

**TWELFTH MEETING OF THE STANDING COMMITTEE ON TUNA AND BILLFISH**

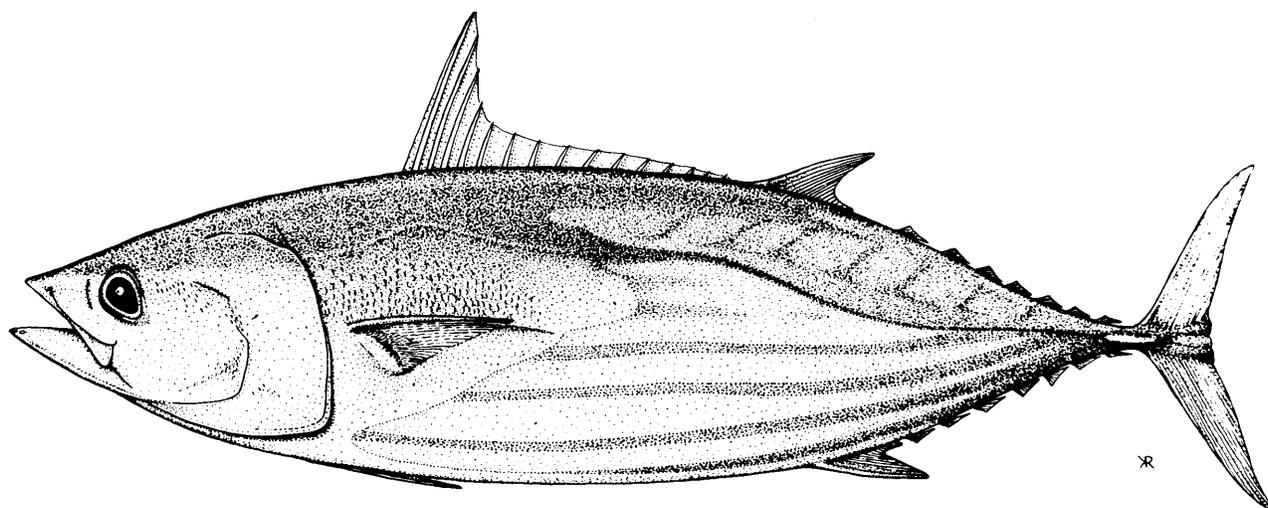
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**WORKING PAPER \_\_\_\_\_**

**PROPOSED MINIMUM STANDARDS FOR TUNA FISHERY  
CATCH AND EFFORT LOGSHEETS**

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## INTRODUCTION

At its inaugural meeting in June 1998, the Statistics Working Group (SWG) of the Standing Committee on Tuna and Billfish (SCTB) considered procedures for fulfilling its objectives, i.e. to coordinate the collection, compilation and dissemination of tuna fishery data (Anonymous 1998). The Statistics Working Group agreed to coordinate data collection by, inter alia, establishing minimum standards for data collection forms and reviewing data collection forms for catch and effort data, landings data, port sampling data, and observer data, at annual meetings of the SCTB.

While there is no obligation for fishing nations or coastal states to abide by any recommendations that may be made by SCTB regarding their data collection forms, it is hoped that the reviews by the Statistics Working Group will be helpful by highlighting any problems that may exist or improvements that could be made, and that fishing nations and coastal states will seriously consider any such recommendations. In this regard, the SPC/FFA Tuna Fishery Data Collection Forms Committee, which is responsible for catch and effort logsheets and other forms that are widely used, considered that the participation at meetings of the SCTB from scientists from fishing nations and coastal states throughout the region would result in a thorough and effective review of the forms and that any recommendations made by the Statistics Working Group would be valuable (Anonymous, 1999).

Logsheets are used to collect catch and effort data, and other information, for each day fished by pole-and-line vessels and trollers, and each set made by longliners and purse seiners. Logsheets that have been used in the western and central Pacific Ocean (WCPO) have usually consisted of a block of fields concerning the identification of the vessel and other information relevant to the vessel and the trip, and another block of fields concerning the daily or operational catch and effort, with one line in the block for each day or operation. This information has also been collected in greater detail, and with other information, in the format of separate sheets for each day fished, which are bound together to form a logbook. One country also uses a common form for several gear types, with a template specific to each gear type. The template is placed over the form in order to highlight each of the items that are relevant to the gear type.

This document proposes minimum standards for catch and effort logsheets or logbooks for longline, pole-and-line, purse-seine and troll vessels fishing for tuna in the WCPO. The proposed minimum standards will be discussed at a session of the Statistics Working Group that will take place immediately prior to the twelfth meeting of the SCTB. Minimum standards for other types of data may be considered at future meetings of the SCTB.

First, guidelines for establishing minimum standards for logsheets are briefly considered. Then data items that concern the identification of the vessel, vessel attributes, and trip attributes are discussed. These are followed by data items that concern the daily or operational catch and effort, which are specific to each gear type.

The proposed minimum standards for catch and effort logsheets are based in part on information presented in Anonymous (1999), Everett et al. (1989), Food and Agriculture Organization (1998) and Miyake (1990). Annex 3 of Food and Agriculture Organization (1998) contains a comprehensive discussion on form design, which is not considered here.

## GUIDELINES FOR ESTABLISHING MINIMUM STANDARDS

Minimum standards for logsheet or logbook data are proposed below. The minimum standards are considered in the context of scientific research and the monitoring of catch and effort, and not in other contexts, such as management or surveillance. Hence, the minimum standards to be considered are not an exclusive set of data items to be included on logsheets. Other data items may be required for other purposes, but these are not considered here.

The data items are classified into two groups: “essential” and “desirable”. For the purposes here, “essential” data items are those that make up the set of minimum standards for the logsheet, while “desirable” data items are those not included in the minimum standard, but which may nevertheless be useful. The identification of a data item as either “essential” or “desirable” will be subjective, but the following approach may be appropriate.

“Essential” data items could be thought of as those which are the minimum necessary for (i) monitoring trends in catch and effort in tuna fisheries in the WCPO and (ii) assessing the stocks of tunas. In contrast, “desirable” data items could be considered as those in whose absence monitoring and assessment could still be carried out. Under these guidelines, the number of “essential” data items will be relatively small, while the number of “desirable” data items may be large.

## VESSEL IDENTIFICATION

### *All gear types*

The following items are proposed as *essential*:

Name of the vessel, country of registration, registration number: The registration number is the number assigned to the vessel in the country where the vessel is flagged. Each country has standard formats for registration numbers, which may include codes concerning the port of registration and the size class of the vessel.

The following items are proposed as *desirable*:

International radio callsign, fishing permit or license number: The fishing permit or license number is the number assigned by the government of the country or territory in whose waters the vessel is fishing. The permit or license number is unique to each vessel and can be used for the purposes of vessel identification.

Name of the fishing company that owns the vessel and name of the agent that represents the vessel in the port of unloading: These items may be useful in obtaining corrections or additional information concerning the data recorded on the logsheets.

## VESSEL ATTRIBUTES

### *Longline*

The following items are proposed as *essential*:

Gross registered tonnage: Monitoring of catch and effort is sometimes done separately for coastal, offshore and distant-water longline fleets. Vessel size is an important criterion in determining whether the vessel operates in coastal, offshore or distant-water areas.

Number of hooks between floats or number of hooks per basket: This measure is a proxy for average hook depth and, hence, is important in determining the effective effort for a given species. Actual baskets are rarely used nowadays; therefore “hooks between floats” may be preferred. The number of hooks between floats may vary within and between sets and so it may be considered that more detail should be provided. However, (a) the number of hooks between floats reported for a given trip has been shown to be significant in determining effective effort, even though lacking in detail, and (b) it is perhaps more appropriate to obtain greater detail through observer programmes, rather than on logsheets completed by the crew.

The following items are proposed as *desirable*:

Length of mainline, number of floats or baskets, length of float line, length of branch line: These items can be used to determine the depth of hooks and, hence, effective effort.

Mainline material, presence of line shooter, engine power, rated speed of vessel, name of the captain: These items are related to fishing effort.

Storage method: Methods used to store the catch (i.e. ice, refrigerated sea water, air coil frozen, air blast frozen, brine frozen) can be used to determine whether the vessel operates in coastal, offshore or distant-water areas and, hence, can be useful for monitoring catch and effort.

### ***Pole-and-Line***

The following item is proposed as *essential*:

Gross registered tonnage: See *longline* above.

The following items are proposed as *desirable*:

Number of crew, number of automatic poling devices, bait capacity, engine power, rated speed of vessel, presence of bird radar, name of the captain: These items are related to fishing effort.

### ***Purse Seine***

The following item is proposed as *essential*:

Gross registered tonnage: See *longline* above.

The following items are proposed as *desirable*:

Net length, net depth, mesh size, storage capacity, presence of helicopter, engine power, rated speed of vessel, power block net pull, purse winch bare drum line pull, presence of Doppler current meter, presence of bird radar, presence of side-scanning sonar; name of the captain: These items are related to fishing effort.

***Troll***

The following item is proposed as *essential*:

Gross registered tonnage: See *longline* above.

The following items are proposed as *desirable*:

Number of lines, engine power, rated speed of vessel, storage capacity, source of sea surface temperature data; name of the captain: These items are related to fishing effort. Sources of sea surface temperature data can include onboard thermometers; weather fax; and real-time satellite transmission

**TRIP ATTRIBUTES*****All gear types***

The following items are proposed as *essential*:

Port of departure, date and time of departure, port of unloading, date and time of arrival in port of unloading: These items can be used to cross-check the period covered by logsheet data and the period covered by landings data, such that landings data can be used to verify logsheet data.

***Longline***

The following items are proposed as *desirable*:

Primary target species: This information can be used to interpret catches and catch rates and, hence, can be useful for monitoring catch and effort.

***Purse Seine***

The following items are proposed as *desirable*:

Amount of fish onboard at start of trip, amount of fish onboard after unloading: These items can be used to verify logsheet data with landings data.

**LONGLINE SETS**

The following items are proposed as *essential*:

Date of set, time of set, position of set: The date and set time can be local time, ship's time or UTC, but must be consistent. The set time should refer to the start of setting the longline. The set position should be in at least minutes of latitude and longitude. The set position can refer to the start of set, the end of set, or the average position, but should be consistent.

Number of hooks set: This item is a measure of fishing effort.

Number of fish caught per set, by species, total weight or average weight of fish caught per set, by species: The instructions should indicate whether whole weights or processed weights should be used, and for which species, and should be in accordance with the usual practice by the fleet. For

example, most bigeye and yellowfin are gilled and gutted, while albacore are kept whole. All species or species groups, i.e. target species and non-target, associated or dependent (NAD) species, should be recorded. The catch of fish that are discarded dead or in poor condition should also be recorded, in addition to all fish that are retained.

The following items are proposed as *desirable*:

Activity: This item can be used to verify the completeness of the data. It should be recorded for each set and for days on which no sets were made. For days on which no sets were made, the date and noon position should also be recorded. Activities can include “a set”; “no fishing due to gear breakdown”; “no fishing due to bad weather”; “in transit”; “in port”, etc.

Sea surface temperature and other oceanographic parameters: These items may affect catch rates.

### **POLE-AND-LINE DAYS FISHED**

The following items are proposed as *essential*:

Activity: This item should be recorded for each day fished or searched and for days on which no fishing or searching took place. This item can be used to distinguish between days on which searching took place, but no fish were caught, and days on which no fishing or searching took place, and to verify the completeness of the data. Activities can include “a day fishing or searching with bait onboard”; “no fishing due to collecting bait”; “no fishing due to gear breakdown”; “no fishing due to bad weather”; “in transit”; “in port”, etc.

Date, noon position: The date and noon position must be recorded for all days. The noon position should be in at least minutes of latitude and longitude.

Weight of fish caught per day, by species: All species or species groups, i.e. target species and non-target, associated or dependent (NAD) species, should be recorded. The catch of fish that are discarded dead or in poor condition should also be recorded, in addition to all fish that are retained.

The following items are proposed as *desirable*:

Amount of bait onboard: This item is related to fishing effort.

Average weight of fish caught per day, by species: This item may be informative in the absence of sampling by observers or port samplers.

### **PURSE-SEINE SETS**

The following items are proposed as *essential*:

Activity: This item should be recorded for each set and for days on which no sets were made. This item can be used to distinguish between days on which searching took place, but no fish were caught, and days on which no fishing or searching took place, and to verify the completeness of the data. Activities can include “a set”; “a day searched, but no sets made”; “no fishing due to gear breakdown”; “no fishing due to bad weather”; “in transit”; “in port”, etc.

Date, position of set or noon position, time of set: If a set is made, then the date and position must refer to the set. If searching occurs, but no sets are made, then the date and noon position must be

recorded. The date and set time can be local time, ship's time or UTC, but must be consistent. The set time should refer to the time that the skiff was put in the water. The set position should be in at least minutes of latitude and longitude.

School association: The species composition of the catch and the size of individuals is related to the type of association. All common types of school association should be recorded with specific codes, while uncommon types of association should be recorded with a code for "other". Common types of school association may include "drifting log, debris or dead animal"; "drifting raft, FAD or payao"; "anchored raft, FAD or payao"; "live whale or whale shark"; and "free-swimming" or unassociated schools.

Weight of fish caught per set, by species: All species or species groups, i.e. target species and non-target, associated or dependent (NAD) species, should be recorded. The catch of fish that are discarded dead or in poor condition should also be recorded, in addition to all fish that are retained.

The following items are proposed as *desirable*:

Well numbers: This item can be used by port samplers to select wells to sample. Port samplers prefer to sample wells containing fish from sets for which the date, position and school association are similar.

Average weight of fish caught per set, by species: This item may be informative in the absence of sampling by observers or port samplers.

Sea surface temperature and other oceanographic and meteorological measures, such as depth of the thermocline, and wind speed or Beaufort wind scale. These items can affect effort and catch rates.

## **TROLL DAYS FISHED**

The following items are proposed as *essential*:

Activity: This item should be recorded for each day fished and for days on which no fishing took place. This item can be used to distinguish between days fished on which no fish were caught and days not fished, and to verify the completeness of the data. Activities can include "a day fished"; "no fishing due to gear breakdown"; "no fishing due to bad weather"; "in transit"; "in port", etc.

Date, noon position: The date and noon position must be recorded for all days. The noon position should be in at least minutes of latitude and longitude.

Weight of fish caught per day, by species: All species or species groups, i.e. target species and non-target, associated or dependent (NAD) species, should be recorded. The catch of fish that are discarded dead or in poor condition should also be recorded, in addition to all fish that are retained.

The following items are proposed as *desirable*.

Hours fished: This item can be used as a more detailed measure of fishing effort.

Average weight of fish caught per day, by species: This item may be informative in the absence of sampling by observers or port samplers.

## REFERENCES

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