The threat to Australia's oceans from supertrawlers

Australian Marine Conservation Society

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Cover: The 126-metre supertrawler, *Afrika*, fishing off the coast of Mauritania. Photo: ©Pierre Gleizes/Greenpeace.

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Australian Marine Conservation Society

SAVE OUR MARINE LIFE

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Executive Summary

Since the 1950s industrial-scale factory fishing fleets have roamed the world's oceans looking for fish, spurred on by demand, government subsidies and advances in technology. Overfishing, illegal fishing, decimated local coastal economies and illegal activities have followed in their wake.

In the early 1980s Australia took control of its waters, limiting access by foreign fishing fleets that had been exploiting Australia's fish stocks including tuna and prawn for decades. Access thereafter was via agreement only. There was a lot at stake – Australian waters are particularly vulnerable to overfishing due to their low biological productivity and the difficulty in detection over such remote and vast areas.

In the following decades Australia was able to develop a reputation for being one of the better managed fishing nations. The contrast between fishing intensity inside and outside Australia's waters is stark. Fishing fleets on the high seas operate right up to Australia's borders (see Figure 1, opposite).

It is becoming apparent that Australia's reputation is increasingly a beacon drawing in the industrial fishing capacity that has depleted oceans elsewhere. The unprecedented approval for two European supertrawlers (industrial fishing boats that catch, process, freeze and store on a grand scale) to fish in Australian waters in recent years – the *Margiris* and the *Dirk Dirk* – is an indicator of this.

The Australian public roundly rejected the notion of supertrawlers operating in our fisheries, but weak domestic regulation allows them to slip through into Australian waters. The two supertrawlers that have received regulatory approval to operate in Australian waters were hounded out by local communities. In response to high levels of concern, the federal government put in place a permanent ban on supertrawlers in Australian waters, but the research has found this to be 'tip of the iceberg regulation' – banning only a tiny subset (just six) of the world's supertrawler fleet.

The research has also found that there have been moves for at least the last two years to bring other foreign fishing vessels into Australian waters. Australia's fishing fleet is relatively small, with limited capital and high operating costs given the vastness and limited productivity of our oceans. Ready-to-go foreign fishing vessels with far greater capacity appear to be an attractive option for significantly increasing catch in Australian waters. This report details what is known to this point including new information that has come to light as a result of questioning in the Federal Parliament and background research. At the time of going to print, a Freedom of Information (FOI) request lodged with the Federal Government earlier this year remains outstanding. Regulator transparency is limited in this area.

Even with the limited information available, this report has found that there is both motive and opportunity – there is a push for increased commercial fishing effort in Australian waters, the industrial capacity found in foreign fishing fleets is necessary to achieve this aim, and Australia's legal loopholes and regulatory opaqueness make this possible.

Further, this report finds that the prospect of industrial-scale foreign fishing vessels becoming established in Australian waters poses an unacceptable risk to Australia's unique and diverse marine life, its fishing sustainability, its recreational fishing lifestyle and associated tourism ventures, its ability to uphold human rights and environmental safeguards, and its international reputation.

This report makes two key recommendations – that a formal independent inquiry is now needed to investigate moves to bring foreign fishing vessels into Australian waters, and that the Federal Government must make good on its claim that supertrawlers are banned in Australia's vulnerable fisheries.

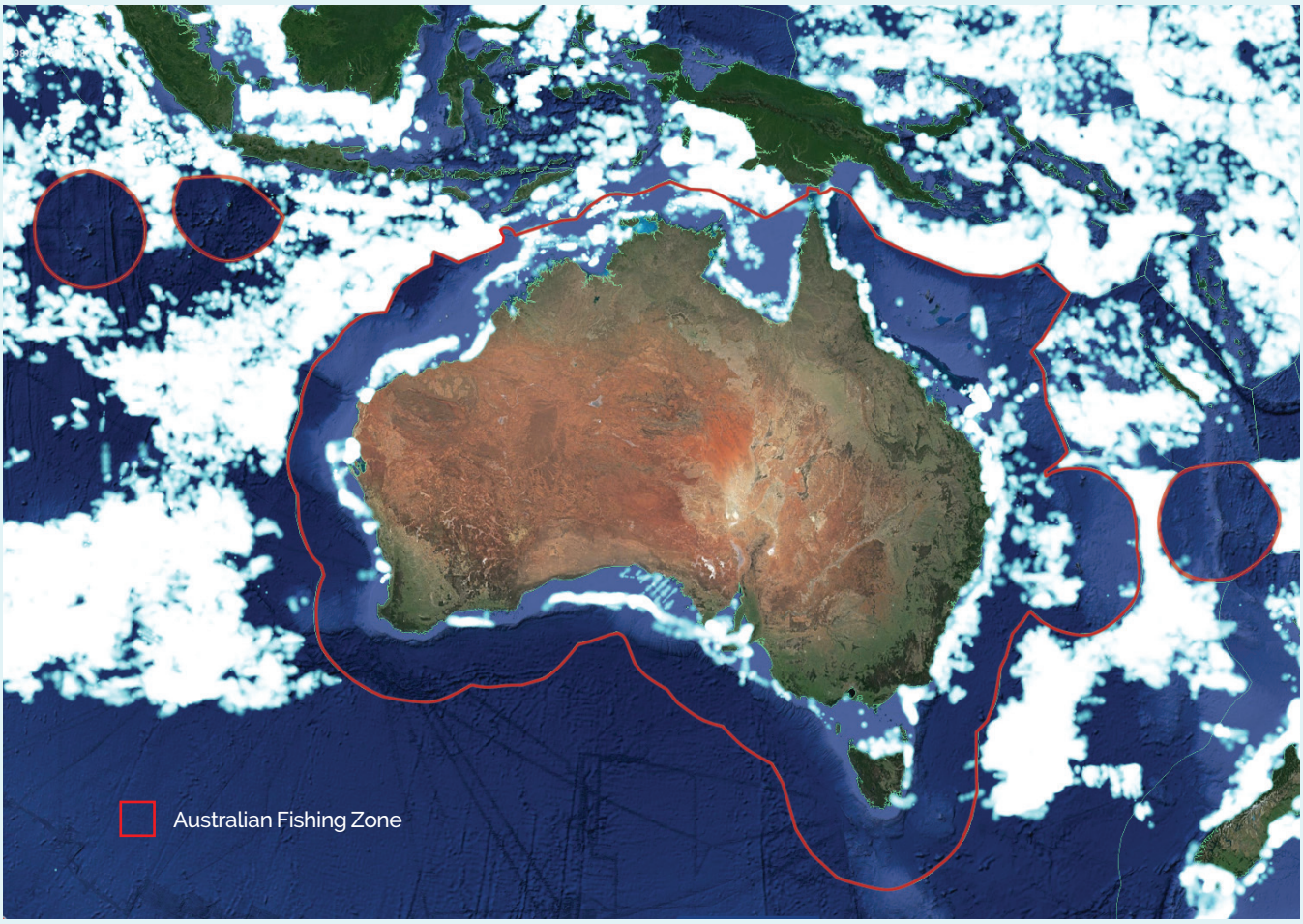


Figure 1. Fishing vessel movements within and adjacent to the Australian Fishing Zone (AFZ), from March to September 2018. Note the stark contrast between activity within and outside Australian waters right up to the AFZ boundary. Pressure is mounting for foreign fishing fleets to operate in Australian waters.
Source: Global Fishing Watch, <https://globalfishingwatch.org/map/>.2.

Findings

1. With the decline of fish stocks elsewhere, owners of large foreign fishing vessels are increasingly interested in gaining access to Australian waters. Fishing regulators and some sectors of the Australian commercial fishing industry consider Australia's fish stocks to be under-utilised and seek to expand their capacity in order to significantly increase catch.
2. Australian waters are particularly vulnerable to overfishing by global standards, with low biological productivity due to low nutrient levels. Recent peer-reviewed analysis based on long-term monitoring of fish populations has challenged the approach by the federal fisheries regulator to setting total allowable catch in commercial fisheries.
3. The use of foreign fishing vessels in Australian waters is rare and allowed only in certain circumstances, but there is mounting pressure for this to change. In the past 15 years there have been three known attempts to bring industrial-scale factory fishing supertrawlers into Australian waters to operate in the Small Pelagic Fishery (SPF) (covering the southern half of Australia's oceans) – the *Veronica*, the *Margiris* (aka *Abel Tasman*) and *Dirk Dirk* (aka *Geelong Star*).
4. Claims of economic benefit from the increase in efficiency that foreign vessels would bring to Australian fisheries are questionable. Expert evidence to a Senate Inquiry found that their use could lead to the concentration of fisheries operations in the hands of a very few operators, who are likely to be foreign nationals, with income flowing out of the country and resultant job losses. Further, the need for greater regulation in an array of areas would significantly increase the impost on the taxpayer.

5. Australia's coastal economies could suffer economic impacts from the loss of recreational fishing and tourism opportunity as a result of, for instance, increased competition for prized fish stocks such as southern bluefin tuna, and the removal of large amounts of baitfish species that are food for recreationally targeted species including sharks, tuna, billfish, Spanish mackerel, wahoo and mahi.

6. Long experience overseas indicates that establishing foreign fishing fleets in Australian waters may be contrary to the national interest. Overfishing, illegal fishing and crime are rife on vessels in some foreign fleets where the use of flags of convenience and ports that do not record catch is common. The socioeconomic conditions generated by overfishing can make fishing communities vulnerable to recruitment into criminal activities and, in some instances, this sector is implicated in trafficking in humans, smuggling, the dumping of waste and laundering of money. Working conditions for crews in some fleets can be slave-like.

7. Government claims that Australia has banned supertrawlers are false. Australia's 2015 supertrawler ban only prohibits vessels over 130m in length. Research for this report has identified just six supertrawlers – the *Margiris*, *Annalies Ilena*, *Maartje Theadora*, *Willem Van Der Zwan*, *Viktoriya* and the *Antarctic Sea* – that would meet the necessary requirements to be impacted by Australia's ban. Table 1 (p14) lists the 71 supertrawlers that are between 95m (the length of the *Dirk Dirk/Geelong Star*) and 130m in length. And there were many more in production at the time of going to print.

8. Parliamentary and government inquiries into the advent of supertrawlers and transhipping in the small pelagic fishery have raised a series of significant concerns, including the potential for localised depletion of fish stocks, bycatch of protected species, and impact on other fisheries through indiscriminate catch by large nets, despite mitigation techniques. Bycatch of dolphins, albatross and seals dramatically increased with the entry of the supertrawler into the Small Pelagic Fishery. The Senate Inquiry was highly critical of the federal fisheries regulator's management of the *Dirk Dirk/Geelong Star*, its irregular and dated stock assessments and its inadequate bycatch requirements.

9. The potential for industrial scale factory fishing vessels to operate in Australian waters extends beyond supertrawlers. Large longline and super-seiner fishing vessels with freezing and storage facilities which target tuna in particular also play a significant role in overfishing globally, as well as large carrier vessels that take on board the catches of smaller fishing boats. A range of Australian fisheries are therefore at risk from their entry.

10. Some Australian tuna longliners have recently indicated interest in the use of foreign fishing vessels and their foreign crews for transhipping operations that would negate the need for Australian ports to process catches. Elsewhere around the world, research has shown that transhipment has led to the growth of illegal fishing and overfishing, often allowing fishing vessels to avoid port visits, facilitate the 'laundering' of illegally caught fish by mixing them with legally caught fish, hide trafficking activities and deny developing countries the revenue from port operations and seafood processing and exporting. There have been calls for a global moratorium on transhipping on the high seas, where most transhipment occurs.

11. Regulation and its application in this area are inadequate – Australian law prohibits the entry of foreign vessels into Australian waters, but exemptions provide pathways for successful applicants. There are mixed messages from regulators as to the degree to which Australia's fisheries management and labour laws apply to foreign fishing vessels operating in its waters and the determination of ecological sustainable thresholds. The economically marginal nature of supertrawler operations in Australian waters has led to the federal fisheries regulator further weakening regulation. Where there is interest from foreign vessels, pressure to increase quota and catch levels and to open up new areas for fishing may result.

12. Marine park zoning has been under pressure at the same time as foreign fishing vessels have received renewed focus by commercial fishers and regulators. Large offshore areas throughout Australian waters previously designated for high-level protection were rezoned in 2018 to allow large-scale commercial fishing, much of which would require foreign fishing capacity. The windbacks include the loss of the largest zone in Australian waters dedicated to recreational fishing (in the Coral Sea Marine Park).

13. The advent of large foreign fishing vessels in waters well offshore and out of sight of enforcement activities has the potential to stretch the resources of the Australian Border Force, which has recently cut its on-water surveillance.

This report has reviewed global and Australian fishing issues, the current and potential impacts of large foreign fishing vessels both here and overseas, the Australian fish and fisheries of interest to them, and the associated environmental, social and economic risks. It finds that although Australia historically allowed foreign fishing in its waters, sustainability concerns in recent decades all but closed that down. But this could soon change as global pressure on fish stocks is driving supertrawlers and other large foreign fishing vessels our way. Recent moves to establish industrial-scale foreign fishing fleets in Australian waters brings a range of risks to the national interest. Further, regulation and transparency in decision making is inadequate and there is good reason for the significant community concern. The report therefore makes the following recommendations:

Recommendation 1

An urgent Commonwealth Parliamentary Inquiry is required to investigate moves to establish industrial scale foreign fishing fleets in Australia's oceans, the implications and adequacy of existing regulation.

Recommendation 2

The Australian Government should act to protect the marine environment and the interests of other fishers by bringing in a total and permanent ban on all supertrawlers in Australia's vulnerable fisheries, not just those vessels over 130m in length (six in total globally at this time).

1. Introduction

For Ireland's Marine Minister Frank Fahey, it was 'one of the proudest moments of the Irish fishing industry'[1]. On an autumn day in 2000, traffic stretched for 25 kilometres as tens of thousands of people clamoured for a glimpse of the ocean juggernaut; even a priest was on hand for its blessing.

Then and still the world's largest supertrawler, the *Atlantic Dawn* had docked in Killybegs Harbour on the Irish Republic's west coast. Built by Irish fishing magnate, Kevin McHugh (who died in 2006), the vessel was 145-metres long, weighed 14,000 tonnes and was capable of catching, processing and freezing 400 tonnes of fish every 24 hours, with a frozen storage capacity of 7000 tonnes and fuel for five weeks of sailing.

Large, industrial fishing vessels like the *Atlantic Dawn* have been dubbed 'supertrawlers', able to harvest, process, chill and freeze fish in great quantities ready for sale on arrival in port for human consumption and as feed in aquaculture.

The excitement surrounding the *Atlantic Dawn's* arrival in Killybegs had barely died down when the vessel became mired in controversy, having breached Ireland's allocated fleet capacity under European Union (EU) regulations. It could not leave port. Subsequent negotiations with the EU allowed Ireland to increase the size of its fishing fleet in 2001, but only if another large Irish fishing vessel was cut adrift. To get around this, McHugh reflagged his 106-metre factory trawler, the *Veronica*, and sent it off to fish West African waters.

But there was only sufficient quota for the *Atlantic Dawn* to fish for three months each year in EU waters; not enough to be viable. To overcome that hurdle, McHugh negotiated a deal with Mauritanian dictator, Maaouya Ould Sid'Ahmed Taya, securing a private licence to fish for nine months each year off the West African nation's coast.

For five years the *Atlantic Dawn* fished Mauritanian waters where it was known as the 'Ship from Hell' and the 'Sea Monster'[2] by local artisanal fishers, blamed by them for declining local catches. But a coup in 2005 changed the Mauritanian Government's attitudes towards foreign fishing vessels. It now demanded more money for what were reduced foreign fishing rights and made cuts to the shrimp and octopus catches that could be taken by European vessels[3]. The *Atlantic Dawn* was later boarded by Mauritanian armed forces, fish were confiscated and a $100,000 fine levied for its fishing in an exclusion zone. Soon after it left the region.

In 2013, six years after being sold to Dutch company Parlevliet en Van der Plas BV and renamed *Annelies Ilena*, its new operators were fined for illegal fishing in Irish waters[4]. Parlevliet en Van der Plas BV is one of three Dutch companies heading up the Pelagic Freezer-Trawler Association (PFA), which has some of the largest supertrawlers fishing the world's oceans, supported by significant subsidies from the EU. Its members moved out of the North Sea when fishing for herring was banned between 1977 and 1983 due to overfishing and stock collapse. They then headed to West Africa and the south-east Pacific, where they were implicated in overfishing in both regions. In 2006, the Senegal Government cancelled licence agreements with EU fishing fleets, including PFA vessels, from fishing in its waters.

The making of deals with developing nations in West Africa and the Pacific for access to their Exclusive Economic Zones (EEZ), overfishing, illegal fishing, hardship for local fishing communities and changes to names, flags and owners feature regularly in supertrawler stories. These features also appear in the profiles of the broader foreign fishing fleets (mainly comprising longline and purse-seine vessels) from nations such as China, Russia, Taiwan, Spain and South Korea, many of which are subsidised by their national governments to allow distant-water fishing and maintain their economic viability.

Over the past 15 years the owners of supertrawlers, such as PFA members, have sought to fish in the Australian Fishing Zone (AFZ), attracted by its vast size, the relatively small area fished, and declining fishing opportunities elsewhere in the world's oceans.

First was an attempt from Kevin McHugh's *Veronica* in 2004, then in 2012 the *Margiris* (flagged Australian and renamed *Abel Tasman*), followed by the *Dirk Dirk* (flagged Australian and renamed *Geelong Star*) in 2015. After rising public concern, the *Veronica* did not make it to Australia, the *Margiris* left without fishing, and the *Geelong Star* operated for 18 months before departing Australia in November 2016. With each proposal, community opposition to supertrawlers intensified.

Although the *Veronica* and *Abel Tasman* never fished in Australian waters, and the operation of the *Geelong Star* was short-lived, commercial fishing interests and the Australian Fisheries Management Authority (AFMA) continue to advocate the entry of large foreign fishing vessels into Australian waters. Although current regulations prohibit foreign fishing vessels, except under certain circumstances, the exceptions provide clear entry pathways. The potential easing of these regulations, and possible changes to quota, the extent of fishing areas and marine park zones, along with the implementation of a new transhipment policy for carrier and catcher boats, could change the way and where fisheries catch, process and market fish. These changes could also expose Australia to human rights and environmental abuses that have plagued other nations, placing further pressure on our marine life, fish stocks, regional communities and international reputation.

Dawn over the Atlantic

'As its nets are drawn in, the *Atlantic Dawn*'s catch is vacuum-pumped on board and temporarily stored in refrigerated holding tanks with a total capacity of 1000 tonnes of fish. These salt-water tanks allow the *Atlantic Dawn* to process caught fish while it continues to search for more shoals. From the tanks, the fish are then pumped on to a conveyor-belt system and transported to the grading machines. There is also a hand-picking line so as to get the grades as accurate as possible. The size-graded fish are then sent directly to 48 plate freezers to be frozen into blocks, packaged and sealed. This highly-mechanised system is able to process up to 400 tonnes of fish a day and can store up to 7000 tonnes of frozen fish, which are held in massive storage rooms on three separate deck levels. It can reach storage capacity in as little as 28 days. The *Atlantic Dawn* catches in one month what 7000 artisan fishermen would catch in a good year[5]'

At 145 metres long, the *Annelies Ilena* (formerly *Atlantic Dawn*) is the world's largest supertrawler but can also use purse-seine nets. It was dubbed the 'Ship from Hell' by Mauritanian artisanal fishers, and has been fined for illegal fishing off the coasts of Mauritania and in EU and Republic of Ireland waters. Photo: ©Greenpeace/Jeroen Staats.

2. Fish populations at risk

For millennia, most of the world's oceans were out of reach, with traditional fishing for subsistence focussed on the coastal margins. In just a few centuries the industrialisation, commercialisation and globalisation of fishing have pushed oceans to the brink.

For thousands of years the fishing of bays, estuaries and intertidal zones was seasonal, mostly at smaller scale and for subsistence or to sustain local economies. The deep oceans were out of reach and largely untouched.

Historian Anna Clark retells stories in which the sea floor off Tasmania's west coast was 'carpeted red with crayfish', 'extraordinary schools of Australian salmon swelled the beaches of southern Australia', 'mountains of mullet migrated annually up the east coast', and fish were 'so thick that nets could be set at any time of the day'. Further afield, in the distant waters of North America, 'staggering Chinook salmon runs swelled the Columbia and Vancouver rivers', and 'gigantic schools of cod filled the icy waters'[6].

Modern technologies that monitor fish populations allow us to put a number on these once countless fish, and those numbers are falling. At the same time, technological advances have resulted in the production of bigger and better boats to catch them. What were once the outer limits of the oceans are now within easy reach, with 73% (262 million km2) of the world's oceans fished in 2016[7].

In Australia, fishing resources 'were quickly tested by a growing population and industrial methods that were inversely proportionate to scientific knowledge about fish stocks, life cycles and sustainability. Even now, after decades of fisheries management, there are few places in Australia where we can really see what a river full of Murray cod or a reef brimming with snapper actually looks like'[8].

The age of the supertrawler begins

From the 17th century onwards there was steady growth in the size of fishing vessels, accompanied by changes in the materials used to build them and the energy sources used to power them. Steel hulls replaced timber ones, and sails gave way to energy from coal, steam, diesel and turbines.

But it was not until 1954, when the 85-metre trawler *Fairtry* was launched in Scotland's Aberdeen shipyards, that the age of industrial fishing truly began. The *Fairtry* boasted a crew of 82 and machines that washed, filleted, skinned, headed, packed and froze the fish as well as produced fishmeal for aquaculture[9].

As fishing vessels became larger and more powerful, industrial fishing expanded into previously unfished waters – especially the continental shelves of Asia, Africa and South America, as well as the high seas. Equipped with advanced navigational aids, fish-finding equipment and fish-aggregating devices, they could travel further from port, stay at sea longer, operate more efficiently — and catch more fish. Swartz et al. (2010) measured the expansion of global fisheries from 1950 to 2005 and found that fishing fleets moved southward from the North Atlantic and West Pacific at one degree of latitude (approximately 111 kilometres) each year: 'The growth in marine fisheries catches for more than half a century was only made possible through exploitation of new fishing grounds. Their rapidly diminishing number indicates a global limit to growth and highlights the urgent need for a transition to sustainable fishing…'[10].

Winners and losers in the race to fish

According to Food and Agriculture Organisation (FAO) data[11], marine wild-fish catches rose steadily from the 1950s, peaked in 1996 at 87 million tonnes, and then slowly declined. But according to Pauly and Zeller (2016), if the FAO had included small-scale fishing, discards (estimated at approximately 10 million tonnes each year[12]) and illegal fishing, the peak production number would have been 130 million tonnes followed by a much sharper decline – an annual average decline of 1.22 million tonnes compared to the FAO estimate of 0.38 million tonnes[13].

Under-reporting can also conceal the impact of global fisheries. Although China reported to the FAO that its average annual catch beyond its own waters for the decade prior to 2013 was 368,000 tonnes, a 2013 report to the European Parliament estimated that China's global catch was 4.6 million tonnes (mostly in African waters)[14].

With fewer fish, fishing fleets began to travel further to maintain their catches. Tickler et al. (2018) found that fleets were 'doubling the average distance travelled from home ports but catching only one-third of the historical amount per kilometre travelled. Catch per unit area has declined by 22% since the mid-1990s, as fleets approach the limits of geographical expansion. Allowing these trends to continue threatens the bioeconomic sustainability of fisheries globally'[15].

An estimated 60 tonnes of unwanted sardines are pumped out of the holds and dumped over the side of the *Adrar* off the coast of Dahkla, Africa. The NGO, Western Sahara Resource Watch, estimated that in 2013 the *Adrar* alone discarded 1000 tonnes of fish. At the time the 59-metre *Adrar* was flagged to Belize but is now called *Assaadi* and flagged to Morocco. Photo: ©Western Sahara Resource Watch/Greenpeace.

Industrial fishing is having widespread impacts on marine life, including fish. For example, research by the World Wildlife Fund revealed a 49% decline in global marine vertebrate populations between 1970 and 2012 and almost a 75% fall in tuna, mackerel and bonito[16]. In Chile, more than 70% of species are overfished and large foreign fishing vessels caused a 90% drop in the South Pacific jack mackerel fishery[17]. The mackerel's decline, along with hake, has encouraged jumbo squid to fill the vacant ecological space and it now accounts for more than half of the Chinese fleet's catch beyond its domestic waters[18]. And although older fish produce more offspring and are more resilient to environmental change, a recent study revealed that there are now far fewer of them in the oceans. For 'some species, such as Pacific cod, Pacific hake, red snapper and Atlantic cod, the populations of older individuals have fallen by more than 95 per cent'[19].

Industrial fishing is also failing the ecological sustainability test. The FAO's 'State of the world's fisheries and aquaculture' report revealed that from 1974–2015, the percentage of fish species at biologically sustainable levels (at or above Maximum Sustainable Yield (MSY), the maximum average annual catch that can be removed from a stock over an indefinite period under prevailing environmental conditions[20]) has decreased from 90% to 67%. Those species at biologically unsustainable levels increased from 10% to 33%, while in the same period underfished stocks decreased from 40% to 7% of the total[21]. The Mediterranean, Black Sea and Pacific South East had more than 60% of their stocks unsustainably fished, the Atlantic South West more than 50%, and the Atlantic Eastern and Central more than 40%[22].

Much of the expansion of the world's fishing fleets is driven by government subsidies, which hide the real cost of fishing and drive overfishing and excess capacity[23]. In 2013, the Chinese central government spent CNY40.383 billion (or US$6.5 billion) on fisheries subsidies. Most of this amount – 94% – was in the form of fuel subsidies[24]. A year later, the World Bank estimated that global fisheries landed US$164 billion of fish. However, after accounting for the costs of labour, capital, fuel and subsidies, global fisheries produced a net loss of US$44 billion[25]. Without subsidies, 'as much as 54% of the present high-seas fishing grounds would be unprofitable at current fishing rates'[26].

> 'The principal cause of Europe's collapsing fish stocks is over-capacity. The EU fleet is simply too big. According to the European Commission, the EU fleet catches two to three times more fish than is sustainable within the continent's waters. The problem then gets exported, with EU boats ending up in the waters of some of the poorest countries in the world, sending local fish stocks downhill. Perversely, underpinning the over-capacity are massive EU subsidies, totalling well over one billion euros per year.[27]' David Ritter, CEO, Greenpeace Australia Pacific

In 2013, China's President, Xi Jinping, urged Chinese fishers to 'build bigger ships and venture even farther into the oceans and catch bigger fish'[28]. China now has the world's largest distant-water fleet, which the World Bank estimates will catch 37% of the global catch in 2030[29].

The South China Sea, where 55% of the world's fishing vessels harvest 12% of the global catch and employ nearly four million people[30], has become a fishing flashpoint and fish stocks have fallen by 70–90% since the 1950s[31]. China is asserting sovereignty and using its coast guard to board and ram boats of Vietnamese artisanal fishers, confiscate catches and cut nets[32]. These tensions and overfishing in Indonesian waters — Indonesia is losing US$4 billion annually to illegal fishing, mostly by Chinese, Taiwanese and Vietnamese fleets[33] — are pushing fishers further south and east, and some are entering Australia's northern waters to illegally fish.

Foreign fishing fleets are also on the move because of the increasing controls imposed on them in their domestic waters to improve sustainability. As a result, the EU and China have signed agreements with developing nations in the Pacific and West Africa, which do not have the fishing capacity, regulations, monitoring and enforcement resources to fish their own waters.

China now has more than 500 vessels in West Africa[34] and was recently issued with 31 licences to fish off the Horn of Africa in Somali waters[35]. But Chinese fleets are impacting on the sustainability of fish stocks 'from Argentina to West Africa and from Somalia to Kiribati'[36], and their fishing is often illegal — an Ecuadoran judge jailed 20 Chinese fishers illegally fishing off the Galapagos Islands where they had caught 6600 sharks[37].

> 'In Africa's coastal waters, IUU fishing has reached epidemic proportions. This plunder destroys entire coastal communities when they lose the opportunities to catch, process and trade. Commercial trawlers that operate under flags of convenience, and unload in ports that do not record their catch, are engaging in organised theft disguised as commerce[38].' Kofi Annan, former UN Secretary General and Chair of the Africa Progress Panel

Artisanal fishers must compete with subsidised foreign fishing fleets that often fish illegally– 40% of all fish caught in West African waters are caught illegally[39], while the annual global cost of illegal fishing has been put at US$23.5 billion[40]. For many, their livelihoods have disappeared, along with an important source of protein. In one day, a European trawler in West Africa can catch and process up to 250 tonnes of fish that would take 56 traditional African boats an entire year to haul in. And factory trawler discards equal the average annual fish consumption of 34,000 people in Mauritania[41].

In response, some artisanal fishers have bought bigger boats to fish in more distant but already impoverished fishing grounds. Others are illegally fishing across borders into the waters of neighbouring countries, leading to violent clashes. Some have left fishing to risk everything in efforts to migrate to Europe and elsewhere, while in Somalia, illegal foreign fishing led some local fishers to piracy[42].

A UN study has shown that loss of livelihood is an important driver of organised crime in the global fishing industry: 'Quota restrictions and declining fish stocks in many regions of the world have led to destitute fishers and fishing communities deprived of their livelihoods and of an important food source.

The socio-economic conditions generated by overfishing may make fishers and fishing communities vulnerable to recruitment into criminal activities'[43].

Fishing vessels are being used to traffic in humans, smuggle migrants, drugs and weapons, commit acts of terrorism, dump waste, launder money, overfish and illegally fish. Working conditions for the crew can be slave-like: 'Fishers are held as *de facto* prisoners of the sea, and the [UN] study documents several instances of reported deaths, severe physical and sexual abuse, coercion and general disregard for the safety and working conditions of fishers. A particularly disturbing facet of this form of exploitation is the frequency of trafficking in children in the fishing industry'[44].

Foreign fishing vessels are often crewed by people receiving low wages and forced to work in abysmal conditions. Taiwan has up to 160,000 migrant workers crewing its distant-water fleets that 'appear beset by issues of human trafficking, and forced and debt-bonded labour'[45]. An investigation of the Hawaiian longline fishery found 'men living in squalor on some boats, forced to use buckets instead of toilets, suffering running sores from bed bugs and sometimes lacking sufficient food. It also revealed instances of human trafficking'[46].

A South Korean-flagged trawler in 2008 had men 'working in the fish hold with no air or ventilation in temperatures of 40-45 degrees. It was rusty, greasy, hot and sweaty. There were cockroaches everywhere in the galleys and their food was in disgusting boxes. All they had for washing was a pump bringing up salt water'[47]. In 2014 it was reported that 28 Africa immigrants were held in slavery on a Chinese vessel off the coast of Uruguay. They were not paid for seven months, were physically abused and poorly fed[48]. Slavery was also reported on some British trawlers in 2017, while a survey of undocumented immigrants in Ireland exposed Ireland's fishing fleet to charges of exploitation, discrimination, physical abuse and severe underpayment'[49].

Closer to home, New Zealand's industrial fisheries have been beset by problems involving slave-like conditions on foreign charter vessels, failure to report seabird and fish bycatch[50], and the underreporting of hoki catches by thousands of tonnes[51]. One analysis estimated that '40 percent of squid exported from New Zealand has been caught on a vessel using forced labour, as well as 15 percent of hoki exports and eight percent of southern blue whiting'[52].

Amid this gloomy picture of the global fishing sector and its environmental, social, economic and cultural impacts, national governments and their communities have been working at domestic and international levels to paint a new one. UN resolutions, international agreements, conventions and treaties, the formation of regional fisheries management organisations (RFMOs) and the creation of marine protected areas have been directed at these issues, as well as efforts by many governments to improve fisheries management and marine conservation within their EEZs. But the issues remain and will require further efforts to resolve them.

'...consider the *Yongding*, a vessel long suspected of illegally catching Patagonian toothfish since 2001 but which was not actually detained until 2016 in Cape Verde. The reason? It had been registered under 9 different flags and 11 different names, making it impossible to keep tabs on'[53]. Samantha Farquhar, School of Marine and Environmental Affairs, University of Washington, Seattle.

Relevance to Australian fisheries

In global terms, Australia is well down the list of fish-producing nations, with oceans that have low productivity due to warm and low-nutrient currents, a lack of upwellings and few rivers discharging nutrients into nearshore waters. In contrast, West Africa and the Pacific have highly productive fishing grounds in the world's four major upwellings associated with the Canary and Benguela currents of the eastern Atlantic, and the Humboldt and Californian currents in the eastern Pacific.

In 2016 the global fishing industry (marine and inland waters) employed more than 40.3 million people (in 1995 it was 28.2 million) using 4.6 million fishing vessels, three-quarters of which are in Asia[54], and produced 90.9 million tonnes (79.3 million tonnes marine wild catch) of fish. By comparison, Australia has a fishing fleet of barely 2000 registered fishing vessels[55] with fisheries employment of 7478[56] and catches of 174,247 tonnes valued at AUD$1,749,583,000[57] in 2016-17. Of Australia's approximately 165 fisheries[58], 22 are Commonwealth, which in 2016-17 caught 48,592 tonnes valued at AUD$403,350,000.

Despite this, there are similarities; such as the historical use of marine and coastal resources for thousands of years by the first Australians, who harvested estuaries, bays, intertidal zones and nearshore waters for fish, crustaceans and molluscs. Although whalers and sealers plundered ocean waters in the 19th century, the focus of most fishing effort soon after European colonisation remained the narrow coastal zone. Towns appeared around the coast to serve as fishing ports, but as local marine resources became stressed, commercial fishers began looking further offshore.

Like the rest of the world, the expansion of technology and the development of larger vessels in Australia after the 1950s allowed commercial fishers to travel beyond overfished nearshore areas and fish more intensively and at greater distance from port. And like the rest of the world, the industrialisation of Australia's commercial fishing was followed by overfishing, excessive fleet capacity and the collapse of fish stocks including orange roughy, eastern gemfish, school shark, grey nurse shark, morwong, warehou and abalone. Some are still yet to recover.

Although Australian fisheries have expanded, Figure 1 shows that they are concentrated on the nation's continental shelf (coloured pale blue in Figure 1). This screen shot, from the Global Fishing Watch website, charts fishing vessel activity inside and along the boundary of the AFZ for the six months from March 2018 to September 2018. In stark contrast to the narrow spatial focus of Australian fisheries is the widespread and intense activity of foreign fishing vessels to the west, east and north of Australia and right up to the edge of the AFZ. This contrast, and the decline in fish stocks caused by their operations elsewhere, is why the owners of large foreign fishing vessels want to fish Australian waters. It also explains the support for them from some sectors of the commercial fishing industry which, along with AFMA, believe that Australian fish stocks are 'under-utilised".

Recent scientific research challenges this concept of under-utilisation, indicating that the permitted levels of catches are too high, that there are ongoing declines in some fish stocks and a failure of others to recover from overfishing, and that some of Australia's fisheries may not be ecologically sustainable. The need to establish the Australian Marine Parks Network, which includes some zones that protect marine environments from extractive uses, also limits the spatial extent of fishing. However, cuts to marine protection levels in 2018 could provide greater access to fishing activities. These issues are discussed further in chapters 5 and 6.

The entry of foreign fishing vessels could expose Australian fisheries to many of the issues facing the global fishing industry – overfishing, localised depletion, impacted threatened species, organised crime, poor labour conditions, undermined coastal communities – for a marginal economic benefit while also helping to prop up a global fishing fleet with excessive capacity.

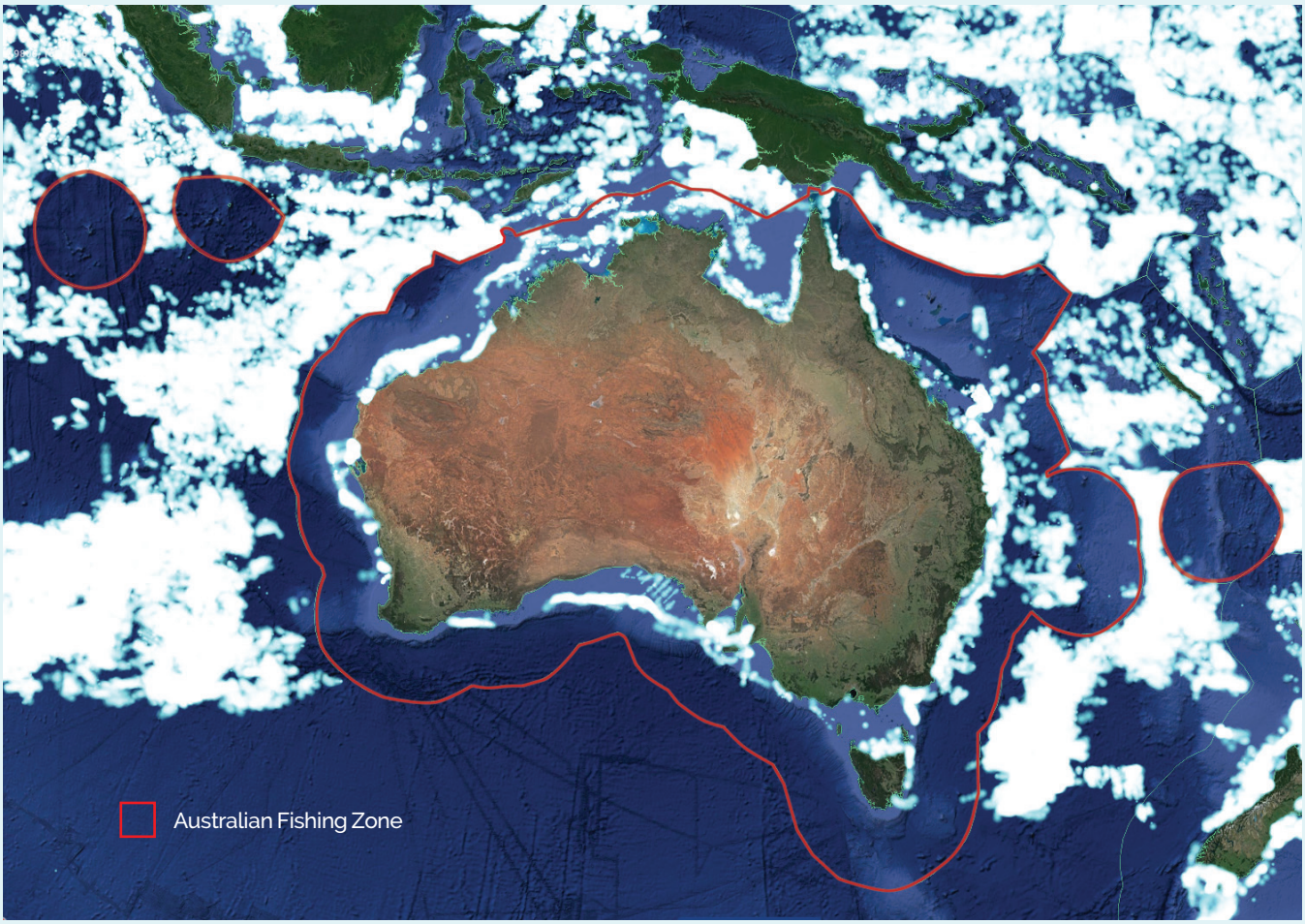


Figure 1. Fishing vessel movements within and adjacent to the Australian Fishing Zone (AFZ), from March to September 2018. Note the stark contrast between activity within and outside Australian waters right up to the AFZ boundary. Pressure is mounting for foreign fishing fleets to operate in Australian waters.
Source: Global Fishing Watch, <https://globalfishingwatch.org/map/>.2.

3. Big Boats

Large supertrawlers symbolise the growth and disastrous nature of the global industrial fishing sector.

The 126-metre supertrawler, *Afrika*, fishing off the coast of Mauritania. The operation of big boats such as this have had a devastating impact on fish stocks and artisanal fishers in West Africa and the Pacific. Photo: ©Pierre Gleizes/Greenpeace.

The launching of the 85-metre *Fairtry* at the Aberdeen Shipyards in 1954 ushered in the age of the supertrawler, revolutionising the where and how fish are caught, processed and marketed. By travelling further and staying at-sea for longer, there are now few places in the oceans where they have not fished.

With the exception of the *Geelong Star* and several other foreign trawlers that have briefly operated off Tasmania, the owners and advocates of these big boats view Australian waters as relatively unfished. Their push for access to these waters has initially focussed on Australia's Small Pelagic Fishery, but each proposal has met with significant community opposition. In a federal government response, supertrawlers greater than 130 metres in length (the government's definition of a supertrawler) were prohibited from fishing in the Small Pelagic Fishery for up to two years in November 2012, with a permanent ban covering the entire AFZ issued in April 2015.

However, research for this report has identified just six supertrawlers – the *Margiris, Annalies Ilena, Maartje Theadora, Willem Van Der Zwan, Viktoriya* and *Antarctic Sea* – that would meet the necessary requirements to be impacted by the ban. Table 1 lists 71 supertrawlers that are between 95 metres (the length of the *Geelong Star*) and 130 metres in length; Russia is currently building another seven, each 110 metres[60]. Also indicated are the current flags for each vessel, many of which are flags of convenience obtained from nations such as Namibia, Belize, the Cook Islands and Dominica, none of which have industrialised fishing fleets of their own.

Overfishing, illegal fishing and hardship for artisanal fishing communities are common features of supertrawler operations. Overfishing of Chilean jack mackerel stocks has been documented in the South Pacific, and horse and chub mackerel and sardine populations are in decline in West African waters. Some operators have also broken fishing and conservation laws in the waters of coastal nations. For example:

- *Frank Bonefaas* was found carrying 632,000kg of mackerel caught in a protected area off southwest England[61];
- *Helen Mary* was detained over fishing offences off Scotland in 2015[62];
- *Archimedes* (formerly *Kovas*) and *Saga* both fished a Senegalese prohibited zone and destroyed artisanal fishing gears[63].

Large longline and purse-seine fishing vessels with freezing and storage facilities also play a significant role in overfishing, as well as large carrier vessels that take on board the catches of smaller fishing boats.

Purse-seine fishing vessels use nets that can be up to two kilometres long and 200 metres wide to surround and trap schools of tuna, mackerel and other pelagic fish. According to the National Oceanic and Atmospheric Administration (NOAA): 'Purse-seining is a non-selective fishing method that captures everything that it surrounds, including protected species'[64] that include marine turtles and dolphins. Those purse-seiners above 70 metres long and 'equipped with considerable freezing and storage facilities, capable of undertaking extended transoceanic voyages for harvesting fish'[65] are called 'super-seiners' (see Table 2). The International Seafood Sustainability Foundation website (iss-foundation.org) reveals that there are 279 super seiners, with 20 above 95 metres in length.

Large purse-seiners have been involved in overfishing, illegal fishing and the undermining of artisanal fisheries. For example, the 105-metre *Albacora Una*, owned by the Spanish fishing company, Albacora, has been fined for illegal fishing in 2010 (US waters), 2012 (Marshall Islands) and 2013 (in Nauruan waters), and alleged to have discarded skipjack tuna in contravention of a resolution of an RFMO[66]. In 2012, the 107-metre *Txori Argi* was caught in Mozambiquan waters fishing without a licence and fined, and suspected of doing the same a year later in Liberian waters[67]. These two vessels and the 115-metre *Albatun Tres* have contributed to the depletion of yellowfin tuna stocks[68].

Longline fishing vessels drag kilometres of hooked lines through the ocean surface, targeting tuna and billfish but also catching albatrosses, seals, turtles and other threatened marine life. They are much smaller than supertrawlers and purse-seiners, the longest being 64 metres (see Table 3), have far smaller storage facilities and often tranship their catch to carrier vessels (mother ships or fish factories).

The largest carrier vessels are the *Vladivostok 2000* (formerly known as *Damanzaihao* and *Lafayette*) and the US *Ocean Phoenix*, both longer than 200 metres. Russia has at least six large carrier vessels, the *Dalmos, Zaliv Vostok, Victor Gavrilov 126, Sevryba, Frio Vladivostok* and *Pyotr Zhitnikov*, ranging in length from 126 to 179 metres. Belize has the *Frio Poseidon* at 153 metres, and Norway the *Antarctic Sea* at 132 metres. In 2018 there were 19 carrier vessels used in the waters covered by the Indian Ocean Tuna Commission[69], while the Western and Central Pacific Fisheries Commission's vessel register currently lists 419 fish carriers[70].

Table 1. Supertrawlers 95 metres in length and above

Note – this benchmark has been chosen for the purposes of this table as the *Geelong Star* supertrawler (aka *Dirk Dirk*) which fished in Australian waters from 2015-2016 was 95m long.

Name	Length (m)	Flag
Annalies Ilena (Atlantic Dawn)	145	Poland
Margiris (Abel Tasman)	143	Lithuania
Willem Van Der Zwan	142	Netherlands
Maartje Theadora	141	Germany
Viktoriya	141	Russia
Antarctic Sea	132	Norway
Jan Maria	126	Russia
Afrika	126	Netherlands
Carolien	126	Netherlands
Galileo	125	Cook Islands
Long Teng	121	China
Navigator	121	Belize
Kai Li	120	China
Simonas Daukantas	120	Lithuania
Geysir	120	Belize
Sejong	120	Korea
Simon Bolivar	120	Cuba
Jupiter 1	120	Namibia
Heinaste	120	Namibia
Soley	120	Belize
Ieva Simonaityte	120	Lithuania
Johanna Maria	120	Netherlands
Long Fa	120	China
Jupiter 1	120	Namibia
Saga	120	Namibia
Atlas	119	Russia
Frank Bonefaas (laid up)	119	Netherlands
Archimedes	118	Comoros
Helen Mary	117	Germany
More Sodruzhestva	115	Ukraine
An Xing Hai	115	China
Zeeland	114	Netherlands
Cornelis Vrolijk	114	United Kingdom
Fu Rong	111	China
Nambukho	111	South Korea
Sejong	110	Korea
Dirk Diederick KW 172	110	Netherlands
Atlantic Sirius	105	Belize
Kai Fu Hao	105	China

Name	Length (m)	Flag
Kapitan Nazin	105	Poland
Kapitan Sulimov	105	Russia
Boris Trofimenko	105	Russia
Fishing Success	105	Latvia
Kapitan Rusak	105	Georgia
Kapitan Sukhonyayevskiy	105	Georgia
Irvinga	105	New Zealand
Ivan Golubets	105	Georgia
Kapitan Morgun	105	Georgia
Desert Ruby	105	Namibia
Kai Yu	105	China
Sunfish	105	Russia
UnionSur	105	Chile
Kapitan Kayzer	105	Russia
Mainstream	105	New Zealand
Admiral Kolchak	105	Russia
Petr I	105	Russia
Vasilyevskiy Ostrov	105	Russia
Mekhanik Kovtun	105	Russia
Vladimir Starzhinsky	105	Russia
Vladivostok	105	Russia
Professor Mykhaylo Aleksandrov	105	New Zealand
Seawind	105	Russia
Atlantic Sirius	105	Belize
Meridian-1	105	New Zealand
Te Raukura	105	New Zealand
Venus 1	105	Namibia
Carapau 1	105	Namibia
Star Skn	104	Cook Islands
Northern Eagle	104	USA
Naeraberg	104	Faroe Islands
More Sodruzhestva	103	Ukraine
Northern Jaeger	102	USA
Lian Xing Hai	102	China
Juvel	100	Norway
Xin Yu No 1	96	China
Insung Ho	96	Korea
Gloria	95	Belize
Dirk-Dirk (Geelong Star)	95	Netherlands

Source: Marine Traffic website, marinetraffic.com. FAO and RFMO registers.

The *Vladivostok 2000* is a 49,000-tonne vessel able to process 1500 tonnes of fish each day. In 2015 it was placed on the Illegal, Unregulated and Unreported (IUU) list by the South Pacific Regional Fisheries Management Organisation. The Peruvian Government detained it in May 2018, charging it with illegal fishing and marine pollution, still owing US$7 million in fines from 2016 for other fishing offences. Since its construction in 1980, the *Vladivostok 2000* has had eight different names and nine owners, and been flagged at different times to the Bahamas, Liberia, Malta, Dominica, Russia, Mongolia, Peru (three times), Moldova and Belize. In 2018 it was sold by the bankrupt China Fishery Group to Singapore-based DVS-R PTE. It remains on the IUU list.

The launch of the 85-metre *Fairtry* in 1954 set off the age of the supertrawlers. It was a factory freezer trawler that could catch, process and freeze fish, stay at-sea for long periods and access more distant fishing grounds. Factory freezer trawlers like the *Fairtry* can range in length from approximately 60 metres to 145 metres with varying crew numbers (the *Fairtry* crew was 82 strong) and structural configurations. However, the longer they are the bigger their catches, the larger and more complex their processing and freezing capacities and the more impactful their operations on the marine environment.

Although the Australian government has used a minimum length of 130 metres to define supertrawlers, such a proxy captures only six factory freezer trawlers and is arbitrary in its application. The *Fairtry* was 85 metres and considered a supertrawler, the *Dirk Dirk* (*Geelong Star*) is 95 metres and also viewed globally as a supertrawler, and there are at least another 70 factory freezer trawlers longer than the *Dirk Dirk* but below the Australian Government's 130-metre threshold (see Table 1). As already mentioned, NOAA has defined purse-seine fishing vessels longer than 70 metres and 'equipped with considerable freezing and storage facilities, capable of undertaking extended transoceanic voyages for harvesting fish' as 'super-seiners'. A similar definition could be used to identify factory freezer trawlers longer than 70 metres as supertrawlers.

The individual and collective impacts of supertrawlers are significant, and they have rightly been the initial focus of the debate in Australia about the entry of large foreign fishing vessels. However, the use of large foreign purse-seine, longline and carrier vessels may also be seen by commercial fishers as Australia's fishing future.

Table 2. Selected large purse-seine fishing vessels

Name	Length (m)	Flag
Norma	131	Peru
Albatun Tres	115	Spain
Panama Tuna	115	Ecuador
Artza	113	Seychelles
Doniene	109	Spain
Izurdia	108	Spain
Pacific Star	108	Curaçao
Florentino	108	Ecuador
Vicente	108	Ecuador
Txori Argi	107	Spain
Txori Toki	107	Seychelles
Albacora Uno	105	Spain
Alakrana	104	Spain
Txori Zuri	104	Spain
Albatun Dos	102	Spain
Itsas Txori	96	Spain
Txori Gorri	96	Spain
Draco	96	Seychelles
Galerna II	96	Seychelles
Parsian Shila	96	Iran

Source: Marine Traffic website, marinetraffic.com.
FAO and RFMO registers.

Table 3. Selected large longline fishing vessels

Name	Length (m)	Flag
Chun 1 No 11	64	Taipei
Chun 1 No 12	64	Taipei
Froeyanes	60	Norway
Yi Shun	59	Taipei
No.7 Kyungyang	59	Korea
No.6 Kyungyang	59	Korea
Chun I No. 307	59	Seychelles
Shang Shun No. 168	59	Taipei
Lung Soon No. 886	59	Taipei
Jin Hong No.308	59	Seychelles
Essien	59	Taipei
Da Wen	58	Vanuatu
Chin You Ming	58	Taipei
Charng Fu Ying	57	Taipei
Chin Chun No 12	57	Vanuatu
Northern Leader	56	US
Keny	56	Ecuador
Chokyu Maru No 8	56	Japan
Atun Tres	56	Korea
Dong Won No 201	56	Korea

Source: Marine Traffic website, marinetraffic.com.
FAO and RFMO registers.

4. Impacts from pelagic fishing

Small pelagic fish have succumbed to fishing pressure from supertrawlers in the Pacific and Atlantic oceans. They are now being targeted in Australian waters.

The 143-metre supertrawler, *Margiris*, here seen fishing off the coast of Mauritania in March 2012. By the end of August of that year it had arrived in Australia, registered as an Australian boat and renamed the *Abel Tasman* to fish in the Small Pelagic Fishery. Photo: ©Pierre Gleizes/Greenpeace.

Targeting the Small Pelagic Fishery

In 2004 the Veronica Sea Fish company proposed that the *Veronica* be allowed to fish in Australia's Small Pelagic Fishery, which extends from southern Queensland down the east coast and around to Port Lancelin near Perth. A joint venture company was established by Kevin McHugh and a Port Lincoln company called Agritrade[71]. The plan was to harvest between 50,000 and 100,000 tonnes of mackerel and redbait each year in the Small Pelagic Fishery (see Figure 2 and Table 4) as a cheap source of fish meal for tuna ranching operations at Port Lincoln[72].

The move garnered community opposition due to the environmental and social impacts of such a large foreign fishing vessel, and state governments were proclaiming that they would not allow it to enter their coastal waters[73]. Subsequently, AFMA froze boat nominations in September 2004 and the *Veronica* never operated in Australian waters.

Eight years passed before the 143-metre, Lithuanian-flagged *Margiris*, which has a storage capacity of 4500 tonnes, arrived in Australia on 30 August 2012 to fish the Small Pelagic Fishery. With its large fishing, processing and freezing capacity, it could conceivably catch the entire Small Pelagic Fishery quota (52,150 tonnes in 2018-2019) on its own if permitted.

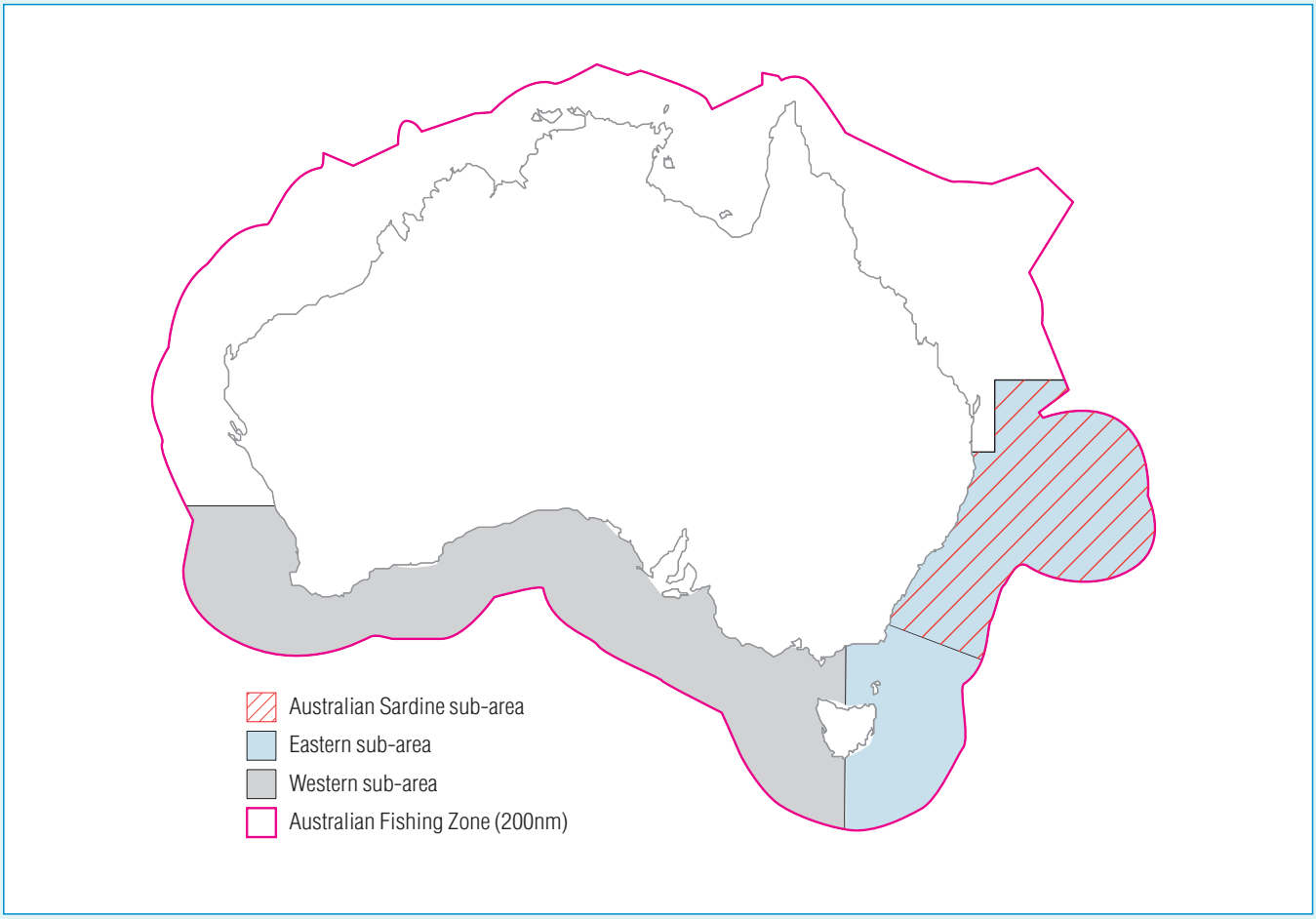


Figure 2. Small Pelagic Fishery

Source: Adapted from Patterson H et al. 2018, 'Fishery status reports 2018', p.95.

The use of the *Margiris* was to be a joint venture between the vessel's then Dutch owners, Parlevliet en Van der Plas BV, and local fishing and processing company Seafish Tasmania, with the vessel to be Australian registered, Australian flagged and renamed *Abel Tasman* (after the Dutch 17th-century explorer) for its Australian operations.

In September 2012 the federal Labor Government amended the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) to allow the environment minister to initiate an expert-panel assessment of a Declared Commercial Fishing Activity (DCFA). Interim and final declarations were made in September and November 2012 on the use of a supertrawler in the Small Pelagic Fishery, with each declaration prohibiting the *Margiris* from fishing until an expert panel, formed in February 2013, assessed its impacts. Before the panel could complete its review, the supertrawler left in March 2013, heading for the less-regulated South Pacific waters off Chile to fish for jack mackerel[74].

Seafish Tasmania and Parlevliet en Van der Plas tried again in 2015 with the 95-metre, 1061-tonne freezer capacity supertrawler *Dirk Dirk* (registered as an Australian vessel and renamed *Geelong Star*). The vessel received approval to fish the Small Pelagic Fishery, where it operated from April 2015 to November 2016, largely exporting the fish to West Africa.

Grave concerns around the potential for overfishing of small pelagic stocks, including localised depletions, and the bycatch of dolphins, seals, albatrosses and a whale shark, sparked a national campaign from environmental and recreational fishing organisations, and a subsequent Senate Inquiry. On the day before the November 2016 release of the Senate Inquiry's report that would recommend a ban on supertrawlers in the Small Pelagic Fishery, the *Geelong Star* departed Australian waters.

One of several posters produced by environment groups and recreational fishers opposing the operations of the supertrawler, *Geelong Star*, in the Small Pelagic Fishery. Graphic: Save Our Marine Life.

The little fish in the fishery

Australian sardine, jack mackerel, blue mackerel and redbait are all small (20-50 centimetres in length), slender and oily fish that travel in large schools near the ocean surface (pelagic waters), filtering water in search of krill and other tiny plankton. Schooling helps protect them from their predators like penguins, albatrosses, gannets, shearwaters, seals, dolphins and tuna but also makes them relatively easy for commercial fishers to catch.

Around the world, small pelagic fish play a pivotal role 'sustaining many predators and fisheries directly and indirectly' according to Pikitch et al. (2012) and provide:

- ecological support service for predators in marine ecosystems;
- catch value in fisheries (valued at US$5.9bn);
- support service to the catch and value of fisheries that target their predators (valued at US$11.3 billion[75].

Small pelagic fish have been the mainstay of many artisanal fisheries. But in the age of industrial fishing, their stocks have been devastated, scooped up in the nets of supertrawlers. Many small pelagic fish stocks have collapsed due to overfishing, including Atlantic herring, Icelandic spring herring, south-east Atlantic pilchard, Peruvian anchovette, capelin, Pacific mackerel and the Pacific sardine[76].

In Australia, with few nutrient-rich upwellings in our oceans, the populations of small pelagic fish are far smaller and at risk. The Small Pelagic Fishery has previously closed down twice, blamed on changing water temperatures caused by climate change[77], and fishing pressure[78], and few commercial fishers are now active. In 2012-13 the total catch was only 16 tonnes, while the 2017-18 catch of 5713 tonnes was just 11.6% of the Total Allowable Catch (TAC) of 48,900 tonnes[79]. Commercial fishers have used these figures to claim the need for supertrawlers to exploit what they claim are 'under-utilised' fish.

Table 4. Features of the Small Pelagic Fishery

Feature	Western sub-area	Eastern sub-area
Management	Limited entry and quota management • gear restrictions • fishery management plan in force from 2012 • mandatory logbook reports and vessel management plans • harvest strategy • electronic monitoring, independent on-board observers • area closures • dolphin mitigation strategy • bycatch and discard work plan	
Total Allowable Catches (TACs) 2018–19	Blue mackerel (3230 t); Jack mackerel (4190 t); Redbait (820 t)	Blue mackerel (12,090 t); Jack mackerel (18,890 t); Redbait (3420 t); Australian Sardine (9510 t) across both zones
Gear	Purse-seine and mid-water trawl	Purse-seine and mid-water trawl
Species targeted	Australian sardine, blue mackerel, jack mackerel and redbait	Australian sardine, blue mackerel, jack mackerel and redbait
Value of production	Unknown (confidential)	Unknown (confidential)
Markets	Bait for recreational fishing, fish meal for aquaculture and human consumption (Australia and overseas)	
Ports	Geelong, Melbourne, Iluka, Ulladulla	
Active vessels (2017-–18)	2 purse-seiners, 1 mid-water trawl	
Statutory Fishing Rights	30 entities held SFRs across the three fishery sub-areas in 2017–18	

Source: Patterson H et al. 2018, 'Fishery status reports 2018', ABARES, Canberra.

The ecological impacts of supertrawlers

Concerns that supertrawlers operating in the Small Pelagic Fishery could lead to localised depletion of target species, bycatch, interactions with protected marine species, reduced recreational opportunities and impacts on regional coastal towns led to three major inquiries between 2013 and 2016 that considered these issues. Two of the inquiries were by an expert panel appointed by the federal environment minister, and the third by the Senate Environment and Communications Committee.

The expert panel was formed in 2013 under the *EPBC Act* and produced separate reports on each of two Declared Commercial Fishing Activities (DCFA):

- a mid-water trawl vessel above 130m in length and with storage capacity of above 2000 tonnes, reported on in 2014;
- a mid-water trawl operation with a storage capacity above 1600 tonnes and a fish processing activity that received fish from catcher boats in a transhipping operation, reported on in 2015 (Seafish Tasmania had proposed that instead of fishing for small pelagics, the *Margiris* would operate as a carrier vessel, taking on board the fish caught by smaller catcher boats).

Localised depletion of small pelagic fish

The expert panel defined 'localised depletion' as 'a spatial and temporal reduction in the abundance of a targeted fish species that results from fishing'[80]. In its report, the panel noted that the harvest strategy for the Small Pelagic Fishery accepted that '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'[81].

The expert panel found that the DCFA had 'the potential to have adverse impacts on CPF species [central place foraging species, such as seals and seabirds]' but that 'under the current monitoring regime it is unlikely that such impacts would be detected' and that there were insufficient data 'to determine the degree of localised depletion that would result in adverse environmental impacts to protected CPFs'[82].

According to the expert panel, transhipment at sea (under the second DCFA) could also cause localised depletion because it 'would potentially allow for the catching fleet to increase its effort…compared to operations in the past but this would be constrained by the need for the catching fleet to regularly return to port to refuel'[83].

While accounting for the lack of adequate data associated with the impacts of supertrawler activities, the expert panel stressed that 'it is important that the assessment of the DCFA be considered in the context of the role of SPF [Small Pelagic Fishery] target species in the southern Australian marine ecosystem, the management regime and of the cumulative impacts of fishing in the area of the SPF on protected species affected by the DCFA[84].

Marine scientist Jessica Meeuwig expressed concerns that the setting of an 18,000 tonne quota for the *Margiris*, which was 10 times previous catches, meant that: '...the Government is relying on its ability to determine the unfished biomass; that is, its ability to count fish. But its estimates are generally based on old information (in the east, blue mackerel information is from 2004), inferred from other species (for jack mackerel in the east) or entirely absent (for jack mackerel in the west, Peruvian jack mackerel in the west, and redbait in the west). It is likely that biomass estimates (and associated quotas) are much more uncertain than is currently reported. Indeed, Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) assessments of population status are based on fishing effort rather than actual population size'[85].

Bycatch, discard and interactions with threatened species

A 2008 study by Lyle and Wilcox (2008)[86] reported on seal and dolphin mortalities associated with the Small Pelagic Fishery. The fishery had initially used purse-seine gear but changed to mid-water trawling in 2002. Fourteen dolphins were killed in 2004, followed by more dolphin deaths in 2005. Around the same time there were also reports of seal bycatch.

The researchers estimated that 55 seal deaths occurred over the 13 months of their study, with the survival of 20 others uncertain: 'An important observation from the study was that all seal mortalities eventually fell out of the escape exit prior to the net being brought onboard the vessel, suggesting that many would not have been observed without the camera system and hence the scope of the bycatch issue would have been understated, even with a high level of observer coverage'[87].

A 2012 departmental briefing to the federal environment minister stated 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'[88].

In relation to interactions with threatened seabird species, the departmental briefing also noted 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'[89] and that because of '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'[90].

The uncertainties around interactions with threatened species and the level of localised depletion from a supertrawler led the department to advise the Minister that a declaration prohibiting the use of such trawlers longer than 130 metres in the Small Pelagic Fishery, while an expert panel deliberated on the issues, was consistent with the *EPBC Act*[91].

In terms of the fish processing activity, the subject of the second DCFA, the expert panel found that 'if the presence of the processing vessel allows fishing to extend into areas not previously fished or more intensive fishing of some areas, it is reasonable to expect a change in both the rate of interactions and the protected species involved, for example the fish processing activity may result in interactions with all three pinniped species rather than just fur seals'[92].

The Department of Agriculture's Regulation Impact Statement prepared on the future of supertrawlers summarised the views of the expert panel thus: The Expert Panel concluded that there remains considerable uncertainty and that while mitigation strategies could be explored, the operation of large vessels will present considerable environmental risk regardless of these strategies being adopted'[93] and 'The Expert Panel found that considerable uncertainty existed about direct interactions with protected species and the potential for localised depletion to result in adverse environmental impacts on some protected species'[94]. The Regulation Impact Statement therefore concluded that 'A continuation of the prohibition on this class of vessel would take a conservative approach to this uncertainty'[95].

The Senate Committee's report included data on interactions with threatened species before and during the operation of the *Geelong Star* in the Small Pelagic Fishery. In the 2014 fishing season there were no reported interactions with protected species but by 27 September 2016 nine dolphins had been killed, along with 11 albatrosses and 47 seals.

The Senate committee concluded that: 'The use of excluder devices and other mitigation techniques cannot address the fundamental problem; namely, that the massive net towed by the *Geelong Star* means the vessel cannot target its quota species selectively. Avoiding mortalities of protected species and the bycatch of other species, including species highly valued by other fishing interests, is impossible'[96].

In its submission to the Senate inquiry, the Amateur Fishermen's Association of the Northern Territory said that: 'Discarded bycatch also can include the wasteful dumping at sea of many tonnes of fish when they are considered too small for market, unusable or not the target species. Indeed, an AFMA observer report on the *Geelong Star* on its first voyage from April 2-22 included the discard of 7.5 tonnes of Australian pilchard, which the vessel was prohibited from keeping, 1.3 tonnes of redbait, which were too small to be pumped from the net to the vessel, and one tonne of blue mackerel which were unusable after falling into a sump'[97].

Senate Committee's criticism of AFMA's management of the *Geelong Star*

The Senate Committee was highly critical of AFMA's management of the *Geelong Star*: 'AFMA has a poor record with respect to managing the *Geelong Star*. It is difficult to believe that AFMA is undertaking a precautionary approach to managing the SPF when AFMA has, on multiple occasions, needed to react to various events involving the vessel by implementing further measures[98].

There were other AFMA failings in its management of the Small Pelagic Fishery highlighted by the Committee's report and submissions and presentations made to its inquiry. These included:

- irregular and dated stock assessments of some species. The most recent daily egg production method (DEPM) surveys for blue mackerel in the western sub-area is 2005, for redbait in the eastern sub-area it is 2006, while for blue mackerel, jack mackerel and Australian sardine in the eastern sub-area it is 2014. Since the committee's report, a DEPM for jack mackerel in the western sub-area was completed in 2017[99];
- the use of an underwater camera was not a routine requirement (the expert panel recommended that it should be). If bycatch species were caught and killed but remained trapped underwater, they would not be detected;
- independent observer coverage was not 24/7 (the expert panel recommended that it should be), although the vessel was operating day and night;
- a short-term ban on night fishing operations by the *Geelong Star* to avoid dolphin deaths was lifted by AFMA on the premise that the vessel could not profitably target one of its target species under the existing condition, and that an additional excluder device, a barrier net, was to be installed (these have not been used on any other Australian trawler before or since its use on the *Geelong Star*).

5. The threat of more big boats

Although the use of Australian waters by foreign fishers has a long history, in recent years they have been largely limited to traditional Indonesian fishers and the occasional big boat. But this could soon change, as global pressure on fish populations drives more supertrawlers and other large foreign fishing vessels our way.

Seabirds follow the German-flagged supertrawler, the 141-metre *Maartje Theadora*, as it fishes for herring in the English Channel (it has been fined for illegal fishing in EU and Irish waters). Bycatch of seabirds and other marine life is a major issue for trawler operations. Photo: ©Christian Åslund/Greenpeace.

Past and current use of foreign fishing vessels in Australian waters

Until the United Nations Convention of the Law of the Sea (UNCLOS) in 1982, which bestowed coastal nations with sovereign rights over offshore waters out to 200 nautical miles, foreign fishing vessels were frequently fishing in what is now the AFZ.

Traditional Indonesian fishers have used Australian waters for centuries and continue to fish in an MOU box in the region of Scott and Ashmore reefs. Industrial foreign fishing vessels, mainly from China and Taiwan, fished for many decades in the waters off the Kimberley coast for demersal finfish such as snapper, emperor, sweetlips, bream, grouper and bigeye tuna up until 1990[100]. Catches peaked in the 1970s and then fell steadily. And Japanese and even Russian trawlers fished for prawns in the Gulf of Carpentaria during the 1960s and 1970s.

With the decline of fish resources in Japanese waters in the 1950s, the Japanese Government encouraged distant-water tuna fishing, which eventually included areas off Western Australia, NSW and Tasmania. The Japanese longliners also targeted seasonal aggregations of black marlin in the Coral Sea where their annual catches ranged from 2000 to 14,000 fish in the 1950s and 1960s[101]. Between 80 and 90 Japanese vessels[102] continued to fish for southern bluefin tuna after the declaration of the AFZ through an agreement between Australia and Japan renewed annually by subsidiary agreements.

Japanese access to fish in Australian waters ended in 1997 amid a dispute between Australia, Japan and New Zealand about the status of tuna stocks, allowable catches and Japan's experimental fishing program. In 2006 it was revealed that Japan had been underreporting its catches and exceeding quota. Of a 6000-tonne national quota, Japan had been 'catching anything between 12,000 and 20,000 tonnes for the last 20 years, and hiding it. And has probably killed that stock … And that's one of our major fisheries in Australia'[103]. Australian authorities believe that over a 20-year period the quota breach amounted to an excess of approximately 250,000 tonnes, worth more than $10 billion[104].

Large foreign trawlers have been used by Tasmanian-based Petuna Sealord Deepwater Fishing (PSDF) in the Commonwealth Trawl Sector of the South East Scalefish and Shark Fishery (SESSF) since 1979, largely targeting blue grenadier off the west coast of Tasmania during July and August, when ocean conditions are calmer.

Illegal access to Australia waters has been made by foreign fishers over many years. From the 1990s to early 2000s Illegal, Unregulated and Unreported (IUU) fishing by foreign vessels in Australian waters was focused on the Patagonian toothfish in the Southern Ocean near Heard and MacDonald Islands. More recently, IUU fishing has largely been in northern Australian waters where, in 2006, there were 365 vessels intercepted and 2600 fishers apprehended[105]. Although the number of vessels and apprehensions has significantly declined since then – only 14 vessels and 85 fishers were apprehended in 2017–18[106] – there remain concerns that this may not reflect the true level of illegal fishing. According to Cairns tuna fisher Bob Lamason, it will 'become a bigger and bigger problem'[107].

Professor Colin Simpfendorfer believes that: 'Any illegal fishing such as this has a major impact on Australian resources. It also makes it difficult for us to assess the status of our resources because we don't know what's being taken out. Obviously accounting for those catches is important when we do assessments of the status of a whole range of species. It also means populations that may be down will take longer to recover'[108].

Existing regulations on foreign fishing vessels entering Australian waters

Sections 34–37 of the *Fisheries Management Act 1991* deal with the entry and operation of foreign vessels in the AFZ, as do a set of guidelines released in 1989 that provide advice on applications to use them[109]. Under the Act, foreign fishing vessels are prohibited entry to fish in Australian waters except where they:

- are here under a bilateral agreement or a treaty with another country;
- have been imported and registered on the Australian shipping register – they must satisfy Australian Maritime Safety Authority (AMSA) requirements;
- have been deemed by AFMA to be Australian vessels;
- are part of a collaborative fishing venture.

Australia has deemed New Zealand vessels to operate off the west coast of Tasmania to catch blue grenadier, which is sold principally to transnational corporations like McDonald's. It was within a bilateral agreement that Australia allowed Japanese-flagged fishing vessels to harvest southern bluefin and yellowfin tuna from the 1970s – the Australian tuna fishing sector was in a parlous economic state and incapable of doing so[110] – until the late 1990s. It was then determined that stocks were fully fished and there was no longer sufficient benefit to fisheries or the community from the Japanese fleet's presence. At the same time, Australia and Japan could not agree on the global total allowable catches of southern bluefin tuna[111]. Australia was also a signatory to a multilateral treaty that allowed access to Australian waters by US fishing vessels. And the entry of the supertrawler *Geelong Star* was part of a collaborative fishing venture between an Australian company and the ship's foreign owners.

About six vessels are imported into Australian waters each year but there are currently no bilateral agreements and deeming has not occurred for several years[112].

Under subsection 4(1) of the *Fisheries Management Act 1991*, a boat is an 'Australian boat' if it satisfies any one of the following three conditions:

- the boat is operated from Australia and is wholly owned by an Australian resident or Australian company and was built in Australia;
- the boat is listed on the Australian Shipping Register, except if it is owned by a foreign resident and under a demise charter arrangement;
- the boat has been declared by AFMA to be an Australian boat under subsection 4(2) of the *Fisheries Management Act 1991*[113].

If none of these conditions are met, the boat is, according to the AMSA website, regarded as a foreign boat and 'is not allowed to be used to fish under a fishing permit or statutory fishing right granted by AFMA, unless allowed under the relevant management plan. Even if the boat is flagged to Australia, it is still regarded under the *Fisheries Management Act 1991* as a foreign boat if it is owned by a foreign resident and operated by an Australian under a demise charter'[114].

The AMSA website also reveals that: 'The legislation does not limit AFMA to only declaring Australian-flagged boats. AFMA has been prepared to consider applications for foreign-flagged boats to be declared "Australian boats" for limited periods of time in circumstances where alternative arrangements are unavailable or not feasible. AFMA regards a "limited period of time" as being a specific period of generally less than twelve months duration. Longer term or on-going arrangements should use Australian-flagged boats, unless there are special circumstances where it can be clearly identified as being in Australia's interest'[115].

According to the AMSA website, AFMA 'places a high degree of importance on whether the proposal is in Australia's interest'[116] when it assesses applications for the use of foreign-owned fishing vessels. AFMA considers:

- the involvement of Australian-based companies and personnel in the catching, processing, marketing and consumption of the product;
- whether the product is to be landed in Australia;
- ecological sustainability and economic efficiency issues;
- any conflict with government legislation and policies, as well as Australia's international obligations and interests;
- the extent of value gained by Australian involvement through such matters as expanding Australian knowledge and expertise, and domestic and export net revenues;
- the vessel operating within the management rules of the particular fishery for which it would be used.

The Australian interest test is one that could be open to broad interpretation. In its assessment of applications for the use of large foreign fishing vessels, AFMA has supported the *Margiris* (*Abel Tasman*) and the *Dirk Dirk* (*Geelong Star*), informally had no objections to the use of the *Veronica*[117], and backed the use of other large foreign vessels in the Commonwealth Trawl Sector. The *Margiris* and *Dirk Dirk* are owned by members of the PFA, the vessels of which have been associated with illegal fishing and overfishing, and the economic benefits accruing to Australia from foreign fishing vessel operations have been considered by a Senate Inquiry to be marginal at best. It would appear that even though there are regulations prohibiting the entry of foreign vessels, the exemptions provide pathways for successful applications.

The AMSA website also states that: 'A declaration by AFMA will not affect the boat's flag status and a foreign-flagged boat remains foreign-flagged, notwithstanding an AFMA declaration, for the purposes of international law and flag state responsibilities. If the boat is flagged to a foreign state, a declaration by AFMA under the *Fisheries Management Act 1991* does not mean the boat is re-flagged to Australia'[118]. This would also mean that the working conditions on the vessels would be subject to whatever the flag state requires, and brings into play the provisions of the international Maritime Labour Convention 2006.

The Maritime Labour Convention outlines key principles and conditions for employment in the shipping industry, including fishing vessels. There are provisions for hours of work, minimum wages, accommodation, health care and food, among other matters. Any nation having ratified the convention is expected to uphold these principles but there are many instances where this is not occurring, particularly in the case of vessels flying the flags of flag-of-convenience states. The flag states are not always those of the nation where the shipowners' company is incorporated. Often the shipowners

register the vessel in another country and fly its flag as a convenience because the flag state where the vessel is registered will likely have cheap registration fees, low or no taxes, access to cheap labour, no regulation of labour conditions, few or no safety and inspection standards, and weak environmental regulations[119].

The recent announcement that BHP would end Australian-crewed iron shipping, prompted this comment from the ACTU: 'Good, steady jobs will be replaced by work on flag-of-convenience ships where pay can be as low as $2 per hour and workers' rights are virtually non-existent. The overseas workers who will be crewing BHP ships in future are likely to be exploited, underpaid and at risk of serious injury or death'[120].

But even Australian-flagged vessels that have been added to AMSA's international vessel register 'can operate with mixed crews. The majority of officers and crew are not required to be Australian citizens or residents. This reflects the global nature of shipping, with crew drawn from around the world'[121]. However, they 'must comply with the International Labour Organization's Maritime Labour Convention 2006, which Australia has ratified, providing the appropriate safety net for seafarers'[122].

Making it easier for supertrawlers and other large foreign fishing vessels

Increasing quota and the area in which fishing is allowed

The Senate Environment and Communications Committee's 'Factory freezer trawlers in the Small Pelagic Fishery' report concluded that: 'Given the limited financial benefits the operator of the *Geelong Star* likely enjoys at present, the committee considers it is inevitable that the operator will push for the total allowable catch in the SPF to be increased significantly, along with the removal of key regulatory restrictions. Perhaps more vessels will be brought to exploit the fishery. The committee questions whether AFMA will cope with pressure from industry to allow for more intensive operations'[123].

It could be argued that TACs are already inflated in those fisheries where there is interest in the use of foreign fishing vessels, namely the Small Pelagic Fishery, tuna fisheries and the Commonwealth Trawl Sector (for blue grenadier). As well as pressure to increase quota, AFMA could be encouraged to open areas currently closed to fishing. In the Commonwealth, Great Australian Bight and East Coast Deepwater trawl sectors, for example, large areas below 700 and 750 metres in depth were closed to fishing for orange roughy under an AFMA regulation to allow the stocks to rebuild. This regulation could be rescinded in the future if AFMA determined that orange roughy stocks have been sufficiently rebuilt. As Knuckey et al. (2018) report, 'overfishing and subsequent recent recovery of the eastern orange roughy stock over the last two decades is well documented'[124].

Changing marine park zones to extend fishing grounds

In 2012, the federal Labor Government proclaimed new networks of Commonwealth marine parks in Australia's South West, North West, North, Temperate East and Coral Sea marine regions. Management plans, which outlined management zones with allowable uses, were subsequently tabled in Federal Parliament at the beginning of 2013. Later that year the plans were suspended by the newly elected federal Coalition Government, stopping the new marine park management arrangements from coming into operation. The management plans were then replaced in 2018.

The 2018 revised management plans opened up large areas within the marine parks to commercial fishing, including in the offshore, deep-water areas of high-level protection in marine parks along Australia's west, south and east coasts, including the Argo-Rowley Terrace, Gascoyne, South West Corner (the section over the Diamantina Fracture Zone), Coral Sea, Lord Howe and Norfolk Island. Most are located at great distance from the Australian mainland and accessible ports, and will require large fishing vessels that can remain at sea for long periods of time to commercially exploit the fish stocks. A new Special Purpose Zone (Trawl) was also introduced to the plans to allow demersal and mid-water trawling in the Argo Rowley Marine Park near Rowley Shoals, and in large areas inside the Coral Sea Marine Park.

These marine parks are within the fishing areas of the Eastern and Western tuna and billfish fisheries, longline fisheries that target albacore, bigeye and yellowfin tuna, and the billfish species of striped marlin and swordfish, as well as the eastern and western zones of the Skipjack Tuna Fishery. The Small Pelagic Fishery will also benefit from the zoning changes, which expand the areas available to mid-water trawling, the main gear type used.

The 2013 Coral Sea Marine Park management plan (Figure 3) has been substantial changed by the 2018 plan (Figure 4). In the 2013 management plan, a narrow General Use Zone along the park's south-western boundary with the Great Barrier Reef Marine Park prohibited mid-water trawl but allowed demersal trawling under a class approval. In the 2018 management plans, this zone has been expanded and renamed Special Purpose Zone (Trawl), which allows both demersal and mid-water trawling. The expansion has reduced the area of the Multiple Use Zone, which prohibited both forms of trawling, as well as the Habitat Protection Zone (Coral Sea), which excluded all industrial fishing activities.

The replacement of the Habitat Protection Zone (Coral Sea) and the majority of the Marine National Park Zone with a new Habitat Protection Zone substantially increases the waters available for purse-seining, the gear used in the Eastern Skipjack Tuna Fishery, and pelagic longline, which is used in the Eastern Tuna and Billfish Fishery (ETBF). The 2013 Habitat Protection Zone (Coral Sea) would have effectively been Australia's largest recreational fishing zone (only minor commercial fishing activities i.e. handlines, droplines, rods, traps, pots and hand collection were to be allowed).

The potential for deployment of supertrawlers and other foreign fishing vessels in Australian waters may drive the weakening of marine conservation and fisheries sustainability measures.

Figure 3. Coral Sea Marine Park Management Plan 2013

Source: Director of National Parks 2013, *Coral Sea Commonwealth Marine Reserve Management Plan 2014–24*, Director of National Parks, Canberra.

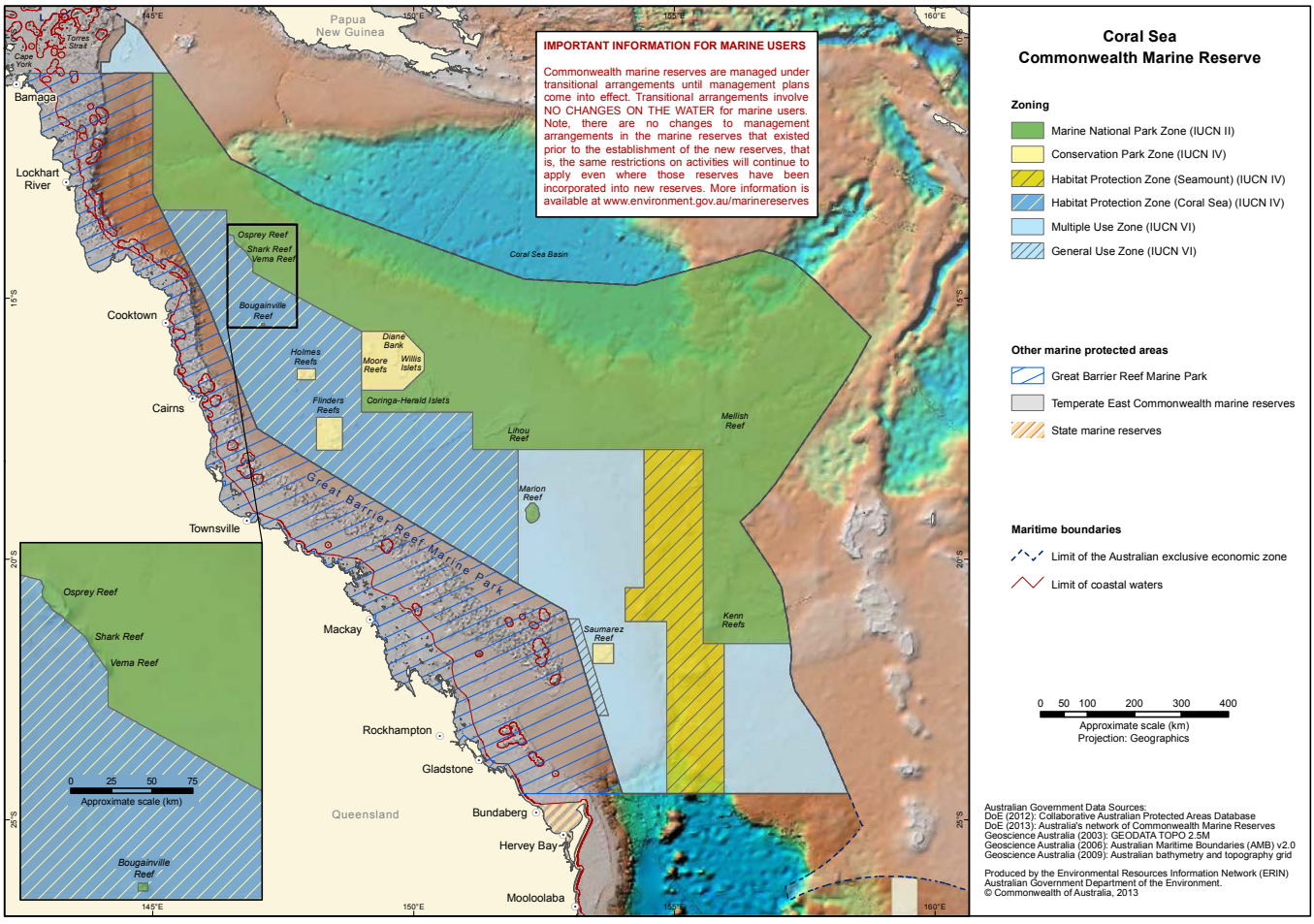
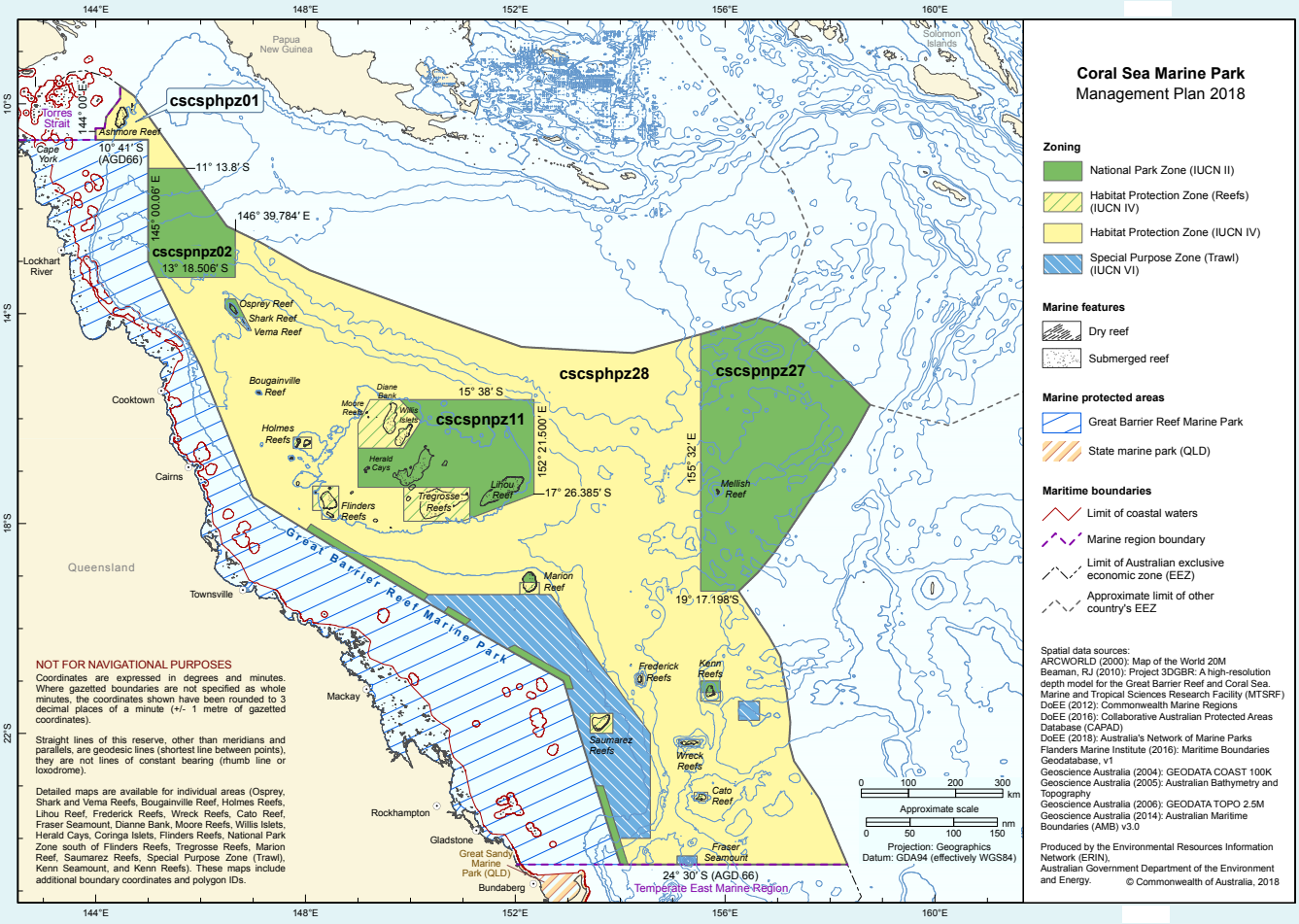


Figure 4. Coral Sea Marine Park Management Plan 2018

Source: Director of National Parks 2018, *Coral Sea Marine Park Management Plan 2018*, Director of National Parks, Canberra.



6. Testing the Waters

Some sectors of Australia's commercial fishing industry are keento see large foreign fishing vessels used to harvest and process fish in the Australian Fishing Zone.

The 110-metre supertrawler, *Dirk Diederik KW 172*, fishing off Mauritania. Photo: ©Pierre Gleizes/Greenpeace.

According to James Findlay, then Chief Executive Officer (CEO) of AFMA in 2017, there is a demand for large foreign fishing vessels to fish Australian waters: 'What's occurring here is that companies are approaching AFMA and AMSA and others looking at either importing vessels and putting them on the Australian shipping register or otherwise seeking to have them deemed and talking to us about what the sorts of processes might be around that. In the past, for example, we've deemed boats, New Zealand vessels, to operate off the west coast of Tasmania to catch what New Zealanders call hoki or we call blue grenadier, which is sold principally to groups like McDonald's and others for their Filet-O-Fish.'[125]. This interest in bringing foreign fishing vessels into Australian waters continues, confirmed by the current federal Assistant Minister for Agriculture and Water Resources at a recent Senate Estimates hearing when he said that he 'had some conversations' in that regard[126].

'Underutilisation' of fish

During a Senate Estimates hearing in the Rural and Regional Affairs and Transport Legislation Committee in 2017, then CEO of AFMA, Dr James Findlay, confirmed that AFMA and other agencies are in discussions with at least two Australian longline tuna operators regarding the importing of capacity to exploit 'underutilised' fish. He went on to say: 'At the moment, we have a significant underfishing issue going on in a number of quota managed fisheries. We've rebuilt or maintained stocks at healthy levels. We don't have the fishing capacity in Australia to actually harvest the amount of quota that we have available. We're only taking about half of the quota that we've scientifically demonstrated is sustainable. Understandably, quota holders are looking to explore opportunities to harvest that quota. And they're looking at bringing in capacity now. It's very expensive to build a boat, and there's lots of sovereign risk around that in the Australian context at the moment. They're looking at opportunities on the global market to bring in cheap capacity. That's just normal'[127].

The 'Fishery status reports 2018'[128] identified the Skipjack Tuna Fishery (not fished since 2009) as one with high non-participation by licence holders, along with the South-Eastern Shark and Scalefish Fishery (SESSF) sectors of the Commonwealth Trawl, Scalefish Hook, East Coast Deepwater Trawl and Great Australian Bight Trawl, where there are high levels of uncaught Total Allowable Catches (TACs). The Western Tuna and Billfish Fishery (WTBF) is in a similar position.

Such expressions of 'underfishing' or 'underutilisation' are based on a threshold for sustainability within a single species, single sector (fisheries) management approach focussed on production objectives. This idea overlooks the effects that such fishing has on non-targeted fish species, other marine life and broader marine ecosystems. The approach prioritises the maintenance of catches rather than ecological sustainability. Such fisheries management views fish solely as a short-term commercial resource and does not consider the role that fish play in marine biodiversity, culture and tourism.

In contrast to the AFMA position, the website of the Department of Agriculture and Water Resources, when considering issues for fisheries in Australia (updated in July 2017), proclaims that (with this report's underlining) there are no excess fish stocks: 'In the past, bilateral access agreements granting access for foreign fishing fleets to fish in our EEZ have been negotiated from time to time. These arrangements allowed foreign fleets to access the EEZ to fish for species under-exploited by the Australian domestic fishing fleet. Significant financial and other benefits, including technology transfer and access to catch and effort data, have flowed to Australia from permitting such access. The growth in the Australian domestic fleets means that no future access for foreign vessels to the Australian EEZ is likely to be granted as Australia no longer has excess fish stocks'[129].

When asked about this apparent contradiction, AFMA's acting CEO stated in Senate Estimates: 'The nuance may be that all of the access rights have been fully allocated, but there may be some underutilisation of those rights and of the total allowable catches in certain fisheries[130].

AFMA claims that the failure by commercial fishers to reach their TACs indicates that fish stocks are 'underutilised'. Edgar, Ward and Stuart-Smith (2018) have challenged the setting of TACs in their analysis of declining fish catches. They cite, for example, that catches of blue grenadier, deepwater flathead, gemfish, jackass morwong, bight redfish and silver warehou in trawl fisheries averaged 24% of the TAC and believe that: 'In most cases the TAC therefore appears irrelevant, declining through time and consistently annually overestimating the fish biomass available for catch[131].

Inadequate capacity

The industrialisation of fishing on a global scale has resulted in too many boats chasing too few fish. Global catches have declined, over-capacity is widespread and the owners of large foreign fishing vessels are in search of alternative fishing grounds to ensure the viability of their operations. Over-capacity, operational inefficiency and non-viability have also plagued Australian fisheries, with various structural adjustment programs used to mitigate the impacts.

In the South Australian Marine Scalefish Fishery, concerns about southern garfish saw licence numbers reduced from 113 to 52 and effort cut by 40% in 2005 to protect ecology and economic viability[132]. Since the 1980s, gear and licence restrictions, quotas and closures for marine parks and recreational fishing havens in New South Wales have reduced the number of commercial licences from 4000 to 1000[133].

Australia's largest fisheries adjustment package, 'Securing our Fishing Future', was prompted by an assessment in 2005 that 29% of commercial species in Commonwealth fisheries were overfished or vulnerable and fishers were struggling to be economically viable due to excess capacity[134]. The fisheries minister at the time said of the package that 'the main impact would specifically be on overfished fisheries, most notably the fisheries around the NSW, Victorian and Tasmanian coasts. These include the Eastern Tuna and Billfish Fishery and Bass Strait central zone scallop fishery, both of which are low-return or even negative return fisheries'[135].

In the Commonwealth Trawl Sector, the main sector in the SESSF, the package reduced fishing concessions by half from 118 to 59. Since then there have been some improvements in the sector's boat profits, productivity and net economic returns[136]. However, some of Australia's fisheries remain under economic pressure, and this restricts the availability of domestic capital investment. Of Australia's 22 Commonwealth fisheries, 65% of the Gross Value of Production (GVP) of AUD$403 million in 2016–17 is accounted for by just four of them – Northern Prawn Fishery (AUD$118m),

SESSF (AUD$82m across four sectors), Southern Bluefin Fishery (AUD$39m) and the Eastern Tuna and Billfish Fishery (AUD$36m). Only three other fisheries – Torres Strait Finfish Fishery, Torres Strait Prawn Fishery and Bass Strait Central Zone Scallop Fishery – had their GVP reported, with the remainder not reported due to confidentiality[137].

To deal with these economic pressures, AFMA and industry are now advocating the use of large foreign fishing vessels to rebuild capacity and avoid the need to invest Australian capital in new vessels. Significant capital investment would be required for Australian fishing companies to construct or purchase a large fishing vessel like those operated by overseas fishing companies. For example, in February 2019, one shipbroking website, Atlantic Shipping[138], had for sale six supertrawlers above 100 metres in length, with prices ranging from US$3.5 million to US$27 million. In 2017, the Russian fishing company, Norebo Holdings, announced that it was building six, 100-metre-plus supertrawlers at a cost of US$350 million to fish for Alaska pollock and Pacific herring. Two years later it added four more trawlers at an additional cost of US$240 million[139]. Russia's Federal Agency for Fisheries estimates that large-capacity fishing vessels can cost between US$61.1 million to US$112.6 million[140]. These cost estimates are part of the analysis behind Russia's desire to replace half of its 2000-vessel fishing fleet within the next 12 years[141].

But by bringing in large foreign fishing vessels, Australia will risk undermining international efforts to reduce global fishing fleet capacity. According to Associate Professor Quentin Hanich, when commenting on the arrival of the *Margiris*: 'Australia has been a strong proponent for global action to reduce the over-capacity of the global fishing fleet and the implementation of strong conservation measures…Australian bureaucrats and ministers from both sides of politics deserve recognition for their global vision and pro-active initiatives over the past two decades to ensure the long-term sustainability of the world's fisheries. And along comes the *FV Margiris*. Yet another example of the European Union's solution to over-capacity – swept under the rug of a foreign joint venture. Australian conservation initiatives on the global stage are now to be tested in our own waters. Principles established in the UN FAO code of conduct for responsible fisheries, to which Australia is a signatory, direct states to take steps to reduce over-capacity and avoid management actions that contribute to over-capacity'[142].

'Sustainable' fisheries management

At the time of announcing the 'Securing our Fishing Future' adjustment package, the federal fisheries minister also issued a ministerial direction to AFMA, requiring that the management agency focus on:

- overexploitation of resources, by ceasing overfishing and recovering overfished stocks;
- economic efficiency, by completing the implementation of Individual Transferable Quotas (ITQ);
- ecologically sustainable development by minimising interactions with protected species[143].

Such a directive was in response to building community awareness and concern about overfishing, bycatch and interactions with threatened species. The AFMA directive has led to increases in the stocks of commercially targeted fish species, and the number of 'overfished' stocks and those experiencing 'overfishing' have, based on the models and criteria used by AFMA, declined. Gear modifications, such as the introduction of turtle excluder devices, have reduced the bycatch of threatened species.

However, a recent analysis by Edgar, Ward and Stuart-Smith (2018) of data collected from 2005-2015 from 533 underwater monitoring sites around Australia, and its comparison with decadal trends in catch data for 213 reported species or species groups, 'found consistent population declines amongst many popular commercial and recreational fishes, including in marine parks that allowed limited fishing, while numbers increased within no-fishing reserves'[144]. The study also revealed that the biomass of fish over 20 centimetres in length had declined by 36% on fished reefs, and highlighted:

- the narrow scope of fisheries data (little fishery-independent data or bycatch and discard data);
- limited stock assessments with weak documentation, with little reference given to ecosystem-based management and rarely audited independently;
- decision making that prioritises short-term catch maximisation over precaution, largely excludes marine ecologists, and is dominated by industry;
- large-bodied individual fish are deliberately fished down as a goal while the wider environmental effect of fishing is overlooked.

The three marine scientists concluded that declining catches are due to species collapses and not conservative fisheries management: 'Australian wild fishery catches have fallen rapidly over the past decade, with total catch declining 32% from 2005 to 2014. Reported catches in different Australian management jurisdictions for 213 species or species groups show an average 31% decline since 2005'[145]. These data affirm that continuing declines in Australian fish catches are linked to declining fish stocks rather than increasing regulatory precautions that leaves more fish biomass in the sea. Ironically, the recently announced global projections predict a 0–20% decline in the total catch for the Australian region for the period 2000–2050, a level well exceeded already, given the average 31% decline for fish catches from 2005 to 2015[146].

Edgar, Ward and Stuart-Smith also commented on 'an absence of data relating to the "safe ecological limit" aspect of the sustainability for most fisheries. Furthermore, fishery sustainability can only be recognized amongst the small fraction of fisheries that are actively managed. Because of high management costs relative to fishery value, quantitative stock assessments involving population modelling and the collection of life-history information and fishing effort (including growth, size distribution, and maturity) cover <1% of species, and very few of these include annual fishery-independent assessments of population trends (including larval settlement and egg production proxies)'[147].

The use of catch per unit of effort (CPUE) data as the basis for stock assessments by fisheries scientists was also questioned by Edgar, Ward and Stuart-Smith. They argued that such data ignores the fact that CPUE can be maintained by increased use of technology and by travelling to more distant fishing grounds: 'For most assessments, a stable CPUE is regarded as indicative of stable population numbers and sustainable catch rates, even though fisheries biologists have long recognized that serial depletion (i.e. fishers maintaining stable catches by moving further afield as stocks close to home decline) and improvements in capture efficiency can obscure declining stocks. In particular, increased capture efficiency through improving technology (including GPS, acoustic sensors, weather forecasting, and boat and trawl design) and fisher knowledge can conservatively be estimated at 3% annually. Compounded, this equates to a 34% increase in real effort, and a 26% decline in stock, with stable CPUE in each decade'[148].

AFMA and industry claims of 'sustainable' fisheries should therefore be treated with some caution. TACs and the target of Maximum Economic Yield (MEY) (considered as 1.2x the MSY of 40% of pre-fished biomass i.e. 48%), are set to ensure the maintenance of production, not conservation and ecological sustainability. The Commonwealth Fisheries Harvest Strategy Policy defines MEY as the 'sustainable catch or effort level for a commercial fishery that allows net economic returns to be maximised'. The achievement of MEY may leave more fish in the water than MSY, but that is still less than half of what was there before fishing began.

When Australian fisheries and their managers are working to maintain fish stocks at below half of what they used to be, and to fish down stocks that are at levels above MEY to increase fisher profits, ecological sustainability is far from being achieved. For example: 'The most recent stock assessments for bight redfish projected biomass levels at the start of 2014–15 to be above the B_{MEY} target, potentially allowing increased profits from the species if it is fished down to its MEY target reference point'[149].

Any assessment of ecological sustainability must also consider:

- an estimate of fish stocks before fishing began;
- impacts on predator and threatened species;
- bycatch;
- impacts on habitat and the broader marine environment.

'While many people still view fisheries as a romantic, localized activity pursued by rugged individuals, the reality is that for decades now, numerous fisheries are corporate operations that take a mostly no-fish-left-behind approach to our oceans until there's nowhere left to go.'[150] Daniel Pauly, Sea Around Us

Efficiency of operations

In their submission to the Senate inquiry, the Institute for Marine and Antarctic Studies (IMAS) and the University of Tasmania (UTAS) explained the economic efficiency arguments for fisheries and the support of large foreign fishing vessels. According to the submission's authors, trading in Individual Transferable Quotas (ITQs) 'tends to shift catch to a small number of efficient operators, thus raising the overall technical efficiency of the fleet. This process reduces costs in the fishery because fewer vessels, less fuel, and less labour is required to take the catch. It is an economic approach applied to all of Australia's largest fisheries'[151].

In this efficiency context, IMAS and UTAS submitted that having a fishery with more smaller vessels rather than one large one 'would conflict with the objective of the ITQ systems used in all of Australia's largest fisheries and also with objectives of fisheries legislation in most jurisdictions, including the Commonwealth, which specifically aim to increase efficiency'[152].

They went on to say that 'Efficient fisheries with limited access and catch typically generate economic rents', and that 'All, or a portion, of the economic rent may be collected as royalty payments, which provides a transparent flow of benefits to the public'. But they added: 'Public benefit from commercial harvesting of fish stocks is ambiguous in Australia where royalty payments are not collected, product is exported, and employment is minimised by policies that promote efficiency. Most higher-value Australian fisheries, including those operated by large-capacity vessels, have trends of increasing foreign ownership so that the economic rent from fishery is private and flows out of Australia'[153].

Large foreign fishing vessels may be more efficient at catching fish. But the above commentary suggests that their use could lead to a concentration of fisheries operations in the hands of a very few operators, who are likely to be foreign nationals, with income flowing out of the country and job losses.

Economic benefits

In his oral submission to the Senate Committee's inquiry, Craig Johnson, one of the authors of the IMAS/UTAS submission, commented on the flow of catch revenues, stating that if the trawler '...is foreign owned then a lot of that revenue ends up going offshore. It is an Australian resource, but the revenue ends up somewhere else. That is a significant trade-off, and people have to make judgements about that as a policy'[154].

The Senate Committee's report concluded that the claimed economic benefits from large foreign fishing vessels were marginal, which would increase pressure on AFMA to increase TACs and weaken regulations: '...it is clear that the economic benefits achieved from allowing the *Geelong Star* to operate are marginal. Few Australians are employed on the vessel and the key positions are performed by subclass 457 visa holders. Although the total value of the fish caught is kept confidential, the fish targeted are of low value. The vessel is foreign-owned, meaning profits from the extraction of an Australian resource are distributed overseas. Yet, significant expense is incurred to allow the vessel to fish here – both in terms of the investment in science required to inform decisions about the SPF and the direct costs associated with regulating the fishery'[155].

In its report, the Senate Committee went on to say: 'Given the limited financial benefits the operator of the *Geelong Star* likely enjoys at present, the committee considers it is inevitable that the operator will push for the total allowable catch in the SPF to be increased significantly, along with the removal of key regulatory restrictions. Perhaps more vessels will be brought to exploit the fishery. The committee questions whether AFMA will cope with pressure from industry to allow for more intensive operations'[156].

Like the observations of the IMAS/UTAS submissions referred to previously, these conclusions by the Senate Committee also suggest that the operation of large foreign fishing vessels in the AFZ would reduce labour inputs i.e. local jobs, concentrate ownership of fishing concessions and generate a revenue flow out of the country.

Coastal economies could also suffer economic impacts. If foreign fishing vessels were targeting larger fish, such as tuna, they could conflict with recreational fishers who are increasingly accessing deeper, more distant waters for the same species, reducing their catch and undermining their enjoyment. This could occur along the south-western and south-eastern coastlines, including off Portland and Tasmania, where fishing for southern bluefin tuna is highly prized.

In its submission to the Senate Committee's review, the Amateur Fishermen's Association of the Northern Territory (AFANT) stated that: 'The removal of large amounts of pelagic baitfish species will have a flow on effect and will relocate sharks, tuna, billfish and other large pelagic gamefish such as Spanish mackerel, wahoo and mahi away from prime recreational fishing

grounds, which in turn will decrease recreational fishing opportunities and adversely affect the economies of coastal community's which rely on recreational fishing and tourism'[157].

When reviewing the economic impacts of prohibiting the use of supertrawlers in the Small Pelagic Fishery, the Department of Agriculture cast doubt on their economic benefits: 'Prohibiting the use of supertrawlers based on the proposed definition would in the short term have no impact on any business as none are operating such a vessel. In the long-term it would only affect a small number of businesses – specifically, those for which it might prospectively be considered viable to use a vessel over 130 metres in length overall to fish for their allocated quota'...'A prohibition of the largest vessels by defining supertrawlers as greater than 130 metres overall would not necessarily prevent a fishery from being economically viable, because vessels of smaller length could be used to catch the same level of quota'[158].

Increased access by foreign fleets would require greater resourcing to secure the borders against human trafficking, drug importation and environmental crimes, issues that are a feature of the global fishing industry. Fisheries chains are very complex and include insurers, ship owners, registry owners, catch processors and traders; monitoring of them requires transnational cooperation. Changes to vessel owners, names and flags, a feature of the fishing and shipping industries, also make it very difficult to keep track of criminal activity.

The use of foreign fishing vessels could stretch the resources of those agencies responsible for border protection. The areas proposed for fishing by foreign vessels are well offshore and out of sight; enforcement and compliance could become major cost issues. Recent reports indicate that the Australian Border Force has cut its at-sea surveillance to save on fuel[159].

Scale of fishing vessels

The advocates of supertrawlers claim that those who oppose them are obsessed with the size of the boats. They argue that it is not size that influences a boat's impacts but the amount of fish it is allowed to catch i.e. the TAC under fisheries management arrangements. But such a claim needs to be tested against the setting of TACs. As Edgar, Ward and Stuart-Smith (2018) have reported, some TACs could be inappropriately high with regard to ecological sustainability[160]. It could also be argued that the elevated TACs also ignore the economic realities of the fishery, possibly in the hope that they will attract a new business model based on the use of large foreign fishing vessels.

The larger the vessel, then generally the larger the processing, storage and fishing capacity and the longer the vessel can remain at-sea. Fishing capacity, 'the ability of a vessel or a fleet of vessels to catch fish'[161], is the result of number of factors that include fishing time, improvements in fishing technology, such as storage capacity, gear, horsepower, sonar and fish-attracting devices, the available fish stocks and variable inputs such as labour, fuel and ice[162]. This concept can help explain the conclusion made by the Department of Agriculture in its Regulation Impact Statement on the future status of supertrawlers: 'In this instance, it is considered the unprecedented increase in the scale of commercial fishing activity presents an unacceptable level of risk to the marine environment. This is based on advice from the Expert Panel that considerable uncertainty remains about the scale of impact of a very large freezer-factory trawler operating in the SPF [Small Pelagic Fishery], the size of which has never previously operated in an Australian fishery, particularly in relation to impacts on species protected or considered at risk of extinction under the *EPBC Act*'[163].

> 'But if you allow cheap distant-water vessels to come in ... those vessels won't come into port. That combined with subsidised fuel, a $1000 annual wage and a whole bunch of problems with the way they treat their crews means they have incredibly low costs and can fish those remote areas.'[164] Dr Quentin Hanich, Australian National Centre for Ocean Resources and Security

7. Transhippings

Some of Australia's tuna fisheries have low fisher activity and high costs that undermine their commercial viability. To overcome this, tuna fishers are considering the use of foreign vessels and crews for catching and transhipping.

The 115-metre super-seiner, *Albatun Tres*, the world's largest purse-seiner, is here seen fishing for tuna near Kiribati in the Pacific Ocean. Its nets also catch endangered sharks and turtles. Photo: ©Paul Hilton/Greenpeace.

Australia's tuna fisheries

In Australian waters, southern bluefin tuna migrate down the west coast (as juveniles), along southern Australia to the south-eastern coast, and then back to spawning grounds in the Indian Ocean south of Indonesia. On their journey they are targeted by the Southern Bluefin Tuna Fishery (SBTF) and recreational fishers.

Off the east coast, this critically endangered and overfished species (2017 southern bluefin tuna biomass estimates were 13% of the unfished biomass, up from 5% in 2011 and 9% in 2014[165]) is caught with longlines, whereas in southern waters they are largely scooped up in purse-seine nets and towed alive to Port Lincoln where they are fattened in approximately 100 floating pontoons before export to Japan.

Southern bluefin tuna is not the only tuna species found and fished in Australian waters. The Eastern Tuna and Billfish Fishery (ETBF) and the Western Tuna and Billfish Fishery (WTBF) are longline fisheries that target albacore (ETBF only), bigeye, skipjack and yellowfin tuna, as well as the billfish species of striped marlin and swordfish. A fourth is the Skipjack Tuna Fishery (with Eastern and Western zones), a purse-seine fishery that has been inactive since the 2008-2009 season and with few active fishers for several years prior to that (see Figure 5 for the location of each tuna fishery, and Table 5 for their details). The current lack of activity is due to variable fish availability, low market prices and the 2010 closure of the Port Lincoln fish cannery, where most skipjack tuna caught in Australian waters had been sent for processing.

The catches in the deeper waters along the edge of the continental shelf have declined, especially in the WTBF, because fuel costs and lower export prices have significantly reduced profitability[166] and, as a consequence, commercial fisher activity. WTBF catches mostly comprise swordfish, followed by bigeye and yellowfin tuna, and are now well below the annual AFMA quota allocated to the fishery (10,125 tonnes TAC in 2017–18, while the 2016–17 catch was only 322 tonnes). The WTBF is now being seen as a commercially viable candidate for transhipping.

Along with tuna and billfish, pelagic longline fisheries also hook endangered sharks, turtles, seabirds, whales and dolphins. Data analysis in 2017 revealed that the ETBF's reported bycatch levels of these had significantly increased during the previous five years[167].

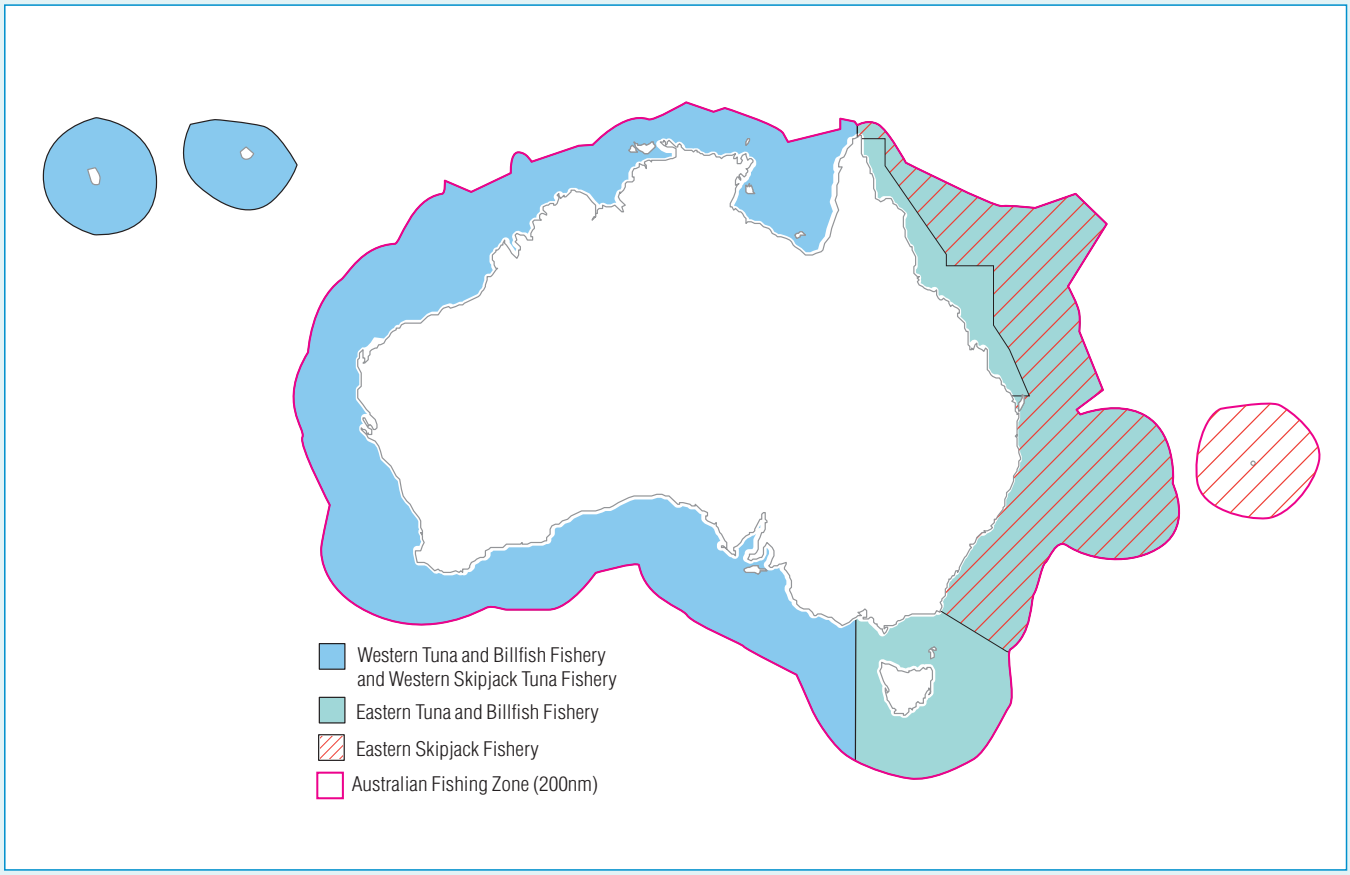


Figure 5. Australian tuna fisheries

Source: Adapted from Patterson H et al. 'Fishery status reports 2018', pp.359;383;393;404. Note: Southern Bluefin Tuna Fishery spans entire Australian Fishing Zone and is not labelled.

Table 5. Features of Australia's tuna fisheries

Feature	ETBF	WTBF	SBTF	ESKF	WSKF
Management	Limited entry • quota management • total allowable catches (TAC) • gear restrictions • harvest strategies • bycatch work plans • international management agreements				
International	These migratory species swim across international boundaries and are covered by international management agreements. Australia's tuna fisheries are within the waters of three Regional Fisheries Management Organisations (RFMOs), namely the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), the Indian Ocean Tuna Commission (IOTC) and the Western and Central Pacific Fisheries Commission (WCPFC)				
Total Allowable Catches (TACs)	7557 t (2019 across 5 species)	10,125 t (2017–18 across 4 species)	6165 t (2017–18)	30,000 t	Unavailable
Catch	4615 t (2017) across 5 species: albacore, bigeye; yellowfin; striped marlin; swordfish	322 t (2017) across 5 main species: albacore; bigeye; yellowfin; striped marlin; swordfish	5334 t (2016–17)	Nil (no active vessels since 2009)	Nil (no active vessels since 2009)
Gear	Pelagic longline	Pelagic longline	Pelagic longline (east coast); purse-seine (Great Australian Bight)	Purse-seine	Purse-seine
Species targeted	Albacore, yellowfin, skipjack and bigeye tuna; striped marlin; swordfish	Albacore, yellowfin, skipjack and bigeye tuna; striped marlin; swordfish	Southern bluefin tuna	Skipjack tuna	Skipjack tuna
Value of production	$35.7m (2017)	Unavailable (confidentiality)	$38.57m (2016–17)	Nil	Nil
Markets	Canned (Indonesia); fresh (Australia, Japan and US); frozen (Europe, American Samoa; Thailand)	Fresh and frozen in Australia and to US and Japan	Fresh and frozen to Japan	Nil	Nil
Ports	Cairns, Mooloolaba, Coffs Harbour, Ulladulla	Fremantle; Geraldton	Port Lincoln	Nil	Nil
Active vessels	39 longliners in 2017 down from 150 in 2002	3 longliners	6 purse seiners off Port Lincoln and 16 longliners off east coast	Nil	Nil
Statutory Fishing Rights and Fishing Permits	85 longline boat Statutory Fishing Rights	95 boat Statutory Fishing Rights	85 Statutory Fishing Rights	17 fishing permits	14 fishing permits

Source: Patterson H et al. 2018, 'Fishery status reports 2018', ABARES, Canberra.

Transhipping: catcher to carrier

Transhipping is the at-sea movement of fish from smaller catcher vessels to a larger carrier vessel, a floating fish factory that may resupply them with fuel, food, personnel and other supplies and process and freeze the catch.

Efficiency is the prime objective of this practice, with transhipping reducing travel times and distances for catcher boats, which do not have to frequently return to port to offload their catch or refuel, enabling them to stay out longer and haul in more fish. In global terms, most transhipment species are tuna, shark and billfish but can also include groundfish, salmon and crustaceans.

Transhipping activity occurs in some Commonwealth and state fisheries, including the South Australia Sardine Fishery and the Northern Prawn Fishery. In the South Australia fishery, sardines may be transferred when one boat has caught too many to carry[168], while the Northern Prawn Fishery uses carrier boats 'that transport frozen product back to port and provision the fishing vessels, allowing them to stay within the area for up to 80–90 per cent of available fishing time, longer than would be possible without the support of the motherships'[169].

Seafish Tasmania made application to AFMA in January 2013 to allow transhipment in the Small Pelagic Fishery from catcher boats to the *Margiris* (*Abel Tasman*), which was sitting idle in Port Lincoln. But a month later the federal environment minister prohibited the use of the vessel for transhipment and later initiated an expert-panel assessment of the proposed practice in the fishery.

In October 2018, AFMA released the final version of its transhipping policy, which sets out the principles it will use to underpin its decision making when examining a transhipping proposal 'by boats nominated to Commonwealth fishing concessions, within the AFZ where fish are landed to an Australian port'[170]. Under the policy, transhipping cannot occur without AFMA authorisation, which can be given on a fishery-wide (in a management plan) or case-by-case basis.

Transhipping in Australian tuna fisheries

The long migratory routes of tuna take them across the high seas and many EEZs, and requires international cooperation in their management. The three Regional Fisheries Management Organisations (RFMOs) in which Australia's tuna fisheries are engaged are the Indian Ocean Tuna Commission (IOTC), the Western and Central Pacific Fisheries Commission (WCPFC), and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT).

Tuna being transhipped in the Indian Ocean between the 56-metre Taiwanese catcher boat, *Yi Long No 202* (on the right), and the 121-metre, Panama-flagged carrier vessel, *Tuna Queen*. Photo: ©Jiri Rezac/Greenpeace.

In 2018, the IOTC reported that the fishing fleets participating in its at-sea Transhipment Programme were from China (111 large-scale tuna longline vessels), Taiwan China (310), Japan (197), Republic of Korea (87), Malaysia (18), Oman (1) and the Seychelles (53)[171]. Carrier vessels used in the program that year numbered 19. Albacore tuna, followed by bigeye and yellowfin tuna, were the main species transhipped.

Transhipment is also authorised in the WCPFC area. The nations from where authorised vessels came in 2018[172] were China (492 longliners), Japan (444), Republic of Korea (116), Chinese Taipei (519), USA (158) and Vanuatu (62). All told there were 288 carriers and bunkers (116 flagged in Panama, 92 the Philippines, 25 Liberia and 14 the Republic of Korea) and 1791 longliner vessels. During 2017 there were 1089 transhipment events involving 64,759,537 kg of tuna and billfish.

Although no Australian tuna vessels are currently involved in transhipment in the waters of either RFMO, tuna fishers would have no trouble sourcing foreign carrier vessels should they be able to satisfy regulations for entry into Australian waters.

Western and eastern tuna fisheries

Any move to transhipment tuna in Australia waters would have to comply with the conservation measures of the relevant RFMO which, in the case of the WTBF, is the IOTC. As revealed in the minutes of the Tropical Tuna Management Advisory Committee (TTMAC) in November 2017, Australian tuna fishers have become interested in the use of transhipment: 'Action arising 3. Transhipment in the WTBF: AFMA to advise industry and TTMAC of IOTC transhipment requirements in the WTBF, in particular under what circumstances fresh fish can be transferred'[173]. AFMA provided that advice at the committee's October 2018 meeting, informing committee members that the IOTC required a human observer aboard each authorised carrier vessel[174].

In 2017, only three longline vessels operated in the WTBF, whereas in 2000 most of the 61 Australian vessels fishing in IOTC waters were from that fishery. Catches peaked above 3000 tonnes in 2001, whereas today they are around 300 tonnes[175]. With a TAC that remains above 10,000 tonnes, the high latency of effort in the WTBF is one of the reasons that tuna fishers have become interested in using large foreign vessels in the fishery. WTBF catches as a percentage of the TAC in 2017 were at 0.8% for striped marlin (125 t TAC); 5.5% for swordfish (3000 t TAC); 3.4% for bigeye tuna (2000 t TAC) and 1.4% for yellowfin tuna (5000 t TAC)[176].

Although the ETBF's 2017 catches as a percentage of the TAC are higher – albacore 40%, bigeye 43% and yellowfin 71% – transhipment could still be attractive and likely intensify fishing around Lord Howe Island and in the Coral Sea. Currently longline catcher vessels can only stay out for days, whereas a carrier vessel could remain at sea for months.

Skipjack Tuna Fishery

The closure of the Port Lincoln fish cannery in 2010, along with variable fish availability and low market prices, led to the demise of the Skipjack Tuna Fishery. Transhipment, and a large available catch limit, could resurrect it.

Under the 'Conservation and management measure for bigeye, yellowfin and skipjack tuna in the Western and Central Pacific Ocean: Conservation and Management Measure 2017-1' signed off at the 2017 meeting of the WCPFC, Australia was set a 30,000-tonne catch limit for skipjack tuna (restated in the commission's draft 2018 conservation and management measure), and a catch limit of 600 tonnes for each of bigeye and yellowfin tuna. This 30,000-tonne limit is consistent with 2015 AFMA management arrangements[177].

The availability of the 30,000-tonne catch limit could lead to the resurrection of the Eastern Skipjack Tuna Fishery along the east coast and in the Coral Sea, supported by transhipments and the spatial reduction of the Coral Sea Marine Park zones that had prohibited purse-seining. The Western Skipjack Fishery could also see value in a factory ship served by existing longline vessels, although in 2017 there were only three vessels, way down from the 50 in 2000. The fishery is located within IOTC waters, where there are no set catch limits for each contracting party but there is a commission-wide catch limit for 2018–2020 of 470,029 tonnes. There is no catch limit for the Western Skipjack Tuna Fishery in the AFMA booklet.

When assessing the Skipjack Tuna Fishery in 2016, the Department of Environment and Energy made the following comments: 'The current management regime is sufficient while the fishery remains inactive but is unlikely to remain so if fishing effort increases to levels that could fully utilise the total allowable catch. The domestic fishery is not overfished or subject to overfishing and there is no risk of this while the fishery remains inactive. However domestic management arrangements do not appear sufficient to constrain catches and manage localised depletion if fishing resumes and expands to its potential…'… 'A fishery-wide catch limit for the Eastern Skipjack Tuna Fishery is referred to in AFMA's Skipjack Tuna Fishery Management Arrangements 2015, but these arrangements are prefaced as a guide only, potentially affecting their enforceability. Similar limits are absent for the Western Skipjack Tuna Fishery'[178].

'The practice of transhipment at sea – whereby large cargo vessels resupply fishing boats and pick up their catches – exacerbates the problem, allowing commercial fishing trawlers to stay out at sea indefinitely and turning those boats into de-facto floating prisons for abused workers.'[179] Peter Chalk, Center for Civil-Military Relations, California

The impacts of transhipping

Transhipment has led to the growth of illegal fishing and overfishing, especially in the high seas off the coasts of Russia and west Africa, southern Indian Ocean and equatorial Pacific[180], in regions where IUU fishing occurs and along EEZ boundaries[181]. An analysis of 2010–2015 data published in 2016 by MRAG Asia Pacific estimated that the total volume of product either harvested or transhipped involving IUU activity in Pacific tuna fisheries was 306,440 tonnes with an ex-vessel value of more than US$616 million[182]. Skipjack tuna accounted for 33% of the volume, followed by yellowfin tuna at 31%.

Research by Tickler et al. (2018) found that: 'Continuing distant-water fishing activities are also increasingly viable only due to the growing number of refrigerated transhipment and resupply vessels (or "reefers") that allow individual fishing vessels to remain at sea for extended periods and avoid the fuel expenditure and lengthy breaks in fishing required to return to port or their home countries. However, by transhipping and aggregating catches, and thus allowing fishing vessels to avoid port visits, reefers may also facilitate the "laundering" of illegally caught fish and permit other crimes at sea to remain undetected. Transhipment also denies developing countries that host distant-water fleets (for example, in West Africa) the revenue from port activities and the processing and exporting of seafood associated with foreign fleets'[183].

An analysis by Global Fishing Watch, using Automated Identification System position signals of carrier and catcher vessels, found that 'the flags flown by vessels engaged in transshipment behavior shows a complicated web of relationships. Forty percent of the potential and likely rendezvous are by vessels flying flags of convenience, meaning they are registered in a country with minimal regulation and oversight'[184]. The analysis found that in general 'transshipment is more common in regions with a high proportion of IUU fishing, and we find interesting patterns of rendezvous clustering along the EEZ boundaries of some countries'[185].

Recently there have been calls for a global moratorium for transhipping on the high seas, where most transhipment occurs. The Nauruan Government banned transhipping in its waters in 2015. It followed Greenpeace's discovery of allegedly falsified logbooks on a Taiwanese fishing vessel in the Pacific[187]. In a statement, the Nauru Fisheries and Marine Resources Authority 'said the move would help to "end the laundering of fish" and bring huge economic benefits to the Nauruan people'[187]. Papua New Guinea, Micronesia, Vanuatu and Samoa do not allow foreign vessels to tranship, while Fiji, Solomon Islands, Kiribati and Cook Islands allow it under authorisation[188].

In 2015, New York University researchers analysed existing maritime regulations applying to transhipping in 17 RFMOs. They found that since the 1990s, transhipment at-sea regulations had tightened but 'only five RFMOs had mandated even a partial ban and only one RFMO, the South East Atlantic Fisheries Organization (SEAFO), has mandated a total ban on transshipment at-sea'[189]. The researchers concluded that: 'A total ban on transshipment at-sea on the high seas would support the ability of oversight and enforcement agencies to detect and prevent illegal fishing and also likely reduce human trafficking and forced labour on the high seas'[190].

The use of foreign vessels and crews in Australia's tuna fisheries

According to minutes from the November 2017 meeting of the Tropical Tuna Management Advisory Committee (TTMAC), one of the attendees was a 'shareholder of a company that owns shares in a proposal to fish with foreign longliners in the WTBF'[191]. The minutes also show an interest from the tuna fishers in using foreign crews: 'Tuna Australia is progressing negotiations with the Department of Immigration and Border Protection on the foreign labour agreement in which there is an option for the fishing industry to source foreign labour if Australian workers are unavailable'[192].

The United Nations has reported that foreign fishing fleets are often crewed by people receiving low wages and forced to work in abysmal conditions, and that organised crime is using fishing vessels to traffic in humans and drugs, dump wastes, launder money, overfish and illegally fish[193]. The use of foreign vessels and their crews in Australia's tuna fisheries would reduce local job opportunities but also help undermine international efforts to deal with the many issues facing foreign fishing crews.

'Since the late 1990s, there has been growing awareness that the industrial fishing sector is highly prone to forms of dishonesty. This has been observed almost everywhere, and not just in developing countries. It is an outcome of a business sector that is increasingly competitive, subject to rising costs (particularly fuel prices), and beholden to a capricious market for its produce (prices paid for fish fluctuate considerably).'[194] André Standing, Coalition for Fair Fisheries Arrangements

8. Australian trawl

The debate about the use of supertrawlers in Australian waters has largely centred on the Small Pelagic Fishery, but they could also be used across other Australian trawl fisheries in the future.

The 116-metre supertrawler, *Helen Mary*, was detained over fishing offences off Scotland in 2015. The vessel has a fish-hold capacity of 6900m^3. Photo: ©Pierre Gleizes/Greenpeace.

When the extent of its fishing grounds and the number of vessels and statutory fishing rights owners are considered, the SESSF is a large one. It spans Australia's waters from south-western Australia across southern waters and up the east coast to Queensland, and includes the Commonwealth Trawl Sector, the East Coast Deepwater Trawl Sector and the Great Australian Bight Trawl Sector (see Figure 6 and Table 6 for details), along with other smaller fishing sectors. The trawling sectors cover the largest area and represent the bulk of the fishery's gross value of production (the Commonwealth Trawl Sector constituted 56% of the entire SESSF GVP in 2016–17)[195].

Blue grenadier, silver warehou, pink ling, tiger flathead, gummy shark, alfonsino, bight redfish and ocean jacket are the main species targeted. These fish are larger than the small pelagic species, with blue grenadier growing up to 120 centimetres, pink ling 100 centimetres and gummy shark to 150+ centimetres. Four other previously targeted species, eastern gemfish, orange roughy, school shark and blue warehou are still recovering from overfishing. The recovery of Harrisson's dogfish and southern dogfish, not target species but impacted by the fishery, is also a focus of management.

Large foreign trawlers have been used in the Commonwealth Trawl Sector by Tasmanian-based PSDF since 1979. PSDF is owned by Tasmania's Rockliff family in partnership with New Zealand fishing company, Sealord, which in turn is half-owned by Japanese fishing company, Nippon Suisan Kaisha. An associated company of PSDF, Australian Longline, operates two 60-metre longline factory freezer vessels to fish for Patagonian toothfish in subantarctic waters under the Convention for the Conservation of Marine Living Resources.

PSDF has in the past used 92- and 97-metre foreign-owned vessels[196] but now charters Sealord's New-Zealand-flagged *Rehua* (66 metres) to target blue grenadier off the west coast of Tasmania during July and August, when ocean conditions on Tasmania's west coast are calmer. The *Rehua* processes, fillets, packs and freezes its catch and then unloads in Devonport and New Zealand, while any by-products are turned into fish meal for aquaculture. In 2014, PSDF chartered another foreign supertrawler, the 105-metre Meridian-1, which was then Ukrainian owned and crewed and Dominican-flagged but is now flagged to New Zealand. The vessel has been used in New Zealand's hoki fishery for 20 years.

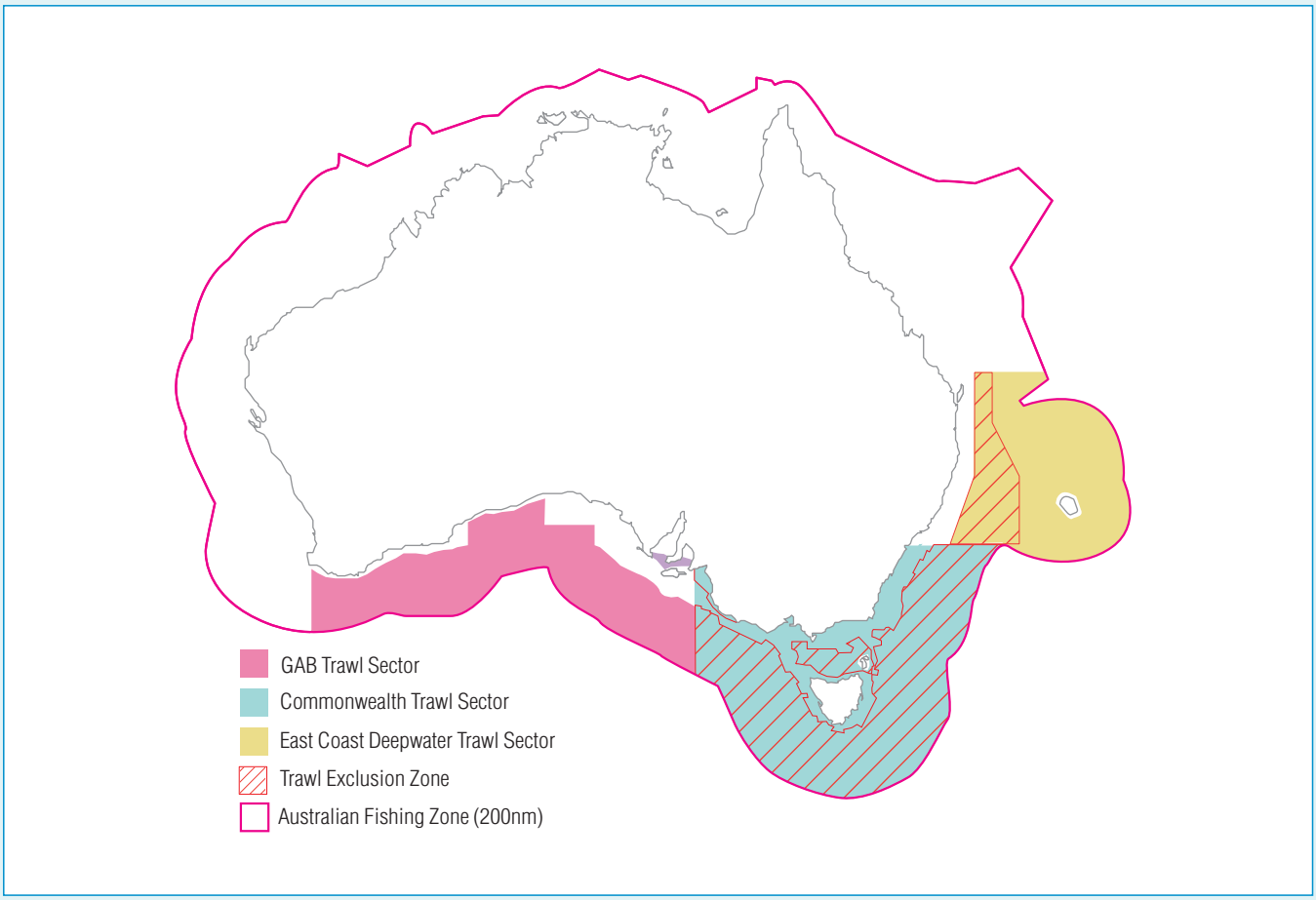


Figure 6. Three Australian trawl fisheries

Source: Adapted from Patterson H et al. 2018, 'Fishery status reports 2018', pp. 136; 230; 237. Note: Western Deepwater Trawl Fishery and North West Slope Trawl Fishery not mapped (small fisheries in terms of production and fisher activity with no TACs).

New Zealand's industrial fisheries have been beset by problems involving slave-like conditions on foreign charter vessels. In 2014 the New Zealand Government passed the *Fisheries (Foreign Charter Vessels and Other Matters) Amendment Act* after inhumane labour practices[197] and poor compliance were exposed involving trawlers from countries including Korea, Indonesia, China, Vietnam and Ukraine[198]. The amended legislation requires that foreign fishing vessels operating in New Zealand waters reflag as a New Zealand vessel, otherwise they are not allowed to fish there.

A leaked report also revealed the failure of New Zealand fishers to report seabird and fish bycatch[199], and the underreporting of hoki catches by thousands of tonnes[200]: 'One factory ship which caught and filleted fish, *Amaltal Enterprise* [New Zealand flagged], was calculated to have under-estimated its catch by 151 tonnes – or 9 per cent of its hoki catch – during a two-month period in 2011', while … 'Two Sanford factory ships were also calculated to have underestimated their catches by more than 200 tonnes'[201]. Sanford is a New Zealand fishing company that has its own fleet as well as chartering fishing vessels from Korea.

The leaked report also showed that 'up to 2677 tonnes of southern blue whiting was dumped by fishing companies in 2012 – up to 6 per cent of the total allowable commercial catch that year'[202]. Following these revelations, the west coast hoki quotas were cut by 22% in September 2018. According to Greenpeace New Zealand, 'The industry is blaming rising sea temperatures for the lack of fish. While that may well be a factor, it will have been made much worse by systematic overfishing'[203].

The financial performance of the Commonwealth Trawl Sector has been mixed. An economic indicator report prepared by Bath et al. (2018) for the SESSF revealed that boat profits had declined to AUD$153,631 in 2014–15 from a peak of AUD$287,940 in 2008–09[204]. Although an improvement on the 2013–14 year, the increase came largely from reduced operating costs (fuel prices declined significantly from the previous year). In terms of net economic return, the research showed that what had been negative in the early 2000s improved to peak at AUD$7.5 million in 2010–11. However, the figure for 2013-14 was only AUD$174,793, which had followed a negative return from the previous year[205]. Even so, the research analysis projected a net economic return of AUD$3.5 million and AUD$4.2 million for the 2015–16 and 2016–17 seasons[206] with an expected rise in cash income. Labour (36%) and fuel (18%) costs represent more than half of the cash cost in the Commonwealth Trawl Sector[207].

The economic indicator report revealed that: 'Notably, in the CTS, latency has increased for blue grenadier (to 83 per cent by 2015) but some of this increase is attributed to an increase in the TAC for the species in 2014. Some of this is a result of structural change in the part of the fleet that targets blue grenadier but some is also related to higher TACs allocated for the species in 2014–15'[208]. The report also noted that latency can be the result of low incentives to fish: 'High degrees of latency for blue grenadier in the 2013–14 and 2014–15 fishing seasons is likely to be the result of an increase in the TAC and movement of operators specialised at targeting the species to the New Zealand blue grenadier fishery'[209].

Table 6. Features of three Australian trawl fisheries

Feature	Commonwealth Trawl Sector	East Coast Deepwater Trawl Sector	Great Australian Bight Trawl Sector
Management	• limited entry and quota; • harvest strategy; • gear exclusions; • area closures.	• limited entry and quota; • harvest strategy; • gear exclusions; • area closures.	• limited entry and quota; • harvest strategy; • gear exclusions; • area closures.
Total Allowable Catches (TACs)	2018-19 (main species) Blue grenadier (8810 t) Flathead species (2507 t) Gummy shark (1763 t) Pink ling (1117 t Silver warehou (600 t)	2017-18 Alfonsino (1017 t)	2017-18 Bight redfish (800 t) Deepwater flathead (1128 t) Ocean jacket (no TAC)
Catches (t) (2017-18)	Blue grenadier (1619 t) Tiger flathead (2434 t) Gummy shark (n/a) Pink ling (740 t) Silver warehou (432 t)	No fishing effort since 2013-14	Bight redfish (308 t) Deepwater flathead (548 t) Ocean jacket (193 t)
Gear	Demersal and mid-water trawl; longline; danish-seine	Demersal and mid-water trawl	Demersal trawl and danish-seine
Species targeted	Blue grenadier, silver warehou, pink ling, tiger flathead, gummy shark; eastern school whiting	Alfonsino	Bight redfish; deepwater flathead; ocean jacket
Value of production	This sector's value of production represented 56% of SESSF in 2016-17. SESSF value of production was AU$73m in 2015-16	Nil (no effort since 2013-14) and confidential	n/a
Markets	Sydney and Melbourne fresh and frozen with some frozen exports	Domestic frozen and chilled	Melbourne, Perth and Sydney
Ports	Eden, Lakes Entrance, Portland, Devonport, Hobart, Port Welshpool, Port Lincoln, Thevenard	Brisbane and Sydney	Adelaide, Port Lincoln, Thevenard
Active Vessels	32 trawl (2017-2018) 29 scalefish hook; 18 danish-seine	0	4 trawl; 1 danish-siene
Fishing permits and Statutory Fishing Rights (2017-18)	57 trawl boat SFRs 37 scalefish hook boat SFRs	10 fishing permits	10 fishing permits (SFRs)

Source: Patterson H et al. 2018, 'Fishery status reports 2018', ABARES, Canberra.

A comparison of landed catches with TACs for the 2016–17 and 2017–18 fishing seasons for the Commonwealth Trawl Sector shows that for blue grenadier the TAC was 8810 and 8765 respectively (the Scalefish Hook Sector is included in the TACs although it is tiny in comparison with the trawl sector). But the trawl sector catches were only 1311 t (15% of TAC) for 2016-17 and 1624 t (19% of TAC) for 2017-2018.[210]. For the Great Australian Bight Fishery, catches for bight redfish have been at 34% and 39% of TACs in the 2016–17 and 2017–18 seasons, while for deepwater flathead they have been 55% and 49%[211]. The east coast fishery has been inactive since 2013–14, even though the alfonsino TAC has been set at 1017 tonnes.

Knuckey et al. (2018) reviewed the failure to catch TACs, declining catch rates and the lack of recovery in overfished quota species across the SESSF, not just the trawl sectors: 'There are many and varied reasons put forward to explain these issues in the SESSF, but there has been no attempt at a coordinated approach to actually identify which factor/s may be the cause, much less how it may be addressed'[212].

The researchers identified 'a number of indicators in the fishery that may point to significant sub-optimal performance in terms of stock sustainability and fishery profitability'[213]. These included legislative impediments (such as area closures), fleet capacity, fisher behaviour, climate change, costs, quota ownership and trading, and assessment processes. However, the lack of data prevented any firm answers and although they recommended more research: 'In the meantime, we need to begin the process of significantly improving our harvest strategies so that they are appropriate with regard to sustainability and maximising economic yield in a multi-species context, but also robust to the uncertainties associated with climate change'[214].

The analyses by Knuckey et al. reveal the complex nature of a large multi-species fishery and and the uncertainties around the causes of the issues facing it. However, AFMA has argued that where catches are well below the TACs, then 'underutilisation' is occurring and this can be used to justify the use of supertrawlers. Based on this, their use could be expanded to target blue grenadier in the Commonwealth Trawl Sector and fish in the East Coast Deepwater and Great Australian Bight trawl fisheries.

The East Coast Deepwater Trawl Sector, the Great Australia Bight Trawl Sector and the Commonwealth Trawl Sector has each been affected by the closure of orange roughy fishing grounds under AFMA's conservation program for the species, which came into effect in 2007. It closed down fishing for orange roughy below depths of 700 metres between Wilsons Promontory and Sydney and below 750 metres in the Great Australian Bight 'to enable the rebuilding of deepwater species from overfishing and to take a more precautionary approach to possible fishing impacts on deepwater ecosystems'[215]. Were the populations of orange roughy deemed by AFMA to have sufficiently rebuilt – 'overfishing and subsequent recent recovery of the eastern Orange Roughy stock over the last two decades is well documented'[216] – and AFMA rescinded the closures, then the owners of large foreign fishing vessels could become interested in targeting the species.

Although there are many owners of Statutory Fishing Rights in the Commonwealth Trawl Sector of the SESSF, this complexity may not prevent the fishery from sourcing foreign fishing vessels to catch that quota. Individual Transferable Quotas (ITQs) can be sold or leased. Through these mechanisms commercial fishers in the SESSF's trawl sectors could aggregate quota in a way that would provide operational viability for large foreign fishing vessels. In 2004, tuna fishers in South Australia were working together to bring the *Veronica* to Australia. Currently, tuna fishers are considering the use of foreign carrier and catcher vessels and their crews, which would require a collaborative effort on their part to maximise the use of their separate quotas.

In their submission to the Senate Inquiry on supertrawlers in the Small Pelagic Fishery, IMAS and UTAS wrote of the trends within Australian commercial fisheries. Having a fishery with more smaller vessels rather than one large one 'would conflict with the objective of the ITQ systems used in all of Australia's largest fisheries and also with objectives of fisheries legislation in most jurisdictions, including the Commonwealth, which specifically aim to increase efficiency'[217]. The submitters went on to say that trading in ITQs 'tends to shift catch to a small number of efficient operators, thus raising the overall technical efficiency of the fleet. This process reduces costs in the fishery because fewer vessels, less fuel, and less labour is required to take the catch. It is an economic approach applied to all of Australia's largest fisheries'[218].

The SESSF has already gone through one major structural adjustment, the 'Securing our Fishing Future' package in 2005. Could an industry-led one be used to accommodate supertrawlers?

9. Conclusions and recommendations

The 114-metre supertrawler, *Cornelis Vrolijk*, fishing off the coast of Mauritania where large foreign factory trawlers have contributed to overfishing. Photo: ©Pierre Gleizes/Greenpeace.

Australia's oceans are the world's third largest – and most diverse. At almost twice the size of our land mass, they include large remote ocean areas that have been rarely or never fished. Waters on the continental shelf and nearer to port have suffered from overfishing, habitat damage and pollution, with climate change also beginning to take its toll. Along with these existing threats, we can now add the potential risks from supertrawlers and other large foreign fishing vessels operating in Australian waters.

From 2004 to 2015, three supertrawlers were proposed for Australia's Small Pelagic Fishery, with one eventually fishing for 18 months until November 2016. Each of the proposals were supported by commercial fishers and AFMA but opposed by environment groups, recreational fishers and the wider community.

Although supertrawlers longer than 130 metres are currently banned from Australian waters, this only affects six vessels, with at least 70 between 95 and 130 metres being exempt. Current regulations notionally prohibit their entry and are held up as a rigorous framework to avoid the known excesses of foreign fishing vessels were they to operate in Australia. Those excesses include overfishing, illegal fishing, the undermining of small and artisanal fisheries, slave-like working conditions and the infiltration of transnational organised crime to traffic in humans and drugs.

But there are exceptions to the current regulations, providing pathways for the use of large foreign fishing vessels in Australian waters. To date, AFMA has supported the use of supertrawlers in Australian fisheries, including the 143-metre supertrawler *Margiris* (*Abel Tasman*). In that case, it was ministerial intervention that brought its proposed operation undone.

Regulatory easing, along with the implementation of a new transhipment policy for large carrier vessels and associated catcher boats, could change the way fisheries catch, process and market fish. But the easing of regulations could undermine domestic protections and safeguards. In other parts of the world's oceans, transhipment has led to the growth of illegal fishing and overfishing, has facilitated the 'laundering' of illegally caught fish, hidden drug trafficking and abuses of human rights, and denied developing countries the revenue from port operations and seafood processing and exporting.

But from where will these supertrawlers and other large foreign fishing vessels come?

Japanese fleets have overfished and also underreported catches when previously operating in Australian waters. European Union vessels have been implicated in overfishing and illegal fishing. China's fleets have engaged in militarist activities to expand their operations and systematically under-reported their catches. Taiwan has tens of thousands of migrant workers as crew, Korean fleets have subjected crews to slave-like conditions, and even New Zealand fisheries have problems. To source vessels from any of these nations would see Australia turning a blind eye to the excesses of the global industrial fishing fleets. As a nation, we would be rewarding vessel owners for these unacceptable practices and undermining international efforts to remove subsidies, fleet over-capacity and the involvement of organised crime, all for marginal if any economic benefit and potentially impacting Australia's oceans and creating international diplomacy issues.

An independent expert panel found that if the *Margiris* (*Abel Tasman*) had operated in the Small Pelagic Fishery, it could have caused localised depletion and impacted threatened species such as seals, seabirds and cetaceans. A Senate Committee Inquiry into supertrawlers in the Small Pelagic Fishery, timed during the operation of the *Geelong Star*, drew similar conclusions, adding that there were very marginal economic benefits from its use and heavily criticised AFMA's management.

Australia has not been immune to the impacts of industrial fishing, with excess capacity, overfishing and collapsed stocks, some of which are yet to recover. Our much-vaunted fisheries management regime is now being questioned for its support of large foreign fishing vessels and also on the basis of its data gathering, quota setting and precaution.

This report has reviewed global and Australian fishing issues, the current and potential impacts of large foreign fishing vessels both here and overseas, the Australian fish and fisheries of interest to them, and the associated environmental, social and economic risks. It makes the following recommendations:

Recommendation 1

An urgent Commonwealth Parliamentary Inquiry is required to investigate moves to establish industrial scale foreign fishing fleets in Australia's oceans, the implications and adequacy of existing regulation.

Recommendation 2

The Australian Government should act to protect the marine environment and the interests of other fishers by bringing in a total and permanent ban on all supertrawlers in Australia's vulnerable fisheries, not just those vessels over 130m in length (six in total globally at this time).

> 'There is a crisis in fisheries globally – we fish too much, the stocks are going down, and this is gloom and doom, he said. 'But Australia is different in that it has not let big boats, big foreign boats exploit the so-called surplus. Once they are there, they want to access more of the resources and the resources are in better shape in Australia than elsewhere and therefore there are more resources to be had', Professor Pauly said. 'On short notice they could make huge catches and 10 years later you wouldn't have any, and you would be in the same mess that all of the other countries are in.'[219] Professor Daniel Pauly, Sea Around Us

The 143-metre supertrawler, *Margiris*, left Australian shores without casting a net and is currently banned from re-entering, along with other supertrawlers longer than 130 metres. But what if that ban were overturned? Photo: ©Pierre Gleizes/Greenpeace.

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List of Abbreviations

ABARES – Australian Bureau of Agricultural and Resource Economics and Sciences

AFMA – Australian Fisheries Management Authority

AFZ – Australian Fishing Zone

AMSA – Australian Maritime Safety Authority

CCSBT – Commission for the Conservation of Southern Bluefin Tuna

CPUE – catch per unit of effort

CTS – Commonwealth Trawl Sector

DCFA – Declared Commercial Fishing Activity

ECDT – East Coast Deepwater Trawl

EEZ – Exclusive Economic Zone

EPBC Act – Environment Protection and Biodiversity Conservation Act

ETBF – Eastern Tuna and Billfish Fishery

FAO – Food and Agriculture Organisation

GVP – Gross Value of Production

IOTC – Indian Ocean Tuna Commission

ITQ - Individual Transferable Quota

IUU - Illegal, Unregulated and Unreported fishing

MEY – Maximum Economic Yield

MSY – Maximum Sustainable Yield

PFA – Pelagic Freezer-Trawler Association

PSDF – Petuna Sealord Deepwater Fishing

RFMO – Regional Fisheries Management Organisation

SESSF - South East Scalefish and Shark Fishery

SPF - Small Pelagic Fishery

STF – Skipjack Tuna Fishery

TAC – Total Allowable Catch

WCPFC – Western and Central Pacific Fisheries Commission

WTBF – Western Tuna and Billfish Fishery

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