

Appendix C3 Model 4

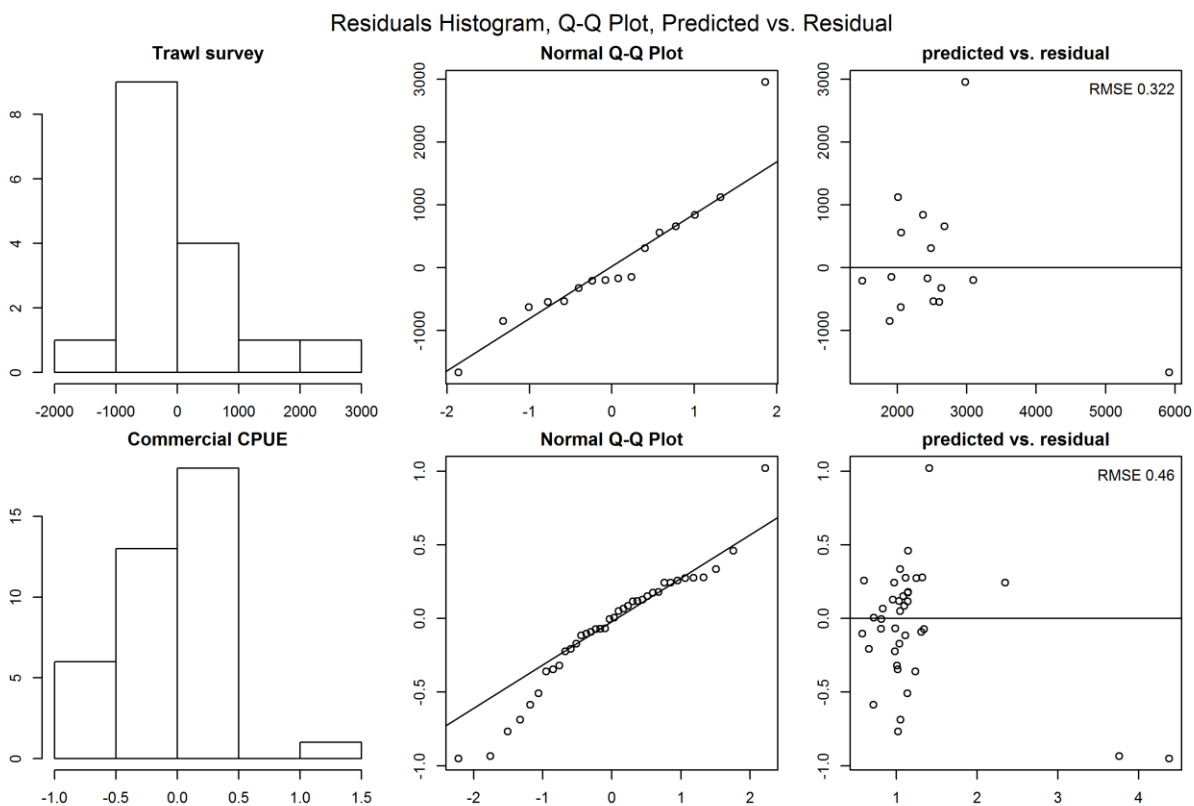


Figure C3-1. QQ Plot of Trawl survey and Commercial CPUE.

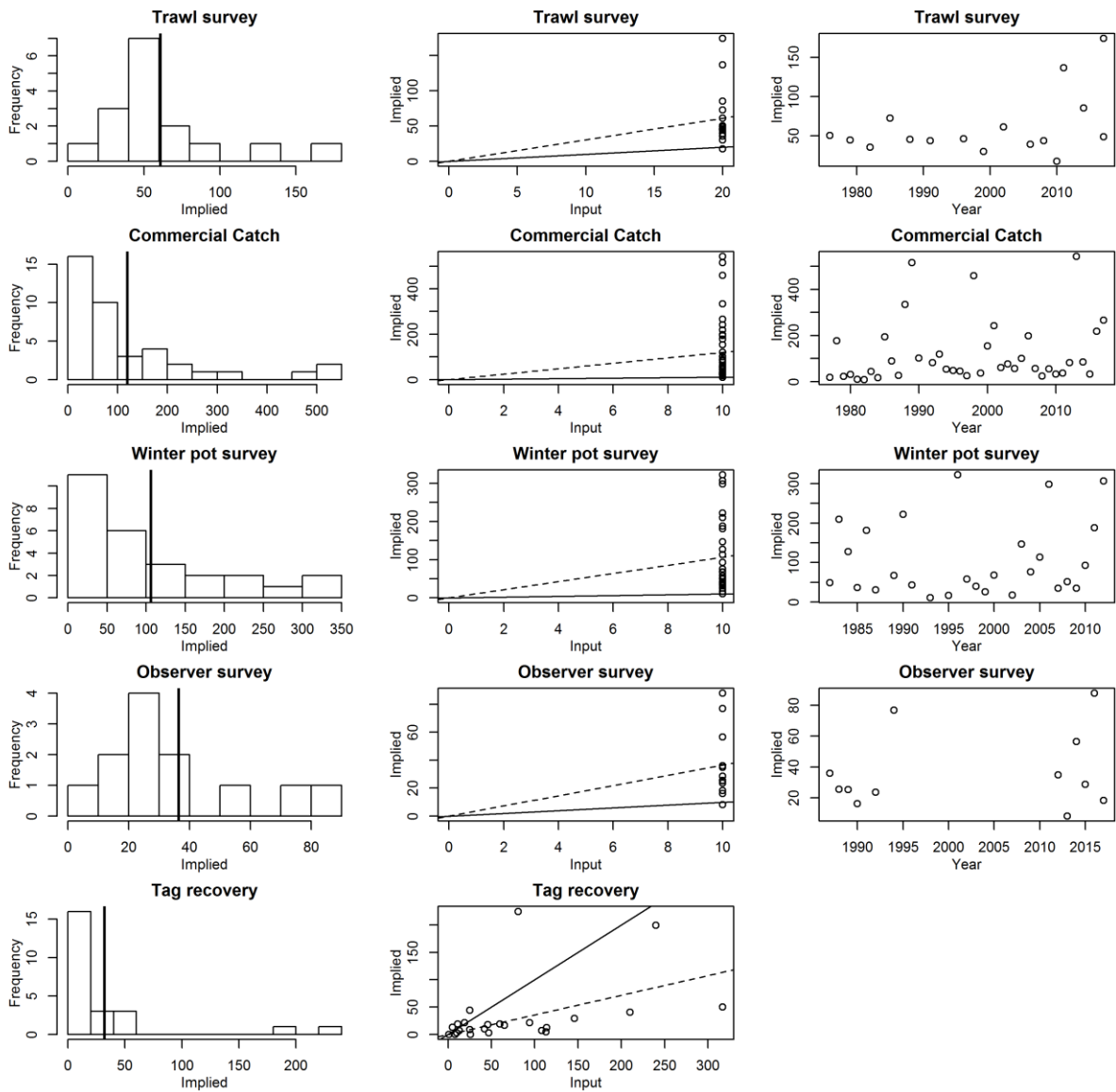


Figure C3-2: Implied effective samples. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis).

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).

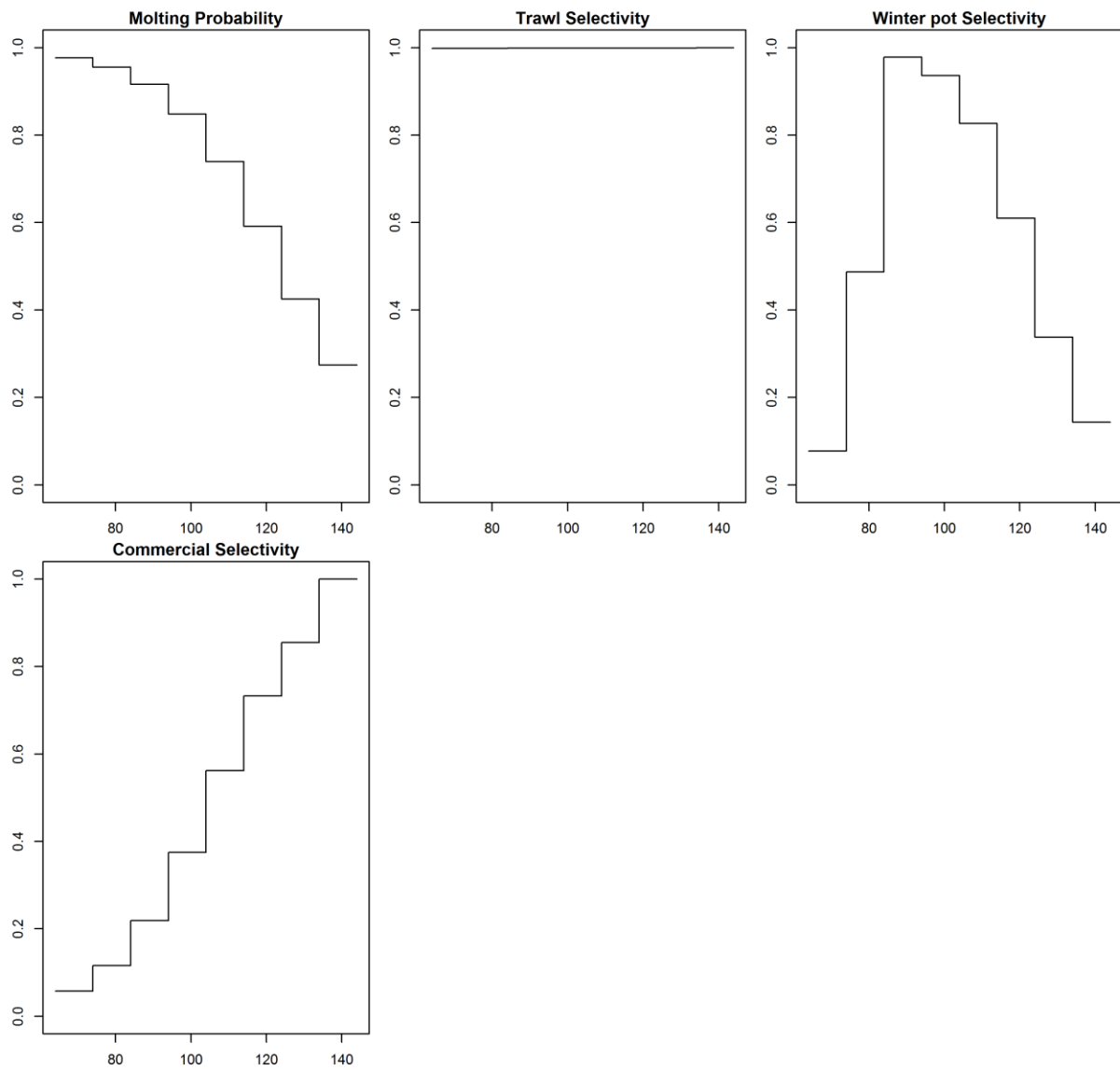


Figure C3-3. Molting probability and trawl/pot selectivity. X-axis is carapace length.

Trawl survey crab abundance

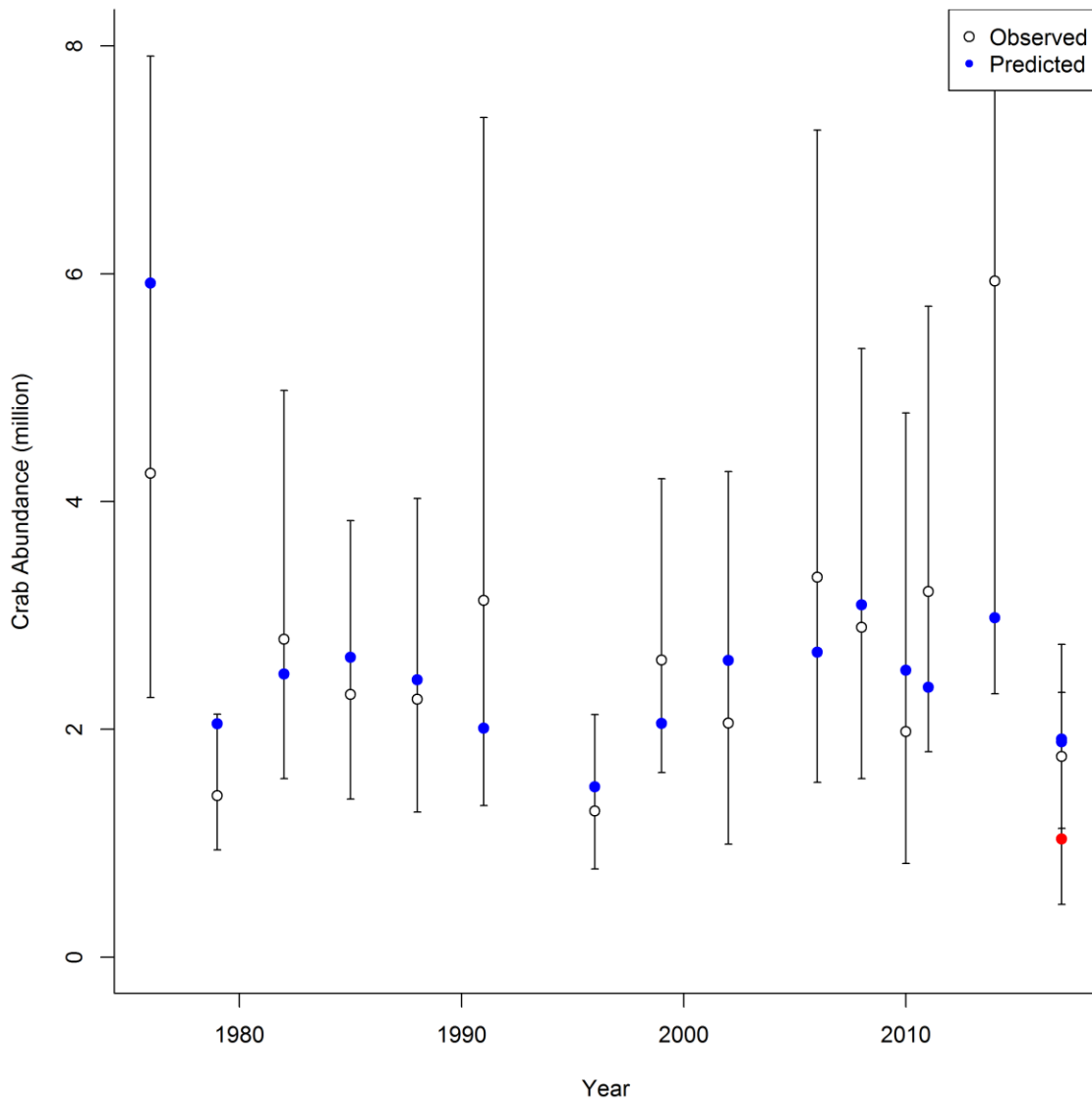


Figure C3-4. Estimated trawl survey male abundance (crab \geq 64 mm CL).

Modeled crab abundance Feb 01

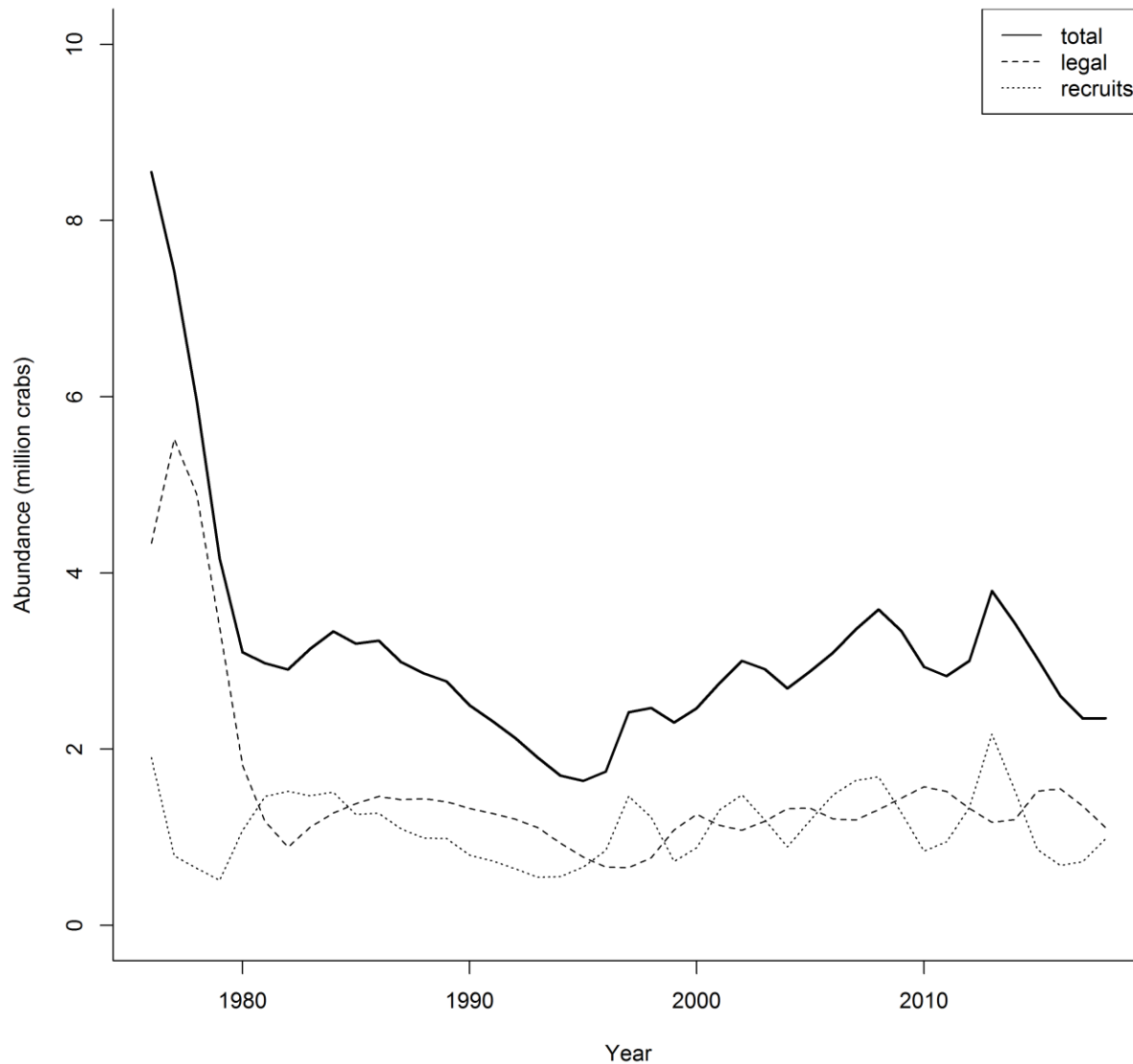


Figure C3-5. Estimated abundance of legal males from 1976-2018

MMB Feb 01

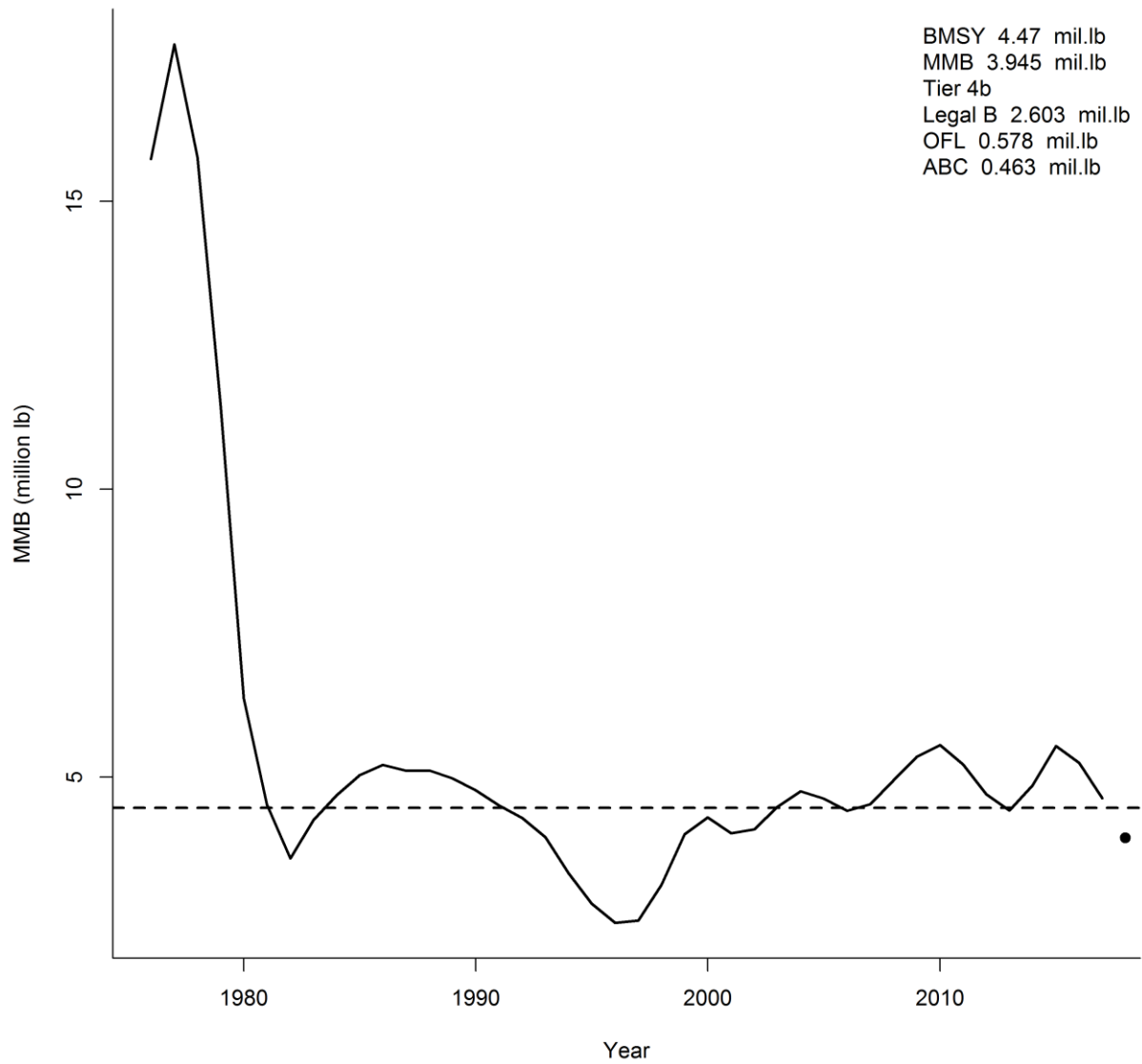


Figure C3-6. Estimated abundance of leg recruits from 1976-2018. Dash line shows Bmsy (Average MMB of 1980-2018).

Summer commercial standardized cpue

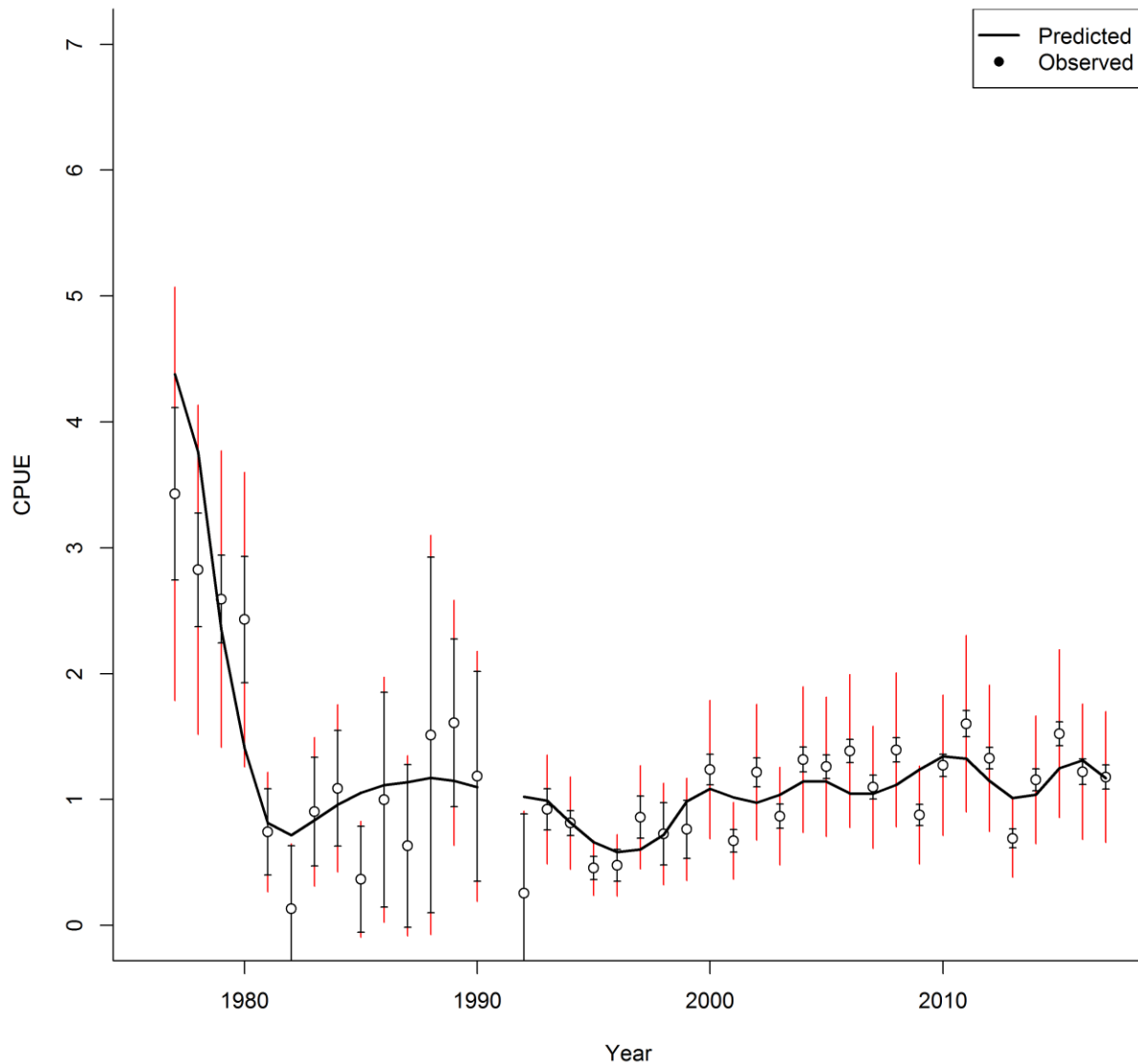


Figure C3-7. Summer commercial standardized cpue 1977-2017.

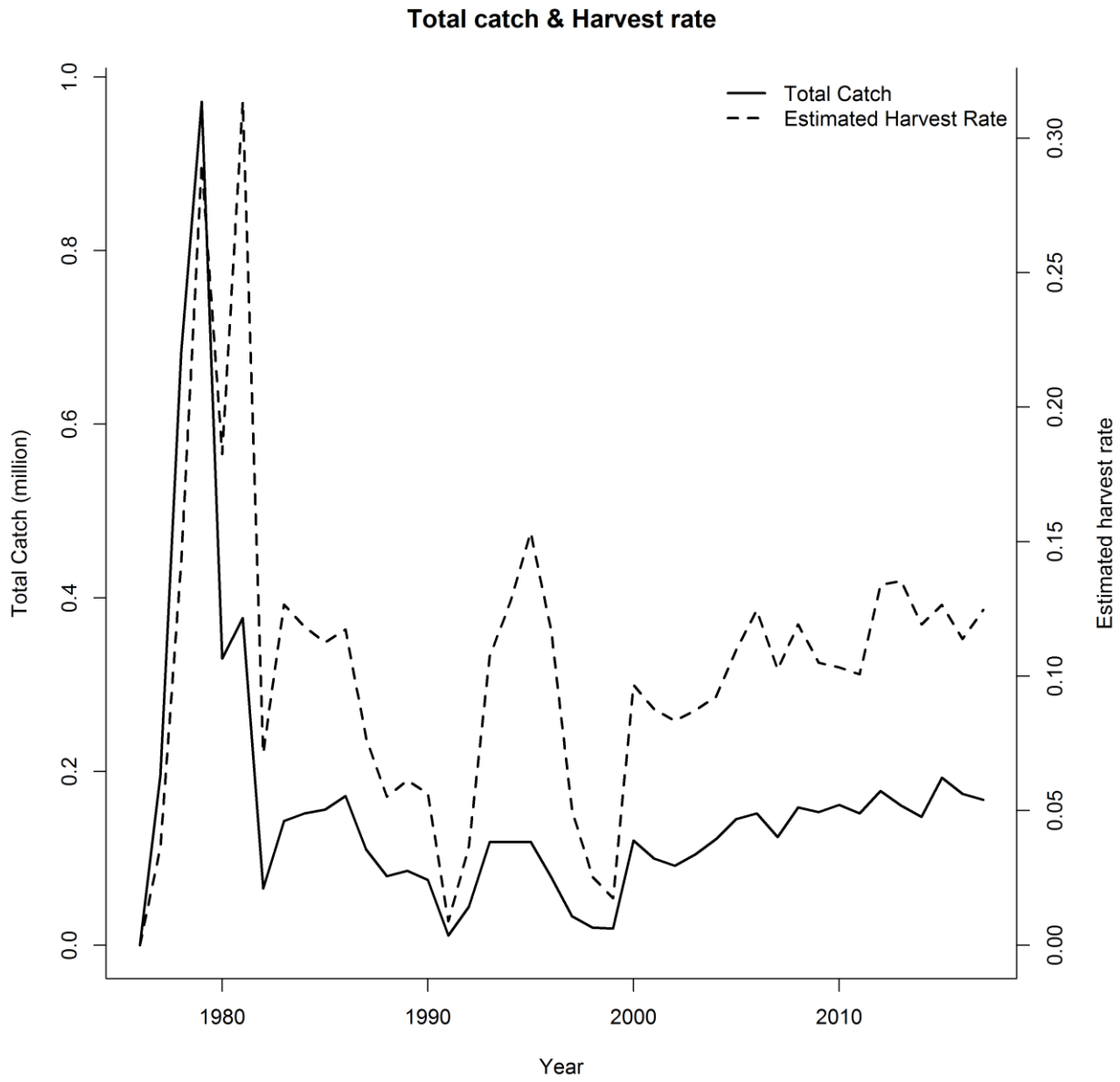


Figure C3-8. Total catch and estimated harvest rate 1976-2017.

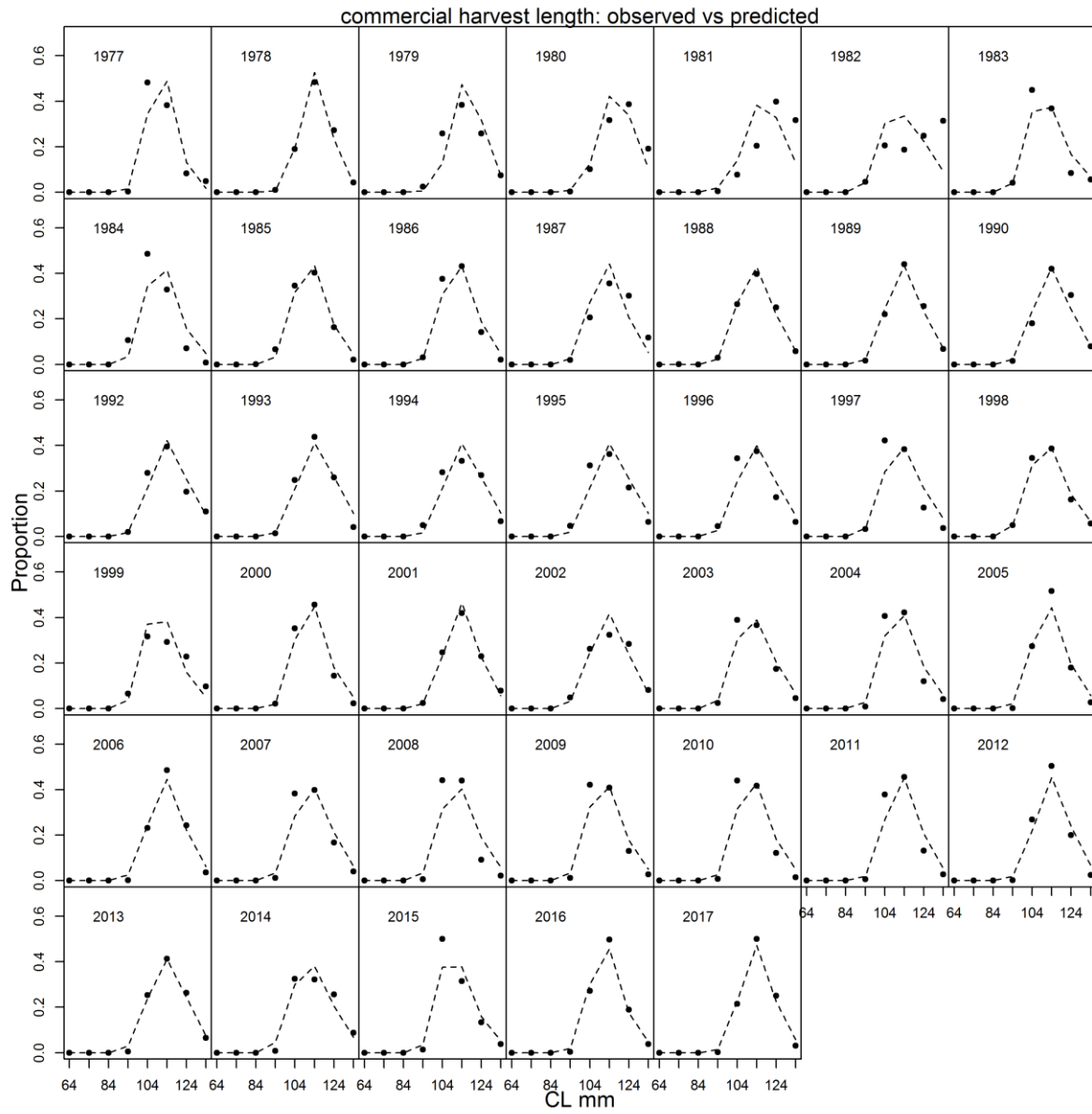


Figure C3-9. Predicted (dashed line) vs. observed (black dots) length class proportions for commercial catch.

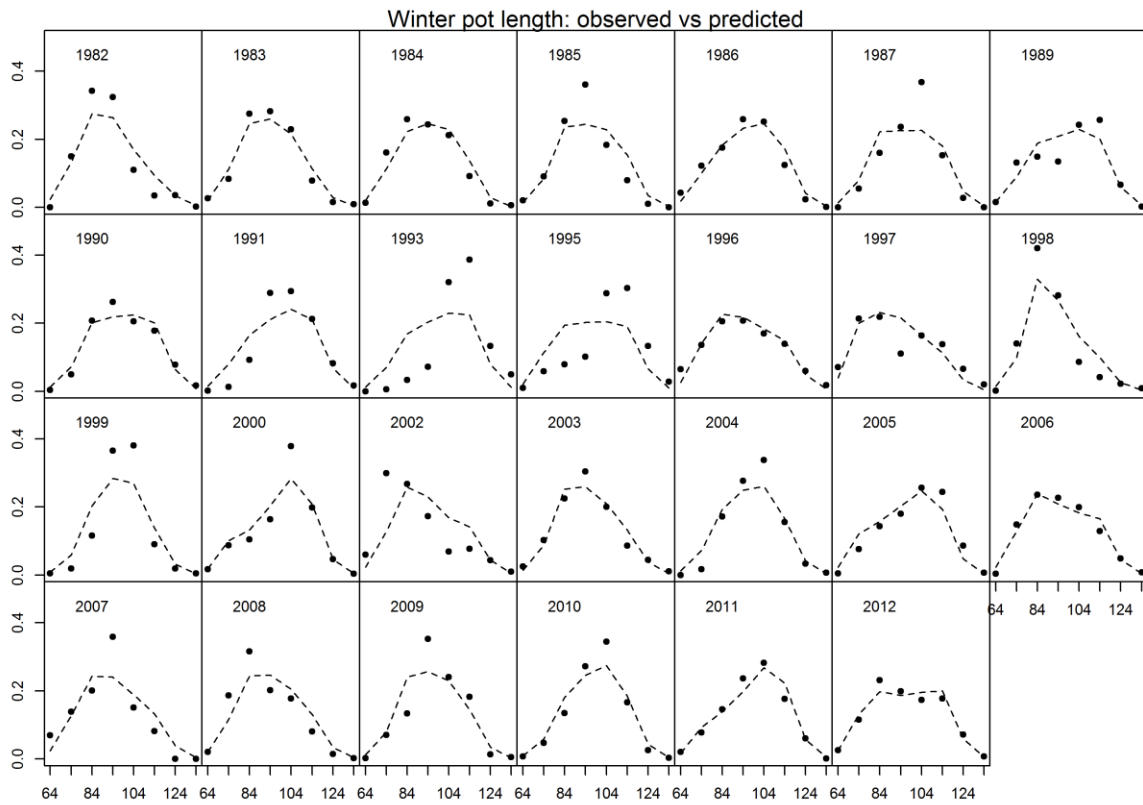
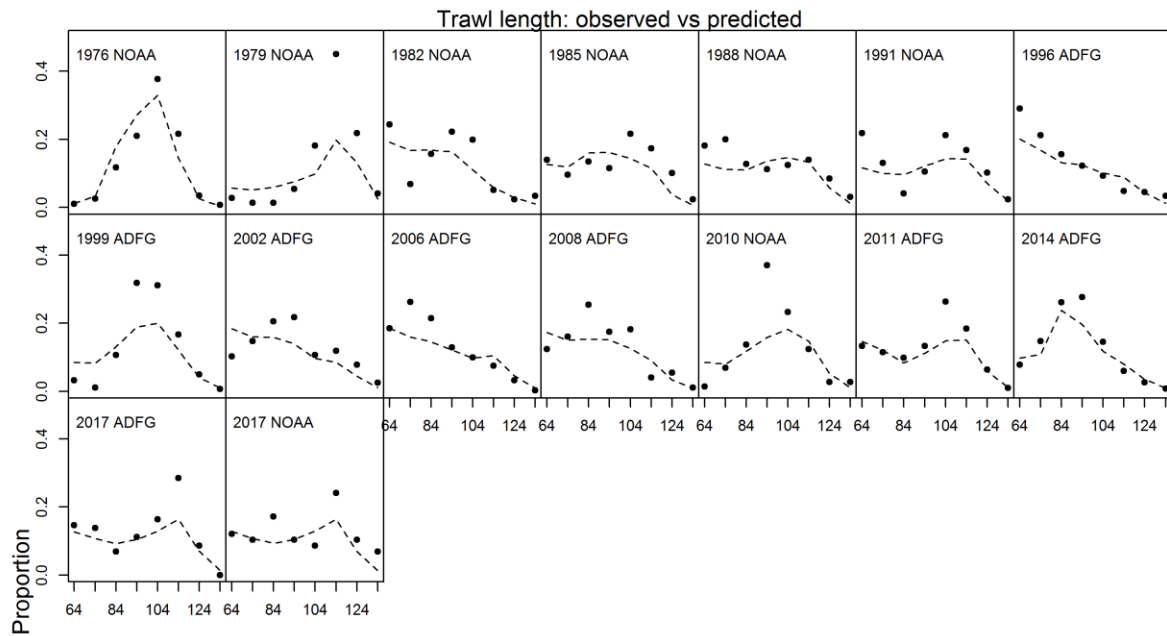


Figure C3-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter and spring pot survey.



Discards length: observed vs predicted

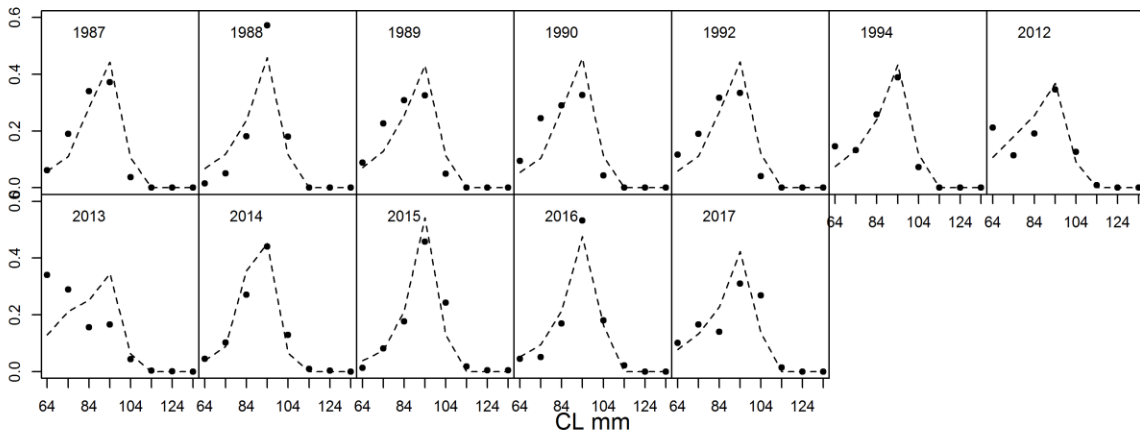


Figure C3-11. Predicted (dashed line) vs. observed (black dots) length class proportions for the trawl survey and observer survey.

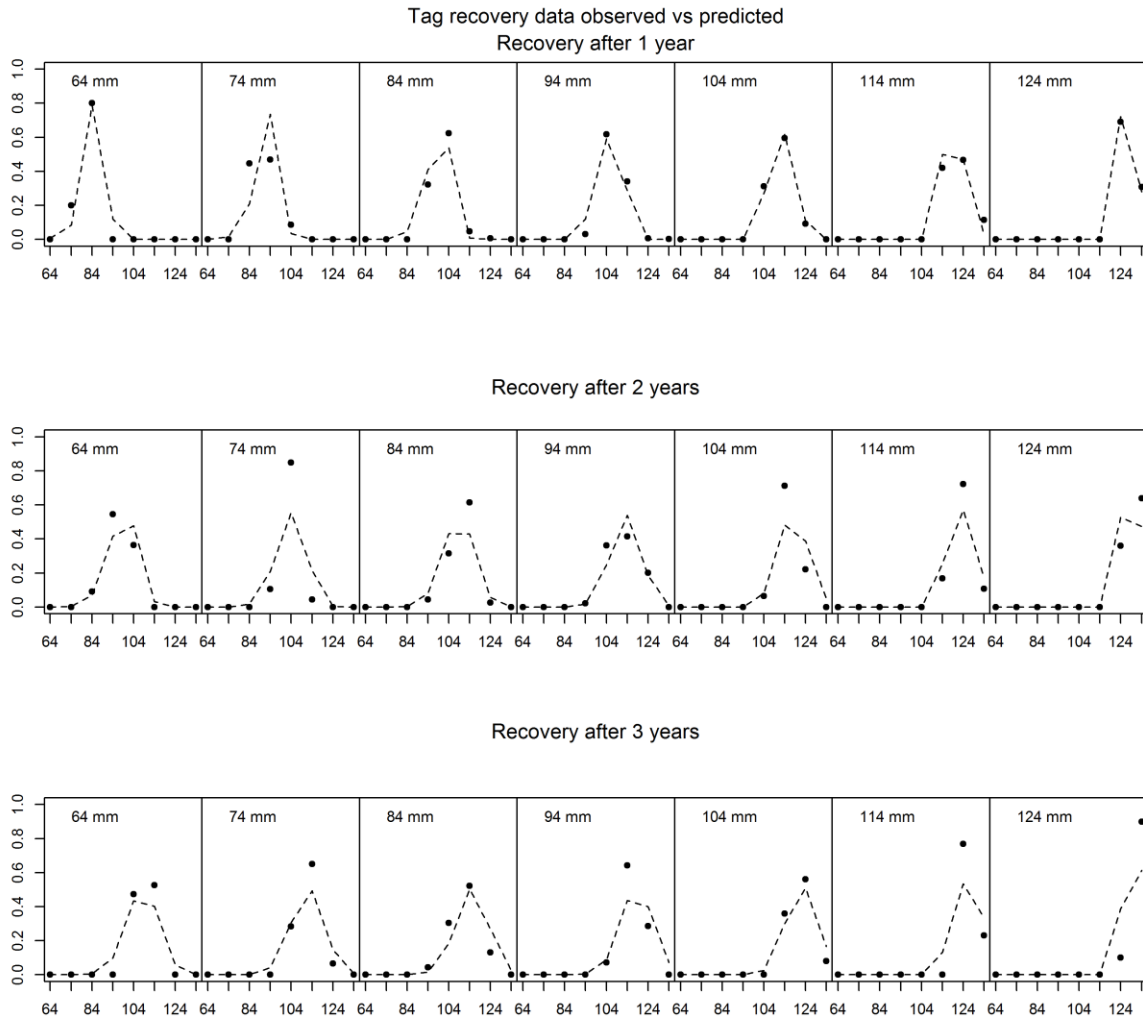


Figure C3-12. Predicted vs. observed length class proportions for tag recovery data.

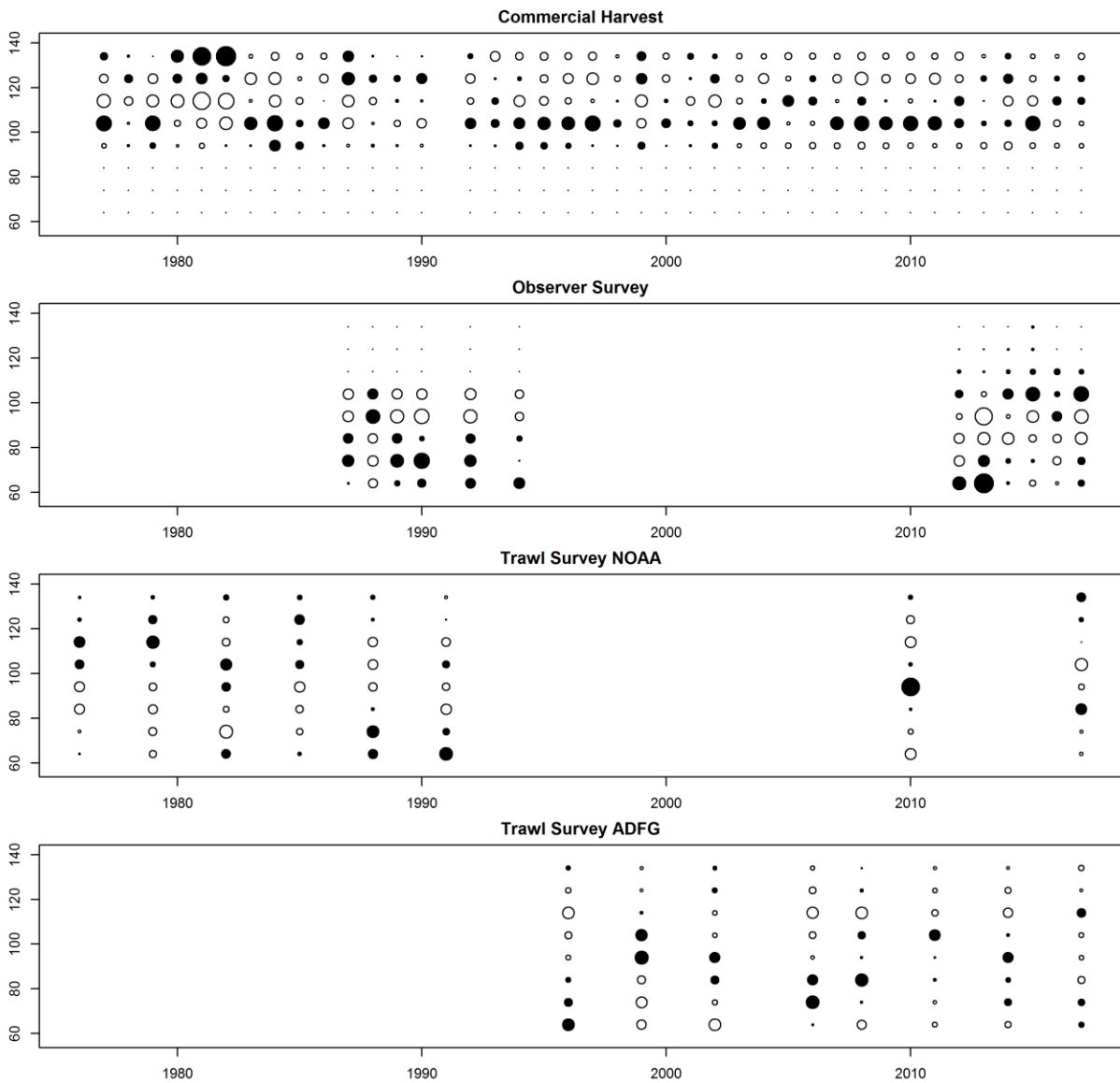


Figure C3-13. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

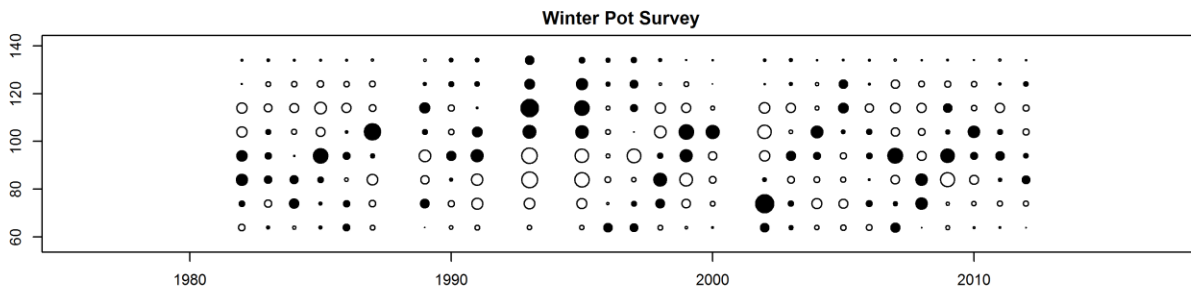


Figure C3-14. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

Table C3. Summary of parameter estimates for a length-based stock synthesis population model of Norton Sound red king crab.

name	Estimate	std.dev
log_q1	-6.584	0.222
log_q2	-6.475	0.184
log_N76	9.054	0.126
R0	6.416	0.087
log_R76	-0.180	0.408
log_R77	-0.629	0.365
log_R78	-0.753	0.355
log_R79	0.373	0.320
log_R80	0.423	0.303
log_R81	0.413	0.271
log_R82	0.354	0.328
log_R83	0.435	0.292
log_R84	0.068	0.296
log_R85	0.300	0.284
log_R86	-0.067	0.294
log_R87	-0.017	0.249
log_R88	-0.023	0.262
log_R89	-0.397	0.288
log_R90	-0.302	0.255
log_R91	-0.554	0.290
log_R92	-0.679	0.307
log_R93	-0.559	0.295
log_R94	-0.333	0.269
log_R95	-0.060	0.231
log_R96	0.594	0.219
log_R97	-0.109	0.319
log_R98	-0.610	0.327
log_R99	0.053	0.322
log_R00	0.401	0.275
log_R01	0.399	0.258
log_R02	-0.010	0.331
log_R03	-0.248	0.345
log_R04	0.354	0.252
log_R05	0.436	0.237
log_R06	0.531	0.253

name	Estimate	std.dev
log_R07	0.511	0.248
log_R08	0.015	0.312
log_R09	-0.397	0.305
log_R10	0.079	0.255
log_R11	0.416	0.278
log_R12	0.958	0.203
log_R13	-0.101	0.308
log_R14	-0.354	0.326
log_R15	-0.459	0.302
log_R16	-0.271	0.270
a1	1.092	4.598
a2	2.084	4.233
a3	3.783	4.020
a4	4.199	4.003
a5	4.389	3.995
a6	3.571	4.024
a7	2.095	4.291
r1	10.000	0.812
r2	9.699	0.838
log_a	-2.698	0.094
log_b	4.820	0.016
log_φ _{st1}	-5.000	0.174
log_φ _{wa}	-2.191	0.370
log_φ _{wb}	4.808	0.032
Sw1	0.078	0.038
Sw2	0.487	0.123
log_φ _l	-2.576	0.148
log_φ ₂	4.656	0.046
w ² _t	0.046	0.014
q	0.782	0.135
σ	4.025	0.221
β ₁	11.233	0.763
β ₂	7.807	0.185
ms7	3.203	0.381
ms8	3.525	0.624