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STATUS AND MANAGEMENT OF THE SOUTH AFRICAN HAKE – 2019



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Oceana Sustainability Report 2019

Status and Management of South African hake

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Stock status and Catches

The Total Allowable Catch (TAC) in the South African hake fishery is split between four fishing sectors, with deep-sea and inshore trawl sectors receiving 84% and 6.2% respectively and the longline sector and handline sector receiving 6.5% and 3.3% respectively. Hake is also caught as bycatch in the traditional linefish and horse mackerel midwater trawl fisheries.

The trend in the TAC since 2014 has been gradually downwards (Figure 1a) as the Operational Management Plan (OMP) responded to the indices used to determine the state of the hake stocks. The hake TAC in 2015 and 2016 was fixed at 147 500 t and implementation of OMP-2014 further resulted in a decrease of the TAC to 133 119 t in 2017. Driving these changes were low survey and commercial catch rates for shallow water hake (*M. capensis*) on the South coast which are being carefully monitored. Catches of hake over recent decades have typically fluctuated about 150 000 t per annum (Figure 1b), with most of the catch being landed by the deep-sea trawl sector, and comprising mainly *M. paradoxus*.

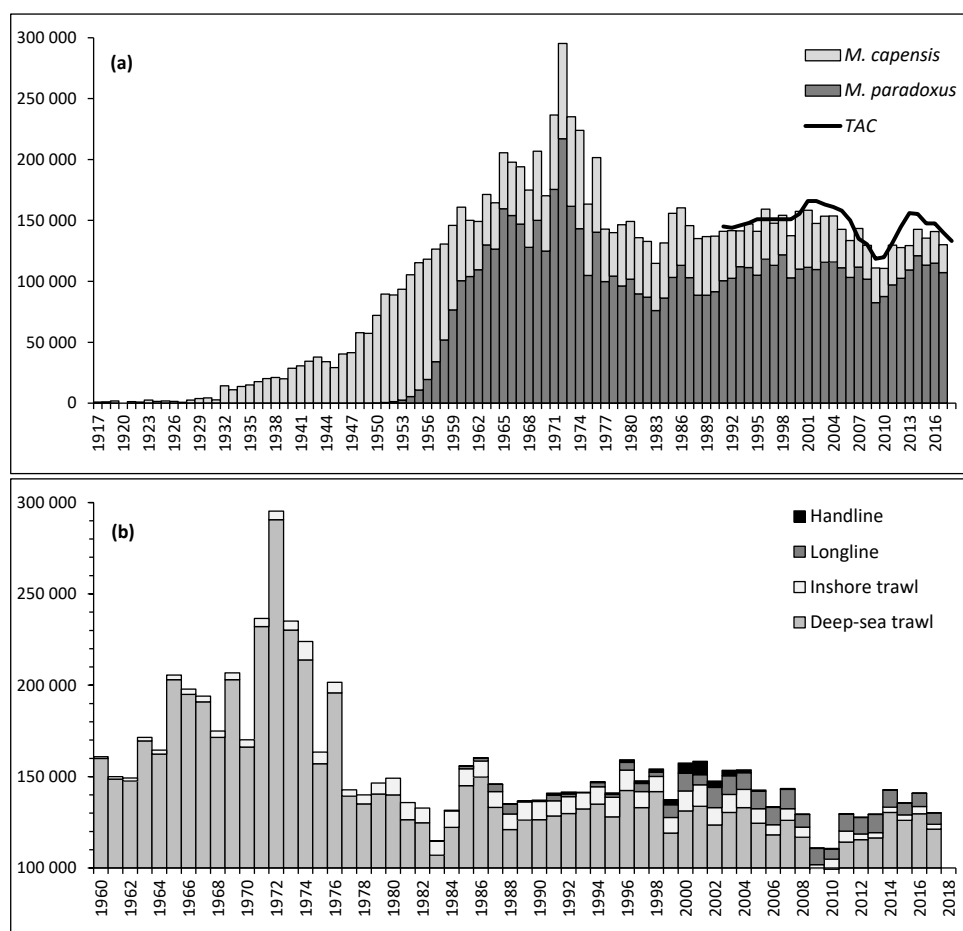


Figure 1: (a) Total catches (tons) of Cape hakes split by species over the period 1917 – 2017 and the TAC set each year since the implementation of the OMP approach in 1991. (b) Catches of Cape hakes per fishing sector for the period 1960 – 2016. Prior to 1960, all catches are attributed to the deep-sea trawl sector. Figure and caption adapted from Durholtz 2018.

The most recent (May 2018) assessment of the hake stocks indicated that the deep-water *Merluccius paradoxus* and the shallow-water *M. capensis* were however both above the biomass target reference point i.e. B_{MSY} . This suggested that OMP-2014, which was designed to return or maintain the stocks at B_{MSY} or greater, depending on the state of the respective stocks, was responding as intended. The coast- and species-specific nature of the hake assessment model and OMP requires that the commercial hake catches be split by coast and species. Included in the indices used in the OMP are the catch rates for *M. capensis* (Figure 2a) and *M. paradoxus* (Figure 2b). These trends reflect a mostly stable or positive hake stocks.

The OMP was revised after a 4-year period during 2018 (OMP-2018) and due to the positive outlook of the stock it has resulted in a more “aggressive” approach than OMP-14 higher TACs for the same abundance. The TAC for 2018 and 2019 was subsequently set at 146,431 tons.

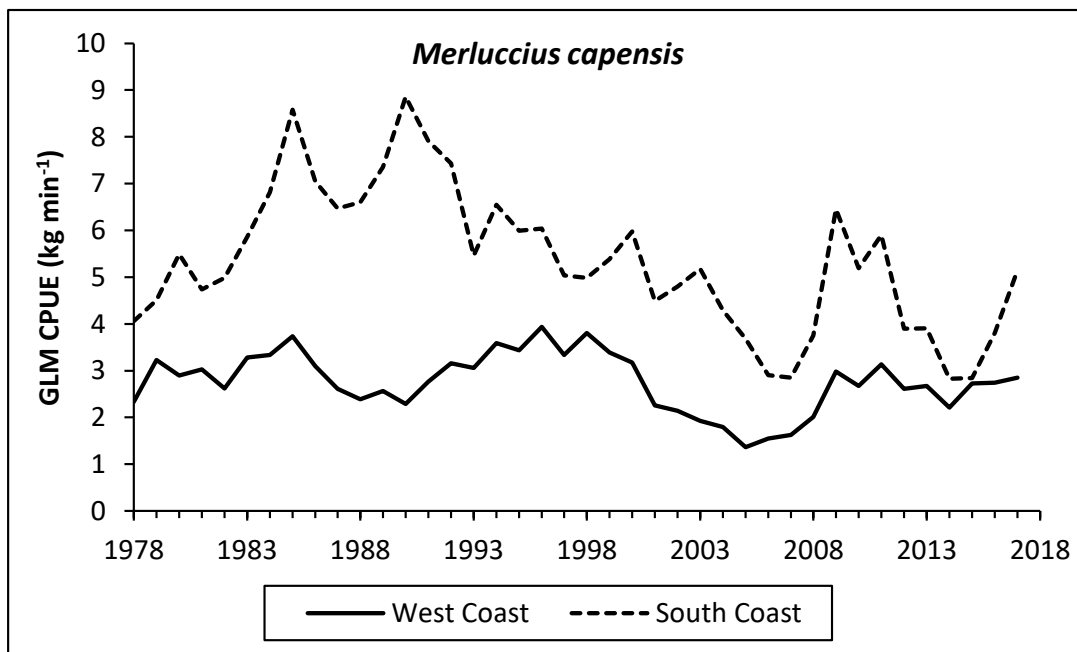


Figure 2a: GLM-standardised deep-sea trawl CPUE (kg.min⁻¹) indices of shallow-water hake abundance split by west and south coast (Durholtz 2018).

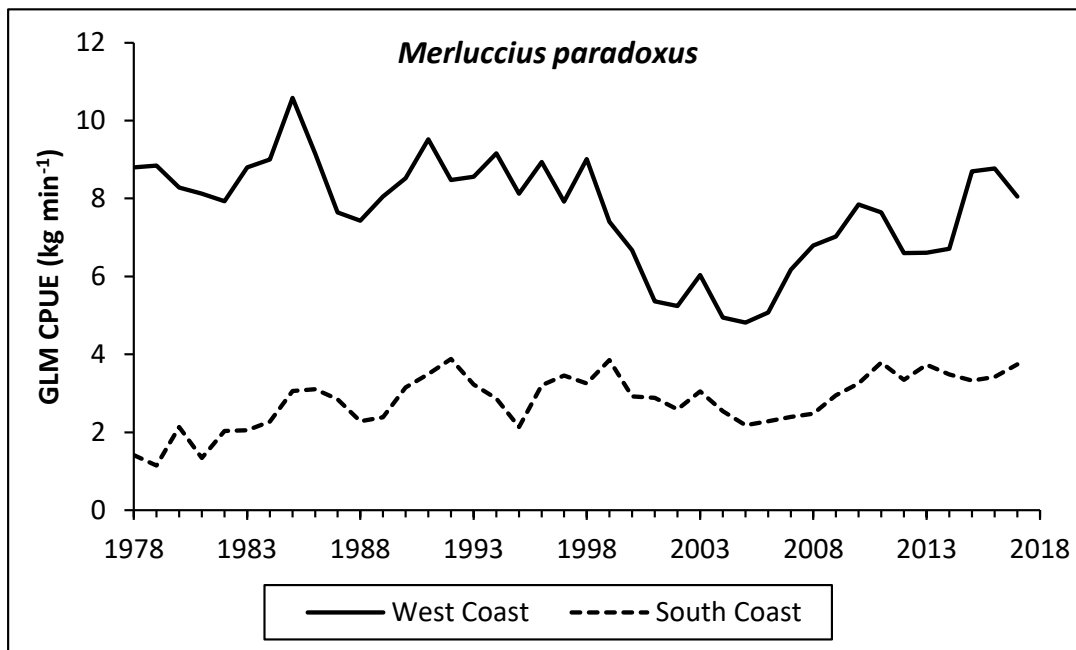


Figure 2b: GLM-standardised deep-sea trawl CPUE (kg.min⁻¹) indices of deep-water hake abundance shown split by coast (Durholtz 2018).

Management

In addition to catch limits (TAC or output control), the deep-sea trawl fishery is also controlled by limiting fishing effort (input or TAE control). The “number of fishing days” permitted by trawler operators is based on the current catch rates (as shown in Figures 2a and 2b) which, with the permitted catch and vessel power, translates into a sea day (trawling day) allocation. This measure therefore ensures that in addition to catch limits, effort cannot be exceeded i.e. it mitigates the potential for misreporting of catch.

In South Africa the OMP requires that monitoring and re-evaluation are in place to determine whether the harvest strategy is working. Essentially, the OMP is the decision rule used to establish the TAC, and its objectives include reference points and management targets within pre-determined rules. Thus, the harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in the (explicit or implicit) target and limit reference points.

Further the OMP-18 for “hake” sets provision for a maximum allowable annual increase in the hake TAC of 10%, and the maximum allowable annual decrease at 5%. The OMP also has *exceptional case* conditions, including responses that may be needed if the biomass estimates fall below designated Limit Reference Points or LRPs. The OMP also now sets an upper cap on the TAC, so that it cannot exceed 150 000 t.

The development and revision of recent OMPs takes certification of the SA hake trawl fishery by the Marine Stewardship Council (MSC) into consideration. Elective effort control measures, which are voluntarily applied by the industry, are encouraged and strongly supported by the MSC given the potential weaknesses in the current monitoring systems of the hake fisheries. The fishery was first certified in 2004, and re-certified on two occasions (2010 and 2015). The fishery will undergo assessment towards a third re-certification under the new MSC Standard Version 2.1 at the end of October 2019.

Industry-funded research

In addition to the routine research undertaken by DAFF – now the Department of Environment, Fisheries and Forestry (DEFF), the fishing industry has voluntarily initiated its own investigations in the interest of better understanding the ecosystem and conservation aspects of the hake fishery.

The Fisheries Conservation Project (FCP) agreement was signed in April 2016 between WWF South Africa and SADSTIA. This was a three-year project that culminated in positive outcomes for industry and environmental stakeholders half way through 2019. Outcomes included:

- An improved understanding of the level and nature of discarding in the trawl fishery through successful installation of cameras on select freezer vessels and analysis of camera footage and comparison with scientific observer data;
- Updated stock assessments of non-target species retained by the fishery; and
- The development of initiatives for both ongoing monitoring and, where appropriate, management of non-target species.

The primary aim of the project was to inform the understanding of the main non-target species in the trawl fishery, specifically angelfish, cape dory, gurnard, horse mackerel, jacobever, kingklip, monk, octopus, panga, ribbonfish, biscuit skate and snoek. Due to the success of the project the SADSTIA Executive Committee, the Responsible fisheries Alliance and WWF are in negotiation to develop a further 5-year FCP to ensure continuity of the progress made by the fishery.

The Benthic trawl experiment is a collaborative effort between DAFF, SAEON, SADSTIA, SANBI and UCT and is led jointly by Dr Lara Atkinson (SAEON) and Associate Professor Colin Attwood (UCT). The objective is to monitor the possible recovery of sea-life in fallow trawl lanes. After 5 years of surveys the results of the experiment are being analysed and recovery trends of benthic communities, shifts in fish assemblage and an understanding of the recovery rates of the deepsea benthic habitat on which the fishery operates are being developed.

To ensure Vulnerable Marine Ecosystems (VMEs) are protected going forward SADSTIA developed a procedure to ring-fence trawl operational areas. This has been implemented by the deepsea and inshore trawl sectors since 2004 in order to ensure that the fishery only operates in historically trawled areas, and this has been ingrained in the fishery permit conditions.

The two sectors have also co-operated with DEA and SANBI in the development of offshore MPAs, in order to protect most of the important habitat types that occur on the continental shelf, without impacting significantly on fishing operations. As for the VMEs, these requirements with areas' coordinates will also be implemented in the trawl fishery permit conditions in 2020.

The MSC Standard v2.1 further requires that the impact of trawling on VMEs outside of MPAs be managed, in order to avoid significant adverse impacts from such activities.

DEFF and more recently SANBI and SADSTIA have been collecting information on the occurrence of VME species (VME indicator organisms) in such areas within the trawl footprint and have developed "heat-maps" that show where vessels are most likely to encounter them. We also have good field-guides and have produced posters that will allow identification of the most common and ecologically important species. SADSTIA has recently funded a comprehensive literature review on global best-practice responses to VME encounters in order that it may adopt commonly accepted move-on rules

for the South African bottom-trawl fishery and in so doing meet the MSC Fisheries Certification requirements.

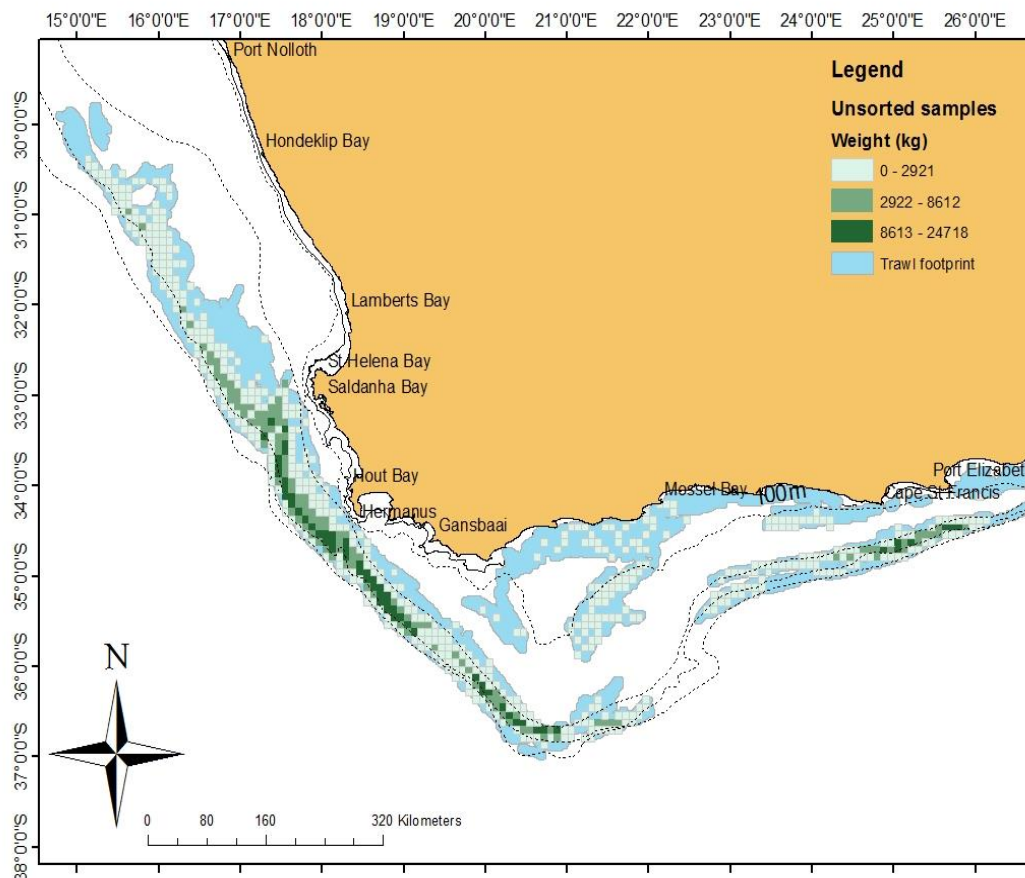


Figure 3: Spatial distribution of the observer samples showing total sample weight (kg) of unsorted samples summed per 5 min grid block. The trawl footprint has also been shown.

In addition to the FCP project, the SADSTIA observer programme remains the stalwart of data gathering initiatives by collecting information on target species, bycatch and discards in the fishery. The SADSTIA-funded observer programme covers about 40% of trawl fishing grounds (Figure 3) and 10% of the trawl fishing effort. This routine programme was recently revised with the addition of collecting more data on discard species and incorporating into the observer’s mandate, VME data collection procedures.

The observers are instructed to sample the length and weight of the unsorted catch, the discarded catch and to record the retained catch information per trawl in order to estimate bycatch rates, absolute bycatch volumes, discard rates and absolute discard volumes for all species of fish caught by the hake trawlers. Observers also monitor interactions with seabirds and marine mammals. Results from this research are included in annual observer programme reports submitted to SADSTIA.

References

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