

File = EBFT2022_ASAP24_REVSEL.dat

ASAP3 run on Tuesday, 17 May 2022 at 14:17:01

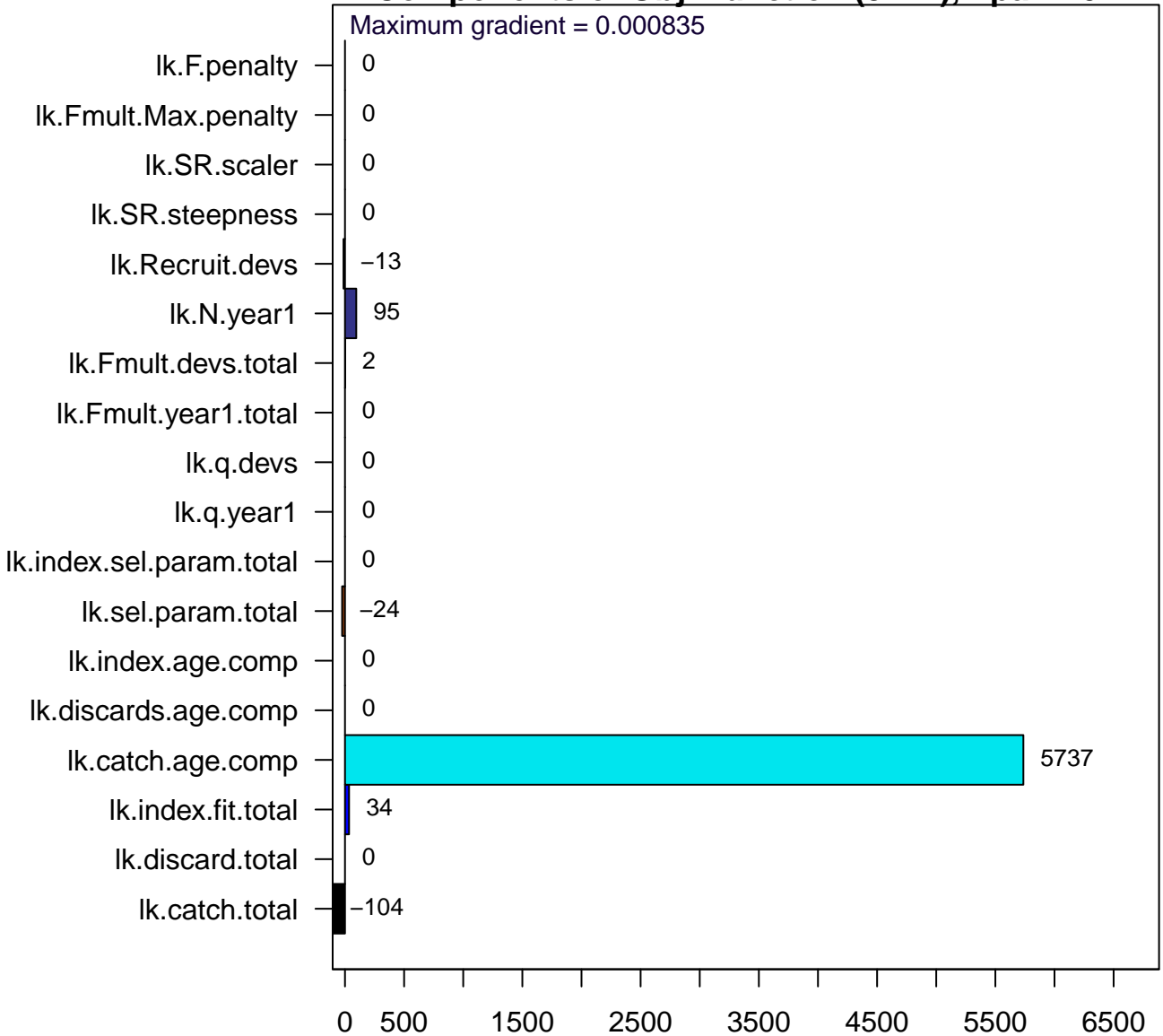
dir = C:\Users\ccarrano\Desktop\ASAP\BFT

ASAPplots version = 0.2.18

npar = 207, maximum gradient = 0.000834610

Components of Obj. Function (5727), npar=207

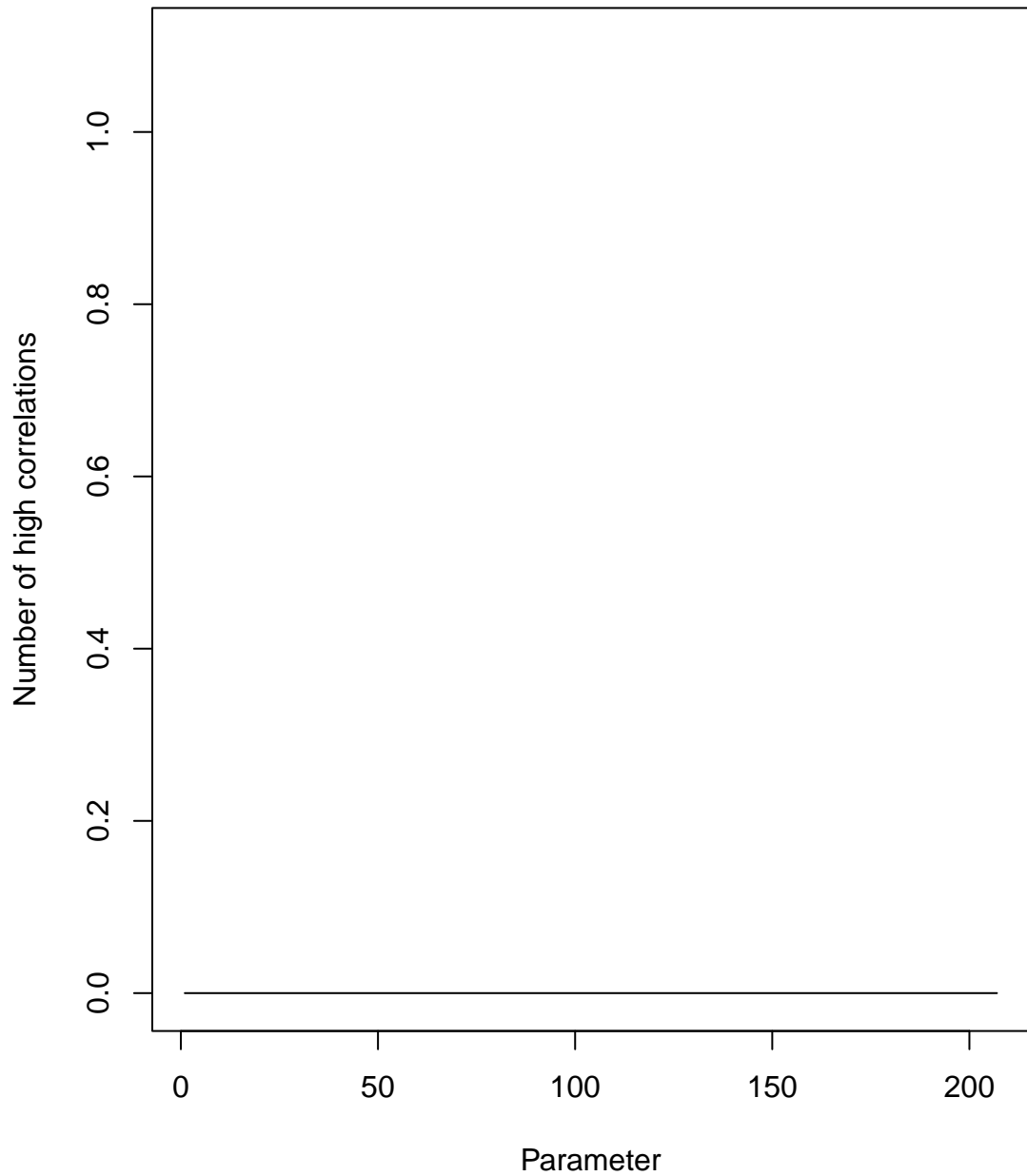
Maximum gradient = 0.000835

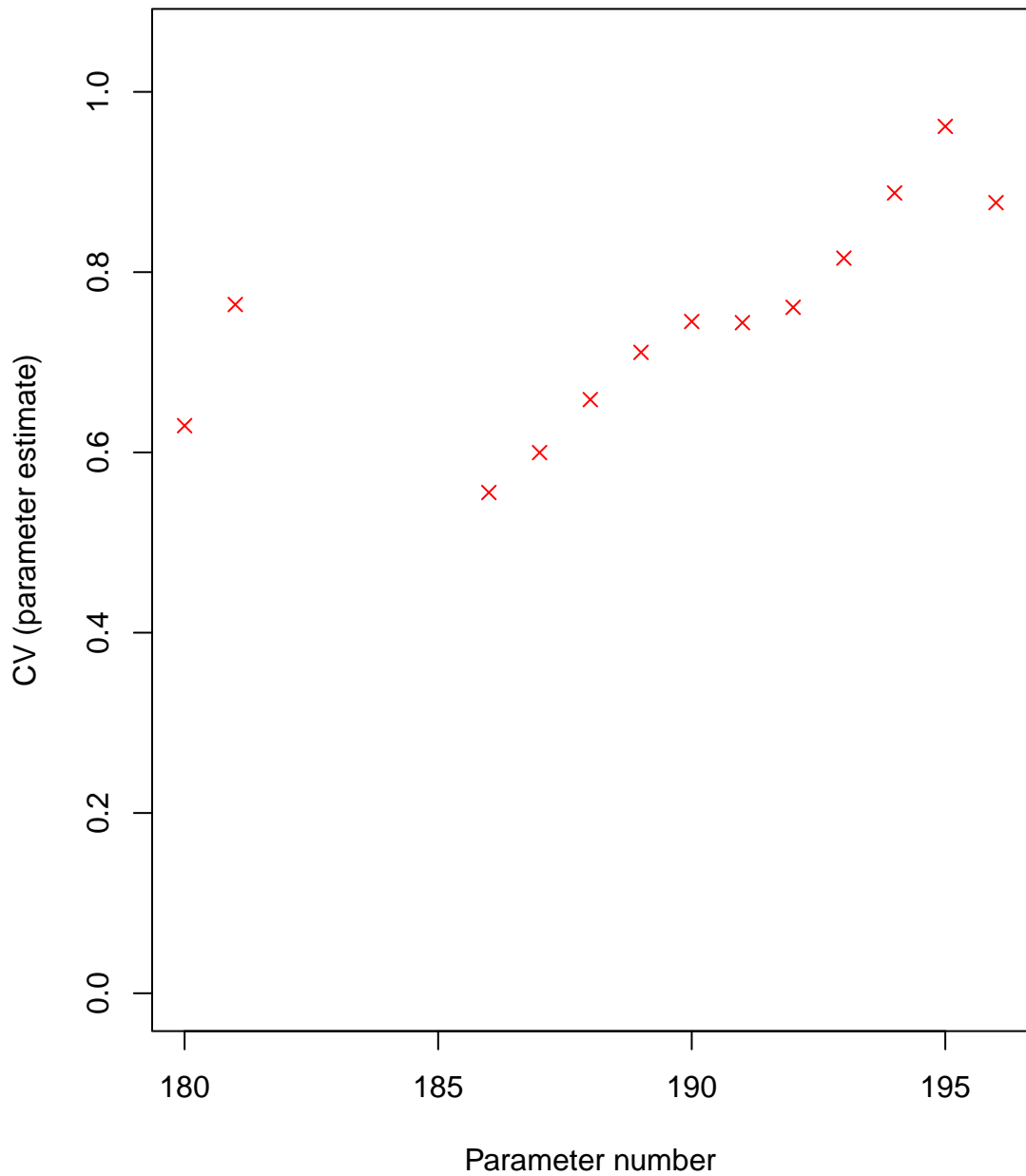


Likelihood Contribution

Model: EBFT2022_ASAP24_REVSEL

Tuesday, 17 May 2022 at 14:17:

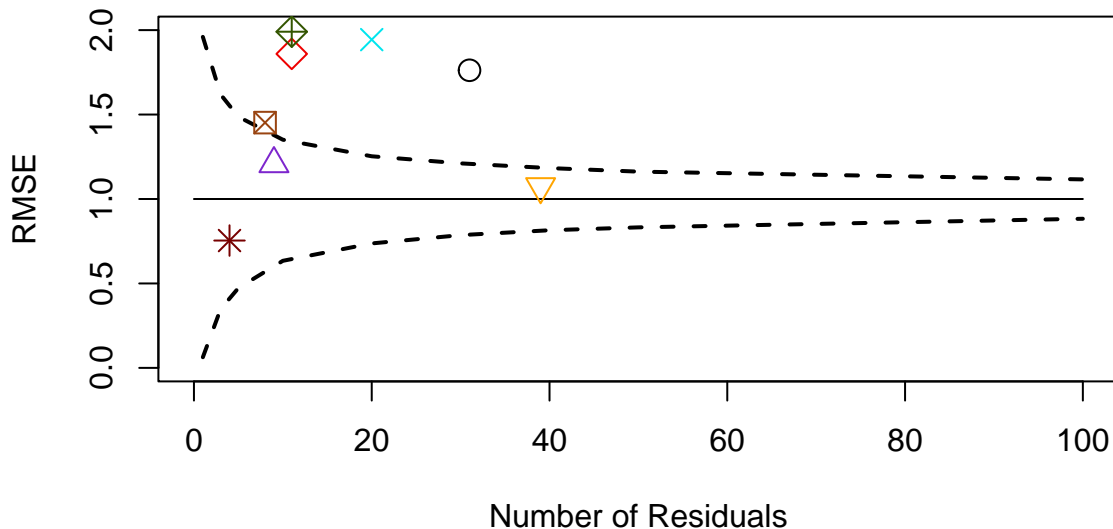




Root Mean Square Error computed from Standardized Residuals

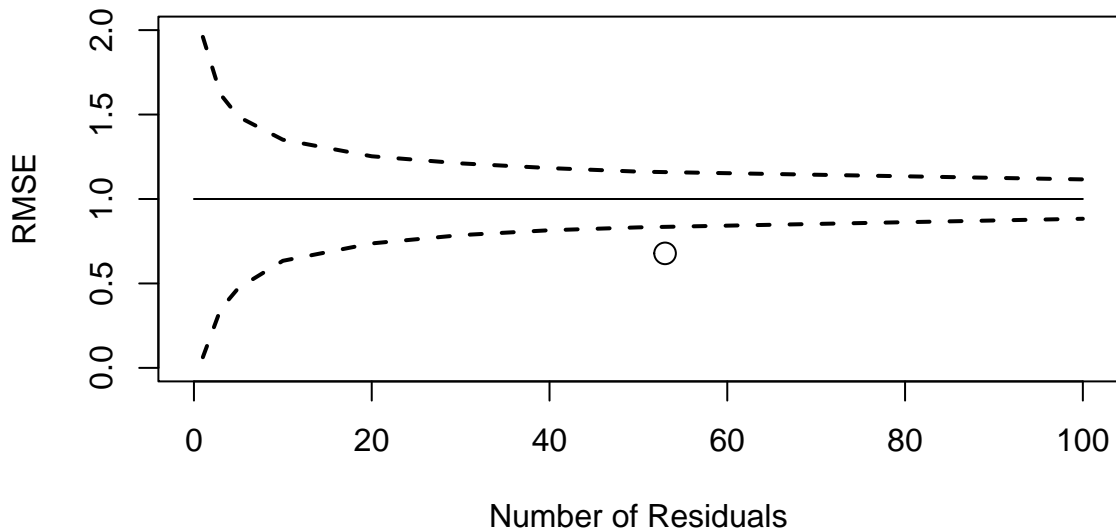
Component	# resids	RMSE
catch.tot	53	0.678
discard.tot	0	0
ind01	31	1.76
ind02	9	1.21
ind03	35	2.24
ind04	20	1.94
ind05	11	1.86
ind06	39	1.07
ind07	8	1.45
ind08	4	0.754
ind09	11	1.99
ind10	15	2.21
ind.total	183	1.78
N.year1	15	0.572
Fmult.year1	0	0
Fmult.devs.total	52	0.276
recruit.devs	53	1.01
fleet.sel.params	80	0.895
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



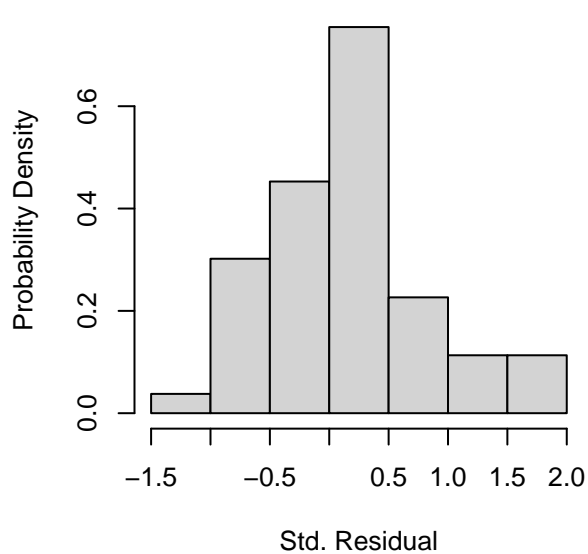
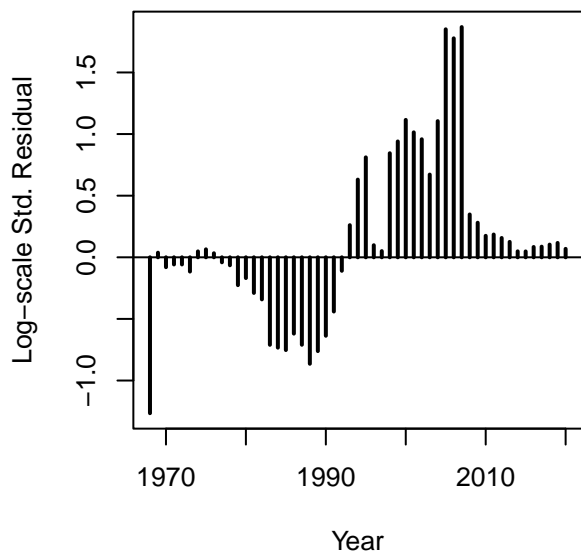
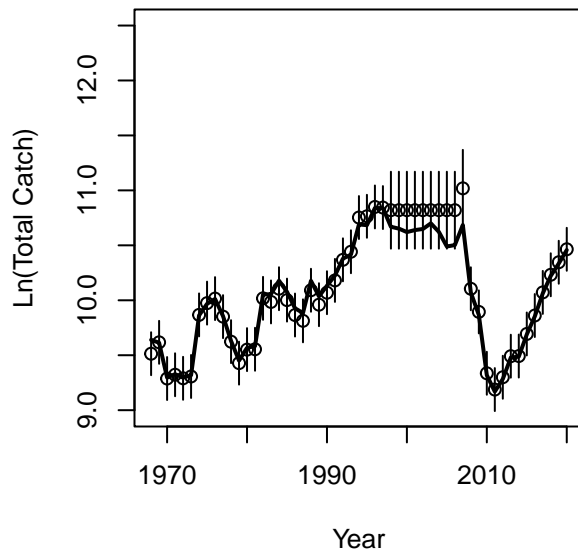
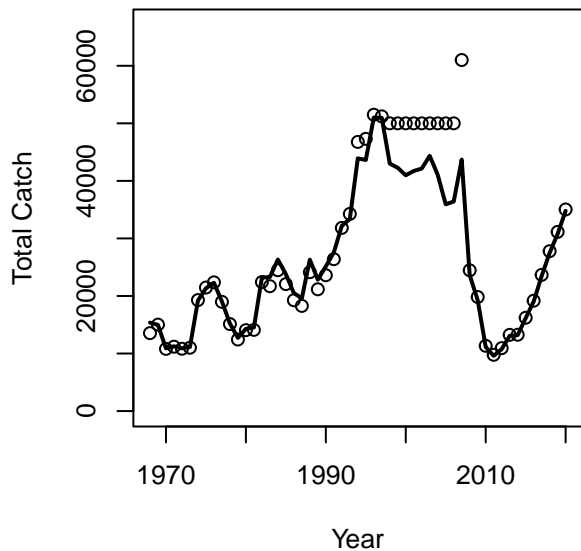
ind total
W MED_LARV
ER_ATR2
ER_ATR1
SD_BB2
SD_BB1
JPN_LL2
JPN_LL1
JPN_LL1_NEA
JPN_LL1_NEA
JPN_LL1_EastAtlMed
Mor_POR_IP
Mor_SP_TP

Root Mean Square Error for Catch



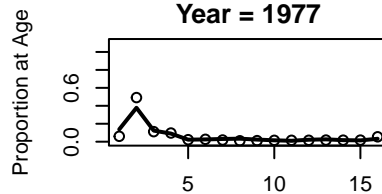
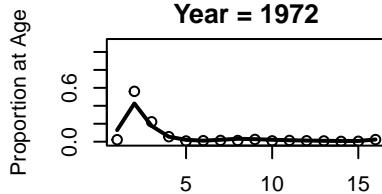
○ catch.tot

Fleet 1 Catch (FLEET-1)

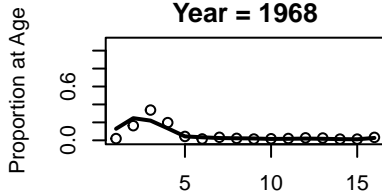


Year = 1972

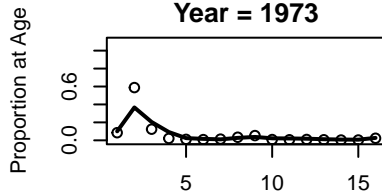
Year = 1977



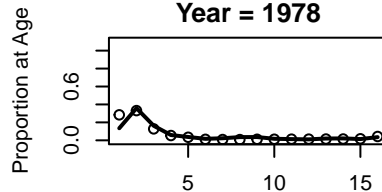
Year = 1968



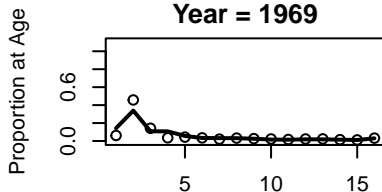
Year = 1973



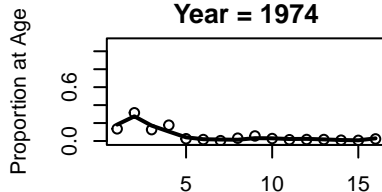
Year = 1978



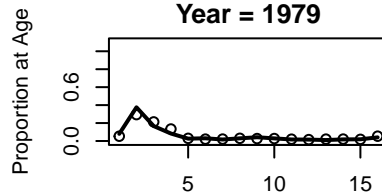
Year = 1969



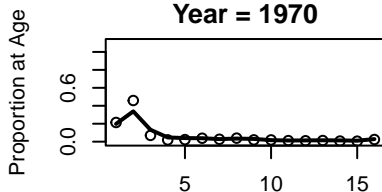
Year = 1974



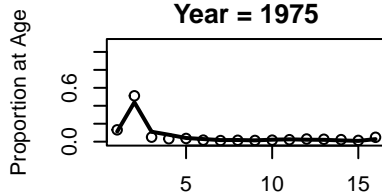
Year = 1979



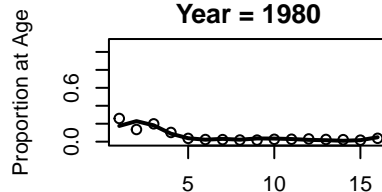
Year = 1970



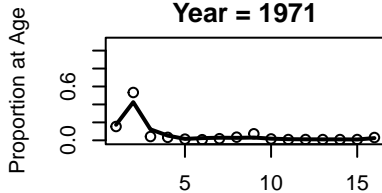
Year = 1975



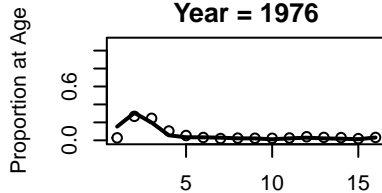
Year = 1980



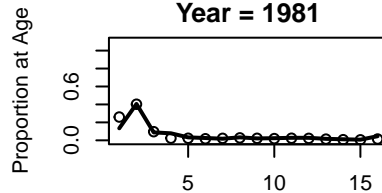
Year = 1971



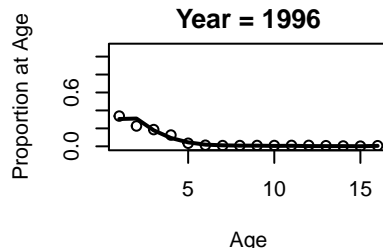
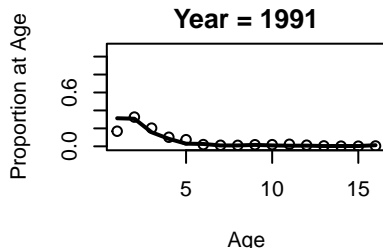
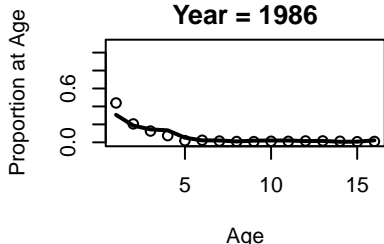
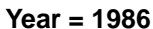
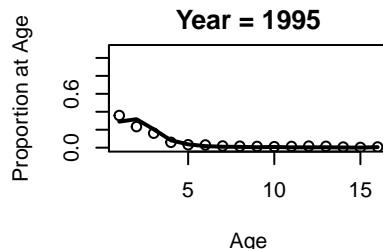
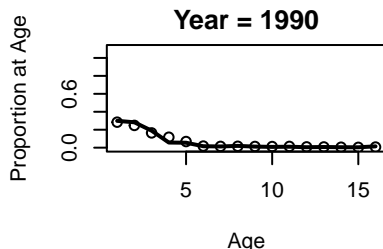
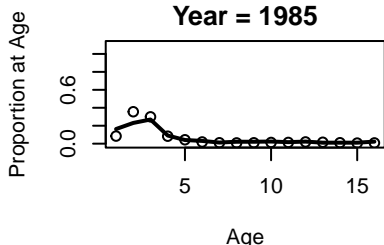
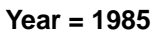
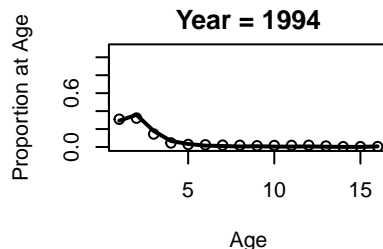
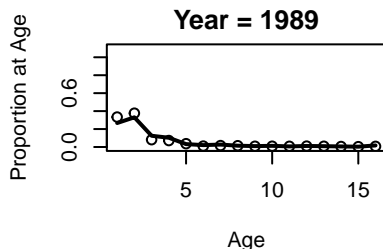
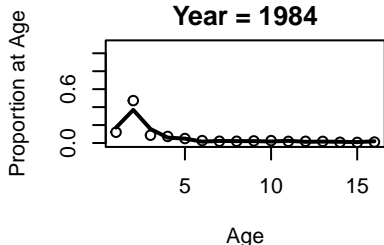
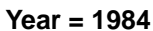
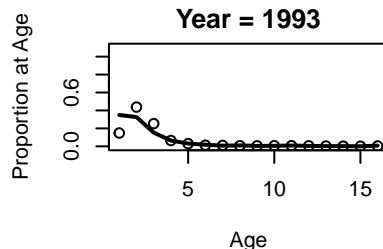
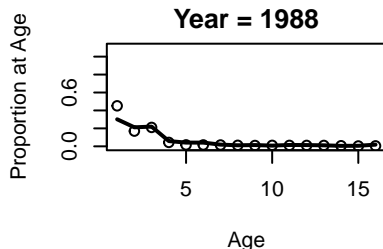
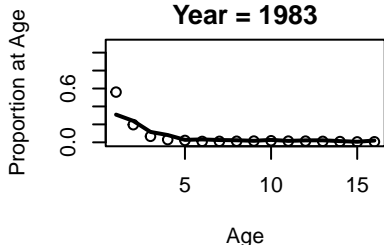
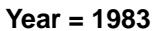
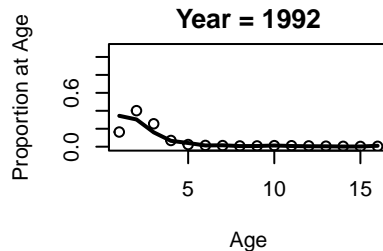
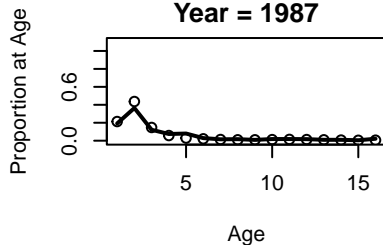
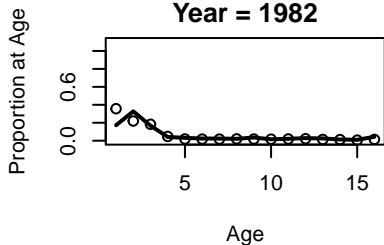
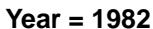
Year = 1976



Year = 1981



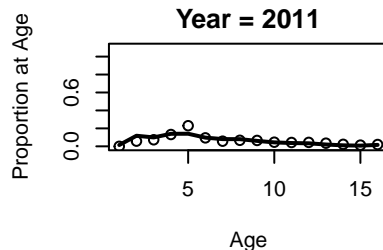
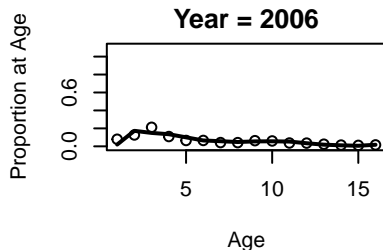
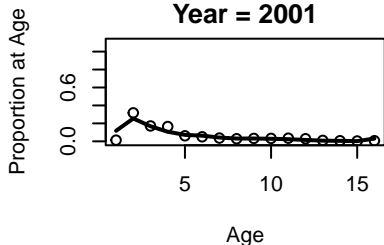
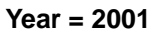
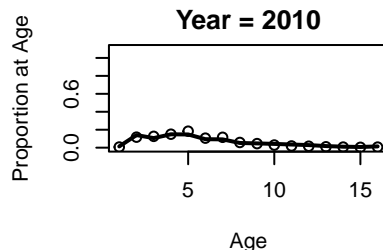
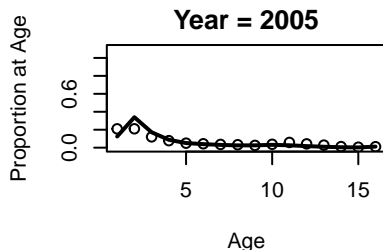
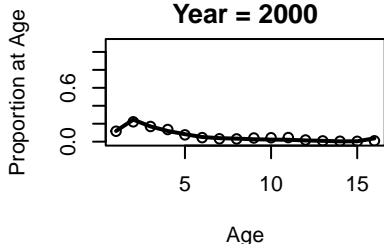
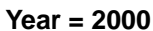
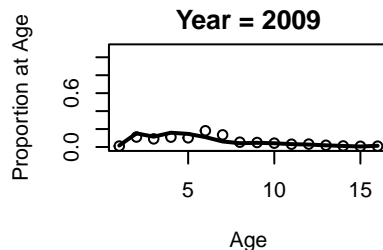
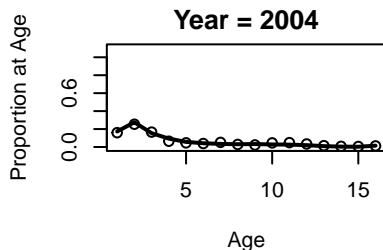
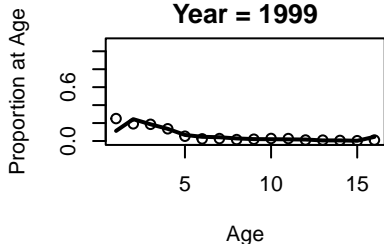
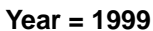
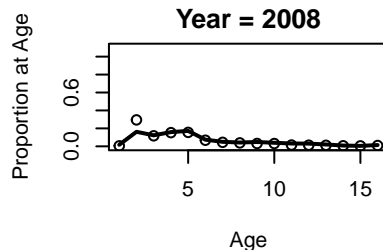
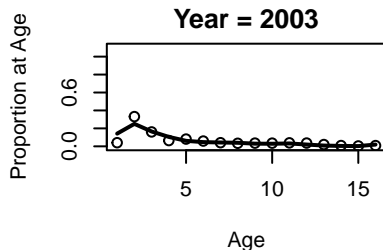
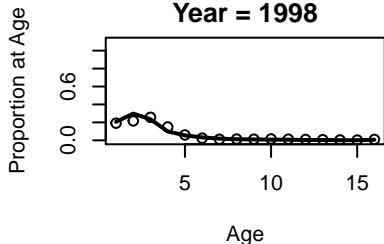
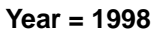
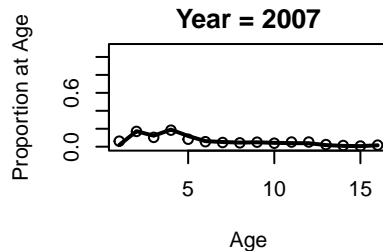
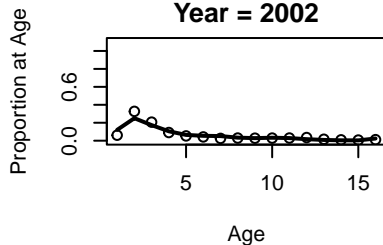
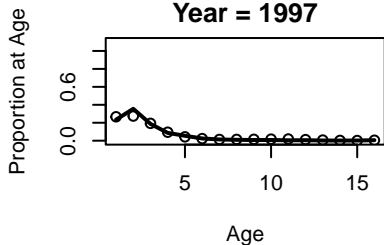
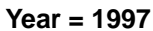
Year = 1987



Age

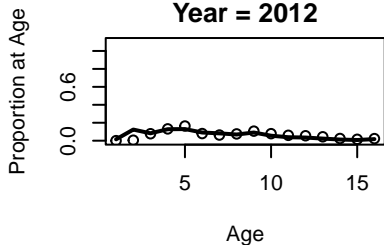
Age

Year = 2002

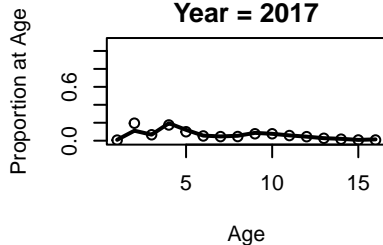


Catch

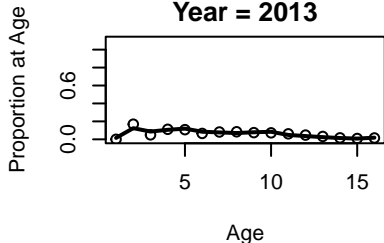
Year = 2012



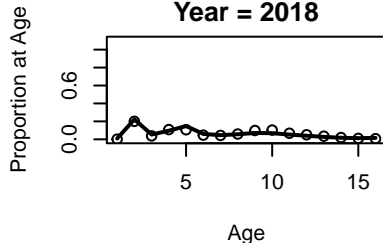
Year = 2017



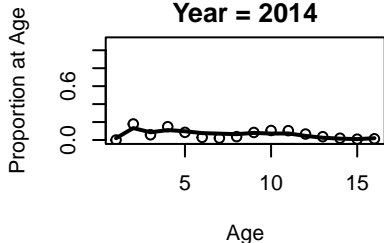
Year = 2013



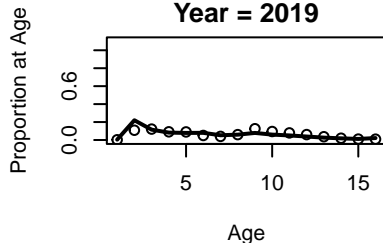
Year = 2018



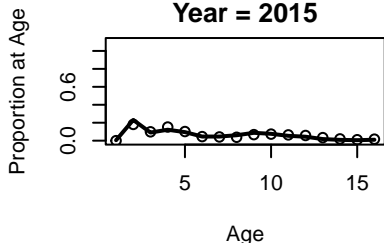
Year = 2014



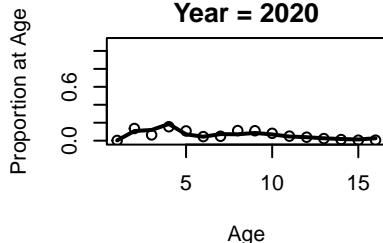
Year = 2019



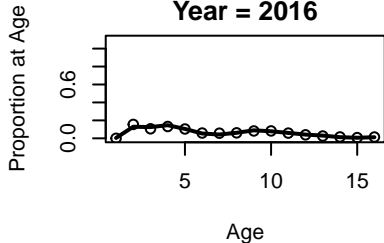
Year = 2015



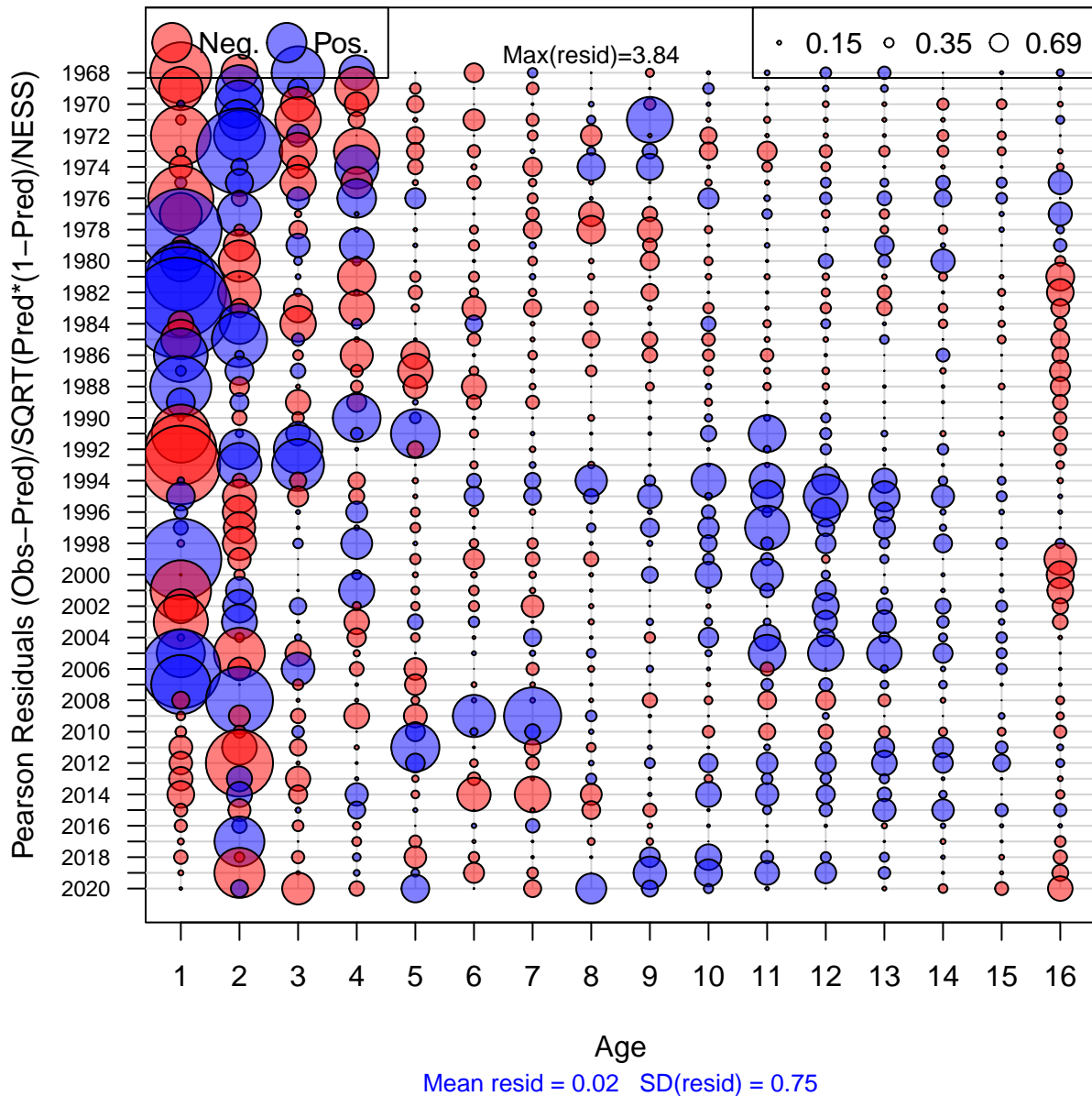
Year = 2020



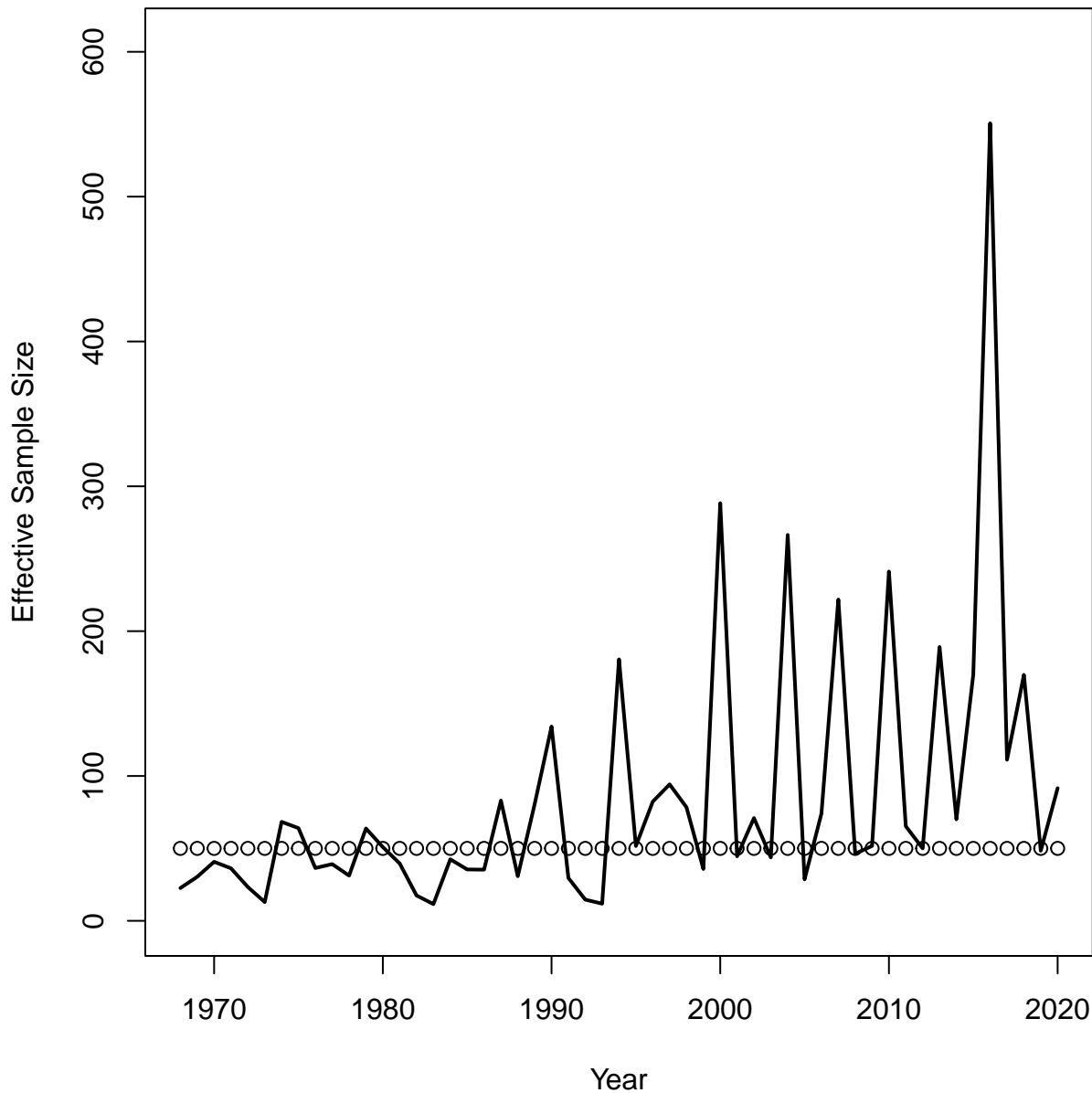
Year = 2016



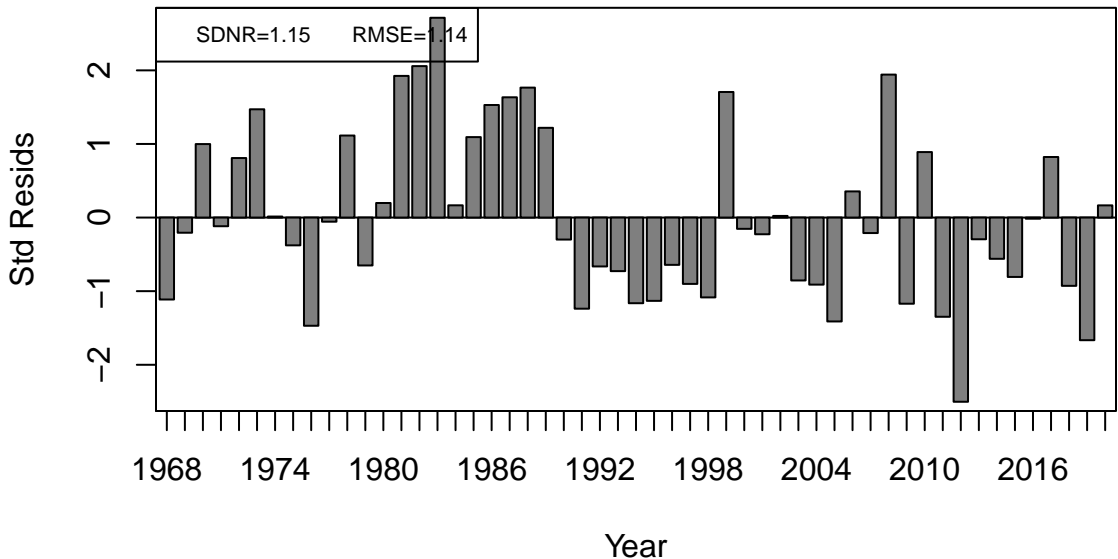
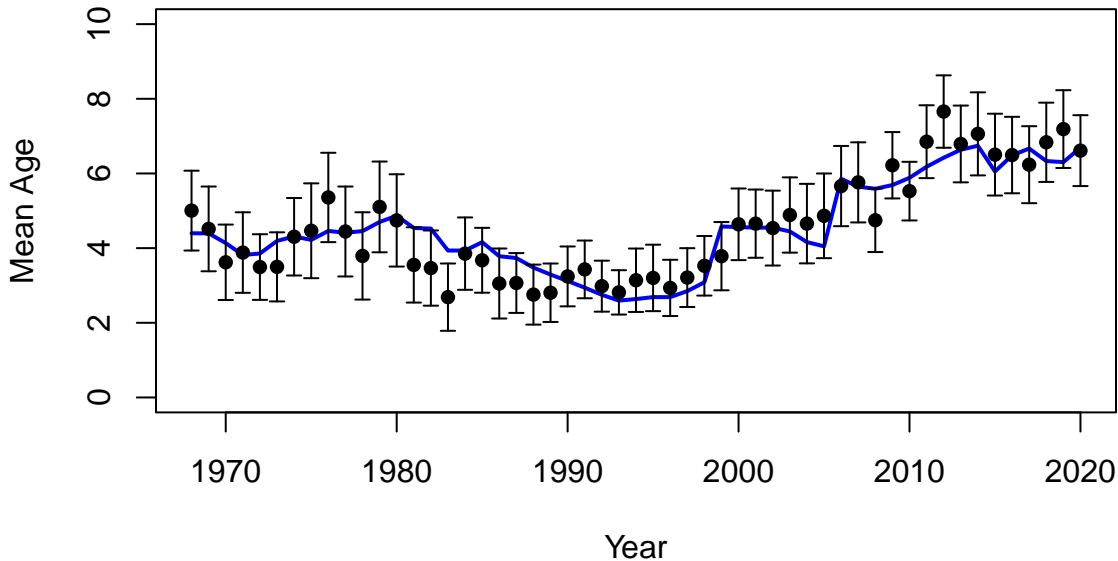
Age Comp Residuals for Catch by Fleet 1 (FLEET-1)



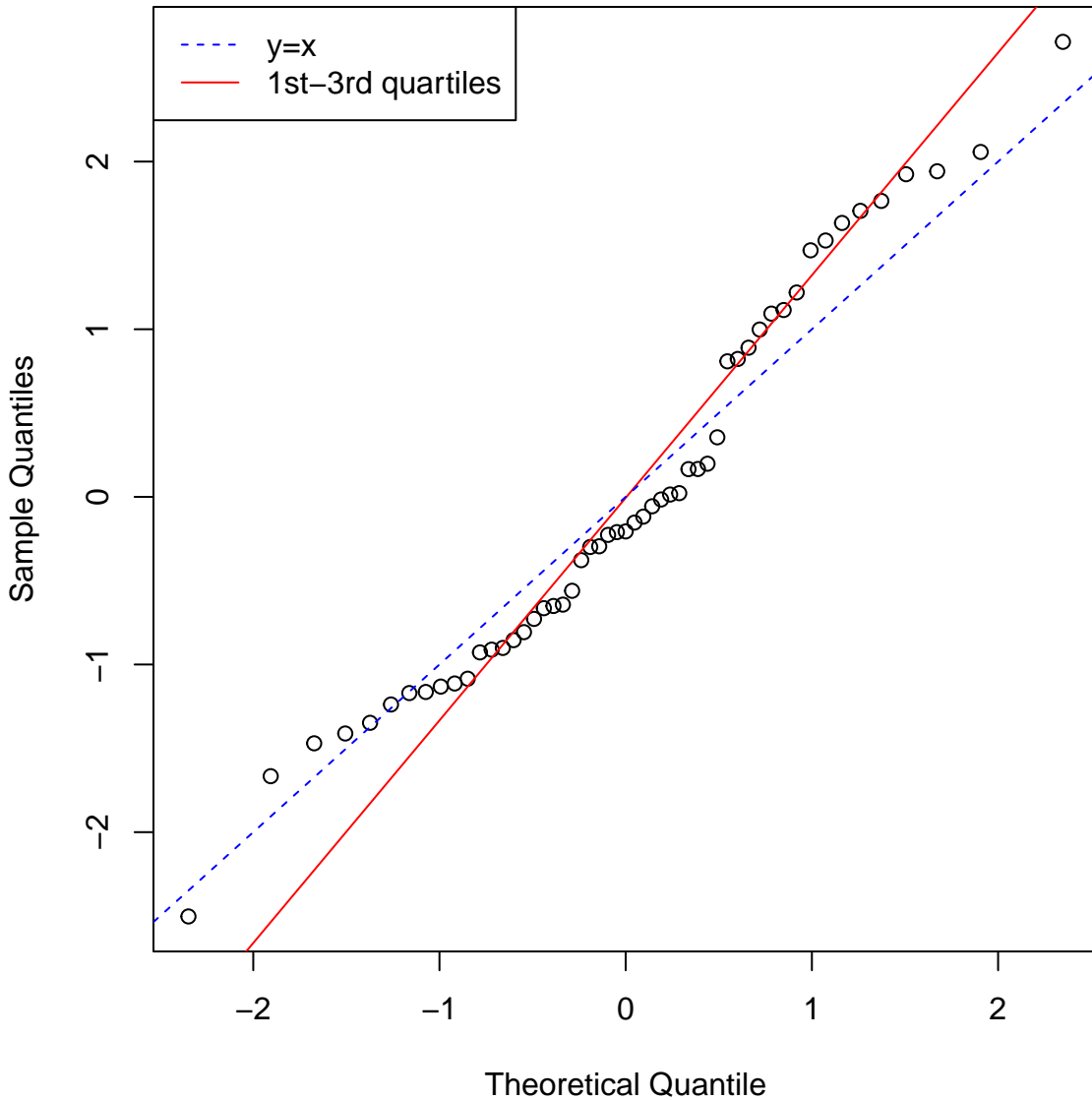
Catch Neff Fleet 1 (FLEET-1)



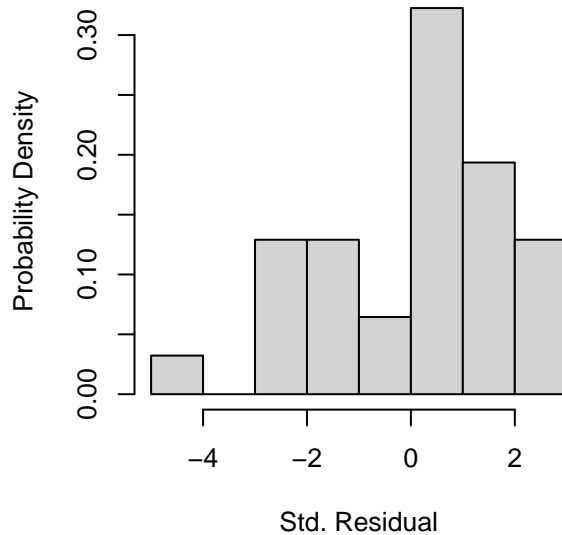
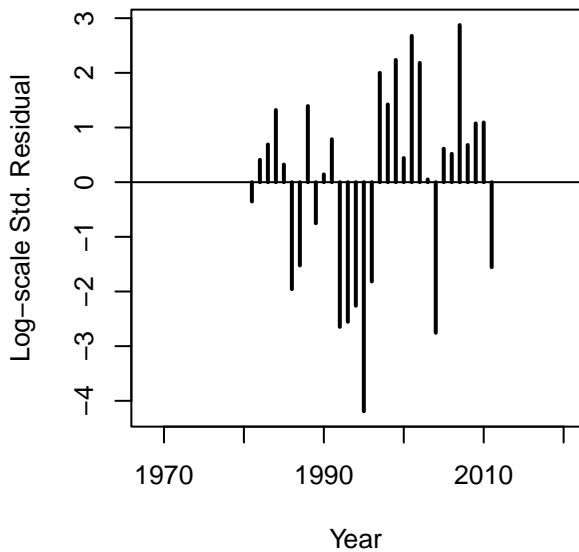
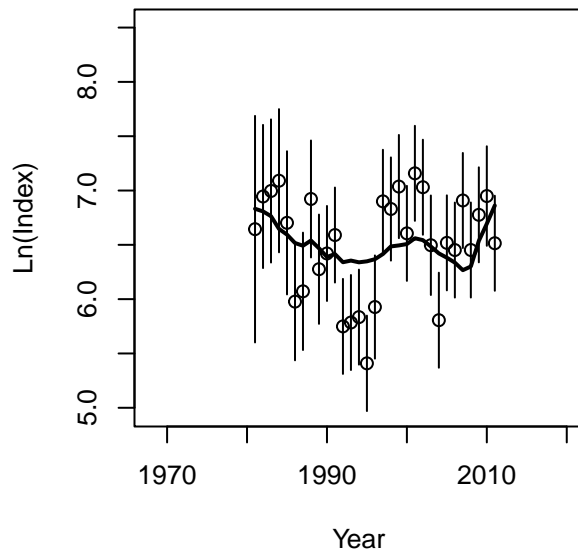
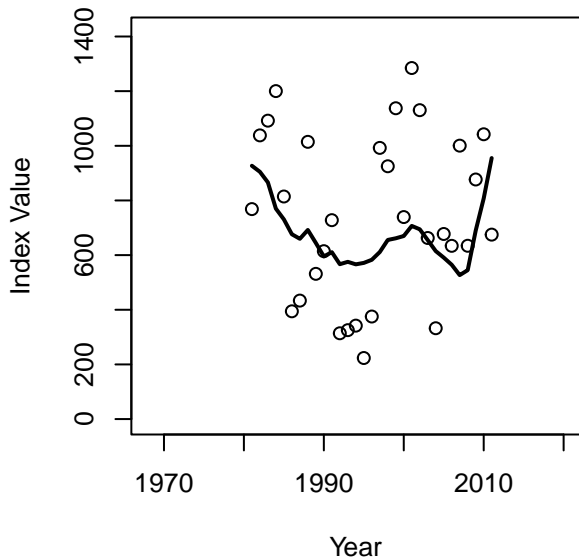
Catch Fleet 1 (FLEET-1) ESS = 50



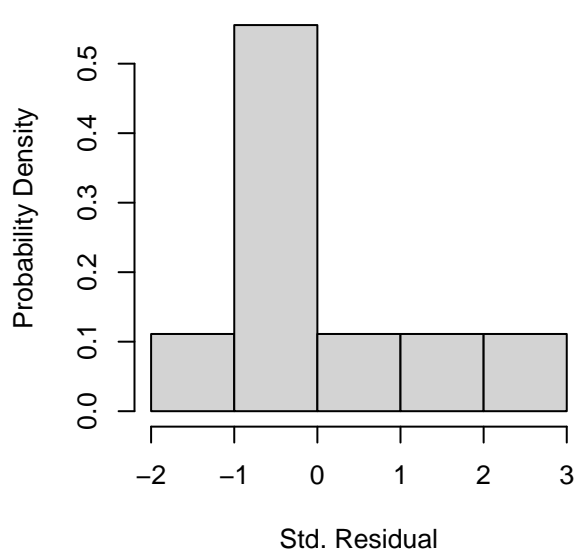
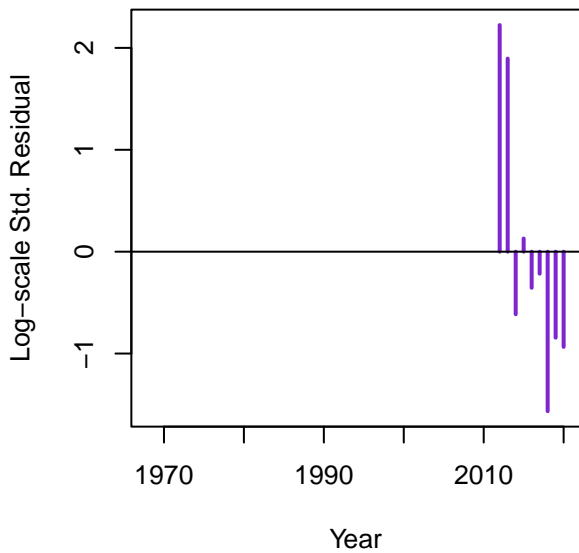
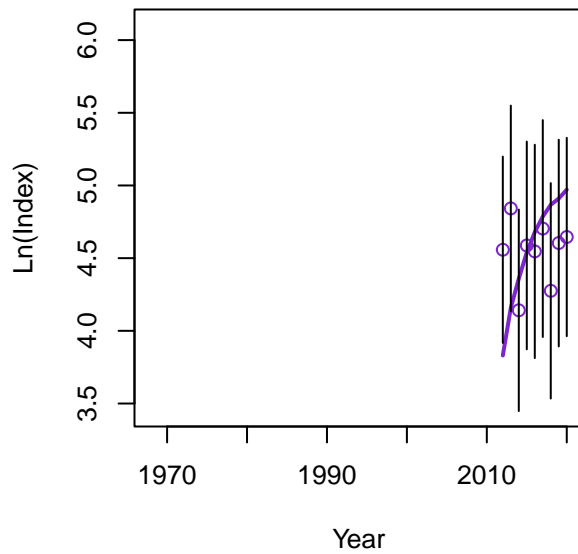
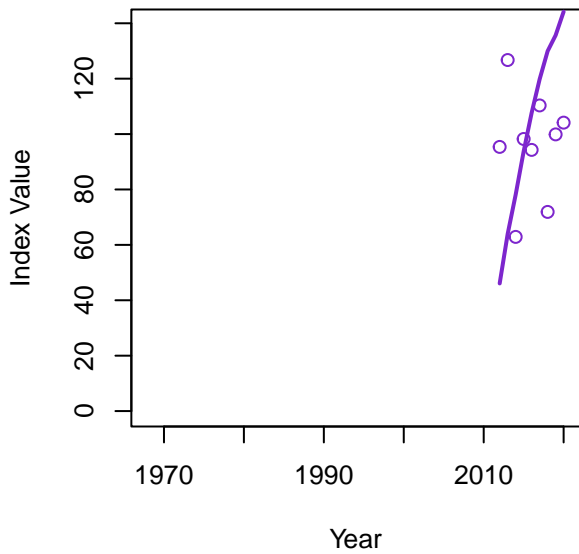
Catch Fleet 1 (FLEET-1) ESS = 50



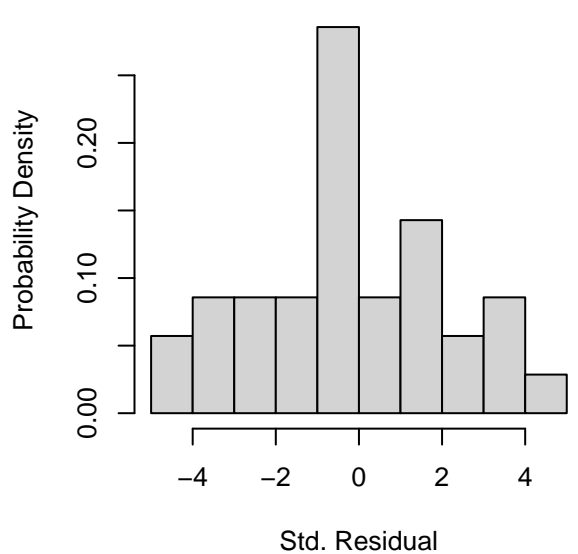
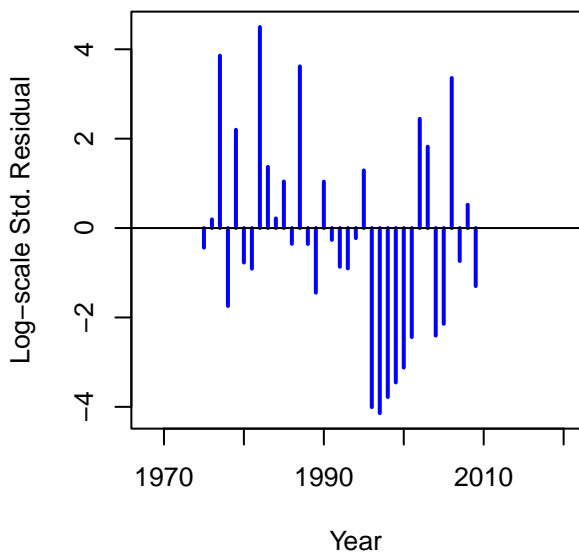
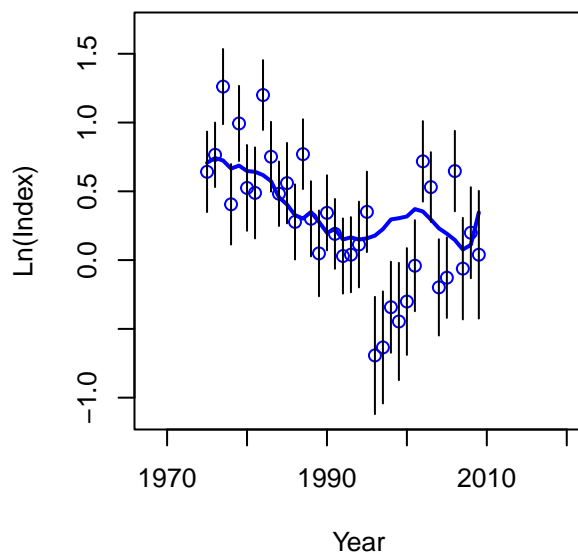
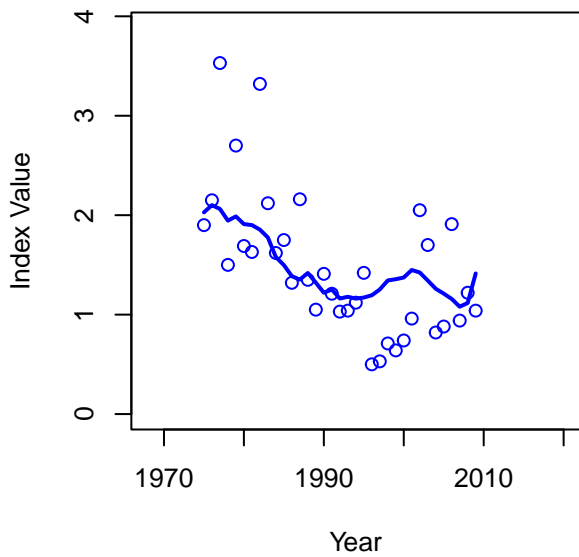
Index 1 (Mor_SP_TP)



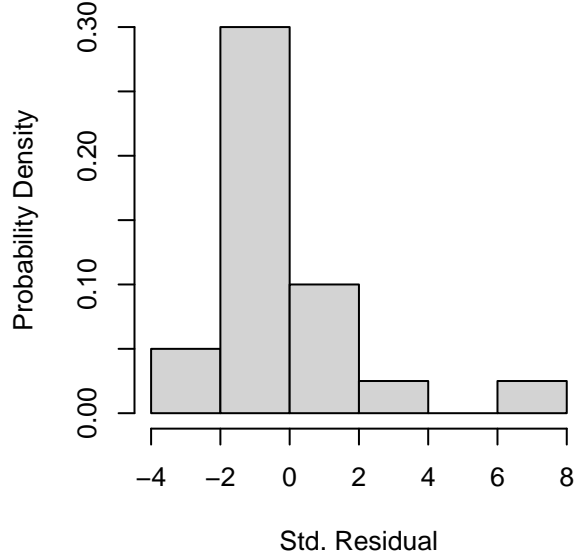
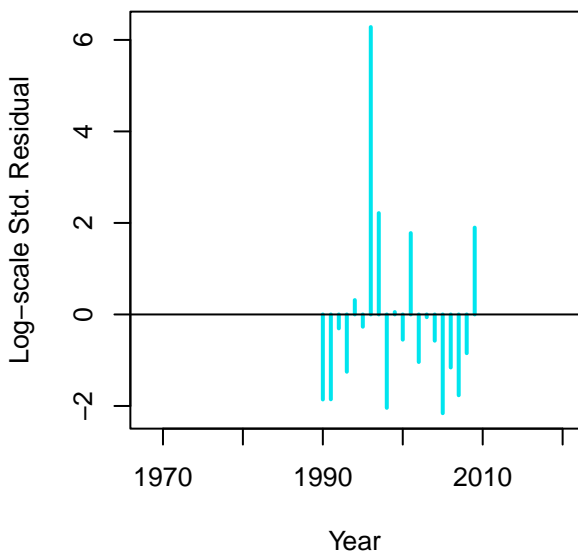
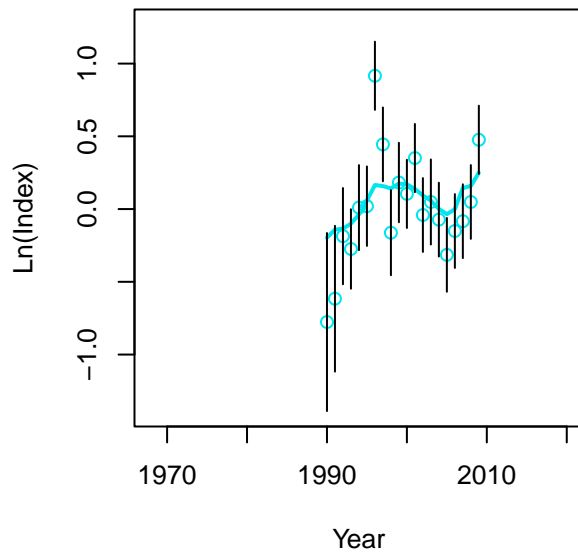
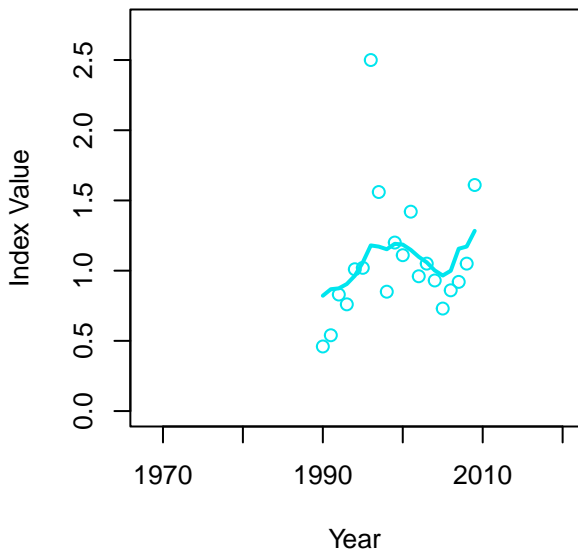
Index 2 (Mor_POR_TP)



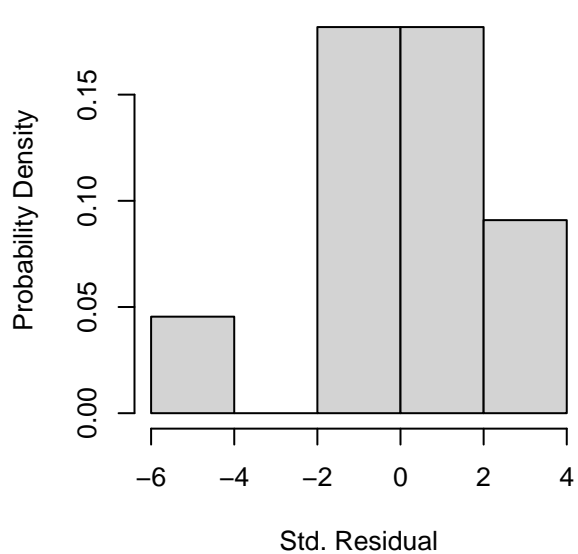
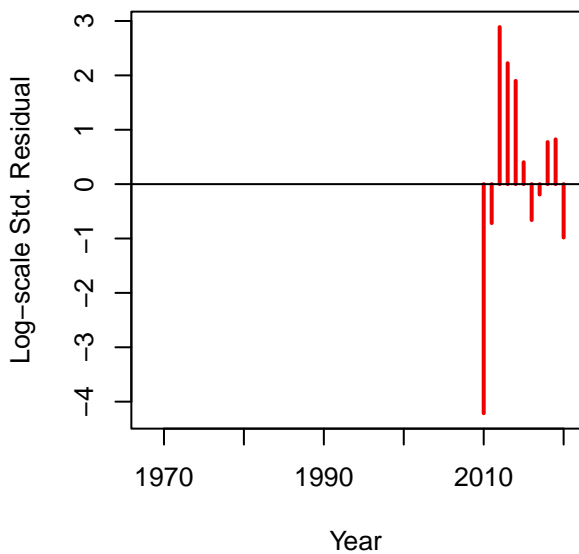
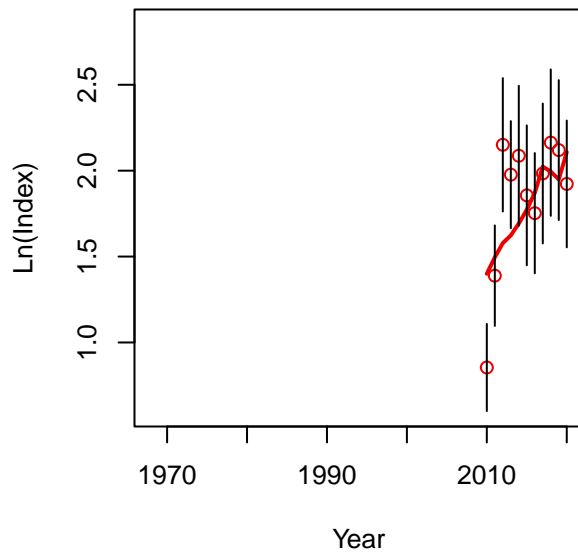
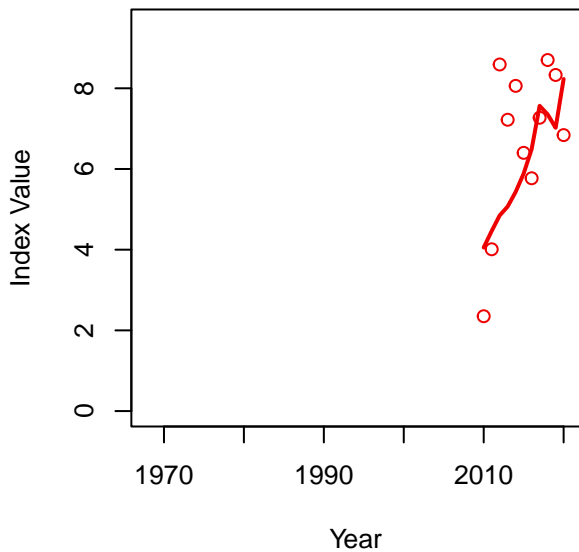
Index 3 (JPN_LL_EastAtI Med)



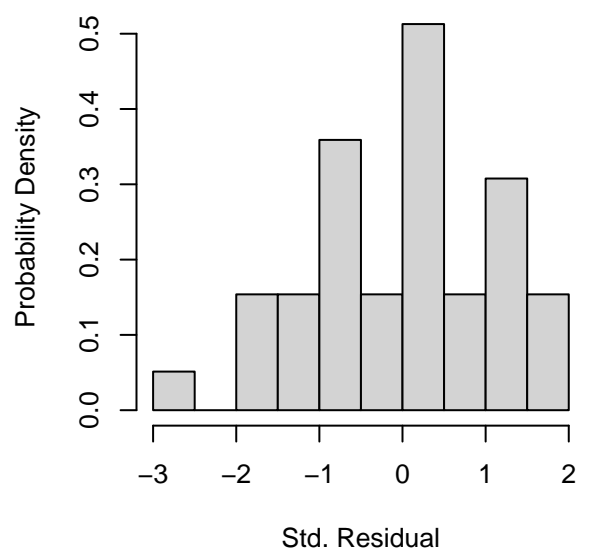
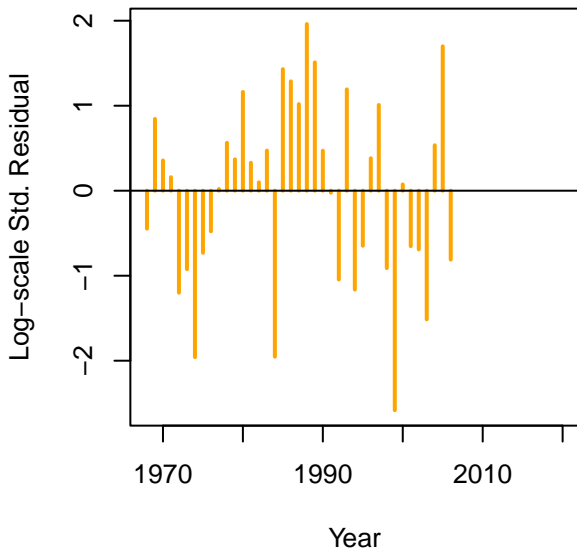
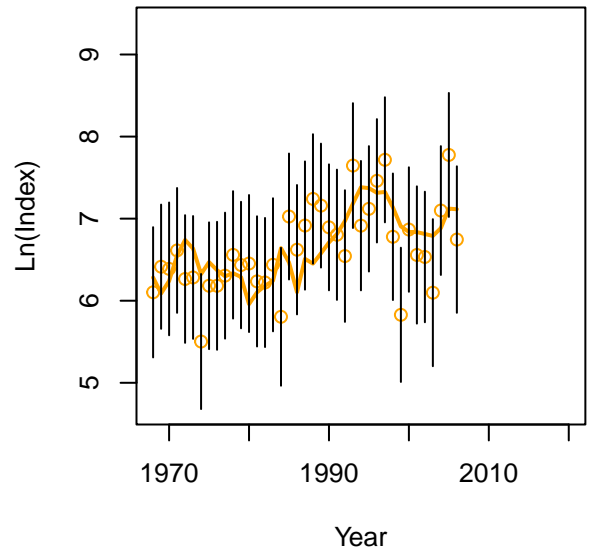
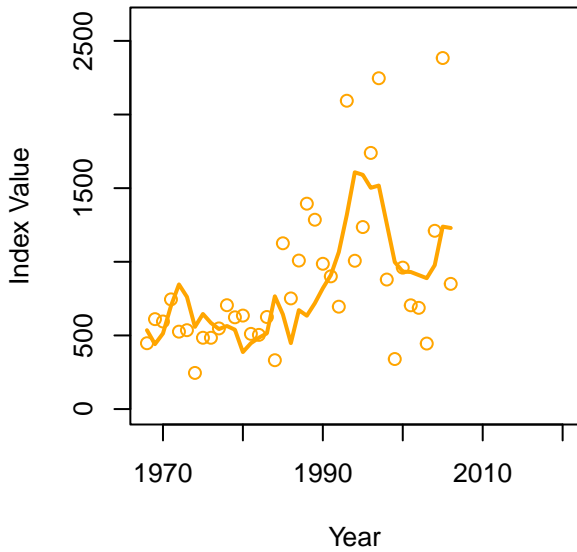
Index 4 (JPH_LL1_NEA)



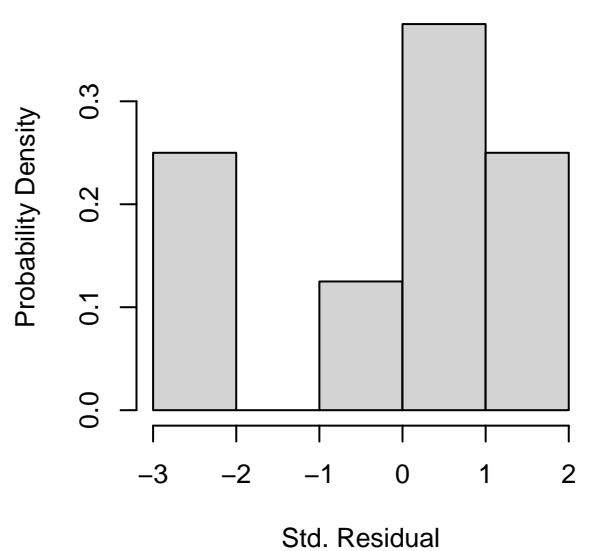
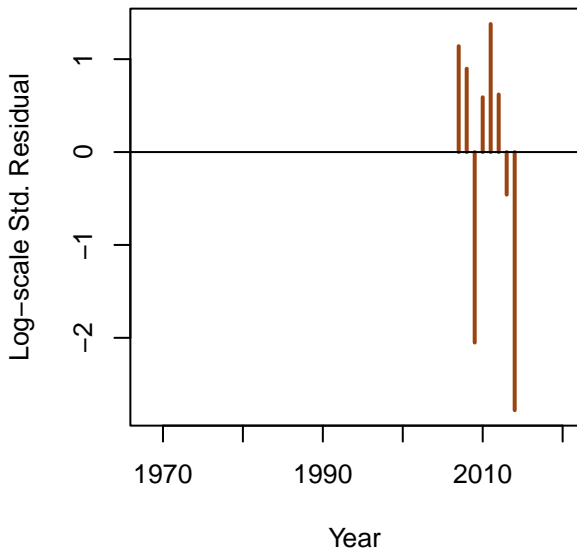
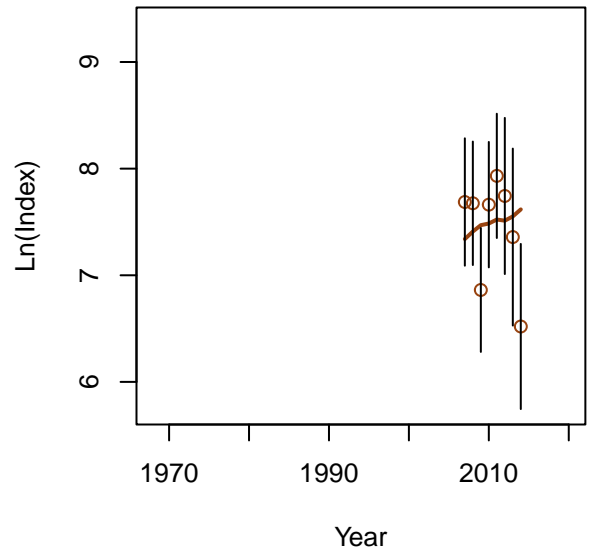
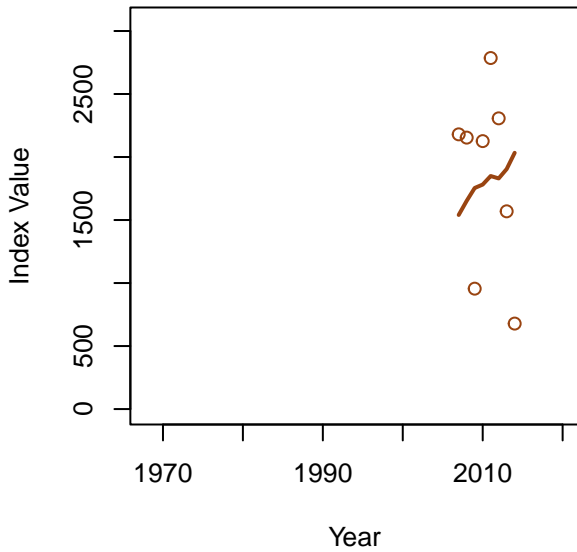
Index 5 (JPN_LL2_NEA)



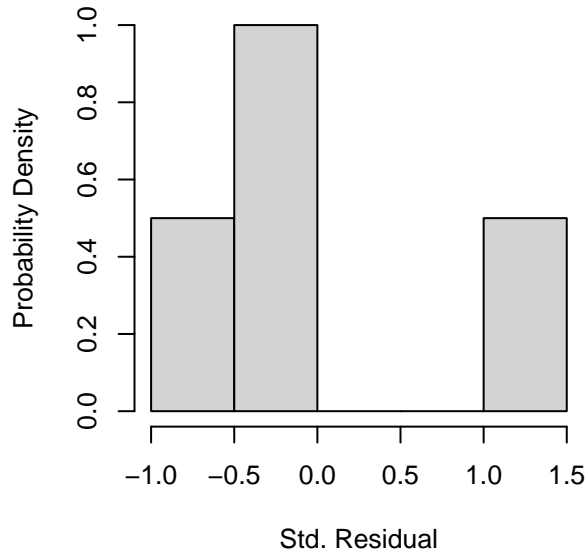
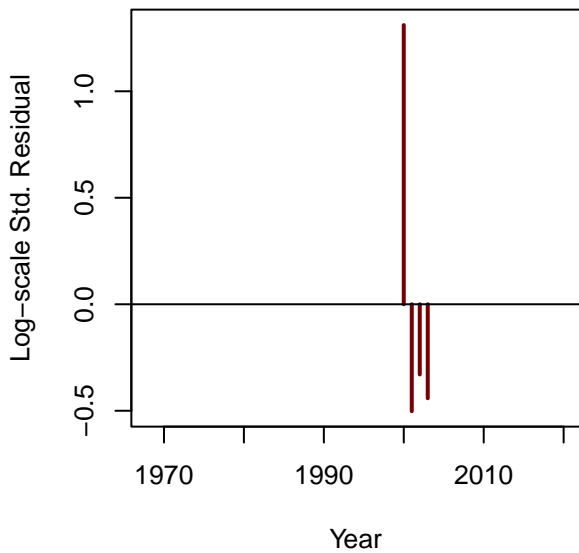
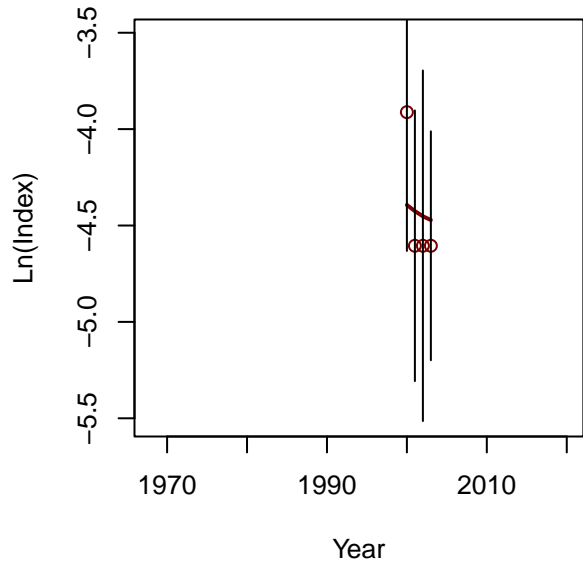
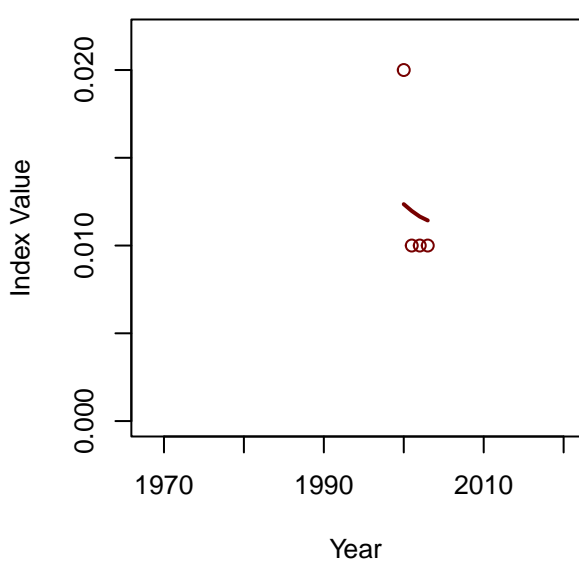
Index 6 (SP_BB1)



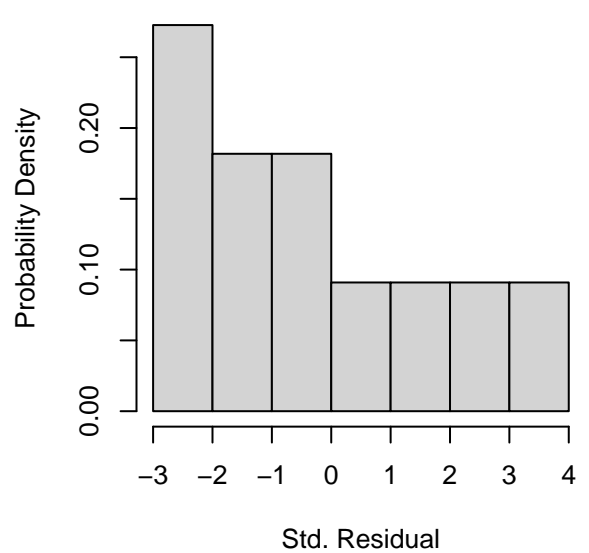
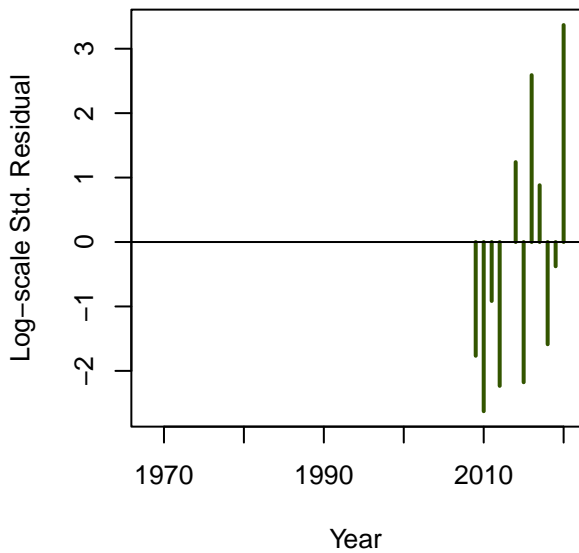
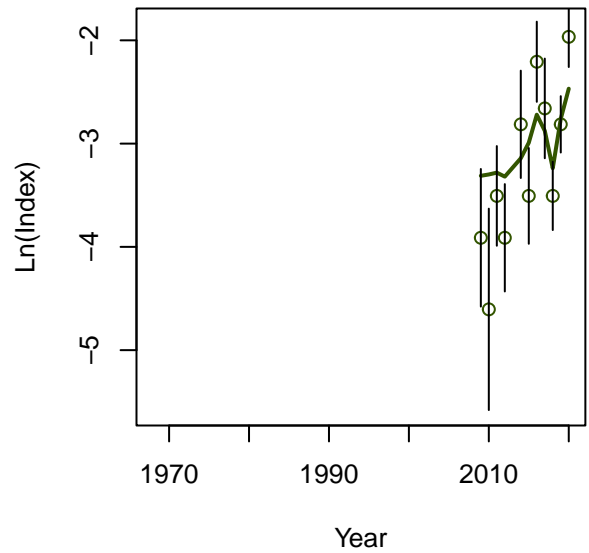
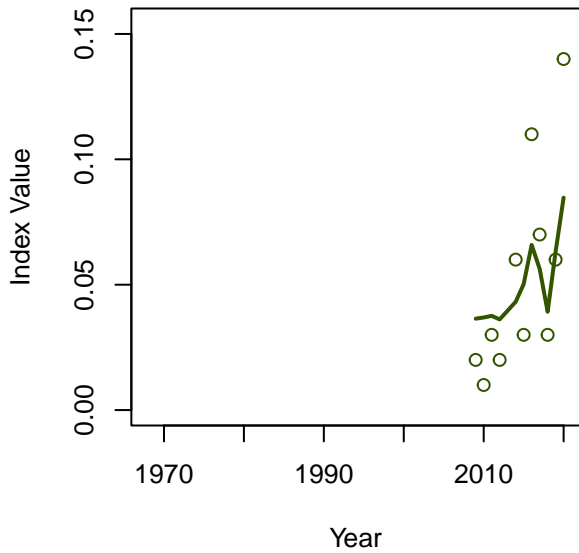
Index 7 (SP_BB2)



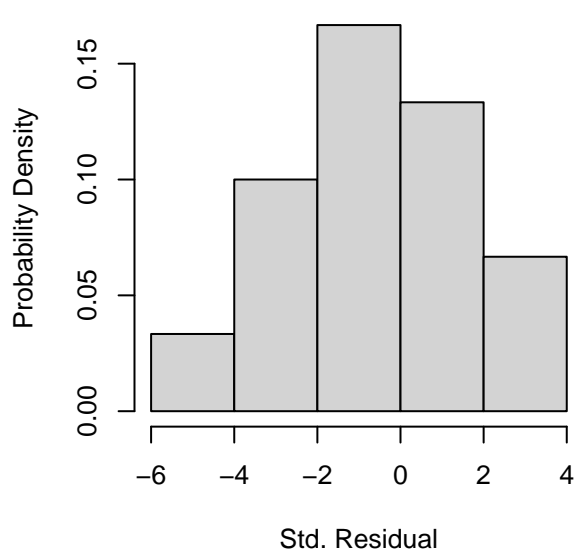
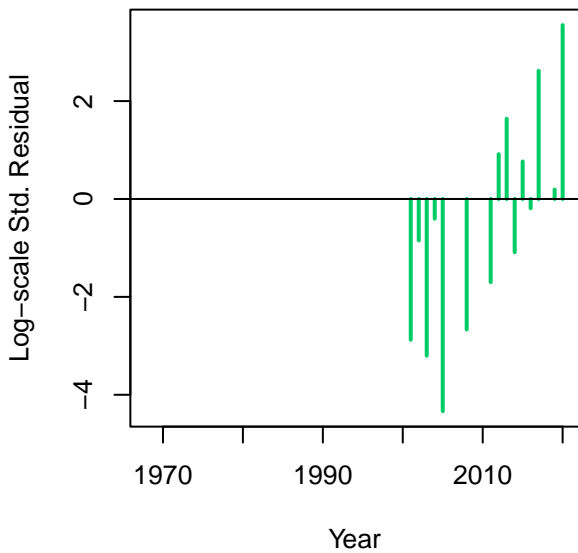
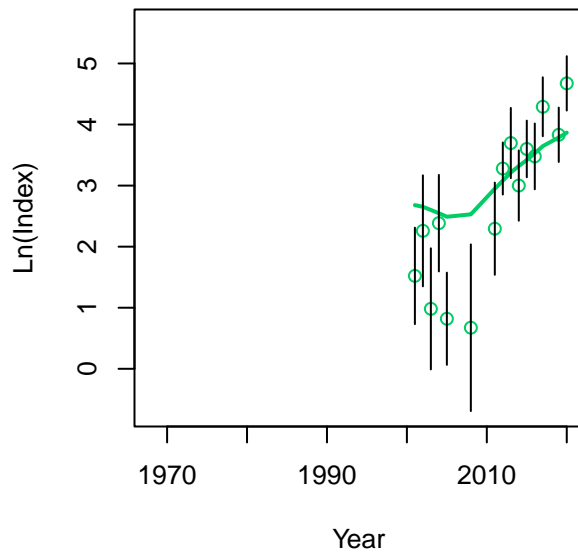
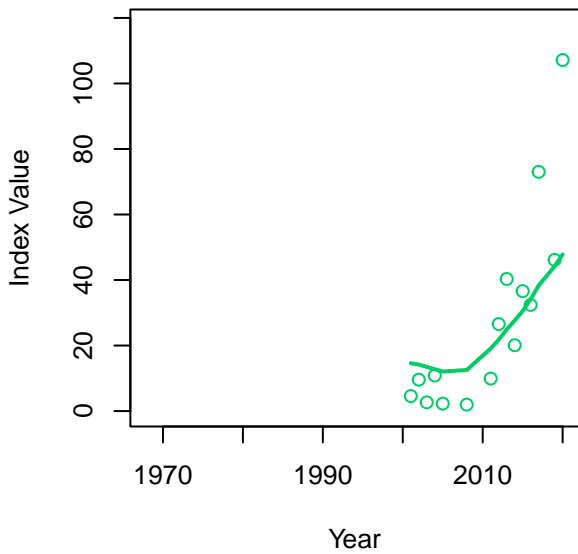
Index 8 (FR_AER1)



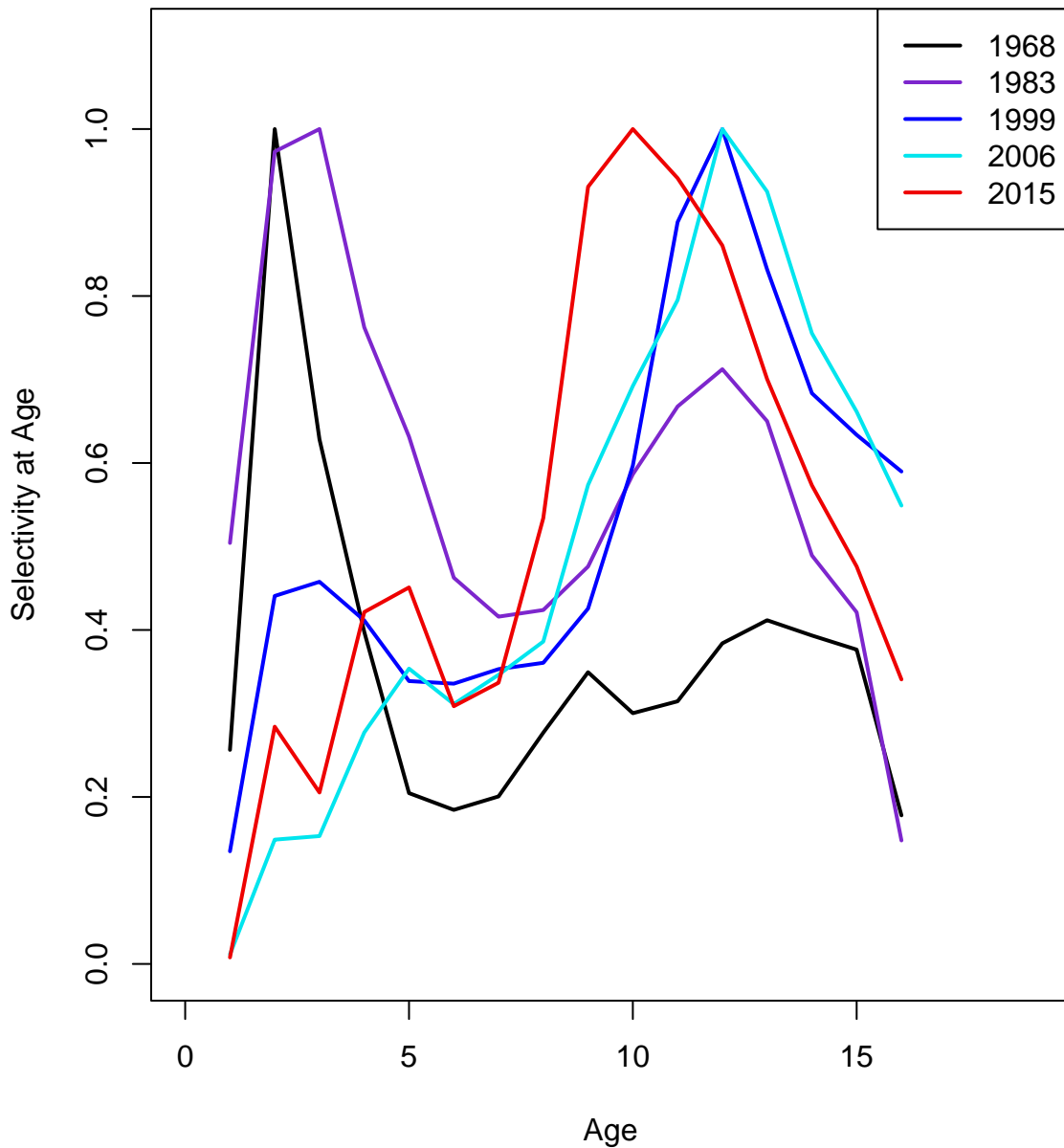
Index 9 (FR_AER2)

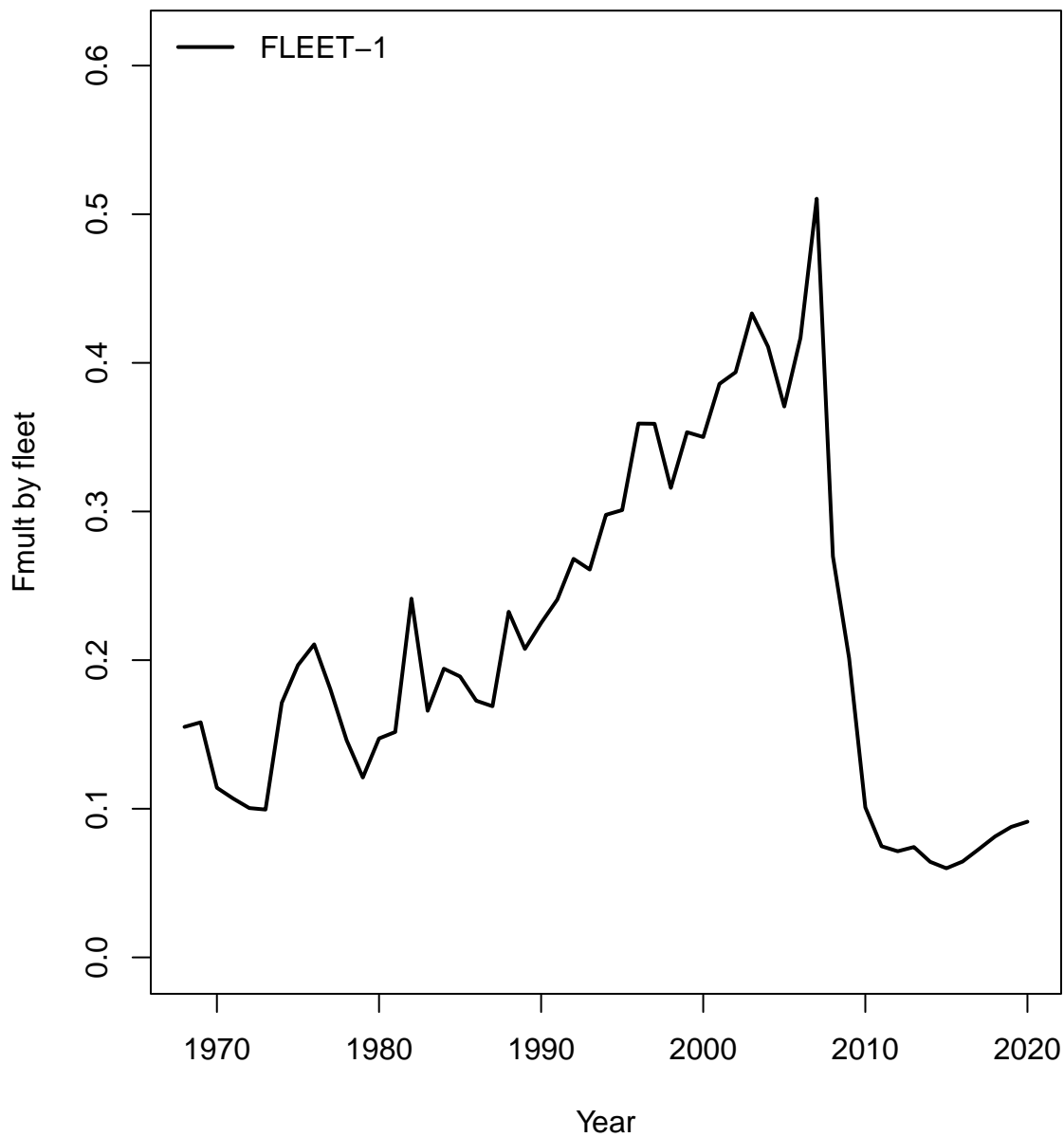


Index 10 (WMED_LARV)

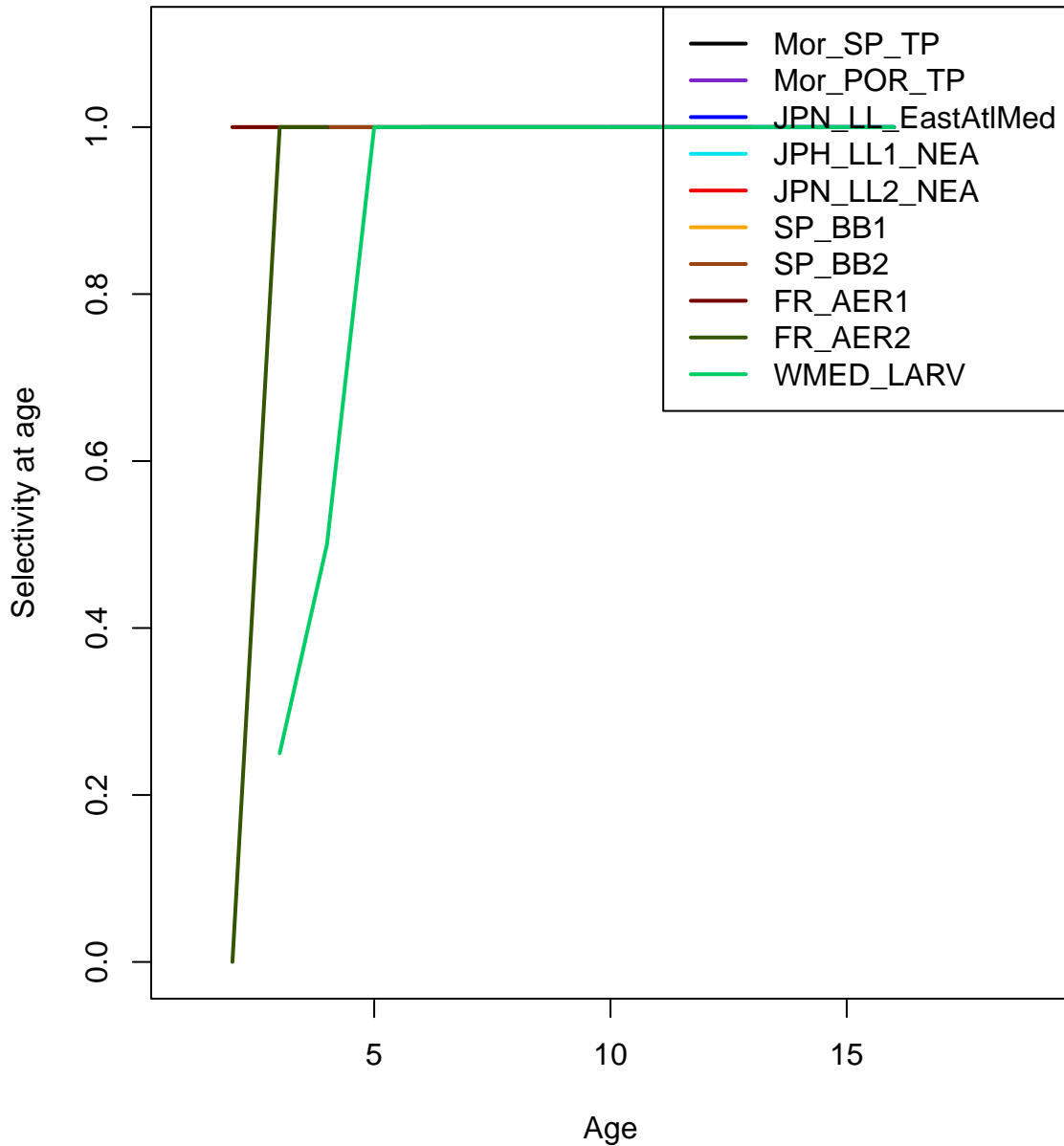


Fleet 1 (FLEET-1)

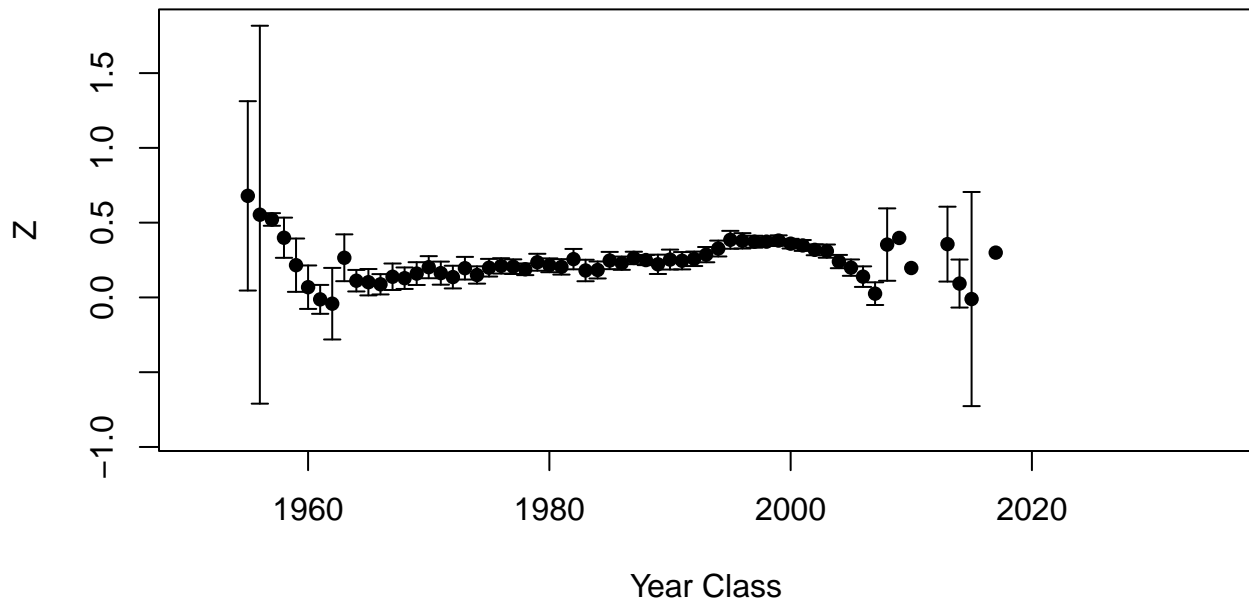
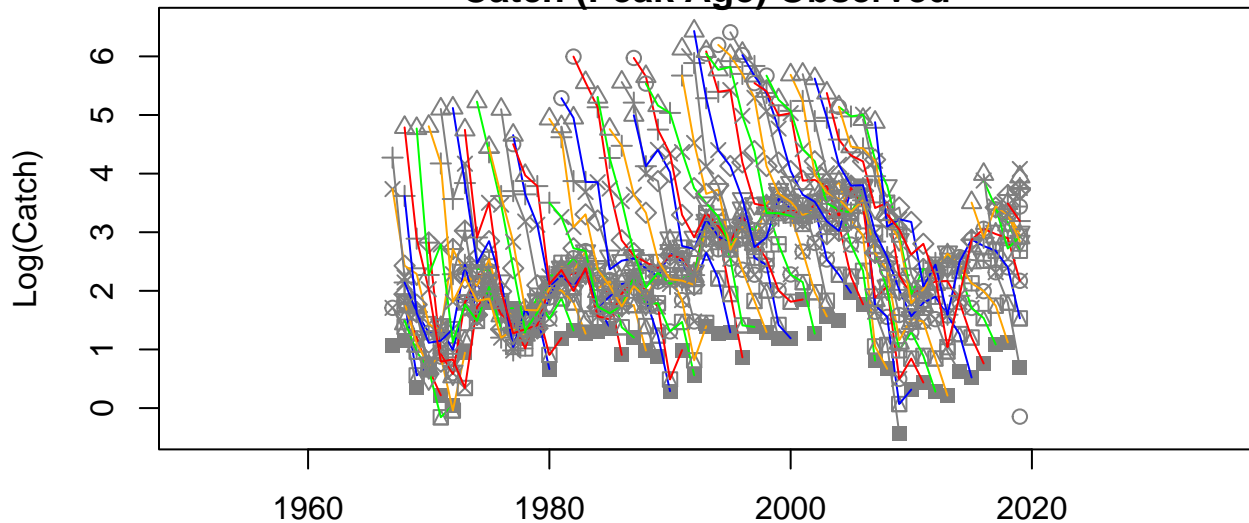


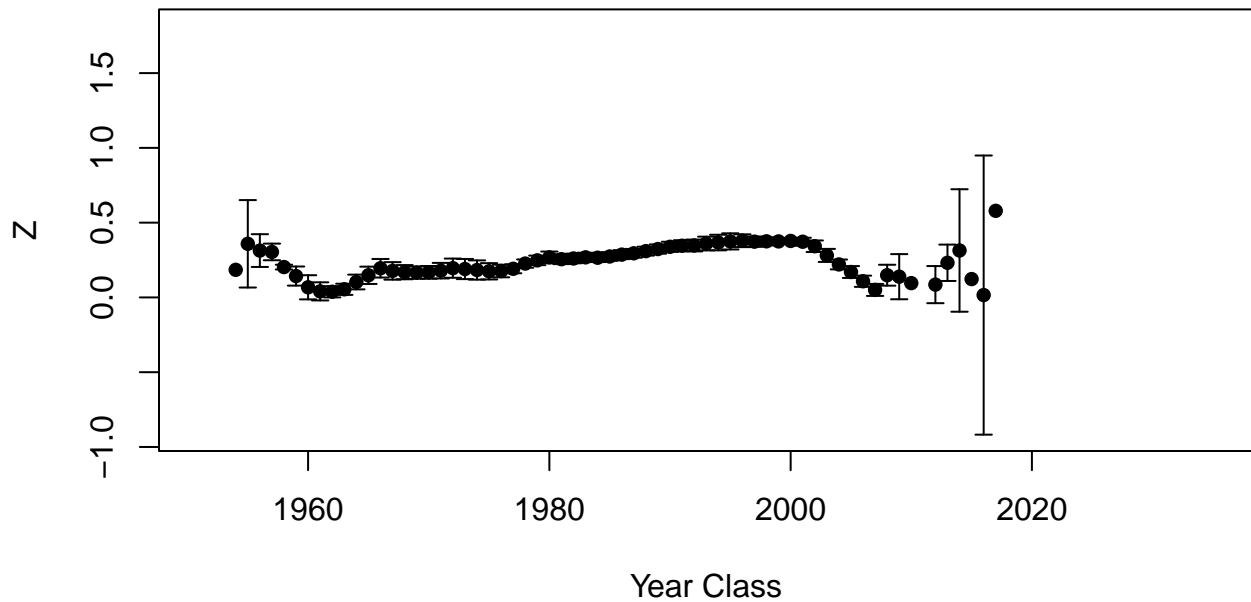
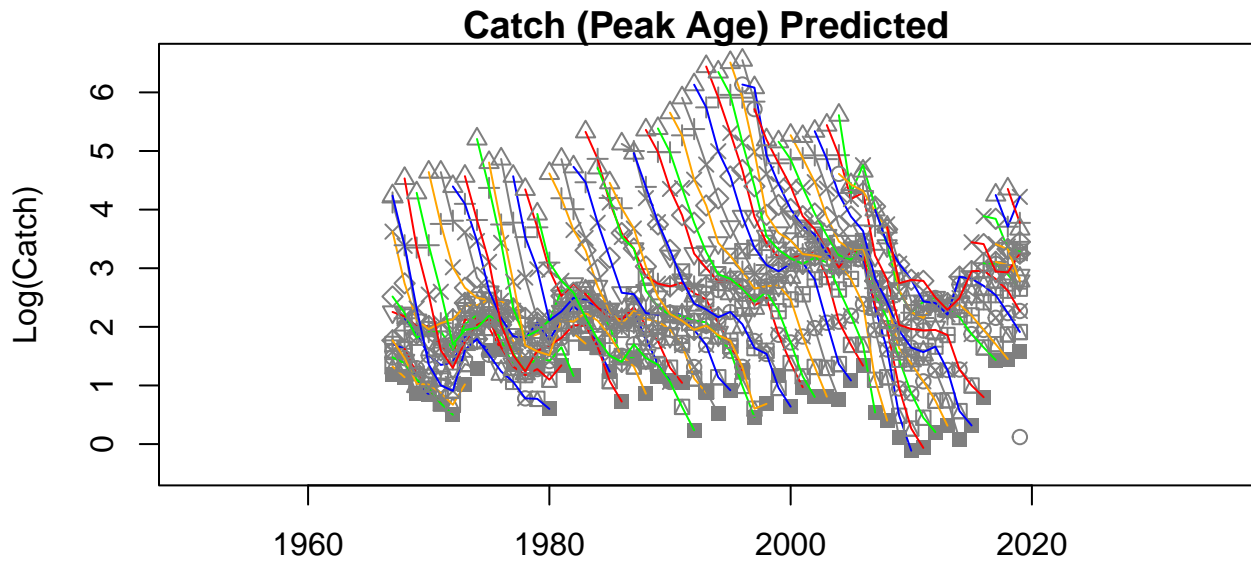


Indices



Catch (Peak Age) Observed

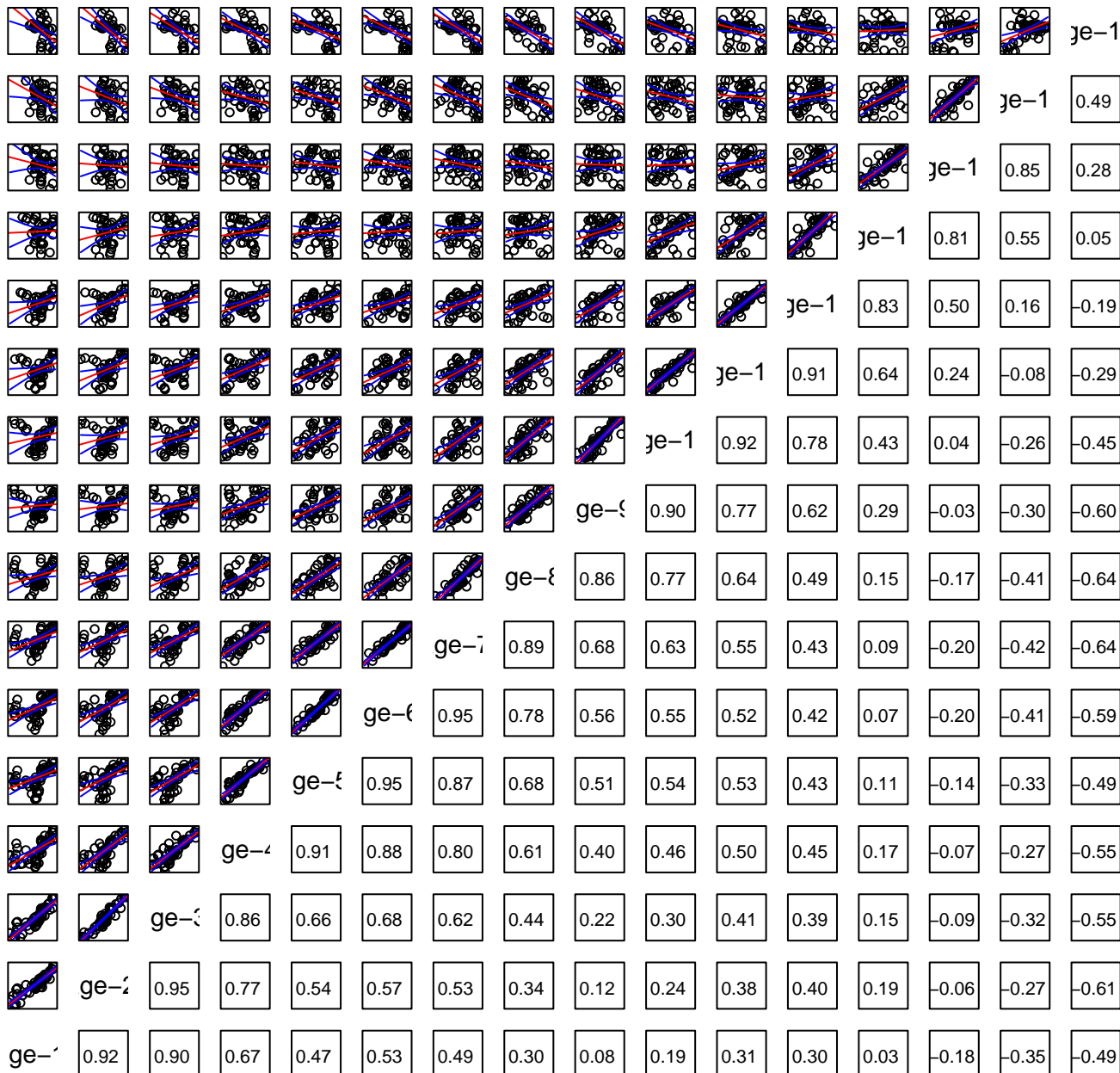


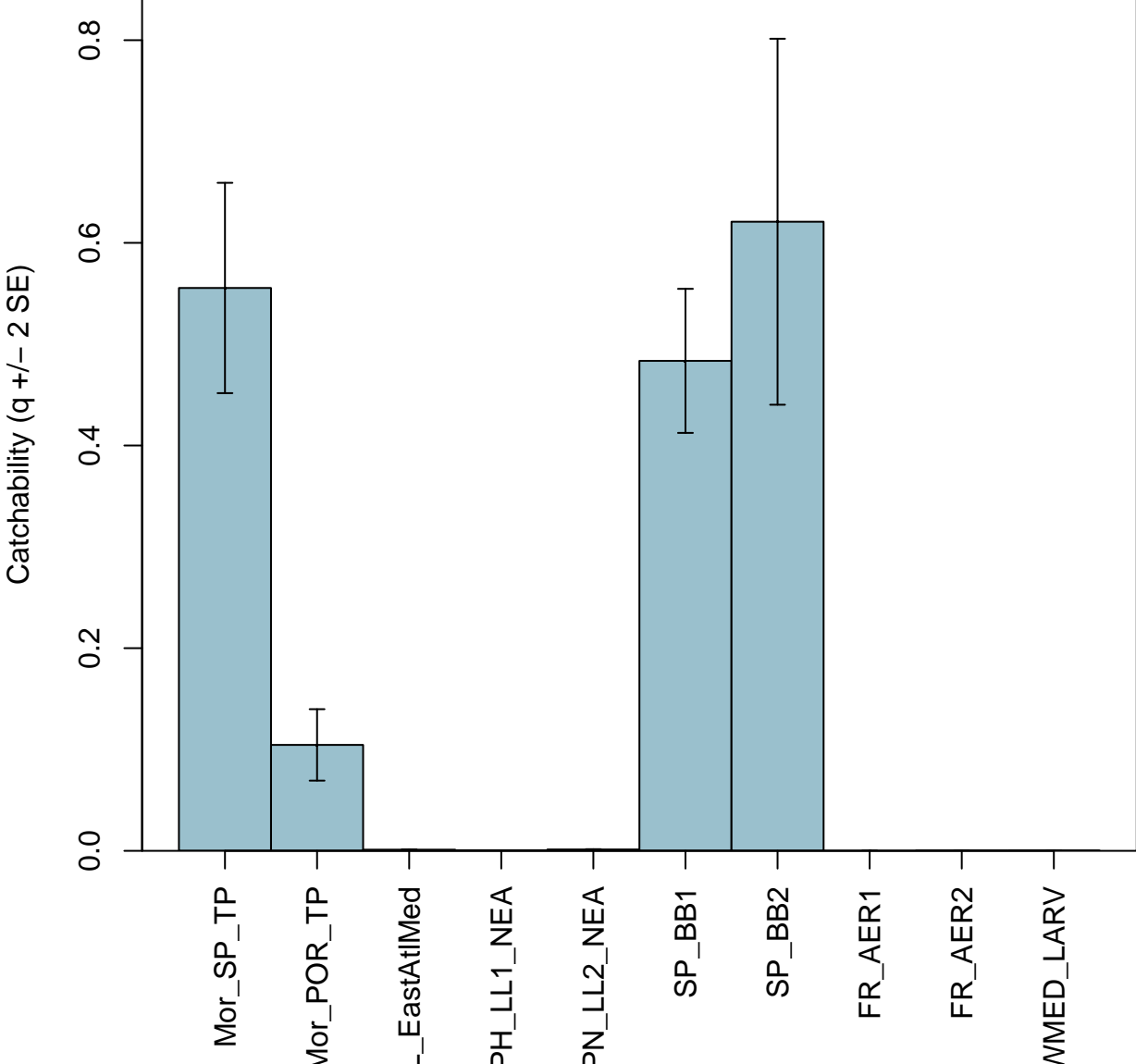


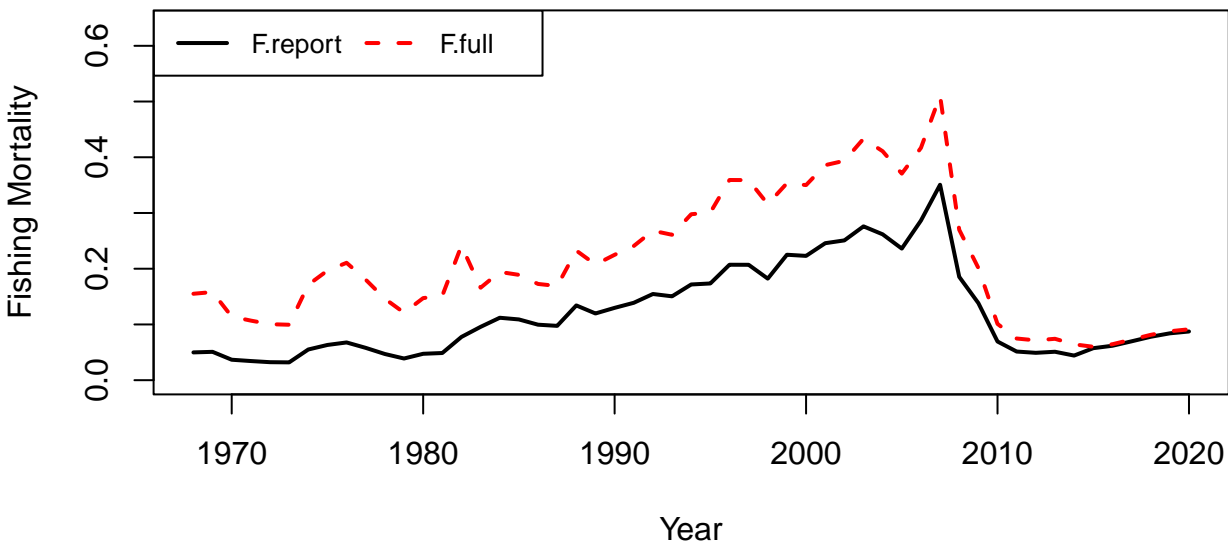
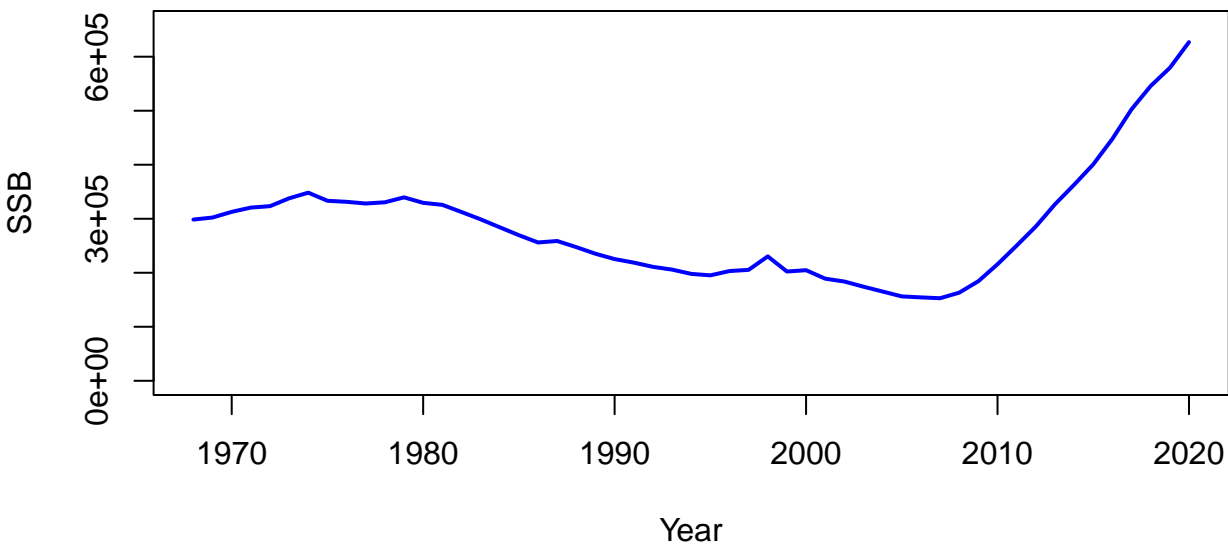
Catch Observed



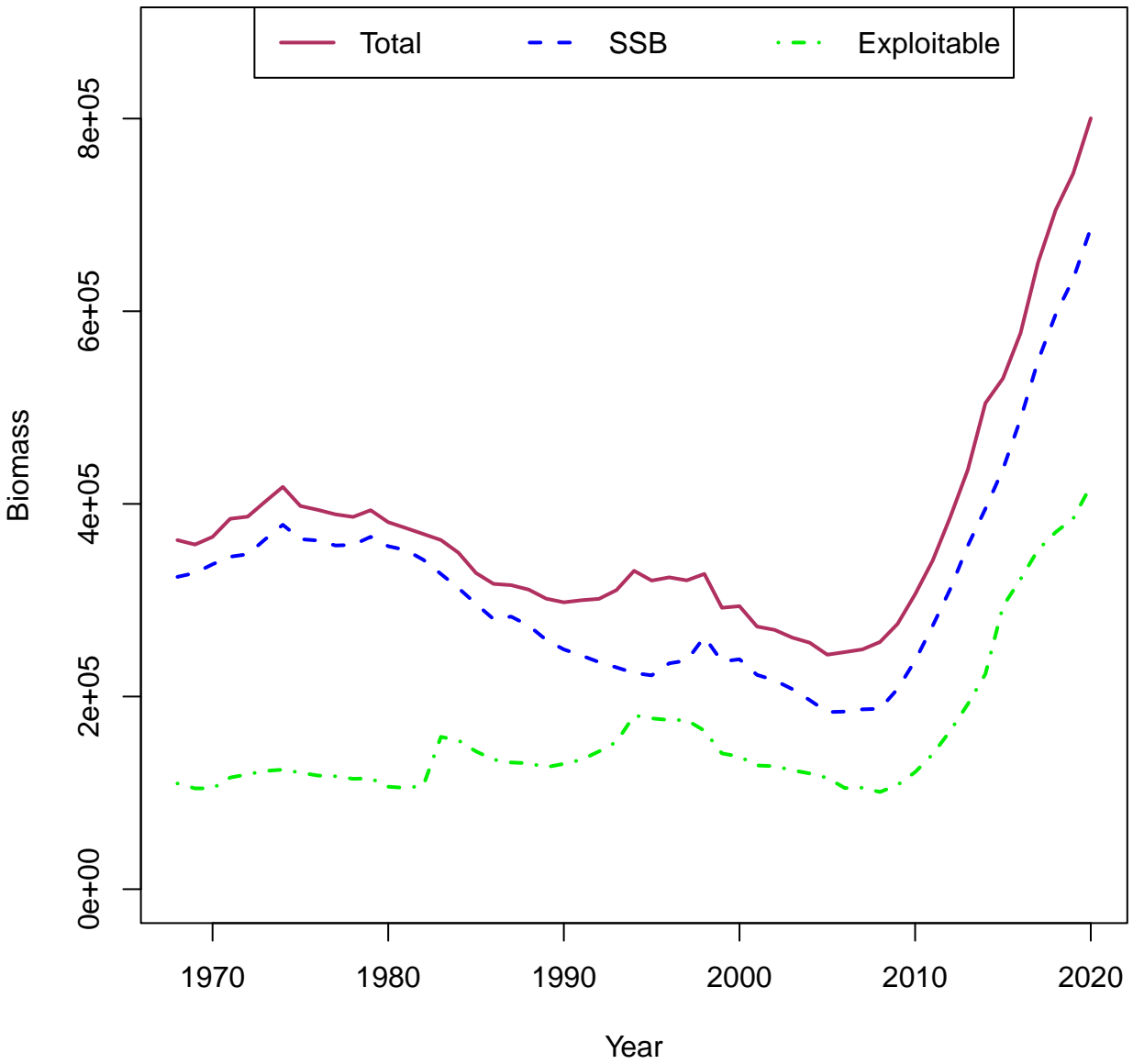
Catch Predicted

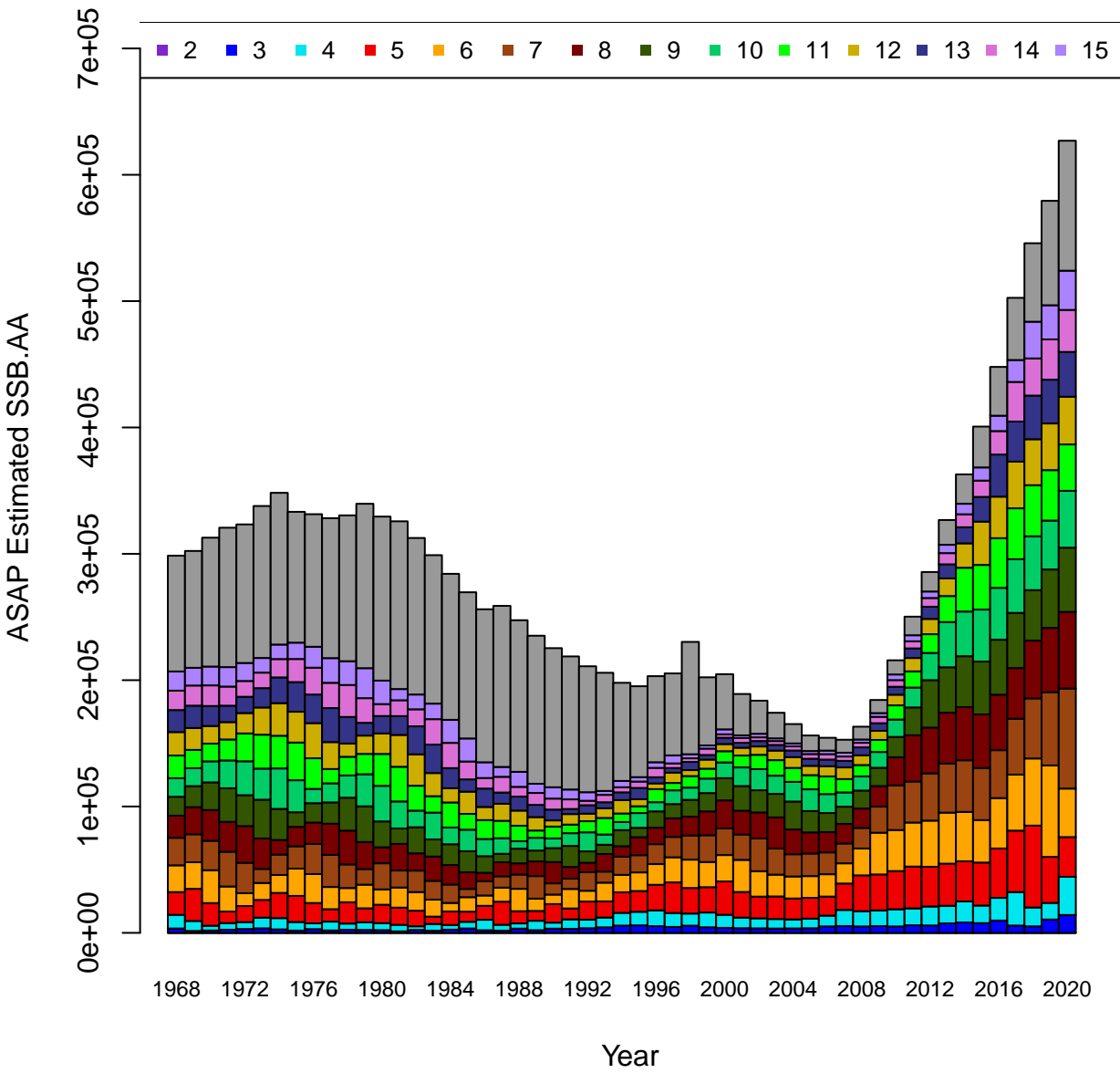




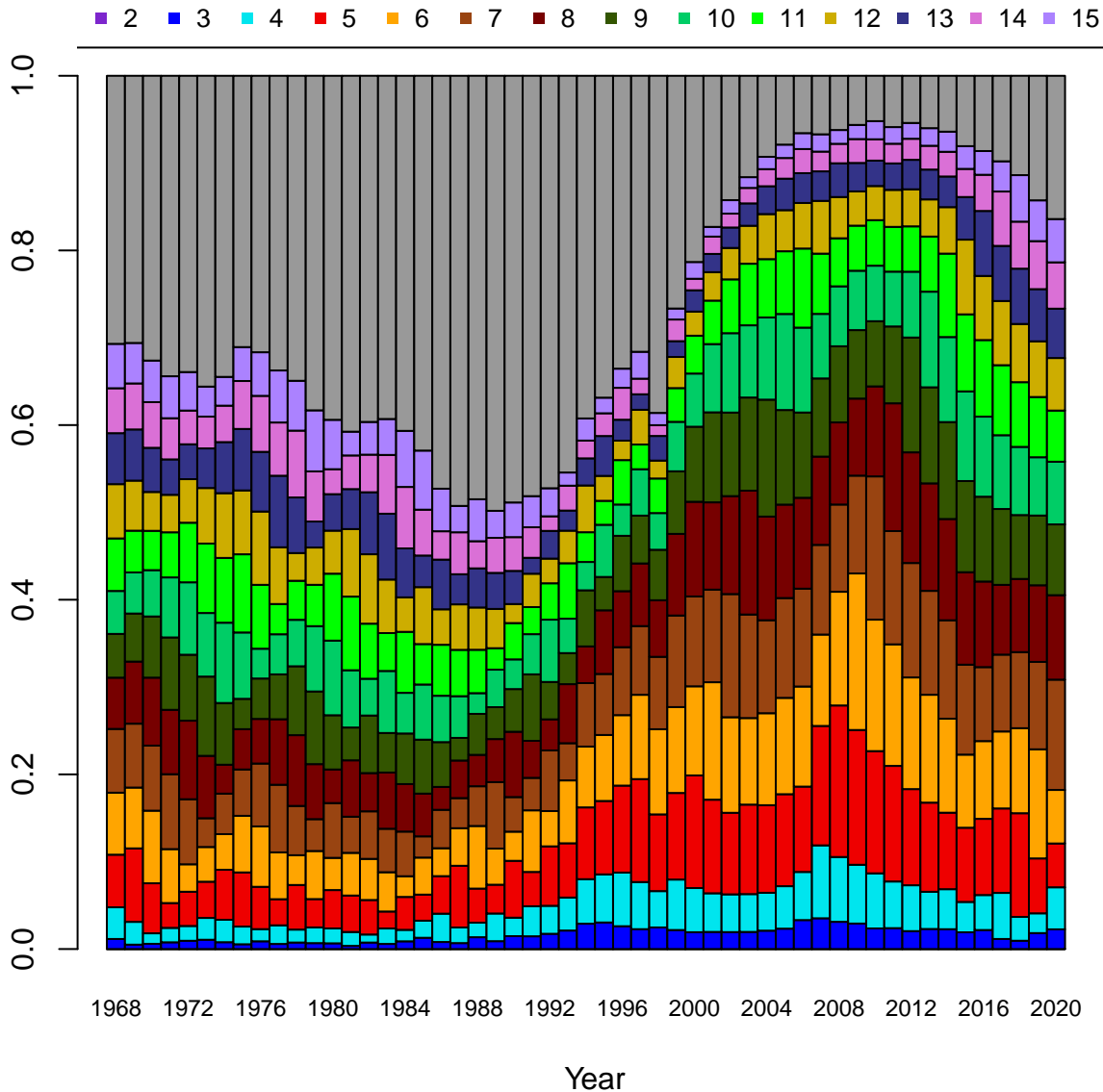


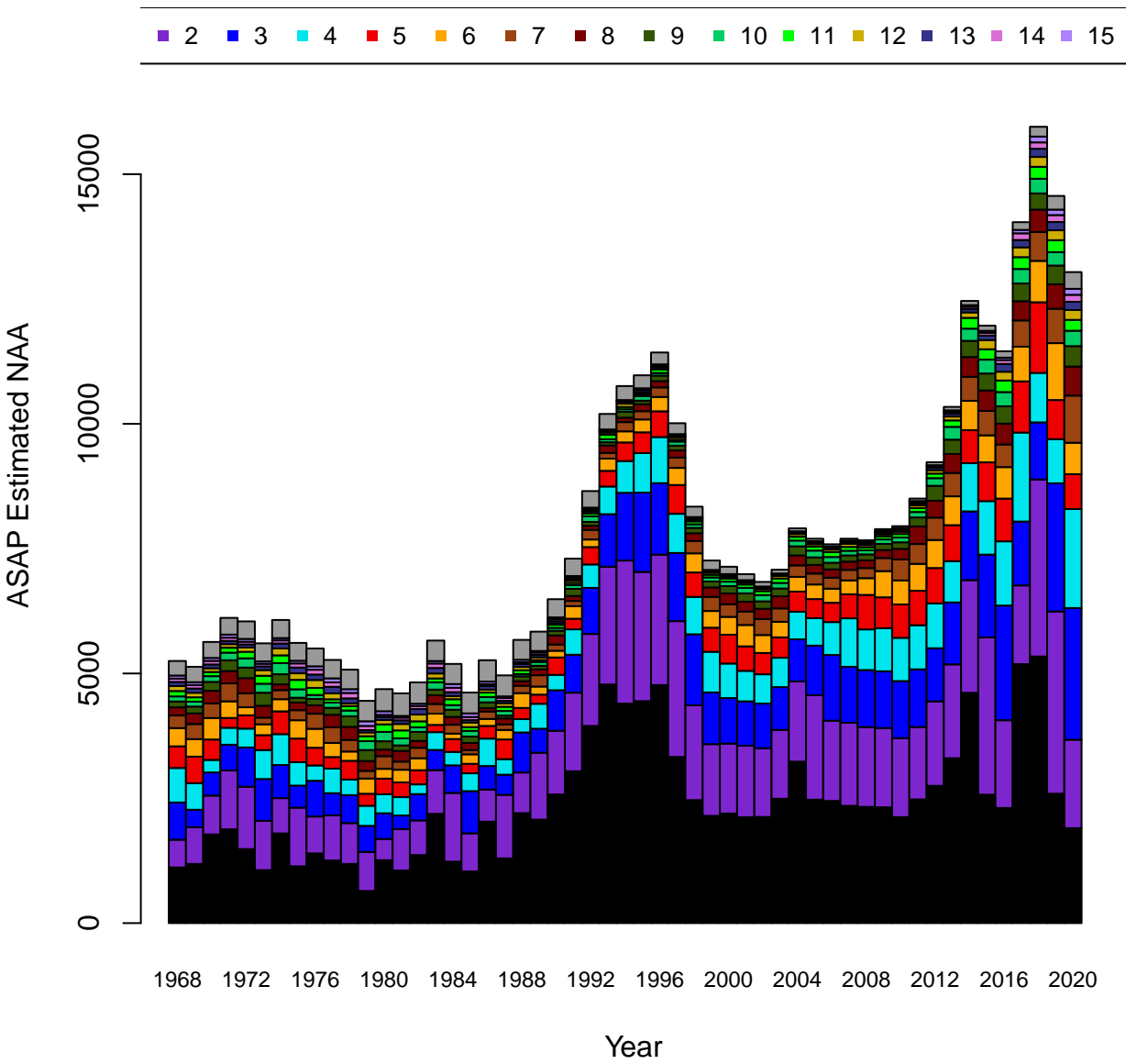
Comparison of January 1 Biomass

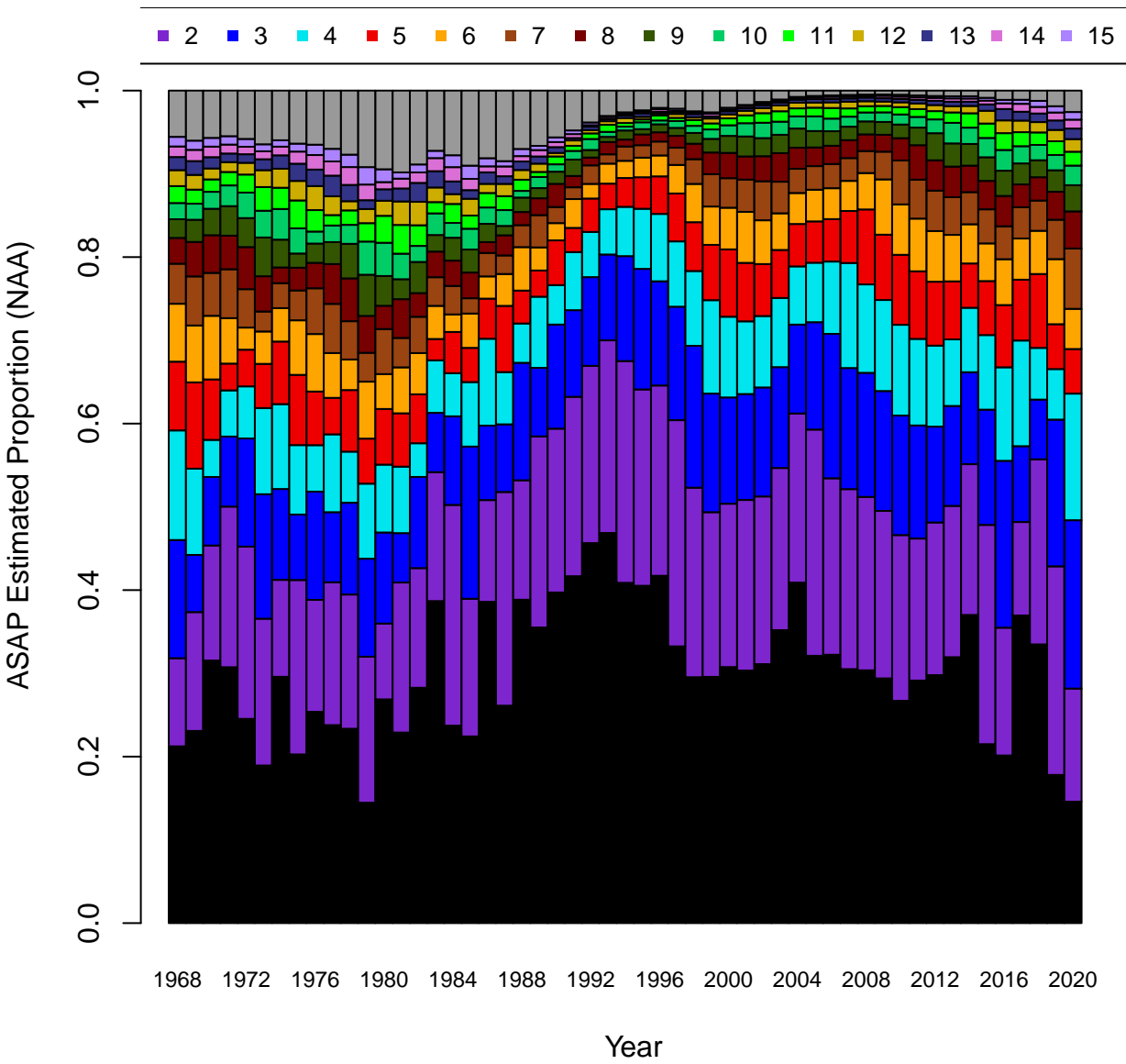


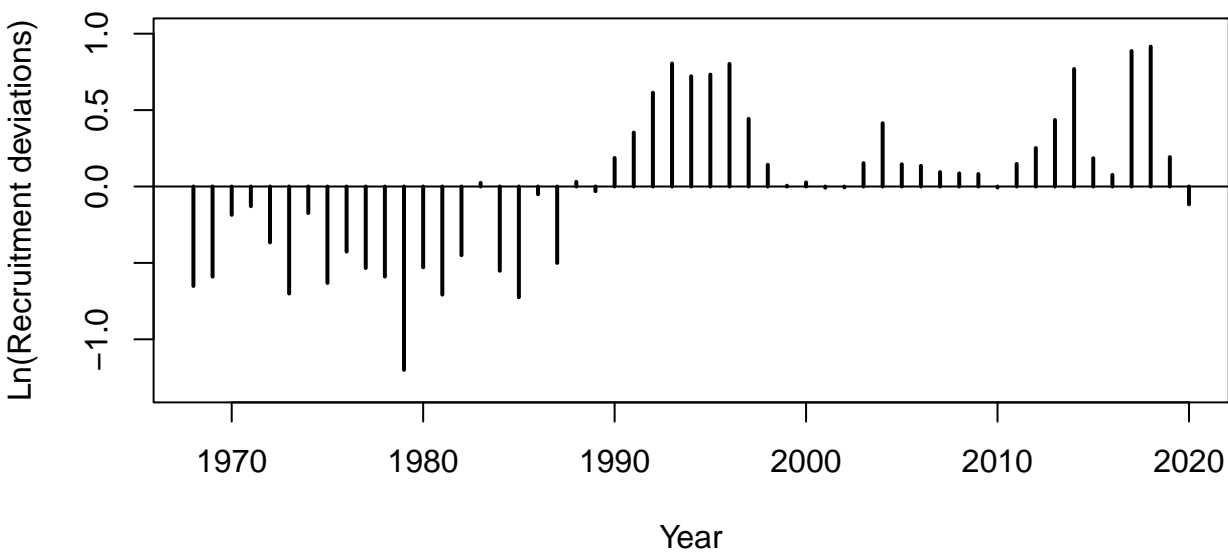
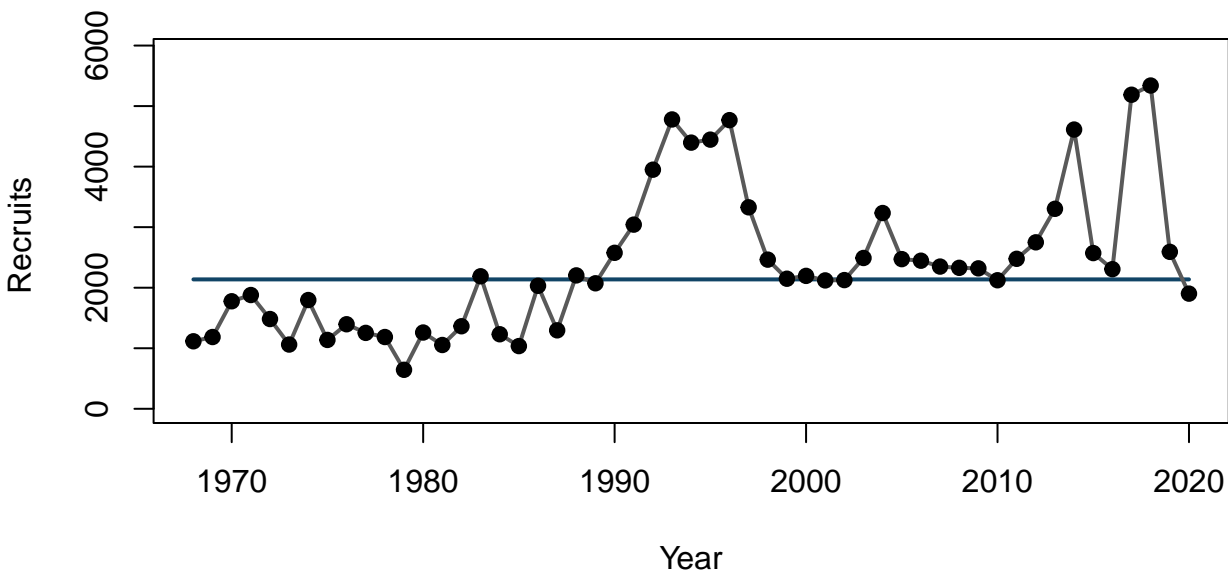


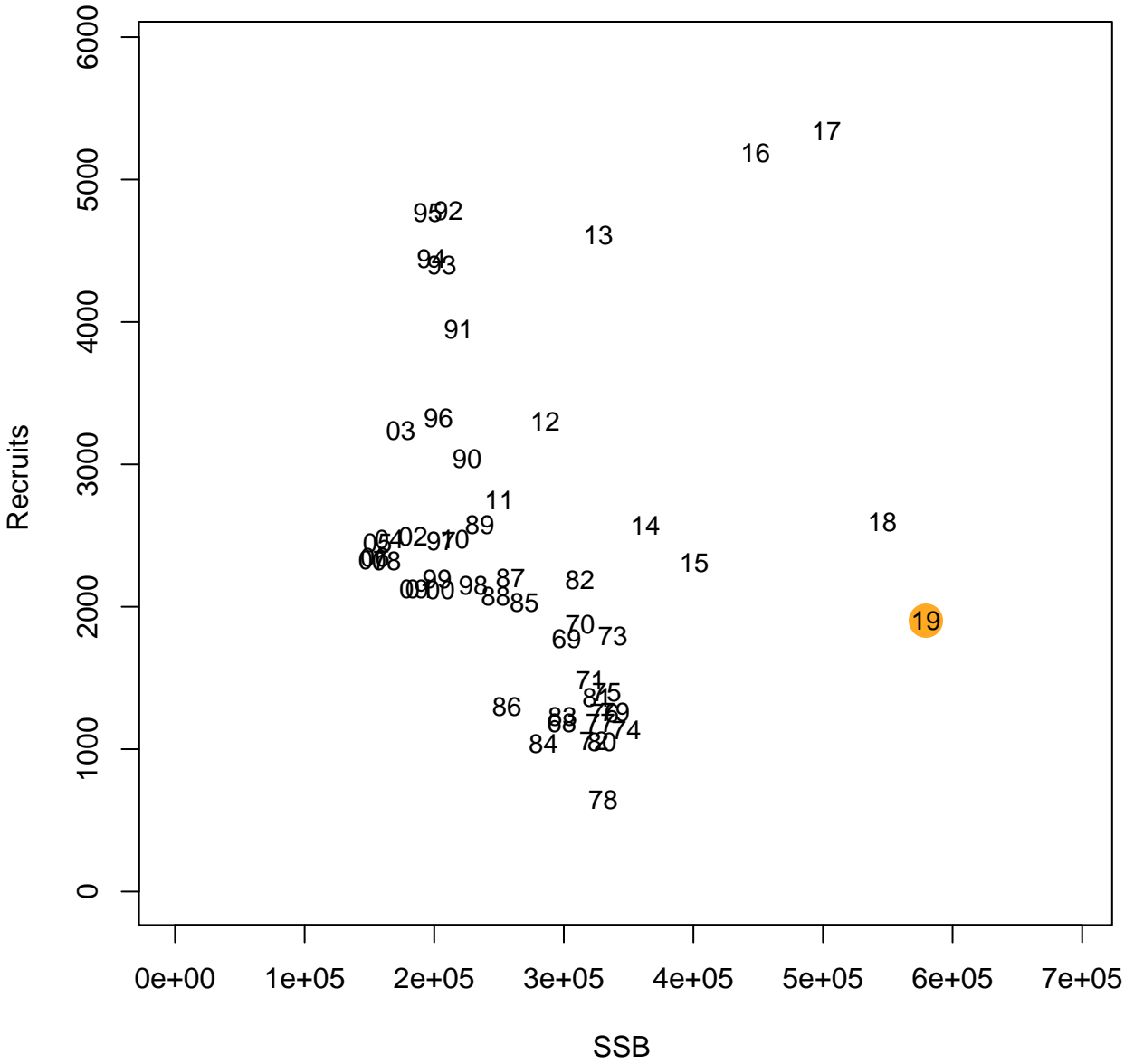
ASAP Estimated Proportion (SSB.AA)

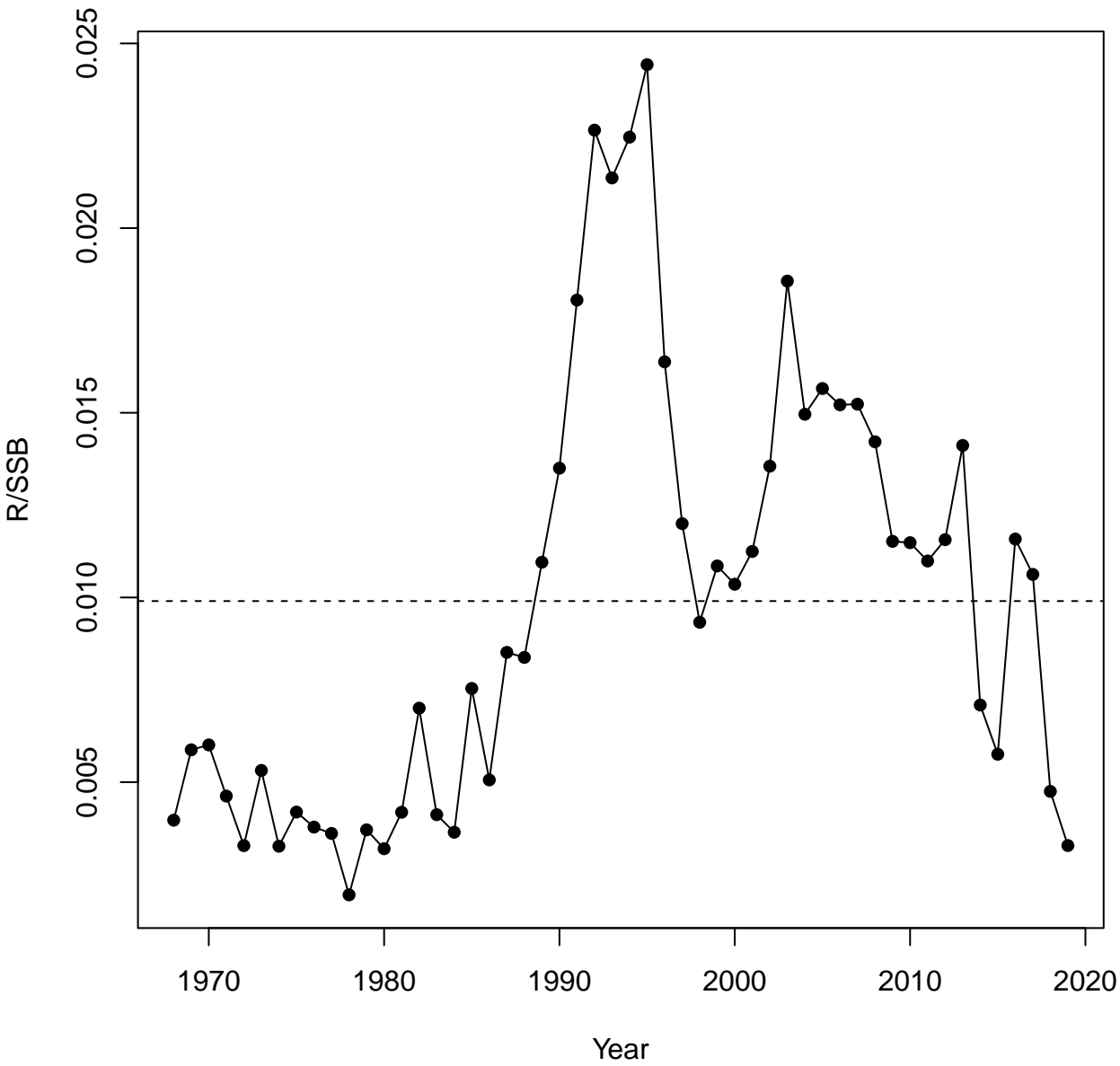


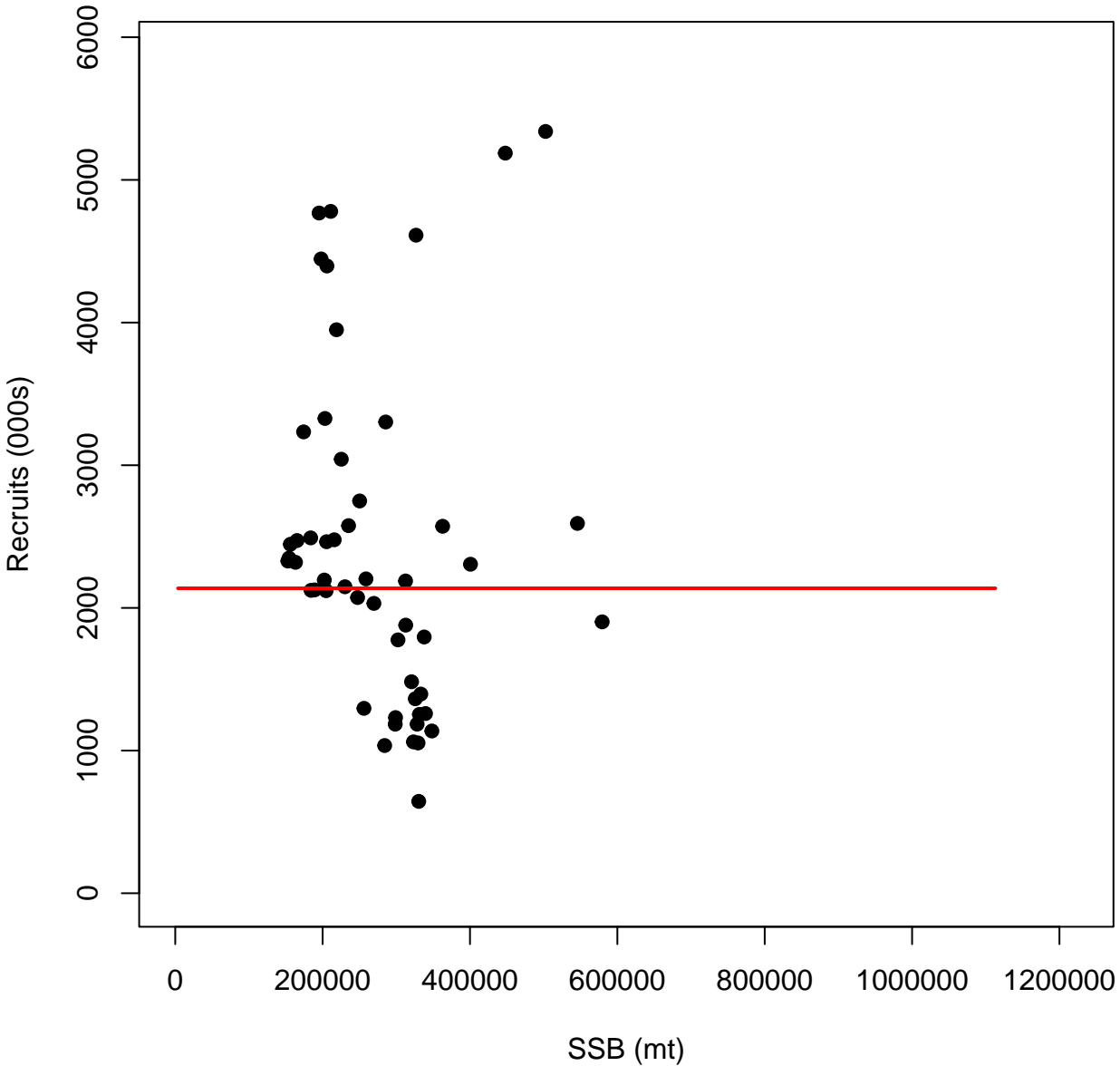


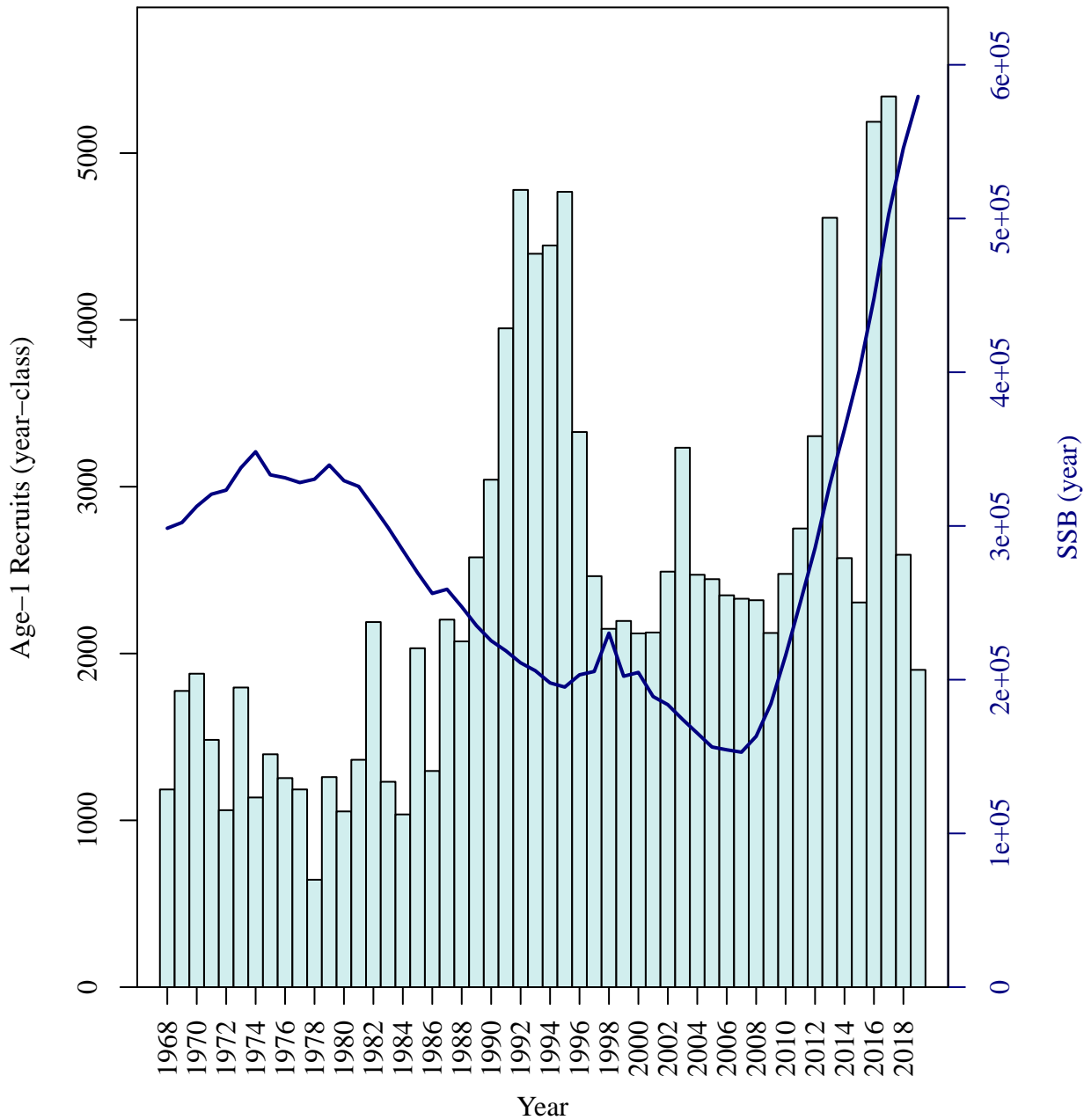


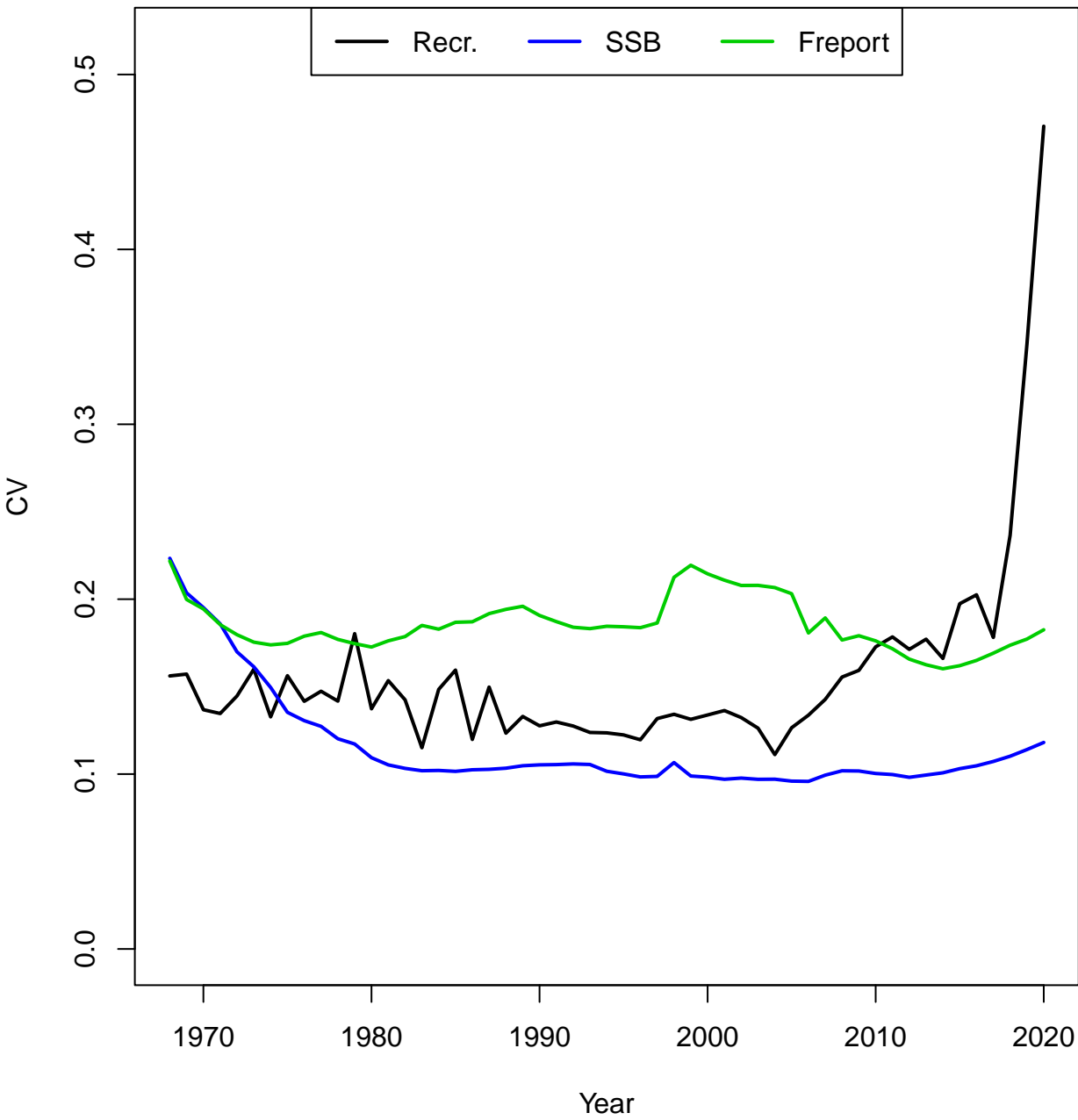




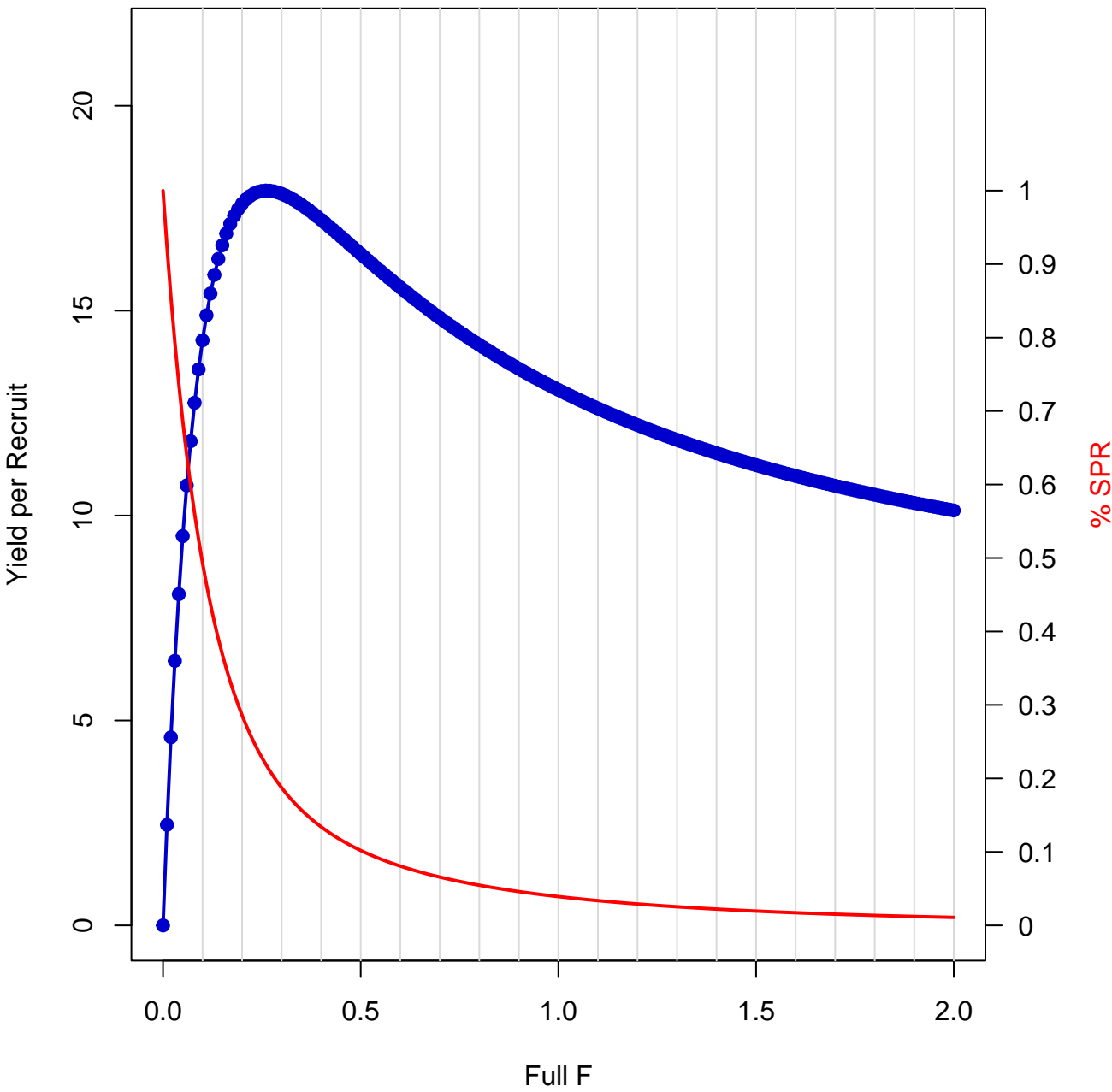








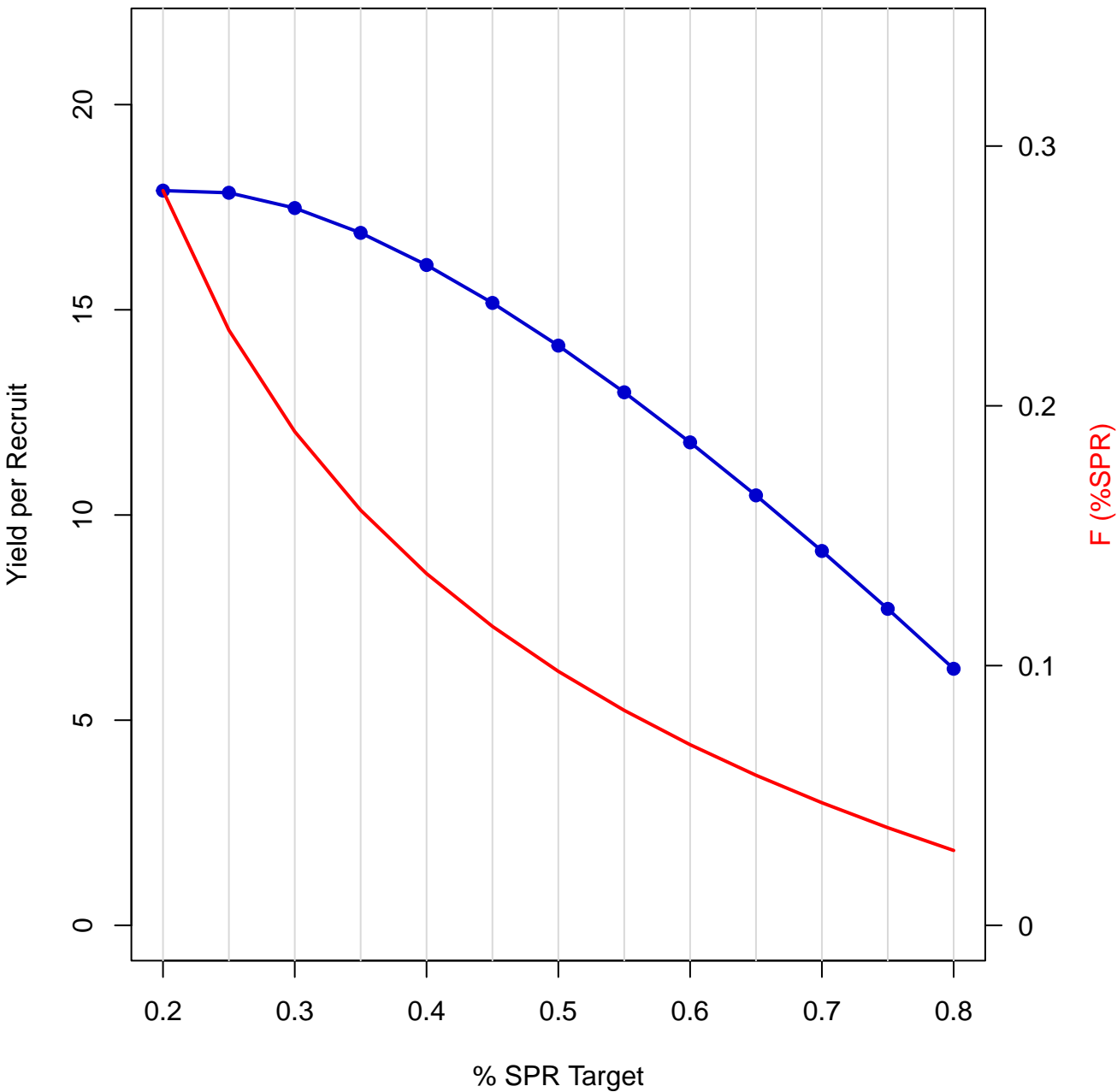
YPR-SPR Reference Points (Years Avg = 5)



YPR–SPR Reference Points (Years Avg = 5)

F	YPR	SPR	F	YPR	SPR	F	YPR	SPR
0	0	1	0.35	17.5833	0.1571	0.7	14.8243	0.0658
0.01	2.4521	0.9238	0.36	17.5155	0.152	0.71	14.7546	0.0645
0.02	4.59	0.8551	0.37	17.4444	0.1471	0.72	14.6857	0.0633
0.03	6.4545	0.7932	0.38	17.3706	0.1426	0.73	14.6177	0.0621
0.04	8.0809	0.7371	0.39	17.2944	0.1382	0.74	14.5504	0.0609
0.05	9.4995	0.6863	0.4	17.2162	0.1341	0.75	14.4841	0.0598
0.06	10.7363	0.6402	0.41	17.1363	0.1302	0.76	14.4185	0.0587
0.07	11.8139	0.5982	0.42	17.0551	0.1264	0.77	14.3537	0.0577
0.08	12.7519	0.56	0.43	16.9729	0.1228	0.78	14.2898	0.0566
0.09	13.5674	0.5251	0.44	16.8899	0.1194	0.79	14.2266	0.0556
0.1	14.275	0.4932	0.45	16.8062	0.1162	0.8	14.1642	0.0546
0.11	14.8879	0.4639	0.46	16.7221	0.1131	0.81	14.1027	0.0537
0.12	15.4172	0.4371	0.47	16.6378	0.1101	0.82	14.0418	0.0527
0.13	15.8728	0.4125	0.48	16.5534	0.1073	0.83	13.9818	0.0518
0.14	16.2634	0.3898	0.49	16.469	0.1046	0.84	13.9225	0.0509
0.15	16.5967	0.3689	0.5	16.3848	0.102	0.85	13.8639	0.0501
0.16	16.8793	0.3497	0.51	16.3008	0.0994	0.86	13.8061	0.0492
0.17	17.1171	0.3319	0.52	16.2171	0.097	0.87	13.749	0.0484
0.18	17.3154	0.3154	0.53	16.1339	0.0947	0.88	13.6926	0.0476
0.19	17.4787	0.3001	0.54	16.0511	0.0925	0.89	13.6369	0.0468
0.2	17.611	0.2859	0.55	15.9689	0.0904	0.9	13.5819	0.046
0.21	17.716	0.2727	0.56	15.8873	0.0883	0.91	13.5276	0.0453
0.22	17.7968	0.2605	0.57	15.8064	0.0863	0.92	13.474	0.0445
0.23	17.8562	0.2491	0.58	15.7261	0.0844	0.93	13.421	0.0438
0.24	17.8968	0.2384	0.59	15.6466	0.0825	0.94	13.3687	0.0431
0.25	17.9206	0.2284	0.6	15.5678	0.0808	0.95	13.317	0.0424
0.26	17.9298	0.2191	0.61	15.4897	0.079	0.96	13.266	0.0417
0.27	17.926	0.2104	0.62	15.4125	0.0774	0.97	13.2155	0.0411
0.28	17.9108	0.2022	0.63	15.3361	0.0757	0.98	13.1657	0.0404
0.29	17.8856	0.1946	0.64	15.2604	0.0742	0.99	13.1165	0.0398
0.3	17.8515	0.1873	0.65	15.1857	0.0727	1	13.0679	0.0392
0.31	17.8097	0.1806	0.66	15.1117	0.0712	1.01	13.0199	0.0386
0.32	17.7612	0.1742	0.67	15.0386	0.0698	1.02	12.9725	0.038
0.33	17.7068	0.1681	0.68	14.9663	0.0684	1.03	12.9256	0.0374
0.34	17.6473	0.1624	0.69	14.8949	0.0671	1.04	12.8793	0.0368

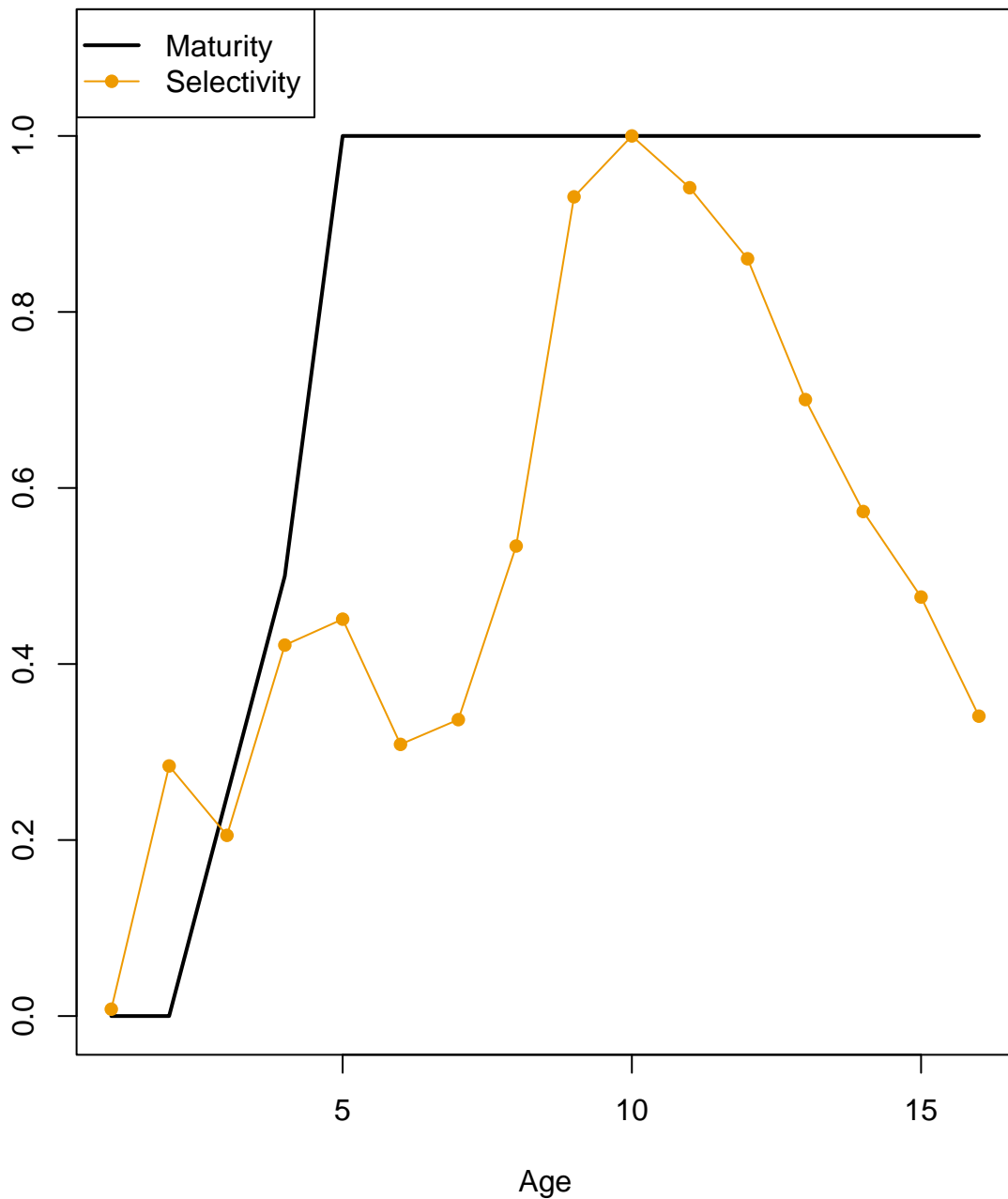
SPR Target Reference Points (Years Avg = 5)



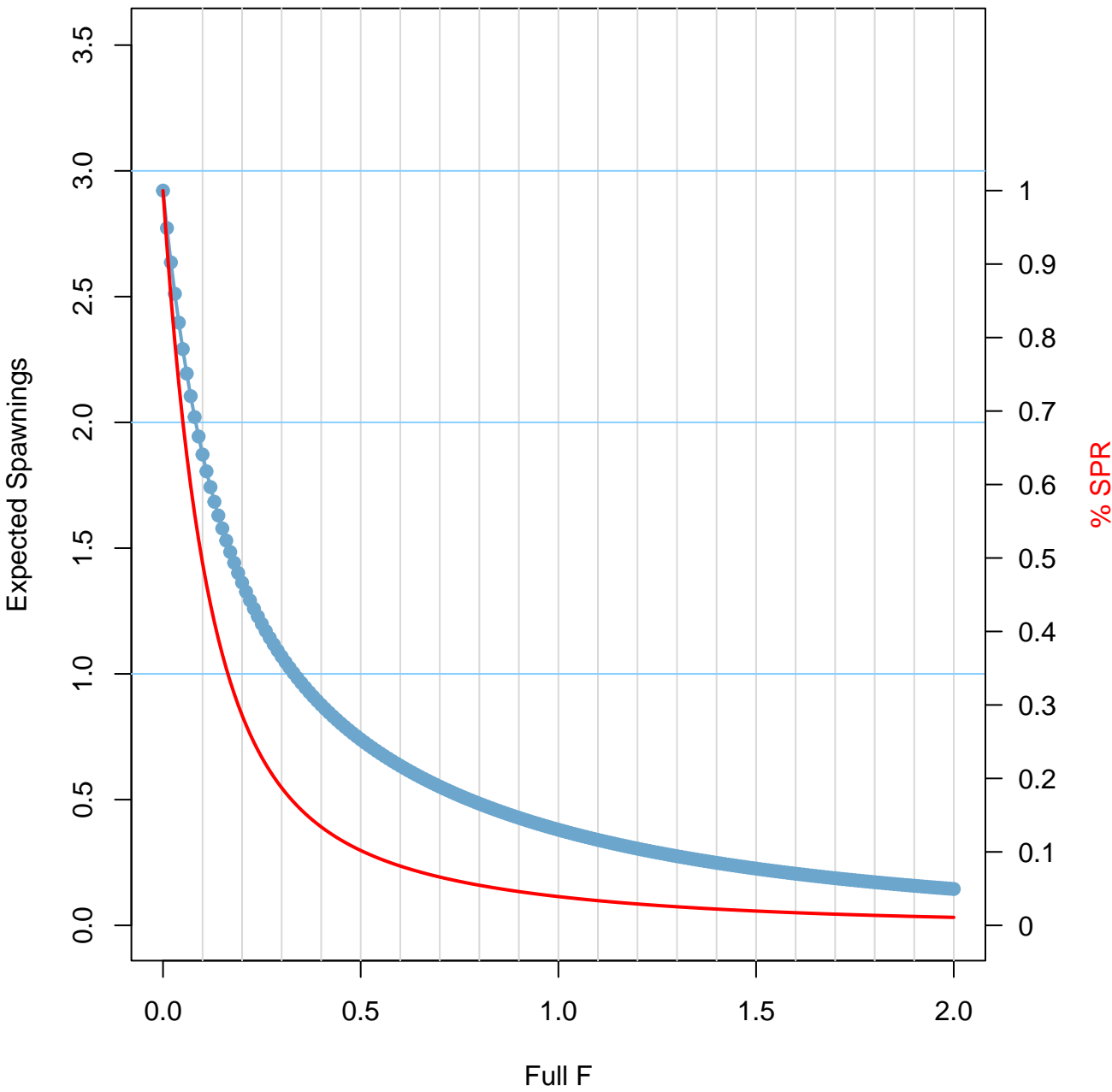
SPR Target Reference Points (Years Avg = 5)

% SPR	F(%SPR)	YPR
0.2	0.2829	17.9046
0.25	0.2291	17.8519
0.3	0.1901	17.4796
0.35	0.1598	16.8747
0.4	0.1354	16.0918
0.45	0.1151	15.1673
0.5	0.0978	14.127
0.55	0.0828	12.9897
0.6	0.0696	11.7696
0.65	0.0578	10.4778
0.7	0.0472	9.1231
0.75	0.0376	7.7126
0.8	0.0288	6.2523

Selectivity or Maturity at age



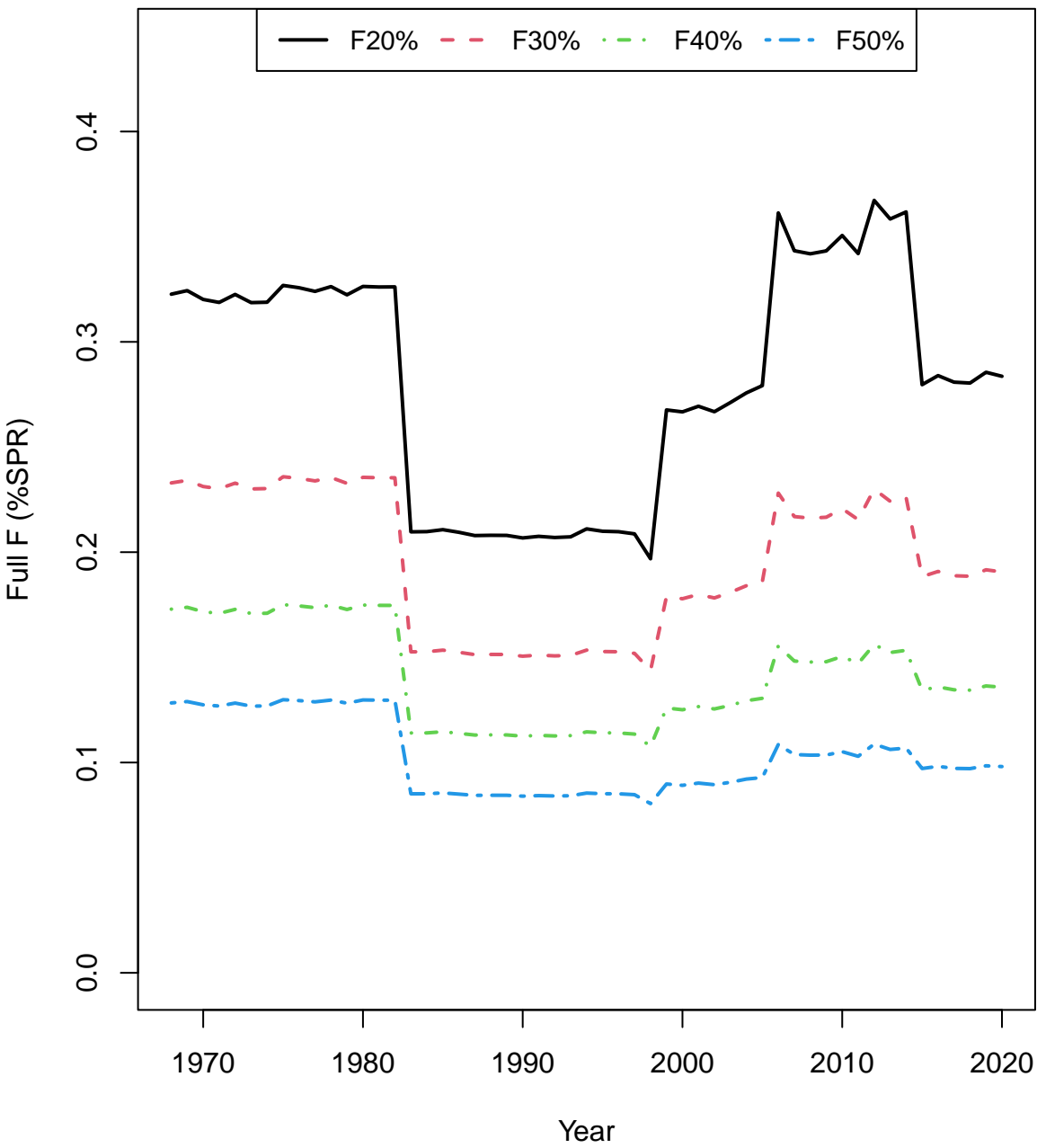
Expected Spawns and SPR Reference Points (Years Avg = 5)



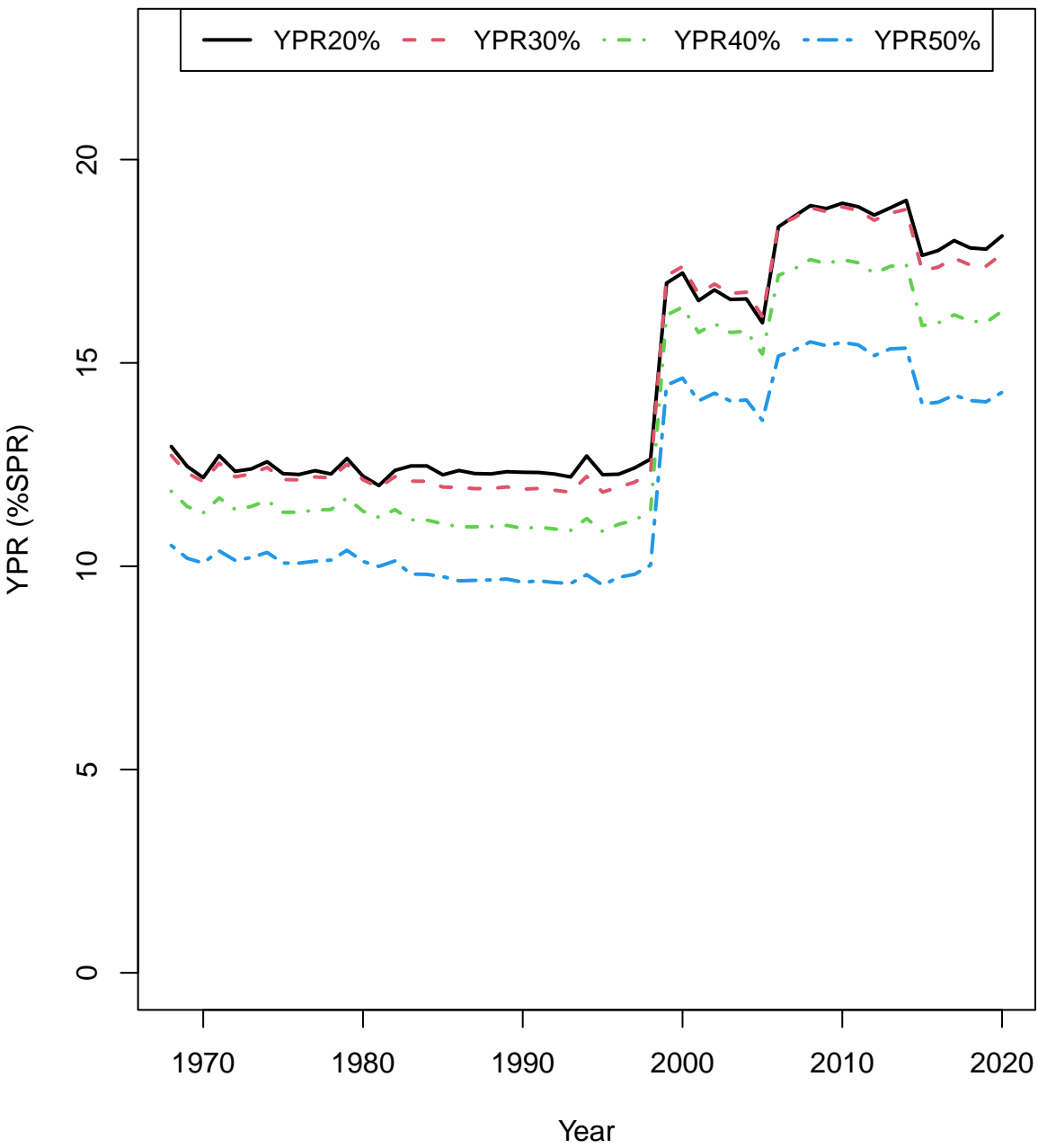
Expected Spawnings & SPR Reference Points (Years Avg = 5)

F	E[Sp]	SPR	F	E[Sp]	SPR	F	E[Sp]	SPR
0	2.9215	1	0.35	0.964	0.1571	0.7	0.5515	0.0658
0.01	2.7723	0.9238	0.36	0.9453	0.152	0.71	0.5442	0.0645
0.02	2.636	0.8551	0.37	0.9273	0.1471	0.72	0.5369	0.0633
0.03	2.5112	0.7932	0.38	0.9098	0.1426	0.73	0.5298	0.0621
0.04	2.3967	0.7371	0.39	0.893	0.1382	0.74	0.5229	0.0609
0.05	2.2913	0.6863	0.4	0.8767	0.1341	0.75	0.5161	0.0598
0.06	2.1941	0.6402	0.41	0.861	0.1302	0.76	0.5094	0.0587
0.07	2.1043	0.5982	0.42	0.8458	0.1264	0.77	0.5029	0.0577
0.08	2.0211	0.56	0.43	0.831	0.1228	0.78	0.4964	0.0566
0.09	1.9439	0.5251	0.44	0.8167	0.1194	0.79	0.4901	0.0556
0.1	1.8721	0.4932	0.45	0.8028	0.1162	0.8	0.4839	0.0546
0.11	1.8052	0.4639	0.46	0.7893	0.1131	0.81	0.4778	0.0537
0.12	1.7428	0.4371	0.47	0.7763	0.1101	0.82	0.4719	0.0527
0.13	1.6844	0.4125	0.48	0.7635	0.1073	0.83	0.466	0.0518
0.14	1.6296	0.3898	0.49	0.7512	0.1046	0.84	0.4602	0.0509
0.15	1.5783	0.3689	0.5	0.7391	0.102	0.85	0.4546	0.0501
0.16	1.53	0.3497	0.51	0.7274	0.0994	0.86	0.449	0.0492
0.17	1.4845	0.3319	0.52	0.716	0.097	0.87	0.4435	0.0484
0.18	1.4416	0.3154	0.53	0.7049	0.0947	0.88	0.4382	0.0476
0.19	1.4011	0.3001	0.54	0.6941	0.0925	0.89	0.4329	0.0468
0.2	1.3628	0.2859	0.55	0.6836	0.0904	0.9	0.4277	0.046
0.21	1.3265	0.2727	0.56	0.6733	0.0883	0.91	0.4226	0.0453
0.22	1.292	0.2605	0.57	0.6632	0.0863	0.92	0.4176	0.0445
0.23	1.2593	0.2491	0.58	0.6534	0.0844	0.93	0.4126	0.0438
0.24	1.2282	0.2384	0.59	0.6438	0.0825	0.94	0.4078	0.0431
0.25	1.1985	0.2284	0.6	0.6345	0.0808	0.95	0.403	0.0424
0.26	1.1702	0.2191	0.61	0.6253	0.079	0.96	0.3983	0.0417
0.27	1.1432	0.2104	0.62	0.6164	0.0774	0.97	0.3937	0.0411
0.28	1.1174	0.2022	0.63	0.6077	0.0757	0.98	0.3892	0.0404
0.29	1.0927	0.1946	0.64	0.5991	0.0742	0.99	0.3847	0.0398
0.3	1.069	0.1873	0.65	0.5908	0.0727	1	0.3803	0.0392
0.31	1.0463	0.1806	0.66	0.5826	0.0712	1.01	0.376	0.0386
0.32	1.0245	0.1742	0.67	0.5746	0.0698	1.02	0.3717	0.038
0.33	1.0036	0.1681	0.68	0.5667	0.0684	1.03	0.3675	0.0374
0.34	0.9834	0.1624	0.69	0.5591	0.0671	1.04	0.3634	0.0368

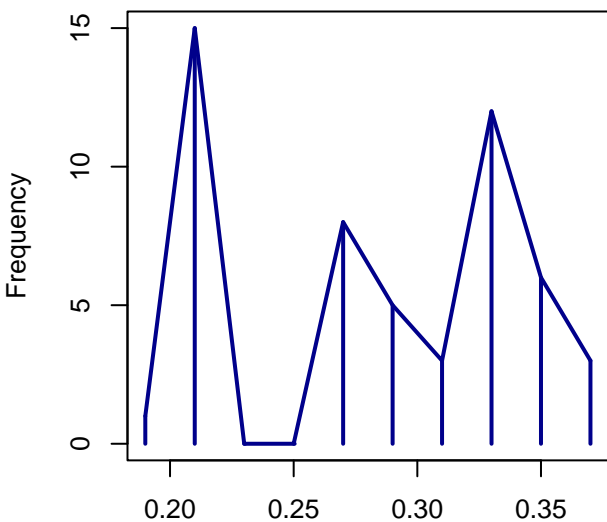
Annual F(%SPR) Reference Points



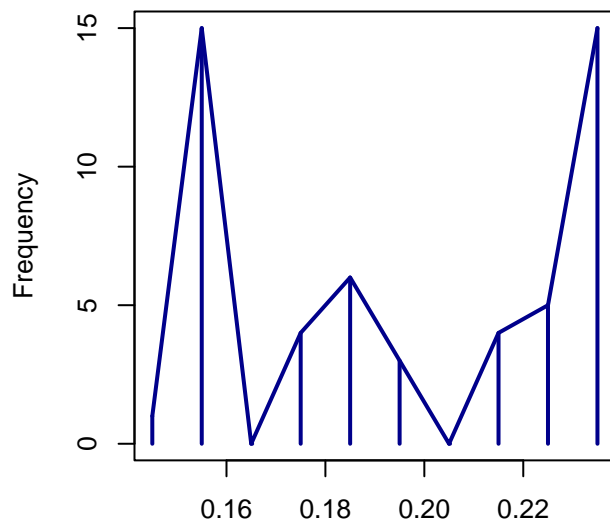
Annual YPR(%SPR) Reference Points



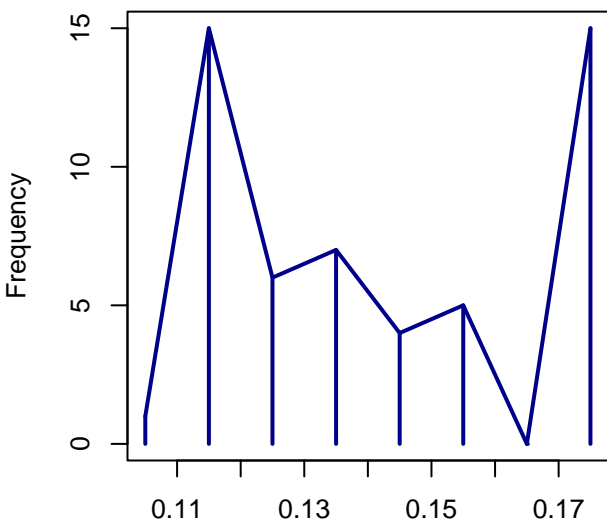
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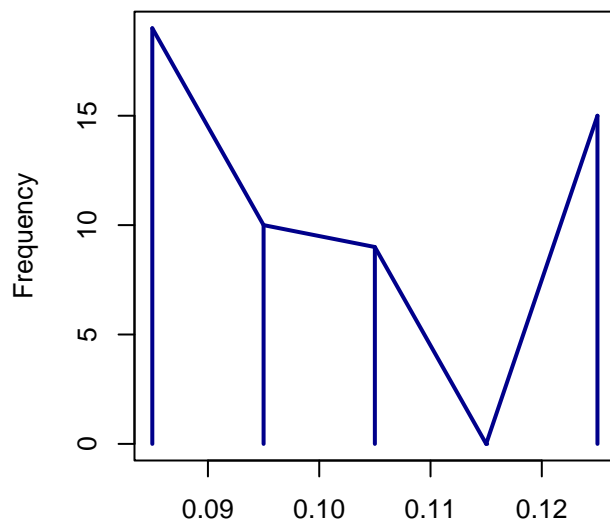
Full F20%



Full F30%

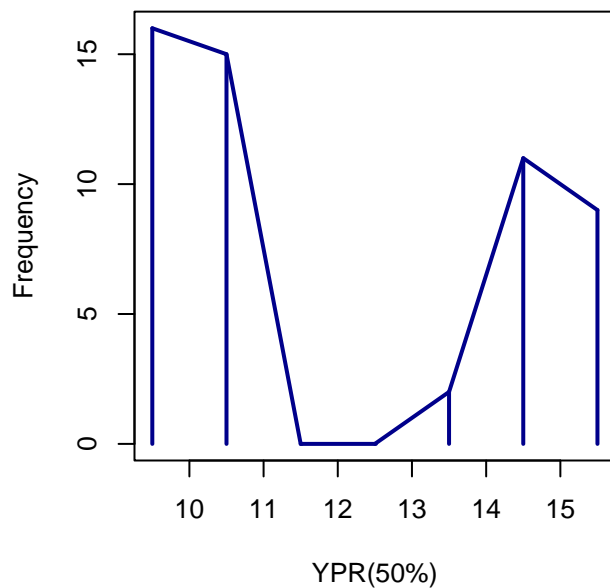
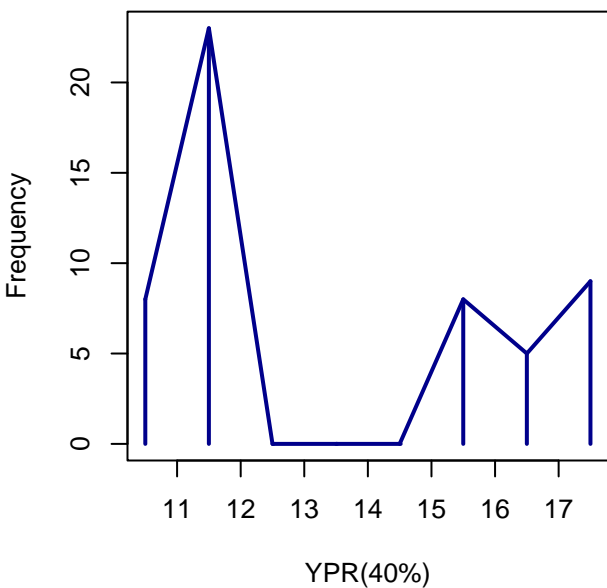
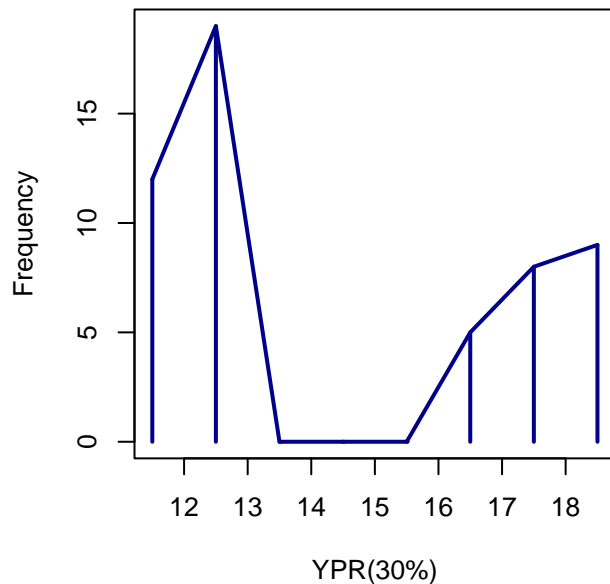
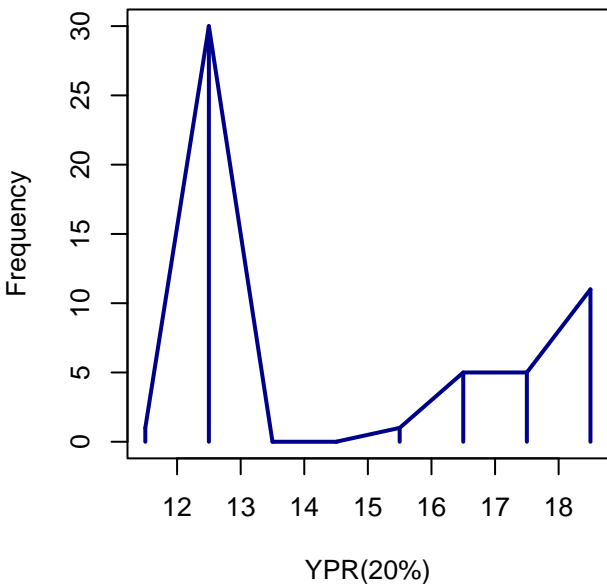


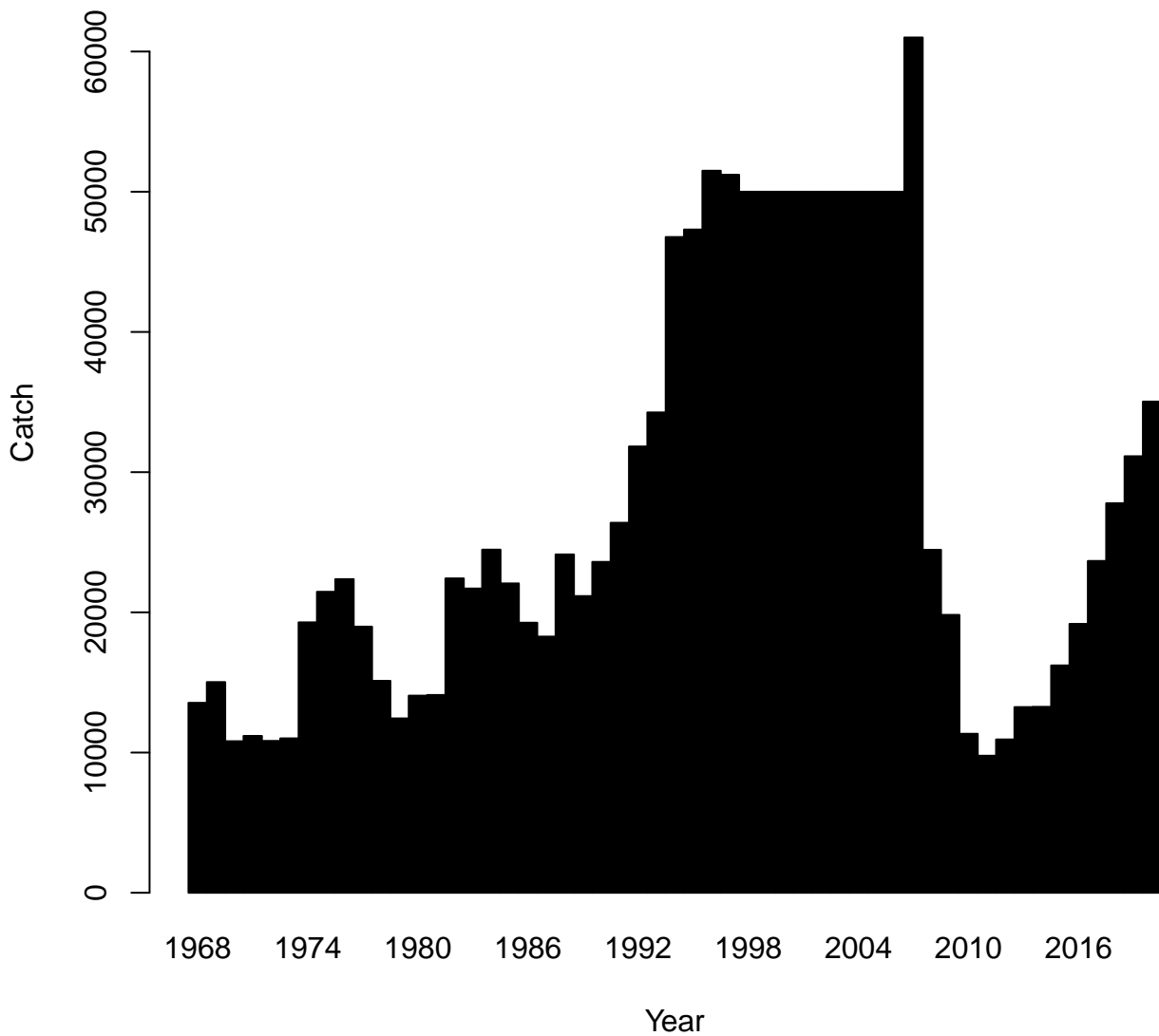
Full F40%



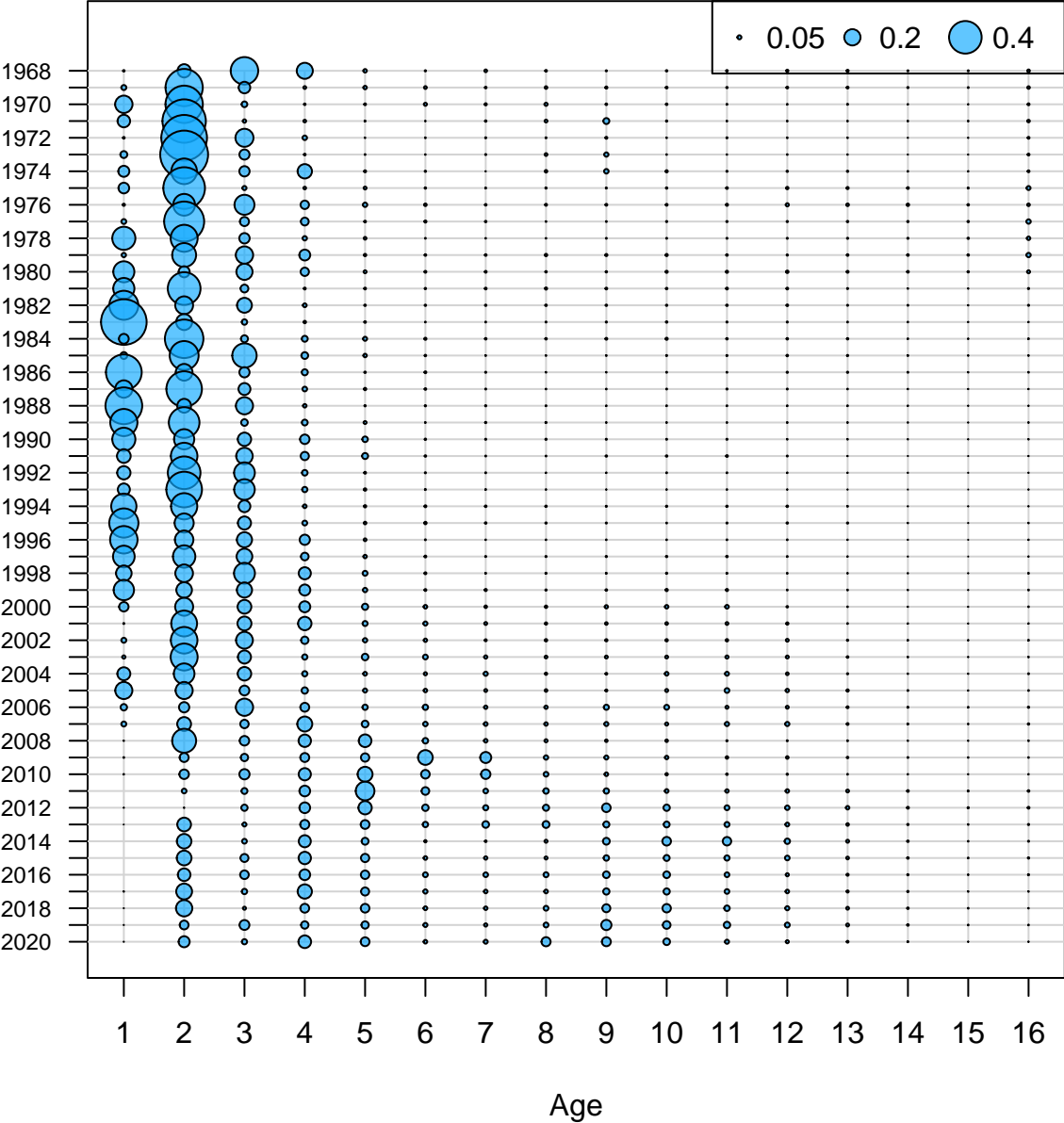
Full F50%

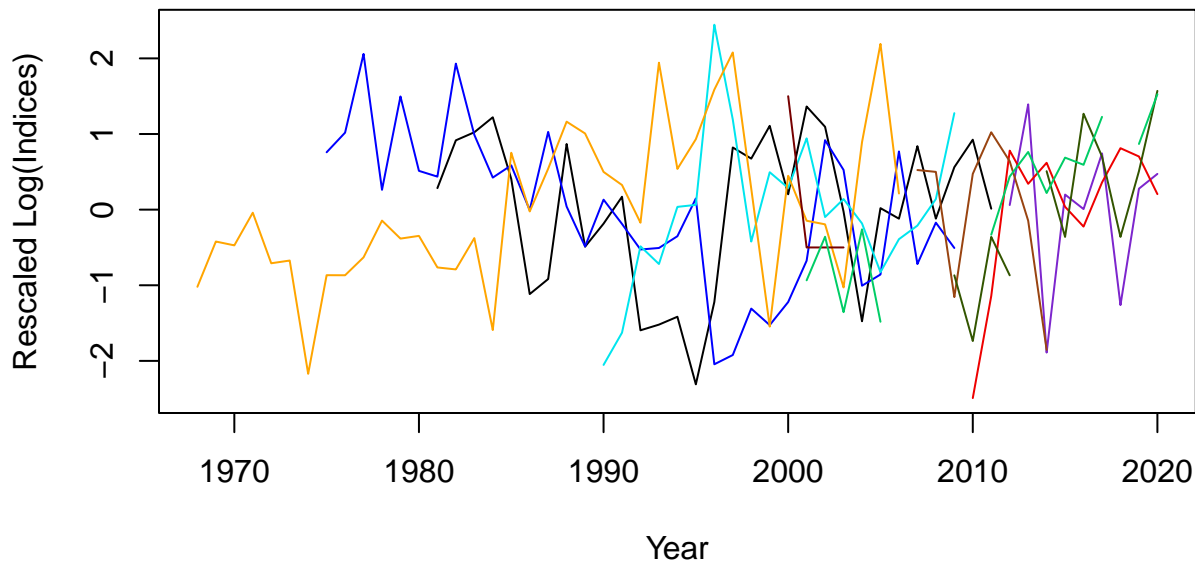
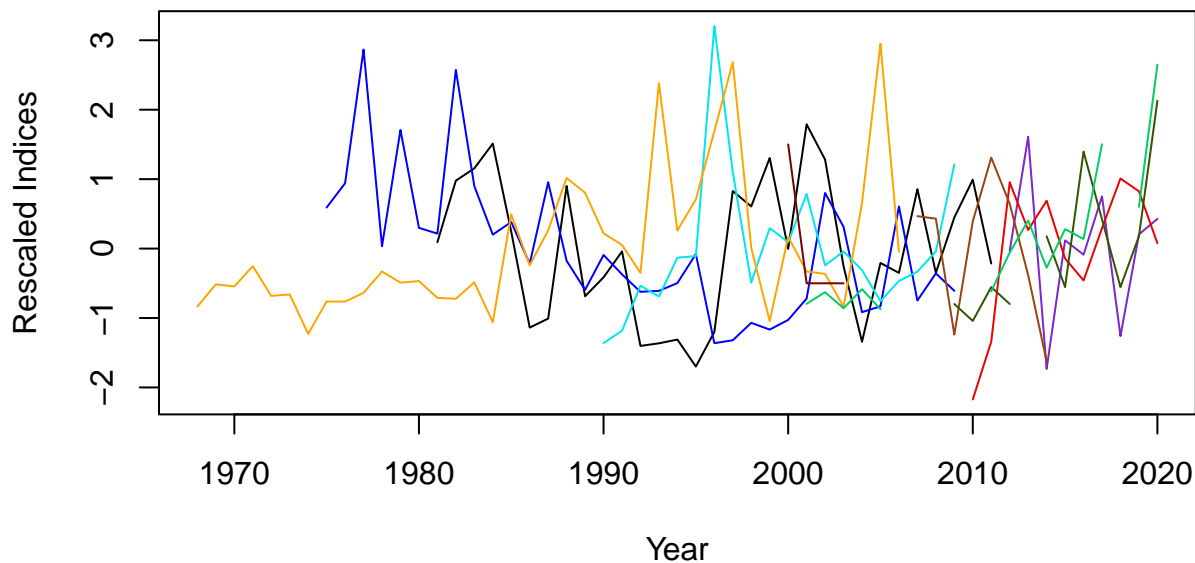
Annual YPR (%SPR) Reference Points



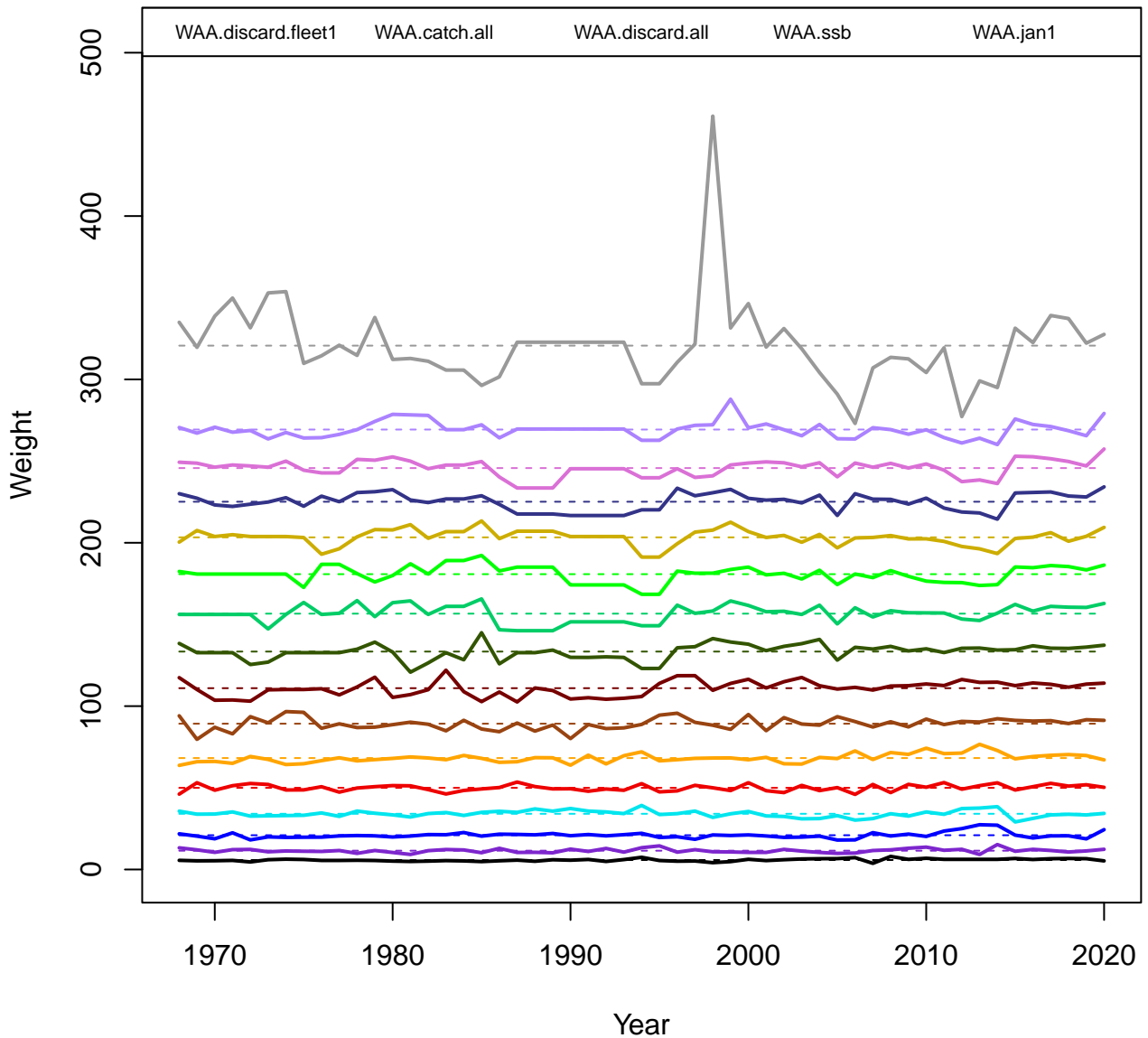


Age Comps for Catch by Fleet 1 (FLEET-1)

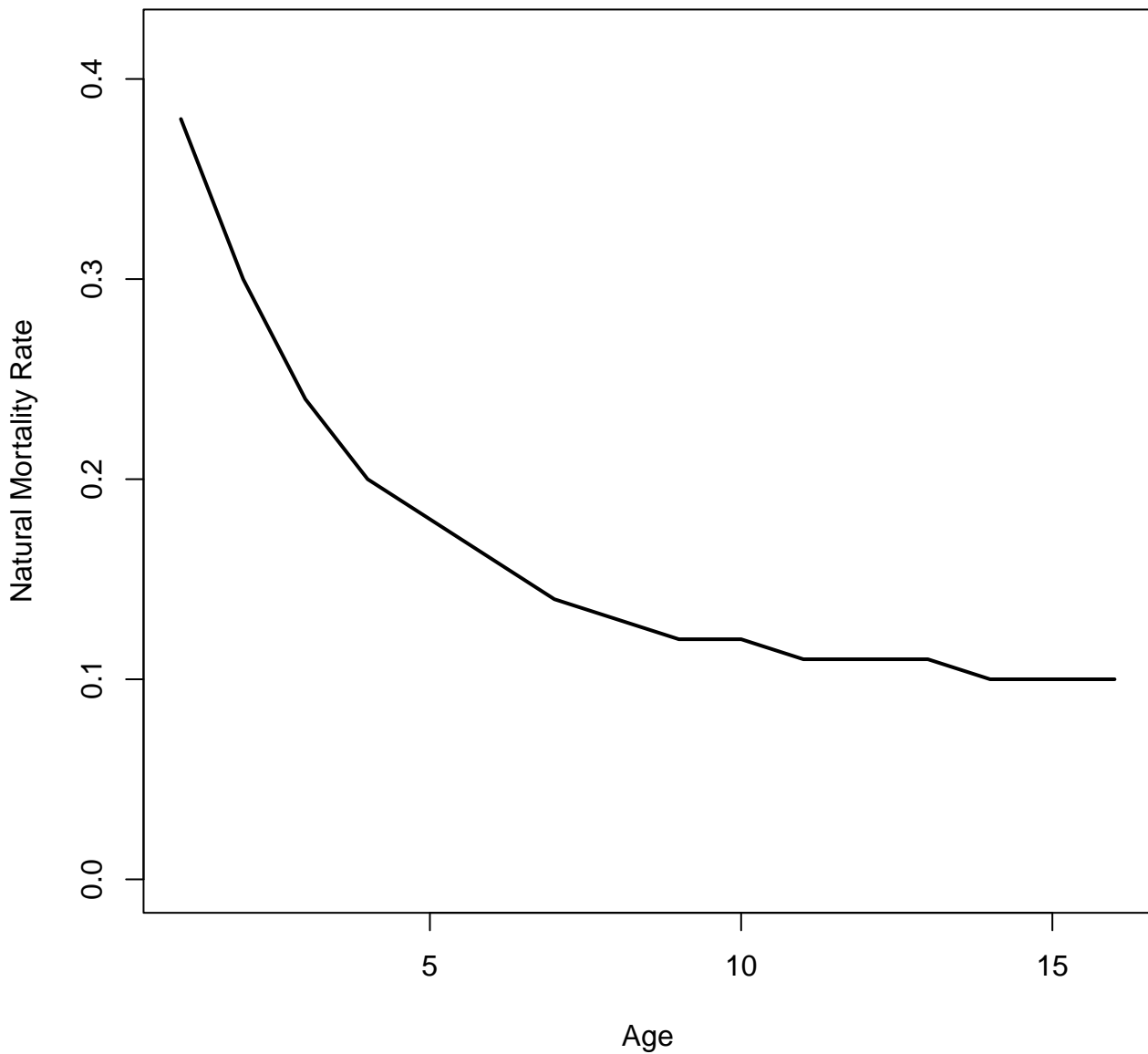




WAA matrix 1



M



Maturity

