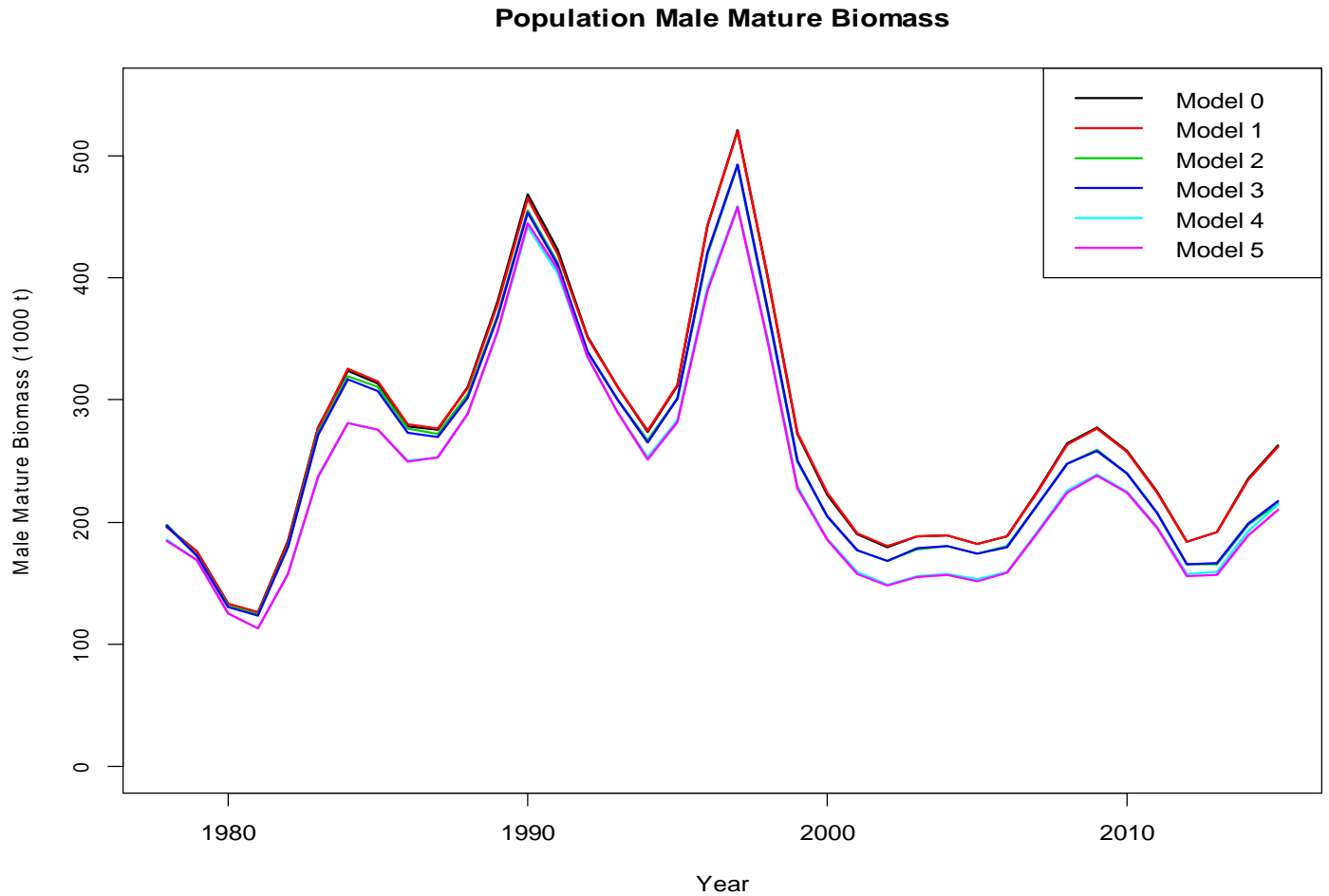


The wrong control file was used for the Model 1 run. Also there was one additional change in model structure – the weight on the fit to trawl discard catch was increased by 4x. All other runs checked out OK. I rebuilt model 1 starting from model 0 and checked code with models 2 and 3. I ran models 2 and 3 again and obtained the same results. I ran models 4 and 5 starting from the ending converged parameter values and results did not change.



Models 0 and Model 1 same biomass. Models 2 and 3 same, Model 4 slightly higher than Model 5 in last few years.

Table 13. Likelihood values for base model and 5 model scenarios.

Likelihood Component	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5 (Base Model)
Recruitment	35.66	36.19	34.38	34.60	36.91	36.25
Initial numbers old shell males small length bins	2.21	2.22	2.19	2.19	2.33	2.33
ret fishery length	352.94	353.47	347.94	350.71	339.03	339.29
total fish length	787.15	788.12	781.83	783.45	779.05	778.23
female fish length	228.95	228.90	244.93	215.30	215.94	216.20
survey length	3845.13	3841.36	3873.05	3885.34	3882.91	3883.35
trawl length	274.61	273.75	278.54	279.53	274.21	275.33
2009 BSFRF length	-83.22	-82.85	-83.37	-82.88	-83.15	-83.37
2009 NMFS study area length	-71.02	-70.80	-71.57	-72.00	-71.68	-71.75
M prior	9.62	9.33	9.53	9.11	8.72	8.99
maturity smooth	57.29	57.72	34.17	15.40	15.07	15.15
growth males	35.56	32.97	37.53	43.70	42.81	45.88
growth females	47.04	47.69	34.56	37.87	37.79	37.77
2009 BSFRF biomass	0.14	0.14	0.18	0.17	0.21	0.22
2009 NMFS study area biomass	0.06	0.06	0.08	0.09	0.13	0.13
retained catch	2.36	2.55	2.13	2.20	2.68	2.52
discard catch	115.58	125.56	103.56	107.59	121.11	112.64
trawl catch	9.30	9.23	4.07	4.15	1.42	1.55
female discard catch	23.68	23.66	17.89	17.64	9.30	4.88
survey biomass	192.78	193.96	192.08	191.97	184.52	184.17
F penalty	84.37	85.31	86.46	86.33	40.67	30.49
2010 BSFRF Biomass	1.50	1.42	1.86	1.77	2.12	2.20
2010 NMFS Biomass	1.01	1.01	1.41	1.31	1.72	1.76
initial numbers fit	508.09	509.15	507.85	509.00	508.12	507.64
2010 BSFRF length	-58.25	-59.36	-59.32	-58.49	-58.02	-58.16
2010 NMFS length	-67.07	-67.85	-67.65	-66.69	-66.25	-66.05
male survey selectivity smooth constraint	3.74	3.70	3.92	3.96	3.78	3.80
init nos smooth constraint	39.81	39.23	40.41	40.92	40.62	40.80
Total	6379.01	6385.82	6358.64	6344.24	6272.03	6252.19

Table 13. Differences in Likelihood values for 5 model scenarios relative to model 0 (negative values are better fits than Model 0).

Likelihood Component	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5 (Base Model)
Recruitment	0.00	0.53	-1.28	-1.07	1.24	0.58
Initial numbers old shell males small length bins	0.00	0.00	-0.03	-0.02	0.11	0.11
ret fishery length	0.00	0.53	-4.99	-2.23	-13.91	-13.65
total fish length	0.00	0.97	-5.32	-3.70	-8.10	-8.92
female fish length	0.00	-0.05	15.98	-13.65	-13.02	-12.75
survey length	0.00	-3.77	27.92	40.21	37.78	38.22
trawl length	0.00	-0.86	3.93	4.92	-0.40	0.72
2009 BSFRF length	0.00	0.37	-0.15	0.34	0.06	-0.16
2009 NMFS study area length	0.00	0.22	-0.55	-0.97	-0.66	-0.73
M prior	0.00	-0.28	-0.08	-0.51	-0.90	-0.62
maturity smooth	0.00	0.42	-23.12	-41.89	-42.23	-42.15
growth males	0.00	-2.58	1.97	8.14	7.26	10.33
growth females	0.00	0.65	-12.48	-9.18	-9.25	-9.28
2009 BSFRF biomass	0.00	0.00	0.04	0.03	0.07	0.07
2009 NMFS study area biomass	0.00	0.00	0.03	0.03	0.07	0.08
retained catch	0.00	0.19	-0.23	-0.16	0.32	0.17
discard catch	0.00	9.98	-12.02	-7.99	5.53	-2.94
trawl catch	0.00	-0.06	-5.23	-5.14	-7.88	-7.75
female discard catch	0.00	-0.02	-5.79	-6.04	-14.38	-18.80
survey biomass	0.00	1.17	-0.71	-0.81	-8.27	-8.61
F penalty	0.00	0.94	2.09	1.96	-43.70	-53.88
2010 BSFRF Biomass	0.00	-0.08	0.36	0.27	0.62	0.70
2010 NMFS Biomass	0.00	0.00	0.40	0.30	0.70	0.74
initial numbers fit	0.00	1.06	-0.24	0.91	0.03	-0.46
2010 BSFRF length	0.00	-1.11	-1.06	-0.23	0.23	0.09
2010 NMFS length	0.00	-0.78	-0.58	0.38	0.82	1.02
male survey selectivity smooth constraint	0.00	-0.05	0.18	0.22	0.04	0.05
init nos smooth constraint	0.00	-0.57	0.60	1.11	0.82	0.99
Total	0.00	6.81	-20.37	-34.77	-106.98	-126.82
No. Parameters	323	323	323	323	323	309

