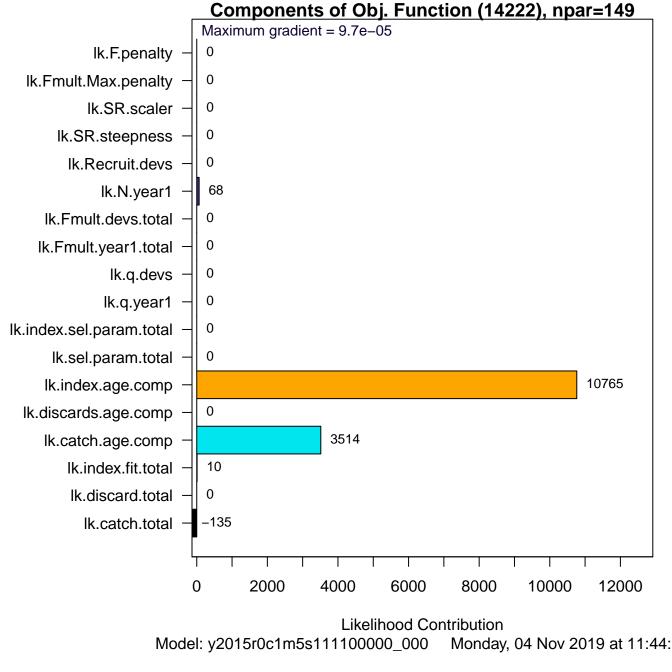
File = y2015r0c1m5s111100000_000.dat

ASAP3 run on Monday, 04 Nov 2019 at 11:44:12

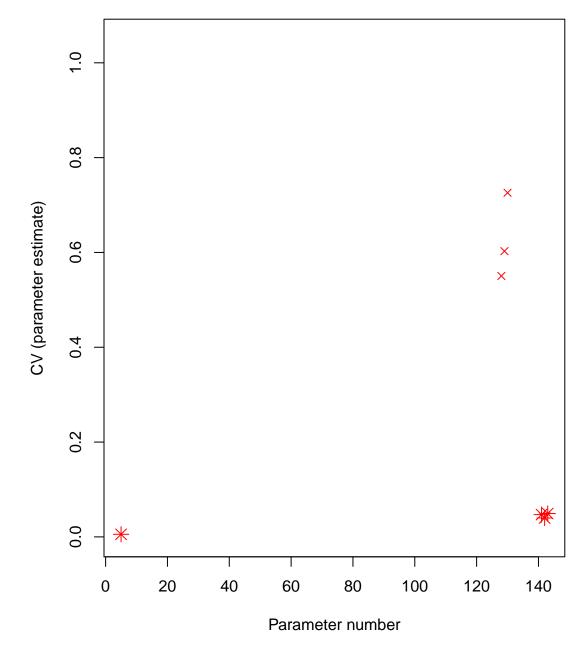
chris.legault\Documents\Working\ICES-WKFORBIAS 2019\WhiteHake\Rose\v

ASAPplots version = 0.2.14

npar = 149, maximum gradient = 9.66776e-005



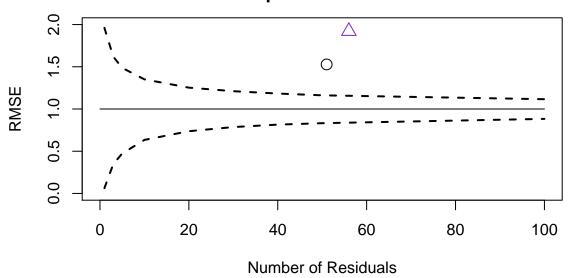




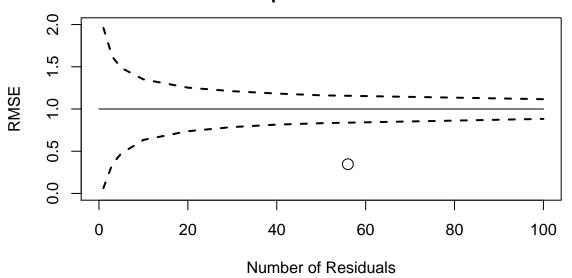
Root Mean Square Error computed from Standardized Residuals

Component	# resids	RMSE
catch.tot	56	0.347
discard.tot	0	0
ind01	51	1.53
ind02	56	1.92
ind.total	107	1.74
N.year1	8	0.741
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

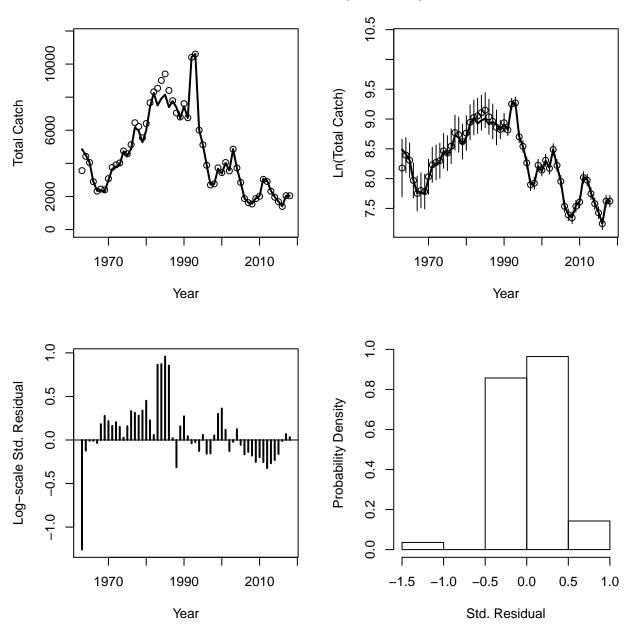
Root Mean Square Error for Indices

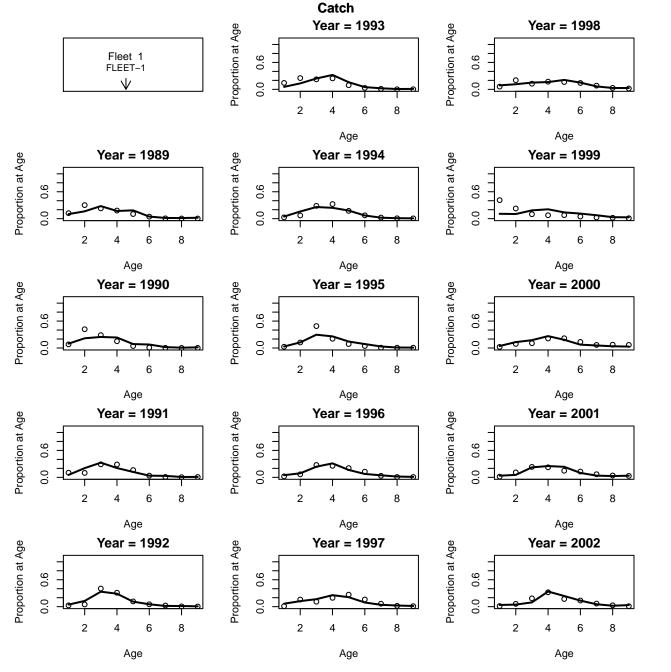


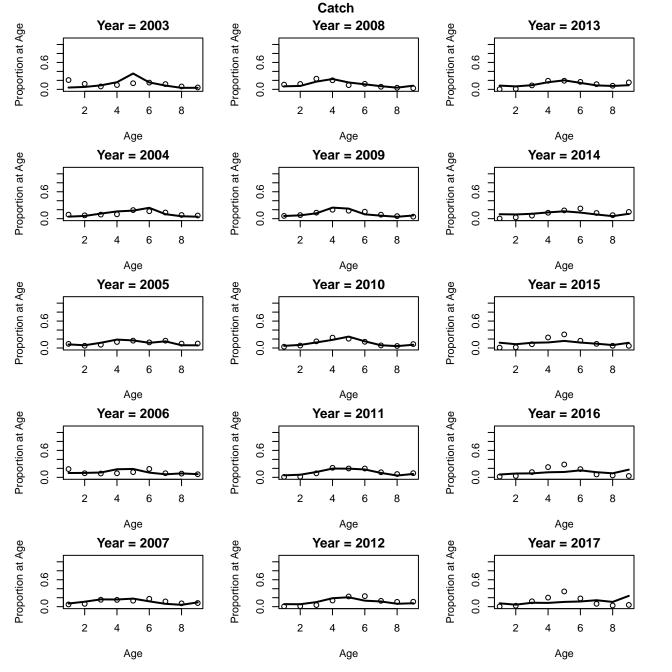
Root Mean Square Error for Catch



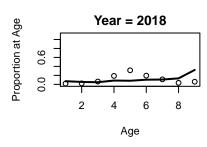
Fleet 1 Catch (FLEET-1)



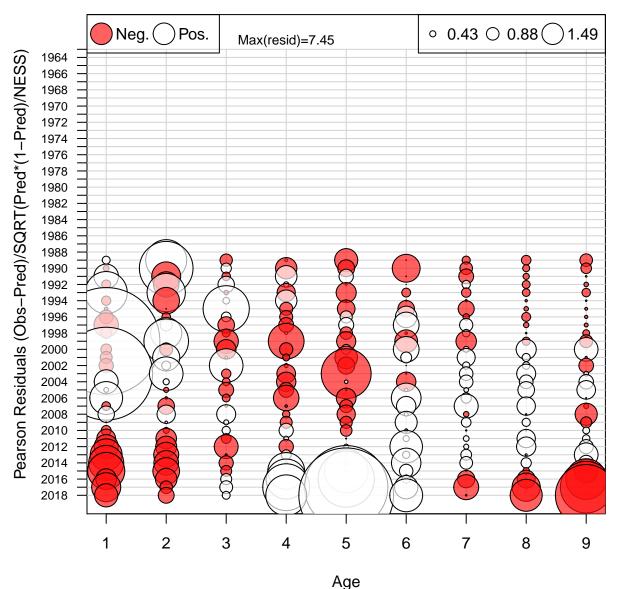




Catch

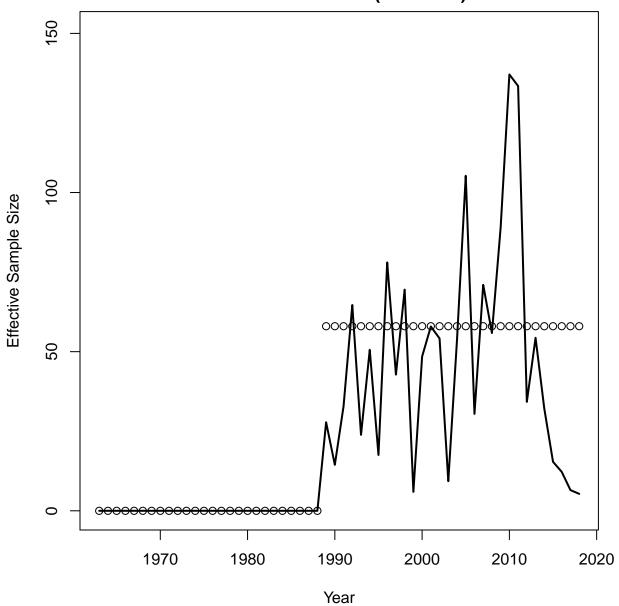


Age Comp Residuals for Catch by Fleet 1 (FLEET-1)

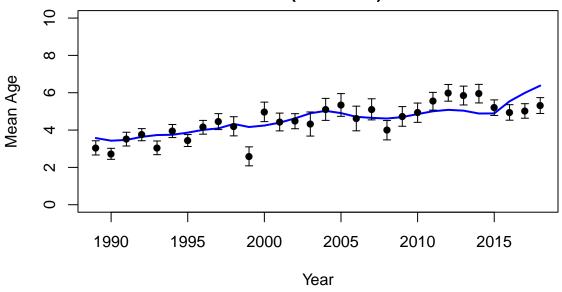


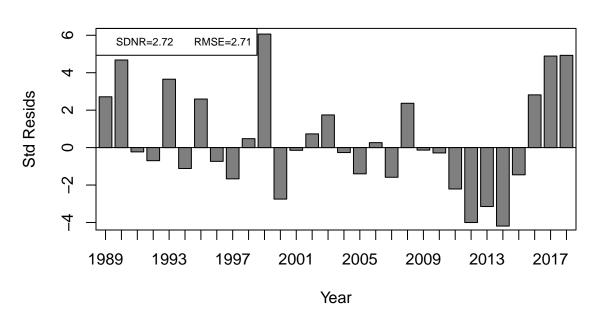
Mean resid = 0.04 SD(resid) = 1.53

Catch Neff Fleet 1 (FLEET-1)

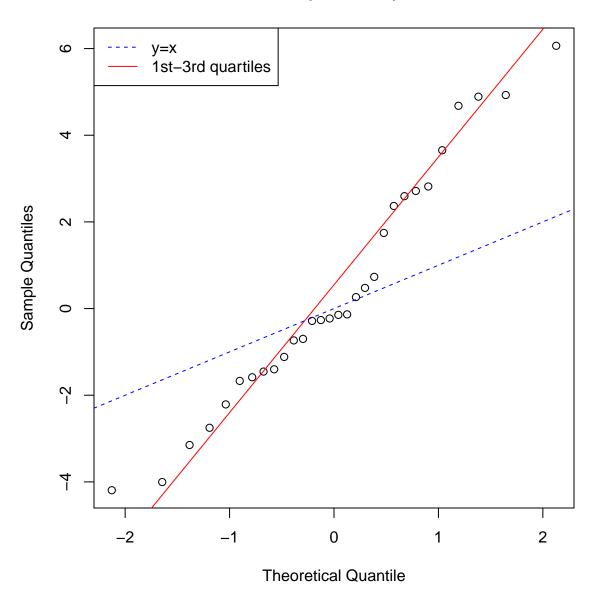


Catch Fleet 1 (FLEET-1) ESS = 58

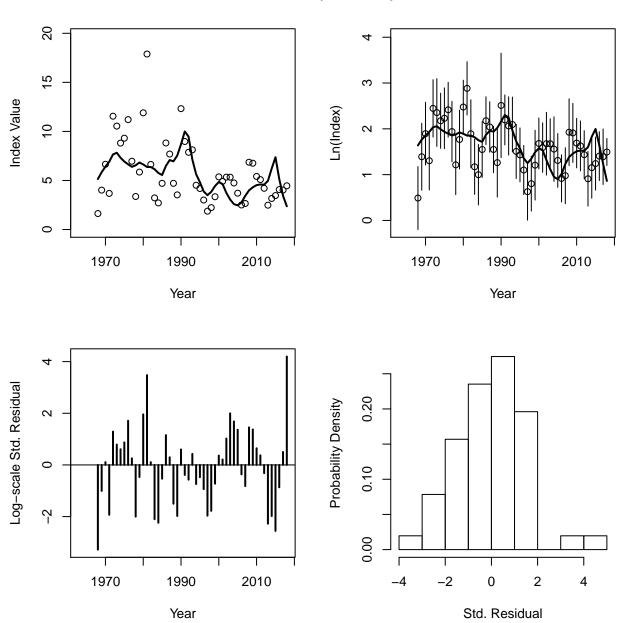




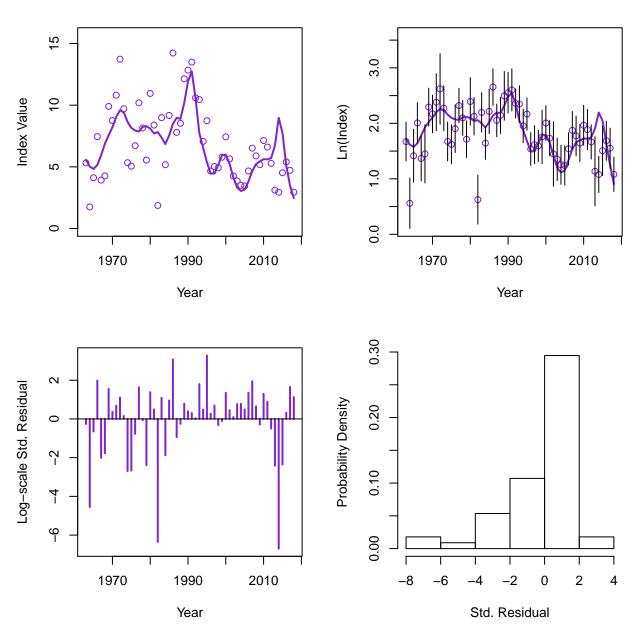
Catch Fleet 1 (FLEET-1) ESS = 58



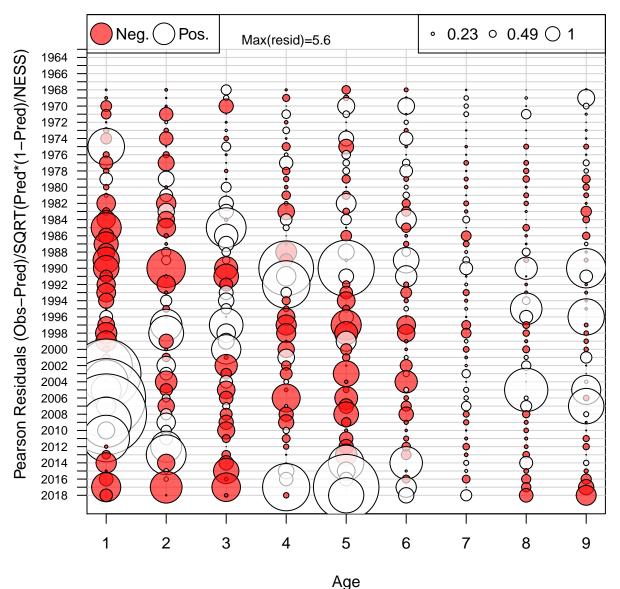
Index 1 (INDEX-1)



Index 2 (INDEX-2)

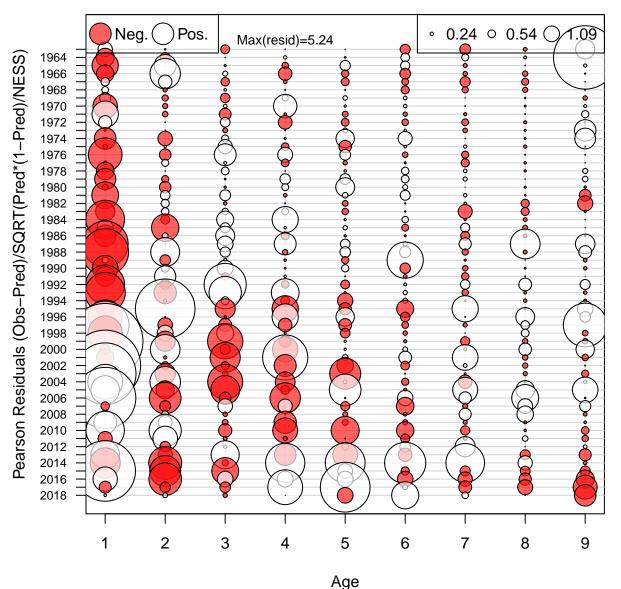


Age Comp Residuals for Index 1 (INDEX-1)



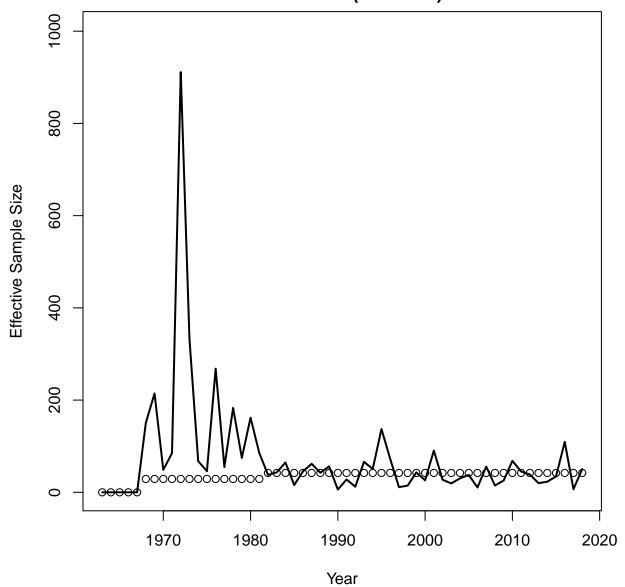
Mean resid = 0.04 SD(resid) = 1.1

Age Comp Residuals for Index 2 (INDEX-2)

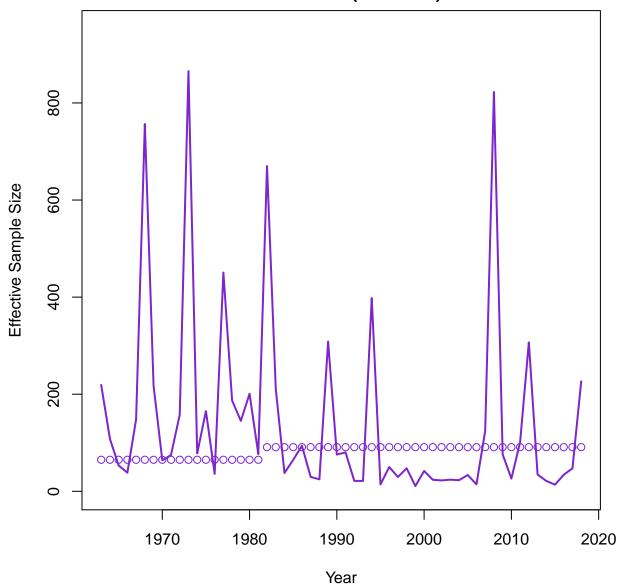


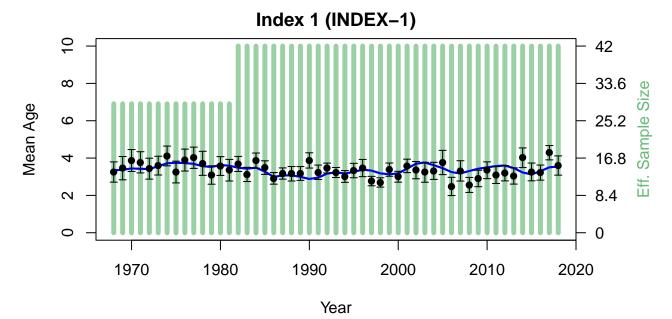
Mean resid = 0.04 SD(resid) = 1.16

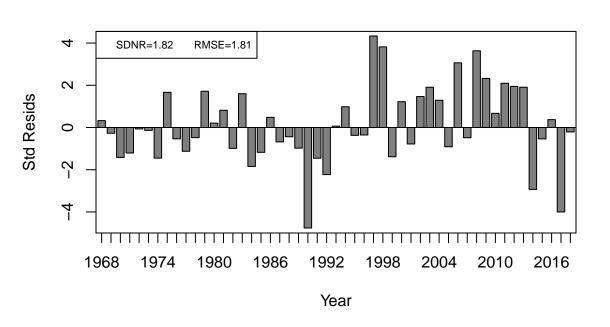
Index Neff 1 (INDEX-1)



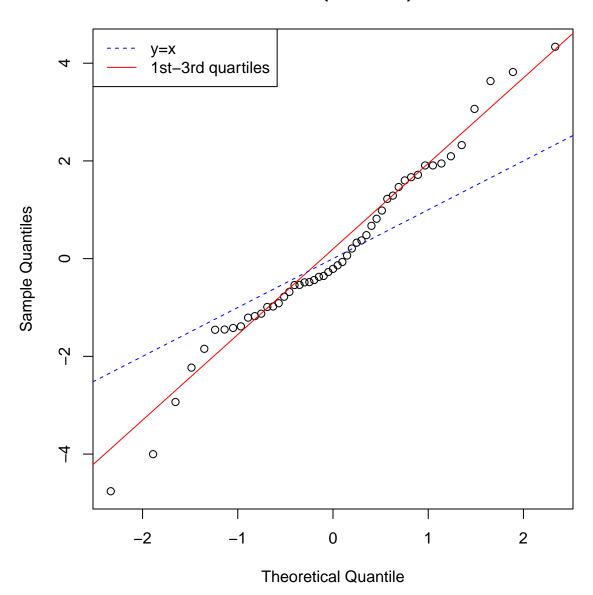
Index Neff 2 (INDEX-2)

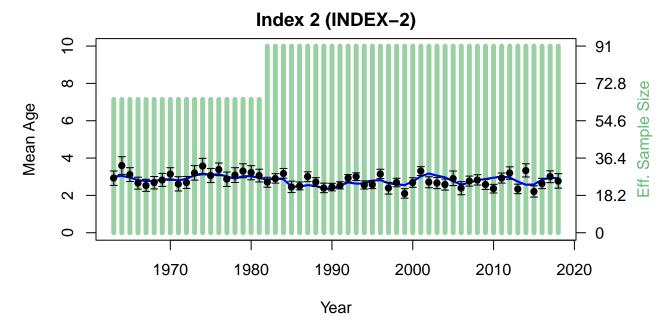


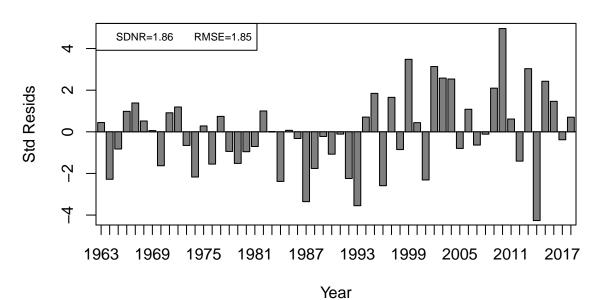




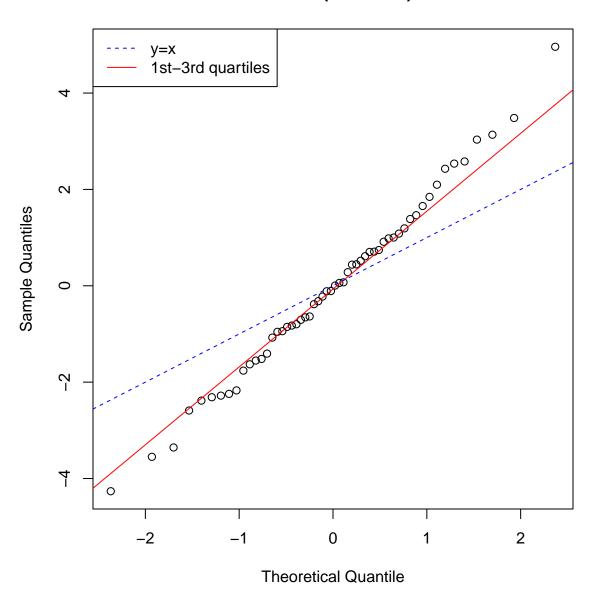
Index 1 (INDEX-1)



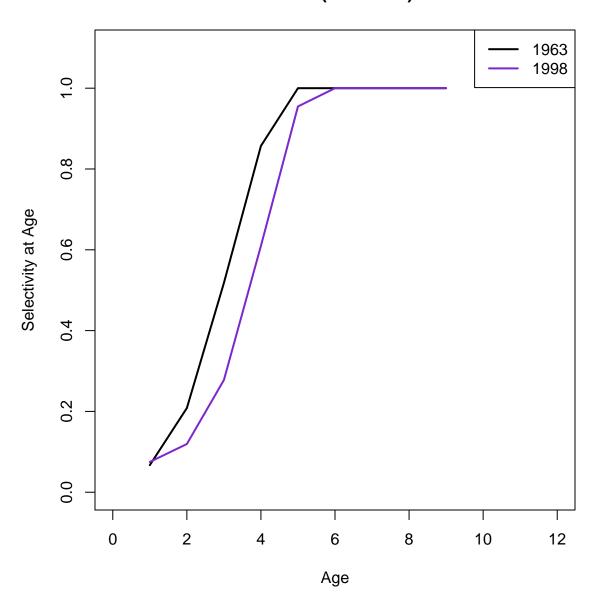


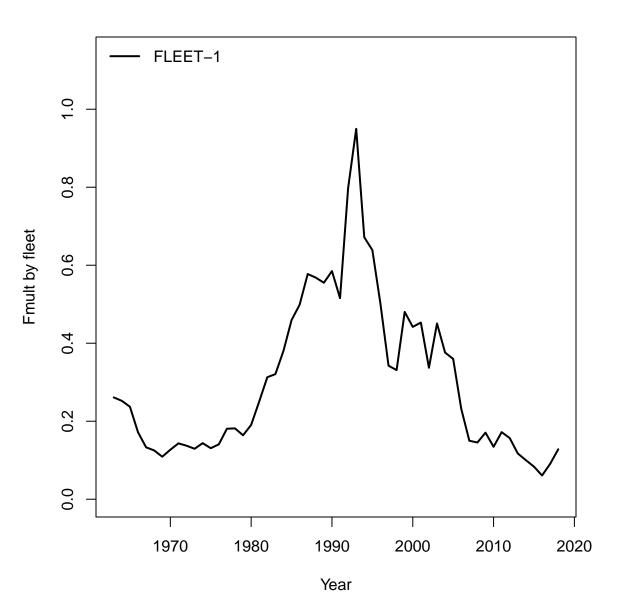


Index 2 (INDEX-2)

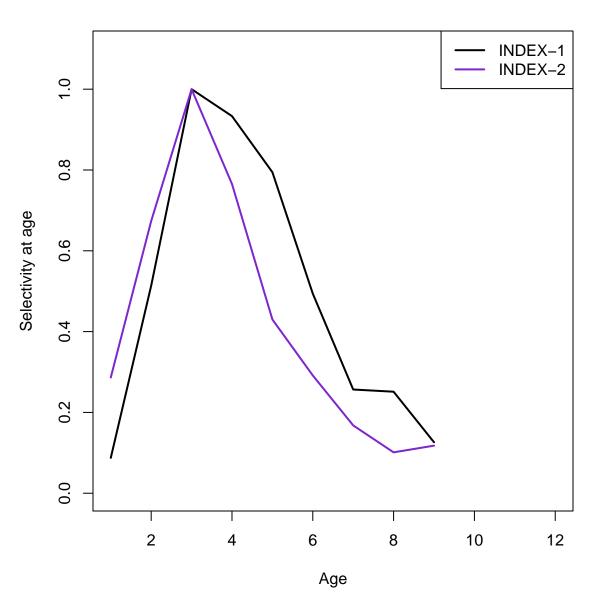


Fleet 1 (FLEET-1)

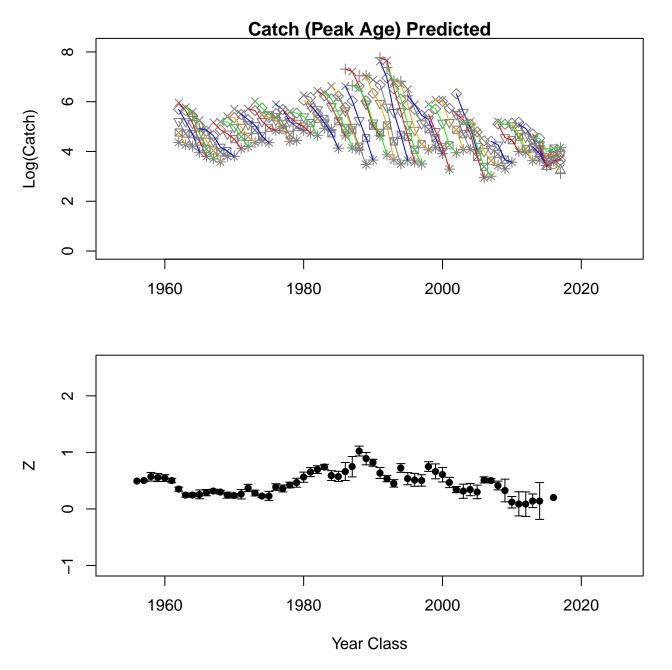




Indices

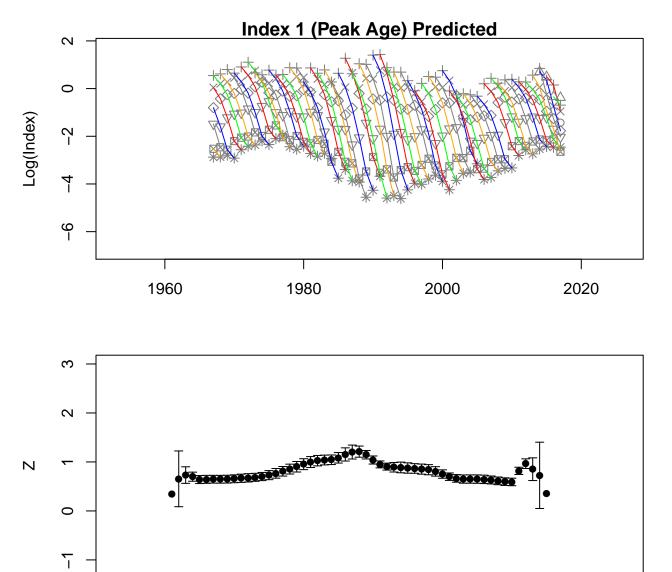




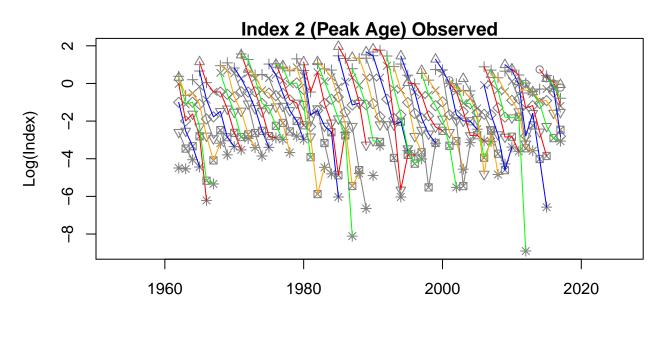


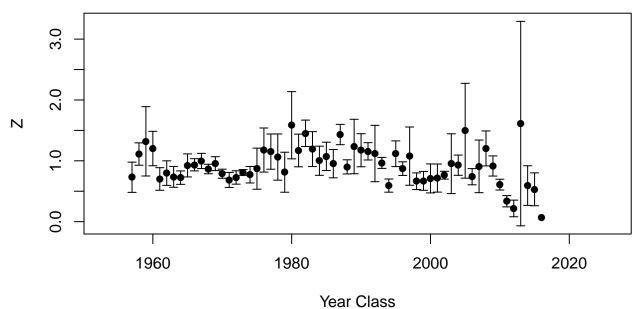


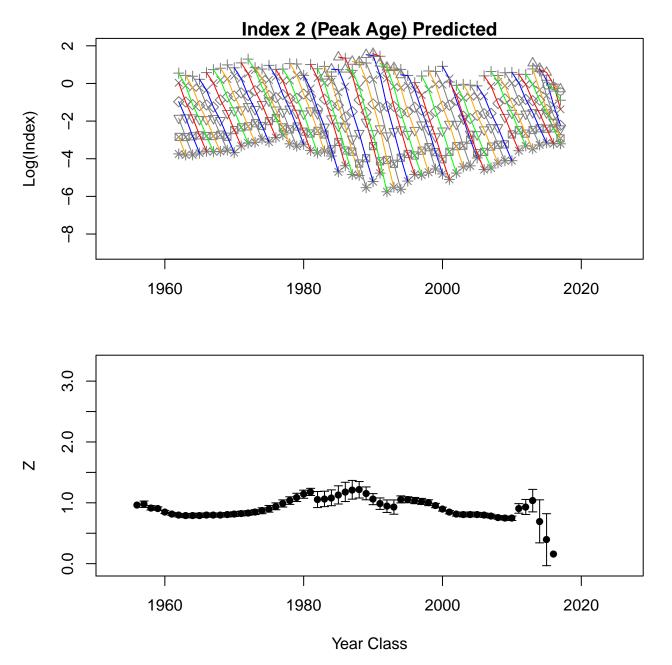




Year Class







Catch Observed

			Cat	.cii Obsei ve	u			
			800		80000000000000000000000000000000000000		0 0000 0 0000 0 0000	age-9
00000 00000	9000 90000	0000	80000000000000000000000000000000000000			000000	age-8	0.55
	0000	00000	08 08	00000		age–7	0.48	0.25
	0000				age-6	0.38	0.00	-0.21
8000	0000	8 9 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		age-5	0.70	0.26	-0.14	-0.46
			age-4	0.90	0.79	0.32	-0.16	-0.44
	\$ 0 °	age-3	0.91	0.79	0.70	0.30	0.01	-0.40
	age-2	0.81	0.76	0.61	0.63	0.20	0.14	-0.32
age-1	0.69	0.72	0.59	0.30	0.34	0.12	0.03	-0.13

\$6 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2	B		00000000000000000000000000000000000000	0	68000 680000 68000000000000000000000000			age-9
	60000000000000000000000000000000000000						age-8	0.73
\$ 000000000000000000000000000000000000			8 000000000000000000000000000000000000			age-7	0.82	0.37
					age-6	0.84	0.49	-0.01
8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	80 00 B			age-5	0.90	0.63	0.23	-0.30
	000 000		age-4	0.95	0.82	0.53	0.13	-0.38
		age-3	0.96	0.87	0.74	0.46	0.07	-0.39
	age-2	0.97	0.90	0.80	0.67	0.38	0.00	-0.49
age-1	0.89	0.80	0.72	0.64	0.50	0.19	-0.22	-0.70

Catch Predicted

	0000				8 6092			age-9
				0000 0000 0000000000000000000000000000	- 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		age-8	0.31
00000		\$ 0.000 BD	- 00000 00000 00000 00000 00000			age–7	0.24	0.31
					age–6	0.48	0.11	0.12
		90000000000000000000000000000000000000		age-5	0.57	0.23	0.01	0.25
			age-4	0.45	0.14	0.00	0.22	0.37
	8000 8000 8000 8000	age-3	0.54	0.14	0.01	0.06	-0.08	0.16
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	age-2	0.45	0.24	0.04	-0.05	0.03	-0.32	-0.07
age-1	-0.04	-0.28	-0.33	-0.14	0.13	0.20	-0.07	-0.34

Index 1 (INDEX-1) Observed

Index 1 (INDEX-1) Predicted

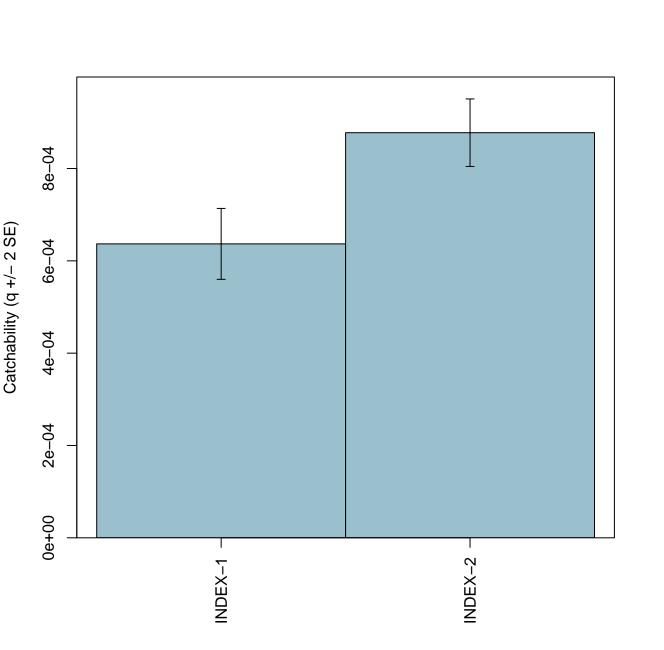
	000000000000000000000000000000000000000			0000		•8 •	O TO THE OWNER OF THE OWNER OWNER OF THE OWNER	age-9
			8 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 8 8 8 8 8 8 8 8 8			age-8	0.96
\$ 000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	\$ 600 G				age-7	0.98	0.91
60000000000000000000000000000000000000	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	6 60 6	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		age-6	0.96	0.89	0.78
				age-5	0.90	0.74	0.63	0.47
	0		age-4	0.88	0.61	0.39	0.24	0.07
	000	age-3	0.88	0.61	0.34	0.13	-0.02	-0.19
	age-2	0.91	0.68	0.42	0.24	0.02	-0.12	-0.29
age-1	0.92	0.74	0.53	0.38	0.21	-0.01	-0.16	-0.33

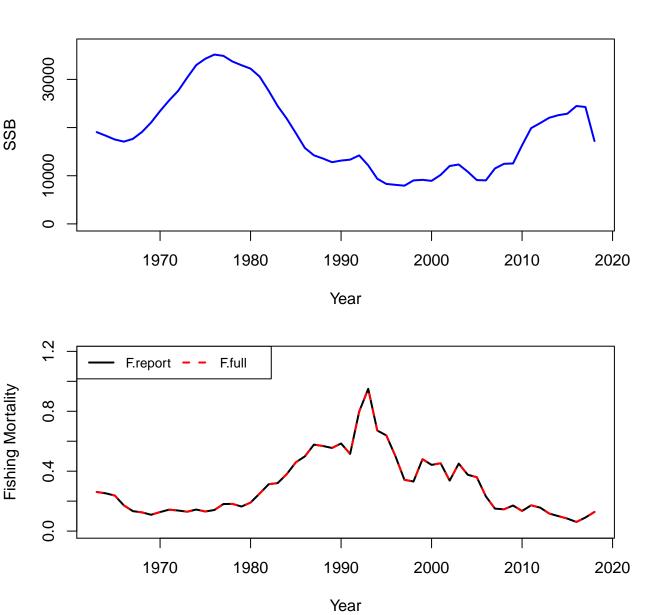
Index 2 (INDEX-2) Observed

(a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000000000000000000000000000000000000		0000		800	age-9
0000				0000		08°8	age-8	0.54
00000000000000000000000000000000000000		○ ○ ○ ○ ○ ○ ○ ○ ○ ○		0 80	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	age–7	0.02	0.19
					age-6	0.23	0.00	0.27
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	00000000000000000000000000000000000000	0000000 000000000000000000000000000000		age-5	0.33	0.10	0.35	0.31
8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	8 8 0 8 0		age-4	0.19	0.06	-0.10	0.22	0.09
00000000000000000000000000000000000000		age-3	0.55	0.01	0.03	0.06	-0.15	0.08
	age-2	0.56	0.37	0.11	-0.11	-0.13	0.14	0.18
age–1	0.34	0.03	0.23	0.02	-0.28	0.16	0.12	0.17

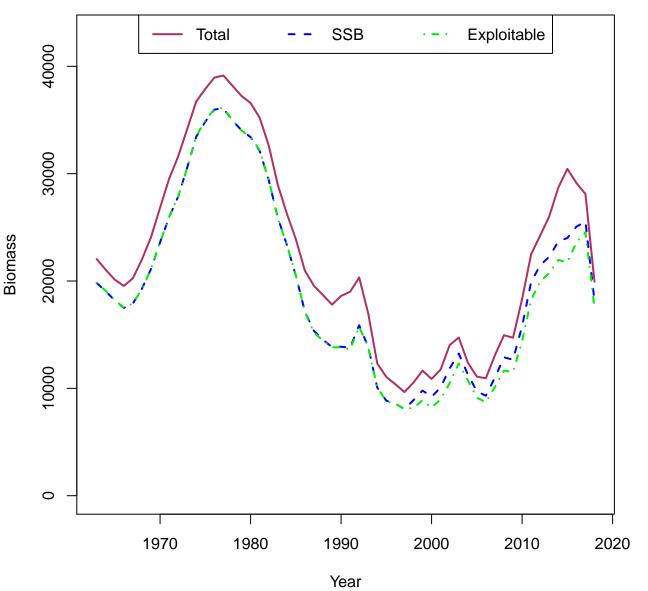
	00000	0000	(C)	8 0000	0		O CO	age-9
			0000 0000 0000 0000	6		S. S	age-8	0.97
60 80 80 80 80 80 80 80 80 80 80 80 80 80		66 0 0 0 0				age-7	0.99	0.94
\$ 80 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				age-6	0.97	0.92	0.84
		800		age-5	0.93	0.82	0.74	0.62
8	0		age-4	0.90	0.65	0.47	0.36	0.20
8	00	age-3	0.86	0.61	0.31	0.12	-0.01	-0.16
8	age-2	0.90	0.60	0.36	0.12	-0.05	-0.17	-0.32
age-1	0.91	0.70	0.39	0.24	0.07	-0.11	-0.22	-0.36

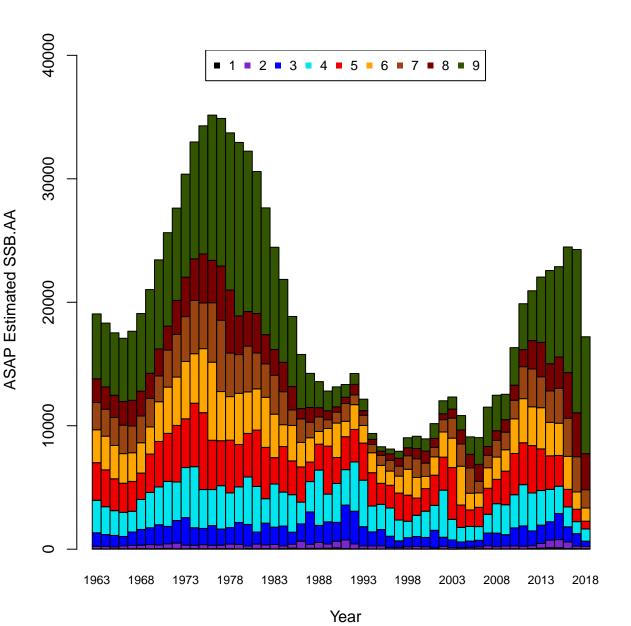
Index 2 (INDEX-2) Predicted

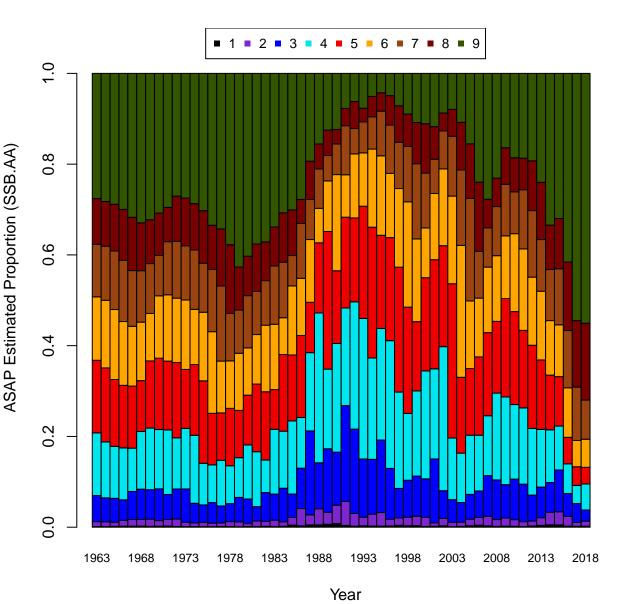


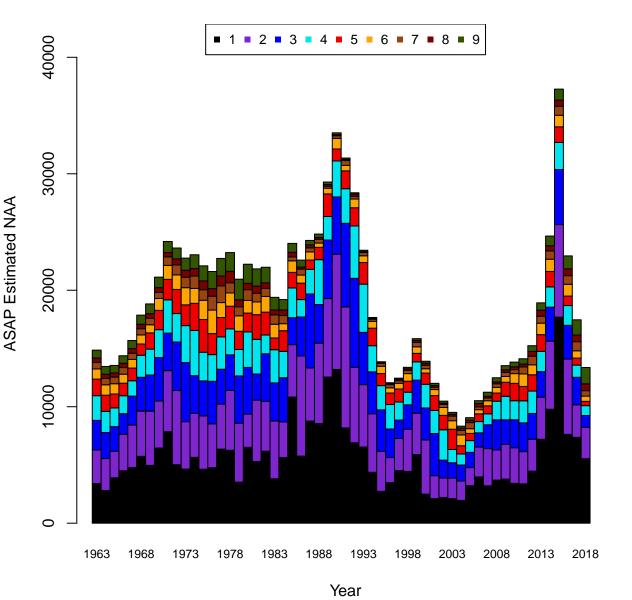


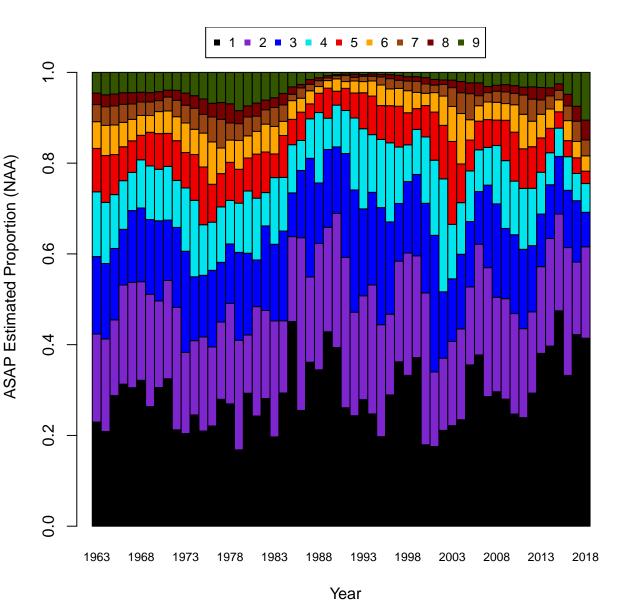
Comparison of January 1 Biomass

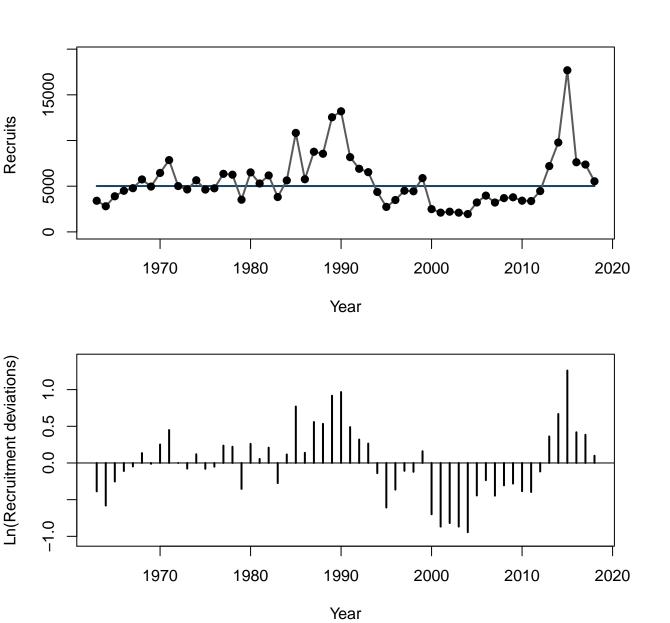


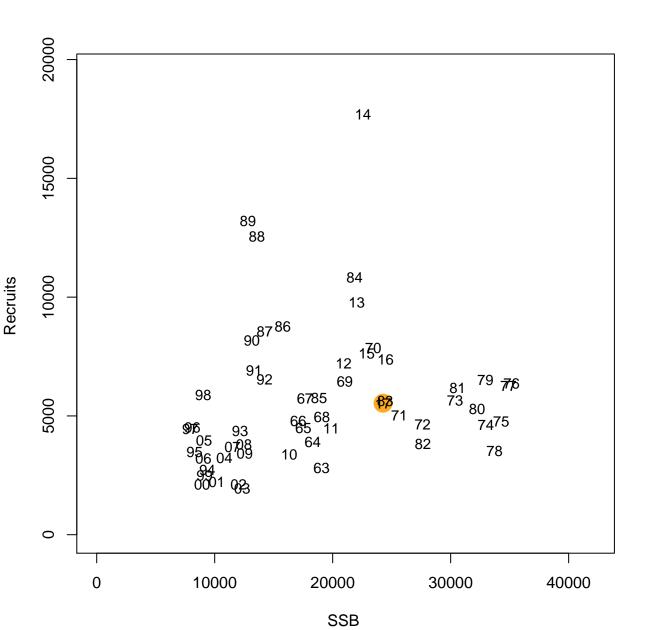


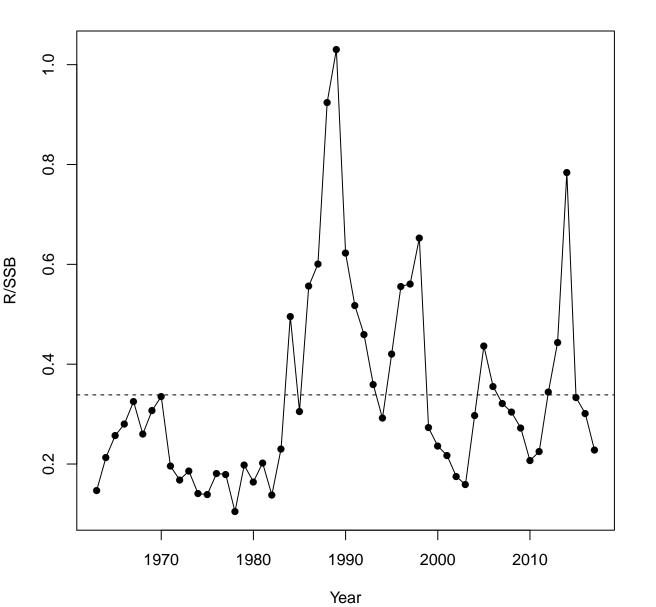


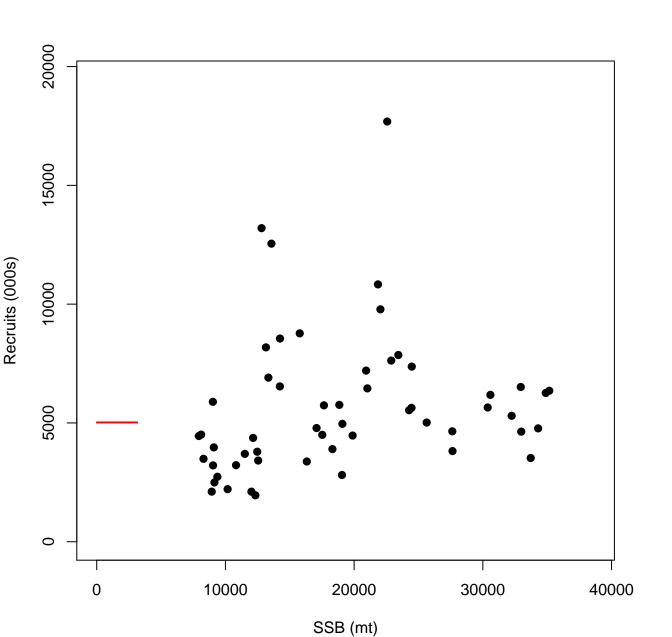


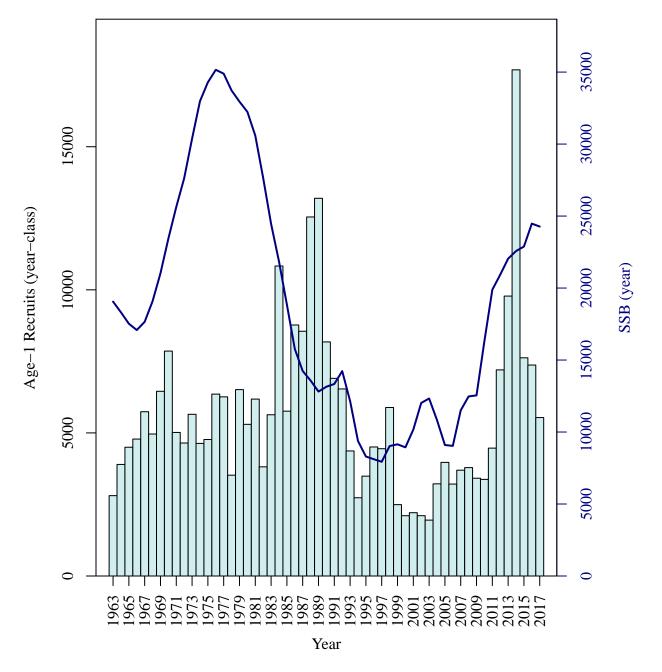


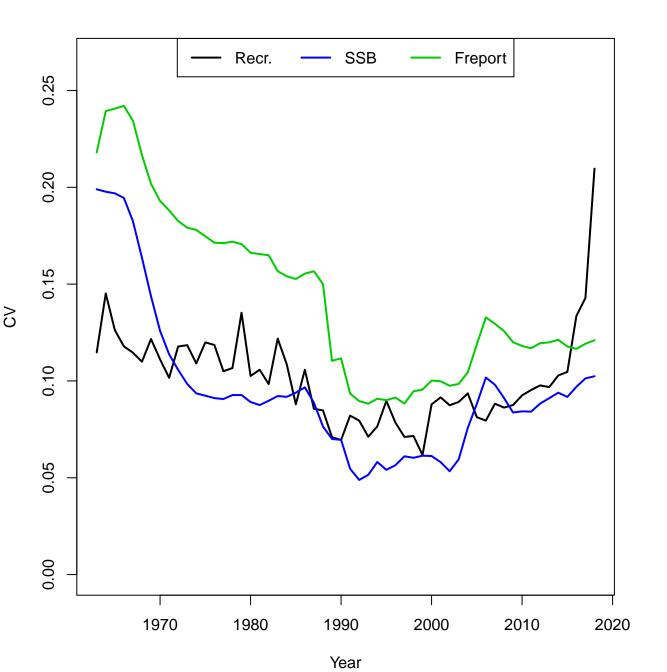




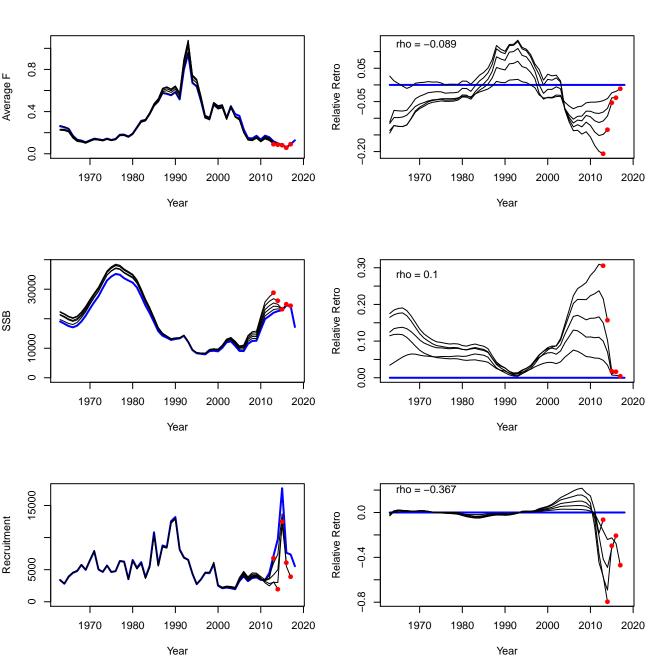




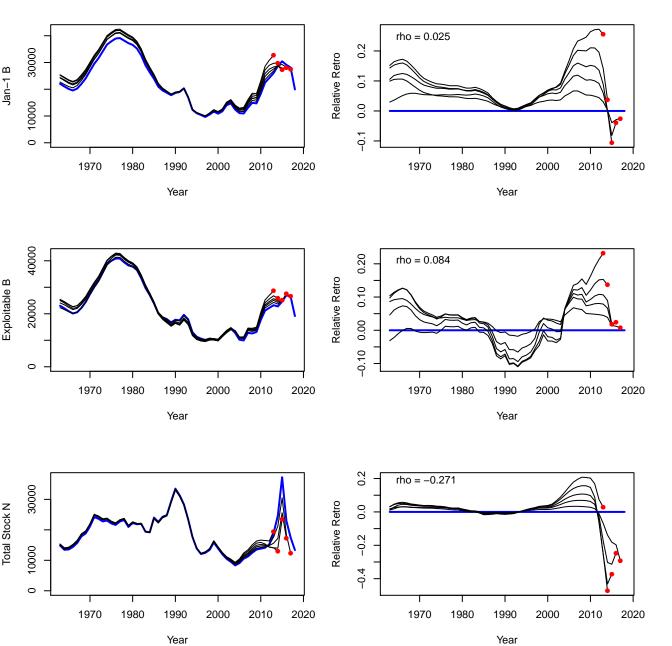




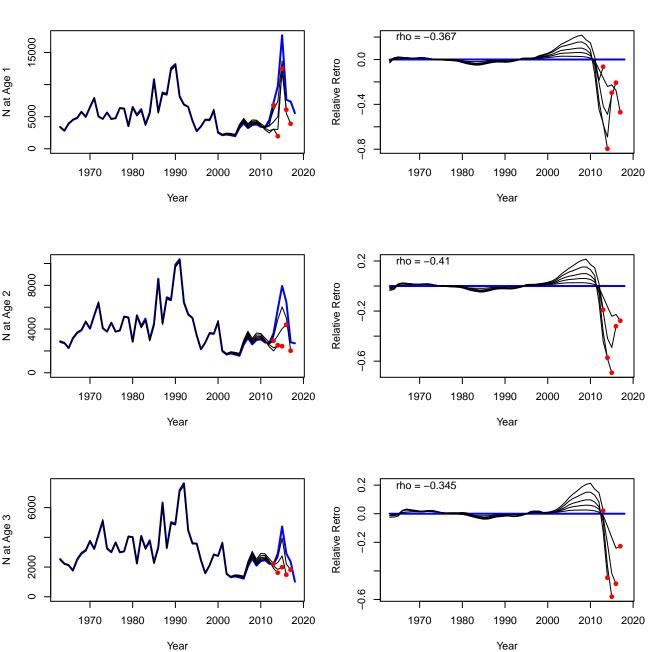
F, SSB, R



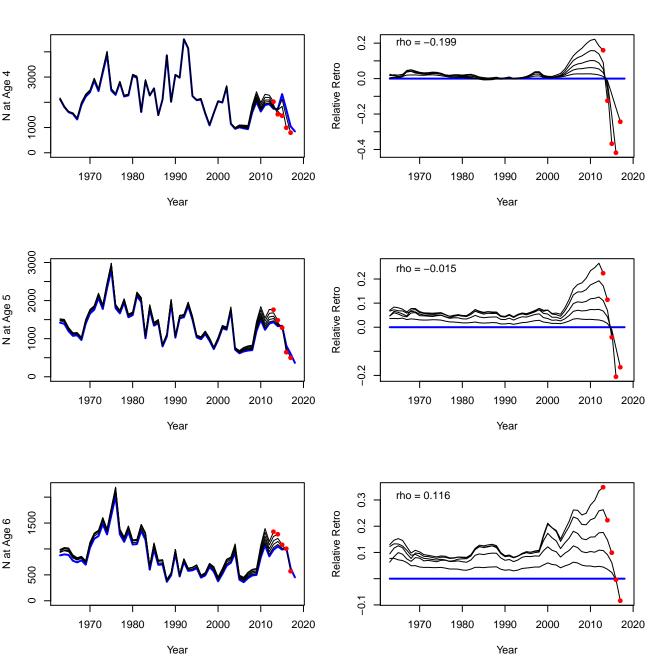
Jan-1 B, Exploitable B, Total Stock N



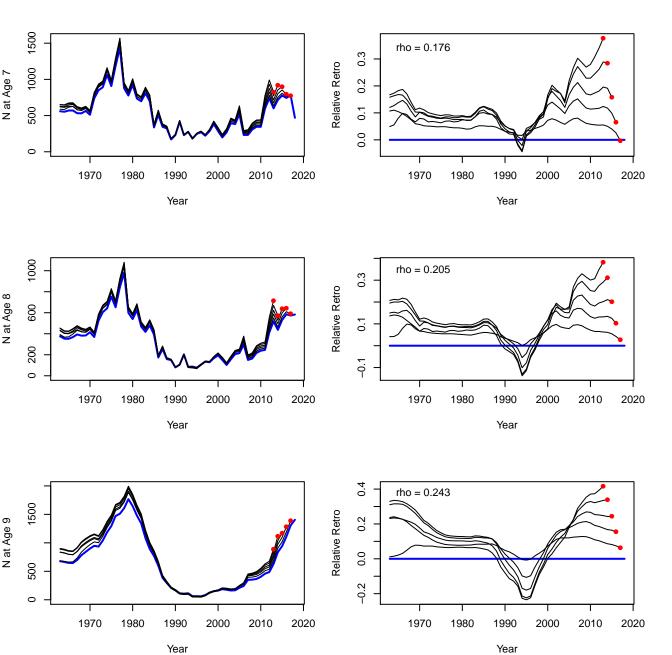
Stock Numbers at Age



Stock Numbers at Age



Stock Numbers at Age

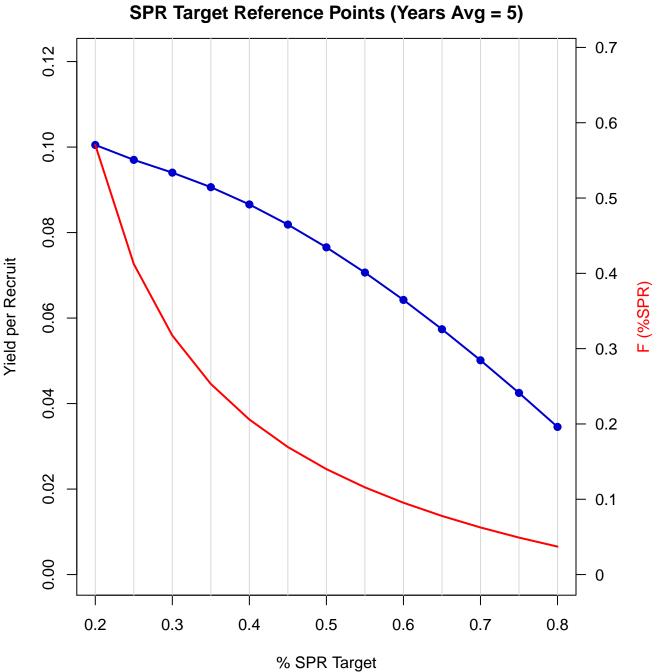


YPR-SPR Reference Points (Years Avg = 5) 0.15 0.9 8.0 0.10 Yield per Recruit 0.7 0.6 0.5 0.05 0.4 0.3 0.2 0.1 0.00 0 0.0 0.5 1.0 1.5 2.0

Full F

YPR-SPR Reference Points (Years Avg = 5)

F	YPR	SPR	F	YPR	SPR	F	YPR	SPR
0	0	1	0.35	0.0952	0.2803	0.7	0.1033	0.1748
0.01	0.0111	0.9383	0.36	0.0955	0.2749	0.71	0.1035	0.1732
0.02	0.0207	0.8829	0.37	0.0959	0.2697	0.72	0.1037	0.1716
0.03	0.0291	0.8329	0.38	0.0961	0.2647	0.73	0.104	0.1701
0.04	0.0365	0.7877	0.39	0.0964	0.2599	0.74	0.1042	0.1686
0.05	0.043	0.7466	0.4	0.0967	0.2554	0.75	0.1044	0.1672
0.06	0.0488	0.7091	0.41	0.0969	0.251	0.76	0.1046	0.1658
0.07	0.0538	0.6748	0.42	0.0972	0.2468	0.77	0.1049	0.1644
0.08	0.0583	0.6434	0.43	0.0974	0.2428	0.78	0.1051	0.163
0.09	0.0623	0.6146	0.44	0.0977	0.2389	0.79	0.1053	0.1617
0.1	0.0658	0.588	0.45	0.0979	0.2352	0.8	0.1055	0.1604
0.11	0.069	0.5634	0.46	0.0981	0.2317	0.81	0.1058	0.1592
0.12	0.0718	0.5407	0.47	0.0984	0.2283	0.82	0.106	0.158
0.13	0.0743	0.5196	0.48	0.0986	0.225	0.83	0.1062	0.1568
0.14	0.0765	0.5001	0.49	0.0988	0.2218	0.84	0.1065	0.1556
0.15	0.0785	0.4819	0.5	0.099	0.2187	0.85	0.1067	0.1544
0.16	0.0804	0.4649	0.51	0.0992	0.2158	0.86	0.1069	0.1533
0.17	0.082	0.449	0.52	0.0994	0.213	0.87	0.1072	0.1522
0.18	0.0834	0.4342	0.53	0.0996	0.2102	0.88	0.1074	0.1511
0.19	0.0847	0.4203	0.54	0.0999	0.2076	0.89	0.1076	0.1501
0.2	0.0859	0.4073	0.55	0.1001	0.205	0.9	0.1079	0.149
0.21	0.087	0.3951	0.56	0.1003	0.2025	0.91	0.1081	0.148
0.22	0.088	0.3836	0.57	0.1005	0.2001	0.92	0.1083	0.147
0.23	0.0889	0.3727	0.58	0.1007	0.1978	0.93	0.1086	0.146
0.24	0.0897	0.3625	0.59	0.1009	0.1955	0.94	0.1088	0.145
0.25	0.0904	0.3529	0.6	0.1011	0.1934	0.95	0.1091	0.1441
0.26	0.0911	0.3438	0.61	0.1013	0.1913	0.96	0.1093	0.1432
0.27	0.0917	0.3352	0.62	0.1015	0.1892	0.97	0.1095	0.1422
0.28	0.0923	0.327	0.63	0.1018	0.1872	0.98	0.1098	0.1413
0.29	0.0928	0.3193	0.64	0.102	0.1853	0.99	0.11	0.1405
0.3	0.0933	0.3119	0.65	0.1022	0.1834	1	0.1102	0.1396
0.31	0.0937	0.305	0.66	0.1024	0.1816	1.01	0.1105	0.1387
0.32	0.0941	0.2984	0.67	0.1026	0.1798	1.02	0.1107	0.1379
0.33	0.0945	0.292	0.68	0.1028	0.1781	1.03	0.1109	0.1371
0.34	0.0949	0.286	0.69	0.1031	0.1764	1.04	0.1112	0.1362



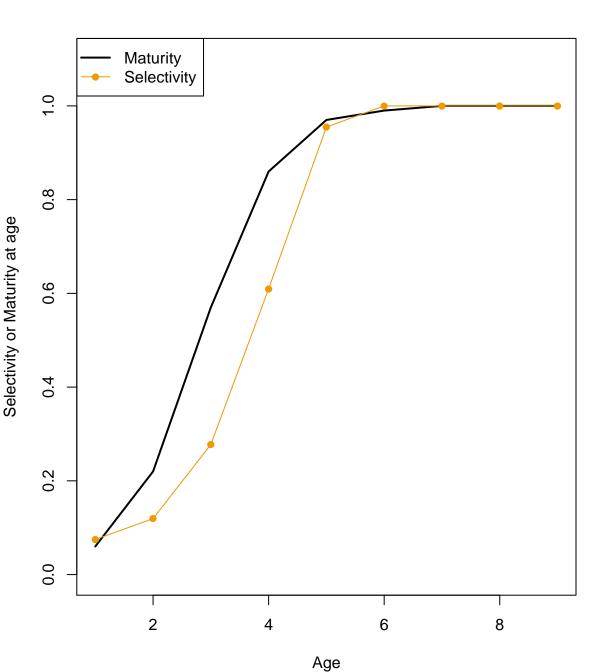
SPR Target Reference Points (Years Avg = 5)

% SPR	F(%SPR)	YPR
0.2	0.5705	0.1005
0.25	0.4123	0.097
0.3	0.3175	0.094
0.35	0.2531	0.0906
0.4	0.2059	0.0866
0.45	0.1694	0.0819
0.5	0.14	0.0765
0.55	0.1158	0.0707
0.6	0.0954	0.0642
0.65	0.0778	0.0574
0.7	0.0626	0.0501
0.75	0.0491	0.0425

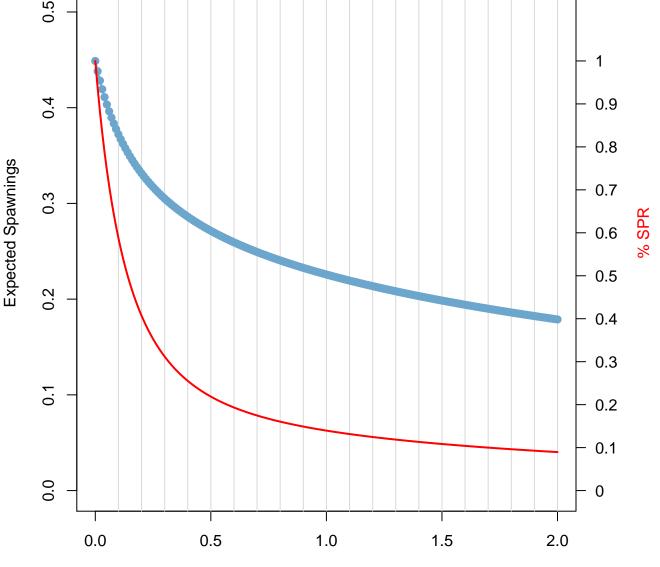
0.0345

8.0

0.0372



Expected Spawnings and SPR Reference Points (Years Avg = 5) 0.5

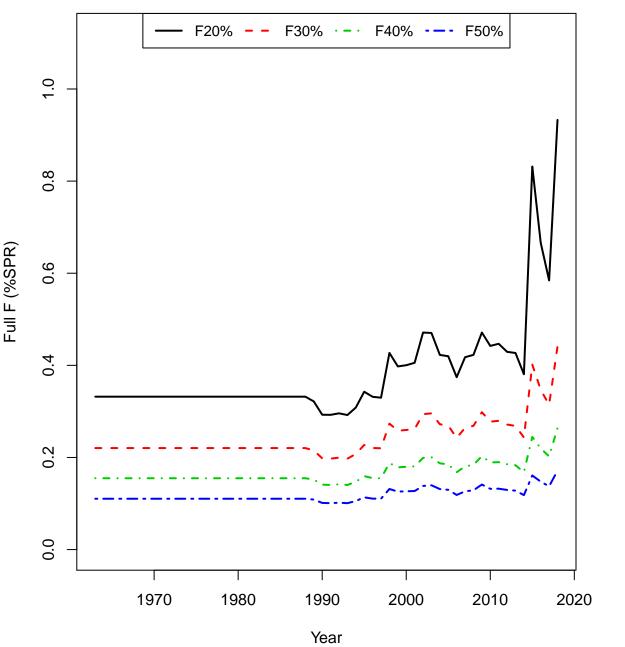


Full F

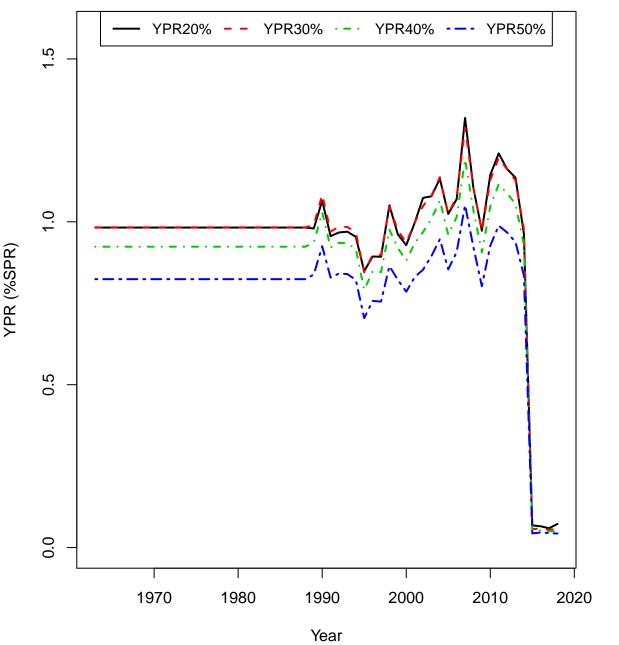
Expected Spawnings & SPR Reference Points (Years Avg = 5)

F 0	E[Sp] 0.4488	SPR	F 0.35	E[Sp] 0.2949	SPR 0.2803	F 0.7	E[Sp] 0.2492	SPR 0.1748
0.01	0.4381	0.9383	0.36	0.2931	0.2749	0.71	0.2483	0.1732
0.02	0.4283	0.8829	0.37	0.2913	0.2697	0.72	0.2474	0.1716
0.03	0.4193	0.8329	0.38	0.2895	0.2647	0.73	0.2465	0.1701
0.04	0.411	0.7877	0.39	0.2878	0.2599	0.74	0.2456	0.1686
0.05	0.4034	0.7466	0.4	0.2861	0.2554	0.75	0.2447	0.1672
0.06	0.3963	0.7091	0.41	0.2845	0.251	0.76	0.2438	0.1658
0.07	0.3896	0.6748	0.42	0.2829	0.2468	0.77	0.243	0.1644
0.08	0.3834	0.6434	0.43	0.2813	0.2428	0.78	0.2421	0.163
0.09	0.3776	0.6146	0.44	0.2798	0.2389	0.79	0.2413	0.1617
0.1	0.3722	0.588	0.45	0.2783	0.2352	0.8	0.2405	0.1604
0.11	0.3671	0.5634	0.46	0.2769	0.2317	0.81	0.2396	0.1592
0.12	0.3623	0.5407	0.47	0.2755	0.2283	0.82	0.2388	0.158
0.13	0.3577	0.5196	0.48	0.2741	0.225	0.83	0.238	0.1568
0.14	0.3534	0.5001	0.49	0.2727	0.2218	0.84	0.2372	0.1556
0.15	0.3492	0.4819	0.5	0.2714	0.2187	0.85	0.2365	0.1544
0.16	0.3453	0.4649	0.51	0.2701	0.2158	0.86	0.2357	0.1533
0.17	0.3416	0.449	0.52	0.2688	0.213	0.87	0.2349	0.1522
0.18	0.3381	0.4342	0.53	0.2675	0.2102	0.88	0.2342	0.1511
0.19	0.3347	0.4203	0.54	0.2663	0.2076	0.89	0.2334	0.1501
0.2	0.3314	0.4073	0.55	0.2651	0.205	0.9	0.2327	0.149
0.21	0.3283	0.3951	0.56	0.2639	0.2025	0.91	0.232	0.148
0.22	0.3253	0.3836	0.57	0.2627	0.2001	0.92	0.2312	0.147
0.23	0.3225	0.3727	0.58	0.2616	0.1978	0.93	0.2305	0.146
0.24	0.3197	0.3625	0.59	0.2605	0.1955	0.94	0.2298	0.145
0.25	0.317	0.3529	0.6	0.2594	0.1934	0.95	0.2291	0.1441
0.26	0.3145	0.3438	0.61	0.2583	0.1913	0.96	0.2284	0.1432
0.27	0.312	0.3352	0.62	0.2572	0.1892	0.97	0.2277	0.1422
0.28	0.3096	0.327	0.63	0.2562	0.1872	0.98	0.2271	0.1413
0.29	0.3073	0.3193	0.64	0.2551	0.1853	0.99	0.2264	0.1405
0.3	0.3051	0.3119	0.65	0.2541	0.1834	1	0.2257	0.1396
0.31	0.3029	0.305	0.66	0.2531	0.1816	1.01	0.2251	0.1387
0.32	0.3008	0.2984	0.67	0.2521	0.1798	1.02	0.2244	0.1379
0.33	0.2988	0.292	0.68	0.2511	0.1781	1.03	0.2238	0.1371
0.34	0.2968	0.286	0.69	0.2502	0.1764	1.04	0.2231	0.1362

Annual F(%SPR) Reference Points



Annual YPR(%SPR) Reference Points



Annual F (%SPR) Reference Points 35 30 30 25 25 Frequency Frequency 20 20 15 15 19 10 2 2 0 0 0.3 0.4 0.5 0.6 0.7 0.8 0.9 0.20 0.25 0.30 0.35 0.40 Full F30% Full F20% 35 30 30 25 25 20 Frequency Frequency 20 15 15 10 10 2 2 0 0 0.16 0.18 0.20 0.22 0.24 0.26 0.11 0.13 0.15 0.17

Full F50%

Full F40%

Annual YPR (%SPR) Reference Points 40 4 30 30 Frequency Frequency 20 20 10 10 0 0 0.2 0.4 0.6 0.8 1.0 1.2 0.2 0.4 0.6 8.0 1.0 1.2 YPR (F20%) YPR (F30%) 40 40 30 30 Frequency Frequency 20 20 10 10 0 0 0.2 0.4 0.6 8.0 1.0 0.2 0.4 0.6 8.0 1.0

YPR (F50%)

YPR (F40%)

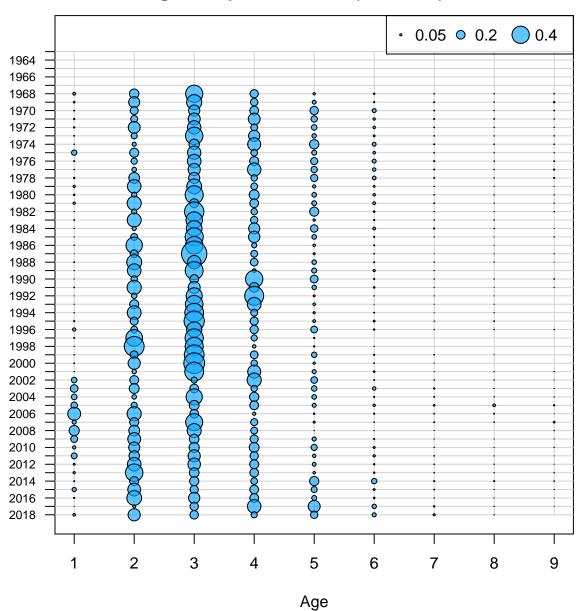


Age Comps for Catch by Fleet 1 (FLEET-1)

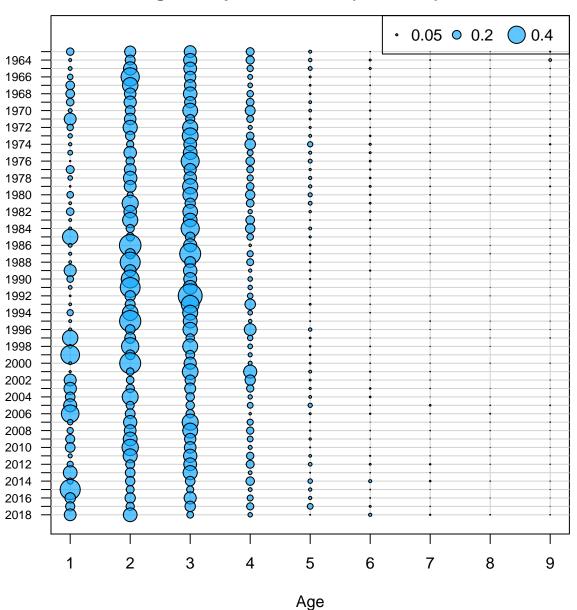




Age Comps for Index 1 (INDEX-1)



Age Comps for Index 2 (INDEX-2)



WAA matrix 1



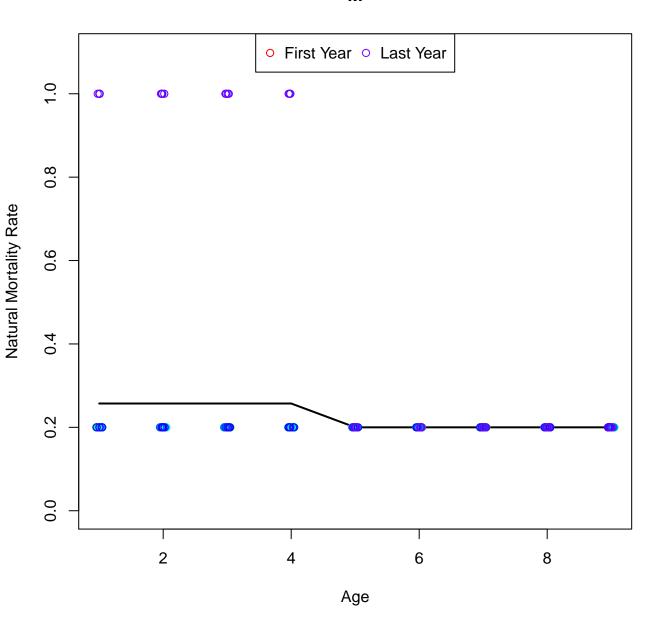
WAA matrix 2



WAA matrix 3



M



Maturity

