



# The Blue Swimming Crab Bulletin No. 12

The Sri Lankan blue swimming crab fishery improvement project (FIP) was initiated by the National Fisheries Institute Crab Council and the Seafood Exporters' Association of Sri Lanka in May 2013. The FIP was officially launched by the Minister of Fisheries and Aquatic Resources Development in November. The FIP is a tripartite initiative that brings together fishermen, seafood companies and government agencies to improve the biological and ecological status and the management of crab fisheries in the Palk Bay and the Gulf of Mannar. The FIP's goal is to maintain each fishery at a level equivalent to a sustainably managed fishery: now and in the future. The FIP also works to ensure that supply chains for Sri Lankan blue swimming crab products are equitable and responsible. The fisheries are the **only** fisheries in Sri Lanka and the **only** BSC fisheries in South and Southeast Asia to be 'eco-recommended' ([Good Alternative](#)) by the Monterey Bay Aquarium's Seafood Watch programme.



## Improving the biological status of the BSC stocks

**Status of the Stocks:** In 2018 fishermen and exporters began to raise concerns about increasing quantities of immature crabs (< 99 grams / < 119 mm) crabs in BSC supply chains for export. According to fishermen, immature crabs were being targeted by non-BSC fishermen using small-mesh crab nets (3½" / 88.9 mm) and drag nets. Immature crabs are also caught accidentally by stake-net fishermen targeting prawns. Catch data collected during the 2019 stock assessment supported these concerns. 38% of the crabs sampled in Kilinochchi District and 20% of the crabs sampled in the Palk Bay fishery overall weighed less than 99 grams (Grade IV – Very Small). 17% of the crabs sampled in the Gulf of Mannar fishery were very small (< 99 g). The majority of immature crabs were caught in Puttalam District (15%). Very small crabs are very likely to be immature.



	Av. Size	Av. Weight	Immature	<99g		Av. Size	Av. Weight	Immature	<99g
Palk Bay	132 mm	156 g	7%	20%	Gulf of Mannar	140 mm	191 g	7%	17%
Jaffna	140 mm	185 g	6%	13%	Mannar	139 mm	173 g	0%	4%
Mannar	132 mm	156 g	4%	17%	Puttalam	141 mm	191 g	9%	15%
Kilinochchi	120 mm	115 g	20%	38%					

The 2019 assessments in the Palk Bay and the Gulf of Mannar suggest that BSC stocks in each fishery are being maintained at or above the Target Reference Point for a **sustainably managed fishery** (TRP = 30% Spawning Potential). Recruitment to the spawning population will eventually be affected if fishermen continue to target and companies continue to purchase very small, immature crabs (< 99 g / < 119 mm) for export. When recruitment decreases fishermen's catches and seafood exports will begin to decline and the stock's status will drop below the TRP for a sustainably managed fishery.

BSC Fishery	TRP	2015	2016	2017	2018	2019
Palk Bay	30%	32%	44%	47%	45%	42%
Gulf of Mannar	30%	31%	46%	41%	37%	57%

## Improving the ecological status of the fisheries

**Ecological impacts on non-target species:** 18 non-target species (NTS) studies have been conducted by undergraduate students from the University of Uva Wellessa and Ocean University since 2015. The students worked closely with fishermen using > 4½” (>114.3 mm) nylon or plastic bottom-set crab nets. Studies were conducted at eight landing centres in the Palk Bay and six landing centres in the Gulf of Mannar fisheries. The students sampled 777 catches in the Palk Bay and 857 catches in the Gulf of Mannar. The total catch landed by fishermen in the Palk Bay weighed 9,803.67 kg (9.80 tons). 64.3% of the catch was BSC. 35.7% of the catch were NTS. 19.1% of the NTS caught were retained. The balance 16.6% was discarded. Overall 84.3% of the catch from the Palk Bay fishery – **target and NTS species** – was retained; either sold fresh or for dry fish or consumed by the fishermen’s family. In the Gulf of Mannar fishery the total catch sampled by students weighed 17,843.29 kg (17.84 tons). 43.4% of the catch was BSC. 55% of the catch were NTS. 42.2% of the NTS caught were retained. The balance 11.5% was discarded because the species had no commercial value or were inedible. Overall 88.5% of the catch from the Gulf of Mannar fishery - **target and NTS species** – was retained.



Sri Lanka is recognised internationally as a global hot-spot for biodiversity, including its marine ecosystems. More than 3,500 species of finfish have been recorded from Sri Lankan waters. 168 non-target species were identified by students in the catch of BSC fishermen in the Palk Bay fishery. In the Gulf of Mannar the number of NTS identified was 152. No marine mammals or birds were observed in the catch in either fishery. Three (3) hooked-nosed sea snakes were caught in crab nets in the Gulf of Mannar (Puttalam District). More than half of all NTS in both fisheries were finfish (51%). Molluscs were the next most common species accidentally caught in the catch (17% - 23%), followed by crustaceans (14% - 18%) and echinoderms and others (8% - 11%).

The ecological impact of BSC fisheries on NTS in the Palk Bay and the Gulf of Mannar was assessed using the Productivity / Susceptibility Analysis (PSA) tool in the Marine Stewardship Council’s (MSC) Risk Based Framework for data-limited fisheries. Two endangered, threatened or protected (ETP) species and one Out of Scope (OoS) species were observed in the two fisheries.

The MSC’s Productivity / Susceptibility Analysis suggests that the ecological impact of BSC fishing on non-target species in the Palk Bay is a **low conservation concern**. In the Gulf of Mannar the fishery’s ecological impact was indicated to be a **medium conservation concern**.

BSC Fishery	No.	Category	PSA Score	Conservation Concern
<b>Palk Bay</b>				
<i>Hedgehog seahorse</i>	01	ETP	93	Low
<i>Pale-edged stingray</i>	1,305	2 <sup>o</sup> Main	88	Low
<i>Blue-spotted stingray</i>	465	2 <sup>o</sup> Main	82	Low
<i>Spider conch</i>	1,747	2 <sup>o</sup> Main	82	Low
<b>Gulf of Mannar</b>				
<i>Hedgehog seahorse</i>	01	ETP	93	Low
<i>Hook-nosed sea snake</i>	03	OoS	90	Low
<i>Pale-edged stingray</i>	4,452	2 <sup>o</sup> Main	88	Low
<i>Blue-spotted stingray</i>	1,564	2 <sup>o</sup> Main	82	Low
<i>Spiral melongena</i>	22,332	2 <sup>o</sup> Main	73	Medium
<i>Great hammerhead shark</i>	02	ETP	70	Medium

**Ecological impacts on marine habitats:** An undergraduate student from the University of Colombo used a geographic information system (GIS) mapping survey of BSC fishing grounds (76 landing centres) and critical marine habitats to assess the ecological impact of BSC fisheries on marine habitats in both fisheries in 2017/18. The results suggested that the ecological impact of bottom-set crab net fishing on critical marine habitats such as mangroves, seagrass, limestone and coral reefs in both fisheries was a low. *See Bulletin No. 11 for details.*

## Improving the management of the fisheries

**Fishery Specific Management Systems:** District fisheries management meetings were convened by the Assistant Directors, Department of Fisheries and Aquatic Resources (DFAR) in Jaffna, Kilinochchi, Mannar and Puttalam in November and December 2019. In these meetings representatives of BSC fishing communities from 16 Fishery Inspector Divisions (FIDs) discussed the key issues affecting BSC fishing and other small scale fisheries in each district. Actions necessary to resolve these issues at the district and national level were proposed and discussed by DFAR officers and fishermen. The key issues highlighted in these meetings are listed below.

### **2019 Stock Assessment Palk Bay / Gulf of Mannar**

*Implications for management and harvest control rules and tools were discussed*

### **Illegal fishing by Tamil Nadu trawlers in Sri Lankan waters**

*Fishermen requested the DFAR and Sri Lankan Navy to take all necessary action to end illegal fishing by Tamil Nadu in Sri Lankan waters*

### **Declining catches of fishermen in the Puttalam estuary**

*Fishermen requested the DFAR to stop fishermen harvesting immature crabs and illegal trawl net fishing in the Puttalam estuary.*

### **Illegal trawl net fishing by Jaffna and Mannar boat owners**

*Fishermen requested the DFAR to take action to stop illegal trawl net fishing in Jaffna and Mannar districts as this is destroying all local fish resources*

### **FIP proposal to reduce harvest of very small (<99 g crabs)**

*Action is necessary to stop the purchase of < 99 g crabs for export. Awareness programmes are needed with stake net fishermen to release < 99 g crabs*

### **Proposal to improve prices in all landing centres**

*Fishermen explained that different prices are offered for large, medium, small and very small crabs at different landing centres in the same district.*

### **Unwanted / discarded non-target species catch**

*Options to reduced unwanted / discarded non-target species in the BSC catch were discussed*

### **Declaration of district level Fishery Management Areas**

*A proposal to establish district level fishery management areas was discussed. It was agreed that the FIP would take this matter up with the Director General in Colombo.*

### **Introduction of a regulation of BSC fishing**

*A proposal to introduce a regulation for BSC fishing was discussed. It was agreed that the FIP would take this matter up with the Director General in Colombo.*

### **Introduction of an export schedule for BSC products**

*A proposal to introduce an export schedule for the export of BSC crab products was discussed. It was agreed that the FIP would take this matter up with the Director General in Colombo.*

*Improvements to the management of the BSC were co-financed by Direct Seafood Asia / Harbor Seafood through CM Blue Crab Private Limited and the district offices of the DFAR*



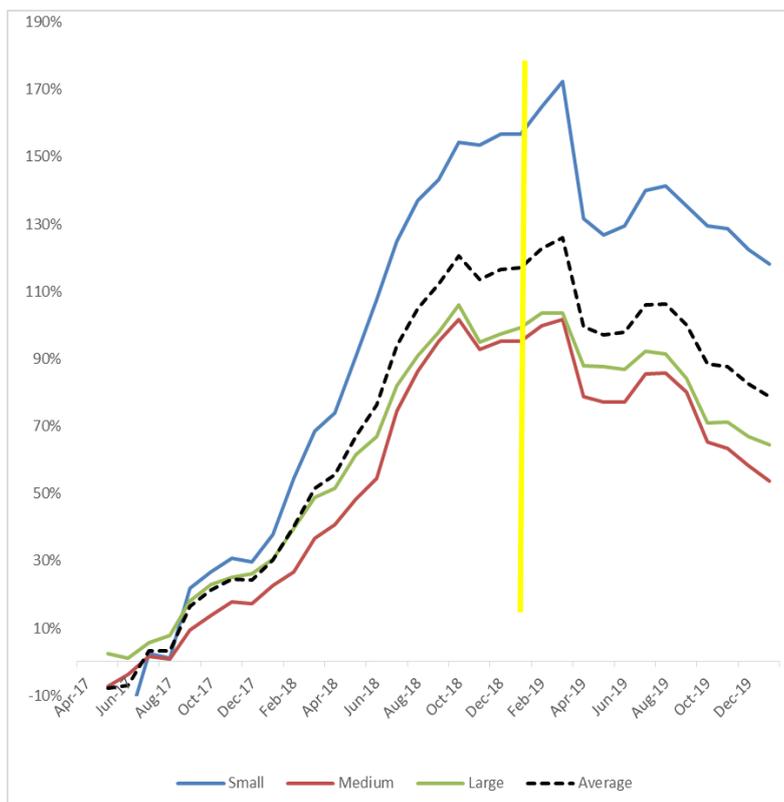
## Improving economic equity and social responsibility

**Economic Equity:** The average beach price for BSC in Palk Bay fishery increased by more than 110% between April 2017 and April 2019. The biggest price increase was for small crabs (170%). BSC fishermen claim that high prices offered by exporters is a key factor that encourages non-BSC fishermen to target small and very small, immature crabs (< 99 g) using small-mesh nets (3½” / 88.9 mm) and drag nets. If markets continue to provide financial incentives to non-BSC fishermen to harvest immature crabs, the biological impact will eventually be observed in the results of the annual stock assessment and the catch from the two fisheries.



The Monterey Bay Aquarium’s Seafood Watch programme announced a **Good Alternative / YELLOW** rating for Sri Lanka’s BSC fisheries in January 2019. The **‘eco-recommendation’** was a first for Sri Lankan fisheries. The two fisheries are the only **Good Alternative** rated BSC fisheries in South and South East Asia.

Average beach prices for BSC in the Palk Bay peaked in February 2019 (see right). Thereafter prices began to decline sharply. The value of a fishermen’s catch has fallen by around 30% since the **‘eco-recommendation’** was announced in January last year. Sri Lankan manufacturers have been unable to secure a premium price for **‘eco-recommended’** Sri Lankan BSC products. This is due to a lack of consumer demand in North American markets for **eco-recommended** BSC products, according to US importers.



**Social Responsibility:** A pilot programme to recycle plastic items and fishing nets with fishing communities in Kilinochchi commenced in December 2019. The results of the pilot programme will be reviewed in March 2020.

*Improvements to economic equity and social responsibility in supply chains for Sri Lanka BSC products were co-financed by the National Fisheries Institute Crab Council*

The Seafood Exporters’ Association of Sri Lanka, BSC fishermen’s societies and the Department of Fisheries & Aquatic Resources are grateful to the National Fisheries Institute Crab Council for its continuous and generous support of the FIP since 2013. Members of the FIP are also grateful to Taprobane Seafood Group Pvt Ltd, Direct Seafood Asia / Harbor Seafood / CM Blue Crab Pvt Ltd, Uva Wellessa Univeristy and Ocean Unversity for co-financing one or more of the actions described in this edition of the

***Sri Lankan Blue Swimming Crab Bulletin.***



Soft copies of all **twelve** editions of the Blue Swimming Crab Bulletin are available in English, Sinhala and Tamil. To request copies of the bulletin or further information about the FIP please email [steve@pelaqikos.lk](mailto:steve@pelaqikos.lk)