Appendix 13

Report of the 2022 Meeting of the Subcommittee on Statistics

(Hybrid meeting, 19 September 2022)

1. Opening, adoption of Agenda and meeting arrangements

The Subcommittee on Statistics (SC-STAT) annual meeting was held in Madrid on 19 September 2022, under a hybrid format. The Chair of the SC-STAT, Dr Pedro Lino (EU), opened the meeting. The ICCAT Executive Secretary, Mr. Camille Manel, welcomed the Subcommittee and highlighted the importance of its work and the commitment of the Secretariat to support the work of SCRS and the Commission. The Chair of the Subcommittee, highlighting the complexity associated to hybrid meetings, reinforced the need to work efficiently focusing on the main aspects.

The Agenda was discussed and adopted (**Appendix 1**) without modifications. Mr. Carlos Palma and Mr. Carlos Mayor (ICCAT Secretariat) served as rapporteurs to the meeting. The List of Participants is attached as **Appendix 2.** The List the Documents presented during the meeting is summarised in **Appendix 3,** with the respective summaries provided in **Appendix 4.**

2. Summary of fisheries and biological data submitted during 2022 (Tasks 1, 2 and 3), including historical revisions

The Secretariat provided a summary of the data reported to date (an overview of the 2022 detailed Secretariat Report on Research and Statistics) covering the activities and the information on fisheries statistics and biological data received (including revision to historical data) between 1 October 2021 and 8 September 2022 (the Reporting Period). Furthermore, all the basic fisheries statistics and biological information have been presented by the Secretariat to the SCRS Working Groups during the SCRS intersessional meetings.

After five years of continuous improvements, the Secretariat observed in the last three years (2019, 2020 and 2021, even noting that 2021 was somehow better than 2020) a slight regression in data completion quality. More datasets have only passed the SCRS filtering criteria after the corrections had been made by the Secretariat (errors mostly linked to incomplete forms and invalid use of ICCAT codes). In addition, the information submitted using old electronic forms (versions prior to version 2022) increased, with 14 ICCAT CPCs submitting information in old form versions during the Reporting Period compared to 11 CPCs of 2021. The Subcommittee reminds the CPCs that, only the latest version of the electronic forms is valid to submit new and historical data as they incorporate the latest changes approved by the SCRS.

Regarding the activities conducted by the Secretariat, in the most recent years, in addition to the normal activities developed on statistics, publications, data funds management and others, the Secretariat is dedicating (apart from the usual preparation of the majority of the data sets required for each data preparatory meeting and each stock assessment) substantial additional work to stock assessment activities, whether participating actively in the assessment or coordinating and managing external support to the SCRS work. In addition, the statistical work requested to the Secretariat, together with some lack of adherence to deadlines established for data submission, continues to constitute significant additional work for the Secretariat. However, to partially mitigate the consequences of the already excessive workload, the Secretariat has been able to expand whenever possible the automation of data integration and validation procedures.

The Secretariat applied to the 2021 datasets reported the SCRS filtering criteria to accept/reject statistical forms (2013 Report of the Subcommittee on Statistics, Addendum 2 to the 2022 Secretariat Report on Research and Statistics, Filters 1 & 2) adopted in 2013. The results are based on total of 75 flags related to CPCs (50 CP + 1 CP [15 EU Member States] + 1 CP [5 UK flag States] + 5 NCC) with reporting obligations. The forms submitted with errors that the Secretariat was unable to correct until the end of the SCRS annual meeting were considered unreported data and shall require CPC revisions.

2.1 Basic Task 1 (T1FC and T1NC) and Task 2 (T2CE and T2SZ) statistics

The Secretariat presented a summary of the 2021 data reporting status of the two datasets of Task 1 statistics: 1) the Fleet Characteristics (T1FC), and 2) the Nominal Catches (T1NC), using the standard SCRS Report Cards (Tables 1 and 2 of the 2022 Secretariat Report on Research and Statistics, respectively).

The T1FC electronic form (ST01) is used to collect information on individual vessels (sub-form ST01A) and summarized information for vessels less than 20 m LOA (sub-form ST01B). The overall reporting of T1FC for 2021 was 81% (61 flags) higher than the 79% (59 flags) observed for 2020. Eight flags reported ST01 after the deadline, and the Secretariat made corrections to the information reported by 12 flags CPCs.

The T1NC electronic form (ST02) has 2 sub-forms: 1) ST02A used to report positive catches (landings, dead discards, and live releases), and 2) ST02B used to report "zero" catches. The overall reporting of T1NC data for 2021 was 87% (65 flags) slightly higher than for 2020 data (63 flags corresponding to 84%). Eight flags reported late, and the Secretariat made corrections to the datasets of 8 flags. Ten CPCs (13%) have yet to report their 2021 T1NC. The Secretariat reminded the Subcommittee that the new version of the ST02 form (2022) incorporated two new fields since 2020 aimed to report the conversion factors used to transform the landings and discards of each species, from product weight (head off, gutted, gilled and gutted, etc.) into round/live weight equivalent.

The T2CE electronic form (ST03) has not had any major change in recent years. The T2CE report card is presented in Table 3 of the 2022 Secretariat Report on Research and Statistics. A total of 53 flags (71%), including 7 late reporting flags, reported T2CE. Similar indicators to the ones when compared to the 2020 data (52 flags corresponding to 69%). Nineteen flag CPCs (29%) have yet to report T2CE data for 2021.

The T2SZ report card (containing data from both ST04 and ST05 electronic forms) is presented in Table 4 of the 2022 Secretariat Report on Research and Statistics. A total of 43 flag CPCs (57%), including 2 late reporting flag CPCs, submitted 2021 size data. A total of 32 flag CPCs (43%) have yet to submit 2021 size data (reporting ratios slightly worse than 2019 and 2020 T2SZ data submission).

The Secretariat informed that 6 flags CPCs reported no fishing activity on ICCAT species ("0" catches in all species) for the 2021 calendar year. The list of flags with "0" catch reports is published in the Table 5 of the 2022 Secretariat Report on Research and Statistics, which presents a summarised view of all the Task 1 and Task 2 reporting status. The Secretariat also informed the Subcommittee that it continues to receive ST type forms using wrong ICCAT codes.

The Subcommittee requested that a figure showing the overall evolution of the Task 1 and Task 2 data provision over the last five SCRS meetings be prepared (similar to Figure 1 of the 2022 Secretariat Report on Research and Statistics) aimed to have a broader perspective of the ICCAT flag CPCs reporting status at the beginning of each SCRS annual meeting. **Figure 1** was prepared for that purpose.

The Subcommittee acknowledged that for the third year the ST02 form required CPCs to report the Conversion Factors used to transform product weight into round weight, and that this new requirement might have contributed to the reduction in data quality reporting (not providing it, does not allow to pass the filtering criteria). The Subcommittee hopes that once all CPCs become familiar with this new field in the ST02 form, the data quality will once again improve.

The Secretariat informed that, globally across all the Task 1 and 2 datasets, the most common deficiencies continue to be the forms incompleteness on the header and detailed sections, empty sub-forms (e.g. ST01B for small scale vessels; ST02B for "0" catches), use of non-ICCAT codes, and the use of old form versions which increased in 2022 to nearly 80 forms (7% of the total) reported by 14 flag CPCs. The Subcommittee discussed at length the reasons why some CPCs have cells appearing in "orange" (corrections made by the Secretariat that could require a CPC confirmation and/or revision) in the SCRS report cards (Tables 1 to 5 of the 2022 Secretariat Report on Research and Statistics). After some clarifications, the Subcommittee encouraged the CPCs needing clarifications on their reporting status to contact the Secretariat individually to resolve these issues.

The Secretariat provided a demonstration of an improved version of the T1NC dashboard with the most recent Task 1 nominal catches. This dashboard allows to visualise and query Task 1 catch series in multi dimensions online (web dissemination possibilities). The Secretariat recalled that, improved versions of the T1NC dashboard were also prepared for the 2022 Species Groups intersessional meetings. The Subcommittee commended the Secretariat and considered that the T1NC dashboard is now prepared for dissemination.

2.2 Tagging

The Secretariat provided a summary of the tagging data received by the Secretariat during the Reporting Period. The different laboratories and scientific institutions conducting electronic tagging in the ICCAT Convention area reported a total of 379 releases and 38 recoveries. With respect to the conventional tagging (summary in Table 7 of the 2022 Secretariat Report on Research and Statistics), a total of 9,023 tags were deployed and 554 were recovered. On the same period, the Secretariat distributed about 3,255 conventional tags, primarily under the tagging projects of the Atlantic-Wide Research Programme for Bluefin Tuna (GBYP). Several ongoing projects on the conventional tagging such as, the database merge process (ICCAT, AOTTP, and GBYP), the integration of pending datasets received by ICCAT (e.g. some USA past submissions mostly with revisions), the recovery of the shark species sex information, and the overall quality control checks on all tagging datasets, all aiming to increase the quality of the conventional tagging information managed by ICCAT.

The Secretariat also presented an improved version of the dashboard with porbeagle (based on the AOTTP dashboard used during the AOTTP symposium) and a Map Viewer (interactive GIS system) with skipjack conventional tagging. The Subcommittee welcomed the Secretariat's work on these dynamic conventional tagging tools, and also considered that these tools are ready for public dissemination.

2.3 Complementary data obtained within ICCAT data collection and research programmes (GBYP, AOTTP, EPBR, SMTYP and SRDCP)

The data recovery activities conducted within ICCAT research programmes (GBYP, AOTTP, EPBR, SMTYP and SRDCP) have contributed historically with great improvements to the ICCAT fisheries statistics by recovering missing or incomplete catch series and biological samples. However, no major fisheries statistics datasets were recovered under these programmes during 2022.

All historical revisions made during the reporting period are presented in Table 13 (T1NC), Table 16 (T2CE), and Table 17 (T2SZ) of the 2022 Secretariat Report on Research and Statistics, which also contains the supported SCRS documents and the adoption status of the respective Species Group.

2.4 Other relevant statistics (observer data, VMS, BCDs, ISSF, etc.)

Domestic Observer data is submitted using the 2022 version of the form ST09 (adopted in 2019). The Secretariat indicated that the number of flag CPCs submitting observer data using the ST09 has shown a slight increase from 21 in 2021 (2020 data) to 24 in 2022 (2021 data) under the reporting periods (Annex 4 of the 2022 Secretariat Report on Research and Statistics). Table 9 of that Report provides a summary of ST09-DomObPrg data reported for 2021 by discard fate and Species Group including sharks, sea turtles, and seabirds. Table 10 of the 2022 Secretariat Report on Research and Statistics contains T1NC data for by-catch species for 2021. A summary of the information submitted on ST09 forms for sea turtles and seabirds is provided in Table12 and 13 of the 2022 Secretariat Report on Research and Statistics, respectively.

The Secretariat provided an overview with the statistical information available on tropical support vessels activity (form ST07) and FAD data (form ST08). Appendix 2 of the 2022 Secretariat Report on Research and Statistics provides a summary of FAD information received in FAD Management Plans and ST08 forms for 2021 (some datasets could require revisions). A short presentation was also given by the Secretariat summarising the work done during the 2022 Second intersessional meeting of Panel 1, where these matters discussed in depth.

2.5 Historical revisions

An update to Task 1 occurred within the Small Tunas Species Group in 2021 with the decision to include in the small tuna official list of species, the species *Scomberomorus commerson* (Lacepède, 1800) known as "narrow-barred Spanish mackerel" (FAO code: COM). Several COM catches series were included in Task 1, based on the historical recovery of COM catches in the Mediterranean Sea (Di Natale *et al.,* 2020) combined with the FAO catches series (National statistics reported to FAO) explicitly requested to FAO for that meeting. The Secretariat informed that, no COM Task 1 nominal catches were reported to ICCAT since 2021 and none of the planned CPC full revisions of their COM catches series were made.

All the other T1NC, T2CE and T2SZ dataset revisions (details in Tables 13, 16 and 17 of the 2022 Secretariat Report on Research and Statistics, respectively) were presented and approved by the respective Species Groups during the 2021 intersessional meetings.

2.6 Relevant documents to statistics

Four documents were presented to the Subcommittee.

Diaz *et al.* (2022) provides a U.S. revision of shark dead discards reported to ICCAT between 1987 and 2000. During that period, three different statistical approaches were used to estimate dead discards. For the period 1987-1995, dead discards of unclassified sharks were reported as 'coastal' shark dead discards. From 1996-2000, dead discards reported as 'coastal' and 'pelagic' sharks corresponded to species with low representation in the data and they were re-estimated to the species level using the latest methodology used by the U.S. to estimate dead and live discards of a variety of species.

The Subcommittee acknowledged this important U.S. revision on the species discrimination of pelagic (PXX) and coastal (CXX) unclassified sharks, which greatly benefits the quality and consistency of Task 1 statistics. The Secretariat also informed that, with this revision, PXX and CXX species codes almost disappeared from Task 1.

Quesada *et al*. (2022a) provides a historical reconstruction of the historical medium scale (length overall below 20 meters) surface longline (LL-surf) catches of Costa Rica in their EEZ between 1999 and 2020. The rebuild of the catch series estimated for the major ICCAT species (including sharks), was based on the LL-surf fleet structure (number of active vessels per year) recovered by Costa Rica since 1999 and the official landing statistics (INCOPESCA) and auction sales receipts over time. Quesada *et al.* (2022b) complements it containing the recovery of swordfish catches of Costa Rica already adopted by the Swordfish Species Group.

The Subcommittee, after being informed by the Secretariat that these catch series between 1999 and 2019 did not exist in the Task 1, welcomed the new information to the ICCAT fisheries statistics. A doubt was raised about if the existing ICCAT restrictions on silky shark catches, would apply to Costa Rica. The representative of Costa Rica noted that, as a developing coastal state, potential exemptions could apply to Costa Rica.

The Report of the Sub-group on Electronic Monitoring Systems: Proposal of draft ICCAT minimum technical standards for EMS in pelagic longliners (Anon., 2022p) summarizes the work that has been carried out to date by the Sub-group on Electronic Monitoring Systems, (EMS) since it was originally created in 2021. It includes a summary of the main conclusions of the work that was carried out, and also a proposal with the draft minimum technical standards for implementation of EMS in pelagic longliners in ICCAT fisheries. A draft response to the Commission following the request contained in ICCAT Rec. 19-05 (paragraph 20) is also provided.

This Subcommittee acknowledged the work of the Sub-group on Electronic Monitoring Systems. After a deep discussion of the technical aspects of the proposed minimum technical standards for implementing the EMS on pelagic longliners fishing for ICCAT species, where important question were raised such has the potential to extend this proposal to other fleet types operating other gears such as gillnets were debated, the Subcommittee supported the proposal and the draft responses to the Commission behind Rec. 19-05 and 21-01, presented in section 6 of this report.

Benjamin *et al.* (2022) provides a review of St Helena small scale fisheries targeting several ICCAT species, including tropical tunas and wahoo. This fishery started in 1977 and the commercial fishing fleet is composed of small-scale vessels with variable fishing effort depending on the export market. A review of fishing gear codes and geographical locations of both Task 1 catches and Task 2 catch and effort datasets reported to ICCAT across the entire Sta. Helena series (1977-2020) permitted to identify several inconsistencies. Corrections to gears, sampling areas and geographical locations are here presented aiming to improve the historical catch statistics of St Helena available in the ICCAT databases.

The Subcommittee acknowledged the statistical revision presented by St Helena, and, suggested that more revisions of this kind from ICCAT CPCs would greatly improve the ICCAT statistics. The Secretariat informed that this correction was already included in the ICCAT databases.

3. Summary of Secretariat's standard (yearly based) data sets estimations

3.1 CATDIS and EFFDIS

The CATDIS (catch distribution: estimation of T1NC for the nine major tuna and tuna-like species of ICCAT, stratified by year, flag, fleet, gear, fishing mode, catch type, trimester, and 5×5 degree squares) is one of the most used ICCAT catch estimations, with a particular focus on the latest stock assessments of ICCAT using integrated stock synthesis models (SS3, Maunder and Punt, 2013). As approved by the SCRS in 2021 (see Appendix 11 of *Report for Biennial Period 2020-21, Part II (2021), Vol. 2*), the Secretariat has updated the CATDIS from 1950 to 2020 according to the plan established:

1. Update the CATDIS (1950-2020) in December/2021 using the most recent statistics approved by the SCRS/Commission and publish the Statistical Bulletin Vol. 47 in January 2022. Extraordinarily, the Statistical Bulletin Vol. 47 published in January/2022 will have merges two CATDIS estimations (1st: 1950-2019; 2nd: 1950-2020).

2. The following volumes will return to the normal publication schedule in January each year (Jan/2023: Vol 48 with 1950-2021 series; Jan/2024: Vol 49 with 1950-2022 series, etc.).

At the end of 2022, the Secretariat will update the CATDIS for 1950-2021 with the latest Task 1 and Task 2 datasets adopted by the SCRS and publish it in January 2023 (WEB and Statistical Bulletin Vol. 48). As expected, this approach had greatly benefited the 2022 intersessional work of the Species Groups and the SCRS, where no intermediate updates were made to CATDIS.

Once again, the CATDIS has not included the estimations of four additional species: spearfish (SPF), blue shark (BSH), shortfin mako (SMA) and porbeagle (POR), due to the lack of sufficient information in T2CE for these four species (**Appendix 1**). However, some progress has been made on some data recoveries (e.g. the T2CE LL series of USA complemented now with sharks in the species catch composition), and new attempts should be made in the near future.

The Subcommittee acknowledge the Secretariat additional efforts to synchronize the CATDIS estimations with the adopted SCRS statistics in relation to the times series coverage, which will greatly benefit the future work of the SCRS and reduce the number of partial CATDIS updates required intersessionally.

The Subcommittee requested a status update of the EFFDIS estimations (new methodology and preliminary estimations, presented at the Subcommittee on Ecosystems (SC-ECO) in 2020, 2021 and 2022). The SC-ECO reviewed intersessionally in 2022 the data recovery proposal of this Subcommittee made in 2021, with the gap analyses of the catch-and-effort data (T2CE) in the ICCAT-DB". In addition, the Secretariat provided a study aiming to improve EFFDIS (Palma *et al*., 2022) using a cross validation of T1NC and T2CE datasets to identify completion weaknesses. Each T2CE dataset was classified into 3 categories of effort availability and type: a) number of hooks; b) other effort measure; c) no effort reported.

This study showed that, T2CE longline information for the Atlantic is reasonably complete and consistent from 2000 onwards. Therefore, the SC-ECO recommended to publish EFFDIS estimations of Atlantic longline from 2000 onwards on a regular basis on the ICCAT website.

The Subcommittee acknowledged and endorsed the SC-ECO recommendation (see recommendations section) but also commended the Secretariat to continue with the recovery and improvement of T2CE datasets according to the plan established in 2021 by the SC-STAT, that is:

- Identify CPCs with T2CE datasets of type (b) and (c),
- Request those identified datasets to ICCAT CPCs as, revisions (a), and new data (b), both with effort measures in number of hooks, including the catches of the 3 major shark species (blue shark, shortfin mako, and porbeagle) whenever possible.

The Subcommittee noted that when CPCs provide updates to their T2CE datasets, they must follow the standard SCRS rules for revising historical data which includes the provision of a SCRS paper with the update of the methods used on the data recovery or associated estimations.

3.2 CAS (catch-at-size) and CAA (catch-at-age)

The catch-at-size (CAS) database is complete and functional, with an active connection between the size data and the substitution tables used for the CAS estimations. This year, the Secretariat has made a full update to the CAS estimations of skipjack tuna (1969 to 2020) and a partial update to the eastern bluefin tuna stock (1950-2020). The catch-at-age matrices (CAA) were obtained by the Species Groups using various slicing methods on the CAS final matrices. The CAS of SKJ was only used to obtain the overall mean weights trends for both stocks.

4. Brief overview of data deficiencies pursuant to *Recommendation by ICCAT on compliance with statistical reporting obligations* (Rec. 05-09)

4.1 2019 Report cards with SCRS validation criteria (Filters 1 and 2)

The Secretariat applied, for the ninth consecutive year, the SCRS filtering criteria (Filter 1 and 2, described in Addendum 2 to the 2022 Secretariat Report on Research and Statistics of 2013 SCRS report, updated by the SCRS in 2016) to validate and accept Task 1 (form ST01 and ST02) and Task 2 (forms ST03, ST04 and ST05) statistics received under those official forms. The filtering criteria are also embedded in each one of these forms.

For 2021 data, Filter 1 was effectively applied, and the results are presented in the SCRS Report Cards (Tables 1, 2, 3, 4, and 5, with a summary in Figure 1 of the 2022 Secretariat Report on Research and Statistics). The "orange" cells indicate the datasets that have not passed Filter 1. However, most of the Task 1 forms rejected were corrected by the Secretariat and provisionally (marked for revision) integrated into the ICCAT database system (ICCAT-DB). As in the last four years, due to the lack of time, the Task 2 forms with 2021 data submitted during 2022 that did not pass Filter 1 were not yet corrected (left for future revisions with the respective CPCs). Filter 2 criteria was applied, and the results were made available to the Subcommittee for testing purposes (no available time to do demonstrations). Both filters were used on every Task 1 and Task 2 dataset received (scenario 2, methodology described in Palma and Gallego, 2015).

Although during the last 2 years the overall level of reporting has remained relatively constant (Figure 2 of the 2022 Secretariat Report on Research and Statistics), during the last eight years the Subcommittee and the Secretariat observed steady improvements in aspects such as the level of reporting (CPCs reporting ratios), slightly less "late-reporting", slight improvements in the level of completeness of the forms (less incomplete) and the level of resolution of some information (in particular Task 2). This tool has proven to be very effective in imposing strict reporting obligations and minimum data quality standards that will benefit the work of ICCAT in the future.

4.2 SCRS Score cards and catalogues of major ICCAT species (last 30 years)

Recommendation by ICCAT on compliance with statistical reporting obligations (Rec. 05-09) recognized the need to establish clear process and procedures to identify data gaps, particularly those that limit the ability of SCRS to conduct robust stock assessments and to find appropriate means to address those gaps and evaluate the effectiveness of the ICCAT conservation and management measures. Particularly to evaluate how reducing uncertainty can help reduce the risk of failing to meet management objectives.

The SCRS catalogues, contribute to comply with Paragraph 1 of Rec. 05-09. The Secretariat presented in Annex 1 of the 2022 Secretariat Report on Research and Statistics, the SCRS catalogues on Task 1 and 2 data availability for the major ICCAT species, by stock, for the last 30 years (1992 to 2021). The small tuna species SCRS catalogues were also prepared and made available to the SCRS annual meeting. In addition, the Secretariat informed that, as recommended by the SCRS in 2020, the Secretariat continues to publish the two SCRS catalogues on the ICCAT website (www.iccat.int/en/accesingdb.html), the latest ones published in January 2022 with the information approved by the SCRS and the Commission in 2021.

The Subcommittee acknowledged that data submissions have greatly improved during the last decade. However, major deficiencies still exist for some ICCAT stocks particularly for the historical data. Once again, the Subcommittee agreed that the SCRS catalogues should be reviewed by the Species Groups, in particular by those ones that are scheduled to conduct stock assessments in 2023.

The SCRS scorecard, in the format adopted by the SCRS in 2019, is presented in Table 6 of the 2022 Secretariat Report on Research and Statistics with all the major ICCAT fisheries and covering the period 1992 to 2021.

Despite the multiple recommendations made by the Subcommittee and different Species Groups the reporting of total dead discards and live releases (see Section 2.4) continues to be very poor which impact the estimates of total biomass removals and total mortality needed to conduct robust stock assessments.

5. Brief overview of ICCAT Online Management System (IOMS) work

The ICCAT Online Reporting Technology Working Group (WG-ORT), whose mandate was established under Recommendation 16-19, and extended through Recommendation 19-12, will govern all the IOMS implementation process. A Meeting of the 2022 Online Reporting Technology Working Group (WG-ORT) was held in 2022 (see meeting report) where it was revised the existing workplan and planned the next few phases. The outcome of the release into production of the IOMS on 1 August 2012 (experimental year) was very satisfactory. The Secretariat informed the Subcommittee that, the 2022 annuals reports are now being reported by the ICCAT CPCs using the IOMS (Part I/Annex 1 and Part II/Section 3) with a great adherence of the ICCAT CPCs in the last couple of months. Two IOMS workshops (training sessions) were made by the Secretariat in 2022 to support the IOMS users.

For the 2022/2023 IOMS development period, the European Union (EU) has also granted (Project ref: 101058273 – EU-ICCAT-IOMS2021) a complementary contribution with an extraordinary budget for 1 year aiming to support the development of the IOMS vessel record module with the integration of the FLUX-TL system (details in the Report of the Meeting of the Online Reporting Technology Working Group (WG-ORT) *(Virtual, 7-8 February 2022)*) for managing EU vessels (and potentially other ICCAT CPC vessels) in a more efficient way. Due to the lack of time, no demonstration was made this time.

This Subcommittee maintains a strong collaboration with the WG-ORT since the beginning. At the 2021 WG-ORT intersessional meeting, the proposal by the Chair of this Subcommittee to develop the Task 1 module manager on the next development phase (Phase 3) was adopted, and lately confirmed by the WG-ORT in 2022. This Subcommittee recognises the crucial importance of the IOMS in the future of ICCAT and reiterates the full support to continue with the IOMS implementation.

6. Review of responses to the Commission (Recs. 19-05 and 21-01)

6.1 Develop recommendations for Electronic Monitoring Systems, Rec. 19-05, para 20

Background: *The Permanent Working Group for the Improvement of ICCAT Statistics and Conservation Measures (PWG), in cooperation with the SCRS, shall work to develop recommendations on the following issues for consideration at the 2021 annual meeting of the Commission:*

a) Minimum standard for an electronic monitoring system such as:

(i) the minimum specification of the recording equipment (e.g. resolution. recording time capacity, data storage type, data protection)

(ii) the number of cameras to be installed at which points on board

b) What shall be recorded
c) Data to be analyzed, e.g. species, length, estimated weight, fishing operation details
d) Reporting format to the Secretariat

In 2020 CPCs are encouraged to conduct trials on electronic monitoring and report the results back to the PWG and the SCRS in 2021 for their review.

Following the Commission request a Subgroup within the Billfish Species Group was created in 2021 to address this issue. The Subgroup noted that there were already minimum standards recommended by the SCRS for EMS on purse seine fisheries (Ruiz *et al*., 2017), which were endorsed by the Commission. The Subgroup then focused most of its work on pelagic longline fisheries, noting that other fisheries (e.g. gillnets) also need to be addressed in the future.

The Subgroup worked intersessionally during 2021 and 2022, focusing on the following items: revision of previous literature comparing human observers with EMS, comparison of what data can be collected by human observers versus EMS specifically for ICCAT pelagic longline fisheries (using ICCAT observer data form ST-09), and creating a draft proposal for ICCAT EMS minimum standards for pelagic longlines.

The summary of the main work and conclusions from this Subgroup was presented to SC-STATS in 2022 in the Report of the Sub-group on Electronic Monitoring Systems: Proposal of draft ICCAT minimum technical standards for EMS in pelagic longliners (Anon., 2022p). The Committee's proposal for ICCAT EMS minimum standards for pelagic longlines are provided below.

Draft ICCAT Minimum Technical Standards for EMS in pelagic longliners

Objectives

For the SCRS, the priority for electronic monitoring systems (EMS) is to implement them in a way that will allow the collection of fisheries data that are usable for scientific purposes. They should be designed in a way that complements, and to the extent possible, is consistent with what is currently collected by human scientific observers. The SCRS also recognizes that EMS may also be used for compliance and other purposes. As such, EMS should be implemented in a way that can address both scientific data collection and compliance objectives. EMS intended to address both objectives should be designed to at least meet the requirements of the more demanding objective. For instance, scientific data often must be collected at a finer (e.g., spatial, temporal) resolution than would be required for compliance purposes. In such a situation, meeting the minimum requirements needed for science, would allow use in both scenarios.

Structure (who is responsible)

While there are several possibilities for the EMS program structure, the SCRS will discuss two: decentralized and centralized programs. A "decentralized system," is where each CPC is responsible for EMS implementation in its own fleets, including the recordings, processing, data extraction and summarization, and submission of data to ICCAT (based on minimum standards to be adopted by the Commission). This is similar to what currently exists at the level of national observer programs for scientific purposes in ICCAT, where each CPC is responsible for their own programs and for reporting the required data to ICCAT. Since the cost of implementing this approach would be borne by the CPCs, there would be little financial costs for the Commission to develop or implement the program and a lower administrative burden for the ICCAT Secretariat. A potential issue, however, is inconsistent implementation of the EMS requirements across the ICCAT members – as has been the case with regard to the implementation of ICCAT's minimum standards for scientific observer programs (*Recommendation by ICCAT to Establish Minimum Standards for Fishing Vessel Scientific Observer Program* (Rec. 16-14)).

Another approach to EMS is to establish a "centralized system" that would be coordinated at the ICCAT Secretariat level. The benefits of this approach include a more consistent implementation of EMS requirements across the ICCAT members. It might also benefit CPCs who lack the resources to set up their own local EMS databases and auditing infrastructure. There are, however, significant challenges that would be associated with this approach, particularly related to the financial costs to the Commission and the administrative burden for the ICCAT Secretariat. Among others, issues regarding data sharing and confidentiality would also need to be addressed.

It is clear that there are important trade-offs associated with the approach selected. In addition, as has been done in the case of human observer programs in ICCAT fisheries, it may also be feasible to develop a combination of the two approaches depending on data and compliance needs of the fishery. These questions and trade-offs should be further considered by scientists and managers. Taking into consideration data needs and given the significant financial costs and other challenges associated with the implementation of centralized EMS however, the sub-group focused its work on the development of input related to a decentralized system. That said, a centralized program or combination of approaches could be considered in the future. The sub-group acknowledges, however, that such a structure or combination of approaches would require substantial additional work, as well as financial and administrative resources.

Periodic reviews

Electronic Monitoring systems should undergo regular evaluations to ensure they reach the outlined objectives. These periodic reviews also give the opportunity to incorporate new technologies (i.e. improved cameras, artificial intelligence) as they become available, as well as to update and incorporate new objectives. A review framework should also allow a faster implementation of the updated minimum standards, that can be reviewed and adapted as needed in the future.

Standards described in this document

1. Standards for onboard EMS technology, including equipment and camera system requirements, installation, and maintenance;
2. Standards for data storage requirements and what data are subject to those provisions;
3. Standards for data collection, review, and reporting to ICCAT;
4. Standards for data protection and potential privacy issues.

1. Standards for onboard EMS technology, including equipment and camera system requirements, installation and maintenance

Electronic Monitoring systems have to be capable to resist rough conditions at-sea with minimum human intervention. In many cases, proper maintenance and inspection can only be achieved at port, in-between long fishing trips.

The vessel owner/operator is responsible for notifying the national authority and/or the EMS service provider if their EM system is not functioning properly.

The EMS must be linked to a receiver (e.g. GPS, GNSS) which records vessel location, speed, and heading information, and is directly and continuously logged by the control box. The receiver must be installed and remain in a location where it continuously receives a strong signal.

The EMS should have a battery backup system with capacity to provide power if the main power source from the vessel fails, to allow proper shutdown of the system and not corrupt the data.

Access to administrative configuration tools and data must be password protected. The EMS must be proof against any manual data input or external data manipulation and record any attempt to tamper with the equipment or the archived data.

The specifications for selecting, installing, operating, and maintaining EMS and their equipment (cameras, sensors, data storage devices, etc.) onboard vessels should be based on performance standards rather than being prescriptive in terms of pure technical requirements.

The video cameras must be mounted and placed so as to provide clear and unobstructed views of the areas that are being covered (see example table below). There must be sufficient lighting to clearly illuminate the area and the individual specimens captured. If vessels fish at night and use artificial lights to illuminate the deck, the quality of images under these circumstances should be checked to ensure there isn't excessive glare.

Longline vessels should be equipped with a sufficient number of cameras to allow data collection to the required standards (see table below for example of a 4-camera system), with sufficient resolution to determine the number, species, sizes and other details of the capture, and processing operations.

Crew should aim to ensure that all specimens that are caught, even those that are released, are handled in a manner that enables the video system to record each specimen brought onboard and each release, taking into consideration any adopted safe release guidelines.

In most cases video will be the primary data collection method, but it may be possible for some CPCs to collect the data needed for ICCAT submission using still images. Whichever the chosen method, the quality of the data must be sufficient to allow species identification and detailed measurements of specimens. To allow this, it is suggested that cameras recording video must have a resolution of no less than 720p, with a minimum frame rate of 5-10 FPS. Where still images are captured, it is suggested they are captured with a resolution of no less than 2MP, with a rate of image capture determined by the characteristics of each fishery. For both data collection methods, there will be different implications for data storage which will need to be considered by the CPCs at the point of implementation.

The EMS should be independent from the crew during the trip, with the exception of some basic maintenance such as periodically cleaning the camera lenses.

It is in general not necessary for the videos to record 24h/day, but only when relevant operations are taking place. For longline vessels, the EMS should be capable of initiating video recording, and record only during the period of gear deployment (aft camera) and gear retrieval operations (work deck, processing area, surrounding water cameras) (see **Table** below for an example of camera locations/specifications). Electronic monitoring systems must continue to record for at least 30 minutes after the end of the haulback operation to ensure that there are recordings of the processing or discarding of all the specimens captured. The capability of initiating and ending the recording can be controlled by sensors that continuously monitor the hydraulic pressure signal and drum rotation sensors; these hydraulic pressures from the sensors should be recorded and stored by the control box.

The system must include a control box that receives and stores the raw data provided by the sensors and cameras.

A wheelhouse monitor must include a user interface to provide information about the functioning of the system and for the vessel operator to monitor the control box, and cameras. This can include details such as current date and time (synchronized via GPS/GNSS), vessel location, current hydraulic pressure reading, presence of a data disk, percentage used of the data disk, and video recording status.

The EMS should have a self-diagnostic test for functionality of the system components and record the outcome of the tests.

Table. Example of a four-camera system EMS deployment for pelagic longlines.

Camera location	*Action covered*	*Possible data collected*
Aft of the boat	Setting operation	Set position, date, time
		Total number of hooks, hook types, hooks between floats
		Bait type/species
		Bait ratio (%)
		Mitigation measures used (painted bait, tori lines, line weight)
Work deck	Catch at hauling	Species ID/composition
		Specimen sizes
		Condition (dead/alive)
		Fate (retained/discarded)
		Predators observed
	Discarding (if hauled before discarded)	Discards by set
		Discards ID/composition
Processing area	Catch while processing	Species ID/composition
		Total catch by set
		Specimen sizes
		Sex
		Weights?
		Product type (fresh/processed)
Surrounding water area	Discarding (if discarded in the water)	Discards by set
		Discards ID/composition
		Condition of discards?

2. Standards for data storage requirements and what data are subject to those provisions

The control box must contain data storage systems adequate for the trip duration that each national program is designed to cover. Each vessel must have sufficient storage space for the specific trip duration.

Regulations relating to data storage and transmission should be flexible as new technology may allow for different ways of storing or transmitting data that are less logistically challenging or more efficient.

The system must be verified to be functioning properly before the start of each trip, remain powered on and positioned correctly for the duration of each trip.

3. Standards for data collection, review and reporting to ICCAT

Raw data (i.e. video recordings) will be managed by each CPC, which can designate a contracted EM service provider for its national program.

The review of the video footage for extraction of the data to be submitted to ICCAT should be done by the CPCs authorities directly, and/or by a contracted EM service provider assuring that EM records are analysed by a qualified and experienced EM analysts.

Each CPC must assure that the EMS should be able to collect, to the extent possible, the observer data that is required to be submitted to ICCAT (ST-09) or any subsequent update of the form.

Electronic Monitoring systems cannot fully replace all the functions of human scientific observer programs, such as biological sampling. Given that, EM should be used as a complement or supplement to such programs, and a minimum human observer coverage should still be maintained for scientific purposes. This is currently 5-10% for most ICCAT fisheries, although the SCRS has indicated in the past that higher coverages would be more appropriate.

The EMS analyses and data extraction require trained EMS analysts. One potential source are trained observers with at-sea experience, who are familiar with the fisheries and species identification. There may be the need for CPCs to train EMS analysts for their programs. The ICCAT Secretariat might be involved in providing standardized training for EMS analysts or signoff/approve training programmes implemented by each CPC, to improve and harmonize the data processing and extraction from the various national programs.

The analysis software should make entering the EMS records and generating the EM data as automatic as possible. This should include, among others, location, date, and time stamps on any activity identified by the cameras, as well as user-friendly tools to directly include information regarding the processed EMS data or reports, and generally expedite the EMS data analyses.

For measurements to be taken, catch will need to be positioned by the crew on one or more calibrated areas. A calibrated area is an area of known size, such as a hatch or area of the deck, that can be defined in the EMS analysis software (see example in **Figure** below).

Figure. Example of a calibrated hatch onboard a commercial fishing vessel. These areas will vary from vessel to vessel, depending on available surfaces and the species being measured. This image is provided as an example from a non-tuna fishery. For tuna and tuna-like fisheries, the defined areas will have to be larger to accommodate larger species.

Once data is collected, it should be subject to a quality control (QC) procedure, as is standard with most observer programmes, to ensure data quality. This procedure should be defined by each CPC and be repeatable. It may be necessary for minimum standards/requirements to be set for this procedure by the Commission.

Any conversion factors (e.g. length-length or length-weight) used by the CPCs must be reported to ICCAT and they should be the conversion factors adopted by the SCRS, when available.

CPCs are responsible for reporting the data to the ICCAT Secretariat using the ICCAT ST-09 electronic form, or any other forms that in the future might be developed and approved by the SCRS for EMS data reporting. Submission of EMS data should comply with the Task 1, 2, and 3 data submission deadlines established by the SCRS and adopted by the Commission.

4. Standards for data protection and potential privacy issues

With a decentralized program, in which each CPC is responsible for the implementation, recordings, extraction of data, and submission of data to ICCAT, the aspects relative to potential issues related to the privacy or confidentiality of the data will depend on national regulations and legislation. In a decentralized system, only the CPC that is responsible for the collection of the data has access to the original recordings. Those original data are therefore managed directly by each CPC national authority.

Data submitted to the Secretariat should follow the ICCAT Rules and Procedures for the Protection, Access to, and Dissemination of Data.

6.2. Minimum standards for Electronic Monitoring Systems in tropical tuna fisheries, Rec. 21-01, para 55

Background: *For longline vessels flying their flag 20 meters length overall (LOA) or greater targeting bigeye, yellowfin and/or skipjack in the Convention area, CPCs shall ensure a minimum of 10% observer coverage of fishing effort by 2022, through the presence of a human observer on board in accordance with* ***Annex 7*** *and/or an electronic monitoring system. For this purpose, the Working Group on Integrated Monitoring Measures (IMM WG), in cooperation with the SCRS, shall make a recommendation to the Commission for endorsement at its 2021 Annual meeting on the following:*

a) *Minimum standards for an electronic monitoring system such as:*

   i) the minimum specifications of the recording equipment (e.g. resolution, recording time capacity), data storage type, data protection
   ii) the number of cameras to be installed at which points on board

b) *What shall be recorded*

c) *Data analysis standards, e.g. converting video footage into actionable data by the use of artificial intelligence*

d) *Data to be analyzed, e.g. species, length, estimated weight, fishing operation details*

e) *Reporting format to the ICCAT Secretariat*

In 2020 CPCs are encouraged to conduct trials on electronic monitoring and report the results back to the IMM and the SCRS in 2021 for their review.

CPCs shall report the information collected by the observers or the electronic monitoring system from the previous year by 30 April to the ICCAT Secretariat and to SCRS taking into account CPC confidentiality requirements.

The Subcommittee recognized that several minimum standards for Electronic Monitoring Systems proposed for longliners can be applied in tropical tuna fisheries. However, the Subcommittee did not have the time to review those in detail and requested the Tropical tunas Species Group to include this task in their workplan for 2023.

7. Workplan for 2023

The following tasks represent continuous database improvements and maintenance that will continue during 2022 and beyond. The priority tasks (including the ones postponed in prior years) for 2022/2023 include:

- Upgrade all the ICCAT-DB system from MS-SQL server 2016 to MS-SQL server 2019
- Replace the stand-alone MS-ACCESS Task 2 databases on the web by SQLite equivalent ones
- Improve the "client applications" that manage the databases of the ICCAT-DB system
- Continue the development of the statistical/tagging dashboards (dynamic querying)
- Continue the tagging database development for both conventional and electronic tagging;
- Continue the Biological Sampling database development (includes data recovery/integration)
- Continue the standardization of the electronic forms (TG: tagging forms, CP: compliance forms)
- Extend the automatic data integration tools for the standardized electronic forms
- Continue the development of the GIS project (create a PostGIS server and geo-reference for all the ICCAT data available in ICCAT-DB)
- The adaptation/migration of all the databases of the ICCAT-DB system to the new ICCAT IOMS system

8. Recommendations

8.1 Progress with prior year Recommendations endorsed by the Subcommittee

Ongoing Tasks

- The Subcommittee recommends that the Secretariat continues the development of EFFDIS and present any updates at the next meeting of the SC-ECO.

- The Subcommittee recommends that the Secretariat in coordination with the SGs prepare a draft proposal for a workplan to guide the development of the Task 3 Biological database that will be presented at the next meeting of the Subcommittee.

- The Subcommittee recommends the continuation of the development of the ICCAT Integrated Online Management System (IOMS) and the work of the Online Reporting Technology Working Group (WG-ORT). As such, the Subcommittee recommends that the Commission fully supports this effort.

- The Subcommittee recommends initiating a Sub-group to address the Commission request (Rec. 19-05, para 20) to develop recommendations on the Electronic Monitoring Systems (EMS), particularly on longline fisheries from the scientific perspective. The Sub-group will incorporate expertise from other Species Groups and Subcommittees. The Subcommittee agreed that tasks of the Sub-group will include collection and analysis of past studies (e.g. reports and documents) regarding results from comparisons between observers and EMS, in order to start describing current knowledge, possible knowledge gaps and needs for additional experimental trials, and review the draft EM guidelines produced by the IMM. The Sub-group should report back to the Subcommittee, before considering submitting its findings to the SC-STATS in September this year.

- The Subcommittee also noted that according to ICCAT data catalogue, several CPCs have not reported statistical data for Atlantic recreational fisheries, despite the allocated financial resources made by the Commission to African western CPCs. The Subcommittee recommend investigating the difficulties and needs encountered by CPCs involved, aiming to improve the data collection and reporting.

- The Subcommittee recommended that the Secretariat work with those CPCs that are reporting Task 1 and 2 data using FAO gear codes instead of ICCAT gear codes to standardize their data submissions using the correct gear codes.

- The Secretariat should continue its work on the data recovery and the inventory process of tagging data for small tuna species. This process will require active participation of the national scientists that hold such data.

- The Subcommittee recommends that it is important for CPCs to also report data on discards-at-size for swordfish, in T2 data. This information is needed to address ICCAT Rec. 19-04, para 3: "In the development of the operating models, the Commission would like the SCRS to allow for the evaluation of minimum size limits as strategies to achieve management objectives".

- Considering the implications for stock assessment and the MSE process, the Subcommittee recommends that CPCs statistical correspondents should inform the Secretariat and SWO SG about the methodology used for collecting swordfish length and if it changed over time (curved or strait LJFL). The Secretariat will confirm with the statistical correspondents on the types of measurements submitted for swordfish.

- The Subcommittee recommends that the specification of the type of measurement (curved or strait LJFL) shall be included in any ICCAT Recommendation concerning size limits in swordfish.

- The Subcommittee on Ecosystems recommends that the Subcommittee on Statistics review the gaps in the catch-and-effort data in the ICCAT-DB (information to be provided by the Secretariat). Based on this review, the Subcommittee on Statistics should decide if it recommends uploading the current version of the EFFDIS to the ICCAT website or if the data gaps are significant enough to preclude the use of EFFDIS.

- The Subcommittee recommends that CPCs abide by the reporting obligation to report size samples collected by scientific observers using the ST04 form.

- The Subcommittee recommends that the Secretariat, in collaboration with the SCRS and national scientists, review and update the list of by-catch species in the ICCAT database.

Pending tasks

- The Subcommittee recommends that the Secretariat prepare and make readily available the list of head of scientific delegations including their contact information and maintain it as a living document.

- The Subcommittee recommends that CPCs recover historical catch and effort data and apply the proper units of effort (i.e. number of hooks) and provide information on the type of longline gear deployed (i.e. American style or mesopelagic).

- The Subcommittee once again recommends that the Species Groups provide the Secretariat with the range of lengths and weights that are considered biologically acceptable for each species.

- Noting that the catches of billfish species are scarce and largely under-reported in the Mediterranean Sea and taking into account that several CPCs had already implemented domestic observer programmes in BFT and SWO fisheries, the Subcommittee recommends the ICCAT CPCs with ICCAT fisheries in that area to duly provide their billfish catches (landings, dead discards and alive releases) for all species, including target, co-target and by-catch species.

- Statistical Correspondent and/or national scientists should revise, update, complete and submit their small tuna T1NC series to the Secretariat. This revision should take into account Appendix 5 (SCRS catalogues), the split of "unclassified" gear catches to specific gear codes, and the completeness of Task 1 gaps identified. The Statistical Correspondent and/or National scientists of CPCs should correct inconsistencies identified in Task 2 datasets (T2CE: catch & effort; T2SZ: size samples). In addition, for the 13 species of small tuna, the T2SZ revision should follow the

SCRS recommendation on the T2SZ stratification (month, gear, 1°x1° geographical squares for surface gears/up to 5°x5° squares for longlines, SFL size classes of 1 cm in lower limits). CPCs should further improve their estimates of total catches, as there are still important gaps in the basic data available. These data are required inputs for most of the data-limited stock assessment methods.

- The Subcommittee continues to note that there is a general lack of discard data reported by most CPCs, including dead discards and live releases. The Subcommittee reminds CPCs that the reporting of discards is required and is essential for assessing the stocks status. Such information is required to be provided by CPCs well in advance of the next stock assessment. The Subcommittee also strongly recommends that both dead and live discards be estimated by each CPC and reported to ICCAT, backwards in time as much as possible.

8.2 Review of Recommendations from 2022 inter-sessional meetings

The Subcommittee reviewed the recommendations for statistics from the 2022 intersessional meetings.

The following recommendations were endorsed by the Subcommittee:

8.2.1 Skipjack

- The Group notes the lack of 1°x1°by month for surface fisheries Task 2 CE data from several CPCs, or inconsistencies between Task 1 and Task 2. To obtain a better definition of stocks boundaries, the Group reiterates that CPCs should fully comply with the ICCAT data submission requirements.

- With regards to the "faux-poisson" estimations obtained from the method proposed by the Group (details in section 3.1), it is recommended that each CPC with PS FAD fishing activities use a similar approach (taking into account their own specificities on how "faux-poisson" is defined) to estimate the "faux-poisson" component of Task 1 catches for the 5 main species (BET, SKJ, YFT, LTA, and FRI). An alternative method to obtain those catches may also be accepted if properly justified (e.g. better approach, inappropriate method, others).

- The Group recommends a review of all the data on length-weight relationships with a view to estimate regional and or seasonal relationships to be used in the estimation of catch at size and potentially for the establishment of stock specific relationships. The Group recommends that SKJ length-weight relationships should be sampled and analysed more regularly ideally from scientific observer programs, to provide more data to support length-weight parameters required for stock assessment.

8.2.2 Swordfish

- The Group recommends that the straight-curved lower jaw fork length relationships presented in Coelho *et al*. (2022), be adopted for use for lengths conversions in the 2022 Stock Assessment. Pending further data collection and analysis the Group recommends that the conversion be considered for the ICCAT list of approved conversions.

- Noting conflicting patterns in the CPUE indices developed by CPC scientists, the Group recommends that CPUE analysts from a Working Group that will work intersessionally to review the CPUE data inputs, treatments, and model assumptions and methods. The objective of this Group will be to diagnose conflicting trends in the CPUEs and improve the quality of indicators used in SWO assessment and N-SWO MSE.

8.2.3 Sharks

- The Group recommends that the Secretariat undertake an analysis of catch data for longfin mako shark as per Rec. 21-09 as it has for other species.

- The Group recommends that the Subcommittee on Statistics identify the best procedure to report missing T2-CE shark data, so as to avoid duplications of fishing effort with the T2-CE data for other species that have already been submitted and included in the ICCAT-DB.

8.2.4 Subcommittee on Ecosystems

- The Subcommittee recommends that the Secretariat, in collaboration with the SCRS and national scientists, continue to review and update the list of by-catch species in the ICCAT database.

- The Subcommittee recommends that the EFFDIS estimates for the Atlantic region for 2000 onwards be posted for use on the ICCAT website.

8.3 Future recommendations

8.3.1 Recommendations without financial implications

1. The Subcommittee recommends that, where needed, the Secretariat updates the "read me" files associated with the different ICCAT Statistics Databases posted on the ICCAT Website.

2. The Subcommittee recommends that the Secretariat requests that CPCs identified as having reported T2CE datasets with incomplete information on effort (catches without effort), report revisions to ICCAT with the missing effort included and whenever possible the catches of the three major shark species (POR, BSH, SMA). The Secretariat should estimate the fractions of the total longline catches that do not have sufficient effort information in T2CE and estimate the impact of those datasets on the estimations of EFFDIS. These analyses completed with the gaps identified on the SCRS species catalogues should be presented at next meeting of the Subcommittee on Ecosystems.

3. The Subcommittee recommended that the Commission continue to support the development of the IOMS system.

4. To complete catch data series, the Subcommittee recommends that ICCAT develop a process to obtain catch statistics information from countries that are not currently part of ICCAT. It recommends that the acquisition of these data (through collaboration with FAO, other regional fisheries bodies, and CPCs) be elevated and addressed by the Commission itself.

5. The Subcommittee recommended that the T1NC dashboard should be published on the ICCAT website for general access to the public, simultaneously with the Task 1 statistics (January each year). In addition, independent T1NC dashboards should also be prepared for the Species Groups intersessional meetings.

6. The Subcommittee recommended that the conventional tagging (CTAG) dashboard and Map viewer should be published on the ICCAT website for general access to the public, simultaneously with the conventional tagging datasets (January each year). In addition, independent CTAG dashboards should also be prepared for the Species Groups intersessional meetings.

8.3.2 Recommendations with financial implications

- The Subcommittee recommended continued development of front-end applications for making and publishing graphically dashboards of ICCAT statistical datasets and provide the necessary financial resources for its full implementation (€6,000).

Billfishes

- The Group recommended that the necessary funds for the implementation of Billfish Species Group Regional workshops in West Africa and Caribbean for the improvement of statistical data collection and reporting, to be estimated intersessionally aiming for the endorsement of these funds by the 2021 SCRS Plenary for the 2022-2023 budget.

9. Other matters

Changes proposed to statistical (ST type) and tagging (TG type) electronic forms

The Subcommittee adopted two minor functional updates (no structural changes) to ST forms, for flexibility reasons:

a) ST01-T1FC: sub-form ST01B (individual vessel information) should allow, per year, more than one record per vessel. This allows to accommodate information of vessels fishing within a year with more than one gear type licenced to fish in one or more ICCAT fishery.
b) ST02-T1NC: Specifically used by the tropical PS catches (PortZone= "ETRO"). To differentiate the "faux poisson" estimated landings of a given species, from the normal landings of that species in the same strata, the field PortZone should use "ETRO-FP" (not "ETRO"). Both landing types (normal and "faux poisson") should use the field "qtyLkg" (Quantities landed- kg) for quantities.

The SCRS cannot respond to the observer coverage request this year due the lack of available/appropriate data. The SCRS reminds the Commission that Rec. 21-08 paragraph 98 states that the requirements and procedures required to undertake this analysis are to be developed by the Commission by 2023 taking into account CPC confidentiality requirements. In addition, paragraph 95 specifies a set of observer coverage rates that apply to implementing this recommendation, thus it would be beneficial to define how these coverage levels are to be calculated so that potential problems with inconsistencies in defined coverage levels for different CPCs can be avoided. The SCRS looks forward to understanding what these requirements and procedures are so that it may design a data collection form and to subsequently provide recommendations on how to improve the effectiveness of CPC's observer Programmes (specified in paragraph 99).

The Subcommittee acknowledged that, despite its already very heavy workload, the Secretariat continues to excel at its job. Therefore, the Subcommittee commended the Secretariat's staff for the excellent support they continue to provide to all the SCRS Species Groups and Subcommittees. This is particularly notable, taking into consideration the additional difficulties associated with conducting online and hybrid meetings due to the ongoing COVID limitations.

10. Adoption of the report and closure

The report of the meeting will be adopted during the SCRS Plenary meeting.

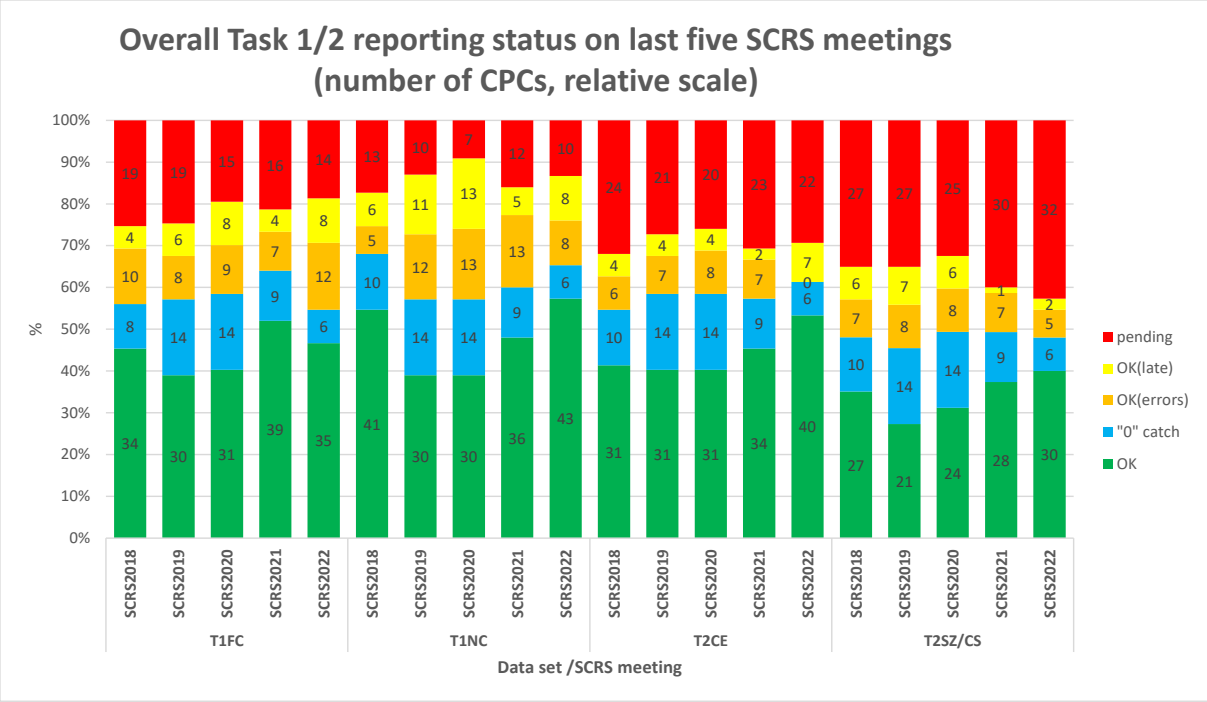

Figure 1. Overall evolution of the Task 1 (T1FC, T1NC) and Task 2 (T2CE, T2SZ/CS) reporting status (5 categories, see the 2022 Secretariat Report on Research and Statistics) over the last five SCRS annual meetings.