INTER-AMERICAN TROPICAL TUNA COMMISSION

SUMMARY MINUTES OF THE THIRTY-SEVENTH MEETING
(Recessed)

October 22-23, 1979
Panama, Republic of Panama

Chairman: Juan L. de Obarrio

AGENDA

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   (Background Paper No. 6)
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SUMMARY MINUTES OF THE THIRTY-SEVENTH MEETING

AGENDA ITEM 1 - OPENING OF THE MEETING

The 37th meeting of the IATTC was opened by Director of Investigations, Dr. James Joseph, at 10:00 AM, October 22, 1979, in the Salon de las Americas of the Holiday Inn of Panama in Panama City, Panama. Dr. Joseph called on Mr. Carlos Arellano of the Panamanian delegation to introduce the keynote speaker, Ing. Juan Jose Amado III, Minister of Commerce and Industry. Mr. Amado welcomed the delegations to Panama and pointed out the importance that his government attaches to the tuna resources of the eastern Pacific. The development of Puerto Vacamonte, a new fishing port, with its special tuna handling facilities reflects this attitude toward tuna. He stressed the importance of exploiting the tuna resources in a rational and cautious manner and wished the delegations success in their deliberations.

Following the keynote address, Dr. Joseph explained the unusual circumstances concerning the chairmanship of the 37th meeting. Normally the Chairman is a member of the host nation's delegation who is elected at the preceding meeting. In this instance the preceding meeting was the 36th meeting held in Tokyo, Japan, October 16-18, 1978, with Commissioner Yonezawa of Japan as Chairman. That meeting was recessed before the agenda item dealing with election of officers was reached. The meeting was subsequently completed and closed by means of an exchange of cables, without new officers being elected. Since the 36th meeting, Mr. Yonezawa has accepted the position of Deputy Director General of the Japan Fisheries Agency and has been replaced on the Japanese delegation by Commissioner Saito. Under these circumstances it was appropriate to elect a new Chairman, and Dr. Joseph called for nominations. Japan nominated Commissioner Obarrio of Panama. Nicaragua seconded the nomination and Commissioner Obarrio was elected by unanimous consent.

Commissioner Obarrio took the chair and extended a cordial welcome to all Commissioners, government observers, representatives of international organizations, and other attendees to the meeting. After welcoming them all, he asked the leaders of the various delegations to introduce themselves and the members of their delegations. All member governments of the Commission were represented at the meeting. A list of attendees is attached as Annex I. In addition to the attendees listed in Annex I, a group of students was in attendance during the first day.

AGENDA ITEM 2 - CONSIDERATION AND ADOPTION OF THE AGENDA

The Chairman introduced Agenda Item 2, which was concerned with the consideration of the revised provisional agenda which had been distributed to all delegations prior to the meeting. There being no discussion, the revised provisional agenda was adopted by unanimous consent. The Chairman then suggested that the morning meetings begin at 9:30 AM and that the afternoon

mmetings begin at 2:30 PM. No session was scheduled for Tuesday morning because the government of Panama had arranged for the delegates to visit the new fishing port, Puerto Vacamonte, that morning. There was no objection to this working schedule, and it was adopted.

AGENDA ITEM 3 - REVIEW OF CURRENT RESEARCH

The Chairman next moved on to Agenda Item 3, explaining that it has been the customary practice of the Commission to have the Director of Investigations present a brief review of the Commission's research during the current year. He called on the Director to make this presentation.

The Director began his review by explaining that during 1979 the Commission completed its 29th year of research on the tunas of the eastern Pacific Ocean. It was explained that a major share of the staff's research effort has been directed toward the collection of catch statistical data. For purposes of stock assessment such data may be collected several weeks or months after the catches take place, but for purposes of management the data must be collected on a current basis. Since the Commission maintains an active conservation program, considerable effort by the research staff is directed toward the collection of statistical data on a current basis. To accomplish this the Commission maintains offices in most of the major tuna fishing ports of the eastern Pacific and the data gathered at these locations form the basis for the staff's statistical research. The Commission also has a system for monitoring the catches of vessels at sea. The major emphasis in the research program has been on yellowfin, skipjack, bluefin, and bigeye tunas, the most important species in the catch, but other species are also studied. In particular, a major tuna-porpoise program was initiated in 1979; this will be reviewed under Agenda Item 4.

The Director then explained that he would not try to review the entire research program, but rather would touch on the highlights of tagging programs and certain other programs.

The Commission has for many years carried out tagging programs in the eastern Pacific in order to study migrations, growth, and the effects of fishing on tuna stocks. In 1979 tagging efforts were concentrated offshore from Central America. Tagging has not been carried out in this area since the expansion of the fishery into offshore areas in the early 1970's. About 5,000 yellowfin and 2,500 skipjack were released from a chartered baitboat, mostly in April. Recoveries made during the first few months after release show definite movement of both yellowfin and skipjack to inshore waters off Panama, Colombia, and Ecuador.

During 1979 the Commission also cooperated with the government of France and the South Pacific Commission in a skipjack tagging program in the central Pacific region around the Marquesas, Tuamotu, and Society Islands. The Commission's interest in this area stems from the fact that skipjack appear each year in the eastern Pacific fishery and then disappear. One possibility is that they originate in the central Pacific. Several thousand skipjack were tagged and released in

1979, and so far there have been few returns. In addition to skipjack, several hundred yellowfin were tagged; one was recaptured in the tagging area more than a year later, and another was caught by a purse seiner in the area just west of the CYRA, the first documentation of such a migration. This central Pacific tagging program will be continued, with a major tagging effort to be made this winter.

The Director also reviewed progress in studies of age and growth, using growth increments on yellowfin and skipjack otoliths. Groups of fish were tagged and injected with tetracycline, which leaves a mark on the otolith that can be detected when a fish is recovered. Yellowfin show one growth mark per day, while skipjack show about 4 marks for every 5 days.

The Director then reviewed a hypothetical model of northern bluefin migrations based on tagging studies. Northern bluefin spawn between Japan and the Philippine Islands. Some migrate across the North Pacific to waters off the United States and Mexico, where they spend several years before returning to the western Pacific. Others migrate to the south, where they are encountered off New Zealand and Australia. The Commission has a cooperative program with the Far Seas Fisheries Research Laboratory of Japan to continue with bluefin tagging and catch sampling.

The Director also reviewed certain other aspects of the Commission's skipjack research program. Skipjack are second only to yellowfin in importance in the eastern Pacific fishery. In recent years the skipjack catch has been high, averaging about 140 thousand tons per year since 1975, as compared to about 75 thousand tons per year in earlier years. Most of the increase has been due to larger catches south of 15°N latitude. The eastern Pacific fishery has no apparent effect on skipjack availability. Rather, their availability seems to be related to large-scale fluctuations in environmental conditions across the Pacific. For example, low water temperatures associated with strong trade winds in the western Pacific seem to be associated with poor skipjack abundance in the eastern Pacific 1 1/2 years later and vice versa. The staff is studying the effects of wind mixing and other factors on skipjack abundance in the hope of developing improved indices of future skipjack abundance.

The Director then briefly mentioned the Commission's stomach analysis, genetics, and oceanography programs.

Following Dr. Joseph's research review, the Chairman recessed the meeting for lunch at 12:15 PM.

The meeting reconvened at 2:40 PM, and the Chairman asked for questions or comments on the research review. Dr. Le Guen of France offered two observations. First, he noted that if the yellowfin involved in the program to mark otoliths with tetracycline were primarily immature fish, and if the skipjack were mature fish, and if marks do not form on the otolith during the maturation process, then this could possibly account for the discrepancies observed between

the two species. Second, he noted that in his research skipjack larvae were especially abundant along salinity fronts associated with rainfall, and he described a program for collecting temperature and salinity data and plankton samples every 4 hours from aboard vessels bound for Nõumea, New Caledonia. Dr. Le Guen also concurred with Dr. Joseph that environmental factors are more important than fishing in determining skipjack availability. There being no further questions or comments, the Chairman moved on to the next agenda item dealing with the tuna-porpoise program.

AGENDA ITEM 4 - PROGRESS OF THE TUNA-PORPOISE PROGRAM

The Chairman asked Dr. Joseph to review the tuna-porpoise program for the meeting. Dr. Joseph began by giving the background for IATTC involvement in porpoise research. Porpoise and larger yellowfin associate with each other in the eastern Pacific, where they are caught together by purse seiners. In the process, some porpoise are killed. During the 1960's and early 1970's porpoise mortality was high, with an estimated 150-600 thousand animals being killed annually. This caused international concern, especially in the United States, which passed a law, the Marine Mammal Protection Act, which had as one of its goals the sharp reduction of porpoise mortality in the purse-seine fishery. This law applied, of course, only to U.S. vessels, so the U.S. proposed that the IATTC should address the problem on an international basis. As a result of this request, at the Commission's 33rd meeting, held in Managua, Nicaragua, in October 1976, it was agreed that the IATTC should concern itself with the problem. As its objectives it was agreed that: "(1) the Commission should strive to maintain a high level of tuna production and (2) also to maintain porpoise 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 porpoise." At the Commission's 34th meeting, held in San Diego, California, in June 1977, it was agreed that the specific areas of involvement would be (1) an observer program to monitor population sizes and mortality incidental to fishing, (2) aerial surveys and porpoise tagging, (3) analyses of indices of abundance of porpoises and computer simulation studies, and (4) gear and behavioral research and education.

Funding for the program became available late in mid-1978, and during that year a staff was recruited and observer training begun. Thus, 1979 is the first year of full-scale operation of the IATTC tuna-porpoise program.

The observer program is now nearly fully operational, and other programs are in their initial phases. The observers fall into two categories, as agreed by member nations. Some nations second citizens who are qualified technicians to the IATTC for training and assignment to trips made by their flag vessels. Other nations request the Commission to provide IATTC employees as observers on trips made by their flag vessels. In either case, the Director emphasized, all data collected are maintained in Commission files on a confidential basis. In no case will information be made available in any way that would enable the activities of an individual vessel to be determined for enforcement purposes. This policy was agreed to by all member nations when the tuna-porpoise program

was initiated and, the Director stressed, it will be strictly adhered to.

In 1979 it was planned that IATTC observers would make 78 trips. As of October 1, 42 trips has been completed or were in progress on vessels of 6 nations. The goal of 78 trips in 1979 will not be reached, primarily because fewer trips then planned have been made aboard Mexican and Costa Rican flag vessels, although these two nations continue to cooperate in the observer program, even though they are no longer IATTC members. Venezuela, and perhaps other non-member nations, will have observers aboard their vessels for the first time in 1980.

To date, based on rather limited data, non-U.S. vessels show a slightly lower kill rate than do U.S. vessels. The difference, however, is not statistically significant. This reflects the fact, perhaps, that porpoise saving technology, originally developed in the U.S., is now widely disseminated throughout the international fleet.

Dr. Joseph then reviewed porpoise kill estimates for the 1972-79 period which were developed at a recent NMFS-sponsored porpoise workshop held in San Diego. IATTC staff members participated in this workshop. The kill estimates presented showed that a large kill reduction has taken place, from 2.8 porpoise killed per ton of yellowfin taken in association with porpoise in 1972 to 0.4 killed per ton of yellowfin in 1979. The reduction has been especially impressive beginning in 1977, the first year in which the U.S. imposed species-specific porpoise kill quotas on its flag vessels. The use of improved gear and fishing techniques accounts for some of this reduction. Another factor is the sharp reduction in percentage of yellowfin caught on porpoise in recent years.

At the workshop mentioned previously new population estimates were made for the various porpoise stocks in the eastern Pacific. These estimates are considerably lower than similar estimates made at a 1976 tuna-porpoise workshop. It should be emphasized that the new, lower population estimates do not imply that stocks have been reduced since 1976. Rather, the new estimates result from what are believed to be improved estimation methods. To estimate the size of a porpoise population, both the number of schools and the size of schools must be estimated. At both the 1976 and 1979 workshops, the numbers of schools were estimated by line transect methods, and these estimates did not change much. However, in 1979 aerial estimates of school size were used that were much smaller that the school size estimates made from ships that were used in 1976. The estimates of the reproduction rates were also revised downward in 1979. These changes resulted in lower 1979 population estimates, even though the porpoise stocks have probably been increasing as a result of reduced kills during the 1976-79 period.

With the school size estimation problem in mind, Dr. Joseph outlined the objectives of the IATTC charter cruise for porpoise research now in progress. On this cruise school size estimates will be made from the vessel, from a

helicopter flying at several heights above the school, and from aerial photographs. These estimates will be compared to counts made when the porpoise are released from the seine during backdown. It is hoped that approximately 60 sets can be made on this cruise. From the resulting data it should be possible to evaluate more fully the problems associated with school size estimation procedures. The data collected during this cruise will also be used to develop improved methods for training porpoise observers.

In closing his review of the tuna-porpoise program, Dr. Joseph noted that a gear expert has been employed who is presently working on the problem of large-kill sets. Also skippers' workshops are planned in Panama and in Ensenada, Mexico, in 1980.

The Chairman asked for questions or comments on Dr. Joseph's presentation on the tuna-porpoise problem. Dr. Le Guen of France stressed the need to approach the tuna-porpoise problem from an ecosystem point of view, noting that he had once found 37 small yellowfin in a porpoise stomach, suggesting the possibility that porpoise may prey upon young tuna. He also reiterated that the porpoise kill will drop if the catch of porpoise-associated yellowfin drops. Dr. Joseph concurred that an ecosystem approach was needed, and noted that in the eastern Pacific the bond between tuna and porpoise (unique to this region) is not understood.

Mr. Solano, an observer from Mexico, then requested the floor. He stated that Dr. Joseph's comments should not be taken to imply that the withdrawal of Mexico from the IATTC in 1978 has resulted in reduced Mexican participation in the observer program. While there may have been some administrative problems in placing observers on Mexican flag vessels in 1979, Mr. Solano reaffirmed that Mexico wants the highest possible protection for porpoise and that his government will continue to cooperate in the IATTC tuna-porpoise program.

There being no further discussion on the tuna-porpoise issue, Chairman Obarrio proceeded to the next agenda item.

AGENDA ITEMS 5 AND 6 - THE 1979 FISHING YEAR AND CONDITION OF THE YELLOWFIN STOCK AND RECOMMENDATION FOR 1980.

In introducing Agenda Item 5, discussion of the 1979 fishing year, the Chairman explained that because this agenda item was so closely tied to Agenda Item 6, assessment studies of yellowfin, he would ask the Director of Investigations to discuss both items together. The presentation was supplemented by numerous tables and graphs, all of which are included in Background Papers 1 and 2.

The Director noted that 29 years of research on the tuna stocks of the eastern Pacific have now been completed. It has been established that exploitation affects the abundance of the yellowfin stocks, but not that of the skipjack stocks. By 1960 it was estimated that the maximum sustainable yield of yellowfin from inshore areas then under exploitation was 90 to 100 thousand short tons annually. In the early 1960's much of the fleet changed from baitboat fishing to purse seining, and catches increased to about 120 thousand tons,

but soon declined to about 80 thousand tons as predicted by the yield model then in use.

In view of these developments, the Commission established a conservation program for yellowfin tuna in 1966 which has been in effect each year since. Shortly after the initiation of the conservation program construction of new vessels caused the fleet to increase in size. This increase in fleet size increased competition, and vessels began fishing further offshore in areas that had not previously been exploited. At the same time the average size of the fish in the catch increased. These two factors increased the potential yield from the population relative to that of the period when the fishery was concentrated inshore on smaller fish. In order to generate information with which to quantify this increased potential yield, the Commission began an experimental program of gradually increasing the quotas to test empirically the productivity of the stock. At the same time, areas of the CYRA where effort had not previously been generated were experimentally left open after closure elsewhere. Based on the results of these programs the maximum catch quotas have been gradually increased in recent years to 210,000 tons.

The Director then reviewed progress to date of the fishery during 1979, comparing this year to 1977 and 1978. Fleet deployment by week, both within the CYRA and west of the CYRA, was discussed, as were the accumulating catches of yellowfin and skipjack. The geographical distribution of the effort, the catch by flag, and the fleet capacity by flag were also considered. The yellowfin catches of 1979 are close to those observed in 1978, with a total 1979 catch of about 180 thousand tons expected. The 1979 skipjack catches are below the levels taken in 1978, the best skipjack year in history. Nevertheless, 1979 has been a better than average skipjack year, with a total catch of 140 to 150 thousand tons expected by the end of the year. The effort and catches in the area west of the CYRA will be low this year, as they were in 1977 and 1978. This results from the late closure dates in all three years as compared to earlier years. The fleet carrying capacity has remained relatively constant at 180 to 185 thousand tons for several years, but there is a new surge of boat building around the world, and there will be about 30 thousand tons of new capacity in the next year or two. The eastern Pacific fleet should reach 200 thousand tons in 1980 or 1981.

As noted earlier, high yellowfin quotas have been established in recent years. This policy is consistent with a program which has been in effect for several years to overfish the stocks experimentally in order to define the right limb of the sustainable yield curve as determined from general production models in which growth, mortality, and recruitment are assumed to be density dependent. Two versions of the model have been developed, one based on standardized size-class 3 effort and the other based on size-class 6 effort. Both versions suggest a maximum sustainable yield of about 175 thousand tons annually from the CYRA. If the right limb of the sustainable yield model descends according to the assumption of logistic growth, yellowfin have been overfished, and the CYRA catch should be reduced to about 155 thousand tons. On the other hand, if the right limb is flat (implying that recruitment is

independent of density at the present population levels), then a harvest of 175 thousand tons would be acceptable. A harvest of 165 thousand tons would be a reasonable compromise between these two cases.

A second approach to the study of yellowfin population dynamics is the application of age-structured models based on size composition data from the commercial catch. From such models yield per unit of recruitment can be estimated. The management objective is to maximize this value. These models assume that all population parameters are independent of stock size.

The analyses based on size composition data of the fish in the catch cause the staff the most concern over the condition of the resource. In most years the major share of the catch of yellowfin by weight has been made up of 2-, 3-, and 4-year-old fish, and the 1-year-olds, or recruits, have comprised only a minor share of the catch. In 1978, however, about 60% of the weight of the catch was 1-year-old fish, and this trend continued in 1979. Two groups of fish are recruited to the fishery each year, the Y cohort which is first captured in quantity during the first half of the year and the X cohort which is first captured in quantity during the second half of the year. Normally the catch of 1-year-olds consists almost entirely of fish from the Y cohort, but in 1978 and 1979, for the first time since adoption of a yellowfin regulatory program in 1966, large catches of 1-year-olds of the X cohort have been taken. Two important questions arise out of this situation. First, is the lack of large fish in the catch due to low availability and/or vulnerability, low abundance, or low effort? Second, are the large catches of small fish due to strong year classes, high availability and/or vulnerability of average year classes, or a shift of effort to small fish due to a lack of large fish?

To answer these important questions a detailed cohort analysis was undertaken by the staff in 1979. Cohort analysis consists of estimation of the numbers and weights of the fish in each X and Y cohort at the time of recruitment and at various intervals thereafter, together with the numbers and weights which are caught or die naturally during each interval. The period covered in the analysis was 1964-79.

In the staff's cohort analysis the abundance of fish in each X and Y cohort was determined on a quarterly basis through age 4. Because older fish overlap in size and cannot be accurately separated into separate age groups, fish of age 5 and older were combined into a single group. Size at age data were then used to develop cohort biomass estimates for the 1965-79 period. Cohort biomass estimates were then combined to give total stock biomass estimates for all fish and for fish that were age 2 1/2 and older. These biomass estimates were made on both a quarterly and an annual basis. Finally catches from cohorts were examined, first by graphing the catches of different cohorts within a given year, and then by graphing the catches from a given cohort during its passage through the fishery.

The cohort analysis yielded the following main results. First, annual recruitment of both the X and Y cohorts varies from year to year, with the

recruitment of the Y cohort being somewhat more variable than that of the X cohort. Over the 1966-79 period, Y-cohort recruitment averaged 23.7 million fish and X-cohort recruitment averaged 21.7 million fish, for a total average annual recruitment of 45.4 million fish. There is no apparent relationship between recruitment and the size of the spawning stock. Among more recent years, 1973, 1975, 1976, and 1979 appear to have had about average recruitment, 1974 and 1978 appear to have been years of exceptionally good recruitment, and 1972 and 1977 were years of low recruitment. Unusually heavy exploitation of 1-year-old fish first occurred in 1973, when the Y73 cohort was hard hit. This Y73 cohort produced very little after 1973. The very strong Y74 cohort was also heavily exploited at age 1, but because of its size, it continued to produce well in 1975 and 1976. As a result of the strong 1974 year class, the total biomass curve peaked in 1974, and the biomass curve for older fish (age 2 1/2 and up) peaked in 1976. The Y76 and Y77 cohorts also appear to have been heavily exploited at age 1. All of these Y cohorts could have yielded more catch in terms of weight if they had not been so heavily fished as 1-year-olds.

During the 1972-77 period, the X cohorts were not heavily exploited until age 2. This pattern changed abruptly in 1978 when both the larger than average X78 cohort and the very large Y78 cohort were hard hit as age-1 fish. This pattern of heavy fishing on small, recently-recruited fish seems to be continuing in 1979, a year of no better than average recruitment. The result of this heavy effort on young fish has been a continued decline in biomass in spite of the recruitment of the large 1978 year class.

The shift in recent years from a fishery directed primarily toward older and larger fish (age 2 and up) to one directed strongly toward age-1 fish has serious implications in terms of yield per recruit, which has dropped from about 8 pounds per recruit to about 7 pounds per recruit. In terms of yield from one average year class, this translates into a drop in the average annual sustainable yield from the optimum level of 175 thousand tons to 155 thousand tons. Note that these results from the cohort analysis closely parallel the results obtained from the general production model, which lends credence to the conclusion drawn from either approach.

To complete his review of the yellowfin stock condition within the CYRA, the Director discussed trends in five indices of stock abundance. These indices were: 1) catch per day of fishing standardized to class-3 seiner effort; 2) catch per day of fishing by class-6 seiners; 3) searching time for non-porpoise-associated fish; 4) searching time for porpoise-associated fish; and 5) cohort biomass. All five indices showed declines ranging from 45 to 65 percent over the 1970-79 period.

From all of the analyses just discussed it is clear that while the yellowfin fishery does not appear to be threatening the reproductive capacity of the stock, it has been wasteful in recent years from a production point of view because, on the average, fish are being harvested at too young an age. Thus, it would be highly desirable to manage the fishery in such a way that effort could

be directed away from age-1 fish and onto age-2 and older fish.

One way to reduce the dependence of the fishery upon age-1 fish would be to protect fish below a certain size until they have had a chance to grow larger. This might be accomplished by setting a minimum size limit or prohibiting fishing in certain area-time strata in which small fish predominate. There are serious obstacles to such courses of action, however, for small and medium yellowfin are frequently mixed within schools, and skipjack are commonly associated in schools with small yellowfin. In the first case (minimum size limit) the fishermen would have the unfortunate choice of catching these schools and discarding large amounts of small yellowfin or passing the schools up and losing large amounts of skipjack and medium yellowfin. In the second case (closed areas and seasons), the choice would be with the rule-makers: If the regulations were very restrictive, large amounts of skipjack and medium yellowfin might be lost, while if the regulations were lenient, large amounts of small yellowfin might be caught. It does not appear at present that either of these choices would be viable in terms of protecting small fish without reducing the overall catch of both species.

Another way to reduce the dependence of the fishery upon age-1 fish would be to reduce the fishing effort in 1980, thereby allowing more of the age-1 fish to survive throughout that year and be available as age-2 fish in 1981, and so on. This would tend to make the age structure of the population revert to its condition of the 1960's and early 1970's, when age-2, -3 and -4 fish contributed most heavily to the weight of the catch and would also be consistant with the general production modelling analysis. The immediate result would be a moderate reduction in the catch, but in the long run, future catches could be maximized. With this goal in mind, the Director recommended that the minimum 1980 yellowfin quota be set at the 165,000 ton level, rather than the 175,000 ton level which has been in effect since 1974. To retain flexibility, provision could be made for incremental increases to 210,000 tons to be made at the discretion of the Director if warranted by conditions observed in the fishery on a current basis.

The Director then turned to conditions in the fishery west of the CYRA and east of 150°W longitude. As noted earlier, effort and catches from this area have been low since 1977 apparently as a result of late closure dates. The 1979 catch should fall in the 15-18 thousand ton range that has characterized the 1977-79 period. This compares with catches that fall in the 45-50 thousand ton range during the 1972-76 period when CYRA closure dates were much earlier in the year. From tagging studies, it is known that the exchange rate of fish between the inside and outside areas is relatively slow, so the decline of the catch outside the CYRA should not be attributed to reduction of the yellowfin stock inside the CYRA. Instead it appears that the reduced catches are the result of reduced effort. Indeed, since 1970, the catch has been linearly related to effort, and the catch per day of fishing has remained more or less constant. Based on these facts, the staff concluded that there presently is no need for regulations in the area west of the CYRA.

This concluded Dr. Joseph's presentation on Agenda Items 5 and 6. The

Chairman noted the late hour and suggested that questions be deferred until the next session, which was scheduled for the following afternoon, October 23. He reminded the delegations of the trip that the government of Panama had scheduled to the new fishing port at Puerto Vacamonte on Tuesday morning, with buses scheduled to depart from the Holiday Inn at 9:00 AM. He also invited the members of all delegations to a cocktail party and a traditional Panamanian dinner to be held Tuesday evening in the conference hall. The meeting was recessed at 6:15 PM.

The meeting was reconvened by Chairman Obarrio at 3:00 PM, Tuesday, October 23. He asked for questions and comments concerning the technical aspects of Dr. Joseph's presentation on the preceding day concerning Agenda Items 5 and 6.

Dr. Le Guen of France observed that while it was desirable from a production point of view to catch yellowfin at larger sizes, this goal tended to conflict with the goal of protecting porpoise that are often associated with larger yellowfin. He stressed the need to try to balance the two objectives. Dr. Joseph agreed that the two goals tended to conflict and that ways must be found to overcome the conflict.

Commissioner Howard of the U.S. asked if there had been any changes in the bigeye tuna catch. Dr. Joseph replied that the bigeye catch in the surface fishery had increased in recent years. Over the 1966-74 period it averaged about 2 thousand tons annually, but since 1975 it has varied between 4 and 13 thousand tons. He also noted that Japan makes substantial bigeye catches using longline gear.

The Chairman then asked for discussion concerning the staff recommendation that the minimum CYRA yellowfin quota be reduced from 175,000 tons to 165,000 tons for 1980, with provision for incremental increases to 210,000 tons if warranted.

Commissioner Beckett asked under what conditions would quota increments, if established, be invoked. He added that in the past increments had been invoked if no decline was evident, but that in his presentation Dr. Joseph seemed to imply that in 1980 increments would not be invoked unless indices of stock condition improved. Dr. Joseph stated that this interpretation was correct, and that he would not invoke the increments unless the size composition of the catch and the catch per unit of effort both improved.

Commissioner Howard of the U.S. stated that he had been impressed with Dr. Joseph's presentation and that he acknowledged the importance of having a yellowfin conservation program for 1980. He suggested, however, that a decision on the quota level be deferred until a better picture of the overall management picture evolved out of the current series of meetings among nations concerning the future management regime for highly migratory species in the eastern Pacific.

Dr. Joseph stated that the decision on a quota could be delayed, but that the members should proceed to a decision much faster than they did in 1979.

In 1979 the fishery remained open too long because of the excessive delay (until July) in agreeing to and implementing a quota. A decision is needed by February at the latest.

Commissioner Arellano of Panama asked if there would be another meeting of the Commission to decide on a 1980 quota or if this decision could be made through an exchange of notes, as in the case of setting the 1979 quota.

Commissioner Howard of the U.S. asked Ambassador Negroponte of his delegation to comment on this matter. Ambassador Negroponte said that the decision could be taken through an exchange of notes. He noted that the U.S., Mexico, and Costa Rica would be meeting the following week to discuss the management regime in the eastern Pacific in terms of both the 1980 conservation regime and long-range arrangements. He said that agreement on all aspects might be possible by the end of the year.

Commissioner Beckett stressed his delegation's concern for the continued health of the yellowfin resource. He noted that stock biomass had been reduced even though there had been good recruitment, especially in 1978, because fish were being harvested at too small a size. He suggested that a deadline should be set for reaching agreement on a 1980 yellowfin quota.

Commissioner Urroz of Nicaragua supported the Canadian position and emphasized that a sound conservation program was the most important goal of the Commission. He suggested that a 1980 quota be agreed to by an exchange of notes no later than February.

Ambassador Negroponte of the U.S. questioned the wisdom of setting a deadline for reaching an agreement on a 1980 quota. He stated quite candidly that the U.S. could not agree on a quota until it knew what the terms of access would be to fishing areas within the CYRA, but that the U.S. would make all possible efforts to reach some sort of conservation agreement for 1980 by February.

Commissioner Beckettof Canada proposed that the question of a conservation regime for 1980 be resolved by incorporating the following statement in the minutes:

> Having received the report from the Director of Investigations and recognizing the urgent conservation needs for yellowfin in the Commission's Regulatory Area, the Commissioners urge member governments to undertake necessary review procedures and consultations in order that a conservation regime, based on the report of the Director of Investigations, can be established by the 15th of February for application in 1980.

Commissioner Arellano of Panama stated that the implementation of a conservation program was the primary concern of his delegation, and that such action should be based on scientific evidence such as that presented by Dr. Joseph. Political considerations, such as those involved in the negotiation of a new management regime for the eastern Pacific, should not play a role in conservation decisions. Therefore, Panama believed that a yellowfin quota could be established

at the present meeting. However, because the Canadian proposal specifies a deadline, February 15, 1980, by which agreement must be reached, Panama supports that proposal. However, in the future Panama hopes that conservation decisions will not be delayed for non-scientific reasons.

Commissioner Urroz of Nicaragua indicated his nation's support for the Canadian proposal, and Ambassador Negroponte noted that the text of the minutes was under consideration, not a resolution of the Commission.

There being no objection, the Chairman stated that the Canadian proposal could be considered approved and incorporated into the minutes. This concluded consideration of Agenda Items 5 and 6, and Chairman Obarrio moved onto the next item.

AGENDA ITEM 7 - RECOMMENDED RESEARCH PROGRAM AND BUDGET FOR FY 1981-82

Chairman Obarrio called on Dr. Joseph to discuss the research program and budget proposed by FY 1981-82. Dr. Joseph began by noting that the proposed budget is outlined in Background Paper No.3, which was distributed to the Commissioners about 2 months prior to the 37th meeting. In preparing the proposed budget, Dr. Joseph noted that he had contacted member governments to ascertain their attitude toward possible increases associated with expansion of the scientific program. In general, he reported, they were opposed to program expansion, so requests for increases have been held to the minimum.

The proposed budget for 1981-82 totals $2,460,615, which is an increase of $202,255 over the 1980-81 budget.

The requested increase includes the following: 1) a 7% increase in operating funds to meet inflationary trends ($158,085); 2) sonic tag experiments to study vertical distribution of yellowfin tuna ($39,900); 3) regularly-scheduled in-grade salary increases ($4,270).

The sonic tag experiment is an item that was approved for inclusion in the 1979-80 budget but subsequently deleted. Thus, it is a resubmitted item, rather than a new one. It is desirable to learn more about the response of yellowfin to changes in environmental factors that could affect the vulnerability of fish to capture. The proposed study would consist of attaching sonic "tags" (underwater telemetering devices) to individual yellowfin and tracking them for as long as possible, mainly to determine the depths that they inhabit at various times of the day. Simultaneously, various features of the environment (temperature, dissolved oxygen concentration, solar radiation, etc.) would be monitored. This would be carried out in conjunction with a baitboat tagging cruise, by adding 10 days of additional charter time.

Dr. Joseph went on to describe a technique for possibly reducing the mortality of fish tagged from purse seiners that will be tested in 1981-82. In the past Commission tagging programs have been carried out aboard both baitboats and purse seiners. Tagging from baitboats is effective in terms of minimizing mortality, but is expensive; tagging from purse seiners, although

inexpensive, results in high mortality. It is possible that purse-seine tagging mortality can be reduced by injecting sodium bicarbonate directly into a tagged fish's heart, the technique to be tested in 1981-82.

The Chairman then called for discussion of the proposed research program and budget.

Commissioner Howard of the U.S. noted that the requested increase is modest in view of inflationary trends and approved the proposed budget with the provision that the U.S. Department of State must also review the budget.

Commissioner Saito of Japan commented that research under the tuna-porpoise program is carried out as a result of special problems associated with purse seining but not with longlining. Hence, Japan feels that the tuna-porpoise program should be separated from the rest of the research program and made the special responsibility of purse-seining nations. He also noted that since Mexico and Costa Rica are no longer members, the Commission should be conservative in drawing up its budget.

Commissioner Beckett of Canada noted that the requested increase is reasonable and inquired about policies relating to charging for documents in order to recover some of the publishing costs. Dr. Joseph explained that there is a list of people and organizations who receive publications free of charge. This list includes Commissioners, cooperating organizations, and organizations that provide their documents to the IATTC on a reciprocal basis. Charges are collected for all other documents that are distributed, but the resulting receipts are not an important source of funding.

There being no further comments, the Chairman asked for approval of the budget by unanimous consent, which was given. The next agenda item was then introduced.

AGENDA ITEM 8 - REVIEW OF NEGOTIATIONS TOWARD A NEW OR MODIFIED TUNA CONVENTION

Chairman Obarrio noted that negotiations toward a new or modified tuna convention were in progress and asked if the representatives of participating nations could comment on their progress.

Ambassador Negroponte of the United States asked for the floor to review briefly the negotiations. He noted that he was making his comments with some reluctance because two key participating nations, Costa Rica and Mexico, were no longer Commission members. He also stated that the United States was not responsible for initiating the present negotiations because it was, in fact, satisfied with the present IATTC agreement. However, at the request of other participants, it has agreed to take part.

The negotiations began with a plenipotentiary meeting that was held in San Jose, Costa Rica, in September 1977. That meeting ended inconclusively. Several informal consultations among interested nations followed, and in January 1978 a second plenipotentiary meeting was held in Mexico City. This

meeting was also inconclusive, but a text of a possible new convention was drawn up and circulated. This text showed agreement in many areas, but four or five areas of disagreement remained. Informal meetings among Costa Rica, Mexico, and the United States, continued, with the most recent one being held in San Jose in July 1979. It was inconclusive. Another informal meeting among the three nations is scheduled for October 30-31 in San Diego, California. The United States hopes that progress can be made in San Diego, but the outcome of the meeting cannot be predicted.

Ambassador Negroponte went on to stress two points that were important to the United States. First, he pointed out the contents of any new convention that might be drawn up will be important to all nations of the eastern Pacific, including both the coastal nations within whose 200-mile zones the tuna resources are harvested and the nations whose fleets harvest the resources. Therefore, anything agreed to by Costa Rica, Mexico and the United States will have to be considered by all interested parties at a third meeting of plenipotentiary nations. The United States is not trying to present other nations with an accomplished fact.

Second, the United States recognizes the importance of having some form of organization for the management of the tuna resources. Thus, the United States will not abandon the present IATTC. Until some new permanent arrangements are made, the United States will continue to operate under the existing IATTC and to support its conservation program. No one advocates that there should be no international management organization at all.

The Chairman asked for further comments from the member delegations. There being none, he asked for comments from other attendees.

Mr. Solano, an observer from Mexico, requested the floor. He stated that Mexico concurred with what Ambassador Negroponte had said concerning the history of the negotiations. He also concurred that all nations of the eastern Pacific had a vital interest in the negotiations and that there was no intention on Mexico's part to present these nations with an accomplished fact in the form of a new convention. He concluded that Mexico, while protecting its interest, would make its best effort to secure a new agreement.

There being no further comments, the Chairman proceeded to the next agenda item.

AGENDA ITEM 9 - PLACE AND DATE OF NEXT MEETING

Chairman Obarrio noted that in the past the location of the IATTC's annual meeting has rotated among member nations and that in 1980 it would be the turn of the United States. He asked the U.S. delegation if it could host the next meeting and, if so, when and where.

Commissioner Howard of the United States agreed that his country would host the annual meeting of the IATTC subject to approval by the State Department. The meeting would probably be held in Washington, D.C., sometime in October, subject to availability of space and avoidance of conflicts with

other meetings.

The Chairman completed this agenda item by noting that final arrangements would be made at a later date.

AGENDA ITEM 10 - ELECTION OF OFFICERS

Chairman Obarrio observed that the chairmanship has also rotated among the Commissioners of member nations and called for nominations. Commissioner Urroz of Nicaragua nominated Mr.Howard of the United States as Chairman. Japan and France seconded this nomination, and Mr. Howard was elected by unanimous consent.

The Chairman then called for nominations for Secretary. Commissioner Beckett of Canada nominated Mr. Urroz of Nicaragua. The United States seconded this nomination, and Mr. Urroz was elected by unanimous consent.

AGENDA ITEM 11 - OTHER BUSINESS

Chairman Obarrio asked if there was any other business to be brought before the Commission.

Commmissioner Howard of the United States advised that a document had been made available to each delegation describing what had been accomplished while fishing under the special 1000-ton yellowfin allocation that was granted to the United States in 1979 for research related to reduction of porpoise mortality. Additional copies of this document are available upon request. Commissioner Howard also advised the delegations that the United States had prepared a statement proposing that the United States receive an additional special 1000-ton allocation for research to reduce porpoise mortality in 1980 and asked that this statement be incorporated in the minutes. This U.S. statement appears as Appendix II of these minutes. No further action was taken on this request.

Completing this agenda item, Chairman Obarrio noted that the next item of business was adjournment. He called attention to the fact that one item of business, adoption of a yellowfin conservation program under Agenda Item 6, had not yet been completed. Therefore, he planned to recess the 37th meeting of the IATTC to some undetermined time and place.

Commissioner Howard of the United States expressed to Chairman Obarrio and through him to his government, his deep appreciation and thanks for hosting the 37th meeting. He particularly called attention to the efficient manner in which the Chairman had presided over the meeting.

The 37th meeting of the IATTC was recessed at 6:00 PM, Tuesday, October 23, 1979.

APPENDIX I

ATTENDEES TO THE 37TH MEETING OF THE INTER-AMERICAN TROPICAL TUNA COMMISSION

CANADA

James S. Beckett - Commissioner

B. Applebaum
B. M. Chatwin
Dan Goodman
Gordon C. S. Morrison
G. E. Waring

FRANCE

Serge Garache - Commissioner

M. Dion
Jean C. Le Guen
Louis Roudié
Marie Claire San Quirce

JAPAN

Tatsuo Saito - Commissioner

Yoshihiro Kikuchi
Shojiro Shimura
Ito Yoshiaky

NICARAGUA

Jamil Urroz Escobar - Commissioner

PANAMA

Juan L. de Obarrio - Commissioner

Carlos Arellano Lennox
Damaris Bolaños de Alvarez
Carlos M. Arze
Jesus Antonio Correa
Victoria Soriano de De Puy
Luis A. Dorati M.
Pablo Duran
Carlos Gonzalez M.
Ramon A. Gonzalez V.
Sergio Quiros
Juan A. Stagg
Dario Vallarino

UNITED STATES

Jack Gorby - Commissioner
Gerald V. Howard - Commissioner
Robert C. Macdonald - Commissioner

George Kenneth Alameda
Izadore Barrett
Gordon C. Broadhead
Peter Buchan
James S. W. Drewry
August Felando
Charles E. Finan
Paul P. Finnerty
Brian S. Hallman
Milton M. Kaufmann
O. E. Kerns
Peter C. Maschke
Thomas F. Melchior
John Negroponte
Barbara Keith Rothschild
Gary Sakagawa
Richard E. Zellers

COSTA RICA

Eduardo Bravo

ECUADOR

Luis Yepez Calisto

EL SALVADOR

Mauricio Manuel Calderon R.

KOREA

Chong Hee Han

MEXICO

Victor M. Solano

NEW ZEALAND

Brian Turnbull Cunningham

PERU

Alejandro Bermejo

REPUBLIC OF CHINA

Dah-Wen Shieh

SENEGAL

Papa Daouda Fall
Eugene M. Le Roux

ORGANIZATIONS

IMARPE

Jorge Csirke

SELA

Alba Bustamante C.

FAO

D. Chakraborty
Wilbert F. Doucet
Magnus Magnusson
Ramon Pérez Prieto
Werner Schroedter
Luis Antonio Sierra I.

CIAT

James Joseph
Joseph W. Greenough
Jan Hunter
Reggie Newman
Oliver Seth

APPENDIX II

UNITED STATES STATEMENT ON YELLOWFIN TUNA ALLOCATION

FOR U.S. PORPOISE RESEARCH

The Commission has each year since 1976 allowed a special allocation of 1,000 tons of yellowfin tuna after closure of the CYRA open season for United States porpoise research. The research efforts by the United States benefit all tuna fishing nations of the eastern tropical Pacific Ocean.

The first special allocation was granted by the Commission at the 32nd annual meeting. That allocation provided 64 days of charter aboard the M/V Elizabeth C J in late 1976 to test improved fishing gear and techniques designed for the reduction of porpoise mortality incidental to tuna purse seine fishing and to make behavioral observations on tuna and porpoise. The results of this cruise were described in reports provided in 1977. The major finding was that the "super apron" system resulted in reduced porpoise mortality.

During October, November, and December of 1977, two commercial seiners, the M/V Margaret L and the M/V Marla Marie were chartered with the special allocation provided the United States at the 33rd meeting. These vessels were chartered to (1) test the gear developed on the 1976 charter on a smaller and older vessel (M/V Marla Marie), and (2) test further modifications of the purse seine net and pre-backdown porpoise release procedures. Results from these cruises were described in two cruise reports provided the delegates in 1978. The major finding was that the "super apron" system is suitable for use by the smaller, older seiners in the fleet.

A 1,000-ton allocation authorized for the 1978 fishing season was used in conjunction with research operations of the cooperative Dedicated Vessel Research Program which was under the joint auspices of the Marine Mammal Commission, National Fisheries Service and the United States Tuna Foundation. The program was for one year (five cruises) and was conducted with the charter vessel, M/V Queen Mary. A major goal of the program was to carry out research designed to reduce the incidental mortality of porpoise. The 1,000-ton allocation was used on Cruises III, IV, and V. Results from these cruises are described in the reports that were handed out to each delegation.

This year, a 1,000-ton allocation granted by the IATTC is being used to conduct research on net modifications and fishing techniques and to collect data for a computerized model of the purse seining activity for use in development of safer and more efficient nets. The research is being conducted aboard the chartered vessel, M/V Maria C J which has not yet completed her cruise. A final

cruise report, consequently, is not available. Copies of the cruise plan, however, have been made available to each delegation.

The United States sees the need to continue further research in 1980 on fishing methods and gear, including those currently undergoing testing to further reduce incidental porpoise mortality. The United States believes that through development of better purse seine and porpoise release procedures, the incidental porpoise mortality can be reduced further. We are, therefore, requesting that 1,000 tons of the 1980 IATTC yellowfin tuna quota for the CYRA be allocated during the closed season to the United States for continued, effective research on practical technology to reduce the mortality of porpoise incidental to yellowfin tuna purse-seine fishing.

In summary then, the United States proposes:

> that 1,000 tons of the 1980 IATTC yellowfin tuna quota be allocated during the closed season to the United States for continued research on the reduction of incidental porpoise mortality. The research results will be made available to the member countries at the earliest practicable date, and a report will be submitted at the Commission Meeting immediately following the research cruise(s).