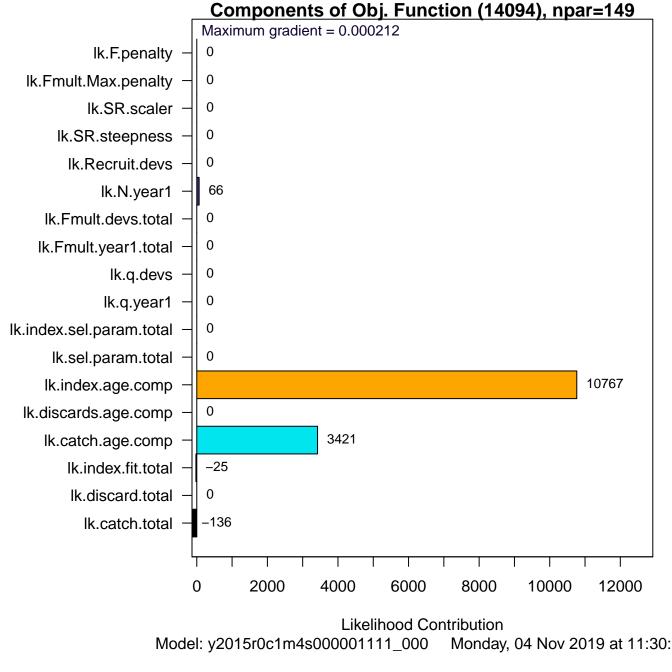
File = y2015r0c1m4s000001111_000.dat

ASAP3 run on Monday, 04 Nov 2019 at 11:30:56

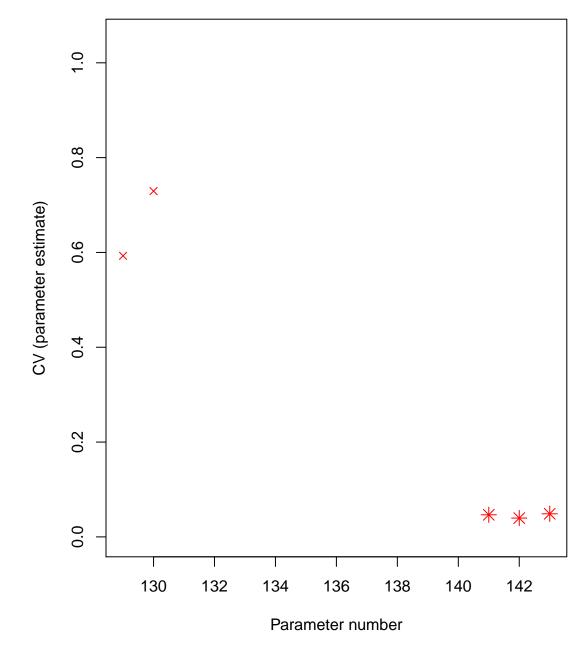
chris.legault\Documents\Working\ICES-WKFORBIAS 2019\WhiteHake\Rose\v

ASAPplots version = 0.2.14

npar = 149, maximum gradient = 0.000211723



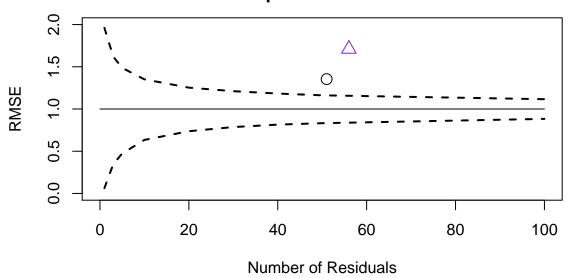




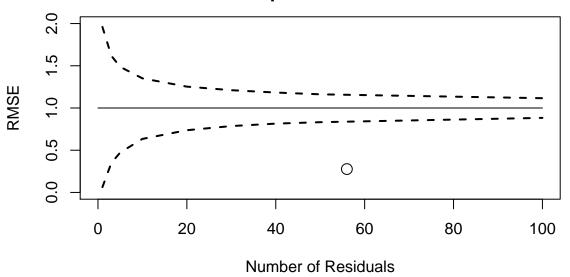
Root Mean Square Error computed from Standardized Residuals

Component	# resids	RMSE
catch.tot	56	0.277
discard.tot	0	0
ind01	51	1.35
ind02	56	1.71
ind.total	107	1.55
N.year1	8	0.571
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

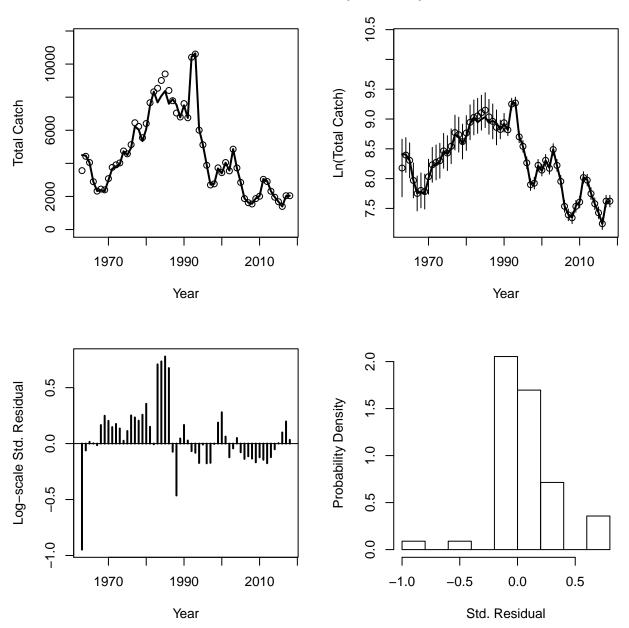
Root Mean Square Error for Indices

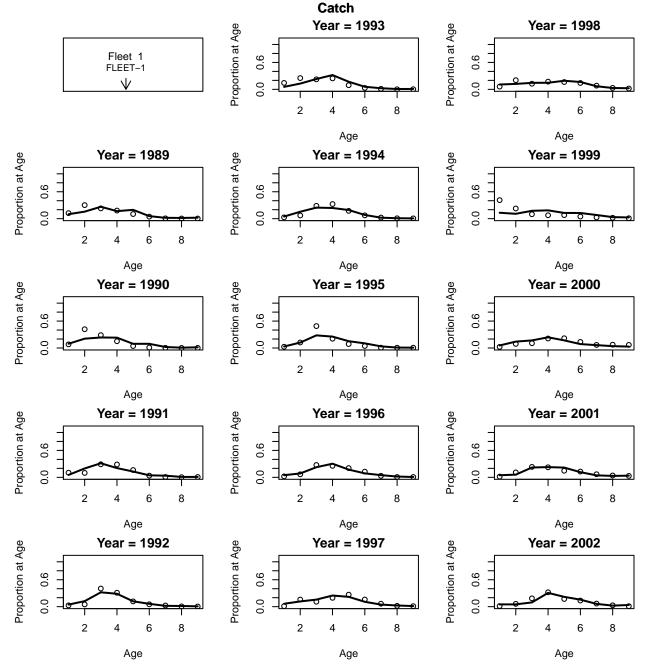


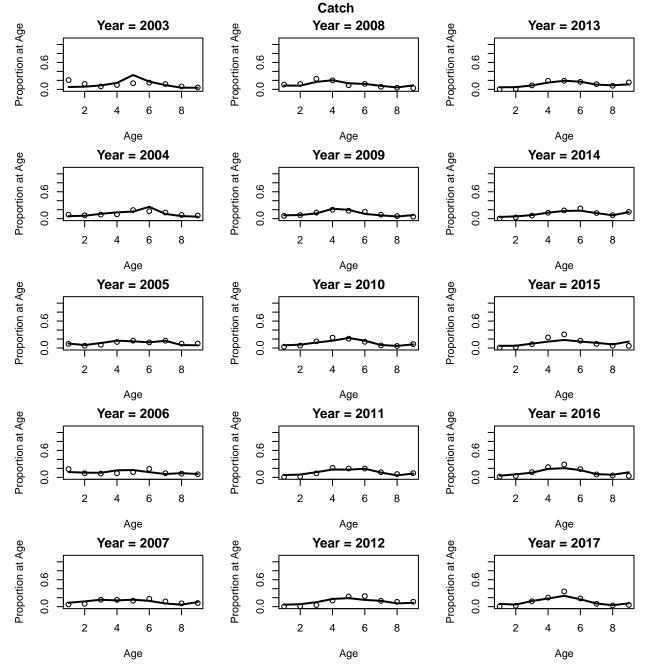
Root Mean Square Error for Catch



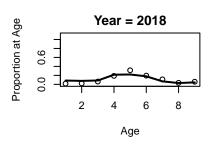
Fleet 1 Catch (FLEET-1)



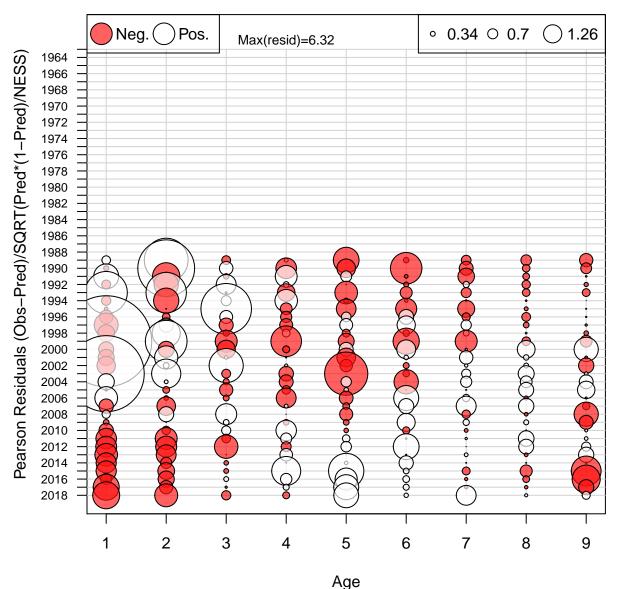




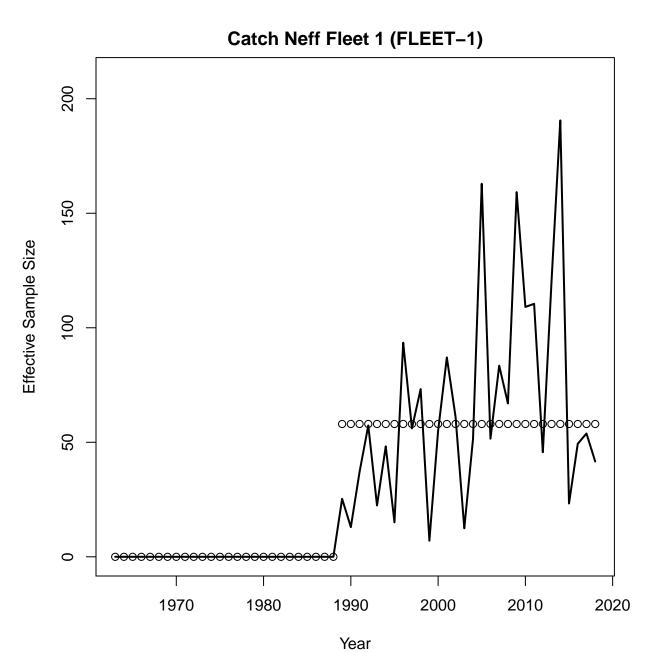
Catch



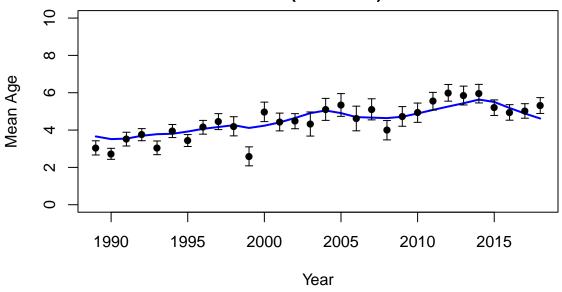
Age Comp Residuals for Catch by Fleet 1 (FLEET-1)

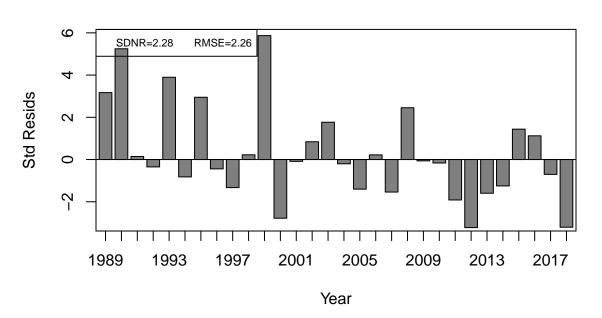


Mean resid = -0.03 SD(resid) = 1.19

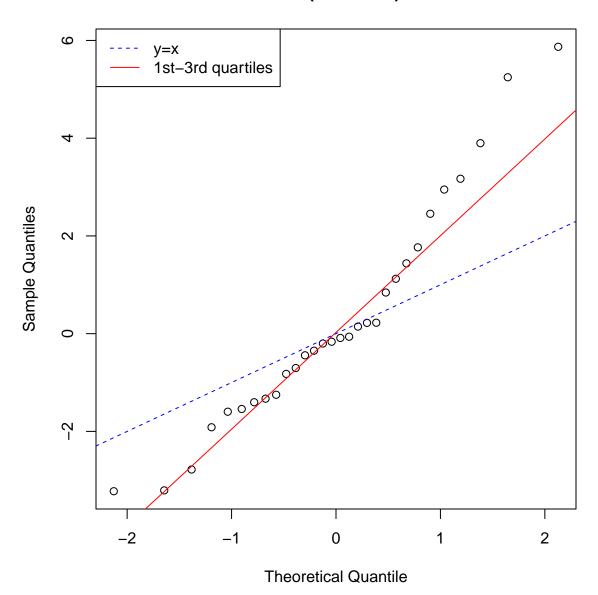


Catch Fleet 1 (FLEET-1) ESS = 58

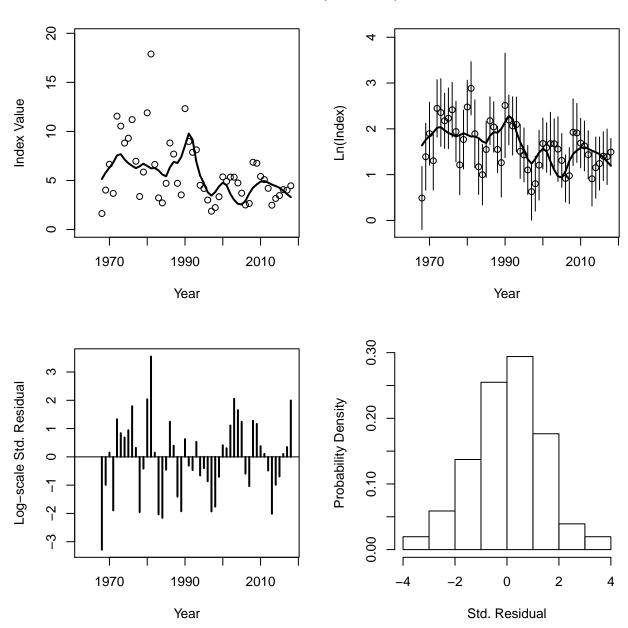




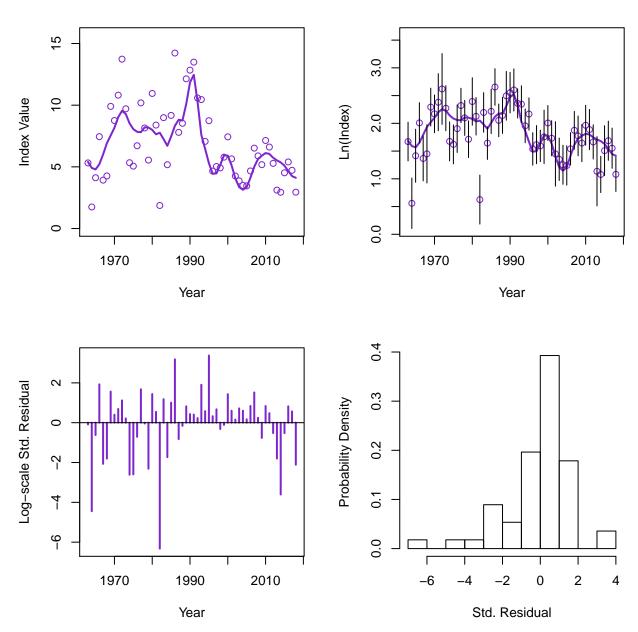
Catch Fleet 1 (FLEET-1) ESS = 58



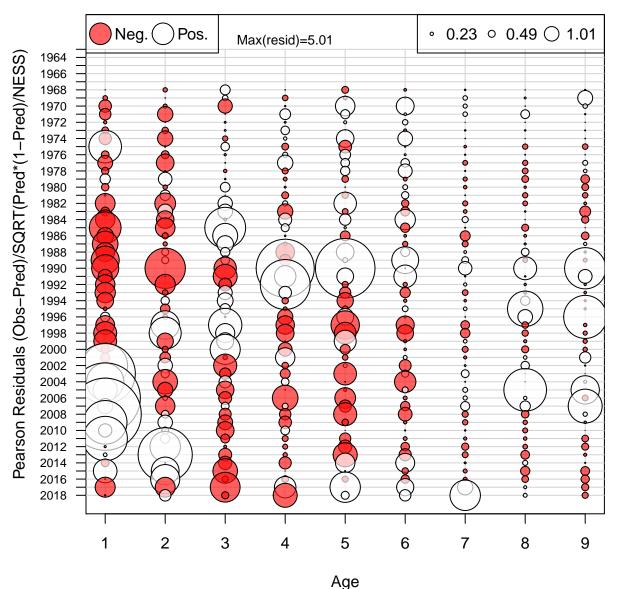
Index 1 (INDEX-1)



Index 2 (INDEX-2)

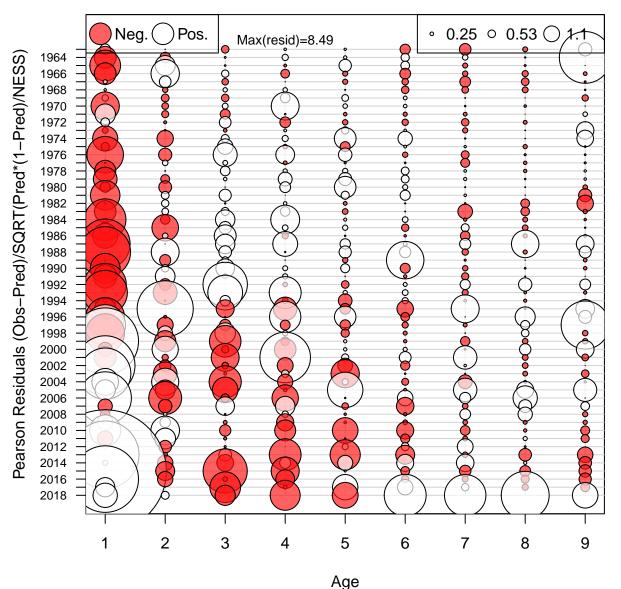


Age Comp Residuals for Index 1 (INDEX-1)



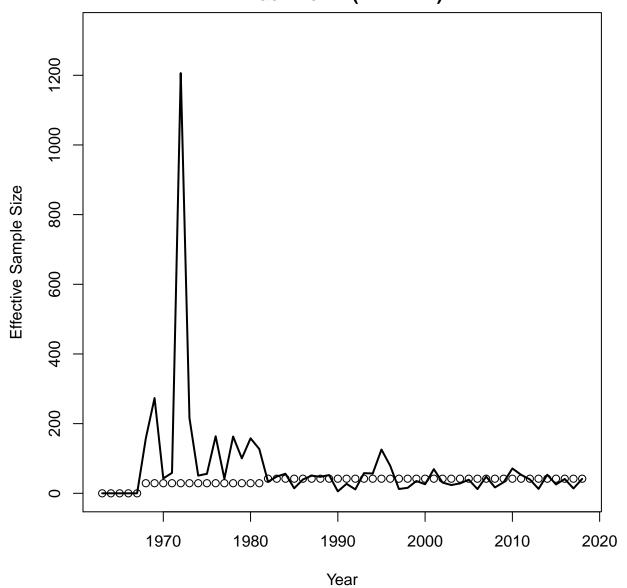
Mean resid = 0.03 SD(resid) = 1.05

Age Comp Residuals for Index 2 (INDEX-2)

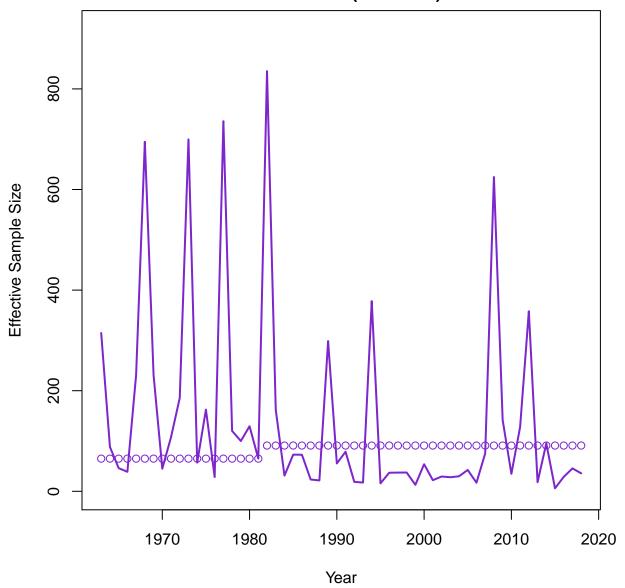


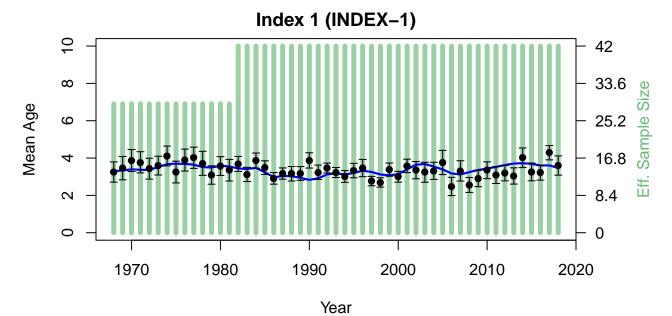
Mean resid = 0.04 SD(resid) = 1.21

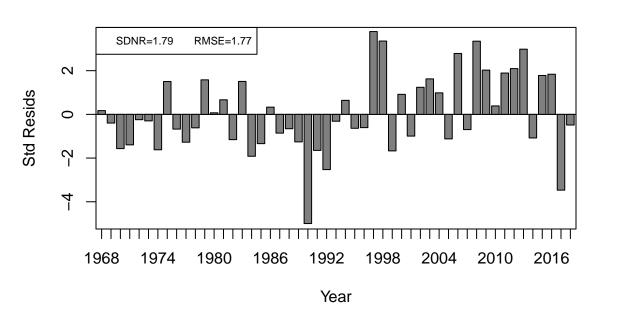
Index Neff 1 (INDEX-1)



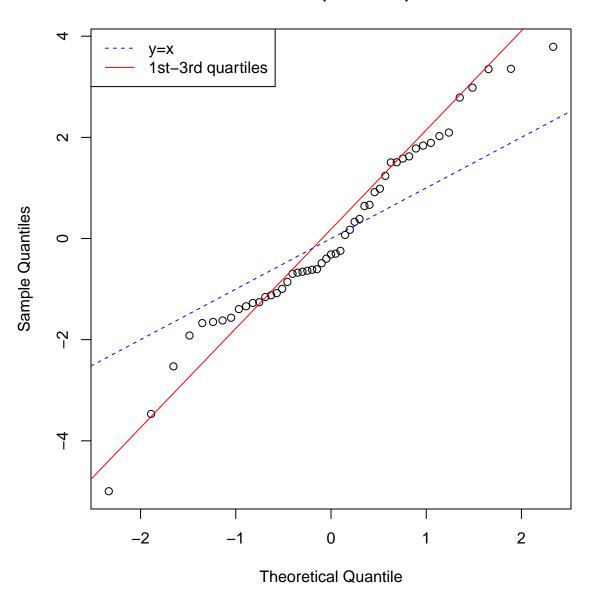
Index Neff 2 (INDEX-2)

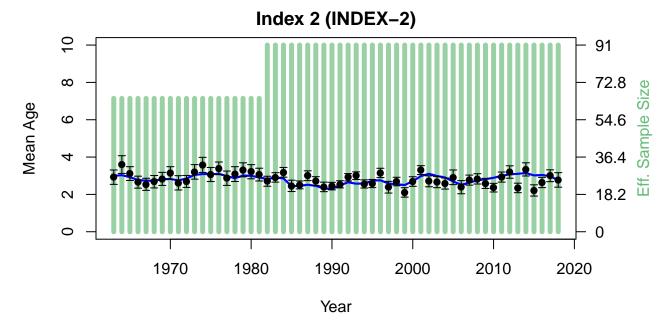


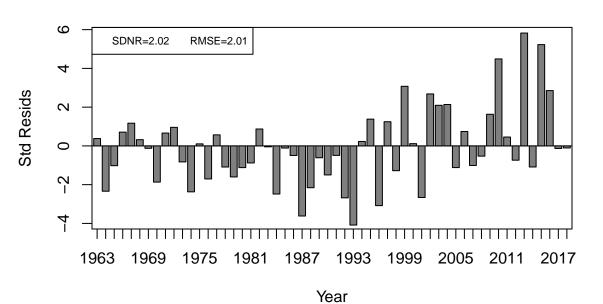




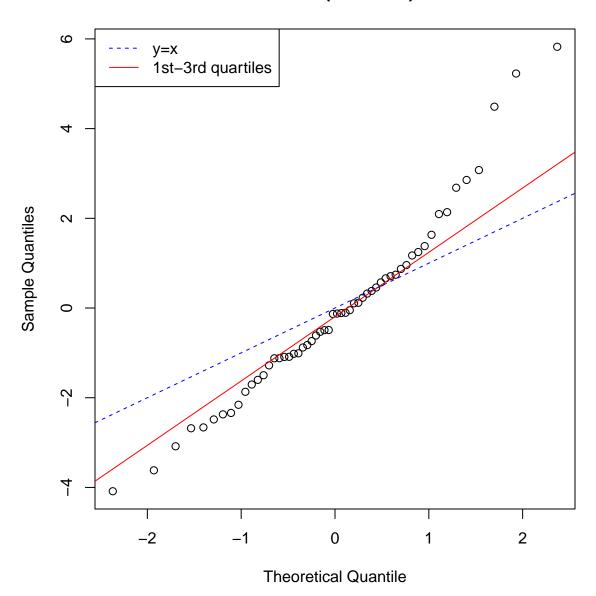
Index 1 (INDEX-1)



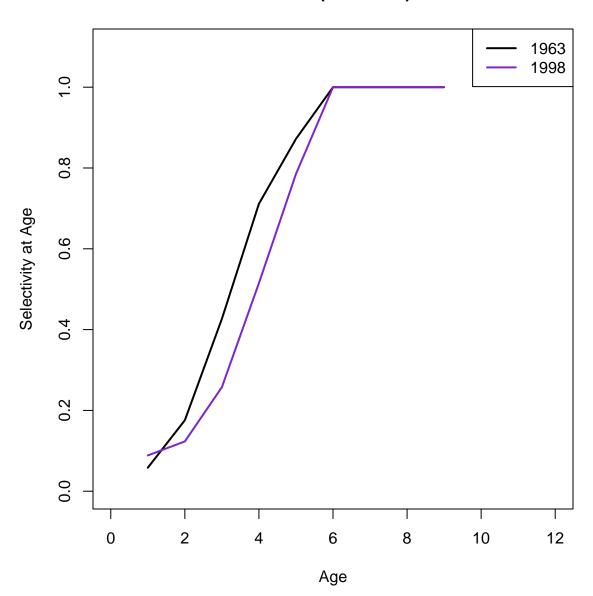


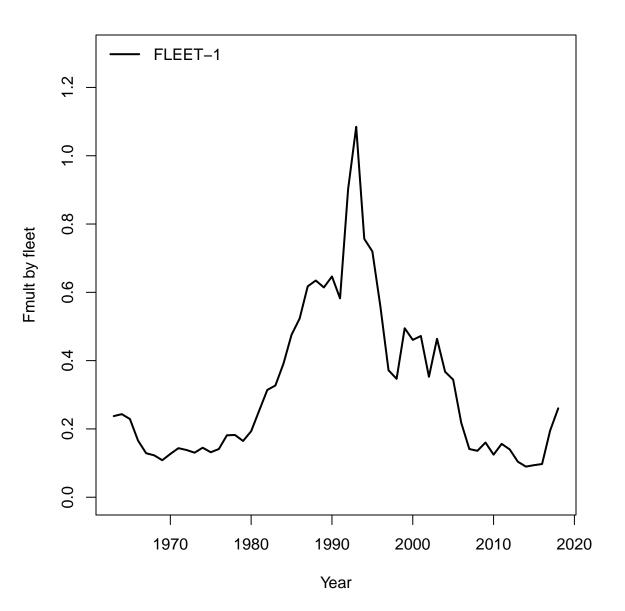


Index 2 (INDEX-2)

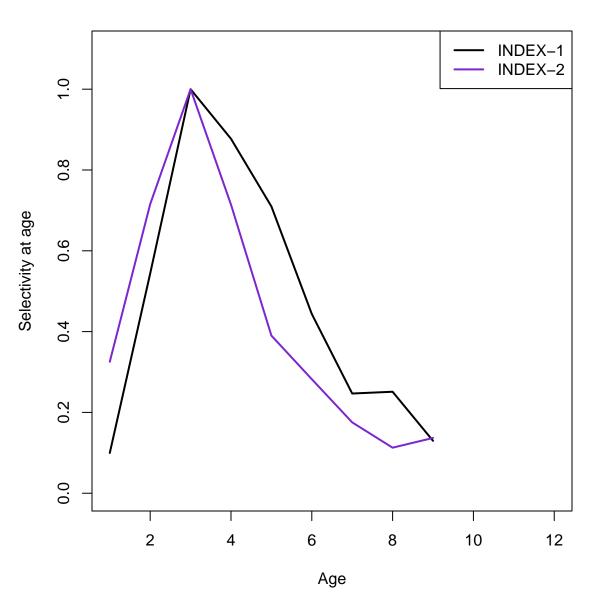


Fleet 1 (FLEET-1)

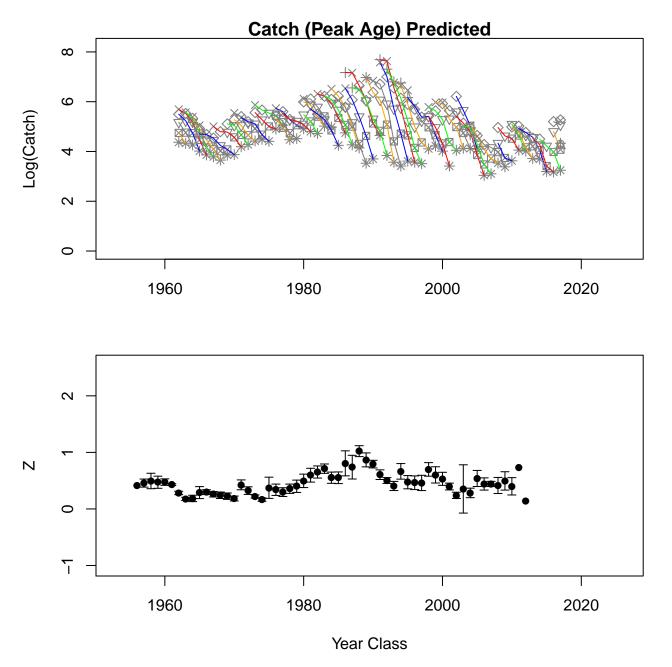




Indices

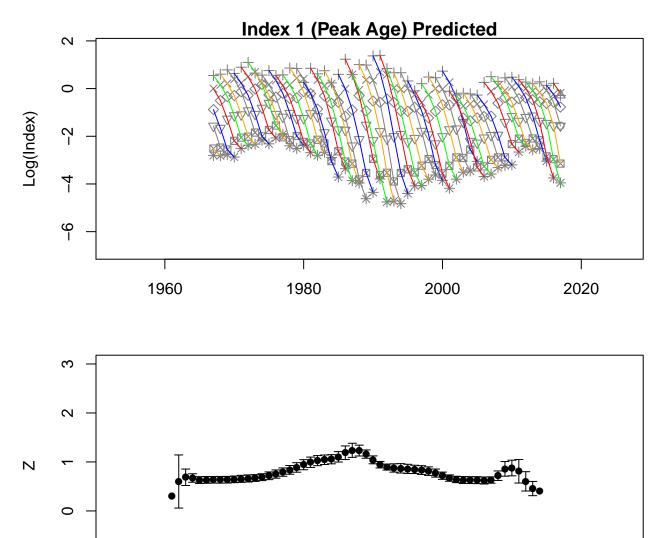




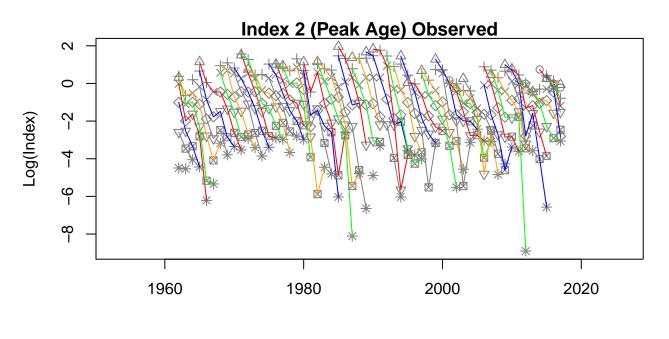


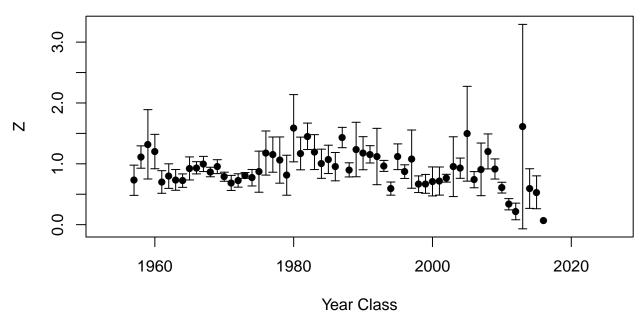


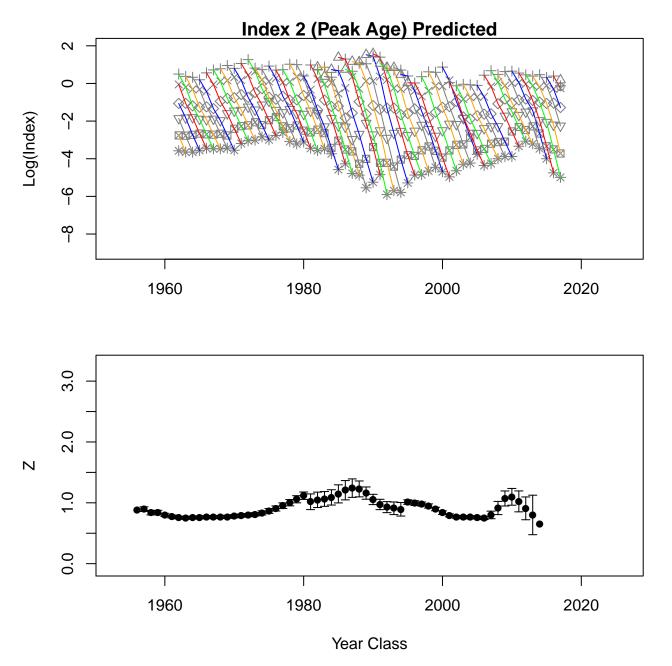




Year Class







Catch Observed

			- Cu	•	~			
			900 O	8000	000000000000000000000000000000000000000		00000	age-9
0000	9000 9000	0000			0 0 0 0 0 0 0 0 0 0 0 0 0	000000000000000000000000000000000000000	age-8	0.55
	00000	000000	80000000000000000000000000000000000000	8000 80000		age-7	0.48	0.25
00000	00000	80 80 80 80 80 80 80 80 80 80 80 80 80 8			age-6	0.38	0.00	-0.21
				age-5	0.70	0.26	-0.14	-0.46
00000			age-4	0.90	0.79	0.32	-0.16	-0.44
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 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

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age-1

0.89

0.81

0.75

		\$ 000 000 000 000 000 000 000 000 000 0			\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$			age-9
80 80 80 80 80 80 80 80 80 80 80 80 80 8	600 0 600 0 600 0 600 0 600 0		6000 C				age-8	0.76
\$ 000 000 000 000 000 000 000 000 000 0						age-7	0.83	0.41
80000 800000 8000000000000000000000000	000				age-6	0.83	0.52	-0.02
				age–5	0.89	0.64	0.27	-0.29
			age-4	0.93	0.79	0.53	0.17	-0.38
		age-3	0.96	0.86	0.70	0.45	0.09	-0.42
	age-2	0.97	0.91	0.81	0.63	0.35	-0.01	-0.53

0.64

0.43

0.09

-0.29

-0.74

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

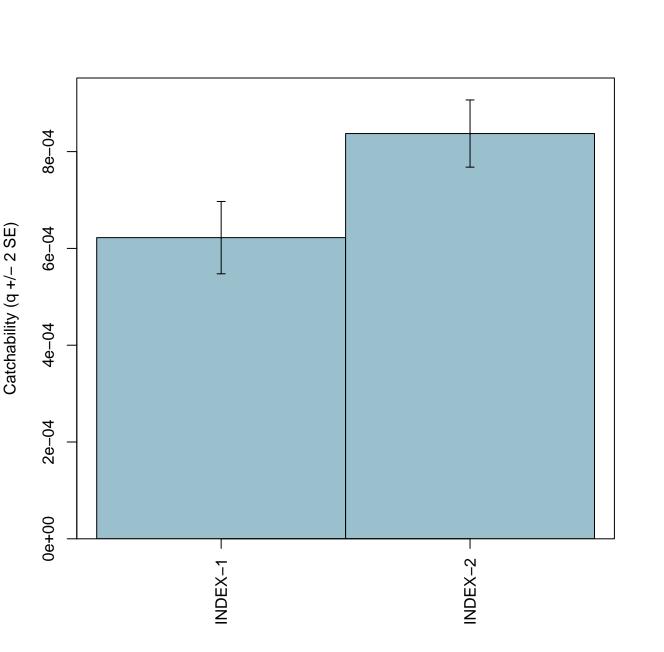
			`	,				
	60 00 00 00 00 00 00 00 00 00 00 00 00 0	60 00 00 00 00 00 00 00 00 00 00 00 00 0			9 6 6 6 6 6 6 6 6 6 6			age-9
				9 1 6 6 6 6 6 6 6 6 6 6	000 0000 00000 00000		age–8	0.96
				O O O O O O O O O O		age–7	0.97	0.90
60000 6	60000 6000 6000 600000 600000 600000 600000 600000 600000 600000 600000 600000 60000	6 600 6			age–6	0.94	0.85	0.75
60000 60000	60 600 60 600 60 600	\$ 60 \$ 60 \$ 60	00000000000000000000000000000000000000	age-5	0.90	0.72	0.59	0.44
100 mg	100 mg		age-4	0.87	0.59	0.38	0.23	0.05
and the second	A Same	age-3	0.95	0.70	0.35	0.14	0.00	-0.19
5000	age-2	0.99	0.91	0.61	0.25	0.04	-0.10	-0.29
age-1	1.00	0.99	0.90	0.58	0.21	0.00	-0.13	-0.32

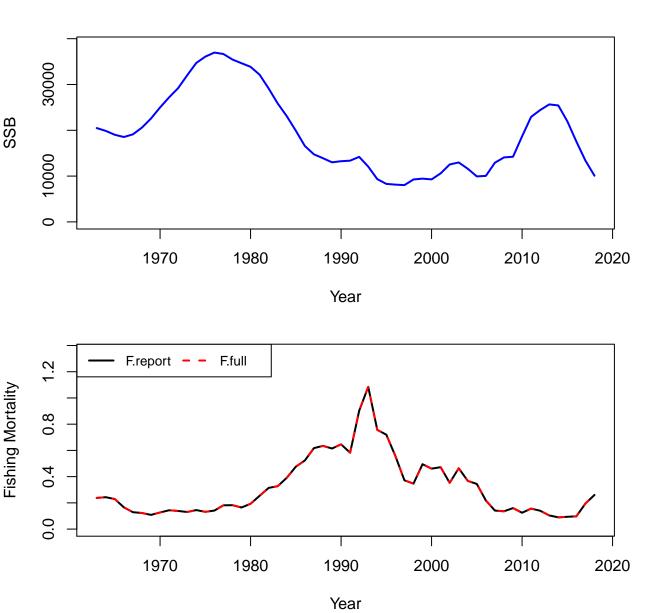
Index 2 (INDEX-2) Observed

(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		○ ○ ○ ○ ○ ○ ○ ○ ○ ○		0 000	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

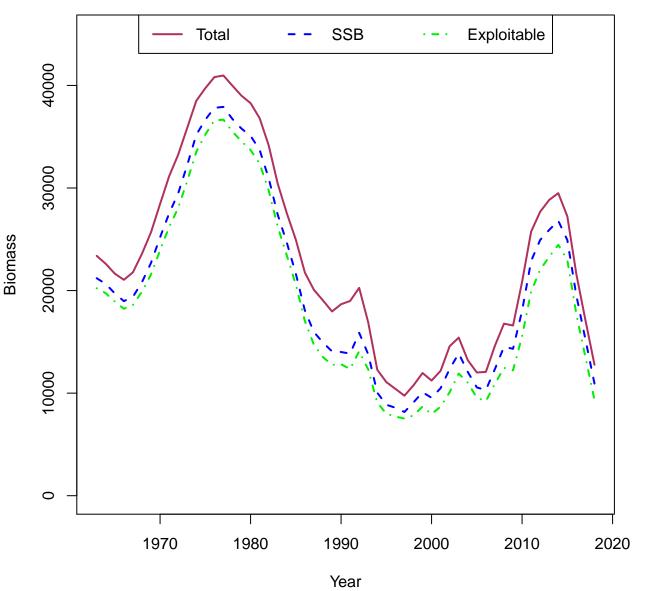
					• • • • • • • • • • • • • • • • • • •	0000		age-9
				6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6			age–8	0.97
6 8 8 6 8 8	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8			9		age-7	0.98	0.93
(2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4					age-6	0.96	0.89	0.81
00000000000000000000000000000000000000				age-5	0.91	0.77	0.66	0.56
6 0 800	8 0000		age-4	0.86	0.63	0.44	0.31	0.16
	100 September 10	age-3	0.92	0.60	0.31	0.12	-0.01	-0.17
**************************************	age-2	0.98	0.82	0.44	0.14	-0.03	-0.15	-0.31
age–1	1.00	0.96	0.78	0.38	0.08	-0.08	-0.19	-0.35

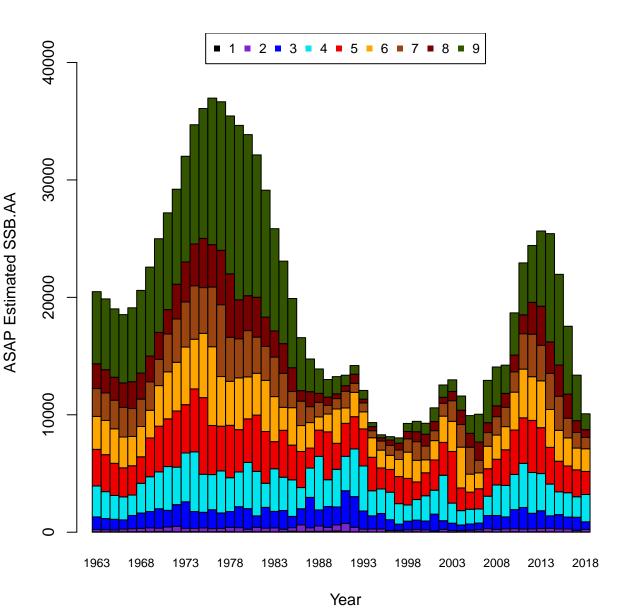
Index 2 (INDEX-2) Predicted

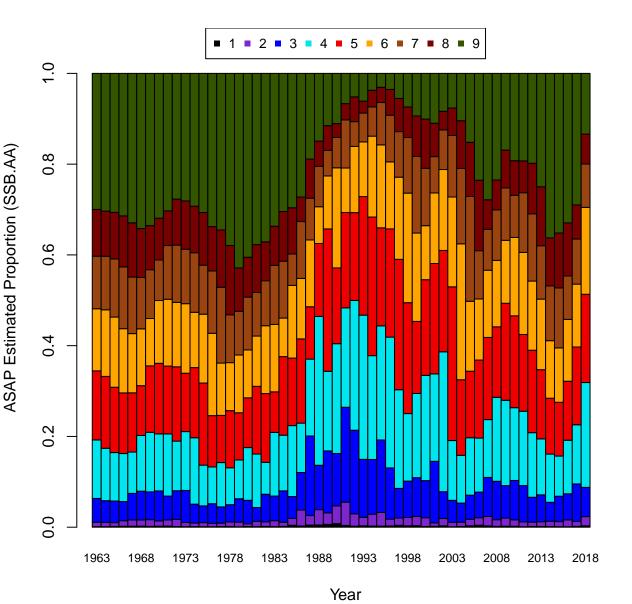


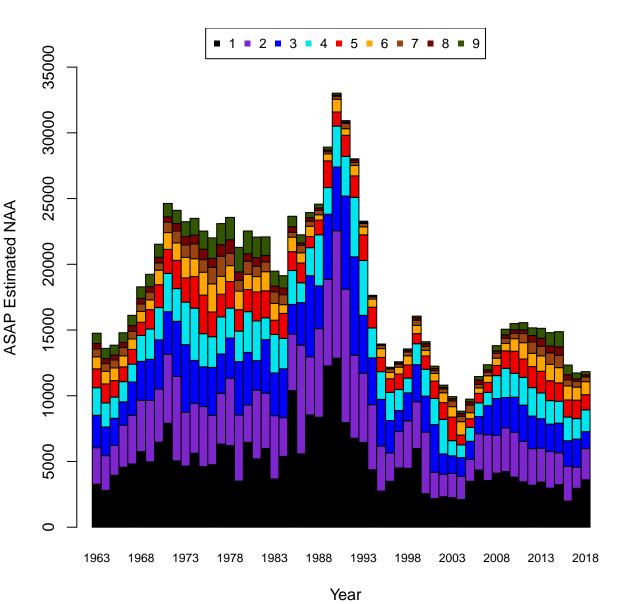


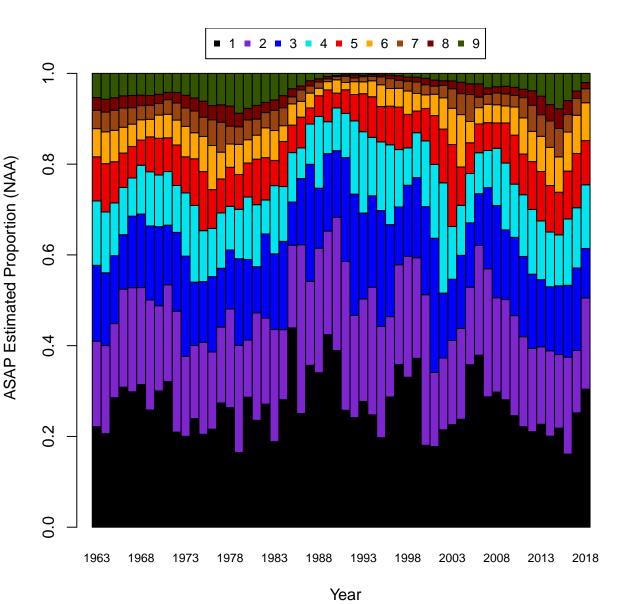
Comparison of January 1 Biomass

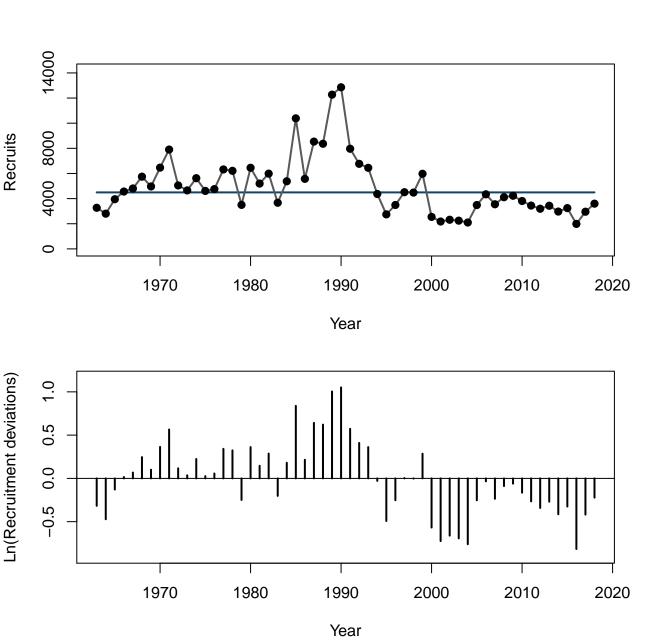


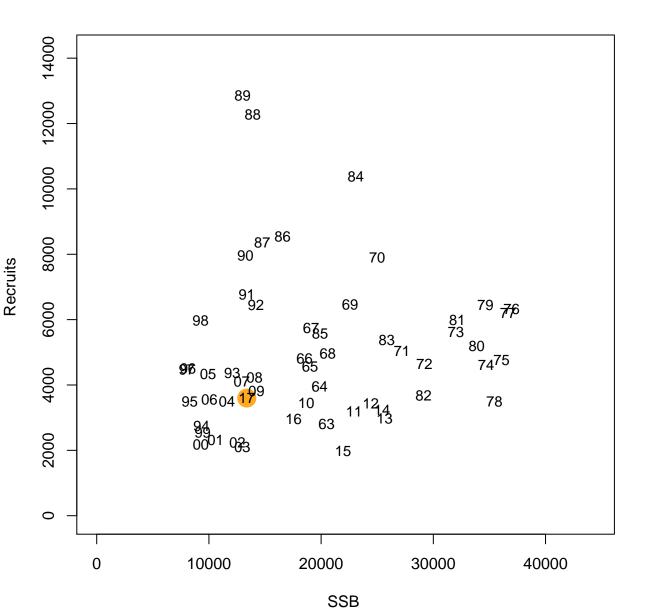


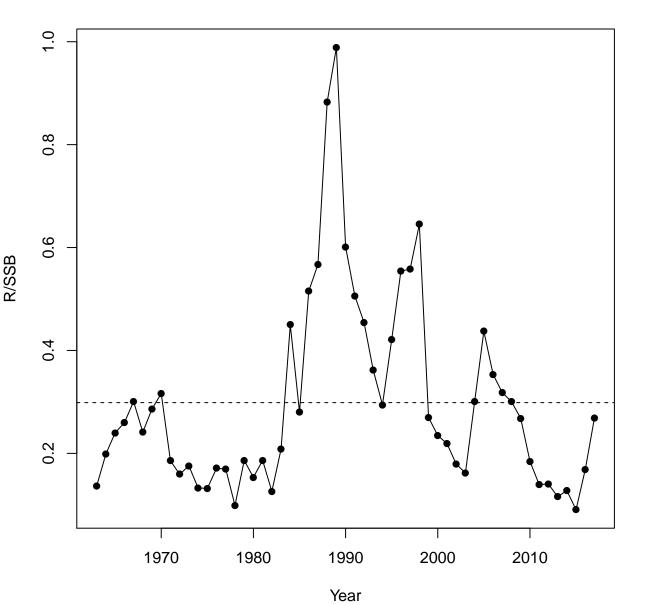


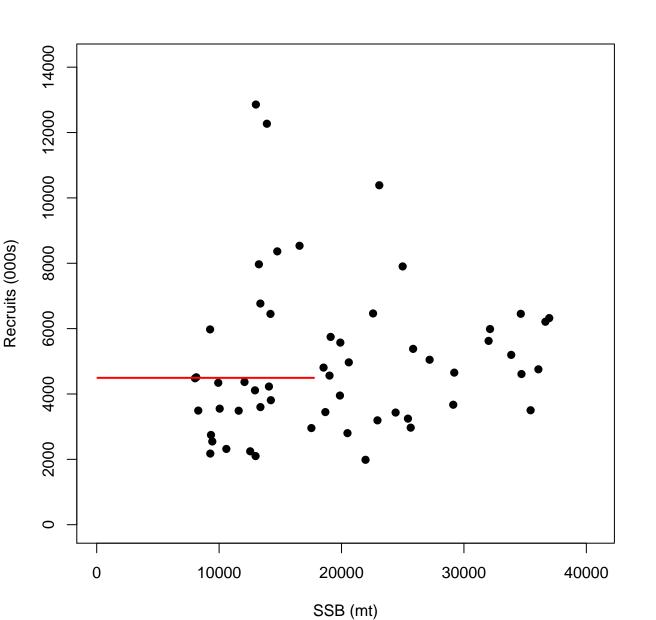


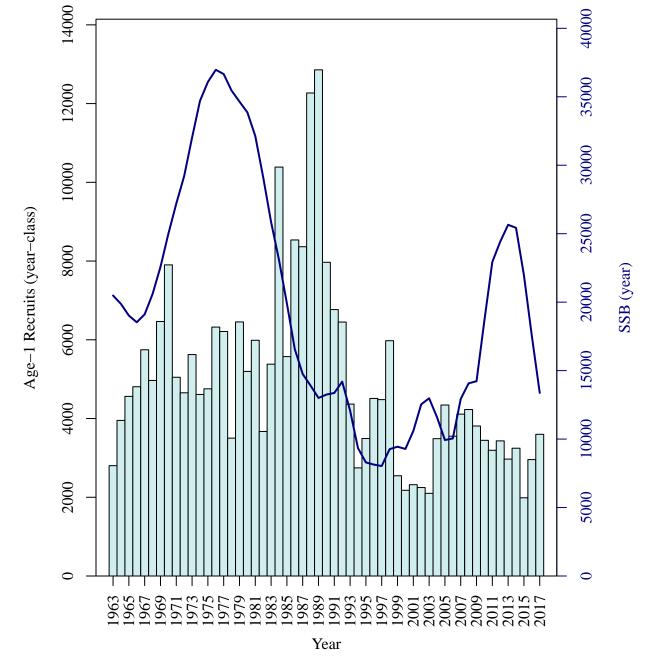


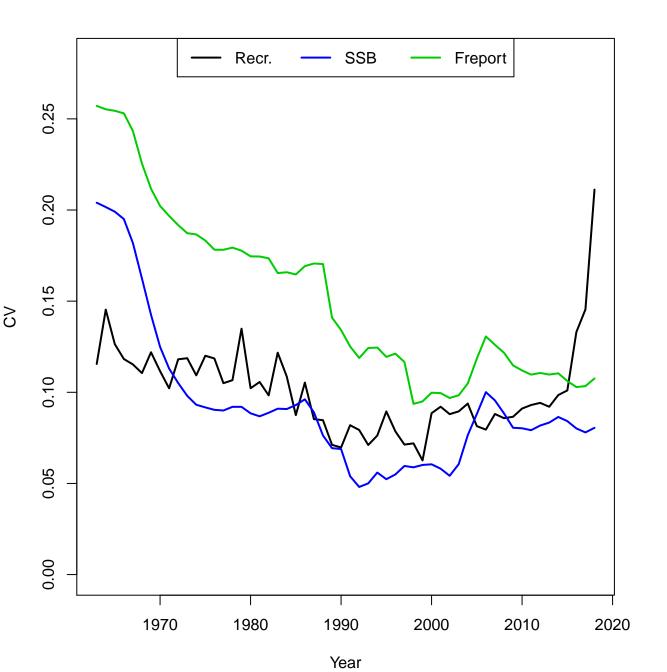




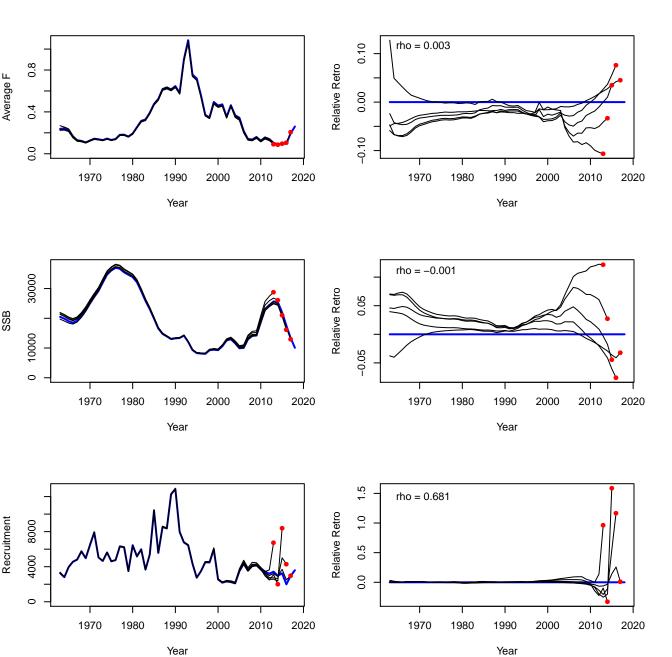




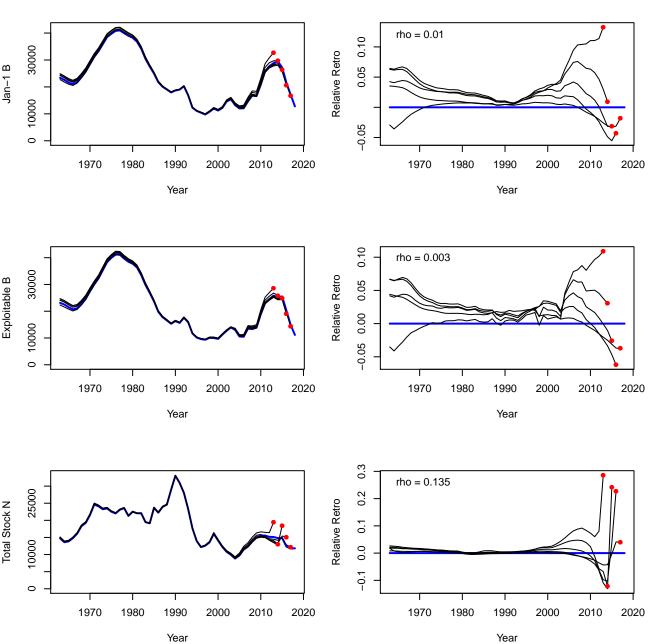




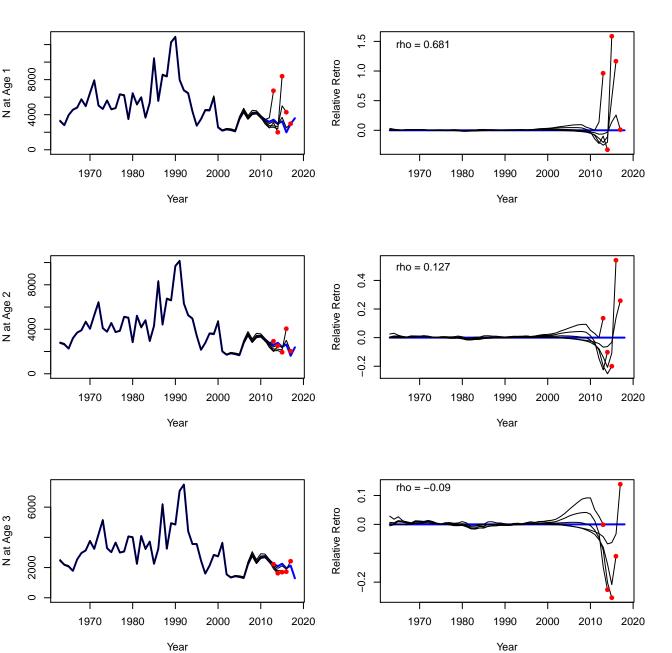
F, SSB, R



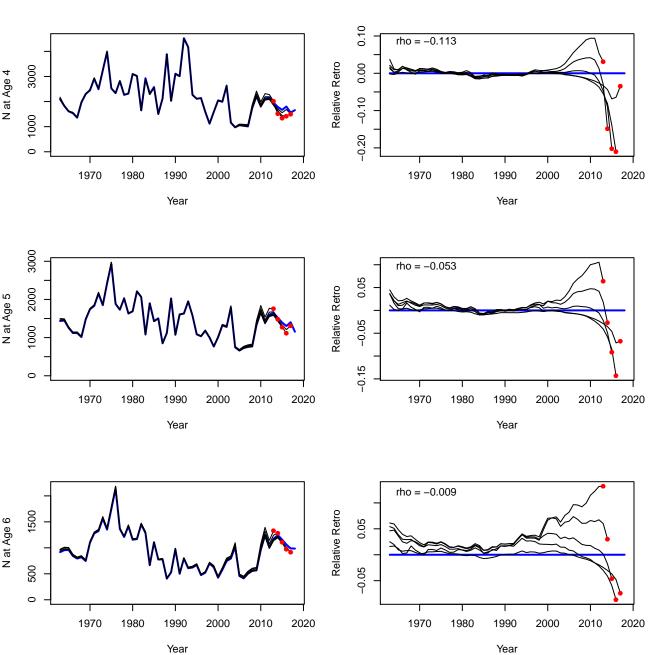
Jan-1 B, Exploitable B, Total Stock N



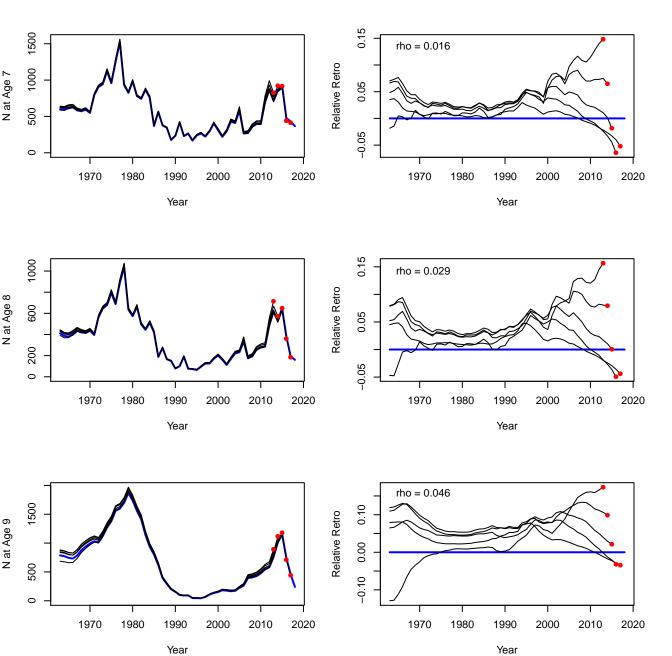
Stock Numbers at Age



Stock Numbers at Age



Stock Numbers at Age



YPR-SPR Reference Points (Years Avg = 5) 0.8 0.9 9.0 8.0 Yield per Recruit 0.7 0.6 0.4 0.5 0.4 0.2 0.3 0.2 0.1 0.0 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
Ō	0	1	0.35	0.5998	0.5094	0.7	0.6991	0.3274
0.01	0.0369	0.9758	0.36	0.6058	0.5018	0.71	0.6999	0.3239
0.02	0.0718	0.9526	0.37	0.6115	0.4944	0.72	0.7007	0.3206
0.03	0.1048	0.9302	0.38	0.617	0.4872	0.73	0.7014	0.3172
0.04	0.136	0.9087	0.39	0.6222	0.4802	0.74	0.702	0.314
0.05	0.1656	0.8881	0.4	0.6271	0.4734	0.75	0.7026	0.3107
0.06	0.1935	0.8682	0.41	0.6318	0.4667	0.76	0.7031	0.3076
0.07	0.22	0.8491	0.42	0.6362	0.4602	0.77	0.7035	0.3045
0.08	0.2451	0.8307	0.43	0.6405	0.4538	0.78	0.704	0.3015
0.09	0.2689	0.8129	0.44	0.6445	0.4477	0.79	0.7043	0.2985
0.1	0.2914	0.7958	0.45	0.6483	0.4416	0.8	0.7047	0.2955
0.11	0.3128	0.7793	0.46	0.652	0.4357	0.81	0.7049	0.2926
0.12	0.3331	0.7633	0.47	0.6554	0.43	0.82	0.7052	0.2898
0.13	0.3523	0.748	0.48	0.6587	0.4244	0.83	0.7054	0.287
0.14	0.3705	0.7331	0.49	0.6618	0.4189	0.84	0.7055	0.2843
0.15	0.3879	0.7187	0.5	0.6648	0.4135	0.85	0.7056	0.2816
0.16	0.4043	0.7049	0.51	0.6676	0.4083	0.86	0.7057	0.2789
0.17	0.4199	0.6914	0.52	0.6702	0.4031	0.87	0.7058	0.2763
0.18	0.4348	0.6785	0.53	0.6728	0.3981	0.88	0.7058	0.2738
0.19	0.4489	0.6659	0.54	0.6752	0.3932	0.89	0.7058	0.2712
0.2	0.4622	0.6537	0.55	0.6774	0.3884	0.9	0.7057	0.2688
0.21	0.475	0.642	0.56	0.6795	0.3837	0.91	0.7056	0.2663
0.22	0.4871	0.6305	0.57	0.6816	0.3792	0.92	0.7055	0.2639
0.23	0.4986	0.6195	0.58	0.6835	0.3747	0.93	0.7054	0.2616
0.24	0.5095	0.6088	0.59	0.6853	0.3703	0.94	0.7052	0.2592
0.25	0.5199	0.5984	0.6	0.687	0.366	0.95	0.7051	0.2569
0.26	0.5298	0.5883	0.61	0.6886	0.3618	0.96	0.7048	0.2547
0.27	0.5392	0.5785	0.62	0.6901	0.3576	0.97	0.7046	0.2525
0.28	0.5482	0.569	0.63	0.6915	0.3536	0.98	0.7044	0.2503
0.29	0.5567	0.5597	0.64	0.6928	0.3496	0.99	0.7041	0.2481
0.3	0.5648	0.5507	0.65	0.6941	0.3457	1	0.7038	0.246
0.31	0.5725	0.542	0.66	0.6952	0.3419	1.01	0.7034	0.2439
0.32	0.5799	0.5335	0.67	0.6963	0.3382	1.02	0.7031	0.2418
0.33	0.5868	0.5253	0.68	0.6973	0.3345	1.03	0.7027	0.2398
0.34	0.5935	0.5173	0.69	0.6983	0.3309	1.04	0.7024	0.2378

SPR Target Reference Points (Years Avg = 5) 0.8 9.0 1 Yield per Recruit 0.9 F (%SPR) 0.8 0.4 0.7 0.6 0.5 0.4 0.2 0.3 - 0.2 0.1 0.0 0 0.4 0.2 0.3 0.7 0.5 0.6 8.0

% SPR Target

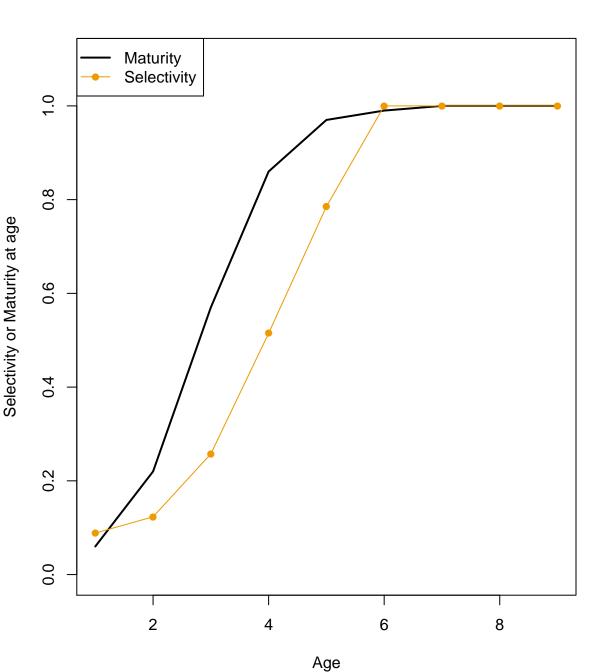
SPR Target Reference Points (Years Avg = 5)

% SPR	F(%SPR)	YPR
0.2	1.2604	0.6905
0.25	0.9812	0.7043
0.3	0.7849	0.7041
0.35	0.639	0.6927
0.4	0.5262	0.6718
0.45	0.4362	0.643
0.5	0.3625	0.6073
0.55	0.3008	0.5655
0.6	0.2484	0.5183
0.65	0.2031	0.4663
0.7	0.1636	0.41
0.75	0.1287	0.3498

0.2859

8.0

0.0975

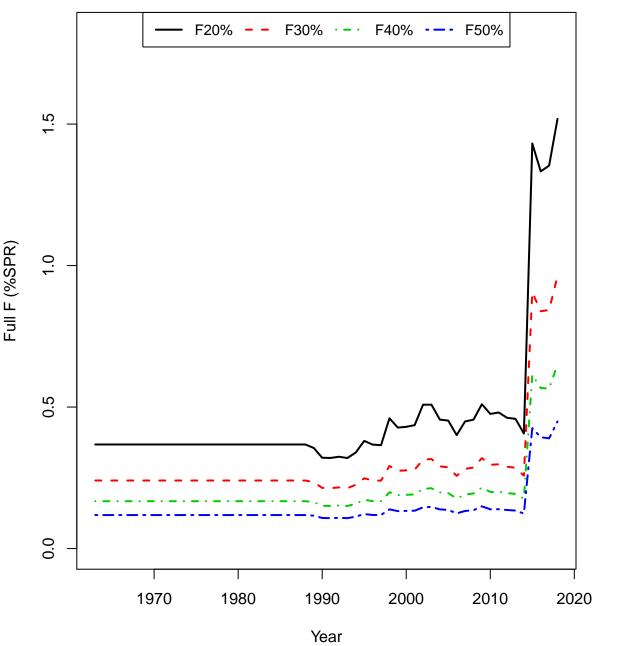


Expected Spawnings and SPR Reference Points (Years Avg = 5) 2.5 1 2.0 0.9 8.0 **Expected Spawnings** 1.5 0.7 0.6 0.5 0.4 0.3 0.5 0.2 0.1 0.0 0 0.0 0.5 1.0 1.5 2.0 Full F

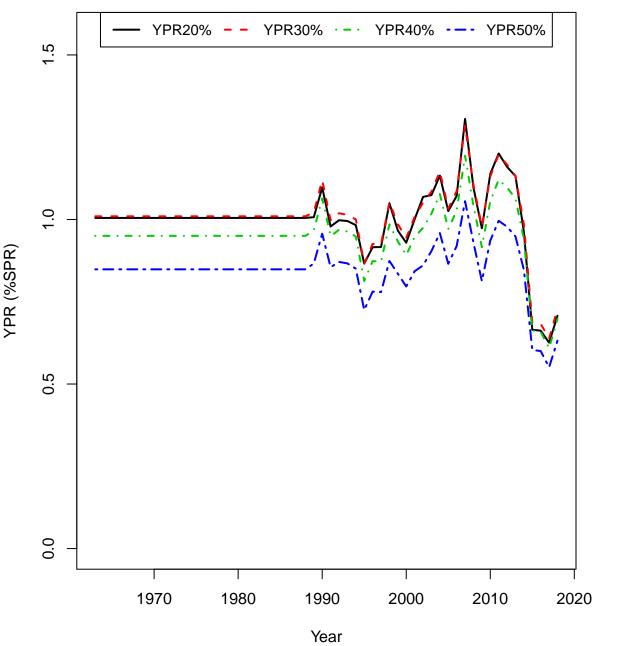
Expected Spawnings & SPR Reference Points (Years Avg = 5)

F	E[Sp]	SPR	F	E[Sp]	SPR	F	E[Sp]	SPR
0	2.0814	1	0.35	1.4259	0.5094	0.7	1.0903	0.3274
0.01	2.0539	0.9758	0.36	1.4134	0.5018	0.71	1.0831	0.3239
0.02	2.0271	0.9526	0.37	1.4011	0.4944	0.72	1.0759	0.3206
0.03	2.0011	0.9302	0.38	1.389	0.4872	0.73	1.0689	0.3172
0.04	1.9757	0.9087	0.39	1.3772	0.4802	0.74	1.0619	0.314
0.05	1.9511	0.8881	0.4	1.3655	0.4734	0.75	1.055	0.3107
0.06	1.9271	0.8682	0.41	1.3541	0.4667	0.76	1.0483	0.3076
0.07	1.9036	0.8491	0.42	1.3428	0.4602	0.77	1.0416	0.3045
0.08	1.8808	0.8307	0.43	1.3317	0.4538	0.78	1.0349	0.3015
0.09	1.8586	0.8129	0.44	1.3209	0.4477	0.79	1.0284	0.2985
0.1	1.8369	0.7958	0.45	1.3102	0.4416	0.8	1.022	0.2955
0.11	1.8157	0.7793	0.46	1.2996	0.4357	0.81	1.0156	0.2926
0.12	1.795	0.7633	0.47	1.2893	0.43	0.82	1.0093	0.2898
0.13	1.7748	0.748	0.48	1.2791	0.4244	0.83	1.0031	0.287
0.14	1.7551	0.7331	0.49	1.2691	0.4189	0.84	0.997	0.2843
0.15	1.7359	0.7187	0.5	1.2592	0.4135	0.85	0.9909	0.2816
0.16	1.717	0.7049	0.51	1.2495	0.4083	0.86	0.9849	0.2789
0.17	1.6986	0.6914	0.52	1.24	0.4031	0.87	0.979	0.2763
0.18	1.6807	0.6785	0.53	1.2306	0.3981	0.88	0.9732	0.2738
0.19	1.6631	0.6659	0.54	1.2213	0.3932	0.89	0.9674	0.2712
0.2	1.6458	0.6537	0.55	1.2122	0.3884	0.9	0.9617	0.2688
0.21	1.629	0.642	0.56	1.2032	0.3837	0.91	0.956	0.2663
0.22	1.6125	0.6305	0.57	1.1944	0.3792	0.92	0.9505	0.2639
0.23	1.5964	0.6195	0.58	1.1857	0.3747	0.93	0.945	0.2616
0.24	1.5806	0.6088	0.59	1.1771	0.3703	0.94	0.9395	0.2592
0.25	1.5651	0.5984	0.6	1.1686	0.366	0.95	0.9341	0.2569
0.26	1.5499	0.5883	0.61	1.1603	0.3618	0.96	0.9288	0.2547
0.27	1.535	0.5785	0.62	1.1521	0.3576	0.97	0.9235	0.2525
0.28	1.5204	0.569	0.63	1.144	0.3536	0.98	0.9183	0.2503
0.29	1.5061	0.5597	0.64	1.136	0.3496	0.99	0.9132	0.2481
0.3	1.4921	0.5507	0.65	1.1281	0.3457	1	0.9081	0.246
0.31	1.4784	0.542	0.66	1.1203	0.3419	1.01	0.903	0.2439
0.32	1.4649	0.5335	0.67	1.1127	0.3382	1.02	0.8981	0.2418
0.33	1.4517	0.5253	0.68	1.1051	0.3345	1.03	0.8931	0.2398
0.34	1.4387	0.5173	0.69	1.0977	0.3309	1.04	0.8883	0.2378

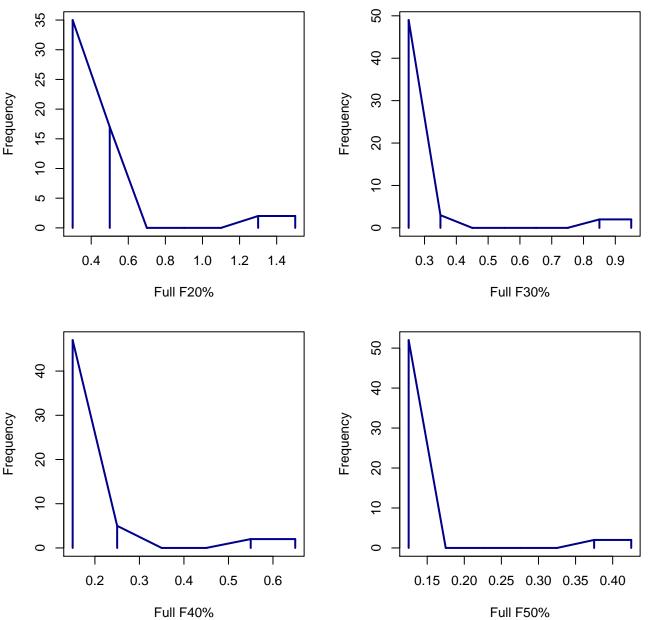
Annual F(%SPR) Reference Points



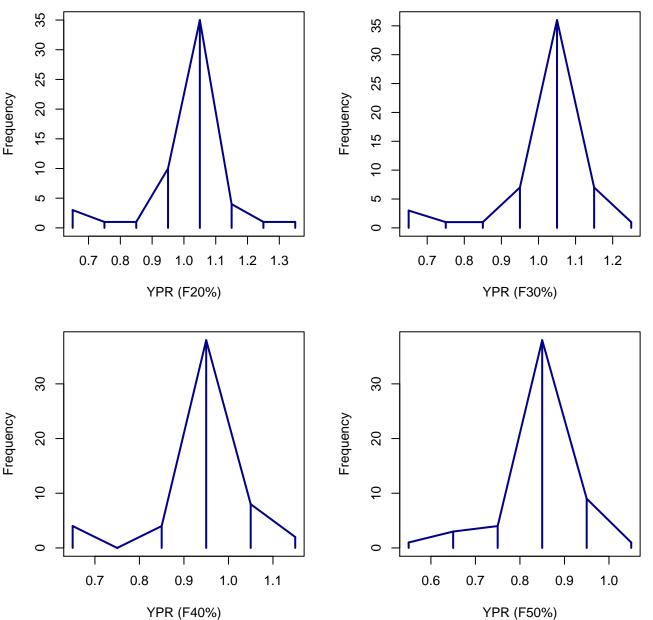
Annual YPR(%SPR) Reference Points



Annual F (%SPR) Reference Points



Annual YPR (%SPR) Reference Points





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





Age Comps for Index 1 (INDEX-1)



Age Comps for Index 2 (INDEX-2)



WAA matrix 1



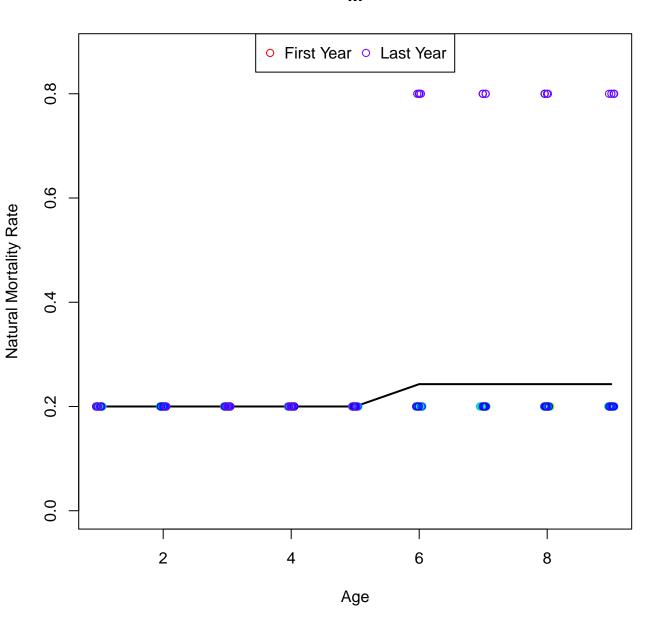
WAA matrix 2



WAA matrix 3



M



Maturity

