BLUE MARINE FOUNDATION

A case study on the management of yellowfin tuna by the Indian Ocean Tuna Commission

Blue Marine Foundation

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Abbreviations

CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CPCs	Contracting parties and cooperating non-contracting parties
CPUE	Catch per unit effort
EEZ	Exclusive economic zone
F	Fishing mortality
FADs	Fish aggregating devices
FAO	Food and Agriculture Organization of the United Nations
FIP	Fishery improvement project
FMSY	Fishing mortality at maximum sustainable yield
HCR	Harvest control rules
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
IO	Indian Ocean
IOTC	Indian Ocean Tuna Commission
IUCN	International Union for Conservation of Nature
ISSF	International Seafood Sustainability Foundation
LDCs	Least developed countries
MCS	Marine Conservation Society

MSC	Marine Stewardship Council
MSY	Maximum sustainable yield
NGO	Non-governmental organisation
OPAGAC	Organización de Productores Asociados de Grandes Atuneros Congeladores
RFMO	Regional fisheries management organisation
SIDS	Small island developing states
SIOTI	Sustainable Indian Ocean Tuna Initiative
SB	Spawning biomass
SBMSY	Spawning biomass at maximum sustainable yield
SSBMSY	Stock spawning biomass at maximum sustainable yield
SSB	Spawning stock biomass
TAC	Total allowable catch
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNFSA	United Nations Fish Stocks Agreement
VMS	Vessel monitoring systems
WCPFC	Western and Central Pacific Fisheries Commission
WPTT	Working Party on Tropical Tunas
WWF	World Wide Fund for Nature
YFT	Yellowfin tuna

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Executive summary

Yellowfin is a large tuna found in tropical and subtropical waters, listed as "near threatened" on the IUCN Red List of Endangered Species. It is generally sold in cans, as steaks or raw as sashimi. Globally, while yellowfin stocks in the Western and Central Pacific are considered to be in good shape and stocks in the Atlantic and Eastern Pacific are doing relatively well, yellowfin stocks in the Indian Ocean are overfished and at risk of collapse if more is not done to reduce catches.

The plight of the Indian Ocean yellowfin tuna – which follows the overfishing of bluefin in the Atlantic and Mediterranean in the 1990s and early 2000s and its continued decline in the Pacific – should be of concern in Europe where demand for yellowfin remains high and large volumes are consumed. Southern Europe is one of the largest markets for canned yellowfin. Nearly 700 tons a year are sold in the UK, mostly fresh and frozen, in all but one of the ten major retailers, many of which assure customers of the sustainability of the fish they sell.

Indian Ocean yellowfin is currently the worst managed yellowfin stock in the world, by the industry's own admission. The regional fisheries management organisation responsible for managing it is the Indian Ocean Tuna Commission (IOTC), a collection of regional coastal states and distant water fishing nations. Scientists from the IOTC recommended in 2015 that a 20 per cent reduction in catches was necessary to give the stock a 50 per cent chance of recovery by 2024. In 2017, the first year this catch reduction was applied, the total catch actually increased by 3 per cent.

A 25 per cent reduction in catches is now required to save this important stock, but it looks highly unlikely that this will be implemented at the 23rd annual Session of the Commission in June. The IOTC's total current ambition adds up to a reduction of 7 per cent, which because of its inherently weak governance structure is unlikely to be fully enforced.

As this report went to press, we became aware of a complaint to the European Commission from the South African Government saying that the Spanish fleet had exceeded its total allowable catch in 2017 by nearly 9,000 tons and had continued unchecked in 2018, contrary to European fishing regulations (see Appendix 3).

While the sustainable management of tuna species is possible and is in fact practised by some of the fishing nations involved in other areas of the world, the IOTC falls short when it comes to the percentage of vessels carrying observers and the use made of vessel monitoring systems. It does not require data sharing from vessel monitoring systems among contracting parties or with the Secretariat.

It also relies on voluntary compliance, which leads to unresolved disputes over the allocation of catches. These weaknesses in IOTC procedures are detrimental to the quality of catch data and to the transparency of the fishery as a whole.

There are several "fisheries improvement projects" associated with the Indian Ocean yellowfin fishery, but none has yet succeeded in achieving the necessary overall reduction in catches called for by IOTC scientists. This has not stopped large tuna processing companies, such as Thai Union, Princes and Bolton Group, from using these projects to assure customers of their products' sustainability.

In the absence of decisive action by the IOTC, it will be up to government representatives, retailers, processors, NGOs and consumers to make clear urgently to the Commission what responsible steps it should take to save the globally-important yellowfin stock from collapse. A reduction in fishing capacity would also have a beneficial effect on sharks, turtles and seabirds caught in longlines, gillnets and purse seines.

Introduction

Global tuna fisheries are a crucial source of food and income for both developed and developing nations. As highly migratory species that range across the jurisdiction of many countries as well as the high seas, it has been understood for decades that tuna require international cooperation for their conservation and management[1]. The United Nations Convention on the Law of the Sea (UNCLOS), the United Nations Fish Stocks Agreement (UNFSA) and the Food and Agriculture Organization of the United Nations (FAO) Code of Conduct for Responsible Fisheries all require nation states to cooperate with one another in the management of shared fish stocks like tuna.

The international bodies tasked with the management of these complicated fish stocks are regional fisheries management organisations (RFMOs). RFMOs are made up of the regions' coastal states and countries that share a practical or financial interest in the management of stocks in a particular region. There are 17 RFMOs covering the world's oceans and seas, five of which are considered "tuna RFMOs":

- Commission for the Conservation of Southern Bluefin Tuna (CCSBT)
- Inter-American Tropical Tuna Commission (IATTC)
- International Commission for the Conservation of Atlantic Tunas (ICCAT)
- Western and Central Pacific Fisheries Commission (WCPFC)
- Indian Ocean Tuna Commission (IOTC)

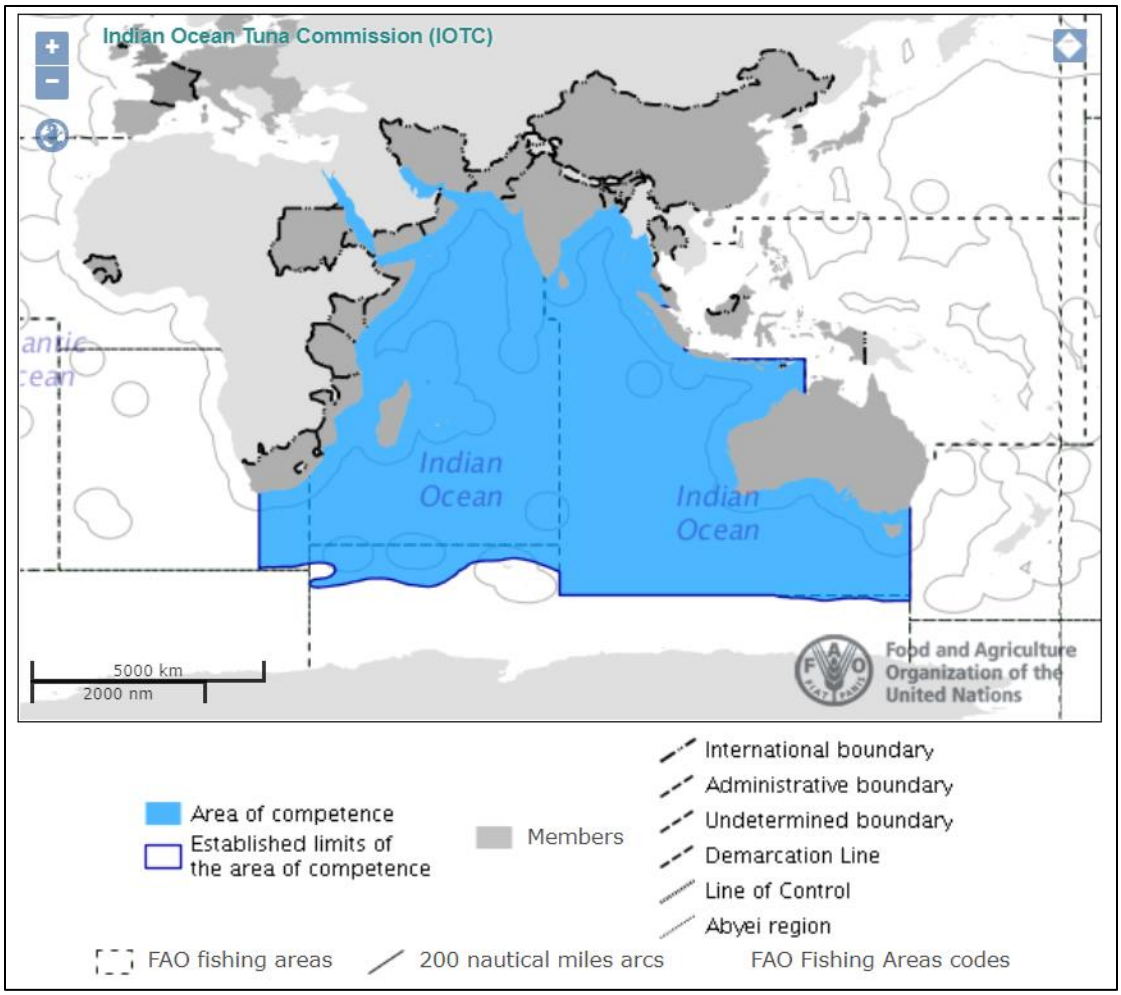


Figure 1: IOTC area of competence[2]

[1] Allen, R (2010). 'International management of tuna fisheries: arrangements, challenges and a way forward'. FAO Fisheries and Aquaculture Technical Paper 536.

[2] FAO. 'Indian Ocean Tuna Commission' http://www.fao.org/fishery/rfb/iotc/en (accessed 29/05/2019).

Given the scope of this report, the only RFMO that will be discussed in any great detail is the IOTC which is responsible for the management of tuna and tuna-like species in the India Ocean. Membership of the IOTC is open to Indian Ocean coastal countries and to countries that are members of the UN and fish for tuna in the Indian Ocean.

The IOTC is responsible for the management of stocks found in the area of ocean that stretches from the east coast of Africa to the west coast of Indonesia, as illustrated in Figure 1. Tuna fisheries in this region range from distant water European purse seiners and semi-industrial longline fleets catching yellowfin tuna to the MSC-certified pole and line skipjack fishery in the Maldives.

There are currently 33 Commission contracting parties and Commission cooperating non-contracting parties (CPCs) of the IOTC.

The IOTC's Compliance and Scientific Committees meet annually to monitor compliance of the CPCs and the status of the stocks respectively. There are also various working parties that exist to analyse technical problems related to the management goals of the Commission. Of particular relevance to this report is the Working Party on Tropical Tunas (WPTT) that reviews issues relevant to the fisheries and status of the three tropical tuna species under the IOTC mandate: bigeye tuna, skipjack tuna and yellowfin tuna.

Commission Contracting Parties and Commission Cooperating Non-Contracting Parties		
Australia	Kenya	Sierra Leone
Bangladesh	Korea	Somalia
China	Madagascar	South Africa
Comoros	Malaysia	Sri Lanka
Eritrea	Maldives	Sudan
European Union	Mauritius	Tanzania
France	Mozambique	Thailand
India	Oman	United Kingdom
Indonesia	Pakistan	Yemen
Iran	Philippines	Liberia*
Japan	Seychelles	Senegal*
** indicates Cooperating Non-Contracting Parties*		

Table 1: Commission Contracting Parties and Cooperating Non-Contracting Parties of the IOTC

The state of the yellowfin tuna stock under IOTC management

Historical catch trends

Globally, yellowfin tuna is listed on the IUCN Red List as "near threatened" with a decreasing population trend. This assessment was carried out in 2011 and acknowledged that, "although model projections are variable, concerns however remain about possible overfishing in recent years in the Indian Ocean"[3]. All of the yellowfin tuna that exists in the Indian Ocean is part of a single stock[4]. In 2009, the IOTC acknowledged that the yellowfin tuna "stock size is close to or has possibly entered an overfished state"[5]. In the decade since this was acknowledged, the fate of the Indian Ocean's yellowfin tuna stock has only worsened.

[3] IUCN. 'Yellowfin Tuna' https://www.iucnredlist.org/species/21857/9327139#assessment-information (accessed 03/06/2019).

[4] Fisheries and Resources Monitoring System. 'Yellowfin tuna - Indian Ocean' http://firms.fao.org/firms/resource/22/en (accessed 29/05/2019).

[5] IOTC (2009). 'Report of the Twelfth Session of the Scientific Committee', p.4.

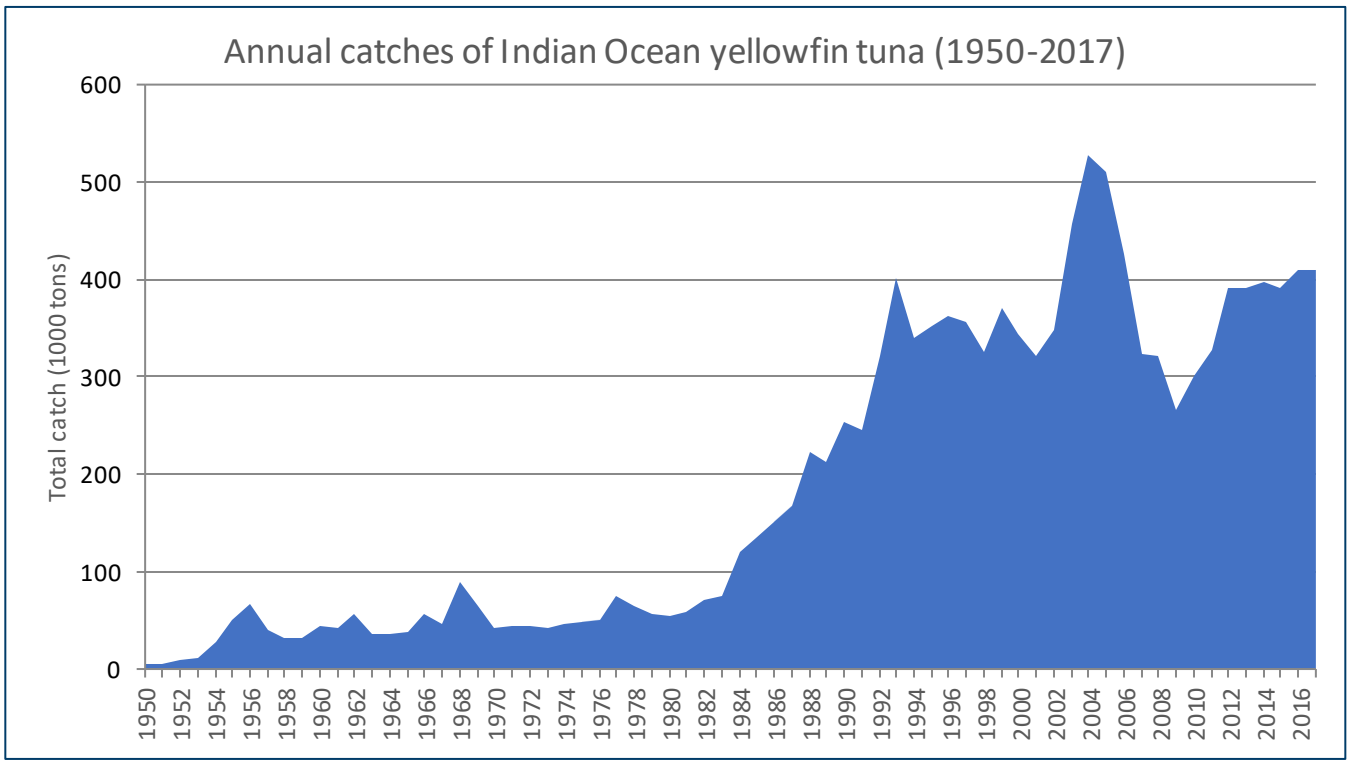


Figure 2: The total catches of yellowfin tuna caught in the Indian Ocean, 1950-2017[6]

Figure 2, above, shows the annual catch of yellowfin tuna in the Indian Ocean from 1950 to 2017. Catches were a fairly constant 20,000 – 60,000 tons until the early 1980s. In 1993, catches of yellowfin shot to over 400,000 tons. This sudden increase was mostly due to the rapid development of purse seine, gillnet and longline fisheries in the region[7]. 1993 also happened to be the year in which the IOTC was established to manage this and other stocks. Annual catch reached an all-time high of 527,602 tons in 2004, followed by sharp decline from 2007 – 2011 that occurred as a result of the threat posed by piracy in the Western Indian Ocean during this time.

The current state of the Indian Ocean's yellowfin tuna stock

After conducting an assessment of the state of the Indian Ocean's yellowfin tuna stock in 2015, the IOTC's Scientific Committee confirmed that, "on the weight-of-evidence available in 2015, the yellowfin tuna stock is determined to be overfished and subject to overfishing," with 94 per cent certainty that this was the case[8]. The following year, another stock assessment returned slightly more optimistic results, with only a 67.6 per cent certainty that the stock was both overfished and subject to continued overfishing[9].

Two years later in 2018, a further assessment was carried out using four types of data: catch, size frequency, tagging and joint longline catch per unit effort (CPUE) indices. The results were unambiguous and strongly supported the findings of the 2015 stock assessment: yellowfin tuna is overfished and continues to be subject to overfishing in the Indian Ocean[10].

Figure 3, below, shows the extent to which the stock is overfished by plotting the changes over time of the ratio of stock spawning biomass (SSB) to what science recommends the SSB would be if the stock were harvested at its maximum sustainable yield (MSY).

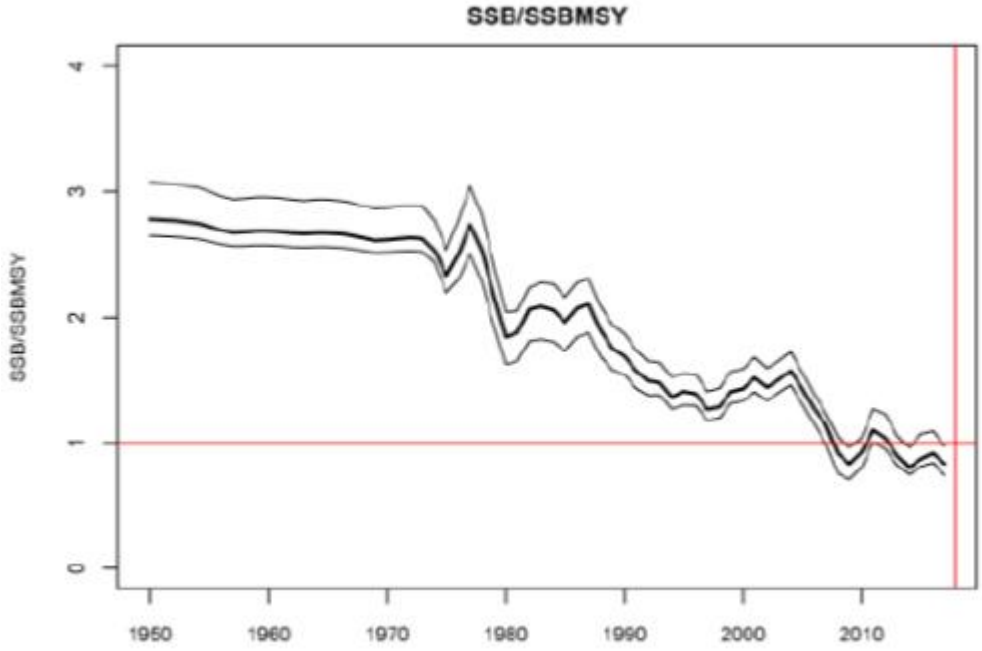
[6] IOTC (2018). Nominal catch by species and gear, by vessel flag reporting country 1950-2017 (accessed 14/05/2019).

[7] Miyake, M.P., Miyabe, N. & Nakano, H. (2004). 'Historical trends of tuna catches in the world'. FAO Fisheries Technical Paper 467, p.43.

[8] IOTC (2015). Report of the 18th Session of the IOTC Scientific Committee, p.84.

[9] IOTC (2016). Report of the 19th Session of the IOTC Scientific Committee.

[10] IOTC (2018). Report of the 21st Session of the IOTC Scientific Committee.



As soon as this ratio dips below 1, the stock's spawning biomass is below the level required to sustain MSY, meaning the stock is overfished.

Figure 3: Graph showing that Indian Ocean yellowfin tuna's SSB has dropped below the level required to sustain MSY[11]

Similarly, should the ratio of fishing mortality (F) to the fishing mortality at MSY rise above 1, a stock is considered to be subject to overfishing. This is indeed the case for Indian Ocean yellowfin, as illustrated in Figure 4, below.

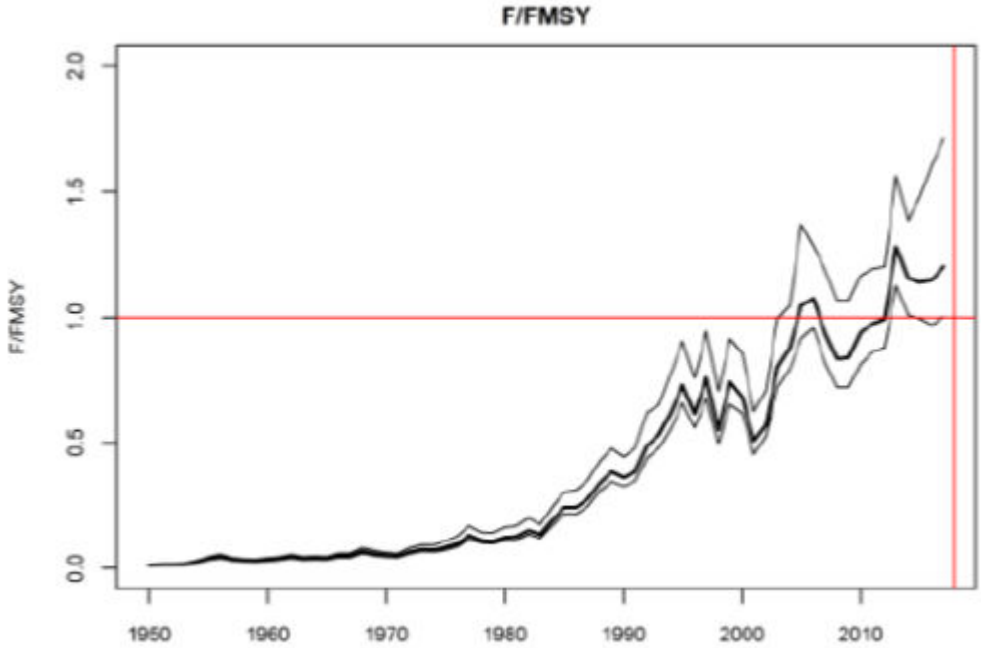
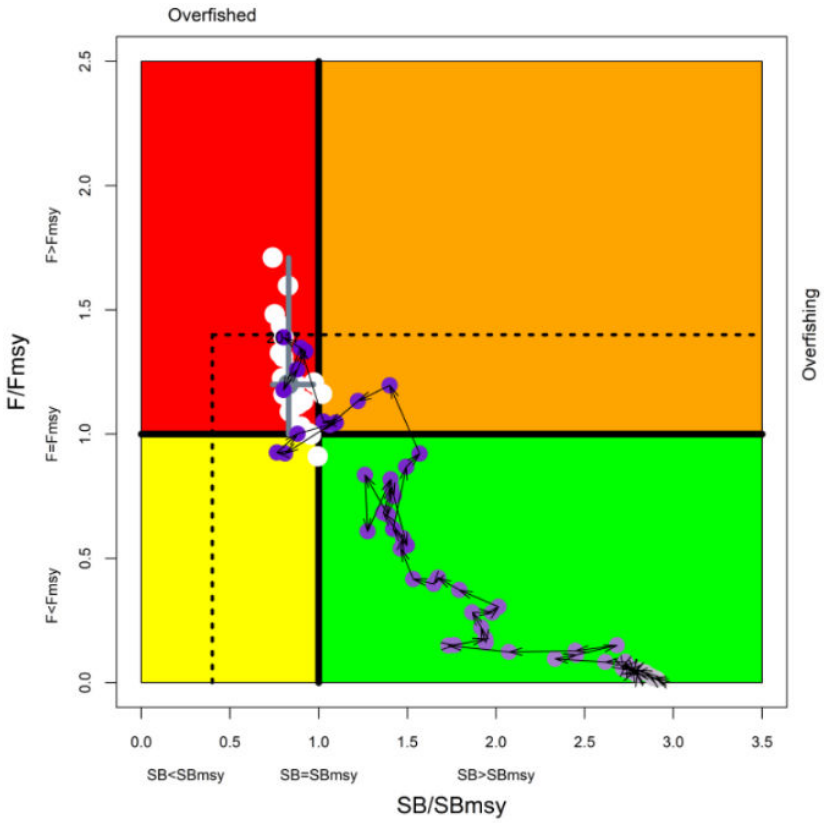


Figure 4: Graph showing the rise in Indian Ocean yellowfin tuna's fishing mortality beyond sustainable limits[12]

The Kobe plot in Figure 5, taken directly from the Report of the 20th Session of the IOTC WPTT (page 52), illustrates the trajectory of the Indian Ocean yellowfin tuna stock's status from 1950 to 2017 by plotting the ratio of the stock's spawning biomass (SB) to the spawning biomass at maximum sustainable yield (SBMSY) against the ratio of fishing mortality (F) to the fishing mortality at maximum sustainable yield (FMSY). Each dot represents a year, with the arrows indicating the trajectory.

[11] IOTC (2018). Report of the 20th Session of the IOTC Working Party on Tropical Tunas , p.51.
[12] IOTC (2018). Report of the 20th Session of the IOTC Working Party on Tropical Tunas , p.51.



Put simply, stocks that fall in the green quadrant where F/FMSY is less than 1 and SB/SBMSY is greater than 1 are underfished and could sustainably produce more food if fishing effort were increased. Conversely, stocks that find themselves in the red quadrant are overfished and require an immediate reduction in fishing pressure.

Figure 5 (left): Kobe plot showing the trajectory of the Indian Ocean yellowfin tuna stock's status from 1950 to 2017

In the case of Indian Ocean yellowfin tuna, failure to reduce this pressure could very well lead to the collapse of the stock, as shown in Figure 6. Figure 6 shows the trajectory of the state of the Indian Ocean yellowfin tuna stock from 2018 to 2027, based on a number of possible changes in catch levels that range from 60 per cent of the 2017 total catch to 120 per cent. The black line shows the kind of collapse that will inevitably befall yellowfin tuna if levels of fishing remain as high as they currently are in the Indian Ocean. A catch reduction of at least 25 per cent is needed if the stock is to have a chance of recovery.

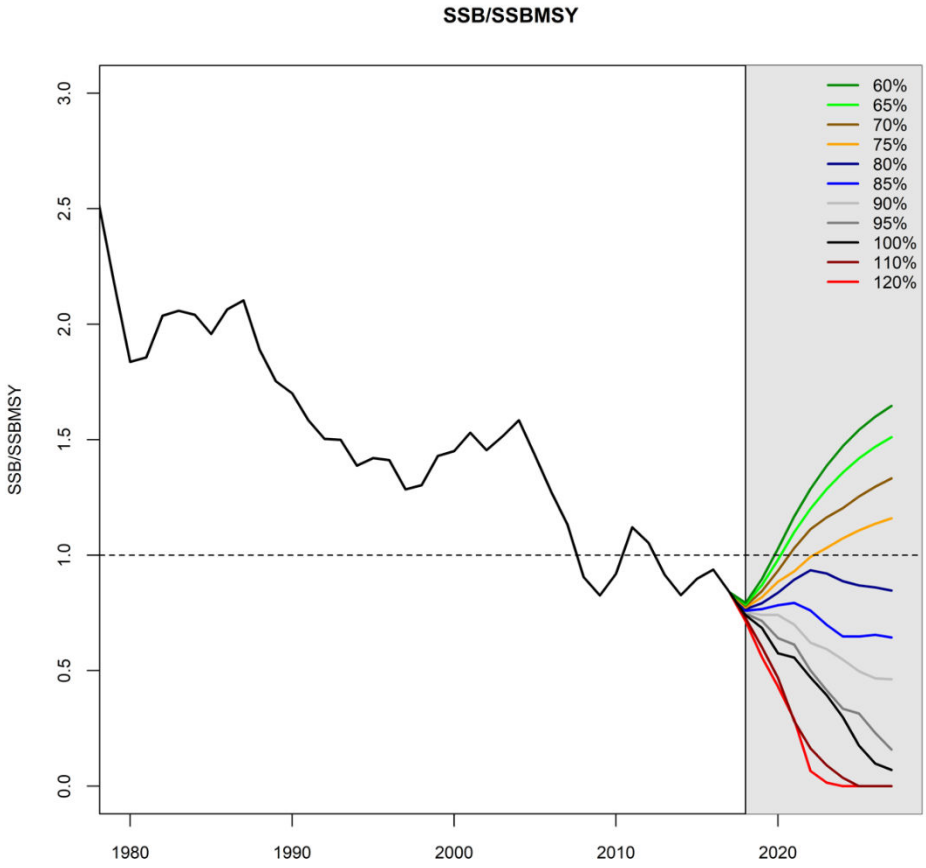


Figure 6: Trajectory of the state of Indian Ocean YFT stock with a 10-year projection (2018-2027) assuming a constant level of catch at 60% –120% of the 2017 catch level. The grey area represents the projection period[13].

[13] IOTC (2018). Indian Ocean Yellowfin Tuna SS3 Model Projections, p.3.

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IOTC's interim plan to rebuild the yellowfin tuna stock

At the IOTC's 18th Scientific Committee meeting in 2015, when it was no longer plausible to deny that yellowfin tuna was being overexploited in the Indian Ocean, the Scientific Committee recommended that yellowfin catches needed to be reduced by **20 per cent** of their 2014 levels in order to have a 50 per cent chance of recovery by 2024[14]. This proposed reduction was cited as a consideration in the IOTC's Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock, adopted in 2016.

Despite acknowledging the need for a 20 per cent reduction of the overall yellowfin tuna catch, the IOTC's interim plan required its members to implement the following reductions:

- countries whose purse seine catches of yellowfin exceeded 5,000 tons in 2014 were required to reduce their catch by **15 per cent**, based on 2014 levels;
- countries whose gillnet catches for 2014 were above 2,000 tons were required to reduce yellowfin catches by **10 per cent**, based on 2014 levels;
- countries whose longline catches for 2014 were above 2,000 tons were required to reduce yellowfin catches by **10 per cent**, based on 2014 levels;
- countries whose catches of yellowfin from all other gears exceed 5,000 tons in 2014 were required to reduce their catches by **5 per cent** of the 2014 levels[15].

It should be noted that small island developing states (SIDS), least developed countries (LDCs) and small vulnerable economies were granted permission to base their reductions on either their 2014 or 2015 yellowfin tuna catches. The Seychelles is the only CPC reported to have taken advantage of this provision and agreed to base its reduction on its 2015 yellowfin tuna catch.

While these might seem like relatively ambitious reduction targets, when the overall catch reduction is calculated, the sum total of the IOTC's ambition adds up to a mere **7 per cent** reduction based on yellowfin catch levels from 2014 (or 2015 in the case of the Seychelles). This overall percentage reduction was not formally acknowledged by the IOTC but can be calculated using the catch data provided in Table 3 of the Report of the 21st Session of the IOTC Scientific Committee.

2017 was the first year that the IOTC CPCs were required to implement the agreed catch reductions. Results were mixed. Table 2, below, lists the nine fisheries required to reduce their catch in 2017, based on their 2014/2015 baselines.

While some fisheries reported a substantial reduction in catch in 2017, their efforts barely offset those fleets whose catches increased in 2017 compared to their 2014/2015 baselines. Overall, the catches for fleets subject to the reductions decreased by one per cent.

Fishery	Required % catch reduction from 2014/2015 baseline	% change from baseline in 2017
EU purse seine fleet	-15%	-5%
Korea purse seine fleet	-15%	-28%
Seychelles purse seine fleet	-15%	7%
Taiwan longline fleet	-10%	-26%
Sri Lanka longline fleet	-10%	-25%
India gillnet fleet	-10%	-15%
Iran gillnet fleet	-10%	33%
Maldives bait boat fleet	-5%	-5%
Maldives hand-line fleet	-5%	1%

Table 2: Required percentage catch reduction compared to actual percentage change in 2017[16].

[14] IOTC (2016). Resolution 16/01.
[15] IOTC, (2017). Resolution 17/01.
[16] IOTC (2018). Report of the 21st Session of the IOTC Scientific Committee, pp.39-40.

While these nine fisheries were subject to a reduction, approximately 70 other fisheries were under no obligation to reduce their 2017 yellowfin catch. This included several CPCs who appear to have met the criteria listed above, such as Japan's longline fleet that caught 3,693 tons in 2014, Iran's gillnet fleet that caught 16,925 tons in 2014 and Sri Lanka's fleets employing "all other gears" that reportedly caught a combined 15,280 tons in 2014, and an astounding 22,883 tons in 2017[17].

Figure 7 shows that the six countries that caught the most Indian Ocean yellowfin tuna in 2017 were Iran, Spain, Maldives, Seychelles, Sri Lanka and France. When these countries are compared to those in Table 2, it's clear that all four CPCs that failed to implement the required reductions are also among the highest catchers of Indian Ocean yellowfin tuna.

As a result, total catches of yellowfin in 2017 increased by about **3 per cent** from 2014/2015 levels[18]. Not only did the IOTC fail to enforce the 20 per cent reduction in catch recommended by its own Scientific Committee, it also failed to enforce even the meagre 7 per cent reduction agreed by its members. Instead, it allowed the annual yellowfin catch to increase yet again.

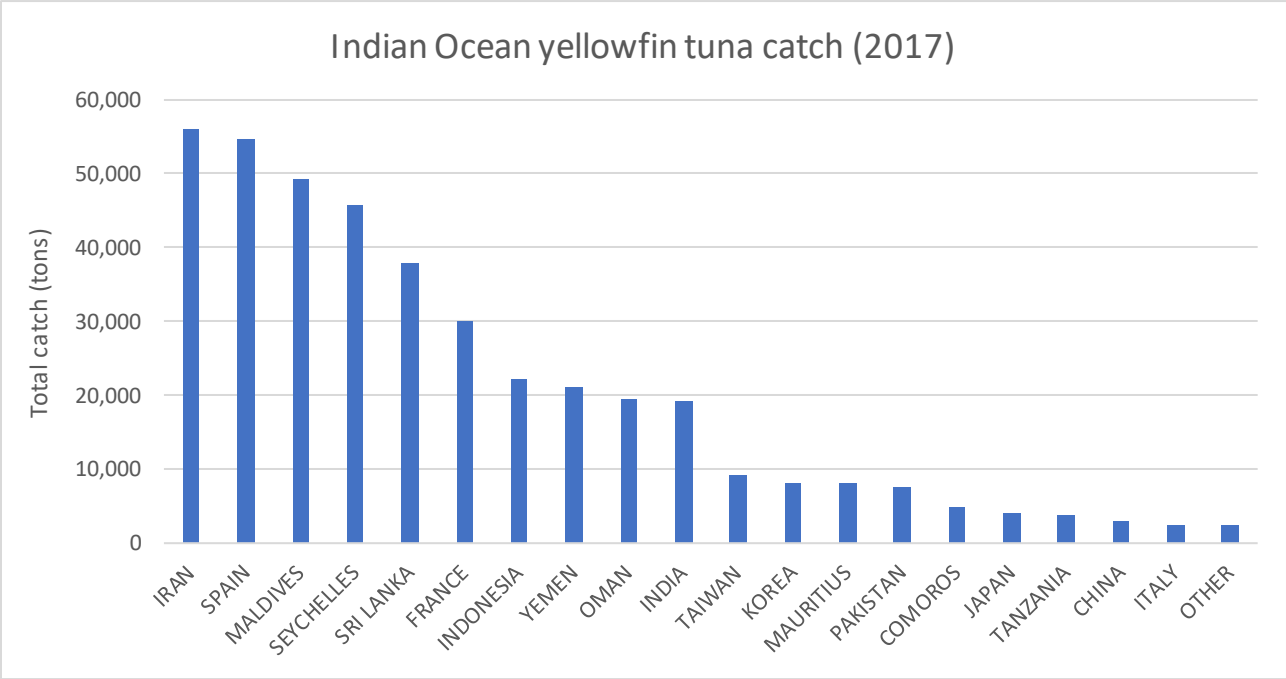

Figure 7: Total 2017 IOTC yellowfin tuna catch by CPC[19]

Who's to blame for the state of Indian Ocean yellowfin tuna?

As outlined earlier in this report, highly migratory species like tuna that travel through several countries' exclusive economic zones (EEZs) and into the high seas during their lifetime are notoriously difficult to manage. However, these challenges have not prevented the sustainable management of yellowfin tuna in other areas around the world, such as in the Western and Central Pacific Ocean, managed by the WCPFC.

The International Seafood Sustainability Foundation (ISSF) is a global coalition of scientists, the tuna industry and the World Wide Fund for Nature (WWF) and was founded in 2009 to promote the conservation and sustainable use of tuna stocks. On its website, ISSF offers an interactive tool that shows the state of tuna stocks around the world, based on their frequently updated Status of the Stocks Report.

[17] IOTC (2018). Report of the 21st Session of the IOTC Scientific Committee, pp.39-40.
[18] IOTC (2018). Report of the 21st Session of the IOTC Scientific Committee.
[19] IOTC (2018). Nominal catch by species and gear, by vessel flag reporting country 1950-2017 (accessed 14/05/2019).

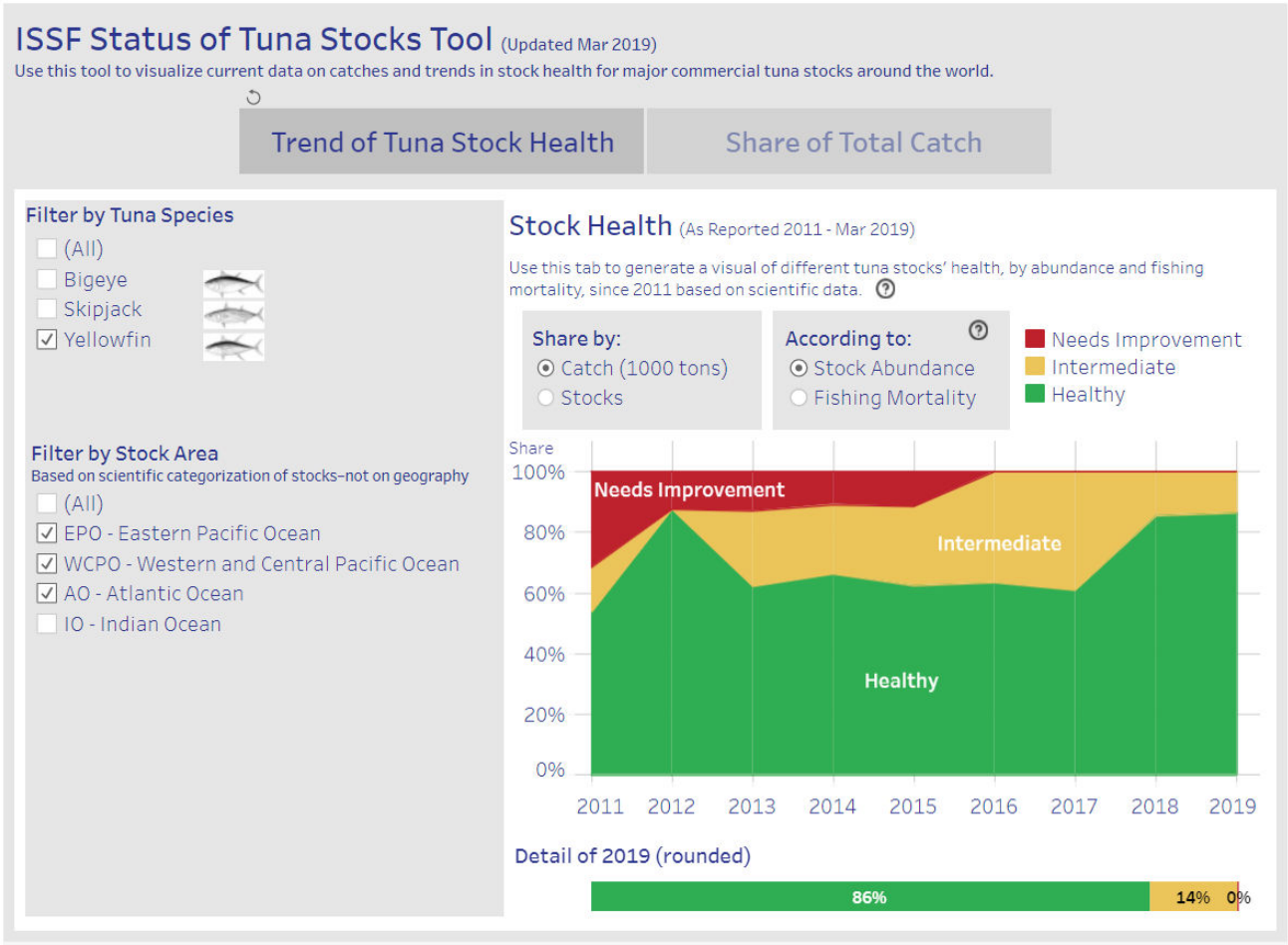

Figure 8: Screenshot from the ISSF's stock status tool showing the status of YFT stocks in other areas of the world[20].

Figure 8, a screenshot from the ISSF's interactive stock status tool, shows the current stock health of yellowfin tuna in the Eastern Pacific Ocean, the Western and Central Pacific Ocean and the Atlantic Ocean. Overall, yellowfin stocks in these areas appear to be healthy, with a small portion falling into the intermediate category, but none declared to be in need of improvement.

Unfortunately, the same cannot be said for the Indian Ocean's yellowfin tuna stock.

The IOTC's shortcomings

While countries in other regions appear to be able to manage their yellowfin tuna stocks in a sustainable manner, the ISSF's stock health assessment for Indian Ocean yellowfin (Figure 9, below) paints a different picture: that of the worst managed yellowfin tuna stock in the world.

Unlike other RFMOs that manage yellowfin tuna, the IOTC has never implemented effective harvest control rules (HCRs) for the stock. HCRs are sets of well-defined rules used to determine annual catch quotas or fishing effort, based on a stock assessment. Even if the IOTC's interim recovery plan outlined in the previous section had been adhered to by all CPCs, it would still have resulted in catches higher than those recommended by the Scientific Committee to rebuild the stock.

The IOTC also falls short when it comes to both observer coverage and vessel monitoring systems (VMS). While both the WCPFC and the IATTC require 100 per cent observer coverage on large-scale purse seine vessels, and ICCAT requires 100 per cent observer coverage of all vessels, the IOTC only requires a minimum of 5 per cent coverage for various gear types, including purse seins[21].

[20] ISSF. 'Status of the Stocks Interactive Tool' https://iss-foundation.org/about-tuna/status-of-the-stocks/interactive-stock-status-tool (accessed 06/06/2019).

[21] ISSF (2019). Position Statement 2019-01.

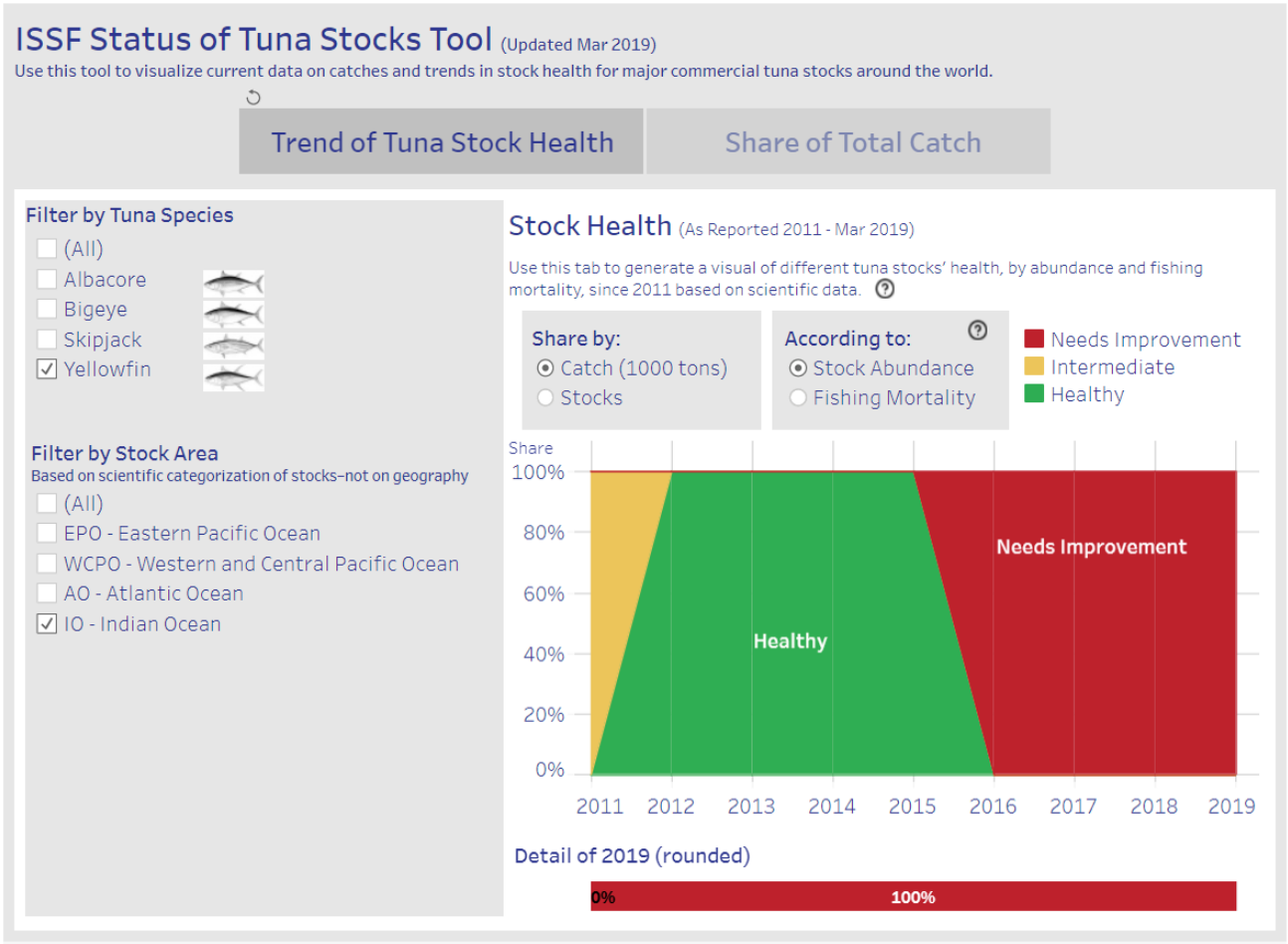

Figure 9: A screenshot from the ISSF's online stock status tool, showing the overfished nature of IOTC yellowfin tuna[22].

Similarly, a recent study concluded that "the IOTC VMS is a 'completely decentralised' system in that it does not require, facilitate or even encourage any degree of routine data sharing amongst CPCs or with the IOTC Secretariat" and that "the IOTC VMS is subject to very large variability in the way that it is implemented by CPCs"[23]. Both of these shortcomings have a massively detrimental impact on the quality and reliability of catch data as well as the transparency of the fishery as a whole.

While it's easy to think of RFMOs as independent organisations, it's important to remember that they are little more than a collection of member states, each with their own political and economic priorities. This collection of countries is responsible for conducting stock assessments, setting the appropriate corresponding total allowable catch (TAC) and HCR for the stock, enforcing these regulations on their own fleets and reporting their own landings each year.

In the case of the IOTC, the CPCs decided on a set of yellowfin catch reductions that were less than half of what was required to ensure the stock had a 50 per cent chance of recovery by 2024. They were also solely responsible for ensuring these reductions were honoured by their tuna fleets and for reporting on how well they enforced them. There is very little objective, independent assessment of any part of this wholly self-governing system.

[22] ISSF. 'Status of the Stocks Interactive Tool' https://iss-foundation.org/about-tuna/status-of-the-stocks/interactive-stock-status-tool (accessed 31/05/2019).

[23] IOTC (2019). Options paper for strengthening the IOTC vessel monitoring system, p.2.

For these reasons, the IOTC's stock assessments carried out in 2015, 2016 and 2018 should be viewed with less than total confidence. Some 40–50 per cent of the fish landed in the IOTC's area of competence is caught by small-scale fishers – more than any other RFMO[24]. The quality of reporting from small-scale vessels is notoriously poor and countries with large, data-poor, small-scale fisheries run the risk of distorting the regional picture[25]. Similarly, the majority of the IOTC's catch is caught by member states with relatively weak governments and economies,[26] which can mean weak monitoring and enforcement of the rules agreed at IOTC-level.

Another weakness in the RFMO system is that the enforcement of regulations relies on voluntary compliance and cooperation on the parts of member states. This can lead to disagreements and conflicts of interest, especially when it comes to achieving consensus on issues like allocation. This is the case for RFMOs in general and the IOTC in particular. IOTC CPCs have been trying to reach consensus on yellowfin tuna allocation for almost a decade, with the result being the continued overexploitation of the stock, as explained in the excerpt, below.

Until the IOTC's CPCs are able to reach consensus on allocation, there can be little hope of meaningful cooperation on stock recovery. However, this is not an isolated case – the general trend in biomass for most species managed by RFMOs is one of decline, making it evident that the priority of most RFMOs is first and foremost to preserve their members' access to the stock, rather than preserving the stock itself[27].

> "Even discussions and decision-making of routine measures considered by RFMOs can slow to a halt because different decisions implicitly lead to different allocations of fishing opportunities, employment, assets, and net economic benefits. The absence of allocated and well-structured rights impedes RFMO cooperation and creates perverse incentives that foster non-cooperation. While RFMO governance reforms will improve performance, they do not address the root cause of perverse incentives and absence of conditions for multilateral cooperation. A once-and-for all allocation presents great difficulty but is preferable to the growing non-cooperation and ongoing implicit allocation decisions, increasing each year as capacity builds, and delay simply accentuates the difficulty of governance reform and addressing the root causes, particularly with resource declines and additional entry."
>
> *- Squires, D., Allen, R. & Restrepo, V. (2013). 'Rights-based management in international tuna fisheries'. FAO Fisheries and Aquaculture Technical Paper 571 pp. pg xi-xii.*

The role of the industry, NGOs and retailers

Although the responsibility for the health of Indian Ocean yellowfin tuna ultimately lies with the IOTC, there are other groups that have an impact on the status of the stock. A recent study found that the "the biggest variations in performance among tuna fisheries are not found among the RFMOs that manage them, but rather among the final markets that they are able to reach"[28].

Different markets demand yellowfin caught and processed in different ways. Asia presents a significant market for fresh, sashimi-grade yellowfin tuna that would most likely be caught by

[24] McCluney, J.K., Anderson, C.M. & Anderson, J.L. (2019). 'The fishery performance indicators for global tuna fisheries', *Nature Communications.*

[25] Gillett, R. (2011). 'Bycatch in small-scale tuna fisheries. A global study'. FAO Fisheries and Aquaculture Technical Paper 560.

[26] McCluney, J.K., Anderson, C.M. & Anderson, J.L. (2019). 'The fishery performance indicators for global tuna fisheries', *Nature Communications.*

[27] Cullis-Suzuki, S. & Pauly, D. (2010). 'Failing the high seas: A global evaluation of regional fisheries management organisations,' *Marine Policy.*

[28] McCluney, J.K., Anderson, C.M. & Anderson, J.L. (2019). 'The fishery performance indicators for global tuna fisheries', *Nature Communications,* pp 7.

longline or hand-line fleets, maintaining the high quality and value of the large fish. Indian Ocean purse seine fleets predominantly target skipjack and yellowfin tuna for canned products. Southern Europe (France and Italy in particular) represents one of the largest markets for canned yellowfin tuna, often sold as a high-quality product preserved in olive oil[29]. British consumers are less discerning when it comes to the quality of their canned tuna, meaning that the majority of the canned tuna sold in UK supermarkets is skipjack.

In 2002, multi-stakeholder platforms called fishery improvement projects (FIPs) began to emerge that engaged retailers, importers, processors and other member of the seafood supply chain as well as NGOs in the management of fisheries like yellowfin tuna[30]. There are several FIPs dedicated to the management of Indian Ocean tuna stocks, with two of the biggest being Organización de Productores Asociados de Grandes Atuneros Congeladores (OPAGAC) and the Sustainable Indian Ocean Tuna Initiative (SIOTI).

OPAGAC is a catching sector FIP that collaborates with WWF with the aim of achieving MSC certification of its industrial purse seine tuna fleet around the world. Other objectives include encouraging the relevant RFMOs to adopt robust rebuilding strategies and HCR for tropical tuna species, as well as best practices concerning the use of fish aggregating devices (FADs). SIOTI was established jointly by key governments in the region, tuna processors, producers and WWF. In addition to achieving MSC certification, it also aims to enhance regional collaboration and to address the shortfalls in stock health and management.

Both FIPs are only a few years old and still have several years to go until their targeted end date. This makes it difficult to assess their effectiveness. However, given the state of Indian Ocean yellowfin, it's almost impossible to imagine that the stock would be able to achieve MSC certification by 2021 or 2022 when OPAGAC and SIOTI respectively are meant to come to an end, having achieved their objectives.

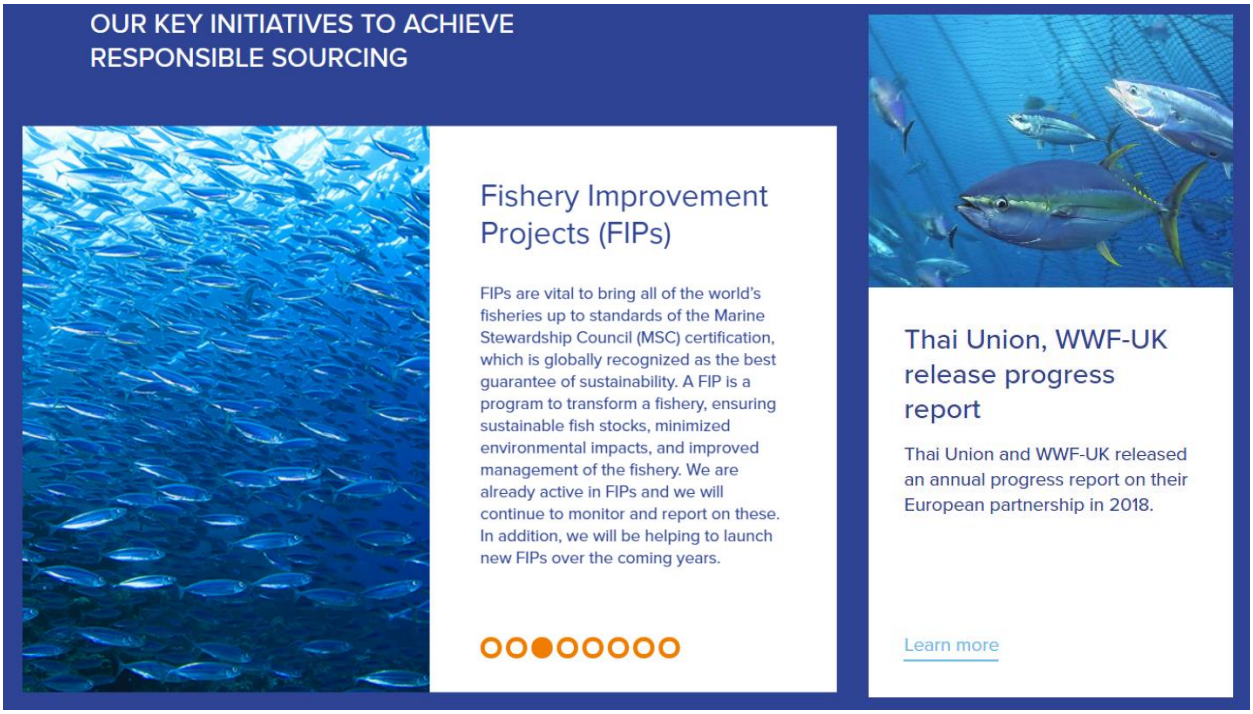

Figure 10: Screenshots from Thai Union's sustainability website[31]

[29] Pers. comm. 16/05/2019.
[30] Cannon, J. et al. (2018). 'Fishery improvement projects: Performance over the past decade', *Marine Policy*.
[31] Thai Union https://seachangesustainability.org/about-seachange/responsible-sourcing/ (accessed 31/05/2019).

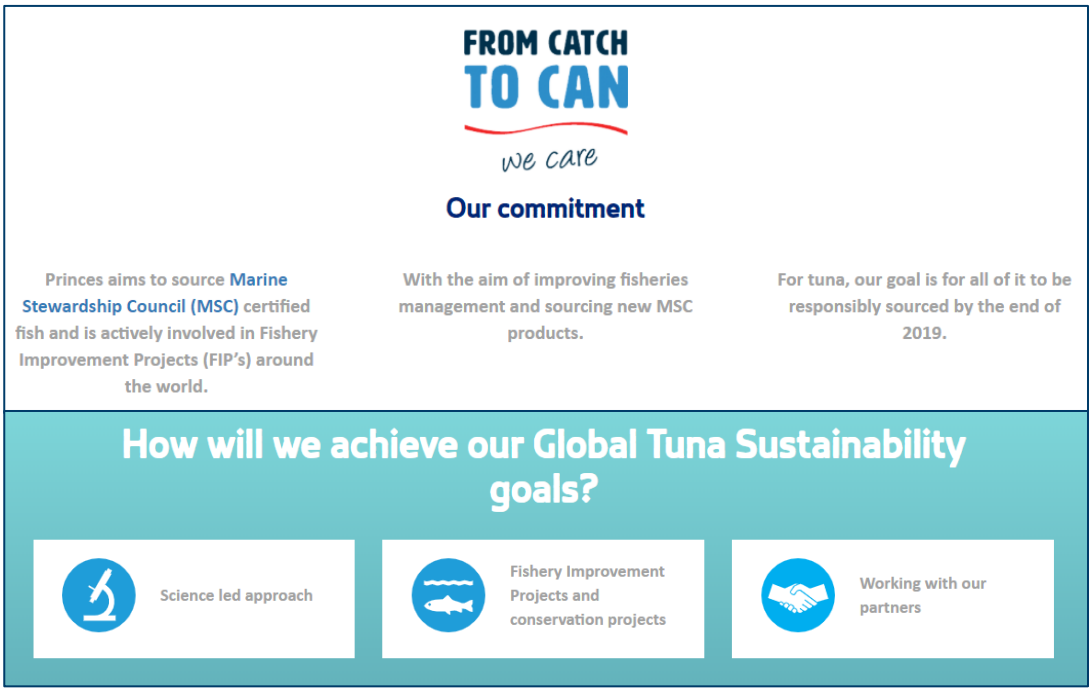

Figure 11: Screenshots taken from the Princes website[32]

Figure 12: Screenshots taken from the Rio Mare (Bolton Group) website[33]

[32] Princes https://www.princes.co.uk/caught-with-care/responsible-fishing (accessed 31/05/2019).
[33] Rio Mare http://qualitaresponsabile.it/en/our-strategic-direction/fishing (accessed 31/05/2019).

While the success of these two FIPs remains to be seen, large tuna processing companies such as Thai Union, Princes and Bolton Group nonetheless use their engagement in such FIPs to assure customers of the sustainability of the fish they sell, as illustrated by Figures 10, 11 and 12, above. Rio Mare, a tuna brand belonging to the Bolton Group, is even able to display WWF's panda logo on its website.

Indian Ocean yellowfin tuna in the UK

As outlined in the previous section, while canned yellowfin tuna is popular in other areas of the world, very little yellowfin tuna enters the UK in cans. However, there is still a relatively high demand for fresh and frozen yellowfin tuna in the UK, with most major retailers stocking the fish.

UK's yellowfin tuna imports

Although the UK's annual yellowfin tuna imports are dwarfed by those of the USA, rest of the EU and Asia, the UK still imported over 695 tons of yellowfin in 2017 alone[34].

As shown in Figure 13, the UK imports the majority of its frozen yellowfin from France, with the Netherlands, Spain and Sri Lanka supplying most of its fresh tuna. While these figures do not (necessarily) represent the country of origin of the tuna, France, Spain and Sri Lanka are three major Indian Ocean tuna fishing powers, meaning that it's highly likely that the yellowfin exported by these countries originated with their fleets. The Netherlands acts as a processing and shipping hub which explains its disproportionately high UK import figure.

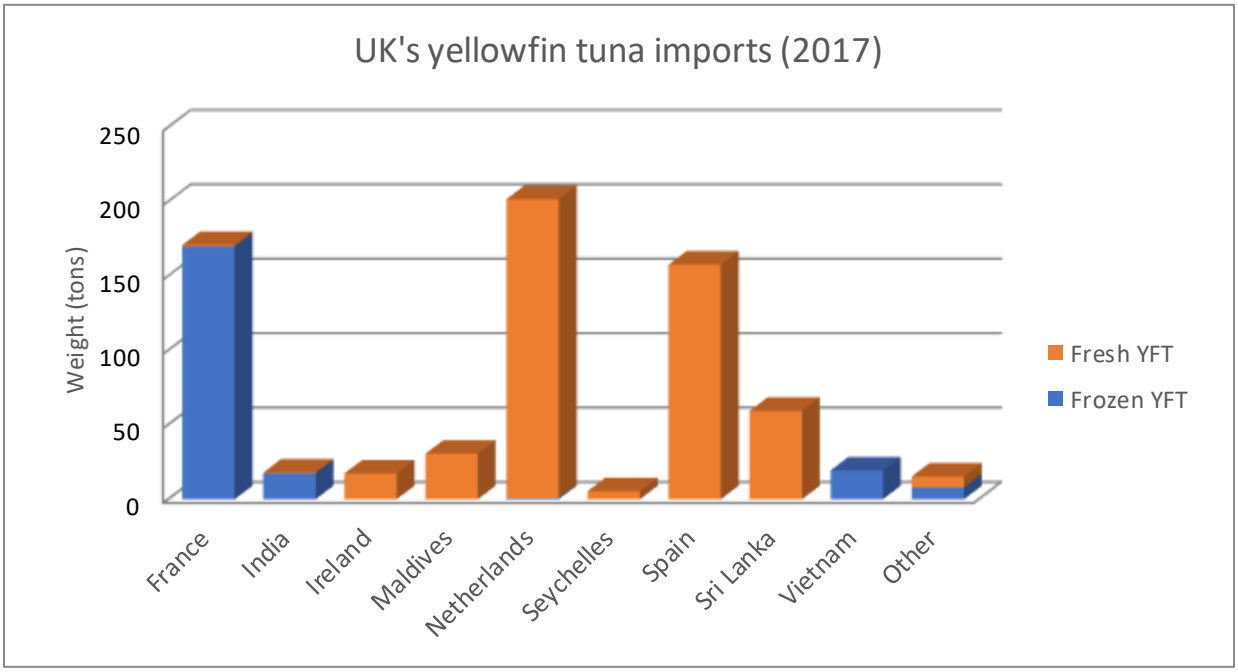

Figure 13: The UK's reported yellowfin tuna imports from all regions[35]

[34] UN Comtrade Database https://comtrade.un.org/data (accessed 15/05/2019).
[35] UN Comtrade Database https://comtrade.un.org/data (accessed 15/05/2019).

Conclusion

The IOTC's member states have long been aware of the threat overfishing is posing to the health of their yellowfin tuna stock. Despite the Scientific Committee's recommendation back in 2015 that a catch reduction of at least 20 per cent was needed if the stock was going to have a 50 per cent chance of recovering by 2024, this science was ignored in favour of the status quo and further stock decline. Instead of agreeing to a 20 per cent reduction, only 7 per cent was agreed. Instead of implementing this 7 per cent reduction, catches in 2017 increased by 3 per cent.

The IOTC is a self-reporting organisation, tasked with setting, enforcing and reporting on its own regulations. This is one of several reasons why there appears to have been little to no progress made towards recovering the stock. But deciding on and sticking to a yellowfin recovery plan is not the only challenge facing the CPCs as they approach the 23rd Session of the IOTC meeting in June 2019.

A disagreement over allocation between littoral states and fishing nations that has been going on for almost a decade has ensured that overfishing of the stock has been allowed to continue.

While the IOTC shows such a conspicuous inability to practise decisive, science-based management, the onus falls on responsible countries, processors, retailers and consumers to send signals to the IOTC to up its game and to protect the stock they all depend upon.

Until now, the UK market – known to be sensitive to issues pertaining to sustainability – has seemingly been unaware of the overfished status of the Indian Ocean yellowfin. That can no longer be the case following this report. It is now up to government representatives, retailers, processors, NGOs and consumers to make clear urgently to the IOTC what the next responsible steps should be to save this globally-important fish stock from collapse.

BLUE MARINE FOUNDATION

Appendix 1: Skipjack tuna in the Indian Ocean

There is a danger of the IOTC allowing its fleets to continue "fishing down the food chain" when it comes to tuna. Bigeye tuna is already overfished in the Indian Ocean and the subject of management measures by the IOTC. While skipjack, the smallest of the commercial tuna species, is still deemed not to be overfished nor subject to overfishing in the Indian Ocean, this could change in the near future.

In 2016, the IOTC adopted a harvest control rule for skipjack tuna consistent with scientific advice – a big step towards effective conservation of the species. In 2017, an annual catch limit of 470,029 tons for the years 2018 to 2020 was set for Indian Ocean skipjack. However, in that same year, 524,282 tons of skipjack were caught[36].

As with yellowfin tuna, the landings data and reporting from many of the IOTC's small-scale fisheries is unreliable. This is compounded by the fact that, within any given year, there is no transparent mechanism for reporting on when the total allocated catch limits are being approached. Not only does the IOTC have no way of knowing whether CPCs are still within the prescribed limits for that year, but it is not possible to gauge compliance with catch limits until at least two years after the limits are put into effect[37].

This represents a significant delay in reaction time, with untold damage to affected stocks.

In late 2018, the Echebastar Indian Ocean purse seine skipjack tuna fishery achieved MSC certification, despite consistent objections from WWF throughout the certification process. WWF objected on the grounds that, because the Spanish fishery is made up of five FAD-based purse seine vessels, a significant portion of its catch is immature yellowfin tuna, already overfished in the Indian Ocean. Despite this, certification was approved and the fishery continues to land its tuna – both skipjack and yellowfin – in the Seychelles. The Maldives pole and line skipjack fishery also enjoys MSC-certified status.

In 2017, skipjack alone accounted for more than half of the global catch of tuna, followed by yellowfin. It is the tuna that is most likely to be sold in cans and makes up almost all of the canned tuna sold in the UK. While Indian Ocean skipjack may still be in the green quadrant of its own Kobe plot, total catches in 2017 were 12 per cent larger than the catch limit dictated by the HCR for the period 2018-2020[38]. If the limits set by the HCR for skipjack continue to be ignored, there's little reason to think that skipjack won't be following the same path as yellowfin and bluefin tuna.

[36] IOTC (2018). Report of the 21st Session of the IOTC Scientific Committee.
[37] ISSF (2019). Position Statement 2019-01.
[38] IOTC (2018). Report of the 21st Session of the IOTC Scientific Committee.

BLUE MARINE FOUNDATION

Appendix 2: Bycatch in Indian Ocean tuna fisheries

The capture of non-target species remains a serious problem in Indian Ocean tuna fisheries, despite attempts to reduce it. While some fishing methods, such as handlines and free school purse seining, typically result in relatively small bycatch rates, others such as longlines, gillnets and FAD-based purse seines can have extremely detrimental effects on sharks, turtles and seabirds.

Sea turtle bycatch is thought to be highest in gillnet fisheries compared to other gears. While purse seiners may catch a fair number of turtles, it is relatively easy to release them when caught alive and it is estimated that 90 per cent of turtles caught by these vessels survive. This is also the case for roughly half of the turtles caught by longlines. However, longlines can have a devastating impact on seabirds such as albatrosses and petrels, of which roughly 90 per cent that get caught in longlines are found dead[39].

While the survival rate of turtles that get caught by purse seiners in the Indian Ocean is quite high, the same cannot be said for sharks. It is estimated that the survival rate of sharks that are thrown back by oceanic seiners may be as low at 20 per cent[40]. Similarly, gillnets pose a huge threat to silky, oceanic whitetip and scalloped hammerhead sharks, all of which are listed globally on the IUCN Red List of Endangered Species. All of these species, as well as threshers, are of concern because of their low productivity and vulnerability to overfishing.

Yellowfin tuna is itself a form of bycatch of the skipjack fishery. This is particularly relevant when it comes to the use of FADs. Juvenile yellowfin and bigeye tuna gather near floating objects, alongside the targeted skipjack tuna. When purse seins encircle the FAD, a substantial amount of juvenile yellowfin and bigeye tuna are harvested with the skipjack. ISSF continues to call on IOTC CPCs to improve their FAD data collection and reporting, and on the IOTC to close the existing loophole for the use of non-entangling FADs by setting a deadline for the mandatory use of these designs.

Although some steps have been taken by the IOTC in recent years to reduce and mitigate bycatch, there remains a great deal still to be done, especially when it comes to sharks. There is a lack of reliable data on sharks in the Indian Ocean, preventing accurate status assessments. Even with the limited data available, it has become clear in recent years that the abundance of some Indian Ocean shark species is declining[41].

[39] Ardill, D. (2014) 'Bycatch and discards in Indian Ocean tuna fisheries'. Smart FICHE.
[40] Ardill, D. (2014) 'Bycatch and discards in Indian Ocean tuna fisheries'. Smart FICHE.
[41] ISSF (2019). Position Statement 2019-01.

BLUE MARINE FOUNDATION

Appendix 3: Discrepancies in data reporting by EU Spanish vessels in the Indian Ocean (letter to European Commission from the South African Government)

agriculture, forestry & fisheries
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Mr. Karmenu Vella,
Commissioner,
Directorate-General for Maritime Affairs and Fisheries,
European Commission
1049 Bruxelles/Brussel
Belgium

15 April 2019

Dear Sir,

DISCREPANCIES IN DATA REPORTING BY EU SPANISH VESSELS IN THE INDIAN OCEAN

The Department of Agriculture, Forestry and Fisheries; Branch: Fisheries Management ("the Department") is responsible for the management of fisheries in the country and participates as a Contracting Party within various tuna Fisheries Regional Management Organisations (tRFMOs) including the Indian Ocean Tuna Commission (IOTC).

It is in this regards, that I would like to bring to your attention some discrepancies that the Republic of South Africa has identified in analysing the data provided by the European Union's Spanish fleet in the Indian Ocean in different reports.

As you are aware, yellowfin tuna in the Indian Ocean is overfished and subject to overfishing since at least 2016. An interim plan to rebuild the stocks is in force through the Indian Ocean Tuna Commission (IOTC)'s Resolution 16-01 (superseded by Resolution 17-01 and Resolution 18-01) and has been in force from 01 January 2017. The resolution mandates reduction in yellowfin tuna catches by fishing gears for each CPC.

In case of the purse seine fisheries, countries that caught over 5000MT in 2014 were mandated to reduce their catch by 15%. Thus, the EU purse seine fleet had a Total Allowable Catch of 77,641MT, to be divided between EU Spain, EU France and EU Italy. As informed, the sharing of the quota was consequently: EU Spain 45,682; EU France 29,501 and the remainder for Italy.

Under Resolution 15/02 of IOTC *"Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non- Contracting Parties (CPCs)"* the EU- Spanish purse seine fleet reported catches of 54, 596.14 in 2017. This exceeds their catch by 8,914.14MT. Furthermore, at the IOTC 20th Working Party on Tropical Tuna (WPTT) in November 2018, José Carlos Báez from Instituto Espanõl de Oceanografia, co-authored by various scientists submitted a paper – *"Updating the statistics of the EU-Spain Purse seine fleet in the Indian Ocean (1990-2017)"* (Paper no: IOTC-2018-WPTT20-15).

The said paper revised the figures provided to the IOTC and stated that the Spanish fleet had caught 54,513MT in 2017, thus exceeding their quota by 8,831MT. This official figure was further confirmed during the presentations done by the scientists in the WPTT.

Last month, in the Official Journal of the European Union, the Commission Implementing Regulation (EU) 2019/479 of 22 March 2019, on *"Operating deductions from fishing quotas available for certain stocks in 2018 on account of overfishing of other stocks in the previous years and amending Implementing Regulation (EU) 2018/1969"*, stated that on "23 November 2018, Spain requested to update its catch declarations regarding yellowfin tuna in IOTC area of competence (YFT/IOTC). Based on the last updated data transmitted by Spain on 13 December 2018, it appears that the Spanish 2017 quota was exceeded for yellowfin tuna in the IOTC area of competence.

The figures in the Annex of the said document stated that EU-Spanish purse seiners caught 48,147MT of yellowfin in IOTC's area of competence, thus exceeding the quota by 2,465MT.

This is a considerable difference in catches reported by EU-Spanish vessels in different reports for reporting as shown below in the table.

Details	Catch (MT)	Difference (MT)
EU-Spain allocated	45,682	
EU-Spain IOTC reported	54,596.14	8,914.14
EU-Spain IOTC revised	54,513.00	8,831.00
EU-Spain EU Reported	48,147.52	2,465.52

Interestingly, the quota has also had pushed the EU-Spanish into a catching frenzy, as total catches in 2017 in the Indian Ocean were 12% higher compared with the average over the last five years.

Over and above, the EU Commission document also states that: "Moreover, certain deductions required by Implementing Resolution (EU) 2018/1969 appear to be larger than the adapted quota available in the year 2018 and, as a consequence, cannot be entirely operated in that year. According to Communication 2012/C 72/07, the remaining amounts should be deducted from the adapted quotas available in subsequent years until the full overfished amount is paid back".

Thus, as a coastal state in the Indian Ocean, it raises questions on the practices of the EU commission when the quotas continue to exceed in 2018 and when data are reported differently in different avenues.

For a stock that is overfished and subject to overfishing, there needs to be a credible and reliable reporting mechanism, and it is disappointing to see that this is not the case for the EU-Spanish vessels in the Indian Ocean. This is a very concerning practice from one of the EU countries, and goes against the EU Common Fisheries Policy and corresponding regulations. In the meantime, the EU also has continuously called upon the developing coastal states in the Indian Ocean on the need to strengthen data reporting and to impose penalties for non-compliance.

It is extremely important to us, and other developing coastal states within the Indian Ocean that the issues raised above are fully investigated by the European Commission, in order to provide us with a full explanation on these discrepancies- and including how the European Commission intends to deal with such.

Along with other coastal states we are working very hard to protect yellowfin and other tuna stocks in the Indian Ocean and we do believe the same goes for the European Commission and Spain.

Yours Sincerely,

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DEPUTY DIRECTOR GENERAL: FISHERIES MANAGEMENT
DEPARTMENT: AGRICULTURE, FORESTRY & FISHERIES- REPUBLIC OF SOUTH AFRICA