Shifts in catch-at-length proportions for the Tristan group lobster fisheries

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Summary

This document examines the shifts in catch-at-length proportions for the Tristan group rock lobster fisheries.

Looking closely at the tail-size proportions supplied by Ovenstones, as well as the biomass survey catch-at-length proportions (MARAM/TRISTAN/2019/FEB/02) over the last seven seasons we note the following:

Nightingale: No real shift observed over time.

Inaccessible: Evidence of a slight shift – increasing proportions of larger sized lobsters, decreasing proportions of smaller lobsters (seen in both tail size mix and biomass survey catch-at-length proportions). Mean length of biomass survey catch increased steadily over time.

Gough: Evidence of a shift – decreasing proportions of larger lobsters and increasing proportions of smaller lobsters. Mean length of biomass survey catch decreased steadily over time.

Tristan: Clear shift towards more larger sized lobsters and fewer smaller sized lobsters. Mean length of biomass survey catch increased steadily over time.

The shift towards a greater proportions of larger sized lobsters and smaller proportions of smaller sized lobsters (as is evident at Tristan) could be attributed to some combination of at least three factors.

1) There has been a decrease in recruitment resulting in fewer smaller sized lobsters in the population over recent years.
2) There was a particularly good year class (larger than normal) of lobsters recruiting into the population some years ago. This good year class has progressively moved through the population and is showing as a pulse of ever increasing sized lobsters.

3) There has been a shift in selectivity patterns over time. For example because the spatial distribution of fishing has changed over time.

While inspection of maps of detailed catch positions may provide some insight into 3). The other factors require an assessment, likely aided by further years' data, to discriminate.