



Tropical Spiny Lobsters

Harvest Plan



June 2017

Fisheries Division
Ministry of Fisheries and Marine Resources Development

Part I

1. Preliminary Provisions

1.1 Lobsters, most valuable among the inshore fisheries resources, are considered a gourmet food delicacy and mostly harvested for immediate consumption during special and traditional occasions such as weddings and other island festivities thus have a special place in the cultural cuisine of the people of Kiribati. Likewise, lobsters also fetch high premium prices in any restaurant in the world and have been exported to international markets, particularly from Kiritimati Island in the Line Group of Kiribati.

1.2 This Lobster Harvest Plan (Plan) was initiated so that it complies with the current policy of the Ministry of Fisheries in ensuring that a Management Plan has to be in place before any commercial fishing can start. Its significance is further exacerbated with a national obligation of maintaining the sustainability and vigorous population of lobsters for income-earning commercial activities for our current and future generations

1.3 In this Plan, the term lobster also known as tropical spiny lobster (TSP), is a highly fecund species that belong to the family Palinuridae. Three species of spiny lobsters are found in the tropical central-west Pacific, including Kiribati, with the genus *Panulirus* being the richest in terms of numbers of species and also dominates numerically. Of the three species found in Kiribati, the most abundant are *Panulirus pencillatus* and *P. versicolor*, which inhabit reef flats and corals in shallow to medium depth areas.

1.4 Like other fisheries plans, this Lobster Harvest Plan paves a way forward in premising its basis on a 'Catch Management System' that would provide an opportunity to utilize lobster catch as a viable collateral that is recognized in any financial and banking institutes, nationally.

2. Biological description of the Tropical Spiny Lobster

2.1 The tropical spiny lobsters are covered with forward-pointing spines as a way to protect them from the onslaught of predators while long horn-like antennae above their eyes are used to scare off predators by rubbing them together to make a screeching noise, known as the 'stick and slip' mechanism. Smaller antennules are purposely used to sense movement and detect pheromones or chemicals floating in the water column, including eggs when they are ready to hatch. Lobsters have large compound eyes that are capable of sensing light, colour and movement.

2.2 Tropical Spiny lobsters are capable of attaining as long as 10 years lifespans and can grow to 7 kg in weight that is equivalent to just under 100 cm in length. Such animals grow by molting where they shed their old shells while simultaneously absorbing water, thus expanding their body size. Within the first five to seven years of their lifespan, they can molt up to 25 times, after which they molt only once per year. It takes them about two years to grow to legal harvesting size, albeit three to five years to reach maturity.

2.3 The females start to reproduce when they are between 8 to 10 centimeters in length or within 3 to 5 years of age. The male spiny lobster deposits sperm packets on the underside of the female lobster, who scratches them to release the sperm as she concomitantly releases her eggs. The female are highly fecund and can produce thousands of eggs at each spawning period. The female lobster carries the fertilized eggs beneath her tail, at which time is considered as 'berried'. The eggs hatch in four weeks and the larvae float with the current for about six months when it molt and metamorphose into juvenile lobsters.

2.4 Young spiny lobsters feed on soft-bodied plankton and that both juveniles and adults are carnivorous. Spiny lobsters are nocturnal feeders preying on snails, crabs, and clams. The coloring of the lobster is determined by the foods they consume with green algae more commonly available in shallow waters thus blending greenish lobsters while red algae is more likely to be found in deeper waters thus deriving more reddish colored lobsters. Many predators prey on spiny lobster, including groupers, snappers, sharks, skates, turtles and octopuses.

Part II

3. Viable Management of Tropical Spiny Lobsters

3.1 The tropical spiny lobsters have a very long delayed post-larval growth period of about six months, which makes it costly to raise them in captivity. Berried females normally carry around under their appendages eggs for four weeks until they are ready to be naturally shed into the water column when environmental conditions are conducive and favourable. The best viable and deemed measure for sustainably managing lobsters is to protect such berried females from the onslaught of commercial lobster harvesters. In case, berried females are accidentally harvested, divers and companies involved in the purchasing of lobsters from local fishermen must keep such berried females in floating cages until such time that their eggs have been naturally shed. Having said that the current measure as it stands is that the landing of egg-carrying lobsters is stringently prohibited.

3.2 Furthermore, a minimum landing size (MLS) of 85 mm carapace length has been in force since the Fisheries Laws were primarily approved and adopted. To ensure maintaining a localized healthy spiny lobster population on each individual Island, the minimum tail size (MTS) of 87 mm (85-89 mm) must be enforced throughout the islands of Kiribati.

3.3 Maintaining the taking of the minimum tail size can prevent the landing of juvenile lobsters and thus allow a greater number of spiny lobsters the opportunity to reproduce before being harvested. The prohibition of landing berried (egg-bearing) lobsters, on the other hand, can temporarily protect reproductive female lobsters. In case berried females are harvested, a fisherman must ensure that these berried females are kept in floating cages within 4 weeks or until the eggs have been shed.

3.4 Over the long term, these three conservation measures for the management of tropical spiny lobsters would potentially decrease fishing mortality while concomitantly increase long term yield and biomass thus resulting in higher economic returns for lobster fishermen in future years. The prohibition of the landing of berried females would undoubtedly be the most effective measure of increasing egg production thus assist also in making available more harvestable lobsters for the local fishermen.

3.5 A total Island Catch Allocation (ICA) of 28,950 kg by weight, which is equivalent to about 38,145 number of lobsters must be closely monitored and once each island reached its assigned lobster catch allocation before the end of the annual lobster fishing season, harvest of lobsters including the taking for subsistence living must be closed. Fishing of lobsters in that island can only start at the start of the next annual lobster fishing season. Table 1 depicts what each individual island is allowed to harvest in any given annual lobster fishing season. It should be noted that given that Kiribati Island has a direct export market in Honolulu for its lobsters, it has the highest ICA of about 13.8 tons annually and that harvesting and exporting of lobsters must be monitored on a quarterly basis to ensure its sustainability and viability.

Table 1. Island Catch Allocation (ICA) of Spiny Lobsters

Name of the Island	Island Catch Allocation		%age	Name of the Island	Island Catch Allocation		%age
	Weight kg	Numbers pieces			Weight kg	Numbers pieces	
Makin	410	600	3%	Nonouti	1,505	2,145	11%
Butaritari	1,130	1,600	8%	Tabiteuea North	590	845	4%
Marakei	725	1,035	5%	Tabiteuea South	860	1,220	6%
Abaiang	1,130	1,600	8%	Onotoa	750	1,065	5%
North Tarawa	1,435	2,045	10%	Beru	500	715	4%
South Tarawa and Betio	1,340	1,910	7%	Nikunau	480	685	3%
Maiana	815	1,160	3%	Tamana	170	245	1%
Kuria	390	555	6%	Arorae	290	415	2%
Aranuka	535	765	3%	Kiribati	13,800	16,560	93%
Abemama	955	1,360	7%	Tabuaeran	740	1,050	5%
Banaba	155	220	1%	Teraina	245	350	2%
Sub Total	9,020	12,850		Sub Total	19,930	25,295	
Total Island Catch Allocation					28,950	38,145	

4. Restricted Fishing Areas for Tropical Spiny Lobsters

4.1 Seasonal fishing closures for Tropical Spiny Lobsters must be observed throughout all the inhabited Islands of the Gilbert Group; Phoenix Group; and the Line Group from the start of the second week to the end of the third week of July on an annual basis i.e. a two weeks annual lobster fishing closure.

4.2 Fishing for Tropical Spiny Lobsters is prohibited in the vicinity of demarcated Marine Protected Areas or in any Habitat Protected Zones established by communities and Island Councils. A special permit to fish on a subsistence level for spiny lobsters in such closed areas can be issued by the Director of Coastal Fisheries Division in concurrence with the Minister's approval.

Part III

5. Harvest and Export Rights for Tropical Spiny Lobsters

5.1 A tropical spiny lobster Fishing and Export Right must be issued to any lobster export firm or operator who are required to purchase landed lobsters harvested by local fishermen or by the Operators

own employees. There are two types of fishing controls imposed on the harvest and export of tropical spiny lobsters that must be complied with by licensed lobster operators:

5.1.1 Access and Fishing Control

- a. Any fishing company, firm or operator involved in the export of lobsters must be issued with a license that allows it to export lobsters and that it must purchase its lobsters from local free divers.
- b. Any fishing company, firm or operator must not be issued with an export license until it has been proved that it has floating cages ready for keeping and holding live lobsters.

5.1.2 Fishing Input Controls

- a. Commercial divers involved in the harvest of or in the taking of live lobsters are prohibited to use any self-contained underwater breathing apparatus (SCUBA), including hookah gear.
- b. Lobsters taken for subsistence living is limited to three lobsters per household or per diver.

Part IV

Objective 1: To ensure the sustainable conservation and management of lobster fishery in Kiribati

6.1 Strategies to achieve operationalization of Objective 1

- 6.1.1 Enforcement of minimum size limit (MSL) of 85 mm carapace length
- 6.1.2 Limit commercial harvest of lobsters according to the Island Catch Allocation (ICA)
- 6.1.3 Ban harvest of egg-bearing lobsters known as berried lobsters
- 6.1.4 If egg bearing lobsters are accidentally harvested they must be kept in floating cages until eggs have been naturally shed or released
- 6.1.5 Enforcement of minimum tail size (MTS) of 87 mm of lobster tail size
- 6.1.6 Ensuring that any licensed lobster firms must have or own floating cages for keeping live lobsters, including egg-bearing lobsters

Objective 2: Establish a mechanism to control the type of fishing activities to ensure minimal impact to the marine environment

6.2 Strategies to achieve operationalization of Objective 2

- 6.2.1 Establish an effective licensing system that will limit the number of operators according to the size of each individual Island Catch Allocations
- 6.2.2 Prohibit the harvesting of lobsters using any forms of underwater breathing apparatus such as SCUBA and Hookah gears
- 6.2.3 Prohibit the use of stunning chemicals (such as chlorine and cyanide) in the harvesting of lobsters
- 6.2.4 Setting aside prohibited areas on each Island to act as a breeding stock to replenish heavily fished lobster fishing grounds

Objective 3: To optimize economic return, income generating activities and long term food security

6.3 Strategies to achieve operationalization of Objective 3

- 6.3.1 Setting up of minimum price limit to avoid under valuing of lobster resources in Kiribati

- 6.3.2 Allowing only the locals to fully participate in the harvesting of the lobster resources
- 6.3.3 Ensuring that lobster exporting firms must be involved only with the purchasing of live lobsters from local fishermen

Objective 4: To establish an effective mechanism for the collection of information to assist in decision making to better refine the plan

6.4 Strategies to achieve operationalization of Objective 4

- 6.4.1 Setting up a reporting system template for both the fishermen and exporters to fill and return to the Director of Fisheries on a monthly basis
- 6.4.2 Collation of catch and effort data for lobsters to inform decision as and when necessarily required.

Part V

7. Miscellaneous

7.1 Any licensed tropical spiny lobster export company must ensure that all of its lobsters are purchased from locally based tropical spiny lobster fishermen and must not be involved with the actual catching, fishing or harvesting of lobsters, per se.

8. Register of a Lobster Export Company

8.1 Any fish processing company involved with the purchase, sell, process, or export of lobsters must have a valid lobster processing and export license clearly displayed in its vicinity.

8.2 All processing and fishing companies issued with a processing and export license must be registered in the National Register of Processing and Exporting Companies maintained and kept by the Director of Coastal Fisheries Division.

9. Review of the Tropical Spiny Lobster Harvest Plan

9.1 This TSL Harvest Plan must be reviewed every six months to ensure that a viable Island Catch Allocations assigned to each individual island is constantly monitored. In addition, this TSL Harvest Plan should be reviewed if there are urgent changes required for ensuring the sustainability and viability of tropical spiny lobsters that need to be reflected and encapsulated in the Plan.