Senegal tuna pole-and-line FIP

ICCAT harvest strategies for tropical tuna species: Information paper

Revised draft updated to November 2021

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Contents

Executive summary

The perception of stock status for skipjack and yellowfin has not changed since the previous iteration of this report, because there has been no new stock assessment. A bigeye stock assessment was conducted by ICCAT during 2021, and is more optimistic than recent assessments, suggesting that biomass and fishing mortality are close to the MSY level.

The current ICCAT management measure for tropical tunas is Recommendation 19-02, which is foreseen to be an interim measure until a full Management Strategy Evaluation (MSE) is available to inform decisions on a harvest control rule and management procedure. In 2020, since the plenary was cancelled, Rec. 19-02 was rolled over without change, by amending any expiry dates of 2020 to 2021 (see Rec. 20-01). The main measures in Rec. 19-02 include TACs for bigeye (62,500 t for 2020 and 61,500 t for 2021) and yellowfin (110,000 t), a FAD closure (2 months in 2020 and 3 months in 2021) across the whole ICCAT Convention Area including EEZs, interim measures for a percentage reduction in bigeye catch by certain CPCs, FAD limits, and a range of reporting and control

requirements. These requirements are similar to, but somewhat stronger than, previous tropical tuna management measures (notably Rec. 16-01 which was replaced by Rec. 19-02). ICCAT has had systematic problems in implementing parts of these measures – in particular the TACs which in recent years have been overshot for both yellowfin and bigeye.

Under Rec. 15-07, ICCAT is committed to putting in place harvest strategies for all its key stocks, including the tropical species, using the MSE process. Because of challenges in developing this MSE, particularly for the tropical species, ICCAT has decided to focus initially on some temperate stocks (bluefin, albacore and swordfish) and push target deadlines for the tropical species back. Currently, it is planned for the tropical tuna MSE to be complete to inform management decision-making in 2024 (i.e. in Commission plenary meeting November 2024 for management from 2025 onwards). These dates have been revised back by SCRS from a target of 2022 set in 2019, although this revised plan is awaiting approval by the Commission at the 2021 plenary meeting. If the revised schedule is approved, the FIP will need to reconsider the dates on the harvest strategy element of the workplan, since it realistically has no choice but to go with ICCAT's schedule.

The analysis of ICCAT workplans, activities and challenges suggest some potentially useful actions that the FIP could pursue as well as those in the current workplan:

- Support flag states and FIP vessels in implementing the requirements of Rec. 19-02, in particular around reporting of information about FAD use and the development of various plans (FAD management plans, capacity management plans).
- Evaluate whether the catch of FIP vessels during 2020 and 2021 has been consistent with the interim bigeye requirements for 2020 under paragraph 4 of Rec. 19-02 (extended to cover 2021 in Rec. 20-01).
- The ICCAT timetable for harvest strategies requires the Commission (i.e. CPCs) to take some significant technical decisions about objectives, risk and performance metrics for the MSE in plenary 2021, but completion of the operating model is postponed until 2022 because of the need to take into account new stock assessments for skipjack during 2022 (which are urgent since there has not been one since 2014), which potentially gives a little more time to finalise these decisions, given that capacity-building has been hindered by covid.

1 Introduction

This information paper sets out the current situation in regard to the ICCAT harvest strategy for tropical tuna stocks in the Atlantic Ocean and ICCAT's plans over the next few years. It compares the ICCAT workplan with FIP milestones, and makes some suggestions as to how the FIP might adjust activities and deadlines to support their objectives in relation to ICCAT most effectively. The purpose of this analysis is to support FIP participants in their understanding of ICCAT and the current situation in relation to harvest strategy development, and to inform FIP activities for the current year and further forward.

2 Summary of how ICCAT works

It might be useful for some FIP participants to have a short summary of how ICCAT operates. The decision-making body of ICCAT is the Commission, which is made up of representatives of each Contracting Party and Cooperating non-contracting party (collectively known as CPCs). Decisions are taken by the Commission during an annual plenary meeting which usually takes place in November.

Decisions on management measures are set out in the form of 'Recommendations' – unlike how they sound, implementation of these Recommendations by CPCs is not optional.

The small Secretariat is made up of ICCATs permanent staff, who perform a wide range of administrative and coordination functions, and also have significant input on science because of their expertise, but have no decision-making powers. There are also four permanent committees with rotating membership from CPCs: the Standing Committee on Research and Statistics (SCRS; in charge of everything to do with science; the most relevant here), the Standing Committee on Finance and Administration, the Compliance Committee and the Permanent Working Group for the improvement of statistics and conservation measures (PWG).

Stock assessments are conducted by groups of scientists from relevant CPCs. The stock assessment report then passes to the relevant Species Group – in this case, the Tropical Tuna Species Group. These species groups are sub-groups under the SCRS and their role is to review the assessment (or other relevant documents) and draft scientific advice. The advice then passes to the SCRS to be finalised and approved. At the same time, there are four 'panels' made up of managers rather than scientists, who also review information on stock status, how management measures are working etc. for their relevant area, and also provide advice to the Commission. Relevant to us is Panel 1 for the tropical tuna fishery (there is also Panel 2 – temperate tunas North Atlantic, Panel 3 – temperate tunas South Atlantic, Panel 4 – other species).

Finally, there are a variety of more ad hoc working groups which address different specific issues (e.g. stock assessment methods, amendment of the ICCAT Convention and various others). Relevant to us is the Standing Working Group on dialogue between fisheries scientists and managers (SWGSM) which was formed with the aim of building capacity for CPCs in relation to harvest strategy development.

3 Current status of tropical tuna stocks

The stocks relevant to this FIP are i) eastern Atlantic skipjack, ii) Atlantic yellowfin and iii) Atlantic bigeye. Table 1 below summarises the status of each of these stocks relative to the MSC management target ('a level consistent with MSY' – MSC Scoring Issue 1.1.1b); which is also consistent with ICCAT's management target. Note that these assessments might not be the same as in the FIP pre-assessment because both bigeye and yellowfin have had new stock assessments since that document was drafted.

The yellowfin stock is estimated to be around or slightly above the MSY level. The skipjack stock is also thought likely to be at or above this level, although difficulties with stock assessment preclude quantitative analysis. The bigeye stock is estimated to be slightly below the MSY level (biomass estimated at 94% of the target level) – this is a significant improvement from the previous stock assessment in 2018, but is a consequence of changes to the stock assessment model (assumptions about maximum age and natural mortality) more than evidence of a reduction in fishing pressure.

Table 1. Summary of most recent stock assessment conclusions for the three tropical tuna (FIP) stocks, and likely MSC scoring outcome (SCRS 2019). Colour coding: The colour coding in the final column (MSC score for 1.1.1) relates to the predicted MSC score (red=fail, orange=conditional pass, green=unconditional pass). The colour coding in the other two columns (B and F relative to MSY) is not related to MSC, but is just intended to make it easy to see if the stock is on the right or wrong side of reference points.

Stock	Date of most recent stock assessment	Biomass relative to MSY	Fishing mortality relative to MSY	Likely MSC score for PI 1.1.1
Skipjack	2014 updated to 2018	'likely above'	'likely below'	80

Yellowfin	2019	1.17	0.96	80 or above
Bigeye	2021	0.94	1.00	60-79

4 Recent history of ICCAT harvest strategy development

To give FIP participants some historical perspective on ICCAT management of tropical tuna stocks, Table 2 below summarises the various management measures (Recommendations) for tropical tunas, since the first multi-annual measure was put in place for bigeye and yellowfin in 2012 (Rec. 11-01). ICCAT has not made massive changes to the harvest strategy since it was first implemented, except that the TAC for bigeye has been reduced over time, but elements of the strategy have been gradually strengthened, in particular the parts relating to reporting (particularly around FADs) and control measures.

Table 2. Recent history of ICCAT management measures for the tropical tuna fishery

Rec.	Description	Start year	Replaced by	Main provisions	Bigeye TAC t	Yellow-fin TAC t
11-01	Multi-annual management measure for bigeye and yellowfin	2012	14-01	TACs, capacity restrictions, FAD time/area closure, control measures	85,000	110,000
13-01	Amends 11-01	2014	14-01	Strengthens reporting requirements	-	-
14-01	Multi-annual management measure for tropical tunas (bigeye, yellowfin and eastern skipjack)	2015	16-01	Similar to 11-01	85,000	110,000
16-01	Multi-annual management measure for tropical tunas; main recent measure in force until 19-02 (2020)	2017	19-02	Similar to 14-01	65,000	110,000
17-01	Prohibition of discarding	2018	current	Prohibition of discarding of tropical tuna species	-	-
18-01	Amends and supplements 16-01	2019	19-02	Continues TACs in 16-01 through 2019	65,000	110,000
19-02	Interim conservation and management measure for tropical tunas	2020	current	See below	62,500 61,500 *	110,000
20-01	Rolls over time-limited provisions in 19-02 into 2021	2021		As 19-02		

* see below

5 Current harvest strategy: Recs 19-02 and 20-01

In November 2019, the ICCAT Commission agreed a new management regulation for tropical tuna stocks: Recommendation 2019-02. Rec. 19-02 is intended as a set of interim conservation measures

while a long-term multi-annual management/rebuilding plan is developed (see below). Since the 2020 Commission meeting was cancelled, Rec. 20-01 was approved remotely to roll over to 2021 the provisions in 19-02 which were due to expire at the end of 2020. No other changes were made.

The key elements of Rec. 19-02 (as amended by 20-01) are summarised below:

- TACs: Bigeye: 2020 – 62,500 t; 2021 – 61,500 t; Yellowfin: 110,000 t
- For 2020 and 2021, CPCs with >10,000 t allocation of the bigeye TAC under 16-01 (i.e. EU, Japan and Taiwan) to apply a 21% reduction in their allocation; other CPCs with recent average bigeye catch >3500 t to apply a 17% reduction; CPCs with recent average bigeye catch 1000-3500 t to apply 10% reduction.
- CPCs to provide ICCAT with a fishing and capacity management plan to demonstrate how the catch limits determined above will be implemented.
- FAD closure: Fishing on FADs banned 1 January-28 February 2020, 1 January-31 March 2021 throughout the entire Convention Area (high seas and EEZs).
- FAD limits: 2020 – 350 per vessel; 2021 – 300 per vessel
- CPCs to provide ICCAT with an annual FAD management plan and maintain a FAD logbook and list of FADs deployed, visited and lost.
- All FADs must be non-entangling, and from 2021 CPCs should 'endeavour' to ensure they are biodegradable.
- ICCAT authorisation required to fish tropical tunas.

6 Problems with the tropical tuna harvest strategy

Although the estimates of bigeye stock status have improved with the new stock assessment, overall trends in catch and fishing mortality for the tropical tuna species suggest that ICCATs harvest strategy for tropical tunas has not been working particularly well up till now. However, the 2021 stock assessment for bigeye , as well as the reduction in bigeye catch in 2020, is encouraging.It is instructive to review the implementation of the TACs for bigeye and yellowfin since they were introduced in 2012 (Table 3). Bigeye fishing capacity and catches have been consistent with a TAC of 85,000 t, but this has not been sufficient to prevent the decline of stock biomass. Since 2017, ICCAT has struggled to implement the agreed reduction in TAC to 65,000 t; hence the interim % reduction measures for 2020 set out in 19-02. Likewise yellowfin catch was maintained at or around the TAC level for 2012-14, but starting in 2015 catch increased despite the TAC, and for the last three years has exceeded the TAC by >20%. Since there is already a 24% probability that the stock biomass is below the target level (stock is overfished), this risks being an increasing problem for the yellowfin stock and for ICCAT.

Table 3. Bigeye and yellowfin catch and catch as a percentage of the agreed TAC, 2012-2018. Green: catch below TAC; orange: catch <10% above TAC; red: catch >10% above TAC (SCRS 2019)

Year	Catch bigeye (t)	Catch yellowfin (t)	Catch as % TAC bigeye	Catch as % TAC yellowfin
2012	71457	114937	**84**	**104**
2013	66954	106288	**79**	**97**
2014	75019	113414	**88**	**103**
2015	79524	128298	**94**	**117**
2016	79109	148874	**93**	**135**
2017	78585	135865	**121**	**124**
2018	73366	135689	**113**	**123**
2019	75484	135133	**116**	**123**

2020	57486	148894	**92**	**135**

7 ICCAT plan for harvest strategy development

Rec. 15-07 commits ICCAT to a process of development of harvest control rules for key stocks, using a process called Management Strategy Evaluation (MSE). This objective is reiterated in paragraphs 1 and 2 of Rec. 19-02, which provides the following objectives for the long term:

[CPCs] with vessels that have been actively fishing for tropical tunas in the Atlantic will apply the following interim management measures with the objective of reducing current levels of fishing mortality of tropical tunas, in particular small bigeye and yellowfin, while the Commission obtains additional scientific advice to adopt a long-term multi-annual management and rebuilding programme.

CPCs whose vessels have been actively fishing for tropical tunas in the Atlantic shall implement a 15-year rebuilding programme for bigeye tuna starting in 2020 and continuing through 2034, with the goal of achieving B_{MSY} with a probability of more than 50%. CPCs shall also implement management measures with the objectives of ensuring that the stocks of yellowfin and skipjack tuna continue to be exploited sustainably.

The MSE process uses modelling to evaluate the likely outcome of different management options, based on management objectives and risk levels which should be agreed by the CPCs. The models used are based on the stock assessment models for each stock, but adapted such that they project forward the outcome under different scenarios, rather than just trying to evaluate the current situation based on past data.

This process of MSE is complex and difficult, particularly for these stocks, for a range of reasons:

- The process of developing the operating models is complex and technical.
- There are already uncertainties in the stock assessment models; such uncertainties are magnified under forward projection. For skipjack, the assessment currently used is already too uncertain to provide a quantitative estimate of stock status (see Table 1 above).
- The tropical tuna fishery is a mixed fishery for three species, with management measures generally applying across all three stocks (e.g. FAD closures) or measures on one stock (e.g. a TAC) having impacts on catches of the others. Hence the MSE process for this fishery requires interlinked models for three stocks.
- In order to develop the models, the scientists need to be told what is the target for management, what level of risk (e.g. of stock collapse) managers are willing to accept, and on what basis the various scenarios should be evaluated against each other (e.g. highest overall biomass, highest overall catch, lowest interannual fluctuations …). These decisions are for managers, not scientists, to take (i.e. the ICCAT Commission – the CPCs ultimately). It is therefore necessary that CPCs can take informed decisions on these issues – not easy when the questions are highly technical. Work on capacity building is reviewed below.

8 Proposed timetable for tropical tuna harvest strategy

ICCAT initially started working on MSEs for all the key stocks, but for the reasons listed above decided in 2018 to prioritise certain stocks and slow down work on others. The aim was i) not to exceed the available scientific capacity to participate in MSE development and ii) to apply the lessons learned in the first round of MSEs to subsequent work. ICCAT is currently working on (or has completed) the development of MSEs for bluefin, north Atlantic swordfish and north Atlantic albacore, while the tropical tuna MSE has been postponed. SCRS (2019) noted some concern about the lack of progress for the tropical species, given that it is still supposed, under Rec. 19-02, that a MSE will be available to agree TACs and other measures at the end of 2021 for implementation in

2022. (According to revised workplans summarised below, this will not be achieved.) Progress seems to have been made on the stock assessment model for skipjack, and on aligning the three stock assessment models for joint analysis of management scenarios, but the Commission still needs to provide input to the scientists on management objectives, performance metrics and risk levels.

The 2021 SCRS report provides a series of workplans in Appendix for the different scientific activities of ICCAT, including a workplan for the tropical tuna stocks for 2022 (Section 19.1.9) and a workplan for the harvest strategy process under Rec. 15-07 (Appendix 15).

The tropical species group workplan notes the tropical tuna MSE as one of its priorities for 2022, and points to the harvest strategy workplan for a timetable. It does not, however, take the MSE process to be its main priority for 2022 – this is considered to be the skipjack stock assessment (which is indeed urgent), as well as analysis of the data from the AOTTP (Atlantic Ocean Tuna Tagging Programme). There are also activities around the analysis of FAD limits and closures and recent catch patterns (increased catch of yellowfin and decreased catch of bigeye and skipjack).

The harvest strategy workplan was extensively revised by SCRS in 2021, to give a more realistic perspective of the scientific capacity available to continue the MSE process alongside the various other priorities (bigeye stock assessment in 2021, skipjack stock assessment in 2022, and others as described above). This workplan foresees Commission input on management objectives and performance indicators in 2021 (as well as validation of the revised workplan), and in 2022 a recondition of the operating model based on the 2022 skipjack stock assessment, and testing of candidate management procedures, starting with western skipjack, as well as the initiation of an external peer review process. The plan foresees the adoption of a management procedure for western skipjack in 2023 (as well as a yellowfin stock assessment), and the adoption of a management procedure for the entire multispecies fishery in 2024.

Regarding progress with the previous version of the workplan (as per the previous iteration of this document), there was a MSE technical group intersessional meeting in 2021 as planned. This meeting provided a preliminary list of management objectives and performance metrics which can provide a basis for discussion in the Commission. However, they note that the SWGSM remains ‘dormant’ and highlight the need for capacity building supported by ICCAT.

9 Bigeye rebuilding

There is no workplan or activities programmed relating to bigeye rebuilding specifically, outside the process already outlined for developing an overall harvest strategy for the tropical tuna fishery and evaluating options for implementing it. Presumably, therefore, ICCAT’s rebuilding strategy for bigeye is folded into this wider strategy, the more so since the 2021 stock assessment makes the need for rebuilding less urgent. This makes sense as a management procedure would need to be able to rebuild bigeye to whatever is the agreed management target, as well as maintain the other two stocks at their targets. The timeframe for rebuilding might be one of the performance metrics by which competing management scenarios could be judged in relation to bigeye (a period of 15 years is proposed in Rec. 19-02 paragraph 2, quoted above), but all this remains to be decided. The 2021 stock assessment estimates that a TAC of 61,500 t (if respected) would rebuild the stock in ~15 years.

10 Capacity building

An acknowledged barrier to progress with the MSE harvest strategy process is a difficulty in obtaining decisions from the Commission for inputs to the MSE (i.e. targets, risk levels and performance metrics). Part of the problem is that the Commission members (CPCs) are being asked to take decisions which are very technical, without necessarily fully understanding the scientific context. Miller et al. (2018) (Appendix 5 in SWGSM report 2018) emphasises the importance of communication and non-technical explanation for the success of harvest strategies developed via MSE. In 2014, at the same time as developing and agreeing Rec. 15-07 on harvest strategies, ICCAT established the SWGSM with exactly this aim, although according to ICCATs list of past meetings[1] it does not appear to have met since 2018 (the 4th meeting) – the MSE group also noted with concern that this process is 'dormant'. ICCAT has also held a series of scientific workshops on MSE specifically for CPCs. Other organisations such as ABNJ and ISSF are also working on capacity building for tropical tuna harvest strategies (not only in the Atlantic) and it is a key priority for other overlapping FIPs as well.

11 Implications for the FIP

11.1 FIP timeline

The FIP has three IPGs relating to Principle 1 (under discussion here):

- IPG 1 for stock status and rebuilding of bigeye
- IPG 2 for the implementation of harvest strategies
- IPG 3 for improving information to support the stock assessment for skipjack

In all three cases, the main elements of these IPGs are timetabled to be completed by the end of Year 3 of the FIP. Taking the starting date of the FIP (from FisheryProgress) as July 2019, this means that the target date for these three IPGs is mid-2022. (For bigeye rebuilding (IPG 1) the milestones are implementation of a rebuilding plan in Year 3 and evaluation of rebuilding in Year 4, so the IPG actually continues past Year 3, but the key part is agreement of a plan in Year 3.) The timeline for each of the IPGs in relation to ICCATs workplans is summarised in Table 4.

This FIP timetable was previously aligned with ICCAT, but based on the revised harvest strategy workplan (assuming it is approved by the Commission in November 2021), the ICCAT timetable is now more than two years behind (adoption of a management procedure for the multispecies fishery in November 2024). Although the FIP can ask for this issue to be prioritised, the timetable is based on a realistic assessment of scientific capacity, and at the end of the day, the FIP (and indeed the ICCAT plenary) has little choice but to accept the revised timetable.

Table 4. FIP timetable for each relevant IPG compared to the SCRS revised 2021 timetable.

FIP IPG	FIP milestones	ICCAT timetable	Discussion
IPG 1 – bigeye rebuilding	Rebuilding plan agreed by end Y3 (July 2022) and implemented in Y4 (2023)	Bigeye stock assessment completed in 2021; management procedure due to be agreed end 2024	Bigeye rebuilding is now less urgent because the 2021 stock assessment is more optimistic than previous assessments (and also because the lower catch in 2020 provides evidence that the harvest strategy might be working, although limited to one year). Stock rebuilding has been

[1] https://www.iccat.int/en/Meetings.asp

			folded by ICCAT into the wider harvest strategy. The FIP could consider reviewing the scoring for PI 1.1.2 for bigeye, to evaluate whether this part of the FIP workplan is still necessary in addition to IPG 2 which also applies to bigeye.
IPG 2 – harvest strategies	HCR and management tools agreed by end Y3 (July 2022)	Management procedure due to be adopted for the multispecies fishery end 2024; evaluation of tools for implementation should also be complete	The revised ICCAT workplan pushes back the date for adopting a management procedure for the tropical tuna fishery by two years, so the FIP workplan timetable is now most likely unachievable.
IPG 3 – skipjack information	FIP providing information by end Y3 (July 2022)	Skipjack stock assessment in 2022	The further need for this action will become clear after the skipjack stock assessment is published next year. Suggest it is reviewed at this point.

11.2 FIP activities

The actions in the FIP workplan are pretty general and hence allow for the FIP to make adjustments according to what seems to be most useful. The main proposed approach is to lobby ICCAT on the importance of progress on issues critical to the FIP (bigeye rebuilding, harvest strategies), either alone or in collaboration with other partners (coastal/flag states, NGOs, other FIPs etc.). This approach is fine as far as it goes. The above analysis, however, suggests some more specific actions that the FIP could consider incorporating into the workplan.

Responsibilities under Rec. 19-02: Rec. 19-02 puts some significant responsibilities on flag states in terms of planning and reporting; e.g. they must submit a fishing and capacity management plan and a FAD management plan and must ensure that their vessels provide some detailed data, particularly on FADs. Presumably the EU (one of the flag states of the fleet) has made provisions for developing the plans, but the FIP could ensure that the EU-flagged FIP vessels are recording and providing the required data. Conversely, it may be that Senegal (the other flag state in the fleet) could use some support in implementing some or all of the requirements of Rec. 19-02, which are not straightforward.

In addition, Recs 19-02 and 20-01 include some interim measures for bigeye for 2020 and 2021 (reduction or non-increase in bigeye catch by CPC, depending on previous level of catch). The FIP could evaluate whether the FIP fleet has remained on track to play their part in these requirements.

Capacity building: Some capacity-building activities are foreseen in the workplan (engagement with coastal states in the region and working with ABNJ), but have been significantly complicated by covid. Although the Commission is foreseen to provide feedback on key elements of the MSE in November 2021, in practice the timetable provides for some space for further discussion of the shape of the eventual management procedure during 2022, when the scientists are prioritising the skipack stock assessments.

There are various ways that the FIP could potentially support capacity building, not mentioned in the workplan. Some of these might work and some might not be realistic; the FIP could evaluate options over the next few months:

- Direct engagement with the decision-makers in Senegal.
- If SWGSM still exists and is planned to meet in 2022, the FIP could support Senegal to prepare and participate.
- If there are barriers to further meetings of SWGSM, work with the EU and Senegal to try and remove them (e.g. by pressing to arrange further meetings or facilitating funding or location).
- For a regional approach, the FIP could coordinate activities with other FIPs and projects.
- As well as ABNJ, other organisations such as ISSF and ICCAT themselves have supported capacity-building workshops and other activities, which the FIP could support or participate in. ISSF is a useful point of contact in that they are ready to support FIPs with advice and materials, and tend to be aware of activities beyond just their own.

At the same time as building capacity to support general decision-making, this type of activity allows the FIP to put forward suggestions as to the decisions that should be taken. In particular in relation to bigeye rebuilding, it will be important to ensure that objectives for bigeye are consistent with MSC requirements for the rebuilding timeframe (PI 1.1.2a), which are quite strict. MSC is often ready to support capacity-building in relation to their standard and requirements, and they might also be integrated into the above work.

12 References

SCRS 2021. ICCAT. Report of the Standing Committee on Research and Statistics, online, 27 September-2 October 2021. https://www.iccat.int/Documents/Meetings/Docs/2021/REPORTS/2021_SCRS_ENG.pdf

ICCAT 2021. Report of the tropical tunas MSE technical group meeting, online, 29-31 March 2021. https://www.iccat.int/Documents/Meetings/Docs/2021/REPORTS/2021_TT_MSE_ENG.pdf

SCRS 2019. ICCAT. Report of the Standing Committee on Research and Statistics, Madrid, 30 September-4 October 2019, Madrid, Spain. https://www.iccat.int/Documents/Meetings/Docs/2019/REPORTS/2019_SCRS_ENG.pdf

SWGSM 2018. ICCAT. Report of the fourth meeting of the Standing Working Group to enhane dialogue between fisheries scientists and managers (SWGSM), Funchal, Portugal, 21-23 May 2018. https://www.iccat.int/Documents/Meetings/Docs/2018/2018_SWGSM_ENG.PDF

ICCAT Recommendations:

11-01. Recommendation by ICCAT on a multi-annual conservation and management program for bigeye and yellowfin tunas.

13-01. Recommendation by ICCAT amending the recommendation on a multi-annual conservation and management program for bigeye and yellowfin tunas.

14-01. Recommendation by ICCAT on a multi-annual conservation and management program for tropical tunas.

15-07. Recommendation by ICCAT on the development of harvest control rules and of management strategy evaluation.

16-01. Recommendation by ICCAT on a multi-annual conservation and management program for tropical tunas.

17-01. Recommendation by ICCAT on prohibition of discards of tropical tunas caught by purse seiners.

18-01. Recommendation by ICCAT supplementing and amending Recommendation 16-01 on a multi-annual conservation and management program for tropical tunas.

19-02. Recommendation by ICCAT to replace Recommendation 16-01 by ICCAT on a multi-annual conservation and management program for tropical tunas.