REPORT OF THE SEVENTH MEETING OF THE INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC OCEAN

PLENARY SESSION
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TABLE OF CONTENTS

REPORT OF THE SEVENTH MEETING OF THE INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC OCEAN

Busan, Korea
Plenary Session, July 25-30, 2007

LIST OF TABLES

LIST OF ANNEXES

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Highlights of the ISC7 Plenary Meeting

The ISC7 Plenary, held in Busan, Korea from 25-30 July 2007, was attended by delegations from Canada, Chinese Taipei, Japan, Korea, Mexico and the United States. The Plenary reached consensus on several important issues including stock status and conservation advice, as well as governance and data management procedures. Based on assessments carried out during the past year, recommendations regarding the reduction of fishing mortality rates for albacore and striped marlin were adopted. Plans for undertaking a Pacific bluefin tuna assessment in the next year were approved. Governance and operational procedures were updated and amended in the form of an Operations Manual which was approved by the members. Through discussion, data management procedures underwent continued development and improvement. The next Plenary will be held in July 2008 in either Japan or Chinese Taipei.

1 INTRODUCTION AND OPENING OF THE MEETING

1.1 Introduction

The ISC was established in 1995 through an intergovernmental agreement between the governments of Japan and the United States of America. Since its establishment and first meeting in 1996, the ISC has undergone a number of changes to its charter and name (from the Interim Scientific Committee to the International Scientific Committee) and has adopted guidelines for its operations. The two main goals of the ISC are to 1) to enhance scientific research and cooperation for conservation and rational utilization of the species of tuna and tuna-like fishes which inhabit the North Pacific Ocean during a part or all of their life cycle; and 2) to establish the scientific groundwork, if at some point in the future, it is decided to create a multilateral regime for the conservation and rational utilization of these species in this region. The Committee is made up of voting Members from coastal states and fishing entities of the region and coastal states and fishing entities with vessels fishing for highly migratory species in the region, and non-voting members from relevant intergovernmental fishery and marine science organizations, recognized by all voting Members.

The ISC provides scientific advice on the stocks and fisheries of tuna and tuna-like species in the North Pacific to the Member governments and regional fishery management organizations. The most recently available data for which complete statistics have been tabulated by ISC Members and reported for their fisheries operating in the North Pacific is 2005. The total landed amount was 643,568 metric tons (t) of the major species (albacore – *Thunnus alalunga*, bigeye tuna – *T. obesus*, Pacific bluefin tuna – *T. orientalis*, yellowfin tuna – *T. albacares*, skipjack tuna – *Katsuwonus pelamis*, swordfish – *Xiphias gladius*, striped marlin – *Tetrapterus audax*, and blue marlin- *Makaira nigricans*). This represents an increase in catch of just over 15% in comparison to 2004 data. In 2005 there were slight increases in Pacific bluefin and yellowfin tuna catches and swordfish catches, but the main contributor to the higher catches in 2005 was the increase in skipjack tuna catches from 243,128 t in 2004 to 328,146 t in the following year.

1.2 Opening of the Meeting

The Seventh Plenary meeting of the ISC was convened at 0900 on 25 July 2007 by the Chairman, G. Sakagawa. A role call confirmed the presence of delegates from Canada, Chinese Taipei, Japan, Korea, Mexico and the United States (U.S.) (*Annex 1*). Absent members were China, the Inter-American Tropical Tuna Commission (IATTC), the Secretariat for the Pacific Community (SPC), North Pacific Marine Science Organization (PICES) and the Food and Agriculture Organization (FAO). A Western and Central Pacific Fisheries Commission (WCPFC) representative attended as an Observer.

Deok-Bae Park, President of Korea's National Fisheries Research and Development Institute (NFRDI) officially welcomed the participants to Busan. He noted that this year marks the 50th anniversary of Korea's distant water fisheries, including the tuna longline fishery, and encouraged scientists in their important work toward providing conservation advice for the valuable tuna species that inhabit the North Pacific.

After some brief logistical announcements, the agenda for the meeting was tabled (*Annex 2*). S. Clarke was assigned lead rapporteur duties. Assistance was provided by J. Brodziak and K. Uosaki for Agenda Item 7 and G. DiNardo and Y. Takeuchi for Agenda Item 9.

2 ADOPTION OF AGENDA

One addition to the agenda involving a presentation by H. Honda regarding research on recruitment of Pacific bluefin tuna and opportunities for collaboration was proposed. The Chairman suggested this presentation could be scheduled between Agenda Items 8 and 9. With this change the agenda was adopted.

3 DELEGATION REPORTS ON FISHERY MONITORING, DATA COLLECTION AND RESEARCH

3.1 Canada

M. Stocker presented a summary of catch, effort, and catch per unit of effort (CPUE) data for the Canadian North Pacific albacore tuna fishery in 2006 (*ISC/07/PLENARY/04*). The Canadian fishery for albacore in the North Pacific is a troll fishery using tuna jigs. All Canadian vessels must carry logbooks while fishing for highly migratory species in any waters. Detailed analysis of a combination of sales slips, logbooks, phone-in and transhipment records are undertaken to report fisheries statistics for the Canadian albacore fishery.

In 2006, 171 Canadian vessels operated in the North Pacific Ocean and caught 5,819 t of albacore in 6,239 vessel days (v-d) of fishing for a CPUE of 0.93 t/v-d. Estimates for 2006 are considered preliminary. Both catch and CPUE have followed an increasing trend over the period 1995-2004 and then dropped in 2005. The catch and CPUE increased from 2005 to 2006. Almost all of the 2006 catch was taken within 200 miles of the North American coast. Access by Canadian albacore vessels to waters in the US Exclusive Economic Zone (EEZ) is governed by a US-Canada albacore treaty.

In terms of research activities, a project to document the existing relational database for the Canadian Pacific albacore catch and effort data has been completed. A technical report has been published and is available at http://www.dfo-mpo.gc.ca/Library/327827.pdf. The report describes the design of the entire database (including trip log, sales slip and hail components) based on a Venn diagram concept, and includes a figure that documents the structure of the relationships between these components.

Discussion

A question was raised regarding the reason for the continued increasing trend in CPUE in the albacore troll fishery. M. Stocker replied that this could be explained by the fact that the most skilled fishermen remain active in the industry. This creates a situation where the catch rate is increasing while the total catch and effort are decreasing.

3.2 Chinese-Taipei

Shyh-Jiun Wang presented the report for Chinese Taipei (*ISC/07/PLENARY/05*). There are two major Chinese Taipei tuna fisheries operating in the North Pacific. Distant water longliners (DWLL) >100 GRT usually operate in the high seas or under license in foreign EEZs. Offshore longliners (OSLL) are smaller than 100 GRT and generally operate in the waters of Chinese Taipei.

The number of DWLL vessels operating in the Pacific Ocean in 2005 was 133, but reduced to 117 in 2006. Catches of albacore in the North Pacific were estimated at about

4,000 t per year in 2004-2006, whereas Pacific bluefin tuna catches have been < 1 t per year since 2000. Catches of swordfish were <100 t before 2000, increased to more than 1,000 t in 2001 to 2003 due to increasing fishing efforts for bigeye tuna, but then declined to <1,000 t in 2004 to 2006. Most Chinese Taipei DWLL vessels operate in the North Pacific from September to the following March, then shift to the South Pacific to target southern albacore from April through August.

The OSLL vessels generally target bigeye tuna and yellowfin tuna with considerable swordfish and marlin bycatch. OSLL catch of albacore is 100-900 t since 2000. Catches of Pacific bluefin tuna peaked at 3,000 t in 1999 and reduced to a level of 1,500-2,000 t after 2000. The catch of swordfish was 1,813 t in 2005 and estimated at 2,587 t for 2006. These catch estimates do not include landings in frozen form. From logbooks collected between 2002 and 2005, it was observed that fishing activities have been primarily located in the area of 110 to 150^{o}E and 10-30^{o}N, i.e. in waters southeast of Chinese Taipei and northeast of the Philippines.

Size frequency data on major tuna and tuna-like species caught by DWLL and OSLL fisheries in the North Pacific region are available from 2004-2006. For DWLL fisheries, the catch size data is recorded in logbooks. For OSLL fisheries, the data were collected from port sampling in domestic tuna fishing ports under a sampling program begun in 1997. Port sampling was carried out in Pago Pago (American Samoa), Suva and Levuka (Fiji) in 2005 and American Samoa in 2006. An observer program was launched in 2001 and included 2 North Pacific trips in 2004-2005 and 3 North Pacific trips in 2006. VMS has been mandatory for all DWLLs operating in the Pacific since June 2004. VMS data are used to verify logbook data. National Taiwan University (NTU) has conducted stock assessments for swordfish and sailfish, and is currently undertaking a stock assessment of blue marlin. Biological studies are in progress on black and striped marlin and a billfish tagging program has been undertaken.

Discussion

Chinese Taipei delegates were asked about their efforts to improve data coverage and quality. R.F. Wu responded that in the past Category I catch data had relied on agent and trade slips only but that now logbooks and VMS records are being used to cross-check these data. Finer scale Category II data will be similarly cross-checked but the data for 2006 are still considered preliminary.

Clarification was requested as to the coverage of the catches reported in Table 1 of the Chinese Taipei national report and specifically whether catches landed in frozen form and foreign landings were included. R.F. Wu responded that frozen catch from OSLLs is difficult to classify by fishing ground since it may have come from the Indian Ocean. Chinese Taipei officials hope to be able to better deal with this issue in the future. Nevertheless, Chinese Taipei delegates consider that DWLL catches are not affected by this issue, and OSLL catches are not drastically affected because the frozen catch in the North Pacific is not very large.

A question was raised regarding the plans to increase North Pacific observer coverage in the future. This issue is still under discussion by Chinese Taipei authorities but efforts to increase the observer coverage will continue.

In response to a request for more details on the billfish tagging program, C.L. Sun replied that this research was conducted by the National Taiwan University in conjunction with the Fisheries Research Institute and Fisheries Agency. However, now that it is becoming an important research program, it will be taken over by the Fisheries Research Institute. Results have been good thus far and there are plans to add black and striped marlin to the program. Opportunities for collaboration are available.

The Plenary Chairman reminded the delegates that the report falls short of the ISC requirements because it implies that there are only two fisheries for tuna and tuna-like species. In reality, other coastal gears are being deployed and should be covered in a more comprehensive report. Complete information on billfishes taken by all fleets is also required. The Chairman noted that this comment was also raised last year.

Clarification of the coverage rate for the DWLL catch records was requested. R.F. Wu replied that the coverage rate is >80%. Chinese Taipei delegates were then asked to explain how it had been possible to incorporate the requirement to measure fish into their logbook regulations. R.F. Wu replied that it was a requirement to measure the first 30 fish caught each day regardless of species. Tunas are measured from snout to fork; billfish are measured from lower jaw to fork. As mentioned in the presentation, there is some port sampling and though this began only 3 years ago it has already been expanded to Mauritius and Trinidad-Tobago, and will be further expanded with the hiring of 17 new government employees with college degree assigned to domestic port sampling. It was pointed out, however, that under the current system there is no way to validate the fishermen's measurements with those of independent observers and this should be considered as an essential element of the port sampling in the future. Another suggestion was made to weight the length frequency data in Figure 3 by catch since this might reflect a different distribution than that shown by the un-raised length frequencies in Figure 3.

3.3 Korea

S.D. Hwang presented the national report for Korea (*ISC/07/PLENARY/11*). From 1995-2006 the annual total catch of fishes captured by the Korean distant-water longline fleet in the North Pacific ranged between 11,403 and 27,212 t (average 17,818 t). In 2006, the annual catch increased compared to recent years to 19,711 t compared with recent years. Major species caught by longlines in the North Pacific were bigeye tuna (11,152 t, 57%) and yellowfin tuna (5,079 t, 26%) in 2006. The catch of Pacific bluefin tuna was negligible.

Most Pacific bluefin tuna produced by Korea were by-catch in the domestic purse seine fishery targeting mackerels. The annual catch of Pacific bluefin tuna by 33 purse seiners and 4 trawlers fluctuated in 2001-2006 between 591 and 1,005 t. In 2006, the monthly catch was highest in the months of April (248 t, 30%) and August (285 t, 34%). In

Korean coastal areas, most Pacific bluefin tuna are small individuals of 26-100 cm fork length (FL). The 40-50 cm FL size class dominated in 2006 whereas the 50-60 cm FL class dominated in 2004 and 2005. Catches of Pacific bluefin tuna were mainly taken in the southern coastal waters of Korea near Jeju and Tsushima Islands. The distribution of Pacific bluefin tuna catch appears to depend on the distribution of the fishery fleet's target species and the degree of biological interaction among Pacific bluefin tuna, mackerels and squids.

NFRDI initiated an international fisheries observer program for distant-water fisheries in 2002. In 2006, nine observers were deployed on Korean fishing vessels. To reduce numbers of seabird and sea turtle by-catch in the tuna longline fishery, guidebooks and posters summarizing information on these species were distributed to fishing boats including tuna longliners.

Discussion

Several technical questions were raised regarding the data presented. In response Korean delegates replied that:

- data for "white marlin" is actually data for "black marlin";
- due to delays in compiling data 1-3 years are required to finalize the catch figures;
- the mackerel species being targeted by purse seines are the same species as those targeted in Japan;
- the observed relationships between Pacific bluefin tuna abundance and oceanographic conditions were based on surface water temperature data;
- there are no size data available for billfishes even though the flying squid gill net fishery may have caught billfishes as bycatch;
- the original information underlying Table 1 is collected in both number and weight; and
- Korean purse seiners use general purpose purse seine nets for targeting small pelagic fishes which have not been modified to target Pacific bluefin tuna.

Several data requests were raised including provisions of catch-by-size for Pacific bluefin tuna caught by the Korean purse seine fishery, and data similar to those in Table 1 but for billfish so that average weights can be calculated. To the latter request, D.H. An replied that since the Korean longline fishery is targeting yellowfin tuna and bigeye tuna they may not have data for billfishes.

A final question pertained to why Figure 2 shows a considerable change in fork length (FL) of Pacific bluefin tuna from 2000-2006 and whether this could indicate a change in fishing grounds. After discussion by the group it was concluded a change in fishing grounds was unlikely. Instead, the increase in sample size from <500 to nearly 5,000 was probably responsible for the change. S.D. Hwang noted that it is probably unrealistic to expect that the entire size range of Pacific bluefin tuna could be sampled from a fishery in which this species is not a target species.

3.4 Japan

The national report for Japan was presented by H. Yamada (*ISC/07/PLENARY/09*). Japanese tuna catches are collected by three major fisheries, i.e. longline, purse seine, pole-and-line, as well as other miscellaneous fisheries like troll, drift net and set net fisheries. Total landings of tunas, swordfish and billfishes in the Pacific Ocean were 543,000 t in 2005.

Total catch of longline vessels smaller than 20 GRT has continuously increased since the 1980s, and was 30,000 t in 2005. The effort of this fishery was relatively stable in the 1980s, but increased after that. The total catch and effort of longline vessels larger than 20 GRT was stable until 1990, but both catch and effort have shown decreasing trends since then. The total catch was 45,000 t in the North Pacific in 2005. Bigeye tuna has been the dominant species in the landings.

Total catch of the purse seine fishery in the waters north of 20ºN was variable during the documented period, ranging from 23,000 t to 102,000 t, and was 80,000 t in 2005. Skipjack tuna (skipjack) dominates in purse seine catch, followed by Pacific bluefin tuna and yellowfin tuna. The effort of this fishery was highest in the mid 1980s (> 4,000 sets) but has been about 2,500-3,000 sets in recent years.

Total catch of the offshore and distant water pole-and-line fishery in the waters north of 20ºN was variable ranging from 90,000 t to 199,000 t, and was 120,000 t in 2005. Skipjack and albacore dominate the pole-and-line catch. The effort of this fishery decreased during the 1980s due to a decrease in the number of vessels, but it has been relatively stable since the early 1990s.

The annual catches of Pacific bluefin tuna have been stable at an average of 13,000 t since 2000, except for a high catch of 21,000 t in 2005. Purse seines have the largest catches of Pacific bluefin tuna with a catch of 7,100 t in 2006. The catch of albacore by longline was 17,000 t in 2006. This catch is similar to the catch in 2005 which is the lowest level in the last decade. This is due to substantial reductions in the number of large longline vessels due to economic circumstances. Swordfish catch by offshore and distant water longliners in 2005 (5,714 t) in the North Pacific showed a 9% increase from that in 2004.

Research cruises for bigeye tuna and blue marlin tagging, research on early life history of tunas, and testing of bycatch mitigation measures in longline fisheries were conducted by the National Research Institute of Far Seas Fisheries. Tagging studies using conventional tags, archival tags and pop-up archival tags are carried out for many kinds of tunas and tuna-like species. Studies of biological parameters for skipjack and Pacific bluefin tuna were also conducted.

Discussion

In response to a question, K. Uosaki noted that preliminary results from the 2007 albacore pole and line fishery showed that the catch was more than 20,000 t, therefore an increase over the catch values from the past 2 years. However, the skipjack fishery is performing poorly this year.

Various technical questions relating to data and research were also raised. Clarification was requested regarding the size difference between bigeye tuna caught in temperate versus tropical areas. N. Miyabe confirmed that modal size (100 cm versus 120 cm FL) and average weight (30 kg versus 50 kg) were lower in temperate waters compared to tropical waters but he considered this might be due to a seasonal difference rather than location alone. Further details on the testing of mitigation measures were requested to be released so they can inform potential actions by WCPFC. These details are provided in the report of the Bycatch WG. A request was also raised for provision of data on the number of active vessels rather than just the registered number of vessels. This could indicate whether or not a smaller number of vessels are using a greater number of hooks. N. Miyabe considered that this issue was complex due to vessels moving from area to area and thus there was a potential for double-counting. VMS will be in place soon and may help to address this issue. However, since the scientific standard unit is number of hooks, the absence of data on the number of vessels should not impede assessments. When asked whether previous work on age 0 skipjack was continuing, it was confirmed that additional sampling was conducted west of the Marianas and south of the Federated States of Micronesia last year and analysis is underway.

A request was made to coordinate on future tagging studies with WCPFC. Because of its limited research budget, Japan welcomes such collaboration and has coordinated with SPC in the past. It was suggested that this issue can be discussed at the WCPFC Scientific Committee Meeting next month.

3.5 Mexico

M. Dreyfus presented the Mexican national report (*ISC/07/PLENARY/10*). The tuna fishery of Mexico developed to its present size in the 1970s when Mexico implemented its 200 mile EEZ. Catch is dominated by yellowfin tuna, and to a lesser extent skipjack. Since the beginning of Pacific bluefin tuna farming on the west coast of the Baja California peninsula, this species is also a target. The fleet is mainly composed of purse seine vessels with concessions to catch all tuna species. Pacific bluefin tuna farming is undertaken by Mexican as well as foreign investment companies, but Pacific bluefin tuna for farming must be caught by the tuna fleet. Although the number of farms is stable, there have been record catches in 2004 and 2006. Therefore these fluctuations are related to environmental conditions.

All vessels above 363 tons of carrying capacity have observers on board (from both IATTC and Mexican observer programs). In the case of the national program, sampling

is routinely performed on board for yellowfin tuna and since 2005 also for Pacific bluefin tuna. The number of vessels and the capacity of the fleet are stable.

In the case of the swordfish fishery, there are less than 30 vessels operating off the west coast of the Baja California peninsula using gillnets as well as longlines. They are allowed to operate only outside a zone of 50 miles from the coast within which billfishes are reserved for the sport fishing fleet. Billfishes are more important for sport fishing activity, mainly located in the states of Baja California Sur and Sinaloa. Increases in sport fishing effort have been observed particularly in Cabo San Lucas. The catch and release rate in sport fisheries is estimated to be 75%.

Discussion

In the discussion it was confirmed that since all billfishes are reserved for the sport fishery within a zone of 50 nmi from the coast, the research programs conducted by the INP through monitoring the fishery are the main source of scientific information on these species, as long as they are the target species. All available catch, size and weight data have been reported to the swordfish and marlin WGs. Catches of Pacific bluefin tuna in 2006 were the highest on record and it appears 2007 will show a mid-range catch. However, since yellowfin tuna is also relatively scarce this year, there may be re-direction of effort to other species such as Pacific bluefin tuna as happens in years in which tropical tuna catches are low. Nevertheless, Pacific bluefin tuna fishing grounds are located to the north of the yellowfin tuna fishing grounds, therefore this deters some of the vessels which are searching for yellowfin tuna from shifting to the Pacific bluefin tuna fishing grounds. The area west of Baja California appears to be a productive area for both Pacific bluefin tuna and sardines and there is a predator-prey connection. Although 80% of the Pacific bluefin tuna catch is sent to the farms, M. Dreyfus confirmed that the rise in catches was not due to an expansion of the industry but instead due to an increase in availability of the resource. Those interested in more information about the Pacific bluefin tuna pen-rearing industry were referred to the report of the Pacific bluefin tuna WG.

3.6 United States of America

W. Fox presented the United States (U.S.) national report on behalf of A. Coan who could not attend the meeting (*ISC/07/PLENARY/06*). Various U.S. fisheries harvest tuna and tuna-like species in the North Pacific. Large-scale purse seine, albacore troll, and longline fisheries operate both in coastal waters and on the high seas. Small-scale gill net, harpoon, and pole-and-line fisheries and commercial and recreational troll and handline fisheries usually operate in coastal waters. Overall, the range of U.S. fisheries in the Pacific is extensive, from coastal waters of North America to Guam and the Commonwealth of the Northern Mariana Islands (CNMI) in the western Pacific, and from the equatorial region to the upper reaches of the North Pacific Transition Zone.

In U.S. Pacific fisheries for tunas and billfishes, fishery monitoring responsibilities are shared by the National Marine Fisheries Service (NMFS) and by partner fisheries

agencies in the states of California, Oregon, Washington, Hawaii, and territories of American Samoa, Guam, and the CNMI. On the federal side, monitoring is conducted by the Southwest Regional Office (SWRO) and the Southwest Fisheries Science Center (SWFSC) in California and the Pacific Islands Regional Office (PIRO) and the Pacific Islands Fisheries Science Center (PIFSC) in Hawaii.

U.S. government research on tunas and tuna-like species of the North Pacific Ocean is shared between the SWFSC and PIFSC. Studies are largely carried out from laboratories in La Jolla, California for the SWFSC and in Honolulu, Hawaii for the PIFSC, and in collaboration with scientists of other government or university institutions, both in the U.S. and abroad. Both Centers have studies devoted to stock assessment, biological and oceanographic research, and fishery management issues, but each Center concentrates on different species and fisheries in order to minimize duplication.

Discussion

Further clarification on a proposed Pacific bluefin tuna tagging project was provided. The plan is for NMFS to hire the vessel and use the sales proceeds from non-tagged fish to offset the cost of the hire. The tagging will be conducted in conjunction with a Mexican farming operation but will take place in U.S. waters. The program is designed to take place at the end of the Pacific bluefin tuna season with the intended result that the tagged individuals will remain at liberty for some time (i.e. perhaps until the start of the next fishing season). Whether this occurs will depend on the degree to which tagged individuals move, but there is believed to be little effort on Pacific bluefin tuna in U.S. waters. This program differs from NMFS collaboration with the TOPP program because TOPP mostly deploys archival tags.

A question was raised as to why the U.S. purse seine fleet is catching a larger percentage of bigeye tuna than other purse seine fleets, e.g. most purse seiners, including Korea vessels very similar to U.S. vessels catch 6-7% bigeye tuna whereas the U.S. purse seiners catch around 10% bigeye tuna. Potential differences such as more setting on fish aggregating devices (FADs) or floating objects by the U.S. fleet, or use of helicopters by the U.S. fleet were discussed. However, it was concluded that the market value/prices, yield, species composition and abundance, and changes in fishing grounds, could also play a large part in determining catch rates. Furthermore, a species composition of >10% bigeye tuna is not unusual. In any case the U.S. purse seine fleet is shrinking and may soon reach an economic tipping point where fuel prices outweigh returns. Many of the vessels which have already left the fleet have been sold and moved into other fishing grounds such as the eastern Pacific.

There was also a discussion concerning the targeting strategy of the Hawaii longline fishery and why it appears to have shifted from albacore to bigeye tuna. It was clarified that the Hawaii longline fishery has always mainly targeted bigeye tuna but that a small portion of the fleet targeted swordfish and a subset of these targeted albacore. However, due to recent effort restrictions on swordfish effort, there is almost no albacore targeting occurring now. The hypothesis that the Hawaii longline fleet has shifted from albacore to

bigeye tuna because of decline in albacore stocks is also not supported by the constancy of catch per unit effort in the U.S. albacore troll fishery.

4 REPORT OF CHAIRMAN

The Chairman reported that the Committee made progress in advancing research required to meet the objectives of the Committee. Since the Sixth Plenary Meeting in 2006, the ISC held eight working group workshops, completed two full stock assessments (albacore and striped marlin), developed work plans for completing full assessments for Pacific bluefin tuna and swordfish by 2010, concluded an agreement with the WCPFC for providing scientific advice to the Northern Committee of the WCPFC, prepared a penultimate draft of the ISC Procedures Manual, and completed a long list of action items identified by the Sixth Plenary.

Despite this significant progress, further gains are needed and at a more rapid pace than to date. Members were reminded that through cooperation, collaboration and increased investment of resources, this challenge can be effectively addressed. Cooperation, such as collection and exchange of complete and timely fishery statistics is required. Collaboration, such as full support of working group activities including participation in workshops is essential. Investment of resources, such as dedicated national budgets for projects listed as research gaps in working group reports needs to be made. Priority activities for the next two years should include supporting tasks required to complete full stock assessments for Pacific bluefin tuna and North Pacific swordfish; updated stock assessments for albacore and striped marlin; providing the resources and developing the infrastructure for a fully capable ISC data and information management system; upgrading the website to meet expanding needs; and increasing the scientific capacity of the members to address growing ISC stock assessment needs.

The Chairman thanked the members for supporting ISC activities during the past year, and looked forward to continued support in the coming year. He also thanked the working group Chairmen and active members of the working groups for their contributions to the progress made by the Committee during the year, especially in expanding the scientific knowledge on the biology, fisheries and stock condition of highly migratory species in the North Pacific Ocean.

5 INTERACTION WITH REGIONAL ORGANIZATIONS

5.1 Activities relating to WCPFC

S.K. Soh introduced the issue of the relationship between the ISC, the Northern Committee (NC) and the WCPFC's Scientific Committee (SC) with regard to northern stocks. According to the Memorandum of Understanding (MOU) between the ISC and the WCPFC, the ISC will provide scientific information and advice on the northern stocks to the WCPFC, the NC and the SC. Under the current agenda, both the NC and the SC will consider northern stocks at each of their regular sessions. In order to promote efficiency and cost-effectiveness of the WCPFC's work, the WCPFC Secretariat has

prepared a discussion paper suggesting a review of the roles and responsibilities between the ISC, the NC and the SC in respect to the northern stocks (*WCPFC-SC3/GN WP-4*). This paper outlines 3 options as follows:

Option 1: The SC and NC will receive the same information on the northern stocks (currently swordfish, Pacific bluefin tuna and albacore but the issue of including striped marlin is under discussion), and other stocks as requested, by the NC from the ISC Plenary. This is the current situation. If the SC has opinions they may voice them to the NC and the NC will ask the ISC for clarification. The SC or the NC may request an independent assessment of the advice provided, if considered necessary.

Option 2: The NC provides management advice to the WCPFC regarding species in the list of 'northern stocks' based on the ISC's advice. The SC would only cover those species not formally identified in the list of 'northern stocks'.

Option 3: The SC reviews the details of the ISC work and reports it to the NC and the WCPFC for management decisions. This will duplicate the work of the ISC at the SC meeting.

It was acknowledged by S.K. Soh that Option 3 is not practical. The ISC was invited to provide any views on the proposed agenda item at the upcoming SC meeting in August 2007.

Discussion

All agreed that given the lack of staff capacity and research budgets in this field that duplication and redundancy should be avoided as a matter of priority. It was noted that the MOU between the ISC and the WCPFC which lays out procedures very similar to those in Option 1 was practical and could provide useful guidance. However, concerns were expressed regarding the process by which the SC would review the work of the ISC under Option 1, particularly given the extensive nature of the documentation produced by the ISC WGs, and the resource and timing implications for WCPFC should they decide to call for an independent review of the assessment(s). A related concern was voiced regarding the three-channel provision of ISC advice under Option 1 and its potential to create confusion or stalemate.

As an alternative, a fourth option was suggested in which the SC would nominate a representative to participate in the ISC WG assessments throughout the process. When the assessment is complete and provided to the SC, the representative would then be called upon to endorse the results to the SC or call for further review. It was acknowledged that this fourth option would create resource demands for the WCPFC but these demands are relatively minor compared to the demands triggered by a call for full-scale re-assessment. It was also pointed out that the WCPFC is routinely invited to participate in the ISC WG assessments which are scheduled to avoid other major RFMO activities. It may be necessary to formalize procedures through which the WCPFC is

invited to participant under the fourth option, in order to specifically create the role of a "qualified representative".

The discussion concluded with consensus that the issue is complex and a decision should not be rushed. Several options under consideration, as well as potentially other options which have not yet been developed, appear to be viable. It was agreed that the best solution would need to promote efficiency, continue the sound science embodied in the ISC WG assessments, protect the interests of all members, and maintain productive relationships between all interacting RFMO bodies.

5.2 Activities relating to PICES

The Plenary Chairman called to the attention of the group that the PICES 16th annual meeting will be held in Victoria, Canada on Oct 26th to Nov 5th. PICES has invited the ISC to send a representative to speak about potential collaborative research and the ISC needs to respond to this invitation. No honorarium or travel funding can be made available but if members are interested in attending PICES as the ISC representative they should notify the Chairman. In a related note, members were also urged to consider attending the WCPFC SC meeting in Honolulu to be held 13-24 August.

6 REPORTS OF WORKING GROUPS

6.1 Albacore

M. Stocker presented a summary of the ISC Albacore Working Group (ALBWG) activities since the 6th ISC Plenary. The total catch of North Pacific albacore for all nations combined peaked at a record high of about 125,000 t in 1976, then declined to a low of about 37,000 t in 1991. In the early 1990s, catches increased again, peaking in 1999 at 125,000 t, and averaged about 88,000 t since the early 2000. The 2005 catch of about 62,000 t was the lowest observed since the early 1990s. During the past five years, fisheries based in Japan accounted for 66% of the total harvest, followed by fisheries in the United States (16%), Chinese Taipei (8%) and Canada (7%). Other countries targeting the North Pacific stock contributed 3% to the catch and included Korea, Mexico, Tonga, Belize, Cook Islands, and Ecuador. While various fishing gears have been employed over the years to harvest albacore in the North Pacific, the main gears used over the last five years were longline (36%), pole-and-line (37%), and troll (22%). Other gears used since the mid-1990s included purse seine, gill net, and recreational fishing gears, which in combination accounted for roughly 5% of the total catch of albacore from the North Pacific.

A Stock Assessment Task Group workshop was convened at the Pacific Biological Station in Nanaimo, B.C. July 13-17, 2006 for the purpose of data preparation for the full ISC ALBWG stock assessment workshop. The report of the Stock Assessment Task Group workshop is included in *Annex 5*.

The ALBWG stock assessment workshop was held at the National Research Institute of Far Seas Fisheries (NRIFSF) in Shimizu, Shizuoka, Japan from November 28 to December 5, 2006. A total of 16 participants from Canada, Japan, and the U.S. attended the workshop; regrettably there were no participants from Mexico, Chinese Taipei, IATTC and SPC. The charge for the workshop was to complete a full assessment of the North Pacific albacore stock with data from 1966 to 2005, and to develop scientific advice on biological reference points for consideration of management action and for recommending action. In addition to conducting a full assessment, the workshop reviewed recent fisheries, reviewed biological studies, considered alternative stock assessment models, made research recommendations, updated the work plan for 2007, and discussed administrative matters. The workshop report is included in *Annex 5*.

The time and place for the next ALBWG workshop is planned for early 2008 in La Jolla, California, U.S. The objectives of the workshop will be to: (1) update the catch (Table 1) to 2007; (2) conduct a thorough evaluation of the abundance indices; and (3) conduct further assessment modeling work using the Stock Synthesis-II (SS-II) model, with the goal of presenting sometime in 2008 a baseline model that can be used to develop WG-related consensus concerning the status of the albacore population in the North Pacific Ocean. Further efforts will be needed to ensure input data (time series) are the best available, and model assumptions and related parameterization issues are appropriate. It is expected that this work will be completed sometime in mid-2008 and presented at the ISC ALBWG workshop to be held in conjunction with the 8th meeting of the ISC Plenary in 2008. The next full assessment for North Pacific albacore will be carried out in 2009.

Discussion

A question was raised regarding the data available for incorporating estimates of Illegal, Unregulated and Unreported (IUU) fishing into the stock assessment models. A particular problem could be that if the number of active vessels is unknown, the number of vessels potentially engaged in IUU would be nearly impossible to estimate. M. Stocker agreed that these are important issues to consider and noted that the WG had yet to tackle them fully.

The Plenary Chairman then asked for a review of the ALBWG's progress against the action items that had been agreed last year. The main actions items pertained to commitments to review and rescue data from the early 1950s through the mid 1970s. M. Stocker replied that data starting in 1966 had been rescued and used in the assessment, thus extending the historical extent of the assessment backward from 1975 by 9 years. However, it was explained that problems had been encountered when attempting to rescue data from 1952-1966 since these data were mostly limited to annual catch values and were not useful for the kind of fine-scale assessment models being run by the ALBWG. In addition, much of these early data have problems with species identification. Therefore, in this case there is a trade-off between the length of the data series and its quality. Members were referred to the ALBWG report for detailed discussions of these issues. While members agreed there may be ways to work around these data deficiencies

and still extend the historical extent of the model, it was also deemed important to continue efforts to rescue these data.

6.2 Pacific bluefin tuna

Y. Takeuchi, Chairman of the last two workshops of the Pacific Bluefin Tuna Working Group (PBFWG), summarized the efforts since the last Plenary meeting including a summary of the two PBFWG workshops held during this period. Catch of Pacific bluefin tuna fluctuated from a low of 8,500 t in 1990 to a peak catch of 38,000 t in 1956. Recent five-year (2002-2006) average catch is about 22,000 t, nearly the same as the historical average. Japanese catch continues to consist of about half or more of total Pacific bluefin tuna catch. In addition, the U.S. fishery caught substantial amounts of Pacific bluefin tuna until the 1980s. Mexico and Chinese Taipei have increased their catches in recent years although they remain relatively smaller than those of Japan. In response to a request from the Plenary in 2006, the current catch database held by the PBFWG was expanded to include the catch of New Zealand longline vessels operating in their EEZ. At the two intercessional workshops since the last Plenary, the WG have made significant progress in addressing both data gaps and model uncertainties. This work involved:

- Age and growth study from otoliths by scientists from Japan and Chinese Taipei;
- Comprehensive review of historical size data;
- Estimation of historical quarterly catches for the stock assessment model;
- Review of historical Japanese longline CPUE;
- Review of Pacific bluefin tuna catch in the pre-assessment period;
- Review of alternative stock assessment models (i.e. SS-II).

The PBFWG developed a schedule of intercessional workshops to complete a full stock assessment by the next ISC Plenary meeting. A workshop dedicated to data preparation and model development will be held from 11-18 December 2007 in Shimizu. That will be followed by a stock assessment workshop from May 28-June 4 2008. Key stock assessment scientists will meet one week before (21-27 May 2008) the assessment. This will ensure that preparations are in order for the assessment.

Discussion

Once again the discussion focused on progress of this WG with regard to previously agreed action items. Y. Takeuchi clarified that progress had been made with regard to obtaining relevant data from non-member countries including receipt of data from New Zealand and communication with the SPC regarding additional data. The Plenary Chairman acknowledged that originally there had been a desire to fast track the Pacific bluefin tuna stock assessment but that ultimately it was decided that more time was necessary to assemble the correct data. For this reason, the stock assessment is scheduled for completion in May-June 2008.

The IATTC requested that the assessment be held earlier to allow its staff to avoid workload conflicts in May and to allow IATTC to present the findings to peer review

before its annual meeting in June. While members were sympathetic to IATTC's scheduling issues and appreciated IATTC's sincere interest in participating in the assessment, there was general agreement to support the Pacific bluefin tuna WG in its desire to adhere to the original schedule. The Plenary Chairman will contact R. Allen of the IATTC and inform him of the decision.

6.3 Marlin and Swordfish

G. DiNardo, Chairman of the Marlin, summarized the efforts of the Marlin (MARWG) and Swordfish (SWOWG) working groups since the last Plenary including a summary of the three joint MARWG-SWOWG workshops held during this period. Workshop goals included the review and update of fishery statistics, agreements on stock structure scenarios, estimation and agreement on standardized CPUE time series, and completion of a striped marlin stock assessment. In addition, the WGs discussed the need and timing for a World Swordfish Meeting which was identified as an action item for the SWOWG at the 2006 Plenary.

Significant progress was made to facilitate the goals, including the updating of Category I, II, and III data and standardization of CPUE time series. A request for Category I, II, and III data for all billfish caught by member countries in the North Pacific was approved by the WGs, and these data were submitted to the WG Chairmen. While significant improvements in catch statistics have occurred, most notably for the fisheries of Mexico and Chinese Taipei, further improvements from other member countries is still needed. A striped marlin stock assessment was completed and conservation advice proffered.

Administrative matters were presented including a proposal to merge the MARWG and SWOWG into a single Billfish WG (BILLWG). The rationale for this proposal was outlined to Plenary members, and a decision on the proposal was requested. Elections for WG Chairmen were also conducted and it was agreed that if the ISC Plenary supports the establishment of the BILLWG, then one chairman should be elected. Nominations were taken and a vote conducted, with Chinese Taipei, Mexico, Japan, and the USA all voting for the election of G. DiNardo as Chairman of the BILLWG. A proposed assessment schedule was presented which included the completion of a North Pacific swordfish stock assessment in July 2009 and a Pacific-wide blue marlin stock assessment in July 2010. It was pointed out that a collaborative approach will be required to complete the blue marlin assessment and efforts are currently underway to establish the necessary collaborations. The WG's recommendation for dealing with the requirement of a World Swordfish Meeting in 2008 was presented, and concurrence from the Plenary sought. Proposed dates and venues for upcoming intercessional workshops were presented and they include January 15-23, 2008, possibly in Hawaii, USA, and June 2008 in Hokkaido, Japan.

Problems impinging on the ability of the WG to complete it's goals were presented, including the lack of (1) sufficient data in the ISC database and (2) continued participation at WG workshops by member countries. Possible solutions to the problems were presented and guidance from the Plenary sought. Finally, it was pointed out that many of the WG's goals were achieved and that their successful completion is linked

directly to the commitment and dedication of scientists from the member countries and organizations.

Discussion

The Plenary Chairman commended the MARWG and SWOWG for their excellent progress. Members agreed with the recommendation and rational of the WG to combine the MARWG and SWOWG into a single BILLWG. It also endorsed the election of G. DiNardo as the Chairman of this BILLWG.

Through discussion it was clarified that a special session on swordfish is being proposed for the World Fisheries Congress (WFC) in Yokohama in October 2008. Plans for a multi-day World Swordfish Symposium would be postponed until after the swordfish stock assessment workshops in May-June 2008. The WFC session would focus on resolving issues of stock structure for the Pacific. Members expressed support for the proposal to hold the special session at the WFC.

The possibility of accelerating the schedule of the planned assessment was discussed. However, the statistics currently in the ISC database are so incomplete that considerable time will be required to assemble the necessary data. It is therefore practically impossible to have a swordfish assessment ready for the July 2008 Plenary, although there will be stock condition determination conducted in Japan in June 2008 that will be reported to the July 2008 Plenary.

Related issues of capacity building through participation in WG workshops and data sharing to allow members to use WG data to test their own models were raised. It was clarified that members are strongly encouraged to participate in assessment WGs from the very beginning of the process to not only contribute data but to build capacity within their own staff. One of the early tasks of the WG will be to select the best model or models for the assessment and full participation in such exercises is encouraged. After model(s) have been selected, there is no prohibition on running other models for comparison but this should be done within the context of the WG workshops with the data being actively used in that workshop.

The final discussion point involved evaluating progress against the previously agreed Action Items. With reference to document *ISC/07/PLENARY/01*, the SWOWG accomplished all three of its action items and the Plenary Chairman considered that the MARWG had also undertaken all of the required actions.

6.4 Bycatch

G. DiNardo substituted for C. Boggs in presenting the report of the Bycatch Working Group (BCWG). The BCWG held an intercessional workshop from May 2-5, 2007 in Honolulu, Hawaii attended by scientists from Chinese Taipei, IATTC, Japan, Mexico, and the U.S. Members reviewed the WG Terms of Reference developed at the previous workshop and agreed that the WG would focus on highly migratory species (HMS) and

their fisheries, specifically on fisheries interactions with sea turtles, seabirds, and sharks. In particular, the review of bycatch stock status would be a recurring group activity, but the group would not actually conduct assessments due to lack of expertise. Since the group provided a broad summary of bycatch stock status last year, it focused on new topics in 2007. One objective was to review bycatch estimates for HMS fisheries, but most attendees only had data on sea turtles or seabirds. Substantial data on shark catches may be forthcoming from several members, but an issue is whether or not these represent bycatch or targeted catch.

Methods for producing bycatch estimates were reviewed, beginning with the need for observer programs. The value of systematic observer sampling for producing unbiased estimates of fleet-wide bycatch was emphasized, as was the need to understand different operational styles that can greatly influence bycatch rates. Past attempts to produce global and Pacific estimates of longline sea turtle bycatch were reviewed and deemed unreliable. The extent of observer coverage was summarized, and with one exception (U.S.), past coverage was considered too low to provide useful bycatch data. However observer programs are being initiated or expanded by several members.

The WG requests guidance from the ISC Plenary as to whether the WG should examine only those fisheries targeting HMS in the North Pacific or should it also examine other fisheries which may interact with the same bycatch species of concern to the WG. The participants discussed this issue but could not reach consensus. Most participants believed that the WG's role is to examine just those fisheries which target HMS.

A detailed work plan was developed based on objectives agreed last year. For some elements it was not possible to identify parties to conduct the work, but most projects are underway. Salient activities include: the submission to the ISC of fisheries and bycatch statistics needed to initiate estimation of bycatch by fishery sectors; continuation of experiments on sea turtle, seabird and shark bycatch reduction; and analysis of trends in sea turtle abundance and trends in fisheries effort to look for any relationships between the two. Bycatch reduction research underway was reviewed. Although current and proposed conservation and management measures of various RFMOs were presented, there was resistance to proposing or discussing technical specifications or best practices for such measures.

Discussion

It was noted in the discussion that the BCWG will meet in May 2008 and then again in conjunction with the Plenary next year (July 2008). Members discussed the suggestion that the activities of the BCWG with respect to seabird and sea turtle bycatch mitigation measures are duplicative of other efforts underway by the IATTC and the WCPFC. Given the Terms of Reference of the BCWG, if the emphasis is shifted away from seabirds and sea turtles, this would lead to a greater focus on shark issues. While it was noted that the Plenary Chairman and the Chairman of the BCWG agree that the current seabird and sea turtle focus is redundant with other organizations, and that there is currently a vacuum concerning shark research in the Pacific, reservations were expressed

about disengaging from seabird and sea turtle issues. Reasons cited included a loss of ISC expertise in handling these issues on a North Pacific-wide basis and ability to shape the debate with academic and non-governmental organizations who promote these issues; and the need to wait until further management measures (e.g. the IATTC has sea turtle measures (only) and the WCPFC has seabird measures (only)) are adopted before changing course. On the other hand, all members acknowledged the need to focus ISC efforts toward activities where a concrete contribution can be made, rather than simply reviewing information that is also being presented in other forums. Members reached consensus on a recommendation the BCWG review where it can best focus its work given its limited resources and the areas already being covered by other organizations. The WG's Terms of Reference will not be changed but it is expected that a shift in emphasis away from seabird and sea turtle issues, and toward shark issues, is likely to result.

The group also discussed a request from the WG to clarify whether it should be addressing only impacts from HMS fisheries, or all fisheries which impact the species in the WG's Terms of Reference. It was noted that it is quite difficult to obtain data for HMS fisheries and would likely be even harder to obtain data for non-HMS fisheries in the North Pacific. Several members stated that broadening the scope to non-HMS fisheries would exceed the mandate of the ISC. All members agreed that a holistic approach to evaluating impacts to bycatch species was necessary and that this requires taking into account not only HMS fishery impacts but also non-HMS fishery impacts, pollution, habitat impacts, etc. However, WG efforts should be focused on HMS fisheries since that is the primary area of ISC expertise. While beyond the remit of the ISC, a suggestion was noted that an international focus group for sea turtle issues in the North Pacific, i.e. one that meets regularly to coordinate new research/information and assess population status, is missing and could be established by interested nations.

7 STOCK STATUS AND CONSERVATION ADVICE

7.1 Albacore

M. Stocker presented an overview of the ALBWG stock assessment workshop (*Annex 5*). A total of 16 participants from Canada, Japan, and the United States, attended the Workshop. A total of 19 working documents were tabled. The 2006 stock assessment was conducted with the VPA-2BOX model.

A single catch-at-age matrix (1966-2005) applicable to all (inclusive) fisheries was developed by simply summing the completed catch-at-age matrices from the 'eastern' and 'western' North Pacific Ocean. The combined catch-at-age matrix served as the foundation for stock assessments based on the VPA-2BOX model analysis.

Seventeen abundance (CPUE) indices were used in the 2006 albacore assessment:

- U.S./Canada Troll (ages 2,3,4,5)
- U.S. Longline (age-aggregated 6-9+)
- Japan Pole-and-Line (ages 2,3,4,5)

- Japan Longline (age 3,4,5,6,7,8,9+)
- Chinese Taipei (age-aggregated)

The VPA team conducted VPA-2BOX model analysis (15) for this year's workshop using 'primary' sources of input data. Model Scenario D1 was selected by the WG to assess current stock status and project future stock conditions.

Spawning stock biomass (*SSB*, in tons) time series (1966-2006) for north Pacific albacore generated from Model D1 (based on 'May 1' estimates) show fluctuations around the modeled time series average of 100,000 t. The 2006 stock assessment indicated that *SSB* increased from 2002 (73,500 t) to 2006 (153,300 t) and is projected to increase to 165,800 t in 2007. The increase is attributable to strong year classes in 2001 and 2003. The estimated spawning stock size in 2006 of 153,300 t is approximately 53% above the overall time series average (1966-2005). Projections (2007-2020), using an average productivity of 27.75 million fish and F equal to 0.75, indicate that the SSB will reach equilibrium by 2015 at 92,600 t (90% CI=62,700-129,300).

The WG reviewed two documents relative to Biological Reference Points (BRPs): 1) computational methods; and 2) simulation and probability analysis. Computation of BRPs was limited to examination of current F levels relative to a suite of candidate F-level BRPs. Equilibrium yield-per-recruit analysis(*Y*/*R)* and spawning stock biomass-per-recruit (*SB*/*R)* calculations were conducted using similar vital rates (growth, maturity, and natural mortality) as used in Model D1 calculations. The population projections and associated uncertainty were used to construct probability profiles for *SSB*. Each profile presents the probability that the spawning stock biomass will fall below a specified threshold level during one or more years of the projection period.

In conclusion the WG noted the following:

- Retrospective analysis shows a noticeable trend of over-estimating current stock size; and conversely underestimating current fishing mortality rate;
- The population is being fished at roughly *F*17% (i.e., $F_{2002\text{-}2004} = 0.75$); similar to the 2004 assessment;
- F_{cur} (0.75) is high relative to commonly used F reference points;
- The ALBWG expressed concern about the considerable decline in total albacore catch since 2002;
- The $F_{SSB\text{-}MIN}$ analysis indicates that at the 95% probability of success all of the threshold Fs would require reductions from F_{cur};
- Therefore, the ALBWG strongly recommends that all countries support precautionary-based fishing practices.

Discussion

Details of the 2006 albacore assessment were discussed:

- While it might appear contradictory that some fisheries show increasing CPUEs while others show decreasing CPUEs, this may be due to high catch rates for smaller fish in good years resulting in a fishing down of these year classes, leaving fewer fish left for fisheries targeting larger fish. It is thus consistent with population dynamics theory.
- The reason for a consistently overestimated spawning stock biomass/exploitable biomass in the most recent year (shown in retrospective analysis) is difficult to pinpoint. It might be possible that with the proposed use of the SS-II model in the future this problem can be avoided.
- As indicated by the broad confidence intervals in the projections of spawning stock biomass, there seems to be considerable uncertainty, particularly with respect to predicting future recruitment.
- It was pointed out that although several related scenarios were modelled, the assessment does not present a future projection with a constant catch scenario. It was suggested that in conjunction with future assessments, a suite of constant catch projections may be useful for managers.
- The WG decided the best approach was to model recruitment using an average for 1966-1998 with random variation. This is in contrast to the previous approach in which alternative low and high recruitment regimes were assumed. However, it was suggested that for future assessments it would be useful to examine alternative recruitment parameter forms. It was acknowledged that when recruitment varies a great deal and constant catch projection are made, it may be necessary to assume a relatively low catch in order to avoid population depletion within the projection model.
- An alternative suggestion to address uncertainties in recruitment was to have the Plenary invite further involvement of fisheries oceanographers in the WGs and thereby get better information on whether periodicity is present or regime shifts have occurred. However, any potential autocorrelation in recruitment was not considered to be a major issue for the scenarios run in the current assessment.
- Despite the discussion of uncertainties and the differing interpretations of the results, there was consensus that the assessment represented the scientists' best attempt at evaluating stock status. Future improvements to both data and models are necessary and anticipated.

A procedural question was raised about whether *Annex 5* requires an individual endorsement from the Plenary. The Chairman clarified that it was standard practice to endorse the annexes in conjunction with the adoption of the Plenary report.

In summary, members agreed that stock assessment results indicated that 2006 estimate of spawning stock biomass (SSB) is the second highest in history (roughly, 153,000 t). This high level of SSB is reflective of strong year classes in 1999, 2001 and 2003. On the other hand, it is also indicated that the current fishing mortality rate (F=0.75) is high relative to commonly used reference points. Projected levels of SSB are forecasted to decline from a high level of 166,000 t in 2007 to the equilibrium level of roughly 92,000 t by 2015, if the population is fished at the current F of 0.75, which is near the long-term average (1966-2005).

Conservation Advice

After discussion of the 2006 ALBWG's assessment report and comments raised by Plenary members, the ISC offers the following scientific advice:

Previous scientific advice, based on the 2004 stock assessment, recommended that current fishing mortality rate (F) should not be increased. It was noted that management objectives for the IATTC and WCPFC are based on maintaining population levels which produce maximum sustainable yield. Due to updating, and improvements and refinements in data and models used in the 2006 stock assessment, it is now recognized that F_{cur} (0.75) is high relative to most of the F reference points (see Table 5a in *Annex 5*). On the other hand, the same analysis indicates that the current estimate of the SSB is the second highest in history but that keeping the current F would gradually reduce the SSB to the long-term average by the mid 2010s. Therefore, the recommendation of not increasing F from current level (F_{cur}(2002-2004)=0.75) is still valid. However, with the projection based on the continued current high F, the fishing mortality rate will have to be reduced. The degree to which, when and how reductions should occur will depend on which reference points are selected and the desired probability and practicability of success of attaining these reference points in a timeframe to be agreed. The ISC requires additional guidance on these issues from the management authorities in a timely manner to work further on these issues.

7.2 Pacific Bluefin Tuna

Y. Takeuchi introduced the outlook for the stock in relation to the 2001 year class which was estimated to be exceptionally strong (*Annex 10*). The conclusion was as follows:

> *"WG planned to review recent trends in stock abundance at this workshop in addition to reviewing the strength of the 2001 year class. While the two topics are interrelated, the more general review of recent trends could not be undertaken using the data available to the WG at this workshop. A thorough review of recent trends will be undertaken in conjunction with the next stock assessment.*
>
> *Nonetheless, the WG noted that the last Pacific bluefin tuna stock assessment (Jan 2006) estimated an exceptionally strong 2001 year class. Based largely on the estimated size of this year class, the stock projections indicated that the current level of SSB (Spawning Stock Biomass) could be maintained at the current F level. Based on this assessment, the ISC6 Plenary recommended that F should not be increased from the current level.*
>
> *The WG agreed that preliminary analysis of the Japanese catch and size-frequency data that has become available since the last assessment (2005-2007) indicates that the 2001 year-class was not as strong as previously thought, but may have indeed been larger than the average year class.*

More importantly, however, the survivorship of this year class in 2007 is unclear and cannot be well estimated until the next stock assessment (2008). While the last well-estimated strong year-class (1994) appeared clearly in the JLL size frequency data in 2000 (i.e. at age 6), the 2001 year-class did not appear in the 2007 JLL fishery. Consequently, the conclusion of the last stock assessment regarding the likelihood that the 2001 year-class would maintain the bluefin SSB level now appears to have been optimistic in light of the new data that have become available since the last assessment. "

Discussion

In the discussion that followed the presentation, it was noted that no complete stock assessment has been performed since the last Plenary meeting. However, a stock assessment is scheduled for completion in the coming year. In clarifying the status of the Pacific bluefin tuna stock, Y. Takeuchi explained that it is supported by several strong year classes including the 1994 year class, the strongest in the time series. In the past, other strong year classes have had a major positive impact on the stock.

Conservation Advice

After discussion of the 2006 PBFWG's assessment report and consideration of comments raised by Plenary members, the ISC offers the following conservation advice:

It was concluded that the advice provided by the ISC Plenary in 2006 still holds. That is:

"Noting the uncertainty in the assessments, the ISC Plenary agreed with the WG recommendation that bluefin tuna fishing mortality[*] not be increased above recent levels as a precautionary measure. "

7.3 Swordfish

G. DiNardo informed the Plenary that the next North Pacific swordfish stock assessment is scheduled to be completed in 2009. Thus, no stock status and conservation advice was provided at this time.

Discussion

G. DiNardo explained that there was no assessment to present at this Plenary but that a plan to produce an assessment had been tabled under Agenda Item 6 (see Section 6.3). He clarified that no conservation advice has yet been provided to the Plenary.

[*] "fishing mortality" refers to a rate which can be converted into effort or catch in management

7.4 Striped Marlin

K. Piner and J. Brodziak presented a brief overview of a stock assessment of North Pacific striped marlin completed by the MARWG in March 2007 (*Annex 8*). This is an update of the previous assessment presented at last year's Plenary meeting. A total of 29 different fisheries, defined by region, country and gear were used in the assessment. Nine fisheries, all of them longline fisheries from the western or central Pacific, provided reasonable measures of abundance. One series was available from the Eastern Pacific but it was shorter and noisier. Size data were available from 13 fisheries from 1970 onward. A decline in catch since the 1960s was observed. CPUE indices were constructed by combining across gears and countries by area for fives areas in the Pacific. The main CPUE series showed a decline; coastal longlines from Japan and Hawaii showed similar trends. Most of the striped marlin catch comes from the northwest Pacific.

Catch, CPUE and length composition data from the sources described above were included in a SS-II model of the population dynamics. Due to uncertainty in the controlling factor of recruitment, two parallel hypotheses were forwarded as separate assessment models. In the first, recruitment was determined by a maternal effect described by a Beverton and Holt Spawner-Recruit curve with the steepness parameter set to h=0.7. In the second hypothesis, recruitment was driven by environmental conditions with recruitment variability around a mean level.

Both hypotheses indicated a stock depleted from historical levels, but assuming a maternal effect resulted in a more depleted stock (6% of 1952 levels for maternal effect versus 16% of 1952 levels for environmental effect). Additional forms of uncertainty were identified by the WG including the true nature of the stock delineation, constant catchability of the CPUE series (i.e. targeting and standardization issues), life-history parameters and the true level of catch in the North Pacific. It would be possible to model eastern and western sides of the Pacific in two separate models but the lack of data available for the eastern Pacific constrains this option. The basic data supporting biological parameters will be improved. Further CPUE standardization research will also continue.

Fishery selectivity estimates from the stock-recruitment and environmentally-driven recruitment models were used as alternative scenarios for calculating biological reference points. The reference points for the alternative scenarios were similar and as a result, reference points were robust to model selection uncertainty. The WG discussed the relative benefits of maintaining various levels of striped marlin spawning potential as a biological reference point and concluded that it would be useful to consider the 20% and 40% values of maximum spawning potential as candidate reference points.

The WG also considered the F_{Max} value as a potential reference point for striped marlin but observed that using this reference would diminish spawning potential ratio values to less than 1% of the maximum spawning potential. This, combined with the fact that the F_{Max} values for Model 1 and Model 2 were over 5-fold larger than the striped marlin natural mortality rate, indicated that using F_{Max} as a target or limit reference point was not

appropriate for striped marlin given the model results. The WG also considered the current fishing mortality rate for striped marlin as a potential reference. In this case, the current fishing mortality rate was the average fishing mortality rate during 2001-2003, i.e. under Model 1, F_{Cur}=0.72 and under Model 2, F_{Cur}=0.64 per year.

The WG projected the management implications of applying the F_{Cur}, $F_{20\%}$ and $F_{40\%}$ reference points to the striped marlin stock during 2004-2009. Relative benefits were measured in terms of increasing spawning biomass and maintaining yield under the stock-recruitment and environmentally-driven recruitment models. This comparison emphasized the intrinsic trade-off between the biological conservation and fishery yield benefits of the alternative reference points. Overall, the relative merit of the F_{Cur} and $F_{20\%}$ reference points depends on whether the striped marlin stock can be sustainably fished at the current low spawning potential ratio of roughly 9%.

The WG concluded that there was a clear decline in striped marlin abundance since the 1970s. However the actual magnitude of decline may be under- or over-estimated given the noted uncertainties in assessment data and model structure (see *Annex 9*, Section 6.3). Additionally:

- The WG concluded that the stock-recruitment steepness parameter appeared to be the most important axis of uncertainty for evaluating stock status of striped marlin.
- The WG expressed concern that almost all of the CPUE data in the assessment, especially in the most recent years was from the western Pacific. The relatively short time series of CPUE values from the eastern Pacific was a limiting factor for assessing biomass trends in this region. To address the concern that the western Pacific data could be unduly influencing stock assessment results, it was suggested that a split area assessment could be conducted.
- The WG noted that there was limited empirical information on striped marlin life history characteristics across the species range in the North Pacific. This suggests that spatial variation in striped marlin growth may not be adequately approximated in the assessment model.
- The WG noted that the total enumeration of striped marlin catch, including discards and unreported landings, was a source of concern.
- The WG suggested that there should be further investigation of the use of aggregated fishery length frequency data for stock assessment.

The WG discussed how to characterize the status of the striped marlin stock in a way that reflected its concerns about the health of the population but also the uncertainty of the data used in the stock assessment. It was noted that declines in catch and declines in catch per unit effort from several different fisheries support the conclusion that the marlin population has declined, but the precise extent of the decline is uncertain.

The WG discussed what the objectives and responsibilities of the WG were with respect to providing management guidance. It was noted that the WG will need to know the management objectives to provide specific guidance. It was decided that a range of reference points would be presented, along with impacts to the stock and yield if that

reference point were to be adopted. The WG recommended that projections be provided to the Plenary to clarify the impacts.

Discussion

Several technical points regarding the assessment were clarified through Plenary discussion as follows:

- It was pointed out that in some of the model projections; the yield from the current value of F is greater than simulations of a reduced value of F. This was attributed to arbitrarily selected starting values which do not actually affect the model fit. Although it was decided that such scenarios are not erroneous they were felt to be misleading and perhaps require better explanation.
- Since the model projections were only recently completed and circulated to the WG, there was not sufficient time to study the results thoroughly.
- Clarification was sought regarding the equilibrium yield and biomass as obtained from model projections when a stock-recruitment relationship was not assumed (Model 2). It was noted that the recent average yield of striped marlin could be sustainable, however, this may require an increase in F, since the average equilibrium yield at the annual current F (F=0.6) is about 500 t below the recent yield.
- Questions were raised regarding the WG's ability to account for different targeting strategies when standardizing the CPUE indices.
- Concerns were expressed that constraints on recruitment estimates prior to 1965 might introduce an underestimation bias to recruitment estimates in recent years.
- It was suggested that some reference points be chosen and a Kobe chart (i.e. two different reference points on two axes with the stock's position in each year plotted) produced. However, concerns were expressed that there is not sufficient clarity on which reference points to select.
- One suggestion was made to formulate a reference point based on maintaining the stock's spawning potential at 20-40%.
- Another area of uncertainty in the assessment is unaccounted for catch. This could occur due to under-reporting, lack of data for a fishery, mis-reporting by species, etc. While this is a concern, it is unlikely to be remedied in the near future.
- There was a lengthy discussion on different views regarding the interpretation of the assessment results. One interpretation is that the assessment results convey a clear message that the stock has declined precipitously and should be conserved through an immediate reduction in F. Another interpretation is that the uncertainties in the assessment are considerable and prevent full understanding of the state of the stock. Only by removing these uncertainties can the stock status be clarified.

Three procedural issues were raised. The first, regarding the access to data of participating scientists, was dealt with under Section 7.1. Another issue resulted in calls for clarification of the role of the Plenary in reviewing the WG's assessments and of the

role of the WGs in formulating conservation advice. The final issue was a suggestion for a traffic light system (i.e. red, yellow and green colors), such as that used by the recent RFMO meeting in Kobe, to focus managers on the categories of interest in an easily understandable way.

Conservation Advice

After discussion of the 2007 MARWGs' report and comments raised by Plenary members, the ISC offers the following conservation advice:

While further guidance from the management authority is necessary, including guidance on reference points and the desirable degree of reduction, the fishing mortality rate of striped marlin (which can be converted into effort or catch in management) should be reduced from the current level (2003 or before), taking into consideration various factors associated with this species and its fishery. Until appropriate measures in this regard are taken, the fishing mortality rate should not be increased.

7.5 Bycatch

A report on bycatch was presented by G. DiNardo on behalf of C. Boggs, the Chairman of the BCWG. Guidance from the Plenary had been sought regarding which species and issues to address and with regard to taking a holistic approach to bycatch species impacts. Useful guidance was received on both topics. G. DiNardo informed the Plenary that no assessments were completed since the last Plenary meeting; therefore no conservation advice was offered.

8 REVIEW OF STOCK STATUS OF SECONDARY STOCKS

8.1 Eastern Pacific – Yellowfin and Bigeye Tunas

M. Dreyfus presented an overview of IATTC stock assessments for yellowfin and bigeye tunas (*ISC/07/PLENARY/INFO/03* and *ISC/07/PLENARY/INFO/04*). The fishery is predominantly a purse seine fishery (with sets on dolphins, free-swimming schools and floating objects), with longlines being the next most common gear type. In the case of the purse seine fishery, fleet capacity in cubic meters has recently reached a peak of over 200,000 cubic meters. For longlines, the number of hooks reached a peak in 2003 and has diminished since then. The catch composition is usually led by yellowfin tuna with skipjack in second place, but for 2005 and 2006, catches of the latter have surpassed catches of yellowfin tuna which are at their lowest level in more than two decades. Catches of bigeye, albacore and Pacific bluefin tuna comprise a smaller proportion of the fishery. Size composition of the catch varies depending on gear type. Longlines target adult tuna whereas the purse seine fishery also captures smaller tunas particularly when setting on floating objects. The average weight of tuna in the purse seine fishery has been decreasing over time and averaged 7.8 kg in 2006.

For yellowfin tuna, based on the assessment model (A-SCALA), the spawning biomass ratio is below the level corresponding to average maximum sustainable yield (AMSY), thus the stock is overfished. Effort levels are above the ones that would support AMSY. There were record catches in the early 2000s and recruitment was very high, but more recently recruitment has been similar to the long-term average. Recent catches are below AMSY and are now 44% of previous values. If a stock recruitment relationship is assumed, the results are more pessimistic. The fishing mortality rate has generally been below that required to support AMSY except in recent years.

Bigeye tuna catches have been predominantly from longline fisheries until 1994 when a FAD fishery in the southern part of the eastern Pacific at 10^{o}N and 20^{o}S latitude was developed. At the present time catches are higher in the surface fishery that focuses on juvenile bigeye tuna. The mean weight of bigeye tunas in the surface fishery in 2006 is 5.3 kg. Based on the assessment model (SS-II), the recent fishing mortality rate is about 20% greater than the corresponding AMSY. As a consequence, if fishing effort is not reduced, total biomass and spawning biomass will eventually decline. The current status and future projections are more pessimistic in terms of stock status if a stock recruitment relation is considered. Diagrams of stock size and fishing mortality rate relative to AMSY reference points show that overall the reference points have not been exceeded until recent years, but the two most recent estimates indicate the stock is overfished and overfishing is occurring.

Discussion

The group discussed what might be the reasons for recent, high skipjack catches in the coastal waters off Ecuador and Peru. It is possible that this phenomenon is due to an inverse relationship between yellowfin and skipjack which has previously seemed to be associated with El Niño events. It could be that the current large fleet size is causing the shift to be even more noticeable in this El Niño cycle. It is also possible that the low catch of yellowfin tuna in recent years is El Niño-related. In particular, following El Niño there is usually very good recruitment of small yellowfin tuna. This appears to have been taken into consideration in formulating IATTC's management recommendations. Another contributing factor could be that the segment of the purse seine fleet targeting floating objects has increased, and since fish size is smallest for floating object sets, this could lead to lower catches overall. It was noted that IATTC has just appointed a new Director of Investigations, Dr. Guillermo Compeán Jiménez, and it is hoped that Dr. Compeán will be able to participate in the ISC Plenary next year.

8.2 Western and Central Pacific – Yellowfin and Bigeye Tuna

Dr. S.K. Soh of the WCPFC presented the results of the assessments of western and central Pacific yellowfin and bigeye tuna that were presented at the WCPFC Scientific Committee meeting last August. MULTIFAN-CL was used to fit to catch, size and tagging data. The principal index came from longline CPUE (GLM standardized) and estimated parameters were selectivity, catchability, movement, recruitment, growth, and stock-recruitment relationship (SRR) steepness using fixed parameters of natural

mortality-at-age, length-weight, and maturity-at-age. The total catch of yellowfin and bigeye tuna in the WCPO is about 400,000 t and 100,000 t, respectively. Data sources for the stock assessment were catch in number and weight, standardized and nominal effort, length and weight frequency, tag releases and recoveries, and other auxiliary information used to formulate priors, e.g. estimates of tag reporting rates.

In all analyses, recruitment of yellowfin increased from about 1970 and remained stable over the last two decades, whereas recruitment of bigeye increased from about 1980 and has been at high levels since the early 1990s. Both yellowfin and bigeye biomass declined to about half of its initial level by 1970 and has been fairly stable since then, except for a recent decline of biomass for yellowfin tuna. Biomass is currently 51% of unexploited levels for yellowfin and 30% for bigeye tuna. Kobe charts of both yellowfin and bigeye tuna show that their current biomass is not in an overfished state, but there is a high probability that overfishing is occurring.

Discussion

During the discussion, members remarked upon the usefulness of the Kobe charts of stock size and fishing mortality rate relative to reference points as used by both IATTC and WCPFC, and encouraged their use within ISC. It was remarked that although the stock assessments to be presented at next month's WCPFC Scientific Committee are not yet publicly available, the outlook for tuna stocks is improved in comparison to past assessments. G. DiNardo informed the group that the WCPFC yellowfin tuna assessment had been sent out for independent peer review and that comments received had been fed back to the SPC and considered in formulating this year's assessment. The same process is occurring for the WCPFC bigeye tuna assessment and comments are expected back in November. It was noted that due to a desire by the SPC to focus in detail on the yellowfin tuna assessment, a full assessment of bigeye tuna will occur next year.

9 REVIEW OF STATISTICS AND DATA BASE ISSUES

9.1 Report of the STATWG

The STATWG workshop was held prior to the Plenary on 22-24 July (*Annex 11*). All members except China, FAO, SPC and PICES were represented. One of the main tasks of the workshop was to review what data have been received and where gaps remain. Canada, Korea, Chinese Taipei, and the U.S. have submitted data for Categories I-III. Japan has submitted data for Categories I and II only, while Mexico has only submitted Category I data. No data have been received from China. Only Japan, Chinese Taipei and the U.S. have provided metadata.

One of the major issues for the STATWG is that data are passed by member's data correspondents to the WGs, bypassing the Database Administrator. In such cases, it is difficult for the Database Administrator to know when a submission has been made and what data are contained in the submission. A further difficulty is that WGs sometimes adjust data and do not feed the results of such adjustments back to the Database

Administrator. These and other issues have led, at times, to large discrepancies between WG and STATWG databases. It was concluded by the STATWG that the WG catch tables currently represent best available data for assessments and that these data should be used as the basis for the catch tables.

The STATWG discussed modifications to the ISC website, including a policy for loading working documents on the website and archiving information from the WGs. A future work plan was formulated which identifies several high priority action items for the group. These actions include preparing a timetable for the implementation of new functionality within the system including data quality control, enhancement of the website, storage of archival data from the WGs, and better procedures for WG and STATWG interaction. N. Miyabe stated that the appointment of a full-time database manager is essential to the success of the ISC database.

9.2 Database Administration

The status of the database was reviewed by H. Yamada. A data submission protocol was created at the STATWG workshop in 2002, and modified in the last workshop in 2006, at which point the modified protocol was distributed to the ISC members. Despite this, some submissions have contained missing and/or incorrect codes or missing columns which caused the rejection of some data when uploading into the main ISC database. In other cases, catch quantity units were rounded to the nearest metric ton rather than the required rounding to the nearest 0.1 t. In this case, if metadata are available it may be possible to correct this, but otherwise the true unit is unknown and the data cannot be rectified. H. Yamada encouraged all data correspondents to pay close attention to data submission procedures when providing data.

Discussion

In order to reduce duplication of effort between the WGs and the Database Administrator it was agreed that the flow of data should be from the data correspondents to the WGs and from the WGs to the Database Administrator. This would avoid current problems arising from WG modification of data. With regard to WG data, the primary function of the ISC main database would be to back-up and maintain the data from the WGs, including WG-prepared metadata. In addition, the Database Administrator would serve a coordinating function when a single gear type is catching a variety of species. There was consensus that better coordination between the WGs and the Database Administrator is required, and a periodic submission timetable for WGs to provide data to the Database Administrator was suggested.

In terms of overall responsibilities, the STATWG would have two main duties:

- Oversee production (i.e. compiling, checking and loading) of Category I data for comprehensive catch tables for highly migratory species (this would include not only the tunas but billfishes and bycatch species) in the North Pacific;

- Oversee the archiving of WG data, catch data, catch distribution maps for major species and metadata.

The current confidentiality policy in the ISC Rules of Procedures should be used as a guide.

This led to a discussion of what data should be held by the ISC main database. In this regard, it was noted that the WGs already have Category II and III data but at a finer scale, if required, for stock assessment purposes. These data are not available to the public. On the other hand, similar data of this type are being summarized and made available to interested individuals by other RFMOs.

It was decided that the remit of the Database Administrator will be changed to specify that he/she should receive data from the WGs through explicit procedures; store WG data and catch distribution maps, and produce Category I tables for tuna and tuna-like species of interest to the ISC. The ISC Rules of Procedures will be re-examined and modified as necessary to refine the role of the Database Administrator and the STATWG. New draft procedures will be trialed as a means of accelerating progress on data management systems.

N. Miyabe was asked to clarify the STATWG's position with regard to data exchange with the WCPFC. He referred to statements in the STATWG report which highlight the need to avoid redundancy, the importance of sharing public domain data, and the strong expertise of ISC members in understanding tuna and tuna-like species resources and fisheries in the North Pacific. The ISC welcomes the participation of WCPFC scientists in ISC stock assessment working group workshops.

A suggestion was made to develop a standard performance report for each member to show at a glance which data have and have not been submitted. It was believed this could serve as a useful prompt, and should be produced periodically.

Concerns regarding the slow pace of development of the ISC database system were expressed. Japan delegates were asked whether resourcing for the database work was sufficient. N. Miyabe replied that the Japanese government is providing a reasonable amount of funding for the task for which Japan has assumed responsibility. However, staffing will likely continue to be by contract sources owing to administrative constraints preventing the hiring of permanent staff. The current staff person is on contract through March 2008. While understanding was expressed for the administrative constraints, it was suggested that staff turnover with contractors could lead to inefficiencies and delays and thus a long-term, or permanent position would be preferred. In response to a question, N. Miyabe replied that outside assistance in the form of seconded staff, or similar, from members would certainly be helpful.

9.3 Data Rescue

The Plenary Chairman made a brief statement on data rescue issues. As discussed in the STATWG, Plenary was reminded that the first priority was to compile data from 1971 to the present, then work backward decade-by-decade until the 1950s. Since according to the Chairman of the STATWG, N. Miyabe, there are many data missing from the database, it is important to set data rescue goals and continuously work toward those goals.

9.4 Public Domain Data

H. Yamada made a brief presentation on public domain data. Category I data were confirmed to be public domain data. Differences in archived data between the WG databases and the ISC main database were identified. Noted discrepancies between the Category I data held in the main database and by the WGs were attributed to changes to data in the WGs which are not reported to the Database Administrator, different compilation methodologies, and data sets missing from one database or the other. An example, drawn from Pacific bluefin tuna catches, was used to illustrate the issue (*Annex 11*).

Catch tables were presented (*Tables 1* through *3*) for albacore, swordfish and striped marlin, respectively. As noted above, all of these data are derived from WG data rather than from the ISC main database and may be different from catches reported by members to other forums where "official statistics" are required. The catch table for bluefin tuna, as compiled by the Pacific bluefin tuna WG, is contained in *Annex 6*.

Discussion

Chairmen of the working groups clarified that the data shown in their WG catch tables represent data used in the most recent stock assessments or as of the most recent workshops. In some cases new data may have been received or modifications made to existing data since the last assessment, and those changes may be reflected in the catch tables. There was consensus that the table captions should clearly state that the data were provided by the species WG and could differ from the "officially submitted" statistics. The importance of adding a reference to each table to indicate the date of last update was also agreed.

The Plenary Chariman pointed out that in order to prepare Category I catch tables the STATWG will need more than WG data, e.g. data on yellowfin, bigeye, and skipjack tunas and bycatch will be required. It was explained that for catch distribution maps, the WGs should already be preparing these; therefore the WGs will submit them to the Database Administrator. A question was raised with regard to the WCPFC data exchange issue and further clarification was provided.

10 REVIEW OF SCHEDULE OF MEETINGS

10.1 Time and Place of ISC8

Provisional dates for ISC8 are 23-28 July 2008. Related working group workshops in conjunction with ISC8 will be held beginning 16 July 2008. Japan and the United States traditionally take turns hosting the meeting, and next year it is Japan's turn. Delegates from Japan announced that Japan would be pleased to host ISC8 but given the offer made earlier by the Chinese Taipei delegation to host ISC8, it would be better to defer the decision until after such time when the two members can discuss and settle the matter bilaterally. Chinese Taipei officials stated that they remain interested in holding the meeting but are open to further discussions with Japanese colleagues. The U.S. delegation indicated that should Japanese colleagues exercise their responsibility to host ISC8, the U.S. would be flexible and agreeable to allowing Chinese Taipei colleagues to host ISC9. The Plenary Chairman will be informed of the outcome of the consultation among concerned parties and members will be informed of the selected venue.

10.2 Working Group Intercessional Workshops

A tentative schedule of ISC workshops and other highly migratory species' RFMO meetings has been compiled for 2007-2009 (*Table 4*). Only one conflict emerged in the scheduling of ISC intercessional workshops, i.e. timing of the ISC swordfish and ISC Pacific bluefin tuna assessment workshops, but this was resolved by the Chairmen. Members are encouraged to participate as fully as possible in the WG workshops. The Plenary Chairman will distribute the schedule to other RFMOs so that they will be aware of ISC meetings and workshops.

11 ADMINISTRATIVE MATTERS

11.1 Operational Procedures Manual

The Plenary Chairman introduced a draft Operations Manual (*ISC/07/PLENARY/03*) as an important source of information about the ISC and how it operates. If the Plenary approves the document it will be a living document which will be updated as necessary to reflect evolving operational practice. A log of changes will be maintained.

Members discussed whether any additional amendments might be necessary to the tabled draft. The Chairman suggested that given the call for data on all billfishes to be submitted, the Chairman of the Billfish WG should update the species codes to include all relevant billfish species monitored by the ISC.

The Chairman called to members' attention the change in membership categories to include voting and non-voting members. The non-voting members are comprised of the U.N. Food and Agriculture Organization (FAO), the Inter-American Tropical Tuna Commission (IATTC), the North Pacific Marine Science Organization (PICES), and the Secretariat for the Pacific Community (SPC). It was clarified that there is also Observer

and Invited Expert status which would allow non-members to attend meetings and workshops. The difference between the two is that the Invited Expert is nominated by a member, whereas an Observer may be self-nominated. Both must be approved by members.

In this context, the situation with respect to the WCPFC Scientific Committee was discussed. It was explained that this situation is specified in the MOU between the WCPFC and the ISC. Specifically, provisions are already specified by which a representative of the WCPFC is invited to observe the ISC Plenary meeting and WG workshops, and the Chairman, or designee, of the ISC is invited to observe the annual meetings of the WCPFC, the Northern Committee and the Scientific Committee. The possibility of a WCPFC representative becoming a non-voting member was discussed and it was resolved that it would be up to the WCPFC, only in the form of the Scientific Committee, to apply for non-voting member status. It was confirmed that under Observer status, there are no restrictions on the degree of participation by a WCPFC representative other than the restriction on voting (which would apply in the case of non-voting member as well) but it should be of a degree similar to that allowed by the WCPFC for the ISC observer.

With respect to the original ISC Guidelines which require simultaneous Japanese language translation of the Plenary session, the Chairman informed members that under the new wording of the Guidelines, this is now optional.

The U.S. delegation raised the idea of providing a glossary of standard terms within the ISC Operations Manual. This was advocated as means of maintaining agreement among the ISC members on the usage of common terminology.

11.2 Organization Structure

The Plenary Chairman tabled a document showing the ISC Organizational Structure (*ISC/07/PLENARY/08*). The following items were discussed
:

- The Mexican delegation leader will be M.A. Cisneros Mata;
- The Korean delegation leader and representative to all WGs is S.D. Hwang;
- Chinese Taipei will confirm all delegation names by September 2007;
- The IATTC representative to the albacore WG is Alexandre Aires-da-Silva;
- The swordfish and marlin WGs will be merged as agreed into a billfish WG;
- The names of data correspondents and email addresses for all names will be added.

A final diagram will be distributed to the head of each delegation and to each WG Chairman.

11.3 Election of Vice-Chairman

Given the resignation of J.R. Koh as Vice-Chairman of the ISC due to a change in job duties, the Chairman explained it is necessary to conduct a special election for Vice-Chairman to serve out the one remaining year of Dr. Koh's term. After rounds of balloting, in which each of the six members present cast one vote, H. Honda was elected as ISC Vice-Chairman. H. Honda thanked the members for their support and stressed the importance of cooperation among members, attention to the needs of industry and consumers, and the necessity of focusing on applied fishery science.

11.4 Website Design

After calling members' attention to the commitments to upgrade the ISC website (see *Annex 11* and Section 9 of this report), the Plenary Chairman asked H. Yamada to explain what plans are currently in place to progress with the necessary enhancements. H. Yamada replied that he was planning to add a box for Chairman's comments on the webpage and will begin searching for a new server (operated by a private company) that can accommodate and host the new requirements for the website. The U.S. delegation offered to assist by providing the services of web design contractor who has recently completed upgrades to the National Marine Fisheries Service Southwest Fisheries Science Center's website. The Japan delegation thanked the U.S. for their kind offer, but stated that the work on a new design and server has already been started by Japan. After receiving guidance on the conceptual design of the website, Japanese colleagues would first like to attempt construction of the website themselves but they would call upon the U.S. if any difficulties are encountered. A decision was made to continue as suggested by the Japan delegation but with the requirement that periodic updates on progress, including structural design, flow, functionality, and content be provided to the heads of delegations and WG Chairmen in order to ensure full participation and adequate consultation.

11.5 Preparations for meetings

The Plenary Chairman remarked that he would provide a list of requirements and organizational tools, such as meeting room configurations, distribution lists and logistics guidance, to whichever member will be hosting the next Plenary meeting as guidelines for hosting and organizing the ISC8 meeting.

11.6 Other matters

The use of Kobe charts to indicate whether stocks are overfished or whether overfishing is occurring was revisited. It was agreed that WGs should attempt to use such diagrams as much as is practical. If it is not clear which reference points should be used, multiple diagrams with various reference points should be prepared. The ALBWG agreed to trial use of these diagrams in their next assessment and will begin work in the interim, using the 2006 assessment results, to develop prototype diagrams.

H. Honda presented an outline of two major research programs for the sustainable use of tuna resources around Japan being undertaken by Japan's National Research Institute of Far Seas Fisheries. Both programs are being conducted over the period 2007-2009 with funding from the Japan Fisheries Research Agency. Outcomes of the studies will be applied to developing indicators or models for predicting recruitment strength in early life history stages for larvae and/or juveniles of Pacific bluefin tuna. The results will also be used to analyze long term fluctuations in natural stocks of tuna resources, especially Pacific bluefin tuna. The first of the two programs consists of basic research, using field surveys and modelling, on the recruitment strategy of Pacific bluefin tuna around Japan. The second program is an analytical study of long term fluctuations in tuna stocks around Japan, especially Pacific bluefin tuna, using historical data sets.

Discussion

The Mexico delegation remarked that they are developing a similar project on tuna recruitment which will use different methodology but complement Japan's work. Chinese Taipei officials complimented Japan on the project and stated their hopes of contributing to the study. The Chairman thanked H. Honda for his interesting presentation and expressed appreciation for the financial support of such studies by Japan.

12 ADOPTION OF REPORT

A draft Report of the Seventh Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean was prepared based on input and comment from all participants, and circulated to all members for review. The report was reviewed in its entirety, section by section, within the Plenary meeting and additional comments were incorporated. The report, including all of its annexes, was then adopted as a final document which will be distributed to all members within one week.

13 CLOSE OF MEETING

M. Dreyfus complimented the Plenary Chairman on his skillful and effective management of the meeting, and expressed his appreciation to the rapporteurs and meeting organizers. N. Miyabe, on behalf of the Japanese delegation, also thanked the Chairman for a useful meeting. The Plenary Chairman recognized the WG Chairs and the new ISC Vice-Chair, H. Honda, for their important work, and encouraged them to continue to try to resolve technical issues within their WGs. He thanked the Japan and U.S. delegations for their strong support of the ISC, noting that without interest from members it will be difficult to accomplish the goals of the ISC. Finally, he expressed his and the participants gratitude to the National Fisheries Research and Development Institute of Korea for hosting the meeting. D.Y. Moon responded on behalf of the Korea delegation with congratulations on a successful outcome. The meeting adjourned at 14:20 on July 31, 2007.

Table 1. North Pacific albacore catches (in metric tons) by fishery, 1952-2006. Blank indicates no effort. -- indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ( ). Data are from the Albacore Working Group catch tables as of 28 July 2007 and may differ from official statistics.

Year	Canada		Japan						Korea		Mexico
	Troll	Purse Seine	Gill Net	Long Line	Pole & Line	Purse Seine	Troll	Unsp. Gear	Gill Net	Long Line	Purse Seine
1952	71			26,687	41,787	154		237			
1953	5			27,777	32,921	38		132			
1954				20,958	28,069	23		38			
1955				16,277	24,236	8		136			
1956	17			14,341	42,810			57			
1957	8			21,053	49,500	83		151			
1958	74			18,432	22,175	8		124			
1959	212			15,802	14,252			67			
1960	5	136		17,369	25,156			76			
1961	4			17,437	18,639	7		268			0
1962	1			15,764	8,729	53		191			0
1963	5			13,464	26,420	59		218			0
1964	3			15,458	23,858	128		319			0
1965	15			13,701	41,491	11		121			0
1966	44			25,050	22,830	111		585			0
1967	161			28,869	30,481	89		520			
1968	1,028			23,961	16,597	267		1,109			
1969	1,365			18,006	31,912	521		935			0
1970	390			16,283	24,263	317		456			0
1971	1,746			11,524	52,957	902		308			0
1972	3,921		1	13,043	60,569	277		623			100
1973	1,400		39	16,795	68,767	1,353		495			0
1974	1,331		224	13,409	73,564	161		879			1
1975	111		166	10,318	52,152	159		228		2,463	1
1976	278		1,070	15,825	85,336	1,109		272		859	36
1977	53		688	15,696	31,934	669		355		792	0
1978	23		4,029	13,023	59,877	1,115		2,078		228	1
1979	521		2,856	14,215	44,662	125		1,126	0	259	1
1980	212		2,986	14,689	46,742	329		1,179	6	597	31
1981	200		10,348	17,922	27,426	252		663	16	459	8
1982	104		12,511	16,767	29,614	561		440	113	387	7
1983	225		6,852	15,097	21,098	350		118	233	454	33
1984	50		8,988	15,060	26,013	3,380		511	516	136	113
1985	56		11,204	14,351	20,714	1,533		305	576	291	49
1986	30		7,813	12,928	16,096	1,542		626	726	241	3
1987	104		6,698	14,702	19,082	1,205		155	817	549	7
1988	155		9,074	14,731	6,216	1,208		134	1,016	409	15
1989	140		7,437	13,104	8,629	2,521		393	1,023	150	2
1990	302		6,064	15,789	8,532	1,995		249	1,016	6	2
1991	139		3,401	17,046	7,103	2,652		392	852	3	2
1992	363		2,721	19,049	13,888	4,104		1,527	271	15	10
1993	494		287	29,966	12,797	2,889		867		32	11
1994	1,998		263	29,600	26,389	2,026		799		45	6
1995	1,763		282	29,075	20,981	1,177	856	81		440	5
1996	3,316		116	32,493	20,272	581	815	117		333	21
1997	2,168		359	38,951	32,238	1,068	1,585	123		319	53
1998	4,177		206	35,812	22,926	1,554	1,190	88		288	8
1999	2,734		289	33,364	50,369	6,872	891	127		107	23
2000	4,531		67	30,046	21,549	2,408	645	171		414	79
2001	5,248		117	28,819	29,430	974	416	96		82	22
2002	5,379		332	23,644	48,454	3,303	787	135		(113)	28
2003	6,861	0	126	20,954	36,114	627	922	106	(0)	(144)	28
2004	7,856	0	61	17,547	32,255	7,200	772	65	(0)	(68)	(104)
2005	4,829		154	21,020	16,133	850	665	316	(0)	(520)	(0)
2006	(5,819)		(154)	(21,020)	(16,133)	(850)	(665)	(316)	(0)	(520)	(109)

[1] Data are from the 1st ISC Albacore Working Group, November 28 - December 5, 2006 except as noted below.

Recent updates -- Childers added Hawaii troll/handline for US (7/3/2007), -- Uosaki updated figures in 2005 and 2006 for Japan (7/23/2007); Chinese Taipei updates for 2005 and 2006 received 28 July 2007.

Table 1. (cont.) North Pacific albacore catches (in metric tons) by fishery, 1952-2006. Blank indicates no effort. -- indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ( ). Data are from the Albacore Working Group catch tables as of 28 July 2007 and may differ from official statistics.

Year	Chinese Taipei		United States								Other		Grand Total
	Gill Net	Long Line[2]	Pole& Line	Gill Net	Long Line	Purse Seine	Sport	Troll	Troll/ Handline	Unsp. Gear	Long Line[3]	Troll	
1952					46		1,373	23,843					**94,198**
1953					23		171	15,740					**76,807**
1954					13		147	12,246					**61,494**
1955					9		577	13,264					**54,507**
1956					6		482	18,751					**76,464**
1957					4		304	21,165					**92,268**
1958					7		48	14,855					**55,723**
1959					5		0	20,990		0			**51,328**
1960					4		557	20,100		0			**63,403**
1961			2,837		5		1,355	12,055		1			**52,608**
1962			1,085		7		1,681	19,752		1			**47,264**
1963			2,432		7		1,161	25,140		0			**68,906**
1964			3,411		4		824	18,388		0			**62,393**
1965			417		3		731	16,542		0			**73,032**
1966			1,600		8		588	15,333		1			**66,150**
1967		330	4,113		12		707	17,814		0			**83,096**
1968		216	4,906		11		951	20,434		0			**69,480**
1969		65	2,996		14		358	18,827		0			**74,999**
1970		34	4,416		9		822	21,032		0			**68,022**
1971		20	2,071		11		1,175	20,526		0			**91,240**
1972		187	3,750		8		637	23,600		0			**106,717**
1973		--	2,236		14		84	15,653		0			**106,836**
1974		486	4,777		9		94	20,178		0			**115,113**
1975		1,240	3,243		33		640	18,932		10			**89,696**
1976		686	2,700		23		713	15,905		4			**124,816**
1977		572	1,497		37		537	9,969		0			**62,799**
1978		6	950		54		810	16,613		15			**98,822**
1979		81	303		--		74	6,781		0			**71,004**
1980	--	249	382		--		168	7,556		0			**75,126**
1981	--	143	748		25		195	12,637		0			**71,042**
1982	--	38	425		105		257	6,609		21			**67,960**
1983	--	8	607		6		87	9,359		0			**54,527**
1984	--	--	1,030		2	3,728	1,427	9,304		0			**70,258**
1985	--	--	1,498	2	0	26	1,176	6,415	7	0			**58,203**
1986	--	--	432	3		47	196	4,708	5	0			**45,396**
1987	2,514	--	158	5	150	1	74	2,766	6	0			**48,994**
1988	7,389	--	598	15	307	17	64	4,212	9	10			**45,579**
1989	8,350	40	54	4	248	1	160	1,860	36	23			**44,176**
1990	16,701	4	115	29	177	71	24	2,603	15	4			**53,698**
1991	3,398	12	0	17	312	0	6	1,845	72	71			**37,324**
1992	7,866	--	0	0	334	0	2	4,572	54	72			**54,847**
1993		5	0	0	438		25	6,254	71	0			**54,136**
1994		83	0	38	544		106	10,978	90	213		158	**73,336**
1995		4,280	80	52	882		102	8,045	177	1		137	**68,416**
1996		7,596	24	83	1,185	11	88	16,938	188	0	1,735	505	**86,417**
1997		9,119	73	60	1,653	2	1,018	14,252	133	1	2,824	404	**106,402**
1998		8,617	79	80	1,120	33	1,208	14,410	88	2	5,871	286	**98,042**
1999		8,186	60	149	1,542	48	3,621	10,060	331	1	6,307	261	**125,342**
2000		8,842	69	55	940	4	1,798	9,645	120	3	3,654	490	**85,529**
2001		8,684	139	94	1,295	51	1,635	11,210	194	0	1,471	127	**90,105**
2002		7,965	381	30	525	4	2,357	10,387	235		700	(127)	**(104,887)**
2003		7,166	59	16	524	44	2,214	14,102	85	0	(2,400)	(127)	**(92,620)**
2004		4,988	126	12	360	1	1,506	13,346	160	0	(2,400)	(127)	**(88,955)**
2005		4,472	66	20	(304)		(1,719)	8,413	170	0	(2,400)	(127)	**(64,183)**
2006		4,317	(22)	(3)	(274)		(291)	(12,590)	(86)	(0)	(2,400)	(127)	**(67,704)**

[2] Catches for 2000-2004 contain estimates of offshore longline catches from vessels landing at domestic ports

[3] Other longline catches from vessels flying flags of convenience being called back to Chinese Taipei. Catches may be duplicated in the Chinese Taipei longline series (November 2005).

Table 2. Swordfish catches (in metric tons) by fishery, 1952-2006. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ( ). Data are from the Swordfish Working Group catch tables as of 1 February 2007 and may differ from official statistics.

Year	Japan								Chinese Taipei[5]			
	Distant/ Offshore Longline[2]	Coastal Longline	Harpoon[3]	Drift Net	Other Bait Fishing	Trap Net	Other[4]	Total	Distant Water Longline	Offshore Long line	Other	Total
1952	8,890	152	0	2,569	6	68	6	11,691	-	-		-
1953	10,796	77	0	1,407	20	21	87	12,408	-	-		-
1954	12,563	96	0	813	104	18	17	13,611	-	-		-
1955	13,064	29	0	821	119	37	41	14,111	-	-		-
1956	14,596	10	0	775	66	31	7	15,485	-	-		-
1957	14,268	37	0	858	59	18	11	15,251	-	-		-
1958	18,525	42	0	1,069	46	31	21	19,734	-	-		-
1959	17,236	66	0	891	34	31	10	18,268	-	-		-
1960	20,058	51	1	1,191	23	67	7	21,400	-	-		-
1961	19,715	51	2	1,335	19	15	11	21,147	-	-		-
1962	10,607	78	0	1,371	26	15	18	12,115	-	-		-
1963	10,322	98	0	747	43	17	16	11,243	-	-		-
1964	7,669	91	4	1,006	42	17	28	8,858	-	343	18	361
1965	8,742	119	0	1,908	26	14	182	10,991	-	358	10	368
1966	9,866	113	0	1,728	41	11	4	11,764	-	331	27	358
1967	10,883	184	0	891	33	12	5	12,008	-	646	35	681
1968	9,810	236	0	1,539	41	14	9	11,649	-	763	12	775
1969	9,416	296	0	1,557	42	11	5	11,327	0	843	7	850
1970	7,324	427	0	1,748	36	9	1	9,545	-	904	5	909
1971	7,037	350	1	473	17	37	0	7,915	-	992	3	995
1972	6,796	531	55	282	20	1	1	7,686	-	862	11	873
1973	7,123	414	720	121	27	23	2	8,430	-	860	119	979
1974	5,983	654	1,304	190	27	16	1	8,175	1	880	136	1,017
1975	7,031	620	2,672	205	58	18	2	10,606	29	899	153	1,081
1976	8,054	750	3,488	313	170	14	1	12,790	23	613	194	830
1977	8,383	880	2,344	201	71	7	1	11,887	36	542	141	719
1978	8,001	1,031	2,475	130	110	22	1	11,770	-	546	12	558
1979	8,602	1,038	983	161	45	15	1	10,845	7	661	33	701
1980	6,005	849	1,746	398	30	15	1	9,045	10	603	76	689
1981	7,039	727	1,848	129	59	10	0	9,812	2	656	25	683
1982	6,064	874	1,257	195	58	7	0	8,546	1	855	49	905
1983	7,692	999	1,033	166	30	9	2	9,931	0	783	166	949
1984	7,177	1,177	1,053	117	98	13	0	9,635	-	733	264	997
1985	9,335	999	1,133	191	69	10	0	11,737	-	566	259	825
1986	8,721	1,037	1,264	123	47	9	0	11,201	-	456	211	667
1987	9,495	860	1,051	87	45	11	0	11,549	3	1,328	190	1,521
1988	8,574	678	1,234	173	19	8	0	10,686	-	777	263	1,040
1989	6,690	752	1,596	362	21	10	0	9,431	50	1,491	38	1,579
1990	5,833	690	1,074	128	13	4	0	7,742	143	1,309	154	1,606
1991	4,809	807	498	153	20	5	0	6,292	40	1,390	180	1,610
1992	7,234	1,181	887	381	16	6	0	9,705	21	1,473	243	1,737
1993	8,298	1,394	292	309	43	4	1	10,341	54	1,174	310	1,538
1994	7,366	1,357	421	308	37	4	0	9,493	-	1,155	219	1,374
1995	6,422	1,387	561	440	17	7	0	8,834	50	1,135	225	1,410
1996	6,916	1,067	428	633	9	4	0	9,057	9	701	31	741
1997	7,002	1,214	365	396	11	5	0	8,993	15	1,358	61	1,434
1998	6,233	1,190	471	535	9	2	0	8,441	20	1,178	41	1,239
1999	5,557	1,049	724	461	2	5	0	7,798	70	1,385	61	1,516
2000	6,180	1,121	808	539	7	5	1	8,661	325	1,531	86	1,942
2001	6,932	908	732	255	5	15	0	8,848	1,039	1,691	91	2,821
2002	6,230	965	1,164	222	8	11	0	8,600	1,633	1,557	27	3,217
2003	5,352	1,039	1,198	167	10	4	0	7,770	1,084	2,196	11	3,291
2004	(6,165)	1,454	1,339	33	33	23	1	(9,048)	884	1,828	16	2,728
2005	(6,972)							(6,972)	437	1,813	26	2,276
2006												

1 Catch data are currently unavailable for Korea, Philippines, and some other countries catching swordfish in the N. Pacific.
2 Catches by gear for 1952-1970 were estimated roughly using FAO statistics and other data. Catches for 1971-2002 are more reliably estimated.
3 Contains trolling and harpoon but majority of catch obtained by harpoon.
4 For 1952-1970 "Other" refers to catches by other baitfishing methods, trap nets, and various unspecified gears.
5 Offshore longline category includes some catches from harpoon and other fisheries but does not include catches unloaded in foreign ports

Table 2.(cont.) Swordfish catches (in metric tons) by fishery, 1952-2006. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ( ). Data are from the Swordfish Working Group catch tables as of 1 February 2007 and may differ from official statistics.

Year	**Korea**	**Mexico**	**United States[2]**						**Grand Total**
			Hawaii	California					
	Longline	All Gears	Longline	Longline	Gill Net	Harpoon	Unknown	Total	
1952	-	-	-	-	-	-	-	-	11,691
1953	-	-	-	-	-	-	-	-	12,408
1954	-	-	-	-	-	-	-	-	13,611
1955	-	-	-	-	-	-	-	-	14,111
1956	-	-	-	-	-	-	-	-	15,485
1957	-	-	-	-	-	-	-	-	15,251
1958	-	-	-	-	-	-	-	-	19,734
1959	-	-	-	-	-	-	-	-	18,268
1960	-	-	-	-	-	-	-	-	21,400
1961	-	-	-	-	-	-	-	-	21,147
1962	-	-	-	-	-	-	-	-	12,115
1963	-	-	-	-	-	-	-	-	11,243
1964	-	-	-	-	-	-	-	-	9,219
1965	-	-	-	-	-	-	-	-	11,359
1966	-	-	-	-	-	-	-	-	12,122
1967	-	-	-	-	-	-	-	-	12,689
1968	-	-	-	-	-	-	-	-	12,424
1969	-	-	-	-	-	-	-	-	12,177
1970	-	-	5	-	-	612	10	627	11,081
1971	-	-	1	-	-	99	3	103	9,013
1972	-	2	0	-	-	171	4	175	8,736
1973	-	4	0	-	-	399	4	403	9,816
1974	-	6	0	-	-	406	22	428	9,626
1975	-	-	0	-	-	557	13	570	12,257
1976	-	-	0	-	-	42	13	55	13,675
1977	-	-	17	-	-	318	19	354	12,960
1978	-	-	9	-	-	1,699	13	1,721	14,049
1979	-	7	7	-	-	329	57	393	11,946
1980	-	380	5	-	160	566	62	793	10,907
1981	-	1,575	3	1	461	267	20	752	12,822
1982	-	1,365	5	2	911	156	43	1,117	11,933
1983	-	120	5	1	1,321	58	378	1,763	12,763
1984	-	47	3	14	2,101	96	678	2,892	13,571
1985	-	18	2	46	2,368	211	792	3,419	15,999
1986	-	422	2	4	1,594	236	696	2,532	14,822
1987	-	550	24	4	1,287	211	300	1,826	15,446
1988	-	613	24	19	1,092	180	344	1,659	13,998
1989	-	690	218	29	1,050	54	224	1,575	13,275
1990	-	2,650	2,436	18	1,028	50	137	3,669	15,667
1991	-	861	4,508	39	836	16	137	5,536	14,299
1992	-	1,160	5,700	95	1,332	74	44	7,245	19,847
1993	-	812	5,909	165	1,400	169	36	7,679	20,370
1994	-	581	3,176	740	799	153	8	4,876	16,324
1995	-	437	2,713	279	755	96	31	3,874	14,555
1996	12	439	2,502	347	752	81	10	3,692	13,941
1997	246	2,365	2,881	664	707	84	3	4,339	17,377
1998	123	3,603	3,263	422	924	48	13	4,670	18,076
1999	104	1,136	3,100	1,333	606	81	2	5,122	15,676
2000	161	2,216	2,949	1,908	646	90	9	5,602	18,582
2001	349	780	220	1,763	375	52	5	2,415	15,213
2002	350	465	204	1,320	302	90	3	1,919	14,551
2003	311	671	147	1,812	216	107	0	2,282	14,325
2004	(350)	270.1	(213)	(898)	182	89	(37)	(1,419)	(14,883)
2005	(407)	234.5	(1360)	-	219	73	(0)	(1,652)	(13,506)
2006		347.2							(347)

1 Catch data are currently unavailable for Korea, Philippines, and some other countries catching swordfish in the N. Pacific.
2 Estimated round weight of retained catch. Does not include discards.

Table 3. Striped marlin catches (in metric tons) by fishery, 1952-2005. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ( ). Data are from the Marlin Working Group catch tables as of 1 February 2007 and may differ from official statistics.

Year	Japan							Chinese Taipei[1]				
	Distant Water Longline	Off Shore Longline	Other Longline	Small Mesh Gillnet	Large Mesh Gillnet	Other[2]	Total	Distant Water Longline	Highseas Drift Gillnet	Off Shore Longline	Other	Total
1952	2,901		722	0	0	1,564	5,187					-
1953	2,138		47	0	0	954	3,139					-
1954	3,068		52	0	0	1,088	4,208					-
1955	3,082		28	0	0	1,038	4,149					-
1956	3,729		59	0	0	1,996	5,785					-
1957	3,189		119	0	0	2,459	5,766					-
1958	4,106		277	0	3	2,914	7,301					-
1959	4,152		156	0	2	3,191	7,501					-
1960	3,862		101	0	4	1,937	5,905					-
1961	4,420		169	0	2	1,797	6,388					-
1962	5,739		110	0	8	1,912	7,770					-
1963	6,135		62	0	17	1,910	8,124					-
1964	14,304		42	0	2	2,344	16,691			560	199	759
1965	11,602		19	0	1	2,796	14,418			392	175	567
1966	8,419		112	0	2	1,573	10,106			356	157	513
1967	11,698		127	0	3	1,551	13,379	2		385	204	591
1968	15,913		230	0	3	1,040	17,186	1		332	208	541
1969	8,544	600	3	0	3	2,630	11,780	2		571	192	765
1970	12,996	690	181	0	3	1,029	14,899	0		495	189	684
1971	10,965	667	259	0	10	2,016	13,917	0		449	135	584
1972	7,006	837	145	0	243	990	9,221	9		380	126	515
1973	6,299	632	118	0	3,265	630	10,944	1		568	139	708
1974	6,625	327	49	0	3,112	775	10,888	24		650	118	792
1975	5,193	286	38	0	6,534	685	12,736	64		732	96	892
1976	4,996	244	34	0	3,561	571	9,406	32		347	140	519
1977	2,722	256	15	0	4,424	547	7,964	17		524	219	760
1978	2,464	243	27	0	5,593	418	8,745	0		618	78	696
1979	4,898	366	21	0	2,532	526	8,343	26		432	122	580
1980	5,871	607	5	0	3,467	537	10,488	61		223	132	416
1981	3,957	259	12	0	3,866	538	8,632	17		491	95	603
1982	5,211	270	13	0	2,351	655	8,500	7		397	138	542
1983	3,575	320	10	22	1,845	792	6,564	0		555	214	769
1984	3,335	386	9	76	2,257	719	6,782	0		965	339	1,304
1985	3,698	711	24	40	2,323	732	7,528	0		513	181	694
1986	5,178	901	33	48	3,536	571	10,267	0		179	148	327
1987	5,439	1,187	6	32	1,856	513	9,033	31		383	151	565
1988	5,768	752	7	54	2,157	668	9,406	7		457	169	633
1989	4,582	1,081	13	102	1,562	537	7,877	8		184	157	349
1990	2,298	1,125	3	19	1,926	545	5,916	2		137	256	395
1991	2,677	1,197	3	27	1,302	506	5,712	36		254	286	576
1992	2,757	1,247	10	35	1,169	302	5,520	1		219	197	417
1993	3,286	1,723	1	0	828	443	6,281	5		221	142	368
1994	2,911	1,284	1	0	1,443	383	6,022	1		137	196	334
1995	3,494	1,840	3	0	970	278	6,585	27		83	82	192
1996	1,951	1,836	4	0	703	152	4,646	26		162	47	235
1997	2,120	1,400	3	0	813	163	4,499	59		290	47	396
1998	1,784	1,975	2	0	1,092	304	5,157	90		205	50	345
1999	1,608	1,551	4	0	1,126	183	4,472	66		128	42	236
2000	1,152	1,109	8	0	1,062	297	3,628	153		161	55	369
2001	985	1,326	11	0	1,077	237	3,636	121		129	51	301
2002	764	795	5	0	1,264	291	3,119	251		226	29	506
2003	1,008	826	3	0	1,064	203	3,104	241		91	43	375
2004	(761)	(964)	(2)	(0)	(1,339)	(90)	(3,066)	261		95	24	380
2005	(803)						(803)	176		76	32	284

[1] Estimated from catch in number of fish

[2] Contains bait fishing, net fishing, trapnet, trolling, harpoon, etc.

Table 3.(cont). Striped marlin catches (in metric tons) by fishery, 1952-2005. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ( ). Data are from the Marlin Working Group catch tables as of 1 February 2007 and may differ from official statistics.

Year	Costa Rica[1]	Korea			Mexico			United States					Grand Total
	Sport	Long Line	Highseas Drift Gillnet	Total	Long Line	Sport[1]	Total	Long Line	Troll	Hand Line	Sport[1]	Total	
1952		-		0			0				23	23	5,210
1953		-		0			0				5	5	3,144
1954		-		0			0				16	16	4,224
1955		-		0			0				5	5	4,154
1956		-		0			0				34	34	5,819
1957		-		0			0				42	42	5,808
1958		-		0			0				59	59	7,360
1959		-		0			0				65	65	7,566
1960		-		0			0				30	30	5,935
1961		-		0			0				24	24	6,412
1962		-		0			0				5	5	7,775
1963		-		0			0				68	68	8,192
1964		-		0			0				58	58	17,508
1965		-		0			0				23	23	15,008
1966		-		0			0				36	36	10,655
1967		-		0			0				49	49	14,018
1968		-		0			0				51	51	17,778
1969		-		0			0				30	30	12,575
1970		-		0			0				18	18	15,601
1971		-		0			0				17	17	14,518
1972		-		0			0				21	21	9,757
1973		-		0			0				9	9	11,660
1974		-		0			0				55	55	11,735
1975		-		0			0				27	27	13,655
1976		-		0			0				31	31	9,956
1977		-		0			0				41	41	8,766
1978		-		0			0				37	37	9,478
1979		-		0			0				36	36	8,960
1980		-		0			0				33	33	10,937
1981		-		0			0				60	60	9,295
1982		-		0			0				41	41	9,083
1983		-		0			0				39	39	7,373
1984		-		0			0				36	36	8,122
1985		-		0			0				42	42	8,263
1986		-		0	-		0				19	19	10,614
1987		-		0	-		0	272	30	1	28	331	9,928
1988		-		0	-		0	504	54	1	30	589	10,628
1989		-		0	-		0	612	24	0	52	688	8,914
1990		-		0	-	181	181	538	27	0	23	588	7,079
1991	106	-		0	-	75	75	663	40	0	12	715	7,184
1992	281	-		0	-	142	142	459	38	1	25	523	6,884
1993	438	-		0	-	159	159	471	68	1	11	551	7,796
1994	521	-		0	-	179	179	326	34	0	17	377	7,433
1995	153	-		0	-	190	190	543	52	0	14	609	7,729
1996	122	348		348	-	237	237	418	54	1	20	493	6,081
1997	138	828		828	-	193	193	352	38	1	21	412	6,466
1998	144	519		519	-	345	345	378	26	0	23	427	6,937
1999	166	352		352	-	266	266	364	28	1	12	405	5,897
2000	97	436		436	-	312	312	200	14	1	10	225	5,067
2001	151	206		206	-	237	237	351	42	2		395	4,926
2002	76	153		153	-	305	305	226	29	0		255	4,414
2003	79	172		172	-	322	322	538	28	0		566	4,618
2004	(19)	(75)		(75)	-	-	0	(384)	(56)	(2)		(442)	(3,768)
2005	-	(115)		(115)	-	-	0	(377)	-	-		(377)	(1,465)

[1] Estimated from catch in number of fish

Table 4. Schedule of ISC and Other Tuna and Tuna-like Species Regional Fisheries Management Organization Meetings, 2007-2009.

		09-07	10-07	11-07	12-07	01-08	02-08	03-08	04-08	05-08	06-08	07-08	08-08	09-08	10-08	11-08	12-08	01-09	02-09	03-09	04-09
ISC	**ALB WG**						MD/RP (28-), La Jolla	MD/RP (1-6), La Jolla				UP (16-17)					MD				
	PBF WG				DP/MD (11-18), Shimizu					DP/MD (21-27) FA (28-30)	FA (1-4)							MD RP			
	BILL WG					SWO DP/MD (15-23)					SWO SC (3-10), Japan				SWO MD (25-1) SYM (20-24)					SWO FA	
	BC WG									Shark DP		RE (16-17)					Shark SC	Shark SC			
	STAT WG											RE (18-21)									
	Plenary											(23-28)									
Other	**ICCAT**	Spp. Groups (24-28)	SCRS (1-5)						Tuna Assess		BET Assess			Spp. Groups (29- 3)	SCRS (6-10)	Comm (12-18)					
	IATTC									Stock Assess. (12-16)	Comm (22-27)				Work shop (14-17)						
	WPFC	NC (11-13)			Comm (3-7)								SC (10-22)	NC (9-11)			Comm (1-5)				
	IOTC			SC (5-9)						Comm (11-16)						SC (3-7)					
	Others									Tuna Conf. (19-22)					WFC (20-24)						

Key: MD = Model development and analyses; DP = Data preparation and review; RP = Biological reference points; SC = Stock condition advice; FA = Complete stock assessment with new model, data or information; UP = Updated stock assessment with additional data and minor corrections to existing data; RE = Review of activities, plans and progress; SYM = Symposium Comm. = Commission, NC = Northern Committee, SC = Science Committee

7th Meeting of the

INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC OCEAN

Busan National University
Sangnam International House
Geumjeong-gu
Busan 609-735, Korea

July 25-30, 2007

Agenda

1. Opening
2. Adoption of Agenda
3. Delegation Reports on Research and Fishery Monitoring
4. Report of Chairman
5. Reports of Working Groups
6. Stock Status and Conservation Advice
7. Review of Stock Status of Secondary Stocks
8. Review of Statistics and Data Base Issues
9. Relationship between ISC and Regional Organizations
10. Review of Meeting Schedule
11. Administrative Matters
12. Adoption of Report
13. Close of Meeting

REPORT OF THE SEVENTH MEETING OF THE INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC OCEAN

Plenary Session, July 25-30, 2007
Busan, Korea

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REPORT OF THE SEVENTH MEETING OF THE INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC OCEAN

Plenary Session, July 25-30, 2007
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LIST OF MEETING DOCUMENTS

Plenary Documents

ISC/07/PLENARY/01	ISC Action Plan for 2006-2007 (*ISC*)
ISC/07/PLENARY/02	IATTC-75-06: The Fishery for Tunas and Billfishes in the Eastern Pacific Ocean in 2006 (*IATTC*)
ISC/07/PLENARY/03	Operations Manual for the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (*ISC*)
ISC/07/PLENARY/04	The 2006 Canadian North Pacific Albacore Troll Fishery (*Max Stocker, Fisheries and Oceans Canada*)
ISC/07/PLENARY/05	Recent Status of Chinese-Taipei Tuna Fisheries in the North Pacific Region for 2005 (*Fisheries Agency, Council of Agriculture, Chinese-Taipei*)
ISC/07/PLENARY/06	U.S. Fisheries and Research on Tuna and Tuna-like Species in the North Pacific Ocean (*NOAA Fisheries SWFSC and PIFSC*)
ISC/07/PLENARY/07	Schedule of ISC and Other Highly Migratory Species Regional Fisheries Management Organization Meetings, 2007-09 (*ISC*)
ISC/07/PLENARY/08	ISC Organizational Chart (June 2007) (*ISC*)
ISC/07/PLENARY/09	National Report of Japan *(Harumi Yamada and Koji Uosaki, National Research Institute of Far Seas Fisheries)*
ISC/07/PLENARY/10	Mexican Progress Report to the ISC (*INP*)

ISC/07/PLENARY/11	National Report of Korea *(S.D. Hwang, D.N. Kim, K.H. Choi, D.H. An, and D.Y. Moon, National Fisheries Research and Development Institute)*

Informational Documents

ISC/07/PLENARY/INFO/01	Stock Assessment of Yellowfin Tuna in the Western and Central Pacific Ocean, Including an Analysis of Management Options (WCPFC-SC2-2006/SA WP-1) (*WCPFC*)
ISC/07/PLENARY/INFO/02	Stock Assessment of Bigeye Tuna in the Western and Central Pacific Ocean, Including an Analysis of Management Options (WCPFC-SC2-2006/SA WP-2) (*WCPFC*)
ISC/07/PLENARY/INFO/03	Status of Yellowfin Tuna in the Eastern Pacific Ocean (*IATTC*)
ISC/07/PLENARY/INFO/04	Status of Bigeye Tuna in the Eastern Pacific Ocean (*IATTC*)
ISC/07/PLENARY/INFO/05	The Relationship between the International Scientific Committee, the Northern Committee and the Scientific Committee in Respect to the Northern Stocks (WCPFC-SC3/GN WP-4) (*WCPFC*)