



Decent work in fisheries: Current trends and key considerations for future research and policy

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ABSTRACT

Labor issues and human rights violations have become the subject of rising concern in fisheries and seafood production. This paper reviews recent research on labor issues in the fishing industry, especially by environmental researchers and nongovernmental organizations (NGOs) which are emerging as key players in research and policy arenas. Recent research has focused largely on severe violations such as forced labor, particularly in ‘hotspot’ geographies, often relying on indicators and risk-based approaches given the paucity of data and challenges of monitoring working conditions. This paper proposes that decent work – a concept associated with the institutional history of the International Labor Organization (ILO) but with broad implications – can contribute to overcoming gaps in the research landscape, and assessing and improving a range of labor issues in fisheries. The paper elaborates some key considerations for studying and promoting decent work in the seafood industry. Assessing and achieving decent work in the world’s fisheries requires (1) a holistic human rights approach to decent work, in which labor concerns are understood in the context of interrelated and interdependent sets of human rights, (2) consideration of the complex political-economic regimes and histories in which seafood production is embedded, and perhaps most importantly, (3) that workers play a central role and have a voice in defining and achieving decent work. The paper concludes with future directions for research and a discussion of promising and emerging policy pathways for promoting decent work in fisheries and seafood production.

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1. Introduction

In recent years, interest has surged regarding human rights in fisheries and the labor practices involved in seafood production, partly in response to widely publicized incidents of labor abuses and unacceptable working conditions in the sector [105,106,111,21,66,67,71,72]. Diverse government and civil society actors have responded by undertaking research and intervention efforts. Notably, environmental nongovernmental organizations (NGOs) increasingly engage with these issues, often through partnerships with industry, governments, and human rights NGOs with longer histories of involvement. Recent research and advocacy initiatives have contributed significantly to current understandings of labor issues affecting the seafood industry, and have generated momentum in global dialogues. However, because there has been significant focus on severe abuses, understanding the underlying causal factors for a broad range of exploitative labor conditions, as well as those that promote and enable decent work in fisheries, remains a key research gap.

Decent work “is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men” [46]. As such, decent work is not only the absence of severe abuses – though certainly this is crucial – but something much broader and arguably unfulfilled in many sectors. This paper draws on this holistic and comprehensive definition of decent work by the International Labour Organization (ILO) to think about a broad range of labor issues in the seafood industry.

The concept of decent work was first proposed in 1999 by Juan Somavía, former Director-General of the ILO, influencing the agency’s Decent Work Agenda for decades to come, but its origins can be traced to the longtime work of the ILO since its creation in 1919 [63]. International human rights agreements also situate decent work as a human right, such as the 1944 Declaration of Philadelphia (reaffirming the purpose of the ILO), the 1946 Universal Declaration of Human Rights (UDHR), and the 1966 International Covenant on Economic, Social and Cultural Rights (ICESCR) [26,63].

In recent years, different groups have increasingly aligned themselves with the language of human rights to advocate for improvements in fisheries governance and social responsibility, including historically marginalized groups of small-scale fishers [120,3] and environmental NGOs [122,55]. Recent uptake of human rights-based approaches by environmental and fisheries researchers builds upon a long history of work by human rights NGOs and trade unions (see, e.g., [118,50]), as well as international agencies such as the ILO and the International Maritime Organization (IMO), which have promoted decent work and human rights protections for seafarers and fishers for decades through targeted in-country work and international standard-setting. Such efforts have given rise to international agreements like the ILO Work in Fishing Convention (2007, No. 188; hereafter C188), developed specifically for the fishing sector through a tripartite process (i.e., involving consensus among States, workers’ organizations and employers’ organizations).

In light of growing interest in labor in fisheries, this paper makes a timely contribution by reviewing recent trends in research, identifying key research gaps, and examining the potential for decent work as a framing for researching and improving work in fishing. The concept of decent work enables investigation of a wide range of labor concerns in fisheries – from income and working hours to social security, occupational health and safety, and collective bargaining. Accordingly, examining what constitutes decent work provides an opportunity to expand on the progress made by recent initiatives focusing on severe abuses. A decent work perspective is also useful for examining the relationships between labor rights (e.g., freedom of association, safe work environment) and other sets of human rights. Human rights are all interrelated,

and growing alignment between the ILO and other UN agencies is premised on the argument that decent work is integral for achieving other goals such as eradicating poverty [26,62,63].

The paper begins by reviewing some of the major trends in research related to work and labor abuses in fisheries – focusing especially on contributions by environmental NGOs, which are emerging as key players in research and policy agendas – and drawing on lessons from fisheries and other sectors to examine their implications. The paper then provides a discussion of decent work and elaborates important considerations for researching and responding to a range of labor issues in fisheries. The paper concludes by considering future directions for research and policy pathways for decent work.

The review presented in this paper builds on a landscape assessment prepared for a 2019 workshop convening experts working at the intersections of human rights, labor, and environmental issues in fisheries [89]. The literature review involved developing an initial list of sources, searching the references in the first list, and interviewing workshop participants to identify additional sources. The review examines a breadth of efforts including peer-reviewed literature, technical reports, UN reports, and the publications and advocacy efforts of NGOs. Therefore, while not a systematic and certainly not exhaustive review, the paper offers a wide-reaching and comprehensive review of research on labor issues in the seafood sector.

2. Current trends and approaches for studying labor rights issues in the seafood sector

Recent research on labor in the seafood sector has largely focused on severe abuses (e.g., modern slavery, forced labor, human trafficking). Reports by NGOs such as the Environmental Justice Foundation (EJF) and Greenpeace have documented abuses in detail and publicized incidents and patterns of wrongdoing, generating visibility and attention (e.g., [21,34,35]). These investigations, often involving interviews with survivors, have been important for elucidating the severity of conditions and the links between abuse of workers and other illegal activities, such as illegal fishing (e.g., EJF, 2020). Similarly, a report by the United Nations Office on Drugs and Crime (UNODC) indicates that human rights abuses in fisheries are often linked to marine living resource crimes such as illegal fishing [16]. Academic research on these topics has likewise focused on severe abuses and has generated important insights on underlying factors associated with labor abuses and workers’ vulnerability (e.g., migratory status, lengthy fishing trips) and possible policy responses [106,109,112,66,78,97,99]. The subsections below examine three additional characteristics of recent research initiatives.

2.1. Geographic focus and ‘hotspots’ for abuse

The majority of recent research has focused on Southeast Asia, where labor abuses have been extensively documented – for instance, in Thailand, where those affected are often migrants from Cambodia, Laos, or Myanmar [21,44,49,75,84]. More recently, labor abuses and associated illegal practices in distant water fishing (DWF) have emerged as a new focus of concern by international NGOs (e.g., [22,35]), as well as regions like Western Africa where organized crime, illegal fishing and labor abuses seem to co-occur [19,20,23]. Fishing operations with documented abuses are commonly flagged to China and Taiwan, though not exclusively, and workers are often migrants from Cambodia, Indonesia and the Philippines [44].

While sustained work in ‘hotspot’ geographies like Southeast Asia is necessary, there is also need for a more balanced approach to understanding decent work deficits globally. The growing body of literature indicates that labor abuses can occur in many different contexts and can span a range of exploitative conditions (e.g., wage disparities and excessive overtime) [48,97]; E. [52]. Some groups have gone beyond known hotspots to document labor issues in diverse geographies. For instance, a report by EJF provides case studies from Cambodia,

Indonesia, Myanmar, Spain, Thailand, the United Arab Emirates, the United Kingdom of Great Britain and Northern Ireland (UK), the US, Viet Nam, and Taiwan (EJF 2019). A recent court case in Denmark involving the alleged forced labor of migrant workers from Ghana [8] and ongoing challenges for temporary workers in the UK (E. [52]) illustrate that the Global North is not exempt from similar patterns of labor abuse.

Understanding the relative prevalence of these issues across different geographies remains a significant research gap – one that initiatives like the Global Slavery Index aim to overcome through a combination of surveys and statistical modeling, given data limitations [115]. In addition, because country-level strategies for addressing and documenting labor issues are variable, there are significant deficits of information in some geographies (e.g., Northern Europe, Western Africa), and some forms of labor abuse may be underestimated in some places while overestimated in others. Future research must endeavor to overcome geographic gaps, and to better unpack the spatial dynamics that give rise to inequities across sites of production and consumption.

2.2. Supply chain stages and sites of production

The majority of research on labor abuses in seafood focuses on capture fisheries in the harvest stage of supply chains, on industrial fisheries, and often on vessels fishing in the high seas or outside exclusive economic zones (EEZs) [27]. Notable exceptions include Associated Press investigations on shrimp processing operations in Thailand [67] and previous reports documenting similar abuses in processing [113,16,96]. Working conditions on industrial vessels, as documented in recent research, are generally poorer than in other parts of supply chains, especially since labor at sea often merges working and living conditions. However, the current bias towards harvest labor is likely leading to underestimation of labor abuses taking place in other parts of supply chains. For instance, seafood processing increasingly takes place in developing nations where costs are lower and labor is carried out by migrant workers (both transnational and domestic), which are often more vulnerable to labor exploitation [16,41].

In addition, because harvest labor at sea is predominantly carried out by men, labor issues affecting women and children may be underestimated in seafood value chains. Others have pointed out similar marginalization in fisheries research, where women's labor is often overlooked [116,56,77,95]. Focusing on labor abuses at the harvest stage of production – and only marginally on the expansive processing and retail operations around the world – may limit our understanding of decent work across other forms of labor [27]. Lastly, the focus on offshore, industrial fisheries means that labor abuses and other aspects of decent work may be overlooked and understudied within nations' territorial waters. Some exceptions include research on labor abuses taking place in coastal fisheries in Indonesia (K. [53]) and Myanmar [7]. Others have documented violations such as hazardous child labor and trafficking in SSFs such as Lake Volta, Ghana [1,38] and the informal processing sector [51].

2.3. Indicators and the estimation of risk

Recent research on labor issues in fisheries commonly relies on both statistical and qualitative indicators, including evidence of past occurrences, to determine relative risks (e.g., of forced labor) in certain fisheries or geographies. Reliance on indicators and risk-assessment stems partly from a lack of data and difficulty of collecting direct evidence of working conditions. In data-poor contexts, risk assessments can provide a valuable and targeted approach for researchers and authorities seeking to address labor issues with limited resources.

Several initiatives aim to overcome data gaps and estimate the relative risk of labor abuses associated with specific fisheries or seafood products. The Seafood Slavery Risk Tool (SSRT) currently being developed by Monterey Bay Aquarium's Seafood Watch and the Sustainable Fisheries Partnership, uses a range of country-, industry-, fishery-, and

processing-level indicators to assess the risk of forced labor, human trafficking and hazardous child labor in specific fisheries. Building on data from the Global Slavery Index and the Sea Around Us project, Tickler et al. [109] identified some statistical links between indicators of labor abuses and metrics for environmental or resource governance performance, but concluded that deeper social science research is needed to establish causality or inform policy interventions. Nakamura et al. [78], developed a framework for evaluating the forced labor risks of 118 seafood products using data from companies, human rights authorities and supply chain mapping.

Other initiatives combine available data sources in novel ways to overcome current knowledge gaps. McDonald et al. [70] used satellite vessel monitoring data (i.e., automatic identification system, AIS), expert interviews and machine learning to identify vessel behaviors that may be associated with forced labor conditions. Another study by the Center for Advanced Defense Studies (C4ADS) combines vessel records, AIS data, port calls, and qualitative data sources such as fisher narratives to identify ports with high prevalence of forced labor [9]. Such efforts provide valuable insights about patterns of behavior and risk factors that can be leveraged to enhance monitoring efforts and direct attention to research and data gaps. However, there are limitations to data sources such as AIS: vessels engaging in illegal fishing and labor abuses are unlikely to comply with requirements; smaller vessels are often not required to use AIS; and 'dark fleets' evade detection by selectively disabling tracking devices [83]. AIS-based analyses can therefore complement other approaches for assessing labor issues in fisheries.

More generally, one possible pitfall of risk-centered research is that reliance on indicators may generate perceptions of certain categories as measures of objective reality, rather than the outcomes of specific research practices and available data. For instance, categorizing some fisheries or countries as high-risk for labor abuses could lead to generalizations about producers belonging to these groups, which may not reflect the reality on the ground. Additionally, predictive models based on limited training data of known cases may over-predict suspected forced labor in some fisheries with numerous known cases, and under-predict them in others with fewer known cases [107]. Another challenge is determining how often a risk categorization translates into actual occurrence, given the difficulty in calculating prevalence (e.g., of forced labor) out of a total population [79].

Some risk-centered research initiatives are developed in collaboration with businesses (e.g., seafood retailers). Such collaborations produce significant insights, have the potential to align with international standards, and because of industry buy-in, may generate feasible long-term commitments to improving labor conditions. However, they can also result in greater focus on seafood products destined for markets with relatively greater demand power (e.g., Europe and North America). Investing in research that complements and expands the scope beyond such fisheries to move towards a more global picture would be beneficial. There is room for complementary initiatives to produce a more comprehensive view of labor issues and decent work in fisheries, and for risk- and indicator-based work to continue alongside (and informed by) grounded, contextualized qualitative research and consultation with those working on the ground. Different types of research, assessments and estimations are all required if the aim is to generate a stronger knowledge base that will help ensure decent work for fishers.

3. Key considerations for researching and achieving decent work in fisheries

The Decent Work Agenda (DWA), through which the ILO defines decent work, consists of four interrelated pillars: (1) promoting full and productive employment that is freely chosen, (2) renewed focus on rights at work through standard-setting, (3) expanding social protections for workers, and (4) promoting social dialogue 'at all levels of society' (i.e., among employers, workers and governments) [63]. These pillars formed the basis for significant programmatic realignment in the

ILO and reflect a shift from the agency's previous emphasis on social justice and legally binding mechanisms towards a 'soft law' approach focused on standard-setting [4,63].

Following a tripartite meeting of experts in 2008, the ILO published a manual outlining a Framework for the Measurement of Decent Work, which elaborated the four pillars of the DWA into ten substantive elements, each with respective statistical and qualitative legal indicators [45] (Table 1). ILO decent work indicators are valuable for broadly monitoring decent work and making comparisons across different national contexts. Assessing and promoting decent work in the seafood sector requires contextualizing these substantive elements and indicators. For instance, 'productive work' means that workers gain enough income to support their families. Proposed indicators include the working poverty rate, average real wages, and statutory minimum wage [45]. However, remuneration schemes vary in fisheries, from fixed to shared and catch-proportional [37], and compensation in SSFs may vary significantly by season or targeted species, making it difficult to operationalize productive work. In addition, even legal minimum wages may not yield adequate standards of living for fishers [31].

The ILO Convention on Work in Fishing (C188) is the most comprehensive and wide-reaching instrument for labor in fishing [68], with recommendations for a broad set of concerns: minimum age,

medical examination of fitness to work, manning and hours of rest, crew list requirements, fishers' work agreements, repatriation, recruitment and placement, payment, accommodation and food, medical care, occupational safety and health, social security. C188 applies to formal and informal workers, to both small-scale and large-scale commercial fishing, and importantly to both employed and share-fishers. Although few countries have ratified the convention and its implementation remains limited, C188 provides a language and a set of minimum conditions that must be met in the quest for decent work in fishing. Therefore, C188 offers a good starting point for examining labor issues in the sector and identifying avenues for going beyond minimum requirements.

Subsections below examine key considerations for understanding and promoting decent work in fisheries. However, before proceeding it is worth highlighting that decent work is also closely related with other concepts such as economic dignity and precarity. Economic dignity means that "those who accept the responsibility of working hard to support themselves and their families should be able to maintain the basic necessities of life without humiliation, exploitation, poverty, or devastating falls in their standard of living" ([100], p. 33). In practice, achieving economic dignity requires fiscal policies that provide adequate social safety nets and employment opportunities for workers [100,101]. From Marxist perspectives, dignity of labor is related to ideas about economic injustice in an industrialized world and workers' rights to participate in decision-making about the surplus generated from their labor [85] – a notion that aligns with the foundational social justice objectives of the ILO (e.g., "to ensure a just share of the fruits of progress to all") [40]. This 'sovereignty of labor' – the power to determine the disposition of surplus value and of the fruits of labor – is a key aspect of some visions of economic dignity embodied by forms of organization like cooperatives where workers own the means of production [30]. Labor organizing through unions has largely not focused on this capacity to make decisions about surplus, but rather on improving work conditions and standards [85].

Precarity, on the other hand, is a concept that reflects the increasing uncertainty and instability that have come to characterize working conditions and livelihoods in many sectors, at least partly as a result of industrialized capitalist production systems and the shift towards neoliberal economic policies throughout the world after the 1970s [54, 57]. The concept of precarity provides an opportunity to describe and study the precariousness of workers' lives as a function of structured or institutionalized patterns of relationships – including the erosion of workers' collective bargaining institutions after the late 20th century, as well as conditions of 'hyper-precariety' experienced by migrant workers who, for instance, are not protected by labor legislation in many countries [57]. The precarity of migrant workers is an especially poignant issue associated with labor abuses generally and in the seafood industry [15,43,44], including in cases such as Thailand that have received considerable attention [66]. Understanding which factors exacerbate and which improve conditions of precarity for workers will be essential for achieving decent work in the world's seafood sector.

3.1. Decent work through a holistic human rights perspective

The ILO Declaration on Fundamental Principles and Rights at Work (1998) emphasizes the universality and fundamental nature of core labor principles and rights (enshrined in eight fundamental conventions), regarding freedom of association, collective bargaining, and the elimination of certain kinds of work (forced labor, child labor) and employment discrimination – encouraging Member States to promote these irrespective of ratifying independent conventions. At the same time, Alston [4] argues the core labor standards established by the 1998 Declaration constitute a transformative transition in the discourse of international labor law, from a focus on specific rights towards greater emphasis on general principles that are largely undefined and separate from legal provisions in the agency's conventions. Focusing on decent work as a guiding concept for studying and improving work conditions

Table 1
Substantive elements and indicators of decent work developed by the ILO.

Substantive Element	Example indicators	
	Statistical	Legal
(i) Employment opportunities	Unemployment rate; labor force participation rate	Government commitment to full employment; unemployment insurance
(ii) Adequate earnings and productive work	Working poverty rate; mean real earnings	Statutory minimum wage
(iii) Decent working time	Employment in excessive working time (more than 48 hours per week); average annual working time per employed person	Maximum hours of work; paid annual leave
(iv) Combining work, family and personal life	Vary according to regional pilots, e.g., child care leave coverage, female labor force participation rate, commute times between work and home	Maternity leave
(v) Work that should be abolished	Child labor rate, forced labor rate (national)	Forced labor, child labor (e.g., legislation on minimum age, ratification of ILO Conventions)
(vi) Stability and security of work	Precarious employment rate; job tenure; real earnings of casual workers	Conditions for termination of employment in national legislation
(vii) Equal opportunity and treatment in employment	Occupational segregation by sex; gender wage gap (gender focus)	Equal opportunity and treatment; equal remuneration of men and women for work of equal value
(viii) Safe work environment	Occupational injury frequency rate (fatal and non-fatal)	Employment injury benefits; Occupational Safety and Health (OSH) labor inspection
(ix) Social security	Share of population above the statutory pensionable age (or aged 65 or above) benefiting from old-age pension; Public social security expenditure (% of GDP)	Old-age social security or pension benefits; income replacement for incapacity to work
(x) Social dialogue, employers' and workers' representation	Trade union density rate; collective bargaining coverage rate	Freedom of association and the right to organize, collective bargaining right

Source: [45].

in fisheries requires thinking critically about the implications of such regime changes in the work of agencies like the ILO and the viability of implementation and enforcement mechanisms.

In addition, the ILO's focus on the 'four pillars' of decent work at times may fail to capture unintended consequences of efforts to improve labor conditions, particularly their effects on interrelated sets of human rights. For example, MacNaughton and Frey [62] describe an initiative to formalize labor in soccer ball manufacturing in India, which involved making women work in a factory rather than at home, where children sometimes helped with work tasks. While child labor concerns were addressed, the women suffered considerably (economically and socially, from harassment) because of the new work arrangements.

Accordingly, a holistic and comprehensive approach would be beneficial for researching and developing interventions around decent work in fisheries – for instance, by situating decent work within a broader framework of rights established in international agreements such as the ICESCR, in order to advance decent work beyond the four pillars of the ILO DWA [62]. Similarly, the Food and Agriculture Organization of the United Nations (FAO) Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (SSF Guidelines; [24]) place decent work in fishing within the context of more comprehensive sets of human rights beyond the scope of the DWA. More generally, the FAO's growing interest in decent work (see, e.g., [25]) and partnerships with ILO and IMO suggest there are key opportunities for increased alignment between decent work, related human rights, and other influential framings in fisheries.

Initiatives to research and improve labor conditions in the seafood sector would benefit from a perspective of decent work as a holistic concept comprising a range of related concerns, including working conditions, remuneration, accommodations, access to medical care and social security (i.e., issues outlined in international standards like C188), but also how these intersect with other sets of human rights. One recent NGO-led initiative that takes a holistic approach to analyzing labor issues in the seafood sector is the Framework for Social Responsibility in the Seafood Sector (also known as the Monterey Framework), which includes three major pillars or areas of social responsibility: (1) basic human rights, dignity, and access to resources; (2) equality and equal opportunity to benefit; (3) livelihoods and food security. The Social Responsibility Assessment Tool (SRAT), which operationalizes the Monterey Framework [13], faces similar challenges as other risk-based approaches (e.g., lack of information translates into categorization of 'high risk'), but can nonetheless play a role assisting researchers to develop holistic analyses of decent work.

3.2. Decent work is embedded in complex political-economic production processes

Any attempt to systematically study, define and promote decent work – not only in the seafood sector but more generally – must attend to the broader political economy of resource systems in which labor practices are embedded [10,12,39,59,60]. Production practices and processes that constitute global seafood commodity networks create structural patterns of conditions that affect workers directly and indirectly in all aspects of work, from recruitment to compensation and access to grievance mechanisms and social safety nets. Some of the mechanisms whereby capitalist modes of production contribute to worsening labor conditions and unfree labor include: demand for cheap seafood and low prices paid to producers, which drive demand for cheap labor; an increasingly international division of labor, which relies on less regulated and lower paid work; and patterns of unequal economic and ecological exchange between nations [12,18,2,65].

Seafood production, like many other sectors around the world, has undergone a rapid transformation over the last few decades towards globalized and highly competitive markets, liberalized trade of commodities, enhanced productive capacity, and outsourcing of labor [10, 39]. Not only has the industrialization of fisheries around the world led

to unprecedented levels of exploitation [6], with many of the world's fisheries considered overexploited [14], but the generation of food and wealth through industrialized development has occurred at a significant cost to workers, small-scale producers and coastal communities affected by the ensuing scarcity and worsening labor conditions [64]. Political-economic transformations have contributed to deteriorating work conditions and labor market regulation across many productive sectors, and increased precarity for workers that can be viewed as structural or institutionalized [102,103,54,57]. Achieving decent work in the world's fisheries and seafood sector will require grappling with these ongoing transformations to labor relations rooted in political economy.

The precarity of fishers and seafarers in global commodity production is not a new phenomenon. Unfree labor, labor abuses, and wage disparities between migrant and local fishers have all been documented in fisheries as far back as the 1800s [104,119,121,88]. The latter issue is key, since lasting inequalities among social groups are often maintained through paired, unequal categories (e.g., migrant v. non-migrant) that become institutionalized [110]. Achieving decent work in seafood supply chains requires understanding how such institutionalized forms of inequality and exploitation arise and are maintained. Wage disparities among domestic and migrant fishers in places like the UK (E. [52]) and the legal restrictions on migrant fishers forming unions in Thailand [86] are illustrative examples. A decent work approach for assessing and improving seafood production will also ultimately entail multiple nested and interrelated governance mechanisms to address such inequities and ensure workers are protected from the broader political-economic changes.

3.3. Decent work as an ongoing process to be guided by workers

As the subjects directly experiencing labor conditions, workers must play a central role in decent work initiatives targeting the seafood sector, including defining what decent work means in the context of a specific fishery or supply chain. Fishers and fishworkers have unique insights on the problems, given their lived experience. Involving them in both research and governance initiatives from the beginning is more likely to build trust and thus can potentially improve uptake and efficacy of policies and interventions. Without representation of workers, even multi-stakeholder initiatives may institutionalize the status quo, and thus uphold power differences rather than rebalance power between workers and employers [74]. Lastly, unless worker's voices are centered throughout the process of an intervention (from problem formulation to generating solutions), their role is often relegated to framing the problem, which often means workers are only asked to retell their experiences of exploitation, contributing to the sensationalizing of their trauma.

The organization of workers is one major factor for achieving decent work. International standards, such as the ILO Right to Organise and Collective Bargaining Convention (1949, No. 98), enshrine worker's right to form organizations and engage in collective bargaining. However, workers unions and other organizations have declined globally since the latter half of the 20th century for a number of reasons [117]. Although unionization does not inherently resolve inequities and exploitation, and sometimes carries baggage from past failures, unions can play a crucial role in representing fishers' interests regarding decent work [5,76]. Unions are increasingly important institutions for advocating and addressing labor abuses in Southeast Asia [80], and organizations such as the International Labor Rights Forum (ILRF) and the International Transport Workers' Federation (ITF) are advocating for the recognition of migrant fishers' right to organize in Thailand. In Taiwan, the Yilan Migrant Fishermen Union (YMFU) and Keelung Migrant Fishermen's Union (KMFU) represent the interests of migrant workers who are not formally protected by domestic legislation. Additionally, there are examples of strong fishers' organizations such as cooperatives and associations in India and Latin America that play a

significant role in terms of labor organizing and political representation [17,29,69,94].

Alongside workers' rights to free association and collective bargaining, the notion of worker voice is increasingly invoked in conversations around social responsibility in seafood [36]. Worker voice is a broad concept that suggests fishers and fishworkers should have access to adequate and safe grievance mechanisms for resolving issues that arise in the workplace, and to remediation for violations. Rights associated with worker voice are protected through the ILO Freedom of Association and Protection of the Right to Organise Convention (1948, No. 87), which has been broadly ratified by 155 countries. However, some are wary that worker voice initiatives, which are increasingly part of corporate social responsibility (CSR) agendas, are not sufficient to address issues in the seafood industry where there are no legal protections for workers who make grievances [91], or that industry-led worker voice initiatives may destabilize or weaken labor unions [86].

Another key pathway to involve workers in improving labor conditions is through worker-led social responsibility (WSR), a model that stands in contrast to industry-led CSR approaches. WSR approaches in other sectors are some of the most effective programs at mitigating labor abuses – for instance, the Fair Food Program developed by the Coalition of Immokalee Workers in the context of agricultural work [74]. In this model, workers' collective organizing and partnerships with key supply chain actors (e.g., retailers or secondary processing) were leveraged to create new standards for work and “legally enforceable obligations for companies that join” [74]. This kind of WSR initiative is a bottom-up market-based strategy, led and informed by workers' demands rather than external actors, which contributes to its strength along with support and buy-in from industry actors and NGOs. Such initiatives could serve as models for achieving decent work in fisheries.

4. Policy and research pathways for achieving decent work in the seafood sector

Seafood production systems (i.e., fisheries, aquaculture, processing) are complex, dynamic social-ecological systems that, in many ways, resist or challenge attempts to study and govern them uniformly. The informality and hazards of work in fishing, the transboundary nature of fisheries, the cross-jurisdictional nature of fishing enterprises in the globalized economy, and the social complexity and conflicts between industrial and small-scale producers are only some of the challenges in assessing and promoting decent work. A focus on decent work can help move research efforts beyond the most severe abuses in hotspot geographies towards thinking more broadly about the combinations of factors that affect labor conditions. The sections below outline some directions for future research and outline key policy pathways for decent work in the seafood sector.

4.1. Future directions for research

As the review above illustrates, a number of recent initiatives employ statistical and qualitative indicators, as well as data generated through technologies such as AIS and remote sensing, to overcome data limitations in the sector and estimate the risks and prevalence of labor abuses in various fisheries and production modes. Given the focus on forms of labor that must be abolished, many initiatives have not yet been designed to help identify areas and enabling factors contributing to decent work. There remains a need to go beyond identifying risky hotspots, and to start also identifying and promoting ‘bright spots’ (i.e., understanding where labor conditions are good or improving and why). Harnessing the synergies and complementarities between risk assessments, indicator-based work and more on-the-ground research would be productive for generating knowledge in the future. For example, “ground-truthing” and in-depth case studies may be valuable for improving global assessments. Qualitative research can provide important insights on causality, contextualize indicators, and help better

understand how variables commonly used as predictors relate specifically to decent work. Conversely, models employing large datasets can inform research priorities, make visible large-scale patterns, and generate questions to be pursued through more situated research involving fieldwork.

Future research efforts would also benefit from further unpacking the relationships between labor conditions and environmental issues such as fishery performance and illegal, unreported and unregulated (IUU) fishing. Labor abuses and IUU fishing are commonly reported to co-occur, but the concept of IUU fishing comprises a wide range of activities, not all of which are violations. Recent research attempting to unpack these narratives suggests not all categories of crimes at sea are related to labor abuses [61]. Understanding such complex linkages will require further research in the future and is likely to be context-dependent.

4.2. Policy pathways for decent work

Achieving decent work in the world's seafood sector will be an ongoing process involving complex, multi-scalar governance regimes in which no one single solution will address all concerns. As such, several policy mechanisms or pathways can be pursued simultaneously depending on the context, including: (1) international policy, (2) domestic regulations, (3) market-based initiatives, and (4) worker-led initiatives.

Internationally, investigations and advocacy by organizations such as EJF, Greenpeace and collectives such as the Seafood Working Group, as well as local organizations, have been effective in directing attention to labor abuses in fisheries in key geographies such as Southeast Asia, putting pressure on governments and markets. The listing of fish from Thailand, Taiwan, and China in the US Department of Labor's List of Goods Produced by Child Labor or Forced Labor similarly increases pressure to improve labor conditions – although it could also have unintended consequences such as shifting exploitative conditions to other markets. In Thailand, such negative attention has prompted reform efforts, but much work remains to be done [92]. Although not recognized as a Member State by the ILO, Taiwan is embarking on a major regulatory reform and adopting all of the provisions in C188 for vessels over 24 m in length [33]. In China, an evaluation framework has been announced to rate fishing vessels, making their continued access to permits contingent on performance regarding IUU fishing and labor practices [73]. More comprehensive and wide-reaching policy actions, including robust implementation and enforcement mechanisms, are necessary to ensure decent working conditions in the seafood sector globally – the effectiveness of which will depend on a number of factors including political will to follow through and appropriate allocation of resources.

As part of complex resource production geographies at sea, fishers and fisheries operations are of concern to multiple specialized UN agencies (i.e., ILO, FAO and IMO), which presents both challenges and opportunities (e.g., ensuring recommendations for environmental sustainability are congruent with socioeconomic considerations and labor protections). Recent interagency collaborations such as the FAO/IMO/ILO Ad Hoc Working Group on IUU Fishing and Related Matters suggest there are opportunities for concerted action and complementary measures and standards. The most significant avenue for strengthening protections for fishers internationally is widespread ratification and implementation of ILO C188, and its application alongside other international agreements implemented through port State control such as the FAO Agreement on Port State Measures (PSMA), IMO Cape Town Agreement on Fishing Vessel Safety (CTA) and IMO International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F). Transparent fishing vessel registration and tracking data can support the implementation of port controls, by enabling port inspection officers to take a risk-based approach.

The “no more favourable treatment clause” of ILO C188 means that its provisions can be applied to a greater number of fishing vessels than those flagged to ratifying Parties. Such port State control mechanisms have been found to be effective in raising vessel standards in the merchant sector and driving ratifications of relevant agreements – e.g., the ILO Maritime Labour Convention (MLC), which sets out seafarers’ rights to decent work conditions and promotes fair competition among ship-owners [47]. The MLC has been widely ratified and the merchant sector implements a regional port State control mechanism overseeing the inspection of foreign ships in national ports. To date, nine regional agreements on port State control (Memoranda of Understanding, MoUs) have been signed. Expanding the scope of MoUs to include requirements for inspections on foreign fishing vessels in line with relevant regulations such as ILO C188 may be one avenue for strengthening protections of fishing industry workers, particularly fishers at sea.

Regional mechanisms for port State control in fisheries have focused on legality of catches and compliance with conservation and management measures set by regional fisheries bodies (RFBs). Almost all RFB measures have focused on managing fisheries resources, and very few on ensuring decent work for those on-board vessels operating within their convention areas, although some have recently enacted measures designed to address observer safety and encouraged Member States to ensure fair working conditions for all crew (e.g., the Pacific Islands Forum Fisheries Agency). One possible policy mechanism for strengthening fisher protections would be for all RFBs to adopt binding measures on working conditions, ensuring they are aligned with the C188 and other relevant ILO standards. Another might be to set up formal and regular data sharing between MoUs inspecting vessels for safety and labor issues, and the RFBs managing fisheries.

Significant action is also necessary at the national scale. Working towards the implementation of conventions such as ILO C188 or transposition of its provisions into national legislation is a key area for improvement, as some ratifying nations have not fulfilled implementation (e.g., Thailand; [86]). The ILO Toolkit for Mainstreaming Employment and Decent Work [42] also offers several recommendations for promoting decent work through domestic policy reform. Fiscal and regulatory policies at the national level, as well as provisions in bilateral and multilateral trade agreements, offer other avenues for mitigating the pressures and negative incentives associated with the globalization and industrialization of fisheries (e.g., to outsource labor). Currently, relatively few corporate actors exert disproportionate influence on global seafood production [11,114,81]. Regulating and incentivizing transnational corporations and exploring other institutional pathways (e.g., industry initiatives, public-private partnerships) will thus likely be important for promoting decent work in fisheries.

Another significant challenge is ensuring adequate protection for workers across jurisdictional boundaries. Responsibilities are unclear depending on where vessels are registered and owned, where the crew are from, where recruitment agencies are based, where vessels are fishing, where catch is landed at port or exported. Some States deflect responsibility towards workers by invoking their inability to act beyond their jurisdiction [123]. Conversely, New Zealand’s Fisheries (Foreign Charter Vessels and Other Matters) Amendment Bill (2014), which requires foreign vessels to comply with domestic labour and fisheries laws, suggests state intervention is possible when political will exists [123].

Private and market-based governance initiatives will likely continue emerging, particularly given the salience of CSR discourses in recent years [82]. In other sectors (e.g., mining, textile work), coalitions of non-state actors such as multi-stakeholder initiatives (MSI) have made some progress [108,32]. However, MSIs have largely failed to protect the best interests of workers [28,74].

Other private governance initiatives such as voluntary certifications attempt to address both social and environmental responsibility concerns in fisheries and aquaculture. These kinds of efforts can play a role in supporting other governance mechanisms. However, there are concerns that, despite often being guided by international standards like

C188, their selective application and voluntary nature may undermine governmental efforts (e.g., [90]). Greater collaboration among certification entities may contribute to ensuring that certifications support rather than detract from other governance mechanisms [87,93], alignment with governments efforts, and stronger corporate human rights due diligence. Furthermore, the seafood sector should seriously consider and learn from failures of social audits and CSR measures to adequately protect the rights and lives of workers in other sectors (e.g., the Rana Plaza building collapse in the garment sector) [58].

Crucially, a decent work approach for the seafood sector must take into consideration not only international standards and the role of private mechanisms but also the perspectives of workers. Interventions must include workers and their organizations as central actors, and should seek to strengthen local organizations and their capacities. National governments must remove barriers to forming unions and other representative organizations so that fishers may engage in collective action to defend their interests, and their capacities to do so must be enhanced [86]. Worker-led initiatives for social responsibility should be prioritized, and workers’ perspectives must be centered in industry-led CSR efforts.

5. Conclusions

Given the growing prominence of labor issues in current debates about sustainable and equitable governance in seafood production, this paper has endeavored to highlight some of the major trends in research and interventions in this issue space. Our review suggests there is a need for greater attention to a range of decent work issues across production modes and geographies, using multiple complementary methods. The concept of decent work, already central to the work of the ILO, offers a productive lens for thinking holistically about labor relations in fisheries and seafood production.

This paper also elaborates some future directions for research and pathways for action to improve labor conditions in the sector, including: strengthening international coordination and port control mechanisms; reforming national policies throughout the world to comply with international commitments and adopt standards such as ILO C188; and establishing mechanisms for protecting labor rights that are informed by and realized through the empowerment of workers. As the UN Decade of Ocean Science for Sustainable Development begins, it will be important for research and advocacy efforts to overcome the gaps identified here and continue generating vital knowledge to inform diverse governance efforts that contribute to decent work in fisheries and seafood production.

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M. Cisneros-Montemayor: Writing – review & editing. **Gabrielle Lout:** Writing – review & editing. **Elena Finkbeiner:** Conceptualization, Writing – review & editing, Funding acquisition. **John N. Kittinger:** Conceptualization, Writing – review & editing, Supervision, Funding acquisition. The first author developed the first version of the manuscript, coordinated with co-authors to incorporate all inputs, and carried out subsequent revisions of the manuscript. All the other authors contributed to the Conceptualization of the manuscript, development of ideas, and also participated in revising, editing and drafting different sections of the manuscript.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of 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.2021.104922](https://doi.org/10.1016/j.marpol.2021.104922).

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