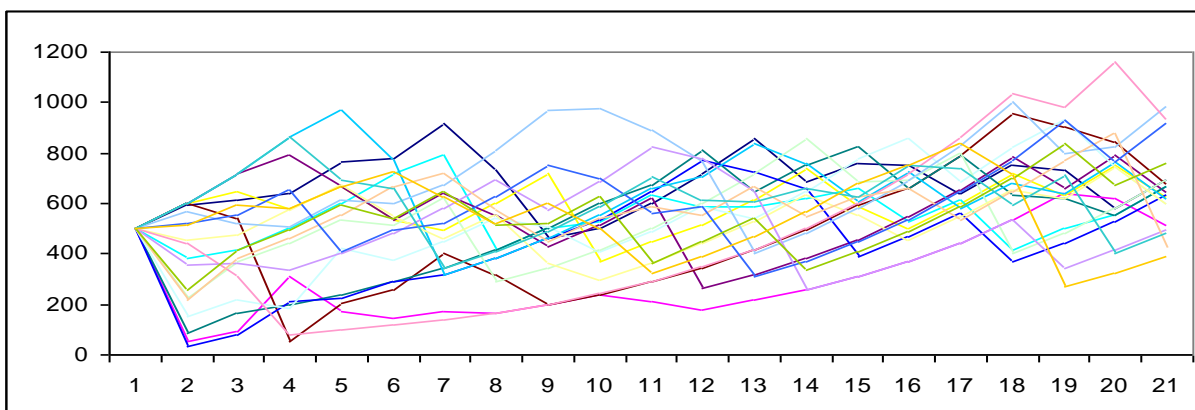
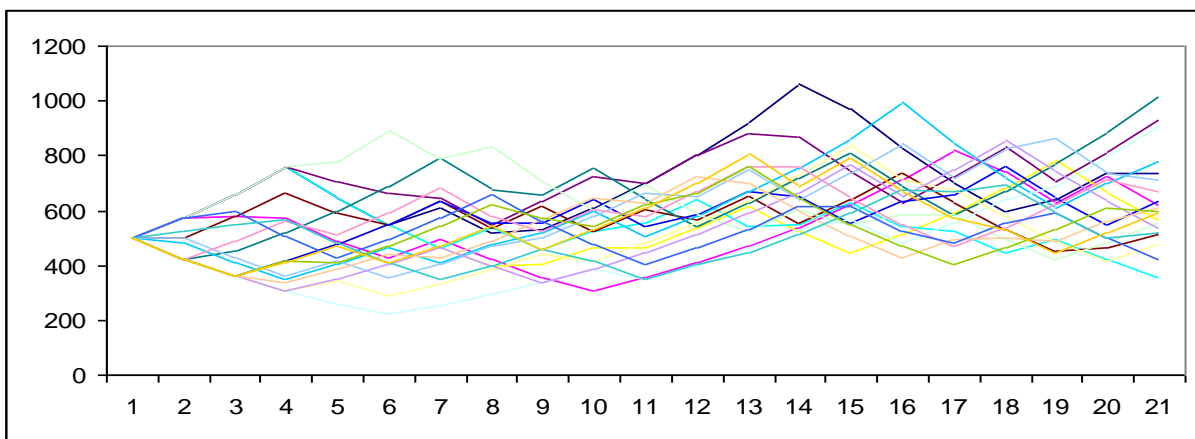


Management plan Mackerel: Questions to PRAC members to resolve the trade-off decisions

1. Given that the proportions of age 7+ presented by John Simmonds were all in the region 38-44% Do you agree that age structure is not an important criteria in choosing a management option to go forward with?

The figures below give an impression of how the TAC is likely to develop under a specific management option. Each line represents a possible sequence of the TAC being set, the variability is due to different sequences of recruitment that occur naturally and cannot be controlled and the different errors in the assessments that occur by chance. The first figure is based on simulations done where the IAV-limitation applies ALWAYS and the second represents simulations under a regime where the IAV-limitation applies ONLY above the trigger point.



Note that other parameters have been set to ensure that the average TAC is the same in both (for better comparison). The number of the steep drops in the second option depends on the average catch that you are aiming for. In these two figures, both scenarios aim for an average catch of 634 kt. You could have an option where the occurrence of steep drops is much less frequent but of similar magnitude, but this would imply that you have to aim for a significantly lower average catch (approximately 600 kt).

2. When considering these general patterns, do you prefer the IAV-limitation to apply ALWAYS or ONLY?

3. In the case you chose ALWAYS: Which IAV limitation would you prefer to be set? (the year-to-year and average IAV will then always be below this)

- 10% → (expected average CATCH 623 and average IAV 9.1)
 - 15% → (expected average CATCH 634 and average IAV 12.7)
 - 20% → (expected average CATCH 642 and average IAV 16.5)
 - 25% → (expected average CATCH 647 and average IAV 19.5)
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4. In the case you chose ONLY: Which IAV limitation would you prefer to be set? (the IAV might be high occasionally (the steep drops), resulting in an average IAV that is higher.)

- 10% → (expected average CATCH 623 and average IAV 9.1)
- 15% → (expected average CATCH 626 and average IAV 16.8)
- 20% → (expected average CATCH 634 and average IAV 19.6)
- 25% → (expected average CATCH 650 and average IAV 22.8)

Note that for the ALWAYS constraint average changes are less than the maximum because in some years changes are smaller, while for ONLY average changes are bigger due to large changes that occur when the stock declines below the biomass trigger level. For ALWAYS changes up and down occur almost equally often, whereas for ONLY the declines in TAC occur about half as often but some of these cuts are of 50% or more.

5. Once a regime with a specified variability is selected do you wish to use the method that supplies the highest catch?

Note for high variability with high catches this may imply F rule, for medium variability this implies the use of Harvest Rates and for low variability and lower mean catch a fixed TAC regime.