Appendix C7

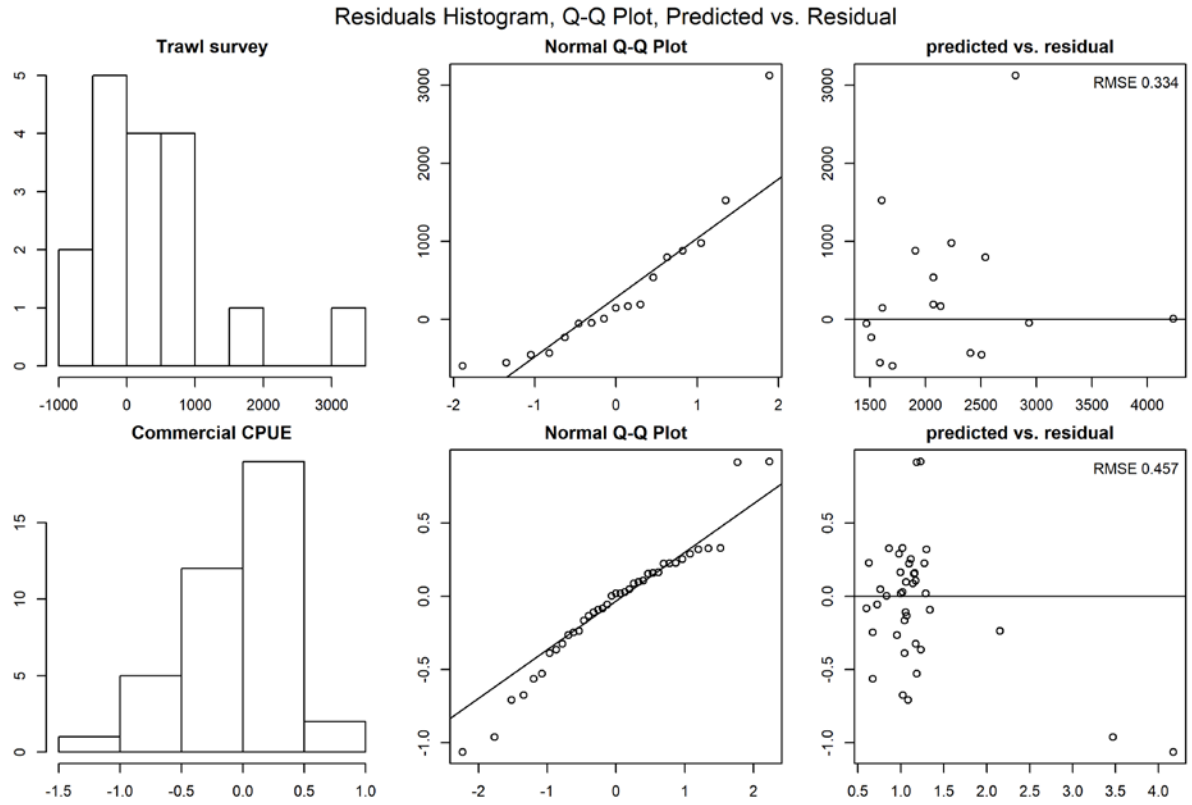

Figure C7-1. QQ Plot of Trawl survey and Commercial CPUE.

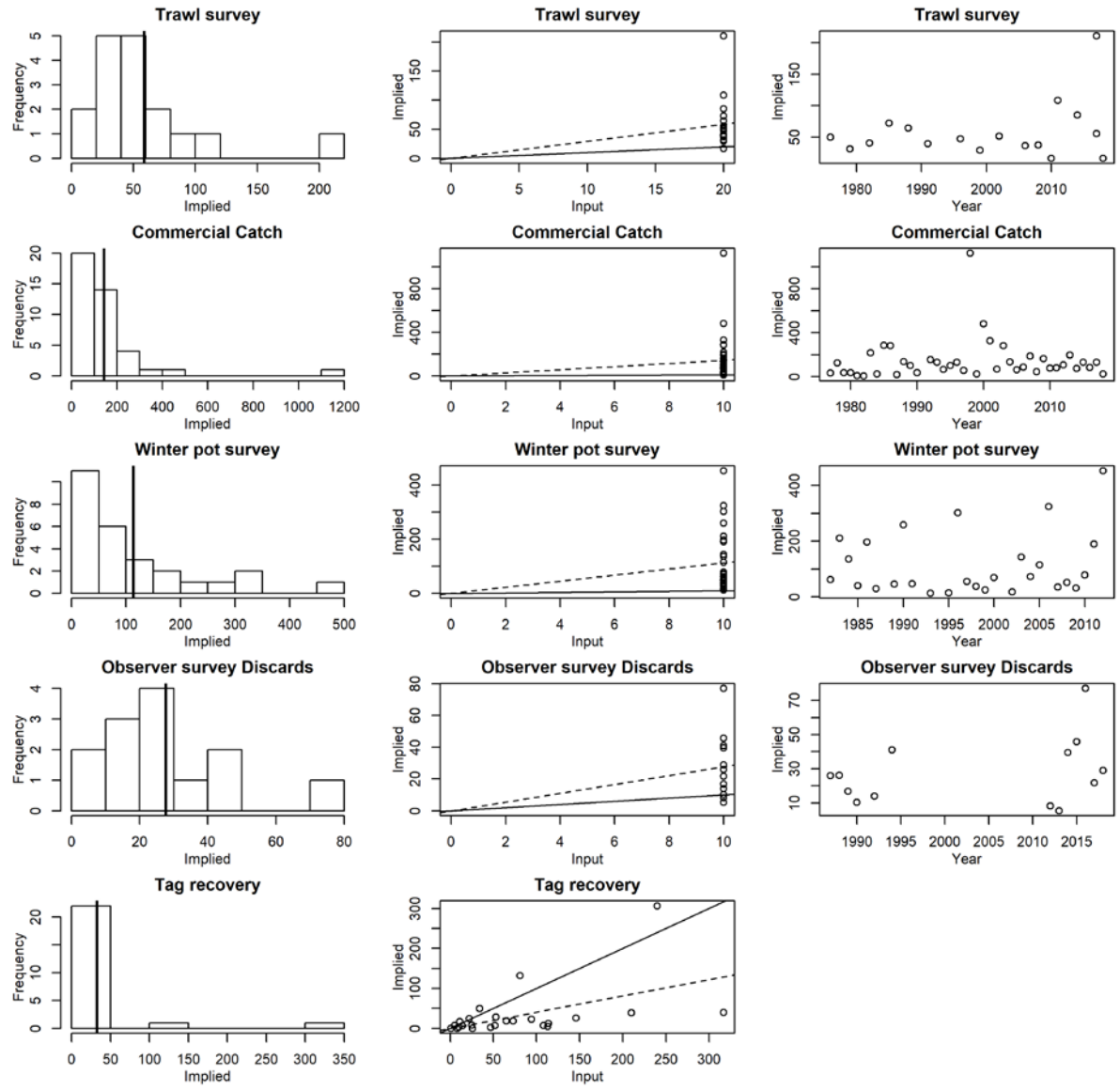

Figure C7-2: Implied effective samples. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis).
Vertical solid line is the mean implied effective sample size.
The second column show input sample size (x-axis) vs. implied effective sample size (y-axis). Dashed line 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).

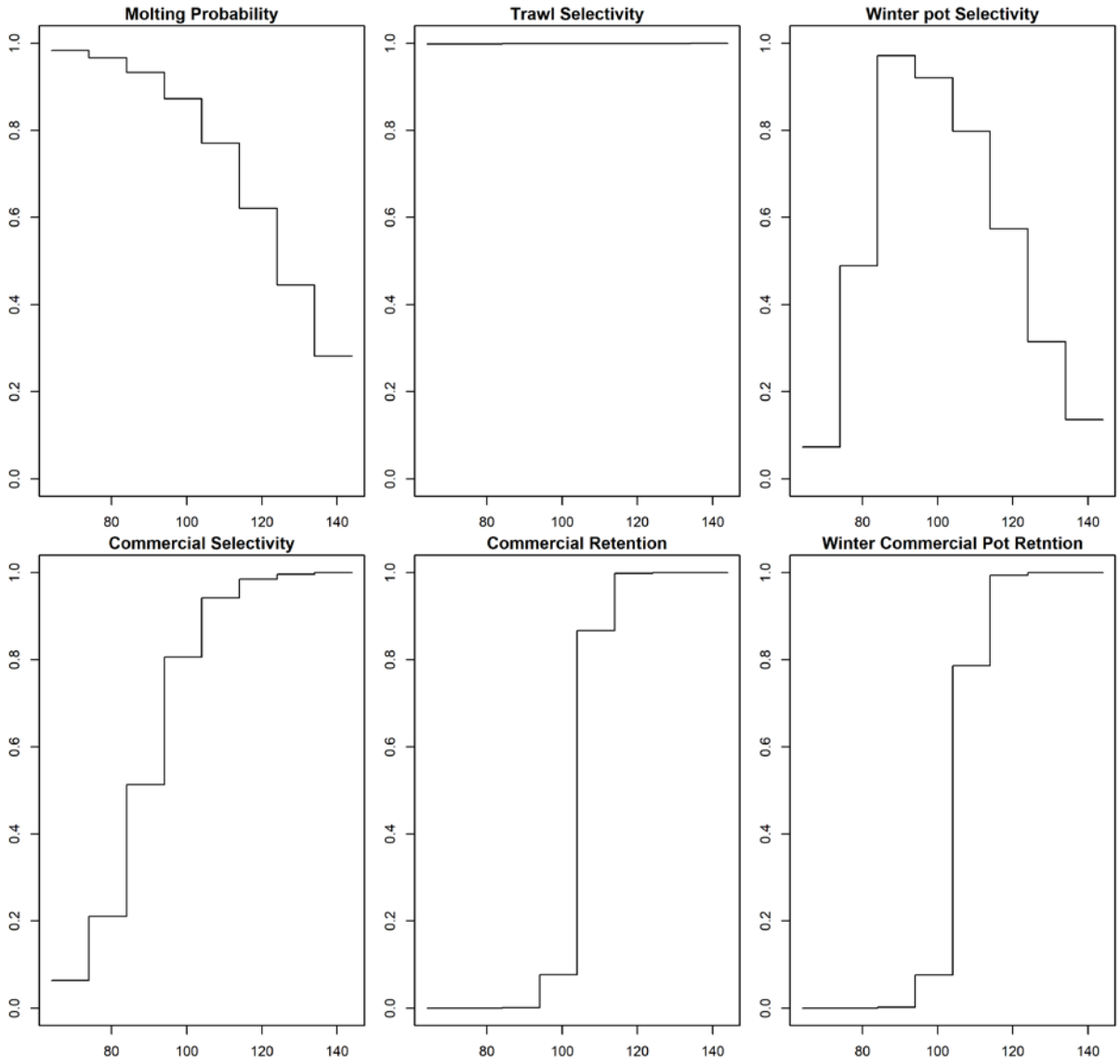

Figure C7-3. Molting probability and trawl/pot selectivity. X-axis is carapace length.

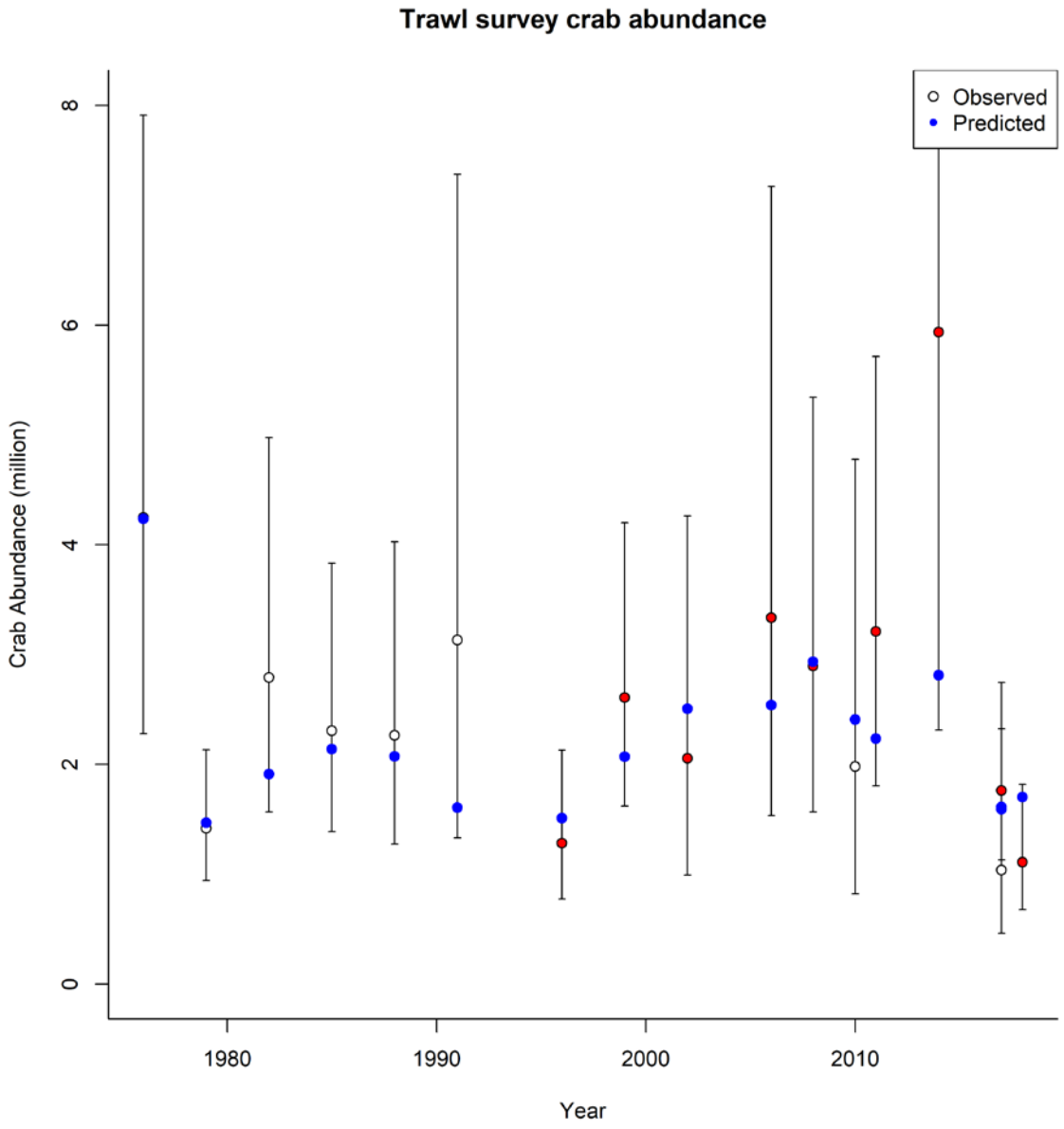

Figure C7-4. Estimated trawl survey male abundance (crab >= 64 mm CL). Observed: White: NOAA Trawl Survey, Red: ADG&G Trawl Survey

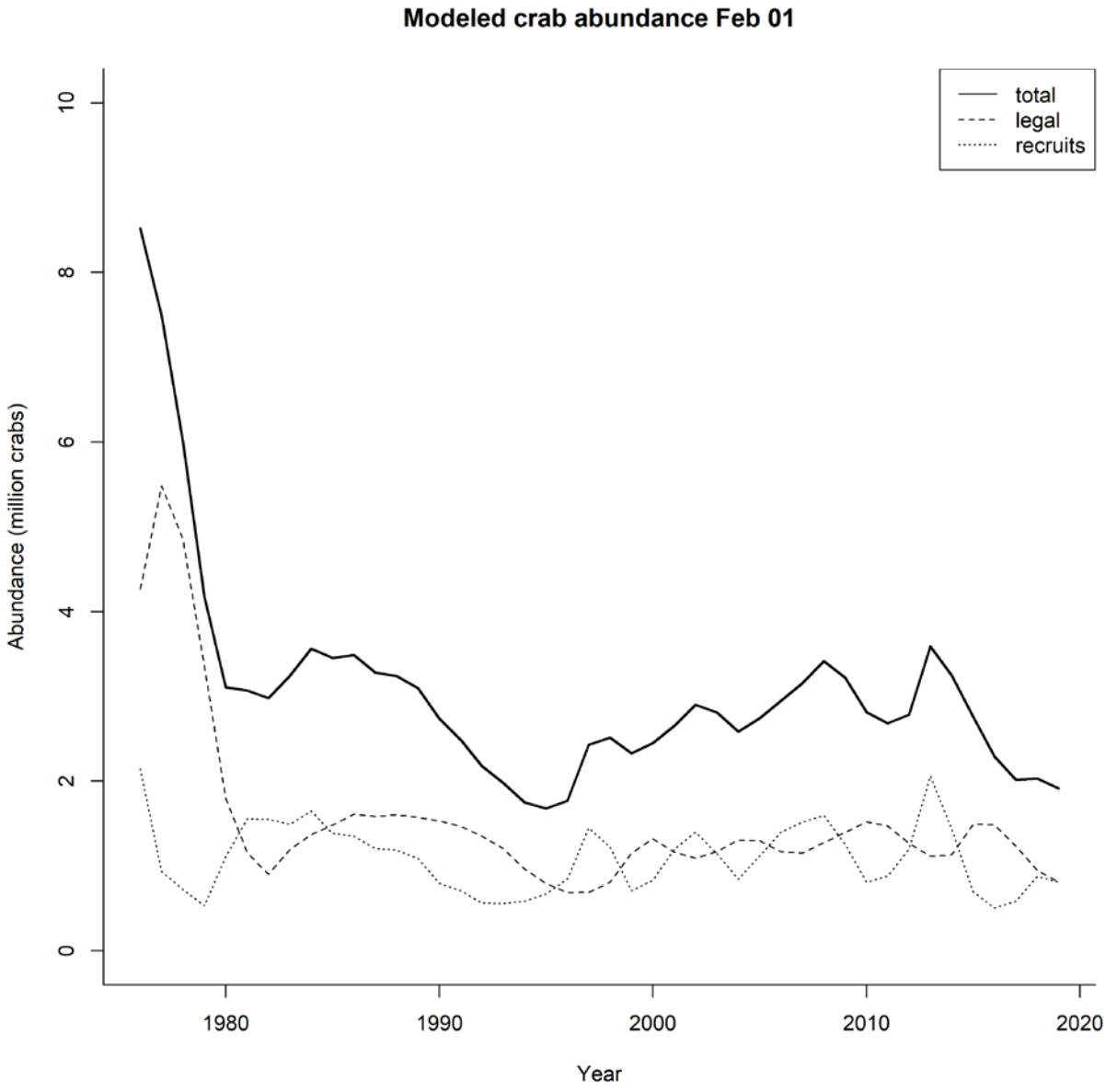

Figure C7-5. Estimated abundance of legal males from 1976-2015.

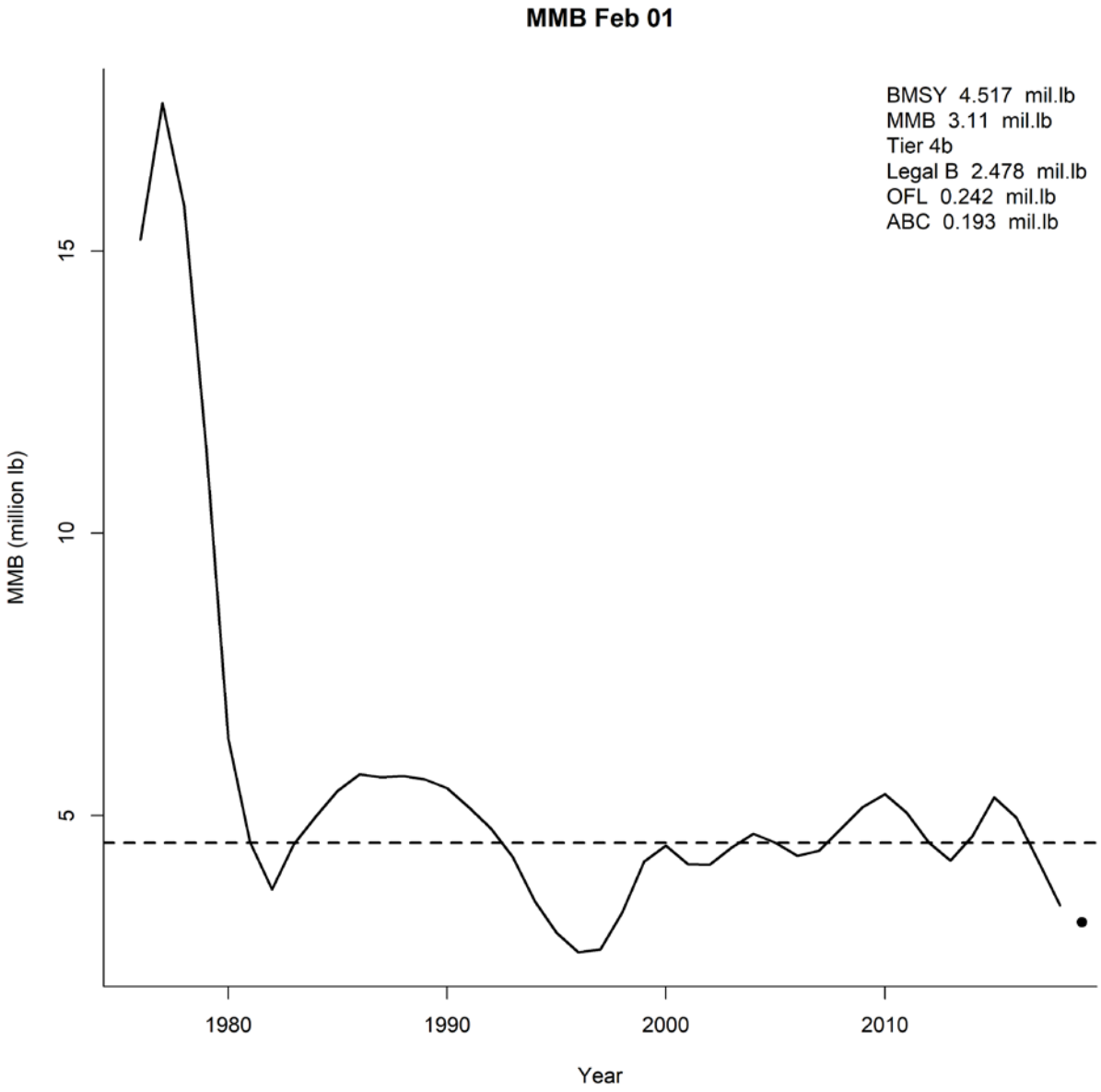

Figure C7-6. Estimated abundance of Mature Male Biomass from 1976-2019. Dash line shows Bmsy (Average MMB of 1980-2019).

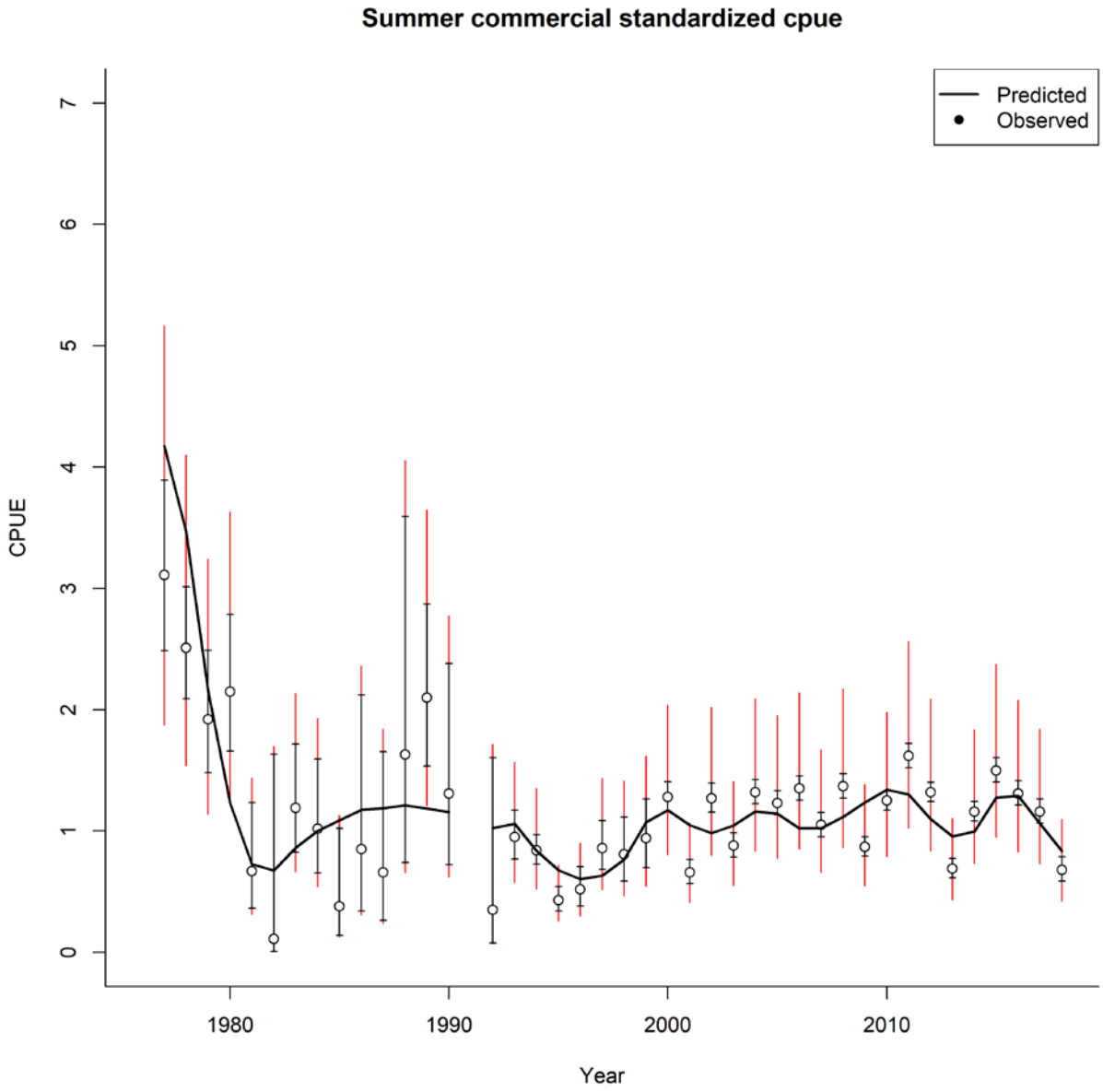

Figure C7-7. Summer commercial standardized cpue 1977-2018.

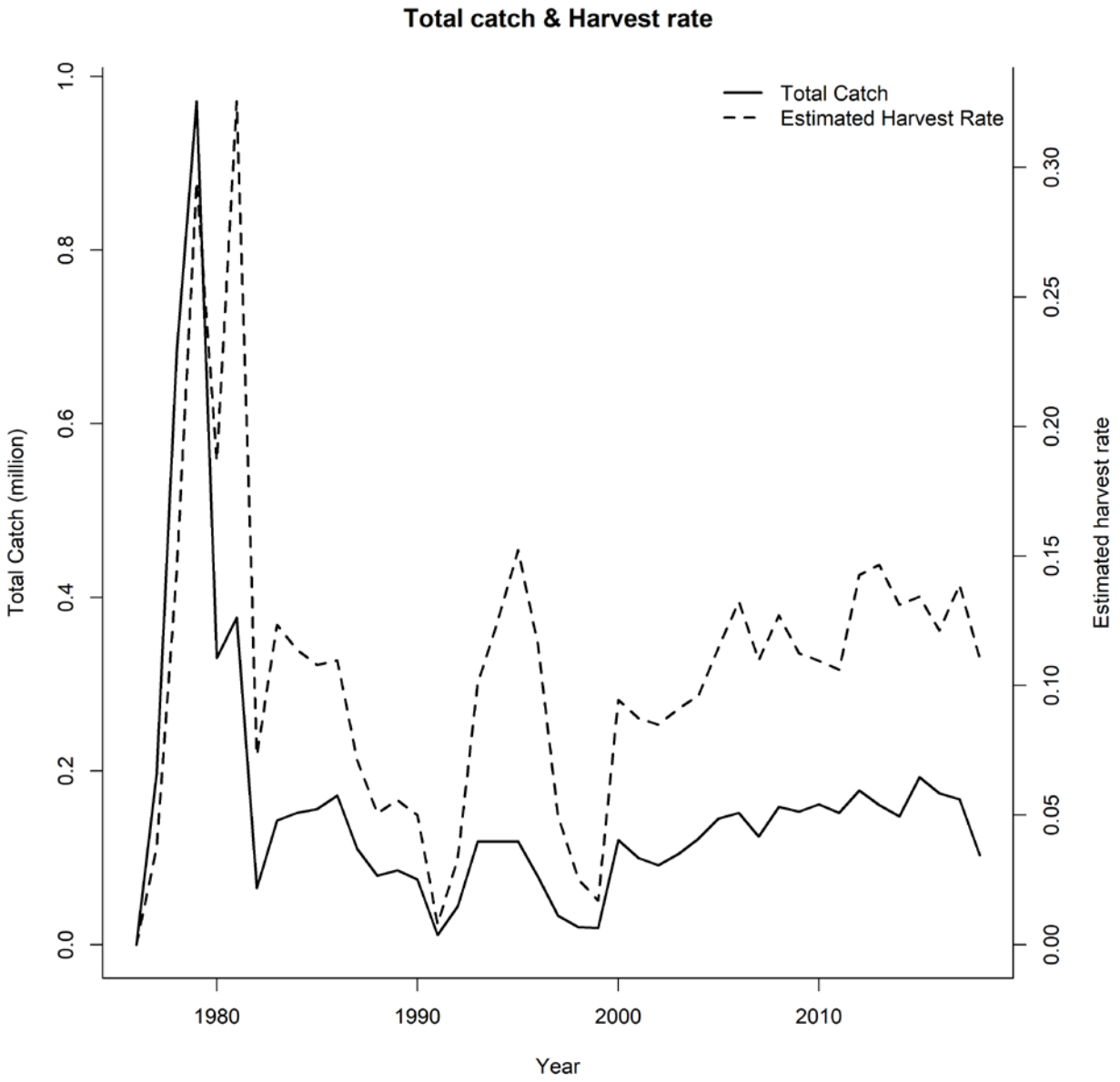

Figure C7-8. Total catch and estimated harvest rate 1976-2018.

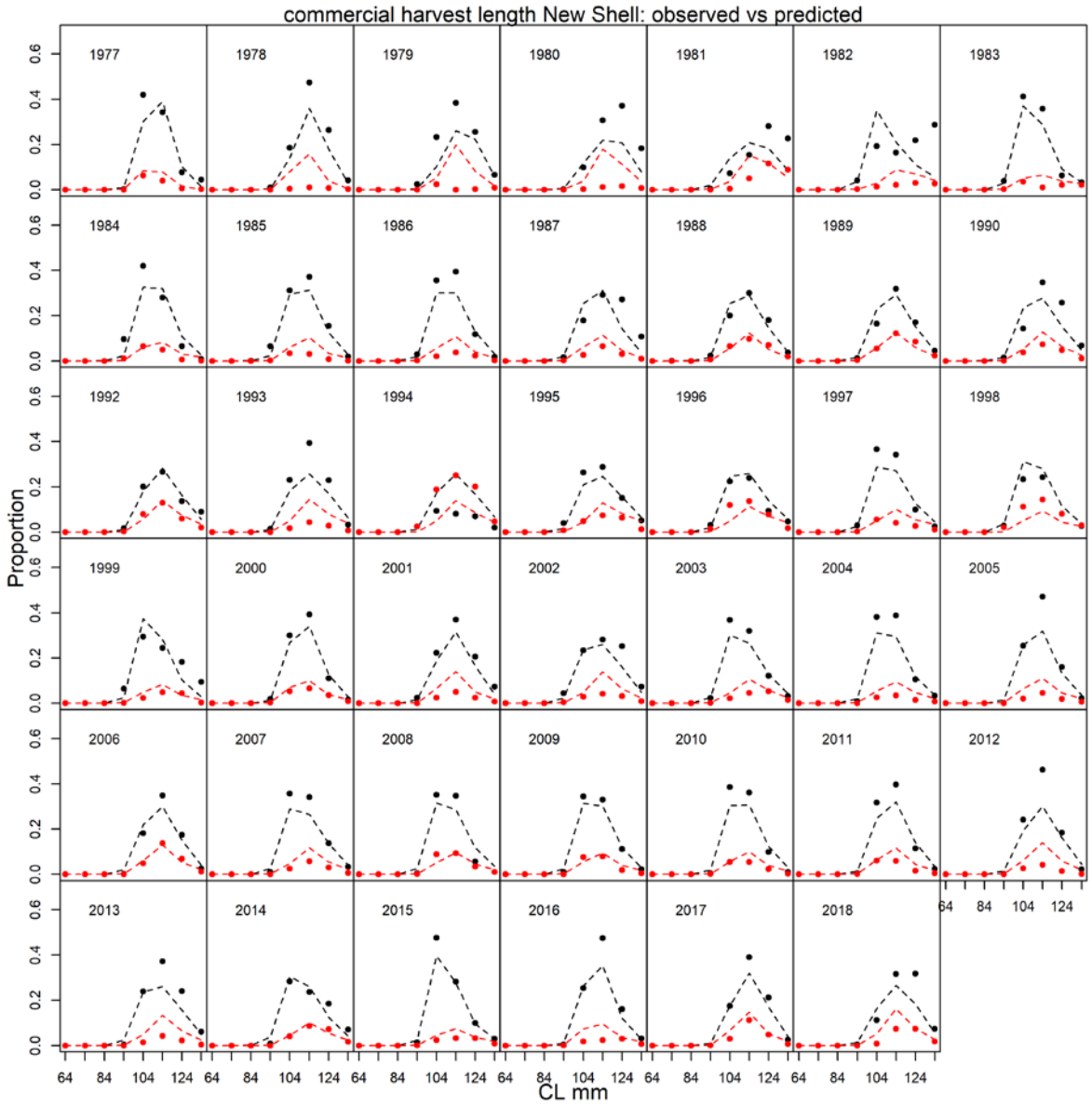

Figure C7-9. Predicted (dashed line) vs. observed (dots) length class proportions for commercial catch. Bladk: New Shell, Red: Old Shell

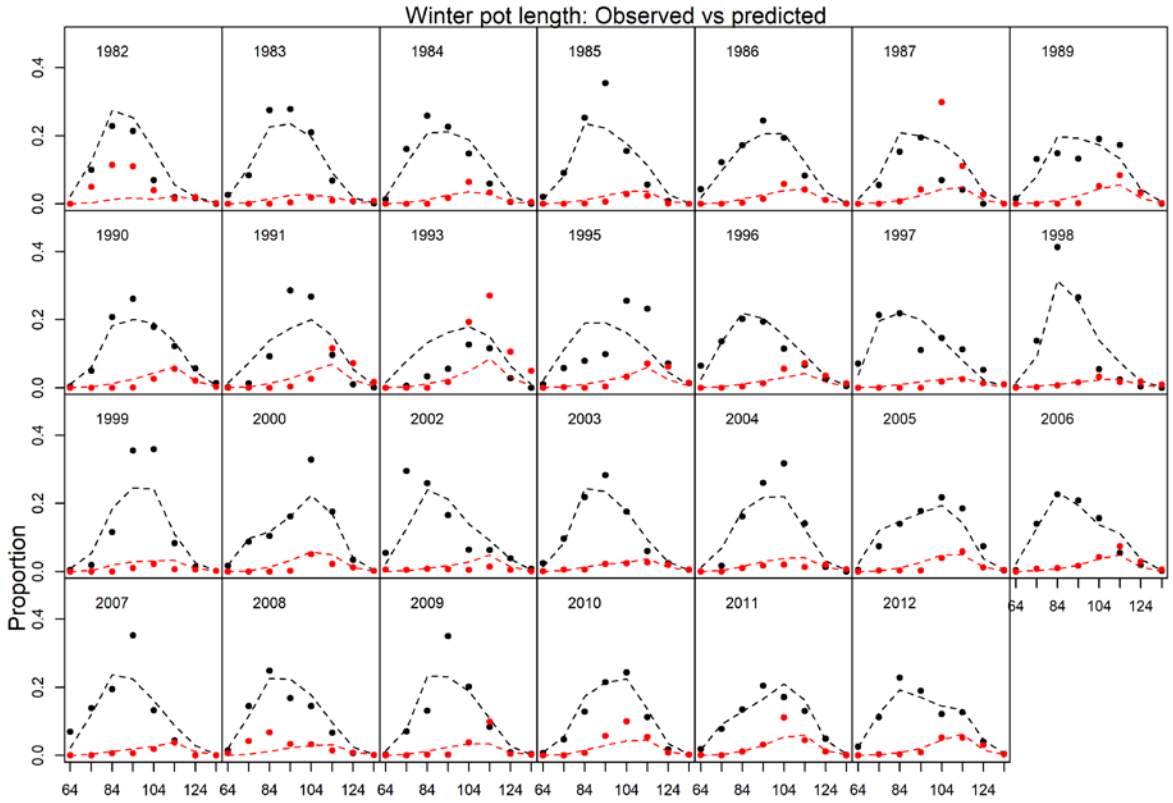

Figure C7-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter and spring pot survey.

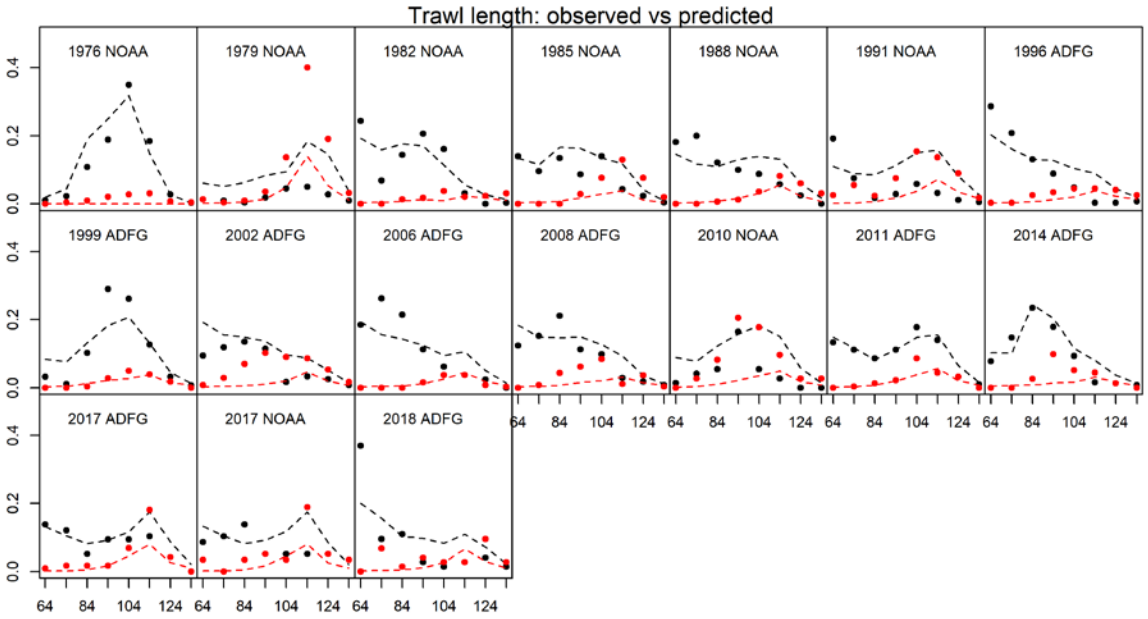

Figure C7-11. Predicted (dashed) vs. observed (dots) length class proportions for trawl.

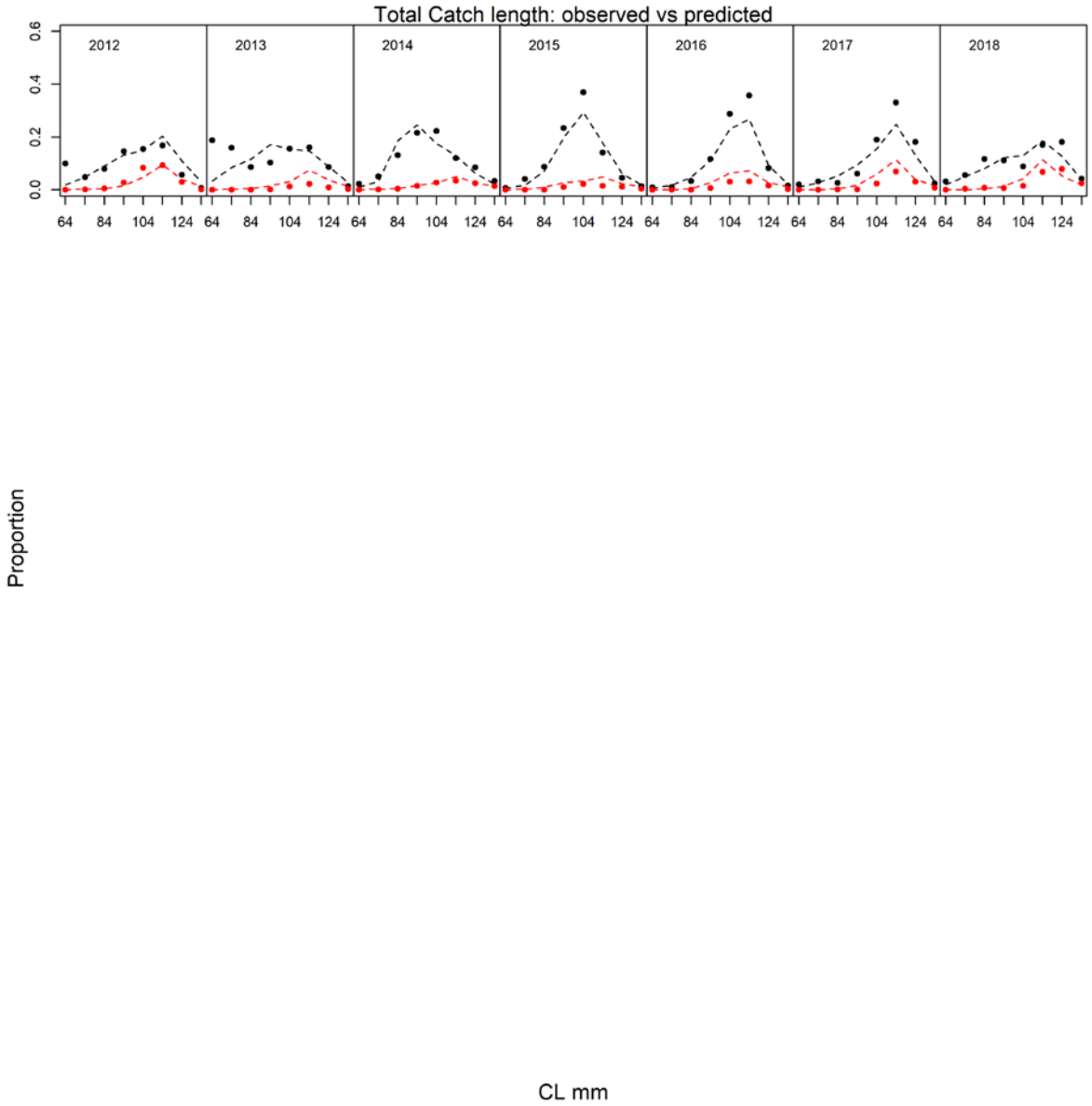

Figure C7-12. Predicted (dashed) vs. observed (dots) length class proportions for the observer survey.

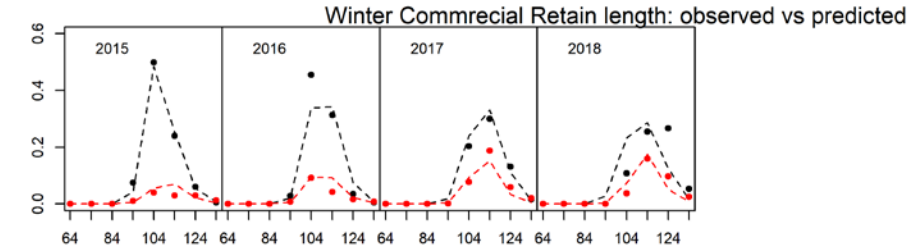

Figure C8-13. Predicted (dashed) vs. observed (dots) length class proportions for the observer survey.

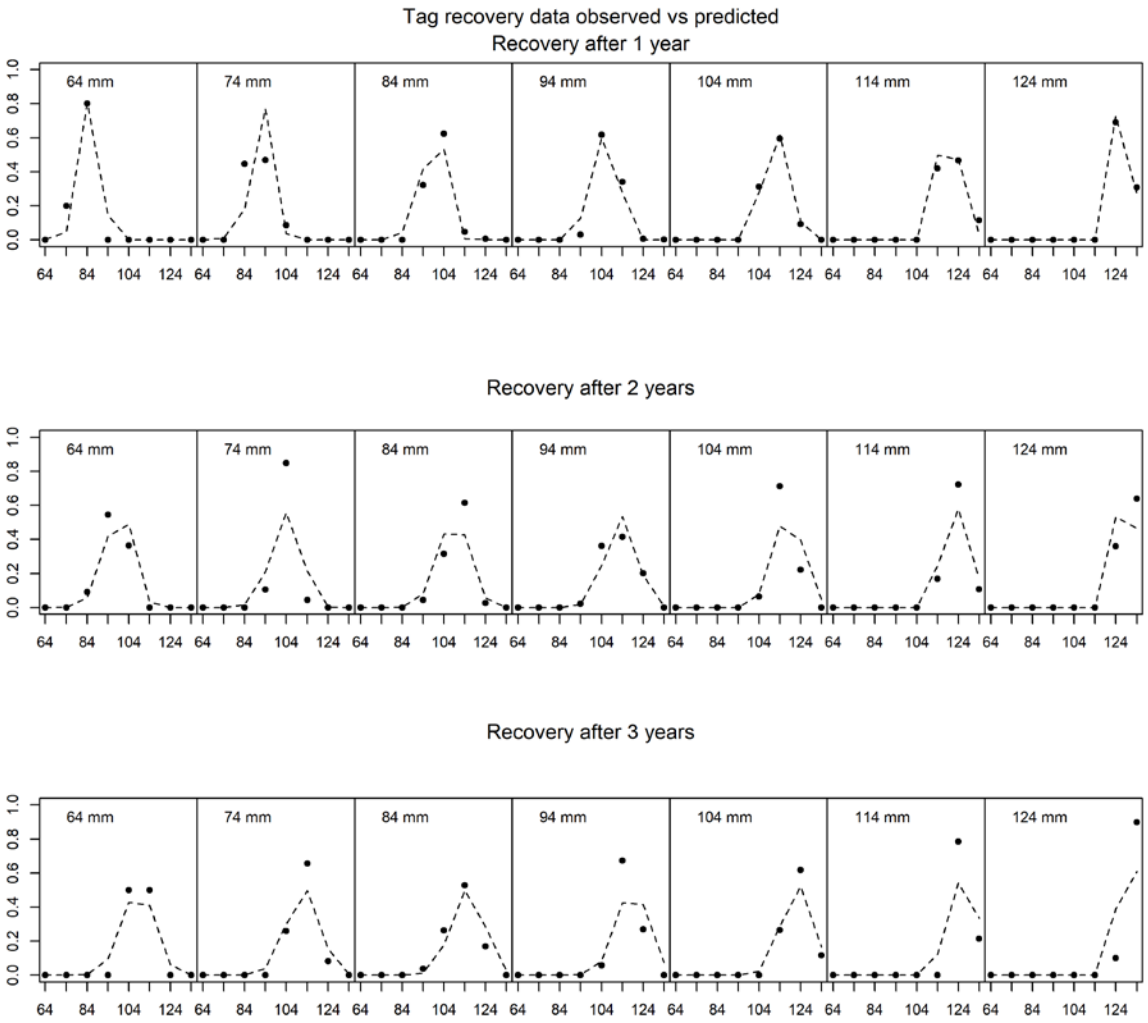

Figure C7-14. Predicted vs. observed length class proportions for tag recovery data.

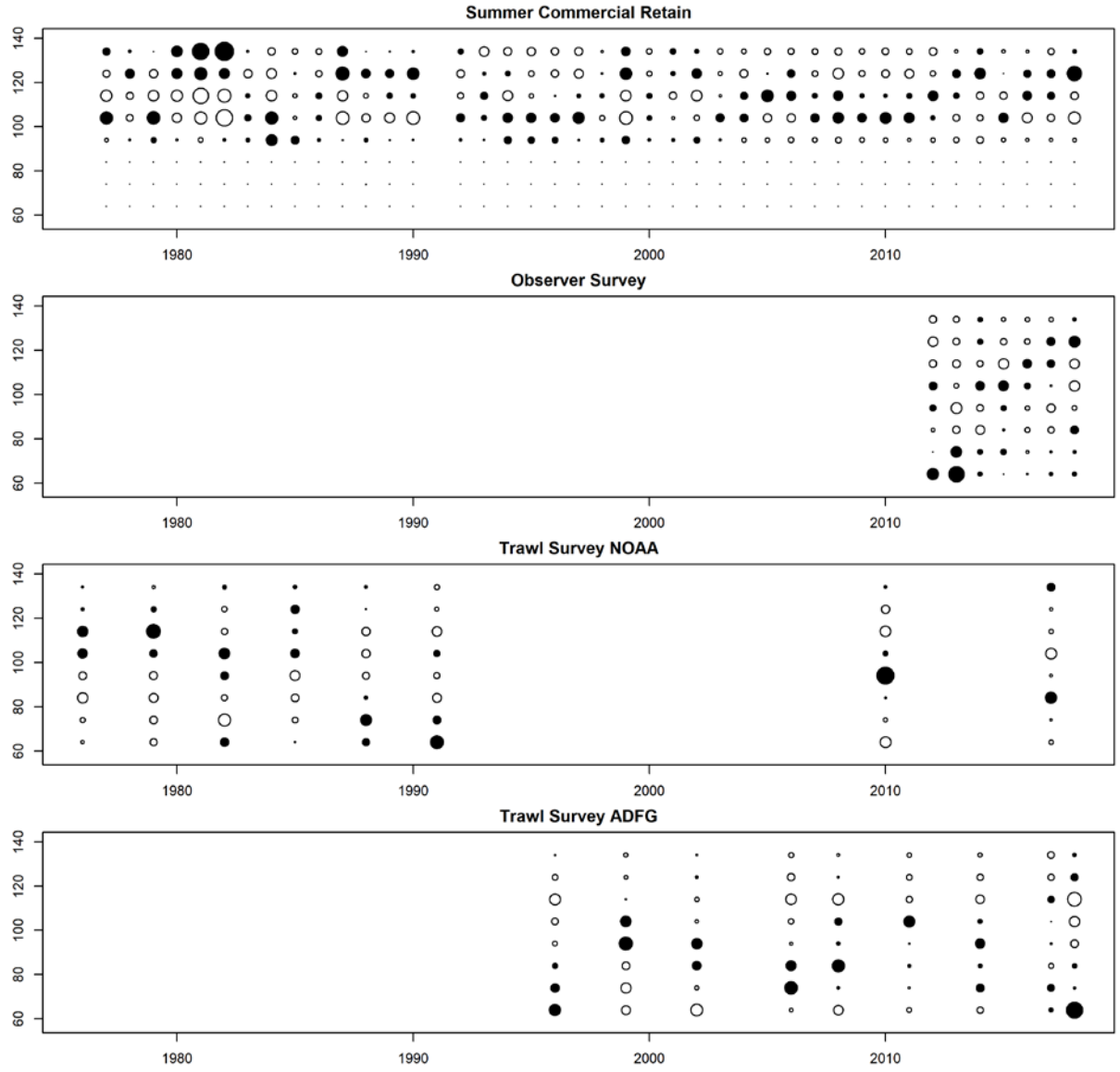

Figure C7-15. Bubble plots of predicted and observed length proportions.
Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

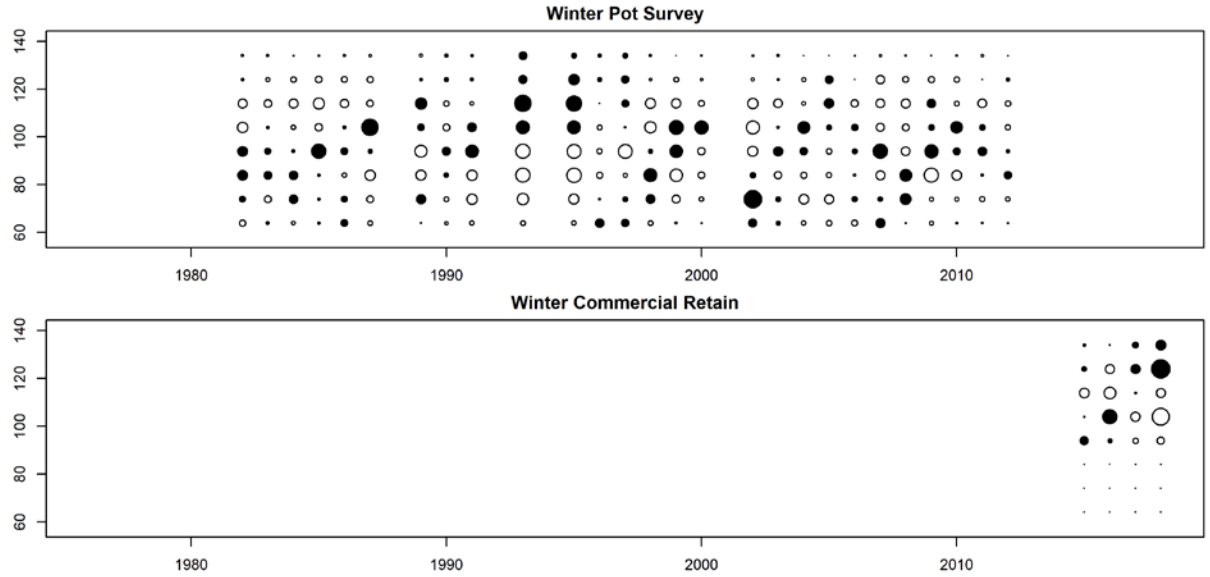

Figure C7-16. Bubble plots of predicted and observed length proportions.
Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

Table C7. 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	-6.983	0.177
log_q_2	-6.791	0.124
log_N_{76}	9.050	0.130
R_0	6.430	0.082
log_R_{76}	0.006	0.420
log_R_{77}	-0.539	0.371
log_R_{78}	-0.712	0.355
log_R_{79}	0.402	0.319
log_R_{80}	0.516	0.289
log_R_{81}	0.425	0.266
log_R_{82}	0.398	0.319
log_R_{83}	0.575	0.281
log_R_{84}	0.183	0.300
log_R_{85}	0.365	0.325
log_R_{86}	0.094	0.340
log_R_{87}	0.218	0.269
log_R_{88}	0.025	0.305
log_R_{89}	-0.413	0.320
log_R_{90}	-0.319	0.272
log_R_{91}	-0.739	0.337
log_R_{92}	-0.510	0.309
log_R_{93}	-0.525	0.306
log_R_{94}	-0.310	0.261
log_R_{95}	-0.062	0.226
log_R_{96}	0.583	0.218
log_R_{97}	-0.046	0.300
log_R_{98}	-0.627	0.321
log_R_{99}	0.002	0.310
log_R_{00}	0.308	0.266
log_R_{01}	0.386	0.243
log_R_{02}	-0.020	0.316
log_R_{03}	-0.283	0.331
log_R_{04}	0.293	0.242
log_R_{05}	0.404	0.224
log_R_{06}	0.450	0.243
log_R_{07}	0.502	0.231
log_R_{08}	0.047	0.290

name	Estimate	std.dev
log_R_{09}	-0.422	0.292
log_R_{10}	0.011	0.246
log_R_{11}	0.305	0.279
log_R_{12}	0.934	0.183
log_R_{13}	-0.132	0.295
log_R_{14}	-0.650	0.312
log_R_{15}	-0.730	0.280
log_R_{16}	-0.428	0.242
log_R_{17}	0.036	0.285
a_1	1.545	4.574
a_2	2.347	4.264
a_3	3.801	4.074
a_4	4.077	4.059
a_5	4.318	4.050
a_6	3.553	4.079
a_7	2.115	4.341
r1	10.000	0.841
r2	9.677	0.865
log_a	-2.637	0.093
log_b	4.832	0.015
log_ϕ_{st1}	-5.000	0.093
log_ϕ_{wa}	-2.230	0.313
log_ϕ_{wb}	4.798	0.033
Sw1	0.073	0.035
Sw2	0.489	0.127
log_ϕ_1	-1.987	0.089
log_acr	-0.830	0.206
log_bcr	4.646	0.012
log_awr	-0.830	0.206
log_bwr	4.646	0.012
w^2_t	0.052	0.016
q	0.750	0.129
σ	3.935	0.214
β_1	12.080	0.768
β_2	7.714	0.183
ms78	3.238	0.270