



The unintended consequences of exemptions in conservation and management measures for fisheries management

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ABSTRACT

The duty to recognize the special requirements of developing states, and ensure that conservation and management measures avoid placing a disproportionate burden on them, has been firmly anchored in the United Nations Convention on the Law of the Sea and the United Nations Fish Stocks Agreement. Coastal developing states, particularly small island developing states (SIDS), are often economically and socially dependent on marine resources, and their development aspirations have been recognized by the international community. Ideally, members of regional fisheries management organizations (RFMOs) will meet their duty to avoid placing a disproportionate conservation burden on SIDS by designing and agreeing upon conservation and management measures that are equitable in terms of both their ease of implementation and their substantive impact on each participating state, such as through the equitable allocation of fishing opportunities. Where RFMOs are unable to adopt equitable measures, they may rely on the use of exemptions from conservation and management measures for developing states as a second-best alternative. However, exemptions have the potential to threaten the sustainability of the respective target stocks by creating loopholes in catch and effort limits. They can also undermine the scarcity value created by strong catch and effort limits, which can generate higher access fees for SIDS. In this paper, we analysed the conservation and management measures of RFMOs that include exemptions from catch, effort and capacity limits and found that they are used most commonly in the Western and Central Pacific Fisheries Commission. We argue that the use of exemptions due to the failure of RFMOs to adopt equitable allocation frameworks has the potential to negatively impact marine resources and their development opportunities. Instead, alternatives, such as equitable allocations of science-based catch and effort limits, transferability and phased adjustments, should be developed.

1. Introduction

Fisheries are important for the livelihoods and food security of millions of people (FAO, 2022) and this is especially true for coastal developing states, particularly small island developing states (SIDS), which are economically, socially, and culturally dependent on marine resources (Hanich et al., 2015). The United Nations Convention on the Law of the Sea (UNCLOS) and the United Nations Fish Stock Agreement (UNFSA) call on states in whose waters transboundary fish stocks occur and states whose vessels fish for such stocks to cooperate and sustainably manage and conserve shared marine resources (UN, 1982, 1995). UNCLOS (Article 61(3) and Article 119(1) (a)) and UNFSA (Article 24) also require states to acknowledge the special requirements of developing states. While UNCLOS does not define “special requirements”, UNFSA provides some guidance and includes the concept of

dependency, the need to avoid adverse impacts, and the need to ensure that conservation and management measures (CMMS) “do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing states” (Article 24) (UN, 1995). However, UNFSA does not define “disproportionate burden” (Azmi et al., 2016; Sinan et al., 2021). UNFSA also calls on states to recognize the development aspirations of developing states (UN, 1995, Article 25).

States give effect to their duty to cooperate and to ensure the sustainable extraction of shared marine resources by establishing and participating in regional fisheries management organizations (RFMOs). These organizations have implemented numerous binding measures to halt the decline of fish stocks and to protect the marine ecosystem. Developed distant water fishing nations have generally focused conservation limits and allocation discussions on historical catch, where they have an advantage over coastal developing states (Seto et al.,

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2021). CMMs that then subsequently require limits or reductions in catch, effort or capacity, can weigh especially heavily on coastal developing states, which have yet to fully develop their fisheries (Araña et al., 2012; Campbell and Hanich, 2015). Requiring coastal developing states to constrain fisheries that are not fully developed contradicts the right of development by developing states (Rosales, 2008) and the obligations in Article 25(1) (a) of UNFSA (UN, 1995). Most RFMOs recognize the special circumstances of coastal developing states, but fail to adopt CMMs that operationalise this through equitable distributions of conservation limits, or allocations. As a result, these needs are sometimes taken into account by partially or fully exempting developing states from implementing the obligations in the CMMs (Campbell and Hanich, 2015). While exemptions have been employed in order to implement Articles 24 and 25 of the UNFSA, this practice can conflict with other duties such as the sustainable management of fisheries resources (Morin, 2015) by adding further pressure on the respective fish stock (Hanich and Tsamenyi, 2014; Pitcher and Lam, 2014).

As noted previously the motivation behind exemptions is not only the development aspirations of developing states, but also historical imbalances in fishing capacity, which have allowed developed fishing nations to build a catch history in the waters of coastal developing states (Davis et al., 2022). Where overfishing has occurred, it is largely due to the activities of fishing nations with the capacity to fish, not SIDS (e.g. Cisneros-Montemayor and Sumaila, 2019). It could be argued that those who are responsible for overfishing should bear the conservation burden (Armstrong, 2019). This concept resembles the polluter pays principle, which states that the polluter should pay for the measures needed to ensure an acceptable state of the environment (Gaines, 1991). Any downward pressure on catch and effort limits to address overfishing and restore fish stocks must therefore be equitably borne by participating coastal and fishing States. Exemptions have been seen as one way to avoid SIDS are carrying a disproportionate conservation burden.

RFMOs have been able to successfully maintain or rebuild some fish stocks and reduce fishing pressure, for example, as demonstrated by the rebuilding of the Southern bluefin tuna (Juan-Jordá et al., 2022). However, exemptions provide loopholes in catch and effort limits that could see actual catch and effort exceed those limits. The capacity of SIDS' domestic fleets to expand capacity sufficiently to exceed those limits is likely to be constrained. However, chartering arrangements (Crigler, 2018) and reflagging provide both an opportunity for SIDS to bolster capacity to meet their development aspirations, and an opportunity for foreign vessels to exploit those exemptions. The latter substantially increases the potential to exceed sustainable limits.

This article aims to map the use of exemptions in CMMs in the Western and Central Pacific Fisheries Commission (WCPFC) and to discuss the potential consequences for the sustainability of trans-boundary fish stocks. We argue that while it is important to avoid placing a disproportionate conservation burden on coastal developing states, especially SIDS and to support their development aspirations, exemptions have the potential to negatively impact marine resources. Although this research focuses on the WCPFC, the results and discussions are also applicable to other RFMOs as coastal developing states, especially SIDS, face similar issues in other RFMOs.

2. Method

This article focuses on the WCPFC as more than half of the WCPFC members are SIDS, which coordinate effectively through the Pacific Island Forum Fisheries Agency (FFA). The WCPFC acknowledges the special requirements of developing states, particularly SIDS in its convention text (WCPFC, 2000; Art 30). Additionally, the WCPFC has implemented two CMMs that aim to avoid placing a disproportionate burden on SIDS and participatory territories. The tuna fisheries of the WCPO not only provide 60% of the global tuna supply but are also imperative for the economies of SIDS in this region and the livelihoods of

their people (Azmi and Hanich, 2021; Bell, 2021).

To assess the use of exemptions and to compare the WCPFC with other RFMOs, we analysed all the binding CMMs that are currently in effect and are publicly available on the websites of the 13 RFMOs (Table 1). For simplicity, we use the term "CMM" to refer to all binding measures adopted by RFMOs but acknowledge that many RFMOs use other terms, such as recommendation or resolution.

To identify the relevant CMMs we developed a decision tree (Fig. 1). Following this framework, we started with all active CMMs (514)¹ and assessed whether they included exemptions. If these CMMs included exemptions, we assessed whether these exemptions applied to all member states or only developing states. For this research, we only included exemptions that apply to developing states. Following this, we looked for CMMs that put a limit on catch and/or effort and have an open-ended exemption (i.e., exemptions that do not provide any limits for SIDS fisheries) to those limits. This would include, for example, CMMs that have implemented open-ended exemptions which allow SIDS to increase their catch.

We acknowledge that this definition of exemption does not address potential loopholes such as chartering arrangements, in which more developed countries' vessels are chartered by companies in SIDS or the complex situation regarding territories. These aspects will be addressed more closely in the discussion section. Furthermore, we note the ambiguity of the language in some provisions that give rise to exemptions, some of which are open to a broad variety of interpretations. For example, some CMMs state that provisions "shall not prejudice the legitimate rights and obligations under international law of small island developing state and Territory CCMs, in the Convention Area who may wish to pursue a responsible level of development of their own fisheries [...]" (e.g. WCPFC CMM2006-04 paragraph 2) (WCPFC, 2006). Exemptions such as these are included in the study. All 13 CMMs that have been included in the detailed analysis are listed in Annex 1.

In addition, some RFMOs permit states to 'opt-out' of CMMs. Self-nominating to 'opt-out' of a fisheries limit raises similar concerns to exemptions (see for example Lodge et al., 2007; Schiffman, 2013; Leroy and Morin, 2018). Opt-out clauses have long been criticized, with the 2006 UNFSA Review Conference recommending that RFMOs should ensure that any opt-out behaviour is constrained by rules that prevent opting-out parties from undermining conservation, provide clear processes for dispute resolution, and describe alternative measures (UN, 2006). Nevertheless, states continue to utilize opt-out clauses when they perceive that a limit is inequitable, as demonstrated in the IOTC where six parties opted out of the interim plan for rebuilding the Indian Ocean yellowfin tuna stock (IOTC, 2021). Opt-out provisions have not been

Table 1
Analysed RFMOs and their acronyms.

General RFMOs	
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
GFCM	General Fisheries Commission for the Mediterranean
NAFO	Northwest Atlantic Fisheries Organization
NEAFC	Northeast Atlantic Fisheries Commission
NPFC	North Pacific Fisheries Commission
SEAFO	Southeast Atlantic Fisheries Organization
SIOFA	Southern Indian Ocean Fisheries Agreement
SPRFMO	South Pacific Regional Fisheries Management Organization
Tuna RFMOs	
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tuna
IOTC	Indian Ocean Tuna Commission
WCPFC	Western and Central Pacific Fisheries Commission

¹ as of 27 July 2022.

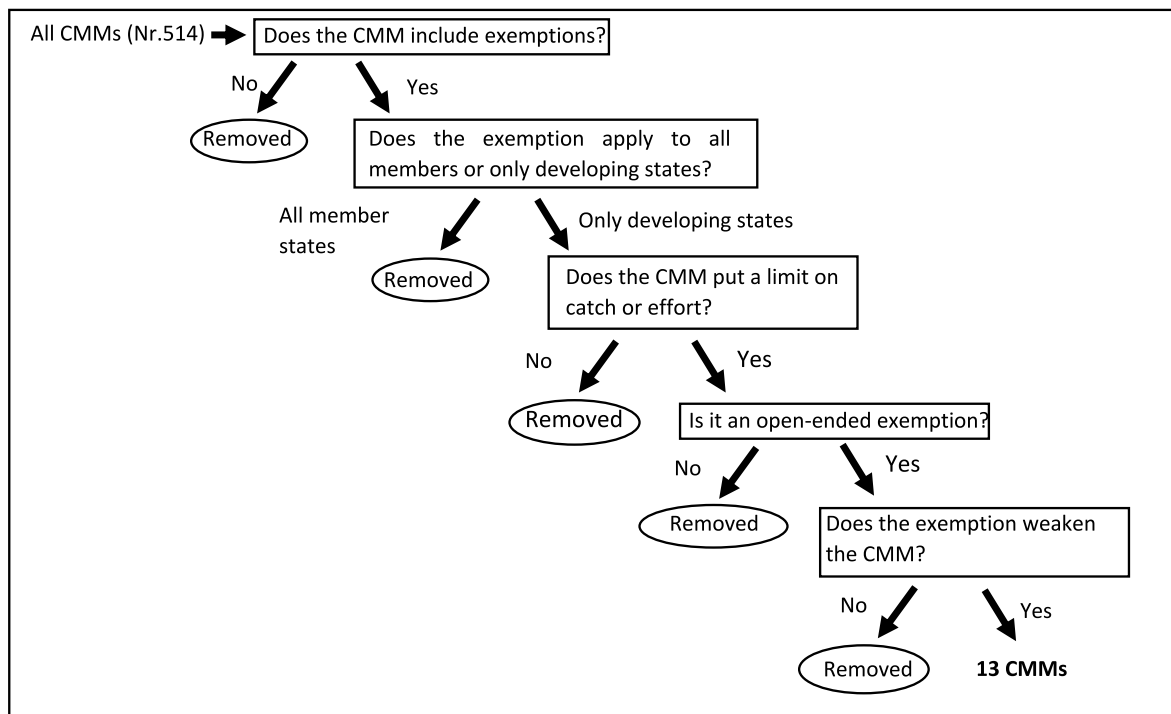


Fig. 1. Decision tree used to assess CMMs.

included in this study as these provisions are available for all members of the RFMO and are a key component of the decision-making approach. Thus, including opt-out provisions and assessing their potential implications is beyond the scope of this paper.

3. Results

Overall, we analysed 514 active CMMs to determine whether they included exemptions that fit our criteria (Fig. 1). This resulted in the identification of 13 CMMs containing exemptions that have been adopted by three tuna RFMOs. Most of these exemptions were found in the WCPFC (7), followed by ICCAT (4) and the IATTC (2) (Fig. 2). In this section, we provide a summary of the exemptions used in these three tuna RFMOs, with special emphasis on the WCPFC.

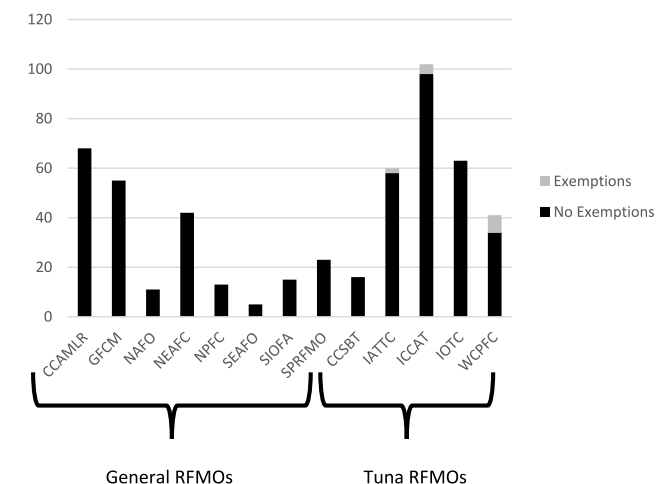


Fig. 2. Overall number of CMMs divided into CMMs with exemptions and CMMs without exemptions, for all RFMOs.

3.1. IATTC

Two out of the 58 CMMs in the IATTC include exemptions that fit our criteria. One of these two CMMs is C-15-04 on the conservation of mobulid rays caught in association with fisheries in the IATTC convention area, which aims to prohibit “retaining onboard, transshipping, landing, storing, selling, or offering for sale” mobulid rays (IATTC, 2015, paragraph 1). Small-scale and artisanal fisheries of developing countries that catch mobulid rays for domestic consumption are exempt from this measure. The second measure is Resolution C-05-02 on northern albacore tuna. The objective of this measure is to not increase albacore catches beyond current levels (IATTC, 2005). However, developing members are exempt from the requirement and the measure notes that

The provisions of paragraph 2 [on fishing effort increase] shall not prejudice the rights and obligations under international law of those coastal CPCs in the EPO whose current fishing activity for northern Pacific albacore tuna is limited, but that have a real interest in, and history of, fishing for the species, that may wish to develop their own fisheries for northern Pacific albacore tuna in the future. (IATTC, 2005, paragraph 8).

3.2. ICCAT

ICCAT currently has 97 CMMs in effect, of which four include exemptions that could weaken the respective CMM. Two of the four CMMs are directed toward hammerhead and silky sharks caught in the ICCAT Convention Area. These CMMs (Rec 11-08, and Rec 10-08 respectively) allow developing coastal members to catch these two shark species for local consumption, although this exemption is linked to a data reporting requirement² (ICCAT, 2011, 2010). A similar exemption has been noted for Rec 19-05 to establish rebuilding programs for blue marlin and white

² Fleet characteristics and nominal catches, and if possible catch and effort, size samples, catch-at-size estimations.

marlin/roundscale spearfish, which exempts developing coastal members and members with small island artisanal, subsistence, and small-scale fisheries that catch these species for local consumption (ICCAT, 2019a). The final CMM is Rec 19-02 which replaced Rec 16-01 on a multi-annual conservation and management programme for tropical tuna. This CMM notes that the provisions on catch reduction

“shall not prejudice the rights and obligations under international law of those developing coastal CPCs in the Convention Area whose current fishing activity for bigeye tuna is limited or non-existent, but that have a real interest in fishing for the species, that may wish to develop their own fisheries targeting bigeye tuna in the future.” (ICCAT, 2019b, paragraph 5).

3.3. WCPFC

With seven of 33 CMMs, the WCPFC had the highest number of CMMs that include exemptions. These seven CMMs seek to limit fishing on striped marlin in the Southwest Pacific (CMM 2006-04); swordfish (CMM 2009-03); North Pacific striped marlin (CMM 2010-01); North Pacific albacore (CMM 2019-03); South Pacific albacore (CMM 2015-02); bigeye, yellowfin, and skipjack tuna (CMM 2021-01); and Pacific bluefin tuna (CMM 2021-02). Each of these CMMs places a limit on either catches, effort or capacity in the respective fishery that they are designed to manage. The following are limits that attract exemptions for SIDS and territories:

- CMM2006-04 and CMM2015-02 require each Member or cooperating non-member (collectively, referred to as CCMs) to limit the number of their fishing vessels fishing for striped marlin in the Southwest Pacific (paragraph 1) and South Pacific albacore (paragraph 1) respectively to levels in a particular historical reference period;
- CMM2009-03 places a similar limit on vessel numbers fishing for swordfish south of 20° South (paragraph 1) and adds a catch limit benchmarked against a historical reference period (paragraphs 2, 4 and 9);
- CMM 2010-01 places a limit on catches of North Pacific striped marlin (paragraphs 4 and 5);
- CMM2019-03 places a limit on the level of fishing effort for North Pacific albacore by each CCM's vessels (paragraph 2);
- CMM2021-01 limits effort on the high seas in the tropical purse seine fishery (paragraph 25) and limits catches of bigeye tuna by flag State (paragraph 37). The CMM also includes national capacity limits through limits on:
 - o the number of large scale purse seine vessels with freezing capacity operating in the tropical purse seine fishery (paragraph 42);
 - o the number of longline vessels with freezing capacity targeting bigeye (*paragraph 44); and
 - o the number of ice-chilled longline vessels targeting bigeye and landing exclusively fresh fish (paragraph 45); and
- CMM2021-02 limits catch of Pacific bluefin of different weights (paragraphs 3 and 4).

All seven CMMs include the notion that the provisions of the respective CMM “shall not prejudice the rights and obligations of those small islands developing state members and participating territories”. Other than in CMM2010-01 and CMM2021-01, this is followed by a specification that such exemptions are available to SIDS and territories who want to develop their fisheries to responsible levels (CMM2006-04, CMM2009-03 and CMM2015-02) or whose current fishery is limited but who have a real interest in the fishery (CMM2019-03 and CMM2021-02).

Under CMM2021-01 the Philippines is afforded special arrangements in relation to high seas purse effort limits (CMM2021 paragraph 25 and Attachment 2). Exemptions to the capacity limits in CMM2021-

01 are given to SIDS (including participating territories) and Indonesia (paragraphs 42, 44 and 45) and through a provision that “nothing in this measure shall restrict the ability of SIDS or Participating Territories to construct or purchase vessels from other CCMs for their domestic fleets” (paragraph 46).

4. Discussion

While there are different types of exemptions available, in this article we concentrated on CMMs that place a limit on catch, effort or capacity, but provide exemptions for developing states to those limits and are open-ended, and therefore might weaken the respective CMM. As the results show, most of these exemptions are found in the WCPFC, which is consistent with other studies (Morin, 2015). The WCPFC explicitly offers exemptions as a strategy to ensure that CMMs do not place a disproportionate burden on SIDS (CMM 2013-06 on the criterion for the consideration of conservation and management proposals (WCPFC, 2013, paragraph 4(b)). While in the WCPFC most exemptions apply to developing states and territories, in the IATTC and ICCAT most of the exemptions apply specifically to artisanal and small-scale vessels of developing states that catch protected species (e.g., sharks) for domestic consumption.

While most of the species under WCPFC management are neither overfished nor subject to overfishing (Hare et al., 2022), exemptions do apply to some species that are currently,³ or have been previously,⁴ assessed as overfished or for which overfishing is occurring. Beyond these examples, it could be argued that the impact of exemptions is negligible. This might be true if only the potential impact of the domestic fleets of SIDS are considered but these fleets are growing due to chartering arrangements and reflagging of foreign-owned vessels (Williams and Ruaia, 2022). Hence, we argue that exemptions might have a negative impact and a more comprehensive, equitable approach is needed to recognize the special requirements of SIDS.

The use of “exemption-based” fisheries management (Parris, 2010) is one way to acknowledge the special requirements of developing states and to avoid disproportionate conservation burdens. The idea of exemptions is linked to equity concerns and to the need that developing countries should not suffer from restrictions that are required due to the high catches by developed fishing nations (Parris, 2010). The commonly used wording for an open-ended exemption is that “nothing in this measure shall prejudice the rights and obligations of developing states [...] whose current fishing activity are limited [...] and that may wish to develop their own fishery [...]”. This can be interpreted as allowing developing states to continue expanding their fleets (Morin, 2015; Parris, 2010) or to design an access system relying on foreign vessels. Generally, this wording does not provide a clear sense of whether and how an exemption under these clauses would operate. Exemptions, therefore, provide a theoretical opportunity for eligible participants in the fishery to avoid limits in order to achieve an equity goal.

In the meantime, we argue that the failure to adopt equitable measures that take into account the special requirements of coastal developing states, and the subsequent use of ad-hoc exemptions without a transparent framework, could undermine the sustainability of the fish stocks. Ideally, equity objectives relating to fishing opportunities would be achieved through the equitable allocation of those opportunities within a hard limit on the total allowable catch or effort, rather than open-ended exemptions from those limits. However, exemptions have so far appeared to be more politically feasible because, unlike exemptions, allocation negotiations require trade-offs and concrete action.

While exemptions are currently employed in some RFMOs, they are implemented in an ad-hoc and very unspecific manner (Hanich and Ota, 2013; Hanich and Tsamenyi, 2014). Our research suggests that, if

³ Striped marlin in the North Pacific and South West Pacific

⁴ Bigeye tuna.

exemptions must be employed in CMMs, they should be appropriately qualified to reduce the risk of exceeding biologically sustainable limits, including by tightening language on ‘real interest’ and ‘responsible levels’, clarifying the effect of chartering and the eligibility of participating territories. Each of these concerns is discussed in turn below.

In some CMMs exemptions are limited to developing states that have a ‘real interest’ in the fishery (e.g., Res C-05-02 in the IATTC, Rec 19-02 in the ICCAT, or CMM 2019-03 in the WCPFC; see Appendix for detailed wording), a term also found in UNFSA (Article 8(3)). While the UNFSA does not define ‘real interest’, Molenaar notes that states that have been fishing in this area and want to continue to do so, have a real interest (Molenaar, 2000). This could be problematic if it resulted in significant claims of ‘real interest’ based on historical activity. For example, an analysis of fishing vessel activity in the WCPFC Convention Area identified 65 states and entities that may have a real interest based on previous fishing activity (Hanich, 2009).

The concept of ‘real interest’ applies to high seas areas and does not include fisheries in the EEZ of coastal states given that any fishing activity within an EEZ is under license to the coastal state and therefore is the ‘interest’ of the coastal state (Molenaar 2000, 2019). Additionally, as noted in Article 11 of the UNFSA concerning the participatory rights of new members, attention should be placed on, *inter alia*, “the interests of developing states from the subregion or region in whose areas of national jurisdiction the stocks also occur” (UNFSA 1995, Article 11, paragraph 1(f)). States with a ‘real interest’ are already likely to include coastal states whose waters are within the RFMO’s convention area (Molenaar 2000) so the term ‘real interest’ is therefore redundant, and possibly adds to the ambiguity. We, therefore, suggest removing references to ‘real interest’ and ensuring the CMM limits eligible participants to “developing states from the subregion or region in whose areas of national jurisdiction the stocks also occur” or similar.

In the WCPFC, CMMs containing an exemption frequently add that exempt SIDS and territories can develop their fisheries to a ‘responsible level’. Similar to ‘real interest’, no definition has been provided for what would be a ‘responsible level’, leaving it up to the individual members to define a ‘responsible level’. This ambiguity leaves the exemptions open to interpretation. To avoid the unintended consequences of exemptions it would be helpful to use a clear set of benchmarks for what is reasonable, including by ensuring that ‘a reasonable level’ remains within the overall limits envisaged by the CMM.

The complexity of exemptions is further exacerbated by the issue of chartering agreements and most CMMs do not address the effect of chartering agreements on exemptions for certain classes of members. According to the WCPFC CMM 2021-04 for a charter notification scheme, chartered vessels are “an integral part of the domestic fleet of that chartering Member or Participatory Territory” (WCPFC, 2021; paragraph 1). This allows developed members to fish under the flag of a SIDS and to benefit from the exemption, leading to further increased capacity (Crigler, 2018; Parris, 2010). The danger of open exemptions is that it shifts the incentive of fishing companies from reducing catch, to gaining access to SIDS exemptions (Crigler, 2018). The current design of these exemptions invites greater exploitation of the stock (Crigler, 2018). One way to avoid the inadvertent expansion of fishing efforts through chartering agreements could be to note in the respective CMM that the exemption only applies to vessels that support SIDS and the development of their domestic fisheries, including by building a catch history where catch history is the main criterion for determining allocations. Such a notion has been included in the WCPFC CMM 2019-03 for North Pacific Albacore,

“The provisions of paragraph 8 [i.e. paragraph which notes the exemption for SIDS] shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such small island developing State Members or participating territories, unless such fishing is conducted in support of efforts by such Members and territories to develop their own domestic fisheries”. (WCPFC, 2019, paragraph 9)

Including such statements could help to avoid the exploitation of exemptions by non-SIDS and ensure that they better focus on supporting the development aspirations of the exempted SIDS. However, where allocations are genuinely equitable within a sustainable limit, chartering arrangements would simply assist a SIDS to fish up to its allocation rather than provide an opportunity for DWFNs to exploit an exemption intended to aid SIDS.

Similarly, it is also important to consider the eligibility of participating territories that are also small island developing territories but whose corresponding metropolitan state is developed, such as American Samoa, Tokelau, New Caledonia, and French Polynesia. It may be possible for a participating territory’s respective metropolitan state, such as the US, New Zealand or France, to take advantage of exemptions enjoyed by the territory by expanding fishing by its vessels in the territory’s fisheries. Such an approach could be used to expand the developed state’s fishing activities in a manner that is inconsistent with the equity objectives of the exemption, and the biological objectives of the measure. For example, the regional fleet of American Samoa has been regulated as a US fleet and not as a locally based fleet (WCPFC, 2022a paragraph 13). American Samoa is also facing the issue of reflagging, noting that previously US-flagged vessels changed to the flags of other Pacific Islands, to gain access to the exemptions (WCPFC, 2022a, paragraph 123).

Ambiguous language, chartering agreements and the use of territories as a backdoor into a fishery can risk the sustainability of marine resources (Parris, 2010). While in the WCPFC the three tropical tuna species (i.e., yellowfin tuna (*Thunnus albacares*), bigeye tuna (*Thunnus obesus*), and skipjack tuna (*Katsuwonus pelamis*) are all assessed as not overfished and not subject to overfishing (Hare et al., 2022), there is a theoretical potential for stocks to become overfished. Importantly, the science provider to the WCPFC has advised that catches of these three species should not increase beyond current levels (Hare et al., 2022). We are not arguing that catches by SIDS fleets should not increase but that those increases should be within an overall catch limit and not in excess of it. Logically, this would require a corresponding decrease by other fleets. Open-ended exemptions do not provide a mechanism with which to do this.

Wide-spread exemptions also undermine the value of the fishery and limit development opportunities by preventing the creation of a scarcity value. For example, the implementation of the PNA (Parties of the Nauru Agreement) vessel day scheme for purse seine fisheries, in the Western and Central Pacific, introduced a scarcity value for access to PNA members’ exclusive economic zone (EEZs). Fleets purchase access at a price that is influenced by the scarcity of available vessel days. By limiting supply, PNA members increased the value of each day. PNA members could then trade quotas between each other, trusting that their colleagues would maintain hard limits and maintain the value of each day. Wide-spread exemptions undermine this scarcity value by incentivizing industry to exploit exemptions, rather than purchase access.

In the absence of equitable distributions of conservation limits, or allocations, exemptions are often the only way to reduce the disproportionate burden on SIDS, especially in the context of an allocation, however, they might come with unintended consequences for the biological sustainability of stocks. If exemptions are to be removed, an alternative solution must be found to ensure that the special requirements of developing states are addressed. Azmi (2021) noted in his work that a disproportionate burden can be avoided by ensuring that allocations of a biologically sustainable catch limit take equity considerations into account. For example, in the IOTC the resolution on an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC area of competence (Res 21/01), developing states and SIDS still have to reduce their catch, but by a smaller percentage, to mitigate any disproportionate burden (IOTC, 2021). However, as noted before, this CMM is not well accepted, with six member states deciding to opt-out of this measure.

Alternatively, adopting transferability mechanisms could allow for

portions of allocations to be traded between participating states and Territories that allow for fisheries to be developed in different ways over time. For example, an initial allocation to a SIDS could reflect its special requirements and development aspirations, but in the early phases, it may temporarily transfer some of that allocation to a distant water fishing nation while building up its own domestic fleet. Allocations could also be adjusted over time to recognize current fishing levels by developed fishing nations in the short term but shift those allocations to SIDS in the longer term.

In December 2022, the WCPFC agreed to a process to negotiate a revised tropical tuna CMM that will include high seas allocations for the region's purse seine fisheries (WCPFC, 2022b), among other matters. In order to remove exemptions from the existing measure (CMM 2021-01), it will be critical that the Commission reaches an agreement on an equitable allocation that does not place a disproportionate burden of conservation onto developing states.

Moves toward the adoption of harvest strategies for key stocks (WCPFC, 2022b) will likely place downward pressure on catch and effort limits. Exemptions will therefore become increasingly attractive to SIDS and foreign fleets seeking to take advantage of those exemptions. We suggest that an opportunity exists to replace exemptions with equitable allocations and adjustment mechanisms while stocks are in a relatively healthy state and catch limits are relatively comfortable. Waiting until harvest strategies come into effect and start to restrain catch and effort will likely make such decisions more difficult for RFMO members.

While addressing equity issues via the allocation process seems to be the best solution, allocations have been frequently cited as the most difficult management problem in RFMOs (e.g., Lodge et al., 2007; Seto et al., 2021). In cases where it is not possible to remove exemptions or in a transition period, it may be useful to establish a framework that guides the application of exemptions, including by:

- framing exemptions in clear language to avoid ambiguity that could lead to excessive catches;
- avoiding loopholes, which would allow developed countries to take advantage of the exemptions without providing a corresponding benefit to the SIDS;
- setting the rate at which Members reduce catches or fishing effort during a transition period at a lower level for SIDS than for other Members, as used by the IOTC in its yellowfin tuna CMM; and
- having a sunset clause that requires a review of the exemption after a reasonable period of time.

5. Conclusion

States and Territories participating in fisheries governed by an RFMO are obliged under international law to recognize the special requirements of developing states in adopting CMMs. However, the current allocation approach and conservation limits are often inequitable and do not take into account the special requirements of coastal developing states, particularly SIDS. Hence, exemptions are often necessary to reduce the disproportionate burden on these states. However, these exemptions may bring unintended consequences. It is therefore important to develop different approaches for mitigating the conservation burden on developing states. Exemptions are attractive because they provide a simple mechanism to address equity concerns and avoid placing a disproportionate burden on developing states. And in some cases, exemptions may be perfectly reasonable where there is a legitimate equity objective and where the risk of unintended consequences is low.

Where there is a risk of excessive fishing, any attempt to remove exemptions will be politically sensitive. Our research has shown that this is especially true for the WCPFC, which has many SIDS in its membership and applies the highest number of open-ended exemptions to limits on catches or effort. These exemptions are characterized by ambiguous

wording, applying undefined or poorly defined concepts such as "real interest" or "responsible development". The current approach also does not provide clear guidance on how to address chartering arrangements, although the WCPFC CMM on North Pacific albacore, provides an example of how this issue can be partially solved.

Removing exemptions without providing an alternative would be an abrogation of an RFMO's duty to consider the special requirements of developing states and could prevent developing states from achieving their fisheries development aspirations. One approach would be to address the special requirements of developing states in a way that does not affect the biological sustainability of the stock. The allocation process is the most logical avenue for this, but it is also one of the most difficult areas of RFMO negotiations. Nevertheless, it would be easier to negotiate new allocation arrangements while stocks are in a healthy state than when they are not. Other options could include transferability and phased adjustments, and where alternatives are not able to be agreed upon, exemptions should be framed in a way that limits the potential to allow overfishing.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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Annex 1.

IATTC

Res C-15-04 on the conservation of mobulid rays caught in association with fisheries in the IATTC convention area.

→ As an exception, the requirements of this resolution do not apply to developing CPCs' small-scale 1 and artisanal fisheries exclusively for domestic consumption

Res C-05-02 on northern albacore tuna.

→ 8. The provisions of paragraph 2 shall not prejudice the rights and obligations under international law of those coastal CPCs in the EPO whose current fishing activity for northern Pacific albacore tuna is limited, but that have a real interest in, and history of, fishing for the species, that may wish to develop their own fisheries for northern Pacific albacore tuna in the future.

ICCAT

19-02 replace rec 16-01 by ICCAT on a multi-annual conservation and management programme for tropical tunas.

→ The provisions of paragraph 4 of this Recommendation shall not prejudice the rights and obligations under international law of those developing coastal CPCs in the Convention Area whose current fishing activity for bigeye tuna is limited or non-existent, but that have a real interest in fishing for the species, that may wish to develop their own fisheries targeting bigeye tuna in the future. CPCs shall implement robust monitoring, control and surveillance measures, as applicable in relation to their capacity and resources

19-05 to establish rebuilding programs for blue marlin and white marlin/roundscale spearfish.

→ 4. To the extent possible, CPCs shall require pelagic longline vessels and purse seine vessels flying their flag to promptly release blue marlin and white marlin/roundscale spearfish that are alive at haul-back, giving due consideration to the safety of crew members, in a manner that causes the least harm and maximizes post-release survival.

10. Blue marlin and white marlin/roundscale spearfish that are caught for local consumption by developing coastal CPCs, or by other CPCs' small island, artisanal, subsistence, and small-scale coastal fisheries are exempted from Paragraph 4 provided these CPCs (a) submit Task I and Task II data according to the reporting procedures established by the SCRS and (b) in the case of non-developing coastal CPCs, notify the Commission of their claim to this exemption and measures taken to limit application of this exemption to such fisheries.

11-08 on the conservation of silky sharks caught in association with ICCAT fisheries.

→ 4. Silky sharks that are caught by developing coastal CPCs for local consumption are exempted from the measures established in paragraphs 1 and 2, provided these CPCs submit Task I and, if possible, Task II data according to the reporting procedures established by the SCRS. CPCs that have not reported species-specific shark data shall provide a plan by July 1, 2012, for improving their data collection for sharks on a species specific level for review by the SCRS and Commission. Developing coastal CPCs exempted from the prohibition pursuant to this paragraph shall not increase their catches of silky sharks. Such CPCs shall take necessary measures to ensure that silky sharks will not enter international trade and shall notify the Commission of such measures.

10-08 on hammerhead sharks caught in association with fisheries managed by ICCAT.

→ 3. Hammerhead sharks that are caught by developing coastal CPCs for local consumption are exempted from the measures established in paragraphs 1 and 2, provided these CPCs submit Task I and, if possible, Task II data according to the reporting procedures established by the SCRS. If it is not possible to provide catch data by species, they shall be provided at least by genus *Sphyrna*. Developing coastal CPCs exempted from this prohibition pursuant to this paragraph should endeavour not to increase their catches of hammerhead sharks. Such CPCs shall take necessary measures to ensure that hammerhead sharks of the family Sphyrnidae (except of *Sphyrna tiburo*) will not enter international trade and shall notify the Commission of such measures.

WCPCF

CMM 2006-04 for striped marlin in the Southwest Pacific.

→ 1. Commission Members, Cooperating Non-Members, and participating Territories (CCMs) shall limit the number of their fishing

vessels fishing for striped marlin in the Convention Area south of 150 S, to the number in any one year between the period 2000–2004.

→ 2. Paragraph 1 shall not prejudice the legitimate rights and obligations under international law of small island developing State and Territory CCMs, in the Convention Area who may wish to pursue a responsible level of development of their own fisheries for striped marlin in the Convention Area south of 150 S from 2000 to 2004 levels, and the legitimate rights and obligations of coastal states who may wish to pursue a responsible level of development within their fisheries waters

CMM 2009-03 for swordfish.

→ 5. Paragraphs 1 to 4 and paragraph 9 shall not prejudice the legitimate rights and obligations under international law of small island developing State and participating Territory CCMs, in the Convention Area who may wish to pursue a responsible level of development of their own fisheries in the Convention Area.

CMM 2010-01 for North Pacific striped marlin.

→ 3. Nothing in this measure shall prejudice the legitimate rights and obligations of Small Island Developing State Members and participating territories in the Convention Area seeking to develop their own domestic fisheries

CMM 2015-02 for South Pacific Albacore.

→ 2. The provisions of paragraph 1 shall not prejudice the legitimate rights and obligations under international law of small island developing State and Territory CCMs in the Convention Area for whom South Pacific albacore is an important component of the domestic tuna fishery in waters under their national jurisdiction, and who may wish to pursue a responsible level of development of their fisheries for South Pacific albacore.

CMM 2019-03 for North Pacific Albacore.

→ The provisions of paragraph 2 shall not prejudice the legitimate rights and obligations under international law of those small island developing State Members and participating territories in the Convention Area whose current fishing activity for North Pacific albacore is limited, but that have a real interest in, and history of, fishing for the species, that may wish to develop their own fisheries for North Pacific albacore in the future. The provisions of paragraph 8 shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such small island developing State Members or participating territories, unless such fishing is conducted in support of efforts by such Members and territories to develop their own domestic fisheries. 10. This CMM shall replace the CMM 2005-03.

→ 9. The provisions of paragraph 8 shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such small island developing State Members or participating territories, unless such fishing is conducted in support of efforts by such Members and territories to develop their own domestic fisheries.

CMM 2021-01 for bigeye, yellowfin and skipjack tuna in the WCPO.

→ With the exception of paragraphs 14–24, 29, 31–36, and 47–50, nothing in this Measure shall prejudice the rights and obligations of those small island developing State Members and Participating Territories in the Convention Area seeking to develop their domestic fisheries. [...] In addition to the three-month FAD closure in paragraph 14, except for those vessels flying the Kiribati flag when fishing

in the high seas adjacent to the Kiribati exclusive economic zone, and Philippines' vessels operating in HSP1 in accordance with Attachment 2, it shall be prohibited to deploy, service or set on FADs in the high seas for two additional sequential months of the year. [...] CCMs that are not SIDS shall restrict the level of purse seine effort on the high seas in the area 20oN to 20oS to the limits set out [...] CCMs, other than Small Island Developing States and Indonesia 5, shall not increase the number of their longline vessels with freezing capacity targeting bigeye tuna above the applicable level under CMM 2013-01.

→ 25.CCMs that are not SIDS shall restrict the level of purse seine effort on the high seas in the area 20 N to 20 S to the limits set out [...]

CMM 2021-02 for pacific bluefin tuna.

→ 7.The provisions of paragraphs 2 and 3 shall not prejudice the legitimate rights and obligations under international law of those small island developing State Members and participating territories in the Convention Area whose current fishing activity for Pacific bluefin tuna is limited, but that have a real interest in fishing for the species, that may wish to develop their own fisheries for Pacific bluefin tuna in the future.

→ 18.The provisions of paragraph 17 shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such developing coastal State, particularly Small Island Developing State Members or participating territories, unless such fishing is conducted in support of efforts by such Members and territories to develop their own domestic fisheries

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