

Marine Scalefish Fishery Management Advisory Committee

Meeting #4 – 16 and 17 May 2023

The Marine Scalefish Fishery Management Advisory Committee (MSFMAC) held its fourth meeting on 16 and 17 May 2023 at the Department of Primary Industries and Regions (PIRSA), West Beach, and via online video conference call.

A focus of this MSFMAC meeting was to prepare recommendations for catch limits for 1 July 2023 to 30 June 2024 for the Tier 1 stocks in the Marine Scalefish Fishery (MSF) – Snapper, King George Whiting, Southern Garfish and Southern Calamari.

Recommended catch limits

The MSFMAC Science Subcommittee (SSC) had met and provided recommended catch limits for each stock of the Tier 1 species to the MSFMAC. The SSC had considered the latest available catch statistics and scientific information, including species/stock summary sheets prepared by the South Australian Research and Development Institute (SARDI). The stock summary sheets are provided as an attachment to this report.

The MSFMAC noted the 2022/23 Total Allowable Commercial Catches (TACCs) included adjustments that had been made to accommodate the outcomes of reviews undertaken pursuant to section s111 and s112 of the *Fisheries Management Act 2007* finalised after the start of the quota period which had increased the quota units for several stocks.

SARDI provided the MSFMAC with an overview of the stock summaries and latest scientific information for each of the stocks. New stock assessments had been completed for King George Whiting and Snapper since the catch limits were considered for the 2022/23 year. The stock assessment models had been updated to incorporate the latest fishery and biological information, including recreational catches as reported in the 2021/22 latest Recreational Fishing Survey. The Committee noted there were no changes to stock status.

The Committee noted that a new Harvest Strategy Framework (HSF) was under development for the marine scalefish stocks and a draft was expected to be available to assist consideration of catch limits for the 2024/25 year. Future stock assessments would need to be updated to support the application of the HSF.

The recent catch statistics indicated positive or stable trends for all stocks with the exception of Spencer Gulf King George Whiting where there was a small decline in abundance. Considering this, and that there were no changes to stock status and that a new HSF was in development, when compared against the various catch options, the MSFMAC agreed there was no basis from which to suggest changes to the catch limits in place for the 2022/23 season for all stocks except for Snapper in the South East (SE) Fishing Zone where an increase in Total Allowable Catch (TAC) was recommended.

SE Snapper

In 2021/22, SARDI undertook assessments of Snapper stocks in South Australia, including the stock in the SE region. The update stock assessment model triggered a re-evaluation of an appropriate harvest fraction for SE Snapper to guide TAC setting by applying the same approach used to set the 2021/22 TAC. Considering the updated harvest fraction, the sustainable stock status, increasing biomass, and record high recruitment of Snapper recorded in Port Phillip Bay in recent years, the MSFMAC recommended a TAC of 70t (52.5t TACC, 17.5t TARC) based on a 20% harvest fraction. Whilst this TAC represented an increase from the previous 48t TAC, the Committee considered this to still be conservative.

King George Whiting

An updated stock assessment had been completed for King George Whiting (KGW). The Committee noted that in the case of KGW in the Spencer Gulf Fishing Zone, the stock was classified as 'sustainable' and had a stable harvest fraction, but there had been a decline in recruitment and subsequent small decline in estimated biomass in recent years. Both raw and standardised Catch Per Unit Effort were high, and did not indicate any issues with stock status. The Committee discussed these results at length, including the potential for hyperstability and the robustness of CPUE as an index of abundance. Considering the available information and status of the stock, the MSFMAC recommended the 2022/23 TACC be maintained for 2023/24, and suggested recruitment and biomass should be closely monitored.

For the West Coast Fishing Zone, the new KGW assessment incorporated the new fishing zone boundaries. The stock was classified as 'sustainable'. There was no evidence of unsustainable fishing occurring, and there was a high but uncertain biomass and low harvest fraction. The Committee noted the biomass estimates were less certain on the West Coast than in the Spencer Gulf or Gulf St Vincent/Kangaroo Island regions, as the adult spawning stock was outside the footprint of the fishing effort. Considering these factors and the development of a new HSF, the MSFMAC recommended the 2022/23 commercial catch cap be maintained for 2023/24.

The MSFMAC recommended the catch limits outlined in Table 1 be applied for 2023/24. These recommendations are further outlined in the attached stock summaries.

Table 1. MSFMAC recommended catch limits for 1 July 2023 to 30 June 2024

Fishing Zone	King George Whiting TACC (T)	Southern Garfish TACC (T)	Calamari TACC (T)	Snapper TACC / TARC (T)
West Coast	183 (catch cap)	N/A	N/A	0
Spencer Gulf	122.715	107.184	211.45	0
Gulf St Vincent / Kangaroo Island	46.818	79.849	168.294	0
South East	N/A	N/A	N/A	52.5 / 17.5*

*Shared amongst the Commercial, Recreational, Charter, and Aboriginal Traditional sectors as per existing regional catch shares for Snapper in the South East Fishing Zone.

Quota under-catch and over-catch

For all quota managed stocks, the MSFMAC recommended that the default commercial under-catch and over-catch arrangements, being up to 10% of the licence holder's quota entitlement, be implemented for the 2023/24 quota period.

Draft Harvest Strategy Framework

The Committee discussed a draft Harvest Strategy Framework (HSF) for marine scalefish species to consider endorsing as the version to commence consultation with stakeholders. The framework had been prepared by Dr David Smith and PIRSA/SARDI consistent with the approach previously endorsed by the MSFMAC. The MSFMAC considered that some changes were necessary before wider consultation and these would be progressed out of session. The Committee noted the importance of an effective consultation process with stakeholders and that the consultation documents should include contextual and non-technical information appropriate for the stakeholder audience. The Committee reiterated the training need to build stakeholder capacity on technical aspects of fisheries science and management to gain maximum benefit from consultation on technical aspects of fisheries management such as HSFs. The Committee agreed to further explore training options through a subgroup.

Yellowfin Whiting

Whilst not a quota managed species, Yellowfin Whiting (YFW) is an important Tier 2 commercial species and an increasingly important recreational species. SARDI presented an updated assessment of Yellowfin Whiting in the Spencer Gulf (SGFZ) and Gulf St Vincent/KI Fishing Zones (GSVFZ). Whilst both the GSVFZ and SGFZ stocks were classified as 'sustainable', the YFW biomass in the GSVFZ had been reduced but was now stable at a low level. The MSFMAC noted that SARDI would provide an updated assessment early next year (March/April 2024) to inform whether management changes would be needed in Winter 2024.

Regional catch shares

PIRSA had provided an updated discussion paper outlining key issues in relation to the application of regional catch shares vs state-wide sector allocations of marine scalefish species. The MSFMAC noted the need to manage stocks sustainably at regional levels and the necessary assumptions regarding regional catch shares in establishing catch limits and in future harvest strategies. There were different views on the level of management needed to efficiently manage fish stocks. It was noted that regional catch shares had implications for multiple sectors. PIRSA would further develop the paper for stakeholder consultation, including working with the peak bodies.

Effective catch recording for all sectors

PIRSA had provided an updated discussion paper outlining key issues in relation to the effective catch recording for the recreational sector. The Committee reiterated concerns that the quality and frequency of recreational catch data was a source of substantial uncertainty in the stock assessments. They noted planned PIRSA/SARDI work to develop recreational reporting abilities with RecFish SA which had been announced with the Snapper support initiatives, and phase 2 of the Recreational Fishing Survey Project to be completed which would provide important insights on the feasibility of using a smart phone 'app' to supplement traditional recreational fishing survey data. PIRSA will update the discussion paper for the next MSFMAC meeting to incorporate outcomes from these two projects.

The next MSFMAC meeting was expected to be held in October 2023 with a final date to be confirmed out-of-session.

Dr Ilona Stobutzki

Chair of the Marine Scalefish Fishery Management Advisory Committee

MSF Species / Stock summaries – 2023

King George Whiting *Sillaginodes punctatus*



West Coast

Last revised: May 2023

Stock summary						
Stock status	Sustainable (2021/22)					
Stock assessment	Tier 1 species – last assessment was 2021/22 (Smart et al 2023).					
Fishery/stock trend	<p>The WC fishing zone has the second highest catch and effort for King George Whiting of all three SA stocks. Total MSF catch and effort have been declining since the mid 1990's and were the lowest on record in 2021/22. Commercial catches have been below 100t for the past six years. However, CPUE has had a generally increasing trend over the history of the fishery and was the fourth highest on record in 2021/22.</p> <p>Commercial catch was 78 t in 2021/22 (16% of the TACC). The recreational catch in 2021/22 was 59 t (Beckman et al. 2023). It is the only King George Whiting stock in SA where commercial catches remains higher than estimated recreational catch.</p>					
Current management measure and catch	Commercial catch and TACC					
	Year	Total commercial catch (t)	RBC (t)	RBCC (t)	TACC (t)	
	2016/17	90	-	-	-	
	2017/18	98	-	-	-	
	2018/19	91	-	-	-	
	2019/20	97	-	-	-	
	2020/21	81	-	-	-	
	2021/22	78	-	-	473	
	2022/23	-	-	-	183	
	Sector allocations (State-wide)					
RBC – recommended biological catch RBCC - recommended biological commercial catch TACC – total allowable commercial catch (model-based output) <u>Sector allocations</u> Allocations in the current management plan are statewide.	Commercial		Recreational		Aboriginal traditional	Total
	MSF	49.5%	REC	45.5%	1%	100%
	SZRL	0%	CHT	3%		
	NZRL	1%				
Current assessment program	<ul style="list-style-type: none"> Weekly length and age structures collected through market sampling in Adelaide and regional areas. Annual fishery statistics provided through a stock status report CPUE standardisation Application of a length-and-age-structured population model every three years 					

	<ul style="list-style-type: none"> Recreational data collected every six-seven years through statewide recreational survey Daily egg production methods (DEPM) have been established to estimate spawning biomass but are not undertaken as part of ongoing assessments. No information is available for Aboriginal/Traditional fishing. 																																
Assessment summary	<p>The most recent stock assessment was completed for data up until June 2022 using a weight-of-evidence approach (Smart et al 2023). The primary fishery performance indicators were total catch, targeted handline catch, targeted handline CPUE, and fishery age structure. All datasets pertaining to the fishery were integrated in a computer stock assessment model (WhitEst) that produced time-series of annual estimates of output parameters that included fishable biomass, recruitment, and harvest fraction.</p> <p>All available evidence within this assessment indicated that the King George Whiting stock in the WC fishing zone is healthy and that recent catch and effort have remained at sustainable levels. There has been no discernible differences in annual age structures to indicate overfishing; standardised CPUE indicates a stable index of abundance and the WhitEst model demonstrated that biomass and annual recruitment were high while recent harvest fractions were low. As such, the WC stock was classified as sustainable.</p>																																
RBC / TACC options for 2022/23 <u>Sector catch shares</u> Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones. M = natural mortality H = harvest fraction	<p>Legal-size biomass (2021/22) = 2,331 t</p> <p>Commercial catch share = 70%</p> <table border="1" data-bbox="371 999 1370 1193"> <thead> <tr> <th></th> <th>Management plan</th> <th>2022/23 approach (M = 0.2)</th> <th>WhitEst M (M = 0.45)</th> <th>5-year average catch</th> <th>5-year max catch</th> <th>2021/22</th> <th>2022/23</th> </tr> </thead> <tbody> <tr> <td>Target H</td> <td>0.28</td> <td>0.125 (2/3M)</td> <td>0.26 (2/3M)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RBC (t)</td> <td>653</td> <td>291</td> <td>606</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TACC (t)</td> <td>457</td> <td>204</td> <td>424</td> <td>89</td> <td>98</td> <td>473</td> <td>183</td> </tr> </tbody> </table> <p><u>2022/23 TACC justification</u></p> <p>The 2021/22 TACC of 473 t was based on scientific advice from the most current stock assessment at the time (Steer et al. 2018). This considered recent estimates of legal-size biomass, the target harvest fraction in the management plan and the commercial catch share of King George Whiting in the WC fishing zone. The TACC for the 2022/23 was reconsidered based on a natural mortality (M) of 0.2. This provided a conservative target harvest fraction of 0.125 (i.e., 12.5%) compared to the management plan value of 0.28. As a result the TACC for the 2022/23 fishing season was set at 183 t.</p> <p><u>2023/24 TACC options</u></p> <p>Biomass estimates are less certain for the WC zone and have much wider confidence intervals than the SG & GSV/KI fishing zones. This is due to the unmodelled offshore stock that resides outside the footprint of the fishery. Several RBC and TACC options are available based on recent catches and different target harvest fractions.</p> <p>The current stock assessment reviewed natural mortality and undertook sensitivity analyses. A wide range of plausible natural mortalities ($0.16 - 0.93\text{yr}^{-1}$) was determined for King George Whiting using multiple life history parameters. The mid-point of these estimates was 0.45yr^{-1} which matched the current M used in the WhitEst model and was therefore retained (Smart et al 2023).</p> <p>An M of 0.45yr^{-1} converted to a target harvest fraction (H) of 26% and a TACC of 424 t when applied to 2021/22 legal-size biomass and the commercial catch share of KGW for the WC fishing zone. However, this is substantially higher than recent catches for the</p>		Management plan	2022/23 approach (M = 0.2)	WhitEst M (M = 0.45)	5-year average catch	5-year max catch	2021/22	2022/23	Target H	0.28	0.125 (2/3M)	0.26 (2/3M)					RBC (t)	653	291	606					TACC (t)	457	204	424	89	98	473	183
	Management plan	2022/23 approach (M = 0.2)	WhitEst M (M = 0.45)	5-year average catch	5-year max catch	2021/22	2022/23																										
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	fishery. Other TACC options include retaining the target H of 12.5% from the previous fishing season or no further change in TACC given that catches were well below the 2022/23 TACC and there is no risk to sustainability at this level.
Research needs	<ul style="list-style-type: none"> • Development of harvest strategy with performance indicators, reference points and harvest control rules. • Standardisation of commercial CPUE, using improved measures of fishing effort. • Improved estimates of recreational catch and effort.
MSFMAC recommendation	Considering the new Harvest Strategy Framework was in development, and based on the sustainable status of the stock which was lightly fished, with stable and increasing yet uncertain biomass, the MSFMAC recommended the KGW 2022/23 commercial catch cap of 183 t in the WC fishing zone be maintained for 2023/24. The MSFMAC noted there is a research need to obtain information about the adult KGW stock in the West Coast fishing zone.
References	<p>Beckmann, C. L., L. M. Durante, A. Graba-Landry, K. E. Stark and S. R. Tracey (2023). 2021–22 Survey of Recreational Fishing in South Australia. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2022/000385-1. SARDI Research Report Series No. 1161 185 pp.</p> <p>Smart JJ, R McGarvey, J Feenstra, MJ Drew, J Earl, L Durante, CL Beckmann, D Matthews, JM Matthews, K Mark, J Bussell, J Davey, A Tsolos and C Noell (2023). Assessment of the South Australian Marine Scalefish Fishery in 2021/22. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide.</p>

MSF Species / Stock summaries – 2023

King George Whiting *Sillaginodes punctatus*

Spencer Gulf



Last revised: May 2023

Stock summary					
Stock status	Sustainable (2021/22)				
Stock assessment	Tier 1 species – last assessment was 2021/22 (Smart et al 2023).				
Fishery/stock trend	<p>The SG fishing zone has the highest commercial catch and effort for King George Whiting of all three SA stocks. Commercial catch and effort have been declining since the mid 1990's and were the second lowest and lowest on record, respectively, in 2021/22. Commercial catch has been below 100t for the past three fishing seasons. However, CPUE has had a generally increasing trend over the history of the fishery and was the highest on record in 2021/22.</p> <p>Commercial catch was 71 t in 2021/22 (64% of the TACC). The recreational catch in 2021/22 was 164 t (Beckman et al. 2023).</p>				
Current management measure and catch	Commercial catch and TACC				
	Year	Total commercial catch (t)	RBC (t)	RBCC (t)	TACC (t)
	2016/17	126	-	-	-
	2017/18	108	-	-	-
	2018/19	103	-	-	-
	2019/20	96	-	-	-
	2020/21	69	-	-	-
	2021/22	71	-	-	111.3*
	2022/23	-	-	-	122.715*
	Sector allocations (State-wide)				
Commercial		Recreational		Aboriginal traditional	Total
MSF	49.5%	REC	45.5%	1%	100%
SZRL	0%	CHT	3%		
NZRL	1%				
Current assessment program	<ul style="list-style-type: none"> Weekly length and age structures collected through market sampling in Adelaide and regional areas. Annual fishery statistics provided through a stock status report CPUE standardisation Application of a length-and-age-structured population model every three years 				

	<ul style="list-style-type: none"> Recreational data collected every five years through statewide recreational survey Daily egg production methods (DEPM) have been established to estimate spawning biomass but are not undertaken as part of ongoing assessments. No information is available for Aboriginal/Traditional fishing. 																																
<p>RBC / TACC options for 2022/23</p> <p><u>Sector catch shares</u></p> <p>Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones.</p> <p>M = natural mortality</p> <p>H = harvest fraction</p>	<p>Legal-size biomass (2021/22) = 1,128t</p> <p>Commercial catch share = 44%</p> <table border="1"> <thead> <tr> <th></th> <th>Management plan</th> <th>M = 0.2</th> <th>WhitEst M (M = 0.45)</th> <th>5-year average catch</th> <th>5-year max catch</th> <th>2021/22</th> <th>2022/23</th> </tr> </thead> <tbody> <tr> <td>Target H</td> <td>0.28</td> <td>0.125 (2/3M)</td> <td>0.26 (2/3M)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RBC (t)</td> <td>316</td> <td>141</td> <td>293</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TACC (t)</td> <td>139</td> <td>62</td> <td>129</td> <td>90</td> <td>108</td> <td>111.3*</td> <td>122.715*</td> </tr> </tbody> </table> <p><u>2022/23 TACC justification</u></p> <p>The 2021/22 TACC of 111 t was recommended by the SnapperMAC and was calculated based on the average 5-year annual commercial catch from 2015–2019. This TACC was maintained for the 2022/23 fishing as the most recent stock assessment did not demonstrate any reasons to update the TACC.</p> <p><u>2023/24 TACC options</u></p> <p>There are several TACC options that include recent average catches, target harvest fractions applied to current levels of biomass or maintaining the current TACC.</p> <p>The current stock assessment reviewed natural mortality and undertook sensitivity analyses. A wide range of plausible natural mortalities (0.16 - 0.93yr⁻¹) was determined for King George Whiting using multiple life history parameters. The mid-point of these estimates was 0.45yr⁻¹ which matched the current <i>M</i> used in the WhitEst model and was therefore retained (Smart et al 2023).</p>		Management plan	M = 0.2	WhitEst M (M = 0.45)	5-year average catch	5-year max catch	2021/22	2022/23	Target H	0.28	0.125 (2/3M)	0.26 (2/3M)					RBC (t)	316	141	293					TACC (t)	139	62	129	90	108	111.3*	122.715*
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<p>Assessment summary</p>	<p>The most recent stock assessment was completed for data up until June 2022 using a weight-of-evidence approach (Smart et al 2023). The primary fishery performance indicators were total catch, targeted handline catch, targeted handline CPUE, and fishery age structure. All datasets pertaining to the fishery were integrated in a computer stock assessment model (WhitEst) that produced time-series of annual estimates of output parameters that included fishable biomass, recruitment, and harvest fraction.</p> <p>Slight declines in biomass have occurred in recent years due to reduced recruitment since 2013. However, declining commercial catches have maintained a low harvest fraction and the LTRP for biomass has not been breached. Raw and standardised CPUE demonstrate strong fishery performance and do not suggest any issues with stock health. As such, the SG stock was classified as sustainable.</p>																																
<p>Research needs</p>	<ul style="list-style-type: none"> Development of harvest strategy with performance indicators, reference points and harvest control rules. Standardisation of commercial CPUE, using improved measures of fishing effort. Improved estimates of recreational catch and effort. 																																
<p>MSFMAC recommendation</p>	<p>Considering the new Harvest Strategy Framework was in development, and based on the sustainable stock status, stable harvest fraction, and high CPUE, the MSFMAC recommended the KGW 2022/23 TACC of 122.715 t in the SG fishing zone be maintained as the TACC for 2023/24, however the MSFMAC noted there was a recent decline in biomass due to reduced recruitment and there had been declining commercial</p>																																

	catches, and whilst there was high CPUE, there were concerns relating to CPUE as an index of abundance given the potential for hyperstability, efficiency increases and ongoing impacts of the recent reform. Considering these concerns, the MSFMAC recommended that recruitment and biomass be closely monitored.
References	<p>Beckmann, C. L., L. M. Durante, A. Graba-Landry, K. E. Stark and S. R. Tracey (2023). 2021–22 Survey of Recreational Fishing in South Australia. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2022/000385-1. SARDI Research Report Series No. 1161 185 pp.</p> <p>Smart JJ, R McGarvey, J Feenstra, MJ Drew, J Earl, L Durante, CL Beckmann, D Matthews, JM Matthews, K Mark, J Bussell, J Davey, A Tsolos and C Noell (2023). Assessment of the South Australian Marine Scalefish Fishery in 2021/22. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide.</p>

*Includes outcomes of internal and external reviews pursuant to s111 and s112 of the *Fisheries Management Act 2007* finalised after the start of the quota period which increased the quota units in the fishery.

MSF Species / Stock summaries – 2023

King George Whiting *Sillaginodes punctatus*

Gulf St. Vincent / Kangaroo Island



Last revised: May 2023

Stock summary					
Stock status	Sustainable (2021/22)				
Stock assessment	Tier 1 species – last assessment was 2021/22 (Smart et al 2023).				
Fishery/stock trend	<p>The GSV/KI fishing zone has the lowest commercial catch and effort for King George Whiting of all three SA stocks. Commercial catches have been below 50t for the past five fishing seasons and were the lowest on record in 2021/22. However, CPUE has had an increasing trend through time and was the highest on record in 2021/22.</p> <p>Commercial catch was 27 t in 2021/22 (59% of the TACC). The recreational catch in 2021/22 was 74 t (Beckman et al. 2023).</p>				
Current management measure and catch	Commercial catch and TACC				
	Year	Total commercial catch (t)	RBC (t)	RBCC (t)	TACC (t)
	2016/17	52	-	-	-
	2017/18	37	-	-	-
	2018/19	40	-	-	-
	2019/20	42	-	-	-
	2020/21	31	-	-	-
	2021/22	27	-	-	46
	2022/23	-	-	-	46
	Sector allocations (State-wide)				
Commercial		Recreational		Aboriginal traditional	Total
MSF	49.5%	REC	45.5%	1%	100%
SZRL	0%	CHT	3%		
NZRL	1%				
Current assessment program	<ul style="list-style-type: none"> Weekly length and age structures collected through market sampling in Adelaide and regional areas. Annual fishery statistics provided through a stock status report CPUE standardisation Application of a length-and-age-structured population model every three years 				

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<p>RBC / TACC options for 2022/23</p> <p><u>Sector catch shares</u></p> <p>Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones.</p> <p>M = natural mortality</p> <p>H = harvest fraction</p>	<p>Legal-size biomass (2021/22) = 641t</p> <p>Commercial catch share = 40%</p> <table border="1" data-bbox="371 510 1369 703"> <thead> <tr> <th></th> <th>Management plan</th> <th>M = 0.2</th> <th>WhitEst M (M = 0.45)</th> <th>5-year average catch</th> <th>5-year max catch</th> <th>2021/22</th> <th>2022/23</th> </tr> </thead> <tbody> <tr> <td>Target H</td> <td>0.28</td> <td>0.125 (2/3M)</td> <td>0.26</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RBC (t)</td> <td>179</td> <td>80</td> <td>167</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TACC (t)</td> <td>72</td> <td>32</td> <td>67</td> <td>35</td> <td>42</td> <td>46</td> <td>46.818*</td> </tr> </tbody> </table> <p><u>2022/23 TACC justification</u></p> <p>The 2021/22 TACC of 46 t was recommended by the SnapperMAC and was calculated based on the average 5-year annual commercial catch from 2015–2019. This TACC was maintained for the 2022/23 fishing as the most recent stock assessment did not demonstrate any reasons to update the TACC.</p> <p><u>2023/24 TACC options</u></p> <p>There are several TACC options that include recent average catches, target harvest fractions applied to current levels of biomass or maintaining the current TACC.</p> <p>The current stock assessment reviewed natural mortality and undertook sensitivity analyses. A wide range of plausible natural mortalities (0.16 - 0.93yr⁻¹) was determined for King George Whiting using multiple life history parameters. The mid-point of these estimates was 0.45yr⁻¹ which matched the current M used in the WhitEst model and was therefore retained (Smart et al 2023).</p>		Management plan	M = 0.2	WhitEst M (M = 0.45)	5-year average catch	5-year max catch	2021/22	2022/23	Target H	0.28	0.125 (2/3M)	0.26					RBC (t)	179	80	167					TACC (t)	72	32	67	35	42	46	46.818*
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TACC (t)	72	32	67	35	42	46	46.818*																										
<p>Assessment summary</p>	<p>The most recent stock assessment was completed for data up until June 2022 using a weight-of-evidence approach (Smart et al 2023). The primary fishery performance indicators were total catch, targeted handline catch, targeted handline CPUE, and fishery age structure. All datasets pertaining to the fishery were integrated in a computer stock assessment model (WhitEst) that produced time-series of annual estimates of output parameters that included fishable biomass, recruitment, and harvest fraction.</p> <p>Since the 2016/17 fishing season all available indicators for this fishery have been positive. Commercial catch and effort have been reduced through management measures, both raw and standardised CPUE have been increasing, and no issues in age and length structures were detected. As a result, stable recruitment and low harvest fractions have resulted in high and stable biomass over recent fishing seasons. As such, the GSV/KI stock was classified as sustainable.</p>																																
<p>Research needs</p>	<ul style="list-style-type: none"> Development of harvest strategy with performance indicators, reference points and harvest control rules. Standardisation of commercial CPUE, using improved measures of fishing effort. Improved estimates of recreational catch and effort. 																																

MSFMAC recommendation	Considering that the new Harvest Strategy Framework was in development and based on the sustainable status of the stock with high and stable biomass, the MSFMAC recommended that the KGW 2022/23 TACC of 46.818 t in the GSV fishing zone be maintained as the TACC for 2023/24.
References	<p>Beckmann, C. L., L. M. Durante, A. Graba-Landry, K. E. Stark and S. R. Tracey (2023). 2021–22 Survey of Recreational Fishing in South Australia. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2022/000385-1. SARDI Research Report Series No. 1161 185 pp.</p> <p>Smart JJ, R McGarvey, J Feenstra, MJ Drew, J Earl, L Durante, CL Beckmann, D Matthews, JM Matthews, K Mark, J Bussell, J Davey, A Tsohos and C Noell (2023). Assessment of the South Australian Marine Scalefish Fishery in 2021/22. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide.</p>

*Includes outcomes of internal and external reviews pursuant to s111 and s112 of the *Fisheries Management Act 2007* finalised after the start of the quota period which increased the quota units in the fishery.

Snapper *Chrysophrys auratus*



South East Fishing Zone

Last revised: May 2023

Stock summary						
Stock status	Sustainable (2022)					
Stock assessment	Tier 1 species – last assessment was conducted in 2022 and included data up until June 2022 (Drew et al 2022).					
Fishery/stock trend	The South East Snapper stock is the western extremity of the cross-jurisdictional Western Victorian Snapper Stock (WVS), which is dependent on emigration from strong year classes of recruitment to Port Philip Bay (VIC). Snapper in the South East fishing zone is managed under a TAC divided among commercial, charter, recreational and Aboriginal / Traditional sectors. Modelled estimates of fishable biomass have continued to increase driven by recent years of strong recruitment. The most recent estimate of biomass which included all data up to 2022 was 349 t (\pm SE; 70) which was the largest modelled biomass since 2011. Biomass is expected to continue increasing over the next several years.					
Current management measure and catch RBC – recommended biological catch RBCC - recommended biological commercial catch TACC – total allowable commercial catch (determined from model-based assessment) TARC – total allowable recreational catch <u>Sector allocations</u> Allocations in the current management plan are statewide.	Commercial catch and TACC					
	Year	Total commercial catch (t)	RBC (t)	RBCC (t)	TACC/TARC (t)	
	2016/17	8	-	-	-	
	2017/18	21	-	-	-	
	2018/19	21	-	-	-	
	2019/20	46	-	-	60.75 (for 2020 calendar year)	
	2020/21	43	48	36	21.6 (1 Feb 2021–30 Jun 2021)	
	2021/22	25	48	36	36/12	
	2022/23	-	48	36	36/12	
	Sector allocations (State-wide)					
	Commercial		Recreational		Aboriginal traditional	Total
	MSF	79%	REC	8%	1%	100%
	SZRL	1.45%	CHT	10%		
	NZRL	0.55%				
LCF	0.03%					

<p>Current assessment program</p>	<ul style="list-style-type: none"> • Weekly length and age structures collected through market sampling in Adelaide. • Annual fishery statistics provided through a stock status report • Application of a length-and-age-structured population model every three years • Recreational data collected every six-seven years through statewide recreational survey • No information is available for Aboriginal/Traditional fishing. 																																								
<p>Assessment summary</p>	<p>Substantial increases in annual fishery catches, effort, and CPUE occurred between 2008/09 and 2011/12, which then declined through to 2015/16 and remained at low levels to 2019. Catches then increased as a small amount of effort was transferred from the two closed Snapper stocks (SG/WCS and GSVS) from November 2019. Catches from 2019/20 in the South East fishing zone have been constrained by TACs. However, CPUE in kg.fisherday⁻¹ have been the highest on record from 2020/21–2021/22.</p> <p>In 2016 (Hamer and Conron 2016), 2018 (Stewardson et al. 2018) and 2021 (Pidcocke et al. 2021), the WVS was classified as sustainable. The annual 0+ recruitment survey showed that over the 30 years to 2022, there had been eight years for which recruitment was above the long-term average. Furthermore, the 2018-year class was the largest yet recorded and the 2022- year class the third highest on record. These lines of evidence suggest that the adult biomass is at a level sufficient to ensure that future levels of recruitment are adequate, i.e., recruitment is not impaired, and fishing mortality is adequately controlled to avoid the stock from becoming impaired. The previous assessment identified that the source and sink dynamic of the WVS allows it to sustain higher exploitation rates in the SE fishing zone than other SA Snapper stocks.</p>																																								
<p>TAC / TACC options for 2022/23</p> <p><u>Sector catch shares</u></p> <p>Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones.</p>	<p>Legal-size biomass (2021/22) = 349 t</p> <p>Commercial catch share = 75%</p> <table border="1" data-bbox="371 1111 1485 1375"> <thead> <tr> <th></th> <th>Management plan</th> <th>Previous</th> <th>2021/22 updated</th> <th>5-year average commercial catch</th> <th>5-year max commercial catch</th> <th>2021/22</th> <th>2022/23</th> </tr> </thead> <tbody> <tr> <td>Target H</td> <td>0.32</td> <td>0.3</td> <td>0.15</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TAC</td> <td>112</td> <td>105</td> <td>52</td> <td></td> <td></td> <td>48</td> <td>48</td> </tr> <tr> <td>TACC</td> <td>84</td> <td>79</td> <td>39</td> <td>31</td> <td>46</td> <td>36</td> <td>35.842*</td> </tr> <tr> <td>TARC</td> <td>28</td> <td>26</td> <td>13</td> <td></td> <td></td> <td>12</td> <td>12</td> </tr> </tbody> </table> <p><u>2022/23 TAC justification</u></p> <p>The previous assessment identified that the source and sink dynamic of the WVS allows it to sustain higher exploitation rates in the SE fishing zone than other SA Snapper stocks. The RBC was determined by applying an exploitation rate of 30% to the 2019 biomass estimate. This was determined by examining the time-series of model estimated harvest fractions against whether they caused the proceeding biomass estimate to decline. A target harvest fraction of 30% resulted in a 48t TAC.</p> <p><u>2023/24 TAC options</u></p> <p>Following updates to the SnapEst model performed during the most recent Snapper stock assessment (Drew et al 2022) the time series of biomass and harvest fractions were updated. Therefore, the same method for determining the previous target harvest fraction was re-applied to these time series to provide an updated target harvest fraction. This resulted in a target harvest fraction of 15% given that updated estimates of biomass were higher. This results in a TAC of 52t for 2023/24. Several TAC options are now available which include different target harvest fractions and recent commercial catches.</p>		Management plan	Previous	2021/22 updated	5-year average commercial catch	5-year max commercial catch	2021/22	2022/23	Target H	0.32	0.3	0.15					TAC	112	105	52			48	48	TACC	84	79	39	31	46	36	35.842*	TARC	28	26	13			12	12
	Management plan	Previous	2021/22 updated	5-year average commercial catch	5-year max commercial catch	2021/22	2022/23																																		
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TACC	84	79	39	31	46	36	35.842*																																		
TARC	28	26	13			12	12																																		

Research needs	<ul style="list-style-type: none"> • Development of harvest strategy with performance indicators, reference points and harvest control rules. • Standardisation of commercial CPUE • Improved estimates of recreational catch and effort. • A current project examining post-release survival of Snapper is underway (FRDC 2019/044).
MSFMAC recommendation	<p>Following updates to the Snapper stock assessment model in 2022, and considering the sustainable status of the stock, increasing biomass and expected recruitment from Port Phillip Bay, the MSFMAC recommended a 70t TAC, consisting of 52.5t TACC, 17.5t TARC (for recreational/charter/Aboriginal traditional as per existing regional catch shares: 75% commercial; 10.7% recreational; 13.3% charter, 1% Aboriginal traditional) for Snapper in the SEFZ for 2023/24. This was based on a 20% harvest fraction which corresponded with a stable or increasing stock, consistent with previous methods applied to set the TAC for the stock in 2021/22. This approach was considered precautionary by the MSFMAC.</p>
References	<p>Drew, M. J., T. A. Rogers, R. McGarvey, J. Feenstra, D. Matthews, J. Matthews, J. Earl, J. Smart, C. Noell and A. J. Fowler (2022). Snapper (<i>Chrysophrys auratus</i>) Stock Assessment Report 2022. Report to PIRSA Fisheries and Aquaculture South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2007/000523-7. SARDI Research Report Series No. 1155. 178pp.</p> <p>Hamer P.A., Conron S. (2016). Snapper Stock Assessment 2016. Fisheries Victoria Science Report Series 10, Fisheries Victoria, Queenscliff. 56 pp.</p> <p>Piddocke T., Ashby C., Hartmann K., Hesp A., Hone P., Klemke J., Mayfield S., Roelofs A., Saunders T., Stewart J., Wise B., Woodhams J.E. (2021). Status of Australian Fish Stocks Reports 2020. Fisheries Research and Development Corporation, Canberra.</p> <p>Stewardson C., Andrews J., Ashby C., Haddon M., Hartmann K., Hone P., Horvat P., Klemke J., Mayfield S., Roelofs A., Sainsbury K., Saunders T., Stewart J., Nicol S., Wise B. (2018). Status of Australian Fish Stocks Reports 2018. Fisheries Research and Development Corporation, Canberra.</p>

*Includes finalisation of licence surrenders that were completed after the 21/22 quota period which decreased the quota units in the fishery.

Southern Garfish *Hyporhamphus melanochir*



Spencer Gulf

Last revised: May 2023

Stock summary						
Stock status	Recovering (2021/22)					
Stock assessment	Tier 1 species – last assessment was 2020 (Smart et al. 2022). Most recent stock status was assigned in 2021/22 (Smart et al. 2023).					
Fishery/stock trend	<p>The Spencer Gulf (SG) fishing zone contains multiple sub-populations of Southern Garfish which are treated as a single biological stock. The NSG region constitutes most of the biomass and is predominantly fished with hauling nets. The SSG region has a much smaller biomass and is fished with dab nets due to hauling net restrictions in this region. Most of the catch and effort for the SG fishing zone occurs in NSG via the hauling net sector. Management measures implemented since 2005 have supported stock recovery. Exploitation has been reduced, biomass has been stable and age structures have become less truncated. However, as of the last assessment, recruitment remained impaired.</p> <p>In 2021/22, the commercial catch was 84 t (84% of the TACC) while the recreational catch was 11.4 t (Beckman et al. 2023). The fishery statistics for the 2021/22 do not indicate any issues with the stock that may have arisen since the last full stock assessment.</p>					
Current management measure and catch	Commercial catch and TACC					
	Year	Total commercial catch (t)	RBC (t)	RBCC (t)	TACC (t)	
	2016/17	107	-	-	-	
	2017/18	91	-	-	-	
	2018/19	110	-	-	-	
	2019/20	99	-	-	-	
	2020/21	109	-	-	-	
	2021/22	84	-	-	100	
	2022/23	-	-	-	100	
	Sector allocations (State-wide)					
	Commercial		Recreational	Aboriginal traditional	Total	
	MSF	79.33%	19.5%	1%	100%	
SZRL	0.13%					
NZRL	0.04%					

<p>Current assessment program</p>	<ul style="list-style-type: none"> • Weekly length and age structures collected through market sampling in Adelaide. • Annual fishery statistics provided through a stock status report • Application of a length-and-age-structured population model every three years • Recreational data collected every six-seven years through statewide recreational survey • No information is available for Aboriginal/Traditional fishing. 																												
<p>RBC / TACC options for 2022/23</p> <p><u>Sector catch shares</u></p> <p>Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones.</p> <p>M = natural mortality</p>	<p>Adult biomass (2021/22) = 346t</p> <p>Commercial catch share = 78%</p> <table border="1" data-bbox="432 539 1294 734"> <thead> <tr> <th></th> <th>Management plan</th> <th>M = 0.4</th> <th>5-year average catch</th> <th>5-year max catch</th> <th>2021/22</th> <th>2022/23</th> </tr> </thead> <tbody> <tr> <td>Target H</td> <td>0.3</td> <td>0.23 (2/3M)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RBC (t)</td> <td>104</td> <td>80</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TACC (t)</td> <td>80</td> <td>62</td> <td>99</td> <td>110</td> <td>100</td> <td>107.184*</td> </tr> </tbody> </table> <p><u>2022/23 TACC justification</u></p> <p>The 2021/22 TACC of 100 t was recommended by the SnapperMAC and was calculated based on the average 5-year annual commercial catch from 2015–2019. This TACC was maintained for the 2022/23 fishing as the most recent stock assessment did not demonstrate any reasons to update the TACC.</p> <p><u>2023/24 TACC options</u></p> <p>There are several TACC options that include recent average catches, target harvest fractions applied to current levels of biomass or maintaining the current TACC.</p>		Management plan	M = 0.4	5-year average catch	5-year max catch	2021/22	2022/23	Target H	0.3	0.23 (2/3M)					RBC (t)	104	80					TACC (t)	80	62	99	110	100	107.184*
	Management plan	M = 0.4	5-year average catch	5-year max catch	2021/22	2022/23																							
Target H	0.3	0.23 (2/3M)																											
RBC (t)	104	80																											
TACC (t)	80	62	99	110	100	107.184*																							
<p>Assessment summary</p>	<p>The most recent stock assessment included data up until December 2020 using a weight-of-evidence approach (Smart et al 2022). The GarEst stock assessment model for the SG fishing zone combines both NSG and SSG stocks as biological mixing occurs, and stock status was assigned at the zone level in 2021/22 as a result.</p> <p>The GarEst model includes data on commercial catch and effort, commercial age and length structures, and recreational and charter boat catch and effort. Numerous management measures have been implemented since 2005 which included licence reduction schemes, spatial and temporal closures, changes to gear restrictions and changes to legal minimum length. This assessment demonstrated that these management measures have been effective and that the stock was recovering (Smart et al 2022). This status was maintained in the most recent stock status update (Smart et al 2023) and will be next assessed in 2024 using data up to and including 2022/23.</p>																												
<p>Research needs</p>	<ul style="list-style-type: none"> • Development of harvest strategy with performance indicators, reference points and harvest control rules. • Development of fishery-independent abundance indices • Standardisation of commercial CPUE. • Improved estimates of recreational catch and effort. 																												
<p>MSFMAC recommendation</p>	<p>There was little new information to consider from the previous year and there remained unresolved issues to address in relation to low recruitment which will be monitored and reassessed in the new stock assessment next year. The harvest fraction was relatively high and this would need to be considered closely next year particularly given the protracted recovery for the stock. There was a different perception of the stock on the water to what the assessment had suggested. Considering the recovering status of the stock, stable but not increasing biomass, the development of the</p>																												

	Harvest Strategy Framework and new stock assessment to be undertaken next year, the MSFMAC recommended the Southern Garfish 2022/23 TACC of 107.184 t in the SG fishing zone be maintained for 2023/24.
References	<p>Beckmann, C. L., L. M. Durante, A. Graba-Landry, K. E. Stark and S. R. Tracey (2023). 2021–22 Survey of Recreational Fishing in South Australia. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2022/000385-1. SARDI Research Report Series No. 1161 185 pp.</p> <p>Smart, J. J., J. Earl, R. McGarvey, J. Feenstra, M. J. Drew, F. Bailleul, A. J. Fowler, D. Matthews, G. Chaplin, J. M. Matthews, B. Freeling, T. A. Rogers, C. L. Beckmann and A. Tsohos (2022). Assessment of the South Australian Marine Scalefish Fishery in 2020. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2017/000427-5. SARDI Research Report Series No. 1162. 266pp.</p> <p>Smart JJ, R McGarvey, J Feenstra, MJ Drew, J Earl, L Durante, CL Beckmann, D Matthews, JM Matthews, K Mark, J Bussell, J Davey, A Tsohos and C Noell (2023). Assessment of the South Australian Marine Scalefish Fishery in 2021/22. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide.</p>

*Includes outcomes of internal and external reviews pursuant to s111 and 112 of the *Fisheries Management Act 2007* finalised after the start of the quota period which increased the quota units in the fishery.

Southern Garfish *Hyporhamphus melanochir*



Gulf St Vincent/Kangaroo Island

Last revised: May 2023

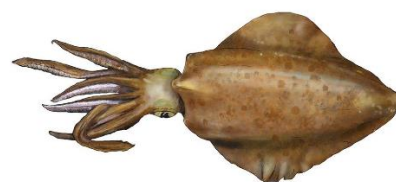
Stock summary					
Stock status	Recovering (2021/22)				
Stock assessment	Tier 1 species – last assessment was 2020 (Smart et al. 2022). Most recent stock status was assigned in 2021/22 (Smart et al. 2023).				
Fishery/stock trend	<p>The GSV/KI fishing zone contains multiple sub-populations of Southern Garfish which constitute a single biological stock. The NGSV region constitutes most of the biomass and is predominantly fished with hauling nets. The SGSV region has a much smaller biomass and is fished with dab nets due to hauling net restrictions in this region. Most of the catch and effort for the GSV/KI fishing zone occurs in NGSV via the hauling net sector. A recovering status was assigned in the 2020 stock assessment as biomass had increased to above the LTRP and harvest fractions had been reduced through on-going management.</p> <p>In 2021/22, the commercial catch was 68 t (96% of the TACC) while the recreational catch was 8.6 t (Beckman et al. 2023). Targeted hauling net CPUE has been increasing in recent years, indicating strong commercial fishery performance.</p>				
Current management measure and catch	Commercial catch and TACC				
	Year	Total commercial catch (t)	RBC (t)	RBCC (t)	TACC (t)
	2016/17	75	-	-	-
	2017/18	81	-	-	-
	2018/19	81	-	-	-
	2019/20	62	-	-	-
	2020/21	67	-	-	-
	2021/22	68	-	-	71
	2022/23	-	-	-	71
		Sector allocations (State-wide)			
	Commercial		Recreational	Aboriginal traditional	Total
	MSF	79.33%	19.5%	1%	100%
	SZRL	0.13%			
	NZRL	0.04%			

<p>Current assessment program</p>	<ul style="list-style-type: none"> • Weekly length and age structures collected through market sampling in Adelaide. • Annual fishery statistics provided through a stock status report • Application of a length-and-age-structured population model every three years • Recreational data collected every six-seven years through statewide recreational survey • No information is available for Aboriginal/Traditional fishing. 																												
<p>RBC / TACC options for 2022/23</p> <p><u>Sector catch shares</u></p> <p>Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones.</p> <p>M = natural mortality</p>	<p>Adult biomass (2021/22) = 304t</p> <p>Commercial catch share = 82%</p> <table border="1" data-bbox="430 537 1292 734"> <thead> <tr> <th></th> <th>Management plan</th> <th>M = 0.4</th> <th>5-year average catch</th> <th>5-year max catch</th> <th>2021/22</th> <th>2022/23</th> </tr> </thead> <tbody> <tr> <td>Target H</td> <td>0.3</td> <td>0.23 (2/3M)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RBC (t)</td> <td>92</td> <td>70</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TACC (t)</td> <td>75</td> <td>57</td> <td>72</td> <td>81</td> <td>71</td> <td>79.849*</td> </tr> </tbody> </table> <p><u>2022/23 TACC justification</u></p> <p>The 2021/22 TACC of 71 t was recommended by the SnapperMAC and was calculated based on the average 5-year annual commercial catch from 2015–2019. This TACC was maintained for the 2022/23 fishing as the most recent stock assessment did not demonstrate any reasons to update the TACC.</p> <p><u>2023/24 TACC options</u></p> <p>There are several TACC options that include recent average catches, target harvest fractions applied to current levels of biomass, or maintaining the current TACC.</p>		Management plan	M = 0.4	5-year average catch	5-year max catch	2021/22	2022/23	Target H	0.3	0.23 (2/3M)					RBC (t)	92	70					TACC (t)	75	57	72	81	71	79.849*
	Management plan	M = 0.4	5-year average catch	5-year max catch	2021/22	2022/23																							
Target H	0.3	0.23 (2/3M)																											
RBC (t)	92	70																											
TACC (t)	75	57	72	81	71	79.849*																							
<p>Assessment summary</p>	<p>The most recent stock assessment included data up until December 2020 using a weight-of-evidence approach (Smart et al 2022). The GarEst stock assessment model for the GSV/KI fishing zone combines both NGSV and SGSV stocks as biological mixing occurs, and stock status was assigned at the zone level in 2021/22 as a result.</p> <p>The GarEst model includes data on commercial catch and effort, commercial age and length structures, and recreational and charter boat catch and effort. Numerous management measures have been implemented since 2005 which included licence reduction schemes, spatial and temporal closures, changes to gear restrictions, and changes to legal minimum length. This assessment demonstrated that these management measures were supporting stock recovery. However, recruitment has remained relatively low in comparison to historical levels. As a result, the stock was classified as recovering in the 2020 assessment (Smart et al 2022). This status was maintained in the most recent stock status update (Smart et al 2023) and will be next assessed in 2024 using data up to and including 2022/23.</p>																												
<p>Research needs</p>	<ul style="list-style-type: none"> • Development of harvest strategy with performance indicators, reference points and harvest control rules. • Development of fishery-independent abundance indices • Standardisation of commercial CPUE • Improved estimates of recreational catch and effort. 																												
<p>MSFMAC recommendation</p>	<p>The most recent assessment demonstrated that the management measures have supported stock recovery. There was little new information to consider from the previous year and there remained unresolved issues to address in relation to low recruitment. This would be monitored and reassessed in the new stock assessment. Considering the improving status of the stock and the development of the Harvest Strategy Framework and new stock assessment to be undertaken next</p>																												

	year, the MSFMAC recommended the Southern Garfish 2022/23 TACC of 79.849 t in the GSV/KI fishing zone be maintained for 2023/24.
References	<p>Beckmann, C. L., L. M. Durante, A. Graba-Landry, K. E. Stark and S. R. Tracey (2023). 2021–22 Survey of Recreational Fishing in South Australia. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2022/000385-1. SARDI Research Report Series No. 1161 185 pp.</p> <p>Smart, J. J., J. Earl, R. McGarvey, J. Feenstra, M. J. Drew, F. Bailleul, A. J. Fowler, D. Matthews, G. Chaplin, J. M. Matthews, B. Freeling, T. A. Rogers, C. L. Beckmann and A. Tsolos (2022). Assessment of the South Australian Marine Scalefish Fishery in 2020. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2017/000427-5. SARDI Research Report Series No. 1162. 266pp.</p> <p>Smart JJ, R McGarvey, J Feenstra, MJ Drew, J Earl, L Durante, CL Beckmann, D Matthews, JM Matthews, K Mark, J Bussell, J Davey, A Tsolos and C Noell (2023). Assessment of the South Australian Marine Scalefish Fishery in 2021/22. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide.</p>

*Includes outcomes of internal and external reviews pursuant to s111 and 112 of the *Fisheries Management Act 2007* finalised after the start of the quota period which increased the quota units in the fishery.

Southern Calamari *Sepioteuthis australis*



Spencer Gulf

Last revised: May 2023

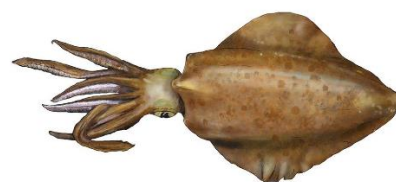
Stock summary						
Stock status	Sustainable (2021/22)					
Stock assessment	Tier 1 species – no stock assessment has been undertaken. Most recent stock status was assigned in 2021/22 (Smart et al. 2023).					
Fishery/stock trend	Previous regional depletion in the northern and southern Spencer Gulf is no longer evident following increases in targeted squid jig CPUE in recent seasons. The recreational catch in 2021/22 was 117 t (Beckman et al. 2023). The TACC in 2021/22 was under caught by 53 t (26%) in 2021/22 which is linked to a recent reduction in fishing effort. However, declines in catch and effort were determined to be responses to the recent reform of the fishery and the new operating conditions for licence holders. Stable CPUE for NSG and an increase in SSG for 2021/22 indicated that there are no sustainability concerns that can be detected from the data available. This information indicates that biomass is unlikely to be depleted and that recruitment is unlikely to be impaired. The current level of fishing mortality is unlikely to reduce biomass to a recruitment impaired state.					
Current management measure and catch RBC – recommended biological catch RBCC - recommended biological commercial catch TACC – total allowable commercial catch (based on 5-yr average catch from 2015–2019) <u>Sector allocations</u> Allocations in the current management plan are statewide.	Commercial catch and TACC					
	Year	Total commercial catch (t)	RBC (t)	RBCC (t)	TACC (t)	
	2016/17	218	-	-	-	
	2017/18	235	-	-	-	
	2018/19	164	-	-	-	
	2019/20	185	-	-	-	
	2020/21	206	-	-	-	
	2021/22	151	-	-	204	
	2022/23	-	-	-	211.45*	
	Sector allocations (State-wide)					
	Commercial		Recreational	Aboriginal / Traditional	Total	
	MSF	56%	37.4%	1%	100%	
	NZRL	0.45%				
GSPVF	0.45%					
SGPF	4.6%					
WCPF	0.1%					

Current assessment program	<ul style="list-style-type: none"> • No formal stock assessment. • Annual fishery statistics provided through a stock status report. • Recreational data collected every six to seven years through statewide recreational survey. • No information is available for Aboriginal/Traditional fishing.
Assessment summary	<p>The most recent stock assessment was completed for data up until 30 June 2022 using a weight-of-evidence approach (Smart et al. 2023). The primary measure for biomass and fishing mortality is targeted jig CPUE. This assessment demonstrated that South Australia's Southern Calamari stock was sustainable.</p> <p>The 2021/22 TACC of 204 t was recommended by the SnapperMAC and was calculated based on the average annual commercial catch from 2015–2019. This TACC was maintained for the 2022/23 fishing as the most recent stock assessment did not demonstrate any reasons to update the TACC.</p>
Research needs	<ul style="list-style-type: none"> • Development of a stock assessment program that can be used to assign stock status, estimate RBCs, and inform setting of TACCs. • Development of harvest strategy with performance indicators, reference points and harvest control rules. • Standardisation of commercial CPUE • Improved estimates of recreational catch and effort.
MSFMAC recommendation	<p>Considering the draft Harvest Strategy Framework in development, current stock status and stable to increasing catch rates, the MSFMAC recommended the Southern Calamari 2022/23 TACC of 211.45 t in the SG fishing zone be maintained in 2023/24.</p>
References	<p>Beckmann, C. L., L. M. Durante, A. Graba-Landry, K. E. Stark and S. R. Tracey (2023). 2021–22 Survey of Recreational Fishing in South Australia. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2022/000385-1. SARDI Research Report Series No. 1161 185 pp.</p> <p>Smart JJ, R McGarvey, J Feenstra, MJ Drew, J Earl, L Durante, CL Beckmann, D Matthews, JM Matthews, K Mark, J Bussell, J Davey, A Tsolos and C Noell (2023). Assessment of the South Australian Marine Scalefish Fishery in 2021/22. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide.</p>

*Includes outcomes of internal and external reviews pursuant to s111 and 112 of the *Fisheries Management Act 2007* finalised after the start of the quota period which increased the quota units in the fishery.

MSF Species / Stock summaries – 2023

Southern Calamari *Sepioteuthis australis*



Gulf St Vincent/Kangaroo Island

Last revised: May 2023

Stock summary					
Stock status	Sustainable (2021/22)				
Stock assessment	Tier 1 species – no stock assessment has been undertaken. Most recent stock status was assigned in 2021/22 (Smart et al. 2023)				
Fishery/stock trend	Annual catches have been relatively stable at moderate levels over the past ten years, consistent with stable targeted jig effort and targeted jig CPUE. The recreational catch in 2021/22 was 87 t (Beckman et al. 2023). The TACC in 2021/22 was under caught by 44 t (27%) in 2021/22 which is linked to a record low level of fishing effort. However, declines in catch and effort were determined to be responses to the recent reform of the fishery and the new operating conditions for licence holders. Stable CPUE with modest increases in 2021/22 across both northern and southern GSV indicate that there are no sustainability concerns that can be detected from the data available.				
Current management measure and catch RBC – recommended biological catch RBCC - recommended biological commercial catch TACC – total allowable commercial catch (based on 5-yr average catch from 2015–2019) <u>Sector allocations</u> Allocations in the current management plan are statewide.	Commercial catch and TACC				
	Year	Total commercial catch (t)	RBC (t)	RBCC (t)	TACC (t)
	2016/17	170	-	-	-
	2017/18	176	-	-	-
	2018/19	150	-	-	-
	2019/20	154	-	-	-
	2020/21	129	-	-	-
	2021/22	118t	-	-	162
	2022/23	-	-	-	168.294*
	Sector allocations (State-wide)				
	Commercial		Recreational	Aboriginal / Traditional	Total
	MSF	56%	37.4%	1%	100%
NZRL	0.45%				
GSVPF	0.45%				
SGPF	4.6%				
WCPF	0.1%				

Current assessment program	<ul style="list-style-type: none"> • No formal stock assessment. • Annual fishery statistics provided through a stock status report. • Recreational data collected every six to seven years through statewide recreational survey. • No information is available for Aboriginal/Traditional fishing.
Assessment summary	<p>The most recent stock assessment was completed for data up until 30 June 2022 using a weight-of-evidence approach (Smart et al. 2023). The primary measure for biomass and fishing mortality is targeted jig CPUE. This assessment demonstrated that Southern Calamari in the GSV/KI fishing zone was sustainable.</p> <p>The 2021/22 TACC of 162 t was recommended by the SnapperMAC and was calculated based on the average annual commercial catch from the from 2015–2019. This TACC was maintained for the 2022/23 fishing as the most recent stock assessment did not demonstrate any reasons to update the TACC.</p>
Research needs	<ul style="list-style-type: none"> • Development of a stock assessment program that can be used to assign stock status, estimate RBCs, and inform setting of TACCs. • Development of harvest strategy with performance indicators, reference points and harvest control rules. • Standardisation of commercial CPUE • Improved estimates of recreational catch and effort.
MSFMAC recommendation	<p>Considering the draft Harvest Strategy Framework in development, current stock status and stable to increasing catch rates, the MSFMAC recommended the Southern Calamari 2022/23 TACC of 168.294 t in the GSV/KI fishing zone be maintained in 2023/24.</p>
References	<p>Beckmann, C. L., L. M. Durante, A. Graba-Landry, K. E. Stark and S. R. Tracey (2023). 2021–22 Survey of Recreational Fishing in South Australia. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2022/000385-1. SARDI Research Report Series No. 1161 185 pp.</p> <p>Smart JJ, R McGarvey, J Feenstra, MJ Drew, J Earl, L Durante, CL Beckmann, D Matthews, JM Matthews, K Mark, J Bussell, J Davey, A Tsohos and C Noell (2023). Assessment of the South Australian Marine Scalefish Fishery in 2021/22. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide.</p>

*Includes outcomes of internal and external reviews pursuant to s111 and 112 of the *Fisheries Management Act 2007* finalised after the start of the quota period which increased the quota units in the fishery.