Chapter 3

Concerns about the impact of the FV *Geelong Star* on the marine environment

3.1 There is a significant amount of concern shared by fishers, conservationists and within the community generally about the effects and potential effects of the *Geelong Star* operating in the SPF. Regarding the marine environment, these concerns include whether the total allowable catch that the *Geelong Star* can access is appropriate, whether there are consequences for predators dependent on SPF species, potential localised depletion, bycatch of higher value fish species, and mortalities and injuries of species protected under the EPBC Act. This chapter examines these issues.

General concerns about the utilisation of the fishery and the current knowledge about stock assessments

3.2 One of the key areas of concern for some stakeholders is based on the trophic level of the small pelagic fish that the *Geelong Star* targets. These stakeholders are concerned that the depletion of small pelagic fish could negatively affect species higher up the food chain. Reinforcing these claims is concern among these stakeholders that the total allowable catches determined by AFMA and other aspects of the management regime are based on out-of-date and/or inadequate scientific information.

Trophic level concerns

3.3 The Australian National Sportfishing Association (ANSA) argued that the fish targeted by the factory freezer trawlers are low value small pelagic fish that 'form the basis for the food web for larger fish species, marine mammals and seabirds'. Of particular concern to ANSA is what it considers are 'possible impacts upon high value fish species such as Southern and Yellowfin tuna etc which are of significant economic value to the nation and which are also highly targeted iconic recreational fish species'. ANSA argued that 'the commercial take of vital food chain species such as SPF species does not represent the best use of a natural resource and that these species would be better left in the wild'.[1]

3.4 The Stop the Trawler Alliance made a similar point. Ms Rebecca Hubbard, Marine Coordinator, Environment Tasmania and a representative the Stop the Trawler Alliance, stated that the Alliance believes that factory freezer trawlers in the SPF:

> …pose large threats to very important populations which are valuable as feed and valuable in the ecosystem to those species but also to other sectors

1 Australian National Sportfishing Association (ANSA), *Submission 127*, p. 3.

> such as recreational fishing, tourism and, indeed, commercial fishing industries.[2]

3.5 The CSIRO, however, submitted that the 'role of small pelagic fish targeted by the SPF is not strictly analogous to that of the large biomasses of prey fish in upwelling ecosystems elsewhere in the world'. In the CSIRO's view:

> The current SPF catches are unlikely to negatively impact predators, which are typically not completely dependent on SPF target species and have the capacity to switch to other prey species.
>
> Some species, which are central place foragers, may be more dependent on SPF species.[3]

3.6 IMAS advised that ecosystem modelling indicates fishing undertaken within the SPF Harvest Strategy Framework would 'have minor impacts on the pelagic ecosystem and that the food web in southern and eastern Australia is not highly dependent on SPF species'. IMAS added that research indicates that 'none of the higher trophic level predators have a high dietary dependency on these species'.[4]

Total allowable catches and stock assessments

3.7 As noted in Chapter 2, AFMA uses output controls in managing the SPF. A total allowable catch (TAC) is determined for each quota species in each sub-area of the SPF for each season.

3.8 The operator of the *Geelong Star* emphasised that its activities and the amount of fish it can take is regulated by AFMA's quota system. Mr Peter Simunovich, a director of Seafish Tasmania, stated that 'the highly conservative harvest strategy for the fishery only allows a small percentage of the stock to be harvested'. When asked to provide figures on the amount of the total allowable catch that is actually fished each year, Mr Simunovich stated that, as at April 2016, the *Geelong Star* had caught approximately five per cent of the total allowable catch. Mr Simunovich elaborated:

> Currently, we are sitting at about five per cent, but the maximums you can allow are: for redbait, 10 per cent; for jack mackerel, 12 per cent; for blue mackerel, 15 per cent; and for sardines, 20 per cent.[5]

3.9 Mr Simunovich also stated that, based on fisheries in California, the 'international benchmark at a conservative setting rate is 25 per cent'. Accordingly, Mr Simunovich argued that 'we are below half the international conservative

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2 Ms Rebecca Hubbard, Marine Coordinator, Environment Tasmania, *Committee Hansard*, 15 April 2016, p. 15.

3 CSIRO, *Submission 23*, p. 4.

4 Institute for Marine and Antarctic Studies (IMAS), *Submission 19*, p. 6 (citation omitted).

5 Mr Peter Simunovich, Director, Seafish Tasmania; and Member, Small Pelagic Fishery Industry Association (SPFIA), *Committee Hansard*, 15 April 2016, p. 9.

benchmark'.[6] Similarly, the CSIRO observed that 'none of the SPF stocks are classified as overfished and the current management rules and harvest rates are considered conservative by global standards'.[7]

3.10 The most recent fishery status reports prepared by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) reaffirm this evidence, as the Department of Agriculture and Water Resources explained in its October 2016 supplementary submission:

> The ABARES Fishery status reports 2016, reporting on the 2014–15 and 2015–16 fishing seasons, classified all seven SPF stocks (sardine, blue mackerel east and west, jack mackerel east and west and redbait east and west) as not overfished and not subject to overfishing. Redbait west was previously classified as uncertain with respect to biomass status due to a lack of formal stock assessment. The latest status reports draw on recent ecosystem modelling and it was assessed that the low level of exploitation on the stock over the last decade was unlikely to have reduced biomass to below the limit reference point.[8]

3.11 Throughout the inquiry, however, environmental organisations and recreational fishing groups raised questions about the science that underpins this aspect of the management arrangements for the SPF, with a common concern being that particular stock assessments were lacking or out-of-date. For example, Environment Tasmania submitted:

> Supporters of the *Geelong Star* and AFMA's management of the SPF suggest that fisheries management is 'supported by the science'. In fact, much of the information about SPF stocks is very old and gaps in the science mean that concerns about sustainability and localised impacts of fishing cannot be addressed.[9]

3.12 In support of this argument, Environment Tasmania stated that the assessment of ecosystem effects from factory trawlers in the SPF 'that has been done' was based on modelling 'that may not be accurate given the known, already existing impacts of climate change and fishing pressure on target stocks and pelagic community structure in the south east of the fishery'.[10] It added that 'only three of the four' stocks in the eastern zone have been assessed in the last nine years, and that stocks in the western zone 'have never been assessed using best-practice survey methods'.[11]

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6 Mr Peter Simunovich, Director, Seafish Tasmania; and Member, SPFIA, *Committee Hansard*, 15 April 2016, p. 9.

7 CSIRO, *Submission 23*, p. 4.

8 Department of Agriculture and Water Resources, *Submission 169.1*, p. 2.

9 Environment Tasmania, *Submission 145*, p. 5.

10 Environment Tasmania, *Submission 145*, p. 2.

11 Environment Tasmania, *Submission 145*, p. 5.

3.13 The Western Australian Game Fishing Association (WAGFA) expressed concern that fish stock estimates on the south-west coast may be inaccurate as it is of the understanding that 'there is very limited scientific knowledge about baitfish species' in that area.[12]

3.14 Various submissions commented on the use of spawning biomass surveys based on the daily egg production method (DEPM). The DEPM is a 'method of estimating the spawning biomass of a fish population from the abundance and distribution of eggs and/or larvae'.[13] The Chief Executive Officer of AFMA, Dr James Findlay, provided the following description of DEPM surveys:

> Daily egg production surveys use the level of egg production to estimate the population of adult fish in much the same way that the minimum number of chickens could be estimated by the number of eggs produced or a human population could be estimated by the number of children attending nearby schools. Such surveys are valuable tools in assessing small pelagic fish stocks, because the biology of these species greatly reduces the reliability of catch-per-unit-effort indices traditionally used for many other species. It is well-known that the high mobility of small pelagic fish can lead to CPUE [catch per unit effort] based analyses overestimating stock abundance. This is why we do not use them.[14]

3.15 IMAS advised that DEPM surveys conducted in 2014 provide 'up-to-date biomass assessment for three of the four main target stocks in the Eastern zone (i.e. Jack Mackerel, Blue Mackerel and Australian Sardine)'. However, IMAS acknowledged that 'stock status information for the remaining SPF stocks (Redbait east, Redbait west, Jack Mackerel west and Blue Mackerel west) is either over 10 years old or unassessed using the DEPM approach and thus less certain'. IMAS explained that, in relation to these stocks, 'a more conservative approach to recommending catch limits is taken (at least half the maximum recommended harvest rate)'.[15]

3.16 The Tasmanian Conservation Trust argued that the lack of up-to-date DEPM stock assessments is a key weakness of the current approach to managing the SPF. Mr Jon Bryan, who was a member of AFMA's SPF Resource Assessment Group (SPFRAG)[16] and who represented the Trust during the inquiry, explained:

> The concerns about the fishing operation of the *Geelong Star* and the management of AFMA relate more to the lack of stock assessment data.

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12 Western Australian Game Fishing Association, *Submission 60*, p. 2.

13 Fisheries Research and Development Corporation (FRDC), 'Glossary', http://fish.gov.au/glossary (accessed 25 July 2016).

14 Dr James Findlay, Chief Executive Officer, AFMA, *Committee Hansard*, 1 November 2016, pp. 10–11.

15 IMAS, *Submission 19*, p. 5.

16 The SPFRAG is discussed in further detail in Chapter 5.

> There is a whole series of stocks which do not have any…[DEPM] data at all. There is old data which is being used to justify current catches…[T]here is no future commitment to ongoing…[DEPM] assessments, which would give us confidence that these stock assessments will be accurate into the future.[17]

3.17 Mr Bryan argued that stocks which have not been subject to a DEPM survey should, according to AFMA's Harvest Strategy guidelines, have TAC limits of 500 tonnes. Mr Bryan noted that the current TACs 'are far higher and in my view have been set to ensure the economic viability of super trawlers such as *Geelong Star*'.[18]

3.18 Mr Bryan also pointed to two previous collapses in Australia's SPF in the jack mackerel fishery and the redbait fishery. Mr Bryan stated:

> Small pelagic fish species are a problem to manage because they fluctuate under normal environmental conditions. If you add a down fluctuation with a high fishing pressure you suddenly get a crash in the stock and that is where these crashed fisheries often come from.[19]

3.19 Regarding the jack mackerel fishery, Mr Bryan argued:

> There is a lot to say about the jack mackerel fishery. I think it is reasonable to assume that climate change or some other environmental change was largely responsible for that collapse, but there is no denying that age, size and structure of the stock indicated that fishing was having some sort of impact.[20]

3.20 Mr Bryan added that, if one assumed for the sake of argument that fishing activity was not involved in the collapses, then this means 'there is some environmental issue that is going on that we are not aware of' and which is not being managed.[21]

3.21 Mr Graham Pike, who was also a member of AFMA's former SPFRAG, similarly expressed concern about the status of DEPM stock assessments. Mr Pike submitted:

> Practically all of the proposed new SPF Harvest Strategy document and the 2016–2017 catch quotas for the super trawler which it has been used to calculate, is based not on scientific small pelagic fish population counts or other on-water scientific research in the Small Pelagic Fishery, but on a theoretical mathematical model produced last year on a federal government computer. As any reader of AFMA's documentation will see, this

17 Mr Jonathan Bryan, Marine Spokesperson, Tasmanian Conservation Trust (TCT), *Committee Hansard,* 15 April 2016, p. 19.

18 TCT, *Submission 143*, pp. 4–5. Mr Bryan authored the Trust's submission.

19 Mr Jonathan Bryan, TCT, *Committee Hansard*, 15 April 2016, p. 19.

20 Mr Jonathan Bryan, TCT, *Committee Hansard*, 15 April 2016, p. 19.

21 Mr Jonathan Bryan, TCT, *Committee Hansard*, 15 April 2016, p. 19.

> theoretical model, called Atlantis-SPF, (apparently named after a sunken civilisation), is cited almost exclusively as the basis for setting the vital small pelagic catch rates in the harvest strategy and also the super trawler catch rates for 2016–2017.[22]

3.22 Mr Pike argued that 'there is no substitute for the scientific assessment of the SPF small pelagic fish stocks using DEPM surveys'. He added:

> The use of a computer model without the input of recent (no earlier than five years) DEPM survey data on all SPF commercially targeted species means that no-one, not even the best scientists in the world with the best intentions in the world using the most advanced computer model mankind can devise, can know with any accuracy how many fish there are. And if you don't know how many fish there are to start with, how can you manage them or set super trawler catch quotas for them with any of the precaution required by the "precautionary principle" of AFMA's legislation?[23]

3.23 Mr Pike also submitted that AFMA 'is planning to replace scientific DEPM-based stock assessments with very low cost theoretical computer modelling' because 'the commercial fishing industry and the super trawler operators do not want to pay the higher costs of DEPM surveys'. Mr Pike added:

> It is AFMA policy that if the commercial fishing industry wants to develop or expand a fishery, as it is doing in the Small Pelagic Fishery, then the industry must pay for the scientific research and scientific assessments of fish stocks which are necessary for the fishery to be properly managed and developed/expanded without risk of overfishing (as has happened so frequently in the past with-Commonwealth-managed fisheries). However, in the past few years, coinciding with the period since February 2012 when it became evident that a super trawler would attempt entry to the SPF, the commercial fishing industry has not invested in DEPM assessments of SPF fish stocks in the SPF and has declined to establish and support a program of regular DEPM assessments in the SPF which are necessary to maintain the scientific rigour of SPF Harvest Strategies. The owners and operators of the super trawler have also not provided any research or stock assessment funding. Instead, Australian taxpayers alone funded the last DEPM survey in the SPF two years ago.[24]

22 Mr Graham Pike, *Submission 166*, p. 2.

23 Mr Graham Pike, *Submission 166*, pp. 2–3.

24 Mr Graham Pike, *Submission 166*, p. 5.

Response to concerns about the methodology of total allowable catch determinations

3.24 AFMA responded to Mr Bryan's evidence by emphasising that commercial fish stocks in the SPF are 'assessed by ABARES as not subject to overfishing and not overfished, with the exception of redbait (western stock) whose uncertain biomass status is due to insufficient data'. AFMA noted that where information about fish stocks 'is lacking', AFMA determines a TAC that is 'more conservative'.[25]

3.25 In response to the claim from Mr Pike that DEPM stock assessments are being replaced by modelling because the industry does not want to pay the higher cost associated with DEPM surveys, AFMA stated that this 'is not correct'. AFMA advised:

> AFMA has for at least 20 years relied on fisheries modelling to assist in the management of Commonwealth fisheries. These models use the data we have on a particular fish stock and more latterly on entire ecosystems so are not 'theoretical' as stated. While the human mind is a wonderful thing, computer models are able to assimilate and process large amounts of data (that we cannot) to assist with our decision making, including testing the sustainability of various harvest levels. Moreover, DEPM based stock assessments are not being abandoned and are under consideration as a future research priority by the Scientific Panel.[26]

3.26 AFMA submitted that the current harvest strategy for the SPF requires DEPM assessments 'to be undertaken on an ongoing basis to remain at Tier 2'.[27] Relevantly, in its November 2015 submission, the Department of Agriculture and Water Resources also advised that:

> Surveys have currently been funded for all SPF species on the east coast except for redbait. By completing a DEPM survey for redbait on the east coast, all east coast SPF quota species will be able to be managed at Tier 1 under the SPF Harvest Strategy. The timeframe for this research is 2014–2016.[28]

3.27 The most up-to-date information available to the committee about the status of DEPM surveys is at Table 3.1.

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

26 AFMA, Response to *Submission 166*, pp. 1–2.

27 AFMA, Response to *Submission 143*, Attachment A, p. 2.

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

Table 3.1: Schedule of DEPM surveys for SPF quota species

Species	*Fishery season (1 May to 30 April)*									
	2004 – 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Australian sardine	DEPM (2004)				DEPM					
Blue mackerel east					DEPM					
Blue mackerel west	DEPM (2005)									DEPM
Jack mackerel east					DEPM					
Jack mackerel west					A		DEPM			
Redbait east	DEPM (2005; 2006)								DEPM	
Redbait west						A		DEPM		

Source: AFMA, 'Schedule of daily egg production (DEPM) surveys for SPF quota species and Small Pelagic Fishery research projects (tabled by AFMA on 1 November 2016).

Note: 'A' indicates Atlantis modelling, which is discussed at paragraphs 3.23 and 3.25.

Localised depletion

3.28 Although the previous section has indicated that there are fundamental concerns about overfishing generally and the SPF being accessed for commercial fishing activity at all, much of the stakeholder concern about factory freezer trawlers operating in the SPF is based on the risk of localised depletion.

3.29 Before outlining the evidence received about localised depletion, it is useful to consider what is meant by the term. Some debate about its meaning is evident. Dr Jeremy Lyle, a senior research scientist at IMAS, advised that 'it is very difficult to actually measure and attribute causality to it'. He explained:

> …if a school of fish moves out of the area, is that localised depletion? These are dynamic systems and fish are pelagic; they are actually mobile.[29]

3.30 Professor Caleb Gardner, also from IMAS, noted that 'when talking about localised depletion, people can mean on any one day if you go out fishing'. He commented that the meaning of the term can differ between the scientific community and other stakeholders, such as recreational fishers:

> As a recreational fisher, if you want to go to an area where a boat has been the day before, then on a personal level you can feel that that is localised depletion.[30]

29 Dr Jeremy Lyle, Senior Research Scientist, IMAS, *Committee Hansard*, 15 April 2016, p. 46.

3.31 This difference was effectively acknowledged by Mr Mark Nikolai, Chief Executive Officer, Tasmanian Association for Recreational Fishing. In his evidence to the committee, Mr Nikolai presented the recreational fishing argument as follows:

> I have heard all the arguments presented by various parties—for example, 'If you go and catch one fish, there is a degree of localised depletion.' From a recreational fishing perspective, where there is a marked impact on the fish species that you are targeting in a particular area then that is localised depletion. I have seen others try to come up with different definitions and, as is always the case when you try to define something, there is not any universal acceptance about what localised depletion is, but I can tell you that from a recreational fishing perspective it is really clear.[31]

3.32 Localised depletion was considered in detail by the Expert Panel on a Declared Commercial Fishing Activity, which was established in February 2013 in response to the *Margiris* and the uncertainties surrounding the use of large mid-water trawl freezer vessels in the SPF. The interpretation of localised depletion adopted by the Panel was 'a spatial and temporal reduction in the abundance of a targeted fish species that results from fishing'. The Panel observed that there are many interpretations of localised depletion, and noted that the term 'has been used in the context of the debate about the introduction of a large mid-water trawl freezer vessel into the…SPF in ways that may confuse localised depletion, as defined by the panel, with overall stock depletion or with overfishing'.[32]

Concerns about the risk of localised depletion

3.33 The risk of localised depletion occurring in the SPF is noted in the harvest strategy for the fishery. The relevant extract is below:

> …there is potential for localised depletion should a persistent reduction in fish abundance in a limited area, caused by fishing activity, over spatial and temporal scales that causes a negative impact on predatory species and/or other fisheries occur.[33]

3.34 Several stakeholders involved in this inquiry expressed concerns about the potential for localised depletion as a result the activities of the *Geelong Star*. These stakeholders questioned the scientific knowledge about the ecosystem impacts of fishing in the SPF. Mr Jonathan Bryan, Marine Spokesperson, Tasmanian

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30 Professor Caleb Gardner, Fisheries Scientist, IMAS *Committee Hansard*, 15 April 2016, p. 46.

31 Mr Mark Nikolai, Chief Executive Officer, Tasmanian Association for Recreational Fishing (TARFish), *Committee Hansard*, 15 April 2016, pp. 51–52

32 M Lack, P Harrison, S Goldworthy and C Bulman, *Report of the Expert Panel on a Declared Commercial Fishing Activity: Final (Small Pelagic Fishery) Declaration 2012*, October 2014, p. 169.

33 AFMA, *Small Pelagic Fishery Harvest Strategy*, April 2015, www.afma.gov.au/wp-content/uploads/2014/11/SPF-Harvest-Strategy-20152.pdf (accessed 25 July 2016), p. 2.

Conservation Trust stated that the 'issue of localised depletion is key to this fishery'. Notwithstanding his evidence regarding the fish stocks and the stock assessments used to determine quotas discussed above, Mr Bryan stated:

> …let us for the sake of argument assume that there are lots of fish out there, the key is, what is happening at local areas. AFMA has no mechanism in place to identify localised depletion. It has no modelling to guarantee that localised depletion will not occur. The CSIRO modelling which is used to justify a lot of the fisheries management decisions does not operate at a scale which can inform us about localised depletion. That is a very serious problem.[34]

3.35 As the *Geelong Star* has been operating for a relatively short period, instances of poor fishing experiences in the SPF in past seasons were drawn to the committee's attention. Mr Bryan referred to a 2004 annual fishing competition operating by a game fishing club with 50 years' of records and the *Ellidi*, which was the boat operated by Seafish Tasmania until 2009. Although Mr Bryan acknowledged that the figures are 'pretty rubbery', nonetheless he considers there is a 'concerning correlation' between the operation of the *Ellidi* and the decline in catches during the competition. Mr Bryan concluded:

> It is not as though we have small pelagic fisheries which are operating with no apparent issues. There are correlations with disturbing events. We have the disappearance of surface schools of jack mackerel in the late eighties. We have the disappearance of the redbait. We have the disappearance of game fish available to a tuna competition. So these are issues.[35]

3.36 Seafish Tasmania argued that concerns about local depletion from the use of a freezer trawler have 'been found to have no basis by leading Australian fisheries scientists from CSIRO…IMAS and the South Australian Research and Development Institute'.[36] Seafish Tasmania contended that the use of smaller boats would have a greater potential for localised depletion of target species. It suggested that, because of the 'oily nature of the SPF species and their rapid spoilage', the use of refrigerated storage on smaller boats would result in the 'concentration of fishing activities on near

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34 Mr Jonathan Bryan, TCT, *Committee Hansard*, 15 April 2016, p. 20. The Trust's submission also commented on localised depletion; it stated: 'Gaps in existing scientific knowledge make it impossible for localised impacts of fishing to be managed to protect other species, particularly central place foragers. Modelling used to assess the impacts of the SPF does not operate at a scale that allows it to address concerns about localised depletion, and does not take into account climate change or population changes in alternate food species such as lanternfish.
The argument is made that even if SPF species are reduced, lanternfish will be an alternate food source, so we don't have to worry. There is no suggestion that lanternfish populations will be monitored to ensure that the alternative remains available'. TCT, *Submission 143*, p. 3.

35 Mr Jonathan Bryan, TCT, *Committee Hansard*, 15 April 2016, p. 23.

36 Seafish Tasmania, *Submission 22*, p. 4.

port fishing grounds increasing the risk of local depletion…[and] disruptions to fish supplies when fish move away from local fishing grounds'.[37]

3.37 Seafish Tasmania further noted the Expert Panel's observation that a factory freezer trawler would, as a result of economic pressure from declining short term catch rates in a particular location, move away 'to other fishing grounds to seek higher catch rates rather than simply sticking to the original area'. Seafish Tasmania commented:

> This suggestion is borne out in practice in the operations of the *Geelong Star* that has fished a number of geographically distinct areas between April and November. Catches have been widely spread out, with catches having been taken in 5 of the 7 sub-zones of the fishery, reducing the already remote prospect of local depletions.[38]

3.38 Professor Caleb Gardner from IMAS advised that, for the SPF, 'the evidence of an impact of localised depletion is very thin'. Accordingly, IMAS has studied other small pelagic fisheries globally where 'localised depletion is or is not a concern'. Professor Gardner highlighted the Australian sardine fishery, which he explained is one of the 'best examples' of a fishery managed without evidence of localised depletion. Professor Gardner stated:

> There are 30,000 tonnes in that fishery harvested from a very tiny area. There is very good scientific research there about the trophic interactions and localised depletion—and no evidence of found. It is a big deal for that fishery because Australian sea lions are in the vicinity, a protected species which has got some real problems, and, quite reasonably, there has been a lot of effort put in there and, despite that high level of scientific research, no evidence of localised depletion found.[39]

3.39 The CSIRO submitted that 'uncertainty remains over localised depletion' as 'no documented evidence exists for localised depletion for small pelagic fishes'.[40] It elaborated on this evidence as follows:

> While individual characteristics should not be ignored, the type of fishing vessel does not automatically dictate that there will be deleterious (or otherwise) stock impacts. There is no available information indicating that a single large vessel, under the current management rules, inherently puts more pressure on the target fish stocks (or the broader ecosystem) than a fleet of smaller vessels that cumulatively have the same fishing power (or obtains the same catch). There are many mechanisms whereby the activity of many small vessels may increase exposure for target species and ecosystems due to having a larger spatial footprint than a single large vessel. However, no study comparing the overall performance of a single

37 Seafish Tasmania, *Submission 12*, p. 4.

38 Seafish Tasmania, *Submission 12*, p. 5.

39 Professor Caleb Gardner, IMAS, *Committee Hansard*, 15 April 2016, p. 45.

40 CSIRO, *Submission 23*, p. 5.

> large vessel versus many small vessels has been completed and a definitive statement on this aspect of the issue is not possible.[41]

Response to localised depletion concerns and management techniques used to minimise the risk of localised depletion

3.40 In its submission, AFMA noted that '[m]ost commercial and recreational fishing can cause some form of localised depletion', although it considers 'the risk is lower for mobile species with conservative catch limits and spatial management as in the SPF'.[42]

3.41 An overall framework for assessing localised depletion was outlined by Dr Simon Nicol from ABARES. Dr Nicol emphasised that local depletion concerns need to be assessed over time. He explained:

> If localised depletion exists and it persists for a longer time frame, then we would start to see stock structure—so, within the genetics and the structuring of the populations, you would start to see differences. That is an indicator that the animals are not moving back into areas that have been harvested. To date, there is not a lot of information to suggest that there is complex stock structuring in the small pelagic fisheries. There is some evidence to suggest some broad scale structuring, but not at the level of being off the localised scale.[43]

3.42 Dr Nicol continued:

> …if it is not persistently occurring, it is a matter of: if I have a boat come in and take a proportion of fish then I know in that particular area there are going to be fewer fish. It is no different to you taking a shovel to your garden and digging a bit of dirt out. There will be a hole, but eventually wind and erosion will fill it back in again. As I say, it is about the time frame that happens in.[44]

3.43 Dr Nicol added that AFMA's management approach seeks to avoid the circumstances where the localised depletion outlined at paragraph 3.42 might occur.[45] As AFMA explained, to manage any localised depletion risk AFMA 'has in place both fine-scale and broader spatial catch limits'.[46] IMAS noted that specific measures taken

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41 CSIRO, *Submission 23*, p. 8.

42 AFMA, *Submission 18*, p. 5.

43 Dr Simon Nicel, Director, Domestic Fisheries and Marine Environments, Fisheries, Forestry and Quantitative Sciences, Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), Department of Agriculture and Water Resources, *Committee Hansard*, 1 November 2016, p. 6.

44 Dr Simon Nicel, ABARES, Department of Agriculture and Water Resources, *Committee Hansard*, 1 November 2016, p. 6.

45 Dr Simon Nicel, ABARES, Department of Agriculture and Water Resources, *Committee Hansard*, 1 November 2016, p. 6.

46 AFMA, *Submission 18*, p. 5.

include restrictions on 'the size of catches that can be taken from limited areas (grids) over specific timeframes'. Under this system, catches in any of the SPF's 120 catch grid cells 'must not exceed 2000 tonnes within a 30 day period'.[47]

3.44 Dr Jeremy Lyle from IMAS noted that the closure of certain areas of the fishery is another management tool used to reduce the potential for localised depletion. In particular, he advised that the closures, particularly in South Australia and Western Australia, attempt to 'reduce the impacts on the central place foragers—those animals that are dependent on the small pelagics but are not able to range over wide areas'.[48]

3.45 The science on localised depletion of small pelagic species was also examined.[49] In relation to the potential for localised depletion outlined in the gardening analogy he provided (see paragraph 3.42), Dr Nicol acknowledged that 'the level of scientific assessment on that fine-scale effect has been very minimal globally', which prevents 'a definitive answer as to whether it occurs or whether it does not'.[50] AFMA's Chief Executive Officer, Dr Findlay, added that although AFMA considers the risk of localised depletion in the SPF is low, 'given the importance of small pelagic fish in the marine ecosystem, AFMA is working closely with scientists in efforts to identify any localised depletion that may be occurring in the SPF'. Dr Findlay advised that at the end of the 2016–17 fishing season, the SPF scientific panel 'is scheduled to review all the available data…looking for any evidence of localised depletion'.[51]

3.46 One of the issues that submitters highlighted in the context of localised depletion was the large area of the SPF that was closed to mid-water trawl. It was argued that the closure of areas in the SPF places heightened pressure on fish stocks in the areas that the *Geelong Star* is permitted to operate in, potentially enabling localised depletion in those areas. On this issue, various submitters advised that, in December 2015, AFMA provided stakeholders with a map indicating a significant area of the east zone of the SPF is closed to the mid-water trawl method of fishing (Figure 3.1).[52]

47 IMAS, *Submission 19*, p. 6.

48 Dr Jeremy Lyle, IMAS, *Committee Hansard*, 15 April 2016, p. 46.

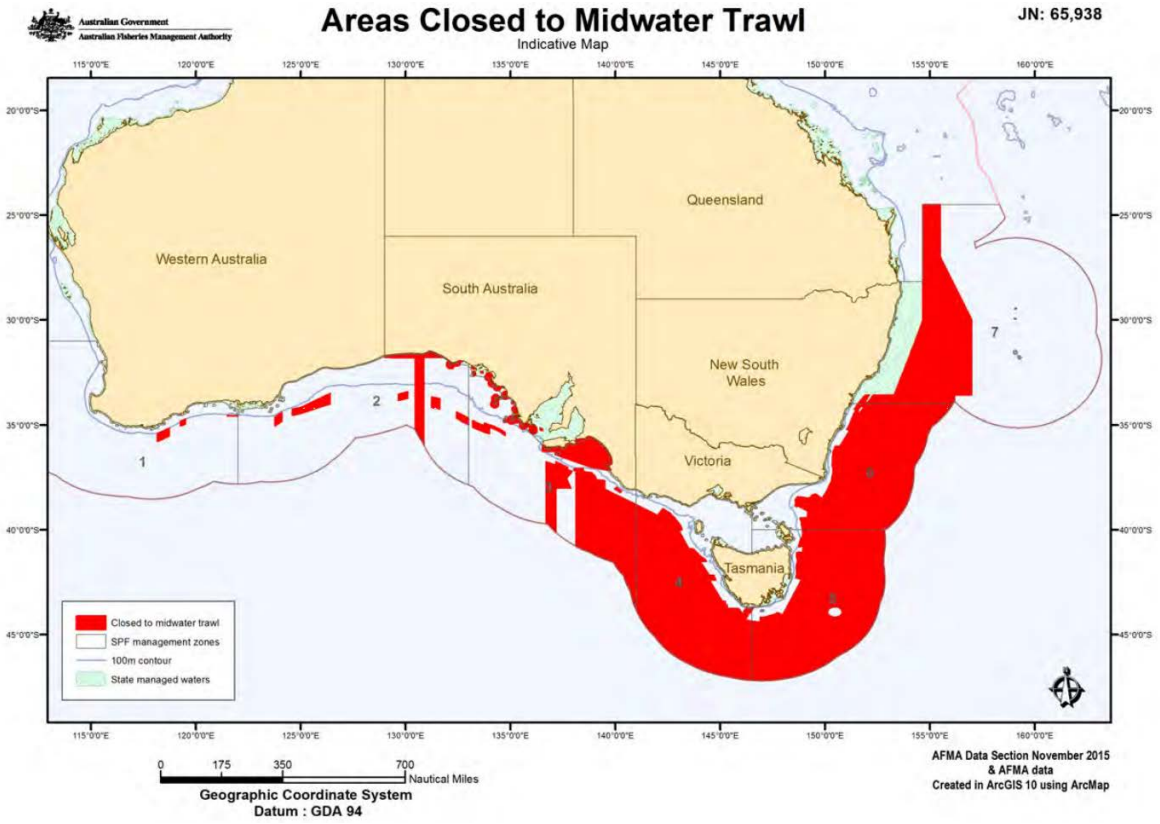
49 This is also discussed in Chapter 5.

50 Dr Simon Nicel, Director, Domestic Fisheries and Marine Environments, Fisheries, Forestry and Quantitative Sciences, Australian Bureau of Agricultural and Resource Economics and Sciences, Department of Agriculture and Water Resources, *Committee Hansard*, 1 November 2016, p. 6.

51 Dr James Findlay, AFMA, *Committee Hansard*, 1 November 2016, p. 11.

52 Australian Recreational Fishing Foundation (ARFF), *Submission 134*, p. 19; ANSA, *Submission 127*, pp. 10–11; TARFish, *Submission 128*, pp. 3–4.

Figure 3.1: Areas in the SPF closed to midwater trawl, November 2015



Source: AFMA; provided in ARFF, *Submission 134*, p. 8.

3.47 The Australian Recreational Fishing Foundation (ARFF) argued that, if the *Geelong Star* is to obtain its quota, the east zone of the SPF 'is now facing a heightened risk of localised depletion because of the increased intensity of fishing created by the closures and other factors that discount the fishable area'.[53] In addition, the ARFF suggested that the allowable fishable areas could be even smaller than the map indicates. It submitted:

> We understand that a proportion of the coastal area of Zone 7 is under the jurisdiction of the NSW Government and the vessel owners would require a permit to fish an 80 nautical mile wide coastal strip, running north of Sydney to the NSW border. The Vessel owners have also indicated they will not fish management area 7 this fishing season to the end of April 2016.[54]

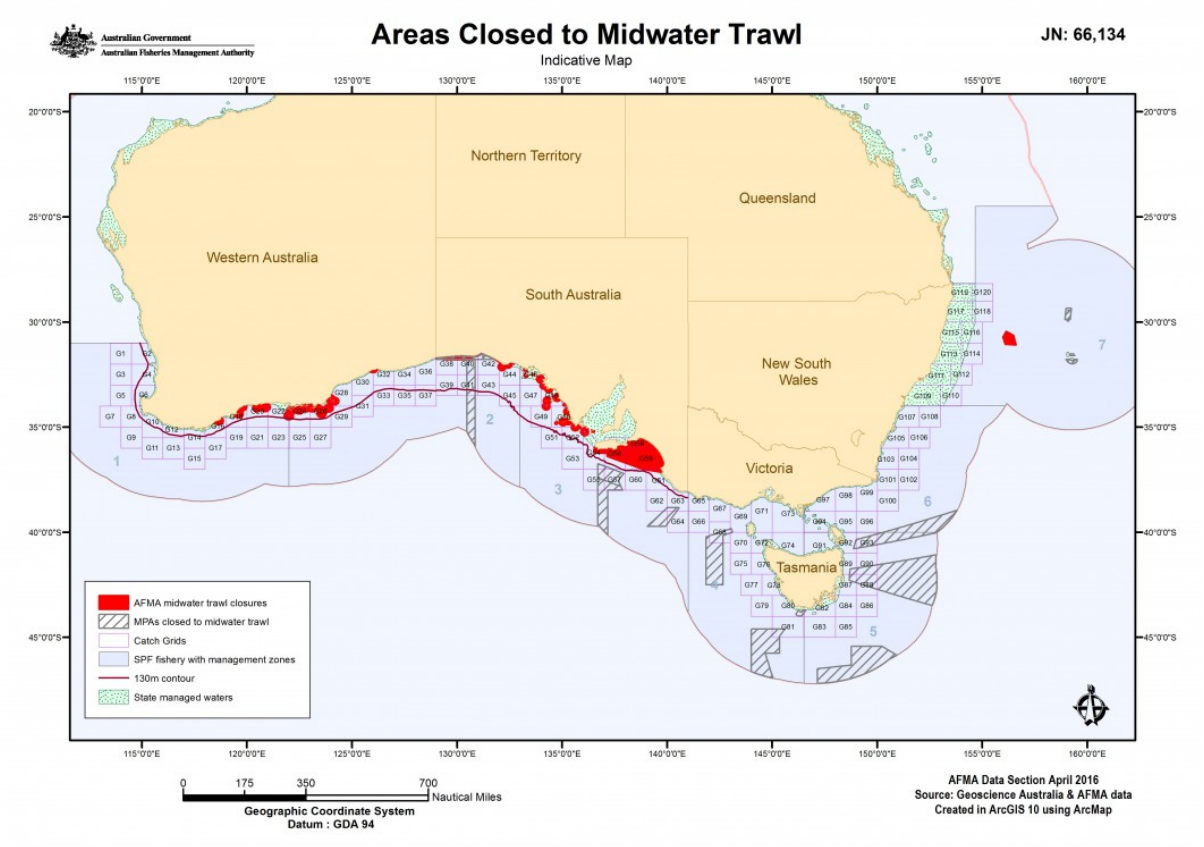
3.48 Since the map was provided to stakeholders, however, AFMA opened more of the SPF to mid-water trawling. On 20 April 2016, AFMA announced that over one million square kilometres of additional offshore waters near southern and eastern Australia will open to mid-water trawling in the SPF, which has the effect of allowing

53 ARFF, *Submission 134*, p. 11.

54 ARFF, *Submission 134*, pp. 5–6.

the *Geelong Star* to catch its fishing quota in a greater area.[55] A map indicating the effect of the reduced closures is at Figure 3.2.

Figure 3.2: Areas in the SPF closed to mid-water trawl, 1 May 2016



Source: AFMA, 'Small Pelagic Fishery', www.afma.gov.au/fisheries/small-pelagic-fishery (accessed 1 September 2016).

3.49 Further changes are also possible. The IMAS scientists who gave evidence to the committee noted that the fishery is in a 'development stage'; however, Dr Lyle noted that as the fishery has operated for at least one season, data are becoming available that assists 'to try to understand how…[the fishery] is operating'. As a result, in April 2016 the committee was advised that changes 'are being proposed to the vessel management plan to try to reflect the reality of a fishing operation of this scale'.[56] Professor Caleb Gardner noted that the vessel management plan would also likely be amended to respond to developments in where the *Geelong Star* fishes. He explained:

> The scientific panel has defined what we believe is localised depletion and we have tried to build a response to that into the vessel management plan, and so there are move-on provisions. But that is an evolving process and, like the way a lot of these fishery things happen, you put a plan in place and

55 AFMA, 'More offshore waters opening in Small Pelagic Fishery', *Media Release*, 20 April 2016.

56 Dr Jeremy Lyle, IMAS, *Committee Hansard*, 15 April 2016, p. 46.

> the fishery has developed perhaps differently to what we expected. One example of that is there has been more fishing off New South Wales than we would have anticipated. So I think there will be tweaking—our advice will likely be that we need tweaking—of those rules to change the way that the vessels should be moved on.[57]

Bycatch of non-quota species

3.50 Some submissions expressed concern about the potential for bycatch of non-target species, such as marlin, shark and tuna, which the ARFF explained 'interact with SPF schools and are likely to have a high probability of interacting with the *Geelong Star*'. The ARFF submitted it understands that non-quota species caught by the *Geelong Star* are recorded in a logbook and discarded. As the logbook information is not publicly available, the ARFF observed that it is 'impossible to determine the potential impact of the *Geelong Star*'s activities on key recreational species that are non-target species'. The ARFF added that, in areas known for these high value species, 'it could be that the *Geelong Star* is catching, killing and discarding species that potentially exceed the value of the small pelagic fish it is catching for sale'.[58]

3.51 The submission from the Environment and Planning Law Committee and the International Law Committee of NSW Young Lawyers noted that neither the *Commonwealth Fisheries Harvest Strategy Policy* (2007) nor the *Commonwealth Policy on Fisheries Bycatch* (2000) address the issue of 'super trawlers'. The submission argued that '[t]he capacity of supertrawlers and the absence of mechanisms to monitor and review bycatch poses a significant threat to marine biodiversity'.[59] The submission recommended that:

> …these issues be specifically addressed in an updated Bycatch Policy and other domestic strategies relating to marine biodiversity to incorporate stringent observation and monitoring measures. As it stands, the current Bycatch Policy does not have all the strategies of monitoring requirements, data inputs and assessments, review and feedback mechanisms.[60]

3.52 As IMAS observed, bycatch is 'a feature of virtually all commercial and recreational fisheries'.[61] In relation to the use of the mid-water trawling method in the SPF, the CSIRO submitted:

> …there is a very low risk of damage to bottom habitats due to fishing activities in the SPF. However, this kind of fishing gear does present higher risk of interactions with species such as seals, seabirds, and non-target fish. The ways in which fish interact with gear, such as gillnets or trawl gear,

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57 Professor Caleb Gardner, IMAS, *Committee Hansard*, 15 April 2016, p. 46.

58 ARFF, *Submission 134*, pp. 13–14.

59 NSW Young Lawyers, *Submission 25*, p. [9].

60 NSW Young Lawyers, *Submission 25*, p. [9].

61 IMAS, *Submission 19*, p. 8.

> means that multiple species will potentially be captured and it can be difficult to exclude all but the specific species of interest. For example, seals, seabirds and toothed whales are known to target fish caught in fishing gear, and in some instances these animals become entangled and drown.[62]

3.53 The FRDC explained that many factors affect the risk of bycatch, including the 'size of vessel, type of gear used, time of day, season and area of operation'.[63]

3.54 In its November 2015 submission, Seafish Tasmania advised that during the seven months of fishing operations that had been conducted to date, the level of fish bycatch was less than one per cent of total catch.[64] In April 2016, the figure for non-target species bycatch was 0.62 per cent.[65]

3.55 At the committee's November 2016 public hearing, AFMA's Chief Executive Officer provided the following assessment of the amount of game fish bycatch taken by *Geelong Star*:

> Data from the first 18 months of its operations confirms that the *Geelong Star* has not had any significant catch of game fish species targeted by recreational fishers. While these species occur in close association with small pelagic fish, bycatch of game fish during Small Pelagic Fishery operations is very low. This discredits claims by some that these vessels, such as *Geelong Star*, essentially act as vacuum cleaners of the sea, catching everything in their path indiscriminately or unselectively. While there is limited data on which to assess the performance of recreational fisheries, anecdotal reports suggest that 2015–16 was one of the best marlin seasons on the New South Wales South Coast in recent memory, despite the fact that *Geelong Star* spent a lot of time fishing there.[66]

3.56 The Department of Agriculture and Water Resources advised that it is updating the *Commonwealth Policy on Fisheries Bycatch*. The department noted that the review aims 'to ensure the management of our marine environment continues to reflect best international practice, including for the minimisation of marine mammal interactions and mortalities'.[67]

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62 CSIRO, *Submission 23*, p. 10.

63 FRDC, *Submission 20*, p. 4.

64 Seafish Tasmania, *Submission 22*, p. 6.

65 Mr Peter Simunovich, Director, Seafish Tasmania; and Member, SPFIA, *Committee Hansard*, 15 April 2016, p. 10.

66 Dr James Findlay, Chief Executive Officer, AFMA, *Committee Hansard*, 1 November 2016, p. 11.

67 Department of Agriculture and Water Resources, *Submission 12*, p. 14.

Interactions with protected species

3.57 Part 13 of the EPBC Act includes provisions to protect and manage threatened species and ecological communities,[68] migratory species and marine species.[69] The potential for interactions[70] between the *Geelong Star* and species protected under the EPBC Act, such as Australian fur seals, dolphins and seabirds, attracted significant attention in submissions.

3.58 The CSIRO advised the committee that, in general, interactions are 'rare', although it added that they 'could potentially be significant for species whose populations are critically low'.[71] Regarding marine mammals, for example, the CSIRO submitted:

> While the Australian sea lion is potentially the most at risk, due to its small and declining population size, they are not highly dependent on small pelagic species and spatially are unlikely to interact with the fishery. The more abundant (and rapidly recovering) fur seals do encounter fishing vessels in the SPF. An interest in the same prey and a high degree of spatial overlap with the activity regions of fishing vessels means that it is likely that incidences of fisheries interactions with fur seals will continue as these populations increase in number. There is no evidence that interactions are greater for one large vessel compared to a fleet of smaller ones.[72]

3.59 In the calendar year before the *Geelong Star* arrived (2014), no interactions with protected species were recorded for the SPF. In the first quarter the *Geelong Star* operated in the SPF (1 April to 30 June 2015), 26 protected species were killed.[73]

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68 Threatened species are categorised as follows: divided into the following categories: (a) extinct; (b) extinct in the wild; (c) critically endangered; (d) endangered; (e) vulnerable; and (f) conservation dependent. EPBC Act, s. 178(1).

69 It is an offence to undertake an activity in a Commonwealth area that results in the death, injury, trading, taking, keeping or moving of a species listed under the EPBC Act. Certain actions are not offences, however, including an action provided for by, and taken in accordance with, a plan or regime that is accredited under section 265 of the EPBC Act, which includes management plans under the *Fisheries Management Act 1991*. See, EPBC Act, Part 13. See also Chapter 2, paragraph 2.21.

70 'Interaction' is defined in the September 2015 version of the vessel management plan for the *Geelong Star* as 'any physical contact an individual has with a protected species. This includes all catching (hooked, netted, entangled) and collisions with an individual of these species'. AFMA, *Submission 18*, Attachment 5, p. 4.

71 CSIRO, *Submission 23*, p. 10.

72 CSIRO, *Submission 23*, pp. 10–11.

73 AFMA, *Protected species interactions reported in Commonwealth Fishery logbooks for the period 1 April to 30 June 2015: Final report*, www.afma.gov.au/wp-content/uploads/2014/12/Quarter-2-2015-final-report.pdf (accessed 21 October 2016), p. 4.

The 51 reported interactions that occurred during the 2015 calendar year included 40 mortalities.[74]

3.60 The most up-to-date figures available to the committee on interactions between the *Geelong Star* and protected species were provided by AFMA in September 2016. These data are presented in Table 3.2.

Table 3.2: Protected species mortalities and other interactions involving the FV Geelong Star since it commenced operations in the SPF, as at 27 September 2016

Species/group	*Wildlife logbook identification*	*Dead*	*Alive*
Dolphin	Common dolphin	9	
Albatross	Shy albatross, 'albatrosses'	11	
Seal	Australian Fur Seals, New Zealand Fur seals, and 'Seals'	47	2
Shortfin mako		16	14
Whale shark			1
Total		83	17

Source: AFMA, *Submission 170*, p. 1.

3.61 In its November 2015 submission, Seafish Tasmania provided figures and comments on the interactions the *Geelong Star* has had with protected species. Although this information is now dated, it provides some insight into the company's perspective on protected species interactions and mitigation techniques:

- Dolphins—between the commencement of fishing operations and November 2015, three incidents involved the incidental capture of nine dolphins in total. However, since AFMA closed 'a large area off NSW and extending south to Flinders Island for a period of 6 months from 17 June 2015' in response to these interactions, the *Geelong Star* 'has made more than 100 trawls without further dolphin interactions, reflecting the success of major mitigation efforts being undertaken'.[75]
- Australian fur seals—the first three trips up to mid-June 2015 resulted in 12 mortalities. Between that time and the date of the submission, two mortalities were recorded.[76]
- Shy albatrosses—two mortalities occurred during the first three trips.
- Shortfin mako sharks—the submission refers to 'incidental captures' of this listed migratory species.[77]

74 ABARES, *Fishery status reports 2016*, September 2016, p. 113.

75 Seafish Tasmania, *Submission 22*, p. 8.

76 Seafish Tasmania, *Submission 22*, p. 8.

77 Seafish Tasmania, *Submission 22*, p. 8.

3.62 The February 2016 interaction between the *Geelong Star* and a whale shark attracted significant attention in submissions and correspondence to the committee. Whale sharks are listed as both a vulnerable species and a migratory marine species for the purposes of Part 13 of the EPBC Act.[78] The incident occurred on 11 February 2016 when a whale shark ran into the outside of the vessel's net and two of its fins became caught. According to AFMA, the whale shark spent an estimated 3 minutes, 35 seconds out of the water while, with the use of a crane, it was brought onto the boat. AFMA has stated that, after the whale shark was freed and released into the water, the whale shark swam away without difficulty.[79]

Criticism of the approach taken to minimising interactions with protected species

3.63 Submitters expressed concern about the number of protected species mortalities associated with the *Geelong Star* and the measures taken to reduce the potential for these mortalities. For example, the Tasmanian Conservation Trust submitted:

> Protected marine species such as seals and dolphins are attracted to the same fish aggregations that super trawlers target. There is a very high risk of interactions between marine mammals, in particular, and vessels such as *Geelong Star*. AFMA has repeatedly ignored warnings that its strategies to protect marine mammals were and are inadequate and untested, and that large factory freezer trawlers would kill dolphins and seals. As a result at least nine dolphins and twelve seals died on the first three trips made by the *Geelong Star*. This is a very high level of impact compared to other Australian fisheries and is unacceptable to the Australian public.[80]

3.64 Environment Tasmania argued that 'many of the outstanding concerns' expressed by the Expert Panel's report following the *Margiris* 'were not addressed before the *Geelong Star* started fishing in the SPF, and as a result nine dolphins and twelve seals were killed in the first three fishing trips'. Environment Tasmania added that the issues 'have still not been addressed'.[81]

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78 AFMA, Answers to questions on notice, 1 November 2016, p. 4.

79 AFMA, 'Whale shark interaction with Geelong Star', *Media Release*, 19 February 2016, www.afma.gov.au/whale-shark-interaction-geelong-star (accessed 22 February 2016); 'Whale shark interaction – video footage consistent with observer report', *Media Release*, 24 February 2016, www.afma.gov.au/whale-shark-interaction-video-footage-consistent-observer-report (accessed 18 July 2016); 'Whale shark interaction – observer report', *Media Release*, www.afma.gov.au/whale-shark-interaction-observer-report (accessed 18 July 2016).

80 TCT, *Submission 143*, pp. 3–4.

81 Environment Tasmania, *Submission 145*, p. 3. Many of Environment Tasmania's arguments were repeated in the submission from Conservation Council SA (*Submission 148*).

3.65 The interaction of the *Geelong Star* with a whale shark in February 2016 was also noted. Environment Tasmania stated:

> A highly protected whale shark has recently been caught by the super trawler *Geelong Star*, however there has been no report from AFMA or the operators of the vessel on how this occurred, what exactly happened, and how it will be avoided in future. Whale sharks are of course the largest fish in the sea and as far as we can be sure, have never been caught by a fishing vessel in Australia before.[82]

3.66 Submissions criticised the approach taken by AFMA to mitigate interactions with protected species, particularly with respect to observer coverage and underwater monitoring. Environment Tasmania noted that the Expert Panel recommended 100 per cent observer coverage for large freezer factory trawler fishing operations in the SPF.[83] The vessel management plan in place in 2015 for the *Geelong Star*, however, required an AFMA observer to be on board for the first ten fishing trips (or the first 12 months, whichever is longest), and 'as directed by AFMA thereafter'.[84]

3.67 In relation to underwater monitoring, Environment Tasmania submitted:

> The Expert Panel emphasized the necessity of using underwater video monitoring to ensure seal and dolphin drop-outs are observed. Drop-outs are a significant issues in other trawl fisheries, and result in under-reporting of species killed during fishing activity.
>
> There is no requirement for underwater monitoring of nets and excluder devices to ensure that they are working and that dead and injured animals are disappearing before they are brought aboard where they can be seen. There should be 100% underwater video coverage, until it can be demonstrated that there are no ongoing problems.[85]

3.68 Furthermore, Environment Tasmania argued that the methods to mitigate interactions with protected species are not effective. According to Environment Tasmania, the devices used in fishing nets have not been demonstrated 'to be consistently effective at mitigating dolphin bycatch in trawl fisheries'. In relation to seals, it added:

> We understand there have been seal deaths when the barrier net has been in operation, indicating it's not an effective bycatch mitigation option. There is also no evidence to suggest that they will work in the future—particular[ly] given that even less/no testing of the barrier net aimed at by catch reduction appears to have occurred before its implementation in fishing activity.[86]

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82 Environment Tasmania, *Submission 145*, p. 3.

83 Environment Tasmania, *Submission 145*, p. 3.

84 AFMA, *Submission 18*, Attachment 5, p. 5.

85 Environment Tasmania, *Submission 145*, p. 3.

86 Environment Tasmania, *Submission 145*, p. 4.

3.69 A similar concern was expressed by Mr Jonathan Bryan, who argued there 'is a failure of anyone to test and validate the…seal excluder device or the barrier net'. He added:

> We do not know whether they work or whether they are simply dumping dead animals into sea before they can be brought aboard. There is no underwater video-monitoring requirement for these excluder devices, so we do not have any guarantee that the fishing gear is not killing animals and just dumping them before they can be seen.[87]

3.70 Environment Tasmania also submitted that albatross mortalities, including seven that occurred during one fishing trip at the beginning of 2016, occurred 'as a result of the use of a sonde cable'. Environment Tasmania submitted that the use of sonde cable 'has long been prohibited under the Commission for Conservation of Antarctic Living Marine Resources…[which is] observed by countries under the convention such as Russia, and by domestic bans such as in New Zealand'.[88]

3.71 The September 2015 decision to remove the night-fishing ban imposed in May 2015 following several seal and dolphin mortalities was also questioned. Environment Tasmania submitted that the ban was lifted 'on the premise that the vessel cannot profitably target one of its target species under the existing conditions'. However, it argued that:

> Allowing night fishing will make it practically impossible for the *Geelong Star* to avoid these animals when setting gear, and will make the deaths of many more dolphins and seals inevitable. This suggests that AFMA is putting the profits of a company ahead of the protection of our marine environment, which is not in line with their regulatory objectives.[89]

3.72 Furthermore, the Tasmanian Conservation Trust asserted that AFMA's management of these deaths 'is suspect' as 'there is no requirement for photos or tissues samples of dead marine mammals that would allow positive identifications of dolphin or seal species to occur'.[90]

3.73 Industry stakeholders also objected to AFMA's decisions taken in response to protected species interactions. Seafish Tasmania submitted that the trigger of a management zone closure for six months following a dolphin mortality 'is harsh'. It submitted:

> Other AFMA managed fisheries that also experience incidental bycatches of dolphins are not subject to these harsh conditions. This Closure Direction

87 Mr Jonathan Bryan, TCT, *Committee Hansard*, 15 April 2016, p. 20. See also TCT, *Submission 143*, p. 4.

88 Environment Tasmania provided a detailed overview of sonde cable and the concerns associated with its use. See Environment Tasmania, *Submission 145*, pp. 4–5.

89 Environment Tasmania, *Submission 145*, p. 4.

90 TCT, *Submission 143*, p. 4.

> should be based on science. That is, the trigger number of dolphin mortalities should be set based on an assessment of a safe level of incidental catch relative to the size of the dolphin population.
>
> The practical effect of this Direction is to stifle testing of new or modified mitigation devices because of concern that if they do not work perfectly on the first occasion and a single dolphin dies then the outcome is a large area closure that will have a large negative economic impact on the company.[91]

Responses to concerns about protected species interactions

3.74 In its submission, AFMA provided further detail about the species protected under the EPBC Act and its approach to minimising protected species interactions. AFMA noted that all native marine reptiles, birds and mammals are protected, including species that that 'are not of conservation concern', such as Australian fur seals and common dolphins. AFMA explained that it gives priority to higher conservation categories (vulnerable, endangered, or critically endangered), such as Australian sea lions, sea turtles and shy albatross, in working to minimise interactions with protected species 'while enabling sustainable commercial fishing to take place'.[92]

3.75 AFMA submitted that the *Geelong Star* 'has some of the most up to date and innovative protected species mitigation equipment, and strict mitigation requirements of any fishing boat operating in the Australian fishing zone'.[93] AFMA submitted that it:

> …drew on the best advice available from marine mammal experts and a Fisheries Research and Development Corporation workshop held to identify, among other things, any additional measures that could be adopted to protect marine mammals. The measures adopted in the SPF are among the most stringent in Australia and overseas and have led to interaction rates being significantly below a number of other fisheries that have marine mammal bycatch.[94]

3.76 In addition to the AFMA observer required by the vessel management plan (VMP), Dr Findlay advised that a second officer had been deployed to the vessel 'to specifically to look at the bycatch arrangements and to deal quickly with any further additional bycatch measures that need to be taken at sea'. The second officer, was removed following a decision by AFMA that bycatch issues had stabilised.

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91 Seafish Tasmania, *Submission 22*, p. 15.

92 AFMA, *Submission 18*, p. 3.

93 As noted in Chapter 2, the vessel management plan 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'. AFMA, *Submission 18*, p. 4.

94 AFMA, Response to *Submission 143*, Attachment A, p. 2.

Dr Findlay emphasised, however, that 24/7 monitoring of the *Geelong Star* continues through the camera system, which is supplemented by the AFMA observer on board.[95]

3.77 In evidence taken during Senate estimates in February 2016, AFMA responded to concerns about the use of a sonde cable. Dr Findlay, AFMA's Chief Executive Officer, explained that bottom or demersal trawlers have less of a need for netsonde cables than midwater trawlers. Dr Findlay explained:

> …the netsonde cable attaches real-time information back to the vessel—acoustic information about the geometry of the net, and in particular how close it is to the bottom. For midwater trawlers, including vessels like the *Geelong Star*, netsonde information is very valuable to minimise the risk of contact to the bottom. It also gives them information about how much fish is in the net. That is important in minimising wastage. Once the net becomes full, there is potential wastage outside the net…We have also found that it provides information about the proximity of dolphins and seals around the net. It is a useful piece of equipment to the vessel and to us for monitoring.[96]

3.78 Based on the evidence outlined above, Dr Findlay advised that AFMA intends to permit the use of the netsonde cable on the *Geelong Star*, but it will reassess this decision if it considers the disadvantages associated with its use outweigh the benefits.[97]

3.79 In response to concerns about bycatch mortalities not being recorded and the lack of underwater video monitoring, AFMA advised that the VMP for the *Geelong Star*:

> …requires the use of marine mammal excluder devices that retain dead or incapacitated bycatch in the net. The VMP also requires the vessel to have an underwater camera available on board and, when directed by AFMA, to use the camera to assess the efficacy of the marine mammal excluder device in excluding large animals and retaining dead or incapacitated animals.[98]

3.80 On underwear video monitoring, Dr Findlay informed the committee that underwater video on the *Geelong Star* has been used 'from time to time…to monitor the performance of bycatch mitigation devices'. Dr Findlay provided the following explanation of AFMA's approach:

> Sometimes to work out how best to modify them or otherwise use them in the most effective way you need to get that footage. That is when we have a requirement in place that obliges the vessel to go about installing those

95 Dr James Findlay, AFMA, *Committee Hansard*, 1 November 2016, p. 13.

96 Dr James Findlay, AFMA, *Senate Rural and Regional Affairs and Transport Legislation Committee Hansard*, Additional Estimates 2015–16, 9 February 2016, p. 80.

97 Dr James Findlay, AFMA, *Senate Rural and Regional Affairs and Transport Legislation Committee Hansard*, Additional Estimates 2015–16, 9 February 2016, p. 80.

98 AFMA, Response to *Submission 143*, Attachment A, p. 2.

> cameras, and we review the footage at sea to make sure that those devices are working the way they should. It is not a routine requirement because…it is not an easy thing to do.[99]

3.81 Mr Peter Simunovich, who represented Seafish Tasmania—the operator of the *Geelong Star*—acknowledged 'the fact that the vessel has interactions with marine mammals'. However, he stated that 'we are working hard with AFMA to ensure that these incidents are minimised'. Mr Simunovich further stated:

> The operators of the vessel are constantly reviewing and making the necessary changes to the net as well as the barrier and excluder devices to ensure the interactions are minimised…[T]hese reviews and changes are being conducted in close consultation with AFMA. There is no doubt the *Geelong Star* is raising the bar on marine mammal mitigation in Australia and probably worldwide.[100]

3.82 Mr Simunovich added that 'we would also respectfully ask that we are measured with the same yardstick as other commercial and recreational fisheries when it comes to marine mammal interactions'.[101] In this respect, in November 2015 AFMA provided data contrasting the rates of interactions large boats have with protected species compared to smaller boats. AFMA advised that, for Commonwealth fisheries, 'the evidence is that larger boats (> 60m length) have lower protected species interaction rates/mortalities and have a higher level of monitoring (usually 100%) than smaller boats (< 60m length)'.[102] An updated version of the data, which AFMA provided in November 2016, is at Table 3.3.

99 Dr James Findlay, AFMA, *Committee Hansard*, 1 November 2016, p. 22.

100 Mr Peter Simunovich, Director, Seafish Tasmania; and Member, SPFIA, *Committee Hansard*, 15 April 2016, p. 2.

101 *Committee Hansard*, 15 April 2016, p. 2.

102 AFMA, *Submission 18*, p. 2 (emphasis omitted).

Table 3.3: Interactions with threatened, endangered and protected species by vessels of different lengths (July 2010 to June 2016 for all Commonwealth fisheries[(1)])

Vessel length[(2)]	Total number of fishing days[(3)]	Total number of interactions[(4)]	Interactions per 1000 fishing days[(4)]	Total number of mortalities[(5)]	Mortalities per 1000 fishing days[(5)]
0–20 m	95,416 (298 vessels)	16,546 (127 vessels)	173.4	8,587	90.0
20–40 m	92,772 (152 vessels)	55,449 (117 vessels)	597.7	23,029	248.2
40–60 m	2348 (10 vessels)	82 (6 vessels)	34.9	31	13.2
60–80 m	1051 (5 vessels)	69 (4 vessels)	65.7	57	54.2
80–100 m	1145 (3 vessels)	102 (3 vessels)	89.1	85	74.2
Totals	192,732	72,248	374.9	31,789	164.9

Notes: (1) Including Heard Island and Macquarie Island Fisheries; (2) data for boats of unknown length are excluded; (3) number of unique vessels that went fishing during the period; (4) all categories of interactions, including alive, dead, injured and unknown; (5) includes dead, injured and unknown; (6) all sawfishes and silky sharks are included in data from 2015–16 following changes to their protection status.

Source: AFMA, Answers to questions on notice, 1 November 2016, p. 3.

3.83 Evidence from the operators of a factory freezer trawler in the blue grenadier fishery supports the conclusions drawn by AFMA from these data. Mr Malcolm McNeill, who represented Petuna Sealord Deepwater Fishing, told the committee that:

> Often with the bigger boats, you can put more mitigation into it, whether it is seabirds or marine mammals. So…with a larger vessel you do have an opportunity to reduce the number of interactions with wildlife.[103]

3.84 When asked about the earlier version of the AFMA data,[104] Mr Bryan from the Tasmanian Conservation Trust reiterated his concern that it is unknown 'how much damage is going unreported because we do not have underwater video monitoring of the gear'.[105] Like the Stop the Trawler Alliance, Mr Bryan also noted that the data relating to the *Geelong Star* was collected over a relatively short period and 'is hardly statistically significant'. Finally, Mr Bryan argued that:

> …the issue is that we are adding another threat to the environment, which is already under threat. We are adding a huge boat into a fishery, which will

103 Mr Malcolm McNeill, Chief Executive Officer, Petuna Sealord Deepwater Fishing, *Committee Hansard*, 15 April 2016, p. 38.

104 AFMA initially provided data on the number of interactions with threatened, endangered and protected species by vessels of different lengths for the period July 2010 to June 2015 in its submission: see AFMA, *Submission 18*, Attachment 2.

105 Mr Jonathan Bryan, TCT, *Committee Hansard*, 15 April 2016, p. 22.

> exacerbate the issues of fisheries management—the shortcomings of fisheries management in the Small Pelagic Fishery—that are occurring under AFMA's current management regime. Why add to the problems when we do not have to? Why not sort out the problems before? If industry and AFMA are so confident that this vessel is not going to cause problems with deaths of marine mammals, why not have a strategy in place to demonstrate to the public that that is actually what is going to occur?[106]

3.85 The next chapter discusses evidence received regarding the economic and social consequences from the *Geelong Star*.

106 Mr Jonathan Bryan, TCT, *Committee Hansard*, 15 April 2016, p. 22.