

Ending inequity: Reducing disproportionate burdens in tuna fisheries

Observer Paper

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Executive summary

The costs of conservation often disproportionately burden developing countries. When it comes to the management of straddling and highly migratory fish stocks, the United Nations Fish Stocks Agreement requires states to recognize the special requirements of developing countries and to ensure that conservation and management measures for straddling stocks and highly migratory stocks, such as tuna, do not place a disproportionate burden on developing countries. Despite this requirement and developing countries' calls for action, developing countries often still carry a disproportionate conservation burden in regional fisheries management organisations (RFMOs), which manage tuna and tuna-like species. This paper aims to assess how tuna RFMOs could improve the way they address their duty to avoid placing a disproportionate burden on developing countries. We analysed the use of the term "disproportionate burden" in tuna RFMO discussions and in the conservation and management measures that they have adopted. The results show that, except for the Western and Central Pacific Fisheries Commission, tuna RFMOs have not yet done a lot of work on reducing disproportionate burdens on developing states. To address this lack of action we have provided potential policy options, which would allow these organisations to reduce disproportionate conservation and management burdens:

1. Increasing the collection of socio-economic data
2. Implementing mandatory proposal consultation
3. Implementing a conservation and management measure on disproportionate burden
4. Implementing a working group working on disproportionate burden
5. Having an equity officer that assesses new proposals to avoid disproportionate burden
6. Having an independent equity assessment provider

This paper has no status and is purely a research paper from the Australian National Centre for Ocean Resources and Security (ANCORS). We would appreciate any feedback from the IOTC members to further develop our understanding of the subject and potential improvements.

For questions or comments concerning this research, please contact Bianca Haas (bhaas@uow.edu.au).

1. Introduction

Conservation of resources and habitat often comes with a cost; however, these costs are often inequitably shared between countries. Moreover, communities in the global south are frequently required to bear a disproportionate conservation burden (Tan, 2020). These burdens often include the *“burdens of personal risks, of lost economic opportunities, and of cultural loss”* (Tan, 2020). To achieve just conservation and to avoid deepening global inequities, conservation burdens have to be shared equitably between countries (Armstrong, 2018). Although the concept of disproportionate burden is not present in the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which provides the legal framework for human activities in the ocean (UN, 1982), it is an important feature of the 1995 United Nations Fish Stocks Agreement (UNFSA). The UNFSA was established after the United Nations Conference on Environment and Development in 1992, influenced substantially by the Rio Declaration on Environment and Development, which strongly featured equity and the special situation of developing countries (UN, 1992). UNFSA Article 24 addresses the need to recognise the special requirements of developing states and paragraph 2(c) highlights the need “to ensure that [conservation and management] measures do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States” (UNFSA, 1995). Small island developing states (SIDS) and coastal developing states rely heavily on marine resources for food security and livelihoods, hence, such a requirement is an important step towards protecting their interests. The UNFSA, however, does not define, nor provide additional clarification on how to determine a disproportionate burden (Azmi et al. 2016).

Transboundary and highly migratory fisheries are managed by regional fisheries management organizations (RFMOs). Under the UNFSA, states are required to cooperate through RFMOs to conserve and sustainably use marine resources (Art. 8(1)). RFMOs can adopt legally binding measures, which might negatively impact their members in various ways, for example, by reducing fishing opportunities, or other losses of benefits (Hanich & Ota, 2013). Member states, which have fewer developing and resource options, such as SIDS and coastal developing states, are disproportionately more impacted than members with much more diverse economies (Hanich, 2014). For example, Pacific SIDS are highly dependent on revenues from tuna fisheries, making up to 80% of their total government income (Bell et al. 2021). However, while many RFMOs have a high number of SIDS and coastal developing states as members, they often fail to take deliberate steps to avoid placing a disproportionate burden on SIDS (UNGA, 2016, para 32).

The aim of this paper is to assess the work done by RFMOs regarding disproportionate burdens and to provide policy options on how such disproportionate burdens of conservation and management measures (CMMs) can be reduced. We will concentrate on the five tuna RFMOs (tRFMOs)¹ due to their high number of SIDS and coastal developing state members and the high economic value of the tuna fisheries (PEW, 2020). Adopting a qualitative multi-methods approach, including interviews with regional experts, desktop review, and policy analysis, this paper will provide unique insights. Awareness regarding disproportional conservation burdens is rising and developing states are calling for ending such burdens (UNGA, 2016), thus, this paper is a timely and important contribution towards supporting the SIDS’ and coastal developing states’ participation in RFMOs.

¹ CCSBT – Commission for the Conservation of Southern Bluefin tuna; IATTC – Inter-American Tropical Tuna Commission; ICCAT – International Commission for the Conservation of Atlantic Tunas; IOTC – Indian Ocean Tuna Commission; WCPFC – Western and Central Pacific Fisheries Commission

A special focus will be paid towards the Western and Central Pacific Fisheries Commission (WCPFC). SIDS members are well organised and cooperate under the Pacific Island Forum Fisheries Agency (FFA), resulting in a high level of engagement among members of the Commission regarding the special requirements of SIDS and disproportionate burden. Article 30 of the WCPFC Convention recognises the special requirements of developing States and paragraph 2(c) notes the need to avoid disproportion burdens (WCPFC, 2000). In 2013, the WCPFC member states adopted CMM 2013-06 on the criteria for the consideration of CMMs (WCPFC, 2013a) and CMM 2013-07 on the special requirements of small island developing states and territories (WCPFC, 2013b). These CMMs aim to provide an approach to comply with Article 30 of the Convention, and CMM 2013-06 adopted an approach for members to assess whether a new proposal might disproportionately burden SIDS and territories.

This paper is structured into 6 sections. The next section provides background information on the concept of disproportionate burden. After the methods section, we will assess the work done by tRFMOs regarding disproportionate burden. This is followed by a section that provides details about the WCPFC's CMM 2013-06 and policy options for RFMO members for reducing the disproportionate burden of CMMs. The last section is a conclusion that summarises the findings of this paper.

2. Background

As noted in the previous section, UNFSA does not define disproportionate burden, but it is generally acknowledged that it refers to the need to equitably share conservation burdens (Lavelle, 1994). In the WCPFC, the FFA members describe two different types of disproportionate burdens – an administrative burden and an outcome burden (WCPFC, 2014). An administrative burden describes issues such as costs to implement the proposed conservation and management measure (CMM) or additional administrative burden, while an outcome burden is linked to issues such as reduced catch due to the implementation of a CMM (WCPFC, 2014). These burdens vary depending on the target fish species or gear used to catch the fish (Azmi et al. 2016) and depending on the access to natural, institutional, and financial resources, countries are more or less negatively impacted when a new CMM gets implemented (Hanich, 2014).

The need for defining disproportionate burden has been mentioned during the 2016 UNFSA review conference (UNGA, 2016), however, due to the differences between members of tRFMOs, their dependency, culture, and economy, it might not be possible to provide a universal definition (Azmi et al. 2016). Azmi et al (2016), suggested using the concept of proportionality, 'formulated as the avoidance of disproportionate burden' (p.166) to assess whether a proposed CMM results in a disproportionate burden. Sinan et al. (2021a) applied the concept of 'common but differentiated responsibility' to verify disproportionate burden and developed a framework to identify such responsibility. By recognising the special requirements of developing states and by requiring countries to ensure that CMMs do not result in a disproportionate burden for developing states (UNFSA, 1995), UNFSA has 'established a common but differentiated responsibility' (Sinan et al. 2021a; p. 203). However, to apply the framework developed by Sinan et al (2021a) or to use proportionality (Azmi et al, 2016) to verify the existence of a disproportionate burden, socio-economic data are required.

The lack of socio-economic data and the capacity to collect data has been a serious issue in RFMOs (e.g., Juan-Jordá et al., 2017; Pons et al., 2018), which needs to be addressed not only to reduce the

disproportionate burden of SIDS and coastal developing states but to support more sustainable management of tuna fisheries. Despite increasing efforts by tRFMOs to collect such data, more work is needed (Macfadyen & Defaux, 2019; Sinan et al. 2021a). Overall, following the approach by Azmi et al (2016) and Sinan et al. (2021a) qualitative or quantitative mechanisms are needed to determine if disproportionate burdens are placed on coastal developing states and SIDS by a measure and for these mechanisms, socio-economic data are needed.

3. Methods

This research applied a multi-method qualitative research approach, comprising three approaches: desktop analysis, interviews, and policy analysis. First, we assessed whether disproportionate burdens are acknowledged in RFMOs. We used the desktop analysis and examined the context in which the term ‘disproportionate burden’ and the related terms ‘equity’, and ‘fair’ were used in publicly available Commission meeting reports of the last ten years as well as active CMMs of tRFMOs. These terms were also applied to assess CMMs, including the term ‘developing country’, to see whether specific CMMs for developing countries exist. The analysis of meeting reports does not reveal information about the actual engagement of the members regarding disproportionate burden but only refers to discussions noted in the meeting reports. Moreover, while the reports from the WCPFC are comprehensive, the reports of other tRFMOs often only include a high-level summary. Hence, members of these RFMOs might have mentioned disproportionate burden, but it has not been included in the meeting report.

Second, we were looking into how disproportionate burdens could be better addressed in tRFMOs and what would be potential ways forwards. To respond to this research question we conducted interviews with experts from the WCPFC and the Indian Ocean Tuna Commission (IOTC). These experts are members from national delegations, attending the WCPFC or IOTC meetings, and they were contacted by email via their contact details provided in the WCPFC and IOTC annual Commission report. The study and interview methodology was approved by the University of Wollongong Ethics Committee (Ethics Number: 2022/059). Overall, ten experts from the WCPFC and three experts from the IOTC were interviewed, including participants from SIDS, developed and developing coastal states, non-SIDS, and observers. Due to the low number of interviews and to ensure anonymity, responses have not been differentiated between the different groups. Interviews were conducted online via Zoom. We acknowledge that the overall number of participants is low, however, due to the diverse background of the participants we believe that these interviews provide valuable and unique insights.

These interviews allowed insights that could not be gained otherwise from meeting reports and ensured that the proposed policy options are feasible. As noted beforehand the WCPFC has already implemented a measure to reduce the disproportionate burden on SIDS and territories (i.e., CMM 2013-06). Every tRFMO is different and it is not possible to implement the same concept in other tRFMOs. However, CMM 2013-06 can be used as a starting point and the interviews with WCPFC experts focused on obtaining important information for the design of similar CMMs in other tRFMOs and their experience of CMM 2013-06. Experts from the IOTC provided their input on whether such a measure would be a useful tool in the IOTC. The IOTC was chosen due to the high number of coastal developing states in the membership and the G16 – a group of like-minded coastal states, which allows IOTC coastal developing states to cooperate more effectively. This structure is similar to the FFA in Western Central Pacific.

Last, we conducted a policy analysis, which is a tool to support decision-makers in finding the best solution for a problem (Dunn, 2003). Based on pre-set criteria (Table 1) we analysed different policy options for how disproportionate burdens of CMMs can be reduced. By using a categorical scale (i.e., high, medium, low) we assessed the policy options against the criteria. The policy options were determined by the authors based on the interviews, review of existing practices in tRFMOs, literature, and personal experience of the authors. We do not claim that the list of policy options is exhaustive, however, we believe that these options provide a good starting point for discussions on how to take action to reduce the disproportionate conservation and management burden on SIDS and coastal developing states.

Table 1. Criteria used for the policy analysis and their definitions.

Criterion	Definition
Effectiveness	More equitable distributed conservation burdens, resulting in a decrease of disproportional burdens felt by SIDS and coastal developing states.
Cost	The costs required by member states to implement this policy option, including financial and administrative costs.
Implementation feasibility	The complexity to implement the respective policy option.

4. Are disproportionate burdens acknowledged in RFMOs?

Except for the CCSBT which only has two coastal developing members (i.e., Indonesia and South Africa), the membership of tRFMOs include high numbers of SIDS and coastal developing states. However, despite the high number of developing states, we found that the term disproportionate burden was rarely used in the CMMs and meeting reports of CCSBT, IATTC, ICCAT, and IOTC. Although the term disproportionate burden was rarely used in the meetings of the CCSBT, IATTC, ICCAT, and IOTC, the members of these tRFMO often used related terms such as ‘equitable’ and ‘fair’ in their statements, especially in opening statements. These terms were especially frequently used when discussing catch allocations or assessing the impact of a measure on the different gear types (e.g., purse seiners versus longliners). The WCPFC differed notably from the other tRFMOs. The term ‘disproportionate burden’ has been regularly used in discussions and was frequently found in meeting reports. Also, the other terms, ‘equitable’ and ‘fair’ have been used. However, it is important to acknowledge the great variety regarding the structure of meeting reports as noted previously.

Three tRFMOs have a specific article in their convention referring to developing states (i.e., IATTC, IOTC, and WCPFC). The CCSBT neither mentions developing countries in its convention nor has a CMM in place to address their interests. CCSBT’s convention is a reflection of the status of the initial three members (Australia, Japan and New Zealand). However, the membership has expanded in the last few years including developing countries (Indonesia and South Africa). CCSBT’s 2021 performance review noted the lack of recognition of the special requirements of developing States and asked the Commission to revise the Convention to reflect current international practices (Sinan et al., 2021b). All the other tRFMOs established a CMM regarding the special requirements of developing states, although most of them only address the need to develop a special fund for capacity building. The assessment of active CMMs showed that the tRFMOs have at least one CMM that included the term

‘disproportionate burden’ either in the preamble, main text, or appendix (Table 2). The language used had often been similar, for example, in the preamble “the need to ensure that conservation and management measures do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States, Article 24(c) of UNFSA” (IOTC, 2022a) is often stated. In the main text, the language often refers to ensuring that a disproportionate burden resulting from the implementation of this measure is not unnecessarily transferred to developing members. The terms ‘equity’ and ‘fair’ have also been found in CMMs, dominantly in the preamble, recognising “the need to ensure that these [CMMs] are applied in a fair, equitable and transparent manner” (ICCAT, 2022; Recommendation 19-07), but also the main text. Overall, members of tRFMOs emphasise the importance of equitable and fair management frameworks and catch allocations, however, the translation into measurable outcomes has been slow.

Table 2. Summary of CMMs that mention disproportionate burden and in which section.

CMM	Section, mentioning disproportionate burden		
	Preamble	Main text	Annex
CCSBT			
NA			
IATTC			
Resolution C-21-07 for an IATTC scheme for minimum standards for inspection in port		X	
ICCAT			
Recommendation 21-01 on multi-annual conservation and management programme for tropical tuna		X	
Recommendation 18-09 on port state measures to prevent, deter and eliminate IUU fishing		X	
IOTC			
Resolution 21/01 on an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC area of competence	X		
Resolution 19/01 on an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC area of competence	X		
Resolution 18/01 on an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC area of competence	X		
Resolution 16/11 on port state measures to prevent, deter and eliminate IUU fishing		X	
WCPFC			
CMM 2013-06 on the criteria for the consideration of conservation and management proposals	X	X	
CMM 2013-07 on the special requirements of small island developing states and territories		X	
CMM 2014-06 on establishing a harvest strategy for key fisheries and stocks in the WCPO		X	
CMM 2016-02 for the eastern high-sea pocket special management area	X		
CMM 2017-02 on minimum standards for port states measures	X	X	
CMM 2017-04 on marine pollution	X		

CMM 2018-03 to mitigate the impact of fishing for highly migratory fish stocks on seabirds	X		
CMM 2019-07 to establish a list of vessels presumed to have carried out IUU fishing activities in the WCPO			X
CMM 2021-01 for bigeye, yellowfin and skipjack tuna in the WCPO	X		
CMM 2019-06 for compliance and monitoring scheme	X		
CMM 2022-01 on management procedure for WCPO skipjack tuna			X
CMM 2022-03 on establishing a harvest strategy for key fisheries and stocks in the WCPO		X	
Resolution 2008-01 on aspirations of small island developing states and territories		X	

5. Ways forward – reducing disproportionate burdens of CMMs

In this section, we present the results of the interview analysis regarding CMM 2013-06. This CMM could be used as a starting point for similar CMMs in other tRFMOs, thus, understanding the views of WCPFC members on it provides valuable information to ensure that any new CMM will effectively reduce disproportional conservation burdens. This section is followed by a policy analysis, which provides seven different policy options of how tRFMOs could reduce the disproportionate burden of CMMs on SIDS and coastal developing states.

5.1. Lessons learned from the WCPFC

As shown in the previous section, the WCPFC has engaged the most with the concept of disproportionate burden, arguably due to the negotiation power of the FFA members. CMM 2013-06 is an important component to implement Article 30 of the WCPFC Convention on the special requirements of developing states. Under CMM 2013-06 members are required to cooperate to support developing states, especially SIDS and territories to develop their fishery (paragraph 1) and to ensure that CMMs do not result in “transferring, directly or indirectly, a disproportionate burden of conservation action onto SIDS and territories” (paragraph 2) (WCPFC, 2013a). Moreover, proponents of a new measure are required to assess whether their proposal would impact SIDS and territories, and if the measure results in a disproportionate burden they need to propose mitigation strategies (WCPFC, 2013a; paragraphs 3 and 4). During a workshop on the implementation of CMM 2013-06 and disproportionate burden in 2014, the FFA members provided an impact assessment template, containing questions to consider when conducting the assessment (e.g., who is required to implement the proposal; does the proposal affect development opportunities for SIDS) (WCPFC, 2014).

Over the last several years, however, there seem to be increasing tensions among distant water fishing nations and SIDS members regarding this measure, specifically the impact assessment. Distant water fishing nations interpret differently who should assess the impact compared to FFA members and are generally lacking an understanding of how the process works (e.g., WCPFC, 2020; WCPFC, 2022a, paragraph 368). FFA members are frustrated with the low engagement of distant water fishing nations with CMM 2013-06 assessments and warned that they will not support any proposals that were developed without consulting them (WCPFC, 2022a, paragraph 78).

Generally, interviewed experts from the WCPFC highlighted the importance of CMM 2013-06. However, WCPFC members are divided regarding who has to conduct such an impact assessment – only developed fishing nations, SIDS and coastal developing states as well, or the Commission as a whole. Most of the participants also raised concerns regarding the structure of the assessment, noting a general lack of understanding of how to conduct the assessment. The assessment requires WCPFC members to fill out a questionnaire when proposing a new measure or an amendment. However, participants noted a lack of genuine engagement, and that the assessment is often perceived to be a “tick-box” exercise. The second part of the assessment is consultations, and while some members see prior consultations as mandatory, for example, FFA members, others do not share this opinion.

All the WCPFC interview participants noted the importance of CMM 2013-06 to reduce disproportionate conservation burden and provided important insights into how CMM 2013-06 can be improved. For example, the process could be streamlined, and the questions simplified. The insights from the interviews will be valuable if other tRFMOs would like to implement a similar CMM to reduce the disproportionate burden on SIDS and coastal developing states.

5.2. Policy options for reducing disproportionate burden in tRFMOs

The WCPFC adopted CMM 2013-06 to reduce the disproportionate burden of CMMs, and this CMM is a core component in the WCPFC’s management regime. However, one of the interviewed experts from the IOTC noted that the interests of Pacific SIDS are much more aligned with each other in comparison to the coastal developing states in the IOTC. Hence, assessing, quantifying, and mitigating the disproportionate burdens on a coastal developing state is likely to be more complicated in tRFMOs with more diverse interests (see Sinan et al. 2021c concerning the different interests in the IOTC).

In this section, we present seven policy options, which we have assessed against three criteria: effectiveness, cost and implementation feasibility (Table 3). All these options aim to reduce the disproportionate burden placed on SIDS and coastal developing states in tRFMOs, although often several policy options might be required to address this issue. Each of the policy options is described below.

Table 3: Summary assessment of the seven policy options against the three criteria

Policy Option	Criteria		
	Effectiveness	Costs	Implementation feasibility
Data Collection	Medium	Medium	High
Proposal consultation	High	Low	High
Disproportionate burden CMM/CMM with specific assessment requirements	Medium/High	Low	High/Low
Working group	High	Low	High
Equity officer	High	Medium	Medium
Independent equity assessment provider	High	High	Low
Status quo	Low	High	High

i) Data Collection

Collecting and strengthening the collection mechanism for socio-economic data would be an important step towards quantifying disproportionate burdens (Macfadyen & Defaux, 2019; Sinan et al, 2021a). While collecting data is important for understanding the extent of a disproportionate burden, and therefore supporting other more concrete actions, it is unlikely to be a solution in itself.

To collect more data member states could increase their data collection mechanisms and their reporting to the tRFMO secretariat. Or, as suggested by an interview participant from the IOTC, the Commission could nominate an independent consultant to collect socio-economic data and assess the availability of data. The findings of this project would inform future management actions. This would increase the transparency of the data collection and reduces political interference. Contracting an independent consultant to collect and assess the availability of data is highly feasible as this is regularly done in regional organisations (see for example MRAG Asia Pacific (2021); Macfadyen & Defaux, 2019). When it comes to costs, we predict that hiring an independent consultant or strengthening the national data collection mechanisms is of medium cost.

ii) Proposal consultation

The importance of consulting with other members when developing a proposal was regularly acknowledged during the interviews. Having consultations with other members, especially with coastal developing states and SIDS when developing a proposal, might reduce the disproportionate burden of that proposal, but might also increase its acceptance among members. Moreover, it allows delegations to get a better understanding of each other's views, interests, and aspirations.

Prior consultation is already a common practice in tRFMOs, not only in the WCPFC where it is part of the CMM 2013-06 but also in other tRFMOs such as the IOTC. These consultations could be done online so that no additional financial burden is placed on members. However, there might be an increased administrative burden for proposal proponents and for SIDS and coastal developing states, due to an increased meeting workload.

iii) Disproportionate burden CMM

Agreeing to a CMM that generally acknowledges the need to take into account the disproportionate burden of coastal developing states and SIDS has been seen as a useful tool by an interview participant to increase awareness and start the conversation on how to reduce such burden. This CMM could use similar wording as used in the climate change CMM of the IOTC which states that the Commission should to 'the extent possible' consider climate change when developing CMMs' (IOTC, 2022b; paragraph 1). However, we predict, that without specific requirements such as an impact assessment as required under the WCPFC CMM 2013-06, this measure might be only of medium effectiveness. Thus, using the WCPFC CMM 2013-06 as a starting point and developing a CMM that would require a disproportionate burden assessment would be in comparison more effective.

Implementing a general CMM, that reaffirms the importance of reducing disproportionate burden is highly feasible. Developed fishing nations such as the US, the EU, Japan, China, and Korea have already adopted CMM 2013-06 in the WCPFC, making it more likely that these countries would be willing to

support a similar measure in other tRFMOs. However, as noted by one of the interviewed experts, implementing a more specific CMM, that requires proposal assessments, in tRFMOs with a diverse membership might be not feasible. The overall costs for such CMMs are predicted to be relatively low as implementing a general measure concerning disproportionate burden is not linked to any specific tasks.

iv) Working group

Instead of having a CMM on disproportionate burdens, this policy option suggests establishing an ongoing working group that would meet once a year before the Commission meeting and discusses proposals and whether they might result in disproportionate burdens on SIDS and coastal developing states. A sub-option could be that the working group assess whether the proposal meets a pre-determined disproportionate burden standard, before forwarding them to the Commission. A working group would also allow members to consult with each other, which would give proponents time to address raised issues before the commission meeting. Thus, we predict that having a working group could be effective to reduce disproportionate burdens, although we acknowledge the risk of it becoming a political negotiation.

We believe that establishing a disproportionate burden working group is highly feasible. Working groups are commonly established to address and discuss specific topics in RFMOs. We recommend that this working group is held virtually to reduce travelling, better accommodate members' schedules, and allow greater participation by SIDS and coastal developing states (Haas et al. 2021). Due to the virtual format, we predict that the costs for this policy option are low. Although, there might be an increase in administrative costs, as member states need to find the time for an additional meeting and proponents need to have prepared the proposals earlier than they otherwise might have.

v) Equity officer

To avoid any further burdens on member states, an equity officer could assess whether new proposals might disproportionately impact SIDS and coastal developing states, but also provide solutions for how such burdens could be reduced. Depending on the position (part/full time) this person can also support the implementation of capacity-building programmes and SIDS' and coastal developing states' applications for funding. Like the previous policy option, the equity officer could assess whether proposals would meet a pre-determined standard before they are submitted to the Commission. Overall, we believe that an equity officer would be highly effective in reducing the disproportionate burden.

However, we predict that hiring additional staff for the secretariat might be more costly than the previous policy options. Costs are an important discussion in RFMOs, and it is important to avoid those additional costs being imposed on SIDS and coastal developing states. On the other hand, this person might reduce the workload of all members, which is important for small administrations, although the need to submit a proposal earlier than usual could increase the workload. Generally, we believe that getting all members to agree to hire an equity officer might be difficult, especially when developed fishing nations might be asked to carry the additional financial burden.

vi) Independent equity assessment provider

Instead of hiring additional staff for the secretariat, an independent equity assessment provider could be contracted. This equity provider, similar to the independent science provider in the WCPFC, the Pacific Community (SPC), would conduct disproportionate burden assessments of proposals which will then be presented to the Commission. We predict that an independent equity provider would be highly effective in identifying disproportionate burdens in proposals and in providing solutions on how to avoid these. Members would be required to submit their proposals beforehand to the equity providers or work with the equity provider to develop their proposals in a way that reduces the disproportionate burden on SIDS and coastal developing states.

Despite the high effectiveness, we predict the feasibility of contracting an independent equity provider to be low. Depending on the institutional structure of the tRFMO, an amendment to the rules of procedures might be required to contract an independent equity assessment provider, something which is unlikely to receive great support from tRFMO members. Especially, as the costs for hiring an independent equity provider are likely to be high and hence, would increase the financial burden on members (see for example WCPFC, 2022b; Annex 12 for the costs of contracting the SPC).

vii) Status quo

The last policy option is to maintain the status quo. Besides the WCPFC, the other tRFMOs hardly addressed disproportionate burdens in their management regime (see section 4) and SIDS and coastal developing states from these tRFMOs are currently more likely to carry a disproportionate conservation burden (e.g., Hanich & Ota, 2013; Hanich, 2014; UNGA, 2016, para. 32).

We predict that the costs to implement the status quo are high. However, measures that put a disproportionate burden on SIDS and coastal developing states negatively impact their livelihood and economy. This might have an indirect negative impact on the status of the stock. For example, due to capacity limitations, some SIDS and coastal developing states might not be able to comply with newly implemented measures. Moreover, the use of short-term exemptions might also negatively impact the stocks in the future (Haas et al., 2023).

6. Discussion and Conclusion

The UNFSA requires states to ensure that CMMs do not result in any disproportionate burden on developing states (UNFSA, 1995, Article 24). However, nowadays SIDS and coastal developing states are still often carrying a disproportionate conservation burden in fisheries management (UNGA, 2016). Although the UNFSA lacks a definition of disproportionate burden, Azmi et al. (2016) and Sinan et al. (2021a) described processes that could verify the existence of disproportionate burden. The aim of this paper was twofold; first, we assessed whether Commission meeting reports contained any records of discussions on disproportionate burdens and if this term was used in active CMMs; and second, we identified six policy options that might support a more equitable sharing of conservation and management burdens

The results of this research showed that except for the WCPFC, tRFMOs have not yet started to address the issue of disproportionate conservation burden, even though related concepts such as equity and

fairness are mentioned during meeting discussions and opening statements. When it comes to addressing disproportionate burdens, the WCPFC is taking the lead due to the strong leadership of Pacific SIDS. The CMM 2013-06 on the criteria for the consideration of conservation and management proposals is an important tool to reduce disproportionate burdens of proposals in the WCPFC. Interviews with WCPFC stakeholders highlighted the importance of this CMM and provided important insights into how this CMM can be improved. This information is useful if other tRFMOs are considering implementing a CMM to reduce disproportionate burdens.

Having a specific CMM is only one way to reduce the disproportionate burden on SIDS and coastal developing states. We provided five more policy options that are targeted towards reducing the disproportionate burden on SIDS and coastal developing states. However, even if tRFMO members would choose a different policy option, a CMM might still be required to give authority, for example, to establish a working group or to hire an independent or in-house equity assessor. It is also important to acknowledge, as noted by one of the interviewed experts, that the concept of disproportionate burden might not apply to all CMMs. For example, in the case of a CMM on data reporting, it is of relevance that these CMMs have implementation mechanisms in place that apply to all members, as data are a core requirement for tRFMOs to work properly, although the requirements still need to take into account members' capacity to collect the data.

Implementing policy options to reduce disproportionate burdens and whether this option might be effective, might be influenced by the political and ecological aspirations of the tRFMO members. For example, well-developed fishing nations that provide development assistance to SIDS and coastal developing states might seek the opportunity to influence proposal opponents to their advantage (Sinan et al. 2021c). Moreover, the lack of data might undermine discussions on reducing disproportionate burdens, similar to tRFMO members using the lack of data to stall necessary conservation and management actions (Wright et al., 2015; Ogawa & Reyes, 2021).

So far, real actions to address disproportionate burdens in tRFMOs have been few, with the WCPFC the exception. It is important to highlight that members are committed under the UNFSA and United Nations Sustainable Development Goals (SDG 14.7) to acknowledge the special requirements of SIDS and coastal developing states and to reduce disproportionate conservation burdens (UNFSA, 1995; UN, 2023). This paper provided policy options for how to share conservation burdens more equitably. We believe that this paper will be an important contribution to increasing the dialogue around disproportionate burdens and to start developing actions to reduce these burdens.

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