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IMPROVING SPECIES AND CATCH DATA REPORTING (RESOLUTION C-03-05)

This draft document aims to initiate discussion with Members on improving IATTC data reporting. See Section B.3. Data Collection in SAC-12-16 for the staff's recommendations on general data provisions in 2021.

CONTENTS

SUMMARY

Many aspects of the research conducted by IATTC's staff have expanded since the Antigua Convention entered into force over a decade ago, and data provision has not kept pace. This has severely hampered the staff's work, ultimately impacting the research that can be undertaken to provide management advice. For example, stock assessments of the target tropical tuna species have suffered because access to essential data, in particular, operational-level logbook data, which are the fine-resolution data required for the sophisticated techniques recently used to assess the stock status, has been restricted. These data have only been available to the staff through Memorandums of Understanding (MoUs) with Cooperating Members and non-Members (CPCs) for set time periods prior to the Scientific Advisory Committee meetings to conduct assessments, which does not give the staff adequate time to conduct the in-depth analyses necessary to improve the assessments. Additionally, the Antigua Convention includes a greater focus on ecosystem considerations and impacts the eastern Pacific Ocean's (EPO) fisheries may have on associated and dependent species. However, ecological analyses have been hampered by the lack of quality data on species caught as bycatch in the various fisheries, with limited to no data available for fisheries other than large purse-seine vessels (IATTC Class-6; fish carrying capacity > 363 t) that carry observers onboard for each trip. Such limitations led the staff to review current Resolutions on the foundation of all of its research – the data on fisheries, mainly the overall Resolution on data provision, C-03-05. Upon review, the staff concluded that this Resolution requires updating to align with mandates of the Antigua Convention, the IATTC's Strategic Science Plan (SSP) and to harmonize with the Food and Agriculture Organization (FAO) and other tuna Regional Fisheries Management Organizations. To this end, the staff has prepared this document, which is intended to serve two purposes: 1) provide background information on the rationale for improved data collection, and outline the data deficiencies for the various fisheries that must be addressed in order for the staff to perform the research necessary to meet its diverse responsibilities (Sections 1-5); and, 2) provide a proposed draft of a revised Resolution C-03-05 on data provision that covers the fisheries known to operate in the EPO for which data provision is not addressed under other resolutions (Annex 1). The overarching goal of this effort is to revise Resolution C-03-05 to improve the scope and quality of data provided for science, conservation and management.

1. INTRODUCTION

Since the Antigua Convention entered into force in 2010, the scope of the staff's research portfolio has broadened, which has required closer collaboration among the IATTC scientific programs (*e.g.* stock assessment, ecosystems and bycatch, data, *etc*.). This recent expansion of the scope of IATTC research has also resulted in significant changes in the quantity and nature of the data needed by the staff. Emerging scientific and political drivers have required several aspects of the staff's activities to be reassessed, including the bedrock of its research: the data on the fisheries. The primary scientific driver for reassessing the fisheries data includes technical challenges with the stock assessments of the tropical tuna species (see SAC-11-06; SAC-11-07; IATTC-95-05), while an important political driver includes the growing awareness by the international community of the potential ecological impacts of fishing and tuna fisheries interactions with threatened or vulnerable species. Others include advances in the fields of science and technology, the increasing number and range of tasks requested of the staff by the Commission, and the considerable changes in the fisheries in recent years (e.g. increase in FAD sets).

A particularly important emerging area for the IATTC staff to address has been the potential fishery impacts beyond that of the principal target tuna species. In particular, the Antigua Convention makes specific reference to "dependent" and "associated" species, and to "species belonging to the same ecosystem", and therefore, at least indirectly, to an ecosystem approach to fisheries conservation and management. Therefore, it is not only important to obtain improved data for the target tuna species but also for the species that are incidentally caught by the various fisheries that catch tuna and tuna-like

species in the EPO.

Fisheries data used by the IATTC for scientific purposes are obtained by the staff, either directly—mainly through port sampling, abstraction of vessel logbook information, and onboard observer programs—or indirectly via submissions from Commission Members and Cooperating Non-Members (CPCs), the tuna fishing industry, and various other sources. The sources and quantity and quality of the data available vary markedly among fisheries. The most data-deficient fisheries are the multi-species and multi-gear fleets, dominated by short- to medium-range vessels, that operate out of the coastal states (*e.g*. Martínez-Ortiz et al. 2015; SAC-07-06b(ii)), while the most extensive data are obtained from the fleet of large[1] purse-seine vessels, which under the Agreement on the International Dolphin Conservation Program (AIDCP), are required to carry an onboard observer for every trip. Port-sampling data, cannery data, and logbook data obtained from the fleet of large purse-seine vessels are also considered high quality for the target tuna species. For large longline vessels, most of which are from western Pacific fleets, data are collected by the respective Members and CPCs and provided to the IATTC in summary form, for example, gross annual catches and with data aggregated temporally (*e.g.* monthly) and spatially (*e.g*. 5° x 5°). In terms of completeness, timeliness, resolution and detail, data for the longline fishery can be broadly divided into 2 groups as: 1) the large longline vessels that operate mostly on the high seas and 2) the short- to medium-range longline vessels from EPO coastal states. Data quality and submission times from these longline fisheries—and other smaller domestic commercial and artisanal fisheries (*e.g*. gillnet)—lag considerably behind the purse-seine fishery. Current observer coverage of the longline fishery for most CPCs is very low (5-7%), which severely limits the usefulness of observer data for scientific purposes (BYC-10 INF-D). In order for the staff to undertake scientifically defensible research and assessments, access to operational-level longline data and significantly improved observer coverage is imperative.

The arrangements that govern what data CPCs should provide, and how and when they are required to be provided, have not been adapted to allow fulfillment of the mandates of the Commission under the Antigua Convention. Resolution C-03-05 (Appendix 1), adopted in 2003, defines the nature and format of the data pertaining to catches and effort that CPCs are required to submit to the IATTC. However, for the target tunas, supplemental information related to catchability—necessary for assessing the status of their stocks—is not submitted as it is not explicitly required under C-03-05. Furthermore, it does not mandate the reporting of data on the incidental catches of non-target species (*i.e.* 'bycatch'), which is essential for undertaking ecological assessments and ecosystem research. Other resolutions, some of which also precede the Antigua Convention, mandate CPCs to provide data on particular non-target species or taxonomic groups.

In view of the changes to the fisheries and in the Commission's and the staff's research activities and priorities, the scientific staff reviewed the resolutions currently in force related to data provision, for both target and non-target species (Appendix 8). The staff concluded that amending and updating C-03-05 is necessary in order to receive the data required to undertake the tasks and responsibilities requested by its Members and mandated by the Antigua Convention, and to fulfill several goals of the IATTC Strategic Science Plan (SSP, IATTC-93-06a). Furthermore, the Food and Agriculture Organization of the United Nations' (FAO) Committee on Fisheries (COFI) has stressed the importance of streamlining data reporting for members by, "*cooperating with relevant regional and international organizations working in areas related to fisheries and aquaculture for increased coordination, consistency and harmonization of information requests to limit the reporting burden placed upon Members*." Thus, amending and updating resolution C-03-05 aims also to align the resolution with COFI's directions.

The goal of this paper is to provide the necessary justifications for the staff's recommendation to update

[1] Defined as IATTC Class 6; carrying capacity > 363 t

the data provision resolution C-03-05. This paper is composed of two main sections. Section 1 includes background information with subsections (1-5) that describe the need for improved data collection for various fisheries that catch tunas and tuna-like species in the EPO to align with requirements of the Antigua Convention, the 5-year SSP and to harmonize with the FAO and other tuna-Regional Fisheries Management Organizations (t-RFMOs). Section 2 (Annex 1 and corresponding appendices) explains the specific revisions suggested and proposes a draft of a new resolution to replace C-03-05 that will not only support the needs detailed in Section 1 for both target and non-target species, but will also streamline the data reporting process, ease the reporting burden of CPCs and relieve the workload of data staff. The revisions also provide for capacity building objectives for those fisheries that may require additional infrastructure (*e.g.* development of standardized forms with potential data fields listed in the data table appendices in Annex 1) for the submission of data to the Commission.

The current document is accompanied by 3 other documents: i) BYC-10 INF-D on the inadequacy of the current coverage level of the longline observer program, ii) SAC-12-10, and iii) SAC-12-11, on electronic monitoring (EM).

2. RATIONALE FOR PROPOSING REVISIONS TO C-03-05

2.1. Target species

Data on tunas and tuna-like species, which are the primary species targeted by the fisheries covered by the Antigua Convention, are fundamental for adequately addressing at least three of seven research themes of IATTC's 2018–2023 SSP (1: *Data collection for scientific support of management* 3: *Sustainable Fisheries*; 6: *Scientific excellence*). In particular, the main task of the Stock Assessment Program staff is to assess the status of the stocks of tunas and tuna-like species in the EPO and provide scientific advice to the Commission to aid in its management decisions regarding these stocks.

Recent challenges with the assessment of the target tuna fisheries demanded the use of sophisticated techniques that require fine resolution data not routinely available to the staff (SAC-11-06; SAC-11-07; IATTC-95-05). The stock status of two of the three tropical tuna species is assessed using integrated models that are fit to indices of abundance and length frequencies associated with those indices. Traditionally, the main indices of abundance for yellowfin and bigeye tunas were obtained from standardized catch and effort data (at 5° x 5° resolution) with associated hooks-per-basket (HPB) data from the Japanese large longline fleet. The length frequency data associated with the indices are assumed to be representative of all fisheries. In 2018 (bigeye), and 2019 (yellowfin), the assessments were deemed unsuitable for providing management advice due to the indices being overly sensitive to the inclusion of new data points for the indices of abundance. The indices were based on the CPUE of the Japanese fleet, for which the overall effort and area of operation has been contracting over time, which has decreased the precision and accuracy of the indices. A research plan was developed to improve the assessments, mainly by addressing issues with the indices of abundance and associated length compositions. Collaborative work was initiated with Japan, Korea, Chinese Taipei and China to improve the understanding of their logbook data. New indices were developed and used in the most recent benchmark assessments for yellowfin and bigeye tunas. However, data for the work were only made available to the staff via multiple MoUs between the IATTC and each CPC, which are renewed annually. Additional work is still needed to investigate potential shifts in target species and the effect of factors that may be related to catchability (OTM-30). Challenges are also encountered by the staff when producing assessments for the tuna-like species, such as swordfish (SWO-01), because of lack of routine access to the operational level data of longline fleets.

Operational level datasets (high resolution or 'level 1' catch and effort data as defined in C-03-05) are not routinely submitted by the CPCs. The staff is therefore in an unsustainable situation where the key existing

data sources, which are already routinely collected by CPCs for their fleet, are not required to be submitted to the IATTC, jeopardizing the ability of the staff to undertake stock assessments of tuna and tuna-like species.

In practice, there is a double standard regarding the quality of data available to the staff. On one side, data for the purse-seine fleet are available at the finest spatial and temporal resolution, from multiple data sources. For large purse-seine vessels, there is 100% observer coverage of fishing trips. For small purse-seine vessels, there is a high level of logbook coverage for tuna catches. Additionally, some Ecuadorian purse-seine vessels also carry observers as part of a voluntary sampling program established by the Tuna Conservation Group (TUNACONS) (SAC-08-06a). On the other side, the data for all other gears are only submitted to the IATTC in a highly aggregated form, and often of variable spatial resolution (*e.g.* 'level 2' (1° x 1°) or 'level 3' (5° x 5°) as defined in C-03-05, or simply as "TASK I" data of gross annual removals as defined in the reporting guidelines IATTC Memo Ref: 0092-410, dated March 28, 2021).

The staff proposes that the collection and submission of high-resolution, operational-level catch and effort ("TASK II") data be required for the large longline vessels fleet (Annex 1, Appendix 2) to improve stock assessments of the tuna and tuna-like species. This will allow the scientific staff to fulfil its mission detailed in the SSP to "undertake state-of-the-art scientific research to inform sound management advice, aiming at the conservation and sustainable use of the marine species and ecosystems covered by the Antigua Convention." The staff will continue to be mindful of data confidentiality as demonstrated by the handling of the purse-seine data in strict accordance with Resolutions C-04-10, C-15-07 and IATTC Rule of Procedure XIII.

2.2. Bycatch species

Data on bycatch, defined as any non-target species caught by the fishing gear, are essential in three of the seven research themes of IATTC's 2018–2023 SSP (3: *Sustainable Fisheries*; 4: *Ecological Impacts of Fisheries: Assessment and Mitigation*; 5: *Interactions among the Environment, the Ecosystem, and Fisheries*). In particular, staff in the Ecosystem Program are tasked with the objective of identifying, prioritizing and conducting research that can be used by managers to ensure the ecological sustainability of tuna fisheries. Ecological research is aimed at obtaining data and developing tools to assess ecological sustainability and subsequently guide the development and implementation of measures that fulfil the objectives of ecosystem approaches to fisheries management (EAFM). These tools often require, at a minimum, a list of species that are caught by the various fisheries operating in the EPO (*e.g.* ecological risk assessments (ERA)), along with retained and discarded catch estimates for these species (*e.g.* ecosystem models). Models are then used to identify and prioritize potentially vulnerable species for data collection, research and management. Additionally, staff's responsibilities include providing annual catch estimates for species caught as bycatch. However, data limitations not only compromise the reliability of outcomes from ecological tools, but also the bycatch estimates in routine reporting. Compliance with the provisions of resolution C-03-05 in relation to bycatch species is generally poor, which significantly affects the staff's ability to fulfil its research and reporting obligations.

Resolution C-04-05, adopted in 2004, consolidated the bycatch-related aspects of various existing resolutions into a single instrument. Since then, numerous resolutions on bycatch have been adopted, but they focus on individual species or groups, such as sharks and turtles (*e.g.* C-11-10, C-16-05, C-19-04). However, in several cases these resolutions no longer reflect the Commission's priorities or the staff's needs as some of these resolutions are optional rather than compulsory, while others are compulsory mainly through observer programs. Meanwhile, the purse-seine fishery on floating objects (primarily on fish-aggregating devices (FADs)) has continued to expand (FAD-05 INF-A), which has likely increased its impacts on bycatch species, since this set type has the highest diversity and biomass of bycatch species (SAC-07-INF C(d)). Furthermore, the recent resurgence in the total high-seas longline effort in the EPO

(SAC-08-7b) is also likely to result in increased bycatch impacts. Unfortunately, only very limited bycatch data from two very important fisheries (the small purse-seine fishery and the high-seas longline fishery) are available to the staff, which has become an increasing matter of concern (SAC-08-7b).

The staff recommends that C-03-05 be amended to mandate the submission of operational-level high-seas longline data to include reporting of non-target species effective January 1, 2022 (Annex 1, Appendix 2), and also a phased approach to data submission on non-target species for other gears (see Annex 1, Appendices 3-7, "Implementation date") as described in section 3, with a commitment from the Commission to strengthen capacity building opportunities to facilitate accommodation of these requests as needed.

3. THE FISHERIES FOR WHICH DATA ARE LIMITED

3.1. Small purse-seine fishery[2]

The source of nearly all catch information for small purse-seine vessels is the set-by-set logbook data. These data are submitted to the IATTC and pertain only to retained catch, as at-sea discards for both target and bycatch species are not reported. Furthermore, it is unlikely that bycatch data from logbooks are fully representative of the suite of species which the small purse-seine vessel fleets catch (SAC-07-INF C(d)).

Information on retained and discarded bycatch species caught by the smaller purse-seine vessels could be greatly improved if a formal, fleet-wide observer program, with adequate coverage, were initiated. An onboard observer program for small purse-seine vessels is not currently required under any IATTC resolution. Historically, observers have been placed aboard these vessels only under specific circumstances, and thus, the level of observer coverage has been very low (SAC-08-06a). In 2014, observers were present on only 5% of trips from which limited bycatch information was collected (SAC-07-INF C(d)); SAC-07-07f(i)). During the last five months of 2016, observer coverage rose to almost 12%, when 45 trips by small vessels carried observers, 26 as a result of the requirements of Resolution C-17-01 and the other 19 voluntarily, as part of a short-term experimental program between the Ecuadorian national observer program and the International Seafood Sustainability Foundation (SAC-08-06a). In 2020, most trips (76%) made by smaller vessels were unobserved, 17% were from the voluntary Ecuador (TUNACONS) observer program, 5% from the National Observer program and 2% from the IATTC observer program. Minimum estimates of bycatch species reported by observers onboard the limited number of trips in 2020 are reported[3] in SAC-12-12. Electronic monitoring (SAC-12-10, SAC-12-11) may help to resolve some of these issues in the future.

The staff recommends "TASK II" catch and effort data be submitted at a minimum for all tuna and tuna-like species (Table A1) and the principal retained bycatch species (*e.g.* dorado and wahoo) (see Annex 1, Appendix 1).

3.2. Large longline fleets

Longline data for the large longline vessels that operate mostly in the high seas fleet are submitted to the IATTC in various formats (SAC-07-03d, SAC-08-07b, SAC-08-07d, SAC-08-07e). "TASK I" catch totals of gross annual removals are estimated by each CPC and submitted to the IATTC annually in summarized form, and monthly for bigeye tuna. These data are used to report total estimates of the principal tuna and tuna-

[2] Defined as IATTC Classes 1–5; carrying capacity ≤ 363 t

[3] Because of the limited and sporadic data submitted to the IATTC on bycatch species, annual EPO-wide estimates of bycatch are not currently computed.

like species (*e.g.* SAC-12-03) and minimum estimates of bycatch species or species groups (*e.g.* SAC-12-12, SAC-11-03 Table A2-C). Bycatch data are considered minimum estimates, because there is significant uncertainty as to whether the IATTC receives all bycatch data (*i.e.* all retained and discarded catches, by species) from the high-seas longline fishery of each CPC. Partial reporting may be the result of the language in C-03-05 and the corresponding reporting guidelines (*e.g*. IATTC Memo Ref: 0092-410, dated March 28, 2021). For example, C-03-05 does not specifically reference non-target or bycatch species, whereas the reporting guidelines explicitly mention these species. Therefore, CPCs may understand reporting of bycatch species to be optional.

"TASK II" longline data have been submitted as monthly aggregates at either 1°x1° or 5°x5° resolution, defined as 'level 2' or 'level 3' catch and effort data respectively, in C-03-05 and the corresponding data provision guidelines (*e.g*. IATTC Memo Ref: 0092-410, dated March 28, 2021). No 'level 1' ("operational level") data has been reported, while submission of at least 'level 3' data is mandatory. The data submitted are considerably less detailed than for the purse-seine fishery. Furthermore, a combination of data types are reported in the these datasets with some CPCs reporting catches in numbers of individuals and some as weights, while others provide both units but with no indication of the conversion methodology used to convert numbers to weights or vice versa. Also, no additional information on fishing strategy, *i.e.* factors that may influence catchability, are submitted, with the exception of one CPC that reports data aggregated by hooks between float categories, which was data previously used in the yellowfin and bigeye tuna assessments (*e.g.* SAC-09-05, SAC-10 INF-F). Operational-level data are necessary to improve the indices of abundance routinely used in the stock assessments for bigeye and yellowfin tuna (OTM-30), and will become increasingly important for other commercially important species such as swordfish, other billfish and sharks. Moreover, CPCs are provided the option of reporting 'level 2' and 'level 3' catch and effort data in a raised or unraised format, as stated in the data provision guidelines. However, there is often no indication by CPCs of whether data were raised, and if so, what methodology was used to raise the data. This may arise from the lack of a standardized data reporting form for CPCs to follow as is done in other t-RFMOs (*e.g.* WCPFC, ICCAT, IOTC).

Regarding bycatch species, the same limitations apply for the aggregated datasets as for the annual summarized totals, and in many instances bycatch species are aggregated into a broad taxonomic group (*e.g.,* 'sharks'), which makes these groups unusable in ERAs.

The most detailed data from the longline fishery comes from onboard observers, although the required observer coverage mandated by resolution C-19-08 is only 5%. As a result, the small amount of longline observer data available for most CPCs is of limited or no value for scientific purposes. Additionally, the level of detail in the data reported along with the coverage vary by CPC. The observer coverage is intended to be "…*representative of the activities of [a] fleet, including in terms of gear configuration, target species and fishing areas*" (C-19-08). A recent analysis of the available longline observer data by the staff (BYC-10 INF-D) indicates that 5% coverage is inadequate for estimating the total catch of relatively data-rich target species (bigeye and yellowfin tuna). Therefore, catch estimates for less-frequently caught bycatch species are likely to be even less reliable. In 2011, when the 5% level of coverage was agreed upon, it was recognized that it should be reviewed. However, it has remained unchanged, despite the staff recommending for the past 6 years that coverage be increased to at least 20%, which has been a similar recommendation by t-RFMOs in other regions. Because of the large impact that longline fishing has on both target and bycatch species, fine-scale spatial data on catch and effort are required not only for assessing the stock status of target species but also for assessing the vulnerability of bycatch species for prioritizing research and conservation and management measures (Griffiths et al. 2019; Griffiths and Lezama-Ochoa 2021) .

Set-by-set logbook data exist for most, if not all, commercial longline fisheries of the CPCs. However, staff

have only recently had access to these data through MoUs with specific CPCs, both for collaborative research and for assessing the stocks of bigeye and yellowfin tuna. These data have greater spatial and temporal coverage than the data currently received by the minimum 5% observer coverage, are required to be submitted to other t-RFMOs by IATTC CPCs (WCPFC13), and are similar to the data submitted by CPCs for the EPO purse-seine fishery. Additionally, these data may include information related to catchability that are not routinely submitted to the IATTC (e.g. gear configuration). Therefore, these equivalent longline data should be expected to be made available to staff on an annual basis for the purposes of improving the quality of data reporting and research to facilitate fulfillment of mandates by the Antigua Convention.

As previously mentioned, the staff recommend "TASK II" operational-level logbook data for the high-seas longline fleets be submitted for the purposes of stock assessments of tuna and tuna-like species and ecosystem modeling of target and non-target species (see Annex 1, Appendix 2). "TASK I" data should continue to be reported.

The data currently submitted by the CPCs are aggregated spatially (1° x 1° or 5° x 5°) and contain little or no gear configuration information, and no vessel identifiers. Therefore, these data cannot be used to derive reliable indices of abundance and standardized length-frequencies nor to explore hypotheses of stock structure, which constitutes one of the main uncertainties in the assessment of tropical tunas.

3.3. Short- to medium-range longline fisheries

Catch data from the small-scale artisanal fisheries of the coastal States are currently reported to the IATTC in highly summarized form, simply as total annual catches without ancillary effort data pursuant to C-03-05, paragraph 5b. However, "artisanal" is not defined in the resolution or the corresponding guidelines. Consequently, staff have no means for determining from which fisheries these data have been derived.

The main source of data for the small-scale artisanal longline and multi-gear (including gillnets and handlines) and multi-species fisheries by the coastal CPCs is from a current project with the primary aim to improve data collection for sharks. This project has been supported by funding from the FAO and the Global Environmental Facility (GEF) under the framework of the ABNJ Common Oceans program (SAC-07-06b(ii)**,** SAC-07-06b(iii), SAC-10-16), the European Union and IATTC Capacity Building funds. Historically, fleet coverage and data quality has been highly variable for artisanal fleets and fisheries statistics have been unreliable (SAC-07-06b(ii)), particularly with regard to bycatch. One concern is that catch and effort data are incomplete and catches have often been aggregated into broad taxonomic groups (*e.g.* 'sharks') without an indication of which species were included in these groups.

The staff is recommending improvements in the Task 1 data already submitted by CPCs for this fleet. In addition, the staff is recommending that the Task 2 data that is currently collected under the fishery inspections programs operating in coastal states be reported (e.g. SAC-07-06b(ii)).

The goals of this project include producing a sampling protocol for the catch and effort of the artisanal fisheries that catch sharks, which can be operatively implemented in Central America and potentially duplicated in others coastal states. Moreover, the project aims to initiate a database of shark landing and fishery-related information (*e.g.* for billfish, tuna and dorado) for the purpose of conducting stock assessments. Funding has been a main limitation to obtaining this data, as support has been provided by external contribution from other organizations.

3.4. Other gears

Several other gear types are used by fishers in the EPO, including rod and line in the recreational fishery, gillnets, trolls, harpoons, others, and unknown gears, all of which are mentioned in the data provision guidelines as commonly-used gears in the EPO (*e.g*. IATTC Memo Ref: 0092-410, dated March 28, 2021),

and all are subject to providing either 'raised' or 'unraised' catches per these guidelines. However, such information is rarely provided. Data from these fisheries are also compromised by the variable fleet coverage, incomplete species-specific catch and effort data for species caught as bycatch, historical data are often missing, and even lack of identification of the gear used. Additionally, effort measures listed in Table 3 of the guidelines are outdated and require revision. Therefore, catch estimates of species caught as bycatch for other gears are highly unreliable and are therefore not reported in the annual *Ecosystem Considerations* report (*e.g.* SAC-12-12). The staff is mindful that for other gears, the data necessary for the scientific work may not exist, thus capacity building and collaborative research programs may be needed to start data collection programs. In those cases, projects similar to the one in large-pelagic coastal longline and multi-gear and multi-species fisheries may be implemented, if any CPC detects the need and expresses interest to the staff.

The staff recommends that "TASK I" catch and effort data continue to be reported for these gears and strongly encourage the Commission to strengthen capacity building opportunities for "TASK II" data provision in the near future (see Annex 1, Appendices 4-7). These additional data will allow for improvements in the annual reporting of both target and bycatch species, improvements to ecosystem models for the EPO to assess changes in community structure, and ERAs to assess the vulnerability status of impacted species.

4. PROPOSED AMENDMENTS AND DATA REQUIREMENTS FOR A REVISED RESOLUTION C-03-05

Due to the inconsistencies and limitations of the various datasets mentioned above, along with the outdated nature of C-03-05 and its corresponding guidelines, the staff have several common needs among groups to improve data collection and submission.

The proposed changes to the data requirements and substance of resolution C-03-05 (Annex 1), including language updates to reflect the changes brought about by the Antigua Convention and to align with other recent resolutions, are intended to resolve the problems with inconsistency and incompleteness of data that stem from the lack of clear definitions of catch reporting requirements in the resolution. They also extend the requirements to cover non-target species.

As C-03-05 is an umbrella resolution for data provision for all gear types and species covered by the Antigua Convention that are not addressed through other resolutions, Annex 1 includes several appendices for each gear type detailing "TASK I" and "TASK II' catch and effort statistics and proposed data fields that should be provided. Data provision to the IATTC staff of some data types outlined under the "TASK II" statistics may not be immediately achievable (*e.g.* in instances where existing infrastructure for data collection and processing are presently inadequate, Appendices 3-7). In these situations, future capacity building opportunities will be essential for improving data collection, and therefore future implementation is suggested. In other cases, data are directly obtained by the IATTC (*e.g.,* through port-sampling programs, abstraction of vessel logbook information), and are included in Annex 1 for completeness (*i.e.,* Appendix 1, Purse seine).

The IATTC staff have an immediate scientific need for operational-level logbook data from high-seas longline fishing vessels (>20 m, Annex 1, Appendix 2) because: 1) of the prominent role data from those fisheries play in the target species stock assessments; 2) the proposed workplan to improve these assessments; and, 3) the current level of observer coverage of these fisheries is inadequate for reliable estimation of total removals (landings and discards) of target species, let alone, bycatch species required by ecosystem models, Ecological Risk Assessments and annual reporting (BYC-10 INF-D). Therefore, studies using the logbook data to evaluate the necessary level of observer coverage are needed.

4.1. Other resolutions

Several other resolutions (see Appendix 8) contain requirements for providing data. C-03-05 requires that data be provided by 30 June of the following year, but the deadlines in other resolutions vary, or are not specified. A single deadline for all data requirements would simplify many of the analyses presented in documents prepared for the SAC meeting in May and the Commission meeting held shortly thereafter. It is acknowledged that some CPCs may experience difficulties in submitting data for the previous year prior to the SAC meeting if their vessels depart on long trips late in the year. An exception is purse-seine vessels that effectively submit data continually as trips are completed.

5. SUMMARY AND NEXT STEPS

This paper serves as background information to highlight the need for updating the data provision resolution C-03-05, the foundation of the Commission's data reporting and scientific research. Here, we have demonstrated a clear rationale for modernizing the resolution to align data reporting requirements with the requirements of the Antigua Convention, the 5-year SSP, and to harmonize with FAO standards and other t-RFMOs. Following support of this proposal by the Members, the next steps will include discussions with CPCs about developing standard reporting data templates as those proposed in the appendices of Annex 1 to complement those used by other t-RFMOs for data submission to the Commission. For this purpose, the IATTC staff is recommending capacity building activities and a series of workshops planned and facilitated by staff and in collaboration with CPCs (see Section B.3 in SAC-12-16), to develop clear standards and procedures for data submission with potential consideration of electronic logbooks and EM—currently being trialed in the EPO (SAC-12-10, SAC-12-11)—to harmonize with the WCPFC[4], streamline the reporting of data, and revise C-03-05. EM could potentially resolve many difficulties with data collection, and a pilot project (D.2.a) was conducted on purse-seine vessels in Ecuador in 2018-2020. Similarly, a pilot project on longline vessels has recently commenced (C.2.b). The EM documents propose actions to be taken by the Commission for an implementation of an EM system and discuss the requirements, logistics, limitations and benefits of expanding EM, to both the purse-seine and longline fisheries. Finally, the development of a shark fishery sampling program in Central America (Project C.4.b) and its possible expansion to other EPO coastal states may greatly improve data collection for large pelagic species caught by EPO coastal fisheries in the future. In the meantime, the staff have an immediate need for operational-level longline data to improve research and data reporting of both target and non-target species. With such interest in standardized data reporting, it is timely to address issues in resolution C-03-05 and the submission of data to the Commission.

6. REFERENCES:

Griffiths SP, Kesner-Reyes K, Garilao C, Duffy LM, Román MH (2019) Ecological Assessment of the Sustainable Impacts of Fisheries (EASI-Fish): a flexible vulnerability assessment approach to quantify the cumulative impacts of fishing in data-limited settings. Mar Ecol Prog Ser 625:89-113 doi https://doi.org/10.3354/meps13032

Griffiths SP, Lezama-Ochoa N (2021) A 40-year chronology of spinetail devil ray (*Mobula mobular*) vulnerability to eastern Pacific tuna fisheries and options for future conservation and management. Aquatic Conserv: Mar Freshw Ecosyst 31

[4] https://oceanfish.spc.int/en/meetingsworkshops/dcc/438-data-collection-strategy-meeting-4-6th-april-2016

Martínez-Ortiz, J., A. Aires-da-Silva, C.E. Lennert-Cody, and M.N. Maunder. 2015. The Ecuadorian artisanal fishery for large pelagics: species composition and spatio-temporal dynamics. PLoS ONE 10(8): e0135136.

Appendix 1. Current resolution C-03-05 on data provision

The Inter-American Tropical Tuna Commission (IATTC):

Emphasizing the importance of obtaining comprehensive information on the catches, and related information, by all vessels fishing for species under the purview of the Commission;

Understanding that all member nations of the Commission are obliged to provide information on catches by all of their vessels fishing for any species under the purview of the Commission;

Aware of the long-standing and well-established practice of vessels fishing in the EPO providing catch information to the Director;

Noting that nations not members of the Commission which are fishing in the region are obliged under international law to cooperate with the Commission, and that the provision of catch data is one aspect of such cooperation;

Concerned that the Director is not receiving all pertinent catch information;

Therefore recommends to the High Contracting Parties that:

1. Through the appropriate government authorities and in collaboration with those authorities, they take the necessary steps to ensure that all pertinent catch information is provided to the Director on an annual basis, for all of their vessels fishing for species under the purview of the Commission.
2. The data be provided, by species and fishing gear, where practical, via vessel logbooks and unloading records, and otherwise in aggregated form as in the following table, with Level 3 catch and effort data as a minimum requirement, and, whenever possible, Levels 2 and 1 catch and effort data and length-frequency data.

Category	Level	Resolution	Data
Catch and effort	1	Set-by-set, logbook data with information on gear configuration and target species	Total catch in numbers, and weight if available; fishing effort
	2	1°x1°–month, with information on gear configuration and target species	
	3	5°x5°–month, with information on gear configuration and target species	
Length frequency	1	Set position, start or end of set	Length or weight of individual fish
	2	Grid position, best possible spatial-temporal resolution of area of capture	

3. The aggregated data referred to in paragraph 2 for each year shall be provided by 30 June of the following year.
4. The technical aspects of the data to be supplied shall be established by the Director in collaboration with scientists of the members.
5. The following exceptions shall apply to the immediate entry into force of this resolution:
    a. For vessels of less than 24 meters in length overall, the requirements of this resolution shall not enter into force until 1 January 2007. However, each member shall make its best efforts to provide as much data as possible for these vessels.
    b. Catch data from artisanal vessels may be reported as total annual catches, without data on fishing

effort.

c. Catch data from recreational fishing vessels may be reported as total annual catches, without data on fishing effort.

6. The Director communicate with the governments of states not party the Commission whose flag vessels may be fishing in the region, to comply with the terms of this resolution.

7. The Director ensure that the catch information provided to the Commission is maintained in strict accordance with the Commission's confidentiality rules and procedures.

Annex 1. A proposed draft revision to Resolution C-03-05

IATTC STAFF PROPOSAL ON DATA PROVISION

The Inter-American Tropical Tuna Commission (IATTC):

Recalling that the adoption of standards for collection, verification, and timely exchange and reporting of data concerning the fisheries for fish stocks covered by the Antigua Convention is a primary responsibility of the Commission;

Emphasizing the importance of obtaining comprehensive information on the catches, effort, and related information, by all vessels fishing for species under the purview of the Commission to inform scientific research concerning the abundance, biology and biometry in the Convention Area of fish stocks covered by this Convention and, as necessary, of associated or dependent species, and the effects of natural factors and human activities on the populations of these stocks and species;

Understanding that all member nations of the Commission are obliged to provide information on catches and effort by all of their vessels fishing for any species under the purview of the Commission;

Aware that the scope of responsibilities of the Commission under the Antigua Convention include, as necessary, the development and implementation of conservation and management measures and recommendations for species belonging to the same ecosystem and that are affected by fishing for, or dependent on or associated with, the fish stocks covered by this Convention, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened;

Acknowledging that the research necessary to develop conservation and management measures, and assessment of their efficacy, for both tuna and tuna-like species and associated and dependent species, cannot be conducted without adequate data from fisheries under the purview of the Commission and other fisheries sharing the Convention area;

Convinced that the previously adopted data reporting requirements, including the reporting of observer data, do not in all cases provide adequate data to support effective assessment of the status of fish stocks covered by the Convention and many associated and dependent species;

Resolves as follows:

1. Through appropriate government authorities and in collaboration with those authorities, CPCs shall take the necessary steps to ensure that all pertinent catch (explicitly separated into retained and discarded/released components) and effort information is provided to the Director on an annual basis, for all of their vessels fishing for species under the purview of the Commission, and species belonging to the same ecosystem that are affected by these vessels.
2. The data shall be provided, by species (listed in Tables 1 and 2) and fishing gear, including *inter alia* vessel logbooks and unloading records, according to the specifications and reporting schedules elaborated in the Appendices to this Resolution:

    Appendix 1: Purse-seine
    Appendix 2: Longline (>20m Length overall, LOA)
    Appendix 3: Longline (Large-pelagics coastal longline fisheries)
    Appendix 4: Pole and line
    Appendix 5: Trolling Line

Appendix 6: Recreational
Appendix 7: Miscellaneous gears

3. Unless otherwise provided, the data described in the Appendices listed in Paragraph 2 shall be provided by 01 July of the following year.
4. CPCs with historic (i.e. for years 2020 and earlier) Task 2 longline data (Appendix 2) shall, to the extent possible, be provided to the IATTC no later than June 30, 2022.
5. Length and weight of individuals caught representing tuna and tuna-like species shall be provided at the highest available spatial and temporal resolution, recorded, and submitted to the IATTC as described in the Appendix 2. Measurement type (*e.g*. fork length for fishes, lower-jaw fork length for billfish) and type of measurement shall be recorded for each measurement. A detailed description of the design of the sampling program shall be provided.
6. Accompanying all data submissions shall be a description of any statistical methods used to estimate length, weight, catch, effort or size composition, and the coverage rates of the data from which estimates were made. Where possible, these methods shall be applied to all data reported to the Commission prior to the resolution entering into force.
7. IATTC scientific staff, in coordination with the IATTC Scientific Advisory Committee, shall, as necessary, recommend to the Commission the revision or elaboration of the Appendices listed in Paragraph 2.
8. Where the IATTC scientific staff identify research efforts requiring data needs beyond the scope of that required in the Appendices, CPCs shall make all reasonable efforts to collect and provide such data through special arrangements, on a case by case basis.
9. In planning for the utilization of the "*Special fund for strengthening the institutional capacity of developing countries and territories for the sustainable development of fisheries for highly migratory species*," the Director shall, in coordination with the Committee for the Review of Implementation of Measures Adopted by the Commission, consider the needs of relevant CPCs with respect to their ability to comply with the data reporting requirements established in this Resolution.
10. No later than February 1, 2022, each CPC shall provide to the Director, a complete list of all fisheries falling within the scope of the Convention, along with a detailed description of data types (*e.g*. logbook, landings, surveys, etc.) and content (*e.g*. data fields, level of taxonomic specificity), both past and present, that are collected for each fishery.
11. The Director shall communicate with the governments of non-cooperating non-members whose flag vessels may be fishing in the region, to comply with the terms of this resolution.
12. The Director shall ensure that the catch and effort information provided to the Commission is maintained in strict accordance with the Commission's confidentiality rules and procedures.
13. This resolution replaces Resolution C-03-05 and shall enter into force on January 1, 2022.

Annex 1: Table 1. Principal tuna and tuna-like species mandated by the Antigua Convention for which data shall be provided. This table may be appended as required.

Common name	Scientific or family name	ASFIS code
Albacore tuna	*Thunnus alalunga*	ALB
Bigeye tuna	*Thunnus obesus*	BET
Pacific bluefin tuna	*Thunnus orientalis*	PBF
Skipjack tuna	*Katsuwonus pelamis*	SKJ
Yellowfin tuna	*Thunnus albacares*	YFT
Unidentified tunas nei[5]	Scombridae nei	TUN
Eastern Pacific bonito	*Sarda chiliensis*	BEP
Striped bonito	*Sarda orientalis*	BIP
Unidentified bonitos	*Sarda* spp.	BZX
Black skipjack tuna	*Euthynnus lineatus*	BKJ
Black marlin	*Istiompax indica*	BLM
Blue marlin	*Makaira nigricans*[6]	BUM
Striped marlin	*Kajikia audax*	MLS
Indo-Pacific sailfish	*Istiophorus platypterus*	SFA
Shortbill spearfish	*Tetrapturus angustirostris*	SSP
Unidentified billfishes, but **not** including swordfish (SWO)	Istiophoridae nei	BIL
Swordfish	*Xiphias gladius*	SWO

[5] nei: Not elsewhere included. These catches are known only to the indicated taxonomic level.
[6] Classified previously in some data systems as *Makaira mazara* (BLZ, Indo-Pacific blue marlin)

Annex 1: Table 2. Principal bycatch species known to be caught by vessels fishing for species covered by the Antigua Convention. Note: some of these species are caught as target species in the artisanal multi-gear and multi-species fisheries of the coastal CPCs. Catches of species not shown on this list should be reported using the common name, and the scientific name if known, as well as the ASFIS 3-alpha code[7] if available. **Note**: codes have not been assigned for all species. This table may be appended as required.

Broad group	Common name	Scientific or family name	ASFIS code
Sharks	Blue shark	*Prionace glauca*	BSH
	Salmon shark	*Lamna ditropis*	LMD
	Porbeagle shark	*Lamna nasus*	POR
	Bigeye thresher shark	*Alopias superciliosus*	BTH
	Pelagic thresher shark	*Alopias pelagicus*	PTH
	Common thresher shark	*Alopias vulpinus*	ALV
	Thresher sharks nei[4]	*Alopias* spp.	THR
	Whale shark	*Rhincodon typus*	RHN
	Tiger shark	*Galeocerdo cuvier*	TIG
	Great white shark	*Carcharodon carcharias*	WSH
	Sand tiger shark	*Carcharias taurus*	CCT
	Blacktip shark	*Carcharhinus limbatus*	CCL
	Spottail shark	*Carcharhinus sorrah*	CCQ
	Oceanic whitetip shark	*Carcharhinus longimanus*	OCS
	Silky shark	*Carcharhinus falciformis*	FAL
	Silvertip shark	*Carcharhinus albimarginatus*	ALS
	Bull shark	*Carcharhinus leucas*	CCE
	Copper shark	*Carcharhinus brachyurus*	BRO
	Dusky shark	*Carcharhinus obscurus*	DUS
	Galapagos shark	*Carcharhinus galapagensis*	CCG
	Sandbar shark	*Carcharhinus plumbeus*	CCP
	Carcharhinus sharks nei	*Carcharhinus* spp.	CWZ
	Requiem sharks nei	Carcharhinidae	RSK
	Shortfin mako shark	*Isurus oxyrinchus*	SMA
	Longfin mako shark	*Isurus paucus*	LMA
	Mako sharks nei	*Isurus* spp.	MAK
	Scalloped bonnethead shark	*Sphyrna corona*	SSN
	Scalloped hammerhead shark	*Sphyrna lewini*	SPL
	Scoophead shark	*Sphyrna media*	SPE
	Great hammerhead shark	*Sphyrna mokarran*	SPK
	Bonnethead shark	*Sphyrna tiburo*	SPJ
	Smooth hammerhead shark	*Sphyrna zygaena*	SPZ
	Hammerhead sharks nei	Sphyrnidae	SPY
	Crocodile shark	*Pseudocarcharias kamoharai*	PSK
	Longnose velvet dogfish	*Centroscymnus crepidater*	CYP
	Velvet dogfish	*Scymnodon squamulosus*	SSQ
	Cookie cutter shark	*Isistius brasiliensis*	ISB
	Bigeye sand tiger shark	*Odontaspis noronhai*	ODH

[7] See http://www.fao.org/fi/statist/fisoft/asfis/asfis.asp

Broad group	Common name	Scientific or family name	ASFIS code
	Nurse shark	*Ginglymostoma cirratum*	GNC
	Sicklefin smooth-hound	*Mustelus lunulatus*	MUU
	Speckled guitarfish	*Rhinobatos glaucostigma*	RBL
	Tope shark	*Galeorhinus galeus*	GAG
	Whitenose shark	*Nasolamia velox*	CNX
	Kitefin shark	*Dalatias licha*	SCK
	Sharks nei	Elasmobranchii	SKX
Rays	Pelagic stingray	*Pteroplatytrygon violacea*	PLS
	Stingrays nei	*Dasyatis* spp.	STI
	Alfred manta	*Mobula alfredi*	RMA
	Giant manta	*Mobula birostris*	RMB
	Devil fish	*Mobula mobular*	RMM
	Munk's devil ray	*Mobula munkiana*	RMU
	Chilean devil ray	*Mobula tarapacana*	RMT
	Smoothtail manta	*Mobula thurstoni*	RMO
	Manta rays nei	*Mobula* spp.	RMV
Fishes	Common dolphinfish	*Coryphaena hippurus*	DOL
	Pompano dolphinfish	*Coryphaena equiselis*	CFW
	Dolphinfishes nei	Coryphaenidae	DOX
	Wahoo	*Acanthocybium solandri*	WAH
	Jacks, crevalles nei	*Caranx* spp.	TRE
	Rainbow runner	*Elagatis bipinnulata*	RRU
	Yellowtail amberjack	*Seriola lalandi*	YTC
	Longfin yellowtail	*Seriola rivoliana*	YTL
	Greater amberjack	*Seriola dumerili*	AMB
	Samson fish	*Seriola hippos*	RLH
	Amberjacks nei	*Seriola* spp.	AMX
	Opah	*Lampris guttatus*	LAG
	Opahs nei	*Lampris* spp.	LAP
	Sunfish	*Mola* spp.	MOP
	Escolar	*Lepidocybium flavobrunneum*	LEC
	Oilfish	*Ruvettus pretiosus*	OIL
	Luvar	*Luvaris imperialis*	LVM
	Snake mackerel	*Gempylus serpens*	GES
	Snake mackerels, escolars nei	Gempylidae	GEP
	Long snouted lancetfish	*Alepisaurus ferox*	ALX
	Short snouted lancetfish	*Alepisaurus brevirostris*	ALO
	Lancetfishes nei	*Alepisaurus* spp.	ALI
	Oarfishes nei	Regalecidae	RRG
	Sickle pomfret	*Taractichthys steindachneri*	TST
	Dagger pomfret	*Taractes rubescens*	TCR
	Big-scale pomfret	*Taractichthys longipinnis*	TAL
	Rough pomfret	*Taractes asper*	TAS
	Pomfrets, ocean breams nei	Bramidae	BRZ
	Barracudas nei	Sphyraenidae	BAZ

Broad group	Common name	Scientific or family name	ASFIS code
	Unidentified fishes	Osteichthyes	MZZ
Turtles	Olive Ridley turtle	*Lepidochelys olivacea*	LKV
	Green turtle	*Chelonia mydas*	TUG
	Loggerhead turtles	*Caretta caretta*	TTL
	Hawksbill turtle	*Eretmochelys imbricata*	TTH
	Leatherback turtle	*Dermochelys coriacea*	DKK
Marine Mammals	Pantropical spotted dolphin	*Stenella attenuata*	DPN
	Spinner dolphin	*Stenella longirostris*	DSI
	Striped dolphin	*Stenella coeruleoalba*	DST
	Rough-toothed dolphin	*Steno bredanensis*	RTD
	Common dolphin	*Delphinus delphis*	DCO
	Long-beaked common dolphin	*Delphinus* sp.	
	Bottlenose dolphin	*Tursiops truncatus*	DBO
	Risso's dolphin	*Grampus griseus*	DRR
	Pacific white-sided dolphin	*Lagenorhynchus obliquidens*	DWP
	False killer whale	*Pseudorca crassidens*	FAW
	Melon-headed whale	*Peponocephala electra*	MEW
	Dolphins nei	Delphinidae	DLP
	Pilot whales nei	*Globicephala* spp.	GLO
	Albatrosses nei	Diomedeidae	ALZ
Seabirds	Petrels nei	*Procellaria* spp.	PTZ
	Shearwaters nei	*Puffinus* spp.	PQW
	Seagulls nei	*Larus* spp.	LHX
	Boobies and gannets nei	Sulidae spp.	SZV

Annex 1: Appendix 1. Purse Seine

Gear category (FAO standard abbreviation)[8]	Data types	Rationale	Implementation
Purse seines (PS) TASK I	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Number of sets**, by set type. **Catch:** amounts of target and non-target species (gross annual removals (mt) and disposition (retained or discarded)), by set type).	To provide the minimum required data for the purposes of routine data reporting, and for research, including: a) stock assessment, b) ecological risk assessments, and c) ecosystem models.	Most of this data is currently collected on a continuous basis by IATTC staff working in IATTC Field Offices; and in such cases, CPCs do not need to submit redundant data. However, where IATTC staff notifies CPCs that they are not able to collect a portion of this data, it is the responsibility of the flag authority to promptly collect and provide any missing data.
Purse seine (PS) TASK II	**Operational-level logbook data**, by trip, on catch composition and operational characteristics (fields listed in Table A1.1).	To provide the minimum required operational-level data for research, including studies of fishing strategies, and development of stock status indicators.	Most of this data is currently collected on a continuous basis by IATTC staff working in IATTC Field Offices; and in such cases, CPCs do not need to submit redundant data. However, where IATTC staff notifies CPCs that they are not able to collect a portion of this data, it is the responsibility of the flag authority to promptly collect and provide any missing data.
	Cannery data on catch composition, by trip (fields listed in Table A1.2).	To provide catch data that are used, along with other data sources, to generate the annual target species BSE of fleet catch.	CPCs shall require their processing facilities to share this data with IATTC or will collect the data themselves and submit it to IATTC. IATTC enjoys a good cooperative relationship with most processing facilities, which allows IATTC staff to collect this data directly; and in such cases, CPCs do not need to submit redundant data. However, where IATTC staff notifies CPCs that they are not able to collect a portion of this data, it is the responsibility of the flag authority to collect and provide any missing data.

[8] http://www.fao.org/3/bt987e/bt987e.pdf

Table A1.1. Description of purse-seine logbook data fields by trip-level gear information and daily information.

Logbook data – Trip-level gear information	
Data field	**Data field description**
Vessel name	Name of the vessel reported to IATTC
Trip departure year	Departure year (YYYY)
Trip Captain 1	The full name of the fishing captain at the time of the original trip departure.
Trip Captain 2	The full name of a replacement fishing captain
Change Date	The date (YYMMDD) when the vessel left port with a replacement fishing captain.
Abstracted by	Full Name of the IATTC Staff Member who abstracted the Log
Abstracted Port	Port from which the information was abstracted from
Abstracted Date	Date the log was abstracted YYMMDD
Wind Scale	The scale used to record the wind speed, e.g. kph (kilometers/hour), beaufort, etc.
Weight Scale	The scale used to record the tuna catch, e.g. mt (metric tons), st (short tons), etc.
Time	Indicate whether the time was recorded as the vessel's local time or as UTC time.
Net depth	Depth of the purse-seine net, in fathoms
Net Length	Length of the purse-seine net, in fathoms
Net Mesh Size	Stretch mesh size of the purse-seine net, in inches.
Number of Speed Boats	Number of speed boats carried aboard the purse-seine vessel (0, 1, 2, ….)
Fine Mesh Panel	If the purse-seine net has a panel with fine mesh (smaller than the net mesh size), provide the stretch measurement, in inches
Average Speed	Average cruising speed of the purse-seine vessel, in knots

Logbook data – Daily information	
Data unit: One entry per set. If no sets for the day, one entry per day.	
Data field	**Data field description**
Date	MMDD - Record the month and day of the event.
Latitude	Record the latitude in degrees and minutes, and indicate 'N' or 'S' for north and south respectively. If the event is a port departure or arrival, write the name of the port instead of the position.
Longitude	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively
Event	Record the event code for all events other than sets. For sets, leave the Event cell blank.
Time	Record the time of the event, or start time of a set. HH:MM
Set No.	Although the set number is not recorded on the fishing log, assign a sequential set number to all sets, beginning with '1' for the first set of the trip.
End time of the set	Record the time that the set ended, HH:MM

Type	Set by set type: DEL/NOA/OBJ set
Catch (Retained catch of tunas and tuna-like species (species code in Table A.1) and dorado and wahoo (species codes in Table A.2))	The form has dedicated spaces to record retained catch of YFT, SKJ and BET, plus two additional spaces for any other tuna species. If there is catch of more than 2 species other than YFT, SKJ and BET, record the species and retained catch in the comments section. If there is no catch for the set, record a zero in the column of the target species. If the target species is unknown, follow the instructions in the **EST. SPP** section above. **Note**: It is permissible to use decimals to record fractional tonnage when the fishing log makes reference to catches that are not recorded as whole tons, such as '*half a ton*' (0.5) or '*10 and a quarter tons* (10.25)'. Catch will usually be recorded in whole tons. Decimals are allowed for convenience and to avoid the need to round the catch up or down. Do not use more than hundredth precision.
Wells loaded	Record all of the wells used to store the catch (Exp. S1, B1 or C1)
Water temperature	Record the sea surface temperature to the nearest tenth of a degree, in either centigrade or Fahrenheit. It is not necessary to indicate the temperature scale used (˚C or ˚F).
Aerial assistance	Record the numeric code corresponding to the best description of the aerial assistance
Bird radar used	If bird radar was used to lead the vessel to the set, mark the cell with 'Y' for yes. If not, mark the cell with 'N' for no. If the information is missing from the fishing logbook, leave the cell blank.
Sonar used	If sonar was used before or during the set, mark the cell with 'Y' for Yes. If not, mark the cell with 'N' for No. If the information is missing from the fishing logbook, leave the cell blank.
Comments and other information	Record any other details as well as any clarifications indicated above

Table A1.2. Description of purse-seine cannery data fields.

Cannery data	
Data unit: an unloading **Data field**	**Data field description**
Vessel name	Name of the vessel reported to IATTC
Unloading date	YYYYMMDD of the start of unloading.
Port	Name of the port where the unloading took place.
OFA	Ocean Fishing Area where the catch was made
Cannery	Name of the cannery receiving the catch.
Amount of catch unloaded	Amount, in metric tons or kilograms (specify unit), of each species in the unloaded catch. (list species of interest: YFT/BET/SKJ/PBF/ALB/BKJ/BZX/mixed spp/any other species unloaded)

Annex 1, Appendix 2. Large longline (>20 m LOA)

Gear category (FAO standard abbreviation)	Data type	Rationale	Implementation date
Longlines (LL) TASK I	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Total number of hooks deployed** **Catch:** Numbers and/or round weights of target and non-target species (gross annual removals and disposition (retained or discarded)). If numbers and weights are reported, conversion factors must also be submitted.	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models.	Continuous
Longlines (LL) TASK II	**Operational-level logbook data**, by set, on catch composition and operational characteristics (fields listed in Tables A2.1 and A2.2).	To provide the minimum required operational-level data for research, including studies of fishing strategies, and development of stock status indicators. Data already exist to assess the stock status of target species; data have greater spatial and temporal coverage than the data currently received by the minimum 5% observer coverage, are provided to other t-RFMOs by IATTC CPCs, and are similar to the data submitted by CPCs for the EPO purse-seine fishery; fine-scale spatial data are necessary for a) stock assessments, b) ecological risk assessments and c) ecosystem models. Detailed information such as the time of the set, the precise location of start and end of the set, and some gear characteristics are key to estimate proxies for fishing depth and vulnerability of different species to the gear. Ideally actual maximum hook depth should be recorded and reported.	22 January 2022 (Short term, 1 year)
	Size frequency statistics of target and non-target species for each species **Size (length and/or weight by sex)**	Data already exist and it is key to assess the stock status of target species; existing data have higher spatial resolution than that currently received; fine-scale size frequency data with the same spatial resolution of logbook data are necessary for stock assessments	22 January 2022 (Short term, 1 year)

Table A2.1. Description of data fields to be reported for longline vessel and gear characteristics.

Vessel and gear characteristics	
Data field	**Data field description**
Flag	Vessel flag abbreviation
Call Sign	Vessel call sign
IMO	International identification IMO number, as listed in the Fleet table.
Unique Vessel Identifier	Code that allows the vessel to be identified over time. This will apply mainly for years before the implementation of the resolutions on vessel registry.
Vessel number	IATTC Vessel register number assigned to all vessels
Length over all	Length of the vessel (meters)
Gross tonnage	Vessel Gross Registered Tonnage
Vessel electronics	Radar equipped (Y/N)
Vessel electronics	Depth sounder (Y/N)
Vessel electronics	Global Positioning System (GPS) (Y/N)
Vessel electronics	Sea Surface Temperature (SST) gauge (Y/N)
Vessel electronics	Sonar (Y/N)
Vessel electronics	Radio/ Satellite Buoys (Y/N)
Vessel electronics	Doppler Current Meter (Y/N)
Vessel electronics	Expendable Bathythermograph (XBT) (Y/N)
Vessel electronics	Fishery information service (Y/N)
Mainline material	Record the material among multiple options: Nylon monofilament, Nylon multifilament, Natural material, Polyester, Polyethylene, Glass filament, Other (Specify)
Mainline length	The total length of the mainline when it is fully set (kilometers)
Branch line material(s):	Record the material of the branchline A branch line can consist of one type of material like monofilament or it can be made up of many different materials like braided nylon wire trace and mono filament, etc.
Branch line length	Length of the branch line (meters)
Float line length	Length (meters) of the line that is attached to the floats,

Table A2.2. Description of longline logbook data fields by trip-level gear information, daily information and set information.

Logbook data – Trip-level gear information	
Data field	**Data description**
Departure Date	Date and time the vessel departs from port (MM- DD -YYYY)
Departure Port	Name of the port of departure or transhipment (if ports are close to the IATTC regional offices, the logbook information could complement port sampling in the future)
Arrival Date	Date and time of vessel's return to port at the completion of its trip (DD-MM-YYYY-hh:mm)
Arrival Port	Name of the port of arrival or transhipment (If the ports are close to the IATTC regional offices, the logbook information could complement port sampling in the future)
Observer on board?	Was an observer onboard (Y/N).

Logbook data – Daily information	
Data field	**Data description**
Date	each day in the trip MM- DD -YYYY
Activity	Daily activity shall be reported, even if no sets were made, from the start of the trip to the end of the trip. Indicate whether the vessel activity was "a set"; "no fishing — in transit"; "no fishing — gear breakdown"; "no fishing — bad weather"; and "no fishing — in port", "no fishing - transshipment", "other" (specify).
Latitude at start day	Record the latitude in degrees and minutes, and indicate 'N' or 'S' for north and south respectively.
Longitude at start day	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively.

Table A2.2. continued

	Logbook data – Set information
Data field	**Data description**
DateTime of set start	Record the date and time of the start of the set (MM-DD-YYYY-hh:mm)
DateTime of set end	Record the date and time of the end of the set (MM-DD-YYYY-hh:mm)
Latitude at start of set	Record the latitude of the start of the set in degrees and minutes, and indicate 'N' or 'S' for north and south respectively.
Longitude at start of set	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively.
Latitude at end of set	Record the latitude at the end of setting hooks in degrees and minutes, and indicate 'N' or 'S' for north and south respectively
Longitude at end of set	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively.
Wire trace	For each set indicate whether wire trace was used: **0** (no wire trace used); **1** ("SOME LINES", e.g. the vessel used wire traces on certain branch line positions during the set); **2** ("ALL LINES", e.g. wire traces were used on all lines during the set)
Number of hooks in the set	Total number of hooks in each set.
Number of baskets	Total number of baskets? Or Total number of floats?
Number of hooks per basket	Total number of hooks per basket.
Vessel speed	Vessel speed when setting (knots
Line shooter speed	Line shooter speed (meters/second).
Hook type	For each set, record the type of hook or hooks used
Hook size	For each set, record the size of the hooks used
Target species	Record target species for each set (e.g. Albacore, Swordfish, Bigeye tuna, Yellowfin tuna, Billfish, Sharks, others)
Bait species	Record bait (e.g. fish?, squid?, artificial? Or do we want species-specific details by scientific name, common name?)
Blue dyed bait used	Was the bait dyed blue? (Y/N)
Number of light sticks	Record the number of light sticks used.
Time Depth Recorder	Record whether the number of time depth recorders (TDR) used in each set
Maximum fishing depth of the hooks	Record the maximum depth (meters) from the TDR, or other measuring gauge, or estimated. Specify measuring gauge? Indicate whether the maximum depth was estimated or measured.
DateTime of haul start	For each set, record the date and time the first buoy of the mainline is hauled from the water to start the haul (MM-DD-YYYY-hh:mm).
DateTime of haul end	For each set, record the date and time the last buoy of the mainline is hauled from the water to end the haul (MM-DD-YYYY-hh:mm).
Haul direction	Record whether the haul was from 1=Start to finish or 2=Finish to start

Sea surface temperature	Record the local sea surface temperature in degrees Celsius (°C)
Species caught	Dedicated row to record retained catch (Tables 1 and 2)
	Split Species column in 2 for “retained” and “discards”
Number of fish (by species)	Total number of fish caught of each listed species
	Split numbers column in 2 for “retained” and “discards”
Total weight (by species)	Total weight (nearest kg) of fish caught of each listed species (Tables 1 and 2) for the reporting day

Annex 1: Appendix 3. Short- to medium-range longline fisheries (<20 m LOA[9])

Gear category (FAO standard abbreviation)	Data type	Rationale	Implementation date
Longlines (LL) TASK I	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Total number of hooks deployed** **Total number of days** where at least one set was made by active vessels. **Catch:** numbers and/or round weights of target and non-target species (gross annual removals and disposition (retained or discarded)). If numbers and weights are reported, conversion factors must also be submitted.	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	Continuous
Longlines (LL) TASK II	**Trip-by-trip landings inspection reports at port** on catch composition and operational characteristics and **Operational-level logbook data** where available (consistent with fields listed in Tables A3.1 - A3.3).	To provide the minimum required operational-level data for research, including studies of fishing strategies, development of stock status indicators, ecological risk assessments and ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	

Table A3.1. Description of data fields to be reported for short- to medium-range longline vessels and gear characteristics.

[9] Vessels of less than 12 m length overall using manually-operated fishing gear (i.e. without mechanical or hydraulic winches) and that do not deliver to motherships at any time during the fishing trip are excluded from the application of this resolution

Landings inspection/Logbook -Vessel and Gear characteristics	
Data field	**Data description**
Flag	Vessel flag abbreviation
Main Port	Name of the main port used to unload.
Vessel name	Name of the vessel reported to Fishery Administrator
Registration number	Identification numbers of the vessel
Company	Name of the company owner of the vessel
Length over all	Length of the vessel (meters)
Gross tonnage	Vessel Gross Registered Tonnage
TRN	Vessel net tonnage: metric tons
Conservation	Catch conservation method
Vessel electronics	Radar equipped
Vessel electronics	Depth sounder
Vessel electronics	Global Positioning System (GPS)
Vessel electronics	Sea Surface Temperature (SST) gauge
Vessel electronics	Radio/ Satellite Buoys
Radio/ Satellite Buoys	Total number of radio/satellite buoys on the vessel
Flags	Total number of flags aboard vessel
Vessel electronics	Fishery information service
Mainline material	Record the material among multiple options: Nylon monofilament, Nylon multifilament, Natural material, Polyester, Polyethylene, Glass filament, Other (Specify)
Mainline length	The total length of the mainline when it is fully set (kilometres)
Branch line material(s):	A branch line can consist of one type of material like monofilament or it can be made up of many different materials like braided nylon wire trace and mono filament, etc.
Branch line length	Length of the branch line (meters)
Float line length	Length (meters) of the line that is attached to the floats, get a coil and measure the length. It usually remains the same throughout the trip

Table A3.2. Description of the landing inspection data to be reported, daily information and trip information.

Landing inspection data – Trip-level gear information	
Data field	**Data description**
Departure Date	Date and time the vessel departs from port (MM-DD-YYYY-hh:mm)
Departure Port	Name of the port of departure or transhipment (if ports are close to the IATTC regional offices, the logbook information could complement port sampling in the future)
Arrival Date	Date and time of vessel's return to port at the completion of its trip (MM-DD-YYYY-hh:mm)
Arrival Port	Name of the port of arrival or transhipment (If the ports are close to the IATTC regional offices, the logbook information could complement port sampling in the future)
Observer on board?	Was an observer onboard (Y/N).
Longline type	Record the method that was distribute the hooks on the mainline. 0= unknow; 1= "same hooks" in the mainline; 2= "mixed hooks"; 3= "mixed hooks" with wire trace.
Bait species	Record the species of bait used in the trip.
Conservation bait	Record the conservation method of the bait. 0= unknow; 1= frozen; 2= live; 3= fresh; 4=salted; 5=artificial.
Set	Total number of sets by trip.
Duration set	Record the average of the effective duration of the set, from the time of the start to the end the set.
Hooks per set	Average of total number of hooks used by set.
Hook type	Record the type of hook or hooks used.
Patrol hooks	Fisherman reviewed the hooks before retrieving the entire line? 1=Yes 2=No
Secondary gear?	Record If the vessel uses another fishing gear, 1=Yes 2=No.
Second Fishing gear	Record the type of the second fishing gear used in the trip: Gillnet (GN), Trolling line, Purse seine (PS), etc.
Fishing area	Record the fishing area using the IATTC map of Observed program.
Target species	Record target species for each set (e.g. Albacore, Swordfish, Bigeye tuna, Yellowfin tuna, Billfish, Sharks, Dorado, others)
Transhipped	Record if the vessel brings products of other vessel (s).

Landing inspection data –Information of the Catch	
Data field	**Data description**
Species caught	Record the retained catch
Number of fish	Total number of fish caught of each listed species, ordered by stage life (sharks/rays): 1= neonats; 2= juveniles; 3= adults by sex/size class (small [<2kg], medium [<25kg], large[>25kg]).
Total weight	Total weight of fish caught by each category: species, life stage and size class (small [<2kg], medium [<25kg], large[>25kg]).
Transhipped	Record if the species unloading was transhipped or not of another vessel.
Vessel name transhipped	Name of the vessel reported to Fishery Administrator that is the owner of the product transhipped.

Table A3.3. Description of the logbook data fields by trip-level gear information, daily information and set information.

	Logbook data – Trip-level gear information
Data field	**Data description**
Departure Date	Date and time the vessel departs from port (MM-DD-YYYY-hh:mm)
Departure Port	Name of the port of departure or transhipment (if ports are close to the IATTC regional offices, the logbook information could complement port sampling in the future)
Arrival Date	Date and time of vessel's return to port at the completion of its trip (MM-DD-YYYY-hh:mm)
Arrival Port	Name of the port of arrival or transhipment (If the ports are close to the IATTC regional offices, the logbook information could complement port sampling in the future)
Observer on board?	Was an observer onboard (Y/N).
Longline type	Record the method that was distribute the hooks on the mainline. 0= unknow; 1= "same hooks" in the mainline; 2= "mixed hooks"; 3= "mixed hooks" with wire trace.
Set	Total number of sets by trip.
Duration set	Record the average of the effective duration of the set, from the time of the start to the end the set.
Patrol hooks	Fisherman reviewed the hooks before retrieving the entire line? 1=Yes 2=No
Secondary gear?	Record If the vessel uses another fishing gear, 1=Yes 2=No.
Second Fishing gear	Record the type of the second fishing gear used in the trip: Gillnet (GN), Trolling line, Purse seine (PS), etc.
Fishing area	Record the fishing area using the IATTC map of Observed program.
Target species	Record target species for each set (e.g. Albacore, Swordfish, Bigeye tuna, Yellowfin tuna, Billfish, Sharks, Dorado, others)
Transhipped	Record if the vessel brings products of other vessel (s).
Vessel(s) transhipped	Total number of vessels transhipped
Date	Each day in the trip MM- DD -YYYY
Activity	Daily activity shall be reported, even if no sets were made, from the start of the trip to the end of the trip. Indicate whether the vessel activity was "a set"; "no fishing — in transit"; "no fishing — gear breakdown"; "no fishing — bad weather"; and "no fishing — in port", "no fishing - transshipment", "other" (specify).
Latitude at start day	Record the latitude at the end of setting hooks in degrees and minutes, and indicate 'N' or 'S' for north and south respectively
Longitude at start day	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively
Set number	Sequential number of each set during the trip, starting with 1.
DateTime of set start	Record the date and time of the start of the set (MM-DD-YYYY-hh:mm)
DateTime of set end	Record the date and time of the end of the set (MM-DD-YYYY-hh:mm)
Latitude at start of set	Record the latitude at the end of setting hooks in degrees and minutes, and indicate 'N' or 'S' for north and south respectively
Longitude at start of set	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively
Latitude at end of set	Record the latitude at the end of setting hooks in degrees and minutes, and indicate 'N' or 'S' for north and south respectively
Longitude at end of set	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively
Wire trace	For each set indicate whether wire trace was used: **0** (no wire trace used); **1** ("SOME LINES", e.g. the vessel used wire traces on certain branch line positions during the set); **2** ("ALL LINES", e.g. wire traces were used on all lines during the set)
Number of hooks in the set	Total number of hooks in each set.
Number of baskets	Total number of baskets? Or Total number of floats?
Number of hooks per basket	Total number of hooks per basket.

Logbook data – Daily information	
Data field	**Data description**
Vessel speed	Vessel speed (knots).
Hook type	For each set, record the type of hook or hooks used
Hook size	For each set, record the size of the hooks used
Target species	Record target species for each set (e.g. Albacore, Swordfish, Bigeye tuna, Yellowfin tuna, Billfish, Sharks, others)
Bait species	Record bait (e.g. fish?, squid?, artificial? Or do we want species-specific details by scientific name, common name?)
DateTime of haul start	For each set, record the date and time the first buoy of the mainline is hauled from the water to start the haul (MM-DD-YYYY-hh:mm).
DateTime of haul end	For each set, record the date and time the last buoy of the mainline is hauled from the water to end the haul (MM-DD-YYYY-hh:mm).
Haul direction	Record whether the haul was from 1=Start to finish or 2=Finish to start
Sea surface temperature	Record the local sea surface temperature in degrees Celsius (°C)
Species caught	Dedicated row to record retained catch
Number of fish (by species)	Total number of fish caught of each listed species
Total weight (by species)	Total weight of fish caught of each listed species (Tables 1 and 2) for the reporting day

Annex 1: Appendix 4. Pole and line

Gear category (FAO standard abbreviation)	Data type	Rationale	Implementation date
Pole and line (LHP) TASK I	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Total number of fishing days** by active vessels. **Catch:** numbers and/or round weight of target and non-target species (gross annual removals and disposition (retained or discarded)). If numbers and weights are reported, conversion factors must also be submitted.	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models.	Continuous
Pole and line (LHP) TASK II	**Operational-level logbook data**, by fishing day on catch composition (represented as the number of fish per day) and operational characteristics (fields listed in Table A4.1). Fishing day is defined as any day at sea where vessel crew were actively searching for target species, chumming, or where at least one line was deployed.	To provide the minimum required operational-level data for research, including studies of fishing strategies, development of stock status indicators, ecological risk assessments and ecosystem models.	1 January 2023

Table A4.1. Description of pole and line logbook data fields.

Data field	Data field description
Vessel name	Name of the vessel reported to IATTC
Date	DD-MM-YYYY
Bird radar used	Was bird radar used during the fishing day (Y/N)
Sonar used	Was sonar used during the fishing day (Y/N)
GPS used	Was a GPS used during the fishing day (Y/N)
Satellite imagery used	Was a satellite imagery used during the fishing day (Y/N)
Latitude	Latitude where lines were first deployed, in degrees and minutes, and indicate 'N' or 'S' for north and south respectively
Longitude	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively
Total hours fished	Total number of hours fishing for a desirable species during the fishing day
Number of poles used	Maximum number of poles in operation during the fishing day.
Number of active crew	Maximum number of crew operating poles and chumming during the fishing day.
Water temperature	Degrees Celcius (°C)
Species caught	Dedicated row to record retained catch of ALB, YFT, SKJ, BET, DOR, SWO, BIL, WAH (Tables 1 and 2)
	Split Species column in 2 for "retained" and "discards"
Number of fish (by species)	Total number of fish caught of each listed species (Tables 1 and 2) for the reporting day
	Split numbers column in 2 for "retained" and "discards"
Total weight of fish (by species)	Total weight (nearest kg) of fish caught of each listed species (Tables 1 and 2) for the reporting day

Annex 1: Appendix 5. Trolling line

Gear category (FAO standard abbreviation)	Data type	Rationale	Implementation date
Trolling line (LTL) TASK I	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Total number of fishing days** by active vessels where at least one line was deployed. **Catch:** numbers and/or round weight of target and non-target species (gross annual removals and disposition (retained or discarded)). If numbers and weights are reported, conversion factors must also be submitted.	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models.	Continuous
Trolling line (LTL) TASK II	**Operational-level logbook data**, by fishing day (in total hours fished) on catch composition (represented as the number of fish per day) and operational characteristics (fields listed in Table A5.1). Fishing day is defined as any day at sea where vessel crew were actively searching for target species, chumming, or where at least one line was deployed.	To provide the minimum required operational-level data for research, including studies of fishing strategies, development of stock status indicators, ecological risk assessments and ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	01 January 2023

Table A5.1. Description of trolling logbook data fields.

Data field	Data field description
Vessel name	Name of the vessel reported to IATTC
Date	YY/MM/DD
Bird radar used	Was bird radar used during the fishing day (Y/N)
Sonar used	Was sonar used during the fishing day (Y/N)
GPS used	Was a GPS used during the fishing day (Y/N)
Satellite imagery used	Was a satellite imagery used during the fishing day (Y/N)
Latitude	Latitude at commencement of fishing, in degrees and minutes, and indicate 'N' or 'S' for north and south respectively
Longitude	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively
Total hours fished	Total number of hours searching or fishing for a desirable species
Number of lines or jigs used	Maximum number of fishing lines or jigs deployed during the fishing day
Crew size	Number of crew actively attending the gear
Water temperature	Degrees Celcius (°C)
Species caught	Dedicated row to record retained catch of ALB, YFT, SKJ, BET, DOR, SWO, WAH (Tables 1 and 2)
	Split Species column in 2 for "retained" and "discards"
Number of fish (by species)	Total number of fish caught of each listed species (Tables 1 and 2) for the reporting day
	Split numbers column in 2 for "retained" and "discards"
Average weight of fish (by species)	Average weight (nearest kg) of fish caught of each listed species (Tables 1 and 2) for the reporting day

Annex 1, Appendix 6. Recreational

Gear category (FAO standard abbreviation)	Data type	Rationale	Implementation date
Recreational – charter ("for-hire") sportfishing TASK I	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Total number of fishing days** by active vessels where fishing gear was deployed. **Catch:** numbers of target and non-target species (gross annual removals and disposition (retained or discarded)).	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models.	Continuous
Recreational – charter ("for-hire") sportfishing TASK II	**Operational-level logbook data**, by fishing trip on catch composition (represented as the number of fish per day) and operational characteristics (fields listed in Table A6.1). A fishing trip is defined as the period between exit of and subsequent entry to a port or landing location. A fishing day is any day at sea where vessel crew were actively searching for target species or the fishing gear (lines or spears) was deployed.	To provide the minimum required operational-level data for research, including studies of fishing strategies, development of stock status indicators, ecological risk assessments and ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	01 January 2023
Recreational – non-charter ("private") sportfishing	Survey of fishers to estimate annual total catch (by species in numbers and/or round weight in kg) and effort (in days) (Tables 1 and 2). A fisher is defined as someone who has fished for tuna or tuna-like species in the previous 12 months.	To provide the minimum required operational-level data for research, including studies of fishing strategies, development of stock status indicators, ecological risk assessments and ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	

Table A6.1. Description of recreational (charter) logbook data fields.

Data field	Data field description
Guide name	Name of the vessel reported to IATTC
Date	YY/MM/DD
Latitude	Latitude at commencement of fishing, in degrees and minutes, and indicate 'N' or 'S' for north and south respectively
Longitude	Record the longitude in degrees and minutes, and indicate 'W' or 'E' for west and east respectively
Bird radar used	Was bird radar used during the fishing day (Y/N)
Sonar used	Was sonar used during the fishing day (Y/N)
GPS used	Was a GPS used during the fishing day (Y/N)
Satellite imagery used	Was a satellite imagery used during the fishing day (Y/N)
Total hours fished	Total number of hours searching or fishing for a desirable species
Number of lines or spears used	Maximum number of fishing lines or spears used during the fishing day.
Number of active fishers	Total number of fishers actively attending or operating the gear.
Water temperature	Degrees Celcius (°C)
Species caught	Dedicated row to record retained and discarded catch of species in Tables 1 and 2.
	Split Species column in 2 for "retained" and "discards"
Number of fish (by species)	Total number of fish caught of each listed species (Tables 1 and 2) for the reporting day
	Split numbers column in 2 for "retained" and "discards"

Table A6.2. Description of recreational (private) fishery survey data fields.

Data field	Data field description
Fisher name	Name of the survey respondent
Fishing permit number	Recreational fishing permit number (if applicable)
Date of interview	YY/MM/DD
Predominant fishing mode	Rod and line, spear, other gear.
Number of days fished	Total number of days fished in previous 12 months
Hours fished per day	Typical number of hours fished during each day of fishing in previous 12 months
Areas fished	Identify spatial grid cells where fishing was undertaken in previous 12 months
Bird radar used	Was bird radar used during the fishing day (Y/N)
Sonar used	Was sonar used during the fishing day (Y/N)
GPS used	Was a GPS used during the fishing day (Y/N)
Satellite imagery used	Was a satellite imagery used during the fishing day (Y/N)
Number of fish caught	Total number caught of each species (Tables 1 and 2) listed on the interviewer's form.
Number of fish released	Total number released of each species (Tables 1 and 2) listed on the interviewer's form.

Annex 1: Appendix 7. Miscellaneous gears

Gear category (FAO standard abbreviation)	Data type	Rationale	Implementation date
Gillnet (GEN) TASK I	**Effort:** **Number of fishing vessels** by gear or set type (surface or bottom set), actively operating in the Antigua Convention Area. **Total number of days** by active vessels where at least one set was made. **Catch:** numbers and/or round weight of target and non-target species (gross annual removals and disposition (retained or discarded)). If numbers and weights are reported, conversion factors must also be submitted.	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models.	Continuous
Gillnet (GEN) TASK II	**Operational-level logbook data**, by fishing trip on catch composition (represented as the number of fish per day) and operational characteristics (fields listed in Table A7.1). A fishing trip is defined as the period between exit of and subsequent entry to a port or landing location. Within each trip, a fishing day is any day where the gillnet was deployed.	To provide the minimum required operational-level data for research, including studies of fishing strategies, development of stock status indicators, ecological risk assessments and ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	1 January 2023
Handlines (HAND) TASK I	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Total number of days** by active vessels where the gear was deployed at least once. **Catch:** numbers and/or round weight of target and non-target species (gross annual removals and disposition (retained or discarded)). If numbers and weights are reported, conversion factors must also be submitted.	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	Continuous
Handlines TASK II	**Operational-level logbook data**, by fishing trip on catch composition (represented as the number of fish per day) and operational characteristics	To provide the minimum required operational-level data for research, including studies of fishing strategies, development of stock status	1 January 2023

	(fields listed in Table A7.1). A fishing trip is defined as the period between exit of and subsequent entry to a port or landing location. Within each trip, a fishing day is defined as any day where the vessel crew actively searched, or deployed the fishing gear, for a desirable species.	indicators, ecological risk assessments and ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	
Harpoon (HAR) TASK I	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Total number of days at sea** by active vessels where searching for a desirable species was undertaken by the vessel crew or associated spotter aircraft, whether the harpoon was deployed or not. **Catch:** numbers and/or round weight of target and non-target species (gross annual removals and disposition (retained or discarded)). If numbers and weights are reported, conversion factors must also be submitted.	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	Continuous
Harpoon (HAR) TASK II	**Operational-level logbook data**, by fishing trip on catch composition (represented as the number of fish per day) and operational characteristics (fields listed in Table A7.1). A fishing trip is defined as the period between exit of and subsequent entry to a port or landing location. Within each trip a fishing day is any day where searching for a desirable species was undertaken by the vessel crew or associated spotter aircraft, whether the harpoon was deployed or not. .	To provide the minimum required operational-level data for research, including studies of fishing strategies, development of stock status indicators, ecological risk assessments and ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	1 January 2023
Other gears not specified TASK I	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Total number of days at sea** by active vessels where searching or fishing for a desirable species was undertaken by the vessel crew. **Catch:**	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	Continuous

	numbers and/or round weight of target and non-target species (gross annual removals and disposition (retained or discarded)). If numbers and weights are reported, conversion factors must also be submitted.		
Other gears not specified TASK II	**Operational-level logbook data**, by fishing trip on catch composition (represented as the number of fish per day) and operational characteristics (fields listed in Table A7.1). A fishing trip is defined as the period between exit of and subsequent entry to a port or landing location. Within each trip a fishing day is any day where the vessel crew actively searched, or deployed the fishing gear, for a desirable species.	To provide the minimum required operational-level data for research, including studies of fishing strategies, development of stock status indicators, ecological risk assessments and ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	1 January 2023
Gear not known (NK) TASK 1	**Effort:** **Number of fishing vessels** actively operating in the Antigua Convention Area. **Total number of days at sea** by active vessels where searching or fishing for a desirable species was undertaken by the vessel crew. **Catch:** numbers and/or round weight of target and non-target species (gross annual removals and disposition (retained or discarded)). If numbers and weights are reported, conversion factors must also be submitted.	To provide the minimum required data for the purposes of routine data reporting and research including a) stock assessment, b) ecological risk assessments and c) ecosystem models. Strengthening capacity building opportunities for the coastal States is essential for improving data reporting.	Continuous

Table A71. Description of miscellaneous gears logbook data fields.

Data field	Data field description
Vessel name	Name of the vessel reported to IATTC
Start trip date	YY/MM/DD
End trip date	YY/MM/DD
Number of days fished	The number of days during the trip when the gear was deployed or searching undertaken for a desirable species
Areas fished	Identify spatial grid cells where fishing was undertaken during the trip
Gears used	Write in a box next to a list of gears, the estimated percentage of the trip that each gear was used.
Species targeted on trip	Tick box next to a list of species targeted during trip (see Tables 1 and 2): Tunas, billfish, sharks, dorado, wahoo, other
Bird radar used	Was bird radar used during the fishing day (Y/N)
Sonar used	Was sonar used during the fishing day (Y/N)
GPS used	Was a GPS used during the fishing day (Y/N)
Satellite imagery used	Was a satellite imagery used during the fishing day (Y/N)
Crew size	Number of crew actively attending the gear.
Species caught	Blank row to allow each pelagic species caught during the trip to be listed (Tables 1 and 2)
Number of fish (by species)	Total number of fish caught of each listed species (Tables 1 and 2) for the trip
Average weight of fish (by species)	Average weight (kg) of fish caught of each listed species (Tables 1 and 2) for the reporting day

Annex 1: Appendix 8. Data requirements for CPCs. This list of resolutions is provided as a reference to remind CPCs of other resolutions regarding information on data provision and may be updated as required. Details on reporting requirements can be found in the specified resolutions.

Information to be sent by Members and Cooperating Non-Members of IATTC			
Resolution	**Related to**	**Data / Information required:**	**Due date**
C-03-01	IATTC bigeye tuna statistical document program	The Contracting Parties which import bigeye tuna shall report the data collected by the Program to the Director each year by April 1 for the period of July 1 - December 31 of the preceding year and October 1 for the period of January 1 - June 30 of the current year. The Contracting Parties which export bigeye tuna shall examine export data upon receiving the import data mentioned before, and report the results to the Commission annually	Annually by April 1 and October 1
C-03-05	Data provision	Establishes that CPCs provide to the Director all pertinent catch information for all of their vessels fishing for species under the purview of the Commission (paragraph 1, page 1). The data are to be provided, by species and fishing gear, where practical, via vessel logbooks and unloading records, and otherwise in aggregated form as specified in the Resolution (paragraph 2, page 2).	Annually by 30 June.
C-04-05 REV	Bycatch	Urges CPCs with vessels targeting species covered by the Convention to provide bycatch information (paragraph 9, page 3)	Not established
C-05-02	Northern albacore tuna	Establishes in its paragraph 3, that all CPCs shall report all catches of North Pacific albacore tuna by gear type to the IATTC (paragraph 3, page 1) .	Every six months
C-05-03	Conservation of sharks caught in association with fisheries in the EPO	Each CPC shall report data for catches, effort by gear type, landing and trade of sharks by species, where possible, in accordance with IATTC reporting procedures, including available historical data. CPCs shall send to the IATTC Secretariat, ~~at the latest~~, a comprehensive annual report of the implementation of this Resolution during the previous year. (paragraph 11, page 2)	Annually by May 1.
C-11-02	Mitigate the impact on seabirds of fishing for species covered by the IATTC	CPCs shall report to the IATTC on their implementation of the IPOA-Seabirds, for reducing incidental catches of seabirds in longline fisheries (paragraph 1, page 1)	Not established
		CPCs shall inform the IATTC of the mitigation measures that their flag vessels plan to employ (paragraph 5, page 2~~)~~	Annually by September 1.
		CPCs shall provide to the IATTC any available information regarding interactions with seabirds involving their flag vessels in the fishery, including bycatches of seabirds and details of seabird species and all relevant information available from observer or other monitoring programs (paragraph 7, page 2)	Annually
C-11-03	Fishing on data buoys	CPCs are encouraged to require their fishing vessels to report to them all entanglements and provide the date, location, and nature of the entanglement, along with any identifying information on the data buoy. CPCs shall notify the Commission of all such reports (paragraph 2, page 2)	Not defined

C-11-05	List of longline fishing vessels over 24 meters authorized to fish in the EPO.	Each CPC shall notify the Director of any changes affecting the LSTLFV List (paragraph 2, pages 1-2	At any time, they occur.
C-11-07	Compliance of IATTC resolutions	Each CPC shall fill in the questionnaire (Annex, pages 3-7) and send it back to the Director prior to the meeting of the Committee for the Review of Implementation of Measures adopted by the Commission at the latest. Each CPC shall also investigate the possible non-compliance cases and report the results of the investigation back to the Director prior to the Committee meeting (paragraph 3c, page 1).	Annually. Two months prior to the Committee meeting
C-11-10	Conservation of oceanic whitetip sharks	CPCs shall record inter alia, through the observer programs, the number of discards and releases of oceanic whitetip sharks with indication of status (dead or alive) and report it to IATTC (paragraph 3).	Not established
C-12-07	Program for transshipments by large-scale longline fishing vessels	Each CPC shall promptly notify the Director, after the establishment of the initial IATTC Record, of any addition to, deletion from and/or modification of the IATTC Record of Vessels Authorized to Receive Transshipments at Sea .(paragraph 8, page2).	At the time the change occurs.
		Each CPC shall report to the Director: (paragraph 19, page 4) a. The quantities by species transshipped during the previous year. b. The names of its vessels on the IATTC LSTLFV List which have transshipped during the previous year; and c. A comprehensive report assessing the content and conclusions of the reports of the observers assigned to carrier vessels which have received transshipment from its LSTLFVs.	Annually by 15 September
C-14-02	Establishment of a vessel monitoring system (VMS)	If practicable, VMS equipment should be usable to transmit to the Director the data required in the relevant IATTC Resolutions, including C-03-04 and C-03-05 (paragraph 4, page 2)	Not defined
C-15-04	Conservation of Mobulid Rays	CPCs shall record, *inter alia* through the observer programs, the number of discards and releases of Mobulid rays, indicating the status (dead or alive) and report it to the IATTC.(paragraph 4, page 2)	Annually
C-16-05	Management of sharks	CPCs shall require their fishers to collect and submit catch data for silky and hammerhead sharks and shall submit the data to the IATTC in accordance with IATTC data reporting requirements. CPCs shall also record, through observer programs or other means, for purse-seine vessels of all capacity classes, the number and status (dead/alive) of silky sharks and hammerhead sharks caught and released and report it to the IATTC (paragraph 2, page 1)	By 30 June [Res. C- 03-05]
C-16-06	Conservation measures for shark species, with special emphasis on the silky shark	CPCs shall report to the Commission information on percentages of catch of silky sharks of less than 100 cm total length reached.	By 30 June [Res. C- 03-05]
		CPCs shall notify the Director, the single period of restricted use of steel leaders which will be observed for the following calendar year.	Before 1 October
		CPCs shall report to the IATTC the number and status (dead/alive) of silky sharks caught and released as recorded, through observer programs and other means, for purse seine vessels of all capacity classes.	By 30 June of the following year [Res. C- 03-05]

C-17-02	Tuna conservation in the EPO 2021	For each one of the closure periods, each CPC shall notify the Director, the names of all the purse-seine vessels that will observe each closure period.	By 15 July
		Each CPC shall, for purse-seine fisheries: a. Before the date of entry into force of the closure, take the legal and administrative measures necessary to implement the closure; b. Inform all interested parties in its tuna industry of the closure; c. Inform the Director that these steps have been taken	By 29 July
		CPCs shall report, or require their vessels to report, daily information on all active FADs to the Secretariat, in accordance with guidance developed under Paragraph 12 of the Resolution.	Monthly reports submitted with a time delay of at least 60 days, but no longer than 90 days.
		CPCs whose annual catches have exceeded 500 metric tons of bigeye tuna caught with long line shall provide monthly catch reports to the Director	Every month
		Each CPC shall submit to the Director a national report on its updated national compliance scheme and actions taken to implement the measures adopted in the Resolution, including any controls it has imposed on its fleets and any monitoring, control, and compliance measures it has established to ensure compliance with such controls	By 15 July
C-18-03	North Pacific albacore.	The CPC must report to the Director, the annual catch by fishery or fleet (paragraph 1 and 2)	By 30 June
		If estimated catch has changed in any of the previous five years, CPCs shall also report updates to catch, as necessary (paragraph 1 and 2)	As necessary
		In the case that a CPC cannot distinguish whether nor not its catch of North Pacific albacore occurred in the Convention Area, it shall report its catch of North Pacific albacore in the entire North Pacific. (paragraph 1 and 2)	By 30June
		The CPC must report to the Director, using the template in Annex B, its annual fishing effort for fisheries targeting North Pacific albacore, in fishing days and number of vessels fishing for (i.e., targeting) North Pacific albacore. (paragraph 2, page 2)	By 30 June
		If estimated effort has changed in any of the previous five years, CPCs shall also report updates to effort, as necessary (paragraph 2, page 2)	By 30 June
C-18-06	Regional Vessel Register	The CPC shall promptly notify the Director of any modifications to the information with respect to each vessel as listed in paragraph 2.	At any time, they occur
		Each CPC shall also promptly notify the Director of: a. any additions to the record; b. any deletions from the record by reason of:	

		i. the voluntary relinquishment or non-renewal of the fishing authorization by the owner or operator of the vessel; ii. the withdrawal of the fishing authorization issued to the vessel in accordance with Article XX, paragraph 2 of the Convention; iii. the fact that the vessel is no longer entitled to fly its flag; iv. the scrapping, decommissioning or loss of the vessel; and v. any other reason, specifying which of the reasons listed above are applicable.	
		The CPC must notify the Director of their vessels on the Regional Vessel Register flying their flag that were actively fishing in the IATTC Convention Area for species covered by the Convention from 1 January to 31 December of the previous year.	By 30 June
C-19-01	Collection and analyses of data on FADs	For each interaction with a FAD, CPCs shall provide the information outlined in Annex I, (page 4) including bycatch information associated with a set. Data of purse seine vessels with observer on board must be recorded by the observer beginning in 2020.	90 days prior to each SAC meeting
C-19-04	To mitigate impacts on sea turtles	CPCs must notify the director annually of the following information in a standardized format, unless it has already been submitted in accordance with other requirements, such as observer programs (paragraphs 4.a i and.ii., page 3): i.Any changes to laws, regulations, and other instruments in place to implement the FAO Guidelines to Reduce Sea Turtle Mortality in Fishing Operations (2009) and this Resolution ii. For observed sea turtle interactions, the following minimum data fields: a. date b. location (latitude, longitude) c. fishing gear type d. species identification e. size (curved or straight carapace length) f. capture and release condition (e.g., live/dead) **As well as the following details, if available**: a. anatomical hooking location, if applicable (e.g., flipper, mouth/jaw, swallowed, entangled) b. amount of gear left on the animal, if applicable (e.g., estimated length of line) c. any associated photographs.	June 30, starting in **2022**
C-19-05	Conservation measures for shark species, with special emphasis on the silky shark	CPCs shall report incidentally caught and frozen silky sharks obtained by the purse-seine fishery (paragraph 2, page 1). CPCs that allow retention of silky sharks by their longline vessels shall report to the Secretariat data from control and inspection measures (paragraph 5, page 2). CPCs shall notify the Director the single period of restricted use of steel leaders (paragraph 11, page 2). CPCs shall require data collection and submission of catch data for silky sharks (paragraph 13, page 3) .	Before 1 October

C-19-06	Conservation of whale sharks	CPCs shall require that a whale shark not deliberately encircled in the purse-seine net shall report the incident (paragraph 2, page 1)	Not defined
C-19-08	Scientific observers for longline vessels	CPCs shall submit to the Scientific Advisory Committee, through the Director, the scientific observers' information on the previous year's fishery in the format that can be found in Annex A (pages 3 and 4) of the Resolution. A basic element to report is the coverage level which must be at least 5%.	By 31 March
		CPCs shall submit operational data collected by observers from the previous year, consistent with the Minimum Data Reporting Standards (Annex B), to the Director.	No later than 30 June
	Longline data from 2013 to 2016 (Memorandum dated February 14, 2020)	Many of the CPCs have data for 2013-2016 corresponding to these adopted standards, as most of these programs have been using the IATTC longline observer forms or the WCPFC standards to guide their data collection. The Scientific Advisory Committee (SAC) has stressed the importance of having these data. For that reason, those CPCs that would not have already submitted these data before the established deadlines (31 December 2017 or the 9th Meeting of the SAC in 2018) should do it still with a view towards enabling their utilization for the preparation of the meeting of the SAC in 2021.	Before the meeting of the SAC in 2021
C-20-02	Pacific blue fin tuna (2021)	Each CPC shall report sport fishery catches of Pacific bluefin tuna semi-annually to the Director.	Semi-annually
		In 2021, each CPC shall report its catches to the Director weekly after 50% of its annual catch limit in each year is reached.(paragraph 9)	Weekly