

Working with Decision Tree Results

With multiple and varying decision tree “branches” or “nodes” there are many different combinations of results that could occur. The most straightforward result of all would be that all the decision trees would give the Council the same sector allocation advice.

It is possible that not all decision trees are going to have input every time for every species. This could be because there may not be relevant data readily available that can inform the answers to the questions asked in that tree, or the answers to the questions, while there may be data available, may not have anything relevant to add to making a decision about sector allocations for a given species. For example, there may not be relevant social information from which to make a sector allocation recommendation from that decision tree.

The most plausible outcome is that not all of the decision trees will point to the same sector allocation recommendation. The Council is then left with how to resolve the differences between the decision trees. There are two recommendations that could help the Council make a final decision on its course of action:

1. Prior to applying the decision tree method to any species, rank order the four decision trees based on various characteristics such as confidence in the data, overall importance to the success of the fishery, etc.
2. Consider the preponderance of the decision tree recommendations. If four decision trees make a recommendation and three of them point towards one solution while the fourth one points to a different solution, the Council should follow the recommendation of the three decision trees.

If the overall recommendation from the various decision trees is still not clear, the prior rank ordering of the decision trees would be used to make the final decision. The recommendations of the decision tree with the highest ranking that gave a viable solution is the one that would be followed.

Timeline for the Development of the Decision Tree Approach

Based on previous review and discussion of allocation approaches, the Council is planning to implement a fully developed decision tree methodology by their December 2021 meeting (**Table 3**). To do so, the Council asked staff³ to develop the approach and work with advisors from the Socio-Economic Panel (SEP), Scientific and Statistical Committee, Advisory Panels, NOAA Southeast Regional Office, and NOAA Southeast Fisheries Science Center to help modify and calibrate the methodology. Given the relatively large social and economic components, review by the SEP is the first major step in this developments process.

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