

File = y2000r9c1m1.8s111111111_000.dat

ASAP3 run on Monday, 04 Nov 2019 at 10:58:12

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

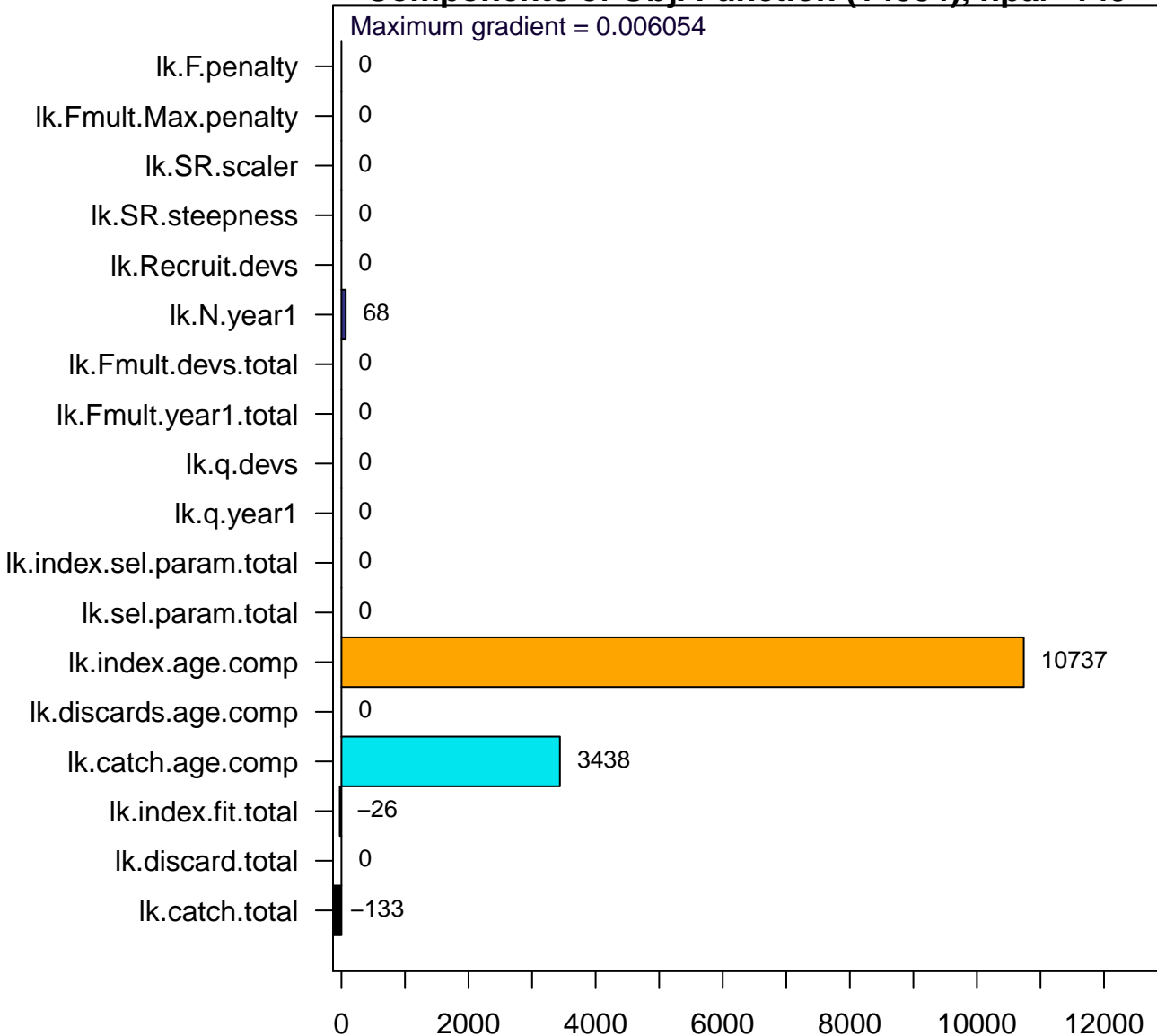
ASAPplots version = 0.2.14

Warning, maximum gradient > 0.001

npar = 149, maximum gradient = 0.00605414

Components of Obj. Function (14084), npar=149

Maximum gradient = 0.006054

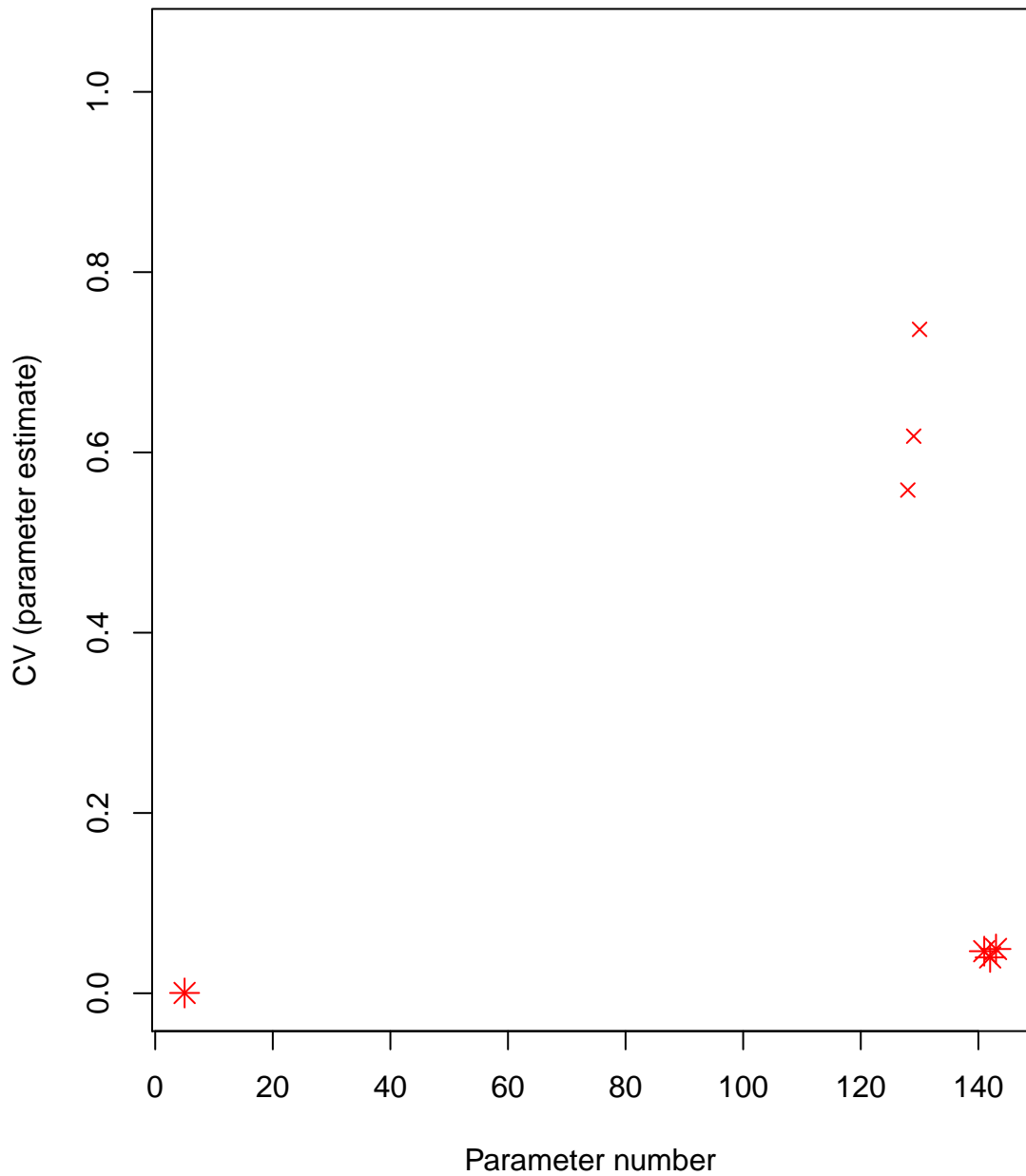


Likelihood Contribution

Model: y2000r9c1m1.8s111111111_000

Monday, 04 Nov 2019 at 10:58

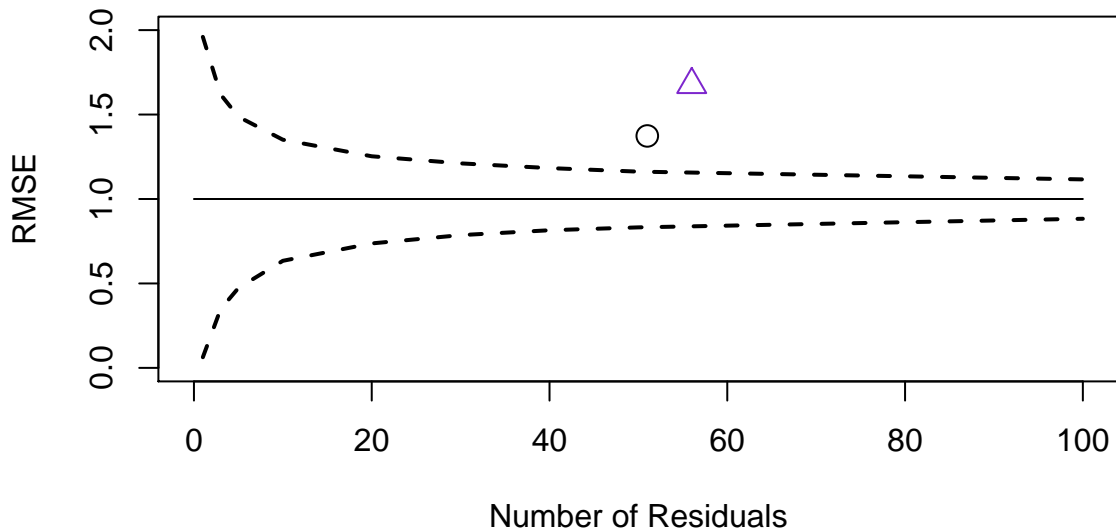




Root Mean Square Error computed from Standardized Residuals

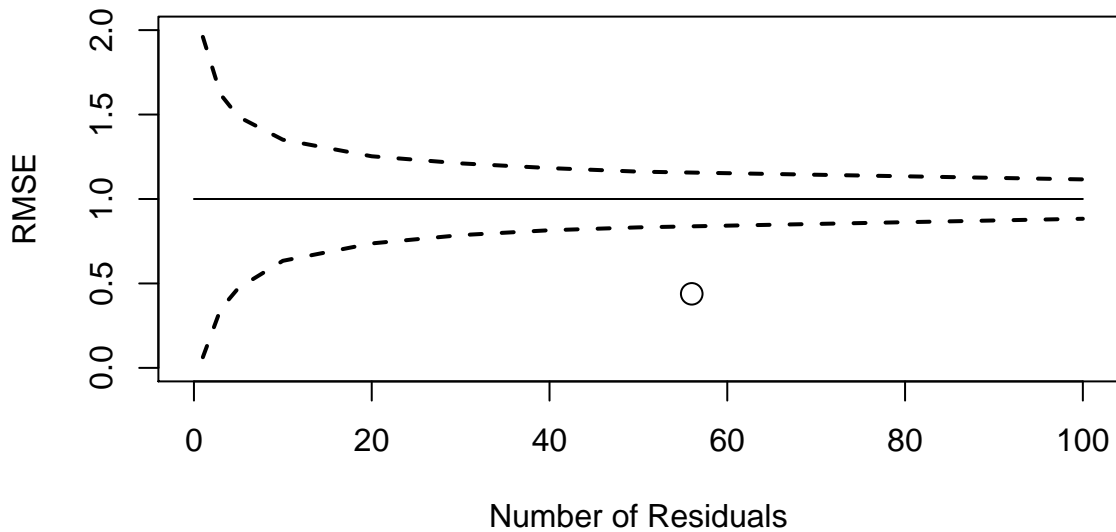
Component	# resids	RMSE
catch.tot	56	0.439
discard.tot	0	0
ind01	51	1.37
ind02	56	1.68
ind.total	107	1.54
N.year1	8	0.834
Fmult.year1	0	0
Fmult.devs.total	0	0
recruit.devs	0	0
fleet.sel.params	0	0
index.sel.params	0	0
q.year1	0	0
q.devs	0	0
SR.steepness	0	0
SR.scaler	0	0

Root Mean Square Error for Indices



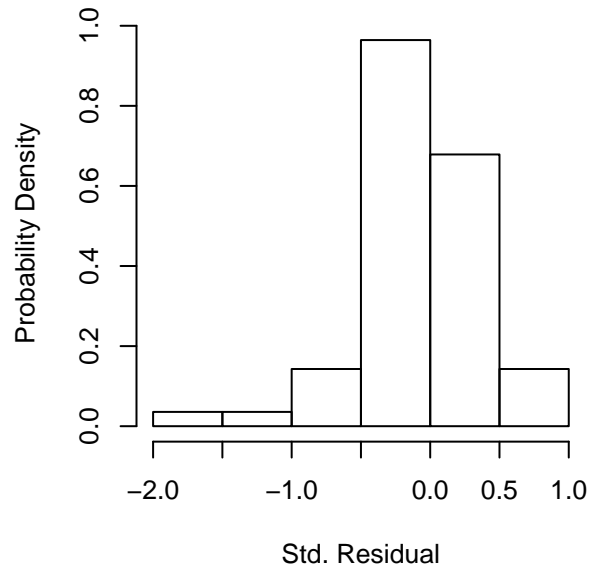
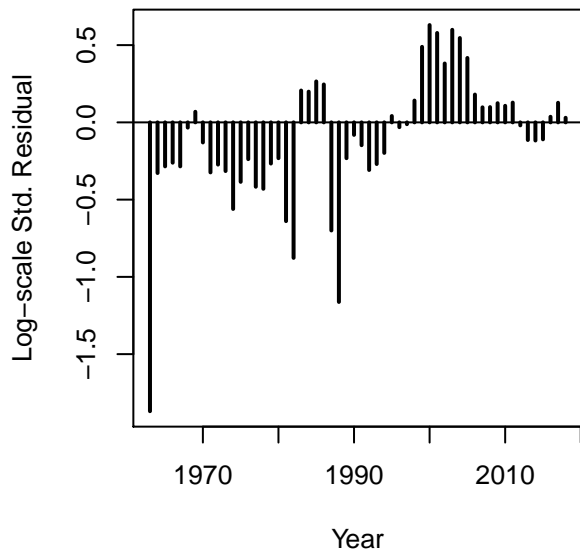
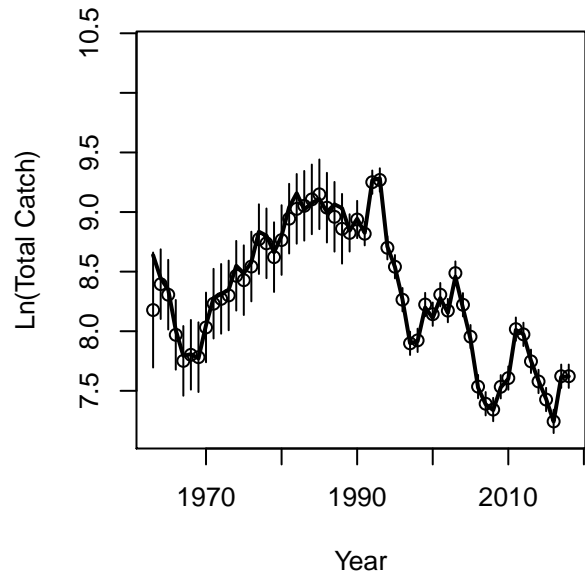
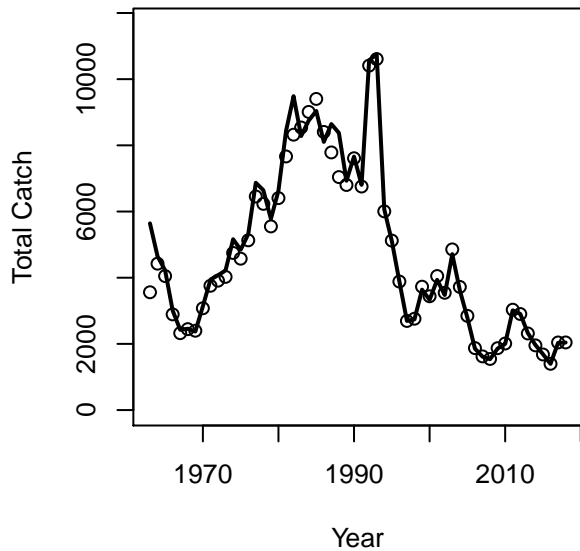
+ ind total
△ INDEX-2
○ INDEX-1

Root Mean Square Error for Catch



○ catch.tot

Fleet 1 Catch (FLEET-1)

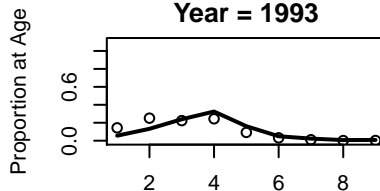


Catch

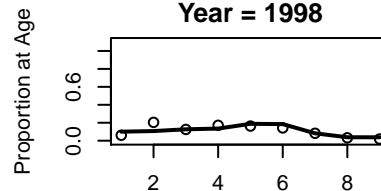
Fleet 1
FLEET-1



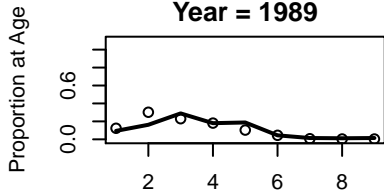
Year = 1993



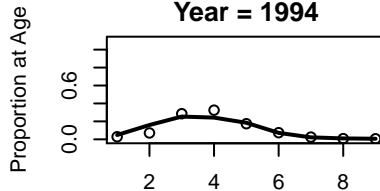
Year = 1998



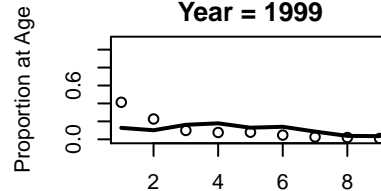
Year = 1989



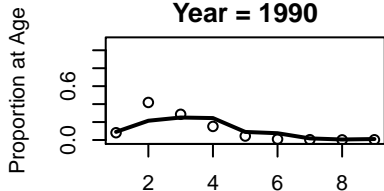
Year = 1994



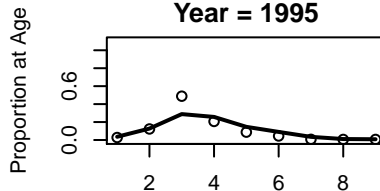
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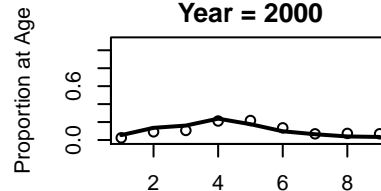
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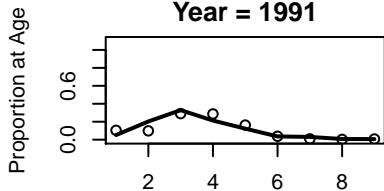
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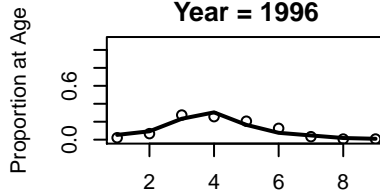
Year = 2000



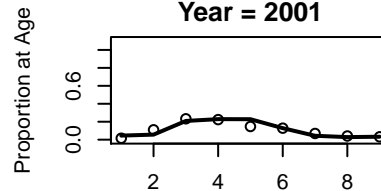
Year = 1991



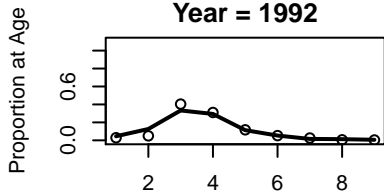
Year = 1996



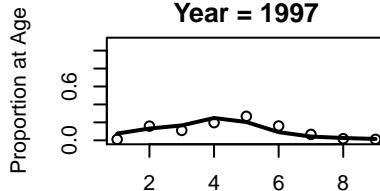
Year = 2001



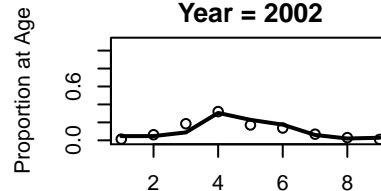
Year = 1992



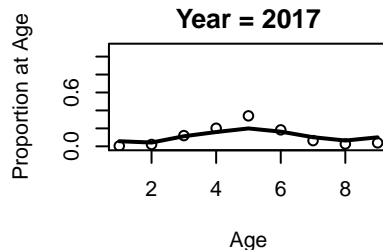
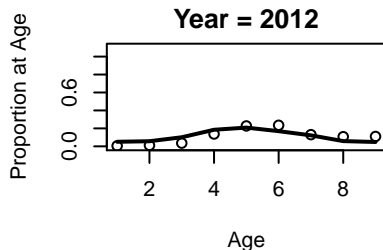
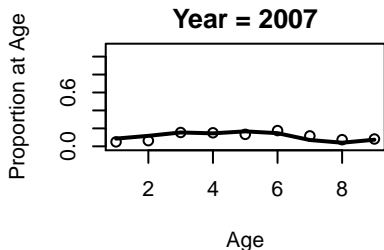
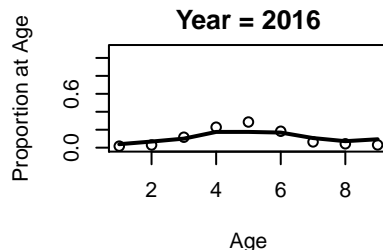
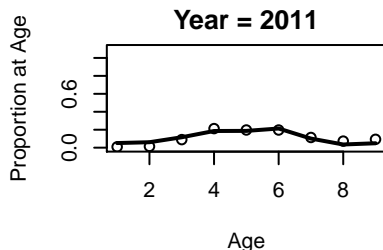
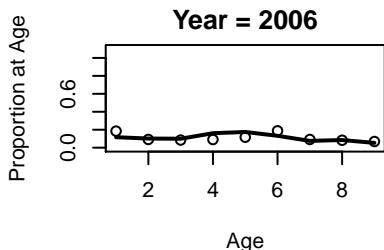
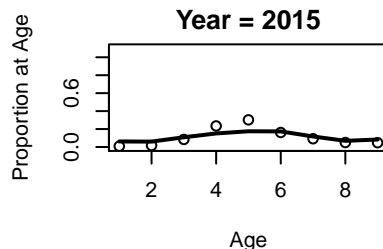
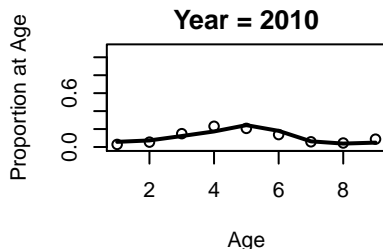
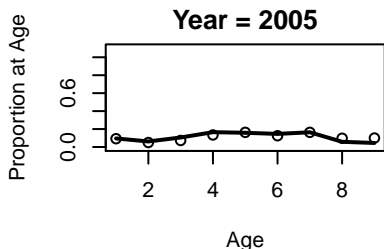
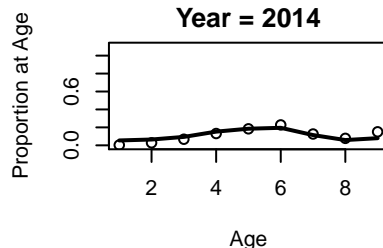
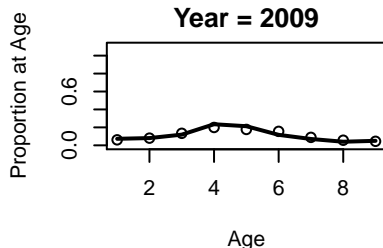
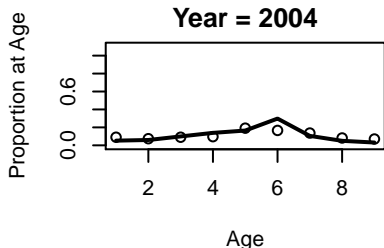
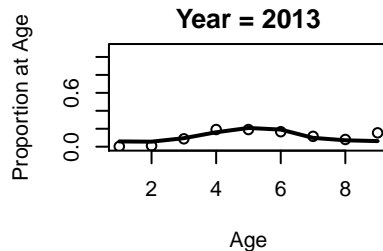
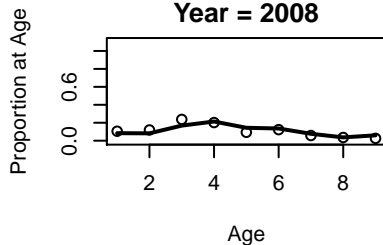
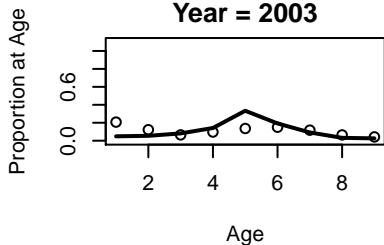
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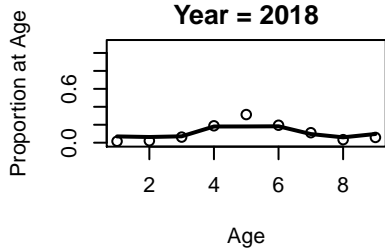
Year = 2002



Year = 2008

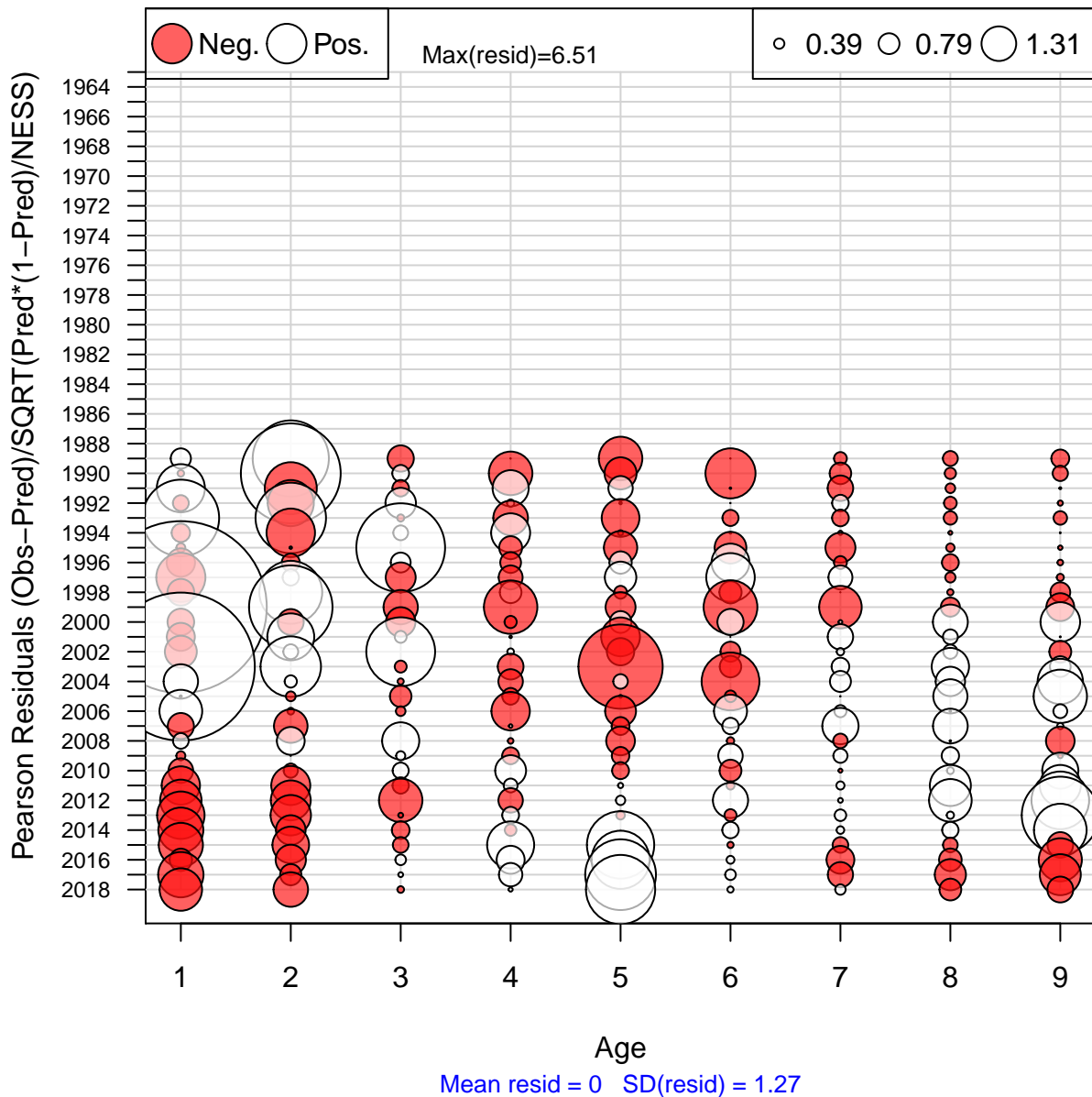


Year = 2018

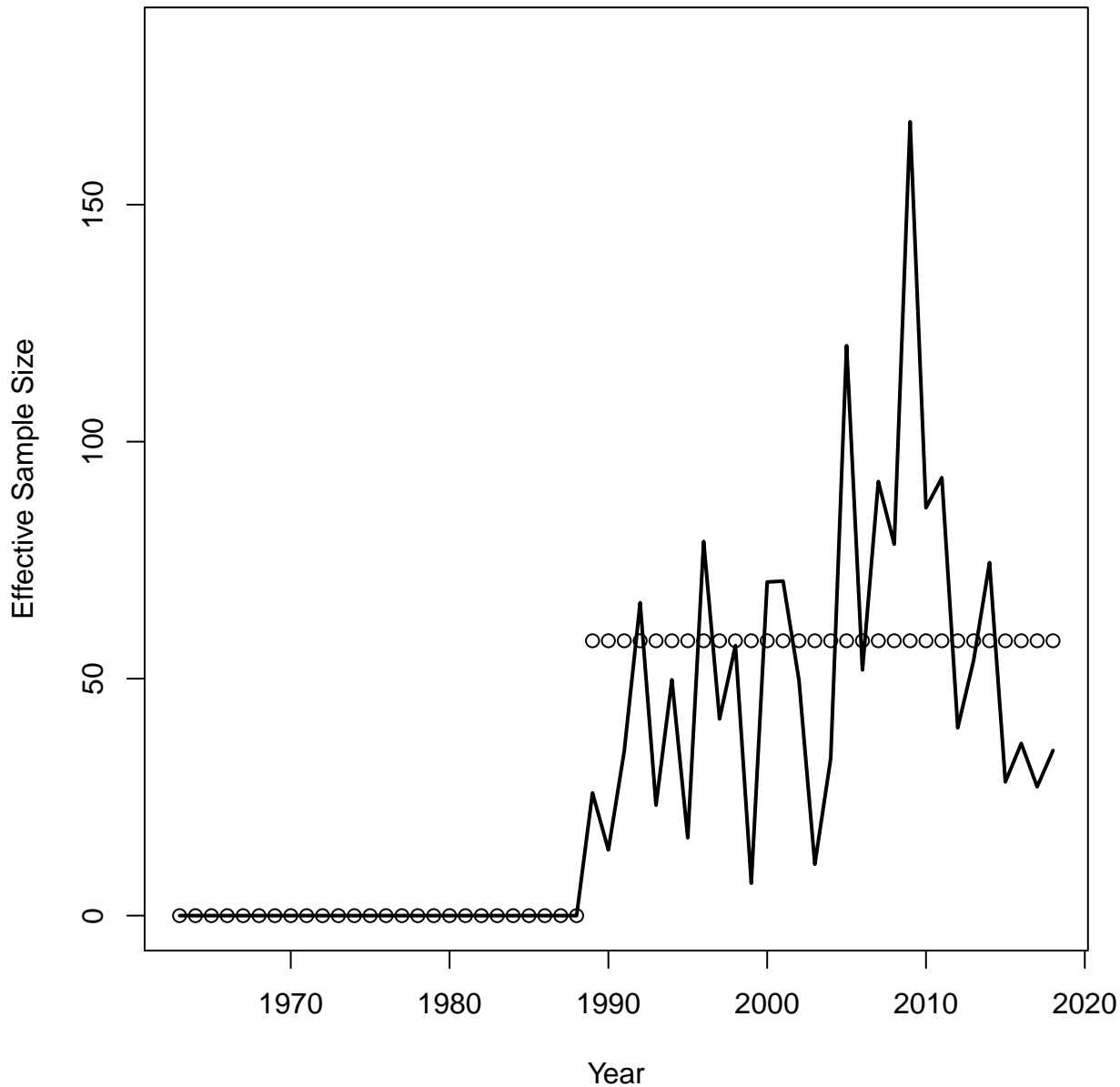


Catch

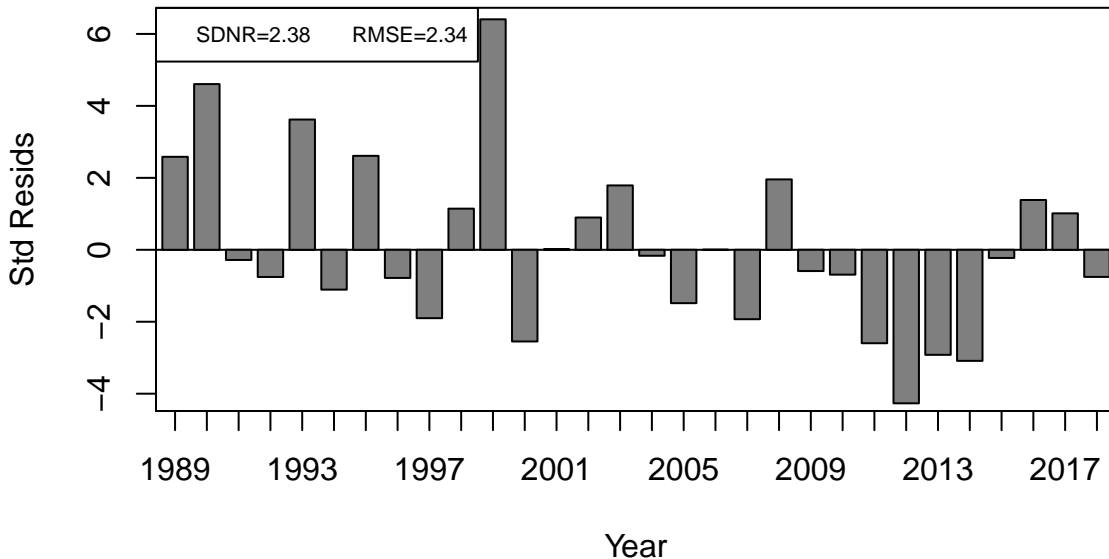
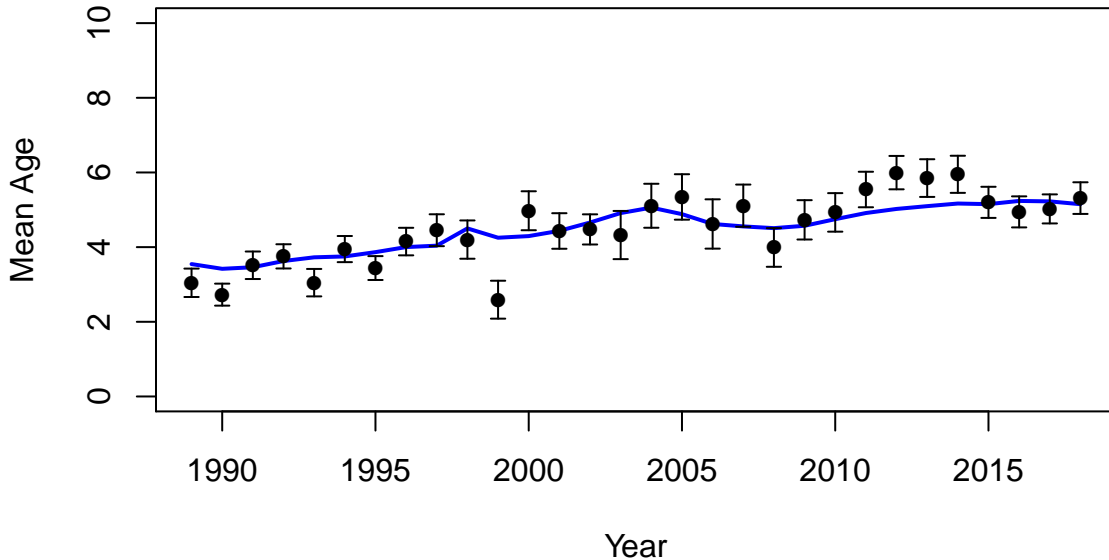
Age Comp Residuals for Catch by Fleet 1 (FLEET-1)



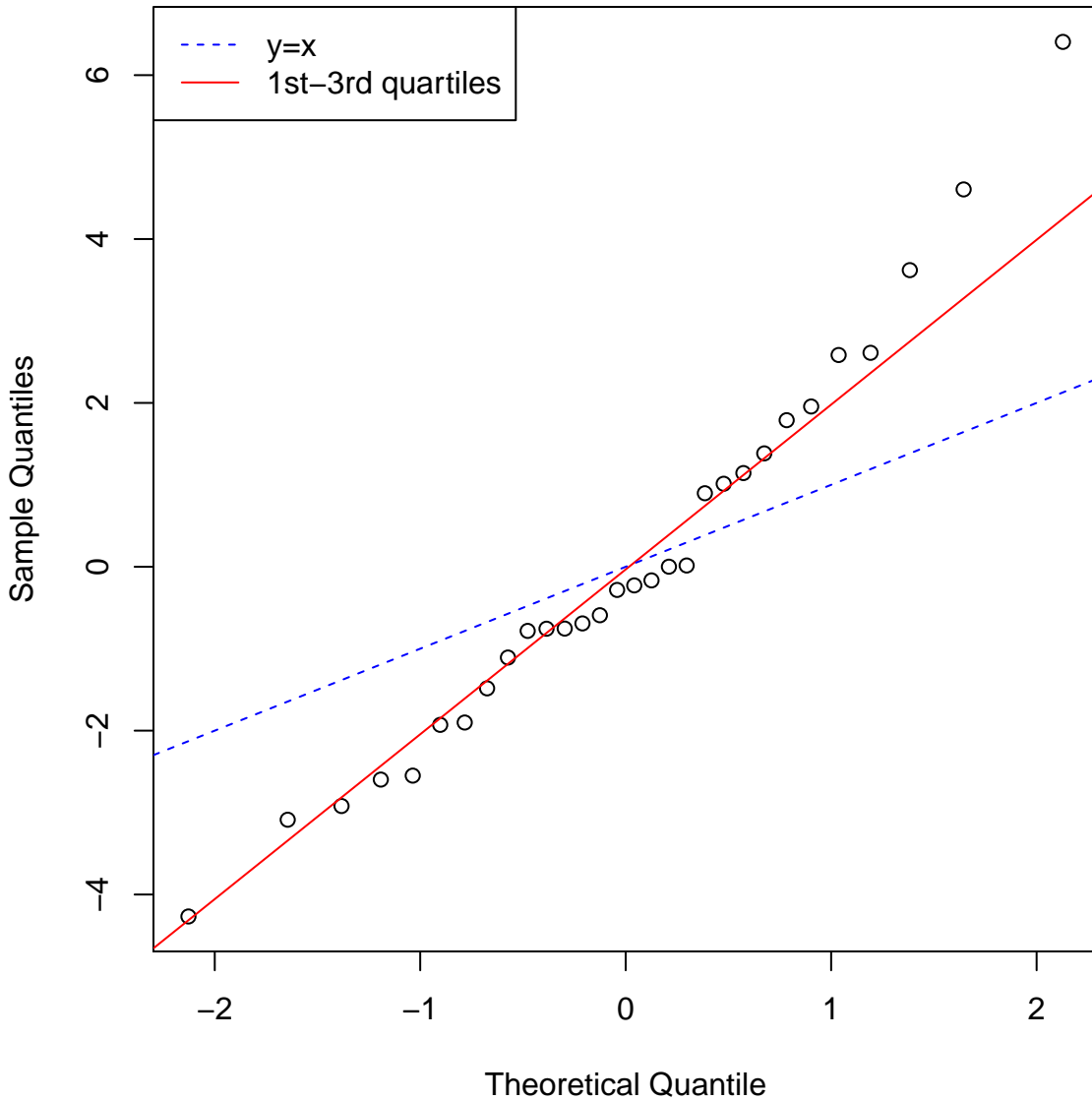
Catch Neff Fleet 1 (FLEET-1)



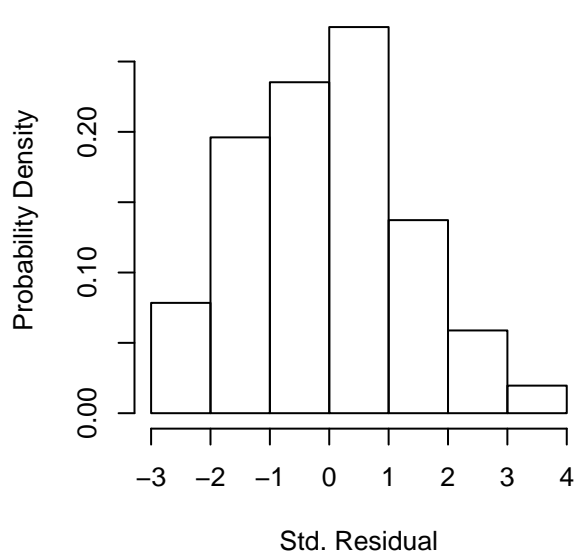
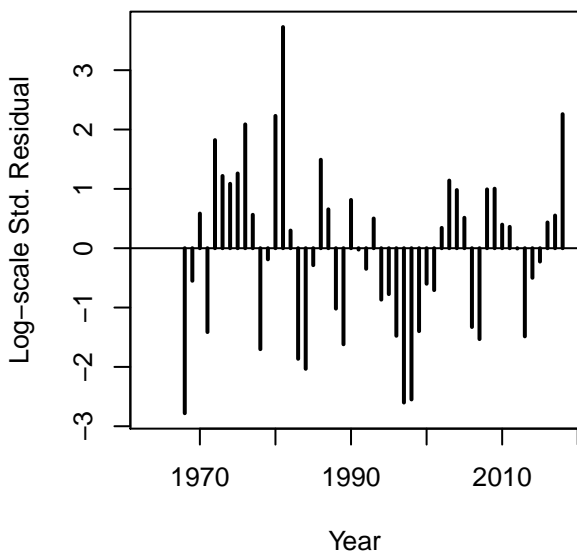
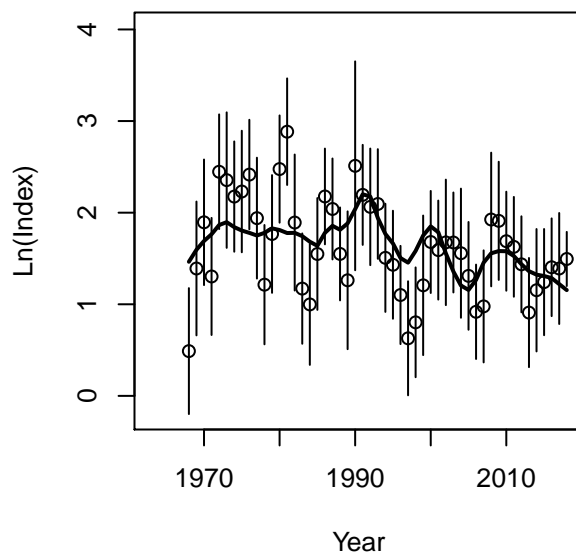
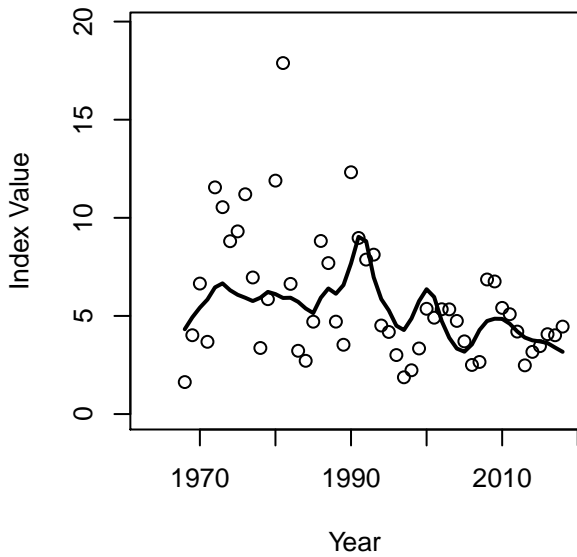
Catch Fleet 1 (FLEET-1) ESS = 58



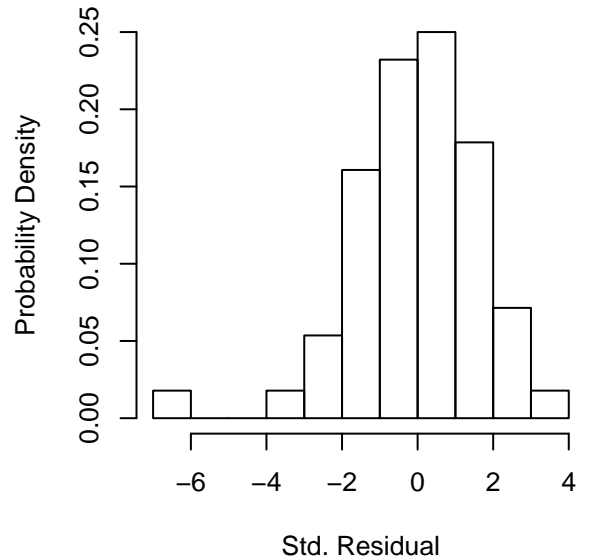
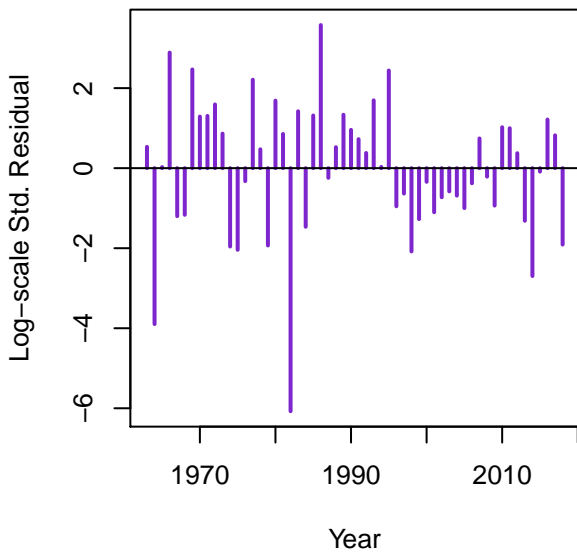
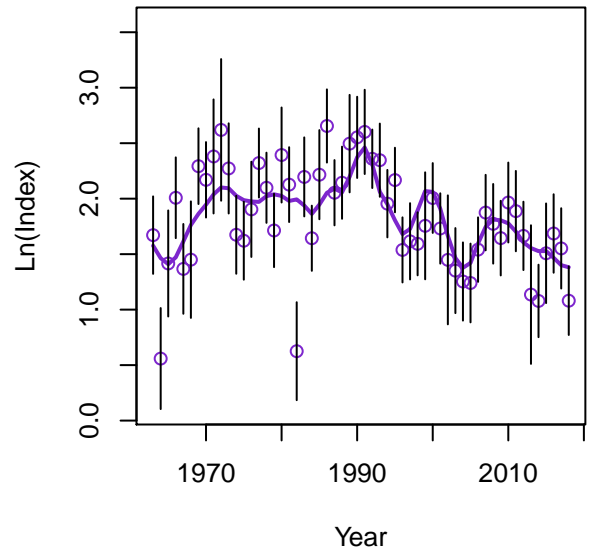
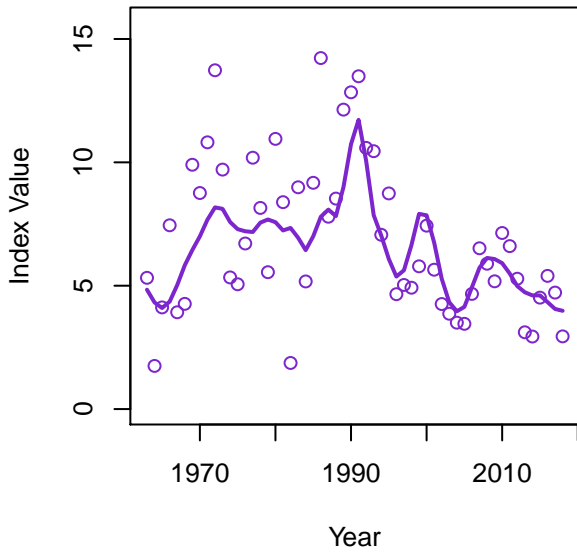
Catch Fleet 1 (FLEET-1) ESS = 58



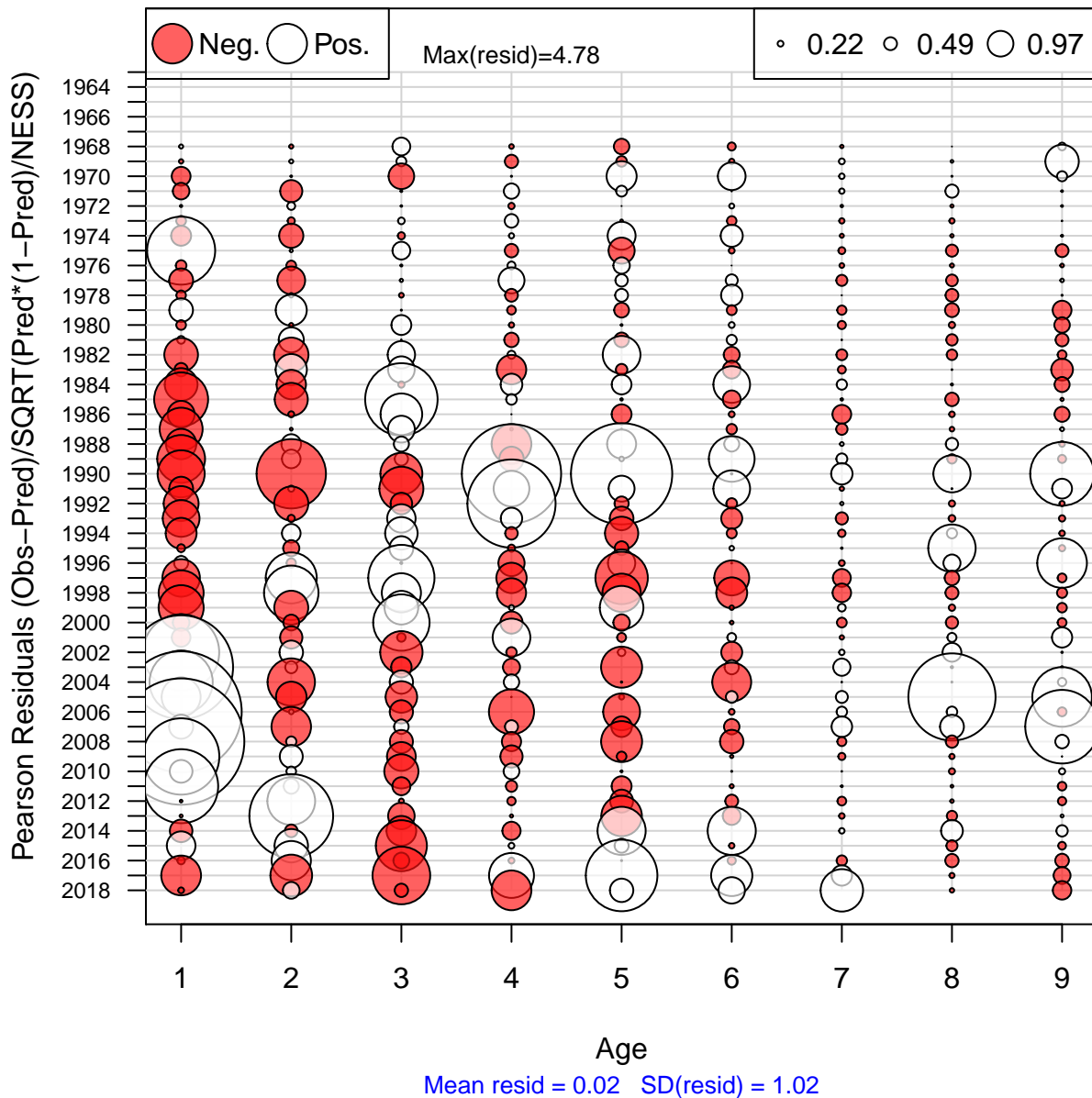
Index 1 (INDEX-1)



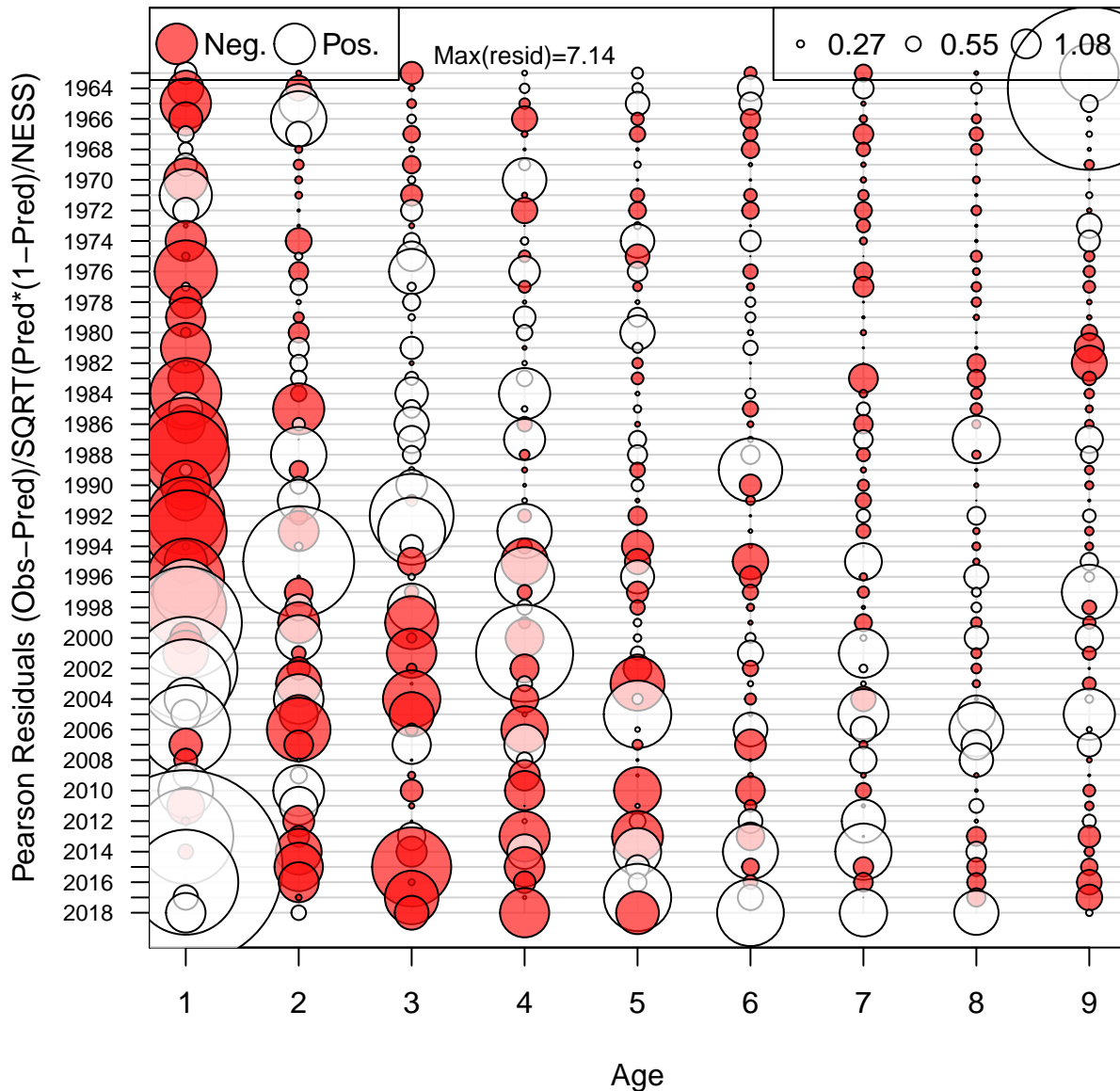
Index 2 (INDEX-2)



Age Comp Residuals for Index 1 (INDEX-1)

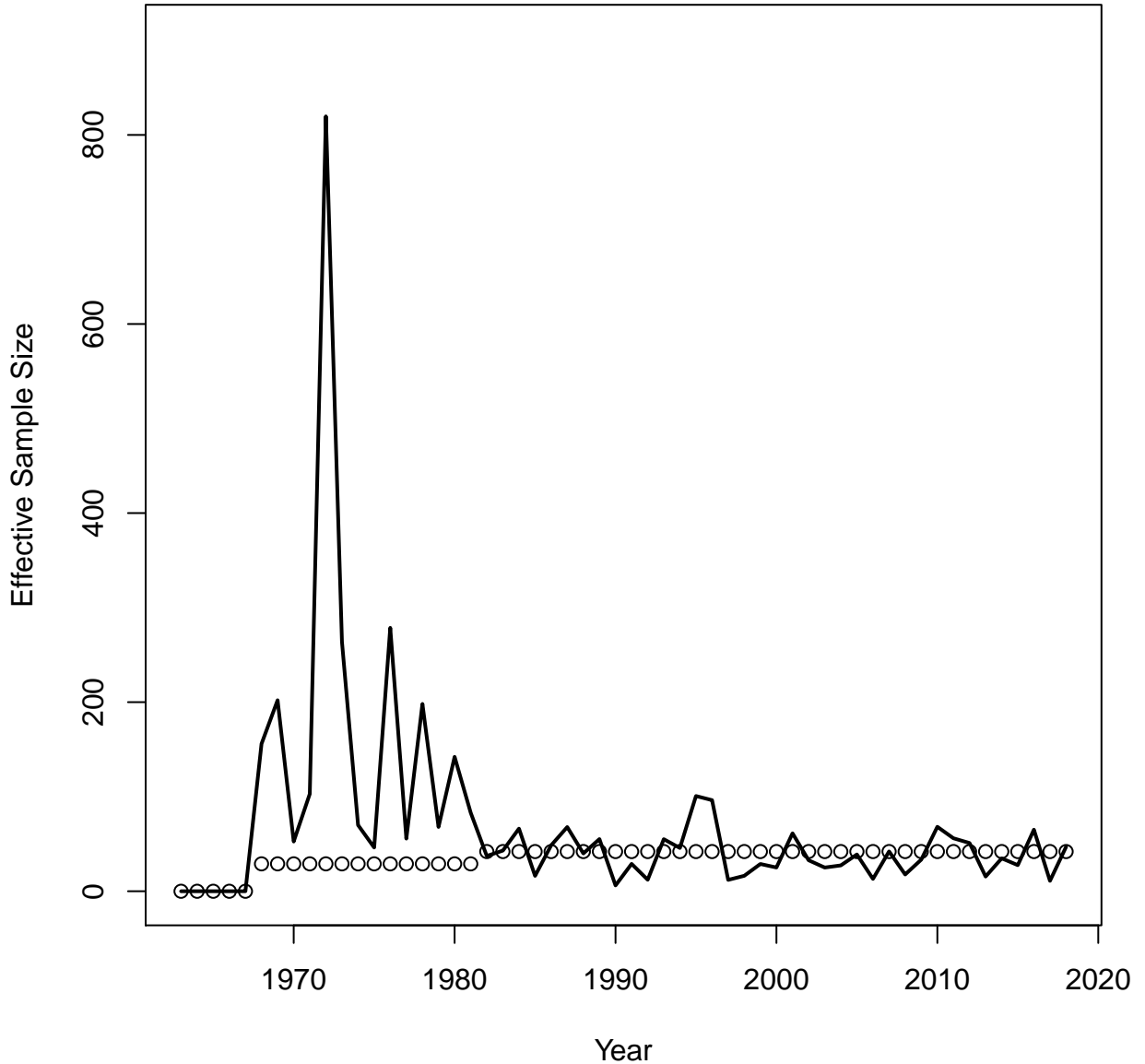


Age Comp Residuals for Index 2 (INDEX-2)

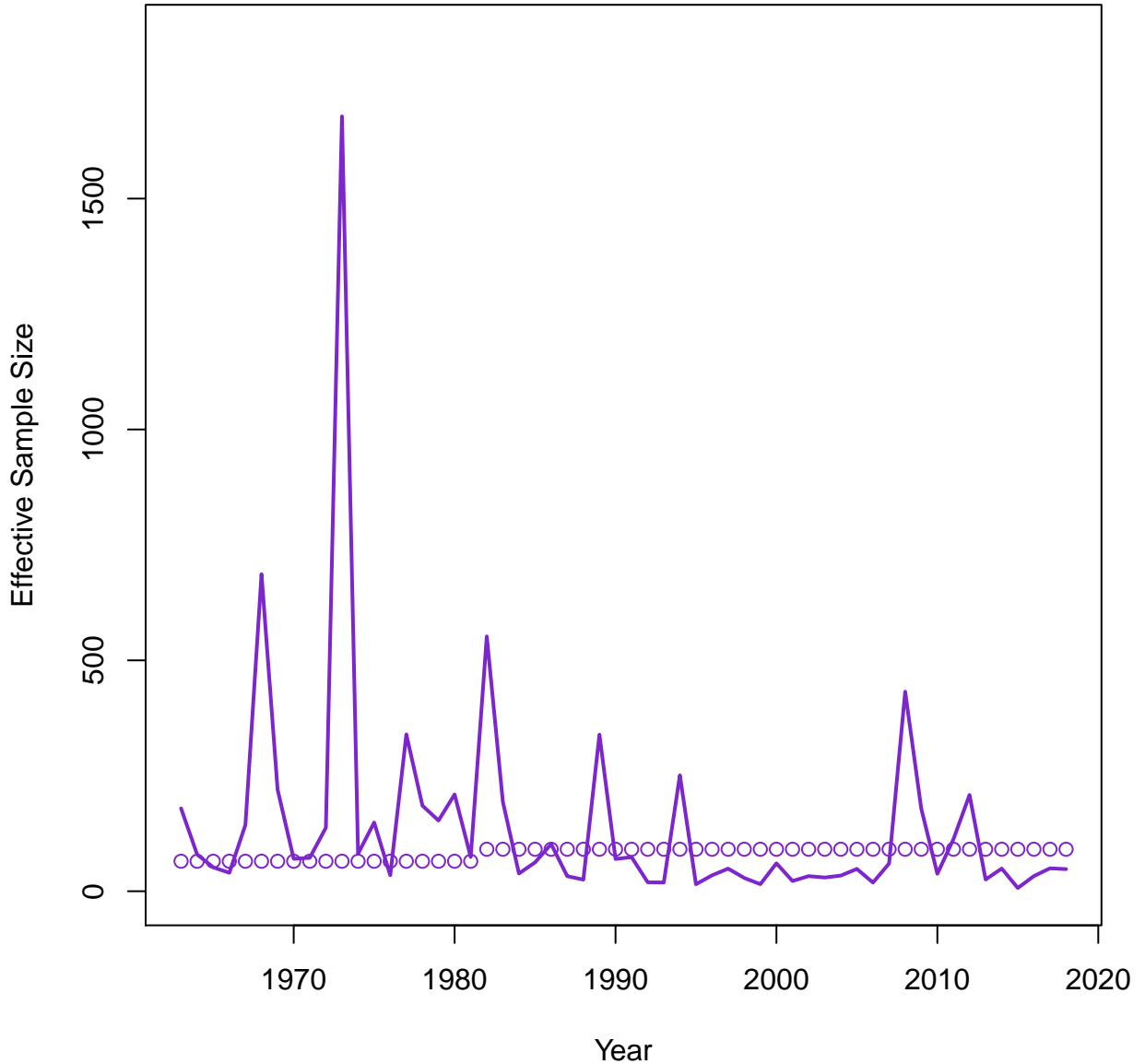


Mean resid = 0.02 SD(resid) = 1.16

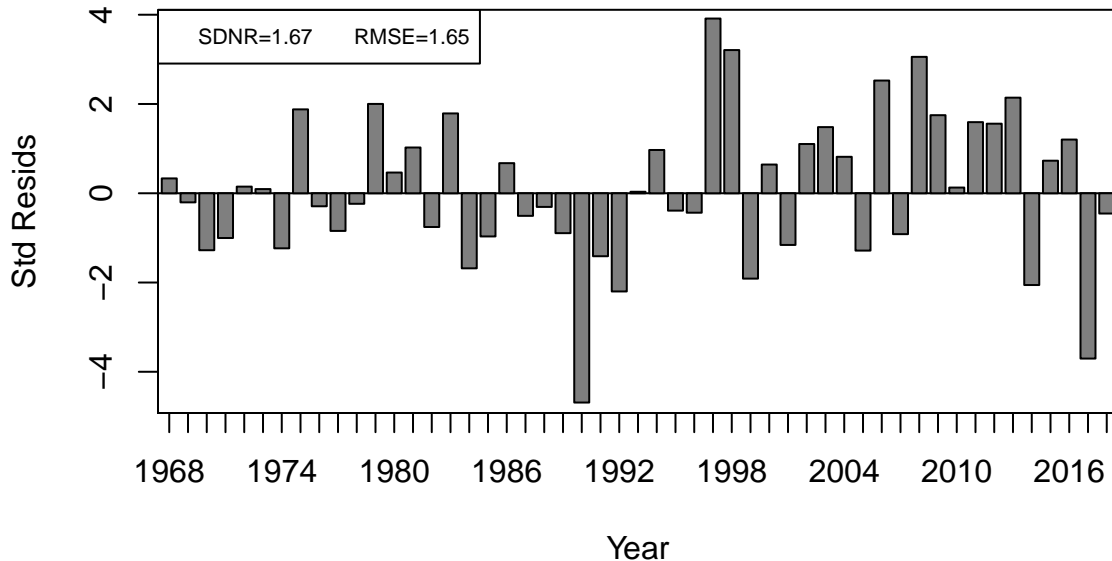
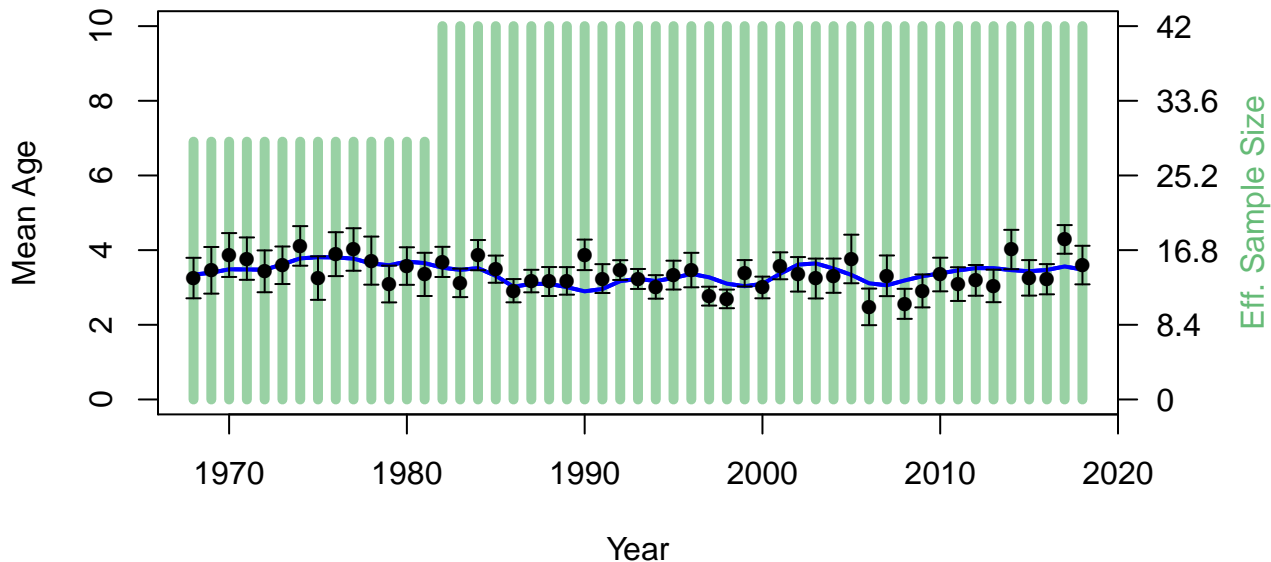
Index Neff 1 (INDEX-1)



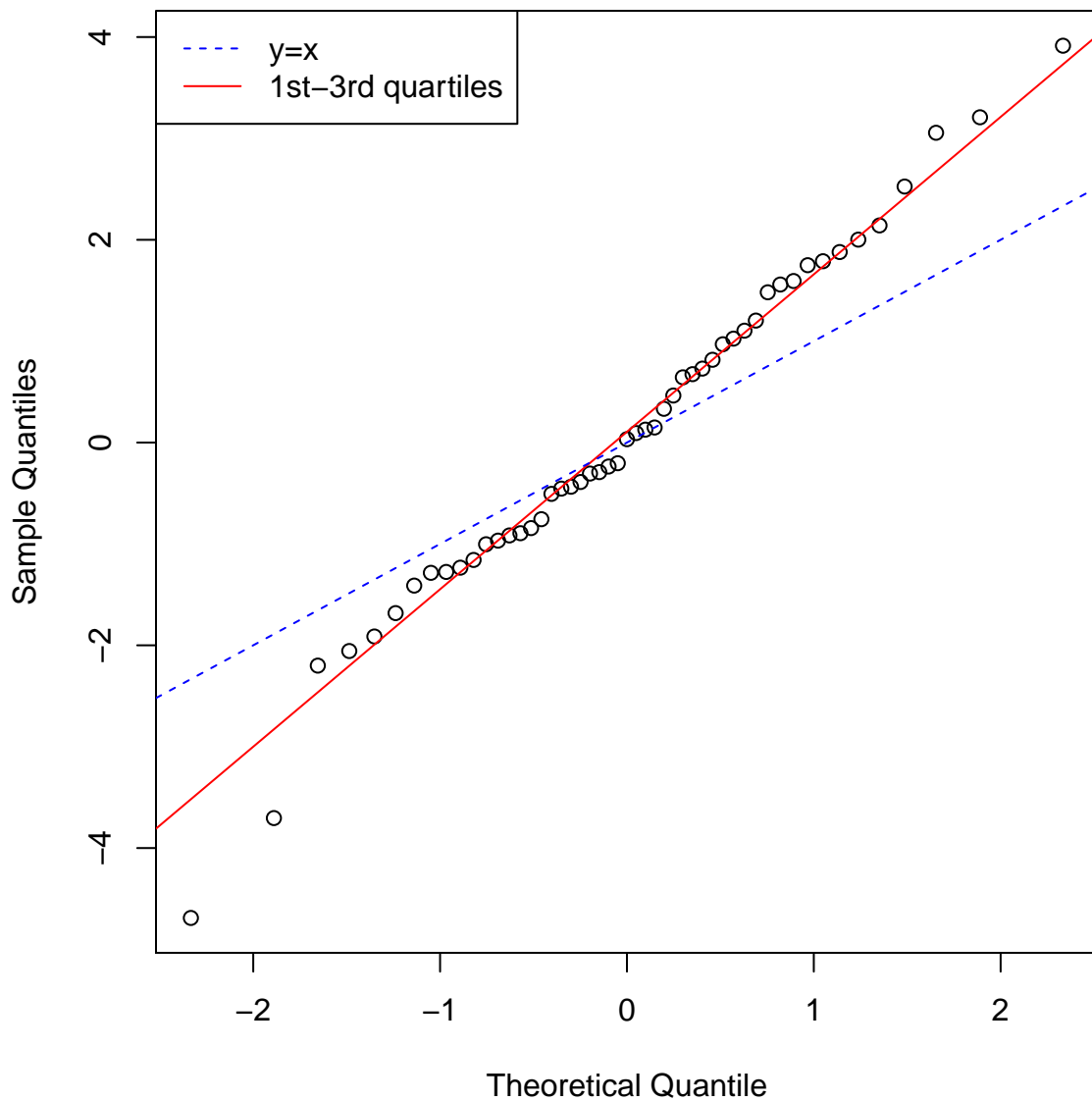
Index Neff 2 (INDEX-2)



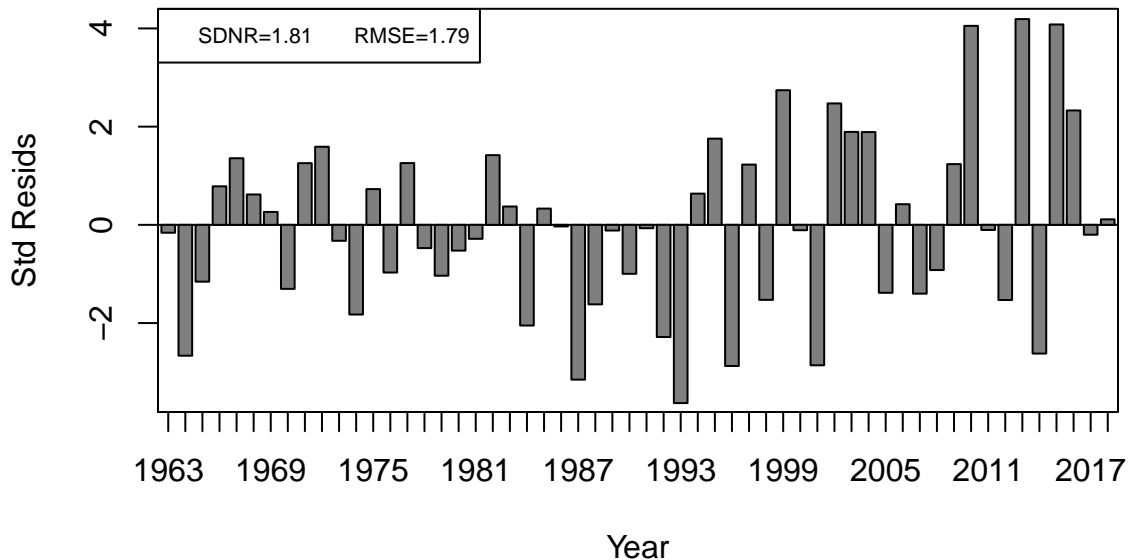
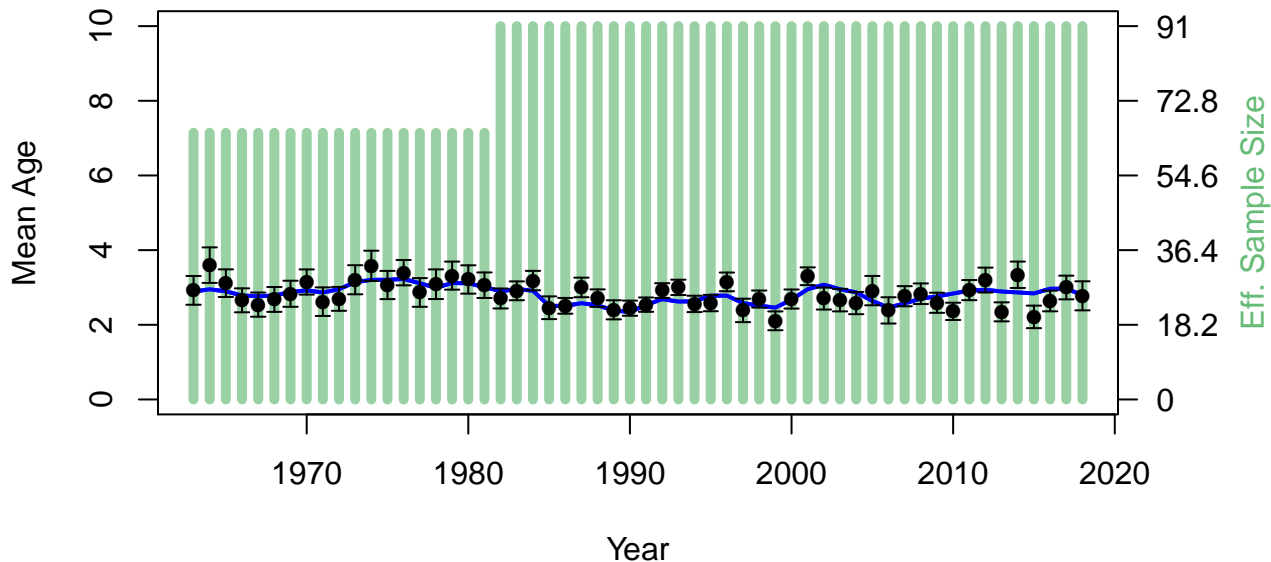
Index 1 (INDEX-1)



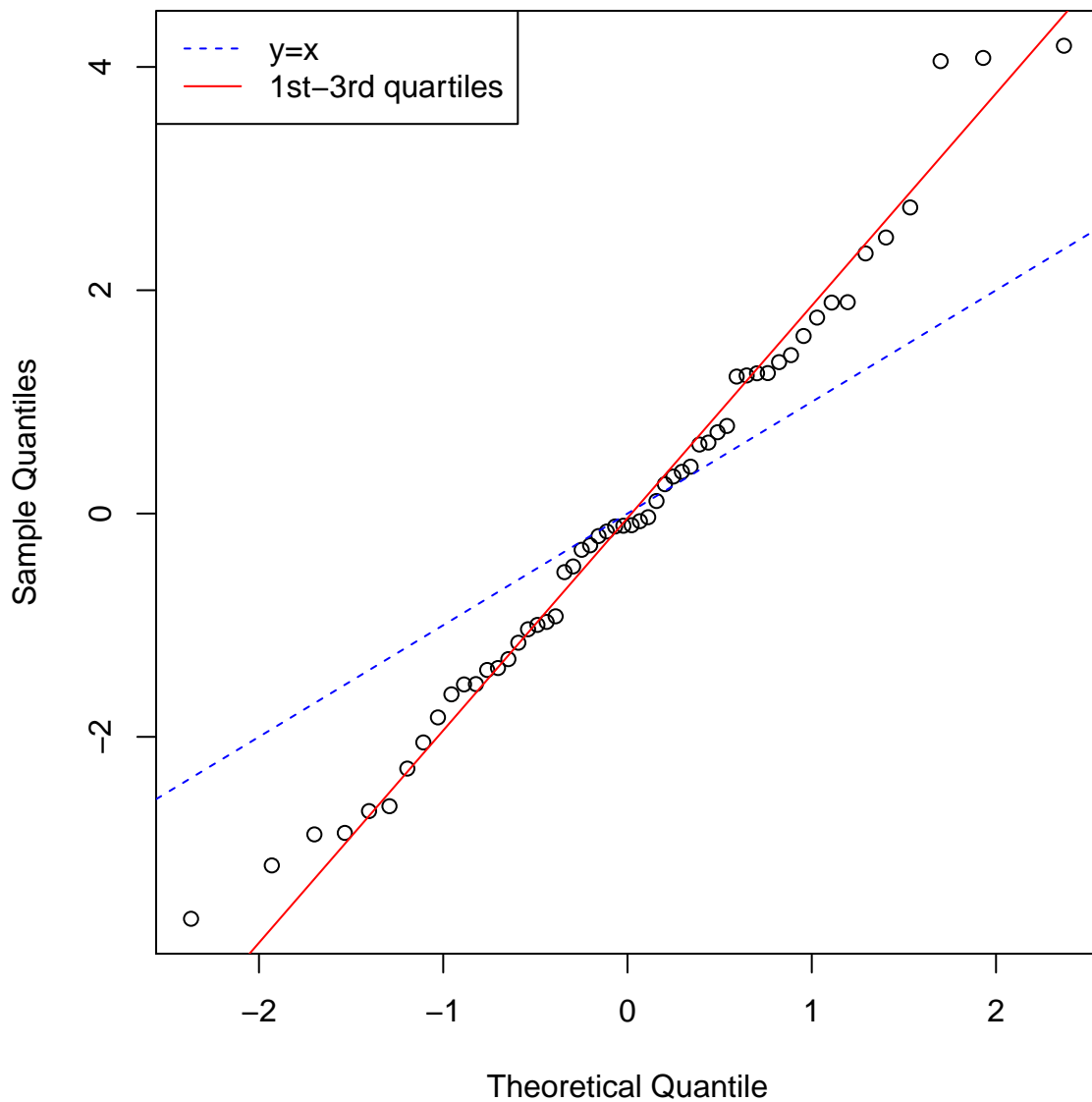
Index 1 (INDEX-1)



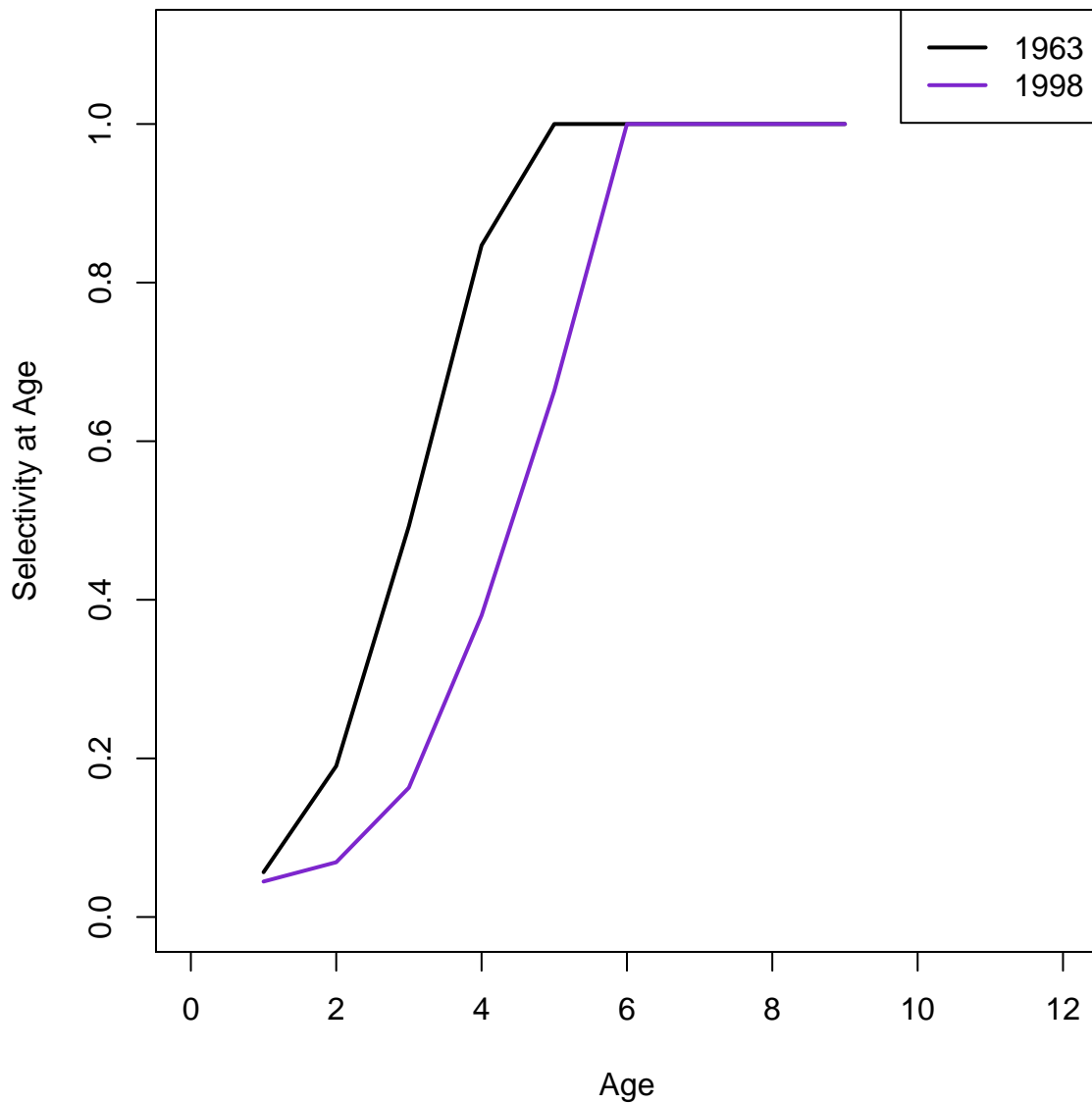
Index 2 (INDEX-2)

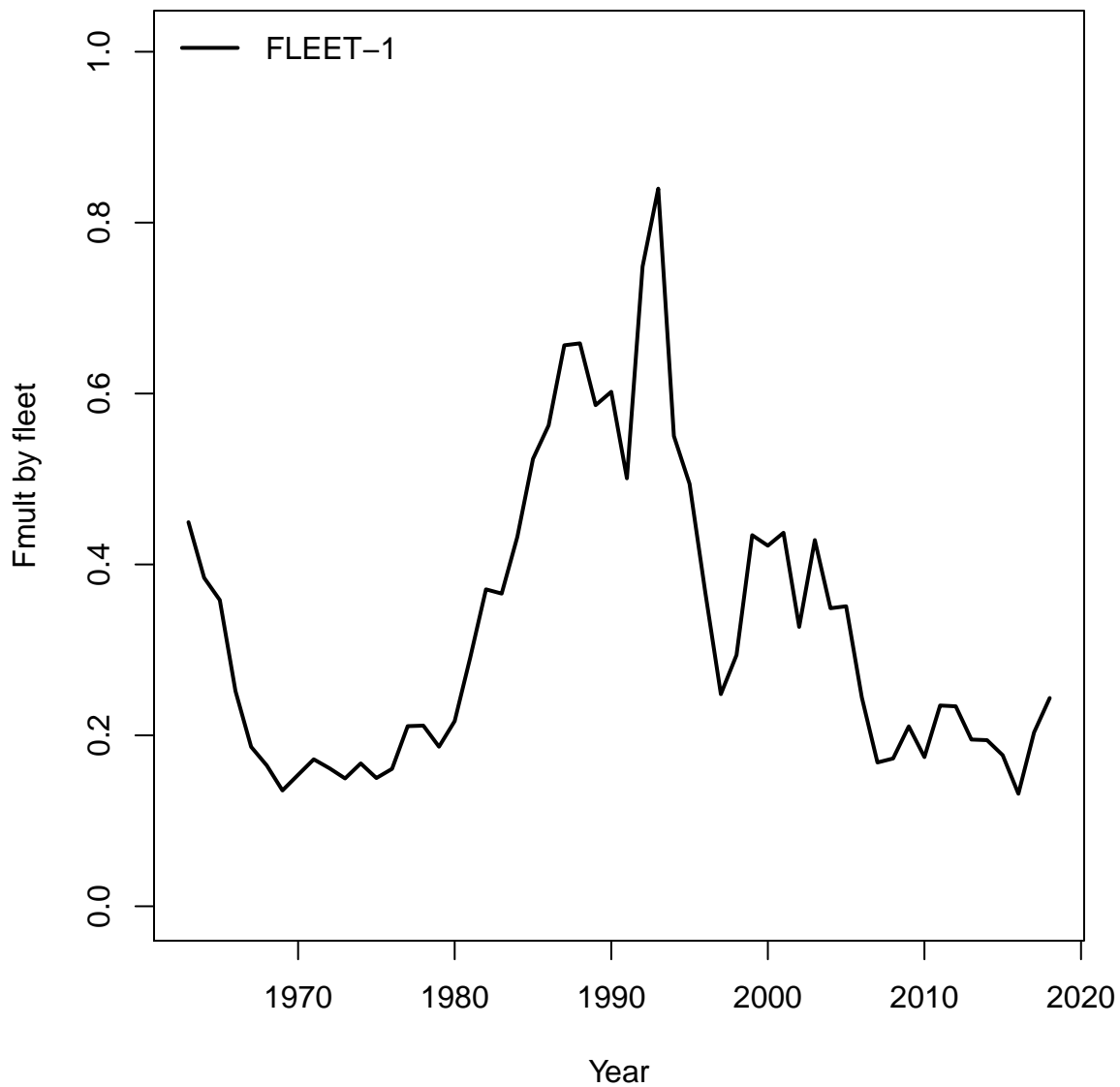


Index 2 (INDEX-2)

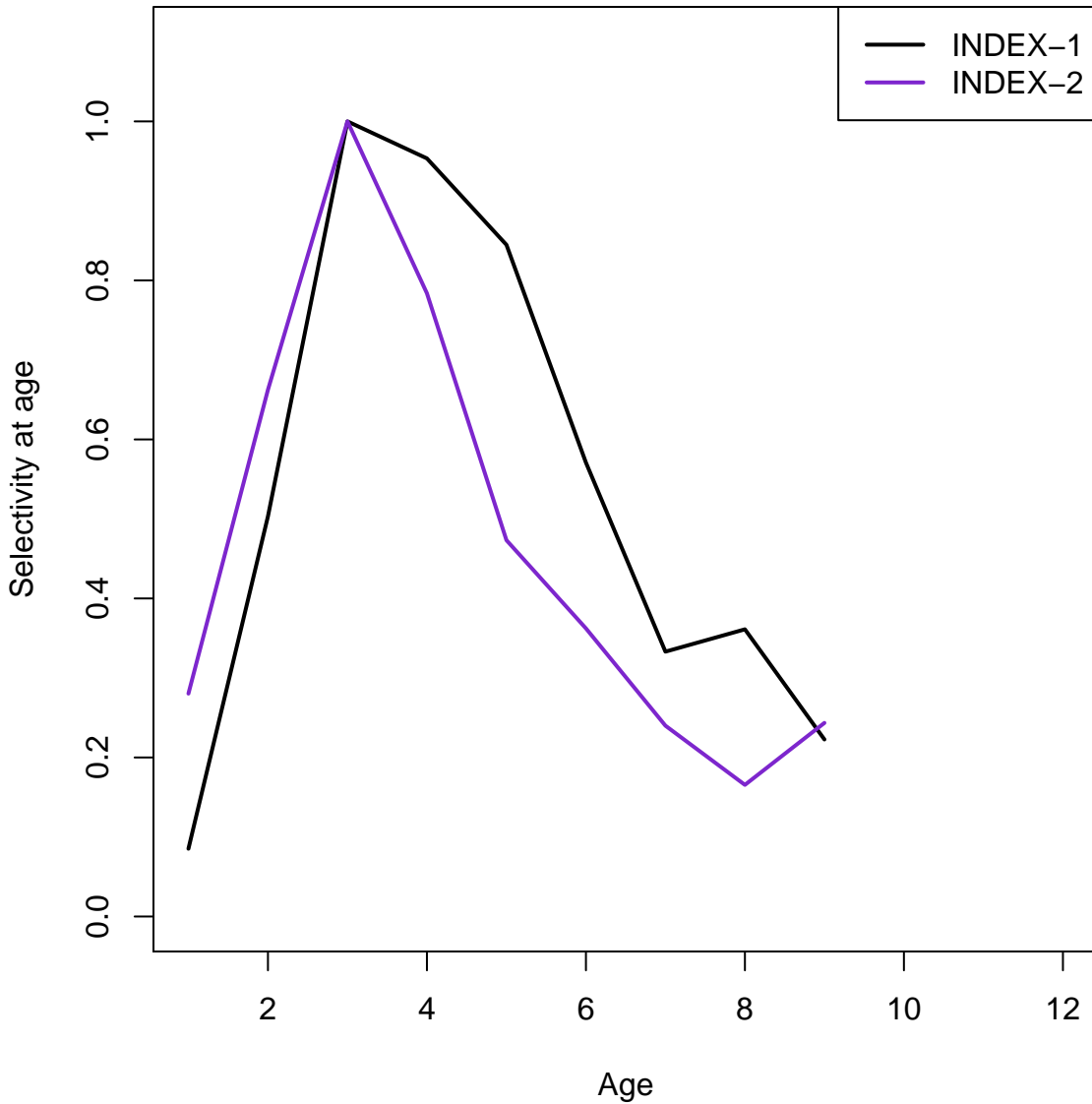


Fleet 1 (FLEET-1)





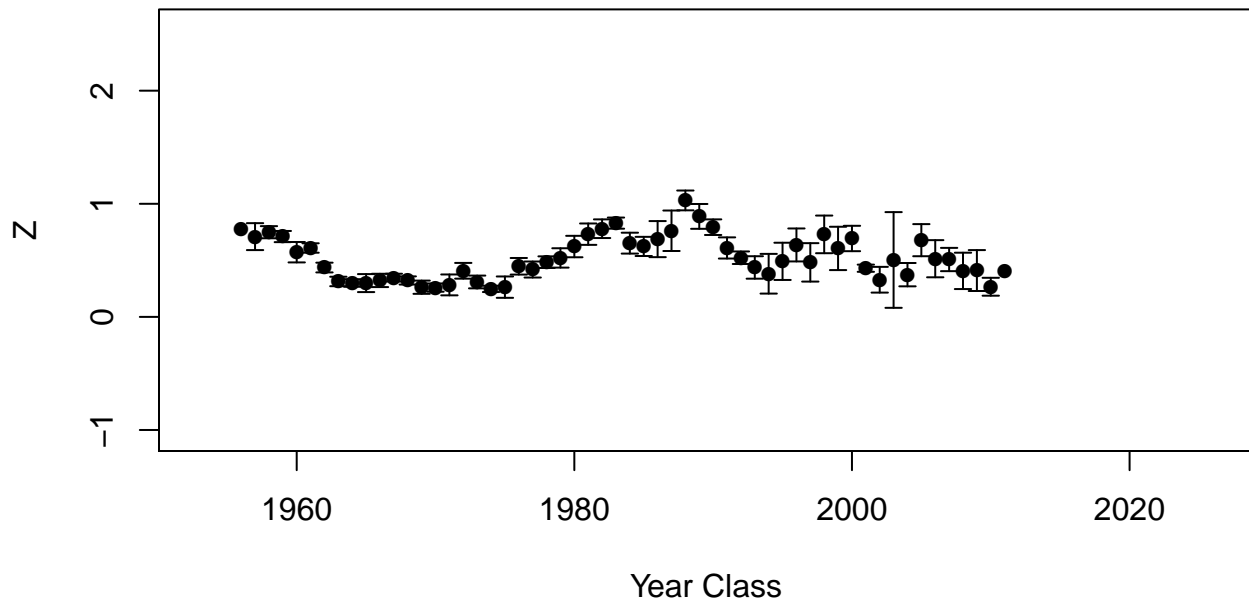
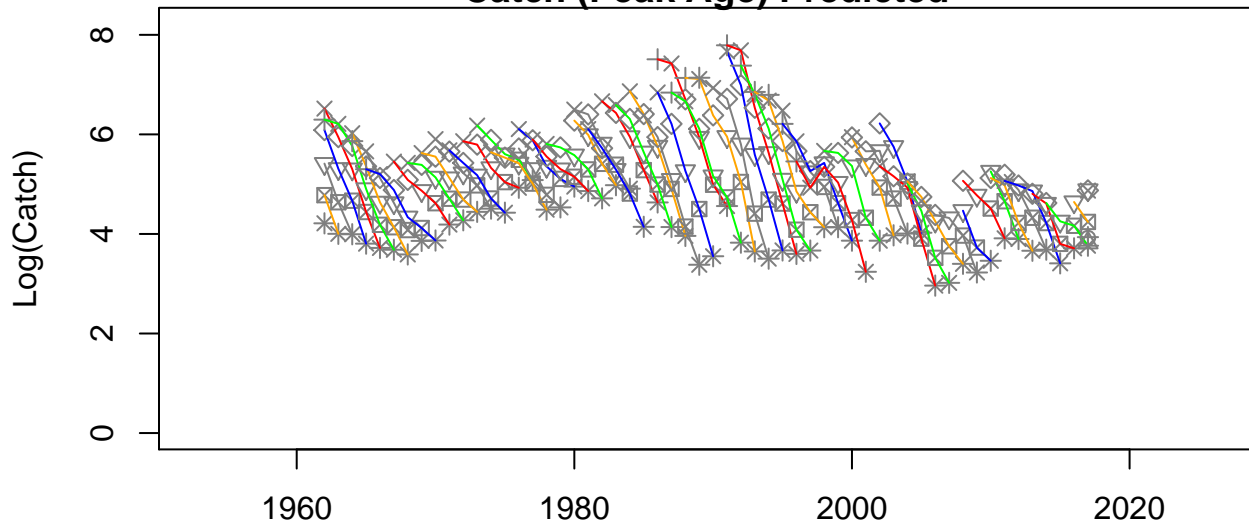
Indices



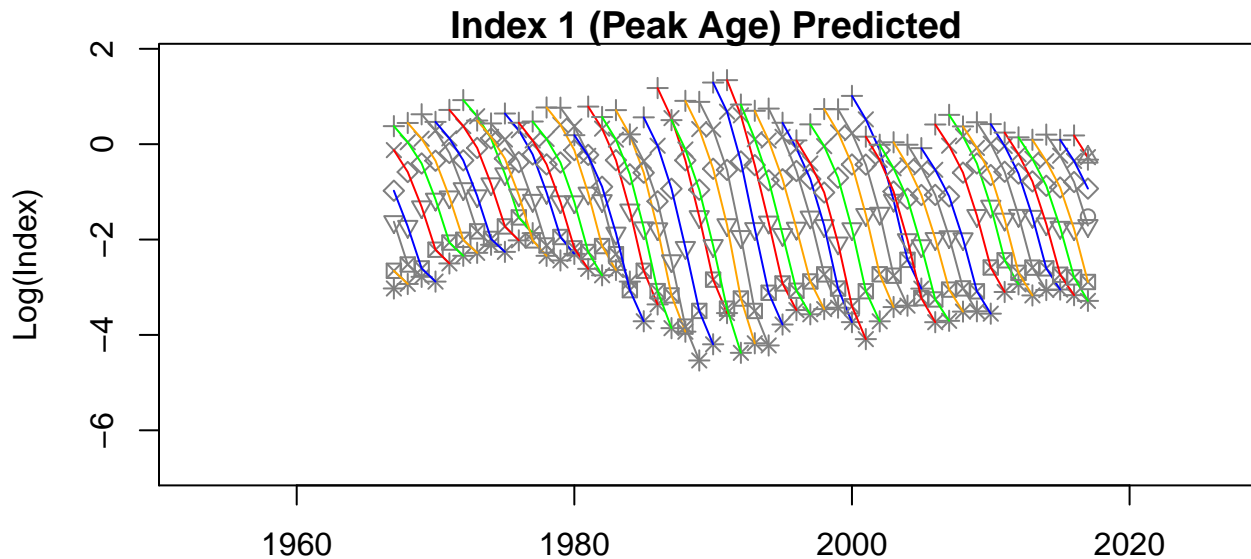
Catch (Peak Age) Observed



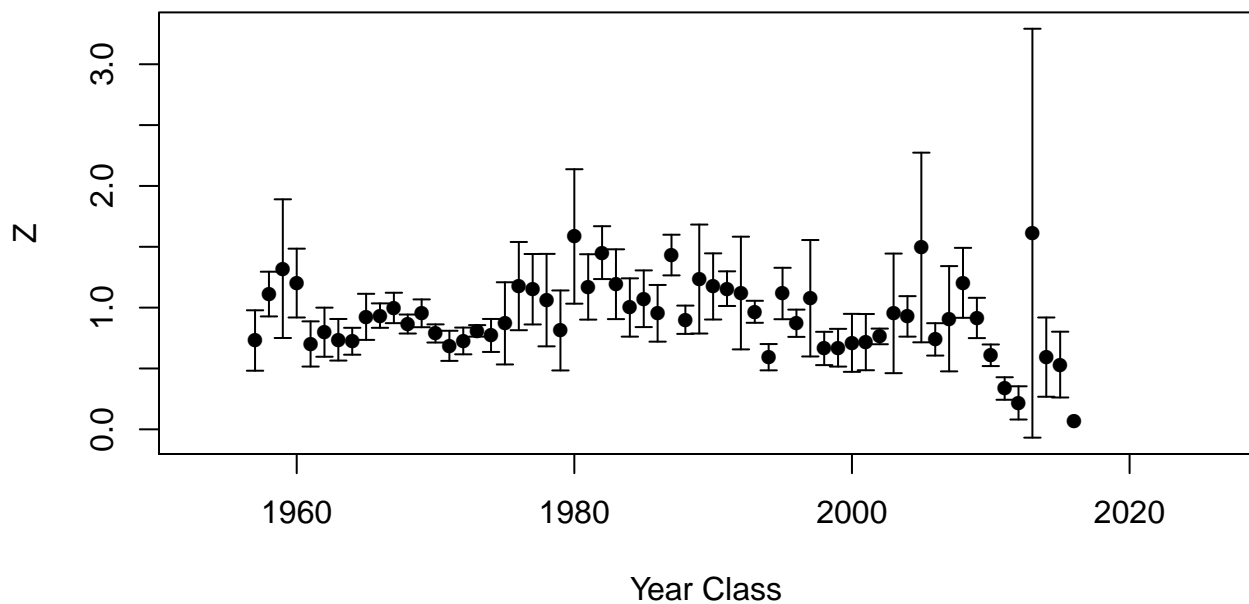
Catch (Peak Age) Predicted



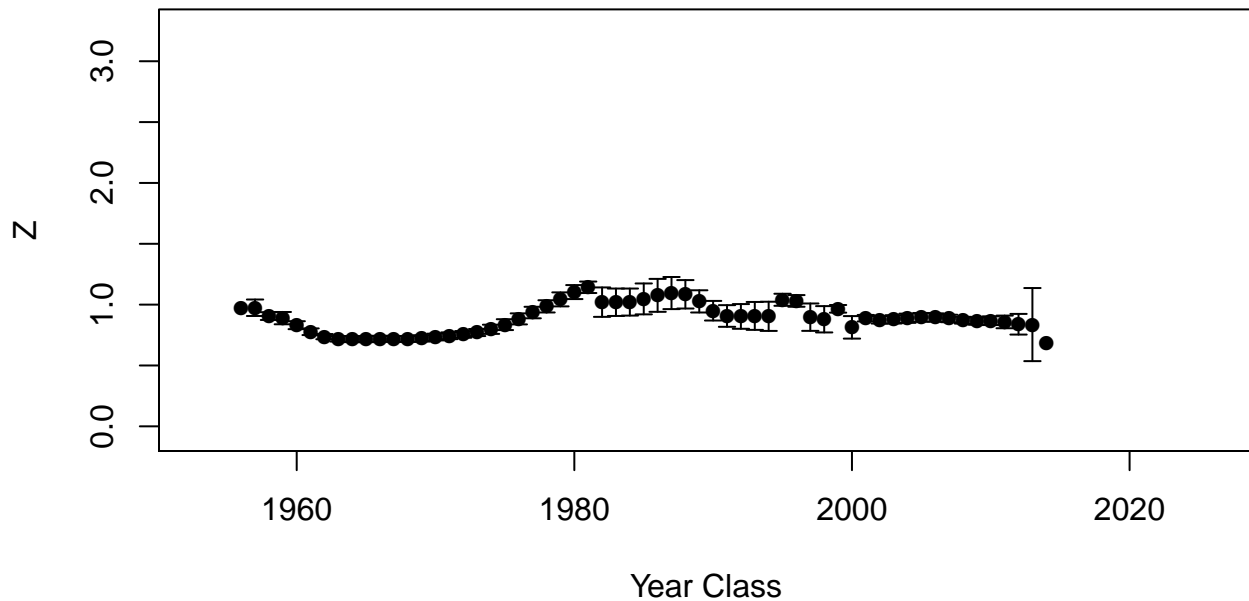
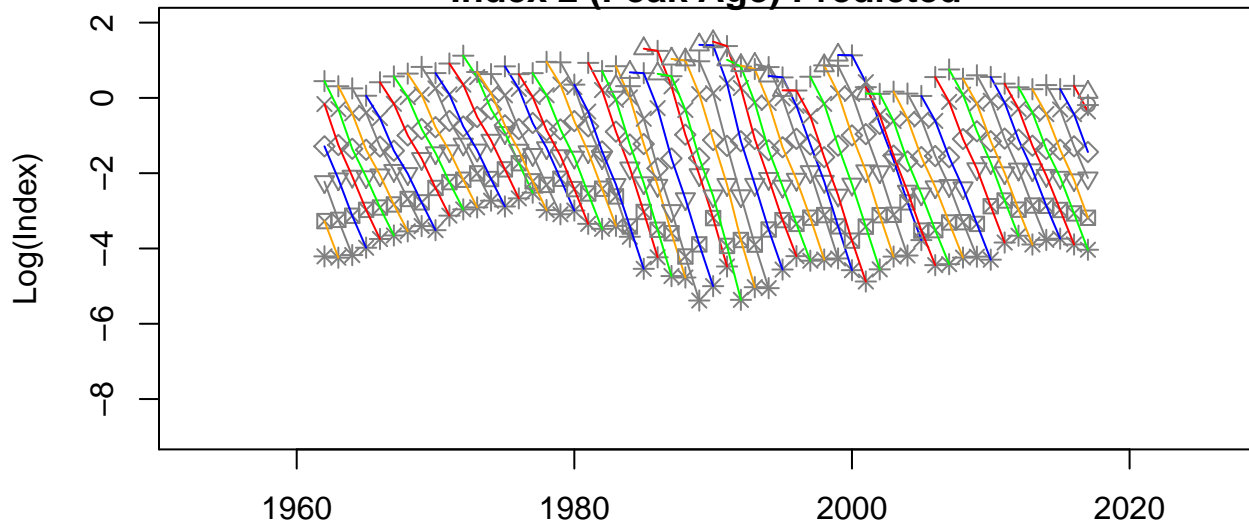




Index 2 (Peak Age) Observed



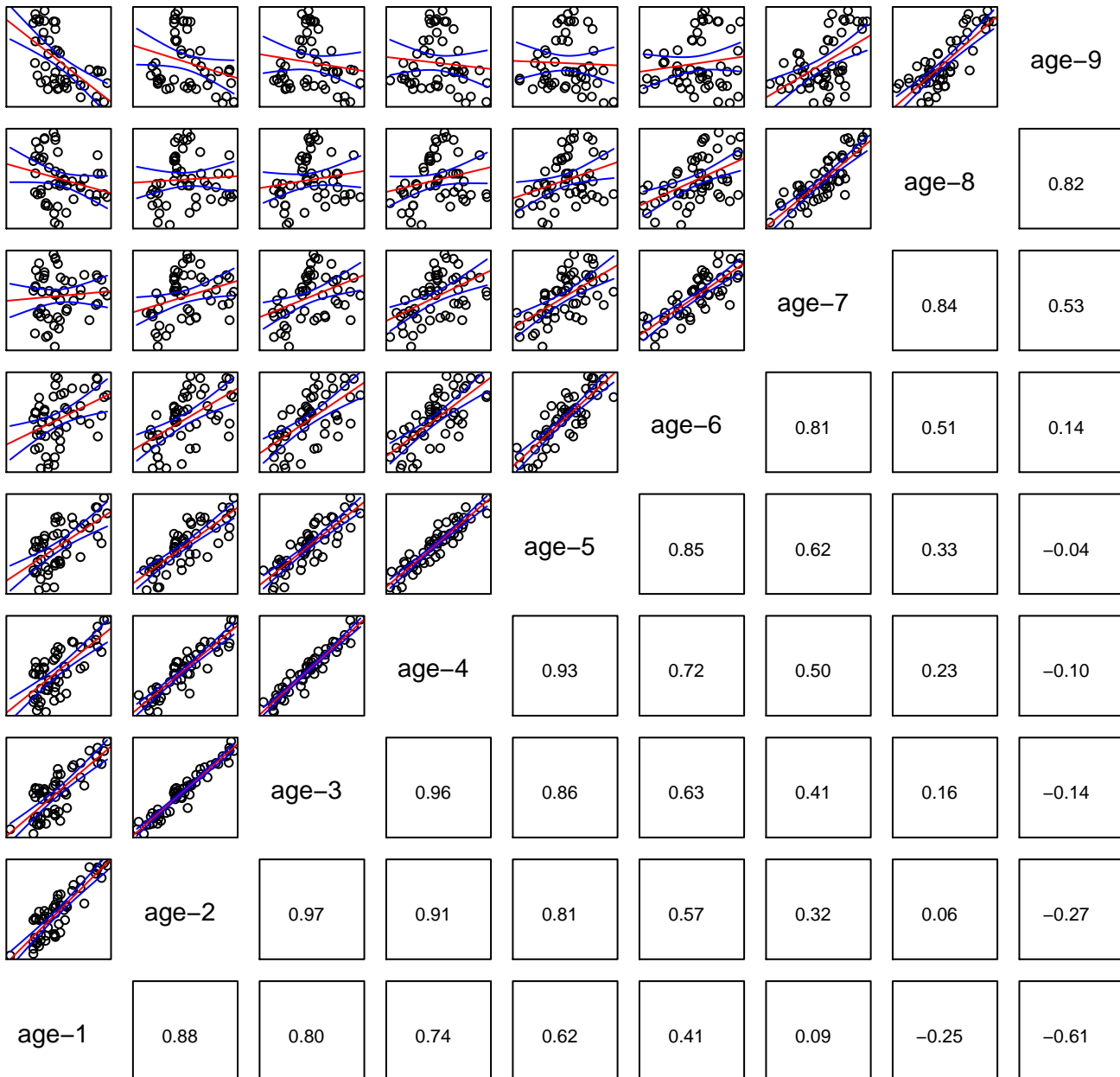
Index 2 (Peak Age) Predicted



Catch Observed



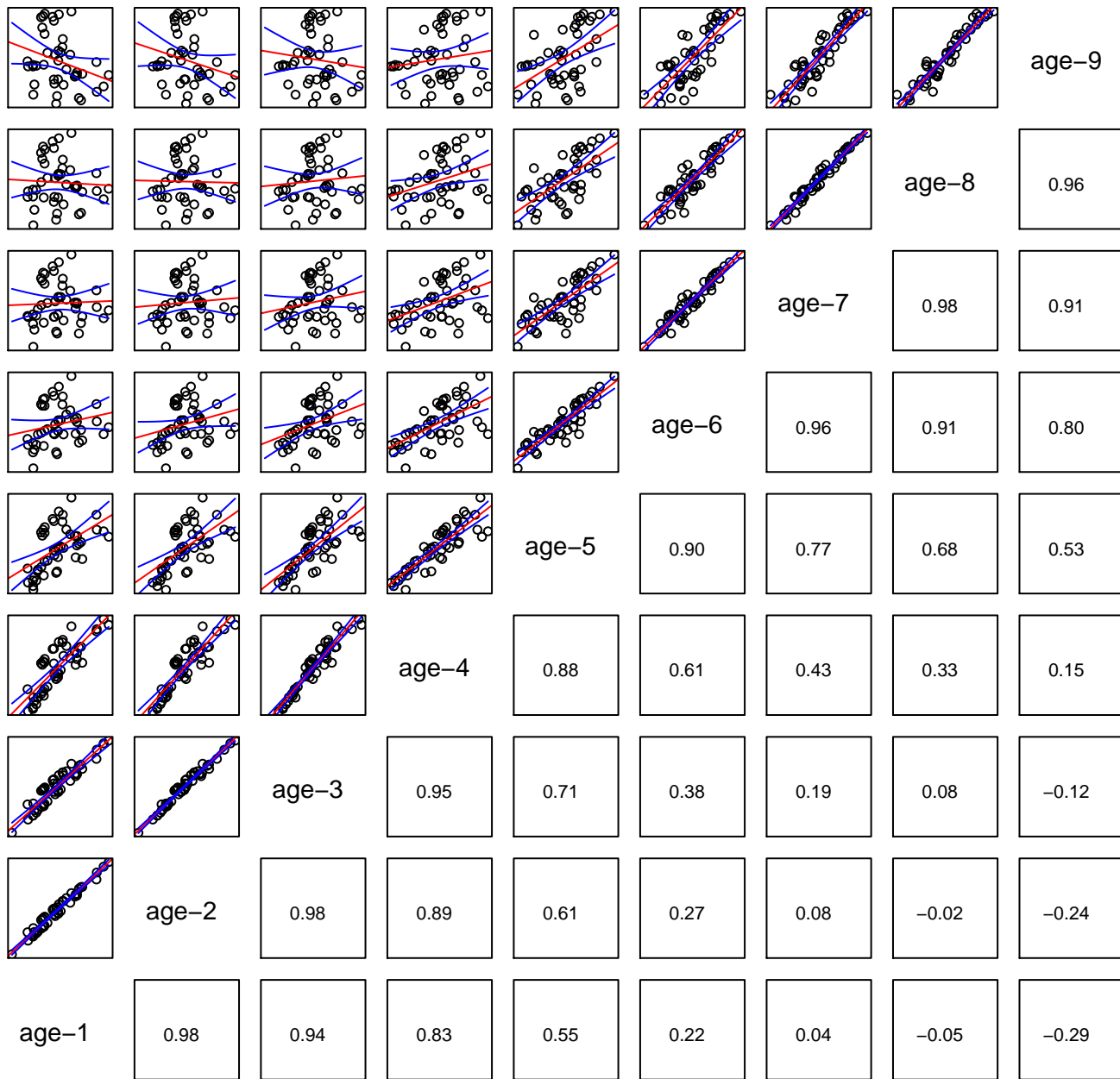
Catch Predicted



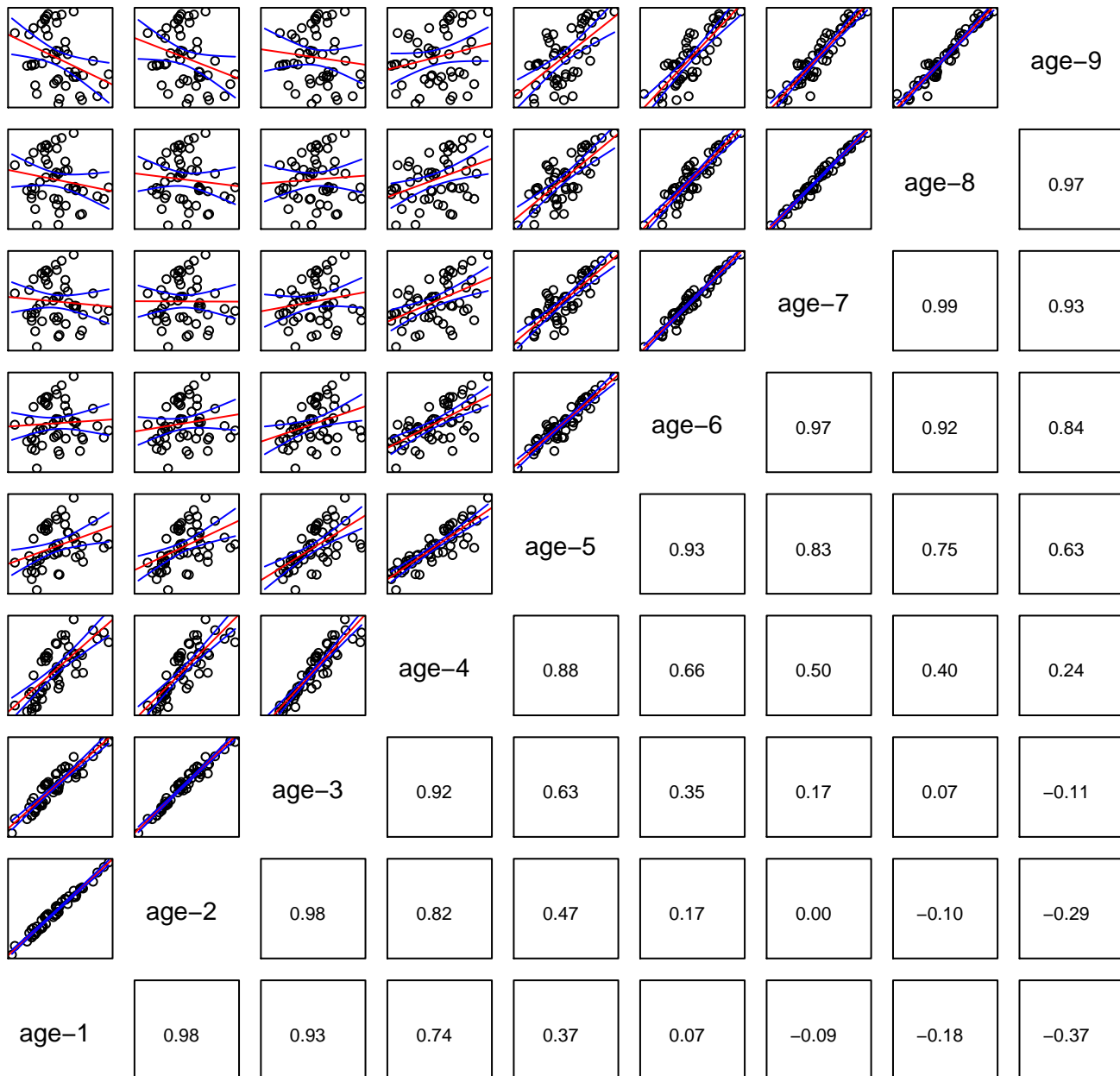
Index 1 (INDEX-1) Observed

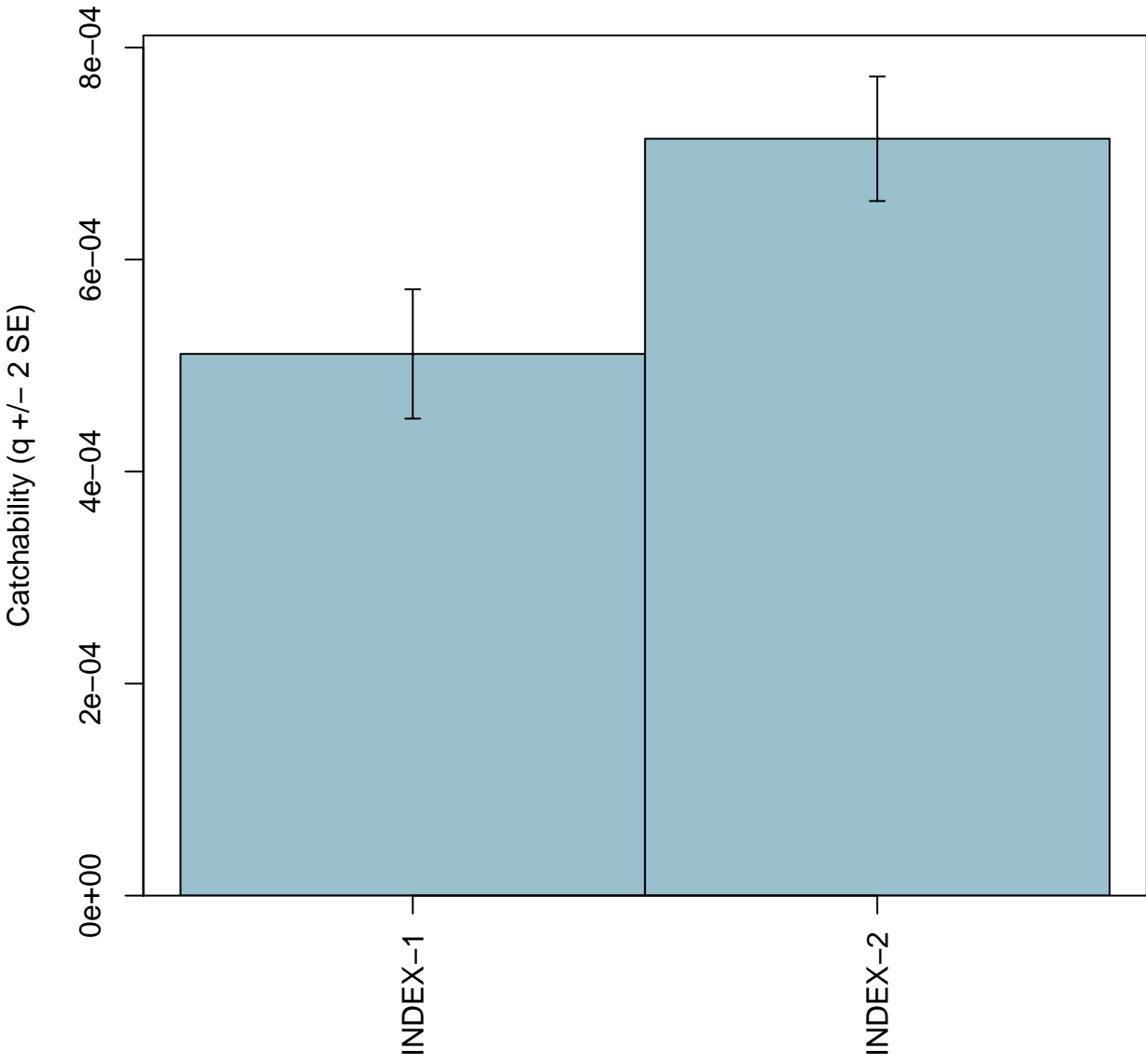


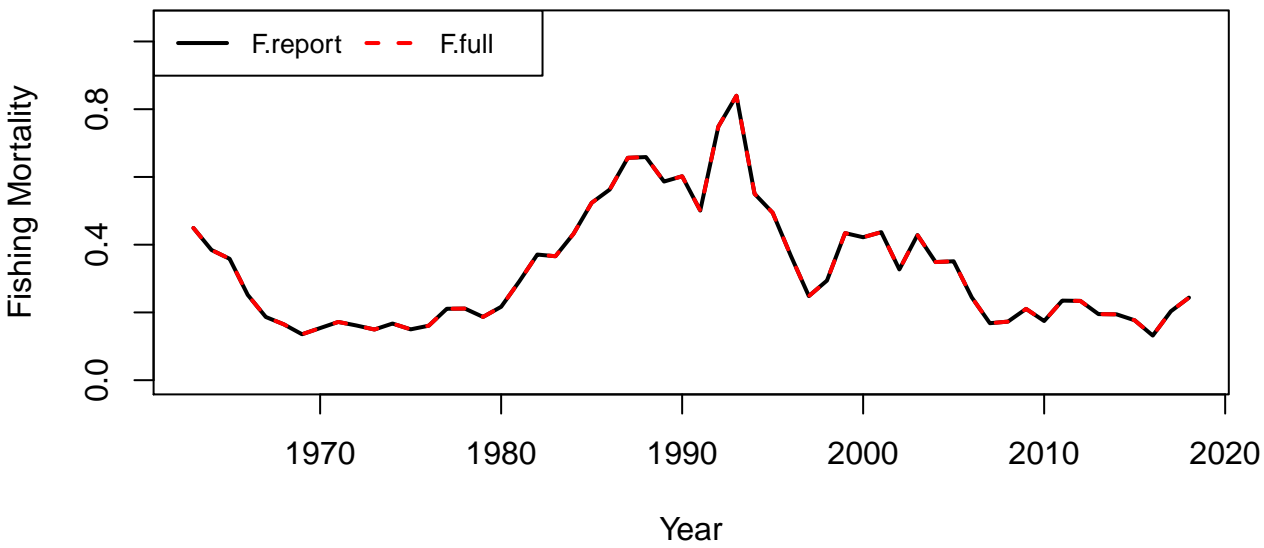
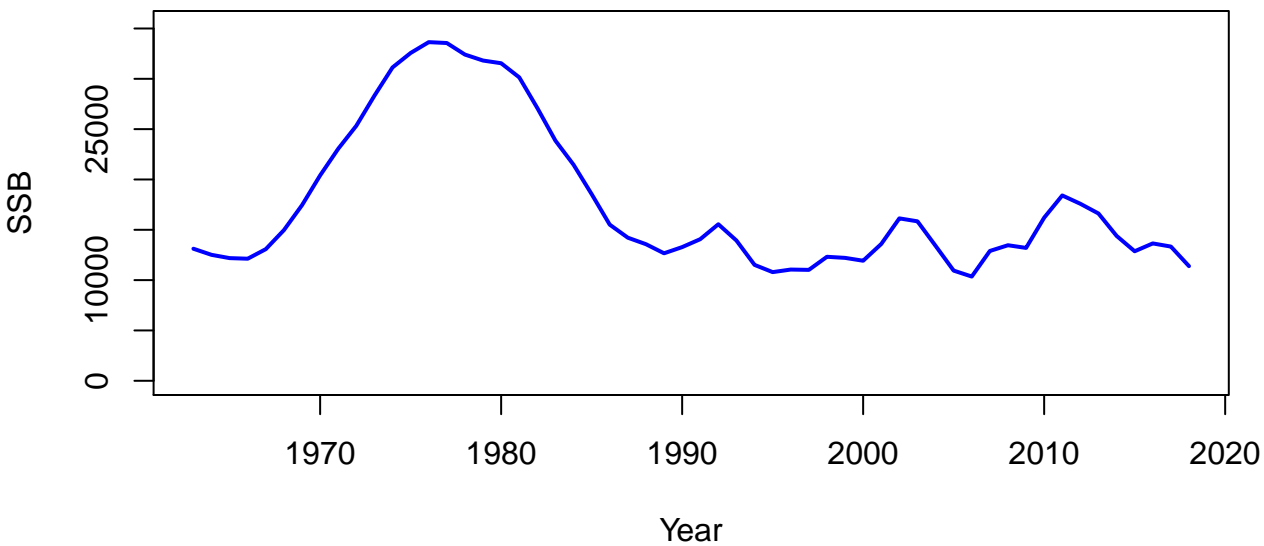
Index 1 (INDEX-1) Predicted



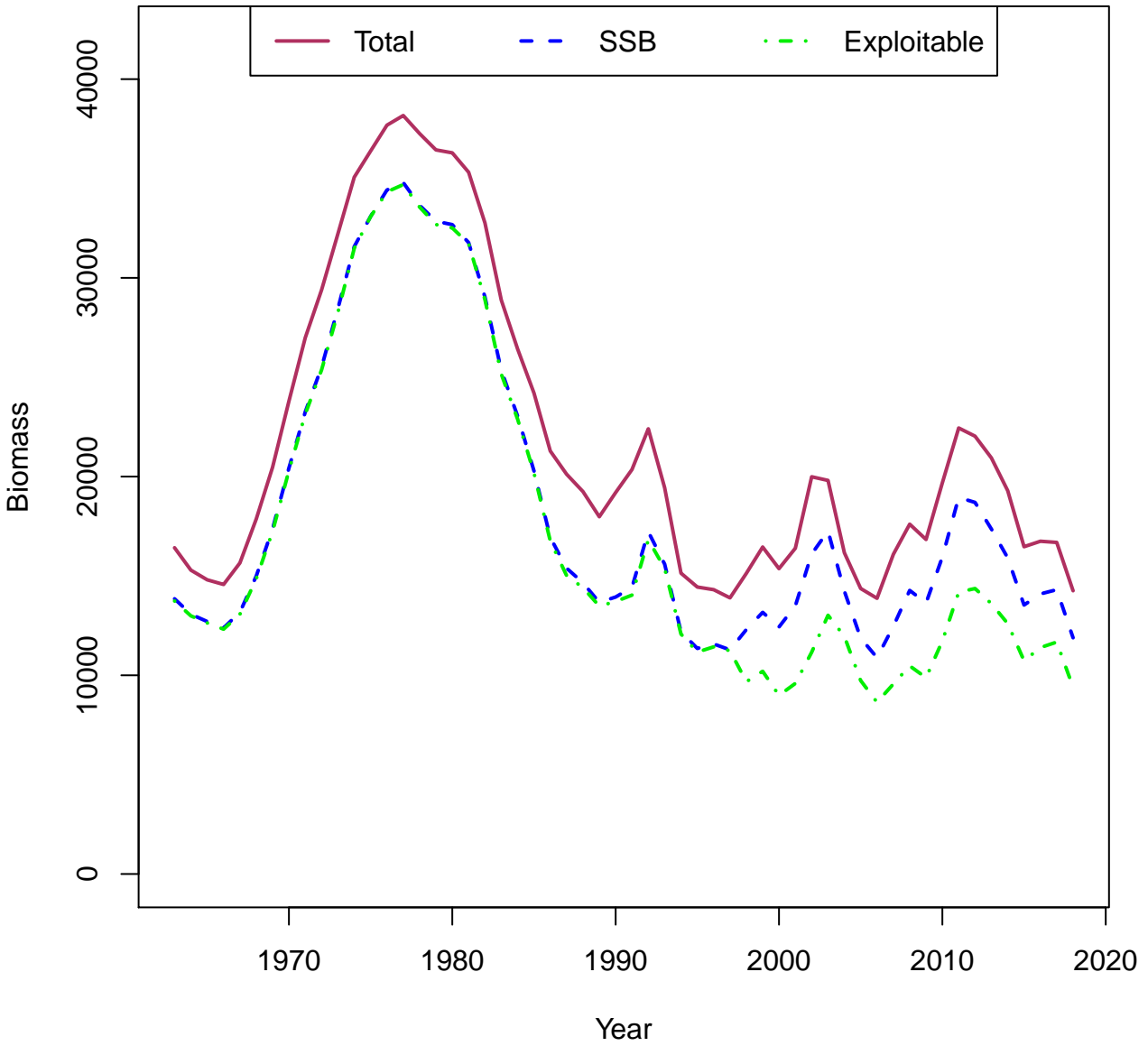
Index 2 (INDEX-2) Predicted

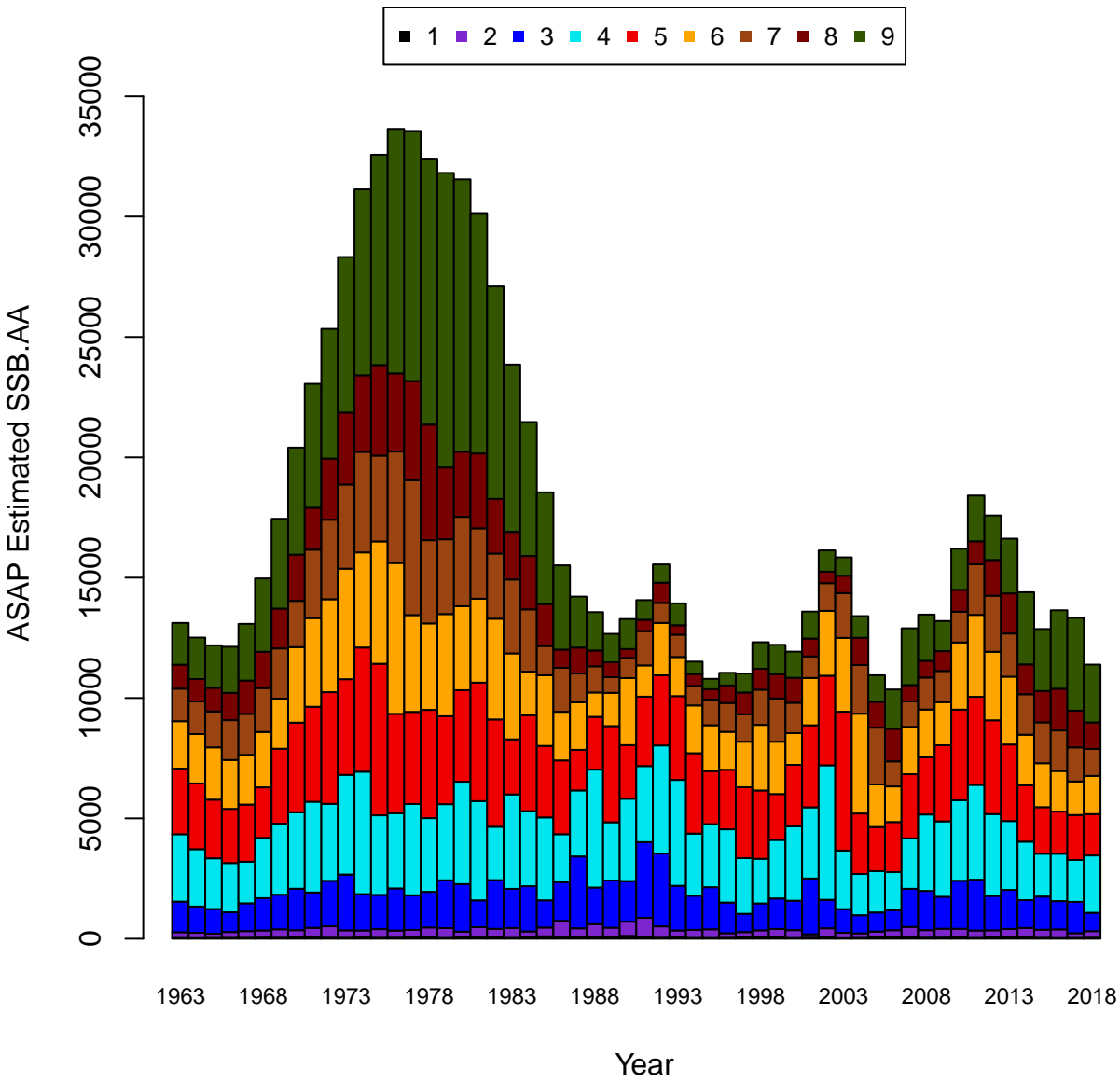


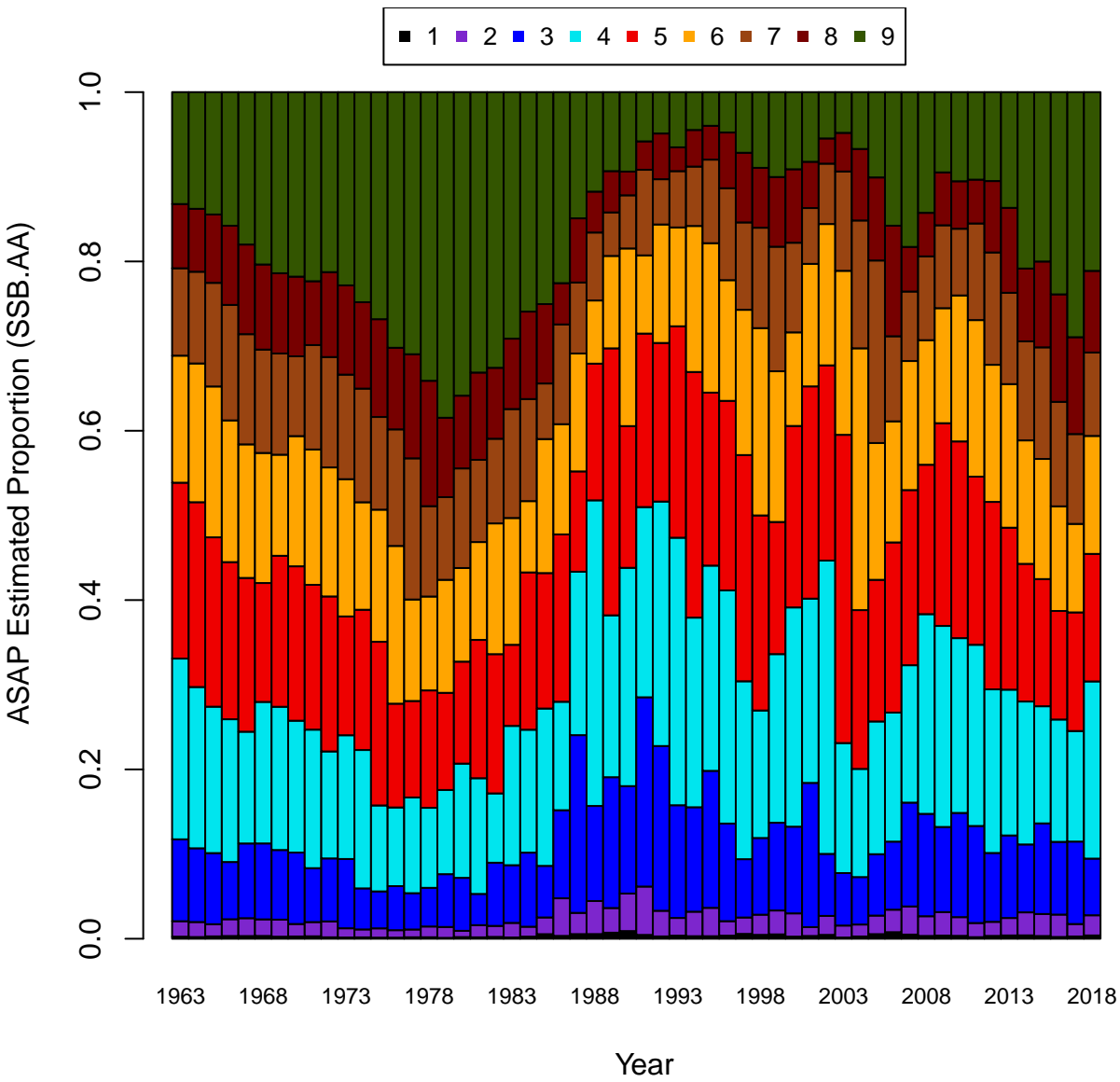


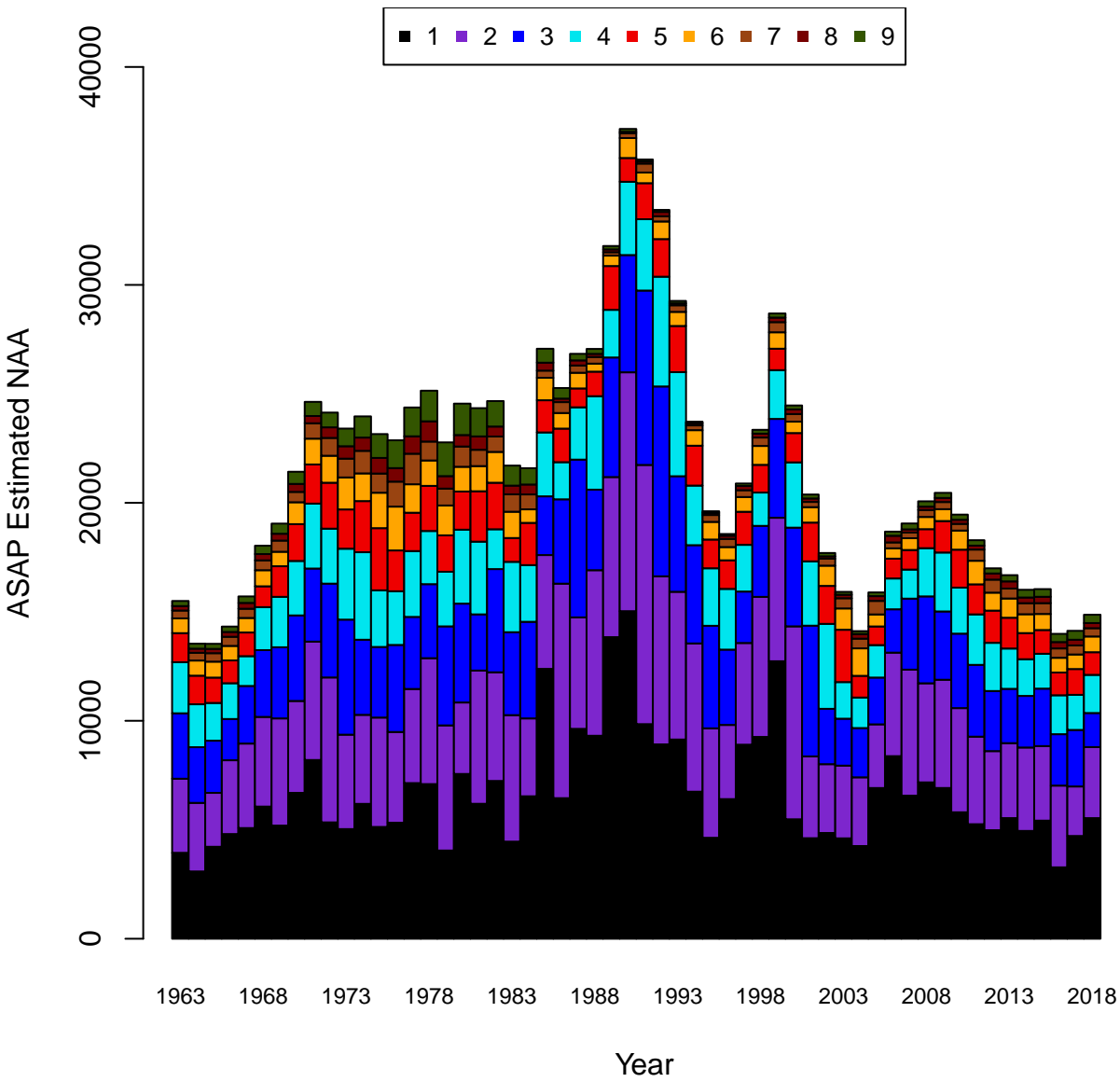


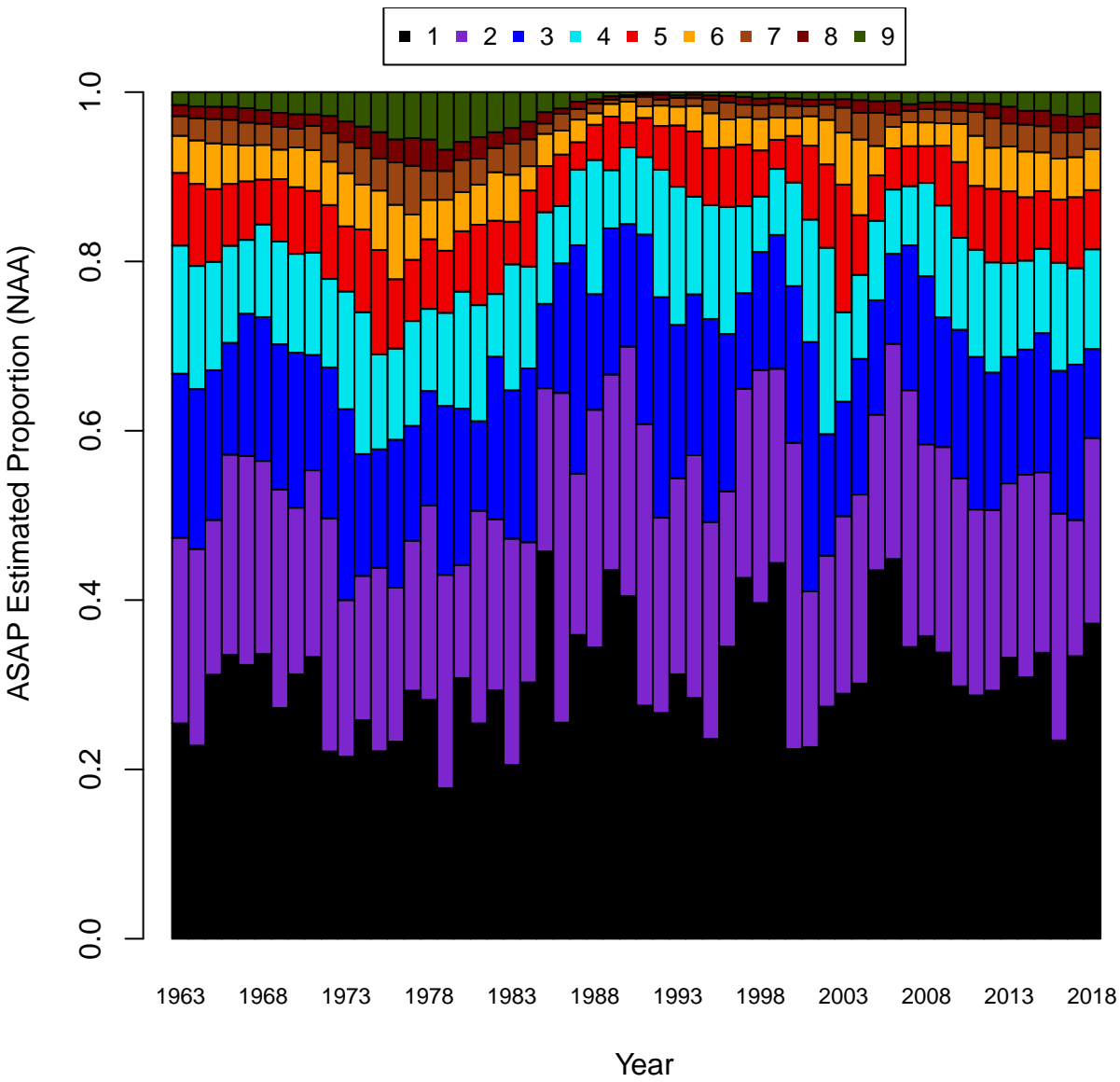
Comparison of January 1 Biomass

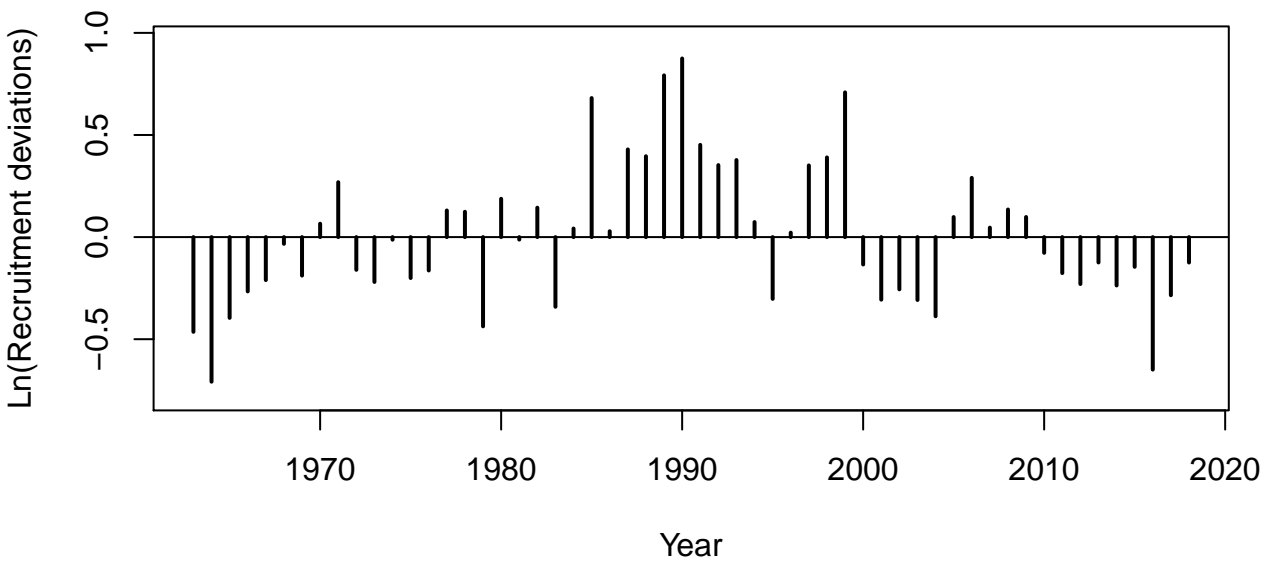
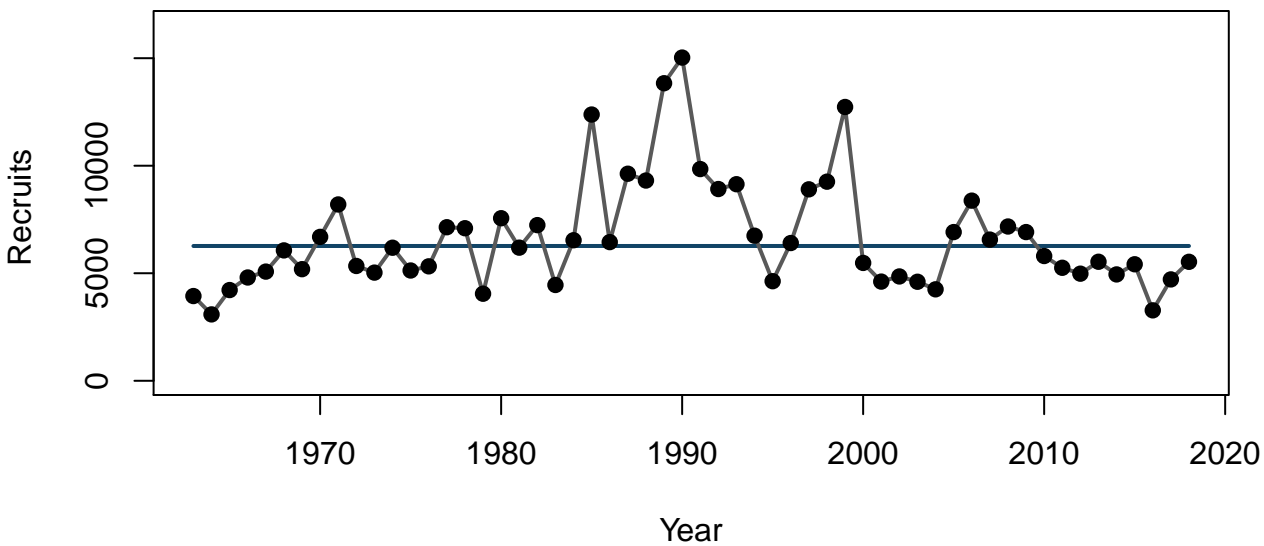


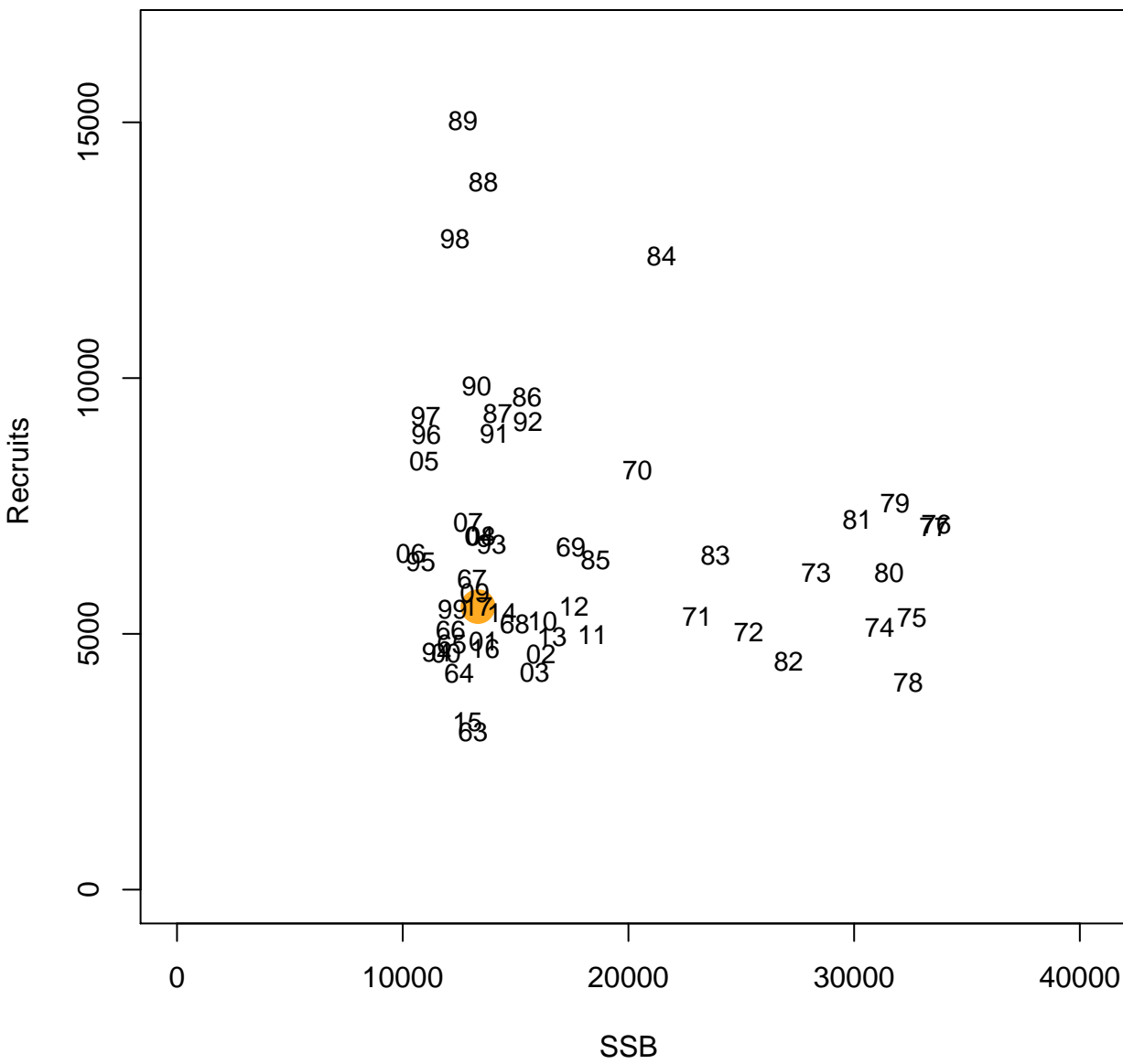


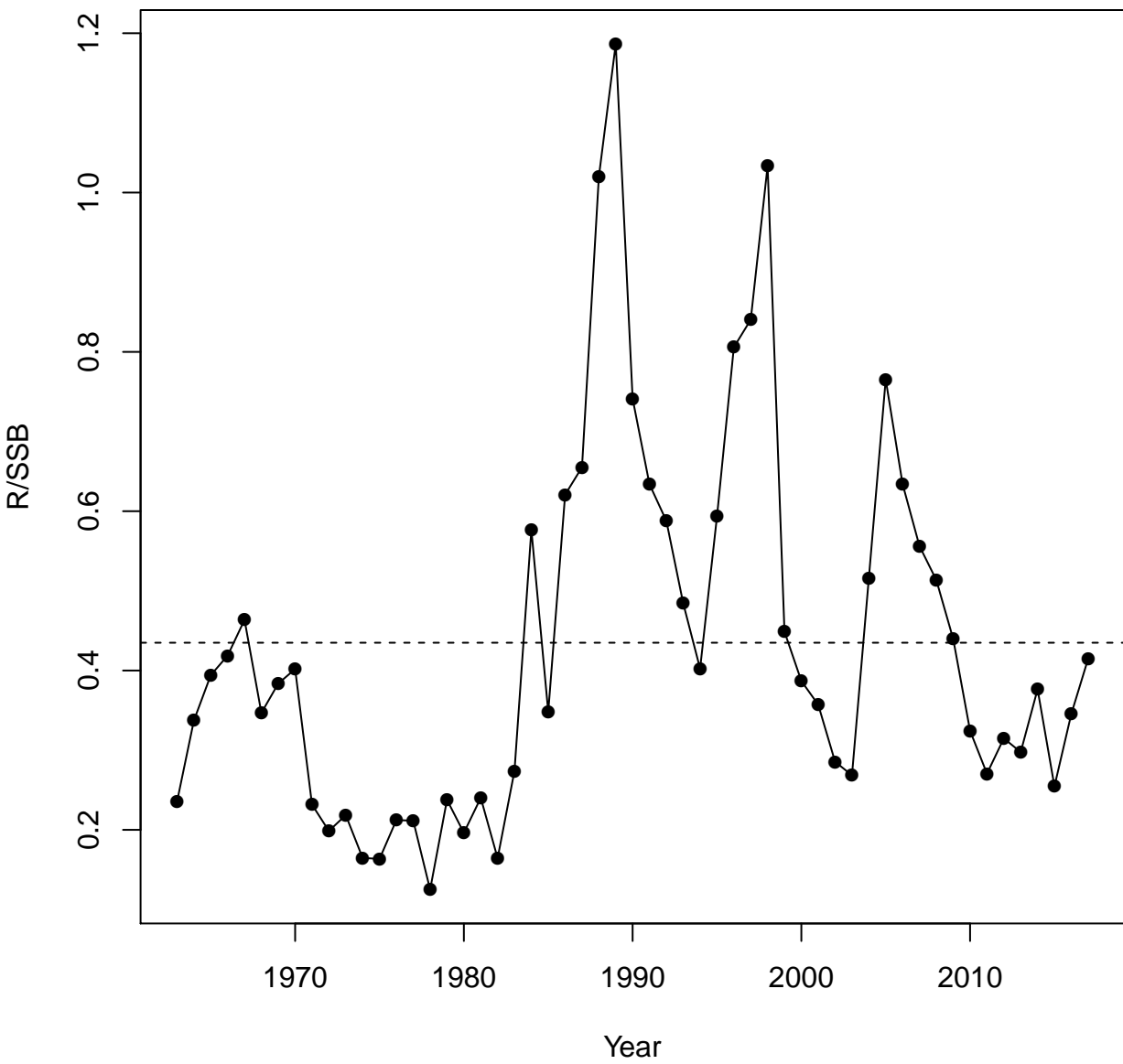


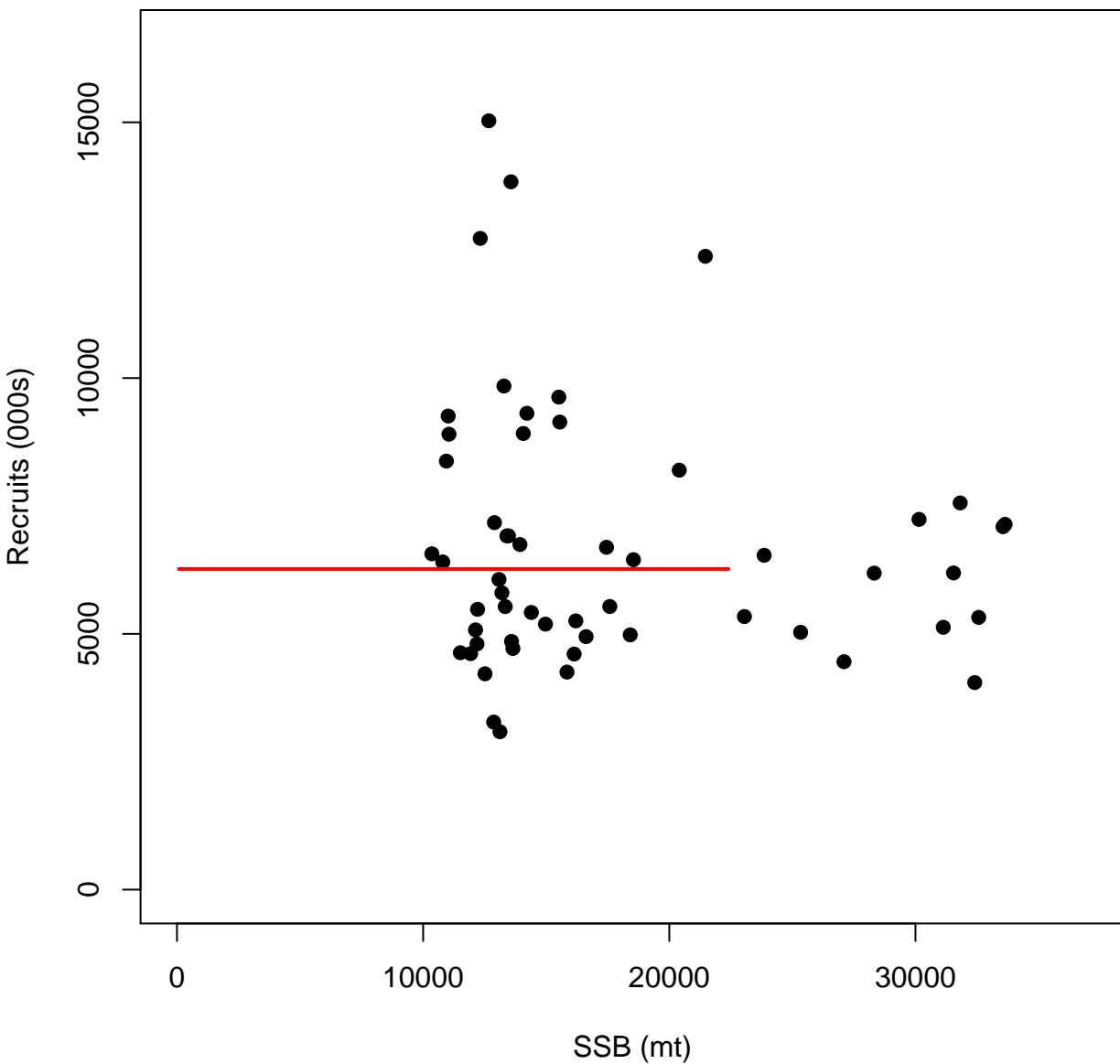


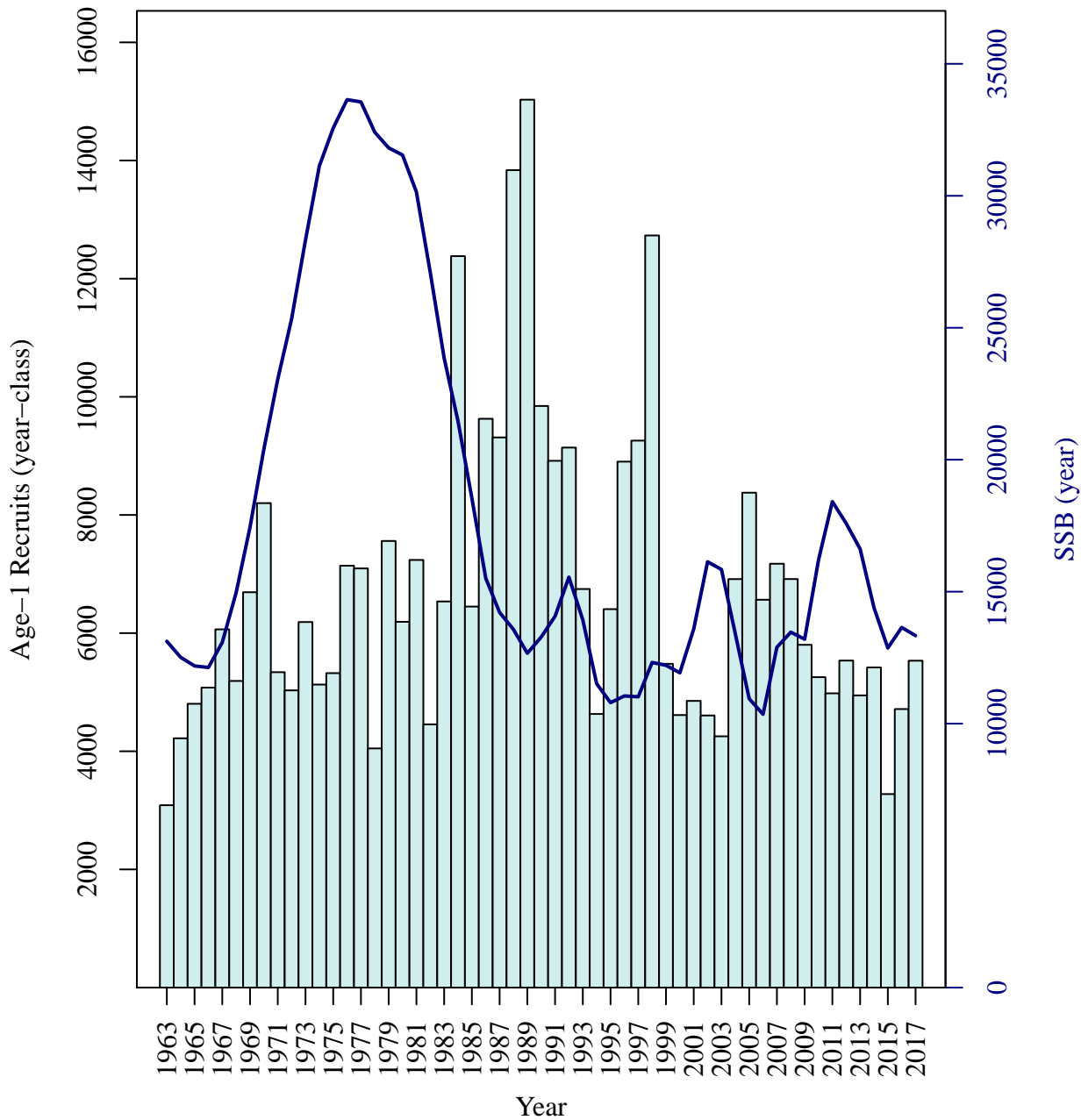


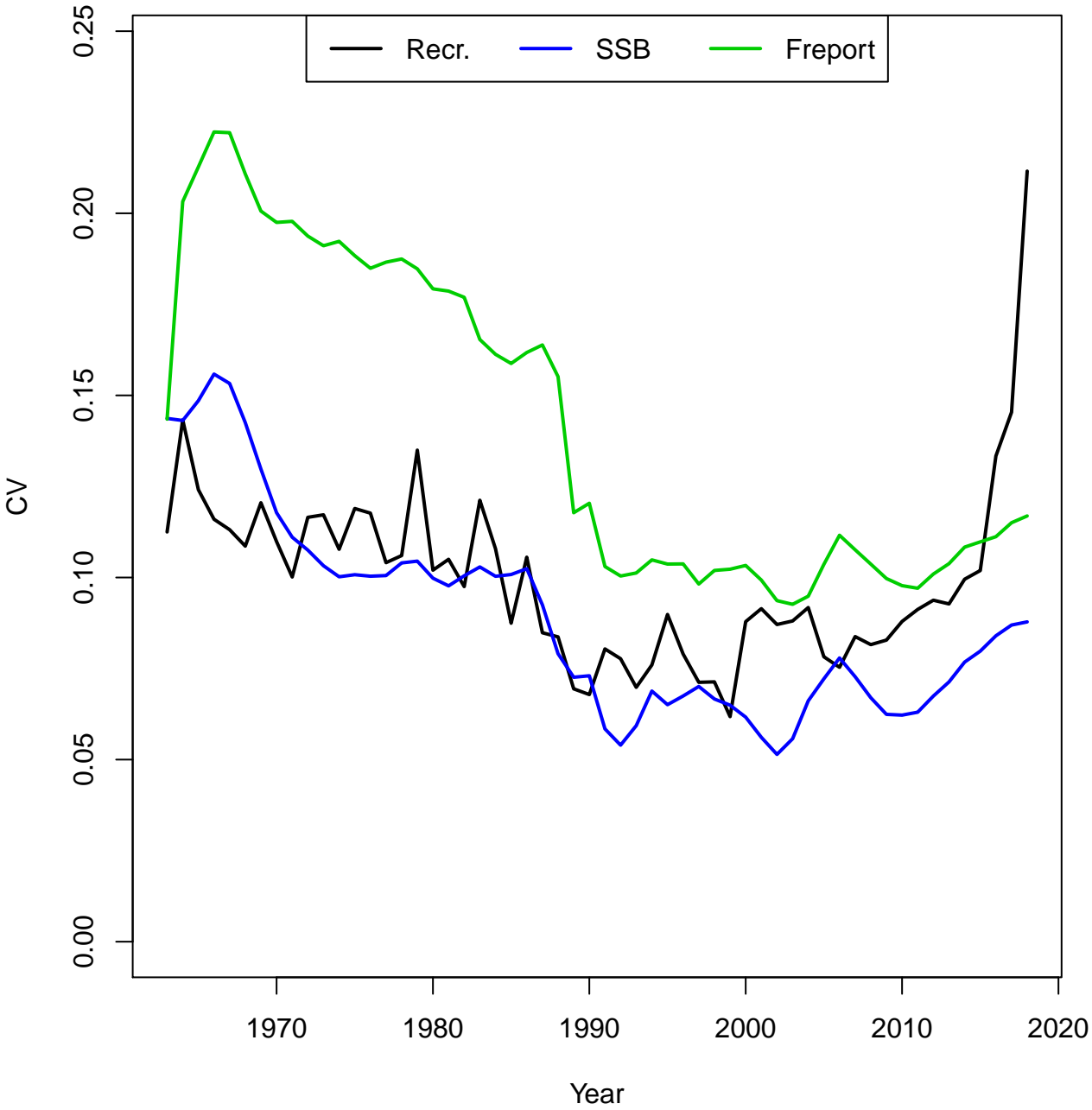




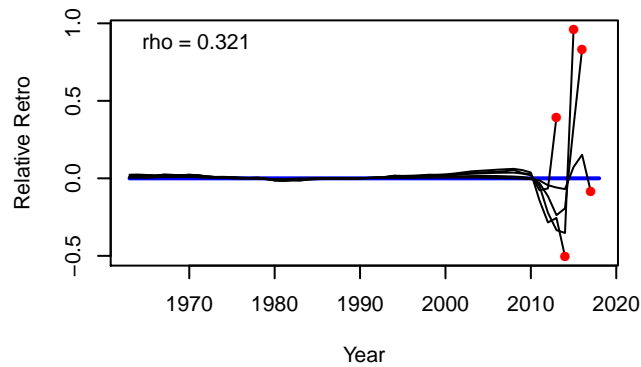
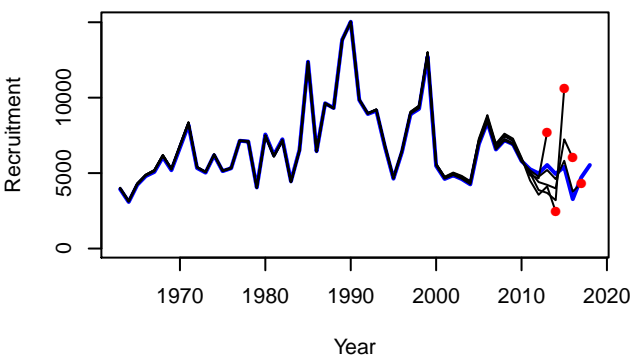
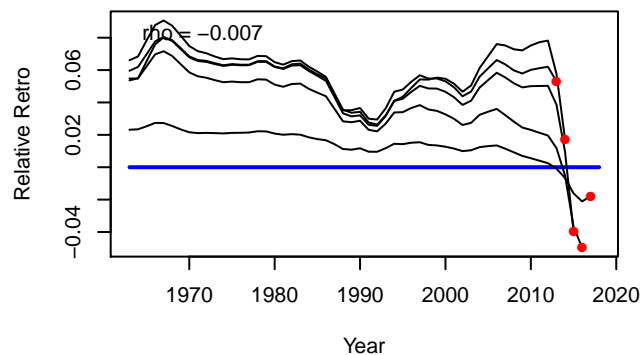
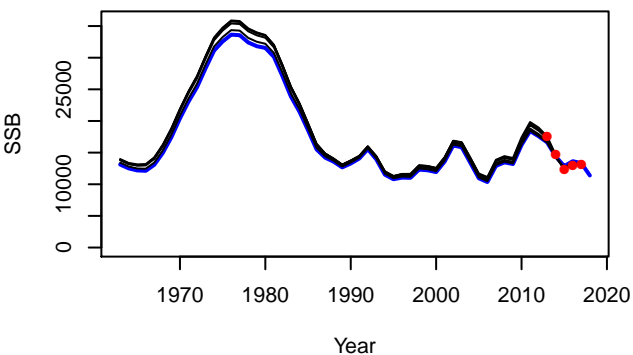
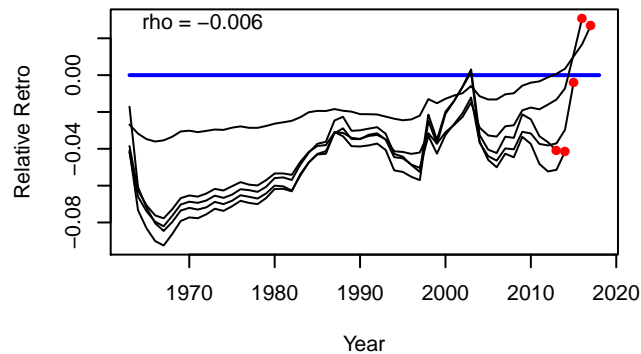
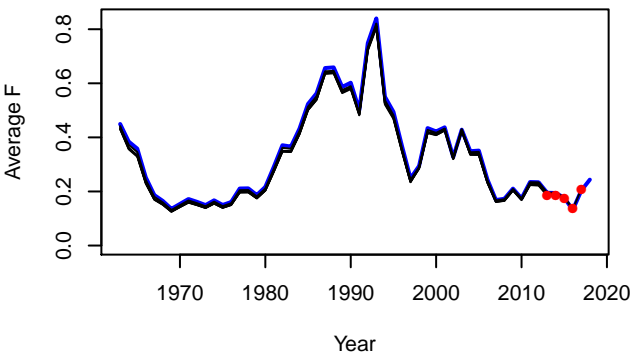






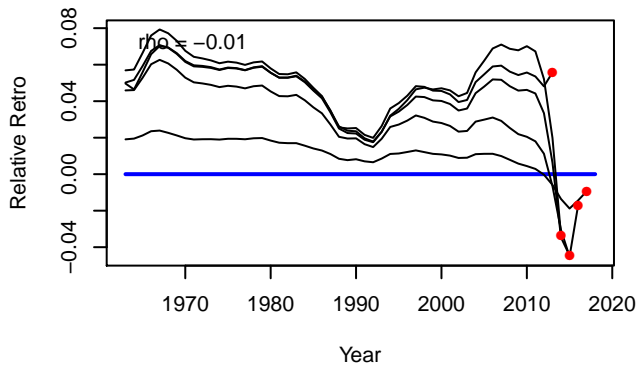
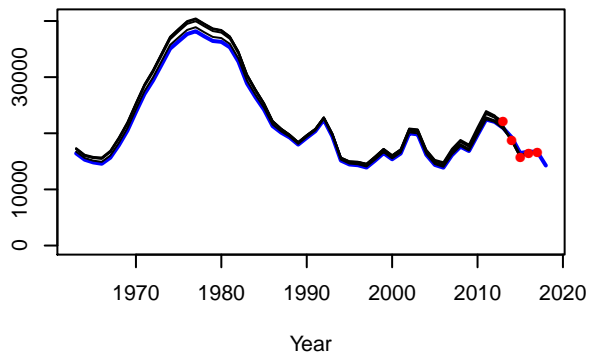


F, SSB, R

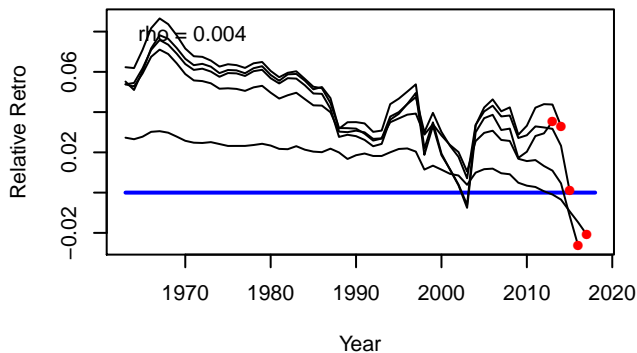
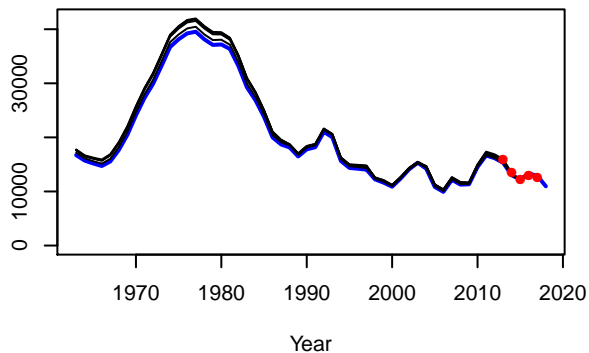


Jan-1 B, Exploitable B, Total Stock N

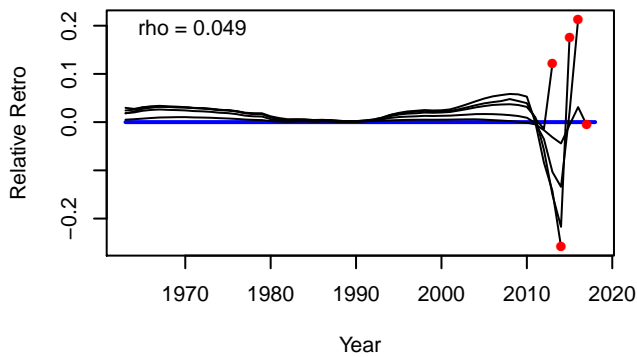
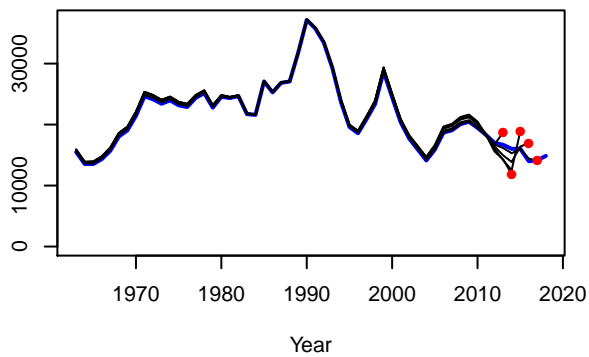
Jan-1 B



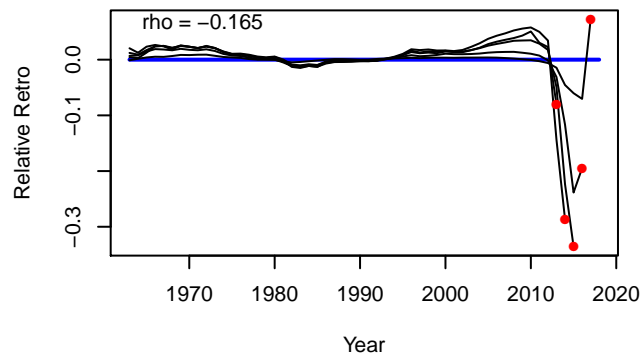
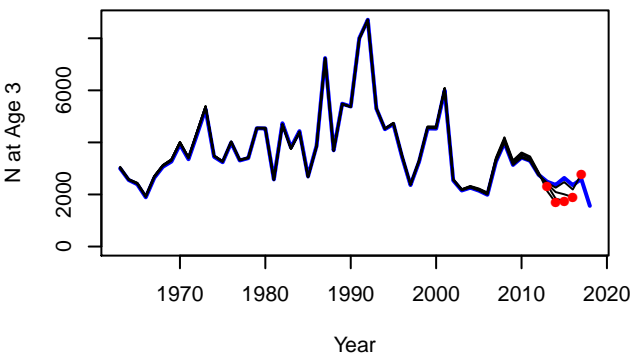
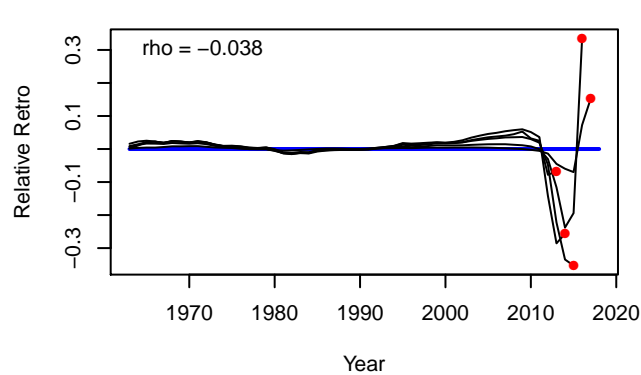
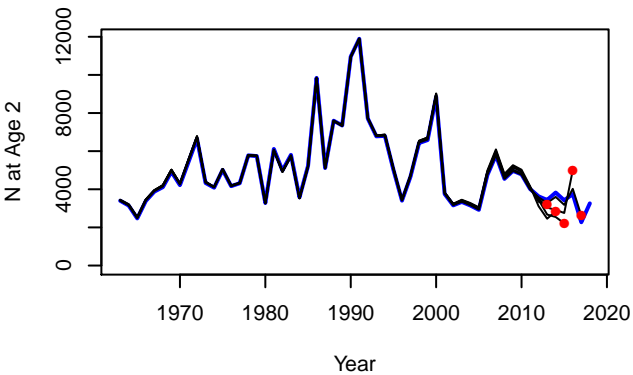
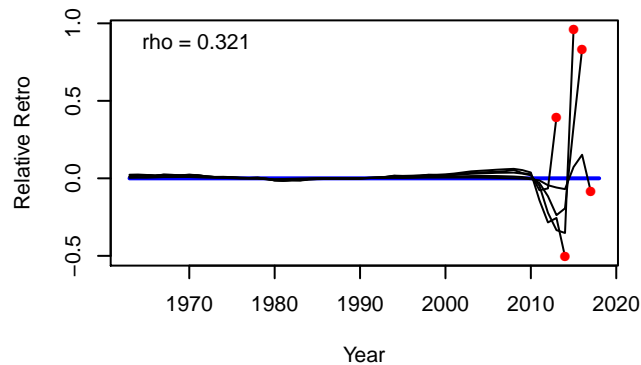
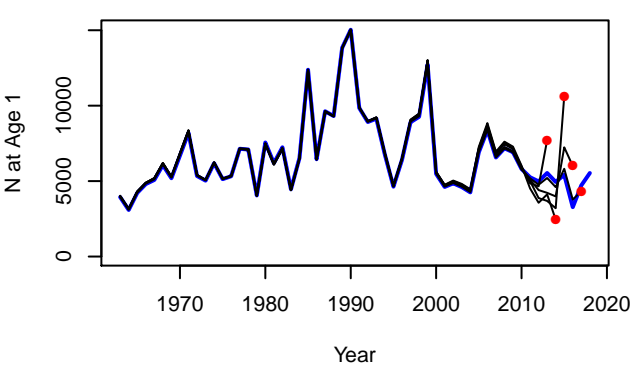
Exploitable B



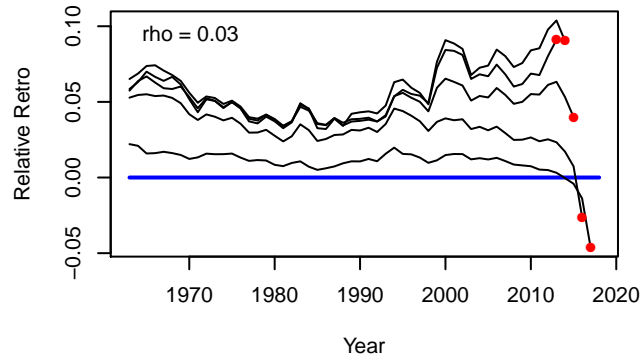
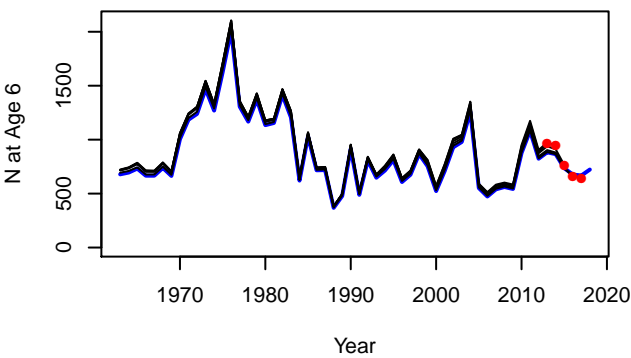
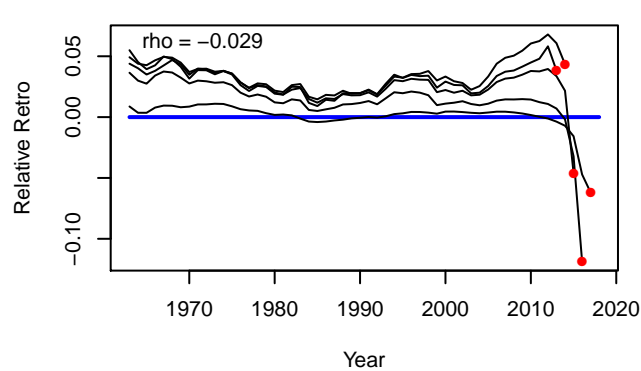
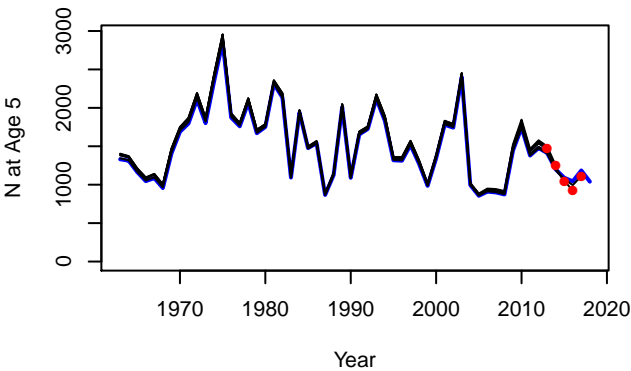
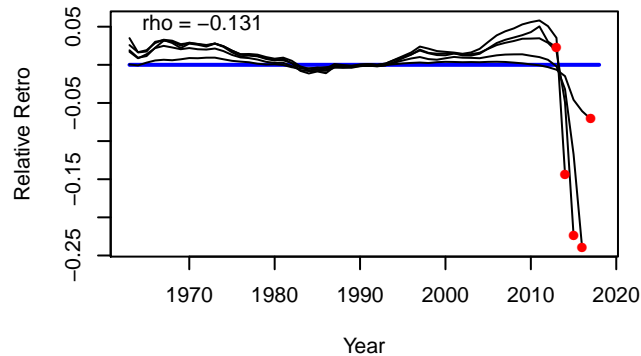
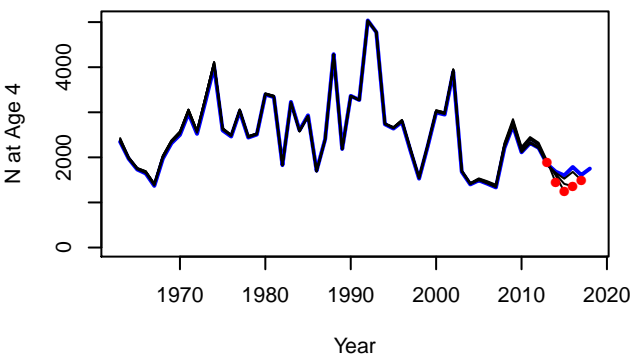
Total Stock N



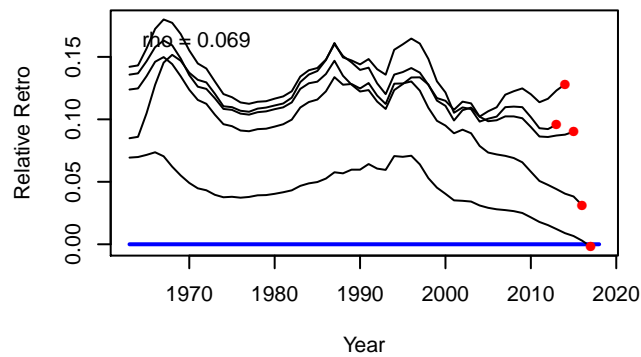
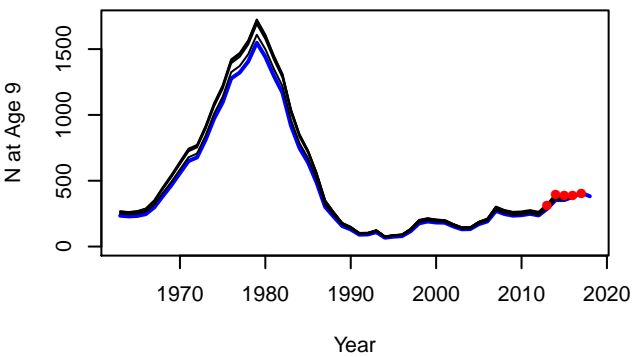
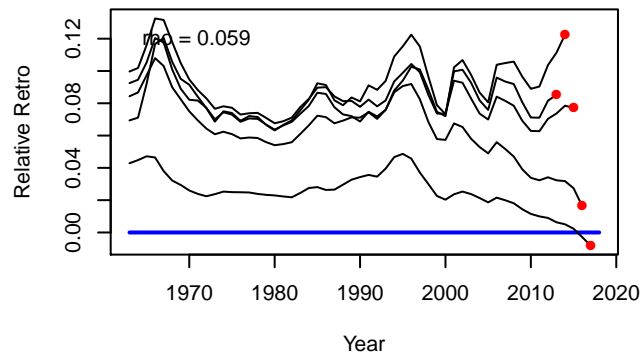
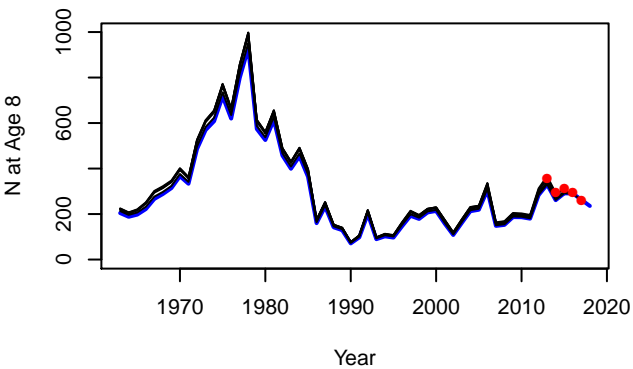
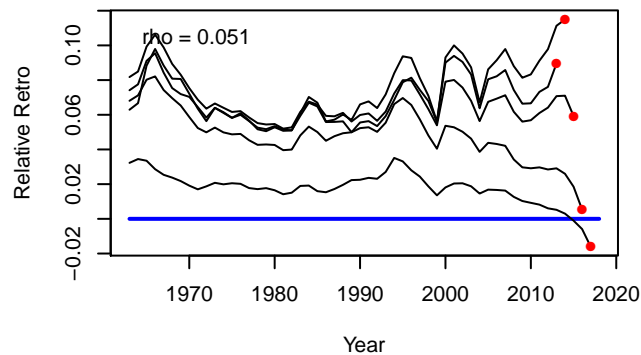
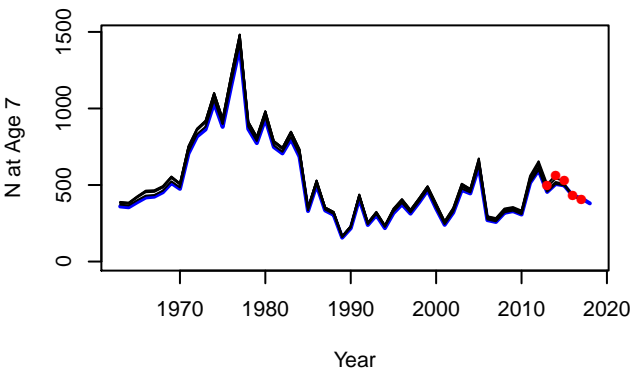
Stock Numbers at Age



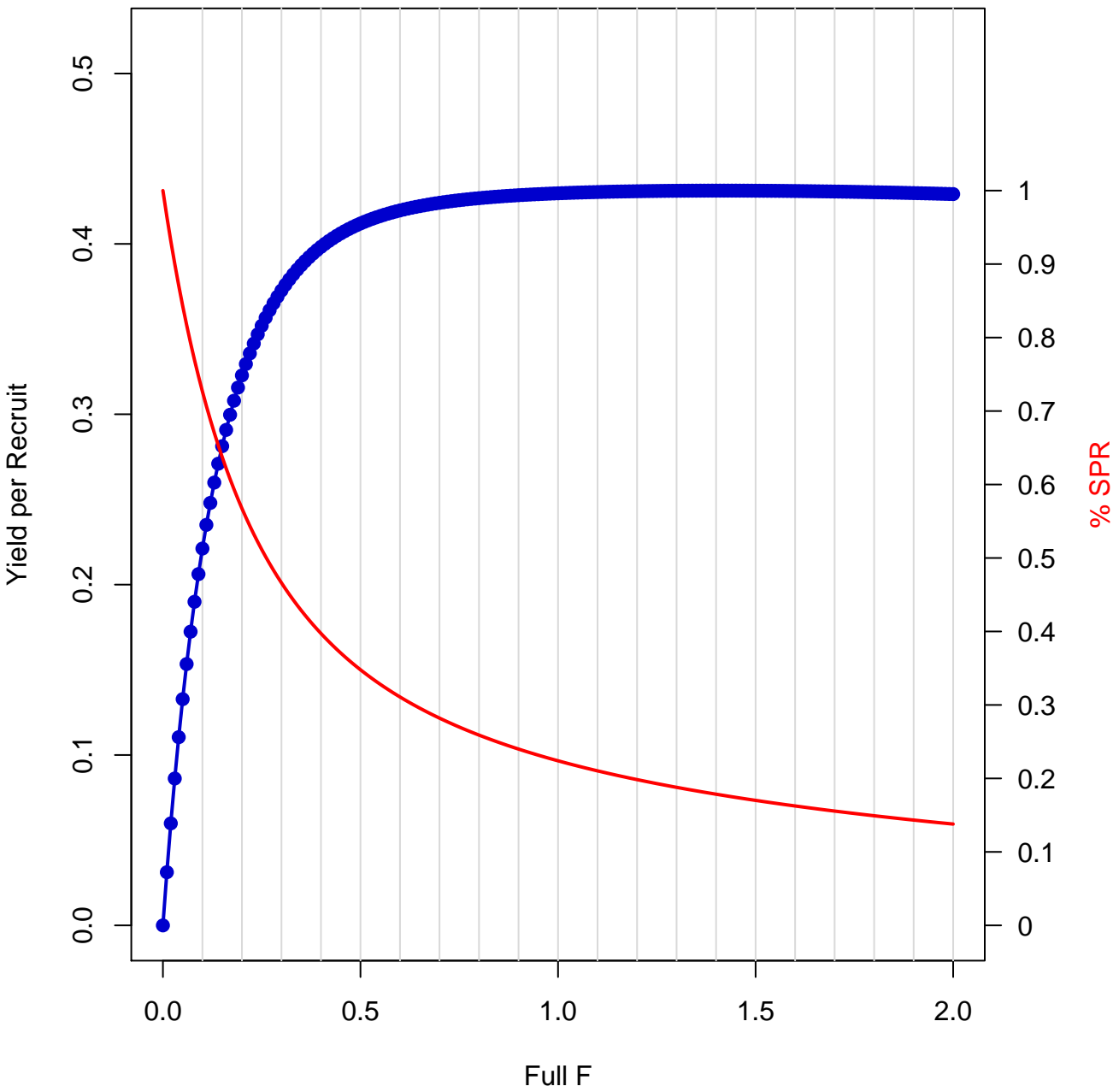
Stock Numbers at Age



Stock Numbers at Age



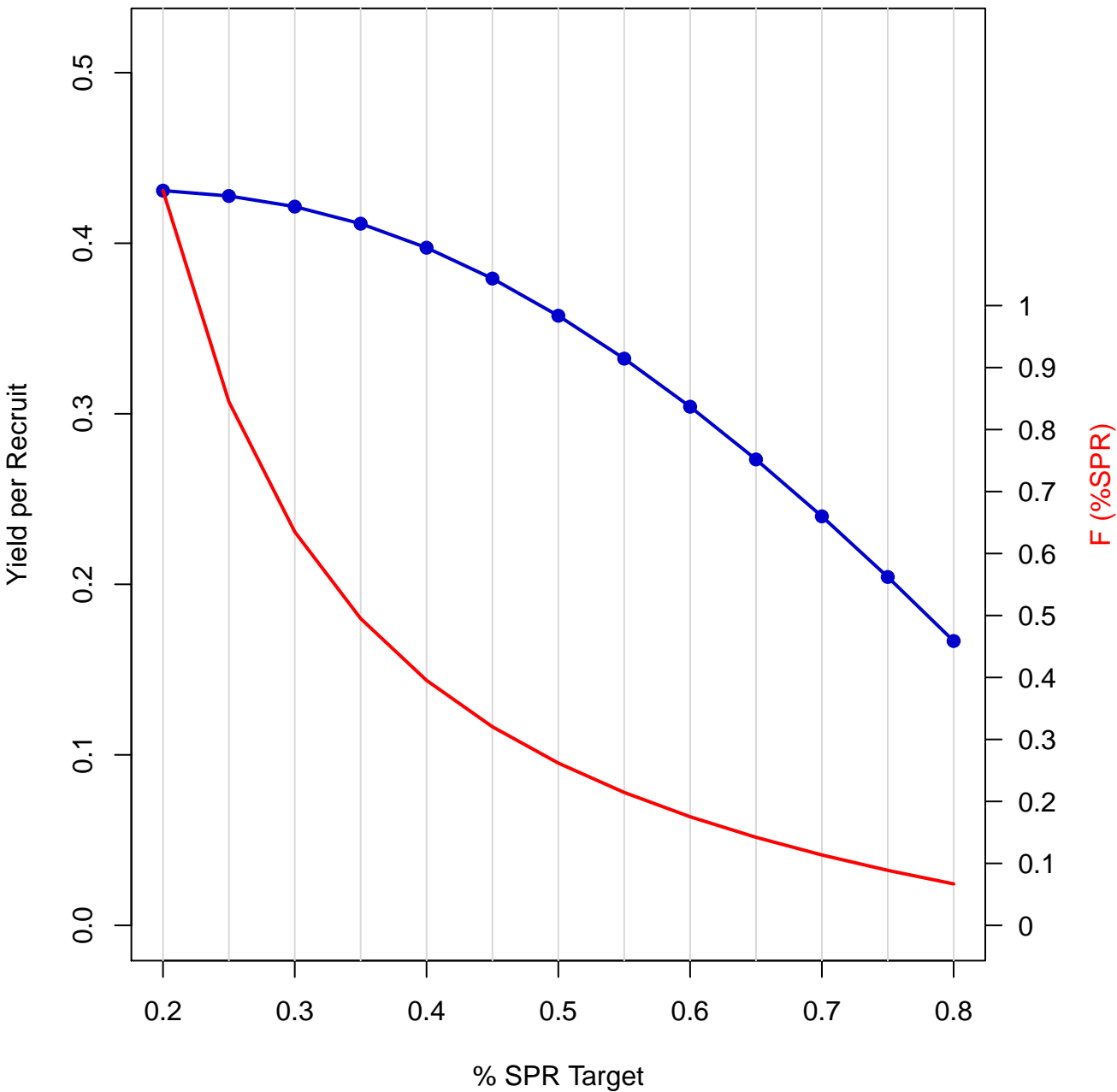
YPR-SPR Reference Points (Years Avg = 5)



YPR–SPR Reference Points (Years Avg = 5)

F	YPR	SPR	F	YPR	SPR	F	YPR	SPR
0	0	1	0.35	0.3875	0.4287	0.7	0.4241	0.2821
0.01	0.0312	0.9646	0.36	0.3899	0.422	0.71	0.4245	0.2795
0.02	0.0599	0.9314	0.37	0.3922	0.4155	0.72	0.4248	0.2771
0.03	0.0862	0.9002	0.38	0.3944	0.4092	0.73	0.4251	0.2746
0.04	0.1105	0.8709	0.39	0.3964	0.4032	0.74	0.4254	0.2722
0.05	0.1328	0.8433	0.4	0.3983	0.3973	0.75	0.4256	0.2699
0.06	0.1534	0.8172	0.41	0.4	0.3916	0.76	0.4259	0.2676
0.07	0.1724	0.7926	0.42	0.4017	0.3861	0.77	0.4262	0.2654
0.08	0.19	0.7694	0.43	0.4033	0.3808	0.78	0.4264	0.2632
0.09	0.2062	0.7474	0.44	0.4048	0.3757	0.79	0.4266	0.2611
0.1	0.2212	0.7266	0.45	0.4061	0.3707	0.8	0.4269	0.259
0.11	0.2351	0.7069	0.46	0.4075	0.3659	0.81	0.4271	0.2569
0.12	0.248	0.6882	0.47	0.4087	0.3612	0.82	0.4273	0.2549
0.13	0.2599	0.6704	0.48	0.4099	0.3566	0.83	0.4275	0.2529
0.14	0.271	0.6535	0.49	0.411	0.3522	0.84	0.4276	0.2509
0.15	0.2813	0.6374	0.5	0.412	0.3479	0.85	0.4278	0.249
0.16	0.2908	0.622	0.51	0.413	0.3437	0.86	0.428	0.2472
0.17	0.2997	0.6074	0.52	0.4139	0.3397	0.87	0.4281	0.2453
0.18	0.308	0.5935	0.53	0.4148	0.3357	0.88	0.4283	0.2435
0.19	0.3157	0.5802	0.54	0.4156	0.3319	0.89	0.4284	0.2417
0.2	0.3228	0.5675	0.55	0.4164	0.3281	0.9	0.4286	0.24
0.21	0.3295	0.5553	0.56	0.4171	0.3245	0.91	0.4287	0.2382
0.22	0.3357	0.5437	0.57	0.4178	0.321	0.92	0.4288	0.2366
0.23	0.3415	0.5325	0.58	0.4184	0.3175	0.93	0.429	0.2349
0.24	0.3469	0.5218	0.59	0.4191	0.3141	0.94	0.4291	0.2333
0.25	0.352	0.5116	0.6	0.4197	0.3109	0.95	0.4292	0.2316
0.26	0.3567	0.5018	0.61	0.4202	0.3077	0.96	0.4293	0.2301
0.27	0.3611	0.4923	0.62	0.4207	0.3045	0.97	0.4294	0.2285
0.28	0.3652	0.4833	0.63	0.4212	0.3015	0.98	0.4295	0.227
0.29	0.369	0.4746	0.64	0.4217	0.2985	0.99	0.4296	0.2255
0.3	0.3726	0.4662	0.65	0.4222	0.2956	1	0.4297	0.224
0.31	0.376	0.4581	0.66	0.4226	0.2928	1.01	0.4298	0.2225
0.32	0.3792	0.4503	0.67	0.423	0.29	1.02	0.4299	0.2211
0.33	0.3821	0.4429	0.68	0.4234	0.2873	1.03	0.43	0.2197
0.34	0.3849	0.4356	0.69	0.4238	0.2847	1.04	0.43	0.2183

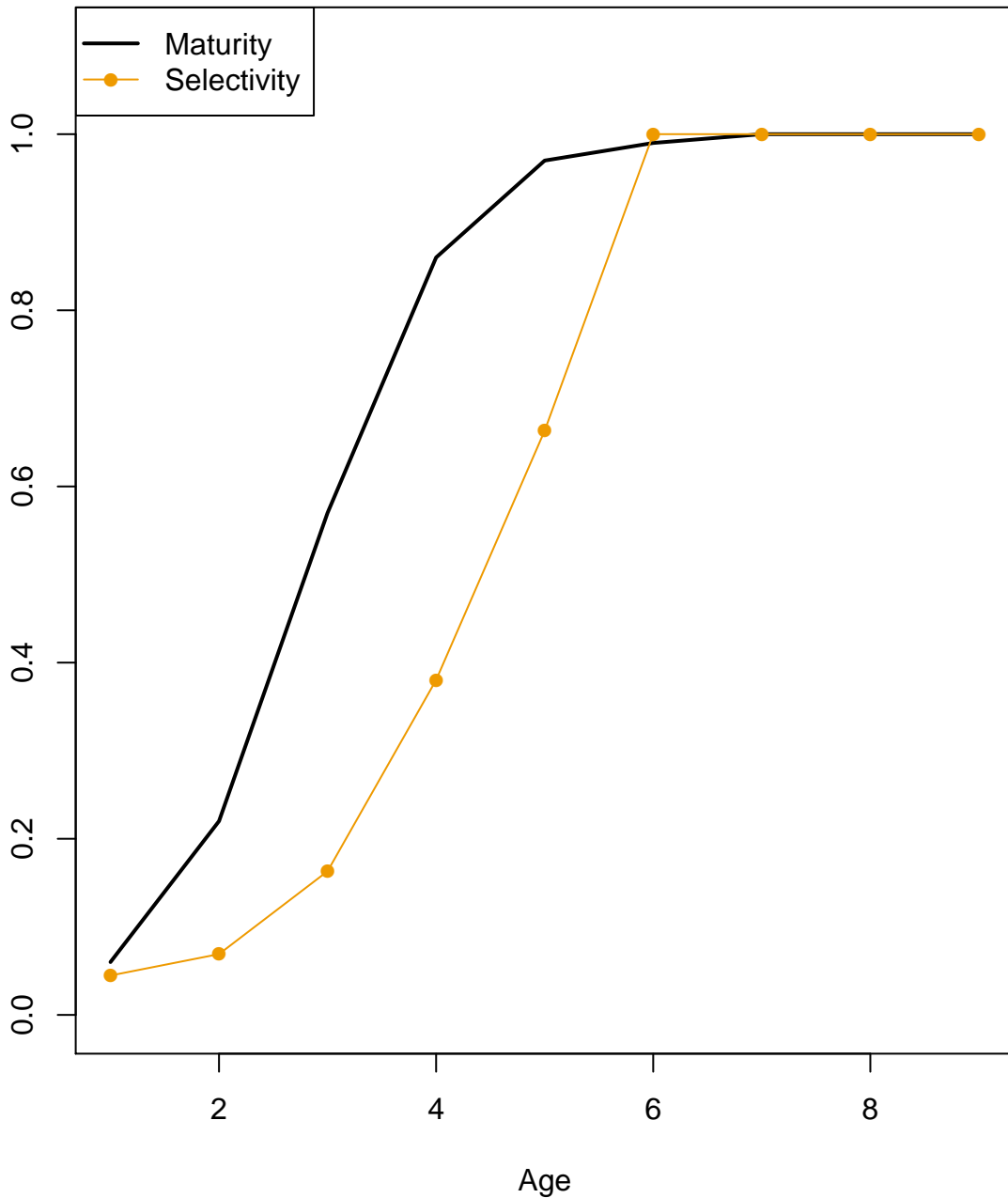
SPR Target Reference Points (Years Avg = 5)



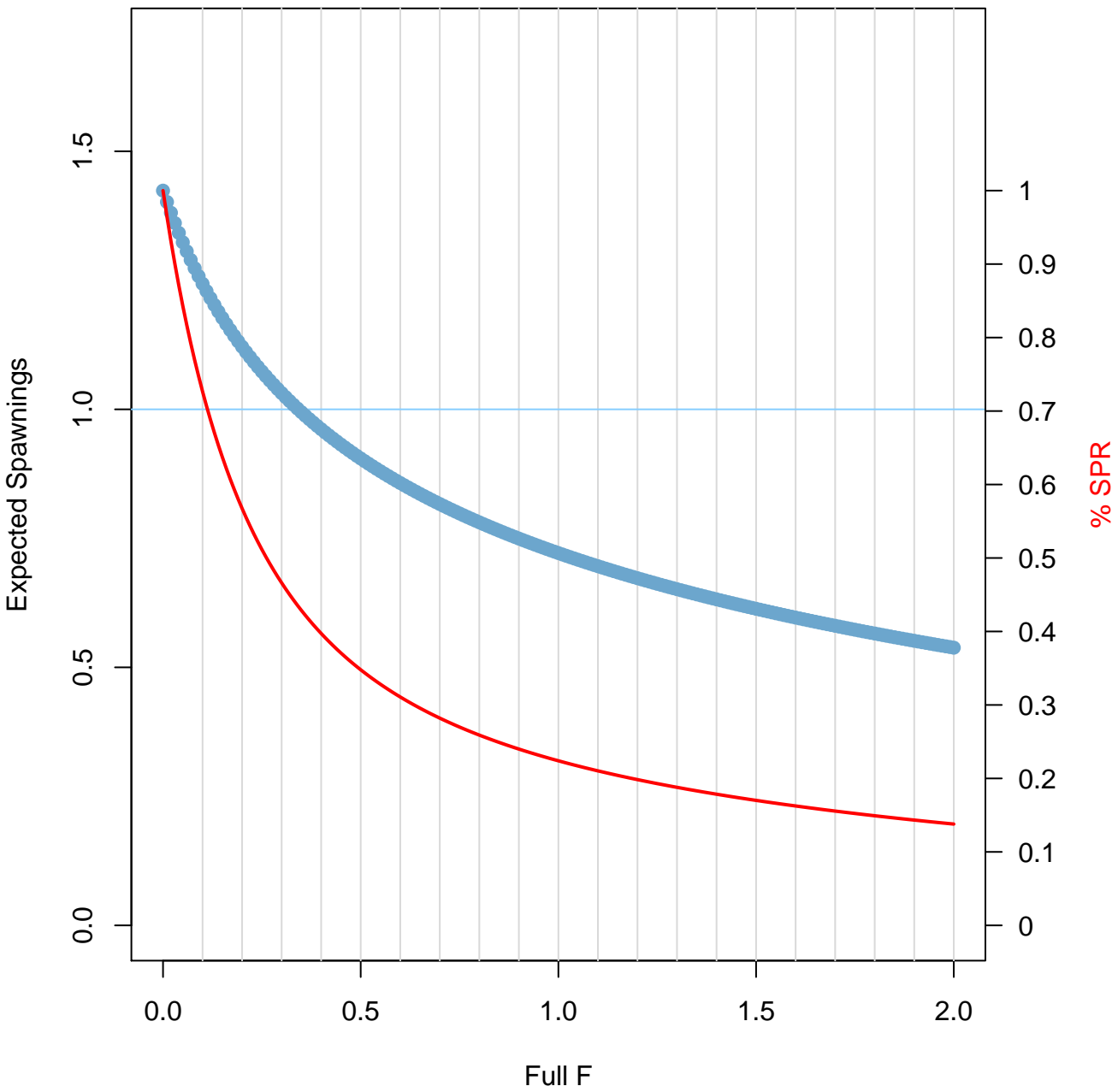
SPR Target Reference Points (Years Avg = 5)

% SPR	F(%SPR)	YPR
0.2	1.1855	0.4309
0.25	0.8449	0.4277
0.3	0.635	0.4215
0.35	0.4951	0.4115
0.4	0.3953	0.3974
0.45	0.3205	0.3793
0.5	0.2618	0.3575
0.55	0.2145	0.3323
0.6	0.1753	0.3041
0.65	0.1421	0.2732
0.7	0.1136	0.2399
0.75	0.0888	0.2043
0.8	0.0669	0.1668

Selectivity or Maturity at age



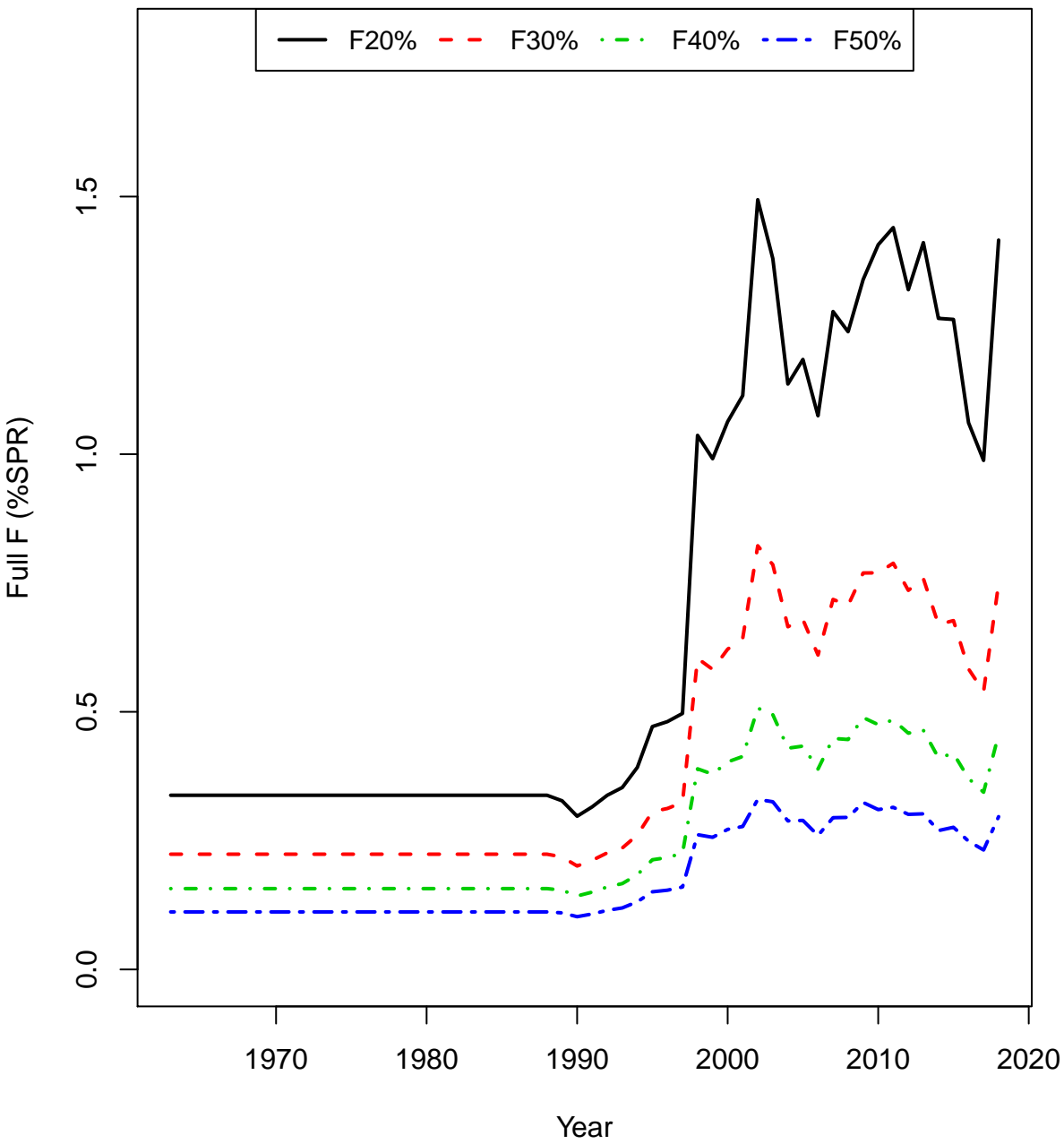
Expected Spawnings and SPR Reference Points (Years Avg = 5)



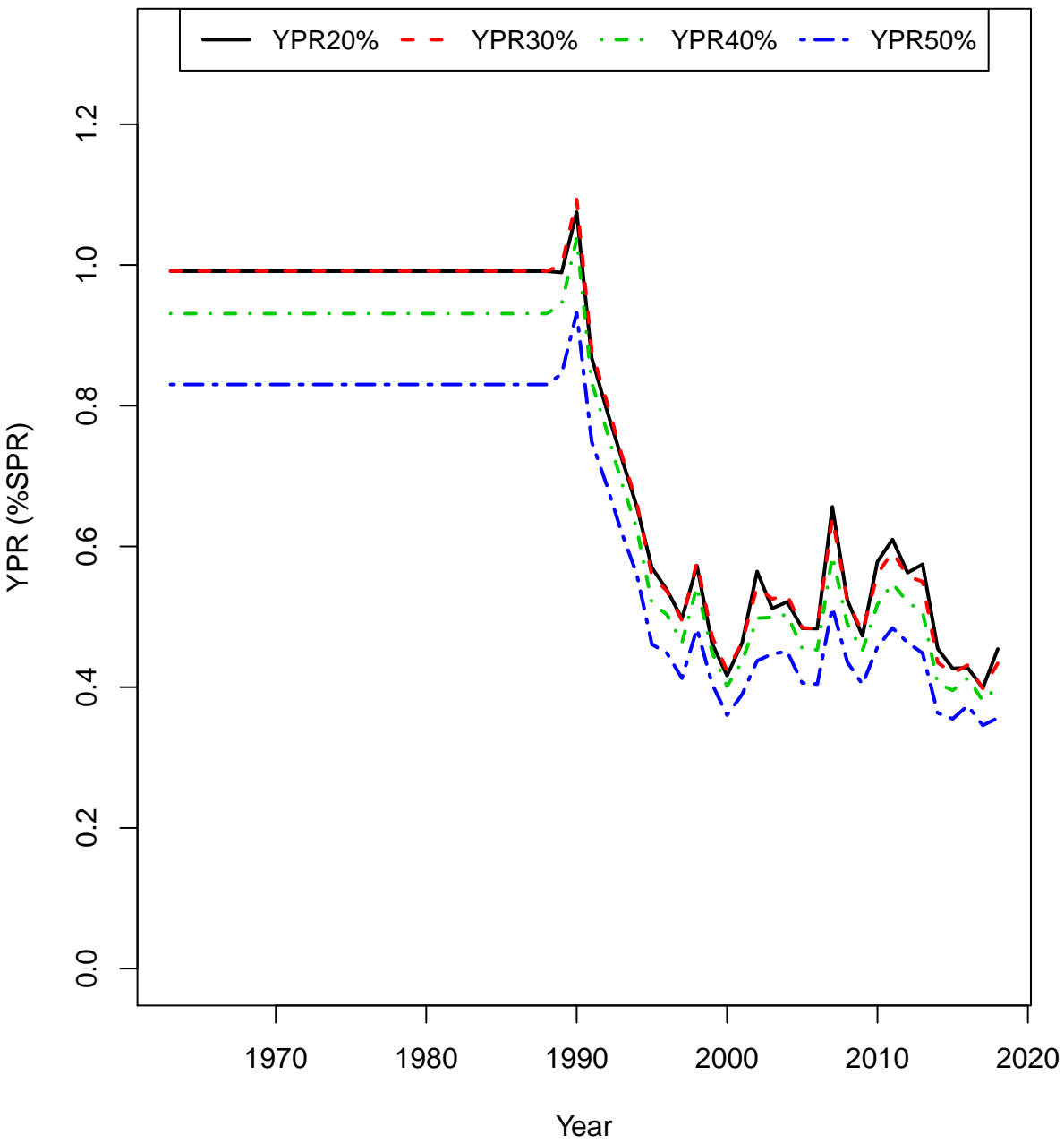
Expected Spawnings & SPR Reference Points (Years Avg = 5)

F	E[Sp]	SPR	F	E[Sp]	SPR	F	E[Sp]	SPR
0	1.4238	1	0.35	0.9945	0.4287	0.7	0.8166	0.2821
0.01	1.4018	0.9646	0.36	0.9876	0.422	0.71	0.8128	0.2795
0.02	1.3809	0.9314	0.37	0.9809	0.4155	0.72	0.8091	0.2771
0.03	1.3609	0.9002	0.38	0.9743	0.4092	0.73	0.8054	0.2746
0.04	1.3419	0.8709	0.39	0.9679	0.4032	0.74	0.8018	0.2722
0.05	1.3237	0.8433	0.4	0.9615	0.3973	0.75	0.7982	0.2699
0.06	1.3062	0.8172	0.41	0.9553	0.3916	0.76	0.7947	0.2676
0.07	1.2895	0.7926	0.42	0.9493	0.3861	0.77	0.7912	0.2654
0.08	1.2735	0.7694	0.43	0.9433	0.3808	0.78	0.7878	0.2632
0.09	1.2581	0.7474	0.44	0.9375	0.3757	0.79	0.7844	0.2611
0.1	1.2434	0.7266	0.45	0.9318	0.3707	0.8	0.7811	0.259
0.11	1.2291	0.7069	0.46	0.9262	0.3659	0.81	0.7778	0.2569
0.12	1.2154	0.6882	0.47	0.9207	0.3612	0.82	0.7745	0.2549
0.13	1.2022	0.6704	0.48	0.9153	0.3566	0.83	0.7712	0.2529
0.14	1.1895	0.6535	0.49	0.91	0.3522	0.84	0.7681	0.2509
0.15	1.1771	0.6374	0.5	0.9048	0.3479	0.85	0.7649	0.249
0.16	1.1652	0.622	0.51	0.8996	0.3437	0.86	0.7618	0.2472
0.17	1.1537	0.6074	0.52	0.8946	0.3397	0.87	0.7587	0.2453
0.18	1.1426	0.5935	0.53	0.8897	0.3357	0.88	0.7556	0.2435
0.19	1.1318	0.5802	0.54	0.8848	0.3319	0.89	0.7526	0.2417
0.2	1.1213	0.5675	0.55	0.88	0.3281	0.9	0.7496	0.24
0.21	1.1111	0.5553	0.56	0.8753	0.3245	0.91	0.7467	0.2382
0.22	1.1013	0.5437	0.57	0.8707	0.321	0.92	0.7438	0.2366
0.23	1.0917	0.5325	0.58	0.8661	0.3175	0.93	0.7409	0.2349
0.24	1.0824	0.5218	0.59	0.8617	0.3141	0.94	0.738	0.2333
0.25	1.0733	0.5116	0.6	0.8573	0.3109	0.95	0.7352	0.2316
0.26	1.0645	0.5018	0.61	0.8529	0.3077	0.96	0.7324	0.2301
0.27	1.0559	0.4923	0.62	0.8486	0.3045	0.97	0.7296	0.2285
0.28	1.0476	0.4833	0.63	0.8444	0.3015	0.98	0.7269	0.227
0.29	1.0394	0.4746	0.64	0.8403	0.2985	0.99	0.7242	0.2255
0.3	1.0315	0.4662	0.65	0.8362	0.2956	1	0.7215	0.224
0.31	1.0237	0.4581	0.66	0.8321	0.2928	1.01	0.7188	0.2225
0.32	1.0162	0.4503	0.67	0.8282	0.29	1.02	0.7162	0.2211
0.33	1.0088	0.4429	0.68	0.8242	0.2873	1.03	0.7136	0.2197
0.34	1.0016	0.4356	0.69	0.8204	0.2847	1.04	0.711	0.2183

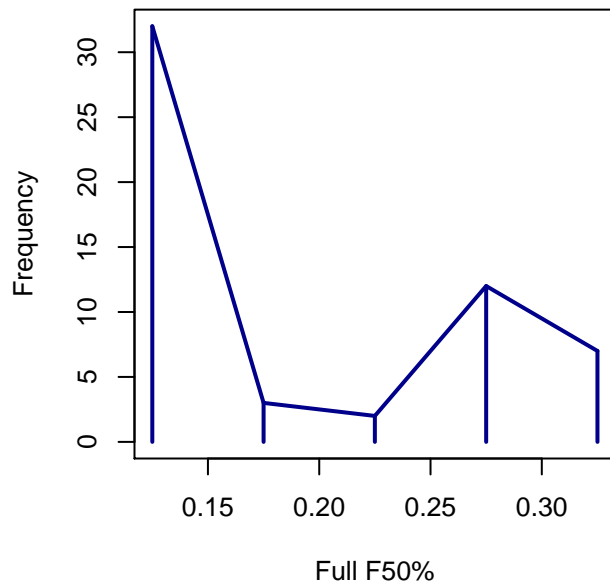
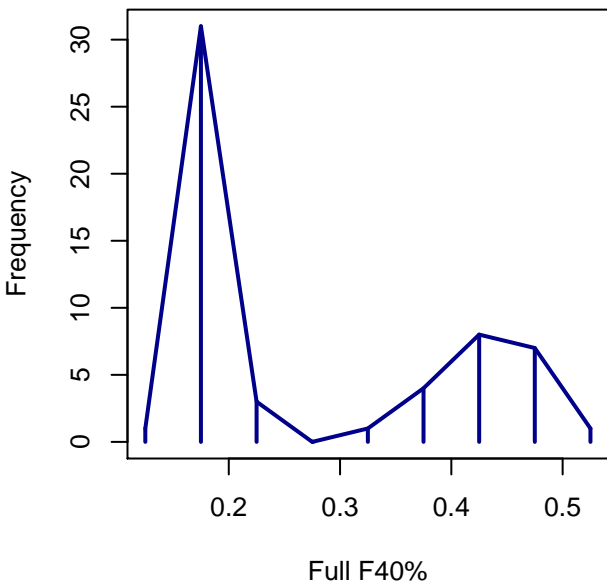
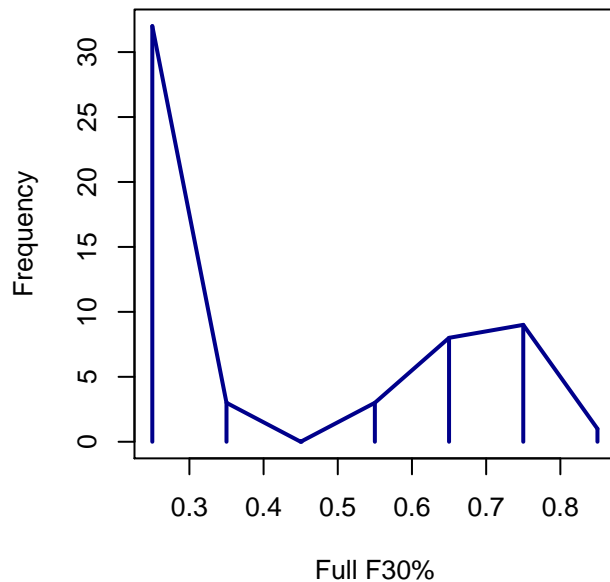
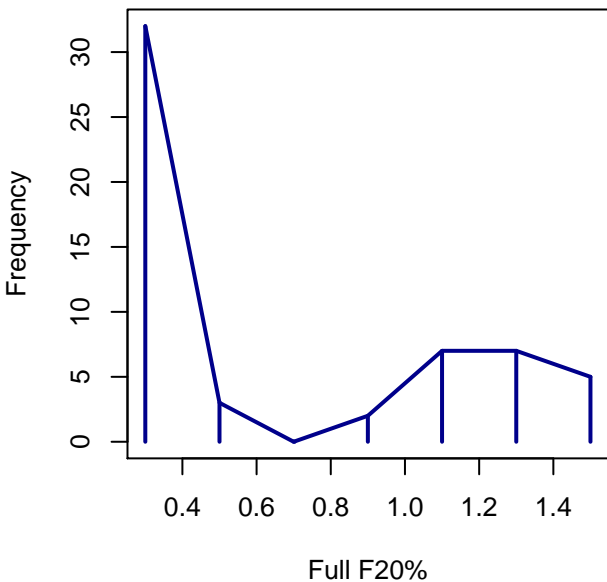
Annual F(%SPR) Reference Points



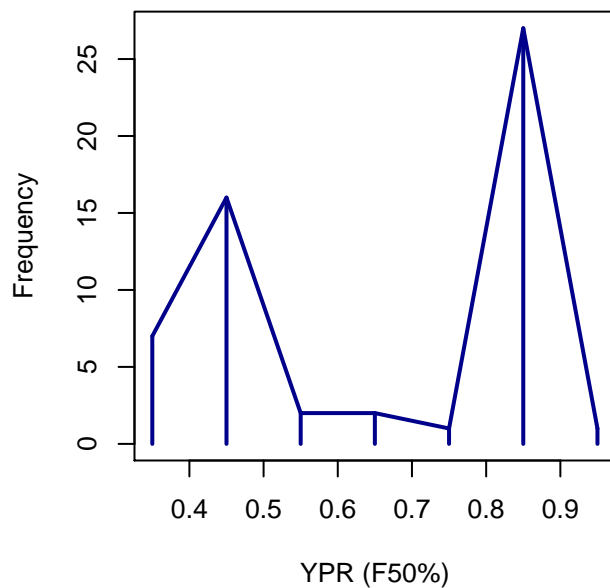
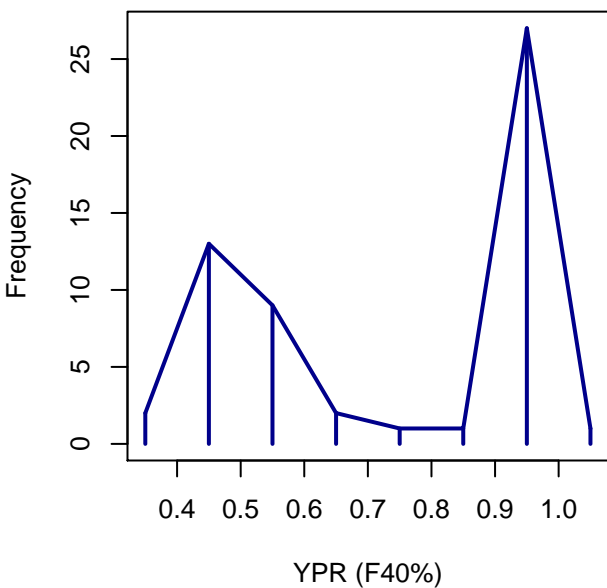
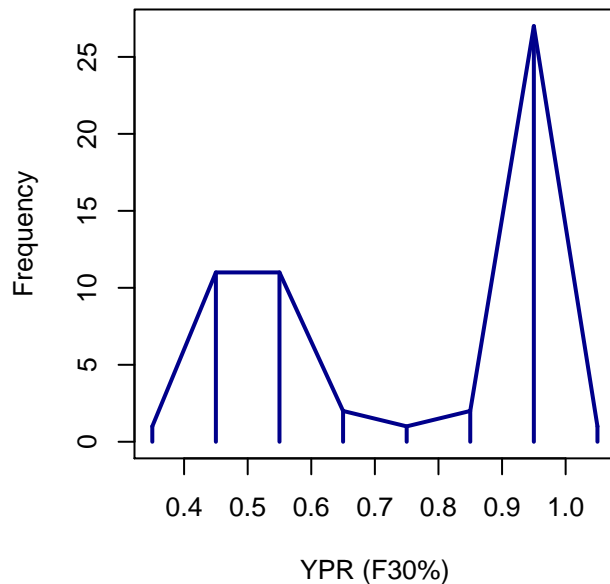
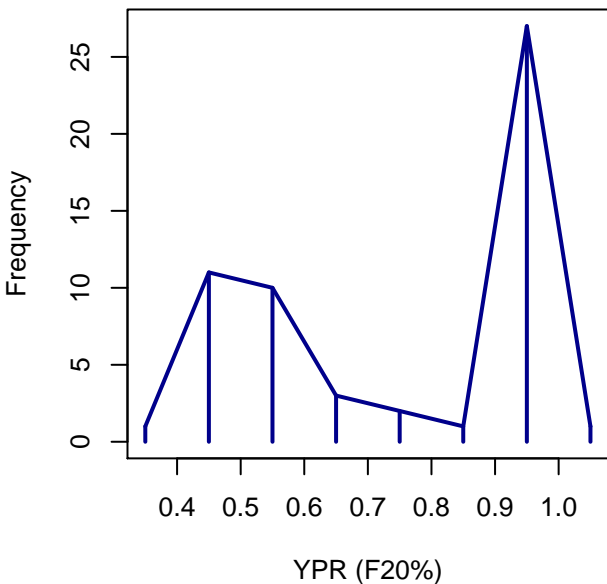
Annual YPR(%SPR) Reference Points



Annual F (%SPR) Reference Points

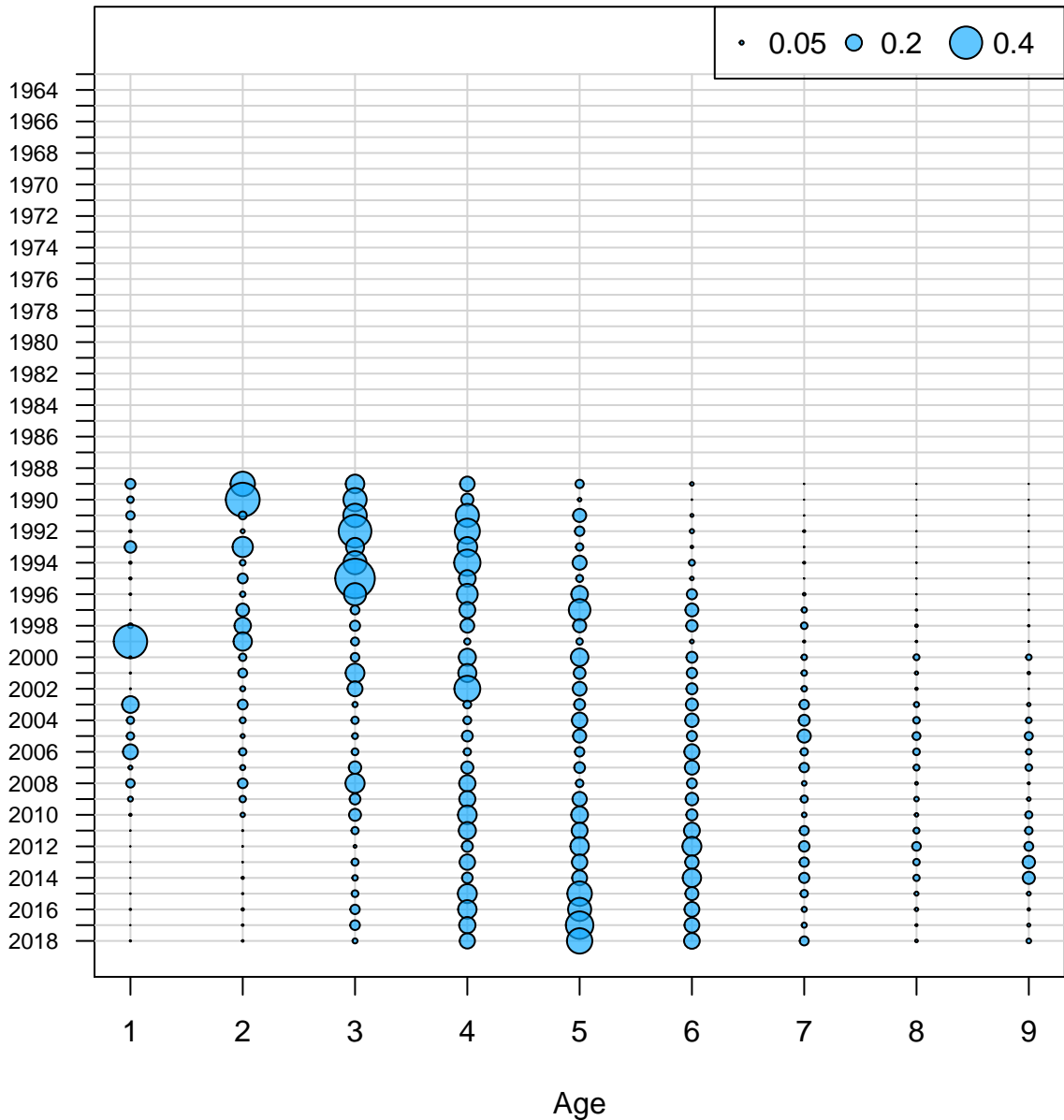


Annual YPR (%SPR) Reference Points





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)



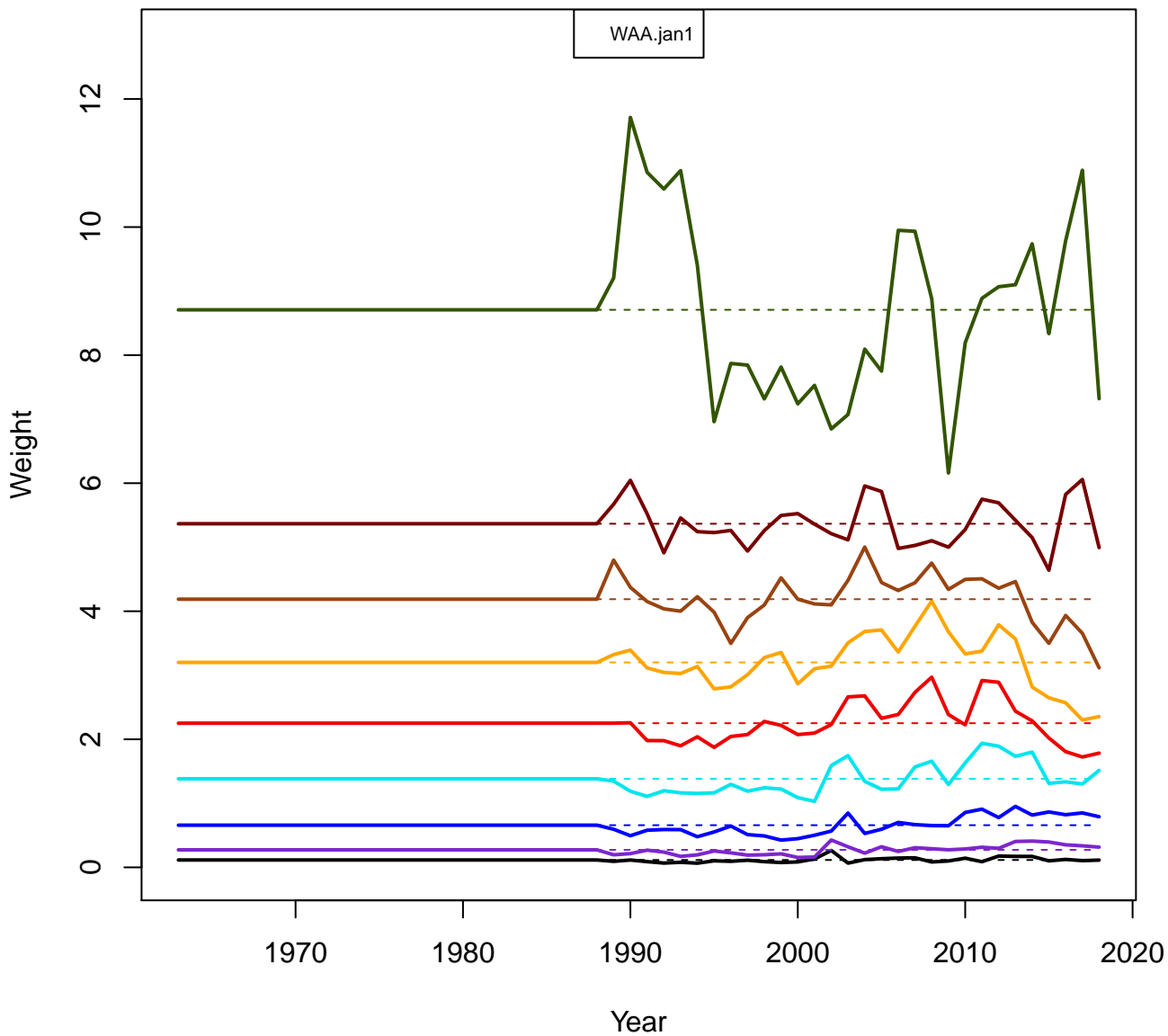
WAA matrix 1



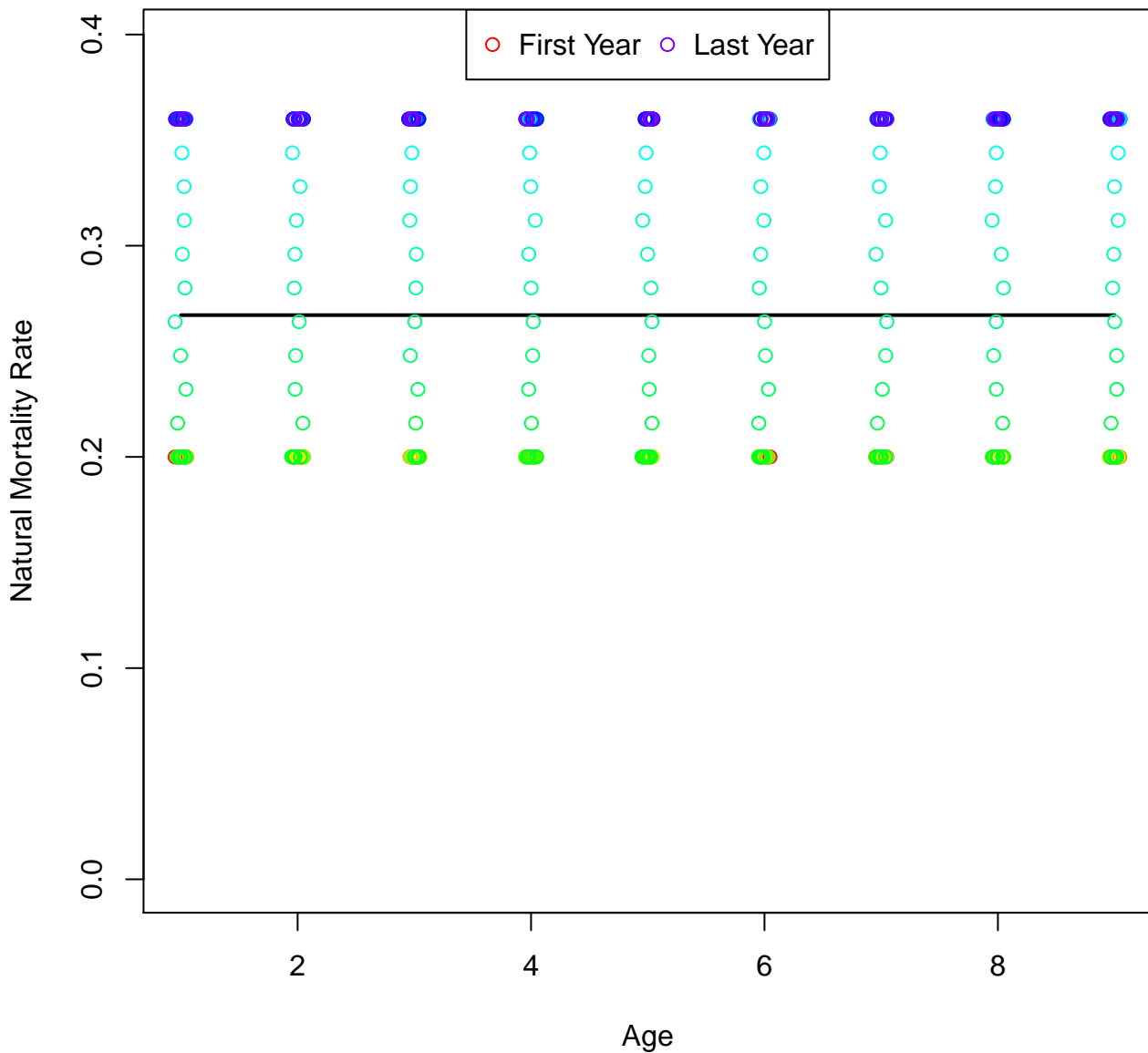
WAA matrix 2



WAA matrix 3



M



Maturity

