

Appendix C2: Model 1 Results

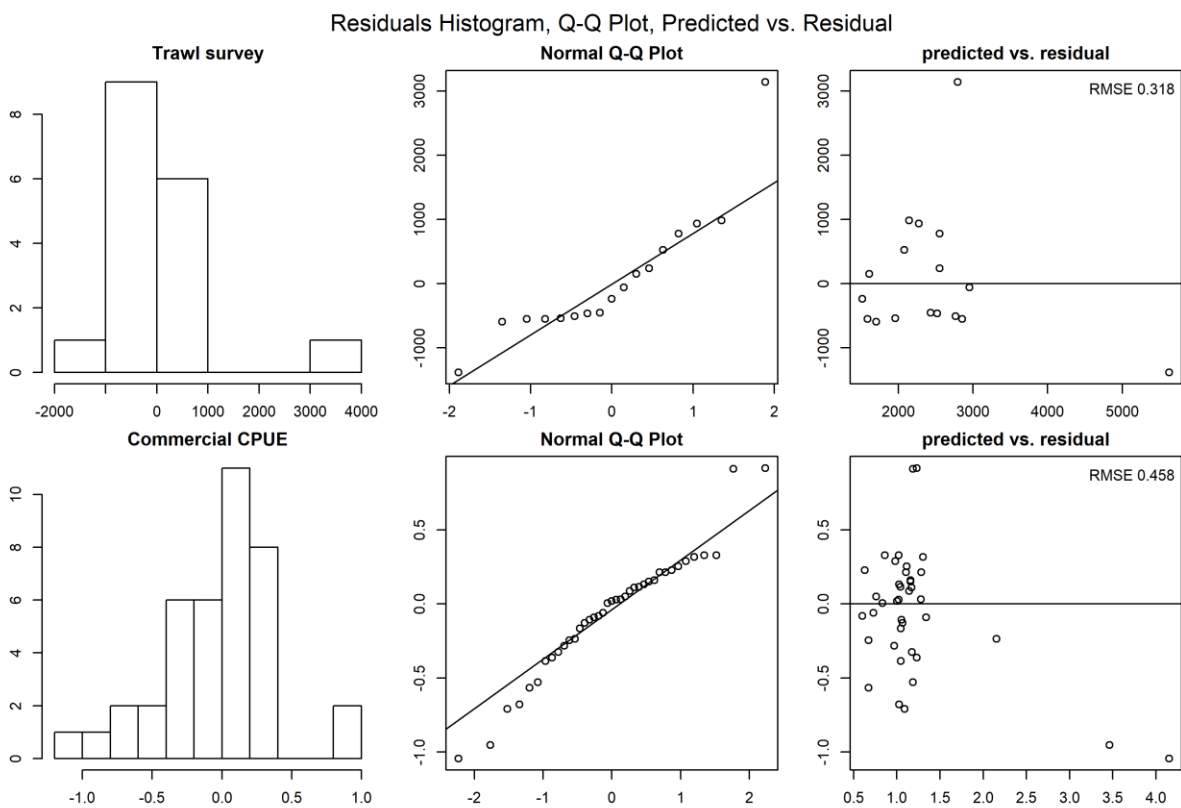


Figure C2-1. QQ Plot of Trawl survey and Commercial CPUE.

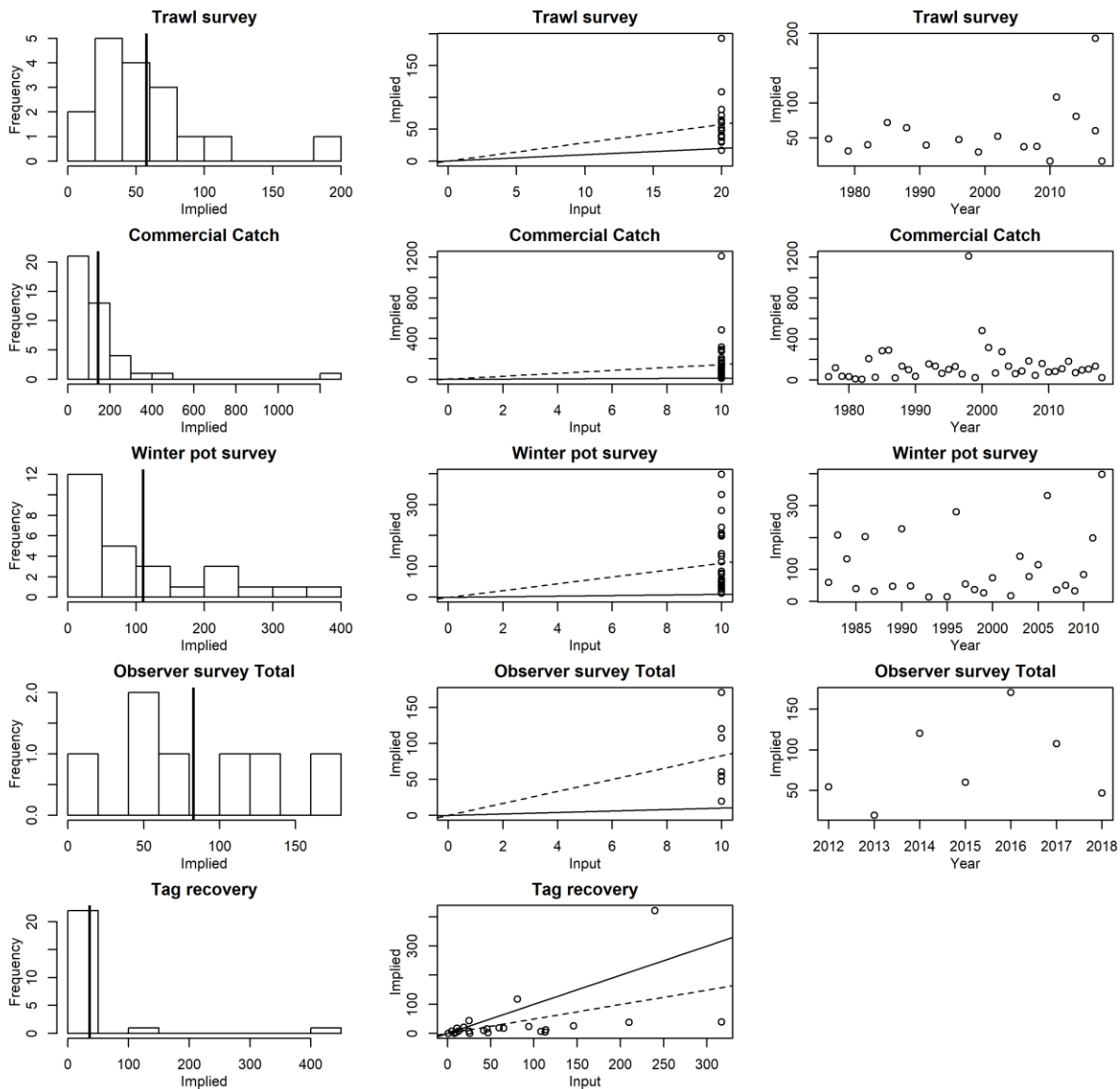


Figure C2-2: Implied effective samples. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis). Vertical solid line is the mean implied effective sample size. The second column show input sample size (x-axis) vs. implied effective sample size (y-axis). Dashed line indicates linear regression slope, and solid line is 1:1 line. The third column show year (x-axis) vs. implied effective sample size (y-axis).

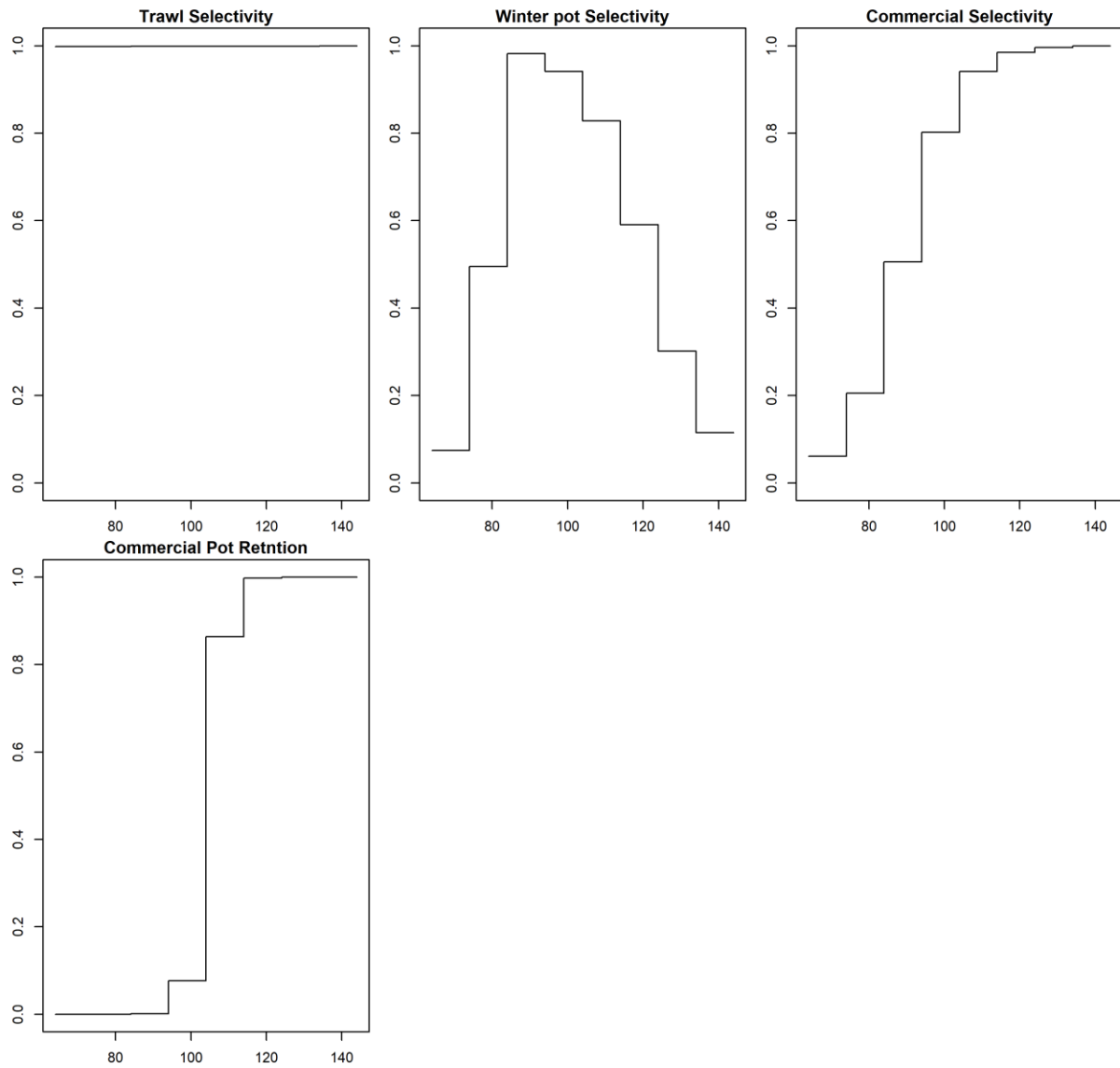


Figure C2-3. Molting probability and trawl/pot selectivity. X-axis is carapace length.

Trawl survey crab abundance

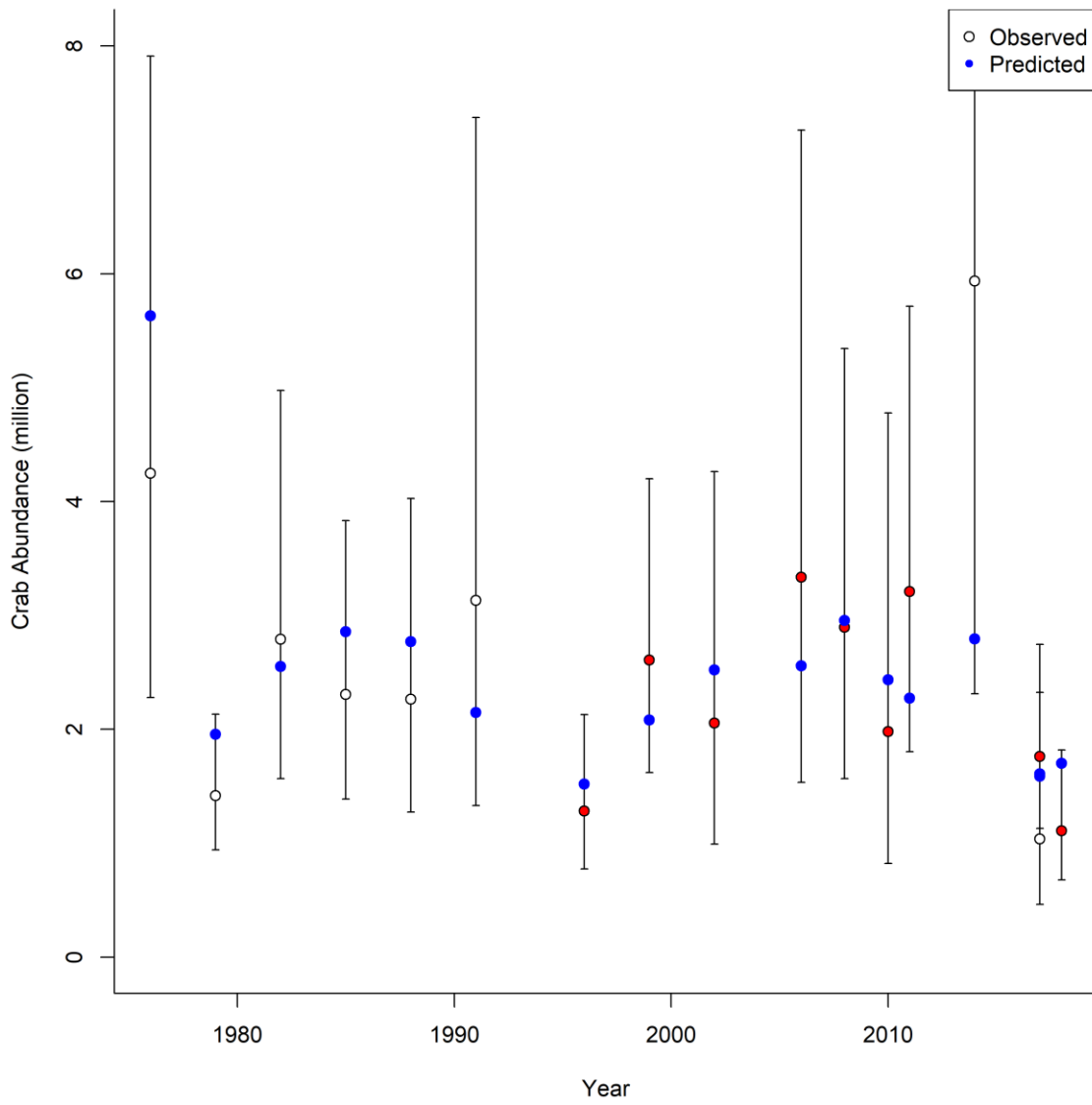


Figure C2-4. Estimated trawl survey male abundance (crab ≥ 64 mm CL). Observed: White: NOAA Trawl Survey, Red: ADG&G Trawl Survey

Modeled crab abundance Feb 01

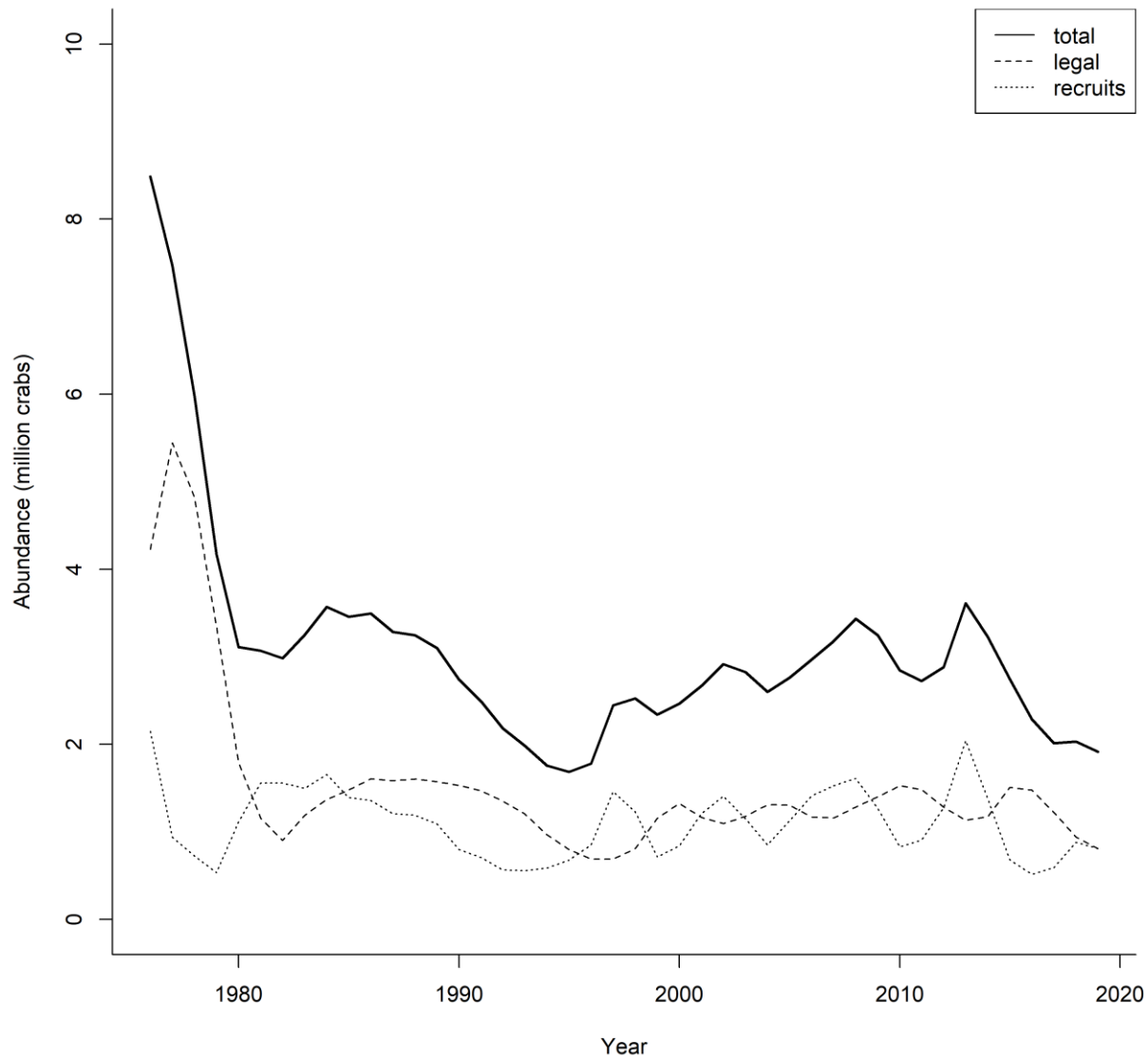


Figure C2-5. Estimated abundance of legal males from 1976-2015.

MMB Feb 01

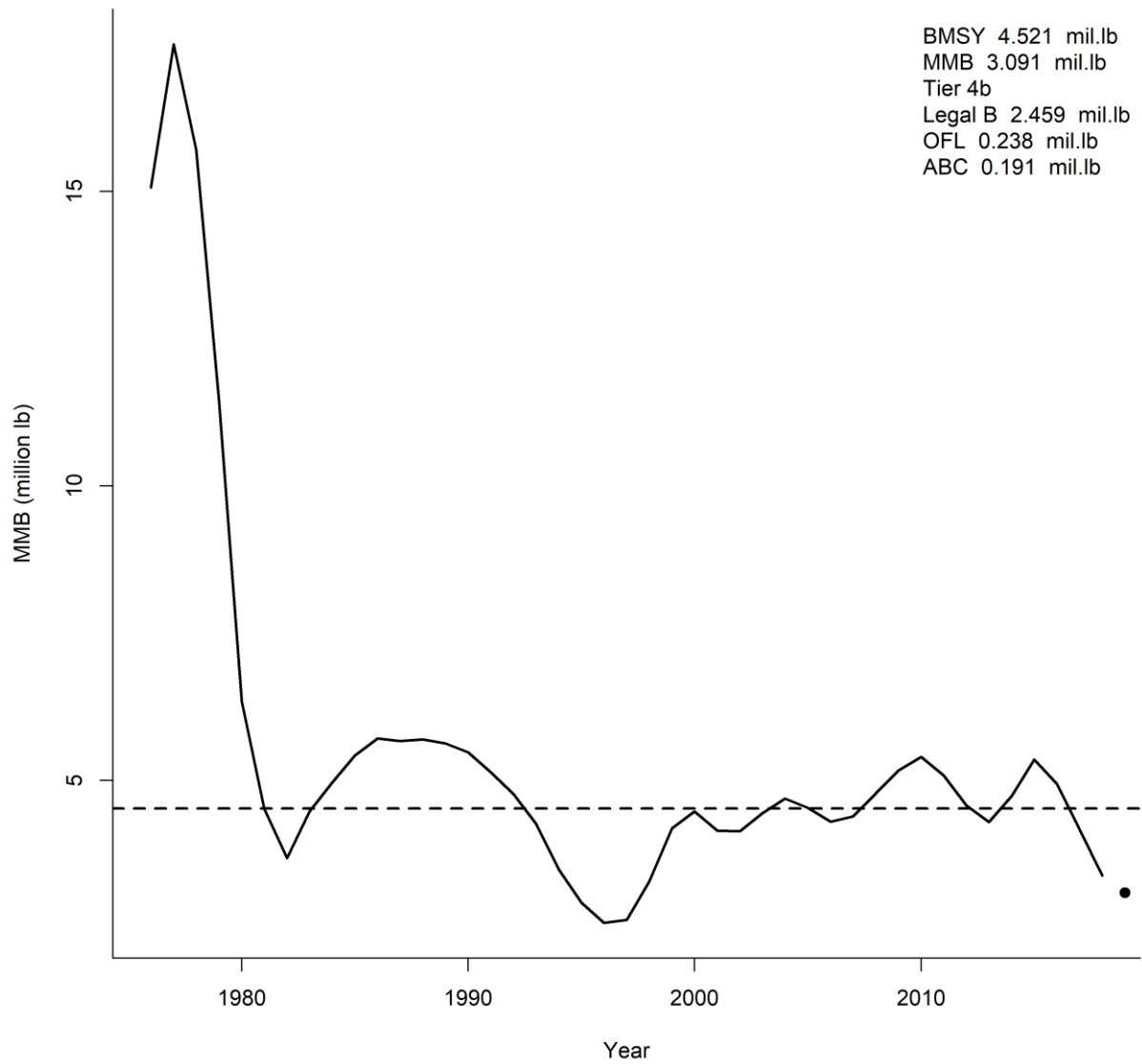


Figure C2-6. Estimated abundance of Mature Male Biomass from 1976-2019. Dash line shows Bmsy (Average MMB of 1980-2019).

Summer commercial standardized cpue

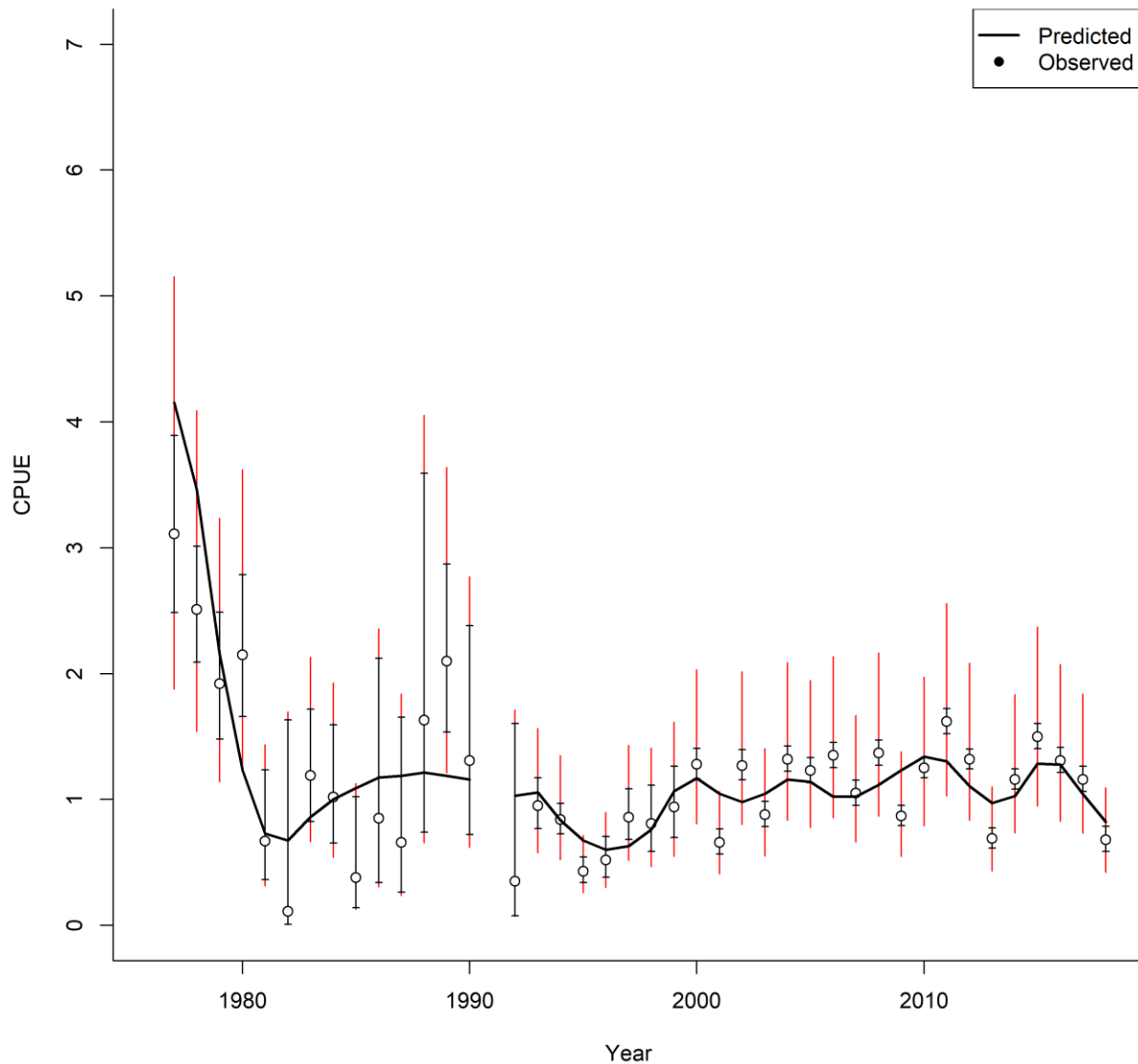


Figure C2-7. Summer commercial standardized cpue 1977-2018.

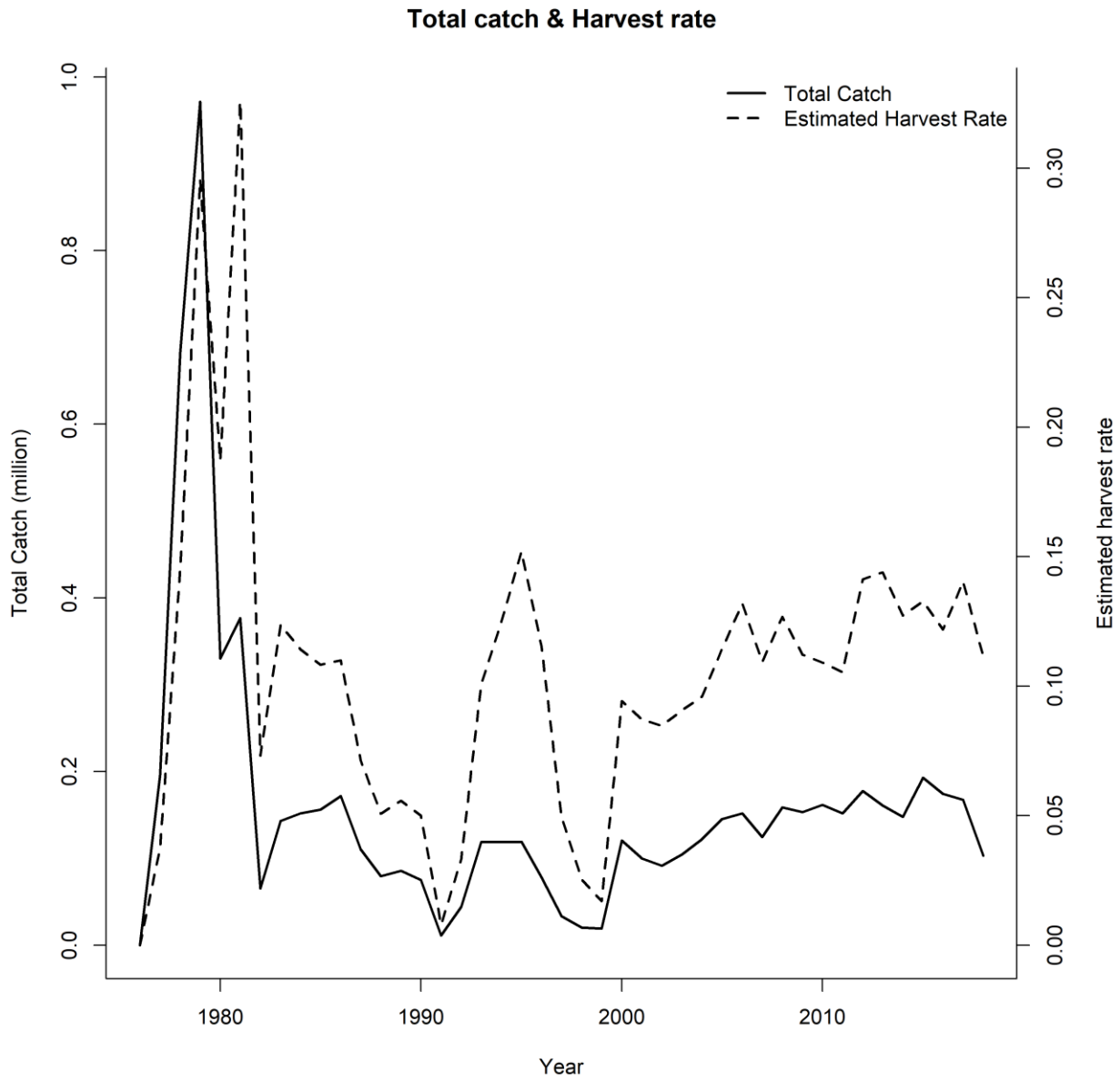


Figure C2-8. Total catch and estimated harvest rate 1976-2018.

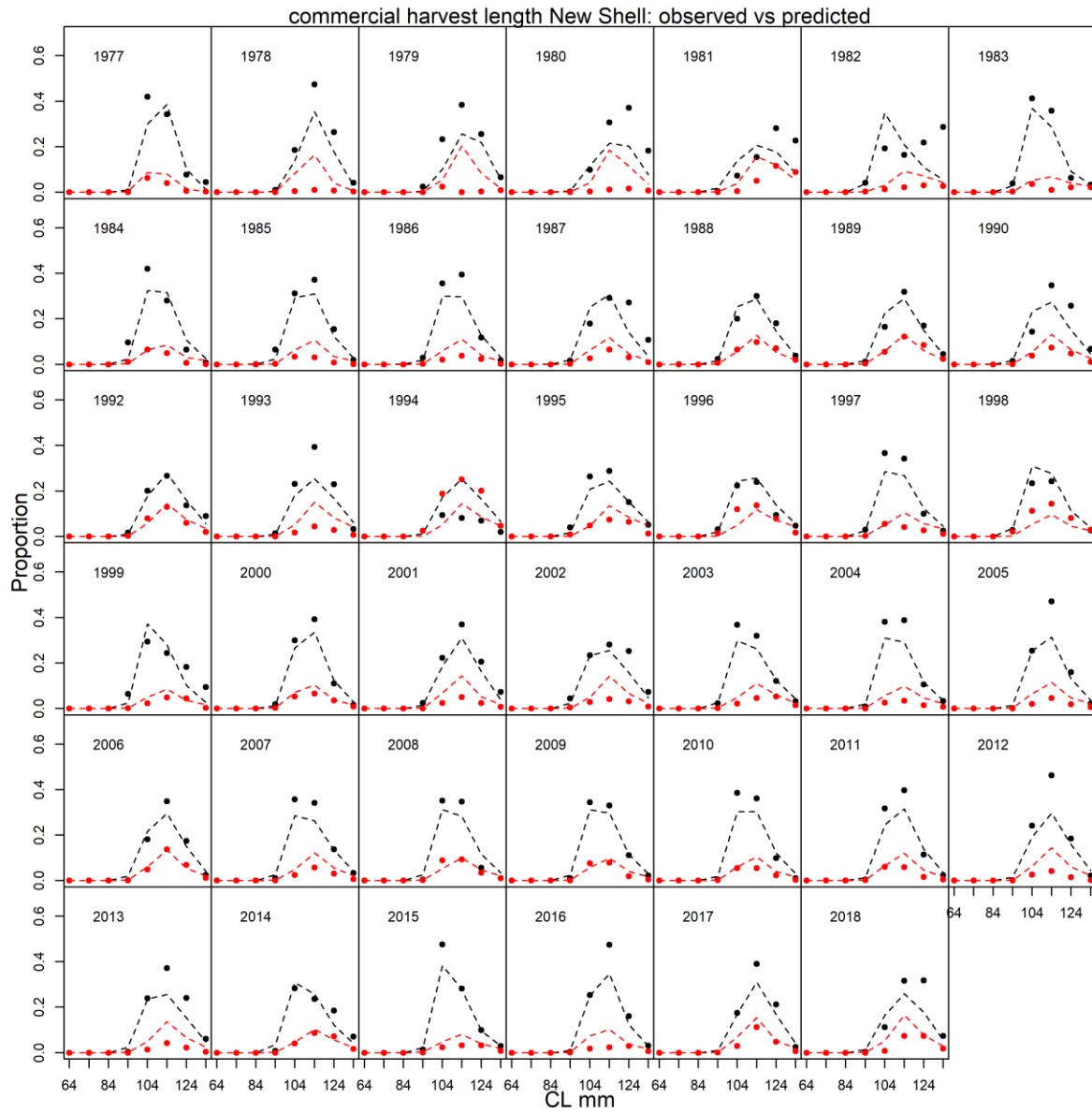


Figure C2-9. Predicted (dashed line) vs. observed (dots) length class proportions for commercial catch. Black: New Shell, Red: Old Shell

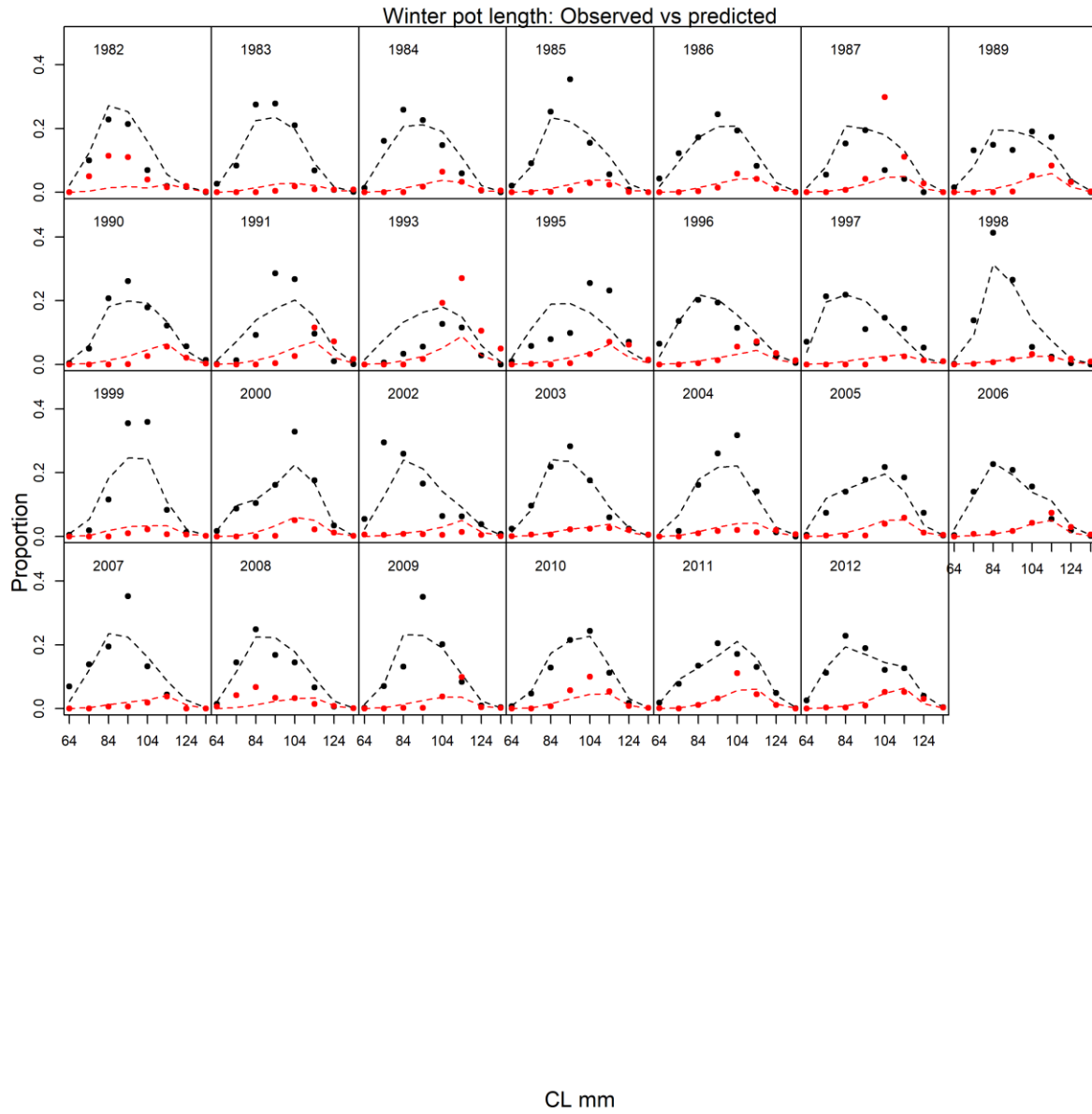
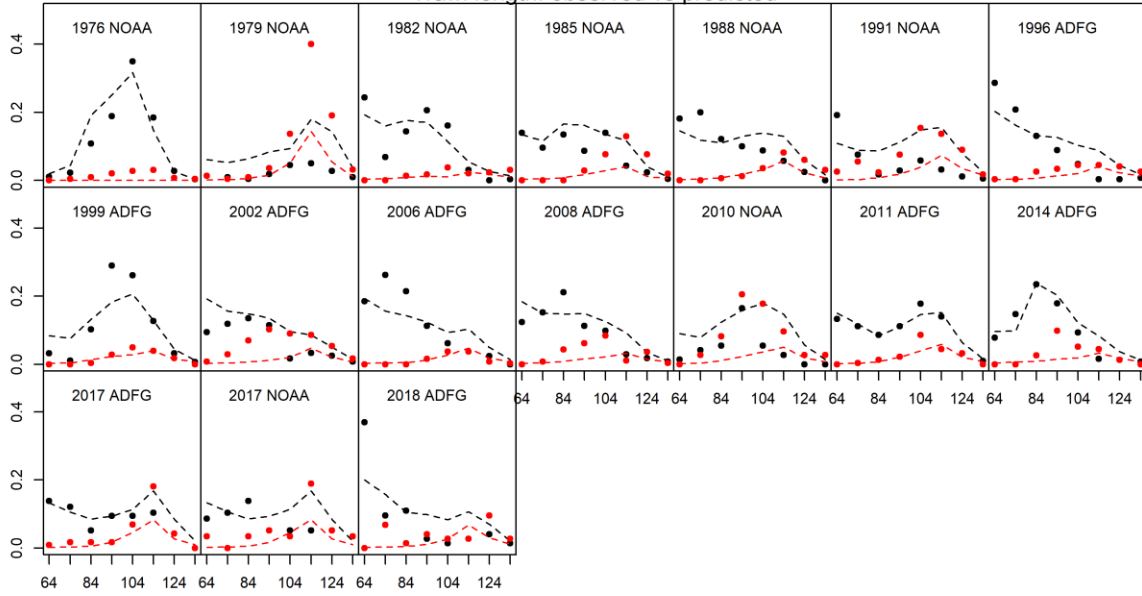


Figure C2-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter and spring pot survey.

Trawl length: observed vs predicted



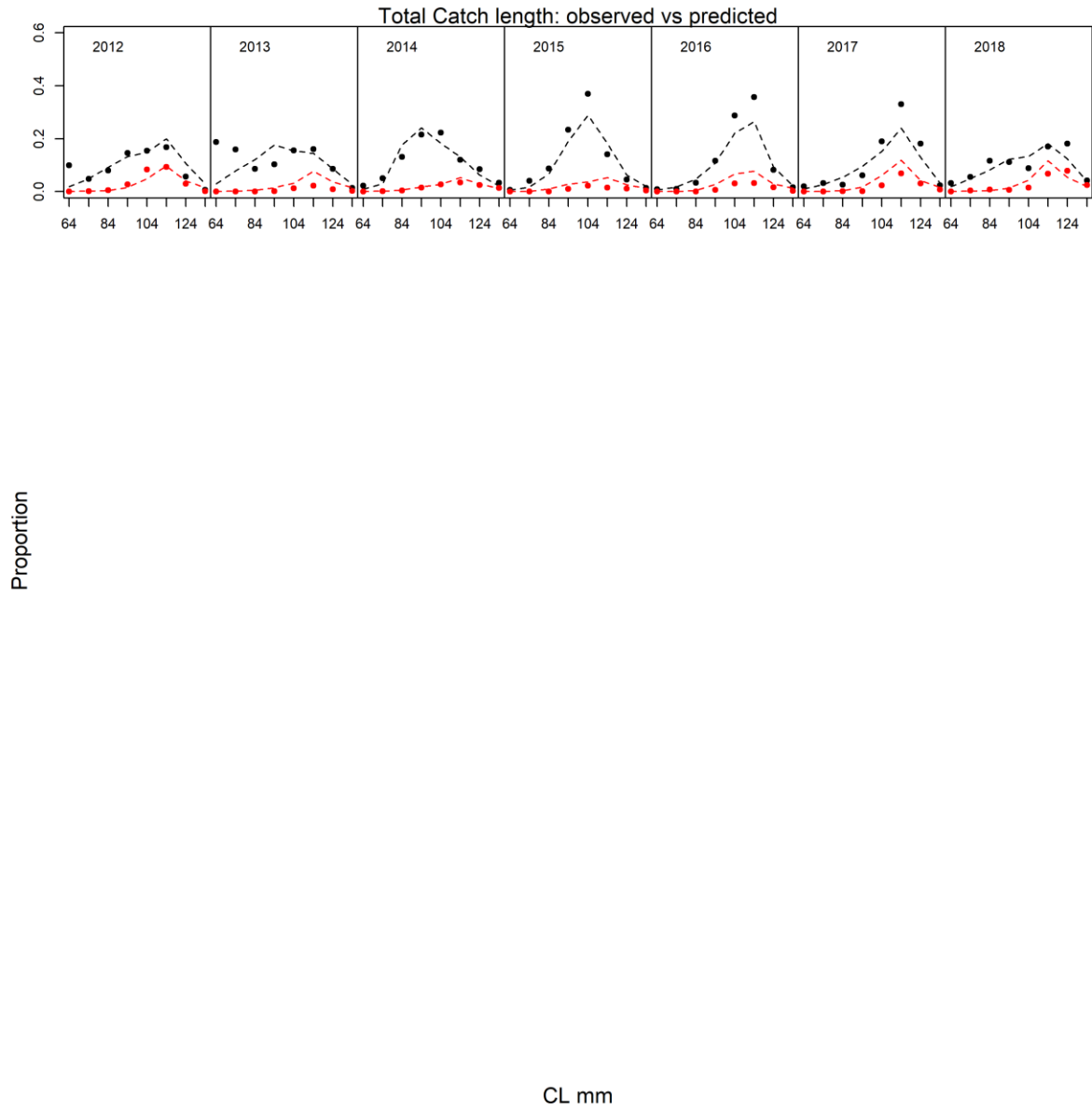


Figure C2-12. Predicted (dashed) vs. observed (dots) length class proportions for the observer survey.

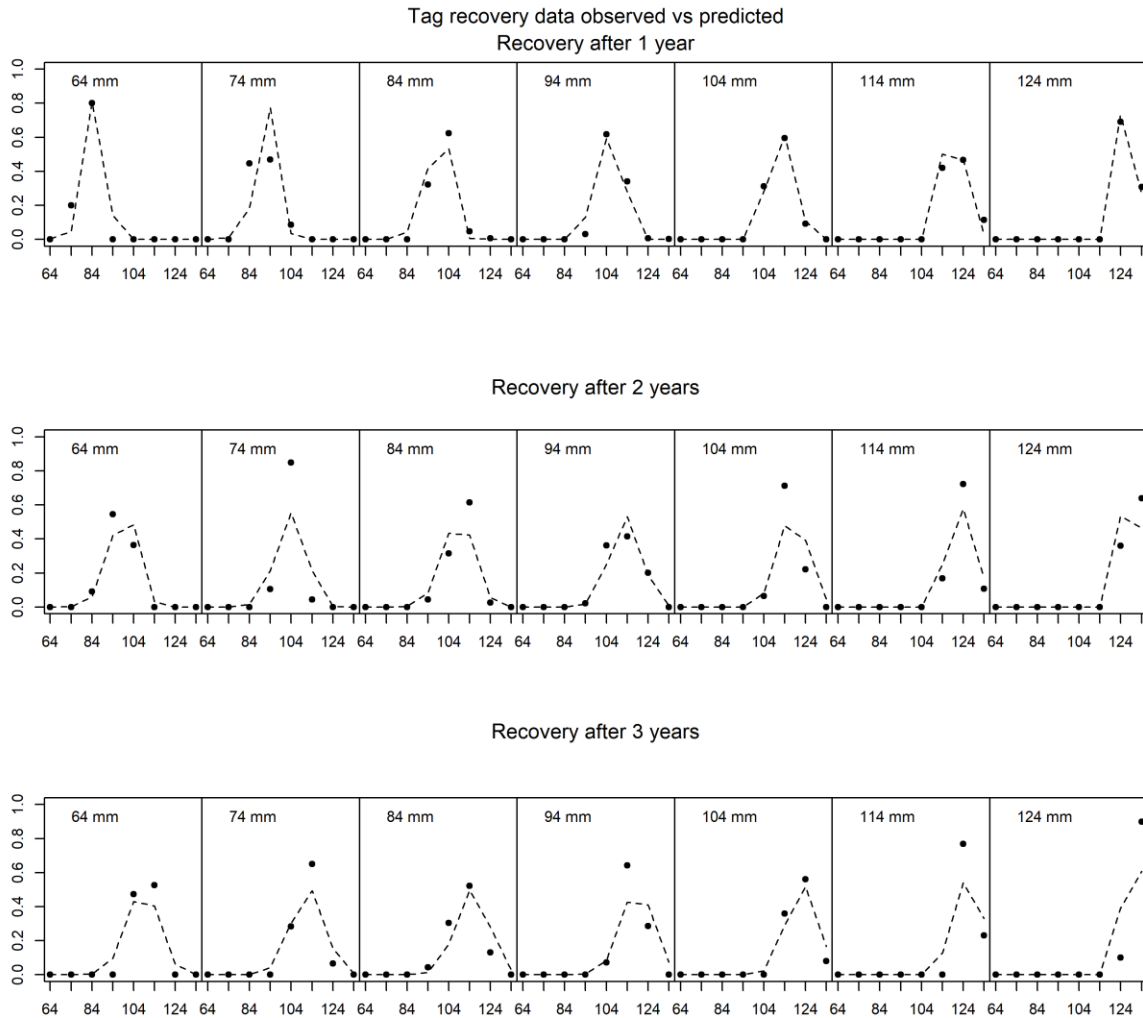


Figure C2-13. Predicted vs. observed length class proportions for tag recovery data.

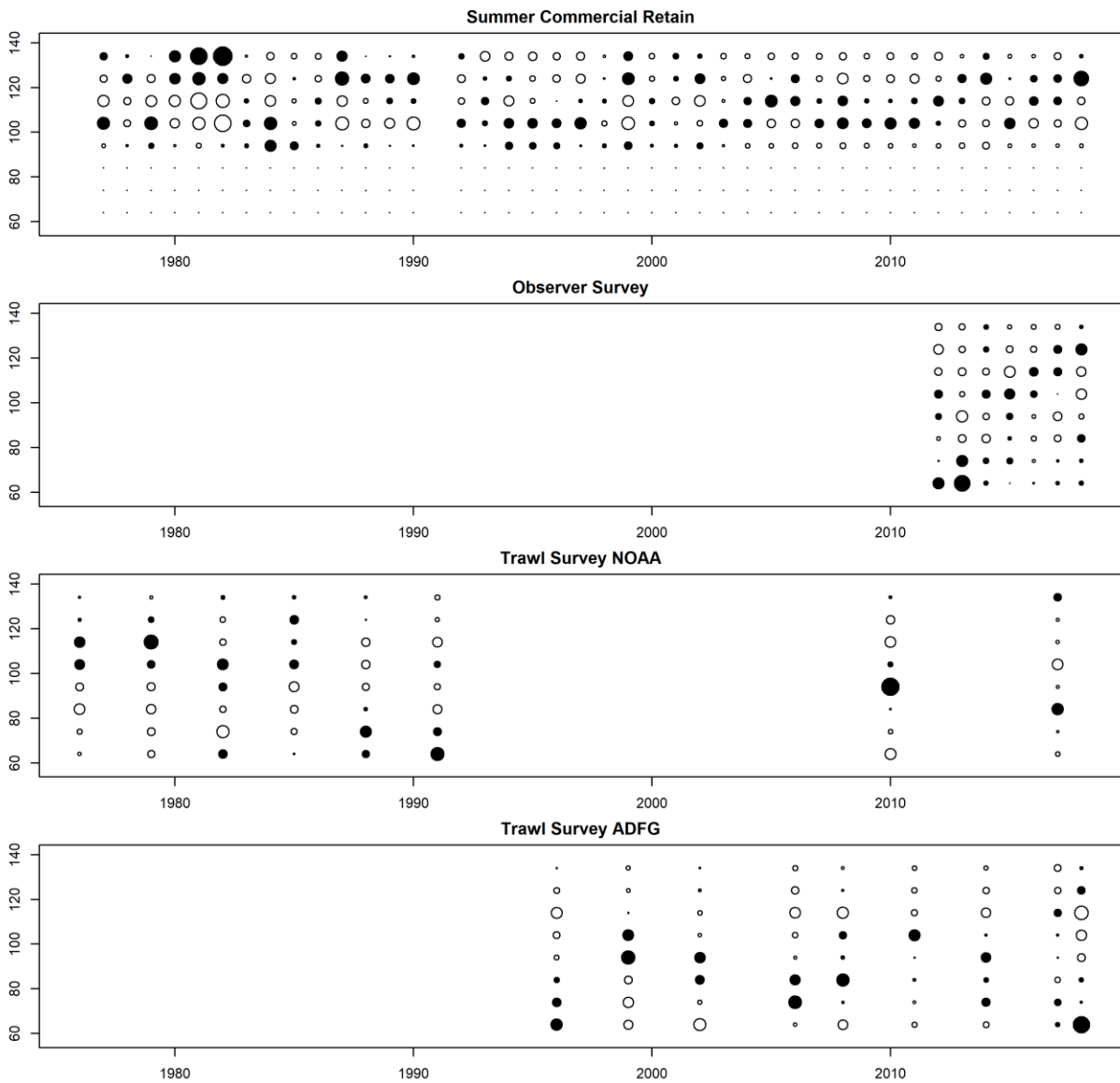


Figure C2-13. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

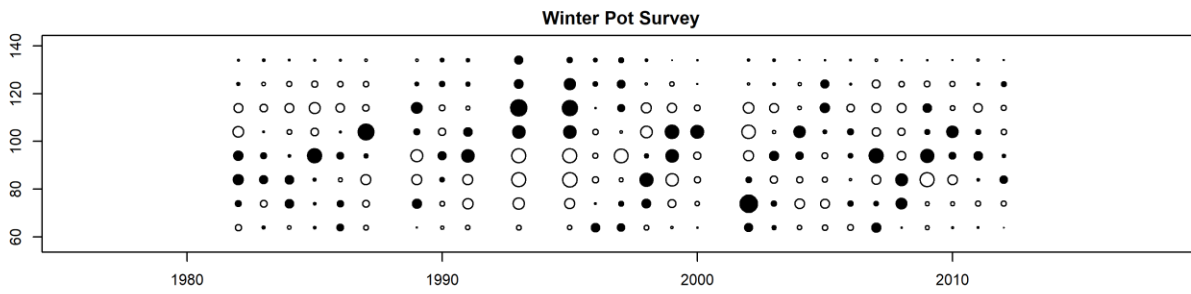


Figure C2-14. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

Table C2 . Summary of parameter estimates for a length-based stock synthesis population model of Norton Sound red king crab.

name	Estimate	std.dev
log_q1	-6.979	0.177
log_q2	-6.795	0.124
log_N76	9.046	0.130
R0	6.433	0.082
log_R76	0.003	0.420
log_R77	-0.542	0.370
log_R78	-0.714	0.355
log_R79	0.401	0.319
log_R80	0.510	0.290
log_R81	0.422	0.267
log_R82	0.397	0.320
log_R83	0.570	0.282
log_R84	0.180	0.301
log_R85	0.364	0.325
log_R86	0.088	0.341
log_R87	0.214	0.269
log_R88	0.022	0.305
log_R89	-0.415	0.321
log_R90	-0.322	0.272
log_R91	-0.739	0.337
log_R92	-0.511	0.309
log_R93	-0.524	0.306
log_R94	-0.310	0.262
log_R95	-0.062	0.227
log_R96	0.587	0.217
log_R97	-0.051	0.302
log_R98	-0.625	0.321
log_R99	0.004	0.311
log_R00	0.311	0.266
log_R01	0.385	0.243
log_R02	-0.020	0.317
log_R03	-0.282	0.332
log_R04	0.295	0.242
log_R05	0.404	0.224
log_R06	0.454	0.244

name	Estimate	std.dev
log_R07	0.503	0.232
log_R08	0.056	0.291
log_R09	-0.409	0.293
log_R10	0.040	0.248
log_R11	0.370	0.279
log_R12	0.894	0.193
log_R13	-0.205	0.301
log_R14	-0.649	0.315
log_R15	-0.701	0.282
log_R16	-0.425	0.243
log_R17	0.033	0.285
a1	1.577	4.605
a2	2.386	4.297
a3	3.842	4.108
a4	4.116	4.094
a5	4.349	4.085
a6	3.579	4.114
a7	2.137	4.367
r1	10.000	0.870
r2	9.678	0.894
log_a	-2.625	0.092
log_b	4.825	0.014
log_φst1	-5.000	0.102
log_φwa	-2.117	0.322
log_φwb	4.800	0.029
Sw1	0.074	0.036
Sw2	0.500	353.550
log_φl	3.766	6510.100
log_ar	-0.836	0.204
log_br	4.647	0.012
w ² _t	0.051	0.016
q	0.749	0.129
σ	3.926	0.219
β ₁	11.921	0.784
β ₂	7.763	0.187
ms78	3.236	0.270

