West Coast Rock Lobster: Responses to previous Panel Recommendations

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Summary

This document list the IWS 2010 panel recommendations and provides responses to these.

Responses are shown as separate paragraphs in *italcs*.

IWS 2010 Panel recommendations

A. Updated assessments and projections

AA.1 (H). The Panel is concerned that the software used to implement the assessment model on which the operating models will be based may at times be failing to converge to the global minimum of the objective function. At present the analyst is using heuristics to find an appropriate set of initial values for the parameters. However, it is not clear if this is a sufficiently reliable approach given that there are many robustness tests which involve refitting the model. Possible ways to overcome this problem include: (a) using several minimization algorithms simultaneously (e.g. simulated annealing to get close to the minimum, followed by another method such as simplex), (b) use of phases in the estimation so that only a sub-set of the parameters are estimated in the initial stages of the minimization (e.g. those which determine the scale of the population are estimated first), and (c) reparameterizing the model so that the parameters are as orthogonal and normalized as possible. Convergence concerns can be explored by starting the minimization algorithm at various initial values.

Response: Considerable time was spent exploring convergence issues. The main focus was to explore a wide range of starting values, as well as fitting the model in different stages. Convergence is now considered to be satisfactorily achieved.

AA.2 (H). In relation to the specifications of the reference case models, the Panel recommends that: (a) the parameters which determine the rate of decline of growth increment with size for males and females, and the ratios of the expected growth increments for females relative to those for males, should be considered as free parameters of the assessment model [each of these should be introduced in turn in case some parameters are confounded] because this may lead to better fits, and selectivity patterns which are more biological realistic, (b) the current scenarios which admit future increases in somatic growth rates should be dropped from the reference case set and treated as robustness tests, and (c) consideration should be given to adding one of the existing robustness tests into the reference set to capture a wider range of scenarios in this set.

Response: (a) has not been pursued and somatic growth parameters are estimated outside the assessment models as this would be too complex internally. (b) has been implemented and (c) will be pursued in following OMP developments.

AA.3 (H). The set of robustness tests is adequate. There is no need to conduct additional robustness tests where the area east of Hangklip is taken to be a separate area, because indications are that the abundance there relative to the remainder of super-area 8 is small.

Response: This was noted.

AA.4 (H). Drop any percentage female and length-frequency data as input to the model-fitting procedure for years and gear types for which it has been agreed that the corresponding CPUE data are likely unrepresentative of abundance due to very limited sampling. Examine all percentage female and length-frequency data for which the corresponding sample size is low and develop rules for excluding data for which the sample size is likely too small to provide meaningful information.

Response: This recommendation has been followed.

AA.5 (H). Refine the basis for the selectivity patterns by starting with simple (and biologically plausible) selectivity patterns and adjust these if needed. The Panel has the following specific recommendations in regard to selectivity: (a) assume that the selectivity patterns for males and females in hoop and trap catches as well as in the FIMS surveys are logistic functions of length, (b) fix the asymptote of the male selectivity functions to one but estimate the asymptote for the female selectivity patterns, (c) examine if estimation of growth parameters improves diagnostics (e.g. residual patterns), (d) if necessary, allow the selectivity pattern for the FIMS surveys to be domed-shaped (it was observed that a dome-shaped selectivity pattern is plausible for the FIMS surveys given the ability of small, but not large, lobsters to enter traps through the meshes), but ensure that selectivity asymptotes to a non-zero value, and (e) determine the selectivity for sub-legal sized lobsters are available).

Response: (*a*) and (*b*) currently followed. (*c*) checked in external estimation. (*d*) and (*e*) currently followed.

AA.6 (H). Set rather than estimate survival for females (set the survival rate for females equal to that for males).

Response: Recommendation currently followed.

AA.7 (H). Focus initial efforts at fitting the model on super-area 8 which constitutes the area from which the largest catches are taken and for which there are data on sub-legal sized animals.

Response: This recommendation was followed.

IWS 2017 Panel recommendations

The panel was requested to comment on the following: "For the data available, how might the analysis methods being used be improved? Below is an extract of their comments and recommendations (in bold):

Although the current GLM approach to analysing the effort data is broadly sound in principle, it relies on the tenuous assumption that the efficiency ("q") for each enforcement type is roughly the same. ... Unfortunately, information provided by Compliance to the Panel suggests that this is not the case. Moreover, the trend in effort for enforcement types with low average effort (which are down-weighted in the current analysis approach) differs from trends in high and average effort enforcement types. Efforts for the various enforcement methods need to be corrected for their variable efficiency before being combined into an overall effort index. This efficiency should be estimated using all available information (quantitative and qualitative), and the analysis rerun using the original GLM procedures presented to the Panel. ... The Panel strongly recommends that there be ongoing efforts to link confiscations to the enforcement method, and the resultant information provided to analysts to improve future monitoring of poaching.

Response: Upon further discussions with DAFF Compliance, it came to light that there were in fact records available that linked confiscations to policing effort type. MARAM/IWS/2018/WCRL/P1 gives results for the tasks set below to analyse poaching trends given the "old" (confiscations not linked to the type of policing) and the "new" (confiscations linked to policing effort type) databases and incorporating the recommendations from the Panel.

MARAM/IWS/2018/WCRL/BG2