

## Fisheries Resources Use and Issues in the Republic of Maldives

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**Abstract:** The Republic of Maldives is an island country composed by atolls in the Indian Ocean. From times immemorial, the islands' population have been strongly depending on marine resources, as far as food culture, nutrition supply and economic impact are concerned. However, catch amounts of skipjack tuna, which is the most important fisheries resource in Maldives, have decreased drastically in recent years. On the other hand, an increasing fishing pressure on the reef fishes by coastal fisheries is linked to an increasing demand of supplies from the resorts hotels and for export. Relevant governmental organizations and donors have begun exerting efforts to tackle those issues and ensure sustainable fisheries resources use.

**Key words:** Maldives fisheries, Marine resources, Sustainable resources use, Master plan development, Fisheries management.

### Introduction:

The Republic of Maldives, located south of India in the Indian Ocean, is composed of 1,190 islands within atolls; it stretches from north to south over 823km. The population is approximately 400,000. Facing extreme limitations in terms of available resources on land area, Maldivians have been highly



dependent on the marine resources throughout their long history. Especially Skipjack tuna (*Katsuwonus pelamis*) is crucial in terms of food culture and nutrition. Moreover, the species is important as raw material to produce “Hikimas”<sup>2</sup>, the essential exporting commodity to Sri-Lanka as well as local consumption since ancient times. A large

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<sup>2</sup> Boiled and dried skipjack tuna. It is a processed item quite similar to the Japanese “Katsuo-bushi”.

number of fishermen are engaged in Skipjack tuna fishing, which represents the most important marine resource for Maldivians. Furthermore, the Yellowfin tuna fishery, mainly targeting the European market, has been growing since the 2000s. Hand-line fishing with traditional structural fishing vessel is used, rather than the modern long-line method. As a consequence, this fishery has become the second largest in terms of total catches in recent years.

Conversely, fisheries resources other than tuna have remained little developed for a long time. The reef fishery in shallow reef waters is being increasingly exploited as a respond to the needs of the tourism sector. In addition, Grouper and Sea-cucumber fisheries, aiming at the Chinese market, have also been developed over the last two decades.

### **Present situation of fisheries resources use:**

As shown above, Skipjack tuna is the most important fisheries resource in Maldives. From the 1970s onward, the modernization of the Maldives fisheries sector started on a step-by-step basis, with support by Japanese technical assistance and investments. Subsequently, the annual catch of the Skipjack tuna fishery reached a peak in 2006 and then fell down rapidly, to half of the maximum level<sup>i</sup>. It is thought that the reason for this is a decrease in the stock level of Skipjack tuna's resource in the whole Indian Ocean<sup>ii</sup>.



To operate Skipjack tuna fishing, Sprats (*Spratelloides* spp.) are indispensable resources as live-bait. Before moving to the fishing ground of skipjack tuna in the ocean side, the fishing boat has to catch live Sprats inside the reef (lagoon), using light to

aggregate fish and a fine net to stock the bait into the in-board tank. However, the survival rate of the sprats is currently not high, and the remaining bait may be insufficient, in particular if the vessel merely prospects for a couple of days without encountering any skipjack tuna school<sup>iii</sup>. In other words, it is said to be “wasting resources use”.

Regarding the Yellowfin tuna fishery, while the number of boats is increasing as an alternative to Skipjack tuna fishing, the prices of yellowfin tuna is not increasing,

probably due to insufficient on-board handling techniques and cooling methods, which cause subsequent low fish quality<sup>iv</sup>.

Conversely, Maldives has developed as an “international resort islands” by making full use of its wonderful marine environment. The number of resorts across of the country is over a hundred, and the total number of tourists reached 1.2 million in 2015<sup>v</sup>. Of course sea food is an essential treat for foreign tourists, in particular reef fish such as snapper and trevally. According to the result of a rapid interview survey in North Malé Atoll, annual catch of reef fishes for the consumption of resorts was estimated to be approximately 7,200 tons (whole fish conversion) that is a number which we cannot ignore. Unfortunately, statistical survey method on reef fish catches, in order to monitor the catch trend by each species, has not been developed yet, though it would be a minimum requirement for monitoring and resource management.

The live grouper and sea-cucumber fisheries targeting the Chinese market started in the mid-80s / early 90s, and has become one of the mainstream export fisheries at present. Although some management efforts are done by the Government, their overfishing is feared, as the fishing pressure is continually high  
vi,vii.



### **The issues to be solved for sustainable resources use:**

As mentioned in the previous section, some issues to achieve sustainable resources use are clearly identified in the present fisheries sector of Maldives and need to be solved.

**1. Skipjack tuna fishery:** The problem of fish catch decrease is that it reduces earning opportunities, and may possibly be a direct cause for food-culture crisis. Moreover, it will elaborate live-bait resource decrease due to overfishing, this could lead to a further decline of the Skipjack tuna fishery.

**2. Yellowfin tuna fishery:** Even though this fishery has played an active role as an alternative to Skipjack tuna fishery, the prices of Yellowfin are still low compared with the expected prices based on the international market. For this reason, fishermen shall keep on increasing their fishing effort, even though the Indian Ocean Tuna Commission (IOTC) has urged member countries to reduce by 20% the total catch of yellowfin tuna in the Indian Ocean to address its overfishing<sup>viii</sup>.

**3. Reef fishery:** Although the total catch of reef fish resources is expected to increase rapidly in recent years, the situation of this resource use is not properly assessed; there is no information on whether the resources are overfished or not.

**4. Income generation in rural islands:** In addition to the above, developing income sources for local communities and fishers in isolated islands face several issues. Traditionally processed products of skipjack tuna have maintained a healthy food culture, however as of late, a large number of factories of small-scale home manufacturing in remote islands have closed down due to low market prices. Alternately, “low cost and low quality” products are supplied by middle-scale facilities that process fish under insanitary conditions.



There is most probably huge potential of untapped deep sea resources in the Maldivian waters. To reduce the fishing pressure on the reef fishing grounds and to diversify income sources from fisheries, their development for the future should be considered. Likewise, development and spreading of aquaculture techniques are expected in the near future.

To address those issues, the Ministry of Fisheries and Agriculture (MoFA) and the Environment Protection Agency (EPA) of the Government have conducted various resource management projects and marine environmental conservation projects, supported by donor organizations such as UNDP, World Bank, IFAD, IUCN, JICA etc.. It involves many types of activities, e.g. climate change mitigation measures, conservation of mangrove areas (UNDP), aquaculture development (IFAD), the development of master plan for sustainable resources use (JICA).

#### **The case of JICA's project:**

The “Project for the Formulation of Master Plan for Sustainable Fisheries (MASPLAN)” is one of JICA's technical cooperation projects. MASPLAN has been implemented in collaboration with MoFA since 2014, for a 3years period. The purpose of this project is to design the Master Plan of Fisheries Development to achieve sustainable fisheries resources use, with necessary technical developments and experimentation. The project has been following the “Sub-sector approach”, with 4 sub-groups, i.e., a. Oceanic fisheries, b. Reef fisheries, c. Aquaculture, and d. Post-harvest/Value-addition; each

sub-group in the respective working-group, thoroughly discussed, problem analysis, identification of the “issues to be solved” and planning of pilot-projects. The selected 6 pilot-projects are as follows:

1. Technical development for improvement of live-bait survival rate in the Skipjack tuna fishery
2. Technical development for improvement of fish quality for the Yellowfin tuna fishery
3. Feasibility study for the development of untapped deep-sea resources
4. Development of reef fishery catch data collecting system, in collaboration with resorts
5. Feasibility study for aquaculture development of grouper and sea-cucumber
6. Technical development for quality improvement of traditional processed fish

The Master Plan which is in preparation will contain various individual projects suggested from the logical-frameworks and the road-maps based on the results of the above pilot-projects.

### **Suggestion for the future:**

In conclusion, the path to achieve sustainable fisheries resources use is “enforcing effective fisheries management measures”. The projects mentioned above are one of the “tools” for fisheries management. In the case of Japan’s coastal fisheries, the fisheries sector is playing “the main role” for coastal management and conservation, as a result from its own



efforts in dealing with fisheries management<sup>ix</sup>. As a matter-of-factness, the sector has a broad knowledge on marine environment, gained from the long-term experiences of production from the sea. The success of the management will also retrieve positive impact to huge number of stakeholders who are taking benefits from marine resources and environment as well as fishers and coastal communities. It is likely that, in the Maldives fishers and coastal communities may be involved in the coastal management and conservation, like in Japan’s case. To achieve sustainable resource use and coastal environmental conservation, there is a significant need to introduce effective fisheries

management measures continuously.

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