

Appendix C2 Model 3

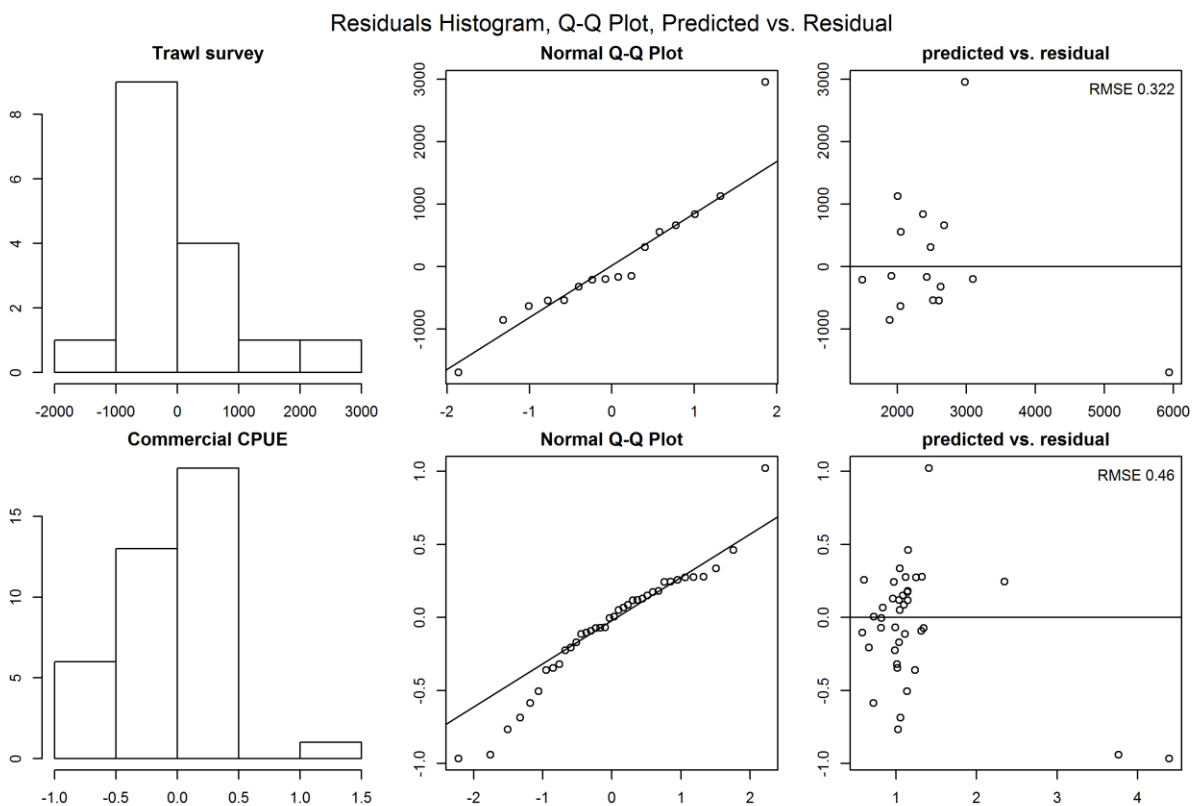


Figure C2-1. QQ Plot of Trawl survey and Commercial CPUE.

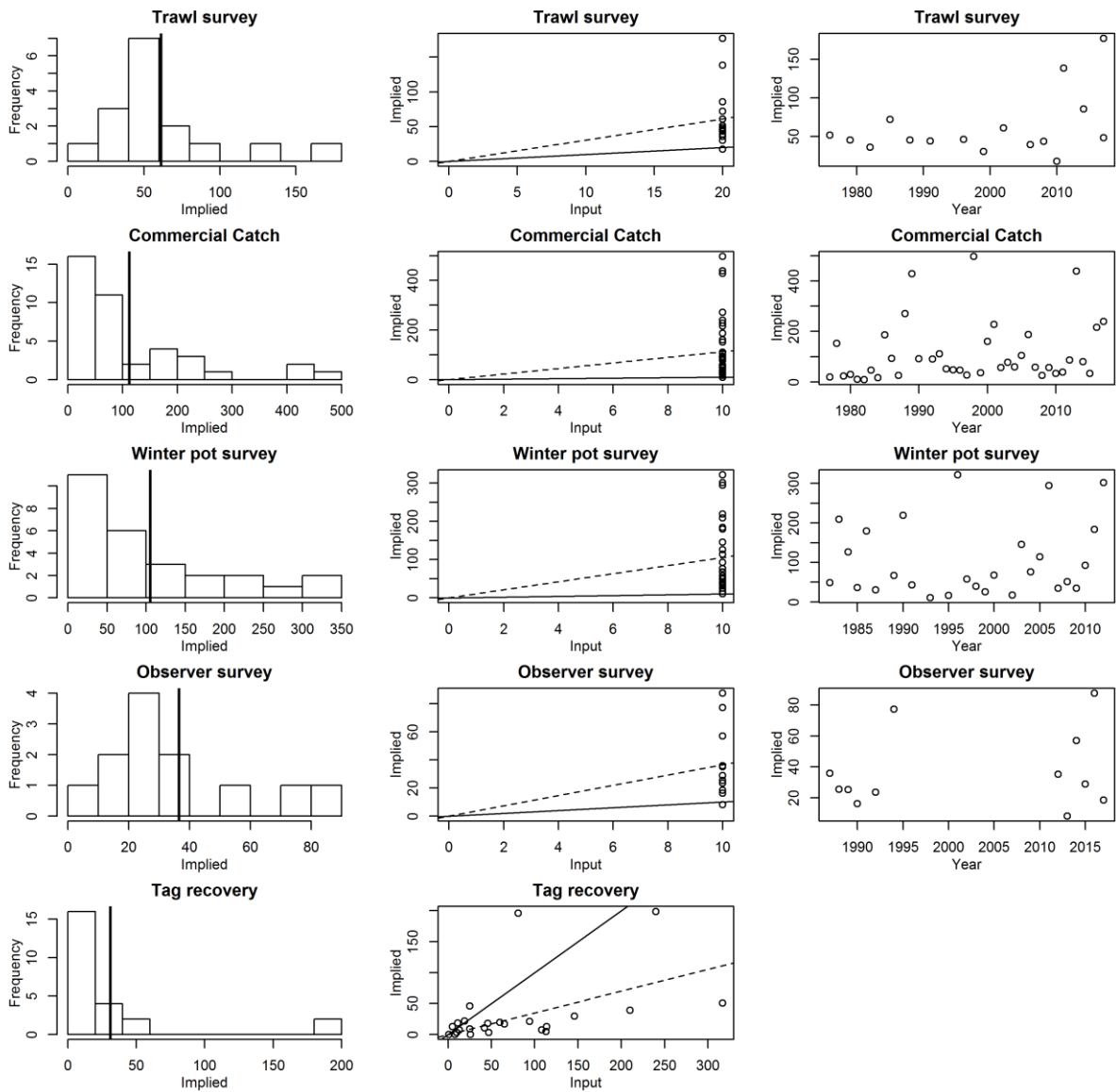


Figure C2-2: Implied effective samples. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis). Vertical solid line is the mean implied effective sample size. The second column show input sample size (x-axis) vs. implied effective sample size (y-axis). Dashed line 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).

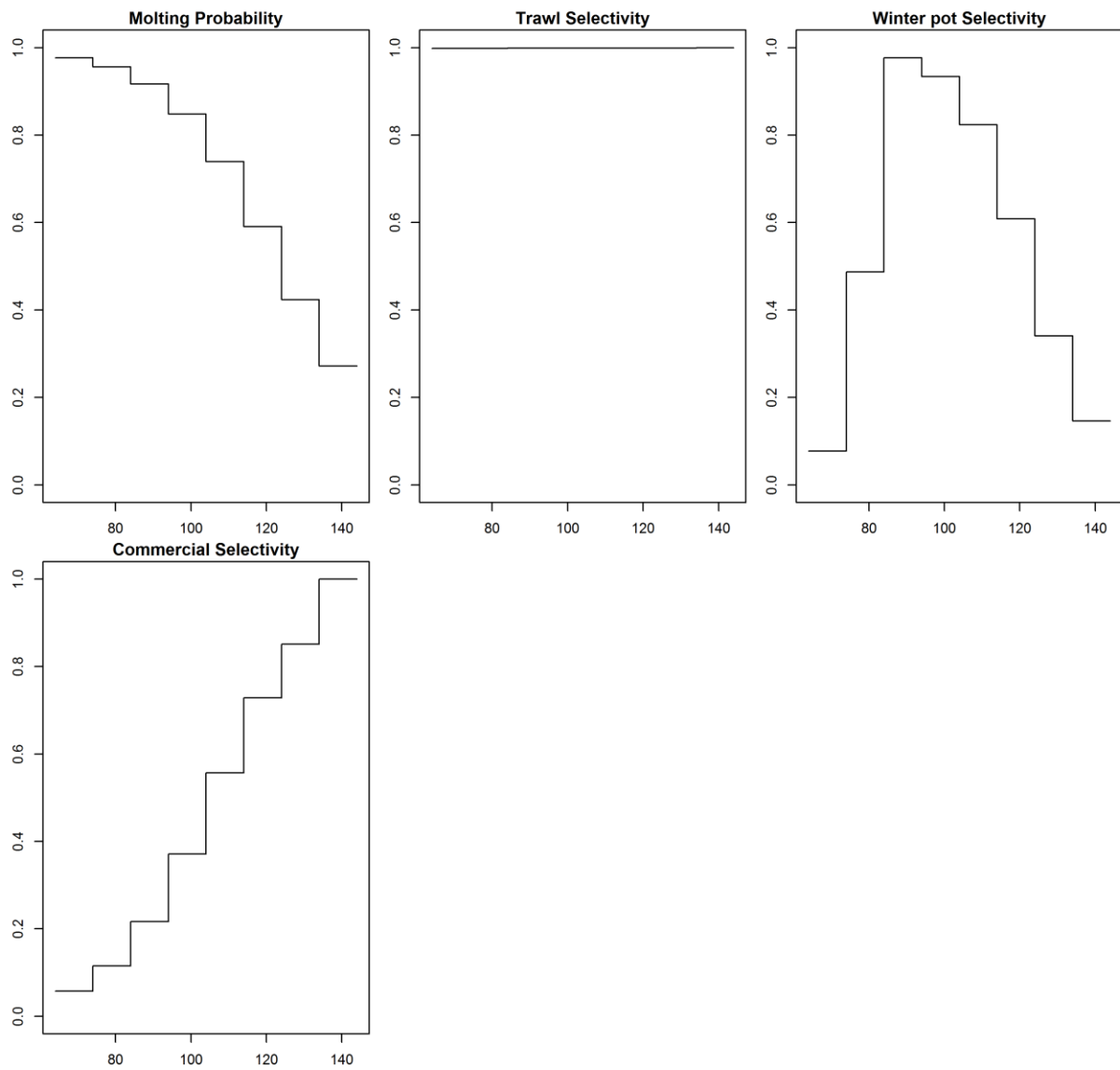


Figure C2-3. Molting probability and trawl/pot selectivity. X-axis is carapace length.

Trawl survey crab abundance

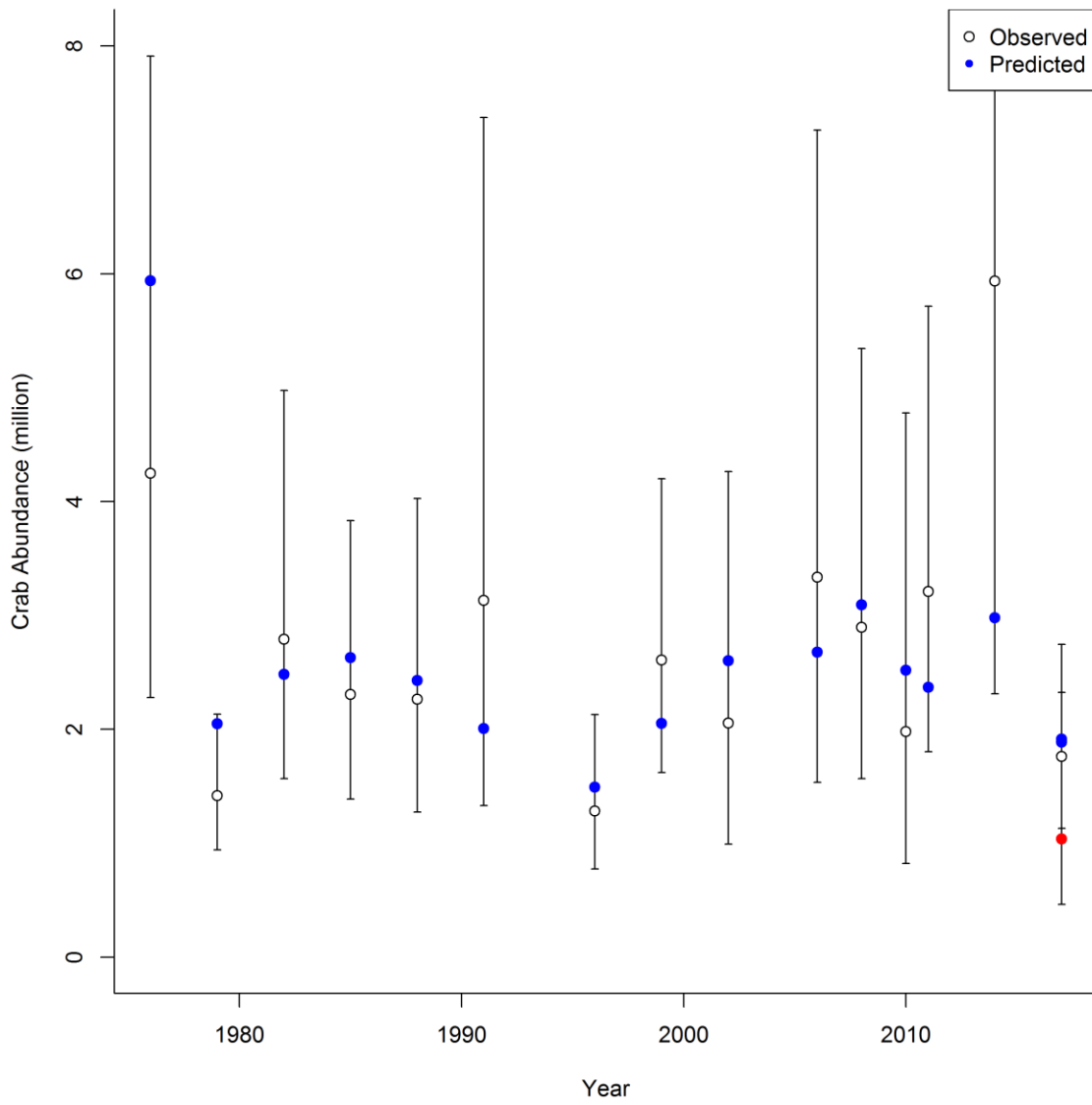


Figure C2-4. Estimated trawl survey male abundance (crab \geq 64 mm CL).

Modeled crab abundance Feb 01

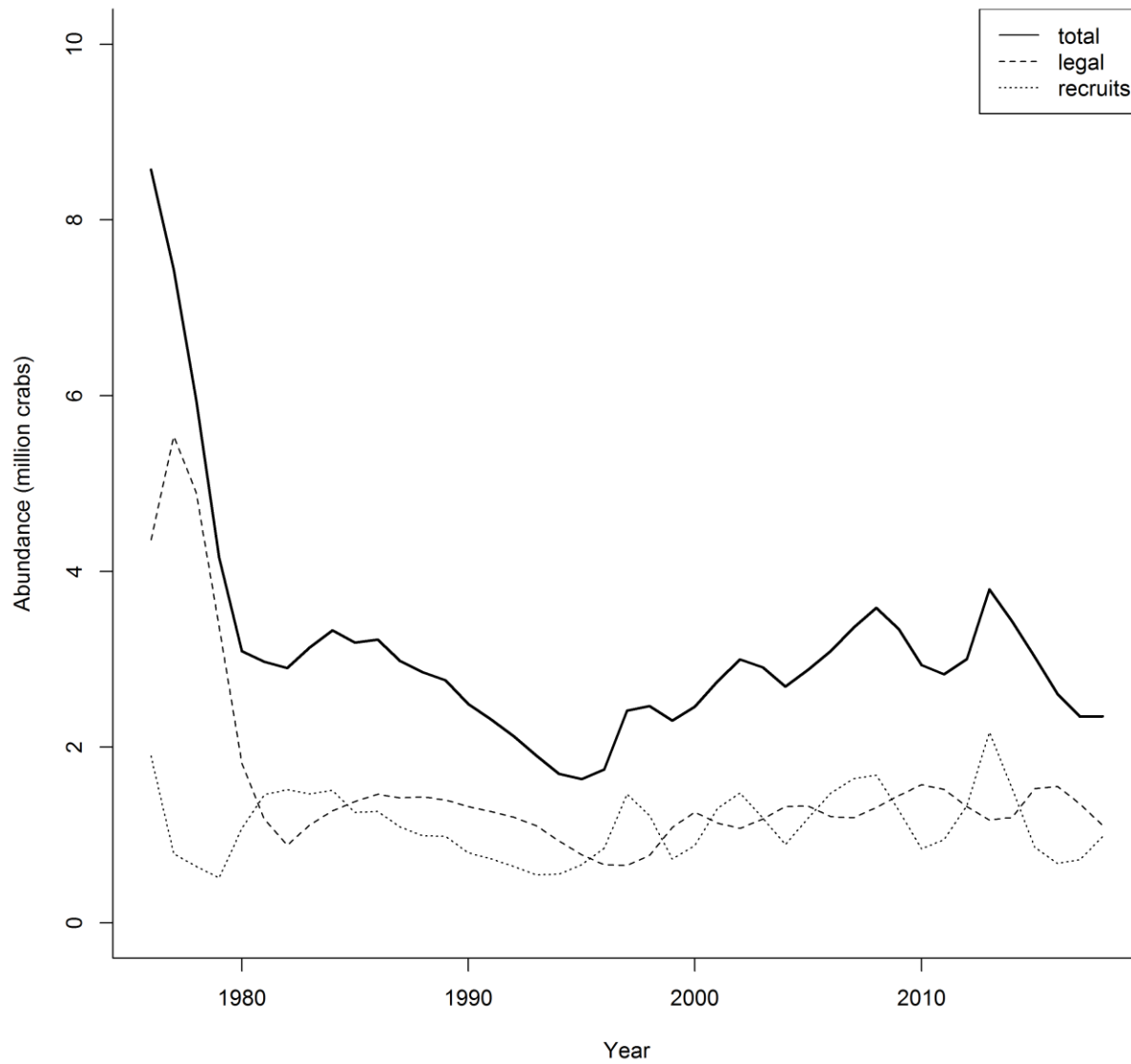


Figure C2-5. Estimated abundance of legal males from 1976-2015.

MMB Feb 01

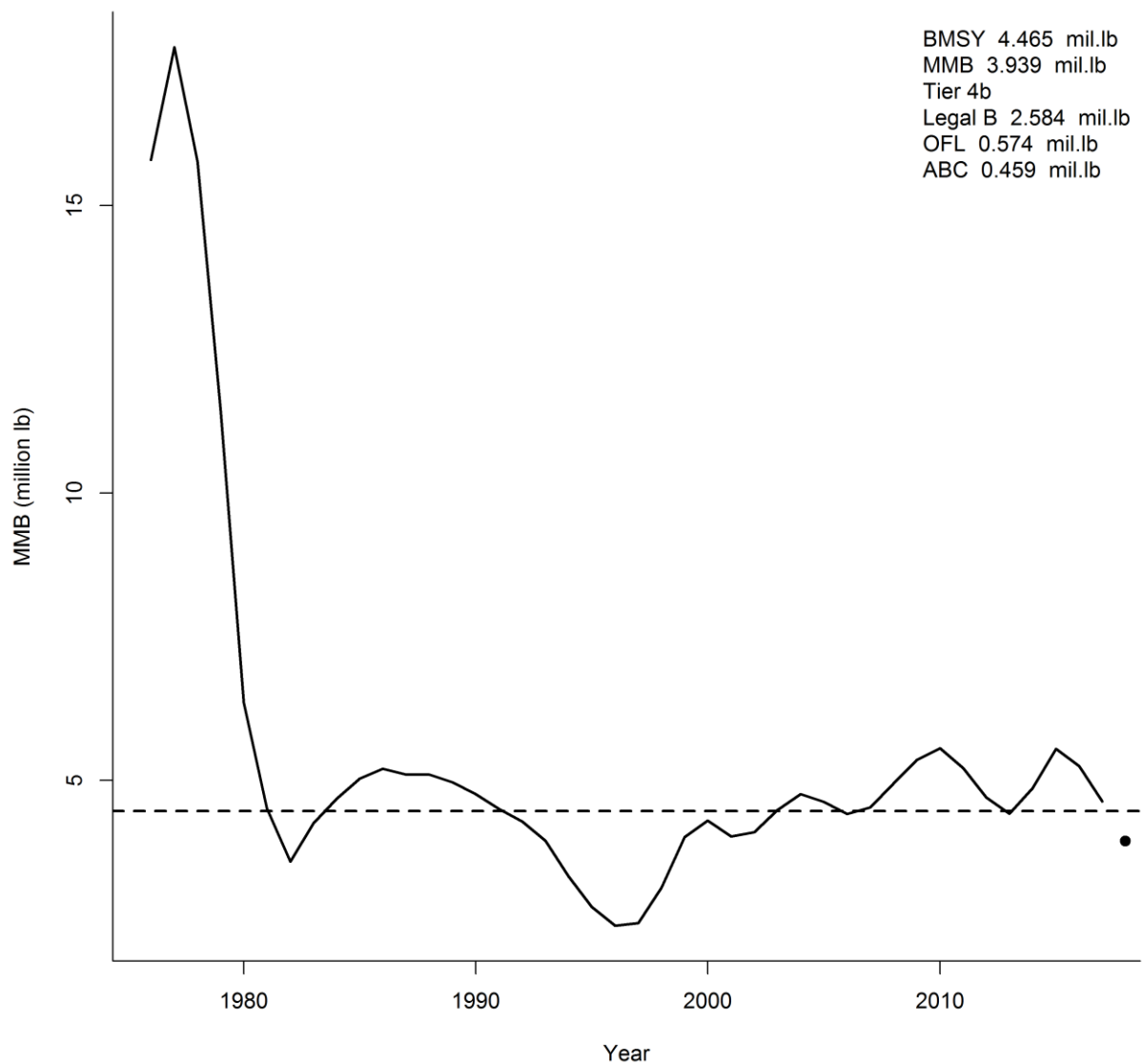


Figure C2-6. Estimated abundance of leg recruits from 1976-2018. Dash line shows Bmsy (Average MMB of 1980-2018).

Summer commercial standardized cpue

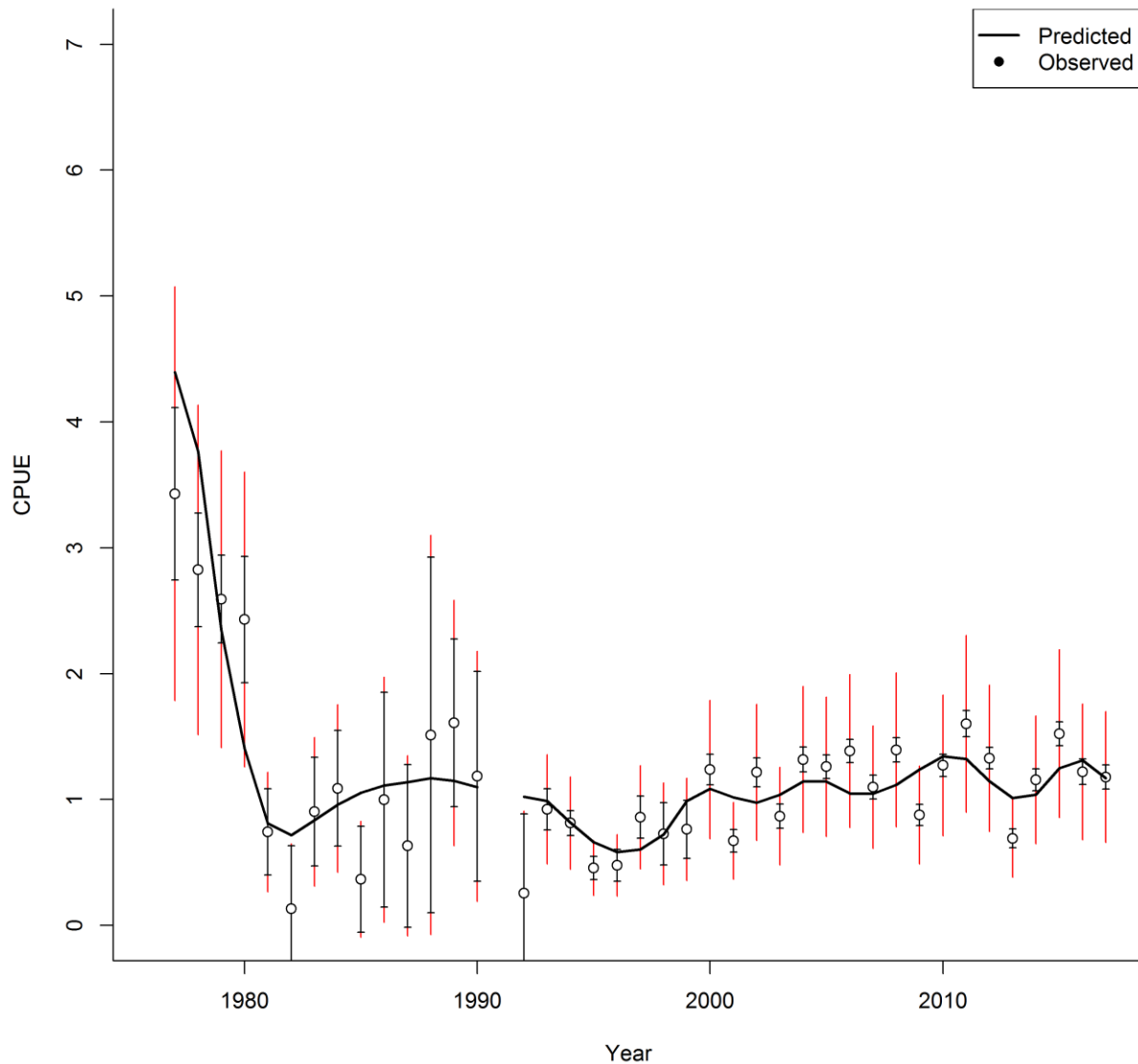


Figure C2-7. Summer commercial standardized cpue 1977-2017.

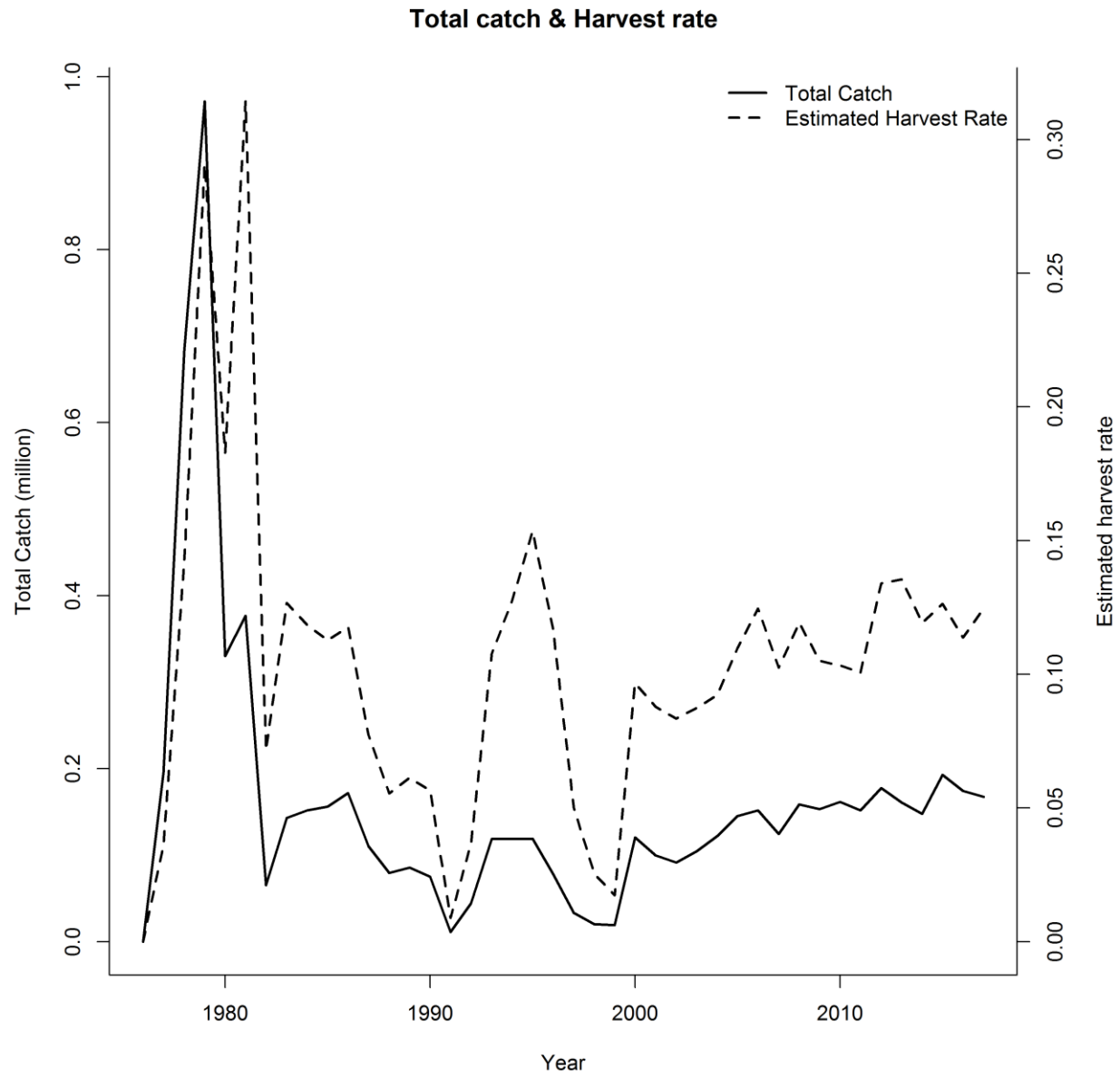


Figure C2-8. Total catch and estimated harvest rate 1976-2017.

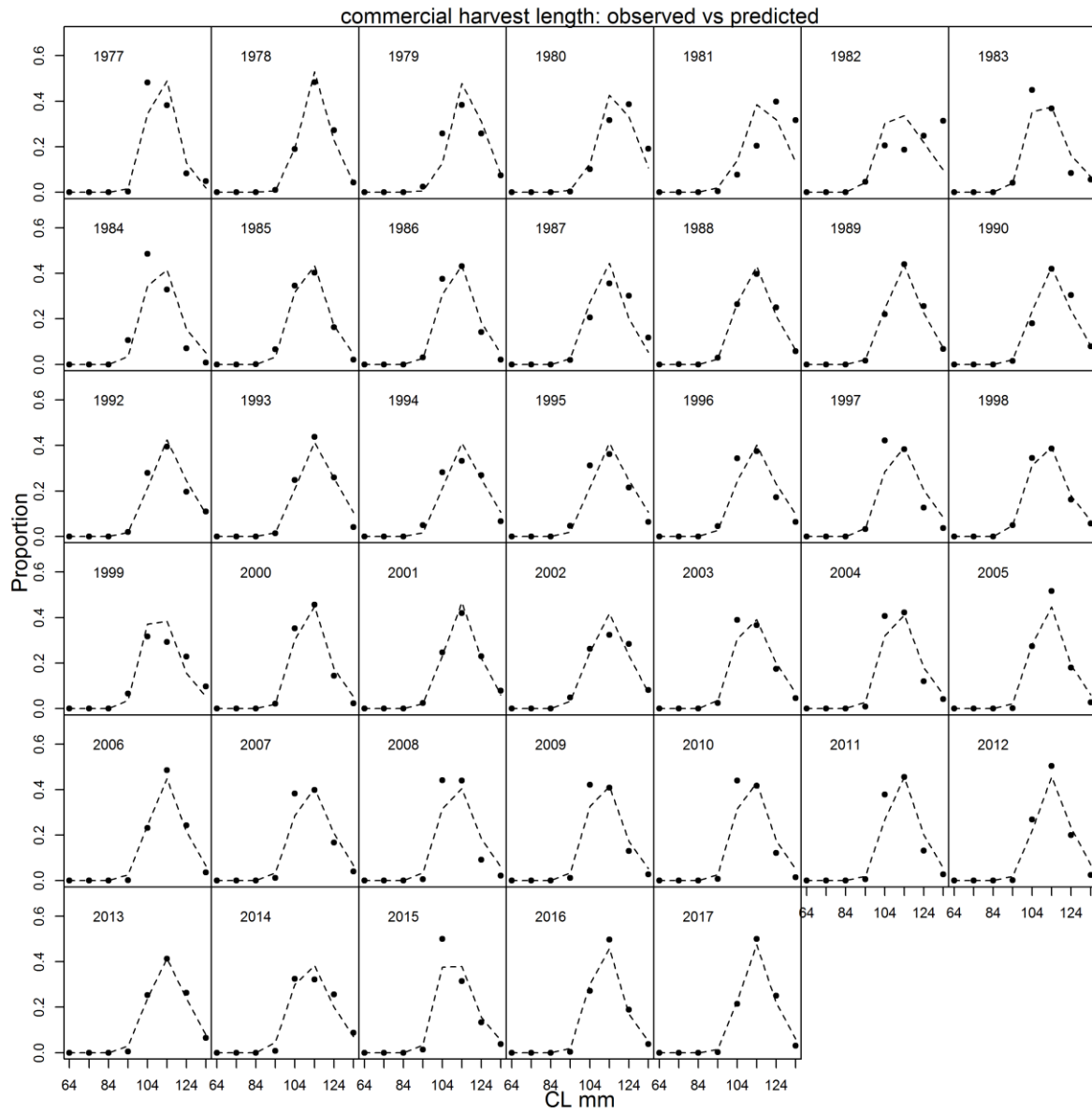


Figure C2-9. Predicted (dashed line) vs. observed (black dots) length class proportions for commercial catch.

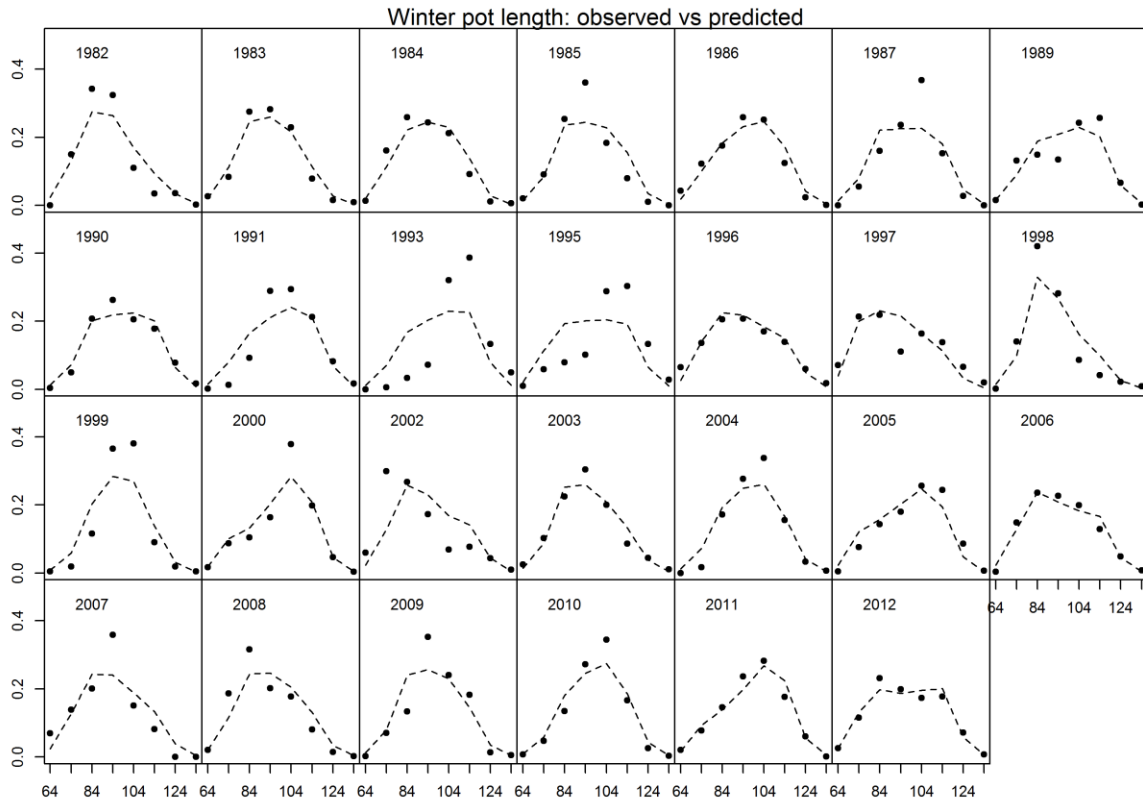
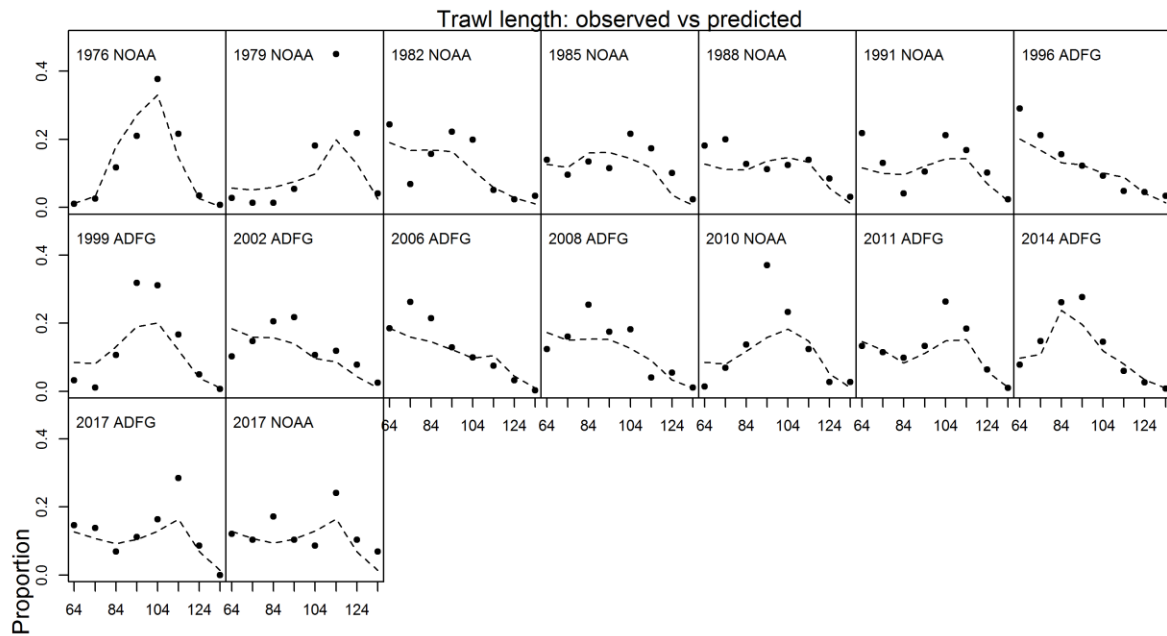


Figure C2-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter and spring pot survey.



Discards length: observed vs predicted

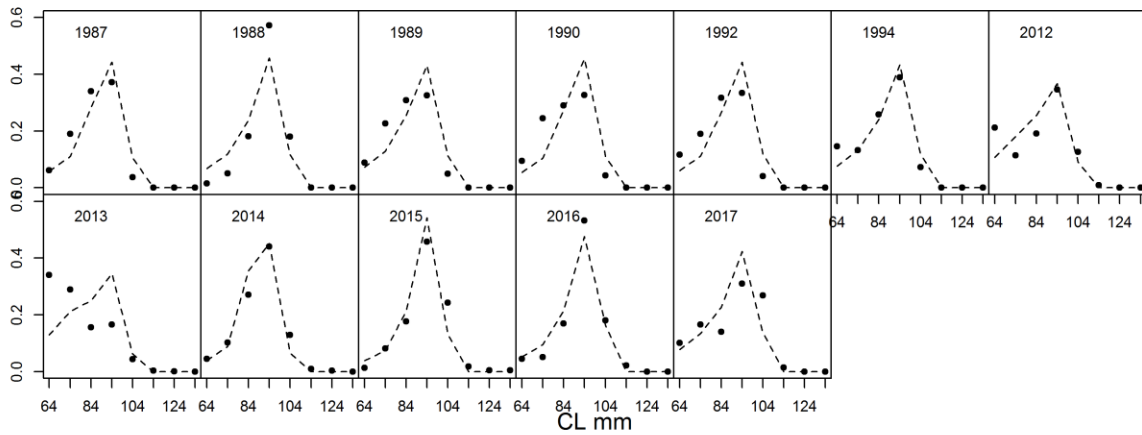


Figure C2-11. Predicted (dashed line) vs. observed (black dots) length class proportions for the trawl survey and observer survey.

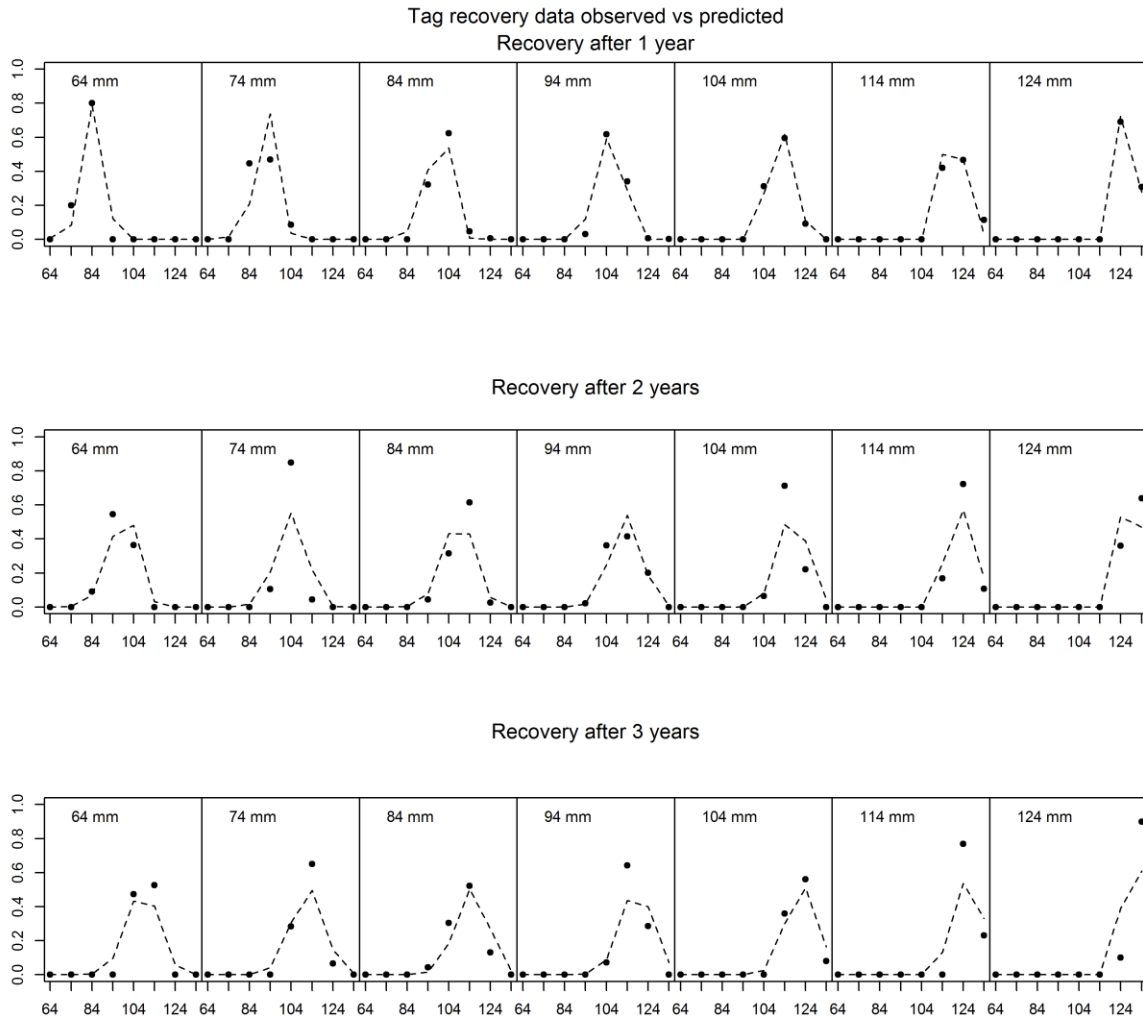


Figure C2-12. Predicted vs. observed length class proportions for tag recovery data.

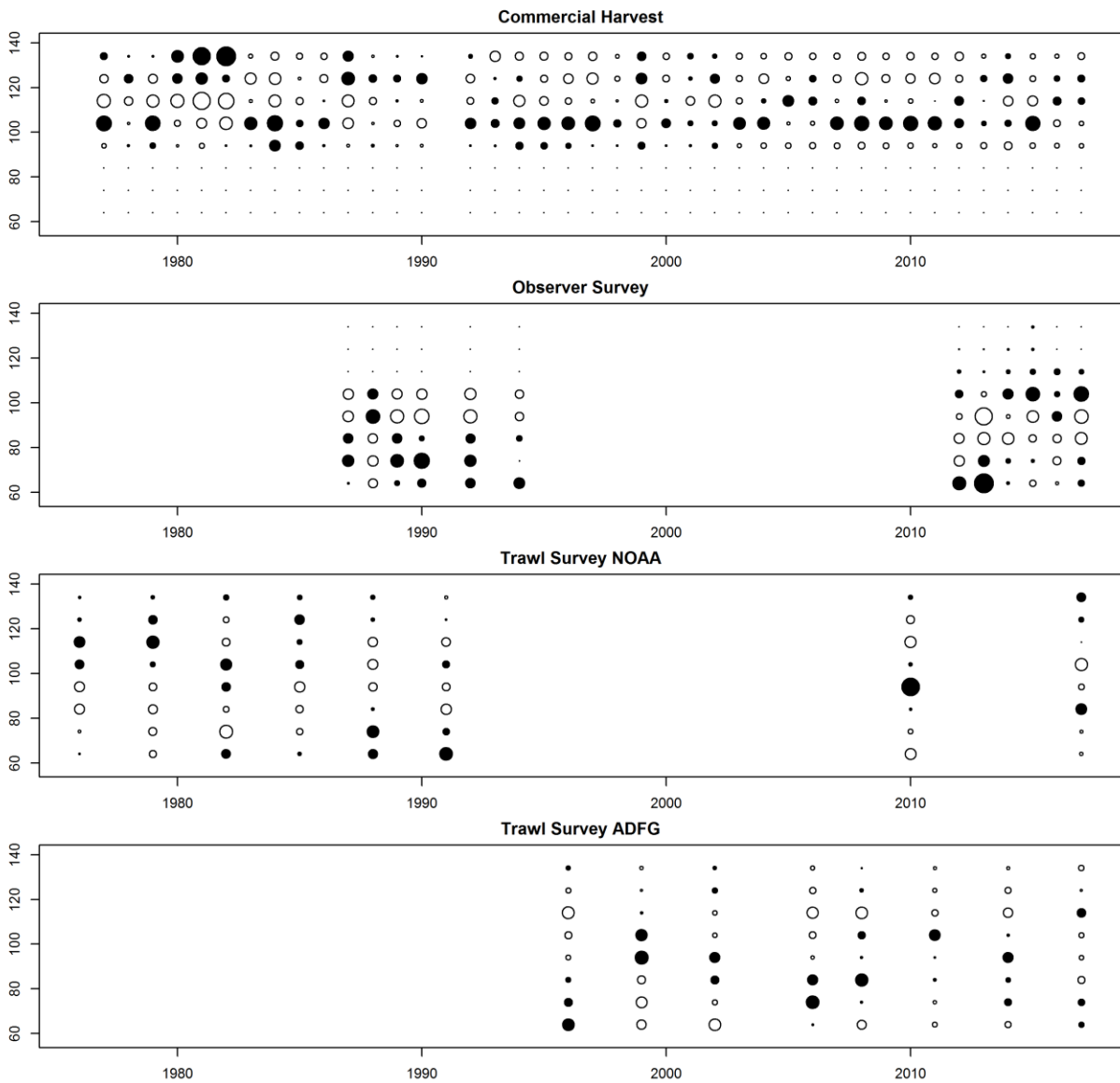


Figure C2-13. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

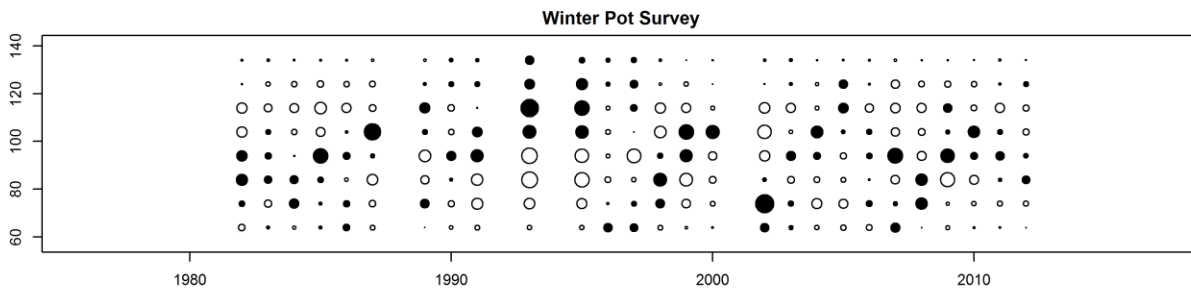


Figure C2-14. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

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	-6.575	0.222
log_q2	-6.467	0.185
log_N76	9.056	0.125
R0	6.415	0.087
log_R76	-0.179	0.408
log_R77	-0.629	0.365
log_R78	-0.754	0.355
log_R79	0.371	0.320
log_R80	0.423	0.303
log_R81	0.412	0.270
log_R82	0.352	0.328
log_R83	0.434	0.292
log_R84	0.067	0.295
log_R85	0.298	0.284
log_R86	-0.068	0.293
log_R87	-0.018	0.248
log_R88	-0.023	0.261
log_R89	-0.397	0.288
log_R90	-0.302	0.255
log_R91	-0.554	0.290
log_R92	-0.679	0.306
log_R93	-0.560	0.295
log_R94	-0.333	0.269
log_R95	-0.060	0.231
log_R96	0.594	0.219
log_R97	-0.106	0.318
log_R98	-0.610	0.327
log_R99	0.052	0.321
log_R00	0.401	0.275
log_R01	0.401	0.258
log_R02	-0.009	0.331
log_R03	-0.248	0.345
log_R04	0.354	0.252
log_R05	0.437	0.236
log_R06	0.530	0.253

name	Estimate	std.dev
log_R07	0.512	0.248
log_R08	0.016	0.311
log_R09	-0.395	0.304
log_R10	0.080	0.255
log_R11	0.416	0.278
log_R12	0.959	0.203
log_R13	-0.100	0.307
log_R14	-0.353	0.325
log_R15	-0.460	0.301
log_R16	-0.271	0.270
a1	1.161	4.625
a2	2.152	4.263
a3	3.850	4.051
a4	4.269	4.033
a5	4.463	4.025
a6	3.646	4.054
a7	2.177	4.318
r1	10.000	0.822
r2	9.701	0.848
log_a	-2.695	0.094
log_b	4.820	0.016
log_φ _{st1}	-5.000	0.174
log_φ _{va}	-2.206	0.371
log_φ _{vb}	4.808	0.032
Sw1	0.078	0.038
Sw2	0.487	0.123
log_φ _l	-2.582	0.147
log_φ ₂	4.659	0.046
w ² _t	0.046	0.014
q	0.783	0.135
σ	4.021	0.220
β ₁	11.280	0.755
β ₂	7.794	0.183
ms78	3.304	0.299