Report of Statistics Working Group
Interim Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC)

January 28-30, 2002
Nagasaki, Japan

Report of Statistics Working Group
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January 23-24, 2002
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1.0 OPENING REMARKS

Dr. Y. Uozumi, chairman of the ISC Statistics Working Group (STATWG), convened the meeting and welcomed participants from Chinese-Taipei, Japan, Korea, United States, Russia, and IATTC to the second Statistics Working Group (STATWG2) meeting. The meeting was held at the Merca Tsukimachi Hall, Nagasaki, Japan. After introduction of participants (Attachment 1), Dr. H. Okamoto and Dr. R. Conser were appointed as rapporteurs. Working papers were distributed (Attachment 2) and the meeting agenda was adopted (Attachment 3).

2.0 DATA REQUIREMENTS FOR STOCK ASSESSMENTS AND MONITORING

Dr. Y. Uozumi summarized the findings of the first Statistics Working Group (STATWG1) meeting (January 1999) regarding the basic data needs for conducting stock assessments of tuna and tuna-like species. Three key categories of data were identified: (1) total catch and effort data, (2) catch and effort data, and (3) biological data. These data are typically employed for tuna assessments using surplus production models, CPUE-based analysis, virtual population analysis (VPA), or other age-size-structured models. These data categories are consistent with those used by other international tuna bodies and programs (e.g. ICCAT and IATTC) and conform to the guidelines of the Coordinated Working Party on Fishery Statistics (CWP). In general, STATWG2 endorses the use of these data categories for reporting national statistics to ISC. Further, it should be noted that in addition to outlining the general data categories, the CWP guidelines also provide considerable detail and definition of terms. It is recommended that when applicable, national data correspondents (see Section 10, below) should follow the CWP guidelines when reporting data to ISC.

Considerable discussion ensured regarding the details of data reporting within these basic categories. Significant modification of the Category I reporting requirements is recommended. Current Category I data reporting requirements (as adopted by STATWG1) require total catch and effort data for the entire North Pacific Ocean. For many ISC species, however, the stock area does not correspond to the North Pacific area (i.e. all waters north of the equator). For stock assessment purposes, it is essential to have available Category I data that correspond to the stock area of the species being assessed. In some cases, the stock area is broader than the North Pacific (e.g. bluefin tuna) while in other cases, the stock area is smaller than the North Pacific (e.g. swordfish). In order to reconcile these differences, it will be necessary to report Category I data with finer spatial resolution than the entire North Pacific.

The STATWG requests that ISC species working groups define the appropriate spatial boundaries for stocks of their respective species, and report their findings to the STATWG. The STATWG will then develop subareas of the Pacific Ocean that will allow better matching of Category I data and the spatial extent of the various stocks. Once this is

accomplished, Category I data should be reported by subarea rather than for the entire North Pacific Ocean. Other more minor changes to the Category I reporting requirements are also recommended. These modifications have been incorporated into the detailed reporting requirement tables found in Section 5.1 of this report.

With regard to Category II data, a more complete description of effort is needed in some cases. While longline and purse seine effort generally have a standard definition among ISC participants, the definition of effort for "other gears" -- such as pole and line, harpoon, etc. – often differs among ISC participants and can be ambiguous. For the ISC nations and observers participating in STATWG2, effort has been more clearly defined, when needed, in the description of data collected (Section 3, below). In other cases, data correspondents should submit more complete descriptions of effort, as needed, as soon as possible. Other minor changes to the Category II reporting requirements are also recommended. These modifications have been incorporated into the detailed reporting requirement tables found in Section 5.1 of this report.

With regard to Category III data, STATWG2 discussed the need to standardize the length or weight measurements reported to ISC. For several species, length and/or weight measurements may be taken differently, depending upon fishery practices and the state of specimens when they become available for sampling. For example, in some cases round weight is sampled for some fisheries while dressed weight is sampled in others; or length measurements may be taken as lower jaw-fork length or eye-fork length. It is recommended that the ISC database be designed to accommodate both a standard measurement (species specific) and the actual measurement taken during sampling. In many cases, these will be one and the same but if not, both measurement units should be reported to ISC. In order to facilitate this reporting requirement, the STATWG requests that ISC species working groups (i) establish a standard measurement for their respective species and (ii) evaluate the currently available conversion equations used to convert from each measurement type to the standard. Further if any of the existing conversion equations is found to be inadequate (e.g. based on small sample size), more reliable conversion equations should be developed. Well-developed and well-documented conversion relationships are critically important for the use of Category III data in stock assessments. Other minor changes to the Category III reporting requirements are also recommended. These modifications have been incorporated into the detailed reporting requirement tables found in Section 5.1 of this report.

3.0 DATA COLLECTED BY PARTICIPANTS

The participants discussed collection procedures for catch, fishing effort, and biological data. While all members indicated that key data are being collected, there are differences in spatial resolution, vessel classification, definition of effort for "other gears," calculation of coverage rates, etc.

The following is an updated summary of the types of data and collection procedures used by ISC participants. Revisions (from the summary in the report of STATWG1) are included below for all participants of STATWG2.

3.1 Chinese-Taipei

Longline. Two categories of longline fisheries, distant-water and offshore, are used for fishery administration. Catch and effort data for the distant-water longline fishery are obtained from logbooks and have been collected since the 1960's. The data include date of operation, noon position, number of hooks fished, and catches (both in number and weight) by major tuna and tuna-like species. Information on number of crew and type of bait used are also recorded. Noon position is mostly recorded at the 5ºx5º level and some at the 1ºx1º level. Information on number of hooks per basket have been provided since 1994.

For the offshore longline fishery, catch and effort data are also collected from logbooks. Collection, however, started more recently, since late 1996. Noon position is reported at the 1ºx1º level and catch and number of hooks per basket information is included.

Size-frequency data are collected by port sampling on a limited scale for the offshore longline fishery. Onboard measurement by fishermen of the first 30-fish caught is required of licensed distant-water longliners; however, the coverage is low. In many cases, fishermen measured only a single target species and not all major species.

Purse seine. Since 1994, purse seine catch and effort data have been available from logbooks submitted by fishing vessel owners. Catches in weight of skipjack, yellowfin, and bigeye tunas and other species are recorded by fishermen in the logbooks along with the set position at the minute level, time of set, searching time and school type. For days without a set, the noon position is recorded. The coverage is almost 100% in recent years. There is no systematic size-frequency sampling of purse seine catches.

3.2 Japan

Longline. For longline fisheries, Japan collects catch and effort data from logbooks submitted by vessel owners. The same system is used for distant water, offshore and coastal longliners. In the logbooks, catch in numbers and weights of tunas and billfishes are recorded by species, along with the noon position, surface temperature and the number of baskets and hooks used in each operation (set of the longline gear). Noon position is recorded in minutes, but when compiled the resolution is at the degree level for each set. Associated data for each trip such as: name of vessel, call sign, the number of crew, main target species, etc. are reported and compiled. In 1997, gear configuration data were added as a requirement for data entry in logbooks.

Logbooks are submitted for each trip. Coverage rates are about 95% for distant-water longliners and 90% for offshore longliners. Coverage rate for coastal longliners is uncertain, but thought to be about 70% judging from total trip days reported.

Size-frequency data for the distant-water longline catch is collected by onboard sampling by fishermen. Coverage is low, currently about 4%. For the offshore and coastal longline catches, size data are obtained by port sampling with a coverage rate of about 20%.

Purse seine. A logbook data collection system, similar to that used for the longline fisheries, is used for the purse seine fishery. Differences between the two systems are that the purse seine logs have entry for only five tuna species, bluefin, yellowfin, bigeye, albacore, and

skipjack tunas. Both fishing days and searching days are recorded. School type for each set is included. The location of each set, or the noon position for days with no sets, is recorded at the minute level. Coverage is nearly 100%. Port sampling for size-frequency began about 5 years ago, and is continuing at Japanese ports. The average coverage rate is about 13% on a trip basis.

Pole-and-line. Logbooks are also used for collecting data on catch and effort from the pole-and-line fishery. However, searching days are not reported. Noon position is reported to the nearest minute for each day fished. Size-frequency data for both the distant-water and offshore pole-and-line catches are obtained by port sampling. The coverage rates are less than 5%.

3.3 Korea

Longline. Catch and effort data for distant-water longline vessels are collected with logbooks. Catch in weight (kg) is recorded for bigeye, yellowfin and albacore tunas. Effort is recorded as number of hooks. Catch and effort data are available with a resolution of 5ºx5º and month. Logbook collection began in 1988 and the coverage rate varies from year to year, the average is about 60%. No size data are currently available from longline landings, but a new size sampling program was initiated in 2002.

Purse seine. Catch and effort data for distant-water purse seiners are collected using logbooks. Catch is recorded in weight by species for skipjack tuna and yellowfin tuna. These data are summarized by number of sets and by 1ºx1º and month resolution. Data collection began in1980 and the coverage rate is currently about 70%. For the coastal purse seine fishery the logbook system is similar to the distant water system but data are available on Pacific bluefin tuna from 1998 with the coverage rate of about 86%. No size data are currently available from purse seine landings, but a new size sampling program was initiated in 2002.

3.4 Mexico

A current description of data collection was not available to STATWG2. Attachment 4 of this report provides the information found in the report of the first meeting of the ISC Statistics Working Group (January 1999).

3.5 People's Republic of China

A current description of data collection was not available to STATWG2. Attachment 4 of this report provides the information found in the report of the first meeting of the ISC Statistics Working Group (January 1999).

3.6 United States

Longline. There are two USA longline fleets in the North Pacific. One is based in California and the other is based in Hawaii. Catch and effort data are collected from logbooks completed by fishermen. The data are by set and include type of bait used, number of light sticks used, designated target species (Hawaii only), number of hooks, number of hooks between floats, catch in numbers by species and number of discards by species and

interaction with protected species. Additionally, position, beginning time, hauling time, direction of set and water temperature at time of set are recorded for each set. Catches reported include by-catches such as marine mammals, sea birds and sea turtles. Size composition and biological data are collected by observers on about 20% mandatory coverage of the trips made by Hawaii-based longliners and by observers carried on a voluntary basis on a small number of trips made by California based longliners. There is also a State of Hawaii mandatory dealer reporting system and port sampling for size composition. For the California-based boats, size composition data and biological data are collected by port sampling.

Purse seine. Mandatory logbook reporting is required for USA. tuna purse seiners fishing in the Pacific. Catch and effort data by set, set type, time of set, and location are recorded by fishermen. Data for USA vessels operating in the eastern tropical Pacific are collected by the IATTC. For vessels operating in the central-western Pacific, the NMFS collects the logbooks. Coverage rate is 100%. Size composition and species composition of landings are also collected. Port sampling is the primary source for such data and collection is according to a statistical sampling plan. Some size composition data are available from observers placed on the U.S. vessels by the IATTC and the Forum Fisheries Agency.

Troll. The most significant USA tuna troll fishery in the North Pacific is for albacore tuna. Catch and effort data for this fishery are collected with logbooks. The coverage rate is about 40%. Data include days fishing, catch in numbers, noon position, and operational information and vessel characteristics. Size-frequency data are collected by port sampling and the coverage rate is about 5%. Data are submitted to the North Pacific Albacore Workshop.

3.7 IATTC

Data on catches and catch-effort are collected from logbooks, vessel agents, transshipment companies, canners, retailers, observers, and various other sources. Biological data are collected by port samplers and observers. Data on vessel specifications are collected from vessel agents, shipyards and governments registering vessels fishing in the IATTC area.

3.8 SPC

A current description of data collection was not available to STATWG2. Attachment 4 of this report provides the information found in the report of the first meeting of the ISC Statistics Working Group (January 1999).

4.0 DATA INVENTORY

The STATWG2 participants updated and revised the general inventory of catch-and-effort (Table 1) and size-frequency data (Table 2) that appeared in the report of STATWG1. Most of these data will be available for submission to the ISC database.

5.0 DATA REPORTING AND RESOLUTION REQUIREMENTS

As discussed in Section 2, above, the participants agreed that the minimum data required for ISC fishery monitoring and resource assessment fell into three categories:

Category I:	total annual catch (round weight by species) total annual effort (active vessels by fishery)
Category II:	catch-effort (summary of logbook data)
Category III:	biological data, (size composition, length or weight frequencies, sex information).

The detailed reporting requirements that follow are taken from the report of STATWG1 with revisions that reflect the discussion in Section 2 of this report.

5.1 Reporting Requirements

CATEGORY I (Total annual catch and total annual effort):

Total annual catch in metric tons (round weight) should be reported by gear, species and country for fisheries in the North Pacific (north of the equator). When established, data should be reported by subarea (see Section 2). If round weight is estimated from processed weight, the conversion procedure is to be noted.

Total nominal effort in numbers of active vessels fishing should be reported by fishery, gear and size category for fisheries in the North Pacific. As with catch, reporting should be done by subarea of the North Pacific. However, if effort cannot be reported by subarea or even for the North Pacific, effort should be reported for a larger area and noted. Vessel size categories to be used in reporting effort are:

Vessels	Size Category
Longline	1. Distant-water and 2. offshore (*Chinese-Taipei*) 1. Distant-water, 2. offshore, and 3. coastal (*Japan*)
Purse seine	1. large (>260 cubic meter capacity; ~300 mt) 2. small (<260 cubic meter capacity; ~300 mt) 1. distant-water and 2. offshore (*Japan*)
Harpoon, handline, Troll, gill net, etc.	aggregated by type

CATEGORY II (Catch-effort):

Catch and effort (logbook) data should be reported by country, gear type, and month. The resolution is as follows:

Gear	By Month	Catch	Effort	Region
Longline	5x5 deg.	no. or wt.	hooks (all species recorded)	entire Pacific
Purse seine	1x1 deg.*	wt.	days fishing (include searching)	entire Pacific
Troll	1x1 deg.	no.	days fishing (include searching)	North Pacific
Gill net	1x1 deg.	no.	tans or net-days	North Pacific
Harpoon	1x1 deg.	no.	days fishing	North Pacific
Handline	1x1 deg.	no.	no lines	North Pacific
Pole and line	1x1 deg.	no.	no poles/successful days	North Pacific
Other	1x1 deg.	no. or wt.	as needed	North Pacific

*5x5 degree data if 1x1 is not practicable

CATEGORY III (Biological data):

Size composition (length or weight frequencies) and sex data (for swordfish, striped and blue marlins) should be reported by gear type and with the same area resolution as required for Category II data. However, coarser area resolution may be substituted if this requirement can not be applied. Reporting of length-frequencies should be with intervals of 1 or 2 cm. After standard measurements are established (see Section 2, above), both standard measurement and the actual sampling measurement unit should be reported.

All size composition data should include notes on collection method, e.g. port sampled, observer sampled, fisherman sampled, etc. Accuracy of measurement should also be reported (e.g. to the nearest cm, next larger cm, nearest kg, etc.).

5.2 Special Requirement

The participants reiterated that each member nation and observers (as appropriate) should submit a paper that describes in detail the collection methods (coverage, etc.) used to collect fishery statistics and procedures (conversions, units, etc.) used in compiling statistics. The document will assist the STATWG in better understanding the submitted statistics and for correct usage in stock assessment research, and should be made available prior to the completion of the ISC database design work (September 2002).

The participants discussed procedures for including statistics from other organizations, such as the SPC or IATTC, into the ISC data base. Statistics held by these organizations include statistics that will be reported by members. To avoid “double counting,” organizations will be asked to report aggregated statistics, but without statistics for ISC member nations included.

6.0 DATA REPORTING SCHEDULE

The participants agreed that July 1st will be the annual reporting date. Each year, data correspondents will submit Category I, Category II, and Category III data to ISC on or before July 1st. These annual data submissions will have two components:

(1) preliminary estimates of all available statistics from the previous year (Category I data, in particular, but also whatever data can be made available from Category II and Category III, as well); and

(2) updates of Category I, Category II, and Category III data from all earlier years.

The ISC database is expected to become operational in September 2002 (see Section 9, below). Data correspondents are asked to provide their initial submission of all historical data (i.e. those data now archived in their databases) by December 31, 2002.

7.0 DATA ACCESS AND AVAILABILITY

The participants agreed that some extracts from ISC database, that do not contain proprietary information, should be made available to the general public. Category I data aggregated over the entire North Pacific will be considered public domain (PD) data. The PD data will include the caveat that some discards are not reported in the catch statistics provided.

However, raw Category I data as well as Category II and Category III data contain proprietary information and, therefore, shall be made available to contributors only and to authorized scientists of ISC working groups.

Japan will be responsible for managing the central data depository and will designate a control person. Requests for non-PD data by non-contributing parties will be handled as follows. When a request is received, the control person will notify all of the ISC members and observers of the request, and solicit approval from contributors[1]. Approval of all contributors will be required for the request to be granted. When a request is for data on a particular species, the chairman of the appropriate species working group will be alerted and that working group leader will take the lead, instead of the control person, in dealing with the matter and in securing contributors' approval.

Requests for non-PD data by contributors for purposes other than ISC stock assessment activities will be handled by the control person, following the same procedures delineated in the previous paragraph.

While there is consensus among all contributors regarding the data access rules, outlined above, there is concern that these rules may be changed at some point in the future without the consent of all contributors. It was recommended that the rules not be changed without consensus of all contributors.

1 As used here and throughout this report, "contributors" are all ISC participants who have provided data to ISC for inclusion in its database.

8.0 ISC INTERNET WEB SITE

STATWG1 recommended that the ISC should investigate establishing an internet web site to promote ISC activities and information. Document STAT-WG/02/Doc. 02 was presented by Dr. M Takahashi and Dr. H. Yamada. It outlines a preliminary design for the ISC web site. Initial contents to be considered for the web site include PD data, description of ISC and objectives, ISC working group reports and the complete ISC reports. Also desirable would be distribution maps of catches, i.e. summary of Category II data, and size-frequency distribution by gear, i.e. summary of Category III data.

When ISC working groups meet in conjunction with the ISC Plenary, working group reports will be made available on the ISC web site immediately following the plenary session. However, when an ISC working group meets intersessionally, their report will be made available on the ISC web site as soon as the report is cleared by the chairman of the working group. Clearing the report will typically involve the chairman allowing all working group participants a reasonable period of time to provide comments on the draft report, incorporation of comments, and final editing.

9.0 ISC DATABASE SYSTEM

Document STAT-WG/02/Doc. 01 was presented by Dr. H. Yamada. It presents a preliminary design for the ISC database with plans for operational status in September 2002. A subgroup of STATWG2 participants met to further refine the database design. Their report is Attachment 5 of this report.

10.0 DATA CORRESPONDENTS

To expedite exchange and management of data for ISC activities, the participants agreed that a data correspondent for each member should be designated. The correspondent shall be responsible for submission of statistics to the ISC database and to assure that the submission is in the required format. The correspondent would also promote ISC standards for data collection and quality. The updated list of designated data correspondents follows. Note that this list has been revised from the list given in the report of STATWG1. Further, the continuing commitment of some data correspondents who could not participate in this meeting (those with * following their name) needs to be confirmed.

Member	Data Correspondent
Canada	William Shaw *
Chinese-Taipei	Shyh-Bin Wang
Japan	Harumi Yamada
Korea	Dae-Yeon Moon
Mexico	Michel Dreyfus *
People's Republic of China	(not designated)
USA	Al Coan
IATTC	Michael Hinton
SPC	Timothy Lawson *

11.0 FUTURE WORK PLAN

ISC data needs and tasks to meet the needs were identified during the STATWG meeting and are discussed under appropriate sections of this report. The tasks are summarized here for easy reference.

- Establish central database and clearing house for ISC fishery statistics. Included in this task is the establishment of an FTP site or other means for secure transfer of data between the database and Data Correspondents. Target completion date: September 2002. Lead: Fisheries Agency of Japan

- Develop and distribute to Data Correspondents procedures and format for submission of ISC fishery statistics, particularly Category II and III statistics. Target completion date: September 2002. Lead: Statistics Submission Subgroup of STATWG

- Develop an ISC Internet Web site. Target completion date: September 2002. Lead: Fisheries Agency of Japan

- Develop software for summarizing Category I, II and III statistics and for general distribution of the summaries including posting on a Web site. Target completion date: September 2002. Lead: Fisheries Agency of Japan

- Provide initial submission of all historical data (i.e. those data now archived in participants databases) to ISC. Target completion: December 31, 2002. Lead: Data Correspondents (see Section 10)

- Coordinate with all ISC species working groups to:
  [1] define subareas of the Pacific suitable for reporting of Category I data;
  [2] define standard measurement types for each species for reporting of Category III data; and
  [3] evaluate conversion relationships among various length and/or weight measurements and the standard for reporting of Category III data.
  Target completion date: September 2002. Lead: STATWG Chairman

12.0 CONCLUSIONS AND RECOMMENDATIONS

The STATWG concluded its second meeting with agreement on a number of procedural matters for submission and exchange of fishery statistics. The Group agreed to continue work on establishing an ISC statistical database and a web site (Sections 8 and 9). It revised reporting procedures for each category of data with particular emphasis on providing better spatial resolution in the reporting of Category I data (Sections 2 and 5). Data access and sharing procedures were revised to ensure consensus among all contributors prior to releasing data to non-contributors (Section 7). A Data Correspondent was identified for each nation (Section 10), and a work plan for tasks that need to be undertaken in the intersessional period was also developed (Section 11).

13.0 TIME AND PLACE OF NEXT MEETING

Participants agreed that the STATWG should plan to meet in conjunction with the next scheduled ISC plenary meeting.

14.0 CLOSING REMARKS

The second meeting of the STATWG adjourned at 17:30 on January 24, 2002. The report was adopted on January 26, and forwarded to the Plenary. The Chairman expressed his appreciation to all participants and to the rapporteurs for their contributions and cooperation in completing a successful meeting.

Table 1. Inventory of available catch and effort statistics for tuna and tuna-like fisheries in the North Pacific Ocean.

Year	Country	Gear	Fishery[1]	Method[2]	Coverage[3]	Species[4]	Time Unit	Area Unit	Catch Unit	Effort Unit
Chinese-Taipei										
1964-1998	Chinese-Taipei	Longline	Distant Water	Logbook	30-50%	ALB, BET, YFT, SWO, MLS, BLZ	Month	5°x5°	No. of fish	hooks
1996-2000	Chinese-Taipei	Purse Seine	Distant Water	Logbook	~100%	BET, YFT, SKJ	Month	5°x5°	tons	days
Japan										
1952-2000	Japan	Longline	Distant Water	Logbook	95% (raised to 100%)	BFT, BET, YFT, ALB, SWO, MLS, BLZ, SKJ	Month	5°x5°	No. of fish	hooks
1952-2000	Japan	Longline	Offshore	Logbook	90% (raised to 100%)	BFT, YFT, BET, ALB, SWO, MLS, BLZ, SKJ	Month	5°x5°	No. of fish	hooks
1994-2000	Japan	Longline	Coastal	Logbook	80%?	BFT, YFT, BET, ALB, SWO, MLS, BLZ, SKJ	Month	5°x5°	No. of fish	hooks
1967-2001	Japan	Purse Seine	Distant Water	Logbook	100%	BFT, YFT, BET, SKJ	Month	1°x1°	tons	fishing days
1967-2001	Japan	Purse Seine	Offshore	Logbook	80%	BFT, YFT, BET, SKJ	Month	1°x1°	tons	fishing days
1971-2000	Japan	Pole-and-Line	Distant Water	Logbook	80%	BFT, YFT, BET, SKJ, ALB	Month	1°x1°	tons	fishing days
1971-2000	Japan	Pole-and-Line	Offshore	Logbook	>80%	BFT, YFT, BET, SKJ, ALB	Month	1°x1°	tons	fishing days
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

Table 1. Continued.

Year	Country	Gear	Fishery[1]	Method[2]	Coverage[3]	Species[4]	Time Unit	Area Unit	Catch Unit	Effort Unit
1998-2001	Korea	Purse Seine	Coastal Water	Logbook	86%	BFT	Month	1°x1°	tons	sets
Mexico[5]										
1980-1998	Mexico	Purse Seine	Offshore	Logbook	100%	YFT, SKJ, BFT, ALB	Month	1°x1°	tons	fishing days
1992-1998	Mexico	Purse Seine	Offshore	Observer	100%	YFT, SKJ, BFT, ALB	Month	1°x1°	tons	fishing days
1998	Mexico	Longline	Coastal	Logbook	100%	SWO, billfishes,	Month	5°x5°	tons	hooks
1998	Mexico	Longline	Coastal	Observer	30%	SWO, billfishes, tunas	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
1980-1998	Mexico	Pole-and-Line	Coastal	Logbook	100%	YFT, SKJ	Month	1°x1°	tons	fishing days
USA										
1961-2001	USA	Pole-and-Line	Distant Water	Logbook	80%	ALB	Month	1°x1°	No. of fish	fishing days
1962-2001	USA	Troll	Distant Water	Logbook/ Observer	61%/ <1%	ALB	Month	1°x1°	No. of fish	fishing days
1974-2001	USA	Harpoon	Coastal	Logbook	100%	SWO	Month	1°x1°	No. of fish	fishing days

Table 1. Continued.

Year	Country	Gear	Fishery[1]	Method[2]	Coverage[3]	Species[4]	Time Unit	Area Unit	Catch Unit	Effort Unit
1981-2001	USA	Drift Gillnet	Coastal	Logbook/ Observer	100%/ 23%	SWO	Month	1°x1°	No. of fish	sets
1981-2001	USA (CWP)	Purse Seine	Distant Water	Logbook/ Observer	100%	SKJ, YFT, BET, MLS, BLZ	Month	5°x5°	tons	fishing days
1990-2001	USA	Longline	Distant Water	Logbook/ Observer	100%/ 20%	ALB, BET, BFT, BLZ, MLS, SWO, YFT, SKJ	Month	5°x5°	No. of fish	hooks
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/ Logbook	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

[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 = blue marlin,
MLS = striped marlin, BLM = black marlin, SAL = sailfish, and SHK = sharks.

[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 distant-water 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-and-line) 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 is available from the SPC.

Table 2. Inventory of available data on sizes of fish caught 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
Chinese-Taipei												
1981-2000	Chinese-Taipei	Longline	Distant Water	Fishermen	5-20%	BFT, YFT, BET, ALB, SWO	Quarter	10°x20°	FL	2 cm	not used	not used
Japan												
1960-2000	Japan	Longline	Distant Water	Onboard measurement / Port Sampling	5%	BFT, YFT, BET, ALB, SWO, MLS, BLZ	Month	10°x20°	FL/ EFL	1 cm	PW	kg
1960-2000	Japan	Longline	Offshore Water	Port Sampling	20%	BFT, YFT, BET, ALB, SWO, MLS, BLZ	Month	10°x20°	FL/ EFL	1 cm	PW	kg
1960-2000	Japan	Longline	Coastal Water	Port Sampling	20%	BFT, YFT, BET, ALB, SWO, MLS, BLZ	Month	10°x20°	FL/ EFL	1 cm	PW	kg
1981-2001	Japan	Purse Seine	Distant Water	Port Sampling	15%	BFT, YFT, BET, SKJ	Month	1°x1°	FL	1 cm	WW/PW	kg
1981-2001	Japan	Pole-and-line	Distant Water	Port Sampling	30%?	BFT, ALB, YFT, BET, SKJ	Month	1°x1°	FL	1 cm	WW	kg
Mexico[5]												
1998	Mexico	Longline	Coastal	Observer	NA	SWO, billfishes, tunas	Month	5°x5°	FL	1 cm	not used	not used
1998	Mexico	Drift Gillnet	Coastal	Observer	NA	SWO, SHK	Month	5°x5°	FL	1 cm	not used	not used
USA												
1961-2001	USA	Pole-and-Line	Distant Water	Port Sampling	2%	ALB	Month	1°x1°	FL	1 cm	not used	not used
1961-2001	USA	Troll	Distant Water	Port Sampling/ Observer	2%/ <1%	ALB	Month	1°x1°	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
1981-1997	USA	Harpoon	Coastal	Port Sampling	<1%	SWO	Month	1°x1°	Cleithrum-Fork	1 cm	not used	not used
1981-2001	USA	Drift Gillnet	Coastal	Port Sampling / Observer	<1%	SWO	Month	1°x1°	Cleithrum-Fork, FL	1 cm	not used	not used
1988-2001	USA	Purse Seine	Distant Water	Port Sampling	20%	BET, YFT, SKJ	Month	1°x1°	FL	1 cm	not used	not used
1987-2001	USA	Longline	Distant Water	Port Sampling / Observer	<1%/ 5%	ALB, YFT, BET	Month	5°x5°	FL	1 mm	WW	0.5 lbs.
1987-2001	USA	Longline	Distant Water	Port Sampling / Observer	<1%/ 20%	SWO, BLZ, MLZ	Month	5°x5°	FL & others	1 mm	PW	0.5 lbs.
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

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
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

[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.
[5]No information was available for updating data of SPC and Mexico. 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]A 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 distant-water 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-and-line) 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 Programme*", which is available from the SPC.

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Attachment 2. Working Papers

ISC STAT-WG/02/01 Proposal of procedure and data format for ISC database system.
(H. Yamada and M. Takahashi)

ISC STAT-WG/02/02 Proposal of ISC homepage design.
(M. Takahashi and H. Yamada)

ISC STAT-WG/02/03 Catalog of U.S. North Pacific highly migratory species catch-effort and size composition data. (A. L. Coan Jr.)

ISC STAT-WG/02/04 Japanese proposal for operational data procedure.
(Fishery Agency of Japan)

ISC STAT-WG/02/Inf-01 Report of Statistics Working Group (STATWG) Interim Scientific Committee for tuna and tuna-like species in the North Pacific Ocean,.

ISC STAT-WG/02/Inf-02 Report of 2nd ISC plenary meeting.

ISC STAT-WG/02/Working Document[1] Report of Ad hoc Statistics Submission Working Group.
(H. Yamada, M. Hinton, R. Skillman, S.Wang and M. Miyake)

Attachment 3. Agenda

Statistics Working Group
Third Meeting of the Interim Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean

January 23 and 24, 2002
Merca Tsukimachi Hall

1. Opening of STATWG meeting
2. Appointment of chair and rapporteurs
3. Adoption of Agenda
4. Tabling of Documents
5. Review of the agreements at the previous STATWG meeting
6. Review of the current status of the ISC database
7. Up date inventory of the available data for categories II and III
8. Review of the draft ISC internet website
9. Recommendations and future plan
10. Up date of the Data Correspondent Group
11. Time and place of next STATWG meeting
12. Close of STATWG meeting

Attachment 4.

Data Collected by Participants

For the member nations and other participants that did not attend the second meeting of the ISC Statistics Working Group, a description of their data collection procedures was extracted from the report of the first meeting of the ISC Statistics Working Group (January 1999). These descriptions may need revision to reflect changes since 1999.

Mexico

Longline. Catch and effort data are collected from large longliners with logbooks and from small vessels of the coastal fleet by observers. Data recorded include catch by species in weight and numbers and with 5ºx5º resolution for location of catch. Onboard measurements by observers and port sampling are used for collecting data on sizes of fish in the landings. Observer coverage is about 30%. Logbook coverage is 100%.

Purse seine. Catch and effort data are collected with logbooks. Coverage rate is 100%. Catch in weight by species is collected with 1ºx1º resolution for location of catch. Fishing effort of both actual fishing days and searching days is recorded in the logbooks. Landings are sampled for size composition by the IATTC and by the national program (PNAAPD). Observers (100% coverage are also employed to monitor the fishery especially for dolphin mortality.

People's Republic of China

Longline. For the longline fishery, China collects data mainly with logbooks that are submitted by fishing vessel owners. In the logbook, catch in number and weight of each tuna and billfish species is recorded along with the noon position of the set, surface temperature and the number of baskets and hooks for each operation. The noon position is recorded to the nearest minute. When the fishing data are compiled, however, the position data are reduced to the 1E level. Size-frequency measurements of longline catches are taken by fishermen onboard the vessels. The coverage is low.

SPC

Data (catch-effort and landings) are provided to SPC by SPC member countries with domestic fleets and/or with access arrangements with distant-water fishing nations. 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 provided by distant-water fishing nations. Size data are collected by port sampling at 23 ports in the western and central Pacific for longline and purse seine landings. An observer program is being used for collecting detailed data for special research projects.

Attachment 5.

ISC STAT-WG/02/Working Document

Report of Ad hoc Statistics Submission Working Group

Harumi Yamada-Chair (NRIFSF), Michael Hinton (IATTC),
Robert Skillman (NMFS), Shyh-Bin Wang (OFDC) and
Makoto Miyake (Japan Tuna)

The following is proposed for data content. Development of data format and data resolution for the Categories I, II and III will be finalized after the species working groups designated the stock(s) and stock boundaries. The group recommended that the definitions (e.g. gears) and codes should follow as much as feasible, the standard agreed upon by Cording Working Party for Fishery Statistics (CWP code). Formats and codes for data submission will be provided to contributors by this Working Group.

Category I for Catch (Landed and Discarded)*

Year, Country or entity, Species code, Gear code, Disposition code, Quantity, Ocean area code, Stock code

* The catch quantity should be reported in tenths of metric tons (round weight). If round weight is estimated from processed weigh or numbers of fish, the conversion procedure is to be described in detail. This documentation will be maintained as part of the database.

Category I for effort

Year, Country or entity, Gear code, Fleet code, Number of vessels, Vessel type code, Ocean area code, area code.

Category II for catch** and effort

Year, Country or entity, Gear code, Quarter code, Month, Ocean code, Area code, Amount of effort, Effort code, Species code, Disposition code, Quantity, Data type code.

** If the catch quantity is reported in weight, it should be in round weight in tenths of metric tons. If round weight is estimated from processed weight or numbers of fish, the conversion procedure is to be described in detail. This documentation will be maintained as part of the database.

Category III for biological data***

Year, Country or entity, Species code, Stock code, Gear code, Quarter code, Month, Disposition code, Ocean code, Area code, Collection method code, Type of measurement code, Unit code, Class interval, Sex code, Class, Frequency, Frequency type code, Sample size.

*** If frequencies are reported as percent frequencies, they should be reported as in tenths of percents.

Code Table

Area code: adopting CWP code.

Collection method code: port sampling=1, observer sampling=2, fisherman sampling=3

Data type code: number=1, weight=2

Disposition code: Retain=1, Discard=2

Effort code:hooks=1, days fishing=2, tans=3, net-days=4, number of lines=5, number of poles=6, successful days fishing=7

Frequency type: Number of fish=1,
Proportion of sample=2 (For this data reported in this category, sample size must be reported).
Proportion of catch=3 (If proportion of catch is reported, then the estimation procedure is to be described in detail. This documentation will be maintained as part of the database.)

Fleet code: Distant-water=1, Offshore=2, Coastal=3 for Longline fishery
Distant-water=1, Offshore=2 for Japanese purse seine fishery
Large (>260m3 capacity)=1, Small(<260m3 capacity)=2 for other purse seine fishery

Gear code: Longline=LL, Purse-seine=PS, Troll=TR, Gill-net=GN, Harpoon=HP, Handline=HL, Pole-and-line=PL, and Other gear=OT

Ocean area code: North Pacific=1, South Pacific=2, Entire Pacific=3

Quarter code: Jan-Mar=1, Apr-Jun=2, Jul-Sep=3, Oct-Dec=4, Jan-Jun=5, Jul-Dec.=6, Jan-Dec=7

Sex code: female=1, male=2, non-identified=0

Species code: adopting FAO three letter code; i.e., albacore=ALB, yellowfin=YFT, bigeye=BET, bluefin=BFT, skipjack=SKJ, swordfish=SWO, striped marlin=MLS, blue marlin=BUM

Stock code: depends on species working group.

Type of measurement code: FL=1, LJFL=2, EFL=3, Whole BW=4, Gilled and Gutted=5, trunk=6

Unit code: nearest=1, next larger=2, under=3

Vessel type code: active vessel=1, registered vessel=2

Year: four digits