

Further information relating to the Namibian Horse Mackerel fishery

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Abstract

This WP provides some information regarding the CPUE trends observed in the Namibian horse mackerel fishery. Whilst the Namibian horse mackerel is the same species as the South African horse mackerel, the Namibian fish are considered a separate stock (and managed separately (Kerstan and Leslie 1994; Hecht 1990)).

Namibian Horse mackerel CPUE

Figure 1 shows the Namibian Horse Mackerel average CPUE by year (Kanghono et al. 2024). Whilst there was an increase in CPUE observed around the 2009-2012 period, the sporadic low CPUE values that have been observed in the South African fishery are not evident in these data.

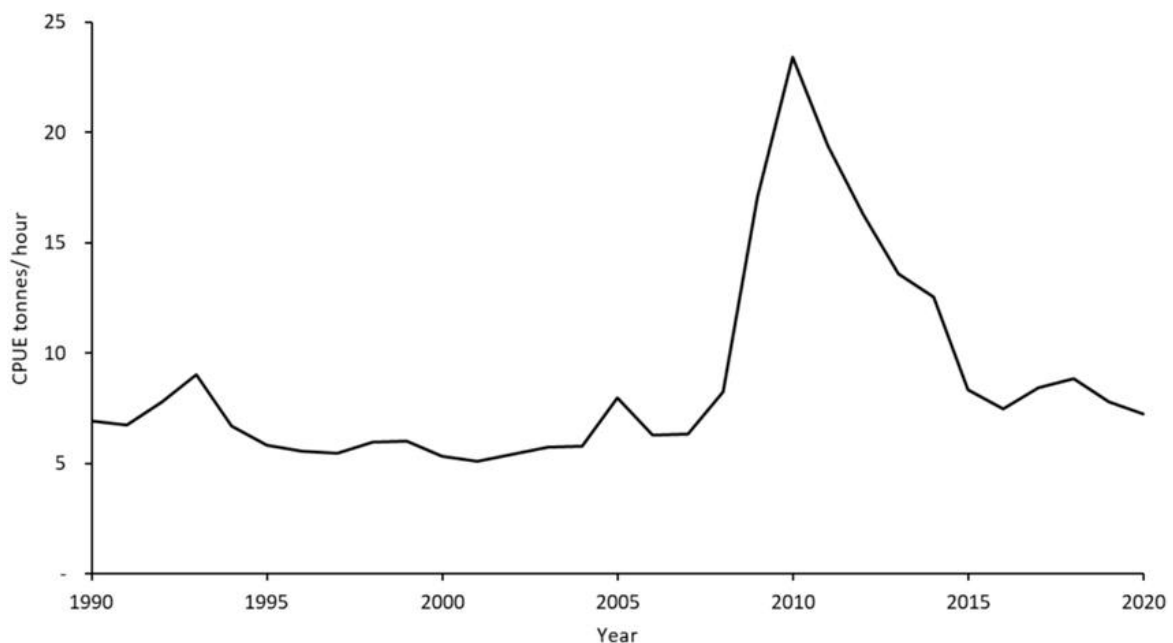


Figure 1: Namibian Horse Mackerel average CPUE by year (catch per hour trawled) (Kanghono et al 2024).

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Figure 2 plots industry (Pierre Roche, Oceana, pers. comm) records of Namibian frozen horse mackerel catch per fishing day – again no real drastic drop in CPUE observed (although a gradual decline over recent years is evident).

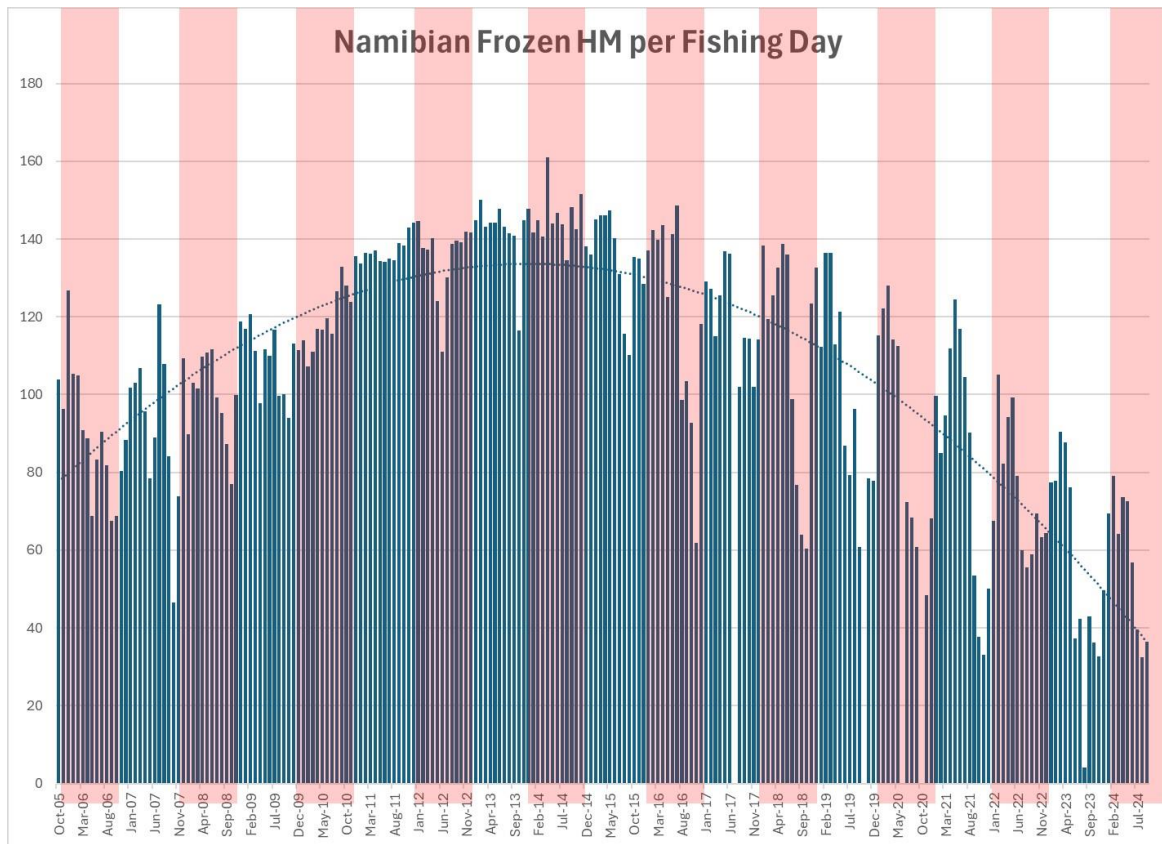


Figure 2: The industry (Oceana) records of Namibian frozen horse mackerel catch per fishing day.

Namibian Horse mackerel CPUE versus sea surface temperature

Information from Republic of Namibia Ministry of Fisheries and Marine Resources

4.7 ENVIRONMENTAL PARAMETERS IN RELATION TO SMALL PELAGICS

4.7.1 SST and horse mackerel CPUE

Historically horse mackerel catches have been shown to vary up to 5 times during a season in response to environmental variability (Strogalev 1983). In the southern Benguela, it is speculated that warm conditions favour epipelagic species (e.g. anchovy and horse mackerel) and cool conditions benefit demersal species (e.g. hake (Strogalev 1983)).

The time series of monthly CPUE (midwater freezers) and SST off northern Namibia (17-20°30'S) shows a similar seasonal pattern. High CPUE values are obtained during the summer and autumn periods - TAC Report: Horse mackerel and Deep-sea red crab (October 2023) when SST is high, while in winter/spring, as water temperature decreases, the CPUE drops (Fig. 3a). This relationship is strong ($R^2 = 0.9084$, Fig. 3b). A multitude of factors likely to contribute to the observed trend, one of the most obvious reasons being the frontal and thermocline formation that occurs in summer, which results in

the concentration of food particles along sharp density gradients on which horse mackerel can forage in denser shoals during such conditions, making them easier to spot and catch.

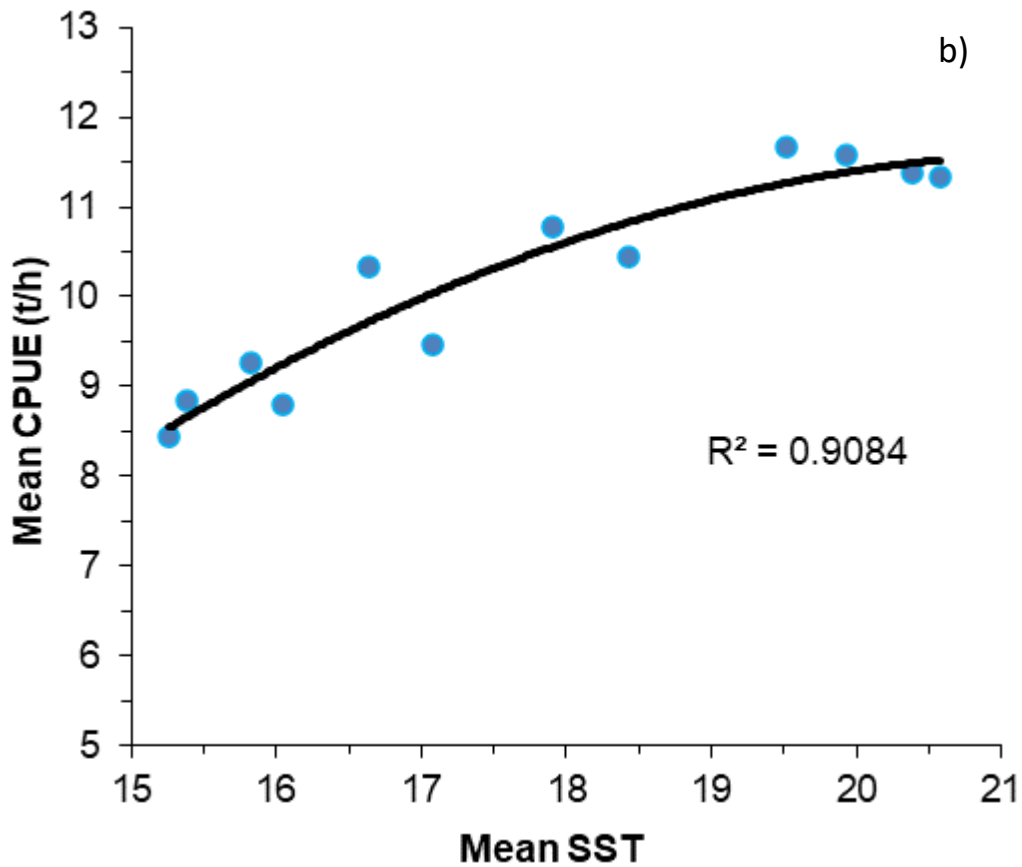
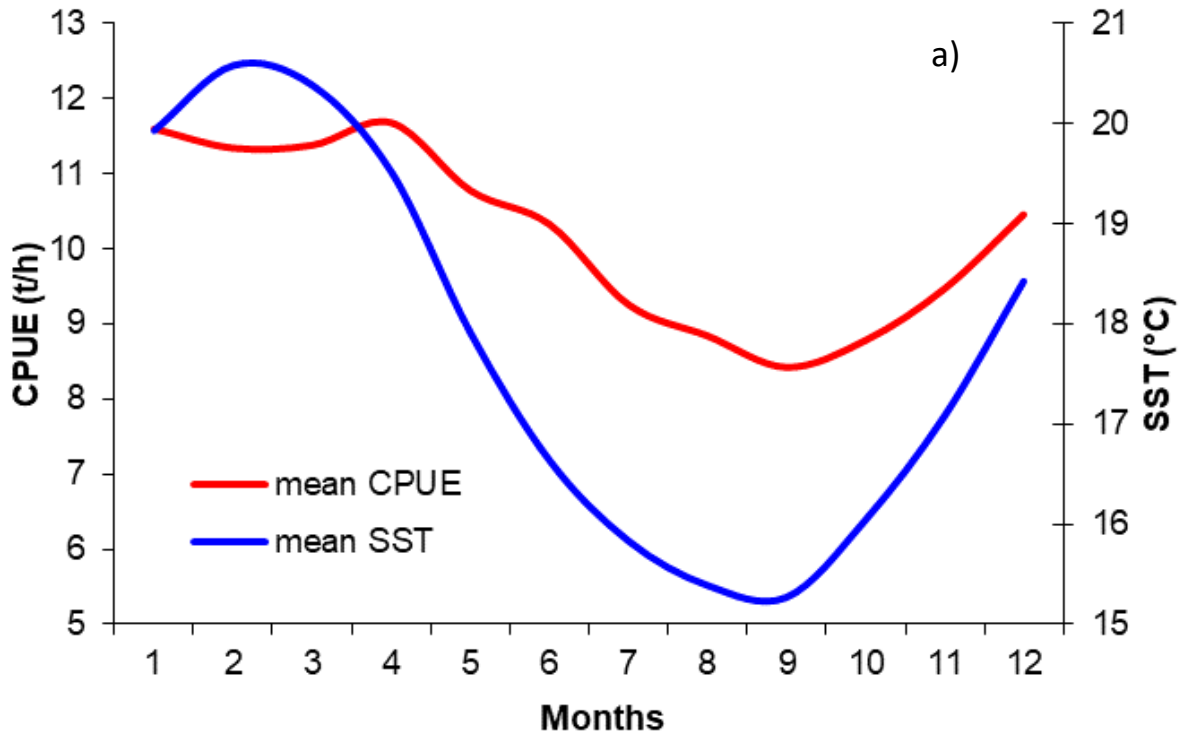


Figure 3: **a)** Monthly mean SST and monthly mean horse mackerel CPUE values. **b)** Correlation of monthly mean SST and monthly mean horse mackerel CPUE values (from January 1991).

References

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