

DEPARTMENT OF SUSTAINABILITY, ENVIRONMENT, WATER, POPULATION AND COMMUNITIES

BRIEFING NOTE

Environmental impacts of large mid-water trawl freezer vessels in the Small Pelagic Fishery

1. INTRODUCTION OF LARGE MID-WATER TRAWL FREEZER VESSELS

1.1 There is a proposal for a large mid-water trawl freezer vessel to join the Small Pelagic Fishery. For the purposes of this briefing note, a **large mid-water trawl freezer vessel** is a vessel which uses the mid-water trawl method, and which:

- (a) is greater than 130 metres in total length;
- (b) has on-board fish processing facilities; and
- (c) has storage capacity for fish or fish products in excess of 2,000 tonnes.

In relation to the storage capacity, the Department understands that there has not been any experience in any Australian fishery with a vessel capable of storing 2,000 tonnes of biomass. Further, the Department understands that the vessel with the next largest storage capacity operating in Australian waters has a storage capacity significantly less than 2,000 tonnes.

- 1.2 The Small Pelagic Fishery extends from waters adjacent to the coast of southern Queensland down the east coast, around southern Australia and up the west coast north of Perth. The area of the Small Pelagic Fishery is described in section 3 of the *Small Pelagic Fishery Management Plan 2009*.
- 1.3 The Department understands that not all large mid-water trawl freezer vessels use the same gear and equipment. However, the Department also understands that large mid-water trawl freezer vessels can leave fish in the net at, or near, the water surface while fish are extracted from the net by a vacuum fish pump. The length of time the fish are at the surface is understood to be longer, on average, than other extraction methods used by trawl vessels.
- 1.4 Once fish are extracted from the water, the Department understands that they are processed in the on-board processing facility, after which the processed fish is frozen in blocks. The ability to process the large tonnages of fish while at sea and remain at sea for extended periods is a significant difference between large mid-water trawl freezer vessels and other smaller trawl vessels which have previously operated in the Small Pelagic Fishery, as the other trawl vessels must return to port when their holds are full. Being able to process the catch and store large quantities of frozen, processed fish means large mid-water trawl freezer vessels are able to remain at sea for longer periods.
- 1.5 The Department understands that large mid-water trawl freezer vessels operate by following a school of fish until the hold for processed fish is full (or they have fished their quota). Until the hold is full (or quota fully fished), large mid-water trawl freezer vessels are able to stay on a school of fish constantly trawling for and processing and freezing their catch. These vessels therefore have the capacity to fish a school for a considerably longer period of time than a vessel

which does not have processing and storage facilities of similar scale to large mid-water trawl freezer vessels.

2. RECENT ASSESSMENTS OF LARGE MID-WATER TRAWL FREEZER VESSELS

2.1 You recently asked the Department for advice about the introduction of large mid-water trawl freezer vessels in the Small Pelagic Fishery. Following receipt of that advice, you decided on 3 September 2012:

- (a) that there was not sufficient evidence to trigger a further assessment under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**); and
- (b) to accredit the management regime of the Commonwealth Small Pelagic Fishery under Part 13 of the EPBC Act for a period of two weeks and subject to conditions.

2.2 In relation to the first decision, the Department advised you that the impacts on matters of national environmental significance arising from the introduction of large mid-water trawl freezer vessels were unlikely to be significantly greater than last reported under the section 146 agreement from 2009. However, the Department also advised you that *'[t]here are, however, uncertainties around potential impacts on protected species arising from the introduction of a large mid-water trawl vessel ... that enables a vessel to remain fishing for an extended period.'*

2.3 In relation to the second decision, the Department recommended that the management regime of the Small Pelagic Fishery be accredited under Part 13 of the EPBC Act. In order to accredit the management regime under the EPBC Act, you had to be satisfied that the management regime requires persons engaged in fishing under the management regime to take all reasonable steps to ensure that cetaceans are not killed or injured as a result of the fishing (section 245(1)(f)) and that the fishery to which the management regime relates does not, or is not likely to, adversely affect the conservation status of a species of cetacean or a population of that species (section 245(1)(g)). You also had to be satisfied of those matters in relation to listed marine species (section 265), listed threatened species (section 208A) and listed migratory species (section 222A). The Department advised you that you could be so satisfied. However, the Department also noted that the *'potential introduction of a large mid-water trawl freezer vessel with different gear configuration, the ability to tow at greater speeds and capability to stay on a school for a greatly extended period introduces new uncertainties and potentially increases or introduces new risks.'*

2.4 In light of the uncertainties and risks mentioned in previous advice from the Department, and in light of the proposed *Environment Protection and Biodiversity Conservation (Declared Commercial Fishing Activities) Bill*, you asked the Department for more detailed advice about whether there is uncertainty about the impacts on the environment of the introduction of large mid-water trawl freezer vessels in the Small Pelagic Fishery.

3. UNCERTAINTY OF ENVIRONMENTAL IMPACT OF LARGE MID-WATER TRAWL FREEZER VESSELS

- 3.1 The length of time which a large mid-water trawl freezer vessel is able to stay on a school of fish gives rise to uncertainty about impacts on the environment. Some examples of this uncertainty are as follows:

Interactions with seals

- 3.2 Lyle and Willcox (2008) reported on the high rates of seal interactions, and fatalities, during mid-water trawling in the Small Pelagic Fishery. The evidence tends to suggest that mortalities and interactions might be higher than those observed from the boat deck (AFMA 2010).
- 3.3 The Department's assessment of the Small Pelagic Fishery (DEH 2006) noted that the experience off the coast of Western Tasmania suggested that the bycatch of seals could increase if seals become habituated to mid-water trawl operations. Lyle and Willcox (2008) noted that limiting the time spent fishing in specific areas may reduce interaction rates. This is consistent with the Department's advice to you in relation to the Part 10 assessment, where you were advised that, *'given the increased time that a freezer vessel can "stay on the school", there is a much greater likelihood that the interactions with seals will be concentrated in one place...'* (SEWPaC 2012a).
- 3.4 Because large mid-water freeze trawl vessels are able to stay on a school of fish for longer than other types of vessel, there is uncertainty as to whether seals will become habituated to the nets and whether increased interaction or mortalities would occur as a result. That conclusion is consistent with advice the Department provided to you in relation to your Part 13 assessment (SEWPaC 2012b), which is extracted in paragraph 2.3, above.

Interactions with dolphins

- 3.5 In October 2004, a mid-water trawler caught and trapped 14 common dolphins, all of which died, while participating in a Tasmanian Government small pelagic species research fishing trip (DEH 2006). Lyle and Willcox (2008) noted that no dolphin interactions were observed in their study, leading the authors to conclude that interactions with dolphins in mid-water trawling in the Small Pelagic Fishery are *'rare and unpredictable'*. However, there is evidence to suggest that dolphins may be attracted to the catch in the Small Pelagic Fishery. The Australian Fisheries Management Authority (AFMA) (2007) reported that:

'There are concerns that dolphins and small beaked whales can be attracted to the catch of small pelagic fishes which are the natural diet of some of these species. In other fisheries, dolphins have been killed in significant numbers, and in this midwater trawl fishery, dolphin mortality was recorded in 2005.'

- 3.6 There is some evidence that increasing observer coverage results in higher reported dolphin interactions as was the case for the Southern and Eastern Scalefish and Shark Fishery (SEWPaC 2012a). There is therefore some uncertainty about whether the low rates of observed dolphin interaction are the product of the rate of observer coverage rather than the number of interactions.

- 3.7 Lyle and Willcox 2008 concluded that dolphin interactions are rare and unpredictable, but that study did not consider interactions with large mid-water trawl freezer vessels that stay on a school of fish for longer than other types of mid-water trawl vessel. There is therefore uncertainty about whether a large mid-water trawl freezer vessel could have an impact on the rates of observed dolphin interactions.

Interactions with other species

- 3.8 An environmental risk management report completed by AFMA in 2010 noted that there were 218 threatened, endangered or protected (**TEP**) species potentially present in the waters of the Small Pelagic Fishery. At the time that risk management report was completed, large mid-water trawl freezer vessels were not in use in the Small Pelagic Fishery, which means there is an issue whether the findings and conclusions in the environmental risk management report continue to be valid in the context of the use of a large mid-water trawl freezer vessel in the Small Pelagic Fishery. In addition, that environmental risk management report noted that of the 218 TEP species, eight species remained at high risk after the application of environmental residual risk methodology.
- 3.9 As mentioned above, the Department understands that large mid-water trawl freezer vessels can leave their catch at, or near the surface of, the water for longer than is the case for other types of trawl vessel. A 2009 Departmental assessment noted there have been observations of seabirds on or near the vessels, to feed on fish caught within the nets or recently escaped from the nets. While this assessment noted that independent observer coverage had detected generally low levels of bird interactions with nets in both mid-water trawl and purse seine techniques, of the 15 observations recorded in 2006, 13 interactions were with mid-water trawl nets and wires. Of those 13 interactions, seven resulted in fatalities (which were EPBC Act listed migratory seabirds - namely, short-tailed shearwaters and flesh-footed shearwaters) (DEH 2009).
- 3.10 Due to the limited amount of research in this area, there is uncertainty about whether the leaving of the catch at or near the surface for greater periods, and the length of time that large mid-water trawl freezer vessels are able to stay over a particular school of fish, might give rise to higher levels of seabird interactions including mortalities.

Localised depletion

- 3.11 The length of time during which large mid-water trawl freezer vessels are able to fish in a particular area gives rise to uncertainty about whether localised depletion of fish might disrupt the feeding behaviour of dependent predatory species. This is particularly the case for Zones B, C and D (now equivalent to the Western Zone and the northern part of the Eastern Zone) of the Small Pelagic Fishery where information about fish stocks is less available than those for Zone A (AFMA 2003). In AFMA's 2003 draft assessment report of the Small Pelagic Fishery, AFMA noted that '*no comprehensive studies on the stock structure of small pelagic species have been undertaken in Australia or New Zealand waters*'. More recently, the available biological information indicates a degree of uncertainty in the spawning biomass estimates, in the movement patterns, and in the stock structure of each of the species targeted in the fishery (Ward et al 2011).

- 3.12 The fact that small pelagic species are a significant food source for higher order predators (such as fur seals, albatross and southern bluefin tuna) is well documented (AFMA 2003, DEH 2009). Buxton et al (2012) noted that the Lenfest Forage Fish Task Force recommended that *'fishing should be spread out so as to avoid localised depletions, especially in relation to any local ecological 'hotspots' where there is particularly strong local dependency between predators and prey'*. Because large mid-water trawl freezer vessels are able to stay on a school of fish for longer periods of time, there is uncertainty about whether localised depletion will occur and the effect any depletion might have on predator species.
- 3.13 While Sainsbury (2012) considers the risk of localised depletion to be extremely low in the Small Pelagic Fishery given the diverse forage base and the mobility for predators and prey, it noted that *'the possibility of some effect at some very local scale cannot be totally excluded and requires monitoring.'*
- 3.14 Based on the totality of the material, there remains an uncertainty about whether large mid-water trawl freezer vessels could cause localised depletion which might affect predatory species.
- 4. APPROPRIATENESS OF PROHIBITING LARGE MID-WATER TRAWL FREEZER VESSELS IN THE SMALL PELAGIC FISHERY**
- 4.1 Because there are uncertainties regarding the use of large mid-water trawl freezer vessels in the Small Pelagic Fishery, you may consider it appropriate that using vessels of that kind in that fishery should be prohibited while consultation occurs about whether you should make a final declaration under section 390SF of the EPBC Act.
- 4.2 The Department notes that the objects of the EPBC Act (set out in section 3) include:
- (a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;
 - (b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and
 - (c) to promote the conservation of biodiversity.
- 4.3 In deciding whether to make an interim declaration, you may have regard to whether it would be consistent with the objects of the EPBC Act to make an interim declaration while consultation takes place about whether you should make a final declaration under section 390SF and set up an expert panel to conduct an assessment of the uncertainties regarding the use of large mid-water trawl freezer vessels in the Small Pelagic Fishery. The Department's view is that such a course of action would be consistent with the objects of the EPBC Act.

REFERENCE LIST

AFMA (2003) *Draft Assessment Report: Small Pelagic Fishery*

AFMA (2007) *Ecological Risk Assessment (ERA) for Effects of Fishing: Report for the midwater trawl sub-fishery of the Small Pelagic Fishery*

AFMA (2010) *Ecological risk management report for the midwater trawl sector of the Small Pelagic Fishery*

Buxton et al (2012) *The Commonwealth Small Pelagic Fishery: General background to the scientific issues*

DEH (2006) *Assessment of the Small Pelagic Fishery*

DEH (2009) *Assessment of the Commonwealth Small Pelagic Fishery*

Lyle and Willcox (2008) *Dolphin and seal interactions with mid-water trawling in the Commonwealth Small Pelagic Fishery, including an assessment of bycatch mitigation*

Sainsbury (2012) *Scientific opinion on matters related to the management and sustainability of the Commonwealth Small Pelagic Fishery*

SEWPaC (2012a) *Departmental advice on whether a Part 10 strategic reassessment of the Small Pelagic Fishery should be undertaken*

SEWPaC (2012b) *Part 13 Assessment of the Commonwealth Small Pelagic Fishery*

Ward et al (2011) *Commonwealth Small Pelagic Fishery: Fishery Assessment Report 2011*