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Important Shark Fishery Products

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Abstract

Sharks a critical group of elasmobranchs face severe threats from over-exploitation driven by high demand for shark fin soup in the USA and China. They are targeted for sport, commercial fisheries, and bycatch. Sharks and rays, related species, provide products such as meat, fins, liver, skin, cartilage, jaws, and teeth. Finning, removing fins and discarding the body is notably wasteful. Shark meat is used for human and livestock consumption while fins are prized in East Asia. Shark skin is utilized for luxury items and cartilage and liver oil are marketed for unproven health benefits.

Keywords: Sharks, Bycatch, Shark products, Cartilage.

1. Introduction

Sharks are a significant group of elasmobranchs discussed Worldwide due to their populations facing severe threats from over-exploitation. This over-exploitation is primarily driven by the high demand for shark fin soup particularly in the USA and China. Sharks are killed for several reasons for sport as targets of extensive commercial fisheries and as unintended bycatch in fisheries aimed at other large fish like swordfish and tuna. Various species of rays that are related to sharks are also captured by commercial fisheries. Sharks, regardless of whether they are accidentally caught in fishing gear (bycatch) or intentionally targeted by fishermen, are sold in a variety of forms.

Sharks and their relatives offer a wide range of usable products such as meat, fins, liver, skin, cartilage, jaws and teeth. Unfortunately, tens of millions of sharks caught in fisheries annually have their fins removed from their bodies and then discarded overboard (Fowler and Musick, 2002) This practice known as finning is highly wasteful because the fins typically constitute only about 5% of a shark's total weight.

2. Shark meat

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Shark meat which is white or slightly pink is used for both human consumption and livestock feed. In our country, smaller shark species like Dog sharks are dried whole while others are cut into small pieces. Shark meat slices are exported to India, Myanmar, Sri Lanka and the Maldives. Although the meat of certain sharks and rays like makos, dogfish, and skate are sold for human consumption most shark and ray species are not eaten in the developed world. Shark meat may be labeled with a specific species name such as blackened mako but it is often marketed under different names. For example, shark meat is sometimes referred to as "flake" and sold as fish and chips in restaurants.

3. Shark fins

Shark fins are popular in East Asia and are considered a delicacy that can make shark fin soup sell for up to $100 per bowl. This demand has led to the extremely wasteful practice of "finning," where sharks' fins are removed and the rest of the shark is discarded back into the sea leaving it to die a painful death. Shark fins are the most valuable part of the shark. Fins of various sizes from different species are dried and exported to China, Hong Kong and the USA. They are particularly popular in the USA and China for making shark fin soup.

3.1 Shark fin soup

Shark fins are used to prepare traditional shark fin soup in Chinese culture and are among the world's most valuable fish products. The soup utilizes only the fine collagenous fibers known as "needles" which support the fin's edge.

4. Sharks skin

Shark and ray skin is composed of fine scales called denticles. The United States, Northern Europe and Japan are major markets for shark skin which is used to make luxury items such as boots, shoes, handbags, wallets, purses, belts, watch straps, holsters and decorative items. According to the United Nations tiger, lemon, dusky, nurse, sandbar, porbeagle, shortfin mako, scalloped hammerhead and bull sharks are the most commonly used species for leather goods.

4.1 Shark skin leather

Untanned shark skin with its rough denticles is known as shagreen and has been used as sandpaper in woodworking and various other industries for centuries. It has also been used to cover sword hilts for a non-slip grip and as a striking surface for matches (Kuang, 1999). Shark leather is used to produce a range of products including furniture, book bindings, shoes, and handbags. Historically the main markets for shark leather products were the USA, Germany, France and Japan with tanneries located in several countries. Nowadays due to environmental restrictions on the tanning industry and issues with a consistent supply of raw skin most tanned shark leather is produced in Mexico (Kuang, 1999).

5. Shark cartilage

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Shark skeletons are made of cartilage rather than bone. There are unproven claims that shark cartilage can cure or prevent various ailments, ranging from minor conditions like acne, asthma and eczema to serious diseases such as AIDS and cancer. The trade-in shark cartilage is extensive and poorly documented. The main producers and consumers include the USA, Japan, Australia and India with expanding markets in Europe and other industrialized nations. U.S. companies export shark cartilage to over 35 countries. Blue shark cartilage is considered high quality due to its higher chondroitin content, but cartilage from various deep-sea and coastal tropical sharks is also utilized.

6. Shark skull and teeth

Dried shark skulls and teeth are exported to foreign countries and used to create unique ornaments (Hasan et al., 2017).

7. Shark liver oil

Shark liver oil extracted by fermenting and boiling shark liver with water in metal containers contains vitamin A and has significant medicinal value. In addition to vitamin A shark liver oil contains pristane, squalene, triglycerides, glycerol ethers and fatty alcohols. It is also used in tanning and textile industries and is exported to some extent to foreign countries. Squalene is one of the most commonly used components of the oil.

7.1 Squalene

Squalene is a highly unsaturated aliphatic hydrocarbon primarily found in the livers of deep-sea dogfishes (Squaliformes). This low-density compound (0.86 s.d.) helps provide buoyancy to these sharks. Squalene is used as a fine lubricant due to its stability across a wide temperature range (-75°C to 330°C) (Kuang, 1999). It is most commonly used in skin creams to soften skin as a moisturizer to accelerate wound healing and as a bactericide. Often squalene is hydrogenated to the more stable form of squalane before use.

8. Conclusion

The exploitation of sharks for various products driven by demands such as shark fin soup poses significant threats to their populations worldwide. The practice of finning where a shark's fins are removed and the rest of the shark is discarded highlights the wasteful nature of this industry. Despite the wide range of usable products derived from sharks and their relatives such as meat, fins, skin and cartilage the unsustainable harvesting methods and lack of regulation contribute to the decline of shark populations. Urgent measures are needed to address over-exploitation and promote sustainable practices to ensure the conservation of these important marine species.

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