Further information relating to the Desert Diamond catch and effort data for the South African Horse Mackerel fishery

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Abstract

This document provides detailed information regarding the Desert Diamond catch and effort data for the South African horse mackerel fishery.

Positions of Desert Diamond catches per year from 2003-2023 are shown in Figure 1.

Note:

- 1. The data exclude those catches where very little was caught (in these circumstances, the observers generally do not sample the catch composition so the amount of horse mackerel caught cannot be estimated), but they do include zero catches (nulls, "x" in maps).
- 2. The data illustrated in Figure 1 have been filtered to exclude possibly erroneous positions (e.g. on land, or shallower than 110m which is the minimum depth that the vessel is permitted to fish) arising from either typographical errors during data capturing, or incorrect recording of position by the vessel. The filtering process was essentially excluding all records where the depth differed by more than 20% from the depth predicted by a spatial bathymetric raster for that position. Also note that these spatial errors have not been previously identified because the spatial emphasis in the horse mackerel analyses to date has been based on the relatively crude "Mossel Bay" and "Port Elizabeth" area assignments (using only the longitudes of each record).
- 3. The maps need to be interpreted with regard to the following constraints:
 - a. The Desert Diamond is NOT permitted to fish in water depths of less than 110 metres or within 20 nautical miles from the coast, whichever is the greater distance from the coast.
 - b. Prior to 2016, the vessel was NOT permitted to fish west of 20°E.
- 4. For information purposes, plots of the overall Desert Diamond CPUE (standardised and nominal), Desert Diamond CPUE split by area (west, central and east) and catch by area are provided in Figures 2 − 4.

Further observations:

 The primary fishing area off Port Elizabeth ("eastern area") has remained relatively stable over time – consistently extending from about 24°E to about 27°E, and typically between 200 and 500m depth (although some fishing in less than 200m in some years). Perhaps evaluate separating this area into 100-200 and 200-500m depth bins?

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- 2. The area south of Mossel Bay ("central area") shows more variation in its spatial extent over time, both in terms of depth and alongshore location/extent, and occasionally comprises discrete "sub-areas" (e.g. 2008 and 2019). Again, perhaps evaluate separating this area into 100-200 and 200-500m depth bins? I'm not sure it would be useful to consider the sub-areas (e.g. separating into 20 22°E and 22 23°E bins.
- 3. Although inclusion of a "west area" (i.e. west of 20°E) could also be considered, there will only be 3 years of data for this area (2016 2018).







3

























Figure 1: Positions of Desert Diamond catches from 2003-2023. The years for which very low Desert Diamond CPUE were recorded are 2014 - 2015, 2022 - 2023 (as indicated with red borders).



Figure 2: Standardised Desert Diamond CPUE as updated in 2023 and again in 2024



Figure 3: Nominal CPUE (tons/hour) for each of the west, central and east areas as well as all areas combined.



Figure 4: Desert Diamond catches by area, where blue corresponds to the west area, orange to the central area and green to the east area.