



CCSBT-ESC0309/08

6.1. Characterisation of SBT Catch ミナミマグロ漁獲量の評価

Purpose 目的

To review progress made with work on characterisation of the SBT catch and to advise on any additional catch characterisation work that should be conducted.
ミナミマグロ漁獲量評価について行われている業務の進捗についてレビューするとともに、行われるべき追加的な漁獲評価について助言する。

Background 背景

This paper summarises the current status of the catch characterisation work in five sections, these being:

本資料は現在行われている漁獲評価の状況を5つに要約しており、それらは、

- (1) Catch characterisation data collection systems
漁獲評価データ収集システム
- (2) Catch reporting standards
漁獲報告基準
- (3) Catch reporting by members
加盟国による漁獲報告
- (4) Catch reporting by non-members
非加盟国による漁獲報告
- (5) Enhancement of the Trade Information Scheme
貿易情報スキームの増強

(1) Catch characterisation data collection systems

At the seventh meeting of the Scientific Committee (SC7), it was reported that overall, members were collecting most of the crucial catch characterisation information specified in the Scientific Research Program. Some deficiencies in member's data collection systems had been identified and a working group prepared a report on these deficiencies together with recommendations for each member in relation to those deficiencies. The recommendations for improvements made by the working group are provided in Attachment A.

第7回科学委員会（SC7）において、全般的に、加盟国は、科学調査計画の中で指定された重要な漁獲評価に関する情報をほとんど収集していたことが報告された。加盟国のデータ収集システムの中にはいくつかの不足事項があることが認識されており、作業グループにおいて、これらの不足事項及び各加盟国の不足事項に対する勧告を一緒にして報告書とした。改善のため作業グループによって行われた勧告は別添Aに掲載。

It is appropriate for the Scientific Committee to review how members are progressing with their consideration and/or implementation of the working group's recommendations.

Australia has provided a brief update on its situation with implementing the recommendation relating to Australia¹, but the situation for Taiwan, New Zealand and Korea has yet to be updated. The working group made no recommendations in relation to Japan's data collection systems.

科学委員会において加盟国はどのように作業グループの勧告を考慮・実行したかレビューするべきである。オーストラリアは自国に關係する勧告について実行した簡潔な最新情報を提供している。一方、台湾、ニュージーランド及び韓国は最新情報をまだ提供していない。作業グループは日本のデータ収集システムについては勧告を行っていない。

(2) Catch reporting standards

At SC7, catch reporting standards were discussed in relation to the agenda item for the development of the CCSBT database. However, catch reporting is probably better discussed in relation to catch characterisation.

SC7では、議題項目のCCSBTデータベースの開発のところで漁獲報告の基準について議論したが、おそらく漁獲評価に関するところで行った方がよい議論ができるであろう。

There was general agreement at SC7 on most fields of catch reporting information that were specified as being required in the Secretariat's proposal on development of the CCSBT central database. Some minor amendments to the proposal were required. These were made and circulated to members on 1 November 2002 along with some templates designed to simplify the description of the data requirements. These templates are provided as Attachments B and C to CCSBT-ESC/0309/16.

SC7において、漁獲報告の情報におけるたいていの事項は事務局中央データベースの開発に関する提案で要求されるように指定されることが合意された。また、提案に対してはいくつかの小さな修正が要求された。これらは、データの必要条件の記述を単純化するためデザインされたいくつかの雛形であり、2002年11月1日に作成され加盟国に回章された。これら雛形は別添B及びCとしてCCSBT-ESC/0309/16に掲載されている。

There were four unresolved issues on catch reporting standards following SC7. These four issues were discussed during the intercessional period and the conclusions from these discussions are summarised below.

SC7以降、漁獲報告基準に関し解決されていない問題点は4つあった。これら4つの問題点は閉会期間中に議論され、その結果の概要は以下の通り。

Issue (問題点)	Conclusions (結果)
Provision of raised catch and effort data 引延し漁獲努力量データの提出	Catch and effort data does not need to be provided in raised form (i.e. does not need to be raised to equal the total catch). However, in cases where the catch effort data is not provided in a raised form, then the member should either provide: 漁獲努力量を引延しした形で提出する必要はない。(すなわち総漁獲量と同じように引延しする必要はない)。しかし漁獲努力量が引延しさ

¹ Australia's update: "Australia has taken measures expected to increase the already high accuracy of at-sea estimates of total weight in tow relative to in-port counts for quota purposes. These measures include a requirement for operators to explain any at-sea estimates that significantly differ from the final tow weight recorded in port. No system has been implemented to make live counts at sea but AFMA is considering options to do this in the longer term."

オーストラリアの最新版：オーストラリアはクォータ集計のための港内でおこなっている計算と比較して、洋上における曳航時に総重量推計を高い精度で増加させる手段をすでにとっている。これらの方法は、操業者に対し最終的に港内で記録される総重量と洋上における推計がはっきりと異なることの説明を求めている。洋上における生きた魚の集計は今まで実施されていないが、AFFAは長期展望の中で本件の実施を考慮している。

	<p>れた様式で提出されない場合、加盟国は以下のどちらか一方を提出しなければならない。</p> <ul style="list-style-type: none"> • supplemental information with raised catches by month, gear and location; or 月別、漁業種類別及び水域別の引延し漁獲量と補足情報、又は • the necessary rules for the Secretariat to calculate raised catches for these strata from other data provided by the member. 加盟国によって提供されるデータを元にこれら階層ごとの引延し漁獲量を計算するための方法を事務局に示す。
<p>What size data should be provided from parties who cannot provide raised catch at size data? サイズデータにおける引延し漁獲量を提出できない加盟国はどのサイズデータを提出すべきか。</p>	<p>Raw size data (i.e. the actual length and/or weight measurements of individual fish) should be provided. These data should be provided for the same strata as required for the raised catch at size data. 生のサイズデータ（すなわち実際に一魚ごとに測定した体長及び体重データ）が提出されるべき。これらのデータは、サイズデータにおける引延しのため要求される同じ階層に提供されるべきである。</p>
<p>Provision of catch data for species other than SBT SBT 以外の漁獲データの提出</p>	<p>Provision of catch data for species other than SBT is optional unless decided otherwise at a later date. 後日他の方法で決定されない限り、SBT 以外の漁獲データの提出は任意である。</p>
<p>Required data resolution 必修データ決議</p>	<p>The resolution of data provided should not be coarser than 5x5 degrees. Provision of finer resolution data is optional unless decided otherwise at a later date. データ条件の決議は 5 × 5 以上粗くないことである。後日他の方法で決定されない限り、より細かいデータ提出は任意である。</p>

(3) Catch reporting by members

All members have now provided current and historical catch and effort data, size data and catch by fleet data. Attachment B provides a summary of the type of data provided by each member and Attachment C compares the compliance of the data provided with the fields of information that are required to be provided.

全ての加盟国が現在及び歴史的漁獲努力量データ、サイズデータ及び船団ごとの漁獲量データを提出している。別添 B は各加盟国より提出されているデータの種類の概要を、別添 C は、要求され提出される項目ごとの情報データの遵守の比較を示す。

Examination of Attachments B and C suggest that there are four main areas where further work on data provision by one or more members is required:

別添 B 及び C より、一つまたはそれ以上の加盟国から、主に 4 つの分野においてさらに情報を提供する必要が示唆される。

(i) Correct the main errors in historical data 歴史的データの主要エラーを修正する

Errors (or unlikely values) were detected in most of the historical data sets when loading these data to the database. The existence of errors in such data sets is extremely common. However, some members do not want their historical data to be used until the main errors have been corrected. Therefore, these data need to be corrected to a level where those members are willing for their historical data to be used.

ほとんどの歴史的なデータのセットにおいて、これらデータをデータベースに書き込むときに、エラー（あるいはありそうもない値）が検知された。このようなデータのセットにエラーが存在することは非常に一般的である。しかし、いくつかの加盟国はその歴史的データの主なエラーが修正されるまでそのデータの使用を望まない。従って、これら加盟国が使用してもかまわないあるレベルまでこれらデータを修正する必要がある。

- (ii) Provide the required fields of information

情報の必修項目を提出する

Some of the data being provided (particularly the catch effort data) only contain a subset of the required fields of information. In those cases where the required information is being collected, members should work towards providing this information to the CCSBT.

いくつかの提出されているデータの中には（特に漁獲努力量データ）、必修情報のうち一部の情報のみしか提供されていない場合がある。必要な情報が収集されているときに、加盟国はCCSBTに対しこの情報を提供するように努力すべきである。

- (iii) Provide the remainder of the historical time series where this has not been fully provided

歴史的時系列のデータが全て提出させていない場合は、残りのそれを提出する

- (iv) Provision of raised catch information (or a set of rules for calculating raised catches) in cases where raised catch and effort information is not provided.

引延し漁獲努力量が提出されていない場合は、引延した漁獲量を提出する（又は、1セットの引延しを計算する方法）

(4) Catch reporting by non-members

CCSBT members have made considerable efforts to improve the reporting of Indonesia's SBT catch. The combination of Indonesia's estimated catch, the catch of CCSBT members and the catch of the Philippines² accounts for 98.7% of the catch reported in the global catch table. However, the Secretariat has little information on the current catch of non-members who are not exporting SBT to CCSBT to member countries. The Secretariat intends to contact relevant non-member countries following CCSBT10 in an attempt to update the information on SBT catch of non-member countries.

CCSBT加盟国はインドネシアのSBT漁獲報告を改善するため、相当な努力をしている。インドネシアの推定漁獲、加盟国漁獲量及びフィリピンの漁獲をあわせると報告されている全世界漁獲量の98.7%を占めることになる。事務局は、非加盟国のSBT漁獲量を最新化することを試みるという意味で、CCSBT10の後、関係する非加盟国と連絡をとるつもりでいる。

(5) Enhancement of the Trade Information Scheme

The CCSBT Trade Information Scheme (TIS) has not been considered in recent catch characterisation discussions by the Scientific Committee. However, it is worth noting that CCSBT9 took some decisions that will improve the accuracy of the TIS scheme and may make the scheme a more useful source of catch characterisation information in the future.

² The Philippines has been reporting its catch since 1999.

フィリピンは1999年からその漁獲報告を行っている。

The most relevant decisions at CCSBT9 were that members should submit TIS documents with all their SBT exports (not just exports to members) and that exporting members should submit a list of all TIS documents issued to the Executive Secretary. These changes mean that all SBT exports of members should now be reported to the TIS scheme. The changes also enable reconciliation of the data to be conducted between exporters and importing members. Complete reconciliations are now being conducted on a six monthly basis.

CCSBT 貿易情報スキーム (TIS) は、近年の科学委員会における漁獲量評価の議論を考慮していない。一方、CCSBT9において今後 TIS スキームの精度を改善し、かつスキームを漁獲評価情報のより有効な情報源にするためいくつかの決定を行ったことは注目に値する。また、加盟国が全ての SBT 輸出の TIS を提出しなければならないこと (加盟国に輸出するだけでなく)、さらに輸出国は輸出 T I S の全てのリストを事務局長に提出しなければならない決定はもっとも妥当なものである。これらの変更は、加盟国の SBT 輸出品の全てが、現在 TIS スキームに報告されなければならないことを意味している。この変更は、輸出入国間でデータを調整することも可能にした。データの完全な調整は現在 6 ヶ月ごとに行われている。

To seek improved TIS data coverage from non-members, the Secretariat has recently contacted the current known non-member exporters of SBT (Indonesia, the Seychelles, and the Philippines) asking them to follow the lead of CCSBT members by issuing TIS documents for all SBT exports and by reporting this information to the Executive Secretary³. The Secretariat is also starting to seek the cooperation of non-members in requiring (and forwarding) TIS documents for any SBT that they import. The first country that the Secretariat has contacted in this regard is the U.S.A.

非加盟国の TIS データを改善するため、事務局は、最近、現在分かっている非加盟国の SBT 輸出業者 (インドネシア、セイシェルおよびフィリピン) に連絡をとり、加盟国が行っている全ての SBT 輸出品に対する TIS スキームに習うこと、またその情報を事務局長に報告するよう依頼した。事務局は、さらに、非加盟国が輸入する SBT についての TIS ドキュメントの提出 (または、転送) を非加盟国に求め始めている。事務局がこの点に関して連絡をとった最初の国はアメリカ合衆国である。

Prepared by the Secretariat
事務局作成資料

³ The Secretariat is also seeking the cooperation of these non-members in correcting some of the problems in the completion of their TIS documents

事務局はまた、非加盟国の TIS ドキュメントの調査時にいくつかの問題を修正する際には、これら非加盟国の協力を求めている。

**Recommendations for improvements in catch characterization data collection systems
(from the report of the catch characterisation working group at SC7)**

(1) Data items that are not being collected

This table lists items of data that the catch characterization working group recommended should be collected.

Member	Fishing Method	Item that is not collected (bold) <i>The Member's comment/explanation (italics)</i>	Comments and Recommendation from the catch characterization working group at SC7
Australia	PS	The number of SBT per shot (and other species) is not recorded. <i>As the fish are not landed aboard the vessel but rather left in the water alive it is very difficult to collect this data with any accuracy during the catching operation. It is conceivable that systems could be developed to monitor the number of fish during the transfer from the purse seine to the tow cage but this does not appear warranted.</i>	Both the number and weight of SBT should be recorded. It was recommended that work should continue on development of a technique to count the number of fish during transfer to tow cages. Australia also noted that it currently counts every fish, but on transfer from tow cages to farms, not on a per shot basis.
Korea	LL	Position of set and haul is not recorded. <i>We collect a noon position of the vessel because Korean longliners set hooks extending over 100km up to 150km (similar to Japanese longliners).</i>	This information is valuable to collect and should be collected if possible.
Korea	LL	Date and time of set and haul is not recorded. <i>We do not collect date and time of set & haul. Only the noon position of the vessel is collected</i>	This information is valuable to collect and should be collected if possible.
New Zealand	LL	Position of haul is not recorded. <i>The position of haul is not recorded because it was considered to add little additional information over position of set. Other items of information were considered to be a higher priority</i>	It has yet to be verified whether the position of haul is specified on the recently introduced NZ catch effort form. This information is valuable to collect and should be collected if possible.
New Zealand	LL	Collection of individual weights with catch effort data will cease. <i>With new form (due to be implemented from 01/10/02) this will NOT be collected anymore, instead average weight (total weight by number of fish). Observers will continue to collect full biological data.</i>	Japan was disappointed with this change because coverage of the non-chartered fleet by observers is low (~5%) and the individual weight data was an important source of size frequency data for this fleet ⁴ . New Zealand was encouraged to develop alternative programs for collecting size data from the non-chartered fleet.
Taiwan	LL	Position of haul is not recorded	This information is valuable to collect and should be collected if possible. Taiwan will consider whether it is able to collect this information, but has advised that this may not be easy.

⁴ New Zealand explained that it consulted with Australia and Japan before making this change. The information was removed in part because quality of the data from the domestic fleet was regarded as poor. Generally domestic vessels cannot weigh fish at sea and only record estimated weights. In addition, domestic fishers were including other species weights and this was further reducing data quality.

Member	Fishing Method	Item that is not collected (bold) <i>The Member's comment/explanation (italics)</i>	Comments and Recommendation from the catch characterization working group at SC7
Taiwan	LL	Time of set and Date/time of haul is not recorded. <i>Taiwan has collected noon time position data.</i>	This information is valuable to collect and should be collected if possible. Taiwan will consider whether it is able to collect this information, but has advised that this may not be easy.

(2) Data that is being collected, but with a low sample size

This table lists items of data where the catch characterization working group has recommended improved coverage.

Member	Item with low sample size (bold) <i>The Member's comment/explanation (italics)</i>	Comments and Recommendation from the catch characterization working group at SC7
Korea	Small samples sizes of biological data (length, weight, sex etc.) are collected for SBT. <i>Fishermen are supposed to report these data but with practical difficulties length and/or weight data only have been reported by some vessels.</i>	The working group encouraged improved collection programs to obtain an adequate coverage of size data.
Taiwan	Small samples sizes of biological data (length, weight, sex etc.) are collected for SBT.	The working group encouraged improved collection programs to obtain an adequate coverage of size data.

Summary of the types of data that have been provided for the CCSBT database

Summaries of the types of catch effort and size data provided by members are shown in tables 1 and 2 below.

Table 1: Summary of the type of Catch Effort Data provided

This table summarises the type of catch and effort data that has been provided for the CCSBT database. Please read the footnotes for additional explanation of some of the information in this table. Also note that information in this table refers to the majority of the data provided by a member (not necessarily all the data). For example, the spatial precision of New Zealand's data is recorded as "Minute". This is true for the vast majority of New Zealand's data, but there is a small subset of the data in which the resolution is to the statistical area level.

	Australia	Taiwan	Japan	New Zealand	Korea
First year of data provided.	2001 ⁵	1981	1969	1989	1991
Awaits error correction by Member before historical data is to be used (Y/N).	N	N	Y	Y	N
Type of Raising (R=catch effort data is raised, F=data is not raised, but the Secretariat has been informed how to raise the data, D=a separate raised catch dataset has been provided).	Nil ⁶	R	R	F	F
Gear types in the data (the gear codes listed here are those defined for the TIS with the exception of 'ML' which stands for 'Minor Line').	BB, HAND, LL, ML, PS, RR, TROL	LL	LL	HAND, LL, TROL	LL
Aggregated (A) or Shot by Shot (SS)	A	A	A	SS - LL A - Others	A
Catches of species other than SBT is provided (Y/N).	Y	Y ⁷	N	Y	N
Spatial precision of data.	5*5 - LL 1*1 - Others	5*5	5*5	Minute	5*5
Temporal precision of data (M=month, D=day, MI=minute).	M	M	M	MI - LL D - Others	M

⁵ Australia has provided detailed shot by shot data for 1975 to 2002. However, due to the complexity of these data and difficulties in interpreting these data correctly, Australia has requested that these shot by shot data not be used. Instead, Australia will provide a time series of aggregated data. Australia has also advised that the historic aggregated catch and effort data from 1972 will be provided to the Secretariat prior to CCSBT10.

⁶ Australia has advised that it will be providing a separate raised catch dataset. This dataset will commence in 1988 (at worst) or 1984 (at best) and Australia hopes to be able to provide this data for most years before the CCSBT10 meeting.

⁷ However, catch of species other than SBT is not available when the most recent year of data is first provided to the CCSBT.

Table 2: Summary of the type of Size Data provided

This table summarises the type of size data that has been provided for the CCSBT database. Please read the footnotes for additional explanation of some of the information in this table.

	Australia⁸	Taiwan	Japan	New Zealand⁹	Korea
First year of data provided.	1951	1993	1969	1979 - <i>com</i> 1987 - <i>obs</i>	1991
Type of data provided (RL=raised catch at length, IL=individual length data, IW= individual weight data, ILW=individual length and weight data)	RL	IL	RL	IW - <i>com</i> IL - <i>obs</i>	ILW
Number of measurements obtained for 2002 (not shown for the raised data sets)	-	32,248 ¹⁰	-	4,826 - <i>com</i> 2,996 - <i>obs</i>	414
Gear types in the data.	<u>LL, PS</u>	LL	LL	LL	LL
Spatial precision of data.	<u>5*5 - LL</u> <u>1*1 - PS</u>	5*5	5*5	Minute	Minute
Temporal precision of data (M=Month, D=Day).	<u>M</u>	M	M	D	M

⁸ The underlined information shown for Australia relates to the size data provided for 2002. For earlier years, the spatial and temporal resolution was State and half month respectively and there was no breakdown by gear type.

⁹ “com” refers to weight measurements by commercial fishers, “obs” refers to length measurements by scientific observers.

¹⁰ This is close to Taiwan’s total SBT catch, so it is possible that this may be raised data. Confirmation from Taiwan is required.

**Comparisons of data items provided by members
against data items that are required to be provided**

Comparisons of the data items provided by members against the required data items have been provided for the three main data sets, these being:

- (1) Catch and effort data
- (2) Size data
- (3) Total catch by fleet data

Table 1: Comparisons for catch and effort data

The table below lists the required fields of catch and effort information and whether or not members have provided the required information¹¹. For simplicity, this table has been restricted to the major SBT fishing gears (LL and PS) and the results shown are for recent years of data. It should be noted that despite being labelled as required fields, it is accepted that there are cases where the information cannot be provided because it has not been collected.

Required Fields	Australia	Taiwan	Japan	New Zealand	Korea
Longline and Purse Seine					
Year	√	√	√	√	√
Month	√	√	√	√	√
Country	√	√	√	√	√
Fleet	√	√	√	√	√
Gear	√	√	√	√	√
Target species	×	×	×	√	×
SBT Statistical area	√	√	√	√	√
Latitude	√	√	√	√	√
Longitude	√	√	√	√	√
Number of boats	√	×	√	√	×
Number of days fished	√	×	√	√	×
Number of Sets/Shots	√	×	√	√	×
Catch species	√	√	√	√	√
Weight retained	√	√	×	√	√
Number retained	√ - LL ×	√	√	√	√
Number discarded	√	×	×	×	×
Conversion factor ¹²	×	×	√	√	×
Scaling factor ¹³	√	√	√	√	√
Longline specific					
Number of hooks	√	√	√	√	√
Number of baskets	×	×	√	√	×
Purse Seine Specific					
Gear length	√	-	-	-	-
Gear depth	×	-	-	-	-
Spotter type	×	-	-	-	-

¹¹ In cases where the required information has not been physically provided in the data, but the Secretariat was able to infer the required information, then the information is marked as having been provided. For example, the SBT statistical area can be calculated from the latitude and longitude.

¹² Conversion factors are only relevant where weights originate from processed fish.

¹³ Scaling factors are only relevant where the catch is estimated from a sub sample of fish. Where this has not been explicitly provided, the scaling factor is assumed to be one (no scaling).

Table 2: Comparisons for size data

The table below lists the required fields of size information and whether or not members have provided the required information¹⁴.

Required Fields	Australia	Taiwan	Japan	New Zealand ¹⁵	Korea
Year	√	√	√	√	√
Month	√	√	√	√	√
Country	√	√	√	√	√
Fleet	√	√	√	√	√
Gear	√	√	√	√	√
SBT Statistical area	√	√	√	√	√
Latitude	√	√	√	√	√
Longitude	√	√	√	√	√
Length Class	√	√	√	√ - <i>obs</i>	√
Weight	-	-	-	√ - <i>com</i>	√
Class Size	√	√	√	-	-
Raw frequency ¹⁶	× - <i>LL</i> √ - <i>PS</i>	√	√	√	√
Raw converted frequency	×	×	√	√	√
Adjusted frequency ¹⁷	√	-	√	-	-
Substitution code ¹⁸	×	-	√	-	-

Table 3: Comparisons for total catch by fleet data

The table below lists the required fields of total catch by fleet information and whether or not members have provided the required information¹⁹.

Required Fields	Australia ²⁰	Taiwan	Japan	New Zealand ²¹	Korea ²²
Data by Calendar Year					
Year	√	√	√	√	√
Fleet	√	√	√	√	√
Gear	√	√	√	√	√
Number of boats	×	×	×	×	√
Weight of SBT Caught	√	√	√	√	√
Number of SBT Caught	√	×	×	×	√
Data by Quota Year					
Year	√	√	√	√	√
Fleet	√	√	√	√	√
Gear	√	√	√	√	√
Number of boats	×	×	√	×	√
Weight of SBT Caught	√	√	√	√	√
Number of SBT Caught	√	×	×	×	×

¹⁴ In cases where the required information has not been physically provided in the data, but the Secretariat was able to infer the required information, then the information is marked as having been provided.

¹⁵ “com” refers to weight measurements by commercial fishers, “obs” refers to length measurements by scientific observers.

¹⁶ There is some confusion over the meaning of this field for raised data. It was intended that this field would always contain the actual number of fish measured in a strata. However, for both Japan and Australia, this is often presented as a non-integer number, so something different appears to have been provided by these countries.

¹⁷ Only relevant when the size data is substituted and/or raised.

¹⁸ Only relevant when the size data is substituted and/or raised.

¹⁹ In cases where the required information has not been physically provided in the data, but the Secretariat was able to infer the required information, then the information is marked as having been provided.

²⁰ Gear for Australia is reported as longline or surface fishing.

²¹ For New Zealand, the total number of boats can be estimated from New Zealand’s catch and effort data because that data includes unique vessel identifiers. An estimate of the total catch in numbers has been provided by New Zealand for years prior to 2002, but that total is not subdivided by gear and fleet.

²² The number of boats and the number of SBT are usually provided by Korea for each calendar year. However, this has yet to be provided for 2002.