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ANNEX 1 TO THE
MALDIVES PROPOSAL FOR A CONCERTED ACTION FOR THE OCEANIC WHITETIP SHARK (Carcharhinus longimanus)
ALREADY LISTED ON APPENDIX I OF THE CONVENTION*

(Prepared by the government of the Maldives)

Summary:

This document was submitted by the government of the Maldives as an Annex to its proposal for Concerted Action for the Oceanic Whitetip Shark (*Carcharhinus longimanus*). It includes a summary of research undertaken on the global trade in Oceanic Whitetip Shark fins and policies that are in place for the species.

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MALDIVES PROPOSAL FOR A CONCERTED ACTION FOR THE OCEANIC WHITETIP SHARK (Carcharhinus longimanus)
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The Government of the Maldives submission on the oceanic whitetip shark to the CITES Animals Committee:

Executive summary

Here we present evidence of the continued presence of Critically Endangered oceanic whitetip sharks in international trade, with that trade taking place at significantly higher volumes, and from a wider range of Parties, than reported to CITES. The analysis within this paper indicates that as many as 36,216 individual oceanic whitetip sharks were traded illegally through Hong Kong SAR during the three years from 2015-2017, compared with only ~11,815 individuals accounted for in the CITES trade database over this period.

Oceanic whitetip sharks (OWT) are a highly vulnerable species, taken as bycatch in global pelagic fisheries. Prior to its CITES listing, concerns over the species' continued declining populations (now uplisted to 'Critically Endangered' globally by IUCN) had already resulted in stronger protection for OWT via a range of fisheries management, biodiversity conservation (CMS), and trade regulation measures, at national, regional, and global scales. The combination of these measures makes it increasingly unlikely that Parties will be able to issue Legal Acquisition and Non-detriment Findings, and implement the requirements of the CITES permitting process necessary to allow international trade.

Data on the international catch and trade of OWT from the available online statistics of the Food and Agricultural Organization (FAO), tuna Regional Fisheries Management Organizations (tRFMOs; International Commission for the Conservation of Atlantic Tunas (ICCAT), Indian Ocean Tuna Commission (IOTC), Inter-American Tropical Tuna Commission (IATTC), and Western and Central Pacific Fisheries Commission (WCPFC)), the CITES trade database, Hong Kong SAR Customs data, and the Agriculture Fisheries Conservation Department of Hong Kong SAR confiscation records, compared with research analyzing the global species composition of the international fin trade, were used to evaluate recent levels of international OWT trade.

Official government landings data reported to the tRFMOs show reduced catches since the species was prohibited in all four bodies. Low volumes of trade have been registered in the CITES trade database since the CITES Appendix II listing entered into force, indicating good compliance with these measures. However, seizures of the easily identifiable unprocessed OWT fins being illegally traded and research conducted in the retail markets of the global shark fin trade hub indicate that official data mask substantial under-reporting by Parties to the FAO, RFMOs and CITES.

Hong Kong SAR is estimated to represent 50% of the global fin trade. During the initial preparation of fins for processing, when first imported into Hong Kong SAR, excess meat, skin, and cartilage are removed. These trimmings are sold for consumption as an inexpensive shark fin byproduct. Long-term genetic analyses of these trimmings, representing the entire shark fin trade (Fields et al. 2018, Cardeñosa et al. 2022), indicate that OWT fins have

1 This information was previously submitted to the 32nd Meeting of the Animals Committee of the Convention on the International Trade in Endangered Fauna and Flora (CITES) and is available in full as AC32 Inf.3 on the CITES website: https://cites.org/sites/default/files/documents/E-AC32-Inf-03.pdf

remained in the Hong Kong SAR and mainland China fin markets at comparable levels to those before the CITES Appendix II listing entered into force in 2014.

Overall, there are clear discrepancies between the volumes of OWT recorded in the CITES trade database and those found in the global fin trade. Additionally, as explored in this document, there are further discrepancies between the OWT landings data reported to the tRFMOs, reported to the FAO, and trade documented in the CITES trade database. It appears from this analysis that large volumes of OWT products are being traded without adequate CITES documentation, and are non-compliant with CITES.

These compliance issues cut across the trade and fisheries bodies, with respect to regulating the international trade of high value fin exports of OWT. Levels of IUU fisheries and trade are substantial: 382.48 metric tons (MT, estimated round weight) were reported in the CITES trade database during the years 2015 to 2017, while an estimated 2,605.71 MT entered Hong Kong SAR/People's Republic of China during the same period, based on quantities observed and calculated in retail markets. Regarding reported catches: the tRFMOs report 1,524 MT and FAO FishStat 537 MT. This is a discrepancy of 1,141.52 MT in trade, and 4,674 MT in catches, representing 36,216 and 150,774 individuals, globally, respectively.

Detailed analysis of the implementation of the CITES Appendix II listing of *Carcharhinus longimanus* (Oceanic whitetip shark)

Section A – Conservation status

At the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 16th Meeting of the Conference of the Parties (CoP16), Parties voted to include the oceanic whitetip shark (*Carcharhinus longimanus*) in Appendix II in accordance with Article II paragraph 2 (a) of the Convention and satisfying Criterion A in Annex 2a of Resolution Conf. 9.24 (Rev. CoP14). The listing came into effect on 14 September 2014 after an 18-month delay that was adopted to give Parties time to resolve any technical and administrative issues required for the implementation of the Listing. By this time, the species had already been prohibited in all four major tuna RFMOs (tRFMO), but compliance monitoring for these measures was weak.

CITES Parties found that the oceanic whitetip shark (hereafter referred to as OWT) qualified for inclusion in Appendix II because a combination of its biological and behavioural characteristics, and overexploitation had led to population declines consistent with the decline criterion set out in Resolution Conf. 9.24 (Rev. CoP14). This overexploitation occurred primarily for their fins, which are large and highly valued in international trade, and to a lesser extent their meat, likely consumed domestically given its low quality and value (CITES 2013a). This low-productivity species was harvested in global pelagic fisheries, typically targeting tuna or billfish, with the high value fins providing an incentive for retention. At the time of submission of the proposal to CoP16 by the proponents (Brazil, Colombia, and the United States), unsustainable fisheries driven by unregulated international trade posed the greatest threat to the species' continued existence in the wild. The OWT was assessed at the time as 'Vulnerable' globally by the International Union for Conservation of Nature (IUCN) Red List of Threatened Species (IUCN Red List, 2006). The trade measures that result from a species' inclusion in CITES Appendix II, are complementary to existing tRFMO fisheries management measures, particularly through aiding compliance monitoring and enforcement.

Formerly one of the world's most abundant pelagic sharks, OWT have a circumglobal distribution stretching from tropical to warm-temperate oceanic waters where, irrespective of

location, they commonly encounter fleets regulated by the major tRFMOs (Figure 1, Quieroz et al. 2019). At a similar time to when CITES Parties decided to include the OWT in Appendix II, it had become the only shark species protected by all tRFMOs, which prohibited its retention, transshipment, and landing. These measures reflect global understanding of its dire conservation status and the urgent need for management action.

Unfortunately, the bycatch prohibitions and trade management measures enacted in the early 2010's did not arrest this species' decline (Pacoureau et al. 2021), summarized below in Figure 2, taken from Young and Carlson, (2020). The most recent IUCN Red List assessment has reassessed the OWT as 'Critically Endangered' globally, citing population declines exceeding 98% in all oceans (IUCN Red List, Rigby et al. 2019). In less than a single generation (20 years), the species has been reclassified from 'Vulnerable' to 'Critically Endangered' (Rigby et al. 2019).

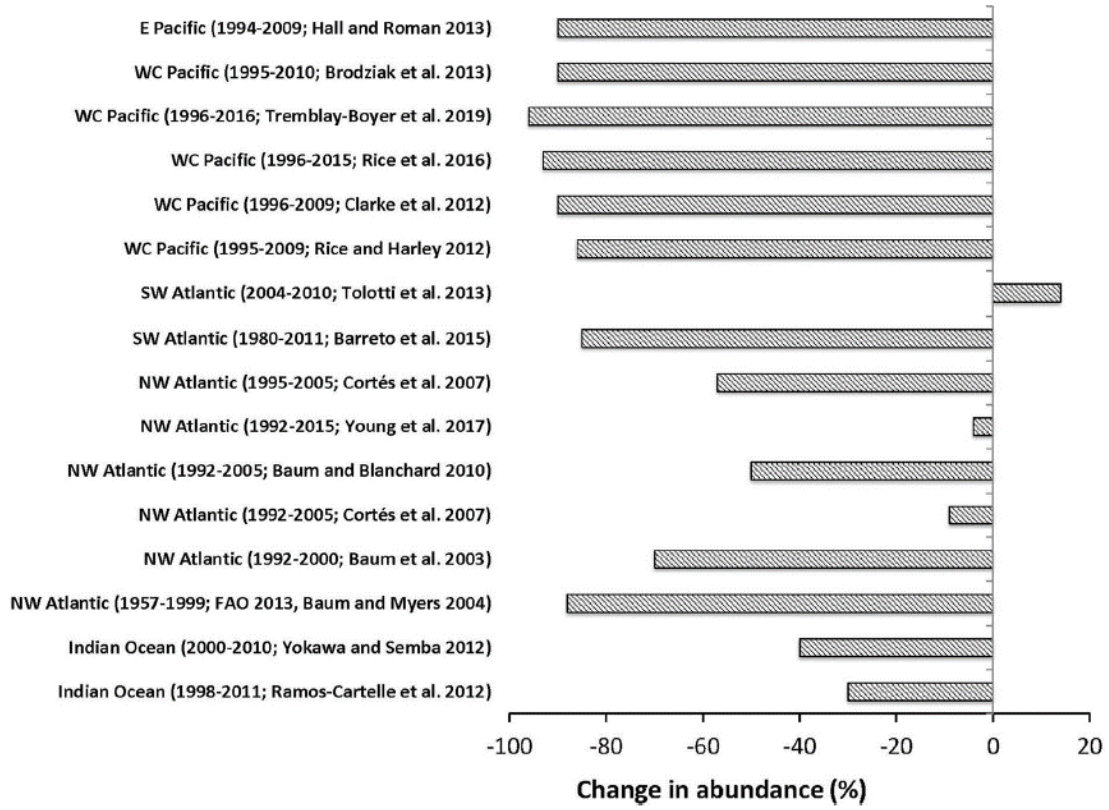

Figure 2. Summary of the trends in abundance for OWT based on stocks assessments and standardized catch rates, except for the E. Pacific, which is based on nominal catches. Taken from Young and Carlson, 2020

Most recently, the Western and Central Pacific Fisheries Commission OWT population stock assessment concluded that, despite retention being prohibited, current fishing pressure will render the species regionally extinct in the long term (Tremblay-Boyer et al. 2019). The convention on the Conservation of Migratory Species of Wild Animals (CMS) Parties voted in 2019 to list the species in Appendix I, in recognition of this migratory species' Critically Endangered status.

Moving forward, legal, sustainable international trade at any significant scale is likely to be near-impossible for most CITES Parties until populations recover. Given the intrinsically low

population growth of OWT, this situation is likely to be the case for decades, during which period bycatch mortality and trade must be minimized.

Clearly, urgent and decisive action is needed to ensure that the Appendix II listing of OWT is effectively implemented, stocks recover, and sustainable fisheries and trade can resume in future.

Section B – Policy framework

A review of international and national regulations governing the management of OWT was conducted to identify potential source and trading Parties and assess Parties' implementation of and compliance with CITES Appendix II requirements.

CITES

Legal Acquisition Finding (LAF): International trade in the species should have been regulated under CITES since September 2014. Before issuing an export permit, the CITES Management Authority must be satisfied that a specimen was not obtained in contravention to national law (often called "Legal Acquisition Finding"/LAF).

Non-Detriment Finding (NDF): At the same time the Scientific Authority must advise the Management Authority that the export is non-detrimental to the survival of the species in the wild (often called a "Non-Detriment Finding"/NDF). These documents do not have to be made public.

Introduction From the Sea (IFS): The definition of "international trade" under CITES includes "Introduction From the Sea". Under Resolution Conf. 14.6 (Rev. CoP16), any specimens captured in waters outside of the jurisdiction of a specific country (previously referred to as the High Seas, now Areas Beyond National Jurisdiction-ABNJ) and later landed anywhere also fall under CITES regulation, even if only one country is involved ("one-state-transaction"); these landings also require an LAF and NDF. There is also a requirement for Parties to "take into account" if relevant applicable international law was followed and that the specimens were not obtained through IUU. What the weaker formulation "take into account" for IFS vs. "shall require" for an export, means in practice, e.g., for the possibility of compliance measures to be taken, have not yet been put to the test.

CITES Parties are permitted to take out a reservation within 90 days of adoption of a proposal to amend the Appendices by the CITES CoP, or when a new Party accedes to the Convention. For OWT, only Japan and Guyana have taken a reservation. Since these CITES Parties are also Contracting Parties and Cooperating non-Contracting Parties (CPCs) to the tRFMOs where their fleets fish, the retention of OWT from ABNJ is prohibited, but they are not Party to CMS. See Annex 2 for more details.

Regional fishery management organization (RFMO):

Based on their ability to mandate immediate mortality reduction by regulating catch, the measures put in place by the tRFMOs have significant conservation potential for the species, as they extend beyond CITES Parties and international trade (Table 1). OWT remain the only pelagic shar species subject to a retention ban across all major tRFMOs: International Commission for the Conservation of Atlantic Tunas (ICCAT), Indian Ocean Tuna Commission (IOTC), Inter-American Tropical Tuna Commission (IATTC), and Western and Central Pacific Fisheries Commission (WCPFC), making them difficult to land legally across a large majority of the world's oceans, thereby reducing trade by default via the inability to supply it. See Annex 3 for more details.

Table 1. A summary of the current oceanic whitetip shark (OWT) regulations within tuna focused Regional Fishery Management Organizations (tRFMOs) and the dates they entered into force.

Regional fishery management organization	Date Adopted/ Date entered into force	Regulation
International Commission for the Conservation of Atlantic Tunas (ICCAT)	2010 / 14th June 2011	Recommendation 10-07: specifically prohibits the retention, transshipping, landing, storing, selling, or offering for sale any part or whole carcass of OWT in any fishery.
Inter-American-Tropical-Tuna-Commission (IATTC)	2011/ 1st January 2012	Resolution C-11-10: on the conservation of oceanic whitetip sharks caught in association with fisheries in the Antigua Convention Area prohibits retaining onboard, transshipping, landing, storing, selling, or offering for sale any part or whole carcass of OWT in the fisheries covered by the Antigua Convention.
Western and Central Pacific Fisheries Commission (WCPFC)	2012/ 1st January 2013	Conservation Management Measure (CMM) 2011-04: prohibits vessels flying their flag and vessels under charter arrangements to the CCM from retaining onboard, transshipping, storing on a fishing vessel, or landing any OWT, in whole or in part, in the fisheries covered by the Convention. WCPFC also adopted a CMM 2014-05 (effective July 2015) that requires each national fleet to choose either banning wire leaders or banning the use of shark lines.
Indian Ocean Tuna Commission (IOTC)	2013/	Resolution 13/06: prohibits, as an interim pilot measure, all fishing vessels flying their flag and on the IOTC Record of Authorized Vessels, or authorized to fish for tuna or tuna-like species managed by the IOTC on the high seas to retain onboard, transship, land or store any part or whole carcass of OWT except for scientific observers collecting biological samples. The provisions of this measure do not apply to artisanal fisheries operating exclusively in their respective Exclusive Economic Zone for the purpose of local consumption.

It must be acknowledged that these tRFMO regulations contain exemptions, e.g., vessel size, fishing location, coastal state exemptions in own waters (see Annex 4) but fundamentally retention is prohibited in all fisheries governed under these conventions, although compliance processes within RFMOs are unclear, as is domestic implementation. On top of the existing

tRFMO regulations, 49 countries appear to have domestic measures in place that prohibit the catch and/or export of OWT (see Annex 4).

Despite these exemptions, one would expect legal export of OWT from tRFMO member countries to be low to non-existent, particularly as the tRFMO measures frequently overlap geographically and thematically with other national regulations, and both NDFs and LAFs should be difficult to make. For example, India took out a reservation against the IOTC retention ban for OWT, but has national legislation prohibiting the export of all shark fins from India. Another reason why legal catch from tRFMO members would be expected to be close to zero is that OWT is predominantly caught in the ABNJ, where several of the exceptions (Annex 4) are less relevant, or do not apply.

Table 1 summarizes why the countries/territories that are members of tRFMOs are only under very specific circumstances able to legally land OWT and are unlikely to do so in significant volumes. Annex 4 presents a likely incomplete list of national regulations that implement these and other conservation and management measures for the species (e.g., CITES and CMS).

At the 13th meeting of the Conference of the Parties (CoP13) to CMS (Gandhinagar, India, February 2020), the global OWT population was included in CMS Appendix I (entered into force, 22 May 2020). The implications for CMS Parties translate into a prohibition on harvest for OWT and conservation of their habitats within their Exclusive Economic Zones (EEZs). For Parties that are signatories to both CITES and CMS, the recent Appendix I listing on CMS provides an area where CITES/CMS can collaborate to ensure conservation and international trade regulation work together to maximum effect.

The international and regional measures mean that not only was OWT already a prohibited species throughout its ABNJ range in fisheries managed by the tRFMOs, when listed in Appendix II, but since 22 May 2020 should also be protected within the EEZs of Parties to CMS. Management Authorities of CITES Parties bound by and implementing either of these measures through national legislation should, therefore, always have had difficulty in making a CITES Legal Acquisition Finding for Introductions from the Sea; this will now become equally difficult for catches within the EEZ of CMS Parties. Even if a specimen can be legally acquired, the species' Critically Endangered status would make it difficult to justify a positive NDF for OWT.

In addition to the international, multinational/regional, and domestic regulations aimed at reducing catches and trade for the conservation of OWT, CITES has defined procedural mechanisms to address issues of continued trade and trade in high volumes of species listed in its Appendices, see Annex 2 for details on Resolution Conf. 12.8 (Rev. CoP18) on "Review of Significant Trade; and Resolution Conf. 12.6 (Rev.CoP18) on "Conservation and Management of sharks". However, these processes are heavily reliant on the data which Parties self-report to the CITES secretariat to be included in the CITES trade database.

Incomplete and late reporting has been identified as an issue by the Secretariat (e.g., 53% of Parties had submitted an annual report for 2018 as of 12 March 2020), which severely hinders the ability of the CITES processes to identify where remedial action is required and to act in a timely and efficient manner (Pavitt et al., 2021). To supplement the CITES trade database, various other data sources e.g., FAO catch and trade statistics, tRFMO landings, Hong Kong SAR retail market data, and peer-reviewed research provide novel ways to assess the trends and scale of trade which is unreported in the CITES trade database. These can also be incorporated into CITES processes like Review of Significant Trade.

Section C – International trade

What is known from the markets

Hong Kong SAR's prominence in the consumption and trade of shark products makes it a strategic location for a quantitative assessment of the global fin trade. An important global nexus of the international fin trade via air, land, and sea, it is estimated that Hong Kong SAR deals in approximately ~50% of the global imports (Clarke et al. 2006 a, b; Shea and To 2017; Fields et al. 2018). As a result, studies attempting to quantify the composition and volume of the international fin market have focused on the Hong Kong SAR dried seafood trade.

In Hong Kong SAR, fin traders visually sort fins into roughly 30-45 named categories, based on the quality and hence value of their marketable ceratotrichia (Yeung et al. 2000). Clarke et al. (2004, 2006a) used genetic analyses to identify 14 species, including OWT, from 11 common fin trade categories and quantified the partial species composition of the Hong Kong SAR fin trade. OWT fins were found to be highly valued and sought-after in the fin trade, priced at $45-85 per kg (CITES 2013). Clarke et al. (2006a, 2006b) assessed Hong Kong SAR fin trade auction data during 1999-2001 and used species-specific fin weights to determine that OWT represented ~1.8% of the international market and was ranked as the 8th most abundant species in trade.

Subsequently, as the sustainability of the international fin trade was questioned and Hong Kong SAR traders' operations faced greater scrutiny, researchers were no longer permitted access to the same fine scale trade auction data. Instead, a novel survey of fin products sold by vendors in the dried seafood market in Hong Kong SAR was conducted to determine the contemporary species composition and proportion of the fin-related trade (Fields et al. 2018). Shark fins are shipped rapidly from landings sites to processing centers such as Hong Kong SAR. The first stage in fin processing is removal of excess cartilage, muscle and skin from the base of the fin. This produces a byproduct of low-quality inexpensive fin trimmings which are sold in the dried seafood district. Randomized surveys are conducted to purchase fin trimmings and use genetic analyses to identify their species composition (Fields et al. 2018). The results are modeled to infer the species composition and proportion of the Hong Kong SAR fin retail market and hence global trade, based on the estimated proportion of the Hong Kong SAR market relative to the global market. This study is regularly repeated and has now been extended to the Guangzhou retail market, Guangdong Province, the largest shark fin trade hub in mainland China, see Annex 6 for further details (Cardeñosa et al. 2018, Cardeñosa et al. 2020; Cardeñosa et al. 2022). These surveys concluded the following key results:

i) From 2014-2015, the raw data found that OWT made up 1% of all trimmings sampled. Additionally, the results estimated the mean number of OWT fin trimmings in the market to be 0.3% (range 0.1-0.6%) during the survey period, inferring that OWT comprise 0.3% of the global fin trade (Fields et al. 2018).

ii) The 2014-2015 results found OWT to be ranked the 7th most abundant shark in trade in Hong Kong SAR out of the 76 species identified, which was up one ranking place from 8th out of the 14 species identified in the 1999-2001 survey of Clarke et al. (2006b), but these studies used different methodologies and the results may not be comparable (Fields et al. 2018).

iii) Subsequent studies extended the time series, from February 2014 through 2018, and aimed to assess the change in the relative importance of the CITES CoP16 listed species in the Hong Kong SAR fin market after implementation (Cardeñosa et al., 2018; 2020; 2022). Across all five years, OWT maintained a varied but continued presence in the Hong Kong SAR fin market based on the fin trimmings time series 2014-2018 (Figure 3, Table 2).

iv) OWT were observed in from 1-6% of sampling events in the retail market (Figure 3). This demonstrates that they are occurring consistently in the market over time, not being detected in pulses.

v) Sampling of the largest shark fin trade hub in mainland China, located in Guangdong Province from June 2015 to August 2017, concluded OWT fins represented 1.58% (n=27) of samples inferring trade continues at significant levels post Appendix II listing (Cardeñosa et al. 2022).

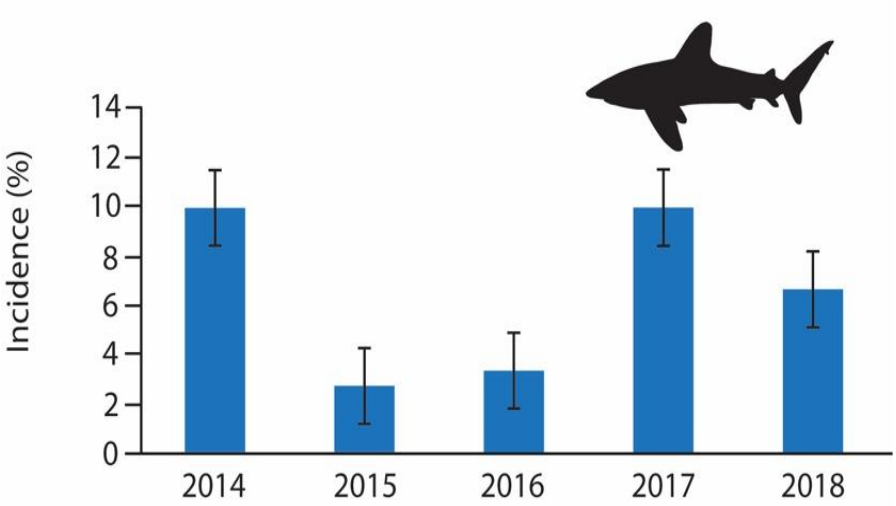

Figure 3: shows the incidence, i.e., the percentage of sampling events (bags of trimmings purchased), which yielded at least one oceanic whitetip shark (Carcharhinus longimanus) fin trimming in Hong Kong SAR markets 2014-2018.

Table 2: the total number of OWT fin trimmings detected, and those trimmings as a percentage of all fin trimmings sampled by year.

	2014	2015	2016	2017
OWT fin trimmings	41	4	4	28
Percentage of total fin trimmings	1.25%	0.19%	0.21%	1.60%

These published studies have provided evidence of the contemporary presence and proportion of OWT in the Hong Kong fin trade (Fields et al. 2018), and the continued trade of OWT post its inclusion of the species on CITES Appendix II coming into force, (Cardeñosa et al. 2018; Cardeñosa et al. 2020; Cardeñosa et al. 2022). It could be argued that this contemporary OWT trade was being supplied by pre-convention stocks, or that traders may have started stockpiling OWT fins in anticipation of the listing, however continued studies of fin trimmings that now stretch over five years, indicate a consistent presence of OWT fins in the market at fairly stable levels, indicating continued wild sourcing of fins within this timeframe.

Because data recorded by the FAO and Hong Kong SAR Customs authorities aggregate all sharks, the above genetic surveys of random samples of the Hong Kong SAR fin retail market provide an accurate proxy for the species composition of and species-specific trends in the shark fin trade. They demonstrate that international trade in OWT fins has continued at significant levels since the CITES Appendix II listing.

Caution should be taken when inferring causality of changes in trade over time, as it is often the result of oversimplification of the trade chain dynamics. The drop in the percentage of OWT trimmings observed in 2015/2016 could be both a lag in CITES Parties putting in place the necessary requirements, e.g., NDFs, for trade and/or an initial pulse of stricter compliance around the time of entry into force of the CITES Appendix II listing. If the latter explanation holds true then we observe with concern that based on the Hong Kong SAR fin trimming data, the proportion of OWT fins in trade seems to have returned to historical levels.

Seizures/confiscations

As a major importer of shark fins, Hong Kong SAR is playing a key role in effectively implementing and enforcing the CITES regulations as they apply to Appendix II listed species. CITES Appendix II obligates Parties to issue CITES export permits, to accompany shipments, only upon issuance of a positive Non-Detriment Finding (NDF) by the Scientific Authority of the country of export, or the country of Introduction in the case of Introduction from the Sea. Any imports without required CITES documentation and findings (NDF and legal acquisition) are not in compliance with the Convention. Data from Hong Kong SAR's Agriculture Fisheries Conservation Department (AFCD) show that there is active illegal trade in OWT fins (*Personal Communication*-Endangered Species Protection Division, Agriculture Fisheries and Conservation Department (AFCD), Hong Kong SAR). Since September 2014 to 2021, records indicate 5231.2 kg of oceanic whitetip fins, who's shape and colouration make them easily identifiable, have been confiscated by AFCD upon entry into Hong Kong SAR via one of 23 inspection points (Table 3). Illegal shipments were detected at both seaports and airports, and consignments were confiscated because the country of export failed to include the required CITES permits. It is important to note that this is a conservative estimate of the volume of OWT fins confiscated upon entry to Hong Kong SAR as only volumes assigned to the species level were included. There have been multiple confiscations of mixed species shipments that contain OWT fins but have not been weighed to the species level, to date.

The continued presence of OWT fins in these confiscations reconfirms that the species continues to be caught and traded internationally. It is estimated that products entering the Hong Kong, SAR market represent capture from the respective previous year given estimated transportation and processing timelines. Of potential concern is the increasing frequency of confiscations by AFCD. Increasing numbers of seizures could reflect increased international trade, improved enforcement, or a combination of both. It should be noted that AFCD has undergone substantial training on enforcement and implementation of the CITES shark listings (*Personal Communication*-Endangered Species Protection Division AFCD, Hong Kong SAR).

Though there is limited overlap in the two time-series, there is a correlation between the "dip" in presence of OWT in both datasets (seizures and presence in the market from trimmings) during the years of 2015 and 2016, suggesting that trends in confiscations may reflect the trends in annual trade volumes of OWT in Hong Kong SAR. The driver of such a dip is unknown, as it could reflect inter-annual variation in catch volumes (i.e., a poor catch period), a lag until frameworks were in place to issue CITES permits or perhaps an initial and brief pulse of compliance to the new CITES listing being implemented.

Table 3. OWT confiscations made by AFCD Hong Kong SAR, of imports by volume (kg), year, number of cases listed in parentheses, mode of transport, and exporting country. Details from 2020 are pending due to ongoing investigation. Data were provided via Personal Communication-Endangered Species Protection Division, Agriculture Fisheries and Conservation Department (AFCD), Hong Kong SAR.

	2014	2015	2016	2017	2018	2019	2020	2021
Volume (kg)	980.46	283.45	0.25	1263.09	143.3	604.61	720	1236
Exporters	Colombia	Seychelles	*Abandoned*	Egypt	Indonesia	Kenya (2)	Ecuador	Somalia (2)
		UAE		India	Kenya	Mexico (2)	Guyana	Colombia
				Kenya	Madagascar	Pakistan	Mexico	Senegal
				Seychelles	UAE	Senegal	Morocco	
				Somalia		Sri Lanka (4)	Somalia (2)	
				UAE			Sri Lanka (2)	
Transport	Sea(1)	Air (2)	Air (1)	Air (1), Sea (5)	Sea (4)	Air (3), Sea (7)	*Unavailable*	Sea (4)

Since 2016, the United States Fish and Wildlife Service Office of Law Enforcement (USFWS) and Transportation Security Administration (TSA) have confiscated ~35 tons of CITES-protected shark fins shipped illegally through the United States. Shipments which contained OWT fins in varying quantities are listed below (Table 4).

Table 4. Shipments that contained OWT fins alongside other CITES listed sharks confiscated by USFWS Office of Law Enforcement since 2016. Total volume of shipment, where it originated, where it was destined for and the location and method of interception are included, en route to China from Mexico (2) and Panama (1). https://medium.com/@USFWS/sharks-should-be-respected-not-feared-1138226e82e5.

Intercepted	Volume (MT)	Destination	Additional *spp.* present in seizure	Method
	0.49	PR, China	*Carcharhinus falciformis*	Cargo shipment, interception
	3.63	PR, China	*Sphyrna mokarran*	Cargo shipment, interception
	24.49	PR, China	*Sphyrna lewini, S. zygaena, and Lamna nasus*	Cargo shipment, interception
	0.09	Indonesia	*C. falciformis and Alopias superciliosus*	Airport passenger luggage

Continued, regular confiscations reinforce the findings of the fin trimmings studies that OWT trade continues at significant levels, that exceed the levels recorded in the CITES trade database, and include several countries who have submitted no formal trade records for the species. We look forward to further updates from Parties in this regard.

Hong Kong, SAR trade database analysis

Hong Kong SAR collects trade statistics on the fin-related trade regarding the origin and destination countries and for IFS, the country of introduction, as well as trade volumes, forming a comprehensive trade dataset that can be used for trade analysis (Shea & To et al. 2017). Such statistics offer an overview of the dynamics and trends of the Hong Kong SAR fin trade and can be used, in conjunction with established ratios, and extrapolated to indicate trends in the global fin trade. Unlike the CITES trade database, the commodity codes used in the Hong Kong SAR statistics contain details on the form that the fin is in when traded. Forms include dried, wet, frozen, and brined, and combinations of these forms with or without cartilage (See Shea & To 2017 for a detailed description of the various commodity/HS codes). However, the Hong Kong SAR statistics are not recorded to species level and therefore it is only possible to conduct analysis on the total volume of the Hong Kong SAR fin market for all species

(The Census and Statistics Department of the Government of Hong Kong SAR).

To estimate the volume of whole OWT represented by the volume of their fins recorded in the import data for Hong Kong SAR 2012-2018, the methodology used by Shea & To (2017) was adapted. Hong Kong SAR shark fin import data were downloaded (last accessed 8 May 2020) and cumulative imports, (i.e., one category of shark fin encompassing all species), were split into a pre-listing period (2012-2014) and a post-listing period (2015-2018). Hong Kong SAR import trade data are available for 2019, however they were excluded from analysis as the corresponding Hong Kong SAR fin trimming market study data are not available at present, due to pandemic related delays in processing collected samples.

All traded products had assigned specific trade/commodity codes (HS codes) that were used to calculate the round weight of OWT catch equivalent to the fin trade documented with form specific conversion factors applied. For the dried fins, a dry fin to wet fin ratio of 0.25 was applied (Hindmarsh, 2007), followed by a wet fin to round weight conversion of 5% (Hindmarsh, 2007; Biery and Pauly, 2012). For the wet/frozen/in-brine fins, a wet fin to round weight conversion of 5% was used (Hindmarsh, 2007). Both conversion factors are based on established and accepted values (Clarke et al. 2006ab, Shea & To 2017) although it must be stressed that these are average conversion factors used to *estimate* whole weights. The fraction of OWT in the total fin trade was taken as a conservative 0.3% for all years, based on the Fields et. al (2018), and Cardeñosa et al. (2022) studies. The volume of the Hong Kong SAR fin trade was assumed to be 50% of the global fin trade (Fields et. al 2018 range is 30-50%; Clarke et al. 2006a, range is 44-59%). And based off the reported Hong Kong SAR shark fin imports, a global OWT catch was inferred (Table 5).

Table 5 Total volume of Hong Kong SAR shark fin trade derived from Hong Kong SAR Import database, for pre-CITES listing period of 2012-2014, and a period after the Appendix II listing had entered into force of 2015-2018. All volumes are listed as metric tons (MT).

	2012 - 2014 (3 years, Pre-listing)	2015 - 2017 (3 years, Post-listing)
Total volume of equivalent wet fins, all species	44,796.96	43,428.45
Est. volume wet fins of OWT	134.39	130.29
Round weight OWT derived from wet fin weight	2,687.82	2,605.71
Inferred OWT global catch	5,375.64	5,211.41

These results estimated that the volumes of OWT present in the Hong Kong SAR fin trade exhibited a slight decline (↓ 4.11 MT), but overall trade appears similar (~2600 MT) for both pre-implementation and post-implementation periods (Table 5). This provides further evidence to suggest that trade in OWT is continuing at historic levels.

Section D – CITES trade database records

International trade conducted in line with the provisions of CITES is recorded in the CITES trade database (https://trade.cites.org). Legal exports of fins to Hong Kong SAR, as reported to CITES, should match Hong Kong SAR shark fin import statistics and also be reflected in the quantity of fins being processed there. The version used for this study (downloaded on 10 January 2023) contains data on the international trade in CITES-listed sharks and rays from 2000-2021 (as reported by CITES Parties). Since Parties report their annual trade to the CITES trade database in October each year for the preceding year, the deadline for 2022 data is October 2023. However, reports can be up to three years late before non-compliance penalties are pursued (Nakamura and Kuemlangan, 2020).

Results were filtered by species to extract those for *Carcharhinus longimanus* (OWT). Two trade records that only specified “Family Carcharhinidae” were omitted. These were for personal use and consisted of teeth (n=1) and skin (n=1), products not reported for OWT in the remainder of the database.

A total of 117 OWT trade transactions have been reported, 86 after excluding specimens reported as pre-Convention (O, n=25), and confiscated/seized (I, n=6) specimens. There were

zero OWT transactions reported for 2022, but this is likely due to delays in Parties' annual reporting rather than all trade ceasing.

Of these 86 trade transactions, 29 were reportedly for commercial trade (purpose code “T”), with the remaining 57, using purpose codes identifying them as educational (E, n=19), traveling exhibit (Q, n=25), and scientific (S, n=13). Trade transactions with purpose codes “E” and “Q”, are primarily associated with international CITES implementation and training, for use in shark fin identification workshops (D. Abercrombie, and R. Jabado *pers. comm*.).

All but one commercial trade transactions for OWT were comprised exclusively of fins, with one transaction between Benin and Ghana reported as 18 whole specimens. Based on the CITES trade database and if Hong Kong SAR, Taiwan PoC, and People’ Republic of China are considered one Party, then 14 CITES Parties have issued export permits for OWT (Table 6).

The majority of records (n=24; 83%) had a specified weight (kg) as the traded unit, while four records simply stated a numeric value (3, 9, 100.14, and 500) with no accompanying unit. The assumption was made that where no unit is recorded, the quantity represents the total number of specimens (CITES 2013b). Regardless, trade transactions with no specified unit of volume were excluded from further analysis to ensure accuracy. The defined volumes of individual trade transactions ranged from 11.3 to 11835.85 kg, with the largest reported transaction from Yemen to Hong Kong SAR (2021). No Parties identified have a publicly available NDF for OWT. In total, a net export volume of 31.95 metric tons was recorded in commercial trade. It has been observed from compiled RFMO records that the CITES Trade Database does not actually reflect the real catches of CITES-listed sharks (Okes and Sant, 2022). For example, prior to the CITES Appendix II listing of oceanic whitetip shark (which entered into force in September 2014), IOTC CPC’s logged only 1 687 OWT landed between 2008 and 2013 (Pavitt et al., 2021).

Table 6. Official trade in OWT labeled as Commercial (purpose code “T”) in the CITES Trade database.

Year	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Source
2013	Hong Kong SAR	Seychelles			100.14	fins		W
2014	Ethiopia	United Arab Emirates	Yemen		3	fins		W
2014	Singapore	Sri Lanka		451	451	fins	kg	W
2015	Hong Kong SAR	Singapore	Sri Lanka	745.6	1153	fins	kg	W
2015	Singapore	Sri Lanka		872	872	fins	kg	W
2015	XX	Ecuador			9	fins		W
2016	Hong Kong SAR	India			1431	fins	kg	W
2017	Hong Kong SAR	India			660	fins	kg	W
2017	Hong Kong SAR	Seychelles		11.3	11.3	fins	kg	W
2018	PR China	Oman			200	fins	kg	W
2018	Hong Kong SAR	Yemen			970	fins	kg	W
2019	PR China	Oman			483	fins	kg	W
2019	Hong Kong SAR	Oman		1737.6	1400	fins	kg	W
2019	Hong Kong SAR	Oman			500	fins		W
2019	Hong Kong SAR	Senegal		150		fins	kg	W
2020	Hong Kong SAR	Sri Lanka		1138.1	1500	fins	kg	W
2020	Hong Kong SAR	Oman		600	370	fins	kg	W

Year	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Source
2020	Hong Kong SAR	Seychelles			72	fins	kg	W
2020	Hong Kong SAR	Yemen			1500	fins	kg	W
2020	Taiwan PoC	Seychelles			875	fins	kg	W
2021	PR China	Kenya			315	fins	kg	W
2021	Ghana	Benin			18	specimens		W
2021	Hong Kong SAR	Colombia		931		fins	kg	W
2021	Hong Kong SAR	Indonesia		32.6		fins	kg	W
2021	Hong Kong SAR	Kenya	XX	35.94		fins	kg	W
2021	Hong Kong SAR	Oman		4601.1	5220	fins	kg	W
2021	Hong Kong SAR	Singapore	Sri Lanka		149.3	fins	kg	W
2021	Hong Kong SAR	Senegal		270		fins	kg	W
2021	Hong Kong SAR	Yemen		2899.3	11835.85	fins	kg	W

Estimating number of sharks logged in the CITES databases

Since 2014-2021, the CITES trade database recorded a net export (excluding re-exports) of 31.95 metric tons of OWT fins. To ensure calculations were conservative, to best reflect the expected underreporting of OWT trade to CITES, all fins were assumed to be dried fins, the lightest form in which fins are commonly traded. In order to convert the volume of OWT products in trade to a unit that could be compared to the volumes captured in tRFMOs, established conversion ratios were applied to reverse-calculate an approximate weight of whole landed OWT required to produce the weights of dried fins documented in trade. A dry fin to wet fin ratio of 0.25 was applied (i.e., 1 kg of dried fin, has a wet weight of 4 kgs), and then a wet fin to round weight conversion of 5% was used, with fins representing 5% of the total mass of the whole animal. Based on these calculations it was conservatively estimated that a catch volume of approximately 2,486.2 metric tons of whole OWT would be needed to supply the corresponding volume of fins logged in trade in the CITES database between 2014-2017 as included in the comparative analysis. The comparison of the quantity of OWT estimated to be in trade based on the Hong Kong SAR published market surveys versus the volume officially recorded in the CITES trade database infers chronic underreporting of exports (Table 5). A potential explanation is that CITES Parties may be capturing and retaining stockpiles of OWT fins while NDFs are undertaken, but this is unlikely at that scale and for Introduction From the Sea a NDF would have had to be issued prior to introduction. This provides significant evidence of substantial volumes of unreported international trade in OWT, that is likely continuing illegally (Okes and Sant, 2022).

Section E – Catch data in tRFMOs and FAO reporting

The evidence presented here, corroborated by independent datasets discussed in sections C and D, obtained from intercepts along the wildlife trade chain suggests that international trade in OWT fins is ongoing at near historical levels, despite the CITES Appendix II listing. To determine where the shortcomings in the current implementation of the listing lie, it is important to understand the components of the OWT trade especially supply-source dynamics. Mortality resulting from pelagic fisheries, both as targeted and incidental catch, is the primary threat to OWT populations (IUCN Red List, 2019).

Globally, OWT have been afforded a suite of management and conservation regulations that could influence the volume and supply-source location of international trade, see Section B for details. Given the species' pelagic life-history and spatial overlap with commercial fisheries targeting tuna/billfish (Quieroz et al., 2019), a significant regulatory change were the OWT retention prohibitions adopted by all of the major tuna-Regional Fisheries Management Organisations i.e., ICCAT, IATTC, IOTC, and WCPFC (Sherman et al., 2022). When reviewing such fisheries data with respect to the tRFMO retention prohibitions, it is important to note that their implementation frequently includes exemptions (Section B).

The tRFMO OWT prohibitions came into effect shortly before the CITES Appendix II listing entered into force, making it difficult to tease apart the influence these two groups of measures had on the volume and logistics of catch and trade. By examining the OWT catch volumes reported by the major fishing fleets and fisheries, and comparing those with volumes in trade, it provides an opportunity to identify where reported volumes differ and the potential cause of these discrepancies.

Global oceanic whitetip capture production was assessed using the available fisheries landings datasets from four major tRFMOs (ICCAT, IOTC, IATTC, and WCPFC), compared to the Food and Agriculture Organization of the United Nations (FAO) capture production

database (FishStatJ, 2022). Annual reporting of catch for these various organizations occurs at different times, and at the time of writing the most recent reported data available was up to and including 2018, for the tRFMOs, and 2017 for FAO. Since landings data from each tRFMO is reported in a different structure, it was harmonized into a single format for ease of comparison using the R statistical program (R Development team, 2020).

Regional Fisheries Management Organization and FAO scale Reporting

The cumulative reported catch for OWT was calculated for each tRFMO individually, the sum of the four tRFMOs, and landings data reported to the FAO for the period 2000-2018, and 2000-2017 respectively (Figure 3). During this period, cumulative OWT landings for the four tRFMOs peaked between 2008-2010, with an estimated total landed volume of 4000 MT. The subsequent observed declines in OWT reported catch were expected and likely reflect the implementation of the tRFMO retention prohibitions in various stages/capacities at this time.

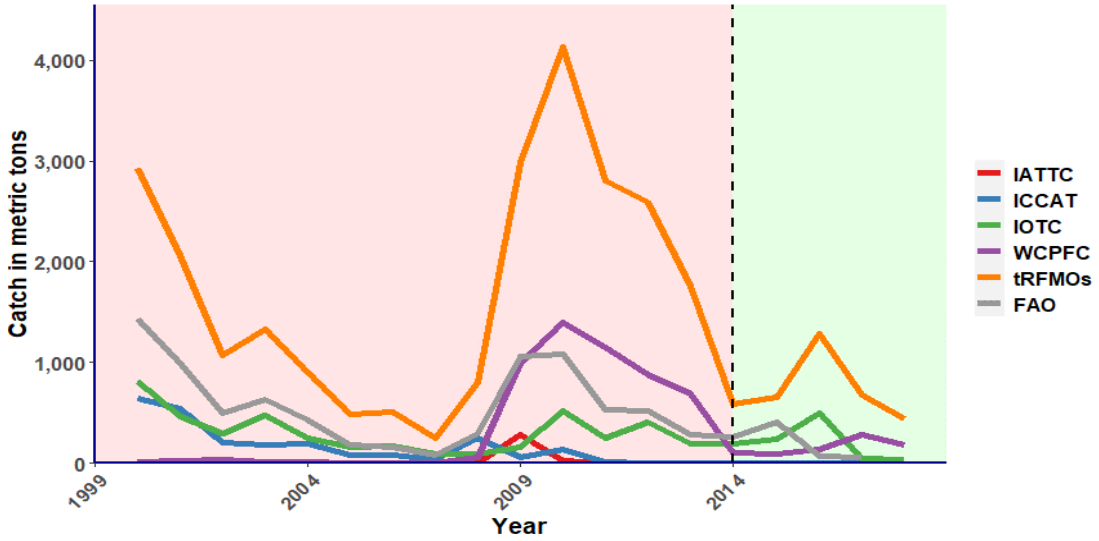

Figure 3. Plotted annual OWT catch reported for i) four major tRFMOs individually: IATTC, ICCAT, IOTC, and WCPFC; ii) the sum of the four tRFMOs; and iii) the FAO for the period 2000-18/17 respectively. The dashed line indicates the year the CITES listing on Appendix II entered into force (2014). Catch volumes are reported in metric tons.

The cumulative OWT catch reported to the FAO by all countries was consistently lower than the cumulative catch reported to the four tRFMOs (Figure 3). This discrepancy suggests that there is limited reporting of OWT to the FAO by countries, when compared with landings reported to the individual tRFMOs during the same period. There should be more countries reporting to the FAO (194 members) than to the tRFMOs, and the regions covered by the FAO include landings in EEZs and types of fisheries that are often outside the tRFMO's areas of competence, however it is possible some catches of OWT are included in more general aggregated shark catch categories. Furthermore, some countries have different departments responsible for submitting data to RFMO vs FAO, which may account for these differences. This idea is supported when examining the total shark catch volumes reported to the FAO and the sum of the four tRFMOs (Figure 4 below). In this case the catch reported to the FAO by all countries is higher than the total catch reported to the four tRFMOs, as would be expected, as the FAO data goes beyond tuna fisheries. This suggests that either species-level reporting

for the OWT shark to the FAO requires assistance to improve/increase capacity and accurate reporting, or that landed OWT are being intentionally mis-labeled to circumvent regulations for the species as is the case with other marine species (Kroetz et al., 2020). This could be indicative of a wider issue with shark/ray landings data reported to the FAO (Garibaldi, 2012), as total shark catch reported by the FAO exhibits a downward trend while the opposite trend is observed from the tRFMO data for the same period. Alternatively, coastal stocks and catches that are also recorded in FAO data could be declining while pelagic effort and catches rise. Considering the higher resolution of the available OWT data, all analyses conducted at the country scale were performed using the OWT landing data reported to the tRFMOs.

Country/Party scale

While there is value in determining which ocean basins and tRFMO fleets contribute the most OWT catch based on reported landings, it does not help with the identification of Parties who appear to be non-compliant, to either tRFMO measures, CITES regulations, or both. Since the CITES and tRFMOs decisions were taken, there is an observed decline in the reported official landings for the four major tRFMOs and FAO, suggesting good compliance. However, the Hong Kong SAR retail market fin trimming surveys demonstrate that the proportion of OWT in trade is comparable to historical levels, which suggests the proportion and volume of OWT being captured similarly remains largely unchanged.

Considering the lack of publicly available NDFs and sparse CITES Trade database records, but strong evidence of trade at historic levels, a logical first step would be to identify the Parties involved in this continued international trade, and those that continue to catch OWT, both historically and at present. Countries with historically high OWT catch were assessed, as it is possible that some tRFMO members may simply be reporting zeros for any OWT landings, to avoid compliance questions.

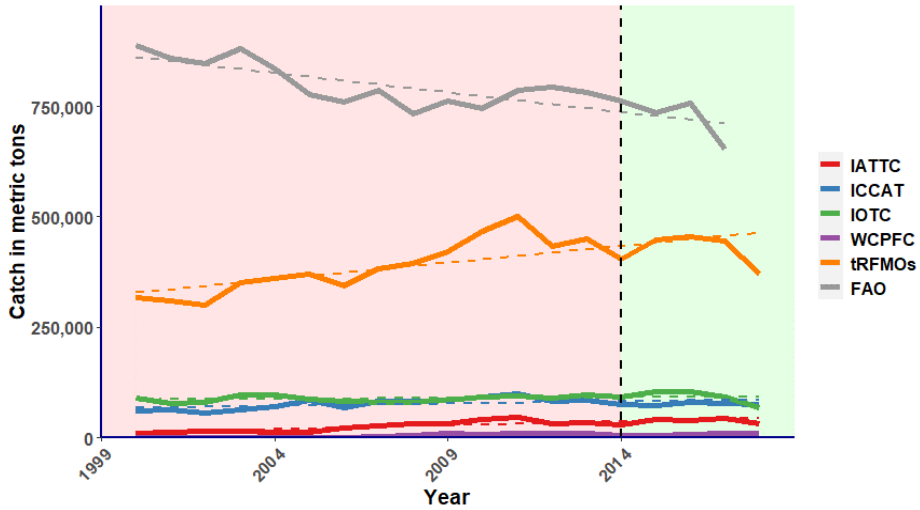

Figure 4. The annual total cumulative shark catch (all species) reported for i) four major tRFMOs individually: IATTC, ICCAT, IOTC, and WCPFC; ii) the sum of the four tRFMOs; and iii) the FAO for the period 2000-18/17 respectively. The dashed line indicates the year the CITES listing on Appendix II entered into force (2014). Catch volumes are reported in metric tons (MT).

OWT landing data reported to four tRFMOs (IOTC, ICCAT, WCPFC, and IATTC) was analysed to determine which Party/Countries' fleets comprised the top 10 countries landing OWT before and after the species was listed on CITES Appendix II. Since OWT CITES

implementation came into effect in September 2014, after an 18-month delayed implementation, with available catch data from the four tRFMOs updated up to 2018, the two time periods were defined as: pre- CITES Appendix II period of four years (2011-2014), and post-Appendix II listing entry into force period of four years (2015-2018). The catch production volumes of the fishery before and after implementation were measured by aggregating the total catch for OWT sharks for the period before and after the CITES Appendix II listing came into force (Figure 5). Given that Japan has a reservation for the OWT CITES Appendix II listing, they were excluded from further analysis.

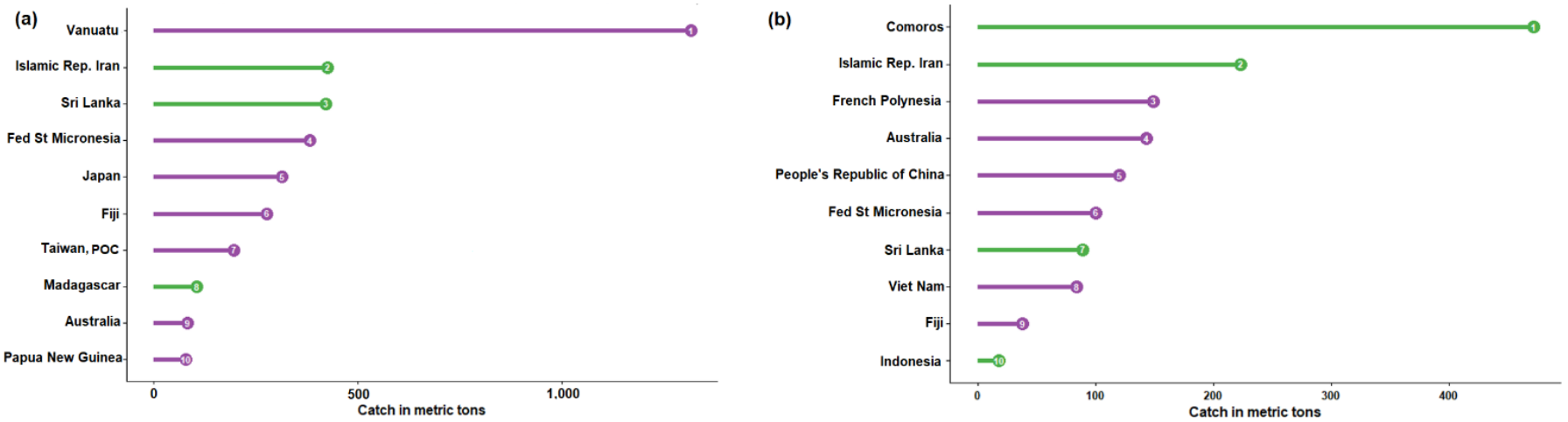

Figure 5: The top 10 countries sorted by OWT reported catch volume (MT) from tRFMOs, ranked in descending order for the periods (a) before CITES listing came into force 2011-2014, and (b) after the CITES listing came into force 2015-2018. Data are colour-coded by tRFMO: IOTC (green) and WCPFC (purple).

During the pre-CITES Appendix II listing period of four years (2011-2014), the top ten countries aggregate 3,600 MT of OWT catch out of a total of 3,867 MT of OWT catch reported to the four tuna RFMOs. The catch from the ICCAT area was 19 MT and the catch from the IATTC area was zero. Prior to the effective date of the CITES listing the top 10 OWT catching fleets were responsible for 93.1% of the global OWT landings.

During the period after the CITES Appendix II listing came into force, the top ten countries aggregate 1,437 MT of OWT catch out of a total of 1,524 MT of OWT catch reported by the four tuna RFMOs. The catch from ICCAT was 16 MT and the catch from IATTC was zero. These top 10 OWT catching fleets were responsible for 94.3% of the global OWT landings. It is questionable that CPCs identified as a top 10 fisher of OWT, would reduce their catch volumes so abruptly given what we know about the timescales for broad scale regulatory changes to take effect. From these findings, we hypothesize there is a significant chance that undocumented OWT sharks are being traded from the top 10 countries reporting catches to the FAO and respective tRFMOs for the period from 2000-2014 and in the 2015-2020, as well as those indicated in confiscations.

Throughout both periods the top ten fishing fleets for landing OWT belonged to member countries/territories of either the IOTC or WCPFC. This may be driven by the fact that Atlantic pelagic sharks were depleted first, before fisheries expanded elsewhere, with the WCPFC, being the most recently exploited oceans (Pacoureau et al. 2021). It appears that a select few fleets are potentially in violation of their respective tRFMOs regulations (likely given where the species is caught). These same fleets may be responsible in supplying the majority of the undocumented trade, without an accompanying CITES permit, and subsequently illegal international trade (section B).

Despite each vessel flying the flag of the country where they are registered, the process of identifying which Party has ultimate responsibility for the catch is complicated by the presence of foreign flagged fleets. Some countries have an open registry, which means they allow foreign vessels to register and fly their flags, with the sole condition that the vessel owner pays the fee and meets the registration requirements. Upon meeting those requirements, the flagged state often takes no responsibility for the conduct of the vessel or provides no oversight to ensure fisheries regulations are complied with. The International Transport Federation has identified 35 ‘Flag of Convenience states’. Of the 35 Flags of Convenience’s identified, three appear in the list of top 10 nations catching and reporting OWT either before or after its inclusion on CITES Appendix II, and all are CITES Parties (Vanuatu, Sri Lanka, and Comoros). To accurately reflect which Parties are ultimately responsible for the fleets identified above, a check against known tRFMO reflagging arrangements was conducted (Table 7). Some of the top 10 catching countries listed are not CITES Parties, however upon examination of the relevant tRFMO chartering arrangements which report that these are in fact vessels belonging to the CITES Parties listed in the table below, and considering CITES Parties’ IFS obligations, these have been included (WCPFC-TCC5-2009/10). The issue of reflagging and IFS is a complex one, but it is worth considering in this analysis that some of these data come from reflagged fleets, hence it is included to ensure an accurate reflection of the current Parties landing OWT.

Table 7. The top ten catchers of OWT prior to (2011-2014) and after (2015-2018) the CITES App. II listing came into force. Shading indicates the tRFMO to which the fleet belongs: IOTC (light blue) or WCPFC (dark blue).

Rank	2011-2014	Reflagged fleet	2015-2018	Reflagged fleet
1	Vanuatu	PR China/Fiji	Comoros	
2	Islamic Republic of Iran		Islamic Republic of Iran	
3	Sri Lanka		French Polynesia	
4	Federated States of Micronesia	PR China/Japan	Australia	
5	Japan		People's Republic of China	
6	Fiji	PR China/Vanuatu/Rep of Korea	Federated States of Micronesia	PR China/Japan
7	Taiwan, Province of China		Sri Lanka	
8	Madagascar		Viet Nam	
9	Australia		Fiji	PR China/Vanuatu/Rep of Korea
10	Papua New Guinea	Taiwan, Province of China	Indonesia	

OWT have an affinity for pelagic environments, areas of ocean that for all but some oceanic island nations, lie outside national jurisdiction. These ABNJ are frequently subjected to commercial longline fisheries, which leads to a high rate of OWT capture (Quieroz et al. 2019). The CITES definition of international trade includes “Introduction from the sea” (IFS), which is defined as: “transportation into a State of specimens of any species which were taken in the marine environment not under the jurisdiction of any State” and was operationalized in Resolution 14.6 (Rev. CoP16). Any OWT prior to being introduced from the sea shall, since 14 September 2014, require a certificate from the CITES Management Authority of the State of introduction (available at: https://www.cites.org/eng/prog/ifs.php), after the Scientific Authority of the State of introduction advises that the introduction will not be detrimental to the survival of the species in the wild. This means that most specimens of OWT taken in a RFMO fishery should also be reported in the CITES trade database as IFS.

Section F – Analysis

Since the CITES Appendix II listing came into effect in September 2014 and up until 2019, limited official trade in OWT has been reported within the CITES trade database (4.78 MT, all but one transaction declared as fins). This could mean that Parties are fully compliant with the requirements of the CITES Appendix II listing, and tRFMO prohibitions, since a large proportion of OWT are believed to be caught in tRFMO fisheries and in ABNJ. Certainly, official tRFMO and FAO statistics show sharply decreasing landings since 2011. However, the continued worldwide decline in OWT populations, coupled with reviews of the species composition and volume of trade in OWT in the Hong Kong SAR fin market, and confiscated shipments of OWT fins, strongly suggest significant non-compliance, warranting a more

detailed review of trade and landings data. Analysis was restricted to the pre- and post listing time periods of equal duration where all data were present.

In order to make meaningful comparisons between different data formats, average conversion factors were used to estimate whole weights of oceanic whitetips from products in trade. Data from the CITES trade database, the Hong Kong SAR trade statistics database, and Hong Kong SAR OWT fin confiscations, were compared with capture production weights reported to the tRFMOs and FAO during the same time period. Conversion of CITES trade database fin weights to global capture production can be challenging as the CITES trade database does not report the fin product form. Therefore, all fin weights reported here were assumed to be dried to ensure the most conservative whole weights were inferred. Such comparisons can indicate general trends and discrepancies in trade, which allow the assessment of compliance of the OWT CITES Appendix II listing (Figure 6).

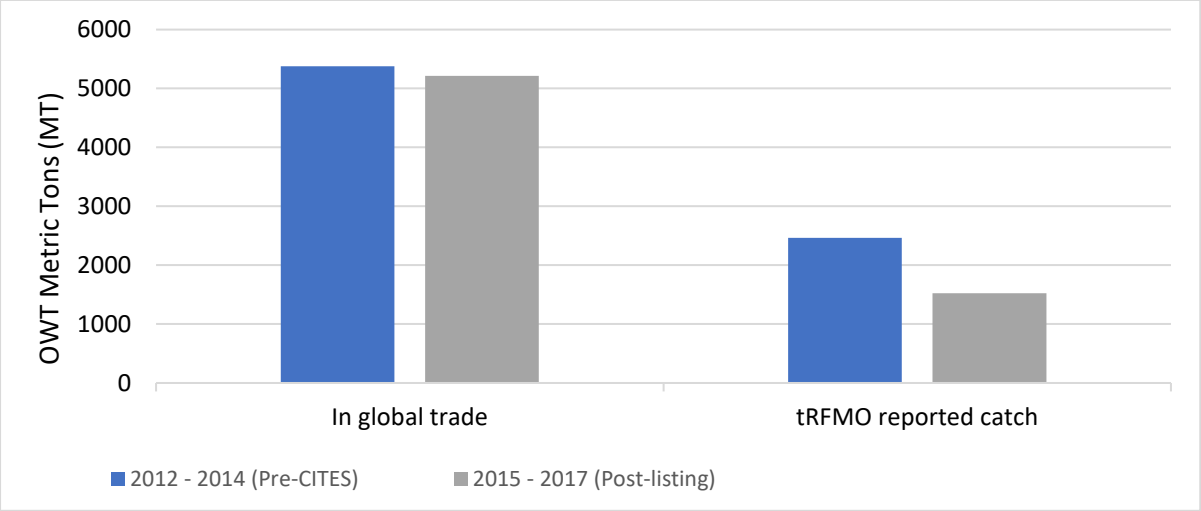

Figure 6. Comparisons of recorded volumes of OWT captured by tRFMOs, and traded internationally based on Hong Kong SAR markets, expressed as whole weight, for two periods 2012-2014 before the CITES listing (blue), and 2015-2017 after the CITES Appendix II listing.

The strength of this analysis is that using the proportion of OWT relative to the rest of the fin trade derived from the Hong Kong SAR fin trimming study, makes it possible to the tease out the OWT specific volume, which was not possible before (Fields et al. 2018; Cardeñosa et al. 2018, Cardeñosa et al. 2020; Cardeñosa et al. 2022). The whole OWT catch weight corresponding to the volume of trade recorded in the CITES database was 382.48 metric tons (MT), whereas the cumulative reported catch by tRFMOs was 1,524 MT, during the same period. Considering the retention bans implemented by the tRFMOs, such a large volume of catch suggests poor compliance with these measures.

Results calculated for the post-implementation period of 2015-2017, estimated the total catch volume of OWT needed to supply what is represented in the global trade at 5211.41 MT, comparable to historic levels (5375.64 MT) Fig. 6. When compared against the cumulative catch volume reported by all tRFMOs for the same period, it indicated a deficit in the reported of 3,687 MT, as the tRFMO reported OWT catch was 1,524 MT. The same analysis was compared against the OWT capture volumes reported to the FAO for the same period and calculated an even greater deficit of 4,674 MT, as only 537 MT were reported. Similarly, the

whole weight for OWT trade recorded in the CITES trade database (382.48 MT), and confiscated OWT fins seized by Hong Kong SAR AFCD officials (123.74 MT) were calculated (Figure 7). When reviewing these datasets together, there appears to be 1141.52 MT of OWT trade that is unaccounted for in the CITES trade database, when comparing with the volumes reported by tRFMOs. This undocumented trade in OWT was calculated to represent approximately 36,216 OWT individuals (Figure 7, Annex 5).

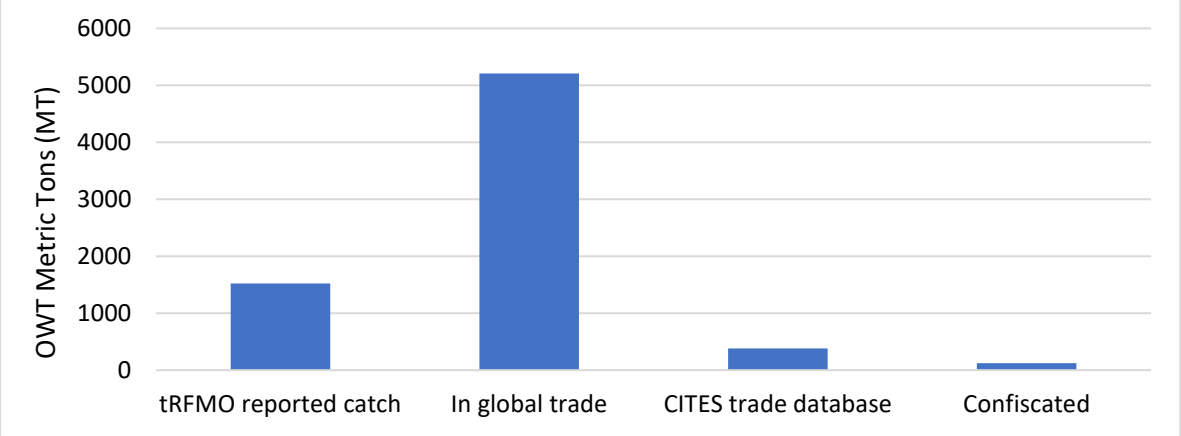

Figure 7: Comparisons of recorded volumes of OWT captured by tRFMOs, traded in Hong Kong, SAR, confiscated fins by AFCD Hong Kong SAR, and recorded in the CITES trade database expressed as whole weight for the post implementation period of 2015-2017. All volumes are expressed in metric tons (MT).

The results of the Hong Kong SAR market analysis presented here suggest that globally the catch and volume of OWT in trade continues to be comparable to the levels observed in the 3 years prior to the CITES Appendix II listing, despite the tRFMO measures (Figure 7). However, the equivalent whole weight of OWT reported in the CITES trade database is substantially less than the global reported OWT capture production from the FAO, as well as that reported by the tRFMOs.

Illegal trade in OWT has been well documented from seizures since 2014 (Table 3.). From 2014-2018 Agriculture Fisheries Conservation Department (AFCD) and Customs and Excise Department authorities of Hong Kong SAR have made 24 confiscations of illegally traded OWT fins estimated to represent an equivalent of 262.01 MT of whole OWT (Clarke et al. 2006ab; Shea & To, 2017).

Additionally, comparison of Hong Kong SAR's import data with the exporting countries/territories CITES trade records, tRFMO landings, and FAO landings declarations indicates that some countries/territories are consistently underreporting shark fin exports (Shea & To, 2017), and further there is substantial underreporting of OWT fins traded to the CITES trade database. We hypothesize that the majority of this unaccounted OWT trade is illegal, and highly unsustainable. This makes OWT an urgent priority species to investigate further in terms of compliance of both CITES and tRFMO regulations. Especially given that the WCPFC regional OWT stock assessment (Tremblay-Boyer et al. 2019), concluded that the region's population will become extinct in the future at current fishing levels. A complete absence of reporting of fins that originate from the high seas also supports that underreporting is rife, OWT are captured in longline and purse seine fisheries that function consistently on the high seas beyond specific countries jurisdiction (Young and Carlson, 2020; CITES 2013a). It would be expected that at least some OWT fins in trade would be from ABNJ, yet none are

reported in the CITES trade database, or registered as being the result of Introduction From the Sea.

Section G – Conclusions

The OWT is afforded a suite of multilateral protections, in recognition of its steep and rapid population declines, the species' Critically Endangered status, and historic high levels of trade. This document used the information available from FAO, and tRFMO fisheries and trade statistics, CITES export permit data, survey data of the Hong Kong SAR fin market, AFCD Hong Kong SAR customs trade and confiscation data to evaluate the current state of international OWT trade. Official government landings data and trade statistics from fisheries and CITES show reduced catches and low volumes of registered trade since the OWT tRFMO retention prohibitions and CITES Appendix II decisions were taken, indicating good compliance. However, the results of peer-reviewed research on the Hong Kong SAR fin market, used to determine the proportion of OWT in trade, showed the continued contemporary presence of OWT. The known proportion of OWT in the Hong Kong SAR fin trade was used in conjunction with total shark fin import data from Hong Kong SAR Customs to estimate the volume of OWT in trade, and concluded that international trade in OWT is continuing at historical levels. As was the case before the CITES Appendix II listing, the trade is comprised of high value fin exports.

While it is hypothetically possible that such OWT trade is sourced only from fisheries to which the tRFMO measure exemptions apply, non-CITES Parties or Parties with Reservations, authorized trade with a LAF and positive NDF, or a combination of these, it seems unlikely that trade volumes of such magnitude would be supplied this way. The numerous national level regulations implementing international and regional controls and/or further restricting OWT fisheries add to that picture. The breadth of regulations for OWT, if implemented in national legislation, will limit the number of CITES Parties able to make a LAF. The global status and inherent biological vulnerability of the species cast doubt on the ability to make positive NDFs. Therefore, unless officially documented via the CITES Trade database, it suggests these large volumes of trade are unreported and illegal. This would reflect poor compliance with both CITES and RFMO measures as the inferred global catch of the species remains comparable (↓ 164.22 mt).

Based on discrepancies in the volumes of OWT being landed in tRFMOs, volumes reported to the FAO, and those which are documented in the CITES trade database; it is clear that large volumes of OWT, ranked the 7th most abundant species in trade out of the 76 species identified in Hong Kong fin market, are being traded internationally without the proper CITES documentation, and therefore are non-compliant with CITES. This suggests that only 26% of the total tRFMO reported catch, has CITES documentation, most of which will fall under CITES "Introduction From the Sea" yet no accompanying IFS certifications are observed. Even the trade documented with CITES permits is of questionable sustainability, given the global conservation status and scale of intergovernmental legislation severely limiting the conditions under which the legal acquisition of OWT could be met. Furthermore, these undocumented

OWT in trade may be illegally landed as the product of IUU fishing given the comprehensive protections afforded to the species under tRFMOs. Evidence of OWT being subject to IUU fishing has been documented by foreign flagged vessels in the Galapagos Marine Reserve in Ecuador (Bonaccorso et al. 2021), coupled with studies showing significant underreporting of OWT interactions and resultant discards from Atlantic fleets (Mucientes et al. 2022). Despite the range of exemptions to the tRFMO restrictions, legal catch is still expected to be low especially given that the majority of OWT catch occurs in the high seas.

There appear to be compliance issues that cut across the trade and fisheries bodies. CITES, tRFMOs, and FAO official statistics appear to have a common issue of intentional non-reporting, suggesting compliance with protective measures for a Critically Endangered species is poor. Of the commercially traded shark species listed on CITES Appendix II, OWT are visually distinct. This facilitates easy identification of whole animals and enables the collection of species-level landings and trade data. Improved data collection to species level may help reduce some of the large deficits between reported catch and trade of OWT.

Table 8. Parties and territories identified as stakeholders in the ongoing catch and trade of OWT, gleaned from confiscations records (Section C), the CITES trade database (Section D), the top 10 historical or contemporary catchers of OWT (Section E), and the top 20 shark fishing countries by reported volume for all species (TRAFFIC, 2019). Parties included on the list only because they are a top 20 shark catcher but for no other reason are indicated with an Asterix (*).

Argentina*	Mexico
Australia	Morocco
Benin	New Zealand*
Brazil*	Nigeria*
People's Republic of China	Oman
Colombia	Pakistan
Comoros	Papua New Guinea
Ecuador	Peru*
Egypt	Portugal*
Ethiopia	Republic of Korea
Fiji	Senegal
French Polynesia (France)	Seychelles
Ghana	Singapore
Guyana	Somalia
Hong Kong, SAR	Spain*
India	Sri Lanka
Indonesia	Taiwan, POC
Islamic Republic of Iran	United Arab Emirates

Japan	United States of America*
Kenya	Vanuatu
Madagascar	Viet Nam
Malaysia	Yemen

We see that there is a patchwork of information on regulations and measures that are publicly discoverable, such information gaps are expected given not all NDFs and regulations are publicly available. But given the continued presence of OWT in trade, greater clarity is needed. An improved understanding of what measures are in place will allow enforcement efforts to differentiate between legal and illegal trade. India has the only publicly available positive NDF, although it appears to be superseded by additional Indian law that prohibits the trade in fins. It makes sense that seemingly few NDFs exist given prohibition measures and the species' Critically Endangered status would make it difficult to demonstrate wild harvest is non-detrimental. However, since no quality standard of NDFs has been established, it is up to the discretion of Scientific Authorities as to how they conduct a NDF, therefore a Review of Significant Trade is needed to assess standards of NDFs for OWT.

The analysis in AC31 Doc. 13.4 Annex 2 designed to assist the Animals Committee with selecting species for inclusion in the Review of Significant Trade (RST) after CoP18, identified OWT as a species of concern, based on current levels of trade, all sourced from the wild. Based on current data, the OWT satisfies criterion i) Endangered Species, and criterion iii) Sharp Increase (Country), of the five RST criteria. Species categorized as Critically Endangered or Endangered according to the IUCN Red List of Threatened Species (any species-country combinations with trade meet the criteria). Taxon/country combinations met this criterion if the volume of direct exports in 2018 for a taxon were more than three times the average trade volume of the preceding five years as exported by a particular country. For the OWT the sharp increase in exports" criterion was triggered by continued exports of endangered OWT from India, Sri Lanka, and Oman. However, based on this document we identify several additional Parties that should be considered for the RST process, based on data from the global trade hub, FAO, and tRFMO landings where the majority of the species is caught. There is the need to expand coverage to outside those Parties listed in the CITES trade database, because they may be the only ones identified by adhering to the reporting requirement of the convention. At a minimum this study highlights Parties which have had OWT fin confiscated on entry into Hong Kong by AFCD and we suggest their inclusion (Table 8). Furthermore, Parties highlighted in Section E are of similar concern and warrant inclusion in RST given historical and ongoing tRFMO landings.

Therefore, we suggest it would be important to

1) ensure that recorded continued international trade OWT is being conducted sustainably and in accordance with Article IV of the Convention, and to identify remedial action where it is needed with the ultimate intent of improving the implementation of the Convention; and

2) continue to investigate the apparent mismatch between the trade in products of OWT recorded in the CITES Trade Database and what would be expected from RFMO and FAO catches

We note that there is already a decision by CoP19 to investigate the apparent gap in CITES data on international shark trade (Decision 19. 223) and we suggest that in line with 2) that this study should pay particular attention to Parties with historic and current catch of OWT and review their actions to implement and enforce CITES for OWT, effective September 2014, and RFMO no-retention measures. It also seems appropriate to investigate the steps Parties, which previously participated in the international trade of oceanic whitetip sharks, took to ensure effective implementation of the CITES Appendix II listing and strong compliance and enforcement. The results in this document indicate that much more needs to be done to strengthen both implementation and compliance.

In conclusion, we suggest that OWT is prioritized in upcoming discussions around RST, and the additional data provided here be considered as part of that process. With a near total lack of IFS information for the species, using this additional information from tRFMO's on high seas catching nations will be essential, to gain an accurate picture of countries continuing to catch, Introduce From the Sea, and trade in the species.

Section H – References

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