

File = y2000r0c1m2.4s000001111_000.dat

ASAP3 run on Monday, 04 Nov 2019 at 11:27:45

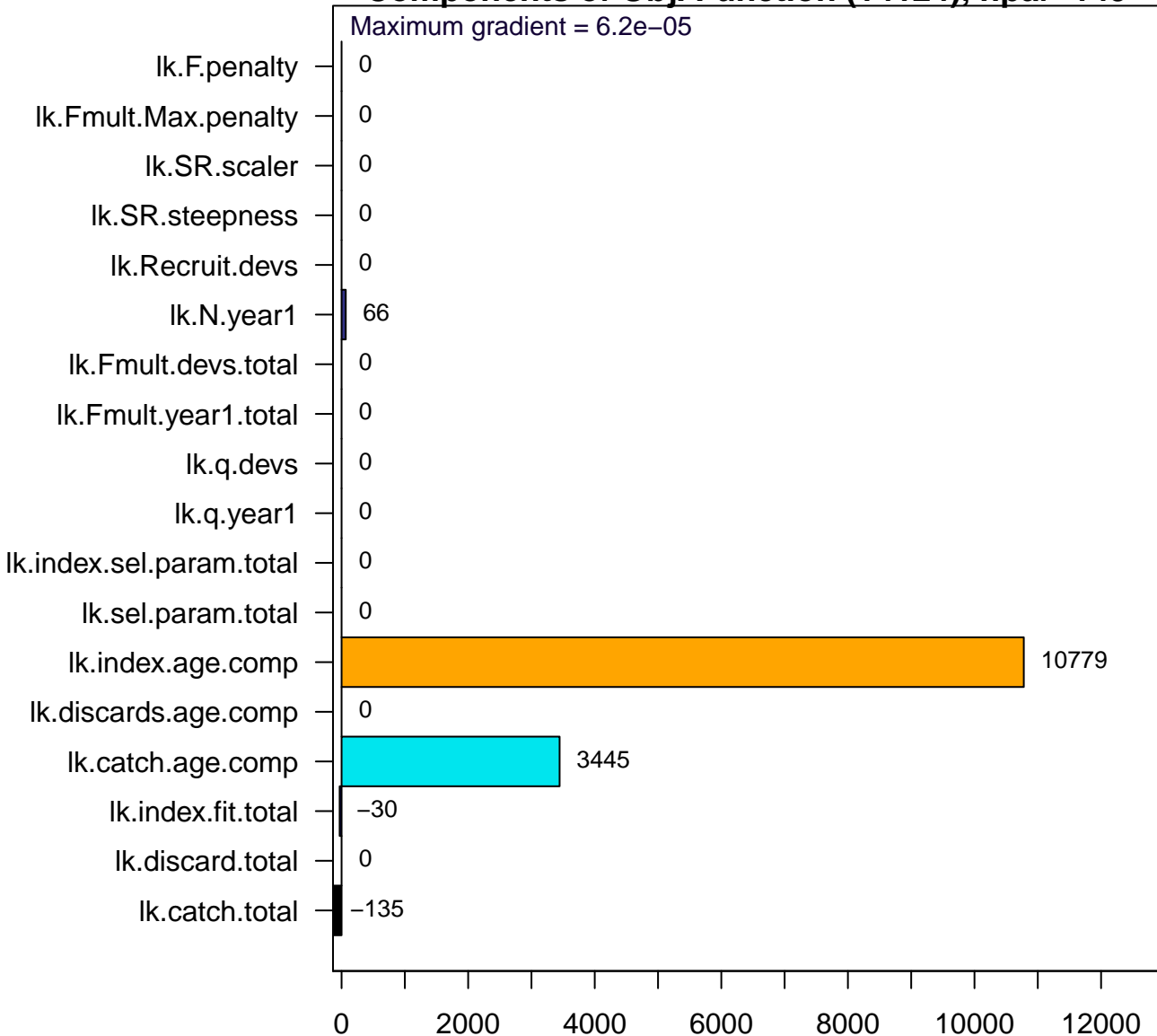
chris.legault\Documents\Working\ICES-WKFORBIAS 2019\WhiteHake\Rose\w

ASAPplots version = 0.2.14

npar = 149, maximum gradient = 6.23991×10^{-5}

Components of Obj. Function (14124), npar=149

Maximum gradient = 6.2×10^{-5}

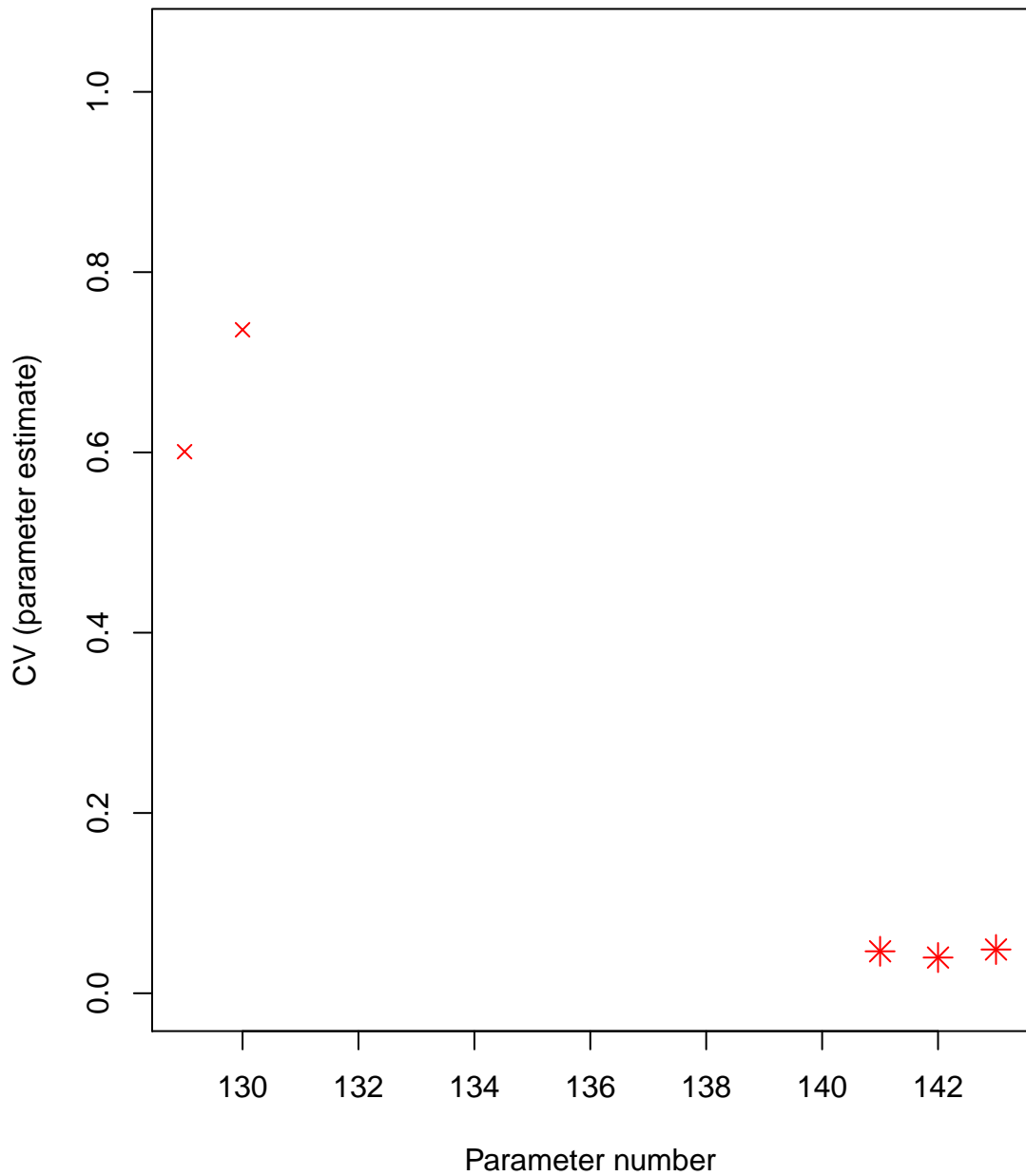


Likelihood Contribution

Model: y2000r0c1m2.4s000001111_000

Monday, 04 Nov 2019 at 11:27

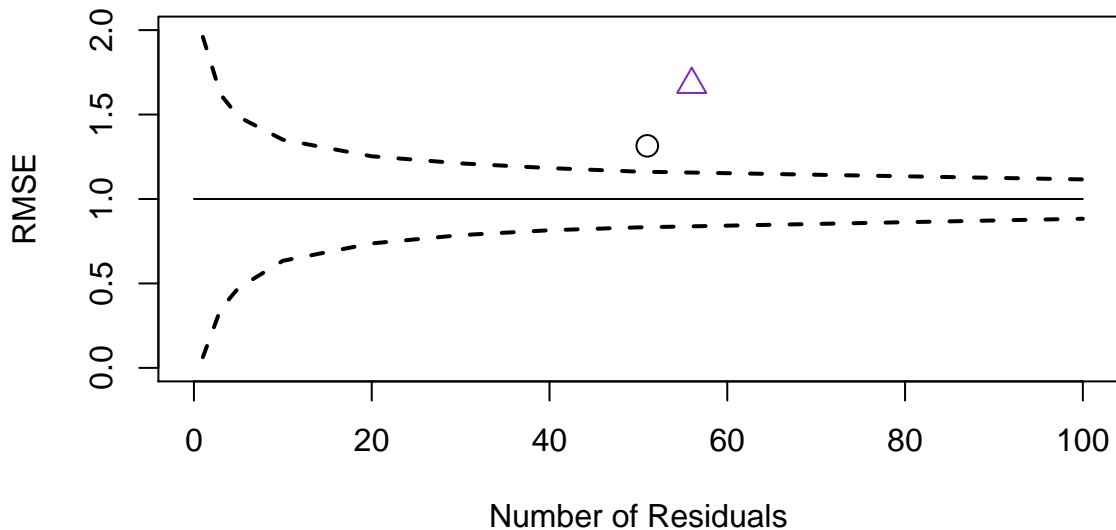




Root Mean Square Error computed from Standardized Residuals

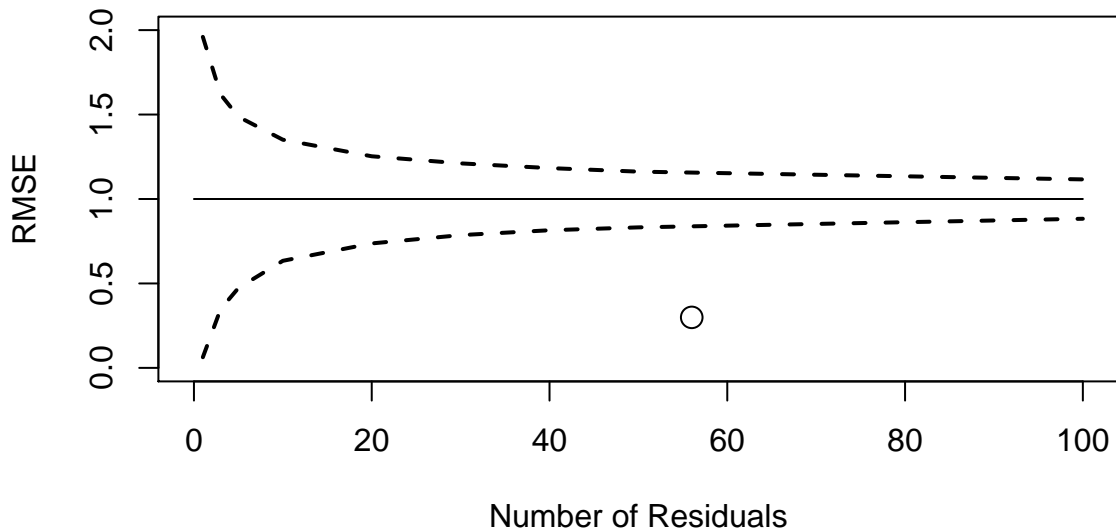
Component	# resids	RMSE
catch.tot	56	0.299
discard.tot	0	0
ind01	51	1.32
ind02	56	1.68
ind.total	107	1.52
N.year1	8	0.589
Fmult.year1	0	0
Fmult.devs.total	0	0
recruit.devs	0	0
fleet.sel.params	0	0
index.sel.params	0	0
q.year1	0	0
q.devs	0	0
SR.steepness	0	0
SR.scaler	0	0

Root Mean Square Error for Indices



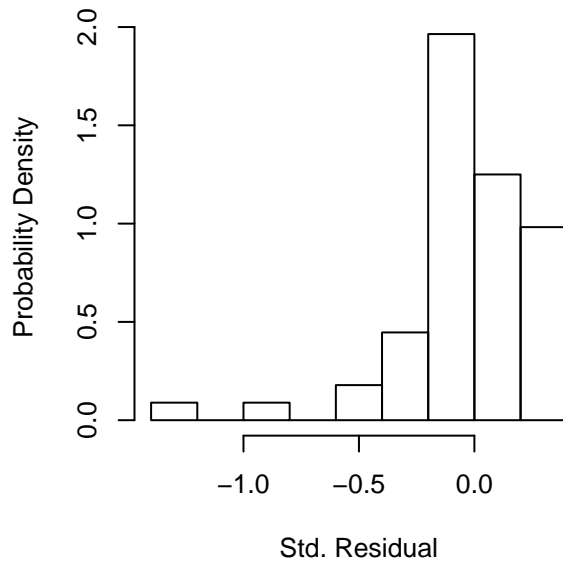
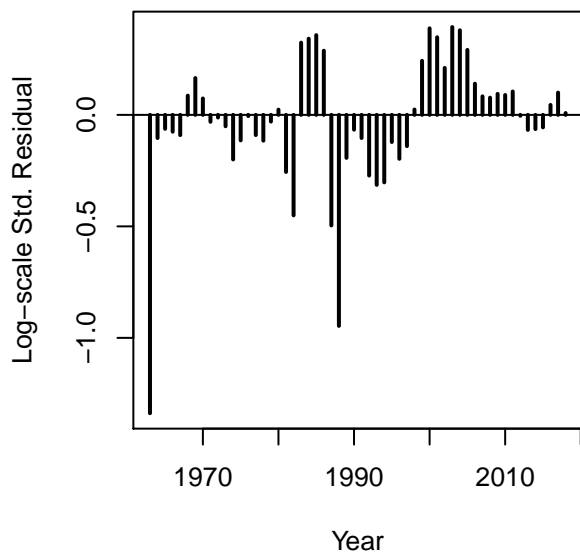
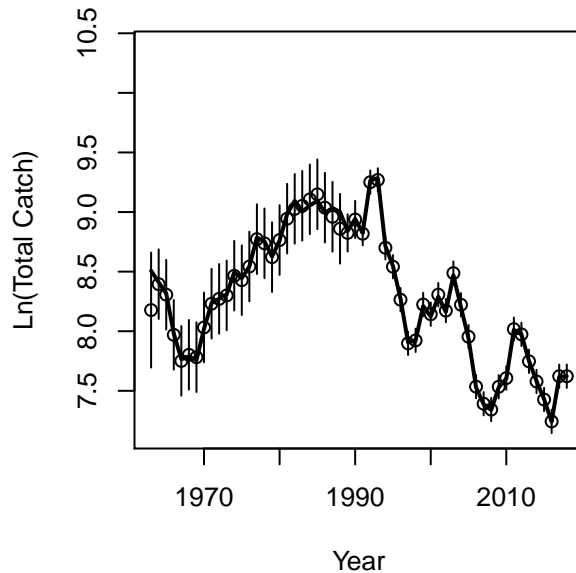
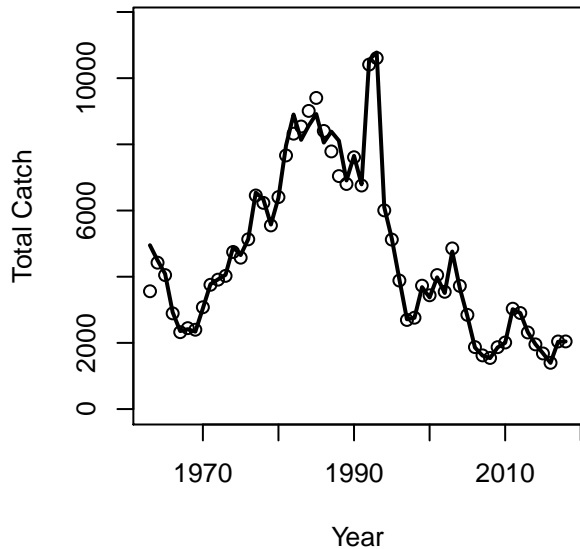
+ ind total
△ INDEX-2
○ INDEX-1

Root Mean Square Error for Catch



○ catch.tot

Fleet 1 Catch (FLEET-1)

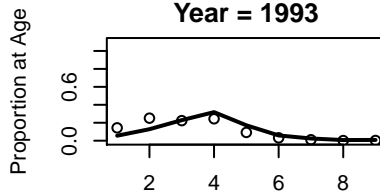


Catch

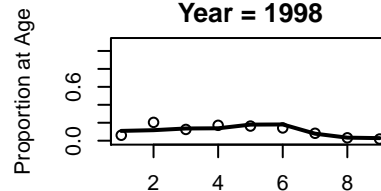
Fleet 1
FLEET-1



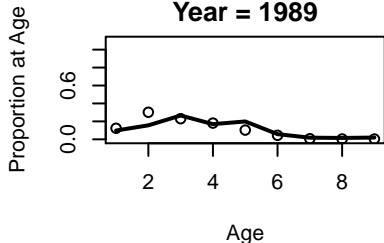
Year = 1993



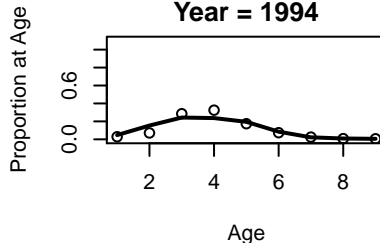
Year = 1998



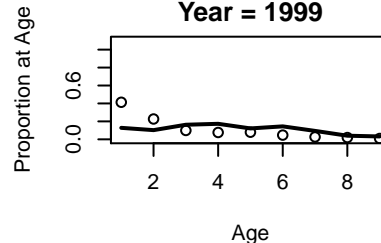
Year = 1989



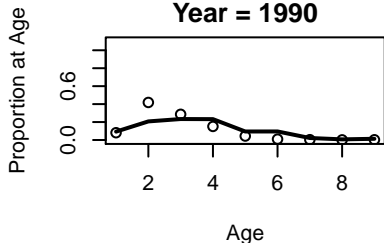
Year = 1994



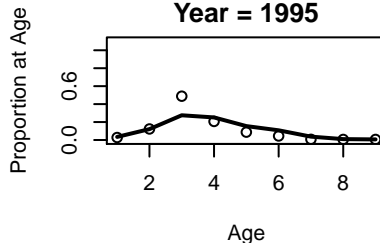
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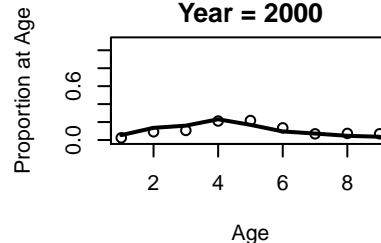
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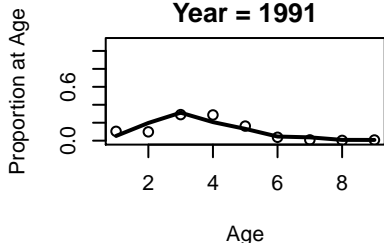
Year = 1995



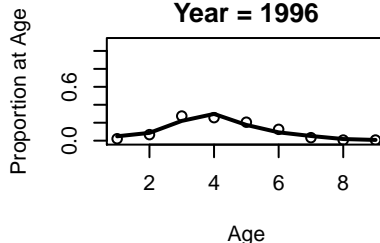
Year = 2000



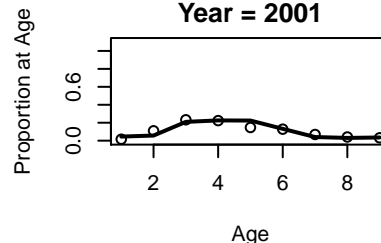
Year = 1991



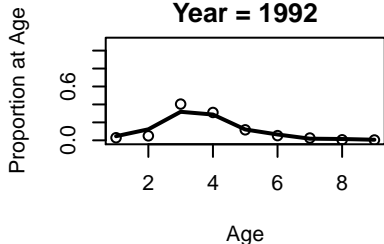
Year = 1996



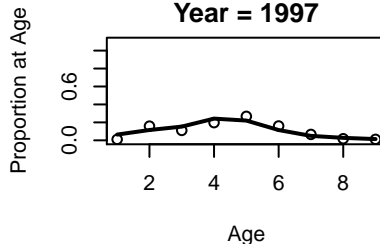
Year = 2001



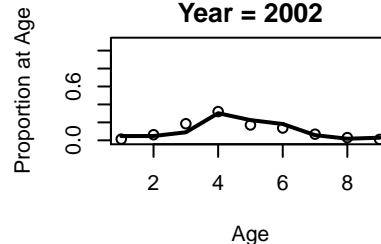
Year = 1992



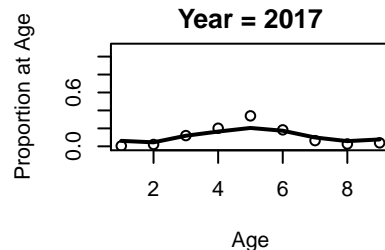
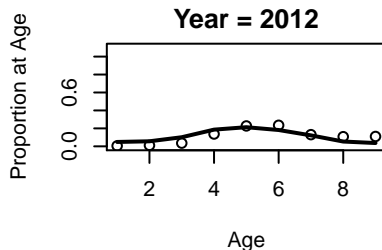
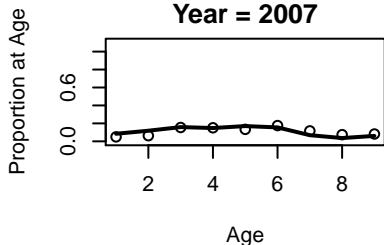
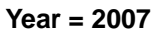
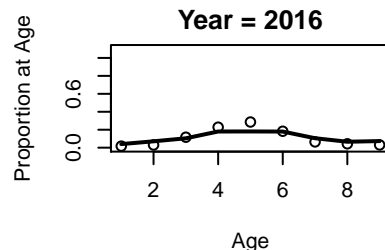
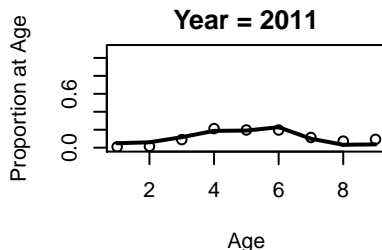
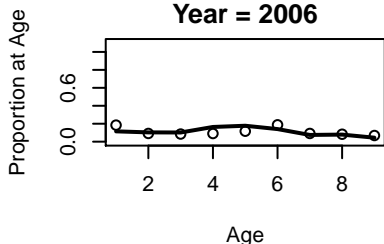
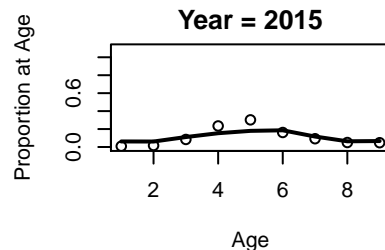
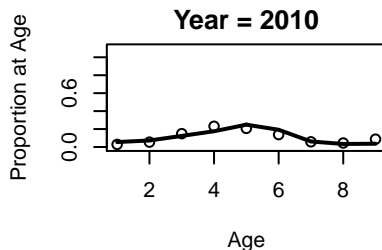
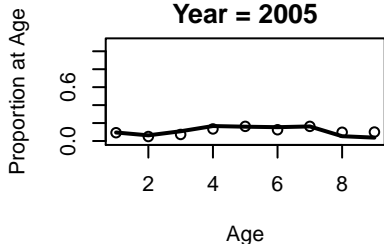
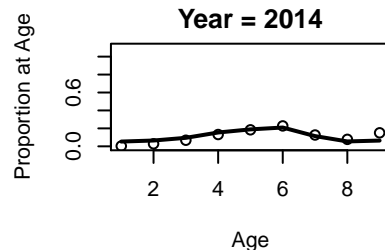
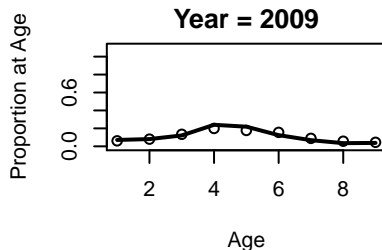
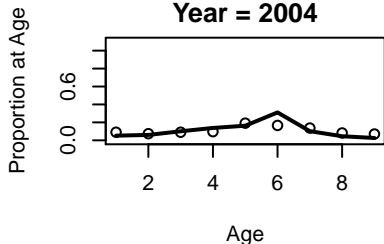
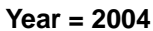
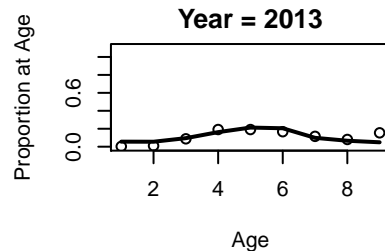
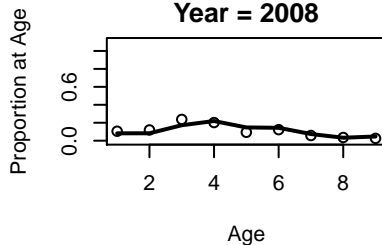
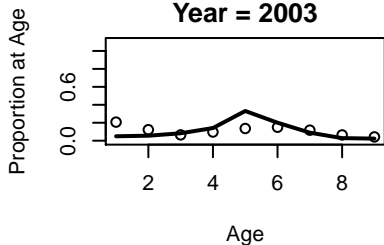
Year = 1997



Year = 2002



Year = 2008



Year = 2018

Proportion at Age

0.0 0.6

2

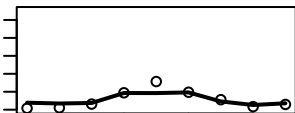
4

6

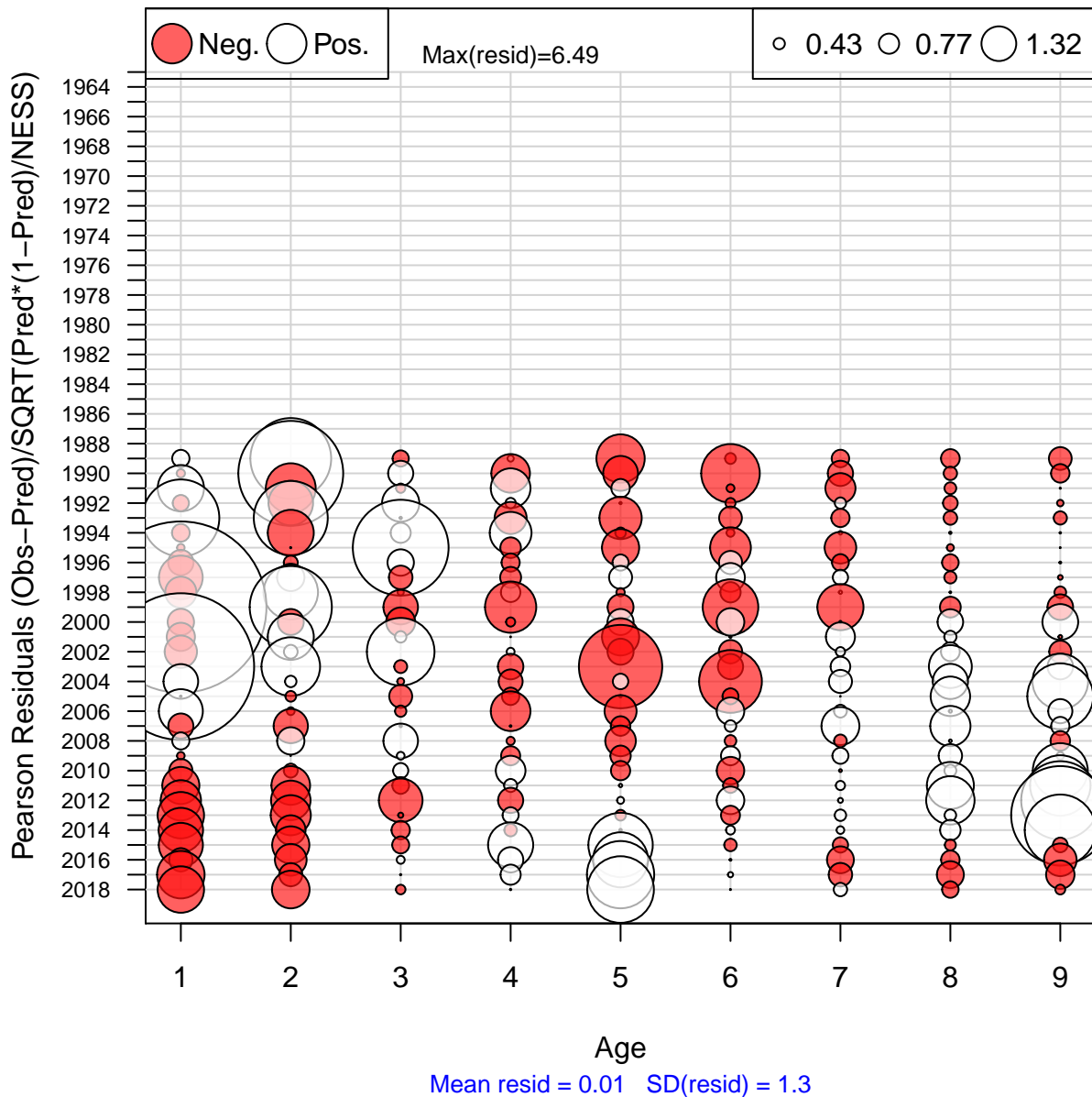
8

Age

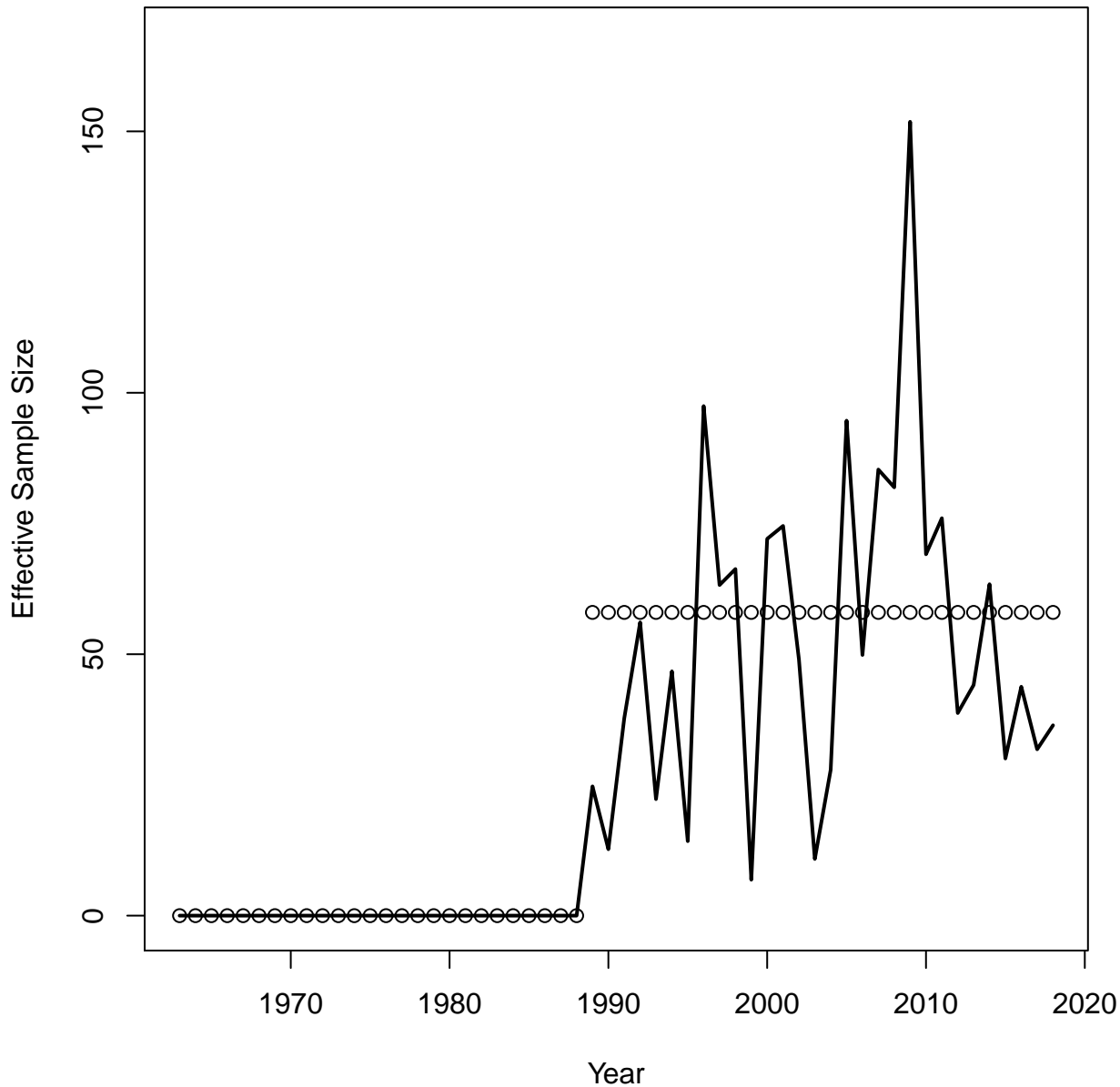
Catch



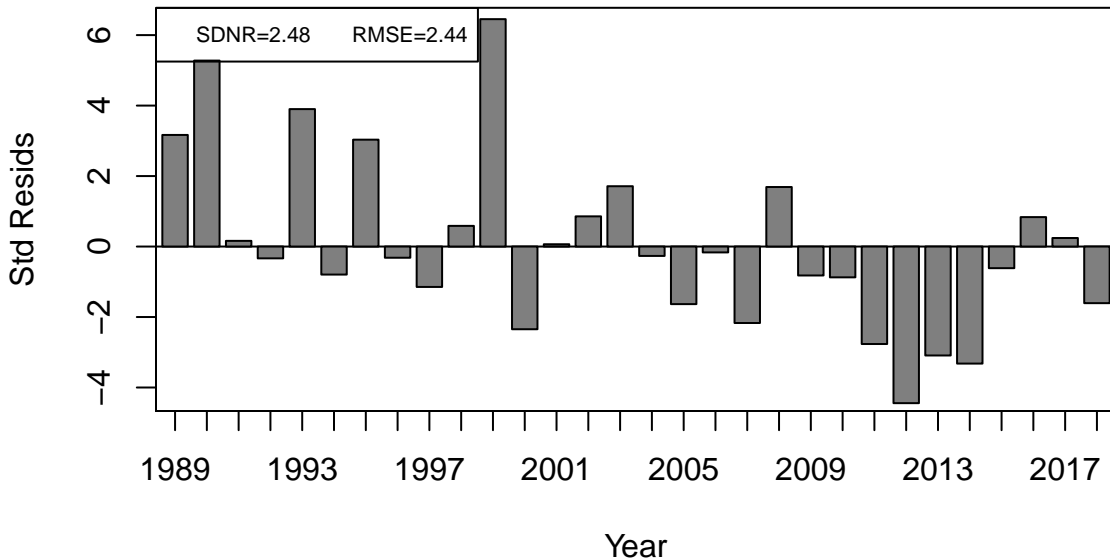
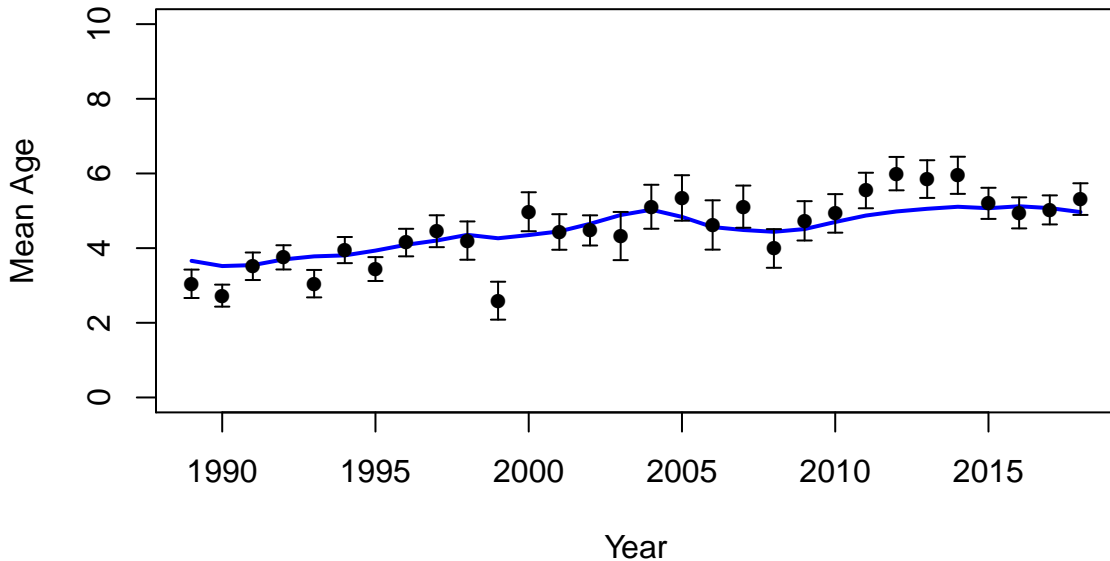
Age Comp Residuals for Catch by Fleet 1 (FLEET-1)



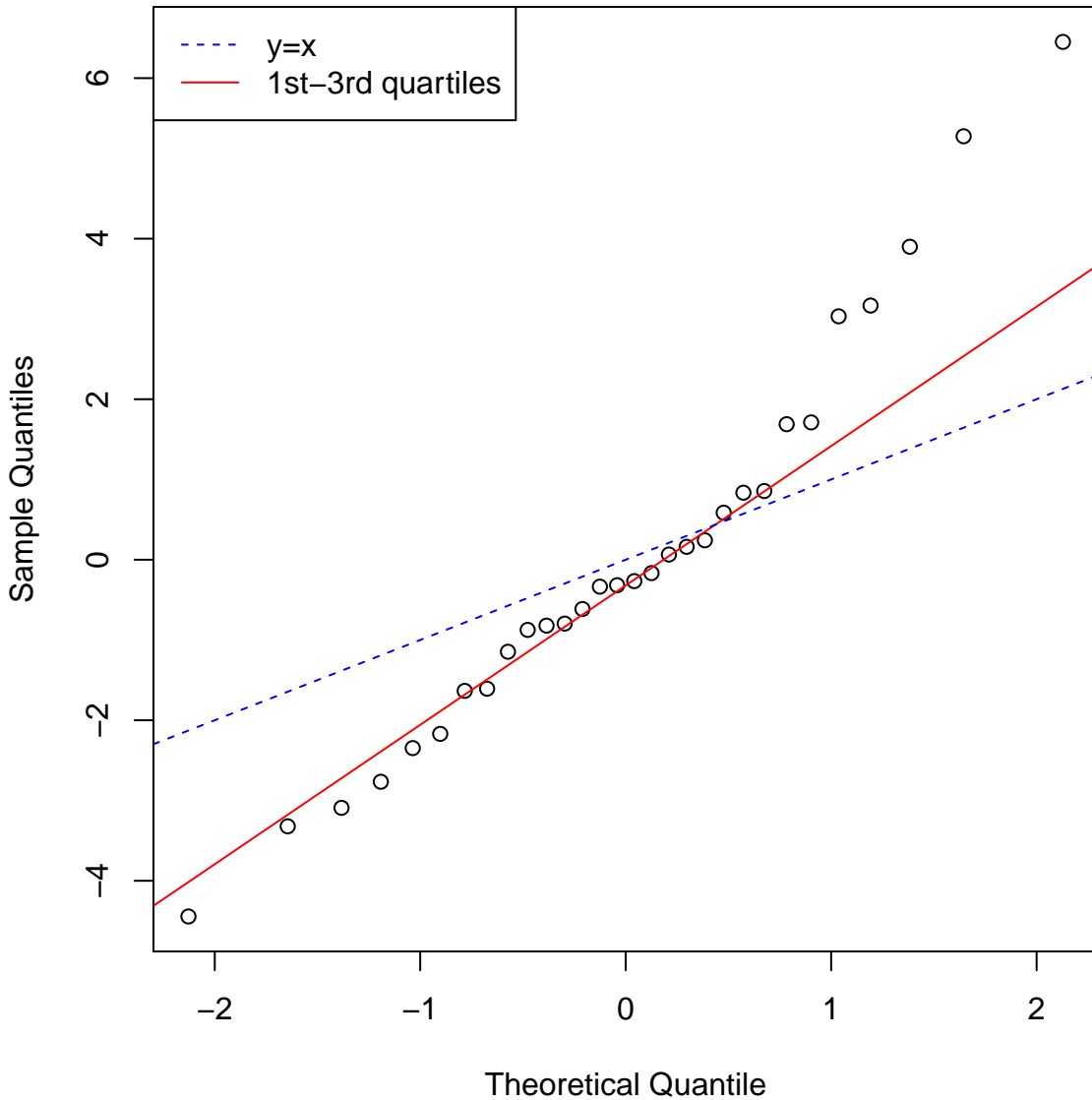
Catch Neff Fleet 1 (FLEET-1)



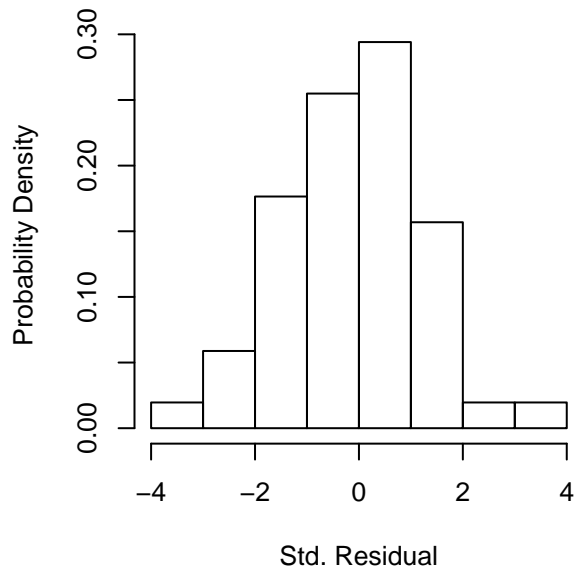
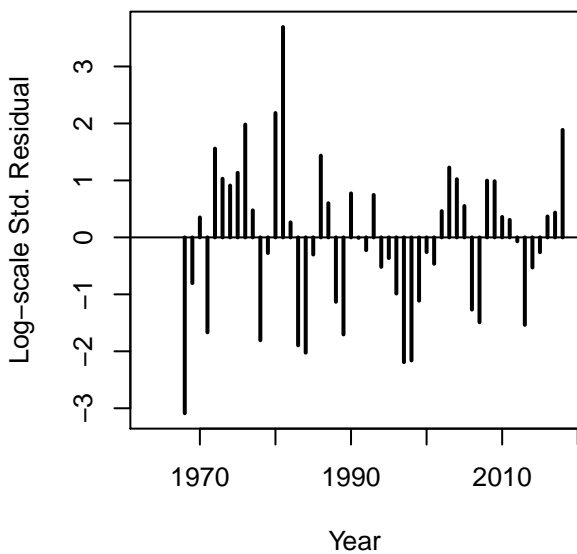
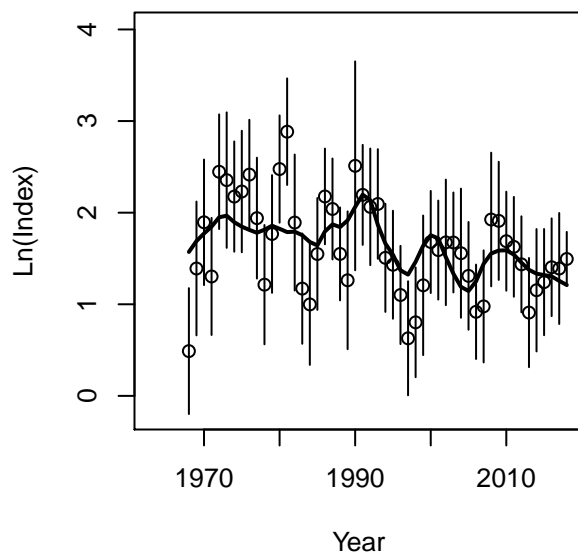
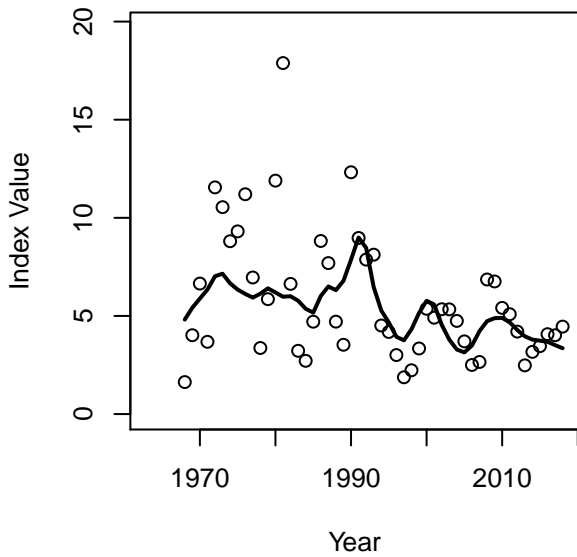
Catch Fleet 1 (FLEET-1) ESS = 58



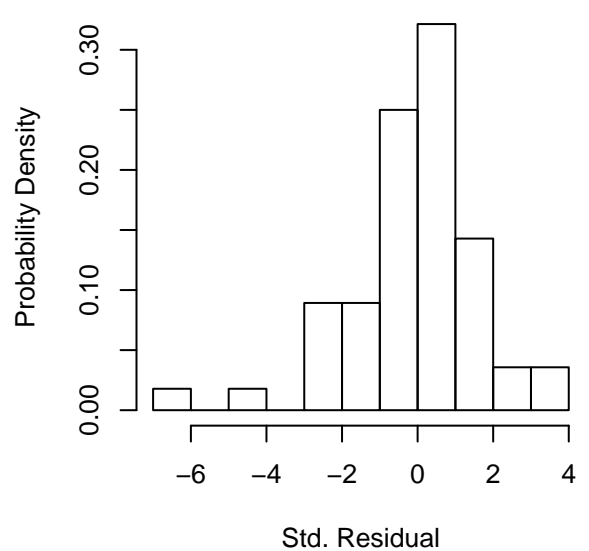
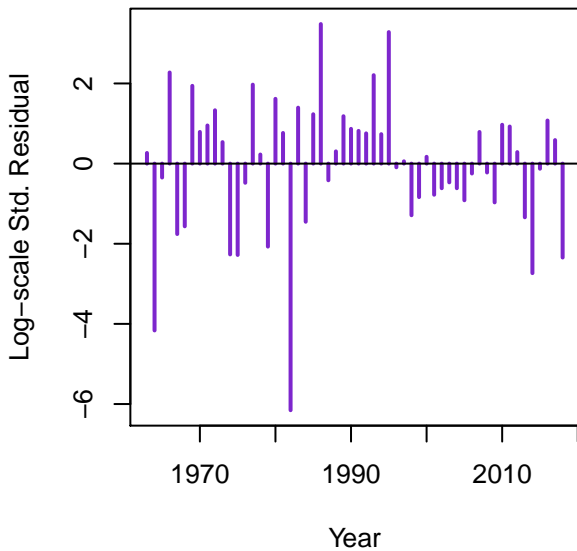
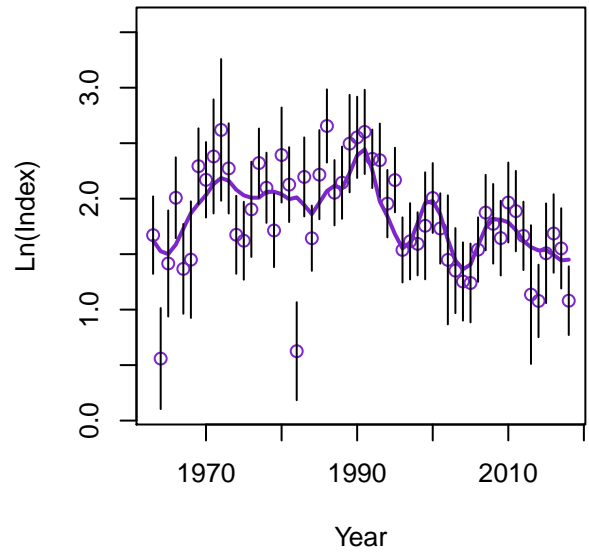
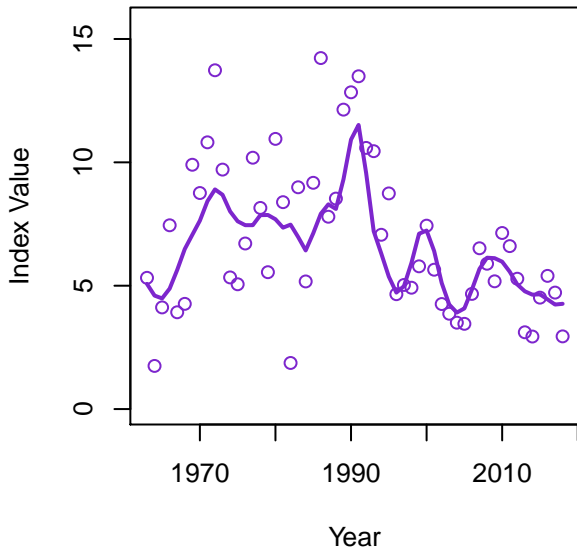
Catch Fleet 1 (FLEET-1) ESS = 58



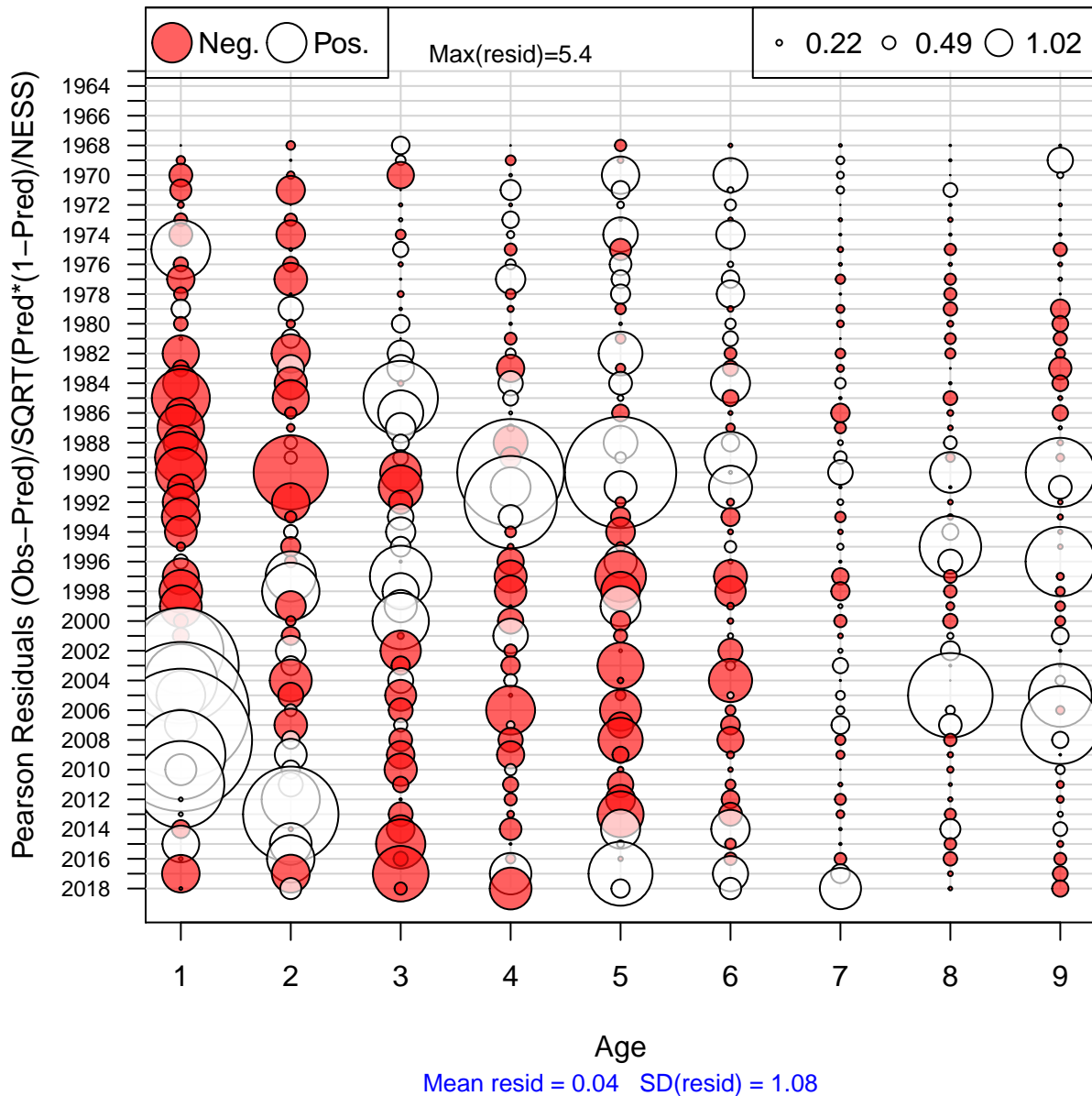
Index 1 (INDEX-1)



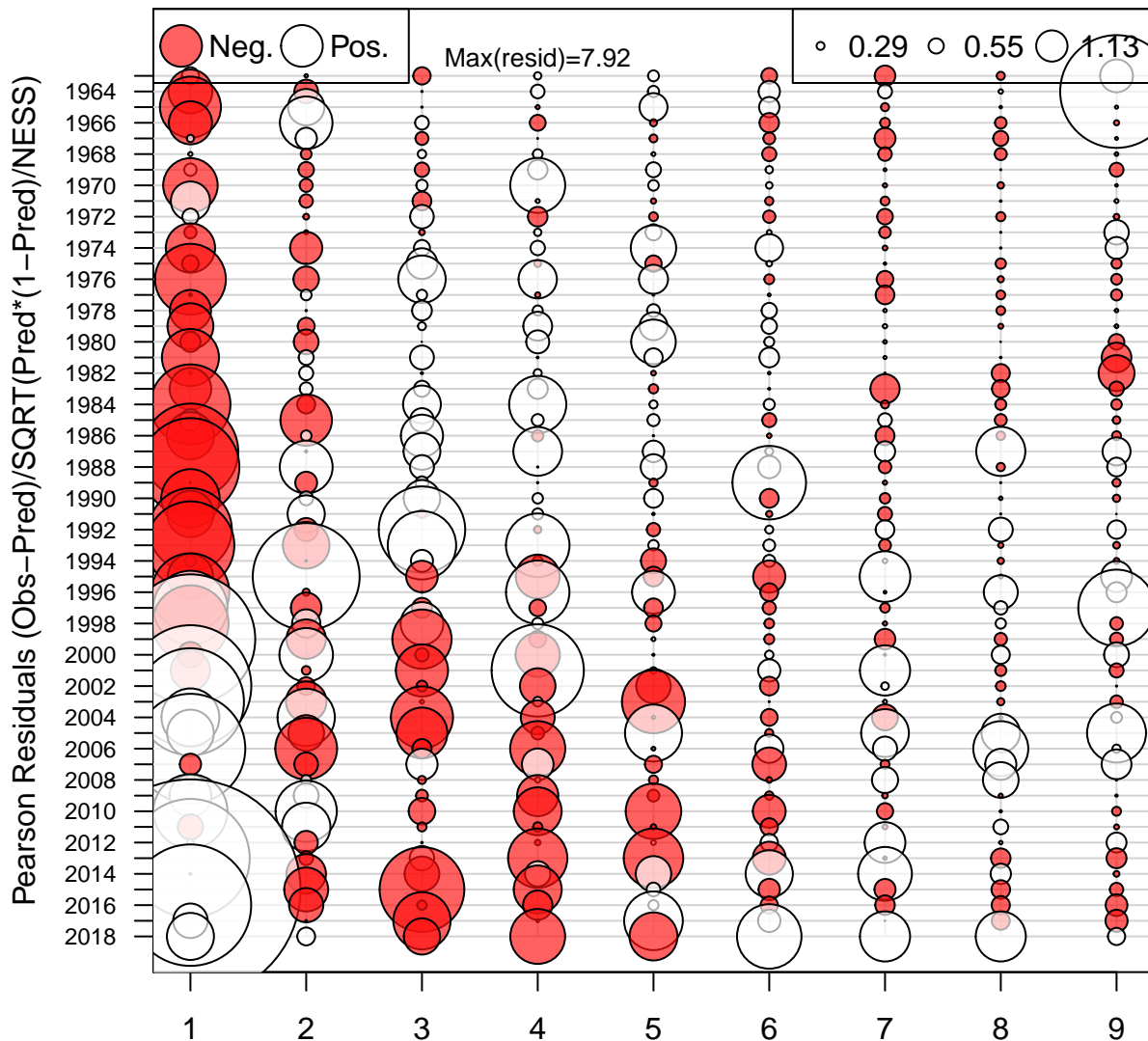
Index 2 (INDEX-2)



Age Comp Residuals for Index 1 (INDEX-1)



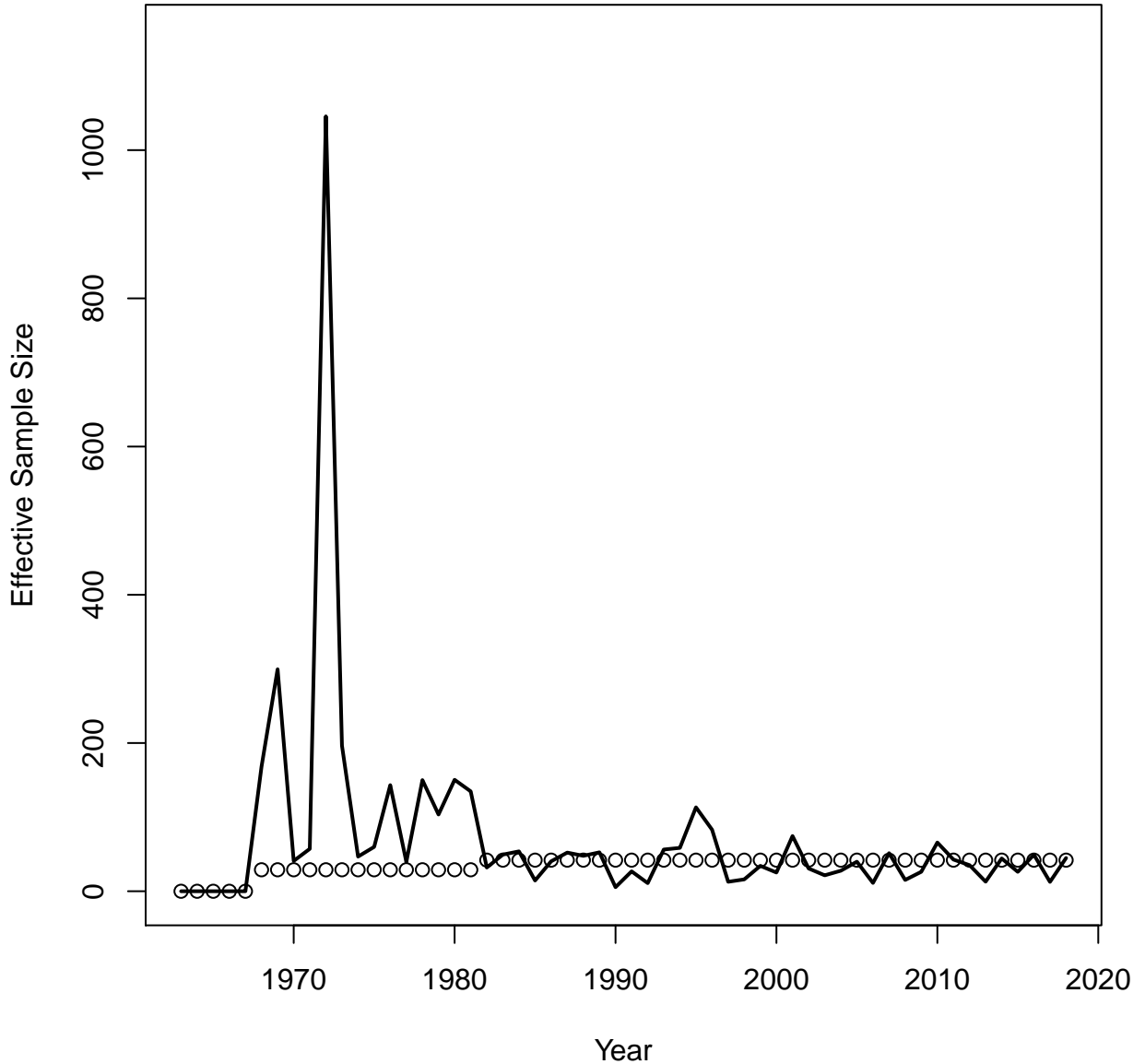
Age Comp Residuals for Index 2 (INDEX-2)



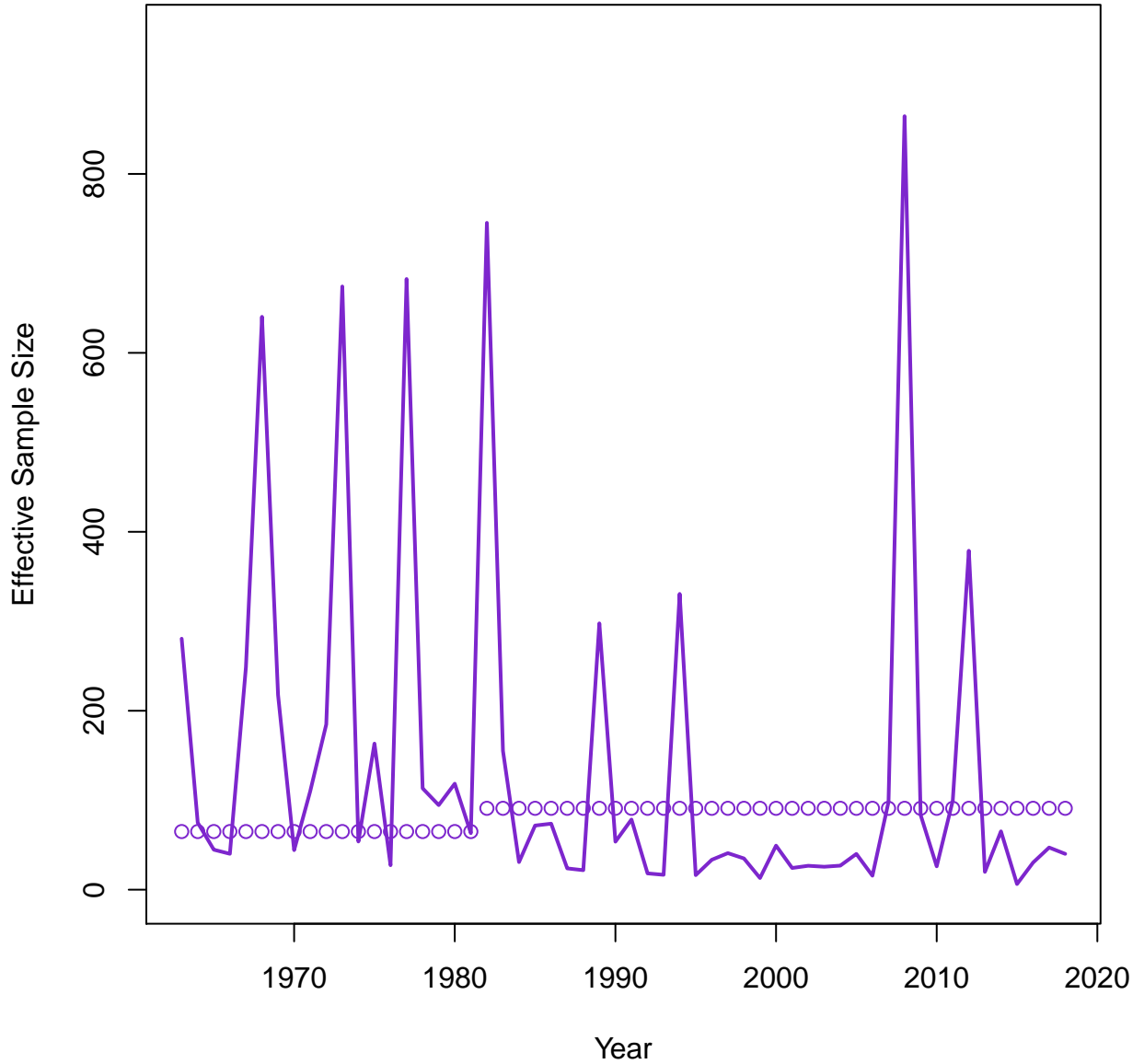
Age

Mean resid = 0.03 SD(resid) = 1.21

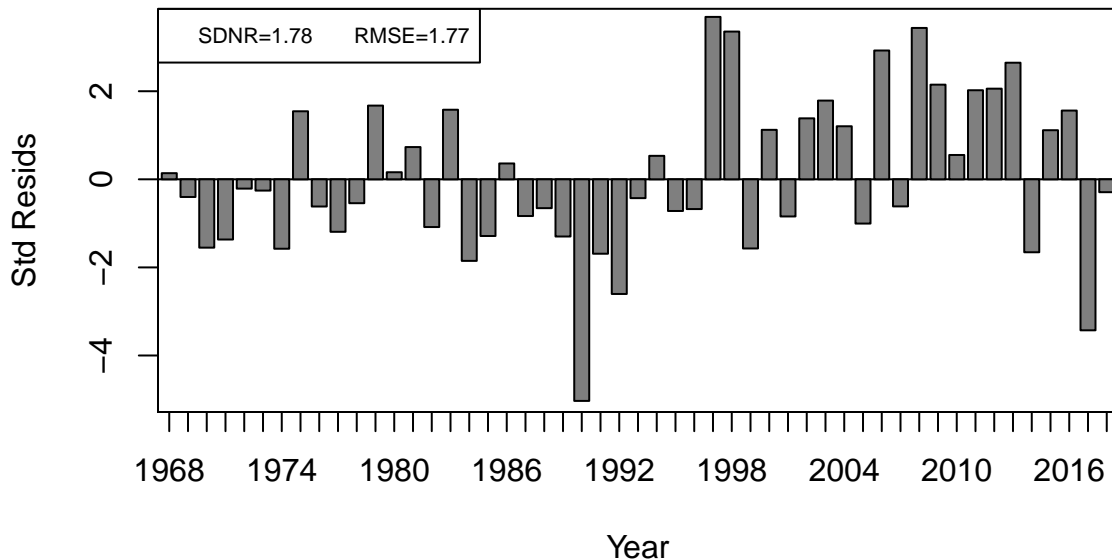
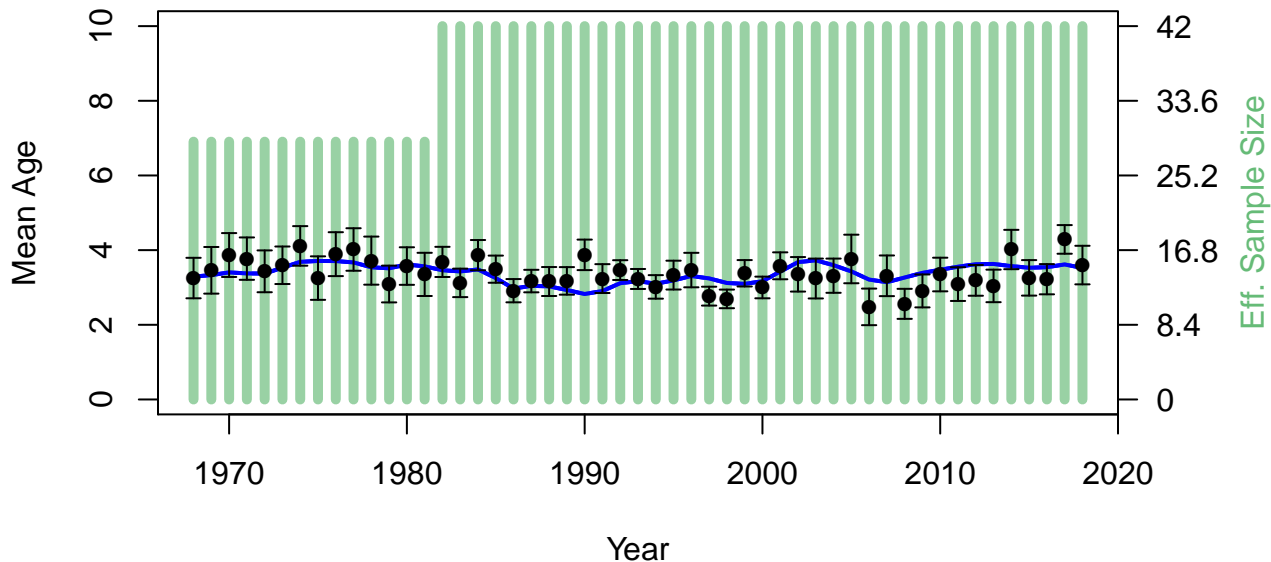
Index Neff 1 (INDEX-1)



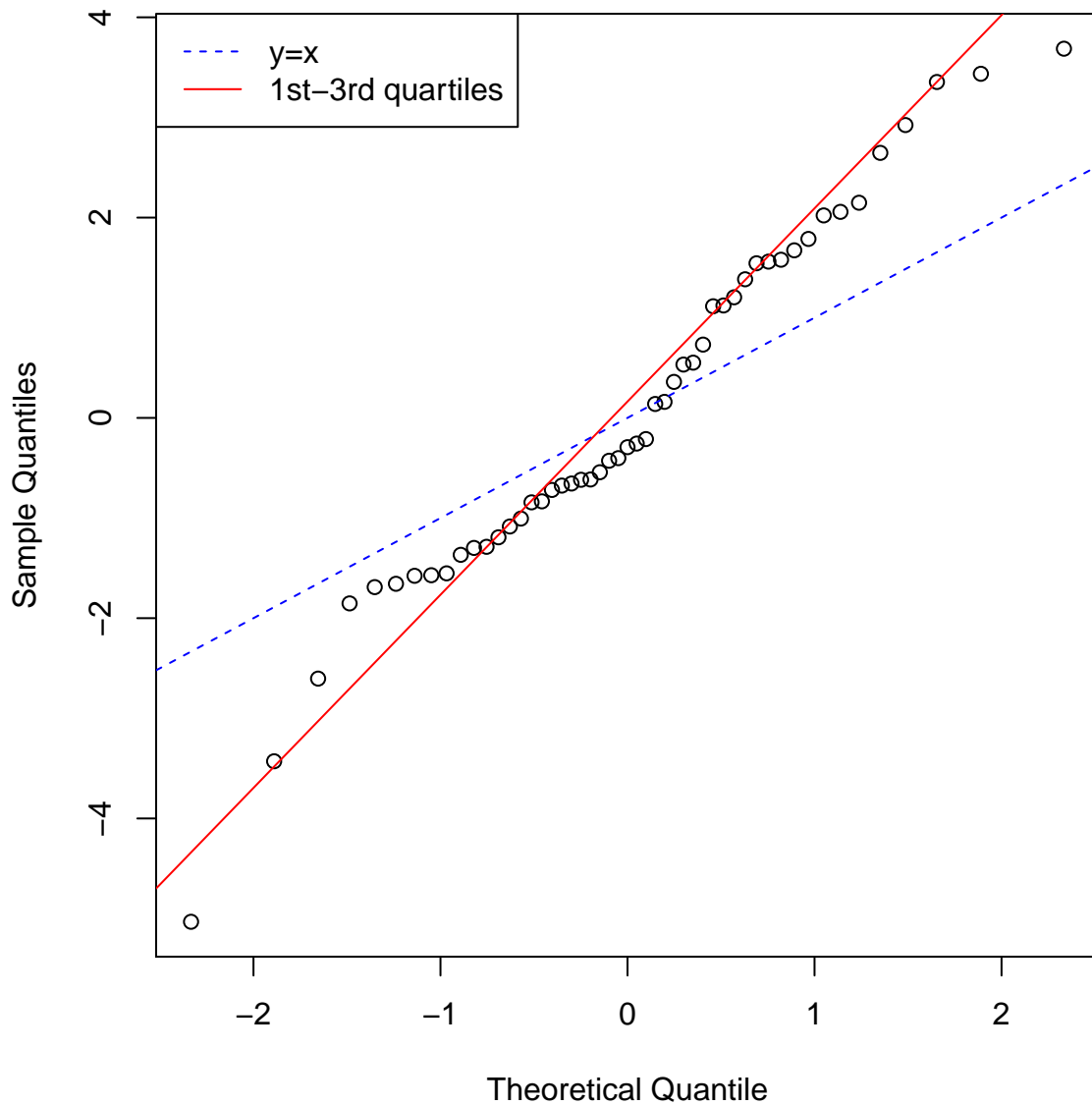
Index Neff 2 (INDEX-2)



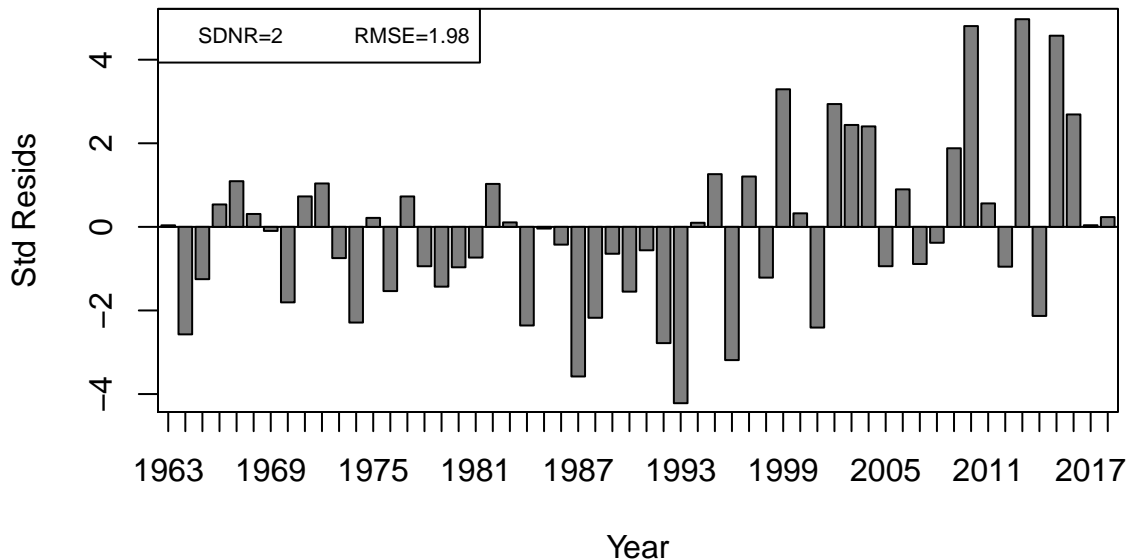
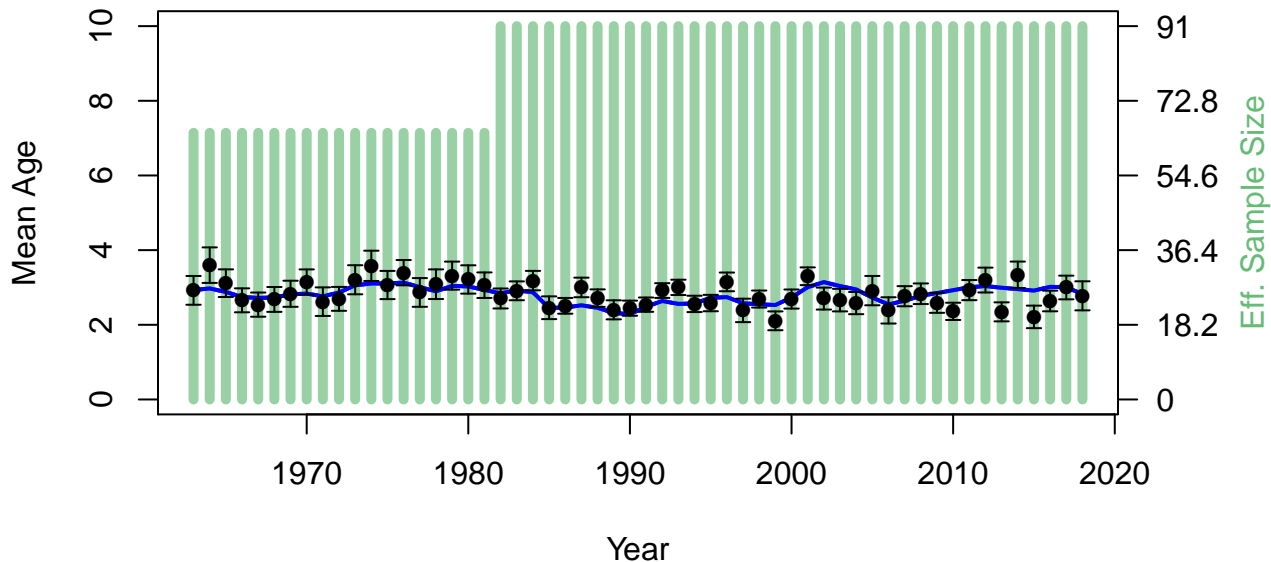
Index 1 (INDEX-1)



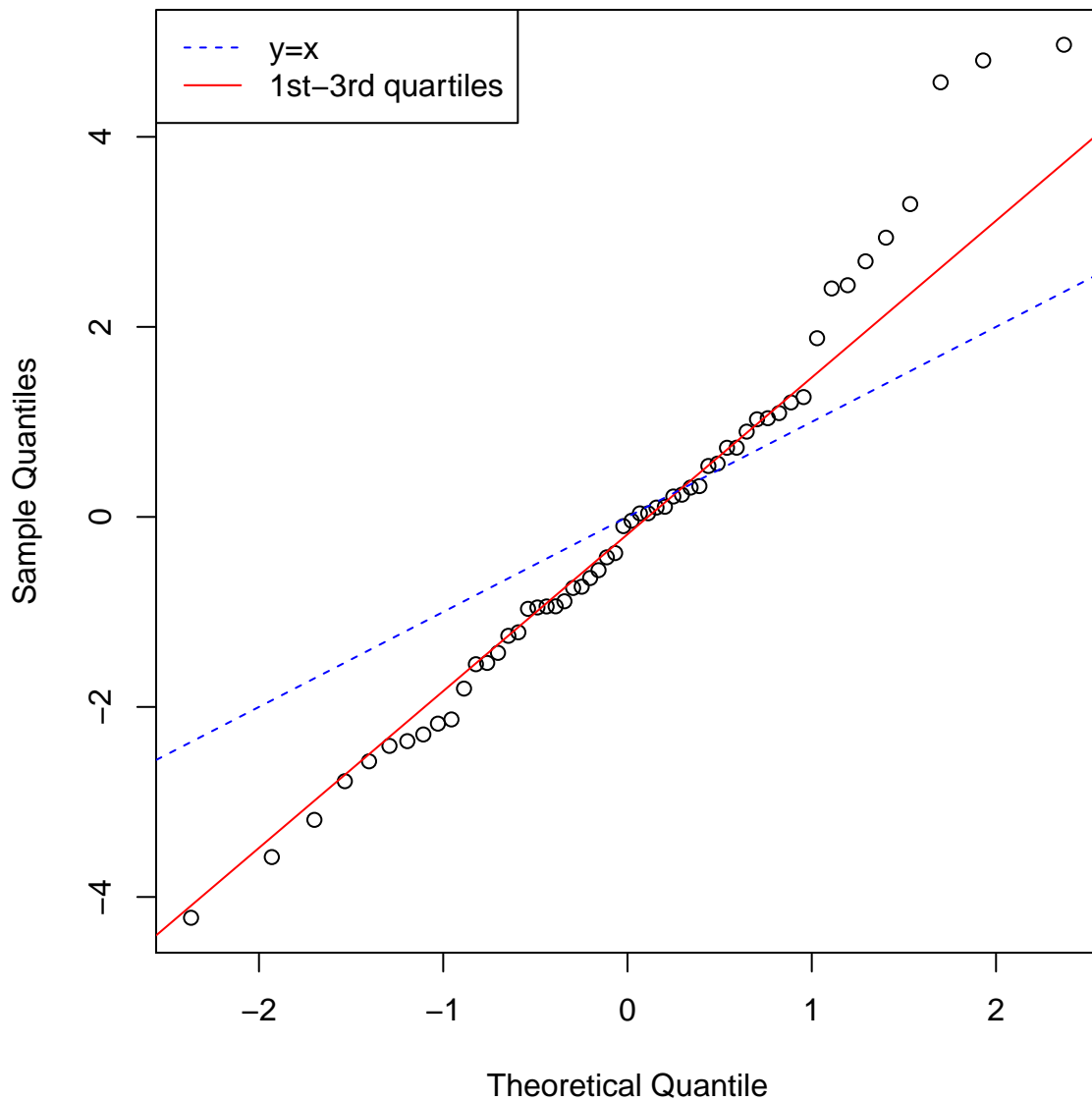
Index 1 (INDEX-1)



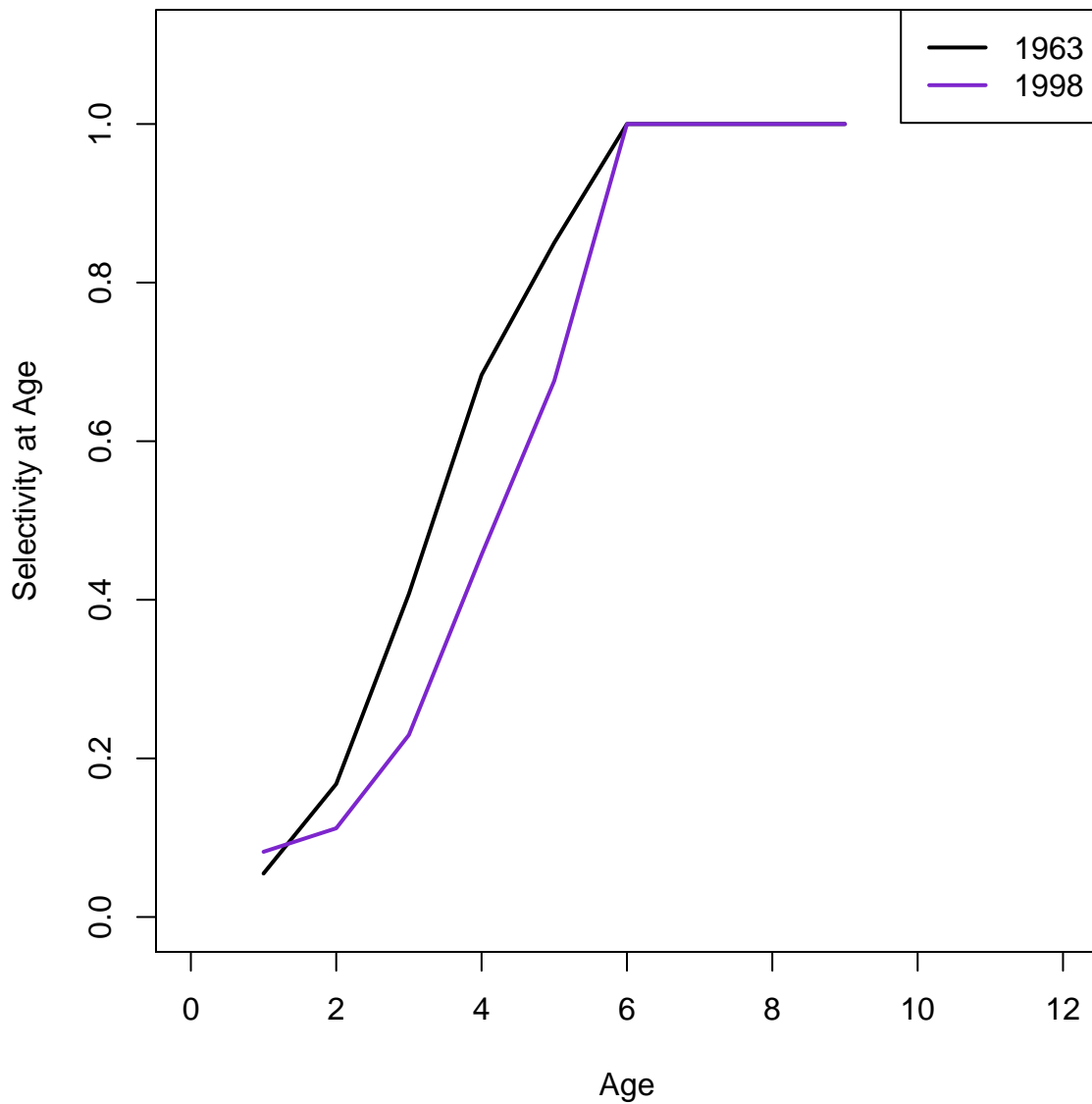
Index 2 (INDEX-2)

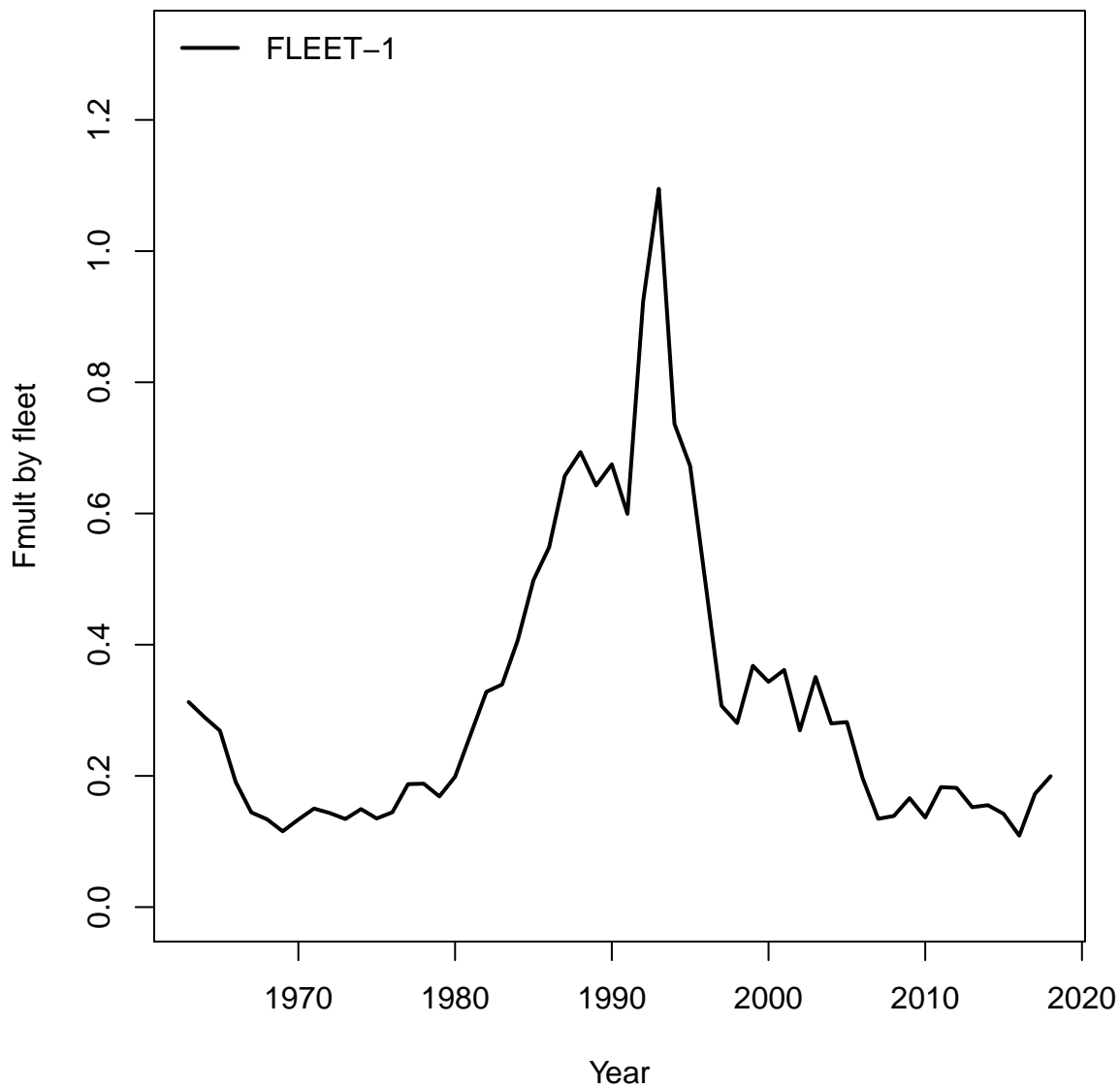


Index 2 (INDEX-2)

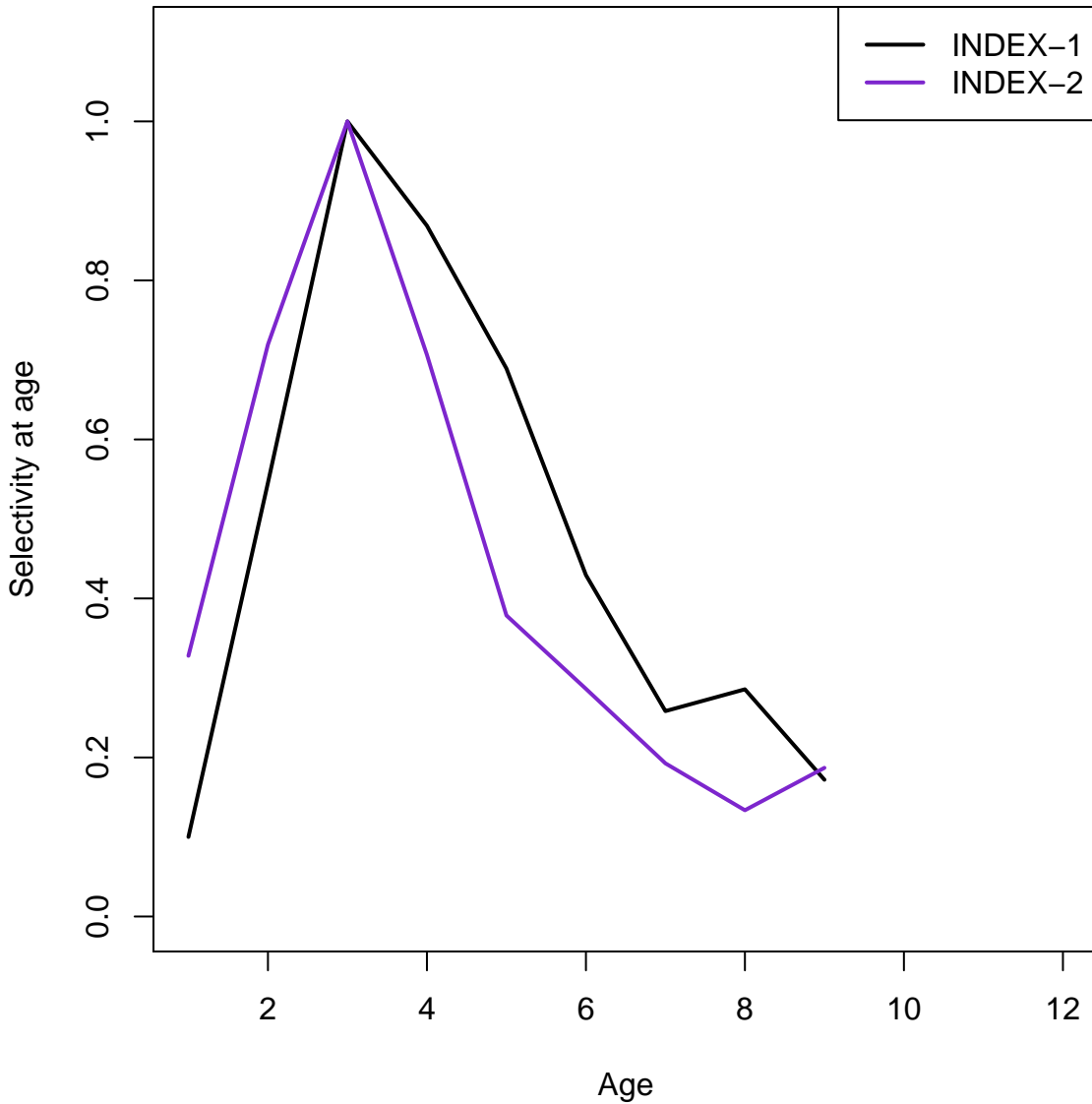


Fleet 1 (FLEET-1)

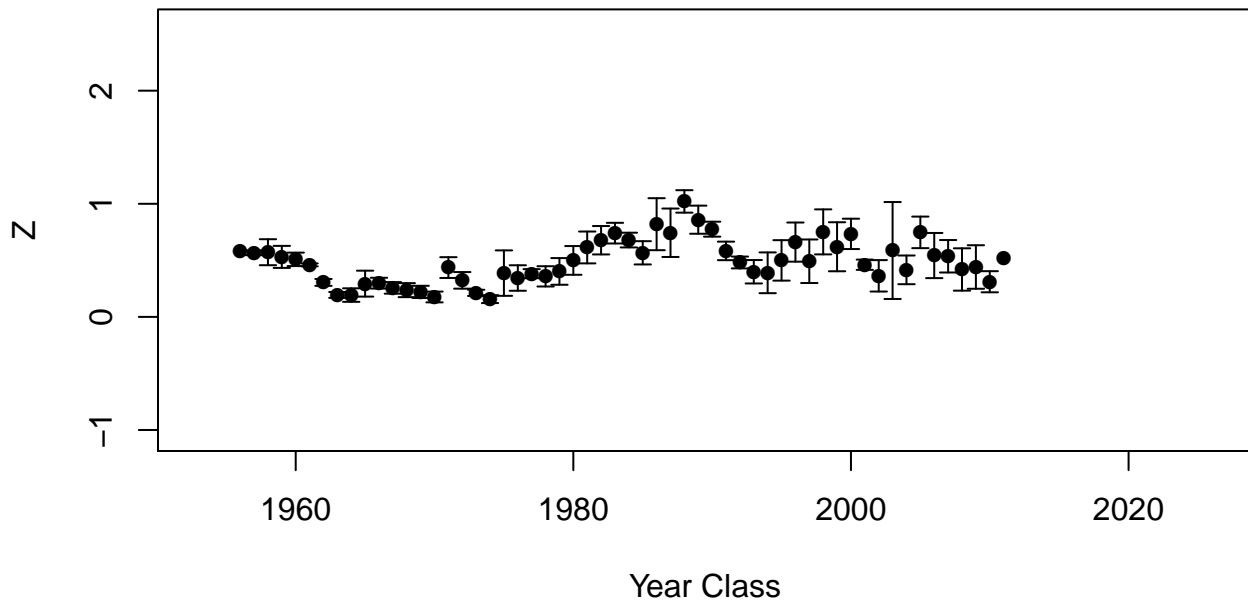
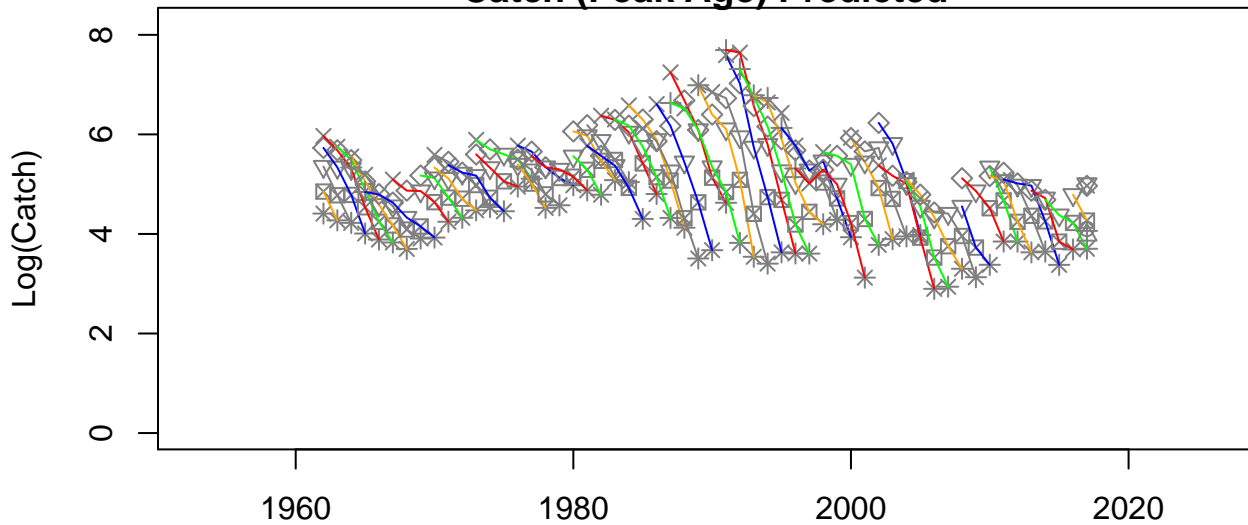




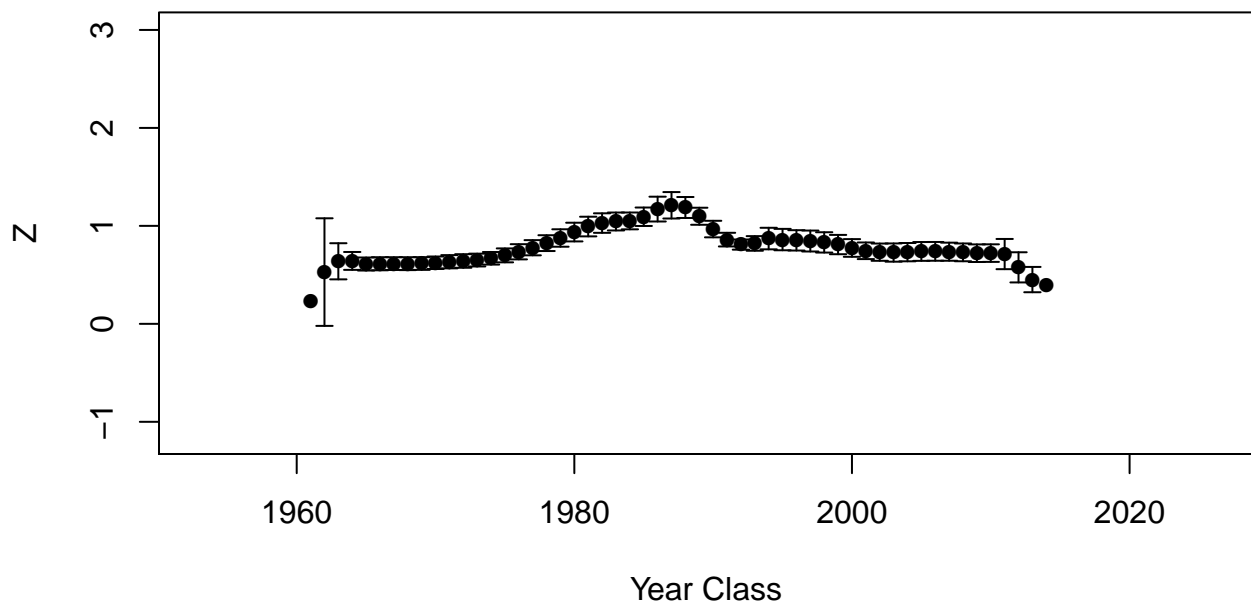
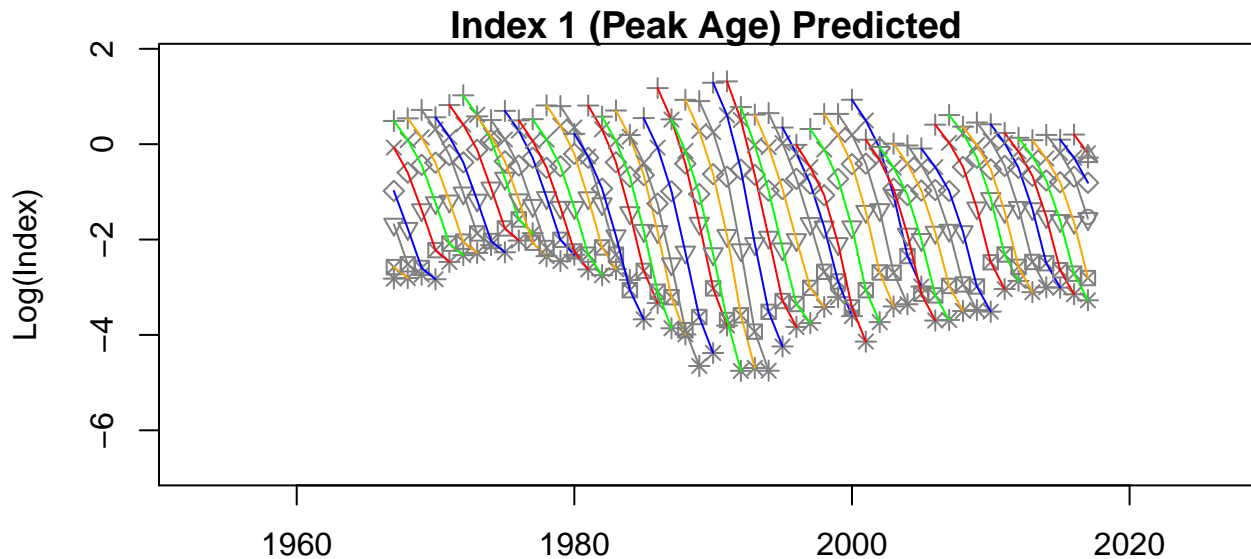
Indices



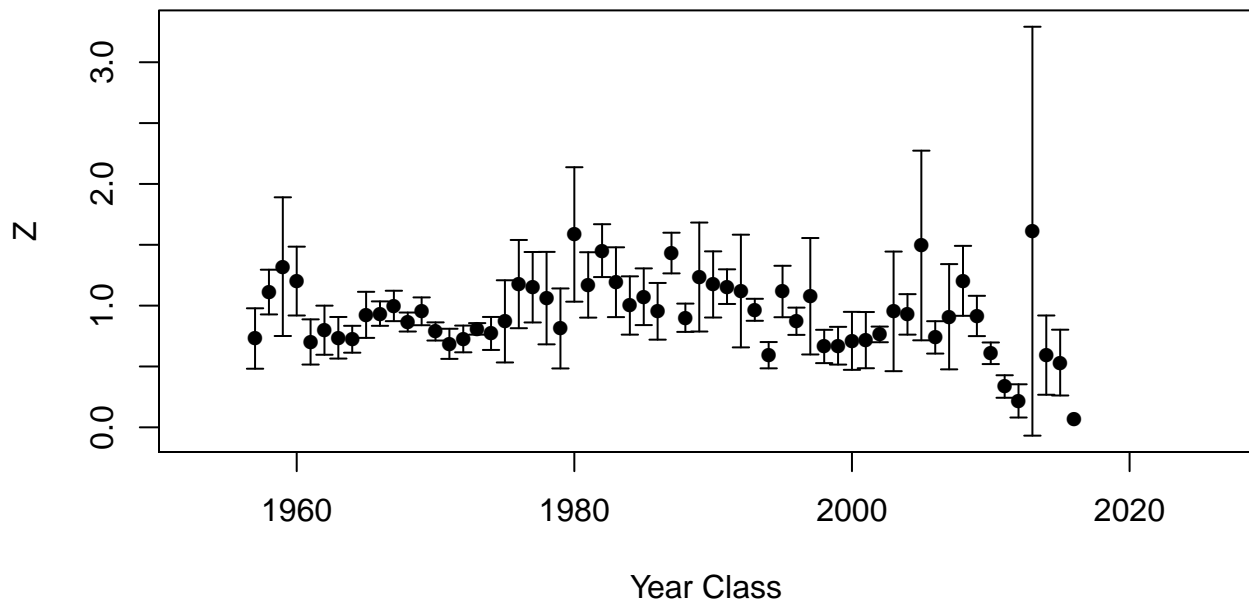
Catch (Peak Age) Predicted



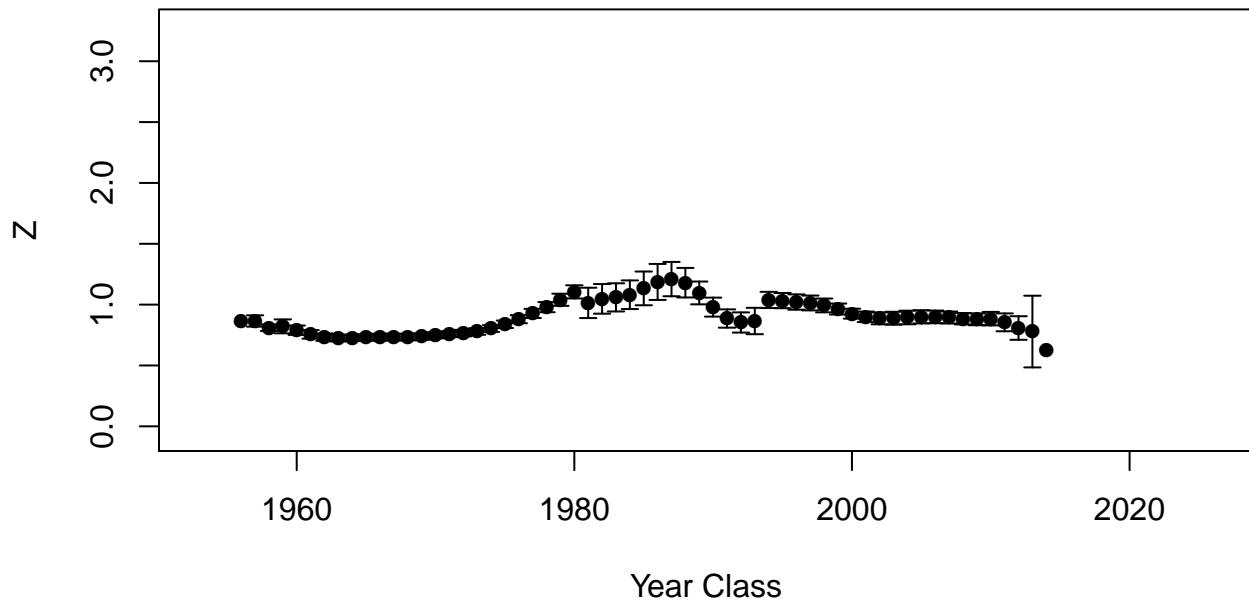
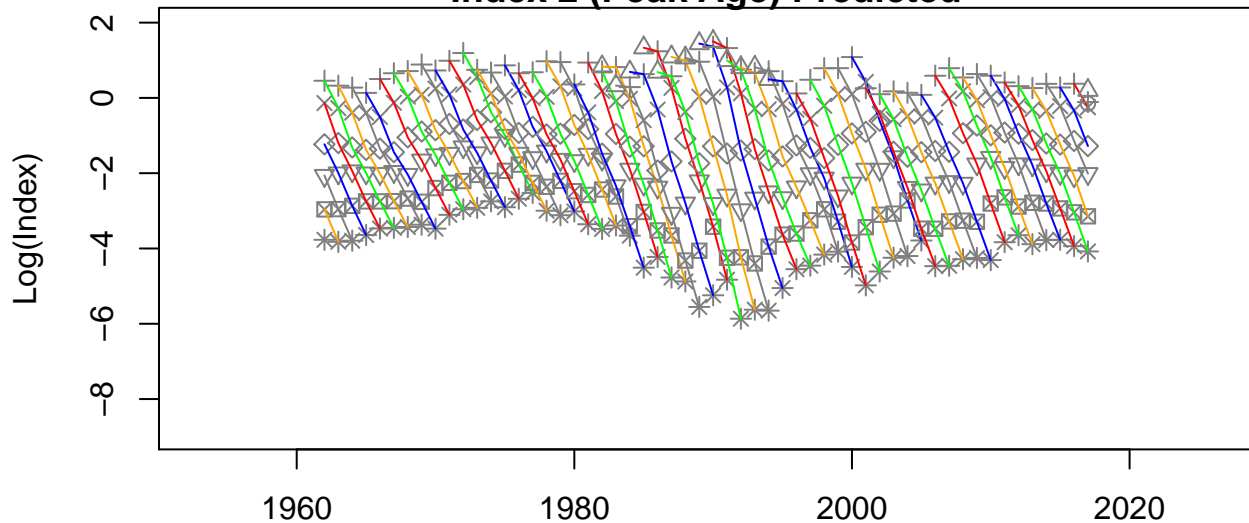




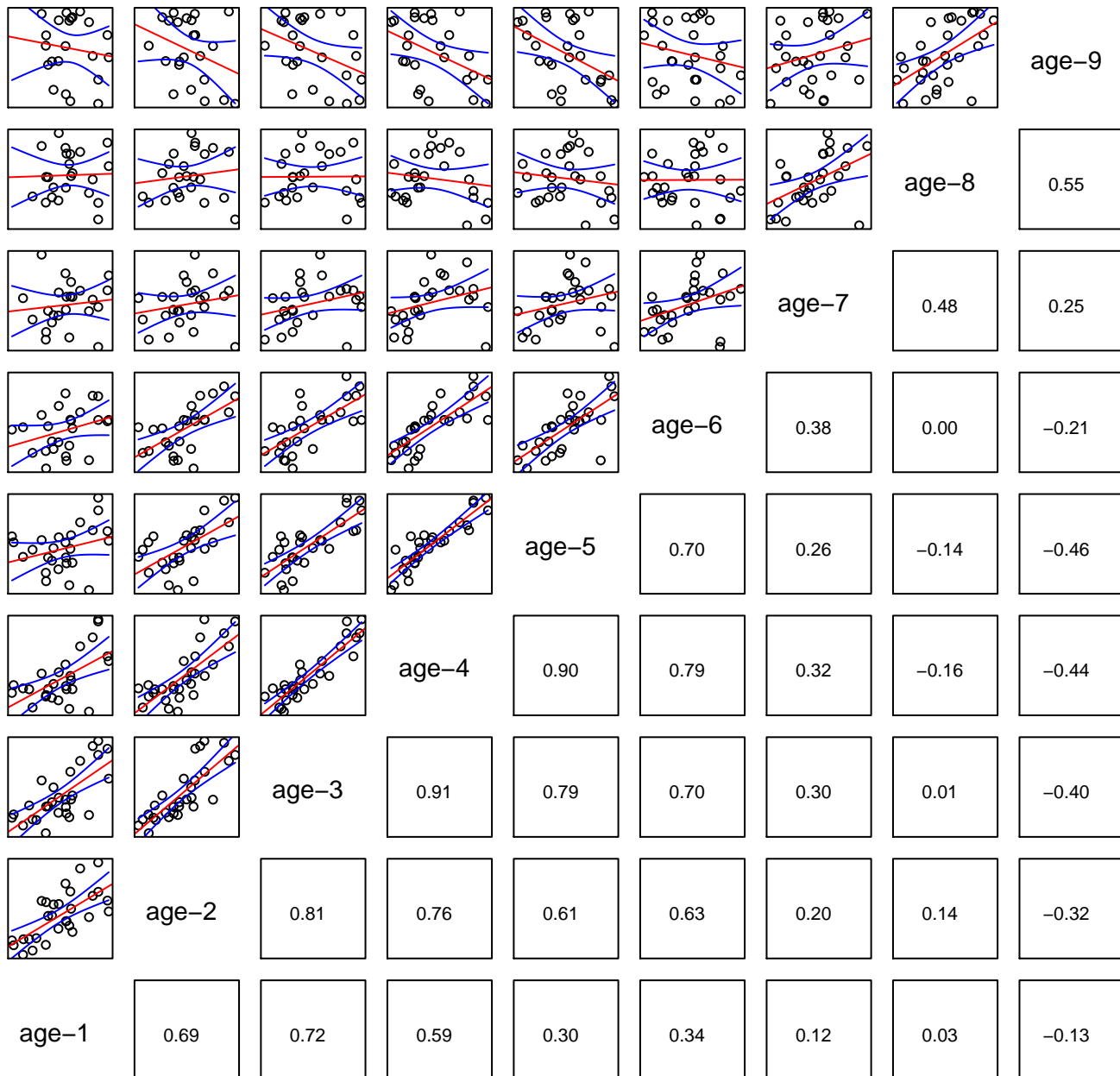
Index 2 (Peak Age) Observed



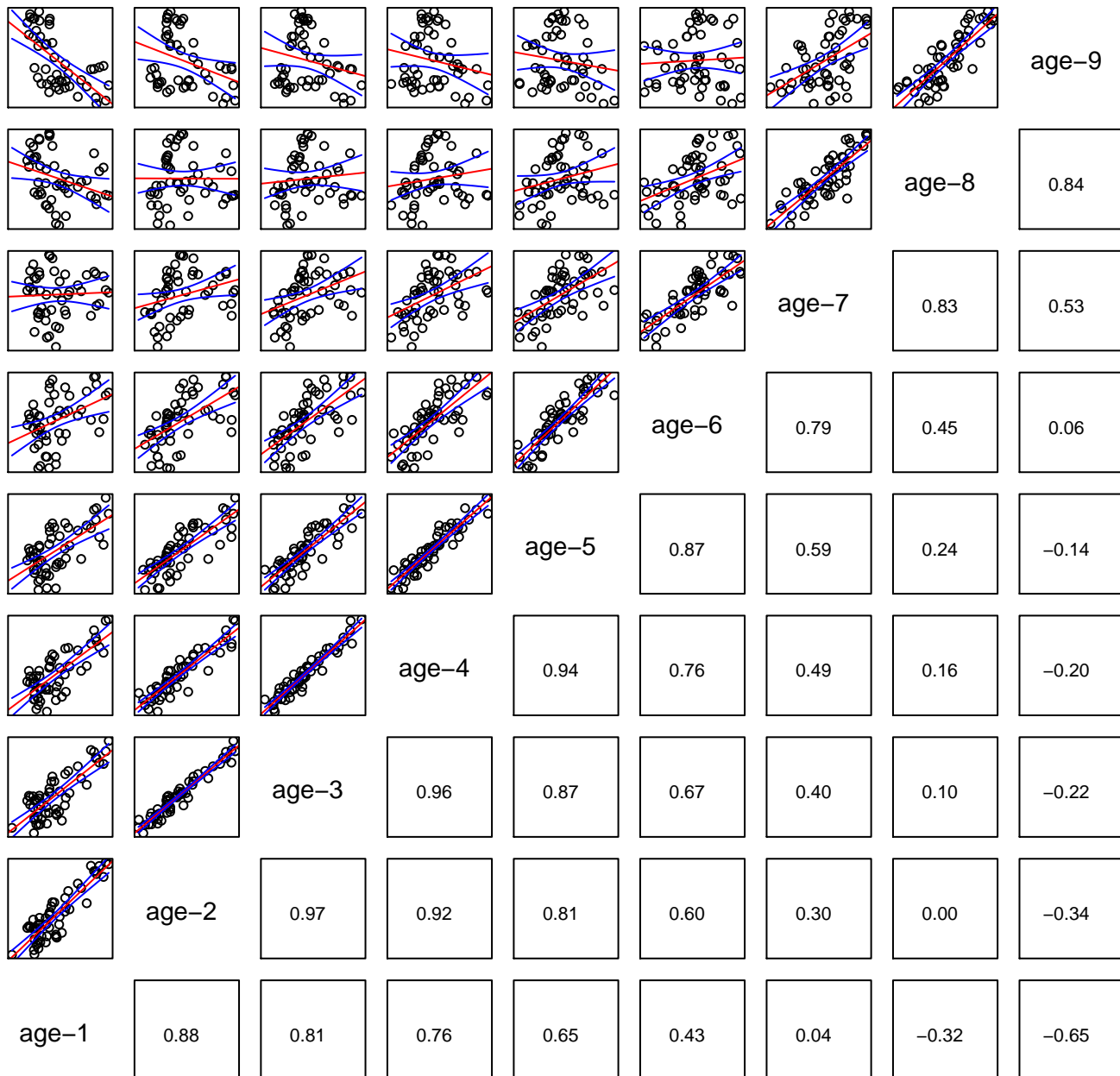
Index 2 (Peak Age) Predicted



Catch Observed



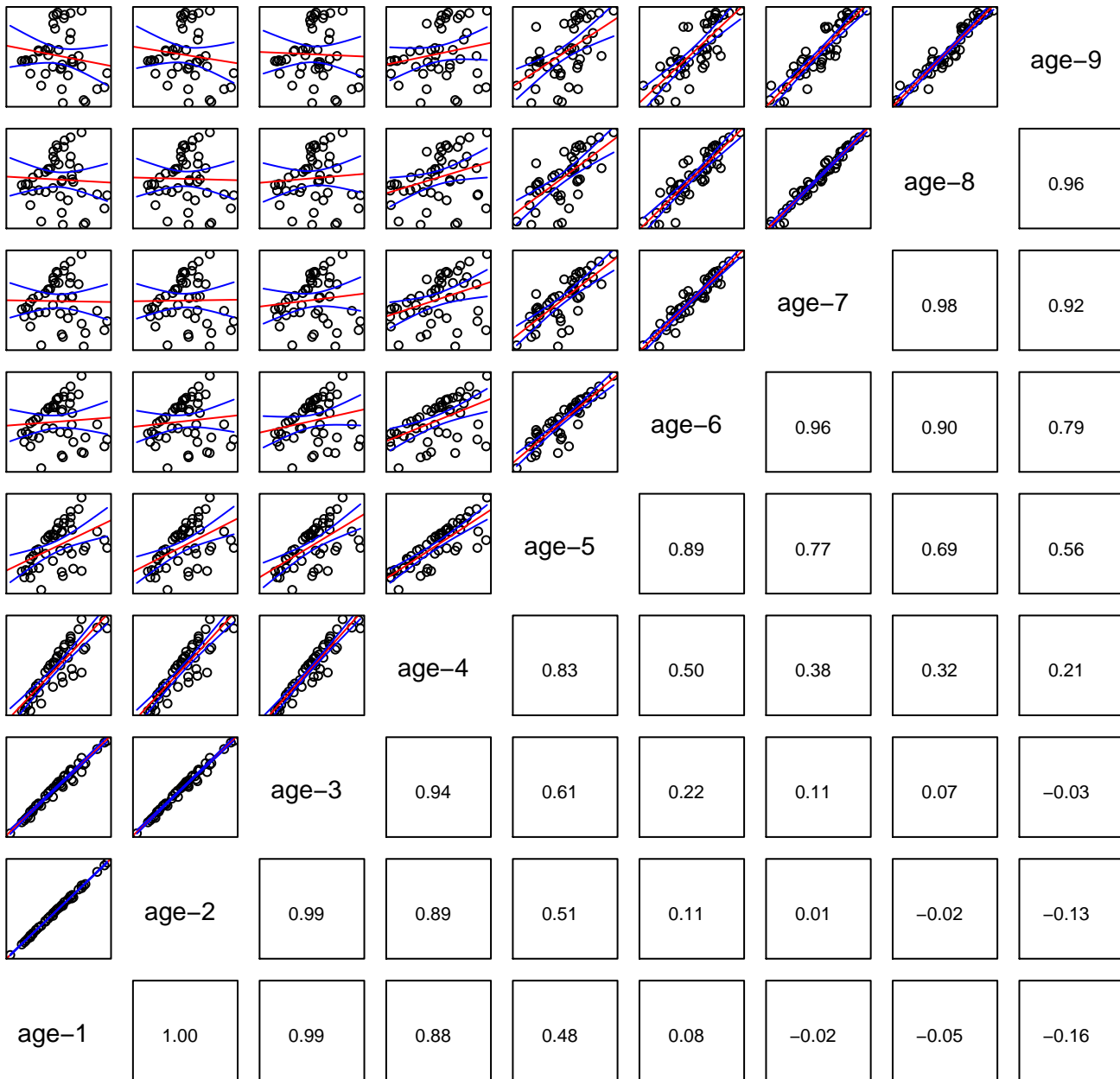
Catch Predicted



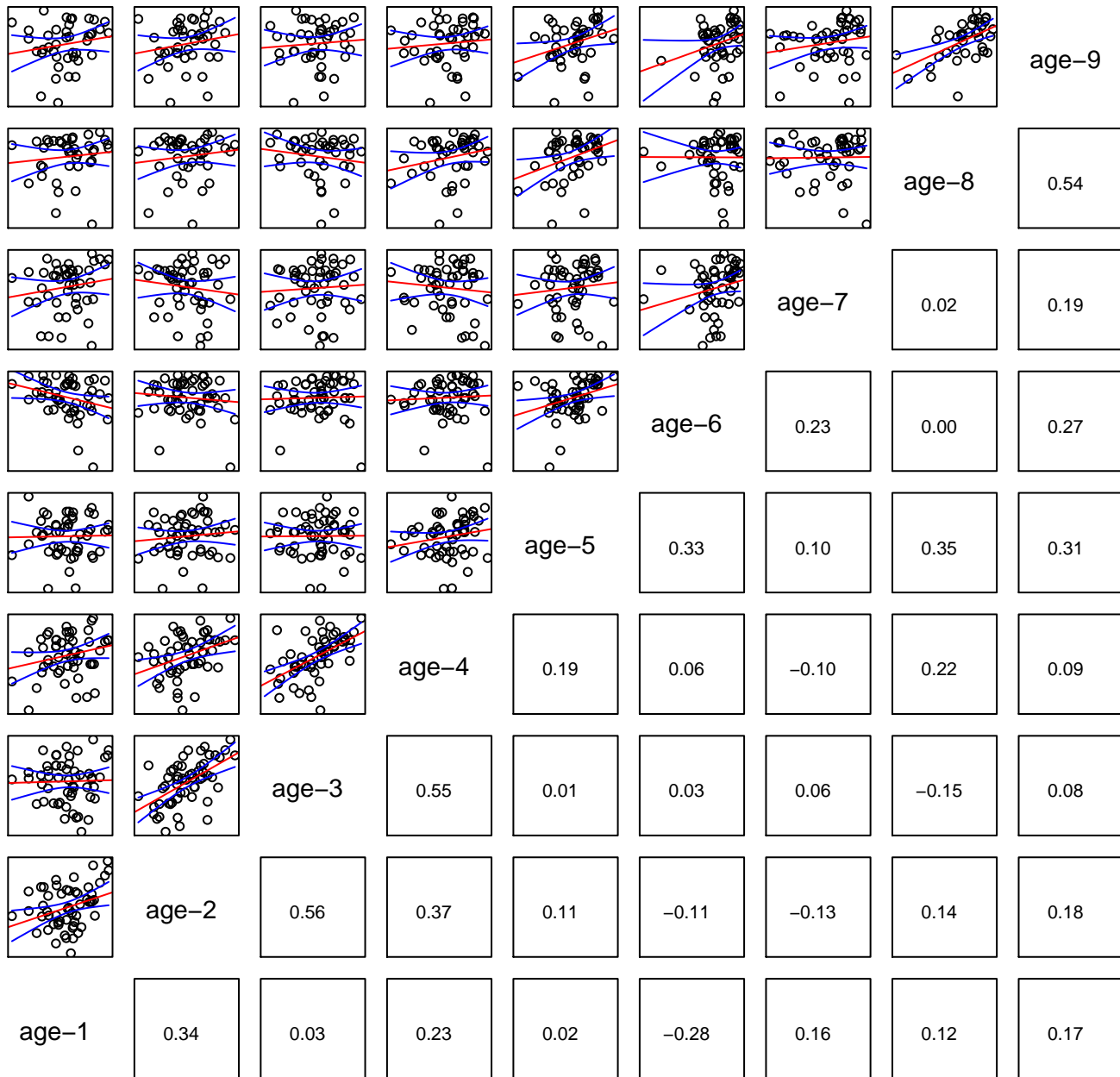
Index 1 (INDEX-1) Observed



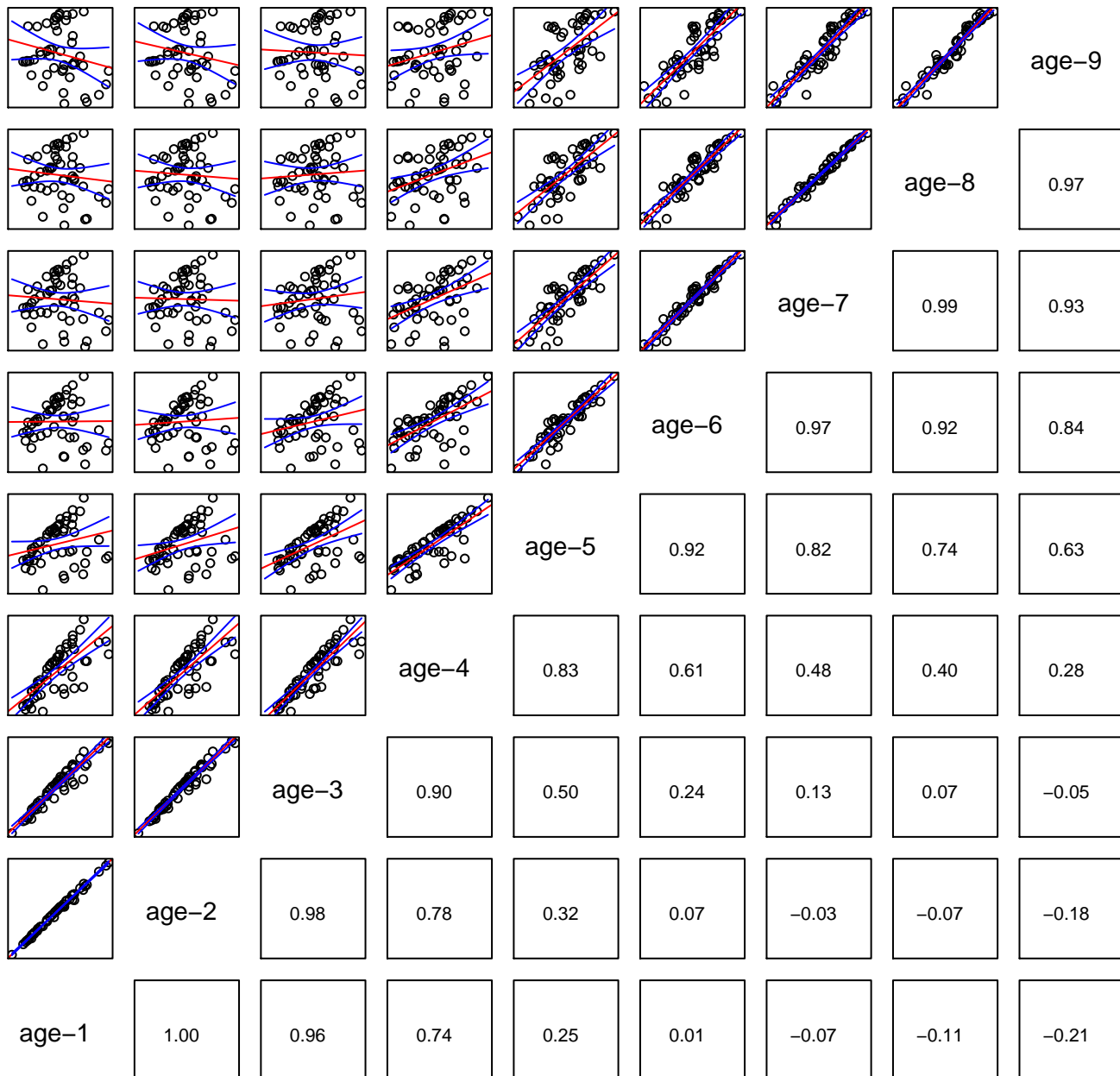
Index 1 (INDEX-1) Predicted

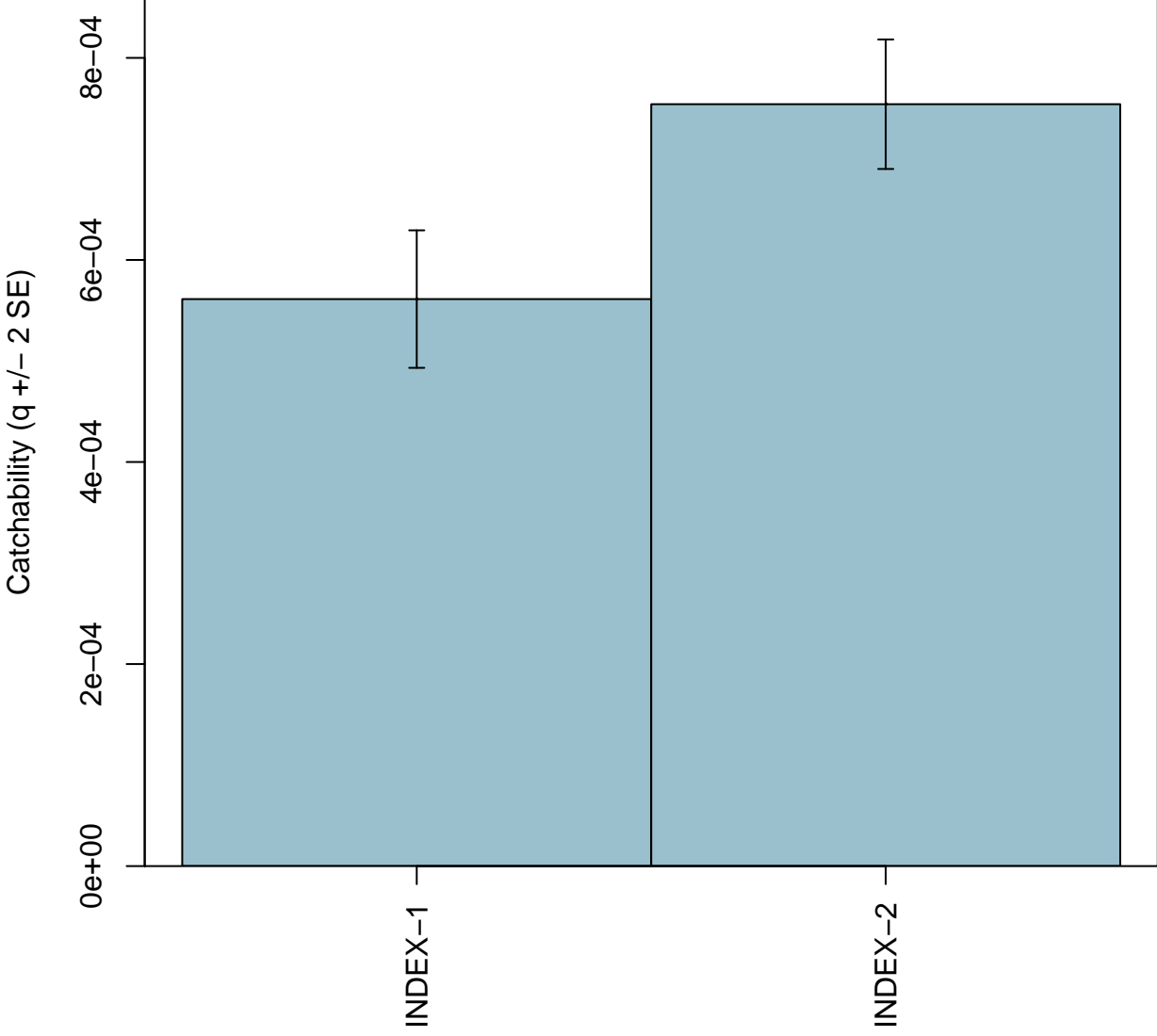


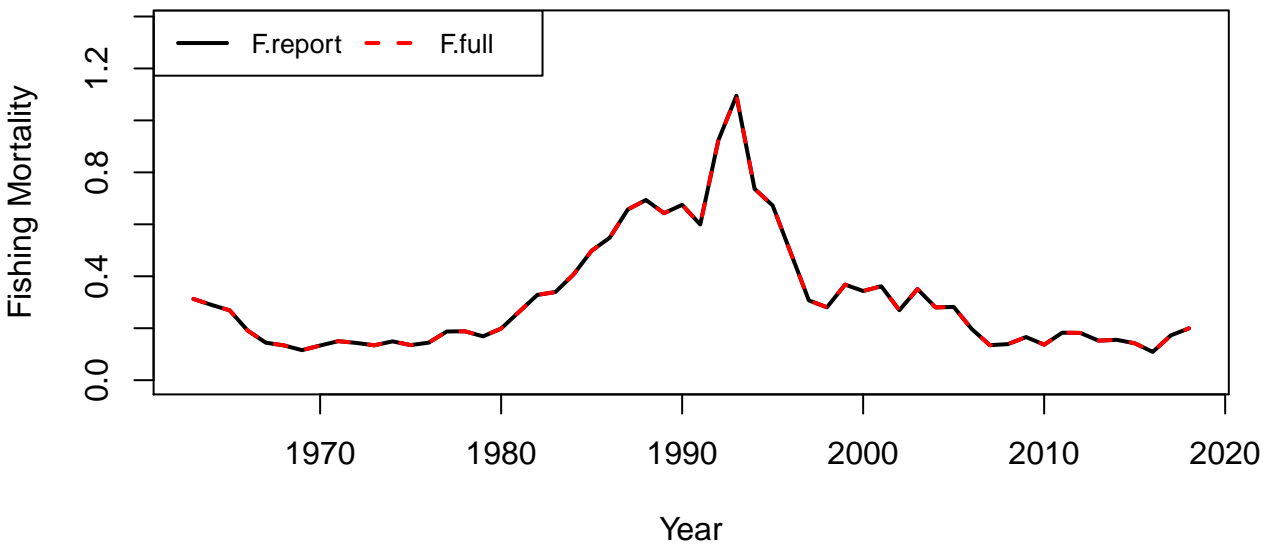
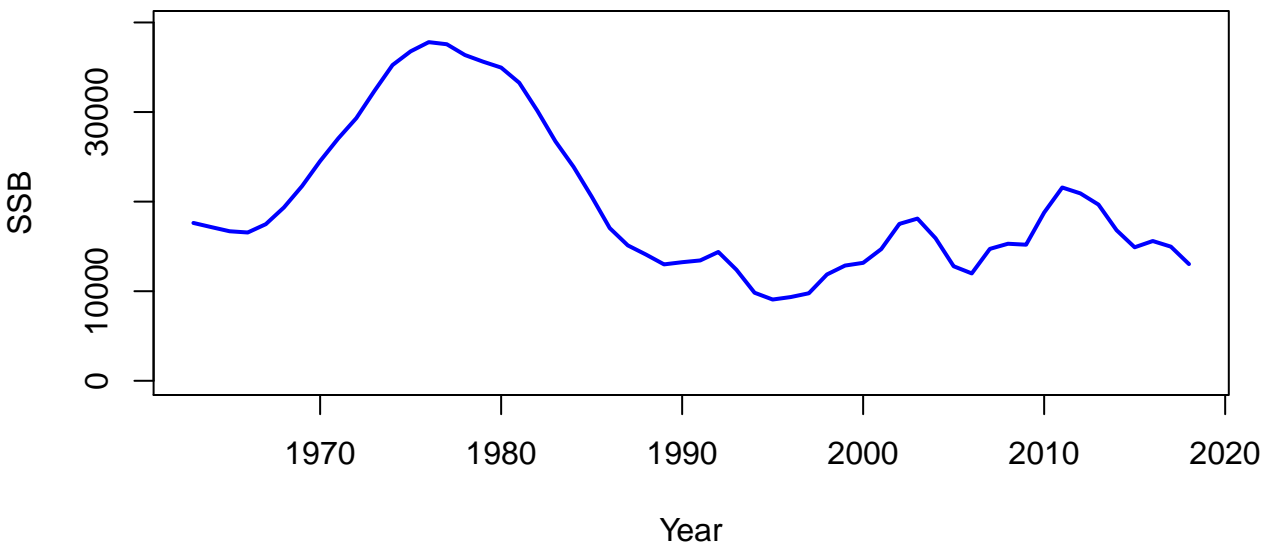
Index 2 (INDEX-2) Observed



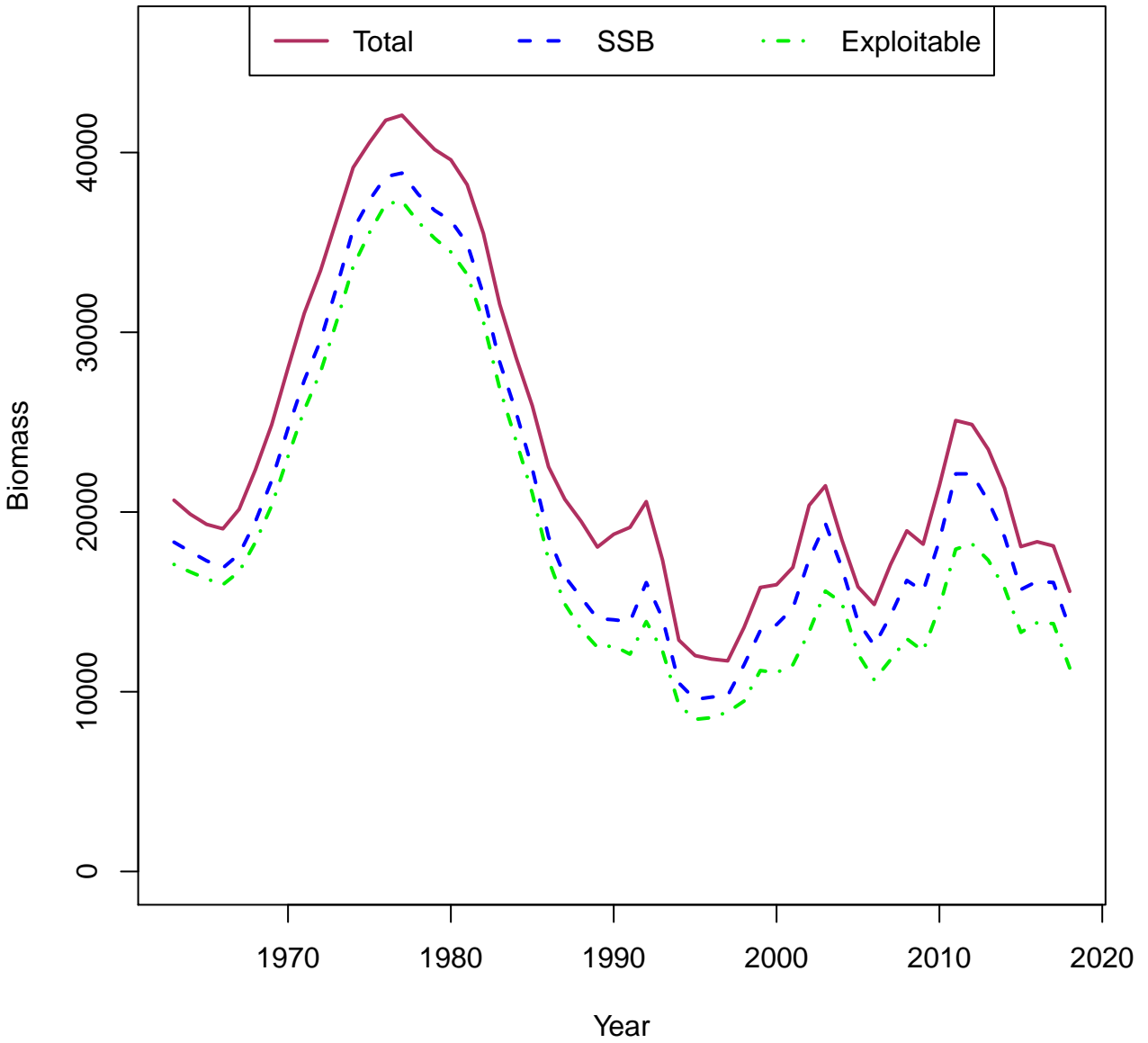
Index 2 (INDEX-2) Predicted



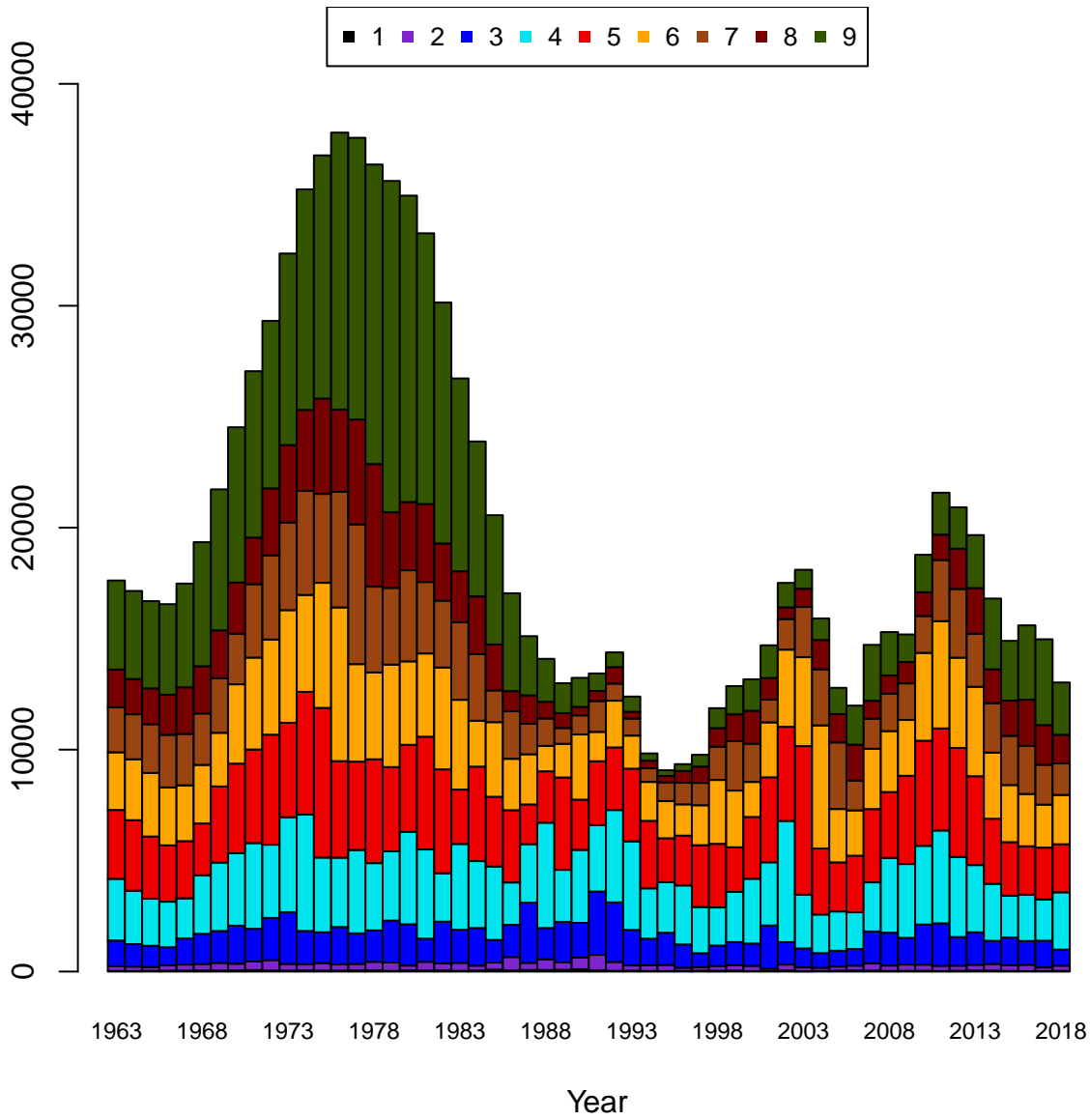


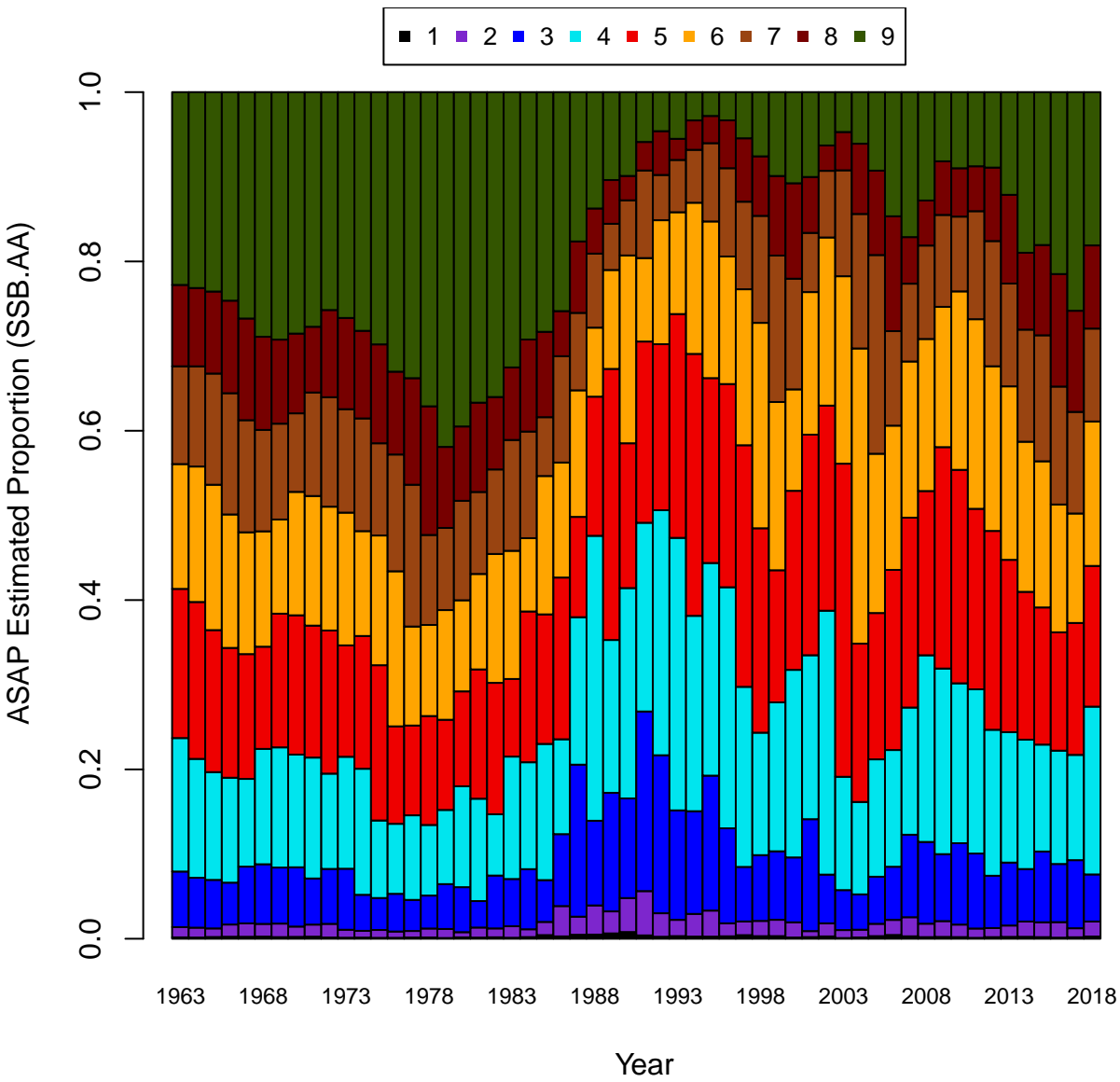


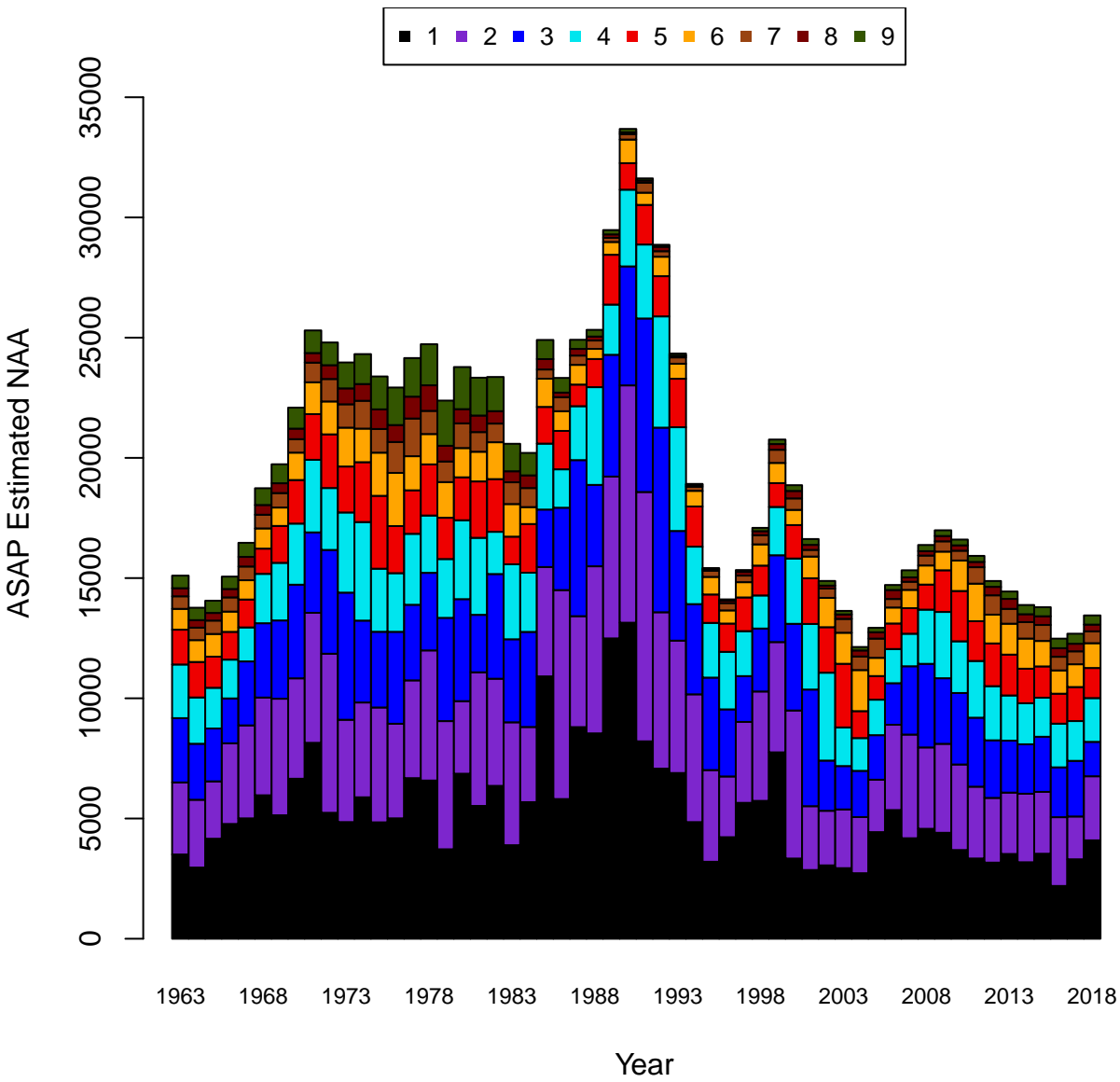
Comparison of January 1 Biomass

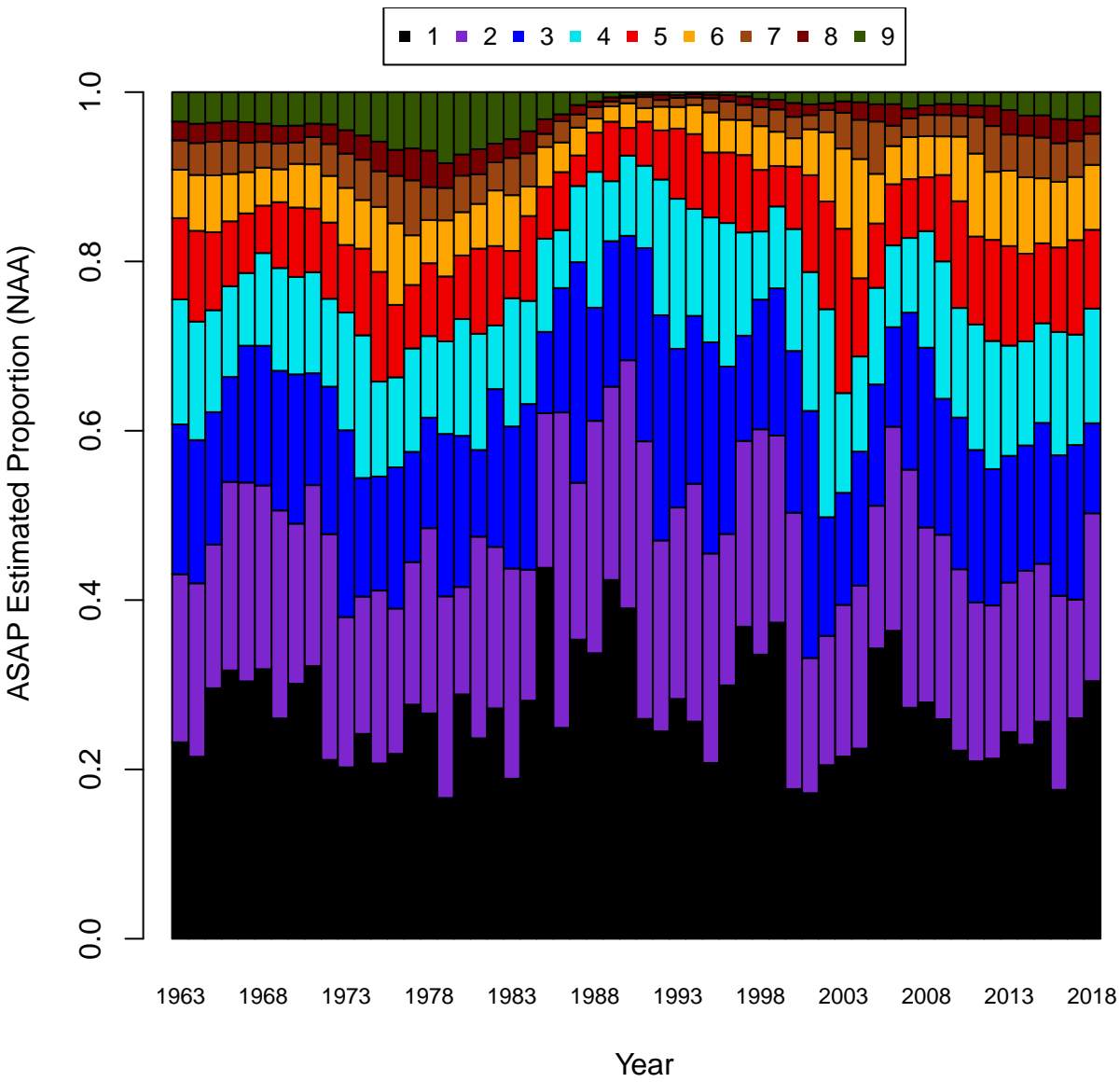


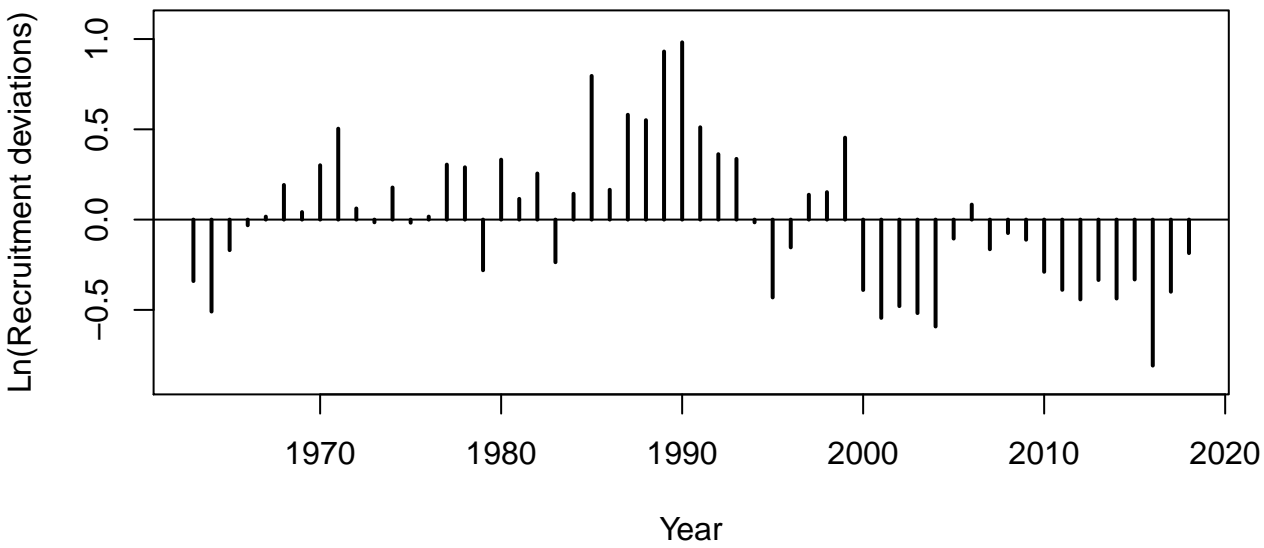
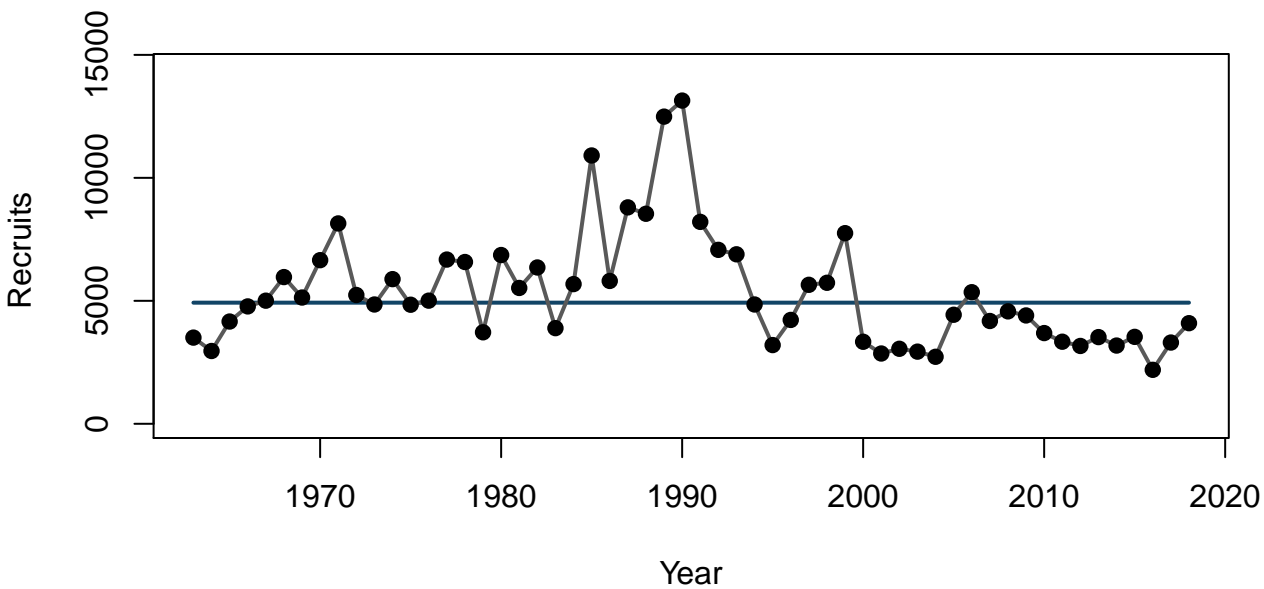
ASAP Estimated SSB.AA

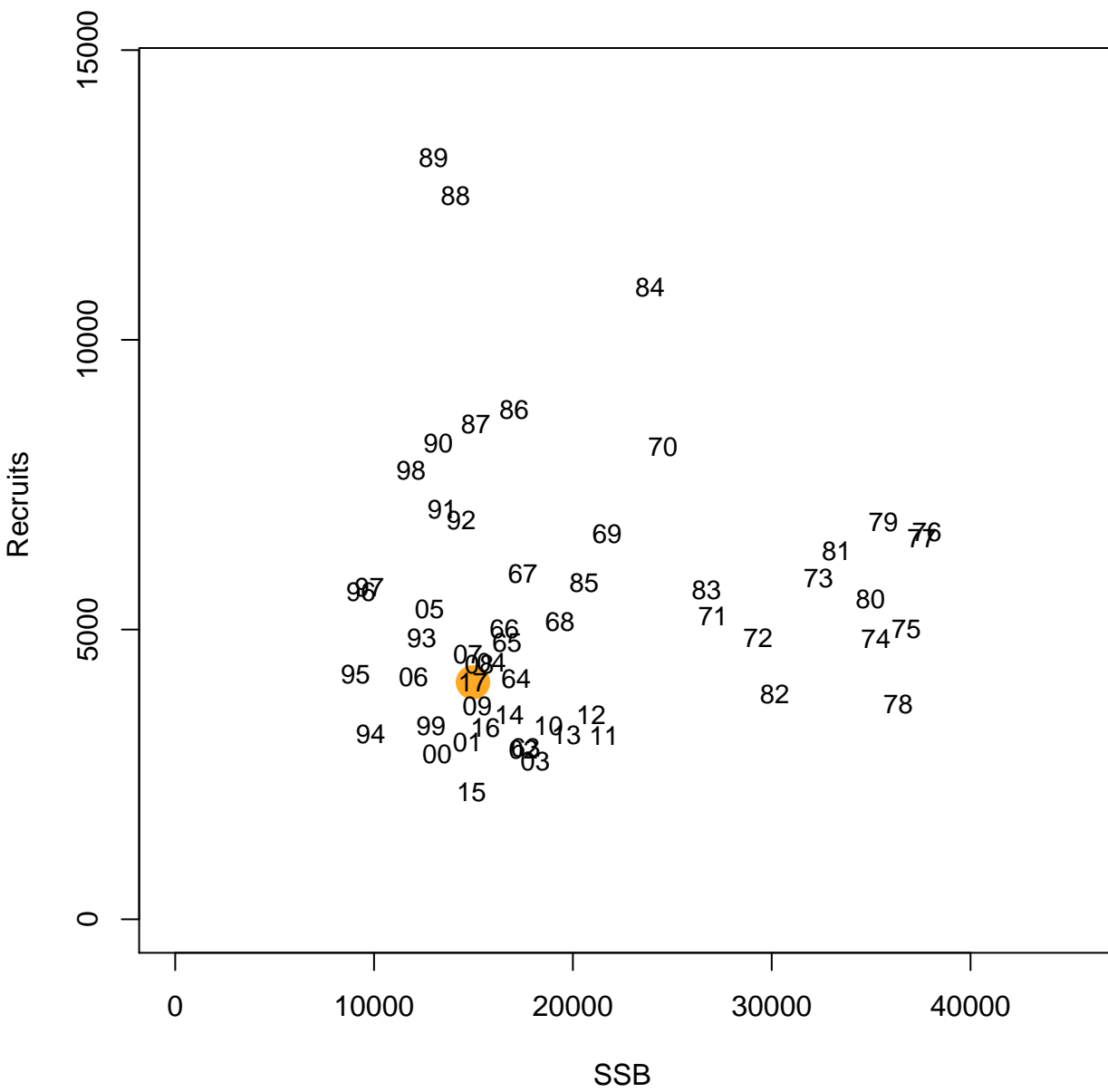


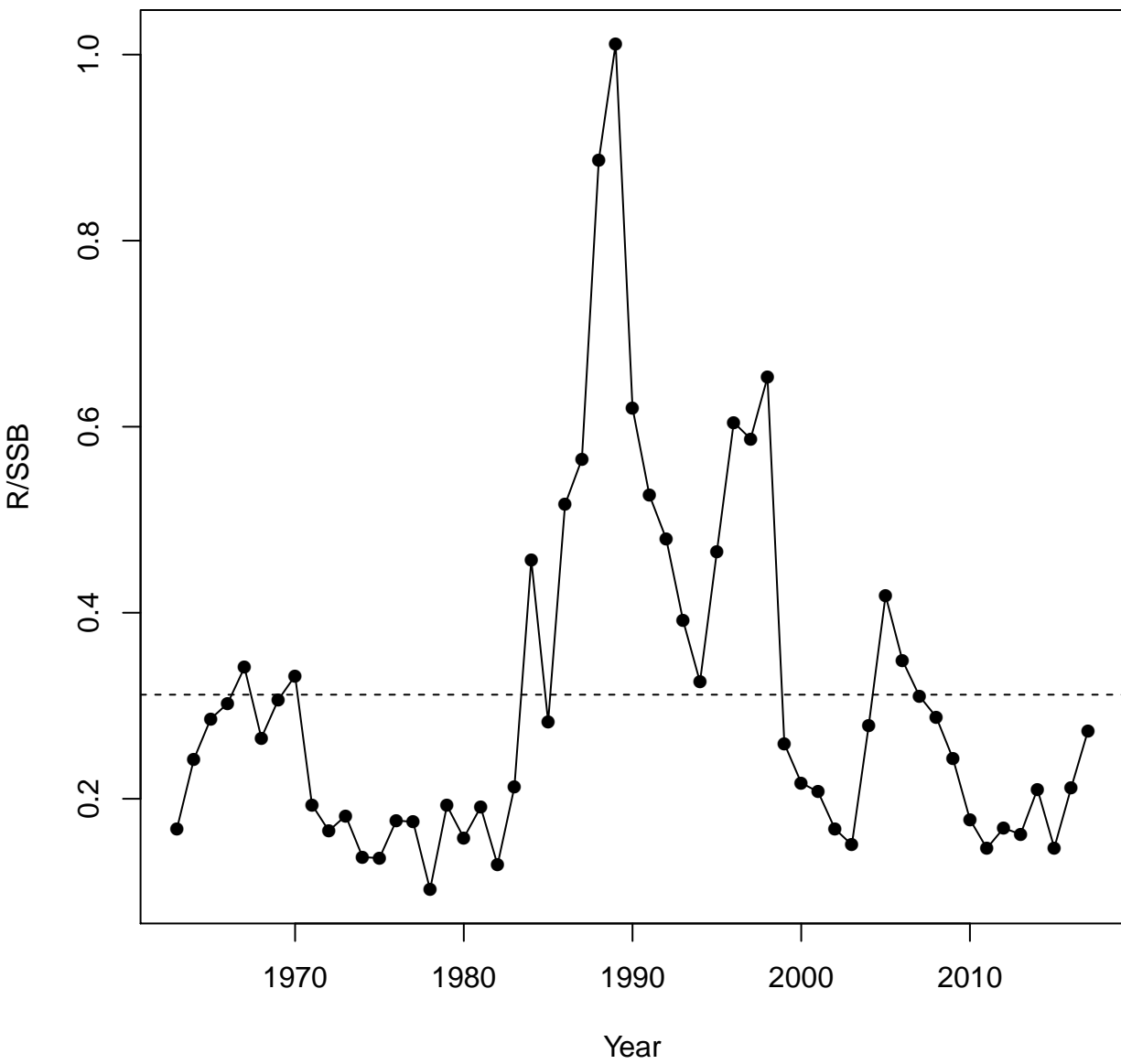


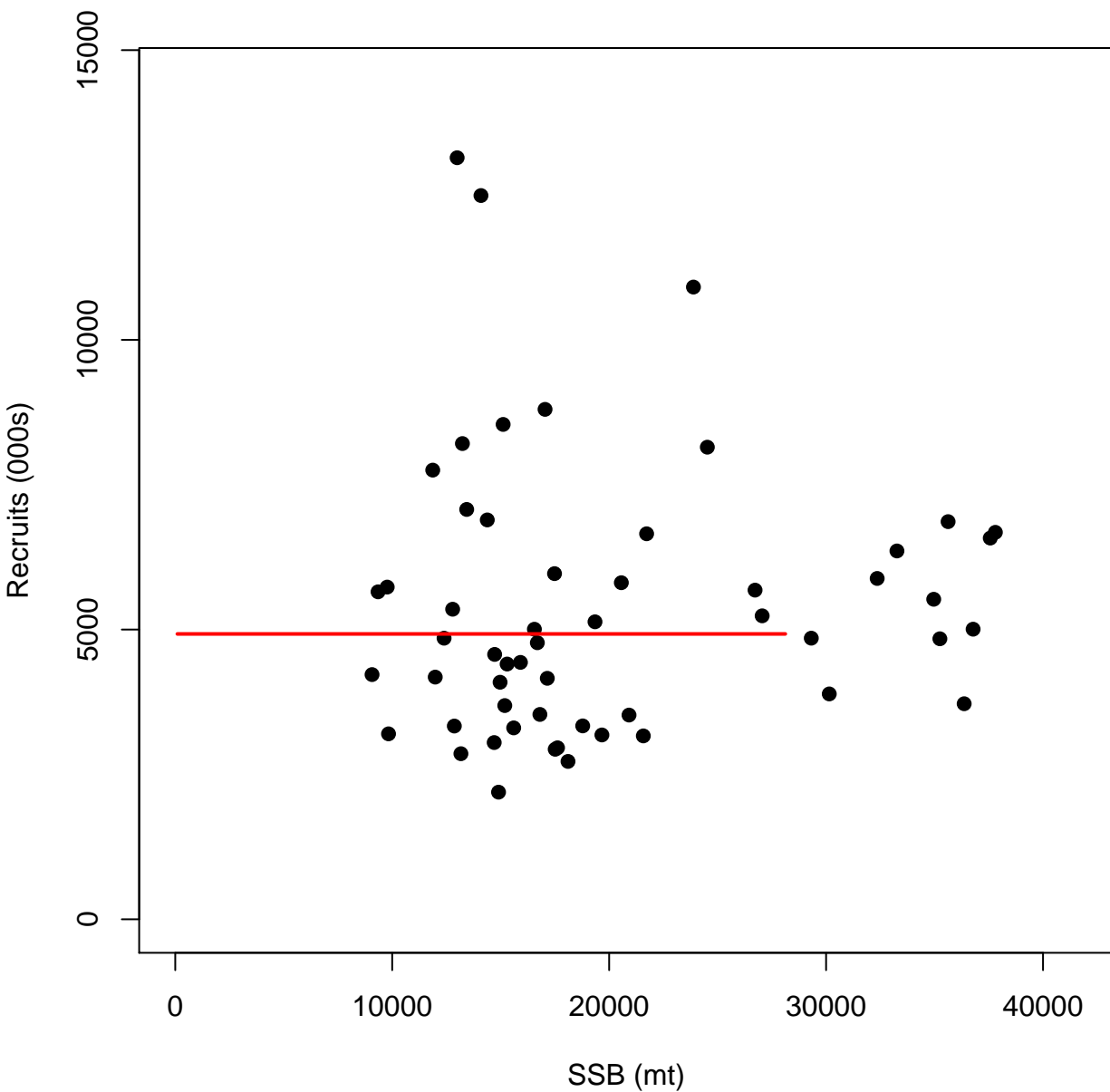


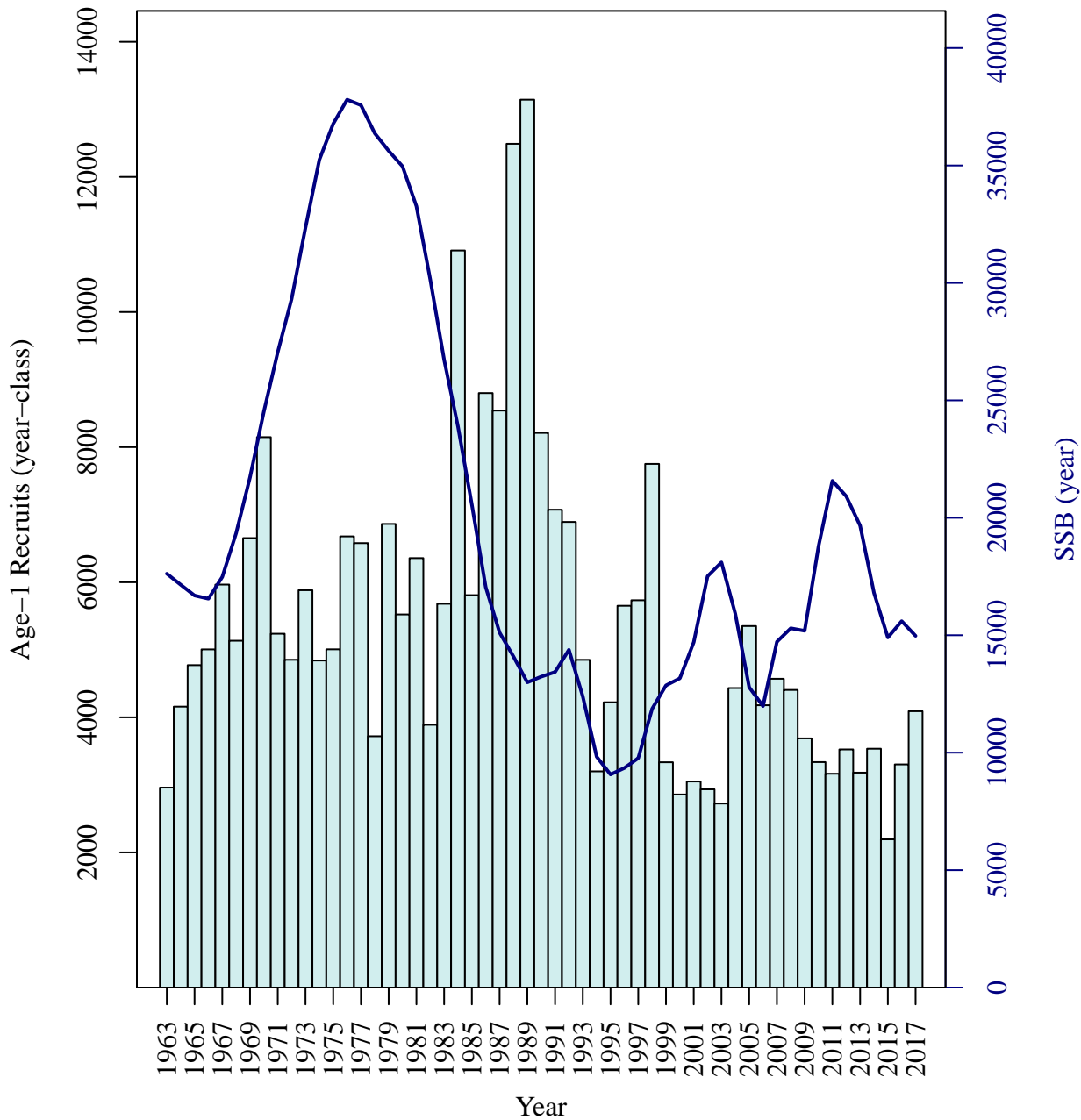




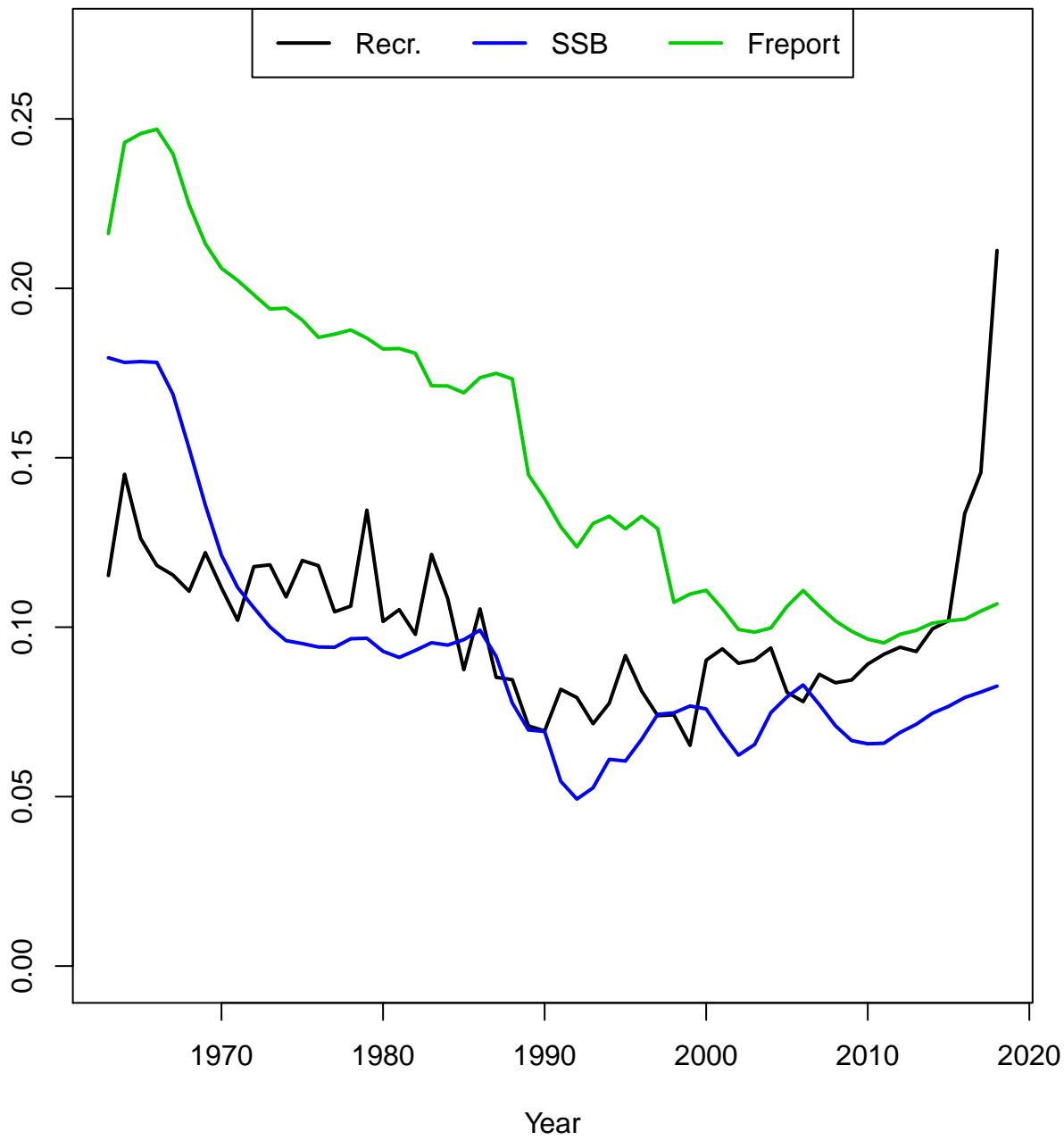




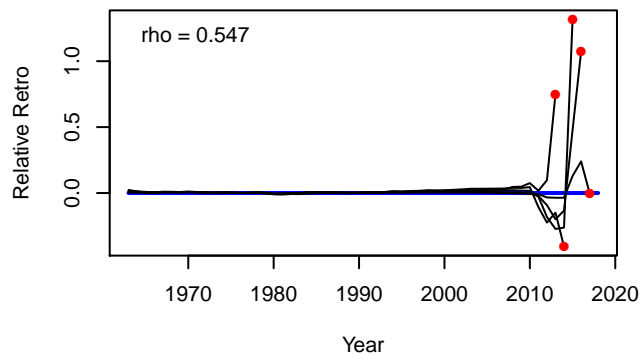
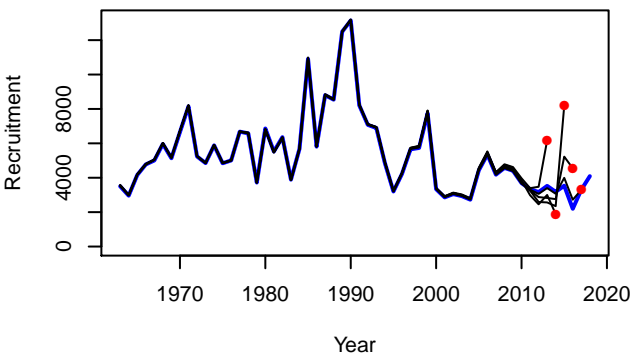
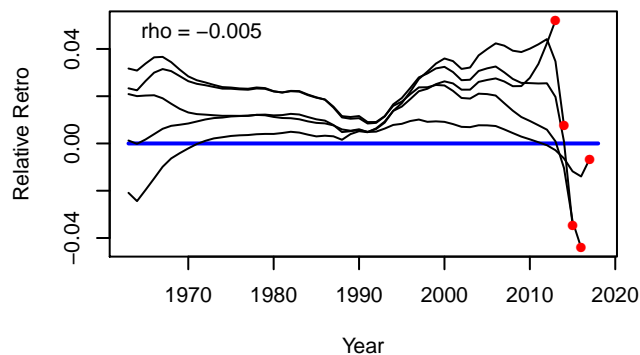
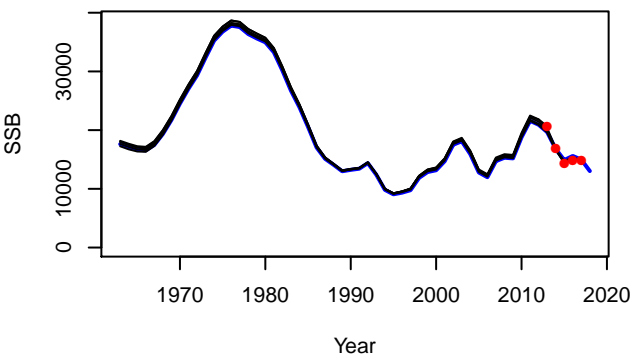
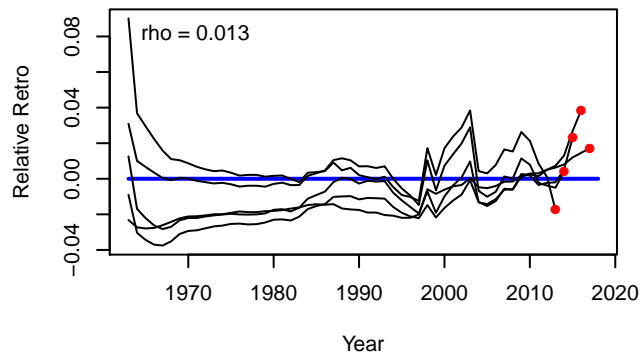
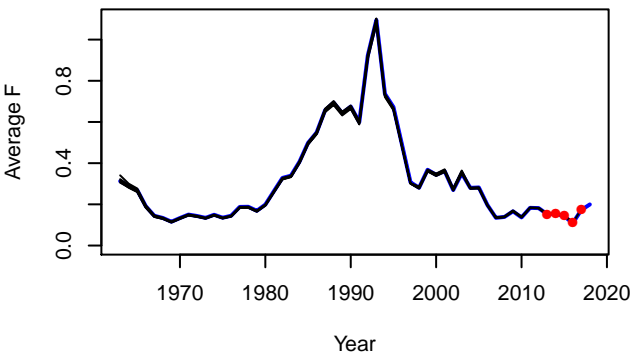




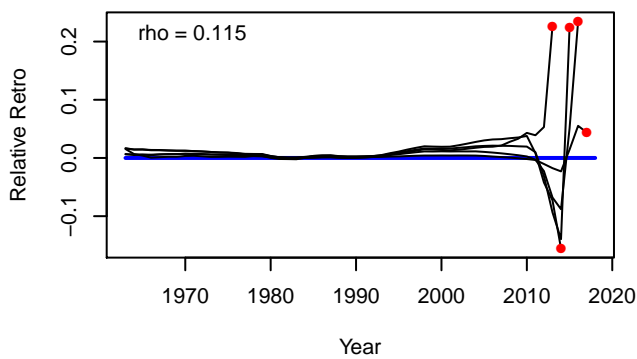
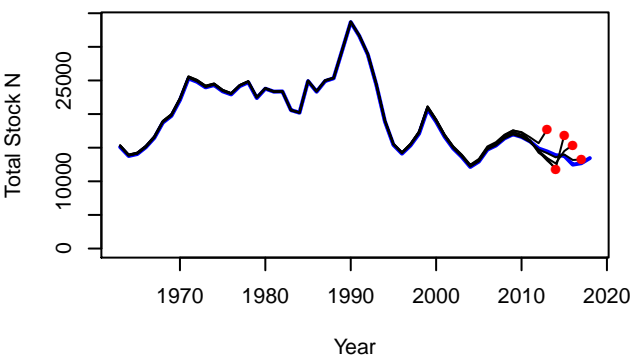
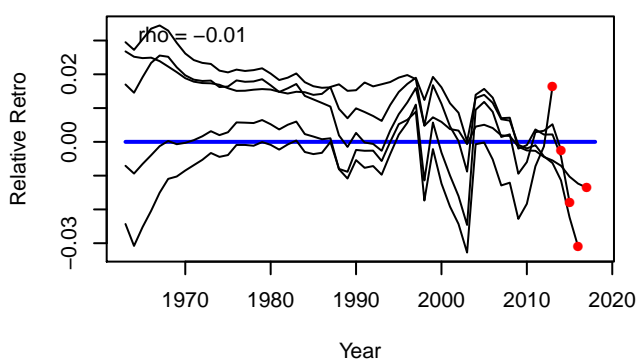
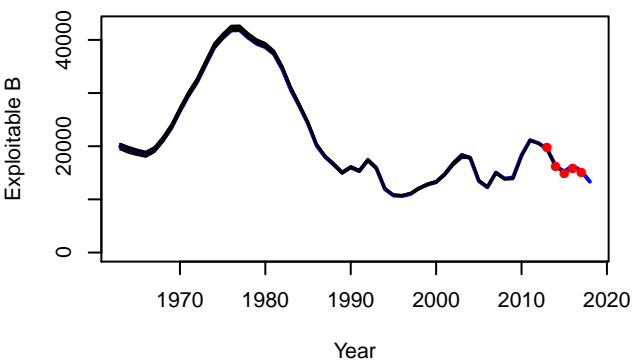
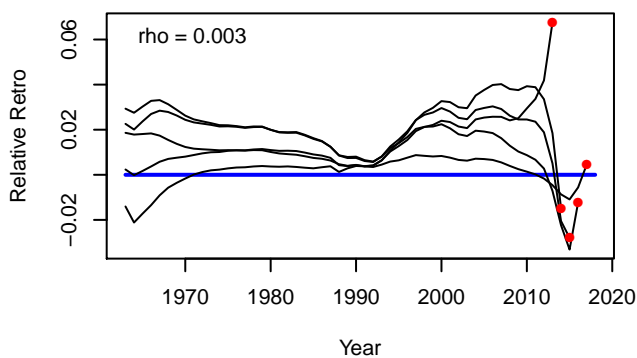
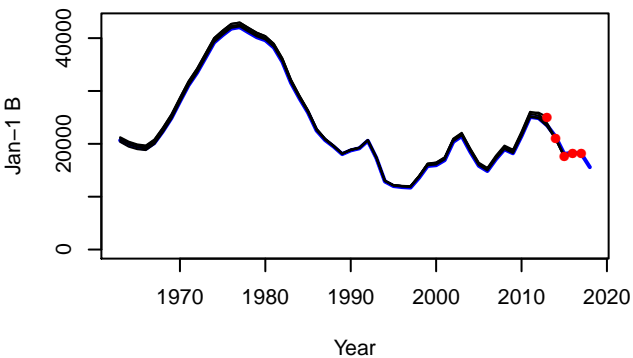
CV



F, SSB, R

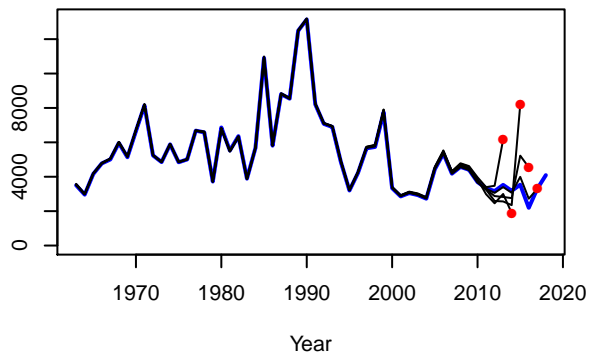


Jan-1 B, Exploitable B, Total Stock N

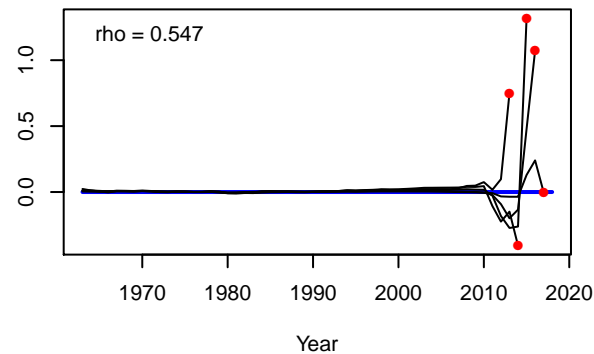


Stock Numbers at Age

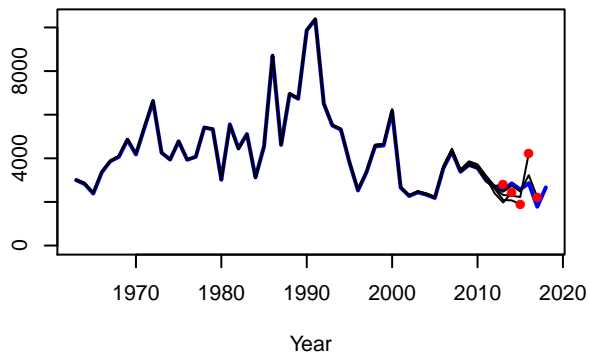
N at Age 1



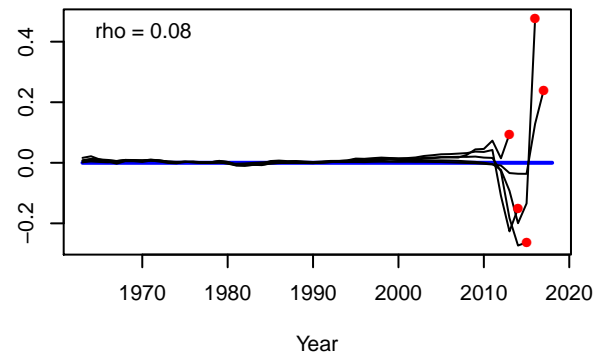
Relative Retro



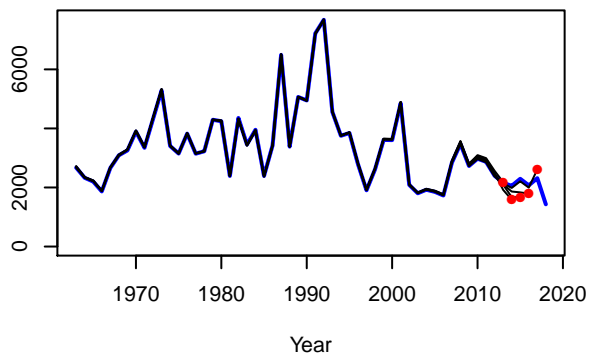
N at Age 2



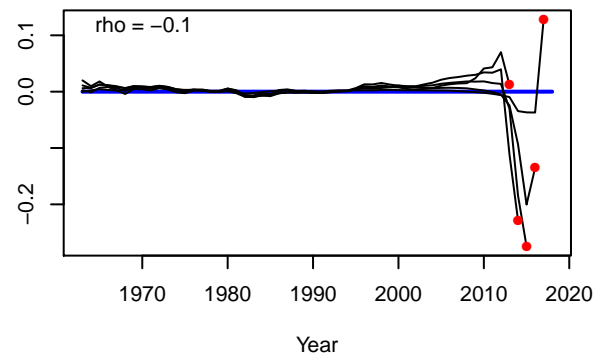
Relative Retro



N at Age 3

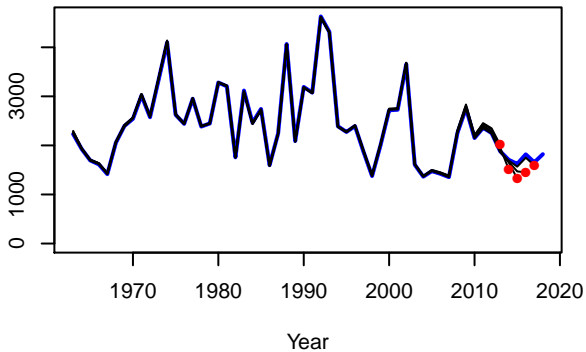


Relative Retro

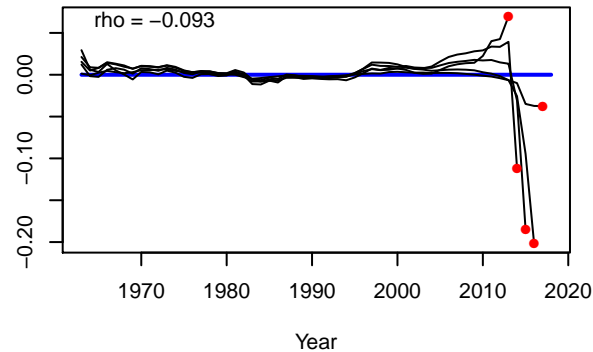


Stock Numbers at Age

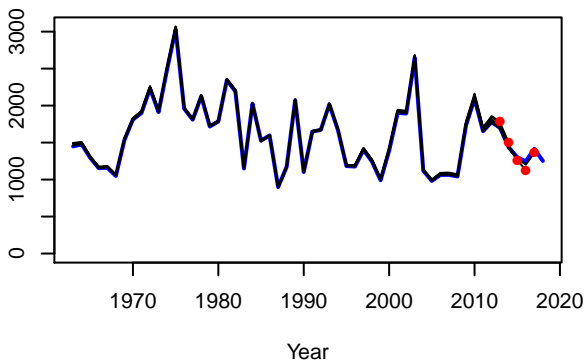
N at Age 4



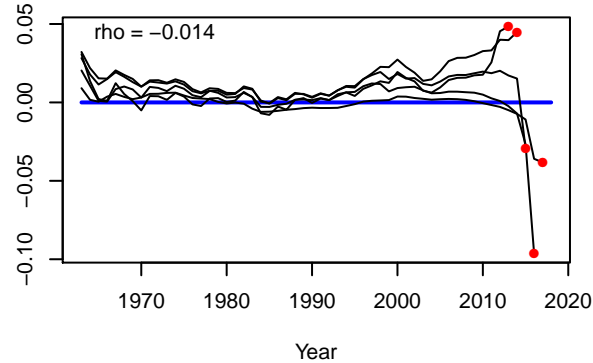
Relative Retro



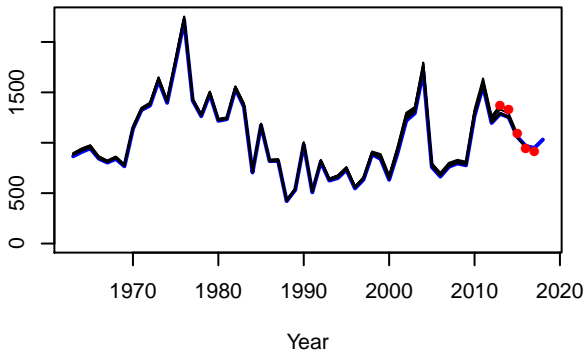
N at Age 5



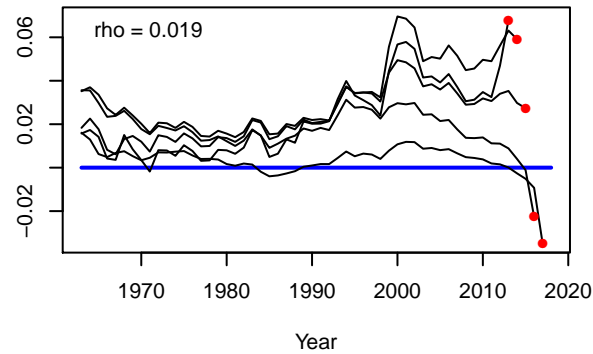
Relative Retro



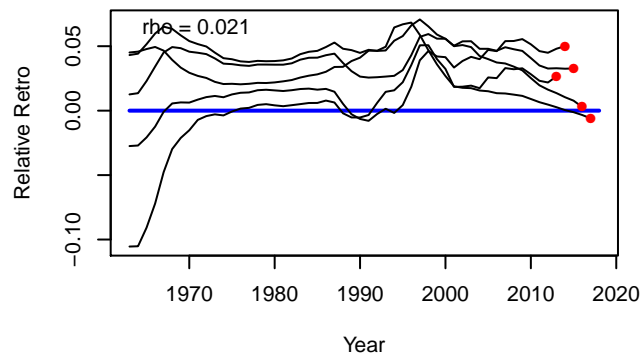
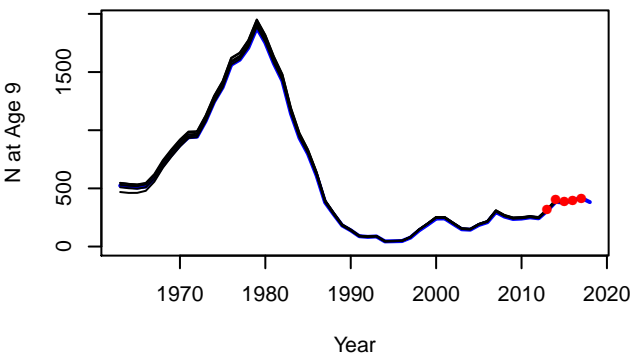
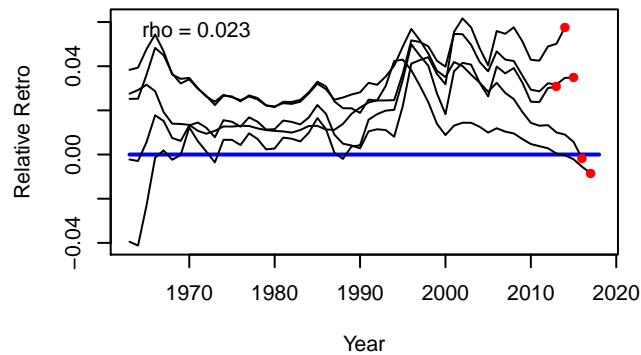
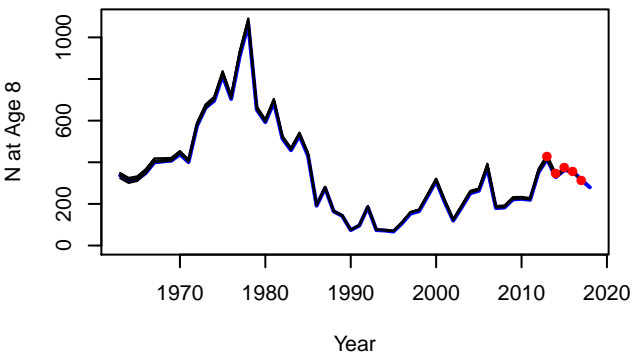
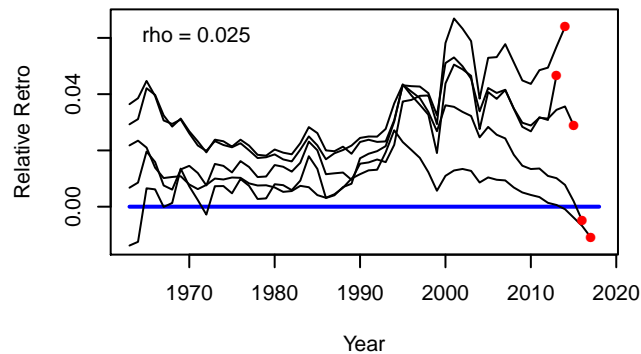
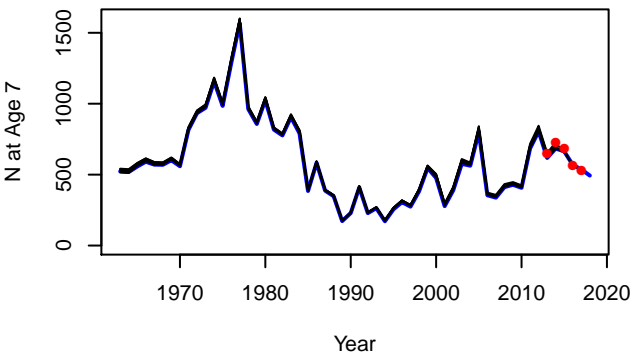
N at Age 6



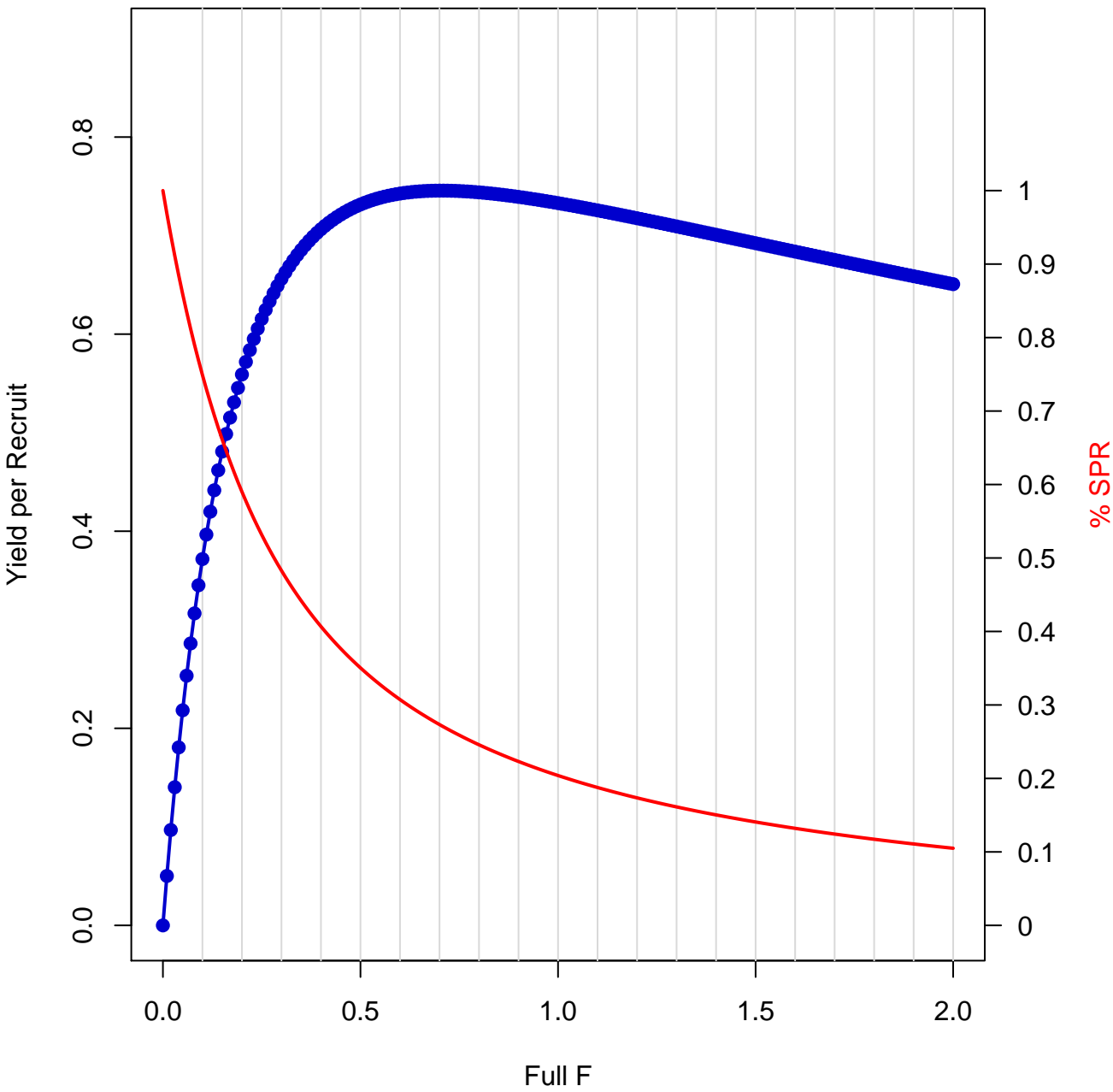
Relative Retro



Stock Numbers at Age



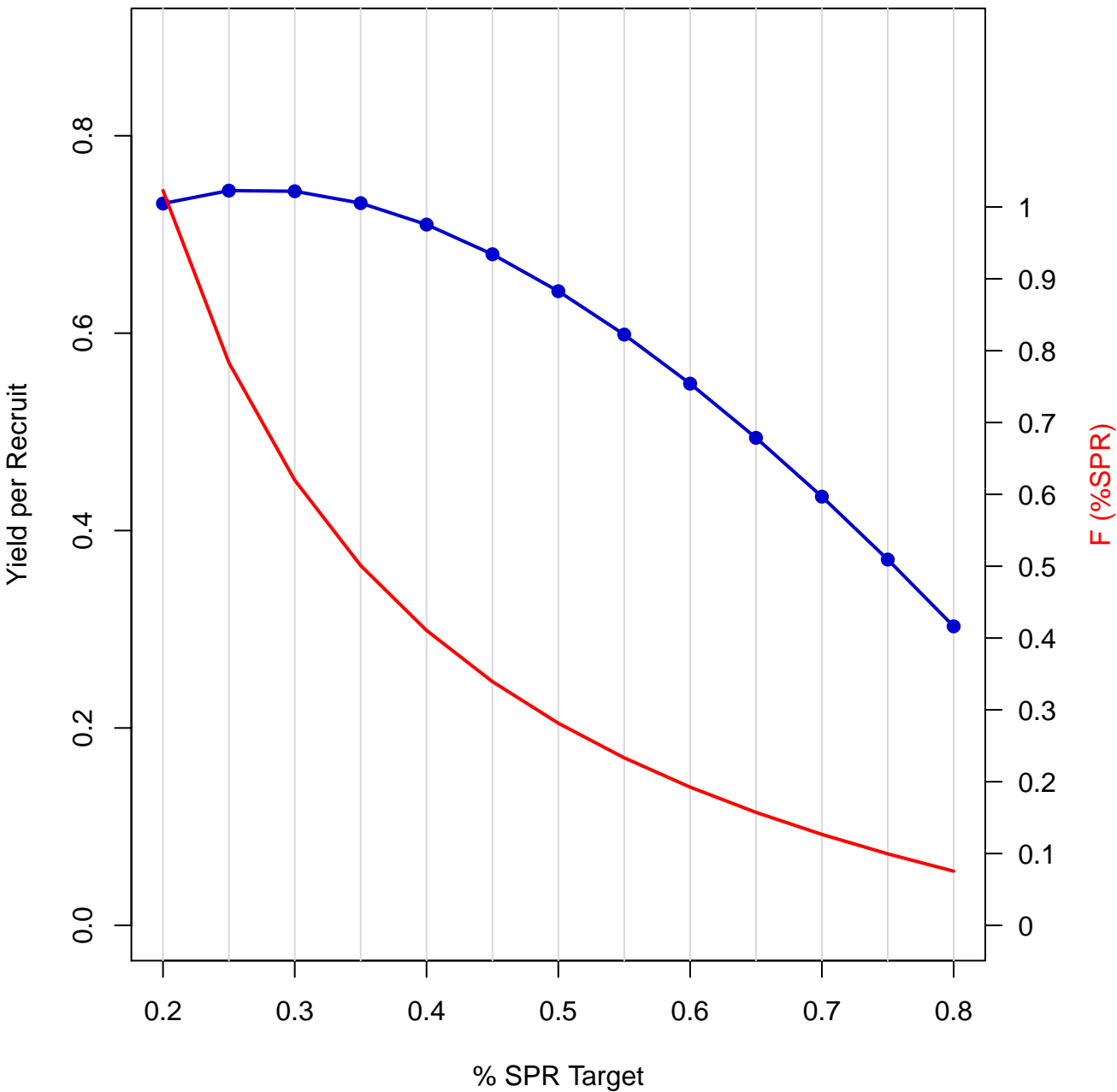
YPR-SPR Reference Points (Years Avg = 5)



YPR–SPR Reference Points (Years Avg = 5)

F	YPR	SPR	F	YPR	SPR	F	YPR	SPR
0	0	1	0.35	0.6854	0.4418	0.7	0.7457	0.2733
0.01	0.0502	0.9689	0.36	0.6902	0.4343	0.71	0.7457	0.2703
0.02	0.0968	0.9394	0.37	0.6947	0.4271	0.72	0.7456	0.2673
0.03	0.1402	0.9113	0.38	0.6989	0.4201	0.73	0.7455	0.2645
0.04	0.1806	0.8847	0.39	0.7028	0.4133	0.74	0.7454	0.2616
0.05	0.2183	0.8593	0.4	0.7064	0.4068	0.75	0.7452	0.2589
0.06	0.2534	0.8351	0.41	0.7099	0.4004	0.76	0.745	0.2561
0.07	0.2861	0.8121	0.42	0.713	0.3942	0.77	0.7448	0.2535
0.08	0.3166	0.7901	0.43	0.716	0.3882	0.78	0.7445	0.2509
0.09	0.3451	0.7692	0.44	0.7187	0.3823	0.79	0.7442	0.2483
0.1	0.3718	0.7491	0.45	0.7213	0.3766	0.8	0.7439	0.2458
0.11	0.3966	0.73	0.46	0.7237	0.3711	0.81	0.7435	0.2433
0.12	0.4198	0.7117	0.47	0.7259	0.3657	0.82	0.7432	0.2409
0.13	0.4416	0.6942	0.48	0.7279	0.3605	0.83	0.7427	0.2385
0.14	0.4619	0.6774	0.49	0.7298	0.3554	0.84	0.7423	0.2362
0.15	0.4809	0.6613	0.5	0.7316	0.3505	0.85	0.7419	0.2339
0.16	0.4986	0.6459	0.51	0.7332	0.3456	0.86	0.7414	0.2317
0.17	0.5153	0.6311	0.52	0.7347	0.3409	0.87	0.7409	0.2294
0.18	0.5308	0.6169	0.53	0.736	0.3364	0.88	0.7404	0.2273
0.19	0.5454	0.6033	0.54	0.7373	0.3319	0.89	0.7398	0.2251
0.2	0.5591	0.5901	0.55	0.7384	0.3275	0.9	0.7393	0.2231
0.21	0.5719	0.5775	0.56	0.7395	0.3233	0.91	0.7387	0.221
0.22	0.5838	0.5654	0.57	0.7404	0.3192	0.92	0.7381	0.219
0.23	0.5951	0.5537	0.58	0.7412	0.3151	0.93	0.7375	0.217
0.24	0.6056	0.5425	0.59	0.742	0.3112	0.94	0.7369	0.215
0.25	0.6154	0.5316	0.6	0.7427	0.3073	0.95	0.7363	0.2131
0.26	0.6247	0.5212	0.61	0.7433	0.3036	0.96	0.7356	0.2112
0.27	0.6333	0.5111	0.62	0.7438	0.2999	0.97	0.735	0.2094
0.28	0.6414	0.5014	0.63	0.7442	0.2963	0.98	0.7343	0.2075
0.29	0.649	0.492	0.64	0.7446	0.2928	0.99	0.7337	0.2057
0.3	0.6561	0.4829	0.65	0.7449	0.2894	1	0.733	0.2039
0.31	0.6628	0.4741	0.66	0.7452	0.286	1.01	0.7323	0.2022
0.32	0.669	0.4656	0.67	0.7454	0.2827	1.02	0.7316	0.2005
0.33	0.6748	0.4574	0.68	0.7455	0.2795	1.03	0.7308	0.1988
0.34	0.6803	0.4495	0.69	0.7456	0.2764	1.04	0.7301	0.1971

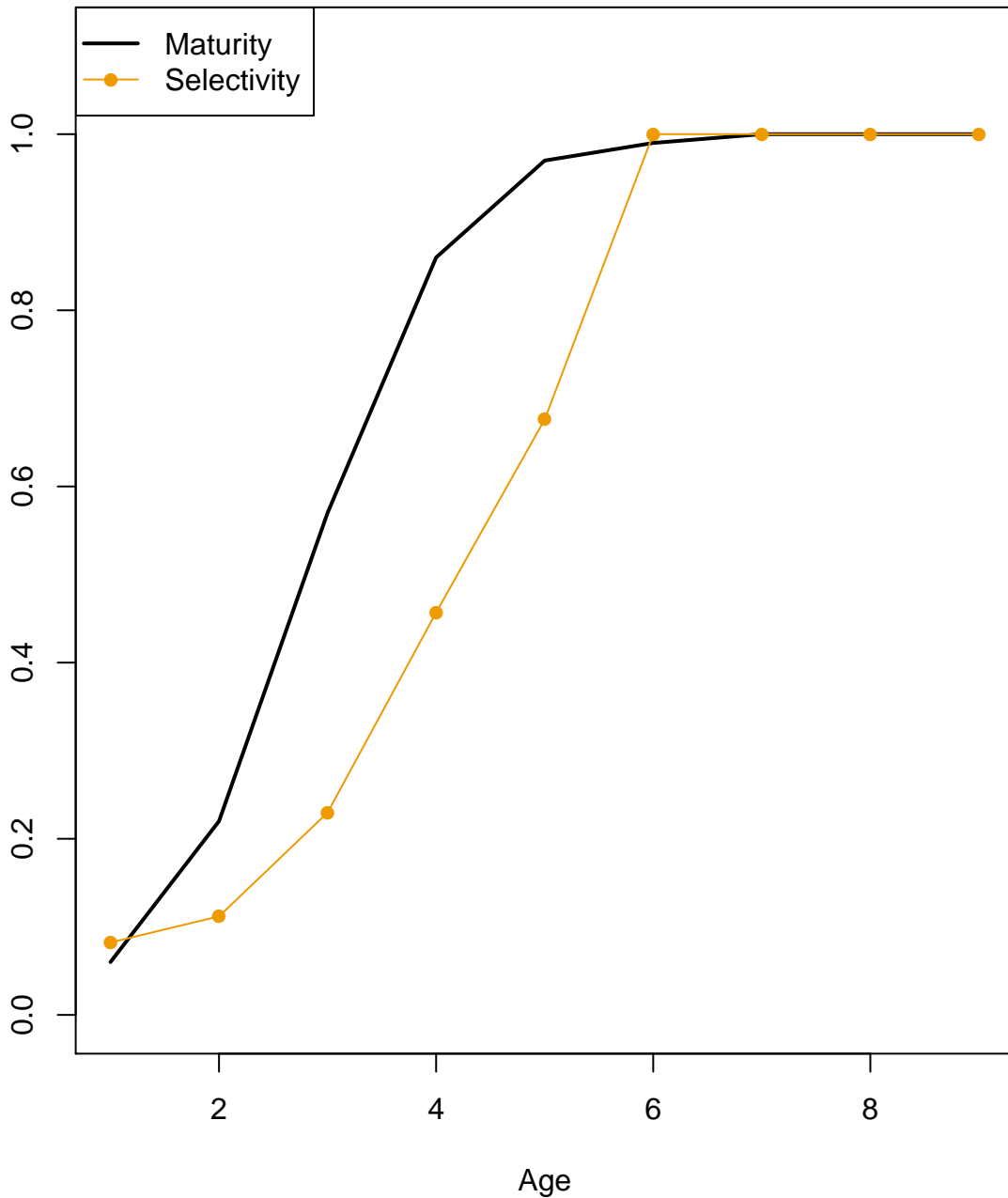
SPR Target Reference Points (Years Avg = 5)



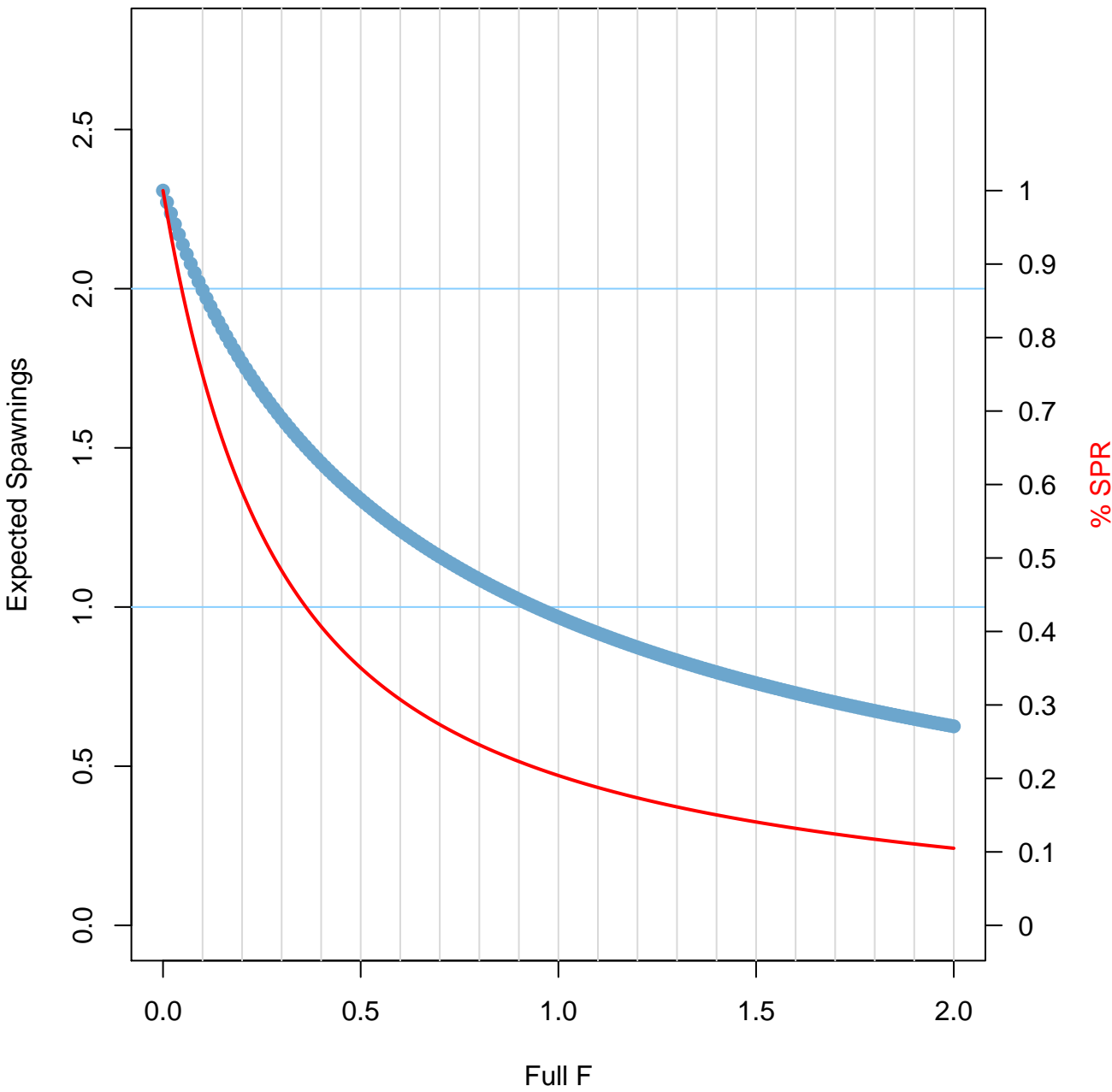
SPR Target Reference Points (Years Avg = 5)

% SPR	F(%SPR)	YPR
0.2	1.0228	0.7314
0.25	0.7833	0.7444
0.3	0.6197	0.7438
0.35	0.5009	0.7317
0.4	0.4106	0.71
0.45	0.3393	0.68
0.5	0.2814	0.6425
0.55	0.2333	0.5986
0.6	0.1925	0.5489
0.65	0.1573	0.494
0.7	0.1266	0.4344
0.75	0.0996	0.3706
0.8	0.0754	0.303

Selectivity or Maturity at age



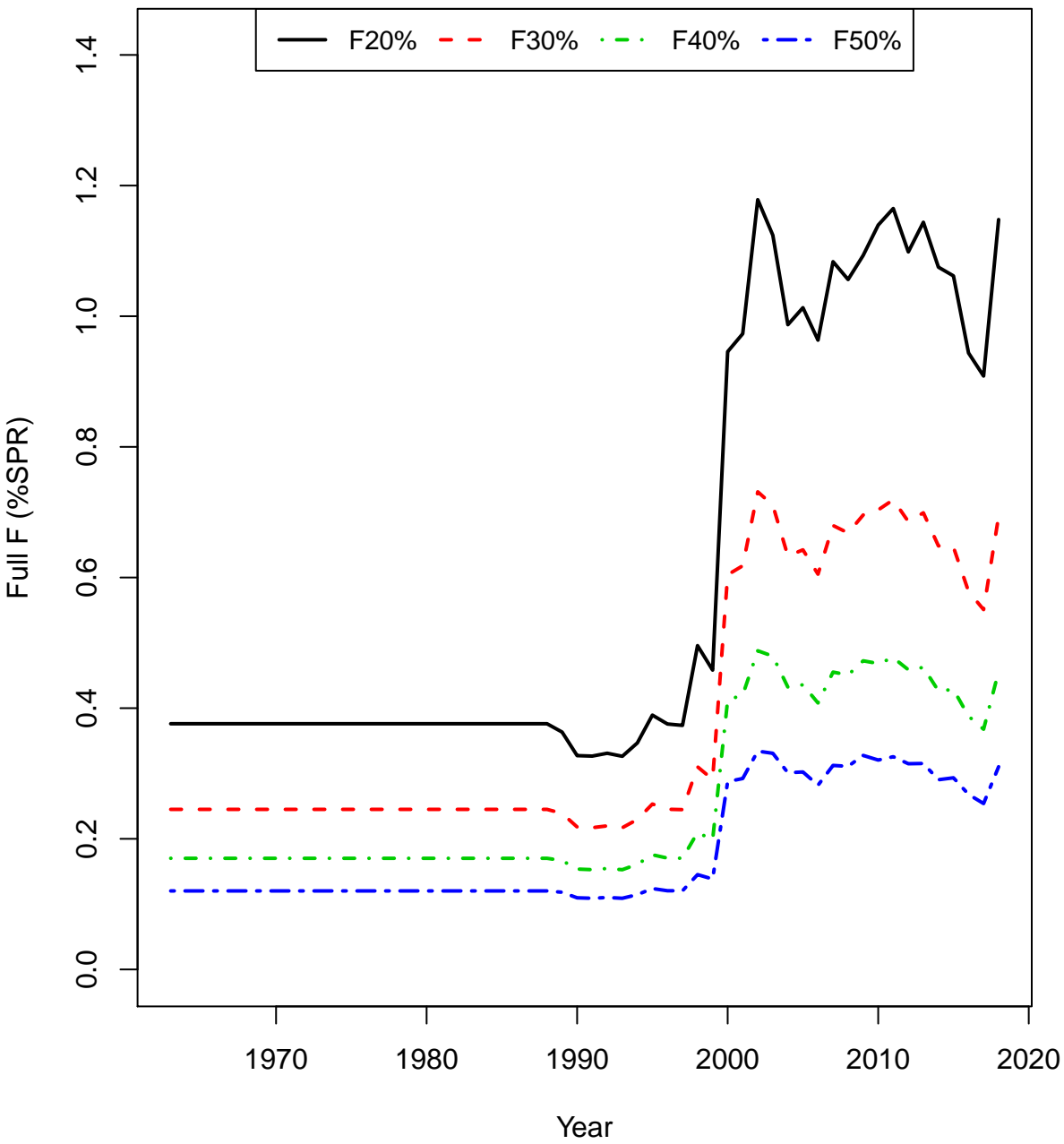
Expected Spawns and SPR Reference Points (Years Avg = 5)



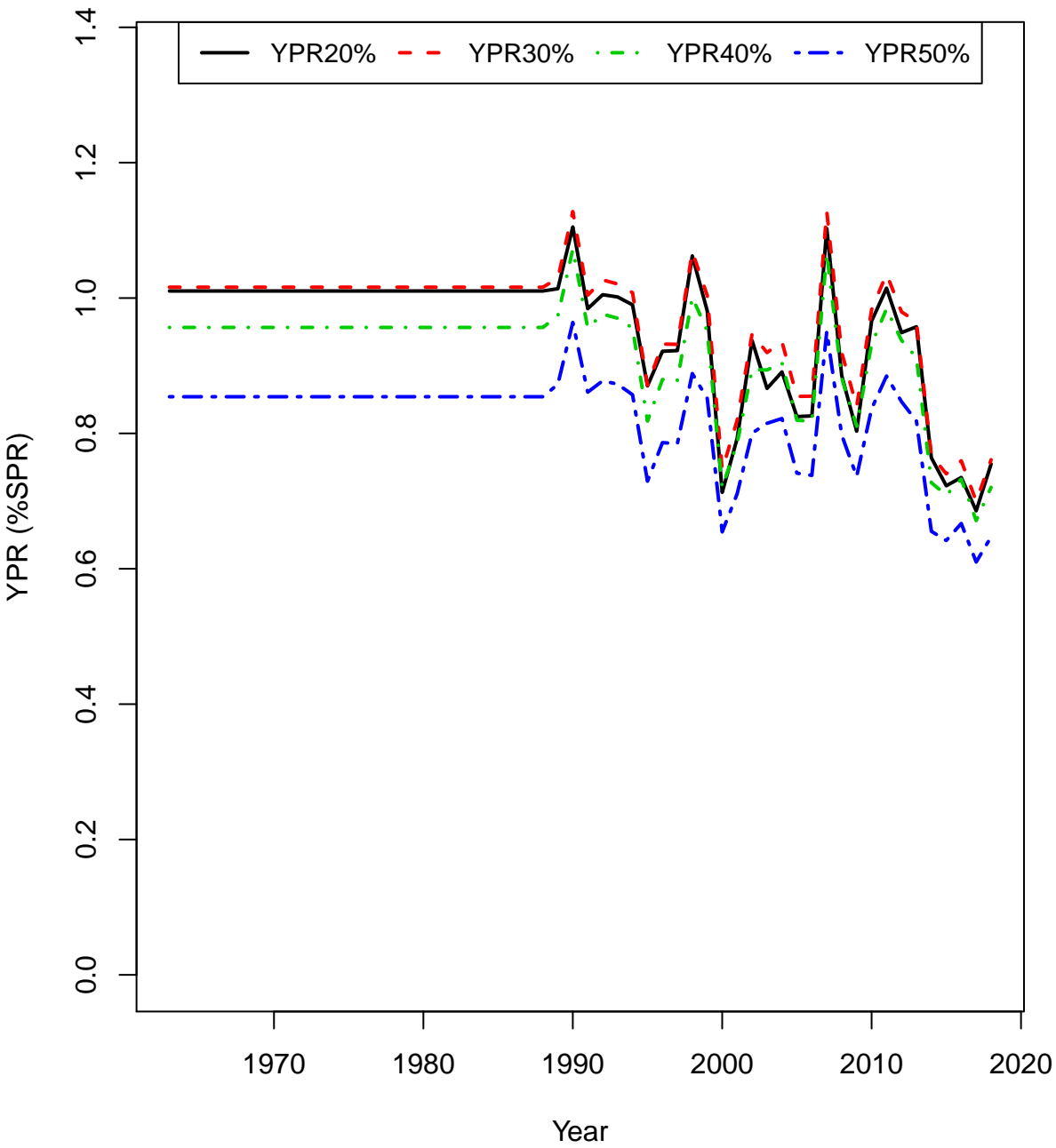
Expected Spawnings & SPR Reference Points (Years Avg = 5)

F	E[Sp]	SPR	F	E[Sp]	SPR	F	E[Sp]	SPR
0	2.308	1	0.35	1.519	0.4418	0.7	1.1586	0.2733
0.01	2.2716	0.9689	0.36	1.5052	0.4343	0.71	1.151	0.2703
0.02	2.2364	0.9394	0.37	1.4917	0.4271	0.72	1.1435	0.2673
0.03	2.2026	0.9113	0.38	1.4785	0.4201	0.73	1.1361	0.2645
0.04	2.1699	0.8847	0.39	1.4655	0.4133	0.74	1.1288	0.2616
0.05	2.1384	0.8593	0.4	1.4528	0.4068	0.75	1.1216	0.2589
0.06	2.1079	0.8351	0.41	1.4403	0.4004	0.76	1.1144	0.2561
0.07	2.0785	0.8121	0.42	1.428	0.3942	0.77	1.1074	0.2535
0.08	2.05	0.7901	0.43	1.416	0.3882	0.78	1.1005	0.2509
0.09	2.0224	0.7692	0.44	1.4042	0.3823	0.79	1.0937	0.2483
0.1	1.9957	0.7491	0.45	1.3927	0.3766	0.8	1.0869	0.2458
0.11	1.9698	0.73	0.46	1.3813	0.3711	0.81	1.0803	0.2433
0.12	1.9447	0.7117	0.47	1.3701	0.3657	0.82	1.0737	0.2409
0.13	1.9203	0.6942	0.48	1.3592	0.3605	0.83	1.0672	0.2385
0.14	1.8966	0.6774	0.49	1.3484	0.3554	0.84	1.0608	0.2362
0.15	1.8736	0.6613	0.5	1.3378	0.3505	0.85	1.0545	0.2339
0.16	1.8513	0.6459	0.51	1.3274	0.3456	0.86	1.0482	0.2317
0.17	1.8295	0.6311	0.52	1.3172	0.3409	0.87	1.042	0.2294
0.18	1.8084	0.6169	0.53	1.3072	0.3364	0.88	1.0359	0.2273
0.19	1.7878	0.6033	0.54	1.2973	0.3319	0.89	1.0299	0.2251
0.2	1.7678	0.5901	0.55	1.2875	0.3275	0.9	1.024	0.2231
0.21	1.7483	0.5775	0.56	1.278	0.3233	0.91	1.0181	0.221
0.22	1.7292	0.5654	0.57	1.2686	0.3192	0.92	1.0123	0.219
0.23	1.7107	0.5537	0.58	1.2593	0.3151	0.93	1.0065	0.217
0.24	1.6926	0.5425	0.59	1.2502	0.3112	0.94	1.0008	0.215
0.25	1.6749	0.5316	0.6	1.2412	0.3073	0.95	0.9952	0.2131
0.26	1.6577	0.5212	0.61	1.2324	0.3036	0.96	0.9897	0.2112
0.27	1.6409	0.5111	0.62	1.2237	0.2999	0.97	0.9842	0.2094
0.28	1.6244	0.5014	0.63	1.2151	0.2963	0.98	0.9788	0.2075
0.29	1.6083	0.492	0.64	1.2067	0.2928	0.99	0.9734	0.2057
0.3	1.5926	0.4829	0.65	1.1984	0.2894	1	0.9681	0.2039
0.31	1.5773	0.4741	0.66	1.1902	0.286	1.01	0.9629	0.2022
0.32	1.5622	0.4656	0.67	1.1821	0.2827	1.02	0.9577	0.2005
0.33	1.5475	0.4574	0.68	1.1742	0.2795	1.03	0.9525	0.1988
0.34	1.5331	0.4495	0.69	1.1663	0.2764	1.04	0.9475	0.1971

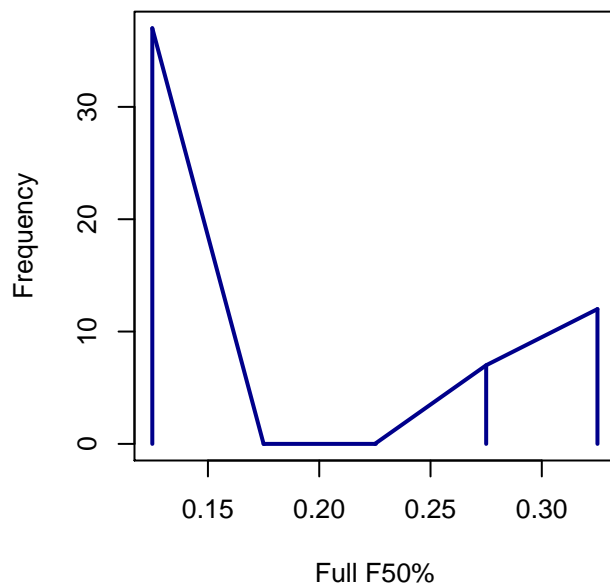
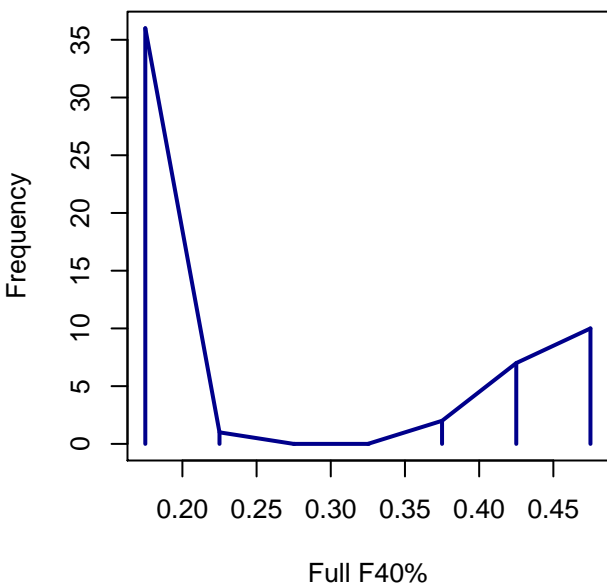
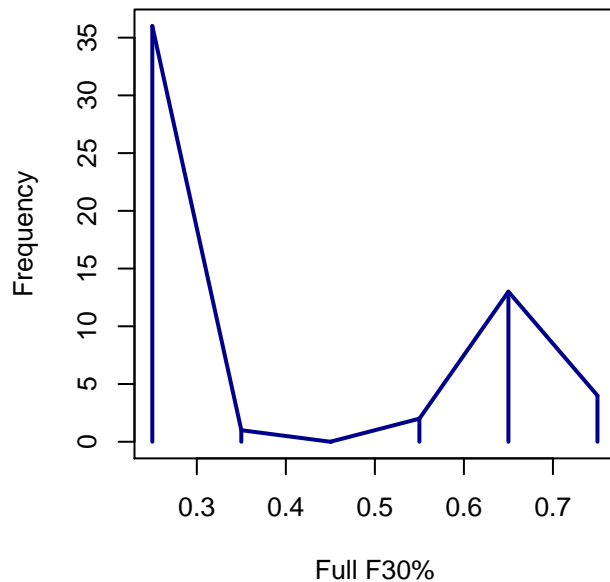
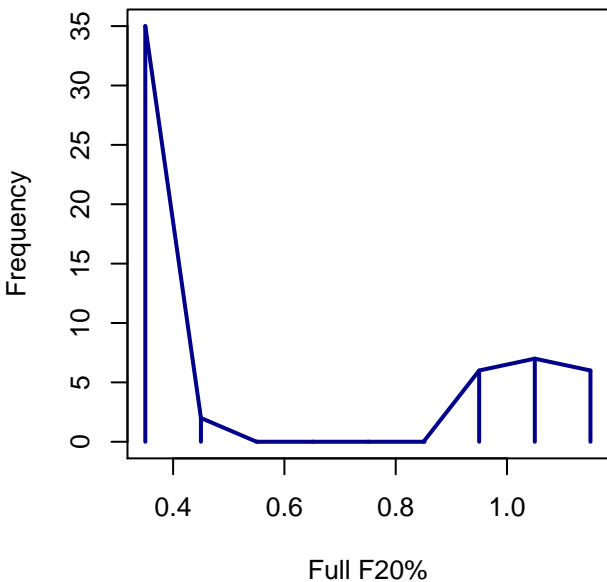
Annual F(%SPR) Reference Points



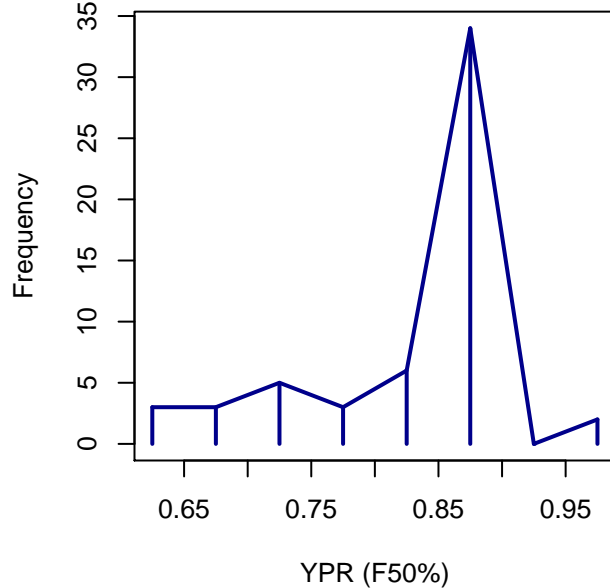
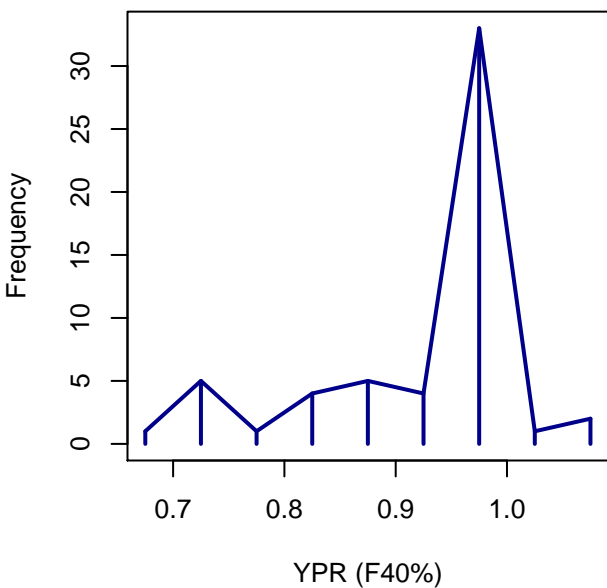
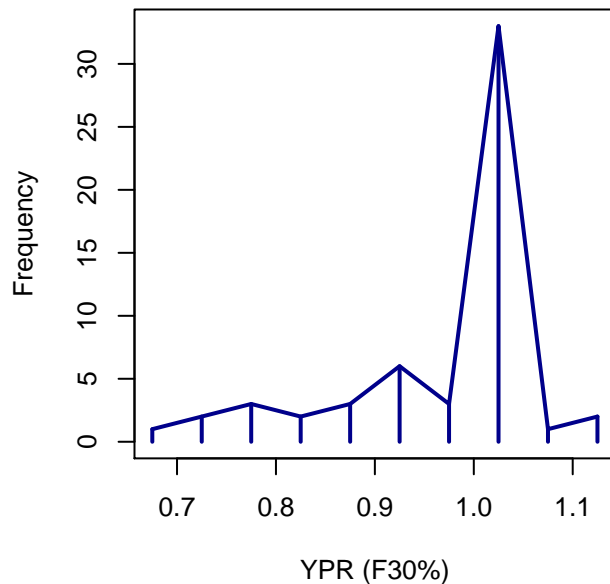
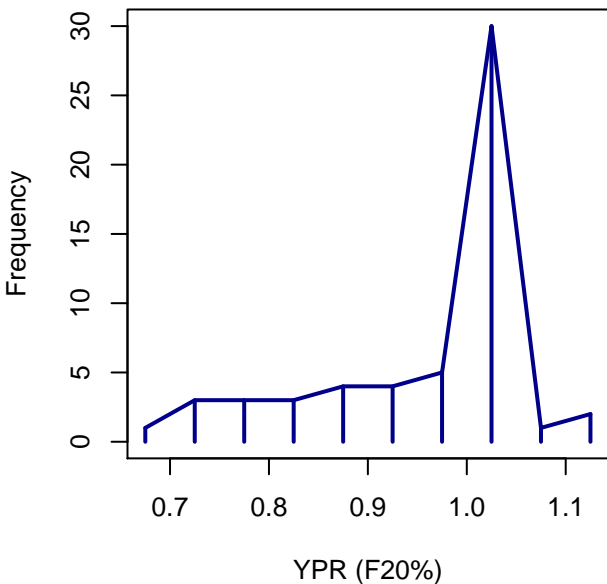
Annual YPR(%SPR) Reference Points



Annual F (%SPR) Reference Points

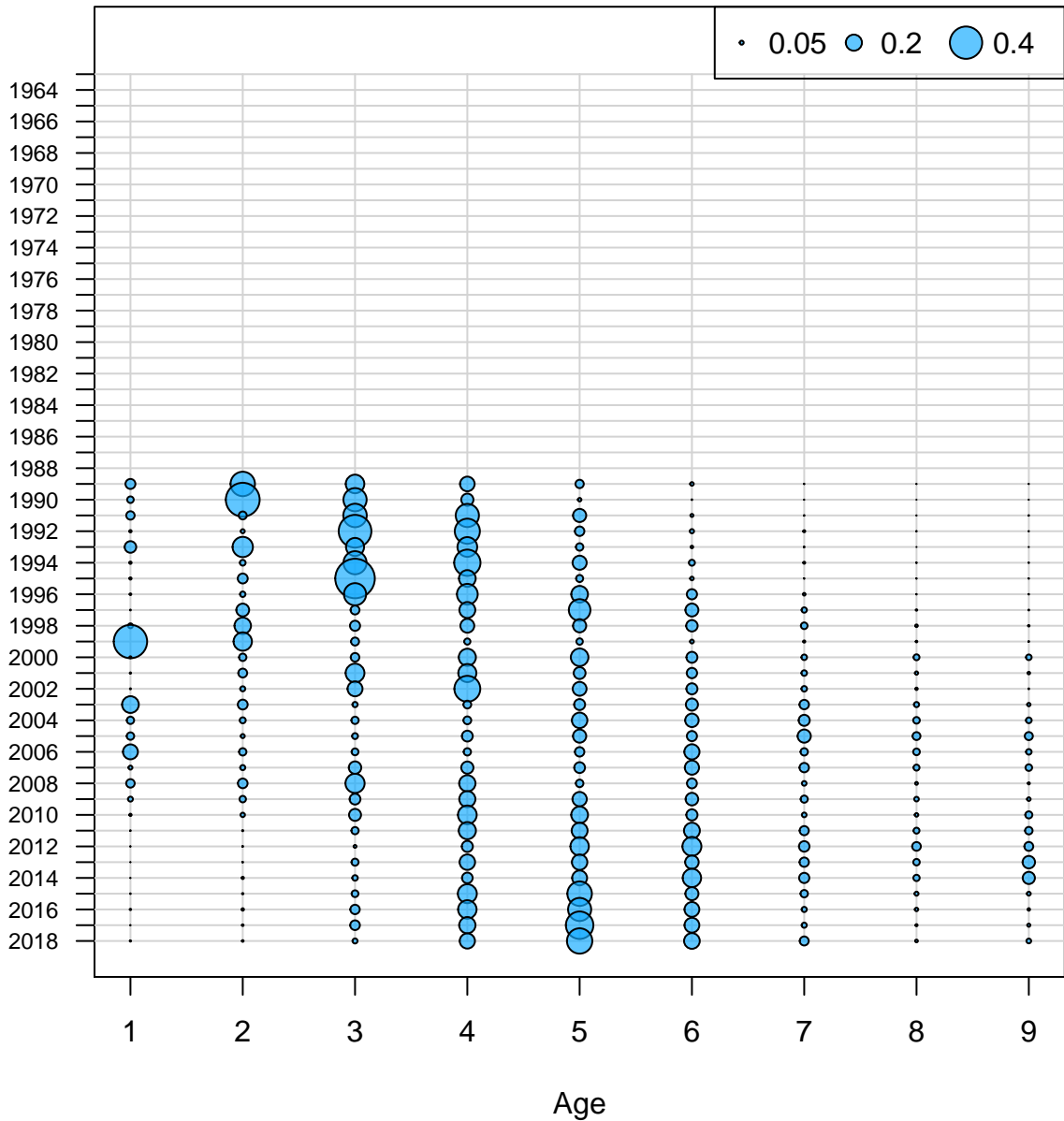


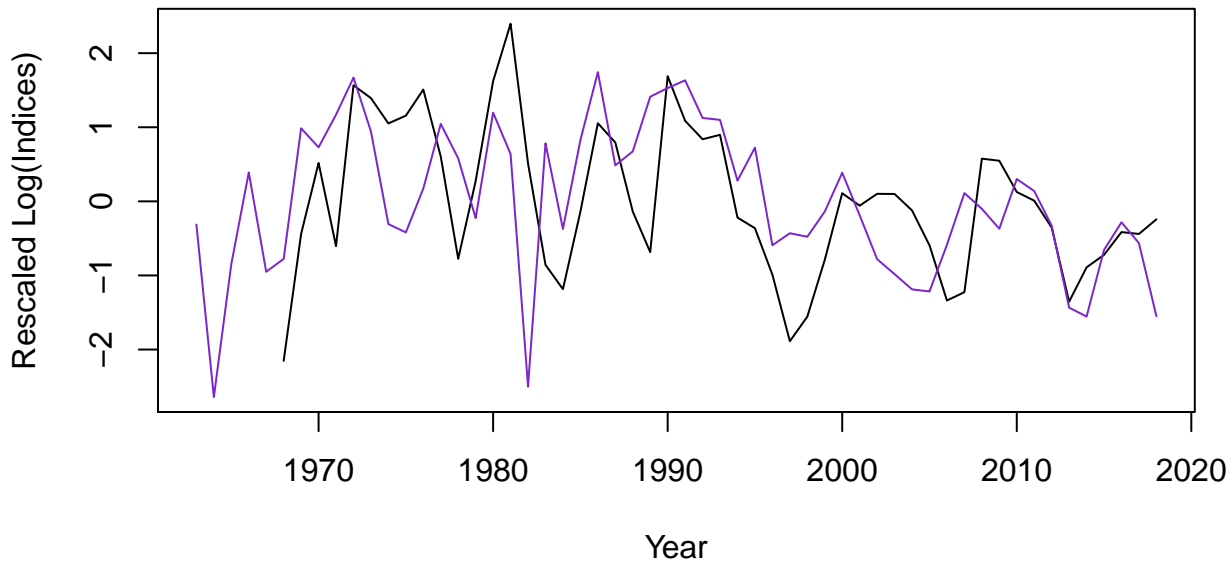
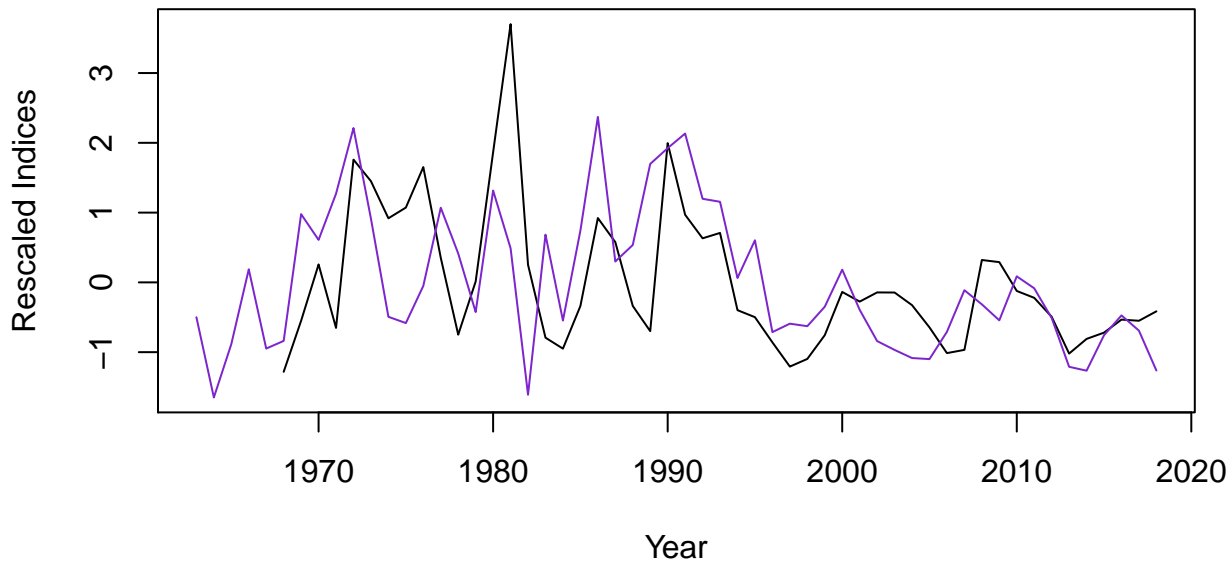
Annual YPR (%SPR) Reference Points



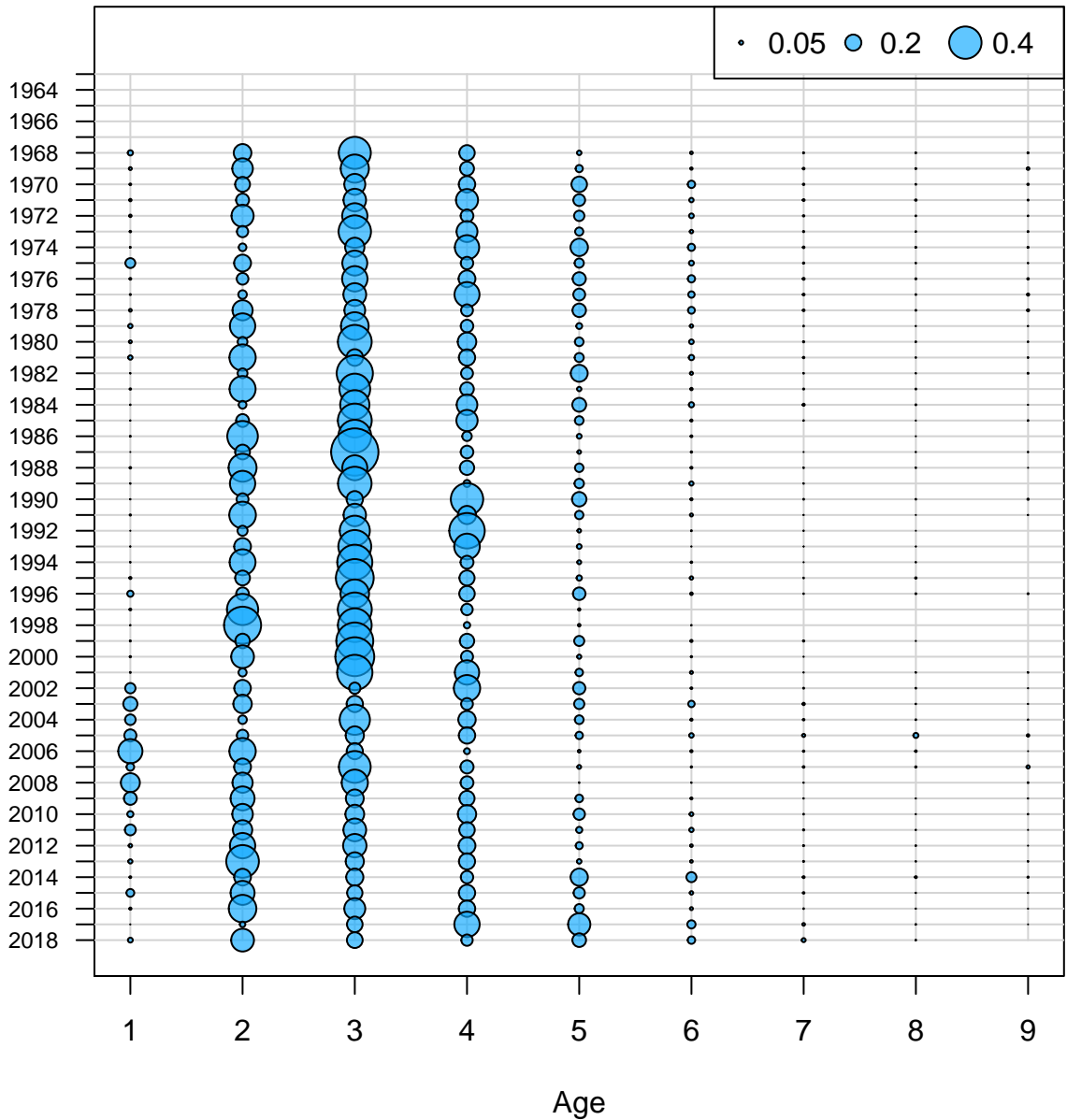


Age Comps for Catch by Fleet 1 (FLEET-1)

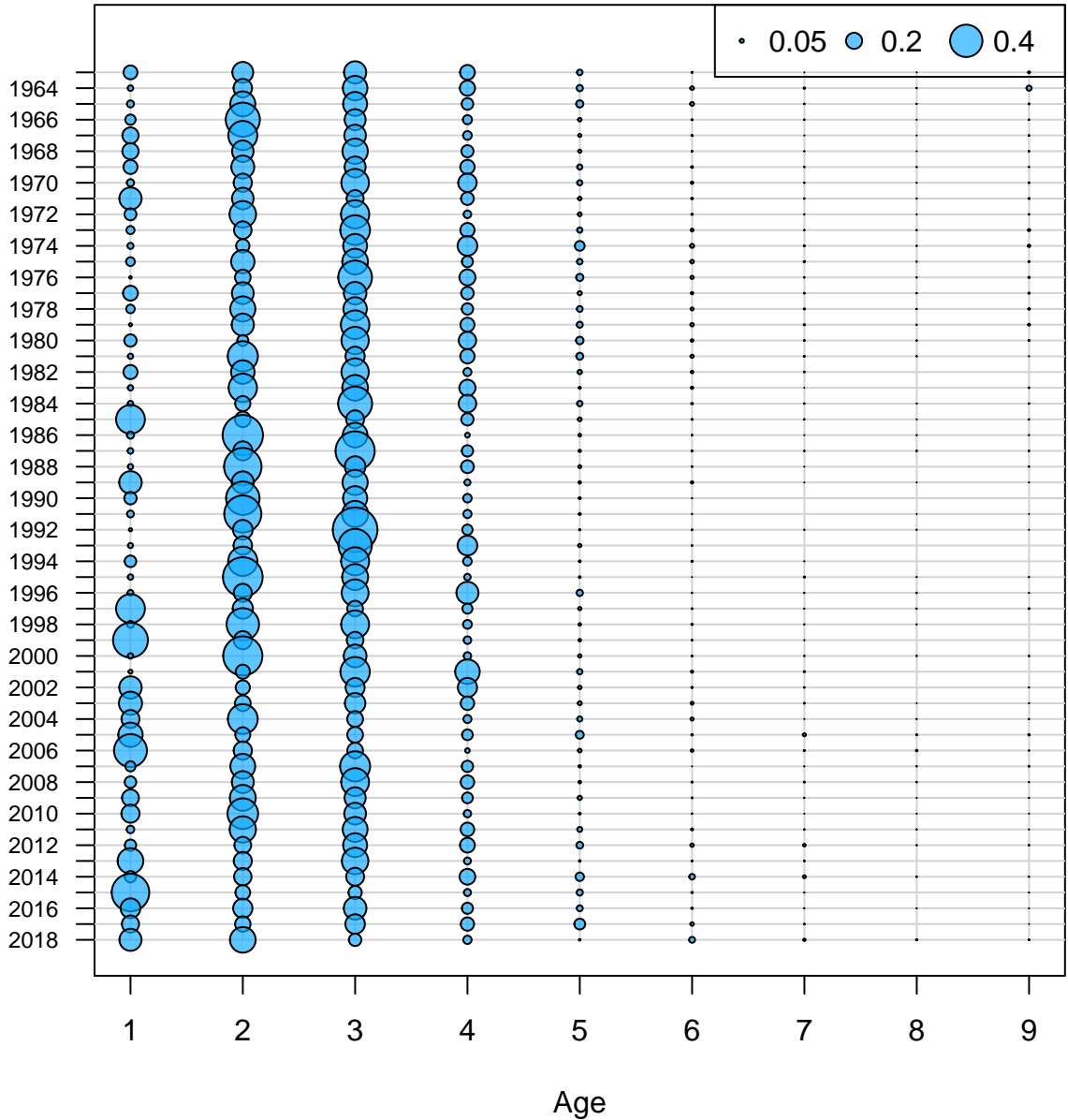




Age Comps for Index 1 (INDEX-1)



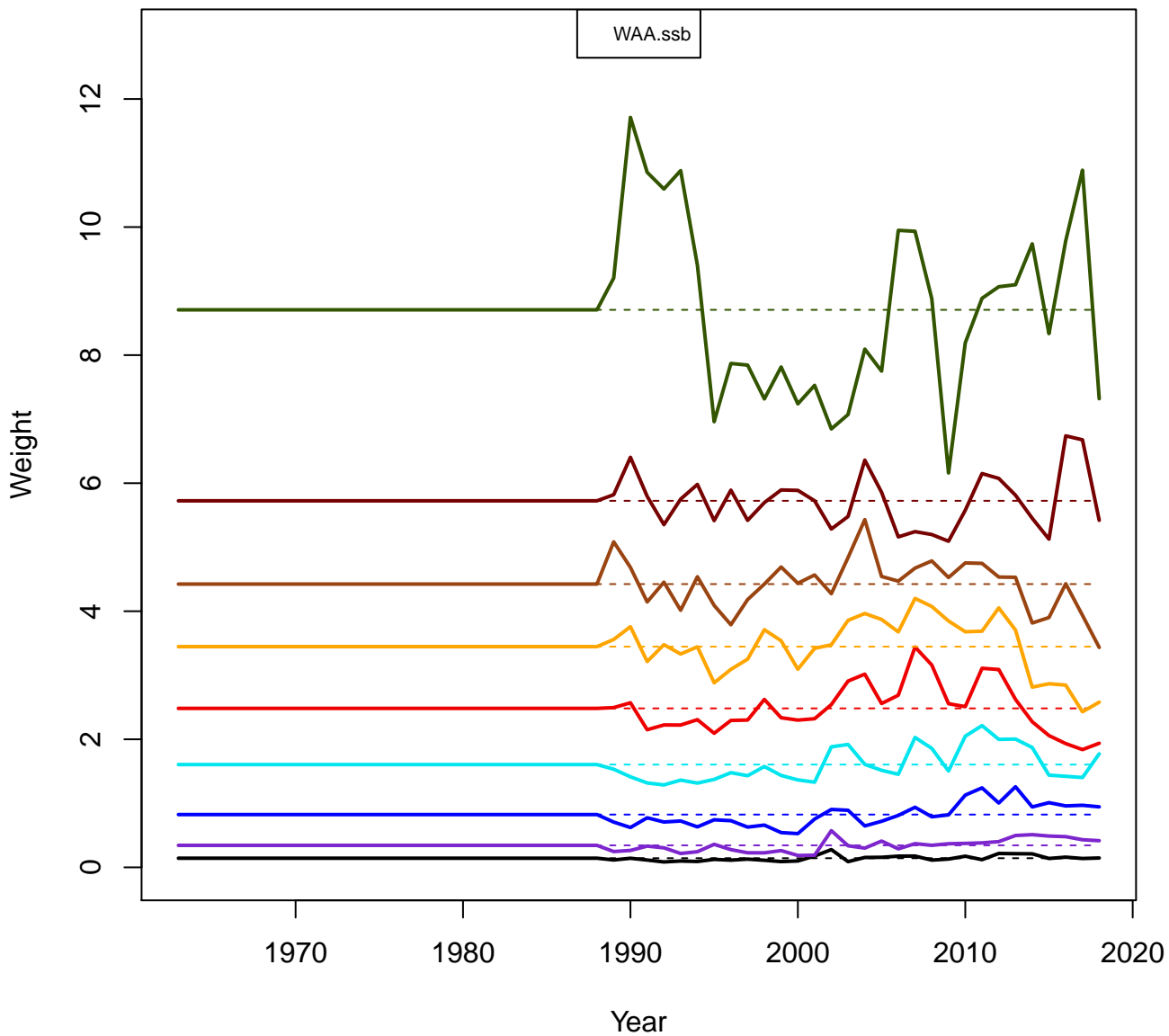
Age Comps for Index 2 (INDEX-2)



WAA matrix 1



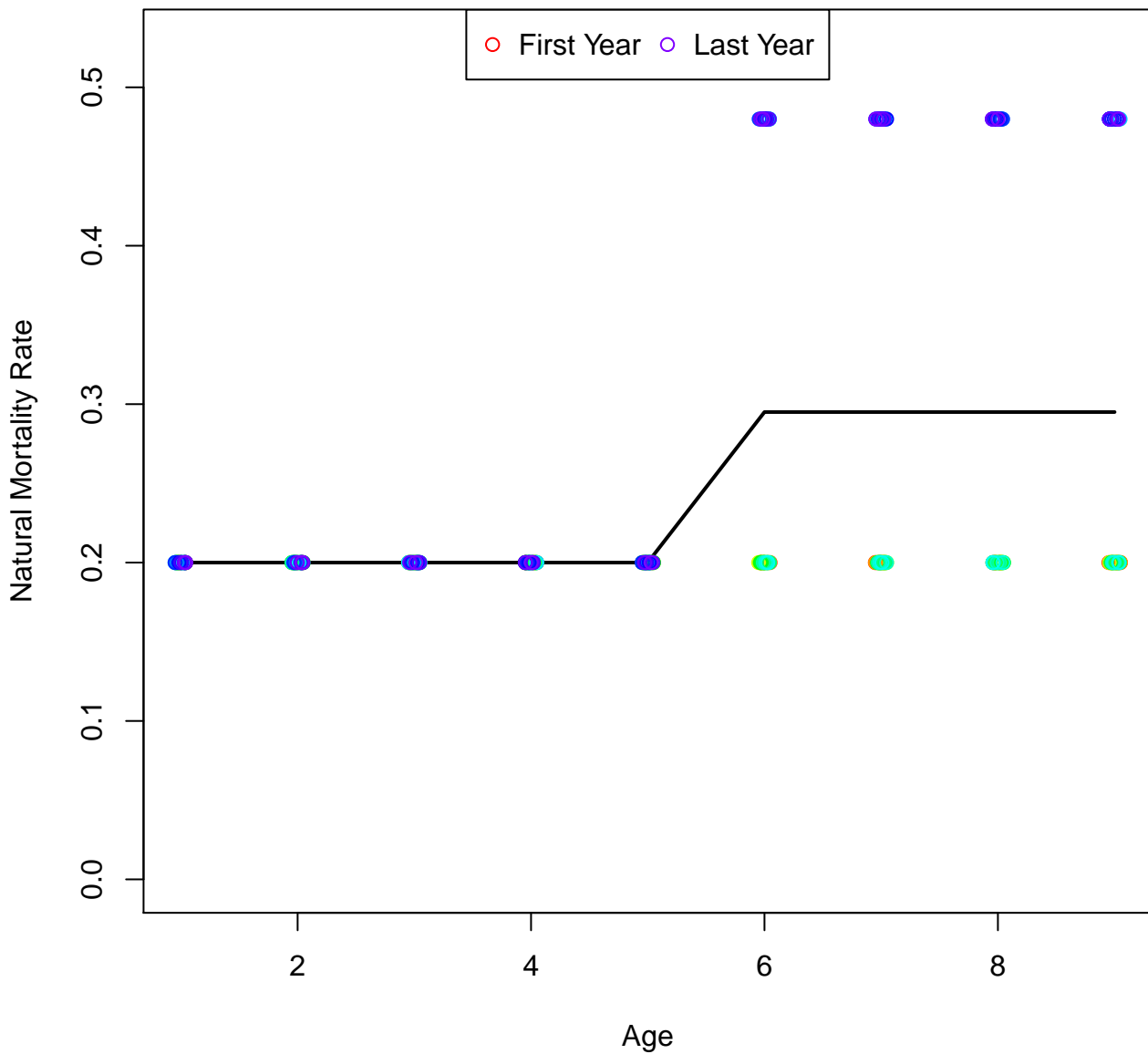
WAA matrix 2



WAA matrix 3



M



Maturity

