Appendix C1: Model 0 Results

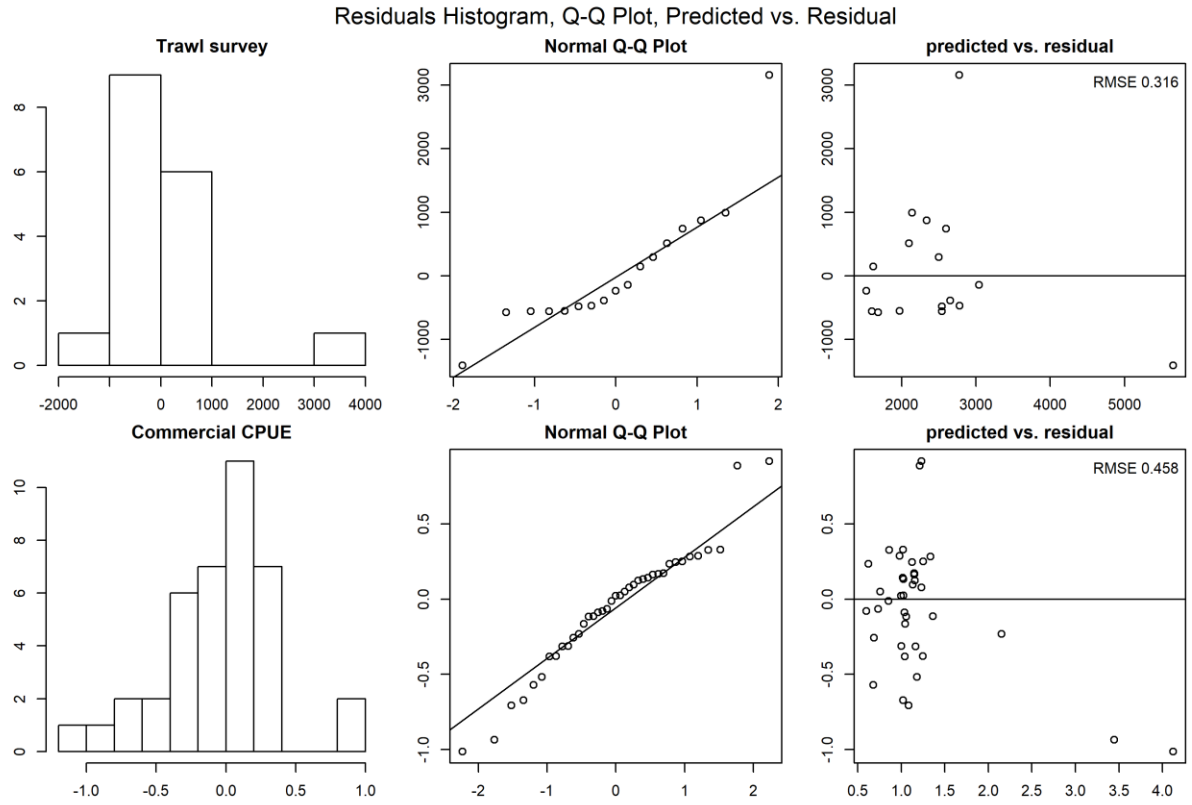


Figure C1-1. QQ Plot of Trawl survey and Commercial CPUE.

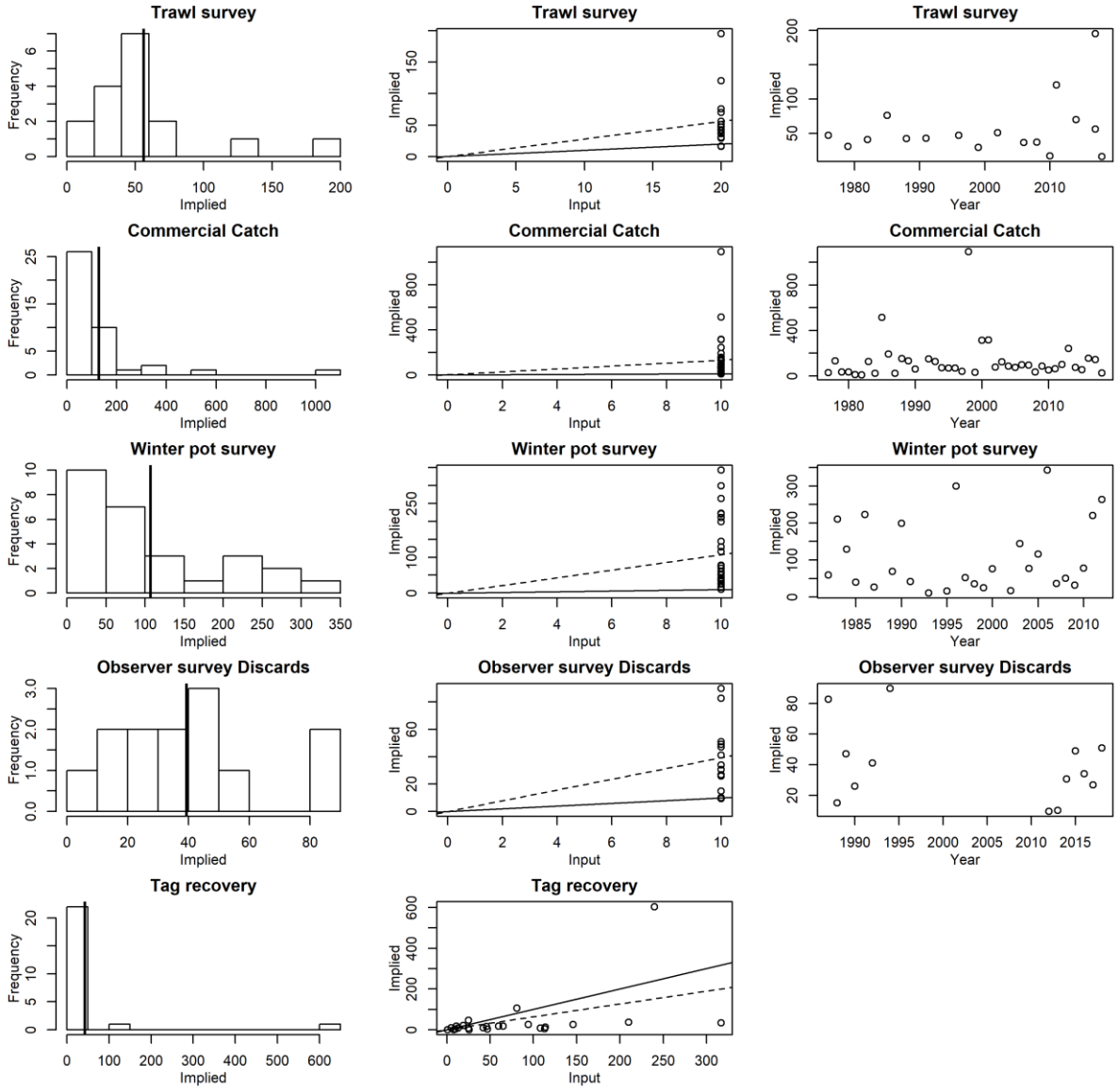


Figure C1-2: Implied effective samples. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis).
Vertical solid line is the mean implied effective sample size.
The second column show input sample size (x-axis) vs. implied effective sample size (y-axis). Dashed line 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).

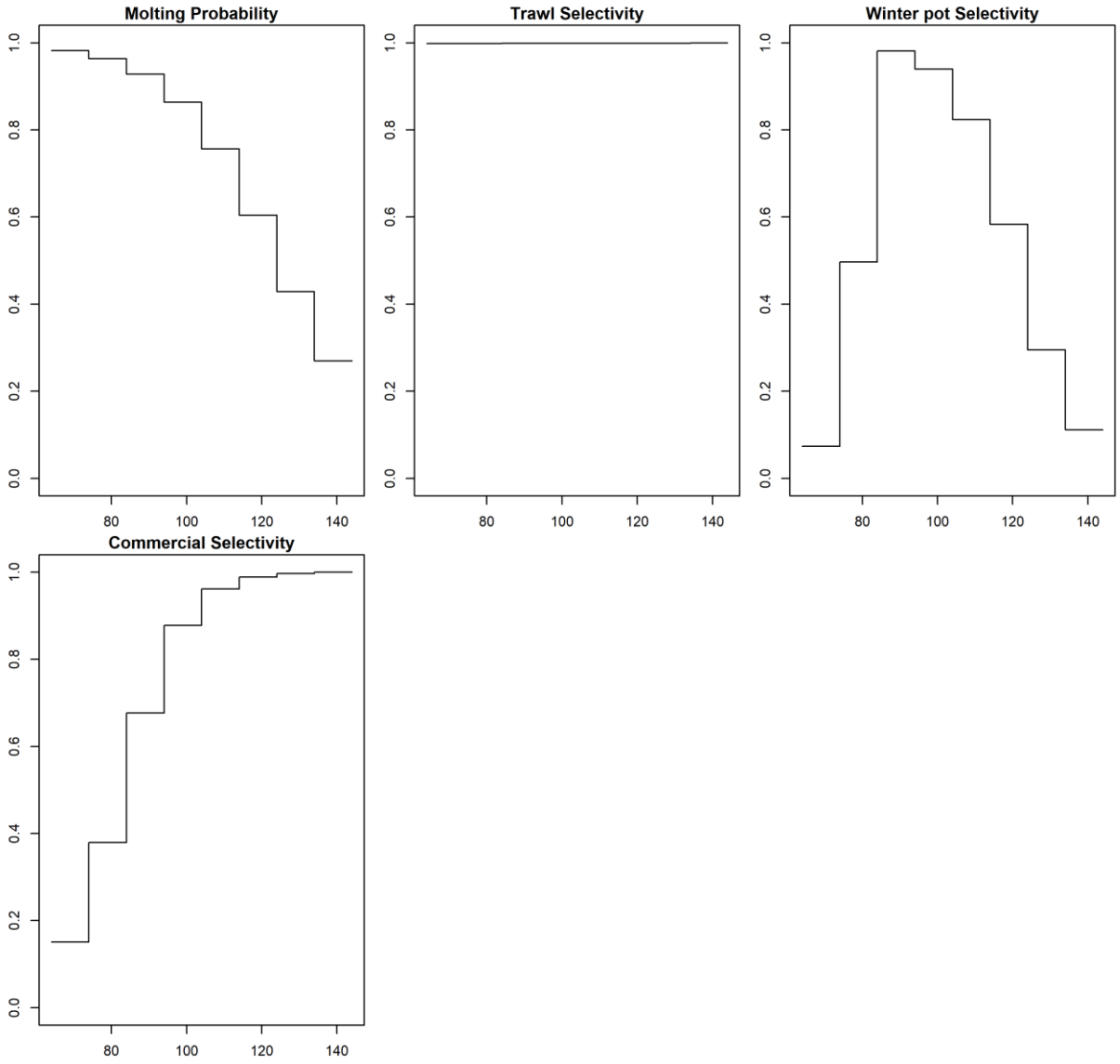


Figure C1-3. Molting probability and trawl/pot selectivity. X-axis is carapace length.

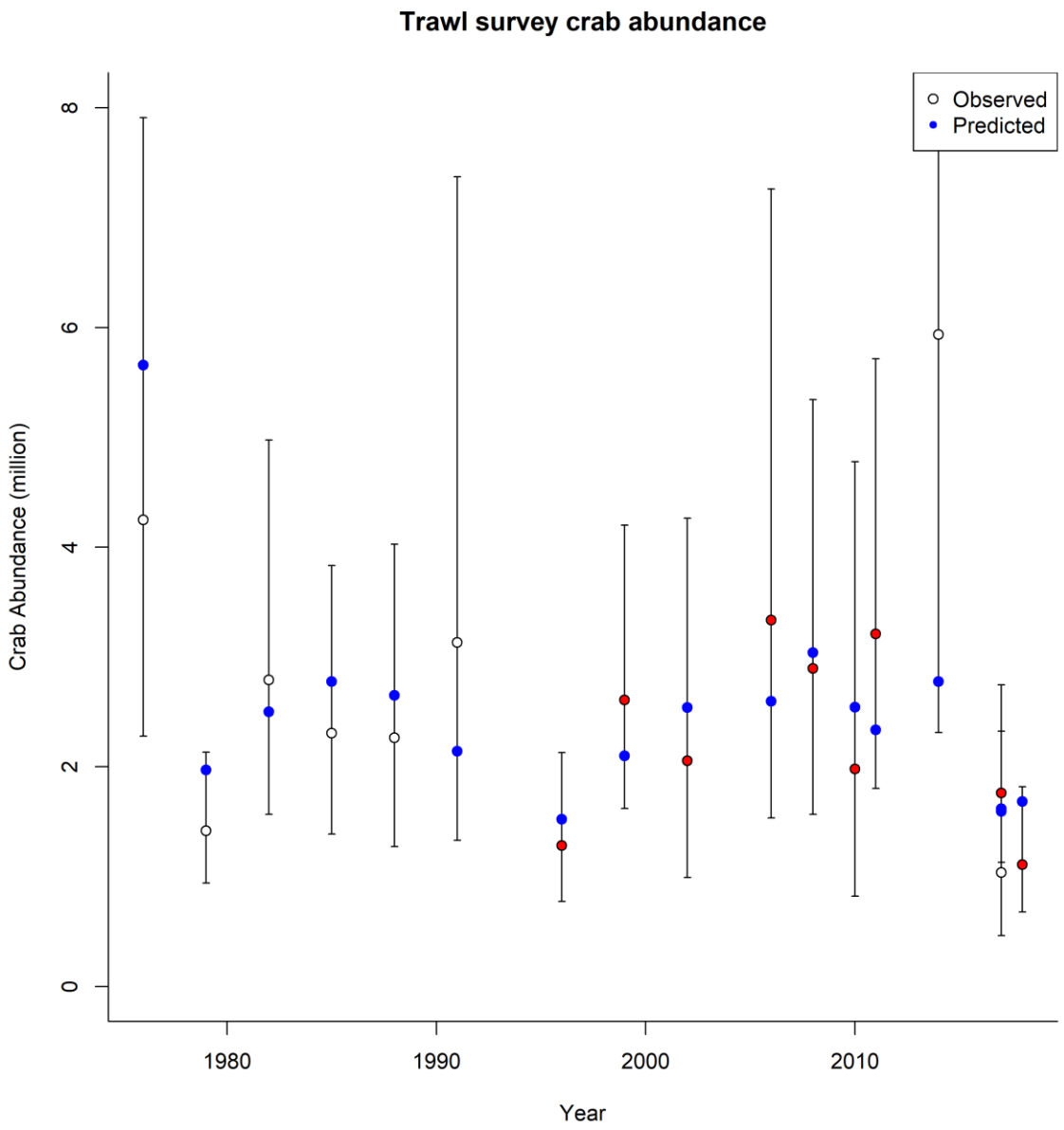


Figure C1-4. Estimated trawl survey male abundance (crab >= 64 mm CL). Observed: White: NOAA Trawl Survey, Red: ADG&G Trawl Survey

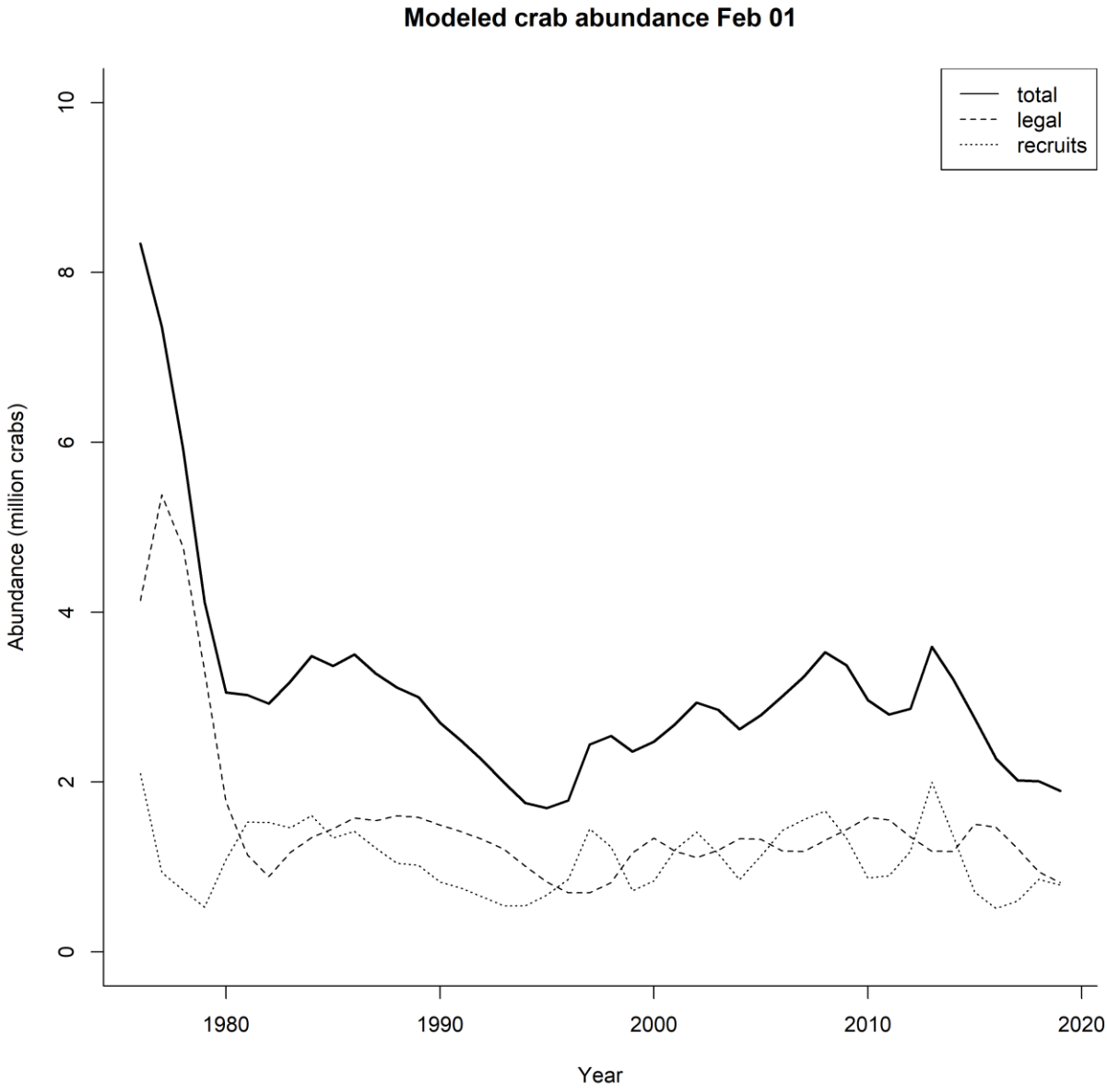


Figure C1-5. Estimated abundance of legal males from 1976-2015.

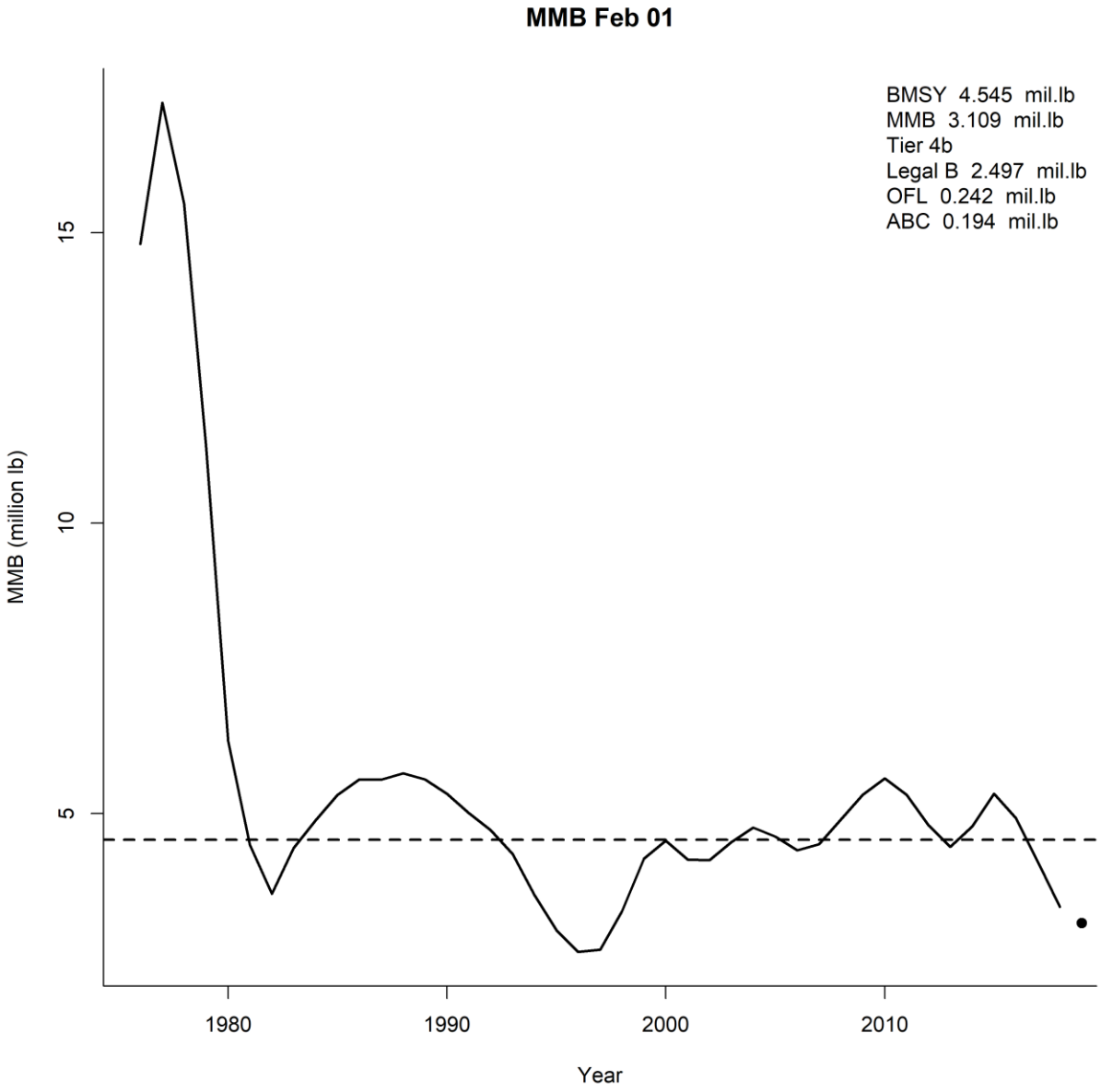


Figure C1-6. Estimated abundance of Mature Male Biomass from 1976-2019. Dash line shows Bmsy (Average MMB of 1980-2019).

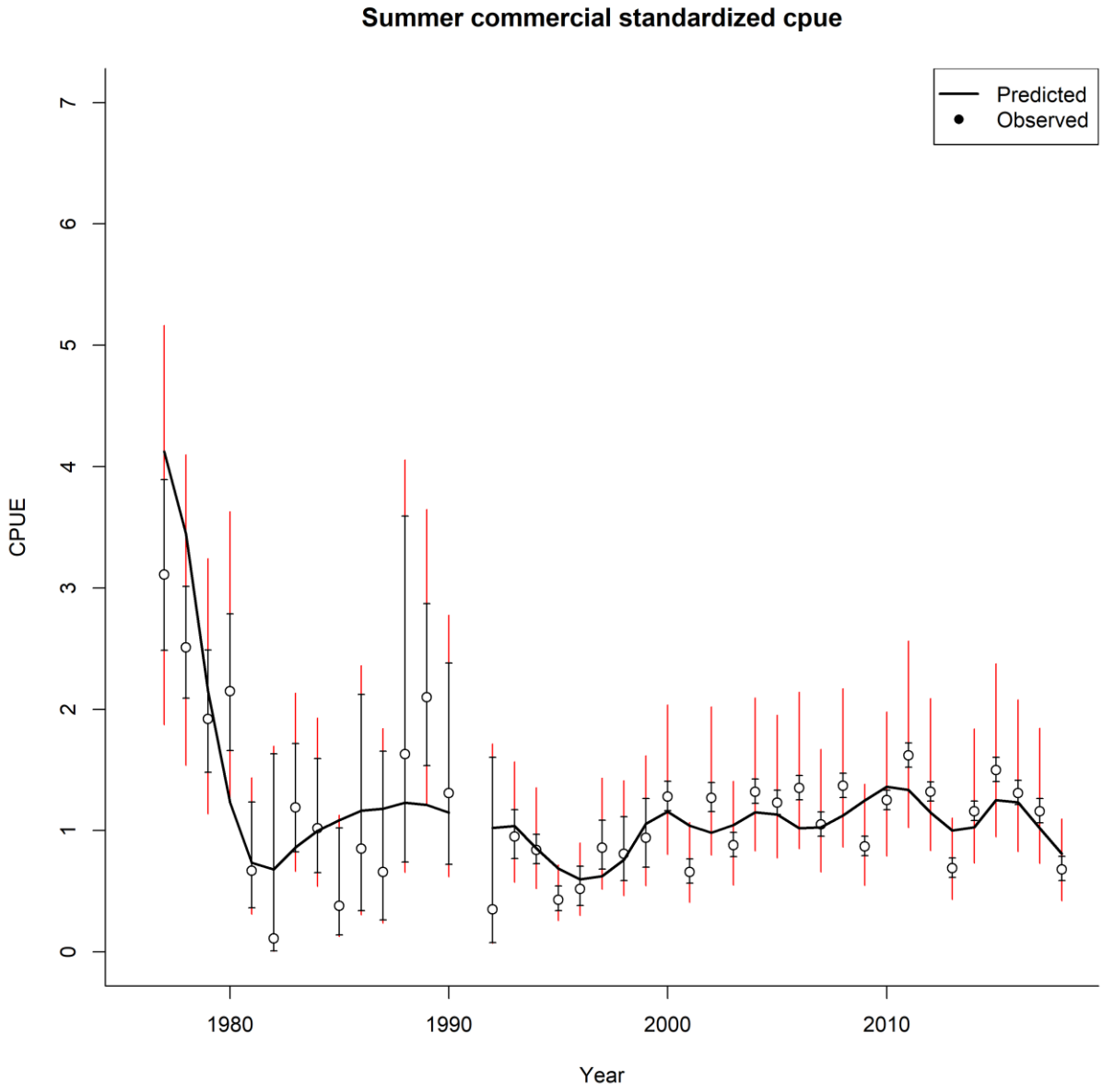


Figure C1-7. Summer commercial standardized cpue 1977-2018.

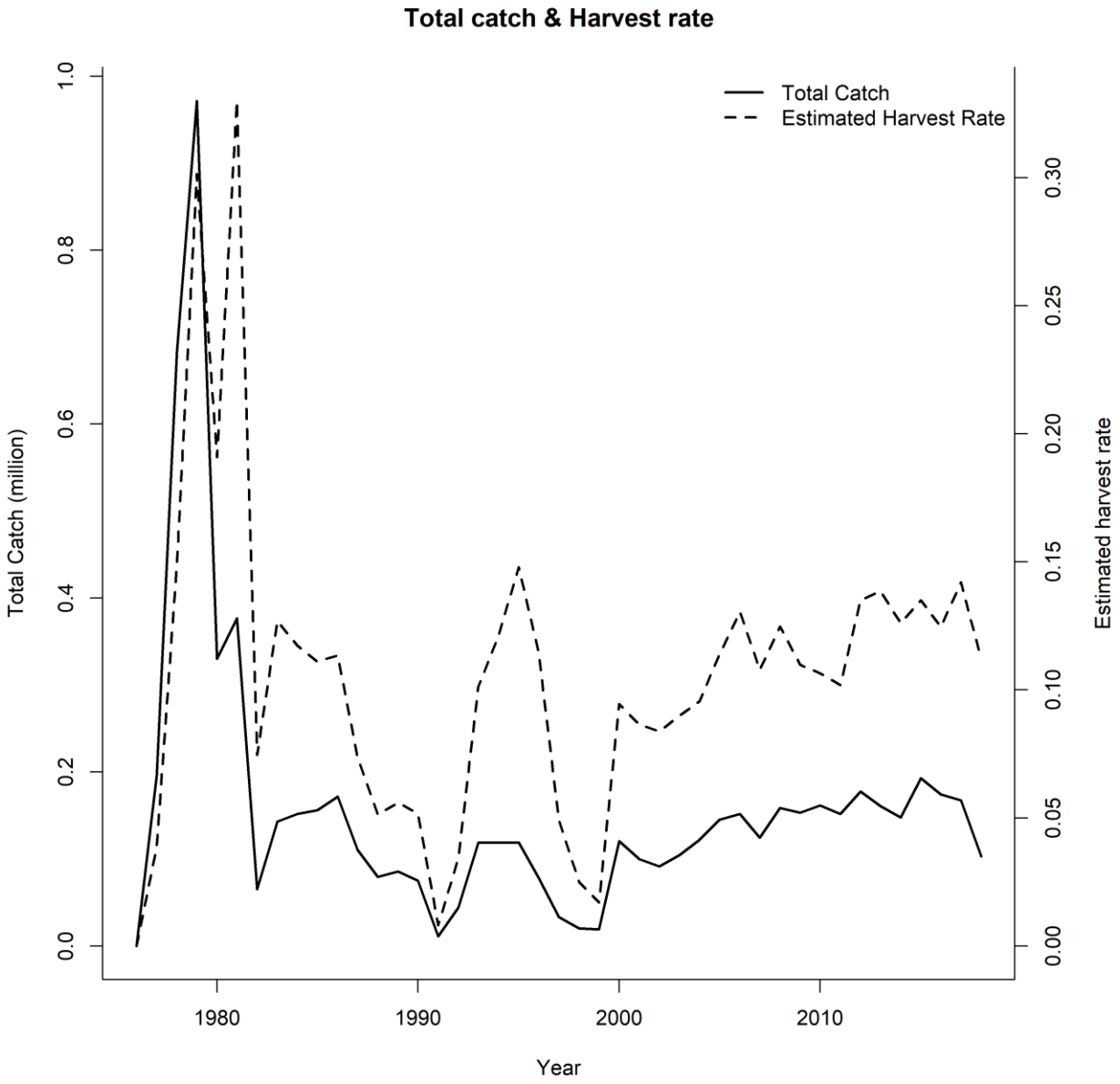


Figure C1-8. Total catch and estimated harvest rate 1976-2018.

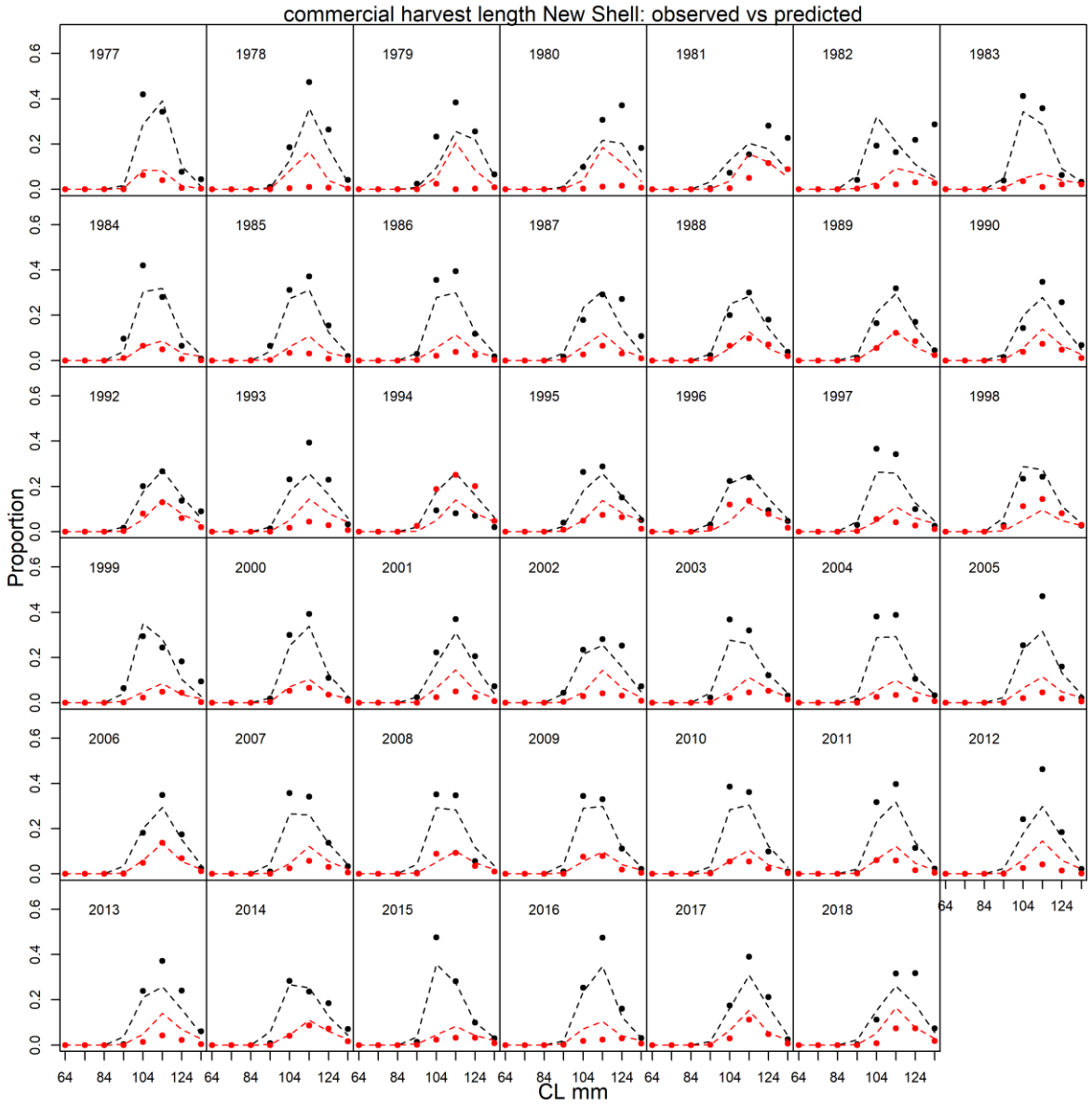


Figure C1-9. Predicted (dashed line) vs. observed (dots) length class proportions for commercial catch. Bladk: New Shell, Red: Old Shell

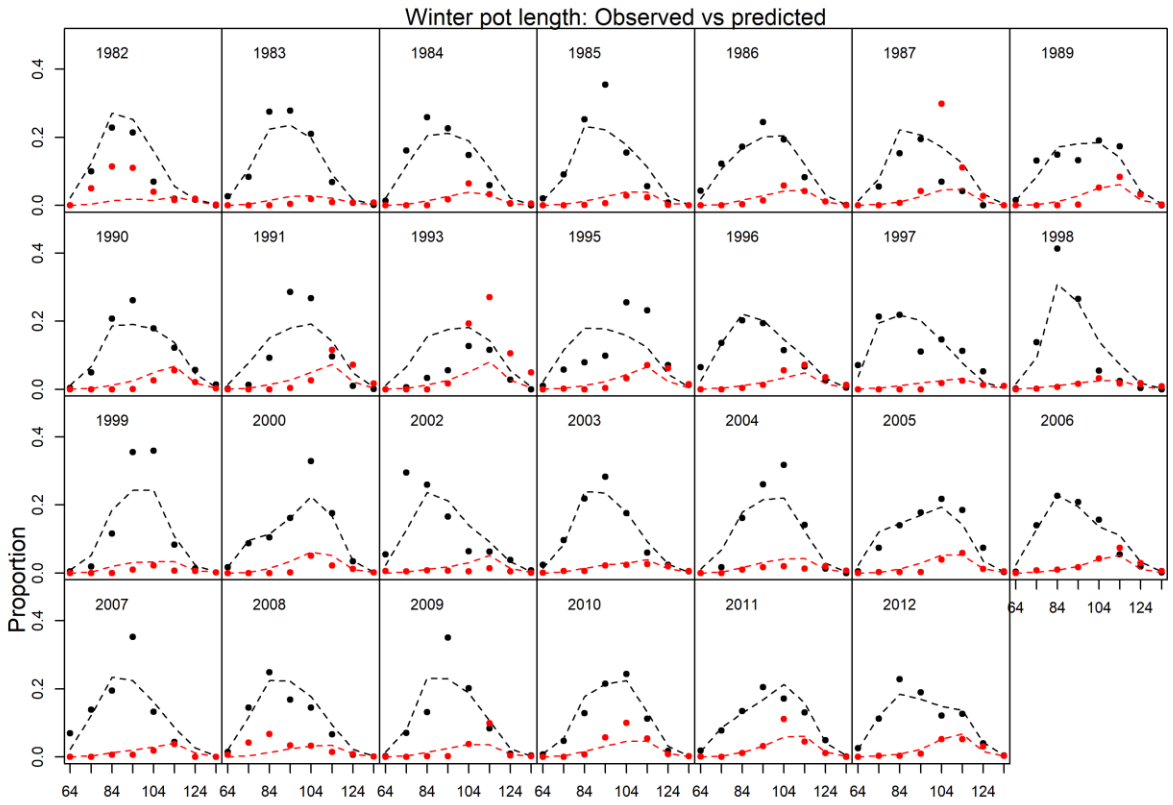
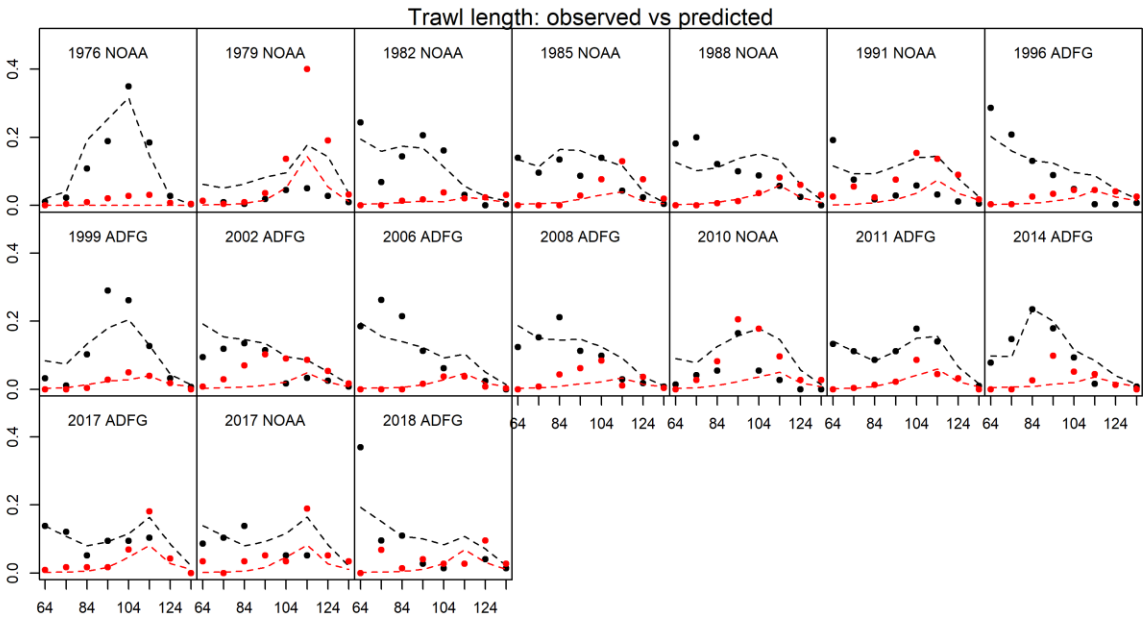


Figure C1-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter and spring pot survey.


Trawl length: observed vs predicted
1976 NOAA
1979 NOAA
1982 NOAA
1985 NOAA
1988 NOAA
1991 NOAA
1996 ADFG
1999 ADFG
2002 ADFG
2006 ADFG
2008 ADFG
2010 NOAA
2011 ADFG
2014 ADFG
2017 ADFG
2017 NOAA
2018 ADFG
0.0
0.2
0.4
64
84
104
124

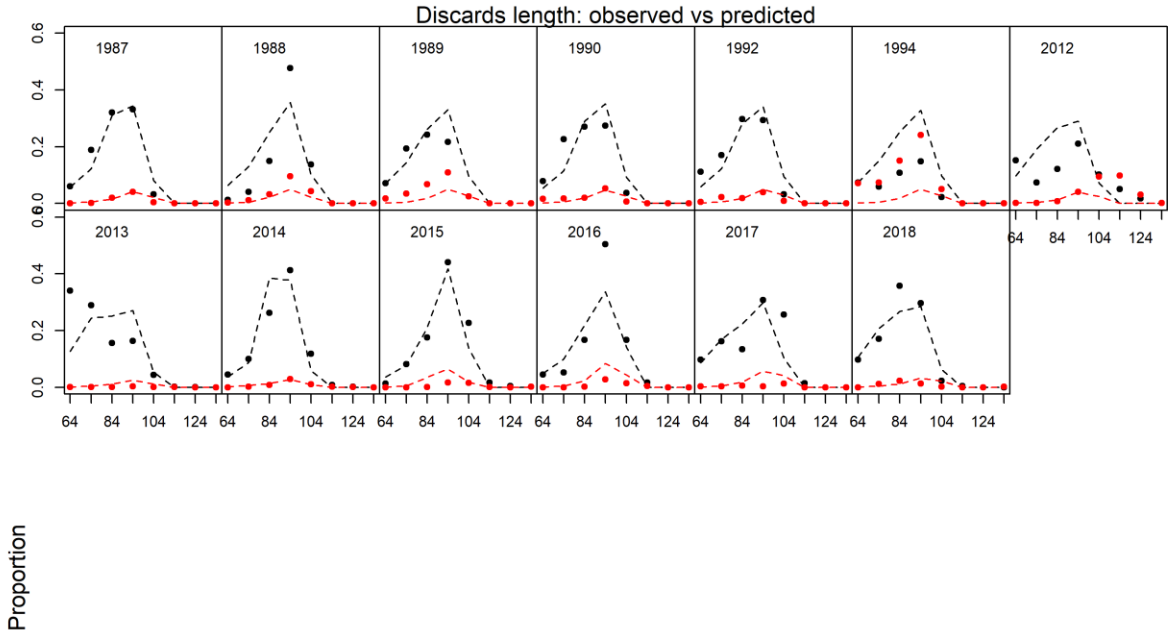


Figure C1-12. Predicted (dashed) vs. observed (dots) length class proportions for the observer survey.

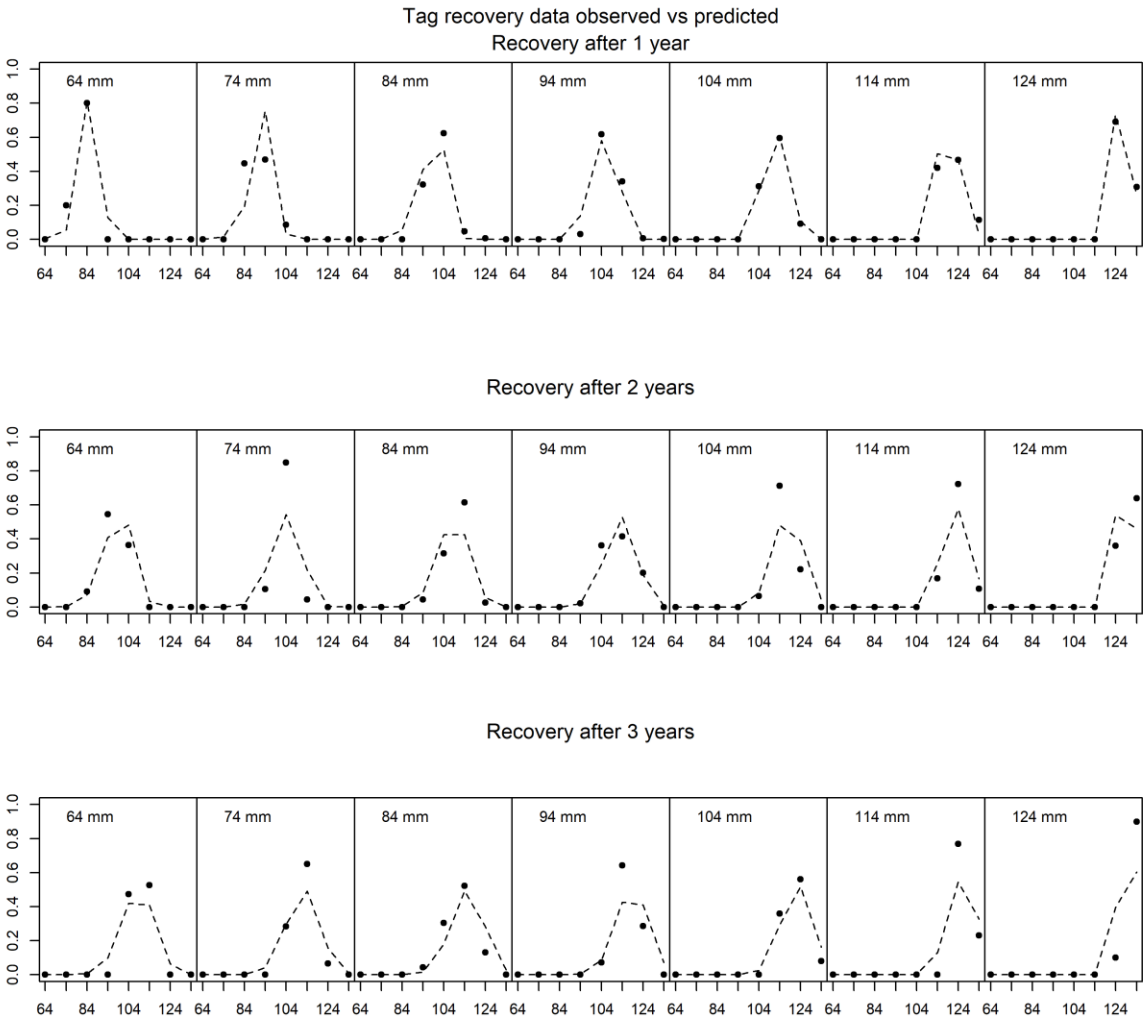


Figure C1-13. Predicted vs. observed length class proportions for tag recovery data.

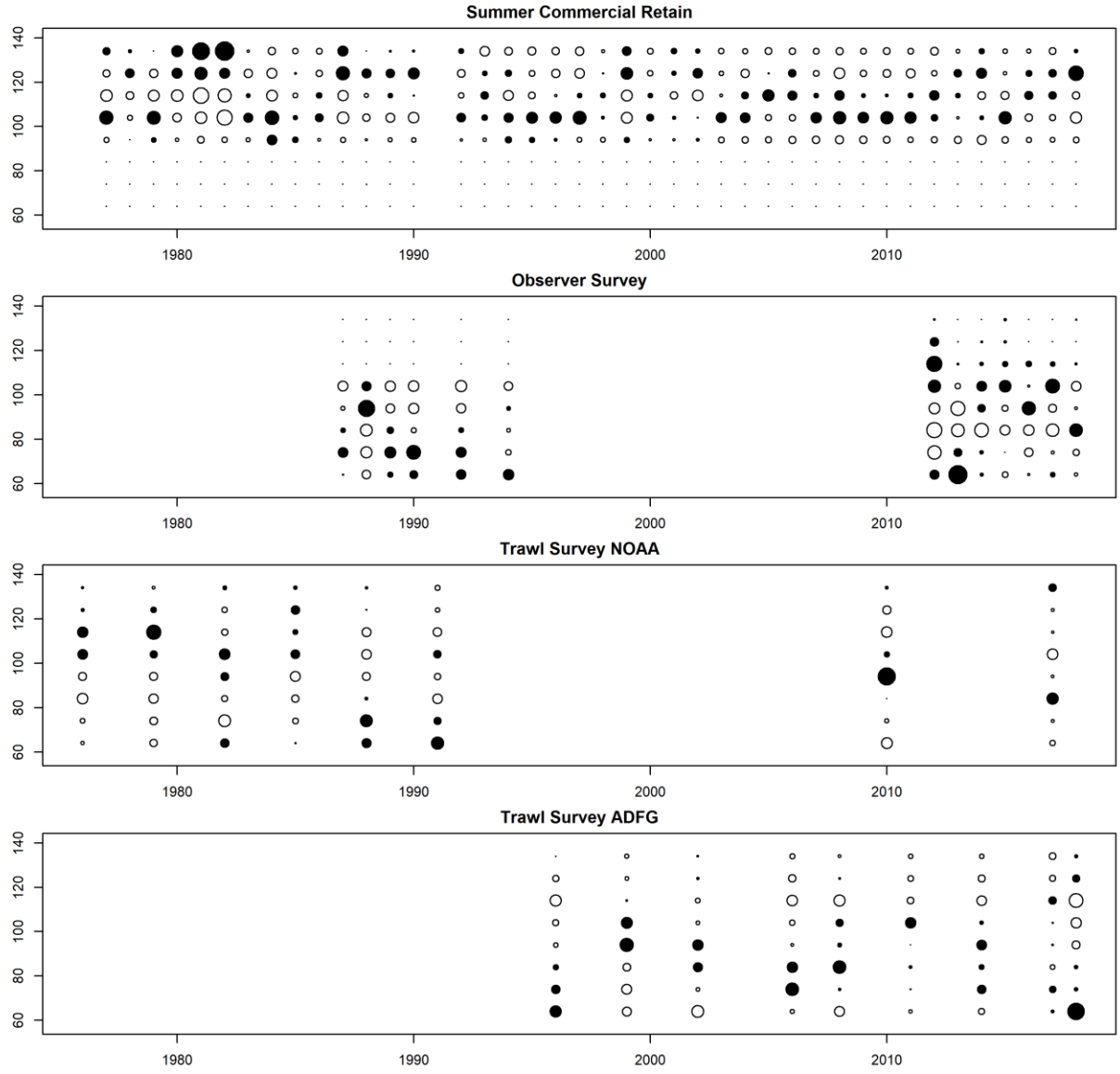


Figure C1-13. Bubble plots of predicted and observed length proportions.
Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

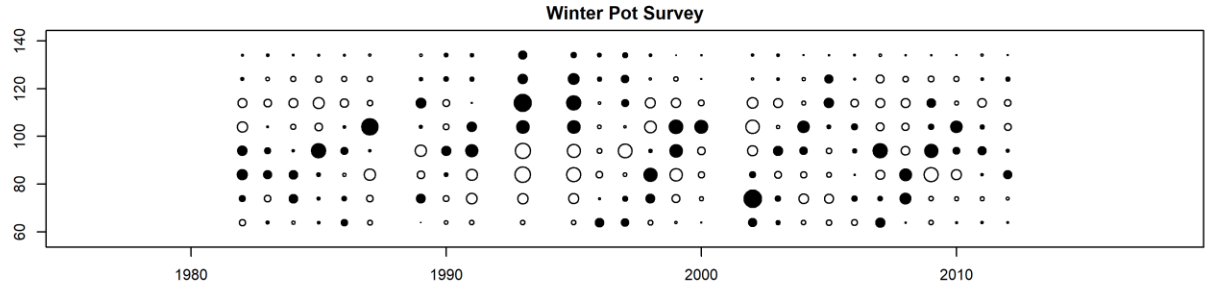


Figure C1-14. Bubble plots of predicted and observed length proportions.
Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

Table C1 . Summary of parameter estimates for a length-based stock synthesis population model of Norton Sound red king crab.

name	Estimate	std.dev
log_q_1	-6.965	0.168
log_q_2	-6.816	0.109
log_N_{76}	9.029	0.130
R_0	6.440	0.081
log_R_{76}	0.013	0.416
log_R_{77}	-0.541	0.370
log_R_{78}	-0.725	0.353
log_R_{79}	0.373	0.315
log_R_{80}	0.500	0.283
log_R_{81}	0.404	0.263
log_R_{82}	0.372	0.314
log_R_{83}	0.540	0.275
log_R_{84}	0.147	0.291
log_R_{85}	0.447	0.276
log_R_{86}	0.061	0.286
log_R_{87}	0.021	0.246
log_R_{88}	0.025	0.258
log_R_{89}	-0.329	0.280
log_R_{90}	-0.276	0.253
log_R_{91}	-0.526	0.285
log_R_{92}	-0.673	0.302
log_R_{93}	-0.577	0.289
log_R_{94}	-0.292	0.257
log_R_{95}	-0.063	0.225
log_R_{96}	0.576	0.217
log_R_{97}	-0.016	0.293
log_R_{98}	-0.624	0.320
log_R_{99}	-0.008	0.310
log_R_{00}	0.311	0.263
log_R_{01}	0.390	0.241
log_R_{02}	-0.005	0.314
log_R_{03}	-0.280	0.330
log_R_{04}	0.300	0.241
log_R_{05}	0.425	0.222
log_R_{06}	0.477	0.243

name	Estimate	std.dev
log_R_{07}	0.540	0.231
log_R_{08}	0.134	0.287
log_R_{09}	-0.367	0.294
log_R_{10}	-0.002	0.253
log_R_{11}	0.282	0.274
log_R_{12}	0.890	0.185
log_R_{13}	-0.196	0.284
log_R_{14}	-0.568	0.294
log_R_{15}	-0.751	0.269
log_R_{16}	-0.389	0.226
log_R_{17}	-0.018	0.275
a_1	1.543	4.575
a_2	2.316	4.264
a_3	3.826	4.069
a_4	4.106	4.055
a_5	4.325	4.046
a_6	3.550	4.075
a_7	2.117	4.335
r1	10.000	0.845
r2	9.680	0.863
log_a	-2.645	0.087
log_b	4.824	0.014553
log_ϕ_{st1}	3.145	5183.900
log_ϕ_{wa}	-2.115	0.317
log_ϕ_{wb}	4.798	0.028
Sw1	0.073	0.035
Sw2	0.500	353.550
log_ϕ_1	3.795	6501.300
w^2_t	0.052	0.016
q	0.766	0.131
σ	3.876	0.216
β_1	12.301	0.705
β_2	7.700	0.175
ms78	3.189	0.272