Science, Service, Stewardship

SEDAR 31 Gulf of Mexico Red Snapper: Review workshop

April 30, 2013

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Model diagnostics – model convergence

- In large statistical models the solution surface will be very complex. To ensure that the model has converged to a “global” solution, rather than a local minimum, it is important to start the model using alternative starting values for the model parameters

- Jitter analysis: 50 runs – varied starting value of all estimated parameters by 10%

- All 50 runs converged on a solution and inverted the hessian

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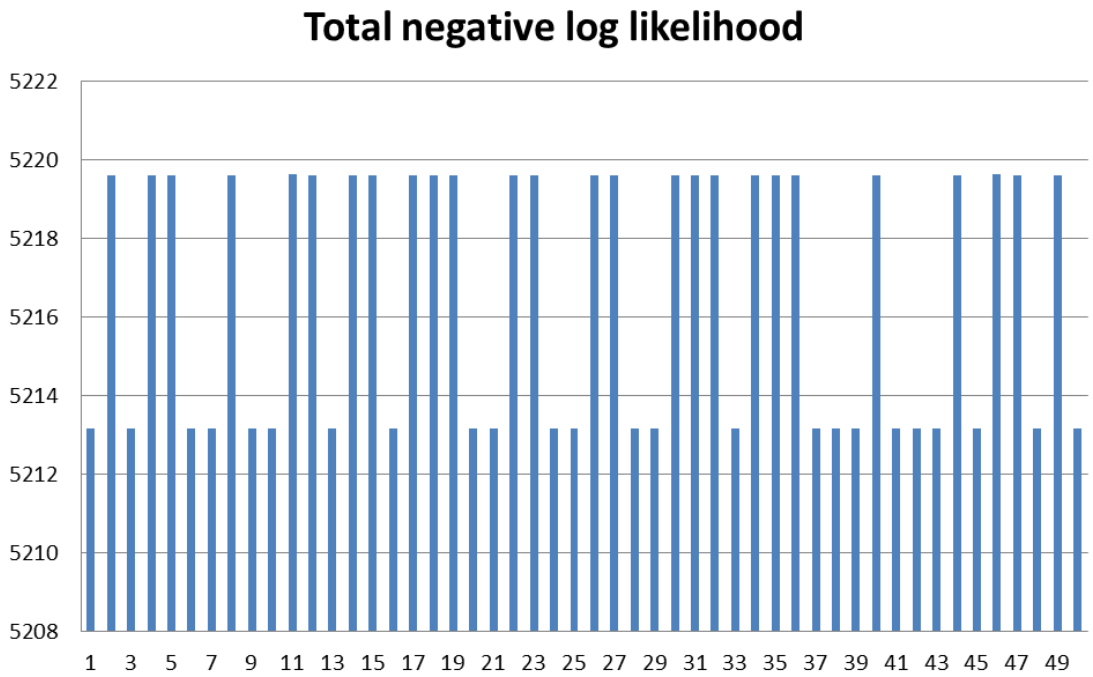
Jitter results

- Runs converged on two solutions
- 24/50 with a total likelihood of 5213.15
- 26/50 with a total likelihood of 5219.62
- Base model = 5219.62



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Jitter results

- Despite the difference in the negative log likelihood between the two solutions, the model trends and derived management metrics are nearly identical for all runs

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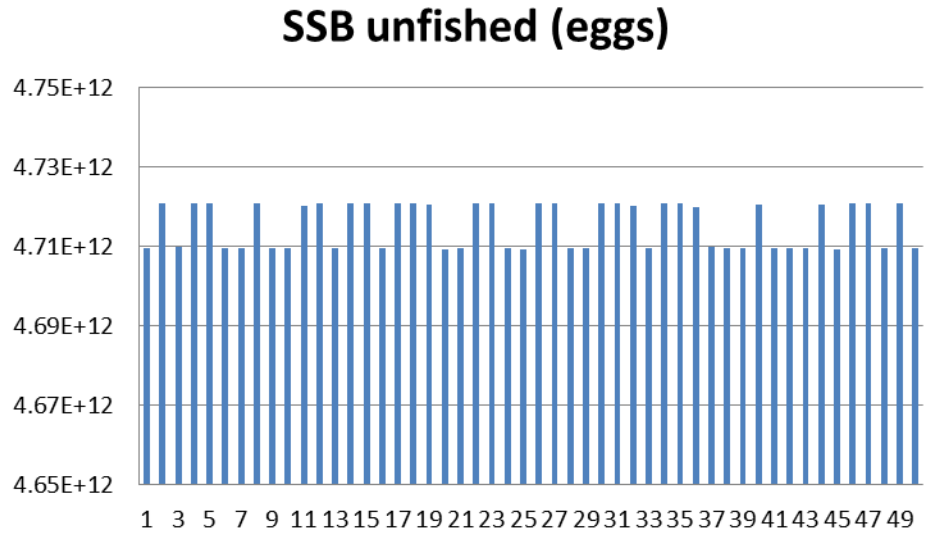

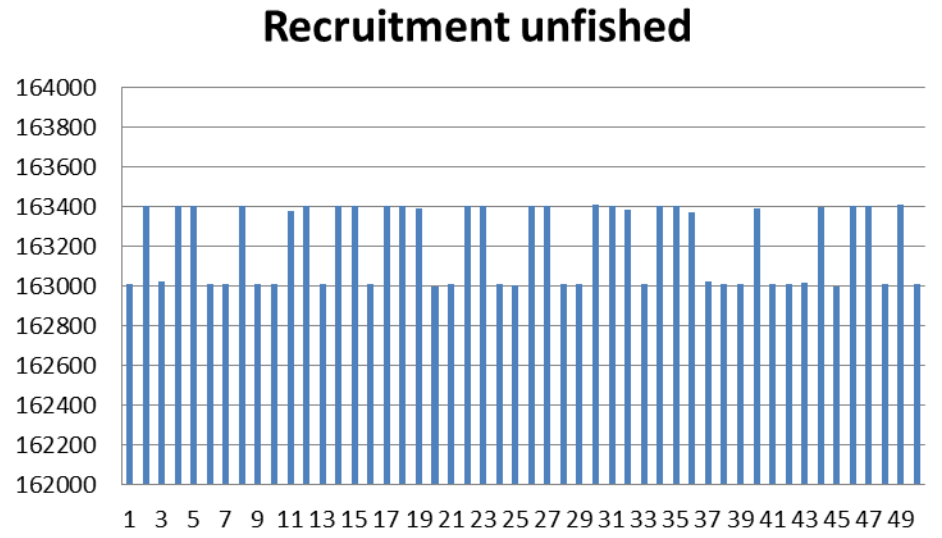

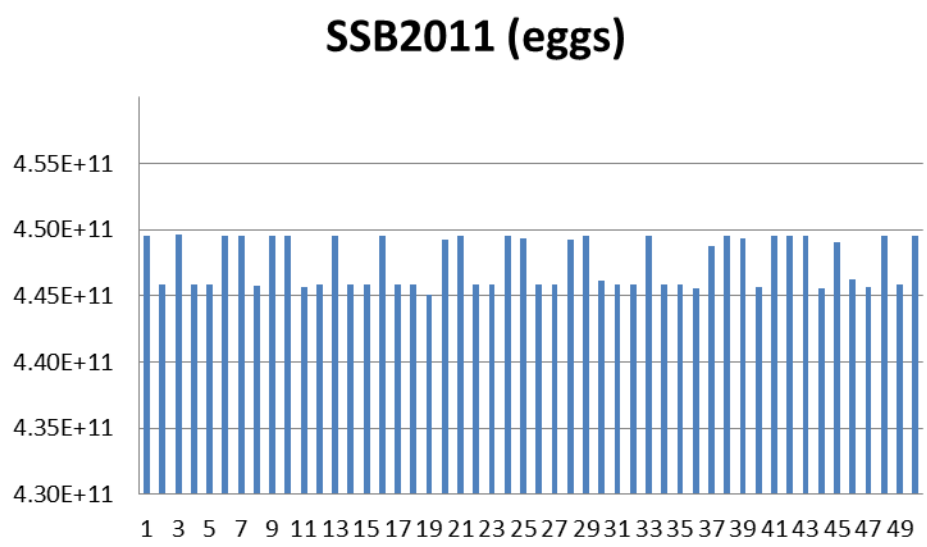

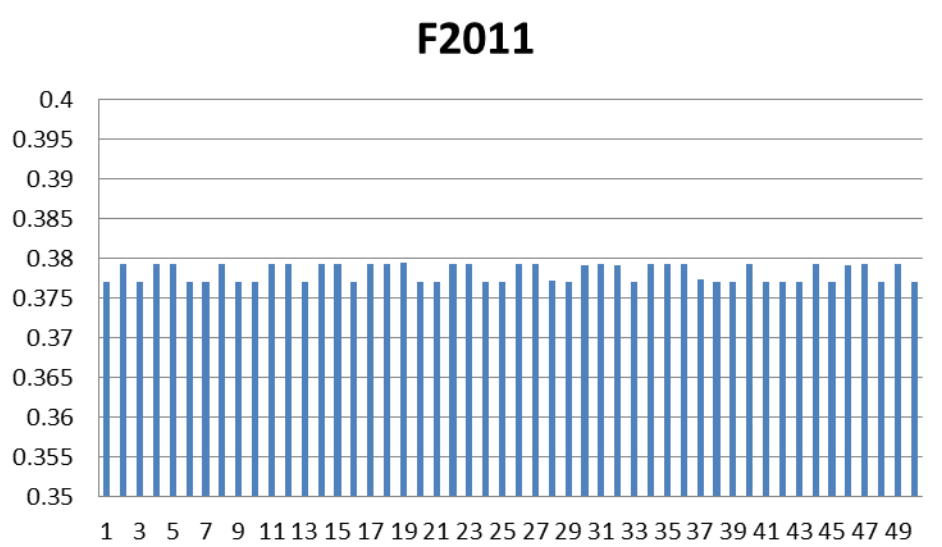

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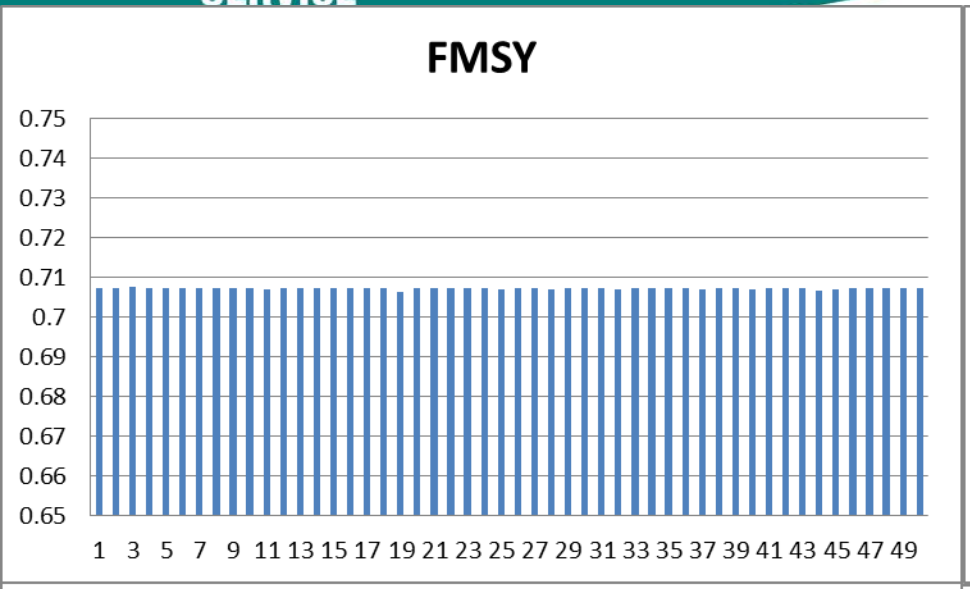

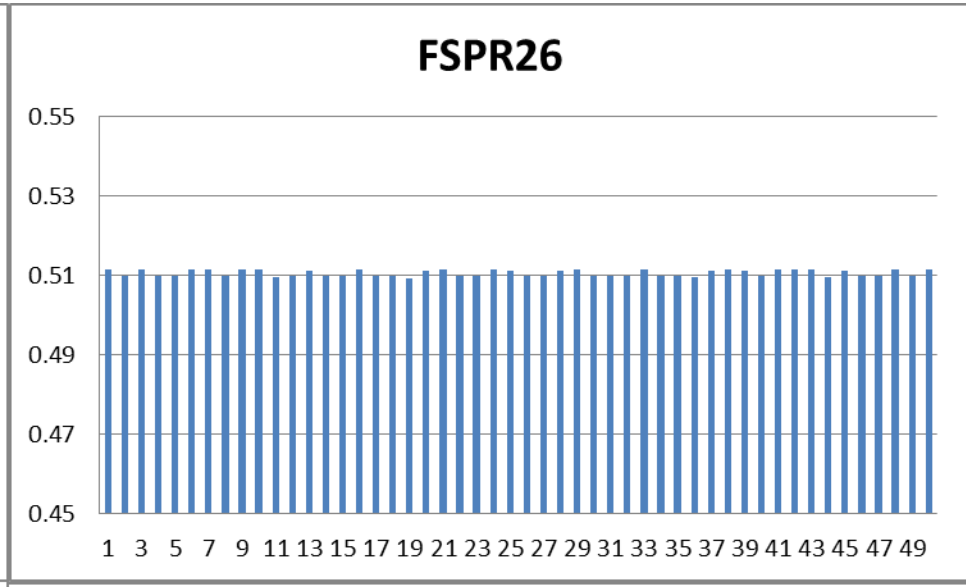

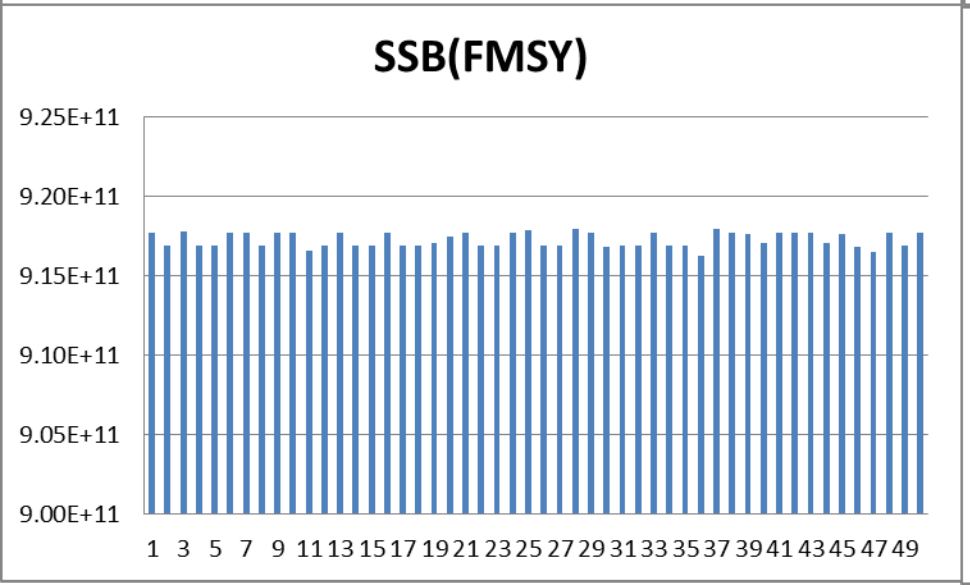

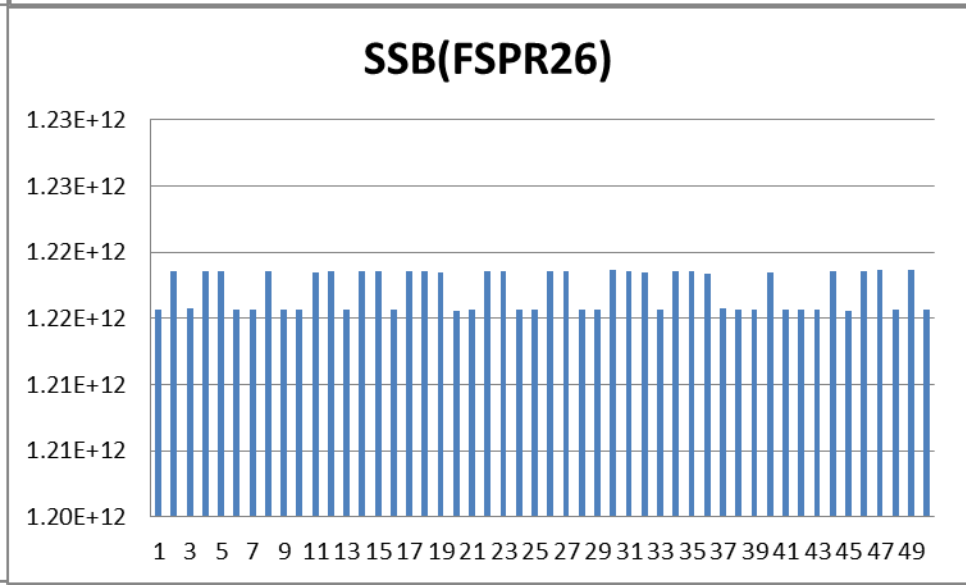

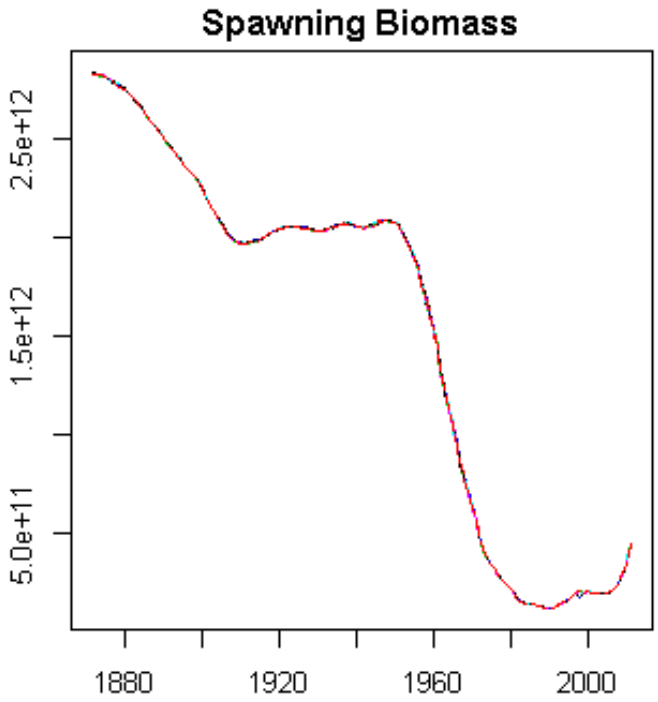
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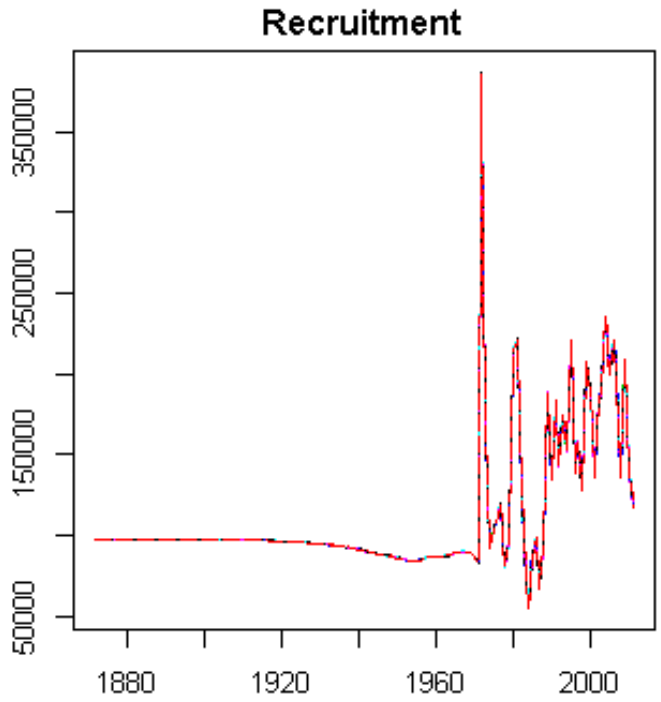
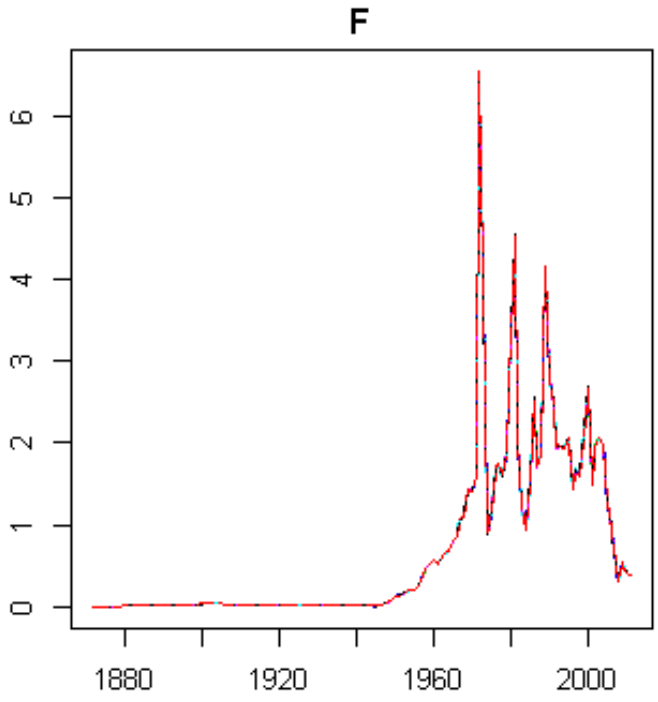
2.5e+12
1.5e+12
5.0e+11
1880
1920
1960
2000


Recruitment
350000
250000
150000
50000
1880
1920
1960
2000


F
6
5
4
3
2
1
0
1880
1920
1960
2000