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The case for industry transparency in supporting sustainable tuna fisheries

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A B S T R A C T

Among the tuna fishing industry, both processing and harvesting sectors, there are leaders that are making strides to be more transparent about actions they are taking to meet their public sustainability commitments. This article describes, as an example, the transparency initiatives of tuna processing companies that participate in the International Seafood Sustainability Foundation (ISSF) and how their implementation of these public tuna sustainability and best-practices commitments are verified, as well as provides some examples of vessel-level transparency efforts. The presented examples demonstrate that a high degree of transparency and accountability is possible for industry and provide instructive cases of environmental performance gains and management and monitoring successes for tuna specifically. From these examples, three key elements are identified as essential to supporting credible transparency initiatives: (1) clear and well-defined public commitments; (2) regular progress reporting against those commitments; and (3) audits to verify progress. This article argues these three elements should be the minimum expectations of industry to ensure transparency and accountability of public commitments to sustainability.

1. Introduction

Within the global tuna fishing industry, in both the processing and harvesting sectors, there are industry leaders making efforts to be more transparent in implementing their publicly declared sustainability commitments. This article examines one example of this practice, namely the approach taken by the International Seafood Sustainability Foundation (ISSF), assessing how transparency and verification support the achievement of global sustainable tuna fisheries by combatting illegal, unreported and unregulated (IUU) fishing activities and protecting wider marine ecosystems.

ISSF[1] was established in 2009 to address concerns about the future of tuna fisheries shared by scientists, leaders in industry, and an environmental NGO. ISSF's mission is to undertake and facilitate science-based initiatives for the long-term conservation and sustainable use of global tuna stocks, reducing bycatch and promoting tuna ecosystem health. ISSF, its participating companies and network of partners and stakeholders, work to improve the sustainability of global tuna stocks by developing and implementing verifiable, science-based practices, commitments and international management measures so that global tuna fisheries can meet the Marine Stewardship Council (MSC) certification standard without conditions[2]

To achieve its objectives, ISSF cooperates with and supports regional fisheries management organizations (RFMOs), advocates for the adoption and implementation of science-based conservation management measures by RFMOs so that tuna stocks and their ecosystem are managed comprehensively and sustainably, and employs and promotes sound tuna fisheries and ecosystem science. In particular, ISSF is engaged in focused work in the areas of tuna conservation, bycatch reduction, combatting illegal fishing and global fishing capacity management.

In terms of governance and overall approach, ISSF receives input and advice from its Scientific Advisory and Environmental Stakeholder Committees, and Implementation Team. The ISSF Board of Directors provides strategic direction. Fig. 1 provides a schematic of ISSF's organizational structure[3].

This governance structure facilitates the adoption of conservation measures to promote the long-term sustainability of global tuna stocks, which are implemented by participating tuna processing companies. Tuna processors, traders and/or marketers may participate in ISSF as members of the International Seafood Sustainability Association (ISSA).[4] Membership in the ISSA is voluntary and is contingent upon compliance with the Foundation's conservation measures and standards of practice. Any tuna processor, marketer or trader that commits to

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[1] https://iss-foundation.org/who-we-are/.

[2] ISSF will seek to achieve conformance with the Marine Steward Council's Performance Indicators (MSC PIs) at an 80 score level, which is sufficient for certification of a fishery without conditions.

[3] https://iss-foundation.org/who-we-are/about/.

[4] ISSA is a trade association whose members are tuna processors, traders and marketers that agree to follow the conservation measures implemented by the International Seafood Sustainability Foundation (ISSF). https://iss-association.org.

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comply with science-based conservation measures that are adopted by the ISSF Board of Directors, commits to an independent compliance audit process and to abide by the anti-trust compliance policy, and successfully completes an initial audit of its traceability system, may become an ISSF participating company.[5] All participating companies work with ISSF to advocate for strengthened management of tuna stocks globally, fund scientific research, and undertake individual actions to encourage the adoption of best practices by governments, vessels and RFMOs.

This paper is structured as follows. Section 2 introduces the ISSF conservation measures and key terms and concepts. Section 3 examines how ISSF participating company implementation of public ISSF commitments is verified. It also explores the importance of vessel-level transparency efforts, and examples of available methods to publicly demonstrate and report on vessel-driven sustainability initiatives. Rounding out Section 3 is a discussion of examples of other initiatives of ISSF participating companies that seek to provide transparency in their supply chains. In Section 4 there is an assessment of the ISSF model in providing credible industry transparency to achieve sustainable tuna fisheries. It also identifies key elements essential to such kinds of credible transparency initiatives, and highlights areas for improving or strengthening transparency initiatives by other market actors. Section 5 offers some concluding observations.

2. ISSF conservation measures and transparency

2.1. ISSF as an example of transparency in and verification of industry sustainability commitments

ISSF uses a wide variety of tools to support the long-term sustainability of global tuna stocks. These include scientific research and analysis, advocacy and outreach, policy development, dissemination of best practices, capacity building programs, convening workshops and promoting collaboration among diverse stakeholders. A central tool employed by ISSF is the adoption of conservation measures. The ISSF conservation measures cover seven major categories of public commitments: (1) RFMO Support, (2) Traceability and Data Collection, (3) Bycatch Mitigation, (4) Monitoring, Control and Surveillance, (5) Illegal, Unreported and Unregulated Fishing (IUU), (6) Fishing Capacity, and (7) the ProActive Register [1]. The implementation of ISSF conservation measures is independently verified annually by auditors that are not part of the Foundation. This subject is covered in Section 3.

One of the first conservation measures adopted by ISSF in 2009 relates to product traceability to the vessel and trip level. ISSF Conservation Measure 2.1 [2] calls on ISSF participating companies to demonstrate they have a traceability procedure that can trace tuna products from capture to plate. Each company's procedure must record the name, flag, unique vessel identifier of catch and transshipping vessels, fish species, ocean area of capture, fishing trip dates, fishing gear used, the date the company took ownership of the fish and each species

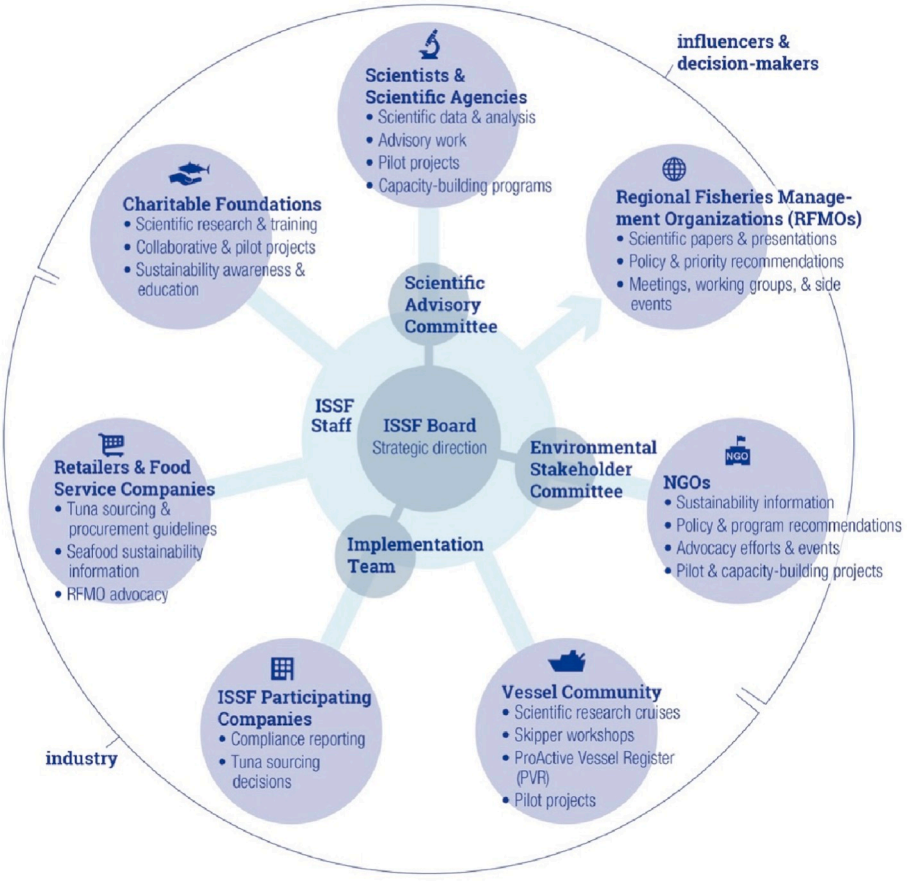

Fig. 1. ISSF organizational structure.

by commercial size category. This Conservation Measure provides the foundation for the implementation and verification of the full suite of ISSF conservation measures, including those for purchases from vessels

[5] For more information see: https://iss-association.org.

implementing specific best practices.

In 2017, ISSF adopted (and has subsequently amended) Conservation Measure 2.4 on Supply Chain Transparency, Audit, Reporting and Purchase Requirements [3] that calls on ISSF participating companies to publicly report (by January 31, 2020 and annually thereafter) the percentage of tuna sourced from the Supplier Source (e.g., peer ISSF participating companies) and Fishery Source (e.g., Marine Stewardship Council (MSC)-certified fisheries eligible to use the MSC label) categories identified in the Measure. The purpose of this Conservation Measure is to support ISSF participating companies in sourcing sustainable tuna from processors and vessels and achieving greater supply-chain transparency.

The ISSF conservation measures are complementary to but, legally separate from, formal measures adopted by RFMOs, which are binding on States that are parties to the treaties that establish these international organizations. RFMO measures typically only apply within the RFMO geographical area of competence, and many apply for a set period of time after which they must be renewed or reviewed. By contrast, ISSF conservation measures are adopted by the ISSF Board of Directors, implemented by participating companies rather than governments, they apply globally, and often exceed RFMO measures in their scope. For example, ISSF has conservation measures for topics that are not required by RFMOs at all (e.g., skippers training), for which RFMOs are less stringent (e.g., 100% large-scale purse seine observer coverage and longline bycatch mitigation) or were adopted in advance of similar RFMO measures being widely adopted (e.g., IMO numbers and non-entangling fish aggregating device (FAD)[6] designs). These examples are discussed in more detail in Section 4.

2.2. What is meant by "transparency" for industry actors?

Seafood supply chains are global, complex and highly dynamic. Vessels operate over expansive distances and remain on the fishing grounds for weeks or months at a time, and their catches are landed in ports around the world or transshipped at sea and then transported to one or more processing plants that are often located far from the ultimate country where the product is sold. Moreover, complex corporate relationships and regulatory environments result in a diversity of catch, shipment and packing arrangements, including diverse brands and labels across multiple countries and regions. As a result, information — such as where fish are caught and how, the species, by what type of vessel etc. — can be difficult to find, track and verify. In this context transparency emerges as a key tool for demonstrating the performance of the fishing industry against sustainability indicators.

Transparency is a term that has been increasingly used by various stakeholders in the fishing industry to highlight the opaqueness of supply chains, and to seek to address this problem. It is also usually partnered with *traceability*, which refers to the capacity to track seafood products from the final buyer through the supply chain to the source vessel or farm (including harvest or trip date) as well as all of the various forms the product takes from harvest to end product [4].

Transparency and traceability are therefore key terms that are used by non-governmental organizations (NGOs), industry, retailers, marketers, vessel owners, governments and inter-governmental bodies. These terms serve to describe the need and demand for greater visibility and accountability of how the industry (e.g., the processing sector, vessels, retailers) is ensuring fisheries products are sustainable and legal, and for information to be made available to relevant authorities and the public, including vessel locations, vessel activities at sea, fishing authorizations, access agreements, where fishing it taking place, the source of the fisheries product, and other data [5–8].

Transparency and traceability are clearly linked, because the ability to trace fisheries products allows for verification of sustainability claims, maintaining food safety, demonstrating legality, and guarding against mislabeling, among other things. While all data captured to ensure traceability need not be "transparent" per se (e.g., made public), such schemes should be independently audited, those data verified, and relevant key data elements shared and made available to regulators, importers and others. By doing so, there is greater transparency and oversight in the global supply chain. However, having a traceability scheme alone does not automatically mean that industry is meeting its environmental commitments or its products are legal or sustainable. Rather, effective traceability schemes are one of the tools[7] to verify if a company is capable of/is meeting their stated sustainability commitments or complying with applicable regulations, which is an essential element of transparency.

2.3. Giving effect to transparency

Many operators in the global fishing industry are responding actively to this demand for greater transparency in a variety of ways. For example, in tuna fisheries, processors, traders and/or marketers that participate in ISSF[8] have committed to the Foundation's public conservation measures. Other companies have made other public commitments and partnerships with NGOs that set specific sustainability goals for their supply chains, such as taking measures to combat IUU fishing and overfishing, advocating for better fisheries management, supporting fisheries improvement projects, and sourcing from fisheries using specific methods [9–13].

Industry actors are also becoming more engaged in public advocacy or corporate leadership efforts, such as signing onto joint letters to RFMOs urging accelerated progress on key fisheries and marine ecosystem sustainability priorities [14,15], committing to global declarations and/or joining private-sector-led coalitions or dialogues (e.g., the World Economic Forum Tuna 2020 Traceability Declaration [5], Seafood Business for Ocean Stewardship Initiative of the Keystone Dialogues [16]) that include pledges to contribute to the achievement of the United Nations Sustainable Development Goals (SDGs) related to sustainable oceans and marine resources, combatting IUU and overfishing, and full traceability and transparency in supply chains. Participants in these coalitions and dialogues, or as signatories to global declarations, have made commitments to implement specific actions and partnerships. Still others, such as retailers, are voluntarily disclosing where they source their seafood, including species and location, catch or production method, whether the fishery is certified, and the stock's status or rating [17].

These public expressions of commitment to fisheries sustainability demonstrate that many industry actors — from those that harvest to those that process to those that sell fisheries products — see a growing need and role for their voice in making change happen to ensure a sustainable supply of seafood for the future. Fisheries sustainability is no longer the sole responsibility of governments, international bodies like RFMOs and conservation NGOs; the industry is an important partner, influencer and change agent. In fact, there is a heightened sense of industry urgency about improving seafood sustainability and protection of the marine environment and an understanding that business interests have a role and responsibility to support, strengthen and expedite

[6] FADs are human-made floating objects designed to encourage fish aggregation around and under the device. They can be anchored to the ocean floor ("anchored FADs") or deployed to drift in the open ocean ("drifting FADs"). FADs are widely used by global purse seine fleets targeting tropical tuna fisheries, but also by other gears such as pole and line vessels.

[7] Monitoring, control and surveillance systems (such as VMS, observer programs, catch documentation schemes, transshipment regulations, port State measures) are needed to support such schemes to ensure regulation of catches, effective documentation, reporting, compliance monitoring, etc.

[8] https://iss-foundation.org/who-we-are/participating-companies-committees/participating-companies/.

action.

Furthermore, publicly declaring the kinds of change that industry expects for fisheries sustainability, and/or agreeing to implement specific measures or meet detailed targets for their supply chain, serves as an incentive to participate in these types of initiatives, or meet the stated commitments.

2.4. Verification as part of transparency

The methods of giving effect to transparency described in Section 2.3 are important because they are public demonstrations of support that are visible, quotable and, in our global and interconnected online society, durable and lasting. However, without some degree of verification or follow-up of these "paper" commitment or declarations, they may be perceived as greenwashing, which has been defined as "the selective disclosure of positive information without full disclosure of negative information so as to create an overly positive corporate image" [18].

If a company/industry actor is only transparent in the commitments it asserts it will make or support to promote sustainability, the company runs the risk of being "merely symbolic" in its corporate environmentalism [19]. A company/industry actor must also be transparent in how it is implementing these commitments, and the progress being made in meeting the stated goals or targets. Further, there should be some measure of actual environmental improvements [18]. The sustainability commitments should have a positive impact over time, and these impacts should be publicly reported. Otherwise, there is little actual utility in the commitments being made, or in spending resources on implementing those commitments, convening dialogues, establishing business coalitions, or drafting declarations.

Verification is therefore an essential component of meaningful transparency in the fisheries industry. Supply chain actors, whether processors, harvesters or retailers, buyers, or foodservice providers, should have in place mechanisms to verify their sustainability claims; report on their progress towards their stated commitments; undergo audits — preferably by an external independent auditor — of these public sustainability commitments; and publish the results and plans to address any gaps.

3. Verification of ISSF conservation measures

ISSF participating companies are audited annually by an independent auditor that is not part of the Foundation in order to ensure conformance with ISSF conservation measures. These annual audits, and the associated remediation process to address non-conformances, provide a transparent way for civil society and the market to assess the degree to which participating companies are implementing ISSF conservation measures [20].

In addition to the annual individual company compliance reports, which are also updated to show the progress ISSF participating companies have made in addressing non-conformances, the audit protocols (which include definitions of terms, frequency and means of verification) used by the independent auditor are all public [22]. ISSF participating companies must also adhere to the ISSA Compliance Policy. The publicly available Compliance Policy [21] outlines the disciplinary process and responses for failures of companies to cooperate with the audits, respond to requests for documentation, provide access to the auditors, or if untrue statements or material facts are submitted, among other things. The Policy also prescribes a schedule of actions for non-conformances, failure to remediate such non-conformances and repeated instances of non-conformances, including more frequent audits, referral to the Compliance Committee, and termination.

3.1. Additional industry-level transparency initiatives

Demonstrating traceability is an essential component of verifying sustainability commitments (and meeting other regulatory requirements, such as health and safety). For instance, some ISSF participating tuna processers have developed online tools for the public which show geographic catch location, biological stock status, details on the specific harvesting vessel, type of catch method, and the processing facility of the tuna in the products they purchase in the market [22–24]. These kinds of consumer-facing initiatives provide valuable information to assist buyers and consumers learn more about the tuna products they are purchasing. It is a way for industry to demonstrate publicly their ability to trace products back to the vessel and trip, and their knowledge of where the tuna they process is coming from, how it is being managed, and its biological status.

3.2. Examples of vessel-based transparency initiatives

The need for greater transparency regarding operations, activities and sustainability efforts is not limited to corporations. Tools have been created by NGOs, such as Global Fishing Watch [25] and Whofishesfar [26], and inter-governmental bodies, like the United Nations Food and Agriculture Organization's (FAO) Global Record of Fishing Vessels [27], to track and share information on global fishing fleets. The purpose of these lists and databases is to provide transparency and enhance traceability by making information (e.g., vessel name, authorization, fishing activity and tracks, flag State, IMO number etc.) on the thousands of commercial fishing vessels and carrier vessels available to the public, fisheries managers and enforcement authorities. NGOs such as FishWise have published recommendations for seafood businesses to promote vessel transparency that includes companies requesting vessels in their supply chain to register on public lists, such as the FAO Global Record and ISSF ProActive Vessel Register (PVR) [28], and to use these in guiding their purchasing decisions.

The ISSF PVR [29] is more than a public vessel list in that it also tracks an individual vessel's efforts to implement best practices for tuna sustainability. The PVR is a tool that enables tuna vessel owners to identify themselves as active participants in meaningful sustainability efforts by implementing specific best practices for tuna fisheries, such as for reducing bycatch, combatting IUU fishing, and strengthening monitoring, control and surveillance. Similar to the ISSF participating company compliance audit process, all vessels that register on the ISSF PVR are audited to determine if they are in conformance with the best practices tracked by the PVR. Vessels have a green check or a red 'x' in each applicable column for each gear type, which indicates if the vessel has been verified as implementing best practice. Registration on the PVR not only provides transparency of vessel attributes (name, flag State, RFMO area of authorization, IMO number), but also clarifies whether the vessel is on an RFMO IUU vessel list,[9] has an anti-shark-finning policy, has a policy for using non-entangling FADs, has 100% observer coverage (for large scale purse seine vessels), has a skipper that is trained in bycatch mitigation best practices, and so on. Users of the PVR can also view the history of compliance for each vessel. These individualized pages provide vessel-level transparency of the verification of each best practice element tracked by the PVR [30].

There are other examples of vessel-based transparency initiatives where fishing fleets become certified against independent standards or codes of best practice that include verification, such as the Responsible Fishing Vessel Standard that was originally developed for United Kingdom fisheries to provide independent certification of decent working conditions for crew, but which has now been expanded in scope

[9] RFMOs have adopted measures to establish a list or lists of vessels (i.e., fishing and carrier vessels) that are presumed to have engaged in IUU fishing or other activities that undermine the conservation and management measures of the RFMO. Such lists are called IUU Vessel Lists. Parties to the RFMO are prohibited from engaging in transactions, allowing port-entry (except under certain circumstances), transshipping, and other specified activities with vessels that have been listed on an RFMO's IUU Vessel List.

and application [31]. Certain Spanish-flagged purse seine fleets, which operate in the Atlantic, Indian and Pacific Oceans, have been certified under the Atún de Pesca Responsable (APR) [32], which includes handling and release of bycatch species, 100% observer coverage, use of non-entangling FAD designs and FAD management, as well as standards for labor practices, sanitary conditions and safety at sea. These fleets are certified against the standard by Spain's Organization of Normalization and Certification (AENOR), and the companies and fleets are audited by AENOR accredited auditors at differing intervals. These audit reports are also made public.

4. Assessing the significance of the ISSF model for fishing industry transparency

4.1. The impact of the ISSF model of industry-level transparency

If they are to be meaningful, sustainability commitments of industry should have a positive environmental impact over time, and these impacts should be publicly available. Measuring whether and how industry-level commitments do in fact result in more sustainable fisheries is challenging for three key reasons. First, there can be an absence of clarity in the commitments being made and how/if they are being met (e.g., a lack of transparency and verification – the focus of this article). Second the pace of reform in the management of global fisheries is slow. It takes time to adopt and implement management measures (particularly on an international scale for shared or highly migratory fisheries resources), and it can take years before the impact of the measures is seen in the marine environment and/or fishery. Third, there are, of course, industry players that are not making sustainability commitments or implementing specific best practices in their supply chains. The activities of these non-participant actors would arguably have an undermining effect on the achievement of sustainable tuna fisheries, although the degree of this impact may be difficult to quantify it would be an interesting area of research. Therefore, such measurement of actual impact of sustainability commitments over time by industry participants – in this case ISSF participating companies – is outside the scope of this paper.

Despite these limitations, the ISSF model does provide instructive examples of environmental performance gains and management and monitoring successes for tuna specifically. First, to provide some context, the processors that are ISSF participating companies (and therefore implementing the ISSF conservation measures) and the large-scale purse seine vessels that are registered on the PVR represent, respectively, the majority of the world's tuna processing capacity and more than 75% of the world's purse seine vessels that fish for tropical tunas (in number of vessels). These actors are working to implement science-based best practices, often in advance of RFMO adoption. Two examples are provided below.

4.1.1. Observer coverage

In 2011, ISSF adopted Conservation Measure 4.3(a) [33] on conducting transactions with only those large-scale purse seine vessels that have 100% observer coverage on every fishing trip and observing every fishing operation. Observer coverage is critical to effective fisheries management, compliance monitoring, and independent verification of catch, effort and species interactions (e.g., sharks, sea turtles, sharks and cetaceans). At that time,[10] only two of the four tuna RFMOs (the Western and Central Pacific Fisheries Commission, the Inter-American Tropical Tuna Commission (IATTC)) required 100% observer coverage on purse seine vessels. However, the IATTC did not (and still does not) require observers for all vessel size classes. Subsequently, in 2014, ISSF adopted Conservation Measure 7.3 [34] which calls on ISSF participating companies, if purchasing skipjack, yellowfin and bigeye tuna from large-scale purse seine vessels, to ensure that those vessels are on the ISSF PVR. The large-scale purse seine vessels targeting tropical tuna that are on the ISSF PVR currently represent approximately 75% of the global fleet in number. In terms of fishing gears harvesting the global catch of tunas, 66% of the global catch of tuna is made by purse-seining [35]. Thus, the impact of these inter-linked ISSF conservation measures was to, in effect, expand the observer requirements to all of the global purse seine fleet fishing for tunas, thereby exceeding the 50% of the world's oceans where such coverage was currently mandated by tuna RFMOs. At the time of writing, 100% observer coverage for purse seine vessels is now been required in three quarters of the tropical tuna RFMOs. Furthermore, the ISSF PVR transparently shows if a large-scale purse seine vessel has demonstrated and audited 100% observer coverage, regardless if this level of coverage is required by the relevant tuna RFMO or not. For example, at the time of writing, there were forty-nine purse seine vessels registered on the PVR to which the 100% observer coverage requirement under ISSF CM. 4.3(a) applies, and that were authorized to be fishing in the Indian Ocean Tuna Commission (IOTC) Convention Area. The IOTC mandates only a 5% observer coverage requirement. Of those forty-nine purse seine vessels, only one did not have verified 100% observer coverage via the ISSF independent auditing process.

4.1.2. IMO numbers

The IHS-Maritime administered International Maritime Organization [36] numbering system (IMO number) provides a mechanism and record for the unique identification and registration of vessels, which increases traceability and transparency of vessels at a global level. IMO numbers help to improve maritime safety and security and to reduce illegal activities. The IMO number remains linked to the hull of a vessel for its lifetime, regardless of any changes in name, flag, or owner.

In 2011, ISSF adopted Conservation Measure 4.1 [37] on refraining from transactions in tuna caught by vessels that are subject to listing in the RFMO authorized vessel record and capable of being registered by IMO, but which have not yet registered for and received an IMO number. In the same year, ISSF adopted Conservation Measure 4.2 [38] on transactions with purse seine vessels that do not have an IMO number or another specific type of unique vessel identifier. At that time, no tuna RFMO required vessels listed on their authorized vessel records to have IMO numbers, and only approximately 12% of large-scale purse seine vessels had a publicly available IMO number. By 2015, 90% of the large-scale purse seine vessels had an IMO number, and all four tropical tuna RFMOs (ICCAT, IOTC, IATTC and WCPFC) were requiring them as a condition of registry.

In both of these examples, the adoption of these ISSF Conservation Measures, and their implementation by ISSF participating companies through their supply chains, played an important role in accelerating the uptake of best practices and catalyzing action at the RFMO level. Market influence in the supply chain and advocacy and outreach to national RFMO delegations and vessel owners provided both direct and indirect pressures on RFMOs to take action. The resulting adoption by RFMOs of requirements for IMO numbers and 100% observer coverage for large-scale purse seine vessels (now required in three of the four tuna RFMOs) is the ultimate goal because RFMO measures apply to all member nations and must be legally enforced by those flag States. These examples indicate that industry's role in accelerating adoption of effective measures by vessels and ultimately RFMOs is a critical part of achieving real gains for sustainability, at least for internationally managed tuna stocks.

4.2. Key elements for credible sustainability initiatives

The examples provided in this article of transparent and verifiable tuna sustainability commitments by ISSF participating companies, vessels registered on the ISSF PVR, and some tuna fleets provide insights

[10] In 2019, the International Commission for Atlantic Tunas agreed to required 100% observer coverage for purse seine vessels in 2020.

into the essential elements for credible initiatives that could affect positive change.

Three elements for credible sustainability initiatives were gleaned from analyzing these examples. These are: (1) clear and well-defined public commitments; (2) regular progress reporting against those commitments; and (3) audits to verify progress. The value in these components is that the clearer the commitment, the more measurable it is. Further, transparency in both the types of commitments and the degree to which they are being implemented (via progress reports and auditing), generates expectations by civil society and the market, allows for the monitoring of change and impacts, and incentivizes industry participation and efforts to accelerate government, vessel or RFMO action in line with these public commitments.

These elements should be an expected benchmark for industry to increase the transparency and measurability of their sustainability commitments – thereby promoting an assessment of their effectiveness and impacts over time - and also to level the playing field.

4.3. Areas for improving or strengthening industry-level transparency

The examples of transparency initiatives and commitments of tuna processors and vessel owners presented in Section 3 demonstrate that a high degree of transparency and accountability is possible for the fishing industry. Other actors in the supply chain that currently do not make public commitments, undergo audits and/or publish the results and their efforts to improve based on those results should be encouraged to do so by their NGO partners, their customers and civil society. These should be the minimum expectations of industry at all levels of the seafood supply chain to ensure transparency and accountability of one's public commitments to sustainability.

One example of an area were improvements in transparency would be valuable is the retail sector that sells fresh and frozen and/or canned or shelf-stable tuna products directly to consumers. Some retailers are setting broad public sustainability goals and commitments (e.g., for tuna, a specified percentage from "responsible sources" or "certified against acceptable standards" or "in improvement"), and crafting guidelines for seafood that identify how they will prioritize their sourcing to meet those goals. In addition, fifty-two retailers and food service providers globally have incorporated ISSF Conservation Measures and/or the ISSF PVR in their public or internal tuna procurement guidelines [39–42]. These fifty-two companies represent eight of the top ten, and nearly 50% of the top fifty retailers worldwide.

Some retailers are using diverse ways to communicate these goals and commitments, as well as their progress in meeting them. These often take the form of annual corporate sustainability reports with specific sections on their seafood category commitments that focus broadly on progress towards meeting their sustainability goals. However, some retailers are engaging in more detailed public self-reporting and self-assessments, as well as types of external auditing, to verify their progress [43–46]. More retailers and food service operators should be encouraged to take steps to develop and publish tuna-specific sustainability goals, undertake periodic assessments, and then be transparent about their progress in meeting those goals.

Additionally, there is diversity in the methodology, criteria and definitions for what is deemed "sustainable" or "responsible" or "in improvement" regarding the environmental-sourcing-commitment claims of retailers. Transparency regarding such claims would be strengthened if there was clarity regarding what criteria a retailer is using and how key concepts, such as "sustainable" or "responsible", are defined, and how these definitions guide their procurement of fisheries resources.

"Sustainable" and "responsible" are used widely, and often interchangeably. Fisheries that are managed based on the best available science to maintain or restore such stocks at levels capable of producing maximum sustainable yield, or some other target reference point, can be characterized as achieving long-term sustainability. Responsible fisheries, on the other hand, can mean those that minimize bycatch, pollution or harm to the marine ecosystem, report data, are monitored, and/or have policies against forced or child labor. For instance, there could be a "responsible" fishery that is harvesting an overfished stock because catches are in compliance with science-based management measures, and the vessels are well monitored, reporting data, or using bycatch mitigation techniques. Similarly, there could be a fishery fishing on a healthy ("sustainable") stock that actually is not operating responsibly because vessels are not reporting data, not being monitored, and not addressing habitat or ecosystem impacts. Because these terms are used broadly in the market, by NGOs, and in public commitments, transparency and traceability are fundamental to navigating these issues.

The Sustainable Seafood Coalition (SSC) has developed a Voluntary Code of Conduct for Environmental Claims [47] that sets out minimum criteria that must be met by its members [47] to make public sustainability and responsible environmental claims (such as on in-store and online messaging, own-brand product labelling, etc.). The SSC Code of Conduct also includes risk assessments and audits (either certification to a third-party sustainability standard or independent third-party audits) as criteria that need to be met. Those that are members of the SSC have committed to the Code of Conduct and, as a result, publish clearly defined sourcing policies [47] with details on the traceability of its supply and its use of independent third-party standards.

For the retailer segment of the supply chain, transparency and accountability regarding their sustainability commitments, and their actual impact on fisheries improvement could be improved if retailers committed to: (1) minimum criteria for defining the terms in their sustainability/responsible sourcing claims (such as using the SSC Voluntary Code of Conduct) and (2) strengthened transparency in reporting on their progress in meeting their seafood sustainability commitments, including verification.

Even if moving toward full external third-party auditing of progress vs. their commitments is not possible for some, companies should strive to increase the clarity in their reporting regarding how they define their criteria and those data being used to make the self-assessments of their claims of progress.

5. Conclusion

Using the examples of the ISSF tuna conservation measures, vessels registered on the ISSF PVR and the initiatives of certain retailers and global tuna fleets, this article has shown that segments of the tuna supply chain have begun to take seriously their role in achieving sustainable global tuna fisheries, and see transparency and accountability as an important part of this role. These examples show that robust public commitments paired with verification and accountability are possible, and that such commitments can accelerate the uptake of best practices and action at the vessel and RFMO levels. An examination of these examples resulted in the identification of three key elements essential to supporting credible transparency initiatives: (1) clear and well-defined public commitments; (2) regular progress reporting against those commitments; and (3) audits to verify progress.

However, actually measuring effective change and definitely linking it back to the adoption of measures or published sustainability commitments by companies or vessels remains a challenge. In addition to the reasons outlined in Section 4.1, there are numerous actors (e.g., NGOs, consumers) and pressures (e.g., politics and economic conditions) acting on tuna RFMOs and governments that will influence decision-making. While there is a research gap regarding longitudinal studies of the impact of industry sustainability commitments, and if there is or is not a link to eventual change, it can be argued that if all industry sustainability commitments contained the three elements described above there would a solid baseline from which to assess and measure actual effectiveness over time.

Leadership by industry to meet or exceed these three elements

should be recognized and encouraged by NGOs and civil society. This article has offered some observations on specific areas for improving or strengthening industry-level transparency in certain supply chain segments. NGOs and civil society should also call upon those industry actors throughout seafood supply chains – from vessel to market - that are not yet being fully transparent regarding their commitments or the criteria they use to define such commitments or taking steps to verify the implementation of these commitments, to begin to do so urgently.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.marpol.2020.104087.

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