

Taiwan Province of China

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INTRODUCTION

This review provides a brief description of the status of marine capture fisheries management in Taiwan and it forms part of the UN Food and Agriculture Organization's (FAO) project on the "Review of the State of the World's Marine Capture Fisheries Management". The purpose of the review is to provide useful information that could be used by the decision makers, fishery managers, scientists, and other stakeholders who may be involved in the marine fisheries management of Taiwan.

Taiwan, a province of China, is an island located off the southeastern coast of China. The island is bounded on the west by the Taiwan Strait (linking the South China Sea and the East China Sea), on the south by the Luzon Strait (linking the South China Sea and the Philippine Sea), and on the east by the Philippine Sea and it has a total land area (main island and its small offshore islands of Pescadores, Matsu and Quemaoy) of 35 980 km² (CIA, 2004).

Taiwan has made a number of maritime claims and the most significant of them include:

- Exclusive economic zone: 200 nautical miles; and
- Territorial sea: 12 nautical miles.

In July 2003, Taiwan had an estimated population of 22.6 million with a population density of 628 persons per square kilometer and its gross national income per capita was around US\$18 000 in 2002 (CIA, 2004).

The coastline of Taiwan is 1 566 kilometers; from which its extensive domestic fishing fleet sets sail almost every day of the year. The Taiwanese fishing industry employs approximately 300 000 people and accounts for 37 percent of Taiwan's overall agricultural output. Taiwan's thousands of fishing vessels are common in the South Pacific, where they ply the waters in search of the vast variety of pelagic (open sea) species, valued by Taiwanese and others around the world.

POLICY FRAMEWORK

In recent years, there have been growing international concerns on environmental protection and resources conservation. In order to overcome any negative impacts and challenges faced by the fisheries sector, the directions of fisheries policy formulation and research in Taiwan have been focused on the harmonization with the overall policy of the Government, in coherence with the changes in the international environment.

Thus, the policy framework of the Taiwan marine capture fisheries management includes the policies for managing the following fisheries sub-sectors:

- Distant Water or Deep-sea Fisheries;
- Offshore and Coastal Fisheries; and
- Marketing and Distribution of Fisheries Products.

Distant Water or Deep-sea Fisheries

The development of modern distant water fishing fleet in coherence with the international regulations and taking into account fostering fisheries cooperation with foreign countries forms the basic policy for managing the distant water fisheries. In

compliance with the policy, the fishing fleet shall be actively operating in the major fishing grounds of the world and the catch shall be mainly for export but also catering to the needs of domestic consumption. Apart from seeking reasonable profit, the fishing activities of the fleet shall be conducted in the manner consistent with the norms and rules of the FAO Code of Conduct for Responsible Fisheries and other international conventions and agreements. At the same time, cooperation with various coastal countries will be strengthened. This fleet will thus be playing an important role in the international arena of fisheries.

The main strategies to strengthen the implementation of the policies are as follows:

- Fisheries cooperation with coastal countries will be strengthened, through fishing access and joint exploitation of the fisheries resources in the exclusive economic zones of coastal countries, in order to secure the fishing grounds for the far seas fishing fleet. In addition, localization of fisheries operation with suitable coastal countries will be promoted.
- Active participation in various international fisheries organizations will be promoted, to protect the interests of fisheries in the international waters. To accommodate with the fisheries management regulations as set forth in FAO Code of Conduct for Responsible Fisheries, Vessel Monitoring System will be implemented in broad scale, in order to achieve the goal of transparency in fishing operations.
- The operation scale and the fishing capacity of far seas fisheries will be adjusted in response to the international action plan adopted. Appropriate vessel registration plan will be implemented to allow those flag-of-convenience tuna longliners built in Taiwan, to acquire proper registration back home. Boat owners will be encouraged to make investment in those coastal countries which are willing to undertake their international obligations as flag States, in such a way that the operation of tuna fishery will be under proper regime, so as to maintain a stable development in far seas fisheries.

Offshore and coastal fisheries

The policy for managing the offshore and coastal fisheries is focused on implementing measures that could achieve rational and sustainable utilization of offshore and coastal fisheries resources. In compliance with the policy, plans shall be formulated to diversify the functions of fishing ports and the use of fisheries resources, providing the public with suitable locations to perform recreational activities at sea or to enjoy the delicacy of fresh seafood; while upgrading the living environment in fishing villages by injecting new dynamics into the local economy, thus giving a new development feature to the fishing villages.

The main strategies supporting the implementation of the policies are as follows:

- Plans on orderly fisheries productions in the 12-mile territorial waters will be re-assessed and proper management mechanism will be established to extend the activities of coastal fisheries and to intensify the management of sea areas. Diversification of fisheries will be promoted to achieve effective utilization of fisheries resources within the territorial sea of Taiwan.
- There will be plans to promote multiple functions of fishing ports. The infrastructures at various ports will be improved by installation of proper environmental protection facilities, whereby upgrading their overall features.
- In line with the growing fondness of the public in recreational activities as well as the trend of development in recreational fishery, infrastructures at various ports will be improved while maintaining their scenic features. Fishermen will be encouraged to change their original operation to recreational fishery, in order to relieve the pressure on fisheries resources and to ensure their sustainable utilization.

Distribution and Marketing of Sea Products

The policy for managing the distribution and marketing of fisheries products is focused on establishing brands for quality seafood highlighting characteristics of freshness, sanitation, safety, wholesomeness and variety in the domestic seafood; making it a product of “convenient handling and easy cooking” in meeting the need for development of the fishing industry. E-commerce for seafood shall be promoted to ensure superiority in market competition.

The main strategies in support implementation of the policies are as follows:

- Criteria for verification of seafood brands will be formulated, and the brand for domestic seafood will be established.
- The procedure of production of domestic seafood with brand will be monitored and extensively promoted.
- Guidance will be provided to producers organizations to seek closer cooperation with traders and distributors.
- Direct sales centers for domestic seafood will be established.
- The system of direct door-to-door delivery and electronic commerce for high quality seafood will be established.

LEGAL AND INSTITUTIONAL FRAMEWORK

The *Fisheries Law* of Taiwan is comprehensive and consists of 71 Articles (Anonymous, 2003). It forms the basic legal framework for managing the marine capture fisheries in Taiwan. To supplement the *Fisheries Law*, the following regulations/rules were also enacted to regulate the management of deep-sea fisheries, coastal and offshore fisheries, and recreational fisheries (FA, 2003):

- “Guidelines of fisheries categories and renovation for sampan and fishing raft of Taiwan Province”;
- "Fishing Period Limits and Minimum Crew Quota for Fishing Boats Ranging from 20 to 100 Tons of Taiwan Province";
- "Criteria Chart with Maximum Restrictions of marine Diesel Engines for Fishing Boats Ranging from 20 to 100 Tons of Taiwan Province";
- "Guidelines in Maximum Quota, Quota Application & Registration and Building of Pleasure-Oriented Fishing Boats in Taiwan Province";
- "Regulations Governing Fishing Boat Crew";
- "Regulation Governing Employment and Foreign Crew"; and
- "Provisional Measures for Taiwan-based Fishing Boat Owners in Hiring Mainland Chinese Crew serving in waters beyond 12 N.M. from Taiwan Coasts".

The Council of Agriculture is the highest fisheries policy making body and under which the Fisheries Administration, the highest fisheries administrative agency, was established. The Fisheries Administration was established on 1st August 1998, by upgrading the Department of Fisheries in the Council of Agriculture. This Administration is responsible for issuing licenses to fishing boats ranging from 20 to above 100 metric tons, as well as the management of their operations. The Administration also carries out enforcement of penalties upon irregularities and oversees county/city governments in licensing and management of fishing boats below 20 metric tons.

A unique feature of fisheries management in Taiwan is the formation of the Provincial Fishermen’s Association (PFA) in 39 districts. The associations are formed by fishermen in the districts under the *Fishermen’s Association Act*. The PFA is a multipurpose, non-profit organization for fishermen, which carries in its capacity four major functions – educational, economical, social, and political functions. The contribution of PFA to rural community and fisheries development has been substantial. Fishermen could make deposits and loans from the PFA through its credit departments, and fishery products may join the market through the PFA. The government also uses the PFA as the media

for promoting new governmental fisheries policy, with some governmental support such as collecting service charges for conducting government entrusted businesses such as fishermen health insurance programs (Huang & Lin, 2002; FA, 2003).

There are nine research and academic institutes involved in the fisheries research, which also contributed substantially to managing the marine fisheries in Taiwan. They include, for example, the Academia Sinica, the Fisheries Research Institute of the Council of Agriculture, the Development Center for Biotechnology and the National Taiwan Ocean University, the Institute of Oceanography and the National Taiwan University. In addition, there are a number of fisheries vocational schools in the Suao, Tainan, Keelung, Tungkang, and Penghu Counties that provide courses for training the fishermen or students to be the fisheries technicians.

STATUS OF FISHERIES IN THE COUNTRY

Taiwan is an island surrounded by seas and oceans and its fishery industry is highly developed. Taiwan's fishing grounds extend to three oceans, including areas for fish farming that cover an area of more than 60 000 hectares. Currently, deep-sea fishing accounts for over half of Taiwan's total fishery production volume. Major fishery industries include tuna longline, squid-jigging, purse seine, and trawl fishing. The proportions of fisheries production by fishing methods in the deep-sea fisheries are shown in Figure 1. Taiwan has now become one of the world's six major high-seas fishing nations.

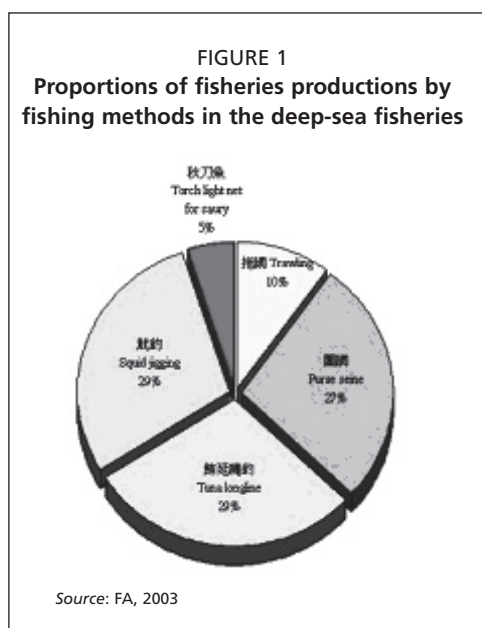
Overall fishery production in the year 2000 was around 1.3 million metric tons, with a value of nearly NT\$ 100 billion (Figure 2). Over 130 000 households, with approximately 340 000 people are involved in the work of fisheries production. The fishery sector has contributed greatly to the stability of society and as a source of food supply.

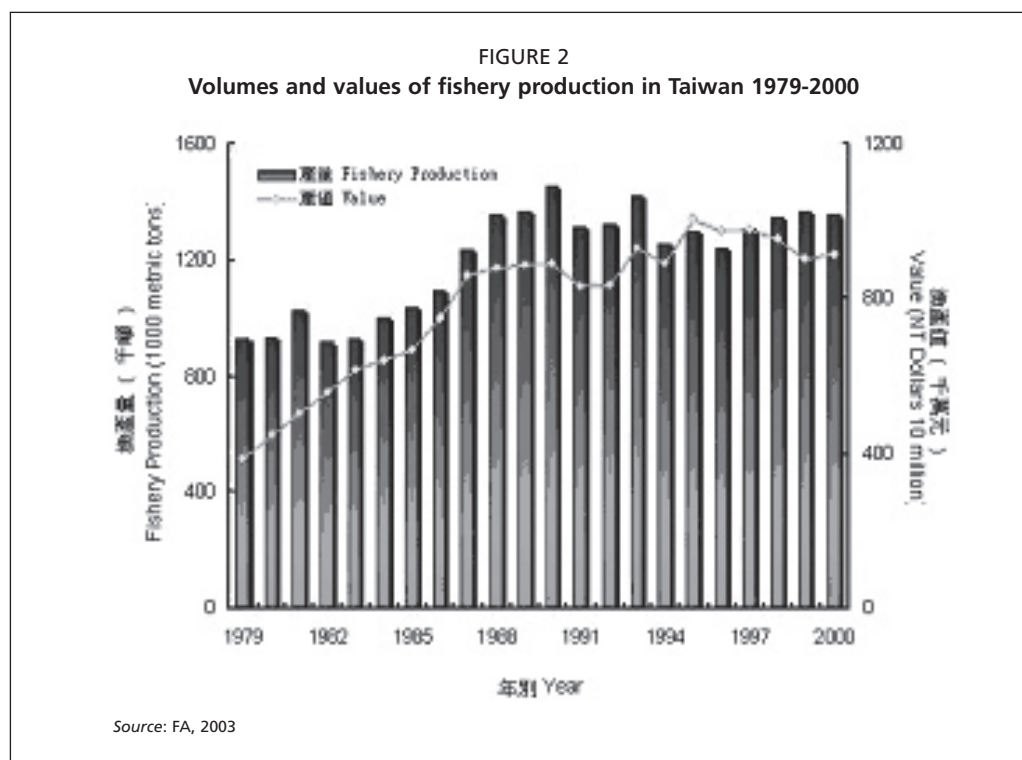
In recent years, under the prevalence of exercising of 200-mile exclusive economic zones (EEZ) by coastal countries as well as the adoption of the cooperative management of high seas resources, the deep-sea fisheries have been encountering tremendous impacts; while the production of the offshore and coastal fisheries has reduced, due to overfishing and pollution of the nearby seas. To adapt to these adverse impacts, the Taiwanese Government has exerted great efforts in promoting international fisheries cooperation and active participation in international fisheries organizations to enable sustainable development of the far seas fisheries.

Regarding coastal and offshore fisheries, efforts have been focused on proper management of resources in the coastal and offshore seas, to enable sustainable utilization of resources. In addition, aquaculture has been directed to the rational utilization of land and water resources to ensure a harmony between fish farming and the environment. At the same time, fishermen are encouraged to engage in recreational fisheries for income diversification and more effort will be placed on the construction of picturesque fishing villages and augmentation of fishermen's welfare, with the hope of laying a sound foundation for Taiwan's fisheries in the next century.

Deep-sea Fisheries

Deep-sea fisheries refer to those fishing activities performed beyond 200-mile EEZ of Taiwan. The main fishing methods used include tuna longline fishing, tuna purse seine fishing, trawling, squid jigging, and





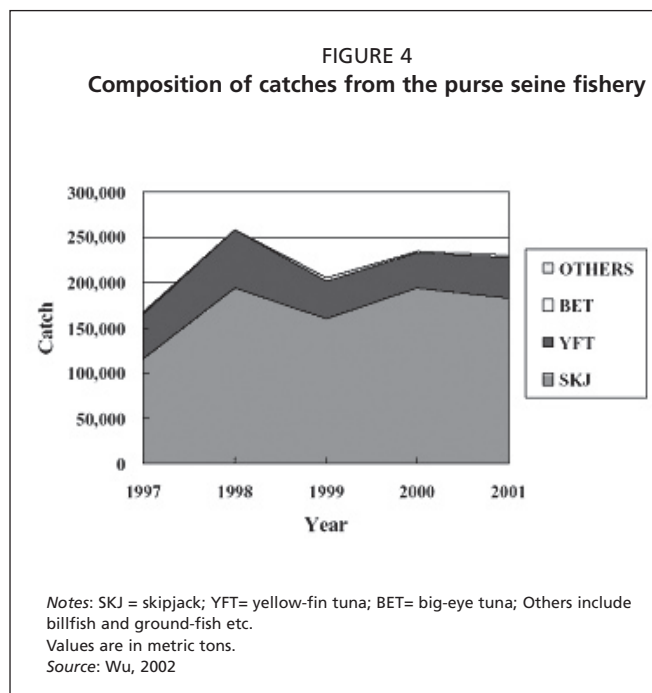
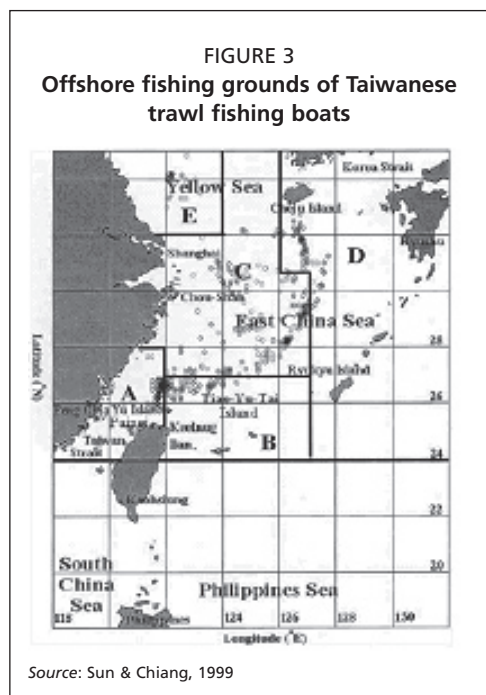
torch light saury fishing. In recent years, their production was over 880 thousand metric tons per year, accounting for over 65 percent of the total fisheries production. The tuna longline fishery, which comprises deep frozen longliners and the traditional longliners, is performed throughout the high seas areas of the three oceans.

As for tuna purse seine fishery, the major fishing grounds are areas around the western and central Pacific Ocean. Squid jiggers operate mainly in the southwest Atlantic Ocean, North Pacific Ocean, and the waters around New Zealand. The fishing grounds for the trawl fishery have been greatly limited since the implementation of the 200-mile EEZ by coastal countries and, therefore, vessels have had to seek for joint ventures with such coastal countries as India, Indonesia, Oman, and Yemen for securing fishing grounds. Some squid jiggers engage in saury fishing on a part-time basis in the North Pacific Ocean after the squid fishing season is over. Most of the tuna longliners and purse seiners use foreign ports as bases for replenishment of supplies, repair, and transshipment of catch. Presently, more than 67 foreign ports have been approved by the Taiwanese Government as fishery base ports (FA, 2003).

Trawl Fishery

Taiwan's trawl fishery operates primarily in two major fishing grounds: one to the northeast and the other to the southwest of Taiwan (Figure 3). The offshore trawl fishing ground to the northeast of Taiwan, which covers most of the East China Sea, is the most traditional fishing ground and accounts for about half of the total offshore trawl harvest in Taiwan. According to the Taiwanese Fisheries Yearbook, the 1997 offshore trawl fisheries harvest measured 74 542 metric tons and was valued at NT\$6 252 609. The trawl fishery thus accounts for 30 percent of total offshore fisheries production and 37 percent of offshore fisheries production value, respectively.

Trawl fishing vessels operating in the northeastern fishing ground are mostly below 200 metric tons in size and almost all are registered in three major northeastern districts of Keelung, Ilan Hsien, and Taipei Hsien. Chiang and Sun (1999) indicate that trawl vessels in the 50-100 and 100-200 metric tons categories have made up almost 95 percent of the fishing fleet since 1983. In addition, the age distribution of the northeastern trawl



fleet shows that in 1995 more than 60 percent of the trawl vessels were over 11 years old. A typical trawl fish harvest is a combination of many species. Shrimp is still the major target species for Taiwan's northeastern trawl fisheries, not only because of a deterioration of groundfish stock in the East China Sea, but also because the price for shrimp is higher (Sun and Chiang, 1999).

Purse Seine Fishery

Purse seine fishing was introduced into Taiwan in 1982 and developed rapidly in the late 1980s. Since the early 1990's, Taiwan has become one of the most important purse seine fishing countries in the Western and Central Pacific Ocean, in terms of the amount of catch and the number of fishing fleets in operation. The number of Taiwanese purse seiners reached a historical peak of 45 in 1992, maintained at 42 from 1995 to 2000, and reduced to 41 in August 2001 after one vessel was sold to a foreign company. The average annual production from this fishery during 1997-2001 was about 210 000 metric tons. In 1998, the production reached a historical high of about 260 000 metric tons; since then the production has been kept at a level of between 200 000 and 230 000 metric tons. The major fishing grounds are located in the EEZ of FFA member countries including Papua New Guinea, Federated States of Micronesia, Solomon Islands, Kiribati, and nearby high sea areas (WU, 2002; Wang *et al.*, 2002).

After 1998, the annual production of Taiwan deep-sea purse seine fishery remained around over 200 000 metric tons; however, production levels in 2000 and 2001 were over 230 000 metric tons (Figure 4). In terms of catch composition, skipjack and yellow-fin tuna accounted for about 98 percent of the total catch during 1997-2001 (Table 1) and big-eye tuna just accounted for a small portion. Because of price difference

TABLE 1

Proportions of the species of tuna caught from purse seine fishery during 1997-2001

Year	SKJ	YFT	BET	Others
1999	78.6%	20.5%	1.7%	0.0%
2000	82.7%	16.4%	0.8%	0.1%
2001	79.1%	19.9%	1.0%	0.1%

Notes: SKJ = skipjack; YFT= yellow-fin tuna; BET= big-eye tuna.

Source: Wu, 2002

between skipjack and big-eye tuna, with the price of big-eye tuna higher than the price of skipjack by about 30 to 50 US\$ per metric ton, buyers prefer to separate out the different species from the catch when trans-shipping.

Shark Fishery

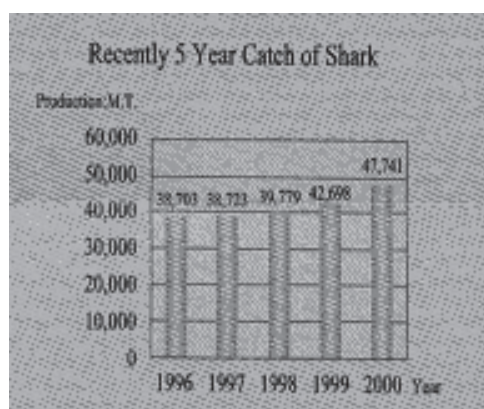
The development of the shark fishery in Taiwan has a long history. In the past five years, the annual catch of shark in Taiwan from the coastal, offshore, and deep-sea fisheries ranged between 30 to 50 thousand metric tons (Figure 5), accounting for about 7 percent of the global catch, and ranking as the fifth largest producer in the world following Indonesia, India, Pakistan, and Spain.

Most sharks are caught by fishing vessels under the membership of Kaohsiung, Tungkang, Suao, Shinkang and Keelung Fishermen 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 deep-sea fisheries, which constitute almost 80 percent of the total catches (Figure 6), are mainly caught by tuna longliners 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 longline, 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.

Offshore Fisheries

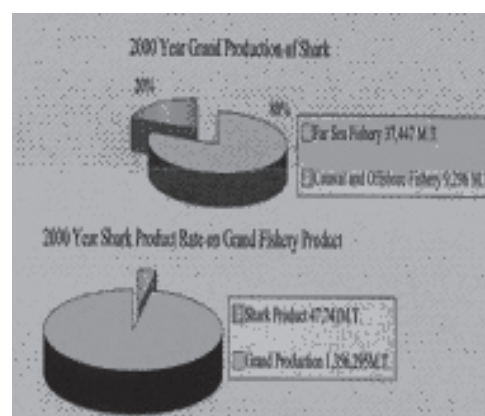
Offshore fisheries refer to those fishing activities performed within the exclusive economic zone extending from 12 to 200 miles from the baseline. Their production has been maintained at 150-250 thousand metric tons per annum in recent years. The major fishing methods include trawling, ring net fishing, mackerel purse seine fishing, gillnet fishing, longline fishing, light inductive fishing, etc. Their main fishing areas extend to the East China Sea, Taiwan Strait, South China Sea, Bashi Channel and the waters off the east coast of Taiwan. Due to the depletion of fisheries resources in the offshore waters in recent years, and coupling with the employment of larger vessels as well as the improvement of both fishing skill and fishing/navigation equipments, offshore tuna longliners tend to move to more distant fishing grounds.

FIGURE 5
Catches of sharks by Taiwanese fishing boats
(1996-2000)



Source: FA, 2003

FIGURE 6
Total catches of sharks coastal, offshore, and
far-sea fisheries in 2000



Source: FA, 2003

Coastal Fisheries

Coastal fisheries refer to those fishing activities operated within the 12-mile territorial seas of Taiwan. The production of these fisheries in recent years has been maintained at about 40 thousand metric tons per annum. The major fishing methods include the gillnet fishing, set-net fishing, beach seine fishing, fish fries catching, and other hook gear.

Coastal waters in Taiwan are generally overfished due to a great number of fishing crafts competing for the same resources in the same area. In addition, following the intensive industrialization along the coastal areas, pollution in the coastal seas further deteriorated the living resources. In order to promote sustainable development of coastal fisheries, the Taiwanese Government has in recent years established a number of fisheries resources conservation areas, artificial fish reef areas, and fisheries protection areas along the coastal seas (FA, 2003). Extensive releases of seeds of fish, crustacean and mollusc had been carried out to protect fishing grounds and to enhance the fish stocks. At the same time, the Government has also encouraged fishermen to diversify their fisheries operations by engaging in recreational fisheries, such as angling and whale watching tours.

Fishing Harbours

Fishing harbours are located along the coastal areas of almost all the counties (except the Hualien County) and cities in Taiwan (Figure 7). The numbers of fishing harbours (figures in brackets) in the counties and cities are listed in the following (FA, 2003): Keelung City (6); Taipei County (35); Taoyuan County (2); Hsinchu County (1); Hsinchu City (2); Miaoli County (12); Taichung County (6); Changhwa County (2); Yulin County (6); Penghu County (68); Chiayi County (9); Tainan County (6); Tainan City (2); Kaohsiung County (7); Kaohsiung City (11); Pingtung County (26); and Ilan County (10).

Recreational Fisheries

In Taiwan, recreational fisheries offer a wide range of recreations, including pond angling, touring of the sea bottom, and various types of sport fishing such as trolling and angling. In addition, such activities as tourist fishing trips involving operations of set-net and beach seine are becoming more popular. Spectacle programs on fisheries include those in exhibition halls and aquariums. A number of programs have been initiated by the Government and have resulted not only in increasing fishermen's income from direct sales of fish products, but also providing the public with an ideal place for leisure and relaxation.

MANAGEMENT ACTIVITIES

In Taiwan, the fisheries are managed in three-level systems. At the central government level, the Fisheries Administration (renamed the "Fisheries Agency" on April 14, 2003 under a fisheries act), the Council of Agriculture, and the Executive Yuan operate through four departments: Planning and Programming, Fisheries Regulation, Deep-sea Fisheries, and Aquaculture and Coastal Fisheries in working out policies of deep-sea fisheries and various fishery development programs. Secondly, the Fishermen's Association oversees, promotes, and educates fishermen. Thirdly, the Counseling Department under the Council of Agriculture is responsible for sales, financial affairs, and welfare of the fishery sector.

At the provincial and municipal level, the Fisheries Agency under Taiwan Provincial Department of Agriculture and Forestry initiates policies for fishery development and improves fishermen's life through six divisions to manage the operations of fisheries administration, fishing boats and fishermen, protection of fishery resources, fishery cooperation, improvement and promotion of fishing technologies, fishing harbor

constructions, public facilities, fishing production and marketing, planning, survey and statistics, assistance to fishermen associations and fish market supervision. Currently the government is further drawing up fishing port management organizations to regulate the Categories I and II Fishing ports.

At the county and city levels, the Fisheries Section under the Bureau of Agriculture or the Bureau of Construction is in charge of fisheries administrative and management affairs with duties primarily including administration of fisheries, the supervision of ports, fish production, and fisheries facilities, the counseling of the Fishermen's Association, and the support to fisheries and fishermen's welfare.

To meet the urgent needs in marine resources protection, the Taiwanese Government has since 1976 set up fisheries resources protection zones in various counties and cities, with a total of 25 Fisheries Resources Conservation Areas established as of 1995, covering 4 795 hectares of protected waters with marine resources, mainly small abalones, hard clams, lobsters, purple lever, agar agar, trochus, bamboo-blind clams, and sea urchins. Small abalone reefs, lobster reefs, and cross reefs were laid along with fish, shell, and shrimp fries. During the 1977-1995 period, more than NT\$1.3 billion was invested to build 66 artificial fish reefs to create more than 1.4 square million meters of artificial fishing grounds. Since 1983, copies of publicity brochures, signboards and publicity walls were produced to keep fishermen informed of the importance in fishery resource protection. To prevent netting fishing boats from fishing within three nautical miles off coasts, cross-shaped cement reefs have been laid into waters selected by the counties and cities since 1990. As of 1995, a total of 58 protection districts had been established.

To ease up heavy offshore fishing pressure, the government has helped retired obsolete fishing boats through purchases. As of 1994, the government had retired 2 226 outdated boats totaling 109 200 metric tons, including 313 FRP boats which were laid into artificial fishing reefs to culture new marine resources.

To safeguard coastal fishery resources and fishing order, the Fisheries Administration has built Fishery Construction No. 2 fishery patrol boats with the task to crackdown against illegal fishing. With the support of the Fisheries Administration, the "Joint Crackdown Task Forces Against Illegal Fishing" were set up in various counties and cities, with members including county/city governments, police authorities, fishermen's associations, and village governments. They take the fishery patrol boats of counties and cities for crackdowns in the seas on irregular basis. To encourage denouncements against illegal fishing, the Fisheries Administration began budgeting funds in 1988 as sources for crackdown incentive awards. During 1979-1995 periods, a total of 1 405 cases of illegal fishing were undertaken.

On the grounds of Article 17 of the Fishery Law (updated on February 1, 1991), the planning of fishery rights of public waters began, including sound management, reasonable utilization, and cultivation of fishery resources. The Taiwan Fisheries Bureau (now amalgamated into the Fisheries Administration) has teamed up with the relevant county and city governments to commission academic organizations to conduct fishery rights planning for all waters around Taiwan, using the subsidy provided by the Council of Agriculture in 1992. Planning of fishing rights in public



waters was completed and promulgated in 1993 for application. As of June 30, 1996, the Fisheries Administration had issued a total of 40 licenses to safeguard fishermen's interests.

COSTS AND REVENUES OF FISHERIES MANAGEMENT

No information on the costs and revenues of fisheries management is available.

IMPLEMENTATION OF GLOBAL FISHERIES MANDATES AND INITIATIVES

Taiwan has ratified both the Law of the Sea Convention (UNCLOS) and the UN Fish Stocks Agreement (UNFSA), but is not a party to the Compliance Agreement.

Taiwan has also implemented some of the UNCLOS requirements through provisions in the law (FA, 2003):

- The coastal State shall determine the allowable catch of the living resources in its exclusive economic zone;
- Available scientific information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks shall be contributed and exchanged on a regular basis through competent international organizations;
- Where the coastal State does not have the capacity to harvest the entire allowable catch, it shall give other States access to the surplus of the allowable catch; and
- Where the same stock or stocks of associated species occur within the exclusive economic zones of two or more coastal States, these States shall seek, either directly or through appropriate sub-regional or regional organizations, to agree upon the measures necessary to co-ordinate and ensure the conservation and development of such stocks.

Taiwan has recently taken specific steps to implement the recently adopted International Plans of Action relating to capacity management, IUU fishing, shark management, and seabird by-catch in longline fisheries (FA, 2003).

PARTICIPATION IN REGIONAL FISHERY BODIES

Taiwan has participated as a member to the following international and regional fishery bodies:

- ICCAT (International Commission for the Conservation of Atlantic Tunas);
- IOTC (Indian Ocean Tuna Commission);
- IATTC (Inter-American Tropical Tuna Commission);
- ISC (Interim Scientific Committee for Tunas and Tunas-like Species in the North Pacific Ocean);
- CCSBT (Commission for the Conservation of Southern Bluefin Tuna); and
- APEC (Asia Pacific Economic Cooperation).

SUMMARY AND CONCLUSIONS

Taiwan is an island surrounded by seas and oceans with a highly developed fishery industry. Taiwan's fishing grounds extend to three oceans, including areas for fish farming that cover an area of more than 60 000 hectares. Currently, deep-sea fishing accounts for over half of Taiwan's total fishery production volume. Major fishery industries include tuna longline, squid-jigging, purse-seine, and trawl fishing.

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Costs and Funding Sources of Fisheries Management within the three largest fisheries

Category of Fishery	Fishery	Do Management Funding Outlays Cover			Are Management Funding Sources From		
		R&D	Monitoring & Enforcement	Daily Management	License fees in fishery	License fees from other fisheries	Resource rents
Industrial	1: Tuna Longline	Yes	Yes	Yes	Yes	No	No
	2: Purse Seine for Tuna	Yes	Yes	Yes	Yes	No	No
	3: Squid Jigging	Yes	Yes	Yes	Yes	No	No
Artisanal	1	unknown	unknown	unknown	unknown	unknown	unknown
	2	unknown	unknown	unknown	unknown	unknown	unknown
	3	unknown	unknown	unknown	unknown	unknown	unknown
Recreational	1	unknown	unknown	unknown	unknown	unknown	unknown
	2	unknown	unknown	unknown	unknown	unknown	unknown
	3	unknown	unknown	unknown	unknown	unknown	unknown

Compliance and Enforcement within the three largest fisheries

Category of Fishery	Fishery	VMS	On-board observers	Random dockside inspections	Routine inspections at landing sites	At-sea boarding and inspections	Other (please specify)
Industrial	1: Tuna Longline	Yes	Yes	Yes		Yes	Aerial
	2: Purse Seine for Tuna	Yes	Yes	Yes		Yes	Aerial
	3: Squid Jigging	Yes	Yes	Yes		Yes	Aerial
Artisanal	1	unknown	unknown	unknown	unknown	unknown	unknown
	2	unknown	unknown	unknown	unknown	unknown	unknown
	3	unknown	unknown	unknown	unknown	unknown	unknown
Recreational	1	unknown	unknown	unknown	unknown	unknown	unknown
	2	unknown	unknown	unknown	unknown	unknown	unknown
	3	unknown	unknown	unknown	unknown	unknown	unknown

Capacity Management within the three largest fisheries

Category of Fishery	Fishery	Does overfishing exist?	Is fleet capacity measured?	Is CPUE increasing, constant or decreasing?	Have capacity reduction programmes been used?	If used, please specify objectives of capacity reduction programme
Industrial	1: Tuna Longline	No	No	unknown	Yes	---
	2: Purse Seine for Tuna	No	No	unknown	Yes	---
	3: Squid Jigging	No	No	unknown	Yes	---
Artisanal	1	Yes	No	unknown	No	---
	2	Yes	No	unknown	No	---
	3	Yes	No	unknown	No	---
Recreational	1	No	No	unknown	No	---
	2	No	No	unknown	No	---
	3	No	No	unknown	No-	---