

The Minderoo Foundation's submission to
consultation regarding measures to prevent the
importation of illegal, unreported and
unregulated (IUU) seafood

June 23, 2023

The Minderoo Foundation is an Australian philanthropic organisation, tackling persistent issues with the potential to drive massive change. Through a collaborative, evidence-based approach we strive to solve major global challenges.

Both our Flourishing Oceans and Walk Free initiatives have significant expertise in research and advocacy in sustainable fisheries and modern slavery throughout supply chains. Minderoo Foundation is collaborating with the environment, fishery, and consumer sectors to engage with government on actions that Australia can and must take to address this situation. The Fair Catch Alliance is the result of this and has made its own submission to your consultation.

The Minderoo Foundation has publicly congratulated the federal government for moving forward with policy design for improved seafood import control measures. Minderoo will continue to engage in this consultation through its various stages. We will also continue to campaign publicly to raise public awareness of the considerable risks associated with imported seafood and the lack of associated border controls. We look forward to working with the department, executive government and all parties in the Australian Parliament to continue to make the case for ambitious reform and realise benefits for Australian industry, conservation and positive human rights outcomes.

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1 Introduction

Illegal, Unreported, and Unregulated (IUU) fishing (Table 1) is a global problem, occurring in all the world's oceans and across all fishing sectors (Temple et al. 2022). It undermines sustainable fisheries management and threatens the food- and income security of fishing communities, particularly those of vulnerable coastal populations in developing countries. An estimated US\$15.5–36.4 billion is captured every year by illegal and unreported fishing activities, which amounts to approximately 14-33 percent of the global marine capture value (May 2017). Due to the profound impacts on natural resources and the economic development of coastal states, as well as due to the frequent co-occurrence with other crimes such as drug trafficking or people smuggling, IUU fishing is also increasingly recognized as a security threat (Lindley et al. 2019; Bueger and Edmunds 2020).

Illegal fishing	<ul style="list-style-type: none">- conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations- conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or- in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization
Unreported fishing	<p>Refers to fishing activities:</p> <ul style="list-style-type: none">- which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or- undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.
Unregulated fishing	<ul style="list-style-type: none">- in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or- in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

Table 1: Definition of illegal, unreported and unregulated fishing as outlined by the United Nations Food and Agriculture Organisation’s (FAO) International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) (Food and Agriculture Organization 2001)

As the international community became increasingly aware of the harmful impacts caused by IUU fishing, the global call for action to address the problem grew (Widjaja, Long, and Wirajuda 2020). Indeed, the rapidly evolving international legal context requires that states, which includes coastal states, flag states, port states, and market states (Table 2), fulfill their respective obligations to prevent and deter IUU fishing. As a result, more measures to fight IUU fishing are being implemented at different scales, such as the increase in domestic legislation (e.g., US Lacey Act), novel technological tools (e.g., tracking vessels by use of Vessel Monitoring Systems (VMS), blockchain or DNA forensics), and comprehensive international frameworks (e.g., Port States Measures Agreement) (Vince, Hardesty, and Wilcox 2020).

Australia recognizes the importance of the IUU fishing problem and has shown strong leadership in the fight against IUU fishing as a coastal, flag and port state (Garcia Garcia, Barclay, and Nicholls 2021). For example, Australia has a strong framework to hold its fishers to account and prevent IUU fishing operators from landing catch at Australian ports, and it has shown strong political will to fight IUU fishing. Indeed, the 2016 Australian Defence White Paper reaffirmed the need to defend Australia’s waters against illegal fishing and transnational organised crime (Lindley et al. 2019). However, Australia has the opportunity to further strengthen its regulatory framework as a market state and stop products of IUU practices from entering its domestic market. Currently, Australia lacks trade regulations to ensure that imported seafood is legally, sustainably or responsibly produced (Garcia Garcia, Barclay, and Nicholls 2021; Emily Harrison, Meredith Ryland and Kendra Thomas Travaille 2021; Lindley 2021). Indeed, a report by the OECD published in 2021 flagged that the area in which Australia could make most progress is in that of market measures, as it performed below the OECD average in implementing best market state practices (OECD 2021).

Flag states	The country under which a vessel is registered. The coastal state’s laws govern the vessel and those onboard when operating in that flag state’s jurisdiction and on the High Seas. Sufficient flag state control is necessary to fight IUU fishing, and they carry responsibilities such as vessel registrations. Some vessel owners take advantage of inadequate flag state control, and register in countries with reduced regulation and lower administrative fees (i.e., in nations with open registries)
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Coastal states	States whose waters are home to at least part of an identified fish stock (as opposed to 'distant water fishing nations', whose fleets travel to areas where a fish stock is found). The coastal state has primary responsibility over a vessel once it enters its waters (as opposed to the flag state). International law provides that Coastal States have sovereign rights to manage fisheries in waters under their jurisdiction. Coastal states can carry out monitoring, control and surveillance (MCS) activities to deter and prevent IUU fishing.
Port states	The Port State is the country where the vessel enters and with whose laws the vessel must comply with when in Port State waters. Port states can fight IUU fishing by enforcing port state measures such as port inspections.
Market states	States that import fish products. They can enact trade-related measures to restrict IUU fishing such as catch documentation schemes.

Table 2: Controls exerted by the state to fight IUU fishing.

2 Importance of market measures against IUU fishing

Traditionally, the bulk of management reform to fight IUU fishing has focused on strengthening tools that fall under the responsibility of the coastal state, such as enhanced monitoring of at-sea activities, or the flag state, such as ensuring adequate control over vessel registries (Widjaja, Long, and Wirajuda 2020; Young 2016). In recent years, more measures have been developed and implemented by port states, where particularly the Port State Measures Agreement (PSMA) has become a key tool in the fight against IUU fishing by, for example, stipulating more rigorous procedures at port (such as prior notification and port inspection) (Selig et al. 2022; Widjaja, Long, and Wirajuda 2020). Additionally, market-based tools are increasingly implemented to extend the scope of oversight to the traded seafood product itself and ensure its legitimate origin until it reaches the end consumer (Young 2016).

The failure to block IUU-associated seafood from entering supply chains jeopardizes the health of fish stocks, reduces the economic viability of legal fishing operations, and compromises consumer safety and confidence in the sustainability and integrity of their purchased product. Consumer safety can be compromised due to seafood fraud and mislabelling (sometimes done to land undersized or over-quota fish) which denies consumers the ability to monitor dietary choices (e.g., avoiding certain seafood products one is allergic to) (Ryburn et al. 2022; Helyar et al. 2014). Seafood mislabeling is not uncommon and averages 8% globally, with substantial variation between species (e.g., in the US, all red snapper at sushi restaurants were found mislabeled) (Spencer and Bruno 2019; Ryburn et al. 2022)). The entrance of IUU or mislabeled seafood in the supply chain has economic impacts for legal fishers within the importing country, losing market share due to the different cost structures of legal and illegal operators (Widjaja, Long, and Wirajuda 2020). For example, it was estimated that imports of IUU seafood into the US cost U.S. fishermen \$1 billion, or 19% of total revenues from their catch as a result of price suppression alone (WWF 2016). Moreover, consumers increasingly value ethically sourced seafood, caught sustainably without association to crimes linked to IUU fishing such as human rights abuses, tax evasion and drug, arms and human trafficking (Widjaja, Long, and Wirajuda 2020; Selig et al. 2022).

Market-based tools include measures that enhance seafood traceability such as catch documentation schemes or forensic techniques for product authentication (e.g., DNA barcoding). Additionally, sanctions such as trade restrictions and import bans can be used to encourage change at a country or operator level (Department of Agriculture, Fisheries and Forestry (DAFF) 2023). For example, the EU Regulation on IUU Fishing has been used to impose trade

restrictions on seafood imports from countries such as Cambodia, Guinea and Sri Lanka (Young 2016).

3 Risks associated to seafood beyond IUU fishing

Although this report is primarily focused on the risk of importing seafood linked to IUU (which can occur at the harvesting stage for wild caught fish), there are additional illegal or otherwise harmful activities that can occur along the supply chain, which may result in risky seafood products (e.g., of uncertain safety or linked to criminal activity) introduced to the Australian consumer. Here we briefly flag the illegal or risky activity that may occur along the seafood supply chain beyond IUU fishing.

For wild-caught fish, the following risky activities can take place at the different stages in the supply chain.

- Harvesting:
 - Smuggling of illicit goods. Organised criminals can use fishing vessels to smuggle drug or arms into a country (Belhabib, Le Billon, and Wrathall 2020). These activities can occur on fishing vessels without any harvesting taking place, but may also occur alongside fishing (oftentimes alongside IUU fishing).
 - Human trafficking and labor abuse. The scale of labor abuse and human trafficking in the fishing industry is believed to be extensive, though empirical evidence remains scarce. One group of people particularly at-risk for severe forms of human rights abuse on board fishing vessels are migrant workers. Oftentimes, coercion by brokers and recruitment agencies forces them to on vessels under the threat of force or by means of debt bondage (IOM 2016; International Labour Organization n.d.). For example, Chinese nationals may be vulnerable to forced labor on fishing vessels registered in Belize (US Department of State 2022). Labor abuse on fishing vessels often co-occurs with IUU fishing (Selig et al. 2022).
 - Seafood fraud (e.g. mislabeling).
- Transshipment at sea or in port. Transshipment, the transfer of cargo, fuel, provisions, crew, gear or fish catch from one vessel to another, can be used to support illicit activities carried out during the harvesting stage such as seafood fraud, where transshipment allows illegally caught fish to be mixed with legally caught fish, or labor abuse, where transshipment prevents crew from returning to port.
- Processing:

- Labor abuse. Labor abuse has not only been documented at the harvesting stage, but also during processing. Exploitation has been reported to take place in the tuna canning industry, for example, and large-scale child labor has been found in dry fish processing units in Bangladesh (US Department of State 2022; *Canned Brutality: Human rights abuses in the tuna industry* 2023).
- Seafood fraud (e.g. mislabeling).
- Distribution: seafood fraud.
- Sales: seafood fraud. Seafood fraud (e.g., mislabeling of species or country of origin, or species substitution) can take place at any stage along the supply chain, but some studies suggest mislabeling is more prevalent at retail outlets and restaurants compared to earlier supply chain nodes (Luque and Donlan 2019). However, there is insufficient evidence to support this finding at a global level, and the most common supply chain node at which seafood fraud occurs likely varies between species (Luque and Donlan 2019). In Australia, Cundy *et al.*, (*in press*), found 11.8% of samples to be mislabelled, particularly shark and ray species (at 35.9% of samples being mislabelled) and snappers (25.5%); and 15.9% of samples to be misnamed (i.e., unofficial nomenclature on the label).

For cultured fish, the following risky activities can take place at different stages in the supply chain.

- Feed production: aquaculture farming of some species remains dependent on wild-caught fish for feed, which is sometimes associated with IUU. Additionally, plant-based feeds used for aquaculture can come from sources linked to deforestation and other problematic practices on land (e.g clearing of mangroves particularly for shrimp).
- Farming (including breeding):
 - Labor abuse. Although there is less evidence for labor abuse in the aquaculture industry, there have been reports of, for example, Bangladeshi families being subjected to debt bondage in shrimp farming (US Department of State 2022).
 - Excess use of antimicrobial chemicals. Although quantities of antimicrobial use in aquaculture remains largely undocumented, the use intensity for some species groups surpasses consumption levels in terrestrial animals and humans (Schar et al. 2020). The excessive use of these chemicals drives antimicrobial resistance, a major global health challenge. Antimicrobial resistant bacteria and low levels of drug residues have been found in imported seafood, suggesting that risky products may pass inspection at the port-of-entry (Love et al. 2021).

- Infectious disease outbreaks transferred to wild populations. Sea cage aquaculture ponds can facilitate parasite or bacteria transmission to wild populations. For example, exposure to sea lice from cultured salmon greatly reduces the survival of wild salmon populations (Shephard and Gargan 2021).
- Processing:
 - Labor abuse. Similar to the processing of wild caught fish, labor abuse has been reported in factories processing cultured fish. For example, over 20% of the labour force across multiple Bangladeshi aquaculture facilities were reported to be child workers (Ferdousi and Faruk 2016).
 - Compromised food safety. Unreliable or inconsistent processing standards or inspection procedures increases the likelihood of compromised food safety (e.g., parasites may not be identified during processing or lack of water sanitation during processing increases the risk of zoonotic bacteria). (Williams et al. 2021).
- Distribution and sales: Seafood fraud. The role of aquaculture in mislabeling and seafood fraud is understudied, but the misrepresentation of sourcing (i.e., wild versus cultured) also occurs for cultured species. In the US, about 40% of estimated mislabelled apparent consumption involved seafood potentially produced via aquaculture (Kroetz et al. 2020).

4 Australia: a significant import market

Australia represents a significant market for the import of aquatic products. Out of 207 included countries, Australia ranks 22nd on the list of importing countries of aquatic products by value (2020) (FAO 2023). In fact, by value, Australia is a net importer of seafood products (OECD 2021). Australia imports around 65% of all the seafood consumed in the country (Department of Agriculture 2015; Ruello 2011), and between 2008 and 2018, exports increased by a total of 16%, while imports increased by 33% (OECD 2021). During the years 2012 to 2022, 2473 Million tonnes of seafood were imported, valued at 21.5 billion AUD (Figure 1; FRDC 2023).

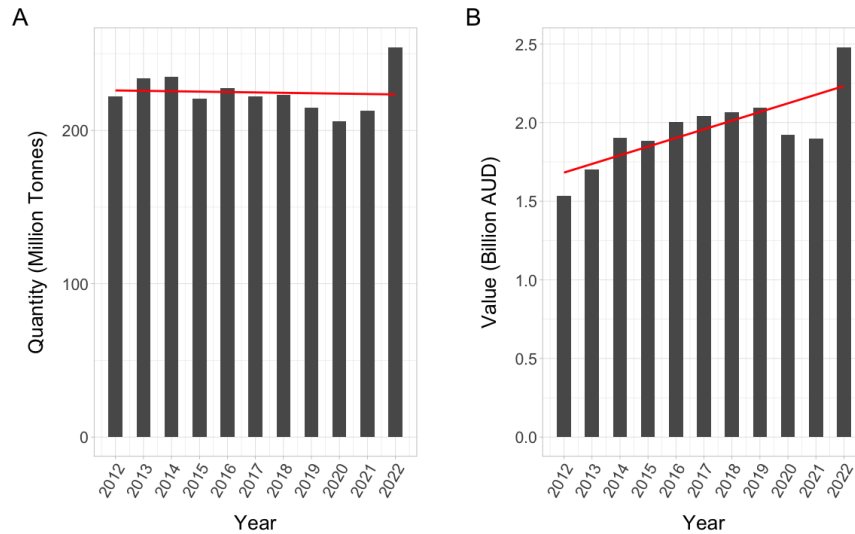


Figure 1: Summary of total volume and value of seafood imports per year, 2012-2022 (FRDC 2023).

We categorised species imported into Australia according to their contribution to the cumulative proportion of total seafood. The top species that made up to 80% of all imports (by volume and value) were left as individual groups, whereas all others were grouped under the “Other” category Figure 3. Over the past decade, Australia’s main imported product (by volume) was the general category of ‘fish’ (i.e., ‘fish generic’), followed by ‘tunas’ ‘other’, and ‘prawn’¹. By value, ‘fish’ was the biggest import, followed by the category ‘other’, then ‘prawn’ and ‘tuna’ (Figure 3).

¹The available data for imported products classifies them into 60 groups of taxa, including “generic fish”, “smoked fish”, and “Other”, for products that lack enough information to be under any other group.

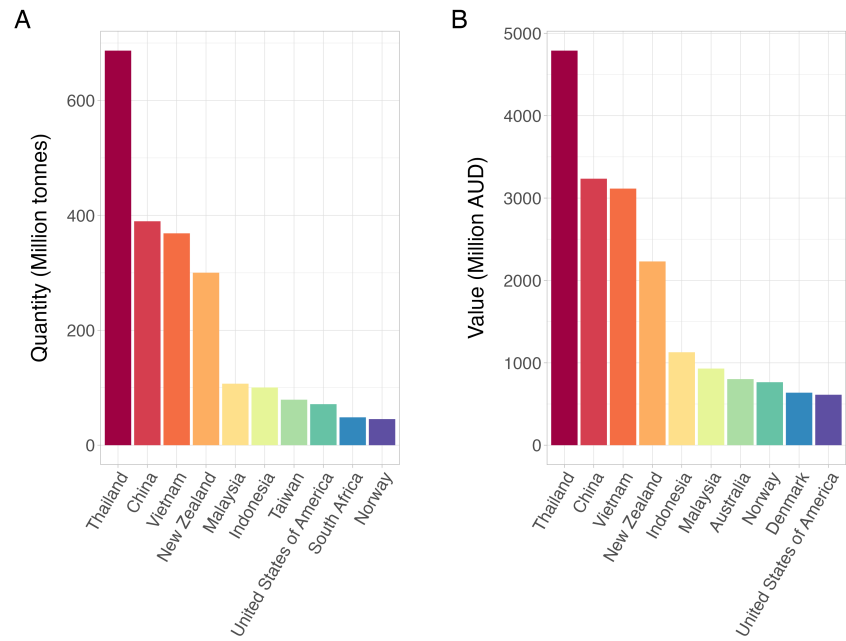


Figure 2: Summary of Australia's top trade partners from 2012 - 2022 (FRDC 2023)

Imports come from 145 different countries and territories. The top ten source countries make up 88.9% of all imports by volume, and 84.7% by value over the whole decade (Figure 2).

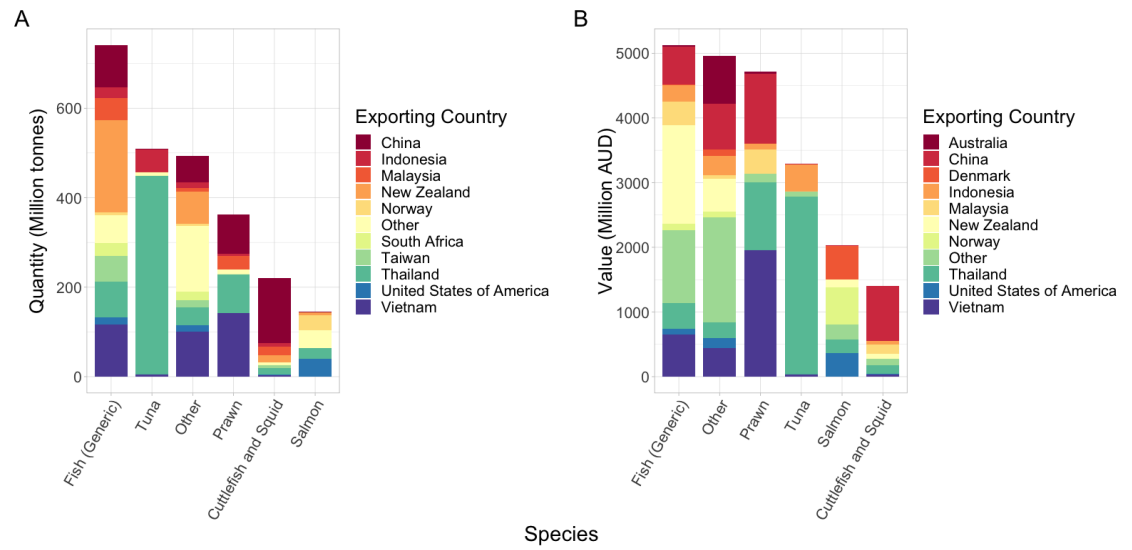


Figure 3: Quantity and volume of taxa imported by top country of origin. Taxa individually identified in the figure made up to 80% of all imports, other taxa groups were grouped under "Other" for readability.

5 Risk associated with Australian seafood imports

As discussed in section 2, the import of seafood products associated to IUU fishing practices holds risks for both Australian seafood producers and consumers, and compromises global fisheries sustainability ². Because Australia represents a sizeable import market for seafood, and imports represents the majority of seafood consumed in Australia, it is vital to consider and mitigate those risks.

A sizeable fraction of Australia’s imports are likely low risk in terms of their direct association with IUU fishing, particularly those sourced from certified fisheries and aquaculture (Department of Agriculture, Fisheries and Forestry (DAFF) 2023). However, adding to the complexity is the potential use of wild-caught fish as feed for cultured species ³, which again could be associated with IUU fishing. As there is no data granular enough to parse out the proportion of imports sourced from cultured versus wild-caught fisheries, this level of risk is difficult to assess. Additionally, even when considering imports of wild-caught species only, excluding aquaculture, the nature and likelihood of the risk vary by country of origin and the type of seafood product (i.e., the species). Nonetheless, recent studies indicate the overall risk for Australia might be significant, given the gap in policies that could act as barriers for IUU products at the border (e.g., traceability or transparency regulations)(Lindley 2021; Garcia Garcia, Barclay, and Nicholls 2021) and the prevalence of IUU practices in some of Australia’s main trade partners and imported species (e.g., fisheries industry in Taiwan and Thailand (Vandergeest and Marschke 2021), white shark imported from South Africa (Braccini et al. 2020), dynamite fishing in Southeast Asia (Burke et al. 2011), or countries with less efficient governance and fisheries management (Klein et al. 2022)Figure 4).We discuss this in more depth below.

5.1 IUU risk associated with most commonly imported seafood products

In section 4, we discussed Australia’s most commonly imported species in terms of both value and volume. Here, we discuss the risks associated with some of the most commonly imported species by volume, i.e. tuna, and prawn. The generic category of ‘fish’ offers little detailed information for in-depth analyses on the risks associated with this seafood type. However, information on the countries from which these fish are primarily imported, i.e., New

²Other risks associated to uncontrolled imports, aside from IUU fishing, include consumer safety hazards through, for example, the excessive use of antibiotics in imported cultured seafood (Fang and Asche 2021)

³A significant (but declining) proportion of wild-caught fish is processed into fish feed (FAO 2023)

Zealand, Vietnam, China and Thailand (Figure 3A.), allows for a cursory risk assessment, which is discussed in the next section (subsection 5.2).

Tuna, which is Australia’s second most imported species category by volume after ‘fish’, is primarily sourced from Thailand (Figure 3A.). In a recent study estimating the extent of illegal fishing in the Asia Pacific region, which includes Thailand ⁴, tuna were identified as having the second highest probability of high volumes of illegal landings (after sharks) (Wilcox et al. 2021). Tunas (including longtail, yellowfin, albacore and bigeye) represented the largest loss of value for the region (Wilcox et al. 2021). Another study estimated that up to 40 percent of tuna imported to the US from Thailand is illegal or unreported (Pramod et al. 2014). Additionally, it is important to note that Thailand has a large tuna processing industry producing canned tuna from raw fish landed directly in Thai ports by foreign long-distance fleets (FAO 2023). This means one needs to consider potentially illicit fishing from non-Thai tuna vessels landing in Thai ports to assess the risk of importing IUU-associated tuna from Thailand. Thailand’s ports are used extensively by foreign vessels operating in the West Indian Ocean, a major risk area for IUU fishing, and primarily so for high-value tuna (Selig et al. 2022; Bova et al. 2023). In the West Indian Ocean, nearly half of all tuna effort was flagged as potentially involving illegal or unregulated activity (Bova et al. 2023). These studies illuminate the significant risk of importing potentially IUU-associated tuna from Thailand. Concerns around IUU seafood sourced from Thailand are not new, as the European Commission yellow-carded Thailand in 2015 for not sufficiently addressing its shortcomings in combating IUU fishing.

Prawn, the second most commonly imported identifiable species after tuna, is primarily sourced from Vietnam, Thailand and China (Figure 3A.). Vietnam has a substantial farmed shrimp and prawn industry, producing large volumes of the popular giant tiger prawn (*Penaeus monodon*), which makes Vietnamese imported prawn potentially less risky in terms of associated IUU activities. However, substantial concerns remain over wild-caught fish used in shrimp feed, which has been associated not only with IUU fishing but labour abuse and child labour (Karen McVeigh 2019). Vietnam was warned by the EU with a “yellow card” over wild-caught seafood exports in 2017. Thailand has also built up a large shrimp aquaculture industry (FAO 2023). Similarly to Vietnam, fishmeal used for shrimp farming in Thailand has been associated to forced labor (Stringer, Burmester, and Michailova 2022). China also has a substantial cultured shrimp and prawn industry and simultaneously is a major importer, processor and re-exporter of seafood (FAO 2023). The imports and re-exports of seafood can obfuscate its country of origin and complicates risk assessment. However, prawn imports from China are potentially also

⁴The geographical scope of this study was marine fisheries in the waters of Pakistan, Maldives, British Indian Ocean Territory, India, Sri Lanka, Bangladesh, Myanmar, Thailand, Malaysia, Singapore, Indonesia, East Timor, Brunei, Papua New Guinea (limited coverage), the Philippines, Cambodia and Vietnam.

connected to some risk of IUU fishing as it is reported that China is a major trading partner of countries in the West Indian Ocean, where much of the shrimp landings are reported to be associated with IUU (Bova et al. 2023).

Cuttlefish and squid follow prawn as most commonly imported species, the majority sourced from China. An unregulated squid fishery has expanded rapidly in the north-west Indian Ocean in recent years (i.e., there is no RFMO with a regional mandate nor an international body with conservation and management measures for squid in the Indian Ocean), and the participating vessels are nearly all flagged to China (WWF, Trygg Mat Tracking 2020; Seto et al. 2023). A large number of these vessels turn off their AIS signaling once they arrive at the fishing grounds (WWF, Trygg Mat Tracking 2020). Policy makers have expressed their concern over the global decline in abundance of squid stocks (Seto et al. 2023).

5.2 IUU risk associated with top trading partners

As mentioned in the previous section, the generic category of 'fish' does not allow for a species-specific analysis of possible risk. Additionally, we do not know what proportion of the 'fish' category was cultured or wild-caught, which, as discussed in the previous section, changes the likelihood and nature of the risk for IUU fishing activities. However, we can look at some of the most common countries of origin from where fish is imported. By volume, these are New Zealand, Vietnam, China and Thailand, and to a lesser extent Taiwan, Malaysia, Indonesia, the US and Japan (Supplementary Table 3).

We can look at three facets to assess the risk of importing IUU-associated seafood products from particular countries of origin. First, we need to look at the potential for IUU fishing being perpetrated by vessels landing directly in that country (which can be flagged to that country or any other), as some of that landed product can then be exported to Australia. The IUU Fishing Index (Macfadyen, G. and Hosch, G 2021) assesses the degree to which states are exposed to and effectively combat IUU. In this index, China has the worst IUU fishing score across the 150 countries included, making it the riskiest country of origin. Taiwan, Japan and Indonesia are also among the 20 worst performing countries, in place 6, 12 and 20 respectively. Another recent study identified Indonesia, Thailand and Vietnam (amongst other countries) as experiencing high level of illegal fishing in the Asia Pacific region, particularly of small demersal and pelagic species (Wilcox et al. 2021; Bengal Programme (BOBLME) 2015).

Second, we must look at the country's own standards for seafood import, particularly those countries that re-export a significant fraction of their imports. If there are no stringent import standards applied in such 'intermediate countries' along the global supply chain, i.e., countries where fish gets processed before re-exporting to its final destination, there is no way of

ensuring the seafood was sourced through legitimate practices. One such country is China, an important trading partner of Australia, which re-exports nearly 75% of its imports (Asche et al. 2022). China is a leading exporter of cod, for example, yet notes no landings, domestic or otherwise, of this species. Instead, China relies on imports of species Russian Alaska pollock and Norwegian cod, which then get re-exported (Asche et al. 2022). A number of Australia’s most commonly imported seafood products have been identified as commonly re-exported imports from China, such as tuna, Pacific salmon and cuttlefish (Asche et al. 2022).

Last, we can look at more diffuse characteristics of a country’s functioning to assess the likelihood of not only IUU, but other fraudulent or unsustainable practices having occurred. Of all Australia’s trading partners in 2019 (FAO 2022), 17 countries (88.8% of total imports in volume) place lower than Australia in terms of Environmental Performance (Figure 6; Wolf et al. (2022)). Moreover, 16 have greater vulnerability to slavery embedded in their supply chains (Figure 6; The Walk Free Foundation (2018)), and 9 have a relatively high risk of illicit trade (counterfeit, mislabelled, or illegally smuggled products) (Figure 6; The Economist Intelligence Unit (2018)). These three indices reflect how favorable an environment is for illegal, unreported or unregulated practices to occur, not only during harvest (i.e., IUU), but throughout a product’s supply chain. Additionally, a substantial proportion of wild-caught products imported into the country are sourced from countries with lower or weaker fisheries management Figure 4. Although Australia’s fisheries management scores high in most assessments (Klein et al. 2022; Alder et al. 2010; Mora et al. 2009), 76% of all imported wild-caught products were caught by and directly imported from countries with fisheries governance scores lower than Australia’s.

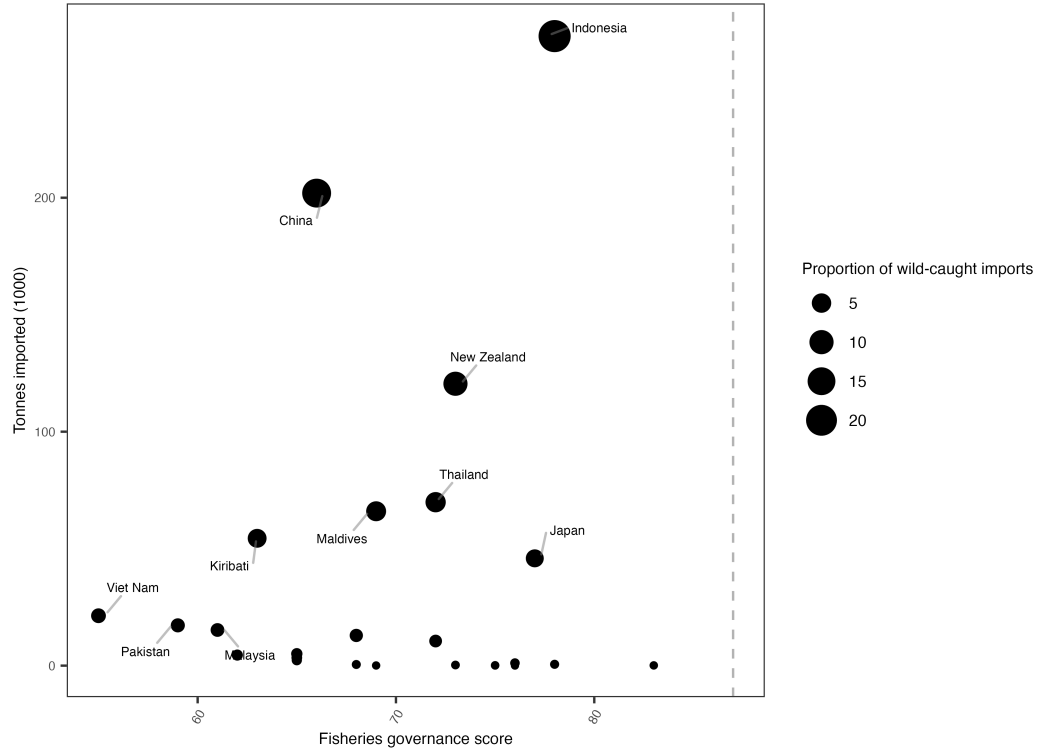


Figure 4: Wild-caught seafood products imported into Australia from countries with lower fisheries governance scores. Thousands of tonnes imported from 2006 - 2015 and the proportion of products caught in each country and imported into Australia, relative to the total amount of wild-caught products imported. Labeled countries are the top ten countries of origin. Where the dashed line intercepts with the X axis, is Australia's fisheries governance score.

As mentioned previously, though this report focuses on the risk of IUU fishing being associated with imported seafood, other risks must be considered as well, such as the likelihood of the seafood being associated with labor abuse or overfishing. For example, species listed in the IUCN Redlist are of conservation concern, and although regulations exist to control their harvest, they sometimes still enter the international market (Roberson, Reg A. Watson, and Klein 2020). Current import regulations in Australia make it difficult to identify if such species are imported. Reg A Watson et al. (2016) produced a database based on catch, landings and trade data which allows us to look at Australia's seafood imports of wild-caught seafood at a species specific level. Figure 5 is a summary of all species listed in the IUCN Redlist and imported into Australia from 2006 to 2016. New Zealand was the main source of problematic species such as Bigeye tuna (*Thunnus obesus*, Vulnerable globally,

Near Threatened in the Gulf of Mexico), Piked Dogfish (*Squalus acanthias*, Vulnerable at a global scale, Endangered in Europe and the Mediterranean), and Swordfish (*Xiphias gladius*, Near Threatened globally and in the Mediterranean, Least Concern in Europe and the Gulf of Mexico; Collette, Di Natale, et al. (2022), Collette, Boustany, et al. (2021), and Finucci et al. (2020)).

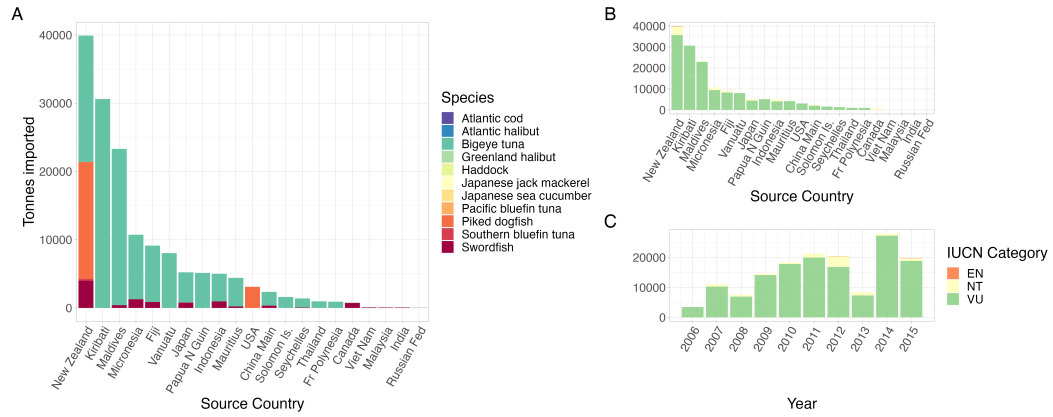


Figure 5: Species listed in the IUCN Redlist found in Australia's import trade from 2006 to 2015. B. and C. show volume of seafood imported by source country (B.) and year (C.). "EN", "NT" and "VU" stand for Endangered, Near Threatened and Vulnerable respectively.

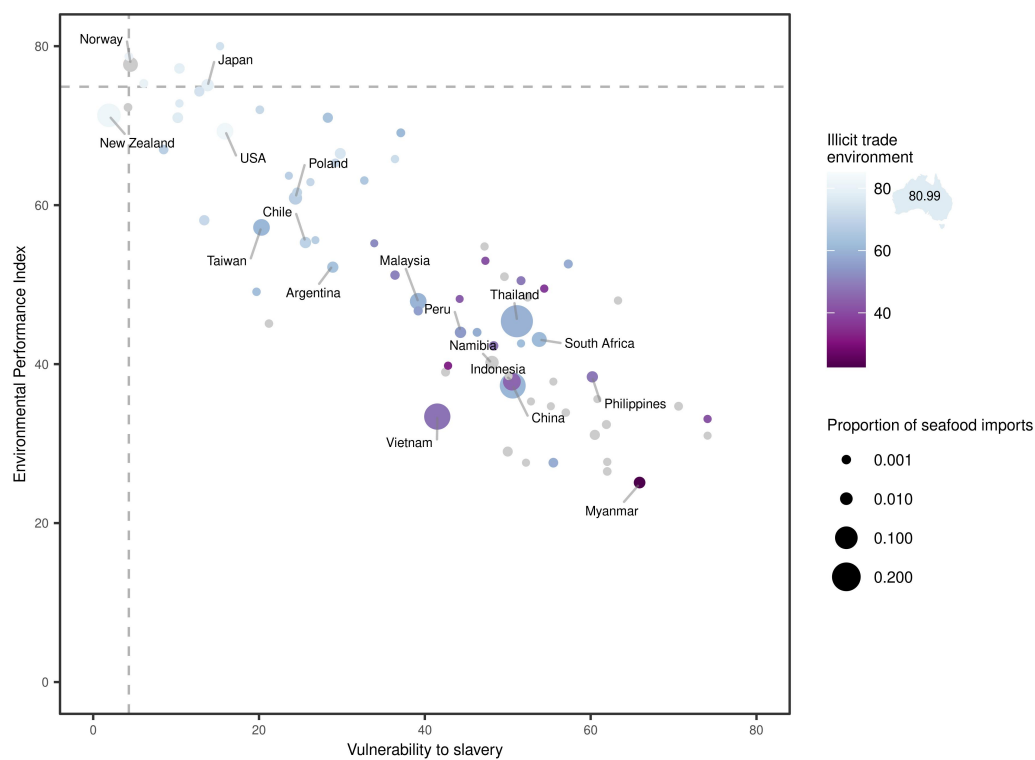


Figure 6: Socio-environmental risks for country of origin. Source: Dominguez-Martinez et al., in prep

6 Risk-based solutions

As discussed in the previous section, the risk of importing seafood associated with IUU fishing (as well as potentially other illegal practices such as labor abuse) is substantial for Australia. A granular risk assessment, however, is not feasible due to the limited information available in the data, such as its production type (wild-caught or cultured). Nonetheless, to mitigate the risk of importing seafood associated with IUU fishing, Australia must adopt a stronger domestic framework for import control, in line with global leaders such as the European Union (EU) and the US.

First, Australia can implement a risk-based approach and require comprehensive catch documentation ⁵ for high-risk species based on scientific risk assessments (e.g. tuna, shrimp and prawn). This would be similar to the system in the US, where the Seafood Import Monitoring Program (SIMP) requires catch documentation for 13 types of seafood identified as vulnerable to IUU fishing (currently being expanded to more species) (Emily Harrison, Meredith Ryland and Kendra Thomas Travaille 2021). Australia currently requires only a limited set of KDE's from seafood importers, which would need to be expanded substantially for those at-risk species, such as the location and date of catch (Emily Harrison, Meredith Ryland and Kendra Thomas Travaille 2021). It is important that such product information is also made available to the consumer across territories (Emily Harrison, Meredith Ryland and Kendra Thomas Travaille 2021). Australia can also impose a risk-based verification process to ensure reported information is legitimate. The EU also adopted a risk-based approach to verification where, because it is not feasible to check every consignment, a robust risk assessment procedure is used by the importing state. This means efforts are guided towards verifying imports that are most at risk of IUU fishing by taking into account characteristics such as country of origin, or vessels and companies with known IUU fishing association. The verification of a product's legality can be required either from the importer (US system) or the flag state of the catching vessel (EU system) (Department of Agriculture, Fisheries and Forestry (DAFF) 2023).

Second, Australia can use market tools to incentive its top trading partners, such as Thailand or Viet Nam, to take stronger measures to prevent IUU fishing. Similar to procedures established in the EU, Australia can consider import bans on seafood products from countries that are determined to be non-cooperative and fail to take sufficient measures to limit IUU fishing.

⁵Catch documentation schemes can be unilateral or multilateral in nature, where multilateral schemes are based on RFMO rules which have standing in international law and apply to all fishers, traders, and processors dealing with products from a specific fishery. In contrast, unilateral schemes seek to regulate what may enter an end market, not how or what comes out of a fishery. They are established under national law a (Hosch 2016). Importantly, unilaterally implemented import schemes may impose a high compliance cost on industry, increase seafood prices and have a limited impact on preventing IUU fishing (Hosch 2016; Department of Agriculture, Fisheries and Forestry (DAFF) 2023).

However, this should go hand-in-hand with stakeholder program building involving trade partners and foreign governments. Partnerships with development agencies, foreign governments and industry are required to ensure all stakeholders have the necessary infrastructure, tools and training to comply with new standards (Willette and Cheng 2018). Indeed, the approach should not be to solely crack down on violators, as this can victimize already struggling fishermen in developing countries (an outcome for which the EU's carding system has been criticized) (Willette and Cheng 2018). However, because the source of Australian seafood imports is fairly consolidated, with Australia's top 20 seafood trade partners representing 95.2% of its total imports by volume (FRDC 2023), this could provide Australia with an opportunity for meaningful reform.

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7 Appendix

Table 3: Australia’s top 20 trade partners of ‘fish’ (by volume)

Country	Volume (Million Tonnes)	Value (Million AUD)
New Zealand	212.96	1563.80
Vietnam	129.84	715.75
China	104.76	621.85
Thailand	86.84	427.92
Taiwan	57.38	493.59
Malaysia	49.86	361.53
South Africa	28.05	187.63
Indonesia	24.96	265.63
United States of America	18.08	126.41
Argentina	9.24	54.28
Korea, Republic of	8.43	52.75
Norway	7.49	95.16
Myanmar	6.48	40.66
Singapore	6.17	44.31
Japan	4.84	84.05
Philippines	4.59	27.54
Namibia	4.45	20.6
United Kingdom	3.44	36.34
Australia	3	27.95
Germany	2.85	40.11