Oceana Sustainability Report 2020

South African Small Pelagic Fisheries

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The small pelagic fishery is currently going through a period of stock uncertainty. Added to this, Covid-19 has also imposed operational constraints on not only the small pelagic sector, but also on the fishing industry broadly who have been required to operate within the national and international protocols restricting the movements of seafarers. Nevertheless the small pelagic sector, mainly through the industrial body (SAPFIA), continues to work closely with the scientific and management groups at the Department of Environment, Forestry and Fisheries (DEFF) as well as Non-Government Organisations and consultants.

Stock Status and Management of the main species

The scientific process of providing advice to DEFF management on the allowable catch in the small pelagic fishery is heavily dependent on two surveys that provide baseline information on small pelagic stocks, primarily sardine and anchovy, but also on other species, namely red-eye herring, horse mackerel and lantern and lightfish (meso-pelagic species) and chub mackerel. All these species make up an interesting and dynamic "small pelagic" species complex that critically form the foundation for food webs in both the Benguela and Agulhas ecosystems. The availability of these species in the ecosystem impacts not only the fishery itself, but also the food for many mammal and bird species, of which the jackass penguin has in recent years been the subject of much concern and associated research.

Information used and Survey Results

In 2019 DEFF completed the normal recruitment and biomass surveys. The results of these surveys were not very positive for both the anchovy and sardine stocks. It is important to note that providing advice to management, like the small pelagic stocks themselves, is a dynamic process. Information feeding into the Operational Management Procedure (OMP) includes the annual recruitment survey (normally midyear), the biomass survey (end of year – November normally) as well as the regular data collected from the fishery (mostly catch rates, catch proportions, bycatch, spatial distribution of catches and size structure). All this information feeds into the models used through the OMP which is applied in a systematic and agreed way to provide management advice. Depending on the state of the resource, the OMP when applied may result in the anchovy and sardine Total Allowable Catches (TAC) increasing or decreasing, or through "exceptional circumstances" deviating from the process and requiring, for example, higher than normal reductions in the TAC or even closure of the fishery.

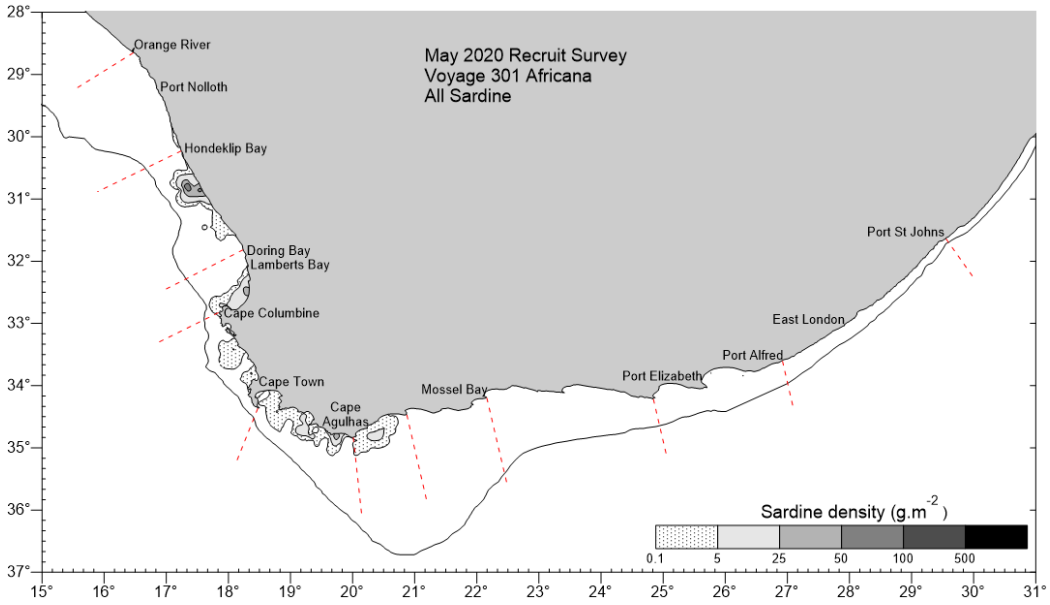
In 2018, such a scenario (exceptional circumstances) arose for sardine, primarily because of the poor survey results (biomass and recruitment). This poor outlook persisted into 2019 (for sardine) even though there was a positive increase in sardine biomass on the south coast, the sardine biomass on the west coast was not much improved from 2018. The directed catch of sardine in 2019 (for adult fish larger than 14 cm) was only 2 145 t (Table 1). There were also concerns for the anchovy stock, with low biomass estimates in the 2019 surveys that also resulted in "exceptional circumstances" being applied requiring a deviation from the anchovy OMP.

As a consequence, the anchovy TAC set by DEFF in January 2019 was a precautionary 50 000 t at season start and an "interim" TAC set for sardine of only 10 000 t of which only 30% was permitted to be caught on

the West Coast (refer to our previous reports on the stock hypotheses between the east and west coasts). This, as expected, had a dramatic effect on fishery operations on the west coast. In effect the directed sardine fishery could not operate, and the sardine TAB (Total Allowable Bycatch) in the anchovy fishery was set at a precautionary 7 400 t initially (allowing the anchovy fishery to operate). DEFF adopted a wait and see approach monitoring closely the sardine bycatch in the anchovy fishery. The TAB was increased in stages from the initial 7 400 t, to 8 400 t, 9 400 t then 10 400 t. The anchovy fishery was closely monitored throughout with industry-driven at sea observers providing regular information. As with sardine, stepwise increases resulted in the anchovy TAC being capped at 350 000 t (using the OMP). While this might seem overly complicated, it was necessitated through the exceptional circumstances being implemented and a precautionary approach being followed.

Survey Results in 2020

As expected, the May recruitment survey proved critical for the fishery[1].



[1] Coetzee JC, Maliza L, Merkle D, Shabangu F, Peterson J, Jarvis G, Ntiyantiya D and Geja Y. 2020. Results of the 2020 pelagic recruitment survey. DFFE: Branch Fisheries Document FISHERIES/2020/JUL/SWG-PEL/56

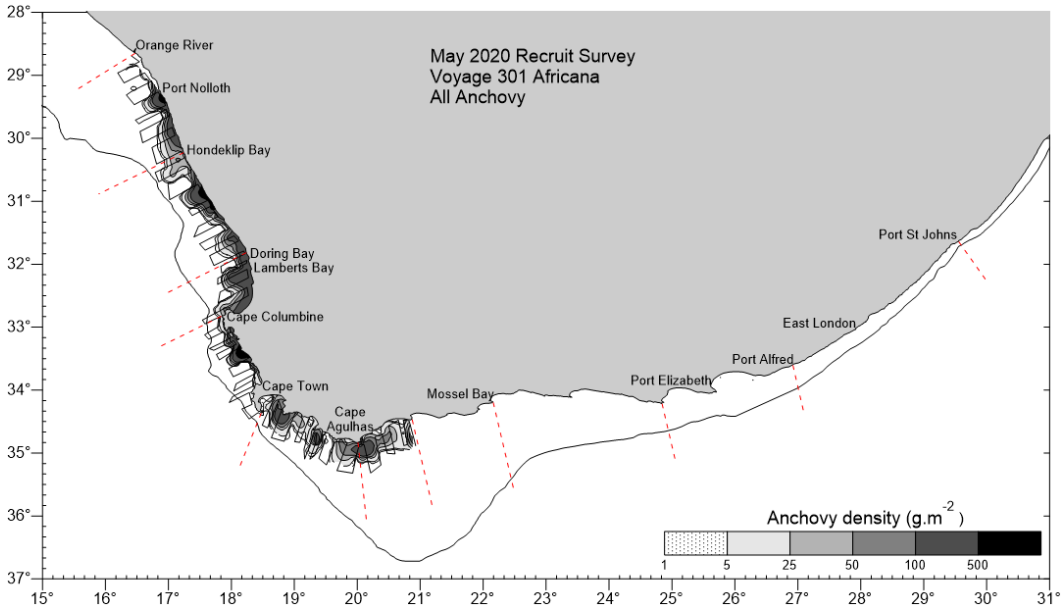


Figure 1. Recruitment survey results (May 2020) for all anchovy and sardine. (after)

The results of the survey were encouraging for anchovy giving a higher recruit biomass than the long term average (Figure 2) showing an extensive recruit biomass extending up the west coast and eastwards towards Cape Infanta[2]. For sardine, the biomass was estimated a 3 x higher than in 2019 but still substantially lower than the long term average (the long-term averaged biomass of recruitment is a useful comparative reference point). The redeye recruit biomass estimate of 297 198 t was considerably higher than that observed in 2019 and almost 4 times higher than the long term average of around 76 379 t.

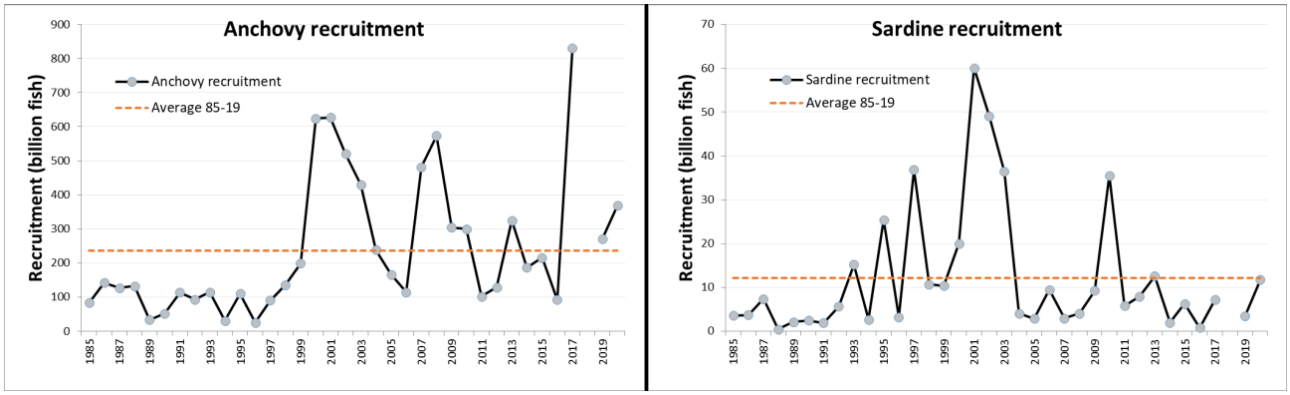


Figure 2. Comparison of recruitment biomass estimated for anchovy and sardine from the DEFF July 2020 recruitment survey with the long-term average[3].

Table 1. Allocation of allowable catches issued by the DEFF for 2020 with mid-year revisions compared to 2019 catches.

	2020	2019

[2] Note : the survey was not able to be done further east than Cape Infanta – so the biomass east of this point is not estimated.

[3] The DEFF scientific team are commended for their efforts in undertaking this survey at the peak of the Covid-19 lockdown.

Species and Category Allocated	Recommended TAC's (t)	Revised TAC's (t)	Catch (t)
Directed >14cm sardine TAC:	22 000	32 000	2 145
Initial ≤14cm sardine TAB for directed >14cm sardine fishing:	200	14 000	156
Initial directed anchovy TAC:	200 000	350 000	165 732
Initial ≤14cm sardine TAB with directed anchovy fishing:	1 500	10 000	2 306
>14cm sardine TAB with directed redeye round herring and anchovy fishing:	1 000	2 650	899
≤14cm sardine TAB with directed redeye round herring fishing:	100	100	100
Anchovy TAB for sardine only right holders:	500	500	500
Redeye round herring PUCL	100 000	100 000	47 414
Horse mackerel TAB	9 989	9 572	1 044
Lantern and Lightfish (Combined)	50 000	50 000	3 483

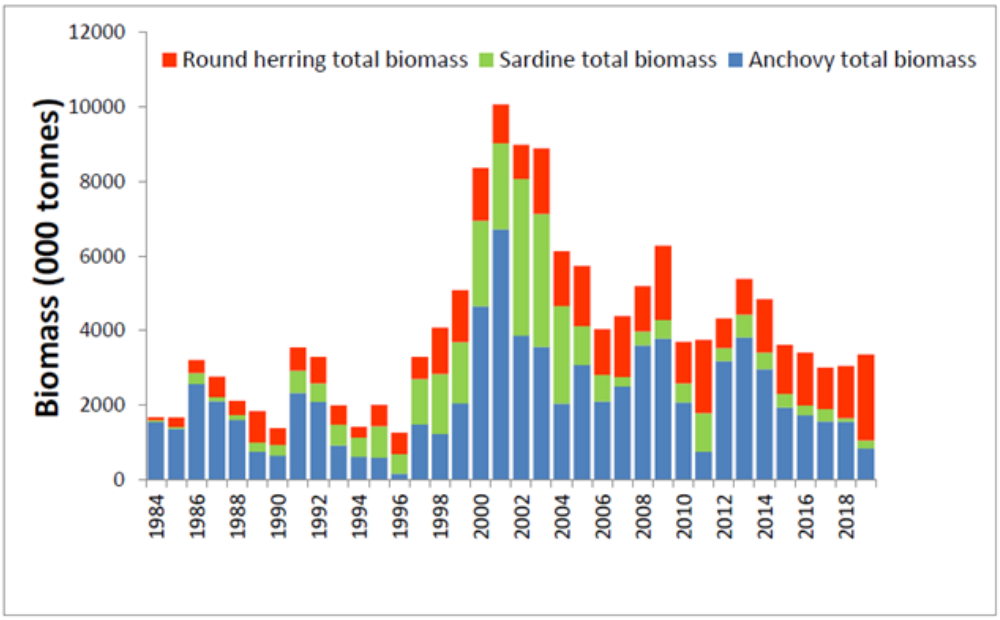


Figure 13. Combined anchovy, sardine and redeye round herring biomass up to Port Alfred.

Outlook for 2020 and 2021

As shown in Table 1 the directed sardine TAC was increased in August 2020 to 32 000 t and the anchovy capped at 350 000 t. This would seem much more positive for the fishery, although it is not out of the woods yet. While the scientific working group bases its work on applied science, it is nevertheless very conscious of the need to consider socio-economic impacts and the possibility of erring towards higher TACs that may bring socio-economic relief. This considered however, the critical status of the small pelagic

resources and the pivotal role these species play in the overall ecosystem meant the advice provided to management was necessarily precautionary aimed at strengthening stock recovery.

The November biomass survey will again test the fishery and will certainly influence what happens in 2021.

Sardine Run

Understanding the small pelagic resources continues to provide challenges to scientists and the fishing industry remains closely engaged. While the most recent recruitment survey could not be extended eastwards toward Port Elizabeth (as it is normally), the country was captured by events on the Natal coast with one of the biggest ever sardine runs in history. This again brought to the fore the different stock hypotheses with this event (sardine run) induced in part by the wet Cape winter and strong frontal conditions that swept across the Agulhas Bank pushing inshore currents and the sardine eastwards to the Kwazulu Natal coast.

Figure XX. Sardine Run – locals harvesting sardine using beach seine nets from one of the best ever sardine runs in history.
https://www.ehowzit.co.za/news/local/stunning-photos-sardine-run-in-all-its-glory-on-the-south-coast/

South African Small Pelagic Industry Association (SAPFIA) and Monitoring of the Fishery

The industry-sponsored observer programme continues to provide valuable biological and spatial information of the fishery (see Figure XX). The 2020 fishing season targeting anchovy started mid-January 2020 and juvenile sardine consistently appeared in observer samples. At the end of March 2020, sea-going observer deployments were paused due to health concerns related to the Covid-19 pandemic). Deployment levels of observers were obviously constrained at this time due to limited fishing and also because of the Covid-19 restrictions. As an alternative to sea-going observers deliberation between the SAPFIA members, DEFF and the service provider (CapMarine) resulted in the implementation of an interim landing-monitor data collection effort at each landing-factory site.

The programme objectives included the capturing of independent data on biometric information covering the species composition and size for fish landed. Even though data is not collected at-sea whilst vessels are fishing, the outcomes of the programme are similar. The presence of the CapMarine-employed landing monitors also provides an opportunity to collect additional fish samples for DEFF research and to observe the data collection process of factory-employed landing monitors. After aiming for an initial 10 – 20 % coverage of landings, the SAPFIA Sea Management Committee soon agreed to increase coverage to at least 30 – 40 % of all vessel landings to better inform the dataset.

This combined effort seems to have reaped benefits and supported the management interventions aimed to monitor and control small pelagic catches within the prescribed conditions set by DEFF

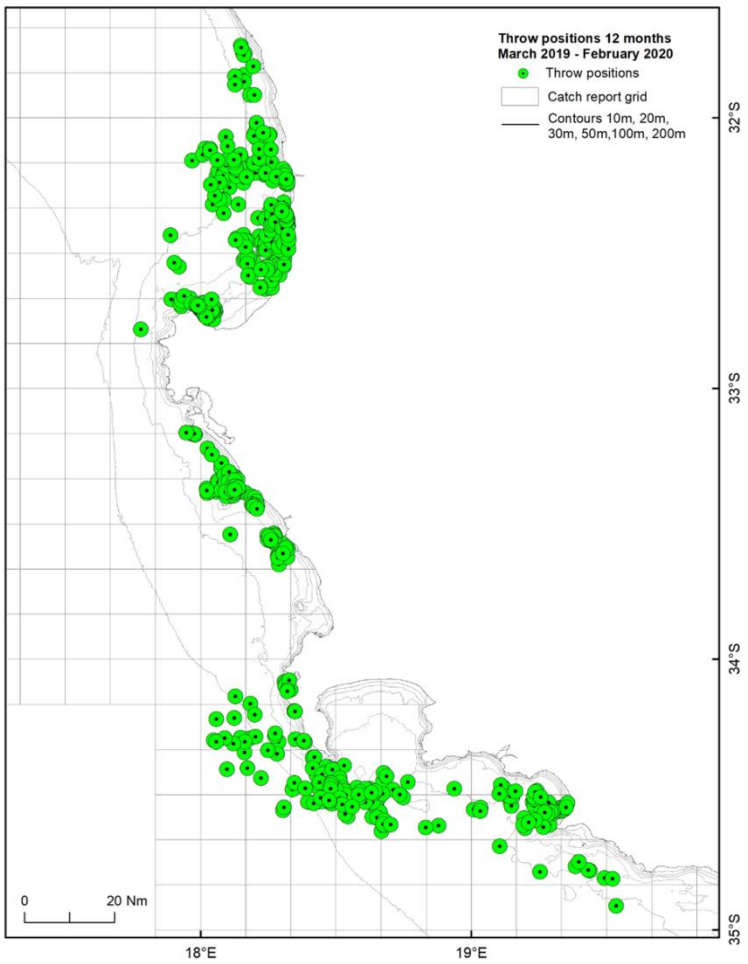


Figure xx. Spatial distribution (summarised by grid block) of fishing effort based on at-sea observer deployments up to March 2020.