

West coast rock lobster projections to 2021 under the current TAC 2016 levels

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Summary

The SWG TAC recommendations for the next five years corresponded to reducing the previous recovery target by 2021 compared to 2006 from a 35% increase down to about a 7% decrease in median terms. The final DAFF decision was to leave the TAC for 2016 unchanged. If this current DAFF TAC is maintained for the next five years, a drop to 85% of the 2006 abundance by 2021 in median terms is indicated, with this decrease being to 35% at the lower 5%-ile. Approximate projections concerning Exceptional Circumstances suggest that A56 and A7 will remain above their EC thresholds, but that A34 and A8+ will exceed them by marginal amounts only, and A12 will quickly drop below the EC threshold for that super-area.

This document shows B75m biomass projections to 2021¹ assuming the recently declared TACs by DAFF are maintained as constant catches over the 2016-2020 period. Comparisons to projections under the original SWG recommended set of TACs for 2016 (also maintained for the 2016-2020 period) and to a zero catch scenario are also provided². Future poaching is maintained at its estimated 2014 level, as for previous projection results reported.

Predicted trap, hoop and FIMS CPUE data are used to calculate the “J” values for each area and season and plotted against the Exceptional Circumstances thresholds.

Projected “J” values

The model used here for projections is not set up to calculate the “J” values (combined trap, hoop and FIMS CPUE data) which are normally estimated each year in the OMP and compared with the threshold J value for each super-area to determine whether Exceptional Circumstances apply.

Hence a shortcut method has been used here to approximate this, as explained below.

- Plot the B75+ values for the last 10 and projected next 5 years (under the assumption that the final DAFF TACs are used in the projections).
- On the same plot, though moved one year forward because J is a multi-year average, the historical J values are plotted, and then the B75+ rescaled to a J-equivalent by using the ratio of the averages of B75+ and J over a common historical period (2005-2015).

¹ The split season is referenced by the first year, i.e. season 2021 refers to the 2021/2022 season.

² Note that the SWG recommendation involved a further reduction for 2017+

- That ratio provides one the basis to project J values forward by multiplying the B75+ projected values by that ratio.
- These can then be compared to the EC thresholds for each super-area.

Results

Table 1 shows the constant catches by area assumed for the two sets of projections.

Table 2 compares the B75m(2021/2006) and B75m(2021/2015) statistics between the TACs recommended by DAFF and those recommended by the SWG. Results are reported for each super-area, as well as for the resource as a whole. Trajectories under a zero future constant catch are also shown.

Table 3 reports B75m in absolute terms (MT) for each projected season and B75m(Season/2006) values reported for each super area assuming the final DAFF TACs in the projections.

Figure 1 provides plots of B75m (MT) for each super-area, comparing the trajectories associated with either the DAFF or SWG recommended TACs for each super-area.

Figure 2 similarly compares the trajectories associated with either the DAFF or SWG recommended TACs but for the resource as a whole. A trajectory under a zero future constant catch is also shown.

Figure 3 plots the rescaled B75m trajectories into equivalent “J” estimates for each super-area. The solid red lines indicate the EC threshold levels.

Comments

The SWG recommendations for 2016 correspond to reducing the previous recovery target by 2021 compared to 2006 from a 35% increase down to about a 2% decrease³. Under the DAFF TACs this is forecast to be a 15% decrease. These are, of course, median projections, which do not take uncertainty into account. Previous evaluations (FISHERIES/2015/FEB/SWG-WCRL 08) suggest that (with feedback as in an OMP) the lower 5%-ile projection is some 50% less than the median by 2021, and without feedback (i.e. if catches are kept the same irrespective of resource abundance indices) some 60% less. Thus if the current DAFF TACs are maintained, a drop to 85% of the 2006 abundance by 2021 in median terms is indicated, with this decrease being to 35% at the lower 5%-ile.

The median projections by super-area do not indicate a concern for A7, and A56 continues to increase in the short term. However, the declines forecast for A12 and especially A8+ (the mainstay of the resource) are of particular concern.

³ Note that this differs from the 7% increase shown in Figure 2 and advised in the SWG recommendations made in August 2016. The reason is that the trajectories reported in those recommendations also assumed a further decrease in the TAC from the 2017 season onwards.

The approximate projections concerning Exceptional Circumstances suggest that A56 and A7 will remain above their EC thresholds, but that A34 and A8+ will exceed them by marginal amounts only, and A12 will quickly drop below the EC threshold for that super-area.

Table 1: The constant catches (MT) (commercial offshore and nearshore+ IR/subsistence + recreational) by area assumed for the two sets of projections.

| | A12 | A34 | A56 | A7 | A8+ | Total |
|-----------|-----|-----|-----|-----|------|-------|
| SWG TACs | 30 | 150 | 100 | 150 | 840 | 1270 |
| DAFF TACs | 81 | 218 | 227 | 150 | 1248 | 1924 |

Table 2: B75m(2021/2006) and B75m(2021/2015) values compared for each super area (and the total resource) between projections using either the SWG recommended TACS or the final DAFF TACs.

| | DAFF TACs | SWG TACs | DAFF TACs | SWG TACs |
|------------|-----------------|-----------------|-----------------|-----------------|
| Super-area | B75m(2021/2006) | B75m(2021/2006) | B75m(2021/2015) | B75m(2021/2015) |
| A12 | 0.623 | 0.976 | 0.892 | 1.000 |
| A34 | 1.037 | 1.106 | 0.979 | 1.042 |
| A56 | 3.079 | 3.426 | 1.376 | 1.532 |
| A7 | 0.863 | 0.847 | 1.138 | 1.130 |
| A8+ | 0.407 | 0.528 | 0.934 | 1.213 |
| Total | 0.845 | 0.976 | 1.077 | 1.216 |

Table 3: B75m in absolute terms (MT) for each projected season and B75m(Season/2006) values reported for each super area assuming the final DAFF TACs for the projections.

| Season | A12 | | A34 | | A56 | | A7 | | A8+ | |
|--------|---------------|--------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|
| | B75m (Season) | B75m (Season/2006) |
| 2006 | 947 | 1.000 | 3893 | 1.000 | 1600 | 1.000 | 3119 | 1.000 | 9039 | 1.000 |
| 2016 | 921 | 0.973 | 4161 | 1.069 | 4115 | 2.572 | 2474 | 0.793 | 3390 | 0.375 |
| 2017 | 910 | 0.961 | 4247 | 1.091 | 4538 | 2.836 | 2492 | 0.799 | 3627 | 0.401 |
| 2018 | 895 | 0.946 | 4279 | 1.099 | 4848 | 3.030 | 2496 | 0.800 | 4097 | 0.453 |
| 2019 | 874 | 0.923 | 4250 | 1.092 | 4984 | 3.114 | 2565 | 0.823 | 4409 | 0.488 |
| 2020 | 849 | 0.897 | 4162 | 1.069 | 4987 | 3.116 | 2631 | 0.843 | 4293 | 0.475 |
| 2021 | 824 | 0.870 | 4043 | 1.038 | 4921 | 3.075 | 2693 | 0.863 | 3675 | 0.407 |

Figure 1: Plots of B75m (MT) for each super-area, comparing the trajectories associated with either the DAFF or SWG recommended TACs for each super-area.

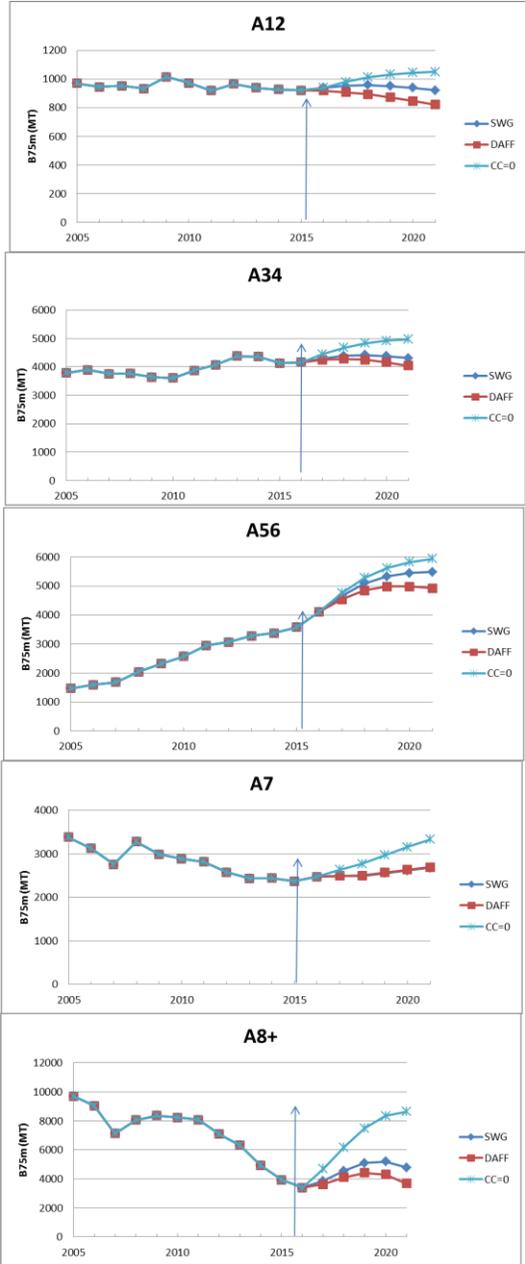


Figure 2: Biomass trajectories associated with either the DAFF or SWG recommended TACs but for the resource as a whole. The trajectory under a zero future constant catch is also shown. The red dot shows the previous recovery target. Whereas results reported in this document assume the SWG's recommendation for a TAC for 2016 to continue for subsequent seasons, the result shown below for the SWG also incorporates the SWG's recommendation for a further decrease in the TAC to apply for the 2017 and subsequent seasons.

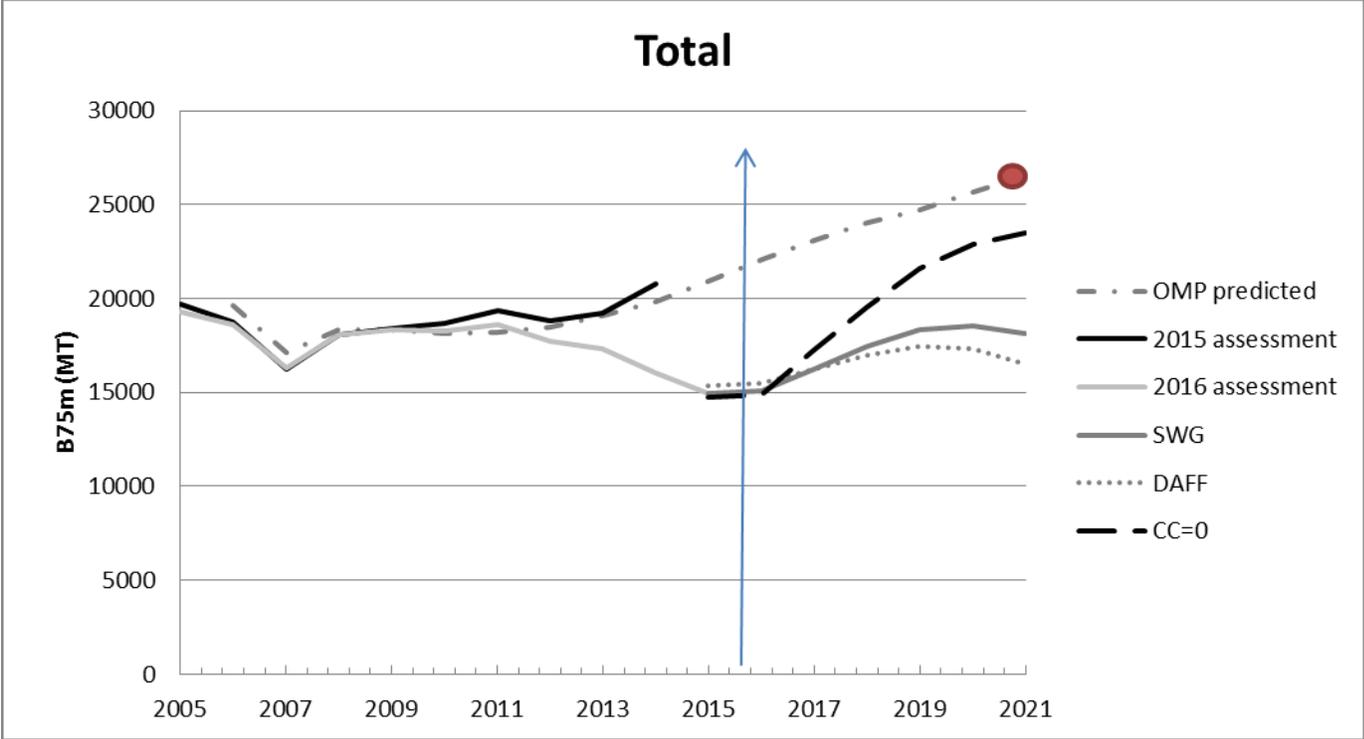


Figure 3: Predicted “J” estimates for each super-area. The solid red lines indicate the EC threshold levels, with the vertical dashed lines indicating when projections begin.

