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Untangling the Net of Bycatch in Commercial Shark Fisheries

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Untangling the Net of 'Bycatch' in Commercial Shark Fisheries:

The Interplay between International Fisheries Law and CITES



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Executive Summary

Globally, oceanic shark populations are in rapid decline, with the fishing sector constituting the main contributor to this ecological crisis, as a result of an “18-fold increase in relative fishing pressure” since the 1970s.[1]

This legal opinion examines the obligations of States under international fisheries law and CITES concerning oceanic sharks caught in tuna RFMOs, specifically IATTC (Inter American Tropical Tuna Commission), ICCAT (International Commission for the Conservation of Atlantic Tuna), IOTC (Indian Ocean Tuna Commission), and WCPFC (Western and Central Pacific Fisheries Commission).

The focus of the opinion is on sharks whose retention and landing are of significant commercial value to the fisheries = commercially exploited sharks (including blue shark and shortfin mako).



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Regulation of Commercially Exploited Sharks under International Fisheries Law

- While sharks are often considered unwanted bycatch, targeted and incidental catches of several species of sharks are retained in fisheries for epipelagic fish such as tuna due to their considerable commercial value (commercially exploited sharks).
- Recent stock assessments for shortfin mako (2019) and blue sharks (2023) at ICCAT demonstrate the dire state of these commercially exploited sharks in the Atlantic, where shortfin mako stocks in the North Atlantic and South Atlantic are with a probability of 90% overfished in the North and most probably also in the South, while overfishing continues in both parts. Spawning biomass of blue sharks, although known to be less susceptible to overfishing than other oceanic sharks, is assumed having halved over the last 50 years due to fishing pressure and the absence of effective management measures.
- While comprehensive harvest strategies are widely acknowledged as being essential for the sustainable management of tuna and other target species, no harvest strategies or even harvest control rules have so far been developed for sharks in any of the four big tuna RFMOs.
- UNCLOS (United Nations Convention on the Law of the Sea) and the UNFSA (UN Fish Stocks Agreement) contain different sets of obligations with respect to “target stocks” (or “harvested species”) on the one hand, and “non-target species” on the other. While target stocks require CMMs (Conservation and Management Measures) “to ensure long-term sustainability [...] and promote the objective of their optimum utilization”, non-target species only require CMMs “with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened” (see Article 5 UNFSA).
- However, commercially exploited sharks such as the blue shark and shortfin mako are in an unusual position as they are not *unwanted* catch (“should not have been caught”) in multispecies tuna fisheries but a highly valued component of the catch of long-line vessels.^[2]
- Overall, the opinion postulates that commercially exploited sharks such as blue sharks are not bycatch from the perspective of the FAO Bycatch Guidelines, UNCLOS or the UNFSA. Rather, they must be classified as (secondary) target stocks under UNCLOS and the UNFSA. It follows that these species must in principle be managed in accordance with the obligations laid down in the UNFSA for *target stocks*.

[2] F. Dent and S. Clarke, 'State of the Global Market for Shark Products' (FAO Fisheries and Aquaculture Technical Paper vol 196, FAO 2015)

Regulation of Commercially Exploited Sharks at t-RFMOs

The ability of RFMOs to regulate incidental or directed shark fisheries depends on whether sharks fall within their competence. In this respect, although differences exist between WCPFC, IATTC, ICCAT, and IOTC, all these RFMOs have the competence to regulate sharks that are caught in mixed fisheries targeting tuna or tuna-like species within their mandate. In the case of IOTC and ICCAT, this is implicitly recognized in their practice (CMMs related to commercially caught sharks).

States, through t-RFMOs, have not yet completely fulfilled their responsibility to regulate commercially exploited sharks that are targeted in fisheries for tuna and tuna-like species, via the adoption of adequate management measures:

- IATTC and WCPFC have not adopted any TACs or retention limits for sharks so far, while IATTC has introduced catch limits for silky sharks applicable to longline vessels of "a maximum of 20% of the total catch by fishing trip in weight".
- In 2018, IOTC adopted a CMM pursuant to which IOTC is tasked to consider CMMs for blue sharks, which could include a "catch limit for each CPC". A proposal submitted by Maldives and co-sponsored by six other IOTC members in 2023 contained provisions explicitly mentioning the possibility of catch limits for "sharks caught for commercial purposes", including blue sharks, which only narrowly failed to reach consensus.
- ICCAT has allocated quota for shortfin mako in the North Atlantic, if total fishing mortality remains below the agreed level that projects stock rebuilding within a defined time frame and with an agreed probability. For South Atlantic shortfin mako, ICCAT has introduced "maximum retention allowances" for each CPC, which amount to a total retention allowance. Moreover, ICCAT has established a global TAC (Total Allowable Catch) for South Atlantic blue shark and a TAC combined with an allocation of quotas to individual CPCs for North Atlantic blue shark.
- However, such measures limit retention – but not necessarily mortality – of the relevant shark species because the mixed fishery is not closed when the catch limit is reached. In other words, such measures do not transform commercially exploited sharks into "choke species".
- Therefore, to date none of the t-RFMOs have developed and adopted comprehensive harvest strategies for commercially targeted sharks that include harvest control rules (HCRs); allocated total mortality limits; rebuilding plans and management strategy evaluations (MSEs) as commonly adopted by t-RFMOs for other commercially exploited species.

The opinion concludes that States, through tuna RFMOs,

have not yet completely fulfilled their obligations under the UNFSA to regulate commercially exploited sharks that are targeted in fisheries for tuna and tuna-like species, via the adoption of adequate management measures.

- IATTC, IOTC and WCPFC have so far have only adopted measures concerning issues specifically relevant for non-target shark species.
- ICCAT has at least started adopting catch limits, quota allocations, and rebuilding plans for some but not all commercially exploited shark species.
- all RFMOs lack comprehensive harvest strategies and robust harvest control rules for commercially exploited sharks.

Regulation of Commercially Exploited Sharks under CITES

The objective and purpose of CITES is the “protection of certain species of wild fauna and flora against over-exploitation through international trade”. Appendix II contains species that are not necessarily currently threatened with extinction but that may become threatened unless their international trade is subject to strict regulation.

- CITES has specific listing criteria for “commercially exploited aquatic species” against which proposals to list sharks have been assessed.
- Parties have displayed steadily growing trust in the role of CITES for the conservation and management of sharks. CITES CoP19 (November 2022) added 104 new species of elasmobranchs to Appendix II, including the most heavily fished shark species, blue shark.

CITES

- requires its Parties to implement key obligations of the treaty through national legislation. This includes an obligation to designate at least one national Management Authority and Scientific Authority, respectively. These authorities are responsible for the implementation of CITES at the national level.
- requires regulation of international trade in CITES-listed species on the basis of prior, science-based Non Detriment Findings (NDFs) to ensure population throughout its range is maintained at a level consistent with its role in the ecosystems.
- CITES’ definition of “international trade” includes import, export and re-export, but also “introduction from the Sea” (IFS). IFS expands CITES’ scope to fisheries’ activities in areas beyond national jurisdiction (ABNJ), even if only one Party is involved. Through IFS CITES applies to all catches in the High Sea subsequently transported into the territory of a Party whether catches are introduced to the territory of the flag State, or the territory of another State, or transshipped at sea.
- In all cases, CITES transactions require a prior NDF by the Scientific Authority for export permits and IFS certificates. Export permits additionally require an LAF (Legal Acquisition Finding) to confirm that the specimen was not obtained in contravention of the laws and regulations of that State for the protection of fauna and flora”. CITES does not differentiate between target and non-target species.

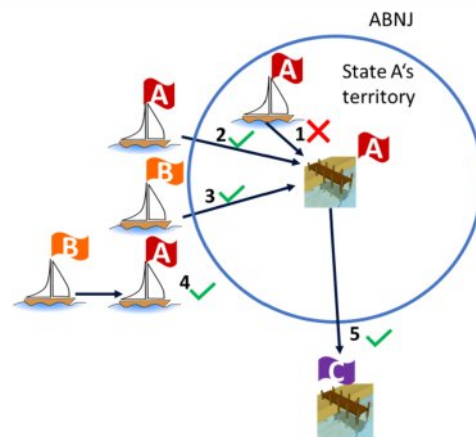


Figure 1: Overview of when CITES provisions apply under different fisheries scenarios

- There is no specific format or process for how to issue an NDF and no requirement to make NDFs public.
- The CITES Animals Committee has also repeatedly encouraged Parties to share their national experiences in making NDFs for CITES-listed elasmobranchs.
- Guidance adopted by the CoP recommends that NDFs be the result of a science-based assessment and, among other things, should consider whether the species would be maintained throughout its range at a level consistent with its role in the ecosystems in which it occurs and takes into account all sources of mortality.

NDF Guidance

- Guidance adopted by the CoP recommends that NDFs be the result of a science-based assessment and, among other things, should consider whether the species would be maintained throughout its range at a level consistent with its role in the ecosystems in which it occurs and takes into account all sources of mortality.
- The “German NDF guidance” developed in 2014 on behalf of the German Scientific Authority and many publicly available NDFs based on it:
 - suggests cooperation with RFBs (including tuna RFMOs) throughout the NDF process.
 - recommends the conduct of joint stock assessments for shared stocks through RFBs as good compilations of relevant information.
 - reiterates that NDFs are supposed to take into account all sources of mortality and that therefore “all high seas catches of all States are considered when developing NDFs for IFS.”
 - recommends Scientific Authorities consider if “existing management measures [are] effective (or likely to be effective) in mitigating the pressures affecting the stock/population of the species concerned”, including if they are species-specific, appropriately designed and/or if Monitoring, Control and Surveillance measures are in place to monitor their implementation.
 - advises applying a precautionary approach, including when determining export volumes in a positive NDF when information is unavailable or lacking.
 - explicitly considers NDFs that are in place for an extended time, such as on the basis of a TAC (rather than made on a per-transaction basis).
- Recent, publicly available NDFs for commercially exploited sharks that are caught in tuna RFMOs, namely shortfin mako elucidate how States have implemented CITES NDF provisions in practice:
 - The EU Scientific Review Groups (SRG) has published negative opinions for shortfin mako both, from the North Atlantic and from the South Atlantic. Both NDFs rely heavily on data and analyses by ICCAT, refer to the uncertainties associated with these data and discuss ICCAT’s CMMs.
 - Brazil published a negative NDF for shortfin mako in the South Atlantic emphasizing the importance of coordination via RFMOs as “a negative [Brazilian] NDF may not be effective if other countries that fish the [same] stock [...] issue a positive NDF”.
 - The UK published a negative opinion in 2022 for the species in the North Atlantic, the South Atlantic, and the Indian Ocean.

Review of Significant Trade (RST)

- While it is the responsibility of the national Scientific Authority to make NDFs, CITES Parties established the RST, an expert and peer-review process of countries’ NDFs to assess whether Parties effectively implement CITES obligations regarding Appendix II listed species.
- In an RST, species/country-combinations of concern are pre-identified based on CITES trade data according to a range of criteria.
- Parties can also propose species/country combinations to be considered that were not pre-identified on the basis of CITES trade data.
- Parties selected by the Animals Committee are requested to provide the scientific basis for their levels of exports, i.e. their NDFs.
- In case the respective CITES technical committee considers that “action is needed” recommendations are issued, which the respective State has to implement within the foreseen timeframe or else risk facing a trade suspension for that species.

- In the most recent selection of the RST in June 2023 oceanic whitetip shark, *Mobula spp.*, scalloped hammerhead shark, and great hammerhead shark were included in the review, marking the first time some CITES-listed Elasmobranchii will undergo an RST.
- Looking at the experience from implementing CITES for seahorses one of the key learnings presented was that few Parties were able to make NDFs and that after the RST, most Parties had either banned exports of wild specimens from their countries by their own decision or been placed under a trade suspension in the course of the RST.

The Opinion highlights that

- CITES' provisions apply in many fishing activities of listed oceanic species and apply regardless, whether a species is a target, a secondary target or a bycatch species.
- For stocks that can still support NDFs, CMMs should be drawing from the toolbox for target species (i.e., catch limits and harvest strategies, including HCRs) as there are clear links between NDFs and HCRs, with the latter corresponding most closely to revealed State practice and guidance on NDFs. They also support the operationalization of the obligation of Scientific Authorities to monitor exports with the objective to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I.
- Particularly the CITES' peer-review process of NDFs in the form of the RST presents an incentive for RFMOs to pro-actively manage commercially exploited sharks through measures suitable for target species, which in turn will support their members in the long-term sustainable management of sharks in line with CITES.

OVERALL CONCLUSION

- Commercially exploited shark species, especially when listed under CITES Appendix II, should not be considered as a bycatch species, but should be legally classified as (secondary) target species under UNCLOS and UNFSA and tuna RFMOs have a responsibility to manage these populations within their regulatory competence through precautionary, science-based, and effective conservation and management measures. Such CMMs should include catch limits and effective harvest strategies.
- States should closer align their obligations under the UNFSA with those under CITES and vice versa.
- Tuna RFMOs could best support their Parties in fulfilling their CITES obligations for commercially exploited sharks, such as the blue shark, by adopting comprehensive harvest strategies, including robust harvest control rules for these species.
- For blue shark, ICCAT still has the chance to get ahead of the curve and swiftly adopt effective, species-specific CMMs consistent with its status as a secondary target species and in line with the obligations of ICCAT members under international fisheries law and CITES.



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INDEX

Summary Page 7

Introduction Page 9

Regulation of Commercially Exploited
Sharks under International Fisheries Law Page 13

Regulation of Commercially Exploited
Sharks under CITES Page 24

Conclusion Page 38





Summary

Oceanic shark populations have declined significantly in the last decades, with fishing mortality identified as the main cause. Their highly migratory nature, co-occurrence with primary target species in commercial fisheries, and the intrinsic vulnerability of oceanic shark species to fishing pressure make international cooperation in their conservation and management paramount.

This legal opinion examines the obligations of States under international fisheries law and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) with respect to the conservation and management of oceanic sharks caught in fisheries under the competence of regional fisheries management organizations with a mandate to manage tuna (t-RFMOs). The focus of this opinion is on those species whose retention and landing are of significant commercial value to the fisheries (commercially exploited sharks). This analysis is timely, given that States have displayed a steadily growing trust in the role of CITES in the conservation and management of such sharks over the past decade.

This opinion argues that commercially exploited shark species, particularly when listed under CITES Appendix II, should be legally classified as (secondary) target species rather than non-target species under the United Nations Convention on the Law of the Sea (UNCLOS), the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA) and other instruments of international fisheries law. It follows that t-RFMOs have a responsibility to manage populations of CITES-listed commercially exploited sharks within their regulatory competence through precautionary, science-based, and effective conservation and management measures. Addressing mortality and maintaining populations at a level consistent with their role in the ecosystem should be advanced by developing appropriate harvest strategies – as commonly applied for other target species – and include robust harvest control rules.

Summary

Against this background, this opinion argues that States should closer align their implementation of their obligations under the UNFSA with those under CITES and vice versa. From the perspective of CITES, this includes the obligation to regulate international trade in CITES-listed species on the basis of prior, science-based assessments to ensure that it is not detrimental to the survival of the species (NDFs) and that the population throughout its range is maintained at a level consistent with its role in the ecosystems. Because CITES' definition of international trade includes the introduction from the sea, i.e. *all* landings from the high seas, and CITES provisions apply regardless of whether a species is considered a target, secondary target or bycatch species, these obligations likely apply to much, if not most fishing of CITES-listed sharks under t-RFMO competence. In addition, CITES has well established compliance mechanisms. These include, in particular, the Review of Significant Trade (RST), a peer-review process of States' NDFs that acts as a "safety net" to monitor and improve implementation, and the possibility of compliance measures against States as a last resort. This means that non-compliance with CITES' obligations may carry consequences, including trade suspensions, for States. While there is not yet a clear indication of the quality standard based upon which States' NDFs will be assessed, existing guidance states that NDFs should take into account all sources of mortality, maintain the species at a level consistent with its role in the ecosystem, and collaborate when making NDFs for shared stocks, including through existing regional bodies, such as t-RFMOs.

This opinion argues that the most appropriate tool t-RFMOs have available to support their Parties in fulfilling their CITES obligations for commercially exploited sharks, such as the blue shark, are comprehensive harvest strategies, including robust harvest control rules. These requirements align well with our findings on the existing obligations of States under the UNFSA.

1. Introduction

Globally, oceanic shark populations are in rapid decline, with the fishing sector constituting the main contributor to this ecological crisis.^[1] Pacoureaux and others found that “since 1970, the global abundance of oceanic sharks and rays has declined by 71% owing to an 18-fold increase in relative fishing pressure.”^[2]

While sharks are often considered unwanted bycatch, targeted and incidental catches of several species of sharks are retained in fisheries for epipelagic fish such as tuna due to their considerable commercial value (commercially exploited sharks).^[3] Incidental catches of sharks of commercial interest, such as the blue shark (*Prionace glauca*) and shortfin mako (*Isurus oxyrinchus*), are particularly common in long-line fisheries targeting tropical tuna.^[4] In some cases, blue sharks even make up a higher percentage of the overall value generation of such fisheries than some primary target species.^[5]

Despite the relative abundance of blue sharks and the higher fecundity of this species in comparison to other pelagic sharks,^[6] the fishing pressure over the last 50 years has also taken its toll on this species.

For example, the latest blue shark stock assessment of the International Commission for the Conservation of Atlantic Tunas (ICCAT) shows that spawning biomass has dropped significantly between 1970 and 2020 in the North and the South Atlantic.^[7]

The Kobe models show that there is a 49.7% probability that the North Atlantic stock is in the green quadrant of the Kobe plot (i.e. not overfished and not experiencing overfishing), while the probability for the stock being in the yellow quadrant (i.e. overfished but not experiencing overfishing) is 49.6%. For the South Atlantic there is a 46.5% probability that the stock is subject to overfishing but not overfished (orange quadrant), and an 8.02% probability that this stock is in the red quadrant (overfished and experiencing overfishing).^[8]

[1] Nathan Pacoureaux and others, 'Half a century of global decline in oceanic sharks and rays' (2021) 589(7843) Nature 567; Nicholas K Dulvy and others, 'Overfishing drives over one-third of all sharks and rays toward a global extinction crisis' (2021) 31(21) Current Biology 4773.e8.

[2] Pacoureaux and others (n 1) 567.

[3] Melissa R Cronin and others, 'Policy and transparency gaps for oceanic shark and rays in high seas tuna fisheries' (2023) 24(1) Fish and Fisheries 56, 57.

[4] Nuno Queiroz and others, 'Global spatial risk assessment of sharks under the footprint of fisheries' (2019) 572(7770) Nature 461.

[5] Rod Cappell and others, *Blue Shark: economic valuation of the global market for blue shark products and interdependent policy analysis for sustainable management and trade* (Poseidon 2022).

[6] Enric Cortés, 'Comparative Life History and Demography of Pelagic Sharks' in Merry D. Camhi and others (eds), *Sharks of the Open Ocean: Biology, Fisheries and Conservation* (Blackwell Publishing 2008) 309–322.

[7] ICCAT, Report of the 2023 ICCAT Blue Shark Stock Assessment Meeting, <https://iccat.int/Documents/Meetings/Docs/2023/REPORTS/2023_BSH_ENG.pdf>. All online sources were last accessed on 10 October 2023.

[8] *ibid* 33–69.

As accurately stated by *James and others*, “the line between elasmobranch target catch and non-target catch is often unclear”.^[9] This lack of clarity also translates into uncertainty from an international legal perspective given that there are different sets of obligations concerning the conservation and management of target and non-target species.^[10]

Against this background, the present opinion will examine the obligations of States under international fisheries law and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)^[11] with respect to the conservation and management of commercially exploited sharks caught in tuna fisheries by focusing on the interaction between these two legal regimes.

It will argue that such shark species, particularly when listed under CITES Appendix II, should be legally classified as (secondary) target species rather than non-target species, and managed accordingly by RFMOs. This would be the most consistent and effective way for States to meet their international obligations under both international fisheries law and CITES. While this opinion will focus primarily on the conservation and management of the blue shark, the main tenets of our analysis are transferable to all other commercially exploited sharks.

This opinion will first analyze the most relevant rules of international fisheries law with respect to commercially exploited sharks (2.). The key applicable global instruments are the United Nations Convention on the Law of the Sea (UNCLOS)^[12] and the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA).^[13] They envisage that States manage highly migratory fish stocks such as tuna through regional fisheries management organizations (RFMOs) and arrangements (RFMAs).^[14] These bodies have the competence to regulate the relevant fisheries through binding conservation and management measures (CMMs).^[15]

[9] Kelsey James and others, ‘Drivers of retention and discards of elasmobranch non-target catch’ (2016) 43(1) *Environmental Conservation* 3.

[10] Karen N Scott, ‘Bycatch Mitigation and the Protection of Associated Species’ in Richard Caddell and Erik J Molenaar (eds), *Strengthening International Fisheries Law in an Era of Changing Oceans* (Hart Publishing 2019) 167–171; Mercedes Rosello, Valentin Schatz and Eva R van der Marel, *Opinion on the Conformity of the European Union’s Position with the UNFSA concerning the Conservation and Management of North Atlantic Shortfin Mako Shark at ICCAT* (Sustainable Fisheries and Communities Trust 2021) 14–15.

[11] 993 UNTS 243 (1973).

[12] 1833 UNTS 3 (1982).

[13] 2167 UNTS 3 (1995).

stock is in the red quadrant (overfished and experiencing overfishing).^[8] *ibid* 33–69.

[14] This opinion will use the term RFMO to refer to both RFMOs and RFMAs.

[15] UNFSA (n 13) arts 8–10.

The four tuna RFMOs (t-RFMOs) with a mandate for tropical tuna are: the Inter-American Tropical Tuna Commission (IATTC); ICCAT; Indian Ocean Tuna Commission (IOTC); and Western and Central Pacific Fisheries Commission (WCPFC).^[16]

In a second step, this opinion will examine the role of CITES in the governance of commercially exploited sharks (3.).

CITES is a multilateral environmental agreement that operates at the interface between international trade and species conservation.

In short, CITES requires its Parties to assess the sustainability and legality of “international trade” in species of fish listed on the CITES Appendices, including landings from high seas fisheries. The conclusion of this opinion summarizes and synthesizes the results of the legal analysis and provides recommendations regarding the improvement of the governance of commercially exploited shark populations in line with international fisheries law and CITES (4.).

^[16] The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) will not be addressed as it follows the CMMs of the other t-RFMOs with respect to southern bluefin tuna fisheries in areas of competence.



2. Regulation of Commercially Exploited Sharks under International Fisheries Law

From the perspective of international fisheries law, the binding legal framework concerning the conservation and management of commercially exploited sharks consists primarily of UNCLOS, the UNFSA, the constitutive treaties of the selected t-RFMOs, and the CMMs adopted by these t-RFMOs.

This section will first examine the obligations of States under the applicable treaties to sustainably manage commercially exploited sharks through t-RFMOs depending on their status as “target stocks” or “non-target species” (2.1.).

Thereafter, this section will show that commercially exploited sharks such as the blue shark must be classified as (secondary) target species and managed accordingly (2.2.). This is followed by an analysis of the current competences of t-RFMOs to adopt CMMs for commercially exploited sharks (2.3.).

Finally, this section assesses the regulatory progress of t-RFMOs with respect to CMMs that include the management of (secondary) target species (2.4.).

2.1. Obligations of States to Manage Commercially Exploited Sharks through RFMOs

With respect to highly migratory fish stocks listed in Annex I of UNCLOS,^[17] Article 64⁽¹⁾ UNCLOS obliges States Parties to “cooperate directly or through appropriate international organizations with a view to ensuring conservation and promoting the objective of optimum utilization of such species throughout the region”.^[18]

Paragraph 16 of Annex I of UNCLOS lists a number of “oceanic sharks”, which cover most commercially exploited shark species, including all key pelagic species caught in tuna fisheries (e.g., blue shark; silky shark; hammerhead sharks; thresher sharks; porbeagle; and shortfin mako).^[19] The term “appropriate international organizations” is not restricted to RFMOs but includes – in a complementary role – other relevant organizations and treaty regimes that supplement the work of RFMOs with respect to fisheries, such as CITES.^[20]

[17] Nathan Pacoureau and others, ‘Half a century of global decline in oceanic sharks and rays’ (2021) 589(7843) *Nature* 567; Nicholas K Dulvy and others, ‘Overfishing drives over one-third of all sharks and rays toward a global extinction crisis’ (2021) 31(21) *Current Biology* 4773.e8.

[1] James Harrison and Elisa Morgera, ‘Article 64’ in Alexander Proelss (ed), *United Nations Convention on the Law of the Sea (UNCLOS): A Commentary* (CH Beck, Hart, Nomos 2017) paras 1-12.

[18] *ibid* para 13.

[19] Daniel Owen, ‘Annex I’ in Alexander Proelss (ed), *United Nations Convention on the Law of the Sea: (UNCLOS): A Commentary* (CH Beck, Hart, Nomos 2017) paras 38-48.

[20] Other relevant treaties include the Convention on the Conservation of Migratory Species of Wild Animals (CMS Convention) 1651 UNTS 333 (23 June 1979), which is, however, not the focus of this analysis. On its relevance for shark conservation, see Erika Techera and Natalie Klein, *International Law of Sharks: Obstacles, Options and Opportunities* (Brill 2017) 43-48.

Under Articles 117 and 118 UNCLOS, States Parties fishing on the high seas have additional obligations to cooperate either directly or through RFMOs.

Article 119(1)(a) UNCLOS obliges States Parties to take measures based on the “best scientific evidence available” and designed “to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield [MSY]”.[21]

For species that are “associated with or dependent upon harvested species” but do not themselves qualify as “harvested species”, Article 119(1)(b) UNCLOS contains a – relatively weak[22] – obligation of States Parties to take into consideration the effects of fishing activities on these species “with a view to maintaining or restoring populations [...] above levels at which their reproduction may become seriously threatened”.[23]

With respect to highly migratory species, the overall objective of the UNFSA is “to ensure the long-term conservation and sustainable use [...] through effective implementation of the relevant provisions of [UNCLOS]”.[24] For this purpose, the UNFSA implements and further concretizes the mentioned cooperation obligations under UNCLOS for its States Parties.[25] It establishes a set of more detailed obligations of States Parties to conserve and manage highly migratory fish stocks as well as associated and dependent species.[26]

The key obligations, which are entitled “general principles”, are listed in Article 5 UNFSA (e.g., ensure long-term sustainability; ensure that CMMs are based on the best scientific evidence available; and apply the precautionary approach). The UNFSA also provides for international cooperation mechanisms and designates RFMOs as the principal institutional framework through which States fulfill their obligations to manage and conserve highly migratory fish stocks.[27] Accordingly, States Parties must, in conserving and managing commercially exploited sharks through these RFMOs, adopt CMMs that are consistent with the requirements stipulated in the UNFSA.[28]

[21] For detailed analysis, see Rosemary Rayfuse, ‘Article 119’ in Alexander Proelss (ed), *United Nations Convention on the Law of the Sea: (UNCLOS): A Commentary* (CH Beck, Hart, Nomos 2017) paras 14-30.

[22] Mercedes Rosello, Juan Vilata and Dyhia Belhabib, ‘Atlantic Shortfin Mako: Chronicle of a Death Foretold?’ (2021) 10(52) *Laws* 1, 8 <<https://doi.org/10.3390/laws10030052>>.

[23] For detailed analysis, see Rayfuse (n 21) paras 31-35.

[24] UNFSA (n 13) art 2.

[25] For a list of States Parties to the UNFSA, see ‘Status of the Agreement (Signatures, Ratifications, Accessions)’ (United Nations, Office of Legal Affairs, 21 July 2023) <https://www.un.org/depts/los/convention_agreements/convention_overview_fish_stocks.htm>.

[26] UNFSA (n 13) arts 5 et seq.

[27] UNFSA (n 13) arts 8 et seq. See generally Rosemary Rayfuse, ‘Regional Fisheries Management Organizations’ in Donald R Rothwell and others (eds), *The Oxford Handbook of the Law of the Sea* (1st edn. Oxford University Press 2015).

[28] Cf UNFSA (n 13) arts 8-10. See Rosello, Schatz and van der Marel (n 8) 14.

For the present purposes, it is important to note that UNCLOS and the UNFSA contain different sets of obligations with respect to “target stocks” (or “harvested species”) on the one hand, and “non-target species” on the other.^[29]

Target stocks are subject to the full range of obligations contained in UNCLOS and the UNFSA, including the obligation in the UNFSA to adopt CMMs “to ensure long-term sustainability [...] and promote the objective of their optimum utilization”.^[30] With respect to non-target species States Parties have an obligation to assess the impact of fishing on species “belonging to the same ecosystem or associated with or dependent upon the target stocks”^[31] and to adopt CMMs “with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened”.^[32]

This is an important difference compared to Article 119(1)(b) UNCLOS, which does *not* explicitly impose a requirement to adopt CMMs.^[33] Moreover, catches of non-target species must be minimized through measures such as “the development and use of selective, environmentally safe and cost-effective fishing gear and techniques”.^[34] In this sense, the UNFSA provides for obligations applicable to sharks whether they are target species or not.^[35] Moreover, core obligations such as the precautionary approach apply irrespective of the categorization of a species.^[36] Additionally, the FAO’s International Guidelines on Bycatch Management and Reduction of Discards (FAO Bycatch Guidelines) call on States and RFMOs to develop management plans for their fisheries that “include objectives for the use and management of that portion of the full catch of which bycatch” forms part.^[37]

Similar requirements may be found in the constitutive treaties of most of the selected t-RFMOs, albeit with significant differences depending on whether the relevant treaty was negotiated prior to or after the adoption of the UNFSA in 1995.^[38]

[29] Cf *ibid* art 5.

[30] *ibid* art 5(a).

[31] *ibid* art 5(d).

[32] *ibid* art 5(e).

[33] Rosello, Vilata and Belhabib (n 22) 9.

[34] UNFSA (n 13) art 5(f).

[35] Techera and Klein (n 20) 51–52; Rayfuse (n 21) para 25; International Guidelines on Bycatch Management and Reduction of Discards 2011 (FAO) paras. 2.2, 3.1.2(i) and 4.1.1.

[36] UNFSA (n 13) arts 5© and 6 in conjunction with Annex I. International Guidelines on Bycatch Management and Reduction of Discards (n 35) para 3.2.2(i); Code of Conduct for Responsible Fisheries 31 October 1995 (FAO) (CCRF) paras 6.5 and 7.5.2.

[37] International Guidelines on Bycatch Management and Reduction of Discards (n 35) paras 3.2.4(i) and 4.1.3.

[38] Cf Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC Convention) 2275 UNTS 43 (2000), art 5; Convention for the Strengthening of the Inter-American Tropical Tuna Commission Established by the 1949 Conventions Between the United States of America and the Republic of Costa Rica (IATTC Convention) (2003), art VII; International Convention for the Conservation of Atlantic Tunas (ICCAT Convention) 673 UNTS 63 (1966), art IV; Agreement for the Establishment of the Indian Ocean Tuna Commission (IOTC Agreement) 1927 UNTS 329 (1993), art V.

2.2. (Secondary) Target Stock Status of Commercially Exploited Sharks

Given the difference in obligations between “target stocks” and “non-target species” under the UNFSA, the question arises how commercially exploited sharks should be classified. From a legal perspective, this classification must be made on an objective basis by means of treaty interpretation.^[49] This interpretation of the relevant provisions of the UNFSA must take into account Article 119(1)(a) UNCLOS, which only requires a species to be “harvested” to be considered a target species requiring ‘proper’ management – without offering a definition. The UNFSA similarly lacks definitions, thereby rendering the delimitation of these two categories challenging with respect to commercially exploited species that are considered incidental catch in tuna fisheries by the relevant actors.^[50]

At this junction, it is important to recall that commercially exploited sharks such as the blue shark and shortfin mako “occupy an unusual position on the continuum between bycatch and target species.”^[51] Interestingly, even the non-binding FAO Bycatch Guidelines refrain from establishing a “standard international definition of bycatch” due to the difficulties caused by different definitions, practices and approaches.^[52] However, the Guidelines provide some guidance with respect to commercially exploited sharks that are incidentally caught in tuna fisheries:

In multispecies/multigear fisheries where there is poor gear selectivity and where most species caught are used, bycatch refers to that part of the catch that should not have been caught, *inter alia*, because of detrimental ecological and/or economic consequences.^[53]

Commercially exploited sharks such as blue sharks are not *unwanted* catch (“should not have been caught”) in multispecies tuna fisheries but a highly valued component of the catch of, in particular, long-line vessels.^[54] For example, blue sharks make up a higher share of the value generation of some fisheries than some high-value target species.^[55] The economic value of blue shark and shortfin mako is well documented, for example, in the context of ICCAT.^[56]

[49] Rosello, Schatz and van der Marel (n 10) 14; see arts 31 and 32 Vienna Convention on the Law of Treaties, 1155 UNTS 331 1969 (VCLT).

[50] Rosello, Schatz and van der Marel (n 10) 14.

[51] Scott (n 10) 178–179. See also Paula Walker, ‘Oceans in the Balance: As the Sharks Go, So Go We’ (2010) 17 Animal Law Review 97, 106.

[52] FAO Bycatch Guidelines (n 35) para 2.4.1.

[53] *ibid* para 2.4.3.

[54] F. Dent and S. Clarke, ‘State of the Global Market for Shark Products’ (FAO Fisheries and Aquaculture Technical Paper vol 196, FAO 2015) 1.

[55] Cappell and others (n 5).

[56] See, eg, ICCAT, ‘Report on the Intersessional Meeting of Panel 4’ (2021) Doc. No PA4_804/2021, 2; Ruth Beatriz Mezzalira Pincinato and others, ‘Market Incentives for Shark Fisheries’ (2022) 139 Marine Policy 105031; Rui Coelho and others, ‘Evaluation of the effects of hooks’ shape & size on the catchability, yields and mortality of target and bycatch species, in the Atlantic Ocean and adjacent seas surface longline fisheries’ [2020] Final Report, European Commission. Specific Contract No. 16 under Framework Contract No. EASME/EMFF/2016/008; Communication from the Commission on the European Citizens’ Initiative (ECI) “Stop Finning - Stop the Trade” [2023] C(2023) 4489 final, 3.

The fact that ICCAT manages commercially exploited sharks via species-specific CMMs (some of which contain measures typical for the management of primary target stocks) through ICCAT Panel 4 provides further support to the contention that these species are not considered strictly non-target species (2.4).^[57] Finally, based on the interpretive maxims of systematic integration^[58] and subsequent treaty-practice,^[59] the status and treatment of marine species under CITES may be taken into account in the interpretation of UNCLOS and the UNFSA.^[60] Therefore, it is submitted that the inclusion of commercially exploited sharks in CITES Appendix II, namely the criteria against which the listing proposals are assessed and the obligations resulting from a species being listed, are relevant to their classification as target or non-target species (3.3.).

Overall, it is submitted that commercially exploited sharks such as blue sharks are not bycatch from the perspective of the FAO Bycatch Guidelines, UNCLOS or the UNFSA. Rather, they must be classified as (secondary) target stocks under UNCLOS and the UNFSA.^[61] It follows that these species must in principle be managed in accordance with the obligations laid down in the UNFSA for target stocks. In this respect, it should be noted that, from a legal perspective, it is not within the discretion of RFMOs to incorrectly designate species as "bycatch" or "non-target" to evade relevant obligations if the species in question are in reality (secondary) target stocks under UNCLOS and the UNFSA.^[62]

2.3. Competences of t-RFMOs to Manage Sharks

As recognized by the UN General Assembly, the ability of RFMOs to regulate incidental or directed shark fisheries depends on whether sharks fall within their competence.^[63] The spatial and species-specific extent of the competence of t-RFMOs depends first and foremost on their constitutive instruments. Leaving aside the question of whether the spatial scope of the competence of t-RFMOs' covers maritime zones of coastal State sovereignty (in particular the territorial sea and archipelagic waters), it is undisputed for IATTC, ICCAT, IOTC and WCPFC that their competence extends to the EEZs of coastal State members of the RFMO and the high seas.^[64] The species-specific mandates of t-RFMOs to manage commercially caught sharks are less uniform.

[57] Rosello, Schatz and van der Marel (n 10) 14.

[58] VCLT (n 49) art 31(1)©.

[59] *ibid* arts 31(1)(b) and 32.

[60] Compare *South China Sea Arbitration (Republic of the Philippines v. People's Republic of China)* (2016) PCA Case No 2013-19 para 95; Yoshifumi Tanaka, 'Reflections on the Implications of Environmental Norms for Fishing: The Link between the Regulation of Fishing and the Protection of Marine Biological Diversity' (2020) 22 *International Community Law Review* 389.

[61] Rosello, Schatz and van der Marel (n 10) 15–16 (for shortfin mako at ICCAT); in this direction also Rosello, Vilata and Belhabib (n 22) 9.

[62] Rosello, Schatz and van der Marel (n 10) 14.

[63] UN GA Res 77/118 (n 39) para 32.

[64] Martin Tsamenyi and Quentin Hanich, 'Fisheries Jurisdiction under the Law of the Sea Convention: Rights and Obligations in Maritime Zones under the Sovereignty of Coastal States' (2012) 27 *International Journal of Marine and Coastal Law* 783.

As an example of best practice, WCPFC's mandate includes management of "highly migratory fish stocks",^[65] which are then defined as "all fish stocks of the species listed in Annex 1 of [UNCLOS] occurring in the Convention Area, and such other species of fish as the Commission may determine".^[66] Therefore, there is no doubt that WCPFC has the competence to regulate all sharks listed in Annex I of UNCLOS even as primary target species.^[67]

The mandates of other t-RFMOs to manage shark species are less clear in this regard.

The mandate of IATTC extends to "fish stocks covered by [the IATTC Convention]",^[68] which are defined as "stocks of tunas and tuna-like species and other species of fish taken by vessels fishing for tunas and tuna-like species in the Convention Area".^[69] As confirmed by the practice of IATTC, it does not have a primary target species competence for sharks as they cannot be classified as "tuna-like species".^[70] However, IATTC may regulate sharks as incidental catch associated with fisheries for tuna or tuna-like species even if the relevant shark species are not regarded as "tuna-like species".^[71]

Similarly, ICCAT's explicit mandate only covers the management of "tuna and tuna-like fishes that may be taken in the Convention area"^[72] without an explicit reference to the incidental capture of other species in its fisheries. The definition of "tuna-like fishes" does not cover sharks.^[73]

Against this background, ICCAT's Working Group on the Convention Amendment agreed in 2013 that ICCAT's "mandate to regulate certain shark fisheries both as a target and non-targeted activity should be clarified."^[74] In 2019, an amendment of the ICCAT Convention was adopted but has not yet entered into force.^[75] It adds "elasmobranchs that are oceanic, pelagic and highly migratory" to ICCAT's primary management mandate.^[76]

[65] WCPFC Convention (n 38) art 2.

[66] *ibid* art 2(f).

[67] Stijn von Osch, 'Save Our Sharks: Using International Fisheries Law within Regional Fisheries Management Organizations to Improve Shark Conservation' (2012) 33 *Michigan Journal of International Law* 383, 411; Techera and Klein (n 20) 166.

[68] IATTC Convention (n 38) art II.

[69] *ibid* art I(1).

[70] Compare IATTC, 'Resolution C-05-03 on the Conservation of Sharks Caught in Association with Fisheries in the Eastern Pacific Ocean' (2005 (as amended in 2016)): "sharks are captured in fisheries targeting tunas and tuna-like species".

[71] Osch (n 67), 411; Techera and Klein (n 20) 165.

[72] ICCAT Convention (n 38) art VIII(1)(a).

[73] *ibid* art IV(1).

[74] ICCAT, 'Report of the 1st Meeting of the Working Group on Convention Amendment (Sapporo, Japan – July 10 to 12, 2013)' (2013), 2.

[75] International Convention for the Conservation of Atlantic Tunas (ICCAT) - Protocol amending the Convention concluded in Mallorca in 2019, FAOLEX Treaties (2019) (Protocol amending the ICCAT Convention), <<https://www.fao.org/faolex/en/>>.

[76] Protocol to amend the International Convention for the Conservation of Atlantic Tunas [2019] OJ L313/3, art V(1)(a).

An ICCAT recommendation of the same year specifies that all key species of sharks are included in the term “elasmobranchs that are oceanic, pelagic, and highly migratory”.^[77]

The situation is similar for IOTC, whose explicit mandate only covers species listed in Annex B to the IOTC Agreement.^[78] This list currently does not contain any pelagic shark or ray species.^[79] The 2nd IOTC Performance Review noted – also with respect to sharks – that this “limited scope of the IOTC Agreement means there is incomplete fisheries management and conservation coverage”.^[80]

However, even in the absence of a *primary* mandate for the conservation and management of sharks within their geographical competence, the practice of ICCAT and IOTC shows implicit recognition that these RFMOs – like IATTC – may fully regulate shark fishing by vessels that catch tuna and tuna-like species within their mandate (3.3.).^[81] This regulatory practice provides evidence that States consider RFMOs to have an implied power,^[82] and indeed have the responsibility,^[83] to ensure that fisheries managed by them do not result in unsustainable impacts on non-target or secondary target species.^[84]

| t-RFMO | Competence for Incidental Catches | Competence for Directed Catches |
|---------------|--|--|
| IATTC | yes | no |
| ICCAT | yes | no |
| IOTC | yes | no |
| WCPFC | yes | yes |

Table 1: Competences of t-RFMOs to regulate shark fisheries.

[77] ICCAT, 'Recommendation 19-01 on Fishes Considered to Be Tuna and Tuna-Like Species or Oceanic, Pelagic, and Highly Migratory Elasmobranchs' (2019) para 2.

[78] IOTC Agreement (n 38) art III.

[79] *ibid* Annex B; IOTC, 'Report of the 2nd IOTC Performance Review' IOTC-2016-PRIOTCo2-RIE' (2016) 7-8.

[80] *ibid* 7-8.

[81] For ICCAT: Osch (n 67) 411; Techera and Klein (n 20) 165-166.

[82] See generally Niels Blokker, 'International Organizations or Institutions, Implied Powers (2021)' in Anne Peters (ed), *Max Planck Encyclopedia of Public International Law* (Oxford University Press 2023).

[83] Compare UNFSA (n 13) art 5(f).

[84] Contra: Report of the 2nd IOTC Performance Review (n 79) 7-8, where it is argued that IOTC “expanded its mandate” through this practice.

2.4. State of Play: Existing Shark Management in t-RFMOs

Recalling the obligations under the UNFSA for commercially exploited sharks (see 2.2.), it is submitted that States, through t-RFMOs, have not yet completely fulfilled their responsibility to regulate commercially exploited sharks that are targeted in fisheries for tuna and tuna-like species, via the adoption of adequate management measures (see Table 2). IATTC, ICCAT, IOTC and WCPFC have all adopted measures concerning issues specifically relevant for non-target shark species such as data collection; stock assessments; mitigation measures to reduce bycatch and bycatch-mortality; retention bans; and measures to restrict or prohibit shark finning.^[85]

These existing measures, which are certainly important but not the focus of this opinion, can be broadly categorized as – albeit frequently insufficient – implementations of Article 5(d) to (f) UNFSA.

However, it is submitted that commercially exploited sharks that are incidentally caught in tuna fisheries require “precautionary, science-based [CMMs]”^[86] suitable for (secondary) target species pursuant to Article 5(a) to c) UNFSA.^[87] Such CMMs should include catch limits^[88] and effective harvest strategies.^[89] The following two sections examine the regulatory progress of the respective t-RFMOs in this regard.

2.4.1. Catch and Retention Limits

Some t-RFMOs have imposed catch limits – with or without setting a total allowable catch (TAC) and allocating this TAC to each Contracting Party and Cooperating Non-Contracting Party (CPC) – or have prohibited or otherwise imposed limits on the retention of certain shark species caught in association with fisheries under their mandate, including commercially exploited shark species.

[85] See, eg, IOTC, ‘Resolution 17/05 On the Conservation of Sharks Caught in Association with Fisheries Managed by IOTC’ (2017); IATTC Resolution C-05-03 (n 70); WCPFC, ‘Conservation and Management Measure 2022-04 for Sharks’ (2022) (WCPFC CMM 2022-04); ICCAT, ‘Recommendation 2015-10 on Conservation of Sharks Caught in Association with Fisheries Managed by the North-East Atlantic Fisheries Commission’ (2015). See also Scott (n 10) 179–181; Cronin and others (n 3).

[86] UN GA Res 77/118 (n 39) para 32.

[87] Rosello, Schatz and van der Marel (n 10) 14–15.

[88] Osch (n 67) 425. This applies even if sharks are considered non-target species, see International Guidelines on Bycatch Management and Reduction of Discards (n 35) paras 7.3(iv) and 7.7.

[89] Compare CCRF (n 36) para 7.5.3. See, for example, Mikihiko Kai and Hiroki Yokoi, ‘Evaluation of Harvest Strategies for Pelagic Sharks Taking Ecological Characteristics Into Consideration: An Example for North Pacific Blue Shark’ (2017) 74(6) Can J Fish Aquat Sci 933.

At the lower end of the spectrum of such measures, IATTC has introduced catch limits for silky sharks applicable to longline vessels of “a maximum of 20% of the total catch by fishing trip in weight” without, however, establishing a TAC or retention limit.^[90] Rather, vessels exceeding the catch limit are subject to a prohibition of the use of steel leaders during a period of three consecutive months each year.^[91] IATTC has no similar measures in place for other commercially exploited sharks such as the blue shark.

Similarly, IOTC has not yet established any catch limits for commercially exploited sharks but has recognized its competence to regulate commercially exploited shark stocks via total retention allowances and TACs. For instance, in 2018, IOTC adopted a CMM pursuant to which IOTC is tasked to consider CMMs for blue sharks, which could include a “catch limit for each CPC”.^[92] Notably, a proposal for a harmonized shark CMM submitted by Maldives and co-sponsored by six other IOTC members (including the European Union (EU)) in 2023, which only narrowly failed to reach consensus, contained provisions explicitly mentioning the possibility of catch limits for “sharks caught for commercial purposes”, including blue sharks.^[93]

WCPFC’s only shark CMM does not contain any reference to retention or catch limits for commercially exploited sharks.^[94]

The only t-RFMO with TACs for some commercially exploited sharks in place is ICCAT. ICCAT has established (qualified) retention prohibitions for North Atlantic shortfin mako caught in association with ICCAT fisheries for 2022 and 2023. However, according to the CMM, retention may generally be possible again from 2024 onwards if total fishing mortality remains below the agreed level that projects stock rebuilding within a defined time frame and with an agreed probability.^[95] For South Atlantic shortfin mako, ICCAT has introduced “maximum retention allowances” for each CPC, which amount to a total retention allowance.^[96] Moreover, ICCAT has established a global TAC for South Atlantic blue shark and a TAC combined with an allocation of quotas to individual CPCs for North Atlantic blue shark.^[97]

[90] IATTC, ‘Resolution C-21-06: Conservation Measures for Shark Species, with Special Emphasis on the Silky Shark (*Carcharhinus falciformis*), for the Years 2022 and 2023’ (2021) paras 3 and 4.

[91] *ibid* para 7.

[92] IOTC, ‘Resolution 18/02 On Management Measures for the Conservation of Blue Shark Caught in Association with IOTC Fisheries’ (2018) para 8.

[93] Maldives and others, ‘IOTC-2023-S27-PropR_Rev3 on the Conservation of Sharks Caught in Association with Fisheries Managed by IOTC’ (2023) paras 16 and 29(e).

[94] WCPFC CMM 2022-04 (n 85).

[95] ICCAT, ‘Recommendation 21-09 on the Conservation of the North Atlantic Stock of Shortfin Mako Caught in Association with ICCAT Fisheries’ (2021) (ICCAT Recommendation 21-09) paras 3-5 and Annex I.

[96] ICCAT ‘Recommendation 22-11 on the Conservation of the South Atlantic Stock of Shortfin Mako Caught in Association with ICCAT Fisheries’ (2022) (ICCAT Recommendation 22-11) paras 3, 6 and 8.

[97] ICCAT, ‘Recommendation 19-08 on Management Measures for the Conservation of South Atlantic Blue Shark Caught in Association with ICCAT Fisheries (as amended by Recommendation 21-11)’ (2019/2021) (ICCAT Recommendation 19-08) para 2; ICCAT, ‘Recommendation 19-07 on Management Measures for the Conservation of the North Atlantic Blue Shark Caught in Association with ICCAT Fisheries (as amended by Recommendations 21-10)’ (2019/2021) (ICCAT Recommendation 19-07) paras 2-3.

However, for incidentally caught species, neither TACs nor allocated catch limits automatically translate to a closure of the respective mixed fisheries once catches have reached the limit.^[98] Rather, what is decisive is the legal consequence provided in the applicable CMM in case catch limits are reached. At ICCAT, exceeding maximum retention allowances and catch limits may result in a reduction of future allocations and catch limits – or in a prohibition of retention to repay overages.^[99] Such measures limit retention – but not necessarily *mortality* – of the relevant shark species because the mixed fishery is not closed when the catch limit is reached. In other words, such measures do not transform commercially exploited sharks into “choke species”.^[100]

2.4.2. Harvest Strategies

At the time of writing, none of the t-RFMOs have developed and adopted comprehensive harvest strategies for commercially targeted sharks that include harvest control rules (HCRs); allocated total mortality limits; rebuilding plans and management strategy evaluations (MSEs) as commonly adopted by t-RFMOs for other commercially exploited species.^[101] Some elements of harvest strategies are, however, present in ICCAT's rebuilding programme (with a total mortality limit and a pre-agreed probability for stock rebuilding by 2070) for North Atlantic shortfin mako^[102] and ICCAT's management plan (with total mortality and a pre-agreed probability for rebuilding if the stock is overfished) for South Atlantic shortfin mako.^[103]

Moreover, ICCAT has taken first steps in the direction of HCRs for sharks. ICCAT defines HCRs as “decision rules that aim to achieve the target reference point and avoid the limit reference point by specifying pre-agreed management actions when [the threshold, target or limit] are breached.”^[104]

For both North Atlantic and South Atlantic blue shark, ICCAT has adopted CMMs in 2019 mandating its Standing Committee Research and Statistics (SCRS) to “provide, if possible, options of HCR with the associated limit, target and threshold reference points for the

[98] Rosello, Schatz and van der Marel (n 10) 23.

[99] See, eg, ICCAT Recommendation 22-11 (n 96) para 12.

[100] Rosello, Schatz and van der Marel (n 10) 23. For an explanation of the concept of a “choke species”, see House of Lords, ‘Fisheries: Implementation and Enforcement of the EU Landing Obligation’ (26th Report of Session 2017-19, 8 February 2019) <<https://publications.parliament.uk/pa/ld201719/ldselect/ldecom/276/27607.htm>>.

[101] For a brief explanation of harvest strategies, see, e.g., Pew, ‘Two Tools Can Help Make Ecosystem-Based Fisheries Management a Global Reality’ (Issue Brief, 14 September 2023) <<https://pew.org/3ECxD4C>>; HARVESTSTRATEGIES.ORG, ‘What are Harvest Strategies?’, 2023, <<https://harveststrategies.org/what-are-harvest-strategies/>>.

[102] *ibid* paras 1 and 4.

[103] ICCAT Recommendation 22-11 (n 96) paras 1-2 and 5.

[104] ICCAT, ‘Recommendation 15-07 On the Development of Harvest Control Rules and of Management Strategy Evaluation’ (2015) para 1(e).

management of this species in the ICCAT Convention area" in the light of the results of the relevant stock assessments.^[105] That said, no proposals for harvest strategies including HCRs have so far been adopted by, or submitted to, ICCAT – despite calls by non-governmental organizations (NGOs) to this end.^[106]

| t-RFMO | TACs | Harvest Strategies (including HCRs) |
|---------------|--|---|
| IATTC | no (but partial catch limits for silky sharks) | no |
| ICCAT | yes (for shortfin mako and blue shark) | no (but elements of an HCR in North Atlantic shortfin mako rebuilding programme & need for HCRs recognized for North and South Atlantic blue shark) |
| IOTC | no (but possibility has been recognized) | no |
| WCPFC | no | no |

Table 2: TACs and harvest strategies adopted by t-RFMOs for commercially exploited sharks.

[105] ICCAT Recommendation 19-07 (n 97) para 8; ICCAT Recommendation 19-08 (n 97) para 8.

[106] ICCAT, 'Report for Biennial Period, 2022-23' (2022) Vol 1 pt I, 77-9.

3. Regulation of Commercially Exploited Sharks under CITES

This section will examine the obligations of CITES Parties, drawing also on resolutions adopted by the Conference of the Parties (CoP) and analyzing State practice in implementing the Convention. It first provides a short overview of the functioning of CITES (3.1) and the provisions of CITES particularly relevant to commercially exploited sharks (3.2). This is followed by an analysis of the CITES listing process for shark species (3.3). Next, this section addresses the scope of applying CITES requirements in the context of fisheries (3.4). Finally, this section analyzes these requirements and their implementation by the CITES Parties – with a special focus on potential best practices (3.5).

3.1. General Functioning of CITES

CITES is a multilateral agreement that operates at the interface between international trade and the conservation and sustainable use of wildlife.^[107] The objective and purpose of CITES is the “protection of certain species of wild fauna and flora against over-exploitation through international trade”.^[108] Species are listed in one of three Appendices: Appendix I contains species threatened with extinction which are or may be affected by international trade. International trade in such species is only allowed under special circumstances.^[109] International commercial trade in species on Appendix I is entirely prohibited.^[110] Appendix II contains species that are not necessarily currently threatened with extinction but that may become threatened unless their international trade is subject to strict regulation.^[111] Appendix II also contains species that must be subject to regulation to ensure that trade in other Appendix II listed species can be controlled (so called ‘look alike-species’).^[112] Species on Appendix II can be traded internationally as long as such trade is legal and sustainable.^[113] Appendix III contains species that a Party has protected domestically and for which it requests cooperation by other Parties to control any international trade of that species.^[114]

Appendix II contains most of the marine species listed under CITES, including 149 of the 174 listed species of Elasmobranchii currently listed. In addition, 6 species of sawfish are listed on Appendix I (Family Pristidae) and 18 species of freshwater stingrays (Family Potamotrygonidae) are listed on Appendix III by either Colombia or Brazil.^[115]

[107] CITES, ‘What is CITES?’ <<https://cites.org/eng/disc/what.php>>.

[108] CITES (n 11) preamble.

[109] *ibid* art II(1).

[110] *ibid* art III(3)© and (5)©.

[111] *ibid* art II(2)(a).

[112] *ibid* art II(2)(b).

[113] *ibid* art IV(2)(a) and (b).

[114] *ibid* art II(3).

[115] CITES Appendices, <<https://speciesplus.net/>>.

At CoPs, which take place triennially, Parties can propose to add species to Appendix I and II, and the CoP decides - including through a vote if necessary.^[116] Additions to Appendix III, on the other hand, can be done unilaterally by individual Parties at any time.^[117] For Appendix I and II listings, Parties can lodge reservations on species listings within 90 days after the end of the CoP meeting at which the listing was decided.^[118] They are then treated as non-Parties to CITES with respect to international trade in that particular species whose listing is covered by their reservation.^[119] Several important fishing States have made reservations against the listings of commercially exploited shark species in the past.^[120]

The regulation of international trade in listed species is accomplished through a system of permits and certificates to be issued by designated national authorities at different points along the trade chain.^[121] Given that almost all elasmobranchs listed under CITES are listed on Appendix II and those are usually not traded live, this opinion will focus on the CITES provisions that apply to international trade (within the meaning of CITES) of non-live specimens of Appendix II listed species.

CITES requires its Parties to implement key obligations of the treaty through national legislation. This includes an obligation to designate at least one national Management Authority and Scientific Authority, respectively.^[122] These authorities are responsible for the implementation of CITES at the national level. The Management Authority, for example, issues CITES permits and certificates, and conducts the prerequisite assessments of legality (Legal Acquisition Finding (LAF)).^[123] The Scientific Authority is tasked with assessments of sustainability (Non-detriment Findings (NDFs)).^[124] Other key minimum requirements that CITES Parties' must incorporate in their national legislation include a prohibition of the trade in specimens in violation of CITES, sanctions in case of such illegal trade, and the confiscation of specimens illegally traded or possessed.^[125]

[116] CITES (n 11) art XV(1).

[117] *ibid* art XVI.

[118] *ibid* art XV(3).

[119] *ibid* art XV(3).

[120] CITES Website, 'Reservations in Effect from 20 May 2023' <<https://cites.org/eng/app/reserve.php>>.

[121] Cf CITES (n 11) arts III-V.

[122] *ibid* art IX.

[123] *ibid* arts III(2)(b) and IV(2)(b).

[124] *ibid* art III(2)(a) and (5)(a) and art IV(2)(a) and (6)(a).

[125] *ibid* art VIII; CITES, 'National Legislation Project' <https://cites.org/eng/Legislation/National_Legislation_Project>.

3.2. CITES and Fisheries

Government delegations negotiating the final text of CITES clearly foresaw a role for it in the conservation and management of marine species, as several of the Convention's provisions specifically take into account the application of CITES in the marine realm. For example, CITES' definition of "international trade" includes "introduction from the Sea" (IFS), expanding CITES' scope to fisheries' activities in areas beyond national jurisdiction (ABNJ).^[126] While the high seas are arguably the only ABNJ in the context of marine capture fisheries,^[127] this opinion will use the term ABNJ in line with existing CITES' practice.

CITES also contains special consultation requirements for the listing of marine species.^[128] Several groups of non-fish marine species were listed over the course of CITES' first decades (e.g., black corals at CoP3 in 1981 and many other groups of corals at CoP7 in 1989).^[129] However, discussions on the listing of species of marine fish were among the most contentious in CITES until recently, and many proposals to list such species were rejected following a vote.^[130] The first entire group of marine species listed in Appendix II were seahorses in 2002.^[131]

While acknowledging the differences between sharks and seahorses, the comparatively long history of CITES implementation for seahorses offers some useful insights into how CITES Parties have implemented the provisions of the Convention for marine species and what can be learned from that experience.^[132]

It took until 2013, CITES' 40th birthday, for the first commercially exploited sharks to be listed.^[133] Since then, Parties have displayed steadily growing trust in the role of CITES for the conservation and management of sharks, with CITES CoP19 (November 2022) seeing the first

[126] Cf CITES (n 11) art I(e) *ibid.*, which defines IFS as "transportation into a State of specimens of any species which were taken in the marine environment not under the jurisdiction of any State".

[127] To the extent that they will be fished in the future, sedentary species beyond the continental shelf are subject to the regime of the high seas. See Valentin J Schatz, 'Crawling Jurisdiction: Revisiting the Scope and Significance of the Definition of Sedentary Species' (2022) 36 *Ocean Yearbook* 187, 233.

[128] CITES (n 11) art XV(2)(b) and reference thereto in art XV(1)(a).

[129] See eg, Alyson Pavitt and others, 'CITES and the sea: Trade in commercially exploited CITES-listed marine species' (2021) FAO Fisheries and Aquaculture Technical Paper No 666, 12 (Figure 4.2).

[130] Amanda CJ Vincent and others, 'The role of CITES in the conservation of marine fishes subject to international trade' (2014) 15(4) *Fish Fish* 563.

[131] *ibid.*

[132] For a summary of the history of seahorse implementation under CITES, see CITES CoP18 Document 72 (2019).

[133] Daniel Kachelriess and John Scanlon, 'CITES Growing Role in International Shark Conservation' (*International Institute for Sustainable Development, SDG Knowledge Hub*, 22 February 2023) <<https://sdg.iisd.org/commentary/guest-articles/cites-growing-role-in-international-shark-conservation/>>.

listing of sharks ever, adopted by consensus, and 104 new species of elasmobranchs added to Appendix II, including the most heavily fished shark species, blue shark (see Figure 1).^[134] Two States (Indonesia and Thailand) have lodged reservations on the family listing of *Carcharhinidae* spp.,^[135] to which the blue shark belongs, and three additional States (Japan, Palau and Yemen) have lodged reservations specifically on blue shark.

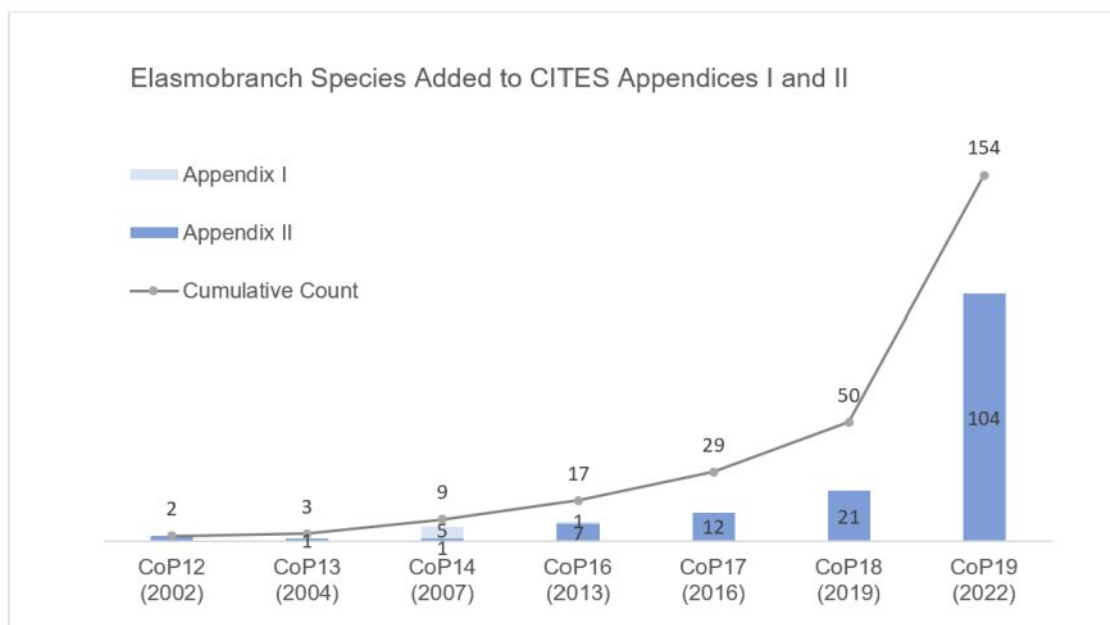


Figure 1: Elasmobranch Species Added to CITES Appendices I and II^[136]

Given the existing mandates of relevant t-RFMOs (2.3.) for the conservation and management of this group of species, both RFMOs and their members have invested heavily in efforts for joint capacity building and to improve coordination and understanding between the professional CITES' and fisheries' communities.^[137] This is in line with the CCRF, which calls on States to "cooperate in complying with relevant international agreements regulating trade in endangered species".^[138] Among the outcomes of increased CITES-fisheries collaboration was a modernization of CITES' resolution on the conservation and management of sharks in 2019,^[139] and an FAO study and guidance on how to implement CITES through national fisheries legislation.^[140]

[134] CITES Notification No 2023/005.

[135] These reservations are time-bound until 25 May 2024 in the case of Indonesia and 25 November 2028 in the case of Thailand.

[136] Pia Dittmer, 'Dataset on 2023 Listings of Shark and Ray Species (Elasmobranchii) in Appendix I and II of CITES, Including Reservations and Proposed Listing Criteria' (2023) <<http://dx.doi.org/10.13140/RG.2.2.26023.32161>>.

[137] See CITES Website for several large EU-funded capacity building projects: CITES 'Projects and Activities' <<https://cites.org/eng/prog/shark/projects.php>>. Germany has funded projects since 2019 to specifically improve the synergies between CITES and RFMOs, (see <<https://www.bmu.de/themen/artenschutz/internationaler-artenschutz/staerkung-der-synergien-zwischen-regionalen-fischereiorganisationen-und-cites-behoerden>>).

[138] CCRF (n 36) para 11.2.9.

[139] CITES Resolution Conf 12.6 (Rev CoP18) on the Conservation and management of sharks.

[140] Julia Nakamura and Blaise Kuemlangan, Implementing the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) through National Fisheries Legal Frameworks: A Study and a Guide (FAO 2020).

3.3. CITES Listing Process and Criteria

Proposals submitted by States to the CoP to add species to CITES Appendix I and II should follow a specific format and address criteria that Parties have elaborated in a resolution.^[141]

For proposals to list marine species, CITES also requires the Secretariat to consult “inter-governmental bodies, having a function in relation to those species”, both to obtain information relevant to the listing process and to ensure coordination with any measures adopted by them.^[142]

FAO, given its broad mandate and coordinating role among many regional fisheries bodies (RFBs),^[143] is one of the inter-governmental bodies to be consulted.^[144] In the context of FAO fulfilling this role, FAO’s Committee on Fisheries (COFI) in 1998 expressed concern that the general CITES listing criteria might be inappropriate for species caught in fisheries, and, in coordination with CITES, a process was established for revising the CITES listing criteria for this species group.^[145] This resulted in the inclusion of guidance on the application of the CITES listing criteria for “commercially exploited aquatic species” being added to CITES’ Resolution on listing criteria^[146] at CoP13 in 2005.^[147]

The application of these stricter listing criteria for elasmobranch species was recently challenged by one CITES Party on the basis of elasmobranch’s low productivity and intrinsic vulnerability to fishing, and this matter will be further discussed at future CITES meetings.^[148] Since 2004 FAO, under a COFI mandate, organizes an expert panel before each CoP to review listing proposals for aquatic species.^[149] It is worth noting that while CITES’ consultation provision is triggered for all “marine” listing proposals, the FAO Expert Panel has usually assessed proposals against the stricter criteria for “commercially exploited” species,^[150] indicating that they consider the species that have been proposed to fall into this category.

[141] CITES Resolution Conf 9.24 (Rev CoP17) on Criteria for amendment of Appendices I and II.

[142] CITES (n 11) art XV(2)(b).

[143] The term RFBs, as understood by FAO, covers both RFMOs and other regional fisheries bodies. See ‘What are Regional Fishery Bodies (RFBs)?’ (FAO, 2023) <<https://www.fao.org/fishery/en/topic/16800>>.

[144] See ‘Memorandum of Understanding Between The Food and Agricultural Organization of the United Nations (FAO) and the Secretariat of the Convention on International Trade in Endangered Species (CITES)’ (2006), <<https://cites.org/sites/default/files/eng/disc/sec/FAO-CITES-e.pdf>>; ‘Terms of Reference for the FAO Expert Panel’ <<https://www.fao.org/fishery/en/cites-fisheries/ExpertAdvisoryPanel>>.

[145] See CITES Doc SC.41.19.1, Summary report presented to the CITES Standing Committee.

[146] See CITES Resolution Conf. 9.24 (Rev. CoP17), Annex 5, footnote 2.

[147] See CITES Document CoP12 Doc 58 for the general background of the revision process; Summary Record CoP13 Plen. 5 (Rev 1).

[148] See CITES Document CoP19 Doc. 87.2 Aquatic species listed in the CITES Appendices: proposals for a new approach to the listing of sharks and rays; Summary Record CoP19 Com. I Rec. 16 (Rev. 1).

[149] See ‘Expert Advisory Panel’ <<https://www.fao.org/fishery/en/cites-fisheries/ExpertAdvisoryPanel>>. This process is also one of the elements of the 2006 Memorandum of Understanding between FAO and CITES.

[150] See the section “listing criteria” in the dataset created by Dittmer (n 136).

3.4. Scope of CITES Provisions' Application in the Context of Fisheries

As stated by Nakamura and Kuemlangan, it is “helpful, as a start, to clarify where the CITES regime and the fisheries sector interact, namely, where a fishery engages in an international trade transaction [as defined by CITES]”.^[151] Of the four transactions defined as international trade under CITES, import, export and re-export are commonly well understood and include at least two States. IFS,^[152] on the other hand, is a concept unique to CITES.

Despite IFS' inclusion in CITES from the onset, it took Parties until CoP16 in 2013 to develop guidance on the operationalization of IFS.^[153] The resulting resolution^[154] determines that for all activities falling under IFS that involve two States, the “normal” import-export permitting process is followed (requiring both an LAF and an NDF). In case a single State conducts IFS, this State must issue an IFS certificate (requiring an NDF). In both cases, States are also obliged to account for compliance with applicable measures under international law for the conservation and management of living marine resources under other international bodies.^[155]

IFS can apply to an activity in which only one State is involved, such as when a vessel catches CITES-listed species in ABNJ, and subsequently transports them back into the territory of its flag State, such as for landing (see Scenario 2 of Figure 2).

In this case (i.e., a ‘one-State transaction’), the State of introduction issues an IFS certificate. It can also apply to activities in which two States are involved (i.e., a two-States transaction), such as when a vessel flagged by one State catches CITES-listed species in ABNJ and transports them into the territory of another State (see Scenario 3 of Figure 2) or transships them onto a vessel flagged by another State (see Scenario 4 of Figure 2).

In all these cases the flag State is treated as the exporter and required to issue an export permit, while the port State (Scenario 3) or the flag State of the receiving vessel (Scenario 4) is treated as the importing state. A vessel catching CITES listed species within the EEZ of and subsequently landing them within its flag State does not fall under CITES regulation (see Scenario 1 in Figure 2).

However, if the landed specimens subsequently enter international trade, they again become subject to CITES provisions, with the flag State required to issue the export permit (see Scenario 5 in Figure 2).

[151] Nakamura and Kuemlangan (n 140) 13.

[152] See text to n 126.

[153] Kachelriess and Scanlon (n 133).

[154] CITES Resolution Conf 14.6 (Rev CoP16).

[155] *ibid* para 3.

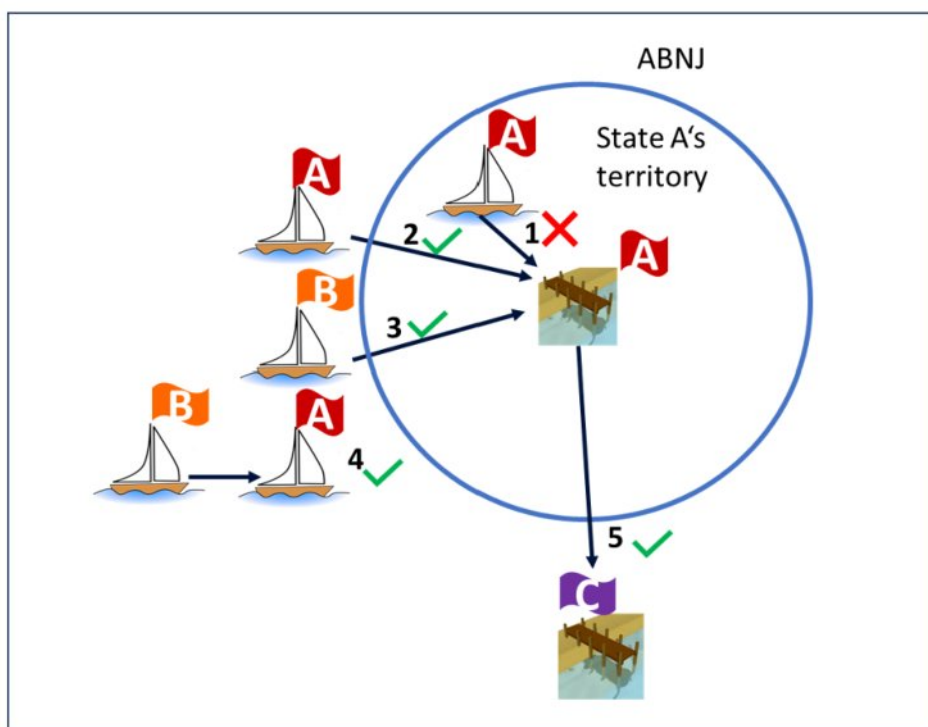


Figure 2: Overview of the application of CITES provisions with regard to fisheries.

The resolution also provides special rules for scenarios where one State has chartered the vessels of another State,^[156] but there seems to be little experience in applying them^[157] as well as more generally the implementation of IFS and the IFS resolution.^[158]

At the same time, Parties have signaled that they assign great importance to the correct implementation of IFS as demonstrated in a compliance case against Japan regarding the IFS of sei whales from the North Pacific.^[159] Recently Parties gave the CITES Secretariat more open mandates to support Parties in improving implementation.^[160] An increase in reporting of IFS in recent years^[161] of sharks listed under CITES and the public NDFs for North and South Atlantic shortfin mako^[162] of the EU's Scientific Review Group (SRG) as well as the UK's public NDF for short fin mako in all RFMOs^[163] suggests that these efforts do bear fruit.

[156] *ibid* para 2 (c).

[157] See, eg, CITES Document SC69 Doc. 36 paras 6-8.

[158] See CITES Document CoP18 Doc. 52 and, for more detail document SC70 Doc. 34 quoted therein.

[159] See CITES Document SC70 Doc. 27.3.4 and the corresponding decision in Summary Record SC70 SR under agenda item 27.3.4.

[160] See, eg, CITES Decision 19.140 c) in '19.140 & 19.141 Introduction from the Sea' <<https://cites.org/eng/dec/index.php/44358>>.

[161] See, eg, CITES Document AC32 Doc. 37 (Rev 1) Figure 1.

[162] EU Scientific Review Group for CITES Working Group on Sharks, 'Non-Detriment Finding for North Atlantic Shortfin Mako Sharks (*Isurus oxyrinchus*)' (2022) European Union; EU Scientific Review Group for CITES Working Group on Sharks, 'Non-Detriment Finding for South Atlantic Shortfin Mako Sharks (*Isurus oxyrinchus*)' (2022) European Union.

[163] UK CITES Scientific Authority, Non-detriment Finding: *Isurus oxyrinchus* (Shortfin mako), 2022, <https://cites.org/eng/virtual-college/ndf>.

3.5. Requirements for CITES Permits, Certificates and Relevant Guidance

To the extent that they fall within the scope of CITES, the trade transactions explained above require either an export permit or an IFS certificate.

Both types of CITES documentation require a prior NDF by the Scientific Authority.^[164] Export permits additionally require an LAF.^[165] LAFs are an “examination conducted by a Management Authority prior to issuing a CITES export permit to satisfy itself that the specimen was not obtained in contravention of the laws and regulations of that State for the protection of fauna and flora”.^[166] This includes relevant fisheries legislation and regulation in national law^[167] and guidance adopted by the CoP notes the need for effective cooperation with other relevant domestic authorities^[168], such as fisheries authorities. “NDF” refers to the requirement for the national Scientific Authority to determine that a particular trade transaction “will not be detrimental to the survival of that species”.^[169]

While there is no specific format or process for how to issue an NDF, guidance adopted by the CoP recommends that NDFs be the result of a science-based assessment and, among other things, should consider whether the species would be maintained throughout its range at a level consistent with its role in the ecosystems in which it occurs and takes into account all sources of mortality.^[170] While it is clear from the Convention text that it is solely in the purview of the national Scientific Authority to decide on the making of an NDF, CITES Parties also established an expert and peer-review process of countries' NDFs, called “Review of Significant Trade” (RST), which will be discussed further below.

For specimens taken from stocks of CITES-listed species that are fished by multiple Parties, including, but not limited to – in an IFS context –, fulfilling these requirements depends on some form of coordination and/or information exchange between States and/or relevant RFBs.^[171] CITES provides for the possibility of “consultation with other national scientific authorities or, when appropriate, international scientific authorities [...]” for NDFs in the context of IFS.^[172]

[164] CITES (n 11) art IV(2)(a) and (6)(a).

[165] *ibid* art IV(b)(b).

[166] CITES Resolution Conf 18.7 (Rev CoP19).

[167] Nakamura and Kuemlangan (n 140) 19.

[168] Resolution Conf 18.7 (Rev CoP19) paras 1(a) and 3(a).

[169] CITES (n 11) art IV(2)(a) and (6)(a).

[170] Resolution Conf 16.7 (Rev CoP17) para 1(a)(i), (ii) and (ix)(E). The consideration whether the species would be maintained throughout its range at a level consistent with its role in the ecosystems comes from Article IV(3) *ibid*, which instructs Scientific Authorities to monitor exports of Appendix II listed species with the same consideration in mind.

[171] Cf CITES Document CoP19 Doc. 43.2.

[172] CITES (n 11) art IV(7); and reproduced in Resolution Conf 14.6 (Rev CoP16) para 4.

CITES' long term guidance on the implementation of the Convention for sharks invites Parties with directed and non-directed shark fishing from shared stocks to collect and share relevant information regionally to assist Scientific Authorities of other States fishing the same shared stock in the making of NDFs of such shared stocks, including, explicitly, through RFMOs and RFBs.^[173] Many consider RFMO contributions to NDFs for "shared stocks" (which under CITES terminology include highly migratory species such as oceanic sharks) to be among the clearest opportunities for CITES-RFMO collaboration.^[174] However, the manner in which this is best put into practice remains unclear.^[175] In 2022, the CoP decided that further guidance on the making of NDFs in the context of IFS, including clarifying potential roles for RFMOs, may be helpful – and tasked the Secretariat with convening a workshop to develop recommendations in advance of the next CoP in 2025.^[176]

While there is no requirement under CITES to make NDFs public, the CITES Animals Committee has repeatedly encouraged Parties to share their national experiences in making NDFs for CITES-listed elasmobranchs.^[177] This invitation was echoed in the 2019 revision of the CITES' shark resolution.^[178] In response, some Parties have shared NDF guidelines and frameworks, as well as specific NDFs, on the CITES website.^[179] One of the most frequently used NDF guidance documents was developed in 2014 on behalf of the German Scientific Authority^[180] ("German NDF guidance") and adapted to a digital format in 2022.^[181] It lists international coordination on joint NDFs for shared stocks, and collaborative development of stock assessments and NDFs with RFBs for stocks in ABNJ among its overarching principles.

[173] CITES Resolution Conf 12.6 (Rev CoP18) para 5.

[174] Amie Bräutigam and Sarah Fowler, 'Summary Report of a Confidential Interview Survey of Key Fisheries and CITES Experts' 2021 <https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Artenschutz/cites_interviews_summary_bf.pdf>; Mundy-Taylor and others, 'CITES Non-detriment Findings Guidance for Shark Species' (A Framework to assist Authorities in making Non-detriment Findings (NDFs) for species listed in CITES Appendix II. Report prepared for the Germany Federal Agency for Nature Conservation (Bundesamt für Naturschutz, BfN), 2nd rev edn 2014) <<https://cites.org/sites/default/files/eng/prog/shark/docs/Shark%20NDF%20guidance%20incl%20Annexes.pdf>>.

[175] Daniel Kachelriess, 'Improving Synergies Between Regional Fishery Bodies and CITES Authorities for the Management and Conservation of Marine Elasmobranchs – Key Outcomes of the 2nd Webinar and Identifying Possible Areas of Focus for the 3rd Webinar' (2022) <https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Artenschutz/cites_fischereiorganisationen_webinar2_summary_en_bf_01.pdf>.

[176] CITES Decisions 19.135 to 19.139 'Non-Detriment Findings for Specimens of Appendix-II Species Taken from Areas Beyond National Jurisdiction' <<https://cites.org/eng/dec/index.php/44359>>.

[177] See, eg, Recommendations by the CITES Animals Committee at its 27th (2014) and 28th (2015) meeting contained in CITES Document CoP17 Doc. 56.1 in Annex 2 and 3 respectively, and at its 29th (2017) and 30th meeting (2018), contained in CITES Document CoP18 Doc. 68.1 Annex 1 and 2, respectively.

[178] CITES Resolution Conf 12.6 (Rev CoP18) para 12.

[179] CITES Website, 'Information resources from Parties and other stakeholders' for sharks & rays <https://cites.org/eng/prog/shark/resource_Parties_stakeholders#NDFs%20and%20NDF%20guidance>.

[180] Mundy-Taylor and others (n 174).

[181] Blue Resources Trust, 'CITES Electronic Non-Detriment (eNDF) Finding Portal for Sharks and Rays' <<https://user.cites-endf.org/About>>.

It further mentions RFBs "acting as an international Scientific Authority for high seas stocks" [that would] undertake a stock assessment [...], set a TAC, with a view to allocating this in the form of quotas to its CPCs",^[182] as a basis for national Scientific Authorities' decisions on NDFs.

The German NDF guidance operationalizes cooperation with RFBs (including t-RFMOs) throughout the NDF process and recommends the conduct of joint stock assessments for shared stocks through RFBs, as good compilations of relevant information.^[183] It further reiterates that because NDFs are supposed to take into account all sources of mortality "it is important that all high seas catches of all States are considered when developing NDFs for IFS. The same is true when more than one State fishes a stock that occurs within the waters of more than one State".^[184] With regard to existing management measures, it recommends Scientific Authorities consider if "existing management measures [are] effective (or likely to be effective) in mitigating the pressures affecting the stock/population of the species concerned", including if they are species-specific, appropriately designed and/or if Monitoring, Control and Surveillance measures are in place to monitor their implementation.^[185] Several of the example NDFs discussed in more detail below include this step, which could be considered best practice. Where information is unavailable or lacking, the guidance advises applying a precautionary approach, including when determining export volumes in a positive NDF.^[186] The German NDF guidance explicitly considers NDFs that are in place for an extended time, such as on the basis of a TAC^[187] (rather than made on a per-transaction basis) and "conditional" NDFs, that are positive (i.e., allow international trade to proceed) but include a list of actions to be fulfilled within a given timeframe and/or prior to the next review.^[188]

One relevant example for the ICCAT area is Brazil's negative NDF for the South Atlantic stock of shortfin mako for 2023.^[189] On regional management, the NDF relies on ICCAT information and refers to ICCAT's measure for shortfin mako (see 2.4.1.). Importantly, the Brazilian Scientific Authority also acknowledges that the "existence of a negative [Brazilian] NDF may not be effective if other countries that fish the [same] stock [...] issue a positive NDF", emphasizing the importance of coordination via RFMOs.

[182] Mundy-Taylor and others (n 174) 2-3 (including 'Textbox 1. Over-arching principles that will enhance development of robust shark NDFs').

[183] *ibid* 12-17 and 23.

[184] *ibid* 31.

[185] *ibid* 37.

[186] *ibid* 87 and 95.

[187] *ibid* 10 and 50.

[188] *ibid* 50.

[189] IBAMA, 'Non-detriment Finding of Brazil for the Mako Shark' (2023) <https://cites.org/sites/default/files/shark-ndf/BR_Isurus%20oxyrinchus_2023.pdf>.

Other relevant examples include the negative NDFs by the EU's SRG for North and South Atlantic shortfin mako for 2023.^[190] The EU is a Party to CITES in its own right, a possibility enabled by the Gaborone amendment,^[191] and has adopted EU's secondary law that is in part stricter than CITES itself. This also regulates how CITES responsibilities are divided between the EU and its member States.^[192] While the mandate to make NDFs generally rests with the national Scientific Authorities, the EU's SRG has a mandate to review NDFs of species entering the EU, including through imports or through IFS.^[193] Both NDFs rely heavily on data and analyses by ICCAT, refer to the uncertainties associated with these data and discuss ICCAT's CMMs. In the NDF for the North Atlantic stock, the SRG recalls that it had issued a negative opinion on IFS of shortfin mako from the North Atlantic in December 2020, meaning that "in practice, since January 1, 2021, EU vessels [had not been] allowed to land North Atlantic shortfin mako sharks fished in international waters".^[194] At the same time, the EU regulation applicable in 2021 allowed a catch limit of 288.54 tons of North Atlantic shortfin mako.^[195] Because ICCAT's mandate extends to areas within national jurisdiction,^[196] where if the specimens are subsequently landed in the same State, CITES does not apply, this created a situation in 2021 where EU vessels could legally catch and land up to 288.54 tons of North Atlantic shortfin mako caught in the territorial sea and EEZ of EU Member States,^[197] but not from ABNJ. This mismatch complicates assessments of compliance. For example, Portugal reported limited landings of shortfin mako from the North Atlantic high seas to ICCAT for 2021, suggesting some non-compliance, but the vast majority of its landings are reported from "combined areas", i.e. areas that cover EEZs and high seas.^[198] Interestingly, in the NDF, the SRG also mentions that it will decide in early 2022 whether to complement the negative opinion for IFS with zero export quotas for exports and re-exports,^[199] which would go beyond IFS. There is no publicly available information on how the SRG decided on this question.

[190] EU Scientific Review Group for CITES, Working Group on Makos (2022). Non-detriment finding for North Atlantic Shortfin Mako Sharks (*Isurus oxyrinchus*): <<https://cites.org/sites/default/files/shark-ndf/EU%20NDF%20Isurus%20oxyrinchus%20-North%20Atlantic.pdf>> (EU SRG Shortfin Mako North Atlantic NDF); EU Scientific Review Group for CITES, Working Group on Makos (2022). Non-detriment finding for South Atlantic Shortfin Mako Sharks (*Isurus oxyrinchus*) < <https://cites.org/sites/default/files/shark-ndf/EU%20NDF%20ISURUS%20OXYRINCHUS%20SOUTH%20ATLANTIC.pdf>> (EU SRG Shortfin Mako South Atlantic 2022 NDF).

[191] Adopted in 1983; entered into force 29 November 2013, <<https://cites.org/eng/disc/gaborone.php>>.

[192] Council Regulation (EC) No 338/97 of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein [1997] OJ L061/1. For stricter measures than required by CITES, note for example that art 4 para 2 requires an import permit for the import of an Appendix II species. As a prerequisite for the import permit, an EU Scientific Authority "considering any advice by the EU Scientific Review Group" also must make an NDF, effectively double-checking or re-doing the NDF of the Scientific Authority of the exporting State.

[193] Council Regulation (EC) No 338/97 (n 192) art 17 in conjunction with art 4(2)(a) and art 2(e).

[194] EU SRG Shortfin Mako North Atlantic 2022 NDF (n 190).

[195] Council Regulation (EU) 2021/92 of 28 January 2021 fixing for 2021 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters [2021] L 31 OJ 31, Annex ID (ICCAT Convention Area).

[196] ICCAT Convention (n 38) art 1.

[197] EU SRG Shortfin Mako North Atlantic 2022 NDF (n 190).

[198] ICCAT, Report of the SCRS, 2022, <https://www.iccat.int/Documents/Meetings/Docs/2022/REPORTS/2022_SCRS_ENG.pdf> 280-281.

[199] EU SRG Shortfin Mako North Atlantic 2022 NDF (n 190).

In the NDF for the South Atlantic stock in 2023, the SRG outlines in detail ICCAT's 2022 decision on the South Atlantic stock, including the 503 tons of retention allowance for the EU, and then concludes as follows:

despite the positive action taken by ICCAT, there are concerns about the current status of the stock of South Atlantic shortfin mako [...]. All in all, there appears to be a high degree of uncertainty of the robustness of the models, and it is unknown if the catch levels agreed by ICCAT, both past and present, are precautionary enough to address this uncertainty. It seems that the effect of current harvest levels will only be able to be predicted once the new assessment has taken place.^[200]

The SRG then decided a negative NDF for imports, introductions from the sea, exports and reexports of shortfin mako products from the South Atlantic stock caught by vessels registered in the EU. In parallel to NDFs following the 'German' framework, there are also other methodologies. The NDFs issued by the United States and made publicly available on the CITES website for example are based closely on existing US national fisheries management measures, including single-species TACs established in line with best-available science by an intergovernmental advisory body^[201] or in line with national multi-year management plans.^[202] The United Kingdom (UK) also published an NDF for shortfin mako in 2022 that is negative for both the North and South Atlantic, as well as for the Indian Ocean. For the North and South Pacific stocks, the UK issued a positive NDF while noting concerns that there is substantial uncertainty in the outcome of the North Pacific stock assessment.^[203]

[200] *ibid.*

[201] United States Department of the Interior, Fish and Wildlife Service. Memorandum. Subject: 'General advice for the export and introduction from the sea of wild porbeagle shark (*Lamna Nasus*) harvested in commercial fishery by U.S. fisherman in the Atlantic Ocean and Gulf of Mexico in the 2014 harvest season, opening on January 1, 2014' (05 August 2014) <https://cites.org/sites/default/files/eng/prog/shark/docs/NDF_on_porbeagle_shark.pdf>.

[202] United States Department of the Interior, Fish and Wildlife Service. Memorandum. Subject: 'General advice for the export of wild *Sphyrna lewini* (scalloped hammerhead shark), *Sphyrna mokarran* (great hammerhead shark) and *Sphyrna zygaena* (smooth hammerhead shark) harvested in commercial fishery by U.S. fisherman in the Atlantic Ocean and Gulf of Mexico in the 2015 harvest season' (18 June 2015) <https://cites.org/sites/default/files/eng/prog/shark/docs/NDF_%20on_3_hammerhead%20species.pdf>.

[203] UK Shortfin Mako NDF (n 163).

3.6. CITES Compliance Processes

In order to assess whether Parties effectively implement CITES obligations regarding Appendix II listed species, CITES Parties established the RST, an expert and peer-review process of countries' NDFs.^[204] In an RST, species/countries of concern are pre-identified based on CITES trade data according to a range of criteria, a sub-set of these species-country combinations is selected for further review by the respective CITES technical committees.^[205] In exceptional cases, Parties can also propose species/country combinations to be considered that were not pre-identified on the basis of CITES trade data.^[206] Selected States are requested to provide the scientific basis for their levels of exports, i.e. their NDFs.^[207] For species-countries combinations where the respective CITES technical committee considers that "action is needed" it shall, in consultation with the Secretariat, formulate time-bound, feasible, measurable, proportionate, and transparent recommendations", which the State they are directed to has to implement or else risk facing a trade suspension for that species.^[208] Because CITES does not prescribe a specific quality standard for NDFs, the RST process represents the primary opportunity to reveal what CITES Parties consider adequate NDFs.

The most recent selection of the RST in June 2023 was the first time that some CITES-listed Elasmobranchii were included in the review.^[209] With the outcomes of the RST expected to be available in 2024, there is currently no experience as to how the Animals Committee will assess Parties' NDFs for Elasmobranchii. The Elasmobranchii selected are oceanic whitetip shark (*Carcharhinus longimanus* – selected Parties: Kenya, Senegal, Oman and Yemen), *Mobula* spp. (selected Party: Sri Lanka), scalloped hammerhead (*Sphyrna lewini* – selected Parties: Mexico, Indonesia, China, Kenya, Nicaragua, Sri Lanka, Yemen and Oman), and great hammerhead (*Sphyrna mokarran* – selected Party: Mexico).^[210] This first round of RST for elasmobranchs can be seen as an indication that CITES is committed to ensure that NDFs for elasmobranchs are scientifically viable and in line with the objective to prevent their overexploitation by international trade.

[204] CITES Resolution Conf 12.8 (Rev CoP18).

[205] *ibid* para 1 (Stage 1 a, b).

[206] *ibid* para 1 (Stage 1 c).

[207] *ibid* para 1 (Stage 2).

[208] *ibid* para 1 (Stages 3-4).

[209] See CITES AC32 'Summary Record, Agenda item 14.2, Selection of new species/country combinations for review following CoP19', and in-session document AC32 Com. 3 referred to therein.

[210] *ibid*.

In their absence, it is worth looking at the experience from implementing CITES for seahorses, different species of which have already undergone three cycles of RST,^[211] which were summarized for CITES CoP in 2019^[212] and published in scientific literature.^[213] One of the key learnings presented was that few Parties were able to make NDFs and that after the RST, most Parties had either banned exports of wild specimens from their countries by their own decision or been placed under a trade suspension in the course of the RST.^[214] The study further noted that, based on the available evidence, both national export bans and CITES trade suspensions should be combined with effective enforcement and bycatch mitigation measures in order to achieve significant conservation benefits for seahorse populations.^[215]

This demonstrates that trade suspensions and zero quotas are “sometimes necessary, and fully consistent with CITES when a science-based NDF cannot be made”, although it is important to note that such suspensions may work best in reducing mortality when combined with measures to minimize bycatch and/or address other threats, and if accompanied by vigilant enforcement.^[216] For species and stocks whose population status still allows for the making of NDFs, Parties may wish not to ban, but instead restrict the export to a level that does not damage wild populations.^[217] An information document submitted to support the inclusion of oceanic whitetip shark in RST presents evidence, drawing on multiple sources of data, that despite the fact that retention bans have been adopted by all four t-RFMOs for this species, there is still significant ongoing international trade, some (but not all) of which is recorded in the CITES trade database. Oceanic whitetip shark was subsequently selected as one of the species for the current round of RST,^[218] which will review Parties’ NDFs, if any, that justify such trade.

In addition to the question of non-detriment, it needs to be noted that at least part of this trade is likely to be non-compliant with applicable CITES rules and/or CMMs adopted by t-RFMOs – to the extent that the relevant catches originate from fisheries within the mandate of the respective t-RFMO, which relates more to LAFs and their equivalent under IFS than to NDFs. There is no equivalent to the RST for LAFs, but another CITES compliance process under Article XIII can be deployed to investigate and address serious, apparent systemic or structural problems with the implementation and enforcement of the Convention.^[219]

[211] Vincent and others, 'Implementing CITES Appendix II listings for marine fishes: a novel framework and a constructive analysis', 30(3) Fisheries Centre Research Report (2022).

[212] CITES Document CoP18 Doc. 72.

[213] Vincent and others (n 211).

[214] *ibid* 35.

[215] *ibid* 41.

[216] *ibid* 107.

[217] *ibid* 41.

[218] CITES AC32 'Summary Record, Agenda item 14.2 (n 209).

[219] CITES Resolution Conf. 11.3 (Rev. CoP19) on Compliance and enforcement.

4. Conclusion

The conservation of sharks has proven to be challenging for all t-RFMOs but success is within reach, if adequate CMMs are implemented.^[220] This opinion shows that both CITES and international fisheries law – in particular UNCLOS, the UNFSA and the legal framework of the RFMOs – play an important role in the conservation and management of commercially exploited sharks. While the scope, rules, and mandates of the relevant instruments and institutions differ, they have shared objectives and their respective parties are obliged to comply with them in parallel. This requires an interpretation of both legal frameworks taking into account the respective standards and requirements of both. Moreover, the conservation and management of commercially exploited sharks depends on effective institutional coordination between CITES and RFMOs. This is acknowledged by a multitude of cross-references in relevant instruments and documents adopted in the frameworks of both regimes. This mutually reinforcing relationship of both regimes supports the conclusion that commercially exploited sharks such as blue shark – which form a large (sometimes the largest) part of the economic value of catches of some tuna fisheries – require management by RFMOs as a (secondary) target species rather than as a non-target species or “bycatch”.

Under international fisheries law, this conclusion follows primarily from an interpretation of Article 5 UNFSA that classifies shark species as “target stocks” if they are de facto targeted for their high economic value in mixed tuna fisheries. Moreover, international practice shows that States have entrusted t-RFMOs with a sufficiently broad competence to manage commercially exploited sharks that are caught incidentally in tuna fisheries managed by the RFMO (IATTC, ICCAT and IOTC) or when they are the primary target stock (WCPFC). That said, to further enhance shark governance – including the obligation to fulfil requirements under CITES – in t-RFMOs, both IOTC and IATTC should follow the example of ICCAT and WCPFC by amending their constitutive treaty to include the competence to regulate sharks also as primary target species, and CPCs should increase resource allocation to t-RFMOs’ shark-related workstreams. In this respect, ICCAT should increase its efforts to persuade its members to become parties to the 2019 ICCAT Convention amendment in order to expedite its entry into force.^[221] Despite sufficiently broad t-RFMO competences, our analysis of t-RFMO practice shows that t-RFMOs have not yet adequately fulfilled their responsibility to regulate commercially exploited sharks through effective CMMs, such as harvest strategies including but not limited to HCRs. While all four selected t-RFMOs have adopted CMMs containing measures which are generally suitable for non-target shark species, only ICCAT has gone as far as setting TACs for some commercially exploited shark stocks that must be classified as secondary target species. However, even ICCAT has not yet adopted

[220] Nathan Pacoureau and others, ‘Conservation successes and challenges for wide-ranging sharks and rays’ (2023) 120(5) Proceedings of the National Academy of Sciences of the United States of America e2216891120.

[221] Protocol amending the ICCAT Convention (n 75).

comprehensive harvest strategies with HCRs for these sharks despite having acknowledged the need to do so (see 2.4.2.). Overall, there is a clear trend towards recognition that commercially exploited sharks require species specific management like that adopted for other target species. So far however, progress remains slow in the framework of most t-RFMOs.

Our analysis of CITES supports and complements the conclusions reached with respect to international fisheries law.

Indeed, CITES obligations do not distinguish between target and non-target species and proposals to list sharks under CITES have been assessed and agreed against listing criteria developed for commercially exploited aquatic species, lending further support to the classification of such species as secondary target species under international fisheries law.

Drawing on the 'full' management toolbox appropriate for secondary target species will also allow t-RFMOs to better support their members, many of whom are also CITES parties, in the implementation of CITES for commercially exploited sharks. Owing to CITES' definition of international trade, including IFS, the scope of CITES' applicability to fisheries of CITES-listed species within the framework of RFMOs is extensive.

Therefore, CITES requirements are likely to apply to much, if not most fishing of CITES-listed sharks under RFMO competence. Such activities require – at the very least – an NDF by a national Scientific Authority. In the case of IFS, the NDF must even be issued prior to the caught sharks entering the territory of the State of introduction.^[222] While no binding guidelines exist for the making of NDFs, multiple guidance documents and State-practices emphasize that NDFs must take into account *all* sources of mortality. For shared stocks of listed shark species, in particular – but not limited to – stocks fished in the high seas by many States, such as the blue shark, this requires effective multi-national cooperation. The role of RFMOs in this respect is explicitly acknowledged by CITES as well as by the relevant guidance adopted by the CITES CoP.

To facilitate their members' implementation of – and compliance with – CITES obligations, t-RFMOs should adopt precautionary, science-based, effective, and species specific CMMs for all CITES-listed sharks caught in fisheries conducted within their area of competence (both target and non-target) that Scientific Authorities can refer to and rely on when making NDFs. Furthermore, stock assessments are recognized as one of the best compilations of information that CITES Scientific Authorities can use to make NDFs. However, for several commercially exploited sharks, stock assessments often either do not exist, are outdated,

[222] CITES (n 11) art IV(6): "shall require the prior grant" [of an IFS certificate] (emphasis added).

or the modelled outcomes are highly uncertain due to frequently poor compliance with reporting requirements that result in scientists lacking a solid basis for an estimation of total fishing related mortality. The experience from CITES' peer-review process – the RST – for NDFs of other marine species further elucidates the relevant requirements. It has also been demonstrated that if Parties agree on export bans and/or retention bans for those stocks that have already declined to a level at which NDFs are no longer feasible, these retention and export bans must be complemented with effective measures to reduce bycatch and mitigate bycatch mortality – combined with strong enforcement. This conclusion is also broadly supported by recent literature on the management of oceanic sharks.^[223]

For stocks that can still support NDFs, CMMs may wish to draw from the toolbox for target species (i.e., catch limits and harvest strategies, including HCRs). This option certainly is more in line with the intent of the CITES Appendix II. Indeed, there are clear links between NDFs and HCRs, with the latter corresponding most closely to revealed State practice and guidance on NDFs, including that they account for full mortality and the shared aim of ensuring the survival of the species in and at a level consistent with their role in the ecosystem. They also support the operationalization of the obligation of Scientific Authorities to monitor exports with the objective to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I.^[224]

Overall, particularly the CITES' peer-review process of NDFs in the form of the RST presents an incentive for RFMOs to pro-actively manage commercially exploited sharks through measures suitable for target species, which in turn will support their members in the long-term sustainable management of sharks in line with CITES, with the first round of RST of CITES-listed sharks already underway. Indeed, CITES Appendix II listings and subsequent NDF procedures of commercially exploited sharks have already acted as a catalyst for an improved management of shortfin mako at ICCAT (see 3.5.). For blue shark, ICCAT still has the chance to get ahead of the curve and swiftly adopt effective, species-specific CMMs consistent with its status as a secondary target species and in line with the obligations of ICCAT members under international fisheries law and CITES.

[223] Mariana Travassos Tolotti and others, 'Banning is not enough: The complexities of oceanic shark management by tuna regional fisheries management organizations' (2015) 4 *Global Ecology and Conservation* 1–7.

[224] CITES (n 11) art IV(3).





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