

South Pacific Regional Fisheries Management Organisation

Data and Information Working Group

Chile, 27-29 October 2010

DIWG-08-04

Proposed Annual Catch Data Standard

Interim Secretariat

1. Introduction

The current Data Standards (6 October 2008, as amended on 18 May 2009) set out standards for data collection, reporting, verification and exchange for Fishing Activities and the Impacts on Fishing, including for tow by tow or set by set data for trawl, purse seine, bottom long lining, squid jigging, potting, and drop/dahn lining fishing methods.

They do not include a specific standard for the collection of annual (calendar year) catch data in addition to tow by tow/ set by set data, although many participants do already voluntarily provide summaries of annual catch totals.

One issue with some annual totals submitted to date, is that it is not always known whether these totals represent nominal catch, landed weight or product weight (refer to the definitions provided in section 2). It is important that this information accompanies any annual catch totals submitted to the Interim Secretariat.

This concern was raised in the most recent (7th) Data and Information Group Meeting under item 7:

“Concern was expressed regarding the difference between catch estimate information that is being submitted versus verified landings data. The participants agreed that the DIWG needs to work intersessionally to develop a standard for verified catch data, including total annual catch. Participants discussed the different levels of spatial resolution such a standard should include. Further clarification regarding collection of data versus provision of data to the Interim Secretariat should also be included in the intersessional discussion.”

This paper proposes a new standard for providing current and future annual catch totals to the Interim Secretariat. It is not proposed that this new standard replaces already existing standards for historical annual catch. These are attached at Appendix 1 for reference.

2. Background Information and Definitions

The Coordinating Working Party on Fishery Statistics (CWP) Handbook of Fishery Statistical Standards¹, provides the following useful standard definitions of types of catch and landings data:

Nominal Catches

The concept "NOMINAL CATCHES" refers to the landings converted to a **live weight** basis. In fact it is often referred to as the "Live weight equivalent of the landings" or shortened to the "Live weight". In national publications the same concept is also given the name "Landings on a round, fresh basis", "Landings on a round, whole basis" or "Landings on an ex-water basis".

Landed Weight

The concept "LANDED WEIGHT" refers to the mass (or weight) of a product at the time of landing, regardless of the state in which is landed. That is, the fish may be whole, or gutted or filleted. Consequently this unit is of limited use for further analysis except where it is known that the product is very homogenous in nature. Where more detailed analysis of the data is required the landed weight is generally converted to a more meaningful measure, the most frequently used being the "Nominal catch".

Product Weight The concept "PRODUCT WEIGHT" suffers from similar disadvantages being simply the weight of a product at the time of weighing. Thus it does not describe the presentation of the product and, unless it is known that the product is homogenous in form, further analysis has to proceed with caution.

Similarly, as part of their instructions for the completion of 'Statlant' 21A and 27A², Northwest Atlantic Fisheries Organisation (NAFO) describe "**nominal catches**" as the:

"live weight equivalent of landings expressed in tonnes".

Other organisations, such as the Indian Ocean Tuna Commission (IOTC), provide an extensive list of ways in which retained and/or discarded catches are reported. Those used by the IOTC are attached at Appendix 2 for reference.

3. SPRFMO Historical Catch Data

With regard to the collection and submission of SPRFMO historical fishing activity data, the current SPRFMO Data Standards set out the following general principle:

5. Historical data

Participants are to:

- (a) *Collate pre-2007 data on fishing activities in the Area and provide these to the Interim Secretariat of the proposed SPRFMO by 30th September 2007, in sufficient detail to facilitate effective stock assessment and in a format as close as is practical to that described in annexes 1 - 6;*

¹ Food and Agriculture Organization of the United Nations (FAO), Coordinating Working Party on Fishery Statistics, CWP Handbook of Fishery Statistical Standards Section B: Catch and Landings, <http://www.fao.org/fishery/cwp/handbook/B/en>

² NAFO Annual Fisheries Statistics Databases: <http://www.nafo.int/about/frames/about.html>

Additional guidance for the submission of historical data is provided by the 'Template for compilation of historical catch and effort data (2 May 2007)', agreed by the third Data and Information Working Group in Reñaca, and subsequently adopted by the Third Plenary session. It appears as Annex E of the report of the Third International Consultation, and is attached here as Appendix 1.

This template (including its references to Annexes 1-3 of the 2007 Data Standards document) specifies that catch data should be provided as "live weight", i.e. as nominal catch weight, according to the definition in Section 2 above.

4. Proposed Addition of Standard for Collection of Annual Catch Totals (Calendar Year)

It is proposed that an additional standard for total annual catch data (for a calendar year) is added to the current SPRFMO Standards for data collection, reporting, verification and exchange for Fishing Activities and the Impacts on Fishing.

Such a standard would provide clarification that both:

- i) annual nominal ('live') catch weight totals and,
- ii) tow by tow/set by set data,

should be collected and submitted to the Interim Secretariat for each calendar year.

The following annual catch data standard is proposed:

Annex #

Standard for Annual Catch Data

Annual catch summaries should list all species/groups caught in the SPRFMO Area during the Calendar year.

For a calendar year, and for each distinct combination of Sea Type, FAO statistical area, and FAO species/ group name (for that calendar year), provide the following data:

- a) Calendar year
 - b) Sea Type (either 'HS' – High Seas - or 'EEZ' – Exclusive Economic Zone)
 - c) FAO Statistical Area (*e.g.* FAO87)
 - d) Species/ group name (*e.g.* orange roughy)
 - e) Species/ group code (FAO 3-alpha code³, *e.g.* ORY)
 - f) Annual catch total – tonnes (provided as nominal, i.e. 'live' catch weight)
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³ www.fao.org/fi/statist/fisoft/asfis/asfis.asp

In order to clarify how these data should be submitted, a Standard Data Submission template for voluntary submission of annual catch data to the Interim Secretariat is also proposed:

Calendar Year	Species/ Group	FAO Species/ Group Code (3-alpha code)	Sea Type: High Seas only (HS) or EEZ only (EEZ)	FAO Statistical Area	Annual Catch Total - tonnes (provided as nominal, i.e. 'live' catch weight)

Example:

Calendar Year	Species/ Group	FAO Species/ Group Code (3-alpha code)	Sea Type: High Seas only (HS) or EEZ only (EEZ)	FAO Statistical Area	Annual Catch Total - tonnes (provided as nominal, i.e. 'live' catch weight)
2009	Chilean jack mackerel	CJM	HS	81	23512
2009	Chilean jack mackerel	CJM	HS	87	10000
2009	Chilean jack mackerel	CJM	EEZ	87	34654
2009	Chub mackerel	MAS	HS	87	6300
2009	Chub mackerel	MAS	EEZ	87	12009
2009	Squids - general	SQU	HS	81	201

5. Associated Changes to the Data Standards

If a Standard for Annual Catch Data is agreed, and if it is also agreed that this new standard should be added to the existing Data Standards, then it would need to be inserted as a new Annex, potentially as Annex 1 or 7 (or any other agreed number). The existing Annexes may need to be re-numbered.

In addition, if a Standard for Annual Catch Data is agreed, then a corresponding amendment to page 1 of the existing Data Standards should also be considered. The following text is a proposal for such an amendment:

1. Data on fishing activities and the impacts of fishing

Participants are to develop, implement and improve systems to:

(a) Ensure that for each calendar year, Participants collate annual nominal ('live') catch weight totals for all species/ species groups caught during that year, and that these are collated as described in Annex [insert appropriate Annex #];

(ba) Ensure that data on fishing activities are collected from vessels according to the operational characteristics of each fishing method.

(i) For trawling methods, Participants are to collect the data described in annex 1;

- (ii) For purse seining methods, Participants are to collect the data described in annex 2;
- (iii) For bottom long lining, methods Participants are to collect the data described in annex 3;
- (iv) For squid jigging, Participants are to collect the data described in Annex 4.
- (v) For potting methods, Participants are to collect the data described in Annex 5.
- (vi) For drop/ dahn lining methods, Participants are to collect the data described in Annex 6.

(~~cb~~) Ensure that data to assess the impacts of fishing on non-target and associated or dependant species are collected from vessels.

(~~de~~) Compile data on fishing activities and the impacts of fishing and provide these in a timely manner to the interim Secretariat of the proposed South Pacific Regional Fisheries Management Organisation (SPRFMO). Such data are to be provided in sufficient detail to facilitate effective stock assessment. Participants will provide by the 30th June, their previous (January to December) year's data on fishing activities and the impacts of fishing.

APPENDIX 1**Template for compilation of historical catch and effort data
(02 May 2007)**

Participants are to collate pre-2007 data on fishing activities in the Area and provide these to the Interim Secretariat of the proposed SPRFMO by 30th September 2007 in sufficient detail to facilitate effective stock assessment.

The fields of data to be provided are as follows:

Standard for historical trawl fishing activity data in the proposed Convention Area

As a minimum	Preferably	If practical
Number of vessels fishing	Vessel call sign	The fields described in Annex 1 of the <i>SPRFMO Standards for the collection, reporting, verification and exchange of data (25 April 2007)</i>
Calendar year	Calendar year and Month	
FAO statistical area	5 degree by 5 degree grid; separating inside areas of national jurisdiction and high seas	
Catch retained by species in live weight	Catch by species by above strata in live weight	
Total vessel days fished, if available	Number of bottom trawls made in month; number of mid-water trawls made in month	

Standard for historical purse seine fishing activity data in the proposed Convention Area

As a minimum	Preferably	If practical
Number of vessels fishing	Vessel call sign	The fields described in Annex 2 of the <i>SPRFMO Standards for the collection, reporting, verification and exchange of data (25 April 2007)</i>
Calendar year	Calendar year and Month	
FAO statistical area	5 degree by 5 degree grid; separating inside areas of national jurisdiction and high seas	
Catch retained by species in live weight	Catch by species by species by above strata in live weight	
Total vessel days fished, if available	Number of purses set in month	

Standard for historical bottom long lining fishing activity data in the proposed Convention Area

As a minimum	Preferably	If practical
Number of vessels fishing	Vessel call sign	The fields described in Annex 3 of the <i>SPRFMO Standards for the collection, reporting, verification and exchange of data (25 April 2007)</i>
Calendar year	Calendar year and Month	
FAO statistical area	5 degree by 5 degree grid; separating inside areas of national jurisdiction and high seas	
Catch retained by species in live weight	Catch by species by above strata in live weight	
Total vessel days fished, if available	Number of hooks deployed in month	

Data will be provided in accordance with the specifications and format described in Annex 5 of the *SPRFMO Standards for the collection, reporting, verification and exchange of data (25 April 2007)*.

Historic data submissions should be accompanied by metadata describing the data sources for each data set and providing some information on the precision and reliability of each data set.

APPENDIX 2**Table 14: Methods used into the estimation of catches, effort, crafts and size data for IOTC fisheries⁴ (see nos. 1-14)**

	IOTC Code	Estimation Method
1.	RCNO	Retained catches not estimated (reported landings not verified by government staff)
2.	RCTE	Total enumeration of retained catches (no estimation required; landings monitored through/verified by government staff)
3.	RCLG	Retained catches estimated by raising the amounts recorded in the vessel logbooks to the total catches unloaded / transshipped for the trip (or alternative time-area strata)
4.	RCLS	Retained catches estimated by raising the amounts resulting from adjusting the species composition in the logbooks by using the size samples available to the total catches unloaded / transshipped for each trip (or alternative time-area strata)
5.	RCSB	Retained catches not available; RC estimated by using the retained catches available from other years (substitution scheme)
6.	RCES	Retained catches estimated by multiplying average CPUE values obtained through a sample survey (at the landing place) by the total effort recorded in each time-area stratum (total enumeration of effort in time and space; sampling of catches in time and/or space)
7.	RCSS	Retained catches estimated by multiplying average CPUE values obtained through a sample survey (at the landing place) by the total effort estimated for each time-area stratum (sampling of effort in time and/or space; sampling of catches in time and/or space)
8.	DINO	Discard levels not estimated (reported discards not verified by government staff)
9.	DITE	Total enumeration of discards (no estimation required; discards monitored through /verified by observers)

⁴ Guidelines for the reporting of fisheries statistics to the IOTC, IOTC Secretariat;

<http://www.iotc.org/Common/dataforms/Guidelines%20Data%20Reporting%20IOTC%5BE%5D.pdf>

	IOTC Code	Estimation Method
10.	DILG	Discard levels estimated by multiplying average DPUE values obtained from the data reported (not verified by government staff) by the total effort recorded in each time-area stratum (total enumeration of effort)
11.	DILS	Discard levels estimated by multiplying average DPUE values obtained from the data reported (not verified by government staff) by the total effort estimated for each time-area stratum (sampling of effort in time and/or space)
12.	DISB	Discard levels not available; DI estimated by using the discards available from other years (substitution scheme)
13.	DIES	Discard levels estimated by multiplying average DPUE values obtained through a sample survey (at-sea) by the total effort recorded in each time-area stratum (total enumeration of effort in time and space; sampling of discards in time and/or space)
14.	DISS	Discard levels estimated by multiplying average DPUE values obtained through a sample survey (at-sea) by the total effort estimated for each time-area stratum (sampling of effort in time and/or space; sampling of discards in time and/or space)
15.	FCNO	Number of fishing crafts active not estimated (total number of crafts registered for the year used)
16.	FCTE	Total enumeration of fishing crafts operated (no estimation required; number of fishing crafts operated monitored through /verified by government staff)
17.	FCOR	Number of active fishing crafts estimated by multiplying the proportion that the number of fishing crafts operated make out of the total number of crafts registered for the period, obtained through sampling, by the total amount of fishing craft registered for that same period (sampling of number of fishing crafts operated in time and/or space)
18.	FCSS	Number of active fishing crafts estimated by multiplying the average number of fishing crafts operated by time-area stratum, obtained through a sampling survey, by the total number of strata operated (sampling of number of fishing crafts operated in time and/or space)

	IOTC Code	Estimation Method
19.	FCSB	Number of active fishing crafts not available; FC estimated by using the number of crafts available from other years (substitution scheme)
20.	CENO	Catch-and-effort not estimated (reported catch-and-effort not verified by government staff)
21.	CETE	Total enumeration of catch-and-effort (no estimation required; catch-and-effort monitored through/verified by government staff (e.g. observers))
22.	CELS	Catch-and-effort by species adjusted by using the size samples available for each trip (or alternative time-area strata)
23.	CESB	Catch-and-effort not available for the stratum; CE estimated by using the catch-and-effort available in neighboring time-area strata (substitution scheme)
24.	CEES	Catch-and-effort estimated by multiplying average CPUE values obtained through a sample survey (at the landing place) by the total effort recorded in each time-area stratum (total enumeration of effort in time and space; sampling of catches in time and/or space)
25.	CESS	Catch-and-effort estimated by multiplying average CPUE values obtained through a sample survey (at the landing place) by the total effort estimated for each time-area stratum (sampling of effort in time and/or space; sampling of catches in time and/or space)
26.	SFNO	Length / weight frequency data not verified (fish lengths/weights reported by the fishing sector not verified by government staff)
27.	SFTE	Total enumeration of individual fish lengths /weights (no estimation required; fish lengths / weights monitored through/verified by government staff)
28.	SFSP	Length / weight frequency samples not processed (original samples collected by government staff or scientific observers)

	IOTC Code	Estimation Method
29.	SFPR	Length / weight frequency samples raised to represent the catches in the sampling unit (e.g. the fish compartment, the fishing vessel, etc.)
30.	SFRS	Length / weight frequency samples raised to represent the total catches in the stratum (catch-at-size)