

# PIRSA

## Summary Report - Management Plan for the South Australian Commercial Spencer Gulf Prawn Fishery



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Information current as of 20 September 2019

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# 1. Purpose of the Draft Management Plan

The commercial South Australian Spencer Gulf Prawn Fishery (SGPF) is managed under the *Fisheries Management Act 2007* (the 'Act') and the *Fisheries Management (Prawn Fisheries) Regulations 2017*. The Spencer Gulf Prawn Fishery Management Plan Steering Committee, in conjunction with Primary Industries and Regions SA (PIRSA) and the Spencer Gulf and West Coast Prawn Fishermen's Association (SGWCPFA) have prepared a draft management plan for the Fishery in accordance with the provisions of the Act. The management plan will have a life span of ten years and will provide a framework for the management of the Fishery.

In summary, the general purpose of the management plan is to:

- describe the biological, environmental and social characteristics;
- identify and assess ecological impacts;
- identify the objectives, goals and strategies;
- specify the share of the fishery to be allocated to each fishing sector;
- detail the harvest strategy for the SGPF;
- detail the requirements for the SGPF to move to a quota management system;
- detail research and stock assessment requirements;
- detail compliance and monitoring requirements; and
- detail the regulatory arrangements.

The management goals for the fishery as set out in the management plan are:

1. Maintain an ecologically sustainable prawn biomass
2. Ensure optimal utilisation and equitable distribution
3. Minimise impacts on the ecosystems
4. Enable effective and participative management of the fishery.

## 2. Description of fishery

The South Australian SGPF is a single species prawn fishery, based on the capture of the Western King Prawn (*Melicertus latisulcatus*). In addition to prawns, commercial licence holders are permitted to retain and sell two species harvested incidentally during prawn trawling: Bugs (*Ibacus* spp) and Southern Calamari (*Sepioteuthis australis*) as by-product.

Three commercial prawn fisheries occur within South Australia: the SGPF, the Gulf St Vincent Prawn Fishery and the West Coast Prawn Fishery.

The SGPF is important in terms of total value and benefit to regional economies in South Australia. The fishery generates direct and indirect employment, contributes to regional development, and supports small businesses in direct fishing enterprises as well as various support industries. In 2017/18 the total employment impact of the Spencer Gulf Prawn Fishery was estimated to be 940 full time equivalent jobs and the fishery contributed \$120 million to gross state product in South Australia.

## 3. Background

### 3.1 Fishery to which this plan applies

This plan applies to the SGPF, which is formally constituted by the *Fisheries Management (Prawn Fisheries) Regulations 2017*.

The regulations define the fishery as:

- (a) the taking of King Prawn (*Merlicertus latisulcatus*) in Spencer Gulf; and
- (b) the taking of aquatic resources specified in Schedule 1 Part 1 of the *Fisheries Management (Prawn Fisheries) Regulations 2017*.

The aquatic resources specified in Schedule 1 Part 1 of the regulations are:

- Balmain Bug (*Ibacus spp*)
- Southern Calamari (*Sepioteuthis australis*)

The area of Spencer Gulf is defined in the *Fisheries Management (Prawn Fisheries) Regulations 2017*.

### **3.2 Management Arrangements**

The management system now in place for the SGPF has evolved over a number of years and has been largely influenced by the SGWCPFA following a downturn in catch in 1983-84 and 1984-85. At that time, it was believed that the harvesting of smaller-size classes of prawns in the immediately preceding years was responsible for the downturn in biomass and subsequent catches and so the SGWCPFA, in collaboration with the South Australian Research and Development Institute (SARDI) Aquatic Sciences, investigated strategies to change effort patterns in order to target areas with larger-sized prawns.

In 1992 the change in effort patterns to target areas with larger prawns was formalised through the coordination of fishing strategies at sea during fishing operations (termed 'real-time management'), which were coordinated by the appointment of a Committee-at-Sea. Real-time management gives the fleet the ability to apply alternative fishing strategies based on the movement of prawns, their size, fishing effort and catch rates in an ongoing process based on information gathered from the fleet. The Committee-at-Sea, consisting of a Coordinator-at-Sea and skippers, monitor all fished areas and implement changes according to the triggering of reference points in the Harvest Strategy of the Management Plan for the fishery.

The Harvest Strategy developed with the SGWCPFA initially included in the 1998, then 2007 Management Plan (Dixon and Sloan 2007) and refined in the 2014 management plan (PIRSA 2014a) for the fishery aimed to ensure biological sustainability and promote economic efficiency, and used a series of spatial and temporal closures to manage fishing effort. This involved legislating 'closure lines' (a series of GPS coordinates) and prescribed times and dates of trawling to target areas of high catch rates of appropriately sized prawns.

All licence holders are permitted to use the demersal otter trawl technique, both single and double rigs are permitted, with a minimum mesh size of 4.5cm and a maximum headline length of 29.26m.

**Table 1: Management arrangements for the Spencer Gulf Prawn Fishery**

<b>Management tool</b>	<b>Current restriction</b>
Permitted species	<i>Melicertus latisulcatus</i> , <i>Ibacus</i> spp., <i>Sepioteuthis australis</i>
Limited entry	39 licences
Licence transferability	Permitted
Corporate ownership	Permitted
Spatial and temporal closures	Yes
Method of capture	Demersal otter trawl
Trawl rig	Single or double
Trawling times	Not during daylight hours
Maximum combined headline length	29.26m
Minimum cod end mesh size	58mm
Maximum vessel length	22m
Maximum vessel power	336kW
Catch and effort data	Daily logbook and Catch Disposal logbook
Landing locations	Landings permitted anywhere in the State
Landing times	Landings permitted at any time during the season

### 3. Allocation of access between sectors

#### 3.1 Species allocated

The *Fisheries Management Act 2007* provides that a management plan must specify the share of the fishery to be allocated to each fishing sector under regulation (43(2)(h)). The *Fisheries Management Act 2007* also provides that, in determining the share of aquatic resources to be allocated to a particular fishing sector under the first management plan for an existing fishery, the share of aquatic resources to which that fishing sector had access at the time the Minister decided to prepare the plan (based on the most recent information available) must be taking into account (Section 43(3)).

Western King Prawns, as the main target species, has been allocated in the plan. Bugs (Slipper Lobster) and Southern Calamari as by-product species have also been allocated. Prawns and bugs are allocated 100% to the commercial sector, to reflect the existing share of the resource between the two sectors at the time the Minister requested preparation of this management plan. Due to physical and regulatory limitations, access to prawns by recreational fishers is limited. The most recent recreational survey recorded a very minor harvest of prawns, and no identified take of Bugs by the non-commercial fishing sectors (including recreational and Aboriginal Traditional sectors).

The shares allocated to each sector in relation to Southern Calamari at the state-wide level reflect those set out in the Marine Scalefish Fishery management plan.

## 3.2 Spatial scale of allocation

When determining the shares of aquatic resources to be allocated, it is important to clarify the spatial extent of the fishery to which the allocation applies. Shares for a species may be allocated in a number of ways including fishery boundaries, management regions, biological or stock boundaries or a single allocation across the state.

The spatial scale used to allocate Prawns and Bugs in this management plan is the area of the Spencer Gulf Prawn Fishery, to best reflect management arrangements and stock boundaries.

Allocated shares of Southern Calamari in this plan are consistent with the shares that have been allocated in the Marine Scalefish Fishery management plan at the state-wide level, providing a single allocation for each of the sectors.

## 3.3 The shares

The shares allocated to each sector in relation to the SGPF are set out in Table 2.

**Table 2: Shares of the Spencer Gulf Prawn Fishery resources allocated to each fishing sector.**

Species	GSVFP	Other commercial	Recreational	Aboriginal traditional
Western King Prawns	100.0%	0.0%	0.0%	0.0%
Bugs	100.0%	0.0%	0.0%	0.0%
Southern Calamari	4.6%	57%	37.4%	1.0%

## 3.4 Allocation review and trigger limits

Allocations between sectors may be reviewed in accordance with the Allocation Policy and under the following scenarios.

1. A review of the management plan, which will reassess the appropriateness of shares and may trigger an adjustment; or
2. One or more sectors exceed their allocation of Western King Prawns or Bugs, or in accordance with the allocation triggers for Southern Calamari in the Marine Scalefish Fishery described in the management plan for that fishery: or
3. A major change in the management of a species and/ or a sector that results in a shift of allocations to a sector(s).

The declaration of a marine protected area that would result in reallocation of shares would be given effect through the *Marine Parks Act 2007* and policies applying under that Act. The *Marine Parks Act 2007* requires the Government to pay fair and reasonable compensation to commercial fishers whose statutory rights are affected by marine park zoning.

The process to review allocations under the scenarios described above will be a two-staged approach. The first stage is an initial assessment to determine whether a full assessment is necessary or appropriate. The second stage involves a full assessment, where required.

In the event that an adjustment of shares is required, PIRSA will be responsible for determining the most appropriate adjustment package. If any future adjustment of shares is to be from the commercial sector to the non-commercial sector, a voluntary scheme would always be pursued in the first instance. If a voluntary adjustment scheme is not able to be implemented in the fishery, a second voluntary option/step is required, which would investigate an incentive-based scheme for share adjustment. Compulsory acquisition of commercial access to the fishery would be explored as a last resort.

The management plan also sets out triggers for a review based on changes in sector shares. A comprehensive review of each sector's allocation is not possible in years when recreational catch estimates are not available.

## 4. Co-management

Co-management is an arrangement whereby responsibilities and obligations for sustainable fisheries management are negotiated, shared and delegated at appropriate levels between government, the commercial fishing industry, recreational fishers, Aboriginal traditional fishers and other key stakeholders such as conservation groups (Neville 2008). Co-management is recognised as a collection of positions – starting from centralised government regulation with no industry input at one end to more autonomous management by industry groups and key stakeholders at the other, where government plays more of an audit role.

PIRSA has adopted a Policy for the Co-Management of Fisheries in South Australia (PIRSA 2013b) to inform discussion with the wider commercial fishing industry and other stakeholder groups as to how best to promote and implement co-management. Under this Policy the Minister for Primary Industries and Regional Development, the Hon Tim Whetstone, delegated his powers under section 10 of the *Fisheries Management Act 2007* to set fishing runs (period and timing of fishing over the dark of the moon) and surveys for a one year period, from 5 December 2018, to the Executive Officer and Coordinator-at-Sea positions within the SGWCPFA. Under this delegation the Executive Officer or Coordinator-at-Sea set the fishing run and survey arrangements in a written notice under regulation 10 of the *Fisheries Management (Prawn Fisheries) Regulations 2017*.

The fishing run notice is required to include the criteria under which fishing will cease in an area or across the fishery, as per the requirements of the Harvest Strategy in Section 10.

## 5. Harvest Strategy

This harvest strategy provides a structured framework for informing decision making that specifies pre-determined management actions necessary for the SGPF to achieve the ecologically sustainable development objectives of the *Fisheries Management Act 2007*.

Consistent with national guidelines (Sloan et al. 2014), the harvest strategy brings together all of the key scientific monitoring, assessment and management elements to form an integrated package used to make decisions about the level of fishing intensity that should be applied to the Western King Prawn stock in Spencer Gulf.

The aims of the harvest strategy are:

- Define operational objectives that are both biological and economic
- Define biological performance indicators that align to national status classifications
- Provide decision rules that link Stock Assessment Surveys, which provide an index of abundance, to exploitation
- Provide decision rules that link real-time monitoring of size and catch rates to exploitation.

Through three fishery independent SASs in November, March and April the stock status classification for the subsequent season is determined (sustainable, transitional and overfished). The application of management arrangements for each stock status classification are as follows.

### Sustainable

- Set a total allowable catch for pre-Christmas fishing.
- Set and maintain areas of fishing based on target prawn size.
- Maintain minimum fleet catch rates post-Christmas.

### Transitional

- Set a maximum number of nights allowed for fishing for the whole season.
- Set a portion of the maximum number of fishing nights that can be fished pre-Christmas (November and December).
- Set and maintain areas of fishing based on prawn size.

### Overfished

- no commercial fishing will be allowed for the season.

The primary change to the Harvest Strategy, from the Harvest Strategy in the 2014 Management Plan, is in the design and application of the SAS. The new SAS design has reduced the number of survey shots in two of the annual three surveys (April and November), and moved the February survey to March. These changes in the number of shots for each SAS have been applied taking into account historic data sets, information priorities and logistics (see Table 3).

**Table 3: Changes in SAS shots in the Spencer Gulf Prawn Fishery**

Man Plans	Nov	Feb/ Mar	Apr
Current	180	183 (Feb)	159
New	173	187 (Mar)	92
Difference	-3%	4%	-41%

In order to ensure the risk associated with reducing the number of SAS shots does not have an adverse impact on the stock the reference points for the adult catch rate performance indicator have been raised. The raising of the reference points ensures higher levels of adult catch rate are required to apply management strategies when the fishery is classified as Sustainable or Transitional under the Harvest Strategy (See Table 4).

**Table 4: Adult catch rate reference points have been raised in the draft management plan**

Man Plans	Limit	Trigger	Target
Current	1.75 (lb/min) 47.7 (kg/hr)	2.50 (lb/min) 68.2 (kg/hr)	3.50 (lb/min) 95.5 (kg/hr)
New	2.21 (lb/min) 60.3 (kg/hr)	3.16 (lb/min) 86.2 (kg/hr)	4.43 (lb/min) 120.8 kg/hr)

In order to test the impact on the stock of applying the new adult catch rate reference points in the draft management plan a South Australian Research Development Institute (SARDI) analysis was undertaken. The SARDI analysis illustrated that in all of the last 20 seasons the stock would have been classified as sustainable.

## 6. Ecosystem Impacts

A goal of this plan is the management of the fishery as a part of the broader ecosystem, using an ecosystem-based fisheries management (EBFM) approach. The *Fisheries Management Act 2007* specifically requires that the following ecological impacts be identified and assessed, specifically:

- current known impacts of the fishery on the ecosystem;
- potential impacts of the fishery on the ecosystem; and
- ecological factors that could have an impact on the performance of the fishery.

To efficiently meet its ecological impact accountabilities under both State and Commonwealth legislation, PIRSA has adopted the 'National Ecologically Sustainable Development (ESD) Reporting Framework for Fisheries' developed by Fletcher et al. (2002). The initial steps of this analysis included identifying the issues relevant to the fishery and then prioritising these issues.

With respect to the identified risks to retained species a Semi-quantitative assessment of the species components of the fishery identified from the 2007 and 2013 by-catch surveys was carried out. The method used followed the productivity susceptibility analysis (PSA) methodology described in the ecological risk assessment for the effects of fishing (ERAEF) framework developed by Hobday et al. (2011).

The PSA approach measures potential for risk that allows all units within the ecosystem components to be effectively and comprehensively screened for risk. The units of analysis for this PSA comprised species (by-catch, by-product and TEPS) the fishery has interacted with in the assessment period (i.e. last 5 years), that have been reported in fisheries logbooks, wildlife interaction logbooks and independent observer logbooks.

An assessment of the impact of prawn trawling on habitat was also undertaken. The Consequence Spatial Analysis (CSA) used by the MSC, based on the 'habitat PSA' component of the ERAEF was used by SARDI (Hobday et al. 2007, 2011; Williams et al. 2011). The CSA was structured around a set of attributes that describe fishing gear impacts (consequence) and the habitat (spatial) for each habitat being affected by the gear type(s).

