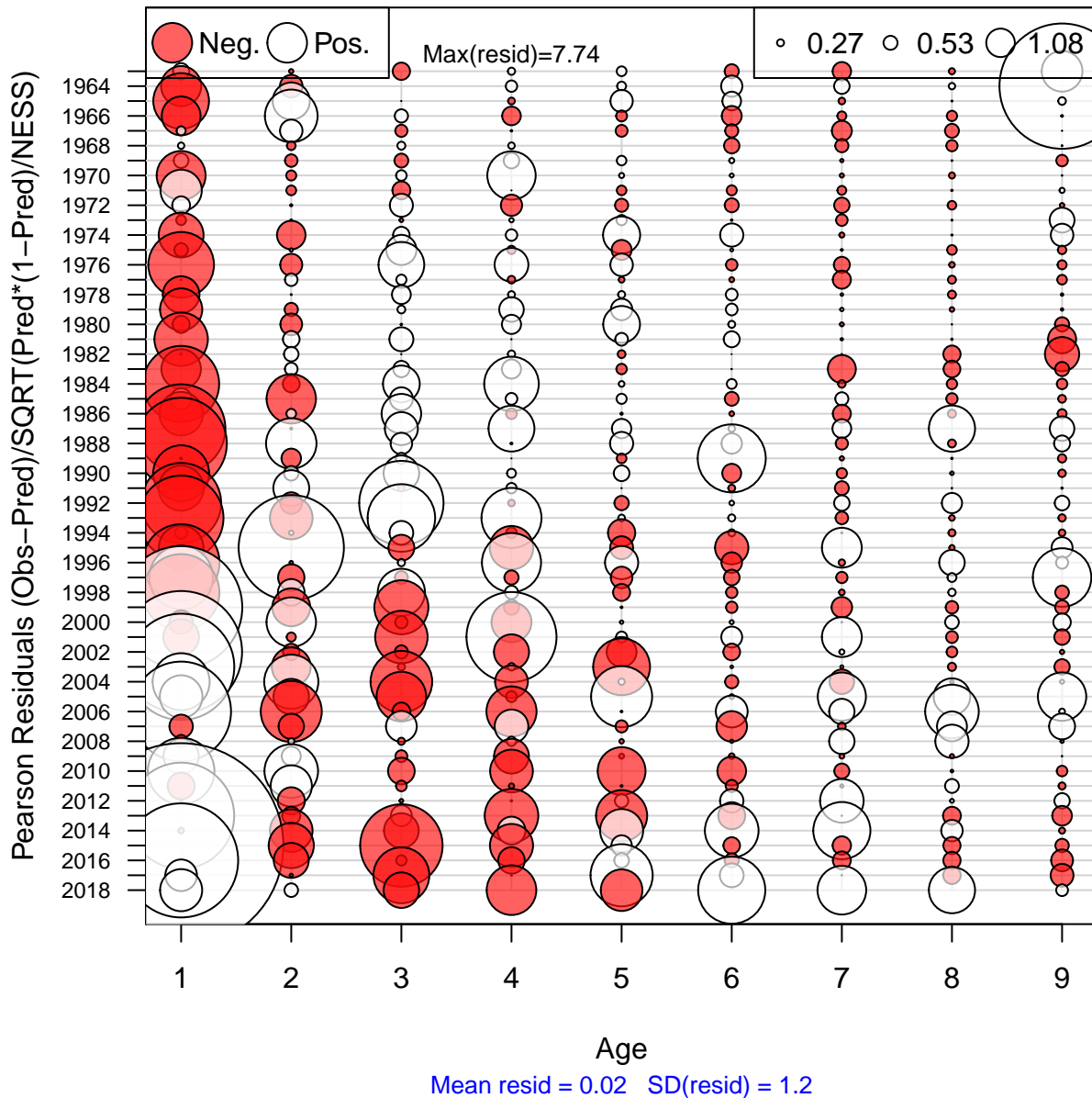
Index 2 (INDEX-2)



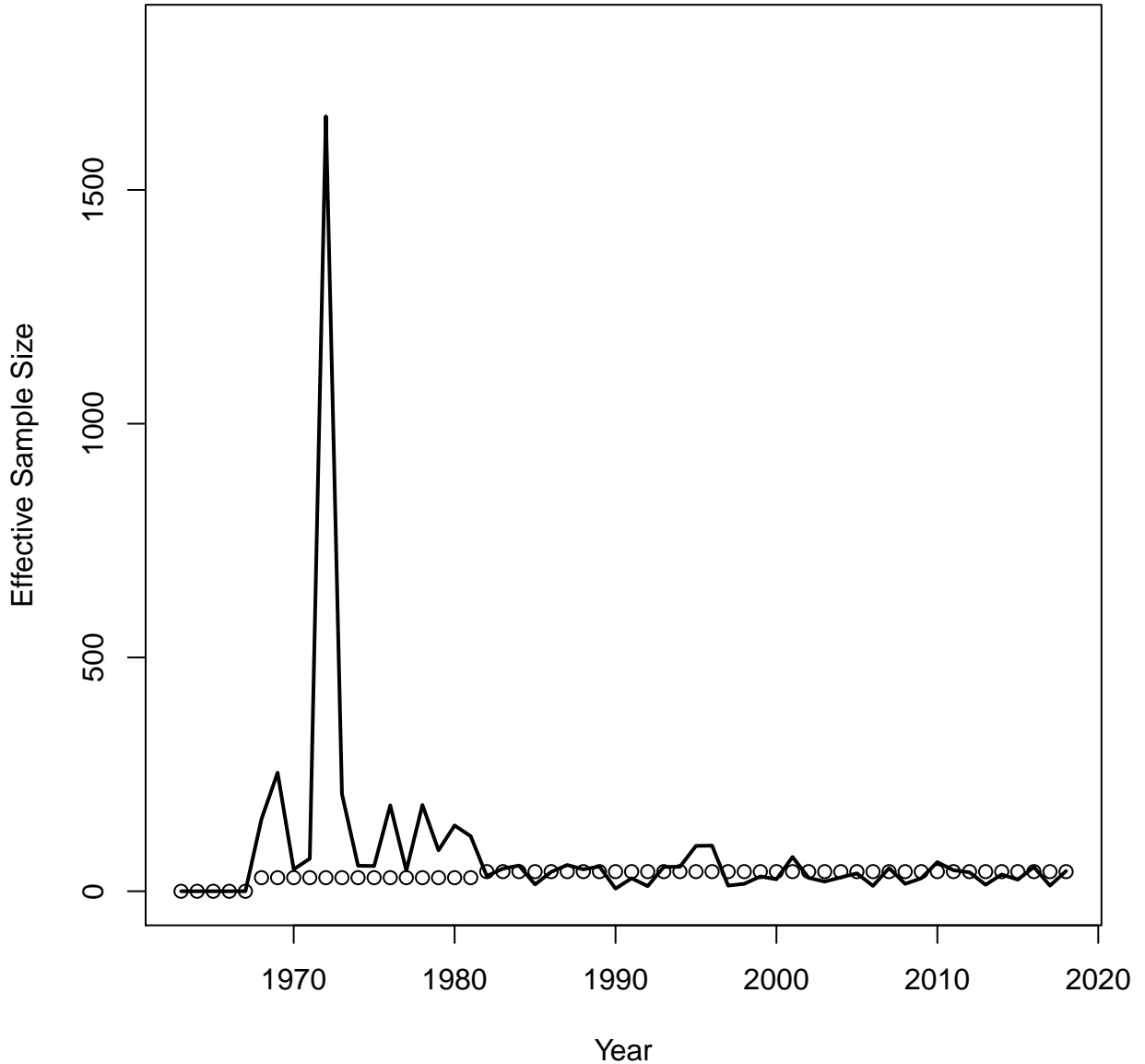
Age Comp Residuals for Index 1 (INDEX-1)



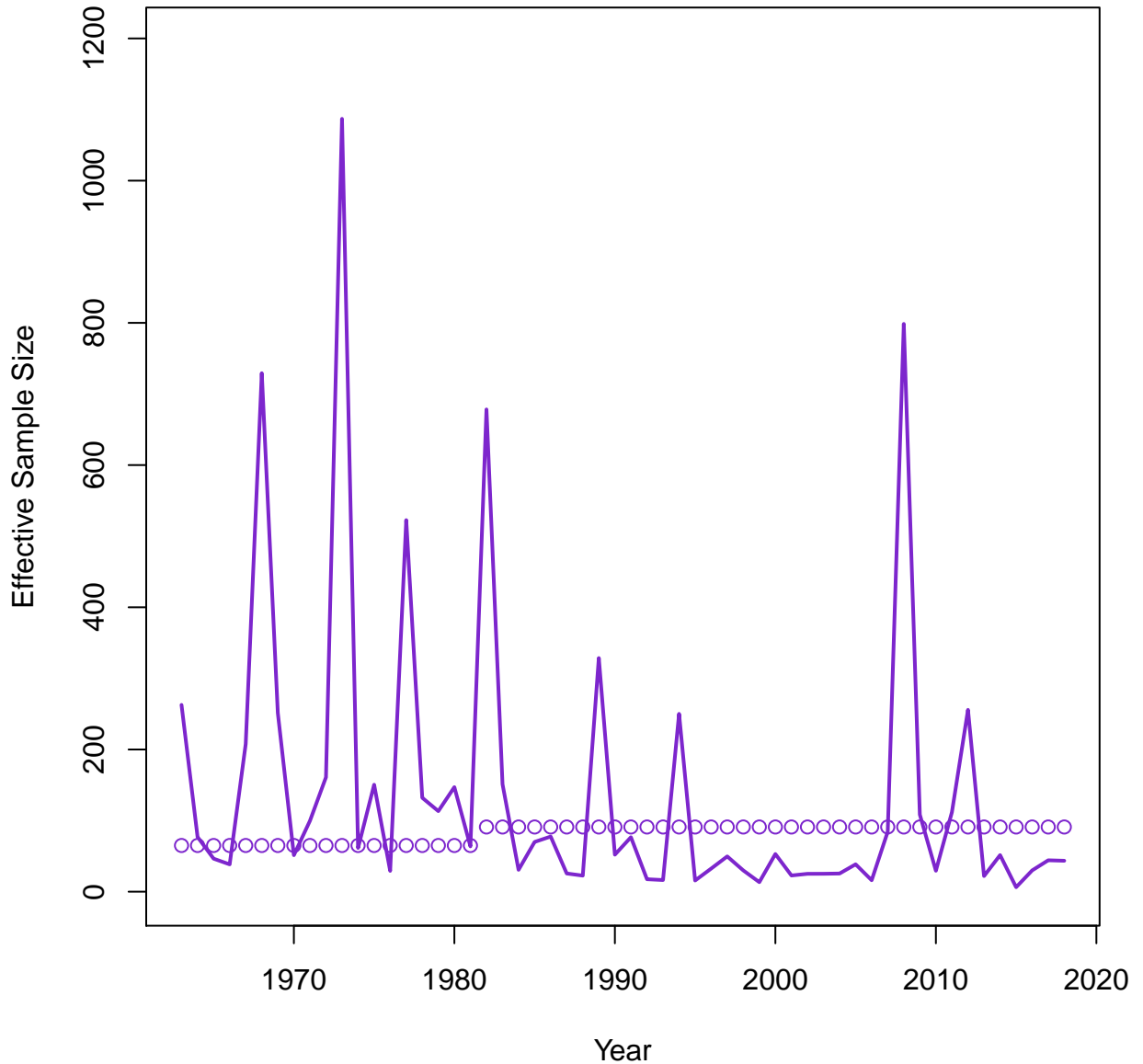
Age Comp Residuals for Index 2 (INDEX-2)



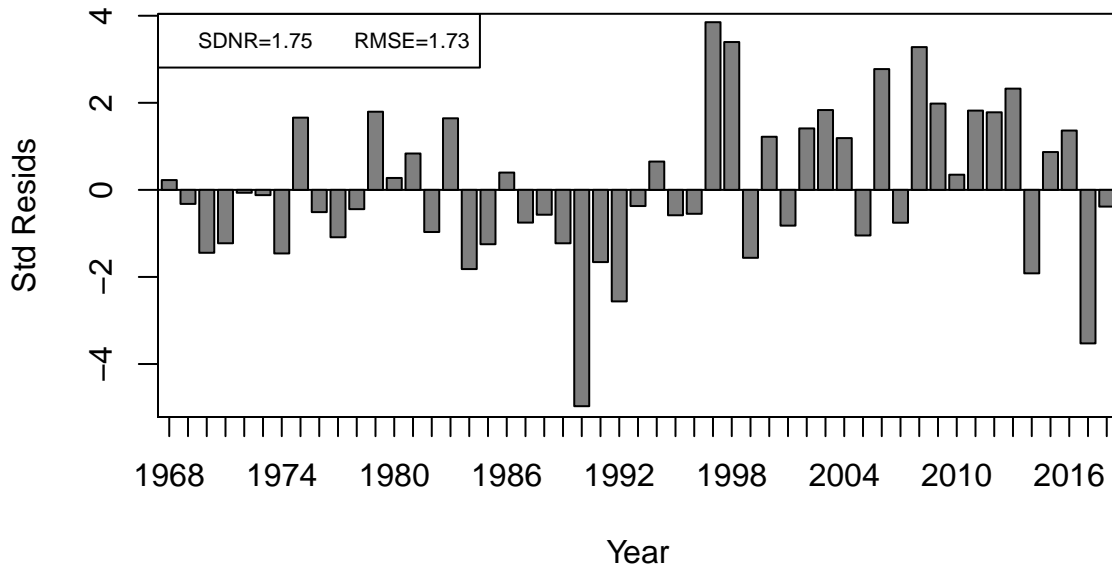
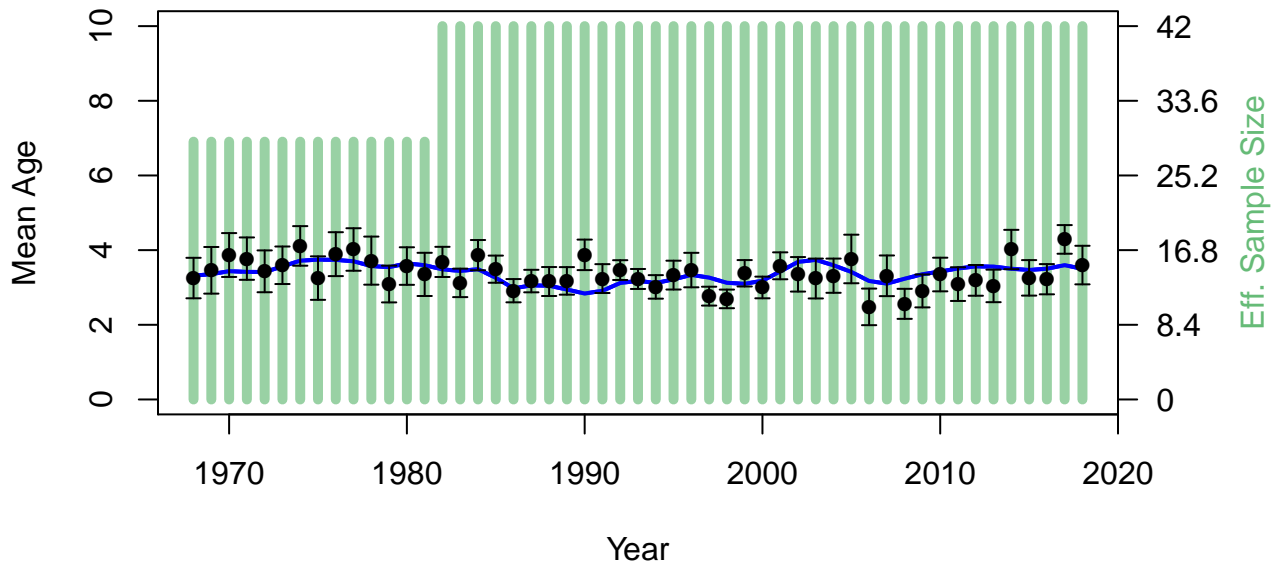
Index Neff 1 (INDEX-1)



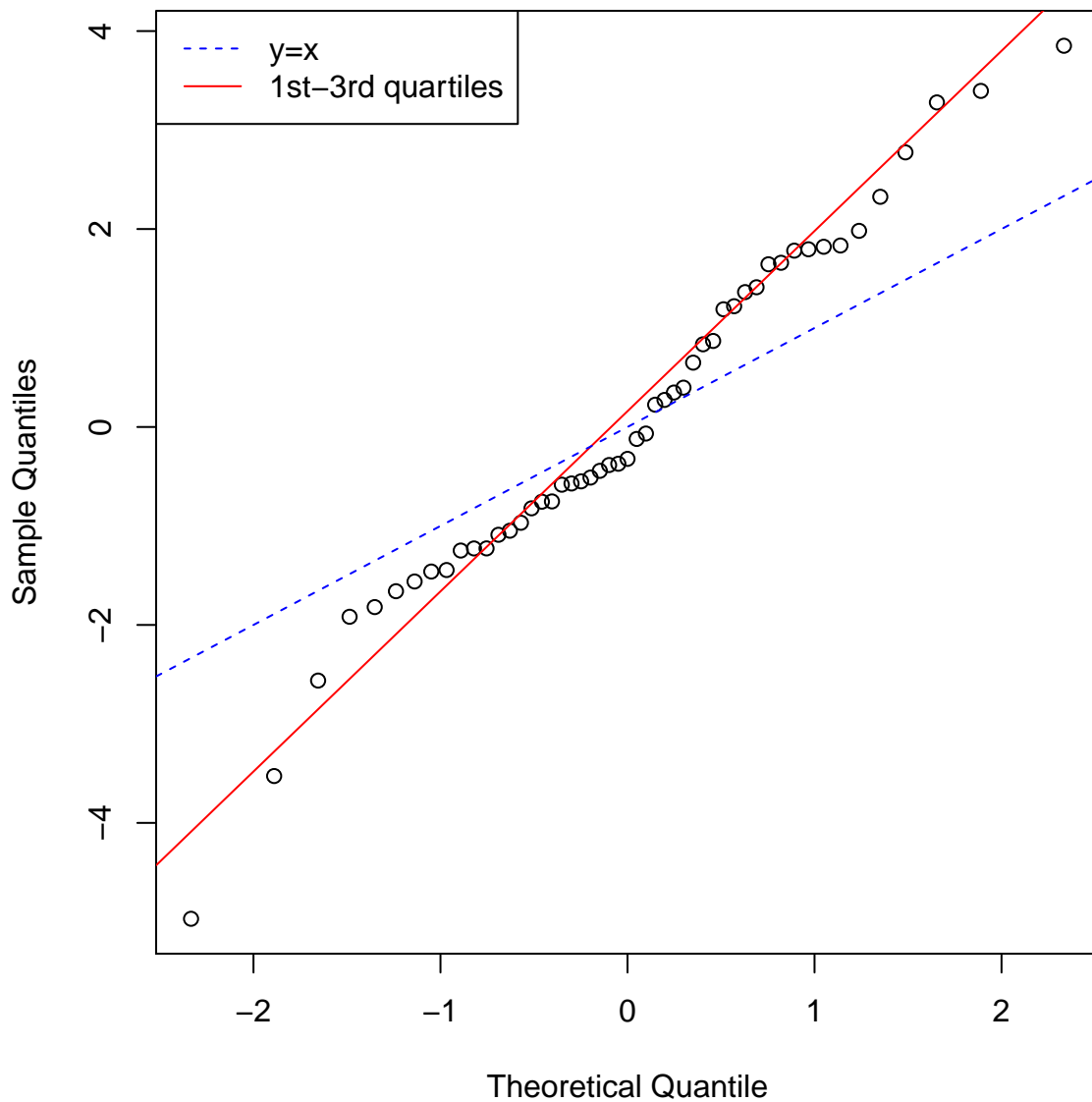
Index Neff 2 (INDEX-2)



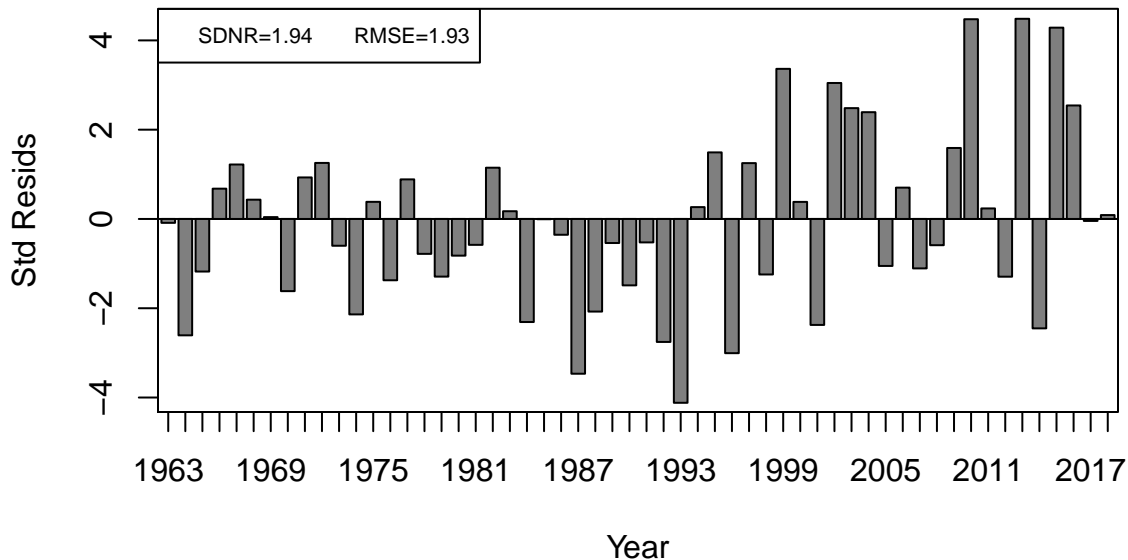
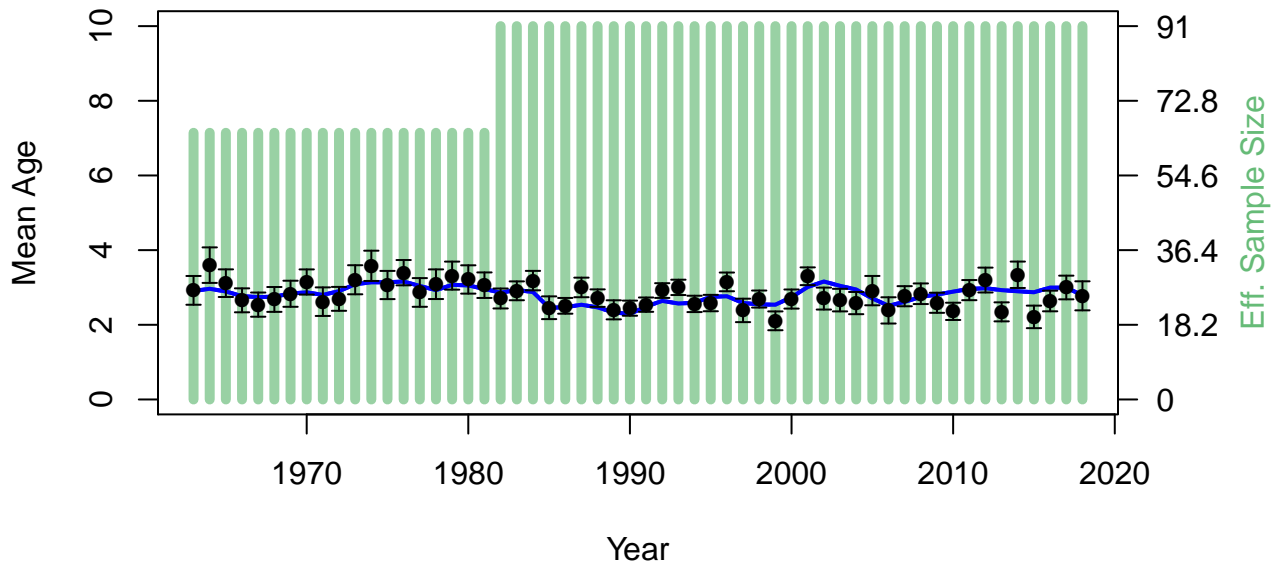
Index 1 (INDEX-1)



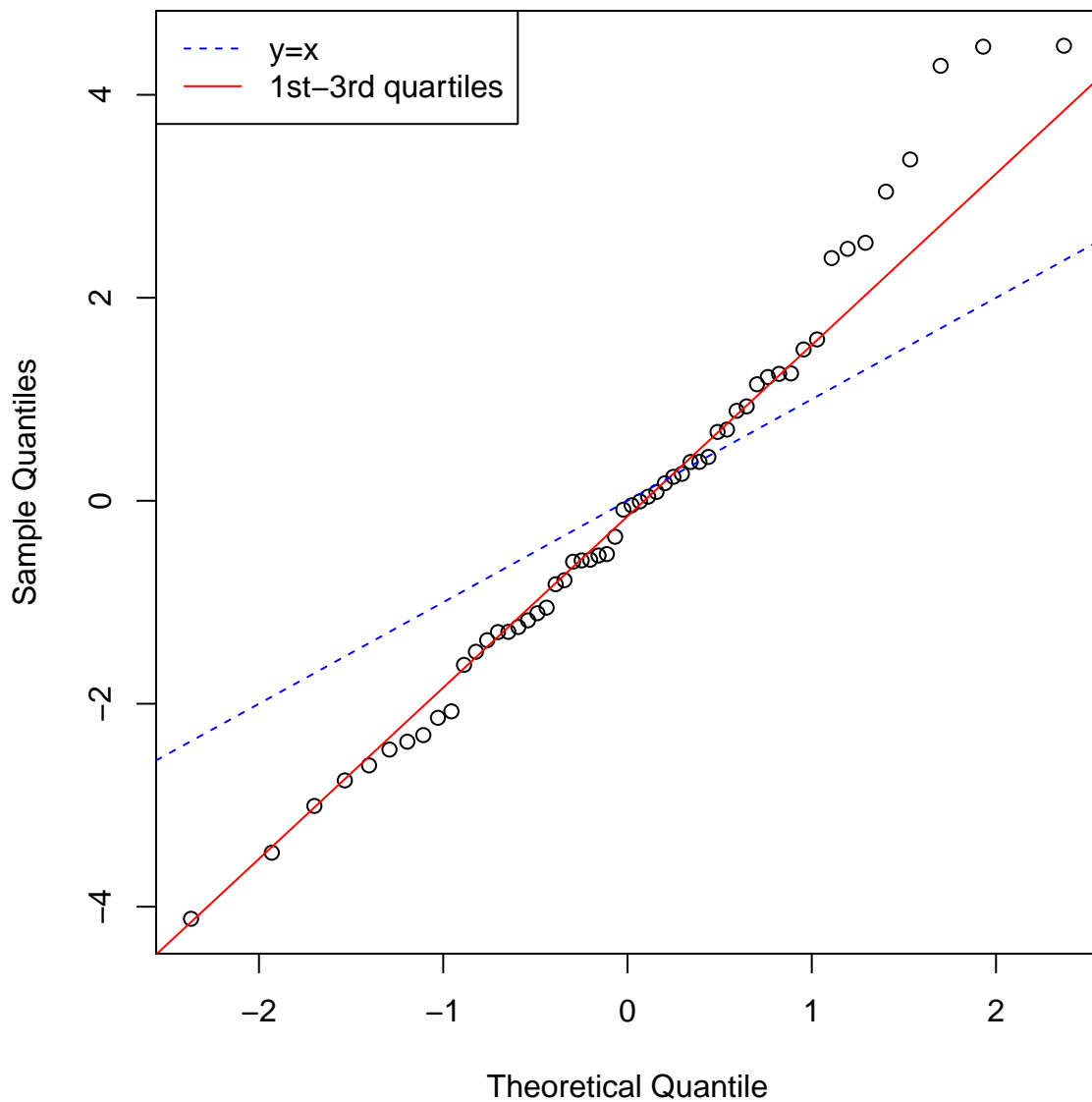
Index 1 (INDEX-1)



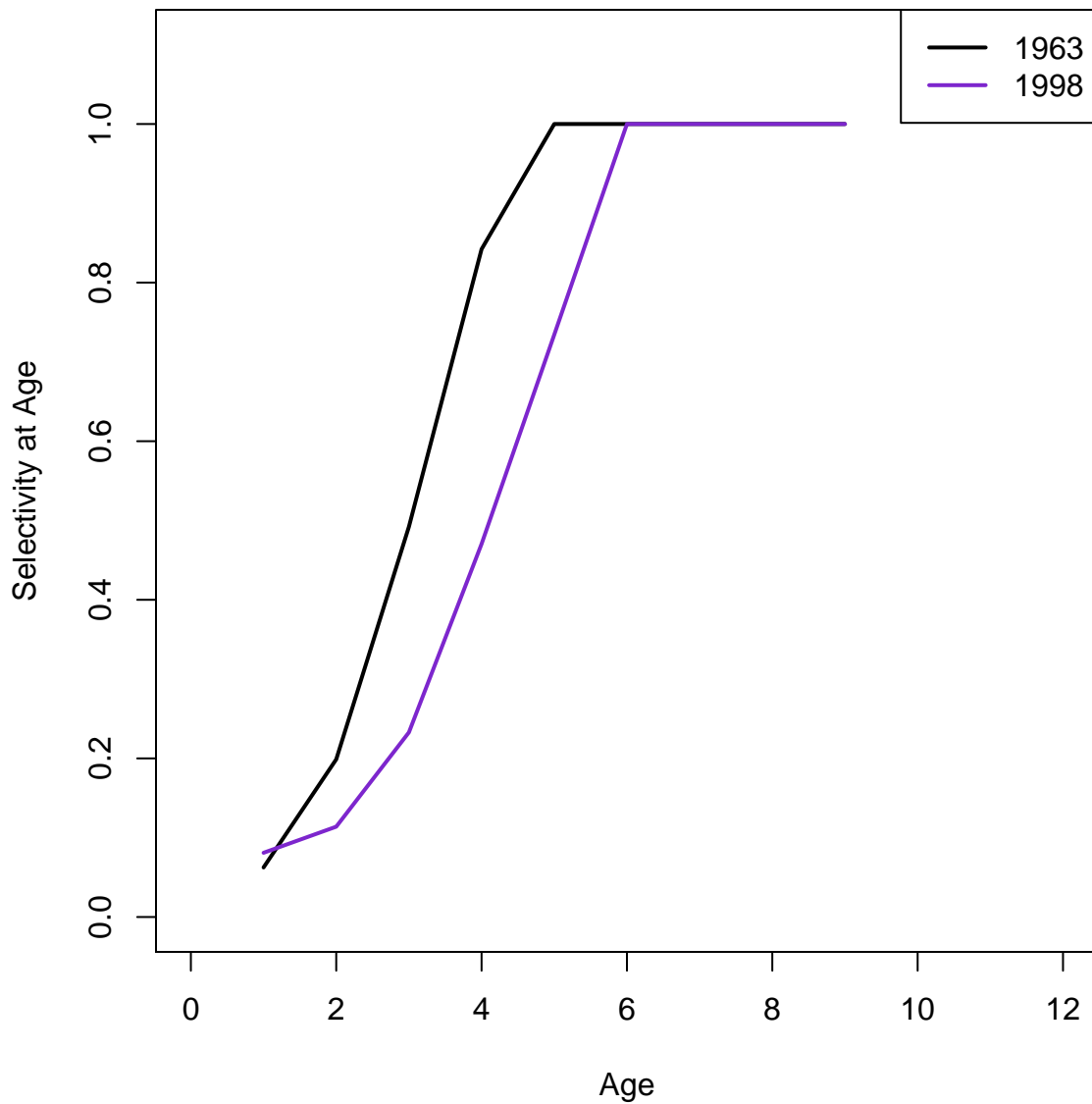
Index 2 (INDEX-2)

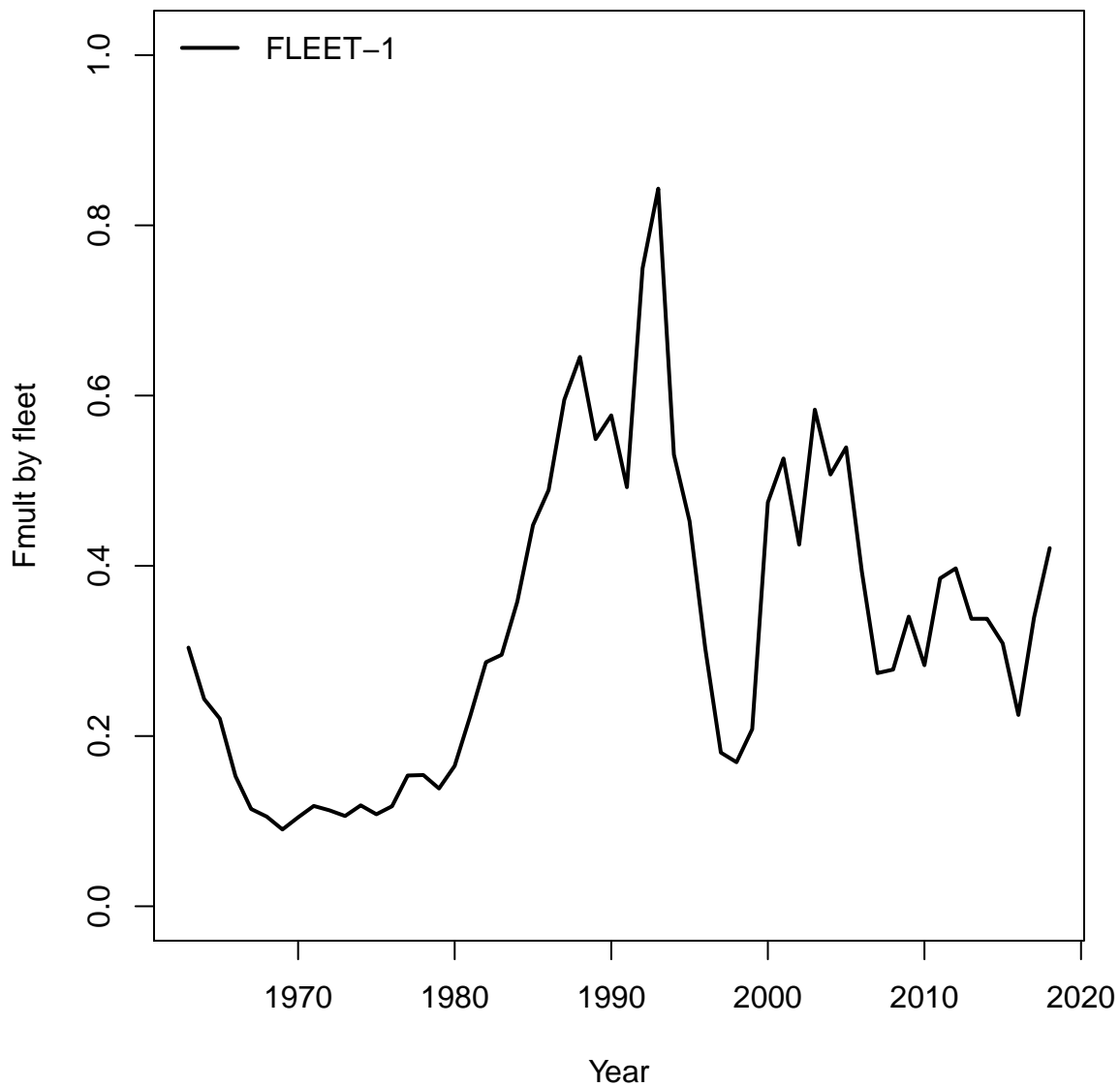


Index 2 (INDEX-2)

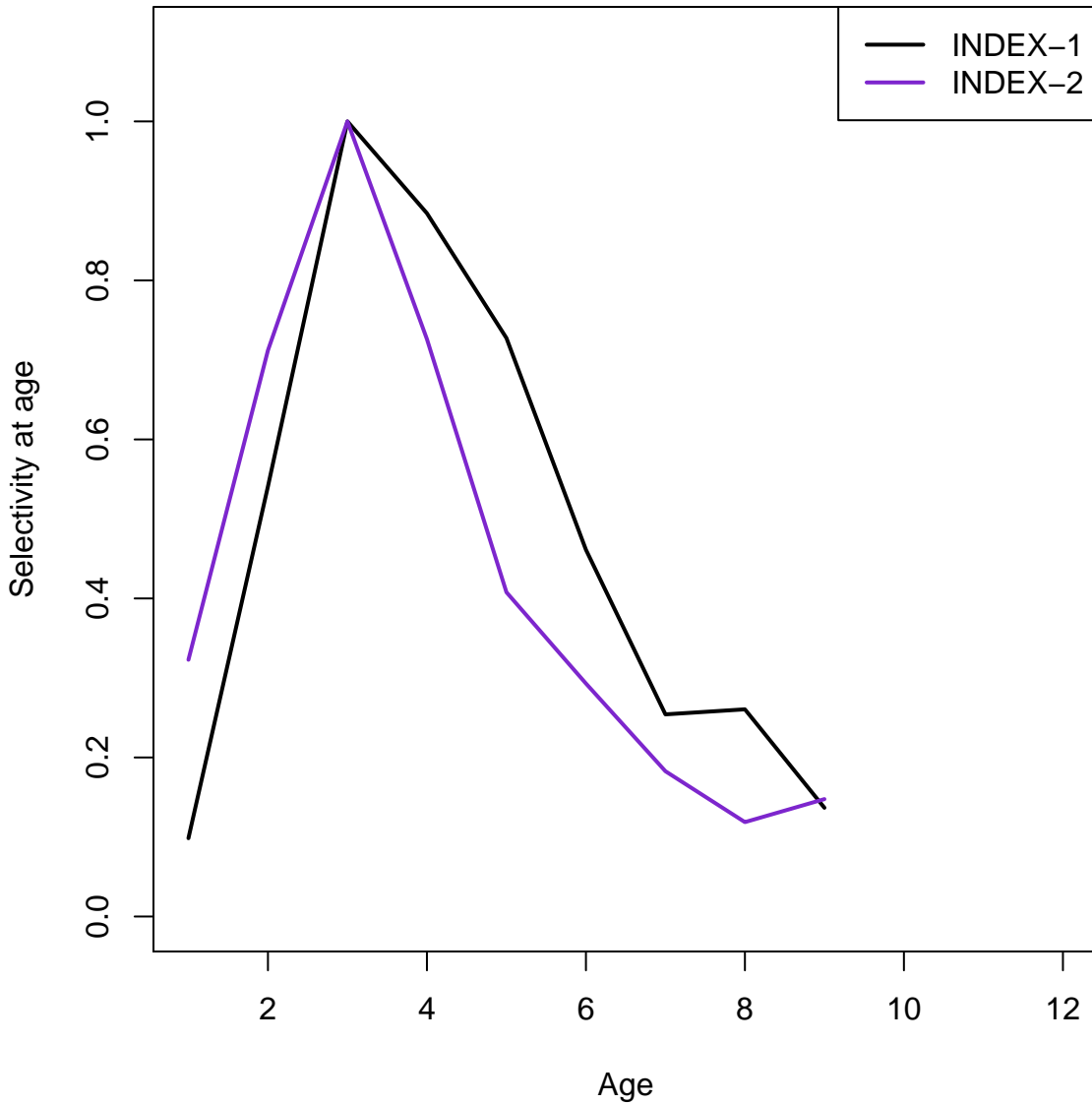


Fleet 1 (FLEET-1)

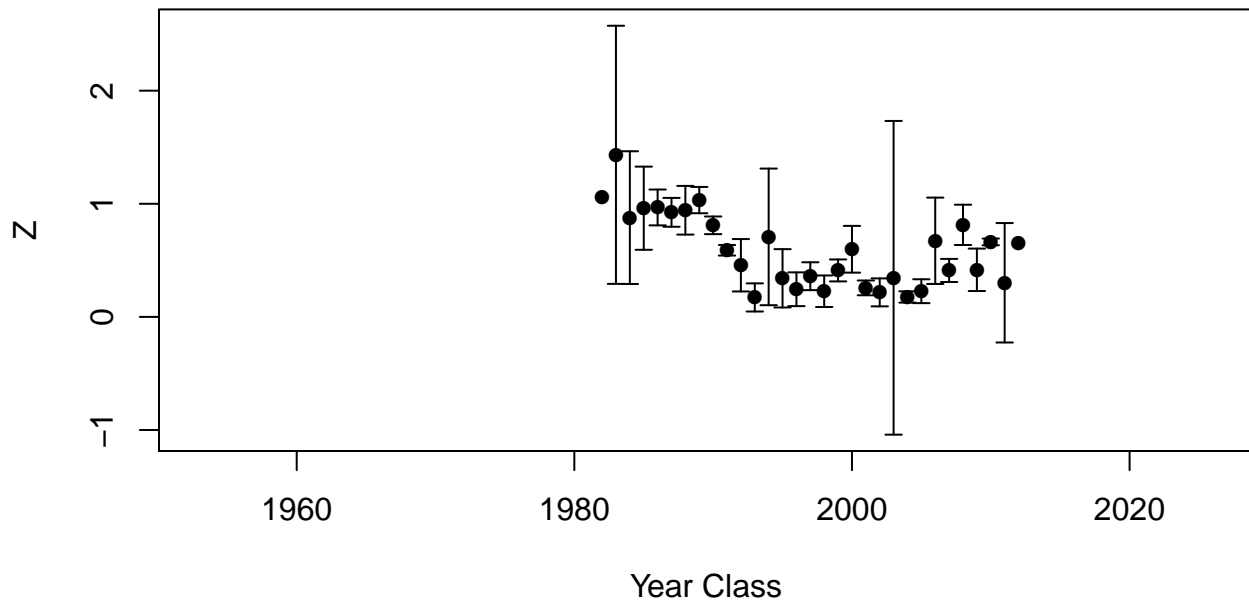
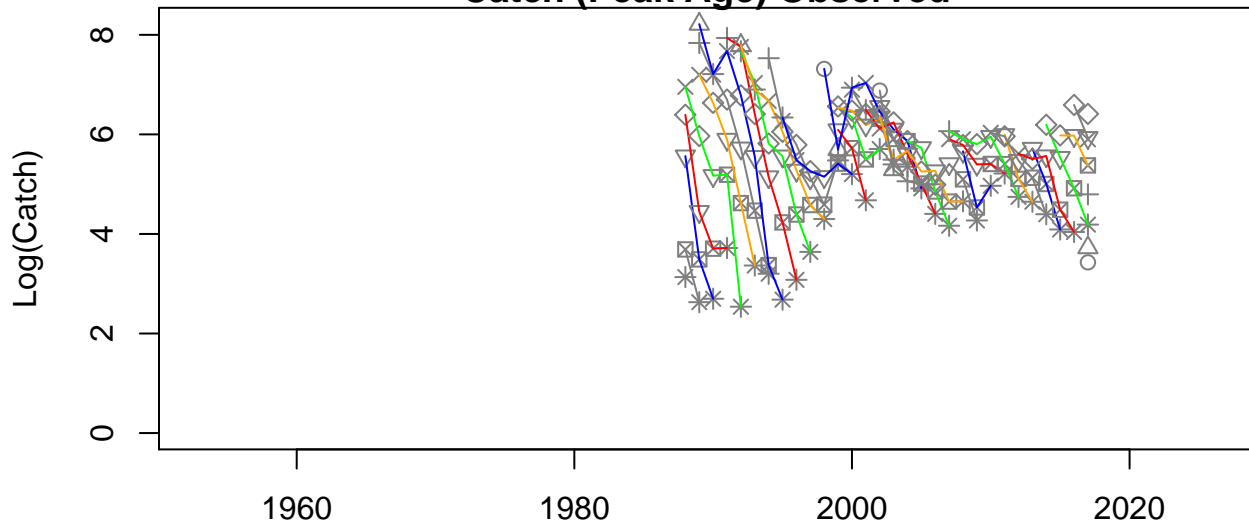




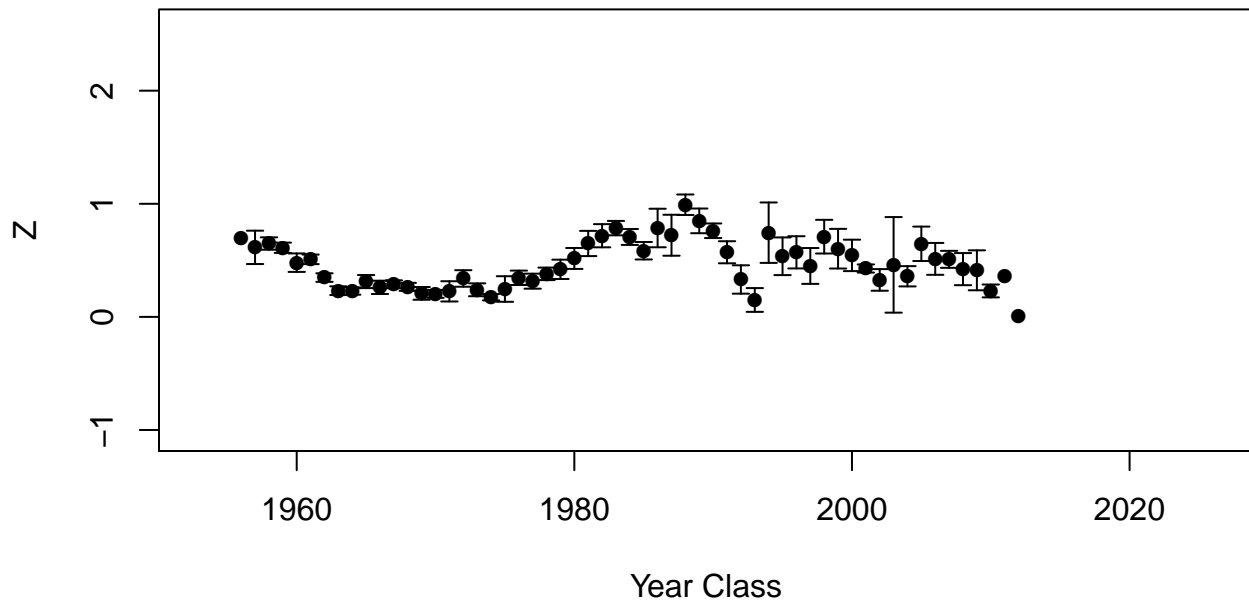
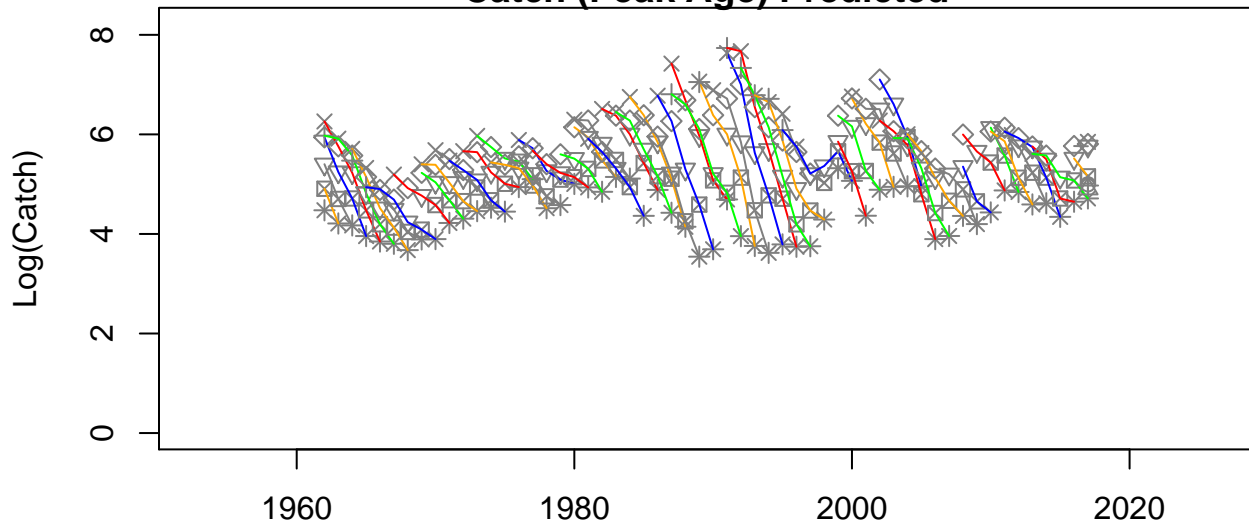
Indices



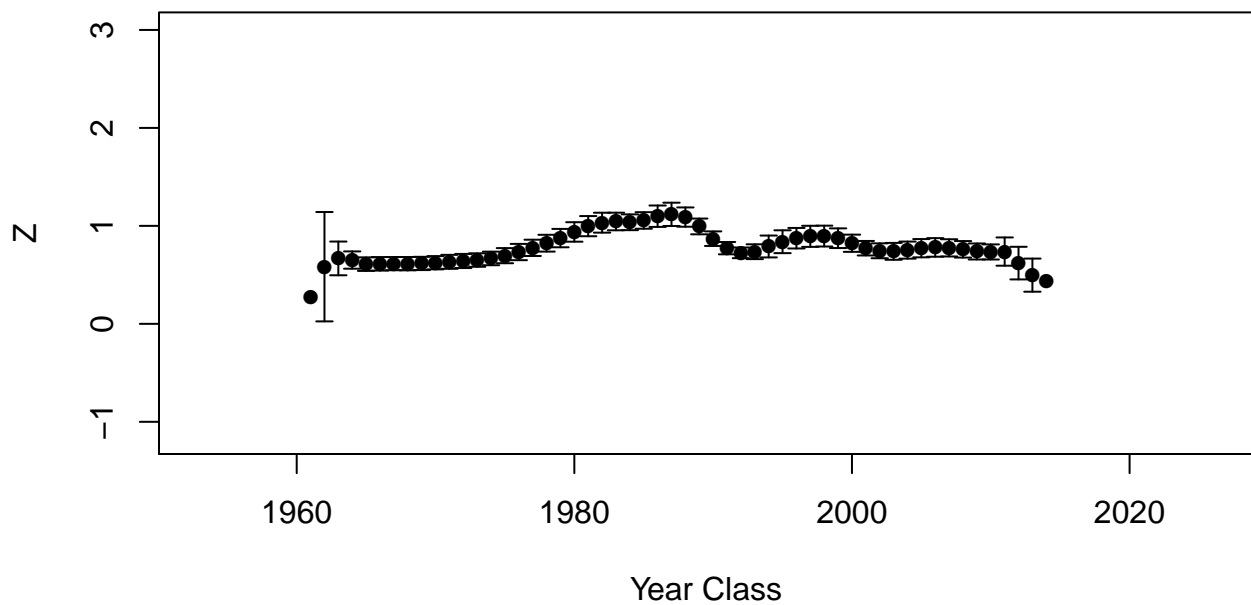
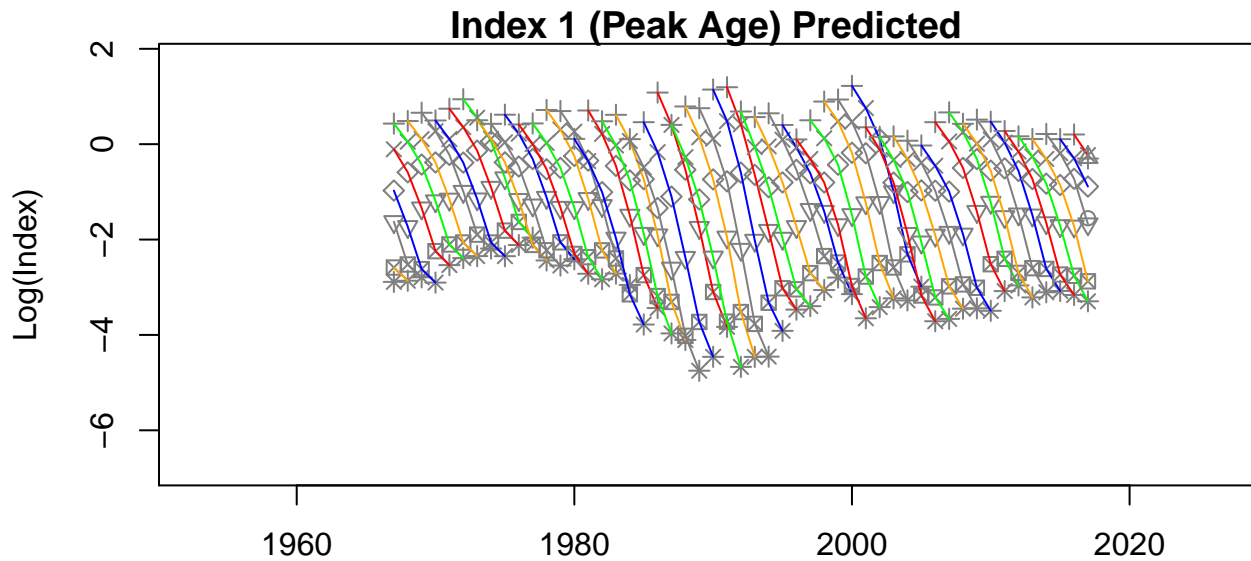
Catch (Peak Age) Observed



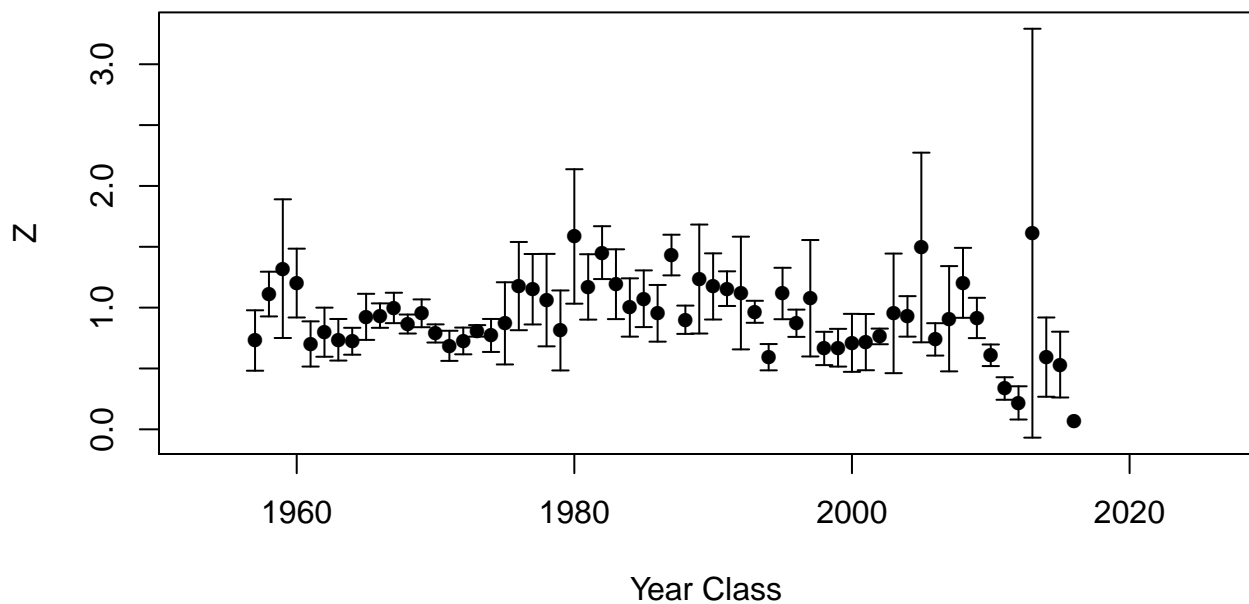
Catch (Peak Age) Predicted



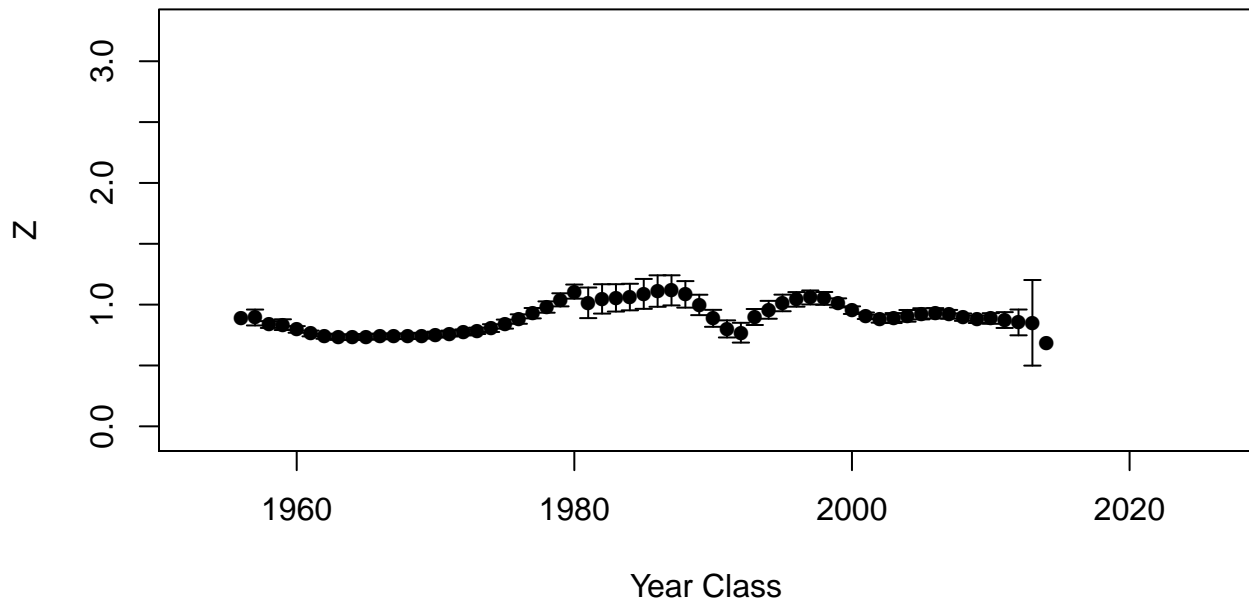
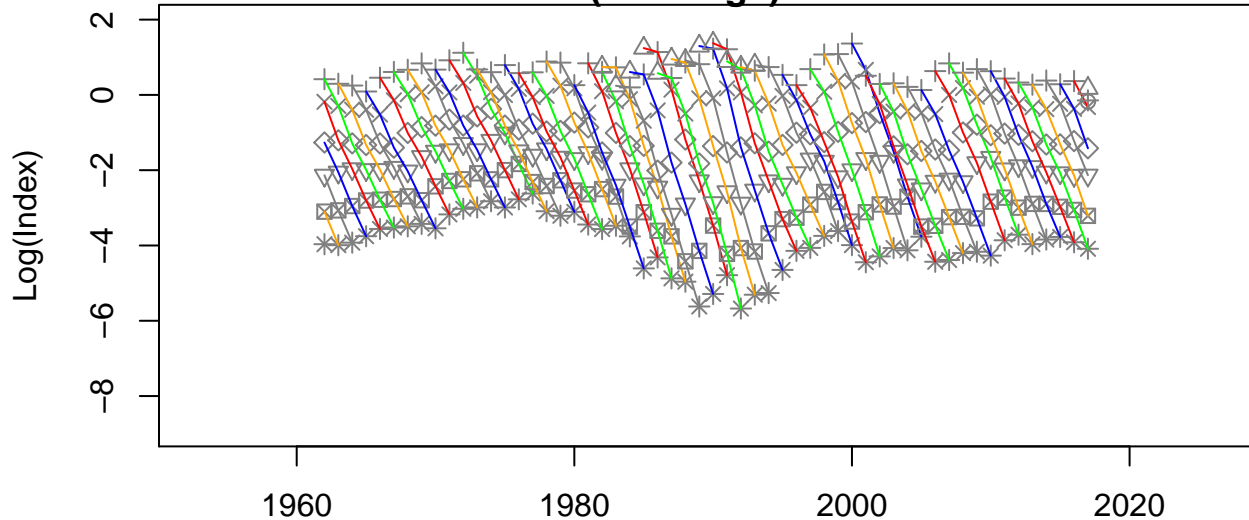




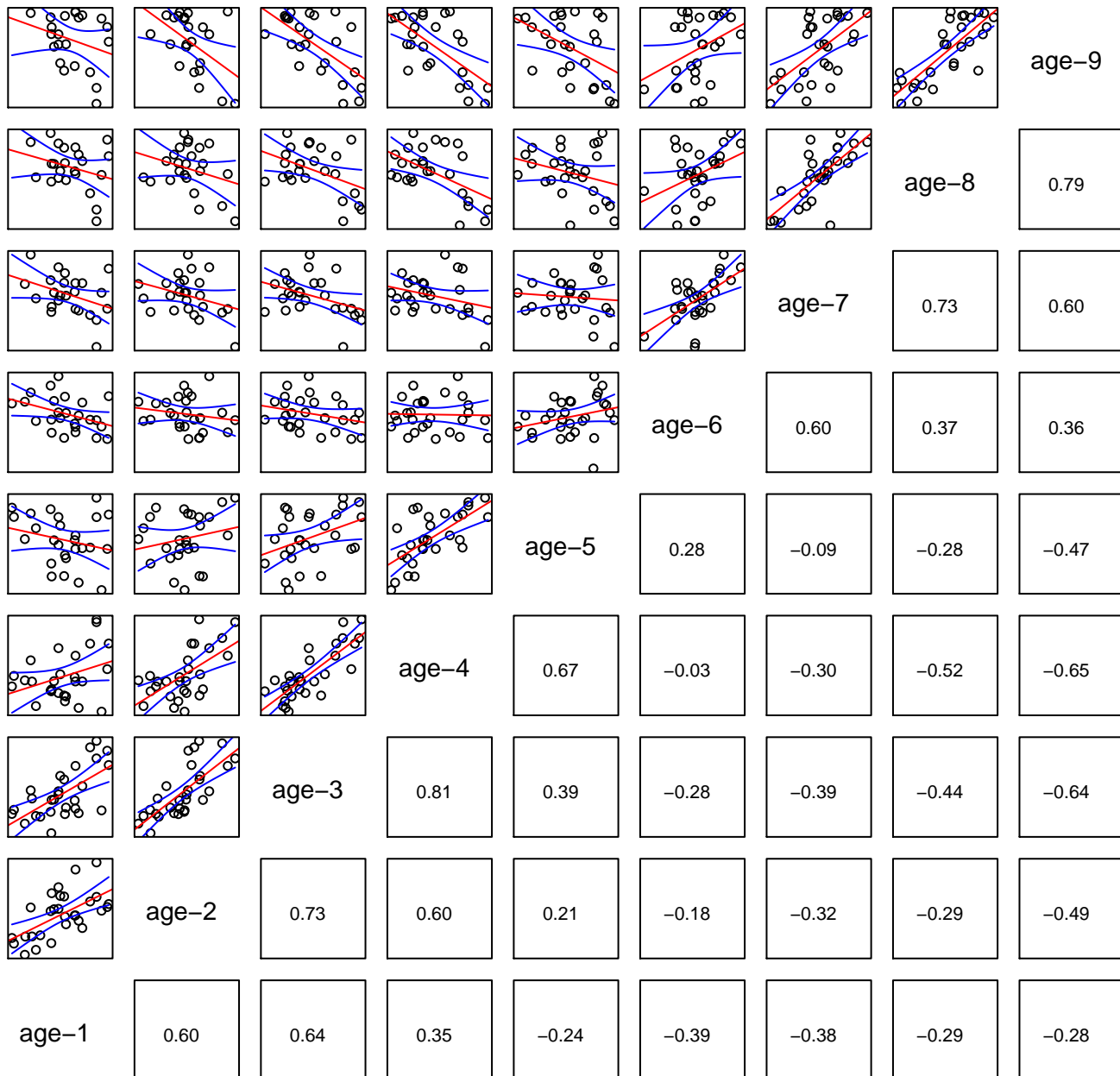
Index 2 (Peak Age) Observed



Index 2 (Peak Age) Predicted



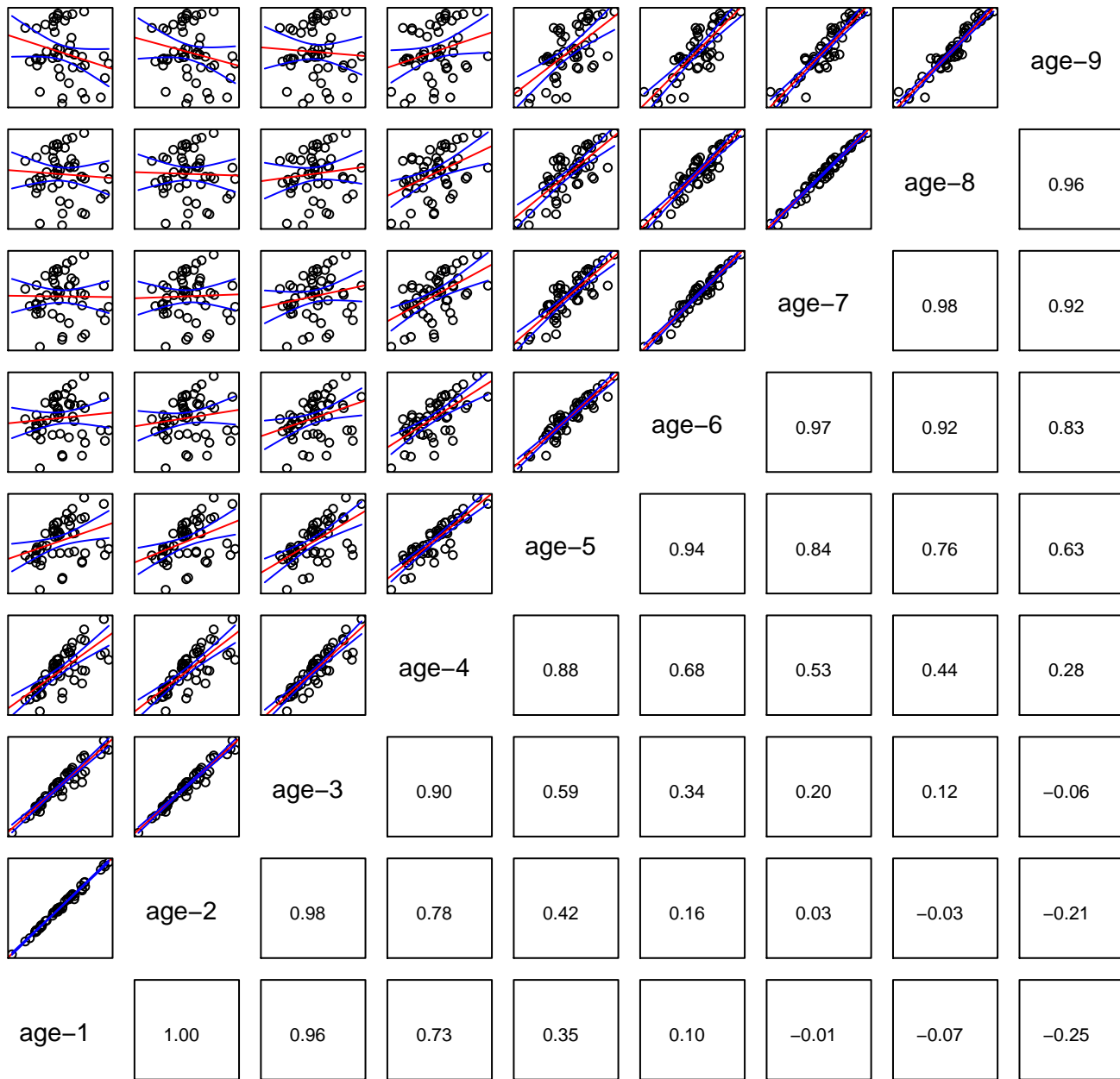
Catch Observed

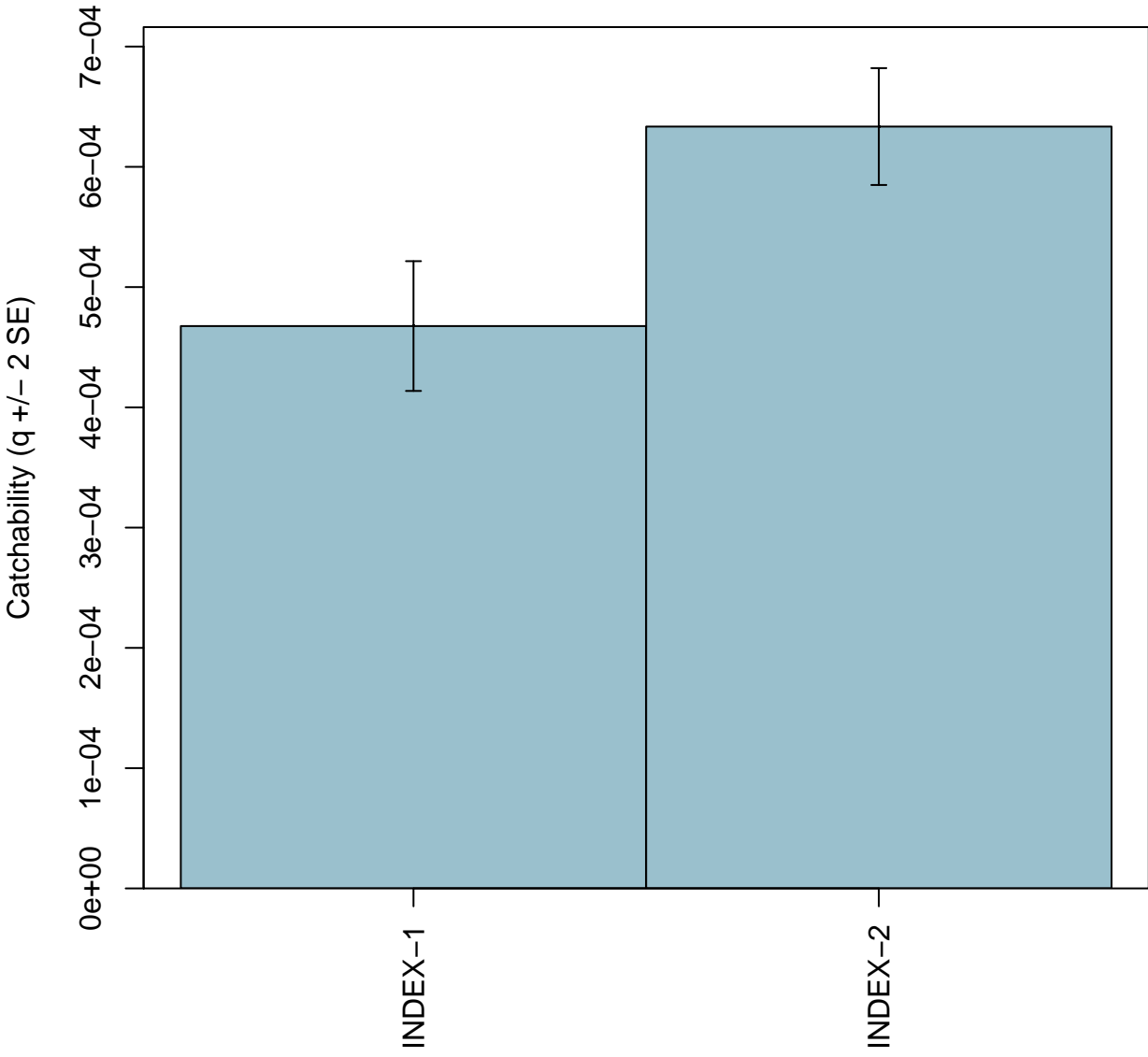


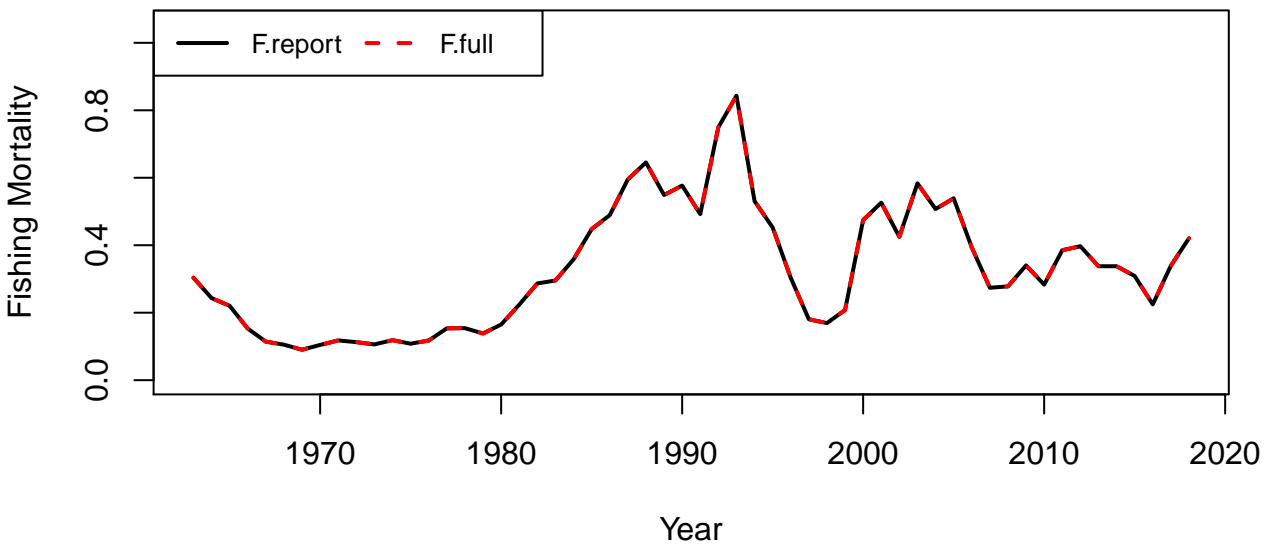
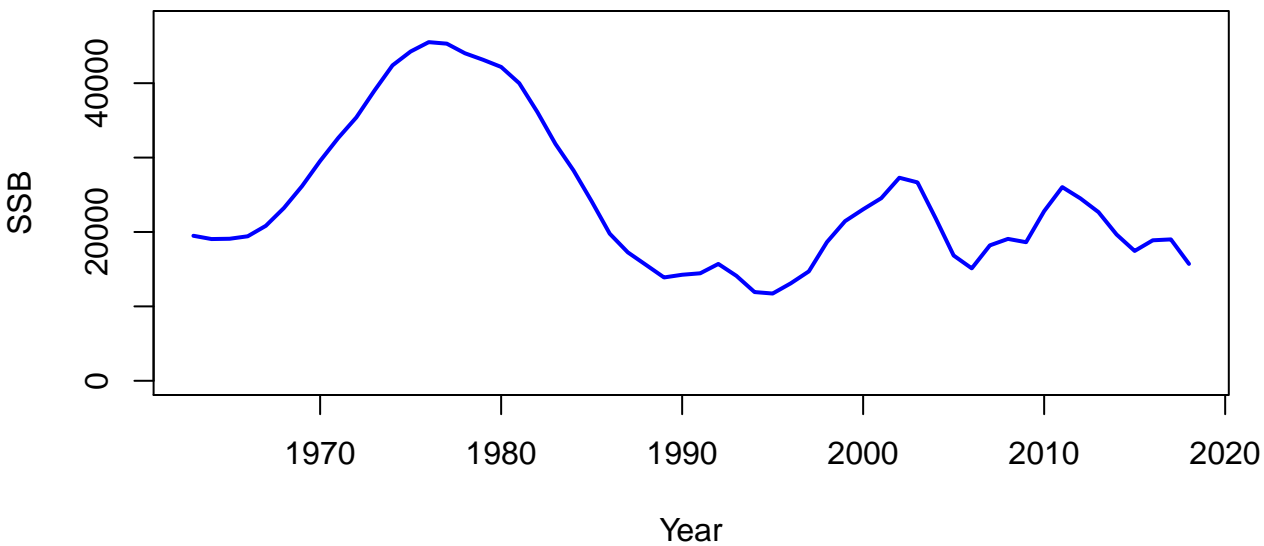
Index 1 (INDEX-1) Observed



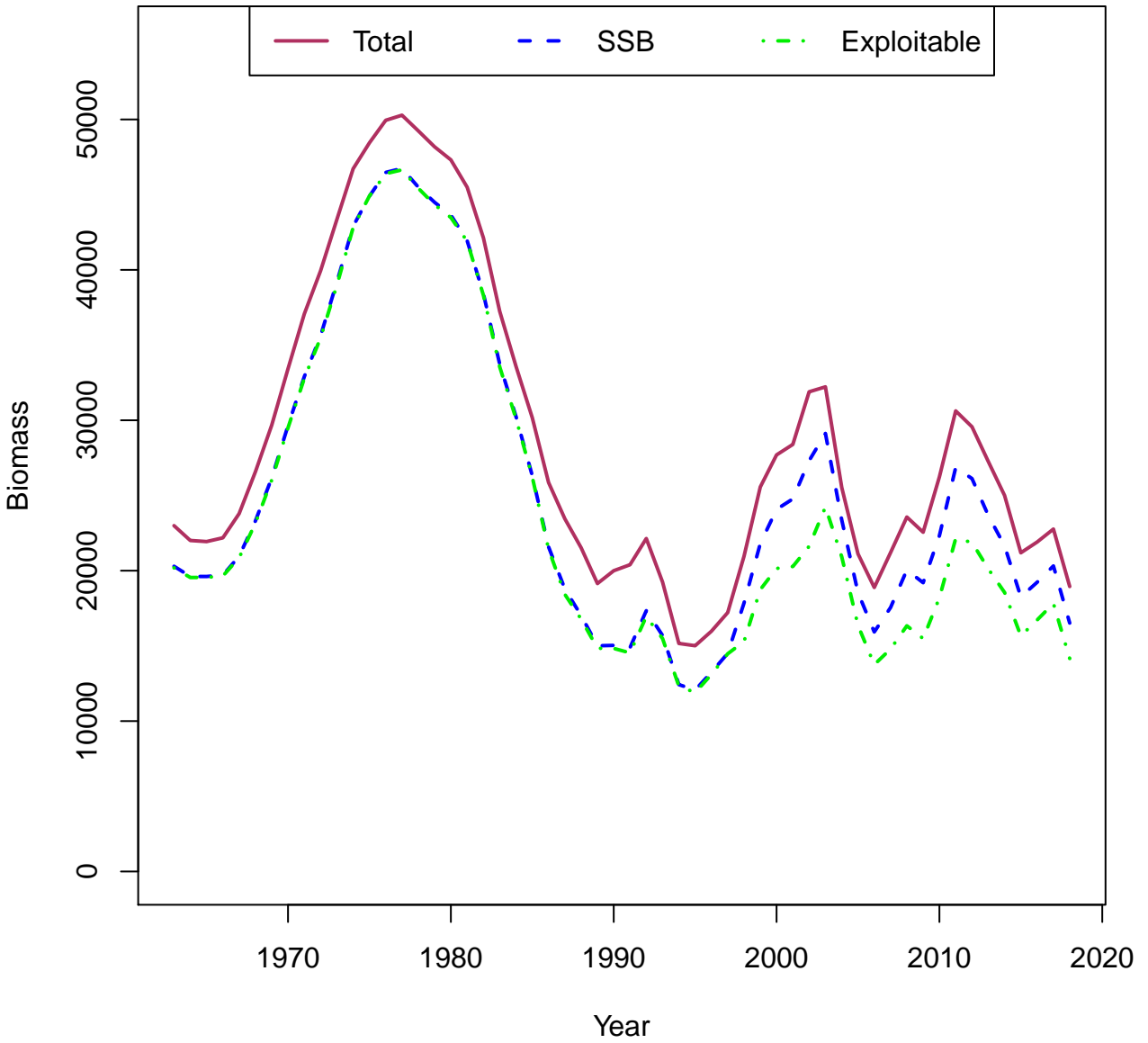
Index 2 (INDEX-2) Predicted

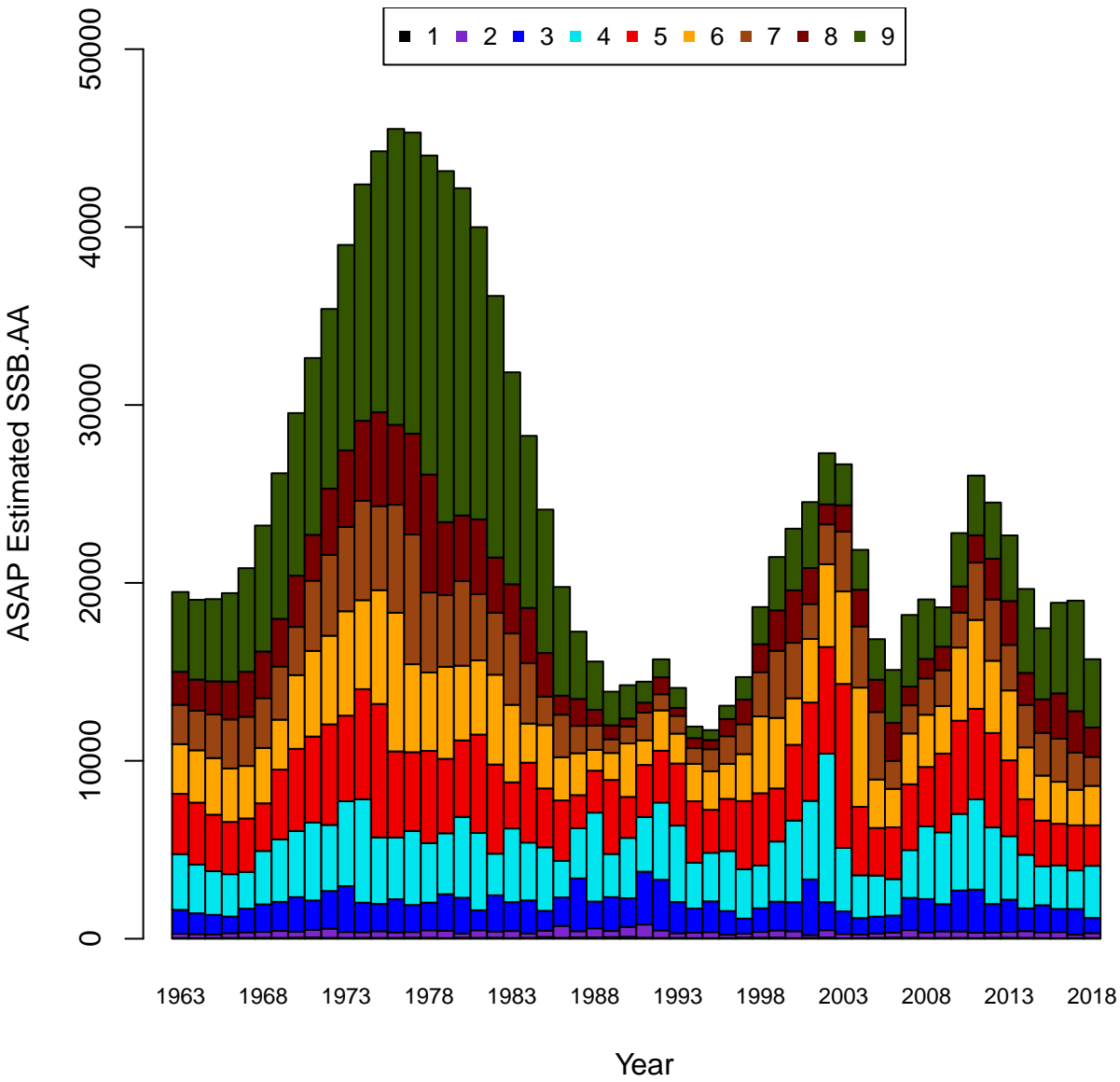


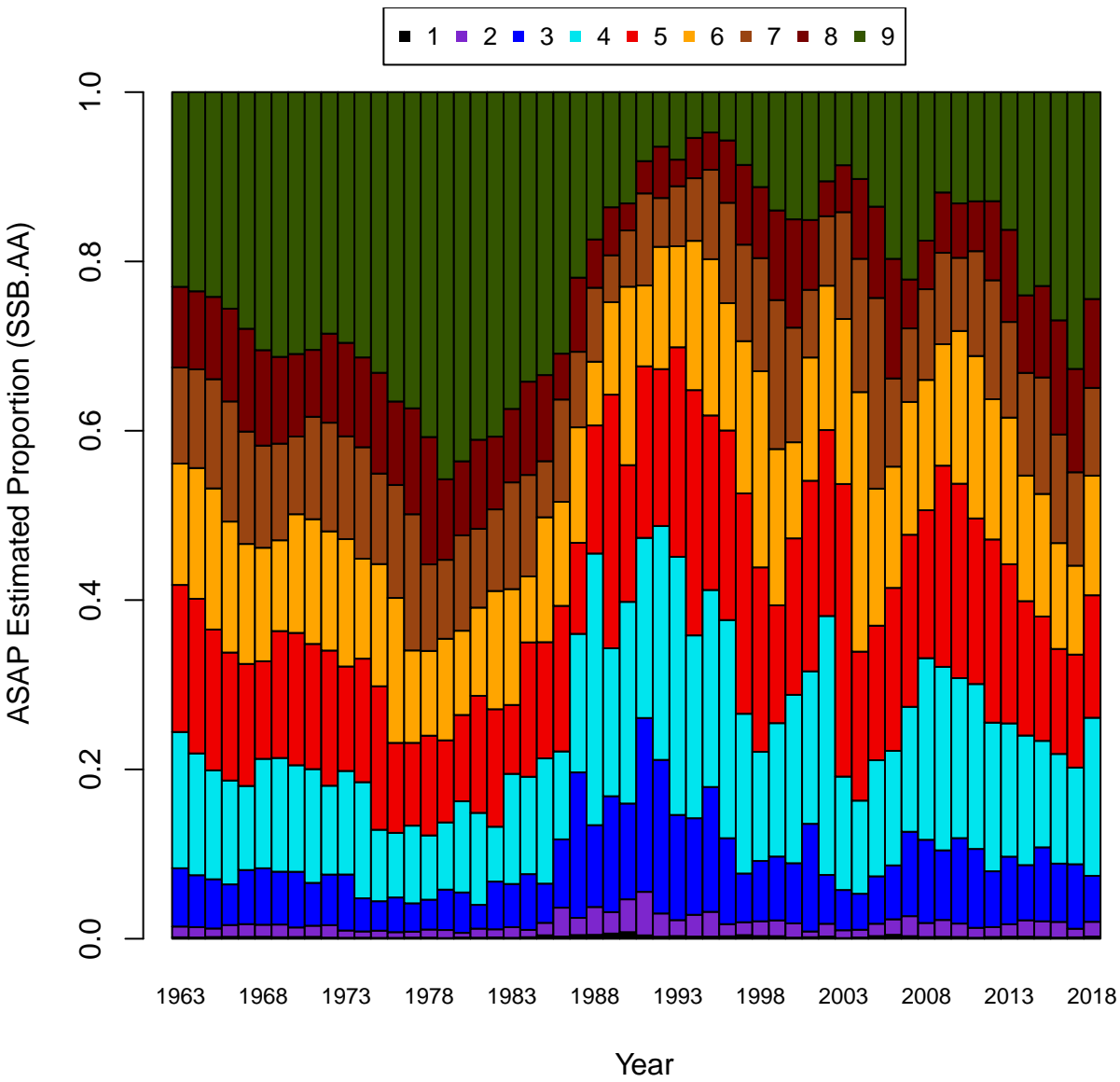


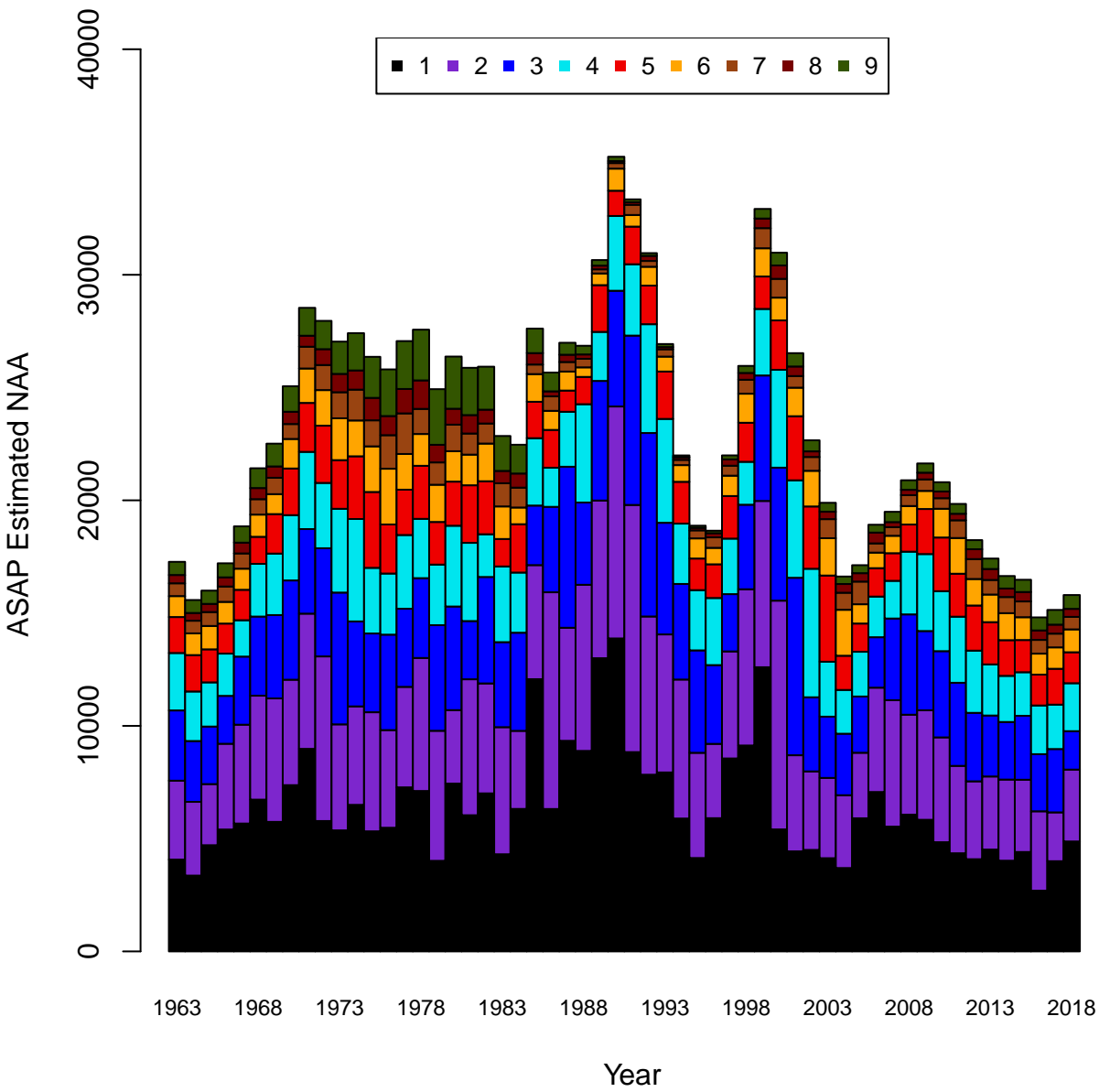


Comparison of January 1 Biomass

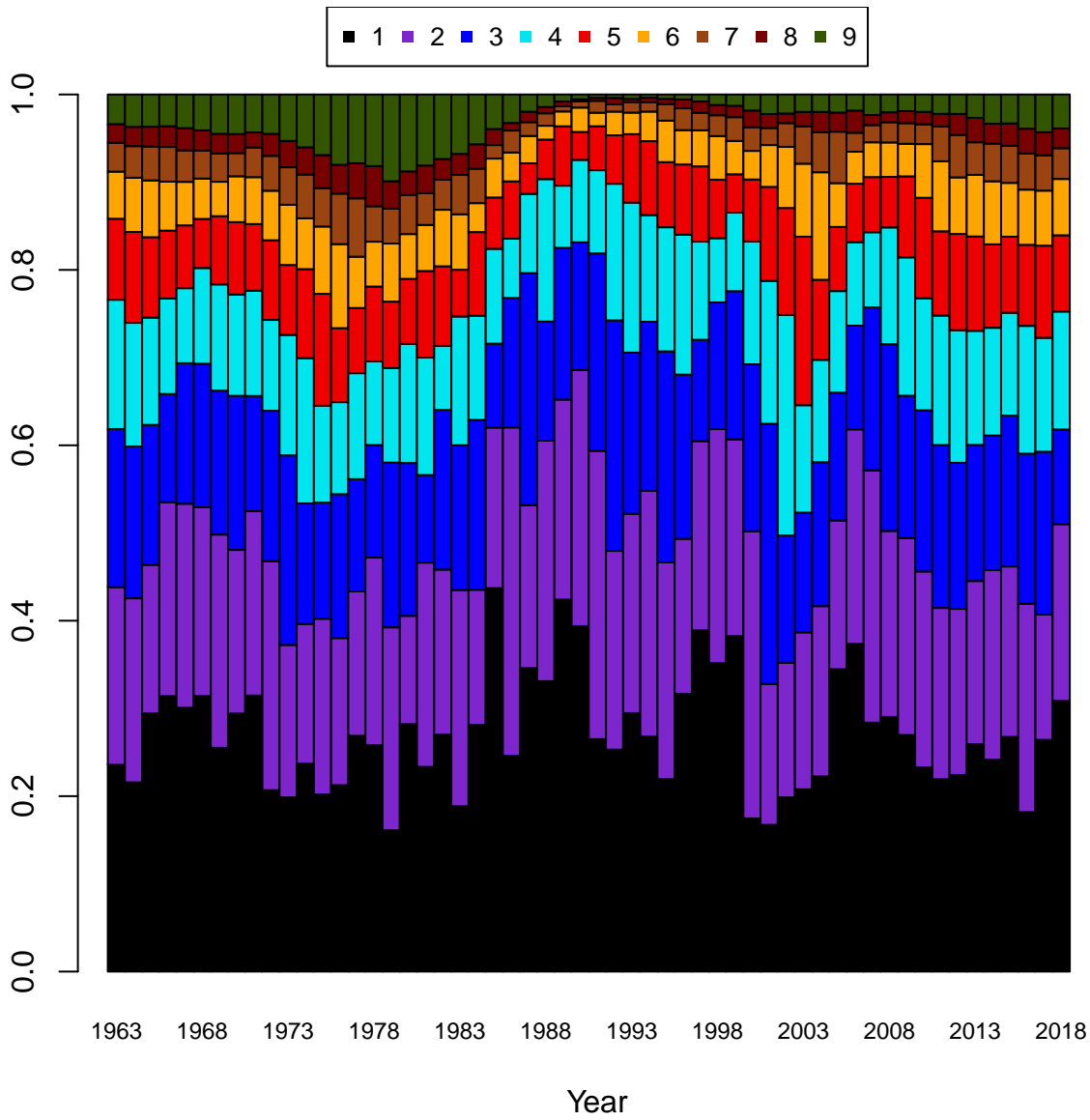


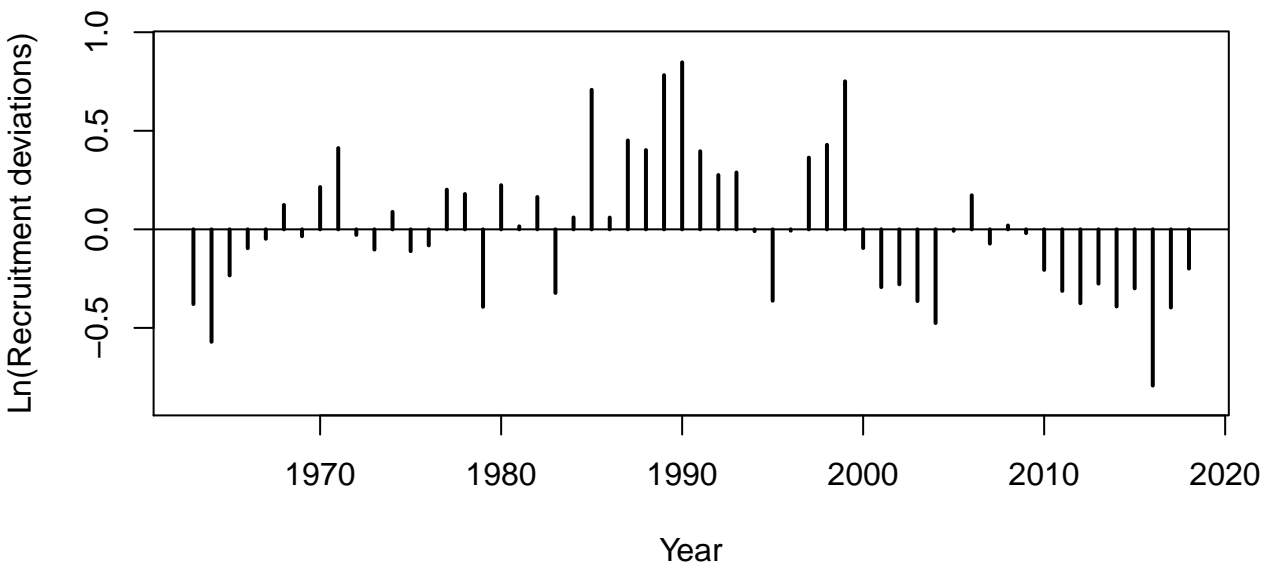
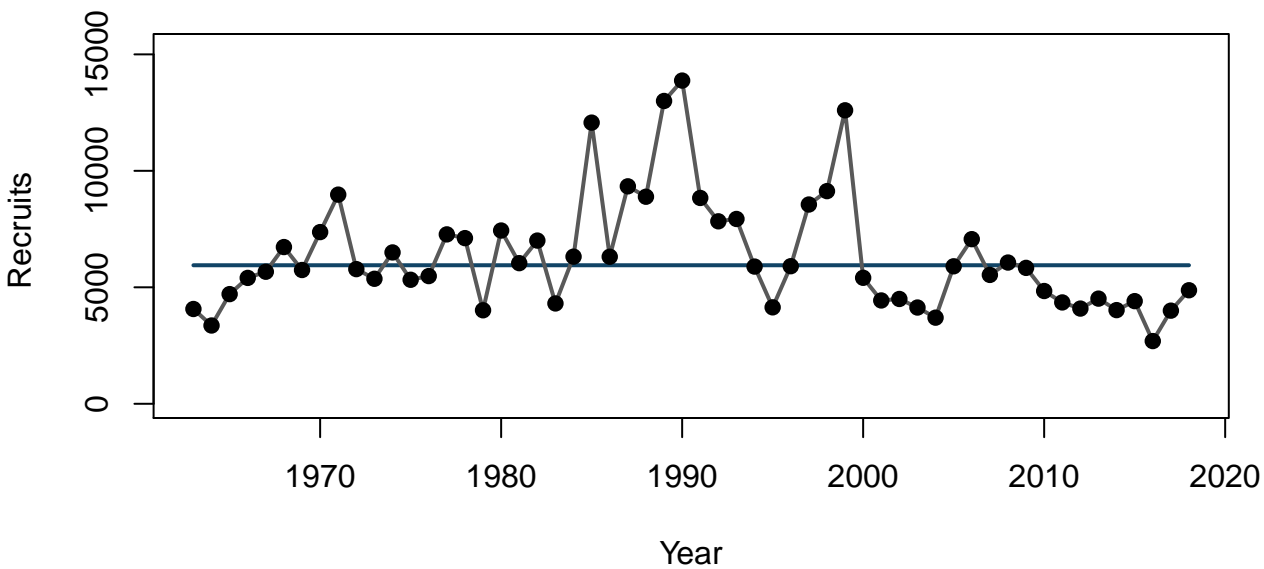


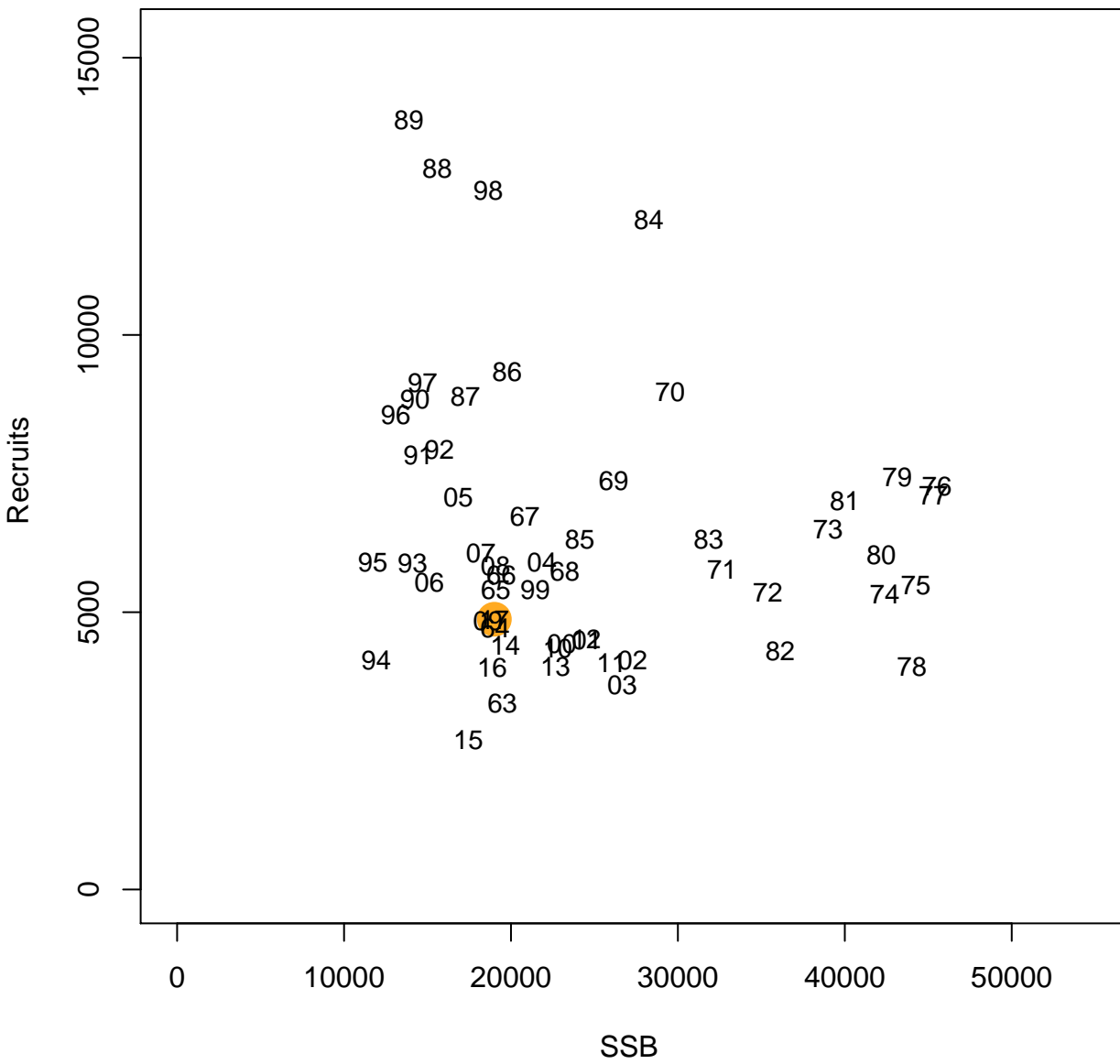


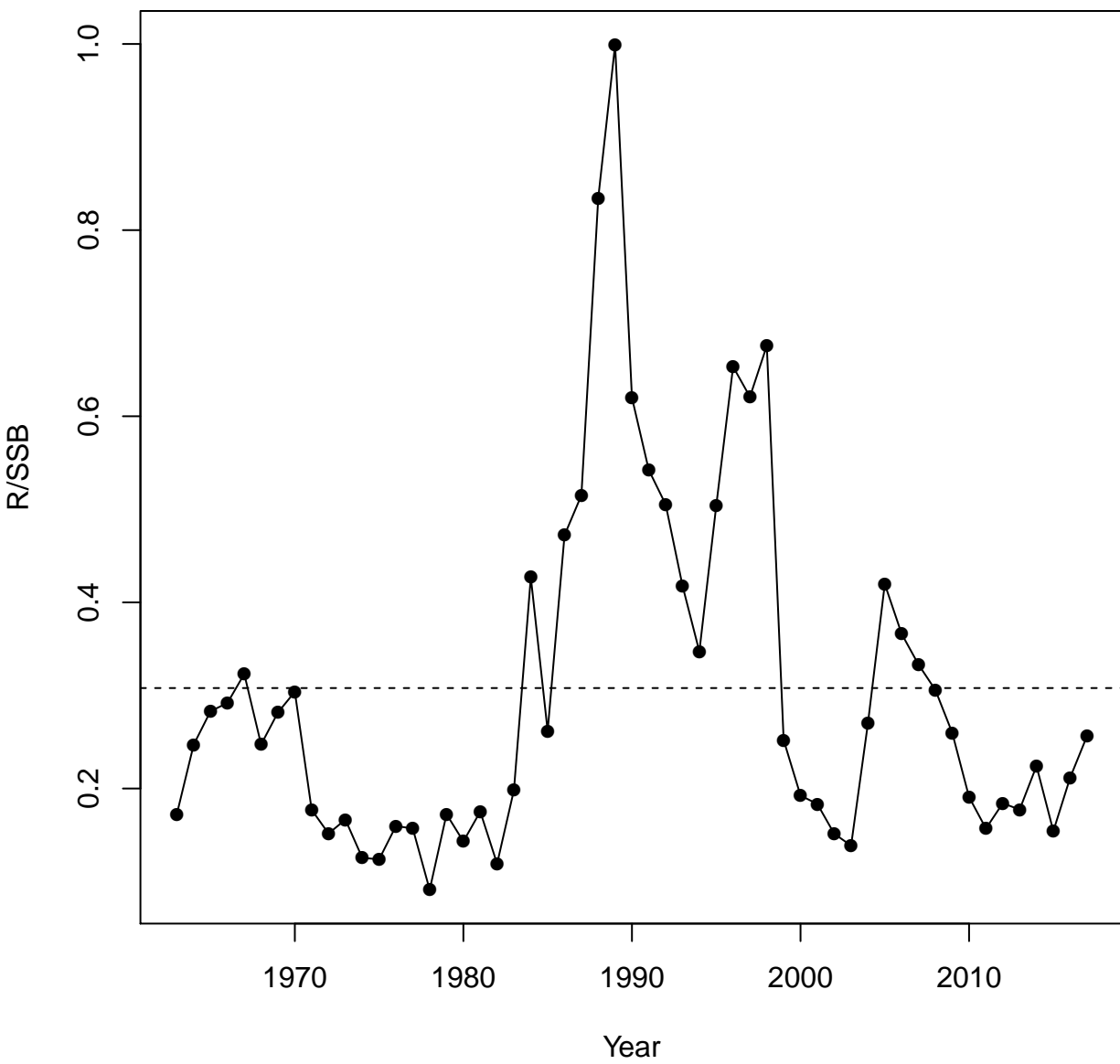


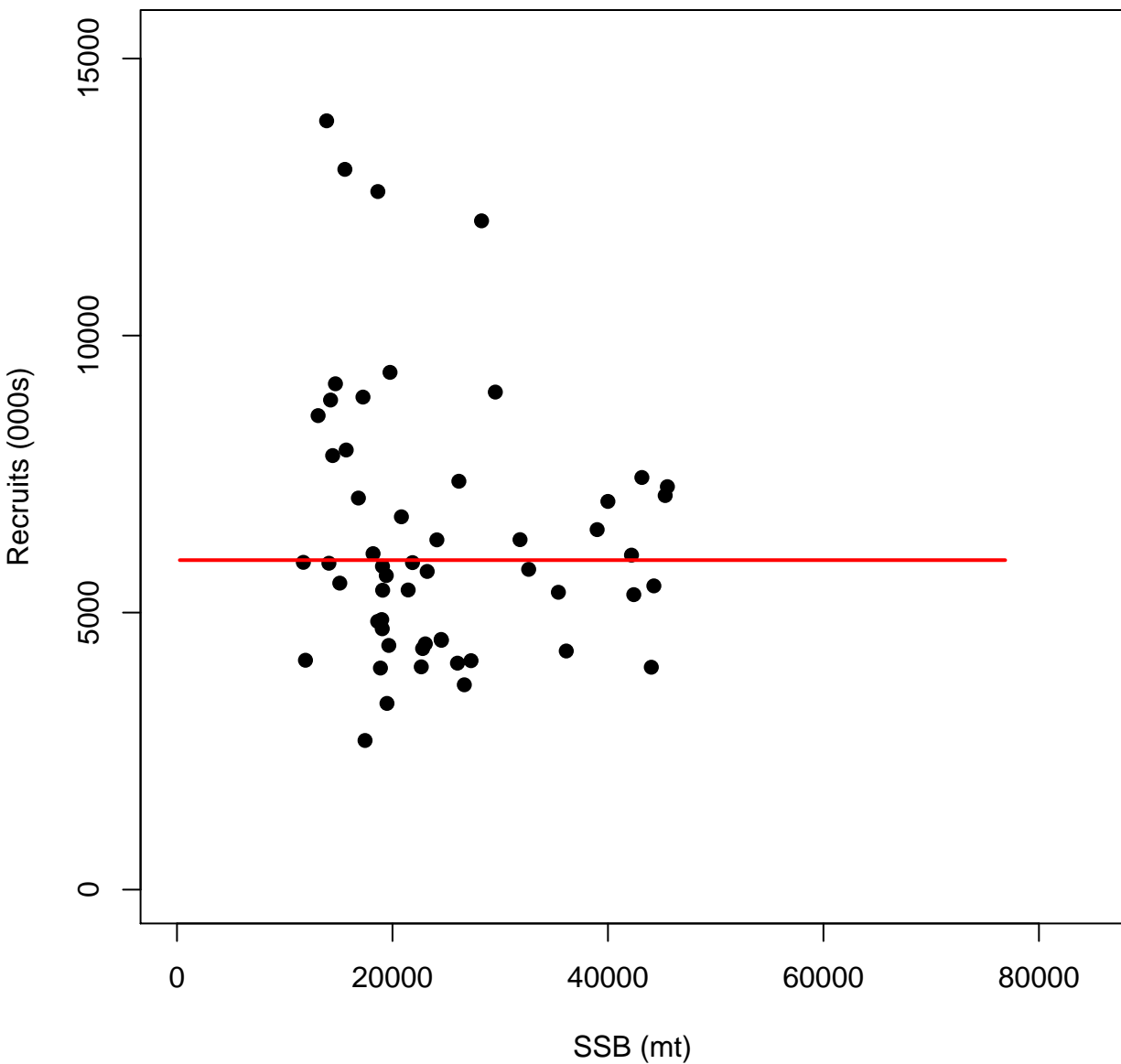
ASAP Estimated Proportion (NAA)

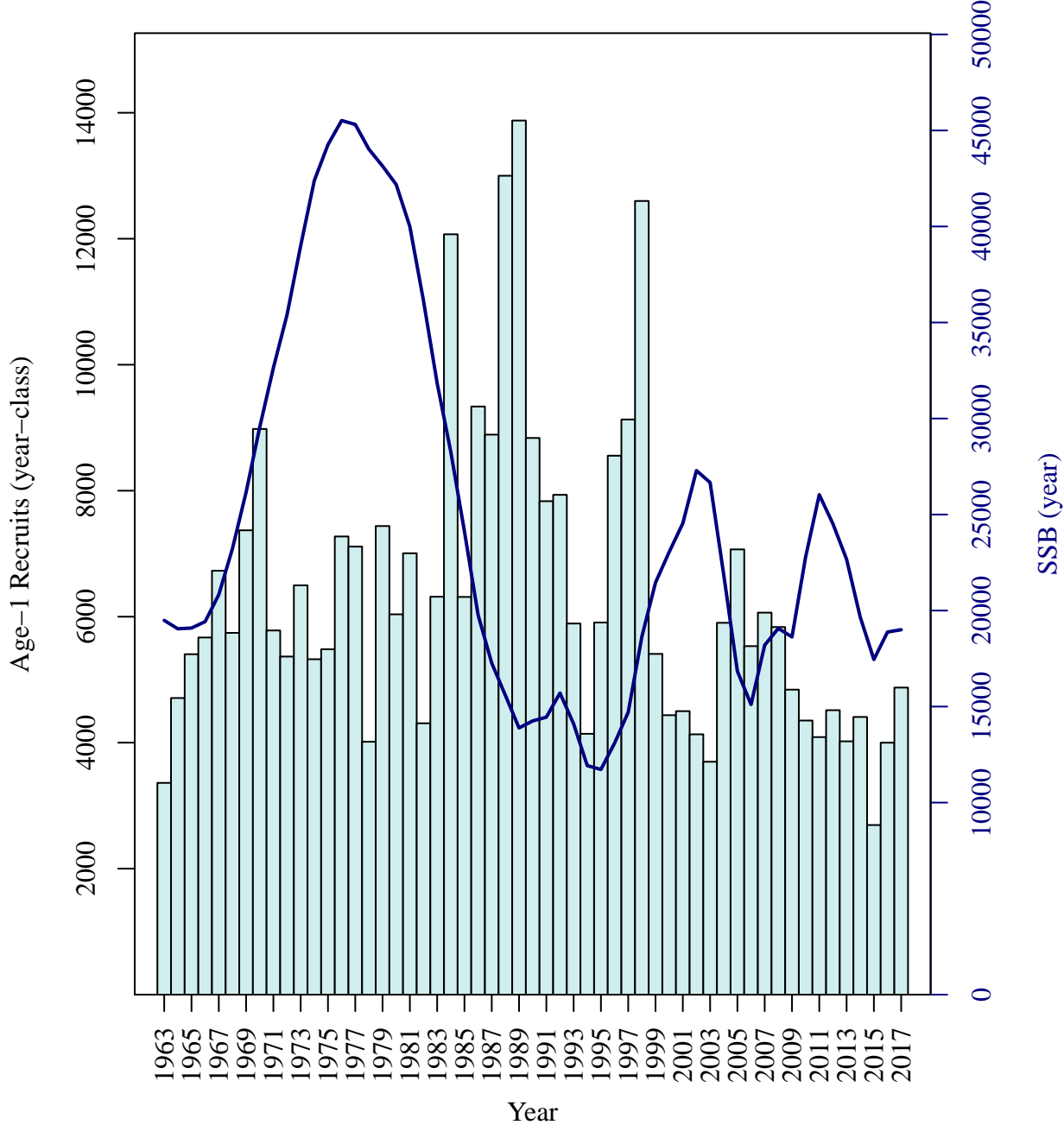




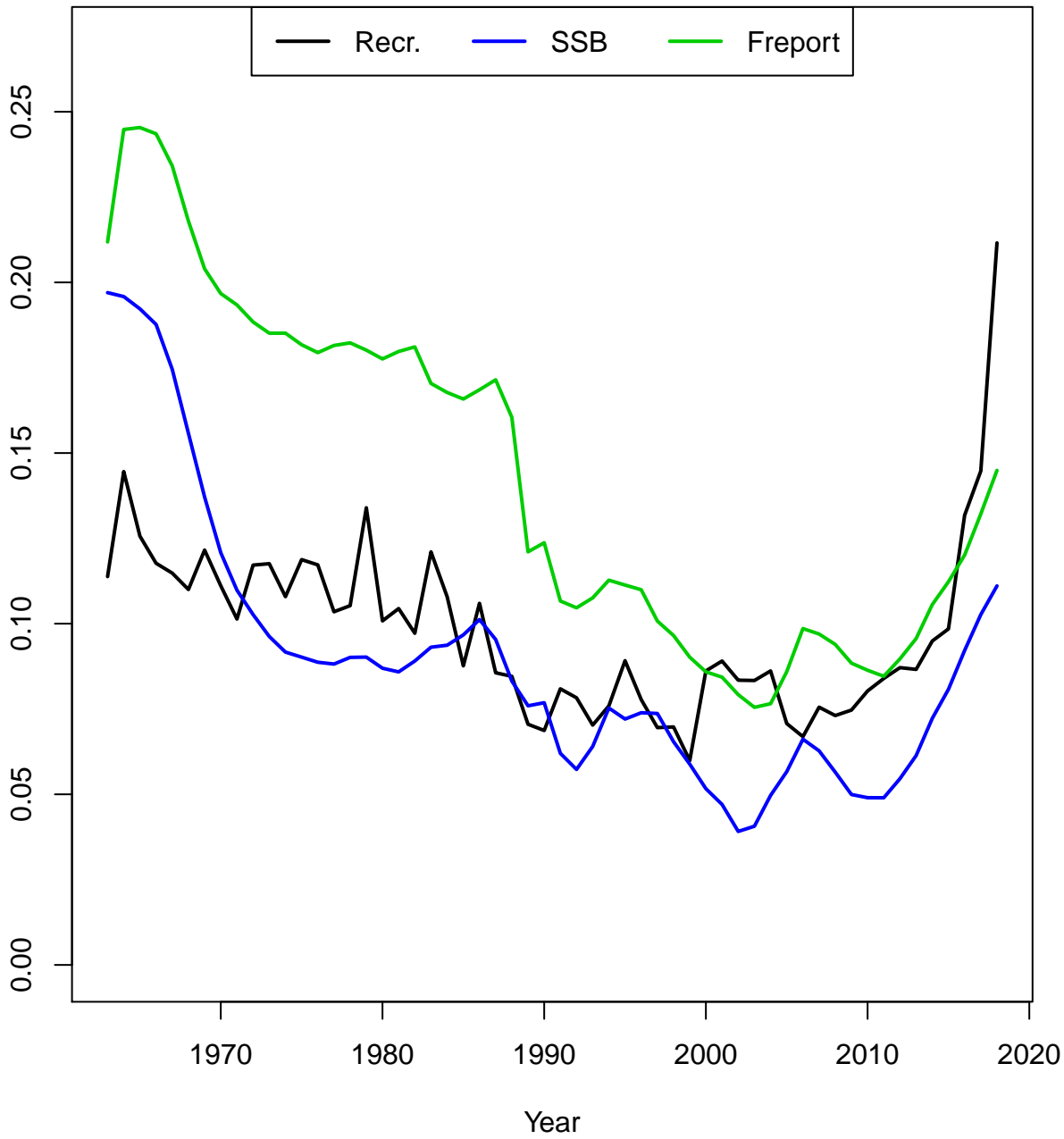




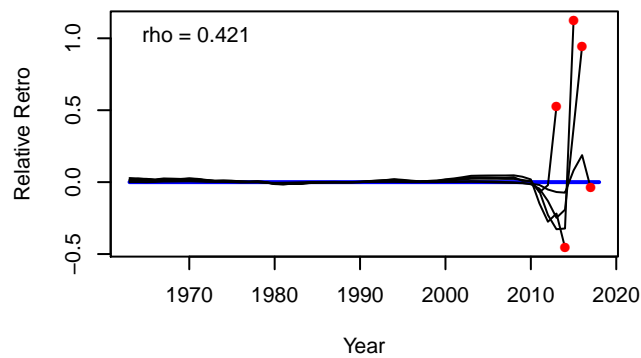
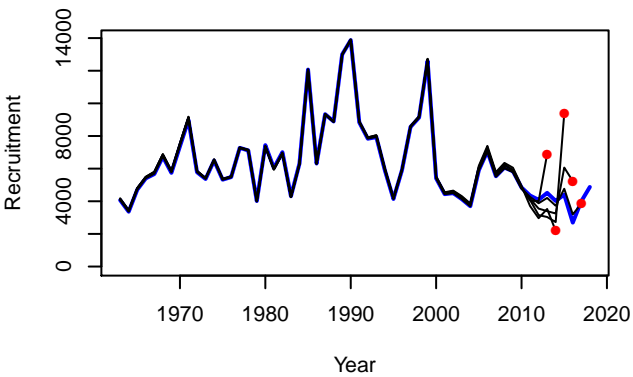
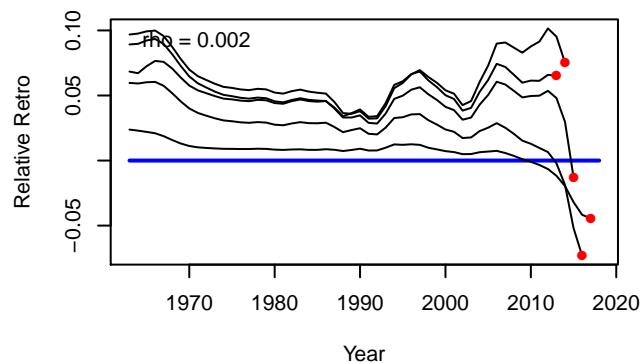
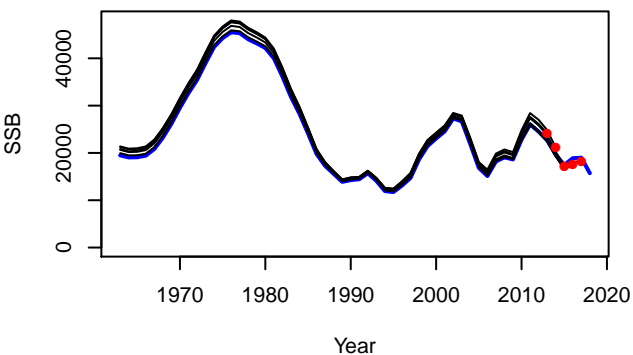
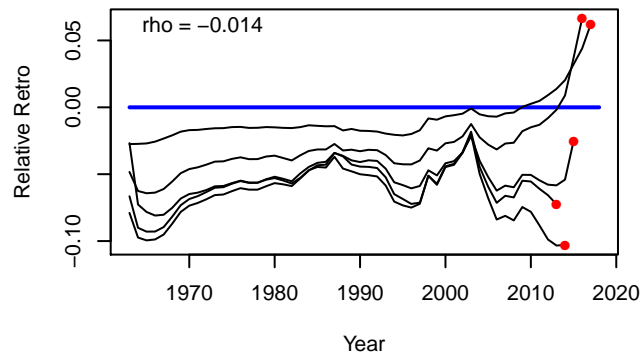
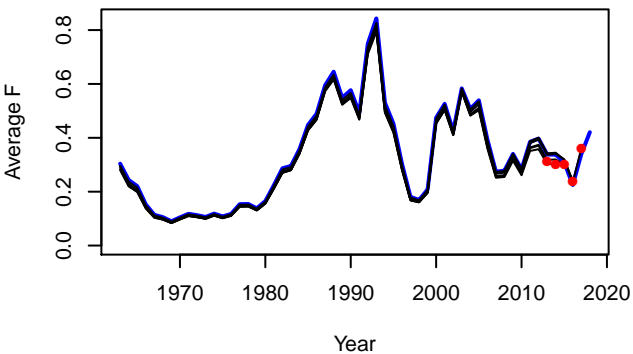




CV

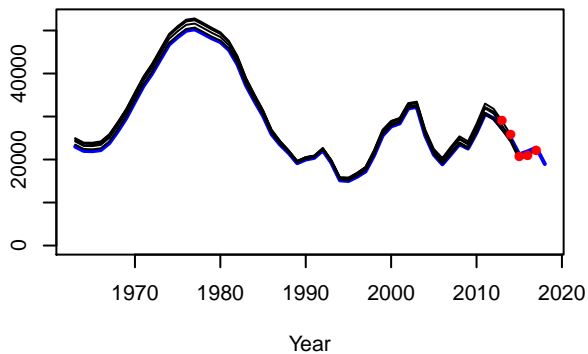


F, SSB, R

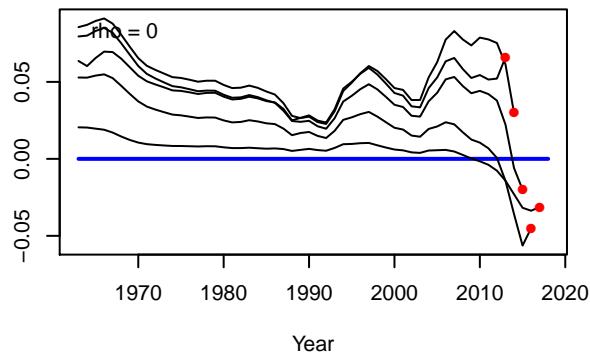


Jan-1 B, Exploitable B, Total Stock N

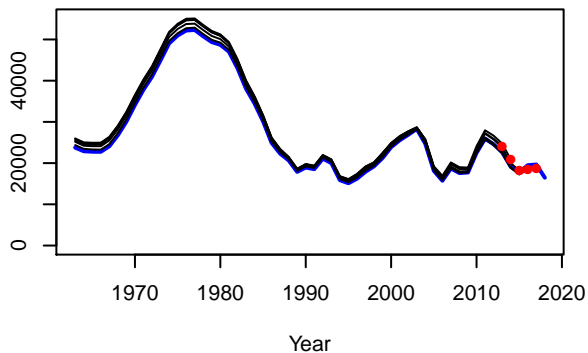
Jan-1 B



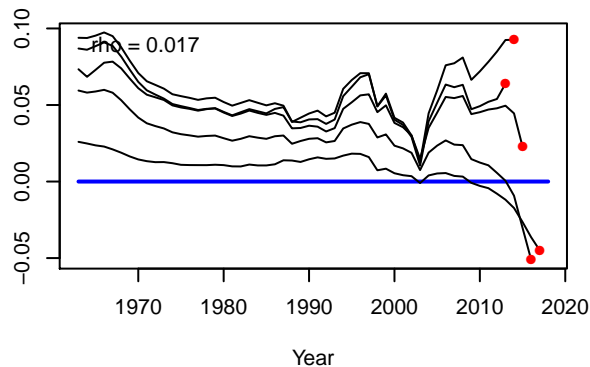
Relative Retro



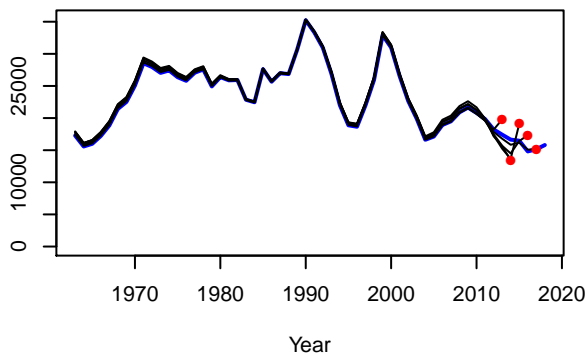
Exploitable B



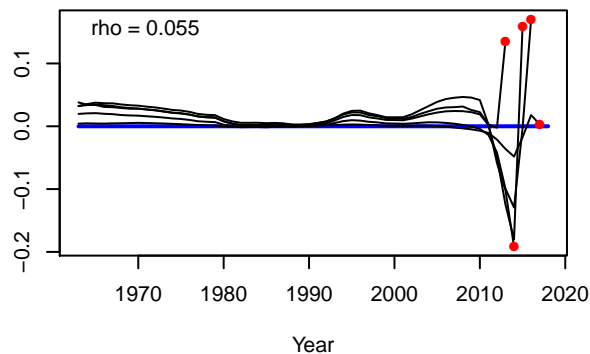
Relative Retro



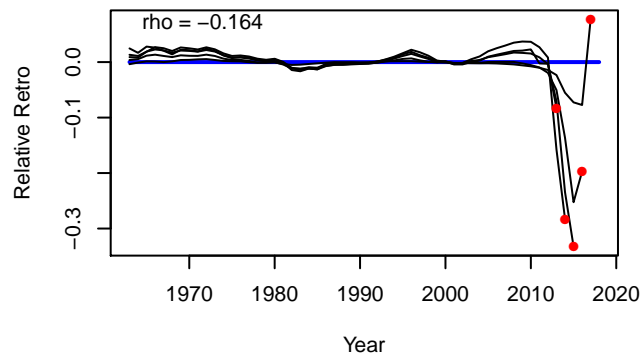
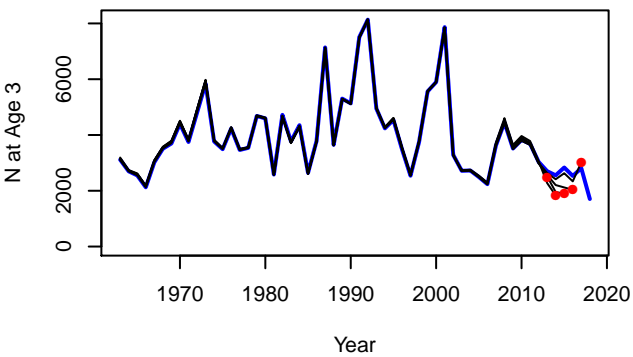
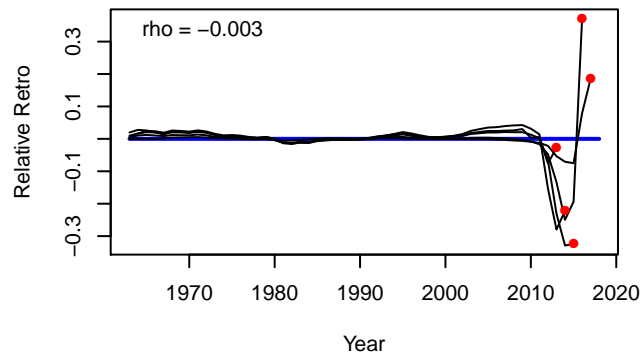
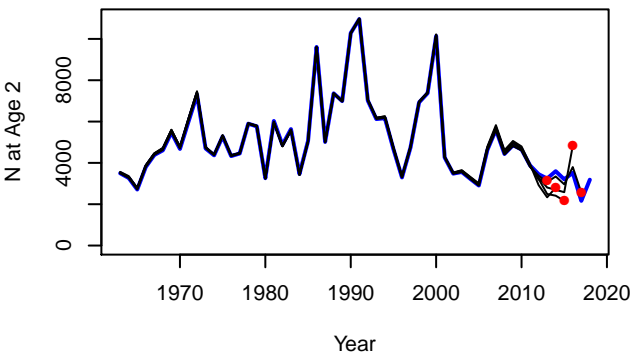
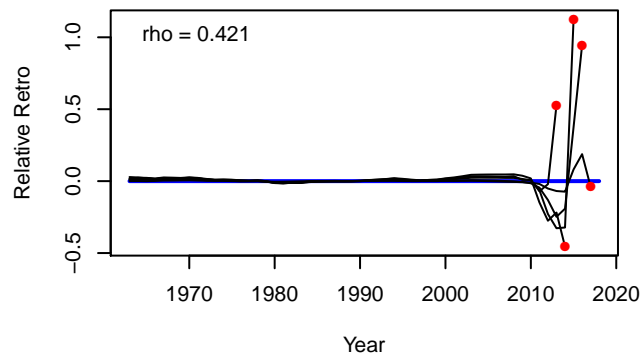
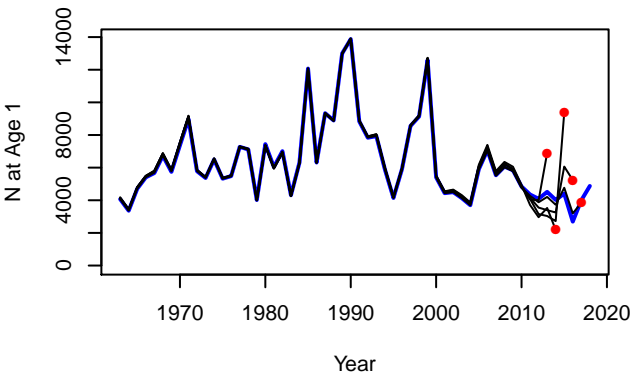
Total Stock N



Relative Retro

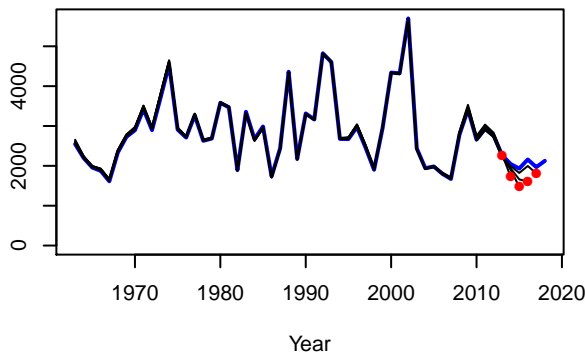


Stock Numbers at Age

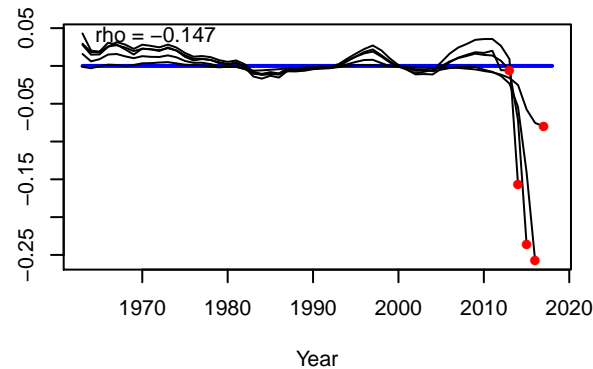


Stock Numbers at Age

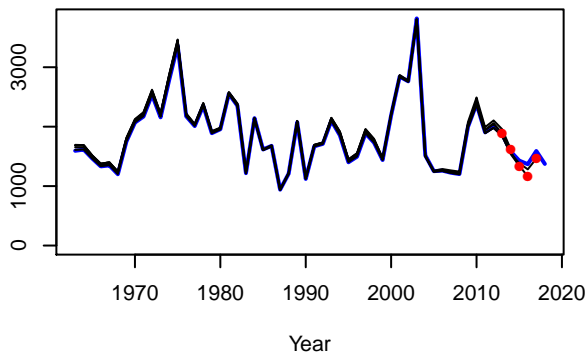
N at Age 4



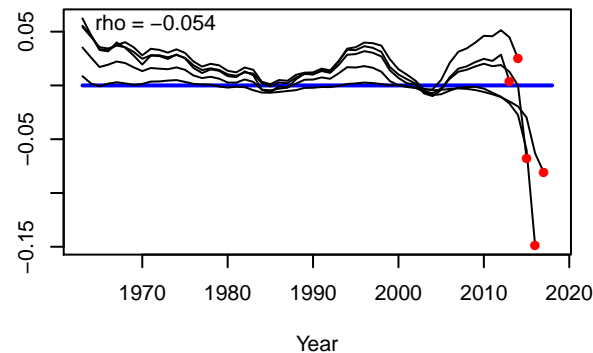
Relative Retro



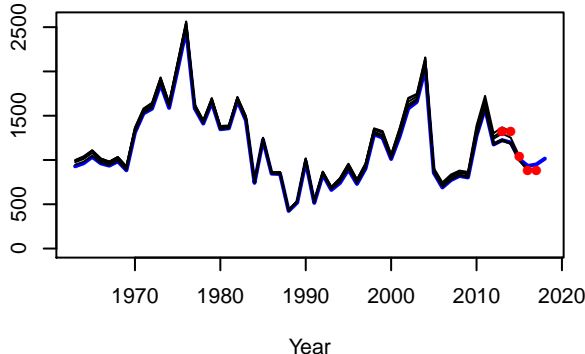
N at Age 5



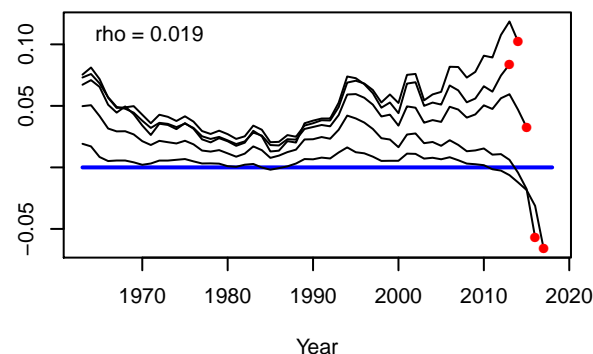
Relative Retro



N at Age 6

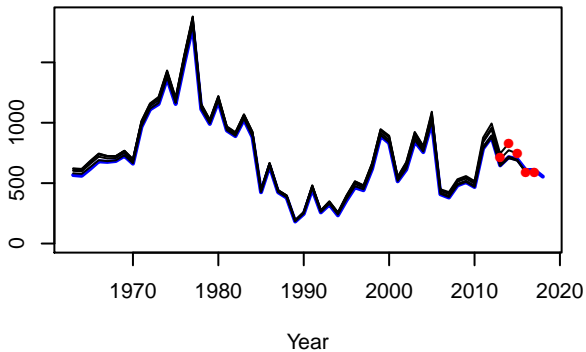


Relative Retro

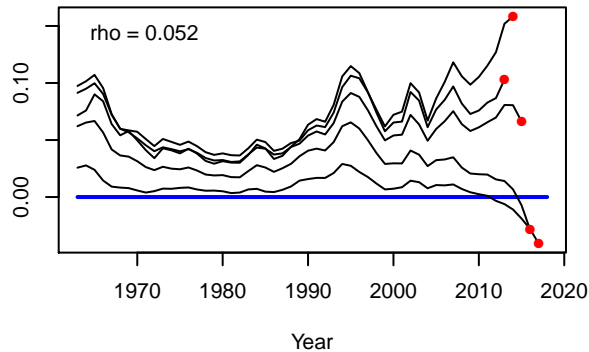


Stock Numbers at Age

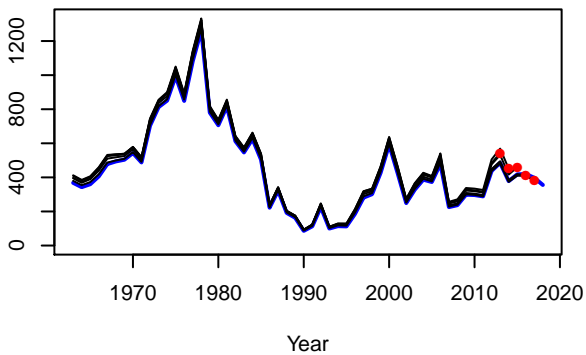
N at Age 7



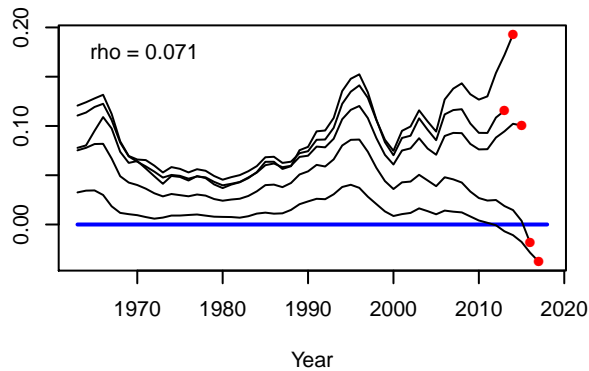
Relative Retro



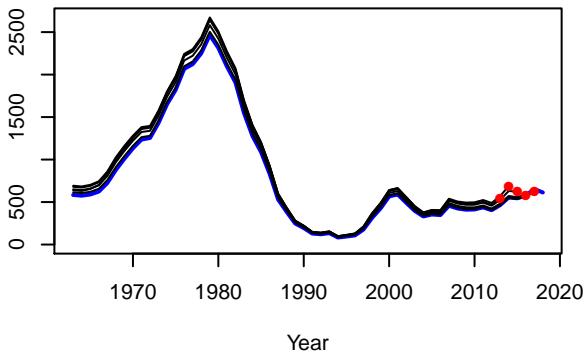
N at Age 8



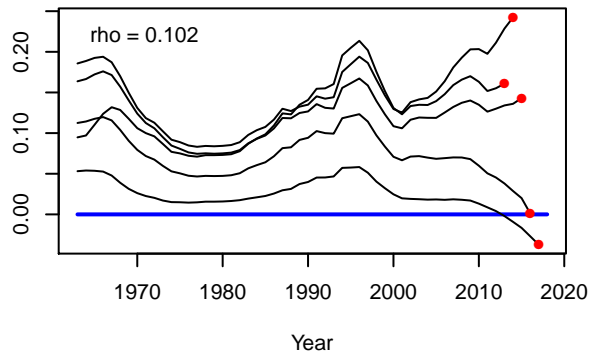
Relative Retro



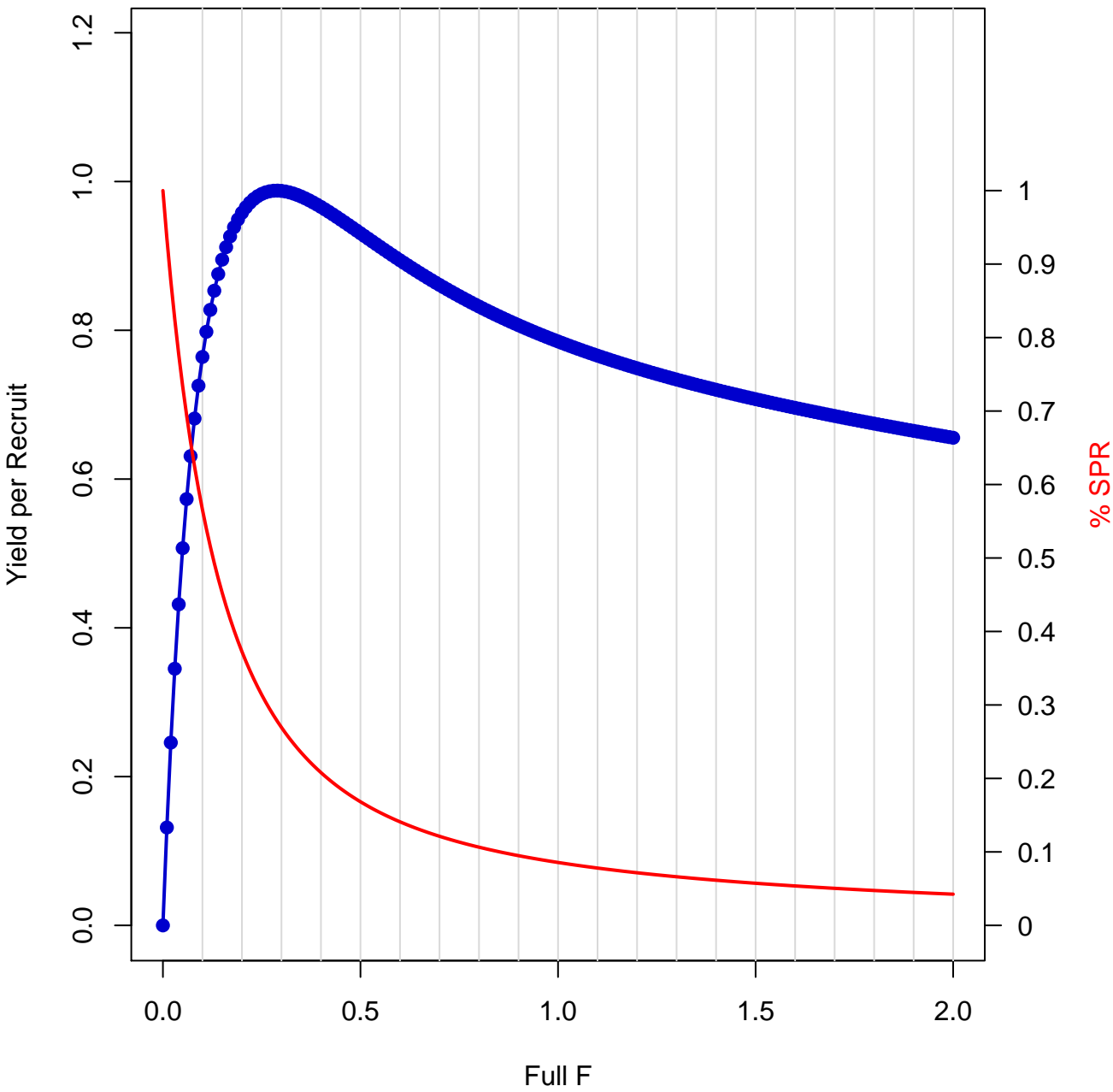
N at Age 9



Relative Retro



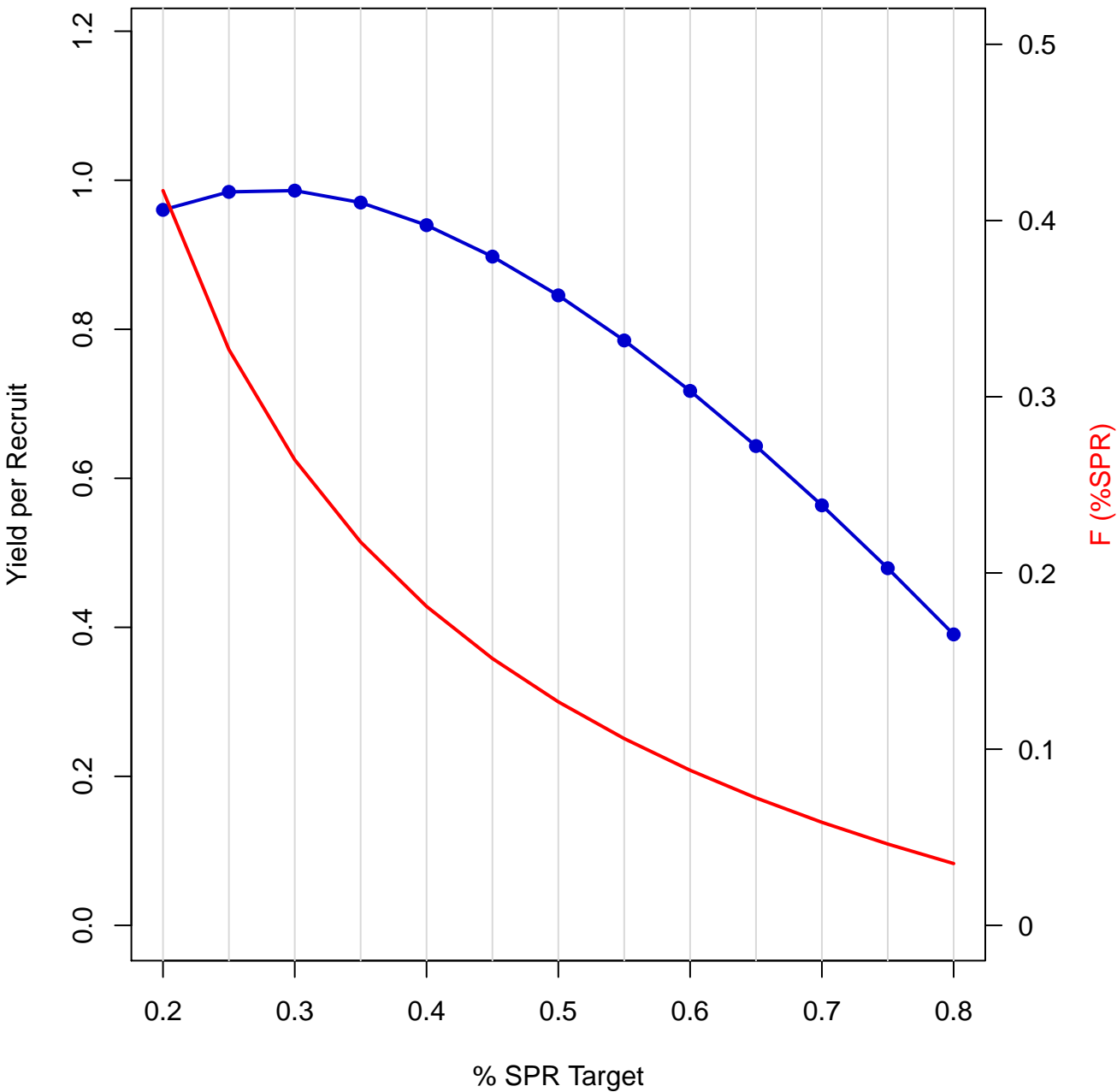
YPR-SPR Reference Points (Years Avg = 5)



YPR–SPR Reference Points (Years Avg = 5)

F	YPR	SPR	F	YPR	SPR	F	YPR	SPR
0	0	1	0.35	0.9798	0.2351	0.7	0.861	0.1213
0.01	0.1316	0.9354	0.36	0.9774	0.2292	0.71	0.8579	0.1196
0.02	0.2458	0.8773	0.37	0.9748	0.2235	0.72	0.8549	0.118
0.03	0.3451	0.8248	0.38	0.972	0.2181	0.73	0.8519	0.1164
0.04	0.4316	0.7772	0.39	0.969	0.2129	0.74	0.8489	0.1148
0.05	0.5071	0.7338	0.4	0.9659	0.2079	0.75	0.846	0.1133
0.06	0.5731	0.6943	0.41	0.9626	0.2032	0.76	0.8431	0.1119
0.07	0.6309	0.658	0.42	0.9593	0.1986	0.77	0.8403	0.1105
0.08	0.6814	0.6248	0.43	0.9558	0.1943	0.78	0.8375	0.1091
0.09	0.7256	0.5942	0.44	0.9523	0.1901	0.79	0.8347	0.1077
0.1	0.7642	0.5659	0.45	0.9488	0.1861	0.8	0.832	0.1064
0.11	0.798	0.5398	0.46	0.9452	0.1822	0.81	0.8293	0.1051
0.12	0.8275	0.5156	0.47	0.9415	0.1785	0.82	0.8267	0.1039
0.13	0.8532	0.4931	0.48	0.9379	0.175	0.83	0.8241	0.1027
0.14	0.8756	0.4722	0.49	0.9342	0.1715	0.84	0.8215	0.1015
0.15	0.895	0.4527	0.5	0.9305	0.1682	0.85	0.819	0.1003
0.16	0.9118	0.4345	0.51	0.9268	0.165	0.86	0.8165	0.0992
0.17	0.9262	0.4175	0.52	0.9231	0.162	0.87	0.814	0.0981
0.18	0.9386	0.4016	0.53	0.9194	0.159	0.88	0.8116	0.097
0.19	0.9491	0.3866	0.54	0.9157	0.1562	0.89	0.8092	0.0959
0.2	0.958	0.3726	0.55	0.9121	0.1534	0.9	0.8068	0.0949
0.21	0.9654	0.3594	0.56	0.9084	0.1507	0.91	0.8045	0.0939
0.22	0.9715	0.347	0.57	0.9048	0.1482	0.92	0.8022	0.0929
0.23	0.9764	0.3353	0.58	0.9012	0.1457	0.93	0.8	0.0919
0.24	0.9803	0.3243	0.59	0.8977	0.1433	0.94	0.7977	0.0909
0.25	0.9833	0.3138	0.6	0.8942	0.1409	0.95	0.7955	0.09
0.26	0.9854	0.304	0.61	0.8907	0.1387	0.96	0.7934	0.0891
0.27	0.9868	0.2947	0.62	0.8872	0.1365	0.97	0.7912	0.0882
0.28	0.9876	0.2858	0.63	0.8838	0.1344	0.98	0.7891	0.0873
0.29	0.9878	0.2774	0.64	0.8804	0.1323	0.99	0.7871	0.0865
0.3	0.9874	0.2695	0.65	0.8771	0.1304	1	0.785	0.0856
0.31	0.9866	0.2619	0.66	0.8738	0.1284	1.01	0.783	0.0848
0.32	0.9854	0.2547	0.67	0.8705	0.1266	1.02	0.781	0.084
0.33	0.9839	0.2478	0.68	0.8673	0.1247	1.03	0.779	0.0832
0.34	0.982	0.2413	0.69	0.8641	0.123	1.04	0.7771	0.0824

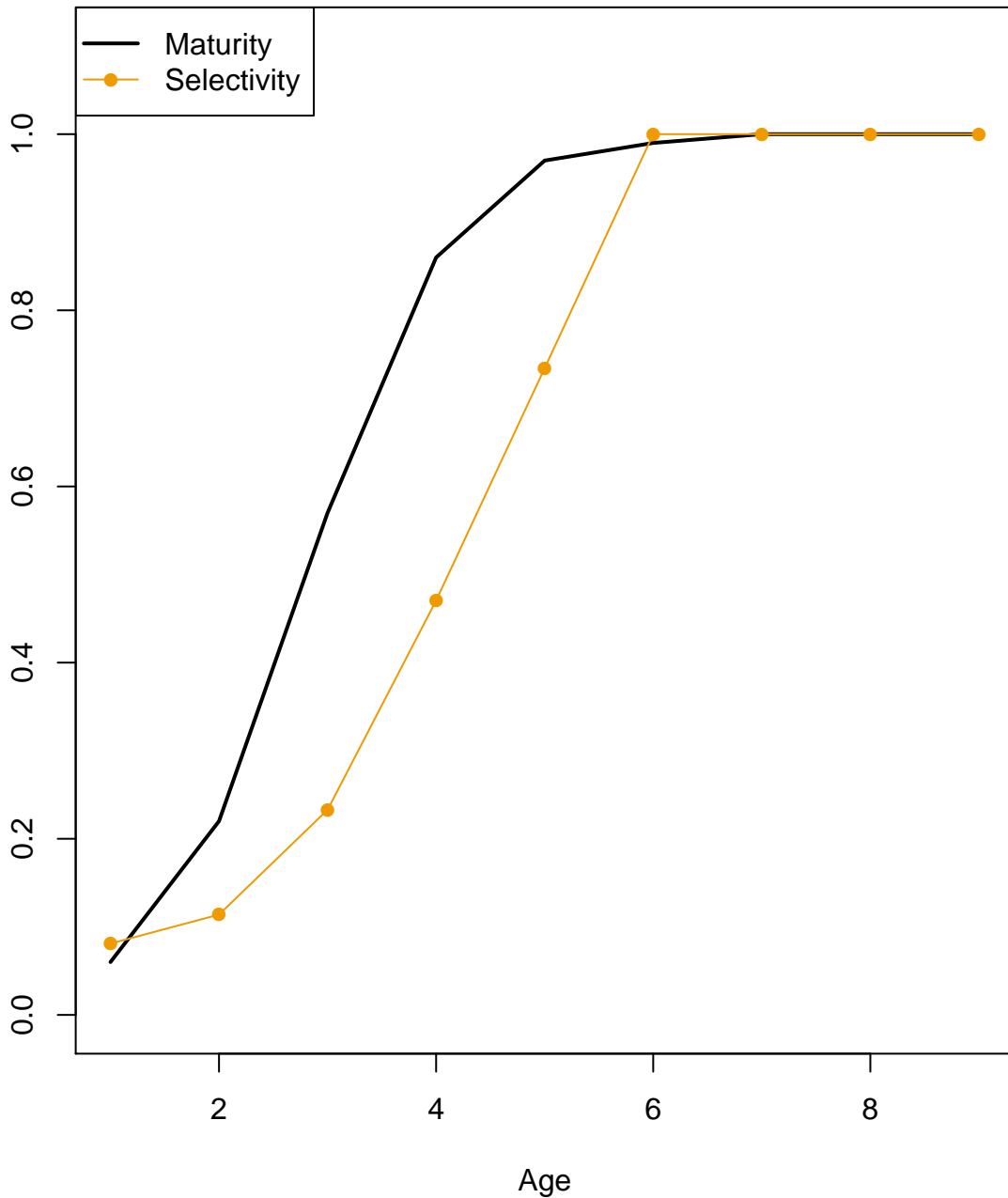
SPR Target Reference Points (Years Avg = 5)



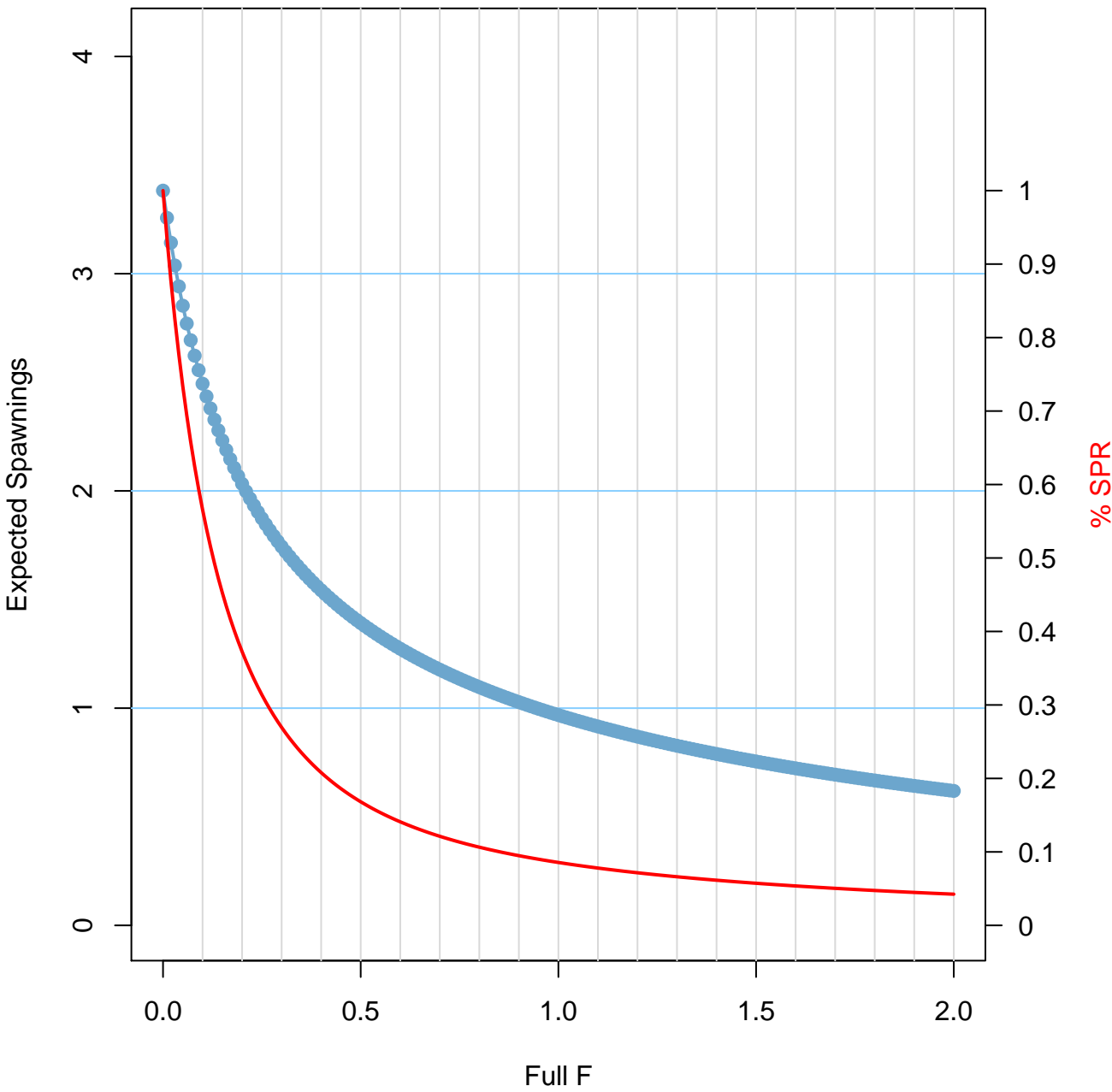
SPR Target Reference Points (Years Avg = 5)

% SPR	F(%SPR)	YPR
0.2	0.417	0.9603
0.25	0.3268	0.9844
0.3	0.2642	0.9861
0.35	0.2175	0.9701
0.4	0.181	0.9397
0.45	0.1514	0.8976
0.5	0.1269	0.8455
0.55	0.106	0.785
0.6	0.088	0.7173
0.65	0.0723	0.6433
0.7	0.0585	0.5638
0.75	0.0462	0.4793
0.8	0.0351	0.3905

Selectivity or Maturity at age



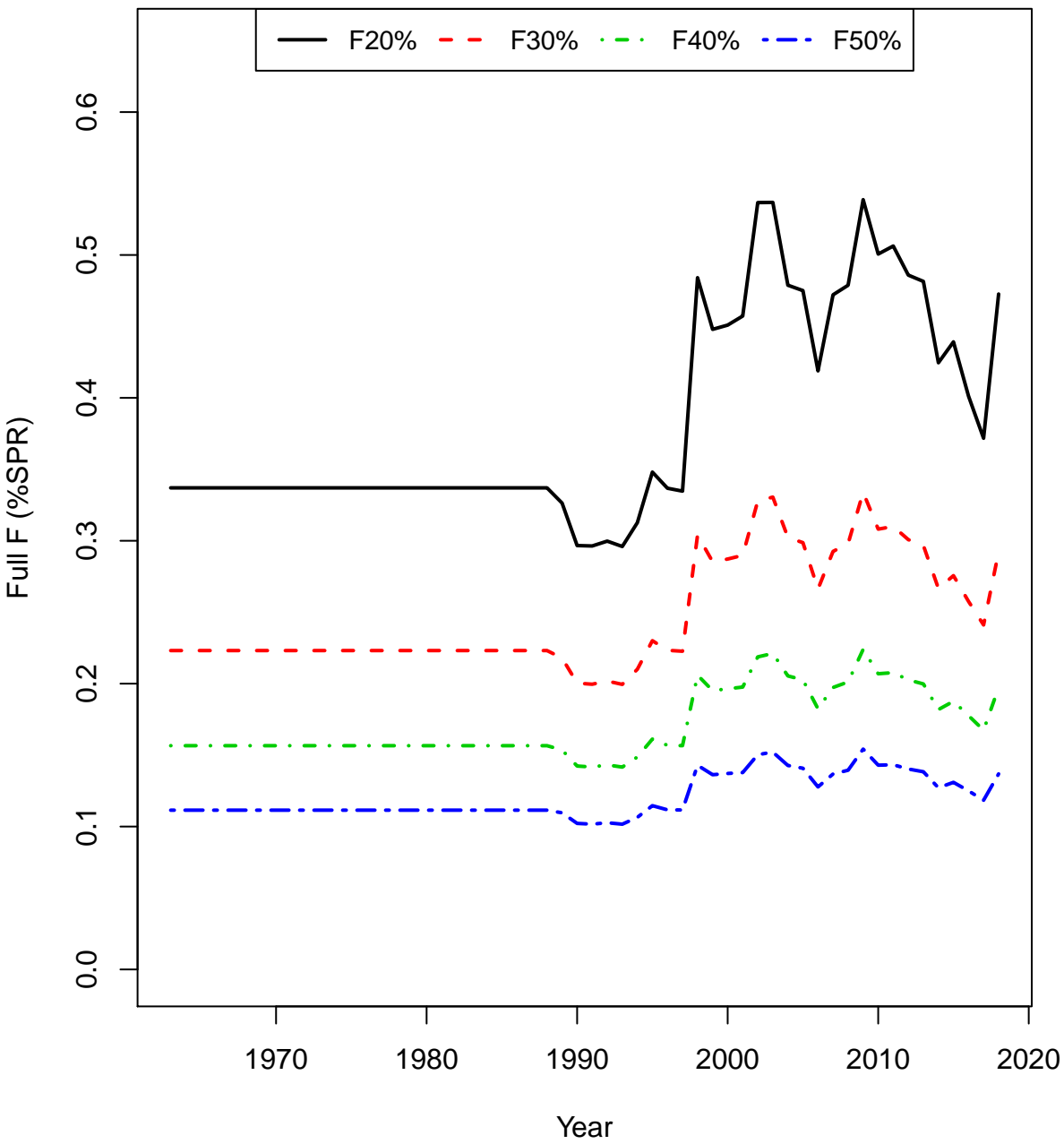
Expected Spawnings and SPR Reference Points (Years Avg = 5)



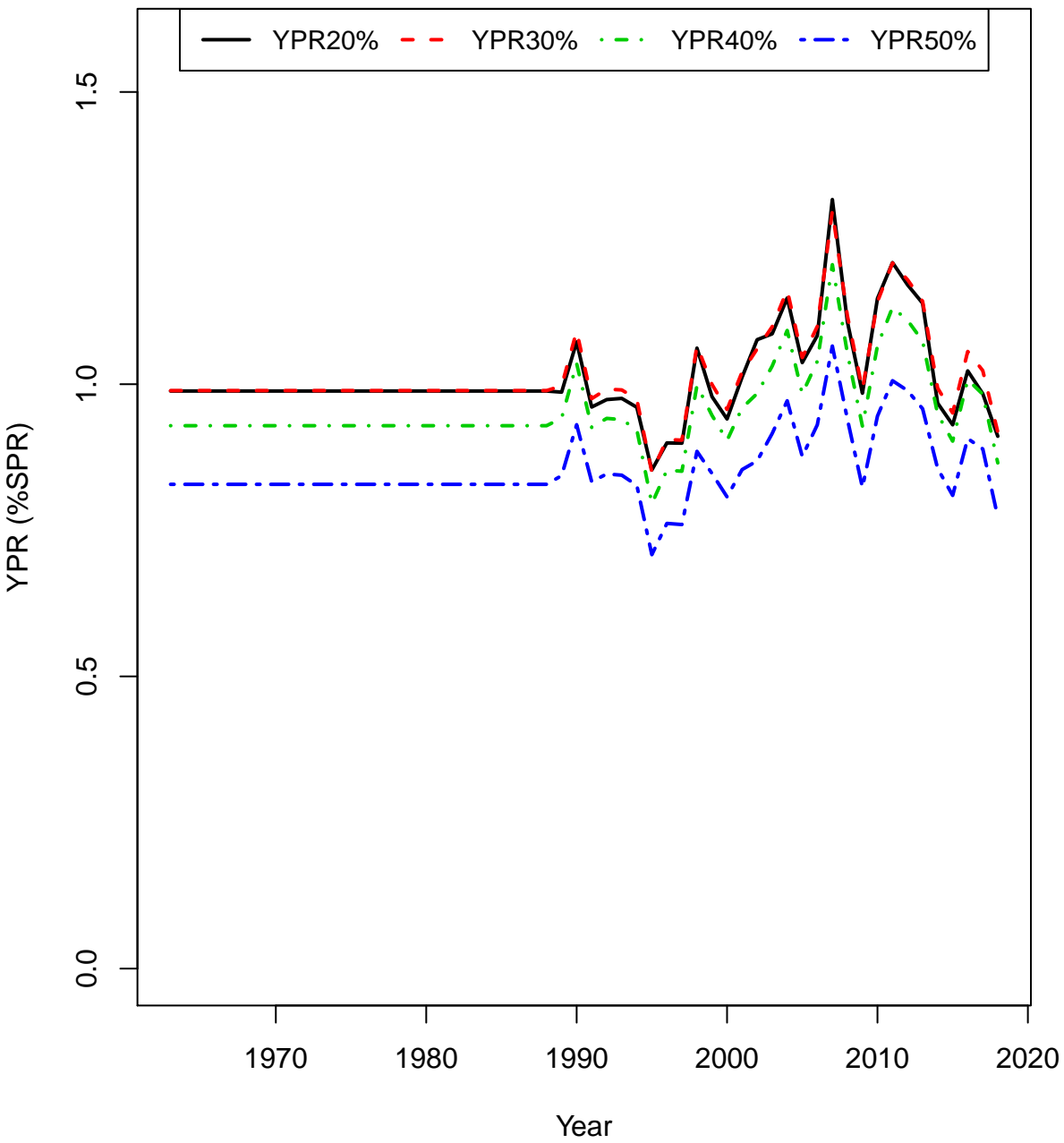
Expected Spawnings & SPR Reference Points (Years Avg = 5)

F	E[Sp]	SPR	F	E[Sp]	SPR	F	E[Sp]	SPR
0	3.3824	1	0.35	1.6353	0.2351	0.7	1.1773	0.1213
0.01	3.257	0.9354	0.36	1.6156	0.2292	0.71	1.1686	0.1196
0.02	3.1426	0.8773	0.37	1.5965	0.2235	0.72	1.16	0.118
0.03	3.0379	0.8248	0.38	1.578	0.2181	0.73	1.1516	0.1164
0.04	2.9415	0.7772	0.39	1.5601	0.2129	0.74	1.1434	0.1148
0.05	2.8526	0.7338	0.4	1.5426	0.2079	0.75	1.1353	0.1133
0.06	2.7703	0.6943	0.41	1.5257	0.2032	0.76	1.1273	0.1119
0.07	2.6938	0.658	0.42	1.5092	0.1986	0.77	1.1195	0.1105
0.08	2.6226	0.6248	0.43	1.4932	0.1943	0.78	1.1118	0.1091
0.09	2.556	0.5942	0.44	1.4776	0.1901	0.79	1.1042	0.1077
0.1	2.4936	0.5659	0.45	1.4624	0.1861	0.8	1.0967	0.1064
0.11	2.435	0.5398	0.46	1.4476	0.1822	0.81	1.0893	0.1051
0.12	2.3799	0.5156	0.47	1.4332	0.1785	0.82	1.0821	0.1039
0.13	2.3279	0.4931	0.48	1.4191	0.175	0.83	1.0749	0.1027
0.14	2.2788	0.4722	0.49	1.4054	0.1715	0.84	1.0679	0.1015
0.15	2.2324	0.4527	0.5	1.392	0.1682	0.85	1.061	0.1003
0.16	2.1883	0.4345	0.51	1.3789	0.165	0.86	1.0542	0.0992
0.17	2.1464	0.4175	0.52	1.3661	0.162	0.87	1.0475	0.0981
0.18	2.1066	0.4016	0.53	1.3537	0.159	0.88	1.0408	0.097
0.19	2.0687	0.3866	0.54	1.3415	0.1562	0.89	1.0343	0.0959
0.2	2.0325	0.3726	0.55	1.3295	0.1534	0.9	1.0279	0.0949
0.21	1.9979	0.3594	0.56	1.3179	0.1507	0.91	1.0215	0.0939
0.22	1.9649	0.347	0.57	1.3065	0.1482	0.92	1.0153	0.0929
0.23	1.9332	0.3353	0.58	1.2953	0.1457	0.93	1.0091	0.0919
0.24	1.9029	0.3243	0.59	1.2843	0.1433	0.94	1.003	0.0909
0.25	1.8737	0.3138	0.6	1.2736	0.1409	0.95	0.997	0.09
0.26	1.8458	0.304	0.61	1.2631	0.1387	0.96	0.9911	0.0891
0.27	1.8188	0.2947	0.62	1.2528	0.1365	0.97	0.9852	0.0882
0.28	1.7929	0.2858	0.63	1.2428	0.1344	0.98	0.9795	0.0873
0.29	1.768	0.2774	0.64	1.2329	0.1323	0.99	0.9738	0.0865
0.3	1.7439	0.2695	0.65	1.2232	0.1304	1	0.9681	0.0856
0.31	1.7207	0.2619	0.66	1.2136	0.1284	1.01	0.9626	0.0848
0.32	1.6982	0.2547	0.67	1.2043	0.1266	1.02	0.9571	0.084
0.33	1.6766	0.2478	0.68	1.1951	0.1247	1.03	0.9517	0.0832
0.34	1.6556	0.2413	0.69	1.1861	0.123	1.04	0.9464	0.0824

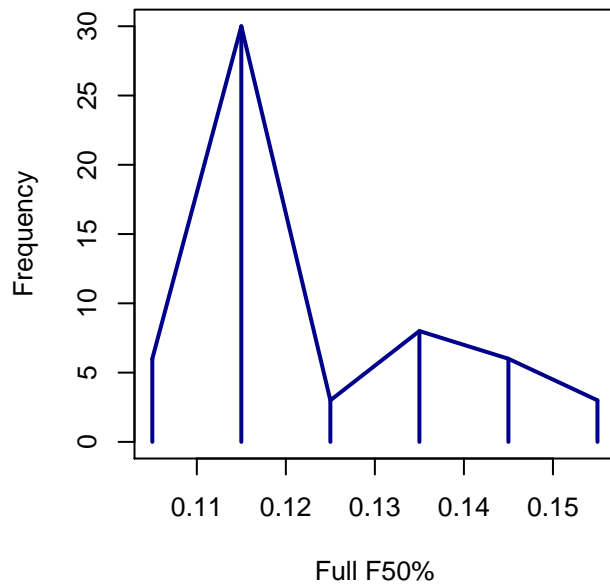
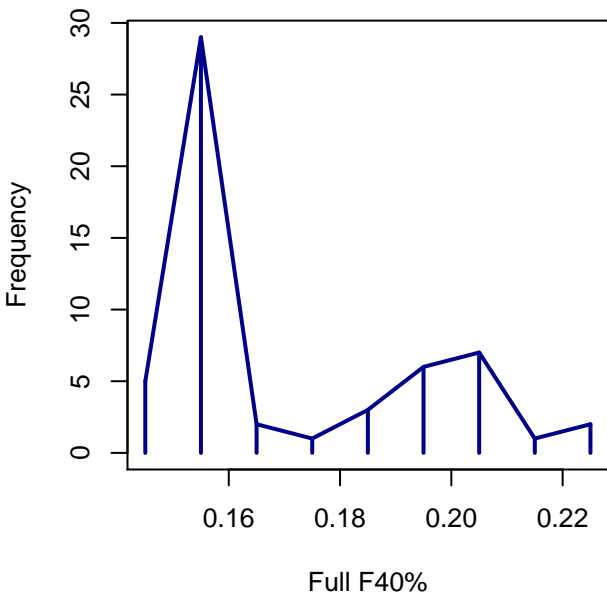
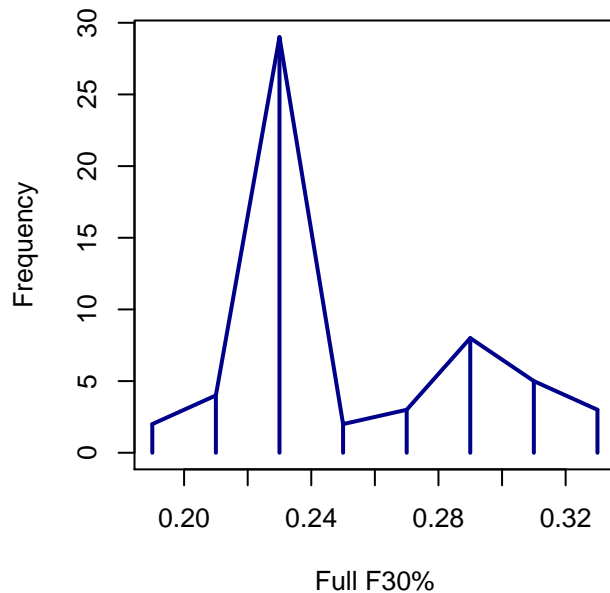
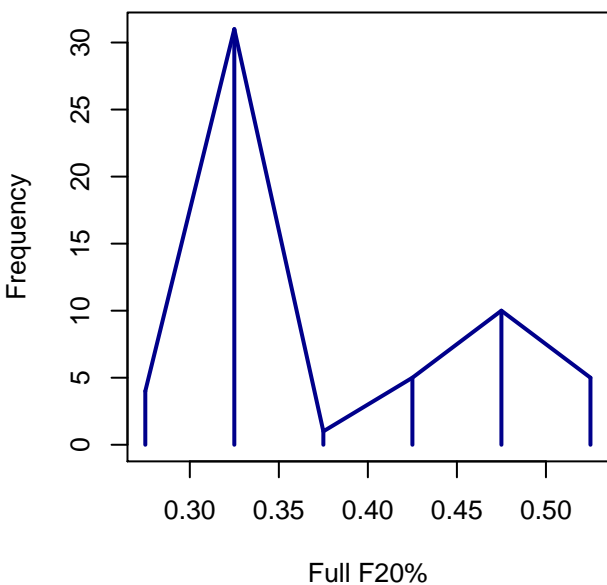
Annual F(%SPR) Reference Points



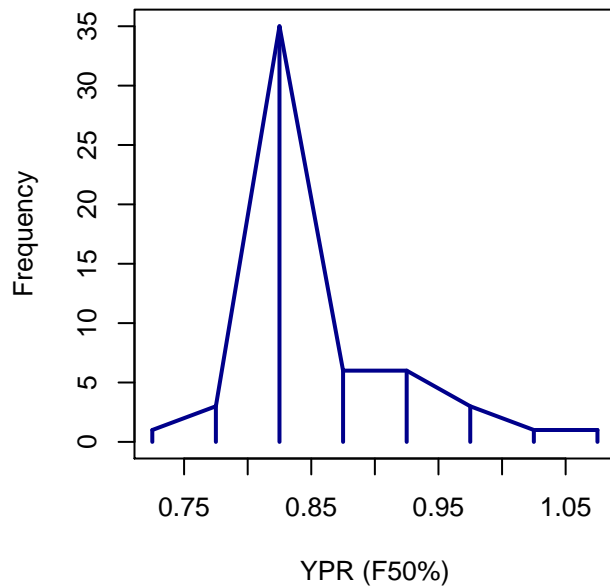
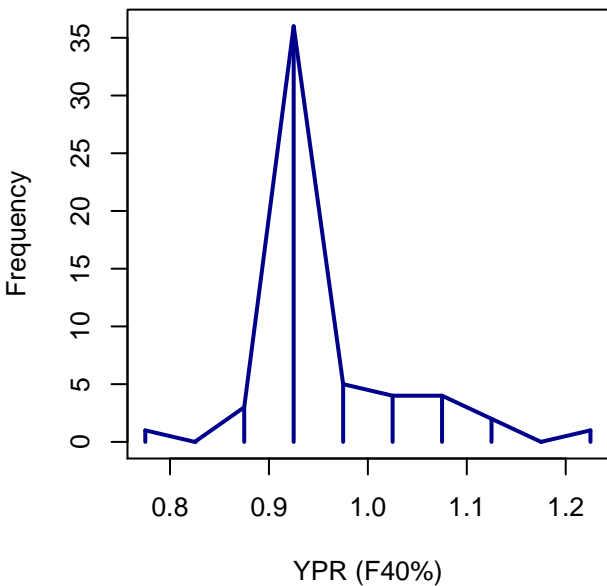
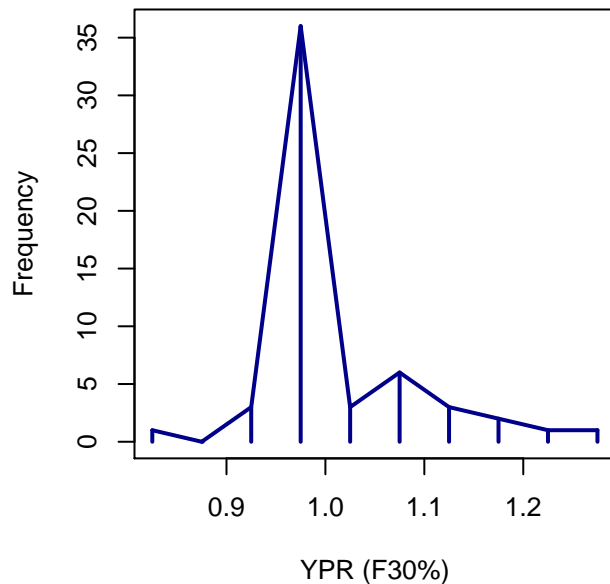
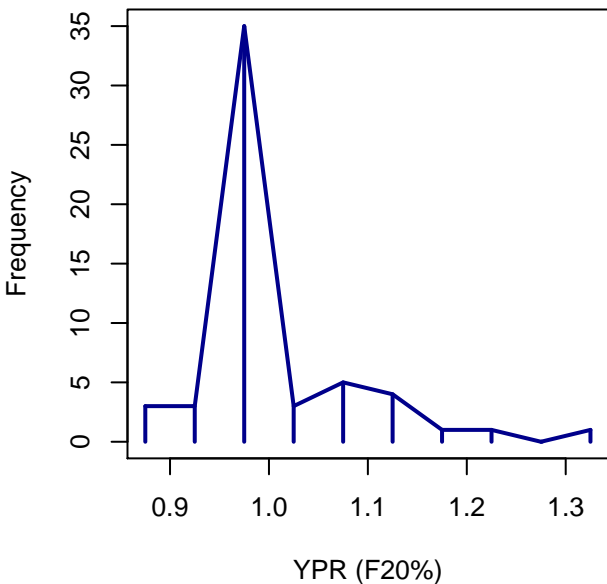
Annual YPR(%SPR) Reference Points

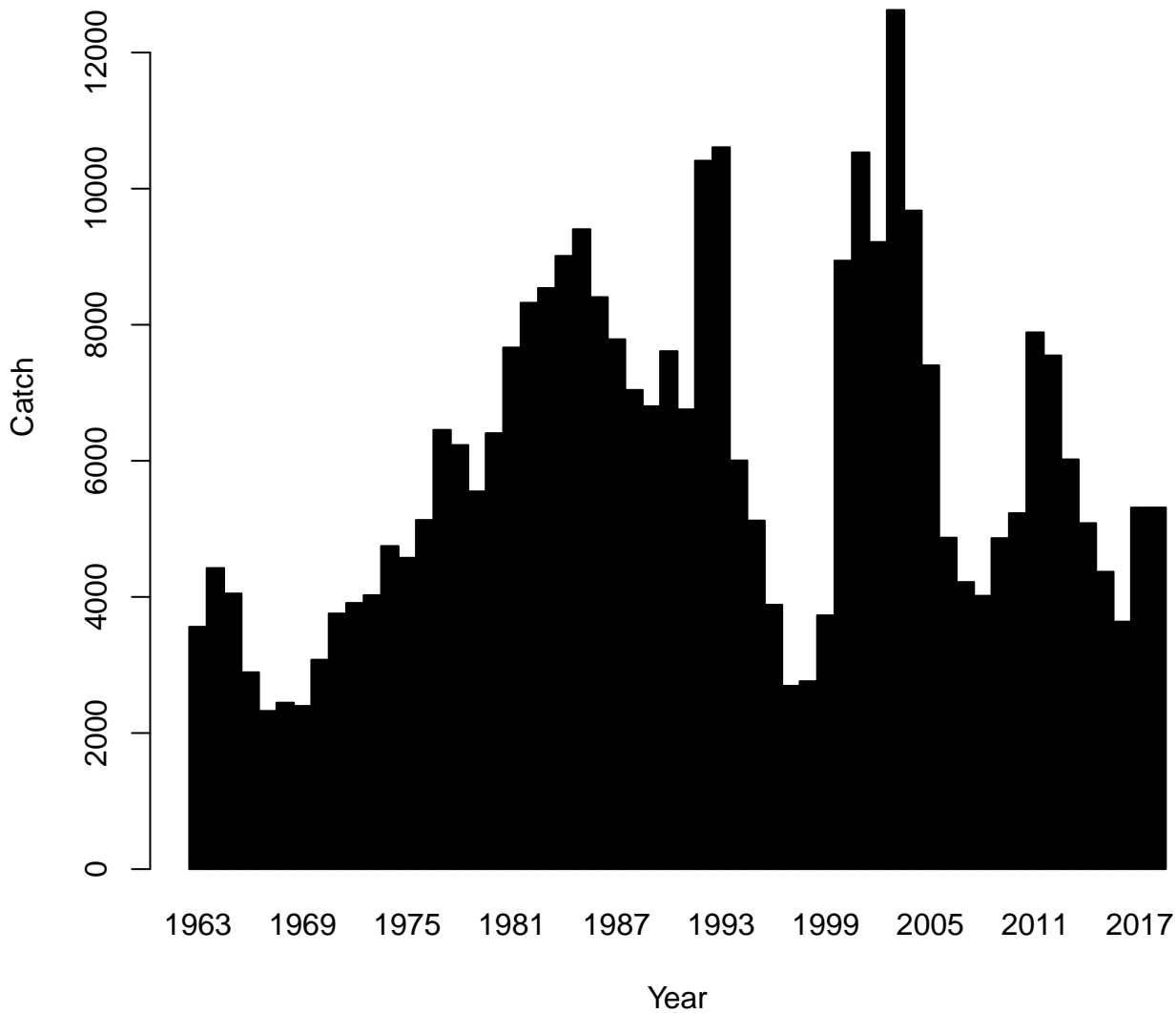


Annual F (%SPR) Reference Points



Annual YPR (%SPR) Reference Points





Age Comps for Catch by Fleet 1 (FLEET-1)





Age Comps for Index 1 (INDEX-1)

• 0.05 • 0.2 • 0.4

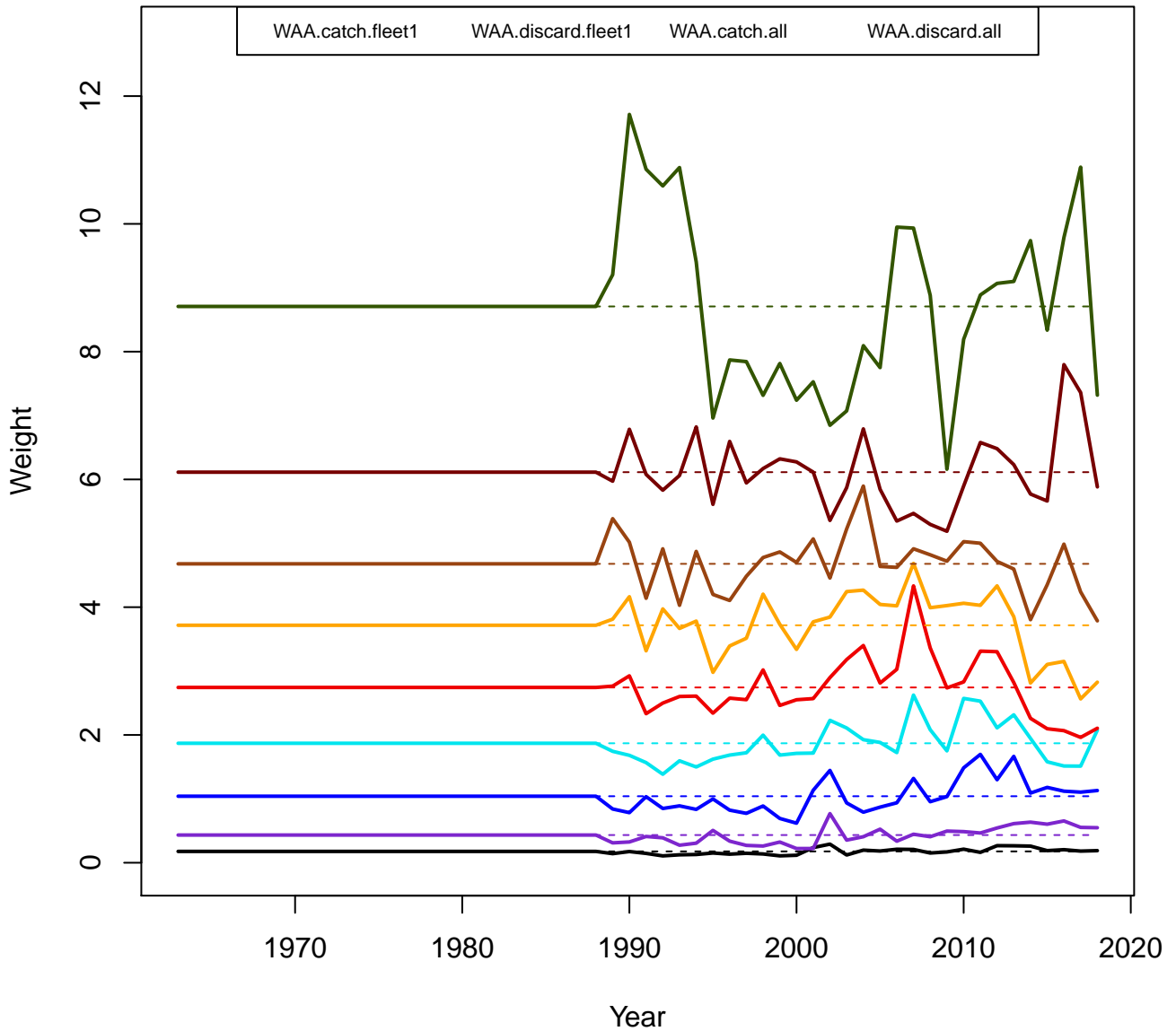


Age

Age Comps for Index 2 (INDEX-2)



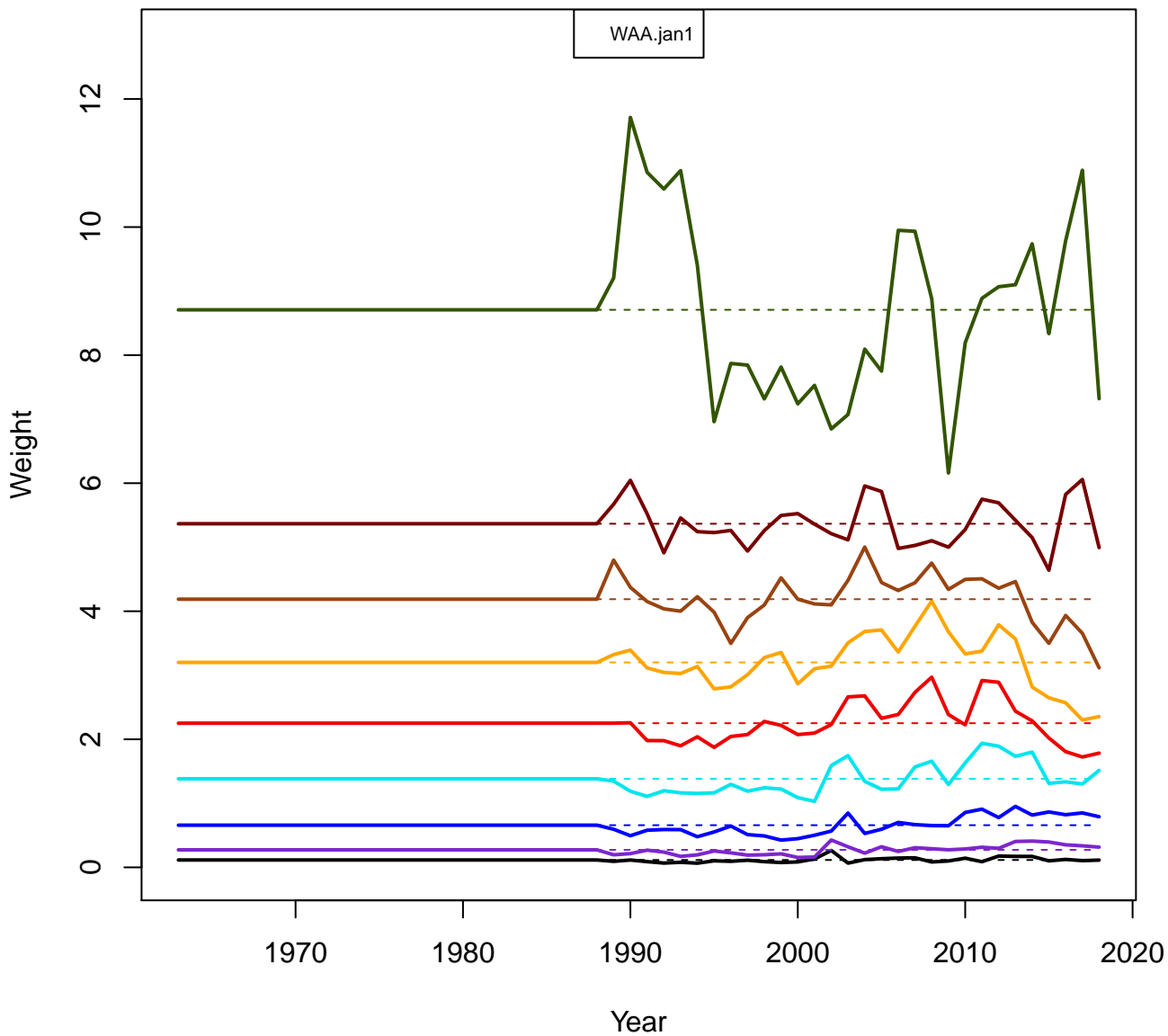
WAA matrix 1



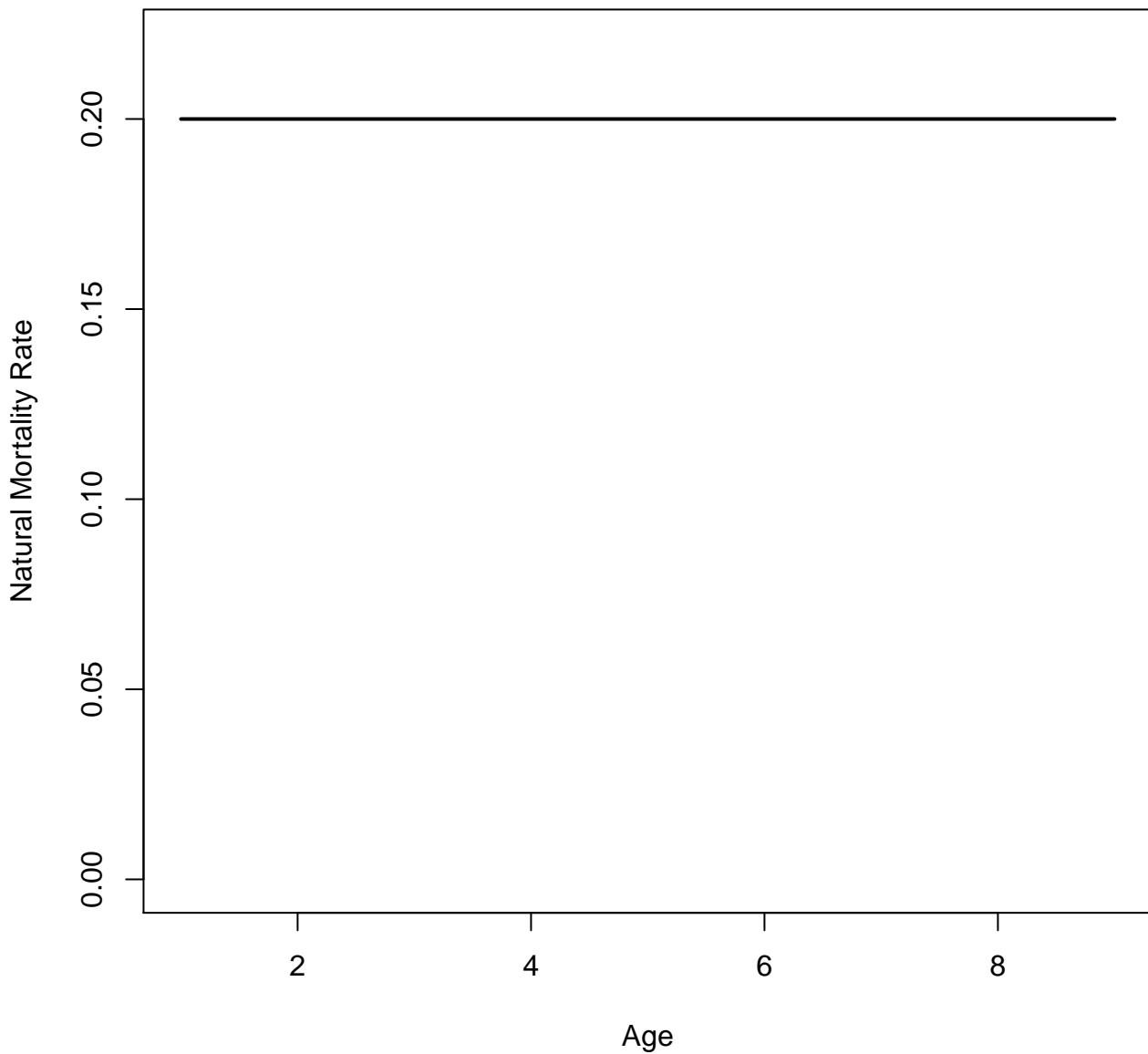
WAA matrix 2



WAA matrix 3



M



Maturity

