

Ministry Paper 70/2015

Capture Fishery Development Initiatives

1.0 Purpose

The matter for Tabling is an update on Capture Fishery Development Initiatives being undertaken by the Ministry of Agriculture and Fisheries.

2.0 Background

Jamaica has one of the highest levels of fish consumption per capita in the Americas (15.73 kilograms per year in 2013). The country is, however, highly dependent on imports. In 2012 total fish and fishery product imports was valued at US\$ 109,849,367 which accounted for 11.58% of the total food import bill in 2012. Fish is the second most important contributor to animal-origin protein intake in Jamaica. It is only second to poultry meat. This demand situation contrasts significantly with local fishery production. Local fishery production amounted to an average of some 12 000 tonnes in recent years with capture fisheries currently accounting for 93.8% of landings. The remaining 6.1% is accounted for by aquaculture production.

In 2013, total exports were valued at US\$9.71 million, an increase from US\$8.93 million in 2012. Fisheries contributed 4.35 percent Gross Domestic Product (GDP) in 2013 for the Agriculture sector. The fisheries sector contributed 0.29 percent to Jamaica's Gross Domestic Product (GDP) in 2013.

3.0 Current Situation

Severe over-exploitation has resulted in reduced catches and a shift to lower quality species in Jamaica. Therefore the need for species diversification is urgent. Sea cucumbers, oysters, glass eels and pelagic species are among the several un-utilized and under-utilized species that are believed to have potential for development.

Given the existing illegal exploitation of sea cucumbers, which is currently unmonitored and uncontrolled, the stock may be threatened by heightened interest in its value and potentially high

earnings. If this continues unregulated, it will very likely result in its over-exploitation, with adverse consequences for the environment and coastal community livelihoods.

Oyster culture in Jamaica has great potential. This, however, requires a strong promotion and marketing component in order to make it established in the Jamaican market. This was never properly developed and therefore, there is need for a strong promotional campaign for the Jamaican oyster and a consistent market supply of a properly packaged product.

There has been a growing concern from commercial interest for advancements in the exploitation of glass eels. Being a new unfamiliar fishery it is recommended that a precautionary approach be applied to the fishing of glass eels and an investigation be conducted into the site specific catch rates and the economic impact of this fishery.

There are no stock abundance estimates for any large pelagic species in the vicinity of Jamaica. The best sources of information on abundance of pelagic fishes in the waters of Jamaica relative to other areas of the Caribbean are the UNDP/FAO CFDP surveys, and the commercial fishery data from the International Commission for Conservation of Atlantic Tunas (ICCAT). Many variables which would contribute to the successful expansion of fishing for large pelagics in Jamaica cannot be accurately evaluated at this time, e.g. catch rates, attitude and aptitude of fishers, and market response to pelagic fishes. Therefore, the most appropriate approach will be to implement and evaluate pilot projects.

4.0 Challenges to Capture Fisheries

Jamaica's fisheries sector has experienced severe overfishing, loss of habitats and biodiversity, increased costs of production and illegal practices. Depleted fish stocks have affected the local capture fisheries industry for many years, particularly in relation to near-shore or reef fisheries.

5.0 Initiatives to Diversify Capture Fisheries

5.1 *Development of a Fishery for the American Eel (Anguilla rostrata)*

The American Eel (*Anguilla rostrata*), a catadromous (migrate from freshwater to spawn) fish, with a life cycle that may last up to 25 years and is peculiar due to the scale of its migration as well as the physiological and morphological changes it undergoes during this time. The species range extends across freshwater and brackish areas along the coast from Greenland in the north to Brazil in the south.

Globally investors have been fishing eels for more than a decade as it is a prime delicacy on the Asian tables. While this has led to a drastic decline in the popular American eel species (*Anguilla rostrata*), the demand for glass eel, the juvenile stage of the American eel has grown immensely. “The annual harvest of American eels, although declining, has a value in the order of US\$5 million” (ASMFC 2000). The price for glass eel ranges between US\$300 - \$400 per pound.

Recently Jamaica has seen increased commercial interest particularly in the glass eels due to: among other things, (i) the “depleted” stock status of traditional North America fishing areas (ii) depletion and displacement of similar species (*A. japonica*) in Asia due to overfishing and the 2011 tsunami, (iii) the 2010 European moratorium on the exporting of eels, and (iv) the continued high market demand and price (approxUS\$2,000/lb) on the Asian market.

The status of the American eel in Jamaican waters is largely unknown as information on stock abundance, migration patterns, habitat quality, and ecological carrying capacity are lacking and thus hampers the development of a fishery for the species from a management standpoint. There is, therefore, the need to conduct thorough scientific research to fill the knowledge gaps where the species is concerned and facilitate the sustainable fisheries development and responsible management of the resource.

The MOAF has partnered with a local fisher entrepreneur, to undertake initial fishery exploration and research to address some of the knowledge gaps. In 2013, a research license was granted to

one commercial organization to assess the distribution and harvest level around the island. The researchers have indicated an interest in continuing this research exercise.

5.2 *Development of a Fishery for Sea Cucumbers (Holothuridae and Stichipodidae)*

Sea cucumbers are echinoderms and are mainly from the families Holothuroidae and Stichipodidae. They are also related to sea urchins, starfish and sand dollars. Sea cucumbers play an important role in marine ecosystems. As deposit feeders they consume dead organic matter and algae within sediment on the sea floor and on reefs for those species which prefer that habitat. They support fisheries that provide a source of employment and income for coastal communities in other parts of the world.

Sea cucumbers are a highly sought-after species in South-east Asia, particularly in China, where there is high demand for *beche-de-mer* or *trepan* which is dried sea cucumber used for food, medicine, as well as other products. Certain species, namely the Japanese sea cucumber can sell for more than US\$300 per kilogram (dried) at retail markets once they are in a presentable state. Due to high prices and demand, sea cucumber stocks have been overfished in many countries as a result of inadequate fisheries management and uncontrolled exploitation. This presents both great opportunity and risk to fisheries including Jamaica which can earn much needed foreign exchange from the export of the product but could also risk overfishing the species leading to ecological and fishery collapse. It is with this in mind that an ecosystem approach to fisheries should be applied in managing the stock firstly through a thorough field survey as is being proposed.

Regulations were promulgated recently enforcing a close season on sea cucumbers and all species of the families Holothuridae and Stichipodidae as a precautionary measure to curtail any fishing of the species until a structured management regime could be developed. The development of such a regime is at present hampered by the fact that there is very little information on the species' stock status in Jamaican waters.

5.2.1 The Food and Agriculture Organization (FAO) Project

The Food and Agriculture Organization has approved a US\$289,000 project to build capacity in resource assessment of the Jamaican sea cucumber fishery and determine the potential for aquaculture development. Discussions about this project emerged in late 2014. The project will have three major outputs:

- i. Stock assessment of the holothurian population
- ii. Management plan for the holothurian fishery
- iii. Assessment of the potential for sea cucumber aquaculture

The expected impact of the project is improved income generation and livelihood of fishers and fish workers through the diversification of fisheries and sustainable management of the sea cucumber resources. The project will also increase the capacity of the stakeholders in the fisheries sector to sustainably manage and exploit the sea cucumber fishery resources.

5.2.2 Fisheries Management and Development Fund (FMDF) Project

The Fisheries Management and Development Fund approved a US\$68,985 project to conduct a preliminary assessment of sea cucumbers on Offshore Pedro Bank in early 2014. For this proposed study, the Pedro Bank will be the focus as it is Jamaica's largest and most important fishing ground and anecdotally has been reported to have the highest quantities of sea cucumbers. The objectives of this survey are to:

- i. Assess the present stock of sea cucumbers with a view to estimating the population densities and abundance.
- ii. Determine baseline information on the ecology and biology of the sea cucumber stock on the bank.
- iii. Recommend regulatory measures and management actions.

This project will be beneficial to the development and conservation of fisheries by:

- The development of a new fishery in Jamaica.

- Providing information on the population and associated habitat of the species.
- Enabling the sustainable management of the fishery.
- Providing job, income and revenue generation for both small and large scale fishers, processors, exporters, and the country on a whole.
- The possible imposition of an export levy on all sea cucumber products which will assist the Fisheries Management and Development Fund (FMDF) to achieve its mandate to fund other relevant fisheries projects.

It hoped that this study will provide both detailed and preliminary results that will allow for the sustainable management of the species in Jamaica.

5.3 Development of Oyster (*Crassostrearhizophorae*) Production

During the 1970s the Ministry of Agriculture – Fisheries Division operated an oyster-culture project in Bowden Bay, St. Thomas. This project successfully developed the technique of culturing oysters, *Crassostrearhizophorae* in Jamaica. As a result several oyster culture sites were established in Jamaica especially the areas of Port Antonio (Portland), Bowden (St. Thomas), Belmont in Westmoreland and Green Island in Hanover. The sites were fairly productive and showed that the technology could be developed and perform satisfactorily in Jamaica.

In the 1980's a market survey was implemented and this revealed that there was the potential to market oysters in Jamaica. It indicated that the oyster could be marketed on the half-shell as well as the project should move towards the development of value added products e.g. the oyster punch and marketing of the shucked meat.

Although the major market that exists for oysters is the half shell market, the Fisheries Division has done additional work in terms of the value added component of oysters. This includes the development of a shelf stable oyster punch product, preparation of oyster recipes using oyster meats. It is hoped that these additional products will have the potential of widening and diversifying the market base for oyster products.

5.4 Development of Pelagic Species

In Jamaica large pelagic fishes are currently caught by artisanal fishers trolling near the island shelf and banks, often incidental to demersal fishing, and by recreational and charter fishers. There are several tournaments targeting blue marlin. There is no large or medium scale commercial fishing based in Jamaica, but data from the International Commission for Conservation of Atlantic Tunas (ICCAT) suggest that foreign vessels fish in Jamaica's Exclusive Economic Zone (EEZ).

Many of the stocks are shared with neighbouring countries, and several extend throughout the Atlantic Ocean; some are known to be migratory. Thus, cooperative assessment and management will be required for many species. For these stocks, potential yield will be a share of the total yield for the stock.

A qualitative evaluation of the potential for expansion of fishing on large pelagics resources was inferred from a variety of sources, such as: the UNDP/FAO Caribbean Fishery Development Project surveys; joint fishery surveys with Cuba and the USSR; ICCAT data and assessments, and assessments in the USA.

The limited information which is available on large pelagic resources in the waters of Jamaica suggests that they may be sufficiently abundant to justify cautious expansion of fishing activities for these species.

5.4.1 A Pilot Project To Evaluate The Feasibility Of Using Small-Scale Long-Lines To Harvest Large Pelagic Fishes On The North Coast Of Jamaica

The overall objective of this project is to introduce fishing technology which will enable small-scale fishers to more efficiently and safely access large pelagic resources in the (EEZ) north, northeast and northwest of Jamaica. The specific objectives are to:

- a. Evaluate the economic feasibility of using small-scale longlining and the use of Fish Aggregating Devices (FAD) to harvest these fishes.
- b. Assess the availability of the large pelagic fishes to small-scale fishers on the north coast of Jamaica.


The preliminary budget is approximately US\$902,415.00. A source of funds will need to be explored.

5.5 Establishment and Management of Fish Sanctuaries

Fisheries resources continue to decline in our marine environment as a result of a number of issues including over-fishing. In light of this, the Fisheries Division continues to establish and manage Special Fisheries Conservation Areas (SFCAs) (formally known as Fish Sanctuaries) as a measure of halting this decline.

To date, 14 SFCAs have been designated; this includes one (1) Off-shore site; two (2) sites managed by a Government of Jamaica/ private sector partnership; ten (10) sites managed through NGO / GOJ partnerships and One (1) site that is managed solely by the Fisheries Division. We intend to designate another SFCA in this fiscal year and to extend the boundaries of selected ones based on the positive results experienced by the fishers. A case in point is the Oracabessa Bay and Bluefields Bay SFCAs where the fin fish populations have more than doubled since their establishment.

By the end of the 3rd quarter of FY 2014/15, this program **received** a sum of \$21 .7 million in **financial** support from the Government to effect day-to-day operations. Efforts by the Fisheries Division to improve these protected areas include the installation of artificial reefs and spiny lobster condominiums to enhance the finfish and lobster populations. In the last quarter of FY 2014/15 the Fisheries Division also collaborated with one of its partners to establish a coral nursery to improve the coral reefs in Bluefields Bay SFCA.



Derrick Kellier, CD
Minister of Agriculture, Labour & Social Security
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