



STANFORD LAW & POLICY PRACTICUM

# THE OUTLAW OCEAN

FALL 2020

Business and Technology Solutions that  
Address Illegal Fishing and Labor Abuses  
in Seafood Supply Chains

# THE OUTLAW OCEAN

## Business and Technology Solutions that Address Illegal Fishing and Labor Abuses in Seafood Supply Chains

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Luci Herman of Stanford Law School has been an invaluable resource and guide as we continue to develop this course. Our two clients—Tony Long of Global Fishing Watch and Susan Jackson of the International Seafood Sustainability Foundation—were extraordinarily generous with their time, their wisdom, and their willingness to introduce students to others who could help their work.

Again this term, the class benefited from guest speakers who provided both insight and inspiration, including: Ian Urbina (The Outlaw Ocean Project), Jess Sparks (Rights Lab, University of Nottingham), Ambassador David Balton (Wilson Center), Susan Jackson (International Seafood Sustainability Foundation), Tony Long (Global Fishing Watch), Liz Selig (COS), Emily Kelly (COS), Kevin McClain (Bumble Bee), Mike Kraft (Bumble Bee).

A special thanks to Ian Urbina for allowing us to use “The Outlaw Ocean”—the title of his New York Times series and book—as the title for the class.

Our legal assistant, Katelyn Masket, helped develop the research questions and very thorough background information for the work on addressing labor abuses in supply chains.

Herber Banda and Elena Press refined the content from both papers after the conclusion of the fall quarter, and we want to thank them for their work.

A tremendous thank you to Hanna Payne, who led the charge in converting the student papers into this report, and to Laura Anderson, who told the story of the fall quarter course.

Finally, we want to thank the many people, too numerous to list here, who took the time to speak with our students as they pursued their research. A full list of interviewees can be found in Appendix B.

“Look at a map of the planet and you see mostly blue; the immensity of the sea is what makes it so tough to police and protect.”



Ian Urbina, The Outlaw Ocean

## FOREWORD

Illegal, unreported and unregulated (IUU) fishing is a complex, systemic issue with impacts that resonate through global supply chains and can particularly harm those most vulnerable: the workers on fishing vessels. The millions of tons of fish stolen each year result in a huge loss to the economies of coastal nations and a threat to food security for the billion people who depend on fish for protein. Additionally, vessels that fish illegally often engage in labor abuses, including everything from substandard working conditions to modern slavery, prompting a human rights crisis.

Global seafood companies are mobilizing to remove illegal fishing practices from their supply chains. Similarly, labor rights organizations are investigating advanced technology tools and mechanisms that can enable them to eliminate labor abuses and forced labor on fishing vessels. Both actors face daunting challenges.

The Stanford Center for Ocean Solutions (COS) is working with the Friends of Ocean Action, convened by the World Economic Forum, to address these challenges. We are engaging governments, companies, and conservation and human rights groups to develop policy solutions for governments, such as measures to intercept illegal products at port, and to develop tools that enable companies to identify and address illegality or labor abuses in their supply chains.

In spring 2020, students approached the dual issues of IUU fishing and labor abuses on vessels in three research papers focused on (1) legal considerations for multi-national fisheries data sharing agreements, (2) a “Global Entry” system that rewards good actors with expedited entry to ports, and (3) legislative and policy efforts to implement fair labor practices in fisheries. In fall 2020, students expanded on this foundation by investigating (1) a tool to assess risks of illegal fishing practices in a supply chain and (2) an application to digitally ensure greater transparency and accountability within the fisheries sector.

One research team worked directly with Global Fishing Watch to develop the framework for a tool that would illuminate IUU risk and enable companies to address IUU fishing within their supply chain. The team identified ten indicators for risk of IUU products; their risk assessment tool will use public and private data to generate risk scores based on how much information companies have about their own supply chains.

A second research team worked with the International Seafood Sustainability Foundation on addressing the challenges associated with labor abuses in the fishing industry. Given the remote nature of fishing vessels, it is difficult to track, quantify, and report abuse and forced labor that occurs at sea. The team conceptualized an app called FLOAT (Fisheries Labor Open Accountability Tool) which digitizes the payments and contracting system to allow fishing laborers, vessel owners, seafood buyers, and all members of the seafood supply chain to have greater access to information and support.

Through their work this term, the students have provided their clients with exciting ideas for tackling the challenges they face. COS will be building on those ideas in the months ahead, working with these clients and other private sector actors, to develop promising possibilities into solutions those partners can implement.

Jim Leape and Janet Martinez



### A Note from the Stanford Law School, Law and Policy Lab

Engagement in public policy is a core mission of teaching and research at Stanford Law School. The Law and Policy Lab (The Policy Lab) offers students an immersive experience in finding solutions to some of the world's most pressing issues. Directed by former SLS Dean Paul Brest, the Policy Lab reflects the school's belief that systematic examination of societal problems, informed by rigorous data analysis, can generate solutions to society's most challenging public problems. Policy Lab students, closely guided by seasoned faculty advisers, counsel real-world clients in an array of areas, including environmental, trade, education, intellectual property, public enterprises in developing countries, policing, technology, and energy policy. The clients may be local, state or federal public agencies or officials, or private non-profit entities such as NGOs and foundations.

Typically, policy labs assist clients in deciding whether and how qualitative or quantitative empirical evidence can be brought to bear to better understand the nature or magnitude of their particular policy problem and identify and assess policy options. The methods may include comparative case studies, population surveys, stakeholder interviews, experimental methods, program evaluation or big data science, and a mix of qualitative and quantitative analysis. Faculty and students may apply theoretical perspectives from cognitive and social psychology, decision theory, economics, organizational behavior, political science or other behavioral science disciplines. The resulting deliverables reflect the needs of the client with most resulting in an oral or written policy briefing for key decision-makers.

Luciana Herman, Lecturer & Policy Lab Program Director, SLS

### A Note from the Stanford Center for Ocean Solutions

The contents of this report—*The Outlaw Ocean: Business and Technology Solutions that Address Illegal Fishing and Labor Abuses in Seafood Supply Chains*—represent an investment by the Stanford Center for Ocean Solutions (COS) in developing future ocean leaders, equipping them with the skills and experiences necessary to address major ocean issues. Through partnering with Stanford Law School's Law and Policy Lab and Martin Daniel Gould Center for Conflict Resolution, COS engages a blend of students from a range of disciplines to investigate core issues relevant to addressing illegal fishing practices. The Policy Lab approach provides students with an opportunity to practice interview skills, communicate across disciplines, engage with policy design, and consider multinational perspectives—all while working as a distributed, virtual research team. The fall 2020 Outlaw Ocean course built upon the winter and spring 2020 student research efforts to advance towards initial considerations for strategic interventions. Each of the directed research briefs illustrates a targeted opportunity area for global fisheries management that correlates with a relevant topic for COS's applied work. COS will continue to develop aspects of this research in the coming months and years, in collaboration with our partners in the Stanford Law and Policy Lab as well as with global networks including the World Economic Forum, the Friends of Ocean Action, and the Stanford Center for Human Rights and International Justice.

Eric Hartge, Stanford Center for Ocean Solutions, Research Development Manager

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## I. Developing an IUU Risk Assessment Tool: Enabling Seafood Companies to Assess Risk in their Supply Chains

Margaret Daly, Rian Lawrence, Chloe Mikles, Elena Press

### Abstract

IUU fishing is a pervasive and persistent problem that is difficult to regulate on a global scale. In the seafood sector, the combination of out-of-sight fishing for highly perishable and wild resources, paper-thin profit margins, and a lack of end-to-end traceability creates conditions where sourcing IUU products occurs regularly, and often with impunity. Seafood supply chains of major public-facing companies are a promising pressure point to target IUU fishing. However, there is currently no simple way to address IUU fishing in the seafood supply chain. The research team partnered with Global Fishing Watch, whose efforts in tracking vessels and identifying likely transshipment behavior allow fine scale investigation into what were previously unidentifiable sources of IUU fishing activity. Over the course of the quarter, the team worked directly with companies to develop the framework for a tool that would illuminate IUU risk and enable them to address IUU fishing within their supply chain. The team identified ten indicators for risk of IUU products through desk research and interviews with key stakeholder and IUU fishing experts. The IUU risk assessment tool will use public and private data to generate risk scores based on how much information companies have about their own supply chains. Areas of high risk flagged by the tool will be accompanied by a Solutions Portfolio. Recognizing that companies have different thresholds of risk aversion and strategies to mitigate it, the tool will offer a suite of practical solutions.





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## A. Introduction

In the seafood industry, a combination of out-of-sight fishing for highly perishable and wild resources, paper-thin profit margins, and a lack of end-to-end traceability creates conditions where illegal, unreported, and unregulated (IUU) fishing occurs regularly, often with impunity. Current structure and accepted practices within the seafood supply chain combine sustainably harvested and IUU products in the marketplace. Seafood supply chains can perpetuate poor fisheries management through lack of transparency and perverse incentives, wherein profits far outweigh fishing and labor compliance in the international fishing market, encouraging unsustainable fishing practices. This report outlines a proposal for a tool to identify IUU risk in a company's supply chain. A tool that illuminates IUU risk and enables companies to address IUU fishing will help companies manage reputational risk, enhance regulatory compliance, and ensure long-term sustainability of an important global food resource.

Although governments and international agreements condemn IUU fishing, global efforts to stop IUU fishing are difficult and slow-moving. Major public-facing companies that buy seafood, such as retailers and processors, are an untapped pressure point to target IUU fishing. But those companies need a simple way to assess IUU fishing in their supply chains. To meet this need, we conducted desk research, stakeholder interviews, and data compilation to develop key indicators that could be used to identify risk of IUU products. Tuna supply chains, for both canned and fresh products, have heavily invested in traceability and transparency efforts. This has generated detailed information on their supply chains that can be used to assess risk of IUU activities. Given that these supply chains have the most data and in order to most extensively reveal the usefulness of our approach, the tool will be initially developed for tuna supply chains.

Our research identified 10 indicators of IUU fishing, which are ordered by how deep companies have gone in their traceability efforts. Risk can broadly be assessed by considering (1) stock assessments and (2) whether fishing was conducted in a generally high-risk area for IUU. On a more specific regional and country level, risk can be assessed by the (3) strength of the regulatory authority and (4) use of ports of convenience. If a buyer can identify the vessel, then a more detailed picture of risk can be provided from (5) complexity of ownership (e.g., use of shell companies or joint ventures to obscure true ownership), (6) use of flags of convenience, and (7) vessel history of illegal activity. For many of these vessels, information from Global Fishing Watch (GFW) and similar partners can help with (8) tracking vessels and (9) characterizing transshipment behavior that could be related to IUU fishing activity. Finally, (10) general transparency in the supply chain is a valuable indicator since risk assessments become less accurate when there is little insight into the supply chain. The proposed IUU risk assessment tool will use a variety of data sources to generate risk scores. After company information is entered through a series of questions, the tool will calculate risk scores for relevant IUU indicators. These scores will spotlight areas of high and low risk within a company's supply chain.

We worked with company users in mind to develop a tool with an efficient data-tiering architecture. Outstanding questions include addressing inconsistencies with data source update intervals, finalizing data sources, standardizing risk scoring, and quantifying data reliability. We outline immediate next steps for the development of this framework as a workshop with future tool users. The implementation of this tool carries substantial potential to reduce the risk of



companies selling IUU products, offers a novel platform to holistically assess risk of IUU products entering the supply chain, and provides implementable solutions to mitigate the issue.

## B. Background

The paths that move wild-caught seafood from the ocean to dinner tables worldwide often are cryptic and convoluted. Examination of these paths reveals that overfished stocks, lack of management and enforcement measures, and economic incentives contribute to IUU fishing on a global scale. The industrialization of fishing in the mid-twentieth century made offshore waters increasingly accessible and the associated fish stocks more easily exploitable, resulting in multinational disputes over territorial claims and fishing rights.<sup>1</sup> Marine fish—in particular commercially targeted migratory species—not only cross international boundaries that subject them to exploitation by multiple nations, but also move between sovereign states' exclusive economic zones (EEZs) and the high seas that are beyond national jurisdiction. The management of these fisheries is a logistical challenge, made more difficult by the unreliable enforcement of regulations.

IUU fishing is a global occurrence<sup>2</sup> found in supply chains sourcing from the high seas and state-regulated areas.<sup>3</sup> Overall weak governance contributes to the existence of flags and ports of convenience, transshipment, lack of regulatory authority, and other negative elements of IUU fishing. The poor collective fisheries management can lead to “invisibility” on the high seas.<sup>4</sup> IUU fishing contributes to and hampers the recovery of overexploited marine fish populations, which is estimated to result in global losses of approximately \$US20 billion a year, or one out of every five wild-caught fish.<sup>5, 6</sup> This is not just a conservation concern—organized IUU fishing is typically found alongside other illegal activities (such as human, weapons, and drug trafficking, forced labor, and money laundering) that disproportionately affect losses in revenue and food security in different regions.<sup>7, 8, 9</sup> Additionally, the combination of environmental and socioeconomic factors indicates that the presence of overfishing itself results in a higher likelihood of exploiting cheap or forced labor, because of the need for increased effort to sustain current catch levels.<sup>10</sup>

1 Carmel Finley, “The Industrialization of Commercial Fishing, 1930–2016,” in *Oxford Research Encyclopedia of Environmental Science* (2016).

2 U. Rashid Sumaila, et al., “Winners and Losers in a World where the High Seas Is Closed to Fishing,” *Scientific Reports* 5 (2015): 8481.

3 Southeast Asian Fisheries Development Center, *SEAFDEC Annual Report 2015* (Bangkok, 2016).

4 Anastasia Telesetsky, “Scuttling IUU Fishing and Rewarding Sustainable Fishing: Enhancing the Effectiveness of the Port State Measures Agreement with Trade-Related Measures,” *Seattle University Law Review* 38 (2014): 1237.

5 David J. Agnew, et al., “Estimating the Worldwide Extent of Illegal Fishing,” *PLOS One* 4, no. 2 (2009): e4570.

6 U. R. Sumaila, et al., “Illicit Trade in Marine Fish Catch and Its Effects on Ecosystems and People Worldwide,” *Science Advances* 6, no. 9 (2020): eaaz3801.

7 U. Rashid Sumaila and Mahamudu Bawumia, “Fisheries, Ecosystem Justice and Piracy: A Case Study of Somalia,” *Fisheries Research* 157 (2014): 154–63.

8 Supra, note 4.

9 Food and Agriculture Organization of the United Nations, *State of World Fisheries and Aquaculture* (Rome, 2016), accessed November 2, 2020, <http://www.fao.org/fishery/sofia/en>.

10 Elizabeth Selig, personal communication, October 22, 2020.

### Box. 1 Definition of IUU Fishing

IUU fishing encompasses three types of detrimental fishing behavior. The first, illegal fishing, includes fishing behavior violating relevant international, regional, and national laws and regulations.<sup>11, 12</sup> The second, unreported fishing, refers to misreporting or failing to report required aspects of fishing activity to national and regional authorities.<sup>13, 14</sup> The final practice, unregulated fishing, encompasses fishing in areas or on fish stocks without protections consistent with international law. Additionally, unregulated fishing includes vessels fishing in a manner inconsistent with the relevant regional fisheries management organization's conservation or management measures, especially if the vessel has no nationality or the nationality of a state that is not a member of the regional fisheries management organization overseeing the area in which the vessel is fishing.<sup>15, 16</sup>

## 1. IUU Fishing Indicators

Areas of IUU risk in seafood supply chains have been identified by multiple sources.<sup>17, 18, 19</sup> From these sources, we compiled a list of ten IUU fishing indicators that could be used in our tool (Table 1). We organized indicators in order of the likelihood that a company has data on the indicator.

We investigated potential data sources that could be used as metrics for each risk indicator. Because risk indicators are multidimensional, there is often more than one metric for a given indicator. For instance, measuring risk at a port entails an international component—if the country has ratified the Port State Measures Agreement (the PSMA); a regional component—the Regional Fisheries Management Organization (RFMO) standing; and a local component—the port risk rating. While proprietary sources need to be investigated further, we were able to find potential public data sources for all the risk indicators, which we provide in a table in Appendix C. This table was further refined to the most relevant sources in the outline of the tool presented under the “User Inputs and Outputs” section.

11 “Understanding Illegal, Unreported, and Unregulated Fishing,” NOAA Fisheries, accessed November 18, 2020, available <https://www.fisheries.noaa.gov/insight/understanding-illegal-unreported-and-unregulated-fishing>.

12 “What Is IUU Fishing,” IUU Watch, accessed November 18, 2020, <http://www.iuuwatch.eu/what-is-iuu-fishing>.

13 Supra, note 11.

14 Supra, note 12.

15 Supra, note 11.

16 Supra, note 12.

17 IUU Task Force, *Action Plan for Implementing the Task Force Recommendations (Presidential Task Force on Combating IUU Fishing and Seafood Fraud, 2015)*, accessed November 2, 2016, <https://www.federalregister.gov/documents/2015/10/30/2015-27780/presidential-task-force-on-combating-illegal-unreported-and-unregulated-iuu-fishing-and-seafood>.

18 IUU Fishing Index, *Methodology for IUU Fishing Index* (2018), accessed October 28, 2020, <http://iuufishingindex.net/methodology.pdf>.

19 C4ADS, *Strings Attached: Exploring the Onshore Networks behind Illegal, Unreported, & Unregulated Fishing* (2019), accessed November 6, 2020, <https://static1.squarespace.com/static/566ef8b4d8af107232d5358a/t/5d7022301845f300016ee532/1567629912450/Strings+Attached.pdf>.

**Table 1. IUU Fishing Indicators**

Risk Indicator	Definition
Species Risk	The stock status and overall risk of IUU
Fishing in High-Risk Regions	Regions that have IUU offenses or transshipment activity
Regulatory Authority	The power of governance in the region fished
Ports of Convenience	If a port with weaker regulatory oversight was used to land fish
Complexity of Vessel Ownership	The structure of corporate ownership for a vessel, use of shell companies, joint ventures, and use of secrecy jurisdictions that serve as tax havens
Vessel History and Status	If a vessel has an International Maritime Organization (IMO) number, <sup>20</sup> history and current status on IUU lists, International Seafood Sustainability Foundation (ISSF) vessel list standings, changing vessel identifiers
Flags of Convenience	Flag hopping, flying multiple or no flags at all; accountability of flag state
Vessel Track	Vessel behavior, such as disabling automatic identification system (AIS) <sup>21</sup> transmissions (“going dark”)
Transshipment	Meeting with other vessels to transfer catch and supplies
Supply Chain Transparency	Which tier (country, port, vessel, etc.) a seafood product can be traced back to in the supply chain

## 2. Efforts to Monitor and Control IUU Fishing

Identifying and acting upon illegal fishing activity is extremely challenging; however, recent efforts driven by governments, seafood buyers, and conservation groups have resulted in progress made in combating elements of IUU fishing.

### 2.1. IUU Vessel Lists

Given the global scope, the current commonly used method to identify sources of IUU activity is through IUU fishing vessel lists provided by the Regional Fisheries Management Organizations (RFMOs) and curated by Trygg Mat Tracking, which provide updated information on changes to vessel identity, flag state, ownership, and location for all vessels that have been associated with IUU fishing.

<sup>20</sup> International Maritime Organization (IMO) numbers are used as unique identifiers for ships. These numbers are used to prevent maritime fraud.

<sup>21</sup> Automatic Identification Systems (AIS) is a transponder system using both satellite and VHF-radio bands for two-way communication. AIS data aid enforcement of international maritime law by allowing authorities to track and monitor vessel movement.

## 2.2. Global Fishing Watch

The advancement of technology and data accessibility has allowed organizations such as Global Fishing Watch (GFW) to provide innovative solutions for identifying components of IUU fishing. The accessibility of GFW's data allows for increased resolution in tracking suspicious activity of vessels in regions where historically it has been nearly impossible to monitor and enforce regulations. With data from 2012 to present near-real time, GFW uses automatic identification systems (AIS) from more than 70,000 industrial fishing vessels, comprising roughly 50 to 75 percent of all vessels greater than 24 m.<sup>22</sup> This includes the majority of the fishing efforts in the high seas, with a particular focus on the open ocean. GFW's data and algorithms can identify when vessels are fishing in protected areas or in regions where they are not authorized to fish. GFW can also determine when vessels turn off their AIS, when they change their assigned identification number or manipulate their GPS location, and when they are likely transshipping. These continually improving algorithms can estimate vessel size, gear type, and set patterns, even to the point of determining fishing and searching behavior. The applications of these data can extend from identifying illegal fishing activity, to studying fisheries, to evaluating species-specific distribution with overlap of fishing effort.<sup>23</sup>

GFW currently has three ways of identifying fishing vessels: from self-reported AIS devices, from vessel registries, and through inference by algorithms. Their platform has downloadable data on daily fishing effort, complete with gear type and flag state, to 0.01-degree resolution. Identifying incidences of transshipment is not as clear, because vessels can meet at sea for multiple reasons. Before GFW's efforts and their analysis of transshipment,<sup>24</sup> it was nearly impossible to detect when and where vessels might be transshipping. Transshipment activity is often illegal, because it allows the previously invisible transfer of potentially illegitimate catch (and thus mixing with legal catch), as well as instances of smuggling and forced labor abuses that are associated with allowing vessels to remain at sea for an extended period of time. GFW's algorithms identify loitering events and potential transshipments based on vessel behavior.

Specifically intended to combat IUU fishing, Global Fishing Watch data improve insight on illegal behavior to the vessel level and the exact location inferred from satellite data. This insight allows finer-scale localization of illegal activity, allowing for increased, real-time, and high-certainty information on seafood supply chains.

IUU fishing contributes to and hampers the recovery of overexploited marine fish populations, which is estimated to result in global losses of approximately \$US20 billion a year, or one out of every five wild-caught fish.



22 D. A. Kroodsma, N. A. Miller, and A. Roan, *The Global View of Transshipment: Revised Preliminary Findings* (Global Fishing Watch and Sky-Truth, July 2017), [https://globalfishingwatch.org/wp-content/uploads/GlobalViewOfTransshipment\\_Aug2017.pdf](https://globalfishingwatch.org/wp-content/uploads/GlobalViewOfTransshipment_Aug2017.pdf).

23 Timothy D. White, et al. "Predicted Hotspots of Overlap between Highly Migratory Fishes and Industrial Fishing Fleets in the Northeast Pacific," *Science Advances* 5, no. 3 (2019): eaau3761.

24 Supra, note 22.



### 2.3. The Port State Measures Agreement

The PSMA aims to prevent IUU fishing operations from landing their catch by requiring states to enact strict regulations for vessel entrance to ports.<sup>25</sup> The PSMA entered into force in June 2016; today, there are 72 signatories. As outlined by the agreement, each party is responsible for designating ports permitted for access and for requiring advanced notification and vessel information for any incoming foreign-flagged vessels.

The PSMA operates on the assumption that all catch, whether legitimate or not, must be offloaded at a port where it will subsequently be processed and sold. The PSMA provides that signatories can refuse port access to foreign vessels engaged in IUU fishing and mandates that if such vessels are allowed entry, they must be thoroughly inspected and subjected to any necessary law-enforcement action. This is a cost-effective measure to prevent landing of IUU catch and places responsibility on the port state.

### 2.4. Third-Party Certifications

Third-party certification efforts, such as the Marine Stewardship Council (MSC), provide for independent assessment of sustainability in fisheries based on stock status, management, and environmental impact. Their certification process focuses primarily on environmental sustainability and incorporates efforts to address IUU fishing, as it is a direct threat to overfishing. MSC uses a “chain of custody” standard to track seafood products from a certified fishery to the market, guaranteeing traceability and compliance along the supply chain. Other organizations, such as Fair Trade, certify supply chains based on the social impact of fishing. Presently, only nine seafood supply chains meet the standards for Fair Trade Certification.

### 2.5. Traceability in Seafood Supply Chains

Because complex seafood supply chains allow many opportunities for IUU activity to occur, traceability is the first step many companies take in allowing identification and prevention of IUU fishing. In the past decade, combined efforts from industry trade groups, seafood retailers and suppliers, and nonprofit initiatives have led the charge in implementing traceability initiatives in seafood supply chains.<sup>26</sup> Traceability efforts are often the first step in mitigating IUU risk but are only one part of a comprehensive IUU risk strategy. Traceability efforts stemmed from goals to improve environmental sustainability and are expanding to combat IUU fishing. The Global Dialogue on Seafood Traceability (GDST), launched in 2017, developed global standards for traceability that are endorsed by more than 60 companies and organizations. Initially established by the World Wildlife Fund (WWF) and the Institute of Food Technologists’ Global Food Traceability Centre, the GDST conducted a series of working groups to continually develop relevant solutions related to identifying key data elements, improving data verification and sharing, and forming regulatory alignment among stakeholders.

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25 “Agreement on Port State Measures (PSMA),” Food and Agriculture Organization of the United Nations, <http://www.fao.org/port-state-measures/en>.

26 Sara G. Lewis and Mariah Boyle, “The Expanding Role of Traceability in Seafood: Tools and Key Initiatives,” *Journal of Food Science* 82, no. S1 (2017): A13-A21.

Traceability initiatives are also shifting from voluntary to required actions for some governments, such as regulations mandated by the European Union Catch Documentation Scheme<sup>27</sup> and the United States Seafood Import Monitoring Program.<sup>28</sup>

Other voluntary catch documentation schemes (CDS) are multilateral and created specifically for combating IUU fishing. For example, the International Seafood Sustainability Foundation (ISSF) and its International Seafood Sustainability Association (ISSA) developed the gold standard for verifiable compliance with science-based practices in cooperating tuna supply chains. Participating companies undergo periodic published audits by MRAG, a third party that assesses compliance with conservation measures that apply to all member companies and associated vessels. These efforts result in a tuna supply chain that is widely traceable, allowing for instances of IUU fishing to be identified and pinpointed to a specific stage in the supply chain.

In 2017, 66 companies signed the World Economic Forum's Tuna 2020 Traceability Declaration (TTD), with a goal to end overfishing and IUU fishing in tuna fisheries.<sup>29</sup> As of 2020, there has been substantial progress on meeting traceability commitments, though there is still room for improvement on establishing governmental partnerships and monitoring on the high seas, as compared to on-land regulations and enforcement.<sup>30</sup> Member companies of ISSF contributed most substantially to these efforts as part of the expected traceability conservation measures.

On a finer scale, individual companies have developed their own measures to make their products fully traceable throughout their supply chains. Kwik'pak Fisheries, founded and maintained by native people of the Yupik Nation, runs small and sustainable operations for Yukon Salmon. Not only did they pioneer consumer-facing traceability in their supply chains, but also they were the first seafood company to earn recognition from the Fair Trade Federation for labor and compensation practices. Bumble Bee Seafood is one example of how companies have tackled traceability.<sup>31</sup> A founding member of ISSF, Bumble Bee established traceability opportunities for tuna, salmon, and sardines through their own digitized platform, Trace My Catch. Consumers can scan their can and identify the species composition, fishery location and stock status, fishing method, vessel information, processing center, and cannery.

## 2.6. The Tuna Sector

The tuna sector has extremely high socioeconomic importance and has gained much attention from organizations and conservation groups worldwide. Combined, all tuna and tuna-like species comprise the largest capture fishery globally by volume, estimated to be around 7.9 million metric tons in 2018, with an estimated \$US12.2 billion in landed value.<sup>32</sup> By species, skipjack

27 G. Hosch and F. Blaha. *Seafood Traceability for Fisheries Compliance: Country-Level Support for Catch Documentation Schemes* (FAO Fisheries and Aquaculture Technical Paper, eng no. 619, 2017).

28 Juan He, "From Country-of-Origin Labelling (COOL) to Seafood Import Monitoring Program (SIMP): How Far Can Seafood Traceability Rules Go?" *Marine Policy* 96 (2018): 163-74.

29 "Tuna 2020 Traceability Declaration," World Economic Forum, Accessed November 1, 2020, <https://oceanconference.un.org/commitments/?id=14427#:~:text=Traceability%20if%20the%20tuna%20is,to%20improve%20supply%20chain%20traceability>.

30 Tom Pickerell, *Tuna 2020 Traceability Declaration Progress Report* (Global Tuna Alliance, March 2020), <https://www.globaltunaalliance.com/wp-content/uploads/2020/03/TTD-Progress-Report-March-2020.pdf>.

31 Fishwise, *Advancing Traceability in the Seafood Industry: Assessing Challenges and Opportunities* (2018), 25.

32 Food and Agriculture Organization of the United Nations, *The State of World Fisheries and Aquaculture 2020: Sustainability in Action* (2020).

tuna (*Katsuwonus pelamis*) ranks third by volume in global fisheries, behind anchoveta (*Engraulis ringens*) and Alaska pollock (*Theragra chalcogramma*). Tuna are top predators with a global distribution, and the industrialization of commercial fisheries, paired with the increased demand for canned and fresh seafood, has allowed for the overexploitation of what historically seemed to be limitless abundance. With more than 70 countries reporting landings, effectively managing these species, whose ranges span multinational jurisdictions, has long been a challenge.

Currently, management is handled through five tuna RFMOs, described in detail below. The species of significant market importance include albacore (*Thunnus alalunga*), Atlantic bluefin (*T. thynnus*), Pacific bluefin (*T. orientalis*), southern bluefin (*T. maccoyii*), bigeye (*T. obesus*), yellowfin (*T. albacares*), and skipjack (*Katsuwonus pelamis*).

**Table 2. Status of Major Tuna Species**

Species	Overfished <sup>33</sup> (Current Stock Biomass)	Overfishing <sup>34</sup> (Fishing Effort)	IUCN Red List Status
Albacore	Not overfished	Within appropriate levels of fishing effort	Near Threatened
Atlantic Bluefin	Overfished	Within appropriate levels of fishing effort	Endangered
Pacific Bluefin	Overfished	Exceeding appropriate levels of fishing effort	Vulnerable
Southern Bluefin	Severely overfished	Within appropriate levels of fishing effort	Critically Endangered
Bigeye	Overfished	Regional variation; exceeding in some regions and within appropriate levels of fishing effort elsewhere	Vulnerable
Yellowfin	Close to fully fished or overfished	Regional variation; overfishing likely in eastern Pacific, Indian, and Atlantic Oceans	Near Threatened
Skipjack	Not overfished	Within appropriate levels of fishing effort	Least Concern

<sup>33</sup> Overfished: A stock having a population size that is too low and that jeopardizes the stock's ability to produce its maximum sustainable yield (MSY); MSY: The largest long-term average catch that can be taken from a stock under prevailing environmental and fishery conditions. Fisheries, See NOAA, *Status of Stocks 2019: Annual Report to Congress on the Status of US Fisheries* (2019).

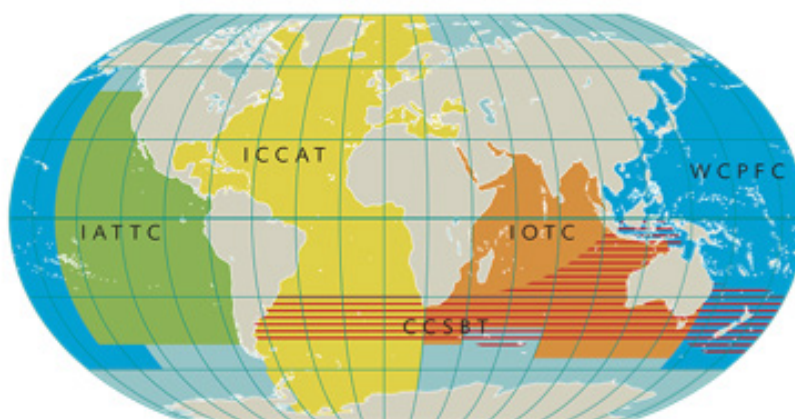
<sup>34</sup> Overfishing: A stock having a harvest rate higher than the rate that produces its MSY. Ibid. Note: These are global generalizations and not representative of region-specific status and management.

Table 2 outlines the general stock status and International Union of Conservation of Nature's (IUCN) Red List Status, with the caveat that stock status varies greatly by region, year, and the methods used to conduct the stock assessment. Tuna are typically commercially targeted by purse seining, longlining, drift-netting, hook-and-lining, and trolling. Tuna are also highly susceptible to exploitation because of schooling behavior, attraction to floating objects (such as fish aggregating devices, or FADs), and spawning aggregations that generally occur at the same time and place year after year. As juveniles and adults, their range extends drastically, and tuna conduct large basin-scale migrations that span multiple national jurisdictions and are often a target of offshore and high-seas fisheries, requiring management by many different countries.

## 2.7. Regional Fisheries Management Organizations

Spanning multiple national jurisdictions and the high seas, global tuna fisheries are managed by five separate RFMOs (Figure 1). These organizations establish management quotas and conservation plans for stocks of a particular region. The five tuna RFMOs manage fisheries for tuna and other highly migratory species in more than 90 percent of the world's oceans.

**Figure 1. Major Tuna RFMOs** <sup>35</sup>



The five RFMO regions are Commission for the Conservation of Southern Bluefin Tuna (CCSBT), Inter-American Tropical Tuna Commission (IATTC), International Commission for the Conservation of Atlantic Tunas (ICCAT), Indian Ocean Tuna Commission (IOTC), and Western and Central Pacific Fisheries Commission (WCPFC) (Table 3). RFMOs are generally expected to fund and carry out stock assessments and set the total allowable catch based on the best available science. Each RFMO operates differently, conducting assessments and distributing catch levels in different manners. Thus, RFMOs have varying success in regulating overfishing and IUU fishing, given the uncertainty and variability in stock status, the general difficulties associated with management and catch allocation, as well as the financial and competing interests of their stakeholders.

<sup>35</sup> "RFMOs," IPNLF, <http://ipnlf.org/what-we-do/projects/rfmos>.



**Table 3. RFMO Jurisdictions**

Tuna RFMO	Species	Region
WCPFC	Pacific Bluefin	Pacific
WCPFC	Yellowfin	Western & Central Pacific
WCPFC	Albacore	North Pacific
WCPFC	Albacore	South Pacific
WCPFC	Bigeye	Western & Central Pacific
WCPFC	Skipjack	Western & Central Pacific
IATTC	Pacific Bluefin, Yellowfin, Bigeye, Skipjack, Mahi	Eastern Pacific
IOTC	Albacore	Indian Ocean
IOTC	Bigeye	Indian Ocean
IOTC	Skipjack	Indian Ocean
IOTC	Yellowfin	Indian Ocean
CCSBT	Southern Bluefin	Southern Hemisphere; 30-50°S
ICCAT	Atlantic Bluefin	Atlantic Ocean
ICCAT	Yellowfin	Atlantic Ocean
ICCAT	Bigeye	Atlantic Ocean
ICCAT	Skipjack	Atlantic Ocean
ICCAT	Albacore	Atlantic Ocean
ICCAT	Small Tuna	Atlantic Ocean

RFMOs are actively involved in reducing IUU fishing. For example, efforts to combat IUU in tuna, such as electronic catch documentation schemes, have reduced IUU fishing in Atlantic bluefin tuna.<sup>36</sup> ISSF works closely with and supports tuna RFMOs, periodically and thoroughly evaluating their efforts for conservation and management.<sup>37</sup>

### 3. Why Tuna

As a result of the work of the Global Tuna Alliance (GTA), ISSF, and individual companies, such as Bumble Bee Seafoods, there is high traceability in the tuna sector.<sup>38,39,40</sup> This level of

36 International Commission for the Conservation of Atlantic Tunas, *Report of the Standing Committee on Research and Statistics (SCRS)* (2019).

37 "Audit Process," International Seafood Sustainability Foundation, accessed October 28, 2020, <https://iss-foundation.org/what-we-do/verification/audit-process>.

38 "Traceability," International Seafood Sustainability Foundation, <https://iss-foundation.org/tag/traceability>.

39 "Dive into the Story of Your Seafood (2016)," Bumble Bee Seafoods, accessed November 2, 2020, <https://www.bumblebee.com/tracemy-catch/>.

40 Supra, note 29.

traceability can be fully utilized as part of the development of a risk assessment tool for IUU fishing. Additionally, our research took place in a network of collaboration between GFW, GTA, and ISSF, providing us deep insight into the tuna industry. The combination of resources in seafood traceability and monitoring allows for an unprecedented opportunity to investigate IUU risk and evaluate the feasibility of creating a risk assessment tool. If an IUU risk assessment tool cannot be successfully implemented for tuna, it is unlikely that such an effort can be later expanded to other fisheries.

## 4. The Problem

There is a need to present a synoptic view and enable a seamless integrated use of the many available data sources that address diverse aspects of IUU fishing in seafood supply chains. Many seafood companies claim their dedication to sustainability but lack methods for reducing risk in their supply chain.<sup>41</sup> Combining data sources related to IUU fishing risk into one tool will give seafood companies, especially in the highly traceable tuna sector, a feasible and comprehensive way to understand risks in their supply chains and use this information to make changes to reduce these risks. This report evaluates the potential of an IUU fishing-risk assessment tool for the tuna sector and outlines a prototype. The end goal of this tool is for seafood companies to assess and address risks of IUU fishing in seafood supply chains using public, company-owned, and possibly proprietary data.

## 5. Existing Risk Assessment Tools

Companies vary in their current methods of IUU risk assessment, from manual internal checks to contracting out risk assessments. For example, Kingfisher is a frozen seafood, canned food, and canning company and a member of Maruha Nichiro Group, one of the largest seafood suppliers in the world. Kingfisher's current assessment of IUU risk comes solely from each raw material's Marine Catch Purchasing Document (MCPD), which stipulates that port owners and fish buyers document seafood transactions.<sup>42</sup> Another example is ISSA, which requires companies to meet 27 conservation measures through an annual risk assessment. Among other measures, ISSF requires companies to comply with 100 percent observer coverage, restrict purchases to vessels on the ProActive Vessel Register, and undergo an annual audit contracted by private auditing firm MRAG, which specializes in marine resource management.<sup>43</sup>

We found only one instance of IUU risk assessment guidelines that could holistically address supply chain risk: the Publicly Available Specification (PAS) 1550 created through a partnership between the Environmental Justice Foundation (EJF), Oceana, the Pew Charitable Trusts (Pew), and WWF. PAS 1550 details due diligence information for legally sourcing fish and minimizing IUU risk but asks companies to go deep into the supply chain and address hundreds of guidelines.<sup>44</sup>

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41 "Seafood Stewardship Index," World Benchmarking Alliance, accessed November 2, 2020, <https://www.worldbenchmarkingalliance.org/publication/seafood-stewardship-index>.

42 "Social Value," Maruha Nichiro Corporation, accessed November 14, 2020, <https://www.maruha-nichiro.com/sustainability/social.html>.

43 International Seafood Sustainability Foundation, *Update to ISSF Conservation Measures & Commitments Compliance Report* (Washington, DC, November 2020).

44 British Standards Institution, *PAS 1550: Exercising Due Diligence in Establishing the Legal Origin of Seafood Products and Marine Ingredients – Importing and Processing – Code of Practice* (2017).

Other tools assessing IUU risk in seafood supply chains address risk only on certain levels. The IUU Fishing Index, Minderoo Global Fishing Index, and IUU Risk Intelligence present IUU risk scores on a country level. Trygg Mat Tracking Combined IUU List allows a search for red-flagged vessels. Oversea Ocean Monitor, GFW, Windward, and SkyLight monitor the track of a vessel using satellite data to detect suspicious vessel activity.

## 6. The Value Proposition

Our research and interviews pointed to the value proposition as an important component of this tool. There is already broad recognition of the need to tackle IUU fishing in seafood supply chains.<sup>45</sup> Many companies are committed to addressing this issue internally and externally, through organizations such as ISSF, Seafood Business for Ocean Stewardship (SeaBOS), and GTA. The tool will not only streamline current risk assessments but also bring together diverse IUU fishing data for the first time.

This tool will be valuable to companies because it identifies areas at high risk of IUU fishing and further enables companies to isolate and address issues. Addressing instances of IUU risk decreases a brand's reputational risk and provides the opportunity to highlight the brand's social and environmental responsibility. In improving a company's reputation and competitive advantage, this tool can distinguish a company from others in a positive way and in doing so pressure other companies to follow suit. Additionally, the tool will help to secure the long-term sustainability of fish stocks, especially those with high fisheries pressure. Finally, the tool will assist with both voluntary sustainability commitments and mandatory regulatory compliance.

## C. Methodology

We used interviews and desk research to assess the potential of this tool and lay out a blueprint for the tool. Using snowball sampling, we conducted twelve semistructured interviews with IUU fishing experts and major industry actors (see Appendix B for the full list of interviewees). The goal of the interviews was to understand how stakeholders are already assessing IUU risk, how the tool could be designed to provide valuable information, and what commitments and principles it would help to support. We analyzed and distilled findings from these interviews to guide our approach to the tool's development. After the first few interviews mapping the tool's potential, we narrowed the scope of the tool to the tuna sector. At this point we focused our interviews around identifying the tuna sector's perceived value and needs for the tool.

We started our desk research by pulling together a preliminary list of tools or data sources that can be used to identify risk in a seafood supply chain. Once we determined a comprehensive supply chain risk assessment tool was not yet available, we focused our desk research on outlining a prototype of the tool. We assembled key metrics of IUU fishing mentioned in the literature with the aim of turning this list into a series of IUU fishing indicators. Literature reviewed included policy papers, academic literature, government and nongovernmental (NGO) reports, and supply chain risk and management reports.

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45 S. Widjaja, et al., *Illegal, Unreported and Unregulated Fishing and Associated Drivers* (Washington, DC: World Resources Institute, 2019).

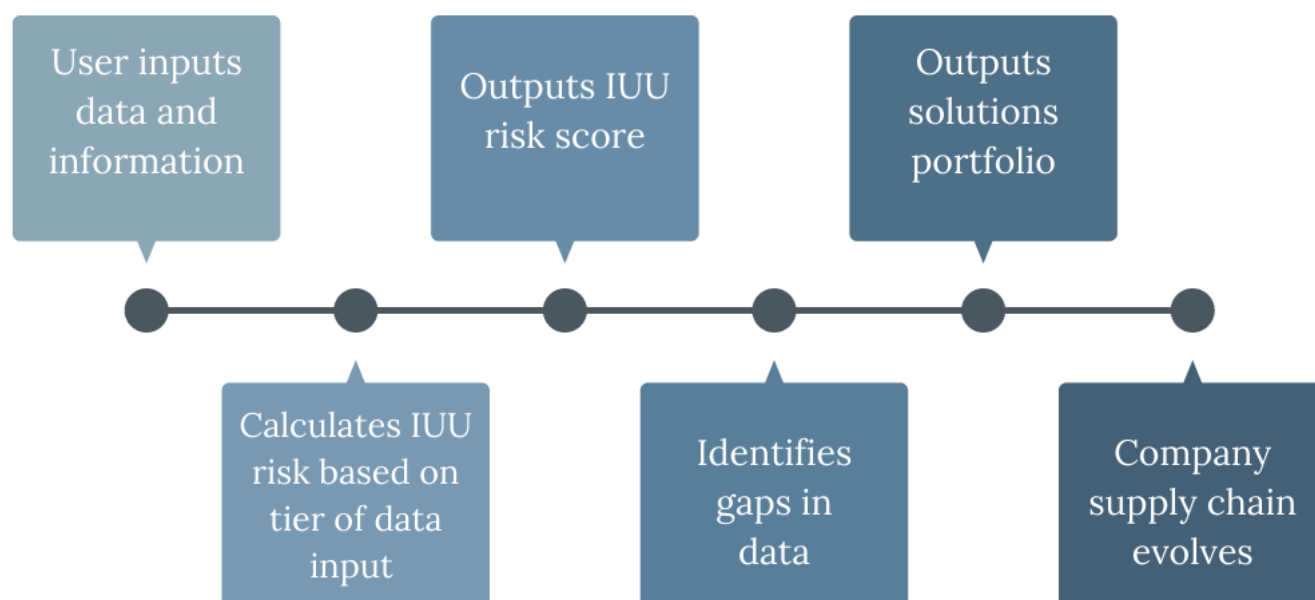
Having identified the unique aspects of our tool in the IUU fishing risk assessment space and ten IUU risk indicators, our research team conducted a data survey, examining fifty-eight potential sources of information to incorporate into the risk assessment tool. Data sources reviewed came from government and nongovernmental organizations in addition to the private sector. To determine the feasibility of integrating a source into the tool, we assessed data sources for their relevance to IUU, data format, reliability, update intervals, and ease of use. Through this evaluation, we also determined areas of weakness in quantifying IUU risk, and how additional information beyond tuna could be incorporated in the future. We note that our data sources are not fully representative of all information available—particularly in that we only searched for and assessed work in English.

This methodology of integrating and analyzing information from interviews and desk research is similar, albeit scaled down, to the approach of Pramod et al.<sup>46</sup> To estimate illegal and unreported fish imports to the US, Pramod et al. consulted more than 180 sources and conducted 41 interviews to supplement or fill in missing information for fisheries data. Our methodology has obvious shortcomings compared to this example due to the short timeline (ten weeks); we reviewed fewer data sources, conducted fewer interviews, and had a less-structured methodology. However, we used similar methodology to existing literature for this project and introduced as much structure as possible to ensure the validity of our preliminary work.

#### D. The Intervention: Key Elements of Tool Design

Here we outline the framework of the tool and the order of operations from the user's perspective. The application brings together IUU data and research to create a richer picture of risks and help find solutions. The tool initially will be developed as exclusively company oriented and not public facing. A public version that protects company privacy and provides a high-resolution overview may be developed in future iterations.

**Figure 2. Outlining the User Experience**



46 Ganapathiraju Pramod, et al., "Estimates of Illegal and Unreported Fish in Seafood Imports to the USA," *Marine Policy* 48 (2014): 102-13.



## 1. User Inputs and Outputs

First, the user will input information by answering a series of ten simple questions that define their level of knowledge about their company supply chain. Questions are found below in Table 4. The ten questions are ordered into tiers of how deep companies have gone in their traceability efforts; if the supply chain has traceability to the tier of information (species, region, country, port, fleet, vessel, tracking data, fishing gear, certifications), the company will be able to answer the question.

For each tier, the tool has one to five relevant risk metrics, which operationalize the different risk indicators at the relevant data tiers. The data for each metric is used to internally calculate the score. (See Table 4 for risk metrics and related data sources.) After a user answers questions that detail their knowledge of the supply chain, the tool will score each IUU risk metric within that supply chain, discussed in more depth in the following section.

**Table 4. Data Tiering Structure (cont. on next page)**

Tier	Question	Answer	Risk Metric	Data Source	Data Availability	Data Updates	Data Reliability
Species	What species do you target?	Species name	Species IUU index	Sea Around Us	Public	Annual	Medium
Region	What region/ RFMO does it come from?	Region/RFMO name	RFMO ability/success to enforce regulations	Experts	Private	None	Medium-high
			Fisheries Improvement	FIP	Public	Annual	Medium
Country	In what country was it landed?	Country name	Country IUU risk index	IUU Fishing Index	Public	None	Medium
			The PSMA ratification	The PSMA	Public	None	High
			EU carding status	EU	Public	As Needed	High
			World Governance Indicator	Minderoo Global Fishing Index	Public	Annual	Medium
			Corruption Index	Transparency International	Public	Annual	Medium
Port	At what port was it landed?	Port name and location	RFMO compliance	ISSF	Public	Annual	High
			The PSMA standing	The PSMA	Public	Annual	High
			Port risk index	Selig & Pew port risk tools	Public	None	High

Tier	Question	Answer	Risk Metric	Data Source	Data Availability	Data Updates	Data Reliability
Fleet	What fleet captured it?	Fleet and nationality	Flags of Convenience	ITF	Public	None	Medium-high
			Average IUU fleet risk	GFW and Trygg Mat Tracking	Public	Daily	High
			Ownership complexity	Triton (C4ADS platform)	Public	Annually	High
Vessel	What vessel caught it?	Vessel name/IMO /PVR number	Flags of Convenience	ITF	Public	None	Medium-high
			Participation in PVR Program	ISSF	Public	As needed	High
			History of IUU records and most recent status	ISSF (VOSI, PVR); Trygg Mat Tracking	Public	As needed	High
			History of national violations	ISSF (VOSI, PVR)	Public	As needed	High
			Ownership complexity	Triton (C4ADS platform)	Semipublic	Annually	High
Tracking data	Is AIS/VMS data available?	Yes/no	Continuous track (e.g., no obscure zones)	GFW	Public	Daily	High
			Fishing in high-risk areas	COS risk assessment	Public	None	High
			Fishing inside MPAs	GFW	Public	Daily	High
			Transshipment record and IUU potential	GFW	Public	Daily	High
Fishing gear	What fishing gear was used?	Fishing gear name	Bycatch risk	ISSF PVR (shark and turtles best practices)	Public	As Needed	High
			IUU gear risk index	ISSF PVR (LS drift net); Sea Around Us	Public	As Needed	High
Certifications	Is it a certified fishery?	Certification name and status	Certification score				
	Does the certification include an IUU component?	Yes/no	IUU certification score	Certification	Public	None	High

\*For specifics on how the risk indicators and risk metrics are connected, see Appendix C.

## Prototyping the IUU Supply Chain Risk Tool

TRACE MY CATCH

# TRACE TUNA



The tool uses information to determine an output for each risk metric. Included in the assessment are the confidence intervals and data sources that inform the result.



Risk Indicator	Output
Species IUU index	
RFMO IUU Risk index	
RFMO ability/success to enforce regulations	
Country IUU risk index	
PSMA ratification	
EU carding status	
World Governance Indicator	
Corruption Index	
RFMO compliance	
PSMA standing	
Port Risk index	
Flags of convenience	
Average IUU fleet risk	
Ownership complexity	
Flags of convenience	
Participation in PVR program	
History of IUU records and most recent status	
History of national violations	
Ownership complexity	
Continuous track (e.g. no obscure zones)	
Fishing in high risk areas	
Fishing inside MPAs	
Transshipment record and IUU potential	
Bycatch risk	
IUU gear risk index	
Certification score	
IUU certification score	

- The species was albacore tuna, harvested within the Western and Central Pacific Fisheries Commission (WCPFC) territory and managed by the WCPFC.
- The fish were caught within Fiji's EEZ and landed at a port in Fiji.
- The fleet was comprised of vessels from Fiji and China; the company has data on the exact vessel that caught the fish, and we are able to associate it with its IMO number.
- The fish are MSC and Fair Trade certified; in this case Bumble Bee is a member (and founder) of ISSF and is responsible for their standards, which include an IUU component in their auditing measures.

\*This is an example risk assessment and has no reflection on Bumble Bee Tuna.

## Box 2. Key Principles of Design

Key design elements of the tool are that it will be easy to use, adaptable, transparent, and enabling. Ease of use will be assured by continuous codesign of the tool with company users. Adaptability addresses the range of different users and the varying levels of information users input into the tool. For all users, the tool will provide informative insight into their supply chain. Transparency refers to the observability of the data used to determine risk and where in the supply chain that risk can be addressed. The tool will illuminate a company's risk of IUU products entering their supply chain, enabling the risk(s) to be addressed by the company.

### *User Friendly*

This tool will be user friendly, meaning that it will be easy for company users to use. The tool aims for an easily operated interface and succinct, intelligible outputs that do not add more work to the tool users are already using. Ease of use will be ensured by continuous codesign of the tool with company users.

### *Adaptable*

This tool will be highly adaptable, meaning that it can operate regardless of how much information is known about a specific supply chain. The tool will be originally developed with data from the tuna sector and expanded to other species as the approach is refined and depending on data availability.

### *Transparent*

This tool will be transparent, meaning that we will clearly document and share how each score is calculated, the confidence in that score, and where the inputted data sources or evidence come from.

### *Enabling*

This tool is enabling, meaning that it will not only give risk scores but also pinpoint and state directly where IUU risk is high in the supply chain, enabling companies to address specific risks.

## 2. Solutions Portfolio

The solutions portfolio will have two components: increased traceability and IUU risk mitigation strategies. By offering a suite of practical solutions, the solutions portfolio enables a company to modify its supply chain and mitigate the risks of IUU fishing.

The first component of the portfolio will offer solutions to increase traceability in the supply chain. Increasing traceability will improve the depth of knowledge of the supply chain and improve the ability for the tool to assess risk of IUU products. We envision this aspect of the portfolio to include links to services, white papers, and consultancy firms that can help a company increase transparency and traceability.

The second component will enable companies to initiate change by suggesting a spectrum of solutions, including options to further investigate chains that have a high risk of IUU fishing



involvement. In most cases, the response to high risk of IUU fishing will be to work within the supply chain to address the risk. Factors such as cost, feasibility, degree of disruption, company values, and commitments to existing partners influence what measures a company would decide to take.

A company may decide between investing in building the capacity of existing suppliers and shifting to a new supplier. The company would be able to explore options to improve legal sourcing. It could also explore the option to source fish from an entirely new location; the tool will provide a map to show “green” regions (basins, ports, vessels, etc.) where the likelihood of IUU fishing is low. In addition to providing solutions within a company’s supply chain to eliminate IUU fish, this feature can be used for companies looking to expand their supply chains sustainably. By using an interactive heat map graphic, companies can explore the value of these recommended future supply chain options.

## E. Considerations for the Development of the IUU Supply Chain Risk Tool

This report seeks to outline a framework for an IUU risk assessment tool to be used by companies. The following section elaborates on key questions and concerns to be addressed within the tool. Primary areas for future development include refining the output of the tool as detailed above, working out the business side of the tool, and prototyping with companies.

### 1. Considerations to Address through Further Research

#### 1.1. Data Reliability

Data reliability is a crucial aspect in the legitimacy and helpfulness of the tool. Thorough and professional review of the data sources should be conducted to determine the best sources to include as inputs to the tool. Confidence ranges for data sources should be established and can help determine tradeoffs between less in-depth quantitative sources that are more accessible and translatable to risk scores versus more substantial qualitative information.

#### 1.2. Data Maintenance

Integrating diverse data with different periodicity is a challenge. Because the tool takes in multiple sources and these data sources update at irregular intervals at various times during the year, the tool would need continuous updating and maintenance to ensure it uses the most up-to-date information. Care should be taken around assessing and phasing out data that are no longer relevant. The tool should also be flexible to allow easy incorporation as new data, legislation, and partners become available. Anticipating that the host platform will need to invest in tool upkeep, a regular update interval should be set. The importance of up-to-date information differs across tiers and indicators because the period of time of a source’s relevance varies based on the timescale of change for a particular indicator. For example, RFMO IUU blacklists are updated frequently. For reports or indices, it is typical to get an annual update or one every few years, such as the Minderoo Global Fishing Index (GFI). C4ADS plans to update Triton, a database to help clarify vessel ownership, about once a year because of the large amount of labor involved.

### 1.3. Calculating Scores for Risk Metrics

To calculate risk scores for a user-friendly interface, we must characterize risk from quantitative and qualitative data. Interviewees emphasized the importance of a tool that is straightforward and easy to use, so further development must ensure that all risk metrics, inputted data sources, update intervals, and accuracy of the data will be clearly defined.

There are a number of options for how the tool could score risk. For each tier, there will be one to five relevant risk metrics. Standardized and transparent procedures will be developed to transform data into scores for each metric. One option for risk scoring would be to assign scores as low, medium, or high for each risk metric, with clear definitions and differentiations as deemed appropriate for the data type and source. This is exemplified in the Bumble Bee assessment in Figure 3.

A final question is how to score scarce or missing data in an indicator area. In developing a scoring system, it is important to account for the nuance of every missing piece of data. In some cases, missing data represents increased risk, while in others it may just be irrelevant.

### 1.4. Public/Private Data Access

There are multiple data sources available for assessing the risk metrics. Public data are openly and freely available, data from commercial providers are available for a fee, and proprietary data are available as a company enters information while using the tool. For backend data (for our risk metrics), the tool would initially use only public data sources, with the possibility of incorporating proprietary data in the future. If the tool pays for access to private backend data, there are additional baseline costs and complications surrounding data sharing and transparency (e.g., legal constraints concerning usage—right to use is not the right to erode an owner's proprietary asset).

Given the various data sources and the transparency of the tool, conflicts arise over how public the results should be. We will start with a more confidential version for companies, in which companies will create accounts to store their information and access private data. A future public version could either include only public data sources or incorporate proprietary (risk metric) information in risk calculations but obscure the underlying data.

### 1.5. Building Out the Solutions Portfolio

Building out a portfolio of recommended solutions is another key step. This involves identifying evidence-based interventions in the supply chains and ranking these options according to their difficulty of implementation. Our interviewees recommended marrying the level of risk with what the supply chain can handle as far as cost and logistics. Feasible and practical solutions will need to be discussed with companies before this part of the tool is built.

## 2. Considerations to Address through the Co-Design Process

### 2.1. Hosting a Workshop

Obtaining additional input from companies into the design of the tool is necessary for refining both the tool's interface and the data visualization component. Opportunities such as hosting a workshop session through the GTA or SeaBOS to pilot and receive feedback on the tool will ensure that our tool's outputs are useful for companies.

### 2.2. Refining the Indicators

We identified ten indicators to measure IUU fishing risk, which were operationalized in 27 risk metrics. These indicators and metrics should be reviewed and refined. Given its modular design through the tiering system, this tool has the potential to include risk scores for other environmental, social, and governance initiatives, such as forced labor risk or carbon footprints estimated throughout the supply chain.

### 2.3. Defining the User and Use

Further work is needed to identify companies that are most likely to be first adopters, who the users within those companies are likely to be, and how they might use the tool.

Companies in the tuna sector that are already interested in IUU fishing risk in their supply chains, such as ISSA companies, are expected to be first adopters of this tool. A consideration for choosing first-adopter companies to approach may be the most effective entry point in the supply chain to use this tool. In each country, one needs to examine which actors can have the most influence. There are markets in which retailers have strong leverage over suppliers, such as in Europe, and others where fishing companies would be better equipped to do so. For example, in the United Kingdom the focus should be on retailers such as Tesco, given the strong leverage they hold in relationships with their suppliers. However, the US has both influential retailers and big tuna companies; companies such as Bumble Bee are less controlled by buyers, though retailers such as Walmart, Costco, and Kroger exert considerable influence on their suppliers.

Interviewees identified future users of this tool as corporate social responsibility (CSR) teams in the short term and procurement officers in the long term, with potential use also by human resources (HR) departments, quality control, and recruitment. Within companies, these potential users can utilize the tool to support regulatory compliance and sustainability commitments. Interviewees suggested that specific instances in which companies might use the tool include completing annual checks, reviewing a potential new supplier or after significant changes in a supplier's operations, or checking on a suspicious vessel.

## 2.4. Improving the Value Proposition

With further stakeholder involvement, we aim to further develop the value proposition for this tool—how it can best fit the needs of specific seafood supply chains, offering low cost and time investment and high value derived from tool use. The workshop should be used to clarify how different stakeholders will value and use the tool. In particular, it will be important to hear from companies about which existing processes or sustainability commitments the tool will help address. The tool should also be tailored to facilitate regulatory compliance.

## 2.5. Visualizing Risk

We hope to gather recommendations from the key stakeholders and seafood companies on how best to visualize risk. Once it has been decided how to score risk, it is still crucial that these scores be translated into succinct and easily grasped visuals. Interviewees emphasized an easy-to-use interface, with a tiered approach allowing the user to see at what level (species, port, vessel, etc.) the IUU fishing risk is located and what component caused the risk to be high. A tool that is intuitive to use and produces clear outputs is necessary to ensure widespread adoption.

A challenge is how the tool will prioritize metrics and enable the user to understand competing scores. The output of the risk assessment should rearrange metrics so that those to be prioritized are visually clear. Along with visually presenting the prioritization, guidelines could equip companies with how to interpret the results and assess the full picture. To illustrate this challenge, we provide the following example: Perhaps a country-level assessment indicates high risk by the IUU Fishing Index, and the port landing also indicated high risk, but the vessel has no transshipments, passes every metric on the ProActive Vessel Register (PVR) list, and has observers that report no IUU fishing. In this case, by looking at more detailed data on a particular boat, there is strong evidence that the vessel is not engaging in IUU fishing. A standardized process will be developed to determine how risk at different levels and across indicators interacts. The outputs and tool interface should be iteratively piloted.

## F. Implications

The following section elaborates on how to maintain the tool and solidify its use as a long-term aid in eliminating IUU.

### 1. Determining the Host

A long-term host and revenue model needs to be identified to keep the tool useful and available for future years of IUU fishing supply-chain risk assessment. A workshop should prompt discussion surrounding the designation of a host institution that can develop the interface for this tool and a suitable business model to fit with the institution. The ultimate host of this tool currently remains undecided. One possibility is to host the tool through an NGO. Suggestions include GFW, FishWise, WWF, Environmental Defense Fund (EDF), and the World Economic Forum (WEF). Advantages of these institutions are established reputation and industry penetration, long-term platform security, and financial stability. The tool could also be hosted by a private firm using a



subscription model (e.g., consultancies). Finally, hosting the tool with precompetitive business coalitions like GTA and ISSA might facilitate tool adoption by companies.

## 2. Financial Model

Once the host is established, a long-term model to finance tool updates and keep the tool available can be developed. A possible option for our proposed IUU risk tool is to charge a fee for use. C4ADS will release Triton in December 2020 and is considering a subscription model to fund updates once grant money runs out. It is also possible that financial support could be provided by a partnership with a trade organization or industry leader, such as SeaBOS, ISSF, or Walmart.

## 3. Opportunities for Expansion

The tool will work most effectively with supply chains that are highly traceable; therefore, we started with tuna. Future iterations and development of this tool will need to expand to fisheries with less transparent supply chains. With the expansion to other fisheries, it will be important to establish strong relationships with leaders in the area. This will enable widespread adoption to new fisheries.

A final opportunity for expansion is incorporating additional data sources. We investigated publicly available data sources. While we identified some possible proprietary sources, we could not fully explore the potential of the private sector. The data currently are heavily skewed for English-speaking countries. However, we see this as an opportunity in the future to expand the range and scope of data sources.

## 4. Continued Stakeholder Engagement

There are opportunities to forge partnerships with trade organizations and major retailers to foster collective buy-in. We recommend building out a working group with SeaBOS, ISSF, and GTA to address the key questions from our work thus far and to formulate the next steps and extension opportunities for developing the IUU risk tool. Additionally, more stakeholders, such as insurance companies, industry representatives of trade organizations, and HR, CSR, and procurement officers, should be interviewed and incorporated into the design process.

## G. Conclusion

We present an IUU risk assessment tool that is the first to holistically present a suite of scores and solutions for seafood companies to easily assess and isolate supply-chain risk. This framework focuses on the tuna sector with the hope that the tool can later be expanded to other sectors. Through interviews and desk research, we have outlined risk indicators for IUU fishing and determined that the further development of this IUU risk-scoring tool is both possible with publicly available data and useful for buyer and producer companies, trade organizations, and other stakeholders. The novelty and distinct strength of this work is that we collaborate directly with companies in developing the tool. This open communication and iterative refinement ensure

the tool meets stakeholder needs and helps accomplish their goals to identify and address IUU risk within their supply chains.

As there are many data-specific aspects of the tool that need to be thoroughly researched, the immediate next step of design development is to conduct a targeted workshop with potential users to further distill the value proposition, determine a host, and structure a revenue model. User input to prototype data and risk score visualizations is also imperative at this stage. Although there are many steps before the risk assessment platform is ready to be standardized and serve as a resource for the industry, our work has generated high levels of interest, forecasting a promising outlook for this tool and its usage.

There are opportunities to forge partnerships with trade organizations and major retailers to foster collective buy-in.



We recommend building out a working group with SeaBOS, ISSF, and GTA to address the key questions from our work thus far, and to formulate the next steps and extension opportunities for developing the IUU risk tool.



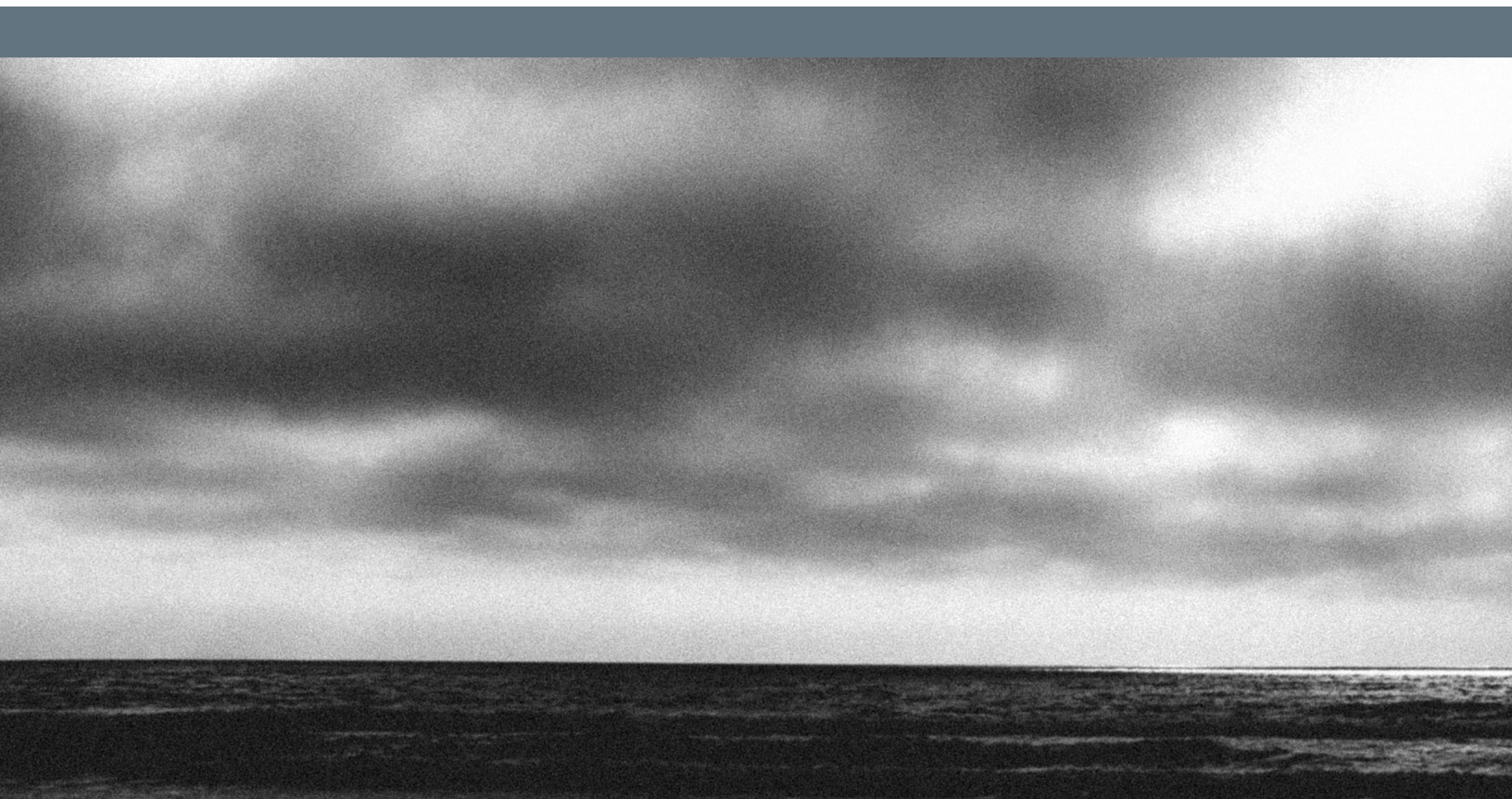


## II. Addressing Labor Abuses in the Global Fishing Industry through a Multiuser, App-Based Digital Contracting and Payments Platform

Herber Banda, Kyoungwha Lee, Tara Naoko, Jacqui Vogel

### Abstract

The world's fisheries continue to play an ever more important role in global food, nutrition and employment. In 2018, the global fisheries sector reached an all-time high of 96.4 million tonnes of fish capture. Increased captures are directly linked to growing consumption of seafood products, which accounted for 17% of global intake of animal protein in 2017. A multi-billion dollar industry, the fishing sector employs approximately 39 million laborers within capture fisheries. However, decreasing revenues coupled with an ever increasing demand for seafood products has led to the exploitation and abuse of crew members in the seafood industry. This is systematically worsened through racism, xenophobia, and poverty experienced by many migrant laborers. IUU fishing—which can make up to 30% of all catches in some regions—only further exacerbates declining fish stock populations, driving up fuel costs as vessels stray further and further to meet their individual quotas, further enabling exploitation of workers. Given the remote nature of fishing vessels, it is difficult to track, quantify, and report abuse and forced labor that occurs at sea. This report summarizes the findings of a study on how technology can create more transparency and accountability within the fisheries sector. The research team conceptualized an app called FLOAT (Fisheries Labor Open Accountability Tool) which digitizes the payments and contracting system to allow fishing laborers, vessel owners, seafood buyers, and all members of the seafood supply chain to have greater access to information and support.





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## A. Introduction

The world's fisheries continue to play an ever more important role in global food, nutrition, and employment. In 2018, the global fisheries sector reached an all-time high of 96.4 million metric tons of fish capture.<sup>1</sup> Increased captures are directly linked to growing consumption of seafood products, which accounted for 17 percent of global intake of animal protein in 2017.<sup>2</sup> This continued growth is represented in the global seafood industry's estimated value, which by 2018 was about \$US164 billion.<sup>3</sup> A multibillion-dollar industry, the fishing sector employs approximately 39 million workers within capture fisheries.<sup>4</sup>

However, decreasing revenues coupled with an ever-increasing demand for seafood products has led to the exploitation and abuse of crew members in the seafood industry. These issues are systematically magnified through racism, xenophobia, and poverty experienced by many migrant workers in Southeast Asia and other parts of the world.<sup>5</sup> Moreover, illegal, unreported, and unregulated (IUU) fishing—which can make up to 30 percent of all catches in some regions—only further exacerbates declining fish stock populations, driving up fuel costs as vessels stray further and further to meet their individual quotas.<sup>6</sup> These costs are then typically sustained by cheap migrant workers, who become victims of human rights abuses and exploitative working conditions.<sup>7</sup> Given the remote nature of fishing vessels, it is difficult to track, quantify, and report abuse and forced labor that occurs out at sea.

This report will focus primarily on the specific role contracts play in the employment and payment of migrant workers within the Indonesian fishing industry and how we can reconceptualize a new digitized contract-payment system to combat the use of forced labor in the industry. While a majority of our data comes specifically from the Southeast Asian region, our proposed idea may apply to industrial fisheries operations in other regions and industries as well. This new digital platform aims to alleviate issues of transparency and durability found in the current paper contract system, which is not streamlined, digitized, or inclusive to migrant workers of different nationalities, languages, and literacy levels.<sup>8</sup> Given that Southeast Asia has one of the fastest emerging smartphone markets in the world and that 90 percent of all internet users in the region are smartphone users, a digital platform could prove useful in increasing engagement, accessibility, and coordination within the current system.<sup>9, 10</sup>

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1 "The State of World Fisheries and Aquaculture 2020," Food and Agriculture Organization of the United Nations, accessed October 25, 2020, <http://www.fao.org/state-of-fisheries-aquaculture>.

2 Ibid.

3 Ibid.

4 Ibid.

5 Environmental Justice Foundation, *Pirates and Slaves: How Overfishing in Thailand Fuels Human Trafficking and the Plundering of Our Oceans* (2015), accessed October 25, 2020, <https://ejfoundation.org/reports/pirates-and-slaves-how-overfishing-in-thailand-fuels-human-trafficking-and-the-plundering-of-our-oceans>.

6 Environmental Justice Foundation, *Blood and Water: Human Rights Abuse in the Global Seafood Industry* (2019), accessed October 25, 2020, <https://ejfoundation.org/resources/downloads/Blood-water-06-2019-final.pdf>.

7 Ibid.

8 Emily Kelly, personal communication, October 27, 2020.

9 Rayna Hollander, "Southeast Asia Could Be a Leader in Mobile Internet Usage Next Year," *Business Insider* (December 13, 2017), accessed October 27, 2020, <https://www.businessinsider.com/southeast-asia-could-be-a-leader-in-mobile-internet-usage-next-year-2017-12>.

10 "Mobile Internet Usage Trends in Asia-Pacific," Internet Society, accessed October 27, 2020, <https://www.internetsociety.org/wp-content/uploads/2017/08/Mobile20Internet20Usage20Trends20in20Asia-Pacific.pdf>.

Supported by desktop research and expert interviews with legal scholars, seafood distributor executives, international nonprofits, and human rights scholars, this report investigates the potential for a digital system capable of initiating a supply chain accountability model through which public-facing distributor brands can ensure contractual fair treatment and timely payment of workers. It provides a general overview of current contract practices and a comprehensive analysis of possible digital contract structures that are capable of incorporating multilateral agreements and facilitating enforceability among various stakeholders and jurisdictions. While our team was not able to interview a fishing crew member—the primary beneficiary of our proposed digital platform—we attempted to center their voices through our interviewees and the gray literature we researched.

## B. Background

While hard to detect and quantify, forced labor and inadequate work conditions are a reality for many workers in the fishing industry.<sup>11</sup> Depleting fish stocks due to overfishing—and IUU fishing in particular—pressure vessel owners to travel farther out sea, for longer periods of time, to increase catch sizes and attain higher revenues.<sup>12</sup> In addition to longer stretches of time working, workers may be subjected to substandard working and living conditions on board and be victims of wage theft as owners seek to reduce labor costs associated with long-distance journeys.<sup>13</sup> Given existing racism and xenophobia in a migrant worker-heavy industry, fishing workers are often denied social protections and labor rights that would ensure adequate payment and treatment.<sup>14</sup>

### 1. Existing Contract Structures

Currently, paper-based contracts are the most common form of labor agreement used within the fishing sector. However, the labor rights and working conditions that these contracts are meant to ensure are often completely absent, exploitative in practice, inaccessible to workers, and/or disconnected among different stakeholders.<sup>15, 16</sup> For example, when South African authorities detained a 380 GT Taiwanese vessel in May of 2018, they applied the International Labour Organization's (ILO) Work in Fishing Convention (C188) as legal standard and found various abuses and labor violations against workers on board and the complete absence of worker contracts for a majority of the crew.<sup>17</sup> Two inspectors from the South African Maritime Safety Authority (SAMSA) inspected the vessel at port after complaints from workers aboard the ship. C188 requires that workers have a written agreement with the vessel's owner. Moreover, the use of migrant workers from varying nationalities coupled with the fact that many workers may be illiterate creates

11 International Labour Office, *Caught at Sea: Forced Labour and Trafficking in Fisheries* (2013), accessed October 27, 2020, [https://www.ilo.org/wcmsp5/groups/public/---ed\\_norm/---declaration/documents/publication/wcms\\_214472.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---declaration/documents/publication/wcms_214472.pdf).

12 Ibid.

13 Uwe Tietze, *Techno-Economic Performance of Marine Capture Fisheries* (Rome: Food and Agriculture Organization of the United Nations, 2001), 19, accessed October 27, 2020, [https://books.google.co.th/books?id=\\_6-k-XebM7IC&printsec=frontcover&hl=th&source=gbs\\_ge\\_summary\\_r&cad=0#v=onepage&q&f=false](https://books.google.co.th/books?id=_6-k-XebM7IC&printsec=frontcover&hl=th&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false).

14 Jessica L. Sparks, *Social Conflict on the Seas: Links Between Overfishing-Induced Marine Fish Stock Declines and Forced Labor Slavery* (2018), <https://digitalcommons.du.edu/etd/1473/>.

15 Supra, note 6.

16 Mike Kraft, personal communication, October 27, 2020.

17 "First Fishing Vessel Detained under ILO Fishing Convention," International Labour Organization (July 17, 2018), accessed October 27, 2020, [https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS\\_634680/lang--en/index.htm](https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_634680/lang--en/index.htm).



This new digital platform aims to alleviate issues of transparency and durability found in the current paper contract system, which is not streamlined, digitized, or inclusive to migrant workers of different nationalities, languages, and literacy levels.



issues of translation and enforcement when the stakeholders involved speak different languages or simply do not understand the contents of the contract(s) they are signing.<sup>18</sup>

Based on analysis of two paper employment contracts from Indonesia and the Philippines, it is evident that provisions vary from contract to contract depending on the country and/or company. Generally, these employment contracts include provisions identifying the parties to the contract, placements of the contractor, wages, work hours, work duration, and terms of termination. Where they tend to vary is in whether they provide for terms of repatriation, transferring ships,

compensation insurance, and collective bargaining, among other details. These contracts ideally should also specify grievance mechanisms and issues of transportation and should clearly define labor expectations to safeguard workers' rights. Moreover, no explicit provisions prohibited the use of forced labor or child labor, discrimination in the workplace, or abuse, to name a few issues.

In analyzing the Indonesian and Filipino contracts, it is immediately clear that these contracts—if representative of labor contracts in the industry—highlight not only a general ambiguity in regard to labor duties but also a lack of stipulations on health, safety, and accommodations, transportation, and the prohibition of discrimination and abuse. Interestingly, some contracts seem to mention the issues of transportation but stipulate only that it is the responsibility of the contractor to secure transportation in the event of termination. Unclear job expectations and provisions that seem to favor the principal over the contractor suggest that labor contracts—as generally formatted in the industry—may promote an easily exploitable workforce. To better advocate for a more transparent, efficient, and just industry, these key provisions should be standardized across the sector's labor contracts.

Indonesia is a signatory on the United Nations' (UN) Universal Declaration of Human Rights, the UN Guiding Principles and Sustainable Development Goal 8: "Decent Work and Economic Growth." Indonesia has also ratified all eight fundamental ILO Conventions, which require the government to ensure decent working conditions and address forced labor.<sup>19</sup> However, forced labor continues to be a legal problem for Indonesia as "overlapping Indonesian government legislation and regulations [have] created confusion over the responsibilities of key government

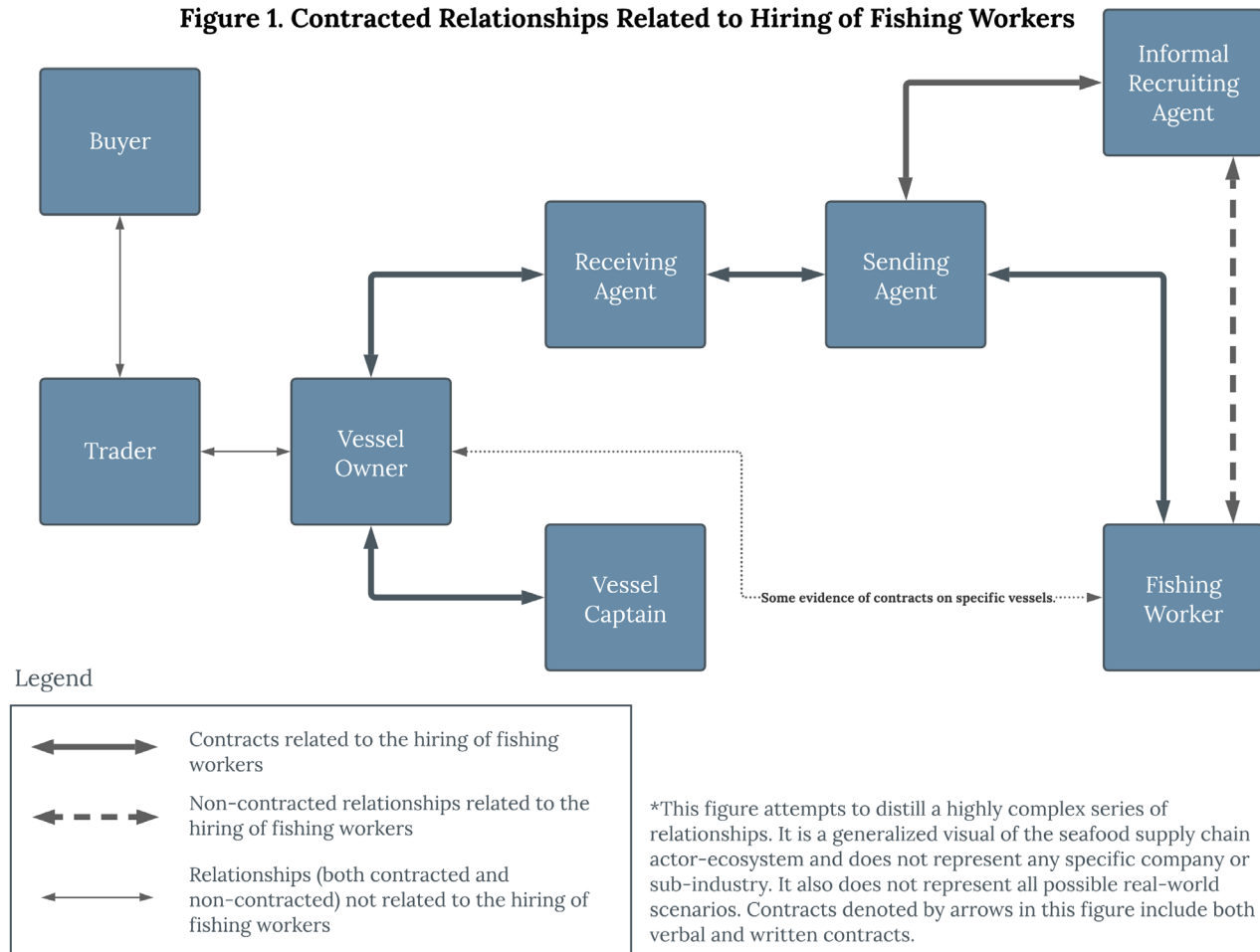
<sup>18</sup> Jessie Brunner, personal communication, October 15, 2020.

<sup>19</sup> International Labour Organization, *Indonesia's Fisheries Human Rights Certification System: Assessment, Commentary, and Recommendations* (Jakarta, 2019), accessed November 16, 2020, [https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/publication/wcms\\_713924.pdf](https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/publication/wcms_713924.pdf).



bodies responsible for the oversight of worker recruitment, conditions, and monitoring of fishing companies, manning agencies, and fishing vessels.”<sup>20</sup>

**Figure 1. Contracted Relationships Related to Hiring of Fishing Workers**



## 2. Existing Contractual Relationships

The enforceability and transparency of contractual relationships within this labor system are undermined by the implication of multiple national jurisdictions and international waters, practices like transshipment,<sup>21</sup> and the use of flags of convenience (FOCs).<sup>22</sup> Moreover, the web of actors involved in these contracts—from sending recruiters to individual fishing workers—varies from worker to worker and is currently not a streamlined process. Although variation exists among particular supply chains, Figure 1 above illustrates a web of contractual relationships one might expect in the fishing industry.<sup>23</sup>

20 M. A. Santosa, et al., *Report on Human Trafficking, Forced Labour and Fisheries Crime in the Indonesian Fishing Industry* (2016), <http://un-act.org/publication/view/report-human-trafficking-forced-labour-fisheries-crime-indonesian-fishing-industry/>.

21 David Tickler, et al., “Modern Slavery and the Race to Fish,” *Nature Communications* 9, no. 1 (2018): 1-9.

22 “Flags of Convenience,” International Transport Workers’ Federation, accessed November 6, 2020. <https://www.itfglobal.org/en/sector/seafarers/flags-of-convenience>

23 Emily Kelly, personal communication, October 9, 2020.

- **Workers and sending agents:** Sending agents travel to workers' home villages and offer potential workers the opportunity to travel elsewhere for jobs. The sending agents may not specify what type of work they are recruiting for, leading the workers to believe that they will be getting jobs in construction. **Local recruiters** may work with sending agents to identify potential workers; presumably, they would contract with the sending agents to receive a sum for every worker recruited, even if no contract was formed between the local recruiters and the workers' minimum-wage standards. Contracts between boat owners and receiving agents presumably are formed within the boat owners' country of origin, in the boat owners' native language.
- Any existing contracts signed between the workers and sending agents are currently in paper and risk not being formed or even explained in the workers' native language. Because workers may need to travel over international borders to reach the port from which they will be departing, the location of the contracts' formation and the controlling jurisdiction may also be unclear. Sending agents often directly pay recruited workers for their labor.
- **Sending agents and receiving agents:** Sending agents may send recruited workers to receiving agents who will meet them in the country from which the fishing boat will depart. It is not clear whether sending agents and receiving agents always work for the same employer; if so, contracts may need to exist between the sending and receiving agents.
- **Boat owners and receiving agents:** Boat owners contract receiving agents to recruit a certain number of workers for their boat. In several countries, such receiving agents are required to be licensed and registered; for example, a recent Taiwanese law mandates that boat owners contract labor through registered and regulated receiving agents who are bound to certain minimum-wage standards. Contracts between boat owners and receiving agents presumably are formed within the boat owners' country of origin, in the boat owners' native language.
- **Vessel owners and boat captains:** Boat owners contract with boat captains to oversee management of the fishing boat and its workers.

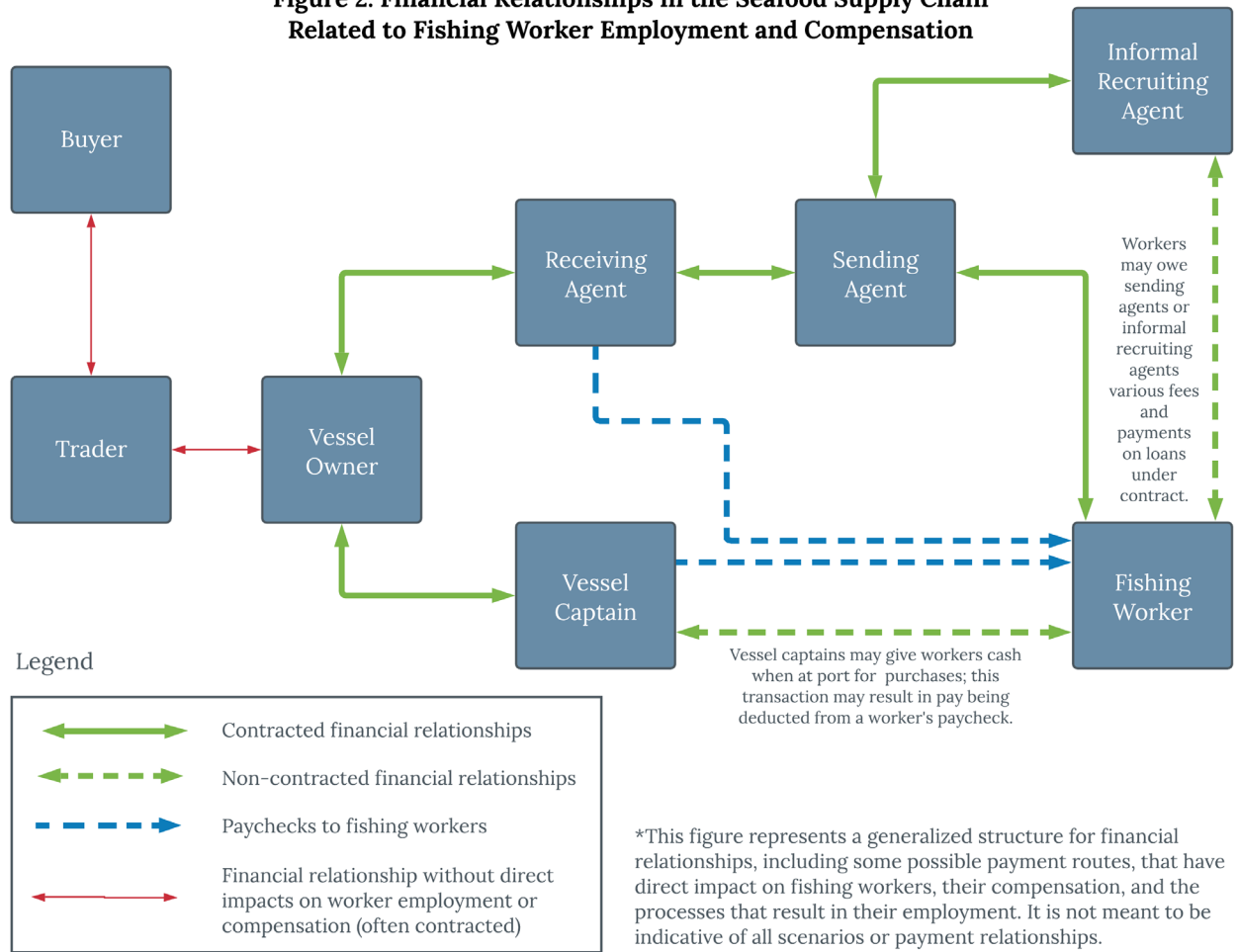
### 3. Existing Payment Structure

The existing payment structure in the fishing industry is also complicated by the remote nature of fishing vessels and the intricate transactions between various stakeholders within the supply chain.<sup>24</sup> Payment structures vary across the industry due to differing crew payment timeframes and practices such as recruitment fees and debt bondage—further facilitating the exploitation of crew workers. Figure 2 traces a typical payment flow found in the longline fishing industry.<sup>25</sup> Fishing methods may affect payment frequency for workers. For example, whereas longline fishers may expect to be paid on a monthly contractual basis, purse seine fishers may be paid per ton catch. Whether fishers are paid on a monthly basis or a per-catch share, both payment schemes function fairly similarly in that captains/boat owners continue to hold worker debt. A

<sup>24</sup> Ibid.

<sup>25</sup> Ibid.

**Figure 2. Financial Relationships in the Seafood Supply Chain Related to Fishing Worker Employment and Compensation**



catch-share payment system has the potential to further exploit and overwork fishing crew as payments are more volatile, workers may work for longer periods of time to get larger catches, and workers may not be aware of actual pricing of catches at landing.<sup>26</sup>

Current regulation of contracts within Indonesia appears to be ineffective as stated earlier due to the confusion created by overlapping government legislation and regulations as well as inaction by port officials and inspectors. Based on available contracts, wages appear to be reported manually on paper forms. Such a system is susceptible to wage theft because workers must rely on continual documentation of every hour worked and guaranteed access to these paper documents. Currently, wages can be sent back to a worker's home country by wiring the money to family through agents like Western Union, who charge a fee and require workers to have cash with them.<sup>27</sup> In addition to wiring money home, some workers value having cash to use at ports as well; this cash may be given to them in addition to their salary by boat captains.

The necessity of cash payments and the reality that some workers may not have traditional bank accounts are important details to keep in mind in the development of a digitized contract and payment system.

<sup>26</sup> Jessica Sparks, personal communication, November 19, 2020.

<sup>27</sup> Ibid.

## 4. Current Digital Landscape

There are many examples of companies that are using cell phones and other widely available technologies to address labor abuses experienced by migrant workers across many industries. With the rise of internet coverage and smartphone use in key regions such as Southeast Asia,<sup>28</sup> apps and digital systems could be a solution for the lack of transparency and enforceability with current contract and payment systems. Table 1 shows a general list of digital platforms and applications that are already in use to address labor abuses, forced labor and workers' rights.

**Table 1. Examples of Applications Currently Used to Address Forced Labor**

Name	Type	Purpose
Smart Domestic Workers <sup>29</sup>	Mobile smartphone app	<ul style="list-style-type: none"> <li>• Delivers knowledge to workers (e.g., rights, permits)</li> <li>• Provides referrals to agencies</li> </ul>
Im@Sea pilot <sup>30</sup>	Digital system/ database	<ul style="list-style-type: none"> <li>• Provides vessel monitoring</li> <li>• Provides electronic catch reporting</li> <li>• Provides electronic video monitoring</li> <li>• Features interviews/surveys with crewmembers</li> </ul>
Issara Institute's Inclusive Labour Monitoring System <sup>31</sup>	Digital system (with social media channels, hotlines, and an Android app)	<ul style="list-style-type: none"> <li>• Allows communication between workers, employers, and service providers</li> <li>• Provides a list of recruiters and agencies</li> <li>• Reviews polling of workers' opinions</li> </ul>
Thai Union Group PCL's Digital Traceability Pilot Programme <sup>32</sup>	Digital system	<ul style="list-style-type: none"> <li>• Improves connectivity via satellite</li> <li>• Gives suppliers the ability to improve the efficiency of traceability records validated by fishery managers (electronic end-to-end traceability and supply chain management)</li> </ul>

28 Supra, note 10.

29 B. Nansomboon, "Key Issues on Digitalization and Promoting Decent Work for Migrant Workers in Thailand and ASEAN" (presentation, Thailand Tripartite Preparatory Meeting for the 11th ASEAN Forum on Migrant Labour, Bangkok, September 14, 2018).

30 Chris Chase, "International Labor Rights Forum Urge Action on Seafood Industry Worker Abuse," SeafoodSource (May 30, 2018), <https://www.seafoodsource.com/features/international-labor-rights-forum-urge-action-on-seafood-industry-worker-abuse>.

31 "Inclusive Labour Monitoring," Issara Institute, accessed November 6, 2020, <https://www.issarainstitute.org/inclusive-labour-monitoring>.

32 "Thai Union Pilots Digital Traceability Program to Strengthen Sustainability Efforts," *Thai Union* (March 16, 2017), accessed November 6, 2020, <https://www.thaiunion.com/en/newsroom/press-release/463/thai-union-pilots-digital-traceability-program-to-strengthen-sustainability-efforts>.



## C. Methodology

We used a combination of desktop research and semistructured expert interviews to guide and inform us as we conceptualized a new digital contracting and payments system. Interviewees were selected using a snowball sampling approach and were generally limited to individuals with direct connections to the Stanford Center for Ocean Solutions or Stanford University in general (see Appendix B). Because our client, the International Seafood Sustainability Foundation (ISSF), is in contact with many participating seafood companies, we also had the opportunity to interview seafood distributor executives to gain insight from a commercial standpoint.

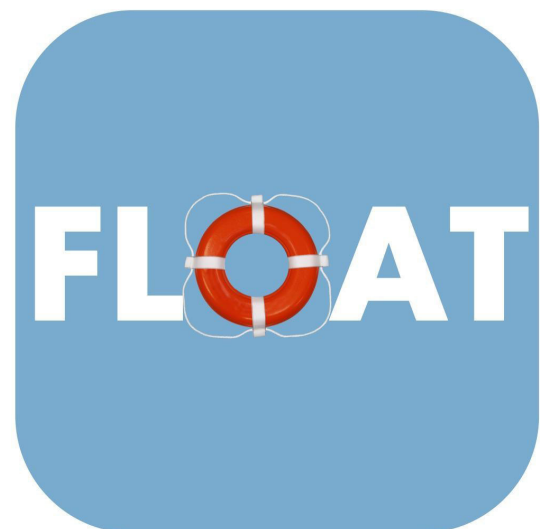
This research is inherently worker focused, and the solutions that we put forward here were drafted with worker voices and experiences in mind. However, due to the time constraints of this project, as well as the lack of training on the part of our research team, we were unable to conduct interviews directly with workers. We attempt to incorporate these voices and opinions through academic articles, gray literature reports, and other firsthand accounts. These sources allow us to incorporate a version of voices that, given the time and opportunity, would be a vital part of this research and related efforts going forward.

## D. A New Model: The Fisheries Labor Open Accountability Tool (FLOAT)

### 1. Establishing a Multiuser, App-Based Digital Contracting and Payments Platform

To address the problems noted previously, we propose the development of an app-based platform with a multiuser interface that can streamline the contracting and payments process to increase transparency within the fisheries sector. FLOAT (Fisheries Labor Open Accountability Tool) will create transparency throughout the entire supply chain, from initial recruiter to final consumer, and involves personalized ways for each stakeholder to engage in the process.

For FLOAT to successfully increase transparency and accountability throughout the supply chain, both vertical and horizontal penetration of the supply chain must be achieved. This means app usage must be both regionally diverse (i.e., not limited to one specific country or fishing community) and fully accepted by all actors involved in the supply chain regardless of rank. Workers, captains, recruiters, and everyone involved in the seafood supply chain will have a “profile” on this platform. These profiles will be fairly basic and are primarily focused on identifying, tracking, and storing information for all workers and the boats on which they are working. All payments and contracting will be streamlined into this one digital tool, creating a digital paper trail that can allow end buyers and consumers of seafood to view a detailed log of who was working



on a boat at a certain time, how many hours they worked, how much and when they got paid, and how fairly they were treated.

An additional feature that could be integrated into FLOAT is a quick response (QR) code tracking system. This feature could expand upon the current International Maritime Organization (IMO) number system by labeling each fishing boat with a QR code. This QR code would be directly associated with the boat owner or operating company, and seafood buyers could scan the code when the boat comes into port. The captain would also have their own profile that would be linked to the boat they are in charge of until they either switch boats or step down. A current World Wildlife Fund (WWF) project is working to integrate QR codes and radio-frequency identification (RFID) chips into every step of the tuna supply chain with the end goal of tracking a single fish “from vessel to the supermarket.”<sup>33</sup> This exact technology will not be widely available for several years, so here we are focusing on the more feasible prospect of tagging only the boats and the individuals working on those boats, not the individual fish.

### 1.1. Digital Contracting

Labor contracts are at the core of this platform and represent the primary legal instrument that will bind together the different components of the app. The creation of a digitized paper trail is one of the most feasible and effective ways to ensure fair, enforceable, and accessible labor contracts. FLOAT will not only store, track, and disseminate contract information to the relevant parties, it will also act as a contract-creation tool that will house contract “outlines” that workers, recruiters, captains, and all other stakeholders will be able to access and individualize based on their specific needs and circumstances.

Some example individualizations that could be integrated into the app include:

- Workers could specify their country of origin, their current country of residence, the flag state of the vessel on which they are working, and the country to which they want to be returned in case of a breach of contract.
- Additional stipulations could be added to contracts by either party. These stipulations would need to be agreed upon by both parties before the contract could go into effect.
- Workers could specify the maximum amount of time they are willing to be at sea. This is an easily quantifiable and traceable component of a contract because this information would be recorded at the start of the contract and could be checked against the time when the boat eventually comes into port to sell its catch. This metric would simply be integrated as an additional way to check compliance with contract terms and would not preclude other components of FLOAT that focus on worker conditions and treatment. For workers who prefer to be at sea for longer periods of time due to financial incentives, additional requirements could be integrated into these longer-term contracts to ensure fair conditions during extended periods at sea and guaranteed time on shore after the contract has ended.

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33 “New Blockchain Project Has Potential to Revolutionise Seafood Industry,” World Wildlife Fund, [https://www.wwf.org.nz/what\\_we\\_do/marine/blockchain\\_tuna\\_project](https://www.wwf.org.nz/what_we_do/marine/blockchain_tuna_project).

To maximize comprehension of contract language by all parties, all contracts signed and created through FLOAT will be comic (or cartoon) contracts. Comic contracts use illustrations and limited words to visually display the main points of an agreement (see Appendix D).<sup>34</sup> These contracts can be used to ensure maximum accessibility and comprehension by all workers, regardless of literacy level. This type of contract also acts to empower workers by enabling them to “independently understand the contracts they are expected to sign.”<sup>35</sup>

An innovative feature of these comic contracts is that the illustration itself is the contract, not just a visual representation of a paper contract written in another language.<sup>36</sup> This feature removes the potential for inaccurate translations or other malicious actions that could arise in the interpretations process. The comic itself acts as the legal document that is signed by both parties, and in the event of any disputes between parties the comic contract is consulted.<sup>37</sup>

In the case where a written contract already exists between parties, these written contracts can also be uploaded to the app. These contracts will ideally be phased out over time, as all contracts created through the app must be in comic form. The app could also include an audio dictation function to allow illiterate workers to have the contracts read to them. Individual clauses could also be elucidated through these dictations to reveal the true implications of these contracts for workers in terms of obligations and liability. This approach can increase comprehension to some extent, but the comic contracts are still the preferable form of agreement.

## 1.2. Default Minimum Requirements for Contracts

The creation of contracts can be homogenized and streamlined by this system through the creation of a set of default minimum requirements that are automatically integrated into every contract that is produced, signed, and implemented through the system. A baseline comic contract could be produced and automatically assigned as the outline for any contracts adapted through the app.

Under the Tuna 2020 Traceability Declaration, signatories pledge to ensure that suppliers at least meet “minimum social standards in management practices.” These minimum standards are directly based on recommendations from the Universal Declaration of Human Rights and the ILO’s Conventions and Recommendations.<sup>38</sup> Here we use the standards set forth in ILO C188, specifically the “responsibilities of fishing vessel owners, skippers and fishers,” as the minimum requirements that will automatically be populated into each contract signed via the app.<sup>39</sup> This declaration entered into force in November 2017 and has been ratified by 18 countries.<sup>40</sup> Parties

34 Kate Vitasek, “Comic Contracts a Novel Approach to Contract Clarity and Accessibility,” *Forbes* (February 14, 2017), <https://www.forbes.com/sites/katevitasek/2017/02/14/comic-contracts-a-novel-approach-to-contract-clarity-and-accessibility/?sh=3dedea357635>.

35 Ibid.

36 George Triantis, personal communication, October 6, 2020.

37 Ibid.

38 Global Tuna Alliance, *Tuna 2020 Traceability Declaration Social Responsibility Toolkit* (August 2020), <https://www.globaltunaalliance.com/wp-content/uploads/2020/10/Social-Responsibility-FINAL.pdf>.

39 “C188 – Work in Fishing Convention,” International Labour Organization (2007), [https://www.ilo.org/dyn/normlex/en/f?p=NORMLEX-PUB:12100:0::NO::P12100\\_ILO\\_CODE:C188](https://www.ilo.org/dyn/normlex/en/f?p=NORMLEX-PUB:12100:0::NO::P12100_ILO_CODE:C188).

40 “Ratifications of C188 – Work in Fishing Convention, 2007 (No. 188),” International Labour Organization, [https://www.ilo.org/dyn/normlex/en/f?p=NORMLEX-PUB:11300:0::NO::I1300\\_P11300\\_INSTRUMENT\\_ID:312333:NO](https://www.ilo.org/dyn/normlex/en/f?p=NORMLEX-PUB:11300:0::NO::I1300_P11300_INSTRUMENT_ID:312333:NO).

to a contract will have the option to expand on any sections within that contract, but there will be no option to remove any of the baseline labor and payment conditions that are automatically included.

There are a number of provisions that seafood buyers and third-party auditors should ideally consider to be required in all labor contracts signed by workers providing them with seafood products (see Box 1). Below is a preliminary list of substantive provisions that can be automatically integrated into all contracts created within the platform:

- Prohibition of forced labor and child labor
- Wages and benefits
- Working hours
- Health, safety, and accommodations
- Prohibition of discrimination, harassment, and abuse
- Grievance mechanisms
- Transportation (to and from the boat)
- Clearly defined labor expectations<sup>41</sup>

These baseline minimum terms can be automatically populated into any contract that is created within FLOAT. Contracts that are created manually and uploaded to the app will be automatically checked for these provisions and flagged if all are not included. All of these provisions must be included, with no option to omit any of the baseline conditions. Generic language for each of these provisions will be automatically integrated into each contract to avoid preclusion. All contracts created between vessel owners and recruiting agents should automatically and irreversibly include language expressly designating recruited workers as third-party beneficiaries to the contract, thus ensuring that the workers will be able to hold the vessel owners liable for any labor abuses committed on their boats. This proposed provision is further discussed in Section 2.2.

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41 Reviewed and verified by Susan Jackson, Emily Kelly, Jessie Brunner, and Jessica Sparks.



We should also consider the case of a country that has not ratified ILO C188, such as Indonesia.<sup>42</sup> The baseline minimum contract provisions listed above would still be integrated into every contract created through the app, regardless of ratification status or domestic labor laws. If a country has more stringent or comprehensive labor standards than the baseline put forth here, then additional terms can be required for contracts created or executed within that country's borders. This system ensures that all contracts adhere to these baseline conditions while also allowing a higher standard to be applied in countries where domestic law goes further than our minimum standards.

### **Box 1. Importance for Substantive Provisions Demonstrated by a New Zealand Fishing Industry Example**

The need for several of these substantive provisions is demonstrated through one example from the New Zealand fishing industry in 2015. Two Indonesian fishers complained to the New Zealand government that their labor contracts had ended, but they were still owed wages by their employer. Each worker had paid about 20 million rupiah (\$US1,365) to obtain initial employment with the New Zealand company. At the start of their labor contracts, they were compelled to work in the company's processing facility, an expectation that was not included in their labor contracts. Additionally, the hours logged by these two Indonesian workers in the processing facility were logged manually, while the hours worked by New Zealand employees were electronically recorded.<sup>43</sup>

This example demonstrates the value of the baseline minimum provisions listed above to workers in these types of situations. If these workers had formed a contract within our digitized system, several of the problems they faced could have been avoided. "Clearly defined labor expectations" could have prevented them from being compelled to work a job that was not included in their initial contract, "wages and benefits" could have ensured that they were automatically paid through the app in the full amount they were owed, and "working hours" could have allowed them to digitally log their hours, as was the practice for the other employees in the plant.

These two fishermen also represent a uniquely fortunate subset of exploited workers in that their claims were supported by labor advocates in New Zealand. The Ministry of Business, Innovation and Employment eventually settled their claim and provided a financial settlement for unpaid wages based on their initially agreed upon contracts.<sup>44</sup> This settlement was very simple in that it involved only one country, New Zealand, and the home country of these migrant workers was barely involved. In other cases, a breach of contract or other labor-related grievance on the high seas can involve the flag country of the boat, the port of departure, or the home countries of the migrant workers, among other factors.<sup>45</sup>

42 "Up-to-Date Conventions and Protocols Not Ratified by Indonesia," International Labour Organization, [https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11210:0::NO::P11210\\_COUNTRY\\_ID:102938](https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11210:0::NO::P11210_COUNTRY_ID:102938).

43 C. Stringer, "Exploited, Blacklisted, Destitute," SAMUDRA Report, no. 77 (September 2017), <https://www.icsf.net/en/samudra/article/EN/77-4307-Exploited,-Blac.html>.

44 Ibid.

45 Supra, note 23.

For this reason, all parties to a contract that is signed or negotiated through the app may choose to use a jurisdiction clause to indicate within the contract the country in which they would like their claims to be settled. This would guarantee that a specific but nonexclusive court has default jurisdiction over any disputes arising from the contract, preventing the frequent problem of no clear jurisdiction existing for disputes arising under many contracts. Further complexities surrounding jurisdiction clauses in contracts are discussed later, in Section D.3.2. A worker may also specify the country to which they would like to be returned should their contract be breached. Both of these locations should be agreed upon by all parties to the contract before labor actually begins. This would also help to avoid conflicts caused by flags of convenience.

In considering this example, it is also important to note the extent to which the forced labor landscape has changed in New Zealand over the last several years. In response to allegations of forced labor and human trafficking among foreign chartered vessels in New Zealand waters (such as the example cited above), the New Zealand government enacted the Fisheries Amendment Act of 2016. This legislation effectively bans foreign vessels from operating within national waters without first reflagging themselves as New Zealand ships and is intended to identify forced labor and ensure that New Zealand employment laws are enforced uniformly at sea.<sup>46</sup>

Blacklisting is another concept that should be integrated into FLOAT and communicated to all members of a fishing crew before they engage in any fishing activities. When illegal fishing or labor practices are discovered on a boat, authorities sometimes choose to blacklist the vessel itself in perpetuity.<sup>47</sup> Blacklisting can also be used to ban a vessel from ever fishing lawfully in certain exclusive economic zones (EEZs) after an indiscretion, and this blacklisted status stays with the boat even if it is sold or its crew is completely replaced.<sup>48</sup> This practice of blacklisting can be harmful to workers, especially those who have paid exorbitant recruitment fees to obtain a job on a fishing boat, only to be forcibly shut out of the industry due to the illegal practices of others on board. The blacklisted status of all fishing boats should be included and readily accessible on the platform, and the implications of signing a contract with a blacklisted vessel need to be adequately communicated to all crew members before any initial contract is signed.

### 1.3. Mandatory Training Video Integration

A major problem for many workers joining the fishing industry is that they sign contracts without complete knowledge of the type of work they're getting into, how they should expect to be treated, or what will be expected of them once they're out at sea.<sup>49</sup> Mandatory training videos can be integrated into the contracting portion of the platform to ensure that all workers have adequate information to fully consent to the terms of a contract before entering into a labor agreement.

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46 Lydia C. L. Teh, et al., "The Role of Human Rights in Implementing Socially Responsible Seafood," *PLoS ONE* 14, no. 1 (2019), <https://doi.org/10.1371/journal.pone.0210241>.

47 *Supra*, note 43.

48 R. Hannesson, "Rights-Based Fishing on the High Seas: Is It Possible?," *Marine Policy* 35, no. 5 (2001), 667-674.

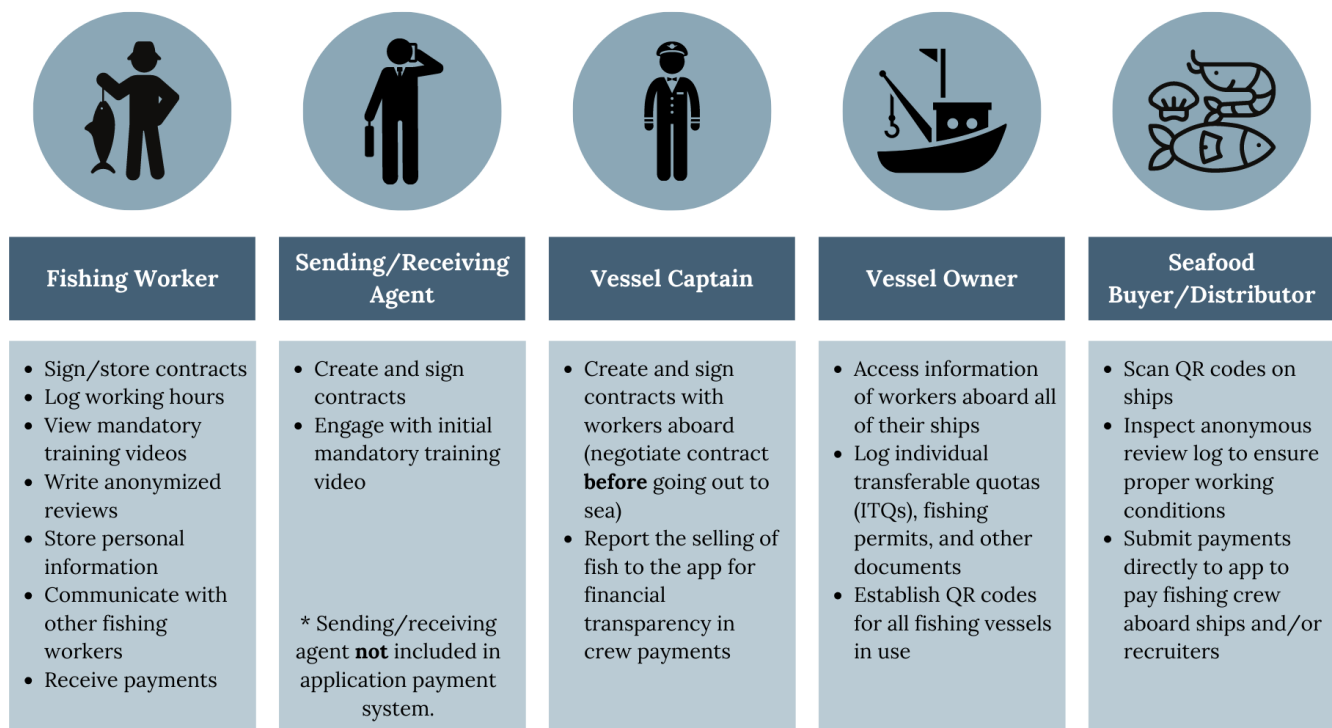
49 *Supra*, note 18.

For example, Lovering Foods, a large seafood distributor based in the UK, currently provides an in-house “Modern Slavery Awareness Training” to all head office staff on an annual basis.<sup>50</sup> Since ILO C188 stipulates that captains must facilitate “on-board occupational safety and health awareness training,” this type of mandatory training represents a feasible and universally applicable way to achieve this training requirement. By taking a more comprehensive approach to what a training video should entail, we can incorporate expectations for both workers and higher-ups to ensure higher levels of understanding of proper worker treatment and labor abuses, all while increasing compliance with C188 requirements. Video training should be completed during the initial recruitment process, before workers ever leave their home villages. This helps to ensure that workers are aware of what they’re getting into before they deem it to be “too late” to back out.<sup>51</sup>

#### 1.4. Stakeholder Engagement with the Digital Platform

There are many stakeholders involved throughout the complex fisheries supply chain, and each party will have a unique and personalized way in which they will engage with the platform (see Figure 3). All actors will be accountable for promoting fair labor practices through their personal involvement with FLOAT. However, vessel owners, seafood buyers, and recruiting agents will be the most vital and influential drivers for advancing human rights and the fair treatment of workers at sea.

**Figure 3. Stakeholder Engagement in FLOAT**



<sup>50</sup> Supra, note 38.

<sup>51</sup> Mike Kraft, personal communication, October 21, 2020.

**Fishers/workers** are the key piece and the primary intended beneficiary of this digital platform, so they are tied to the majority of functions that the app provides. Fishers will be able to sign and store within the app any contracts to which they are a party. The platform will automatically be able to check these contracts against each other to remove any inconsistencies, avoiding potential problems that can arise from the complex chain of contracts that exist in the current paper contracting system. Fishers can also log hours worked, describe their labor conditions, and communicate with other fishers or humanitarian organizations should any serious problems arise. Fishers would additionally be able to write anonymous “reviews” of captains or other higher-ups, which will be described in more detail later.

An additional benefit of a unified digital system is the ability for fishers to store within the app personal information such as visas, passports, and other identification. Assuming that the app could eventually become widespread enough to be trusted by port authorities as a valid source of identification, this would remove the problems that can arise from the withholding of personal identification by higher-ups on the crew. If properly implemented, this could reduce the threat of debt bondage, wage withholding, and other practices that prevent fishers from escaping abusive situations. Jurisdictional, country-specific information will also be stored on the platform, and all parties with whom workers sign contracts will need to specify at the outset the location of contractual resolution.

A final fisher-centric component of the app is the payments system. When a boat sells its catch to a distributor or an individual buyer, that buyer could submit their payment directly through the app. The app presumably contains an accurate list of all workers on the boat, the hours they worked, how much fish was caught, and any prices that the boat owner/captain incurred during the trip. This means that a standardized formula can be written into the contract at the beginning of any fishing expedition. This formula would need to be agreed upon by buyers, workers, and captains before disembarkment.

**Recruiting agents** (both sending and receiving) will mostly engage with the app through the creation and signing of contracts. Agents will be responsible for registering with the app any workers that they hire and ensuring that details about the initial hiring process are included in the worker’s profile. Recruiters should also be involved in the initial mandatory training video that all workers will be required to watch before signing any contracts. If recruiters are required to create and sign contracts through the app, this training video would ideally be viewed by all parties to a contract. Once a worker is hired by a specific boat, access to the worker’s profile, including all previously signed contracts, is transferred to the captain or boat owner.

An additional benefit of the app is its potential to remove recruiters from the payment process. In the current system, wages are frequently delayed or withheld by recruiters, adding layers of complexity to this system and creating uncertainty for workers as to when or if they will get paid. By streamlining all payments within this app, wages could be sent directly from buyers to fishers, avoiding harmful delay times and removing the possibility for long-term debt bondage or other labor abuses.



**Captains** should be required to use the app only during two vital points in the supply chain: the hiring of workers onto their crew and the selling of fish catch to distributors or other buyers. Each worker working on a boat will have a string of contracts attached to their profile in the app, and each worker will in turn be contractually tied to the captain's profile (via the app) for the entire time of their employment on that boat. Contracts that were previously negotiated with recruiting agents are available through the app and cannot be altered by the captain.

The captain can, however, negotiate and add new contracts into the app with the consent of the workers *before* going out to sea. It is especially important that contracts be negotiated before going out to sea for an extended period of time. Often only captains have access to the internet during long voyages, so by banning any post-departure contract adjustments we can reduce the possibility of non consensual contract alterations. The location and time at which a contract is altered can be tracked via the app, thus making this requirement fairly straightforward to implement.

**Vessel owners** can access information on all workers employed on their boats at any given time. To incorporate IUU, the platform can also allow boat owners to log any individual transferable quotas (ITQs), fishing permits, vessel day scheme (VDS) permits, and other documents related to the total allowable catch for a particular boat. As mentioned earlier, individual QR codes will also be attached to each boat. This inclusion will ensure that all indiscretions associated with one boat are logged within the system and will alert seafood buyers of any boats with a history of abuse or illegal activities.

**Seafood buyers** will be able to scan the QR codes of each boat coming into port as well as the captain's individual QR code. Buyers can then use the app to check a number of metrics to ensure that the boat has not engaged in any illegal activity since it was last at port. A quick scan of the anonymous review log can reveal any reported cases of abuse (reports can be entered into the app while at sea and posted as soon as service is regained at port). The app will also be able to tag the location of all workers on board to ensure that the workers registered on the app as working on the boat are actually there.

As mentioned previously, all payments can be submitted by the buyer directly to the app or potentially through a partnership with an existing banking app used by the fishing communities. The app would then divide up the money between workers, boat owners, and captains according to a contractually agreed upon formula. This more automated and streamlined payment system would help to prevent debt bondage, withholding of funds, and other monetary abuses that are common in the fishing industry.

There are certain cases where this system would need to be modified slightly, such as when a worker has signed a long-term labor contract with a sending agent and thus needs the agent to be involved in the payment process. In this case, payments could still be done through the app and would instead go from buyer to sending agent and then eventually to the worker. This creates a more convoluted payment stream but can allow workers who wish to maintain long-term relationships with their sending agents (i.e., to ensure future assignments on other fishing boats) an alternate way to conduct payments through the app while still ensuring transparency and accountability throughout the entire payment process.

**Consumers** would initially play a smaller role in this digitized system. However, this role could be scaled up depending on the visibility of labor issues in the future and the extent to which consumer choice plays a role in the actions of large seafood companies. Consumers would also be able to download and create a profile on the app. Assuming widespread participation in the platform by large seafood distributors, consumers would be able to verify that the fish they're consuming were caught on boats that met the minimum contract requirements, labor standards, and legal fishing requirements.

For a hypothetical case of worker interaction with the FLOAT application, see Box 2.

### *1.5. Anonymized Communication and Rating System*

Another component of the platform is an anonymized worker communication and rating system that is integrated into the program. This communication system will be modeled after Yelp and other crowd-sourced review systems, with the specification that worker reviews are viewable only by certain parties. For instance, a boat captain wouldn't be able to see the reviews posted by workers on their ship. This safeguard would need to be built into the app to avoid potential retribution on the part of a boat captain or an owner who sees negative reviews from their workers.

To ensure that worker reviews are seen and reviewed by the proper entities, reviews will be visible to fellow workers (so that they know what boats, captains, or companies to avoid), government agencies (who would be able to fine or otherwise punish abusive actions), buyers (who can review comments from workers on fishing boats and fleets with whom they are doing business), and potentially final customers (who can use the review system to filter out worker reviews for companies from which they regularly purchase seafood).

Workers will have the option to flag their profiles and reviews with ship positions, yet in these cases, anyone with a rank higher than worker (e.g., recruiter, captain, boat owner) would not be allowed to access the reviews. Under this system of locational anonymity, prospective workers could see ratings for boat personnel as well. To address the low levels of literacy that are common to some workers on fishing boats, reviews can be visuals-based, with images of boat personnel (captains, owners, recruiters) being used in the review process. Because the app already requires that each user have their own profile with information about their rank or position, this should be feasible. The ranking system could be further simplified by giving workers the option to rate the personnel using a simple :) (satisfactory), :| (neutral), or :( (unsatisfactory) system based on the treatment and labor conditions to which they have been subjected.

A potential problem that arises with this system is that complaints would be registered only once the boat is close enough to port to access Wi-Fi or a cellular signal. This means that there would be no way of ensuring real-time reporting of abuses at sea, and worker voices would be integrated into the platform days, weeks, or even months after the abuses have occurred. While this doesn't provide immediate relief to the workers being subjected to the abuse, it does at least provide information to seafood buyers and governments who can take punitive action against the abusers. It also warns potential future workers about the conditions that can be expected aboard that particular fishing boat.

If a number of negative reviews are logged into the system for a specific person, boat, or company, that entity could be automatically labeled with a red flag that would be evident to seafood buyers, ports, or any other bodies attempting to do business with this flagged entity. A number of questions arise when we begin to consider the actions that would be most desirable for the workers in this situation of persistent reported abuse. Legal remedies such as contract termination may not be ideal for workers who have a long-term contract or who wish to receive future employment through the boat owner or a recruiter.<sup>52</sup>

There is also a question of which party involved in a conflict has the most responsibility to act. When illegal activities are reported through the platform, the responsibility to act on these reports eventually falls on the national governments involved in the dispute. However, the specific country (or countries) that decides to intervene depends on a variety of factors, including the scope of the indiscretion and the physical location of the boat and crew.<sup>53</sup> Countries with a reason to intervene include flag, port, coastal, labor supplier, or market states, with the possibility for none of these to feel compelled to act depending on the situation.<sup>54</sup>

In September of 2020, a group of twenty-two maritime unions called on port states to “assist the flag states by enforcing the provisions of the Maritime Labour Convention” by detaining ships that are denying their workers their fundamental human rights.<sup>55</sup> This effort focused specifically on the threat that COVID-19 poses to crew changes and the enforcement of limits to time spent at sea. However, this example highlights the complex web of actors involved in responding to human rights abuses at sea and the need to create a normalized reporting system with predetermined paths to redress.

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52 Supra, note 18.

53 “Unions Call on Port States to Detain Ships to Protect Seafarers,” *The Maritime Executive* (September 24, 2020), <https://www.maritime-executive.com/index.php/article/unions-call-on-port-states-to-detain-ships-to-protect-seafarers>.

54 Food and Agriculture Organization of the United Nations, *Joining Forces to Shape the Fisheries Sector of Tomorrow* (August 28, 2020), <http://www.fao.org/port-state-measures/resources/detail/en/c/1305748>.

55 Supra, note 53.

**Box 2. Hypothetical Scenario of Worker Interaction with FLOAT (Contract-Focused)**

A worker from Indonesia, Nelayan, meets a sending agent in his hometown. The recruiter offers Nelayan a job on a Taiwanese fishing boat and verbally explains the length, wages, and expectations of the job. Nelayan expresses his interest, and the recruiter then helps him to create a profile on FLOAT (preferably on the worker's own smartphone). Once his basic profile is created, the recruiter sends Nelayan the labor contract (in comic form) through the app for him to sign. This is the first contract that Nelayan will be signing, so he is first prompted to watch a training video through the app that covers what he should expect on the fishing boat and information about his rights, paths to redress, wage expectations and app-based payments, and the contracting process.

The comic contract is very simple and can be dictated in case the visuals are unclear. This initial iteration of the contract is complete and enforceable and is subject to oversight by the Indonesian government and all relevant Indonesian law. After confirming that he has watched the video and consents to the contract, Nelayan is able to review and sign the contract with the recruiting agent. He then travels to the port (still in Indonesia) where the Taiwanese vessel is docked per the terms laid out in his recently signed contract.

Once he arrives at the port, Nelayan is transferred from the sending agent to a receiving agent. Nelayan's original contract with the sending agent is iterated to include the receiving agent as a party, with no other substantive changes made to the contract itself. The initial contract is thus preserved, preventing any contract tampering and limiting opportunities for miscommunication or malpractice.

Nelayan is then assigned to a specific boat and has his contract iterated for a third time to include the boat captain. This step in the process involves an additional part of the contract between the recruiter and boat owner/captain, but Nelayan's original contract terms are tied to this new contract via the app. Nelayan sets out to sea with his new multinational crew and Taiwanese captain for a six-month contract.

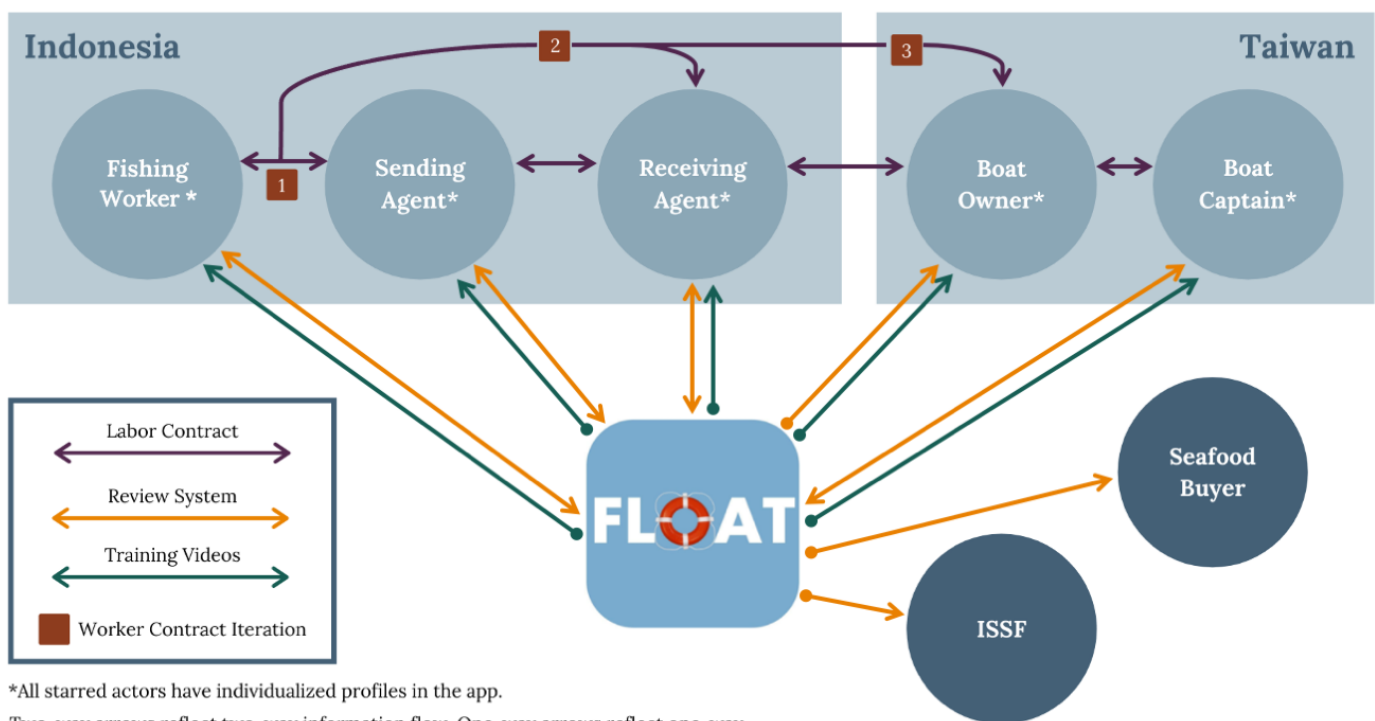
A month into his labor contract, Nelayan observes a set of labor abuses occurring on the boat. The vessel goes into port a week later to land a catch, and Nelayan uses the anonymous review system to report these abuses on the app. Multiple other workers also report these same abuses through FLOAT.



ISSF is automatically notified of this set of negative reviews and labels the vessel with a red flag. A few weeks later, the vessel goes into port again to land a catch. Seafood buyers scan the boat's QR code and are immediately notified of the vessel's red flag status. The buyers choose not to buy from the boat due to its documented human rights abuses. The buyers could also refuse to buy from the vessel because the captain cannot show that all workers on board have signed contracts through FLOAT and or because the workers are not all enrolled in the automatic payments system through the app.

The vessel owner is also notified of these abuses through FLOAT. He then fires the boat captain for his abusive labor practices and installs a new captain on his vessel. The vessel owner then logs this new captain's information into FLOAT, and his boat is able to operate again once the new information is verified by ISSF and the red flag is cleared. Nelayan and the other workers keep their initial contracts with the sending and recruiting agents, and only the third contract between vessel owner and captain must be re-created to reflect the new captain. Figure 4 serves as a visual representation of the different ways stakeholders can engage with one another through the FLOAT application.

**Figure 4. Simplified Contract-Focused Supply Chain Scenario with FLOAT**



## 2. Multilateralism and the New Model

A new model for the fishing industry in the Pacific must take into account the complexities of how workers are recruited and retained. This project focuses heavily on contracts because they are already being used (to some extent) to bring workers aboard fishing boats. Through the implementation of a digitized system, the contracts that currently bind these workers may become easier to access and analyze, more linguistically standardized, and increasingly traceable.

### 2.1. Contracts in the Current Model

The current model of getting workers from their home villages onto fishing boats entails multiple layers of negotiations and bargains. While systems vary from country to country, the most common and critical of these contractual relationships were listed in Section B.2.

The longstanding contractual doctrine of privity states that a contract's terms can only bind parties directly involved in the creation of the contract; a contract cannot impose binding obligations on third parties. Some exceptions to privity have developed within the common law and even statutory frameworks of countries such as the United States and Canada,<sup>56</sup> but none are perfectly suited to circumventing privity directly within contracts like those created between workers and recruiting agents. The workers therefore have no direct means of contracting or negotiating for basic workplace protections under the boat captains' watch. They are at the mercy of whatever labor-standards provisions exist in their own recruitment contracts, combined with those in the contracts between the boat owners and the boat captains.

To complicate matters, the trade of workers between boats while out in open water is also not uncommon,<sup>57</sup> and it remains unclear whether the workers' paper contracts with their sending agents are sent with them to the new boat. Together, these factors create a system in which workers have little bargaining power, boat captains face little accountability for breaches of contract, and exploitation may run rampant across the Pacific.

<sup>56</sup> See, e.g., George Triantis, personal communication, October 16, 2020 (noting that some forms of law have developed specifically to avoid the lack of direct privity between two contracting parties, such as that of manufacturers' liability to consumers in tort law, which allows a consumer to sue a manufacturer directly for a defective product, rather than suing the store from which the product was purchased); "Privity of Contract and Third Party Rights - Report 2008," Uniform Law Conference of Canada (Conférence pour l'Harmonisation des Lois au Canada), accessed November 17, 2020, <https://www.ulcc.ca/en/annual-meetings/235-2008-quebec-city-qc/civil-section-documents/450-priv-ity-of-contract-and-third-party-rights-working-group-report-2008?start=2> (noting that Canadian common law creates a "principled exception" to privity when express intentions to benefit a third party exist, such as in some insurance contracts that allow enforcement by third-party beneficiaries, and that equity concerns create exceptions for implicit intentions to benefit some third parties because of their instrumentality to or representativeness of a contracting party); David M. Summers, Third Party Beneficiaries and the Restatement (Second) of Contracts, 67 Cornell L. Rev. 880 (1982) (discussing the American Law Institute's adoption of an "intent to benefit" standard within the Restatement [Second] of Contracts to provide more exceptions to privity in third-party beneficiary scenarios).

<sup>57</sup> Ian Urbina, "Sea Slaves": The Human Misery That Feeds Pets and Livestock," *The New York Times* (July 27, 2015), <https://www.nytimes.com/2015/07/27/world/outlaw-ocean-thailand-fishing-sea-slaves-pets.html>.

## 2.2. Applying the Proposed Model

### 2.2.1. Standardized Terms and Translations

A major potential benefit of the proposed model is that of standardizing contractual terms across workers' contracts within the digitized system. This will create an immutable baseline expectation of worker treatment and associated rights for all contracting parties, and it will allow for monitoring parties to work out in advance any issues concerning translation.

Contracts written with multiple translations for our modern global market often include clauses specifying which linguistic iteration of the contract will be considered the legally "binding" version.<sup>58</sup> Nevertheless, without comprehensive, accurate, and culturally nuanced translations available for all parties' reference, such contracts may be held void by courts that do not find that a contract was properly formed between the parties. Established common-law contract doctrine states that a "meeting of the minds," or mutual agreement on the terms and meaning of a contract, must occur between the contract's parties before it can be considered validly formed.<sup>59</sup> Therefore, if one party is unable to accurately understand what the other party believes it is owed through the terms of the contract, then a court may consider the contract nonexistent.

The proposed model does not only create an opportunity for parties to weigh in on the comprehensibility and correctness of given translations of a contract: the proposed "comic contract" model may negate many concerns over translation discrepancies, which may ultimately lessen the risk that a court might seize on an inaccurate translation of a term or phrase and use it to void an entire provision or contract.

Should written contracts remain the preferred mode of contracting, however, a database of digitized contracts would at least permit some popular consensus to be developed around translations. By comparing the language used by parallel contracts in translated form, experts could track and weigh in on the accuracy of certain translated terms. The envisioned contracting app could allow workers to tailor their own contracts around a set of core protections, by adding additional terms from a set of extra provisions. Experts could help translate such core and optional contract provisions with the necessary nuance before adding the translations into the app as option terms, and they could track the usage and interpretations of such terms to ensure that the translations do not need modification.<sup>60</sup>

58 Michelle J. Rozovics, "Drafting Multiple-Language Contracts," *GPSolo Magazine* (April 3, 2019), [https://www.americanbar.org/groups/gpsolo/publications/gp\\_solo/2011/april\\_may/drafting\\_multiple-languagecontractswhenyouonlyspeakenglish](https://www.americanbar.org/groups/gpsolo/publications/gp_solo/2011/april_may/drafting_multiple-languagecontractswhenyouonlyspeakenglish).

59 See Restatement (Second) of Contracts § 17 & cmt. c (Am. Law Inst. 1981) (describing the common-law standards as broadly understood in U.S. law); *id.* § 20 ("There is no manifestation of mutual assent to an exchange if the parties attach materially different meanings to their manifestations . . ."). This standard has been challenged in the United States recent years, however. See, e.g., *Lucy v. Zehmer*, 84 S.E.2d 516 (Va. 1954) (finding that a contract written on a napkin that sold 471.6 acres of land for USD 50,000 was valid, even though one party later claimed to have been joking, because the other party had a "reasonable belief" that the first party was serious).

60 Some legitimate concerns may exist that the app software translators would be put at risk of suit, given the established principle that contractual ambiguities must be construed against the drafter (here, the translator). Such concerns would be alleviated by the cartoon contract model's minimized reliance on written words, and any in-depth analysis of potential app translator liability should only be taken into account if future iterations of this project decide to revert back to a word-based contract model.

In an ideal world, the FLOAT app would be the mechanism through which all parties engaged in the fishing industry would contract for the provision of fishing labor. If this model were realized, then the app could be tailored so that all contracts between vessel owners and recruiting agents automatically and irreversibly would contain an express third-party beneficiary clause that would allow fishing workers—the third-party beneficiaries of the vessel owner–recruiting agent contract for provision of labor—to sue to enforce the contract.<sup>61</sup> This would counter current concerns surrounding the lack of privity between fishing workers and vessel owners, creating a direct contractual mechanism through which the workers could sue the vessel owners for labor abuses. Significant challenges exist in the fact that vessel owners and recruiting agents may resist using the FLOAT app in the first place, as it will inhibit their ability to engage in illegal recruiting practices. However, if ISSF and other industry leaders leverage their buying power to affect widespread adoption of the app, such mandatory contractual clauses would create enough contractual liability to incentivize vessel owners to ensure that payments are made as agreed and that boat captains are treating workers fairly.<sup>62</sup>

### 2.2.2. Digitized Payments and Multiparty Contracts

A digitized payment system could potentially be realized through a “smart contract” system that would transfer money directly from the sending agents to their recruited workers. Smart contracts are lauded precisely because they are automatic and self-executing and do not require any central authority or middleman to facilitate the transaction.<sup>63</sup> Once uploaded to the digitized system, such contracts’ terms are usually immutable; modification essentially requires “killing” the old contract and replacing it with a new one. A multilateral smart-contracts system could essentially anticipate all of the required transactions between multiple parties using an algorithm, highlight where failed or missing transactions in the chain occurred, and assign liability to parties accordingly.<sup>64</sup> This automation and immutability obviously would be of great benefit to a workforce like the fishing workers, who would no longer need to fear having their wages arbitrarily withheld or shortchanged, nor that the terms of their contracts would be altered after their signing.

### 2.3. Beyond Privity: The Practical Applicability of Contract Law to the Fishing Industry

A final consideration is that, while contracts form the basis of this inquiry, contract law may be ill suited to addressing the specific problems faced by these fishing workers. Contract law is, after all, contingent on the valid formation of a contract, and if no contract currently exists in paper or in digital form (which may be the case for up to half of current fishing workers)<sup>65</sup> or no valid

61 Alexis Hailpern and Danielle Waltz, “Avoid Lack of Privity: Express Third-Party Beneficiary Clauses,” *Modern Contractor Solutions* (February 2020): 42-3, <https://mcsmag.com/avoid-lack-of-privity>.

62 Even if no similar third-party beneficiary clause exists in the contracts between the vessel owners and the boat captains, the vessel owners could still be found legally liable for the misbehavior of the boat captains under the tort doctrine of respondeat superior, or employers’ vicarious liability for the wrongdoing of their employees in the course of their employment.

63 Jeffrey D. Neuburger, et al., “Smart Contracts: Best Practices,” *Practical Law* (2019), <https://www.blockchainandthelaw.com/files/2019/11/Smart-Contracts-Best-Practices-w-022-2968.pdf>.

64 Lai Xu, “A Multi-Party Contract Model,” *ACM SIGecom Exchanges* 5, no. 1 (2004), accessed November 8, 2020, [https://www.sigecom.org/exchanges/volume\\_5/5.1-Xu.pdf](https://www.sigecom.org/exchanges/volume_5/5.1-Xu.pdf).

65 *Supra*, note 18.



contract was ever formed because of a lack of true understanding on the part of one party, then enforcement of the contract will be impossible. Finding that contracts are void, however, is not actually a very desirable solution for many workers, who are still in dire enough financial straits that they would prefer to keep their jobs and receive their wages owed, rather than have their contracts canceled outright.<sup>66</sup> And, because workers are not in direct privity with the boat owners or boat captains who are most likely to abuse them, they have little control over whether the complex webs of contracts governing their working ecosystem create any contractual obligations for their rights to be upheld in the first place.

A true solution to the problem of unenforced or nonexistent fishing workers' contracts likely lies not in the realm of contract law, but in other fields of law.<sup>67</sup> Remedies that will ensure fair payment for workers likely lie not in requesting that courts uphold the terms of their contracts, but rather in domestic and international labor law frameworks (civil or administrative law) or in anti-trafficking human rights law (civil or criminal law). Contracts have an important expressive and educational value for workers who may feel empowered by their existence,<sup>68</sup> and standardized language and express third-party beneficiary clauses could go a long way toward creating contracts ideally suited for justifying workers' rights. But in the unmonitored world of the outlaw ocean, the enforcement of fishing workers' rights will rely on an overlap of the most effective forms of law available.

### 3. Enforceability of the New Model

As noted in the preceding paragraphs, enforcement of fishing workers' contracts will rely on a network of legal interventions and frameworks that stretches far beyond mere contractual remedies. Such enforcement will require some combination of domestic, regional, and international cooperation to ensure that fishing workers may seek redress for any breaches of contract or human abuses suffered.

#### 3.1. Current Jurisdictional Concerns

One of the most pressing obstacles to a strong regime for combating labor abuses in the fishing industry is the lack of clear jurisdiction over fishing boats in open waters. The following section gives a general overview on the issue of jurisdiction (see Box 3).

A true solution to the problem of unenforced or non-existent fishing workers' contracts likely lies not in the realm of contract law, but in other fields of law.



66 Jessica Sparks, personal communication, October 23, 2020.

67 George Triantis, personal communication, October 16, 2020.

68 Supra, note 18.

### Box 3. Primer on Legal Jurisdiction

*Jurisdiction exists in two general types: subject-matter jurisdiction and personal jurisdiction.*

**Subject-matter jurisdiction** dictates what types of cases a given court or tribunal can hear. For example, a tax court can hear only tax-related cases and cannot hear a criminal case; meanwhile, the International Criminal Court only hears cases concerning international crimes (such as torture, crimes against humanity, and genocide) and could not hear a domestic tort case or even a domestic criminal case (such as murder or assault). It therefore matters whether instances of forced labor are brought before any given court as private breach-of-contract cases, as trafficking suits—either criminal (prosecuted by the state under criminal codes) or civil (initiated by the wronged fishing workers themselves)—or as labor disputes (adjudicated under local or international labor laws).

**Personal jurisdiction**, by contrast, dictates whether a given party can be brought before a given court. Typically, unless both parties have explicitly consented to have their cases heard by a given court, the court can hear cases only when both parties have strong enough connections to the legally defined region in which the court sits. Courts almost always can hear cases surrounding disputes that arose within their jurisdiction; for example, if a labor dispute arises in a workplace located in San Francisco, then the state or federal courts located in and around San Francisco will almost always be allowed to hear a related lawsuit. For corporations, such connections may be determined based on where corporate headquarters are located, where the corporation does most of its business, or where the corporation has been formally incorporated.

*International criminal law breaks personal jurisdiction into a few more categories:*

**Territorial jurisdiction** aligns with the previous principle discussed. A state or district can prosecute almost all crimes committed within its geographic or legally defined territory.

**Nationality jurisdiction** is concerned with the citizenship of the parties involved in a dispute. *Active* nationality jurisdiction allows states to prosecute their own citizens when they commit illegal acts, even if the acts occurred outside of the state's territorial boundaries; *passive* nationality jurisdiction allows states to prosecute crimes committed against their citizens, even if the acts occurred outside of the state's territorial boundaries.

**Protective (“effects”) jurisdiction** allows a state to prosecute actors whose crimes have a disproportionate impact on the well-being of the state, even if the actor is acting outside of the state's territorial boundaries. For example, the United States could prosecute financial crimes committed by Canadians located across the border in Canada if the financial crimes disproportionately impacted the United States.

**Universal jurisdiction** applies to a subset of crimes that the international community has decided are so terrible that virtually any state should have the right to prosecute them, even if the prosecuting state has no connection to the crime whatsoever. These crimes, called *erga omnes* (Latin for “against everyone”), include genocide, crimes against humanity, war crimes, torture, piracy—and, relevantly, slavery and human trafficking.<sup>69</sup>

69 United Nations General Assembly, *The Scope and Application of the Principle of Universal Jurisdiction: Report of the Secretary-General* (A/72/112, 72nd Session, Item 86, 2017), 10–11.

Jurisdiction is particularly difficult to pin down in the fishing industry, when so many factors are at play. The default within the fishing industry is that of flag-state jurisdiction, meaning that the crew of a ship is subject to the laws and courts of the state whose flag the ship flies.<sup>70</sup> This default is weakened, however, by the use of “flags of convenience”—a ship may register to fly the flag of a state other than the one from which its owner hails, even if no one associated with the ship has any other connection to the state whose flag is flown.<sup>71</sup>

Additional factors for analysis include the fishing workers’ countries of origin (passive nationality jurisdiction), the boat owners’ countries of origin (active nationality jurisdiction), the countries of origin of the recruiting agents (active nationality jurisdiction), and the port states from which the fishing boats depart and land (territorial jurisdiction). It seems unlikely that, at least within the current world of commercial fishing, illegal labor practices or trafficking would create any impact on the well-being of purchasing states that would grant them protective jurisdiction over related disputes. And compounding all of these difficulties is the fact that jurisdiction is even less clear over actions taken on the open seas, where territorial jurisdiction does not even exist.

This lack of clear jurisdiction makes it all too easy for savvy legal players—namely, vessel owners—to game the system. Already, vessel owners flout jurisdiction by using flags of convenience and shell companies to obfuscate ownership, blur jurisdictional lines, and ultimately evade accountability for wrongdoing.<sup>72</sup> And an all-too-real danger exists that, if haled into court by a worker seeking redress, vessel owners will seek to evade accountability yet again by having the case dismissed on jurisdictional grounds. The following section aims to address some of these concerns.

### 3.2. Jurisdiction Clauses in FLOAT Contracts

The number of multinational players party to any one worker’s recruitment into the fishing industry may make it difficult for any one court to claim jurisdiction over a dispute arising from a FLOAT contract. For this reason, it seems logical to include a *jurisdiction clause* in any FLOAT contract created between a worker and a recruiting agent at the initial stage of the process. While this would give a specified court authority over a case—and prevent it from being easily dismissed from that court—the disparity in legal knowledge between repeat players such as recruiting agents and vessel owners, and one-time players such as recruited workers, could allow

70 See “Jurisdiction Over Vessels,” NOAA Office of General Counsel, last modified September 20, 2019, [https://www.gc.noaa.gov/gcil\\_jurisdiction.html#:~:text=Flag%20State%20Jurisdiction&text=This%20exercise%20of%20jurisdiction%20is,outside%20of%20the%20State's%20territory](https://www.gc.noaa.gov/gcil_jurisdiction.html#:~:text=Flag%20State%20Jurisdiction&text=This%20exercise%20of%20jurisdiction%20is,outside%20of%20the%20State's%20territory) (“A State may exercise jurisdiction over a vessel that is registered with the State and flying its flag.”); United Nations Convention on the Law of the Sea (UNCLOS), Article 91(1) (“Ships have the nationality of the State whose flag they are entitled to fly.”); *id.* Article 92(1) (clarifying that flag-state jurisdiction is absolute unless waived elsewhere by UNCLOS or by a separate international treaty).

71 International organizations such as the Organisation for Economic Co-operation and Development (OECD) have been aware for years of problems with flag ship transparency and recommend that states enhance measures such as upfront disclosure of beneficial ownership, corporate vehicle registration, and restriction of port access to flags and ships whose ownership and control is known to mitigate such problems. See generally Organisation for Economic Co-operation and Development, *Maritime Security – Ownership and Control of Ships: Options to Improve Transparency* (DSTI/DOT/MTC[2003]61/REV1, December 17, 2003), [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/DOT/MTC\(2003\)61/REV1&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/DOT/MTC(2003)61/REV1&docLanguage=En).

72 *Supra*, note 19, 25–29.

the former to grossly abuse jurisdiction clauses by “forum shopping” for their own benefit.<sup>73</sup> Even if both parties had to agree to a venue before signing the contract, a recruiting agent could easily talk a less-informed worker into agreeing to adjudicate any and all disputes arising from the contract in a venue with weak domestic labor laws or few human rights protections.

The design of the FLOAT app could potentially help to stave off such concerns. Once the worker’s draft contract is connected to the broader network of contracts governing their future employment, the app could cross-reference the jurisdictions associated with the other contracts that will be connected with the worker’s, once finalized. This would include the home state of the vessel owner and the flag state associated with the boat (assuming no flags of convenience are used), as well as the worker’s home state and possibly the home state of the boat captain contracted to helm the boat in question. The worker could be required to watch a short and simple video on the current pros and cons of bringing suit in any of these jurisdiction options, to ensure a baseline of legal understanding, before being permitted to add a jurisdiction clause for a selected forum to their comic contract. Such videos could explain basic issues such as whether a worker would be paid the money owed at the end of a lawsuit for forced labor (e.g., mandatory restitution owed by traffickers to their victims, as exists under 18 U.S.C. § 1593 within US domestic law), or whether they would be allowed to work while waiting for the resolution of their court case in any given country, under that country’s immigration laws.

To avoid concerns about recruiting agents forcing workers to specify less-favorable jurisdictions, the FLOAT app should allow only *nonexclusive jurisdiction clauses* to be added to workers’ comic contracts. Exclusive jurisdiction clauses are those that demand that any and all disputes arising from a contract be adjudicated in the selected forum, and they are more likely to be abused by recruiting agents seeking to restrict workers’ access to other forums. By contrast, nonexclusive jurisdiction clauses specify a default court in which cases may be heard but do not demand that litigation be brought in that court if a different court is more appropriate. This would leave the full world of jurisdictional options listed in Section D.3.1 open to workers for dispute resolution, while providing a selected court as a safeguard that would have to hear any dispute if another venue was not selected instead. Nonexclusive jurisdiction clauses would also prevent a worker’s jurisdictional options from being too narrowly foreclosed if their recruiting agent has not assigned them to a specific crew at the time that their contract is signed. Even if their available default options are limited, they would still be able to access courts associated with their assigned vessel owner or boat captain through active nationality jurisdiction.

FLOAT might also consider including an optional *governing law clause* function that would allow the parties to specify their choice of law for any contract-related disputes. Most courts assume that the court’s domestic law should govern dispute resolution brought before them, unless a contract explicitly specifies otherwise or a party to the suit can make a compelling enough argument for another jurisdiction’s laws to be applied. It seems unlikely that many workers would

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73 It is worth noting that plaintiffs, too, can take advantage of forum shopping to have their cases heard in the most favorable venues for them. At present, the United States is a very popular venue for many trafficking suits, given the existence of strong, independent courts and a robust anti-trafficking statute that even includes a provision for mandatory restitution for victorious victims (18 U.S.C. § 1593). A number of cases were filed in 2015 and 2016 against US-based companies with dirty supply chains (such as Nestlé, Walmart, and Costco) by survivors of trafficking within the international fishing industry; most of the cases arising from incidents abroad involving purely international actors were dismissed, but one case involving the Hawaiian fishing industry, *Sorihin v. Nguyen*, No. 4:16-cv-05422 (N.D. Cal. 2018), settled in a US federal court in January 2018. Another relevant case, *Nestlé USA, Inc. v. Doe*, No. 19-416, is pending before the US Supreme Court as of November 2020; its resolution will determine the aiding-and-abetting liability under the US Alien Tort Statute of US corporations whose actions support forced-labor practices abroad, which could dramatically impact the ability of trafficking survivors to bring suit in the United States moving forward.



opt to have their case heard in one country and opt to have a different country's laws applied to the case. Nevertheless, the option might still be made available, with a default to the governing law of the selected jurisdiction.

### 3.3. Types of Legal Enforcement Mechanisms

The previous section on jurisdiction clauses discusses only adjudication through jurisdiction clauses in domestic courts. However, domestic law is only the first of three tiers of legal regimes from which fishing workers may seek legal redress for contractual, labor, and human rights abuses:

- **Domestic law:** The laws of individual states may create avenues for redress. These may be in the form of courts that can adjudicate criminal or civil cases and administrative or labor disputes, or possibly general funds from which remuneration could be paid to “make the workers whole.”<sup>74</sup> While not directly aimed at compensating trafficking survivors, domestic governments can also punish traffickers and their collaborators criminally or civilly through domestic legislation or deter illegal forced-labor practices through actions such as trade sanctions.<sup>75</sup> A distinct benefit of domestic adjudication is that the state will be able to enforce the rulings of its courts much more directly and efficiently than a regional body or an international organization would, on the basis of preexisting statutes.
- **Regional bodies:** While not ideally suited to enforce fair labor practices, the Association of Southeast Asian Nations (ASEAN) could play a role in helping to shape regional norms. ASEAN has created a Convention Against Trafficking in Persons, Especially Women and Children (ACTIP),<sup>76</sup> demonstrating some interest in protecting regional workers despite a general noninterventionist ethos and a weak enforcement system that relies on the actions of state governments. ASEAN might be particularly well suited to designing and implementing a compensation fund like the one described above. More importantly, a regional monitoring and enforcement network would be able to address fishing-industry concerns in multiple countries simultaneously and in coordination.
- **International organizations:** Many UN treaties establish “treaty bodies” that are designated to investigate and adjudicate claims brought by individuals under the aegis of the treaty in question. The UN strengthened its commitment to stamp out human trafficking with the 2000 Protocol to Prevent, Suppress and Punish Trafficking in Persons Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime, known colloquially as the Palermo Protocol after the city where it was opened for

74 Beth Van Schaack, personal communication, October 21, 2020 (comparing potential mechanisms to those used to pay plaintiffs in mass tort cases or, when legislatively created, the 9/11 Victims' Compensation Fund).

75 See, e.g., “CBP Issues Detention Order on Palm Oil Produced with Forced Labor in Malaysia,” U.S. Customs and Border Protection (September 30, 2020), <https://www.cbp.gov/newsroom/national-media-release/cbp-issues-detention-order-palm-oil-produced-forced-labor-malaysia>; Sophina Eckert, “The Business Transparency on Trafficking and Slavery Act: Fighting Forced Labor in Complex Global Supply Chains,” *Journal of International Business and Law* 12, no. 2 (2013), 383, 388, <https://scholarlycommons.law.hofstra.edu/cgi/viewcontent.cgi?article=1244&context=jibl> (describing a proposed U.S. Congress bill requiring “publicly-traded or private entities with a minimum of \$100 million in annual global receipts [to] disclose the measures they take to address forced labor, slavery, human trafficking, and the worst form of child labor within their supply chains”).

76 Association of Southeast Asian Nations, *ASEAN Convention Against Trafficking in Persons, Especially Women and Children* (opened for signature November 21, 2015), <https://www.asean.org/wp-content/uploads/2015/12/ACTIP.pdf>.

signature.<sup>77</sup> Unfortunately, the Palermo Protocol lacks any such treaty body, relying instead on domestic adoption and enforcement of its anti-trafficking provisions. As discussed further on in Section F.2.5, the existing international frameworks and treaty bodies that might be best suited to adjudicating trafficking claims and international labor disputes have overlapping mandates and associated jurisdictional concerns that make current international enforcement of labor trafficking issues all but nonexistent.

Given the comparative weakness of current regional and international enforcement mechanisms, domestic law still seems to be the most appropriate means of enforcing workers' contracts and associated labor rights. With that said, forced-labor issues in the fishing industry can be compounded by domestic law enforcement that is corrupt and permits or aids the proliferation of corruption throughout the system.<sup>78</sup> Norms driven by regional actors or by international treaties can help quash corruption and enforce a culture of good behavior, and corporate actors should press domestic governments to systemically strengthen and enforce their labor-protection and anti-trafficking statutory frameworks. But, until domestic enforcement can be fully trusted or regional/international mechanisms are fully functional, current problems with forced labor may have to be resolved using solutions outside of formal legal processes.

### 3.4. Appropriateness of Legal Remedies

Individual fishing workers fight an uphill battle in pursuing redress through formal legal means. Access to any of the above-mentioned adjudicatory bodies is a natural concern, given the remoteness of fishing boats as workplaces and the perilous status of often undocumented workers who have been brought in from abroad to work on fishing boats. Most fishing workers have little means of calling for help from their fishing boats, let alone the practical, educational, or financial means to mount a full court case against unjust boat captains or owners. Multiple experts consulted for this report opined that it might be more injurious for fishing workers to be informed of their labor rights and yet unable to exercise them than to be left in the dark about their exploited status.<sup>79</sup>

The NGO community naturally has taken some steps toward ensuring that fishing workers are made aware of their legal rights. NGOs, too, could dispense money from funds created to help provide relief to make-whole workers. In some cases and jurisdictions, NGOs might even be able to bring suit against abusive fishing boat owners and captains, under an *actio popularis* (Latin for "popular action"), a legal mechanism designed to allow members of the public to bring suit on matters of public interest, even if the plaintiffs have no standing or direct interest in the matter at hand.<sup>80</sup> Provided that workers' voices are adequately represented, any such *actio popularis* could be a highly effective mechanism that would protect the identities and personal resources of individual workers who might wish to remain in the fishing industry, while still holding human rights abusers to account.

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77 United Nations Human Rights, Office of the High Commissioner, Protocol to Prevent, Suppress and Punish Trafficking in Persons Especially Women and Children, Supplementing the United Nations Convention Against Transnational Organized Crime (opened for signature November 15, 2000), <https://www.ohchr.org/en/professionalinterest/pages/protocoltraffickinginpersons.aspx>.

78 See, e.g., C4ADS, *Strings Attached*, 40, 44-45 (detailing the Chinese government's connection to a company engaged in illegal fishing practices).

79 Supra, note 18; Supra, note 66.

80 Supra, note 74.

A more elementary question is whether fishing workers really desire “justice” through legal mechanisms in the first place. While some workers would undoubtedly find expressive value in the support of their rights by a court, most just want to be paid what they are owed so that they can continue to support the communities to which they are sending home money.<sup>81</sup> Many wish to remain within the fishing industry, albeit with fairer standards for payment and labor protections, and filing suit could put many workers in danger of being blacklisted by fishing boats.<sup>82</sup> Despite its expressive value, prosecution of human rights violations is often a lengthy and highly unsatisfactory process for fishing workers acting as witnesses, who must remain in the prosecuting country throughout the duration of the trial with little financial support and often no means of finding work, due to domestic labor laws. Given the importance within many workers’ home communities of workers being able to send money to family, this can lead to the witnesses’ ostracization upon finally returning home post-trial.<sup>83,84</sup> And, after a trial ends, many workers are repatriated to capital cities, without any lost wages repaid and without any means of navigating back home to the smaller villages from which they initially came.<sup>85</sup>

Creating systems of accountability and redress is undoubtedly important to the overall project of deterring human trafficking and enforcing norms of fair labor practices.<sup>86</sup> But actors seeking to create change within the fishing industry should consider carefully the practical impact of international justice on fishing workers who in many cases have few employment options besides their current situations and who might prefer to be abused than unemployed. An ideal solution ultimately would incentivize fair treatment and wages for workers in a manner that does not destabilize the workers’ participation in the fishing industry as a whole. If implemented as envisioned, the FLOAT app could create norms and expectations to facilitate the structural transition needed for a fishing industry free of forced labor.

## E. Considerations for the Development of the New Model

There are several challenges anticipated with the acceptance, scalability, payments system, and other aspects for the development of the FLOAT platform.

### 1. Buy-In

The first set of considerations is associated with initial acceptance and willingness of stakeholders to engage with this new technology. For the FLOAT platform to be effective, usage and trust of this app must start with the worker-recruiter relationship and make its way through the supply chain to the top.<sup>87</sup>

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81 Supra, note 66.

82 Ibid.

83 Ibid.

84 A study of the impact of compulsory return on Chinese workers being forcibly returned from Japan, Korea, and Singapore highlighted the shame associated with being returned home; Biao Xiang, *Transnational Encapsulation, Compulsory Return and Migration Control* (Duke University Press, 2007): 8-9, accessed November 14, 2020, [https://www.researchgate.net/publication/340756245\\_Transnational\\_Encapsulation\\_Compulsory\\_Return\\_and\\_Migration\\_Control](https://www.researchgate.net/publication/340756245_Transnational_Encapsulation_Compulsory_Return_and_Migration_Control).

85 Ibid.

86 Supra, note 74.

87 Ibid.

The first vital question that must be answered is how to educate recruiters about this platform and subsequently convince them that this technology is trustworthy and beneficial. Recruiters are likely to be the hardest part of the supply chain to infiltrate because they have the least to gain from widespread adoption of this app.<sup>88</sup> Recruiters, however, are necessary to ensure widespread adoption of the app by workers; they represent the first link in the supply chain that must be digitized to ensure that this digitization cascades throughout the rest of the seafood sector.

Creating systems of accountability and redress are undoubtedly important to the overall project of deterring human trafficking and enforcing norms of fair labor practices.



Other potential problems arise with confidentiality issues and the reluctance of workers to give out any personal information. There is no way to promise that there won't be retribution for negative reviews logged into the system. For the full functionality of the app to be realized, workers will need to incur a certain level of risk, however much we try to minimize it, in signing up for and using this app.<sup>89</sup> Privacy for recruiters and workers alike is a major obstacle given the overarching question of who would actually own the app and take responsibility for control, upkeep, and general monitoring of all information stored within the platform. There is potential for an organization such as ISSF to own the app and take on the role of promoting widespread adoption of the platform. Another option would be to have the app jointly owned by high-level international bodies or by all of the coastal, port, and flag states in the world. This decentralized ownership model could involve buy-in and data sharing from IMO, ILO, and Regional Fisheries Management Organizations (RFMOs) to theoretically ensure some level of compliance and accountability. There are benefits and drawbacks of each of these ownership options; however, this ownership question is beyond the scope of this report and will not be explored further.

## 2. New Payments System

A shifted payment timeline could additionally help to ensure that buyers have greater autonomy over ensuring accountability and transparency in the industry. Instead of the current model where workers are paid either all at once at the end of their labor contract or sporadically throughout their employment, buyers could require vessels coming into port to settle up not only on their catch but also on worker payments. This would ensure that crews are paid each time fish are offloaded. Buyers could also refuse to purchase fish unless they can verify payment of workers through the platform.

Challenges arise with this payment model due to the fact that not all workers have access to bank accounts or other virtual forms of payments. Workers also often receive cash payments from

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<sup>88</sup> Supra, note 51.

<sup>89</sup> Supra, note 66.



captains on top of their regular wages when they dock at port.<sup>90</sup> Additionally, workers might not be able to actually transmit any reports of wage withholding or other abuse (such as being held out at sea beyond the temporal terms of their contract) until close enough to the shore to receive a signal, which could be months after the behavior began. Lastly, it is unclear whether digitized transfer for funds is actually the most useful form for workers to receive their wages. Especially if workers are allowed to go onshore and spend money over the course of their contract, direct cash payments might be the most useful form of transmission; others, meanwhile, might want money sent directly to their families back home, rather than stored in an inaccessible virtual account to which they might gain access only at the end of their contract. These components of the current system present a major challenge to the implementation of a fully digitized payment system and need to be explored further in future research.

### 3. Legal Considerations

The greatest obstacle to the creation and implementation of safeguards within the FLOAT app, such as those noted in Section D.3, is in the maintenance of the informational videos to continually educate and inform workers. Legal codes and standards change frequently, and it would be labor intensive and costly for FLOAT to monitor domestic codes for all relevant countries and remake the informational videos whenever domestic laws change. The entity maintaining the app should consider partnering with NGOs for the monitoring component and for creating general standards for how much a domestic law regime needs to change before a new video is created, to minimize costs and editing of replacement videos.

### 4. Other Considerations

There is also the potential for a boat that is using the contracting tool to still be engaging in IUU or other illegal practices. A possible solution to this problem would be to have IUU tracking data integrated (such as through collaboration with an IUU-focused platform like ABALOB) into the platform so that buyers can ensure that no forms of illegal activity (including labor abuses, IUU, or trafficking) are occurring on the boats with which they are doing business.

A final set of challenges to the scalability of this app is the COVID-19 pandemic and its impact on the global fisheries industry. The pandemic has led to the tightening of restrictions placed on fishing crews that are landing at ports outside of their home countries. Having already been subject to strict labor migration controls before the pandemic,<sup>91</sup> fisheries workers are now even more limited in their movements while at port due to quarantine requirements, regional lockdowns, and other restrictions on their freedom.<sup>92</sup> The pandemic could potentially lead to an uptick in mobility-related labor abuses such as debt bondage, which could further hinder complete acceptance and implementation of this platform.

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90 Emily Kelly, personal communication, October 28, 2020.

91 *Supra*, note 84.

92 "China Opens 10 Ports for Crew Changes Under Strict Protocols," *The Maritime Executive* (October 13, 2020), <https://www.maritime-executive.com/index.php/article/china-opens-10-ports-for-crew-changes-under-strict-protocols>.

## F. Implications

### 1. Impacts and Trade-Offs

The adoption of the new FLOAT model will offer the opportunity to create transparency within supply chains, to increase efficiency and responsiveness, and to improve the welfare of fishers and consumers.<sup>93</sup> However, the new model is accompanied by the cost of setting digital infrastructure, maintaining the system, and reaching an agreement among various stakeholders.

#### 1.1. Transparency of Supply Chains

The new model will create transparency and traceability throughout entire supply chains. The platform will automatically be able to check contracts and payments among fishers, recruiting agents, boat owners, captains, seafood buyers, and governments to remove any inconsistency. Under the paper-based contracting system, contracts depend only on bilateral relationships such as fishers-recruiters and sending-receiving agents. The new model will bring greater inclusion of stakeholders to enable a multilayered monitoring system with various perspectives.<sup>94</sup> It will also reduce information asymmetry between suppliers and other stakeholders.

#### 1.2. Increased Efficiency and Responsiveness

The new model will foster better information management along supply chains due to improved information accessibility, availability, and sharing.<sup>95</sup> It will reduce governments' administrative costs to search out the inflow or outflow of labor. Labor-sending countries could take a more active role in protecting their citizens working abroad by monitoring digital contracts through the app.

The app will also improve supply chain management competency by reducing behavioral uncertainty and enhancing collaboration among supply chains.<sup>96</sup> Seafood businesses could use the new model as a tool to better manage their long-term strategies related to supply chain governance. Moreover, the crew-review and red-flagging systems could enable stakeholders to respond to and address the labor abuse issues quickly.

#### 1.3. Improved Welfare of Fishers and Consumers

The new model will standardize contractual terms and conditions across workers' contracts. The automation of payment and the immutability of the contract will protect workers from withheld payment or arbitrary changes of the contract. Thus, the new model will improve welfare of workers by preventing labor abuses and increasing job security.

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93 Stefanella Stranieri, et al., "Exploring the Impact of Blockchain on the Performance of Agri-Food Supply Chains," *Food Control* 119 (2021), 2, 7, 8.

94 Ibid.

95 Ibid.

96 Ibid.

A thorough investigation of the seafood supply chain will bring enhanced customer satisfaction, especially to customers who are concerned about forced-labor issues.<sup>97</sup> The new model will provide full “net to plate” traceability and the ability to establish due diligence processes.<sup>98</sup> Moreover, if the consumer perceives the benefits of transparency in supply chains, they may require more product-related information. The new model can be used as a tool to improve product-quality protocols such as sanitization, storage, etc., which will lead to an increased level of product quality.

#### *1.4. Challenges for Implementation*

The new model requires the cost of setting up digital infrastructure. Individual workers and employers need to have digital devices to sign contracts, complete financial transactions, and access review systems. Widespread usage of the app requires that all parties have a smartphone (or reliable access to someone else’s smartphone). According to the forced labor-related NGOs’ observation, cell phones are still luxuries to some local communities in the world. Having access to Wi-Fi throughout the voyage is another issue. Additional problems might arise in parts of the world with firewalls or other restrictions on internet usage (e.g., China). Our digitized sharing platform may be blocked in certain parts of the world, creating a massive barrier to our end goal of a ubiquitous and effective global platform. There is additional cost for updating and maintaining the system. The system could be susceptible to hacking, so the risk of system outage should be considered. Moreover, using the automatic identification system poses a risk to workers’ personal information. Personal information can be stolen and used to commit fraud or other crimes.

The new model requires an agreement among various stakeholders. It could be a prolonged negotiation process that would consume considerable time and resources. Implementing digital contracts in the world of contractless labor is another challenge. It is observed that approximately half of fishing workers work without having contracts.<sup>99, 100</sup> Unexpected administrative costs could arise from the need to transplant this digital contract system into these previously uncontracted realms.

Moreover, for captains, recruiters, or boat owners who are currently profiting off of unfair treatment of workers and abusive labor practices, there is little incentive for them to adopt this highly transparent digital system in lieu of their current untraceable paper contracting and payment process. To clear this hurdle, we must consider potential motivating factors that might compel these higher-ups to engage with and trust this new system.

By creating a brand-driven, top-down requirement for full supply chain digitization and focusing on buyer-side payments, we can ensure that the app is used by all boats selling fish to larger distributors at port. This top-down approach would likely be effective at digitizing the contacting and payments between buyers and captains or buyers and boat owners. However, there is no guarantee that this approach would infiltrate all components of the supply chain beyond these upper levels. This underscores our earlier focus on worker education and our intent to infiltrate

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97 Ibid.

98 Supra, note 6, 38.

99 Koko Guillain, personal communication, October 30, 2020.

100 Supra, note 66.

the worker-recruiter relationship first to ensure widespread participation and trust in this platform.

## 2. Feasibility of the New Model

The new model will be feasible only when other barriers, such as lack of empowerment, lack of actionable remedies, and lack of community support, are addressed.

### 2.1. Empowerment of Fishing Workers and Other Accountable Actors

In general, fishing workers who have engaged only in forced labor know to expect what they have been exposed to and are less able to know what is right and wrong in a contract.<sup>101</sup> Low literacy and/or numeracy,<sup>102</sup> lack of knowledge about other available opportunities, and inability to reject unfair contracts are major barriers to making the digital contract feasible.<sup>103</sup> There are a number of initiatives for empowering fishers with rights, labor unions, and the safety of the ocean, such as the Know Your Rights (KYR) campaign in Indonesia (see Appendix D).

Thus, empowering fishing workers is a prerequisite condition for making digital contracts feasible, and this can be achieved through the mandatory training suggested in Section D.1.3. However, the information must be delivered in the right context. KYR does not guarantee a safety net, and if society does not reinforce these rights or allow workers to exercise them, this might make workers feel more vulnerable. Therefore, it is important to move toward workers knowing how to access these rights and feeling comfortable exercising them.

Also, sending agents, recruiters, buyers, vessel owners, and observers are key actors in creating accountability for fair contracting and payment. ISSF could empower various stakeholders through its guidebooks.<sup>104</sup> For example, ISSF provides a set of skippers' guidebooks that contain useful information for fishers, such as species identification and shark dehooking.<sup>105</sup> ISSF has a training guidebook for observers as well.<sup>106</sup> ISSF could combine KYR contents, ILO guidelines, and other human right resources into the guidebook to incentivize fishers and other actors to review this resource. This could be especially useful for IUU observers, who have been very effective in reporting IUU infractions for individual vessels and who could add labor abuses to their observations and reporting by referring to the information in the guidebook.

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101 Supra, note 18.

102 Southern Asia (72%) and Sub-Saharan Africa (65%) show the lowest adult literacy rate in the world; UNESCO Institute for Statistics, *Literacy Rates Continue to Rise from One Generation to the Next* (Fact Sheet 45, FS/2017/LIT/45, September 2017), [http://uis.unesco.org/sites/default/files/documents/fs45-literacy-rates-continue-rise-generation-to-next-en-2017\\_0.pdf](http://uis.unesco.org/sites/default/files/documents/fs45-literacy-rates-continue-rise-generation-to-next-en-2017_0.pdf).

103 Emily Kelly, personal communication, October 6, 2020.

104 Susan Jackson, personal communication, October 19, 2020.

105 International Seafood Sustainability Foundation, *Skippers Guidebook to Sustainable Longline Fishing Practice*, <http://www.issfguidebooks.org/downloadable-guides>.

106 International Seafood Sustainability Foundation, *Training Guide for Purse Seine Observers*, <http://www.issfguidebooks.org/downloadable-guides/observer-guide-english>.



## 2.2. Designing Accessible Remedies

Regardless of the success of legal action (discussed in Section D.3.3), the pursuit of legal remedies at least has the effect of giving a voice to victims of labor and human rights abuses. Filing a lawsuit for breach of contract can be a very difficult task for a worker to undertake; however, it is not impossible.

Alternative dispute resolution (ADR) methods such as arbitration, mediation, conciliation, or consultation, which are designed to be a more flexible, less formal, and less complex means of resolving disputes quickly and with less cost than court proceedings, could serve as an important tool in settling disputes and providing remedy to victims. Online forms of ADR may bring additional accessibility and efficiency. Moreover, legal aid from NGOs or the government could help people to access legal remedies. Lack of knowledge, concern about legal costs, or fear of pursuing legal action makes many people hesitant to seek legal help.

Nonjudicial UN instruments provide standards that take a broad understanding of effective remedies. “The Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations”<sup>107</sup> include equal access to justice; adequate, effective, and prompt reparation for harm suffered; and access to relevant information concerning the violation. “Guiding Principles on Business and Human Rights,”<sup>108</sup> which implements the UN’s “protect, respect and remedy” framework, asks for the participation of companies in developing remedy strategies, such as grievance mechanisms to protect against abuses and facilitate the remedy process.<sup>109</sup> Most of all, it is important to project perceptions of workers’ wants and needs.<sup>110</sup> Workers’ right to participation, security, adequate standards of living, health, adequate housing, education, and right to land should be considered in designing remedies.

## 2.3. Creating More Business Accountability

Business has a key role to play to make sure that illegally caught fish do not enter the supply chain. However, it is hard to win support for human rights in the business world unless we convince them with a security- or economic-based argument. It is important to quantify the costs of the negative externalities of mistreating a human being and to assert that this cost can be forced onto the companies themselves. For example, insurance companies put a “price” on human life and condition all the time.<sup>111</sup> Also, business could be rewarded with a brand reputation, which could have a financial impact over time.

107 United Nations Human Rights, Office of the High Commissioner, *Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law* (2006), <https://www.ohchr.org/en/professionalinterest/pages/remedyandrepairation.aspx>.

108 United Nations Human Rights, Office of the High Commissioner, *Guiding Principles on Business and Human Rights* (2011), [https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr\\_en.pdf](https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr_en.pdf).

109 Ashley Feasley, “Eliminating Corporate Exploitation: Examining Accountability Regimes as Means to Eradicate Forced Labor from Supply Chains,” *Journal of Human Trafficking* 2, no. 1 (2016): 21.

110 Regiane Cristina de Oliveira, “Seeking Victim’s Perspective on Remedy: The Case of Brazil Verde Farm’s Workers,” *Revista Direito GV* 14, no. 2 (2018): 354-355.

111 *Supra*, note 18.

Major seafood businesses, such as Bumble Bee, stress that building business accountability is not overnight work, and it will take a long time to penetrate schemes into supply chains. Bumble Bee is a member of the Seafood Task Force (STF), which consists of the three main US brands and the two largest tuna canners in the world. The STF has developed a set of auditing standards and a code of conduct with tuna vessels in mind.<sup>112</sup> Bumble Bee stresses that the company requires a push-pull approach from all socially responsible operators. It is also important to have peer pressure among seafood companies to follow mission-driven ethos. Sharing a set of collective objectives and cultivating a work environment where businesses are proud of what they are doing can be impactful.<sup>113</sup> There are a number of initiatives that promote business accountability, such as the Know the Chain campaign in Singapore (see Appendix D).

Consumers can also play a role in demanding net-to-plate transparency or traceability.<sup>114</sup> However, there is a theory that consumers are a very small part of the dynamic and that they do not wield the power in supply chains. According to a GlobeScan survey of seafood consumers, less than 10 percent of seafood consumers were concerned about labor conditions, while more than 30 percent cared about ocean environment and sustainability of fish stocks.<sup>115</sup> To really engage consumers, it is better to focus on increasing transparency along the supply chain and allow consumers to monitor the supply chain.

## 2.4. Political/Legal Commitment of States

Forced labor will not be eradicated under a weak government.<sup>116</sup> To eradicate forced labor from sending countries and receiving countries, it is important to enforce existing laws or update laws if there is a loophole in the existing laws to regulate sending agents, recruiters, or vessel owners and to protect citizens from forced labor.

In the meantime, initiatives were suggested in developing countries to spur due diligence for labor standards and combat labor exploitation in global supply chains. Societal coalitions have pressured states to pass domestic legislation.<sup>117</sup> For example, US lawmakers have reacted to press coverage and consumer outrage over the forced-labor issue by proposing legislation that aims to increase supply chain transparency and accountability. The Business Supply Chain Transparency on Trafficking and Slavery Act of 2015 (BSCT) has been proposed in response to “The Outlaw Ocean,” The New York Times series by journalist Ian Urbina exposing crimes on the high seas.<sup>118</sup> The BSCT bill was proposed several times, but has not been passed in Congress yet. Similarly, the UK enacted the Modern Slavery Act 2015. This is the first piece of legislation that requires annual reporting on the steps taken to address modern slavery in a company’s own operations and supply chains.

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112 Supra, note 51.

113 Reviewed and verified by Susan Jackson, Jessie Brunner, Jessica Sparks, and Mike Kraft.

114 Supra, note 6, 38.

115 Supra, note 66.

116 Supra, note 99.

117 Genevieve LeBaron, et al., “The Domestic Politics of Corporate Accountability Legislations: Struggles Over the 2015 UK Modern Slavery Act,” *Socio-Economic Review* 17, no. 3 (2019): 709.

118 Katharine Fischman, “Adrift in the Sea: The Impact of the Business Supply Chain Transparency on Trafficking and Slavery Act of 2015 on Forced Labor in the Thai Fishing Industry,” *Indiana Journal of Global Legal Studies* 24, no. 1 (Winter 2017): 234-235.

## 2.5. Developing a Global Agenda

For the success of the new model, both vertical and horizontal penetration of the supply chain must be achieved. It is important to promote the new model as a global agenda and gain universal support. Currently, ISSF develops its agendas and shares them with other tuna NGOs and RFMOs.<sup>119</sup> These are their main targets and are also the platform through which ISSF works to spread best practices. Regarding the forced-labor issues in the fishing industry, there are more international platforms and initiatives that ISSF can reach.

For example, the Food and Agriculture Organization of the United Nations (FAO) and IMO are relevant to fishing practices and rights of fishers or seafarers. The ILO and the United Nations Office on Drugs and Crime (ODC) focus on labor conditions or human trafficking in the fishing industry. The overlaps of mandates among various organizations make it unclear who has a primary role in combating forced labor in the fishing industry.<sup>120</sup> Under these circumstances, it will be important to spot the overlapping issues and reach out to more relevant and active organizations.

In the meantime, the working group of the United Nations Commission on Human Rights has proposed a zero-draft treaty on business and human rights<sup>121</sup> that articulates legal liability for human rights abuses committed by business enterprises or with their participation.<sup>122</sup> The second revised draft of the treaty was proposed in August 2020. The success of this business and human rights treaty will create momentum to spur usage of FLOAT as a tool to create business accountability in supply chains around the world.

## G. Conclusion

The global industrial fisheries sector consists of a complex web of stakeholders, jurisdictions, and regulatory regimes. The current scheme of contracting and payments for workers within this sector is particularly complicated and important due to the prevalence of forced labor, modern slavery, and financial abuses within the industry. In this memo, we propose a digitized, multilateral contracting and payment system as a way to address this global problem of forced labor within the fisheries sector. There are many barriers to the creation, implementation, and scalability of this approach. However, we feel that this is the most feasible and potentially effective solution to the immense and seemingly intractable problem of human rights abuses on the global oceans.

<sup>119</sup> Supra, note 104; ISSF homepage, <https://iss-foundation.org/>.

<sup>120</sup> Supra, note 74.

<sup>121</sup> United Nations Human Rights, Office of the High Commissioner, *Legally Binding Instrument to Regulate, in International Human Rights Law, the Activities of Transnational Corporations and Other Business Enterprises* (July 16, 2018), <https://www.ohchr.org/documents/hrbodies/hrcouncil/wgtranscorp/session3/draftlbi.pdf>

<sup>122</sup> Carlos Lopez, *The Revised Draft of a Treaty on Business and Human Rights: A Big Leap Forward* (August 15, 2019), <http://opiniojuris.org/2019/08/15/the-revised-draft-of-a-treaty-on-business-and-human-rights-a-big-leap-forward>.









Photo by Sayan Chakraborty



# APPENDICES

## Appendix A.

### Acronyms and Abbreviations

<b>ACTIP</b>	Convention Against Trafficking in Persons, Especially Women and Children
<b>ADR</b>	Alternative dispute resolution
<b>AIS</b>	Automatic Identification System
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>ASIPEs</b>	Association of Industrial Fisheries (Chile)
<b>BSCT</b>	Business Supply Chain Transparency on Trafficking and Slavery Act of 2015
<b>C188</b>	ILO Work in Fishing Convention
<b>CCSBT</b>	Commission for the Conservation of Southern Bluefin Tuna
<b>CDS</b>	Catch Documentation Scheme
<b>COS</b>	Stanford Center for Ocean Solutions
<b>COVID-19</b>	Coronavirus Disease 2019
<b>CSR</b>	Corporate social responsibility
<b>EDF</b>	Environmental Defense Fund
<b>EEZ</b>	Exclusive economic zone
<b>EJF</b>	Environmental Justice Foundation
<b>EU</b>	European Union
<b>FAD</b>	Fish aggregating device
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FIP</b>	Fisheries Improvement Projects
<b>FLOAT</b>	Fisheries Labor Open Accountability Tool
<b>FOC</b>	Flags of Convenience
<b>GDST</b>	Global Dialogue on Seafood Traceability
<b>GFI</b>	Global Fishing Index (Minderoo)
<b>GFW</b>	Global Fishing Watch
<b>GTA</b>	Global Tuna Alliance
<b>HR</b>	Human resources
<b>IATTC</b>	Inter-American Tropical Tuna Commission
<b>ICCAT</b>	International Commission for the Conservation of Atlantic Tunas
<b>ILO</b>	International Labour Organization

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<b>IMO</b>	International Maritime Organization (often used to refer to IMO number)
<b>IOTC</b>	Indian Ocean Tuna Commission
<b>ISSA</b>	International Seafood Sustainable Association
<b>ISSF</b>	International Seafood Sustainability Foundation
<b>ITF</b>	International Transport Workers' Federation
<b>ITQ</b>	Individual transferable quota
<b>IUCN</b>	International Union of Conservation of Nature
<b>IUU</b>	Illegal, unreported, and unregulated (fishing)
<b>KYR</b>	Know Your Rights (campaign)
<b>MCDP</b>	Marine Catch Purchasing Document
<b>MSC</b>	Marine Stewardship Council
<b>NGO</b>	Non-governmental organization
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>ODC</b>	United Nations Office on Drugs and Crime
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PAS</b>	Publicly Available Specification (1550)
<b>PSMA</b>	Port State Measures Agreement
<b>PVR</b>	ProActive Vessel Register
<b>QR</b>	Quick response
<b>RFID</b>	Radio-frequency identification
<b>RFMO</b>	Regional Fisheries Management Organization
<b>SAMSA</b>	South African Maritime Safety Authority
<b>SeaBOS</b>	Seafood Business for Ocean Stewardship
<b>SLS</b>	Stanford Law School
<b>STF</b>	Seafood Task Force
<b>TTD</b>	Tuna 2020 Traceability Declaration (World Economic Forum)
<b>UN</b>	United Nations
<b>UNCLOS</b>	United Nations Convention on the Law of the Sea
<b>VDS</b>	Vessel day scheme
<b>VHF</b>	Very high frequency (radio)
<b>VMS</b>	Vessel Monitoring System
<b>VOSI</b>	Vessels in Other Sustainability Initiatives (ISSF)
<b>WCPFC</b>	Western and Central Pacific Fisheries Commission
<b>WEF</b>	World Economic Forum
<b>WWF</b>	World Wildlife Fund

## Appendix B.

### Interviewees

**Austin Brush**

C4ADS, Senior Analyst

**Beth Van Schaack**

Stanford Law School,  
Leah Kaplan Visiting Professor in Human Rights and faculty affiliate with Stanford Center for Human Rights & International Justice

**Dyhia Belhabib**

Spyglass and Ecotrust Canada,  
Founder and Principle Investigator, Fisheries

**Elizabeth Selig**

Stanford Center for Ocean Solutions,  
Deputy Director

**Emily Kelly**

Stanford Center for Ocean Solutions,  
André Hoffmann Fellow

**George Triantis**

Stanford Law School,  
Charles J. Meyers Professor of Law and Business

**Guillain Koko**

African Coalition for Corporate Accountability, Project Officer

**Jessie Brunner**

Stanford Center for Human Rights & International Justice, Senior Program Manager and Director, Human Trafficking Research

**Jessica Sparks**

University of Nottingham, Rights Lab Associate Director (Ecosystems and the Environment Programme), Assistant Professor of Antislavery Ecosystems

**Kevin McClain**

Bumble Bee, Vice President of Resourcing

**Kendra Travaille**

Minderoo, Research Manager, Sustainable Fisheries

**Martin Exel**

SeaBOS, Managing Director

**Mike Kraft**

Bumble Bee, Director, Sustainability

**Oleg Martins**

MRAG, Senior Manager

**Shalini Iyengar**

Stanford Woods Institute for the Environment and Stanford Law School, Stanford Program in International Legal Studies, Fellow

**Susan Jackson**

International Seafood Sustainability Foundation (ISSF), President

**Tom Pickerell**

Global Tuna Alliance, Executive Director

**Tony Long**

Global Fishing Watch, Chief Executive Officer



## Appendix C.

### Appendices: IUU Fishing Risk Assessment Tool

**Table 1. Risk Indicators and Corresponding Risk Metrics**

Risk Indicator	Risk Metric	Data source
Species Risk	Species IUU index	Sea Around Us
Supply Chain Transparency	RFMO IUU Risk index	GFW
Regulatory Authority	RFMO ability to enforce regulations	Experts
Fishing in High-Risk Regions	Fisheries Improvement	FIP
Fishing in High-Risk Regions	Country IUU risk index	IUU Fishing Index
Regulatory Authority	The PSMA ratification	The PSMA
Vessel History and Status	EU carding status	EU
Regulatory Authority	World Governance Indicator	Minderoo Global Fishing Index
Regulatory Authority	Corruption Index	Transparency International
Regulatory Authority	RFMO compliance	ISSF
Regulatory Authority	The PSMA standing	The PSMA
Ports of Convenience	Port Risk index	Selig & Pew port risk tools
Flags of Convenience	Flags of convenience	ITF
Vessel History and Status	Average IUU fleet risk	GFW and Trygg Mat Tracking
Complexity of Vessel Ownership	Ownership complexity	Triton (C4ADS platform)
Flags of Convenience	Flags of convenience	ITF
Vessel History and Status	Participation in PVR program	ISSF
Vessel History and Status	History of IUU records and most recent status	ISSF (VOSI, PVR); Trygg Mat Tracking
Vessel History and Status	History of national violations	ISSF (VOSI, PVR)
Complexity of Vessel Ownership	Ownership complexity	Triton (C4ADS platform)
Vessel Track	Continuous track (e.g., no obscure zones)	GFW
Fishing in High-Risk Areas	Fishing in high-risk areas	COS risk assessment
Fishing in High-Risk Areas	Fishing inside MPAs	GFW
Transshipment	Transshipment record and IUU potential	GFW
Species Risk	Bycatch risk	ISSF PVR (Shark and turtle best practices)
Vessel History and Status	IUU gear risk index	ISSF PVR (LS drift net); SeaAroundUs
Supply Chain Transparency	Certification score	User Data
Supply Chain Transparency	IUU certification score	Certification

**Table 2. Risk Indicators and Relevant Data Sources (cont. on next page)**

Risk Indicator	Sources
Transshipment	Global Fishing Watch: Transshipment
	Global Fishing Watch: Fishing Effort at 100th Degree
	IUU Fishing Index
	PEW Oversea Ocean Monitor
	NOAA Fisheries (US Seafood Import Monitoring Program)
Ports of convenience	NOAA Fisheries (US Seafood Import Monitoring Program)
	Factors Influencing the Choice of a Safe Haven for Offloading Illegally Caught Fish: A Comparative Analysis of Developed and Developing Economies *
	IUU Watch
	PEW Port Activity Report
	IUU Risk Intelligence
	FishWise White Papers
	The Illegal, Unreported, and Unregulated Fishing Index
	Sea Around Us
	Catapult Satellite Applications
	PEW Oversea Ocean Monitor
Deactivating location	Global Fishing Watch: Transshipment
	ICEYE Radar Satellite
	DigitalGlobe Skylight
	Global Fishing Watch: Fishing Vessels
	Spyglass
	PEW Oversea Ocean Monitor
	Catapult Satellite Applications
	NOAA Fisheries (US Seafood Import Monitoring Program)
Complexity of ownership	C4ADS Triton Portal
	Who Fishes Far
	PEW Oversea Ocean Monitor
	Trygg Mat Tracking Combined IUU List
	VOSI
	NOAA Fisheries (US Seafood Import Monitoring Program)

Risk Indicator	Sources
Stock assessment	NOAA Fisheries (US Seafood Import Monitoring Program)
	Sea Around Us
	Spyglass
	VOSI
	NOAA Identification of IUU Fishing Activities Estimating the Worldwide Extent of Illegal Fishing High Risk Species - Petrossian List (Table 1- Risk Scores for 58 Species)
	FIP
	FIP FisheryProgress
	IUU Fishing Index
	Minderoo GFI
	ISSF stock status reports
	CCSBT, IATTC, ICCAT, IOTC, and WCPFC stock assessments
	RAM Fishery Stock Status
Flags of convenience	ITF
	NOAA Fisheries (US Seafood Import Monitoring Program)
	PEW Oversea Ocean Monitor
	PEW Port Activity Report
	IUU Risk Intelligence
	FishWise White Papers
	Global Fishing Watch: Fishing Vessels
	Spyglass
	ISSF UVI (includes IMO)
	Trygg Mat Tracking Combined IUU List
	VOSI
	IUU Fishing Index
	Party to Port State Measures Agreement
	Global Fishing Watch: Fishing Effort at 100th Degree
	Global Fishing Watch: Transshipment

Risk Indicator	Sources
Vessel history	NOAA Fisheries (US Seafood Import Monitoring Program)
	Global list of authorized tuna fishing vessels
	ISSF PVR
	FIP FisheryProgress
	FIP
	IUU Fishing Index
	Trygg Mat Tracking Combined IUU List
	VOSI
	FishWise White Papers
	Spyglass
	PEW Oversea Ocean Monitor
High-risk fishing area	NOAA Fisheries (US Seafood Import Monitoring Program)
	PEW Oversea Ocean Monitor
	Sea Around Us
	IUU Risk Intelligence
	ICEYE Radar Satellite
	Digital Globe
	Skylight
	Global Fishing Watch: Fishing Vessels
	Spyglass
	Trygg Mat Tracking Combined IUU List
	Minderoo GFI
	FIP FisheryProgress
	FIP
	IUU Fishing Index
	Estimates of illegal and unreported fish in seafood imports to the USA
	ISSF PVR
	Global Fishing Watch: Fishing Effort at 100th Degree
	Global Fishing Watch: Transshipment



Risk Indicator	Sources
Transparency in supply chain	NOAA Fisheries (US Seafood Import Monitoring Program)
	Catapult Satellite Applications
	FishWise White Papers
	GTA Transparency Toolkit
	VOSI
	ISSF PVR
	ISSF UVI (includes IMO)
	GTA company traceability reports
	DETECT-IT
Regulatory authority	NOAA Fisheries (US Seafood Import Monitoring Program)
	PEW Oversea Ocean Monitor
	FAO global record of fishing, refrigerated transport vessels, and supply vessels
	Transparency International (country corruption index)
	ISSF PVR
	Party to Port State Measures Agreement
	ISSF stock status reports
	Minderoo GFI
	FIP FisheryProgress
	IUU Fishing Index
	Who Fishes Far
	ISSF UVI (includes IMO)
	Trygg Mat Tracking Combined IUU List
	VOSI
	Global Fishing Watch: Fishing Vessels
	Spyglass
	IUU Watch
	PEW Port Activity Report
	IUU Risk Intelligence

\* N. Marteache, J. Viollaz & G.A. Petrossian. "Factors influencing the choice of a safe haven for offloading illegally caught fish: a comparative analysis of developed and developing economies." *Crime Sci* 4, 32 (2015). <https://doi.org/10.1186/s40163-015-0045-2>

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## Appendix D.

### Appendices: Labor Abuses in Seafood Supply Chains

#### *Examples of Comic Contracts in Use:*

##### Comic Contracts

- Founded by South African attorney Robert de Rooy, comic contracts are legally binding contracts that bind parties through illustrated characters. The agreement is captured in pictures and the comic is signed as the contract.<sup>1</sup>

##### Aurecon

- Australian engineering company Aurecon became the first company in Australia to use visual-based contracts. Eliminating more than 4,000 words from their previous contract, Aurecon's new contracts use plain language and illustrations to promote the understanding of legal information.<sup>2</sup>

##### Creative Contracts

- Creative Contracts is a South African firm focused on creating audio- and visual-based contracts for their clients. Partnering with designers, lawyers, legal professors, and copywriters, Creative Contracts hopes to popularize the implementation of non-text-based contracts.<sup>3</sup>

##### University of Western Australia

- A collaborative team of researchers at the University of Western Australia led by Camila Anderson have created Comic Book Contracts, which, like other comic contracts discussed above, aim to resolve future disputes and increase access to legal information by omitting as much text as possible from legal contracts and replacing words with pictures and other illustrations.<sup>4</sup>

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1 Supra, note 34.

2 "Comic Book Contracts," Legal Heritage Centre, accessed December 6, 2020, <https://legalheritage.sclqld.org.au/comic-book-contracts>.

3 Ibid.

4 "Comic Book Contracts," University of Western Australia, published October 26, 2020, accessed December 6, 2020, <https://researchimpact.uwa.edu.au/research-impact-stories/comic-book-contracts>.

## *Initiatives to Empower Fishing Workers:*

### Know Your Rights (KYR) Campaign (Indonesia)

- Indonesian governments and an Indonesian think tank, Ocean Justice Initiative, published a KYR handbook to protect Indonesian fishers working overseas.<sup>5</sup>

### ISSARA Campaign (Thailand)

- ISSARA is an NGO based in Southeast Asia and the US tackling human trafficking and forced labor through worker voice, partnership, and innovation. It launched worker voice-driven ethical labour recruitment whereby the costs of recruitment are not borne by jobseekers and workers, but instead the costs are borne by the employer.<sup>6</sup> In ethical recruitment arrangements, both employers and employment agencies share the responsibility to respect all relevant laws; ensure ethical and professional conduct toward workers and each other; uphold decent health, safety, working, and living conditions for workers; and ensure access to functioning, credible grievance mechanisms. ISSARA tries to walk the line between representing the interests of workers while also building constructive relationships with industry. It serves a collaborative mediation type of role.<sup>7</sup>

### FAO/ILO/IMO guidance on training and certification of fishing vessel personnel

- The joint working group of FAO, ILO, and IMO published the guidance with particular reference to the IMO convention.<sup>8</sup> The guidance is mainly focused on the seafarer's safety at ocean, and it may be possible to incorporate KYR contents by revision of the guidance. But there is considerable discrepancy when fishers are seafarers and when they are not.

### Free, Prior and Informed Consent (FPIC) Campaign (Africa)

- FPIC is a broad legal construct that refers to a substantive right under international-, statute-, and customary law. There is no universal definition of FPIC, but "Oxfam defines it as the principle that indigenous peoples and local communities must be adequately informed about projects in a timely manner and given the opportunity to approve (or reject) a project before operations begin."<sup>9</sup> FPIC is relevant in the case of local fisheries management because it provides the legal structure that can enable communities to make decisions about their own resources free from any obligation, duty, force, or coercion.

<sup>5</sup> Ocean Justice Initiative, <https://oceanjusticeinitiative.org>

<sup>6</sup> ISSARA Initiative, <https://www.issarainstitute.org/ethical-recruitment>.

<sup>7</sup> Beth Van Schaack, personal communication, October 21, 2020

<sup>8</sup> Food and Agriculture Organization of the United Nations, International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, <http://www.fao.org/fishery/safety-for-fishermen/51553/en>.

<sup>9</sup> Wilmien Wicomb, "Free Prior and Informed Consent in Africa: Challenges and Opportunities", (February 21, 2015), [https://www.accahuman-rights.org/images/reports/LRC/2015\\_02\\_21\\_Article\\_for\\_Heinrich\\_Boll\\_Stiftung\\_Wilmien\\_Wicomb.pdf](https://www.accahuman-rights.org/images/reports/LRC/2015_02_21_Article_for_Heinrich_Boll_Stiftung_Wilmien_Wicomb.pdf)

### *Initiatives to create more business accountability:*

KnowTheChain (partnership of Humanity United, the Business & Human Rights Resource Centre, Sustainalytics, Verité, and Thomson Reuters)

- KnowTheChain provides benchmarks and resources for businesses and investors on forced-labor abuses within their supply chain. KnowTheChain's benchmark methodology comprises seven themes: commitment and governance, traceability and risk assessment, purchasing practices, recruitment, worker voice, monitoring, and remedy. The benchmark report shows the ranking scores of how hundreds of companies have performed over time.<sup>10</sup>

### Industry Charter of Commitment to Stop Illegal Fishing (Africa)

- An African NGO, Stop Illegal Fishing has developed an industry charter in consultation with the industry to limit the trade of illegally caught fish in the supply chain. The charter has provisions such as "(8) we commit to transparency regarding sourcing practices" and "(10) we will communicate any infringements to relevant authorities."<sup>11</sup>

### FishCoin Project (Singapore)

- FishCoin is a blockchain-based data ecosystem for the global seafood industry. The system incentivizes supply chain stakeholders to share data from the point of harvest to the point of consumption. Utilizing blockchain technology, FishCoin gives fishermen tokens for topping up their mobile phone data plans in exchange for collecting and submitting information on their catch.<sup>12</sup>

### SourceTrace Project (US)

- A private company, ST develops tools to help manage and sell crops and trace products back to the farms where they were made. ST aims to enable farmers to access the best markets wherever globally available, help them optimize their inputs, make procurement processes more reliable, and minimize the risk.<sup>13</sup>

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<sup>10</sup> KnowTheChain Initiative, <https://knowthechain.org>.

<sup>11</sup> Stop Illegal Fishing Initiative, <https://stopillegalfishing.com/initiatives/industry-charter>.

<sup>12</sup> Fishcoin Project, <https://fishcoin.co>.

<sup>13</sup> Zach Winn, "Digitizing Supply Chains to Lift Farmers Out of Poverty," Slice of MIT (September 20, 2020), <https://alum.mit.edu/slice/digitizing-supply-chains-lift-farmers-out-poverty>.



"The ocean is outlaw not because it is inherently good or bad but because it is a void, like silence is to sound or boredom is to activity. While we have for centuries embraced and touted the life that springs from these waters, we have tended to ignore its role as a refuge of depravity."

**"But the outlaw ocean is real, as it has been for centuries, and until we reckon with that fact, we can forget about ever taming or protecting this frontier."**

Ian Urbina, *The Outlaw Ocean*













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