



Sri Lankan Longline FIP Bulletin No.5

The new Sri Lanka longline fishery improvement project (FIP) is an initiative of the Seafood Exporters' Association of Sri Lanka (SEASL). The FIP is a tripartite collaboration by the SEASL with government authorities responsible for the regulation and management of the fishery and export promotion and the longline boat owners' associations engaged in harvesting **yellowfin** and **bigeye tuna** and **swordfish**. The FIP's goal is to ensure that these fisheries can continue indefinitely at a level that maintains the biological health & abundance of yellowfin and bigeye tuna and swordfish stocks and the diversity, structure and function of the habitats and ecosystem upon which these fisheries depend. The FIP aims to minimize any adverse effects the fishery may cause by means of a management system implemented in conformity with national and international laws. The FIP's long term goal is to maintain the present and future economic and social options and benefits arising from the fishery, in accordance with international norms for social responsibility and equity in supply chains for Sri Lankan seafood. Details of actions recently implemented by the members of the new longline FIP to improve the fishery are described in the 5th edition of the Sri Lankan Longline FIP Bulletin.

The following organisations, agencies and exporters are members of the new Sri Lanka longline FIP



Improvements to the biological status of the fisheries



Contracting Party Compliance with IOTC's Agreement (MFAR + IOTC)

Senior officers and staff of the Department of Fisheries & Aquatic Resources (DFAR) and the National Aquatic Resources, Research & Development Agency (NARA) attended the 17th Session of the IOTC working party on billfish, held in La Renuion in September; the 10th Working Party on Methods and the 21st Working Party on Tropical Tuna held in Spain in October and the 22nd Scientific Committee ([SC22](#)) held in Pakistan in December 2019. The Government of Sri Lanka remains committed to maintaining Sri Lanka's high level of [compliance](#) with the Indian Ocean Tuna Commission (IOTC) reporting requirements in respect of the biological status of the stock.



Capacity building for conventional and non-conventional stock assessment methods and harvest strategy evaluation (NARA + SEASL).

The sub project to improve senior scientists' and fishery managers' knowledge of conventional and non-conventional stock assessment methods and harvest strategy evaluation was completed in December. The sub project comprised two parts (1) a three day technical training and capacity building workshop; (2) new research using data-limited methods to investigate the impact of fisheries on the Indian Ocean yellowfin tuna stock. The three day technical workshop was conducted by Dr Toshihide Kitakado at NARA in March. Dr. Kitakado is the Chairperson of the IOTC Working Party on Methods and a Professor at the Department of Marine Biosciences, Tokyo University of Marine Science and Technology. New research using data- limited methods to investigate the impact of fisheries on the Indian Ocean yellowfin tuna stock was conducted by the FIP between May and December. The impact of five yellowfin tuna fisheries – (1) longline, (2) other line (handline, trolling), (3) pole and line, (4) gillnet and (5) purse seine fisheries - were assessed using length frequency data for yellowfin tuna collected by the IOTC (1955 to 2015). Five data-limited methods - (1) mature fish in the catch; (2) fish caught at optimum size; (3) mega-spawners in the catch (see Froese, 2004); (4) the change in average length (see Fairtrade USA, 2017) and (4) a length-based approach to spawning potential ratio (see Hordyck, *et al* 2015) - were used to assess the impact of each fishery on the Indian Ocean yellowfin tuna stock.

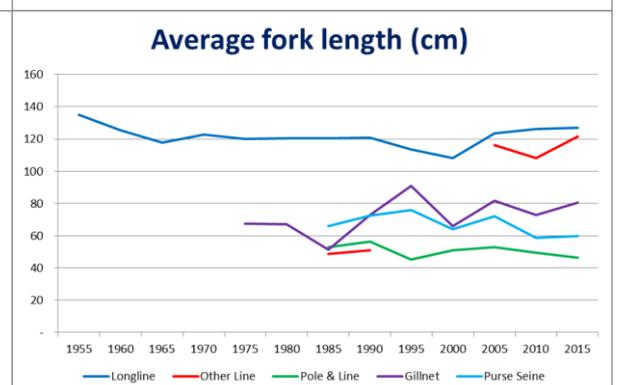
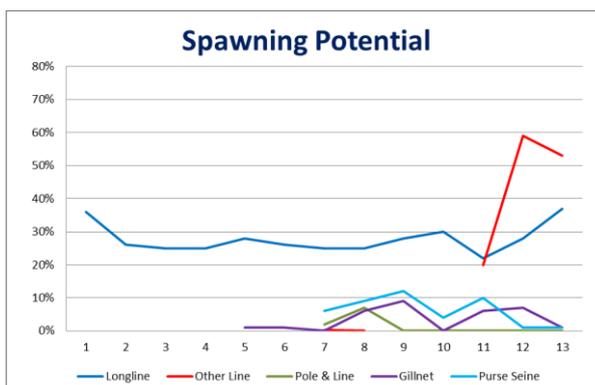
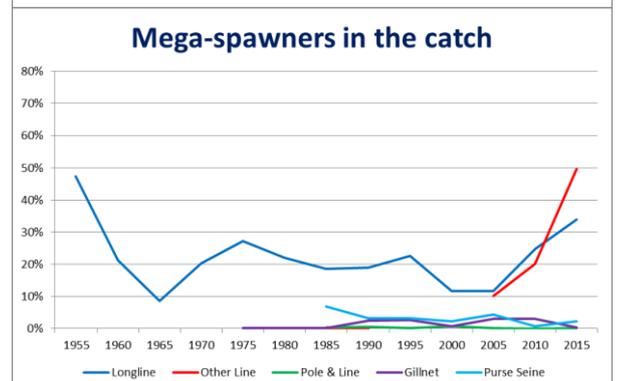
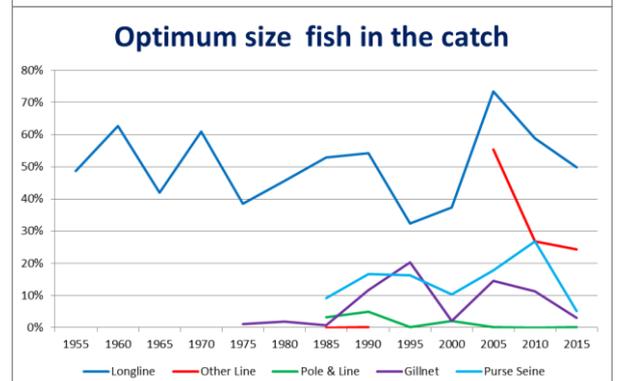
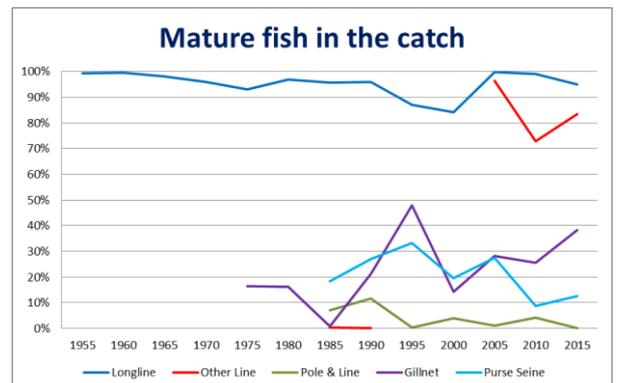
Key life history parameters necessary to run data-limited methods on length frequency data (*i.e.* maximum length (L_{max}), asymptotic length (L_{inf}), length on maturity (L_m), length on 50% maturity (L_{m50}), natural mortality (M), growth rate (K) and the ratio of M/K) were extracted from the literature on the population biology of yellowfin tuna stocks in the Atlantic, Indian and Pacific oceans. The majority of these values were gleaned from a global study of scombrid life histories by Dr Maria Jose Juan-Jordá (*see* Juan-Jordá *et al* 2016). Dr Juan-Jordá kindly shared a soft copy of her database with the FIP (*see* Juan-Jordá *et al* 2013). The 'best estimate' for each life history parameter (*see right*) was derived through a process of informed deduction. Length frequency data for yellowfin tuna collected by the IOTC between 1955 and 2015 was run through the five data-limited methods. The results of the five analyses (*see below*) highlight the different impact each fishery has, on the Indian Ocean yellowfin stock.

L_{max}	165 cm
L_{inf}	183 cm
L_m	82 cm
L_{m50}	104 cm
L_{m95}	115 cm
M	0.62
K	0.44
M/K	1.39
L_{opt}	125 cm
-10%	112 cm
+10%	137 cm

The percentage of mature fish in the catch of the longline fishery remained above 80% over the last 60 years. Since 2005, more than 90% of the longline catch was mature. In contrast more than 50% of the catch from gillnet and purse seine fisheries was immature during the same period. In pole and line fisheries, more than 90% of the yellowfin tuna catch was immature / had yet to spawn. The percentage of yellowfin tuna caught at optimum size and the percentage of mega-spawners in the longline and other line fisheries' was consistently at or above the level (30% - 40%) recommended by Froese (2004) since 1955. Gillnet and purse seine fisheries harvested fewer fish at optimum size; the catch contained a low percentage of mega-spawners. More than 95% of the catch in pole and line fisheries was sub optimum. There were almost no mega-spawners in the pole and line catch.

The average size of yellowfin tuna caught by longline and other line fisheries (*i.e.* handline, trolling) remained consistently above the size on first maturity (82 cm) over the past sixty years. The size of fish caught in pole and line, gillnet and purse seine fisheries was at or less than the size on first maturity, from the time these fisheries were introduced in 1970s and 1980s. The results of the length-based spawning potential assessment reflect the findings of the preceding four data-limited methods. The results suggest that the residual spawning potential of the Indian Ocean yellowfin stock is being targeted by longline and other line fisheries.

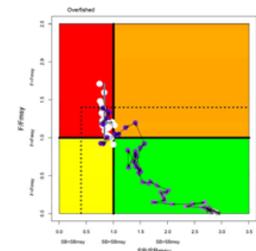
The presence of large numbers of immature fish in the catch of pole and line, gillnet and purse seine fisheries has implications for the current status and the future management of the Indian Ocean yellowfin stock.



The IOTC's most recent assessment of the stock status of yellowfin tuna concluded that *on the weight-of-evidence available in 2018 the yellowfin tuna stock is determined to remain **overfished** and subject to **overfishing**.*

Indicators	TRP	2018	LRP
Spawning Biomass	1.00	0.83	0.40
Fishing Mortality	1.00	1.20	1.40

According to the IOTC spawning biomass (SB) was considered to be 17% below the interim target reference point (TRP) for SB_{msy} but above the interim TRP of 0.4 SB_{msy} (see above). Fishing mortality (F) was estimated to be 20% above the interim target reference point F_{msy} but below the interim TRP of 1.4 F_{msy} . The IOTC's stock synthesis generated a Kobe plot stock determination with a **red rating** for the Indian Ocean yellowfin stock (see right). The IOTC's management advice to the Commission was to ensure that catches are reduced to end **overfishing** and allow the SB to recover to SB_{MSY} levels. The results of the FIP's assessment using data-limited methods and IOTC length frequency data suggest that when catch reduction measures are formulated and implemented by IOTC, these measures should reflect each fishery's impact on the stock.



Improvements to the ecological status of the fishery



Contracting Party Compliance with IOTC's Agreement (MFAR + IOTC)

Senior officers and staff of the DFAR and NARA attended the 15th Session of the IOTC working party on ecosystems and bycatch and the 17th Session of the IOTC working party on billfish in La Reunion in September 2019. Billfish including blue, black and striped marlin are a key non-target species in the Sri Lankan longline fishery.

Improvements to the management of the fishery



Contracting Party Compliance with IOTC's Agreement (MFAR + IOTC)

Representatives from DFAR attended the IOTC's 15th Working Party on Data Collection and Statistics ([WPDCS15](#)) held between in Pakistan in December 2019.



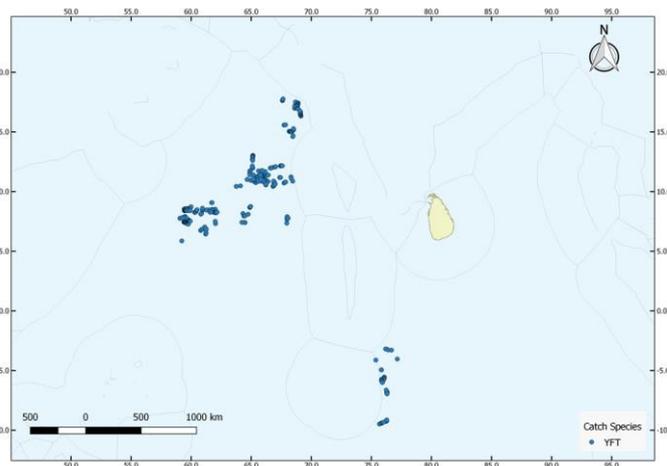
Local Observer Programme (SEAPACT + DFAR)

The IOTC's [Resolution 11/04 On a Regional Observer Scheme](#) requires contracting parties to collect verified catch data and other scientific data for tuna and tuna-like species from at least 5% of the number of operations/sets for each gear type for vessels less than 24 meters if they fish outside their EEZ. The small size of Sri Lanka's 1,350 plus multiday fishing fleet (average size = 12.4 m) means it is not safe to deploy independent scientific observers on these vessels. As a consequence Sri Lanka is unable to meet the IOTC's requirement for the submission of verified catch data and other scientific data from 5% of fishing trips made by < 24 m vessels outside Sri Lanka's EEZ.

To address this critical issue within the fishery and improve Sri Lanka's compliance with IOTC reporting requirements, the FIP set about researching and developing a **Local Observer** programme to collect verified catch data and other scientific data from < 24 m vessels that fish outside Sri Lanka's EEZ. The results of the Pilot Phase (17 vessels / September to December 2018) indicated that verified catch data and other scientific data related to the fisheries for yellowfin and bigeye tuna and swordfish could be collected from < 24 m Sri Lankan multiday longline vessels, in accordance with IOTC Resolution 11/04.



An improved data collection protocol developed during the 2nd Phase (11 vessels / April to June 2019) enabled the DFAR to collect 34 IOTC Regional Observer data requirements associated with trip, gear, set and catch and scientific data for individual fish and other captured species, including endangered, threatened and protected species. Using the improved protocol DFAR was able to achieve **98% compliance** with 34 independently verifiable catch data and other scientific data requirements, in accordance with IOTC Resolution 11/04. The cost of training, data collection, analysis and reporting was LKR 60,000 (US\$ 330) per trip.



The **Local Observer** programme was co-financed by **SEAPACT** - a group of leading North American seafood companies dedicated to driving stewardship and continuous improvement of social, economic, and environmental responsibility throughout the global seafood supply chain.

Improving economic equity & social responsibility



SLEDB

No improvements to economic equity or social responsibility in supply chains for Sri Lankan yellowfin and bigeye tuna or swordfish were made during the second semester of 2019.

Sri Lankan Longline Fishery Status Update



MSC approved Pre Assessment (NESI + SEASL)

The MSC approved **pre-assessment** of the fishery conducted by CapMarine (Pty) Ltd in 2018 suggested that the three target fisheries were operating at a level consistent with a conditional pass of MSC's Fishery Standard (SG > 0.60). However all three fisheries failed the **pre-assessment** because two Performance Indicators (PIs) scored < 0.60. The MSC approved **pre-assessment** was co-financed by New England Seafood International.

Performance Indicators	≥80	60-79	<60	Overall
Yellowfin Tuna	12	14	02	0.68
Bigeye Tuna	12	13	02	0.69
Swordfish	12	13	02	0.69

FIP at a Glance

FISHERY STATUS FIP is addressing 28 of 28 indicators

Current Status:



Starting Evaluation: April 01, 2018



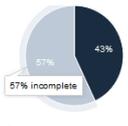
FIP PROGRESS

Progress Rating

A

ADVANCED PROGRESS

Actions Complete



Next Update Due

JUN 2020

Target End Date

MAR 2021

ADDITIONAL IMPACTS

ROUNDTABLE



Fishery Progress (SEASL)

The new Sri Lankan longline FIP is a **Comprehensive FIP** according to fisheryprogress.org. The FIP's rating improved from **C – Some Recent Progress** to **A – Advanced Progress** in December 2019. 26 PIs scored **YELLOW** or **GREEN** in 2018 (93%). The FIP is working to improve the scores of the two PIs scored **RED** in 2018, to **YELLOW** by December 2021. 43% of the actions planned had been completed by the FIP by December 2019. The following new investments are necessary to further improve the Sri Lankan longline fishery

- 1) Replicate and expand the implementation of the Local Observer programme
- 2) Ensure the live release of endangered, threatened & protected species
- 3) Introduce a Harvest Control Strategy with Rules & Tools for the fishery
- 4) Improve the Scientific Observer Programme on > 24 m vessels
- 5) Review and update the NPOA IUU Fishing 2018 – 2022

Seven of Sri Lanka's leading seafood manufacturers were Corporate Members of the longline FIP in 2019/20
Ceylon Fresh Seafood Pvt Ltd, Global Seafood Pvt Ltd, Jay Seafood Processing Pvt Ltd, John Seafood Pvt Ltd, Lihini Seafood Pvt Ltd, North West Fisheries Pvt Ltd and Tropic Sri Lanka Pvt Ltd

Soft copies of this and previous editions of the Sri Lanka Longline FIP Bulletin are available in English and Sinhala. To obtain copies of the bulletin or more details about the new longline FIP please email steve@pelagikos.lk