

**INTER-AMERICAN TROPICAL TUNA COMMISSION**

**MINUTES OF THE 68<sup>TH</sup> MEETING**

**San Salvador (El Salvador)**

**19-22 June 2001**

**Chairman: Lic. Mario González Recinos (El Salvador)**

**AGENDA**

1. Opening of the meeting
2. Adoption of the agenda
3. Review of the Commission staff's research
4. The fishery in 2000
5. Status of tuna and billfish stocks:
  - a) Yellowfin
  - b) Bigeye
  - c) Skipjack
6. Report of the Scientific Working Group
7. Review of tuna-dolphin research and extension programs, and implementation of the AIDCP
8. Consultation on U.S. International Dolphin Conservation Program Act research
9. Report of the Working Group on the IATTC Convention
10. Report of the Permanent Working Group on Compliance
11. Report on the implementation of the Resolution on Bycatch of June 2000
12. Draft Plan of Action for the Regional Management of Fishing Capacity
13. Recommended research program and budget for FY 2002-2003
14. Report of the Working Group on Finance
15. Participation fees for observers at IATTC meetings
16. Recommendations and resolutions for 2001
17. Place and date of next meeting
18. Election of officers
19. Other business
20. Adjournment

## **DOCUMENTS**

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A1	The fishery for tunas and tuna-like fishes in the eastern Pacific Ocean in 2000
A2	Status of yellowfin tuna in the eastern Pacific Ocean
A3	Status of skipjack tuna in the eastern Pacific Ocean
A4	Status of bigeye tuna in the eastern Pacific Ocean
A5	Status of bluefin tuna in the Pacific Ocean
A6	Status of albacore tuna in the Pacific Ocean
A11	Status of swordfish in the eastern Pacific Ocean
B1	Tuna-Dolphin Program
C1	Program and budget for fiscal year 2003 (October 1, 2002-September 30, 2003)

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IATTC-68-11	Report on the implementation of the Resolution on Bycatch of June 2000 (attached)
IATTC-68-12	Draft plan for regional management of fishing capacity (attached)
IATTC-68-15	Fees charged to observers by other regional fisheries organizations (attached)

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## **APPENDICES**

1. List of attendees
2. Report of the Scientific Working Group
3. Resolution on bycatch
4. Resolution on at-sea reporting
5. Resolution on fishing by vessels of non-Parties
6. Resolution on an IATTC-AIDCP joint working group on fishing by non-Parties
7. Resolution on financing
8. Resolution on yellowfin tuna
9. Resolution on the conservation of bigeye tuna in the EPO

## **1. Opening of the meeting**

The meeting was opened on June 19, 2001, by the Minister of Agriculture of El Salvador, Ing. Salvador Urrutia Loucel, who welcomed the delegates to his country and wished them success in their deliberations. The attendees are listed in Appendix 1.

The delegate from Peru expressed the intention of his government to become a member of the IATTC and its hope that this could be accomplished in the near future.

The representative of The Ocean Conservancy noted its name change from the Center for Marine Conservation.

## **2. Adoption of agenda**

It was agreed that the report of the Scientific Working Group should be discussed immediately after the presentations on the fishery and the status of the stocks, and with this change the provisional agenda was adopted.

## **3. Review of the Commission staff's research**

Dr. Rick Deriso, Chief Scientist of the Tuna-Billfish Program, presented a summary of the research being carried out by IATTC staff on tunas and billfishes.

## **4. The 2000 fishing year**

Dr. Robin Allen, Director of the Commission, presented information on the fishery during 2000. He noted that there was a record purse-seine catch of bigeye tuna from the eastern Pacific Ocean (EPO) in 2000, which was attributed to the presence of a large number of medium-sized bigeye in the EPO following a relatively large recruitment a few years ago.

## **5. Status of tuna and billfish stocks**

Dr. Allen reviewed the status of the stocks of yellowfin, bigeye, skipjack, and other species in the EPO. The staff had assessed all three stocks using the A-SCALA method.

The estimated size of the yellowfin tuna stock at the beginning of 2001 was about the same as in 2000 and was significantly greater than the level that would produce the average maximum sustainable yield (AMSY). Recent estimates of recruitment have a high level of uncertainty, but suggest that the stock size will decline a little in the next few years.

The assessment of bigeye had much more uncertainty than that of yellowfin, due to various factors, including the relatively recent development of purse-seine methods that capture significant numbers of bigeye, less certain estimates of catches, and a relative paucity of biological information about the species. Recruitment during 1996-1998 was above average, but all subsequent estimates were significantly below average. Fish from the previous strong recruitment were now about 120 cm long and were becoming less vulnerable to purse seining and more vulnerable to longlining. The spawning biomass was at about the level that would support the AMSY, but was expected to decline in future years.

Skipjack was assessed using A-SCALA for the first time this year, and accordingly the results should be treated as preliminary. The assessment suggested that fishing mortality in the EPO was low compared to natural mortality and that changes in the biomass over time were driven largely by changes in recruitment. Recruitment had been strong in 1997, leading to the record catches of 1999, but subsequent recruitment appeared to be weak.

## **6. Report of the Scientific Working Group**

Dr. Allen presented the report of the Scientific Working Group (Appendix 2).

France noted its interest in the longline fisheries in the waters around French Polynesia, which are part of the Commission's regulatory area, and observed that these fisheries should be taken into account in the formulation of management measures.

The European Union expressed its strong support of the constructive and positive results of the Scientific Working Group. It welcomed in particular the work of the IATTC on swordfish stocks, noting that the EU and Chile were engaged in cooperative scientific work on the species.

#### **7. Review of tuna-dolphin research and extension programs, and implementation of the AIDCP**

Dr. Martin Hall, Chief Scientist of the Tuna-Dolphin Program, presented information on the tuna-dolphin research and extension program, including numbers of sets on dolphins, trends in mortality, causes of mortality, and an investigation on the influence of various oceanographic factors on estimates of relative and absolute abundance.

Dr. Allen reported on the role of the staff in implementing the Agreement on the International Dolphin Conservation Program (AIDCP) in its function as Secretariat to that Agreement.

Greenpeace International made a statement supporting the IATTC Tuna-Dolphin Program and the IDCP, noting that it was pleased to see the reductions in dolphin mortality and is concerned about bycatch of other species resulting from fishing for tunas associated with floating objects.

#### **8. Consultation on U.S. International Dolphin Conservation Program Act research**

The United States reported on the status of this research and on its consultations with the Commission on the research.

#### **9. Report of the Working Group on the IATTC Convention**

The Chairman of the Working Group on the IATTC Convention, Ambassador Jean-François Pulvenis of Venezuela, reported on the results of the 5<sup>th</sup> and 6<sup>th</sup> meetings of the Working Group, held in September 2000 and April 2001, respectively. He noted that the negotiations were making progress, but that there were still a number of important issues pending.

#### **10. Report of the Permanent Working Group on Compliance**

The Chair of the Permanent Working Group on Compliance, Lic. Mara Murillo of Mexico, presented the report of the Working Group's second meeting, held immediately before the IATTC meeting. She noted that the Working Group had addressed all of the compliance issues discussed in the document prepared by the staff. The Commission adopted the four resolutions recommended by the Working Group: on bycatch, at-sea reporting, fishing by non-parties, and the establishment of an IATTC-AIDCP Joint Working Group on fishing by non-parties (Appendices 3-6).

The meeting endorsed the conclusions of the Working Group on Vessel Monitoring Systems (VMS), most importantly that, at this stage, the establishment of VMS requirements should proceed on a voluntary basis at the national level and that it was not urgent that the Commission move to establish a centralized, mandatory VMS, mainly because all large purse-seine vessels operating the eastern Pacific are required to carry on-board observers.

The meeting agreed that the Commission should keep this issue under review and consider it again at some point in future. It was also agreed that Commission staff should collaborate with interested countries which do have national VMS in the transmission of test messages, for the purpose of exploring the feasibility of a more centralized system, should the Commission decide to proceed in that direction in future.

### **11. Report on the implementation of the Resolution on Bycatch of June 2000**

Dr. Allen summarized and highlighted the main points of Document IATTC-68-11, *Report on the implementation of the Resolution on Bycatch of June 2000*, prepared by the staff (attached).

The report was briefly discussed by the meeting. However, in light of the number of substantive matters presented in the report and the insufficient time to address them adequately, it was decided to convene a meeting of the Working Group on Bycatch before the next meeting of the Commission.

### **12. Draft Plan of Action for the Regional Management of Fishing Capacity**

The meeting reviewed Document IATTC-68-12, *Draft plan for regional management of fishing capacity*, prepared by the staff (attached). The governments endorsed many of the principles and concepts elaborated in the document, but were not prepared to adopt the plan. Some governments proposed that another meeting of the Permanent Working Group on Fleet Capacity be convened in an effort to reach agreement regarding the limitation of purse-seine fishing capacity in the region, while others supported the idea of holding another meeting but cautioned that the meeting was not likely to succeed unless there was a commitment on the part of all governments to limit the capacity of their fleets. It was agreed to convene another session of the Working Group before the next annual meeting of the Commission.

### **13. Recommended research program and budget for FY 2002-2003**

Dr. Allen presented the proposed program and budget for fiscal year 2003 (October 1, 2002 – September 30, 2003).

### **14. Report of the Working Group on Finance**

Mr. Timothy McCarthy, of the United States, the Chair of the meeting of the Working Group on Finance held the day before, reported that the governments had agreed to meet again in late August in La Jolla to attempt to finish work on the formula for contributions by member countries. The Commission adopted a Resolution on Financing (Appendix 7), which included, *inter alia*, commitments by the member governments for their contributions to the budget of the IATTC for FY 2002.

### **15. Participation fees for observers at IATTC meetings**

Dr. Allen presented Document IATTC-68-15, *Fees charged to observers by other regional fisheries organizations* (attached), prepared by the staff on the issue of possible fees to be paid by observers to attend IATTC meetings. The meeting took note of the information in the document, and decided not to take any action on this matter at this time.

### **16. Recommendations and resolutions for 2001**

Dr. Allen presented the recommendations of the staff regarding conservation and management measures for yellowfin and bigeye tuna for 2001. After a lengthy discussion on the appropriate measures for these species, resolutions for both yellowfin and bigeye tuna were agreed. In total, the meeting adopted the following resolutions:

	<u>Appendix</u>
Resolution on bycatch	3
Resolution on at-sea reporting	4
Resolution on fishing by vessels of non-Parties	5
Resolution on an IATTC-AIDCP joint working group on fishing by non-Parties	6
Resolution on financing	7
Resolution on yellowfin tuna	8

**17. Place and date of next meeting**

It was agreed that the next regular meeting of the IATTC would take place in Mexico in June 2002, the precise venue and dates to be decided later.

**18. Election of officers**

The following appointments were made:

	Chair
69 <sup>th</sup> Meeting of the IATTC	Jerónimo Ramos
Permanent Working Group on Fleet Capacity	Mario González
Working Group on Finance	Svein Fougner
Working Group on the IATTC Convention	Jean-François Pulvenis
Working Group on Bycatch	Luis Torres
Permanent Working Group on Compliance	Mara Murillo

**19. Other business**

Japan expressed its concerns over the new Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, and circulated a document criticizing the Convention. The United States expressed its disagreement with Japan on this matter, noting its support for the Convention and rejecting as inaccurate several assertions in the Japanese document.

The United States expressed its concern over the decision to restrict the distribution of the weekly catch reports to Commissioners and government officials only, and asked that this decision be re-considered. Venezuela and Mexico expressed similar concerns, noting that at least vessel owners should have access to the report. The Secretariat explained that the distribution of the report had been restricted because several owners of vessels that account for a high level of tuna catch had advised that, unless it were restricted, they would no longer allow observers to collect catch and other fisheries information for their vessels. The meeting did not recommend a change in the current practice, but decided to keep the issue under review.

**20. Adjournment**

The meeting was adjourned at 2:50 a.m. on June 22.

## Appendix 1.

### COMISION INTERAMERICANA DEL ATUN TROPICAL INTER-AMERICAN TROPICAL TUNA COMMISSION

#### 68ª REUNION – 68<sup>TH</sup> MEETING

19-22 de junio de 2001 – June 19-22, 2001

San Salvador, El Salvador

#### ASISTENTES - ATTENDEES

#### PAISES MIEMBROS – MEMBER COUNTRIES

##### COSTA RICA

###### **HERBERT NANNE ECHANDI**

Comisionado  
Instituto Costarricense de Pesca y Acuicultura

##### ECUADOR

###### **RAFAEL TRUJILLO BEJARANO**

Comisionado

###### **LUIS TORRES NAVARRETE**

Comisionado  
Ministerio de Comercio Exterior, Industrialización y  
Pesca

###### **CESAR ROHON**

###### **JULIO HIDALGO CORONEL**

Cámara Nacional de Pesquería

###### **LUIS EDUARDO GOMEZ**

###### **LUIS EDUARDO GARCIA**

Legalsa, S.A.

###### **CARLOS CALERO**

Conservas Isabel Ecuatoriana, S.A.

###### **JOSE LUIS FLORES**

SEAFMAN, C.A.

###### **ABEL PALADINES**

P. H. Industria, Pesca, Construcciones

##### EL SALVADOR

###### **SALVADOR URRUTIA LOUCEL**

Ministro de Agricultura

###### **ROBERTO INTERIANO**

Comisionado

###### **MARIO GONZALEZ RECINOS**

Comisionado

###### **MARGARITA SALAZAR DE JURADO**

Comisionada

###### **SONIA SALAVERRIA**

Ministerio de Agricultura y Ganadería

###### **VERONICA NAVASCUEZ**

###### **CORALIA MOREIRA**

###### **ELSY SORTO**

###### **YUKINOBU TAKAFUTI**

Centro de Desarrollo Pesquero

###### **REBECCA BERRIOS DE GONZALEZ**

###### **ELIZABETH VILLALTA-VIZCARRA**

###### **BEATRIZ CLARÁ GUERRERO**

###### **FRESIA UJUETA**

###### **LUCIA BORJA CHAVEZ**

Ministerio de Relaciones Exteriores

###### **ABDÓN AGUILLON**

Ministerio de Economía

###### **JOSE ANTONIO MARIÑO**

Cooperación Española

###### **FRANCISCO MONROY**

COPINAP

###### **WALDEMAR ARNECKE**

ISMAR, S.A. de C.V.

##### FRANCIA - FRANCE

###### **ALAIN FORT**

Embajada de Francia en El Salvador

###### **GUY RAHANEI BESNARD**

Government of French Polynesia

##### GUATEMALA

###### **FRATERNO DIAZ**

Unidad de Manejo de la Pesca (UNIPESCA)

##### JAPON - JAPAN

###### **DAISHIRO NAGAHATA**

Commissioner

###### **KENGO TANAKA**

###### **MASATO WADA**

Ministry of Agriculture, Forestry and Fisheries  
Fisheries Agency of Japan

**YUKA NISHIDE**

Ministry of Foreign Affairs

**EIKO OZAKI**

**CHIYO KIKUO**

Federation of Japan Tuna Fisheries Co-operative  
Associations

**ZIRO SUZUKI**

National Research Institute of Far Seas Fishery

**MEXICO**

**JERONIMO RAMOS**

Comisionado

**MARIA TERESA BANDALA**

Comisionada

**GUILLERMO COMPEAN**

Comisionado

**MICHEL DREYFUS**

Comisionado

**MARA MURILLO CORREA**

Comisionada

**RICARDO BELMONTES**

**MARIO AGUILAR**

**RAFAEL SOLANA**

Secretaría de Agricultura, Ganadería, Desarrollo Rural,  
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**JOSE CARRANZA**

**ERNESTO ESCOBAR**

Pesca Azteca, S.A. de C.V.

**JOSE VELAZQUEZ M.**

**JOSE VELAZQUEZ C.**

Supremos del Golfo y del Pacífico

**FELIPE CHARAT**

Pesquera Atunera Bonnie, S.A. de C.V.

**MARK ROBERTSON**

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**NICARAGUA**

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Comisionado

Administración Nacional de Pesca y Acuicultura (ADPESCA)

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**ENRIQUE DUQUE**

Embajada de Panamá en El Salvador

**LUIS DORATI**

Tri-Marine International

**ALEXIS SILVA**

Caribbean Fishing

**UNITED STATES OF AMERICA - ESTADOS UNIDOS DE AMERICA**

**REBECCA LENT**

Commissioner

**TIMOTHY MCCARTHY**

Commissioner

**WILLIAM GIBBONS-FLY**

**DAVID HOGAN**

Department of State

**GARY SAGAKAWA**

**STEVE REILLY**

National Marine Fisheries Service

**MICHAEL MCGOWAN**

Bumble Bee Seafoods, Inc.

**PAUL KRAMPE**

United Tuna Cooperative

**MALCOM STOCKWELL**

Starkist Seafood Company

**VANUATU**

**EDWARD WEISSMAN**

Commissioner

**HUGO ALSINA LAGOS**

Office of Deputy Commissioner of Maritime Affairs

**VENEZUELA**

**JEAN-FRANÇOIS PULVENIS**

Comisionado

**CAROLINA BELTRAN**

Comisionada

**FRANCISCO ORTISI**

Comisionado

**RAUL CUIEL**

Ministerio de Relaciones Exteriores

**LUIS MARRERO**

**ZAYMAR VARGAS**

Ministerio de Producción y Comercio

**CARLOS GIMENEZ**

**ALVIN DELGADO**

Programa Nacional de Observadores

**RICARDO MOLINET**

**LILLO MANISCALCHI**

**OBSERVADORES-OBSERVERS**

**PAISES NO MIEMBROS --NON-MEMBER COUNTRIES**

**COLOMBIA**

**CLARA GAVIRIA**  
Ministerio de Comercio Exterior  
**GONZALO JIMENEZ BERMUDEZ**  
Ministerio de Relaciones Exteriores

**JORGE MICAN BAQUERO**  
Ministerio de Agricultura y Desarrollo Rural  
**IVAN DARIO ESCOBAR**  
Instituto Nacional de Pesca y Acuicultura

**ESPAÑA-SPAIN**

**FERNANDO CURCIO**  
Ministerio de Agricultura, Pesca y Alimentación  
**JAVIER ARIZ TELLERIA**  
Instituto Español de Oceanografía  
**GABRIEL SARRO**  
OPAGAC  
**JOAQUIN GOMEZ**  
Albacora, S.A.

**IGNACIO URIBE**  
Nicra 7, S.L.  
**RAMON CALVO**  
**MANUEL CALVO**  
**FERNANDO CALVO**  
Calvopesca, S.A.

**PERU**

**ANTONIO GRUTER**  
Ministerio de Relaciones Exteriores

**GLADYS CARDENAS**  
Instituto del Mar del Perú

**TAIWAN**

**ROBERT H.C. SHEN**

**UNION EUROPEA-EUROPEAN UNION**

**JOHN SPENCER**  
**ALAN GRAY**  
**CHRISTOPHE LE VILLAIN**  
European Commission

**ORGANIZACIONES INTERNACIONALES—INTERNATIONAL ORGANIZATIONS**

**MANUEL LUIS FLORES**  
Comisión Permanente del Pacífico Sur  
**JOEL OPNAI**  
Forum Fisheries Agency  
**BERNARD THOULAG**  
Forum Fisheries Committee

**STEVE REILLY**  
International Whaling Commission  
**CARLOS MAZAL**  
OLDEPESCA

**ORGANIZACIONES NO GUBERNAMENTALES--NON-GOVERNMENTAL ORGANIZATIONS**

**JUAN CARLOS CANTU**  
Greenpeace  
**NINA YOUNG**  
The Ocean Conservancy

**ANDY OLIVER**  
**MIGUEL JORGE**  
World Wildlife Fund

**Personal de la CIAT – IATTC Staff**

**ROBIN ALLEN**, Director  
**ERNESTO ALTAMIRANO**  
**PABLO ARENAS**  
**RICHARD DERISO**  
**MARTHA GOMEZ**  
**JOSHUÉ GROSS**

**MARTIN HALL**  
**BRIAN HALLMAN**  
**BERTA JUÁREZ**  
**NORA ROA-WADE**  
**NICHOLAS WEBB**

**Appendix 2.**

**INTER-AMERICAN TROPICAL TUNA COMMISSION  
SCIENTIFIC WORKING GROUP  
2<sup>ND</sup> MEETING**

**REVIEW OF STOCK ASSESSMENTS**

**La Jolla, California (USA)**

**30 April-4 May 2001**

**Chair: Robin Allen**

**CHAIR'S REPORT**

**AGENDA**

1. Welcome, introductions, consideration of agenda
2. Review of stock assessments:
  - a. Methods
  - b. Species composition sampling progress
  - c. Results
    - i. Yellowfin
    - ii. Skipjack
    - iii. Bigeye
    - iv. Bluefin (paper only)
    - v. Blue marlin
    - vi. Albacore (paper only)
    - vii. Others
3. Ecosystem modeling
4. Summary and recommendations
5. Other business
6. Adjournment

**1. Welcome, introductions, consideration of agenda**

The second meeting of the Scientific Working Group was held in La Jolla, California, USA, from April 30 to May 4, 2001. Dr. Robin Allen chaired the meeting. The participants are listed in Appendix 1.

Dr. Allen explained the general objective of the meeting, which was to review the stock assessments by the IATTC staff that were to be provided to the annual IATTC meeting in El Salvador in June 2001.

**2. Review of stock assessments**

**Sampling and modeling**

**Sampling program for estimating species composition of the surface catch**

Mr. Patrick Tomlinson described the recent results of this sampling program, implemented during 2000. He compared estimates of species composition in the purse-seine catch from the "standard" procedure, based on logbook and industry data, and the new "species composition" method that uses samples taken by IATTC staff when tunas are unloaded from the vessels that allows simultaneous estimation of the species composition and length-frequency distributions (LFD) of the landings of individual species of

tunas caught by the surface fishery of the eastern Pacific Ocean (EPO).

The results obtained by the two procedures were not statistically different for either catch or LFD. Since differences among wells is the most important source of variation, increasing the numbers of wells sampled would increase precision of estimates, but cost and logistic implications would need to be considered.

It was pointed out that the species-composition method produces useful results, and should continue for a few years before deciding which procedure is the better. As the catch of small bigeye tuna was very low in 2000, it does not provide a good test of the methods for estimating species composition. It will be useful to see how the methods compare in years during which there are relatively more small bigeye tuna in the catch.

### **Modifications and additions to the A-SCALA model**

Dr. George Watters described recent updates of the A-SCALA assessment model and associated methods, noting that many of them were the result of recommendations from the first meeting of the Scientific Working Group. The motivation for, and implementation of, changes for a new growth model (used for yellowfin and attempted for bigeye and skipjack), the facility for a Beverton and Holt stock-recruit relationship (used for yellowfin and bigeye), a new fecundity schedule (used for all three species), and for the development of criteria for model selection (used for yellowfin and bigeye) were explained.

The discussion centered on the relative merits of the model selection criteria developed, assumptions regarding the sex ratio, estimation of the sex ratio, mixing and movement, and the characteristics of the Beverton-Holt stock-recruitment relationship. In particular, it was suggested that the effect of other forms of the stock-recruitment relationships that would allow the maximum yield to be achieved at levels of biomass greater than 50% of the unexploited level be examined.

## **Results**

### **Yellowfin tuna**

Dr. Mark Maunder described assessment results for 2000, and explained changes to the yellowfin tuna version of A-SCALA. The time frame of the model is now 1980-2000, and it has been updated with surface fishery data for 2000 and Japanese (up to 1999) and Korean (1994-1997) longline data, and growth and standard deviation of length at age have been estimated.

In comparing results with previous assessments, it was pointed out that biomass estimates are slightly higher, that the estimates of recruitment are similar to those made last year, but the large recruitment estimated for 1998 is lower and the recruitment estimated for 1999 is slightly higher, and that the age-specific mortality rates are different, probably due to the difference in growth curves.

The overall results are similar to the previous assessments: the spawning biomass ratio projection is still above the average maximum sustainable yield (AMSY) level, the average weight of yellowfin in the catch is much less than the critical weight; recent recruitment appears to be less than during 1998 and 1999, but the estimates are preliminary, and the biomass is estimated to have declined in 2000. It was noted that the model would be sensitive to a stock-recruit relationship with steepness less than 1.

The usefulness of using a stock-recruitment relationship when the model response is relatively flat, the relative merits of the concept of virgin biomass, and AMSY and associated benchmarks were discussed. No specific immediate model modification recommendations were suggested, although the desirability of including tagging data for estimation of growth and exploitation and the merits of extending the analyses back to 1965 were discussed. The possible effect of a regime shift on the levels of recruitment and the relationship between stock and recruitment were also discussed.

Comments were made on ways of expanding the output to provide additional diagnostics and to facilitate comparisons with other assessments. Tables of estimated fishing mortality and population estimates were prepared for yellowfin and bigeye and made available to the participants.

## **Bigeye tuna**

Dr. Watters described assessment results for 2000 and explained changes to the bigeye tuna version of A-SCALA since the bigeye meeting of October 2000. The model has been updated with surface fishery data for the second half of 2000 and Japanese (up to 1999) and Korean (1994-1997) longline data; a stock-recruitment relationship, a new growth model, and a maturity schedule have been introduced; the number of catchability parameters has been reduced; sensitivity analyses, using catch estimates from the new catch composition method have been performed, and model selection criteria (AIC and BIC) have been used to decide on a base case scenario.

Results show that: there has been a large change in catchability due to the expansion of the floating-object fishery since 1993; the average weight of a bigeye in the catch has been less than the critical weight since the expansion of the fish-aggregating device (FAD) fishery, more so during the mid-1990s than during 2000; recent recruitment (1999-2000) is the lowest since 1981, although, because they are very preliminary, there is uncertainty in these estimates; environmental effects explain a significant amount of variation in recruitment and the estimates of AMSY.

Dr. John Hampton presented the preliminary results from the Pacific-wide stock assessment of bigeye, and noted that future work would include extensive sensitivity testing. In comparing his model with A-SCALA, it was noted that his model contains specific spatial structure with four separate regions in the northeastern, northwestern, southeastern, and southwestern Pacific, uses tagging data, and uses catch, effort, and size-composition data from 1962 to 1999. Natural mortality is internally estimated, and the model does not use environmental data directly, although the longline effort used in the model is standardized using environmental factors. Trends in relative biomass and recruitment are similar to those of the base case of A-SCALA, but estimated fishing mortality is less for the Pacific-wide model. The model predicts net movement from the southwestern to the southeastern Pacific, contingent on a tag-reporting rate for the eastern Pacific that is much less than that for western Pacific. It was considered that the results of this model are useful, but at this stage it is premature to use them alone. Rather, results should be viewed in conjunction with those from A-SCALA.

In the discussion Dr. Naozumi Miyabe provided recent estimates of Japanese longline CPUE, which tended to confirm the estimate that a relatively large group of bigeye is currently being recruited to the longline fishery, but these estimates indicate that the recruitment is not great as the October 2000 A-SCALA estimates suggested. It was noted that the corresponding estimates of recruitment from the current base case are less than those of the October 2000 estimates.

No specific recommendations were made for immediate modification of the model, but it was agreed that the sex ratio data should be reanalyzed with respect to the growth and mortality schedules. Comments were also made on ways of improving the output to facilitate comparisons with other assessments and on presenting tables of raw data (mainly catch and intermediate results) used for the assessment, and on the lack of data from artisanal longliners from Central America and Ecuador that target bigeye. It was recommended that the time period analyzed be extended to before 1981.

Mr. Kurt Schaefer presented preliminary results of the bigeye tuna pilot-tagging project initiated in 2000. He discussed results of conventional and archival tag recoveries, including movement, behavior, and habitat selection. There was a discussion of the usefulness of using such data for the estimation of abundance of FADs, coupled with observed residence time of bigeye at FADs, to evaluate the catchability of bigeye in the surface fishery. It was concluded that the knowledge of movements, mortality, growth, and behavior derived from tagging studies is fundamental to accurate stock assessments. The view that multiyear tagging studies would be needed to estimate these life history parameters for assessment was supported.

## **Skipjack tuna**

Dr. Maunder presented a preliminary assessment of skipjack tuna obtained by using A-SCALA. The main differences between the skipjack assessment and those for yellowfin and bigeye is that monthly, rather than a quarterly, time steps were used and that the time frame for skipjack is 1981-1999. Two

assessments were presented, with different initial conditions. No underlying stock-recruitment model was employed in the assessment. Both assessments produced estimates of large biomasses and corresponding low recruitments.

Results indicate that growth overfishing of skipjack is highly unlikely because estimates of year-class biomass in an unexploited population (given the natural mortality rate used) indicate that biomass is roughly constant from ages of about 9 through 20 months. Results indicate that recruitment overfishing is unlikely because the data do not show any obvious relationship between recruitment and spawning stock size over the range of estimated spawning levels.

Most of the catch of skipjack in the EPO comes from sets on floating objects and unassociated schools. The catch of skipjack associated with FADs has increased since 1993. It was found that biomass and recruitment are highly variable and may be driven by environmental changes; that the 2000 recruitment was quite low (although the estimate is very preliminary); and that biomass is quite large, while exploitation rates are relatively low.

The large biomass estimated by the model and the low exploitation rates and the difficulty of distinguishing between catchability and recruitment effects were discussed. Comments were also made on the growth schedule used and on the relative lack of information on benchmarks based on the spawning biomass ratio, given that recruitment and the environment drive the model.

Discussion of the two assessments was concluded by reiterating the preliminary nature of the results.

#### **Bluefin tuna**

A background document, with updated catch and effort data, referred to earlier staff analyses of the status of the bluefin stock, and a more recent cohort analysis presented at the December 2000 meeting of the Interim Scientific Committee for the North Pacific was distributed. Mr. Harumi Yamada reported further on the latter analysis of the population size of this species obtained with a tuning virtual population analysis.

#### **Albacore tuna**

A background document reviewing albacore research was distributed. It was noted that the IATTC staff have not carried out research on this species for some time, but keeps track of recent developments in case any requirements for international management arise.

#### **Blue marlin**

Dr. Michael Hinton outlined the cooperative stock assessment work that was planned to for this species by scientists from the IATTC, the Secretariat for the Pacific Community, the U.S. National Marine Fisheries Service, and the National Research Institute of Far Seas Fisheries of Japan.

### **3. Ecosystem modeling**

Dr. Robert Olson presented a paper dealing with the interactive effects of climate and fishing on the tropical EPO pelagic ecosystem. Ecosystem model development and simulations for 36 components of the ecosystem were carried out, using the *Ecopath* with *Ecosim* approach. Trophic paths among exploited species (*e.g.* large tunas), functional groups (*e.g.* flying fish, seabirds, and sharks), sensitive species (*e.g.* marine turtles and dolphins), and ontogenetic groups (*e.g.* sharks, billfishes, and others), environmental forcing at El Niño-Southern Oscillation (ENSO) scales, and fishing were included in the analyses.

Results showed that applying realistic physical forcing to a complex ecosystem model provided insight into the behavior of the ecosystem and the effects of bottom-up processes, such as ENSO, and top-down effects of fishing on the middle and upper trophic levels.

Discussion centered on the relative merits of these complex ecosystem models to evaluate fisheries impacts and management actions. It was suggested that an analysis be conducted assessing alternative levels of complexity and aggregating and disaggregating various groups. It was agreed that at this stage

these models provide a useful tool for thinking about ecosystem interactions in a rigorous manner and for guiding future research, but are not suitable as a basis for providing specific management advice.

#### **4. Summary and recommendations**

##### **Diagnostics**

Some of the attendees expressed concern over the complexity of the models and the increased difficulty of interpretation of the results. It was suggested that ways to reduce the number of parameters in the models be explored and their behavior be tested with known data sets. It was pointed out that increasing the number of parameters adds flexibility to the approach. While some testing on test data sets had been carried out, fully testing the model's behavior under a wide variety of circumstances was currently limited by computing capacity.

Proposals for diagnostic measures included providing more intermediate results, various alternatives for phasing estimates of the parameters, and descriptions of the likelihood surfaces near the maximum.

The issue of movement of tunas was discussed, and the incorporation of spatial dynamics into the models was suggested. For this it was agreed that more tagging was desirable, but it was also pointed out that inferences regarding movement can be made from combined analyses of length-frequency and CPUE data.

##### **The staff's advice to the Commission**

Dr. Allen prefaced this discussion by saying that all the advice would be made in the context of the models, taking account of the sensitivities to alternatives and the uncertainty of the estimates as reflected by their confidence intervals.

There was some discussion of (1) the IATTC's goal of maintaining the stocks of tunas at the levels that would produce the AMSY and (2) the IATTC's efforts to reflect the precautionary approach contained in FAO Code of Conduct. Dr. Allen pointed out that the IATTC's management of the fishery had always been rather cautious, and referred to the expansion of the yellowfin fishery in the late 1960s. Further understanding of some aspects the dynamics of the stocks could be achieved only if they were exposed to a wide range of fishing mortality, including those greater than those corresponding to the AMSY.

##### **Bluefin and albacore**

Dr. Allen said that the staff would not make any recommendations for management measures for either of these species.

##### **Yellowfin**

Dr. Allen said that the biomass of yellowfin is at a relatively high level following strong recruitment during 1998. These fish are about to pass through the purse-seine fishery. The strong recruitment has allowed catches above the AMSY without depressing the stock size. The recruitment after 1998 has been about average, and it is likely that catches will decline during the second half of 2001. Spawning biomass is above the level at which AMSY would be achieved, and the current fishing effort is estimated to be 84% of the effort that would provide the AMSY. However, the yield curve is fairly flat at its maximum, and there would be little to gain from allowing effort to increase to the AMSY level. Furthermore, if there is a stock-recruit relationship with a steepness less than 1, the ratio of the current effort to that which would produce the AMSY would be greater. Thus the current fishing effort should not be allowed to increase.

##### **Skipjack**

Dr. Allen said that the advice would be prefixed by the comment the analysis was preliminary. Skipjack had recently become more vulnerable to purse-seine gear with the development of the FAD fishery. Catches to date do not appear to have any significant effect on the population, and changes in biomass seem to be largely driven by recruitment. In contrast to the situation for yellowfin and bigeye, the yield

per recruit and total yield is not much affected by the size of fish in the catch. There would be no difficulty in sustaining the current fishing effort, but the catches would not be as great as those of 1999 and 2000 unless there is unusually large recruitment, such as that of 1998.

### **Bigeye**

Dr. Allen said that it is difficult to deal with bigeye because it has been highly vulnerable to the purse-seine fishery only since about 1994, and because the recruitment of bigeye has been highly variable during that period. The biomass of bigeye is presently dominated by the large recruitment that occurred in 1997 and the first quarter of 1998. The estimated biomass peaked during 2000, is declining, and is expected to continue to do so for the next two years, given the very weak recruitment that has apparently occurred since the second quarter of 1998. The remaining fish from the recruitment of 1997 and early 1998 are becoming less vulnerable to the purse-seine fishery, and will soon be taken mostly by the longline fishery. The level of fishing effort required to produce the AMSY is estimated to be 90% of the current level of effort, using the base-case estimates. However, several plausible alternatives provide both larger and smaller estimates of the level of effort which would achieve the AMSY; in particular, estimates in which the steepness of the stock-recruit relation was not constrained to be significantly less than 1 show that the current fishing effort is less than the effort which would produce the AMSY. Despite its uncertainty, the analysis does not suggest there is any particular problem that requires a reduction in effort; however, the effort should not be allowed to increase beyond current levels.

Some participants suggested that the current fishing effort should be lowered to the estimate of the level that would produce the AMSY, that catches of small (<60 cm) bigeye should continue to be monitored, and that catch quotas which depended on the estimated recruitment of these fish be considered.

It was emphasized that the assessment of bigeye was more difficult and uncertain than that of yellowfin. The purse-seine fishery has changed rapidly since FADs were introduced, and the recruitment has apparently fluctuated considerably. The estimates of the life history parameters are not as reliable as those for yellowfin. Consequently, there should be a more cautious attitude toward this fishery. Also, it is possible that there are interactions between bigeye of the eastern and western Pacific.

### **Ecosystem modeling**

Participants noted that this work was stimulated, in part, by the IATTC staff's work on bycatch. Dr. Allen said that the Commission would be advised of the research into ecosystem modeling and the fact that it is useful as a tool to assist the consideration of ecosystems and environmental changes.

### Appendix 3.

#### INTER-AMERICAN TROPICAL TUNA COMMISSION

#### RESOLUTION ON BYCATCH

June 2001

*The Inter-American Tropical Tuna Commission (IATTC), meeting in San Salvador, El Salvador, on the occasion of its 68<sup>th</sup> Meeting:*

*Recalling and reaffirming the Resolution on Bycatch adopted at the 66<sup>th</sup> Meeting of the Commission in June 2000;*

*Has agreed as follows:*

1. To continue the program requiring the full retention and landing of tunas and the release, to the extent practicable, of non-target species, as described in that Resolution, for one additional year, beginning January 1, 2002;
2. To instruct the Director to continue the research program outlined in paragraph 6 of that Resolution;
3. To provide to the Director relevant information collected by national observer programs related to the implementation of that Resolution;
4. The Bycatch Working Group should meet during the first half of 2002 to review the results of the first year of the bycatch reduction program. Based on that review, as well as the Director's report on the work carried out pursuant to paragraphs 7, 8 and 9 of that Resolution, presented to the Commission prior to and during its 68<sup>th</sup> Meeting, the Working Group shall recommend to the Commission the development of additional measures, as appropriate, for implementation by 1 January 2003. The goal of any such measures should be to reduce to the maximum extent practicable the bycatch of juvenile tunas and other non-target species.
5. To request that the Director seek the cooperation of vessel owners to explore ways to reduce and, to the extent practicable, eliminate the entanglement of sea turtles in webbing attached to Fish-Aggregating Devices and to provide any information on these efforts to the Working Group on Bycatch at its next meeting.

#### **Appendix 4.**

### **INTER-AMERICAN TROPICAL TUNA COMMISSION RESOLUTION ON AT-SEA REPORTING**

**June 2001**

*The Inter-American Tropical Tuna Commission (IATTC)*, meeting in San Salvador, El Salvador, on the occasion of its 68<sup>th</sup> Meeting:

*Believing* that regular and timely reporting of fisheries information from vessels at sea is important in the implementation of conservation and management measures adopted by the Commission;

*Aware* that the Parties to the AIDCP are already committed to providing the information in the attachment to this Resolution on a weekly basis through the AIDCP On-board Observer Program;

*Has agreed as follows:*

1. To request all purse-seine vessels which carry an on-board observer to allow the observer to make a weekly report to the Secretariat of the information contained in the attachment to this Resolution, by fax, e-mail, or radio, as appropriate;
2. To encourage fishing companies to cooperate by providing to the Secretariat this same information with respect to purse-seine vessels which do not carry on-board observers.
3. All information must be handled pursuant to the Commission's Rules of Confidentiality.

#### **Appendix 5.**

### **INTER-AMERICAN TROPICAL TUNA COMMISSION RESOLUTION ON FISHING BY VESSELS OF NON-PARTIES**

**June 2001**

*The Inter-American Tropical Tuna Commission (IATTC)*, at its 68<sup>th</sup> Meeting, held June 19-21, 2001, in San Salvador, El Salvador,

*Hereby agrees as follows:*

1. That the Director shall compile, based on observer reports and other available information, a list of vessels identified as fishing in the eastern Pacific Ocean that do not meet one of the following criteria: 1) the vessel is operating under the jurisdiction of a member to the Commission; or 2) the vessel is operating under the jurisdiction of a non-member that is cooperating with the IATTC by applying the IATTC's conservation and management measures.
2. For each vessel identified pursuant to paragraph 1, that the Director send a letter to the competent national authority of the flag state and request information regarding the status of the vessel. In particular, such communication should request that the flag state provide information regarding whether the vessel is authorized by the flag state to engage in fishing activities in the eastern Pacific Ocean and, if so, whether the flag state is prepared and able to apply the relevant conservation and management measures of the IATTC with respect to the operation of the vessel in question.
3. That the Director shall present an annual report to the Commission, which should include a list of vessels identified pursuant to paragraph 1 and the responses to all inquiries sent pursuant to paragraph 2.
4. If, on the basis of this report, the IATTC determines that the vessel in question is not meeting the criteria of paragraph 2, or that the flag state is not prepared and able to apply the IATTC's conservation and management measures in respect of the vessel in question, the vessel shall be placed on the list of non-cooperating vessels. In such case, the vessel shall not be included in the Regional Vessel Register.

**Appendix 6.**

**INTER-AMERICAN TROPICAL TUNA COMMISSION**

**RESOLUTION ON AN IATTC-AIDCP JOINT WORKING GROUP ON FISHING BY  
NON-PARTIES**

**June 2001**

*The Inter-American Tropical Tuna Commission (IATTC)*, meeting in San Salvador, El Salvador, on the occasion of its 68<sup>th</sup> Meeting:

*Recognizing* the importance of addressing in an effective manner the issue of fishing in the eastern Pacific Ocean by vessels of States or entities that are not members of the Commission;

*Understanding* that the Parties to the Agreement on the International Dolphin Conservation Program (AIDCP) are also concerned about this issue with regard to States or entities which are not Party to that Agreement;

*Acknowledging* that the principles involved in the questions to be addressed by the Parties to the AIDCP and the members of the IATTC are similar;

*Has agreed as follows:*

1. To recommend to the Meeting of the Parties to the AIDCP the establishment a joint working group with the Commission for the purpose of addressing, in a cooperative manner, the matter of fishing in the region by vessels under the jurisdiction of non-Parties to either the AIDCP or the IATTC Convention.
2. To seek agreement with the Meeting of the Parties to the AIDCP on the terms of reference for such a working group.
3. To ensure that any recommendations emanating from this working group shall reflect the provisions and objectives of the IATTC Convention or the AIDCP, as appropriate.

## Appendix 7.

### INTER-AMERICAN TROPICAL TUNA COMMISSION

#### RESOLUTION ON FINANCING

June 2001

*The Inter-American Tropical Tuna Commission (IATTC)*, meeting in San Salvador, El Salvador, on the occasion of its 68<sup>th</sup> Meeting:

*Understanding* the importance of ensuring sufficient funding for the IATTC so that it may continue to effectively implement the agreed conservation and management program for the living marine resources of the eastern Pacific Ocean;

*Aware* that the allocation of the costs of supporting the IATTC among Parties should be transparent, fair and equitable, stable and predictable, and yet flexible to allow for redistribution as new Parties join;

*Giving due consideration* to the requirement in the Convention establishing the IATTC that the proportion of the expenses paid by each Party should be related to the proportion of the total catch utilized by that Party and the consensus of the Parties that other factors should be considered in determining their proportional contributions;

*Taking into account* the reports of the 3<sup>rd</sup> and 4<sup>th</sup> Meetings of the IATTC Working Group on Finance and the urgent need to implement a long-term financing system:

4. Notes the draft resolution proposed by the 3<sup>rd</sup> Meeting of the Working Group on Finance, held in La Jolla, California, in February 2001;
5. Instructs the Working Group to consider the approach for the long-term financing of the Commission set out in paragraph 1 of the draft resolution as the basis for the work of the Working Group at its 5<sup>th</sup> Meeting, scheduled for August 2001;
6. Agrees that the cost of placing observers on vessels of non-Party states should not be covered by the regular IATTC budget;
7. Instructs the Working Group to make recommendations on the Commission's budget and the contributions of each member for FY 2002;
8. Calls upon States not presently members of the IATTC which have vessels fishing in the Convention Area for fish covered by the Convention to make voluntary contributions to the Commission until such time as they might become members.
9. Agrees to contribute to the budget of the IATTC for FY 2002 in accordance with the following schedule of payments:

	<u>(US\$)</u>
Costa Rica	29,892
Ecuador	280,000
El Salvador	13,561
France	34,063
Guatemala	17,092
Japan	391,000
México	800,000
Nicaragua	4,884
Panama	37,897
United States	2,100,000
Vanuatu	15,000
Venezuela	300,000
<b>Total</b>	<b>4,023,389</b>

## Appendix 8.

### INTER-AMERICAN TROPICAL TUNA COMMISSION RESOLUTION ON YELLOWFIN TUNA

June 2001

*The Inter-American Tropical Tuna Commission*, having responsibility for the scientific study of the tunas and tuna-like fishes of the eastern Pacific Ocean (EPO), which for the purpose of this Resolution is the area bounded by the coastline of the Americas, the 40°N parallel, the 150°W meridian, and the 40°S parallel, and for the formulation of recommendations to the High Contracting Parties with regard to these resources, and having maintained since 1950 a continuing scientific program directed toward the study of those resources,

*Notes* that the yellowfin tuna resource of the eastern Pacific supports one of the most important surface fisheries for tunas in the world, and

*Recognizes* that, based on past experience in the fishery, the potential production from the resource can be reduced by excessive fishing effort, and

*Recalls* that from 1966 through 1979 the implementation of a successful conservation program maintained the yellowfin stock at high levels of abundance, and

*Notes* that from 1980 through 2000, excepting 1987, conservation measures were recommended to the Commissioners by the scientific staff, and that in turn such measures were approved by the Commissioners for recommendation to their respective governments, and

*Observes* that, although the stock of yellowfin is currently near a level of optimum abundance, nevertheless it can be over-exploited, and

*Believing* that it is important to follow a precautionary approach when addressing conservation and management measures for yellowfin tuna, and

*Observing* that currently the fishery for yellowfin tuna in the eastern Pacific Ocean includes a variety of fishing gears and methods of operation which require the implementation of differentiated management systems adapted to this complexity, and

*The IATTC therefore recommends to the High Contracting Parties* that a limitation on the purse-seine catches of yellowfin in the Commission's Yellowfin Regulatory Area (CYRA) is necessary before the end of 2001, and will take effect on the date on which the total catch of yellowfin tuna from the surface fishery in the CYRA in 2001 reaches 250,000 metric tons ("the closure date"). However, the Director shall be authorized to increase this limit by up to three successive increments of 20,000 metric tons each if he concludes from examination of available data that such increases will pose no substantial danger to the stocks.

After the closure date and before January 1, 2002, catches of any vessel may include a maximum of 15 percent yellowfin (relative to its total catch of all species of fish) caught while fishing for other species of tunas.

Baitboats, longline and sportsfishing vessels are not subject to the measures above.

*Finally recommends* that all member states and other interested states work diligently to achieve the implementation of such a yellowfin conservation program for 2001.

**Appendix 9.**

**INTER-AMERICAN TROPICAL TUNA COMMISSION**

**RESOLUTION ON THE CONSERVATION OF BIGEYE TUNA IN THE EASTERN  
PACIFIC OCEAN**

**21 June 2001**

*The Inter-American Tropical Tuna Commission (IATTC), having responsibility for the scientific study of the tunas and tuna-like fishes of the eastern Pacific Ocean (EPO), which for the purpose of this resolution is the area bounded by the coastline of the Americas, the 40°N parallel, the 150°W meridian, and the 40°S parallel, and for the formulation of recommendations to the High Contracting Parties with regard to these resources, and having maintained since 1950 a continuing scientific program directed toward the study of those resources:*

*Recognizing* the uncertainties about the life history parameters of the bigeye stock in the eastern Pacific Ocean, and

*Therefore recommends to the High Contracting Parties and non-Parties under whose jurisdiction vessels operate in the EPO that they agree that:*

1. The purse-seine fishery which takes bigeye tuna shall be closed if the Director determines, based on the best scientific and fishery data available, that the catch of bigeye tuna less than 60 centimeters has reached the level achieved in 1999, in which case he shall advise all Parties that the purse-seine fishery on floating objects shall close two weeks after such determination. However, in no event shall the fishery be closed before November 1, 2001.
2. Each Party shall send to the Director information on the legal and administrative provisions for implementing the closure, at the latest 10 days after its entry into force.
3. Non-Parties shall be requested and encouraged to comply with the requirements and commitments of this resolution.

INTER-AMERICAN TROPICAL TUNA COMMISSION  
COMISION INTERAMERICANA DEL ATUN TROPICAL

**68<sup>TH</sup> MEETING**

SAN SALVADOR (EL SALVADOR)

JUNE 19-21, 2001

**DOCUMENT IATTC-68-11**

**REPORT ON THE IMPLEMENTATION OF THE RESOLUTION ON  
BYCATCH OF JUNE 2000**

PREPARED MAY 2001

## IMPLEMENTATION OF THE RESOLUTION ON BYCATCH

The information presented in this document relates to the implementation of the Resolution on Bycatch of June 2000, which will be discussed during the 68<sup>th</sup> IATTC meeting under agenda item 11. Some of the issues covered in this document were dealt with in the Director's report to the Commission of 22 January 2001 (Ref. 00080-430; Appendix 1).

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### 1. FULL RETENTION REQUIREMENT

The Commission agreed at its meeting in June 2000 to implement a one-year pilot program to require all purse-seine vessels to first retain on board and then land all bigeye, skipjack, and yellowfin tuna caught, except fish considered unfit for human consumption for reasons other than size, in order to provide a disincentive to the capture of these small fish. It was agreed that another exception could be the final set of a trip, when there may be insufficient well space remaining to accommodate all the tuna caught in that set.

The Commission staff was asked to develop appropriate terms of reference for the development and implementation of the pilot program, to include, *inter alia*, a definition of the exact time during a set at which full retention would then be required, and a definition of fish unfit for human consumption.

The staff reported to governments in November 2000 its proposal that the program be implemented as follows:

1. No bigeye, skipjack, and/or yellowfin tuna ("tuna") caught by purse-seine vessels may be discarded after the point in the set when the net is fully pursed and more than one half of the net has been retrieved. The tuna may be retained beyond the point when more than one half of the net has been retrieved, provided it is subsequently released alive pursuant to a process or mechanism previously agreed by the Director. If equipment malfunctions affect the process of pursing and retrieving the net in such a way that this rule cannot be complied with, the crew must make efforts to release the tuna as soon as possible.
2. The following two exceptions to the above rule shall apply:
  - a. Tuna considered unfit for human consumption for reasons other than size. For each occasion in which tuna that have been caught are discarded for this reason, the following procedures shall apply:
    - i. The captain and chief engineer of the vessel must jointly decide that the tuna is unfit for human consumption for reasons other than size and sign a document to that effect, which shall include an explanation of the basis for their decision.
    - ii. The document shall also contain other relevant information regarding the tuna caught, e.g. how long it was in the net and/or on deck, and the water temperature at the time of capture.
    - iii. Any tuna that is to be discarded by a vessel with an observer on board must, if possible, be retained on deck long enough to allow the observer to record the quantity and sizes of the fish and take samples, if required.
  - b. Tuna caught during the final set of a trip may be discarded if there is insufficient well space remaining to load all the tuna caught in that set.
3. The disposition of the catch of tuna upon unloading, and in particular the quantity, size, and disposition of the tuna in any portion of the catch which is **not** unloaded to a cannery or transshipped, shall be recorded on a form signed by the captain of the vessel; this form shall be provided to the

national authority of the state in which the tuna was unloaded, and a copy shall be provided to the Director.

4. Governments will document the disposition of the catch of tuna upon unloading, in particular the portion of catches not unloaded to canneries or transshipped. This information shall be recorded on a form, a copy of which shall be provided to the Director.

The staff of the Commission's field offices shall assist in monitoring the disposition of unloadings to the extent possible. The field offices and governments will be provided with forms for the certification of tuna discarded at sea pursuant to paragraph 2, as well as for the documentation of the disposition of the catch of tuna upon unloading. The forms will be provided to vessels by the pertinent government or field office.

At this stage, only preliminary information on the implementation of the full retention program is available. The staff has received copies of the forms described in paragraph 3 above for only 52 (27%) of the 194 trips made by Class-6 vessels in 2001 and completed by May 1. About 90% of these forms reported fish being discarded because it was unfit for human consumption; the remaining 10% attributed discards to the fact that the amount of fish captured in the last set of the trip was greater than the empty capacity of the vessel.

As regards information collected by observers, the staff has received preliminary observer reports for 181 of these 194 trips. An analysis of these reports indicates that 130 (72%) of the trips had tuna discards, for a total of almost 7,700 metric tons. The staff has information for 185 of the 222 trips made in the corresponding period in 2000; in 130 (86%) of those the observer reported discards, for a total of almost 14,000 metric tons. The difference in the amount discarded might be due to the higher proportion of yellowfin tuna in the catch in 2001 (68%) compared to 2000 (30%).

The resolution calls for the Commission to evaluate the results of the program at the end of 2001, when the pilot program ends, to determine whether it should be continued or whether other management measures should be considered.

## **2. RELEASE REQUIREMENT**

The resolution also calls for fishermen to release unharmed, to the extent practicable, all sea turtles, sharks, billfishes, rays, mahi-mahi, and other non-target species, with specific requirements for the release of encircled or entangled sea turtles. For non-tuna species other than sea turtles there is little information regarding release. With respect to sea turtles, the resolution establishes the following release procedures:

1. Whenever a sea turtle is sighted in the net, a speedboat should be stationed close to the point where the net is lifted out of the water.
2. If a turtle is entangled in the net, net roll should stop as soon as the turtle comes out of the water and should not start again until the turtle has been disentangled and released.
3. If a turtle is brought aboard the vessel, it should, if necessary, be resuscitated before being returned to the water.

The following information on the capture and release of sea turtles has been compiled from IATTC observer records. The staff has no corresponding information from the national observer programs.

The staff examined Sea Turtle Records completed by observers in 2000 after the resolution had been adopted (July 1–December 31). One caveat for interpreting these data, however, is that, just as it takes time for fishermen to adjust to new requirements, it takes time to change forms and train observers to collect the new information required. The forms in use at the time did not ask the observer to record whether the specific requirements of the resolution were met, which accounts for the large percentage of “unknown” categories in some of the data on infractions presented below. The forms have been modified, and the new forms and instructions were distributed to observers in January 2001.

During 383 sets, most of them on floating objects, 491 sea turtles were encircled. Of these, 404 (82.3%) were released unharmed, 49 (10%) died during the set, and 38 (7.7%) were released with serious (30) or slight (8) injuries. Of the 49 turtles killed during fishing operations, 42 (86%) died as a result of being passed through the power block; 6 (14%) died due to drowning or other causes, and one (2%) was killed

intentionally for later consumption. An additional turtle was captured intentionally for consumption without the vessel making a set. It should be noted that, as in the case of dolphins, all turtles passed through the power block are counted as mortalities, even if they are released alive afterwards, because the injuries sustained are typically serious and likely to be fatal. Passing turtles through the power block, which is usually preventable, runs contrary to both current and previous IATTC resolutions and the recommendations of the Working Group on Bycatch.

In 43 of these 383 sets net roll was stopped to release a turtle; in 42 sets this requirement was not complied with, and no information is available for the remaining sets. The use of a speedboat to rescue turtles was recorded in 2 (0.5%) of these sets; in the others the use of a speedboat for this purpose was not specifically recorded, but it can be inferred that this was not done in the 42 sets in which net roll was not stopped. Additionally, mortalities were recorded of 4 turtles that were sacked up and brailled aboard the vessel without attempts to rescue them.

Sea turtles can also become entangled in net webbing discarded at sea or hung under FADs. In 23 sets that encircled floating objects (most likely FADs), 33 sea turtles were already entangled in webbing. Of these 33 turtles, 21 (64%) were already dead, 6 (18%) were released alive, 5 (15%) were released with slight injuries, and 1 (3%) was left entangled. A speedboat was recorded as being launched to rescue 5 (15%) of these turtles; no information was available for the remaining sets.

It should be noted that many captains do assume the obligation of reducing turtle mortality by releasing turtles from webbing under FADs, regardless of whether they make a set on the FAD. Of 127 entangled turtles sighted, 50 (39%) were released unharmed, 41 (32%) were already dead, 20 (16%) were released with serious (6) or slight (14) injuries, 13 (10%) were left entangled, and the fate of 3 (2%) is unknown.

### **3. RESEARCH ON SORTING GRIDS**

The resolution includes the endorsement of a research program to further evaluate the use of sorting grids as a means of releasing juvenile tunas from purse-seine nets to reduce their mortality. . As part of the IATTC's ongoing research into reducing bycatches, the staff had tested a sorting grid on captive yellowfin tuna in 1998, and several captains were approached about testing such a grid at sea. Mr. Carlos Paiva, captain of the Ecuadorian purse seiner *Roberto M*, agreed to build and deploy a sorting grid modeled upon a design of the Institute of Marine Research in Bergen (Norway) discussed by the staff in several dolphin-mortality reduction workshops.

The galvanized-steel grid consists of a 3 m wide by 2 m high frame made of 25 mm bars, with twelve 12 mm vertical bars spaced 60 mm apart. For operational reasons, the grid was deployed during only two sets on floating objects, one on 10 to 12 tons of large skipjack and the other on 2 to 3 tons of small yellowfin. Once the sack was formed, the grid was attached to the net between the sack and the vessel hull. Captain Paiva observed small fish swimming through the grid and, although the grid's proximity to the hull might have been an obstacle, he believed that there was sufficient space between the grid and the vessel for larger fish to escape.

Captain Paiva identified two problems in the design of the grid. The first is that it was too wide to maneuver easily on his vessel. While this particular grid may work on a vessel with a longer working deck, it would need to be some 50 cm narrower for his vessel. The second problem is that the bottom corners of the grid became entangled in the net being lifted by the power block during net roll, requiring the net to be rolled back to disentangle it, thus delaying the formation of the sack and the release of the bycatch. The original Norwegian design has a rounded bottom that would likely solve this problem.

Subject to funding being available, the Commission approved a program of work costing up to US\$320,000 to assess the use of sorting grids, so more work could be done in this area if funding were available. To date not all Parties have paid their contributions for FY 2001 or FY 2000, so it is not clear whether the necessary funding will be available. If sorting grids prove effective, they could have a major impact in reducing bycatches of small fish. Their use would also be easy to monitor, and they are very inexpensive.

The staff has also suggested the development and use of acoustic equipment to determine the size and perhaps the species of the fish in a school before setting on it. Other means of observing fish schools might achieve the same purpose. If the size of the fish were known beforehand, sets with a high proportion of unmarketable fish could be avoided. If the composition by species were known, management actions could target only the species of interest and avoid unnecessary restrictions or unintended effects. For instance, the restrictions on fishing on floating objects are aimed at managing bigeye tuna, but have a substantial effect on the fishery for skipjack. This approach could also provide a good alternative to other measures described below, although the equipment costs could be high. Research and development is probably best carried out by companies that manufacture that equipment.

#### **4. EVALUATION OF OTHER MEASURES TO REDUCE BYCATCH**

The resolution also called upon the Director to further evaluate the effectiveness of other measures to reduce bycatch and to report the results of this evaluation, including analysis of practical ways to implement such measures, to the Commission (Appendix 1).

The conclusion of the Director's report is that there are two general criteria that the Commission should consider in developing management measures to reduce the discards of juvenile tunas and non-target species. One is to seek the simplest management regime possible, with preference to measures that provide incentives and freedom to industry to develop technologies and methods that achieve the required objectives. The second is to give preference to measures that are simple to monitor. If the Commission wishes to take additional measures to reduce bycatches, prohibiting sets on FADs by Class-6 purse-seiners north of 7°N would be both simple and effective, and would also have a relatively minor impact on the catch of tunas.

##### **Bycatches by vessels not covered by observer programs**

The resolution called for the development, for consideration by the Parties, of a program to obtain data on bycatches by purse-seine vessels not covered by the current observer program and by longline vessels and other tuna-fishing vessels. This program is to include consideration of the placement of observers or any alternative data collection system, as appropriate, and should specify the proposed funding mechanisms.

##### **1. Small purse-seine vessels**

The staff has prepared a plan to obtain catch data for Class 4 and 5 vessels (182-362 mt carrying capacity), not covered by the current observer program, under which observers would be placed on 20-25% of trips made by these vessels, and all their unloadings would be monitored for two years. On the basis of an analysis of the data obtained, a long-term coverage level will be proposed. For smaller purse-seine vessels and other tuna vessels such as baitboats, the staff would continue the current practice of abstracting vessel logbooks, when available, and incorporating this information into the analyses.

The cost of such an observer program would be approximately US\$70,000-80,000. This cost could be borne by vessel owners, as with the AIDCP On-Board Observer Program; with 25% coverage, the vessel assessment would be approximately US\$8.00-8.50 per cubic meter. If the Commission wishes to fund the program in this way, it should establish the assessment fee by a resolution. The program would be accounted for separately from the IDCP program.

##### **2. Longline vessels**

There are two components to this question. The first and most important, in terms of catches, is the fleet of large longliners fishing in the eastern Pacific Ocean. The staff consulted with Japan to develop an appropriate program to obtain bycatch information for the Japanese fleet, and it appears that such a program will be implemented in the near future. Japan has proposed the following preliminary program for a bycatch data collection system for its longline vessels:

###### **a) First Phase: 2001-2002 (to commence as soon as possible):**

The following activities will be conducted as a feasibility study;

- i. Japanese commercial tuna longline vessels operating in the EPO will be asked to collect and report bycatch data;
- ii. Bycatch data collection would be conducted by possibly two Japanese research vessels in the EPO (chartered commercial tuna longline vessels that will be engaged solely in scientific research activities, with at least one scientist aboard during operations);
- iii. The results of i) and ii) above and the accuracy of the data obtained will be reviewed, and the feasibility of continuing these arrangements will be assessed.

These arrangements will cover sharks and seabirds since they are subjects of the FAO International Plans of Action for the conservation and management of sharks and for reducing the incidental catch of seabirds in longline fisheries.

#### **b) Second Phase: 2003 ?**

The program to be developed and implemented will be based on the results of the first phase.

#### **c) Funds and handling of data**

The cost of implementing arrangements of i) and ii) will be borne by Japan. The data obtained will be collected and compiled by the Japanese National Research Institute of Far Seas Fisheries, and thereafter provided to the IATTC staff. Analyses will be conducted jointly by Japan and the IATTC staff. Confidentiality should be ensured for these processes.

The second component of the longline fishery is the fleet of relatively small longline vessels based in the region, composed of between 200 and 300 vessels flying the flags of several coastal states of the region. There are also longline vessels flying the flags of states outside the region, which apparently are based in or licensed by some of the coastal states. The staff has been attempting to obtain more information regarding the scope and activities of this fleet. At present there is not much information available to the staff regarding the catches of these vessels, although several governments are cooperating in providing information. The information available to the staff is summarized below:

#### **Colombia**

No information yet has been obtained on longline or artisanal vessels registered in Colombia.

#### **Costa Rica**

INCOPECSA has provided information on the licensed fleet of about 110 longline vessels, which range in length from 10 to 24 meters in length. Catch data for these vessels have been collected by the IATTC since 1992. INCOPECSA does not register many of the foreign flag vessels unloading catches in Costa Rica. Some information (arrival dates, gross tons, cargo onboard and flag of vessel) for 2000 has been collected from the port captain's office in Puntarenas; most of these vessels are believed to be longliners. The major ports for unloading in Costa Rica are Puntarenas, Quepos and possibly Puerto Golfito.

#### **Ecuador**

The longline fleet in Ecuador includes approximately 400-450 "mother vessels" (average capacity about 40 tons) which tow 5-6 launches to the fishing grounds and store the fish caught by the launches. More of these mother vessels are being constructed in various parts in Ecuador. The major unloading port for these vessels is Manta, but some unloadings occur in Esmeraldas and Santa Rosa. Almost all of the fish is exported through Guayaquil. The Ecuadorian government has also provided the staff with a list of 80 registered active longline vessels, with an additional 20 listed as inactive.

#### **El Salvador**

In 2000 there were 8 or 9 registered longliners working in El Salvador. Apparently these vessels are now operating out of Panama, but are interested in the possibility of improved port facilities and freezers in the ports of Punta Gorda, Acajutla, and Puerto Triunfo. The staff has no information on artisanal fleets in El Salvador.

## **Guatemala**

The staff has information indicating that there are no government-monitored longliners registered in Guatemala or landing catches there; however, there may be a small artisanal fleet with small catches of tunas that are not monitored by the government. The fishing fleet in Guatemala is almost exclusively dedicated to shrimp. The major ports of unloading are Puerto Quetzal, Champerico and San Jose.

## **Honduras**

The government of Honduras sent the staff copies of the certificates of registry for 99 fishing vessels, most of them apparently flag of convenience vessels. Some of these vessels appear to have cancelled their registry. It is not clear if fish is landed in Honduras, and if so to what ports. The majority of the fishing effort by Honduran vessels is probably in the Caribbean and Atlantic.

## **Mexico**

The staff has received lists of longline and multiple-gear vessels from the appropriate government offices in Baja California Norte and Sur. In Baja California Sur there are 22 vessels registered, and 43 in Baja California Norte. The staff is seeking to confirm reports that there are 12-14 longliners/gillnetters operating out of Mazatlan. There may be some increase in these totals as gillnet vessels convert to longlining: apparently most of these conversions have already been completed.

Currently the staff has access to the logbooks of approximately 80% of the longliners in Baja California Norte and Sur. The major ports of unloading for longline vessels in Mexico are San Carlos, Manzanillo, Mazatlan, La Paz, and Ensenada.

## **Nicaragua**

The staff has copies of the registries for 4 longliners of between 38 and 100 net tons operating in the Pacific, but no information on the artisanal fleet known to be operating on the Pacific coast. The major ports in Nicaragua are San Juan del Sur, Corinto, Puerto Masachapa and Puerto Sandino.

## **Panama**

The Panamanian government has provided a list of 37 longline vessels registered in Panama. Most of the longline catch is unloaded in Vacamonte. The staff is in the process of determining whether data on these unloadings can be obtained.

New data recently made available to the staff suggest that there may be other landings of tuna caught by longline vessels operating in the eastern tropical Pacific in addition to those noted above.

The cost of an initial effort by the staff to obtain more detailed information on magnitudes of catches and on landing locations of longline fleets, and to coordinate data collection with governments, is estimated at approximately US\$20,000. This would cover the cost of reassigning one staff member, a small travel budget, and assistance from the field offices. Based on the results of these efforts, it should be possible to provide detailed recommendations for a more comprehensive monitoring system in about a year.

## **5. VIDEO CAMERAS TO ASSESS BYCATCHES IN UNOBSERVED VESSELS**

The resolution calls for the Parties to consider alternative data collection systems to estimate bycatches of vessels that are currently unobserved, essentially small purse seiners (less than 363 mt carrying capacity) and longliners. One possibility is the use of video cameras that operate automatically.

In 1994, the staff began tests on a video camera system which could be used on tuna vessels for observing activities related to setting on dolphins. The second of the two prototypes built was deployed in 1998. The camera was designed to be completely self-contained: it carried its own power source, was resistant to the elements and tampering and would not require any intervention by vessel personnel while at sea.

Images were recorded on 8mm Hi8 tape with 4 hours of recording time. Ten seconds of videotape were recorded every 30 minutes during daylight hours. The camera was mounted as high as practical, either

halfway up the mast or on top of the pilothouse, and was aimed off the port side of the vessel to film the area where the net is normally deployed during a set.

To adapt this system for monitoring bycatches some technical problems will have to be resolved. Since the camera is completely self-contained, it is limited in power and recording time. To maximize both, the camera should be activated only when catch is loaded aboard the vessel. A system to detect when a set is occurring, and more specifically to detect when catch is brought aboard, would need to be developed. It is estimated that a single prototype would cost approximately US\$10,000.

There may also be crew resistance to filming vessel activities. In previous tests, the camera was pointed to sea, but to monitor bycatch the camera will have to cover the work deck area, which may cause resentment among the crew and owners, who may suspect that the videotape will be misused to evaluate crew performance or operational safety.

## Appendix 1.

# COMISION INTERAMERICANA DEL ATUN TROPICAL INTER-AMERICAN TROPICAL TUNA COMMISSION

Scripps Institution of Oceanography, 8604 La Jolla Shores Drive, La Jolla CA 92037-1508, USA  
Tel: (858) 546-7100 – Fax: (858) 546-7133 – www.iattc.org – Director: Robin L. Allen

22 January 2001  
Ref.: 0080-430

To: Commissioners, participating governments

From: Robin Allen, Director

Re: Resolution on bycatch, June 2000

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The resolution on bycatch of 16 June 2000 requires the Director to develop and facilitate research into ways of releasing juvenile tunas from purse-seine nets and of avoiding bycatches (Paragraph 6), and to inform the Commission, before the end of 2000, of the results of his evaluation of the effectiveness of other measures to reduce bycatch (paragraph 7) and of the program developed to obtain more complete data on bycatches (paragraph 8).

Regarding the reduction of bycatches, while some of the measures discussed below would undoubtedly achieve that objective, before reporting on them I want to offer some thoughts on the regulatory environment for the purse-seine tuna fishery in the eastern Pacific and some suggestions about a more desirable situation.

During 2000 governments and industry were obliged to operate under a complex set of rules pursuant to the Agreement on the International Dolphin Conservation Program, and to observe, for parts of the year, five IATTC Resolutions relating to bycatch, fleet capacity, use of tender vessels, a closed season for setting on floating objects, and restrictions on fishing for yellowfin in the CYRA. During 2001 discards of tunas, with a few exceptions, are to be banned. To illustrate the complexity of the rules stemming from the AIDCP, a list of items that are being monitored by the staff to assist governments in their enforcement of the Agreement is annexed.

The overall regulatory environment has grown so complex that it is becoming difficult for the industry to comply, for the staff to monitor, and for governments to enforce. I believe the Commission and the Parties to the AIDCP should be aiming to simplify management.

In general, there are two categories of measures used in this and most other fisheries: *input controls*, which dictate how fishing is carried out, and *output controls*, which address the results of fishing. In the Resolution on Bycatch, in paragraph 7 (see below) subparagraphs a, b, d, and e are examples of input controls, while subparagraph c is an output control. In the context of the AIDCP, DMLs are output measures and all the operational requirements are input measures. In general terms, a simpler and better regulatory environment might be achieved if the Commission and the Parties concentrated on developing and implementing output controls, which address the effects of fishing and in so doing provide the industry with an incentive to adjust its behavior to avoid being penalized by those controls.

A notable exception to a general preference for output controls would be an effective fleet capacity limit, which would reduce or eliminate the need for many other measures.

I recommend that the Commission, in considering the matters in the resolution, take into account the overall management regime for the fishery, and that it attempt to create a regime in which a simpler regulatory framework gives the industry incentives to adopt responsible fishing practices. The Commission should also note that the Resolution on Bycatch includes a provision prohibiting dumping of tuna at sea, which should, among other things, provide an incentive to avoid catches of juvenile tuna, and also, *inter alia*, requires fishermen on purse-seine vessels to promptly release unharmed, to the extent practicable, all sea turtles, sharks, billfishes, rays, mahi-mahi, and other non-target species.

#### **Paragraph 6**

Subject to funding being available, the Commission approved a program of work costing up to US\$320,000 to assess the use of sorting grids to allow small fish to escape from purse seines. To date not all Parties have paid their contributions for FY 2000 and none have been received for FY 2001, so I do not yet know whether the necessary funding will be available.

However, as was reported previously to the Commission, a prototype grid has been provided to one vessel owner who has volunteered to test it at sea, but to date no sets have been made with the grid in place. If sorting grids prove effective, they could have a major impact in reducing bycatches of small tunas. Their use would also be very easy to enforce, and they are very inexpensive.

The Commission staff has also suggested the development and use of acoustic equipment to determine the size and perhaps the species of the fish in a school before setting on it. If the size of the fish were known beforehand, sets with high proportion of unmarketable fish could be avoided. If the composition by species were known, management actions could target only the species of interest and avoid unnecessary restrictions or unintended effects. For instance, the restrictions on fishing on floating objects are aimed at managing bigeye tuna, but have a substantial effect on the fishery for skipjack. This approach could also provide a good alternative to other measures described below, although the equipment costs could be high. Research and development is probably best carried out by companies that manufacture that equipment.

#### **Paragraph 7**

##### **(a) Time and area closures**

Most bycatches of non-target species and discards of tuna are taken in sets on floating objects and for that reason only those sets are discussed here for possible time and area closures to reduce discards.

The staff has at various times examined the possibility of limited time-area closures which might have the effect of reducing discards of juvenile tunas. While it is relatively easy to identify such areas in past data, it has not been possible to find small areas and times for which it is possible to predict unusually high catches of small tuna. While it is not possible to forecast where and when small tunas will be caught, a real-time reporting system could be used to notify other vessels when unusually large concentrations of small tuna are encountered, either voluntarily by the industry or via reports from observers and administrative action by governments. The need for rapid action, in a matter of days, probably precludes regulatory action by governments, and communication among the fishing fleets on a voluntary basis would likely be the best way avoiding fishing in locations with high concentrations of juvenile tuna.

Restrictions in larger areas are more likely to have consistent results. An information paper presented at the 66<sup>th</sup> meeting of the IATTC evaluated the impact of closing a large area north of 7°N to sets on floating objects. The analysis was based on data for Class 6 vessels (> 363 mt) during 1994-1998, in which period 8% of the catch and 10% of the discards of tuna (bigeye, skipjack and yellowfin) by those vessels, and 46% of the bycatch of sharks, rays, billfish and sea turtles by those vessels, in sets on floating objects was taken from this area. This area is not important for the fishery for tunas on floating objects, and prohibiting sets on floating objects by class 6 vessels there would not have much effect on the catch of

tunas but would bring about a major reduction in bycatches of those other species. During the 5 years covered by the study, vessels of ten different flags fished in this area, and none made more than 150 sets during the whole period. This measure would thus not have a disproportionate effect on any individual flag, and the impact on tuna catches would be small.

#### **(b) Limits on fishing effort**

Because most discards are from sets on floating objects, the greatest reductions in discards of both tuna and non-target species are obtained by limiting the number of such sets. This will also reduce the purse-seine catches of skipjack, which are taken primarily in sets on floating objects, and of bigeye, which are made only on floating objects. In the case of bigeye, reductions in purse-seine catches may be compensated by additional longline catches, but that is not the case for skipjack. Thus, meeting the objective of reducing discards through limiting fishing effort must be balanced against the interest of maintaining a high level of production.

#### **(c) Limits on catches of juvenile tunas**

The first measure intended to directly limit catches of juvenile tunas was contained in a provision of the Resolution on Bigeye of June 2000 that would have prohibited sets on floating objects if the catch of bigeye 60 cm or less in length reached the level observed in 1999. On the basis of the conclusions of the meeting of the Scientific Working Group in October 2000, the staff proposed a resolution with similar provisions for 2001, but this was not adopted.

This type of regulation directly addresses the intention to reduce the catch of juvenile tunas. Its major weakness is the difficulty of measuring the catch of juvenile tunas. It is not practical for either government or Commission staff to monitor all fish unloaded or discarded, and hence the quantities of juvenile fish caught must be estimated, which introduces an additional element of uncertainty into the application of a measure.

#### **(d) Limiting the depth of nets**

The meeting of the Scientific Working Group in April 2000 concluded that the depth of FADs has an effect on the catches of bigeye, yellowfin and skipjack tunas per set. However, the location and the time of year of FAD sets appears to have a greater effect than the characteristics of the FAD or the depth of the purse-seine net. This suggests that the benefits of modifying FADs and purse-seine nets may be less than those of changing fishing areas and seasons.

Further, measures of this type may reduce overall catches simply by reducing the vessels' effectiveness, and is an undesirable way of controlling catches.

#### **(e) Limiting the number of FADs per vessel**

The effective number of FADs that a vessel is using is not always known. Vessels deploy FADs equipped with radio or with satellite transmitters: some deploy a small number of FADs with satellite transmitters, others a much larger number of FADs with radio transmitters, which are less expensive but harder to locate and hence less effective. Some FADs may be lost or become inoperative because of malfunction or loss of their transmitters. Also, vessels from the same company may leave a number of FADs at the end of their fishing trips, and pass their search frequencies to other vessels. Additionally, some vessels have sophisticated frequency-scanning equipment which they use to find FADs deployed by other vessels. Consequently, it is impractical to try to monitor the number of FADs a vessel is using to fish.

Given those difficulties, the best control mechanism would be to limit the number of FADs deployed. For example, the number of FADs a vessel can deploy in a certain period could be limited (for instance no more than 10 FADs every two months). A major shortcoming of this approach is that vessels without

observers could be deploying FADs. Registration and marking of FADs might help overcome this, but enforcement would be difficult.

### **Practical ways to implement measures**

The resolution asks for a report on practical ways to implement measures, including quotas of the type used under the AIDCP.

Individual vessel quotas could be used to limit catches or landings of juvenile fish. The principal requirement is a monitoring system, using observers either on vessels or at the time of unloading. The major difficulty is in determining what proportion of the catch consists of juvenile fish. Total landings are weighed, and catches may be estimated by counting brails, but estimating components of the catch (such as juvenile fish) is more difficult, less accurate, and more likely to interfere with fishing or unloading operations. For those reasons, individual quotas are not as practical in this situation as they are in reducing dolphin mortality.

Restrictions on area of operation can be monitored by observers, or alternatively by the use of satellite-based vessel-monitoring systems. The latter is a much more cost-effective option for vessels that do not otherwise carry observers.

The most practical way of limiting setting on FADs is probably to restrict that mode of fishing after a given number of sets have been made or for a specific time period.

### **Paragraph 8**

#### **A. Program to obtain data on bycatches by purse seine vessels not covered by the current observer program.**

The staff has prepared a plan to obtain catch data for Class 4 and 5 vessels (182-362 mt), not covered by the current observer program, under which observers would be placed on 20-25% of trips made by these vessels, and all their unloadings would be monitored for two years. On the basis of an analysis of the data obtained, a long-term coverage level will be proposed. For smaller purse-seine vessels and other tuna vessels such as baitboats, the staff would continue the current practice of abstracting vessel logbooks, when available, and incorporating this information into the analyses.

The cost of such an observer program would be approximately US\$70,000-80,000. This cost could be borne by vessel owners, as with the AIDCP On-Board Observer Program; with 25% coverage, the vessel assessment would be approximately US\$8.00-8.50 per cubic meter. If the Commission wishes to fund the program in this way, it should establish the assessment fee by a resolution. The program would be accounted for separately from the IDCP program.

#### **B. Program to obtain data on bycatches by longline vessels**

There are two components to this question. The first and most important, in terms of catches, is the fleet of large longliners fishing in the eastern Pacific Ocean. The staff is consulting with Japan to develop an appropriate program to obtain bycatch information for the Japanese fleet, and it appears that such a program will be implemented in the near future. Japan has proposed the following preliminary program for a bycatch data collection system for its longline vessels:

##### **a) First Phase: 2001-2002 (to commence as soon as possible):**

The following activities will be conducted as a feasibility study;

- i) Japanese commercial tuna longline vessels operating in the EPO will be asked to collect and report bycatch data;

- ii) Bycatch data collection would be conducted by possibly two Japanese research vessels in the EPO (chartered commercial tuna longline vessels that will be engaged solely in scientific research activities, with at least one scientist aboard during operations);
- iii) The results of i) and ii) above and the accuracy of the data obtained will be reviewed, and the feasibility of continuing these arrangements will be assessed.

These arrangements will cover sharks and seabirds since they are subjects of the FAO International Plans of Action for the conservation and management of sharks and for reducing the incidental catch of seabirds in longline fisheries.

#### **b) Second Phase: 2003 ?**

The program to be developed and implemented will be based on the results of the first phase.

#### **c) Funds and handling of data**

The cost of implementing arrangements of i) and ii) will be borne by Japan. The data obtained will be collected and compiled by the Japanese National Research Institute of Far Seas Fisheries, and thereafter provided to the IATTC staff. Analyses will be conducted jointly by Japan and the IATTC staff. Confidentiality should be ensured for these processes.

The staff will also pursue the establishment of similar arrangements with other nations with longline vessels fishing in the EPO.

The second component of this program is the fleet of relatively small longline vessels based in the region. This fleet is composed of between 200 and 300 vessels flying the flags of several coastal states of the region. There are also longline vessels flying the flags of states outside the region, which apparently are based in or licensed by some of the coastal states. The Commission staff has been working to obtain more information regarding the scope and activities of this fleet. At present there is not much information available to the staff regarding the catches of these vessels, although several governments are cooperating in providing information. The staff could develop a plan to ensure comprehensive coverage of these catches, which initially would likely involve having extra Commission personnel in selected ports to monitor landings. A budget to provide for such coverage will be prepared for presentation at the Commission meeting in June.

#### **Conclusion**

This memorandum covers a range of measures intended to reduce the discards of juvenile tunas and non-target species identified in the Resolution on Bycatch. There are two general criteria that the Commission should consider in developing management measures. The first is to seek the simplest management regime possible, giving preference to measures that control the outputs or effects of the fishery, thereby providing an incentive and reasonable freedom to industry to develop technologies and methods that achieve the required objectives. The second is to give preference to measures that are simple to monitor. If the Commission wishes to take additional measures to reduce bycatches, prohibiting sets on FADs by Class-6 purse-seiners north of 7°N would be both simple and effective, and would also have a relatively minor impact on the catch of tunas.

## **Appendix**

### **DUTIES OF THE SECRETARIAT OF THE AIDCP**

#### **Dolphin Mortality**

- Overall fleet limit (4900 / 5000); if the mortality in any given year increases above levels the IRP considers significant, IRP recommends that Parties meet to identify and review the causes and formulate options to address them.
- National fleet limits; if a national fleet exceeds its limit, it must stop fishing on dolphins.
- Per-stock limits: if the mortality for a stock exceeds the limit for that stock, all sets on that stock must cease.
- Reserve DML Allocation (RDA): monitor allocations and utilization, including accidental mortalities by vessels of non-Parties.
- Totals by captain: if a captain's cumulative mortality exceeds the average individual vessel DML (ADML) in the current or previous year, he must attend a seminar.

#### **Vessel DMLs**

- DMLs allocated to a national fleet must not exceed total DML allocated to that Party.
- Initial allocations / reallocations must adhere to any performance or infraction limitations.
- Use of DMLs allowed after Director notified of allocation; reallocation takes effect when Director notified.
- DML forfeited if not used by April 15, or December 31 for second-semester DMLs; a vessel that forfeits a DML (full-year or second-semester) on two consecutive occasions loses its right to a DML next year.
- Use of second-semester DMLs allowed only after July 1.
- Monitoring mortality for quarterly performance letters.
- Accidental mortality by vessels that lose their DMLs taken into account in reallocation of DMLs.
- All DMLs reallocated to a Party must be reallocated to national fleet.
- Vessels that meet or exceed their DML must cease setting on dolphins.
- For vessels that exceed their DML, excess + 50% must be deducted from DMLs assigned to the vessel over subsequent years in a manner prescribed by the IRP.

#### **Performance**

The IRP must determine performance criteria and decide how excess of DML can be deducted over subsequent years.

- For a vessel to be issued an initial DML greater than the ADML, its performance in the previous 2 years must be better than the average performance of the international fleet.
- For a vessel to be issued an adjusted DML 50% or more greater than its initial DML, its performance in the previous year must be in the upper 60% of the performance of the international fleet.

#### **Infractions**

The IRP must define "pattern of infractions".

- Record infractions identified by the IRP.
- Generate infraction notification letters.

- Record infraction notification date (date of mailing + 7 days).
- Record infraction responses from Parties (Party concurs if no response after 6 months (12 months for observer harassment/interference)).
- A vessel is not eligible for a DML if it has engaged in a “pattern of infractions” confirmed by the Party.
- No vessel is eligible for an initial DML greater than the ADML if the Party in question confirms that it has committed any of the 7 infractions listed in Annex IV(III) 4.
- No vessel can have its initial DML adjusted upwards if: 1) the Party concurs that the vessel committed any of the 7 infractions during the present or previous year; 2) it did not have all of the required dolphin safety gear aboard throughout the year, or 3) it exceeded its initial DML prior to April 1, unless due to *force majeure*.

### **List of Qualified Captains**

The IRP must determine measures of performance, and how to recognize the captains with the best performance.

- Maintain list and add new names at Parties’ request.
- Monitor requirements for new captains (attend seminar, participate in a trial set with direct observations of backdown channel, and practical training component).
- For active captains, monitor: 1) performance, using standardized performance measurements; 2) attendance at seminars, and 3) record of possible and confirmed infractions and sanctions.
- Notify Parties regarding captains who during the previous or current year: 1) made intentional sets on dolphins after reaching the DML, or other limit; 2) made intentional sets on dolphins without a DML; 3) fished without an observer; 4) was captain on a vessel of a non-Party state not complying with the AIDCP; 5) obstructed, intimidated, interfered, influenced, bribed, or attempted to bribe an observer; or 6) had a pattern of confirmed infractions determined by the IRP and accepted by the Meeting of the Parties.
- Reinstate a captain to the list if : 1) any sanctions imposed on him have been complied with; 2) reinstatement is requested by Party; and 3) he attended a re-training course organized by or coordination with the IATTC.
- Identify the three captains with the best performance each year.

INTER-AMERICAN TROPICAL TUNA COMMISSION  
COMISION INTERAMERICANA DEL ATUN TROPICAL

**68<sup>TH</sup> MEETING**

SAN SALVADOR (EL SALVADOR)

JUNE 19-21, 2001

**DOCUMENT IATTC-68-12**

**DRAFT PLAN FOR REGIONAL MANAGEMENT OF FISHING CAPACITY**

The Permanent Working Group on Fleet Capacity was established at the 61<sup>st</sup> Meeting of the IATTC in June 1998. During its meetings, the group has discussed various aspects of tuna-fishing capacity in the eastern Pacific Ocean (EPO), including the consideration of a regional plan of action for the management of that capacity.

The draft Plan of Action (EPO Plan) presented in this document was prepared in accordance with the terms of the IATTC resolutions on bigeye and fleet capacity, adopted in June and August 2000, respectively. In these resolutions, the Commission requested the staff to prepare a comprehensive draft plan for the regional management of tuna fishing capacity, in accordance with the FAO International Plan of Action for the Management of Fishing Capacity.

The draft EPO Plan follows the FAO Plan closely, and retains its major elements, such as nature and scope, a description of objectives and principles, the identification of urgent, immediate and long-term actions, and references to the Code of Conduct and other international instruments. It also contains elements from several IATTC resolutions and text that has been discussed at meetings of several Commission working groups.

The draft EPO Plan is presented as the basis for discussion and, if appropriate, approval by the Commission. It should be noted that most of the urgent actions (*e.g.* the establishment of a Regional Vessel Register) and several of the immediate actions are either completed or have already been discussed.

# DRAFT PLAN FOR REGIONAL MANAGEMENT OF FISHING CAPACITY

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## INTRODUCTION

1. The issue of excess fishing capacity in the tuna fishery of the Eastern Pacific Ocean (EPO) is causing increasing concern. Excessive fishing capacity is a problem that, among others, can contribute substantially to overfishing, the degradation of marine fisheries resources, and the decline of food production potential, and inevitably causes significant economic waste.
2. The overall issue of fishing capacity in the EPO is one that should be considered within the context of the FAO Code of Conduct for Responsible Fisheries and its general objective of sustainable fisheries. The Code of Conduct provides that States shall take measures to prevent or eliminate excess fishing capacity and shall ensure that levels of fishing effort are commensurate with sustainable use of fishery resources.
3. In 1997, the FAO Committee on Fisheries (COFI) requested FAO to address the issue of fishing capacity. FAO organized a Technical Working Group on the Management of Fishing Capacity in La Jolla, USA, from 15 to 18 April 1998. A subsequent FAO consultation was held in Rome from 26 to 30 October 1998, preceded by a preparatory meeting from 22 to 24 July 1998. The International Plan of Action for the Management of Fishing Capacity was adopted at the 23<sup>rd</sup> Session of COFI in February 1999.
4. At the 61<sup>st</sup> Meeting of the Inter-American Tropical Tuna Commission (IATTC), held in La Jolla, USA, on 10-12 June 1998, a Permanent Working Group on Fleet Capacity was established. The Working Group met in La Jolla, USA, on 3-4 September 1998 and on 8-9 October 1999; in San Jose, Costa Rica, on 26-28 January 1999; in Panama City, Panama, from 31 July to 2 August 2000, and in La Jolla, USA, on 25-26 October 2000. At the 62<sup>nd</sup> Meeting of the IATTC, held in La Jolla, USA, on 15-17 October 1998, a resolution limiting the capacity of the tuna purse-seine fleet in 1999 was adopted. At its 66<sup>th</sup> Meeting, held in San Jose, Costa Rica, on 12-15 June 2000, the IATTC adopted two resolutions which included instructions to the staff to prepare a comprehensive draft plan for the regional management of fishing capacity in the EPO.

## 6. NATURE AND SCOPE OF THE REGIONAL PLAN OF ACTION

5. This Plan of Action for the Regional Management of Tuna Fishing Capacity (the EPO Plan) has been elaborated within the framework of the FAO International Plan of Action for the Management of Fishing Capacity and the FAO Code of Conduct for Responsible Fisheries, as envisaged by Article 2(d) of the Code. The provisions of Article 3 of the Code apply to the interpretation and application of this Regional Plan of Action and its relationship with other international instruments.
6. The EPO Plan reflects the commitment of all States to implement the Code of Conduct. States<sup>1</sup> shall

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<sup>1</sup> For the purposes of this document, "States" are States or Regional Economic Integration Organizations that are either members of the IATTC or that cooperate with the management and conservation measures adopted by the IATTC.

apply this Plan consistently with international law.

7. The EPO Plan is an element of fishery conservation and sustainable management.

## 7. OBJECTIVE AND PRINCIPLES

8. The objective of the EPO Plan is to achieve, by 1 January 2005, an efficient, equitable and transparent management of tuna fishing capacity in the EPO. *Inter alia*, to achieve long-term sustainability of the tuna fishery of the EPO, States shall endeavor initially to limit the total fleet capacity at the present level and to progressively reduce it. After targets for the fleet capacity have been achieved, States shall exercise caution to avoid growth in capacity.
9. The immediate objective shall be achieved through a series of actions related to two major strategies:
  - a. The updating of a comprehensive regional assessment of tuna fishing capacity and improvement of the capability for monitoring fishing capacity;
  - b. The development and implementation of a reduction schedule to effectively manage tuna fishing capacity.
10. These strategies may be implemented through complementary mechanisms to promote implementation of this EPO Plan: awareness building and education, technical cooperation at the international level, and coordination.
11. The management of tuna fishing capacity shall be based on the Code of Conduct for Responsible Fisheries and shall take into consideration the following major principles and approaches.
  - a. **Participation:** The EPO Plan shall be implemented through the IATTC, in cooperation with other appropriate intergovernmental organizations.
  - b. **Phased implementation:** The management of fishing capacity shall be achieved through the following three phases: (1) urgent actions (updated assessments and diagnoses to be completed within six months of the adoption of the EPO Plan); (2) immediate actions (to be completed within one year after the adoption of the EPO Plan); and (3) long-term actions (periodic adjustment of assessment and diagnosed measures, as appropriate). The IATTC shall progressively implement the EPO Plan and achieve the target capacity by 1 January 2005.
  - c. **Holistic approach:** The management of tuna fishing capacity in the EPO shall be comprehensive and consider all factors affecting capacity in both national and international waters.
  - d. **Conservation:** The management of fishing capacity shall facilitate the conservation and sustainable use of tuna stocks in the EPO and the protection of the marine environment. It shall be consistent with the precautionary approach, the need to minimize bycatch, waste, and discards, and ensure selective and environmentally safe fishing practices and the protection of biodiversity in the marine environment.
  - e. **Priority:** Priority shall be given to managing the fishing capacity in the tuna purse-seine fishery, in which there already exists excess fishing capacity. However, the management of longline fishing capacity shall also be addressed.
  - f. **New technologies:** The management of fishing capacity shall take into account the incorporation of environmentally-sound and evolving technology in all fisheries covered by this Plan.
  - g. **Mobility:** The management of fishing capacity shall encourage the efficient use of fishing capacity, allow the legitimate transfer of vessels among States, and discourage entry of new vessels into the EPO if that leads to excess capacity.
  - h. **Transparency:** The EPO Plan shall be implemented in a transparent manner in accordance with Article 6.13 of the Code of Conduct.

12. The implementation of the EPO Plan shall give due recognition to Article 5 of the Code of Conduct, in relation to enhancing the ability of developing countries to participate in tuna fisheries, including access to such fisheries, in accordance with their legitimate rights and their obligations under international law.

## **8. URGENT ACTIONS**

### **Section I: Assessment and monitoring of fishing capacity**

#### Measurement of fishing capacity

13. The IATTC shall monitor, through the Permanent Working Group on Fleet Capacity, the capacity of the tuna purse-seine fleet operating in the EPO. The well volume of vessels, in cubic meters, will be used as the primary basis for measuring the capacity of the fleet.

#### Diagnosis and assessment

14. The IATTC shall establish the target fishing capacity of all the tuna-fishing fleets in the EPO within six months of the adoption of the EPO Plan.
15. The target level for the purse-seine fishery is 145,000 cubic meters of total well volume.

#### Regional Vessel Register

16. The IATTC has established, in accordance with its Resolution of June 2000, a Regional Register of Vessels authorized to fish in the Convention Area for species under the purview of the Commission. States shall provide the Director with information concerning any change to their fleets.
17. States shall support FAO in the development of appropriate and compatible standards for records of fishing vessels.
18. The IATTC shall maintain a list of non-member States that implement the EPO Plan as well as a list of States whose actions undermine the EPO Plan.

## **9. IMMEDIATE ACTIONS**

### **Section I: Capacity limits**

#### Limit at present level

19. Each State shall endeavor to limit the capacity of its fleet operating in the EPO consistent with the objective of this Plan to establish a limit on the total capacity of the tuna purse-seine fleet operating in the EPO.

### **Section II: Progressive reduction**

#### Regional management of fishing capacity

20. States agree to develop and implement a reduction schedule to achieve the target level of 145,000 cubic meters of well volume by 1 January 2005. The reduction schedule, once adopted, will serve as the basis for further action by the IATTC with respect to the distribution and allocation of capacity within the EPO tuna fleet and, in particular, for achieving a target reduction in overall fleet capacity.
21. The Permanent Working Group on Fleet Capacity shall, by 1 June 2002, develop rules and procedures for the implementation of the reduction schedule, based on the following general principles and approaches.
  - a. No transfer of vessels to the jurisdiction of another State shall be allowed without the express consent and formal authorization of both States.
  - b. The corresponding portion of any capacity limit shall accompany any such transfer of vessels.

- c. States shall avoid approving the transfer of vessels under their jurisdiction to the EPO where such transfers are inconsistent with responsible fishing under the Code of Conduct or with the provisions of the EPO Plan.
- d. The economic importance of the tuna-fishing fleets and the need to limit the size of these fleets to a level commensurate with economic viability shall be considered in implementing the EPO Plan.
- e. A system to deal with new vessels (defined as those not included in the Regional Vessel Register) entering the EPO tuna-fishing fleet shall be developed. The system shall include rules on capacity transfer to allow States not currently participating in the tuna fishery in the EPO to enter the fishery, replacement of lost or retired vessels, and loss of capacity due to non-utilization. In particular, the entry of new vessels to the EPO tuna purse-seine fleet shall be prohibited except for the replacement of vessels removed from the fleet and then only if all reasonable efforts to find a suitable vessel from those included in the Regional Vessel Register are unsuccessful.
- f. The capacity target shall be reviewed regularly to ensure that it remains in balance with the available fishery resources and management objectives.
- g. States shall consider participating in international agreements that relate to the management of fishing capacity, and, in particular, the 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas.
- h. The IATTC shall support co-operation and the exchange of information with FAO and relevant regional fisheries organizations.
- i. The IATTC shall identify States whose vessels fish for tunas in the EPO that do not exercise effective jurisdiction and control over their vessels, or whose vessels do not comply with this Plan. States shall take measures to encourage such States to implement this Plan.

## **10. LONG-TERM ACTIONS**

### **Section I: Subsidies and economic incentives**

- 22. States shall assess the possible impact of all factors, including subsidies, contributing to overcapacity on the sustainable management of tuna fisheries in the EPO, distinguishing between factors, including subsidies, which contribute to overcapacity and unsustainability and those which produce a positive effect or are neutral.
- 23. States shall reduce and progressively eliminate all factors, including subsidies and economic incentives and other factors that contribute, directly or indirectly, to the build-up of excessive fishing capacity, thereby undermining the sustainability of the tuna resources in the EPO.

### **Section II: Mechanisms to promote implementation**

#### Awareness building and education

- 24. States shall develop information programs at national and regional levels to increase awareness about the need for the management of tuna fishing capacity, and the costs and benefits resulting from adjustments in that capacity in the EPO.

#### Scientific and technical cooperation

- 25. States shall support training and institutional strengthening and consider providing financial, technical, and other assistance to developing countries on issues related to the management of fishing capacity.
- 26. States shall strive to collaborate, through FAO and through international arrangements, in research, training, and the production of information and educational material aiming to promote the effective

management of tuna fishing capacity.

27. The IATTC shall keep FAO updated on progress on the assessment, development, and implementation of the EPO Plan.

### **Section III: Compliance**

28. The Permanent Working Group on Compliance shall review and monitor compliance with the EPO Plan, and shall recommend to the IATTC appropriate measures for addressing matters related to compliance with the EPO Plan.

### **Section IV: Periodic review and adjustments**

29. The Permanent Working Group on Fleet Capacity shall review annually the entry of new vessels to the EPO tuna fleet, and shall recommend to the IATTC measures for addressing matters related to the EPO Plan, including adjustments as appropriate.
30. At least every four years, the IATTC shall review the implementation of the EPO Plan for the purpose of identifying cost-effective strategies for increasing its effectiveness and the consideration of different management systems and fishing capacity.

# COMISION INTERAMERICANA DEL ATUN TROPICAL INTER-AMERICAN TROPICAL TUNA COMMISSION

## 68<sup>TH</sup> MEETING

SAN SALVADOR (EL SALVADOR)  
JUNE 19-21, 2001

### DOCUMENT IATTC-68-15

## FEEES CHARGED TO OBSERVERS BY OTHER REGIONAL FISHERIES ORGANIZATIONS

During the 66<sup>th</sup> Meeting of the IATTC, held in La Jolla in June 2000, the staff was asked to collect information on the fees charged to observers attending meetings of other regional fisheries management organizations, including representatives of non-governmental organizations (NGOs), governments, and international organizations.

The staff has obtained the following information on the matter.

### **I. International Commission for the Conservation of Atlantic Tunas (ICCAT).**

The ICCAT rules on fees require that observers pay a fee which will contribute to the additional expenses generated by their participation, as determined annually by the Executive Secretary. The Secretariat began implementing this policy in 1999, and has charged, depending on the meeting, fees ranging from US\$100 per person to US\$500 for a maximum of two observers per delegation, plus US\$350 for each additional participant. ICCAT used this latter scale for both its 1999 and 2000 annual meetings. The observer fees for ICCAT's most recent Working Group meetings were US\$200 for delegations composed of a maximum of two persons and US\$150 for each additional person. NGO and government delegations pay the same fees, but ICCAT waived the application of its rules for international organizations.

### **II. Northwest Atlantic Fisheries Organization (NAFO).**

To date NAFO has not had any experience in applying its new rules on the subject of charging fees to observers at meetings, which read:

“9.6 Observers will be required to pay a fee, which will cover the additional expenses generated by their participation, as determined annually by the Executive Secretary.

9.7 The Executive Secretary will determine whether, due to conference room capacity, seating limitations require that a limited number of observers per NGO may be present at any meetings. The Executive Secretary will transmit any such determination in the conditions of participation.”

NAFO's preliminary estimate of the fees to be eventually charged is in the range of CAN\$250-500 per observer, and they would be applied to NGOs only.

### **III. Commission for the Conservation of Southern Bluefin Tuna (CCSBT), Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), Indian Ocean Tuna Commission (IOTC).**

These organizations do not charge any fees for observers attending their meetings.