

## SHARK FISHERY IN TAIWAN

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### 1. THE STATUS OF SHARK FISHERY IN TAIWAN

The development of shark fishery in Taiwan has a long history. It was reported that the global catch of shark is about 800 thousand tons per year. In the past five years, the annual catch of shark in Taiwan from the coastal, offshore and far seas fisheries ranged between 30 to 50 thousand tons, accounting about 7% of the global catch, and ranking as the fifth largest producer in the world following Indonesia, India, Pakistan and Spain.

According to the statistics as published in the Fisheries Yearbook, in the year 2000, Taiwan's catch of shark was 47,741 tons, including 38,447 tons from the far seas fisheries and 9,294 tons from the coastal and offshore fisheries, with a value of some NT\$ 1 billion. It accounts for 3.5% of the total catch of 1,356,295 tons, and 1.1% of the total catch value of NT\$ 91.3 billion. Of the total shark production, 35,873 tons (including imports of 3,178 tons of shark meat) was for domestic consumption and 15,046 tons was exported.

### 2. FISHING METHODS AND SPECIES HARVESTED IN TAIWAN

Most sharks are caught by fishing vessels under the membership of Kaohsiung, Tungkang, Suao, Shinkang and Keelung Fishermen's Associations, and among which sharks caught by fishing vessels of Kaohsiung, Tungkang and Keelung Fishermen's Associations are from far seas operations, and the remaining are from the coastal and offshore areas of Taiwan. Sharks from the far seas fisheries are mainly caught by tuna long liners and trawlers, with Blue Shark, Silky Shark, Scalloped Hammerhead Shark, Shortfin Mako Shark and Thresher Shark as the main species. While in the coastal and offshore fisheries, sharks are mainly caught by long line, trawl, harpoon and set net fisheries, and the main species are Blue Shark, Scalloped Hammerhead Shark, Shortfin Mako Shark, Thresher Shark, Sandbar Shark, Silky Shark, Whale Shark and others.

### 3. PROCESSING AND UTILIZATION OF SHARKS IN TAIWAN

In Taiwan sharks are completely utilized, whether in the form of fresh fish or processed products. Shark products include fresh shark meat and skin, surimi, smoked meat, dried meat, shark liver oil, shark's skin, shark's fin, etc. Sharks caught by coastal and offshore fisheries as well as a small number of sharks caught by far seas fishing vessels, are mainly for domestic consumption. Fresh sharks are consumed as fresh fish or smoked fish, and frozen sharks are processed to fish balls and other cured products. Apart from shark cuisines from shark's meat, skin, fin, stomach and gut, shark's livers are used to extract shark's liver oil, shark's skeleton and cartilage can be used for processing health food, and jaws for handicrafts. In far seas fisheries, sharks are caught by tuna long liners as by-catches, and they are landed at foreign ports and exported in frozen form.

#### 4. RESEARCH AND MANAGEMENT OF SHARKS IN TAIWAN

While noting with care the utilization of shark resources, great attention has been paid by the government in the assessment and management of shark resources and researches on shark related ecology. In addition to such shark related biological and ecological researches conducted by scholars at their own initiatives, since 1995 the government has allocated substantial budgets to support academic institutes and fisheries organizations in conducting series of research programs on shark resources and shark related ecology. They include:

- Stock Assessment and Fishery Management of Deep Sea Thresher Shark in the East Area of Taiwan (1995-1997)
- Stock Assessment of Shark in the Coastal and Offshore Areas of Taiwan (1998-2001)
- Application of Precautionary Approach in Management of the Coastal and Offshore Shark Fishery of Taiwan (2001-2003)
- Investigation of Shark By-catch in Far Seas Fisheries (1995-2000)
- Observers Program for Far Seas Fisheries (2000-2002)
- Investigation and Monitoring of the Utilization of Whale Shark (2000)
- Investigation on the Trade of Whale Shark (2001), and
- Sustainable Utilization and Conservation of Whale Shark (2001-2004)

It is hoped through enhancement of scientific research on shark resources that a database on shark resources can be established for providing the government with basis for the management of sharks.

In response to the increasing concern from the international community on the management of shark fisheries, Taiwan has initiated a series of shark management measures. Scholars, experts and representatives from the fishermen and government have been invited to form Shark Resources Management Working Group, to reach consensus on shark management measures through consultations. Whale shark, which has a characteristic ecological habit and a decreasing trend of stock, was selected as a target for management. To enhance collection of information on the ecological habit of whale shark for future management based on scientific information, in 2001 the government implemented the Reporting Scheme on Whale Shark Catch, requiring fishermen to make immediate report at the time when a whale shark is caught, and non-compliance of the scheme will be subject to penalty accordingly. In 2002, the government is also planning to set up a TAC on whale shark to control the quantity of the catch. At the same time, further researches on whale shark will be conducted, such as implantation of electronic tags on whale sharks for tracking via satellite, to better understand its habitat and migratory route.

To strengthen the collection of shark statistics in the far seas fisheries, serving as a basis for stock assessment and fisheries management, collection of shark catch data for the far seas fisheries has been conducted by the Overseas Fisheries Development Council, under the commission of the government. A column has been added to the log sheet of far seas tuna long line fishery for shark catches, and captains are required to accurately fill in their shark catches. In 2001 the government started to implement observers programs, assigning onboard observers to record the shark by-catch of far seas fishing vessels. In addition, writing boards with pictures of common shark by-catches were printed and published, to let fishermen better identify various shark species. Education programs on shark utilization were also provided to fishermen, to promote full use of shark instead of the practice of finning and discarding the carcass.

## **5. OUTLOOK**

There are many species of shark in the world, with different ecological habits and reproduction rates. Sharks are important fishery resources in the world, serving as important sources of animal protein, food supply and income to fishermen. Therefore, the conservation and management measures on sharks should be focused on areas where shark stocks have been proven by scientific research as declining as well as endangered shark species, rather than on those shark species whose resources have not been evidencing to have a declining trend. There are, in fact, very few countries in the world exercising management on their shark fisheries. Noting the growing concerns by the international community on controlling shark catching, FAO has adopted the International Plan of Action for the Conservation and Management of Sharks (hereinafter referred to as IPOA- SHARKS), calling upon states to adopt management measures on their directed shark fishery or on those fisheries with abundant shark by-catches, to ensure conservation of sharks and their sustainable utilization. The IPOA- SHARKS provides an excellent guidance to states for managing their shark fisheries. Although Taiwan is not a member of the United Nations, based on the spirit of responsible fisheries, and as a responsible member of the international community, we are willing to follow such fisheries management measures internationally adopted and manage our shark fishery. We are also willing to share our experiences in shark research, resources management and utilization with other countries. Furthermore, based on the IPOA-SHARKS, in 2002 our government plans to draft a national plan of action for implementation, to ensure sustainability of shark resources.