Appendix C1

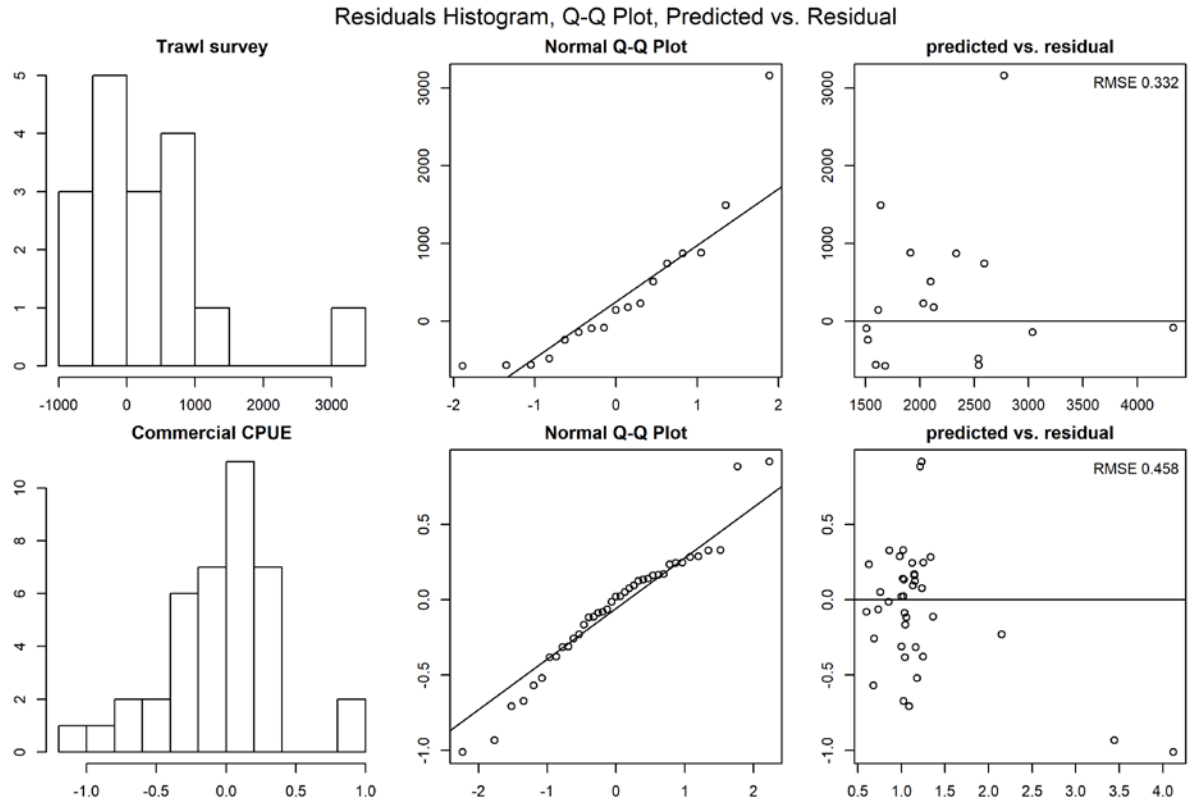

Figure C1-1. QQ Plot of Trawl survey and Commercial CPUE.

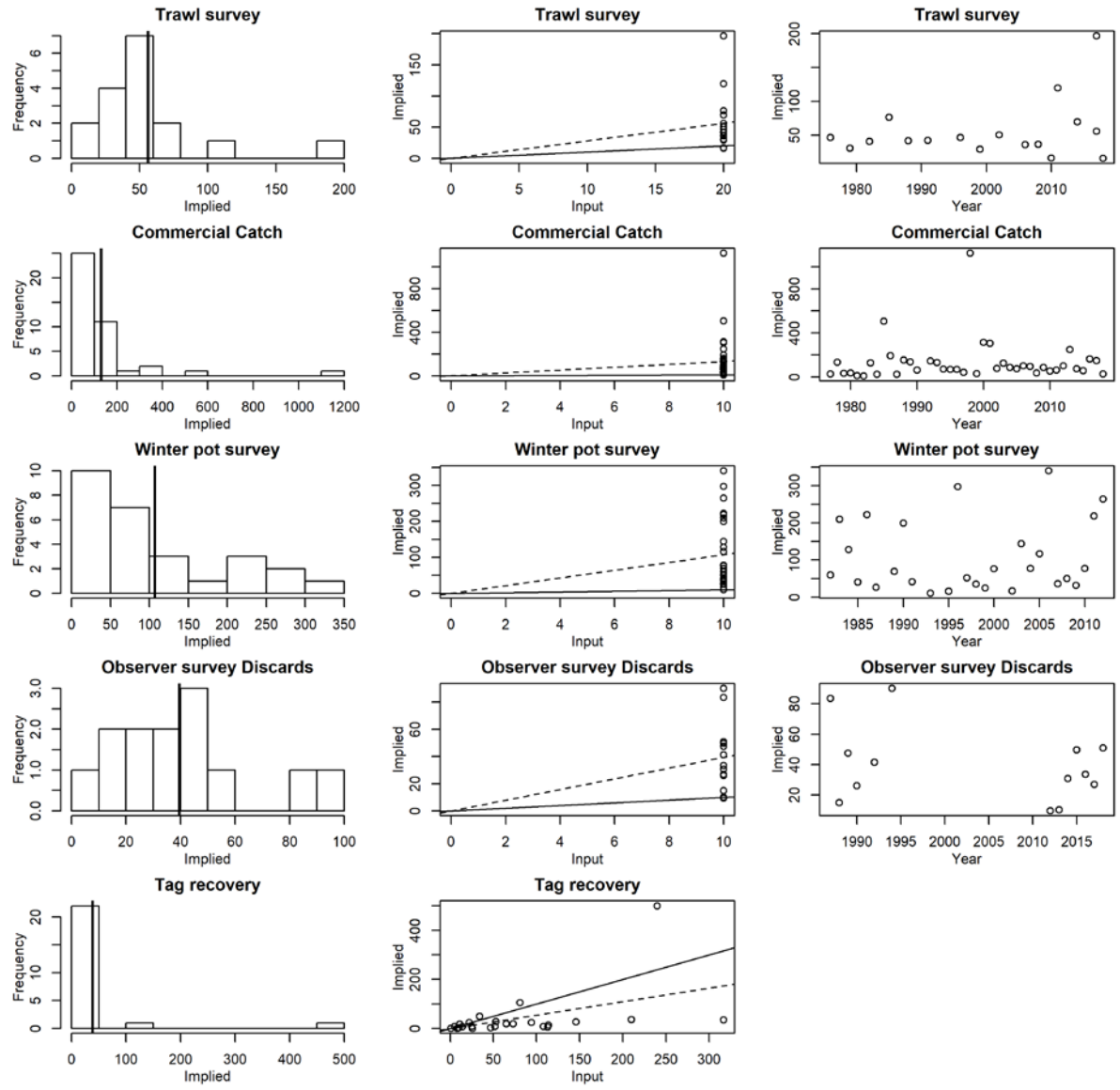

Figure C1-2: Implied effective samples. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis).
Vertical solid line is the mean implied effective sample size.
The second column show input sample size (x-axis) vs. implied effective sample size (y-axis). Dashed line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

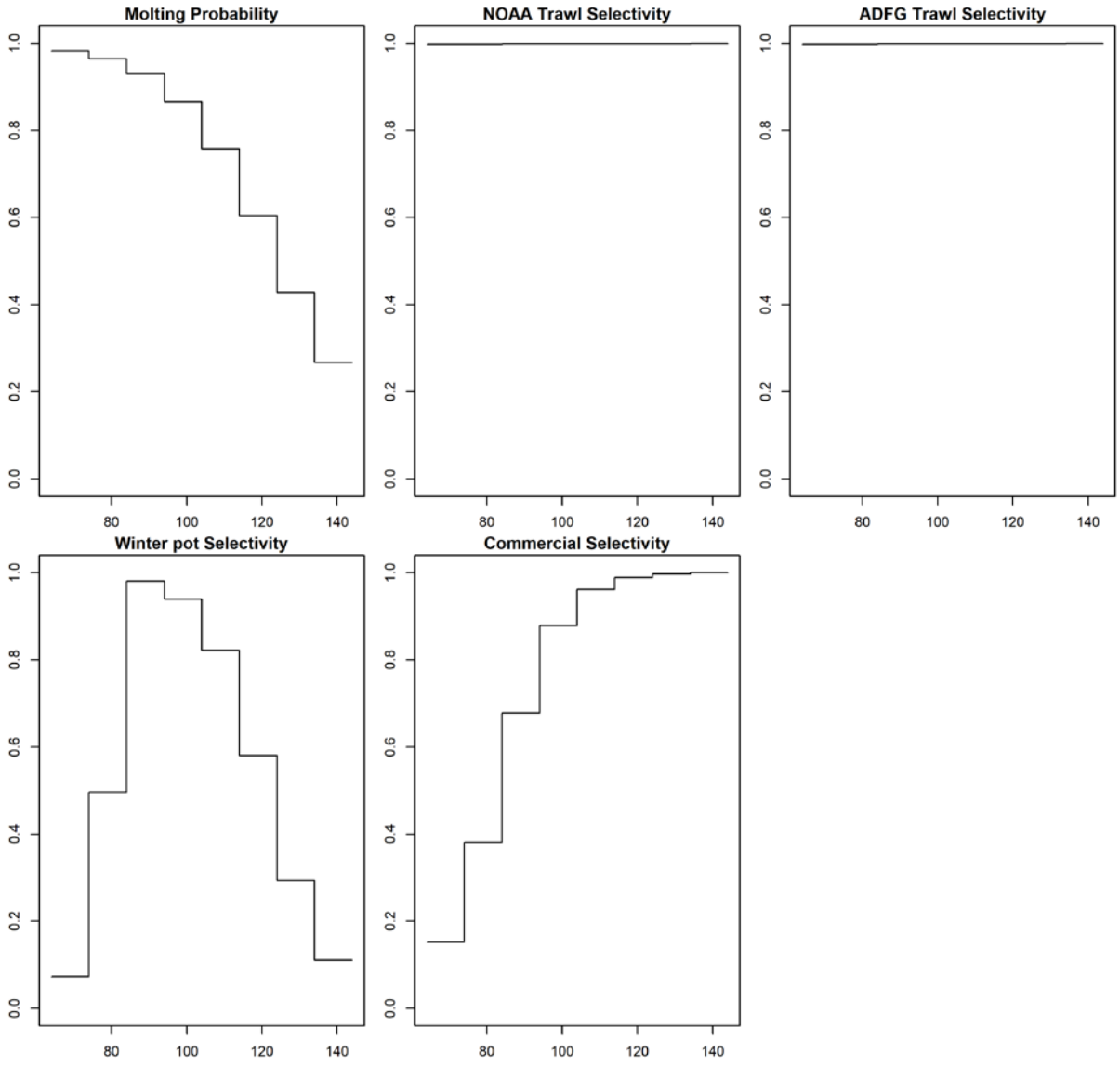

Figure C1-3. Molting probability and trawl/pot selectivity. X-axis is carapace length.

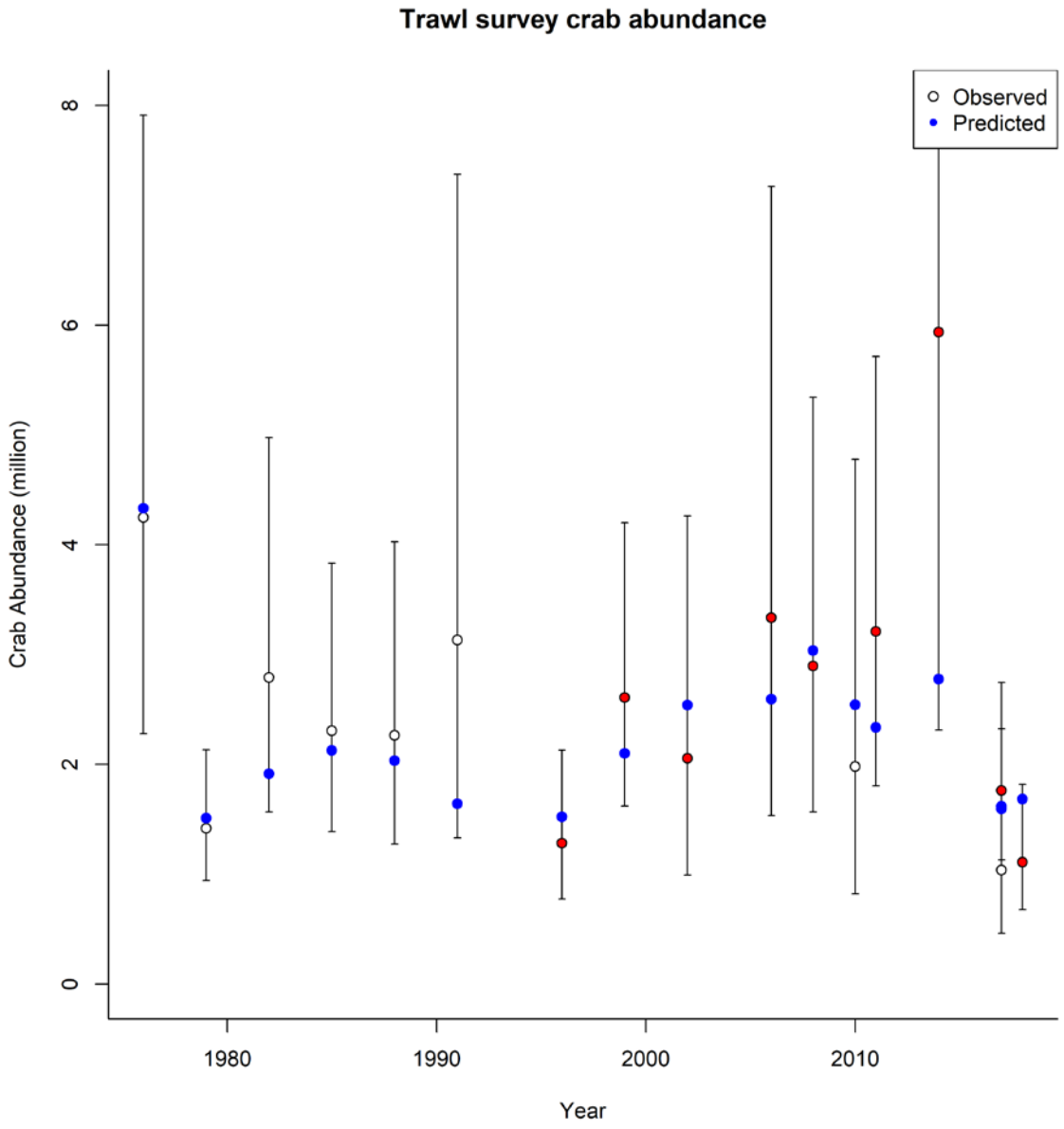

Figure C1-4. Estimated trawl survey male abundance (crab >= 64 mm CL). Observed: White: NOAA Trawl Survey, Red: ADG&G Trawl Survey

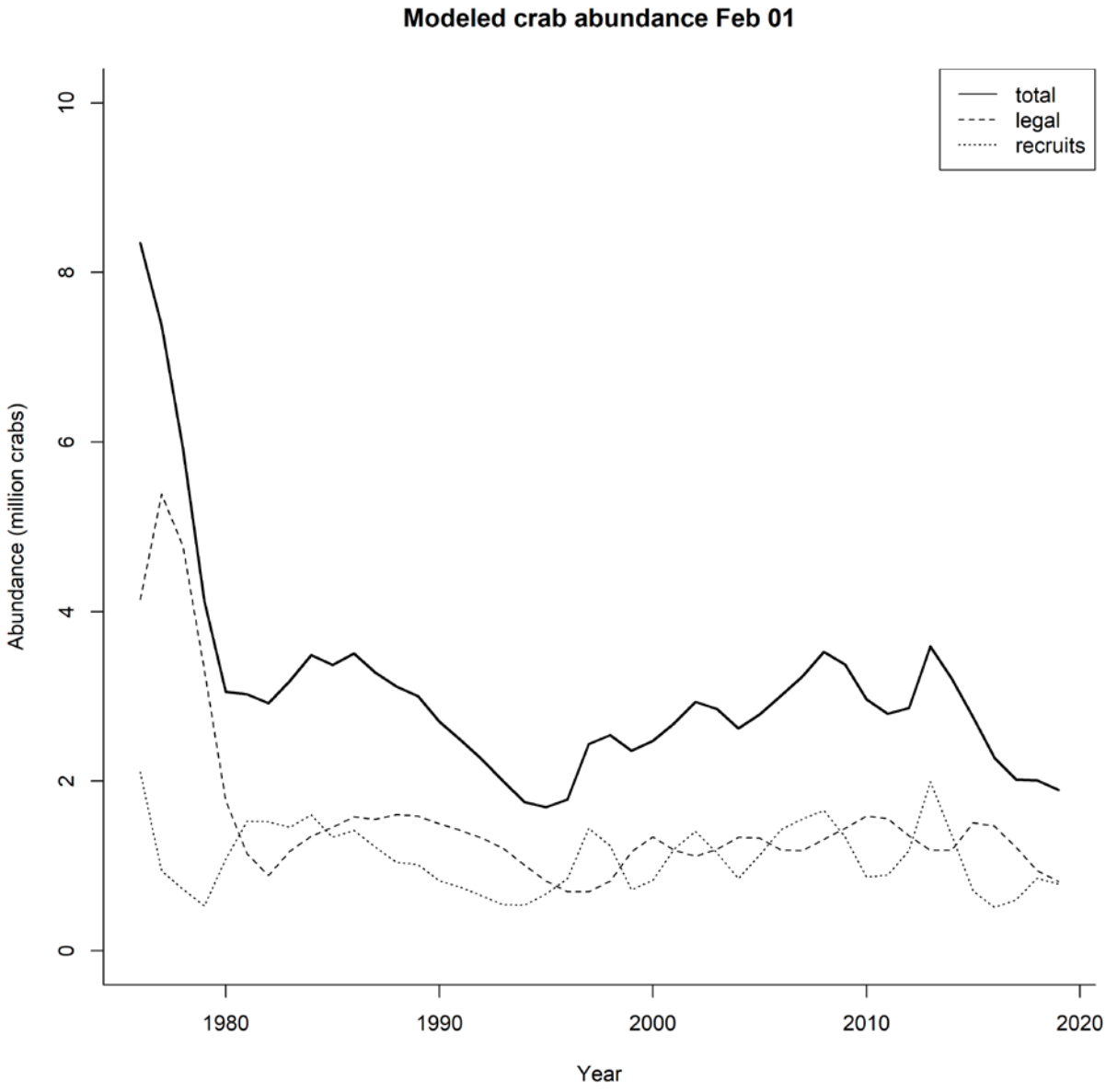

Figure C1-5. Estimated abundance of legal males from 1976-2015.

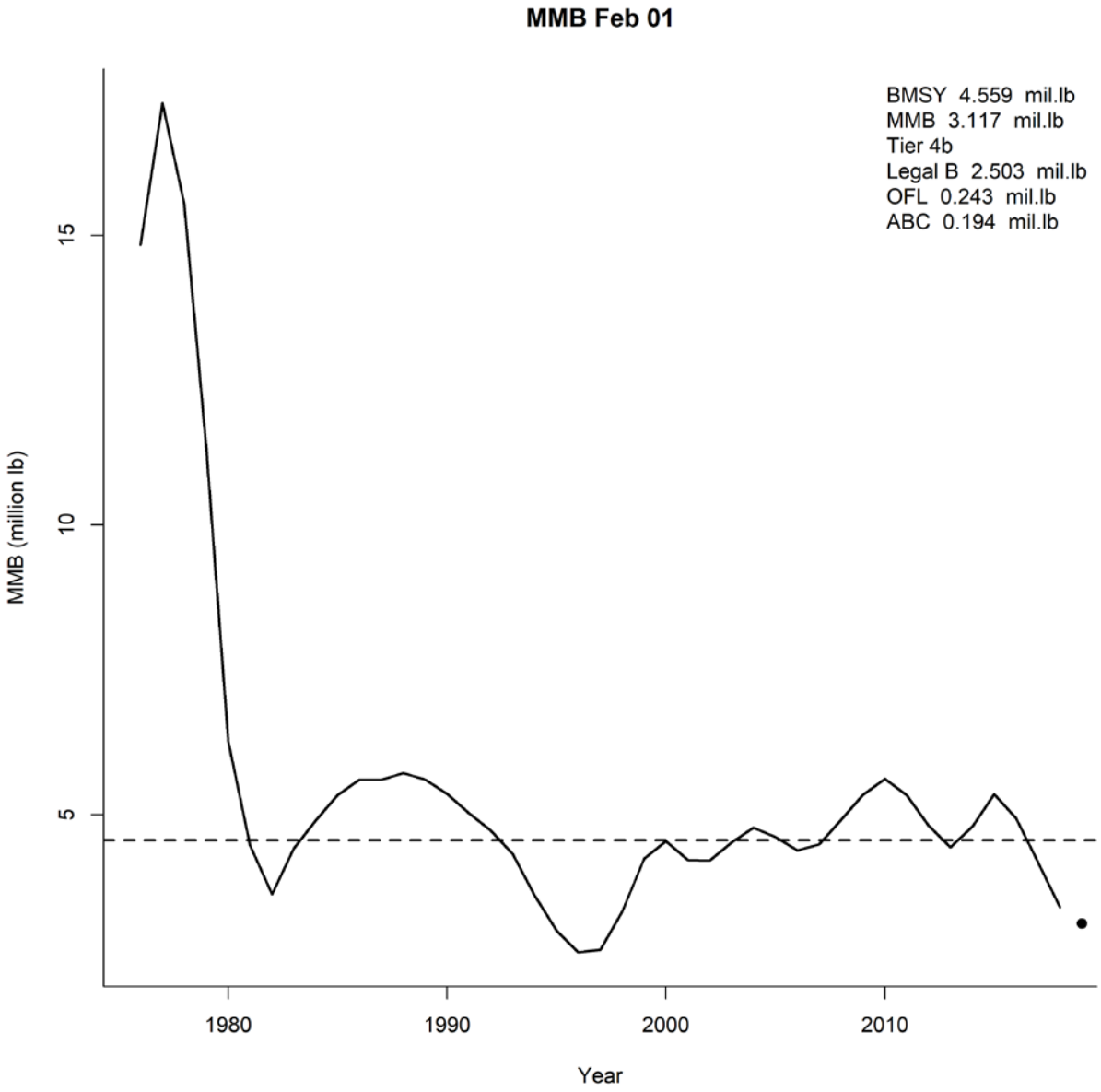

Figure C1-6. Estimated abundance of Mature Male Biomass from 1976-2019. Dash line shows Bmsy (Average MMB of 1980-2019).

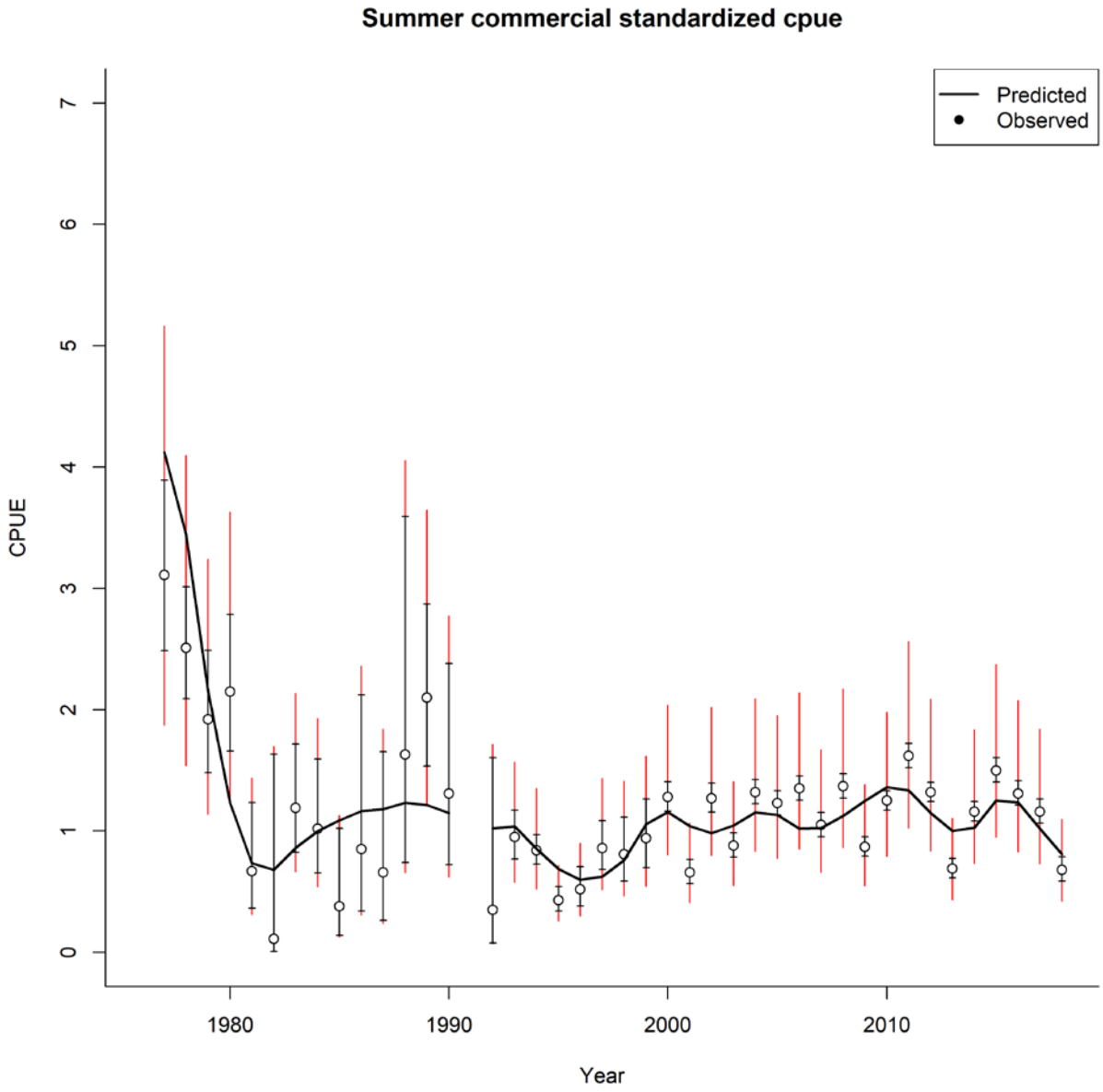

Figure C1-7. Summer commercial standardized cpue 1977-2018.

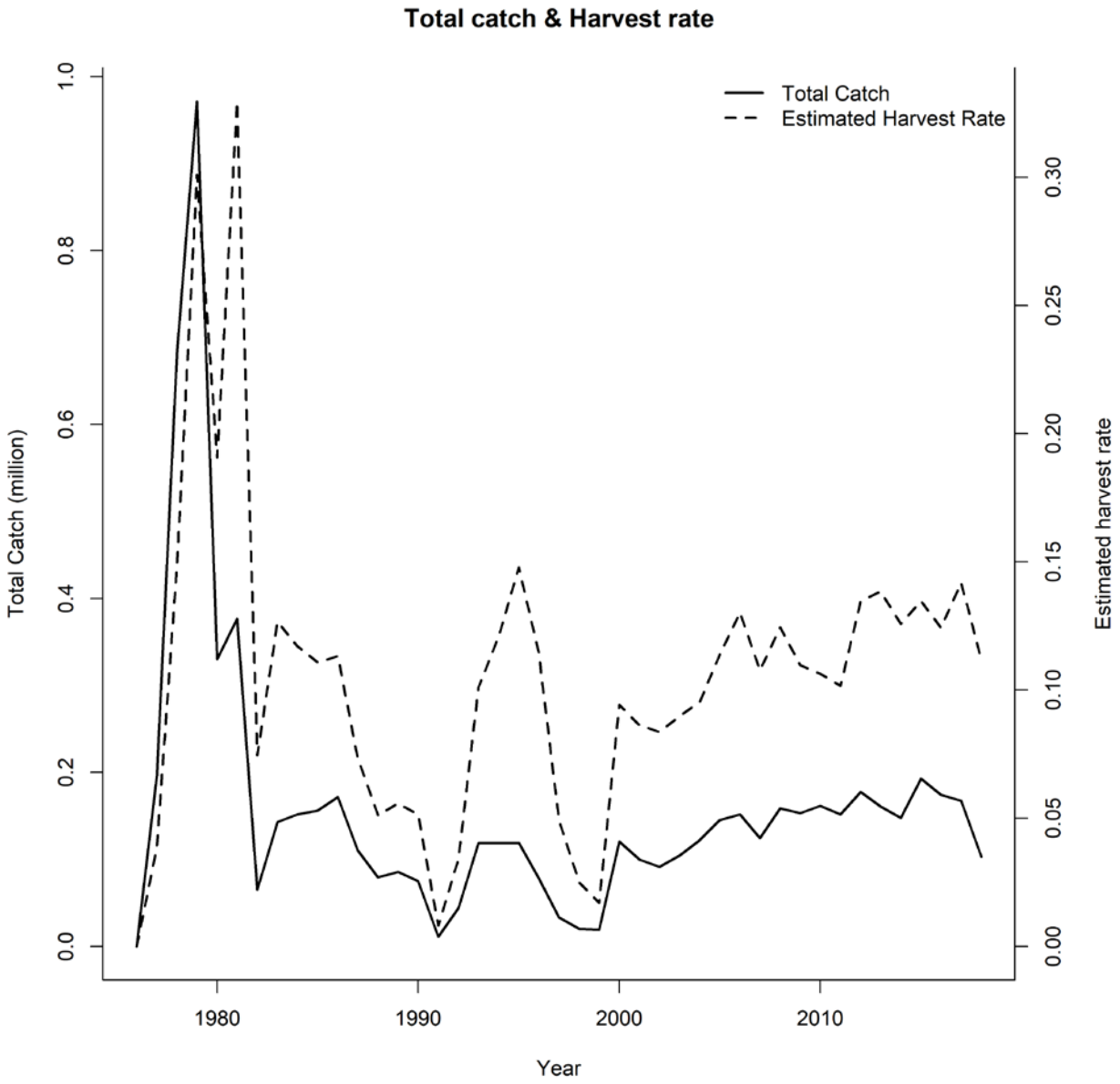

Figure C1-8. Total catch and estimated harvest rate 1976-2018.

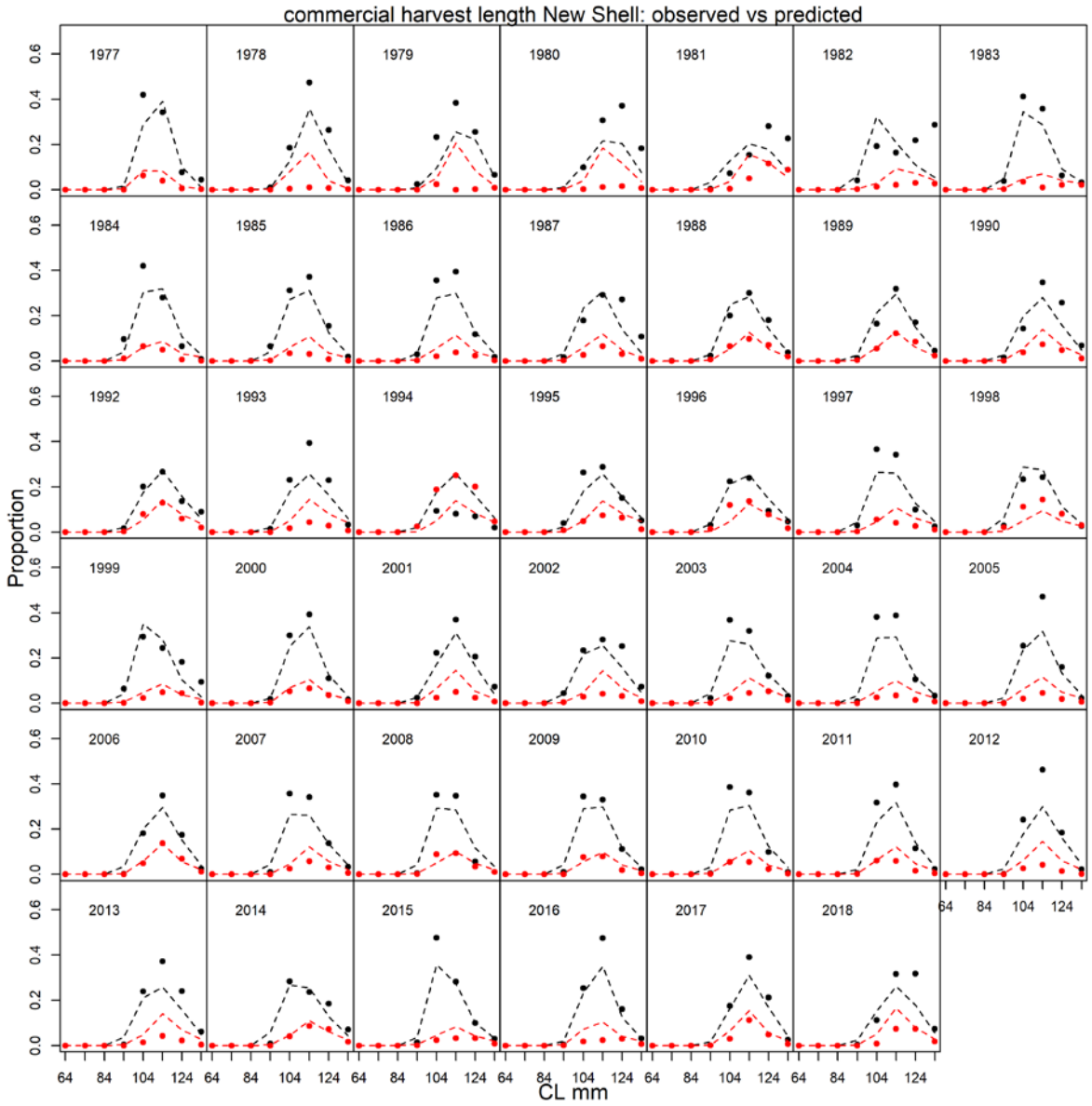

Figure C1-9. Predicted (dashed line) vs. observed (dots) length class proportions for commercial catch. Bladk: New Shell, Red: Old Shell

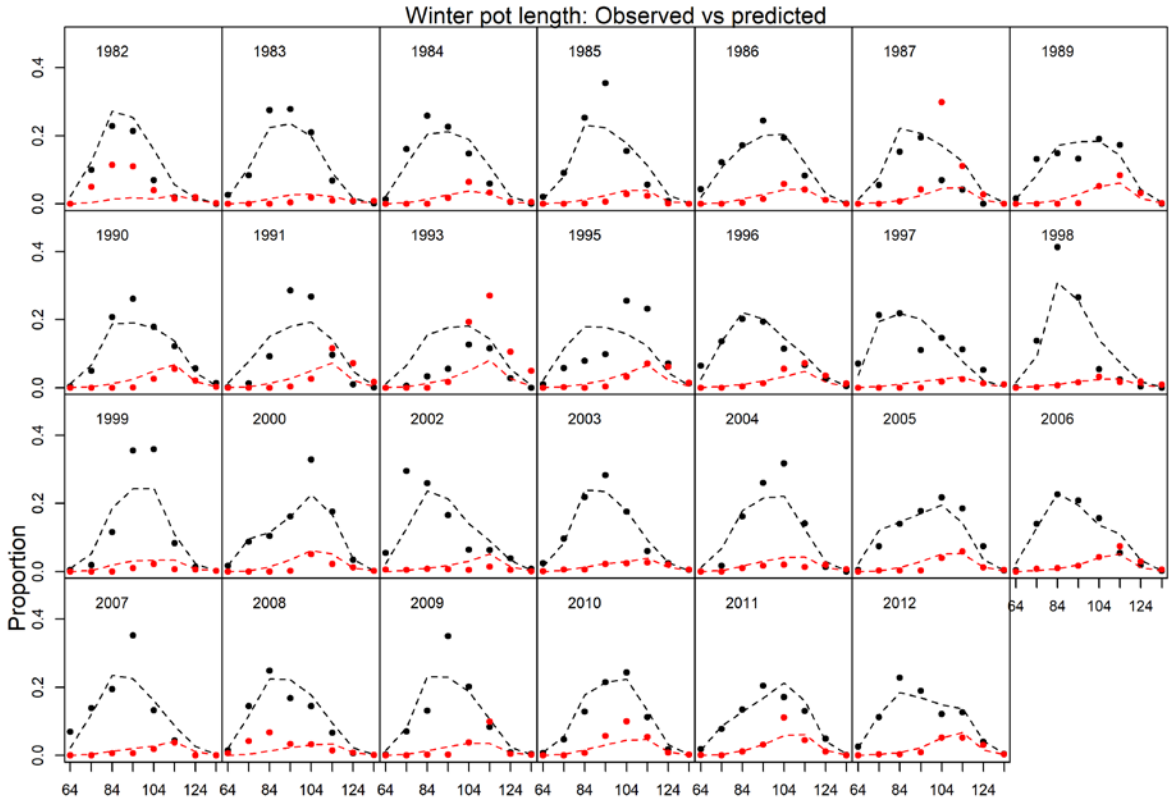

Figure C1-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter and spring pot survey.

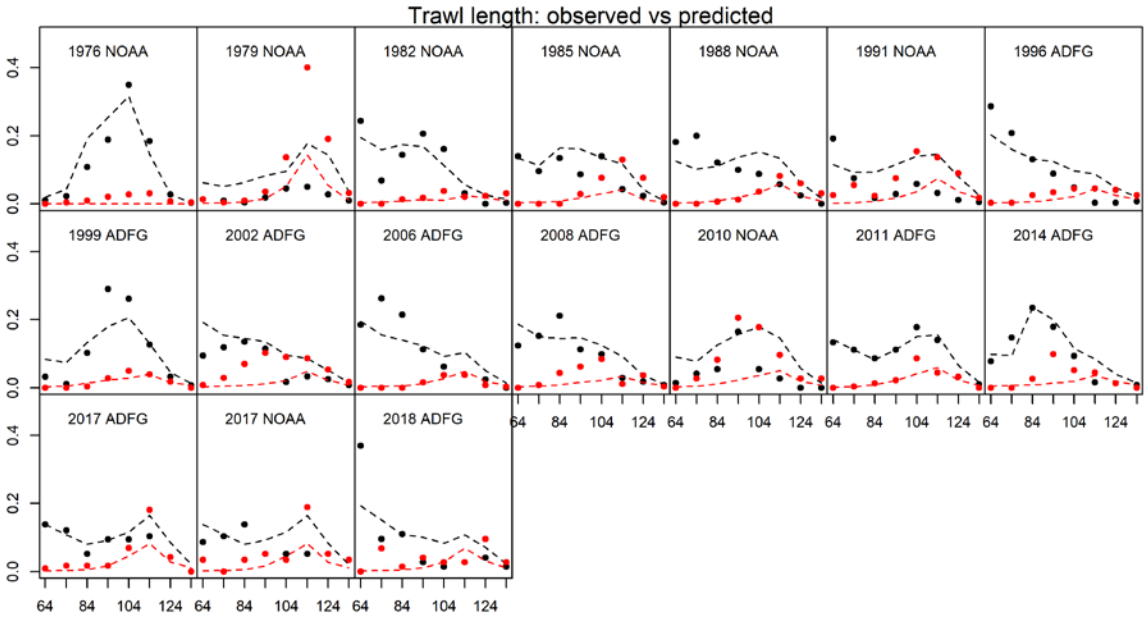

Figure C1-11. Predicted (dashed) vs. observed (dots) length class proportions for the trawl survey

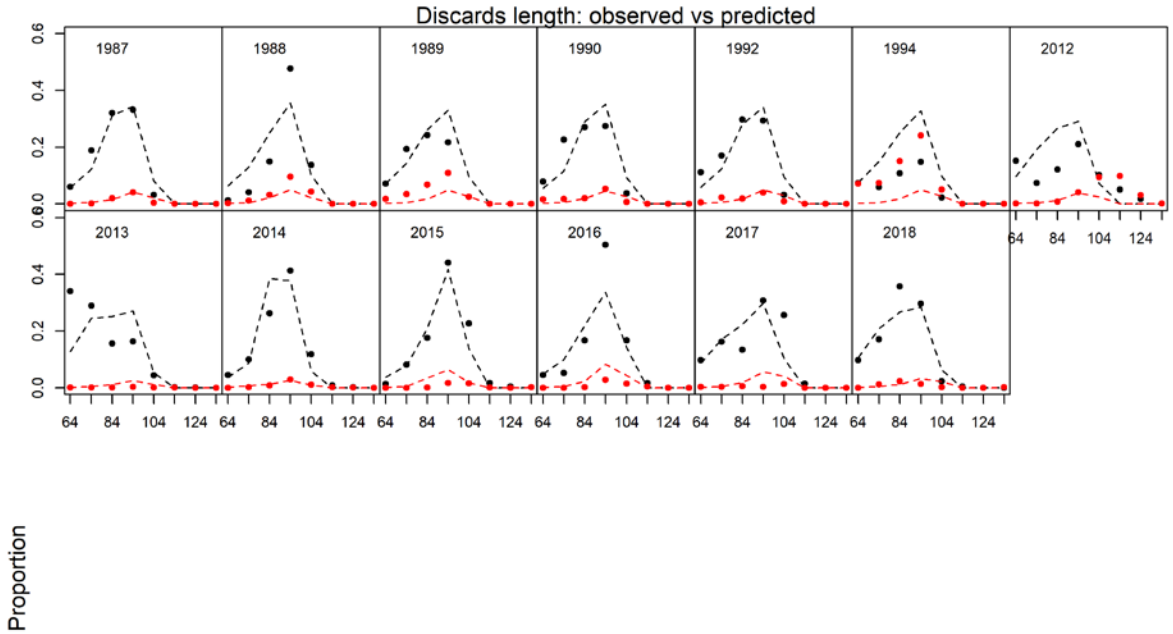

Figure C1-12. Predicted (dashed) vs. observed (dots) length class proportions for the observer survey. Figure C1-13. Predicted (dashed) vs. observed (dots) length class proportions for the observer survey.

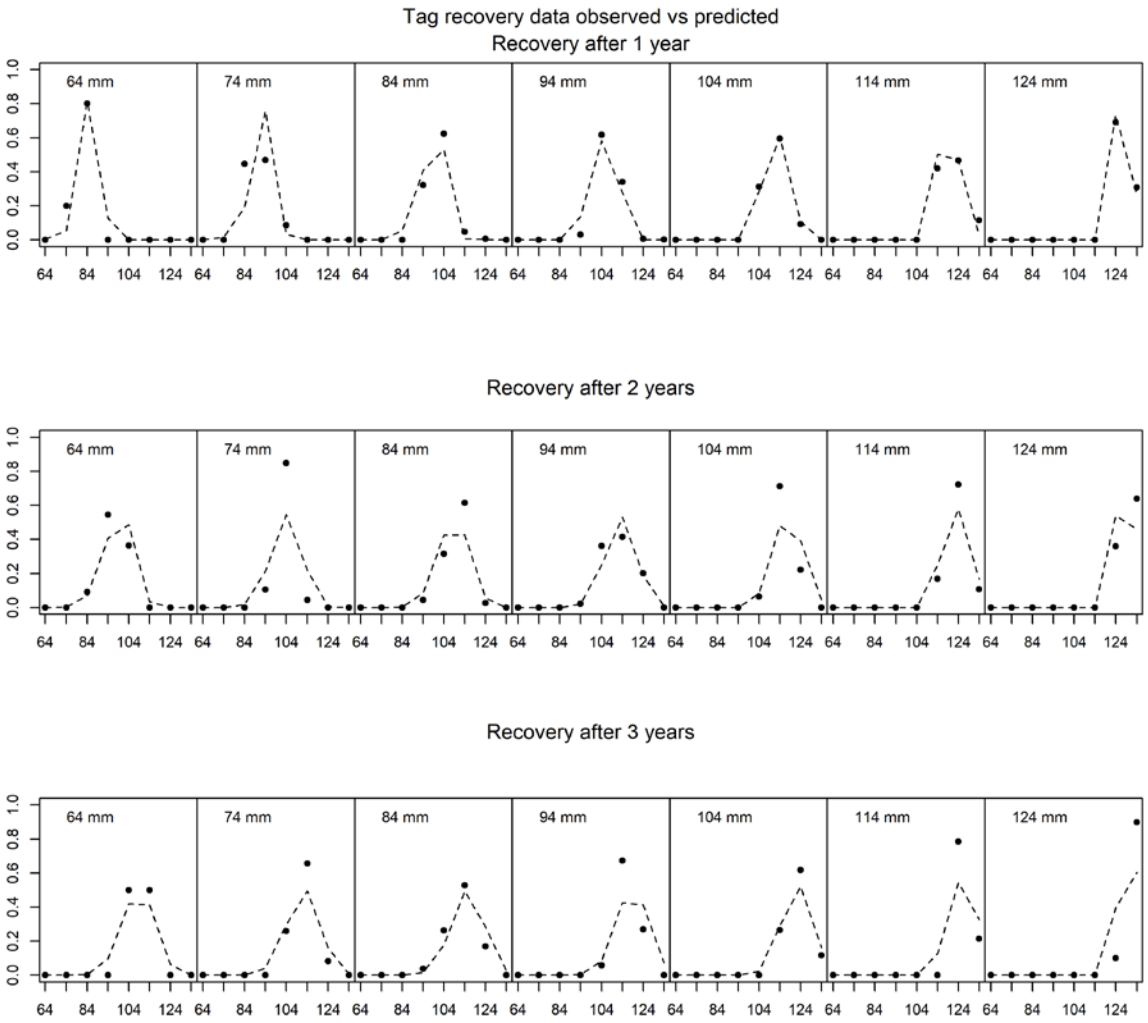

Figure C1-14. Predicted vs. observed length class proportions for tag recovery data.

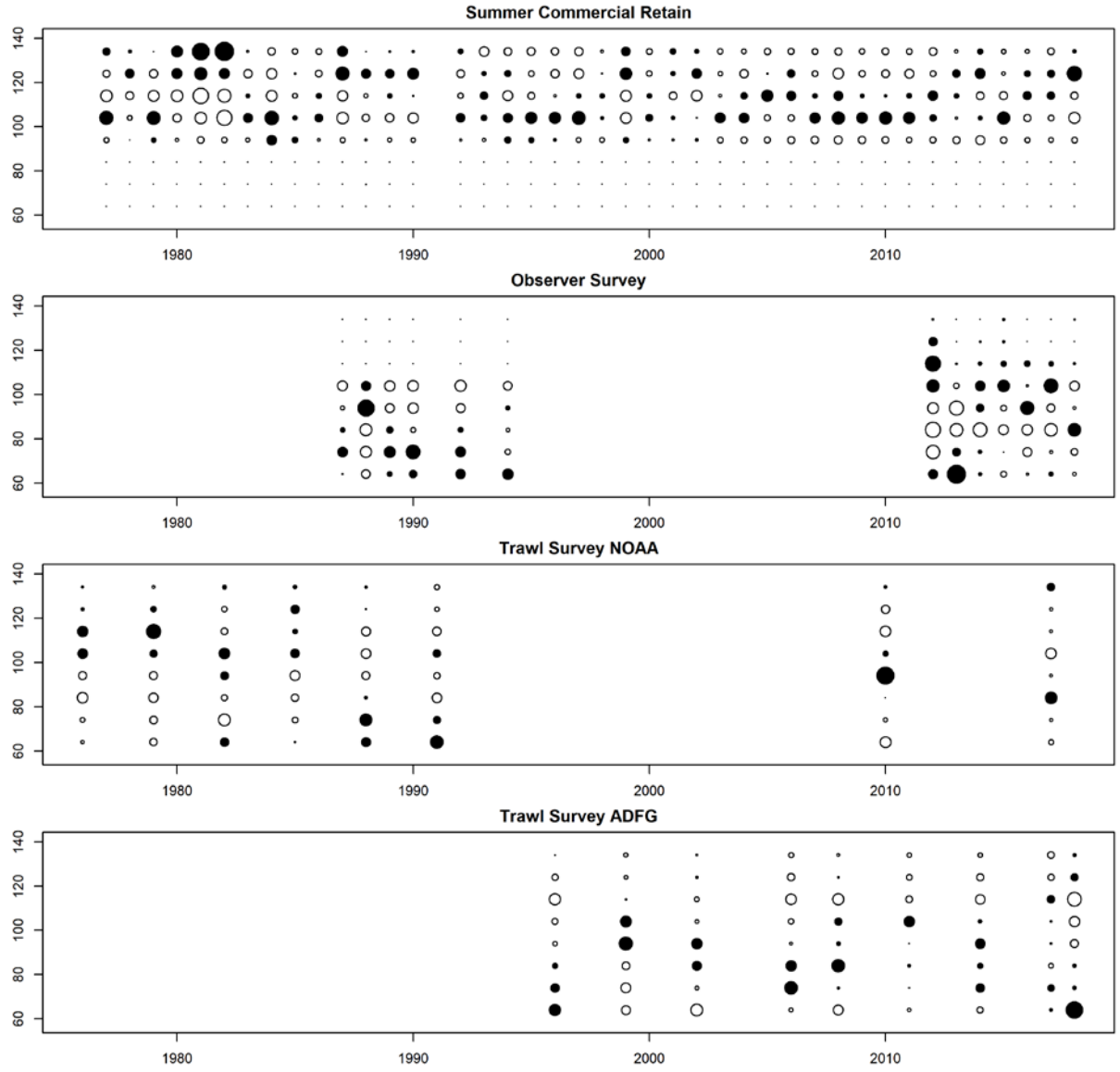

Figure C1-13. Bubble plots of predicted and observed length proportions.
Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

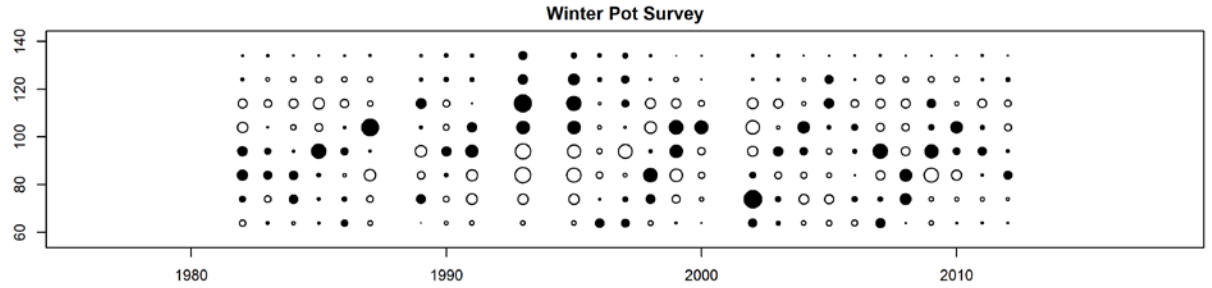

Figure C1-14. Bubble plots of predicted and observed length proportions.
Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

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	-6.967	0.168
log_q_2	-6.818	0.109
log_N_{76}	9.030	0.130
R_0	6.442	0.081
log_R_{76}	0.018	0.415
log_R_{77}	-0.540	0.369
log_R_{78}	-0.725	0.353
log_R_{79}	0.369	0.314
log_R_{80}	0.500	0.282
log_R_{81}	0.403	0.262
log_R_{82}	0.371	0.313
log_R_{83}	0.541	0.274
log_R_{84}	0.148	0.290
log_R_{85}	0.448	0.276
log_R_{86}	0.064	0.285
log_R_{87}	0.021	0.246
log_R_{88}	0.025	0.257
log_R_{89}	-0.328	0.279
log_R_{90}	-0.275	0.252
log_R_{91}	-0.526	0.285
log_R_{92}	-0.673	0.301
log_R_{93}	-0.578	0.288
log_R_{94}	-0.292	0.256
log_R_{95}	-0.065	0.225
log_R_{96}	0.573	0.217
log_R_{97}	-0.012	0.292
log_R_{98}	-0.624	0.319
log_R_{99}	-0.010	0.309
log_R_{00}	0.309	0.262
log_R_{01}	0.391	0.240
log_R_{02}	-0.004	0.313
log_R_{03}	-0.280	0.329
log_R_{04}	0.298	0.240
log_R_{05}	0.424	0.221
log_R_{06}	0.474	0.242

name	Estimate	std.dev
log_R_{07}	0.541	0.230
log_R_{08}	0.137	0.286
log_R_{09}	-0.365	0.293
log_R_{10}	-0.004	0.253
log_R_{11}	0.280	0.274
log_R_{12}	0.889	0.184
log_R_{13}	-0.192	0.283
log_R_{14}	-0.566	0.293
log_R_{15}	-0.753	0.268
log_R_{16}	-0.390	0.226
log_R_{17}	-0.020	0.275
a_1	1.551	4.563
a_2	2.316	4.254
a_3	3.819	4.059
a_4	4.096	4.045
a_5	4.316	4.036
a_6	3.542	4.065
a_7	2.115	4.326
r1	10.000	0.853
r2	9.685	0.871
log_a	-2.637	0.087
log_b	4.824	0.014439
log_ϕ_{st1}	3.130	5186.500
log_ϕ_{wa}	-2.117	0.316
log_ϕ_{wb}	4.797	0.029
Sw1	0.073	0.035
Sw2	0.500	353.550
log_ϕ_1	3.753	6513.700
w^2_t	0.052	0.016
q	0.766	0.131
σ	3.847	0.214
β_1	12.343	0.698
β_2	7.693	0.173
ms78	3.193	0.271