



Transparency in fisheries conservation and management measures

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ABSTRACT

The adoption of effective fisheries conservation and management measures ('CMM') represents a critical stage in the process of sustainably managing global fishing stocks. It represents the point at which scientific data is integrated with law and policy considerations to generate concrete rules designed to constrain the behaviour of fishers and other stakeholders in order to promote desired conservation goals within a fishery. This paper will examine the fisheries CMM process within the broader framework of international law and policy for marine resource governance. It will consider transparency aspects at key stages of the CMM process including the gathering and sharing of data upon which measures are based, the tabling and negotiation of new measures in RFMO meetings, through to the monitoring and enforcement of CMM to ensure their implementation. At each stage, the paper will seek to explore the potential for transparency initiatives to improve the effectiveness of fisheries CMM in promoting desired conservation and management goals within a fishery.

1. Introduction

The adoption of effective fisheries conservation and management measures (CMMs) by regional fisheries management organisations (RFMOs) represents a critical stage in the process of sustainably managing global fish stocks. It represents the point at which scientific data is integrated with law and policy considerations to generate concrete rules designed to constrain the behaviour of fishers and other stakeholders in order to promote desired management and conservation goals within a fishery [1]. Mora et al. state that "the conversion of scientific advice into policy, through a participatory and transparent process, is at the core of achieving fisheries sustainability, regardless of other attributes of the fisheries." [2].

Transparency can play a role in key aspects of the CMM process, from the gathering and sharing of data upon which CMMs are based, the process of negotiating new CMMs, through to the monitoring and enforcement activities that ensure implementation of, and compliance with, CMM. Transparency in this context refers to the openness and accessibility of information and decision-making procedures, both within the RFMO and in relation to non-members, and the degree to which public participation is supported. The aim of this paper is to explore the potential value of transparency measures at each stage in the development of effective fisheries CMM by an RFMO; to consider the type, quality and availability of information that is necessary for decision-makers to adopt effective CMM; to consider the impact of transparency on the process by which CMM are proposed, discussed and adopted; and the potential impact of transparency initiatives at the

monitoring and enforcement stage. After discussing the international policy framework surrounding transparency principles, this paper will examine various stages in the process of developing and implementing fisheries CMMs from a transparency perspective. It will then offer some conclusions on the role of transparency in the process of adopting effective fisheries CMMs by RFMOs.

1.1. Background and context

Access to transboundary natural resources such as fisheries resources entails international responsibility and an obligation to pursue internationally agreed sustainability targets [3]. Consideration of transparency principles for decisions about resource use at the international level. It clarifies the basis for pursuing greater transparency in fisheries governance, and the potential limits or pitfalls that should be guarded against to make sure that, in seeking greater transparency, we are not creating further problems.

The overarching international policy framework for natural resource management is provided by the United Nations Sustainable Development Goals (SDGs), an ambitious plan to end poverty, protect the planet and advance peace and prosperity for all [4]. Three of the SDGs in particular are important for setting fisheries CMMs. SDG 14, "Life Below Water", calls for the harvesting of marine resources to be effectively regulated and an increase in the economic benefits from sustainable use of marine resources to accrue to less developed countries and small island developing States. SDG 16 "Peace, Justice and Strong Institutions",

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amongst other things, requires the development of “effective, accountable and transparent institutions at all levels”. SDG 17, “Partnership for the Goals”, targets enhanced policy coherence (17.14), the sharing of knowledge and other resources (17.16), and the increased availability of “high quality, timely and reliable data” (17.18) in support of sustainable development.

Alongside these broad sustainable development goals exists the international legal framework for fisheries management, set down largely in the 1982 United Nations Convention on the Law of the Sea (LOSC) [5] and the 1995 United Nations Fish Stocks Agreement (UNFSA) [6] under which primary responsibility for establishing international fisheries CMMs rests with RFMOs. As recently as December 2019 the United Nations General Assembly has urged RFMOs “to improve transparency and to ensure that their decision-making processes are fair and transparent and facilitate the adoption of conservation and management measures in a timely and effective manner” [7]. Certain aspects of RFMO decision-making procedures are targeted by the General Assembly’s comments, which specifically identified “provisions for effective voting and objection procedures”, reliance on “best scientific information available”, the incorporation of precautionary and ecosystem approaches, and provisions addressing participatory rights as requiring particular attention [8]. On a separate but related matter, the General Assembly also highlighted “the importance of ensuring transparency of reporting of fishing activities within regional fisheries management organisations and arrangements in order to facilitate efforts to combat illegal, unreported and unregulated fishing ...” [9].

Transparency is referenced both directly and indirectly in the underlying framework of international fisheries law. Under Article 61 of the LOSC, coastal States must ensure that the living resources of their exclusive economic zone (EEZ) are not over-exploited, through proper CMM based on the best scientific evidence available to them. While transparency is not explicitly identified as a requirement for a CMM to be “proper”, the importance of adequate information for decision-making is recognized in Article 61(5) which requires the regular sharing and exchange of relevant data including scientific information, catch and effort statistics. Transparency is a key characteristic of any such process.

The LOSC also requires coastal States and high seas fishing States to cooperate in developing CMM that apply to straddling fish stocks and highly migratory species [10]. Implementation of this obligation to cooperate is facilitated by the UNFSA under which the cooperative gathering and sharing of data is promoted and transparency principles thereby implicitly endorsed.

For example, UNFSA requires that cooperating States “adopt measures to ensure long-term sustainability of ... stocks and promote the objective of their optimum utilization”; based on the “best scientific evidence available”, and to “collect and share, in a timely manner, complete and accurate data concerning fishing activities ... as well as information from national and international research programmes” [11]. Furthermore, States are to apply a precautionary approach in relation to the conservation, management and exploitation of stocks and in so doing are to improve their decision-making by obtaining and sharing the best available scientific information [12].

UNFSA goes further than this however and, under Article 12, imposes clear requirements with regard to transparency in RFMO decision-making. This obliges States to ensure transparency in the activities and deliberations of RFMOs and includes making provision for representatives from other relevant organisations to effectively participate in RFMO processes, as observers or otherwise. International fisheries law therefore includes important transparency obligations that apply both to information sharing and disclosure, and to openness in decision-making, in relation to the development of fisheries CMM.

1.2. Why is transparency important in CMM decision-making?

In civil society there is a general acknowledgment that transparency

is ‘good’: “The importance ascribed to transparency is reflected in its near universal appearance in codes of conduct and best practices that have emerged since the 1990s” [13]. There are several dimensions to the perceived value that transparency adds to the decision-making process. First there is a general understanding that transparency facilitates access to more information and an assumption that this will lead to better quality decisions (and better conservation outcomes) [14]. In this regard, Principle 10 of the Rio Declaration on Environment and Development states that “Environmental issues are best handled with the participation of all concerned citizens, at the relevant level ... States shall facilitate and encourage public awareness by making information widely available.” [15].

Second, it is assumed that a more transparent process will improve equity by mitigating power imbalances and enabling a more equitable distribution of conservation benefits and burdens, not just for now but into the future as well [16]. Equity is a key component of sustainable development, Principle 3 of the Rio Declaration stating that “the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations”, and Principle 6 giving priority to “the special situation and needs of developing countries.” [17] In the development of fisheries CMMs, UNFSA explicitly requires that “States shall take into account the special requirements of developing States, in particular ... the need to ensure that such measures do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States” [18].

Third, more equitable CMM are likely to be more effectively implemented. Greater transparency is likely to engender greater trust in CMM negotiations and outcomes and greater support for their implementation. As Costanza et al. note, “Full stakeholder awareness and participation contributes to credible, accepted rules that identify and assign the corresponding responsibilities appropriately.” [19] And fourth, transparency can be important for maintaining the ongoing legitimacy of RFMO management and the approval of their activities by stakeholders and the broader community.

This fourth dimension invokes the concept of a Social License to Operate (SLO) and is increasingly relevant in relation to RFMOs and to the management of industrial fishing operations more generally. Voyer and van Leeuwen [20] point out that third parties are increasingly able to direct critical attention to areas of concern, including the social and environmental impacts of industrial activities, using social media and the internet to access information and mobilise political action.

While Voyer and van Leeuwen are primarily concerned with fishing operations in the national and sub-national context, notable examples exist of third parties exerting pressure on international management organisations and RFMOs in response to dissatisfaction with their performance. One example of this can be seen in the Southern Ocean fisheries for Patagonian toothfish in the late 1990s and early 2000s. The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) was struggling to address high levels of illegal, unreported and unregulated (IUU) fishing that were threatening the long term sustainability of these fisheries. In response, a group of industry and environmental non-governmental organisations (NGOs) collaborated to establish the International Southern Oceans Longline Fisheries Information Clearing House (ISOFISH) [21]. ISOFISH successfully exposed many of the actors involved in the IUU fisheries and drew attention to the threat posed by IUU fishing in the Southern Ocean, thereby creating significant pressure on CCAMLR parties to take further action [22].

During this period, further pressure was brought to bear by the international environmental NGO, Greenpeace. In 1999 and 2000 Greenpeace launched two expeditions to the Southern Ocean by its vessel MV Arctic Sunrise, resulting in the high profile pursuit of a suspected IUU vessel that ended in Mauritius where the vessel was prevented from landing [23]. Information collected from these expeditions was submitted to CCAMLR and other international organisations.

Informed by these various exposes, the Australian Government and others advocated strongly in CCAMLR for the adoption of measures to

combat IUU fishing, including the introduction of a Catch Documentation Scheme to eliminate market access for IUU catches. In 1999, Australia warned CCAMLR members that failure to respond effectively to the threat of IUU fishing would damage CCAMLR's reputation [24]. The Catch Documentation Scheme was subsequently adopted by CCAMLR and implemented in 2001 [25].

External pressure on CCAMLR to further strengthen its measures against IUU fishing was maintained through an additional NGO and industry campaign to list Toothfish under appendix II of the Convention on the International Trade in Endangered Species [26]. The Australian government supported the campaign and tabled a proposal to CCAMLR in 2002 [27]. While the proposal was ultimately unsuccessful, it further exposed CCAMLR decision-making to international scrutiny and maintained pressure for CCAMLR to act decisively. Similar narratives exist for other international fisheries, including the management of Atlantic Bluefin tuna by the International Commission for the Conservation of Atlantic Tunas (ICCAT) [28]; these cases illustrate the importance of maintaining stakeholder approval for RFMO operations and the role of transparency in maintaining the legitimacy of fisheries management processes.

1.3. Recognising the limitations of transparency

Transparency cannot be viewed in isolation, however, and must be considered within the context of the whole CMM process. It is important that transparency obligations be implemented thoughtfully to ensure that the CMM process is actually enhanced [29]. Increased transparency, with implications for privacy and for control of information, could actually work to reduce the quality and fairness of CMM decisions. While greater transparency is generally assumed to empower the less powerful, transparency requirements can sometimes exacerbate power imbalances, thereby furthering rather than reducing inequality [30]. Careful consideration of the context of each negotiation, the parties and the purpose of particular deliberations, will be required in order to determine the impact of transparency on equity outcomes.

For example in the context of Pacific Ocean tuna fisheries, the only way that small island developing States (SIDS) can effectively negotiate with large economies such as the US or China is by forming a coalition. Seto and Hanich discuss the impact of various negotiating tactics upon deliberations of the annual meetings of the Western and Central Pacific Fisheries Commission (WCPFC) [31]. Collective negotiating strategies have been used successfully in the past by Pacific SIDS, requiring some level of confidentiality in negotiations in order for coalition parties to develop their collective strategy. In these circumstances, reduced levels of transparency can improve equity outcomes for developing States by counteracting existing power imbalances.

Confidentiality at the plenary level in the same forum can however have significant adverse equity impacts. For example, Seto and Hanich discuss one occasion where the US pushed for negotiations to proceed as a closed discussion involving only Heads of Delegations (HODs). In this scenario, capacity constraints place the SIDS at a considerable disadvantage [32]. If negotiations are closed to all but the HODs, then delegations are unable to make use of the expert knowledge of advisers upon whom they commonly rely. Accountability is further challenged by the potential for a powerful State to indicate support for a particular position across the floor of the plenary, but then argue a contrary position within the confines of a confidential HOD negotiation. This type of tactic can be particularly difficult for the developing State HOD, operating with limited resources, to effectively counter. These scenarios illustrate how confidentiality in preparing for RFMO discussions can enable developing States to form negotiating coalitions that help to reduce power disparities. However, confidentiality in the RFMO plenary can reduce accountability and reinforce power disparities by limiting the participation of relevant stakeholders and experts who can support developing State delegations to best represent their own interests.

The assumption that strengthening transparency requirements

around resource-use decision-making will automatically lead to improved environmental outcomes must also be carefully examined. The impact of greater transparency upon environmental decision-making will depend upon relevant users having "access to and literacy regarding this information", and upon the decision-maker being "responsive and vulnerable to accusations of poor sustainability performance" [33]. For example, decision-makers typically require timely, synthesised information that is readily digestible by non-specialists. Provision by researchers of more information, particularly information that is more extensive and detailed than necessary, will be unlikely to improve decision-making. Accessibility and information literacy are therefore important considerations, ensuring not only that decision-makers have the information they require, but also that it is available in a format that is useful to them [34].

There also exists the more general problem of either too much information, or of misinformation and disinformation. As noted by Mol, "[i]n a disinformation age, information is out of control through overloads, misinformation and disinformation ... Especially if we fail to have powerful, legitimate, and widely accepted institutions that can be trusted to distinguish true from false information and that can help us to prioritize valuable above less valuable information, transparency can become the victim of its own success and disempower itself." [35] Although 'disinformation' might simply be an unintended consequence of increased transparency, it could also be part of a deliberate strategy to confuse and thereby disempower civil society and other actors [36].

Therefore care must be taken in implementing transparency requirements to ensure that equity goals are met and that enhanced availability of information actually leads to better resource-management decisions. With these limitations in mind, the next section of the paper examines key stages of the process of developing and implementing fisheries CMM to consider where transparency obligations best fit and the potential impact of transparency measures, both good and bad.

2. Opportunities for greater transparency at key stages in the CMM process

2.1. Transparency in relation to the gathering and sharing of data

How much, and what, information is necessary for an RFMO to have in order to adopt effective CMMs? It is generally assumed that more information will lead to better decisions, but it is unrealistic to assume that we can make fisheries management decisions in an environment of full information. Instead, strategic choices need to be made about the type, quality and quantity of information upon which we are prepared to make a decision and be satisfied that the decision is the best one that we can make.

In terms of the type of information necessary for the adoption of new fisheries CMMs, some guidance can be gleaned from the LOSC requirements for coastal States in relation to their EEZ obligations. Article 61(3) of the LOSC requires coastal States to design measures that will maintain or restore target stocks to MSY, but also take into account relevant environmental and economic factors relating to the ecosystem and the fishery. Further, in giving effect to their duty to cooperate in order to conserve straddling and highly migratory fish stocks, the UNFSA requires States to apply an ecosystems-based and precautionary approach, take measures to eliminate excess fishing capacity and take into account the interests of artisanal and subsistence fishers [37].

From these requirements, we can identify five broad types of information that are important for fisheries management: biological, abiotic, operational, economic and social science/development information. In relation to this information there are two levels to transparency: first, whether the information exists in the first place, and second, whether (and to whom) that information is accessible.

Biological information is necessary for the ecosystem based approach to management that is implicit in the LOSC and clearly mandated in the

UNFSA. The complexity and unpredictability of interactions between environmental drivers and pressures means that it is critical to consider if sufficient information has been incorporated into the predictive model or stock assessment when making decisions based upon biological information [38]. Biological information tends to exist for commercially valuable species, however if it has been collected under privatized research for the fishing industry it may be protected as ‘commercial-in-confidence’. A lot of information exists, but it is not always generally accessible. This characteristic could have negative implications for ecosystems and species that do not have commercial value. In this context it is possible that transparency initiatives could exacerbate any information imbalance and detract from an ecosystems approach.

Abiotic factors are increasingly important for decisions concerning preemptive fisheries management strategies in light of climate change impacts such as ocean acidification and altered patterns of global currents. Abiotic information can be subdivided into seascape information, generally more important for management of benthic organisms and nearshore fishing, and water quality characteristics, which are more important for decision-making regarding high seas and migratory pelagic species. While abiotic information is generally available, it can be expensive to maintain so that data remains current.

Fisheries management decisions must take into account broader operational, economic and social factors if they are to effectively manage a fishery. Understanding the operation of a fishery – where vessels fish, how they fish, what gear they use, when and where transshipments and landings occur, supply chains and so on – is critical for maximizing the effectiveness of management decisions while at the same time minimizing the impacts on the profitability of fishing operations. For example, it is inefficient to impose a closure on an entire fishery if it is only one type of fishing gear that is problematic.

Economic information is particularly important for harvest strategies where managers seek to determine target reference points that, for instance, generate the most profitable catch per unit effort (CPUE) within the fishery’s limit reference points (usually maximum sustainable yield or MSY). The target can be hard to determine because one fisher may be profitable at a designated level while another is making a loss. Transparency is crucial in this scenario because a manager needs to know, for example, if one fisher’s ‘profitable’ CPUE is actually only profitable because of subsidies. Economic information is typically available to industry and would be critical information for managers, however is it also important for members of the public more generally? Industry is understandably reluctant to share commercially sensitive information and indeed perhaps there is no substantial benefit to having certain types of information openly available and we should instead be thinking about different levels of transparency for different types of information.

Finally, there is increasing recognition of the importance of ‘social science’ or ‘development’ type information for good decision-making in resource conservation and management. Bennett et al. [39] identify a number of social sciences relevant to the making of effective fisheries CMMs, including cultural relationships with nature and resources, human interactions with nature, politics, and psychology and law (relating to support, trust and compliance), in their review of the human dimensions in conservation. Social science and development data is increasingly available, however the disconnect between conservation science and social science makes it difficult to harness available information for effective decision-making. Social science is also generally stronger and more comprehensive in regions with greater economic means and this uneven distribution of information has social justice implications where the availability of comprehensive information is reflective of regions and resources which are already advantaged.

While the availability of these different types of information varies, a further issue is the accessibility of available information to decision-makers and to others. In this regard, digitization is a critical feature and fundamental to the challenge of improving the accessibility of information. It is still the case that significant fisheries data is only

collected in paper form, which in practice makes it unavailable to most decision-makers in a timely and practical way. Power imbalances occur when wealthier nations are able to access and refer to digitized data during RFMO meetings while debate continues on a particular CMM. Countries that are unable to access such data are likely to remain suspicious in relation to the CMM proposal and, without being able to make their own judgments regarding the costs and benefits of any proposal, are likely to vote ‘no’. Improvements to the process of gathering and sharing data upon which decisions regarding CMM are made therefore have the potential to significantly improve conservation and equity outcomes. This would include the collection of data in electronic format where possible and the investment in a digital platform that allows access to data for analysis in real time.

2.2. Transparency in relation to negotiation and decision making upon CMM

Transparency aspects of CMM negotiations center around who can participate in the negotiations and the extent to which RFMO deliberations are made public. Mora et al.’s study of the *Management Effectiveness of the World’s Marine Fisheries* [40] suggests that transparency at this stage of the RFMO management process is perhaps the most critical to the overall success of CMMs in securing sustainable fisheries and acts as a ‘bottleneck’ in relation to conservation performance. They state:

“Of all management attributes analyzed (ie scientific robustness, policymaking transparency, implementation capability, fishing capacity, subsidies, and access to foreign fishing) plus taking into account country wealth, we found that variations in policymaking transparency led to the largest difference in fisheries sustainability.” [41].

This finding reflects the key role played by fisheries CMM negotiations in translating robust science into concrete actions. The manner in which negotiations are conducted, and the extent of participation and discussion, have a significant impact on the extent to which scientific advice is adopted and acted upon, or instead overridden for political or other reasons. Mora’s study also found that transparent and legitimate participation in policymaking promotes compliance with CMM, even where enforcement capacity is weak: “If the policy making process is participatory and legitimate, it is likely that even poorly enforced systems will move towards sustainability because of voluntary compliance.” [42].

Webster’s analysis of the performance of ICCAT in relation to management of Atlantic bluefin tuna [43] highlights the critical role played by the RFMO in translating scientific advice into effective CMMs. Webster details a history of failure by the RFMO to set and enforce catch limits at levels recommended by ICCAT scientists, and notes that the Commission was finally prompted into taking action in response to moves (albeit ultimately unsuccessful) to have international trade in the species regulated under CITES [44]. In this scenario, the importance of publicly available information on key factors including the status of the stock, the scientific committee’s recommendations, the ICCAT’s recommended measures and actual catch levels, is highlighted. The availability of such information gave strength to efforts by certain governments [45] and NGOs to utilize the CITES process to improve conservation outcomes for the species.

In considering the role of transparency requirements in relation to CMM negotiations, it is important to recognize that CMMs can be negotiated in different circumstances and these will give rise to different transparency considerations. Broadly speaking, CMMs can be divided into pre-emptive measures and ‘other’ measures. Pre-emptive (or precautionary) measures include the development of harvest control strategies and reference points. This type of CMM is more conducive to a fully transparent decision-making process because ultimately their effectiveness depends only on the transparency of scientific inputs. The decision-making framework is agreed in advance in circumstances that are less likely to be politically charged. Other measures can be

negotiated in circumstances that are more fraught – situations of urgency, for example, and perhaps involving multiple stakeholders and multiple impacts. In these circumstances, a lack of transparency can result in a lack of trust amongst negotiating parties and this can block the reaching of agreement. If delegations are unable to properly analyse what is going on at the meeting, the likelihood of reaching agreement is greatly reduced.

There are a number of factors that influence the degree of transparency in fisheries CMM negotiations [46]. These include:

- Who is allowed in the negotiating room? As well as the RFMO member States, should representatives of other RFMOs, environmental NGOs, industry associations, civil society, media, or indeed any interested party be permitted to be present?
- Once in the room, what are those representatives allowed to do? Can they simply observe? Can they take notes or interact with delegations? Can they ask questions or participate in debates directly? Can they communicate with the outside world, eg through live Facebook updates or a Twitter feed?
- Will the proceedings be made public, either contemporaneously (eg through a livestream broadcast) or later (eg by recording sessions and allowing access to recordings, transcripts or reports). If access to proceedings is made public, there is anecdotal evidence to suggest that it can be both good and bad in terms of equity and conservation outcomes. While open proceedings might discourage bullying and similar abuses of power, it might also discourage bargaining and stifle debate.

2.3. Transparency in relation to monitoring and enforcement of compliance with CMM

Effective fisheries CMMs require mechanisms for monitoring their implementation and ensuring their compliance. Transparency has an important role in relation to compliance and enforcement data, not only for reasons of assessing the effectiveness of CMMs but also for maintaining the reputation and legitimacy of the RFMOs themselves. There are significant developments in relation to the use of technology in fisheries monitoring and enforcement and also in relation to the development of civil society and industry schemes designed to implement full traceability of fisheries products in order to ensure compliance with CMM.

The implementation of monitoring and compliance schemes within RFMOs has typically been a difficult and contentious process, with the need to balance transparency gains against the confidentiality requirements that have enabled members to submit the necessary monitoring and compliance data. For example, the Compliance Monitoring Scheme within the WCPFC is not transparent; there are no observers and the information is protected behind a firewall. Some of the recent debates about the operation of the WCPFC scheme highlight the need to be clear about the reasons for seeking greater transparency, as these have implications for what should be transparent and to whom. The Forum Fisheries Agency, for example, tabled a proposal to amend the compliance monitoring scheme to remove vessel-level scrutiny and replace it with “a broader [member]-level view of their overall implementation of obligations.” [47] The aim of the proposal was to streamline the compliance monitoring scheme and to better reflect the purpose of that scheme, which is to monitor member State implementation of CMMs rather than individual vessel compliance [48].

3. Conclusions

Negotiation of fisheries CMMs is a key process in ensuring effective and sustainable international fisheries because it is the point at which scientific advice is translated into concrete conservation and management actions. Fisheries management decision-making is challenging because of the dynamic context - constantly changing real world

conditions, developments in scientific understanding and fluid political context. Furthermore, fisheries management problems are “collective action problems” requiring the cooperation of many different actors to solve. The importance of having a shared understanding, between stakeholders of greatly varying size and expertise, must be recognized.

In this context, transparency is important both in relation to access to information and participation in the decision-making process. However, transparency needs to be approached strategically – who are we being transparent for, and why? Pursuant to the UNFSA, coastal and high seas fishing States, through RFMOs, are obliged to undertake precautionary and science-based decision-making in relation to the fisheries they are managing. Transparency has an important role to play in ensuring accountability and participation. However there are circumstances where confidentiality may sometimes be required in order for the RFMO to make decisions that comply with their obligations, for example, to ensure equity. Whilst transparency in CMM decision-making should be the default position, further work could be undertaken to determine when confidentiality and other limits to transparency better serve the requirements of UNFSA and sustainable management.

CRedit authorship contribution statement

Ruth A. Davis: Conceptualization, Formal analysis, Writing - original draft, Writing - review & editing. **Quentin Hanich:** Writing - original draft, Writing - review & editing.

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- [30] See Mol, *ibid*, at 157; A Gupta, Transparency in Global Environmental Governance, *Global Politics* 10 (3) (2010) 1 (special issue).
- [31] Katherine Seto, Quentin Hanich, The Western and Central Pacific Fisheries Commission and the new conservation and management measure for tropical tunas, 3 *Asia Pacific Journal of Ocean Law and Policy* 146 (2018).
- [32] Seto and Hanich, *ibid*, 149.
- [33] Mol, *above note* 29, 157.
- [34] M. Dobbins, P. Rosenbaum, N. Plews, M. Law, A. Fysh, Information transfer: what do decision-makers want and need from researchers? 2, 2007. *Implementation Science* 20 (2007).
- [35] Arthur P.J. Mol, "The lost innocence of transparency in environmental politics", chapter 2, in: Aarti Gupta, Michael Mason (Eds.), *Transparency in Global Environmental Governance: Critical Perspectives*, MIT Press, Cambridge, Massachusetts, 2014, p. 48.
- [36] See Mol, *Ibid* at 48, noting the relative success of 'right-wing coalitions of climate skeptics ... in developing such an informational strategy'.
- [37] UNFSA Article 5.
- [38] J.S. Collie, L.W. Botsford, A. Hastings, I.C. Kaplan, J.L. Largier, P.A. Livingston, E. Plagányi, K.A. Rose, B.K. Wells, F.E. Werner, *Ecosystem Models for Fisheries Management: Finding the Sweet Spot*, 2016, 17 *Fish and Fisheries* 101.
- [39] Nathan Bennett, Robin Roth, Sarah C. Klain, et al., *Conservation social science: understanding and integrating human dimensions to improve conservation*, 205 *Biological Conservation* 93 (2017).
- [40] Mora et al, *above note* 1.
- [41] *Ibid*, at 6.
- [42] *Ibid*, at p7.
- [43] Webster, *above note* 28.
- [44] Webster, *ibid*, 251.
- [45] Sweden nominated the Western Stock of Atlantic Bluefin Tuna for CITES Listing in 1991; Monaco nominated the Eastern Stock in 2009: Webster, *ibid*, 250.
- [46] The Almaty Guidelines (*above note* 3) are widely regarded as representing international best practice regarding the application of transparency principles in international forums.
- [47] Forum Fisheries Agency (FFA), Proposal on CMM 2018-07, Section IX: Future Work, Paragraph 46(I): Development of a Process for Assessing CCM Actions in Accordance with Para 7(II)(B) to Replace Para 27, WCPFC16-2019-DP03, 5 November 2019. Attachment 2.
- [48] *Ibid*, p2 and attachment 1.