

Summary Report - Draft Management Plan for the South Australian Commercial Gulf St Vincent Prawn Fishery

Report pursuant to section 44(2) of the *Fisheries Management Act 2007*

December 2021

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Introduction

A five-year Management Plan for the South Australian Commercial Gulf St Vincent Prawn Fishery that came into effect on 1 July 2017 expires on 30 June 2022. Minister for Primary Industries and Regional Development approved a formal review of the Plan pursuant to section 49 of the *Fisheries Management Act 2007* (the Act) to be undertaken by the Department of Primary Industries and Regions (PIRSA) on 24 February 2021 for the purpose of determining whether the Plan should be amended, replaced or reinstated without amendment

Consistent with the outcomes of that review, the Minister approved development of a replacement management plan on 25 August 2021 and approved the Executive Director, Fisheries and Aquaculture, Department of Primary Industries and Regions (PIRSA) to develop a draft management plan with feedback from the Gulf St Vincent Prawn Fishery Management Advisory Committee (GSVPFMAC) to replace the current management plan.

The GSVPFMAC membership includes an independent Chair, two industry members, PIRSA, the South Australian Research and Development Institute (SARDI), an Independent scientist and a Committee Services Officer.

The review of the current management plan was requested by industry to address concerns regarding:

- The unintended severity of the decision rules that result from relatively minor variations in the performance indicators;
- The appropriateness of the reference points for the performance indicators; and
- A need for a broader review of the management arrangements for the fishery

The purpose of the draft management plan is to maintain prawn stocks in the Gulf St Vincent Prawn Fishery (GSVPF) at sustainable levels, while also providing for appropriate growth and move the fishery in the direction of better economic performance.

This document summarises the significant changes included in each section of the draft Management Plan now provided for public consultation.

Fishery to which this plan applies (Section 1)

Minor amendments to update references to fisheries regulations.

Consistency with other management plans (Section 2)

Minor amendments to update references to fisheries regulations.

Term of plan (Section 3)

The term of the plan is proposed to apply from the date of adoption for a period of ten years. The *Fisheries Management Act 2007* requires a review of a management plan as soon as practicable after the fifth anniversary of the commencement of the management plan. Hence a review of the Management Plan will be required as soon as practicable after the fifth anniversary.

Description of fishery (Section 4)

Commercial Fishing

Information has been updated including a description of the disruption to the export market from the COVID-19 global pandemic in 2020 and temporary management arrangements implemented in response is also included and the outcomes of an independent review of bioeconomic model outputs used to inform the development of the draft harvest strategy undertaken in 2021.

Stock status and export approval

Updated to refer to the most recent national fish stock status classification and export approval for the fishery under the *Environment Protection and Biodiversity Conservation Act 1999* until 2025.

Strategic research plan

Updated.

Economic characteristics

Simplified and updated with key information and reference to annual reports.

Co-management arrangements (Section 5)

Updated to include reference to the GSVPMAC established in 2018 by the Saint Vincent Gulf Prawn Boat Owner's Association (SVGPBOA) to provide a forum for the development of fishery management strategies and practices that support the sustainable management of the GSVPF.

Allocation (Section 6)

Minor changes and includes updated recreational catch estimates from the 2013/14 recreational fishing survey.

Ecosystem impacts (Section 7)

Updated to refer to an revised Ecologically Sustainable Development (ESD) risk assessment conducted in 2021.

Goals and objectives (Section 8)

Updated reference levels included in the table of goals and objectives to be consistent with amended performance indicators included in the proposed harvest strategy.

Minor amendments to wording of other objectives as recommended by a GSVPFMAC.

Draft Harvest Strategy (Section 9)

An independent review of the draft harvest strategy was undertaken in 2021 by Prof Tony Smith. The review provided advice with respect to the monitoring program; application and potential limitations of the bio-economic assessment model; limit and target reference points (and associated risk levels). This review found relatively low levels of effort and catch in the GSVPF from the mid-1990s to 2020/21 have maintained the prawn stock in GSV at high relative biomass fluctuating between 60% and over 100% of unfished levels, and above most conventional target levels of 50% unfished levels.

This review indicated a low risk to stock sustainability for a period of this harvest strategy with a target of 60% unfished biomass, noting this level is above the estimated Maximum Economic Yield (MEY) target of 54% and well above the estimated Maximum Sustainable Yield (MSY) target of 40%. The Limit Reference Point set at 40% of unfished levels used in this harvest strategy was considered to be quite conservative, noting these findings were based on interpretations from the bio-economic model of which the results were new at the time of developing this harvest strategy and have not been peer reviewed.

Key improvements to the previous harvest strategy (PIRSA 2017) include:

- Improved standardisation of Fishery Independent Survey (FIS) and commercial catch rates using generalised linear models (GLMs)
- Increase in the number of Total Allowable Commercial Effort (TACE) “steps” in the decision rule table to guide setting of fishing nights for the fishery
- Revision of the FIS performance indicator to include two FIS (March and May).
- Pre-Christmas nights to be determined independent of pre-recruit index from the March FIS

The operational objective of this harvest strategy is to maintain stocks of Western King Prawns in the GSVPF above the limit reference points in at least three years in five years for the period of this management plan.

Primary performance indicators/monitoring

Primary performance indicators used in this harvest strategy include:

- Standardised annual commercial Catch per Unit of Effort (CPUE) (kg/vessel-night) of the most recently completed fishing season
- Standardised FIS CPUE (kg/trawl-shot) is the average standardised CPUE from the most recent March and April/May FIS.

The GLMs used to standardise the performance indicators account for effects of fishing year and month/survey, region, sea-surface temperature, vessel/licence, depth, mesh type (i.e., diamond mesh and T90, weighted by region and obtained separately via a generalised linear mixed model (GLMM)), and (for commercial catch rates) moon luminosity.

In addition to the March and May FIS, one pre-fishing survey (PFS) may be undertaken by the industry when the fishery is not classified as depleted.

Reference points for performance indicators

Reference points in this harvest strategy were developed relative to unfished ('virgin') levels of biomass (B_0) calculated using a bioeconomic model (Noell et al. 2015). The reference points were converted to CPUE units based on the assumption that model estimates of CPUE at maximum sustainable yield ($CPUE_{MSY}$, i.e. 14.8 kg/trawl-shot for FIS and 492 kg/vessel-night for commercial fishing) infer a biomass (and LRP) of 0.4 B_0 .

- Limit reference point (LRP) = $0.4B_0$
- Trigger reference point (TrRP) = $0.5B_0$
- Target reference point (TargRP) = $0.6B_0$

Table 1: Reference Points for performance indicators

Reference Point	Standardised Commercial CPUE	Standardised FIS CPUE
Limit (LRP)	≤ 492 kg/vessel-night	< 14.8 kg/trawl-shot
Trigger (TrRP)	≥ 492 - < 615 kg/vessel-night	≥ 14.8 - < 18.5 kg/trawl-shot
Target (TargRP)	≥ 615 - < 738 kg/vessel-night	≥ 18.5 - < 22.2 kg/trawl-shot

Set Annual TACE

The performance indicators relevant to total prawn abundance (being standardised annual commercial CPUE and standardised FIS CPUE) inform decision rules on the total number of fishing nights for the fishing season according to a harvest decision matrix framework.

Table 2: Harvest decision matrix to set annual commercial effort (nights) for a fishing season in the GSVPF. All amounts are in whole fishing nights

			Standardised FIS CPUE (kg/rawl-shot)							
			LRP	TrRP				TargRP		
			0	≥14.8 -	≥16.0 -	≥17.3 -	≥18.5 -	≥19.7 -	≥21.0 -	≥22.2
			<14.8	<16.0	<17.3	<18.5	<19.7	<21.0	<22.2	
Standardised Commercial CPUE (kg/vessel-night)	LRP	<492	0	90	110	130	150	170	190	200
		≥492 -<533	90	180	200	220	240	260	270	290
		≥533 -<574	110	200	220	240	260	280	300	310
	TrRP	≥574 -<615	130	220	240	270	290	300	320	330
		≥615 -<656	150	240	260	290	300	320	340	350
		≥656 -<697	170	260	280	300	320	340	360	370
	TargRP	≥697 - <738	190	270	300	320	340	360	370	390
		≥738 -	200	290	310	330	350	370	390	400

Pre-Christmas fishing nights will be set at 15% of the total number of fishing nights for a fishing season provided through step 1 as a whole number of nights rounded¹ to the nearest multiple of ten.

If, three years from implementation of the harvest strategy using the decision matrix described in Table 2, the fishery has been equal to, or above the trigger reference points for standardised commercial catch rate (615 kg/vessel-night) and standardised FIS catch rate (18.5 kg/rawl-shot) in all years since implementation, the decision matrix described below may be used for the remainder of the term of the management plan.

¹ Where 15% of total fishing season nights ends in numbers is less than 5 the number of pre-Christmas nights would be rounded down to the nearest multiple of 10; where the number ends in numbers 5 or greater, the number of pre-Christmas nights would be rounded up to the nearest multiple of 10.

Table 3: Harvest decision matrix used to set total annual commercial effort (nights) for a fishing season under metarule 1. All amounts are in whole fishing nights

			Standardised FIS CPUE (kg/trawl-shot)							
			LRP		TrRP			TargRP		
			0	≥14.8 -	≥16.0 -	≥17.3 -	≥18.5 -	≥19.7 -	≥21.0 -	≥22.2
			<14.8	<16.0	<17.3	<18.5	<19.7	<21.0	<22.2	
Standardised Commercial CPUE (kg/vessel-night)	LRP	<492	0	110	140	170	190	210	230	250
		≥492 -<533	110	220	250	280	300	320	340	360
		≥533 -<574	140	250	280	310	330	350	370	390
	TrRP	≥574 -<615	170	280	310	330	360	380	400	420
		≥615 -<656	190	300	330	360	380	400	420	440
		≥656 -<697	210	320	350	380	400	420	440	460
	TargRP	≥697 - <738	230	340	370	400	420	440	460	480
		≥738 -	250	360	390	420	440	460	480	500

Transitioning to individual transferrable quota

A description of the considerations for transitioning to an individual transferable quota (ITQ) management system with a total allowable commercial catch (TACC), if supported by the industry is included.

Review of the harvest strategy

If there is documented information that the performance of the harvest strategy has not met the objectives of this management plan after 3 years, a recommendation to review of the harvest strategy will be considered by the GSVPMAC, noting a review of the harvest strategy would require a request to the Minister for Primary Industries and Regional Development to review of the Management Plan.

Compliance and monitoring (Section 10)

Simplified.

Resources required to implement the plan (Section 11)

Simplified.

Review of Plan (Section 12)

Sets out requirements to review management plans described in Section 46 and 49 of the *Fisheries Management Act 2007*.



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