INTER-AMERICAN TROPICAL TUNA COMMISSION

SUMMARY MINUTES OF THE 45TH MEETING

March 8-10, 1988

La Jolla, California, USA

Chairman: Ing. Armando Martinez

AGENDA

1. Opening of meeting
2. Adoption of agenda
3. Review of current tuna research
4. The 1987 fishing year
5. Status of tuna stocks
6. Review of tuna-dolphin program
7. Recommendations for 1988
8. Recommended research program and budget for 1989-1990
9. An update of activities concerning arrangements for tuna management in the eastern Pacific
10. Place and date of next meeting
11. Election of officers
12. Other business
13. Adjournment

AGENDA ITEM 1 - OPENING OF MEETING

The 45th meeting of the IATTC was called to order by the Chairman, Ing. Armando Martinez, Commissioner from the Republic of Panama, at 10:35 a.m., March 8, 1988, at the La Jolla Women's Club, La Jolla, California. He welcomed the attendees and called for the heads of the delegations of the member nations to introduce themselves and the other members of their delegations. After these introductions he called upon the heads of the observer nations and organizations to do the same. The attendees are listed in Appendix 1.

AGENDA ITEM 2 - ADOPTION OF AGENDA

Chairman Martinez called for comments on the provisional agenda which had been distributed to the attendees. Mr. Seki of Japan asked whether Item 9 would be a formal or informal discussion of arrangements for tuna management in the eastern Pacific Ocean. After a brief exchange of ideas it was agreed that the discussion would be informal, and the agenda was approved.

Chairman Martinez suggested that the meetings begin at 9:00 a.m. each day, adjourn for lunch at 12:00 noon, reconvene at 2:00 p.m., and adjourn for the day at 5:00 p.m. No one objected, so his suggestion was adopted.

AGENDA ITEM 3 - REVIEW OF CURRENT TUNA RESEARCH

Chairman Martinez announced that he would turn the meeting over to Dr. James Joseph, Director of the IATTC, to review the research carried out by the staff.

Dr. Joseph said that the staff is now in its 38th year of research. The objectives are to conduct scientific studies of the tropical tunas and billfishes of the eastern Pacific Ocean and, when necessary, make recommendations to the high contracting parties for management of these species. The convention specifies that the goal of management is to achieve the maximum sustainable yields in weight of fish, rather than some other goal such as "optimum sustainable yield," which may be maximum economic yield, maximum employment of fishermen, or something else other than maximum yield in weight of fish. In 1976 the Commission's duties were broadened to include problems arising from the tuna-dolphin relationship in the eastern Pacific Ocean. As its objectives it was agreed that, "the Commission should strive [1] to maintain a high level of tuna production and also [2] to maintain [dolphin] stocks at or above levels that assure their survival in perpetuity, [3] with every reasonable effort being made to avoid needless or careless killing of [dolphins]." These studies on tunas, billfishes, and dolphins require people with a wide range of expertise. The staff of the IATTC now consists of about 50 people, about half of whom are scientists. These employees are stationed at the IATTC headquarters in La Jolla and at its field stations in Ecuador, Mexico, Panama, Peru, the United States (Mayaguez, Puerto Rico, and Terminal Island, California), and Venezuela. Its investigations are carried out by collecting data on almost all aspects of the biology of the fish and dolphins. Analyses of catch and effort, length-frequency, tagging, maturity, hard-part, and oceanographic data are used to assess the condition of the stocks of tunas and billfishes, and catch and effort, sighting, mortality, behavior, and tuna catch and effort data are employed for dolphin

stock evaluation. Practically all of these data are obtained with the permission and assistance of the governments of the nations involved in the fishery and of the fishing and processing industry. The staff is deeply grateful for this cooperation with its program. The results of the staff's research are published in the Commission's Annual Reports, Bulletins, and Special Reports, and in outside books and journals. Since the inception of the IATTC more than 500 such reports have been published.

In order to put into perspective the eastern Pacific tuna catches relative to those of the world, Dr. Joseph noted that in 1986 the world catches of the principal market species of tunas were as follows: skipjack, 1,070,000 metric tons; yellowfin, 780,000 metric tons; bigeye, 256,000 metric tons; albacore, 196,000 metric tons; southern and northern bluefin, 57,000 metric tons. About 20 percent of the catch of the principal market species is taken in the eastern Pacific Ocean. The leading species in the eastern Pacific is yellowfin, followed by skipjack in some years and bigeye in others.

Dr. Joseph next introduced Dr. Alex Wild, who is working on the ageing of tunas from their hard parts. Dr. Wild, who has been with the Commission since 1976, was originally employed as an engineer, but gave that up to study biology at the University of British Columbia, from which he obtained his Ph.D. degree. Dr. Wild said that knowledge of the age of the fish is important for cohort and yield-per-recruit analyses, which would be discussed later by Dr. Joseph. It was discovered in the early 1970s that some species of temperate and tropical fish form daily rings on their otoliths. In 1976 yellowfin and skipjack were tagged in the eastern Pacific Ocean and simultaneously injected with oxytetracycline, which causes a fluorescent mark to form at the outer edge of each otolith. When the fish were recaptured the otoliths were removed and the increments from the fluorescent mark to the newly-formed edge were counted. These counts were compared with the numbers of days between release and recapture to determine if the increments were deposited at daily intervals. Such was the case for yellowfin between about 40 and 110 cm in length. Additional tagging experiments initiated in 1980 and 1981 with larger fish extended the upper range from 110 to 148 cm. It was also found that the growth varies among years and that the growth rates of males and females are different. Females greater than 143 cm long are rarely caught in the purse-seine fishery, but males more than 170 cm long are taken by that fishery. The staff now needs to study fish less than 40 cm long and more than 148 cm long to determine if a one-to-one ratio between increments and days exists for these. The increments and days were also compared for skipjack, and it was found that for the experiment initiated in 1976 only about 0.76 increments were formed per day. At first it was thought that this might be due to the onset of sexual maturation of the females, counting the increments on the wrong part of the otoliths, or the inability to resolve small increments with the light microscope. It was found, however, that both males and females fail to deposit daily increments, and preliminary examination of all parts of the otoliths with a scanning electron microscope did not produce greater counts of the increments. It appears at this time that skipjack is one of the few species of fish which does not form daily increments on its otoliths.

Dr. Joseph stated that there is currently considerable interest in the relationship between spawners and recruits. In most cases the second seems to be independent of the first, although this may be due to some extent to poor estimates of both parameters. The IATTC staff needs to know more about this

important aspect of the biology of yellowfin to make better recommendations for management. In addition, knowledge about the spawner-recruit relationship might make it possible to predict the abundance of fish a year or so in advance. He then introduced Mr. Kurt M. Schaefer, who is working on the reproductive biology of yellowfin. Mr. Schaefer has worked for the Commission since 1978. He recently earned his M.S. degree from San Diego State University, and hopes to begin work soon on his Ph.D. degree at the University of California at San Diego. Mr. Schaefer described two trips he had made to Clipperton Island in May 1986 and May 1987, where he collected ovaries and testes from large yellowfin caught there and juvenile tunas attracted to the vessel by bright lights. Spawning apparently occurs between 8:00 p.m. and midnight. This estimate is based upon the fact that ovaries collected between 3:00 p.m. and 7:00 p.m. were in the late migratory nucleus stage (which precedes spawning) and the fact that females collected between 10:30 p.m. and 3:30 a.m. had postovulatory follicles which were apparently only a few hours old. The postovulatory follicles apparently disappear after about 24 hours. Since postovulatory follicles were detectable in about 80 percent of the fish, it appears that they spawn almost daily. The scientific technicians who go to sea on tuna boats to collect dolphin data are now collecting yellowfin gonads which will be used for histological purposes to determine age-specific reproduction characteristics of the eastern Pacific yellowfin population. The larval and early juvenile tunas collected at Clipperton Island were known to be either yellowfin or bigeye, but it was impossible to tell which from morphological characteristics. Electrophoretic analysis, however, revealed that they were all yellowfin.

Dr. Joseph added that the IATTC staff was indebted to the French government for permission to carry out the studies near Clipperton Island.

At 12:05 p.m. Chairman Martinez announced that the meeting would adjourn until after lunch.

The meeting was reconvened at 2:15 p.m. by Chairman Martinez, who called upon Dr. Joseph to resume the review of the staff's research. Dr. Joseph asked if there were any questions on the material covered in the morning. Mr. Piney of France asked if the initial spawning studies were carried out at Clipperton Island because spawning was particularly heavy there. Dr. Joseph replied that spawning is believed to take place over much of the tropical eastern Pacific during much of the year, but since it was known to occur at Clipperton Island in May and since there was a sport-fishing vessel which was going there it was decided to carry out the work there.

Dr. Joseph briefly discussed the need for more knowledge of the early life history of tunas, and said that such studies can be carried out (1) on the spawning grounds and (2) in the laboratory. Both types of studies are being conducted at the Commission's laboratory in Achotines, Panama. He introduced Mr. Robert J. Olson, who is in charge of studies at Achotines. Mr. Olson has worked for the IATTC since 1973 on a variety of projects, most notably tuna physiology. He has a M.A. degree from San Diego State University, and has nearly completed the requirements for a Ph.D. degree from the University of Wisconsin.

Mr. Olson stated that fishery scientists worldwide are devoting more and more of their efforts to studying recruitment. In the United States, for example, the National Science Foundation is considering sponsoring an

intensive program to learn more about recruitment. The work being done at the Achotines laboratory is pertinent to such studies, of course, since recruitment is determined by success of spawning and survival of the eggs, larvae, and juveniles. The Achotines laboratory is now functional, although improvements will continue to be made for the next several years, at least. The location is ideal for the study of tunas because of the presence of deep, clean water close to shore. He stated that the Commission was indebted to the Ministerio de Comercio e Industrias, Departamento de Recursos Marinos, and the Ministerio de Obras Públicas of Panama for many types of assistance in acquiring the land and constructing the laboratory. He described the various buildings, ponds, tanks, boats, etc., and how each is being used. Juvenile scombrids are attracted at night with underwater lights to one of the boats, collected with dipnets, and brought to the laboratory. Those which survive are reared in captivity, and those which die are used for studies of feeding, starvation, etc. Black skipjack, frigate tuna, sierra, and Thunnus spp. (yellowfin or bigeye, probably mostly or entirely the former) have been reared in captivity. One black skipjack grew from a length of about 12 mm to 278 mm in 136 days. Its death was due to jumping out of the tank onto the ground, rather than to malnutrition or disease. Only 16 Thunnus have been been collected so far, but many more will undoubtedly be collected when the Commission's new research vessel is placed into service. The boat will also be used for deploying oceanographic equipment for long-term monitoring of key environmental variables which may influence the survival and growth of larval and juvenile tunas.

Dr. Joseph then introduced Mr. Forrest R. Miller, who has studied the meteorology and oceanography of the eastern Pacific Ocean for more than 20 years. Mr. Miller, who holds a M.A. degree from the University of California at Los Angeles, had worked as a meteorologist for the U.S. Air Force prior to accepting employment with the Tuna Commission.

Mr. Miller described the weak to moderate El Niño of 1987, which manifested itself almost entirely south of 5°N latitude. This El Niño, characterized by warmer sea-surface temperatures, higher sea levels, deeper thermoclines, abnormal rainfall patterns, and negative anomalies in the Southern Oscillation Index (difference between sea-level pressures at Darwin, Australia, and the average of Easter Island and Tahiti), began in December 1986 only about 4 1/2 years after the very strong El Niño of 1982-1983. It reached a peak in May 1987, and conditions along the coasts of Ecuador and Peru returned to about normal by the end of the year. The catches of tunas were well below normal south of 5°N, but better than average north of that latitude in 1987. He described some attempts carried out by other organizations to predict El Niño events from worldwide meteorological and oceanographic data. None of these was successful.

Dr. Joseph emphasized that some El Niño events, such as that of 1982-1983, affect the fishery for tunas in the eastern Pacific by causing them to be distributed over a wider area and lowering the thermocline. When the thermocline is lower the fish are less concentrated and less likely to be caught. Mr. Gordon Broadhead, an advisor from the USA, asked Mr. Miller about the great increase in interest in El Niño after the El Niño of 1982-1983. Mr. Miller replied that the adverse effects that that El Niño had had in other parts of the world had probably prompted the increased interest in this phenomenon. He gave a few more details on the methods that others had used to try to predict the El Niño events. Dr. Sakagawa of the USA asked why the

catches of yellowfin in the eastern Pacific had been so good in 1987 if 1987 had been an El Niño year. Dr. Joseph replied that the El Niño had extended only to 5°N, and the good catches north of 5°N had been sufficient to more than counteract the poor catches south of 5°N. Captain Posadas of Guatemala asked about the sizes and ages attained by tunas. Dr. Joseph replied that there are many species of tunas and tuna-like fishes, and different ones attain different sizes and ages. The frigate tuna attains a maximum weight of only a little more than 2 pounds (1 kg), whereas northern bluefin as large as 1,496 pounds (679 kg) have been caught in the Atlantic Ocean. The largest bluefin probably live more than 20 years. Yellowfin, skipjack, and bigeye, the most important species caught in the eastern Pacific, are intermediate in size. He emphasized that the overwhelming majority of the fish occurring in the ocean and caught by the fishery are much smaller than the maximum sizes reported. Mr. Beasley observed that the El Niño events have come more frequently in recent years, and asked for comments about this. Mr. Miller replied that there have been more such events during the 1970s and 1980s than during the 1950s and 1960s, but that there were many El Niño events during the 1920s and 1930s. It is not known why this is the case.

Mr. Piney asked about the activities at the various IATTC field stations. Dr. Joseph replied that in Ecuador, Mexico, Panama (the capital, not Achotines), Peru, Puerto Rico, Terminal Island, California, and Venezuela the IATTC employees collect landings data, make abstracts of logbooks of fishing vessels, measure fish, and perform various duties associated with the placement of scientific technicians on tuna vessels to collect data for the tuna-dolphin program. The research previously described by Mr. Olson is carried out at Achotines, Panama. In Venezuela, in addition to the work just described, some work on the feeding habits of tunas and dolphins is being conducted.

There were no more questions, so Chairman Martinez announced that Dr. Joseph would review Items 4 and 5 of the agenda, the 1987 fishing year and the status of the tuna stocks.

AGENDA ITEMS 4 AND 5 - THE 1987 FISHING YEAR AND STATUS OF TUNA STOCKS

Dr. Joseph said that the greatest catches of yellowfin in the history of the eastern Pacific fishery were made in 1986 and 1987. This was what the staff had expected and predicted. The high catches were due to better-than-average recruitment, increase in the population size due to lesser fishing effort in the preceding years, and the fact that the fish were being permitted to grow to approximately the optimum size. The effort was greater in 1987 than in 1986, and it appears that it will be even greater in 1988. The skipjack catches were not especially good in either 1986 or 1987, but this is probably due to concentration of effort in areas where skipjack fishing is normally poor. So far in 1988 the catches and catches per unit of effort for both yellowfin and skipjack are well below those of 1986 and 1987, but it expected that both will improve soon. The greatest catches of tunas in 1986 and 1987 were made by Mexico and the USA, followed by Ecuador and Venezuela, and it appears that the same will be the case for 1988. Yellowfin and skipjack were caught over a wide range of the eastern Pacific from Baja California to Peru and from the coast to west of 140°W in 1987. The yellowfin catches were well scattered over this area, but the skipjack catches were concentrated off Baja California and off Panama, Colombia, and Ecuador.

The fishery for yellowfin was regulated in the Commission's Yellowfin Regulatory Area (CYRA) during 1966-1979, but in 1979 the regulations were implemented too late in the year to be effective. After 1979 the catches began to decline, and the El Niño of 1982-1983 caused further declines. Many vessels went to the western Pacific to fish, which caused the catches to be lower in 1984 and 1985 than they would have been otherwise. Three indices of abundance of yellowfin, catch per days fishing, catch per unit of searching time, and cohort biomass, have been used. All of these show a decline from the late 1960s to the early 1980s, a sharp increase from 1982 or 1983 to 1986, and a slight decrease from 1986 to 1987. He then began to discuss production models, which combine recruitment and growth as population increase and natural and fishing mortality as population decrease. The two models, symmetrical and asymmetrical, indicate that the average maximum sustainable yield in the CYRA is about 175 thousand short tons. The symmetrical model indicates that the average maximum sustainable yield (AMSY) can be achieved with about 18,000 days of effort, and that effort in excess of that would eventually decrease the catches considerably. The asymmetrical model indicates that the AMSY can be achieved with about 26,000 days of effort, and that effort greater than that would decrease the subsequent catches only slightly. For both models the points for 1986 and 1987 are far above the curves. This is because the lower-than-normal fishing effort and above-average recruitment during 1983-1985 permitted the population to increase considerably, so that moderate effort during 1986 and 1987 produced high catches. He then discussed the yield-per-recruit model, which indicates that maximum catches are obtainable when the size at entry is in the neighborhood of 30 to 40 pounds (14 to 18 kg) with the levels of effort which have existed in recent years. The larger fish are generally found further offshore in association with dolphins. The smaller fish tend to occur nearer the coast, often in association with skipjack. Therefore, unfortunately, attempts to utilize skipjack more fully tend to reduce the yield per recruit of yellowfin. The staff believes that the abundance of yellowfin in the CYRA reached a peak in 1986, was lower in 1987, and will continue to decrease during 1988-1991 unless the fishing effort is drastically reduced or the recruitment is much greater than average. In spite of the decrease, the fish should be more abundant than during the 1975-1984 period. Dr. Joseph indicated that for both forms of the production model the stock size was larger than needed to support the maximum sustainable yield (MSY). Accordingly, it would be possible to harvest not only the MSY in 1988, but some or all of the surplus as well. Unless the recruitment is very low, the fleet should have little trouble taking 200 thousand tons of yellowfin each year. Accordingly, the staff is recommending a quota of 190,000 tons for 1988, with two increments of 30,000 tons each which can be implemented at the discretion of the Director. Since the nations which participate in the fishery have not been able to agree on quotas in recent years a resolution regarding regulations is probably only of academic interest, but it is believed that it is appropriate to adopt a resolution even if there is little or no chance of its being adopted.

At 5:40 p.m. he turned the meeting back over to Chairman Martinez, who declared it to be adjourned until the next day.

The meeting was reconvened by Chairman Martinez on March 9, 1988, at 9:30 a.m. He announced that the attendees were invited to a cocktail party at the La Valencia Hotel from 6:30 to 8:30 that evening. He then turned the meeting over to Dr. Joseph to present the IATTC staff's recommendations for 1988.

AGENDA ITEM 7 - RECOMMENDATIONS FOR 1988

Dr. Joseph said that production models indicate that if the amount and distribution of fishing effort in 1988 is the same as in 1987 the catch of yellowfin in the CYRA should be about 185 to 205 thousand tons and the catch per unit of effort (CPUE) should be about 8.5 to 9.7 tons per day. If the effort is considerably greater than in 1987 the catch should be about 190 to 250 thousand tons. The cohort models indicate that if the 1988 effort is the same as in 1987 the 1988 catch would be about 20 percent less than in 1987, or about 220 thousand tons. The staff therefore, as noted the previous day, recommends a quota of 190,000 tons, with provision for two increments of 30,000 tons each to be added at the discretion of the Director if conditions seem to warrant their implementation. Chairman Martinez then called for comments on Dr. Joseph's recommendation. Mr. Beasley of the USA said that his delegation had reviewed the recommendation. Since the resource is not unlimited, and his delegation prefers to be conservative, it supports the staff's recommendation. Mr. Piney of France said that he agreed with his U.S. colleagues. Chairman Martinez then asked Dr. Joseph to prepare a draft resolution for subsequent distribution to the attendees. Chairman Martinez then requested that Dr. Joseph continue with his presentation on the 1987 fishing year and the status of tuna stocks.

AGENDA ITEMS 4 AND 5 - THE 1987 FISHING YEAR AND STATUS OF TUNA STOCKS

Dr. Joseph began by discussing yellowfin in the area outside the CYRA. Tagging data and other information indicate that the fish in this area do not mix rapidly with those in the CYRA. Also, the fish caught outside the CYRA are larger, on the average, than those caught inside the CYRA, making them near the optimum size in terms of maximizing the yield per recruit. Outside the CYRA there is a strong relationship between catch and effort, but little or no relationship between CPUE and effort, which indicates that the fishery has not had much effect on the abundance of fish in this area. The staff will continue to monitor the fishery outside the CYRA closely, however.

The weight of skipjack caught worldwide far exceeds the weight of any other species of tuna caught. The greatest catches of skipjack are taken in the western Pacific. The catches of skipjack have increased in recent years in the western Pacific, Atlantic, and Indian Oceans. The catches of skipjack increased in the eastern Pacific during the 1970s, but since then they have decreased due to lesser demand for this species. They are caught in the eastern Pacific chiefly off Baja California and off Panama, Colombia, and Ecuador; only small amounts are caught off southern Mexico in most years. Skipjack emigrate from the central to the eastern Pacific as juveniles, stay a few months, and then return to central Pacific to spawn. He showed a slide (Figure 4 of Background Paper 4 for the meeting) which showed migrations of skipjack in the Pacific Ocean determined from tagging. Dr. Joseph then mentioned a paper which stated that skipjack are not highly migratory, and can be managed unilaterally by the various countries which have skipjack within their 200-mile limits. He said that he strongly disagreed with this because skipjack in the eastern Pacific are obviously visitors from the central Pacific and because those in the eastern Pacific have been found from tagging experiments to travel readily from the waters of one country to those of others. He also mentioned, in this context, Article 64 of the third Law of the Sea convention, which states that tunas are highly migratory species and should be managed internationally. Production models cannot be used for

skipjack in the eastern Pacific Ocean because the fish of the eastern Pacific are not independent of those further to the west. Yield-per-recruit models are of some value, however. Because skipjack remain only a short time in the eastern Pacific, and because their natural mortality rate is apparently high, there is no reason to restrict the fishery for this species. The staff has made some studies of environmental data to attempt to find correlations with skipjack abundance in the eastern Pacific. Skipjack abundance in the eastern Pacific is higher when the winds are lower in the central Pacific 1 1/2 years earlier. Greater winds apparently disperse the organisms that the skipjack larvae feed on, which decreases their survival. Unfortunately, however, these wind data are no longer available.

There are two species of bluefin, southern bluefin which occurs in the Southern Ocean and the southern Pacific, Indian, and Atlantic Oceans, and northern bluefin, which occurs in the Atlantic and Pacific Oceans. Southern bluefin spawn only in the Indian Ocean northwest of Australia. Originally nearly all the southern bluefin caught were large fish taken by the Japanese longline fishery. Recently, however, an Australian-based surface fishery for smaller fish has developed. Because the growth of this species is relatively rapid and the natural mortality is relatively low, the surface fishery has apparently decreased the total catch of this species, just as the catches of yellowfin have been lower in the eastern Pacific during some years than they would have been if the fleet had not concentrated on small fish. In the Pacific Ocean northern bluefin spawn only south of Japan and in the Sea of Japan. A few migrate to the south Pacific, but most either remain in the northwestern Pacific or migrate to the northeastern Pacific. Those which migrate to the eastern Pacific eventually return to the western Pacific to spawn unless, of course, they are caught in the eastern Pacific or die due to natural causes. The catches in the eastern Pacific have been poor in recent years, and this is apparently not due to decreased fishing effort. Bluefin have been tagged in the eastern and western Pacific Ocean in recent years by the IATTC and the Far Seas Fisheries Research Laboratory (FSFRL) of Japan. It is hoped that better catch statistics and size-frequency data for Japan can be obtained, in which case the reasons for the declining catches in the eastern Pacific can be investigated.

Bigeye look very much like yellowfin, but apparently spend much less time at the surface than yellowfin, so they are caught more by longlines than by surface gear. During the 1957-1987 period the surface catches of bigeye in the eastern Pacific have ranged from less than 1,000 to nearly 17,000 short tons, while the corresponding values for the longline fishery for 1957-1980 are 13,000 to 90,000 tons. Bigeye are caught by longlines over a wide area of the eastern Pacific. There appears to be a hiatus along the equator, but this is believed to be due mostly to decreased effort, which is in turn due to strong currents which prevent the longlines from hanging properly. Purse-seine vessels catch medium and large bigeye, plus a few small ones, and longline vessels catch medium and large ones. This results in greater yields than would be the case if many small fish were caught. The IATTC staff has carried out various cooperative studies with the FSFRL of Japan on bigeye, and hopes to do more if additional funding becomes available.

The black skipjack landings in the eastern Pacific have ranged from about 300 to 4,000 short tons during the 1972-1987 period. The catches have been substantially greater, but there are few records of the amounts of black skipjack caught and discarded at sea. If there were greater demand for this

species the catches could be much greater. Black skipjack are smaller, on the average, than skipjack, and there is considerable variation in the lengths from year to year. The IATTC staff has done some research on black skipjack. Data on the distribution and abundance of the larvae, found while studying the larvae of other species, have been analyzed, and a study of the reproductive biology of this species was published in 1987. In addition, some black skipjack have been tagged on cruises on which yellowfin and skipjack were the target species. As black skipjack become a bigger component of the commercial catch the staff will conduct more research on this species.

During the 1950s baitfish studies were an important part of the IATTC staff's research, but when most of the baitboats were converted to purse seiners during the late 1950s and early 1960s the baitfish studies were phased out.

The Commission staff has carried out billfish studies in conjunction with the FSFRL of Japan. Billfish are highly valued by sport fishermen, so charter fishing has become an important source of revenue off Hawaii, the west coast of Mexico, the east coast of the USA, the northeast coast of Australia, and elsewhere. Because they are caught by commercial as well as sport fishermen, considerable controversy has arisen over the sharing of this resource. The IATTC staff intends to devote more effort to studying the billfishes. In August 1988 there will be an important world symposium on billfishes, which IATTC staff members will participate in.

Chairman Martinez asked if there were any questions on what Dr. Joseph had discussed that morning. There were none, so he announced that Dr. Joseph would discuss the next agenda item, the tuna-dolphin program.

AGENDA ITEM 6 - REVIEW OF TUNA-DOLPHIN PROGRAM

Dr. Joseph said that a large part of the catch of yellowfin is made up of fish associated with dolphins, and when the nets are set around the fish dolphins are captured as well. The fishermen attempt to release the dolphins encircled by their nets, but some of them are accidentally killed. In an effort to resolve this problem the IATTC staff has been involved in dolphin studies. He repeated the three objectives of the tuna-dolphin program, which are given on page 1 of this report, and stated that the specific areas of involvement were to be (1) monitoring mortality incidental to fishing through the collection of data aboard tuna purse seiners, (2) biological studies of the important species or stocks of dolphins involved in the fishery, (3) analyses of indices of abundance of dolphins and computer simulation studies, and (4) gear and behavioral research and education. The IATTC staff has had excellent cooperation from the various countries involved in the fishery. It started with the USA, but Costa Rica, Ecuador, El Salvador, the Grand Cayman Islands, Mexico, Panama, Spain, Vanuatu, and Venezuela have followed suit. He then introduced Dr. Martin A. Hall, who is in charge of the tuna-porpoise program. Dr. Hall, an Argentinian citizen with a Ph.D. degree from the University of Washington, has been with the IATTC since 1984.

Dr. Hall said that seven subjects, the international scientific technician program, estimation of incidental mortality of dolphins, analysis of changes in mortalities, the mortality reduction program, estimation of abundance of dolphin populations, biology and ecology of dolphin populations,

and the IATTC-UNEP program would be discussed. (UNEP stands for United Nations Environment Programme.)

Data collected by scientific technicians form the basis for virtually all of the work carried out by the tuna-dolphin program. Technicians accompanied trips of vessels carrying the flags of Costa Rica, El Salvador, Ecuador, Mexico, Panama, Spain, the USA, Vanuatu, and Venezuela in 1987. A total of 134 trips were sampled in 1987, as compared to 101 in 1986. The coverage was nearly 100 percent for the U.S.-flag vessels because the U.S. National Marine Fisheries Service (NMFS) wished to obtain data to test the methodology of dolphin mortality estimation and sampling designs and to evaluate better the performance of individual vessel captains. The coverage for some of the other countries was lower than had been hoped for, but there are no problems which are expected to persist in the future.

The incidental mortalities of dolphins are estimated from kill-per-set and kill-per-ton data collected at sea by the scientific technicians. The final mortality estimates for 1987 are not yet available because some of the trips which began in 1987 are still at sea and because not all the data from the 1987 trips which are now completed have been checked and added to the data base. Preliminary estimates have been made, however, and these indicate that the mortalities in 1987 will be well below those of 1986, even though the number of sets on dolphin-associated schools was 25 percent greater in 1987 than in 1986. Some of the reasons for the lower mortalities in 1987 are lower catches of tunas per set, lower percentage of sets completed during hours of darkness, lower mortality rates in after-dark sets, lower proportions of sets on the species or stocks with higher incidental mortality rates, and smaller herd sizes. He re-emphasized that the estimates are preliminary.

Captain Posadas of Guatemala asked how the staff could be sure that the data were accurate. Dr. Hall said that the technicians were selected on the basis of their previous education in biology and related fields and subjected to a rigorous training program before going to sea. The data that they collect are checked in various ways, and those which are suspicious are not used. Captain Posadas then asked how the staff could be sure that the tuna catch and effort data, which are not collected by technicians, are accurate. He said that, in general, fishermen might tend to under-report their catches to avoid taxes. Dr. Joseph said that the data on the total catches come from weight information obtained from the canneries and other unloading facilities. Data on the locations and dates of fishing and the fishing effort come from the logbooks of the fishing vessels. If the weights of fish in the logbooks differ markedly from the unloading weights the logbook data are not used for the catch and effort data base. In addition, there are various other checks that the logbook data are subjected to before being accepted for the catch and effort data base. He then reminded the attendees that the IATTC's data for individual vessels are not shown to anyone other than IATTC staff members without the permission of the captains and owners of the vessels, nor are those for individual fleets or canneries made public without permission of the owners. Furthermore, all of the IATTC data stored in La Jolla are protected by diplomatic immunity, that is, the files of the IATTC are inviolable.

Chairman Martinez adjourned meeting for lunch at 12:05 p.m.

The meeting was reconvened at 2:30 p.m. by Chairman Martinez. He turned the podium over to Dr. Hall, who introduced Mr. David A. Bratten, a graduate

of San Diego State University who has been with the Commission since 1978. Mr. Bratten is in charge of the scientific technician training and mortality reduction programs.

Mr. Bratten said that the responsibilities of gear program are (1) awareness of gear problems associated with dolphin mortality which might be solved by gear technology, (2) development of such technology, (3) identification of gear problems by analyses of tuna-dolphin data and finding solutions for these problems, (4) carrying out educational extension services to improve the use by fishermen of existing gear and procedures proven effective in reducing dolphin mortality, and (5) making recommendations to the Commissioners and to representatives of other interested nations concerning the use of dolphin-saving gear and procedures. He then mentioned the resolution regarding reduction of dolphin mortality passed at the 44th meeting of the IATTC in 1987, which specified six measures which the High Contracting Parties and other interested nations were to encourage their flag vessels to adopt. These measures have been used by the nations of the region to evaluate measures for reducing dolphin mortality generated by their fleets. Mr. Bratten noted that an important aspect of the Commission's gear program involves 1-day trips aboard tuna vessels to assist in alignment of the safety panels of the nets, as sets made with nets with misaligned panels can cause mortalities about 2 1/2 times those caused by sets made with nets with correctly-aligned panels. In addition, the staff distributes literature and video tapes to instruct the fishermen in dolphin-saving techniques.

Dr. Joseph emphasized the importance of the gear program. He said that in some cases full cooperation is not achieved; for example, sometimes the vessel owners agree to 1-day trips for safety-panel alignment and then cancel the arrangements at the last minute. He mentioned the resolution passed at the 44th meeting of the IATTC and said that, for it to be more effective, the governments need to require, rather than merely encourage, the vessel owners and captains to take the measures described in the resolution.

Mr. Hall then introduced Mr. Alejandro A. Anganuzzi, who is working on estimates of dolphin abundance. Mr. Anganuzzi, a graduate of the Universidad Nacional de Mar del Plata in Argentina, has been with the Commission since 1984. Mr. Anganuzzi said that the staff needs to have estimates of either the absolute or relative abundance of dolphins. The information necessary to make these estimates is collected by scientific technicians, who record the herds of dolphins sighted by the crew, the angle from the vessel track and the distance from the boat when first sighted, and the estimated numbers of animals of each species or stock. The line transect method is employed with the usable data for all the trips to make the population estimates. In the past the population estimates have been obtained from estimates of the density of dolphin herds in the area, the size of the area, and the average herd size. A number of assumptions must be satisfied, however, if the estimates are to be unbiased. Mr. Anganuzzi then discussed the trends in abundance for northern and southern offshore spotted, eastern spinner, northern and southern whitebelly, and northern, central, and southern common dolphins for the years prior to 1987. Next he described a modified method of making the population estimates, using independent stratification based upon average herd size, encounter rate, and effective track width.

Chairman Martinez asked if there were any questions. Mr. Piney of France asked if there was any danger from sharks during dolphin rescue operations.

Dr. Joseph answered affirmatively, saying that fishermen had been killed and severely injured during such operations. Mr. Piney asked why the dolphins, since they are capable of jumping far out of the water, don't jump over the corklines of the nets to escape. Dr. Joseph called upon Mr. Michael D. Scott of the IATTC staff to answer that question. Mr. Scott said that one possibility is that the dolphins perceive the net differently than humans would; with their echolocation sense they may not view the net as a two-dimensional object they can jump over. Another possibility is that, because dolphins are highly social animals, individuals may be reluctant to isolate themselves, even temporarily from the rest of the group by jumping over the corkline. Mr. Broadhead of USA asked about what appeared to be a precipitous decline in abundance of eastern spinner dolphins during the late 1970s and early 1980s and a rapid recovery thereafter. Dr. Hall pointed out the the confidence limits of the estimates were rather wide, so the decline and recovery might not have been as steep as it had appeared.

Dr. Hall then introduced Mr. Michael D. Scott, who is working on various aspects of the biology of dolphins. Mr. Scott, who has a M.A. degree from the University of California at Los Angeles and is working on his Ph.D. degree there, has been with the Commission since 1979. Mr. Scott said that he would talk about some studies of bottlenose dolphins done with Ms. Susan Chivers of the U.S. NMFS. Date collected at sea by scientific technicians were used for these studies. The investigators tested the hypotheses that (1) the herd sizes increase as the distance from shore increases and (2) the rate of mixing with other species of dolphins increases with the distance from shore. Bottlenose dolphins are especially suitable for such studies because (1) they range from very close to shore to the middle of the Pacific Ocean, (2) they occur in both temperate and tropical waters, (3) they frequently mix with species of dolphins which are sought by tuna fishermen, and (4) their biology is better known that that of any other cetacean. The Pacific Ocean was stratified into the coastal, near coastal, island, offshore, and far-western areas. It was found that the mean herd size and, to a much lesser extent, the median herd size tended to decrease, rather than increase, with the distance from shore. The median herd size is considered to be more meaningful than the mean herd size. As hypothesized, the percentage of mixed-species herds increased with distance from shore. In the littoral zone, in bays and along the surfline, the median herd size is about the same as for the five pelagic zones, but the very large herds of several hundred or thousand individuals which occur in the pelagic zones are not found. Mixed-species herds with bottlenose dolphins are rarely, if ever, encountered in the littoral zone. It had been thought that bottlenose dolphins might form larger schools further offshore to decrease predation, but studies of the incidence of scarring indicate that predation might not be as heavy as previously thought. In general, the results from these studies are expected to produce results which will be useful for understanding the biology of spotted, spinner, and common dolphins.

Dr. Hall then said that tunas are caught in three principal ways, in association with dolphins, in association with drifting objects ("logs"), and not in association with anything except other tunas ("schoolfish"). It is important to study these associations, since the tunas apparently derive some benefits from association with dolphins and logs. Smaller tunas may experience less predation when they associate with logs or they may find the density of prey to be greater near logs. Larger tunas which associate with logs may be less likely to find themselves in areas of low biological

productivity, since logs are found mainly in areas of high productivity. Since the tunas which associate with logs are considerably smaller, on the average, than those which associate with dolphins, it may be that logs and dolphins perform more or less the same function for fish of different sizes. The scientific technicians are given forms on which they record sightings of logs, including date, position, time of day, water conditions (turbidity, currents, temperature), weather conditions (Beaufort index, cloud cover), description of floating object (type, shape, dimensions), flora and fauna attached to object, fauna under object, and (if a set is made) tonnage of each species of fish caught and weight range of the individual fish. When sufficient data have accumulated they will be analyzed.

Dr. Hall then described the IATTC's log-tagging activities off Colombia during September and October 1987. This project was made possible by the cooperation of Drs. Orlando Mora and Rafael Negret, Instituto Nacional de los Recursos Naturales Renovables y del Ambiente (INDERENA), Bogotá, Colombia. A small Colombian baitboat was chartered for this purpose, and 249 logs, mostly tree trunks, were tagged with large, numbered squares of plastic. About 20 percent of the logs showed signs of human activity, such as saw, axe, or machete marks. Flyers were distributed to fishing and other commercial vessels which frequent the area, requesting that they record sightings of the logs in their logbooks, with information on the amounts of tunas seen or caught in association with the logs. So far one tag, found on the beach at Contadora Island, Panama, has been returned. It was hoped that tunas could be tagged also, but it was not possible to do so. A similar trip was in progress off Ecuador at the time of the meeting. At that time about 90 logs, 30 yellowfin, and 330 skipjack had been tagged.

Chairman Martinez asked if there were any questions. There were none, so he announced that it would be appropriate to go back to Item 7.

AGENDA ITEM 7 - RECOMMENDATIONS FOR 1988

He stated that the Commissioners had had a chance to read the draft resolution, which had been distributed to them previously, and should be ready to discuss it. Mr. Beasley of the USA stated that the members of his delegation thought that the draft resolution was reasonable and recommended that it be approved as it was. The heads of the other member delegations all agreed, so the resolution was approved. It appears in Appendix 2 of these minutes.

It was 4:45 p.m., so Chairman Martinez declared the meeting adjourned until the following day.

The meeting was reconvened by Chairman Martinez on March 10, 1988, at 9:40 a.m. He announced that there was a little bit more of Item 6 to be covered, and called upon Dr. Hall to continue from where he had left off the previous day.

AGENDA ITEM 6 - REVIEW OF TUNA-DOLPHIN PROGRAM

Dr. Hall said that in 1986 the UNEP, as part of its Global Plan of Action for the Conservation, Management, and Utilization of Marine Mammals, agreed to provide partial funding for a series of courses on marine mammals to be given by IATTC staff members. These courses are not to be confused with the

training which is given to scientific technicians before they accompany tuna vessels on fishing trips. Two courses were given that year, one in Cumaná, Venezuela, and the other in Guayaquil, Ecuador. Three more were given in 1987. The first, Estimation of Abundance of Marine Mammals, was given in La Paz, Baja California, Mexico, on August 3-15, 1987. The students were from Mexico and Nicaragua. The second course, Biology and Ecology of Marine Mammals, was given in Ushuaia, Argentina, on November 9-20, 1987. The third course, Estimation of the Abundance of Marine Mammals, was given at Cabo Polonia, Uruguay, on November 23-December 5, 1987. The students for the second and third courses were from Argentina, Brazil, and Uruguay. It is the belief of the staff of the IATTC that the dissemination of the knowledge and experience it has gained among scientists of the region will result in the development of greater capability for studying the marine mammal populations, particularly dolphins, of the region and the impact of man's activities on them.

Chairman Martinez asked if there were any questions. There were none, so he said that Item 8 was next on the agenda.

AGENDA ITEM 8 - RECOMMENDED BUDGET AND RESEARCH PROGRAM FOR 1989-1990

Chairman Martinez turned the floor over to Dr. Joseph for discussion of the proposed IATTC budget for 1989-1990. Dr. Joseph said that the 1989-1990 budget is similar to that for 1988-1989 presented at the 44th meeting of the IATTC in May 1987. The research program is expensive, as a fairly large staff is required to collect the data which are necessary for assessment of the condition the various stocks of tunas and dolphins in the eastern Pacific Ocean. Because practically all governments worldwide are having difficulty financing all the projects they would like to, he had polled the member governments before preparing the proposed budget. Finding that money was a problem with all the member governments, he prepared a proposed budget similar to that for 1988-1989; the total amount is $3,525,000--$454 less that the amount requested for 1988-1989. Chairman Martinez asked for comments on the proposed budget. Mr. Piney of France said that the proposed budget was acceptable to his country, and congratulated Dr. Joseph for his realistic approach. The heads of the other delegations agreed with Mr. Piney, and the proposed budget was passed.

AGENDA ITEM 9 - AN UPDATE OF ACTIVITIES CONCERNING ARRANGEMENTS FOR TUNA MANAGEMENT IN THE EASTERN PACIFIC

Chairman Martinez called upon Dr. Joseph to discuss this matter. Dr. Joseph pointed out that since tunas frequently pass from the waters of one country to those of another and into and out of international waters international cooperation is necessary for their management. This was recognized in Article 64 of the the third Law of the Sea conference. Since 1950 the Inter-American Tropical Tuna Commission has had the responsibility for performing research on the tropical tunas of the eastern Pacific Ocean and making recommendations for their management. During the last few years there have been attempts to initiate other schemes of management which would in some cases complement the work of the Tuna Commission and in some cases call for replacement of it with some other arrangements. There was a series of meetings of various countries in 1977-1979 at which an attempt was made to formulate a new treaty for the management of tunas in the eastern Pacific. The new treaty would deal with all aspects of management, including allocation

and access, and would expand the present IATTC to include responsibility for these matters. Although final agreement was not reached on all matters, it was agreed that fisheries for tunas require international management. Three of the nations involved in those negotiations, Costa Rica, Panama, and the USA, subsequently held a series of meetings on the question of access only. In 1983 those three countries, and subsequently Guatemala and Honduras, signed a treaty which provided for access to the resource through an international licensing scheme. The proceeds from the sale of licenses would be distributed to the coastal states in proportion to the catches made in the waters of those states. This treaty, the Eastern Pacific Ocean Tuna Fishing Agreement (EPOTFA) or the Treaty of San José, has been ratified by three of the five nations, but it will not enter into force until it is ratified by two more. Another attempt at making arrangements for international management of tunas in the eastern Pacific has been made through an initiative of the Organización Latinamericana del Desarrollo Pesquero (OLDEPESCA), which is an organ of the Sistema Económico de América Latina (SELA) and the Comisión Permanente del Pacífico Sur (CPPS). A plenipotentiary meeting was held in Mexico City in January 1988 to draft and sign a tuna management treaty, but this meeting was unsuccessful in accomplishing that objective.

Chairman Martinez called for comments. Mr. Icaza of Panama stated that the Treaty of San José had been approved by the Panama legislature and was in the president's office ready for signing. He said that he expected it to be signed in the near future.

Mr. Hallman of the USA said that, although there is no pressing need for conservation of yellowfin now, the USA recognizes that management will be necessary soon and supports the Treaty of San José. He emphasized two points. First, the agreement covers only licensing, not conservation, so it would complement the IATTC, rather than replacing it. Second, it is an interim agreement, rather than a permanent one. The USA has not been involved in the the OLDEPESCA meetings, but US officials have studied the draft agreement and been asked to comment on it. It is a very ambitious agreement, and if all concerned countries participated fully in it there would be no need for the IATTC, since the agreement calls for research and management as well as access and licensing. Since there is no adequate replacement for the IATTC at this time, the USA thinks that the OLDEPESCA agreement is a backward step, rather than a forward one. The USA is not inflexible in its position, however, and wants to find a common ground for solution of the problems which exist in regard to tuna management. He stated that at the 32nd IATTC meeting in 1975 in Paris the USA had requested that Dr. Joseph prepare an analysis of all aspects of a permanent, comprehensive agreement. This was done, and eventually published as a book authored by Dr. Joseph and Mr. Joseph W. Greenough of the IATTC staff. He requested on behalf of his delegation that Dr. Joseph prepare an update of this document so that officials of all nations concerned with the resource would be informed of the various options and the pros and cons of each. Mr. Hallman then briefly described the agreement for licensing for tuna fishing in the western Pacific Ocean, which has been signed by about 16 countries and ratified by about 12 of them, including the USA.

Mr. Piney said that France had been invited to attend the OLDEPESCA meetings as an observer, but had replied that it would not attend those meetings except as a full participant. He added that he regretted that France had not received a full text of the draft agreement, and pointed out that

France must be taken into account in any agreement for tuna fishing in the eastern Pacific Ocean.

Mr. Seki of Japan read a statement declaring that Japan had considerable difficulty with the OLDEPESCA agreement. This statement is attached as Appendix 3 to these minutes.

Chairman Martinez asked for comments from the observer delegations. There were none, so he asked for comments on Mr. Hallman's request for an update on arrangements for international management of tunas. There was unanimous support for Mr. Hallman's proposal. Dr. Joseph pointed out that this would be a big job, but since it was important and the Commissioners had requested it he would see that it was thoroughly done. The last report took two years to prepare. He hoped that the new one would be ready for the 46th meeting to be held in 1989, but he was not optimistic that it could be done that quickly.

AGENDA ITEM 10 - PLACE AND DATE OF NEXT MEETING

Chairman Martinez called for comments regarding the place and date of the next IATTC meeting. Mr. Piney of France graciously extended an invitation from France to hold the meeting in Paris. After some discussion regarding holidays, etc., it was agreed that the meeting would take place on May 17-19, 1989, in Paris.

AGENDA ITEM 11 - ELECTION OF OFFICERS

Chairman Martinez called for nominations for Chairman for the next IATTC meeting. Mr. Seki of Japan nominated Mr. Piney of France, and Mr. Arostegui of Nicaragua seconded the nomination. Mr. Beasley of the USA and Mr. Icaza of Panama concurred, so Mr. Piney was declared to be the Chairman for the next meeting. Mr. Piney said that it was a honor and a pleasure to be elected to that office, especially after seeing what an excellent job Mr. Martinez had done at the 44th and 45th IATTC meetings. Chairman Martinez then called for nominations for Secretary. Mr. Icaza nominated Mr. Arostegui, and Mr. Piney seconded the motion. Mr. Seki and Mr. Beasley concurred, so Mr. Arostegui was declared Secretary for the 46th meeting. Mr. Arostegui thanked the other Commissioners for the honor.

AGENDA ITEM 12 - OTHER BUSINESS

Chairman Martinez asked if anyone had any other business. No one had anything, so he thanked the participants in the meeting for their hard work during the last three days.

AGENDA ITEM 13 - ADJOURNMENT

The meeting was adjourned at 10:35 a.m.

APPENDIX 1--ANEXO 1

LIST OF ATTENDEES--LISTA DE PARTICIPANTES

MEMBER GOVERNMENTS--GOBIERNOS MIEMBROS

FRANCE--FRANCIA

Dominique Piney, Commissioner-Delegado

JAPAN--JAPON

Koichiro Seki, Acting Commissioner-Delegado Interino
Takanori Ohashi
Eiko Ozaki
Sally Campen

NICARAGUA

Abelino Arostegui Valladares, Commissioner-Delegado

PANAMA

Armando R. Martínez Valdés, Commissioner-Delegado
Carlos E. Icaza, Commissioner-Delegado

UNITED STATES OF AMERICA--ESTADOS UNIDOS DE AMERICA

Henry R. Beasley, Commissioner-Delegado
Robert C. Macdonald, Commissioner-Delegado
Tony Bernardino
Gordon C. Broadhead
Harold F. Cary
B.M. Chatwin
August Felando
Bernard D. Fink
Brian Hallman
S.B. Irvine
Mike McGowan
José E. Muñoz, Jr.
Michael K. Orbach
William Perkins
John Royal
Gary Sakagawa
J. Gary Smith
Antoni J. Trutanich

OBSERVER GOVERNMENTS--GOBIERNOS OBSERVADORES

COLOMBIA

Antonio José Infante
Orlando Mora

COSTA RICA

Gabriela C. Myers

GUATEMALA

Jorge Alberto García Mejía
Miguel Posadas
Víctor Hugo Sánchez Ulloa

REPUBLIC OF CHINA--REPUBLICA DE CHINA

Chun Hsiung Chou
Chu Ming
Po-wei Yuan

SPAIN--ESPAÑA

Rafael Cavestany

VENEZUELA

Jorge Luis Daher
Jean-François Pulvenis M.
Isabel Tinoco Montiano

INTERNATIONAL ORGANIZATIONS--ORGANIZACIONES INTERNACIONALES

INTERNATIONAL WHALING COMMISSION

William F. Perrin

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

James Joseph
Alejandro A. Anganuzzi
David A. Bratten
Martin A. Hall
Berta Juarez
Forrest R. Miller
Robert J. Olson
Kurt M. Schaefer
Sarah J. Stanke
Michael D. Scott
Alexander Wild

APPENDIX 2

RESOLUTION

The Inter-American Tropical Tuna Commission, having the responsibility for management of tunas and tuna-like fishes of the eastern Pacific Ocean, and having maintained since 1950 a continuing scientific program directed towards the study of such 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, based on past experience in the fishery, that potential production from the resource can be reduced by excessive fishing effort;

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

Notes that from 1980 through 1986, although no conservation program was implemented, conservation measures were nevertheless recommended by the scientific staff to the Commissioners, and in turn such measures were recommended by the Commissioners to their respective governments, and

Further notes that due to low fishing mortality in 1982, 1983, and 1984, coupled with high recruitment in 1984 and 1985, and the favorable size composition of the 1985 and 1986 catches, all leading to a very high stock abundance in late 1985 and early 1986, there was no need for a catch limitation in 1987;

Recognizing that circumstances such as those that existed in 1987 were unprecedented and cannot be expected to occur frequently in the future,

Observes that, at current levels of abundance and at current fleet capacity, the stocks of yellowfin can be over-exploited, and

Concludes that a limitation on the catch of yellowfin tuna should be implemented during the 1988 fishing year.

The Inter-American Tropical Tuna Commission therefore recommends to the High Contracting Parties that when a yellowfin conservation program is adopted for 1988, an annual quota of 190,000 short tons should be established on the total catch of yellowfin tuna for the 1988 calendar year from the CYRA as defined in the resolution adopted by the Commission on May 17, 1962, and

Further recommends that the Director should be authorized to increase this limit by no more than two successive increments of 30,000 short tons each if he concludes from examination of available data that such increases will offer no substantial danger to the stock, and

Finally recommends that all member states and other interested states work diligently to achieve the implementation of such a yellowfin conservation program for 1988.

APPENDIX 3

Statement presented by Mr. Koichiro Seki
at the 45th Meeting of the IATTC

1. The Eastern Pacific Ocean is one of the important areas for Japanese tuna long liners. Japan has much interest in the activities concerning tuna management in the Ocean. With respect to the management of the highly migratory species, Japan has fundamental principles that the conservation and rational utilization should be carried out throughout the region comprehensively, both within and beyond the limit of 200 miles, with the cooperation of both the coastal nations and fishing nations concerned. We have the intention to cooperate positively in the implementation of the system which is based on these principles.

However, in the Draft Agreement for establishing the Eastern Pacific Tuna Fishing Organization [OLDEPESCA draft treaty], there are several difficult problems against Japan's position on the management of highly migratory species like following points:

(a) The payment of annual fee is required for fishing in the area of high seas where the Agreement is applied.

(b) The coastal member state can establish a closed area, a closed season and a national quota with its own decision.

We would like to express our serious concern about the movement of making the Agreement that we could not accept.

2. (1) The basic requirement for conservation, management and optimum utilization of tunas as highly migratory species is to take the conservation measures of the resources based on scientific and rational evidence, and we think that such attitude is in line with the spirit of Article 64 of the Law of the Sea Convention. We can hardly recognize the attitude that neglects the existence of the international organization which has been conducting researches and studies of tunas and recommending the joint measures in order to conserve the resources for a long time. We would like to exchange constructive opinions with the persons concerned continuously from now on. I now should like to make some comments on the content of the Draft Agreement.

(2) Comments on main points:

a. The Convention area

It is provided that the area which this Agreement applies shall be the waters east of the meridian 145° West including the 200 mile zone of the coastal states. We think that it should be decided by taking into account the migratory range of each species. The reason for setting the boundary at the longitude 145° west is uncertain.

b. The species

The species covered by the Agreement are listed in the Attachment of the Agreement. Considering the fact, however, that the southern bluefin tuna in the Attachment migrates the whole area of high latitude of

Southern Hemisphere including the Pacific, Indian and Atlantic Oceans, while there is little information that it migrates in the area of the Eastern Pacific Ocean. We believe that it is not appropriate to include southern bluefin tuna.

c. The right of the coastal member state

In the Draft Agreement, the coastal state can establish regulatory measures (national quota, closed area, closed season and so on) by its own decision in its 200 mile zone. We firmly believe that it is unreasonable and inappropriate to conserve and manage tuna resources, on the premise of the jurisdiction over the 200 mile zone of the coastal states, by ignoring the character of tunas as the highly migratory species.

d. National License, International License and Fishing Access Certificate

The Draft Agreement requires the fishing vessels of the member states which would operate in the Convention area to obtain Licenses not only in 200 mile zone but also in the high seas area and also requires that the said vessel should keep Fishing Access Certificate on which the said license is recorded. On the point of the International License in the high seas area, which is issued by payment of the 'fee' General Council decided, Japan is not able to accept the system which requires the payment of the fee actually regarded as permission fees to the operation in the high seas area.