TRAFFIC

January 2022

MISSING SHARKS:

A COUNTRY REVIEW OF CATCH, TRADE AND MANAGEMENT RECOMMENDATIONS FOR CITES-LISTED SHARK SPECIES

Nicola Okes
Glenn Sant

TRAFFIC REPORT

ABOUT US

TRAFFIC is a leading non-governmental organisation working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

Reproduction of material appearing in this report requires written permission from the publisher.

The designations of geographical entities in this publication, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of TRAFFIC or its supporting organisations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

PUBLISHED BY:

TRAFFIC International, Cambridge, United Kingdom.

SUGGESTED CITATION

Okes, N. and Sant, G. (2022). Missing Sharks: A country review of catch, trade and management recommendations for CITES-listed shark species. TRAFFIC.

© TRAFFIC 2022. Copyright of material published in this report is vested in TRAFFIC.

UK Registered Charity No. 1076722

DESIGN

Abbie Pearce

FRONT COVER

Elianne Dipp / Pexels

Scalloped hammerhead Ben Phillips / Pexels

ACKNOWLEDGEMENTS

The preparation and development of this report was made possible with funding provided by the Shark Conservation Fund.

The authors would like to thank the reviewers of this paper, Lee Crockett, Dr Rima Jabado, Daniel Kachelriess and Luke Warwick for their insightful and valuable contributions.

Thank you to our TRAFFIC colleagues Simone Louw, Markus Bürgener, Camilla Floros and Anastasiya Timoshyna for their technical reviews of the report.

Thank you very much to Abbie Pearce for the design of the cover pages of this report.

Shark Conservation Fund

This project is supported by the Shark Conservation Fund

LIST OF ABBREVIATIONS

AMCS – Australian Marine Conservation Society
CCSBT – Convention on Conservation of Antarctic Marine Living Resources
CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMM – Conservation Management Measure
CoP – Conference of Parties
EEZ – Exclusive Economic Zone
EJF – Environmental Justice Foundation
EU – European Union
FAO – Food and Agriculture Organization of the United Nations
FOC – Flag of Convenience
GFCM – General Fisheries Commission for the Mediterranean
IATTC – Inter-American Tropical Tuna Commission
IATTC – International Commission for the Conservation of Atlantic Tunas
IFS - Introduction From the Sea
IOTC – Indian Ocean Tuna Commission
LAF – Legal Acquisition Finding
NDF – Non-Detriment Findings
NEAFC – North-East Atlantic Fisheries Commission
nei – not elsewhere indicated
RFMO – Regional Fisheries Management Organization
SAR – Special Administrative Region
TAC – Total Allowable Catch
UAE – United Arab Emirates
UNEP-WCMC – United Nations Environment Programme World Conservation Monitoring Centre
WCPFC – Western and Central Pacific Fisheries Commission
WWF – World Wide Fund for Nature

EXECUTIVE SUMMARY

Since 2013, the number of shark species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), whose mandate it is to regulate their international trade, has grown. The CITES' technical committee has raised concerns that trade data reported by Parties does not match expert expectations and that international trade in CITES-listed sharks may be going undetected and unreported.

CITES CoP18 therefore (in Decision 18.211) requested an investigation of this presumed mismatch. This report provides a qualitative review of country shark catches (FAO landings data), and trade and management measures, to understand the disconnect between known catches of CITES-listed shark species and reported international trade. Evidence was collated per country comparing historical records of catches and trade in all shark species listed on CITES Appendix II, the international trade reported to CITES, and any evidence of changes in management measures adopted post-CITES listing. Where information was sufficient to conclude that a country had historical catches, but no trade reported under CITES or a change in management measures to account for a lack of trade records, these were highlighted. Where historical or current (up to and just prior to listings) catches were or are likely destined for domestic consumption, these countries were also highlighted to provide a broader understanding of reasons for potential mismatches in catch and trade. Because CITES' definition of international trade includes "Introduction From the Sea"[1] (IFS), countries where there was evidence of fisheries associated with targeted or incidental catch of sharks on the high seas but no corresponding records of IFS and no evidence of a change in management measures, these instances were also highlighted. Some countries catching more than one species of CITES-listed shark could fall into more than one category depending on the species under review.

We acknowledge that there are several limitations in the data used to review catch and trade for each country. This review is preliminary, is based on publicly available information, and

[1] IFS is defined in Article 1 of the Convention as transportation into a State of specimens of any species which were taken in the marine environment not under the jurisdiction of any State (Conf. 14.6 (Rev. CoP16)).

highlights areas where more information is needed to assess potential non-compliance or lack of infrastructure to ensure appropriate implementation of CITES requirements. Where there is likely to be poor reporting of catch and trade by artisanal fisheries, we note that this may be an area for more detailed research. We draw attention to several concerns relating to a lack of catch and trade reporting, ambiguity around compliance with Regional Fisheries Management Organisations (RFMO) retention bans, and the general scarcity of IFS-related records available in the CITES database (a concern also highlighted by the CITES Secretariat at CoP18).

Recommendations include improved transparency and availability of information regarding Non-Detriment Findings (NDFs), bilateral fishing agreements, foreign-flagged vessels, and shark catches on the high seas.

INTRODUCTION

Sharks[2] are among the most threatened species groups globally due to a combination of factors, including their life-history traits, which render them vulnerable to anthropogenic pressures, and the demand and economic value of their derived products from numerous fisheries. The demand and economic value of shark fins (Dulvy et al. 2014), meat (Niedermüller et al. 2021) and, to a lesser extent, other derivatives, such as shark liver oil and shark skin (Dent & Clark 2015), have contributed to severe declines in shark populations.

Over the past twenty years, declining populations of pelagic shark species and raised awareness over the detrimental impact of commercial trade in shark meat and fins have led to improved regulations controlling both the catches of shark and international trade in their products worldwide. Due to most shark species' broad distribution, often migratory nature, and occurrence in a range of fisheries where they are caught as targeted or incidental catch, cohesive regional and international cooperation is necessary to manage shark fisheries and related trade appropriately (Okes and Sant, 2019, Fowler et. al. 2021). In recognition of this, numerous fisheries management measures have been implemented since 2016 through national legislation and regional fisheries management organisations (RFMO's), including bans on retaining on board certain species (e.g. retention bans), finning bans and trading bans for shark species.

As of September 2019, 14 shark and 27 ray species have been afforded protection through listing in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 2002. A CITES Appendix II listing imposes legally binding regulatory provisions to ensure that international trade of listed species is both legal and non-detrimental to stocks in the wild (Friedman et al. 2018). Countries wishing to trade in CITES Appendix II listed shark products are required to provide an export or re-export permit.

[2] The term "sharks" is taken to include all species of sharks, skates, rays and chimaeras, in alignment with the Food and Agriculture Organization (FAO) International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) (Conf. 12.6 (Rev. CoP18)).

This is only granted if (Article IV):

- a Scientific Authority of the State of export has advised that such an export will not be detrimental to the survival of that species, and if
- a Management Authority of the State of export is satisfied that the specimen was not obtained in contravention of the laws of that State for the protection of fauna and flora.

Countries wishing to trade in specimens caught outside of the jurisdiction of a State, i.e. on the high seas, require the prior grant of a certificate from a Management Authority of the State of introduction as per Resolution Conf 14.6 (Rev. CoP16); Article IV.

Monitoring and reporting of trade by Parties is vital to the effective implementation of CITES. CITES Parties are required to maintain records of trade in specimens listed on ***any*** Appendices, and submit to the Secretariat information on (Article VIII, CITES):

- the number and type of permits and certificates granted
- the States involved in the trade
- the number, quantities and types of specimens
- the names of species traded and, where applicable, the size and sex of the specimens in question.

These records are made available to the public through the CITES trade database maintained by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC).

CITES trade data should, amongst other things, allow the monitoring of international trade, and as is the case of many CITES-listed marine resources, contribute to our understanding of the sustainability of shark fishing practices and trade. CITES trade data also builds the foundation for ensuring that trade in species listed on CITES Appendix II are not traded unsustainably, through the process of "Review of Significant Trade" (Resolution Conf. 12.8 (Rev. CoP18)). Despite the reporting requirements and the value of the data, numerous studies note challenges in the data recorded in the CITES trade database, including potential mismatches between actual and reported trade (e.g., Blundell and Mascia, 2005; Phelps et al. 2010; Foster et al., 2016; Pavitt et al., 2021).

In 2013, an assessment that looked at needs for the effective CITES implementation of six shark species/groups[3], Mundy-Taylor and Crook (2013), 'revealed a lack of basic information on the levels of catch and population status of the newly listed marine species'. It emphasised an urgent need to improve the identification of species in trade and trade reports and called for further research, assessment and monitoring to determine the impacts of trade on populations. The study also highlighted the need to ensure domestic regulatory frameworks and administrative structures are adequate to support the implementation of CITES trade controls.

Friedman et al. (2017) found that, in 2017, a search of trade records for shark species in the database listed in 2013 showed only 36 commercial export transactions from 13 countries. The authors noted that: 'capture production and trade records for CITES-listed elasmobranchs were inadequate and insufficiently representative for a quantitative assessment of shifts in management'.

Up until 2018, no records of shark meat trade were recorded in the CITES database for any of the listed species other than for Porbeagle (*Lamna nasus*), suggesting that their meat is either not being traded internationally (possibly traded domestically, used for subsistence, or discarded) or, that their meat is being traded internationally without CITES permits, or both (Cardenosa et al. 2018).

In addition, until 2018, there were no reports in the CITES trade database on the use of required certificates and codes to reflect shark species captured outside the jurisdiction of a State (i.e., on the high seas); which prompts the use of the protocols for Introduction From the Sea (IFS) (Resolution Conf. 14.6). There is concern that CITES Parties may be catching CITES listed (specifically App II) species on the high seas, but not abiding by IFS requirements and subsequently trading them as non-CITES species or potentially not observing Regional Fisheries Management Organisation's (RFMO) requirements of non-retention (reflected in

[3] Oceanic Whitetip shark *Carcharhinus longimanus*, Porbeagle *Lamna nasus*, Scalloped Hammerhead shark *Sphyrna lewini*, Great Hammerhead shark *Sphyrna mokarran*, and Smooth Hammerhead shark *Sphyrna zygaena*, Manta rays *Manta spp*.

CITES Secretariat report to CITES CoP18 (CoP18 Doc 68.2) and Decision of the Parties, including 18.221).

In 2018, the Animals Committee (AC30 Com. 8) noted concerns raised that the actual trade in CITES-listed shark products recorded in the CITES database was lower than expected against the knowledge available on catches of listed species[4]. The Animals Committee suggested that this could be occurring for many reasons, including the delayed reporting of Parties, the use of different units on CITES permits, the stockpiling of CITES-listed shark products due to a country not having made a positive non-detriment finding (NDF) at this time, problems issuing permits for products with mixed species (e.g., liver oil) and illegal trade including the laundering of listed species products with non-listed species. It was proposed as necessary to understand why they were not appearing if they may still be entering trade but being misrepresented as a non-listed species. For example, there will be Parties who have introduced non-retention laws, which would explain the absence of information for that country, or they may in fact lack implementing legislation for IFS. The lack of data has wider implications for the conservation of the species concerned. Without this data, it is not possible to know whether (even if they are not being traded) catch levels have remained unchanged with these sharks being discarded, rather than landed (in the case of industrial fisheries for example); or whether a reduction in catch and trade is leading to a decline in mortality rates.

[4] This mismatch of data concern was articulated through Decision 18.221 (https://cites.org/eng/taxonomy/term/42086) of the Parties and reinforced as an area to be addressed at CITES SC74 by AC31 (AC31 Com. 7 https://cites.org/sites/default/files/eng/com/ac/31/com/E-AC31-Com-07.pdf)

To shed light on the above concerns, this study aims to provide a review of historical catch and trade information at a country level for those shark species listed at CITES CoP16 and CoP17, namely:

- Porbeagle shark *Lamna nasus*,
- Oceanic whitetip shark *Carcharinus longimanus*,
- Scalloped hammerhead *Sphyrna lewini*,
- Smooth hammerhead *Shyrna zygaena*,
- Great hammerhead shark *Sphyrna mokarran*,
- Manta and *Mobula*[5] spp.
- Thresher sharks *Alopias* spp and
- Silky shark *Carcharhinus falciformis*.

The relevant species' catch, trade and regulations for each country was documented in detail to identify gaps in recording according to regulations and explanations for these. If historic catches were from the high seas, and the regulations did not change, they would be recorded as Introduction from the Sea. If historic catches were from within the country's exclusive economic zone (EEZ) and there is evidence of historic trade of all or part of that catch, and the regulations did not change, one would expect exports recorded in the CITES trade database, unless there is evidence that the catch is now consumed domestically.

[5] Following genetic studies in 2018, mantas have been taxonomically reclassified into the genus *Mobula*. Manta and Devil rays are searched for separately in the CITES trade database, using the genus name Manta for Manta rays and Mobula for Devil rays.

METHODS

To identify countries where there may be gaps in recording of catch and trade according to country and regional regulations, data[6] on catch was first sourced from FAO FishStat (FAO, 2020)[7] and trade from the CITES trade database respectively for the years 1999 – 2018. This was followed by a review of publicly available literature[8] on relevant species catch by the identified countries, whereby trade and fisheries regulations for each country was documented in detail according to the following list of questions and information categories:

[6] Catch data sourced from FAO and therefore "include all quantities caught and landed for both food and feed purposes but exclude discards. Catches of fish, crustaceans and molluscs are expressed in live weight, that is the nominal weight of the aquatic organisms at the time of capture". (FAO FishStatJ, 2020).

[7] Where FAO landings data did not indicate that a country was catching shark species but there was evidence in the literature that suggested they were, then a further search of catch or landings data was conducted using RFMO annual country reports.

[8] Including CoP proposals, IUCN red list assessments, RFMO annual reports, scientific literature, technical reports and country reports on shark status, catch and trade.

Has the country recorded catch of one or more CITES Species (listed at CITES CoP16 and CoP17, 2000 – 2019?): Yes/No

If yes, then the next set of questions were researched for each country:

- ⇒ If recorded catch, which species?
- ⇒ Provide details of relevant RFMO and evidence of management arrangements from regional agreements that would apply to the country.
- ⇒ Is there evidence of fishing on the high seas, with detail of the nature of the evidence where necessary?
- ⇒ Provide details if considered a Flag of convenience.
- ⇒ Provide details of species catches over the period.
- ⇒ Provide details of trade in non-CITES-listed species trade over the period.
- ⇒ Details of the CITES trade database information for species caught.
- ⇒ Details of CITES Introduction from the Sea (IFS) related documents in database.
- ⇒ Is there evidence of illegal trade from the country? Data sourced from media reports of seizures, specifically the Wildlife Trade Portal[9].
- ⇒ Details of Non Detriment Findings (NDFs) for any of the caught species, where publicly available or known to the authors[10].

Based on the information collected and a comparison of the reported catch and trade, countries were listed under the following categories and specifically highlighted if falling into category (c):

a) Evidence of catches and trade prior to listing and has CITES data records and positive NDF.

b) Evidence of catches and trade prior to listing, no CITES trade data, but shows evidence of changed management arrangements or full domestic utilisation or negative NDF.

c) Evidence of catches prior to listing, no CITES trade data, and no evidence of changed management arrangements or full domestic utilization or a negative NDF.

[9] TRAFIC International. 2020. Wildlife Trade Portal. Available at www.wildlifetradeportal.org

[10] CITES does not require Parties to share non-detriment findings, however several Resolutions and Decisions encourage Parties to share their NDFs (e.g. Resolution Conf. 16.7 (Rev. CoP17) on Non-detriment findings).

For countries with vessels fishing in international waters, the information was reviewed, and the following categories were also used. Countries were specifically highlighted if they fell into category (f):

> d) Evidence of fishing on the high seas and information on species-specific catch and details of IFS related documents.
>
> e) Evidence of fishing on the high seas, no IFS related documents, but evidence of implementation of stricter measures from another international instrument (for e.g. non-retention)
>
> f) Evidence of fishing on the high seas, no CITES related IFS documents and no evidence of implementation of stricter measures from another international instrument, (e.g. non-retention).

Important notes on methodology regarding IFS:

It is important to note that there may be several ways in which Introduction from the Sea is currently being reflected in the CITES trade database. The CITES trade database (UNEP-WCMS, 2013) suggests that transactions involving IFS are reflected through the source and origin codes, whereby the country or territory code for IFS is 'ZZ'. In more detailed documents sent as Notifications to parties, the "Guidance on IFS in the Guidelines for the preparation and submission of CITES annual reports" (https://cites.org/eng/notif/index.php) have detailed changes to the guidelines around the reporting of IFS transactions. In 2011, these guidelines stated that for IFS transactions, the number of the certificate of introduction needs to be included in the remarks section of the report (https://cites.org/sites/default/files/eng/notif/2011/E019A.pdf). Since the notification in 2015 (E-Notif-2015-058-A) and subsequent notifications regarding the guidelines to Parties (E-Notif-2017-006-A_0, E-Notif-2019-072-A1, E-Notif-2021-044-A1), this has changed to state that "Any introductions from the sea should be included in the section on imports., and in these cases, the field corresponding to 'Country of export or re-export should be recorded as "HS" and the field corresponding to 'Source code' should be recorded as "X".

RESULTS

Of the 246 countries and territories listed in the CITES trade database Users Guide (of which 183 are a Party to CITES), a total of 74 were identified as having either reported catches of one or more of the relevant CITES-listed species or having fisheries associated with targeted or incidental catch of CITES-listed sharks with evidence provided in the literature (including CoP proposals and country annual RFMO reports). Of these, 51 had no records of relevant CITES-listed shark and ray species in the CITES trade database between 2001 - 2019 for commercial purposes from any source (excluding confiscations and pre-convention specimens), whether as an exporter or origin country (CITES trade database, accessed June 2020). The majority of catching countries were members or cooperating non-members of at least one RFMO that had shark related conservation and management measures (67), but a few were not (7).

SPECIES-SPECIFIC CONSIDERATIONS

Porbeagle shark (CITES listing effective 2014) is caught in both targeted fisheries and as incidental catch, particularly in pelagic longline fisheries for tuna and swordfish, but also in gill nets, driftnets, trawls, and handlines, and is harvested primarily for its high value meat (Mundy-Taylor and Crook, 2013). Although most target fisheries take place within EEZ's, there is significant catch in high seas fisheries (Mundy-Taylor and Crook, 2013) which would now require an Introduction from the Sea certificate, and thus a positive NDF to land and export catches. Since 2012, fishing for Porbeagle has been prohibited in all EU waters, including the Mediterranean Sea, and by EU vessels fishing in international waters (EC Regulations 23/2010, 57/2011, 44/2012).

Several RFMO's have also introduced regulations to control catches of Porbeagle on the high seas:

- NEAFC prohibits the directed fishing of Porbeagle (Rec. 07. 2016, 2020);
- ICCAT requires the live release of Porbeagle caught in association with ICCAT fisheries (BYC-15-06); and
- GFCM prohibits the retention, transhipment, landing, transferring, storage or selling of elasmobranchs listed in the SPA/BD Barcelona Convention Protocol Annex II, which includes Porbeagle shark (GFCM/42/2018/2).

Oceanic whitetip sharks (CITES listing effective 2014) are caught in high seas pelagic fisheries, commonly in fisheries primarily targeting tuna and swordfish in the Atlantic Ocean. They are also caught in purse seine fisheries in the Pacific Ocean, by commercial shark longliners in the Indian Ocean and in purse seine fisheries primarily targeting tuna in the Western Indian Ocean (CoP16 Prop. 42). Although Oceanic whitetip meat is consumed domestically in some countries, it is generally of low value, and carcasses are accordingly discarded, while the fins are retained due to their high value in market states (CoP16 Prop. 42). Retention bans: Retention of Oceanic Whitetip shark is now prohibited by all of the tuna RFMOs (IATTC C-11-10; ICCAT Rec. 10-07; IOTC 13/06, and WCPFC CMM 2011-04), with the collection of data on discards and live release mandated, but according to IOTC these are still "seldom reported" (IOTC, 2017b). Fins traded from Oceanic whitetip sharks caught on the high seas by members of those RFMOs would be in contravention of the provisions of these organisations, which could explain why no IFS documents exist for many countries for this species in the CITES trade database (except for India which has taken out a reservation against the IOTC resolution). It should be noted, however, that some of these no-retention bans may exclude artisanal fishing and fishing in EEZs.

Hammerhead sharks (Smooth, Scalloped and Great; CITES listing effective 2014) are caught in targeted fisheries, and as incidental catch in pelagic and demersal fisheries and are traded primarily for their fins (Okes and Sant, 2019; IUCN and TRAFFIC, 2012). Hammerhead meat is also traded internationally but not known to be in large quantities (Mundy-Taylor and Crook, 2013). Scalloped hammerhead shark are caught in numerous domestic fisheries globally as well as on the high seas. Retention bans: High seas fishing vessels flagged to members of ICCAT are prohibited from retaining, transhipping, landing, storing, selling, or offering for sale any part or whole carcass of hammerhead sharks from the family Sphyrnidae (except *Sphyrna tiburo*) (Rec. 10-08). Developing coastal States are exempt from this prohibition, but they are to ensure that hammerhead sharks do not enter international trade. Thus, if well implemented, there should be no trade occurring from ICCAT fisheries (CoP16 Prop. 43). The GFCM also prohibits the retention, transhipment, landing, transferring, storage or selling of sharks and rays listed in the SPA/BD Barcelona Convention Protocol Annex II, which includes the three CITES-listed hammerhead species (GFCM/36/2012/3).

Silky shark (CITES listing effective October 2017) are caught in targeted shark fisheries, as well as a utilised incidental catch of industrial longline and purse seine tuna fisheries, including on the high seas (Cop17 Prop 42). Silky shark is used domestically for its meat however, it is mainly

caught and traded for its fins on the international market. Retention bans: The retention of Silky sharks is now prohibited for fisheries operating in ICCAT (Rec. 11-08) and WCPFC convention areas (CMM 2013-08) and by purse seiners in the IATTC convention area (C-16-06, C-19-05). In addition, IATTC requires members and CPCs to limit bycatch of Silky sharks by non-shark-targeting longliners to 20% (IATTC C-16-06, C-19-05). Silky shark caught on the high seas and traded by members of those RFMOs would be in contravention of the respective provisions and therefore may explain why no IFS documents exist for many countries for this species in the CITES trade database. Silky shark caught as incidental catch by vessels targeting tuna in the Indian Ocean (where no prohibition exists) outside the jurisdiction of any countries' national waters would fall under CITES IFS, and would thus require the issuance of IFS certificate, and their subsequent reporting, to land the catch (e.g. Sri Lanka, Iran, Pakistan, Taiwan, Province of China, Tanzania (FAO, 2020)).

Thresher sharks (Bigeye, Pelagic and Common; CITES listing effective 2017) are frequently caught by offshore longlines and pelagic gillnet fisheries, both as a targeted species and as utilized incidental catch. All three species are traded primarily for their high value fins in market destinations such as Indonesia, Singapore and Japan (Dent and Clarke, 2015), although there are also markets for their relatively high value meat, which has driven some historic, primarily domestic, fisheries (e.g., on the Pacific coast of the United States) (Okes and Sant, 2019). Retention bans: Both ICCAT and IOTC have implemented regulations prohibiting vessels from retaining, transhipping, landing, storing, or selling Thresher sharks of all the species of the family Alopiidae (ICCAT Rec. 09-07, IOTC Res. 12/09). Tuna RFMO's governing the Pacific Ocean currently have no measures in place to regulate the catch of Thresher sharks.

Mobula spp. (CITES listing effective 2014 and 2017) are caught in targeted fisheries with a variety of gear types, including harpooning, netting, trawling, purse seine, gillnets and long lines, and as incidental catch in gillnet, longline and purse seine fisheries, including those targeting tuna in tropical waters (CoP16 Prop. 46; Mundy-Taylor and Crook, 2013; Heinrichs et al. 2011). Mobulid species were traditionally used for their meat, but the largest species are now increasingly targeted specifically for their gill plates to supply markets in Asia (Ward-Paige *et al*., 2013; Heinrichs et al. 2011). Retention bans: The IATTC implemented a retention ban in 2015 prohibiting vessels from retaining, transhipping, landing, storing, or selling Mobulid rays (which includes *Manta* and *Mobula* rays) (IATTC C-15-04). GFCM prohibits the retention, transhipment, landing, transferring, storage or selling of elasmobranchs listed in the SPA/BD Barcelona Convention Protocol Annex II, which include rays/devil rays (GFCM/42/2018/2). More recently,

in 2019, IOTC and WCPFC have also implemented a similar retention ban (IOTC Res. 19/03; WCPFC CMM 2019-05), although these don't specify selling.

3.2 NATIONAL LEVEL REVIEW

Where there was sufficient information available in the relevant databases and literature to determine catch, trade and management measures, countries were listed according to the categories explained in the Methodology. A few prime examples are presented here to illustrate the various scenarios and challenges faced when attempting to understand mismatches and the processes that may lead to these. Details per individual country providing the justification for the listing in any category are available on request.

The majority of countries fell into the categories where there was evidence of historical catches prior to CITES listing and evidence of trade recorded in the CITES trade database and a positive NDF, or evidence of changed management arrangements or negative NDF. Countries catching more than one species of CITES-listed shark could fall into more than one category depending on the species under review. Australia is one example of such a country: although no catch data for hammerhead sharks was reported to FAO by Australia (FAO, 2020), there was evidence of historical catches (CoP16 Prop. 43) and trade of all three species was recorded in the CITES trade database as per a positive NDF for Hammerhead caught in Australian waters (2014 - 2017). Concerns regarding an apparent mismatch between reported imports and reported exports of Hammerhead has recently been noted by the Australian Marine Conservation Society (AMCS, 2021). Australia's CITES Authorities have undertaken a preliminary investigation in relation to the issues raised in the AMCS report, including interrogating export shipments reported within Australia's own database and comparing these to the data available through the CITES Trade Database. Australia's interrogation of the data does not show discrepancies of the scale reported by AMCS. However, there was some evidence of minor discrepancies and Australia is working with trading partners as well as the UN-WCMC to address these issues (M Nahas 2022, pers. comm., 28 February).

Similarly, for Oceanic whitetip, there is evidence that Australia has historically caught this species (IOTC-2014-WPEB10-12), but no species-level data has been reported to FAO (FAO, 2020). No trade has been recorded in the CITES trade database, but there is evidence of both a negative NDF and changed management measures, both national and regional, to account for a decline in catch and no trade. In addition, the NDFs produced by Australia for five of the CITES-

listed shark species specified that the NDFs were applicable only for sharks caught in Australian water and that there was insufficient information available to underpin a robust NDF for CITES-listed species caught in the high seas outside of the Australian tropical tuna fisheries (Australian NDF, 2014 - 2017), thus explaining why no IFS certificates have been recorded.

Countries falling into a similar category where there is evidence of catches prior to listing and CITES data records and positive NDF available publicly or known to the authors included:

- Australia (Hammerhead sharks)
- Canada (Porbeagle)
- Costa Rica (Hammerhead, Silky and Thresher sharks)
- El Salvador (Silky, Thresher sharks)
- India (Oceanic whitetip)
- Japan (Porbeagle, Southern Atlantic)
- Mexico (Scalloped hammerhead)
- New Zealand (Porbeagle)
- Peru (Thresher, Smooth hammerhead)
- Seychelles (Hammerhead spp).

For some countries listed here, however, there are still some areas where more information would be helpful to clarify trade dynamics. For example, El Salvador and Silky sharks: as a member of ICCAT, IATTC and a cooperating non-member of WCPFC, El Salvador fisheries would be subject to retention bans on Silky shark (see p.8 for details). There is evidence of trade in Silky shark products in 2017 and 2018 (and a positive, conditional NDF although it could not be accessed; UNEP-WCMC. 2019), but as there are no species-specific shark catch records in the FAO Database for El Salvador, it is unclear that these could be from an IATTC longline fishery which would be the only legal source. The FAO dataset reports shark catches in the generic 'Sharks, rays, skates, not elsewhere indicated' category and all from the Eastern Central Pacific Ocean and the IATTC country report data attachments were not available at the time of review. Further information, including details of the NDF, would be required to clarify the catch, trade and implementation of both RFMO and CITES regulations for this species.

For a number of countries there was evidence of historical catches as well as records of trade in the CITES Database but no NDF publicly available. For example, Senegal (Hammerhead, Thresher), Seychelles (Oceanic Whitetip), Mexico (Silky shark) and Ecuador (Hammerhead).

As previously noted there is no obligation on CITES Parties to share their NDFs, but several Resolutions and decisions encourage Parties to do so and making all NDFs publicly available will greatly assist and clarify the understanding and continued monitoring of trade and regulations for these species. For example, there were several instances of countries reporting catch and trade of species that are subject to a prohibition by an RFMO that they are members of. Senegal has recorded trade in Smooth hammerhead and Bigeye Thresher fins in the CITES trade database for example. As a member of ICCAT and therefore subject to the hammerhead prohibition, Senegal may be exempt from catching due to being a developing nation, but the regulation stipulates that these nations must still ensure these species do not enter international trade. Similarly, as a cooperating non-contracting member of IOTC, Senegal would be subject to the IOTC prohibition on Thresher sharks. Without additional information (for example, high seas catch or within EEZ, or whether RFMO prohibitions had been transcribed to national law), it is not possible to determine if the relevant RFMO prohibitions would have been applicable. Other examples include Oman (where IOTC has noted known non-compliance with the retention ban on Oceanic white tip sharks); Oceanic whitetip trade reported by the Seychelles and Silky shark trade reported by El Salvador and Mexico.

Countries for which there is evidence of catching of CITES-listed species, but which are not members of any of the RFMO's that have direct regulations relating to one or more of the CITES-listed shark species and have not reported trade in shark species to the CITES trade database are Saint Lucia, St Pierre and Miquelon, Togo and Tanzania. They are placed within the category 'Evidence of catches prior to listing, no CITES trade data and no evidence of changed management arrangements or negative NDF'. There is otherwise little information available to describe the catch and trade of sharks for these countries and more information is needed to understand the trade dynamics of sharks in these areas. The following countries fall within this category with more information required to justify their categorisation: Indonesia, Fiji, Iran, Kenya, India, Pakistan, Maldives, Vanuatu, Chile. Democratic Republic of the Congo, New Zealand, Republic of the Congo. There is evidence of declining stocks in some cases, (e.g. New Zealand) which would explain the lack of trade despite historical catches and no evident changes in management. Thus, more detailed, specific information from CITES Parties would greatly enhance our understanding of these countries' catch and trade dynamics and whether trade is going undetected.

Indonesia provides a clear example of potential trade of shark catch going undetected. There is evidence of catches of Silky shark prior to listing: although not recorded in the FAO database,

it has been noted nationally (Indonesian Institute of Sciences, 2018). Silky shark catches are recorded at the species level, and are known to contribute to a large number of the sharks captured in the Indonesian shark fisheries, both as target and bycatch (Blaber et al. 2009).). Literature cited in the NDF suggests most of the catches are from the Indian Ocean and therefore not subject to the WCPFC prohibition. There are no records of trade in the CITES database and a positive NDF was concluded in 2018. The lack of trade records may in part be attributed to the fact that Indonesia imposed a zero export quota for Silky shark for 2017 and a stockpile of 26t has been assessed (E-AC31-25-A2). However, the Silky shark NDF developed by Indonesia suggests that Silky shark fins are commonly exported together with other requiem shark fins (Indonesian Institute of Sciences, 2018). They suggest that due to fins being difficult to distinguish when they are no longer attached to the body, there was some probability that ''Silky shark products could be included in 67% of unidentified species exported product" (Indonesian Institute of Sciences, 2018). Identification of CITES-listed species in the high diversity of shark and ray derivatives in trade in Indonesia has been highlighted in Indonesia's response to CITES notifications (E-AC31-25-A2) and capacity building workshops and training in shark and ray species identification has been ongoing in 2020.

Trade hubs such as the United Arab Emirates (UAE), where large amounts of shark products are imported for re-export, may also result in similar scenarios with CITES-listed species being traded with unidentified exports. A review of the trade in sharks and their products in the UAE (Jabado et al. 2015) confirmed that the UAE is being used as a hub in the broader North Indian Ocean region for the trade in shark products with the Emirati fishery minimally contributing to this trade. Recent research indicates shark fisheries in the UAE are essentially driven by shark fin export markets (Jabado et al., 2014a) with reports showing exports up to 500 mt of dried raw fins annually to Hong Kong SAR, playing a crucial role in the international shark fin trade as a regional export hub (Fowler et al., 2005; Hareide et al., 2007; WildAid, 2007). However, much of the trade in sharks and their products remain unregulated with little information available regarding species and quantities involved. Results from auction and market surveys conducted by Jabado et al. (2015) indicated that a large majority of the sharks being traded at UAE auction sites originated from Oman, and the most abundant families represented at the Dubai site were the Sphyrnidae, Lamnidae, and Alopiidae - with species identified including Silky shark, Pelagic Threshers and Scalloped hammerhead. The CITES trade database only contains one incidence of trade in the relevant CITES-listed species in this review: three fins of Oceanic whitetip exported from UAE to Ethiopia in 2014. National regulations (2014) stipulate that no shark products of any sort can be exported from sharks caught in UAE waters, but until 2019 this

would not be applicable to products imported from other areas such as Oman. As of 2019, all exports and re-exports of shark fins are now banned from the UAE.

The 27 countries constituting the European Union report very little catch of CITES-listed shark species. Despite being a large shark catching region (e.g., countries such as Spain, Portugal, and France feature in the top 20 shark catchers (Okes and Sant, 2019)), only nine countries had evidence or reports of CITES-listed species being caught in their fisheries, namely Denmark, Germany, Spain, France, Ireland, Italy, Malta, Portugal, and Sweden. There is evidence of historical catches of Porbeagle by all nine countries, but no trade records in the CITES trade database except for one record of Porbeagle (2013) when Porbeagle was listed on CITES Appendix III (586 kg of fins originating from Japan, were exported from Spain to Singapore; no IFS documentation as not required for Appendix III). Denmark had taken out a reservation against the Porbeagle listing in 2013.

The lack of trade in Porbeagle is likely due to the EU implementation of a zero Total Allowable Catch (TAC) for Porbeagle in 2010 (WGEF, 2020) and a combination of measures implemented by three RFMOs prior to that, including ICCAT requiring the live release and reduced mortality of Porbeagle in ICCAT fisheries (BYC 15-06 (2015) and BYC 07-06 (2007)); the prohibition on directed fishing for Porbeagle in NEAFC fisheries (Rec 07, 2016, 2020); and a Porbeagle retention ban for GFCM fisheries (CMM Ref 42/2018/2). No trade records for other CITES-listed shark species were found, although there is evidence of catches of CITES-listed shark species by Spain (Hammerheads, Silky shark, Oceanic whitetip and Threshers), France (Oceanic whitetip and Thresher), Portugal (Oceanic whitetip, Hammerheads, Thresher and Silky shark) and Italy (Thresher) (FAO, 2020). As members of the EU, these countries are also members of IATTC and ICCAT, which collectively have retention bans on these species caught, and thus potentially explain the lack of trade. However, there are points requiring clarification from the EU member states including individual countries compliance with RFMO retention bans; their responses to CITES notifications requesting information on management measures relating to sharks and implementation of new legislation regarding Mako sharks in the future.

3.3 INTRODUCTION FROM THE SEA:

An IFS certificate is required in a single-state transaction involving Appendix II listed species taken from the high seas. Two state transactions – in other words when a vessel catches CITES-listed specimens in the high seas, but lands them in a different country than its flag state

– is considered an import/export and the corresponding certificates need to be issued (Resolution Conf. 14. Rev. CoP16; Nakamura and Kuemlangan, 2020). The Management Authority of the flag state must issue an export permit (Mundy, et al., 2014). It is also recommended that, prior to issuing an import permit and/or export permit in these two state transactions, the relevant state's Management Authority considers whether or not the specimen was or will be acquired and landed in a manner consistent with applicable measures under international law and not as a consequence of any IUU fishing activity (Nakamura and Kuemlangan, 2020).

It is also therefore possible that some Introduction from the Sea two-state transactions, i.e. transactions that fall under Introduction from the sea but that are processed as "import/export" (Resolution Conf. 14. Rev. CoP16), do not make use of Source or Origin and are thus indiscernible from trade in species caught within a country's EEZ. Generally there may also be cases where catch of CITES-listed species is occurring, but does not enter international trade. This would for example be the case if catch occurs within the EEZ and consumption is fully domestic, or if catch were to occur either in the high seas or the EEZ and is discarded. We highlight countries or situations where this may be the case but where there is some uncertainty or ambiguity that a country's shark catch is being consumed entirely domestically or is being entirely discarded, and suggest areas for follow up with the relevant parties to clarify or to provide information to show that these catches are not entering international trade.

Between 2000 and 2019, there have been no records of IFS documents found in the database for any shark species when searching for exporter or importer by non-ISO country code 'ZZ' as designated by the CITES Trade User Guide. When searching the database for exporting country as 'Introduction from the Sea' and using the code 'HS' as explained in the CITES Guidelines to Parties on Submission of Annual Reports (post-2015), ten records of transactions (for scientific, commercial, or travelling exhibition purposes) were evident between 2016 and 2019 – although this is not an indication of the number of permits issued. More information on whether this code is known to be used consistently as per the guidelines is needed to understand trade, if and where IFS certificates have been issued. Since the listing of Mako sharks on CITES in 2019, there is some evidence of the implementation of IFS in the CITES database. In 2019, Spain imported 12,615 kg of shortfin mako bodies, plus 905 kg of longfin mako bodies, from pre-convention sources (purpose code T - commercial) and used the 'HS' code to represent that this was an IFS transaction. In addition to an NDF for Mako sharks, Peru has prepared an

advisory report on Introduction from the Sea of meat from Shortfin mako for 2020 (E-AC31-25-A2).

For the purposes of this report, countries where there is documented evidence of fishing on the high seas from FAO and RFMO's, but no IFS reported under CITES and no evidence of management arrangements include Iran (Silky shark), Republic of Korea (Porbeagle), Sri Lanka (Silky shark), Oman (Oceanic whitetip), Pakistan (Silky shark), Taiwan, Province of China (Porbeagle), Japan (Porbeagle), Vanuatu (Silky shark) and Seychelles (Oceanic whitetip). Some areas of ambiguity are outlined here for further clarification from CITES Parties and other experts:

- There is evidence of historical catches of Silky shark by Vanuatu (2009 - 2016) that appears to have stopped in 2017 (when Silky shark was listed on CITES) and 2018, all from the Western Central Pacific (FAO, 2020). No trade has been recorded in the CITES trade database (accessed 2020). As a member of WCPFC, they are subject to the management measure prohibiting retention and sale of Silky shark and similarly, ICCAT prohibits the retention of Silky shark (BYC 11-08). However, despite these bans, catches were still reported beyond the implementation of the regulations in 2011 and 2013 respectively. Therefore, more information is needed on why there are reported catches since the retention ban came into effect, but then none for 2017 and 2018. For example, if discards no longer being reported (as potentially suggested by the discard data provided in number and not weight, in Vanuatu's annual report to the commission (WCPFC-SC16-AR/CCM-28)); or if there is an explanation that provides insight into missing records of shark catch and trade.

- In addition, Vanuatu is listed as one of the top 14 Flags of Convenience[11] states identified by Gianni and Simpson (2005) as well as others (e.g. EJF (2020) and Swan (2002); see Table 1) and there is evidence of Vanuatu flagged vessels fishing for CITES-listed species on the high seas (WCPFC-SC14-AR/CCM-28), but no evidence of export or IFS certificates. There are national vessels in Vanuatu which catch and retain CITES-listed shark species within their EEZ. If they are exported, they would need an export

[11] A flag of convenience ship is one that flies the flag of a country other than the country of ownership, often to avoid restrictive regulations.

permit issued by Vanuatu, but there is currently no evidence of CITES permits for exports. There is evidence of transhipment of shark fins at sea (WCPFC-SC14-AR/CCM-28), but no evidence of export permits issued by Vanuatu. It appears from publicly available information that Vanuatu may not have been meeting its CITES obligations due to not issuing CITES permits for listed species being caught under the Vanuatu flag within its EEZ and on the high seas.

- The main fleets fishing for Oceanic whitetip listed by IOTC in the 2016 Stock Assessment are Iran, Sri Lanka, Comoros, Seychelles, and India (IOTC-2017-SC20-ES18). In the CITES trade database, records of trade have been reported from India, Oman, Seychelles, Sri Lanka and Ecuador despite the IOTC retention ban for this species (noting that India has a reservation against this resolution). No records of IFS from Sri Lanka and Seychelles exist in the CITES trade database, but based on historical catch, current trade and evidence of fishing on the high seas they would be expected.

- As noted earlier, in regional species-specific considerations, due to the retention ban there should be no trade in any of the CITES-listed hammerhead species from ICCAT fisheries. There is, however, evidence of countries that are ICCAT members trading Hammerhead (CoP16 Prop 43; CITES trade database). It is likely that the trade is from domestic catches (e.g., Costa Rica, Brazil, Republic of Korea, Mexico, El Salvador, United States of America – which has a positive NDF for national waters); however, more information is required to confirm that these are not high seas catches. If there is trade in domestic catch of hammerhead species, clarification is needed on how this is managed in accordance with both the retention ban and CITES listing.

- Due to a lack of reporting by some countries, more information is required in situations where there is no evidence of catches for CITES-listed species, but there are records available for trade in CITES-listed species. It can be assumed that since they are trading in a CITES-listed species, then they are catching these species. However, some countries fit these criteria yet are subject to RFMO retention bans, for example Nicaragua and Senegal. More information is needed to determine whether this is perhaps an instance where catches are transshipped at sea and therefore reflected as an export and explain why there is no catch reported to the FAO, but where there is trade reflected in the CITES trade database. If this is the case, then the export should be accompanied by an IFS certificate, if it were an industrial fishery.

Hence, Yemen (Oceanic whitetip, 2014), Senegal (Thresher spp.) and Nicaragua (Hammerhead spp.) are listed under this category.

- To trade domestically in Silky shark caught on the high seas in the Indian Ocean (where there is no retention ban on the species), countries would be required to produce an IFS certificate to be able to land the catch in their own ports. There is evidence of catches in the Indian Ocean by Sri Lanka, Iran, Pakistan, Taiwan, Province of China, Tanzania (FAO, 2020), but no IFS certificates. If these countries were to land those Silky sharks in a foreign port or export/re-export they would need appropriate CITES permits consistent with IFS requirements.

- The paucity of IFS documentation and the inconsistency of use of the codes to represent IFS transactions in the CITES Database for all countries trading in any CITES-listed shark species, despite there being known trade in these species from international waters, brings into question trade where there is a possibility that they were caught on the high seas and that trade is going undetected. If the majority of shark trade on the high seas involves a two-state transaction (and thus no IFS certificate is required and would go 'undetected' in the CITES trade records), then more information on the required Legal Acquisition Finding (LAF) for these types of transactions could be accessed to better understand these instances. Similarly, further information or clarification from Parties is required on a country-by-country basis to determine that these catches are from national waters and not from the high seas, and that any trade is domestic.

It would also be worth getting further clarification around bilateral agreements between countries which allow international vessels to catch fish in their EEZ's but land in other ports; and clarification on what arrangements are in place to ensure CITES requirements are being met. Where this is the case, CITES Parties could provide this information to improve transparency around such catch and trade. One example of this would be in Mauritius: if foreign flagged vessels were to land CITES-listed sharks caught on the high seas incidentally together with its target species, tuna, in Mauritius, this would fall under Introduction From the Sea, but would be handled as import/export transaction (Resolution Conf. 14.6 (Rev.CoP16)). An export permit by the flag state would thus be required as well as a LAF verified by the state's Management Authority. Currently, countries including Hong Kong SAR and Singapore report imports of shark fin from Mauritius (average <3mt/yr) under general shark fin HS codes (so it

is not clear if these include CITES-listed species), but it should be noted that this is a potential gap worth further research and clarification. Other countries showing an increase in (non species specific) shark fin exports and importer-reported trade in recent years (2018 – 2010) such as Madagascar and Somalia would also be worth further research. Fisheries Licensing Agreements in place may mean that licensed vessels are not obligated to transship their catch in country (e.g. EU vessels in Madagascar), but together with poor reporting requirements; landings, processing and trade in CITES-listed shark species and products may be going undetected.

3.4 FLAGS OF CONVENIENCE

A flag of convenience ship is one that flies the flag of a country other than the country of ownership, often to avoid restrictive regulations (these may include regulations relating to labour laws, fisheries regulations and/or financial obligations) (International Transport Workers' Federation). There are a number of countries known to catch shark in their high seas tuna and swordfish fisheries, but that have not reported catches of CITES-listed shark species in the FAO Database, and where there is little evidence of catches found in the relevant FAO Panels or CoP proposals. Upon further investigation, many appear to be considered flags of convenience by the International Transport Workers Federation and other organisations including FAO (Swan, 2002), WWF (Gianni and Simpson, 2005) and EJF (2020). These countries are listed in Table 1, with reference to whether they are known to be fishing on the high seas and not issuing IFS certificates. Countries where there is evidence to suggest fishing on the high seas and not issuing IFS certificates are highlighted, noting that further information from engagement with these CITES Parties could clarify these conclusions.

Belize is a good case study to explain these kinds of circumstances. In the initial review, there was no catch or trade in CITES-listed shark species reported by Belize. However, it is known that Belize has a high seas fishery in the Atlantic and Eastern Pacific where the majority of vessels were reported to catch shark, and although relatively small catches, these included hammerhead species (UNEP-WCMC, 2019; CoP18-Inf-091, 2019). The Belize High Seas Fisheries Unit (2015; CoP18-Inf-091, 2019) explains that “harvests from this fishery however, are considered to have declined since Belize adopted strict management policies for its longline fleet (FAO, 2018).” But they also note that “poor data, as well as a lack of independent personnel with knowledge and training in shark species identification have led to a poor state of knowledge of Belize’s domestic and high seas shark fishery”.

As many of the Belize flagged vessels do not discharge at local ports, reliance on other States to provide data on catches may lead to under-reporting and a lack of information on Belize shark catches, landings and effort (CoP18-Inf-091, 2019). As a member of ICCAT and IATTC, Belize reports catches of other shark species (e.g. Blue shark and Mako) in annual reports to these RFMO's and complies with conservation measures limiting transshipment at sea (ICCAT Doc. No. COC-301/2019). More information on shark catches by Belize flagged vessels in the Pacific and potential trade is required to clarify whether export permits including IFS certificates are needed. Such information is also required for Bolivia and Cambodia.

Table 1. List of countries that have not recorded IFS and have been considered Flags of Convenience with a column indicating whether there is evidence of fishing on the high seas.

Country	Swan (2002)	Gianni & Simpson (2005)	EJF (2020)	ITW (2021)	High seas fishing
Antigua and Barbuda	x			x	
Bahamas			x	x	
Barbados	x			x	
Belize		x	x	x	Y
Bermuda	x			x	
Bolivia		x		x	
Brazil		x		x	Y
Cambodia	x	x	x	x	
Cameroon			x		
Cayman Islands	x			x	
China, Hong Kong SAR	x				Y
Comoros			x	x	
Cook Islands	x				
Curacao			x		
Cyprus	x	x		x	
Equatorial Guinea	x	x		x	
Faroe Islands				x	
Georgia		x	x	x	

Country	Swan (2002)	Gianni & Simpson (2005)	EJF (2020)	ITW (2021)	High seas fishing
Ghana			x		Y
Gibraltar				x	
Greece					
Honduras	x	x		x	
Isle of Man	x				
Jamaica				x	
Kerguelen	x				
Kiribati			x		
Korea, DPR				x	
Lebanon				x	
Liberia	x		x	x	
Malta	x			x	
Marshall Islands		x	x	x	
Mauritania	x				
Mauritius	x	x		x	
Moldova, Republic of			x	x	
Mongolia		x	x	x	
Morocco	x				
Myanmar				x	
Netherlands Antilles	x	x		x	
Panama	x	x	x	x	
Poland					
St Vincent and the Grenadines	x	x	x	x	
Samoa	x				
Sao Tome and Principe	x			x	
Seychelles	x				
Sierra Leone	x	x	x	x	
Singapore	x				Y
Sri Lanka				x	Y
Tonga	x			x	

Country	Swan (2002)	Gianni & Simpson (2005)	EJF (2020)	ITW (2021)	High seas fishing
Tuvalu	x				
Vanuatu	x	x	x	x	Y

3.6 LIMITATIONS OF THE DATA

There are several limitations in the data used to review catch and trade by country, and it is important to note that this review is preliminary based on the information available. The report highlights areas where more information is needed to clarify country trade and regulations. Some of the main limitations of the data are outlined here.

This analysis looked at the evidence of presence of historical catches and trade and not at mismatches in the volumes of catch and trade. Uncertainties around the consistency of species-specific data reporting of CITES listed species through standardized channels undermines the potential approach of quantitatively comparing catch and trade.

Catch data is reported to FAO and while some countries report all shark catches at the species level, others do not, potentially resulting in catches of CITES-listed species being captured in FAO production statistics under generic shark and ray categories. Catch or landings data is potentially not available at all in the case of artisanal fisheries, or countries that lack the required monitoring and reporting infrastructure. There may also be instances where there are discrepancies between trade records noted on a national level and those recorded in the CITES trade database. This makes it challenging to have a consistent record of catch and trade for all shark catching countries.

During the review, each country's shark catches were examined in detail as far as data was publicly available through FAO data, followed by individual country's RFMO annual reports and followed by anecdotal evidence in the literature. Although information on general shark catch and trade was noted, emphasis was placed on evidence of catches of CITES-listed shark species. Where there was evidence of countries fishing for shark on the high seas, RFMO annual reports were reviewed to determine whether these included CITES-listed species.

It is important to note that the FAO Database contains the volume of fish catches as capture production which is meant to be live weight by country or territory of capture, by species or a higher taxonomic level. It should account for all retained catches as a live weight (Garibaldi 2012). It does not account for catch that is discarded at sea, and will therefore usually be an underestimate of the total catch and true mortality of sharks. There is also a general lack of clarity around what actual data is provided to FAO by countries, any conversion rates used by countries to convert processed products to live weight and in fact whether some data being provided as live weight is processed weight (landed processed weight). Furthermore, often for some countries, catches of prohibited species will be listed and detailed in FAO data, but on further investigation into the relevant RFMO country reports, these will be shown to have been discarded (dead or alive) at sea. Some RFMOs, such as CCSBT, have data recording requirements of catch and discards for sharks. Also many countries and fisheries bodies use observers to verify catch and discards. Given it appears some countries are reporting to FAO not just retained catch but retained plus discarded catch as "Capture Production", it makes it difficult to interpret catch data for the purposes of considering whether countries are abiding by any retention bans for species or have been or continue to catch CITES listed species. In addition, there is a substantial problem for many countries where there is simply no recording of catch, landing or trade in sharks (including CITES listed species) and so will be completely missing from FAO reported catch data.

The timeline of CITES implementation may also be a limiting factor. Firstly, for sharks where the CITES listing came into effect in 2017 (4 October 2017), there may not have been sufficient time to assess whether trade is being recorded in the CITES database considering the timeline of submissions for CITES, and some countries taking additional time to implement the listings, e.g. where regulations or legislation require updating. Secondly, while annual trade reports are due on 31 October for the preceding year, Parties can fail to submit annual reports for three consecutive years without risking compliance measures (Resolution Conf.11.17 Rev CoP18).

4. DISCUSSION AND CONCLUSION

The study demonstrates the lack of transparency that surrounds understanding the level at which CITES Parties[12] are meeting their obligations for listed shark and ray species when they have a demonstrated or inferred history of catching the species prior to the listings coming into force. It is reasonable to expect that it should be publicly available information to understand where a Party's government or fishing community meet its obligations or have changed fishing behaviour or trade once a species is listed within the appendices of CITES. This is so that an absence of reporting of trade does not lead to CITES Parties and Committees raising concerns, as has prompted this study to be conducted, but can feel confident and see clearly the changes that have occurred since a listing has occurred that would lead to a reasonable assumption that that the species are not being traded internationally without adequate adherence to CITES requirements.

[12] Note that the CITES Convention also includes requirements for Non-CITES Parties if trading with Parties in listed species.

RECOMMENDATIONS

1. **CITES Parties** should adopt a Decision(s) when amendment proposals to the CITES Appendices are adopted for the inclusion of sharks and rays at a CoP, which require:

Parties identified in the listing proposals of Shark and Ray species as having a history of catch and/or trade in the species to provide to the CITES Secretariat on the date the listing comes into effect details on history of catch and trade, monitoring, controls in place relating to the species and clearly articulate if catching is continuing and if so if the Party has a positive or negative NDF. Where a positive NDF is in place, information should also be provided if the Party plans to be issuing permits/certificates and clearly states if any of the catches occur beyond the National Jurisdiction of a State and therefore require consideration of the provisions of Introduction from the Sea.

This may circumvent issues with the current practice where CITES Parties are regularly requested through Notifications to the Parties to provide updates on what regulation they have enacted regarding CITES listed sharks and rays and generally few Parties reply.

2. **CITES Secretariat** to compile the information provided in recommendation 1 on the CITES website noting clearly where Parties have or have not provided information.

This will enable the CITES Animals and Standing Committees or any member of the public access to information on the adherence of Parties to their obligations and it is clearer in future if a known catching Party is issuing permits/certificates for the listed species or is not allowing for international trade in the species. This would allow for discussion within the Committees so Parties can share how best practice is being enacted and Parties can ask for assistance in managing the catch and trade of listed species. The Animals and Standing Committee would then be able to make appropriate recommendations on a regular basis to ensure the listings of sharks and rays are adequately implemented.

3. **CITES Parties** adopt amendments to Resolution Conf. 12.6 (Rev CoP18), to include a new Paragraph 6:

   "FURTHER INVITES Parties that engage in directed or non-directed shark fishing to collect catch data of CITES listed species noting information on all catch and any discarding, so it is clear what catch is retained and any interpretation of mortalities that can be estimated. Furthermore Parties should ensure the information they collect on catch and provide to others, such as FAO, is accompanied by details on the form of the data (for example live weight, dressed weight). FAO and others are encouraged to make that information publicly available including clearly what form the data is that they have been provided with;"

Given the general lack of collecting catch data for CITES-listed sharks, or where it is collected the confusion around interpreting the form it is being collected and shared across data libraries, this amendment may provide for greater clarity and therefore interpretation of published data.

References

AC29 Inf. 23. 2017. Summary of parties' responses to notification 2017/031 on the request for new information on shark and ray conservation and management activities, including legislation.

Anon. 2017. Chinese Ship Ordered to Pay 6 Million for Environmental Damage. Galapagos Conservancy. https://www.galapagos.org/newsroom/chinese-ship-sentencing/

Australian Government. 2014. Non-Detriment Finding for the export of shark species listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and harvested from Australian waters. Department of Environment.

Boon, P.Y. 2017. The Shark and Ray Trade in Singapore. TRAFFIC, Southeast Asia Regional Office, Petaling Jaya, Selangor, Malaysia.

Bromhead, D., S. Clarke, S. Hoyle, B. Muller, P. Sharples, and S. Harley. 2012. Identification of factors influencing shark catch and mortality in the Marshall Islands tuna longline fishery and management implications. Journal of Fish Biology 80:1870-1894.

Clarke, S. 2014. Issues for T-RFMOs in relation to the listing of shark and ray species by the CITES with particular reference to the Indian Ocean Tuna Commission. IOTC-2014-WPEB10-12. Available at: https://cites.org/sites/default/files/eng/prog/shark/docs/IOTC-2014-WPEB10-12_-_CITES.pdf

CoP16 Prop. 42. 2013. Consideration of proposals for amendment of Appendices I and II: *Carcharhinus longimanus*

CoP17 Prop. 42. 2016. Consideration of proposals for amendment of Appendices I and II: *Carcharhinus falciformis*

CoP16 Prop. 44. 2016. Consideration of proposals for amendment of Appendices I and II: *Mobula tarapacana* and *Mobula japanica*

CoP16 Prop. 43. 2013. Consideration of proposals for amendment of Appendices I and II: *Sphyrna lewini*

CoP17 Prop. 43. 2016. Consideration of proposals for amendment of Appendices I and II: Alopias superciliosus

CoP16 Prop. 46 (Rev. 2). 2013. Consideration of proposals for amendment of Appendices I and II: Genus *Manta*

COSEWIC. 2004. COSEWIC assessment and status report on the Porbeagle shark *Lamna nasus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 43 pp. Available at: www.sararegistry.gc.ca/status/status_e.cfm .

EJF. 2020. Off the hook - how flags of convenience let illegal fishing go unpunished. London, United Kingdom.

FAO. 2013. Report of the fourth FAO Expert Advisory Panel for the Assessment of Proposals to Amend Appendices I and II of CITES Concerning Commercially-exploited Aquatic Species, Rome, 3–8 December 2012. FAO Fisheries and Aquaculture Report No. R1032. Rome, FAO. 161 pp.

FAO. 2020. Fishery and Aquaculture Statistics. Global capture production 1950-2018 (FishstatJ). In: FAO Fisheries and Aquaculture Department [online]. Rome. Updated 2020. www.fao.org/fishery/statistics/software/fishstatj/en

FAO. 2009. Report of the third FAO Expert Advisory Panel for the Assessment of Proposals to Amend Appendices I and II of CITES Concerning Commercially exploited Aquatic Species. Rome, 7–12 December 2009. FAO Fisheries and Aquaculture Report. No. 925. Rome, FAO. 2010. 150p.

FAO. 2018. A country and regional prioritisation for supporting implementation of CITES provisions for sharks, by Marcelo Vasconcellos, Monica Barone and Kim Friedman. Fisheries and Aquaculture Circular No. 1156. Rome, Italy.

Fisheries Agency of Japan. Trade of sharks listed in CITES Appendix II Japan's Practice on NDF.

Fowler, S. 2005. The international and national frameworks for conservation and management of sharks: Recommendations for Ecuador. Contribution to Ecuador's Draft National Plan of Action for the Conservation and Management of Sharks. IUCN, Quito, Ecuador.

Garibaldi, L. 2012. The FAO global capture production database: A six-decade effort to catch the trend. Marine Policy 36 (3): 760-768

Gianni, M. and Simpson, W. (2005). The Changing Nature of High Seas Fishing: how flags of convenience provide cover for illegal, unreported and unregulated fishing. Australian Department of Agriculture, Fisheries and Forestry, International Transport Workers' Federation, and

WWF International., Fisheries and Forestry, International Transport Workers' Federation, and WWF International.

Gupta, A. 2020. Hong Kong seizes record shark fin haul exported from Ecuador. CGTN. https://news.cgtn.com/news/2020-05-07/Hong-Kong-seizes-record-shark-fin-haul-exported-from-Ecuador-QiDlVj786k/index.html

International Transport Workers' Federation https://www.itfglobal.org/en/sector/seafarers/flags-of-convenience

IOTC. 2017a. Sri Lanka National Report to the Scientific Committee of the Indian Ocean Tuna Commission. IOTC-2017-SC20-NR250.

IOTC. 2017b. Final summary report of the stock status of Oceanic whitetip sharks and CITES-listed hammerhead sharks based on the results of the IOTC/CITES Shark Data Mining Workshop. IOTC-2017-WPEB13-INF01

IUCN and TRAFFIC. 2012. IUCN/TRAFFIC Analyses of the Proposals to Amend the CITES Appendices. Prepared by IUCN Global Species Programme and TRAFFIC for the Sixteenth Meeting of the Conference of the Parties to CITES. IUCN – International Union for Conservation of Nature, Gland, Switzerland.

Jinghui, L. 2018. Fishing boat snatched 3,261 black sharks, totaling 30 tons, for fins regardless of ban. Environmental Information Center. https://e-info.org.tw/node/214037

Morgan, S. 2018. Taiwan nabs truck load of illegal shark meat. Taiwan News. https://www.taiwannews.com.tw/en/news/3529679

Momballa, M. C. (2020). Rapid Assessment of the Artisanal Shark Trade in the Republic of the Congo. Yaounde, Cameroon and Cambridge, UK.

Mundy-Taylor V. and Crook V. 2013. Into the deep: Implementing CITES measures for commercially valuable sharks and manta rays. Report prepared for the European Commission.

Nakamura, J.N. and Kuemlangan, B. 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. Legal Guide No. 4. Rome, FAO. https://doi.org/10.4060/cb190

Pavitt, A., Malsch, K., King, E., Chevalier, A., Kachelriess, D., Vannuccini, S. & Friedman, K. 2021. CITES and the sea: Trade in commercially exploited CITES-listed marine species. FAO Fisheries and Aquaculture Technical Paper No. 666. Rome, FAO. https://doi.org/10.4060/cb2971en

Rice, J. 2017. Final summary report of the stock status of Oceanic whitetip sharks and CITES-listed hammerhead sharks based on the results of the IOTC/CITES Shark Data Mining Workshop. 117pp. IOTC-2017-WPEB13-INF01

Sri Lanka. 2017a. Non-Detriment Finding for Silky shark, *Carcharhinus falciformis*, in the Indian Ocean. Prepared by Sri Lanka.

Swan, J. 2002. Fishing Vessels operating under open registers and the exercise of flag State responsibilities. Information and options. FAO Fisheries Circular. No. 980. Rome, FAO. 65p.

Sri Lanka. 2017b. Non-Detriment Finding for hammerhead sharks, Sphyrna spp., in the Indian Ocean. Prepared by Sri Lanka.

Vanson Liu, S-Y, *et al*. 2013. DNA barcoding of shark meats identify species composition and CITES-listed species from markets in Taiwan. *PLOS One* 8 (11): 1-8 e79373.

Young, C.N., Carlson, J., Hutchinson, M., Kobayashi, D., McCandless, C., Miller, M.H., Teo, S., and T. Warren. 2015. Status review report: Common Thresher shark (*Alopias vulpinus*) and Bigeye Thresher shark (*Alopias superciliosus*). Final Report to National Marine Fisheries Service, Office of Protected Resources. December 2015. 196 pp.

Zacharia, P U and Kizhakudan, Shoba Joe and Thomas, Sujitha and Manojkumar, P P and Nair, Rekha J and Najmudeen, T M and Purushottama, G B and Muktha, M and Dash, Swatipriyanka Sen and Akhilesh, K V and Remya, L. 2017. CMFRI Marine Fisheries Policy Series No-6; Non-Detriment Findings (NDF) for the export of Shark and Ray species listed in Appendix II of the CITES and harvested from Indian waters. Marine Fisheries Policy Series (6). Central Marine Fisheries Research Institute, Kochi, pp. 1-102. ISBN ISSN 2394-8019

JANUARY 2022

OUR MISSION IS TO ENSURE THAT TRADE IN WILD PLANTS AND ANIMALS IS NOT A THREAT TO THE CONSERVATION OF NATURE

For further information contact:
TRAFFIC Global Office
David Attenborough Building
Pembroke Street
Cambridge CB2 3QZ
UK

+44 (0)1223 277427
traffic@traffic.org
traffic.org

UK Registered Charity No. 1076722,
Registered Limited Company No. 3785518.

TRAFFIC