Appendix C4

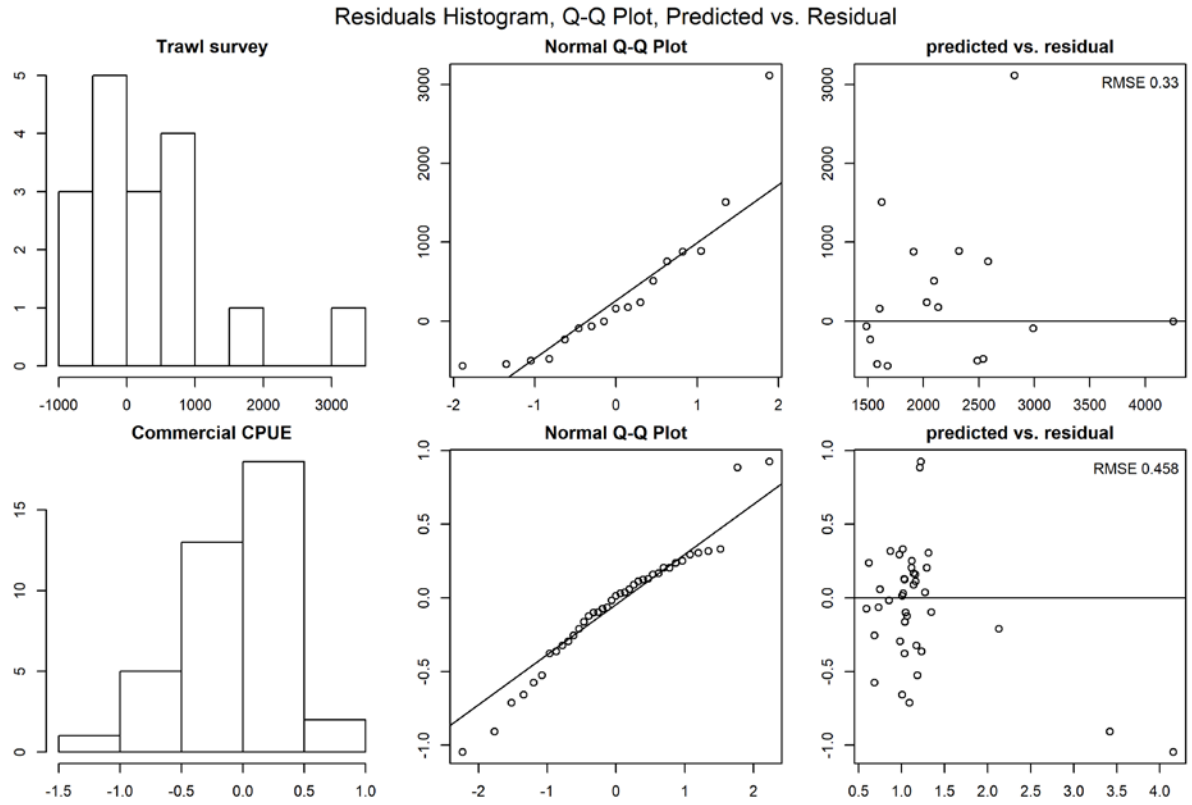

Figure C8-1. QQ Plot of Trawl survey and Commercial CPUE.

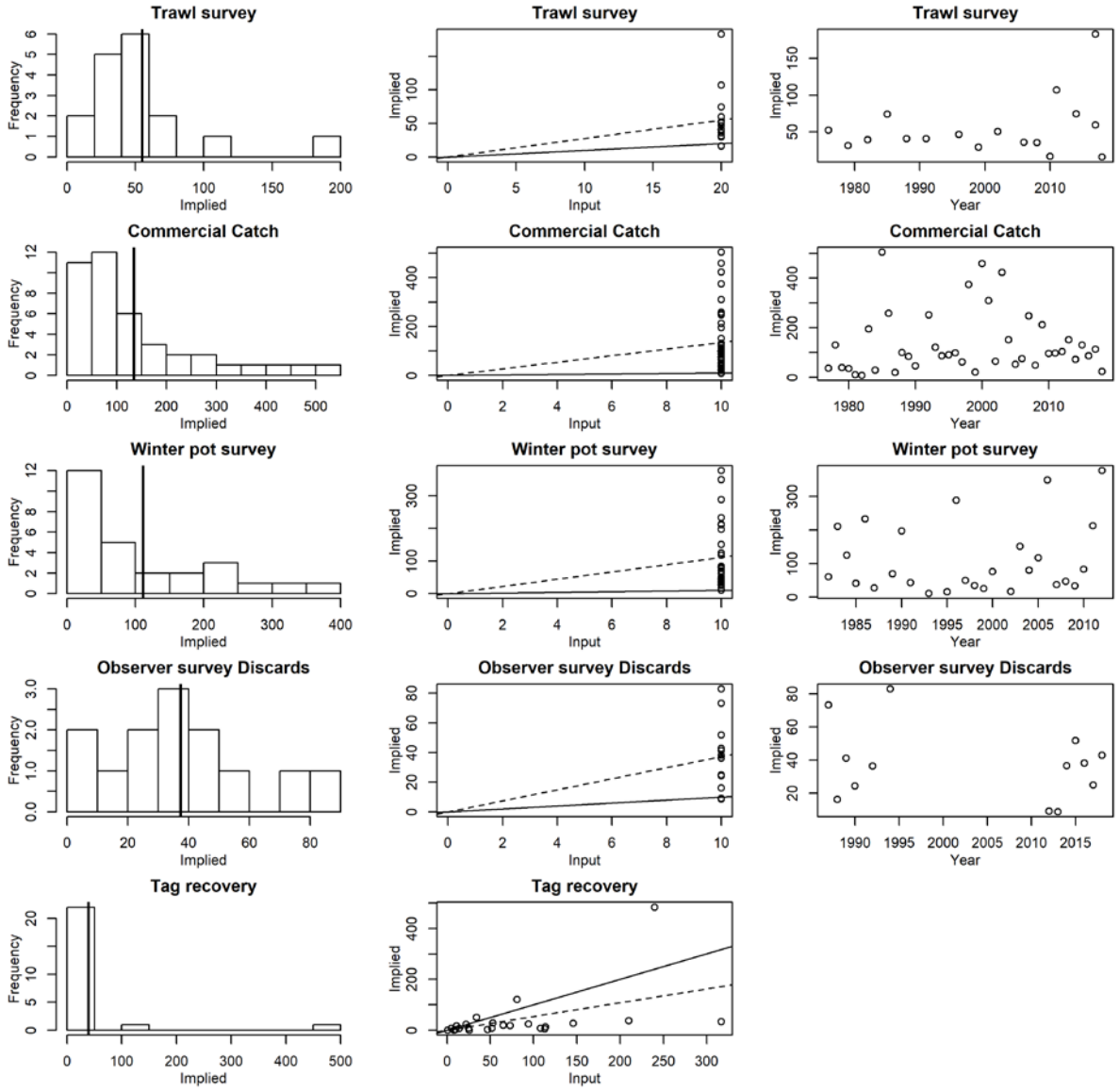

Figure C4-2: Implied effective samples. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis).
Vertical solid line is the mean implied effective sample size.
The second column show input sample size (x-axis) vs. implied effective sample size (y-axis). Dashed line 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).

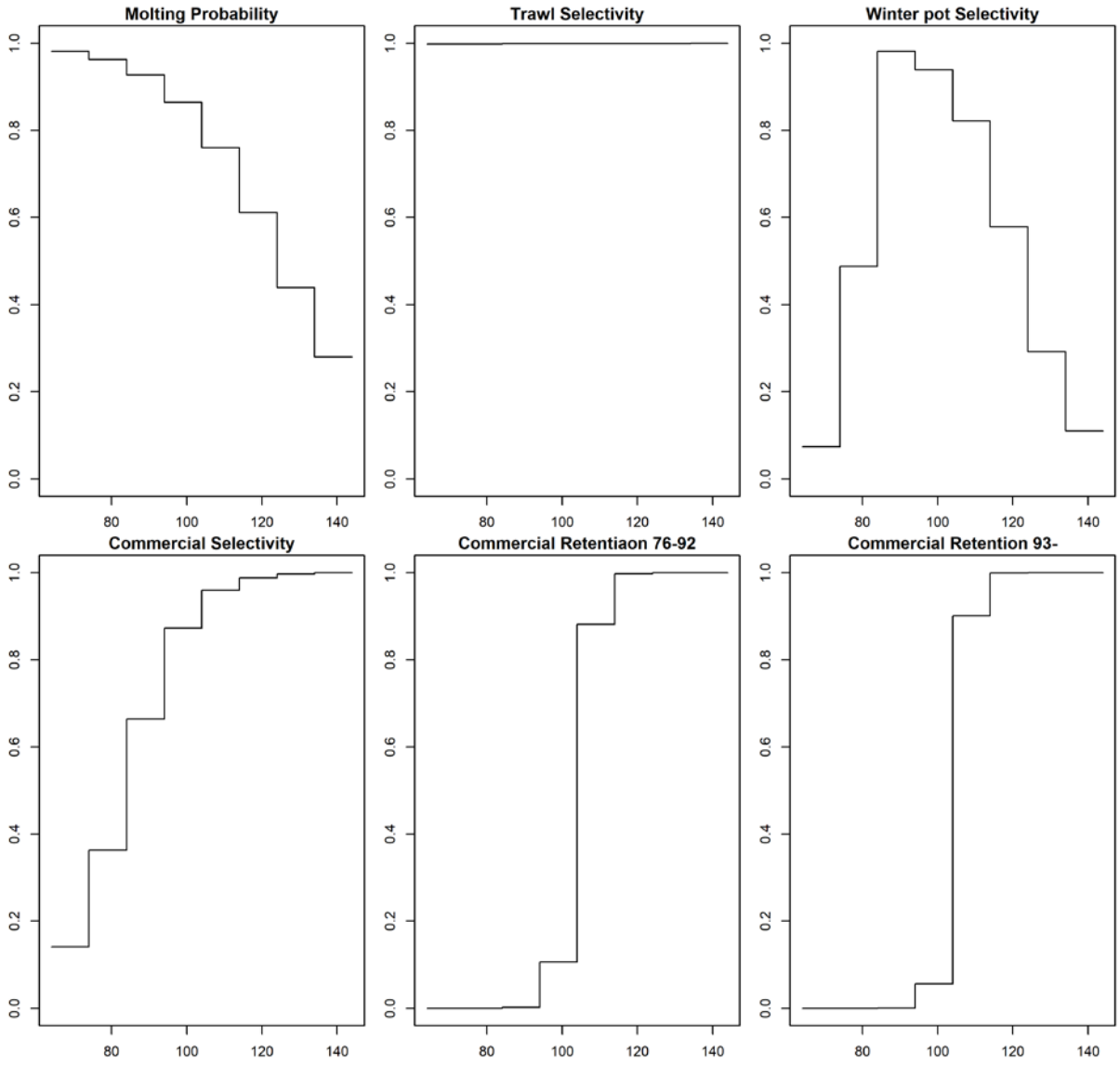

Figure C4-3. Molting probability and trawl/pot selectivity. X-axis is carapace length.

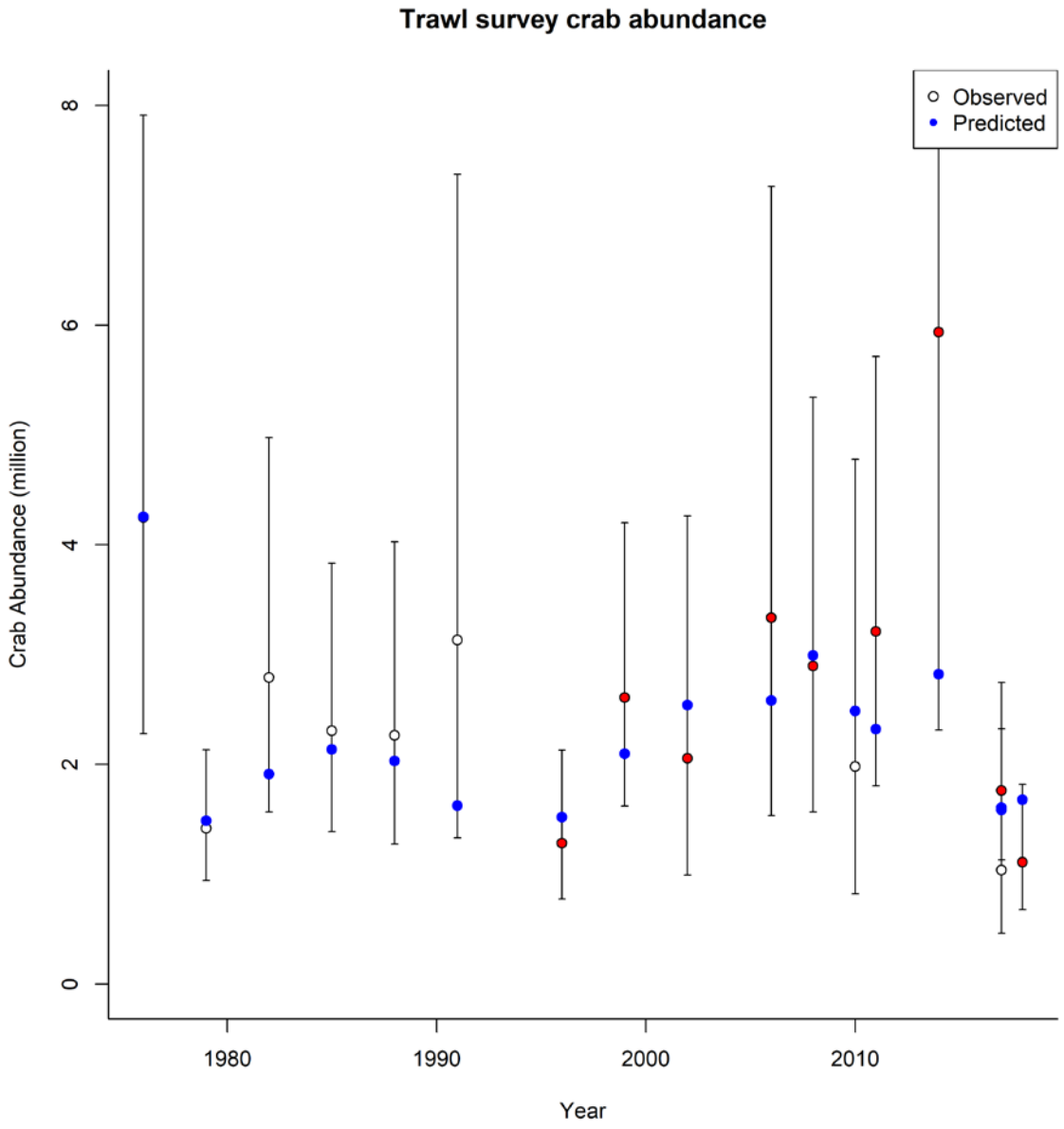

Figure C4-4. Estimated trawl survey male abundance (crab >= 64 mm CL). Observed: White: NOAA Trawl Survey, Red: ADG&G Trawl Survey

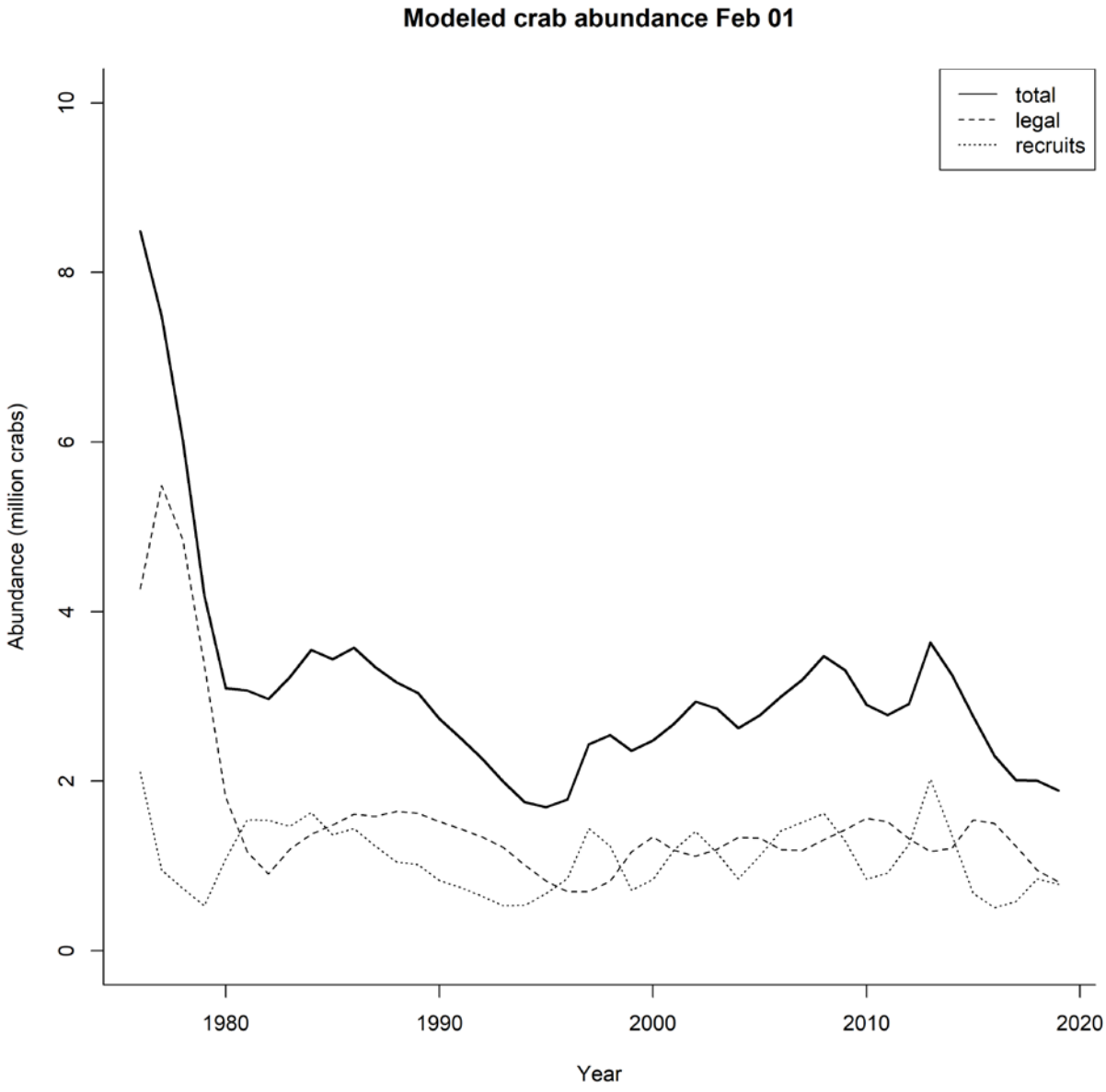

Figure C4-5. Estimated abundance of legal males from 1976-2015.

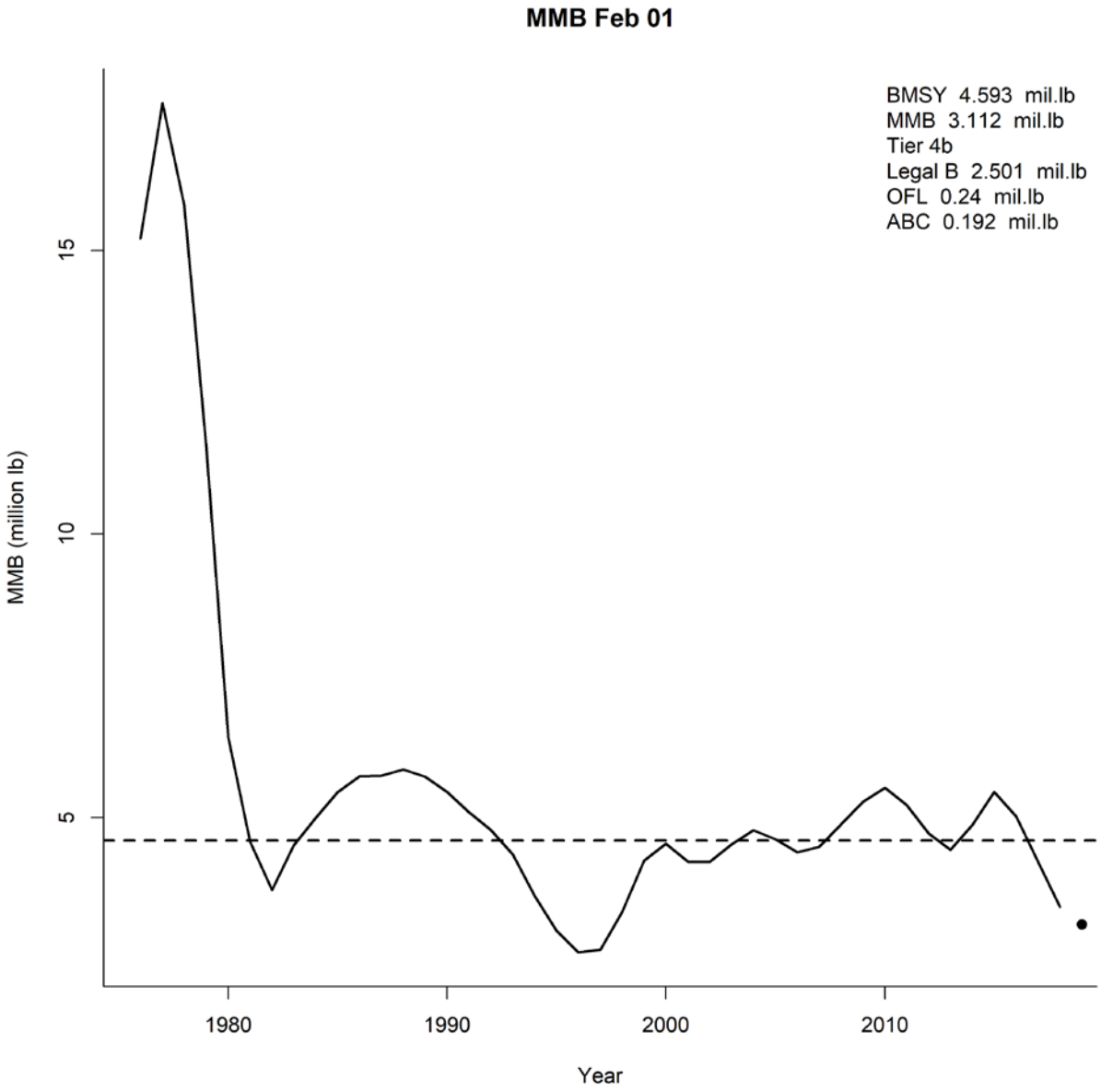

Figure C4-6. Estimated abundance of Mature Male Biomass from 1976-2019. Dash line shows Bmsy (Average MMB of 1980-2019).

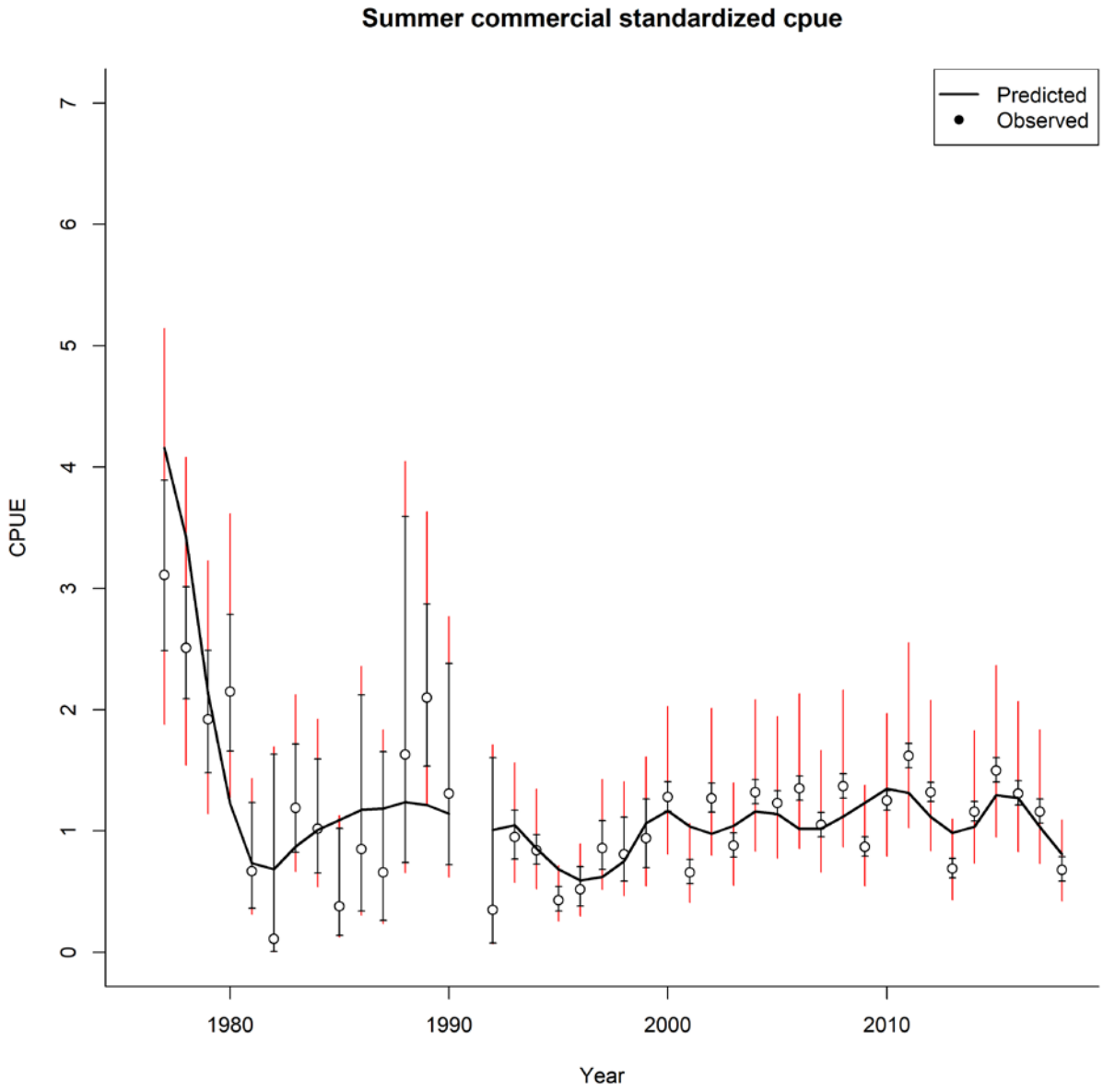

Figure C4-7. Summer commercial standardized cpue 1977-2018.

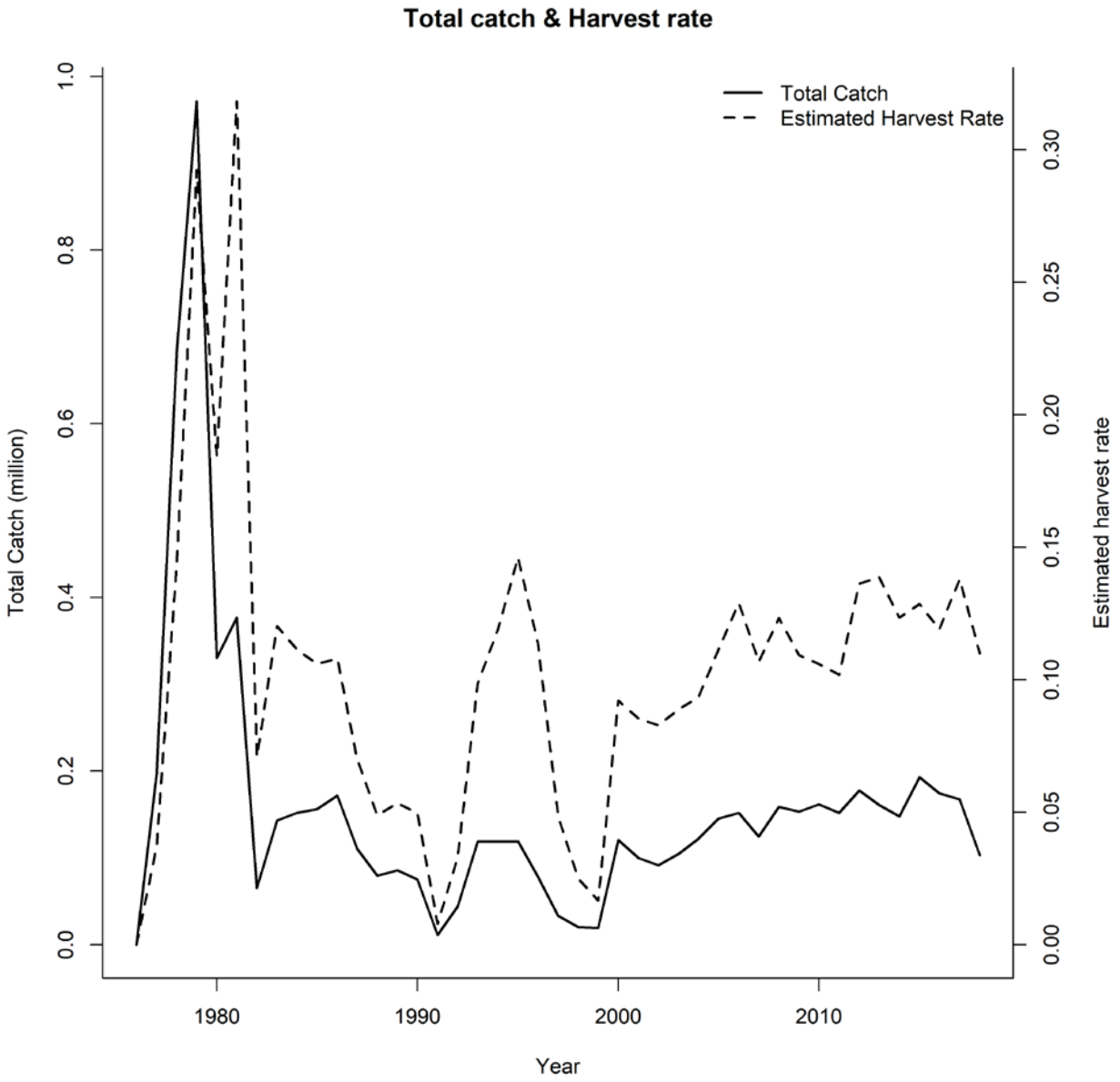

Figure C4-8. Total catch and estimated harvest rate 1976-2018.

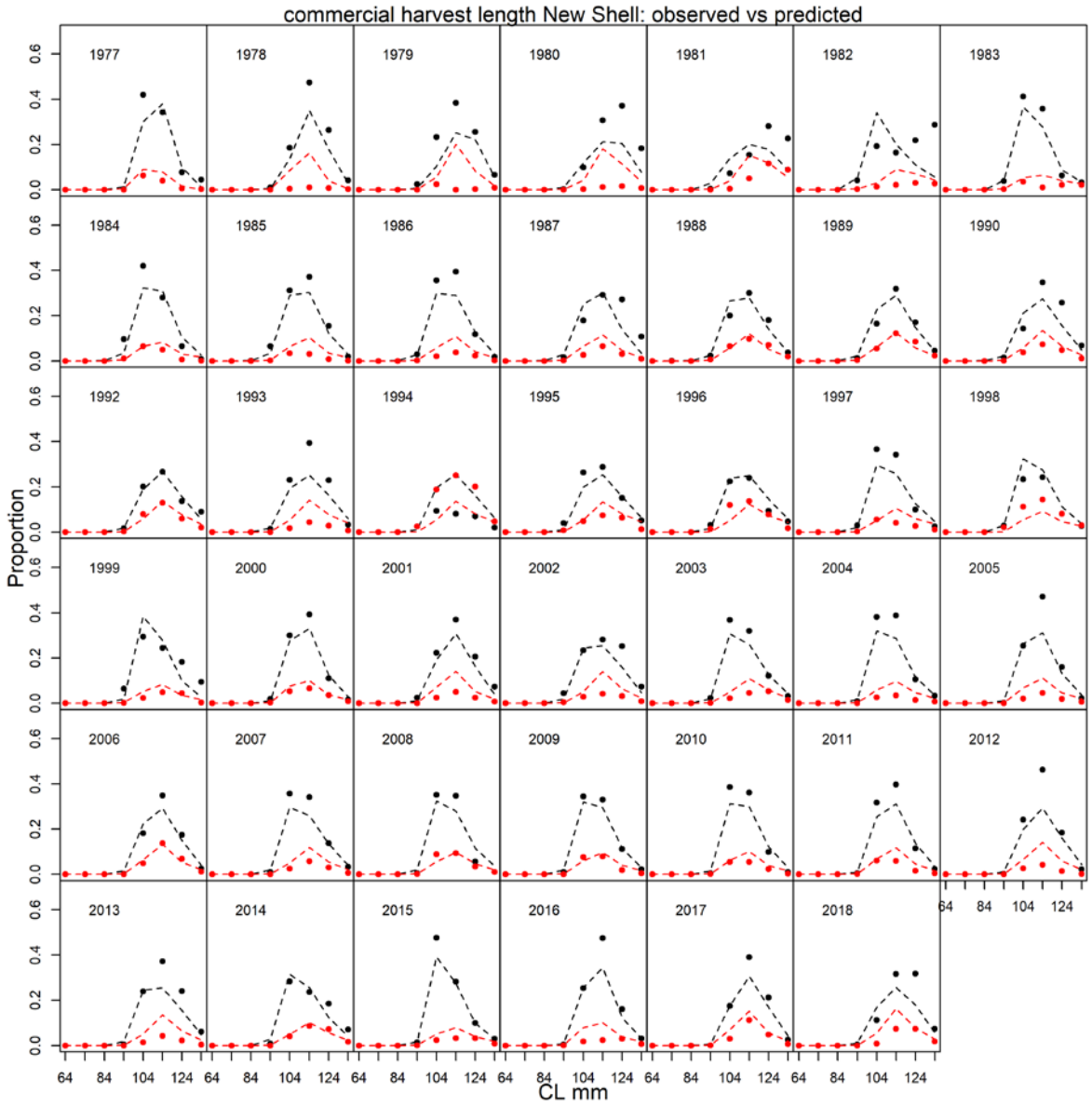

Figure C4-9. Predicted (dashed line) vs. observed (dots) length class proportions for commercial catch. Bladk: New Shell, Red: Old Shell

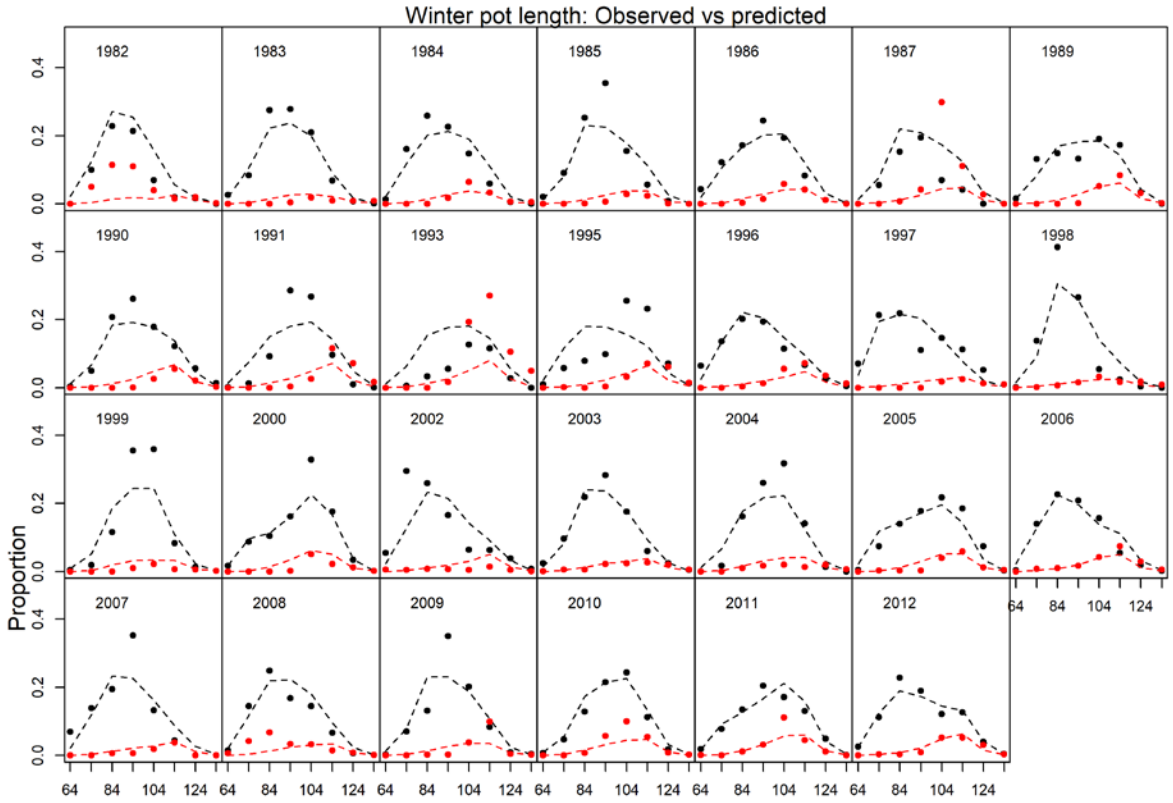

Figure C4-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter and spring pot survey.

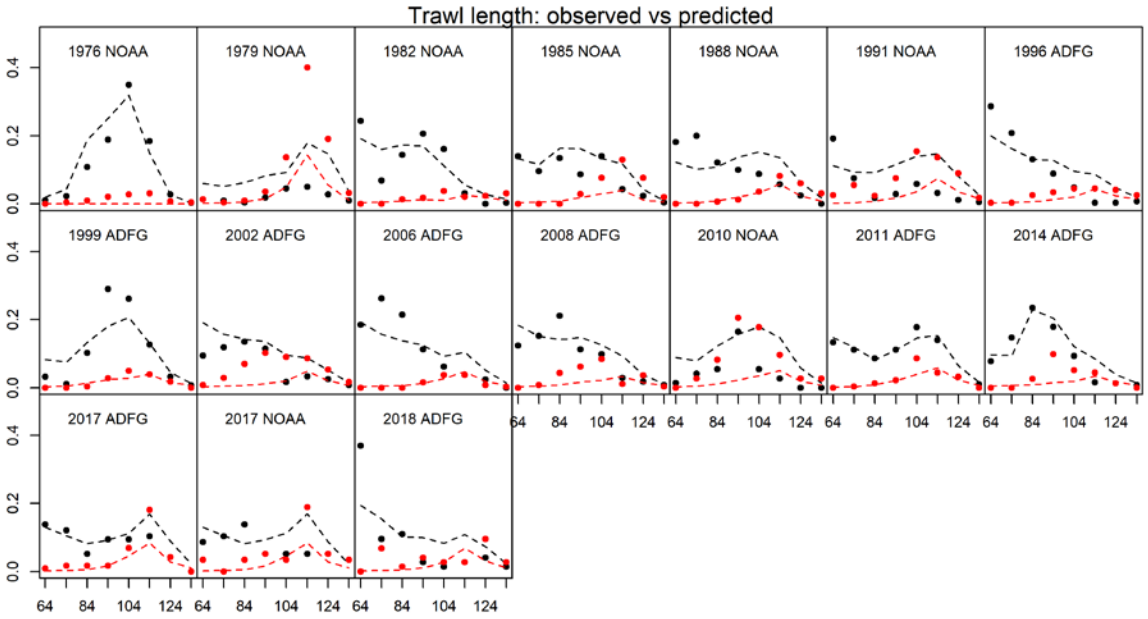

Figure C4-11. Predicted (dashed) vs. observed (dots) length class proportions for trawl survey

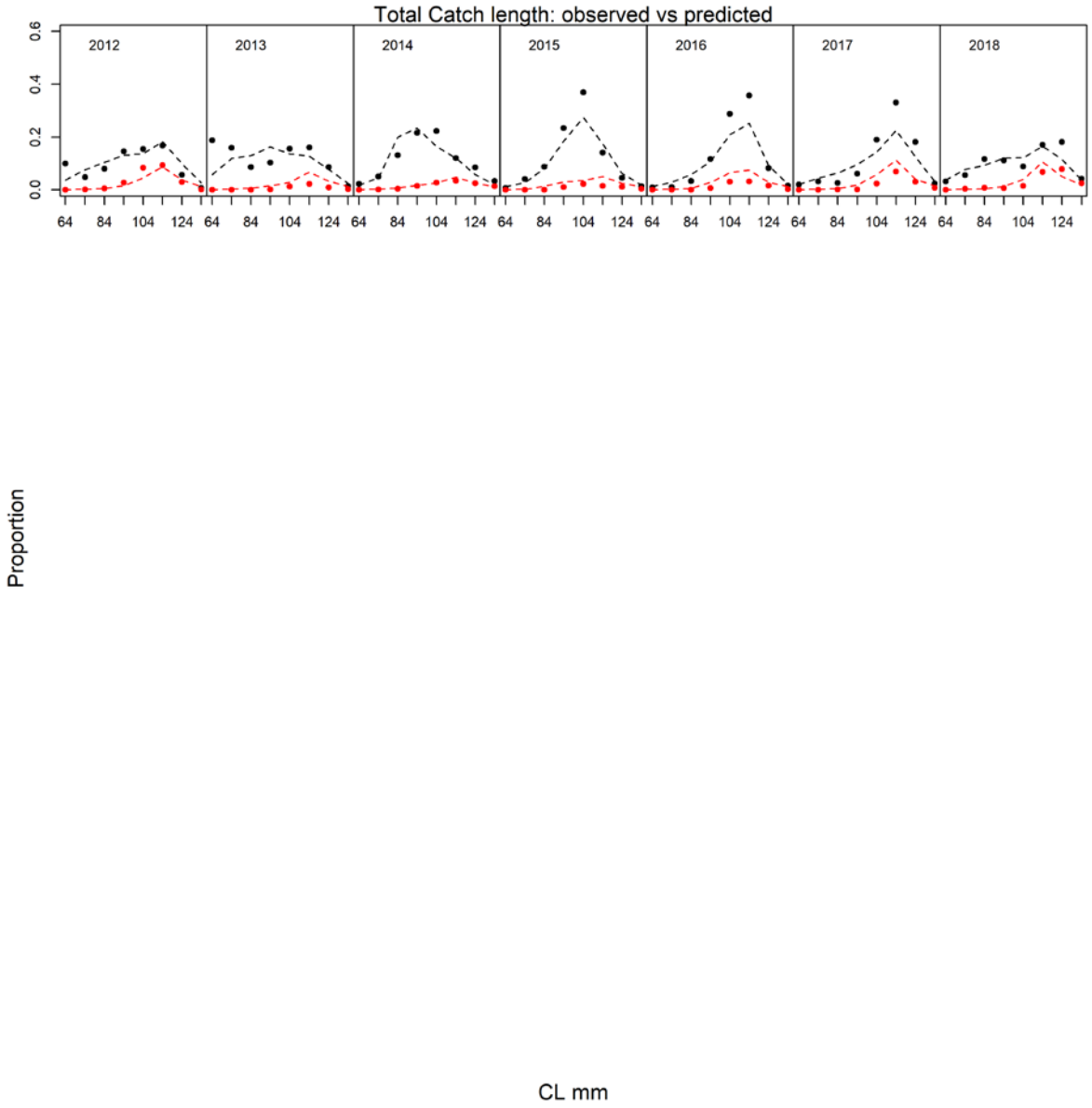

Figure C4-12. Predicted (dashed) vs. observed (dots) length class proportions for the observer survey.

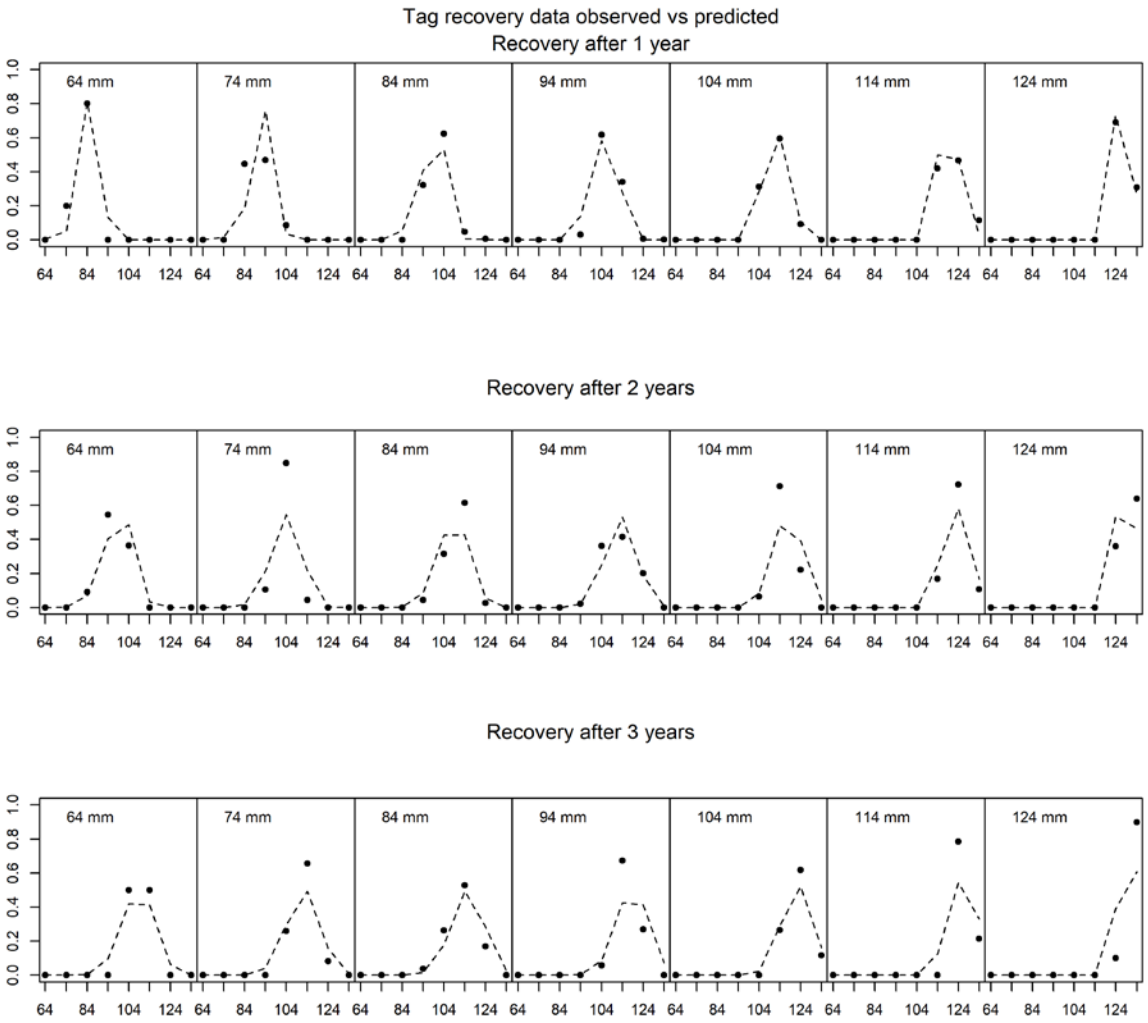

Figure C4-13. Predicted vs. observed length class proportions for tag recovery data.

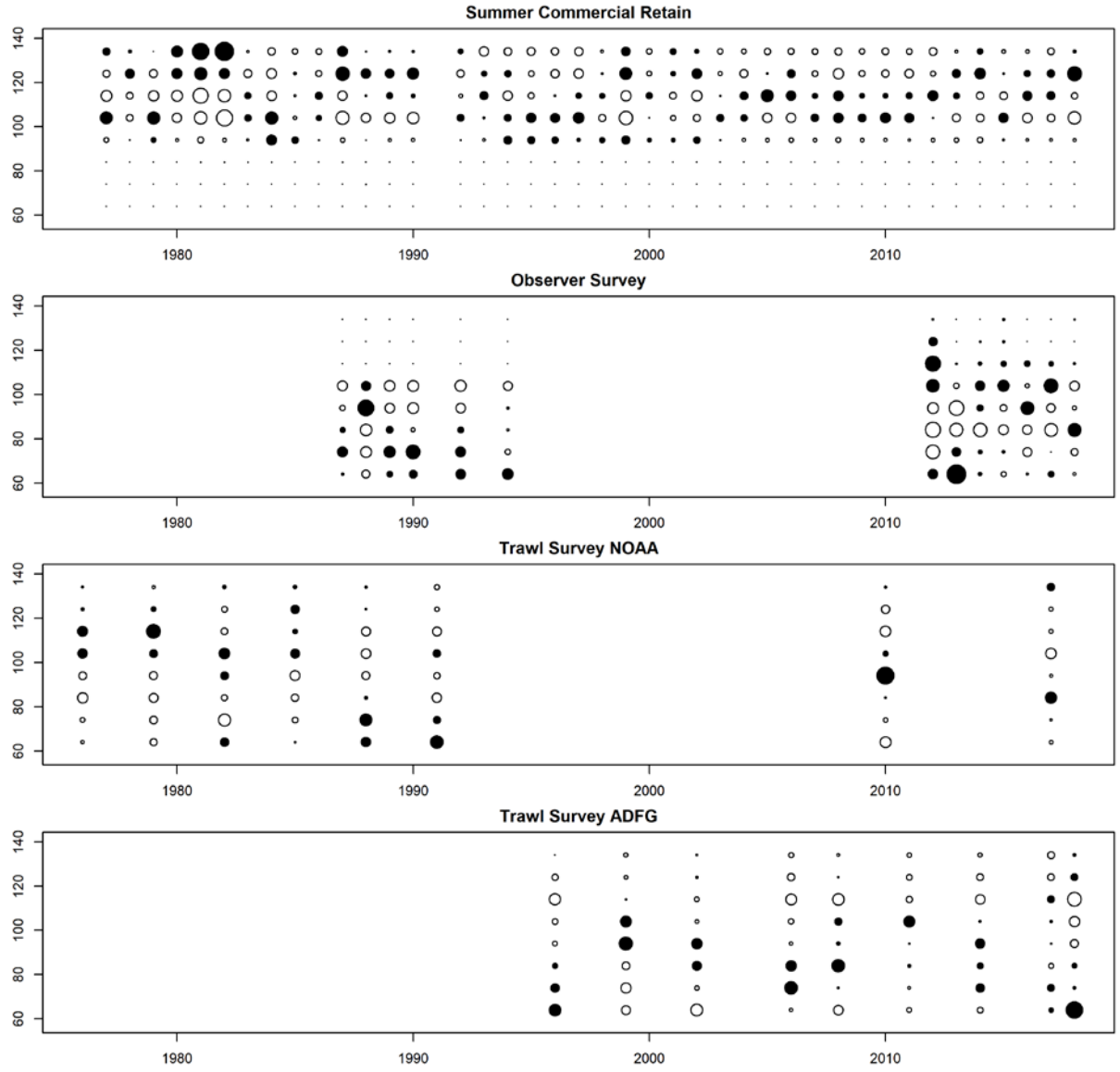

Figure C4-14. Bubble plots of predicted and observed length proportions.
Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

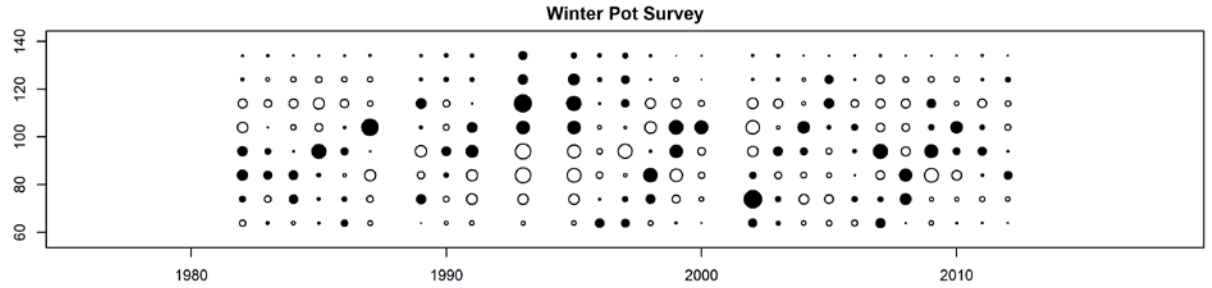

Figure C4-15. Bubble plots of predicted and observed length proportions.
Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

Table C4. 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	-7.010	0.173
log_q_2	-6.834	0.117
log_N_{76}	9.046	0.132
R_0	6.443	0.081
log_R_{76}	0.028	0.418
log_R_{77}	-0.530	0.370
log_R_{78}	-0.719	0.353
log_R_{79}	0.369	0.317
log_R_{80}	0.516	0.282
log_R_{81}	0.414	0.263
log_R_{82}	0.378	0.314
log_R_{83}	0.562	0.275
log_R_{84}	0.171	0.291
log_R_{85}	0.460	0.279
log_R_{86}	0.074	0.287
log_R_{87}	0.024	0.247
log_R_{88}	0.026	0.260
log_R_{89}	-0.316	0.279
log_R_{90}	-0.286	0.256
log_R_{91}	-0.525	0.284
log_R_{92}	-0.705	0.306
log_R_{93}	-0.574	0.289
log_R_{94}	-0.287	0.256
log_R_{95}	-0.068	0.224
log_R_{96}	0.569	0.217
log_R_{97}	-0.009	0.291
log_R_{98}	-0.631	0.319
log_R_{99}	0.000	0.308
log_R_{00}	0.296	0.262
log_R_{01}	0.396	0.238
log_R_{02}	-0.006	0.312
log_R_{03}	-0.282	0.329
log_R_{04}	0.285	0.239
log_R_{05}	0.416	0.219
log_R_{06}	0.443	0.241
log_R_{07}	0.522	0.227
log_R_{08}	0.096	0.283

name	Estimate	std.dev
log_R_{09}	-0.384	0.289
log_R_{10}	0.046	0.245
log_R_{11}	0.350	0.274
log_R_{12}	0.888	0.190
log_R_{13}	-0.181	0.294
log_R_{14}	-0.651	0.312
log_R_{15}	-0.719	0.277
log_R_{16}	-0.448	0.239
log_R_{17}	-0.009	0.282
a_1	1.520	4.554
a_2	2.300	4.242
a_3	3.767	4.048
a_4	4.057	4.034
a_5	4.299	4.024
a_6	3.536	4.054
a_7	2.104	4.319
r1	10.000	0.810
r2	9.713	0.830
log_a	-2.661	0.089
log_b	4.828	0.015
log_ϕ_{st1}	-5.000	0.085
log_ϕ_{wa}	-2.116	0.317
log_ϕ_{wb}	4.797	0.029
Sw1	0.074	0.036
Sw2	0.488	0.122
log_ϕ_1	-2.084	0.057
log_ar	-0.884	0.178
log_br	4.641	0.011
log_ar	-0.688	0.216
log_br	4.646	0.012
w^2_t	0.051	0.016
q	0.753	0.130
σ	3.856	0.211
β_1	12.404	0.703
β_2	7.672	0.173
ms78	3.204	0.265