An Overview of Fiji Fisheries

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Abstract

This paper presents an overview of fisheries in Fiji by analyzing the importance of the sector to its people and the economy of Fiji. Fisheries are one of the main sources of livelihood for most Pacific Island countries. Small island states are indeed fully dependent on their fisheries resources for survival. In this paper the analysis is based on offshore and inshore fisheries as well as considering aquaculture production. The fisheries sector contributes to the economy through exports, employment, revenue and also provides important recreational and social benefits. There has been a slow increase in fishery production over the years in Fiji while utilization and management present new challenges for the future.

Key words: Fiji fisheries, offshore fisheries, inshore fisheries, aquaculture, and subsistence fisheries

1. Introduction

Fiji is composed of three hundred and thirty three islands with an economic exclusive zone of 18,376 km^2. The fisheries sector contributes revenue, employment, food and source of livelihood for many people in Fiji. It contributes 3 % to the economy GDP and employs over 9,100 people and is classified as the third largest primary sector[7)]. It is a vital primary sector and is very important to many people as it generates employment opportunities, supplements diet and is closely linked to the tourism industry. There are many small outer islands such as the Lau group, Lomaiviti group and Yasawa group that heavily rely on fisheries resources for food and income. The Fisheries Department is the management authority responsible for management and administration of all aspects of fisheries in Fiji. This paper discusses the role of the fisheries department in fisheries management and development and provides an overview of the various categories of fisheries: offshore fisheries, inshore fisheries and aquaculture fisheries.

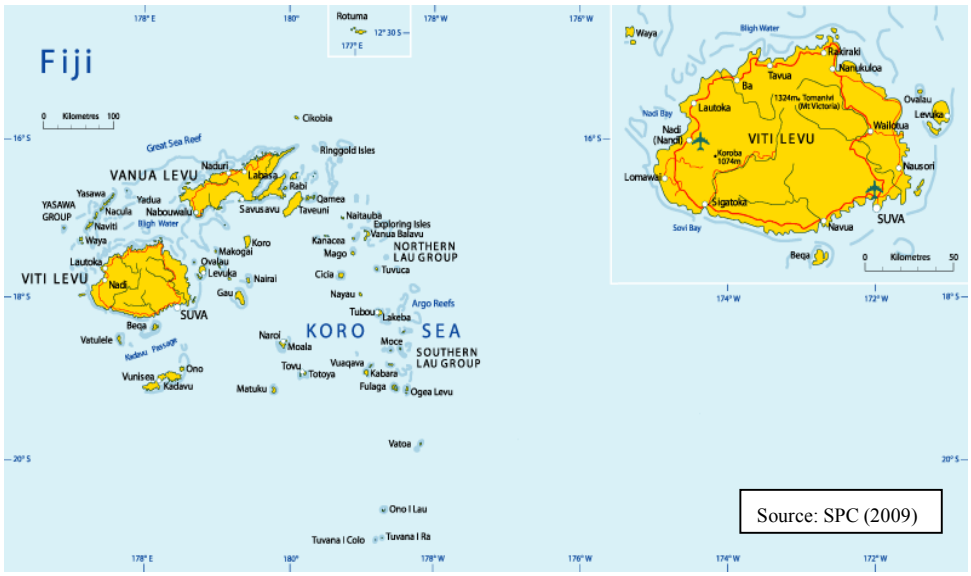

Fig 1: A map of Fiji Islands

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2. The Fisheries Department

The Fisheries Department is the lead agency responsible for the management of the country's marine resources. Its vision is "to have fisheries become and continue as one of the leading sectors in Fiji's socio-economic development and generate economic growth and ensure that resources owners are equitably remunerated"[3]. The Department has an advisory role to the customary rights' holders and institutes legislative and enforcement measures to ensure commercial viability. It also approves licenses for fishing and administers permits to other fishermen. The economic exclusive zones and the territorial sea are a responsibility of the Department for monitoring, evaluation and proper utilization of tuna resources.

Fiji fisheries can be analyzed into different categories as shown in Table 1. Production is further divided into two major groups, which are offshore and inshore fisheries. The economic role of the sector can be seen in terms of its contribution to GDP, government revenue, exports, fish supply, food security and employment.

Employment generated by the Fisheries Sector is estimated to contribute 3.8 % to the overall employment in Fiji (Tables 2 shows estimated employment in the various fisheries related activities).

Table 1. Fisheries Production in Fiji for 2007

	Coastal Commercial	**Coastal Subsistence**	**Offshore Locally-Based**	**Offshore Foreign Based**	**Freshwater**	**Aquaculture**	
						Tonnes	**Pieces**
Volume of Production (metric tonnes/pieces)	9,500 t	17,400 t	13,744 t	492 t	4,146 t	247	48,100
Value of Production (USD)	33,750,000	33,812,500	29,293,750	527,500	4,287,500	1,749,375	

Source: Gillett (2009)[5]

Table 2. Estimate of Fisheries Employment

Category	**People employed**
Offshore fishery	510
Inshore artisanal	2 137
Subsistence	3 000
Ornamental aquarium	650
Aquaculture	550
Game and Charter fishing	60
Tuna Cannery	800
Other fish processors	639
Input suppliers	185
Fish Markets	340
Department of Fisheries	243
Slipways/ports	30
Total	**9,144**

Source: ADB (2005)[1]

Table 3 shows the number of local people employed in the Tuna industry in the offshore fisheries on vessels or processing plants. This accounts for the highest employment numbers in the fisheries sector.

A slow increase in exports is seen over the years, contributed largely by exports of tuna rather than other marine species (Table 4). This increase in catch of tuna has been mostly to supply the sashimi market in Japan[7]. Fish and fisheries products in 2007 were estimated to have contributed to 9.1% of all exports. Besides, exports and employment, it is also an important source of food where fish protein consumption is high in comparison to the world average. Fisheries are also an important source of protein because it is the most reliable in times of natural disasters compared to other sources of protein that are imported.

Table 3. Employment in Fiji Tuna Industry

Year	**2002**	**2006**	**2008**
Local Jobs on Vessels	893	330	150
Local Jobs in Shore Facilities	1,496	2,200	1,250
Total	**2,389**	**2,530**	**1,400**

Source: Gillet, R. (2008)[5].

Table 4. Fishery Export of Fiji, 2004-2007

Year	**Value of Fishery Exports (USD millions)**	**Value all Fiji Exports (USD millions)**	**Fishery Export as % of Total Export**
2004	49.1	696.2	7.1%
2005	50.9	705.5	7.2%
2006	56.9	694.2	8.2%
2007	63.3	518.0	12.2%

Source: Reserve Bank, Fiji[8].

3. Offshore Fisheries Resources:

The Offshore fishery is known to be the main source of revenue for the fishery industry. The main commercial target species are albacore (*Thunnus alalunga)*, skipjack (*Katsuwonus pelamis)*, yellowfin (*Thunnus albacores)* and big eye (*Thunnus obesus*) (Table 5). There are also other species caught as by-catch in Fiji waters such as sailfish, mahimahi, opah, sharks, dolphin fish, wahoo and barracuda. The Offshore industry targets markets in Japan, USA, China, Australia, New Zealand, and the European Union.

Table 5. Total Fish Catch (metric tonnes) by the Locally-Based Offshore Fleet in Fiji

Year	Albacore	Bigeye	Yellowfin	Total Tuna	Bycatch
2003	6,881	889	2,482	10,252	2,062
2004	11,290	1,254	4,164	16,708	5,579
2005	8,901	423	1,989	11,313	4,182
2006	11,802	771	2,231	14,804	5,903
2007	9,395	839	2,852	13,086	2,995

Source: Ministry of Fisheries[4]

Albacore is the main target species of tuna followed by yellow fin and bigeye. Longline fishing gear is the main method for catching tuna and the number of days at sea is usually within fifteen days. The main landing site

for offshore fisheries is in the capital of Fiji, Suva. There is also a cannery in Levuka, which is located in the island of Ovalau. The vessels are either foreign owned distant water vessels, locally based foreign vessels or locally owned vessels that operate longline fishing.

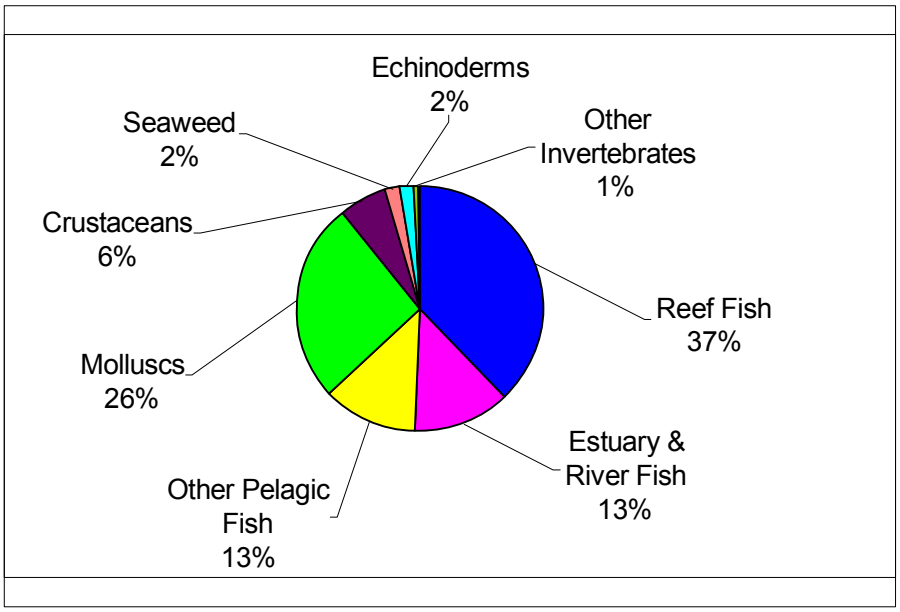
4. Inshore Fisheries Industry

The Inshore fisheries are vital to the economy of Fiji as it is also a source of income for many local communities (Figure 2). Domestic fish catch landings and invertebrates recorded in 2005 were 5,994 tonnes and were estimated to have a value of FJ$27 million. Fin fish is mostly supplied to the local markets while products such as ornamental aquarium products and sea cucumber are exported to overseas markets. Targeted species include *Lethrinidae, Serranidae, Carangidae, Lutjanidae, Mugilidae, Scrombidae*, *Scaridae* and *Sphyraenidae* . There are also invertebrates that are fished intensively, such as sea cucumbers, crabs, bivalves mollusks, prawns, lobsters and octopus. These are mainly collected by women and children.

The fisheries products are sold in main urban centers such as Suva, Lautoka and Labasa. These are sold to the local markets, shops, tourists and other non-municipal markets. Sea Cucumber, trochus, seashells and live-reef fish are exported to the Asian markets. Ornamental aquarium fish and trochus shells are exported to the USA.

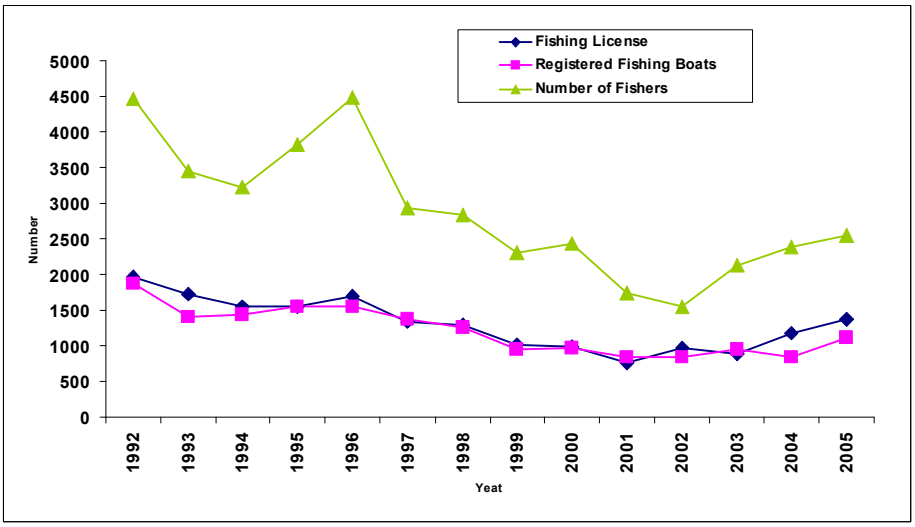
Another category of fishery that exists is the informal village based subsistence fishery, which is largely carried out by women and children. The value of this fishery is generally under-estimated because of its informal nature but this fishery contributes to the rural food and nutritional security. Traditional fisheries exist in fishing villages in subsistence fisheries, and new innovations and fishing gears have resulted in the faster depletion of valuable resources.

The artisanal fishery is compromised of 2,250 fishermen with 114 boats registered during while there were 1,372 licenses issued to fishermen.



Source: Ministry of Fisheries[3)]

Fig. 2 Percentage distribution of catch landings of inshore species



Source: Ministry of Fisheries[3)]

Fig. 3. Fishing effort since 1992

5. Subsistence Fisheries

Subsistence fisheries are common in the outer islands and rural Fiji. There are more than 800 villages in Fiji, which have customary fishing rights known as the "*iqoliqoli*". The Department of fisheries estimated that around 19,000 tonnes of fish and fisheries products were consumed in 2004 under this category. It is seen that the department conducts little monitoring and presents little data on the amount of consumption.

6. Aquaculture

The primary policy of aquaculture in Fiji is to ensure sustainable development and management of aquaculture resources. Aquaculture in Fiji has developed through the years with many species cultured in marine, brakishwater and freshwater. The cultured species include tilapia, carps, freshwater prawns, saltwater shrimp, seaweed, clams, giant clams, pearl oysters, mud crabs, corals, and turtles. In the fresh water aquaculture, three main species are cultured: tilapia (*Oreochromisniloticus sp.*), freshwater prawn (*Macrobrachium sp.*) and carps (silver, grass and bighead). There is also the breeding of ornamental fish such as goldfish and carp. In the brackish-water aquaculture the main target is the shrimp *Peneaus monodon* and production of crabs also exists.

Table 6.Aquaculture Production, 2003

Category	**Amount** (kilogram /pieces)	**Value** (FJD)
Brackishwater shrimp	850 kg	25,380
Tilapia	393,000 kg	1,572,000
Carps	160 kg	626
Prawns	6,000 kg	108,000
Ornamental Carps	17,000pcs	68,000
Gold Fish	10,420pcs	41,680
Black Pearls	1,000 pcs	50,000
Seaweed	24,000 kg	24,000
Total	**424 mt /28,420 pcs**	**F$1,889,686**

Source: Department of Fisheries[2)]

7. Fisheries Management

7.1 Offshore Fisheries Management

The management of the Offshore fisheries is based under the Fisheries Act, Marine Space Act and the Tuna Development and Management guidelines. The provision of licenses is one of the main management strategies and a form of revenue for the fisheries department. Table 7 shows the Offshore Fisheries Fleet Structure, and a total of 78 licenses were issued for domestic fleets and 2 were issued under the Fiji/ Japan Bilateral Agreement Fleet.

Table 7. Offshore Fisheries Fleet Structure, 2005

Domestic Fleet				FJ/JP Bilateral Agreement Fleet		
Tuna Long Line	Hand line(Snapper)	Pole and Line	TOTAL	Pole and Line	Purse Seine	TOTAL
72	5	1	78	1	1	2

Source: Ministry of Fisheries[3)]

7.2 Inshore Fisheries Management

In the Inshore fishery, there is a permit system in which approval is sought from the customary right owners before applying for a license by the Fisheries Department. The management of such regulations and granting of licenses are not well documented and enforcement may not be so effective. This may be due to the dual rights system where communities and the Fisheries Department may lack communication. The department has an advisory role to the 410 customary areas resource users. Under the Fisheries Act, the Minister of Fisheries and Forestry can make decisions on any input or output controls. The management practices are through the issuing of license, restrictions on exports, usage of proper fishing gears, banning of extracting certain species, restrictions on destructive fishing and area restrictions. There are no clear objectives on the management of aquaculture as the government is primarily focusing on developing and initiating production for revenue and livelihoods in the rural communities.

8.Fisheries Development

The Fisheries Department's desire to secure more benefits from exploiting the resources for the economy and for the people's livelihoods. There are many opportunities and also constrains in fisheries in exploiting resources, accessibility, marketing, competitions, development of aquaculture and fisheries management. There are opportunities such as the exploitation of the offshore fisheries, expansion of the ornamental aquarium animal trade, better linkages with tourist industry and value adding. The cooperation between the private sectors and the government is important for effective operation. There is also foreign aid received from the results of bilateral relations with Japan, New Zealand, Australia, the United Kingdom, and the European Union. There is also much collaborative research conducted on fisheries and education about fisheries, which is undertaken in Universities and Institutions.

9.Future Challenges

There are future challenges such as tuna fishery under pressure for management by WCPFC (Western and Central Pacific Fisheries Commission). The consolidation of PNA (Parties to the Nauru Agreement) means less tuna for the Southern region under longline fishing gear. Other challenges are the need to formalize the

customary fishing rights or *"qoliqoli",* but the tourism sector is reluctant because of fear of huge investments. Other important problems could be the overexploitation of resources, effect of climate changes on the resources with the variability in sea levels, temperature, natural disasters and habitat destruction. This future challenges have to be taken into consideration and the management of resources in Fiji fisheries are important.

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