

Basis suggested following Task Group discussions, for determining the 2019 sardine TAC and by-catch TAB

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Abstract

A list is put forward of suggestions and criteria to provide a basis for developing a sardine directed TAC and by-catch TAB for 2019.

Following Task Group discussions, we put forward the following criteria/suggestions for providing a basis for developing these recommendations at the PWG meeting on Thursday 4 April. Note that for convenience a recommended directed and bycatch are referenced below as “*Catch*” (= directed catch + bycatch). Comments about some aspects and possible flexibility regarding this directed/bycatch division, and west:south coast split of the directed catch, are made at the end of this document.

- 1) *Catch* cannot be less than already agreed at the previous PWG meeting (9 350 tons = 3 325 maximum west coast directed + 1 425 south coast directed + 3 250 bycatch with the anchovy fishery + 1 350 tons bycatch in various other fisheries).
- 2) *Catch* cannot be more than the total caught in 2018 (38 425 tons = 35 609 directed catch + 2816 bycatch)

In circumstances where the fishery struggled to land this tonnage, plus this catch came from a Nov 2017 survey biomass estimate of 334.8 thousand tons (west 107.2; south 227.6), which has been followed by a much lower comparative estimate of 90.8 thousand tons (west 34.9; south 55.9) for the Nov 2018 survey, it would be impossible to defend or justify a higher recommendation as responsible to a lay audience.
- 3) Exceptional Circumstances apply to sardine. Thus OMP-related TACs and risks do not necessarily have relevance, though projection results in relation to the OMP18 risk threshold would be provided.
- 4) Broad guidance on how to proceed is provided by the similar situation and related recent TAC decision for the west coast rock lobster resource, in that the sardine population is now, like west coast rock lobster, well below a desired biomass level. Whereas previously sardine TAC decisions were based on having a low probability that the resource would drop below some threshold biomass, now that it has dropped below that threshold, the primary and overriding consideration becomes assisting its speedy return to a higher level, while still having consideration for the socio-economic implications associated with any recommendation.
- 5) The recent court case concerning west coast rock lobster (WCRL) TAC provided a ruling that in circumstances such as apply now to the sardine resource, the *Catch* cannot exceed the Replacement yield, i.e. must be such that the resource is expected to increase in abundance under that *Catch*.
- 6) The WCRL SWG provided a range of TAC options to DAFF management based on median estimates ranging from zero to that Replacement yield. It also advised that its preference was for a TAC option within this range which would (after seven years) achieve 50% of the growth that was estimated to eventuate under a zero TAC. DAFF management decided to implement a TAC that corresponded to this expressed preference.

- 7) Necessary differences for the shorter lived and potentially more speedily recovering sardine population are first that the biomass growth criterion should be set for a one-year (rather than a seven-year) interval, i.e. relate to the expected November 2019 effective west coast spawning biomass, given that projections available at the time of writing generally indicate biomass levels after that to be much more satisfactory (note the focus on the west coast as that provides the dominant contribution to future recruitment). Secondly, the Replacement yield TAC (evaluated on the basis of considering a temporal average over biomass fluctuations) is not an option as, for the results available at the time of writing, it would result in a *Catch* well in excess of the maximum specified under 2) above.
- 8) It is suggested that the recommended sardine *Catch* be based on the same broad approach as applied for west coast rock lobster, except:
 - a) for the points raised in 7) above, and
 - b) that following subsequent advice from the 2018 IWS international Panel that **probabilities** of decline should also be considered, the recommendation needs to take the projection distribution rather than just its median into account; consequently we suggest that it be based on a lower percentile (possibly the 20 or 30 percentile) of that distribution; note that a 20% selection, say, would mean that the increase achieved is four times as likely to be bigger than it is to be smaller than that sought (see below).
- 9) It remains then to specify the extent of increase in biomass to be sought from the assessment estimate of the November 2018 effective spawning biomass, as a proportion of the increase that would be obtained in the absence of any 2019 catches of sardine. (Note that proportion is chosen as a robust measure, though results in terms of percentage and absolute effective spawning biomass increases compared to November 2018 would also be provided.)
- 10) The range to be considered for this proportion would be limited by numbers above 50% (50% corresponding to the west coast rock lobster decision) and below 100%. Initial indications from computations are that a choice of 50% would lead to a *Catch* in excess of the limit set by 2) above, whereas the minimal *Catch* indicated by 1) above requires a value which is somewhat less than 100%.
- 11) The selection of the proportion, and hence the *Catch* recommended, would be based on an assessment model considered “best”; however, following that, that *Catch* would perhaps be adjusted in the light of corresponding results for sensitivity runs of that assessment. The selection would also be based near exclusively on results for the west coast, as a lesser increase (or even some decrease) on the south coast is not considered as serious given its likely low impact on future recruitment on either coast.
- 12) The initial calculations reported would (in the main) reflect specific splits of directed and bycatch for a given *Catch*, with the directed catch being split 70:30 between the west and south coasts and the bycatch being exclusively on the west coast. However, once the fundamental selection criteria have been agreed, variations in both the overall directed vs bycatch split, and the west vs south directed catch split, could be considered. It must be understood though that an “unused” bycatch allocation could not later in the year be changed back to a directed allocation.

