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Illuminating the mechanisms to mitigate forced and child labour risks within Marine Stewardship Council certified fisheries

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ABSTRACT

Growing concern about forced and child labour abuses in the fishing industry has led to calls to integrate social issues within the sustainable seafood sector. While abusive labour practices in fisheries are increasingly studied, and consensus is building on overarching principles and benchmarks, few studies have reviewed the practical mechanisms available to mitigate forced and child labour risks. This paper provides an overview of labour risk management practices reported by fisheries certified to the Marine Stewardship Council (MSC) Fisheries Standard, representing over 15% of the world's marine capture fishery production. MSC-certified fisheries have been required to submit forced and child labour statements since 2018. The statements were analysed to examine the mechanisms to mitigate forced and child labour across different fishery contexts. Results indicated where MSC-certified vessels were broadly in line with expectations from international, private, and NGO standards or guidelines on labour issues, but also illustrated where there were departures. These could be explained by differences in how policy and practice are applied in different regulatory and cultural contexts, such as the requirement for use of written contracts in countries that have ratified ILO C188 versus the preference in some cases for the use of verbal share agreements. This reflects the challenge of creating culturally-appropriate, adaptable standards that are able to detect real risks of labour violations. To fully consider these nuances, our proposed framework captures key aspects of setting, implementing, and monitoring and enforcement of requirements alongside the roles of government, companies, and civil society. We propose this framework could be applied more broadly to evaluate fisheries' practices.

1. Introduction

The fisheries sector contributes to economic development, food security, and livelihoods, providing direct and indirect employment for millions of people worldwide and up to 20% of animal protein for more than 3 billion people [1]. In addition to worldwide concerns around the long-term biological sustainability of fishing [1], growing evidence of egregious labour violations occurring in some fisheries has drawn attention to the need to study and monitor labour practices in the industry. Media and Non-Governmental Organisation (NGO) investigations have revealed cases of fishing crew working under forced labour conditions [2–7]. There are also reports and growing concern about the widespread use of child labour in some parts of the world [8]. Child labour in fisheries tends to be associated most often with small-scale, family run businesses [9], but there is evidence of children as young as 11 being found working on board commercial fishing vessels [10].

According to the International Labour Organization (ILO), the agriculture and fishing sector make up 11% of the 16 million people estimated to be in forced labour in the private economy [11], and about 70% of the estimated 160 million child labourers in the world work in agriculture and fisheries [9]. Emerging studies increasingly suggest that reduced stock productivity levels - and the consequent decrease in profit margins - leads to pressures on operators to increase fishing effort and cuts to the costs involved in hiring and ensuring the well-being of crew, thus resulting in forced labour and slave-like conditions at sea and a

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demand on family labour [9,10,12–16].

The fishing sector faces conditions that makes it particularly vulnerable to forced labour, defined by the ILO as all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered themselves voluntarily [17], and also vulnerable to child labour, defined as work that deprives children of their childhood, their potential, and their dignity, and that is harmful to physical and mental development [18]. The conditions that create these vulnerabilities include the complexity of legal jurisdiction, especially when fishers are working on vessels registered or fishing in states other than their nationality [13,19,20]; low union membership; exclusion of self-employed fishers or migrants from employment laws [19,21]; migrant crew and involvement of labour brokers [7,22,23]; distant water fishing involving remote locations and isolation [13,21,22]; regular transhipment increasing the time vessels can stay at sea, resulting in isolation of the crew and difficulty with inspection [13,24]; systems of pay deductions leading to debt bondage [6,21,23] as well as underlying exploitation of labour pools due to the lack of formal papers, poor language ability, and - particularly with respect to child labour - limited access to education, absence of child care facilities in fishing communities, pressure on family labour and underlying poverty [6,8–10,25–27].

The growing concern about the vulnerabilities and consequent forced and child labour abuses known to occur in the fishing industry has led to calls to invest in research on the social dimensions of sustainable seafood and for key actors including industry, business, retailers, and NGOs to integrate social performance within the sustainable seafood sector [13,23,28–31]. Currently, there are a number of international instruments that provide the basis for labour regulations. These include the UN Universal Declaration of Human Rights [32] and, specifically to the fisheries sector, the ILO Work in Fishing Convention C188 (ILO C188 [33]). ILO C188 came into force in 2017 [34], but has only been ratified by 20 countries to date, excluding some key fishing nations (e.g., US, Korea, China and Spain). In the last few years, a number of labour and social related standards for fisheries have emerged, including the Fair Trade USA capture fisheries standard [35], the Responsible Fishing Vessel Standard [36], and the Fairness Integrity Safety and Health (FISH) standard for crew [37].

Several requirements and benchmarks are commonly identified through the various conventions, legislation, frameworks, standards, and codes as essential to preventing forced and child labour. These include specification of minimum age limits to prevent child labour; improvements to crew recruitment practices; enhanced engagement with fish worker groups; written crew contracts that clearly specify rights and responsibilities and are understood by crew; the need for worker-centred audits and labour inspections; ensuring that repatriation arrangements are in place for workers to prevent abandonment of crew; preventing illegal wage deductions or payment for jobs that cause workers to be unfree to leave employments due to debt bondage; the need for grievance mechanisms that are accessible, confidential and non-retaliatory; and ensuring that workers have access to their identification documents [33,35–41]. However, while the nature, causes, risk factors, and indicators of abusive labour practices in fisheries are increasingly studied and there is an emergence of initiatives aiming to establish certification standards and requirements for social performance, there are few studies into the measures that actors can use to translate standards and requirements into practice.

This paper aims to provide an overview of measures used to mitigate the risk of forced and child labour in fisheries certified to the Marine Stewardship Council (MSC) Fisheries Standard, representing over 15% of the world's marine capture fishery production and a range of geographies, gear types, scales, target species, and regulatory contexts (Table 1). MSC certificate holders have been required to submit forced and child labour statements as part of the Standard's requirements since 2018 and are required to make these publicly available. Analysis of these statements provided a wealth of information on the mechanisms by which a subset of arguably the world's best managed fisheries work to mitigate the risk of forced and child labour in their operations. Further, this analysis supported the creation of a conceptual framework to map out and evaluate practical labour risk management mechanisms within fisheries, categorised by the roles of different actors and the type of intervention.

2. Materials and methods

2.1. Data source

In 2018, the MSC introduced a new policy requiring all fisheries in the program to submit a labour statement - using a pre-determined template - to outline measures, policies and practices undertaken in their fishery to ensure the absence of forced and child labour. The statement template was developed through review of the literature, including normative standards on labour and emerging best practice, to identify key issues pertinent to forced and child labour. These were refined and distilled into twelve questions through consultation with stakeholders including fisheries, labour experts, and NGOs. The labour statements were completed by certificate holders for all MSC certified fisheries by 31st August 2019 and are available publicly [42]. A full list of the statement questions is provided in the Supplementary Materials (S1).

2.2. Study design

2.2.1. Fishery descriptors

General characteristics of each fishery (Table S2) were extracted from Public Certification Reports available online [42] and recorded alongside information drawn from the corresponding labour statement in order to analyse the statement content against different fishery contexts. *Small-scale fisheries* (SSF) were identified using the MSC SSF definition based on vessel length, gear type, and degree of processing that occurs on board (supporting information S3). *High seas operation* referred to where vessels fish at any time within international waters.

Table 1
Regional distribution of labour statements including: number of statements from fisheries that are small-scale , that operate on the high seas, and where labour responsibility crosses national boundaries. *Russia is presented separately as it spans both Europe and Asia.*

Continent	No. MSC labour statements	No. small-scale	No. operating on high seas	No. multi-jurisdictional
Europe	130	28 (22%)	31 (24%)	85 (65%)
North America	57	16 (28%)	11 (19%)	18 (32%)
Oceania	26	5 (19%)	6 (23%)	6 (23%)
South America	20	1 (5%)	10 (50%)	12 (60%)
Russia	15	4 (27%)	3 (20%)	6 (40%)
Asia	12	4 (33%)	4 (33%)	6 (50%)
Africa	2	1 (50%)	0 (0%)	1 (50%)
Antarctica	1	0 (0%)	0 (0%)	1 (100%)
Cross continents (Europe, Africa)	1	0 (0%)	1 (100%)	1 (100%)
Statement total	264	59 (22%)	66 (25%)	136 (51%)

Lastly, *responsibility for labour issues* was considered to be multi-jurisdictional whenever fishing took place in more than one country's waters, when fishing occurred both within a country's EEZ and on the high seas, or when the certificate holder country was different from the coastal state and flag country.

2.2.2. Labour statement content analysis and conceptual framework

Content analysis of the MSC labour statements led to identification of a range of practical risk management policies, practices, and measures (mechanisms) described by certificate holders to prevent forced and child labour on fishing vessels. The actors responsible for each mechanism were also recorded (government, companies, or civil society).

As these mechanisms were identified, eight themes that allowed their categorisation emerged. These were: minimum age, fish worker engagement, grievance mechanisms, contracts, repatriation arrangements, debt bondage avoidance, recruitment practices, and personal identification (Fig. 1). Three cross-cutting processes that applied to each of the eight themes were identified: setting requirements; implementation of requirements; and monitoring and enforcement, which included audits. These themes and processes were also informed by the ILO indicators of forced labour, as well as other standards and benchmarks.

As a result of the content analysis and the identification of common themes, processes, and actors across risk mitigation mechanisms reported within the labour statements, a conceptual framework was subsequently developed to analyse the typology of each reported mechanism (illustrated using general interventions in Fig. 2). The framework was used to categorise mechanisms within each theme according to the process in which they were applied (setting requirements, implementation, or monitoring and enforcement) and the type of actor responsible (government, company, or civil society).

2.2.3. Prevalence of key mechanisms

In addition to the range of mechanisms identified by each theme, the content analysis allowed the identification of selected mechanisms that could be measured quantitatively in terms of prevalence across MSC certified fisheries, and which are frequently referred to within benchmarks within seafood labour standards and guidelines. The number of statements reporting use of each key mechanism and the number of unclear or non-applicable responses were documented and analysed in relation to general fishery characteristics to understand the context in which they are applied.

To reduce subjectivity when interpreting certificate holder responses, specific definitions were created: *Fish worker engagement* (FWE) referred to co-operatives, fisher associations, NGOs, producer organisations, unions, and any other form of engagement (presence of unions was recorded as engagement with unions at any point); *Use of migrant crew* specifically referred to use of workers from a country of origin other than the certificate holder country; *Inspections* were defined as those conducted by a government body against a government standard; and *third party audits* were those conducted against an independent standard.

2.3. Data and study design limitations

The labour statements, as a secondary source not designed for comparative analysis, had limitations on what could be extracted from them. Information was provided as narrative text that was variable in quality and the level of detail provided. Furthermore, statements were provided by certificate holders who were not always vessel owners and had variable access to information as representative associations or marketing organisations. The information was nonetheless well suited to extracting a typology of mechanisms. Extracting data to calculate the prevalence of the key mechanisms, however, included an element of uncertainty, so the number of unclear responses were calculated and the data derived should be seen as indicative of patterns rather than absolute measures.

3. Results

3.1. Overview of fishery types

A total of 264 statements were completed by certificate holders for 371 certified fisheries (representing 100% of certified fisheries in August 2019) based in a range of geographic areas and representing a variety of scales, operations, and regulatory contexts (Table 1). The statements represent certificate holders from over 45 countries, targeting over 90 species, using a variety of gears from 12 gear type groups, and with catches ranging from 1 t to 1 million t (Table S4). The number of statements is not equivalent to the number of certified fisheries as it includes statements from certificate holders that may represent multiple fisheries, and individual fisheries composed of multiple companies that each submitted individual labour statements. All statements were included to ensure all companies were represented in the analysis.

The majority (56%) of labour statements were submitted by certificate holders such as NGOs, governments, associations, or producer organisations that were representing the vessel owners in the fishery, 7% were submitted by certificate holders who buy from the certified vessels,

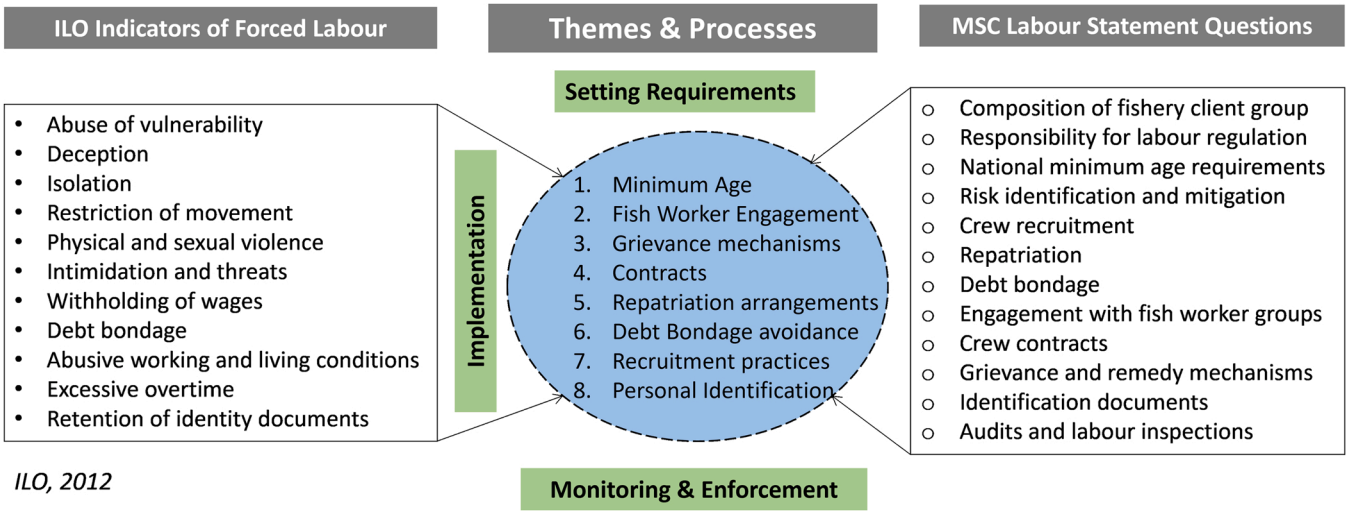

Fig. 1. Illustration of the eight themes and three processes (setting requirements, implementation and monitoring and enforcement) derived from the content analysis of the MSC Labour Statements and informed by the ILO indicators of forced labour.

	Governments	Companies	Civil society
Setting requirements	Ratification of conventions Legislation Rights & freedoms	Policies Contracts	Standards/guidelines Collective Bargaining Agreements (CBAs)
Implementation	Administrative processes Education	Adherence to requirements Company procedures	Representation Awareness Advocacy
Monitoring and enforcement	Inspections Penalties Prosecutions	Checks Transparency	Oversight Audits

Fig. 2. Conceptual framework to analyse the typology of mechanisms within each theme according to the key actors responsible (government, companies, and civil society) and the relevant process (setting requirements, implementation, or monitoring and enforcement).

and 32% of statements were submitted directly by the vessel owners. The remaining 5% came from certificate holders with a mixed relationship with the vessel.

3.2. Risk management mechanisms within MSC fisheries against themes and processes

This section describes the main findings of the analysis. It outlines the prevalence of some key mechanisms across certificate holders, implementation of wider measures addressed within each theme, and mechanisms for setting and enforcement of requirements. Tables containing the full list of practical mechanisms identified per theme and categorised using the conceptual framework can be found in Tables S6.1 - S6.9.3.

3.2.1. Prevalence of key mechanisms

Fig. 3 illustrates the proportion of MSC certificate holders reporting the presence of key mechanisms that were measured quantitively. It indicates the proportion of fisheries reporting alignment with some benchmarks that are frequently recommended within seafood labour standards and guidelines (Fig. 3). The results show that within MSC fisheries there is a high prevalence of fisheries with minimum legal age limits, written contracts for crew, inspections and grievance mechanisms in place; and medium prevalence of fish worker engagement, confirmed repatriation arrangements and use of migrant crew. Meanwhile there is low prevalence of confirmed inspections in the last two years and of fisheries with labour requirements set through ILO 188, company policies or third-party standards. The full list of quantitative results including proportions of unclear and non-applicable responses are provided in Table S5, and the results are unpacked per theme and process below.

3.2.2. Process of setting requirements: legislative and policy framework

Setting requirements is the process by which standards, laws or policies are set and provide the overarching expectations on labour. The analysis of certificate holder responses found examples within MSC certified fisheries of where requirements for labour conditions are set at the government, civil society, and company levels. At the government level, labour legislation (laws, rules, and regulations) was found to be complex, with requirements differing across nations, and responsibilities spread across different governmental departments (fisheries, maritime, labour, health and safety, and human right sectoral divisions).

Most statements confirmed the overarching flag state responsibility for labour across fisheries although the flag state for all vessels was not always stated. Fisheries management is more often the responsibility of the coastal state or region which is of most relevance for environmental sustainability, as certified by MSC. However, there were also cases of coastal and port states control over labour issues. For example, by states: specifying labour conditions within fishing licenses; ensuring all vessels are flagged to the coastal country thereby aligning regulations between coastal and flag state (e.g. New Zealand); inspecting vessels arriving into port under ILO C188; or specifying crew conditions through immigration regulations. At the regional level, the Western and Central Pacific Fisheries Commission (WCPFC) - a Regional Fisheries Management Organisation (RFMO) - has set minimum labour standards that apply to vessels fishing within relevant EEZs and high sea areas regardless of flag state, although these are not binding.

Civil societies were also found to have an influence in setting requirements through standards or guidelines, in some cases developed in collaboration with the private sector. Examples included the Fair Trade Capture Fisheries Standard, the Responsible Fishing Vessel Standard, and the Seafood Task Force standard. At the company level, 8% of respondents have developed their own policies and audit programmes that cover labour conditions, often supported by NGOs or prompted by insurance conditions.

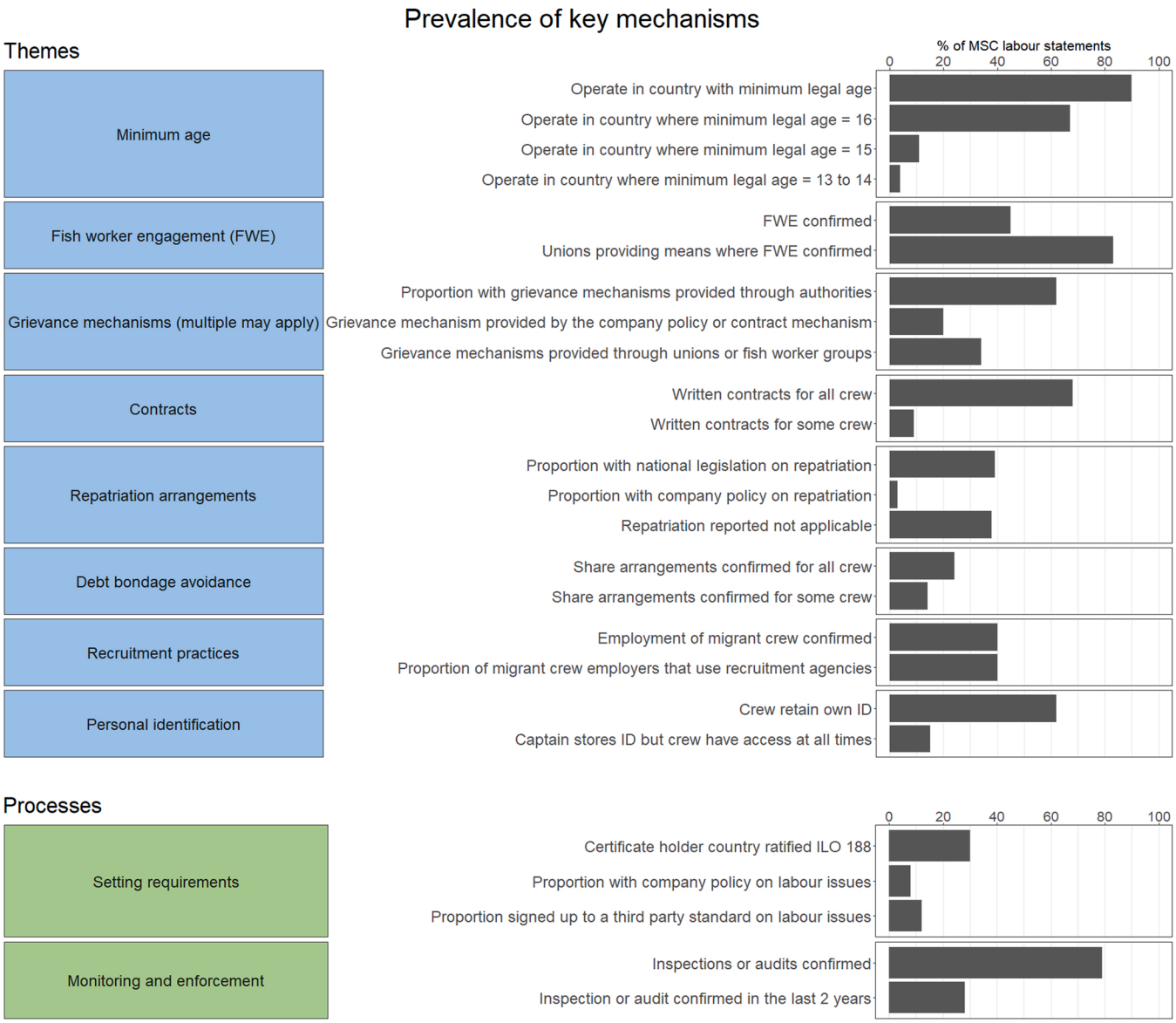

Fig. 3. Proportion of MSC labour statements reporting the presence of key mechanisms for each theme. Key mechanisms were identified based on what could be extracted from the dataset and were informed by frequently recommended benchmarks within seafood labour standards and guidelines.

3.2.3. *Minimum age*

Certificate holders provided information on national minimum age requirements for crew, and the systems in place to ensure that minimum age requirements are met (Table S6.1).

Sixty seven percent of certificate holders operate in countries with a minimum legal age of 16, , and 15% operate in regions where the minimum legal age is less than 16. The latter were notably under legal exemptions, where fisheries were recreational, cultural, coastal, or for hand-gathered species, and conditional on written consents of a parent or legal guardian, completion of compulsory education, restrictions on permissible work and working hours, working with family, or where work is part of an apprenticeship.

In about 15% of cases, certificate holders explicitly mentioned company policies where the minimum age for employment in the company is above the legal requirement so that workers have to be 18 years or older. This was often linked to fisheries with longer trip durations or high seas fisheries, for example in the South Georgia Icefish fishery where workers have to be 21 years or older.

Mechanisms in place to implement and ensure compliance and avoidance of child labour include government agency investigation of crew lists, internship rules, worker agreement, crew ID checks at-port and at-sea, and second- and third-party audits by companies and NGOs. Penalties for non-compliance with specified minimum age requirements include imprisonment, heavy fines, and loss of certification.

3.2.4. *Fish worker engagement*

Almost half of statements of certificate holders confirmed there was some form of fish-worker engagement, with unions being the most frequently mentioned form of association (Fig. 3). This appeared to be more widespread in certified fisheries in Argentina, Chile, South Africa, New Zealand, Denmark, Iceland, and Norway (where the 'Nordic Labour Model' reflects strong engagement between authorities, employers, and unions and allows for representation up to government level). However, 32% of statements did not report fish worker engagement, and unions were not always the engagement of choice, being particularly low within some countries such as the UK and the US.

Other forms of association included fisheries management structures, marketing structures and NGOs that may provide compassionate support (e.g., Fishery Missions) or facilitate resource management. For instance, the small-scale tuna fishery in the Solomon Island has Fair

Trade USA in addition to MSC certification that requires the establishment of representative associations and meeting of certain social standards.

Table S6.2 illustrates the range of mechanisms used within MSC fisheries to support worker engagement. Governments set the legal requirements for representation to enable worker groups, and companies engage with groups to negotiate collective bargaining agreements (CBAs). Some CBAs are only applicable to union members, but in other examples for instance certified fisheries in Denmark, they apply to all workers including migrant workers.

3.2.5. Grievance mechanisms

Grievance mechanisms were reported by certificate holders (Table S6.3), describing whether grievance routes were through authorities (62%), unions and worker representation (34%), or company policies and contractual procedures (15%) (Fig. 3). For instance, certified fisheries in Iceland and Sweden highlighted regulations requiring appointment of worker representatives as 'shop stewards' to report grievances to unions and employers, while some companies reported formal and audited policies for grievances such as within the Jack Mackerel fishery in Chile.

A small number of statements (7%) described government, company, or NGO hotlines (sometimes anonymous) as the channel for submitting grievances and reporting on child labour issues. For example, in the Argentinian Patagonian Scallop fishery, the coast guard provides a free anonymous 24-hour hotline. Others, such as the Australian Heard Island and McDonald Islands toothfish fishery, specified that crew are given free access to Wi-Fi communications, enabling the use of grievance channels.

Certificate holders also highlighted government measures to ensure that workers know their rights and provide whistle-blower legislation to protect workers from discrimination or retribution. This was occasionally supplemented by company measures, for instance in the Atlantic Menhaden fishery in the US, where the company supplies employee handbooks including a summary of rights, grievance policy and hotline number to report concerns.

3.2.6. Contracts

Certificate holders reported a variety of mechanisms for providing and enforcing the use of legally binding contracts (Table S6.4). Where written contracts didn't exist, verbal contracts and share agreements were mostly used, and the majority of certificate holders reported that contracts were supported by a legislative and enforcement framework at the government level designed to protect worker's rights.

Whilst vessels flagged to countries that had ratified ILO C188 are required to provide written contracts, the type of contracts typically depended on fishery scale, culture and tradition, and the presence of strong union groups. For example, in some fisheries, union agreements may inform or even stand in place of individual contracts, such as in the West Greenland Halibut fishery. Verbal contracts often occurred in community-based fisheries where social customs play a significant role, such as the Maldives Pole and Line or Normandy and Jersey Lobster fisheries, or where there is a cultural norm, such as in a number of Canadian fisheries that have a tradition of using verbal share agreements.

Written contracts were more common for high seas fisheries (82% of 66 statements), compared to non-high seas fisheries (64% of 198 statements). It was also higher where responsibility crossed multiple jurisdictions (79% of 136 statements) compared to single jurisdiction fisheries (56% of 121 statements) and lower in SSF's (52% of 59 statements) compared to non-SSF's (73% of 205 statements). However, written agreements were found in some SSFs, such as the PT Citraraja Ampat fishery where they are checked by the harbour master for each vessel.

Some fisheries reported the question to be non-applicable (Table S5), for instance where the vessel owner was the sole crew. Others reported partial use of written contracts or different approaches for different crew, for example, in the Australia blue grenadier fishery national crew are hired under verbal share agreements and migrant crew have contracts specifying an annual salary and repatriation arrangements.

3.2.7. Repatriation arrangements

Certificate holders reported several repatriation mechanisms across all actor levels (Table S6.5). Many statements described national legislation requiring inclusion of repatriation arrangements within contracts (Fig. 3), such as the New Zealand Maritime Transport Act 1994 which also requires employers to pay all reasonable costs for foreign crew. Others reported repatriation arrangements were covered in CBAs.

A small percentage of statements also explicitly referred to company policies on repatriation, such as guaranteeing repatriation to origin countries of crew (e.g., the Echebaster Tuna fishery). However, responses were not always clear on whether repatriation arrangements and conditions were stipulated by legislation, company polices, or CBAs.

The presence of repatriation "safety nets" for cases when the company could not cover costs were reported both at the government level, such as in the Russian fisheries that reported the government will cover costs of repatriation if a company fails to do so, and at the company level, such as the repatriation insurance requirement for companies in the Scapeche, Euronor and Compagnie de Peche de St Malo Saithe fishery.

Almost half the statements reported that repatriation requirements were not applicable to the certificate holder. These fisheries typically consisted of entirely self-employed crew, did not hire migrant crew, operated close to shore, only made short trips from their home port, or only hired migrant crew with permanent resident status. SSF were also twice as likely to report the question as non-applicable than non-SSF (64% of 59 SSF statements, 31% of 205 non-SSF statements).

3.2.8. Debt bondage avoidance

Most statements gave details on costs covered by employers and those by the employee. For instance, in the Russian Sea of Okhotsk Pollock fishery, "*Shipowners have responsibility for travel to the workplace, visas, medical costs, working clothing and food as regulated by Russian federal laws*." Others described how pay records provide transparency on any deductions.

Notably, a number of certificate holders operating in isolated locations pay directly into workers bank accounts even when using recruitment agencies. Some governments work to avoid recruitment costs being passed onto migrant fishers, such as in Ireland where the Atypical Work Permit rules for migrant fishers are reportedly in reform to eliminate this practice.

Share arrangements were reported by 38% of statements for some or all crew (Fig. 3). Here pay deductions are an accepted part of the agreement, where crew are paid a share of profits. For instance, Danish certificate holders noted that the cost of food is deducted "*in an age-old sharing system with fixed profit percentages for the vessels and crew respectively*." In one North Sea flatfish fishery, it was reported that on the rare occasion debt could occur, the open market allows crew to leave freely, and they would generally do so. To counter the risk of debt bondage in New Zealand and Australia, legislation ensures that share-fishers receive fixed payments that do not fall below the minimum wage in addition to their share bonuses. The range of mechanisms used to avoid instances of debt bondage across all statements is provided in Table S6.6.

3.2.9. Recruitment practices

The use of migrants as crew on fishing vessels within the MSC programme was confirmed by 40% of certificate holder statements and was particularly likely to occur in tuna (75%) or toothfish (100%) fisheries. These fisheries were also more likely to use recruitment agencies to hire migrant crew, and often mitigated risks through the use of certified agencies or by companies paying directly for services to avoid fees being passed onto crew. A full list of mechanisms used to reduce the risks

associated with recruitment of crew, particularly migrant crew, are given in Table S6.7.

Companies play an important role in the protection of migrant crew through ID and age-checks and keeping updated crew lists. For instance, in the Faroese cold water prawn fishery, crew lists are submitted to authorities before every trip. Companies also reported paying directly into crew bank accounts and providing direct contracts in the appropriate languages. There were still instances, however, where some crew have contracts and are paid directly by recruitment agencies, while others from other nationalities are on different contracts.

Governments play a role in licensing recruitment agencies and ensuring that fees were not passed on directly or indirectly to crew members, registering seafarers, checking crew lists, limiting % of migrant crew and setting minimum standards through visa systems. For instance, in Australia, visa conditions for migrant crew ensure that annual earnings must be equivalent to an Australian worker. Policies of non-discrimination and absence of recruitment fees are common elements of NGO guidelines on ethical recruitment.

3.2.10. *Personal identification*

Procedures for maintaining crew access to ID were reported by certificate holders at the government and company levels (Table S6.8). In most cases, certificate holders reported crew retain or have full access to their own ID (Fig. 3). In some cases, such as in the Osprey Trawlers fishery, personal lockers are available to protect ID. Others reported that companies take copies of ID but do not hold the original documents.

Full access to ID refers to where the captain retains ID documents for safe-keeping and crew are able to access or request their documents at any time. However, the process on how this is achieved was not always outlined. It is illegal in many countries for employers to retain ID without written consent (e.g., as reported by certificate holders based in Norway, Chile, Netherlands, among others) and in some cases it was stated that it is a criminal offence (e.g., certificate holders in Australia, Russia).

Where certificate holders reported the question was not applicable, the relevant fisheries typically hired no migrant crew, consisted entirely of self-employed crew, operated solely in coastal waters, or were single handed vessels. SSF were also more likely to report the question as non-applicable (31% of 59 statements, 6% of 205 non-SSF statements), as well as fisheries where labour responsibility was within a single jurisdiction (20% of 121 single jurisdiction statements, 4% of 136 multi-jurisdictional statements).

3.2.11. *Process of monitoring and enforcement*

Certificate holders reported on monitoring activities, with the most common being inspections and audits. A high proportion of statements (79%) reported inspections or audits, with some unclear responses (16%) and 5% reporting no inspections or not applicable owing to their small-scale, having union oversight or low risk status. A smaller proportion (28%) of statements confirmed they had received inspections or audits in the past two years.

Inspections described included those conducted remotely, such as the Labour Inspectorate review of timesheets and observer records in New Zealand within the Albacore tuna fishery; or inspections conducted in person through port-side or at-sea vessel checks (Table S6.9.1). Port inspections of foreign flagged vessels were reported where states had ratified ILO C188, for example a Spanish vessel from the MSC-certified Ross Sea Toothfish fishery reportedly inspected within a South African port.

Scope of inspections (Table S6.9.2) ranged from a focus on fisheries regulations (which may include labour elements) through to crew list checks, health and safety inspections and checks against labour laws or more detailed labour standards. For instance, in Northern Ireland the Anglo-North Irish Fish Producers Organisation has teamed up with the NGO Human Rights at Sea to undertake a three-year crew audit to assess labour and working conditions.

There was also variability in frequency of inspections (Table S6.9.3), from situations where inspections are only triggered following a complaint, to regular scheduled inspections. Some active inspection regimes were noted (e.g., US Pacific Hake fishery) where there are regular unannounced inspections at sea, in combination with port-side checks; and countries that have ratified ILO C188 award their flagged vessels with a certificate of compliance. Fisheries observers fell into the category of near continuous inspections where social elements form part of their remit.

Broader forms of enforcement were also reported including the use of penalties, fines, and litigation by governments; and dispute resolution or removal of approval (e.g., certification) by civil society groups. For example, within the West Greenland offshore halibut fishery any non-conformities found by Danish Maritime authority can prevent the boat from leaving the harbour or renewing annual quotas and licences.

4. Discussion

This analysis of MSC labour self-declarations offers an overview of labour risk management practices at the vessel level across some of the best environmentally performing fisheries globally: those that have embarked on voluntary certification against the MSC Fisheries Standard. The study identifies mechanisms used to mitigate labour risks across eight themes (minimum age, fish worker engagement, grievance mechanisms, contracts, repatriation arrangements, debt bondage avoidance, migrant recruitment, and personal identification) applied through three processes (setting requirements, implementing requirements, and monitoring and enforcement) by a range of actors (governments, companies and civil society). It illustrates practical approaches in place across MSC certified fisheries to prevent child and forced labour and identifies areas for potential improvement of labour risk mitigation practices within MSC fisheries.

The study provides detailed information representing a range of fisheries that, whilst not fully representative of fisheries worldwide, includes those with characteristics associated with worker vulnerabilities such as fishing on the high seas, complex legal jurisdictions, employment of migrant crew and informal community fisheries, meaning that the results are relevant to global efforts to mitigate labour risks on fishing vessels. However, it is recognised that this represents a subset of well-managed fisheries which still have areas to address on social issues, therefore highlighting the still greater challenge in addressing labour issues in the full spectrum of global fisheries.

Results from the analysis indicate where certified fisheries align with emerging international, private, and NGOs standards or guidelines to eliminate indicators of child and forced labour outlined by ILO [43]. However, results also highlighted potential gaps, illustrating the complexity in how policy and practice is applied in different regulatory contexts. For example, written contracts are often set as a standard, but the review found verbal contracts and share agreements can be present even in developed countries (e.g., Canada). There are also instances where there are different contracts across workers in the same fishery, which merits further investigation given the principle of non-discrimination is at the center of many social standards. Some companies address regulatory gaps and inconsistencies by setting their policies above and beyond national requirements.

Other gaps include fish worker engagement, where approaches vary between different countries, with some having a very strong culture of representation through unions and others relying on regulations and litigation. Types of engagement also affected the route through which workers exercise agency on working conditions [44], with the majority citing government authorities as the main grievance channel. These channels were reportedly strengthened where there was whistle-blower protection, where crew were aware of their rights and where they had access to a means of communication. Attention therefore needs to be placed on both the grievance channel and the enabling factors that ensure they are accessible and lead to effective prevention of issues, and

remediation of grievances [45].

While there were some examples of penalties, fines, and revoked licenses, more emphasis was generally placed on monitoring (e.g., inspections and audits) than enforcement. The regularity of inspections was lower than expected, and highlights jurisdictional complexity. For instance, flag states are responsible for setting and enforcing labour standards on fishing vessels, and while this can be the same country as where the fishing is taking place, flag states can also be geographically distant from where fishing or landing occurs. There is also a wider issue on the mismatch between flag-state responsibility for labour issues and coastal state responsibility for fisheries management [20]. The statements highlighted emerging mechanisms by which coastal countries are increasing their control over labour conditions by including minimum standards within license regulations, and if a country has ratified ILO C188, ports are empowered to inspect landing vessels. However, while one example was given of an RFMO setting voluntary minimum labour standards, there are still significant challenges in how these standards are enforced on the high seas.

In each of the themes, examples of the principles set out within existing labour standards were found within the labour statements, but of particular interest were the practical mechanisms by which these requirements were reportedly implemented in practice. For instance, certificate holders reported how in some countries, debt bondage is avoided by ensuring the minimum wage is protected even after any deductions. Access to free or reasonably priced communications was another practical tool for mitigating against isolation and debt bondage. Furthermore, CBAs were indicated as important for workers to use their agency to influence working conditions. In some cases, these were specific to members and in others they were highly inclusive, covering all non-union members and migrant crew regardless of status. While the study did not measure effectiveness, the supplementary tables provide a rich resource of mechanisms across each theme on what MSC fisheries have described as achievable in practice.

A key practical mechanism used to mitigate the risk of child labour is through instituting and enforcing of minimum age requirements. Many standards set a benchmark of a minimum age of 16 on fishing vessels. In practice there are countries where the legal minimum age is lower. These are often under specified conditions (as allowed under ILO 188) such as with parental supervision, but there may be a need for action by governments to increase the minimum legal age, or for companies to develop their own policies on minimum working age. Globally, another important approach to mitigate child labour is to work to increase child access to education [9]. While there were instances in which the legal minimum age is linked to attainment of compulsory, minimum education levels, there were no references to active efforts by key actors working directly to enhance access to education for children or to the use of other typical mechanisms to mitigate child labour risks, such as provision of child care. This may be due to low overlap of certified fisheries with fisheries where there may be a reliance of fisheries on family labour.

The level of potential labour risk was found to have an impact on the number of mechanisms used in practice, where higher vulnerability to the risk of forced labour (e.g., fishing on the high seas or under multiple jurisdictions, migrant crew) was associated with more mechanisms to mitigate risk, such as a high likelihood of having written contracts, company policy on minimum age, repatriation arrangements, ID policies, regular inspections, fish worker engagement, and NGO support. Conversely, cases with less vulnerability factors tended to report a reduced suite of mechanisms. These fisheries may have vessels all flagged to the same country, all national crew, or operate in their own coastal state, close to the shore, with short-trip durations. In these cases, the need for elements such as repatriation arrangements and ID policies were reported to be limited.

The mechanisms were also found to be specific to the actor responsible for their implementation, in line with the expectation that governments, companies and civil society all have parts to play in mitigating against forced and child labour risks [31,46]. While governments need to provide enabling legislation and effective enforcement [13], private companies have the capacity to implement standards on their vessels and supply chains [22,30] and individual and collective agency are important for holding actors to account [21]. There were examples of collaboration across different actors, such as in the Nordic labour model where worker groups, companies and authorities work together in setting and upholding labour standards. However, there were also instances where one actor compensates for another, where there is a lack of capacity, such as when companies set their own standards and audit regimes where flag state inspection is weak.

The conceptual framework of mechanisms presented here, populated with examples across a range of fisheries, provides a useful reference for different practices that can be used within different regulatory and cultural contexts. Mechanisms are organised into categories related to the process involved (setting requirements, implementation, or inspection) and by the actors responsible (governments, companies, or civil society). This allows all aspects of setting, implementation, and inspection on requirements to be reviewed and reveals any gaps, for example where policies exist on paper but with no means to follow up, or where implementation is hindered by a lack of policy consistency across a fishery. Identifying the stakeholder responsible for each tool also allows clarity on the roles of government, companies, and civil society and how they enable each other, or compensate where there are gaps in capacity.

The variability in the use of mechanisms between different fisheries, flag states and countries highlights the potential to harmonise best-practice. For instance, there are opportunities to strengthen efforts to tackle forced and child labour through the wider ratification of ILO 188 [13,19], set binding standards at the regional level, and for companies to engage in assessing their risks and exercising due diligence and remedies [22]. There is also a need for increased oversight that takes a multi-disciplinary approach and triangulates data from many different sources [22,30], enhances transparency and traceability [13,29,30] as well as building on collective action and the role of civil society in particular through fish worker engagement [21,27]. However, the variability of different mechanisms in practice is also a reminder of how relevant interventions may vary with different risk levels and how there are many routes for achieving overarching principles and benchmarks. These findings can support the further development of labour standards reflecting what is being applied in practice; variable local, fishery and cultural contexts; and the contribution of different stakeholders.

Further research can build on this baseline with an opportunity to replicate the data collection and analysis in the future, improve quantitative indicators, and illustrate trends over time. There are also issues that merit further investigation such as how to clarify the jurisdiction for labour responsibilities as well as addressing the challenge of monitoring and enforcing best-practice labour standards on the high seas.

5. Conclusions

This analysis of self-reporting by fisheries certified to the MSC Fisheries Standard illustrates the range of measures reported to be in place to reduce the risk of child and forced labour occurring on vessels within fisheries certified as environmentally sustainable. Mechanisms for each theme were organised into a conceptual framework that captures the roles of different actors (governments, companies, and civil society) and the processes of intervention from setting requirements, implementing these requirements, and monitoring and enforcing compliance. Results indicated where MSC-certificate holders report they follow principles for addressing labour issues (e.g., minimum age, fair recruitment practices, grievance mechanisms) that are broadly in line with benchmarks from international, private, and NGO standards or guidelines on labour. There were departures in some cases which could be explained by differences in how policy and practice are applied according to regulatory and cultural contexts. This diversity reflects the

need to create context-appropriate mechanisms, while at the same time striving for clear standards and benchmarks to detect real risks of labour violations. The conceptual framework developed herein may be a helpful reference for seafood industry actors and standard-setters to map out appropriate mechanisms to mitigate context-specific risks, rather than taking a one-size-fits-all approach.

CRediT authorship contribution statement

Charlotte Tindall: Conceptualisation, Methodology, Data curation, Analysis, Writing – original draft, Writing – review & editing. **Oluyemisi Oloruntuyi:** Conceptualisation, Methodology, Data curation, Analysis, Writing – original draft, Writing – review & editing, Project administration. **Samantha Lees:** Conceptualisation, Methodology, Data curation, Analysis, Writing – original draft, Writing – review & editing. **Katie Longo:** Analysis, Writing – original draft, Writing – review & editing. **David Schley:** Analysis, Writing – review & editing. **Rohan Currey:** Conceptualisation, Analysis, Writing – review & editing.

Declaration of Competing Interest

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.marpol.2022.105140.

References

[1] Food and Agriculture Organisation of the United Nations, The State of World Fisheries and Aquaculture 2020. Sustainability in action, Rome, 2020. https://doi.org/10.4060/ca9229en.
[2] Environmental Justice Foundation, Sold to the Sea: Human Trafficking in Thailand's Fishing Industry, 2013.
[3] K. Hodal, C. Kelly, Trafficked into slavery on Thai trawlers to catch food for prawns, Guard. (2014). http://www.theguardian.com/global-development/2014/jun/10/-sp-migrant-workers-new-life-enslaved-thai-fishing (accessed June 1, 2021).
[4] I. Urbina, 'Sea Slaves': The Human Misery That Feeds Pets and Livestock, New York Times. (2015). http://www.nytimes.com/2015/07/27/world/outlaw-ocean-thailand-fishing-sea-slaves-pets.html (accessed June 1, 2021).
[5] S. Chantavanich, S. Laodumrongchai, C. Stringer, Under the shadow: forced labour among sea fishers in Thailand, Mar. Policy 68 (2016) 1–7, https://doi.org/10.1016/j.marpol.2015.12.015.
[6] C. Stringer, D.H. Whittaker, G. Simmons, New Zealand's turbulent waters: the use of forced labour in the fishing industry, Glob, Networks 16 (2016) 3–24, https://doi.org/10.1111/glob.12077.
[7] J.P. Mileski, C.B. Galvao, Z.D. Forester, Human trafficking in the commercial fishing industry: a multiple case study analysis, Mar. Policy 116 (2020), https://doi.org/10.1016/j.marpol.2019.103616.
[8] FAO, Eliminating child labour in fisheries and aquaculture - Promoting decent work and sustainable fish value chains, 2018.
[9] FAO, Tackling child labour in fisheries and aquaculture, 2021. https://doi.org/10.4060/cb7159en.
[10] Environmental Justice Foundation, Caught in the Net: Illegal fishing and child labour in Vietnam's fishing fleet, 2019.
[11] International Labour Organisation, Walk Free Foundation, Global Estimates of Modern Slavery: Forced Labour and Forced Marriage, 2017.
[12] Environmental Justice Foundation, Pirates and slaves: How overfishing in Thailand Fuels Human Trafficking and the Plundering of Our Oceans, 2015.
[13] D. Tickler, J.J. Meeuwig, K. Bryant, F. David, J.A.H. Forrest, E. Gordon, J.J. Larsen, B. Oh, D. Pauly, U.R. Sumaila, D. Zeller, Modern slavery and the race to fish, Nat. Commun. 9 (2018), https://doi.org/10.1038/s41467-018-07118-9.
[14] J.L. Decker Sparks, L.K. Hasche, Complex linkages between forced labor slavery and environmental decline in marine fisheries, J. Hum. Rights 18 (2019) 230–245, https://doi.org/10.1080/14754835.2019.1602824.
[15] M. Mackay, B.D. Hardesty, C. Wilcox, The intersection between illegal fishing, crimes at sea, and social well-being, Front. Mar. Sci. 7 (2020) 1–9, https://doi.org/10.3389/fmars.2020.589000.
[16] D. Brown, D.S. Boyd, K. Brickell, C.D. Ives, N. Natarajan, L. Parsons, Modern slavery, environmental degradation and climate change: fisheries, field, forests and factories, Environ. Plan. E Nat. Sp. 4 (2021) 191–207, https://doi.org/10.1177/2514848619887156.
[17] International Labour Organisation, Convention C029 - Forced Labour Convention, 1930 (No. 29), (1930). http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C029 (accessed June 28, 2021).
[18] International Labour Organisation, Eliminating the worst forms of child labour: A practical guide to ILO Convention No. 182, 2002.
[19] S. Mathew, From informal "co-adventurers" to formal workers? ILO's Work in Fishing Convention, 2007, Econ. Polit. Wkly. 45 (2010) 49–55.
[20] G. Chen, D. Shan, Seafarers' access to jurisdictions over labour matters, Mar. Policy 77 (2017) 1–8, https://doi.org/10.1016/j.marpol.2016.12.004.
[21] P. Vandergeest, Law and lawlessness in industrial fishing: frontiers in regulating labour relations in Asia, Int. Soc. Sci. J. 68 (2018) 325–341, https://doi.org/10.1111/issj.12195.
[22] K. Nakamura, L. Bishop, T. Ward, G. Pramod, D.C. Thomson, P. Tungpuchayakul, S. Srakaew, Seeing slavery in seafood supply chains, Sci. Adv. 4 (2018) 1–11, https://doi.org/10.1126/sciadv.1701833.
[23] B. Belton, M. Marschke, P. Vandergeest, Fisheries development, labour and working conditions on Myanmar's marine resource frontier, J. Rural Stud. 69 (2019) 204–213, https://doi.org/10.1016/j.jrurstud.2019.05.007.
[24] C. Ewell, S. Cullis-Suzuki, M. Ediger, J. Hocevar, D. Miller, J. Jacquet, Potential ecological and social benefits of a moratorium on transshipment on the high seas, Mar. Policy 81 (2017) 293–300, https://doi.org/10.1016/j.marpol.2017.04.004.
[25] B.D. Ratner, B. Åsgård, E.H. Allison, Fishing for justice: human rights, development, and fisheries sector reform, Glob. Environ. Chang 27 (2014) 120–130, https://doi.org/10.1016/j.gloenvcha.2014.05.006.
[26] D. Adeborna, K. Johnson, Child Labour Literature Review and Scoping Study Report. The USAID/Ghana Sustainable Fisheries Management Project (SFMP)., Narragansett, RI, 2014.
[27] M. Marschke, P. Vandergeest, Slavery scandals: unpacking labour challenges and policy responses within the off-shore fisheries sector, Mar. Policy 68 (2016) 39–46, https://doi.org/10.1016/j.marpol.2016.02.009.
[28] F. Micheli, G. De Leo, G.G. Shester, R.G. Martone, S.E. Lluch-Cota, C. Butner, L. B. Crowder, R. Fujita, S. Gelcich, M. Jain, S.E. Lester, B. McCay, R. Pelc, A. Sáenz-Arroyo, A system-wide approach to supporting improvements in seafood production practices and outcomes, Front. Ecol. Environ. 12 (2014) 297–305, https://doi.org/10.1890/110257.
[29] L. McClenachan, S.T.M. Dissanayake, X. Chen, Fair trade fish: consumer support for broader seafood sustainability, Fish Fish 17 (2016), https://doi.org/10.1111/faf.12148.
[30] J.N. Kittinger, L.C.L. Teh, E.H. Allison, N.J. Bennett, L.B. Crowder, E. M. Finkbeiner, C. Hicks, C.G. Scarton, K. Nakamura, Y. Ota, J. Young, A. Alifano, A. Apel, A. Arbib, L. Bishop, M. Boyle, A.M. Cisneros-Montemayor, P. Hunter, E. Le Cornu, M. Levine, R.S. Jones, J.Z. Koehn, M. Marschke, J.G. Mason, F. Micheli, L. McClenachan, C. Opal, J. Peacey, S.H. Peckham, E. Schemmel, V. Solis-Rivera, W. Swartz, T. Aulani Wilhelm, Committing to socially responsible seafood, Sci. (80-.). 356 (2017) 912–913, https://doi.org/10.1126/science.aam9969.
[31] M. Wilhelm, A. Kadfak, V. Bhakoo, K. Skattang, Private governance of human and labor rights in seafood supply chains – The case of the modern slavery crisis in Thailand, Mar. Policy 115 (2020), 103833, https://doi.org/10.1016/j.marpol.2020.103833.
[32] United Nations, Universal Declaration of Human Rights, (1948). https://doi.org/10.1163/157181507782200222.
[33] International Labour Organisation, Convention C188 - Work in Fishing Convention, 2007 (No. 188), (2007). https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C188 (accessed June 28, 2021).
[34] B. Wagner, A milestone reached: On the ILO Work in Fishing Convention C188. Samudra Report, The Triannual Journal of the International Collective in Support of Fishworkers, 2017.
[35] Fair Trade USA, Capture Fisheries Standard V 1.1.0, (2017).
[36] Global Seafood Assurances, Responsible Fishing Vessel Standard Issue 1.0 (RFVS), (2020).
[37] FISH Crew Standard Group, Fairness, Integrity, Safety and Health (FISH) Standard for Crew Version 1.0 Draft for Public Consultation, (2020).
[38] International Labour Organisation, Fishers first - Good practices to end labour exploitation at sea, 2016. https://doi.org/ISBN: 978–92-2–131289-5.
[39] International Labor Rights Forum, Taking Stock: Labor exploitation, illegal fishing and brand responsibilty in the seafood industry, 2018.
[40] Environmental Justice Foundation, Blood and water: Human rights abuse in the global seafood industry, 2019.
[41] Sustainable Supply Chain Initiative, SSCI Benchmarking Requirements Version 1.0 Part III CI: At-Sea Operations Scope (Social), (n.d.).
[42] MSC, Track A Fishery, (2022). https://fisheries.msc.org/en/fisheries/ (accessed August 31, 2019).
[43] International Labour Organisation, ILO Indicators of Forced Labour, 2012.

[44] P. Vandergeest, M. Marschke, Modern slavery and freedom: exploring contradictions through labour scandals in the thai fisheries, Antipode 52 (2020) 291–315, https://doi.org/10.1111/anti.12575.
[45] L. Rende Taylor, E. Shih, Worker feedback technologies and combatting modern slavery in global supply chains: examining the effectiveness of remediation-oriented and due-diligence-oriented technologies in identifying and addressing forced labour and human trafficking, J. Br. Acad. 7 (s1) (2019) 131–165, https://doi.org/10.5871/jba/007s1.131.
[46] S.J. New, Modern slavery and the supply chain: the limits of corporate social responsibility? Supply Chain Manag. Int. J. 20 (2015) https://doi.org/10.1108/SCM-06-2015-0201.