



SOUTH AFRICA'S SHARK AND RAY

TRADE DYNAMICS

An analysis of the international meat and fin trade

Simone Louw & Markus Burgener

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TRAFFIC




 金 市即食鮑.參.翅.肚.燕窩.專賣店
 TAM KAH MARINE PRODUCTS SPECIALTIES
 ABALONE, SEA CUCUMBER, SHARK'S FIN, FISH MAW, BIRD NEST
 店 H.P. +65 9858 3585 TEL. +65 6 220 3338 taie@tamkahsharkfin.com www.tamkahsharkfin.com

TAM KAH SHARK'S FIN TRADING



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EXECUTIVE SUMMARY

Globally, there is a concern over the impact that the catch and subsequent trade in shark products can have on shark and ray populations. **As an important region for sharks, there is a need to understand South Africa's role in the international shark trade and to monitor any changes.** This study was undertaken to evaluate the South African fisheries catching sharks and the trade dynamics of the products derived from those catches, specifically for the meat and fin trade. Catch data was sourced from the Food and Agriculture of the United Nations (FAO) and the Department of Forestry, Fisheries, and the Environment (DFFE). Trade data was sourced from the United Nations Commodity Trade Statistics Database (UN Comtrade).

Results show that **the pelagic longline fishery accounted for the majority of shark catches** between 2010 and 2019, primarily landing Shortfin mako (*Isurus oxyrinchus*) and Blue sharks (*Prionace glauca*) as incidental bycatch. **The inshore hake trawl fishery caught** the highest number of different species as incidental bycatch, including the **Critically Endangered Soupfin shark (*Galeorhinus galeus*) and the**

Endangered Smoothhound shark (*Mustelus mustelus*). The commercial line fishery had the highest number of 'unidentified' shark species caught as incidental bycatch. **The demersal shark longline fishery, the only dedicated shark fishery, primarily targeted the Soupfin, Smoothhound, and Copper sharks, with catches in this fishery including 'unidentified' species of ray.**

The FAO and DFFE **shark catch information for South Africa lacked species-specific information and contained aggregated or lumped data named as "rays and skates", "stingrays and mantas", and "shark spp". The lack of species-specific information is a major hinderance for monitoring the impacts of fishing on vulnerable species**, particularly those found within these lumped groups, as an increasing number of ray and manta species are threatened with extinction according to the IUCN Red List and subject to CITES Appendix II trade restrictions. Further results showed that reported catch volumes consistently differed between the two data sources. FAO reported significantly higher volumes of shark and ray catches for South Africa, for all years analysed.

In South Africa, there is very little documented consumption of shark products, and the trade is almost entirely international. The trade in shark products from South Africa followed distinct pathways depending on the products exported. **Shark meat was primarily exported to Uruguay and re-exported to Brazil**, where there is a high demand for shark meat. **The Republic of Korea was a top importer of shark meat from South Africa, where consumers have a distinct preference for ray and skate meat. In Europe, the top importers included Italy, Spain, and Portugal. Australia was also a top importer of shark meat from South Africa, primarily from sharks caught in the demersal longline fishery.** Comparisons of South African reported export quantities of shark and ray meat, and corresponding world import quantities showed considerable discrepancies: **in most cases South African export figures were lower than imports reported by the world.**

Similarly, **exports of shark and ray meat from the world to South Africa showed concerning discrepancies in volume in comparison with South African reported imports of shark and ray meat.** Despite South Africa having no domestic market for shark meat, world exports to the country were significantly higher than South African reported imports, for all years analysed. There was no evidence in the data to suggest that imported shark meat was being re-exported. However, **most of the shark meat exports to South Africa were reported by Japan and Taiwan Province of China (PoC), and most likely reflect shark landings in South African ports by Japanese and Taiwanese fishing vessels, who then store product in bonded warehouses (transit) prior to re-export.** South Africa, in accordance with the World Customs Organization (WCO) guidelines on international trade, is likely not recording these shipments as imports.

Shark fins were primarily imported by countries/territories in Asia for the luxury dried seafood market, where shark fin soup is considered a delicacy and a symbol of wealth. **The top importers of dried shark fins from South Africa included Hong Kong Special Administrative Region (SAR), Singapore, Japan, and Macao SAR.** The shark fin trade reflected similar discrepancies in reporting as the shark meat trade, with South Africa reporting lower volumes of exports to the world, compared to the import volumes reported by the world from South Africa. The under-reporting of export volumes by South Africa may be reflecting

illegal consignments of shark fins leaving the country undetected. There have been a number of shark fin seizures in South Africa and in other countries where South Africa was indicated as the country of origin, transit or destination.

Most of the seizures were related to the export of shark fins without the relevant CITES export permits, or the mis-declaration of shark fin consignments as other products. The issues and challenges detailed in this report highlights the need for greater traceability of shark products in South Africa. The following actions are recommended to address the issues in this study:

- On-going awareness of shark trade dynamics in South Africa and the associated challenges in ensuring that the trade is legal and sustainable.
- Greater coordination between DFFE and FAO regarding catch data and reporting.
- Investigation of the shark meat exports to South Africa, reported by Japan and Taiwan PoC, to determine whether these consignments have subsequently been re-exported as inconsistent capture of this trade as imports rather than re-exports provides a potential loophole for illegal trade to take place.
- Training of law enforcement officials on the identification of fins from CITES-listed shark species.
- The development of new HS based tariff codes for shark meat and fins to improve the monitoring of international trade in these products from and through South Africa.

Please see more details within the **recommendations** section.



INTRODUCTION

Worldwide, shark populations are impacted by the fishing activities of both large and small-scale fisheries. It is estimated that around 600,000 metric tonnes of shark products are traded each year (Okes and Sant, 2019) to supply the global demand, primarily for meat and fins. The trade in shark meat and fins follow distinct pathways based on the markets' demand. For shark meat products, the supply chain consists of diverse trade routes with apparent differing preferences for species geographically (Niedermüller et al., 2021). Shark fins on the other hand has a very focused supply chain route to Asia.

- Globally, **shark meat** is harvested to supply markets mainly in South America, Europe, and South Korea, where it is consumed as an important protein source (Dent & Clarke, 2015b).
- **Shark fins**, in contrast, are harvested to supply the luxury dried seafood markets in many Asian countries, where there is a strong demand for shark fin soup as a delicacy (Clarke et al., 2006).

Dried shark fins form part of the same niche markets as abalone, sea cucumbers, and fish maws (Louw, 2021). These dried products symbolise wealth and are often consumed during festivals, Chinese banquets, and weddings (Lau and To, 2019).

The fins are the most valuable part of many traded shark species. The high economic incentives associated with the shark fin trade and the great demand for shark fin soup in Asia are significant factors driving the legal and illegal trade in shark fins. The overfishing of sharks to meet global demand for their products has led to considerable population declines across the world, with an increasing number of species listed as Endangered and Critically Endangered on the IUCN red list (Fowler et al., 2021).

The most recent assessments suggest that more than one third of all sharks and rays are threatened with extinction as a result of overfishing (Dulvy et al., 2021). The increasing pressure on shark populations is particularly concerning because they are vulnerable to

¹The 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)).

over-exploitation as a result of their survival patterns and reproductive characteristics. Sharks are slow-growing and have a very slow population growth, making them highly sensitive to fishing mortality (Dulvy et al., 2014). These characteristics make protection and conservation so much more critical as declining populations will take longer to recover than the rate at which they are exploited (Lehr, 2015).

The plight of sharks has become even more of a concern where during the Covid-19 pandemic of 2020 to most recent times there have been dramatic shifts in fishing effort and trade which is yet to be quantified and fully understood, but in many cases, there has been increases in fishing effort, less documentation of catch information due to limited access of observers and many government officials absent from their usual duties monitoring and managing fisheries.

In South Africa, sharks play an essential role in local and international communities. Sharks are caught in various fisheries across South Africa (da Silva et al., 2015) and generate income for the fishing and seafood trade sectors. Additionally, the shark tourism industry provides a source of income to many communities along the South African coastline, and the decline in populations would negatively impact those livelihoods. South Africa is one of the main hotspots for sharks in the world, with high levels of diversity and endemism – only occurring in South African waters (Ebert et al., 2021). Therefore, it is vital to understand South Africa's role in the international shark trade and its impacts on populations. Such insight will prove valuable in the regulation and conservation of sharks in South Africa.

METHODOLOGY

| CATCH DATA

Food and Agriculture Organization of the United Nations (FAO) Catch data

Nominal catch data were sourced from FAO FishStatJ (FAO, 2020). Catch data was available for the period 2010 – 2019. Data for 2020 was not yet available at the time of this report.

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 of capture. 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 landed processed weight (Okes, N. and Sant, G. (in press)).

South African Department of Forestry, Fisheries, and the Environment (DFFE)

Data were provided by the Department of Forestry, Fisheries, and the Environment (DFFE) for shark catches from four fisheries in South Africa, namely: Demersal shark longline, Pelagic longline, Commercial linefish, and the inshore Trawl fishery. Information on the total catch for 2010-2019 and the species composition was analysed using these data sets.

| TRADE DATA

Customs Trade Data

To better understand the trade dynamics of shark products, a comparative analysis of shark product exports and imports between South Africa and the rest of the world was conducted. The data was analysed to focus on trade volumes (kg), trade flows, and the declared import value (USD) of shark products in trade. Data was sourced from the United Nations International Trade Statistics Database (UN Comtrade²) for the period 2011 – 2020 according to the Harmonized System (HS) codes for shark meat and fins (Table 1).

²UN Comtrade is a comprehensive database for international merchandise trade statistics containing around 1.7 billion trade records in nine classifications up to six digit level of the classification. More than 170 reporter countries/territories provide the United Nations Statistics Division (UNSD) with their annual and monthly international trade statistics data detailed by commodities/service categories and partner countries. <https://comtrade.un.org/>

TABLE 1 / HS CODES AVAILABLE FOR SHARK PRODUCTS IN INTERNATIONAL TRADE

HS CODE	MEAT	HS CODE	FINS
030265	Dogfish & other sharks, fresh/chilled (excluding fillets, other fish meat of 03.04, livers & roes)	030292	Fish; fresh or chilled, shark fins
030281	Fish; fresh or chilled, dogfish & other sharks, (excl. fillets, livers, roes, & other fish meat of 0304)	030392	Fish; frozen, shark fins
030282	Fish; fresh or chilled, rays and skates (Rajidae), excluding fillets, livers, roes, and other fish meat of heading 0304	030571	Fish; edible offal, shark fins
030375	Dogfish & other sharks, frozen (excl. fillets, other fish meat of 0304, livers & roes)	160418	Fish preparations; shark fins, prepared or preserved, whole or in pieces (but not minced)
030381	Fish; frozen, dogfish & other sharks (excl. fillets, livers, roes, and other fish meat of 0304)		
030382	Fish; frozen, rays and skates (Rajidae), excluding fillets, livers, roes, and other fish meat of heading 0304		
030447	Fish fillets; fresh or chilled, dogfish and other sharks		
030448	Fish fillets; fresh or chilled, rays and skates (Rajidae)		
030456	Fish meat; excluding fillets, whether or not minced; fresh or chilled, dogfish & other sharks		
030457	Fish meat, excluding fillets, whether or not minced, fresh or chilled rays and skates (Rajidae)		
030488	Fish fillets; frozen, dogfish, other sharks, rays and skates (Rajidae)		
030496	Fish meat, excluding fillets, whether or not minced; frozen, dogfish and other sharks		
030497	Fish meat, excluding fillets, whether or not minced; frozen rays and skates (Rajidae)		



Source: UN Comtrade

Hong Kong Special Administrative Region (SAR) Trade Statistics

Hong Kong Special Administrative Region (hereafter Hong Kong) is a central transit hub and the world's largest importer and re-exporter of dried seafood products, including shark fins (Cardenosa et al., 2018). Accordingly, the analysis focuses on reported imports of shark fin products by Hong Kong from South Africa. It compares these data to the reported exports of UN Comtrade records from South Africa to Hong

Kong. Hong Kong has more detailed 8-digit HS Codes, specifically encompassing shark fin products (Table 2). The trade statistics for Hong Kong were sourced from the Interactive [Data Dissemination Service for Trade Statistics](#) (Trade - IDDS), which captures import and export data reported by the Census and Statistics Department of Hong Kong.

TABLE 2 / HONG KONG'S 8-DIGIT CODES USED TO DESCRIBE SHARK FIN PRODUCTS.

CODE	DESCRIPTION
03029200	Shark fins, fresh or chilled
03039200	Shark fins, frozen
03057111	Shark fins, dried, salted, with or without skin, with cartilage
16041800	Shark fins, prepared or preserved, whole or in pieces, but not minced

Source: Hong Kong Trade Statistics

CITES Trade Database

Data for all shark species (subclass: *Elasmobranchii*) traded to and from South Africa over ten years (2011-2020) were downloaded from the CITES Trade Database, in a comparative tabulation report. A total of 55 records were extracted, including the importer-reported

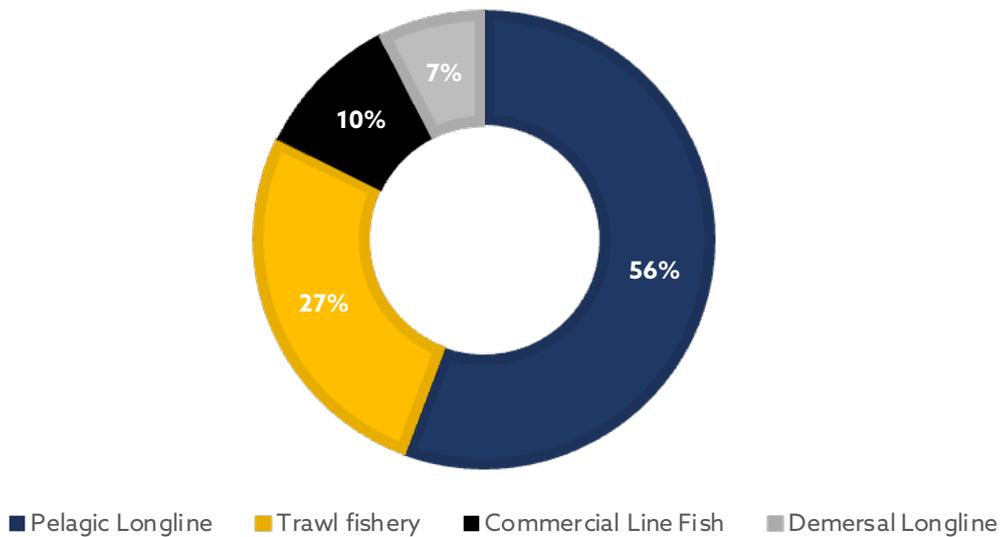
quantities and the exporter-reported quantities. In the database, all trade terms were searched to understand which products of sharks are traded (i.e. skull, teeth, fins) for commercial purposes (T) and sourced from the wild (W).



RESULTS

| SOUTH AFRICA'S FISHERIES AND SHARK CATCHES

The Pelagic longline fishery, which mainly targets Tuna (*Thunnus* spp.) and Swordfish (*Xiphias gladius*), accounts for the vast majority (56%) of shark catches (2010-2019) in South Africa. This is followed by the inshore Trawl fishery (27%), the Commercial line fishery (10%), and the Demersal shark longline fishery (7%) - the only dedicated shark fishery in South Africa (Figure 1).



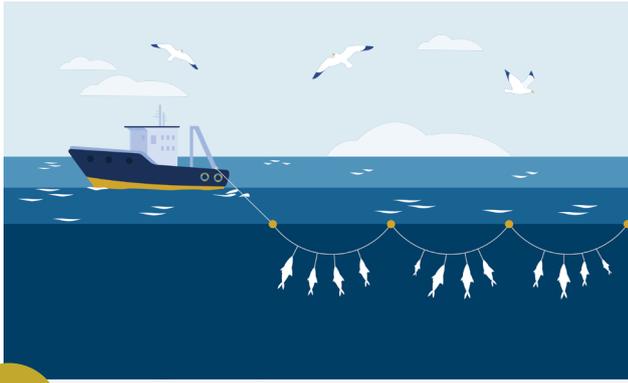
Source: DFFE

FIGURE 1 / THE PERCENTAGE OF THE TOTAL SHARK CATCHES PER TARGETED AND NON-TARGETED (BYCATCH) FISHERY IN SOUTH AFRICA, 2010-2019.

The shark species caught as incidental bycatch in the Pelagic longline fishery (2010-2019) were primarily Shortfin mako (*Isurus oxyrinchus*) and Blue shark (*Prionace glauca*), which together accounted for 56% of the total shark catches in South Africa (Figure 2). Shark species caught as incidental bycatch in the inshore Trawl fishery were mainly: St. Joseph shark (*Callorhynchus capensis*), Soupfin shark (*Galeorhinus galeus*), Smoothhound shark (*Mustelus mustelus*), and species of skate (Rajidae family), where only the wings were recorded in the catch (e.g. as Rajidae wings). It is unclear whether this category represents wings that are removed from skates and the rest of the body is discarded. The Commercial line fishery

impacted a wider variety of shark species, particularly the Soupfin shark, which accounts for 40% of the total catch, followed by 26% of unidentified shark species, Copper shark (*Carcharhinus brachyurus*) (18%), and Smoothhound shark (10%). The Demersal shark longline fishery, which operates between Cape Agulhas in the Western Cape and East London in the Eastern Cape, is the only directed shark fishery in South Africa. This fishery mainly targets Smoothhound sharks, Soupfin sharks, Copper sharks and ray species. The harvest of demersal shark species in South Africa is primarily destined for export to Australia, to meet the consumer demand for shark fillets (da Silva and Bürgener, 2007).

Pelagic Longline Fishery: 2010-2018



56%

OF THE TOTAL SHARK CATCH

- Shortfin mako **53%**
- Blue shark **46%**
- Other **1%**

Trawl Fishery: 2010-2018



27%

OF THE TOTAL SHARK CATCH

- St. Josephs **49%**
- Rajidae wings **37%**
- Soupfin shark **5%**
- Smoothhound **3%**

Commercial Line Fishery: 2010-2019

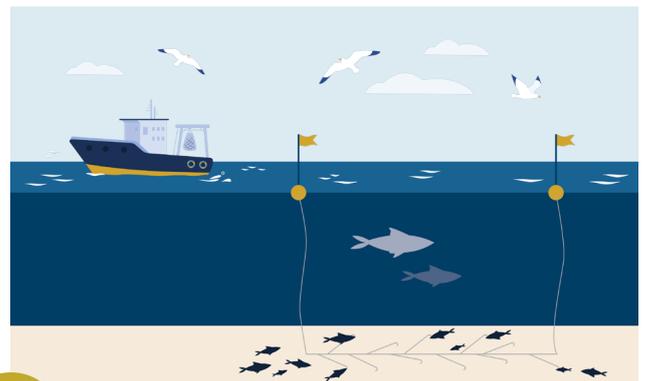


10%

OF THE TOTAL SHARK CATCH

- Soupfin shark **40%**
- Shark spp. **26%**
- Copper shark **18%**
- Smoothhound **10%**
- Other **6%**

Demersal Longline: 2010-2019



7%

OF THE TOTAL SHARK CATCH

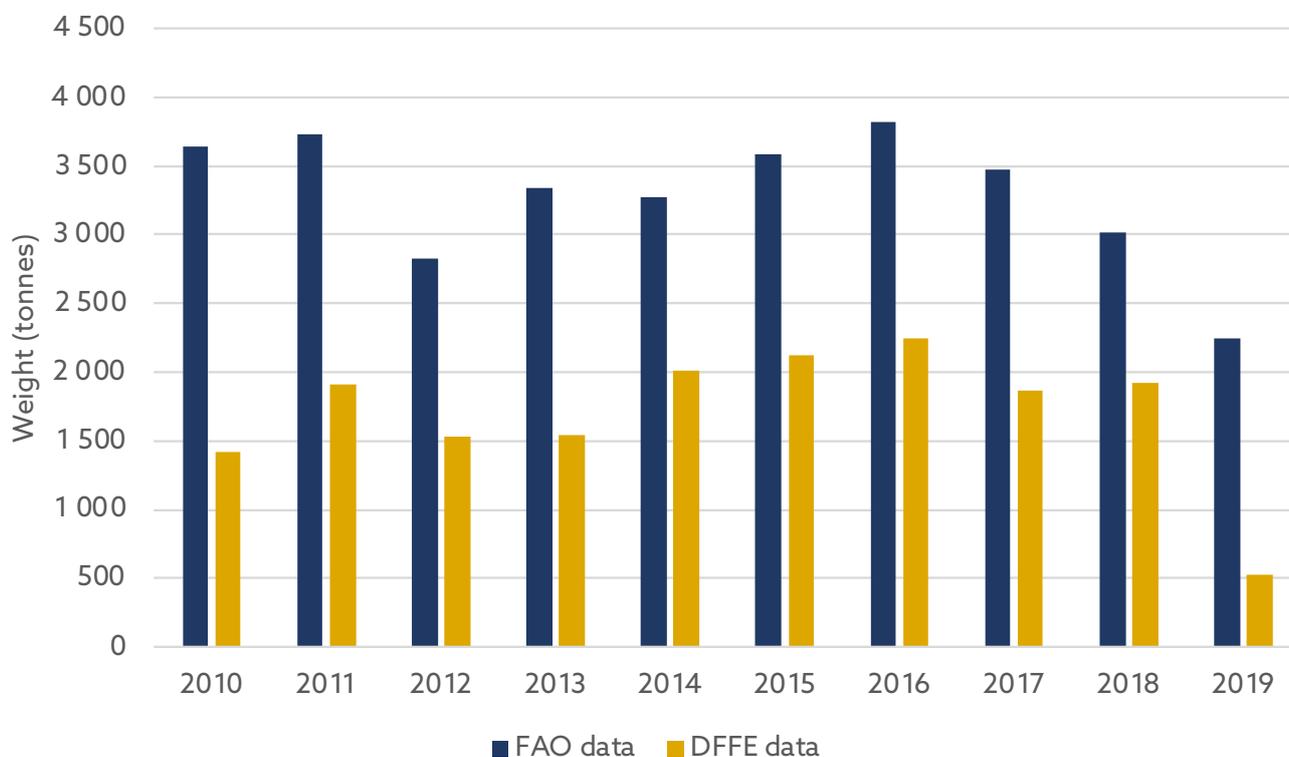
- Smoothhound **54%**
- Soupfin shark **25%**
- Copper shark **10%**
- Rays **5%**
- Other **6%**

Source: DFFE

FIGURE 2 / THE PRIMARY SHARK SPECIES CAUGHT WITHIN EACH FISHERY, 2010 - 2019.

When comparing the South African catch data for sharks sourced from FAO with shark catch data from the DFFE, there were significant discrepancies in the volume of shark catches reported for each year between 2010 and 2019. The reason for these discrepancies may be that FAO data consists of nominal catch, which means the landed weight is converted to a live weight by using a conversion factor.

In South Africa, shark catches have been upscaled by 2.6, which may reflect the higher volumes seen in the FAO data. The catch data sourced from DFFE have not been converted to live weight and reflect the catches obtained from vessel logbooks. Nonetheless, shark catch data should be coordinated between FAO and DFFE to ensure consistency in the catch data reported for South Africa.

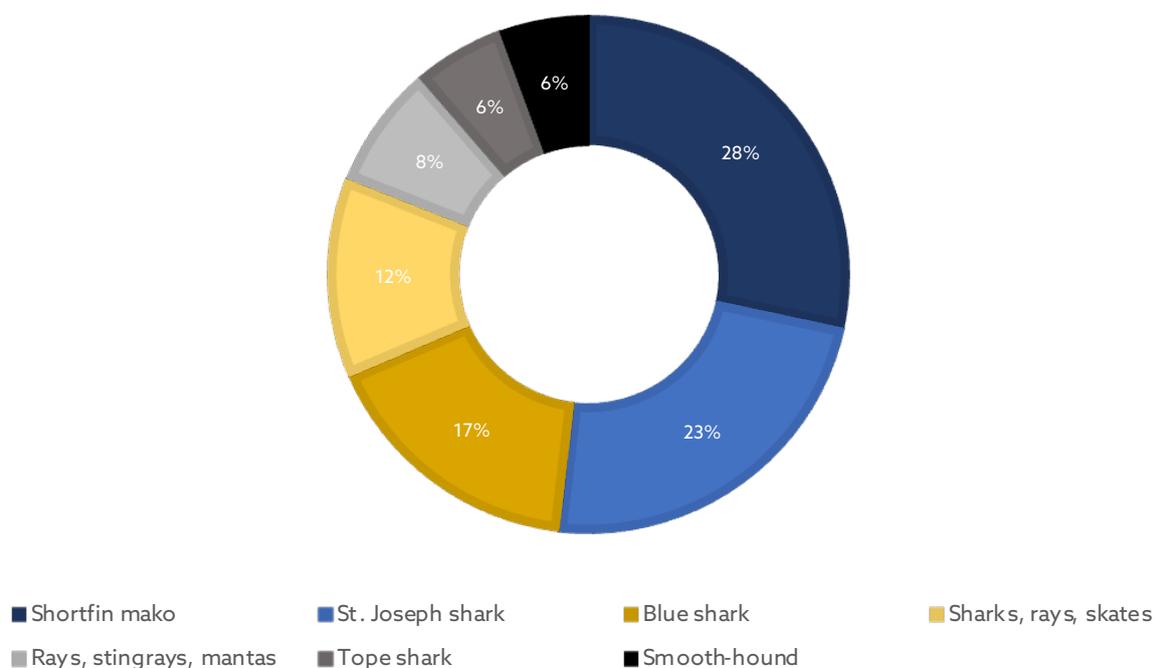


Source: FAO and DFFE

FIGURE 3 / A COMPARISON OF FAO AND DFFE SOUTH AFRICAN SHARK CATCH DATA, 2010-2019.

According to FAO, the main species landed in South Africa include Shortfin mako (*Isurus oxyrinchus*), St. Josephs shark (*Callorhynchus capensis*), Blue shark (*Prionace glauca*), Soupfin shark (*Galeorhinus galeus*), Smoothhound shark (*Mustelus mustelus*), and unidentified species of skates, rays, and mantas (Figure 4). The lack of species-specific information within fisheries data is a major hinderance when

trying to monitor impacts of fishing activity on shark populations. Both FAO and DFFE reports include aggregated or lumped data such as "rays and skates", "stingrays and mantas", and "shark spp", and this reduces the effectiveness of monitoring catch data and the potential impact fisheries may have on shark populations - especially for threatened species.



Source: FAO

FIGURE 4 / THE PRIMARY SHARK SPECIES CAUGHT IN SOUTH AFRICAN WATERS BETWEEN 2010 AND 2019 IN COMMERCIAL FISHERIES, INCLUDING THE DEMERSAL SHARK LONGLINE, PELAGIC LONGLINE, COMMERCIAL LINE FISHERY AND THE INSHORE TRAWL FISHERY.

The Shortfin mako is listed as Endangered according to the IUCN Red List (Rigby *et al.*, 2019) and listed on CITES Appendix II (CoP18, Prop.42). Despite this being one of the primary catch species, South Africa, along with several other countries³, took out a reservation on mako trade. Parties may choose to submit a reservation on a species listing for a number of reasons (e.g. additional time for implementation or opposing the listing), thereby exempting them of their obligations for that species. Nevertheless, trade with countries that have not taken out a reservation for mako sharks will still require that country to produce the equivalent of a CITES export permit (Fernando *et al.*, 2022).

Furthermore, the Soupfin shark (otherwise referred to as Tope) was recently re-assessed from Vulnerable to Critically Endangered by the IUCN due to overfishing (Winker *et al.*, 2019; Walker *et al.*, 2020), while the Smoothhound shark was recently listed as Endangered with decreasing population trends as result of overfishing (Cliff & da Silver, 2020; Jabado *et al.*, 2020).

Rays, skates, and mantas, together account for 23% of South Africa's catch. However, the lack of species-specific information within these groups is of significant concern when monitoring the impacts on threatened species. Several species of shark-like rays have been re-assessed as Critically Endangered on the IUCN Red List and listed on CITES Appendix II; most recently the Giant guitarfishes (Glaucostegidae) and Wedgefishes (Rhinidae) were included on CITES Appendix II in 2019 – of which the Bowmouth guitarfish (*Rhina ancylostoma*) and Whitespotted wedgefish (*Rhynchobatus djiddensis*) occurs in South Africa.

² Japan, Eswatini, Namibia, Zimbabwe, Botswana, Indonesia, United Republic of Tanzania, the Democratic Republic of the Congo, Norway, South Africa, and Zambia

| SOUTH AFRICA'S SHARK MEAT TRADE



The overwhelming majority (99%) of the shark meat traded from South Africa is frozen, and the remaining 1% is traded as fresh/chilled shark meat.

A total of 27 countries imported shark meat from South Africa between 2011 and 2020, with the primary importing countries being: Uruguay, the Republic of Korea, Italy, Spain, Brazil, Portugal, and Australia (Figure 5).



Produced in Trade Mapper (trademapper.co.uk/) with data sourced from UN Comtrade

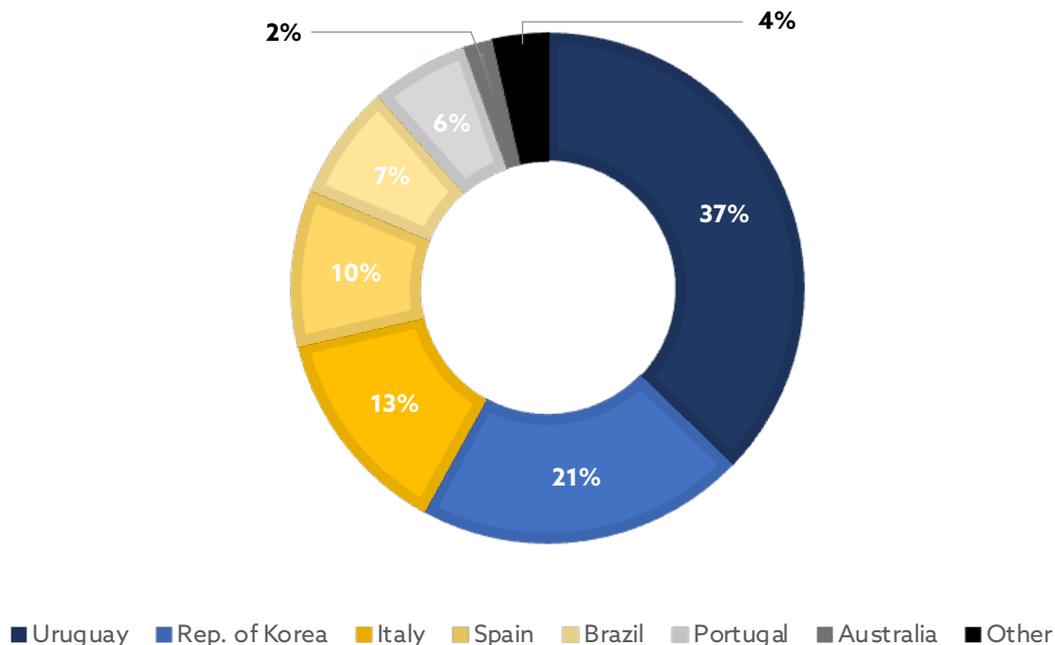
FIGURE 5 / MAJOR TRADE FLOWS FOR FROZEN SHARK MEAT IMPORTED FROM SOUTH AFRICA, 2011-2020.

Uruguay is the largest importer of frozen shark meat from South Africa, followed by the Republic of Korea (Figure 6). In recent years, Uruguay has emerged as a

major importer and re-exporter of frozen shark meat to supply the expanding shark meat markets in Brazil (Niedermüller et al., 2021), while the Republic of Korea

makes up the largest consumer of shark meat in East Asia, particularly skate and ray meat (Dent & Clarke, 2015a). European countries also form part of the largest consumers of shark meat, led by Italy, Spain, and Portugal amongst the top countries importing from South Africa (Figure 6). Australia is also amongst the top importers of shark meat from South Africa to supply

their local Flake industry (see Box 1). Other countries importing shark meat from South Africa include: Singapore, Taiwan PoC, Philippines, Thailand, Greece, United Kingdom, China, Eswatini, Morocco, Indonesia, Slovenia, Germany, Botswana, Angola, Uganda, Lesotho, Zambia, and Vietnam.

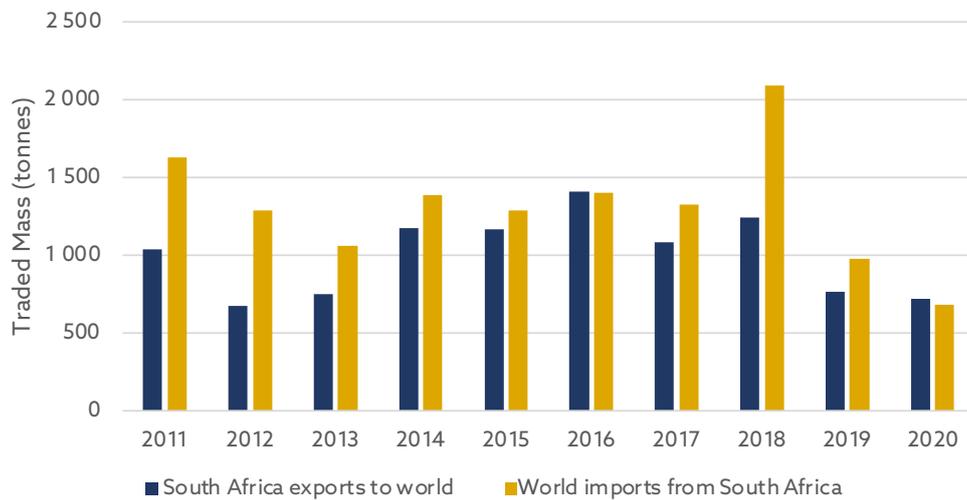


Source: UN Comtrade

FIGURE 6 / THE MAJOR IMPORTERS OF FROZEN SHARK MEAT FROM SOUTH AFRICA, 2011-2020.

Over the past decade, South Africa exported approximately 10 000 tonnes of shark meat to the rest of the world. The world reported importing approximately 14 000 tonnes of shark meat from South Africa over the same period (Figure 7). The discrepancies in the reported exports and imports occurred for most years, but particularly significant in 2011, 2012 and 2018, when the world reported higher import volumes of shark meat than the export volumes reported by South Africa. For 2019 and 2020, the

overall volumes of shark meat traded from South Africa showed a significant decline from 2018. The number of countries importing frozen shark meat from South Africa dropped from 13 countries in 2019 to only four in 2020. The drop in the number of reporting countries may be a result of the COVID-19 pandemic and impacts on staffing and subsequent trade monitoring, which resulted in several countries not submitting their trade data timeously to UN Comtrade.

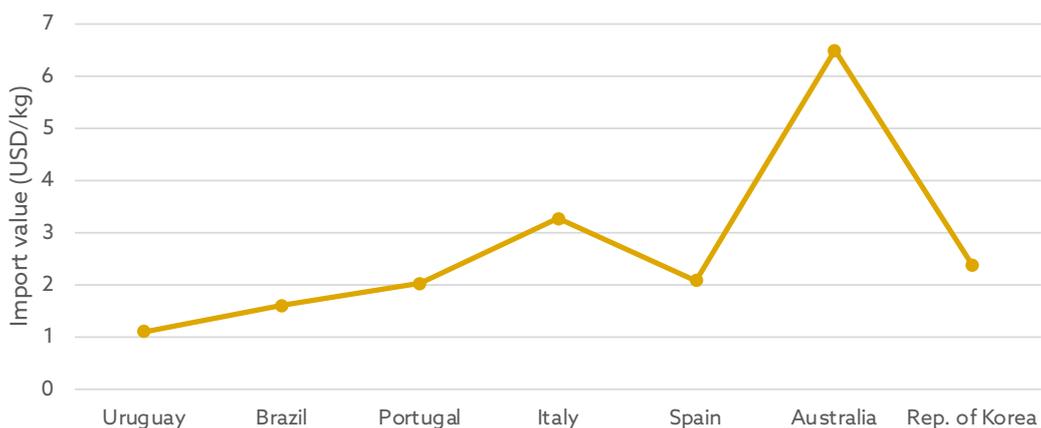


Source: UN Comtrade

FIGURE 7 / SOUTH AFRICA'S REPORTED EXPORTS OF FROZEN SHARK MEAT TO THE WORLD VS THE REPORTED IMPORTS OF FROZEN SHARK MEAT BY THE WORLD FROM SOUTH AFRICA, 2011-2020.

Investigating the trade value of shark meat, particularly import values, can provide some insight into the market value of the product within destination countries. However, the declared import values⁴ may differ from those at other points in the supply chain (e.g. wholesale and retail) for each country. The

average import value (USD/kg) for shark meat ranges between 1.5 USD and 3 USD per kg for most of the top importing countries between 2011 and 2020 (Figure 8). Australia showed a much higher import value of 6.5 USD/kg, which may reflect the popular flake industry in Australia (see Box 1).



Source: UN Comtrade

FIGURE 8 / THE AVERAGE VALUE (USD/KG) OF FROZEN SHARK MEAT IMPORTED FROM SOUTH AFRICA BY THE TOP IMPORTING COUNTRIES, 2011 - 2020.

⁴The trade values provided in UN Comtrade are the CIF values.

The Gummy shark (*Mustelus antarcticus*) occurring in Australia and the Rig shark (*Mustelus lenticulatus*) occurring in New Zealand are two closely related species that are mainly caught for the popular 'flake' industry in Australia. 'Flake' is the word used in Australia to describe the fish used for 'fish and chip' meals. The Soupfin shark (*Galeorhinus galeus*) was also a popular species caught to supply the flake industry however, major population declines and a threatened status of Critically Endangered on the IUCN Red List (Walker *et al.*, 2020), prompted Australia to search for other shark species to meet the demand for flake in the country.

Shark meat imports into Australia are primarily derived from three countries: New Zealand, South Africa and China. In South Africa, the increased catch for the Smoothhound shark (*Mustelus mustelus*) and the Soupfin shark (*Galeorhinus galeus*) has been attributed to the high demand for shark meat in Australia. Meanwhile, the declining number of White sharks observed in previous hotspots and well-known aggregation sites around the Western Cape in South Africa has also been attributed to the decreasing stocks of these smaller shark species (e.g. Smoothhound and Soupfin sharks), because they are considered a significant prey source for white sharks (Alison Kock, see [link](#) for more information).

However, this hypothesis is not widely supported due to a lack of evidence that these smaller sharks are a significant source of food for White sharks. Instead, the appearance of two of Killer whales, have been attributed as the main cause for the disappearance of White sharks in the Western Cape. Killer whales feed on White sharks and have been more active along the coastline in recent years – which may have driven White sharks to go elsewhere (Alison Kock & Tamlyn Engelbrecht, see [link](#) for more information).

More importantly, the trade in shark meat between South Africa and Australia, which is predominantly supplied by these smaller sharks, is not well documented and is hindering the management and conservation efforts for sustainable shark trade between these two countries.

There are significant discrepancies in the shark trade records for South Africa and Australia (Table 3). Australia began reporting imports of shark meat from South Africa from 2017 onwards, and only two HS codes (30488 and 30496) were used to monitor the shark meat trade. South Africa, however, has been reporting

exports of shark meat to Australia since 2011 and using six different HS codes. (Table 3). The discrepancies in the use of HS codes and trading years hinder the ability to monitor the trade between South Africa and Australia effectively.

TABLE 3 / THE TRADE FIGURES (KG) AND HS CODES USED TO REPORT SHARK MEAT TRADE BETWEEN SOUTH AFRICA AND AUSTRALIA FOR THE PERIOD 2011-2020.

	SOUTH AFRICA'S EXPORTS TO AUSTRALIA (KG)	AUSTRALIA'S IMPORTS FROM SOUTH AFRICA (KG)
HS Code: 30281	1,530	0
HS Code: 30375	22,176	0
HS Code: 30381	10,042	0
HS Code: 30447	83,821	0
HS Code: 30488	23,160	169,970
HS Code: 30496	121,614	88,340
Total	262,343	258,310

Source: UN Comtrade

South African Shark Meat Imports

There are significant discrepancies between South Africa's reported imports of frozen shark meat and the reported exports from other countries to South Africa. Between 2011 and 2020, South Africa reported ~ 2 000 tonnes of frozen shark meat imports, while the rest of the world reported ~ 22 000 tonnes of frozen shark

meat exports to South Africa over the same period (Table 4). The most significant discrepancies in import and export volumes are from Japan and Taiwan Province of China (PoC), which amounts to ~ 21 000 tonnes of frozen shark meat, while South African imports from these countries total less than 1 400 tonnes.

TABLE 4 / THE REPORTED EXPORTS OF FROZEN SHARK MEAT PRODUCTS TO SOUTH AFRICA VS THE REPORTED IMPORTS OF FROZEN SHARK MEAT PRODUCTS BY SOUTH AFRICA, 2011-2020.

	COUNTRIES/TERRITORIES REPORTING EXPORTS TO SOUTH AFRICA (KG)	SOUTH AFRICA REPORTING IMPORTS FROM OTHER COUNTRIES/TERRITORIES (KG)
Japan	15,439,701	525,169
Taiwan	6,579,290	827,034
Rep. of Korea	345,581	359,344
Namibia	128,910	139,744
Canada	19,794	0
USA	19,780	0
New Zealand	3,064	10,016
Ghana	0	1,362
Mauritius	0	63,549
Total	22,511,798	1,926,248

Source: UN Comtrade

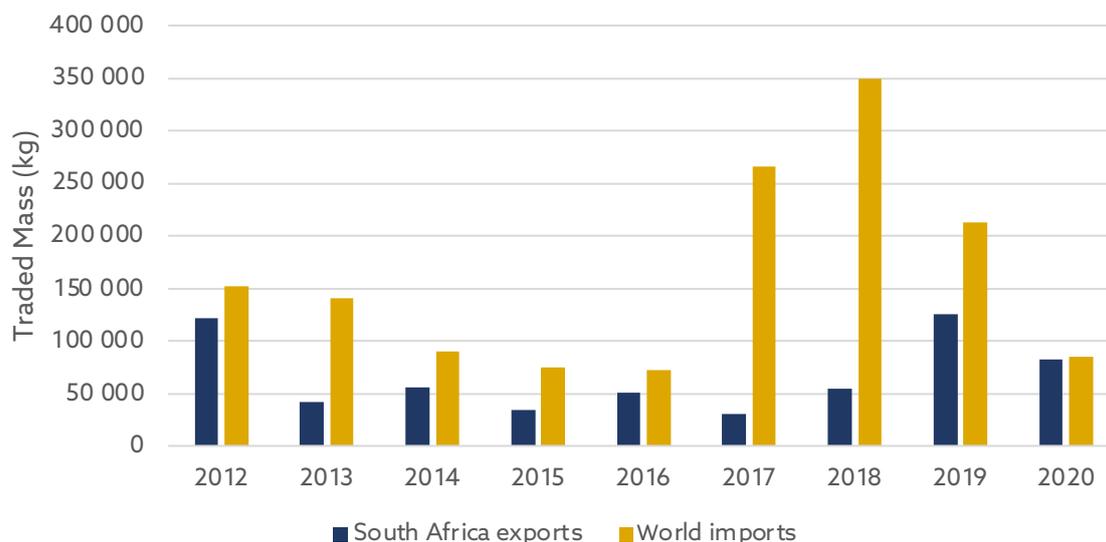
The reason for these discrepancies is unclear, as there is not a big market for shark meat in South Africa, and there is no re-export data from South Africa to indicate whether these volumes of shark meat have left the country. Japanese and Taiwanese fishing vessels have permits to fish within South Africa's EEZ, and these vessels are primarily of tuna longline fisheries, which exploit sharks as bycatch (FAO, 2018). The higher

volumes of exports from Japan and Taiwan may reflect shark catches landed in South Africa for bonded warehouse (transit). Thus, South Africa does not report the consignments as imports. According to the Marine Living Resources Act (Act 18 of 1998), the fins and carcass of shark must be landed together and requires a fin-to-carcass ratio of 5% for foreign flagged vessels landing in South Africa.

| SOUTH AFRICA'S RAY AND SKATE MEAT TRADE

Between 2012 and 2020, South Africa reported exports of ~ 500 tonnes of ray and skate meat, of which 99% consisted of frozen meat, while the rest of the world reported imports of ~ 1 400 tonnes of skate and ray meat from South Africa over the same period (Figure 9). The most considerable discrepancies were in 2017, 2018,

and 2019, where the world reported significantly higher imports of frozen ray and skate meat than South Africa's reported exports - and the overall volumes increased exponentially for those particular years compared to the previous years.



Source: UN Comtrade

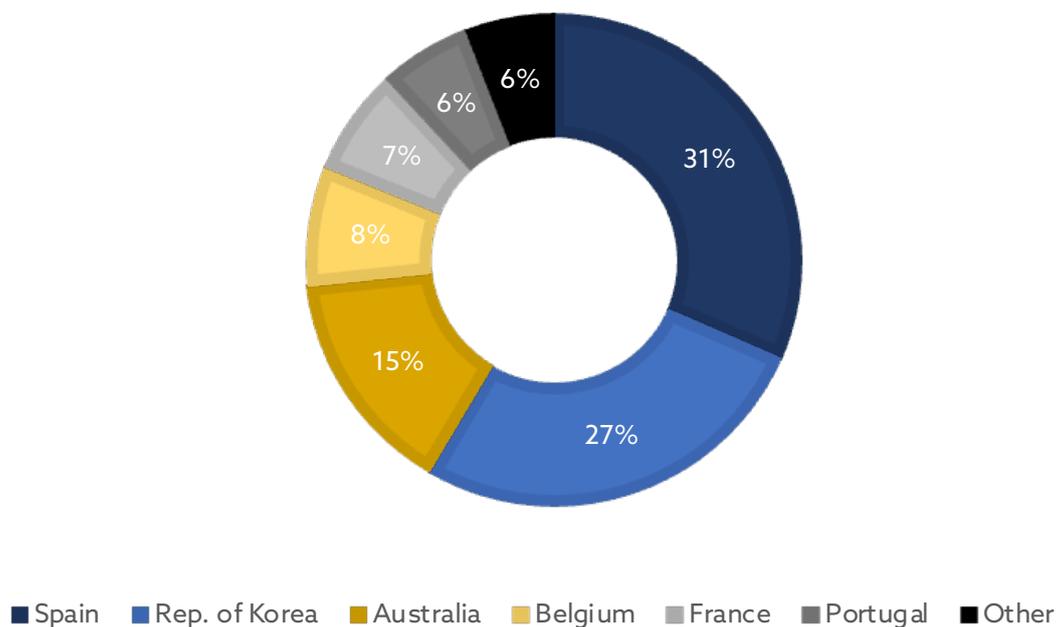
FIGURE 9 / SOUTH AFRICA'S REPORTED EXPORTS OF FROZEN SKATE AND RAY MEAT (KG) VS THE WORLD REPORTED IMPORTS OF FROZEN SKATE AND RAY MEAT (KG) FROM SOUTH AFRICA, 2012-2020.

The increasing import volumes for skate and ray meat between 2017 and 2019 are particularly concerning as several ray species are listed on CITES Appendix II, particularly relevant for the Manta spp. (since 2014), Mobula spp. (since 2017), and most recently the shark-like rays within the Rhinidae family (*Rhina*

ancylostoma and *Rhynchobatus djiddensis*) all of which occur in South Africa. International trade in the products of these species will require the granting of export permits. However, there is no information on the species composition of these exports, and there are no records of CITES trade in these species reported by

South Africa. The top countries importing skate and ray meat from South Africa include Spain, the Republic of Korea, Australia, Belgium, France, and Portugal (Figure

10). Other countries importing ray and skate meat from South Africa include: Brazil, Netherlands, Taiwan PoC, Botswana, and Zambia.



Source: UN Comtrade

FIGURE 10 / THE TOP COUNTRIES IMPORTING FROZEN SKATE AND RAY MEAT FROM SOUTH AFRICA, 2012-2020.



| SOUTH AFRICA'S SHARK FIN TRADE

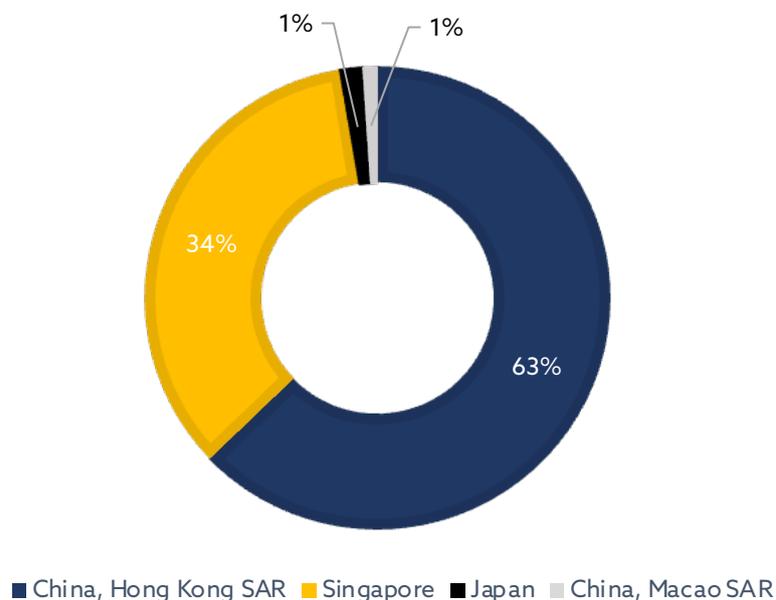


The total mass of world imports of shark fins from South Africa between 2012 and 2020 was just over 930 tonnes, with 99% of the exports destined for countries/territories in Asia (Figure 11). The top importers of dried shark fins from South Africa were Hong Kong, Singapore, Japan, and Macao Special Administrative Region (SAR) (Figure 12).



Produced in Trade Mapper (trademapper.co.uk/) with data sourced from UN Comtrade

FIGURE 11 / MAJOR TRADE FLOWS FOR DRIED SHARK FINS IMPORTED FROM SOUTH AFRICA, 2012-2020.

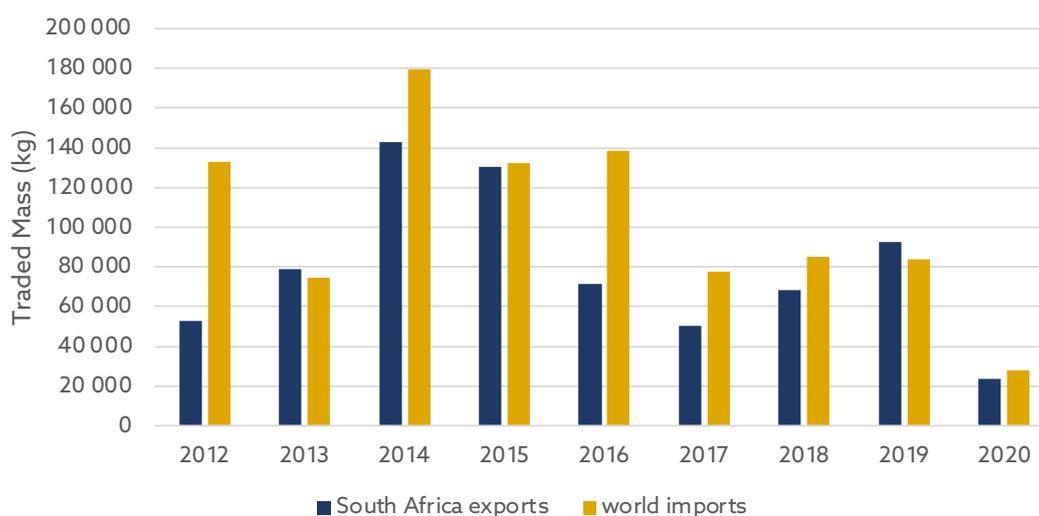


Source: UN Comtrade

FIGURE 12 / THE TOP COUNTRIES/TERRITORIES ACCOUNTING FOR 99% OF THE DRIED SHARK FINS (HS CODE: 030571) IMPORTED FROM SOUTH AFRICA 2012-2020.

There were discrepancies between the reported exports of dried shark fins from South Africa and the reported imports by other countries/territories (Figure 13). In terms of mass, imports of dried shark fins peaked at 180 tonnes in 2014 and declined to 77 tonnes in 2017, before rising slightly to 84 tonnes in 2019. The discrepancies between reported imports and exports were much larger for the years 2012, 2016 and 2017,

when South Africa reported lower volumes in shark fin exports. Furthermore, there was a large decline in both imports and exports of dried shark fin in 2020, which may be a result of the COVID-19 pandemic and countries not submitting their annual reports in time. Hong Kong was the only territory reporting imports of dried shark fin from South Africa for 2020.



Source: UN Comtrade

FIGURE 13 / SOUTH AFRICA'S REPORTED EXPORTS OF DRIED SHARK FIN TO THE WORLD AND THE WORLD'S REPORTED IMPORTS OF DRIED SHARK FIN FROM SOUTH AFRICA, 2012-2020.

Shark fins entering South Africa's borders

Three countries reported exports of dried shark fin to South Africa between 2012 and 2020: Japan, Namibia, and Botswana (Table 5). Botswana is a landlocked country in Africa and reported approximately 1 500 tonnes of dried shark fin exports to South Africa.

However, no imports were reported by South Africa between 2012 and 2020 originating from Botswana. The discrepancy between Botswana's exports and South Africa's imports is believed to be a result of incorrect use of the dried shark fin HS code: 030571 (see Box 2).

TABLE 5 / SOUTH AFRICA'S REPORTED IMPORTS OF DRIED SHARK FIN VS THE WORLD REPORTED EXPORTS OF DRIED SHARK FIN TO SOUTH AFRICA, 2012-2020.

	COUNTRIES REPORTING EXPORTS TO SA	SA REPORTING IMPORTS FROM THE WORLD
Botswana	1,507,923	0
Japan	148,251	235,409
Namibia	14,081	23,750
Nigeria	0	2,964
Taiwan	0	203,442
Zimbabwe	0	725
China	0	1,196
Total	1,670,192	467,486

Source: UN Comtrade

BOX 2 / BOTSWANA'S DRIED SHARK FIN EXPORTS TO SOUTH AFRICA

Botswana is not a major seafood trader in Africa however, freshwater fish caught in the Okavango and Chobe River systems are dried and exported from Botswana. The main countries that Botswana exports dried fish to include the Democratic Republic of Congo (DRC), Namibia, South Africa, and Zambia. The World Customs Organisation Harmonised code under which this trade should be captured is HS code: 030559, with the description 'fish, dried whether or not salted but not smoked, other than edible fish offal, other than Cod'.

However, exports of dried fish were banned in Botswana from 2018 until 2019. In 2017 and 2018, Botswana exported products under HS code: 030571 with the description 'fish, edible offal, shark fins'. The vast majority of the volume of this trade was to DRC, Namibia, South Africa and Zambia (the same group of countries as for the code 030559). The value of this trade was 1.5 USD per kg, a very similar average value as for the dried fish trade under the code 030559.

If these data are truly reflective of shark fin consignments exported to South Africa, the declared value is extremely low. By comparison, the average value of shark fins exported from South Africa to Hong Kong under the same 030571 code was 18.61 USD/kg – a value more than ten times greater than that reported for the Botswana trade.

Therefore, it is more likely that the Botswana export data represents dried fish caught in the Okavango and Chobe River systems that have been traded using the incorrect Customs code. It could be that some exporters used this code to get their products (illegally) out of the country.

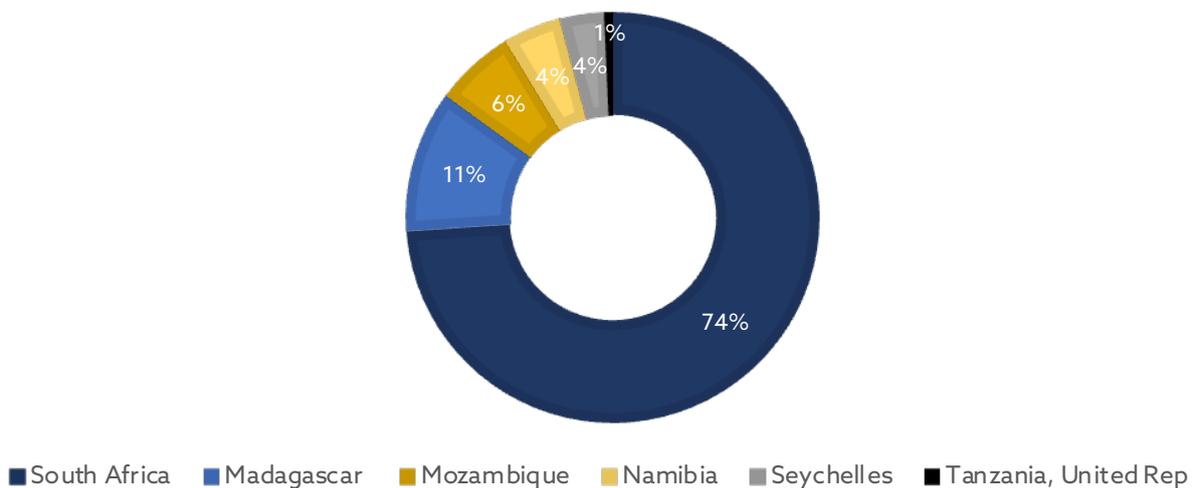
| HONG KONG'S SHARK FIN IMPORTS FROM SOUTHERN AFRICA



Hong Kong is a major importer and re-exporter of dried seafood products in Asia, and the duty-free status makes Hong Kong an important entry point for Global trade in Asia (Dent & Clarke, 2015b). Hong Kong's detailed custom records were analysed to identify the top shark fin exporters in Southern Africa between 2012 and 2020. Dried shark fin imports from South Africa made up the majority (74%) of Hong Kong's imports from within the region (Figure 14).

However, in terms of the overall volume, this data is not reflective of other countries in Asia importing shark fins from the region.

For example, Singapore is another major destination for shark fins and their imports mainly consist of shark fins originating from Namibia (Boon, 2017), while Hong Kong mainly sources their shark fin imports from South Africa. These are important considerations when investigating the shark fin trade for the region, as top Asian importers may be sourcing their shark fin supply from different countries and re-exporting them once in the region, and thus it is important to analyse various datasets to obtain the complete picture on importing countries for Southern Africa's shark fin trade.



Source: Hong Kong Bureau of Statistics

FIGURE 14 / HONG KONG'S DRIED SHARK FIN (HS CODE: 03057111) IMPORTS FROM COUNTRIES IN SOUTHERN AFRICA, 2012-2020.

| SHARK TRADE IN CITES-LISTED SPECIES

There are 44 shark and ray species listed on the CITES appendices, which means that any trade in these species requires the relevant documentation (i.e. export permits or IFS certificates). According to the data extracted from the CITES Trade Database for species sourced from the wild and for commercial trade purposes, South Africa only reported trade in the CITES-listed Shortfin mako (*Isurus oxyrinchus*) in 2019 and particularly 2020 (Table 6). Shortfin mako sharks were listed on Appendix II of CITES in 2019 (see CoP18, Prop. 42) with the listing coming into effect by November 2019.

Since the listing came into effect, South Africa recorded a total of ~ 550 tonnes of shark meat exports and 26 tonnes of shark fin exports.

The majority of the shark meat was exported to the Republic of Korea, with one export of 440kg reported to China. In 2020, there were 40 tonnes of shark meat and bodies imported by South Africa, which originated from Japan, Namibia, and Taiwan PoC. These imports were subsequently re-exported to the Republic of Korea. Additionally, there were two exports for shark fins reported by South Africa, which included 24 tonnes of fins to Singapore and 1.6 tonnes of shark fins to Hong Kong. These dynamics for meat and fins may indicate the Republic of Korea's preference for Shortfin Mako meat, and that the market for shark fins continues to be dominated by destinations like Hong Kong and Singapore, where shark fin soup is a highly prized delicacy.

TABLE 6 / SOUTH AFRICA'S REPORTED EXPORTS OF CITES-LISTED APPENDIX II SHARK SPECIES, SOURCED FROM THE WILD AND FOR COMMERCIAL TRADE PURPOSES, 2011-2020.

Year	Species	Exporter	Origin	Importer	Term	Quantities (kg)
2019	<i>Isurus oxyrinchus</i>	South Africa		Republic of Korea	meat	140 407
2020	<i>Isurus oxyrinchus</i>	South Africa	Japan	Republic of Korea	bodies	4 605
2020	<i>Isurus oxyrinchus</i>	South Africa	Namibia	Republic of Korea	meat	38 456
2020	<i>Isurus oxyrinchus</i>	South Africa	Taiwan	Republic of Korea	meat	2 002
2020	<i>Isurus oxyrinchus</i>	South Africa		Republic of Korea	meat	151 277
2020	<i>Isurus oxyrinchus</i>	South Africa		Republic of Korea	meat	219 446
2020	<i>Isurus oxyrinchus</i>	South Africa		China	meat	440
2020	<i>Isurus oxyrinchus</i>	South Africa		Singapore	fins	24 481
2020	<i>Isurus oxyrinchus</i>	South Africa		Hong Kong	fins	1 684

Source: CITES Trade Database

| THE ILLEGAL TRADE IN SHARK FINS FROM SOUTH AFRICA

The majority of the illegal trade in sharks and their products occurs due to exporting CITES-listed species without the relevant permits, misdeclaration of shark fin consignments, and sourcing shark fins from illegal fishing operations. Within the available data on illicit trade in shark fins, there were six media-reported seizures between 2010 and 2019 involving South Africa. In 2010, four Chinese nationals were arrested in Cape Town for possession of high-value wildlife products, including shark fins, worked elephant ivory (*Loxodonta*

Africana), elephant tusks, and abalone (*Haliotis midae*) (Anon, 2010). In 2011, a Chinese national was arrested after a vehicle inspection uncovered 32 dried shark fins and 562 units of abalone on the N7 highway in Cape Town (Anon, 2011). In 2015, South Africa was implicated as a transit nation – where 16 kg of fins from the endangered Hammerhead shark were transported from Mozambique via Johannesburg to the final destination in Hong Kong, where the seizure was made by the Hong Kong Customs Authority (Anon, 2015).



IMAGE CAPTION / A shark fin consignment seized at Cape Town International Airport, destined for Hong Kong, containing fins from CITES-listed shark species, 2019. (Credit: Markus Burgener)

In 2017, two seizures of shark fins were reported in Johannesburg, where the South African Police Services (SAPS) Benoni K9 unit seized 300kg of shark fin and abalone, with three suspects arrested from the investigation. Another seizure took place in Milnerton, Cape Town, where 14 suspects were arrested for the illegal possession of abalone and shark fin to the value of R5.5 million ~ 3.6 million USD (Anon, 2017). In 2018, South African authorities participated in an Interpol – led “30 days at sea” operation, which uncovered 33,000 kg

of shark fin from a storage facility in Cape Town (Anon, 2018). In 2019, shark fins to the value of R7 million ~ 4.6 million USD were seized at OR Tambo International Airport, coming from Brazil via South Africa, with the final intended destination being Hong Kong (Anon:1, 2019). In December 2020, a consignment of juvenile sharks was caught and illegally dumped on a beach in Cape Town, due to storage issues by the fishery, with only the heads and fins removed for processing and trade (Anon, 2019b).



IMAGE CAPTION / A consignment of shark that were illegally dumped on a beach in Cape Town, 2020, due to storage issues by the fishery, with only the heads and fins processed for trade (Credit: Yusuf Abramjee via twitter)



IMAGE CAPTION / Inspection of frozen shark fin consignment, suspected of containing CITES-listed hammerhead sharks (*Sphyrnidae* family) in Cape Town, 2021 (Credit: Simone Louw)

CONCLUSIONS

South Africa is a crucial role player in the international shark trade for the southern Africa region. **The shark meat trade had an overall higher contribution to South Africa's economy than the shark fin trade over the last 10 years**, even though shark fins have a higher value in destination markets. The trade in shark meat from South Africa is predominantly destined for import by countries in South America and Europe, where there is a high demand for shark meat as a protein source. The increasing trade in skate and ray meat is of concern as there is no species-specific information for rays, skates, and mantas within national or internationally reported fisheries catch data. The lack of species-specific details is even more concerning given that several ray species have been re-assessed as Critically Endangered on the IUCN Red List and listed on CITES Appendix II.

The overall volumes in shark meat trade from South Africa have shown a decline since 2019. This decline may be attributed to the decrease in shark catches resulting from population declines, or it may reflect countries not reporting customs data. There are numerous challenges in monitoring shark trade. For example, **the trade in shark meat between South Africa and Australia showed many discrepancies**. There is no consistency in the HS codes used to report the trade between South Africa and Australia, which is hindering the effective monitoring and transparency of the shark trade. Additionally, there were significant discrepancies between shark meat imports by South Africa, compared with world exports of shark meat to the country, particularly for exports reported by Japan and Taiwan PoC. The discrepancies indicate far higher exports of shark meat to the country than are reported by South Africa, and there is no re-export data from South Africa to account for these exports. These exports may be held in bonded warehouses, which need to be investigated further to uncover whether these consignments are still in the country or if they have been exported without a paper trail.

Hong Kong's import records show that South Africa is a primary source country for dried shark fins in the Southern Africa region, with imports steadily increasing since 2017. The discrepancies in South Africa's export records to Hong Kong should be addressed to better evaluate the volumes traded and improve monitoring of the dried shark fin trade from South Africa. Additionally, there have also been several incidents in or linked to South Africa involving the illegal trade in dried shark fins, with consignments either lacking the required CITES documentation of where there has been misdeclaration of shark fin consignments.

The international trade in shark products from South Africa shows no evidence of a declining trend. The lack of species-specific trade statistics also hinders the ability to identify any shifts in utilisation between species. Understanding which species are targeted for the meat and fin trade is crucial to the implementation of conservation measures for less-resilient species. In terms of volumes traded, the particular years highlighted in this report showed many discrepancies which may indicate the trade in shark products were sourced from Illegal Unreported and Unregulated (IUU) fishing and requires further scrutiny to understand what happened in those years and for improved future monitoring.

This study has identified concerning inconsistencies and information gaps along the shark product supply chain for both meat and fins and robust traceability systems have the potential to address these issues. Traceability systems can also support the administrative, scientific and compliance processes associated with the implementation of CITES for shark products in international trade and, play a strong role in ensuring that shark products are sourced from legal and sustainably managed fisheries.

RECOMMENDATIONS

01 Address under-reporting

The Department of Forestry, Fisheries and the Environment (DFFE) and the South African Revenue Services (SARS) should consider the discrepancies raised by this review and develop a plan to address the under-reporting of export data for the meat and fin trade.

02 Address discrepancies in data

The FAO and DFFE should work to address the discrepancies in the species composition and the volumes of catch data reported for South Africa between the two datasets.

03 Cooperate in monitoring and managing the shark meat trade

The Australian Government and the South African Department of Forestry, Fisheries and the Environment (DFFE) should investigate the HS tariff codes used in both countries to monitor the shark meat trade, as there is no consistency in the reporting of South African exports and corresponding Australian imports between 2011 and 2020.

04 Investigate the high volumes of frozen shark meat exports

DFFE and SARS (Customs) are encouraged to investigate the high volumes of frozen shark meat exports to South Africa reported by Japan and Taiwan to determine whether those consignments have subsequently been re-exported by South Africa or are still in bonded warehouses.

05 Develop new HS tariff codes

SARS is encouraged to develop new HS tariff codes for shark meat and fins to improve monitoring of international trade from South Africa. More specifically, HS codes which detail:

- Mako and Blue shark products in trade, which are the main species entering the international trade from and through South Africa.
- Soupfin and Smoothhound shark products in trade, which are the main demersal species targeted by the Demersal Longline fishery for the shark meat trade.
- Dried shark fins only to improve monitoring of dried shark fin exports from South Africa to Asian countries - the leading destination for dried fin imports.

06 Increase awareness

The illegal shark fin trade in South Africa should be tackled through increased awareness and engagement with law enforcement and customs agencies, and through on-going training provided for customs, fisheries, and port officials in the identification of CITES-listed shark fins in trade.

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