SEA CUCUMBER FISHERY LICENSING POLICY FRAMEWORK

July 2021

Contents

1. INTRODUCTION 2
2. BACKGROUND 2
3. MANAGEMENT FRAMEWORK 3
3.1 Fishing Season and Fishery Management Areas 4
3.2 Pedro Bank Total Allowable Catch (NTAC) and Allocation of Individual Fishing Quotas (IFQ) 5
3.3 Fishing Effort Control and Licensing Policy 6
3.4 Research and Assessment 6
3.5 Aquaculture 6
4. CONDITIONS FOR THE GRANTING OF LICENCES TO FISH FOR SEA CUCUMBER 6
4.1 Payment of Licencing Fee 6
4.2 Products shall be landed in Jamaica, transshipment, harvesting of other species prohibited 6
4.3 Provision of Data And Information 7
4.4 Report Conflict and Resolution 7
4.5 Transfer of Licence from Assigned Vessel 8
4.6 Financial and other risk 8
4.7 Refusal to Grant Licence 8
4.8 Suspension or Cancellation of Licence 8
5 REVIEW 9
References Cited 10

1. INTRODUCTION

The Sea Cucumber Fishery Management Framework for the management and sustainable use of the sea cucumber species in Jamaica will be created under the provisions of the Fisheries Act 2018. It is incumbent on the National Fisheries Authority to ensure the diversification and sustainable use of our fishable resources. Consequently, this Sea Cucumber Fishery Management Framework was devised in order to establish the mechanism with which Sea Cucumber Licenses are issued as well as the conservation, management and sustainable use of sea cucumbers and its habitat.

This plan is intended to facilitate the following principles:

1. Sustainability of the Sea Cucumber resources on the Pedro Bank is of the highest priority
2. Careful account is given to the social context of the fishery, and to ensure that Jamaicans have access to the fishery and that net benefits to Jamaica are optimized
3. The allocation of rights to the Sea Cumber Fishery are equitable and fair
4. The "User Pays" principle applies.

To achieve the above stated principles, this plan proposes the establishment of total allowable catch limits (TAC) for the fishery and the introduction of individual fishing quotas (IFQ) that may in the future be Transferrable (ITQ).

2. BACKGROUND

Sea cucumbers are echinoderms from the families Holothuriidae and are related to sea urchins, starfish and sand dollars. Sea cucumbers have a cylindrical body, a mouth with tentacles and a long digestive system. They have an elongated tubular shape similar to that of a cucumber (Figure 1) and may be found in a number of benthic marine habitats across the world but are more abundant and diverse in shallow waters of the Tropics. Most sea cucumbers are deposit feeders that consume dead organic matter, bacteria and single celled algae mixed with sediments on the seabed (Purcell, 2010). Those species on reef surfaces feed on the fine layer of sediment or algae that coats reefs and benthic vegetation. Some species bury in the sand which helps to oxygenate upper sediment layers. They thus play an important role in the recycling of nutrients in their ecosystem (Navarro et al., 2012).

There is a large demand for sea cucumber products particularly in the East Asian market where prices have increased exponentially over the last decade where one kilogram of dried Sea cucumber (beche-de-mer) may fetch anywhere from US$15 - US$385 (Purcell, 2014). This is in part due to the decline of stocks within the Asia-Pacific region that traditionally supplied these markets. As a result there has been an increased demand for sea cucumber products from Latin

America and the Caribbean. Entrepreneurs from the region, including Jamaica, have sought to supply this lucrative luxury market.

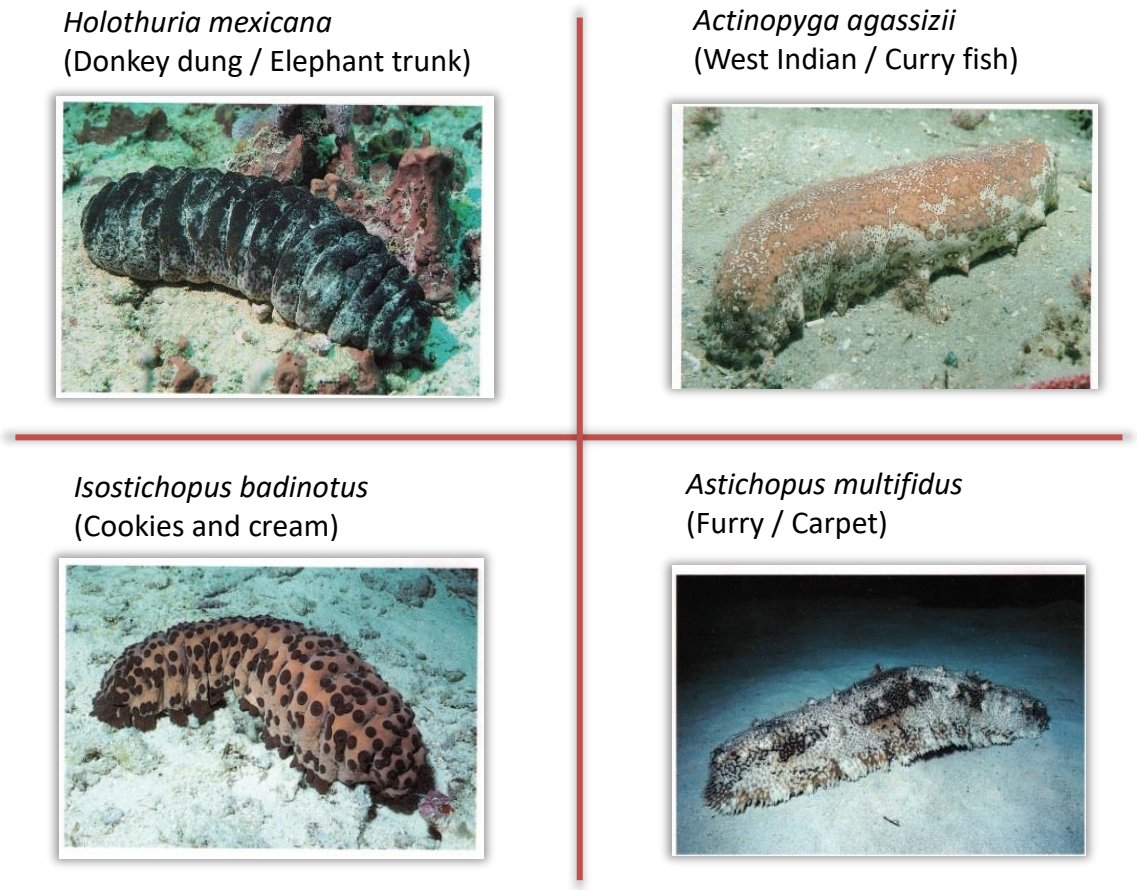

Figure 1. Common Sea Cucumber species found in Jamaica

3. MANAGEMENT FRAMEWORK

Sustainable resource use and management of the sea cucumber fishery will rely on the establishment of total allowable catches (TAC) and the allocation of individual fishing quotas (IFQ). In consideration of the need for a more robust ecosystems approach to the management of the fishery, the TAC system will be supported with input control measures such as limited entry (restricted number of licences), closed seasons, protected areas and minimum sizes.

Individual quota systems such as IFQ and individual transferable quotas (ITQ) give fishers dedicated privileges to catch a specified portion of the total allowable catch (TAC). They are part of a management system whereby the TAC is set by the fisheries authority and then divided into units that may be traded (in the case of ITQ's) among participants in the fishery. Most ITQ

systems are fee-based with the fees in turn funding enforcement, scientific research and management (Grafton *et al.* 1996; Sutinen 1999).

More than ten per cent of the total marine harvest, equalling several hundred fisheries worldwide, is currently managed using some form of a TAC-ITQ system. The benefits of ITQs include the efficacy with which they can end the 'race for fish', improve fleet efficiency, reduce over-exploitation and increase ex-vessel prices (C. Chue, 2009). The race for fish is characteristic of derby-style fisheries which causes the fishing season to shorten to mere days and compromises fisher safety.

The drawbacks of ITQs concern the initial allocation of quotas, the concentration of quota and the socioeconomic consequences to those participating in the fishery. The initial allocation of quota shares is often based on historical landings and investment in the fishery. This may cause some fishers to falsify their catch history and as our experience shows with the Jamaican conch fishery, overcapitalize on investment in order to attain more quota. The concentration of quota to fewer participants may lead to social inequality among fishers (Eythórsson 2000; Arnason 2005; Hilborn *et al.* 2005a).

The management framework proposed here is an attempt to minimize the negative attributes of individual quota systems while at the same time still providing some tenure to those participating fishers. As a relatively new fishery, the NFA considers it a strategic and opportune time to implement this approach while understanding that it will take time and many revisions to ensure objective success.

In summary, an initial multiyear TAC will be set for a 3-year period followed by a 2-year period of no fishing. The TAC will be divided into shares, a part of which will be equally divided among those fishers that participated in the exploratory research program for sea cucumbers on the Pedro Bank at their own risk. The balance on the TAC will then be available for competitive allocation through an auction system. Prices will be established for both the initial allocation and the subsequent auction. The details follow below.

3.1 Fishing Season and Fishery Management Areas

Fishing season

The maximum spawning period for *Holothuria mexicana* occurs during the period February to July and July to November for *Isostichopus badionotus* (Guzman, et al., 2003, Rogers, et al 2018). Therefore, the fishing season for both *Holothuria mexicana* and *Isosthichopus badionotus* will be for six (6) months during the period September to February across consecutive years. There will be three (3) years of consecutive fishing with two years intersessional periods of no fishing.

Close Season

There will therefore be a Close Season each year from 01 March to 31 August during which no fishing for sea cucumbers of any type will be allowed in Jamaican waters. No sea cucumber will be exported in this Close Season management period.

No-Take reserves

No take zones or fishery management areas will be established. These may be part of fish sanctuaries and or established in the fishery management zones.

Closures

The Island Shelf of Jamaica will remain closed to fishing Sea Cucumbers for the 2021 – 2022 season. Further assessments of the Island Shelf stock will be done to determine opening of the Island Shelf to Sea Cucumber fishing.

3.2 Pedro Bank Total Allowable Catch (NTAC) and Allocation of Individual Fishing Quotas (IFQ)

A Precautionary Multi Year Total Allowable Catch (TAC) of 90 MT is proposed for the Pedro Bank fishery over the 3 year period October 2021 to March 2024, (that is, an average of 30 MT per year between the period October 2021 to March 2024).

To determine how individual quotas are allocated, the TAC will be divided into Individual Quota Shares (QS) of 1kg wet weight of sea cucumber per Share, for a total of 90,000 QS available to the Pedro Bank Fishery for the 3 year period.

The "initial allotment" of QS will be done according to the following rule:
Each of the six Fishing Companies (FC) that participated in the Exploratory Research Program, will be allotted an initial IFQ of 10,000 QS (10,000 kgs) for the 3-year fishing period. The QS will be priced at 3% of the going market price per kg. For example, average market value for *H. mexicana* in 2018 was US$80 /kg, therefore each FC would be required to pay US$24,000.00 for the allocation.

The remaining 30,000 QS will be allocated through open competitive bidding with a starting price of 5% of the going market price per kg. No FC will be allowed to own more than 30,000 QS. Any bidding FC will need at least 10,000 QS to be given an Industrial Fishing Licence to fish for sea cucumbers on the Pedro Bank.

QS that remain unsold, will be retained by the NFA either as reserve, or to be put to open bidding in the following fishing season.

3.3 Fishing Effort Control and Licensing Policy

A maximum of eight (8) licences are proposed with one (1) vessel licence per fisher. Each vessel with a maximum of 13 divers depending on the total number of person allowed on the vessel based on the MOH COVID 19 guidelines are allowed to fish. The use of SCUBA and free lung diving only is allowed. The use of Hookah is prohibited.

3.4 Research and Assessment

A fishery independent assessment of the stock status will be conducted during the intersessional non fishing periods to determine population size, structure and other parameters relevant to the sustainability of the various species impacted by fishing.

3.5 Aquaculture

Aquaculture is not proposed on the Pedro Bank, however restocking from animals cultured at coastal facilities will be encouraged.

4. CONDITIONS FOR THE GRANTING OF LICENCES TO FISH FOR SEA CUCUMBER

4.1 Payment of Licensing Fee

Every person or registered Jamaican company who requires a licence to fish for sea cucumber shall apply to the National Fisheries Authority under the Fisheries Act, 2018 for an Industrial Sea Cucumber Licence in the prescribed form and shall be accompanied by an application fee.

4.2 Products shall be landed in Jamaica, transshipment, harvesting of other species prohibited

(a) Every owner or operator of a licensed Sea Cucumber Fishing Vessel and any persons on board such vessel or conveyance operating in support of such vessel are subject to the conditions below which shall be read as one with all other Conditions of Licences and/or legal requirements under the Fisheries Act 2018

(b) Every owner or operator of a licensed Sea Cucumber Fishing Vessel and any persons on board such vessel or conveyance operating in support of such vessel shall –

i. harvest only donkey dung and curry fish sea cucumbers (*Holothuria mexicana* and *Isosthicopus badionotus*) and no other species of fish without authorization from the National Fisheries Authority

ii. land all sea cucumber, gutted and iced in Jamaica

iii. be prohibited to trans-ship sea cucumber, whether whole or part thereof or any other species of fish to any vessel or other conveyance without authorization in writing from the National Fisheries Authority.

4.3 Provision of Data And Information

(a) All Jamaican industrial vessels and artisanal canoes shall install GPS tracking devices, to which Authorized Officers of the National Fisheries Authority are granted access to monitor and conduct tracking in order to ensure traceability.

(b) The owner or operator of a licensed Sea Cucumber Fishing Vessel and any persons on board such vessel or conveyance operating in support of such vessel shall –

(i) Ensure strict compliance with data collection efforts of the National Fisheries Authority by accurately preparing vessel log reports;

(ii) All fishing vessel data log forms must be accurately completed daily while at sea;

(iv) Fishing vessel data log forms shall be submitted to the National Fisheries Authority within one (1) working day after each landing and before the next departure;

(v) All landings will be inspected and the catch verified against the vessel log;

(vi) Facilitate data collectors and complying with fishery inspectors at the inspection and verification of landings; and

(vii) Provide any other data and information deemed necessary as stipulated by National Fisheries Authority.

4.4 Report Conflict and Resolution

Every owner or operator of a licensed Sea Cucumber Fishing Vessel or any person on board such vessel or conveyance operating in support of such vessel shall –

(a) Report in writing all incidences involving but not limited to the destruction, damage, displacement, disturbance, removal of fishing equipment (including trap, net, lines, vessels) to the National Fisheries Authority within five (5) days of the incident;

(b) Make all reasonable attempts to identify and compensate the owner of the fishing equipment referred to at (a) above; and

(c) Report in writing to the National Fisheries Authority the outcome of negotiations and/or compensation to the owner of the equipment referred to at (a) above.

4.5 Transfer of Licence from Assigned Vessel

A Sea Cucumber Fishing Licence is issued to a particular individual or a registered Jamaican Company. Such license is linked directly to the vessel which the applicant or company stated on their application and is to be utilized to fish for sea cucumber. At no time can the same fishing vessel be utilized by two (2) different applicants on an application or licensee simultaneously to fish for sea cucumber. If a vessel to which a sea cucumber licence is issued becomes unserviceable or unavailable for a duration exceeding three (3) months, the applicant may advise the National Fisheries Authority in writing so as to facilitate the Authority to reassign the licence to another wash deck, inboard engine, Jamaican flagged fishing vessel (greater than fifty (50) feet in length) if the applicant so desires, provided that the particular vessel was not already assigned a licence for that particular season.

4.6 Financial and other risk

The Sea Cucumber Fishing Licencee shall bear all the financial and other risks associated with the fishing activity.

4.7 Refusal to Grant Licence

The National Fisheries Authority may refuse to license a vessel as a Sea Cucumber Fishing Vessel if the owner of the vessel or the vessel fails to satisfy any requirement or condition under the Fisheries Act 2018, or any other applicable law or the requirements of this Management Strategy/ Framework. A Sea Cucumber Licence shall not be granted or be transferable to the relatives of licensee or applicant, director, shareholder, employee, parent, subsidiary related or associated company of any entity or company to which a Sea Cucumber licence has been granted.

4.8 Suspension or Cancellation of Licence

The National Fisheries Authority may suspend and/or cancel a Sea Cucumber Fishing Licence under the following conditions—

a) Voluntary surrender by the Licensee;

b) Breach of any of the: (a) provisions of the Fisheries Act 2018 and/or related regulations or any law and/or regulation replacing; (b) the owner or operator of a licensed Sea Cucumber Fishing Vessel or any person on board such vessel or conveyance operating in support of such vessel fails to comply with any of the terms and conditions of this Agreement or any other Conditions of Licences and/or legal requirements under the Fisheries Act 2018; (c) conditions of any Licence related to the Sea Cucumber fishing on the Pedro Bank; (d) non utilization of the

Licence over two years and if after 3 years there is no utilization the Licensee will not qualify to re-apply in next licensing period; and (e) non-compliance with the proposed finance strategy.

5 REVIEW

The National Fisheries Authority may review, amend, suspend or cancel any term and/or conditions and/ or management strategy of the sea cucumber fishery on the Pedro Bank.

References Cited

Arnason, R. (2005). Property rights in fisheries: Iceland's experience with ITQs. Reviews in Fish Biology and Fisheries 15, 243-264.

Chue, C. (2009). Thirty years later: the global growth of ITQs and their influence on stock status in marine fisheries. Fish and Fisheries, 10: 217-230. doi:10.1111/j.1467-2979.2008.00313.x

Eythórsson, E. (2000). A decade of ITQ-management in Icelandic fisheries: consolidation without consensus. Marine Policy 24, 483-492.

Grafton, R.Q., Squires, D. and Kirkley, J.E. (1996). Private property rights and crises in world fisheries: turning the tide? Contemporary Economic Policy 14, 90-99.

Guzman, H.M., C.A. Guevara, and L.C. Hernandez. (2003). Reproductive cycle of two commercial species of sea cucumber (Echinodermata: Holothuroidea) from Caribbean Panama. Marine Biology 142:271-279.

Hilborn, R., Parish, J.K. and Litle, K. (2005a). Fishing rights or fishing wrongs. Reviews in Fish Biology and Fisheries 15, 191-199.

Navarro, P.G., García-Sanz, S., Tuya, F. (2012). Reproductive biology of the Sea cucumber *Holothuria sanctori* (Echinodermata: Holothuroidea). Sci Mar 76:741–752. doi:10.3989/scimar.03543.15BF

Purcell, S. W. (2014). Value, Market Preferences and Trade of Beche-De-Mer from Pacific Island Sea cucumbers. PLoS ONE, 9(4), e95075. http://doi.org/10.1371/journal.pone.0095075

Rogers, A. , Hamel, J. & Mercier, A. (2018). Population structure and reproductive cycle of the commercial sea cucumber Holothuria mexicana (Echinodermata: Holothuroidea) in Belize. 66(4): 1629-1648

Sutinen, J.G. (1999). What works well and why: evidence from fishery-management experiences in OECD countries. ICES Journal of Marine Science 56, 1051-1058.