



The Blue Swimming Crab Bulletin No.8

Actions to improve the biological and ecological status of blue swimming crab (BSC) fisheries in the Palk Bay and the Gulf of Mannar and introduce management measures that will maintain the status of the stocks at a level equivalent to a sustainably managed fishery were implemented by the Sri Lankan BSC (SLBSC) fishery improvement project (FIP) in the second half of 2017. Initiatives to improve social responsibility and the equity of supply chains linking these fisheries to international markets for Sri Lankan crab products were also supported by the FIP. Details of these actions are described in the 8th edition of the Sri Lankan **Blue Swimming Crab Bulletin**.

Improving the biological status of the BSC stocks



The status of BSC stock in the Palk Bay and Gulf of Mannar have been assessed annually since 2014. The assessments have been conducted in collaboration with fishing communities, suppliers and seafood manufacturers in each fishery. The stock status has been assessed using a length-based approach to (estimating) spawning potential ratio (LBSPR) developed by Dr. Jeremy Prince (Biospherics Pvt Ltd) and Dr. Adrain Hordyck (University of British Columbia). The LBSPR app is freely available on [The Barefoot Ecologist's Toolbox](#).

The assessment results (below) suggest that the status of BSC stocks in the Palk Bay and the Gulf of Mannar was at or above the Target Reference Point for a sustainably managed crab fishery (TRP = 30%), in each of the last three years. The results of the 4th stock assessment will be published in the next bulletin.

Target Reference Point	BSC Fishery	LBSP Results			
		2014/15	2016	2017	2018
30%	Palk Bay	32% (31% - 33%)	44% (43% - 45%)	47% (46% - 49%)	?
	Gulf of Mannar	31% (29% - 33%)	46% (42% - 50%)	41% (39% - 43%)	?

Improvements to the biological status of the stocks were co-financed Taprobane Seafood Pvt Ltd and the National Fisheries Institute Crab Council

Improving the ecological status of the fisheries

Impacts on marine habitats & ecosystems: In June, [Santa Monica Seafood](#) LLC generously agreed to continue supporting the FIP's research into the ecological impact of BSC fishing on marine habitats in the Palk Bay and Gulf of Mannar, and the broader marine ecosystem. The 'net finder' app developed in 2016 by [LKSIM](#) Pvt Ltd ((see right) enables the FIP to track BSC fishing boats - using a smartphone's inbuilt GPS function. The collection of new data from the fisheries commenced in August 2017. The 'net finder' app allows fishermen to mark the 'start point' and 'end point' of each net that they set. Fishermen then use the GPS function in their phones – through the 'net finder' app - to locate the position of their nets the following day.

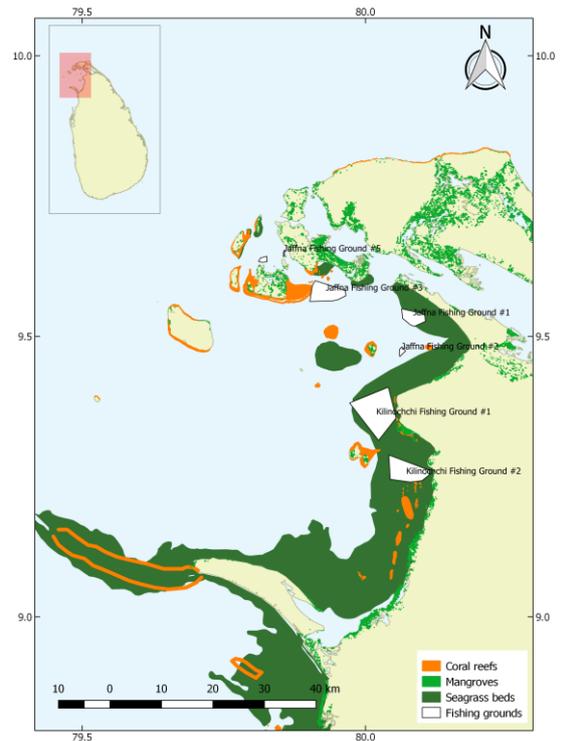


The app is good for the FIP and good for BSC fishermen. Using the app, fishermen can head directly to the nets the next day. This saves fishermen both time and money otherwise spent of fuel when searching for their nets. The app also allows fishermen to remove the flags from their nets, which means that other fishermen cannot so easily steal them. Fishermen using the app are also claiming that using the app gives them confidence to set their nets further out from the shore (up to 20 km), because they know the 'net finder' app will take them directly to their nets the next day. Fishing for crabs further offshore, in deeper waters is good for the fishermen (= bigger crabs) and good for the crab fishery (= no immature crabs in the catch). Another benefit for fishermen is that unlike a handheld GPS, the app is free and unlike other tracking devices, there are no installation or maintenance costs. The data being used by the FIP to assess the ecological impact of the fishery on marine habitats can be used in the future to improve the traceability of 'sustainably sourced' Sri Lankan BSC products.

Palk Bay Fishery

To assess the fishery's ecological impact, national and international data describing the distribution of mangroves, seagrass and coral / rocky reefs were used to generate a base maps for marine habitats in the Palk Bay. Fishing communities were then asked to contribute their own knowledge through a community-based habitat mapping survey. Smartphones and the 'net finder' app have so far been used by 30 BSC fishermen in six villages in Jaffna and Kilinochchi districts. 97 fishing trips had been 'tracked' and the data used to identify the extent of village fishing grounds of BSC fishermen in the Palk Bay.

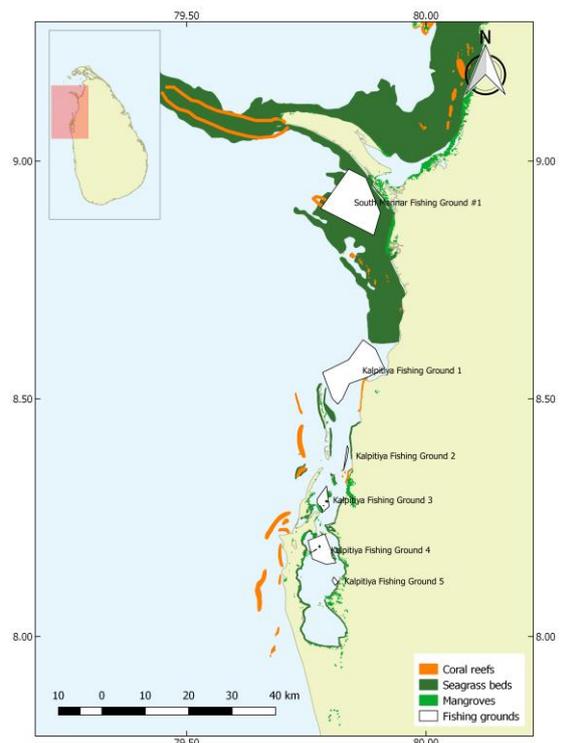
Initial results indicate that the BSC fishery potentially overlaps with 9.6% of seagrass beds and 0.61% of coral / rocky reefs in the Palk Bay (as of 08/04/18). BSC fishermen do not set their nets near mangroves (0%) or in marine protected areas (0%). The results of the ecological impact assessment so far, are encouraging. More data will be collected in 2018, to further improve the FIP's understanding of the ecological impact of the fishery in the Palk Bay.



Gulf of Mannar Fishery

The same data sources were used build base maps for mangroves, seagrass and coral / rocky reefs in the Gulf of Mannar. The results of community based mapping surveys were also added. Smartphones and the 'net finder' app have also been given to 30 BSC fishermen in six villages in Puttalam and Mannar districts. 105 fishing trips have been 'tracked' as of 08/04/18 and the data has been used to identify the extent of village fishing grounds of BSC fishermen in the Gulf of Mannar.

In the Gulf of Mannar the Initial results indicate that the BSC fishery potentially overlaps with 16.7% of seagrass beds, 5.6% of coral / rock reefs and 0.7% of mangroves. BSC fishermen do not set their in marine protected areas (0%). Again the initial data that has been collected is encouraging, in the Gulf of Mannar. Here too the results are encouraging and more data will be collected in 2018, to further improve the FIP's understanding of the ecological impact of the fishery in the Gulf of Mannar.



Improving the management of the SLBSC fisheries



The first ever District Fishery Management Plans (DFMP) for Sri Lanka's blue swimming crab fisheries were finalised for all four districts towards the end of 2017. Fisheries Inspectors under the District Fisheries Offices (DFO) of the Department of Fisheries and Aquatic Resources (DFAR) in each district conducted village by village consultations with blue swimming crab fishermen. Then district fishery management meetings were convened with leaders of fishermen's societies from each Fishery Inspector Division. The DFMPs were endorsed by fishermen's representatives in these meetings. The Assistant Directors in each district submitted the DFMPs to the Director General, in October. The DFMP were approved by the Director General in November 2017.

Each District Fishery Management Plan sets out the location, extent, area and maritime boundary of the fishery, as well as the landing centres constituting the fishery in each district. The DFMPs include a description of the harvest strategy for BSC fishing in each district (i.e. bottom-set crab nets), as well as the control mechanisms adopted by fishermen and the DFAR to maintain the status of the stock at a level equivalent to a sustainably managed fishery (i.e. size selectivity and restrictions on effort). Reference Points appropriate for a data limited, resource poor fishery are contained in each DFMP. Each DFMP also includes the results of previous stock assessments and a schedule for the next assessment of stock status. The harvest control rules and harvest control (management) tools proposed by fishing communities for each Reference Point are explained in the DFMP.



The DFMPs include a 'bycatch management strategy' to minimise the fisheries' impact on non-target species, particular species of national and international concern. Provisions for the DFO of the DFAR to monitor the implementation of the DFMP and take appropriate measures to ensure compliance are included in each DFMP. Each DFMP sets out the procedures to be followed by fishermen and the DFAR to resolve any disputes arising between fishermen within the fishery, and a list of actions to be implemented to further improve the fishery in 2018/19. The DFMPs will be revised and as necessary updated following the publication of results of the 4th annual stock to be conducted in 2018.

A Regulation for BSC fishing: In October, the draft regulation to improve the management of Sri Lankan BSC fisheries submitted by the FIP to the Director General, DFAR was revised to include comments and observations from the Legal Officer, DFAR. Once the revisions are approved by DFAR, the draft will be sent by the Director General to the Attorney General's Department for legal scrutiny and further comment.

Improving social responsibility and economic equity

Social responsibility and economic equity are equally important components of sustainably managing small scale fisheries. If the financial benefits of 'sustainably sourced' seafood are not share equitably throughout the supply chain, where is the incentive for thousands of small scale fishermen to sustainably exploit these resources? And if a fishery or a supply chain is irresponsible - using child labour, bonded or slave labour or employees' working conditions are not decent - will consumers still buy 'sustainably sourced' seafood?

Over the last four years the FIP has given grants worth more than LKR 3.0 million (US\$ 20,000) to fishermen's cooperative to start or improve small enterprises linked to fishing, mainly buying and selling fish. The ILO UN [LEED project](#) has contributed a further LKR 9.0 million (US\$ 60,000) to enable cooperatives to buy seafood from their members and sell directly to suppliers / manufacturers. Building enterprise capacity and shortening supply chains are key facets of improving equity in the supply chains for Sri Lankan BSC products.

Only Sri Lankan fishermen harvest Sri Lankan BSC. There is no evidence of child labour, migrant, bonded or slave labour working on BSC fishing boats or in supply chains for Sri Lankan BSC products. The ILO UN LEED project promotes and ensures Decent Work Standards in processing centres owned by fishermen's cooperatives, which link Sri Lanka's BSC fisheries to international markets for Sri Lankan BSC products.



Improvements to social responsibility and economic equity were co-financed by the International Labour Organisation of the United Nations' Local Empowerment through Economic Development (LEED) Project and the NFI Crab Council.

SLBSC Fishery / FIP Status Report

Every six months or so, the FIP conducts an internal assessment of the fishery against three international protocols for **sustainably sourced** seafood. By the end of December 2017 the FIP thinks the fisheries....



are at **SFP Stage 6: Independent / International Certification**: The SLBSC fishery has been independently assessed by the Monterey Bay Aquarium's Seafood Watch Program since 2016 and is currently being assessed against the MSC's Fishery Standard (see below)



could score **0.70** against the **MSC's Fishery Standard (Target ≥ 0.60)**: In November the two fisheries were submitted for 'pre assessment' against the Marine Stewardship Council's (MSC) Fishery Standard, by a MSC approved Certified Assessment Body. The cost of the 'pre assessment' was co-financed by [Verwijs](#) Import Export B.V. and [Taprobane](#) Seafood Pvt Ltd



could score **2.98** against **Seafood Watch's Criteria of Fisheries (Target ≥ 2.20)**

On behalf of the Seafood Exporters' Association of Sri Lanka (SEASL) the FIP is grateful to the National Fisheries Institute Crab Council (NFI CC) for its generous financial support since 2013. The FIP is also grateful to Taprobane Seafood Pvt Ltd, Santa Monic Seafoods LLC, FishWise and Verwijs Import Export B.V. for their investment in one or more of the sub projects described in this edition of the Sri Lankan **Blue Swimming Crab Bulletin**.



Soft copies of all eight (!!) editions of the Blue Swimming Crab Bulletin are available in English, Sinhala and Tamil.

To request copies please email steve@pelagikos.lk