

Appendix C5 Model 6: Model 3+spring tagging

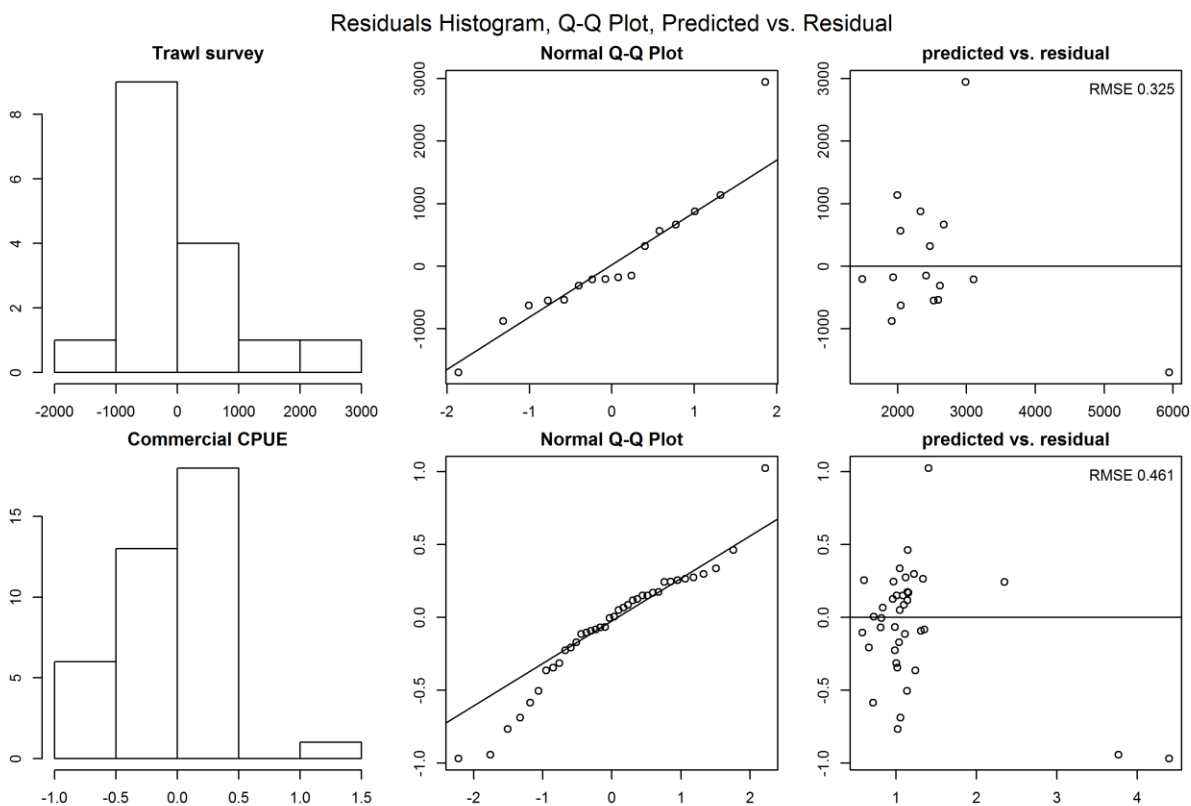
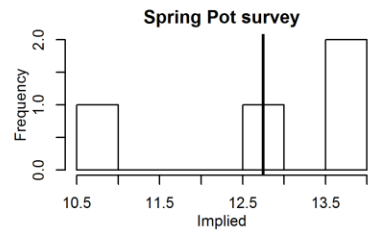
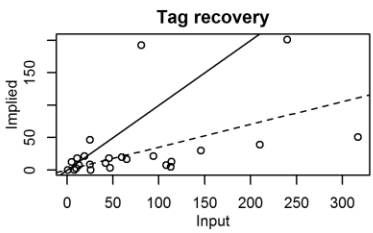
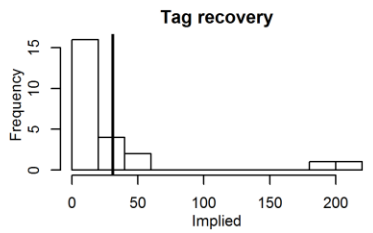
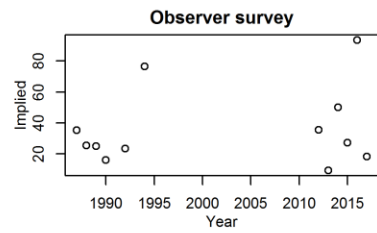
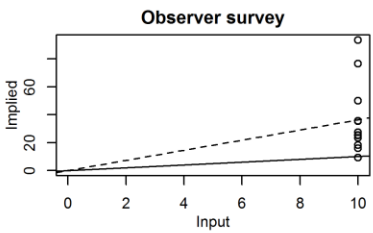
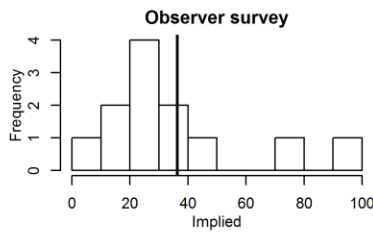
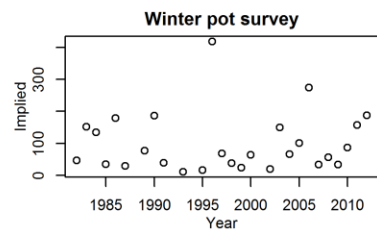
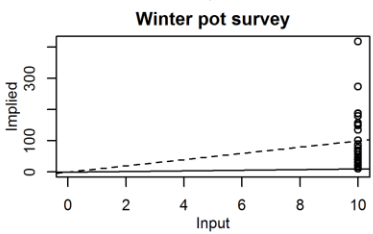
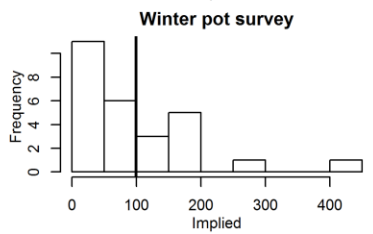
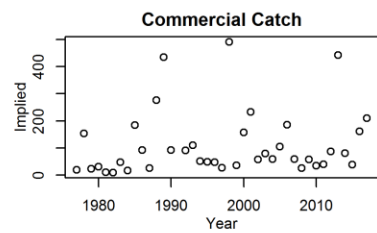
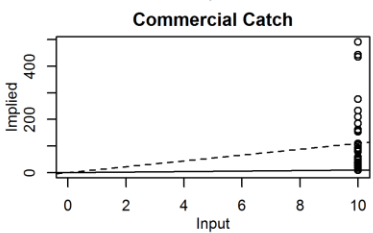
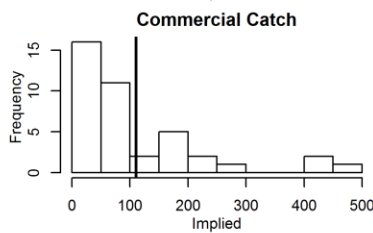
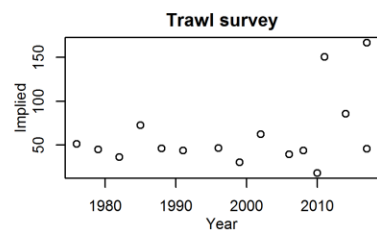
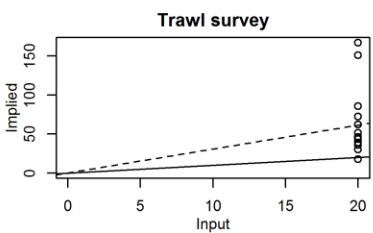
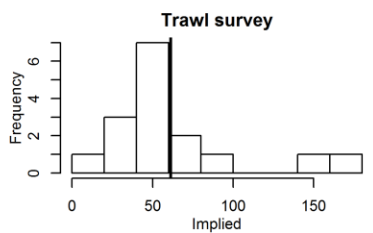


Figure C5-1. QQ Plot of Trawl survey and Commercial CPUE.



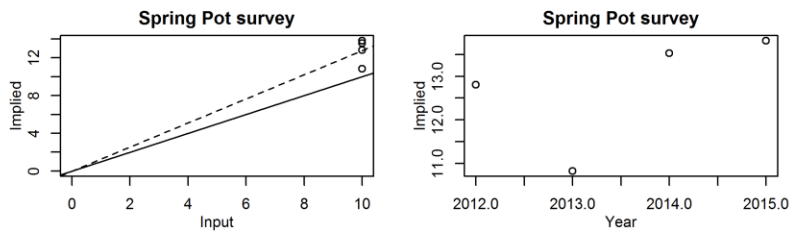


Figure C5-2: Implied effective samples. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis). Vertical solid line is the mean implied effective sample size. The second column show input sample size (x-axis) vs. implied effective sample size (y-axis). Dashed line 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).

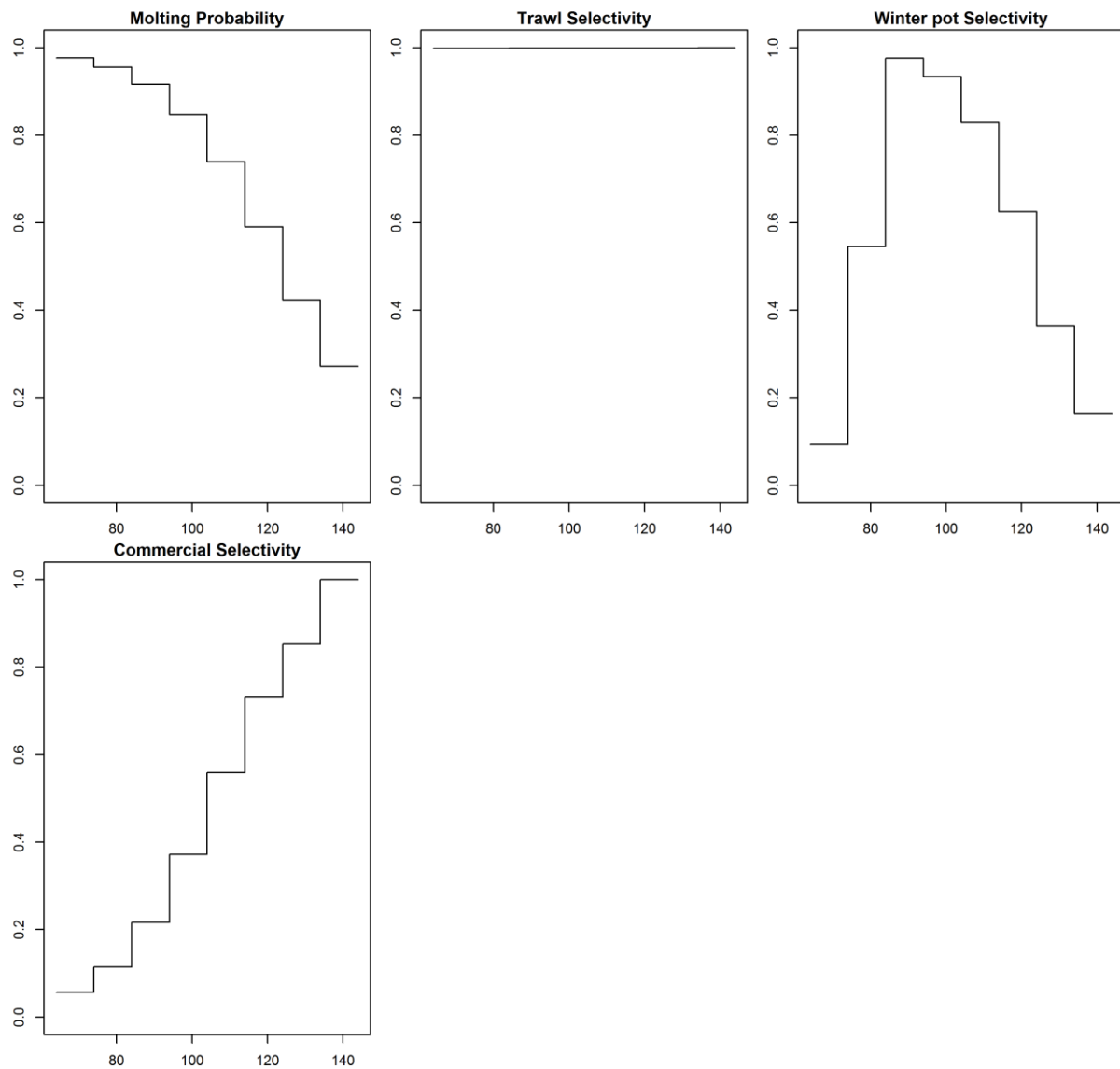


Figure C5-3. Molting probability and trawl/pot selectivity. X-axis is carapace length.

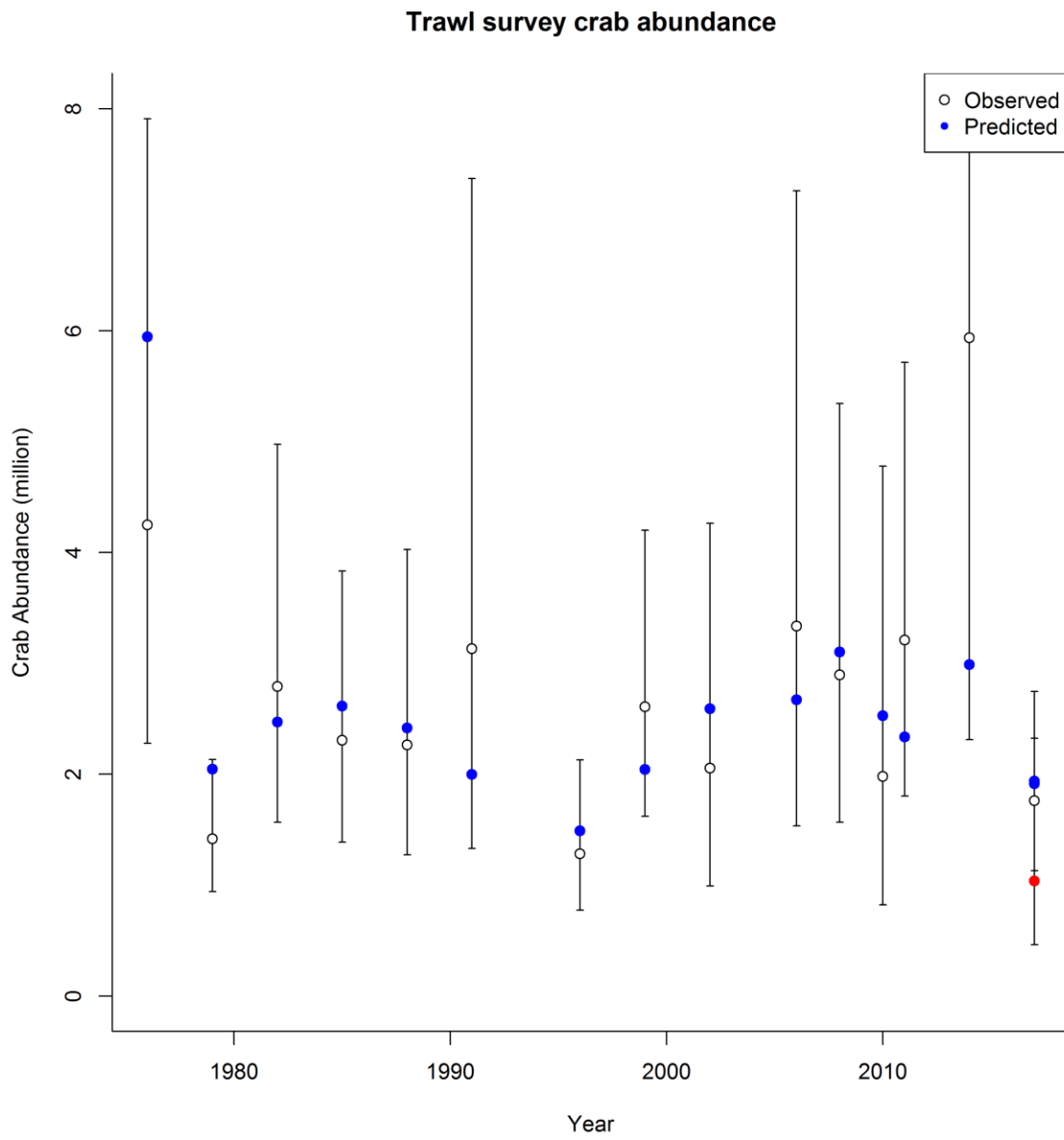


Figure C5-4. Estimated trawl survey male abundance (crab $\geq$ 64 mm CL).

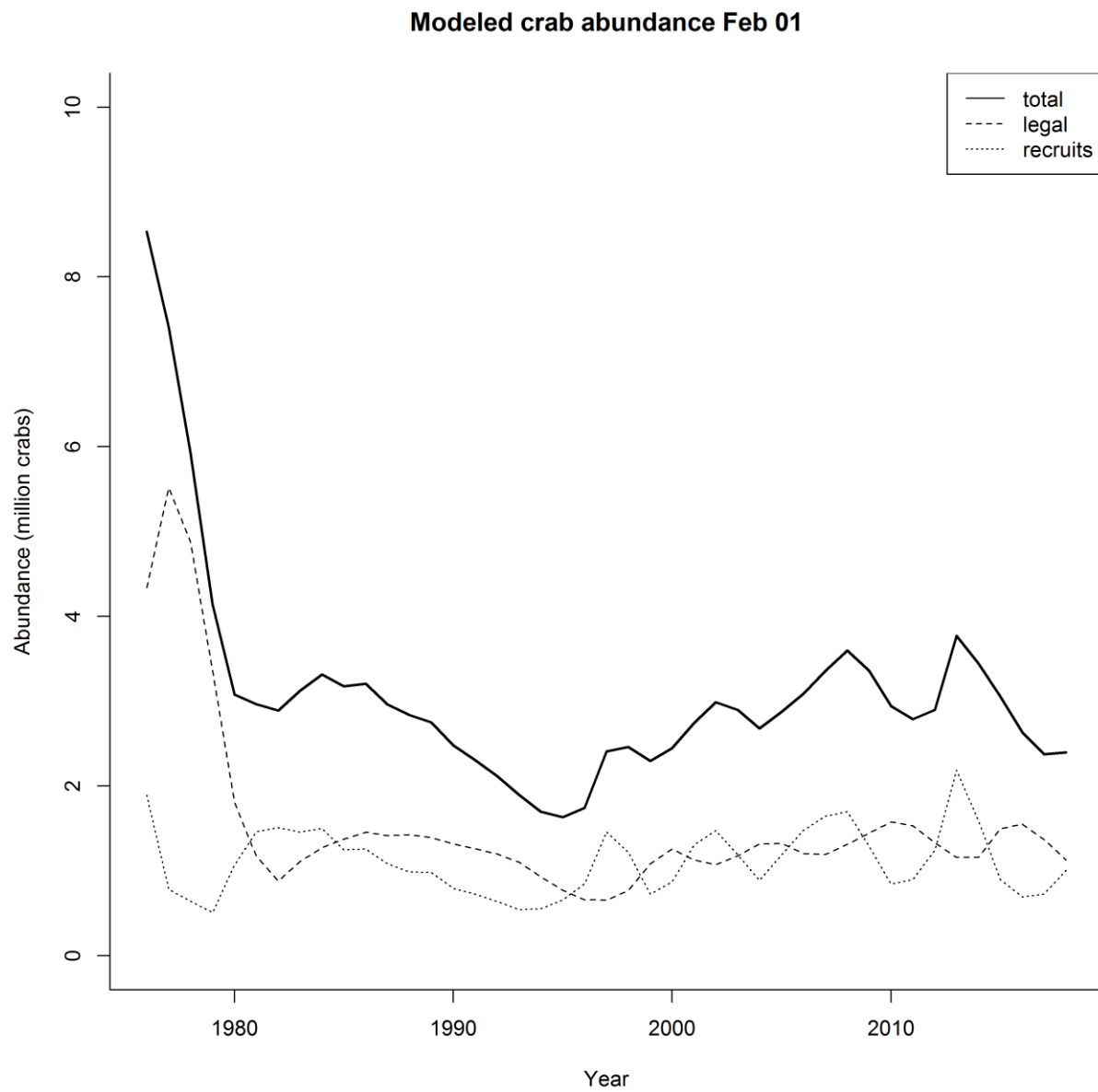


Figure C5-5. Estimated abundance of legal males from 1976-2015.

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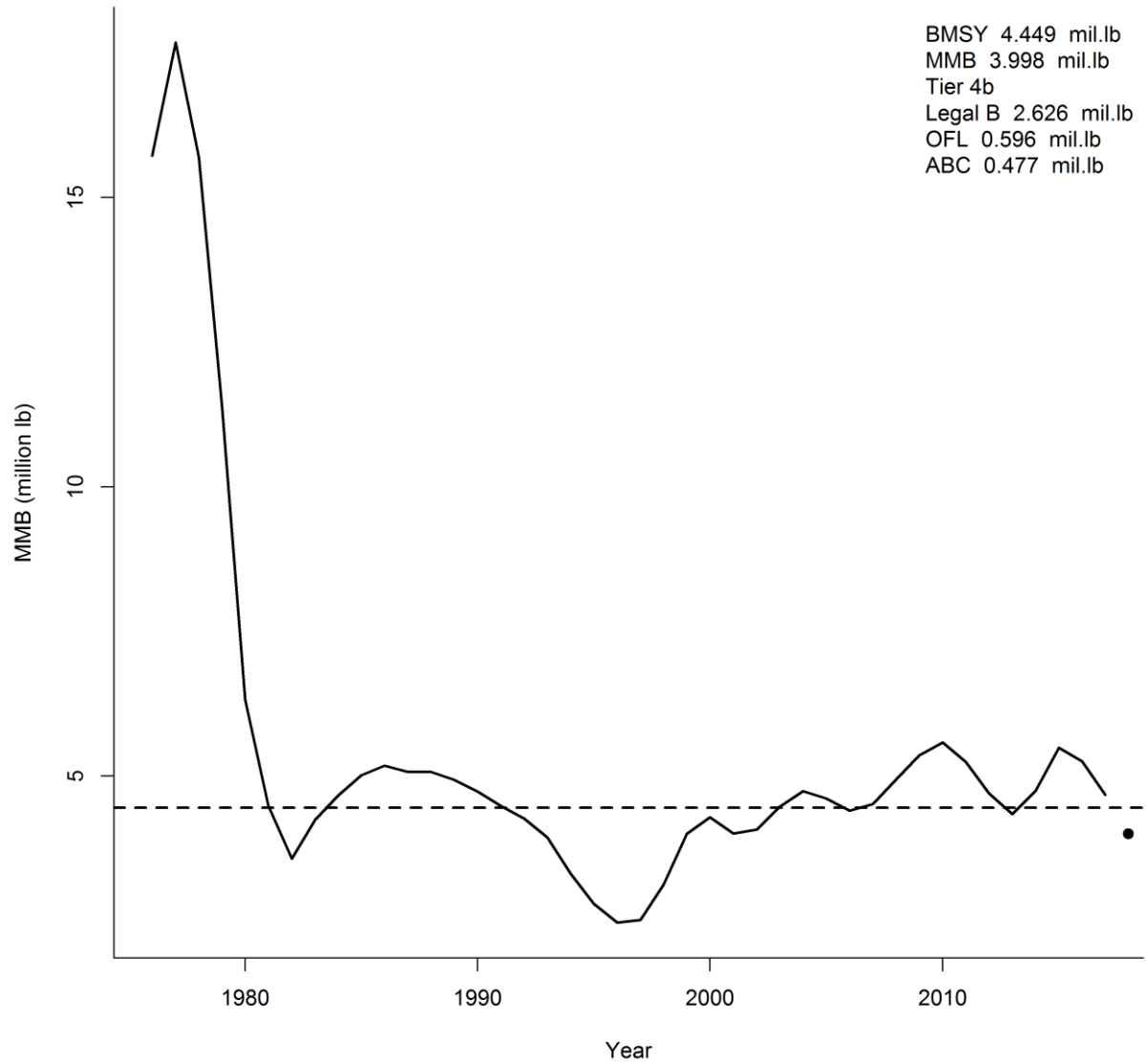


Figure C5-6. Estimated abundance of leg recruits from 1976-2017. Dash line shows Bmsy (Average MMB of 1980-2017).

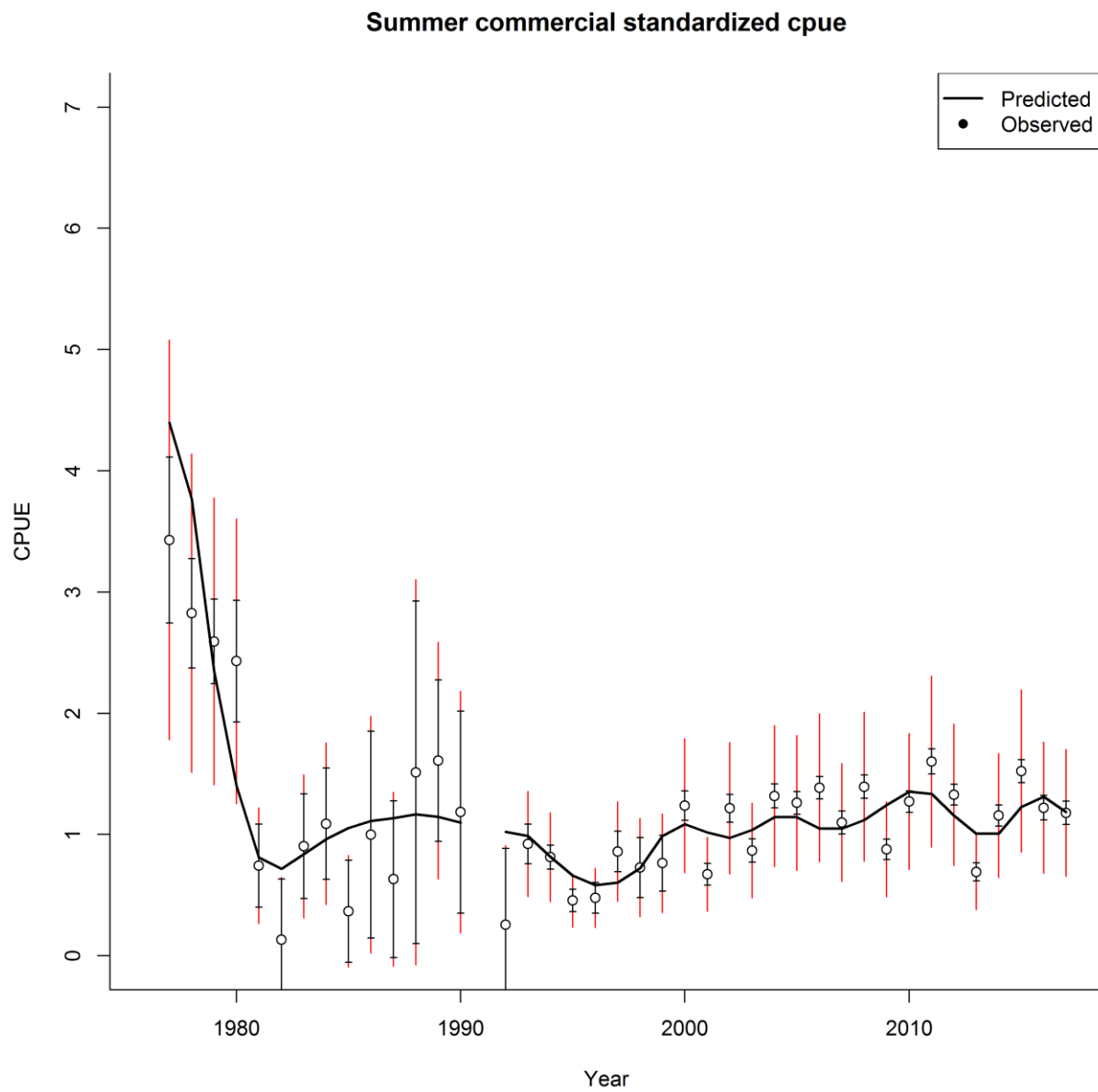


Figure C5-7. Summer commercial standardized cpue 1977-2017.

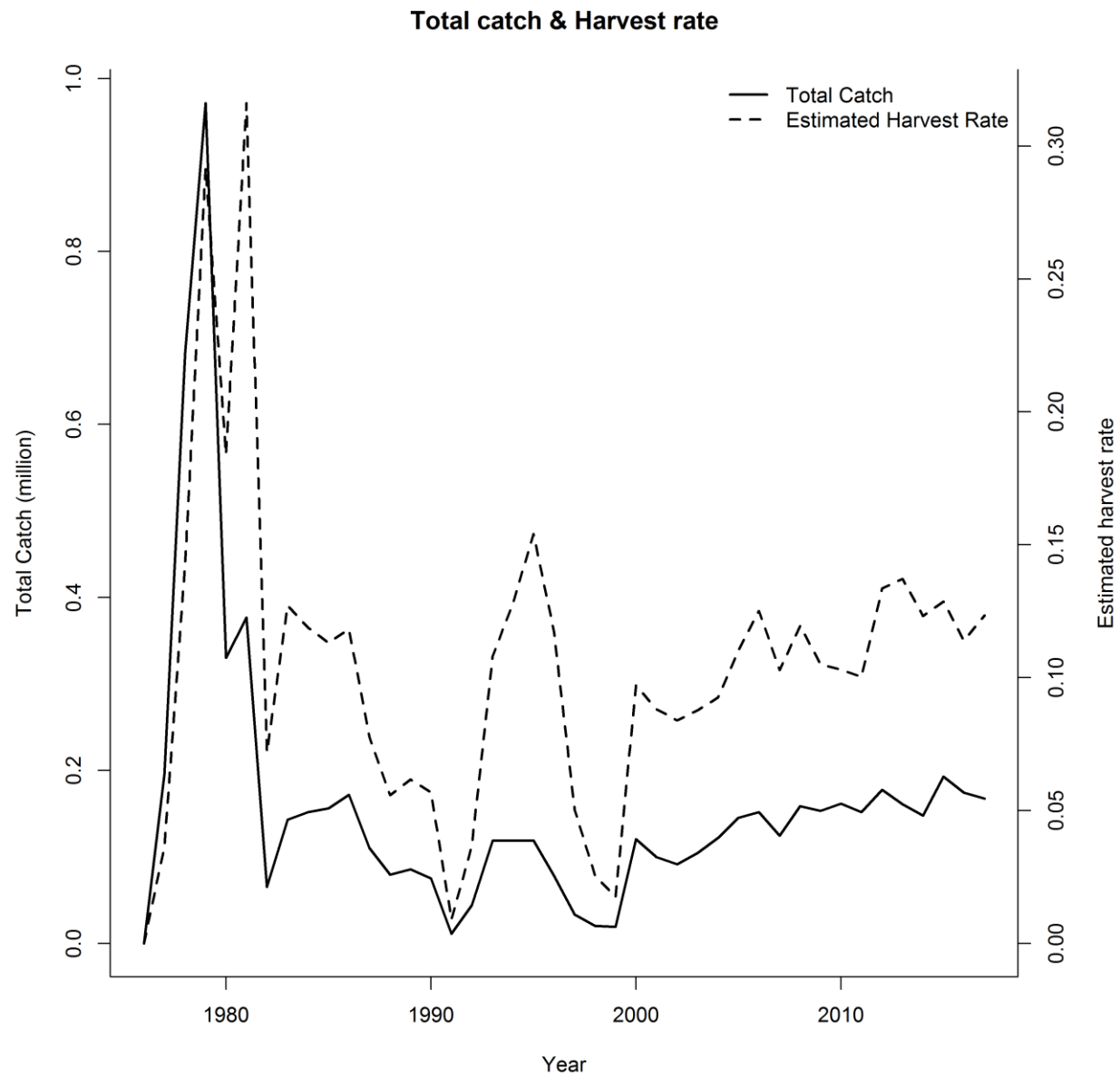


Figure C5-8. Total catch and estimated harvest rate 1976-2017.

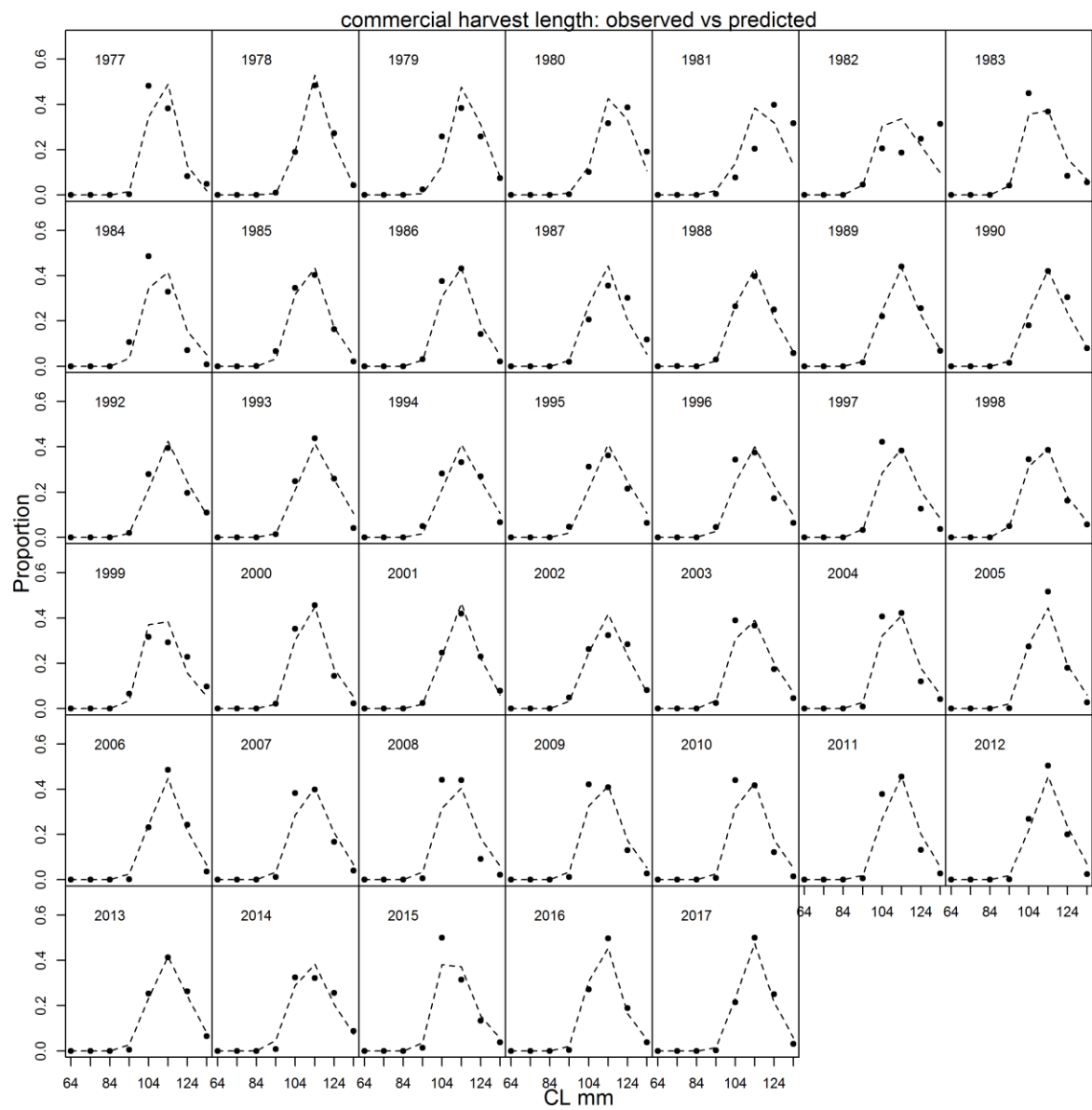


Figure C5-9. Predicted (dashed line) vs. observed (black dots) length class proportions for commercial catch.

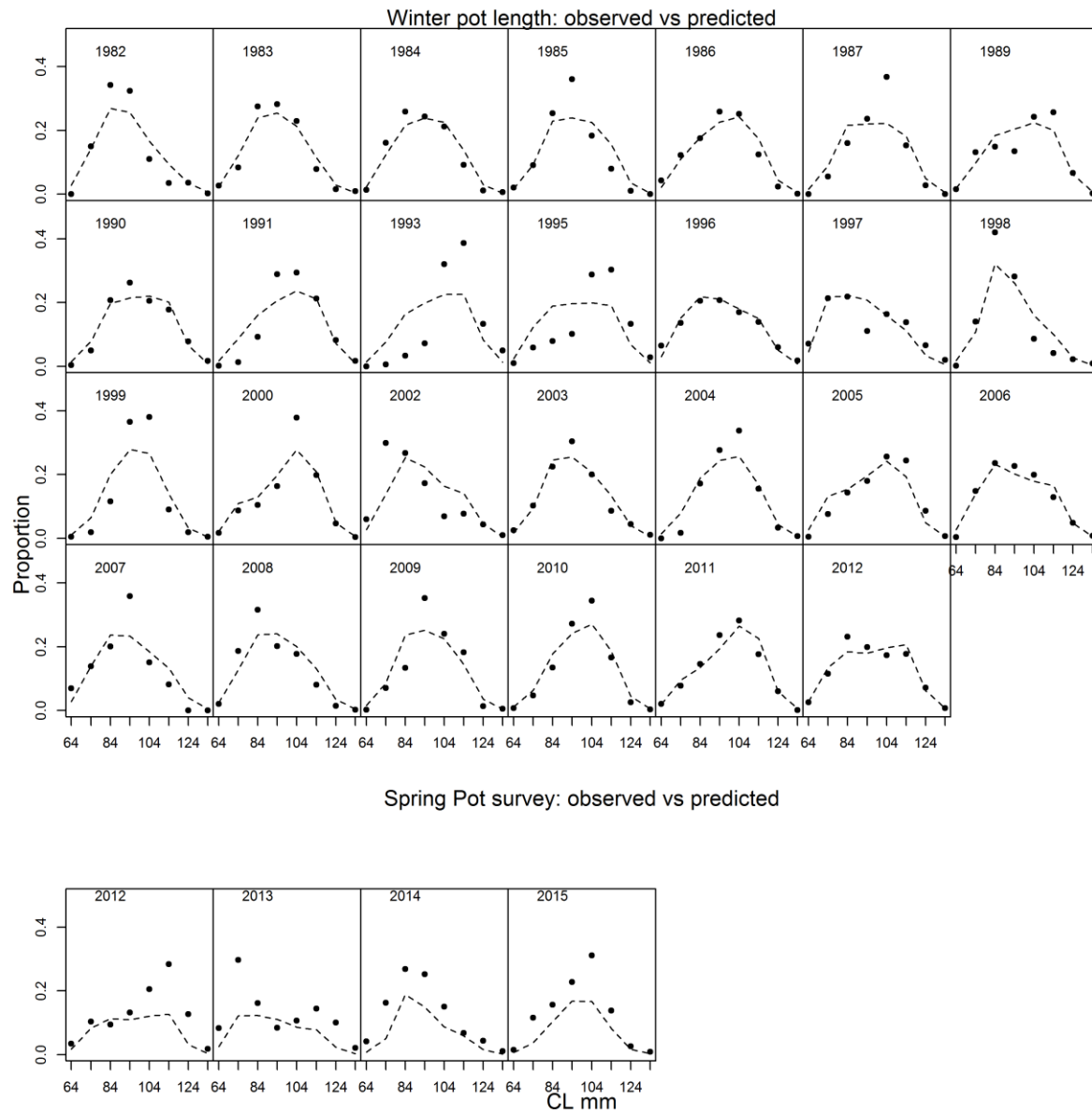
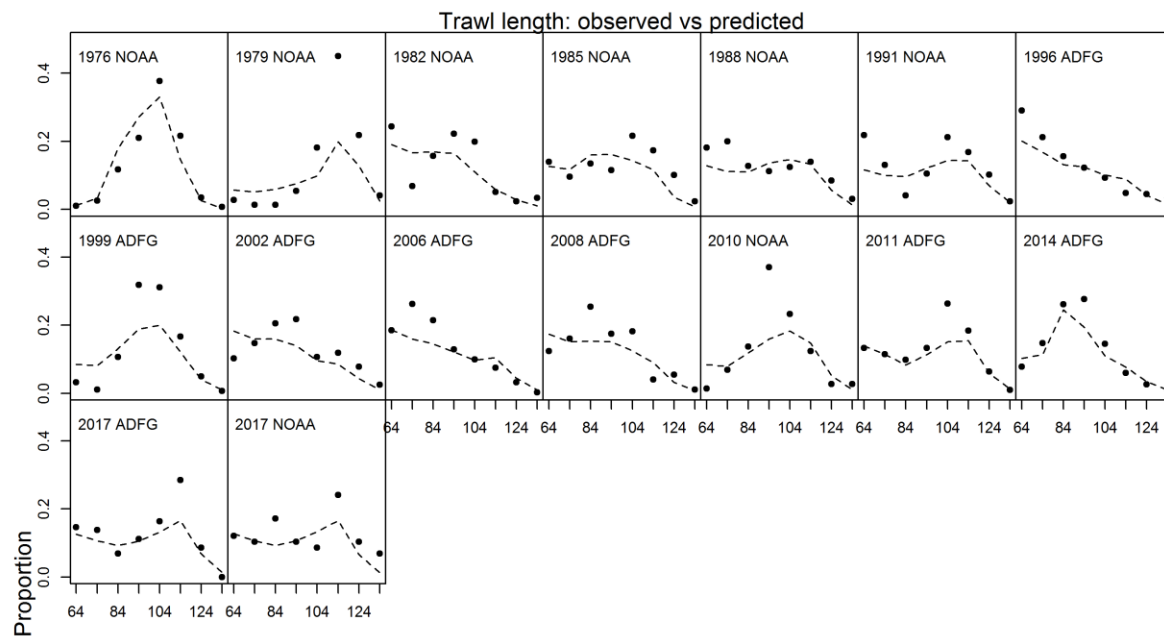


Figure C5-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter and spring pot survey.



Discards length: observed vs predicted

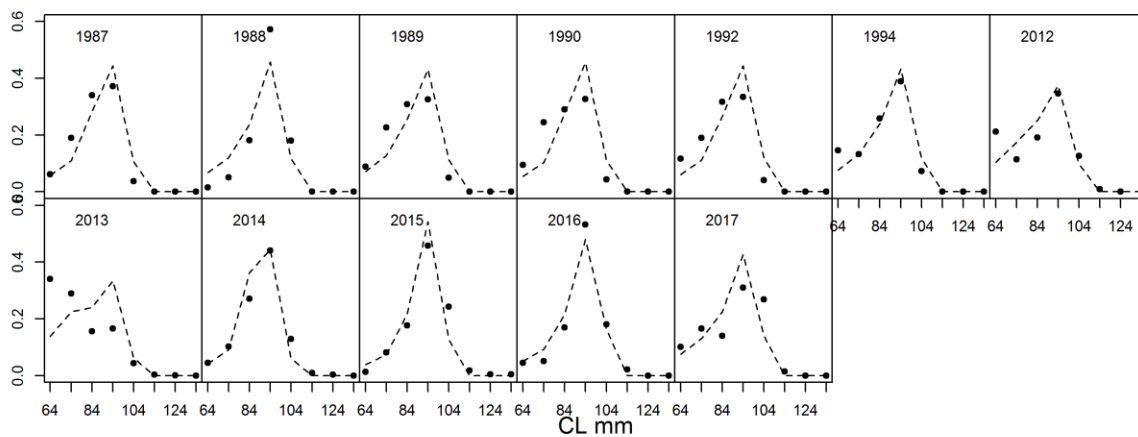


Figure C5-11. Predicted (dashed line) vs. observed (black dots) length class proportions for the trawl survey and observer survey.

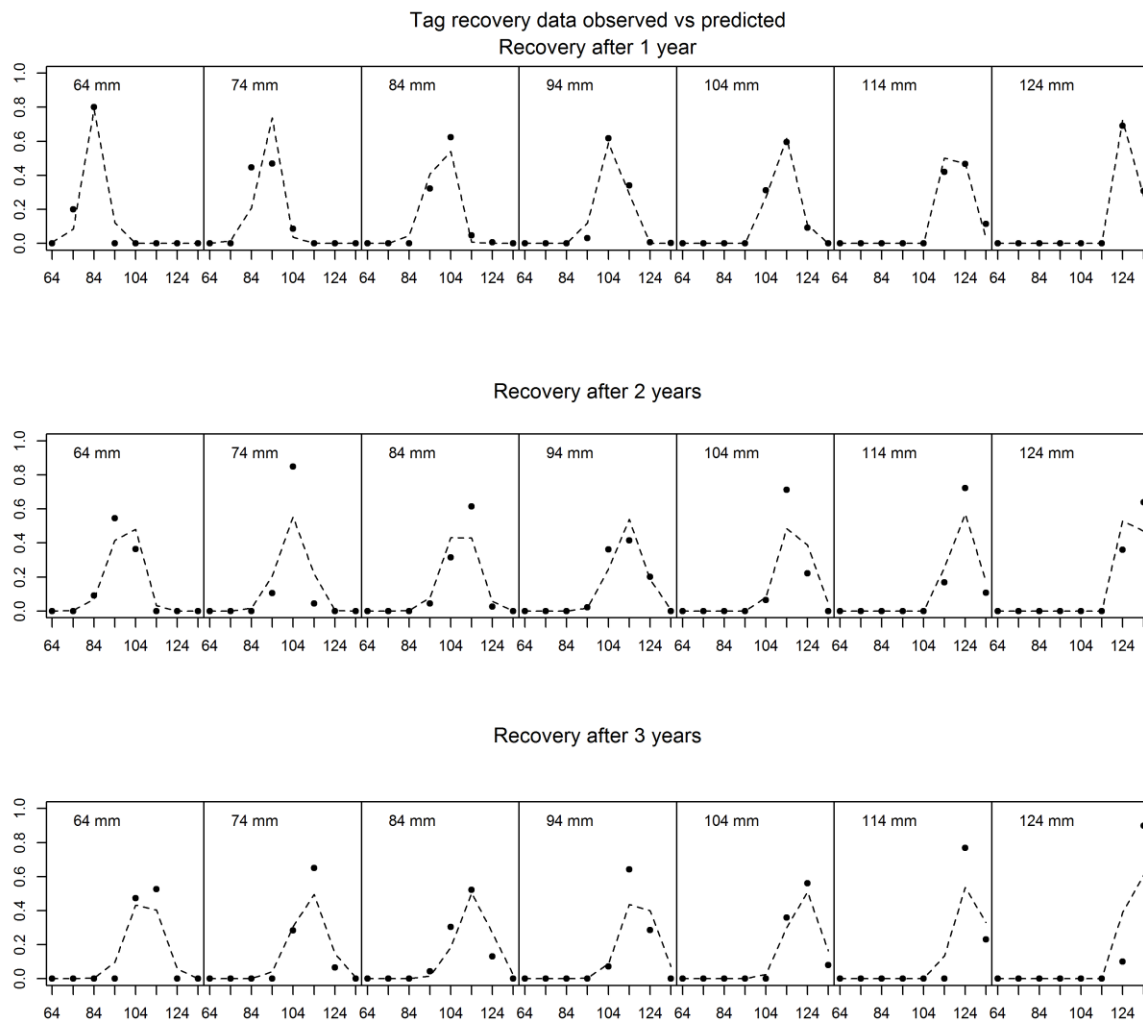


Figure C5-12. Predicted vs. observed length class proportions for tag recovery data.

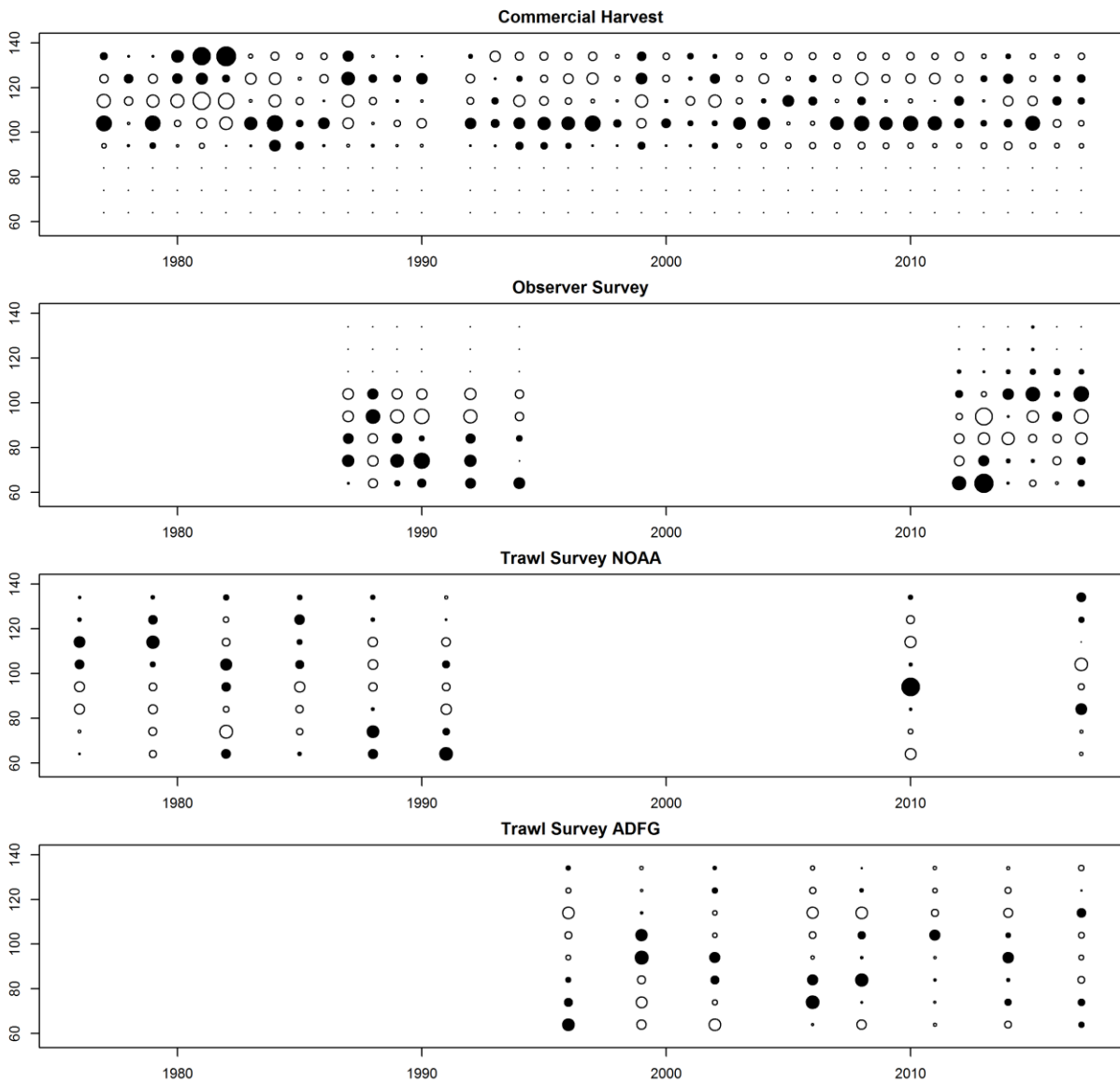


Figure C5-13. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

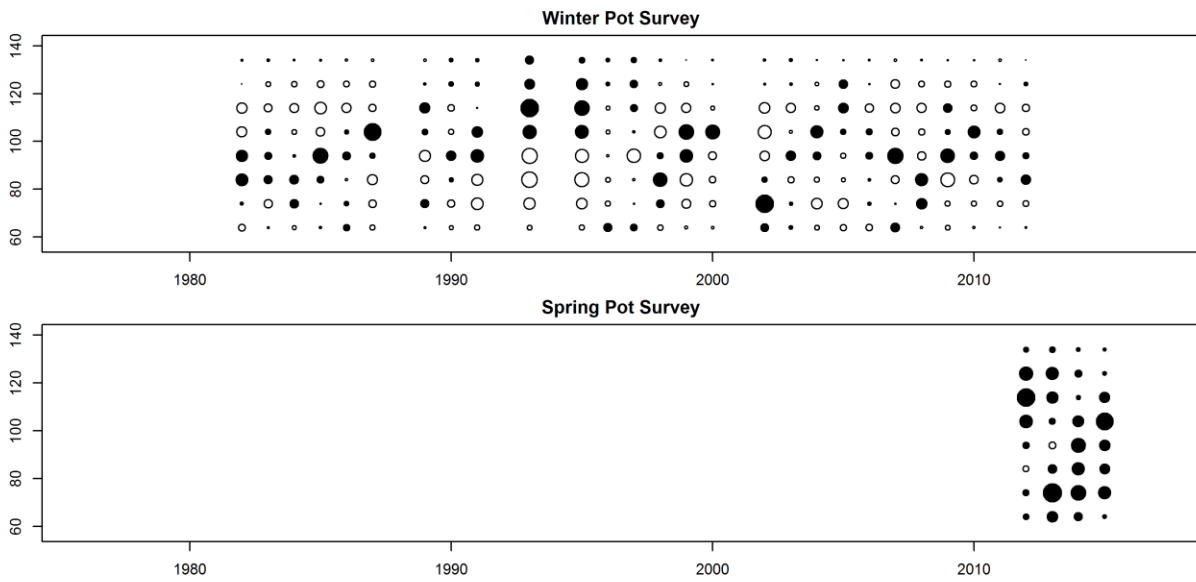


Figure C5-14. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

Table C5 . Summary of parameter estimates for a length-based stock synthesis population model of Norton Sound red king crab.

name	Estimate	std.dev
log_q1	-6.573	0.222
log_q2	-6.466	0.184
log_N76	9.052	0.125
R0	6.413	0.087
log_R76	-0.181	0.408
log_R77	-0.631	0.365
log_R78	-0.755	0.354
log_R79	0.369	0.320
log_R80	0.431	0.301
log_R81	0.407	0.270
log_R82	0.349	0.327
log_R83	0.431	0.291
log_R84	0.064	0.295
log_R85	0.292	0.284
log_R86	-0.072	0.293
log_R87	-0.014	0.248
log_R88	-0.025	0.261
log_R89	-0.399	0.288
log_R90	-0.307	0.255
log_R91	-0.549	0.289
log_R92	-0.684	0.306
log_R93	-0.550	0.294
log_R94	-0.334	0.269
log_R95	-0.060	0.231
log_R96	0.590	0.219
log_R97	-0.106	0.317
log_R98	-0.611	0.327
log_R99	0.040	0.322
log_R00	0.411	0.273
log_R01	0.395	0.258
log_R02	-0.009	0.330
log_R03	-0.248	0.345
log_R04	0.355	0.252
log_R05	0.439	0.236
log_R06	0.537	0.252

name	Estimate	std.dev
log_R07	0.525	0.247
log_R08	0.025	0.309
log_R09	-0.404	0.301
log_R10	0.013	0.246
log_R11	0.339	0.254
log_R12	0.999	0.180
log_R13	-0.042	0.286
log_R14	-0.313	0.315
log_R15	-0.452	0.302
log_R16	-0.262	0.270
a1	1.159	4.624
a2	2.151	4.262
a3	3.851	4.050
a4	4.269	4.032
a5	4.463	4.024
a6	3.645	4.053
a7	2.175	4.317
r1	10.000	0.864
r2	9.699	0.888
log_a	-2.696	0.093
log_b	4.820	0.016
log_φ _{st1}	-5.000	0.177
log_φ _{wa}	-2.237	0.380
log_φ _{wb}	4.815	0.033
Sw1	0.093	0.039
Sw2	0.545	0.129
log_φ _l	-2.576	0.146
log_φ ₂	4.658	0.046
w ² _t	0.046	0.014
q	0.787	0.135
σ	4.020	0.220
β ₁	11.286	0.753
β ₂	7.794	0.182
ms78	3.291	0.299