

Appendix C1: Model 0: Base Model

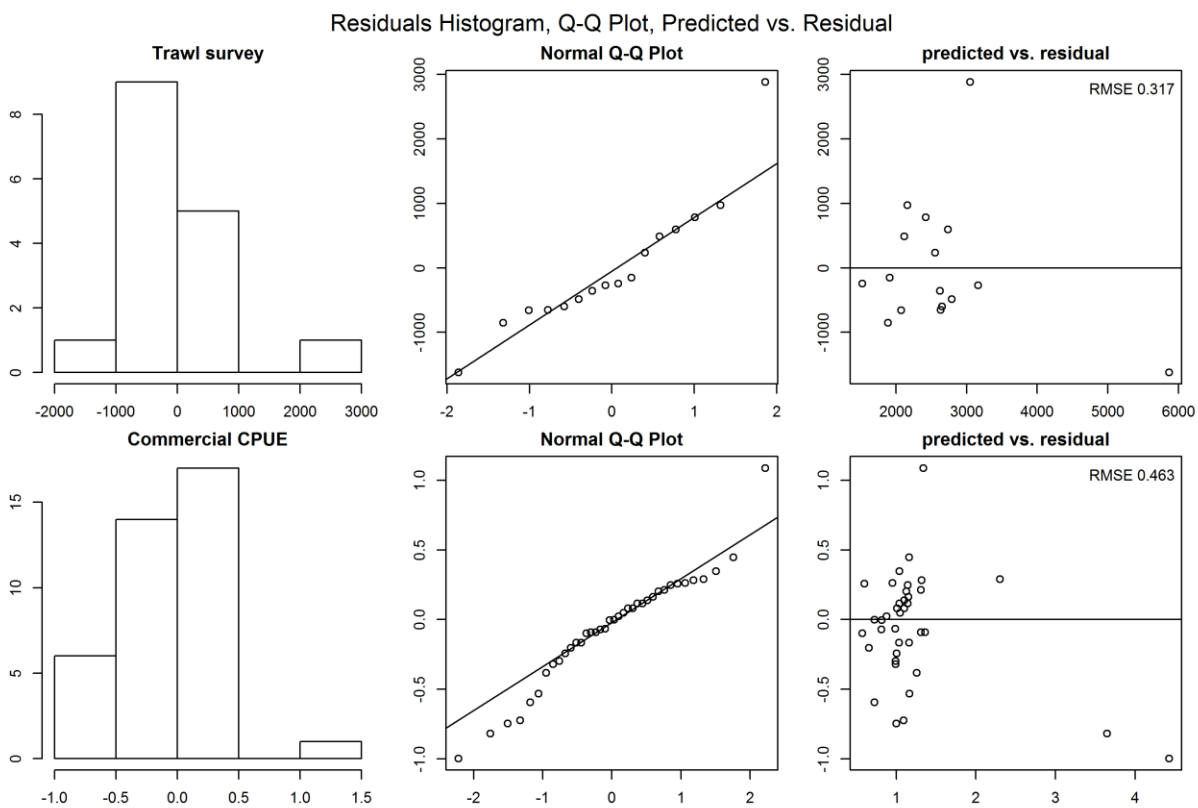


Figure C1-1. QQ Plot of Trawl survey and Commercial CPUE.

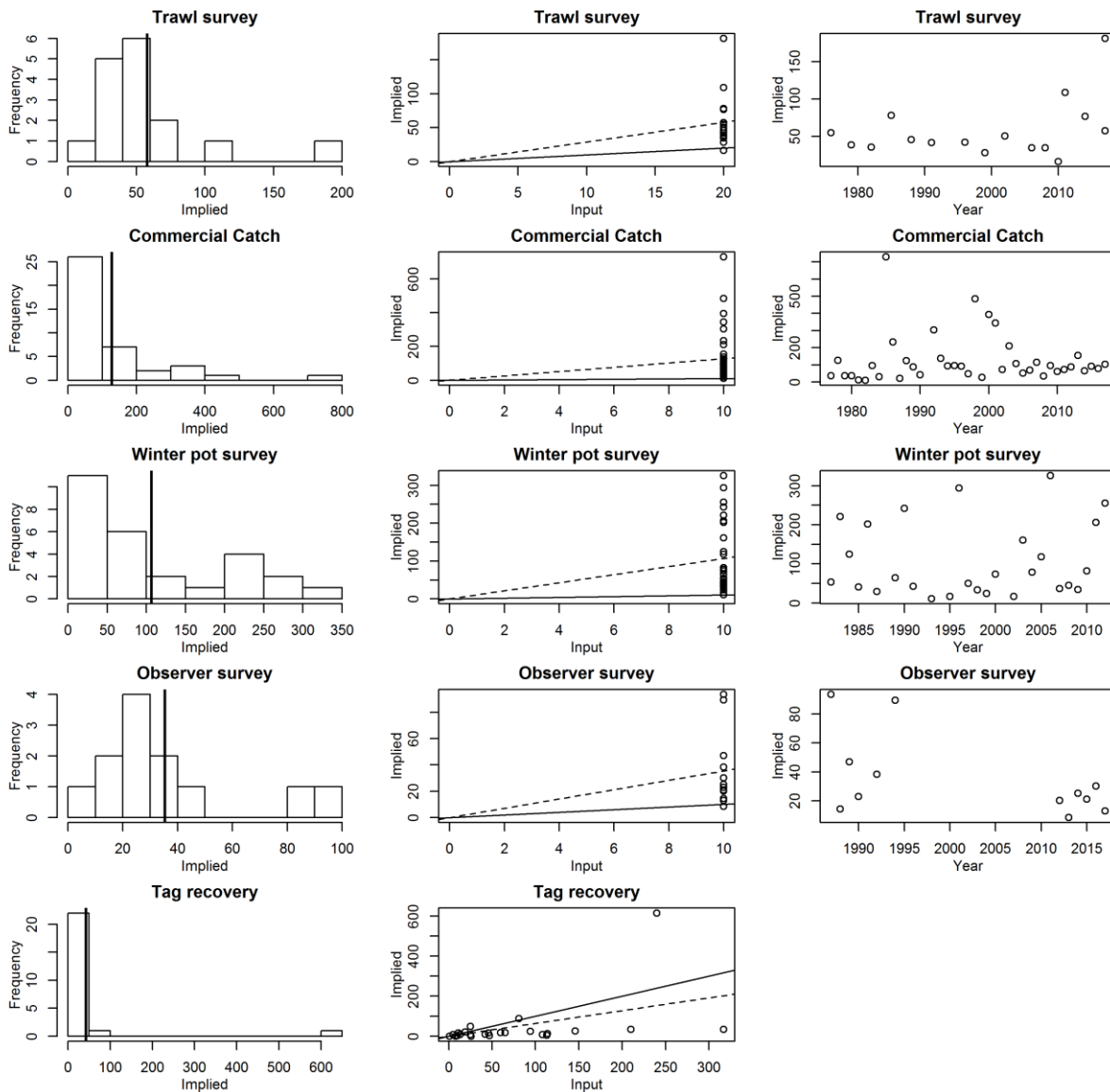


Figure C1-2: Implied effective samples. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis). Vertical solid line is the mean implied effective sample size. The second column show input sample size (x-axis) vs. implied effective sample size (y-axis). Dashed line 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).

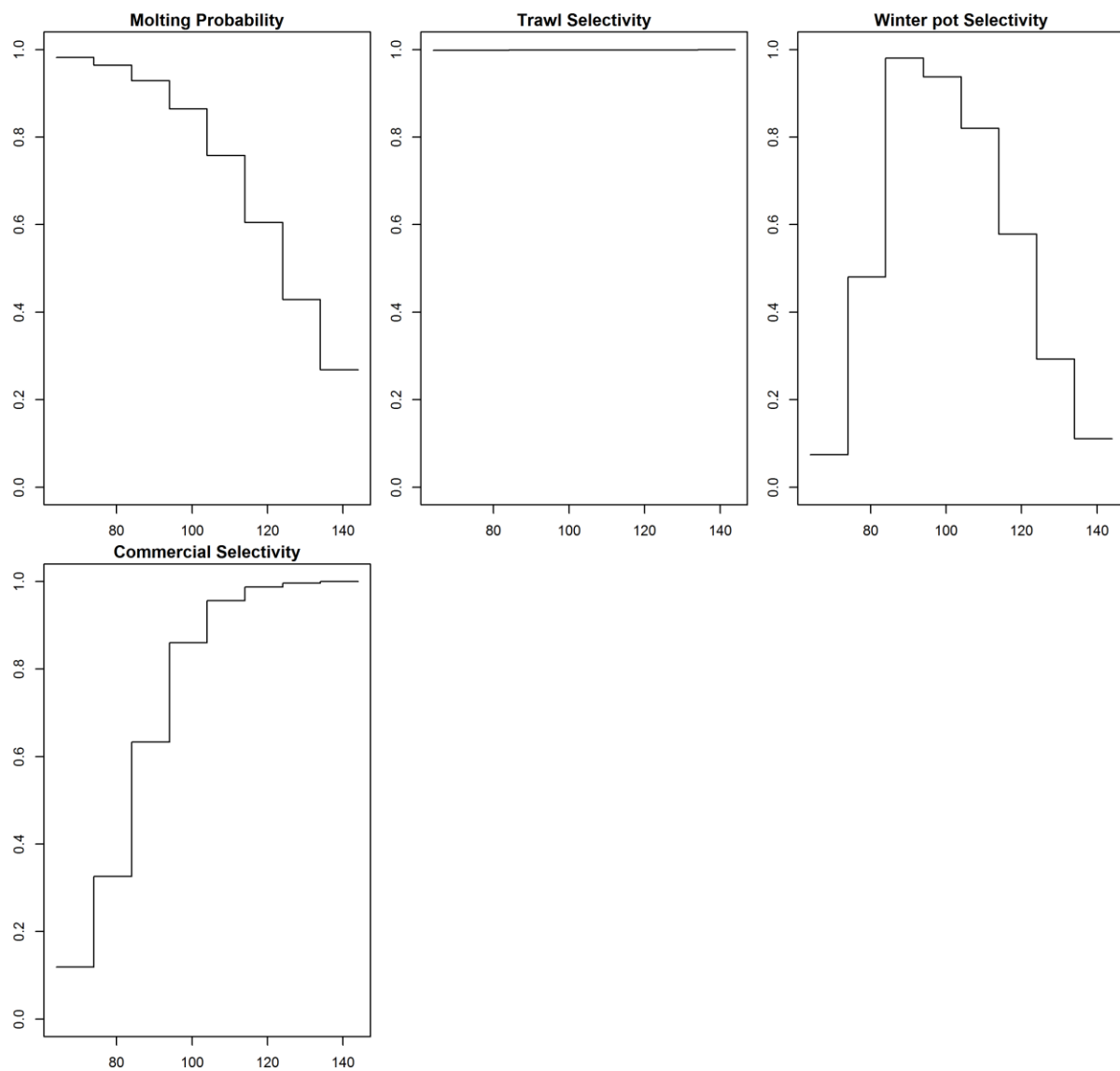


Figure C1-3. Molting probability and trawl/pot selectivity. X-axis is carapace length.

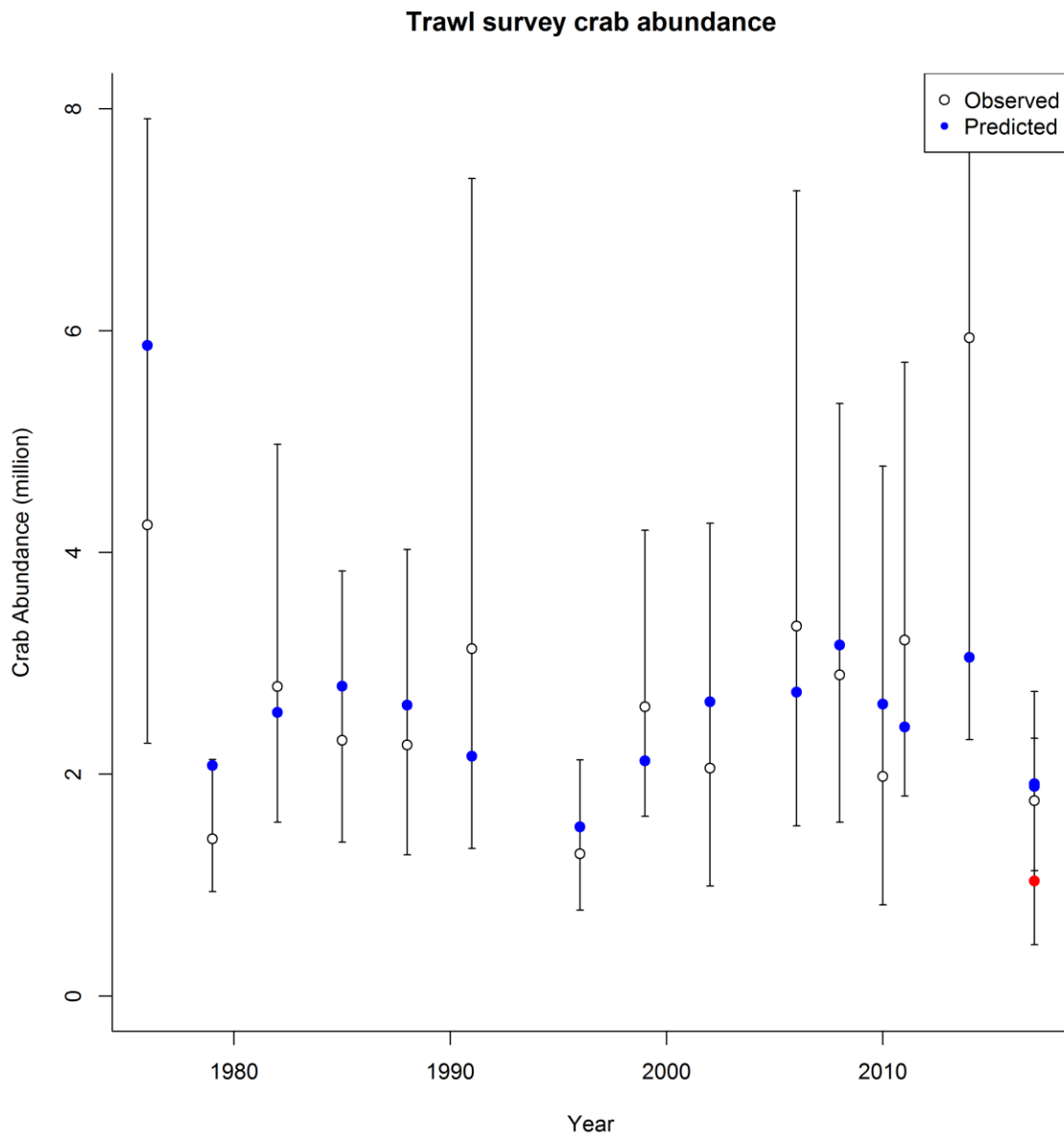


Figure C1-4. Estimated trawl survey male abundance (crab ≥ 64 mm CL).

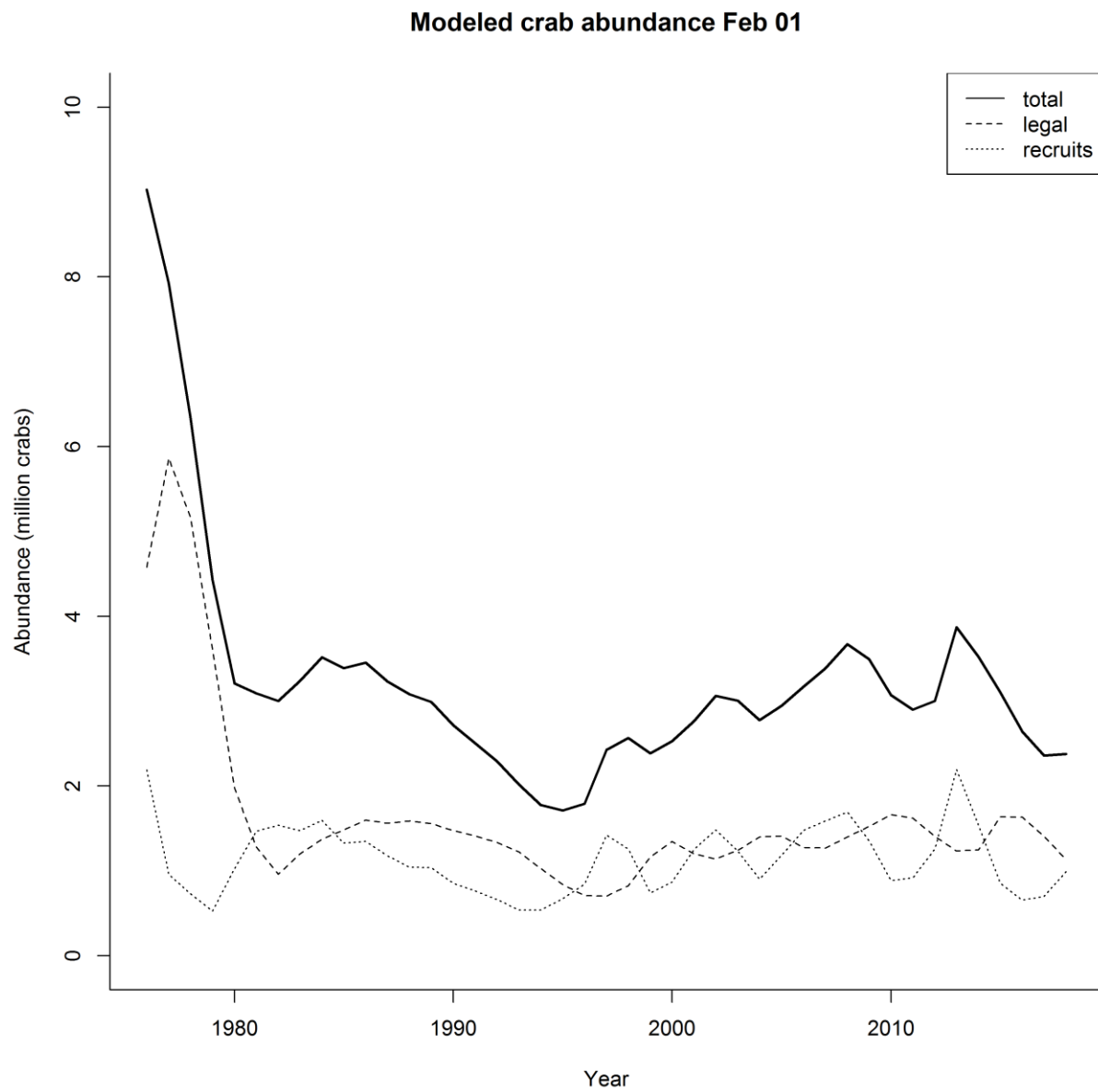


Figure C1-5. Estimated abundance of legal males from 1976-2015.

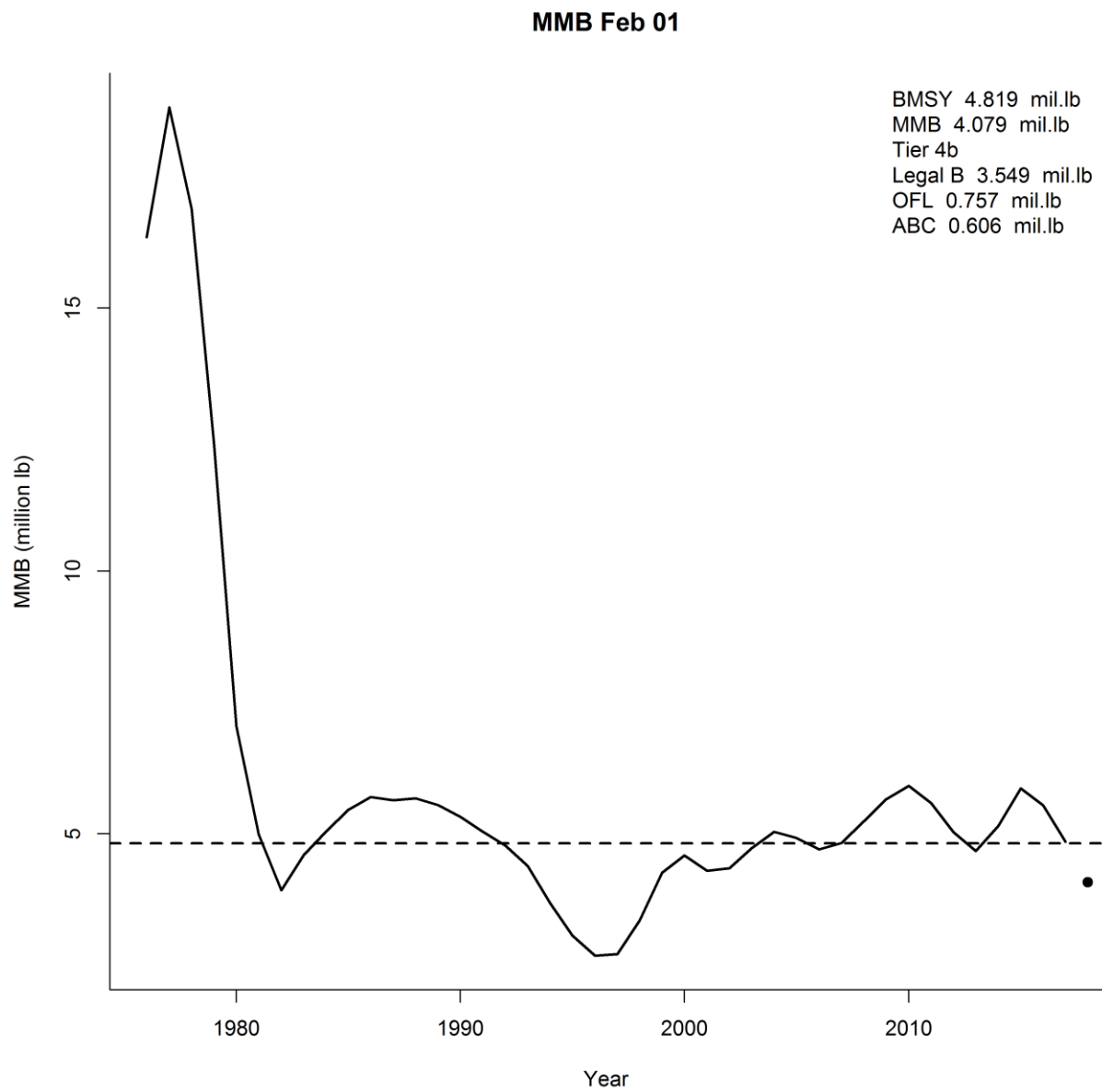


Figure C1-6. Estimated abundance of leg recruits from 1976-2017. Dash line shows Bmsy (Average MMB of 1980-2017).

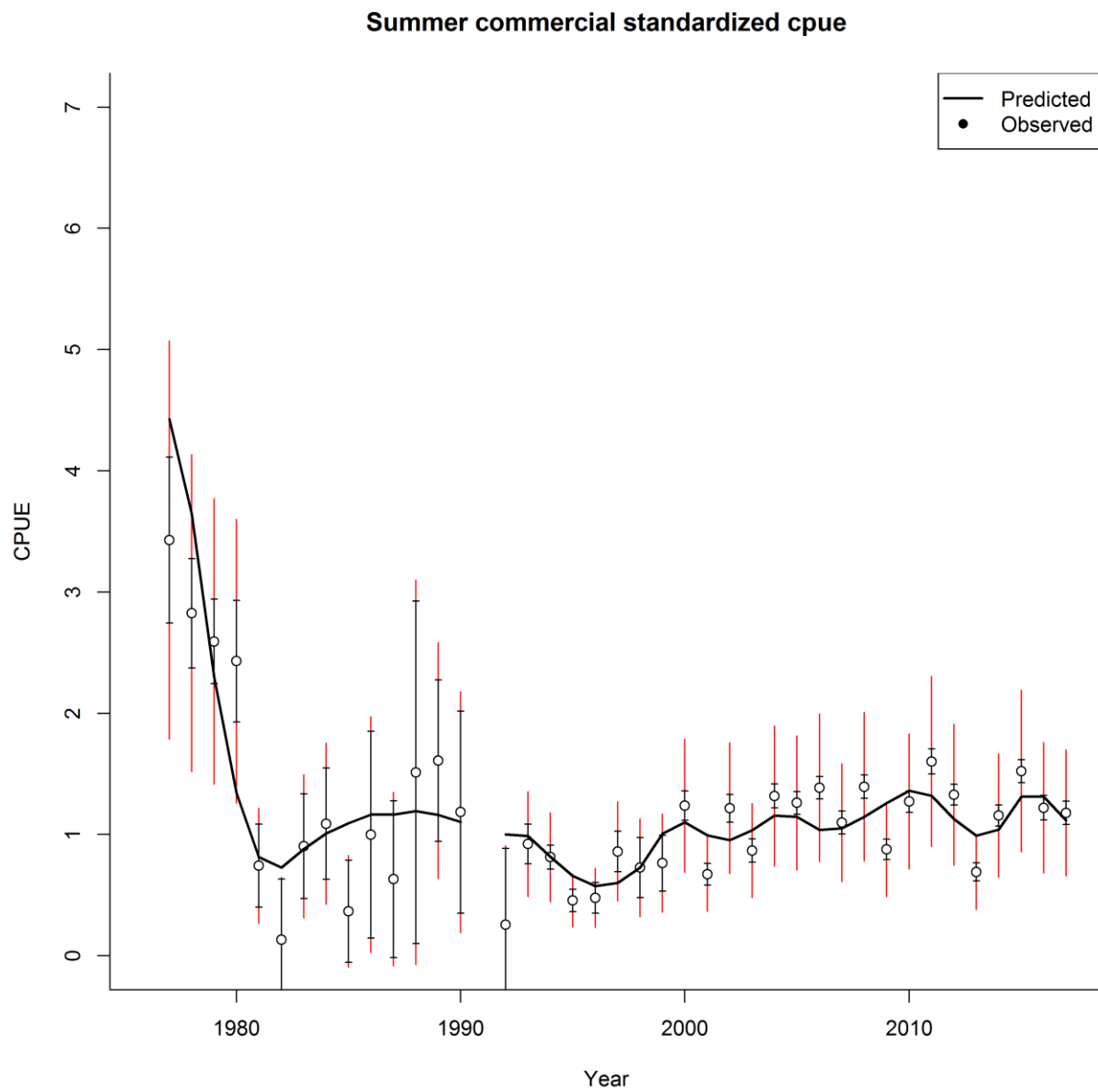


Figure C1-7. Summer commercial standardized cpue 1977-2017.

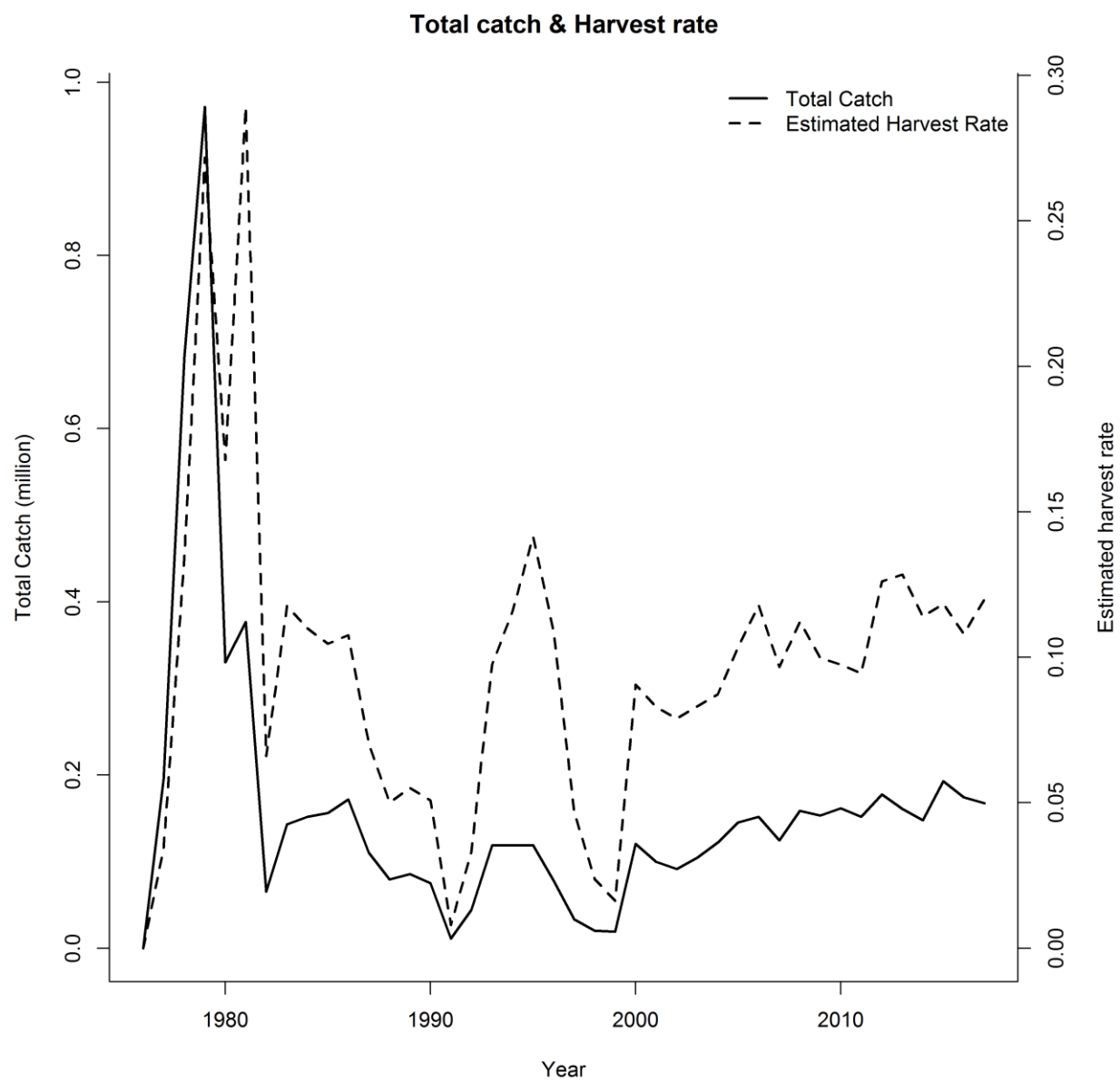


Figure C1-8. Total catch and estimated harvest rate 1976-2017.

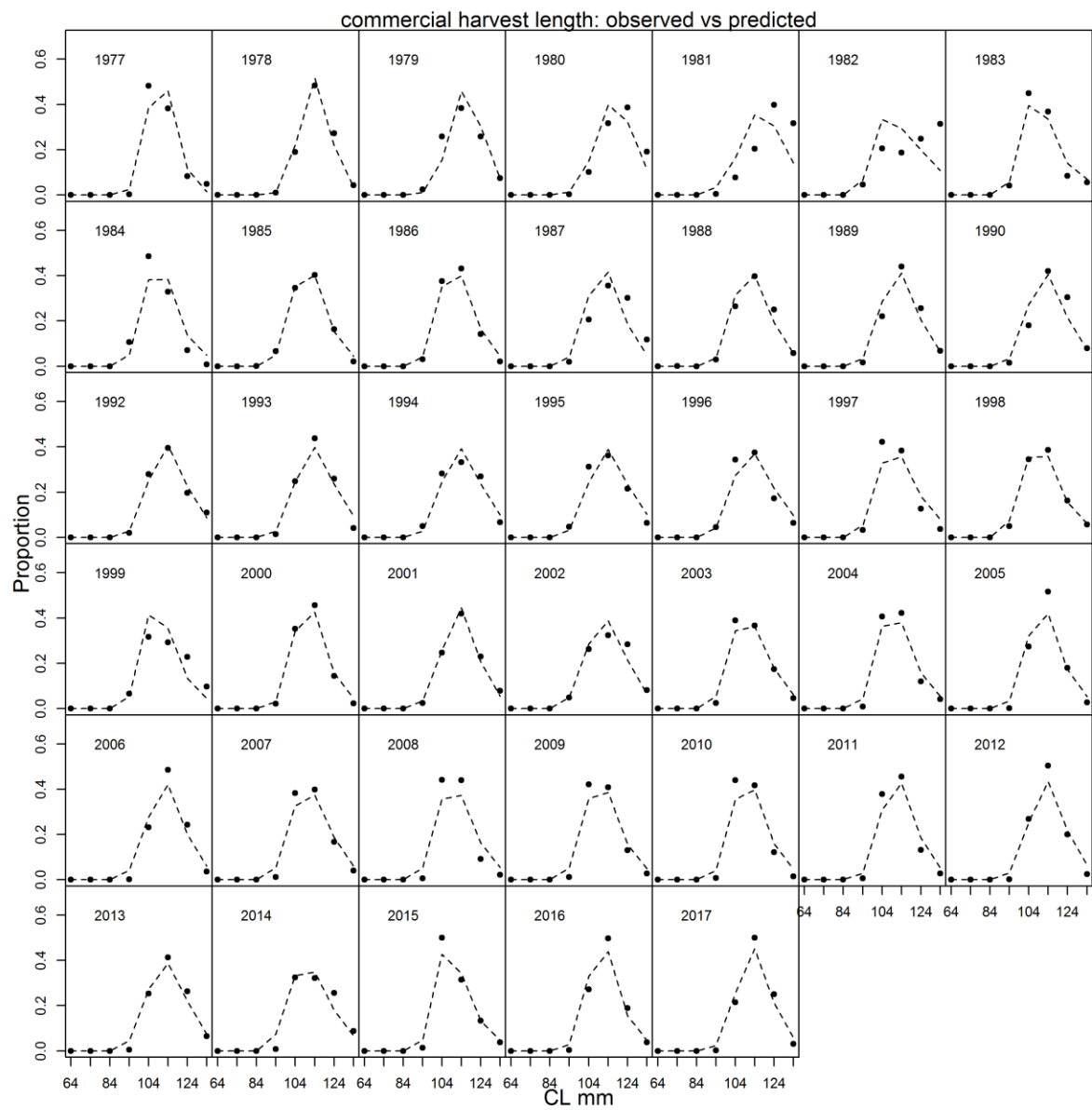


Figure C1-9. Predicted (dashed line) vs. observed (black dots) length class proportions for commercial catch.

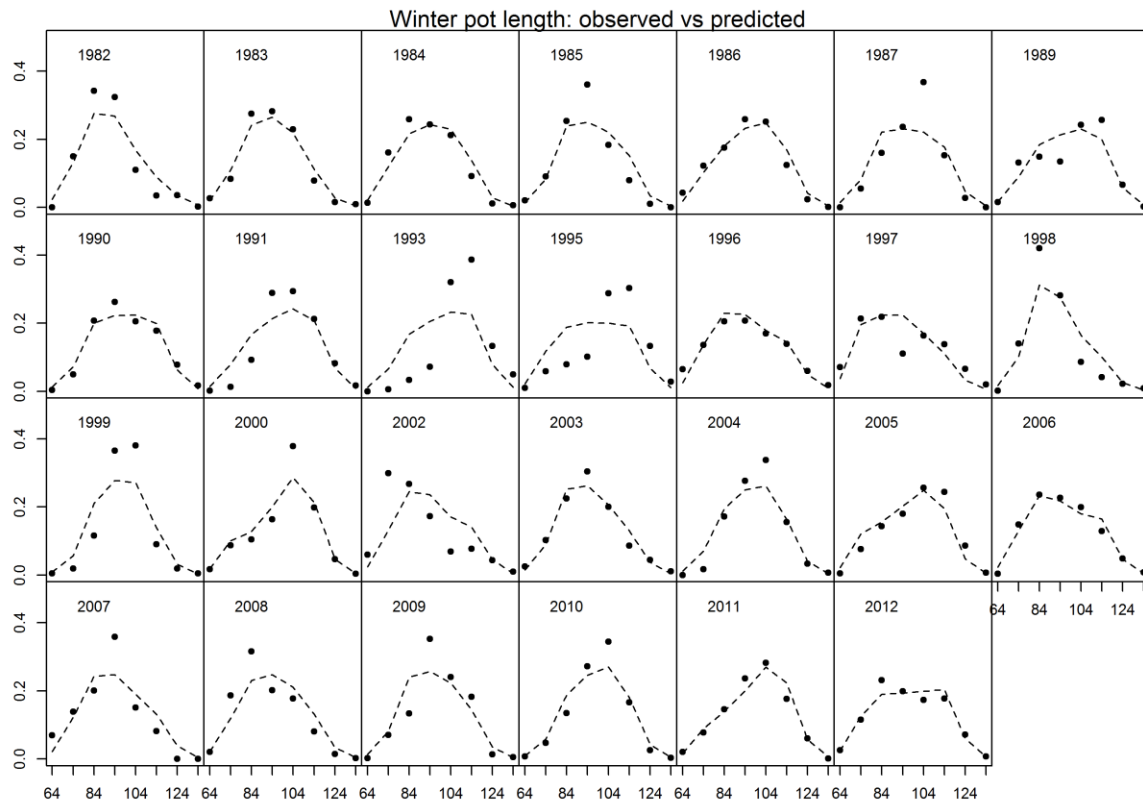
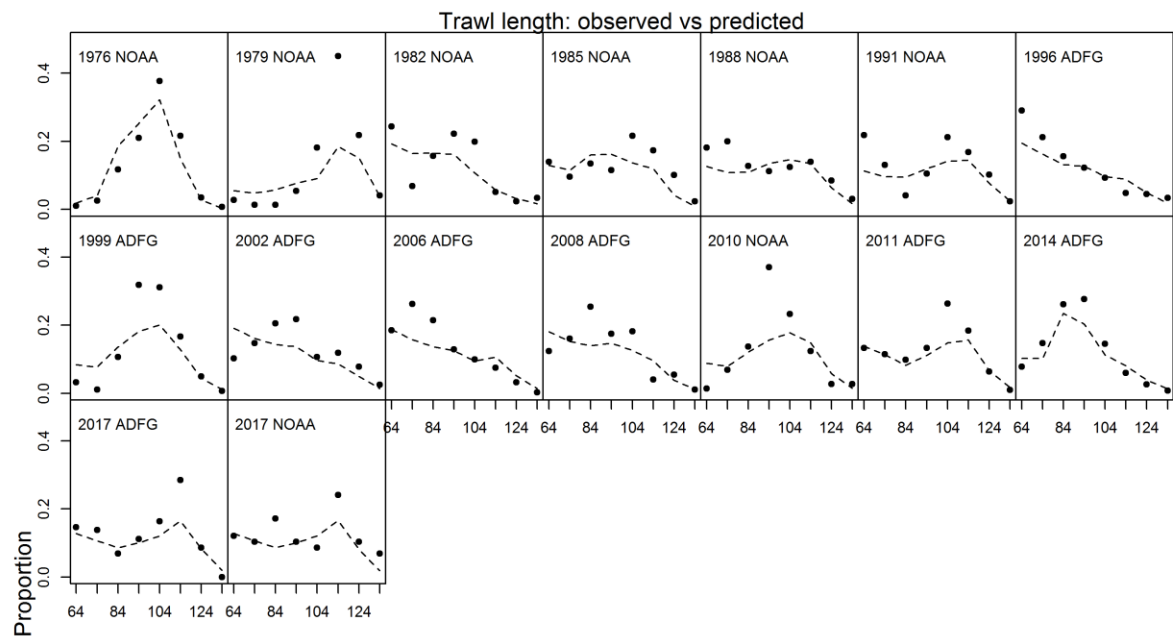


Figure C1-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter and spring pot survey.



Discards length: observed vs predicted

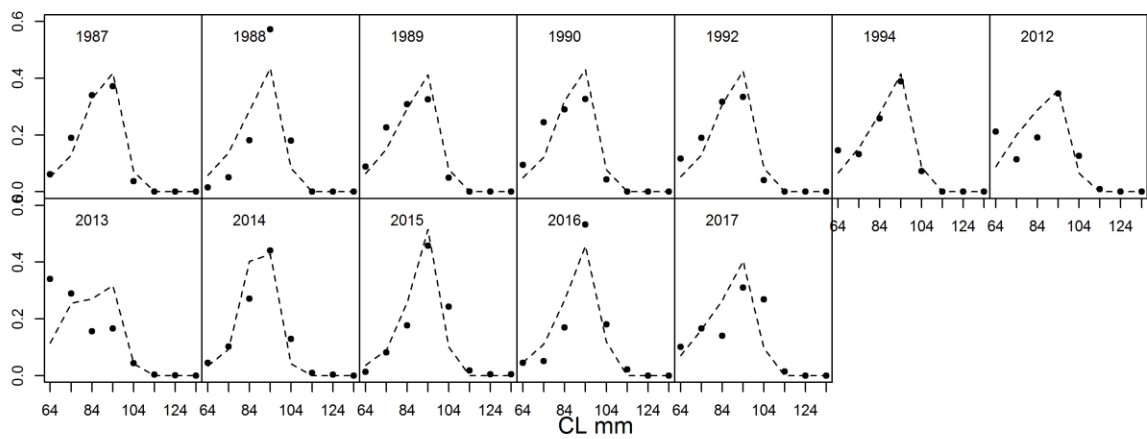


Figure C1-11. Predicted (dashed line) vs. observed (black dots) length class proportions for the trawl survey and observer survey.

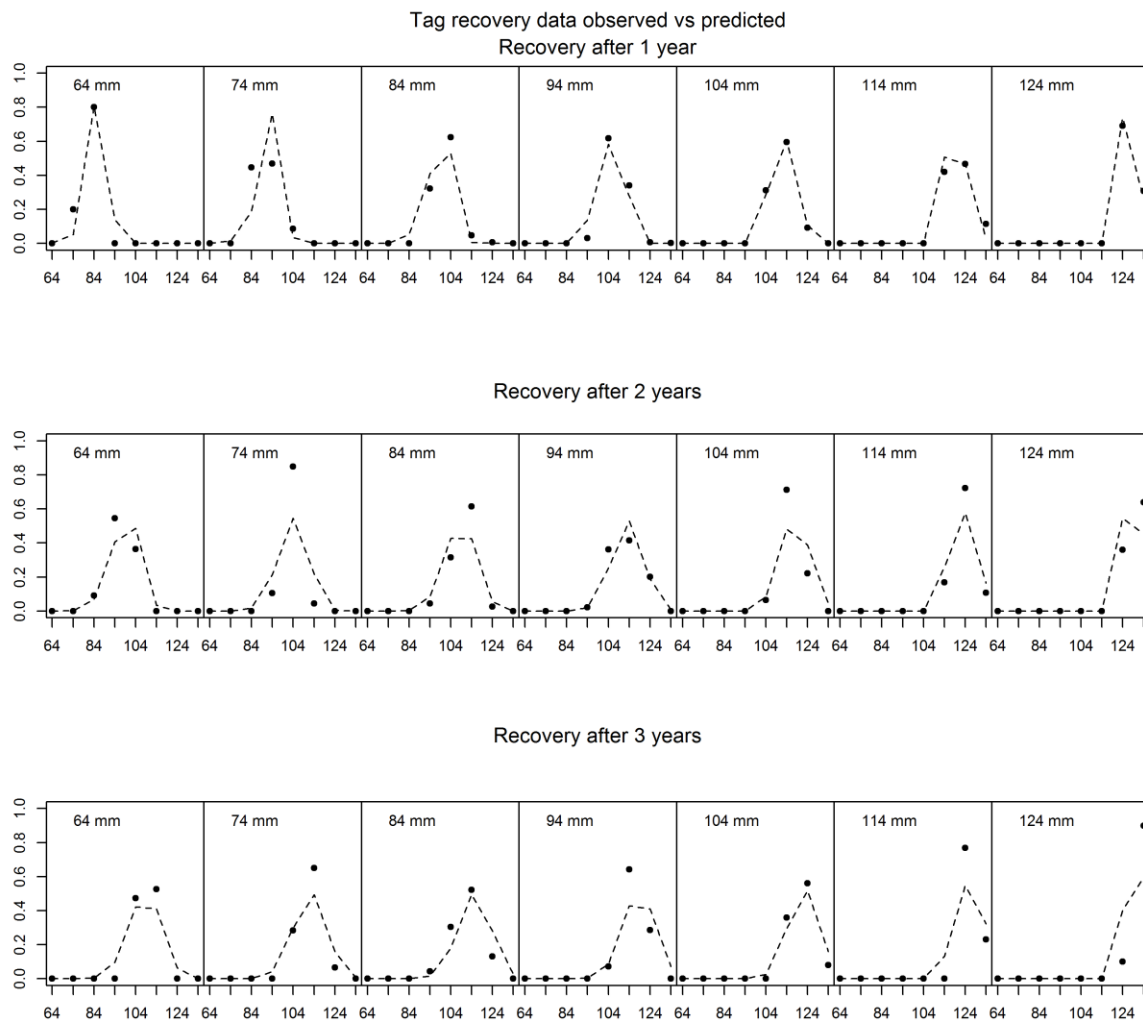


Figure C1-12. Predicted vs. observed length class proportions for tag recovery data.

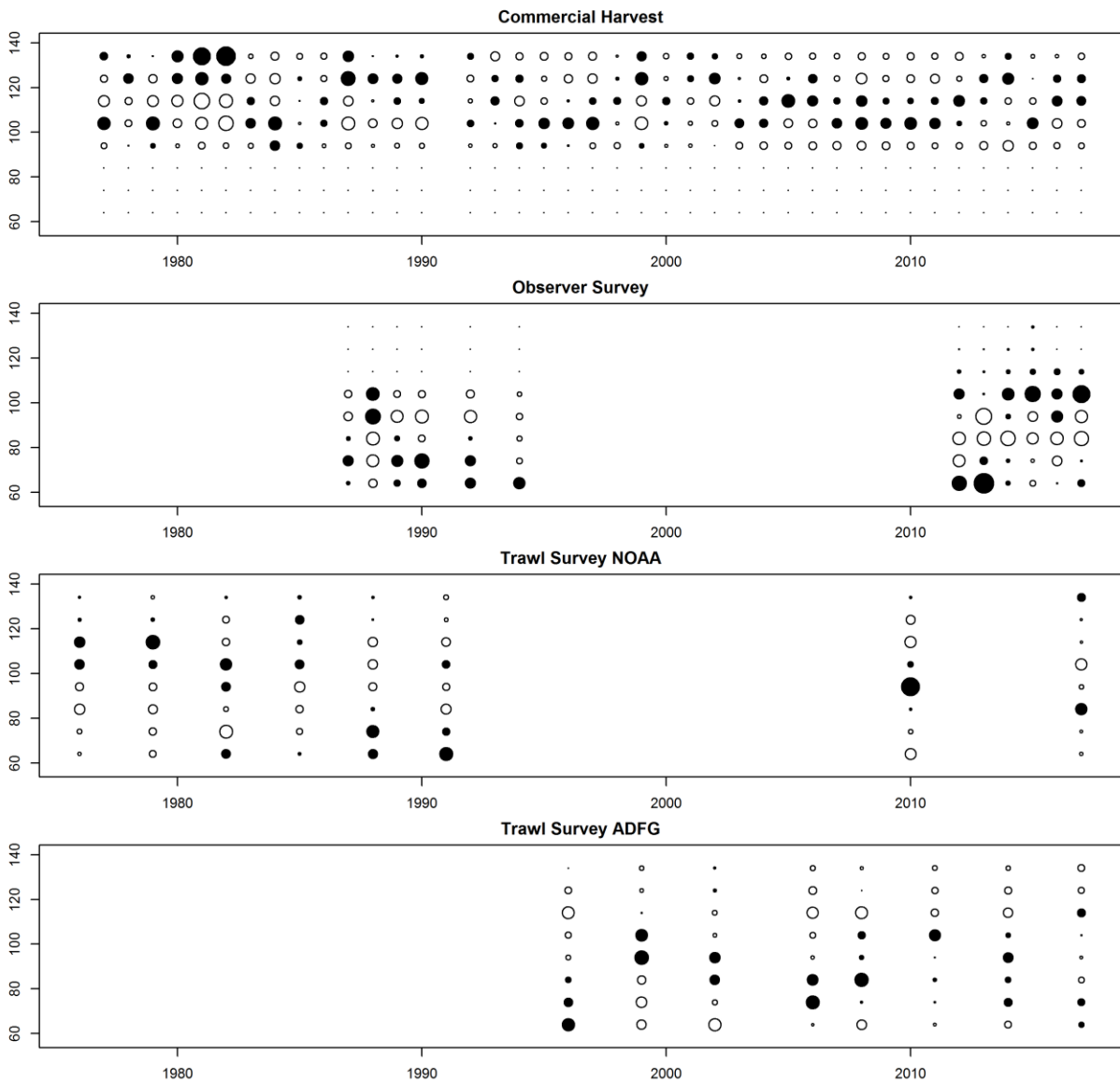


Figure C1-13. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

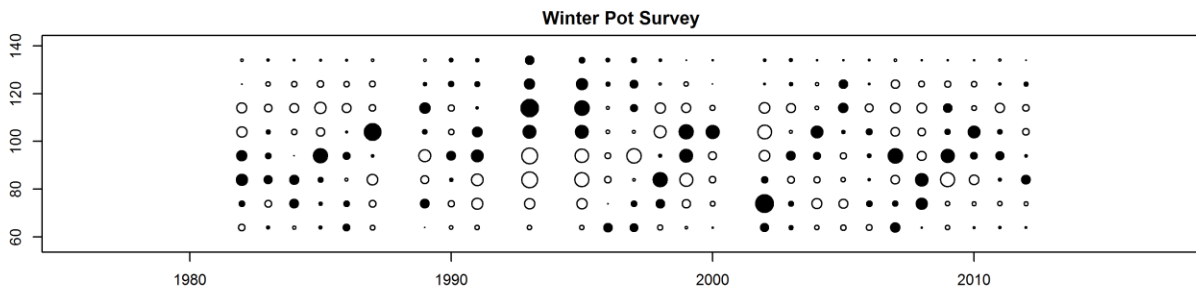


Figure C1-14. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

Table C1 . Summary of parameter estimates for a length-based stock synthesis population model of Norton Sound red king crab.

name	Estimate	std.dev
log_q1	-7.019	0.178
log_q2	-6.906	0.112
log_N76	9.108	0.144
R0	6.479	0.087
log_R76	-0.008	0.415
log_R77	-0.574	0.367
log_R78	-0.760	0.351
log_R79	0.269	0.318
log_R80	0.439	0.280
log_R81	0.403	0.261
log_R82	0.340	0.313
log_R83	0.497	0.275
log_R84	0.103	0.289
log_R85	0.341	0.280
log_R86	0.016	0.283
log_R87	0.000	0.246
log_R88	0.018	0.258
log_R89	-0.320	0.277
log_R90	-0.301	0.253
log_R91	-0.524	0.281
log_R92	-0.736	0.302
log_R93	-0.605	0.286
log_R94	-0.320	0.254
log_R95	-0.115	0.225
log_R96	0.521	0.218
log_R97	0.002	0.287
log_R98	-0.636	0.319
log_R99	0.005	0.306
log_R00	0.315	0.262
log_R01	0.414	0.240
log_R02	0.034	0.314
log_R03	-0.260	0.331
log_R04	0.304	0.240
log_R05	0.423	0.221
log_R06	0.456	0.243

name	Estimate	std.dev
log_R07	0.531	0.230
log_R08	0.108	0.287
log_R09	-0.373	0.292
log_R10	-0.006	0.249
log_R11	0.318	0.265
log_R12	0.958	0.190
log_R13	-0.071	0.293
log_R14	-0.355	0.313
log_R15	-0.535	0.295
log_R16	-0.313	0.266
a1	1.463	4.565
a2	2.250	4.250
a3	3.758	4.054
a4	4.068	4.039
a5	4.312	4.031
a6	3.545	4.060
a7	2.110	4.321
r1	10.000	0.886
r2	9.735	0.905
log_a	-2.639	0.089
log_b	4.824	0.015
log_φ _{st1}	-14.613	1320.1
log_φ _{wa}	-2.122	0.319
log_φ _{wb}	4.797	0.029
Sw1	0.074	0.036
Sw2	0.481	0.120
log_φ _l	-2.062	0.052
w ² _t	0.046	0.014
q	0.734	0.133
σ	3.897	0.217
β ₁	12.346	0.713
β ₂	7.681	0.177
ms78	3.218	0.279