Annex 11

REPORT OF THE STATISTICS WORKING GROUP WORKSHOP

International Scientific Committee for Tuna and Tuna-like Species
in the North Pacific Ocean

12-13 July 2009
Kaohsiung, Taiwan

1.0. OPENING OF THE MEETING

Gary Sakagawa, ISC Chair, opened the meeting at 9:00am on July 12, 2009, and welcomed delegates to the 8th meeting of the STATWG. Delegates from Canada, Chinese-Taipei, Korea, Japan, and the United States and observers from the WCPFC Secretariat and WCPFC Scientific Committee (SC) were present. The ISC Chair explained that he was opening the meeting because Naozumi Miyabe, former STATWG chair, was recently elected to chair the WCPFC-SC, and the ISC Vice-Chair, who had intended to lead the STATWG was not able to attend. He explained that there would be an election for a new STATWG chair and encouraged electing an individual who is committed to implementing the STATWG terms of reference and making the WG effective.

Shui-Kai Chang from Chinese-Taipei was elected chair and conducted the rest of the meeting.

Participants were asked for comments on the Agenda. The agenda was revised as suggested and the agenda was adopted and distributed.

Sarah Shoffler was appointed rapporteur for the meeting.

A list of documents was tabled and approved by the group.

2.0 REVIEW OF DATA COLLECTED BY PARTICIPANTS AND UPDATED DATA INVENTORY AND DEPOSITORY

2.1 Data Inventory

The Chair introduced document ISC/09/STATWG/01, the Data Inventory from 2004 STATWG Report. He asked that members update this table with the most current information and provide to the rapporteur by 12:00pm of July 12. The ISC chair explained that ISC members should update these tables annually. Table 1 contains Category II metadata and Table 2 contains Category III metadata (biological data) and should be updated at least to 2008. The ISC Chair reminded the WG that these tables are an inventory of data held by ISC members. It does not describe data that the ISC holds.

Creating another table of metadata to replace the many footnotes on the data catalogue (inventory) tables was suggested and agreed upon.

2.2 Data Reporting Protocol

The Chair provided an overview of the data reporting protocol and suggested a change: When members provide Category II and III data to the WG data managers they should also CC the ISC Database Administrator (DA) on the correspondence. Previously, category II and III only were submitted to WG data managers. The group agreed to this proposal.

2.3 Member Performance

It was reported that the following members provided data:

Category I data.
Canada, Chinese-Taipei, Japan, Korea, Mexico all provided data. USA provided the data in the meeting.
China provided data from the entire Pacific and has been asked to provide just North Pacific fisheries data .

Category II data.
Canada, Chinese-Taipei, Japan, Korea all provided data. It was unknown whether Mexico had submitted. USA data are pending.

The STATWG Chair proposed creating a data-reporting report card styled after the IOTC statistics table, which he presented. This would be color coded depending on timeliness (submitted on time, submitted late, not submitted). This report card would be produced annually. The group agreed that this was a good proposal. The Chair will develop this report card with the DA and it will be distributed by the next STATWG meeting.

The group was reminded that the data submission deadline is July 1 of each year for all data and members were requested to follow adopted procedures (referred to in 2008 STATWG report and as amended at this meeting).

3.0 REVIEW OF DATA REQUIREMENTS FOR STOCK ASSESSMENT

Data sets used for stock assessment purposes are managed by the WGs. The goal of this agenda item is to determine if WGs have additional data requirements or needs that the STATWG can assist in fulfilling. In particular, the Chair asked WGs to identify fishery data held by other RFMOs (IATTC, WCPFC) that are needed for stock assessments.

Albacore: The ALBWG has not updated the category “Other country” in the WG catch tables since 2003 because SPC, the DA for WCPFC who holds the data, has not been able to provide an update.

The Category II raising protocol and the need for metadata were discussed. Documentation on the raising procedure is not presently available. It will be discussed later in the agenda (Agenda item 8b) and may be discussed at a one-day meeting next year.

Pacific bluefin tuna: Y.Takeuchi, PBFWG chair, indicated that catch data from outside ISC jurisdiction, specifically the South Pacific, would be useful, because ISC6 noted that "the current consensus of the scientific community is that PBF should be considered as a single stock in the Pacific Ocean." He indicated that this has been difficult to get from WCPFC and has sometimes had to go directly to the member nations themselves to get the data the WG needs. Sport catch is not always reported to WCPFC. ISC needs information that WCPFC has, specifically catch and size information from both commercial and recreational fisheries. It is not clear who should be contacted for the data: WCPFC, SPC or the individual WCPFC members. SPC cannot release data to ISC without WCPFC member country approval. The WCPFC observer advised the chair of PBFWG that WCPFC has "rules and procedures for the protection, access to, dissemination of data compiled by the Commission" which were adopted by the Commission in 2007. So far, WCPFC data have been provided to requestors according to its procedures. The ISC was advised to contact WCPFC Secretariat for any data requests.

Billfishes: G. DiNardo, BILLWG Chair, commented on the data needs of the WG. Spanish LL catch in the Pacific is important to some ISC stocks and assessments and ISC has not been able to acquire the catch and size information needed, specifically for swordfish and marlin. The boundary for swordfish and marlin on the eastern side goes below the equator and the group has tried to get the information from IATTC without success. So BILLWG has resorted to asking individual countries. Spain has agreed to work with ISC in providing data. It was also pointed out that neither Korea nor China have supplied complete data sets. The ISC Chair and the BILLWG Chair are working on getting the data, much of which should be publically available.

The STATWG Chair reminded the group that WGs should contact RFMOs about the data they need; if they do not receive an answer, the STATWG chair will help.

3.1 Standardized Data Catalogue Responsibility

The Chair raised the question of who is responsible for creating and maintaining a standardized data catalogue. It was pointed out that this is the DA's responsibility, however that position is not yet filled and filling the position is critical to fulfilling this ISC need. It was again pointed out that the data inventory/catalogue represents the data that the members hold, not what ISC holds.

It was suggested that the data inventory should also include a table indicating data gaps identified by WGs. It was pointed out that discards of target species are not captured in the data inventory. Discards are not always recorded by fishermen. This should appear in some category II data; it is sometimes requested but is not required for all fisheries. This information is important to assure that total removals are not underestimated. A column will be added in the data catalogue.

While adding a column in the logbook program to indicate discards was proposed and would provide critical information to the stock assessment, it is difficult to record in the field. It was agreed that a column would be added to the data catalogue to determine what fisheries already record this information.

The need for a bycatch data catalogue was also mentioned and is considered to be the responsibility of the Bycatch Working Group to be updated annually before each STATWG meeting.

4.0 REVIEW OF EXPANDING DATABASE

ISC Chair provided an overview of these agenda items.

4.1 Historical fishery data rescue

The PBF assessment has been helped with historical data. The ISC Chair would like to record what improvements and additions have been made to track progress of filling gaps.

It was mentioned that there may be additional historical information from Hawaii state logbooks for key ISC species.

4.2 Archiving of metadata

The ISC data protocol indicates that size-composition data should have notes on sampling procedures and accuracy of measurements (e.g. to cm). A place to capture this information for simple biological data that is submitted is needed. Some metadata are in the data catalogue, but members need to provide the additional detailed. This cataloguing of metadata is critical as ISC personnel change. There is a plan to record this information during a one-day session during the STATWG next year. Members were requested to prepare metadata before the session and John Childers will provide a template based on the ALBWG's metadata table prior to the session. WG chairs and data correspondents will need to be present since they are most familiar with the data.

4.3 Incorporating fishery bycatch (ISC/09/STATWG/04)

A table template entitled, "Annual bycatch (numbers of animals) in fisheries for tuna and tuna-like species caught in the North Pacific Ocean (north of the equator) by the _____fisheries", was presented.

The purpose of the proposed table is to provide information to help determine the magnitude of bycatch issues in the North Pacific Ocean so that the ISC can determine if further investigation is warranted. This will be a first attempt at this effort to see what information is available or what can be provided by members.

Data correspondents were requested to complete and submit the table for their respective HMS fisheries. The DA will then compile the data into a single ISC table with ISC totals. Preliminary guidelines for providing data were agreed upon as follows: Bycatch of sharks should be recorded for those caught in fisheries targeting other HMS (tuna and tuna-like species), not fisheries which target sharks. Information on disposition of bycatch is no needed at this time. It was agreed that members should provide bycatch estimates for commercial pelagic HMS fisheries but not coastal fisheries. The group confirmed that the information should be recorded in numbers of animals. The group discussed including columns for hammerhead shark to the table and a column for unidentified sharks for estimates that do not discriminate between shark species.

It was reiterated that only bycatch caught north of the Equator only should be provided, even for those vessels which fish both north and south of the equator. The Bycatch Working Group will have detailed information on which fisheries fish in both hemispheres.

The group discussed the definition of "bycatch" and a title change to the table was suggested: "Annual encounters (in numbers of animals) with sharks, seabirds, and sea turtles in commercial fisheries for tuna and tuna-like species caught in the North Pacific Ocean (north of the equator) by the _____ fisheries." The WG agreed to the suggested change. The format of the table may need to be reviewed by the Bycatch Working Group.

4.4 Securing complete North Pacific fishery catch data for key stocks (ISC/09/STATWG/03)

The purpose of this table is to record total catch in the North Pacific Ocean for each key ISC stock. The reason for collecting this data from 2005 onward was discussed: While WGs have complete statistics and they could fill out the table for their stocks, this table also lists the totals for other key stocks. Therefore this table gives a profile as to the productivity of the North Pacific would provide an indication if production is decreasing or increasing. The first step is to get the information from the ISC members. The next step is to collect the information from non-ISC members. An additional purpose of this table is to provide information to the public.

The ISC Chair indicated that members should fill out this table and return to STATWG Chair and that totals should match WG totals.

The Chair mentioned that some countries did not provide total catches for all stocks for which they fish. Korea was one of these countries and mentioned that they can provide the information later for: BET, YFT, SKJ, and total for all billfish species combined.

It was mentioned that Mexico did not provide updates for the swordfish fishery data and a message would be sent requesting the information.

This table should be compiled by the DA; however the position is still vacant. The Chair reminded the group of the data submission procedures. It was determined that the data submission process should be reassessed and that data should be submitted to the website and the DA should be notified by email when that is done.

It was noted that Japanese ALB catches in this table are lower than the catches show in the ALBWG catch table. It was mentioned that this is a persistent problem due to having multiple submission streams. Because the ISC has no DA, this is a problem. It was suggested that all data be submitted only to WG data coordinators who then submit to the DA. A standing item on WG agendas could be to report annual catch at Plenary. This might work for the ISC-assessed species, but for those not assessed (without WGs) this will not be a complete solution. This is a problem of not having a DA.

The Chair suggested that WGs add a column for total catch of species by each country. This can then be checked against the data in the ISC database. When WG data coordinators get updates they inform the DA. It was also suggested that the WG data coordinators update the ISC database on regularly scheduled intervals so that the ISC and WG data are in synch.

The Chair also suggested that when members submit data, they can have a total of their catch which can be compared to the WG data. Whether a note that 2008 total catch data are preliminary

should be added to the Table 3 was discussed. Since the current year's estimate is almost always preliminary, this was thought not to be necessary. Preliminary data are always indicated with parentheses. Members will provide this data to the STAWG chair by 27 November 2009.

The differences between the ISC and WG databases were discussed. The WGs have some data which may be confidential and which the ISC may not hold. Member countries may contain even more detailed data.

Regarding a question from the WCPFC observer on the possibility of providing ISC WG data catalogue, the ISC Chair indicated that these requests should be on a case-by-case basis since the ISC does not hold all data. He mentioned that WCPFC should participate in ISC stock assessments. This matter will be covered in a later agenda item.

5.0 ADVANCES IN ELECTRONIC LOGBOOK SYSTEMS

The purpose of this agenda item is to review advances in electric logbook systems in member countries.

Canada: In 2008, 20-30 vessels in the Canadian fleet tested two electronic logbook systems – one developed by DFO and a commercial Australian program. Fishers participating in the program were also required to fill out their paper logbooks as in the past. The DFO program was preferred by users because it was similar to the paper logbook, easy to use, and had few implementation problems on board participating vessels. Fishers testing the commercial Australian system were not satisfied with it because the software was slow, had extraneous (e.g., economic) information which was not useful to Canadian fishers, and there were many implementation problems for which support was not timely. Canada is continuing with the pilot program in 2009, but only with the Canadian system and has expanded the program to other fisheries on the Atlantic coast. The system has been modified to accept and transmit length and bycatch data. The Canadian system requires GPS and either a satellite or cell phone link to transmit daily catch reports via email to the DA. In the future, these catch reports will probably be sent directly to a holding area in the DFO fishery database, for subsequent upload after verification by the data base administrator.

It was asked if the program is meant to be freely available. The program was developed in-house by DFO staff, originally to address needs within the salmon gillnet, troll and seine fisheries, and has been modified by DFO staff for testing by other fisheries. In the long-term, DFO does not have sufficient resources to provide ongoing software support and so would be looking for a suitable third-party partner to provide program support if the software is adopted by the Canadian tuna fleet. A review of the pilot program and subsequent decision to adopt or not adopt this technology have not been made at present. However, the Canadian Highly Migratory Species Foundation, which currently runs the Canadian logbook program, may be the logical party to take over and support the tuna electronic logbook software if the Canadian fleet moves in this direction.

Chinese-Taipei: Chinese-Taipei developed an e-logbook system 12 years ago at the same time as VMS system was developing. There are two fishing fleets who are mandated to transmit daily catch records back to the data center, namely squid jigging fleet and tropical tuna fishing vessels the Atlantic Ocean. In compliance with ICCAT 05-02 resolution, all authorized tropical tuna fishing longliners of Chinese Taipei operating in the Atlantic Ocean have been forced to use the e-logbook system and have been

transmitting their daily catch records since 2006 for individual quota management in a real time manner.

USA: The U.S. West Coast albacore troll and pole-and-line fleet has been using an electronic logbook computer program developed by the National Marine Fisheries Service Southwest Fisheries Science Center for the past 3 years. Less than ten vessels are currently using the program, although it has been well-received by those fishermen that are using it. The system is easier to use than paper logbook forms and has some value-added enhancements that make it appealing to fishermen. The major advantage of using such a program is the data validation that significant increases the quality of the data that is received. The program also eliminates the need for data entry of information from paper logbooks. Another, multi-fisheries electronic logbook program has been developed and is in use in East Coast fisheries of the United States. Both systems are installed on laptop computers; however the East Coast system is pre-installed by NMFS technicians who also install the laptop on vessels and train fishermen how to use it. An Excel template has been developed by the SPC and is currently being used by U.S. purse seiners that operate in the western Pacific Ocean. This Excel workbook also incorporates data validation which increases data quality significantly and reduces the burden of data entry by NMFS staff.

Korea: Korea has a system for distant-water longline and purse seine vessels. It includes spreadsheets which captains fill out a catch log and submit once per week through satellite.

The suggestion was made that simple, inexpensive electronic logbook programs can easily be developed using Excel and Adobe acrobat. With Adobe acrobat, paper forms can be scanned and made into fillable PDF computer files which also allow for implementation of validation rules.

The WCPFC observer asked if catch data from non-member countries which catch ISC key species are included in the stock assessments. It was mentioned that this question was best directed to the respective WG chairs. He indicated that WCPFC is commencing a GEF (Global Environmental Facility) project that covers tuna data from Vietnam, Indonesia and Phillipines and ISC WGs can contact WCPFC for any data needs from these countries.

6.0 REVIEW OF ISC DATA MANAGEMENT FUNCTIONS AND STATWG PERFORMANCE

The Chair provided an overview of the issue of a DA for ISC. The position for a permanent DA for ISC continues to be vacant. A DA position description was to have been finalized by this year (2009). At the 2008 STATWG meeting, some members suggested that if ISC had a permanent DA, there would be no clear need for the STAWG, while other members supported keeping the STATWG. Three tasks were assigned at the 2008 meeting of STATWG: (1) complete the position description for the DA by the end of 2008 and hire the DA; (2) undertake a review of ISC data management functions and of the STATWG performance; and (3) decide of the STATWG should persist.

NRIFSF indicated that a budget and appropriate person to fulfil the position are being sought. Thus the status of the (1) is incomplete. NRIFSF clarified that the NRIFSF in fact has a temporary budget. The WG expressed a concern that the DA status would be the same next year and encouraged the NRIFSF to complete of this task as soon as possible.

The position description for the DA has been completed as scheduled (ISC/09/STATWG/02), however the DA has not yet been secured. And since there is no DA, the Chair determined that it was not necessary to go over items 2 and 3 above.

7.0 MECHANISMS OF DATA EXCHANGE BETWEEN WCPFC AND ISC

The Chair requested that the WCPFC observer introduce the draft proposal prepared by WCPFC Secretariat (ISC/09/STATWG/05) on the incorporation of ISC data into WCPFC holdings.

The WCPFC observer introduced the background of the document. He noted that since tuna species covered by ISC are also those under the auspices of WCPFC's conservation and management mandate, this action was recommended by the Independent Review of WCPFC Commission's Science Structure and Functions. The WCPFC observer commented that although WCPFC-SC has not yet reviewed the Independent Review report, it would be beneficial if the SC could review both the Independent Review recommendations and ISC responses on ISC-related issues in the recommendations. The WCPFC Secretariat draft proposal was a strategy prepared at the request of the WCPFC. The WCPFC observer hoped that the ISC could refine the strategy for consideration by SC5.

The group agreed that since most member countries of the ISC are also members of the WCPFC, the purpose of the proposal should be clarified. The proposal would be better received if it were a strategy for developing a mechanism of data exchange vs. a strategy for data incorporation.

The WCPFC SC Chair mentioned that WCPFC is also considering setting up a peer-review process of ISC and SPC assessments based on the recommendations of the Independent Review report. However, the STATWG noted that the process by which a peer review will be conducted needs to be carefully considered The STATWG noted that this is a topic for ISC9 Plenary.

Because ISC supports cooperation, it was also suggested that consultation on what data ISC holds would be a better approach than data incorporation, if cooperation is the intent.

The STATWG recommends that the Plenary considers the following: ISC should request clarification on details of which data the WCPFC-Secretariat drafted proposal pertains to. In addition, given the WCPFC-Secretariat's better understanding of how ISC operates, the confidential nature of some of its data and the facts that WCPFC already has most of the ISC data and ISC does not have authority to provide the EPO data of some ISC members, the STATWG is of the opinion that there is no need for ISC data to be incorporated into WCPFC holdings.

8.0 FUTURE WORK PLAN

National data correspondents were identified as follows:

- Canada - John Holmes
- China - Dai Xiaojie
- Chinese-Taipei – Shiu-Ling Lin, Zhong-Yo Chen
- IATTC – Alejandro Pérez, Michael Hinton

- Japan - Koji Uosaki
- Korea – Joon-Taek Yoo
- Mexico - Michel Dreyfus, Luis Fleischer
- SPC – Tim Lawson
- United States of America - John Childers.

Working Group data managers are:
ALBWG – John Childers,
BILLWG – Gerard DiNardo,
PBFWG – Kazuhiro Oshima,
BCWG – TBD.

Action items:

1. Following the metadata format for ALBWG, members will prepare their metatdata before a planned a one-day meeting on meta-data at the next STAWG. John Childers will distribute ALBWG metadata table to data correspondents to use as a template also before the planned meeting.
2. Members will fill out the HMS total catch table. Due date: 27 November 2009.
3. The specification of data reporting/submission needs to be evaluated and possibly revised. There will be an item in next year's STATWG on: standardizing/simplifying submission by data correspondents which will in turn make it easier for data correspondents to access data from the database. Childers agreed to work with the Chair to develop this agenda item for next year's STATWG.

Because much of the data standardization and access needs would be fulfilled by the DA, the group iterated that it was critical for the DA position to be filled as soon as possible.

9.0 ADMINISTRATIVE MATTERS

The next meeting will be held prior to ISC10 for 2.5 days at a time and place to be determined.

10.0 ADOPTION OF REPORT

The draft meeting report was made available for review by the STAT WG at 10:00

11.0 ADJOURNMENT

The Chair extended his appreciations to the participants for their efforts to make the meeting a success. The meeting was adjourned at 2:00pm.

Appendix 1

AGENDA

Statistics Working Group Workshop

International Scientific Committee for Tunas and Tuna-like Species
in the North Pacific Ocean

12-14 July 2009
Kaohsiung, Taiwan

1. Opening of STATWG meeting

2. Election of chair and appointment of rapporteurs

3. Adoption of Agenda

4. Tabling of Documents

5. Review of Data Collected by Participants and Updated Data Inventory and Depository

6. Review of Data Reporting Protocol and Member Performance

7. Review of Data Requirements for Stock Assessment and Fishery Monitoring - including a report from the Species Working Groups regarding availability, timeliness and problems with data in conducting their work

8. Review of Expanding Database
   a) Historical fishery data rescue;
   b) Archiving metadata;
   c) Incorporating fishery bycatch data; and
   d) Securing complete N. Pacific fishery catch data for key stocks

9. Advances in Electronic Logbook Systems

10. Review of ISC Data Management Functions and STATWG Performance

11. Mechanism for scientific data exchange between WCPFC and ISC

12. Future Work Plan

13. Conclusion and Recommendations

14. Administrative matters

15. Adoption of Report

16. Adjournment

Appendix 2

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Table 1. ISC member inventory of catch and effort statistics (Category II) for fisheries harvesting tuna and tuna-like species in the North Pacific Ocean. [Updated during the 2009 STATWG meeting by some attending mem bers. NOT COMPLETE]

Year	Country	Gear	Fishery[1]	Method[2]	Coverage[3]	Species[4]	Time Unit	Area Unit	Catch Unit	Effort Unit	Discards (Yes or No)
						Canada					
1999-2008	Canada	Troll	Distant Water	Logbook	≥ 95% (raised to 100%)	ALB	Month	1°x1°	No. of fish	Fishing days	No
						Chinese-Taipei					
1964-2002	Chinese-Taipei	Longline	Distant Water	Logbook	30-50%	ALB, BET, YFT, SWO, MLS, BLZ	Month	5°x5°	No. of fish & tons	hooks	Yes (very incomplete)
1996-2002	Chinese-Taipei	Purse Seine	Distant Water	Logbook	~100%	BET, YFT, SKJ	Month	5°x5°	tons	days	Yes (very incomplete)
2002-2008	Chinese-Taipei	Longline	Distant Water	Observer		ALB, BET, YFT, SWO, MLS, BLZ	Month	5°x5°	No. of fish & tons	hooks	Yes
						Japan					
1980-2008	Japan	Longline	Distant-water and Offshore	Logbook	90% (raised to	PBF, YFT, BET, ALB, SWO, MLS, BLM, SFA, SSP, SKJ	Month	5°x5°	No. of fish	hooks	limited data only
1980-2008	Japan	Purse Seine	Distant-water and Offshore	Logbook	100%	BFT, YFT, BET, SKJ	Month	1°x1°	100kg	Fishing days	limited data only
1980-2007	Japan	Pole-and-Line	Distant-water and Offshore	Logbook	>90%	BFT, YFT, BET, SKJ, ALB	Month	1°x1°	100kg	No. poles	No data
						Korea					
1988-2000	Korea	Longline	Distant Water	Logbook	64%	BET, YFT, ALB, SWO, MLS, BLZ, SKJ, SHK	Month	5°x5°	No. of fish & tons	Hooks	
1980-2000	Korea	Purse Seine	Distant Water	Logbook	74%	SKJ, YFT	Month	1°x1°	tons	Sets	
1998-2001	Korea	Purse Seine	Coastal Water	Logbook	86%	BFT	Month	1°x1°	tons	Sets	
						Mexico [5]					
1980-2002	Mexico	Purse Seine	Offshore	Logbook	100%	YFT, SKJ, BFT, ALB	Month	1°x1°	tons	Fishing days	
1992-2002	Mexico	Purse Seine	Offshore	Observer	100%	YFT, SKJ, BFT, ALB	Month	1°x1°	tons	Fishing days	
2001	Mexico	Longline	Coastal	Logbook	100%	SWO, billfishes	Month	5°x5°	tons	hooks	
2001	Mexico	Longline	Coastal	Observer	30%	SWO	Month	5°x5°	No. of fish & tons	hooks	
1998	Mexico	Drift Gillnet	Coastal	Observer	Unknown	SWO, SHK	Month	5°x5°	No. of fish	Fishing days/sets	
1980-2002	Mexico	Pole-and-Line	Coastal	Logbook	100%	YFT, SKJ	Month	1°x1°	tons	Fishing days	

Table 1 continued.

Year	Country	Gear	Fishery[1]	Method[2]	Coverage[3]	Species[4]	Time Unit	Area Unit	Catch Unit	Effort Unit	Discards (Yes or No)
					USA						
1961-2008	USA	Pole-and-Line	EPO	Logbook	100%	ALB	Month	1°x1°	No. of fish	fishing days	yes
1961-2008	USA	Troll	Distant Water Coastal	Logbook, Obse	100%, <1%	ALB	Month	1°x1°	No. of fish	fishing days	yes
1974-2008	USA	Harpoon	EPO Coastal	Logbook	100%	SWO	Month	1°x1°	No. of fish	fishing days	no
1974-2008	USA	Gillnet	EPO	Logbook, Obse	100%, 18%	SWO , ALV	Month	1°x1°	No. of fish	fishing days	yes
1981-2008	USA (CWP)	Purse Seine	Distant Water	Logbook, Obse	100%, 20%	SKJ, YFT, BET	Month	1°x1°	tons	fishing days	yes
1981-2008	USA (EPO)	Purse Seine	EPO	Logbook	100%	SKJ, YFT, BET	Month	1°x1°	tons	fishing days	yes
? - 2008	USA	Sport	EPO	Logbook	100%	ALB, PBF, YFT	Month	1°x1°	No. of fish	fishing days	yes
1990-2008	USA	Longline	Distant Water	Logbook, Obse	100%, 20%	ALB, BET, MLS, BUM, SWO, YFT	Month	5°x5°	No. of fish	thousands of hook	yes
					IATTC						
~1930-2002	Participating Countries[6]	Pole-and-Line	EPO	Logbook	80-90%	Tunas	Month	1°x1°[7]	tons	fishing days	
~1959-2002	Participating Countries[6]	Purse Seine	EPO	Logbook	80-90%	Tunas	Month	1°x1°[7]	tons	fishing days	
~1989-2002	Participating Countries[6]	Purse Seine	EPO	Observer	10-50%	Billfishes	Month	1°x1°[7]	No. of fish	fishing days	
~1980-2002	Participating Countries[6]	Purse Seine	EPO	Observer/ Logl	80-90%	Tunas	Month	1°x1°[7]	tons	fishing days	
					SPC [5]						
Various[8]	SPC[9]	Longline	CWP	Varies[10]	Varies[10]	ALB, BET, YFT, SKJ, BFT, MLS, BLZ, BLM, SWO, SAL, SHK	Month	5°x5°	No. of fish & tons	hooks & sets	
Various[8]	SPC[9]	Pole-and-Line	CWP	Varies[10]	Varies[10]	SKJ, YFT	Month	1°x1°	tons	fishing days	
Various[8]	SPC[9]	Purse Seine	CWP	Varies[10]	Varies[10]	SKJ, YFT, BET (estimated)	Month	1°x1°	tons	sets & days	

Table 1 footnotes

1 Fishery codes EPO = eastern Pacific Ocean; CWP = central-western Pacific.
2 Observer data may contain catch and effort statistics.
3 Coverage as percent (%) of catch.
4 Species codes are: ALB = albacore, BET = bigeye tuna, BFT = bluefin tuna, SKJ = skipjack tuna, SWO = swordfish, YFT = yellowfin tuna, BLZ
5 No information was available for updating data of Mexico and SPC. Information shown is from STATWG 1 report.
6 Major participating countries in 2002 were Belize, Bolivia, Chinese-Taipei, Colombia, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Spain, U.S.A., Vanuatu, and Venezuela.
7 Aggregated non-ISC member data available at 1 x 1. Individual State data for non-ISC members available at 5 x 5 level, and 1 x 1 level when IATTC has release permission from the State.
8 Years covered by available data can be found in the Oceanic Fisheries Programme (OFP) Tuna Fishery Data Catalogue.
9 Data are provided to SPC by member countries with domestic fleets and/or those member countries that have access arrangements with distantwater fishing nations (DWFNs). Member countries that have provided data are: Australia, the Cook Islands, the Federated States of Micronesia, Fiji, French Polynesia, Kiribati, the Marshall Islands, Nauru, New Caledonia, New Zealand, Nuie, Palau, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, the United States, Vanuatu and Samoa. In addition, the SPC maintains aggregated databases (longline, purse seine, and pole-andline) provided by distant-water fishing nations (Chinese-Taipei, Japan, Korea, and USA).
10 The coverage rate, by fleet and year, varies for different types of logbook and observer data held by the SPC. The rate are found in “Working Paper 4 of 1st STATWG- Coverage of western and central Pacific tuna fisheries by data held by the SPC Oceanic Fisheries Programme”, which

Table 2. ISC member inventory of data on sizes of fish caught (Category III) for tuna and tuna-like fisheries in the North Pacific Ocean.

Year	Country	Gear	Fishery[1]	Method	Coverage[2]	Species[3]	Time Unit	Area Unit	Length Type	Length Unit	Weight Type[4]	Weight Unit
						Canada						
1984-2007	Canada	Troll	Distant Water	Port Sampling	2%	ALB	Month	1°x1°	FL	1 cm	not used	not used
2008-	Canada	Troll	Distant Water	Onboard measurement/Port Sampling	2% - port sampling; 30% onboard	ALB	Month	1°x1°	FL	1 cm	not used	not used
						Chinese-Taipei						
1981-2002	Chinese-Taipei	Longline	Distant Water	Fishermen	5-20%	BFT, YFT, BET, ALB, SWO	Quarter	10°x20°	FL	2 cm	not used	not used
2002-2008	Chinese-Taipei	Longline	Distant Water	Observer		YFT, BET, ALB, SWO	Quarter	10°x20°	FL	2 cm	not used	not used
1997-2008	Chinese-Taipei	Longline	Offshore	Port sampling		BFT, YFT, BET, marlins	Quarter	10°x20°	FL/ EFL	2 cm	not used	not used
						Japan						
1996-2008	Japan	Gillnet	WCP	Port Sampling		PBF, ALB, YFT, BET, SWO	Quarter	20°x20°	FL /EFL	2 cm tunas / 5cm billfishes	not used	not used
1995-2004	Japan	Handline	WCP	Port Sampling		ALB, BET	Quarter	20°x20°	FL /EFL	2 cm	not used	not used
1993-2006	Japan	Pole-and-line	WCP	Port Sampling/ Training vessel		PBF, ALB, YFT, BET, SKJ	Quarter	20°x20°	FL /EFL	2 cm	not used	not used
1993-2006	Japan	Troll	WCP	Port Sampling		PBF, ALB, YFT, BET, SKJ	Quarter	20°x20°	FL /EFL	2 cm	not used	not used
1993-2008	Japan	Purse seine	WCP	Port Sampling		PBF, ALB, YFT, BET, SKJ	Quarter	20°x20°	FL /EFL	2 cm	not used	not used
1993-2008	Japan	Longline	WCP/EPO	Port Sampling/ Training vessel /Fisherman sampling		PBF, ALB, YFT, BET, SKJ ,SWO	Quarter	20°x20°	FL /EFL	2 cm tunas / 5cm billfishes	not used	not used
						Mexico [3]						
2000	Mexico	Longline Drift	Coastal	Observer	NA	SWO	Month	5°x5°	FL	1 cm	not used	not used
1998	Mexico	Gillnet	Coastal	Observer	NA	SWO, SHK	Month	5°x5°	FL	1 cm	not used	not used

Table 2 continued.

Year	Country	Gear	Fishery[1]	Method	Coverage[2]	Species[3]	Time Unit	Area Unit	Length Type	Length Unit	Weight Type[4]	Weight Unit
						USA						
1961-2008	USA	Pole-and-Line	EPO	Port Sampling	2%	ALB	Month	1°x1°	FL	1 cm	not used	not used
1951-2002	USA	Troll	Distant Water	Port Sampling/ Observer	2%/ <1%	ALB	Month	1°x1°	FL	1 cm	not used	not used
1981-1997	USA	Harpoon	Coastal	Port Sampling	<1%	SWO	Month	1°x1°	Cleithrum-Fork	1 cm	not used	not used
1981-1997/ 1990-2008	USA	Drift Gillnet	Coastal	Port Sampling/ Observer	<1%	SWO, ALV	Month	1°x1°	Cleithrum-Fork, FL	1 cm	not used	not used
1988-2008	USA (WCPO)	Purse Seine	Distant Water	Port Sampling	?	BET, YFT, SKJ	Month	1°x1°	FL	1 cm	not used	not used
1988-2008	USA (EPO)	Purse Seine	Distant Water	Port Sampling	?	BET, YFT, SKJ	Month	1°x1°	FL	1 cm	not used	not used
1987-2008	USA	Longline	Distant Water	Port Sampling	?	ALB, YFT, BET, BFT, SWO, BLZ, MLZ	Month	5°x5°	FL	1 cm	WW, PW	0.5 lb.
1994-2008	USA	Longline	Distant Water	Observer	20%	ALB, YFT, BET, BFT SWO, BLZ, MLZ	Month	5°x5°	FL & others	1 cm	not used	not used
						IATTC						
~1959-2002	Participating Countries[6]	All	EPO	Port Sampling	NA	Tunas	Month	measure-ment area	FL	1 cm	not used	not used
~1988-2002	Participating Countries[6]	Purse Seine	EPO	Observer	NA	Billfishes	Month	1°x1°	FL	1 cm	not used	not used
						SPC[5]						
Avail[7]	SPC[8]	Longline	CWP	Port Sampling	Avail (by fleet & yr)[9]	Target & landed by-catch	Month	varies[8]	FL	1 cm	PW	kg
Avail[6]	SPC[7]	Longline	CWP	Observer	Avail (by fleet & yr)[8]	Target & by-catch	Month	1°x1°	FL	1 cm	not used	not used
Avail[6]	SPC[7]	Pole-and-Line	CWP	Port Sampling	Avail (by fleet & yr)[8]	SKJ, YFT, BET	Month	varies[8]	FL	1 cm	not used	not used
Avail[6]	SPC[7]	Pole-and-Line	CWP	Observer	Avail (by fleet & yr)[8]	Target & by-catch	Month	1°x1°	FL	1 cm	not used	not used
Avail[6]	SPC[7]	Pole-and-Line	CWP	Tagging	Avail (by fleet & yr)[8]	SKJ, YFT, BET	Month	1°x1°	FL	1 cm	not used	not used
Avail[6]	SPC[7]	Purse Seine	CWP	Port Sampling	Avail (by fleet & yr)[8]	SKJ, YFT, BET	Month	varies[8]	FL	1 cm	not used	not used
Avail[6]	SPC[7]	Purse Seine	CWP	Observer	Avail (by fleet & yr)[8]	Target & by-catch	Month	1°x1°	FL	1 cm	not used	not used

Table 2 footnotes

1 Fishery codes are: EPO = eastern Pacific Ocean, CWP = central-western Pacific.
2 Coverage as percent (%) of catch, NA = not available for this measurement.
3 Species codes are: ALB = albacore, BET = bigeye tuna, BFT = bluefin tuna, BLZ = blue marlin, MLZ = striped marlin, SHK = sharks, SKJ = skipjack tuna, SWO = swordfish, and YFT = yellowfin tuna
4 Weight Type codes are: PW = Processed Weight, WW = Whole Weight.
5No information was available for updating data of SPC and Mexico. Information shown is from STATWG 1 report.
6Major participating countries in 2002 were Belize, Bolivia, Chinese-Taipei, Colombia, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Spain, U.S.A., Vanuatu, and Venezuela.
7A detailed breakdown of years for data held by the SPC can be found in the Oceanic Fisheries Programme (OFP) Tuna Fishery Data Catalogue.
8 Data are provided to SPC by member countries with domestic fleets and/or those member countries that have access arrangements with distantwater fishing nations (DWFNs). Member countries that have provided data are: Australia, the Cook Islands, the Federated States of Micronesia, Fiji, French Polynesia, Kiribati, the Marshall Islands, Nauru, New Caledonia, New Zealand, Nuie, Palau, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, the United States, Vanuatu and Samoa. In addition, the SPC maintains aggregated databases (longline, purse seine, and pole-andline) provided by distant-water fishing nations (Chinese-Taipei, Japan, Korea, and USA).
9 The coverage rate, by fleet and year, varies for different types of port sampling and observer data held by the SPC. The rates are found in "Working Paper 4 of 1st STATWG - Coverage of western and central Pacific tuna fisheries by data held by the SPC Oceanic Fisheries

Table 3. Annual catch (metric tons) of tuna and tuna-like species caught in North Pacific Ocean (north of the equator) by fisheries

Country	Year	PBF	ALB	BET	YFT	SKJ	SWO	MLS	BUM	BLM	SFA	SSP
JPN	2005	20,060	38,407	32,102	36,573	299,461	8,112	2,484	1,527	27	6	59
JPN	2006	12,205	37,492	36,332	34,748	248,339	9,000	2,368	1,429	23	16	91
JPN	2007	13,541	66,590	30,084	25,350	238,188	9,186	2,183	929	12	7	30
JPN	2008	19,314	43,750	29,412	24,315	222,091	9,186	2,183	929	12	7	30
KOR	2005	1,085	420				404	136				
KOR	2006	833	138				477	56				
KOR	2007	1,054	56				460	48				
KOR	2008	1,536	365				914	31				
MEX	2005	4,542	0	0	113,279	32,985						
MEX	2006	9,806	109	59	68,644	18,655						
MEX	2007	4,147	40	0	65,842	21,970						
MEX	2008	4,398	10	328	85,515	21,931						
TWN	2005	1,368	4,472	10,444	24,899	69,708	5,401	790	7,678	1,487	1,436	0
TWN	2006	1,149	4,317	9,142	21,868	75,475	6,580	858	5,759	1,783	567	0
TWN	2007	1,401	2,916	8,604	20,579	87,278	6,681	442	5,137	804	1,396	0
TWN	2008	979	3,069	10,138	23,045	50,749	5,898	411	5,497	794	1,273	0
CAN	2005	0	4,845	0	0	0	0	0	0	0	0	0
CAN	2006	0	5,832	0	0	0	0	0	0	0	0	0
CAN	2007	0	6,075	0	0	0	0	0	0	0	0	0
CAN	2008	0	5,478	0	0	0	0	0	0	0	0	0
USA	2005	286	10,689	9,286	8,253	19,874	1,924	531	524	1	2	207
USA	2006	98	13,300	6,261	2,928	5,768	1,730	632	569	0	6	161
USA	2007	58	13,484	6,739	4,347	11,676	2,289	289	390	1	1	148
USA	2008	93	11,031	6,492	5,231	15,150	2,398	450	523	0	1	227