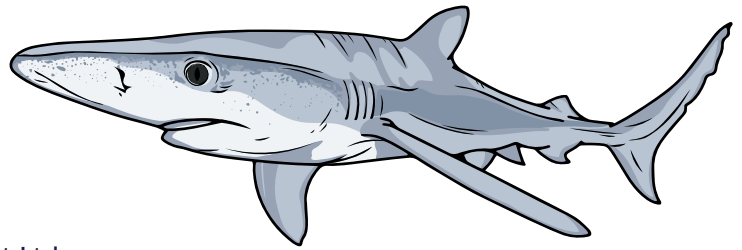


Bycatch no more

Blue shark is a USD \$411 million fishery that deserves proper management



A new study led by Poseidon Aquatic Resources Management Ltd., commissioned by Oceana, has reconciled global data on the catch, trade, and management of blue shark (*Prionace glauca*) for the first time. The conclusion is clear: blue shark is a highly valuable species that, without proper management, faces the risk of overexploitation. The full report is available at oceana.org/blueshark.

Blue sharks make up

60% of all reported shark catch

Blue sharks make up

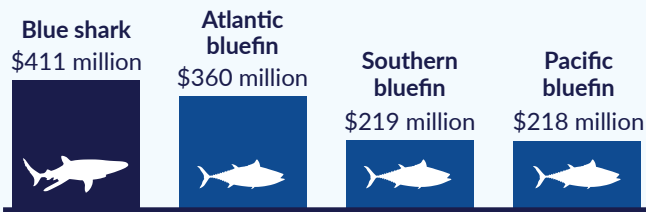
36% of all traded shark meat

41% of all traded shark fins

CATCH

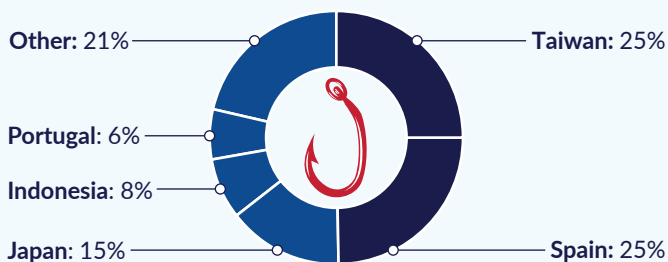
BLUE SHARK IS A VALUABLE FISHERY

Total ex-vessel value (landed value) of blue shark, in 2019, is greater than value of each bluefin tuna species, in 2018

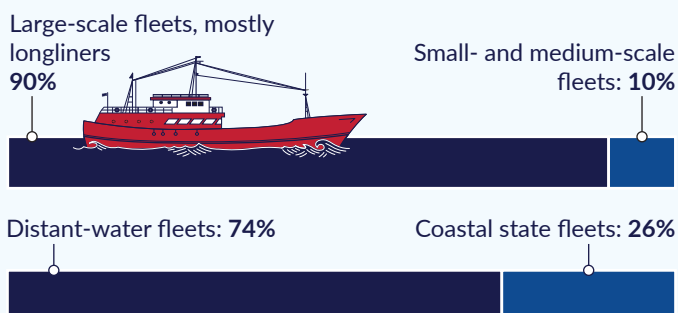


LED BY ONLY A FEW FISHING NATIONS

Breakdown of 189,783 tonnes (t) of total global blue shark catch, 2019



DOMINATED BY LARGE-SCALE DISTANT-WATER FLEETS

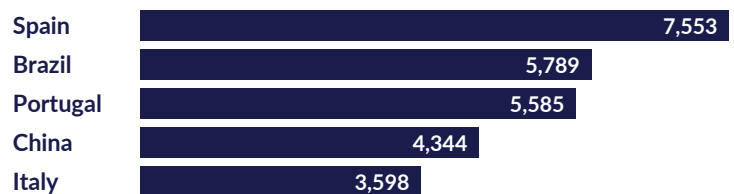


For more on catch, see p. 2

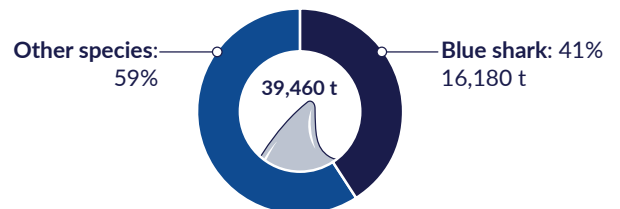
TRADE

BLUE SHARK IS A HEAVY HITTER IN THE SHARK TRADE

Tonnes of blue shark meat imported (product weight), 2019



Of tonnes of all shark fin imports (wet weight), 2019



For more on trade, see p. 4

MANAGEMENT

WITH MANAGEMENT MEASURES LARGELY ABSENT, REPORT PROPOSES THESE RECOMMENDATIONS

- Increase direct management of blue shark fisheries, e.g., through the use of catch limits
- Improve monitoring, reporting, and observer coverage on vessels targeting blue shark
- Use specific trade codes for key traded shark species
- Improve seafood labeling and traceability and raise consumer awareness
- Support spatial protection measures in key blue shark areas

For more on management, see p. 6

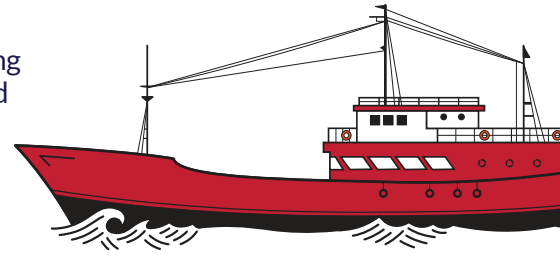
For more information: oceana.org/blueshark

TOI@oceana.org

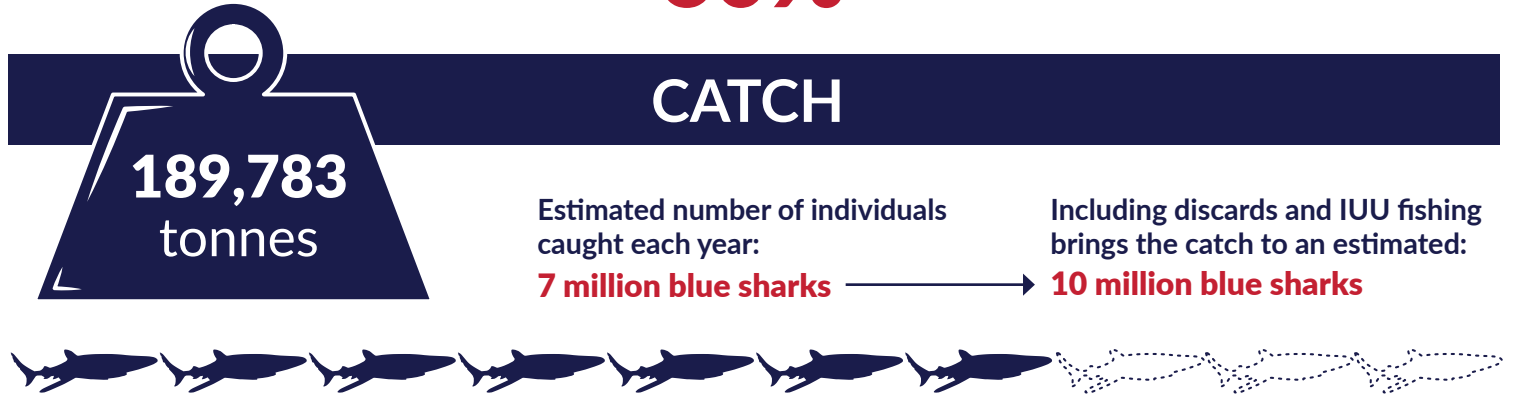


A targeted species

The study, by a multidisciplinary team of researchers, estimates catch by reconciling data that flag States report to the Food and Agriculture Organization of the United Nations (FAO) and to tuna Regional Fisheries Management Organizations (t-RFMOs). It also maps trade in the species (see p. 4), and calculates the economic value of fishing and trade. Finally, the report discusses policy and management (see p. 6) and makes a series of recommendations.



Blue sharks make up **60%** of all reported shark catch



GLOBAL SHARK CATCH

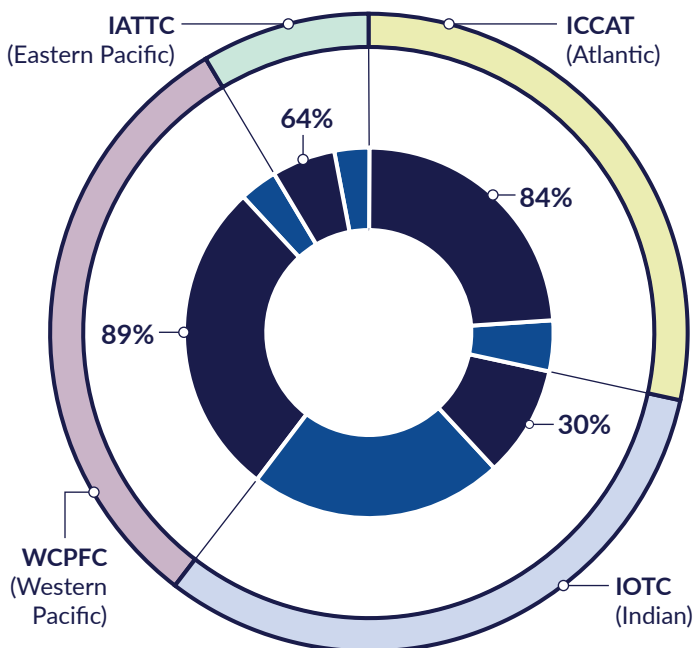
Based on 2019 data, the global blue shark catch is at least 189,783 tonnes. With blue sharks averaging 27 kg each, that amounts to more than 7 million individuals.

These catch estimates are conservative and do not include the estimated 81,000 tonnes of blue shark that are discarded each year. Including discards would bring the catch to about 10 million individuals. The estimates also exclude any other instances of illegal, unreported, and unregulated (IUU) fishing, which is believed to be an additional major contributor to the total catch.

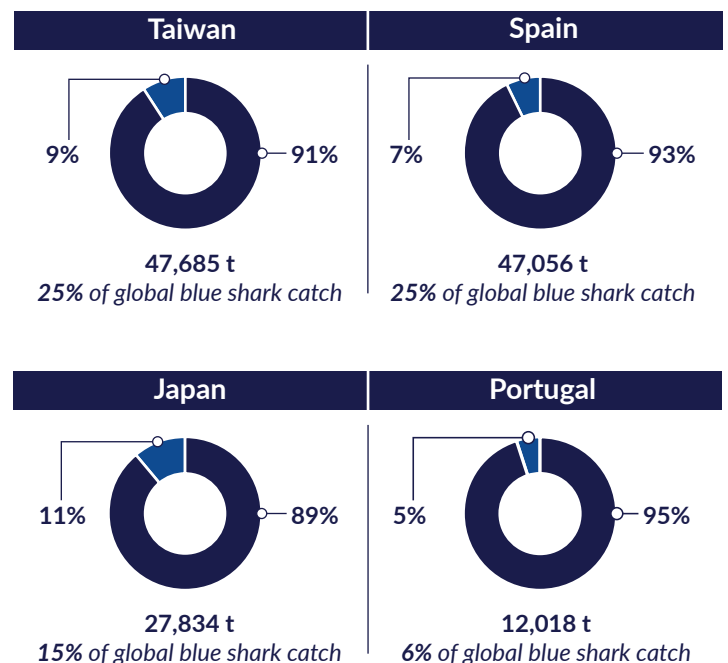
Where Blue Shark Makes Up Most of Total Shark Catch

Blue shark catch Other shark catch

By catch reported to t-RFMOs, 2019



By flag state, 2019





INDUSTRIAL AND DISTANT-WATER FISHING DOMINATE

Large-scale fleets, mostly longliners, dominate the blue shark fishery, with 90% of the catch. Small-scale fisheries only caught a significant share of blue shark in the Indian Ocean, where handlines accounted for more than half the catch.

Distant-water fleets account for 74% of the catch. Five distant-water fishing nations—Taiwan, Spain, Japan, Indonesia, and Portugal—account for close to 80% of global blue shark landings. Taiwan and Spain catch as much blue shark as all other flag States combined.

Most of the catch is from the Pacific Ocean. The southwest Pacific alone accounts for more of the catch than the Atlantic Ocean or the Indian Ocean.

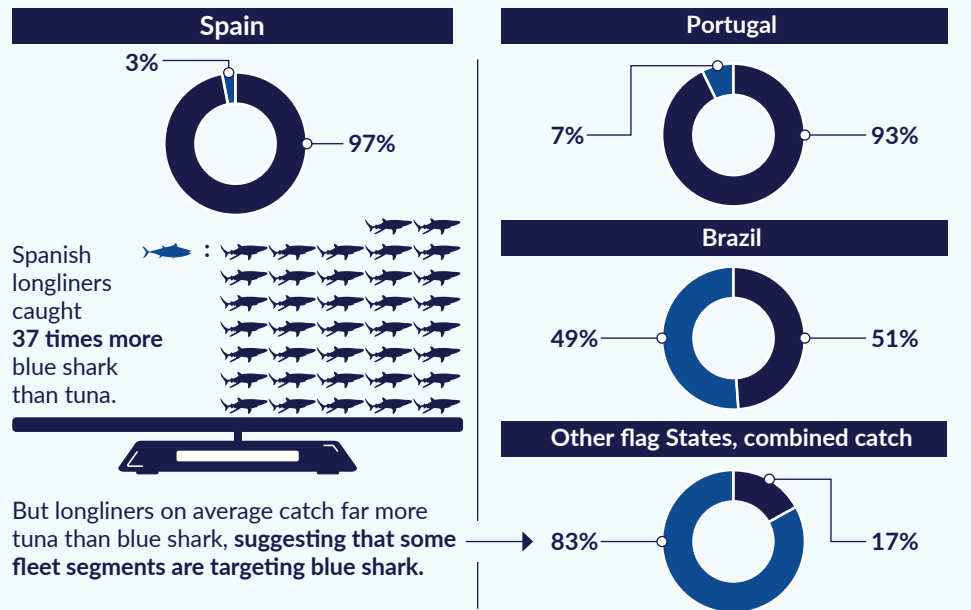
A SPECIES TARGETED TO MEET GROWING DEMAND

The study provides strong evidence against the idea that blue shark is primarily a bycatch species. After examining the catch data by gear type and location, the authors conclude that blue shark is actively targeted by the fishing fleets of certain nations.

A key piece of evidence is that the longline fishing fleets of certain nations catch mostly blue shark, whereas other longline vessels fishing in the same ocean catch mostly tuna. For example, in 2019 Spanish longline vessels reported catching about 35,000 tonnes of blue shark in the Atlantic Ocean and about 900 tonnes of tuna. By contrast, other longline vessels caught far more tuna than blue shark, despite using the same gear in the same region.

The simplest explanation is that these vessels—and others catching a low proportion of tuna—are targeting blue sharks.

When Blue Shark Fishing Outpaces Tuna Fishing  Blue shark  Tuna
Proportion of blue shark vs. tuna catches reported by longline vessels to ICCAT, in 2019



BLUE SHARK FISHERY VALUE EXCEEDS BLUEFIN TUNAS

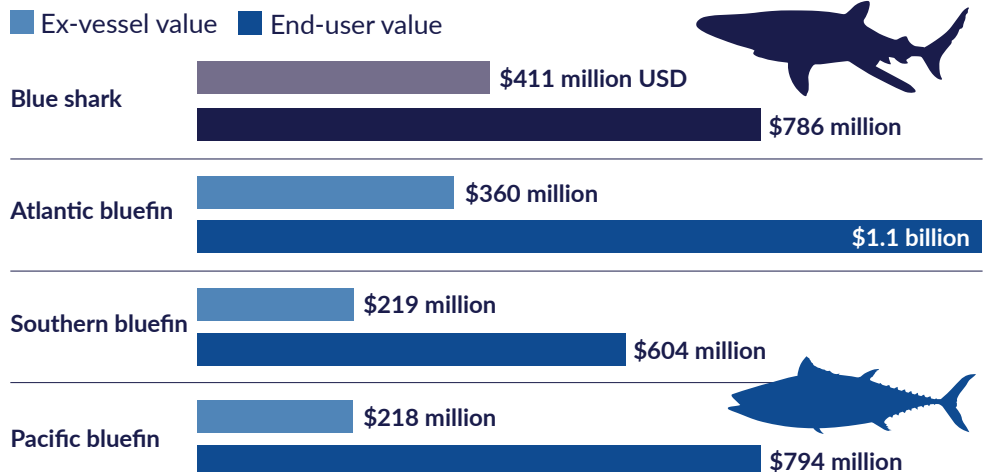
The study estimates that the global blue shark fishery has an economic value of \$411 million, based on price data at the first point of sale (ex-vessel value). The price data came from many sources, including market reports, news reports, and interviews. These values exceed the value of any of the bluefin tuna species and represent about one-tenth the value of the world's most valuable tuna fishery, yellowfin tuna.

The ex-vessel global value of blue shark meat was an estimated \$340 million, five times the value of all legal blue shark fins (\$71 million). The value of all blue shark fins is about \$101 million. This figure includes an estimate of fins taken illegally. Although finning and dumping of carcasses has likely diminished with the rising value of shark meat, incentives for finning remain.

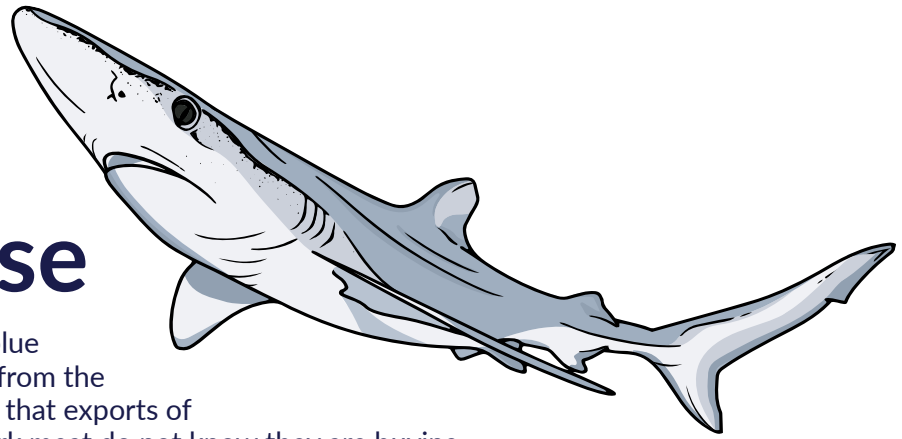
The study estimated end-user value of the blue shark fishery at \$786 million, or \$846, including illegal finning. This value exceeds the end-user values of southern and Pacific bluefin tuna.

A \$411 Million Fishery

Global ex-vessel value (landed value) of tuna species, 2018; minimum global end-user value (consumer value) of blue shark, 2019



Blue shark trade on the rise



The study quantified the global export flows of blue shark meat and fins for the first time, using data from the FAO and three other databases. Overall, it found that exports of meat are increasing—yet some consumers of shark meat do not know they are buying shark. The fin trade appears stable, both for sharks in general and blue sharks in particular. But evidence suggests that illegal finning is still widespread.

Blue sharks make up **36%** of all traded shark meat & **41%** of all traded shark fins

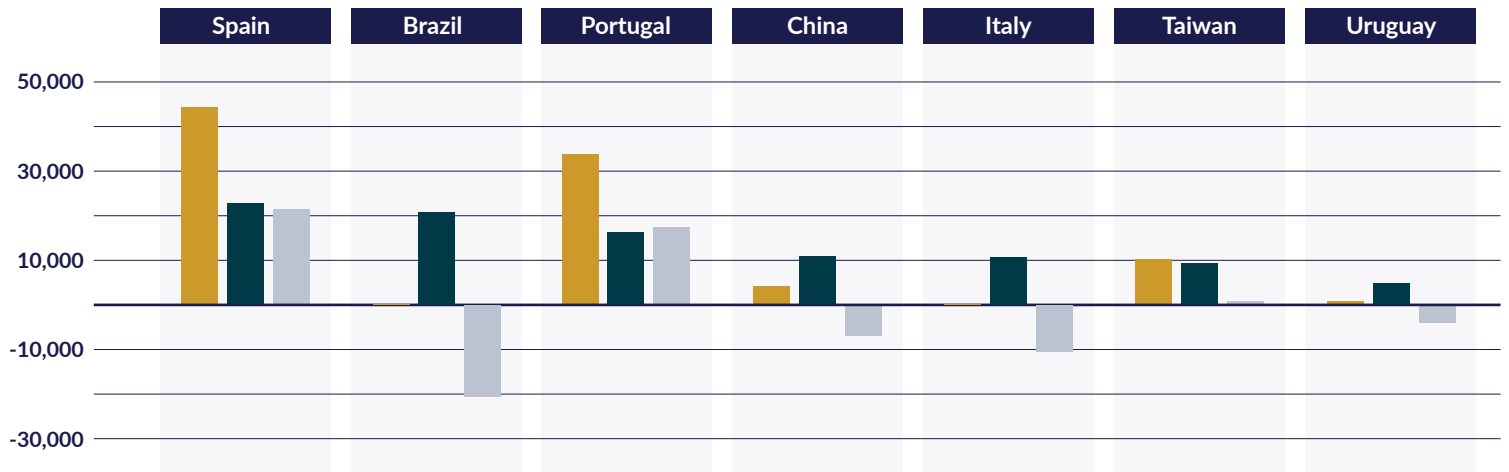
TRADE

GROWING MEAT TRADE, STABLE FIN TRADE

International trade in shark meat has doubled in value since the early 2000s. Blue shark is roughly 30% of this trade. This growing demand for meat poses a new threat to shark populations. Shark fin exports have been relatively stable, averaging \$160 million per year over this period. (See p. 6 for more on blue shark conservation and management).

Blue Shark Meat Trade for Top Importing Nations, 2017-2019

■ Exports ■ Imports ■ Balance (exports-imports)
In tonnes



ILLEGAL FINNING CONTINUES

The study suggests that shark finning is still widespread, despite bans on the practice. Specifically, the live weight of blue shark necessary to account for the volume of fins being imported significantly exceeds the estimated weight possible based on the study's catch estimate.

Assuming a maximum fin-to-weight ratio of 6% and a catch of 189,783 tonnes, the total weight of blue shark fin on the market can be no more than 11,387 tonnes. However, blue shark represents an estimated 41% of the Hong Kong shark fin market. Assuming this percentage represents the global market, the total exports would be more than 16,000 tonnes. This evidence suggests that a significant tonnage of illegal finning still occurs.

MAJOR TRADE FLOWS

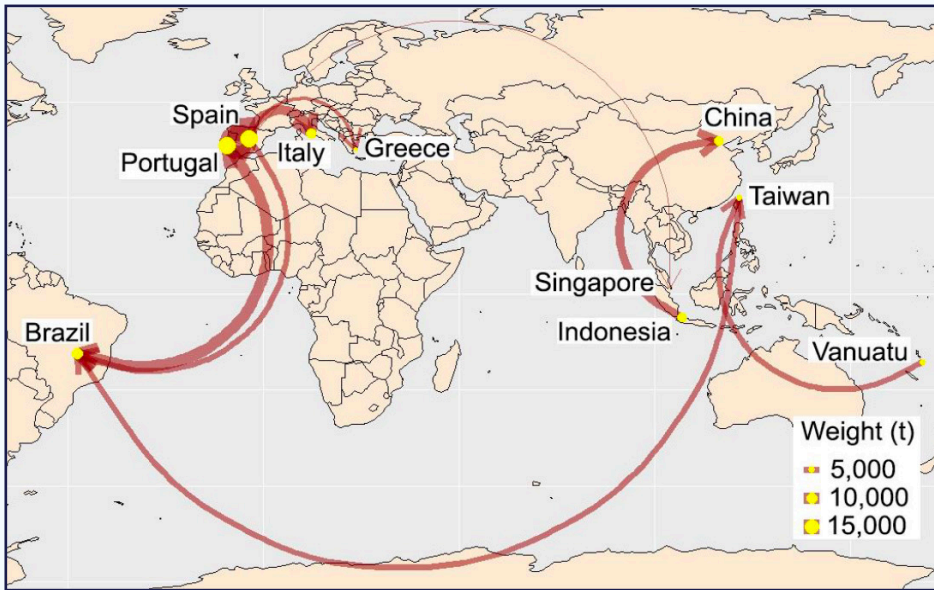
The researchers used the Aquatic Resource Trade in Species (ARTiS) database developed by a researcher at American University in Washington, DC, to examine imports and exports of blue shark meat.

In the last 25 years, Brazil has emerged as the top consumer of shark meat, and of blue shark meat in particular. Vessels with flags from Spain, Portugal, and Taiwan provide most imports to Brazil, and Uruguay acts as a regional hub, processing and re-exporting landings by different international fleets.

Elsewhere in the world, China appears to be the most significant trading hub for blue shark meat, and mainland China has taken on a major role in the fin trade alongside Hong Kong.

Top 10 Bilateral Trade Flows of Blue Shark Meat, 2017-2019

Map image presented in the study, created using ARTiS database



Source: The Aquatic Resource Trade in Species, ARTiS, database. The database applies a mass-balance methodology to determine species-specific trade flows based on species production detailed in the FAO production database.

By product weight in tonnes

Exporter	Weight (t)	Importer
Portugal	19,221	Spain
Spain	13,980	Portugal
Portugal	9,812	Brazil
Spain	8,519	Italy
Indonesia	7,287	China
Taiwan	4,790	Brazil
Vanuatu	4,775	Taiwan
Spain	4,618	Brazil
Spain	3,387	Greece
Spain	2,544	Singapore

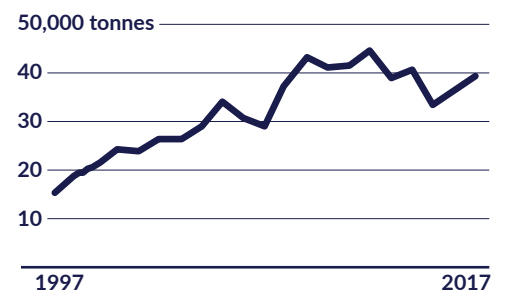
HEAVY DEMAND IN BRAZIL

The growing demand is evident in Brazil, which according to recent reports, has become the main destination for finless shark carcasses.

The share of imports in Brazilian shark meat for consumption has increased from less than 10% in the late 1990s to 50% in 2017; annual consumption is estimated to be about 45,000 tonnes per year.

Despite this increase, Brazilians often do not know that they are eating shark. While the popular dish *cação* is often made partly of blue shark meat, a 2015 study showed that more than half of *cação* consumers stated they have never eaten shark in their lives.

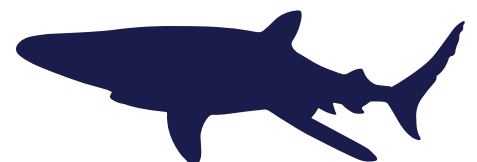
Imports of shark meat to Brazil, 1997-2017



Many nations do not require labeling and tracking of shark meat at the species level. Similarly, many catch documentation and traceability systems still lack species-level reporting for sharks. Instead, they often report shark exports under generic trade codes that lump multiple species together.

As a result, many consumers of blue shark meat do not know what they are eating. Some do not even know they are eating shark. One study found blue shark labeled as "salmon" and "croaker." Mislabeling and poor accounting increase the risk that the harvest of sharks could increase despite reported catches remaining static.

However, in November 2022, an international agreement was reached that may begin to address such issues. Blue shark was one of 54 species of requiem shark listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which regulates international wildlife trade.



Proper management is overdue

Blue shark remains largely unmanaged, and populations are declining in several regions. While bans on shark finning are relatively common, they are insufficient for managing the growing fishery. With blue shark meat rising substantially in value (see p. 2) and in export volume (see p. 4), the species, once considered incidental bycatch in tuna and swordfish fisheries, now requires direct conservation and fishery management measures.

MANAGEMENT

BLUE SHARK FACES THREATS DESPITE ITS RESILIENCE

The blue shark has the highest known population growth rates among pelagic sharks and is relatively resilient, at least compared to other sharks. But fishing effort is increasing in many regions, and the species is estimated to be declining in the Atlantic and Indian Oceans.

Blue shark has been assessed as Near Threatened (NT), by the IUCN and nearly meets Vulnerable (VU) status at a global level. It is Critically Endangered (CR) in the Mediterranean.

Although blue sharks are wide-ranging and migratory, recent studies suggest there are two distinct populations: one in the north Atlantic and the other in the Indian and Pacific Oceans, with possible mixing in the south Atlantic. A 2022 study also detected separation of females and males according to season and temperature. Such findings should be used in spatio-temporal approaches to conservation and management of these blue sharks.



POLICY IS CHANGING, WITH FINNING BANS NOW COMMON

Global policy for shark conservation has evolved considerably over the last 20 years, although direct management of blue shark fisheries remains largely lacking. In 1999, the FAO endorsed the International Plan of Action (IPOA) for the Conservation and Management of Sharks, which led to regional and national plans of action. Yet many nations have not created such plans, and they are often not enforced, reviewed, or updated.

Many countries and the four tuna RFMOs have banned finning—the practice of cutting off shark fins and discarding the carcass at sea. These bans were intended to support blue shark conservation, since the species is a major contributor to the fin trade.

However, with the value of shark meat increasing, finning bans alone are becoming less effective in protecting sharks. Furthermore, although finning and dumping of carcasses has likely diminished with the rising value of shark meat, incentives to engage in finning remain. For example, tuna and swordfish are often more valuable than shark, so discarding shark can make financial sense. Also, refrigerated vessels in some regions continue to accept fins at sea, a practice known as transshipment that can conceal illegal fishing.

MANAGEMENT REMAINS INADEQUATE

In 2019, ICCAT introduced total allowable catches (TAC) and quota limits for the north and south Atlantic. However, as of December 2022, these remain the only RFMO direct management measures specifically for blue shark.

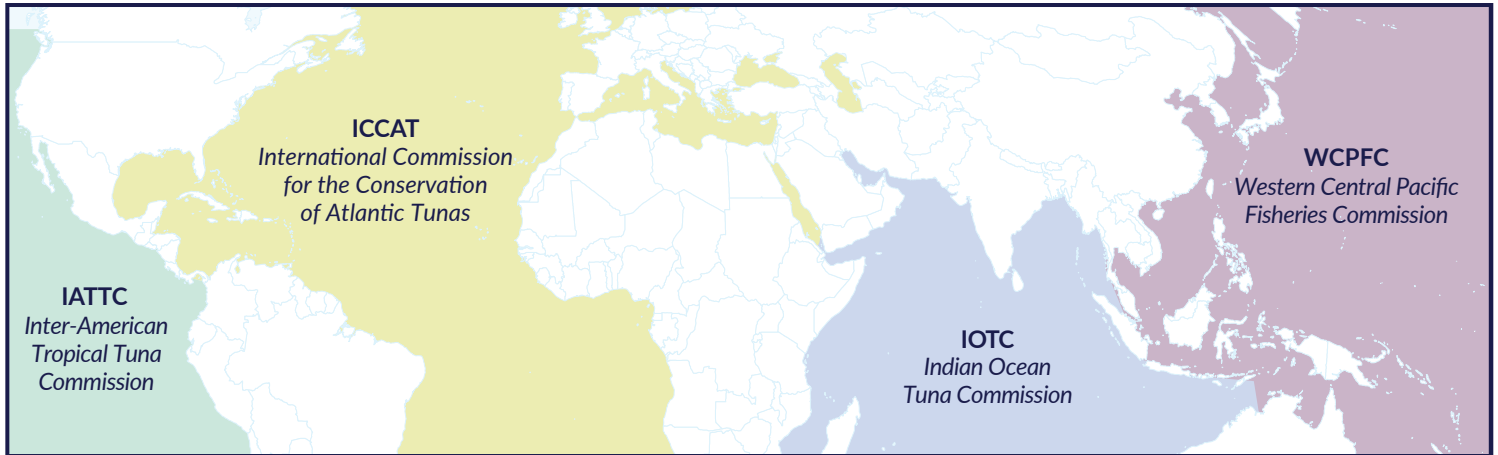
Other RFMOs and nations have taken steps to protect sharks, such as introducing gear restrictions on the use of shark lines and wire leaders. But shark management in general and blue shark management in particular remain fragmented and patchy, with numerous gaps as well as areas of overlapping or conflicting protection. The new CITES listing for blue shark may incentivize some progress. It will prohibit trade unless exporting nations provide proof that the product was legally caught and its stock

remains sustainable. Nations that have approved the convention now have one year to fix systems to document the catch of these sharks to the species level if they are to continue international trade.

Illegal, unregulated, and unreported (IUU) fishing also remains a threat to blue shark. To combat IUU fishing, many countries have agreed to better fisheries surveillance under the UN Port States Measures Agreement (PSMA), which entered into force in 2016. However, monitoring remains incomplete, especially in developing countries where management capacity is relatively low.



CURRENT RFMO MANAGEMENT



IATTC		ICCAT		IOTC		WCPFC	
Finning ban	Catch limits	Finning ban	Catch limits	Finning ban	Catch limits	Finning ban	Catch limits
✓	✗	✓	✓	✓	✗	✓	✗
<ul style="list-style-type: none"> Bans shark lines for longline vessels Maximum fin/carcass ratio of 5% 5% scientific observer coverage 		<ul style="list-style-type: none"> Allocated annual TAC of 39,102 t for North Atlantic blue shark Unallocated annual TAC of 28,923 t for South Atlantic blue shark No gear restrictions Requires non-entangling FAD design Fins must be attached or in same bag as carcass 		<ul style="list-style-type: none"> Requires non-entangling FAD design Retain all shark parts Maximum fin/carcass ratio of 5% 		<ul style="list-style-type: none"> Requires non-entangling FAD design Fins must be attached or in same bag as carcass Bans shark lines combined with wire leaders <p><small>* In early December 2022, WCPFC outlawed both shark lines and wire leaders.</small></p>	

THE STUDY'S RECOMMENDATIONS INCLUDE:

- Increase direct management of blue shark fisheries, for example with catch limits like those adopted by ICCAT.
- Improve monitoring, reporting, and observer coverage on vessels targeting blue shark.
- Address IUU fishing by distant-water fleets, including through the PSMA and by building governance capacity in regions such as the southwest Pacific, eastern central Pacific, and southeast Atlantic.
- Use specific trade codes for the key traded shark species.
- Improve seafood labeling and traceability requirements and raise consumer awareness in key consumer markets such as Brazil, Southern Europe, and global pet food markets.
- Put in place spatial protection measures in key blue shark areas.

To find the methodology and full list of references, visit the report: oceana.org/blueshark.