



Oceana Sustainability Report 2023

Status and Management of

Small Pelagic



Oceana Sustainability Report - Small pelagics 2023

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Off the coast of South Africa, small pelagic fish, consisting primarily of anchovy *Engraulis encrasicolus*, sardine *Sardinops sagax* and redeye round herring *Etrumeus whiteheadi* account for more than 90% of the total small pelagic purse-seine fishery catch. The remainder of which is made up of bycatch species such as juvenile horse mackerel *Trachurus capensis*, Chub mackerel *Scombre japonicus* and mesopelagic lanternfish.

Annual TACs and catches

The total combined catch of anchovy, sardine and round herring landed by the pelagic fishery has decreased by 30% from 395 000 t in 2016 to just 274 000 t in 2022. Despite this decline, the average combined catch over the last five years is only slightly lower than the long-term (1949–2022) average annual catch.

The directed sardine catch was at an all-time low in 2019 (2 100 t) but in 2022 catches increased significantly to 27 000t. The directed sardine TAC was set at 35 000 t. Sardine bycatch, with red eye and anchovy, decreased from 17 000 t in 2016 to 6 800 t in 2022 (Figure 1). Industry put in place measures to avoid areas with high bycatches of sardine to improve the chances of recovery for the adult sardine population and there has notably been evidence of adult sardine on the West Coast throughout 2023.

In contrast, anchovy catches, which are processed for fishmeal, have seen a significant decline during 2023. A final TAC of 306 900 tons was set for 2023, however only 107 564 tons was caught by 23 August 2023 (DFFE 2023 b). By late September this year industrial fishing on the West Coast was still operating on an exploratory basis with minimal landings. Historically, the combined small pelagic resource including anchovy, has fluctuated significantly (Figure 1).

The catch of red-eye round herring has remained relatively stable, averaging at 54 000 t since 2016, which is slightly above the 2000–2022 average annual catch (Figure 1). Recent catches however are only half of the 100 000 t precautionary upper catch limit (PUCL) recommended for this resource and reflects the difficulty of catching this species with surface purse-seine nets. Increased utilisation of the round herring resource is encouraged but attempts to improve catch rates with the use of midwater trawl gear have not been successful to date.

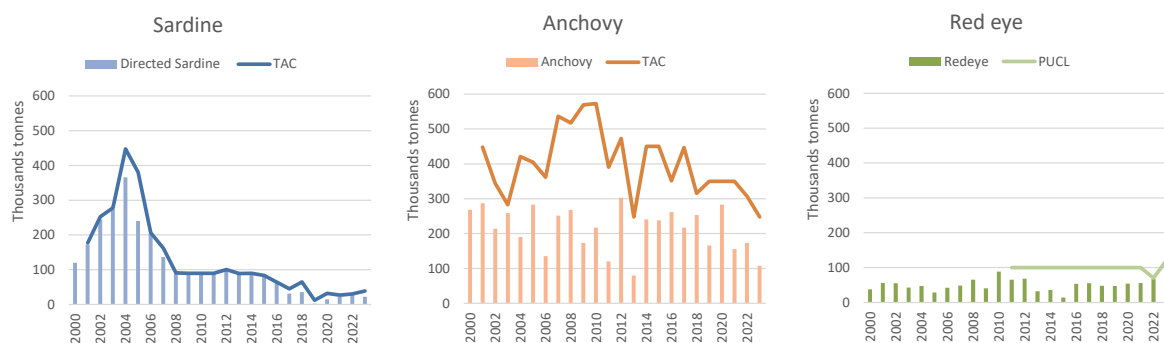


Figure 1. Historical TAC vs catch for sardine, anchovy and red-eye round herring (PUCL, DFFE 2023 a)

Surveys and data collection

The results from the 2023 pelagic recruitment survey for anchovy, sardine and round herring indicated a below average recruitment for anchovy and sardine and above average recruitment for round herring. Anchovy recruitment is the lowest observed since the start of the time series in 1985 whereas the recruitment estimates for sardine and round herring are slightly higher than estimated in 2022 (DFFE 2023 e).

Anchovy recruits were distributed in a continuous band of low-density nearshore from the south of Port Nolloth to Cape Columbine (Figure 2). Only a few low-density patches were located further south, in False Bay and between Cape Agulhas and Cape Infanta. Although the density of anchovy adults encountered during the surveys was highest in the Mossel Bay area, anchovy adults were scarce on most transects with only low-density aggregations found in False Bay, between Gansbaai and Mossel Bay, and then Port Alfred (Figure 3). The length frequency in the standard recruit survey area up to Cape Infanta was dominated by anchovy <9 cm; however, the proportion of recruit fish (by number) was only 59%. This is much lower than typically observed (89% in 2022, 84% in 2021).

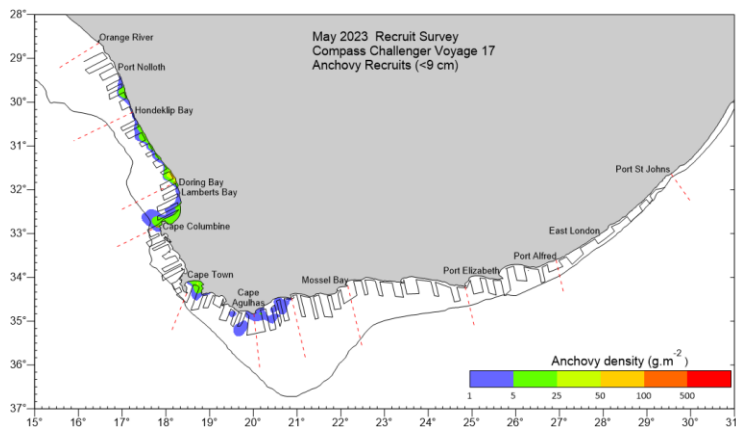


Figure 2: Distribution and relative abundance of anchovy recruits < 9 cm (DFFE 2023 e).

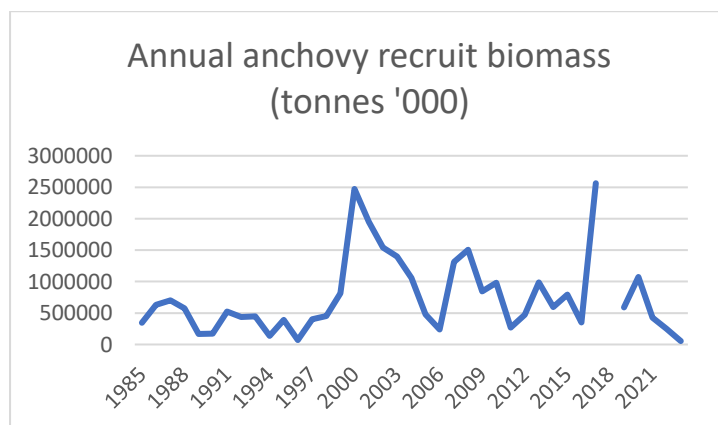


Figure 3. Anchovy recruit biomass 1985 to 2023 (DFFE 2023 e).

Red-eye round herring is usually targeted for fishmeal when anchovy is unavailable. This targeted catch usually comes with a significant adult sardine bycatch component, which is closely monitored by Area Controllers. The targeting of redeye generally occurs during the summer months, but in 2023 they were targeted in small volumes throughout the winter due to a lack of anchovy availability. The sardine

recruit biomass is still very low, but there are indications of the presence of adult sardine (Figure 5) on the west coast, which may bode well for the upcoming years.

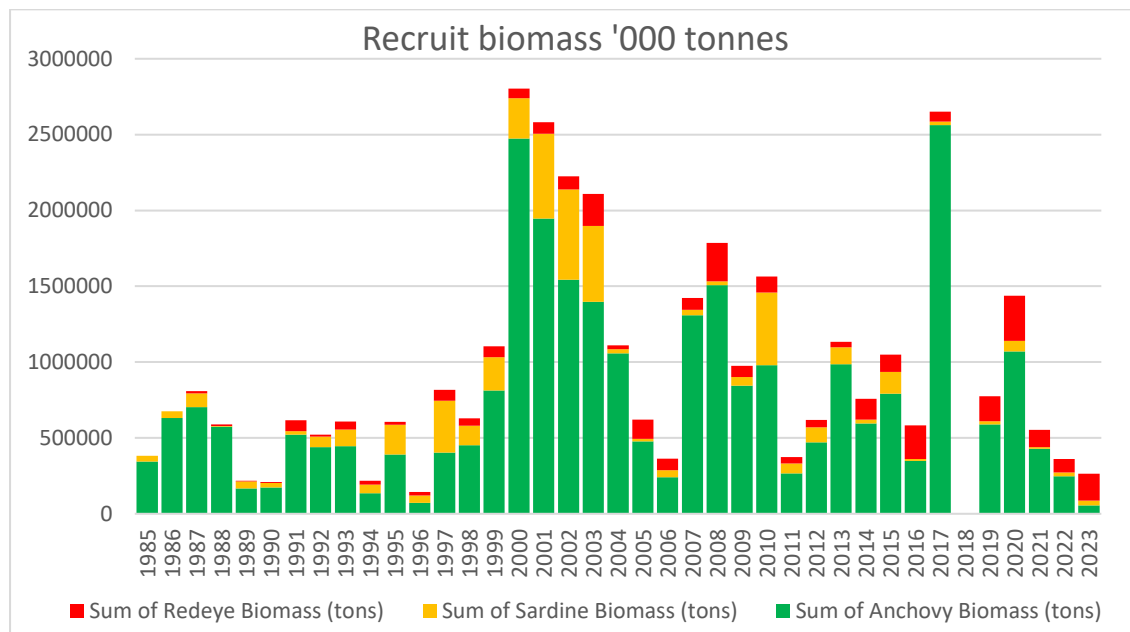


Figure 4: Recruitment estimates of anchovy, sardine, and redeye up to Cape Infanta since 1985 Biomass fluctuations (DFFE 2023 e).

Survey results indicate that the stocks are currently witnessing low numbers of recruits for both sardine and anchovy, whilst red-eye appear to be the species to take note of for industrial fishing. During 1989, 1990 and 1996, the biomass of the total resource was extremely low, but bounced back in the 2000s.

Catch composition data from observer records for 12 months from August 2022 to July 2023 indicate significant catches of red-eye round herring in deeper water and the availability of some adult sardine on the West Coast. Juvenile sardine bycatch is avoided in this fishery and are not regularly caught in great numbers. Anchovy, caught inshore, were mainly seen during the winter months in 2022 with low volumes observed in observer samples during 2023 (Figure 5).

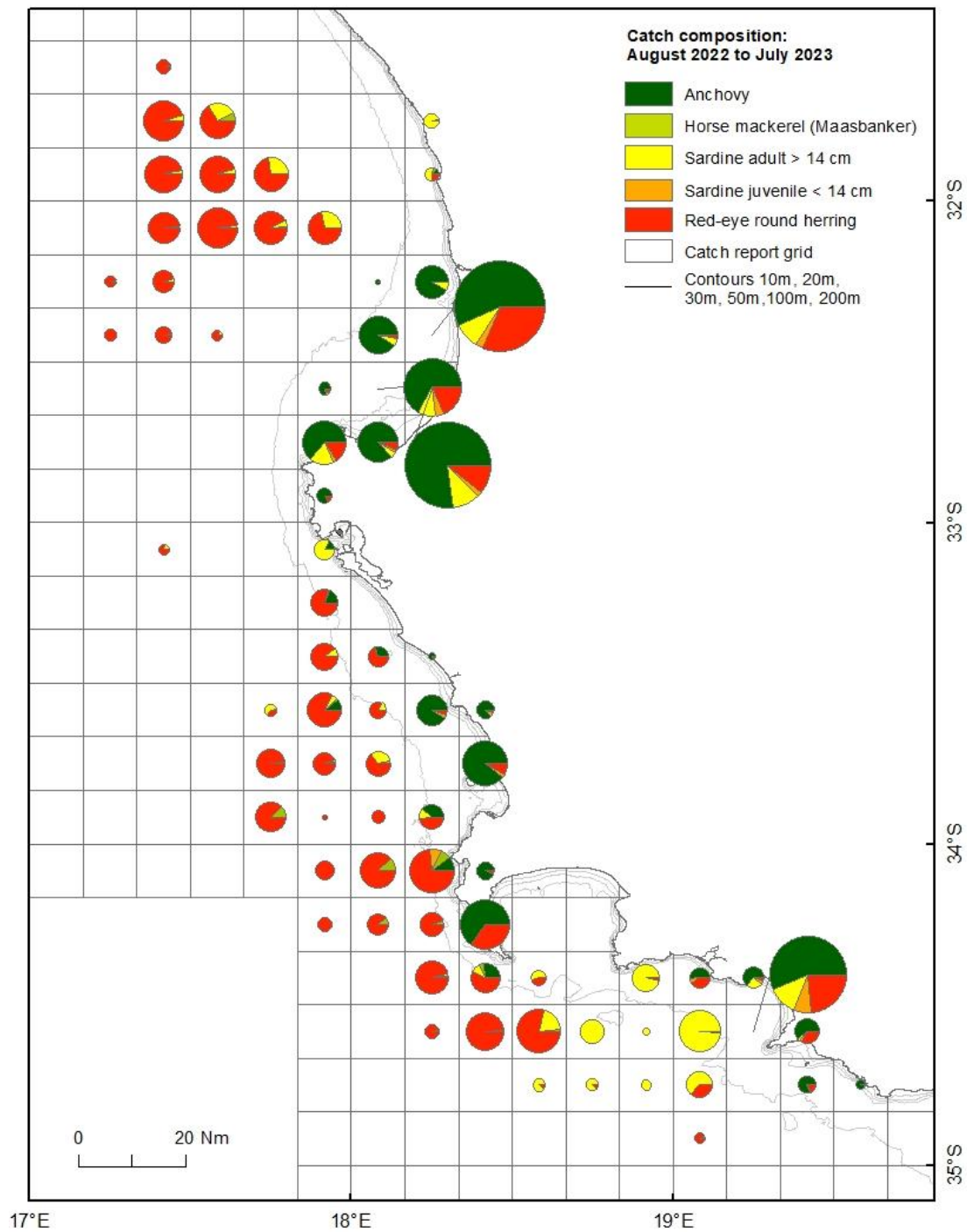


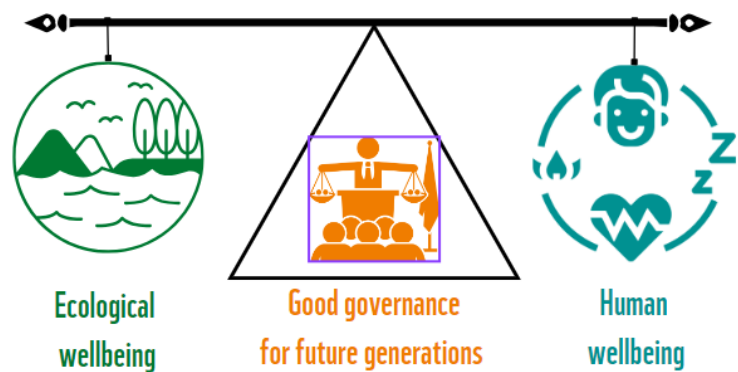
Figure 5. Spatial distribution (summarised by grid block) of species composition of observer samples raised to the estimated bag weight from August 2022 to July 2023 (CapMarine 2023).

Management of the fishery

The management of the small pelagic fishery has been discussed in detail in previous reports, however the complexity of daily management and continued stakeholder commitment to manage this fishery responsibly should be highlighted. The fishery is managed according to an Operational Management Plan (OMP), which is formulated by the Small Pelagic Scientific Working Group. The OMP uses various

data sources, including the bi-annual research surveys completed by DFFE, landing data from factories and the industry's scientific observer programme. Incremental adjustments are made to the TAC and TABs (also PUCLs) throughout the season as updated data becomes available and analysed.

The industry is also self-managed through daily communication between factories and the nominated Area Controllers during times of fishing. Communication may include reports of significant bycatch events with potential immediate area closures where required. The industry understands that sustainable management of the



fishery is a top priority and are supportive of good governance in all activities related to fishery. The close relationship between industry, government and other stakeholders is seen as an excellent example of co-management on an industrial scale with the goal of long-term benefits to all involved.

Summary

Long-term changes in the relative abundance of anchovy and sardine have been observed both locally and worldwide. These species commonly have rapid growth rates, short life spans and exhibit strong population responses to environmental variability which result in large natural fluctuations in abundance over space and time. Fluctuations are generally associated with variability in the recruitment, owing to changing environmental factors that affect, among others, transport of eggs and larvae and feeding conditions.

If we refer to the anchovy recruit biomass in Figure 2, from 1985 to 2023 and historical catch data (Figure 1) then it is evident that there will be times of stock attrition and times where a species become abundant. The fluctuations in recruit biomass and resource availability in South Africa described here are not unprecedented. With continued proactive management from government and industry the sector should be in a good position to benefit from recovering stocks in the near future.

References

DFFE 2023 a. Small Pelagics Purse Seine Catch Data, Johan de Goede, Department of Forestry Fishery and the Environment

DFFE 2023 b. Small Pelagic Initial and Final Catch Allocations, Department of Forestry Fishery and the Environment

DFFE 2023 c. Final Results of the 2022 Pelagic Biomass Survey, Department of Forestry Fishery and the Environment. FISHERIES/2023/FEB/SWG-PEL/02

DFFE 2023 e. Results of the 2023 Pelagic Recruit Survey, Department of Forestry Fishery and the Environment. FISHERIES/2023/JUL/SWG-PEL/11

CapMarine 2023. South African Pelagic Fishing Industry Association (SAPFIA), observer catch composition data 2022 & 2023.