

Possible statistics for evaluating OMP performance with respect to catch projections

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Summary

A few suggestions for possible TAC statistics are provided, where examples of these statistics are calculated for an equally weighted average across the nine RS models, for the four different CMP options (150 cap, 160 cap, 150 cap with b+10%, 160 cap with b+10%). Table 1 lists some possible statistics for 25 year catch projections, while Table 2 lists statistics for four year catch projections. The details of the statistics can be found in the column titles.

Examples of a random selection of catch trajectories are also shown for illustrative purposes in Figure 1.

As there is considerable information in these two Tables, the DWG is asked for recommendations on which statistics would be considered most useful to include in future documents. Note is made of the fact that mean (as well as median) average catch is a desired statistic, and it will be included in the future.

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Table 1: Some possible performance statistics relating to the **25 years** of catch projections. Values reported are medians and 90% probability intervals from the 9x100 equally weighted simulations from the nine RS models.

| Part 1 | Number of reversals | | Number of periods of declines | Average number of years per decline | | Maximum number of years per decline | | Average drop in TAC per period of decline | | | | Max drop in TAC per period of decline | | | | |
|-------------------|--|-------------|-------------------------------|-------------------------------------|------|-------------------------------------|------|---|-------|--------------|------|---------------------------------------|-------|--------------|------|-------------|
| | (change in direction after two or more years same direction) | | | | | | | Tons | | Proportion | | Tons | | Proportion | | |
| | | | | | | | | | | | | | | | | |
| 150, no inc. in b | 1.00 | (0.00,4.00) | 1.00 | (0.00,4.00) | 2.00 | (1.00,5.00) | 3.00 | (1.00,6.00) | 11.30 | (1.93,32.81) | 0.08 | (0.01,0.22) | 14.55 | (2.08,37.97) | 0.10 | (0.01,0.26) |
| 160, no inc. in b | 2.00 | (0.00,4.00) | 2.00 | (0.00,4.00) | 2.33 | (1.00,6.00) | 3.00 | (1.00,7.00) | 13.64 | (3.48,38.63) | 0.09 | (0.02,0.24) | 20.91 | (3.81,46.77) | 0.14 | (0.03,0.29) |
| 150, b inc. 10% | 1.00 | (0.00,4.00) | 1.00 | (0.00,3.00) | 2.00 | (1.00,5.00) | 2.50 | (1.00,6.00) | 11.49 | (1.34,32.81) | 0.08 | (0.01,0.22) | 14.14 | (1.34,36.96) | 0.09 | (0.01,0.25) |
| 160, b inc.10% | 1.00 | (0.00,4.00) | 1.00 | (0.00,4.00) | 2.00 | (1.00,6.00) | 3.00 | (1.00,6.05) | 12.92 | (2.67,35.16) | 0.08 | (0.02,0.22) | 17.84 | (2.75,43.40) | 0.12 | (0.02,0.28) |

| Part 2 | Average decrease per annum during decline period | | | | Maximum decrease per annum during decline period | | | | Average increase per annum during decline period | | | | Maximum increase per annum during decline period | | | |
|-------------------|--|-------------|------------|-------------|--|--------------|------------|-------------|--|--------------|------------|-------------|--|---------------|------------|-------------|
| | Tons | | Proportion | | Tons | | Proportion | | Tons | | Proportion | | Tons | | Proportion | |
| | | | | | | | | | | | | | | | | |
| 150, no inc. in b | 5.51 | (0.00,6.90) | 0.04 | (0.00,0.05) | 7.03 | (0.00,9.06) | 0.05 | (0.00,0.07) | 8.04 | (5.48,11.03) | 0.06 | (0.04,0.09) | 13.36 | (9.93,13.85) | 0.10 | (0.07,0.10) |
| 160, no inc. in b | 5.90 | (0.00,7.21) | 0.04 | (0.00,0.05) | 7.69 | (0.00,12.47) | 0.05 | (0.00,0.08) | 8.96 | (6.23,12.64) | 0.07 | (0.04,0.09) | 14.16 | (12.95,14.75) | 0.10 | (0.10,0.10) |
| 150, b inc. 10% | 5.40 | (0.00,7.25) | 0.04 | (0.00,0.05) | 7.03 | (0.00,11.07) | 0.05 | (0.00,0.08) | 8.04 | (4.97,10.30) | 0.06 | (0.04,0.08) | 13.54 | (9.01,13.85) | 0.10 | (0.07,0.10) |
| 160, b inc.10% | 5.83 | (0.00,7.71) | 0.04 | (0.00,0.05) | 7.69 | (0.00,14.30) | 0.05 | (0.00,0.09) | 8.96 | (6.24,13.44) | 0.06 | (0.04,0.10) | 14.02 | (12.02,14.75) | 0.10 | (0.08,0.10) |

Table 2: Some possible performance statistics relating to catch projections for the **next four years**. The values are proportions of the 9x100 equally weighted simulations that fall under the relevant category. The last column shows the median and 90% probability intervals across the 9x100 values.

| | Proportion continuous increase in TAC | Proportion continuous decrease in TAC | Proportion that increase three years, then decrease | Proportion that increase two years then decrease | Other | | | Average change in TAC from 2018 to 2022 |
|---------------------------|---------------------------------------|---------------------------------------|---|--|------------------|---|---|---|
| | | | | | Total proportion | Of which, more increases than decreases | Of which, more decreases than increases | |
| cap 150, no increase in b | 0.32 | 0.13 | 0.04 | 0.06 | 0.44 | 0.27 | 0.17 | 12.19 (-18.28,16.88) |
| cap 160, no increase in b | 0.30 | 0.13 | 0.06 | 0.07 | 0.44 | 0.27 | 0.17 | 13.37 (-18.28,26.88) |
| cap 150, b increased 10% | 0.46 | 0.04 | 0.07 | 0.08 | 0.35 | 0.26 | 0.10 | 16.88 (-15.00,16.88) |
| cap 160, b increased 10% | 0.44 | 0.04 | 0.07 | 0.10 | 0.35 | 0.25 | 0.10 | 25.18 (-15.00,26.88) |

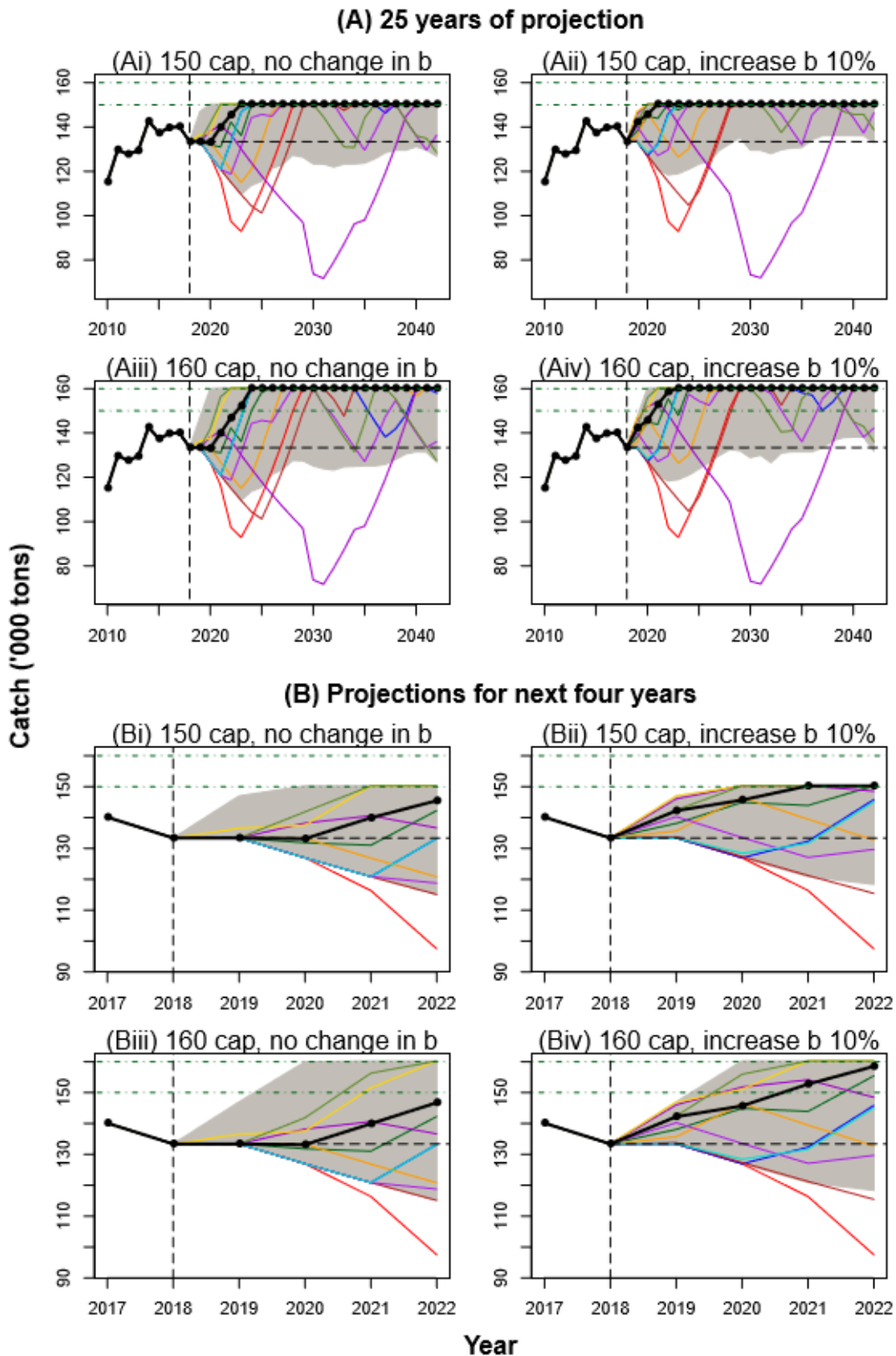


Figure 1: Catch projections for the equally weighted combination across the nine RS models, including a rule that the TAC in 2019 cannot be less than the TAC in 2018. The top four panels show projections over 25 years, while the bottom four for the next four years. The solid black lines show the medians across the 9x100 simulations and the grey areas the 90% probability envelopes. Worm plots show a random selection of simulations.