

ADVICE TO: PIRSA FISHERIES AND AQUACULTURE (PROF. GAVIN BEGG – EXECUTIVE DIRECTOR)

FROM: DRS JONATHAN SMART AND JASON EARL (SARDI AQUATIC SCIENCES)

SUBJECT: RISK TO SUSTAINABILITY OF TIER 1 MSF STOCKS IF TACCS WERE INCREASED TO (1) INCORPORATE ADDITIONAL QUOTA ALLOCATIONS, AND (2) ENABLE THE CARRY-OVER OF UP TO 10% OF THE UNCAUGHT QUOTA ON EACH LICENCE FROM THE 2021/22 SEASON TO THE 2022/23 SEASON.

DATE: 27 APRIL 2022

KEY ISSUES

- Additional quota units may be added to the Marine Scalefish Fishery (MSF) for licence holders that were included in an exceptional circumstances process during the MSF reform.
- As these additional units could not have been fished during the 2021/22 season, an increase to the Total Allowable Commercial Catch (TACC) in 2022/23 is being considered to allow these licence holders to catch this quota in a subsequent fishing season.
- In addition, the carry-over of uncaught quota entitlements for Tier 1 stocks on licences from the 2021/22 season to the 2022/23 season is being considered.
- PIRSA Fisheries and Aquaculture have requested advice on the risk these options pose to sustainability for any Tier 1 stock, given the recently recommended TACCs for 2022/23 by the MSF Management Advisory Committee (MSFMAC).
- Three pieces of information were considered for each stock:
 - 1. The status of each stock
 - 2. The percentage of the TACC caught to date for the 2021/22 fishing season
 - 3. The increase in allocated quota units for each stock relating to the exceptional circumstances process.
- Snapper were not considered in this analysis as no additional allocations will occur for the South East fishing zone and the remaining fishing zones have not had a TACC recommended due to their ongoing closure.
- All King George Whiting and Southern Calamari stocks are classified as 'sustainable'. Garfish
 are classified as 'depleted' and 'recovering' for Gulf St Vincent (GSV) and Spencer Gulf (SG),
 respectively.
- The 2021/22 TACCs for all stocks are not expected to be caught based on the percentage of the TACC caught to date and the remaining length of the 2021/22 fishing season.
- The percentage of uncaught TACC in 2021/22 is likely to be larger than any potential TACC increase for 2022/23. Therefore, a low risk to sustainability was assigned for all Tier 1 stocks.

BACKGROUND

Quota allocations for the 2021/22 fishing season for Tier 1 stocks were calculated and allocated to MSF licence holders on 1 July 2021. These allocations incorporated the results of an exceptional circumstances process that provided additional quota units to licence holders with successful applications. The quota allocations for these fishers may be raised following applications to South Australian Civil and Administrative Tribunal (SACAT). This would increase the total number of units in the fishery from those allocated on 1 July 2021.

Currently, the TACCs for the 2021/22 fishing season for all Tier 1 stocks managed by Individual Transferable Quota (ITQ) were set using estimates of recent average annual catch. The only exception was Snapper in the South East (SE) fishing zone which had a TAC set using a modelbased recommended biological catch. However, no additional quota will be allocated for Snapper in the SE fishing zone as no licence holders that were included in the exceptional circumstances process had catch history for this stock.

In April 2022, the MSFMAC recommended that all TACCs be maintained for the 2022/23 fishing season (see Appendices). Currently, Snapper fishing is prohibited until 1 February 2023 in the GSV, SG and West Coast (WC) fishing zones. Therefore, the MSFMAC did not recommend a TACC for these stocks.

PIRSA Fisheries and Aquaculture have requested advice on the risk to Tier 1 stocks if the TACCs recommended by the MSFMAC were increased for the 2022/23 season to enable carry-over of (i) uncaught quota entitlements on individual licences from the 2021/22 season to the 2022/23 season up to a maximum of 10% of total quota entitlements (unknown until the completion of the 2021/22 season; termed 'existing entitlement carry-over'), and (ii) 100% of quota for EC applicants that could not have been fished during the 2021/22 fishing season (termed 'new potential quota unit carry-over').

RESULTS

The risk of both options was considered based on three pieces of information:

- 1. The status of each stock
- 2. The percentage of the TACC caught to date for the 2021/22 fishing season
- 3. The increase in allocated quota units for each stock

<u>Snapper</u>

Snapper did not need to be considered in this analysis as no additional quota units will be allocated for the SE fishing zone and TACCs have not been set for Snapper in the GSV, SG and WC fishing zones for the 2022/23 fishing season.

King George Whiting

- Both GSV and SG stocks were classified as **sustainable** in the most recent stock assessment (Drew et al. 2021).
- Less than 50% of the TACC has been caught for either stock with 75% of the fishing season complete (Table 1).
- The maximum existing entitlement carry-over for the GSV and SG stocks is 4.6 t and 11.1 t, respectively.
- The maximum new potential quota carry-over would increase the number of quota units in the fishery by 0.2% and 8.5% for GSV and SG, respectively (Table 2).

<u>Garfish</u>

- In the most recent stock assessment for Garfish, the GSV stock was classified as **depleted**, and the SG stock was classified as **recovering** (Steer et al 2018). These classifications were maintained in the most recent stock status report (Drew et al 2021).
- Less than 60% of the TACC has been caught for either stock with 75% of the fishing season complete (Table 1).
- The maximum existing entitlement carry-over of uncaught quota for the GSV and SG stocks is 7.1 t and 10 t, respectively.
- The maximum new potential quota carry-over would increase the number of quota units in the fishery by 7.4% and 5.3% for GSV and SG, respectively (Table 2).

Southern Calamari

- Both GSV and SG stocks were classified as **sustainable** in the most recent stock status report (Drew et al 2021).
- In GSV 47.41% of the TACC has been caught while 54.68% of the TACC has been caught in SG with 75% of the fishing season complete (Table 1).
- The maximum existing entitlement carry-over of uncaught quota for the GSV and SG stocks is 16.2 t and 20.4 t, respectively.
- The maximum new potential quota carry-over would increase the number of quota units in the fishery by 3.7% and 5.2% for GSV and SG, respectively (Table 2).

Table 1. The 2021/22 TACCs for Tier	1 stocks and the percentage of each	TACC caught by March 2022

SPECIES	Zone	TACC (T)	% TACC CAUGHT
GARFISH	GSV	71	55.15
GARFISH	SG	100	53.18
KING GEORGE	GSV	46	42.28
KING GEORGE	SG	111	46.93
SNAPPER	SE	36	48.63
SOUTHERN	GSV	162	47.41
SOUTHERN	SG	204	54.68

DISCUSSION

There is a low risk to all stocks if the TACCs recommended by the MSFMAC were increased for the 2022/23 season to enable carry-over of uncaught quota entitlements on individual licences from the 2021/22 season to the 2022/23 season, up to a maximum of 10% of total quota entitlements. This is because the total catch would remain below the allocated TACC for 2021/22.

It is unlikely that the TACC will be caught for any Tier 1 stock during the 2021/22 fishing season (Table 1). Consequently, there is also a low risk to all stocks if the TACCs recommended by the MSFMAC were increased for the 2022/23 season to enable 100% carry-over of quota for EC applicants that could not have been fished during the 2021/22 fishing season. This is because the total catch is expected to remain below, or close to, the allocated TACC for 2021/22.

Table 2. The additional quota units for Tier 1 stocks that may be allocated to MSF licence holders.

Species	Zone	Additional units (EC)	Total MSF units	Total fishery units	Updated total fishery units	% increase of total fishery units
GARFISH	GSV	147.19	2000	2000	2147.19	7.4%
GARFISH	SG	106.81	1998	2000	2106.81	5.3%
KING GEORGE WHITING	GSV	3.81	1944	2000	2003.81	0.2%
KING GEORGE WHITING	SG	170.56	1958	2000	2170.56	8.5%
SNAPPER	GSV	450.12	3972	4000	4450.12	11.3%
SNAPPER	SG	97.04	3984	4000	4097.04	2.4%
SNAPPER	WC	74.61	992	1000	1074.61	7.5%
SOUTHERN						
CALAMARI	GSV	149.19	4000	4000	4149.19	3.7%
SOUTHERN CALAMARI	SG	209.74	3928	4000	4209.74	5.2%

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REFERENCES

- Drew, M.J., Fowler, A.J., McGarvey, R., Feenstra, J., Bailleul, F., Matthews, D., Matthews, J.M., Earl, J., Rogers, T.A., Rogers, P.J., Tsolos, A. and Smart, J.J. (2021). Assessment of the South Australian Marine Scalefish Fishery in 2019 Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2017/000427-4. SARDI Research Report Series No. 1109. 254pp.
- Steer, M.A., Fowler, A.J., McGarvey, R., Feenstra, J., Smart, J., Rogers, P.J., Earl, J., Beckmann, C., Drew, M. and Matthews, J. (2018). Assessment of the South Australian Marine Scalefish Fishery in 2017. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2017/000427-2. SARDI Research Report Series No. 1002. 230pp.

APPENDICES

Species summary templates considered by the MSFMAC when providing TACC recommendations in April 2022.

Southern Garfish Hyporhamphus melanchir

Gulf St Vincent/Kangaroo Island Last revised: 25 March 2022

	Stock summary								
Stock status	Depleted	(2019)							
Stock assessment	Tier 1 spec status was	cies – last a assigned i	n 2019 (Dre	was 2017 (Stee w et al 2021).	er et al 2018). N	Most re	cent stock		
Fishery/stock trend	Southern (experience population few fish su truncated. Manageme However, I recruitmen stock asse	Southern Garfish in the Gulf St Vincent/Kangaroo Island (GSV/KI) fishing zone experienced exploitation rates of more than 80% during the 1990's when the population was only sustained through high levels of recruitment. During this period, ew fish survived past age two and the population age structure was severely runcated. Vanagement measures implemented since 2005 have reduced exploitation rates. However, biomass has not recovered, age structures have remained truncated, and recruitment is impaired. Therefore, this stock was classified as depleted in the last stock assessment (Steer et al 2018)							
Current			Comr	nercial catch	and TACC				
management measure and catch	Year	Year com		RBC (t)	RBCC (t)		TACC (t)		
RBC –	2016/17	7	75	-	-		-		
biological catch	2017/18	3	81	-	-		-		
5500	2018/19)	81	-	-		-		
RBCC -	2019/20)	62	-	-		-		
biological	2020/21		67	-	-		-		
commercial	2021/22	2	-	-	-		71		
catch	Sector allocations (State-wide)								
TACC – total allowable	Comn	nercial	Recr	reational	Aborigina traditiona	al al	Total		
commercial catch (based on	MSF	79.33%							
5-yr average	SZRL	0.13%		0 50/	40/		1000/		
catch from 2015–2019)	NZRL	0.04%		9.0%	1%		100%		



Sector allocations Allocations in the current management plan are statewide.						
	Weel	dy length ar	d age structure	s collected th	nrough market	sampling in Adelaide.
Current	 Annu 	al fisherv st	atistics provided	through a st	tock status ren	ort
assessment		cation of a k	anotice provided	structured po		l ovorv throe veers
program	Recre surve	eational data	a collected ever	y five years t	hrough statew	ide recreational
	No in	formation is	available for Al	ooriginal/Trac	ditional fishing.	
Assessment summary	There are and south majority of St Vincent to haul ne fishing zon The most weight-of- for the GS biological data on co recreation been impl temporal of This asses allowed th The 2021/ calculated	two biologic ern regions. f the biomas (SGSV) sto tting restrict ne occurs in recent stock evidence ap V/KI fishing mixing occu ommercial ca al and chart emented sin closures, cha ssment dem le stock reco (22 TACC of based on th	cal stocks in the The northern G as and is predom ock has a much ions in this regio NGSV via the h cassessment in proach (Steer e zone combines rs, despite dem atch and effort, er boat catch an ice 2005 which anges to gear re onstrated that t overy to occur. A 100 t was reco ne average 5-ye	GSV/KI fishi Gulf St Vincer ninantly fishe smaller biom on. Most of the naul net fishe cluded data to tal 2018). The both NGSV tographic sep commercial a nd effort. Nur included licer estrictions an hese manage As a result, the mmended by ear annual co	ing zone which nt (NGSV) stoce ad with haul ne nass and is fish ne catch and ef- ery. up until Septer he GarEst stoce and SGSV stoce paration. The Ga age and length merous manage nce reduction stoce ad changes to I ement measure ne stock was com- or the SnapperNo- portion catce	occur in the northern k constitutes the ts. The southern Gulf ned with dab nets due ffort for the GSV/KI nber 2017 using a ck assessment model ocks as some earEst model includes of structures, and gement measures have schemes, spatial and egal minimum length. es have not yet lassified as depleted . MAC and was th from 2015–2019.
RBC / TACC options for 2022/23	Secto r	Commerc ial sector catch share (%)	Target H in manageme nt plan (0.3)	Target H = 2/3M (0.23)	2021/22 TACC	Five-year average commercial catch (2016/17 – 2020/21)
Sector catch	RBC	100	61 t	48 t	-	-
shares	TACC	82	50 t	39 t	71 t	73 t
Regional catch shares were calculated according to the PIRSA allocation policy	The RBC' assessme	s were dete nt (2013-20	mined from ave 17).	erage five-yea	ar biomass est	imates from the last



using new MSF zones.	
M = natural mortality	
Research needs	 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.
SSC recommendati on	A new stock assessment was being finalised and the results still being considered. The previous assessment indicated signs of stock recovery and there are continuing trends of stock recovery in the new assessment.
	The target harvest fraction of 30% as provided in the MSF Management Plan was considered appropriate for the species. Whilst the stock has a depleted status, the biomass has been stable and there was a significantly reducing harvest fraction. Catches in recent years were below average and this was likely due to a combination of changes to the legal minimum length in addition to MSF reform and covid-19 market related impacts.
	Noting the above factors, the MSFMAC considered there was no basis to reduce catch limits and recommended a rollover of the current 2021/22 TACC of 71t.
References	Drew, M., A. J. Fowler, R. McGarvey, J. E. Feenstra, F. Bailleul, D. Matthews, J. M. Matthews, J. Earl, T. A. Rogers, P. J. Rogers, A. Tsolos and J. Smart (2021). Assessment of the South Australian Marine Scalefish Fishery in 2019. Report for PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences). SARDI Publication No. F2017/000427-4. SARDI Research Report Series No. 1109. 254 pp.
	Steer, M.A., Fowler, A.J., McGarvey, R., Feenstra, J., Smart, J., Rogers, P.J., Earl, J., Beckmann, C., Drew, M. and Matthews, J. (2018). Assessment of the South Australian Marine Scalefish Fishery in 2017. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2017/000427-2. SARDI Research Report Series No. 1002. 230pp.



Southern Garfish Hyporhamphus melanchir

Spencer Gulf

Last revised: 25 March 2022

	Stock summary							
Stock status	Recoverin	ng (2	019)					
Stock assessment	Tier 1 specture status was	cies - s assi	- last a igned ir	ssessment v n 2019 (Drev	was 2017 (Ste w et al 2021).	er et al 2018). I	Most re	ecent stock
Fishery/stock trend	Southern (rates of me through hig and the po Manageme Exploitatio become le begun to in	Southern Garfish in the Spencer Gulf (SG) fishing zone experienced exploitation ates of more than 90% during the 1990's when the population was only sustained hrough high levels of recruitment. During this period, few fish survived past age two and the population age structure was severely truncated. Management measures implemented since 2005 have allowed stock recovery. Exploitation has been reduced, biomass has been stable and age structures have become less truncated. However, as of the last assessment, biomass has not yet begun to increase and recruitment remains impaired.						
Current				Comm	ercial catch a	IND TACC		
management measure and catch	management measure and catch		con ca	Total nmercial atch (t)	RBC (t)	RBCC (t)		TACC (t)
RBC –	2016/17	7		107	-	-		-
biological catch	2017/18	3	91		-	-		-
0000	2018/19	9		110	-	-		-
recommended	2019/20)		99	-	-		-
biological	2020/22	1		109	-	-		-
commercial catch	2021/22	2		-	-	-		100
TACC – total				Sector	allocations (S	state-wide)		
allowable commercial catch	Comn	nercia	al	Recr	eational	Aborigina traditiona	al al	Total
(based on 5-yr average catch	MSF	79	.33%					
from 2015–2019)	SZRL	0.	13%					
Sector allocations Allocations in the current	NZRL	0.	04%	19	9.5%	1%		100%



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management plan are statewide.								
Current assessment program	 Wee Adela Annu Appli Recr surve No ir 	 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 five years through statewide recreational survey 						
Assessment summary	 The motivation is available for Abbrightar Haditional fishing. There are two biological stocks in the SG fishing zone which occur in the northern and southern regions. The northern Spencer Gulf (NSG) stock constitutes the majority of the biomass and is predominantly fished with haul nets. The southern Spencer Gulf (SSG) stock has a much smaller biomass and is fished with dab nets due to haul netting restrictions in this region. Most of the catch and effort for the SG fishing zone occurs in NSG via the haul net fishery. The most recent stock assessment included data up until September 2017 using a weight-of-evidence approach (Steer et al 2018). The GarEst stock assessment model for the SG fishing zone combines both NSG and SSG stocks as some biological mixing occurs, despite demographic separation. 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. 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. 							
RBC / TACC options for 2022/23 Sector catch	Sector	Commercial sector catch share (%)	Target H in management plan (0.3)	Target H = 2/3M (0.23)	2021/22 TACC	Five-year average commercial catch (2016/17 – 2020/21)		
shares	RBC	100	79 t	62 t	-	-		
Regional catch	TACC	78	62 t	48 t	100 t	102 t		
shares were calculated according to the PIRSA allocation policy using new MSF zones.	The RBC	s were determ ent (2013-2017	nined from averaç 7).	ge five-year	r biomass est	imates from the last		



M = natural mortality	
Research needs	 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.
222	A new stock assessment was being finalised and the results still being considered.
recommendation	The target harvest fraction of 30% as provided in the MSF Management Plan was considered appropriate for the species. Whilst the stock has a recovering status, the stable to increasing biomass and reducing harvest fraction indicate that recent catches have been at an appropriate level. It was noted that positive changes have been observed by SARDI in the age structure of the stock.
	Noting the above factors, the MSFMAC considered there to be no basis to reduce catch limits, and recommended a rollover of the current 2021/22 TACC of 100t.
References	Drew, M., A. J. Fowler, R. McGarvey, J. E. Feenstra, F. Bailleul, D. Matthews, J. M. Matthews, J. Earl, T. A. Rogers, P. J. Rogers, A. Tsolos and J. Smart (2021). Assessment of the South Australian Marine Scalefish Fishery in 2019. Report for PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences). SARDI Publication No. F2017/000427-4. SARDI Research Report Series No. 1109. 254 pp.
	Steer, M.A., Fowler, A.J., McGarvey, R., Feenstra, J., Smart, J., Rogers, P.J., Earl, J., Beckmann, C., Drew, M. and Matthews, J. (2018). Assessment of the South Australian Marine Scalefish Fishery in 2017. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2017/000427-2. SARDI Research Report Series No. 1002. 230pp.



King George Whiting Sillaginodes punctatus

Gulf St. Vincent / Kangaroo Island Last revised: 23 March 2022



		S	tock summ	ary					
Stock status	Sustainab	le (2019)							
Stock assessment	Tier 1 spec	cies – last a	ssessment v	vas 2019 (Dre	w et al 2021).				
Fishery/stock trend	Fishable b harvest fra estimated trend over decreases	Fishable biomass has been stable for the past ten years at ~650 t. The narvest fraction has had a decreasing trend during this period and was estimated as 20% in 2019. Targeted hand line CPUE has had an increasing rend over this period which has been driven through consistent annual decreases of commercial catch and effort.							
Current			Commerci	al catch and ⁻	ГАСС				
management measure and catch	Year	con ca	Total nmercial atch (t)	RBC (t)	RBCC (t)	TAC	CC (t)		
RBC – recommended	2016/17	,	52	-	-		-		
biological catch	2017/18	3	37	-	-		-		
5500	2018/19)	40	-	-		-		
RBCC - recommended	2019/20	2019/20		-	-		-		
biological	2020/21		31	-	-		-		
commercial	2021/22	2		-	-	2	16		
catch	Sector allocations (State-wide)								
TACC – total allowable	Comm	nercial	Recre	eational	Aborigina traditiona	al al	Total		
commercial catch (based on	MSF	49.5%	REC	45.5%					
5-yr average	SZRL	0%							
catch from 2015–2019) <u>Sector</u> <u>allocations</u> Allocations in the current	NZRL	1%	СНТ	3%	1%		100%		



management plan are statewide.							
Current assessment program	 We Ad An Ap yea Re rec Da est ass No 	eekly length elaide and r nual fishery plication of ars creational d reational su ily egg prod imate spaw sessments. information	and age struct regional areas statistics pro- a length-and-a lata collected irvey luction method ning biomass	ctures collect vided throug age-structur every five y ds (DEPM) but are not or Aborigina	cted through gh a stock sta red population ears through have been es undertaken a	market sampl atus report n model every statewide stablished to as part of ong fishing.	ing in / three oing
Assessment summary	The mo Decemb primary catch, ta pertainin model (parame egg pro sustain The 202 calculat 2019.	st recent sto per 2019 us fishery perf argeted han ng to the fis WhitEst) tha ters that inc duction. Thi able. 21/22 TACC ed based or	ock assessme ing a weight-o formance india dline CPUE, a hery were inte at produced til luded fishable s assessmen of 46 t was re n the average	nt was com of-evidence cators were and fishery grated in a me-series o biomass, r demonstra commende 5-year ann	approach (Di total catch, ta age structure computer sto f annual estir recruitment, h ated that this ed by the Sna ual commerc	ta up until 31 rew et al. 202 argeted handle. All datasets ock assessme nates of outpu- arvest fractio stock was apperMAC an ial catch from	1). The line ent ut n and d was 2015–
RBC / TACC options for 2022/23 Sector catch shares Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones.	Sect or RBC TAC C	Commer cial sector catch share (%) 100 40 C's were de assessmen	Target H in managem ent plan (0.28) 184 t 82 t etermined fron t (2015-2019)	Target H = 2/3M (0.125) 74 t 33 t	2021/22 TACC - 46 t ve-year biom	Five-ye averag commerc catch (2016 2020/2 - 40 t	ar e cial 5/17 – 1)
M = natural mortality							



Research needs	 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.
SSC recommendati on	The stock was classified as sustainable with a stable and increasing biomass, declining harvest fraction and increasing CPUE. There had been no change in status since the current catch limits had been set. The harvest fraction of 28% provided in the Management Plan was no longer considered appropriate for King George Whiting. The SSC noted the latest year's catch was below the 5yr average and this was likely due to a combination of the reform, covid-19 and market-related impacts contributing to less targeting of the species.
	Considering the above, the SSC considered there to be no basis to reduce the current catch limit and recommended to rollover the current 2021/22 TACC of 46t.
References	Drew, M., A. J. Fowler, R. McGarvey, J. E. Feenstra, F. Bailleul, D. Matthews, J. M. Matthews, J. Earl, T. A. Rogers, P. J. Rogers, A. Tsolos and J. Smart (2021). Assessment of the South Australian Marine Scalefish Fishery in 2019. Report for PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences). SARDI Publication No. F2017/000427-4. SARDI Research Report Series No. 1109. 254 pp.



King George Whiting Sillaginodes punctatus

Spencer Gulf

Last revised: 23 March 2022



	Stock summary						
Stock status	Sustainable (2019)						
Stock assessment	Tier 1 species – last assessment was 2019 (Drew et al 2021)						
Fishery/stock trend	Trends in fishable biomass have been cyclical since 1984, reflecting periods of increase and decline, but nevertheless have shown a long-term increase. Biomass has been stable for the past five years at ~1,500 t. The harvest fraction been stable since the early 2000s and was 20% in 2019. Recruitment, which has historically been heavily cyclical in nature, declined steeply from 2016 to 2019. However, the lower recruitment during that period was not reflected in lower fishable biomass, with low exploitation rates in recent years enabling the highest estimated biomass levels in recent years to be retained. Targeted handline CPUE has shown a long-term increasing trend, although with clear cyclical variation. It increased to a record-high level in 2016, and then marginally declined in the three subsequent years to a moderate—high level in 2019. Catch and targeted handline effort have been stable at low levels since 2010.						
Current			Commerci	ial catch and T	ГАСС		
management measure and catch RBC – recommended	Year	con Ca	Total nmercial atch (t)	RBC (t)	RBCC (t)	TAC	CC (t)
	2016/17		126	-	-	-	
biological catch	2017/18		108	-	-	-	
DRCC	2018/19		103	-	-	-	
RBCC - recommended	2019/20		96	-	-	-	
biological	2020/21		69	-	-	-	
commercial	2021/22			111			11
Catch	Sector allocations (State-wide)						
TACC – total allowable	Commercial Recreationa				Aborigina traditiona	al al	Total



commercial	MSF	49.5%	REC	45.5%	6		
catch (based on	SZRL	0%					
5-yr average catch from 2015–2019) <u>Sector</u> <u>allocations</u> Allocations in the current management plan are statewide	NZRL	1%	СНТ	3%		1%	100%
Current	Weel	kly length a	ind age struc	tures collec	cted through	market sampl	ing in
assessment	Auela Annu	alue anu re	statistics prov	ided throug	nh a stock sta	atus renort	
program	 Appli 	cation of a	length-and-a	ige-structur	ed population	n model every	/ three
	years	3	0	0			,
	Recr	Recreational data collected every five years through statewide					
	Daily	egg produ	ction method	ls (DEPM)	have been es	stablished to	
	estim	ate spawn	ing biomass	but are not	undertaken a	as part of ong	oing
	asse	ssments.	a available fr		l/Traditional	fiching	
	The most					ta un until 31	
Assessment	Decembe	r 2019 usin	ig a weight-o	f-evidence	approach (Di	rew et al. 202	1). The
summary	primary fis	shery perfo	rmance indic	ators were	total catch, ta	argeted hand	line
	pertaining	to the fish	ery were inte	grated in a	computer sto	ock assessme	ent
	model (WhitEst) that produced time-series of annual estimates of output						
	egg production. This assessment demonstrated that this stock was						
	sustainable.						
	The 2021, calculated	22 TACC of based on	of 111 t was the average	ecommeno 5-year ann	ded by the Sr ual commerc	happerMAC a ial catch from	nd was 2015–
	2019.		U	5			
RBC / TACC		commer	Target H			Five-ye	ar
options for	Sect	cial sector	in	Target H =	2021/22	averag commer	e cial
2022/23	or	catch	managem ent plan	2/3M	TACC	catch (2010	6/17 –
<u>Sector catch</u> shares		(%)	(0.28)	(0.123)		2020/2	')
<u> </u>		100	418 t	187 t	-	- 100 t	
		44	184 t	82 t	111 t	1001	



Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones. M = natural mortality	 The RBC's were determined from average five-year biomass estimates from the last assessment (2015-2019).
Research needs	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.
SSC recommendati on	The stock was classified as sustainable with a stable and increasing biomass and declining harvest fraction. There had been no change in status since the 2021/22 TAC had been set. The harvest fraction of 28% was no longer considered appropriate for King George Whiting. The SSC noted the latest year's catch was below the 5yr average MSF average and this was likely due to a combination of the MSF reform, Covid-19 and market-related impacts contributing to less targeting of the species.
	Considering the above the factors the MSFMAC considered there was no basis to change the current catch limits and recommended a rollover of the current 2021/22 TACC of 111t.
References	Drew, M., A. J. Fowler, R. McGarvey, J. E. Feenstra, F. Bailleul, D. Matthews, J. M. Matthews, J. Earl, T. A. Rogers, P. J. Rogers, A. Tsolos and J. Smart (2021). Assessment of the South Australian Marine Scalefish Fishery in 2019. Report for PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences). SARDI Publication No. F2017/000427-4. SARDI Research Report Series No. 1109. 254 pp.



Southern Calamari Sepioteuthis australis

Gulf St Vincent/Kangaroo Island Last revised: 23 March 2022





Sector allocations Allocations in the current management plan are statewide.						
Current assessment program	 No An Re rec No 	o formal stoc nual fishery creational d creational su o information	k assessmen statistics prov lata collected irvey. h is available f	t. vided throug every five y or Aborigina	gh a stock sta ears through al/Traditional	atus report. statewide fishing.
Assessment summary	The mo Decemb primary assessr was su The 202 was cal 2015–2	st recent sto ber 2019 us measure fo ment demor stainable. 21/22 TACC culated bas 019.	ock assessme ing a weight-o or biomass and strated that S of 162 t was ed on the ave	ent was com of-evidence d fishing mo South Austra recommeno rage annua	pleted for dat approach (Dr ortality is targe alia's Souther ded by the Sn I commercial	ta up until 31 rew et al. 2021). The eted jig CPUE. This n Calamari stock napperMAC, and catch from the from
RBC / TACC options for 2022/23 Sector catch shares	Sect or	Commer cial sector catch share (%)	Target Hmsy (0.39)	Target H = 2/3Hms y (0.26)	2021/22 TACC	Five-year average commercial catch (2016/17 – 2020/21)
RBC / TACC options for 2022/23 Sector catch shares Regional catch shares were calculated	Sect or RBC TAC C	Commer cial sector catch share (%) 100	Target Hmsy (0.39) 358 t	Target H = 2/3Hms y (0.26) 238 t	2021/22 TACC - 162 t	Five-year average commercial catch (2016/17 – 2020/21) - 156 t
RBC / TACC options for 2022/23 Sector catch shares Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones.	Sect or RBC TAC C	Commer cial sector catch share (%) 100 62	Target Hmsy (0.39) 358 t 216 t	Target H = 2/3Hms y (0.26) 238 t 143 t	2021/22 TACC - 162 t	Five-year average commercial catch (2016/17 – 2020/21) - 156 t



Research needs	• 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, using improved measures of fishing effort
	Improved estimates of recreational catch and effort.
SSC recommendati on	There is no formal stock assessment for Southern Calamari and it was noted that only commercial catch statistics were available to evaluate. Hmsy figures provided in previous recommendations were based on catch-only models and there was less confidence in the appropriateness of these for Southern Calamari. It was recognised that CPUE had been stable. Noting the above, the MSFMAC considered there was no basis to change the
	current catch limits and recommended a rollover of the current 2021/22 TACC of 162t.
References	Drew, M., A. J. Fowler, R. McGarvey, J. E. Feenstra, F. Bailleul, D. Matthews, J. M. Matthews, J. Earl, T. A. Rogers, P. J. Rogers, A. Tsolos and J. Smart (2021). Assessment of the South Australian Marine Scalefish Fishery in 2019. Report for PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences). SARDI Publication No. F2017/000427-4. SARDI Research Report Series No. 1109. 254 pp.



Southern Calamari Sepioteuthis australis

Spencer Gulf

Last revised: 23 March 2022





the current

management plan are statewide.							
Current assessment program	 No An Re rec No 	formal stoc nual fishery creational d reational su information	k assessmen statistics prov lata collected urvey. h is available f	t. vided throug every five ye or Aborigina	h a stock sta ears through I/Traditional	itus report. statewide fishing.	
Assessment summary	The most recent stock assessment was completed for data up until 31 December 2019 using a weight-of-evidence approach (Drew et al. 2021). The primary measure for biomass and fishing mortality is targeted jig CPUE. This assessment demonstrated that South Australia's Southern Calamari stock was sustainable . The 2021/22 TACC of 204 t was recommended by the SnapperMAC, and was calculated based on the average annual commercial catch from the from 2015–2019.						
RBC / TACC options for 2022/23 Sector catch shares	Sect or	Commer cial sector catch	Target Hmsy (0.39)	Target H = 2/3Hms	2021/22 TACC	Five-yea averag commero catch (2016	ar e cial 6/17 –
Regional catch shares were calculated according to the PIRSA allocation policy using new MSF zones.	RBC TAC C	share (%) 100 62	400 t 247 t	y (0.26) 267 t 165 t	- 204 t	2020/21 202 t	
Hmsy = Harvest fraction corresponding to maximum sustainable yiefd (MSY)							
Research needs	 De sto De poi 	velopment o ck status, e velopment o nts and har	of a stock ass stimate RBCs of harvest stra vest control ru	essment pro and inform ategy with pe ules.	ogram that ca setting of TA erformance ir	an be used to ACCs. ndicators, refe	assign erence



	 Standardisation of commercial CPUE, using improved measures of fishing effort Improved estimates of recreational catch and effort.
SSC recommendati on	There is no formal stock assessment for Southern Calamari and it was noted that only commercial catch statistics were available to evaluate. Hmsy figures provided in previous recommendations were based on catch-only models and there was less confidence in the appropriateness of these for Southern Calamari. It was recognised that CPUE had been increasing in recent years.
	Noting the above, the MSFMAC considered there was no basis to change the current catch limits and recommended a rollover of the current 2021/22 TACC of 204 t.
References	Drew, M., A. J. Fowler, R. McGarvey, J. E. Feenstra, F. Bailleul, D. Matthews, J. M. Matthews, J. Earl, T. A. Rogers, P. J. Rogers, A. Tsolos and J. Smart (2021). Assessment of the South Australian Marine Scalefish Fishery in 2019. Report for PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences). SARDI Publication No. F2017/000427-4. SARDI Research Report Series No. 1109. 254 pp.

