

Appendix for C6: Results Model 5

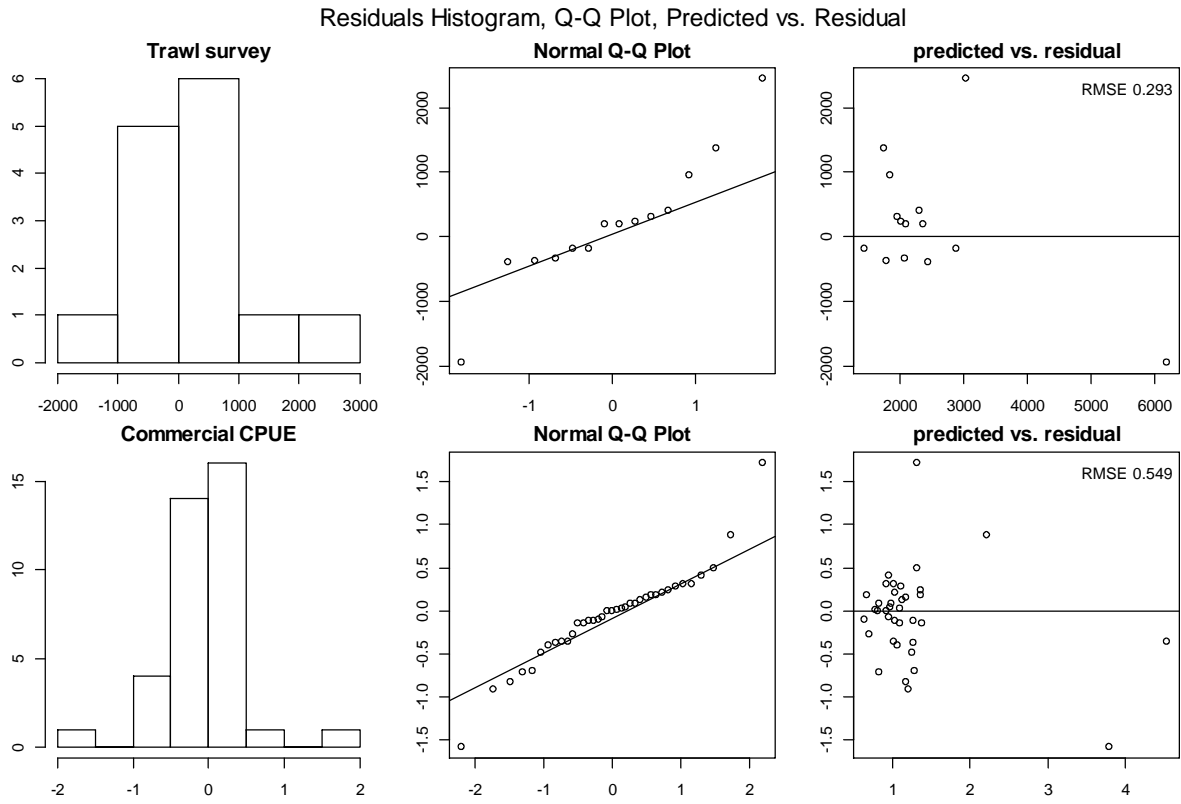


Figure C6-1. QQ plots of trawl survey abundance and commercial CPUE residuals.

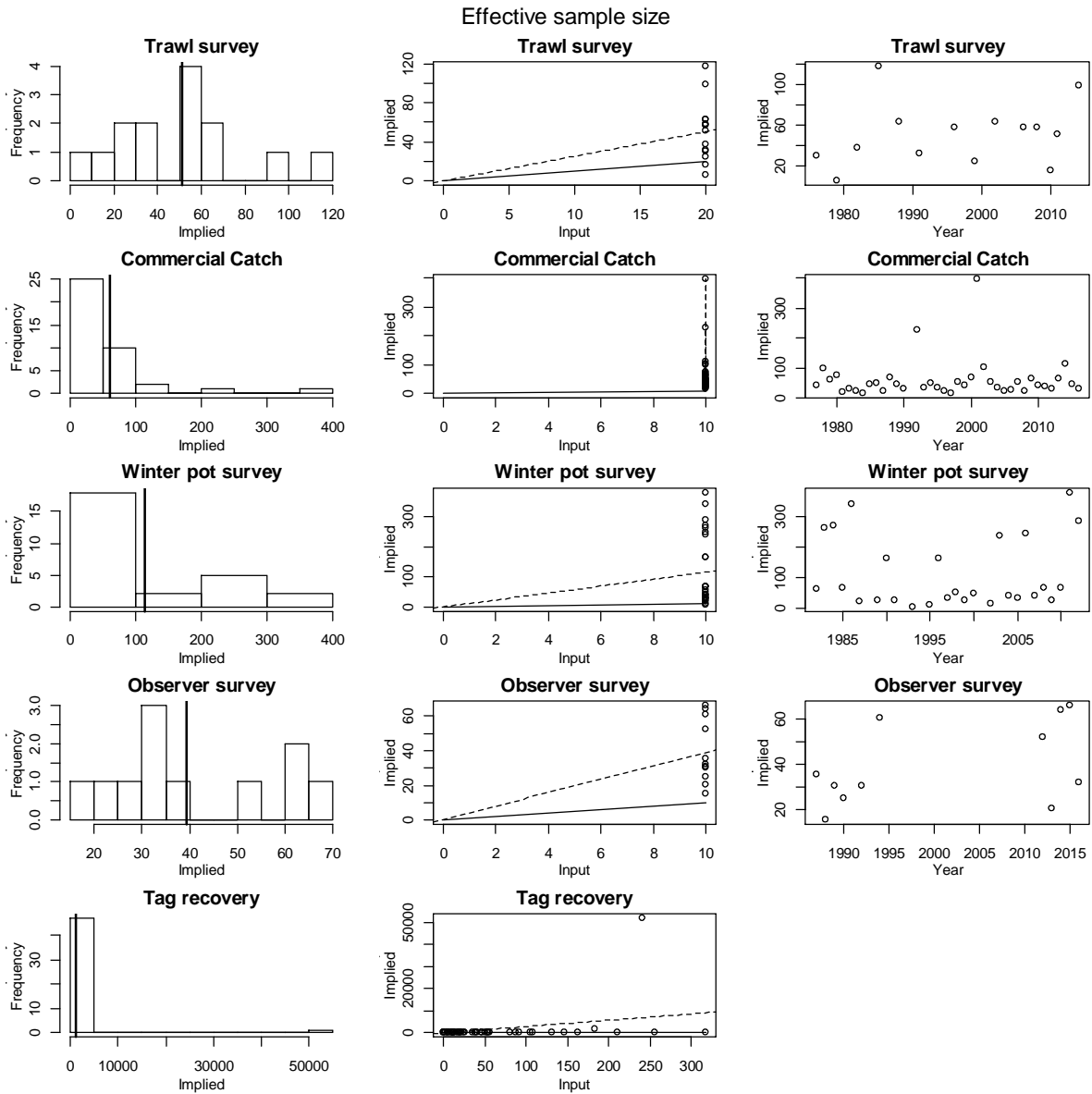


Figure C6-2: Implied effective sample sizes. Figures in the first column show implied effective sample size (x-axis) vs. frequency (y-axis). Vertical solid line is the mean implied effective sample size. The second column shows input sample sizes (x-axis) vs. implied effective sample sizes (y-axis). Dashed line indicates the linear regression slope, and solid line is 1:1 line. The third column shows years (x-axis) vs. implied effective sample sizes (y-axis).

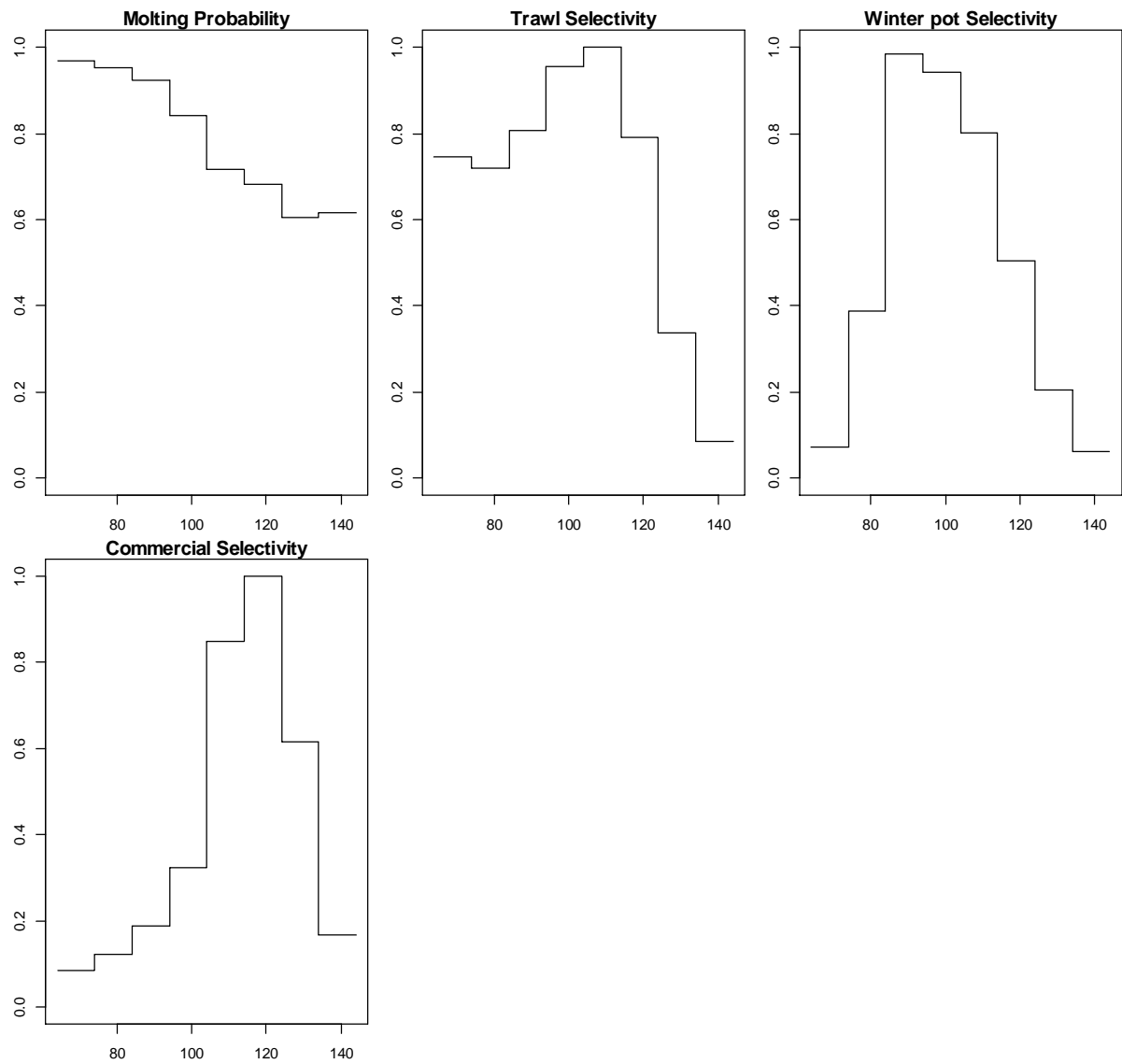


Figure C6-3. Model estimated annual molting probability, trawl survey selectivity, winter pot survey selectivity, and summer commercial fishery selectivity. X-axis is carapace length (mm).

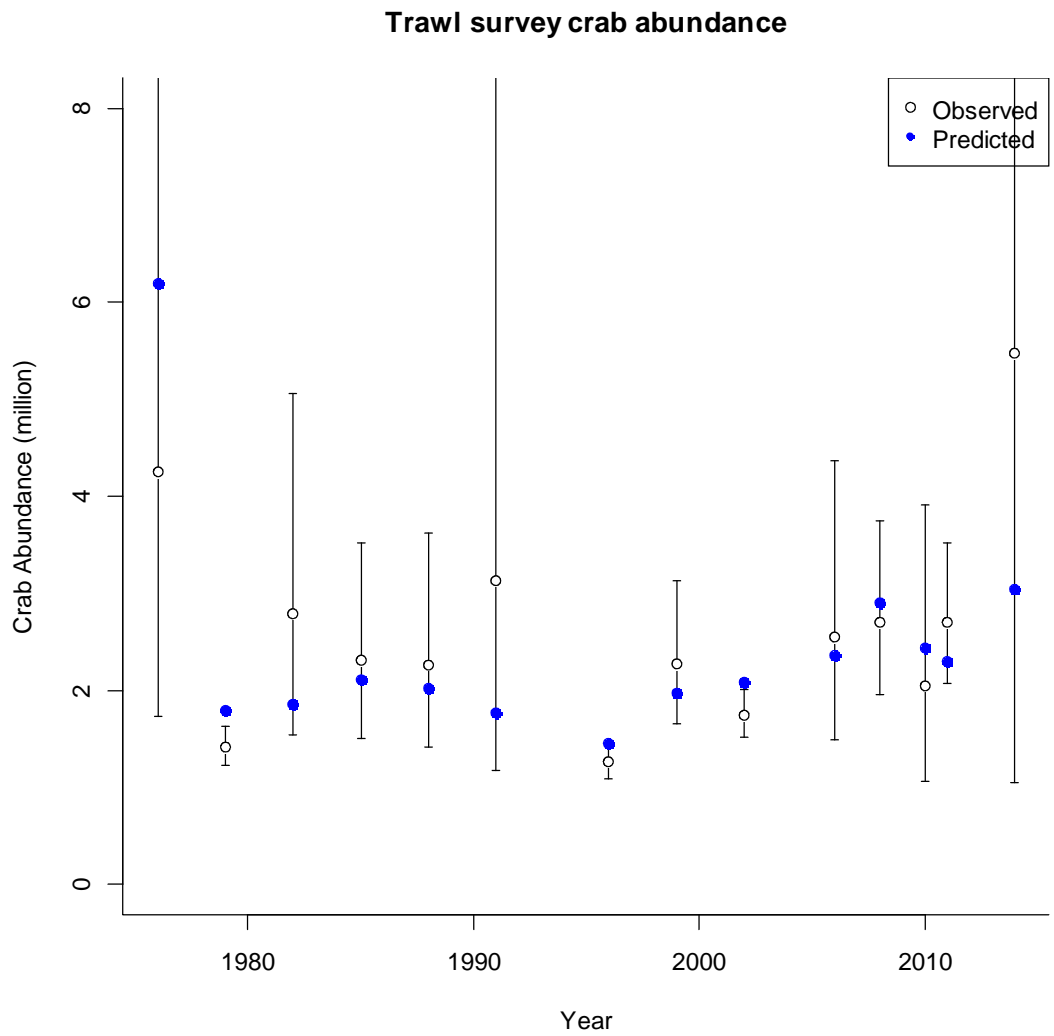


Figure C6-4. Observed and model estimated trawl survey male abundances over time with 95% confidence intervals (crab \geq 74 mm CL).

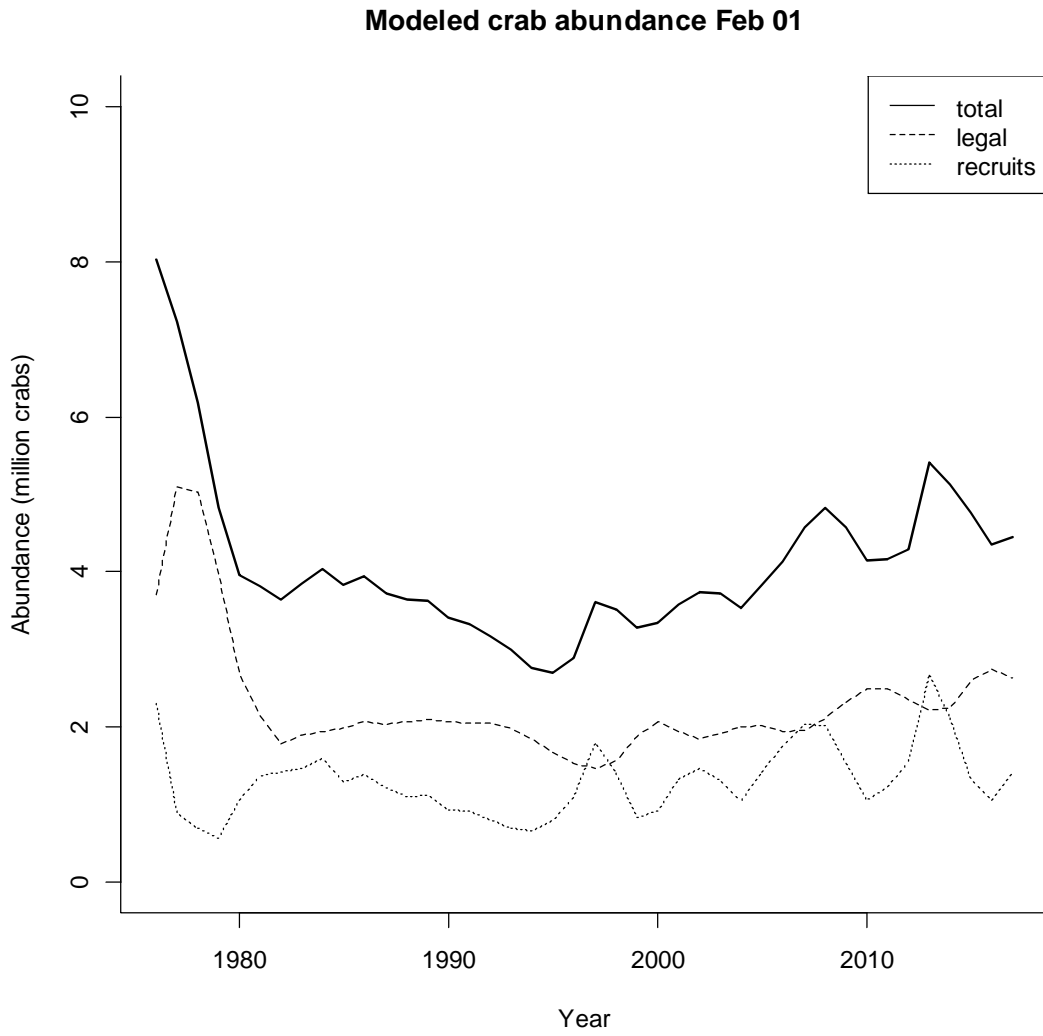


Figure C6-5. Estimated abundance of legal males from 1976-2016.

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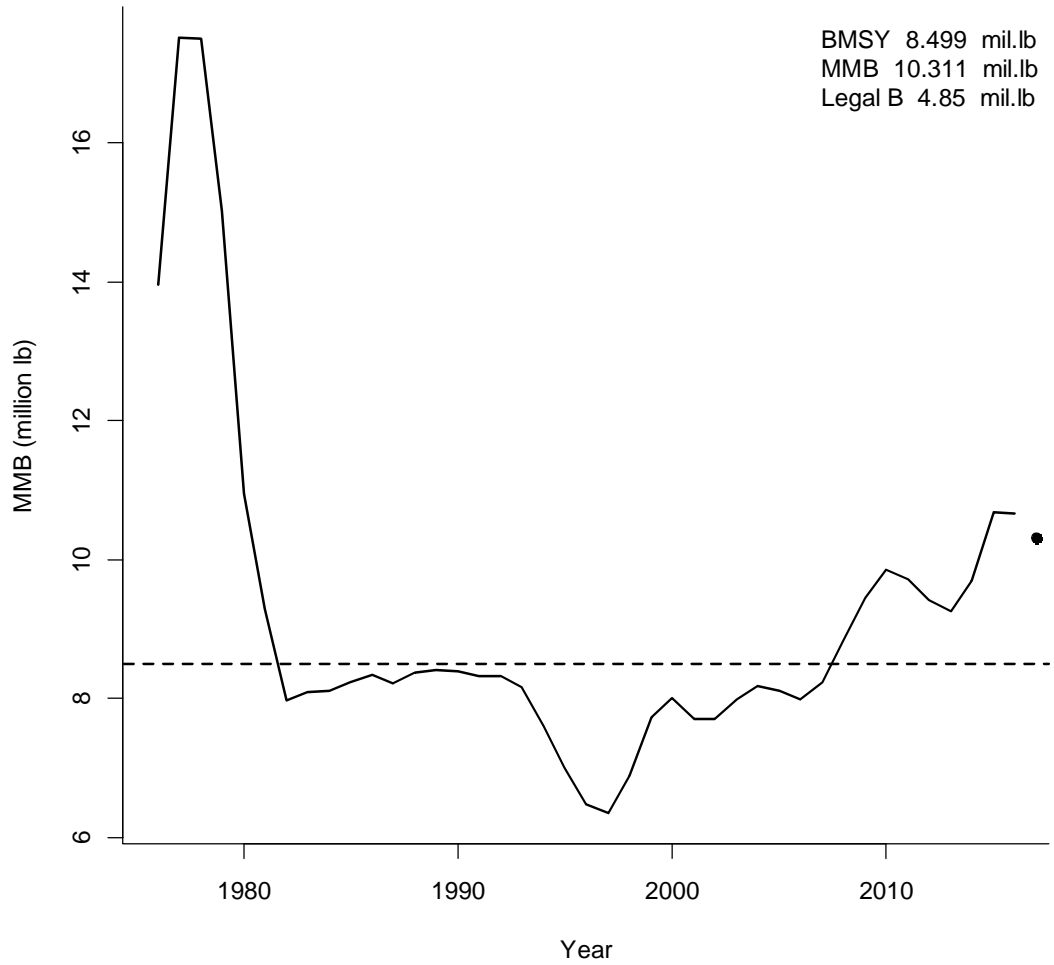


Figure C6-6. Estimated abundance of leg recruits from 1976-2016. Dash line shows B_{msy} (Average MMB of 1980-2016).

Summer commercial standardized cpue

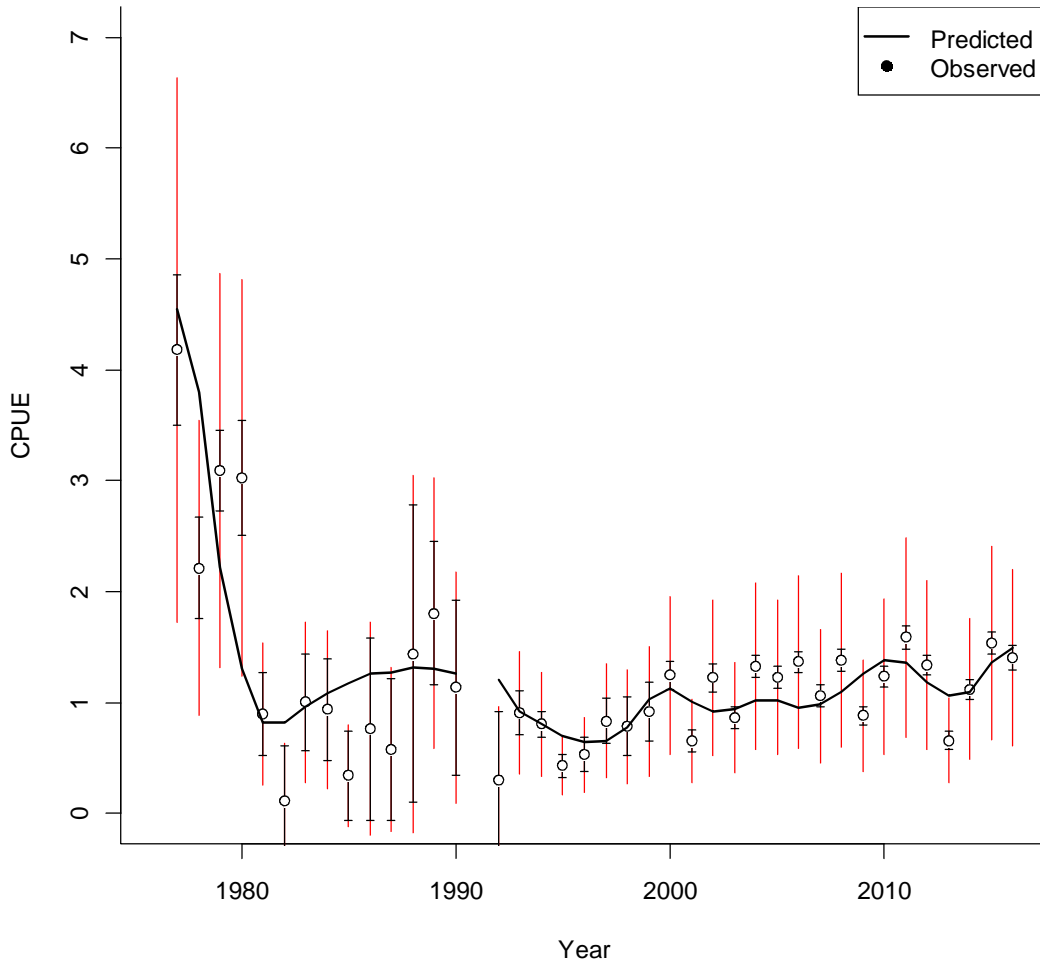


Figure C6-7. Summer commercial fishery standardized cpue during 1977-2016.

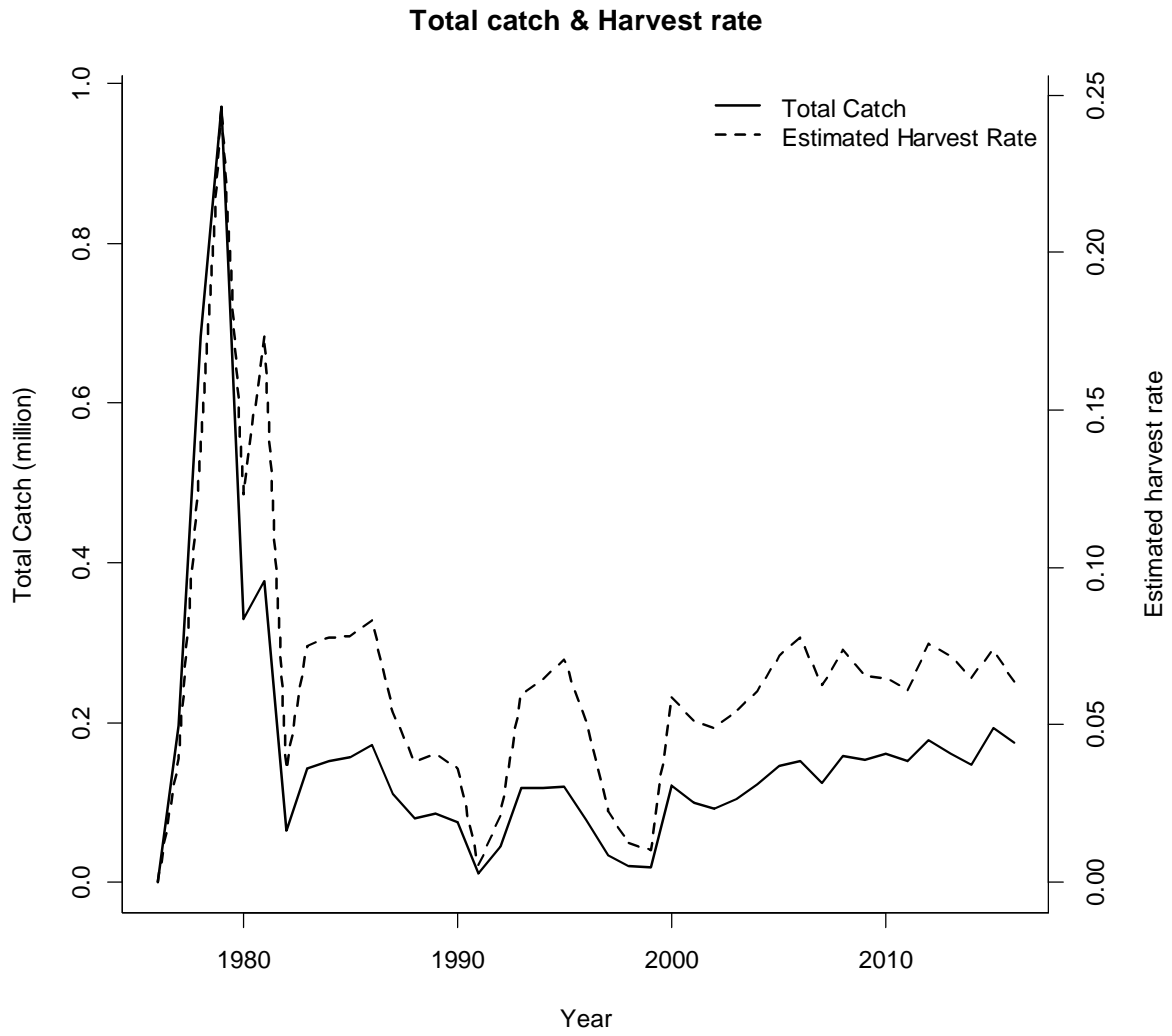


Figure C6-8. Total catch and estimated harvest rates during 1976-2016.

commercial harvest length: observed vs predicted

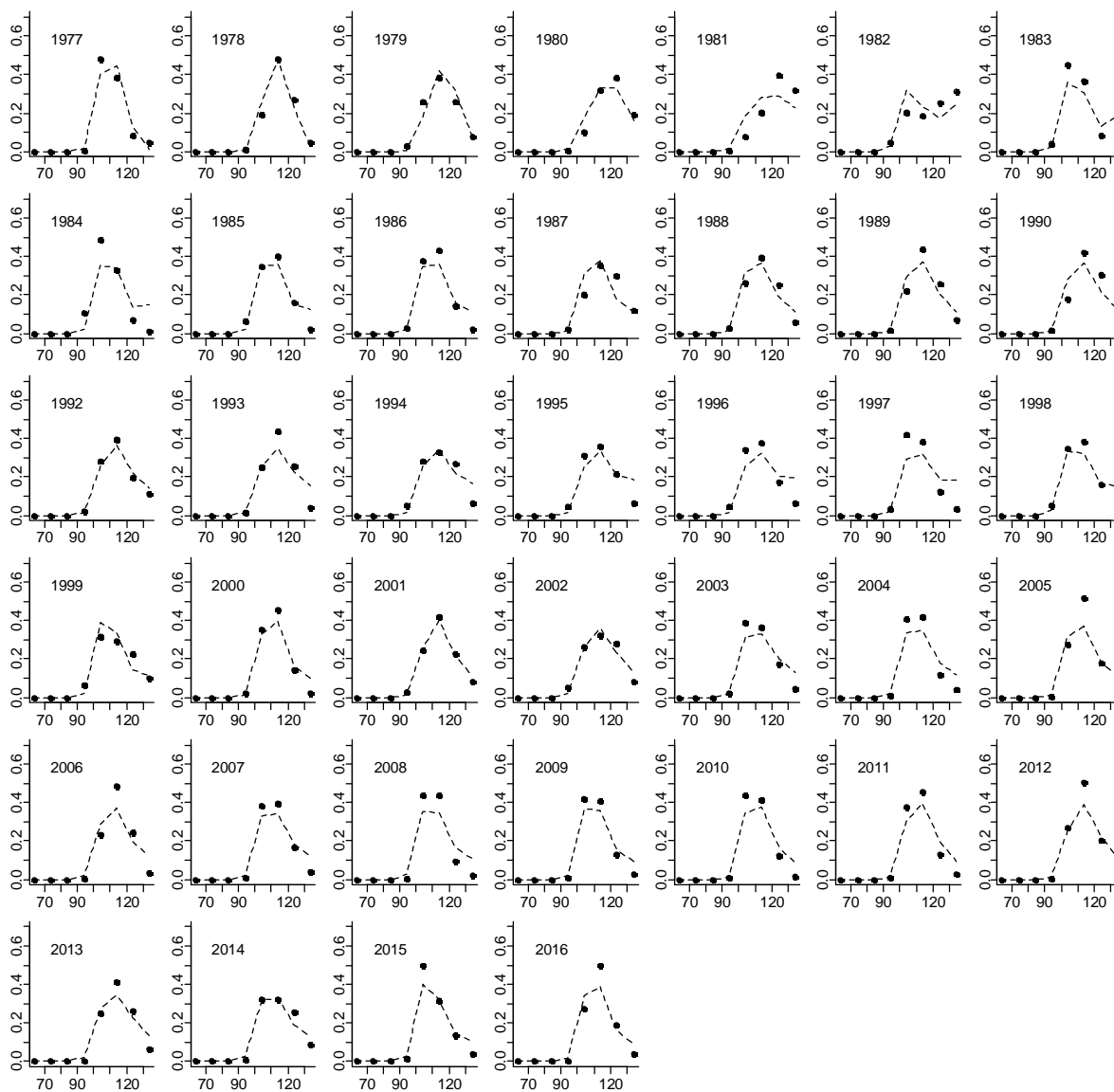


Figure C6-9. Predicted (dashed line) vs. observed (black dots) length class proportions for commercial catch.

Winter pot length: observed vs predicted

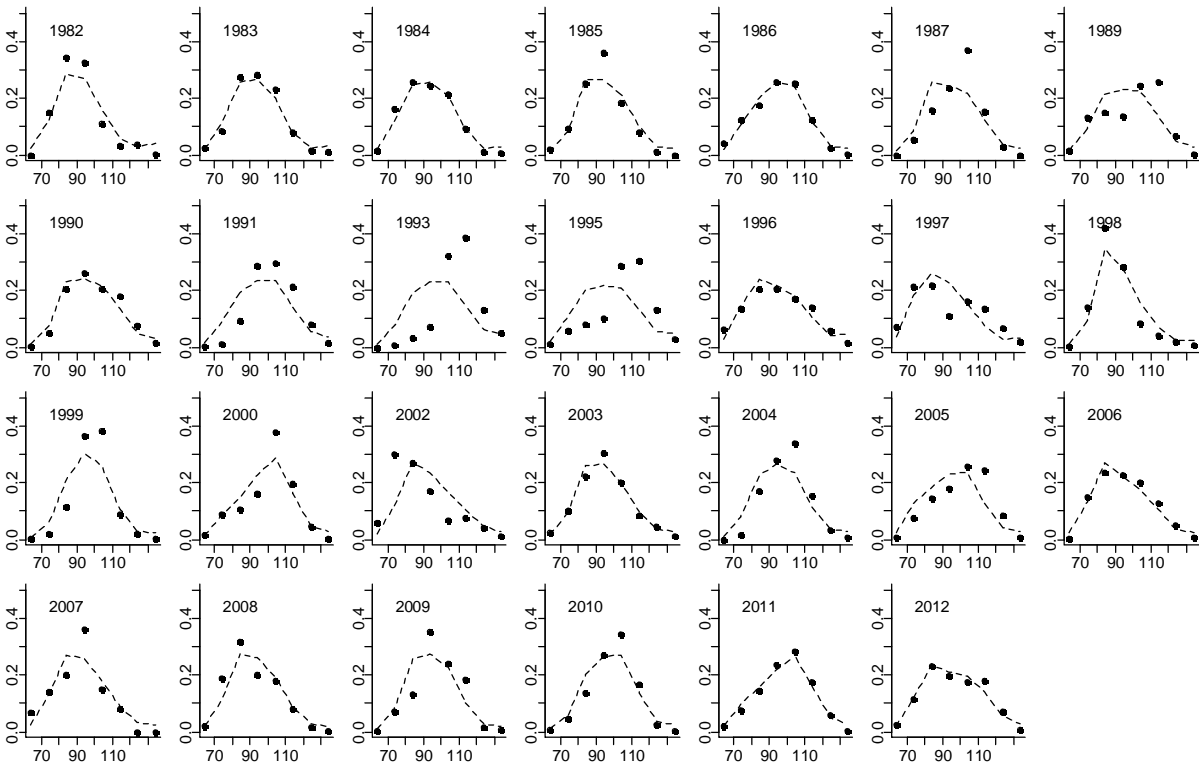


Figure C6-10. Predicted (dashed line) vs. observed (black dots) length class proportions for the winter pot survey.

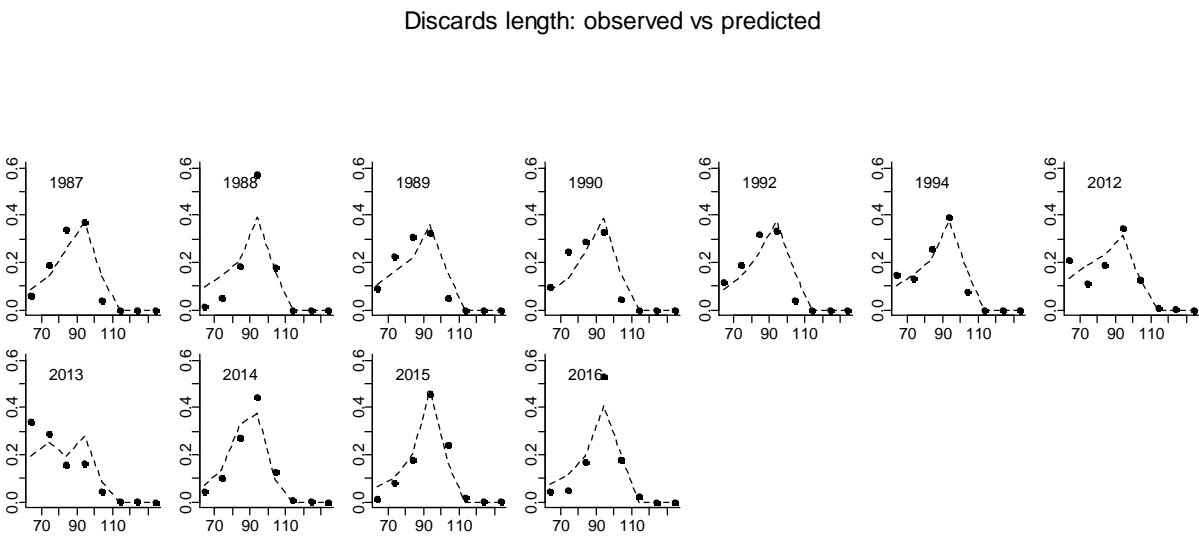
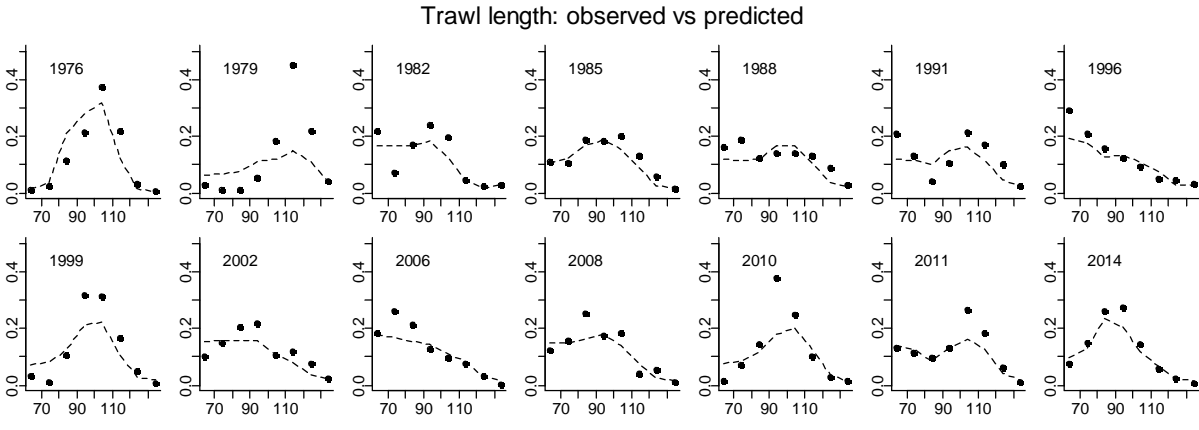


Figure C6-11. Predicted (dashed line) vs. observed (black dots) length class proportions for the trawl survey and observer survey.

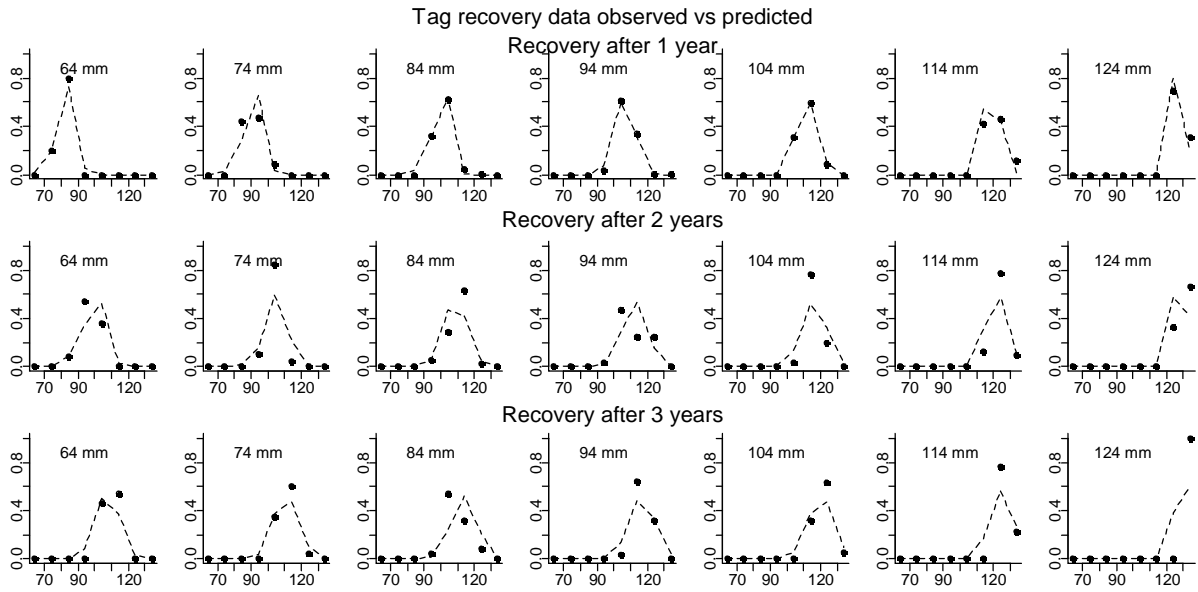


Figure C6-12. Predicted (dashed line) vs. observed (black dots) length class proportions for tag recovery data.

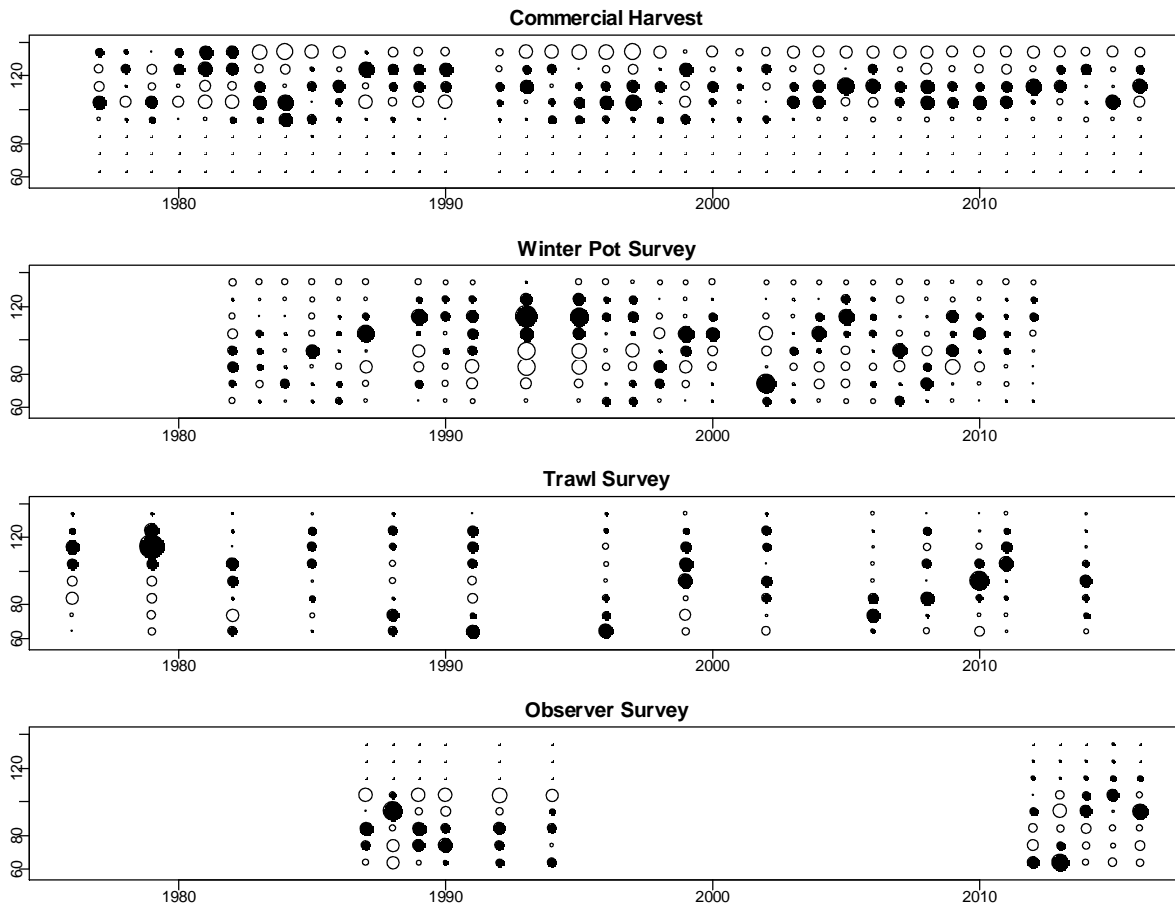


Figure C6-13. Bubble plots of predicted and observed length proportions. Black circle indicates model estimates lower than observed, white circle indicates model estimates higher than observed. Size of circle indicates degree of deviance (larger circle = larger deviance).

Table C6-1 . Summary of parameter estimates for a length-based stock synthesis population model of Norton Sound red king crab.

name	Estimate	std.dev
log_q1	-6.687	0.190
log_q2	-6.868	0.166
log_N76	8.991	0.140
R0	6.522	0.133
log_R76	-0.270	0.401
log_R77	-0.701	0.356
log_R78	-0.805	0.350
log_R79	0.200	0.319
log_R80	0.188	0.311
log_R81	0.194	0.275
log_R82	0.243	0.327
log_R83	0.346	0.293
log_R84	-0.107	0.307
log_R85	0.276	0.282
log_R86	-0.142	0.309
log_R87	-0.061	0.263
log_R88	-0.030	0.276
log_R89	-0.395	0.306
log_R90	-0.190	0.266
log_R91	-0.529	0.308
log_R92	-0.561	0.315
log_R93	-0.592	0.312
log_R94	-0.290	0.288
log_R95	0.080	0.251
log_R96	0.634	0.229
log_R97	-0.241	0.352
log_R98	-0.615	0.332
log_R99	-0.093	0.329
log_R00	0.285	0.291
log_R01	0.218	0.280
log_R02	0.004	0.340
log_R03	-0.258	0.359
log_R04	0.397	0.271
log_R05	0.456	0.259
log_R06	0.618	0.273

name	Estimate	std.dev
log_R07	0.505	0.275
log_R08	0.030	0.334
log_R09	-0.328	0.324
log_R10	0.224	0.257
log_R11	0.347	0.310
log_R12	1.078	0.250
log_R13	0.131	0.362
log_R14	-0.068	0.425
log_R15	-0.179	0.439
a1	0.000	0.199
a2	1.130	2.488
a3	2.727	2.012
a4	2.836	1.935
a5	2.925	1.918
a6	2.221	1.975
a7	0.864	2.462
r1	10.000	0.873
r2	9.767	0.938
mol.1	0.968	0.029
mol.2	0.951	0.024
mol.3	0.922	0.022
mol.4	0.842	0.026
mol.5	0.716	0.028
mol.6	0.682	0.032
mol.7	0.605	0.047
mol.8	0.615	0.098
st.sel1	0.747	0.200
st.sel2	0.718	0.148
st.sel3	0.807	0.156
st.sel4	0.954	0.144
st.sel5	1.000	0.000
st.sel6	0.791	0.137
st.sel7	0.338	0.090
st.sel8	0.085	0.034
log_φ _w	-1.983	0.032

name	Estimate	std.dev
Sw1	0.073	0.036
Sw2	0.388	0.094
sc.sel1	0.087	0.034
sc.sel2	0.122	0.037
sc.sel3	0.190	0.051
sc.sel4	0.324	0.062
sc.sel5	0.848	0.084
sc.sel6	1.000	0.001
sc.sel7	0.616	0.070
sc.sel8	0.167	0.038
w ² _t	0.076	0.023
q	1.000	0.001
ms		
σ	4.153	0.259
β ₁	8.755	1.019
β ₂	8.527	0.250