



**forestry, fisheries
& the environment**

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

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NATIONAL ASSEMBLY

(For written reply)

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Mr M N Paulsen (EFF) to ask the Minister of Forestry, Fisheries and the Environment:

- (1) How have marine protected areas, that make up to 5% of the Republic's coastline, since 2019 improved the quality of marine life in our waters in terms of improved fishing stocks;
- (2) whether she has found that there has been an improvement in fishing stocks that translated into benefit for small-scale fishers; if not, what is the position in this regard; if so, what are the relevant details?

250. THE MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT REPLIES:

- 1) Marine protected areas (MPAs) cover up to 34% of the coastline, and 5.4% of the waters in the South African Economic Exclusive Zone (EEZ). There is considerable scientific evidence for the benefits of coastal MPAs (declared before 2019) for exploited fish and intertidal invertebrates (reviewed in Kirkman *et al.* 2021. African Journal of Marine Science, 43:3, 389-412, DOI: 10.2989/1814232X.2021.1962975).

MPAs are not only designed to safeguard marine biodiversity, but their existence is also central to food security strategies. MPAs play a critical role in the conservation of fisheries by protecting breeding stocks and nursery areas. In essence, they provide safe spaces for fish stocks to recover

from overuse, allowing for spill over, which is the flow of fish to areas adjacent to MPAs (Kerwath et al. 2013b). Therefore, in the bigger scheme of events, MPAs are key strategies for providing food and employment security in a thriving marine economy.

Although MPAs mostly serve as a buffer against overexploitation of fish as explained, it has also been proven that MPAs assist different fish species to adapt to climate change. For example, it has been realised that within MPAs, fish, particularly the breeding stock, tends to have more genetic diversity which provides resilience through enhanced reproductive output. Furthermore, and worth noting, is that the immediate and direct effects of climate change on fish are defined by each fish's individual ability to withstand the existing conditions. That ability partly depends on physiological changes, particularly for slow moving fish. To elaborate more on the matter, Duncan *et al.* (2019) argues that fish populations in the Tsitsikamma MPA had more physiological phenotypic diversity and overall physiological aptitude to withstand temperature fluctuations than surrounding exploited fish populations.

However, it would be too early to indicate how the recent (mostly offshore) MPAs declared in 2019 have improved fishing stocks because of the following reasons:

- (a) individual MPA Management Plans still need to be developed and implemented for these MPAs; and
 - (b) while there are conflicting results from different studies regarding the relationship between the age of MPAs and the effectiveness of their protection, a global study has shown that in general, at least 10 years is required to obtain positive results from an MPA (Edgar *et al.* 2014. *Nature* 506: 216–220).
- 2) There is evidence that MPAs, if properly enforced, can play a significant role in the recovery of exploited fish species and ecosystem functioning within the MPAs. That, in turn, will improve the fish stocks beyond the MPA boundaries as fish, fish eggs and juvenile fish will spill over from the MPA into the fishing grounds. Therefore, these benefits will accrue and increase over time and can assist to keep fishing sustainable.

A case in hand is a local study on the Goukamma MPA, published in a high-ranking scientific journal *Nature Communications* (Kerwath, S., Winker, H., Götz, A. *et al.* Marine protected area improves yield without disadvantaging fishers. *Nat Commun* 4, 2347 (2013). <https://doi.org/10.1038/ncomms3347>) where it is stated that the researchers found that the fish

stocks, while declining everywhere else, improved rapidly after the MPA was proclaimed and implemented. That was particularly noted through catches which effectively doubled the pre-MPA catch per boat per day. However, it is also noteworthy that there was no indication that establishing the MPA caused a systematic drop in the total catch or increased travel distances for the small fishing boats.

Regards



**MS B D CREECY, MP
MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT**

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