

File = ASAP_TEST.dat

ASAP3 run on Wednesday, 03 Jul 2019 at 09:54:26

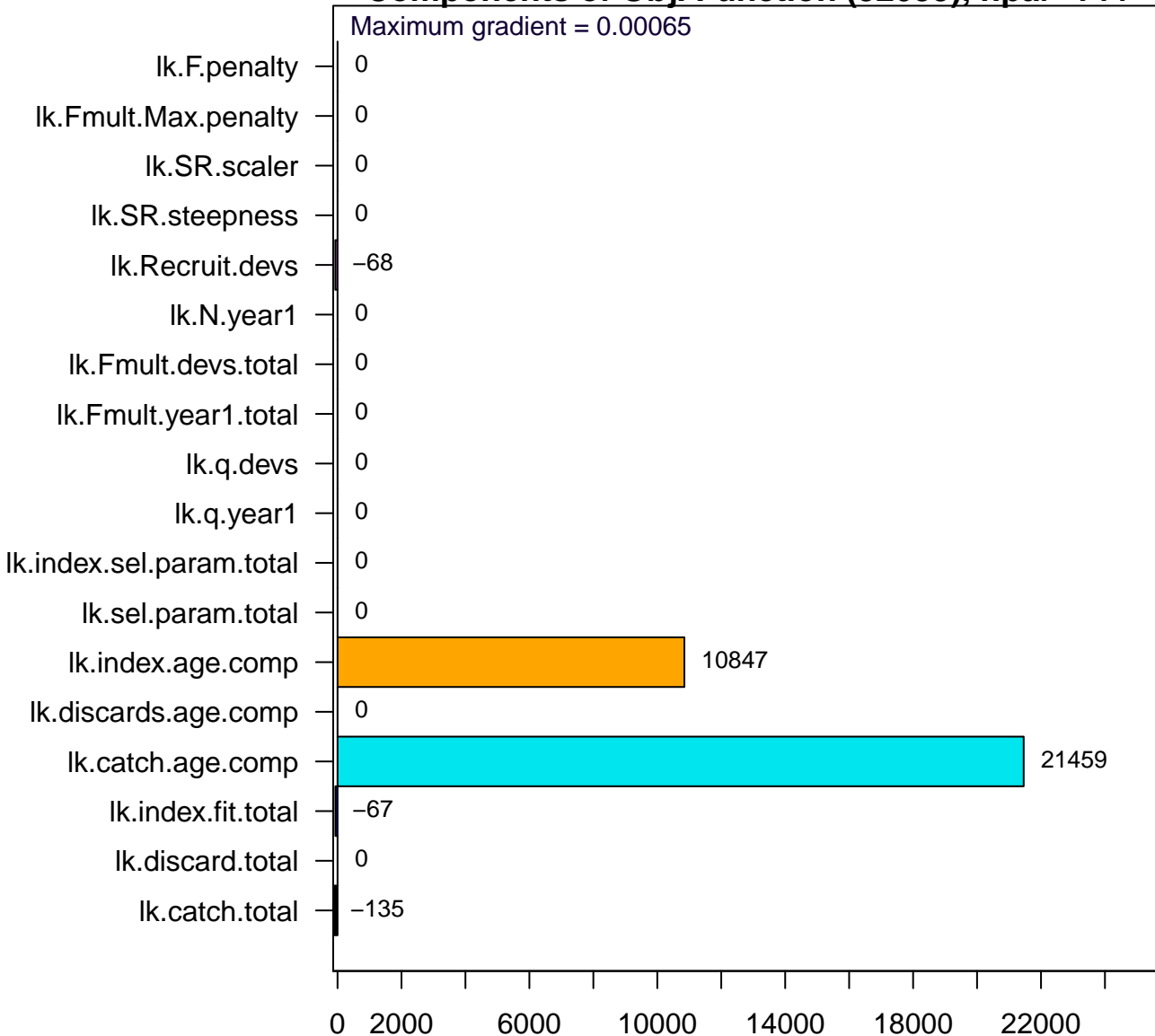
dir = C:\liz\NFT\ASAP\WGMG_SRfits\ASAP\sims\test\

ASAPplots version = 0.2.11

npar = 144, maximum gradient = 0.000649538

Components of Obj. Function (32035), npar=144

Maximum gradient = 0.00065



Likelihood Contribution

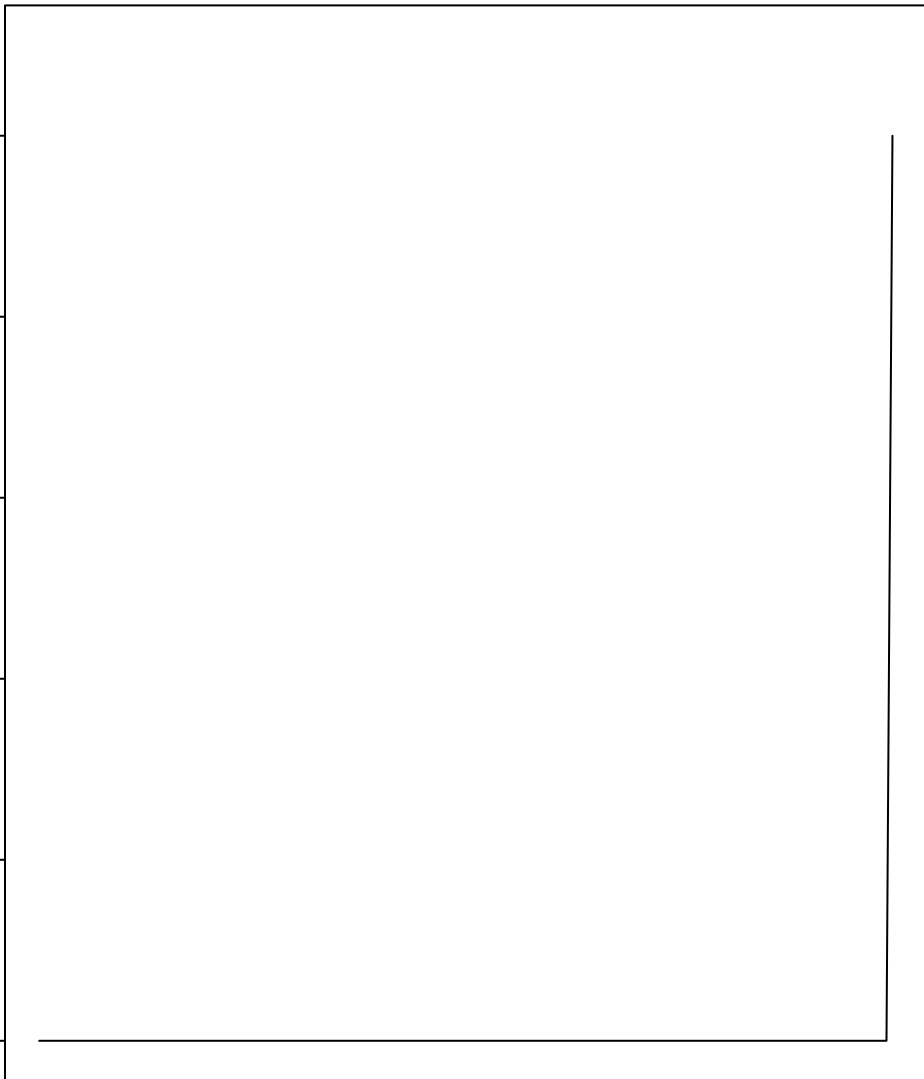
Model: ASAP_TEST Wednesday, 03 Jul 2019 at 09:54:26

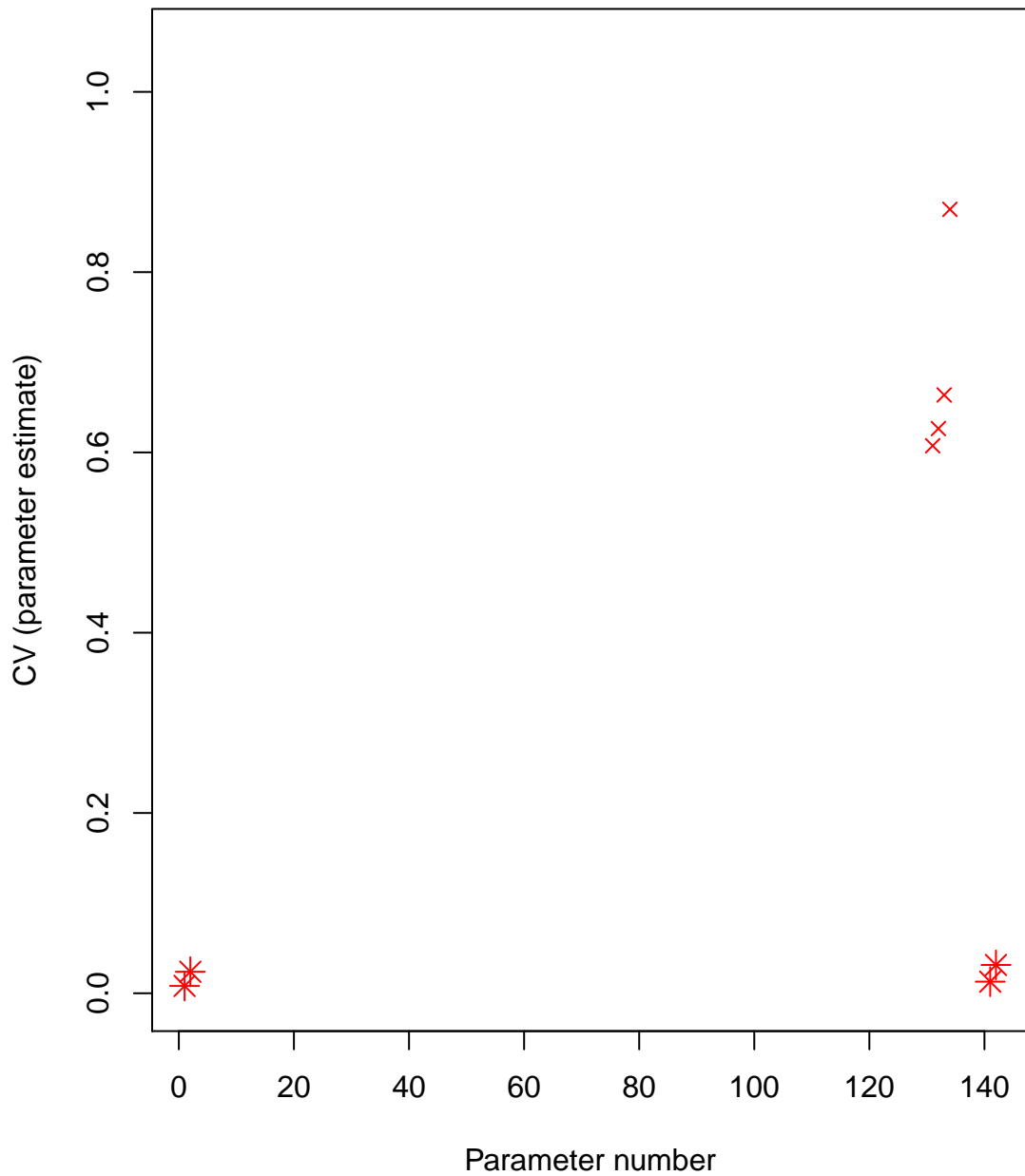
Number of high correlations

1.0
0.8
0.6
0.4
0.2
0.0

0 20 40 60 80 100 120 140

Parameter

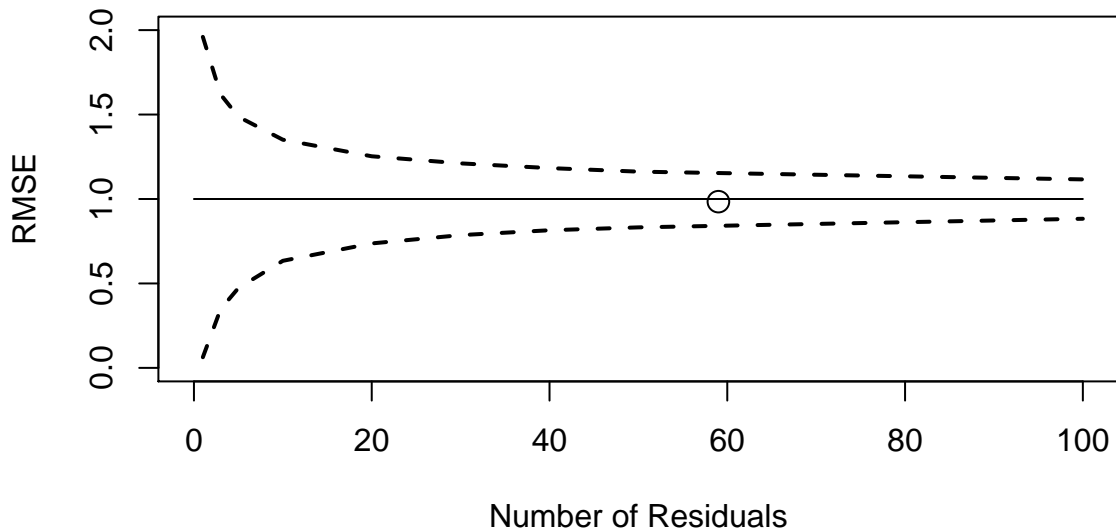




Root Mean Square Error computed from Standardized Residuals

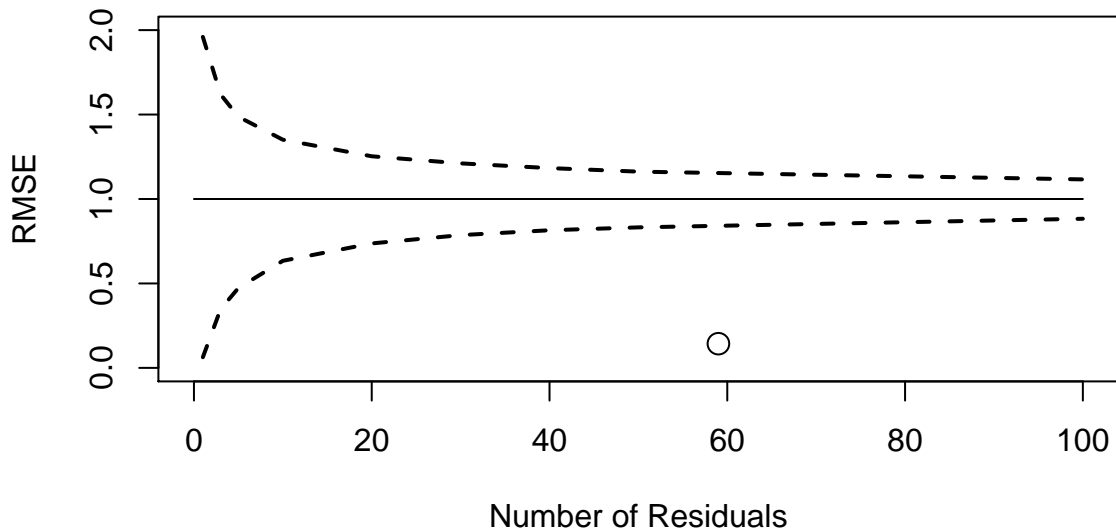
Component	# resids	RMSE
catch.tot	59	0.143
discard.tot	0	0
ind.total	59	0.984
N.year1	0	0
Fmult.year1	0	0
Fmult.devs.total	0	0
recruit.devs	59	0.31
fleet.sel.params	0	0
index.sel.params	0	0
q.year1	0	0
q.devs	0	0
SR.steepness	0	0
SR.scaler	0	0

Root Mean Square Error for Indices



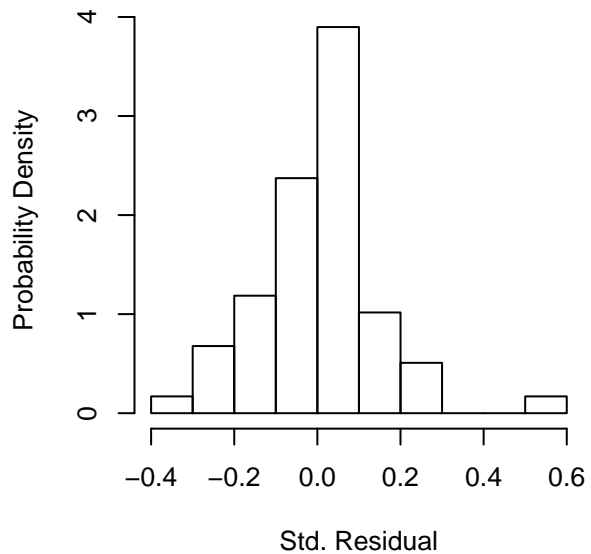
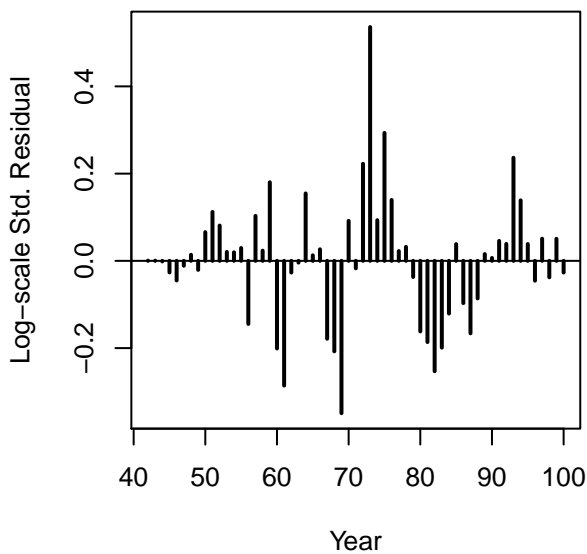
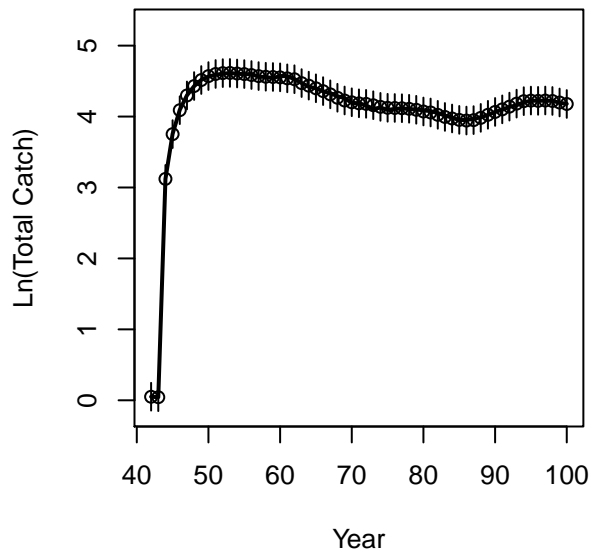
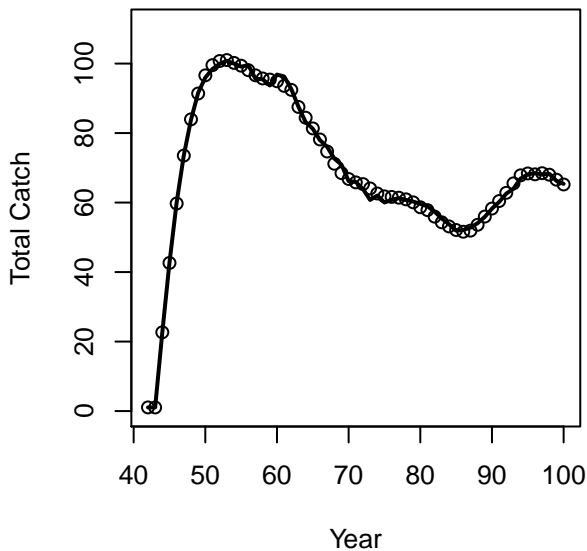
○ INDEX-1

Root Mean Square Error for Catch

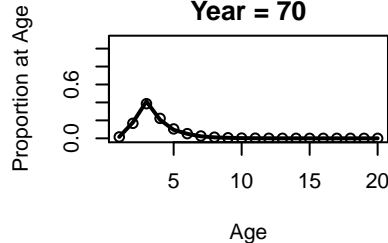
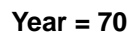
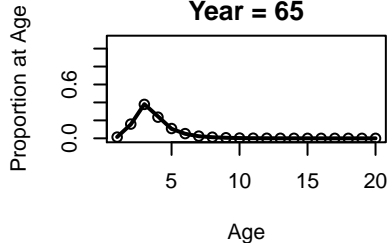
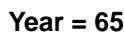
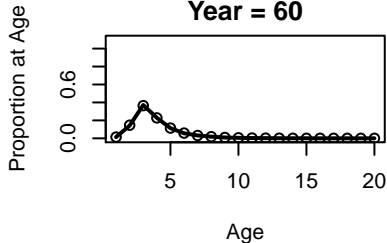
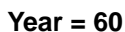
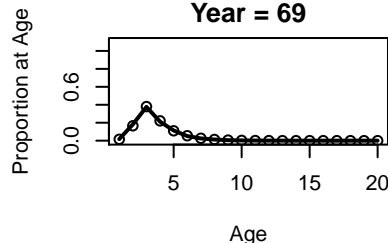
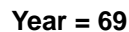
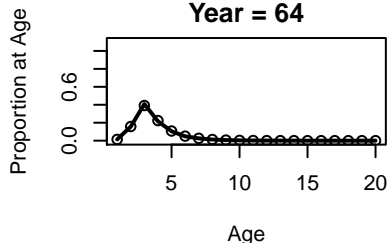
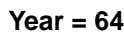
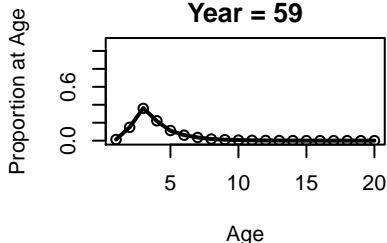
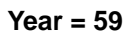
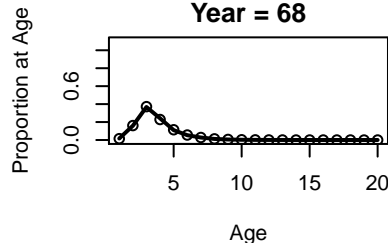
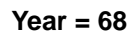
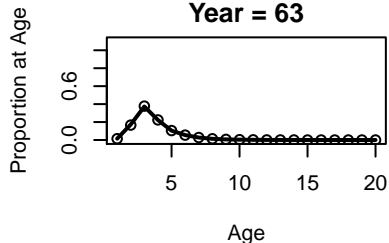
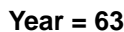
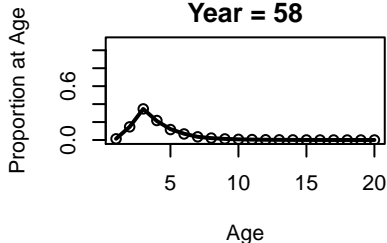
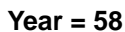
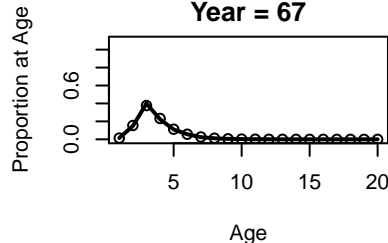
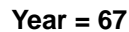
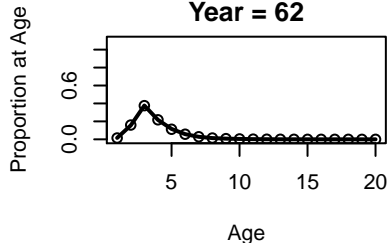
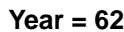
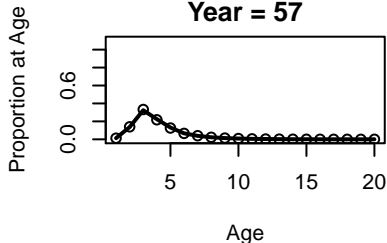
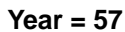
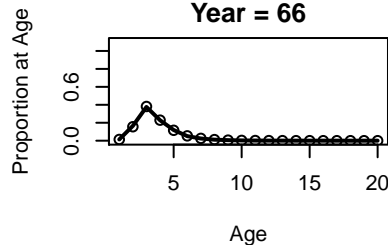
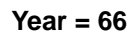
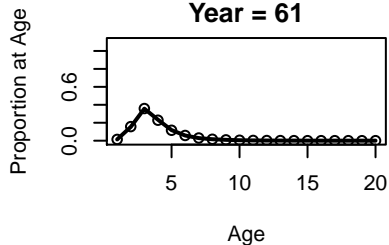
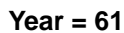
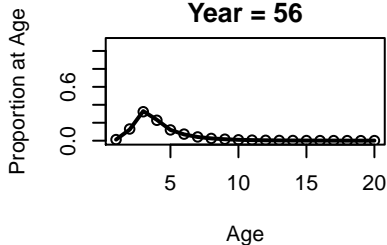
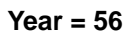


○ catch.tot

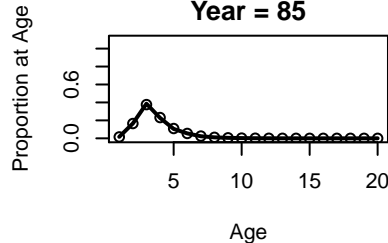
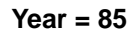
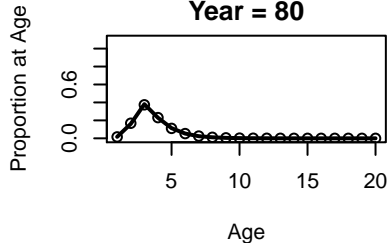
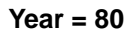
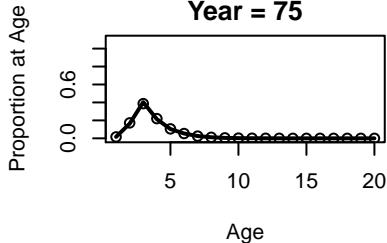
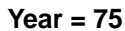
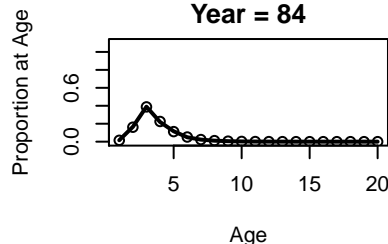
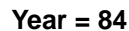
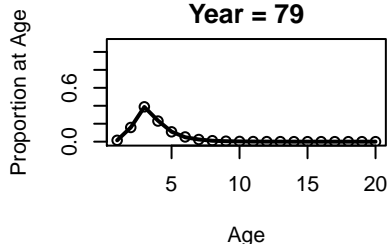
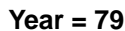
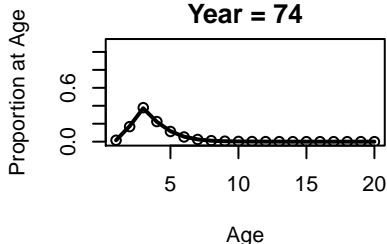
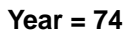
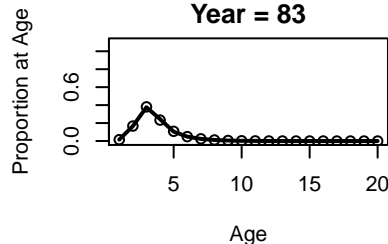
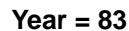
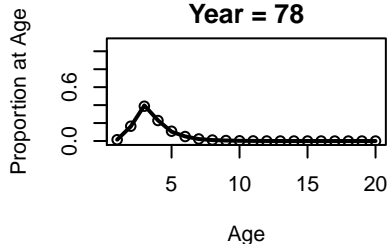
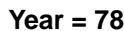
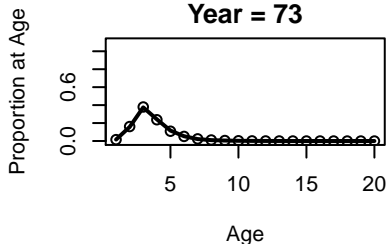
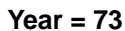
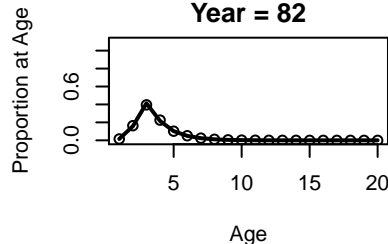
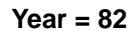
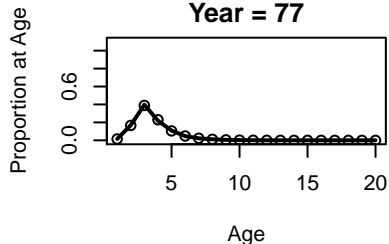
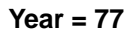
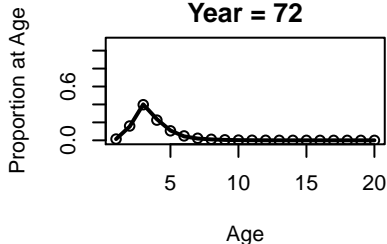
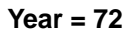
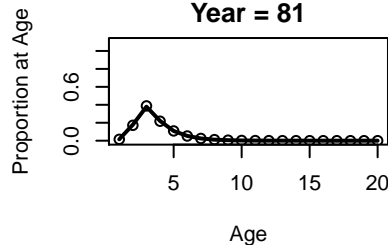
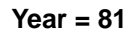
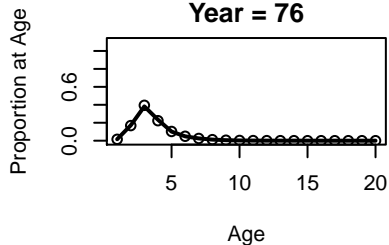
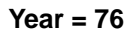
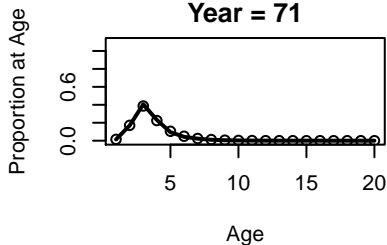
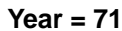
Fleet 1 Catch (FLEET-1)



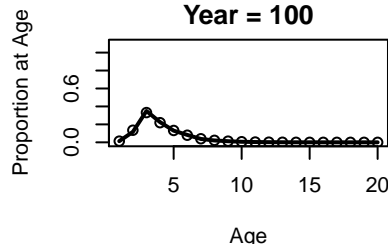
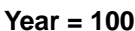
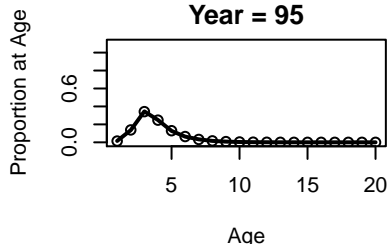
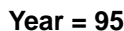
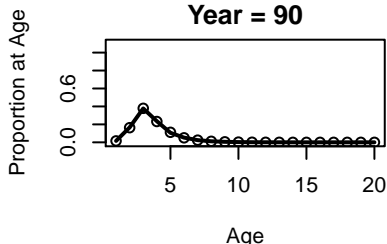
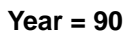
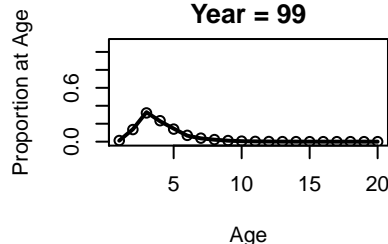
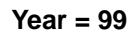
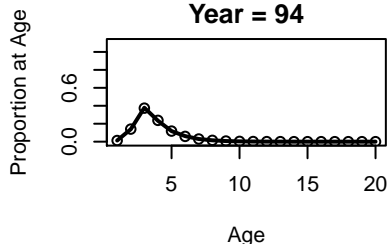
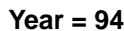
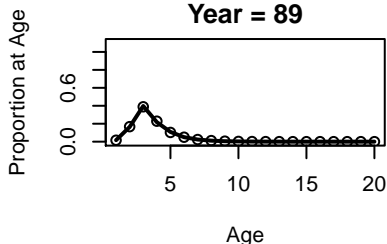
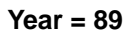
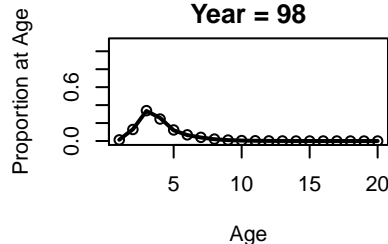
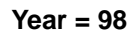
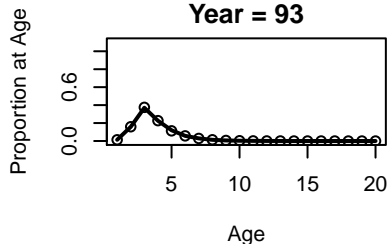
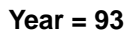
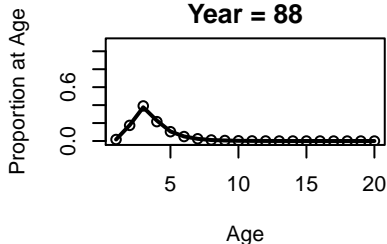
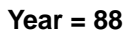
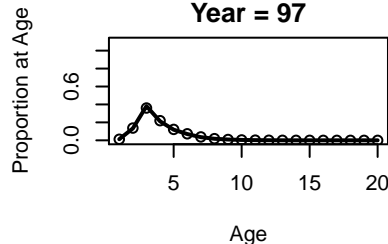
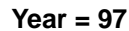
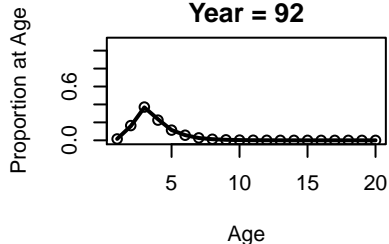
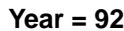
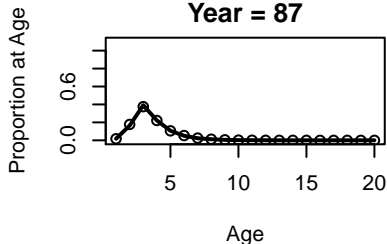
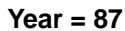
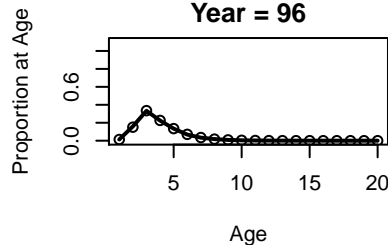
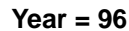
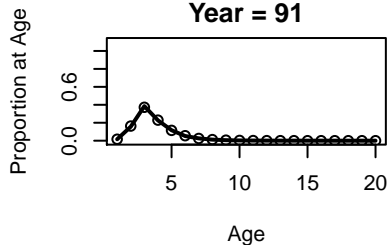
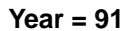
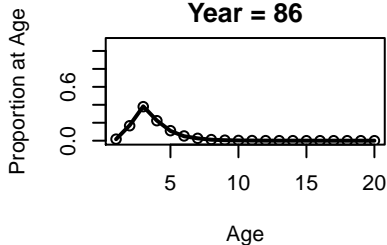
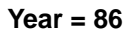
Catch



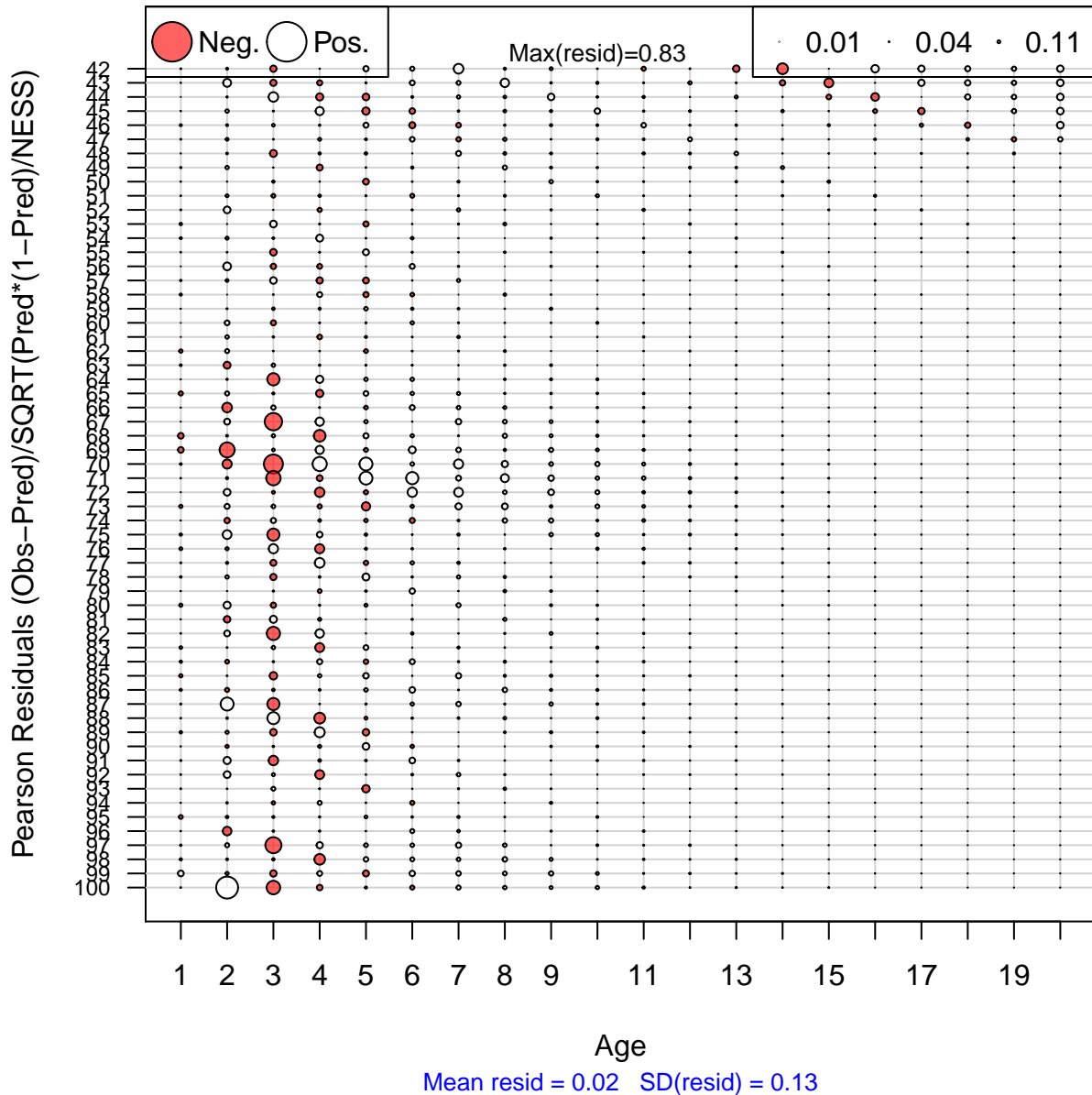
Catch



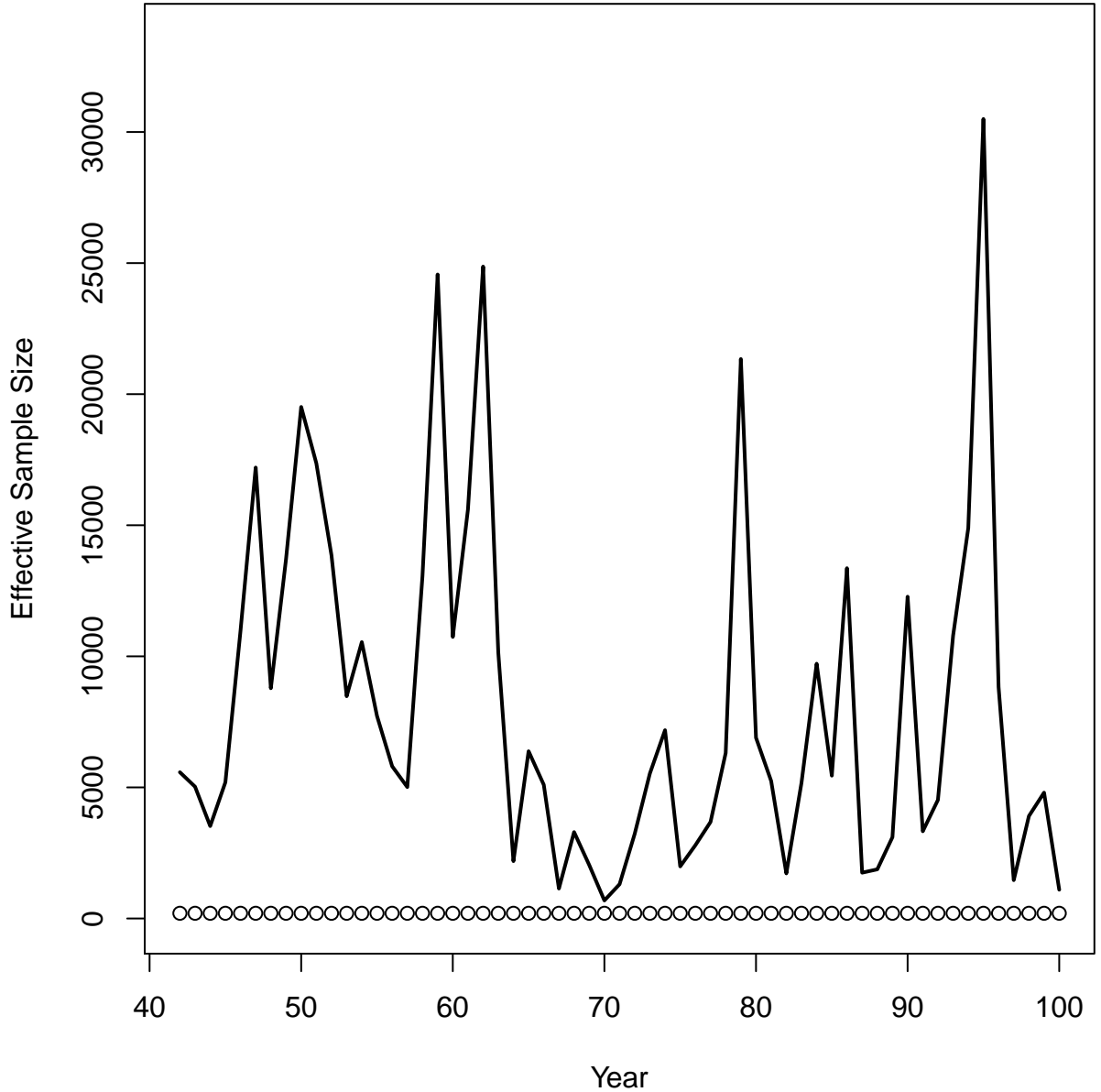
Catch



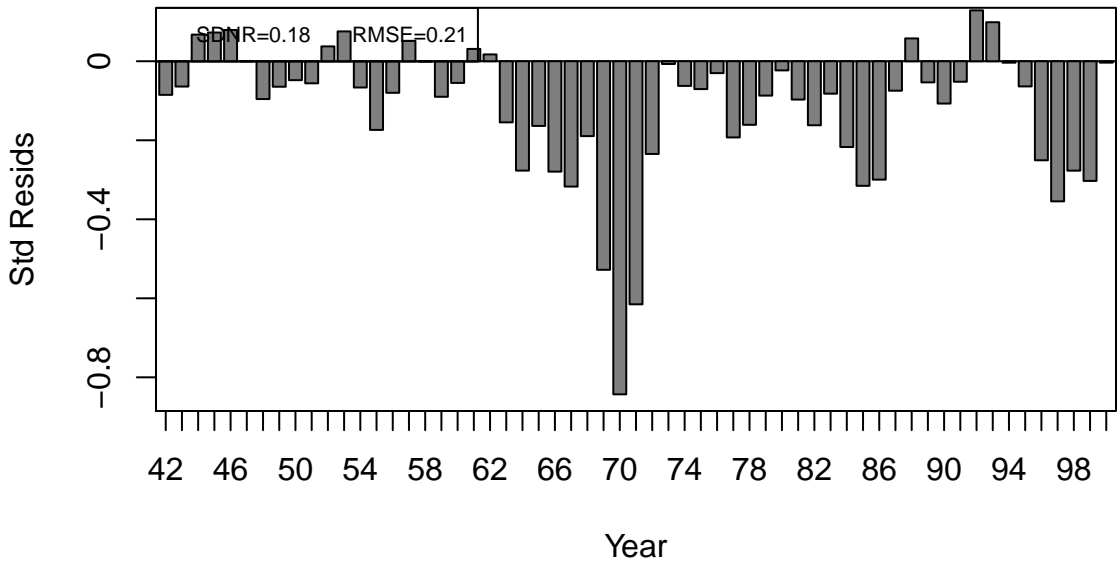
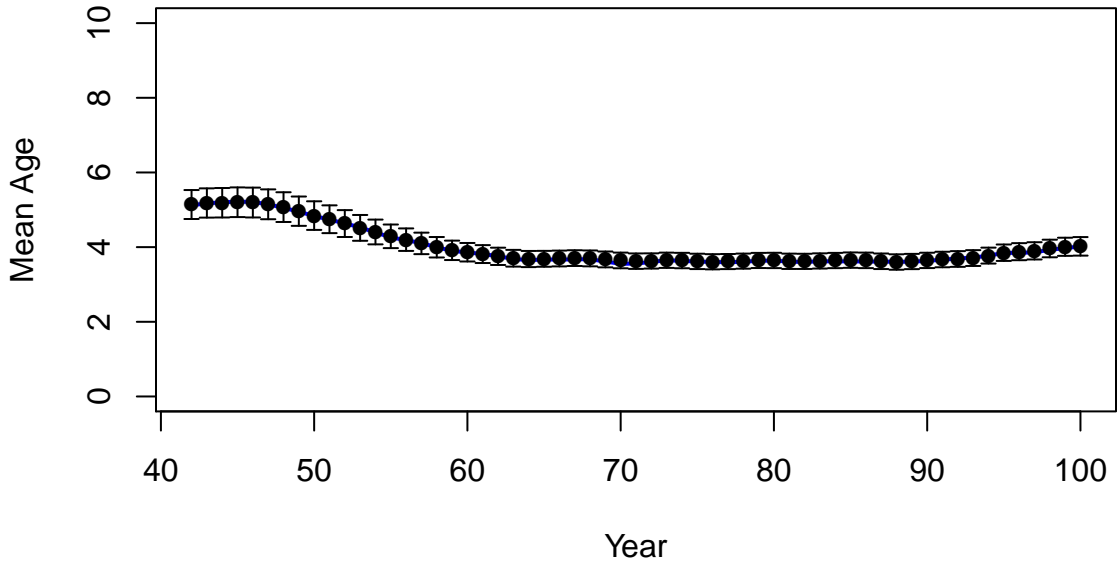
Age Comp Residuals for Catch by Fleet 1 (FLEET-1)



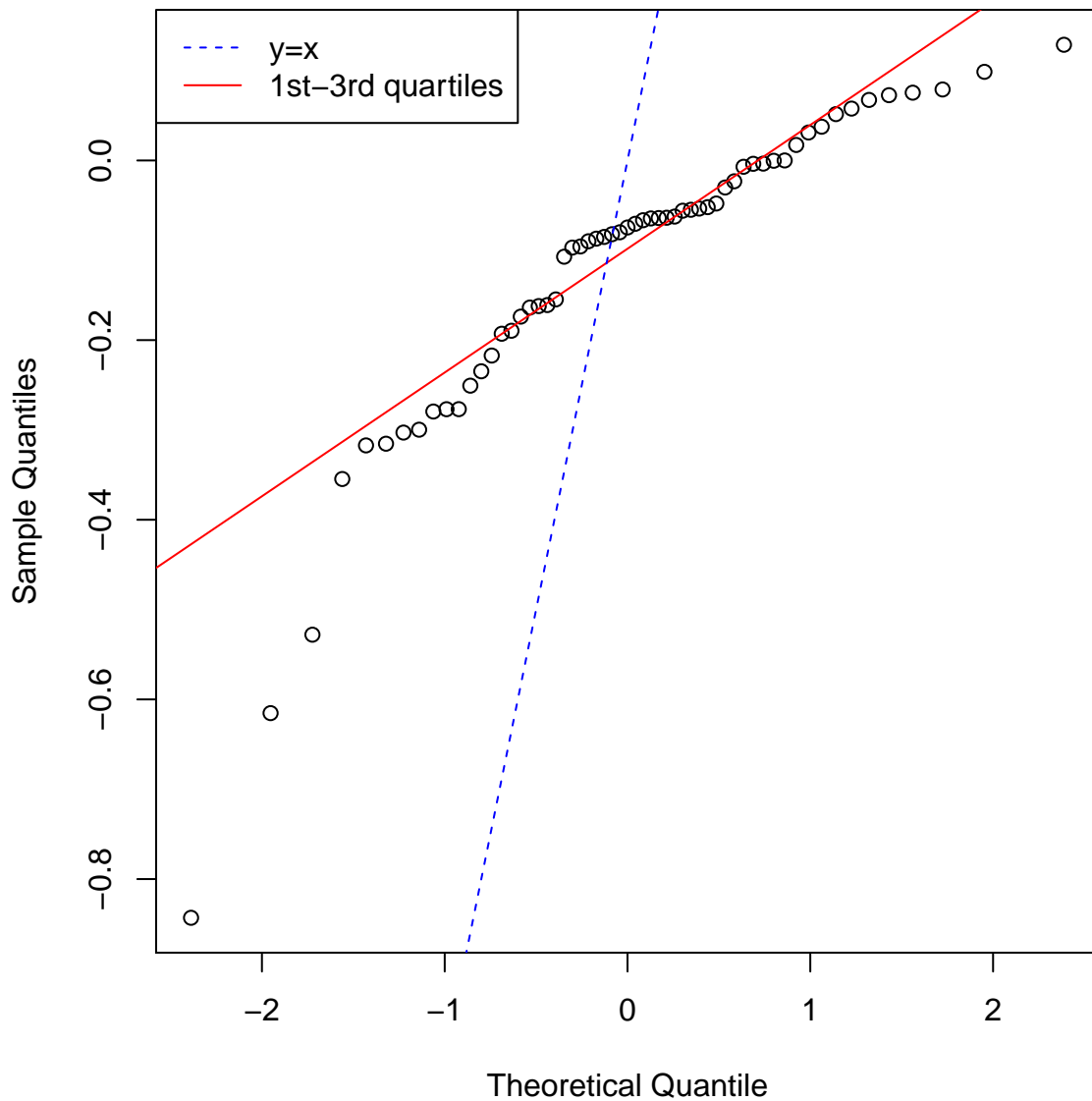
Catch Neff Fleet 1 (FLEET-1)



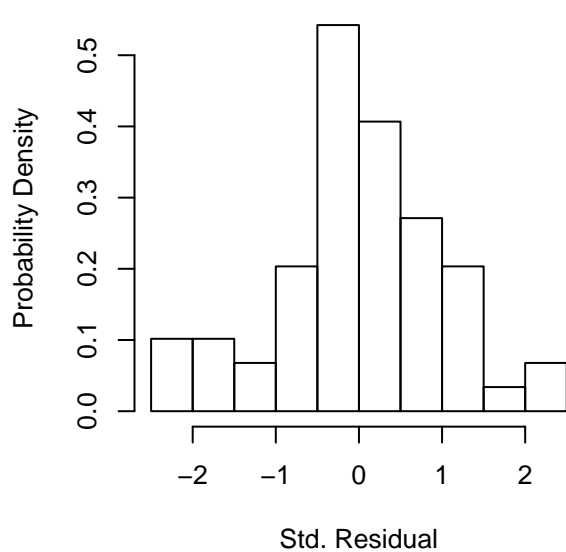
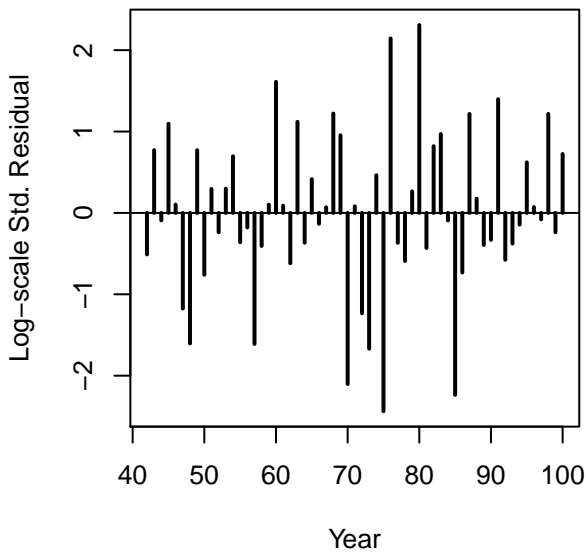
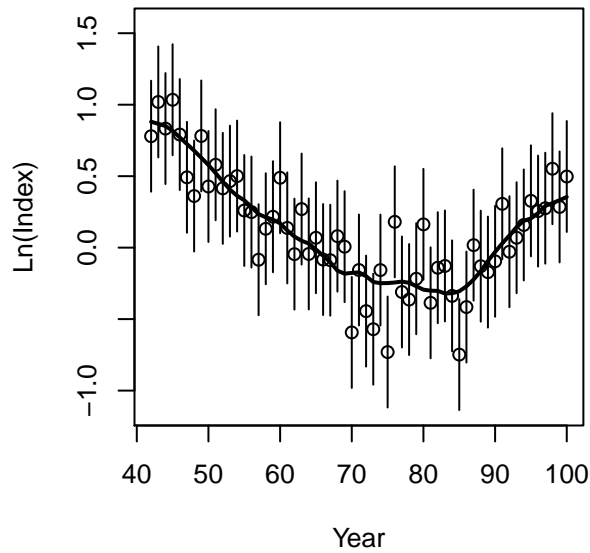
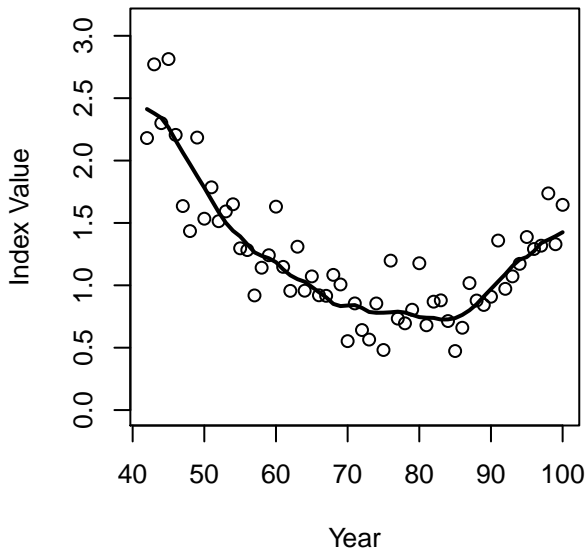
Catch Fleet 1 (FLEET-1) ESS = 200



Catch Fleet 1 (FLEET-1) ESS = 200



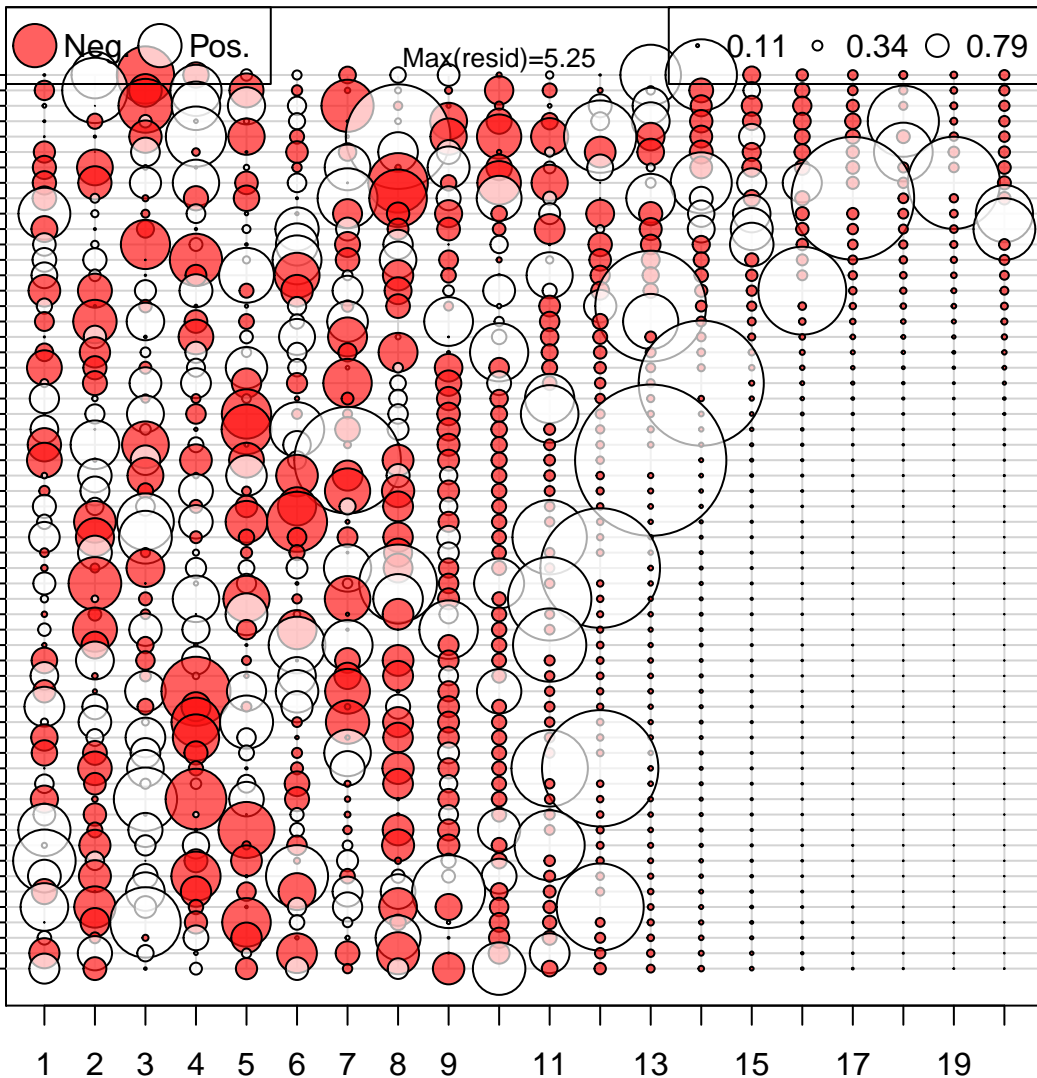
Index 1 (INDEX-1)



Age Comp Residuals for Index 1 (INDEX-1)

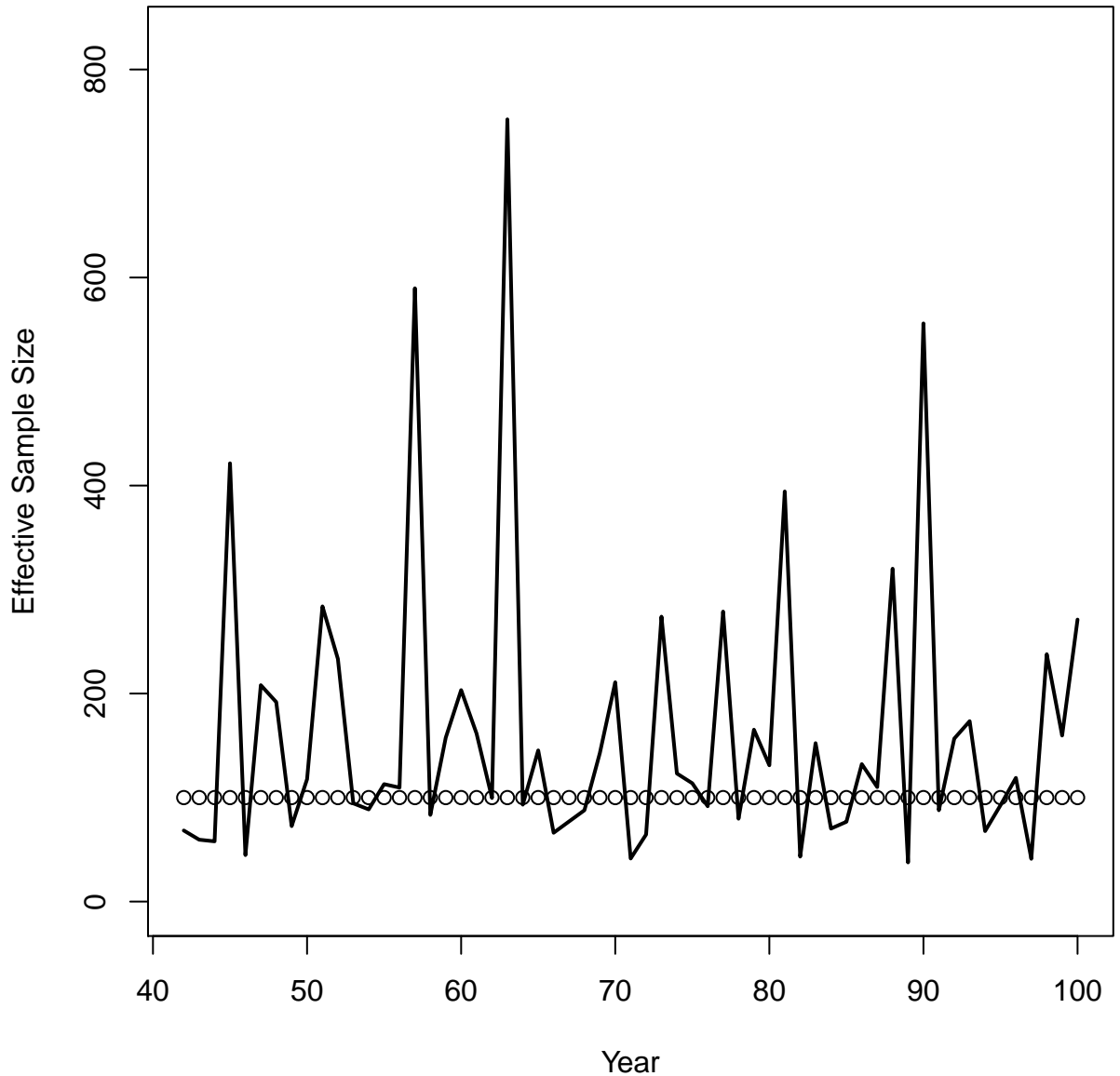
Pearson Residuals (Obs-Pred)/SQRT(Pred*(1-Pred)/NESS)

1

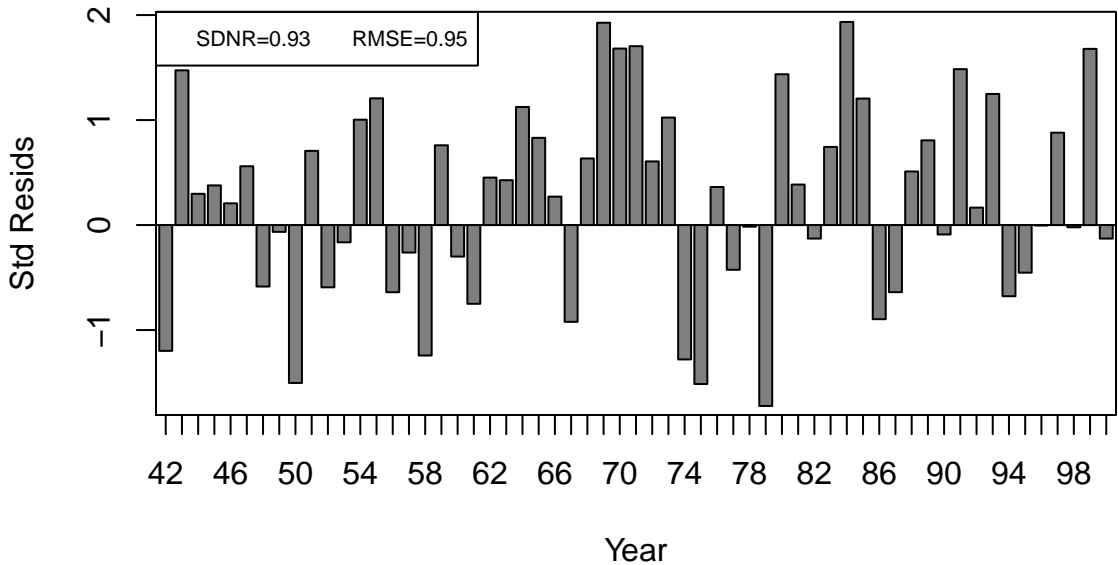
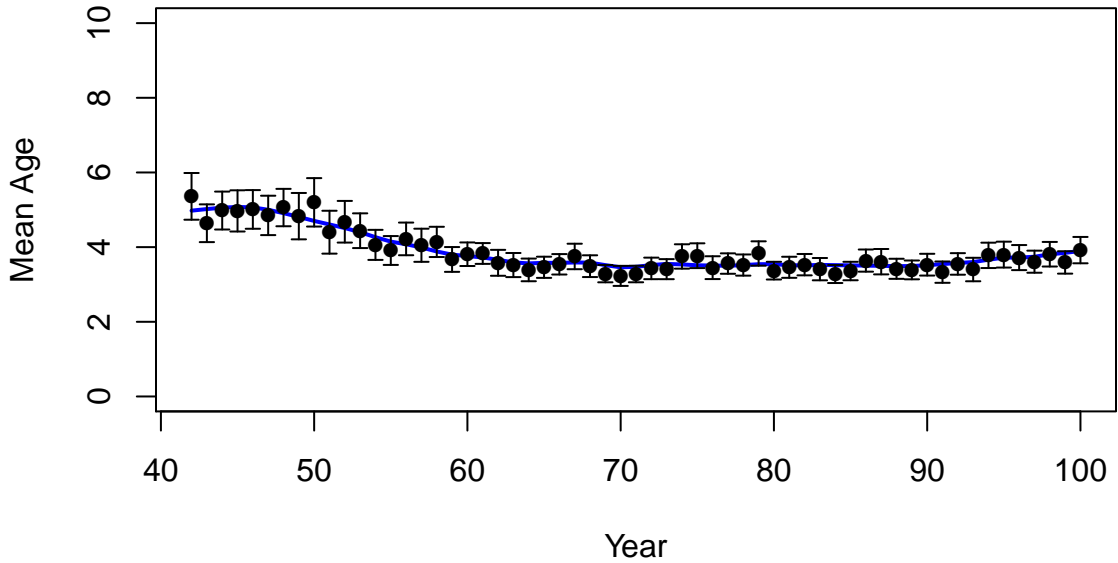


Mean resid = -0.03 SD(resid) = 0.84

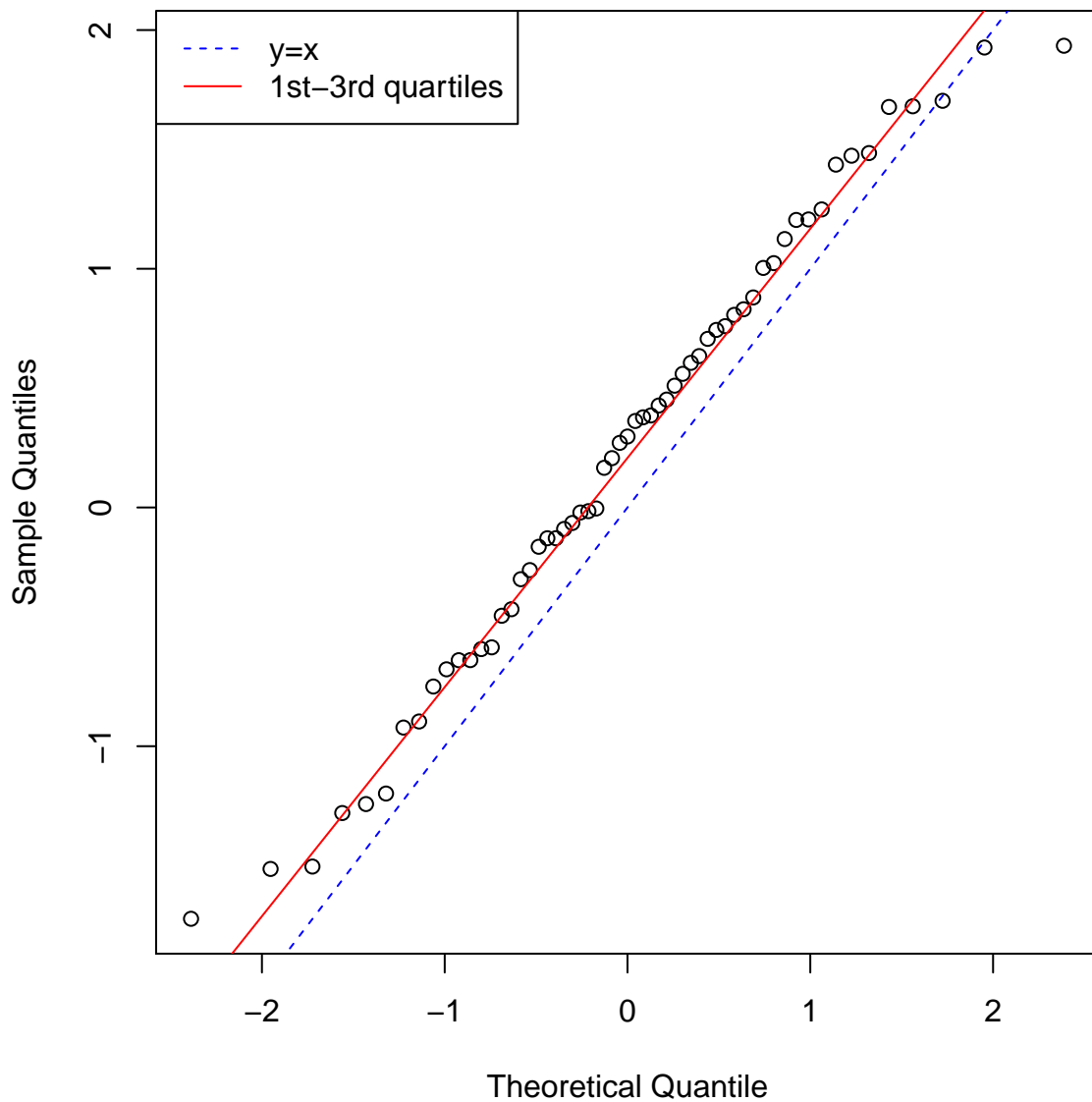
Index Neff 1 (INDEX-1)



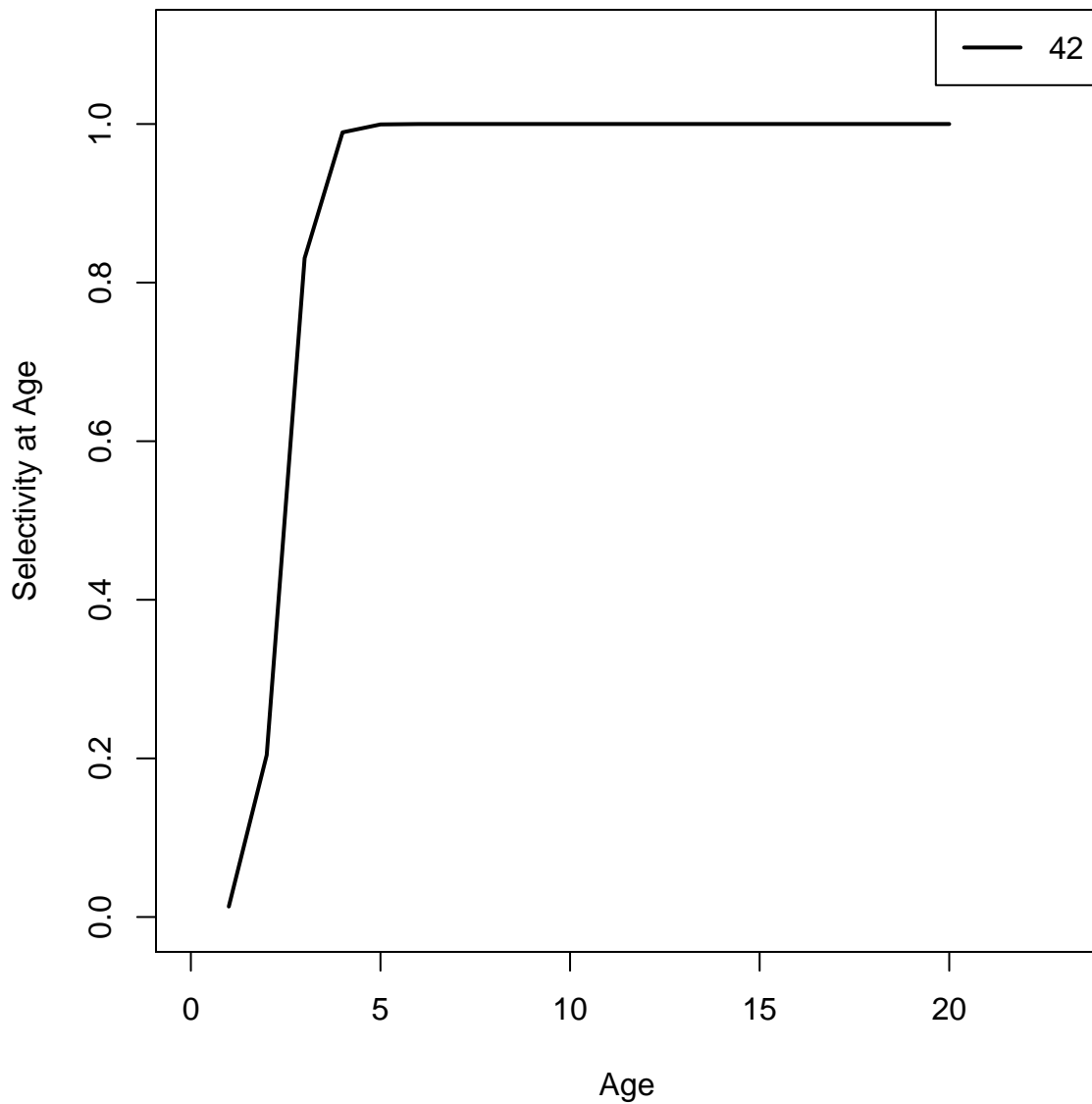
Index 1 (INDEX-1) ESS = 100

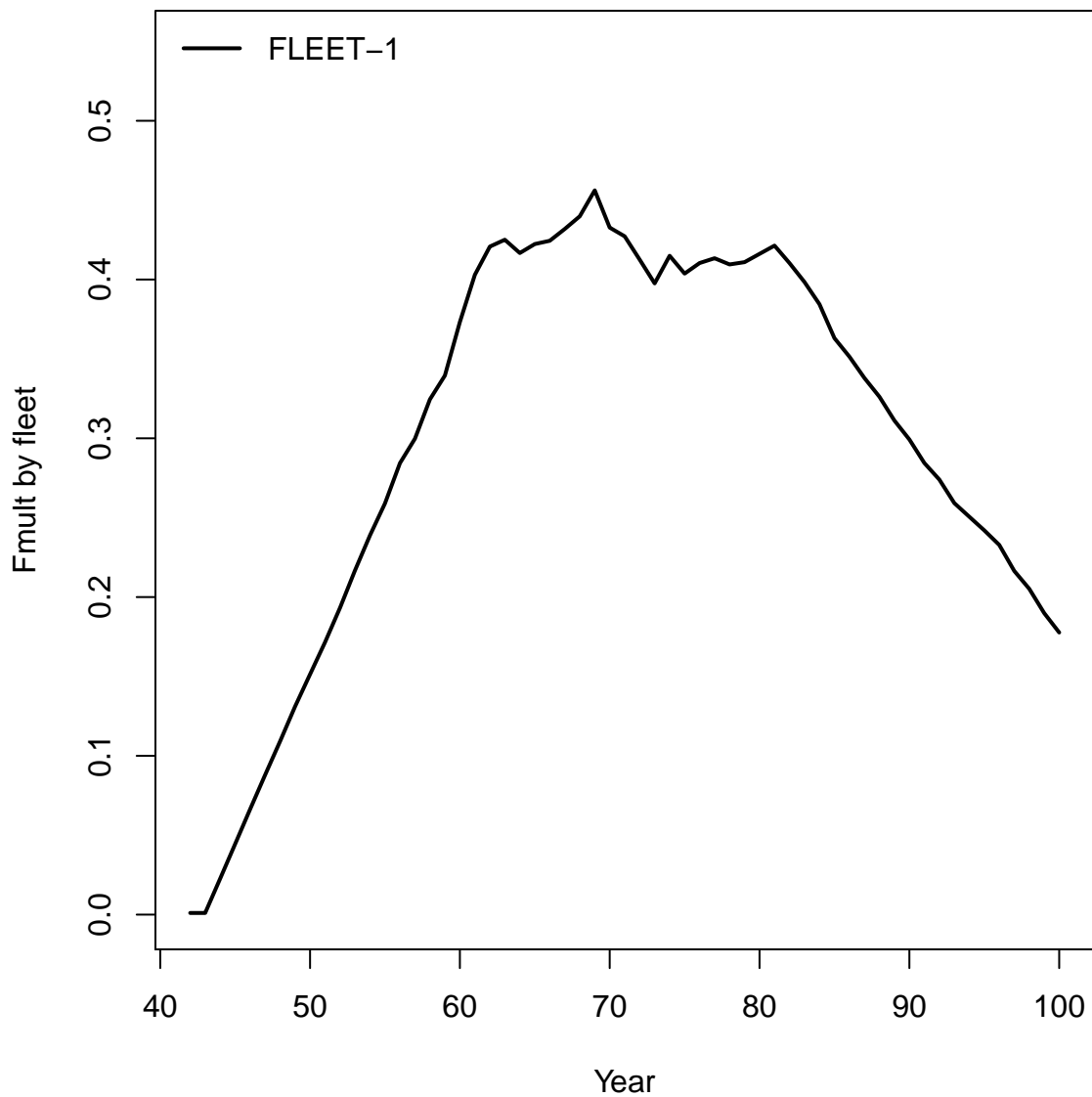


Index 1 (INDEX-1) ESS = 100

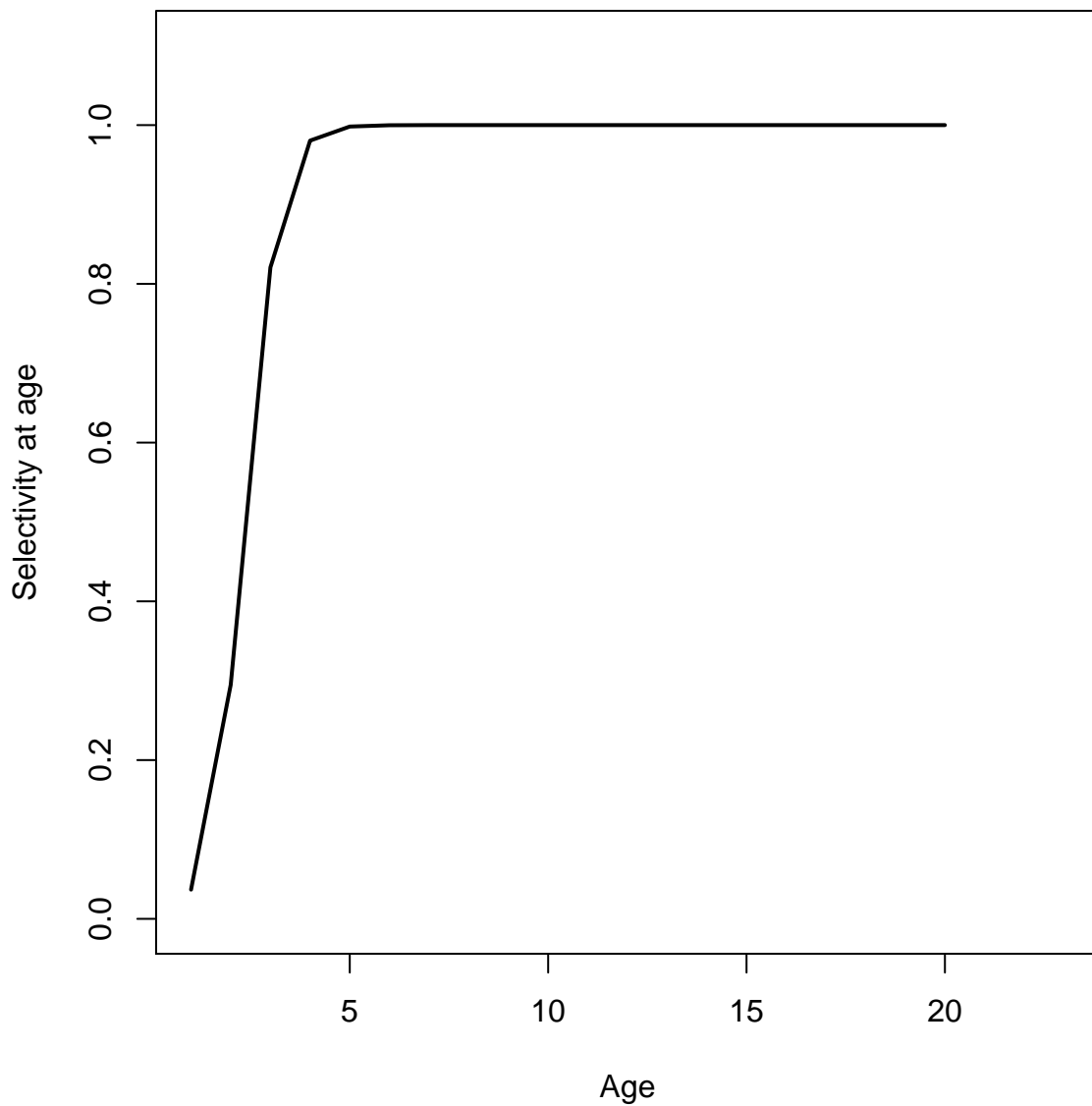


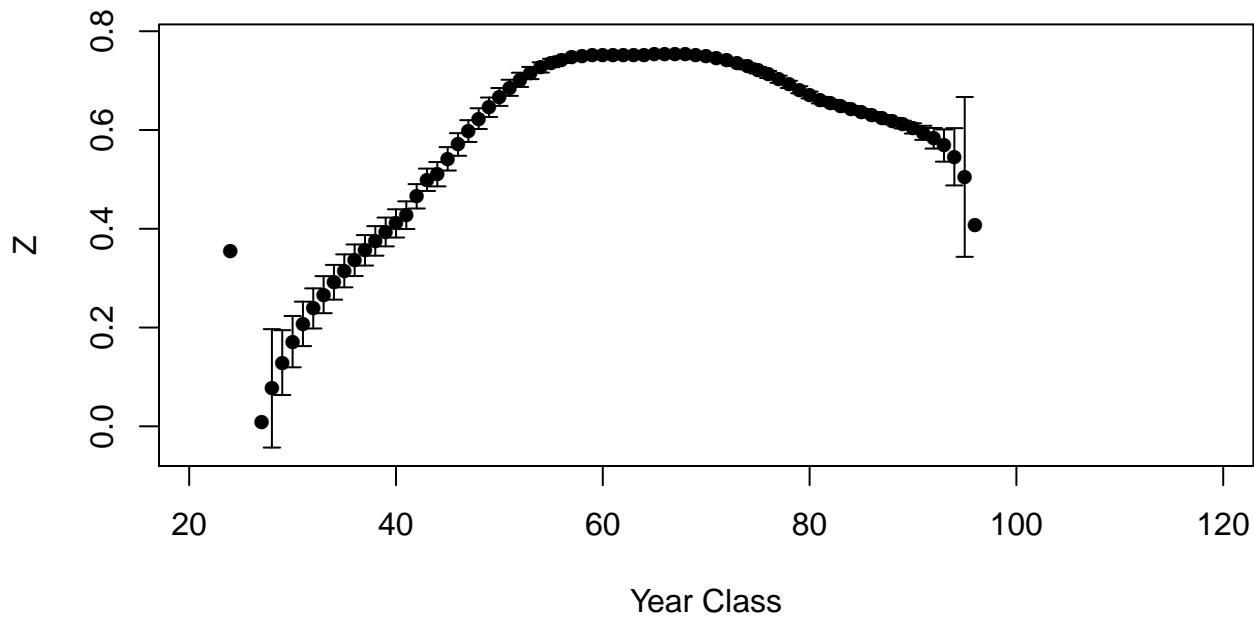
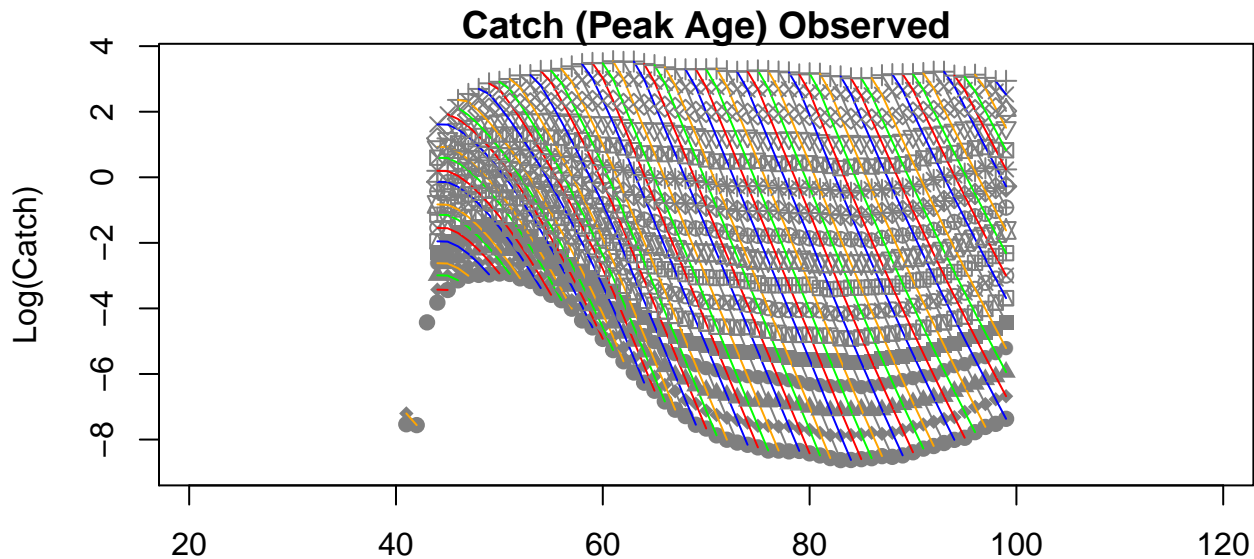
Fleet 1 (FLEET-1)

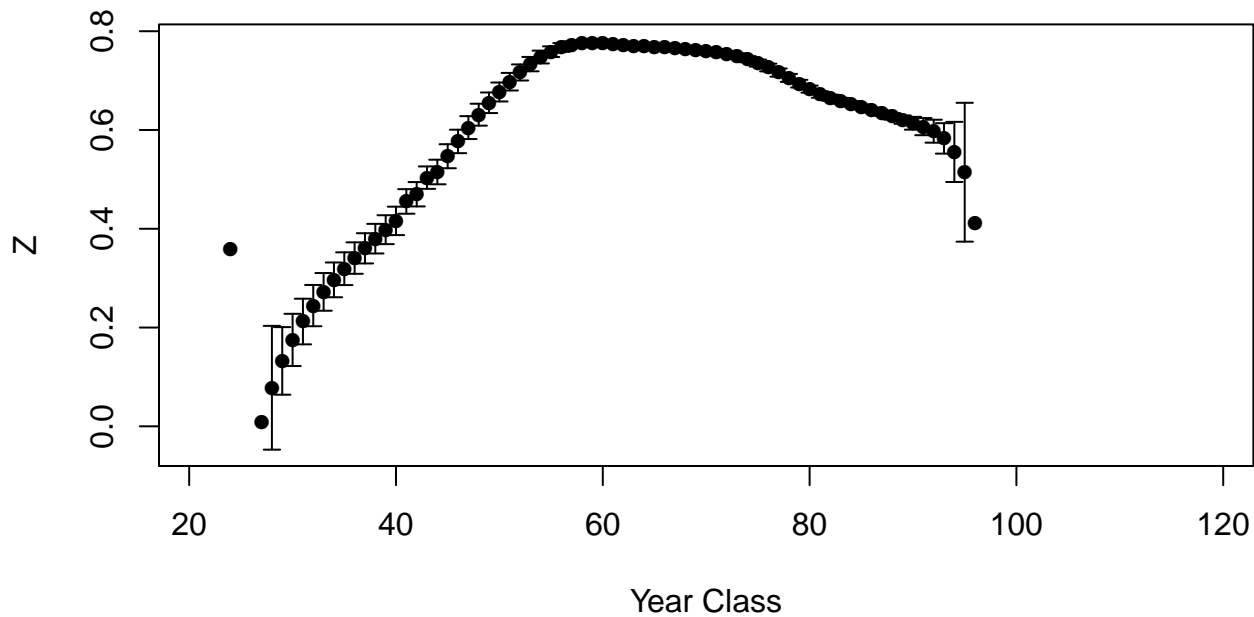
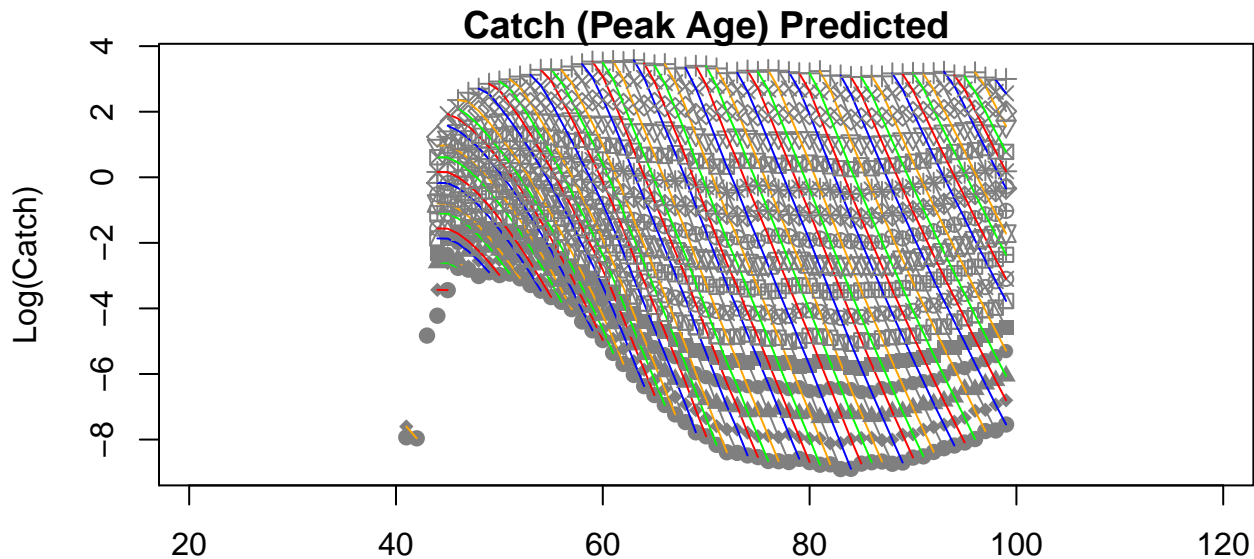


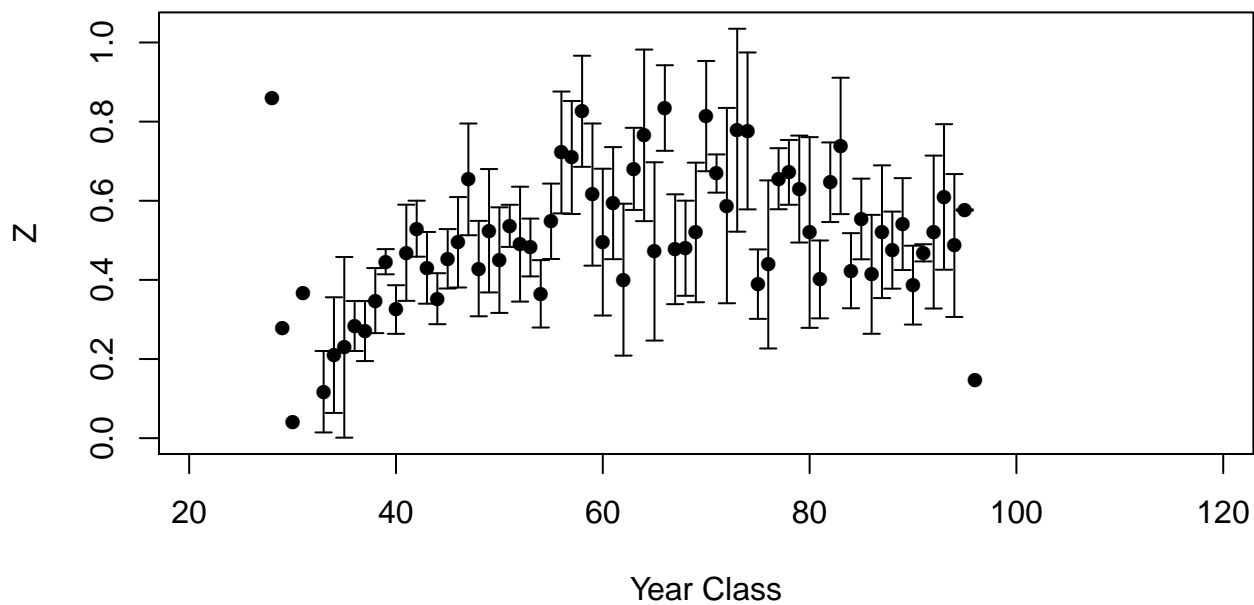
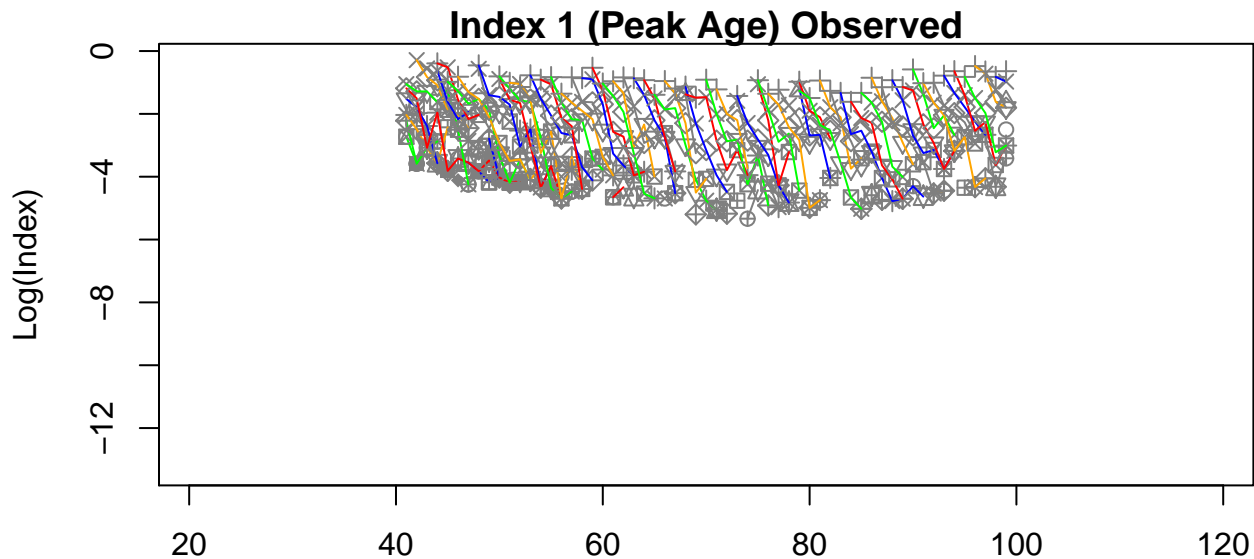


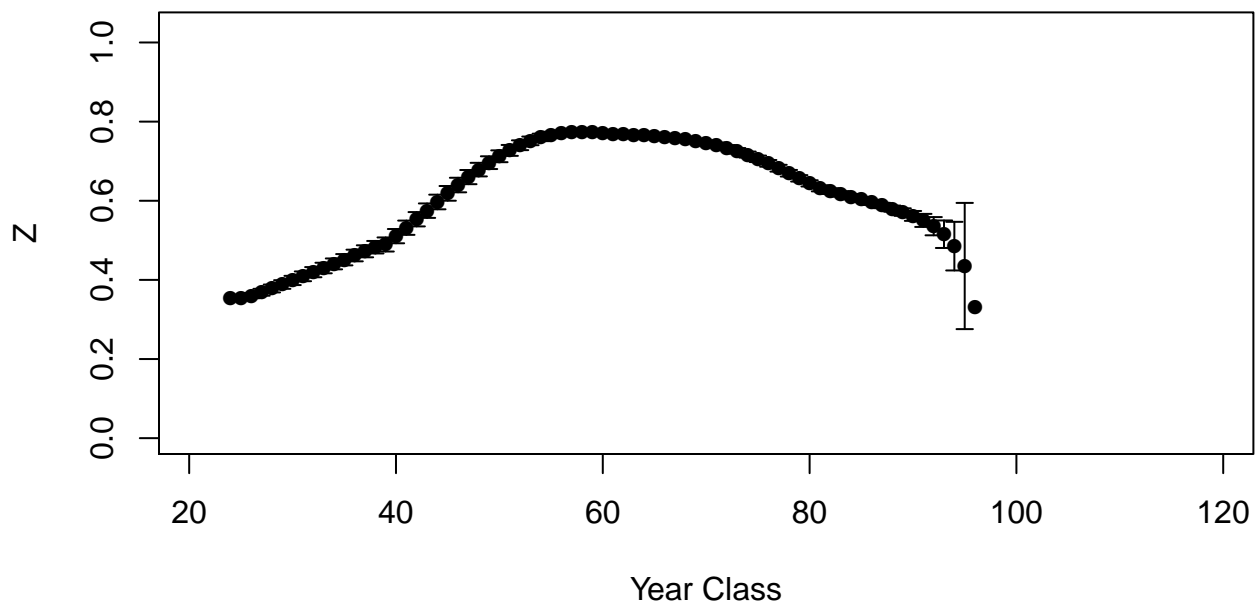
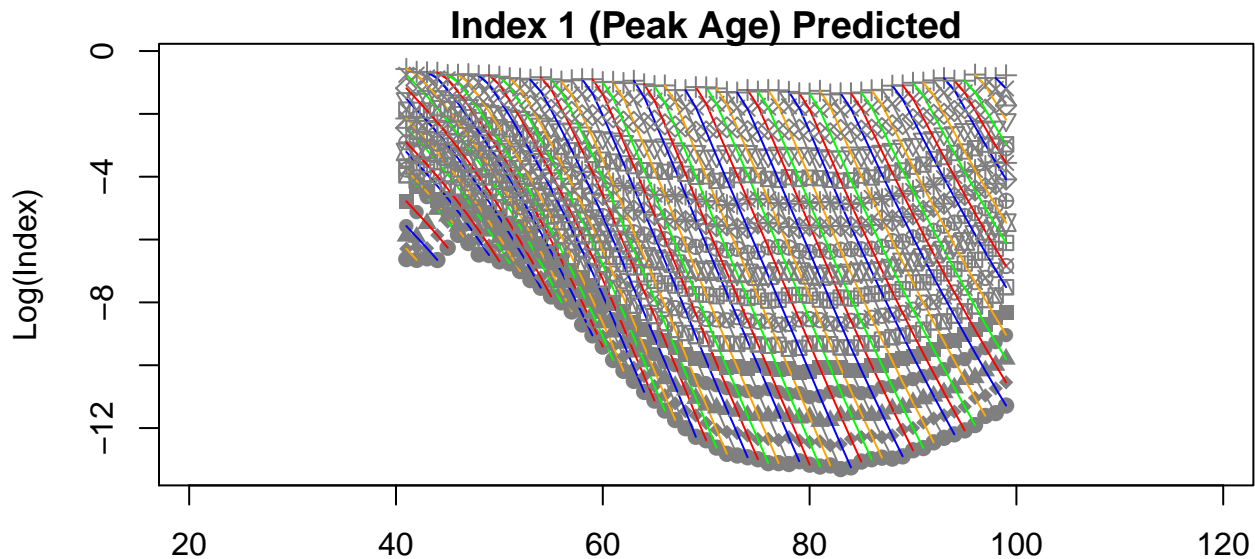
Indices



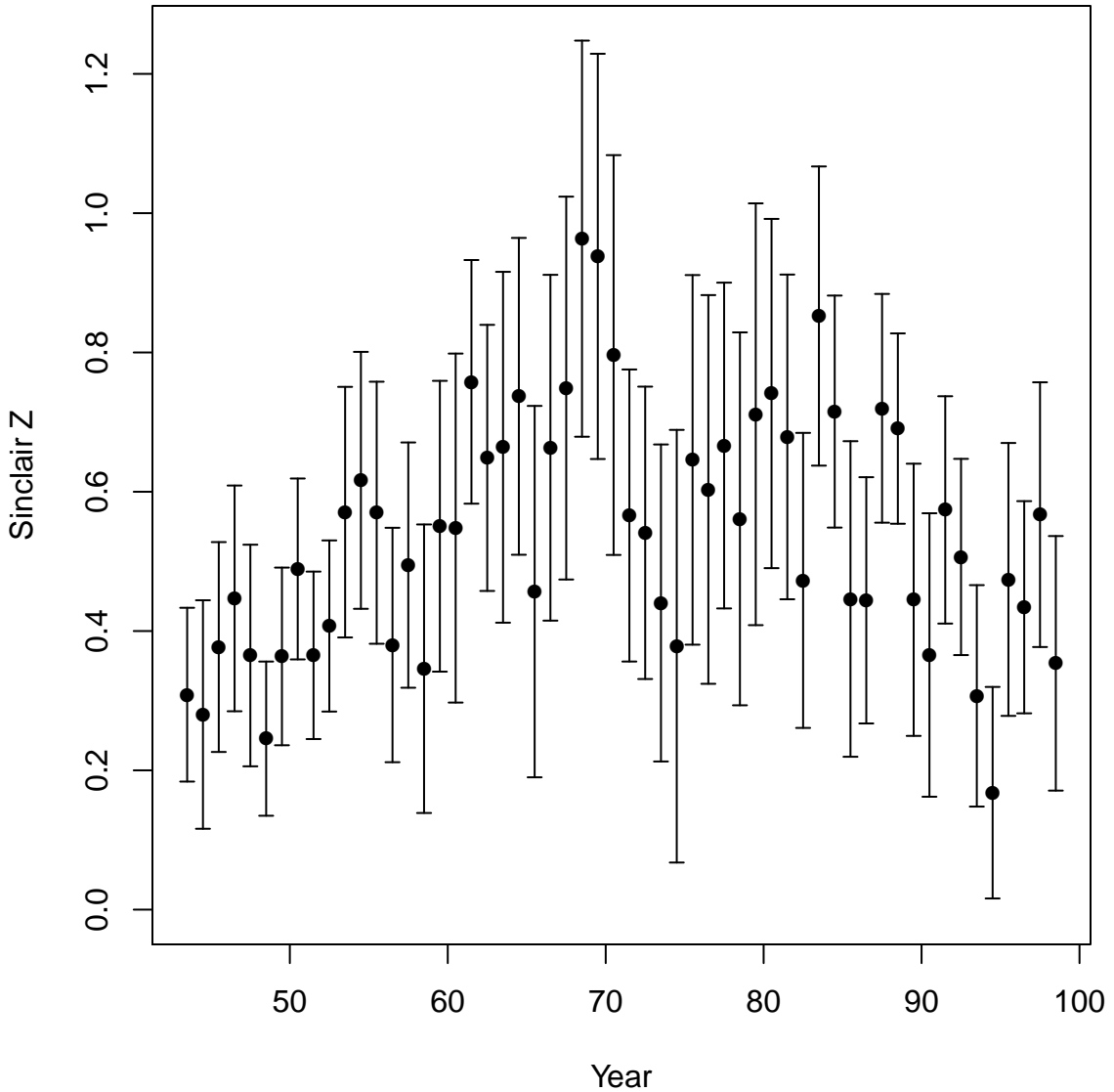




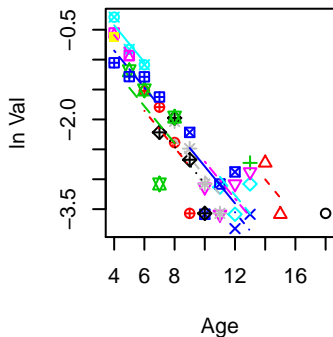




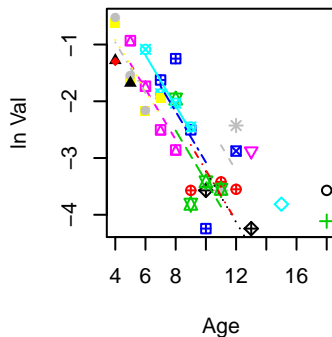
INDEX-1



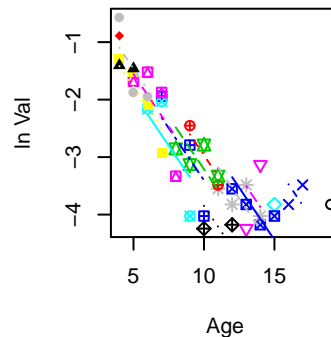
Years 42 to 45
Z = 0.309



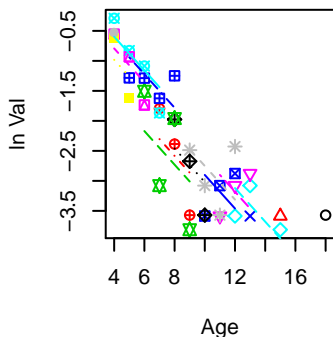
Years 45 to 48
Z = 0.447



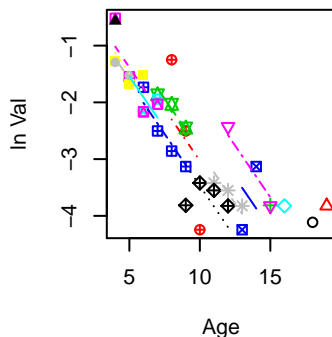
Years 48 to 51
Z = 0.364



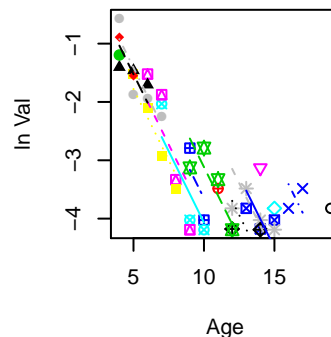
Years 43 to 46
Z = 0.28



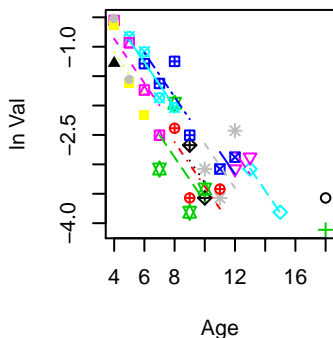
Years 46 to 49
Z = 0.365



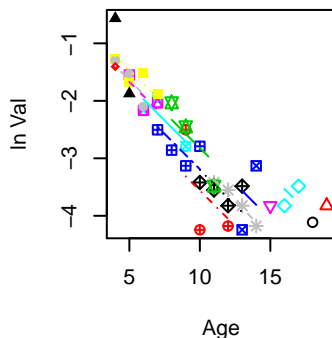
Years 49 to 52
Z = 0.489



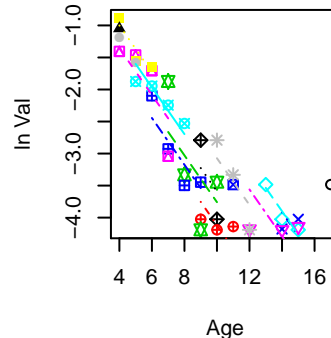
Years 44 to 47
Z = 0.377



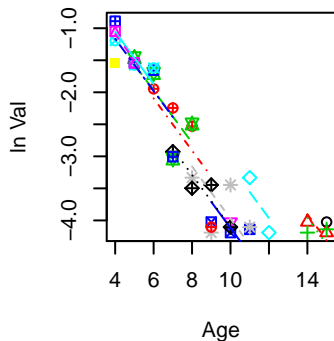
Years 47 to 50
Z = 0.245



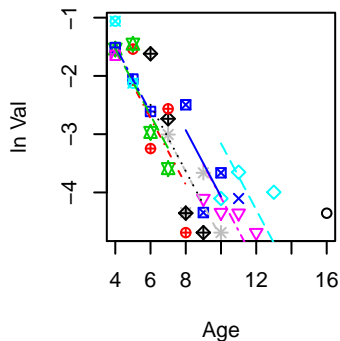
Years 50 to 53
Z = 0.365



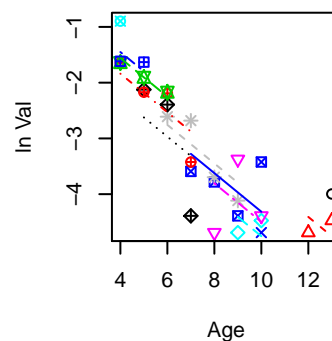
Years 51 to 54
Z = 0.407



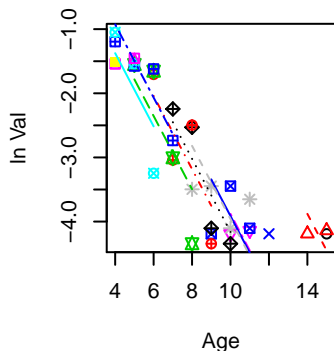
Years 54 to 57
Z = 0.57



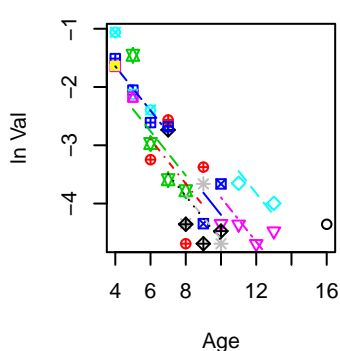
Years 57 to 60
Z = 0.346



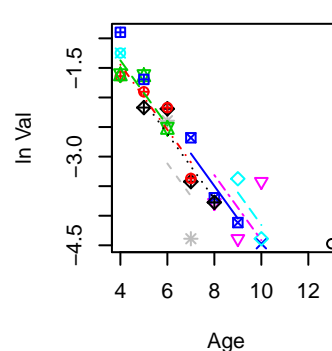
Years 52 to 55
Z = 0.571



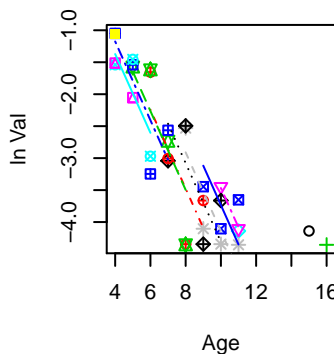
Years 55 to 58
Z = 0.38



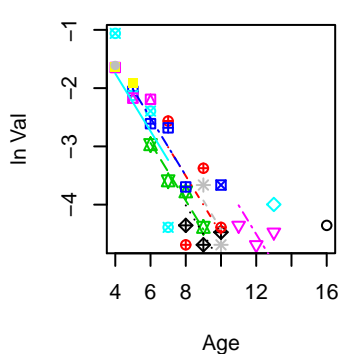
Years 58 to 61
Z = 0.55



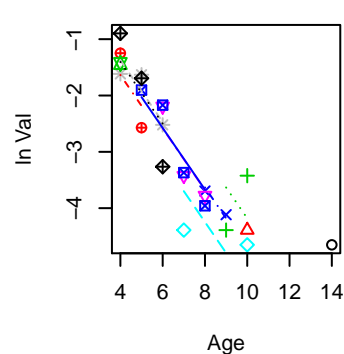
Years 53 to 56
Z = 0.616



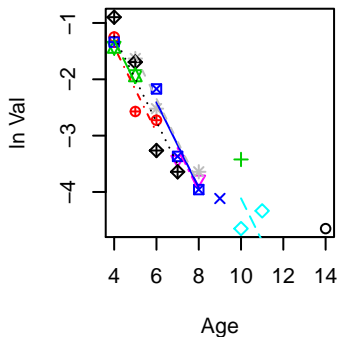
Years 56 to 59
Z = 0.495



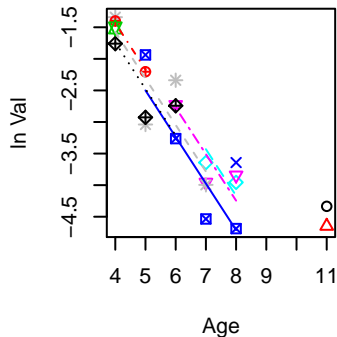
Years 59 to 62
Z = 0.548



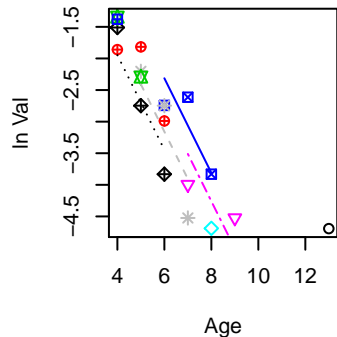
Years 60 to 63
Z = 0.758



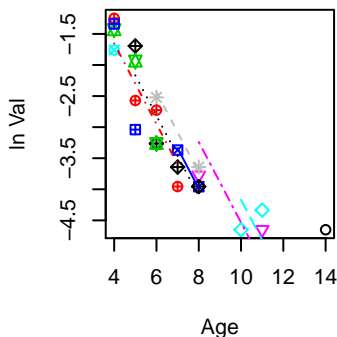
Years 63 to 66
Z = 0.737



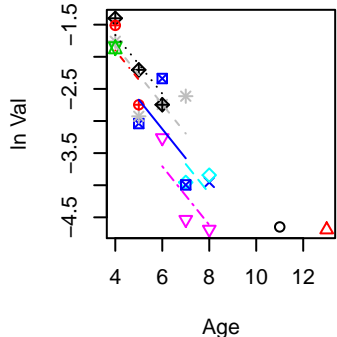
Years 66 to 69
Z = 0.749



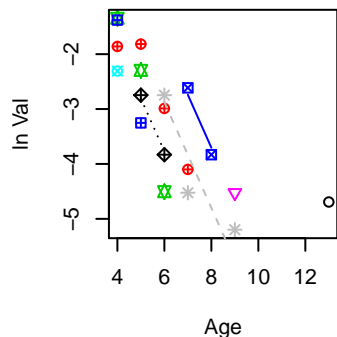
Years 61 to 64
Z = 0.649



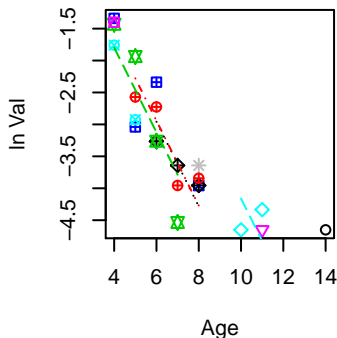
Years 64 to 67
Z = 0.457



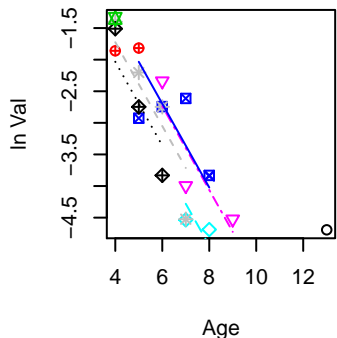
Years 67 to 70
Z = 0.963



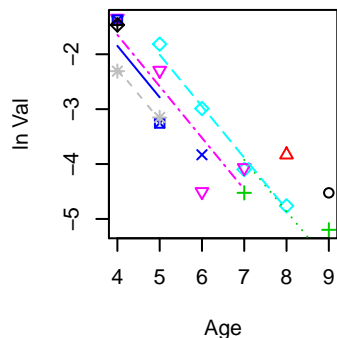
Years 62 to 65
Z = 0.664



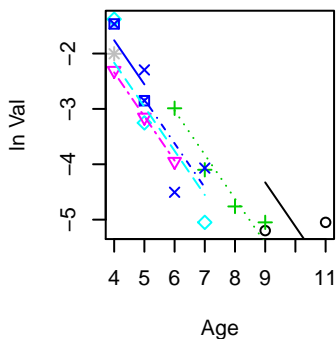
Years 65 to 68
Z = 0.663



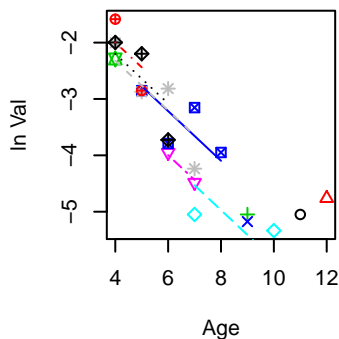
Years 68 to 71
Z = 0.938



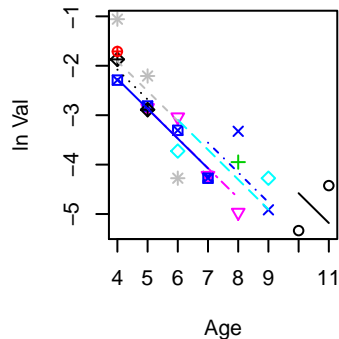
Years 69 to 72
Z = 0.796



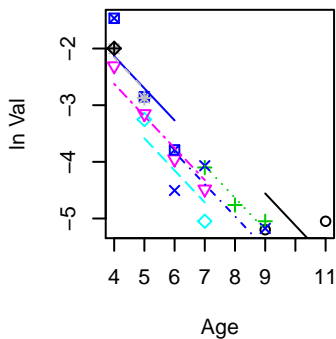
Years 72 to 75
Z = 0.44



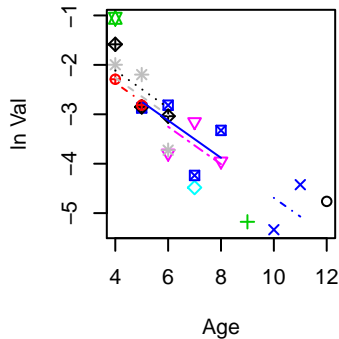
Years 75 to 78
Z = 0.603



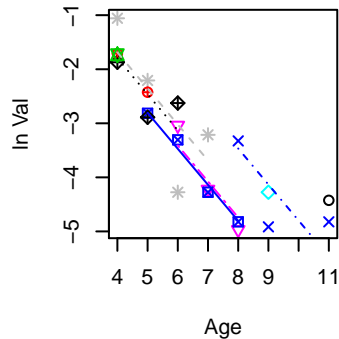
Years 70 to 73
Z = 0.566



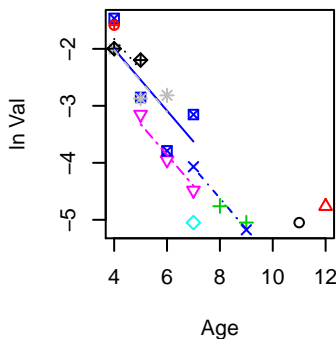
Years 73 to 76
Z = 0.378



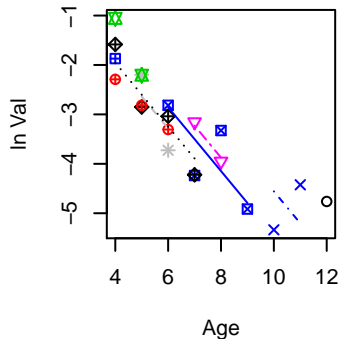
Years 76 to 79
Z = 0.666



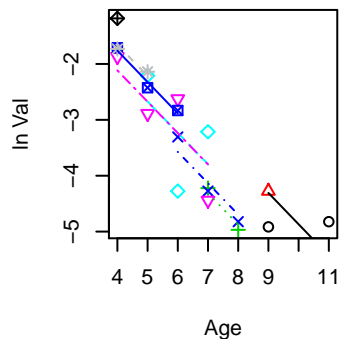
Years 71 to 74
Z = 0.541



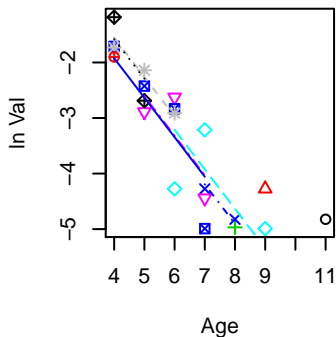
Years 74 to 77
Z = 0.646



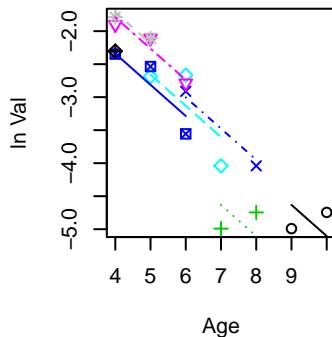
Years 77 to 80
Z = 0.561



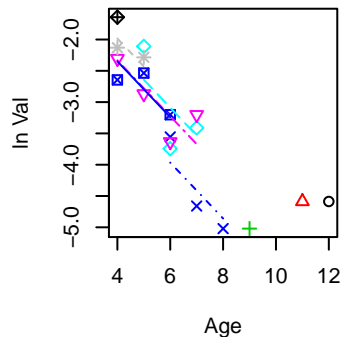
Years 78 to 81
Z = 0.711



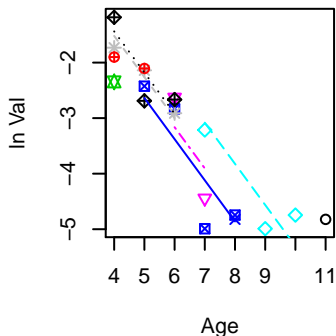
Years 81 to 84
Z = 0.473



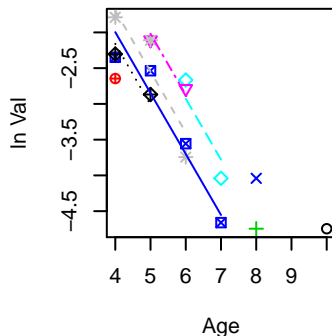
Years 84 to 87
Z = 0.446



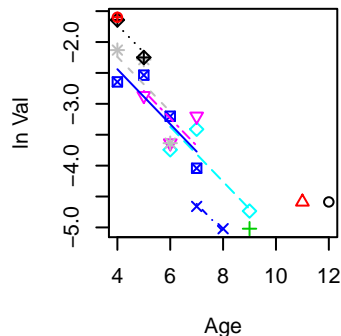
Years 79 to 82
Z = 0.741



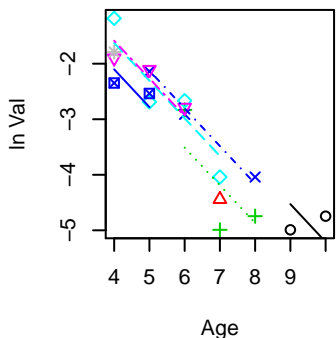
Years 82 to 85
Z = 0.852



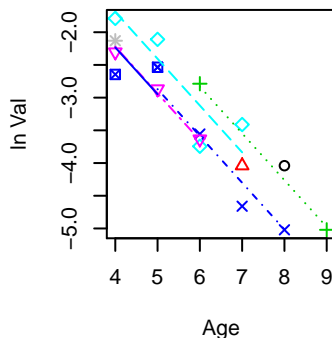
Years 85 to 88
Z = 0.444



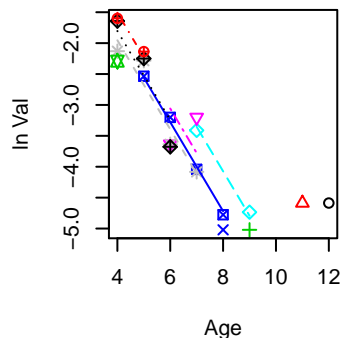
Years 80 to 83
Z = 0.679



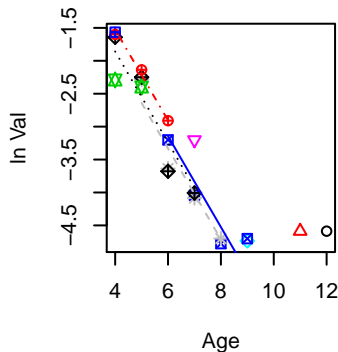
Years 83 to 86
Z = 0.715



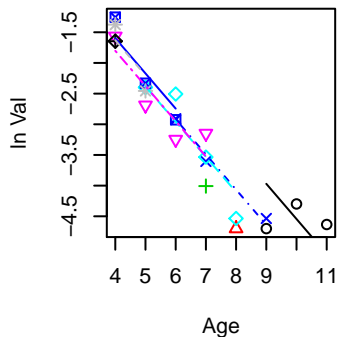
Years 86 to 89
Z = 0.72



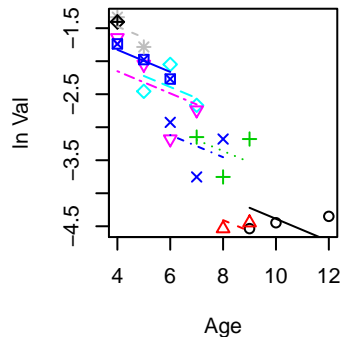
Years 87 to 90
Z = 0.691



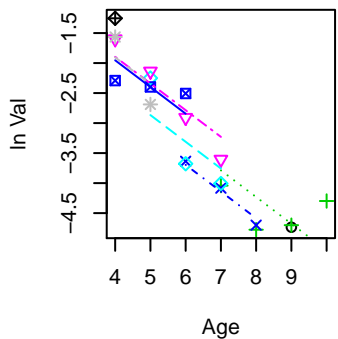
Years 90 to 93
Z = 0.574



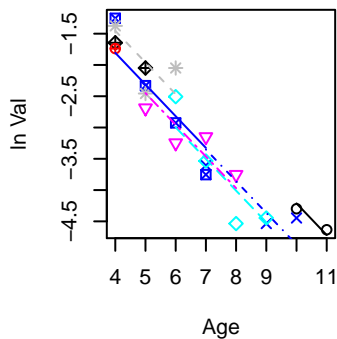
Years 93 to 96
Z = 0.168



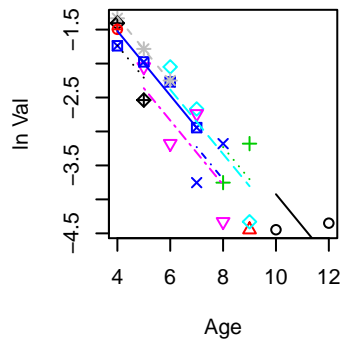
Years 88 to 91
Z = 0.445



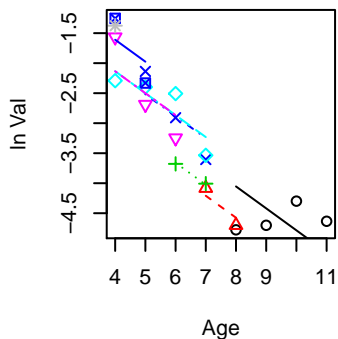
Years 91 to 94
Z = 0.506



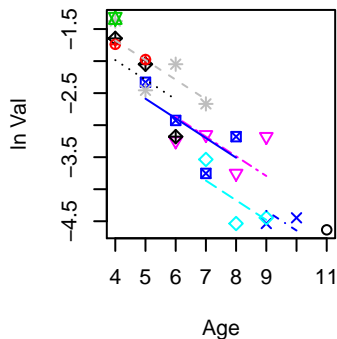
Years 94 to 97
Z = 0.474



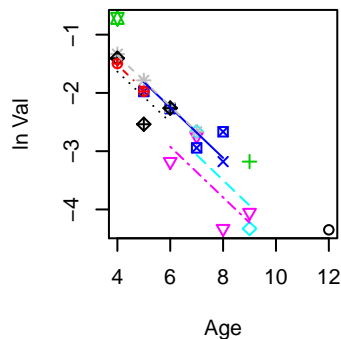
Years 89 to 92
Z = 0.366



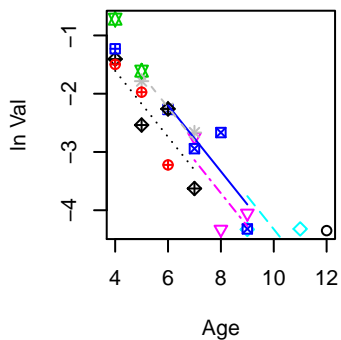
Years 92 to 95
Z = 0.307



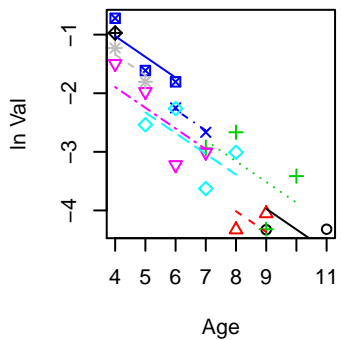
Years 95 to 98
Z = 0.434



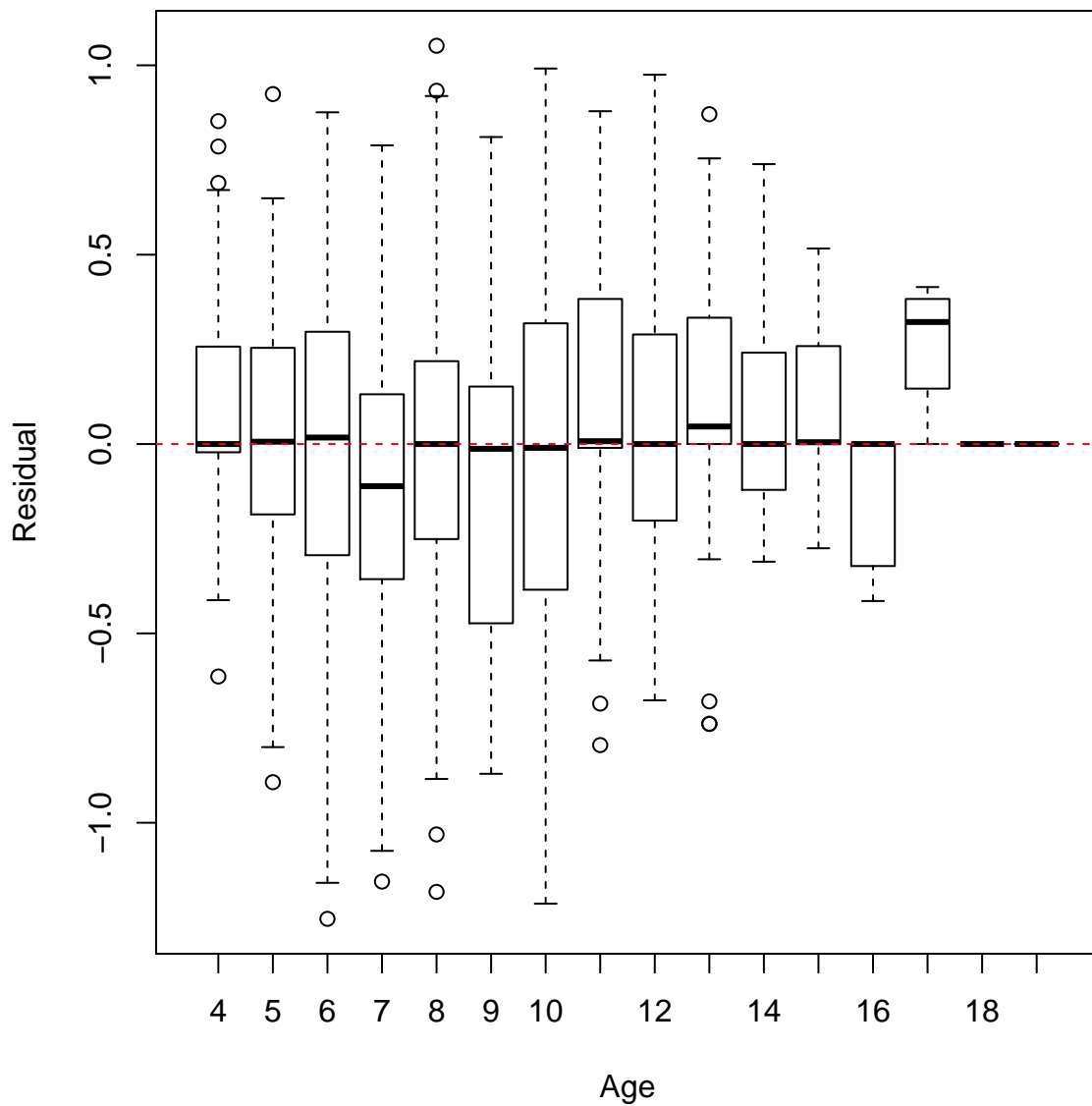
Years 96 to 99
Z = 0.567



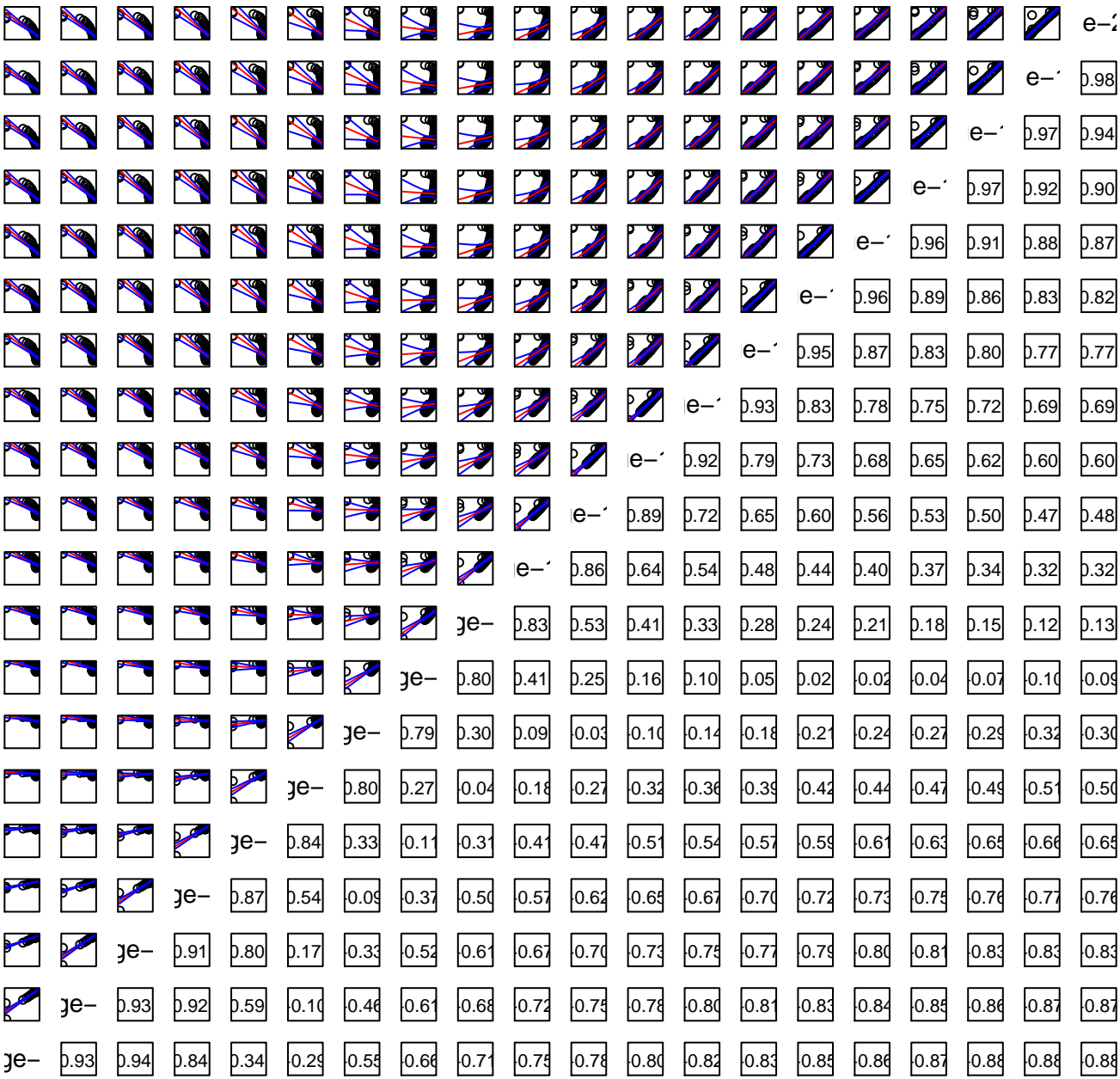
Years 97 to 100
Z = 0.354



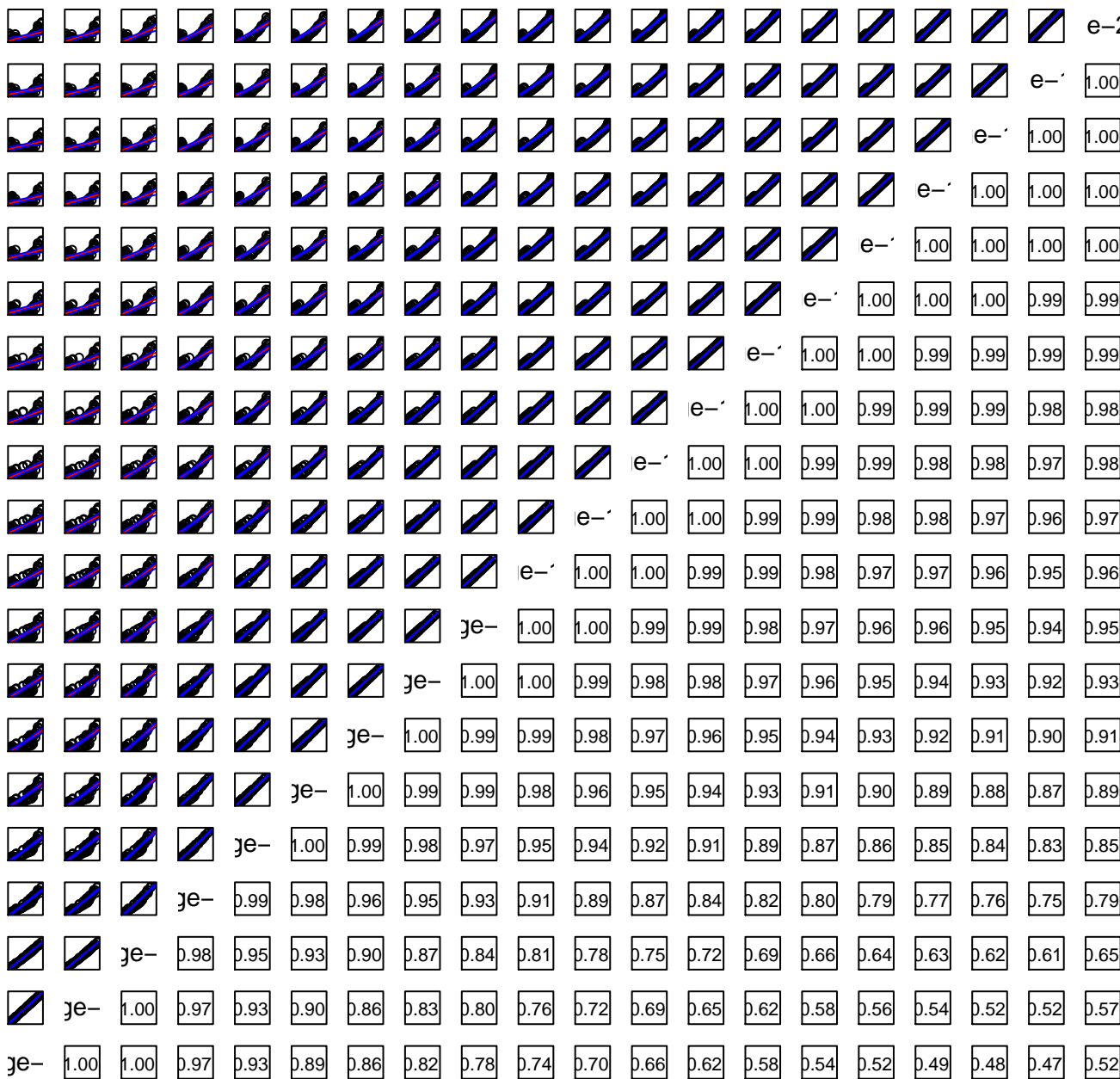
INDEX-1

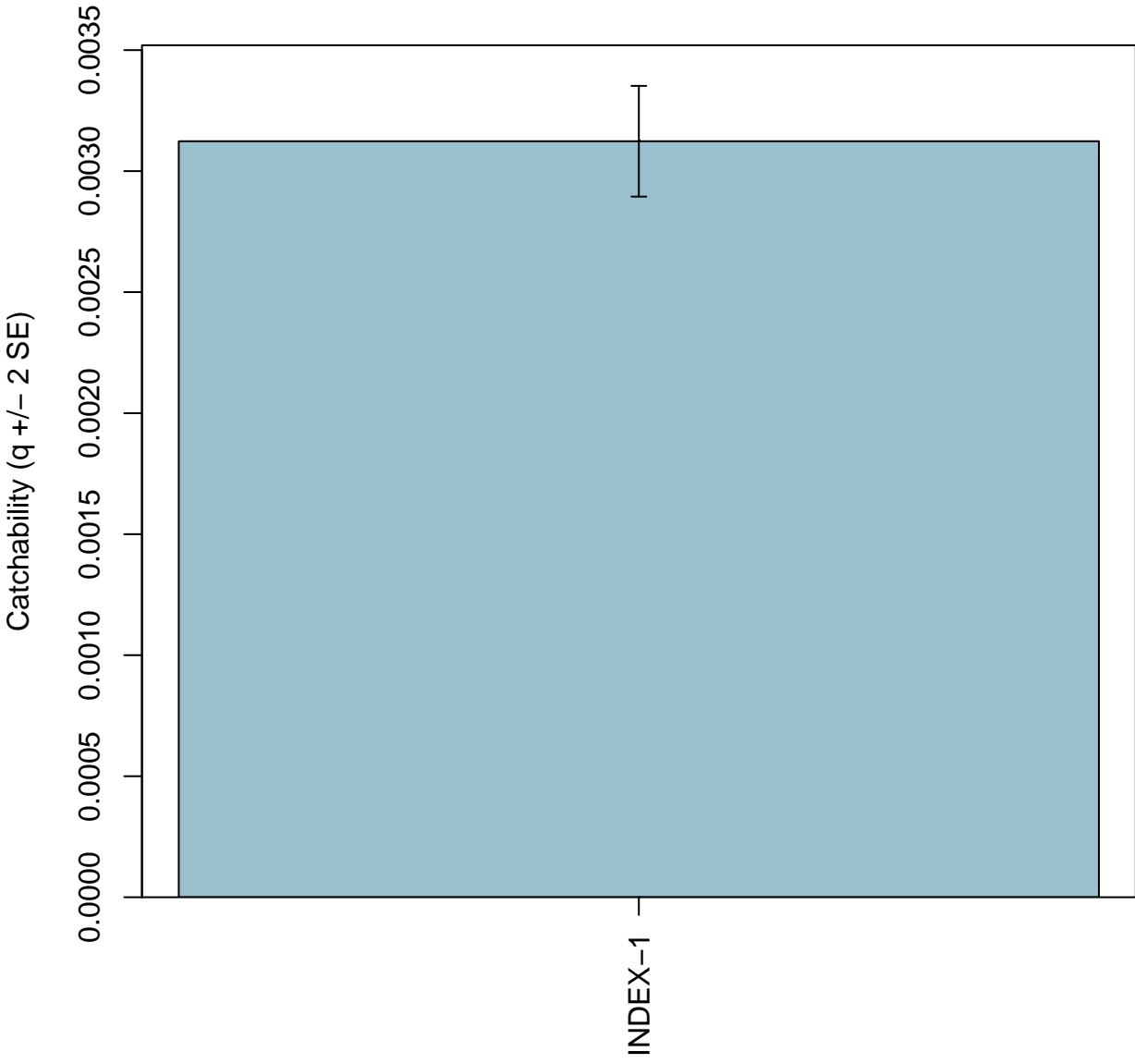


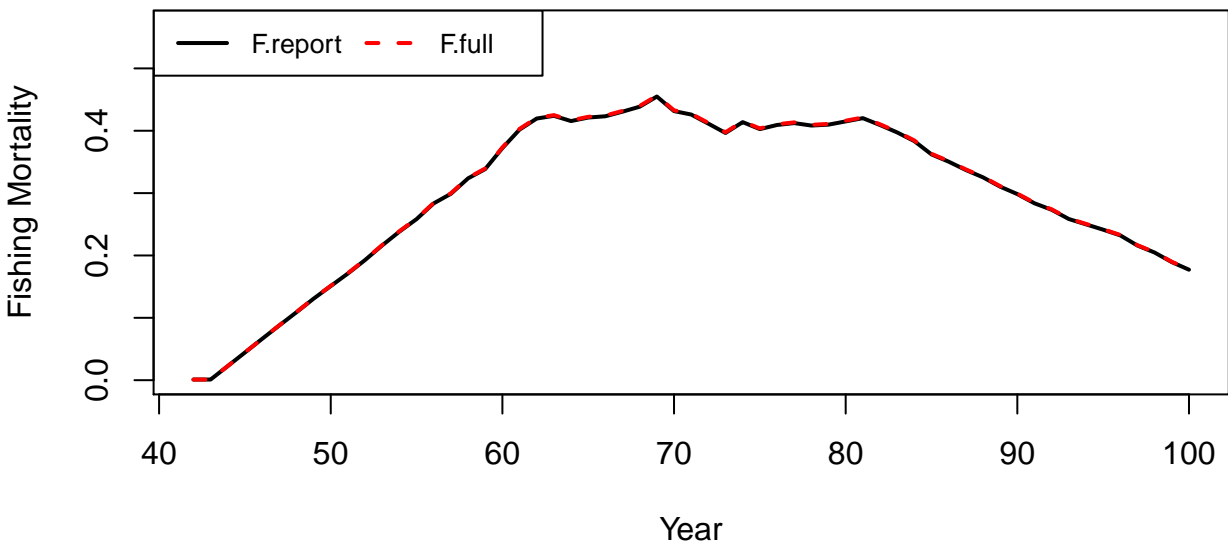
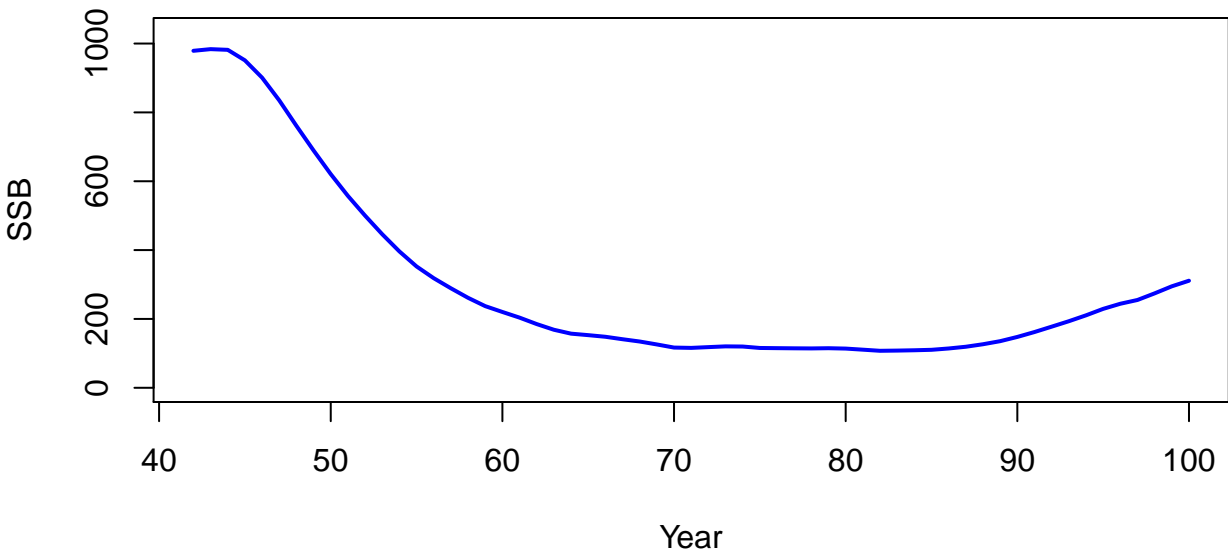
Catch Observed



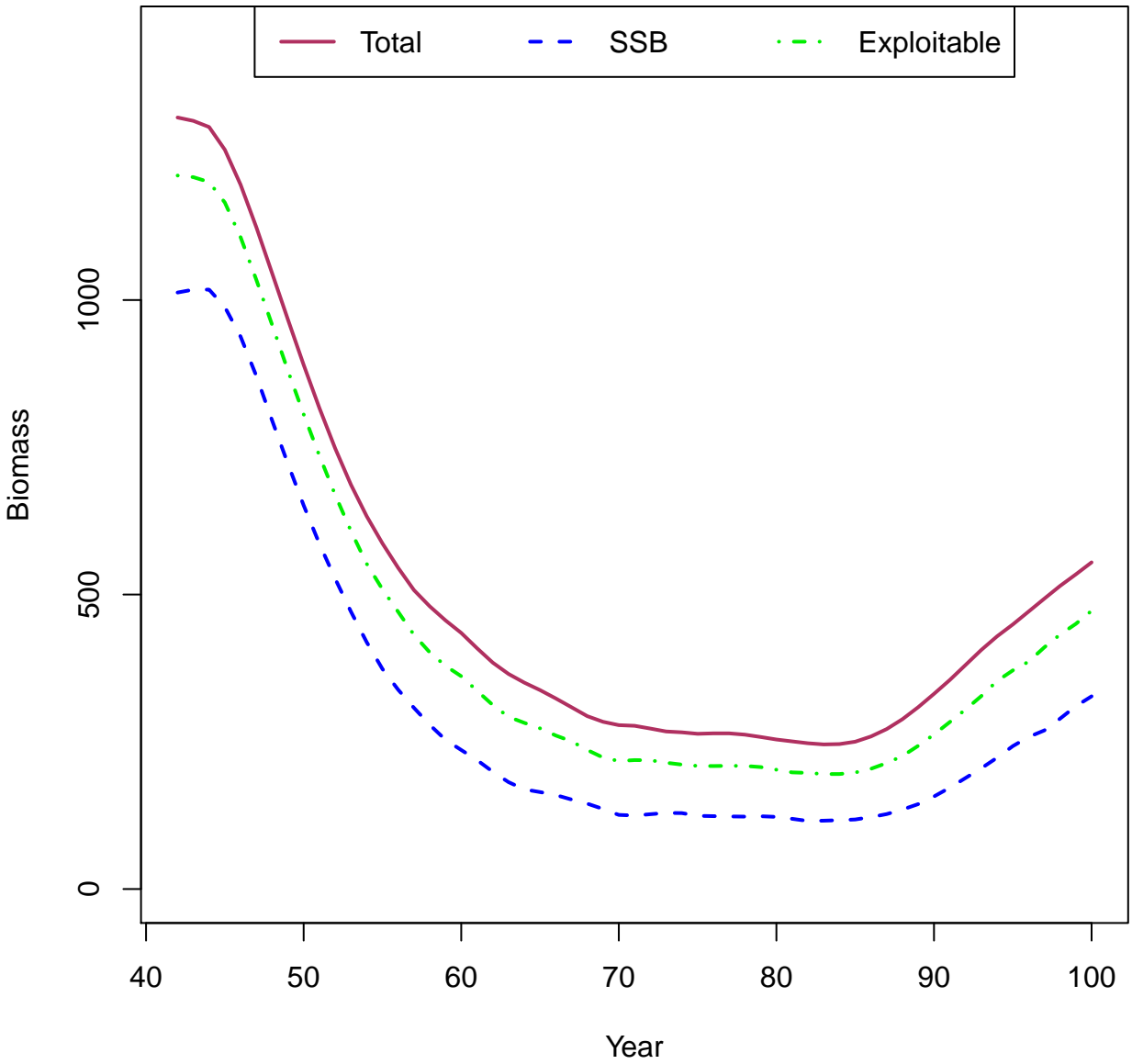
Index 1 (INDEX-1) Predicted

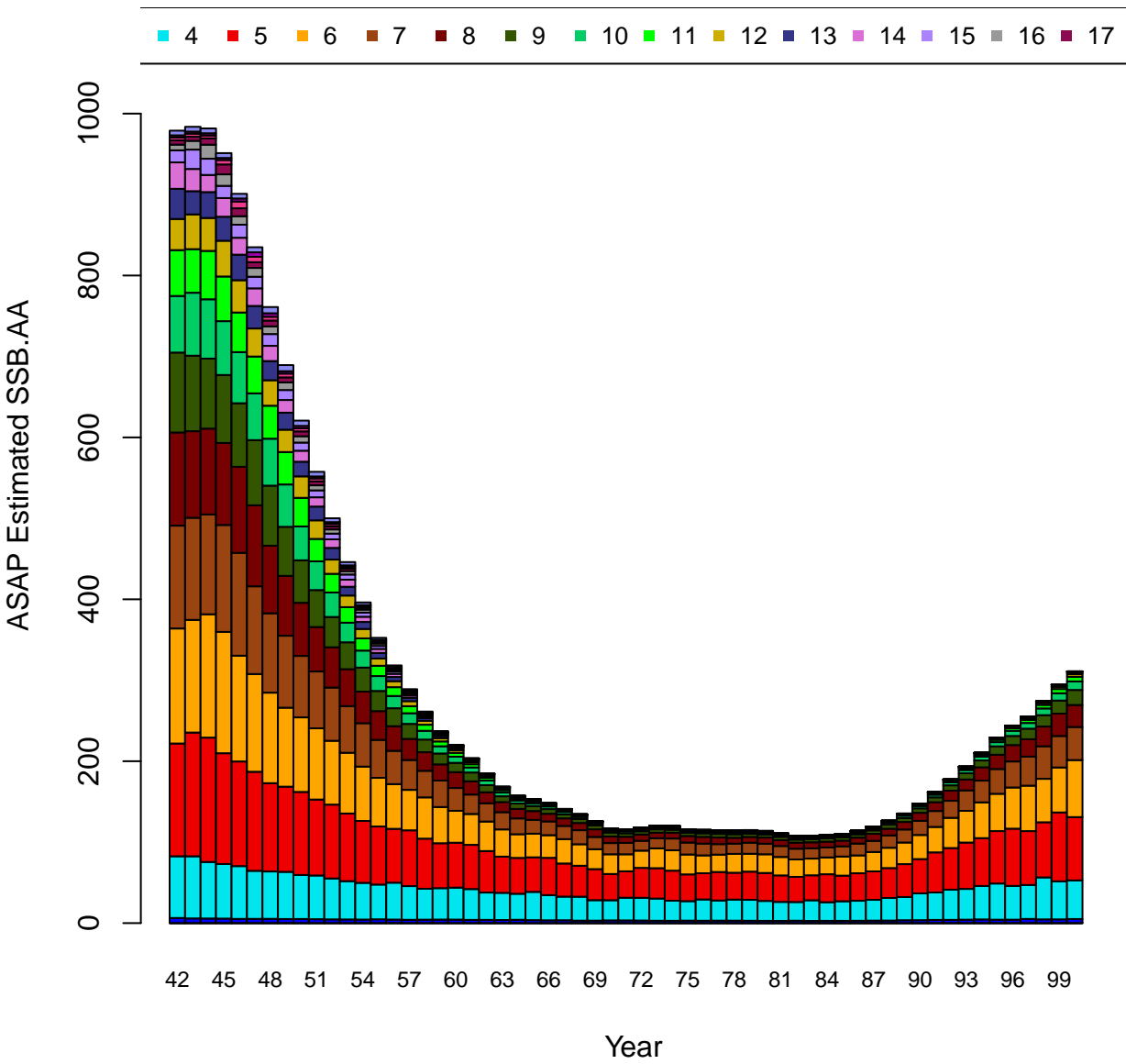


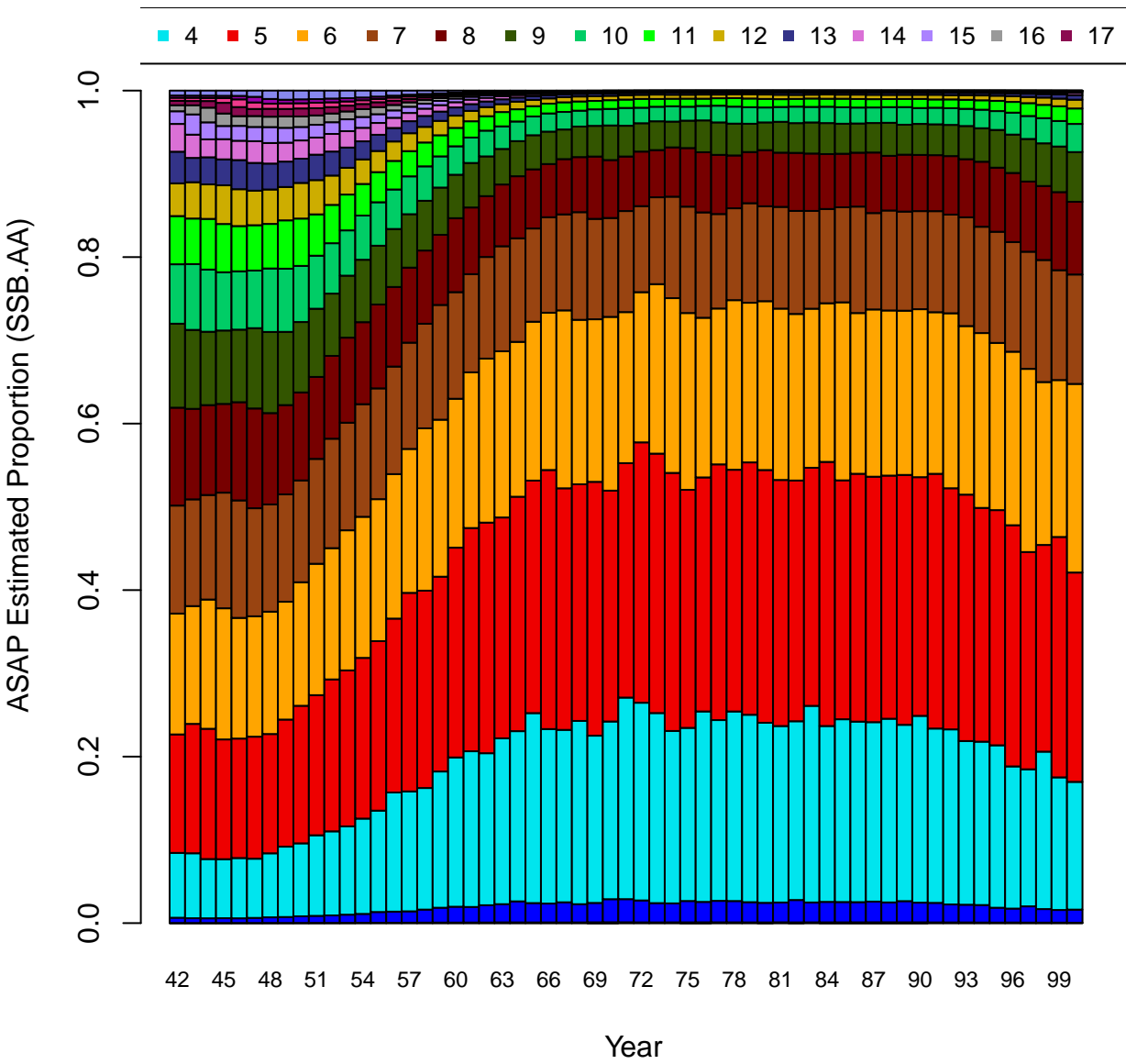




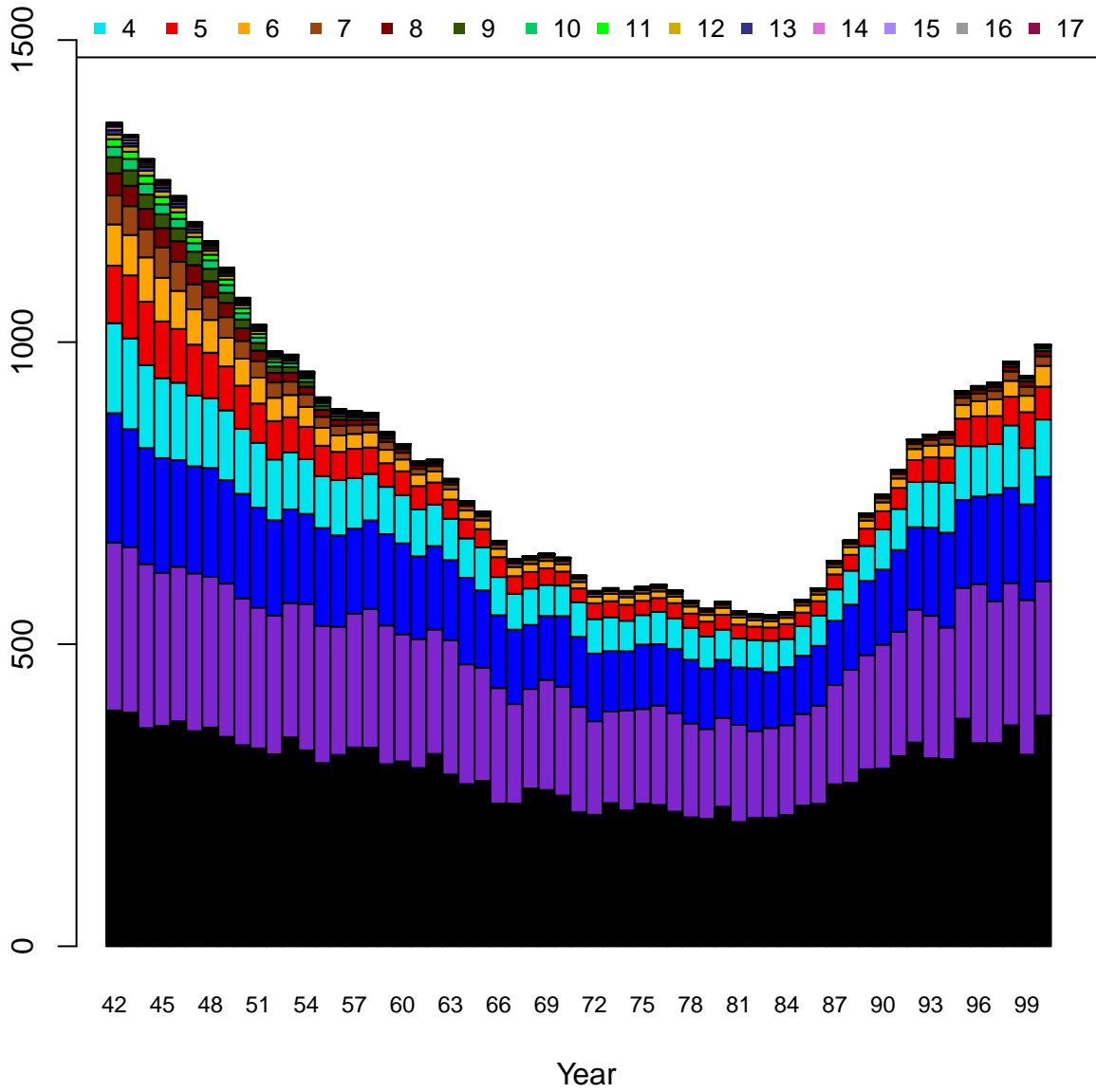
Comparison of January 1 Biomass



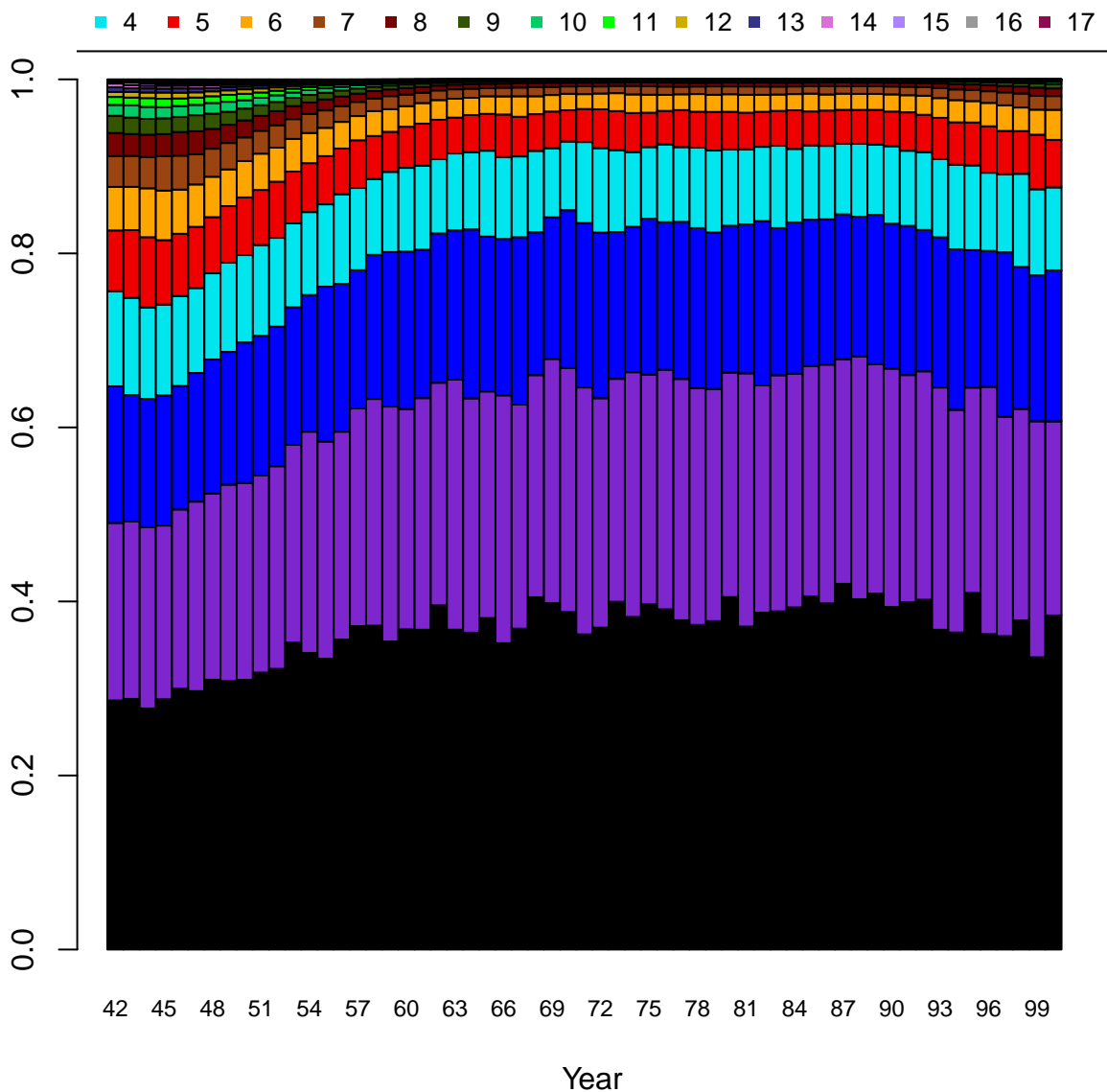


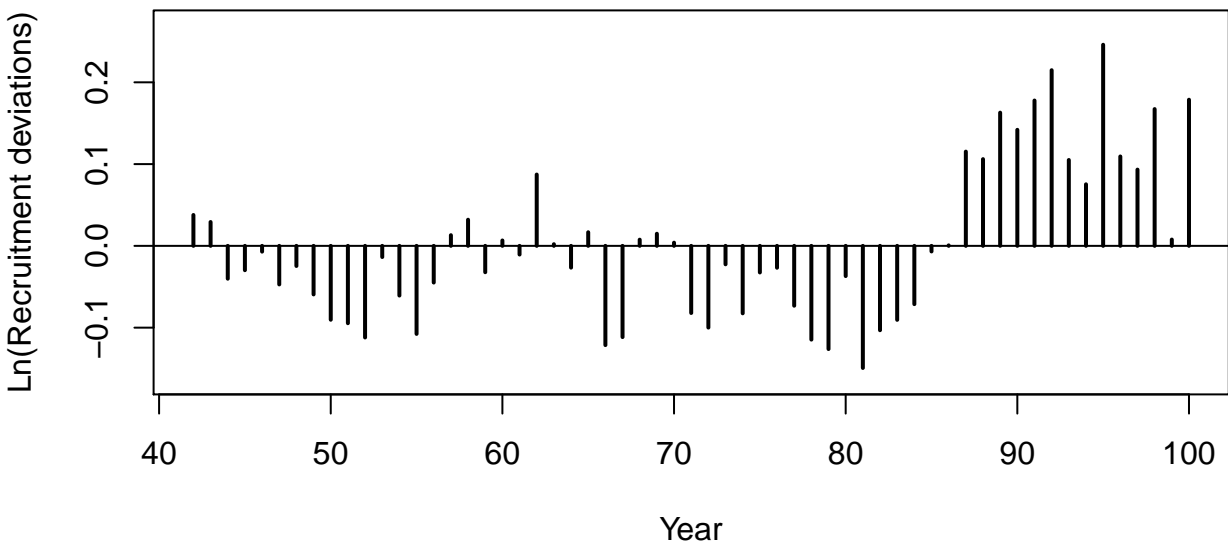
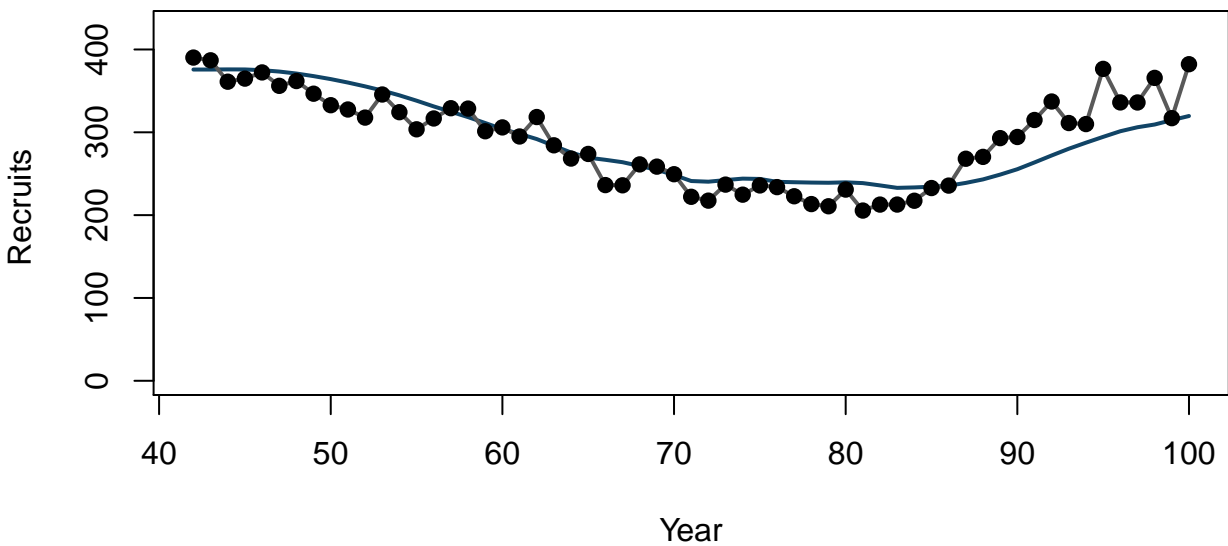


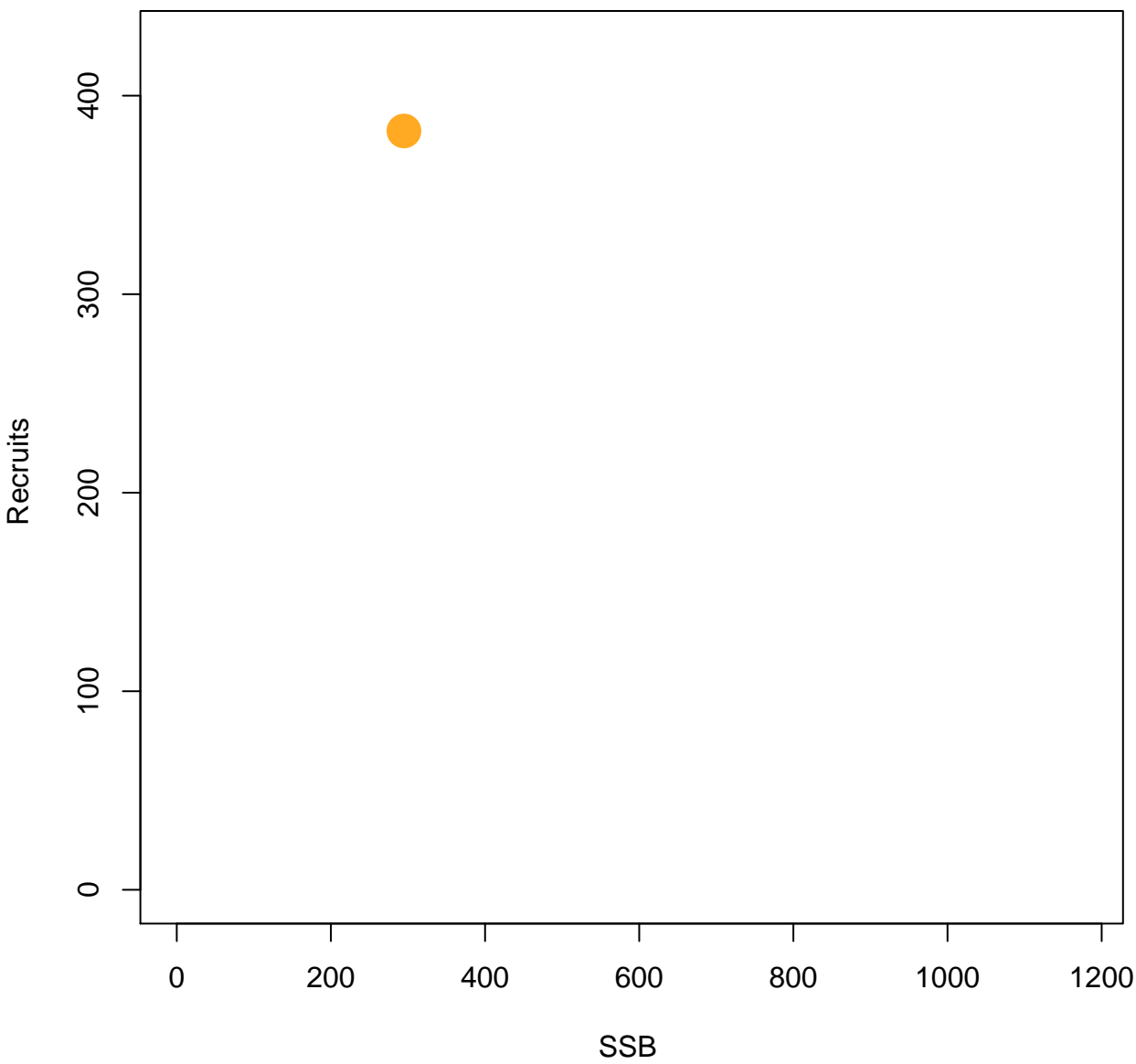
ASAP Estimated NAA

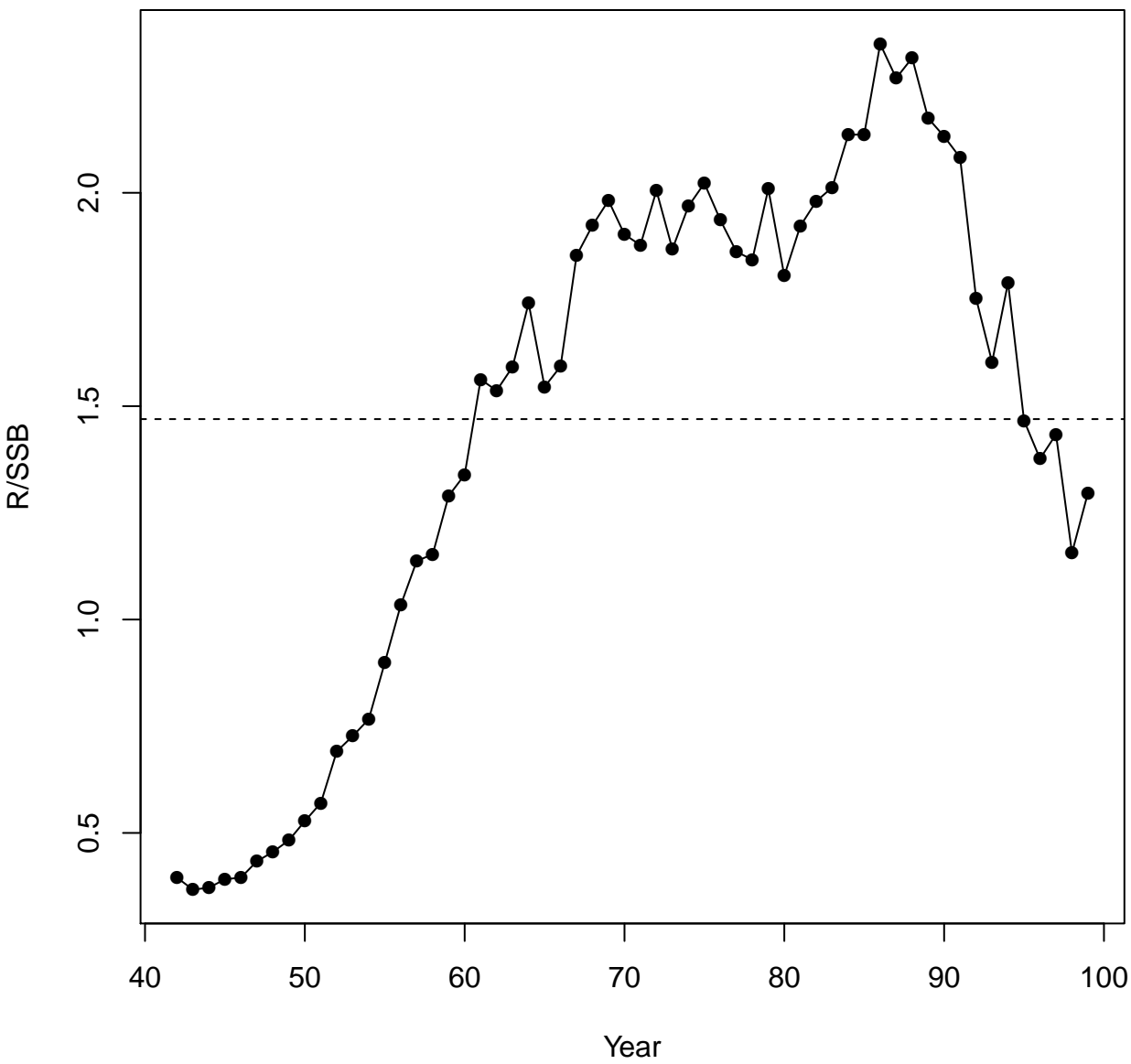


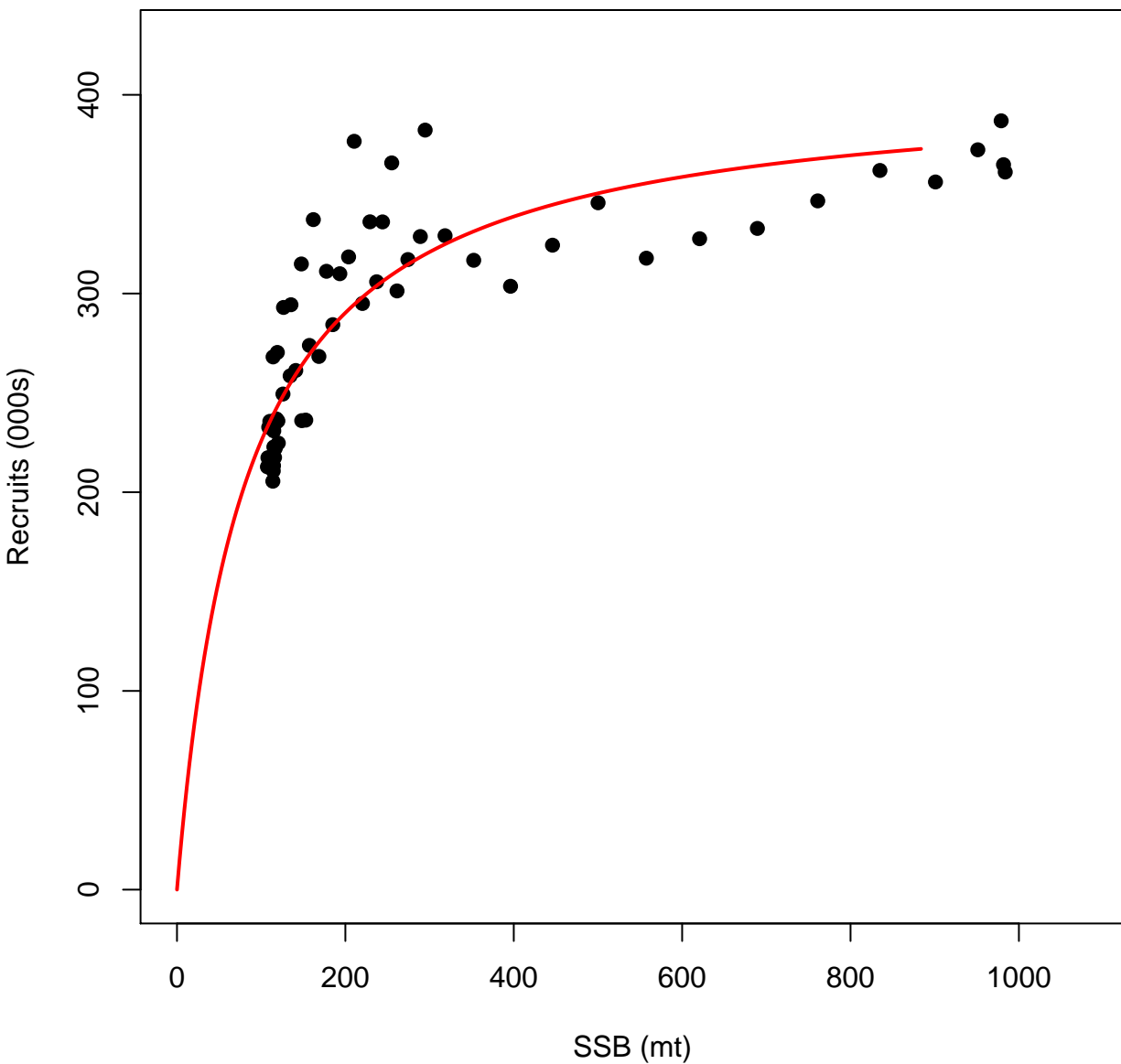
ASAP Estimated Proportion (NAA)

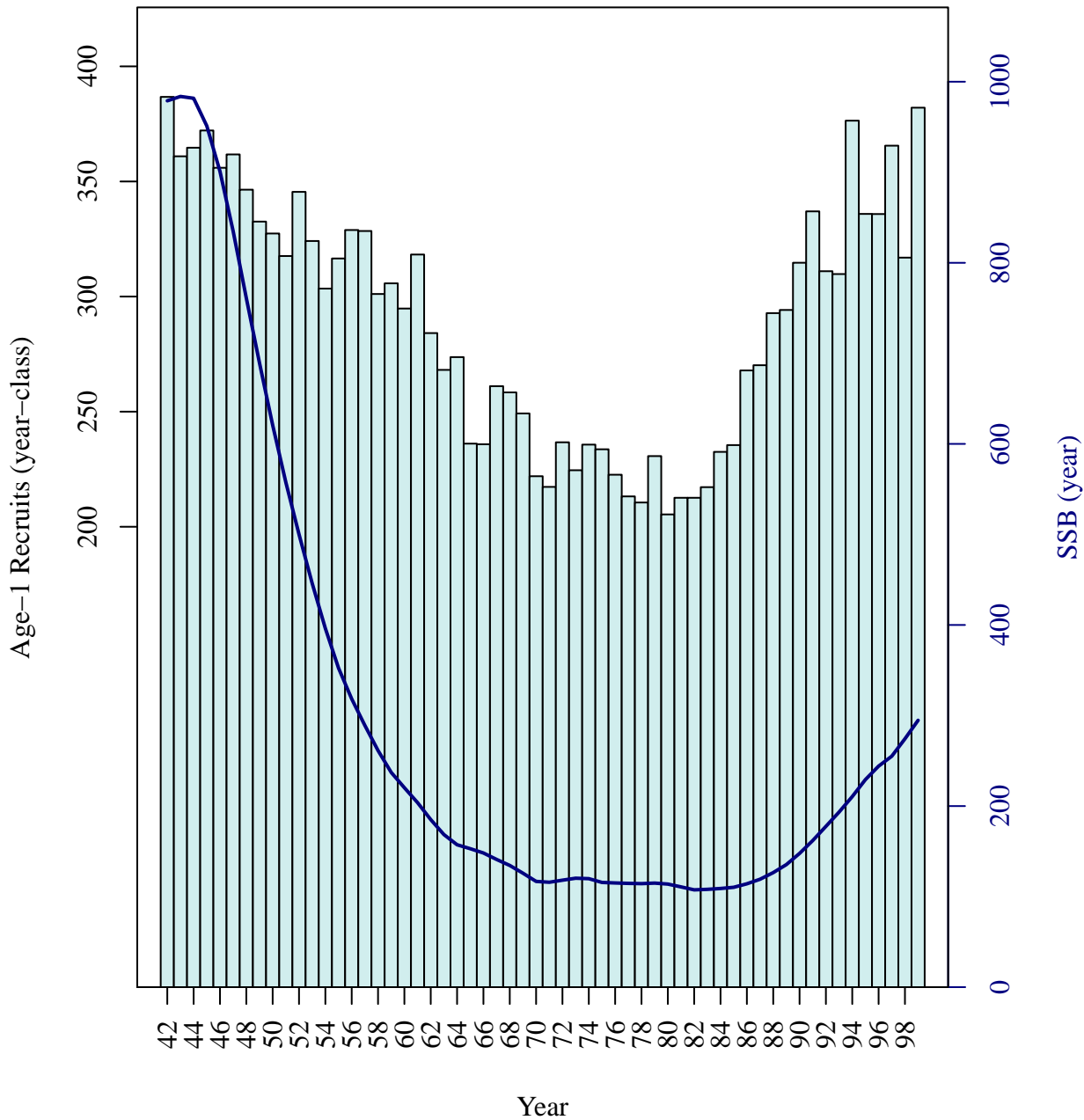


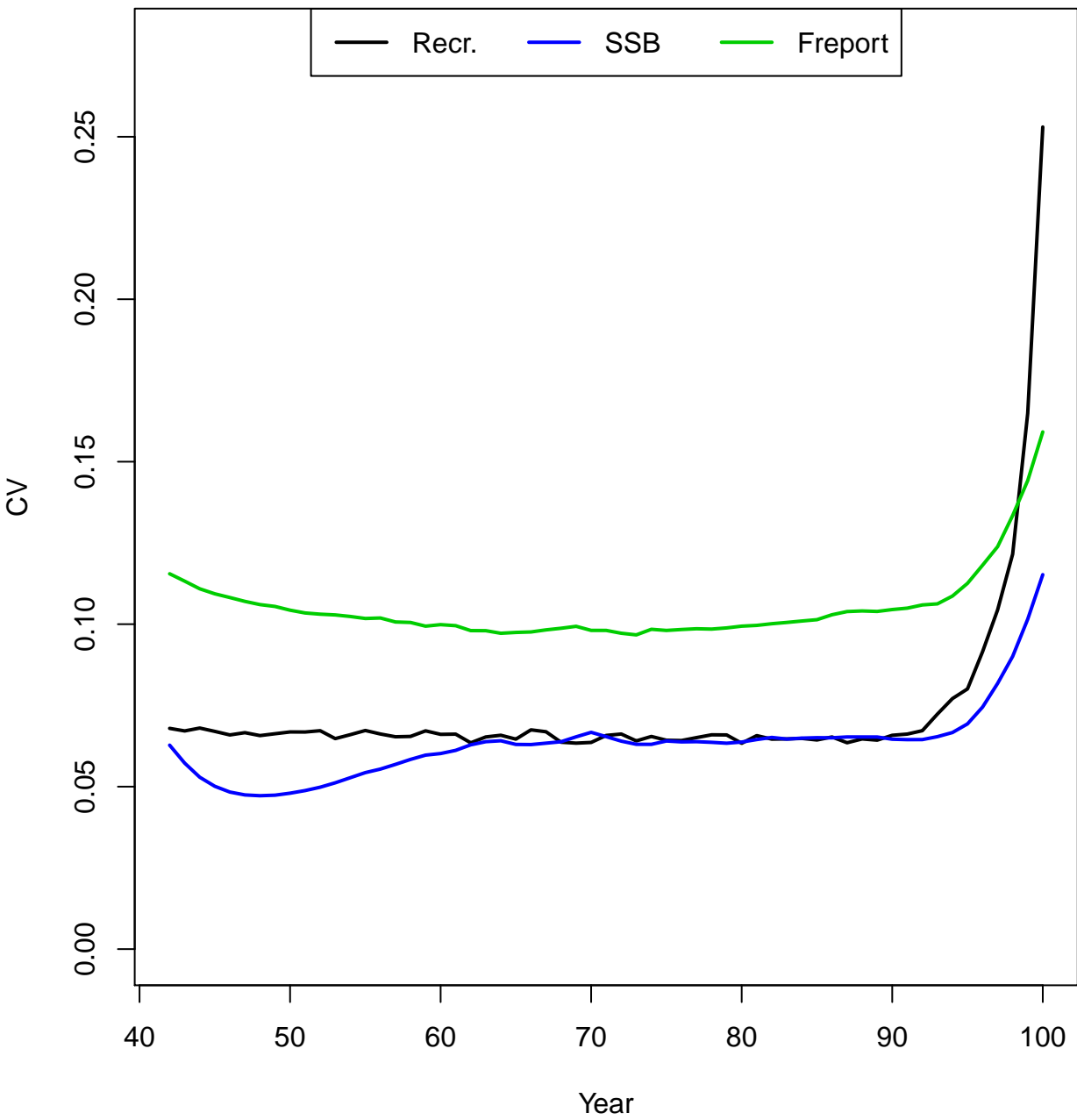




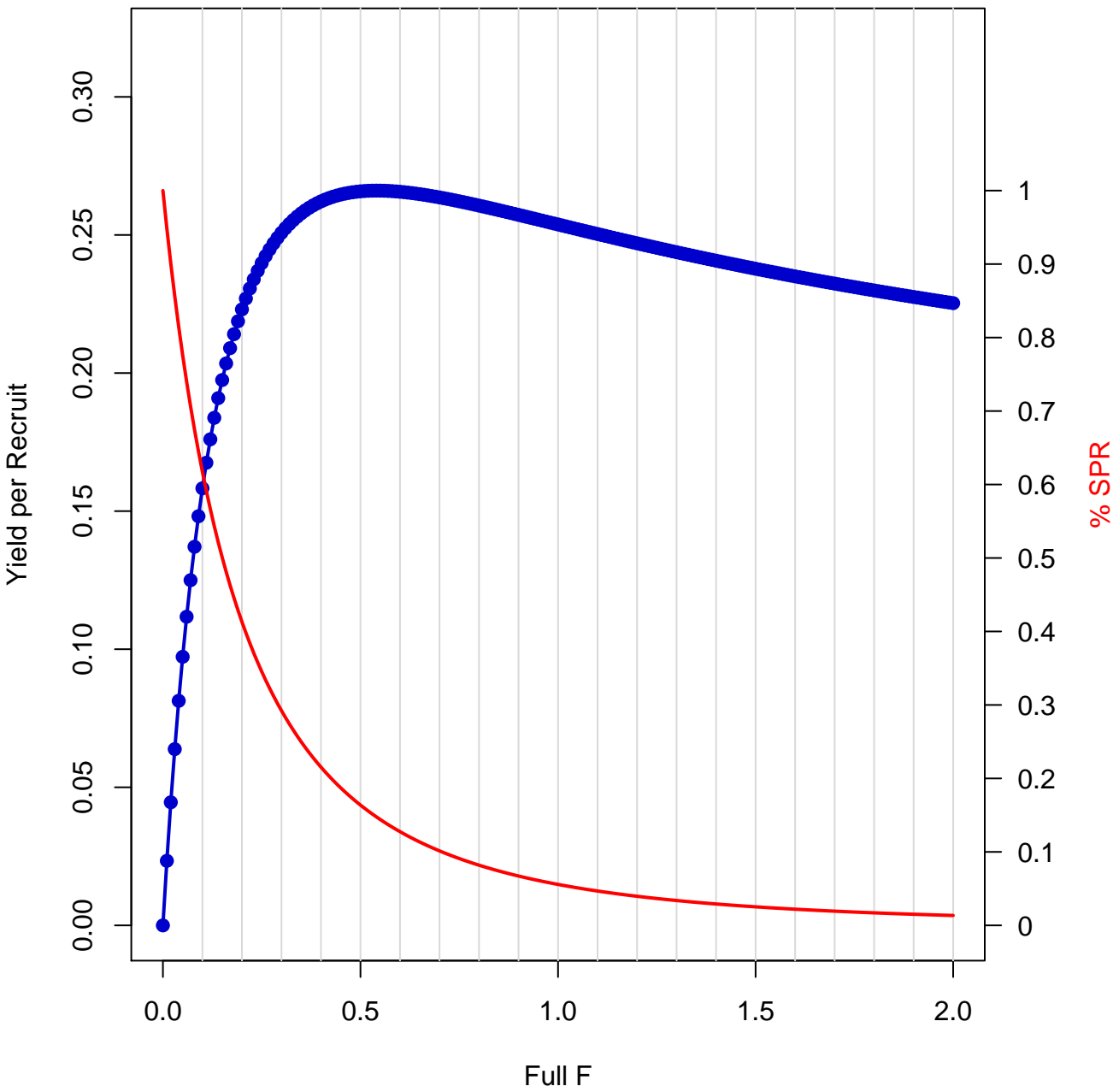








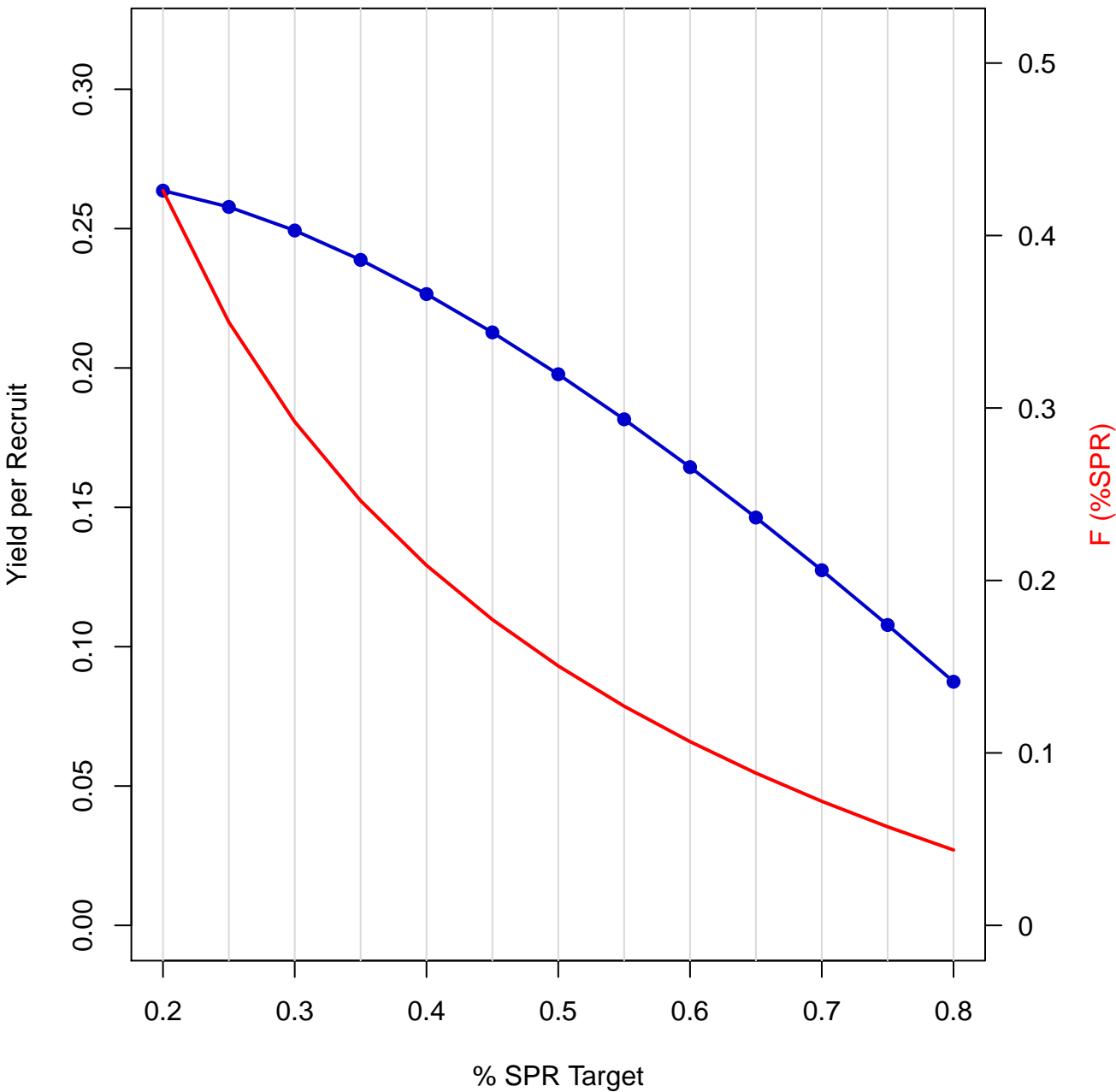
YPR-SPR Reference Points (Years Avg = 5)



YPR–SPR Reference Points (Years Avg = 5)

F	YPR	SPR	F	YPR	SPR	F	YPR	SPR
0	0	1	0.35	0.2578	0.2498	0.7	0.2636	0.1014
0.01	0.0234	0.9484	0.36	0.2589	0.2424	0.71	0.2633	0.0992
0.02	0.0446	0.9006	0.37	0.2598	0.2352	0.72	0.2631	0.097
0.03	0.0638	0.8561	0.38	0.2607	0.2283	0.73	0.2628	0.095
0.04	0.0813	0.8147	0.39	0.2615	0.2217	0.74	0.2625	0.0929
0.05	0.0972	0.7761	0.4	0.2622	0.2154	0.75	0.2622	0.091
0.06	0.1118	0.74	0.41	0.2628	0.2093	0.76	0.2619	0.0891
0.07	0.125	0.7063	0.42	0.2633	0.2034	0.77	0.2616	0.0872
0.08	0.1371	0.6747	0.43	0.2638	0.1978	0.78	0.2613	0.0854
0.09	0.1482	0.6451	0.44	0.2643	0.1924	0.79	0.261	0.0836
0.1	0.1583	0.6173	0.45	0.2646	0.1871	0.8	0.2606	0.0819
0.11	0.1675	0.5912	0.46	0.265	0.1821	0.81	0.2603	0.0803
0.12	0.176	0.5666	0.47	0.2652	0.1773	0.82	0.26	0.0787
0.13	0.1838	0.5434	0.48	0.2655	0.1726	0.83	0.2597	0.0771
0.14	0.1909	0.5215	0.49	0.2657	0.1681	0.84	0.2593	0.0756
0.15	0.1975	0.5009	0.5	0.2658	0.1637	0.85	0.259	0.0741
0.16	0.2035	0.4814	0.51	0.2659	0.1595	0.86	0.2587	0.0726
0.17	0.209	0.4629	0.52	0.266	0.1555	0.87	0.2583	0.0712
0.18	0.2141	0.4454	0.53	0.266	0.1516	0.88	0.258	0.0698
0.19	0.2188	0.4289	0.54	0.2661	0.1478	0.89	0.2576	0.0685
0.2	0.223	0.4131	0.55	0.266	0.1441	0.9	0.2573	0.0672
0.21	0.227	0.3982	0.56	0.266	0.1406	0.91	0.2569	0.0659
0.22	0.2306	0.384	0.57	0.266	0.1372	0.92	0.2566	0.0647
0.23	0.2339	0.3705	0.58	0.2659	0.1339	0.93	0.2562	0.0634
0.24	0.237	0.3577	0.59	0.2658	0.1307	0.94	0.2559	0.0623
0.25	0.2398	0.3455	0.6	0.2656	0.1276	0.95	0.2555	0.0611
0.26	0.2424	0.3338	0.61	0.2655	0.1246	0.96	0.2552	0.06
0.27	0.2448	0.3227	0.62	0.2653	0.1216	0.97	0.2548	0.0589
0.28	0.247	0.3121	0.63	0.2652	0.1188	0.98	0.2545	0.0578
0.29	0.249	0.302	0.64	0.265	0.1161	0.99	0.2541	0.0568
0.3	0.2508	0.2923	0.65	0.2648	0.1135	1	0.2538	0.0557
0.31	0.2525	0.283	0.66	0.2646	0.1109	1.01	0.2535	0.0548
0.32	0.254	0.2742	0.67	0.2643	0.1084	1.02	0.2531	0.0538
0.33	0.2554	0.2657	0.68	0.2641	0.106	1.03	0.2528	0.0528
0.34	0.2567	0.2576	0.69	0.2639	0.1037	1.04	0.2524	0.0519

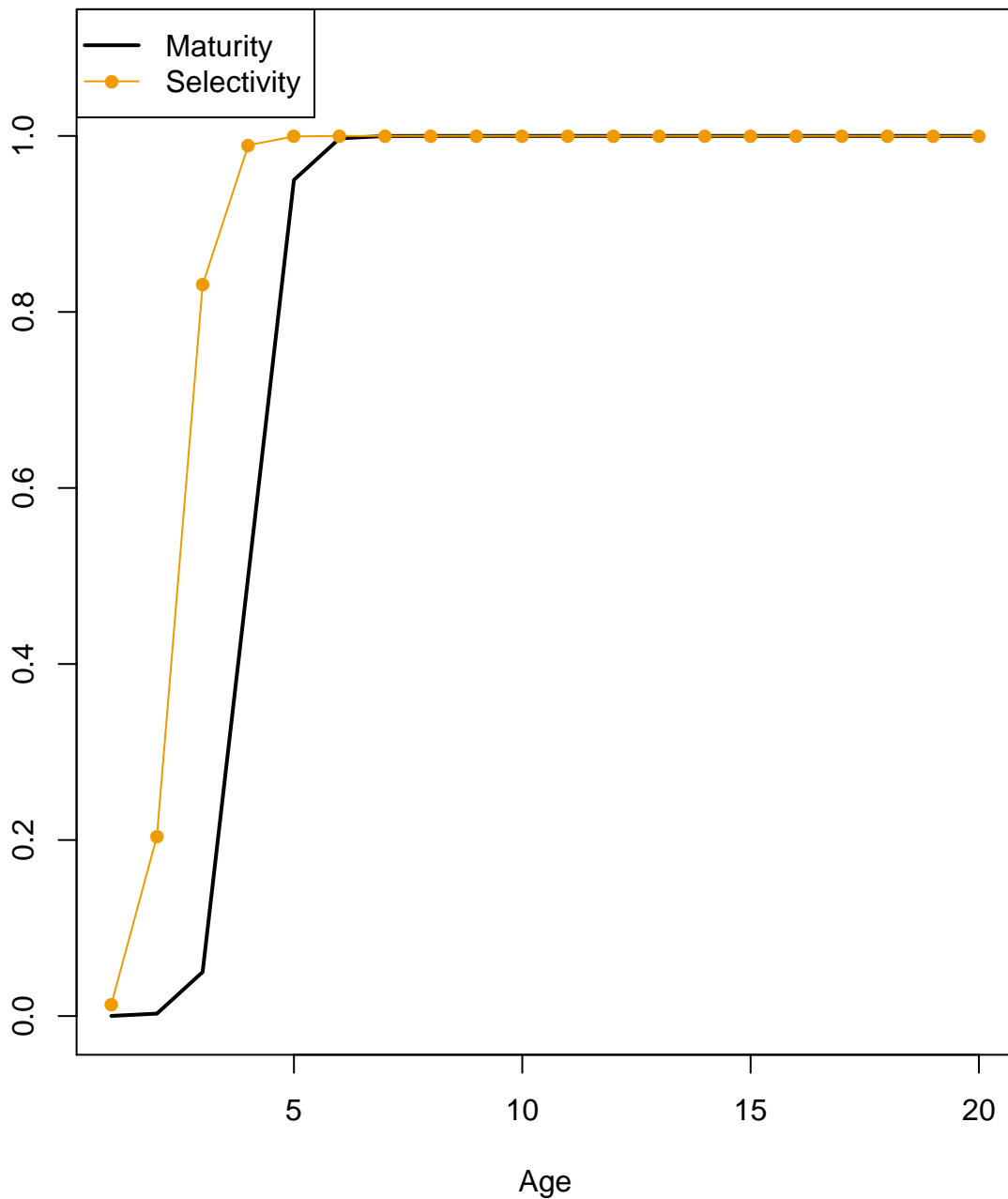
SPR Target Reference Points (Years Avg = 5)



SPR Target Reference Points (Years Avg = 5)

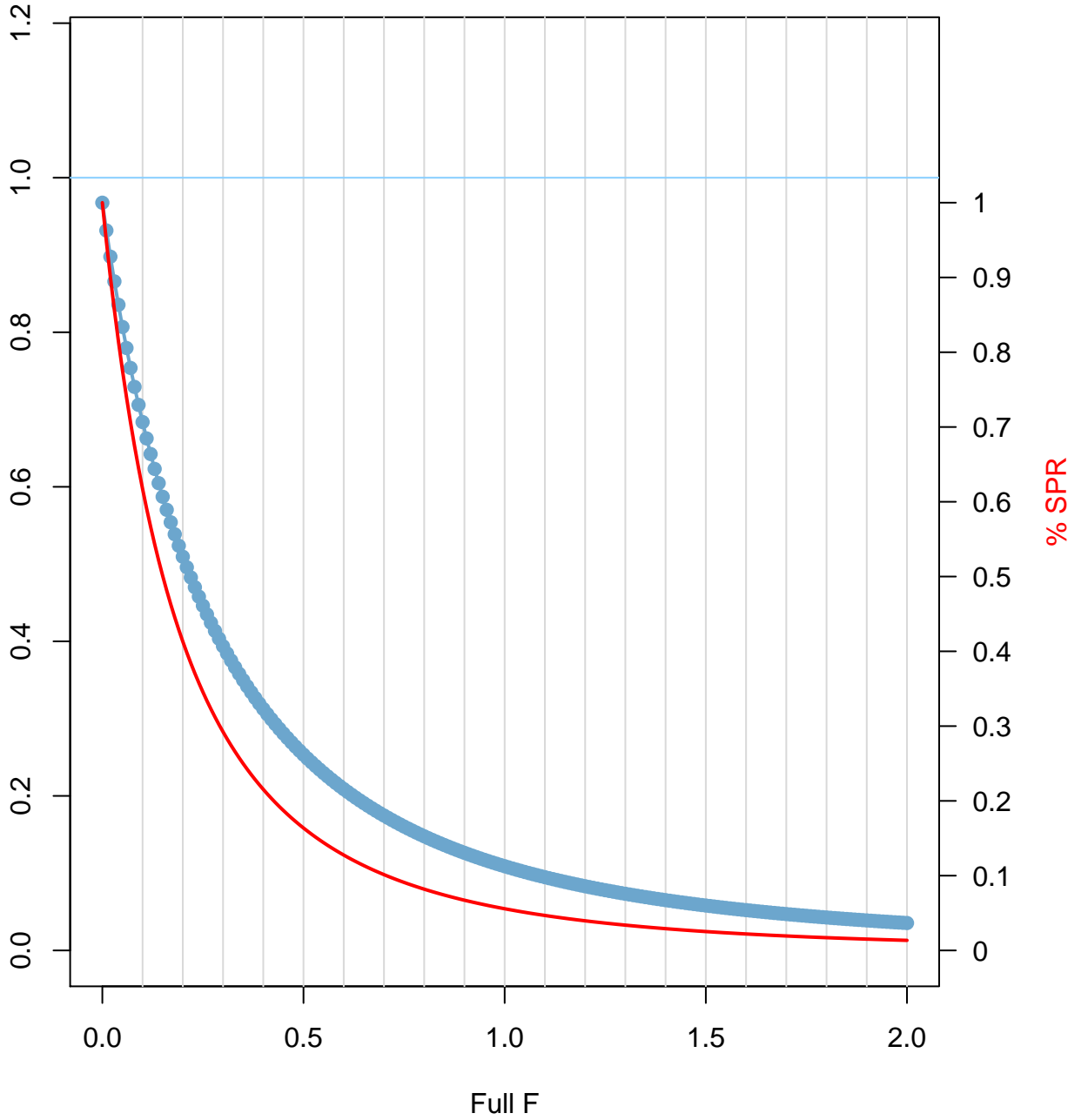
% SPR	F(%SPR)	YPR
0.2	0.4261	0.2636
0.25	0.3498	0.2578
0.3	0.292	0.2493
0.35	0.2462	0.2388
0.4	0.2088	0.2265
0.45	0.1773	0.2128
0.5	0.1504	0.1977
0.55	0.1271	0.1816
0.6	0.1065	0.1644
0.65	0.0883	0.1463
0.7	0.0719	0.1274
0.75	0.0572	0.1078
0.8	0.0437	0.0874

Selectivity or Maturity at age



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

Expected Spawnings



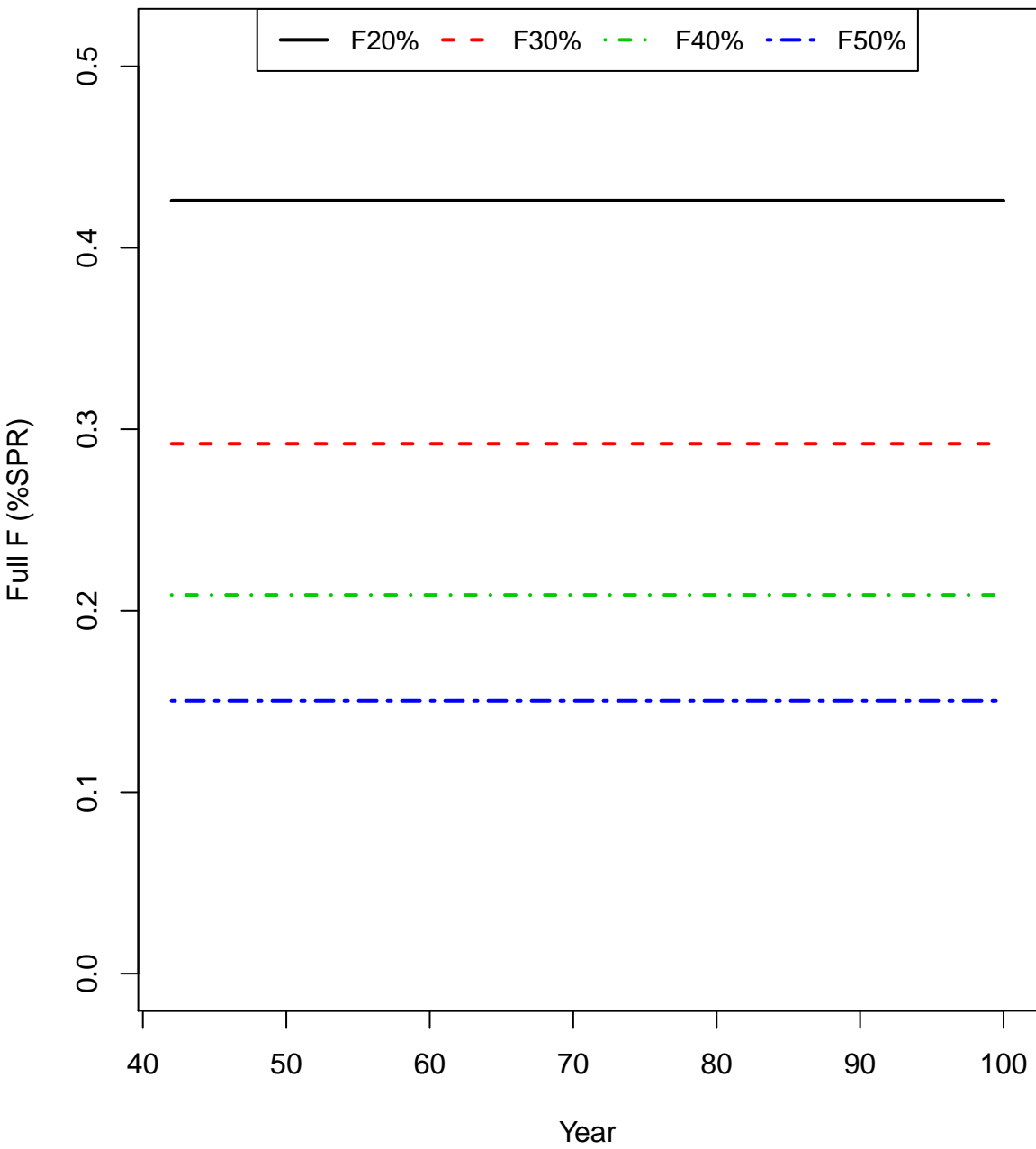
Full F

% SPR

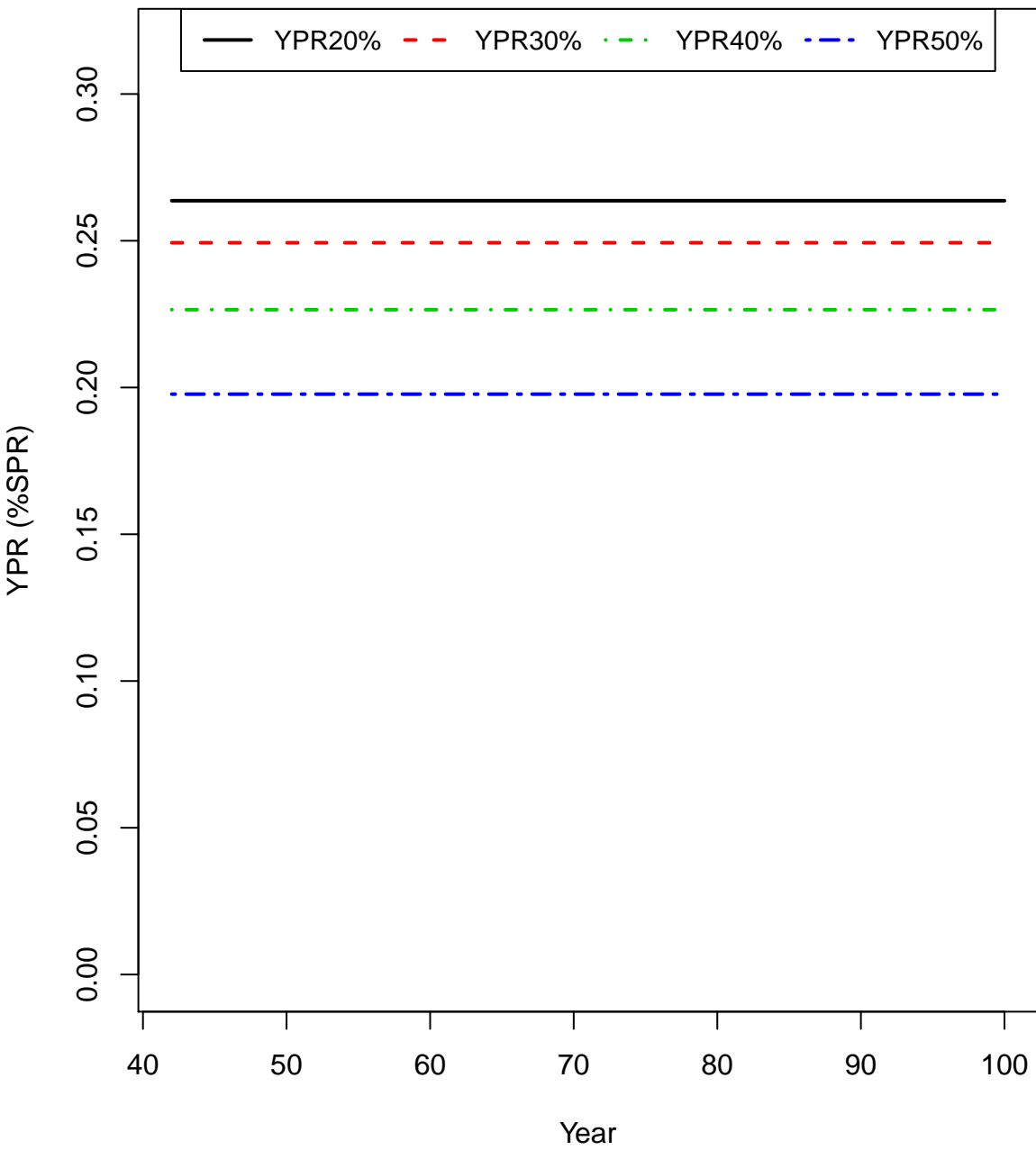
Expected Spawnings & SPR Reference Points (Years Avg = 5)

F	E[Sp]	SPR	F	E[Sp]	SPR	F	E[Sp]	SPR
0	0.9677	1	0.35	0.3498	0.2498	0.7	0.1746	0.1014
0.01	0.9318	0.9484	0.36	0.3419	0.2424	0.71	0.1716	0.0992
0.02	0.8978	0.9006	0.37	0.3342	0.2352	0.72	0.1687	0.097
0.03	0.8658	0.8561	0.38	0.3267	0.2283	0.73	0.1659	0.095
0.04	0.8355	0.8147	0.39	0.3195	0.2217	0.74	0.1631	0.0929
0.05	0.8069	0.7761	0.4	0.3126	0.2154	0.75	0.1604	0.091
0.06	0.7797	0.74	0.41	0.3058	0.2093	0.76	0.1578	0.0891
0.07	0.7539	0.7063	0.42	0.2993	0.2034	0.77	0.1552	0.0872
0.08	0.7293	0.6747	0.43	0.2929	0.1978	0.78	0.1526	0.0854
0.09	0.706	0.6451	0.44	0.2867	0.1924	0.79	0.1502	0.0836
0.1	0.6838	0.6173	0.45	0.2808	0.1871	0.8	0.1478	0.0819
0.11	0.6626	0.5912	0.46	0.275	0.1821	0.81	0.1454	0.0803
0.12	0.6424	0.5666	0.47	0.2693	0.1773	0.82	0.1431	0.0787
0.13	0.6232	0.5434	0.48	0.2638	0.1726	0.83	0.1408	0.0771
0.14	0.6047	0.5215	0.49	0.2585	0.1681	0.84	0.1386	0.0756
0.15	0.5871	0.5009	0.5	0.2534	0.1637	0.85	0.1365	0.0741
0.16	0.5702	0.4814	0.51	0.2483	0.1595	0.86	0.1343	0.0726
0.17	0.5541	0.4629	0.52	0.2435	0.1555	0.87	0.1323	0.0712
0.18	0.5386	0.4454	0.53	0.2387	0.1516	0.88	0.1302	0.0698
0.19	0.5238	0.4289	0.54	0.2341	0.1478	0.89	0.1283	0.0685
0.2	0.5095	0.4131	0.55	0.2296	0.1441	0.9	0.1263	0.0672
0.21	0.4958	0.3982	0.56	0.2252	0.1406	0.91	0.1244	0.0659
0.22	0.4827	0.384	0.57	0.221	0.1372	0.92	0.1226	0.0647
0.23	0.4701	0.3705	0.58	0.2168	0.1339	0.93	0.1207	0.0634
0.24	0.4579	0.3577	0.59	0.2128	0.1307	0.94	0.119	0.0623
0.25	0.4462	0.3455	0.6	0.2089	0.1276	0.95	0.1172	0.0611
0.26	0.4349	0.3338	0.61	0.205	0.1246	0.96	0.1155	0.06
0.27	0.4241	0.3227	0.62	0.2013	0.1216	0.97	0.1138	0.0589
0.28	0.4136	0.3121	0.63	0.1977	0.1188	0.98	0.1122	0.0578
0.29	0.4035	0.302	0.64	0.1941	0.1161	0.99	0.1106	0.0568
0.3	0.3938	0.2923	0.65	0.1907	0.1135	1	0.109	0.0557
0.31	0.3843	0.283	0.66	0.1873	0.1109	1.01	0.1075	0.0548
0.32	0.3753	0.2742	0.67	0.184	0.1084	1.02	0.1059	0.0538
0.33	0.3665	0.2657	0.68	0.1808	0.106	1.03	0.1045	0.0528
0.34	0.358	0.2576	0.69	0.1777	0.1037	1.04	0.103	0.0519

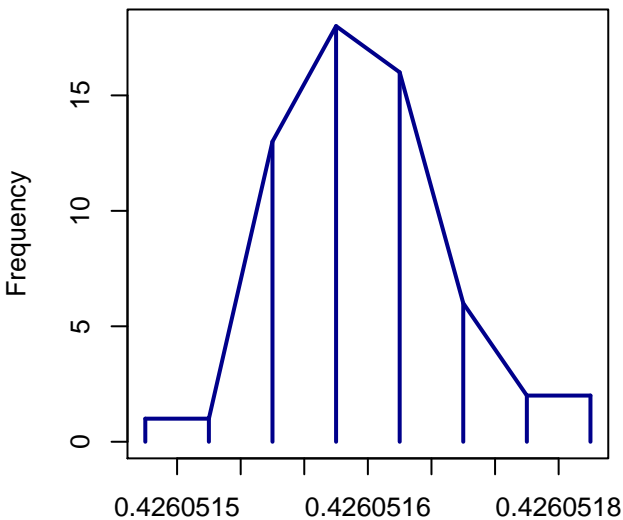
Annual F(%SPR) Reference Points



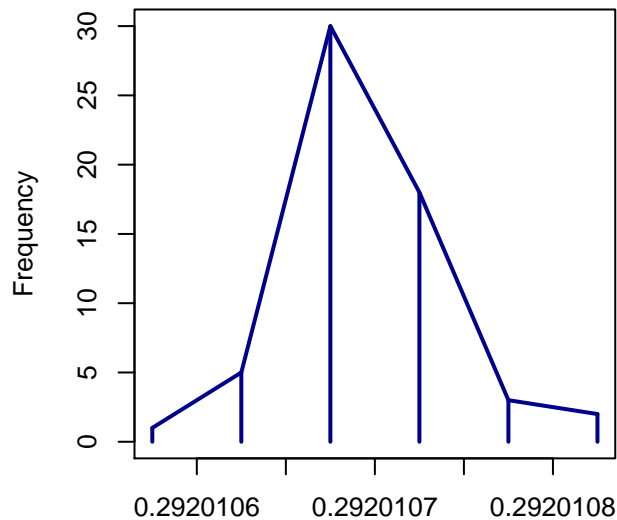
Annual YPR(%SPR) Reference Points



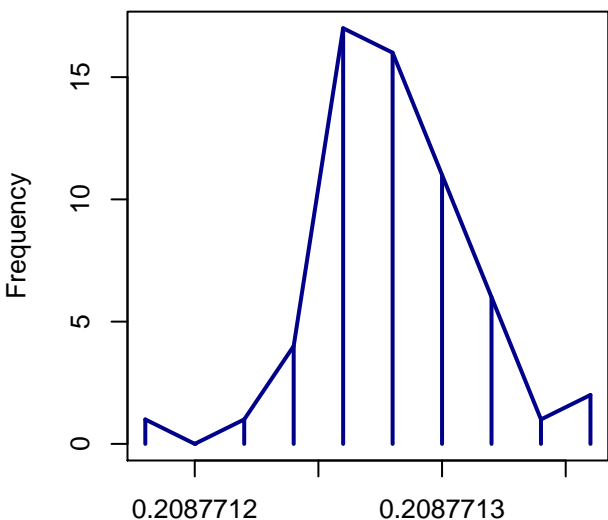
Annual F (%SPR) Reference Points



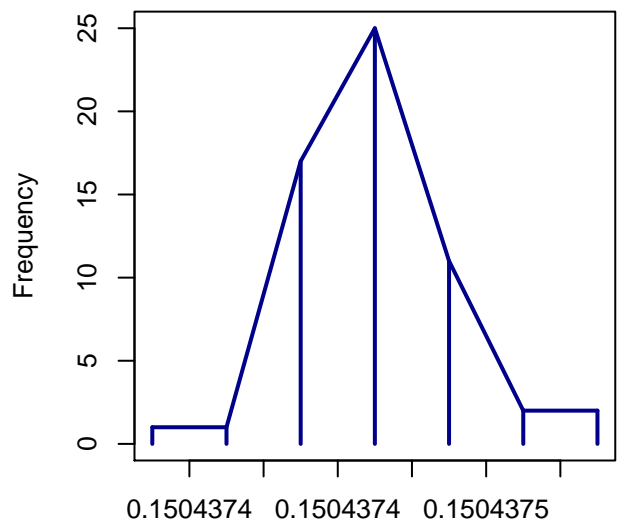
Full F20%



Full F30%

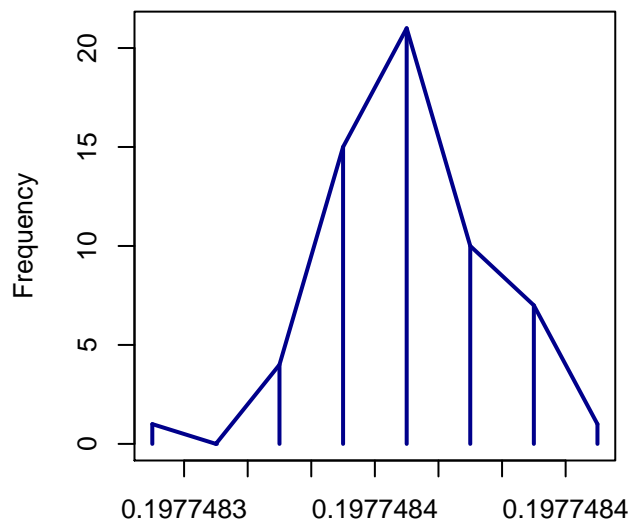
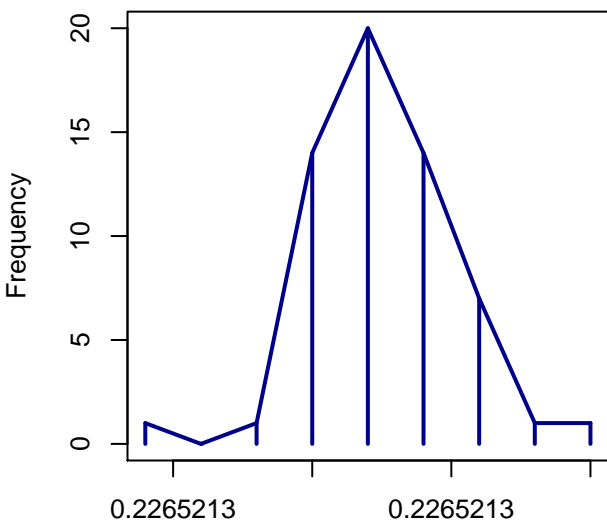
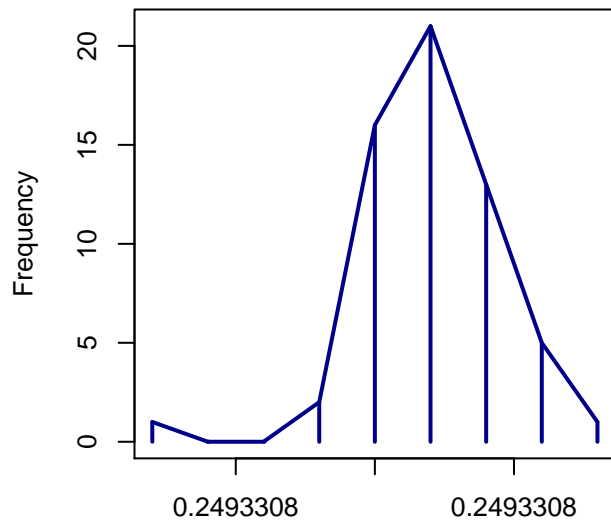
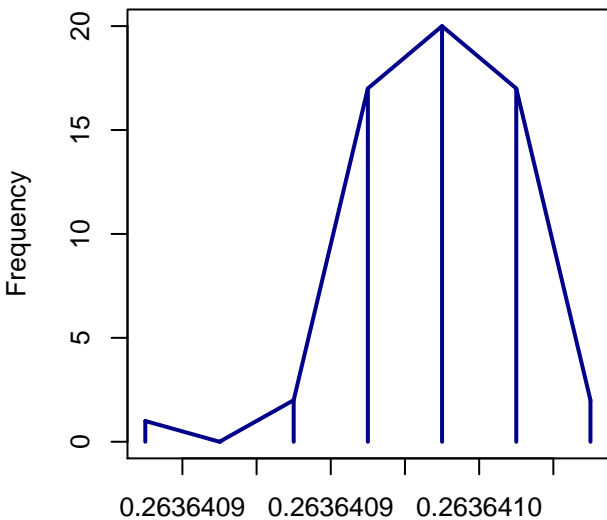


Full F40%

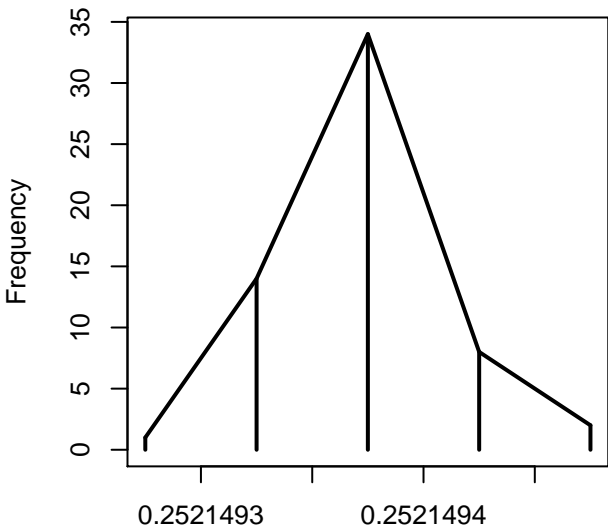


Full F50%

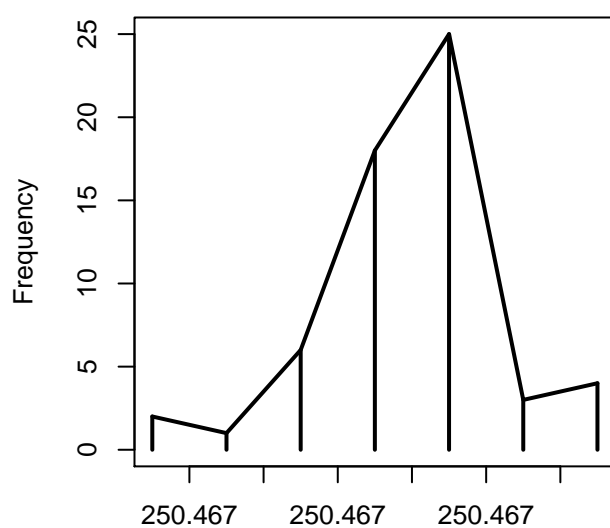
Annual YPR (%SPR) Reference Points



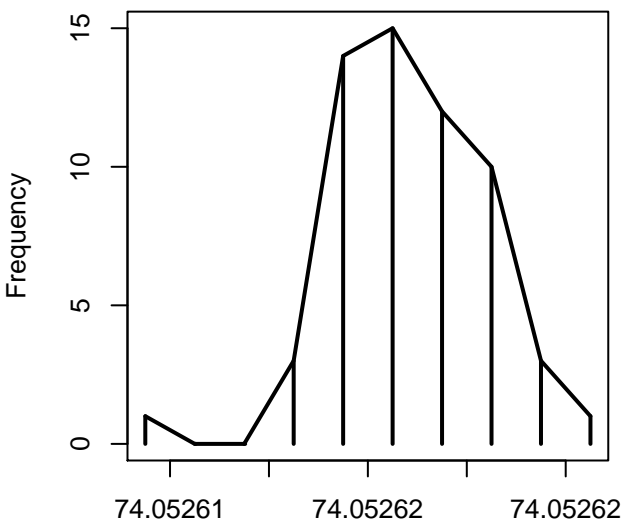
Annual MSY Reference Points (from S-R curve)



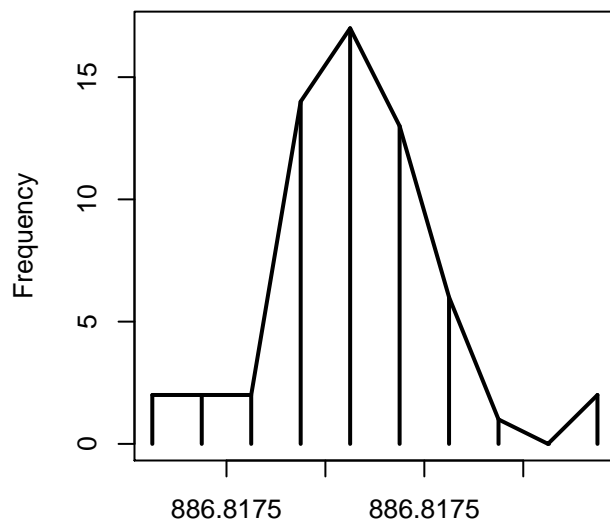
Full F



SSB.MSY

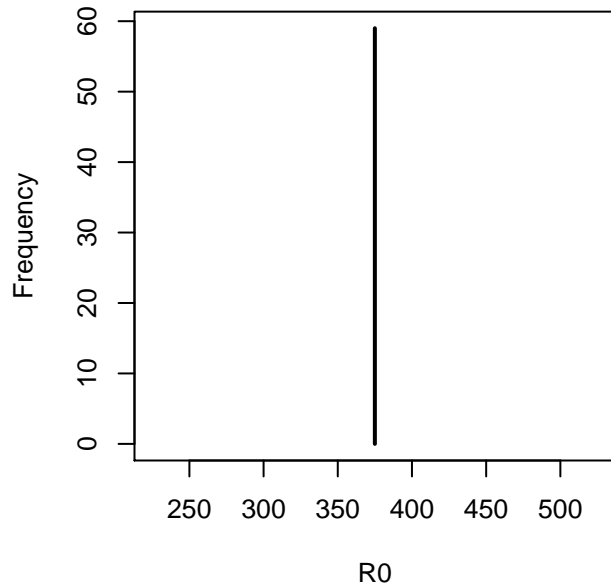
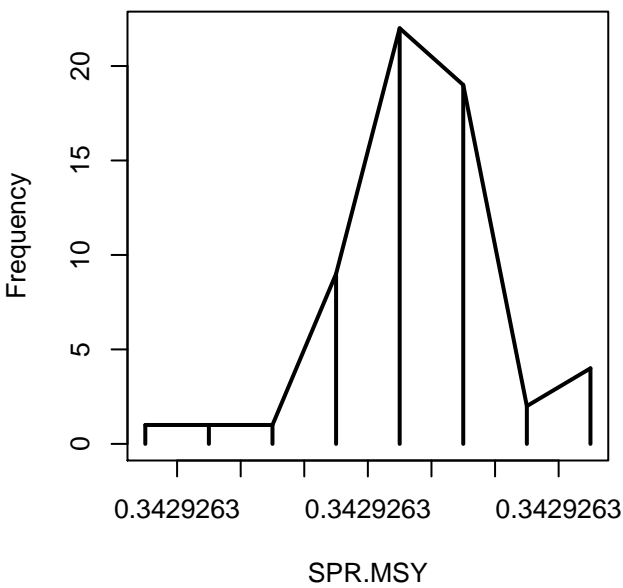
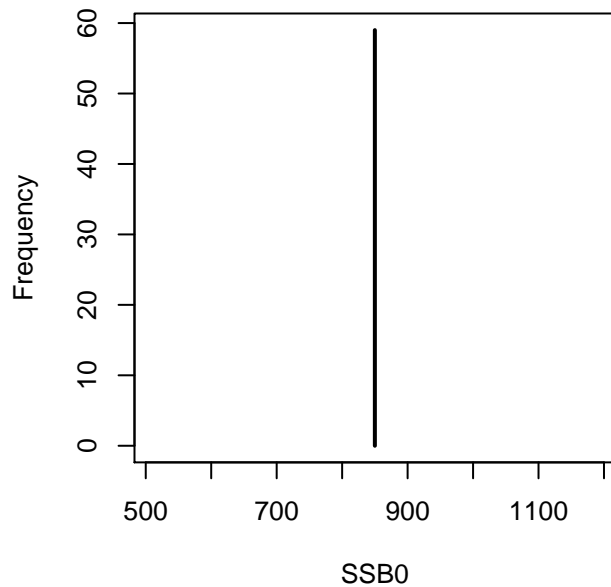
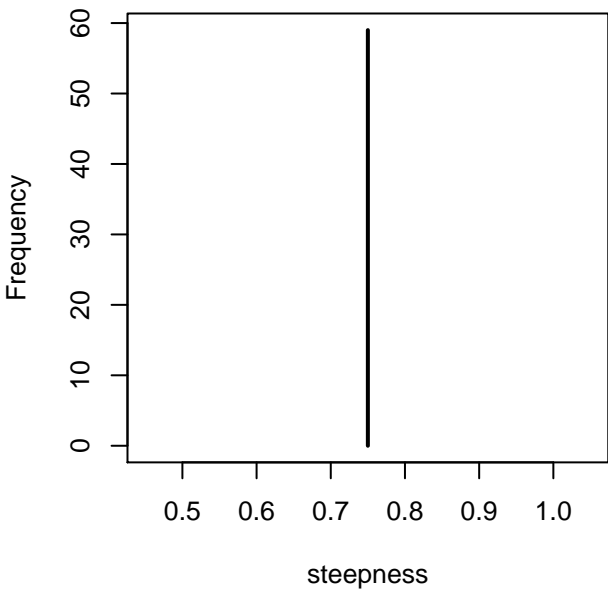


MSY

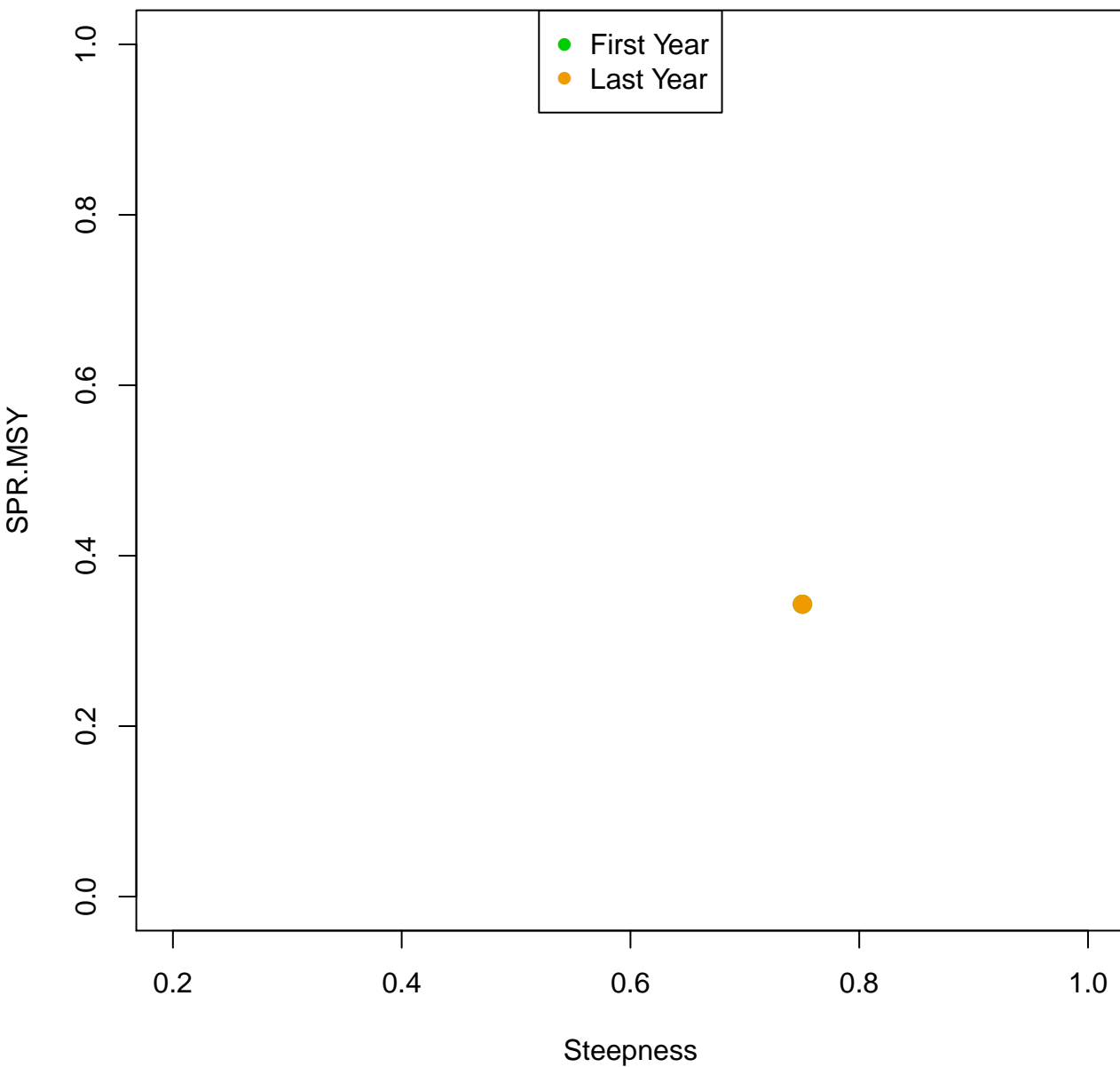


R.MSY

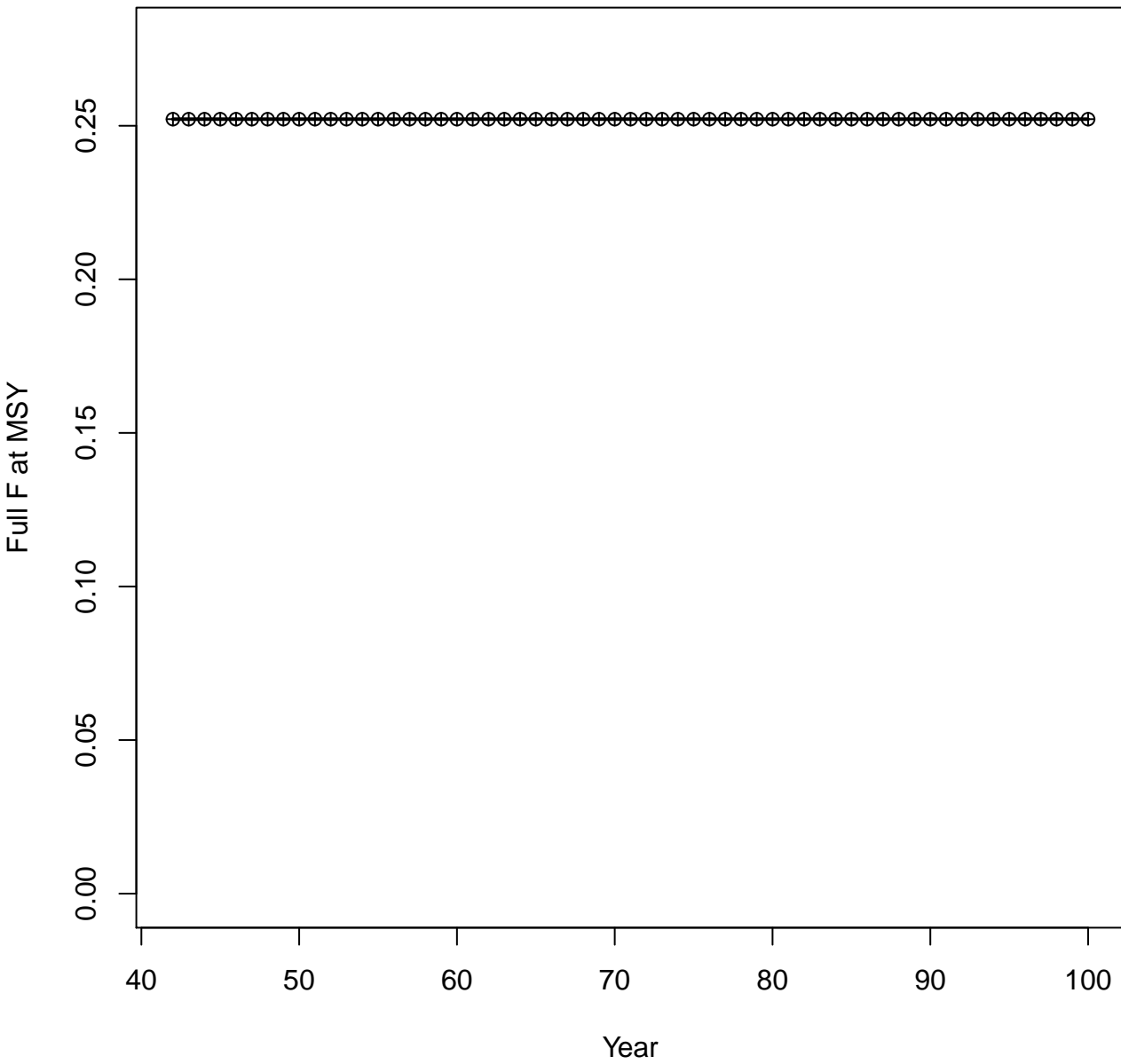
Annual MSY Reference Points (from S-R curve)



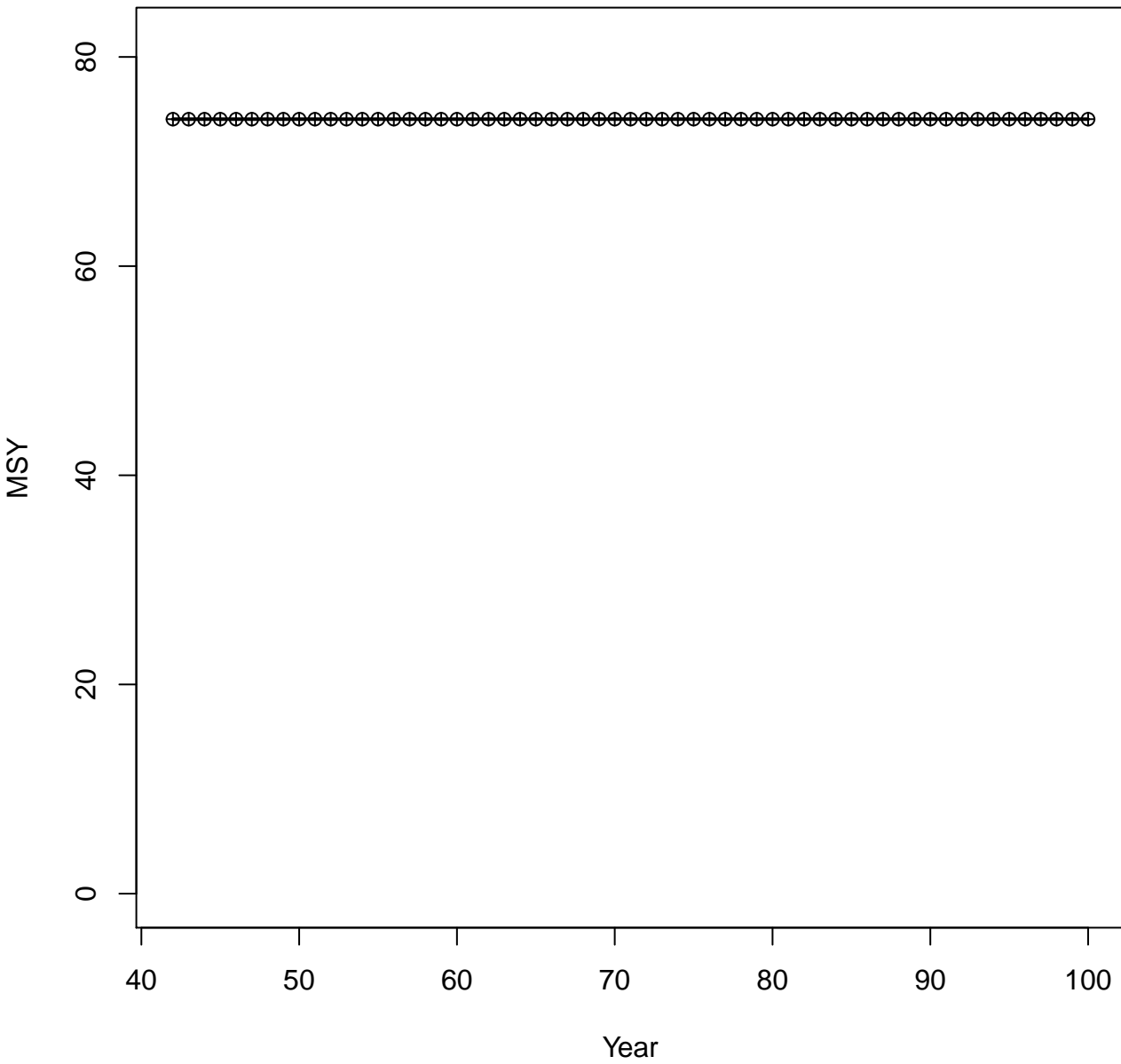
Annual Steepness and SPR.MSY (from S-R curve)



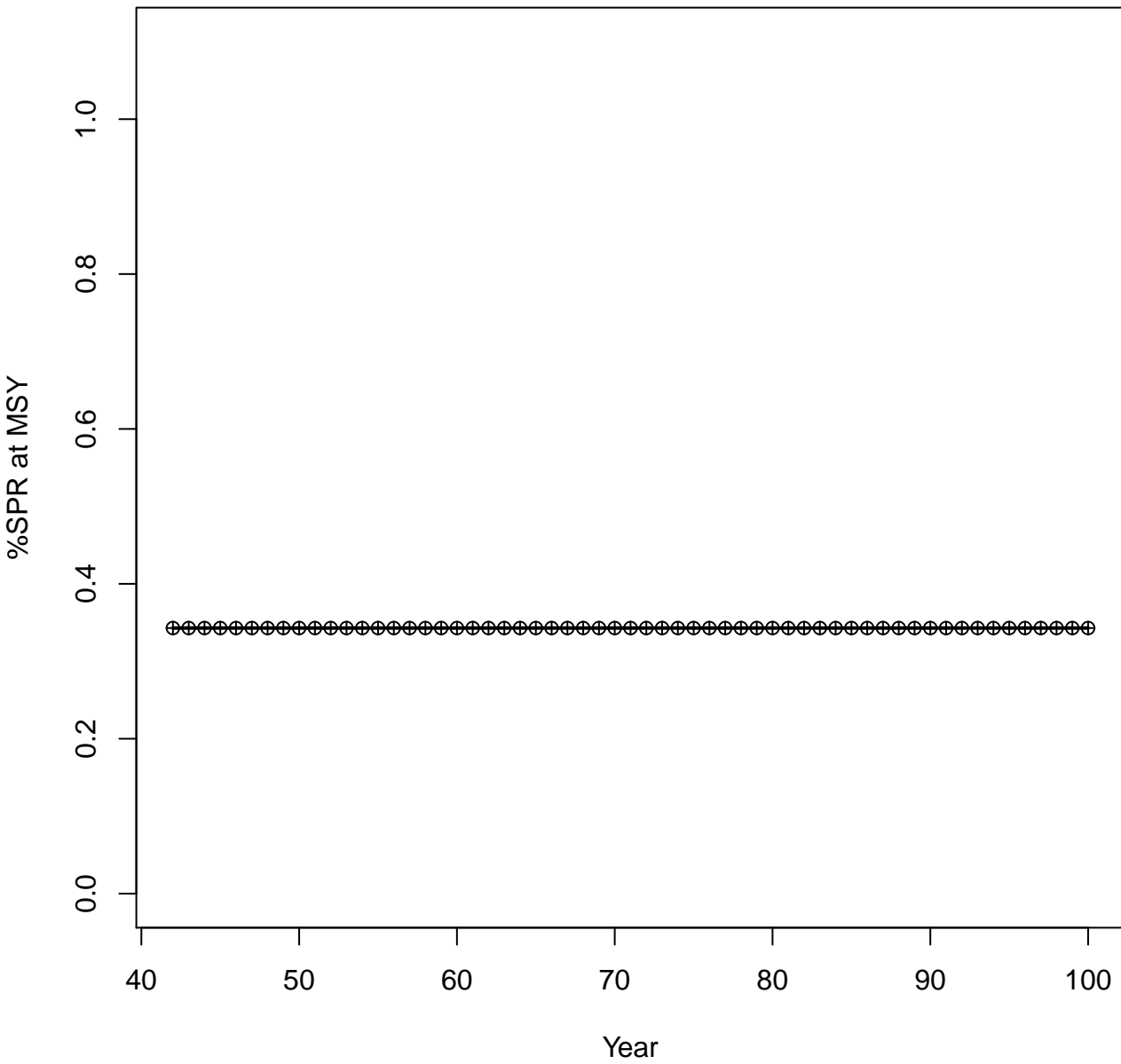
Annual MSY Reference Points (from S-R curve)



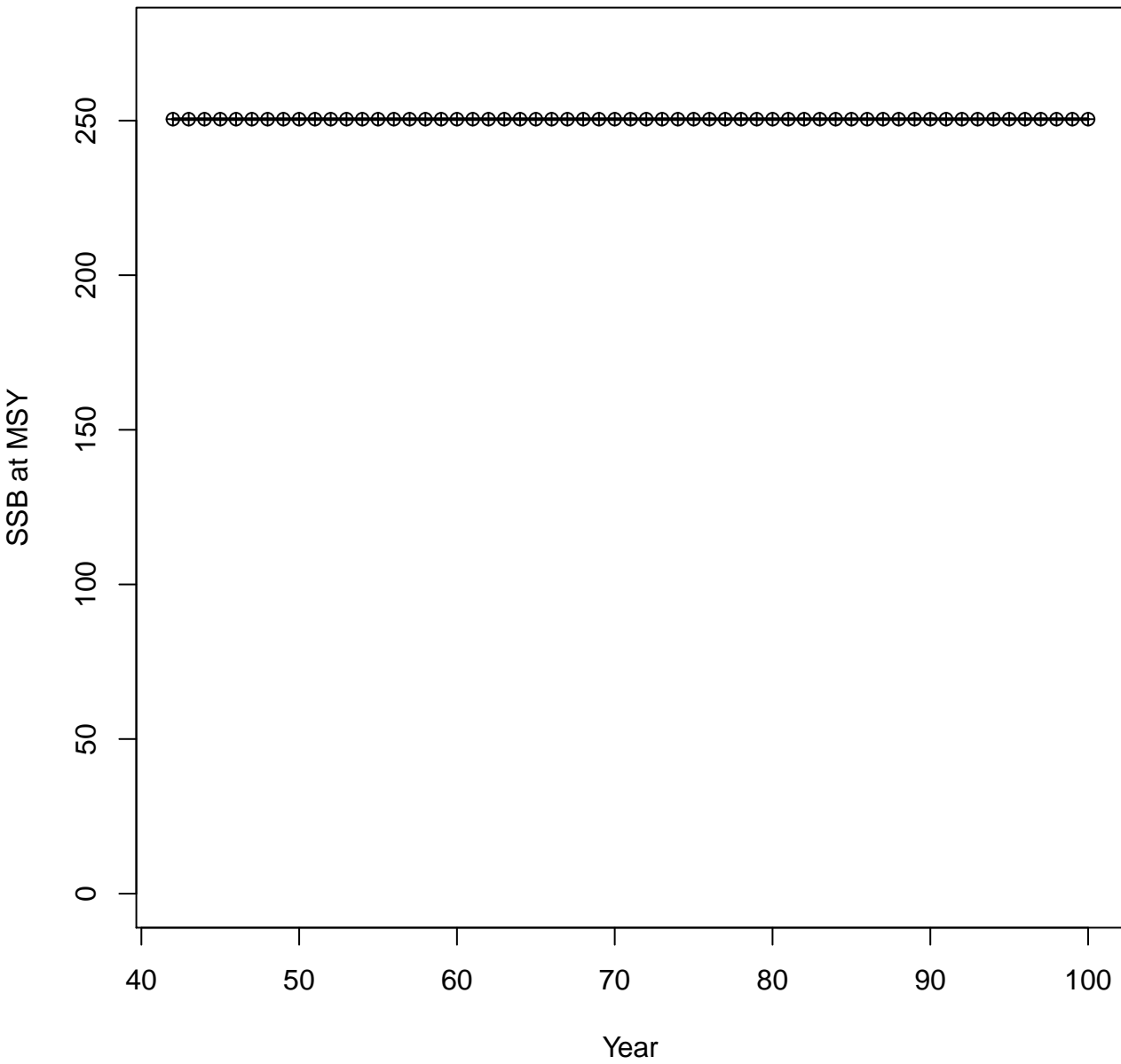
Annual MSY Reference Points (from S-R curve)



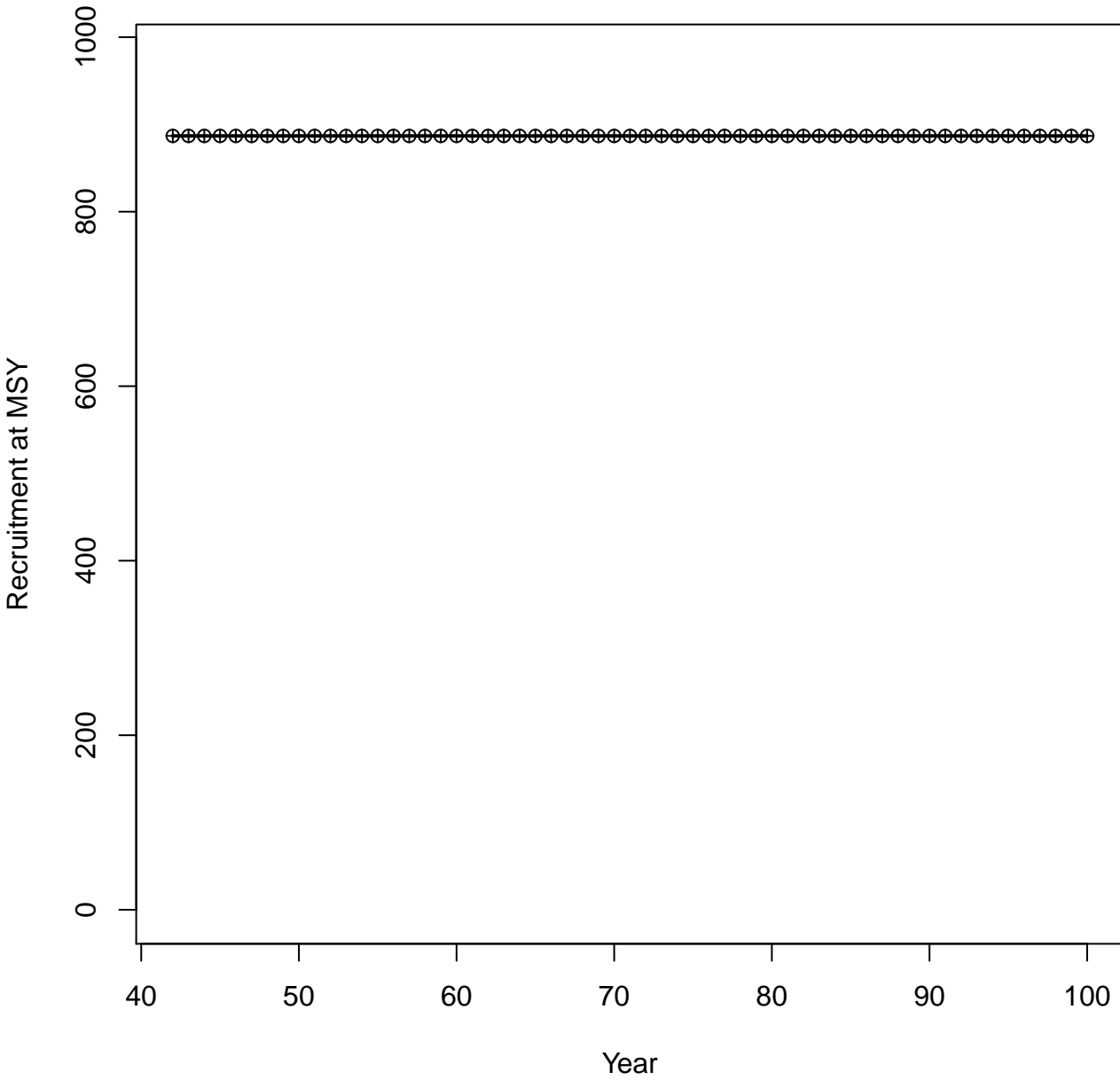
Annual MSY Reference Points (from S-R curve)

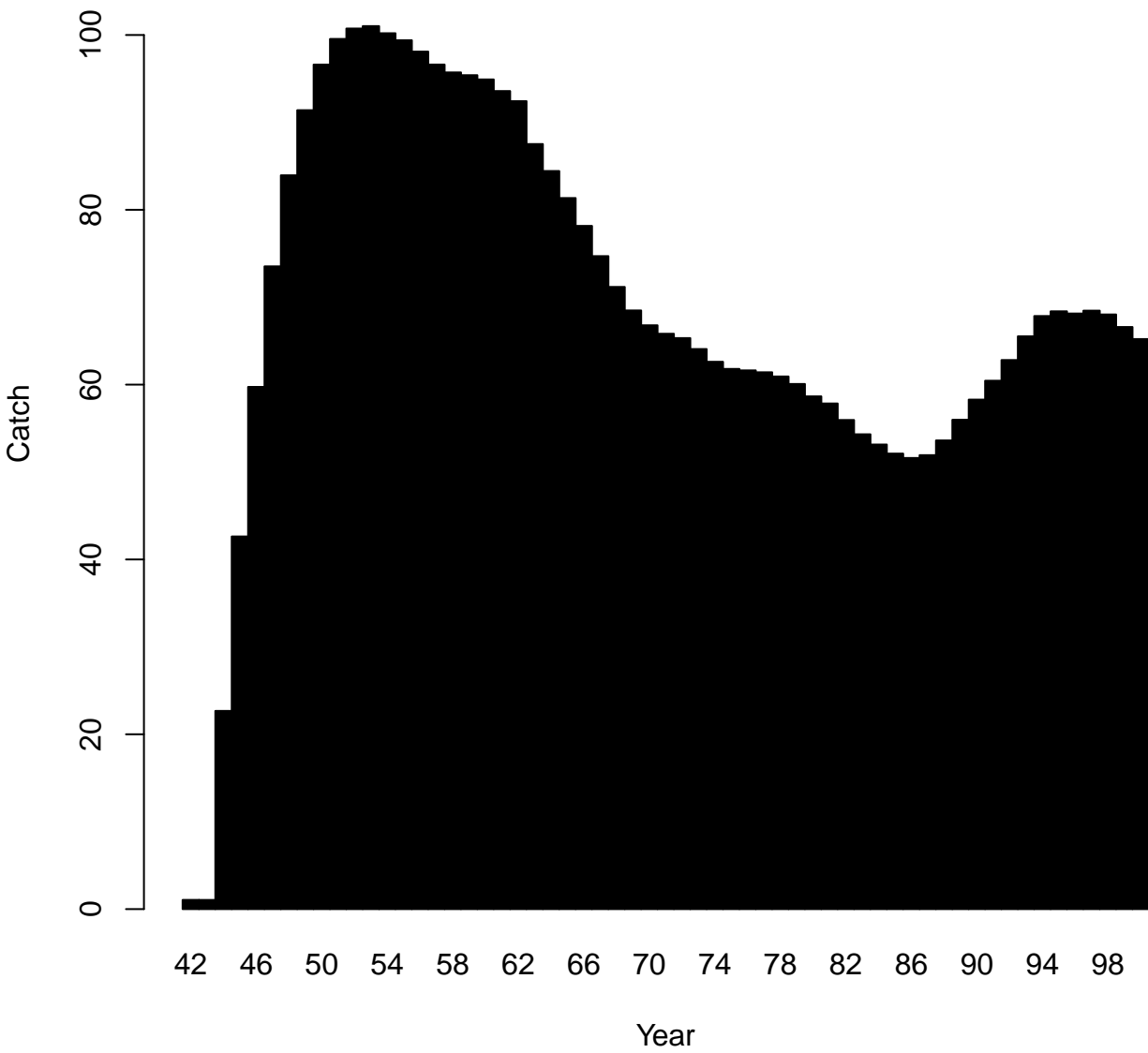


Annual MSY Reference Points (from S-R curve)

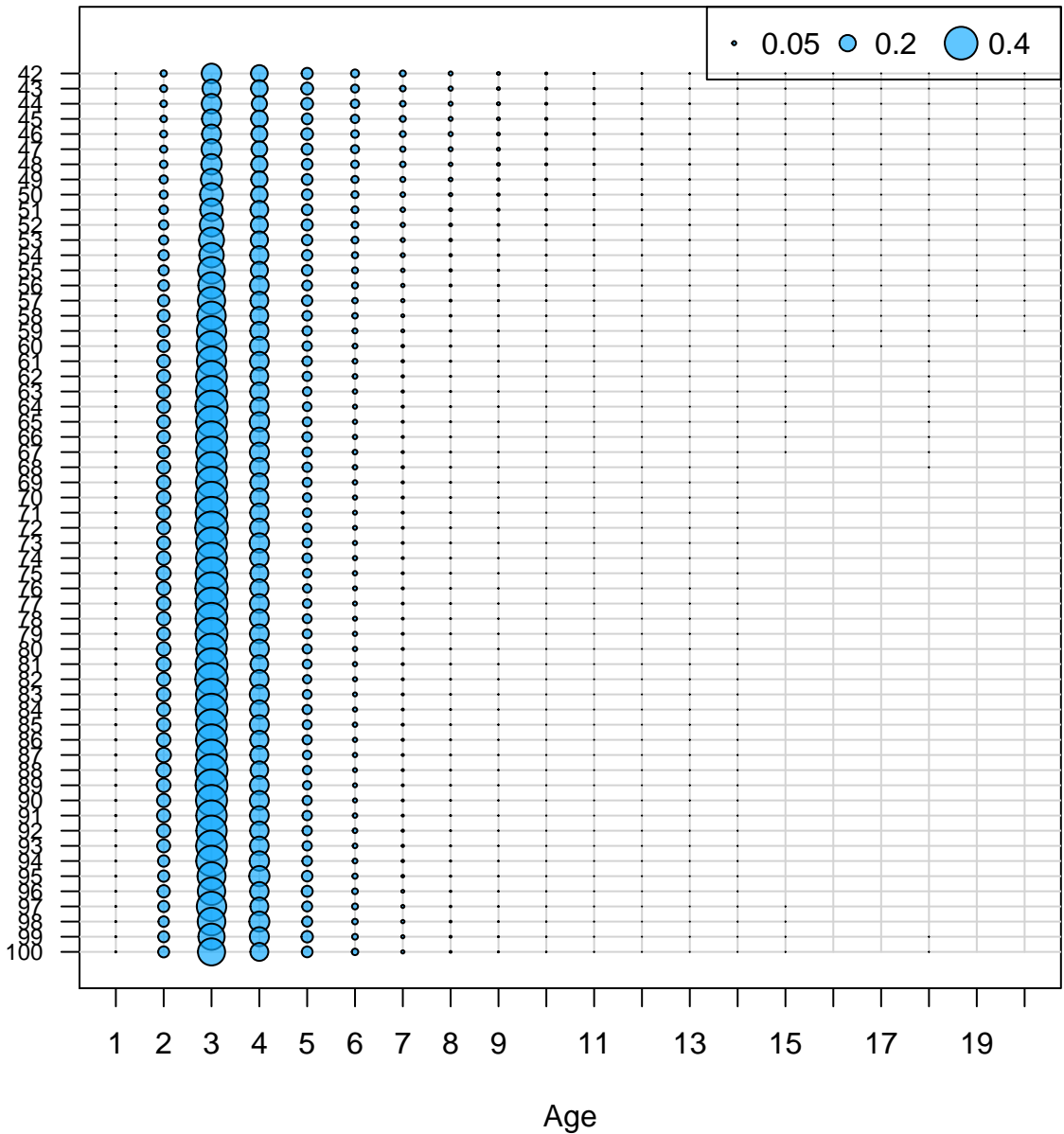


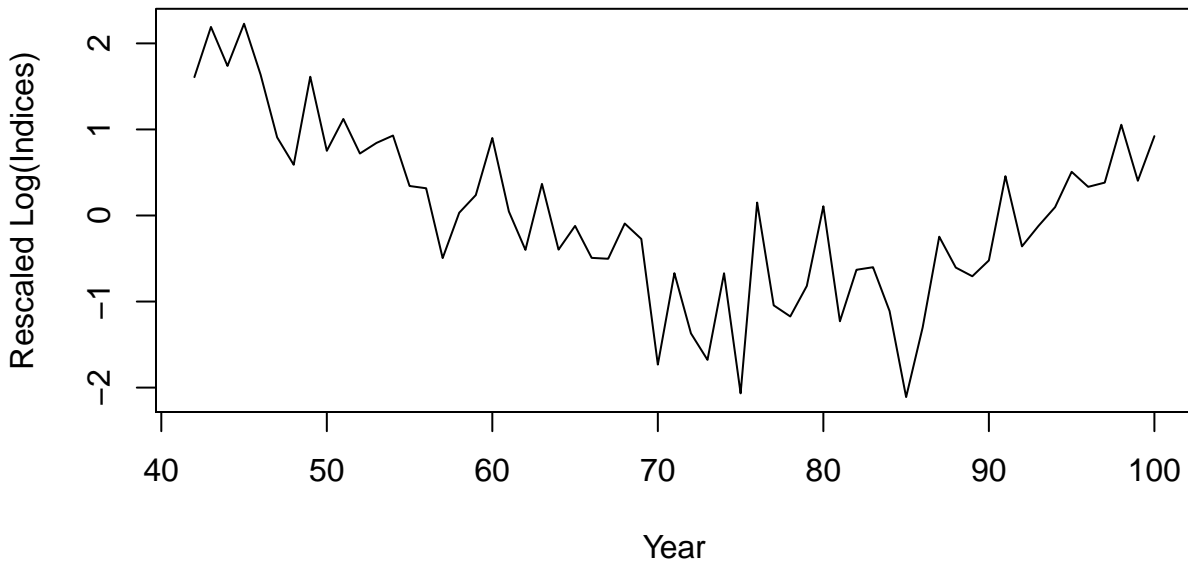
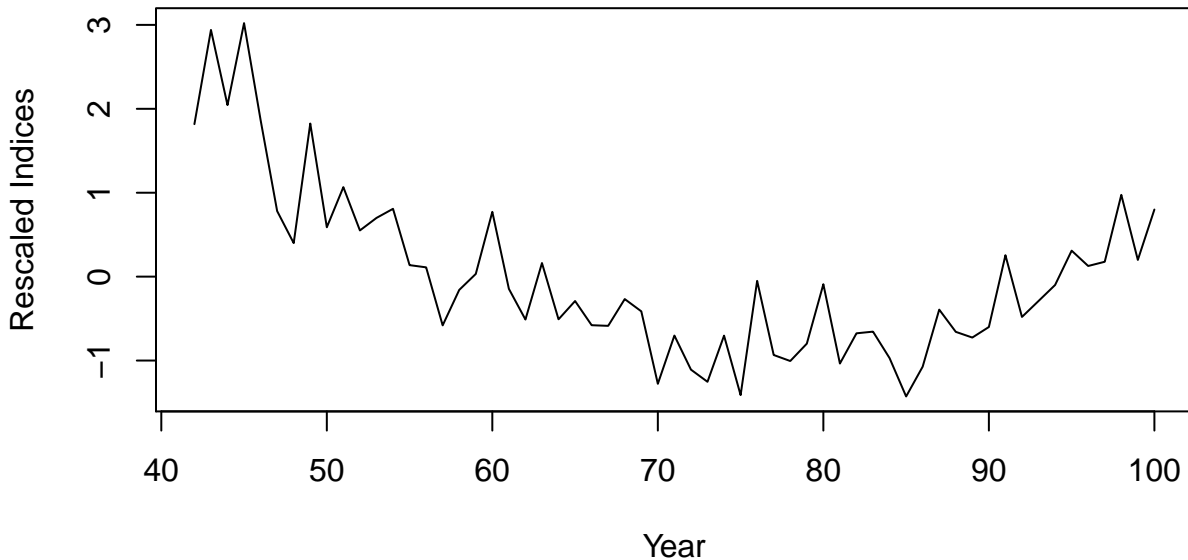
Annual MSY Reference Points (from S-R curve)



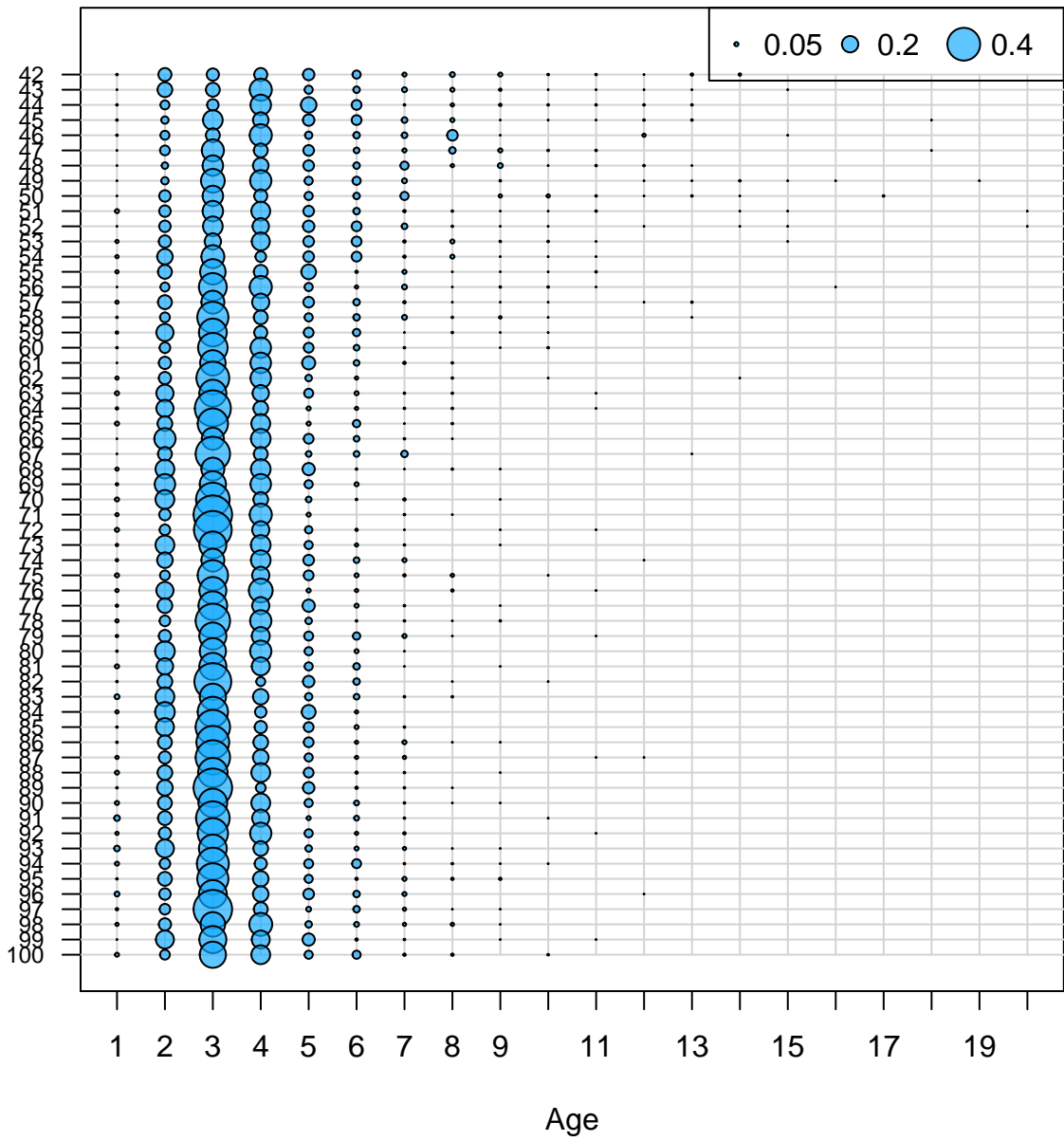


Age Comps for Catch by Fleet 1 (FLEET-1)

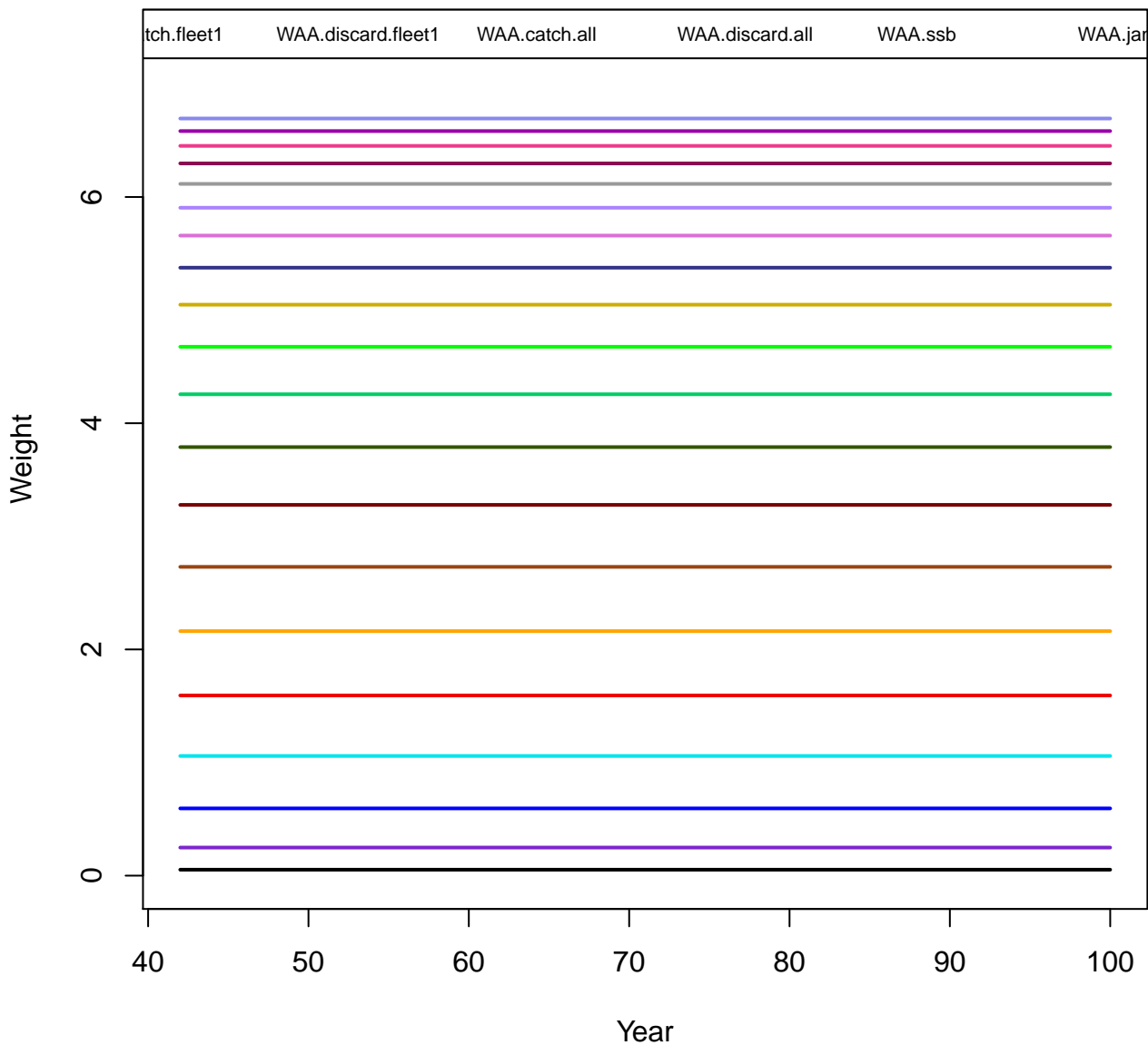




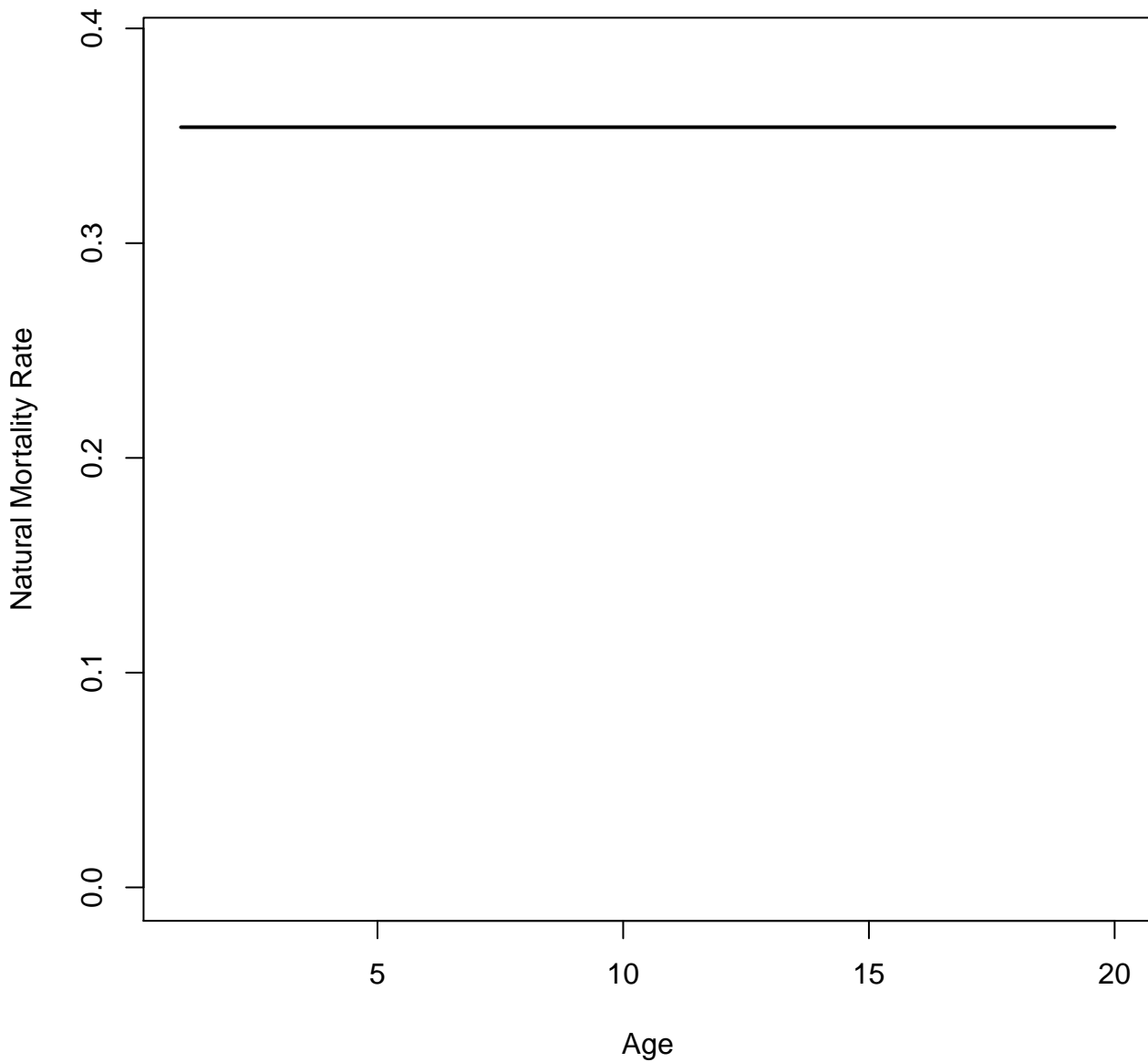
Age Comps for Index 1 (INDEX-1)



WAA matrix 1



M



Maturity

