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Commonwealth Small Pelagic Fishery: Summary Status Report 2022

Report to the Australian Fisheries Management Authority

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RR2021/0803 April 2023

Contents

Version	Updates	Approver

About this document

This publication may be cited as:

Ward, T.M., Wolfe, B.W., Carlos, G. and Couslon, P. (2023). Commonwealth Small Pelagic Fishery: Summary Status Report 2022. Report prepared for the Australian Fisheries Management Authority by the Institute for Marine and Antarctic Studies, University of Tasmania, Hobart, 11pp.

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Acknowledgements

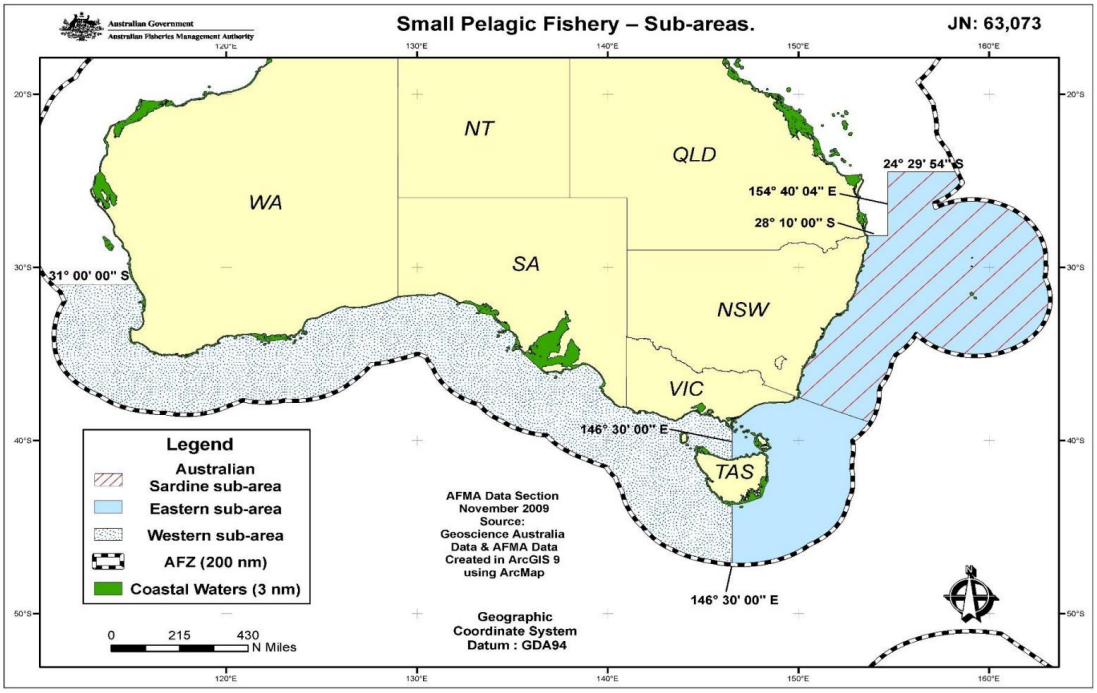
This summary status report was funded by the Australian Fisheries Management Authority (AFMA). Data presented in this report were provided to IMAS by Mr Steve Hall (Australian Fisheries Management Authority) and Dr John Stewart (New South Wales Department of Primary Industries). We thank Ms Kerrie Bennetts, Mr Steve Hall and Mr Dan Corrie (AFMA) and Dr Kelly Paige, Ms Amy Richardson and Ms Andrea Woolnough (IMAS) for their assistance in establishing and managing the project.

Keywords: Commonwealth SPF, Jack Mackerel, Blue Mackerel, Redbait, Sardine, purse seine, mid-water trawl, AFMA

Background

This report summarises information available on the status of target species in the Commonwealth Small Pelagic Fishery (SPF) in 2021/22. The target species in the Eastern and Western sub-areas (Figure 1) are Jack Mackerel (*Trachurus declivis*), Blue Mackerel (*Scomber australasicus*) and Redbait (*Emmelichthys nitidus*). Australian Sardine (*Sardinops sagax*) is the target species in the Sardine sub-area. Recent SPF catches have been dominated by Jack Mackerel, Blue Mackerel and Redbait taken by mid-water trawling (Figure 2) in the Eastern sub-area off southern New South Wales (NSW). Smaller quantities of Sardine and Blue Mackerel are taken by purse-seining.

Figure 1. Sub-areas of the Commonwealth Small Pelagic Fishery. Source: SPF-Harvest-Strategy_April-2017_FINAL.pdf (afma.gov.au))

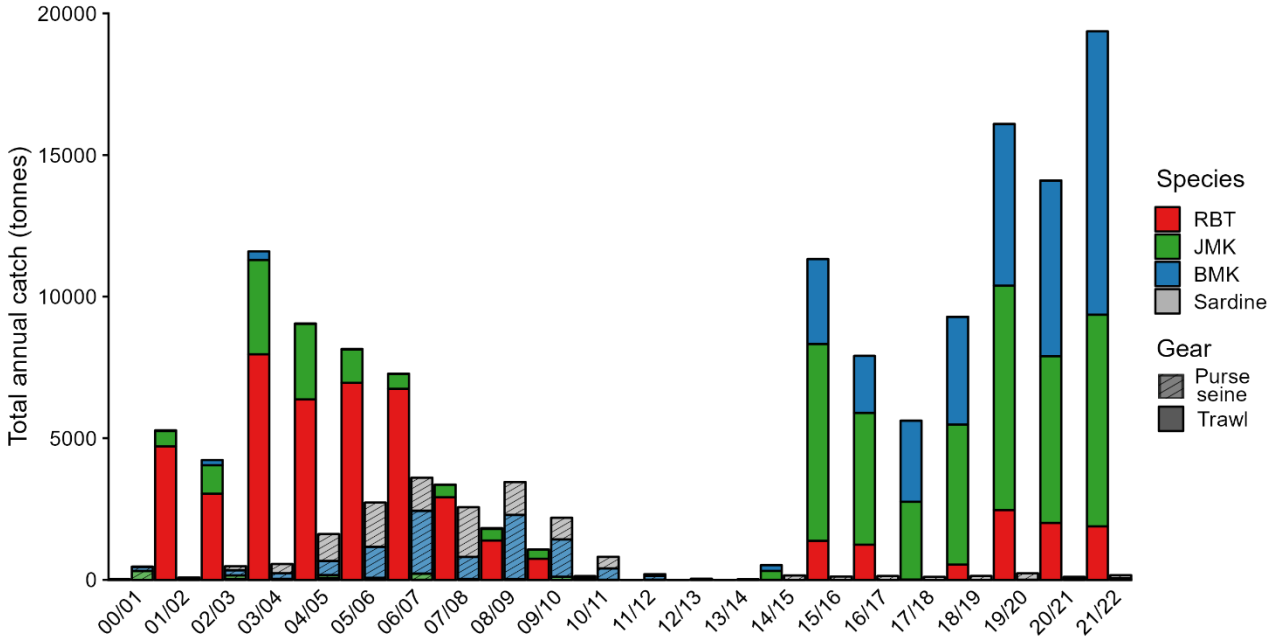


The only other significant catches of SPF species in areas adjacent to the SPF are taken by purse-seine vessels targeting Sardine and Blue Mackerel in waters under the jurisdiction of New South Wales (NSW). Catches from these vessels are included in this report.

Prior to the establishment of the SPF in 2001, purse-seine vessels operating off Tasmania targeted Jack Mackerel (Kailola et al. 1993). The annual catch of the Jack Mackerel

Fishery peaked at approximately 40,000 t in 1986/87 and declined quickly to around 8,000 t in 1988/89. The fishery continued sporadically up until 2000 when purse-seine fishing off Tasmania ceased due to large inter-annual variations in catches. Rules (e.g., Total Allowable Catch (TAC), zones, input controls) established in the Jack Mackerel Fishery were maintained in the SPF up until 2008/09 when the Harvest Strategy (AFMA 2008) and Management Plan (AFMA 2009) for the SPF were implemented. Catches taken in the Jack Mackerel Fishery are not presented in this report because they are of limited relevance to the modern SPF.

Figure 2. Annual catches by species and gear type in the Commonwealth Small Pelagic Fishery.



The SPF Harvest Strategy 2008 (last revised 2022) specifies that the primary technique for assessing the status of SPF species is the Daily Egg Production Method (DEPM). To retain a species in a sub-area at Tier 1, where exploitation rates are highest, the DEPM must be applied every 5 years (Table 1). Between applications of the DEPM, fishery-dependent data are analysed to identify variations in fishing patterns or catches that may be indicative of changes in stock status. The report summaries information available on target species in the SPF at the end of 2021/22 fishing season and is based on a presentation to the SPF Resource Assessment Group in December 2022. It updates the latest fishery assessment report (Grammer et al. 2022a)

Table 1. Exploitation rates and their duration at each tier in the SPF Harvest Strategy. Source: SPF-Harvest-Strategy_April-2017_FINAL.pdf (afma.gov.au))

Species	Tier 1	Tier 2	Tier 3
Jack Mackerel	12% 5 seasons	6% 10 seasons	3%
Redbait	10% 5 seasons	5% 10 seasons	2.5 %
Blue Mackerel	15% 5 seasons	7.5% 5 seasons	3.75%
Australian Sardine,	20% 5 seasons	10% 5 seasons	5%

Jack Mackerel

Eastern sub-area

The total catch of Jack Mackerel in the Eastern sub-area in 2021/22 was 7,474 t, which is the second highest catch in the history of the SPF. It was taken entirely by mid-water trawling off southern NSW. CPUE of Jack Mackerel in this operation has been relatively stable at 5-8 t.trawl hr^{-1} since it began in 2017/18. The modal size in 2021/22 was 210 mm FL, which is below the mean size at 50% maturity (~230 mm FL). The modal age was 3 years.

The spawning biomass of Jack Mackerel in the Eastern sub-area in 2019 was estimated to be 156,292 t (49,120–263,496) (Ward et al. 2020). The catch in 2021/22 was 4.8% of the spawning biomass and 40.1% of the TAC (18,630 t). Jack Mackerel in the Eastern sub-area is classified as **sustainable**.

Western sub-area

There was no catch of Jack Mackerel in the Western sub-area in 2021/22. The spawning biomass in 2016/17 was estimated to be 34,978 t (Ward et al. 2018). Recent catches have been 0% of the spawning biomass and 0% of the TAC (4,180 t). Jack Mackerel in the Western sub-area is classified as **sustainable**.

Blue Mackerel

Eastern sub-area

The total catch of Blue Mackerel in the Eastern sub-area in 2021/22 was 10,218 t, including 10,007 t (98%) by SPF mid-water trawlers, and 51 t and 160 t by SPF and NSW purse-seine vessels, respectively. It is the highest annual catch of Blue Mackerel in the history of the SPF. CPUE of Blue Mackerel by mid-water trawlers off NSW increased to 10.t.trawl hr^{-1} in 2021/22, well above the 4-7 t.trawl hr^{-1} previously recorded in this operation. The modal size in 2021/22 was 260 mm FL, which is below the mean size at 50% maturity (~287 mm FL). The modal age was 2 years.

The spawning biomass of Blue Mackerel in the Eastern sub-area in 2019 was estimated to be 80,000 t (Ward et al. 2021). The total catch in 2021/22 was 85.2% of the spawning biomass and 88.2% of the TAC (11,400 t). Blue Mackerel in the Eastern sub-area is classified as **sustainable**.

Western sub-area

There was no catch of Blue Mackerel in the Western sub-area of the SPF in 2021/22. The spawning biomass in 2006 was estimated to be 86,500 t (Ward et al. 2009). Recent catches have been 0% of the spawning biomass and 0% of the TAC (4,180 t). Blue Mackerel in the Western sub-area is classified as **sustainable**.

Redbait

Eastern sub-area

The total catch of Redbait in the Eastern sub-area of the SPF in 2021/22 was 1,890 t, well below the 7,733 t taken off Tasmania in 2003/04. CPUE of Redbait by trawlers of NSW has been relatively stable at 2-4 t.trawl hr^{-1} since 2018/19 t. The modal size in 2021/22 was 200 mm FL which is above the mean size at 50% maturity of ~160 mm FL. The modal age was 2 years.

The spawning biomass of Redbait Eastern in 2020 was estimated to be 52,629 t (13,937-91,321 t) (Grammer et al. 2022b). The total catch of Redbait in the Eastern sub-area was

3.6% of the spawning biomass and 35.2% of the TAC (5,370 t). Redbait in Eastern sub-area is classified as **sustainable**.

Western sub-area

There was no catch of Redbait in the Western sub-area in 2021/22. The spawning biomass for Redbait in Western sub-area in 2017 was estimated to be 66,787 t (28,797–190,392) (Ward et al. 2019). The total catch of Redbait in the Western sub-area was 0% of the spawning biomass and 0% of the TAC (6,680 t). Redbait in Western sub-area is classified as **sustainable**.

Australian Sardine

Eastern sub-area

The total catch of Sardine in the Sardine sub-area in 2021/22 was 523 t including 112 t and 411 t by SPF and NSW purse-seine vessels, respectively.

The spawning biomass of Australian Sardine in the Sardine sub-area in 2019 was estimated to be 42,724 t (15,487–69,962 t) (Ward et al. 2021). The total catch of Sardine in the Eastern sub-area was 1.2% of the spawning biomass and 6.6% of the TAC (7,980 t). Sardine in the Sardine sub-area is classified as **sustainable**.

Summary

All SPF stocks are classified as sustainable. DEPM surveys have now been conducted for all stocks. Resulting estimates of spawning biomass could be used to inform the establishment of target (e.g. B_{50}) and limit reference points (e.g. B_{25}) for each stock.

In 2022/23, all SPF stocks are at Tier 1 except for Blue Mackerel in the Western sub-area (Tier 3), where the DEPM was last applied in 2005. DEPM surveys in the Eastern sub-area are scheduled for Jack Mackerel in 2023/24, Blue Mackerel and Sardine in 2024/25 and Redbait in 2025/26.

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