Chapter 2

Overview of management arrangements for the Small Pelagic Fishery

2.1 This chapter describes management arrangements and techniques applied to the SPF that are relevant when examining the specific concerns stakeholders and members of the public have about the operations of the *Geelong Star*. Information is provided on the overall management approach, strategies and policies governing fishing activities in the SPF that are relevant to the *Geelong Star*.

2.2 The SPF is managed by AFMA in accordance with a management plan (currently the Small Pelagic Fishery Management Plan 2009). Two fishing methods are permitted in the SPF: purse seine and mid-water trawl.[1] As the following paragraphs explain, AFMA manages activity in the fishery through the use of output controls based on individually transferable quotas and a 'total allowable catch' that is determined for each quota species for each fishing season.[2] AFMA also develops strategies to mitigate catches of non-quota species and interactions between fishing vessels and protected species.

Output controls

2.3 In managing fisheries, policymakers and regulators are faced with a choice between 'input' controls and 'output' controls. As the Northern Territory Department of Primary Industry and Fisheries explained in its submission, input controls 'are used to restrict the size, type and mode of use of fishing equipment to limit catching power as a means of managing impact on fishery resources and other components of the marine environment'. Output controls 'limit the amount of any particular stock that can be harvested (typically as allowable catch quotas) by any given fishing sector or fisher irrespective of any input regulations'.[3]

2.4 The ban introduced by the government in April 2015 on all boats over 130 metres in length from undertaking fishing-related activities within the AFZ is an example of an input control. The 'super trawler' ban notwithstanding, in most of the fisheries AFMA manages, including the SPF, output controls form the basis of the management framework. These output controls are based on total allowable catches

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1 Australian Fisheries Management Authority (AFMA), *Small Pelagic Fishery: Management arrangements booklet 2015–16*, www.afma.gov.au/wp-content/uploads/2014/08/SPF-Management-Arrangements-Booklet-2015-16.pdf (accessed 4 April 2016), p. 7.

2 The fishing season in the SPF lasts for 12 months, beginning on 1 May.

3 Northern Territory Department of Primary Industry and Fisheries, *Submission 73*, p. 4.

(TACs) and individual transferable quotas (ITQs).[4] That is, AFMA imposes a quota system for each species in the fishery that limits individual fishers to the amount of quota they hold and the entire fishery to the TAC set for each season. ITQs are granted as statutory fishing rights (SFRs); to fish in the SPF, an operator must hold quota SFRs for all target species in the fishery.[5]

2.5 The ITQ is based on a proportion of the TAC; that is, if the TAC increases, the 'proportion that one SFR entitles the holder to remains the same but the quantity (in kilograms) they can take increases'.[6] If a vessel is in excess of its quota, it can seek to lease quota from another party to cover the excess fish.[7]

2.6 The determination of the TAC is informed by the 2007 *Commonwealth Fisheries Harvest Strategy Policy* (HSP).[8] The objective of the HSP is 'the sustainable and profitable utilisation of Australia's Commonwealth fisheries in perpetuity through the implementation of harvest strategies that maintain key commercial stocks at ecologically sustainable levels and within this context, maximise the economic returns to the Australian community'.[9] The CSIRO explained that the HSP:

> …attempts to explicitly address the economic and ecological sustainability of the fish stocks by achieving a biomass that delivers Maximum Economic Yield (MEY) target…with 48% of the unfished biomass as the default, rather than maximum sustainable yield (often set at 40% of unfished biomass). Moreover, fisheries are closed, or targeting and catch bans are imposed, once the estimated stock biomass drops below 20% of the unfished biomass.[10]

2.7 The Small Pelagic Fishery Management Plan 2009 requires a TAC for each quota species in each sub-area of the SPF for each season.[11] The TAC is determined by taking the total mortality from fishing by all sources (the recommended biological

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4 AFMA advised that all major fisheries it manages 'are under TAC/ITQ management with the exception of the Northern Prawn Fishery'. AFMA, *Submission 18*, Attachment 9, p. 2.

5 AFMA, 'Small Pelagic Fishery', www.afma.gov.au/fisheries/small-pelagic-fishery (accessed 4 April 2016); AFMA, *Submission 18*, Attachment 9, p. 3.

6 Similarly, the quantity in kilograms allowed by the SFR decreases if the TAC decreases. AFMA, *Submission 18*, Attachment 9, p. 3.

7 Dr Nick Rayns, Acting Chief Executive Officer, AFMA, *Senate Rural and Regional Affairs and Transport Legislation Committee Hansard*, Estimates, 26 May 2015, p. 59.

8 As noted in Chapter 1, the HSP arises from the Ministerial Direction to AFMA of 2005. AFMA, *Submission 18*, Attachment 9, p. 1.

9 Australian Government, *Commonwealth fisheries harvest strategy: policy and guidelines*, September 2007, p. 4.

10 CSIRO, *Submission 23*, p. 15 (citation omitted).

11 Small Pelagic Fishery Management Plan 2009, s. 17.

catch, or RBC) and subtracting other known sources of fishing mortality, such as the catch taken by state fishers.[12]

2.8 In setting the TAC, and in managing the fishery more generally, AFMA must undertake consultation with the management advisory committee for the SPF established under the *Fisheries Administration Act 1991*,[13] which is currently the South East Management Advisory Committee (SEMAC).[14] AFMA must also take into account:

- advice from the resource assessment group for the SPF about the stock status of the quota species (that is, the resource assessment group provides advice on the RBC);[15]
- the harvest strategy for the quota species AFMA has developed;
- all fishing mortality of the quota species, from all sub-areas within the fishery and overlapping or adjacent fisheries for the species;
- the ecological implications of taking the amount of the species;
- the distribution, population and structure of the species; and
- the precautionary principle.[16]

2.9 AFMA may also consider the views of any other interested person.[17]

2.10 The harvest strategy for the SPF utilises a tiered system of assessment for setting TACs for each quota species. The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), in the submission from the Department of Agriculture and Water Resources, explained that the tiered frameworks comprises four tier levels, with each level having different information requirements and harvest control rules. The tier levels are as follows:

- Tier 1 is the highest level of assessment and provides the 'greatest certainty in RBC setting and allows the highest potential harvest rate'. Tier 1 is based on 'a quantitative stock assessment and an Annual Fishery Assessment'.

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12 Small Pelagic Fishery Total Allowable Catch (Quota Species) Determination 2016, Explanatory Statement; AFMA, Response to *Submission 166*, Attachment A, p. 3; FRDC, 'Glossary', http://fish.gov.au/glossary (accessed 25 July 2016).

13 *Fisheries Administration Act 1991*, ss. 54 and 56.

14 Consultation with SEMAC is required by paragraphs 13(1)(h) and 18(a).

15 AFMA, *Submission 18*, p. 4. For the SPF, AFMA is trialling an SPF Scientific Panel and stakeholder forums to provide scientific and economic advice to SEMAC and the Commission. The decision to replace the SPF resource assessment group with these arrangements is discussed in Chapter 5.

16 Small Pelagic Fishery Management Plan 2009, s. 18.

17 Small Pelagic Fishery Management Plan 2009, s. 18.

- Tier 2 'provides a medium level of assessment based on an Annual Fishery Assessment and allows a lower potential harvest rate'.
- Tier 2(b) – Atlantis, provides a lower levels of assessment based on an Annual Fishery Assessment and estimates from an ecosystem model known as 'Atlantis'.
- Tier 3 'is the lowest level of assessment and applies when the requirements of other tier levels are not met'.[18]

2.11 In its *Fishery status reports 2015*, ABARES provided the following explanation of how the harvest control rules for the different tiers operate, and the quality of the information needed to qualify for a particular tier:

> Maximum exploitation rates of 20 to 25 per cent of current biomass are internationally recommended to ensure that a high proportion of fish remain in the ecosystem…As a result, the SPF tier 1 harvest control rules use a maximum exploitation rate of 20 per cent of estimated spawning biomass from a recent DEPM survey as the basis for setting RBCs. This is more conservative than the internationally recommended 20 to 25 per cent of current biomass. If there are no further DEPM surveys, the RBC is reduced from 20 to 10 per cent over five years, from the year the spawning biomass estimate was last determined using the DEPM surveys. This reduction accounts for increasing uncertainty in stock status since the last survey.[19]

2.12 ABARES submitted that the tiered harvest strategy framework used in the April 2015 revision of the SPF harvest strategy 'is appropriate for the SPF because it accommodates growth of the fishery and the consequent collection of additional information to support stock assessment'. ABARES added:

> Underpinning the tiered approach is the need to balance risk with knowledge by establishing exploitation rates that are initially very conservative and which increase (but remain conservative) as additional information (i.e. quantitative measures of spawning biomass) becomes available.[20]

2.13 Figures for the catch limits in the SPF in recent seasons are at Table 2.1. AFMA reports that the TACs for the 2015–16 season 'leave 92.4 per cent of the combined estimated biomass of SPF stocks in the water for the marine environment and other uses such as recreational fishing'.[21] ABARES submitted that the TACs 'are

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18 Department of Agriculture and Water Resources, *Submission 12*, p. 30.

19 Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), *Fishery status reports 2015*, October 2015, http://data.daff.gov.au/data/warehouse/9aam/fsrXXd9abm_/fsr15d9abm_20151030/00_FishStatus2015_1.1.0.pdf (accessed 25 July 2016), p. 92.

20 Department of Agriculture and Water Resources, *Submission 12*, p. 30.

21 AFMA, 'Small Pelagic Fishery – FAQs', www.afma.gov.au/fisheries/small-pelagic-fishery-faqs (accessed 12 February 2016).

set at precautionary and sustainable levels, taking broader ecosystem impacts into consideration'.[22] Stakeholders' concerns about the TACs are discussed in Chapter 3.

Table 2.1: Recent TAC and catch history for the small pelagic fishery (tonnes)

Species	*2014–15 TAC*(1)	*2014–15 catch*(1)	*2015–16 TAC*(1)	*2015–16 catch*(3)	*2016–17 TAC*(2)	*Total estimated stock*(1)
Blue mackerel east	2660	209	2630	2164	2630	40,000 (at 2008)
Blue mackerel west	6500	0	6200	1007	6200	86,500 (at 2005)
Jack mackerel east	10,230	272	18,670	6585	18,670	157,805 (at 2014)
Jack mackerel west	5000	0	3600	631	3600	n/a
Redbait east	5000	2	3310	289	3310	68,886 (at 2005–06)
Redbait west	5000	0	2880	1210	2880	n/a
Australian sardine	560	161	1880	118	1880	40,000 (at 2004)

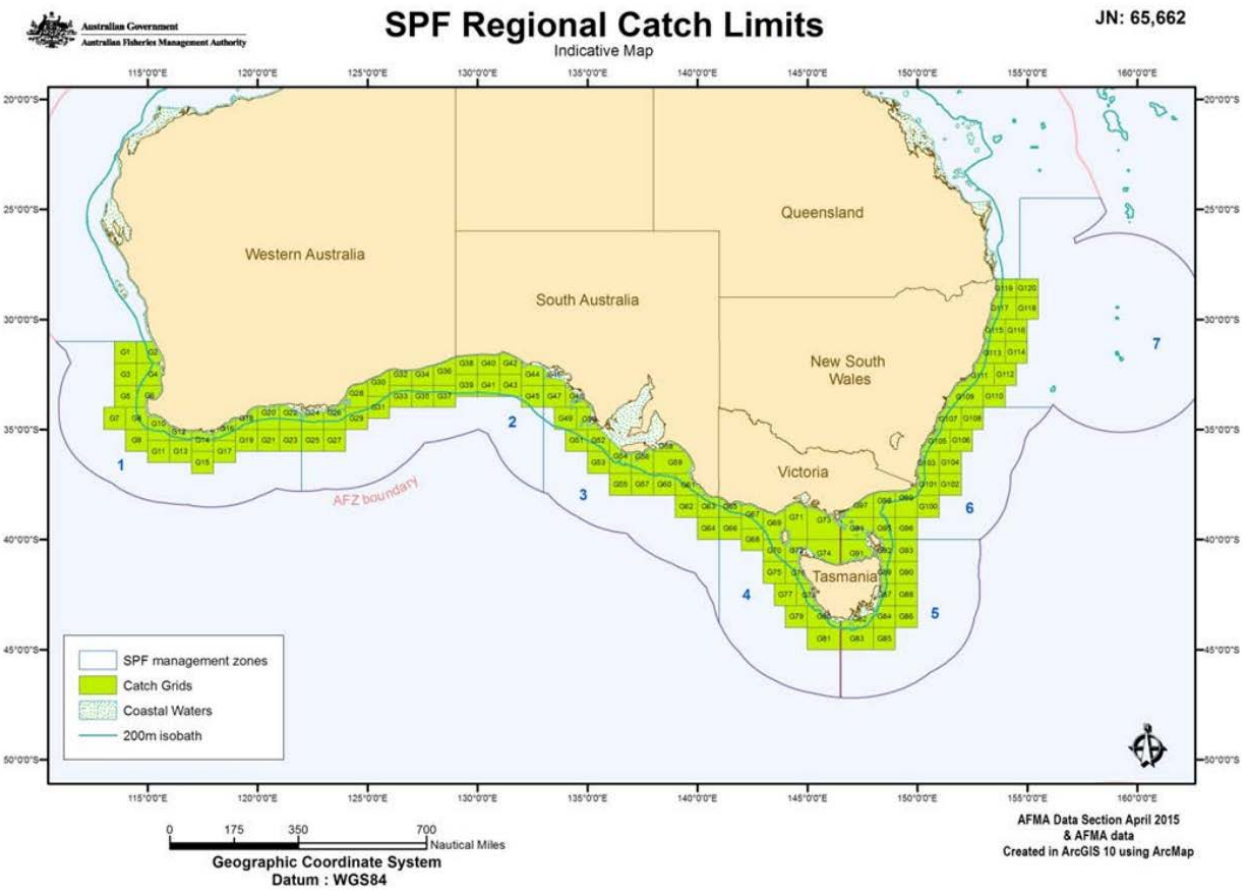
Sources: (1) AFMA, *Submission 18*, Attachment 3; (2) AFMA, 'Total allowable catch and catches in the Small Pelagic Fishery' (tabled by AFMA on 1 November 2016).

2.14 As noted in Chapter 1, the SPF is divided into east and west sub-areas. In addition, AFMA divides the SPF into seven management zones. Zones 1 to 4 are contained in the west sub-area and zones 5 to 7 are located in the east sub-area. AFMA further divides part of the fishery into 120 grids. The regional catch limits referenced to these grid areas are relevant to concerns about localised depletion, which are discussed in Chapter 3.

2.15 The map at Figure 2.1 depicts the management zones and grid areas.

22 Department of Agriculture and Water Resources, *Submission 12*, p. 30.

Figure 2.1: SPF management zones and catch grids



Source: AFMA, Answer to question on notice, no. 67, Senate Rural and Regional Affairs and Transport Legislation Committee, Budget Estimates 2015–16, May 2015.

Bycatch of non-target species and interactions with protected species

2.16 Under the *Fisheries Management Act 1991*, AFMA must have regard to the impact of fishing activities on non-target species and the long-term sustainability of the marine environment.[23] In addition to the pursuit of the Fisheries Management Act objectives, the management of Commonwealth fisheries is also assessed against EPBC Act requirements, including the measures for minimising interactions with species protected under the EPBC Act.[24] This section discusses the regulatory approach to the bycatch of non-quota species and the harm commercial fishing causes to protected species.

23 *Fisheries Management Act 1991*, s. 3(1)(b).

24 Department of Agriculture and Water Resources, *Submission 12*, p. 2.

2.17 Bycatch include species that are not usually kept by commercial fishers for either commercial or regulatory reasons. For the SPF, AFMA defines bycatch as being:

- catch other than the four target species in the SPF;
- the part of the catch that 'does not reach the deck of the fishing vessel but is affected by interaction with fishing gear'; and
- catch (of target species or bycatch) that is discarded 'because either it has low commercial value or because regulation precludes it from being retained'.[25]

2.18 The approach to bycatch in the SPF is also informed by:

- the Ministerial Direction to AFMA of 2005 (see Chapter 1); and
- the *Commonwealth Policy on Fisheries Bycatch* (2000), which 'commits all Commonwealth fisheries to bycatch reduction, improved protection for protected species and minimising any adverse impacts of bycatch on the marine environment'. Under the Policy, a bycatch action plan is required for each fishery.[26] The current plan for the SPF is *AFMA's Small Pelagic Fishery: Bycatch and Discarding Workplan 2014–2016*.

2.19 A vessel management plan (VMP), which is enforced through SFR conditions, can also provide 'individually tailored mitigation measures'. The measures included in VMPs are designed to minimise seabird, seal and dolphin interactions.[27] The VMP for the *Geelong Star* contains bycatch mitigation requirements that include 'the use of a seal excluder device or barrier net, marine mammal observation and move-on measures, bird scaring devices, offal management measures, marine mammal and seabird handling practices and a comprehensive network of spatial closures to reduce the likelihood of interactions with Australian sea lions'.[28]

2.20 The latest VMP for the *Geelong Star* is version 2.0. This VMP was released by AFMA and came into effect on 31 October 2016.[29]

2.21 The Department of Agriculture and Water Resources also noted that, under Part 13 of the EPBC Act, it is an offence to harm protected species, other than conservation dependant species, in Commonwealth waters 'unless fishers have a

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25 AFMA, *Small Pelagic Fishery: Bycatch and discarding workplan 2014–2016*, www.afma.gov.au/wp-content/uploads/2014/11/Bycatch-and-Discard-Work-Plan-SPF-2016.pdf (accessed 19 November 2015), p. 5.

26 AFMA, *AFMA's Program for addressing bycatch and discarding in Commonwealth fisheries: an implementation strategy* (2008), www.afma.gov.au/wp-content/uploads/2014/11/Bycatch-and-Discarding-Implementation-Strategy-feb-08.pdf (accessed 4 April 2016), p. 4.

27 Department of Agriculture and Water Resources, *Submission 12*, p. 12.

28 AFMA, *Submission 18*, p. 4.

29 The VMP may be viewed here: www.afma.gov.au/revised-geelong-star-vessel-management-plan.

permit or the management arrangements for the fishery are accredited by the Environment Minister'.[30] The department added that Part 13 accreditation for the SPF requires that mid-water trawl boats:

> …must have in place effective mitigation approaches and devices to minimise interactions with seabirds, seals and dolphins. This condition is being addressed though AFMA's management, primarily the development and implementation of VMPs for all SPF mid-water trawl boats.[31]

Compliance and monitoring

2.22 AFMA oversees fishing activity in the SPF through the use of:

- GPS-based vessel monitoring systems, which are compulsory for all fishing vessels in the Commonwealth's jurisdiction;
- observer coverage, with the level of coverage dependent on the fishery;
- daily logbooks; and
- electronic monitoring, such as cameras, which is used to verify logbooks and is compulsory in various fisheries and for the *Geelong Star*—AFMA submitted that the use of these monitoring systems 'enables AFMA to know where every fishing boat is, what they have caught and where they have caught it'.[32]

2.23 For the *Geelong Star*, initially an AFMA observer was required to be on board the vessel for the first ten trips, or the first 12 months, whichever is longer, and then as directed by AFMA.[33] The latest VMP released in October 2016 requires that the *Geelong Star* now carry an AFMA observer 'at all times'.[34] Although not a requirement, an additional bycatch officer was on board the vessel to monitor bycatch mitigation 'in the initial stage of this vessel's development'. At the November 2016 public hearing, AFMA advised that the bycatch officer is no longer present on the vessel's fishing trips.[35]

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30 Department of Agriculture and Water Resources, *Submission 12*, p. 4.

31 Department of Agriculture and Water Resources, *Submission 12*, p. 12.

32 AFMA, *Submission 18*, p. 6.

33 AFMA, *Vessel management plan: Small Pelagic Fishery – Geelong Star*, Version 1.5, September 2015, p. 5; provided as *Submission 18*, Attachment 5.

34 AFMA, *Vessel management plan for the FV Geelong Star: Version 2.0 – updated October 2016*, www.afma.gov.au/revised-geelong-star-vessel-management-plan (accessed 2 November 2016), p. 4.

35 Dr James Findlay, Chief Executive Officer, AFMA, *Committee Hansard*, 1 November 2016, p. 15. See also Department of Agriculture and Water Resources, *Submission 12*, p. 13.

2.24 Some of these compliance arrangements are informed by requirements imposed by authorities other than AFMA. Accreditation by the Environment Minister of the Small Pelagic Fishery Management Plan 2009 under Part 13 of the EPBC Act was conditional on measures to mitigate interactions with protected species and 'for new mid-water trawl vessels in the fishery to have observer coverage for the first 10 trips'.[36]

2.25 The following chapters outline the evidence received about the consequences of the activities of the *Geelong Star*. Concerns about the vessel's impact on the marine environment will be examined first, followed by social and economic effects. Although these issues are separated in this report, it is acknowledged they are interrelated to some extent.

36 Department of Agriculture and Water Resources, *Submission 12*, p. 29.