INTER-AMERICAN TROPICAL TUNA COMMISSION

SUMMARY MINUTES OF THE FORTY-FOURTH MEETING

May 5-7, 1987

Panama, Republic of Panama

Chairman: Ing. Armando Martínez

AGENDA

44TH MEETING OF THE INTER-AMERICAN TROPICAL TUNA COMMISSION

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AGENDA ITEM 1 - OPENING OF THE MEETING

The 44th meeting of the IATTC was called to order by the Chairman, Ing. Armando Martínez, Commissioner from the Republic of Panama, at 9:50 AM, May 5, 1987, at the Atlapa Convention Center in Panama. He welcomed the attendees and then introduced Arq. José Bernardo Cárdenas, Minister of Commerce and Industry of the Republic of Panama, who gave a brief opening address.

In his address Arq. Cárdenas stressed the importance of marine resources to the economy of Panama both presently and in the future. With respect to tuna, Panama, because of its central location, makes an especially important contribution as a transshipment center. Also, as operations expand at the new IATTC laboratory at Achotines, Panama will become increasingly important as a research center for the study of tunas and other species. Panama, along with other nations, is also cognizant of the problem of dolphin mortality associated with tuna fishing operations and wants to work diligently to minimize such mortality.

Following the opening address, Chairman Martínez introduced Commissioner Abelino Aróstegui of Nicaragua, the Secretary for the 44th meeting, and called upon the heads of member nation delegations to introduce themselves and other members of their delegations. Following these introductions, observers from other nations and organizations were called upon to introduce themselves. Attendees of the 44th meeting are listed in Appendix 1.

AGENDA ITEM 2 - ADOPTION OF AGENDA

Chairman Martínez noted that two provisional agendas for the 44th meeting had been distributed to the delegates, and he asked the Director of the IATTC staff, Dr. James Joseph, for comment. Dr. Joseph explained that one of the provisional agendas had been drafted and distributed by the staff some time ago, while the other had been proposed more recently by Japan. These two proposed agendas are presented in Appendix 2. He said that he also had prepared a third provisional agenda for the delegates to consider that represented a compromise between the first two proposals.

Mr. Masaru Okuno of Japan noted that the agenda originally proposed by the Commission staff differed somewhat from the agendas followed in recent years, especially in items 3, 4, and 5 dealing respectively with current research, the 1986 fishing year, and recommendations for 1987. In these agenda items dolphins are placed on the same level of importance with tunas. While Japan understands the importance of the tuna-dolphin problem and in 1976 approved of the Commission undertaking studies of dolphin populations and mortality reduction measures, it nevertheless believes that under the original terms of the IATTC Convention tuna studies should be considered to be on a higher level of importance than dolphin studies. The provisional agenda proposed by Japan reflects this belief and is similar to agendas followed in previous years.

Commissioner Beasley of the United States said that the exact agenda format was not of great importance to his delegation provided that all of the subjects included in the agenda originally proposed by the staff were covered in the final approved agenda. He then asked that the compromise agenda mentioned by Dr. Joseph be distributed, and this was done. Dr. Joseph

explained that the original agenda proposal by the staff reflects the fact that the Commission's research program on dolphins has expanded considerably since its inception in 1976 and now comprises a very considerable share of the staff's overall research effort. However, because as noted by the U.S., the exact format of the agenda is not a critical issue provided all pertinent matters are adequately covered. Dr. Joseph went on to explain that his compromise agenda followed Japan's proposed agenda quite closely, differing mainly in the order in which certain items would be covered. Mr. Okuno of Japan indicated that the compromise agenda suggested by Dr. Joseph was acceptable to his delegation. The delegates of the other nations also agreed with the compromise agenda, and it was adopted. This agenda in its final form appears at the beginning of these minutes.

Chairman Martínez then proposed that morning sessions begin at 9:00 AM and continue until 12:30 PM. Following the mid-day break, afternoon sessions would start at 2:00 PM and last until 5:00 PM. All delegations agreed to the Chairman's proposed schedule.

AGENDA ITEM 3 - REVIEW OF CURRENT TUNA RESEARCH

Chairman Martínez called upon Dr. Joseph to review current IATTC research programs. Dr. Joseph said that it was customary to review current research in order that Commissioners might have an opportunity to ask questions and make suggestions concerning this important staff activity.

Dr. Joseph began by briefly reviewing world tuna fisheries. World tuna production of the so-called principal market species (skipjack, yellowfin, bigeye, albacore, northern bluefin, and southern bluefin) amounted to a little more than 2 million metric tons in 1985. Skipjack, the smallest of these species in terms of size, was the most important in terms of catch with 890 thousand tons being taken. (However, the world skipjack catch was down in 1985 due to a drop of about 200 thousand tons in the western Pacific.) Yellowfin was second to skipjack with 740 thousand tons being taken in 1985, an increase over prior years. Other principal market species trailed well behind. As a group, the principal market species made up almost 70% of the world catch of tunas and tuna-like species, while secondary market species (black skipjack, bullet tuna, etc.) accounted for a little over 25%. Billfishes made up the remaining catch (about 3.5%), but in spite of relatively small landings, there is controversy over billfish because of their importance to sport fishermen. Tuna catches are roughly proportional to surface area, although there is some variability. Indian Ocean catches are up in recent years, while Atlantic Ocean catches have fluctuated. The Pacific Ocean, due to its size, produces the greatest catches, but they were down in 1985 from the 1984 level because of the drop in the skipjack catch in the western Pacific. Tuna catches from the eastern Pacific represent roughly 20% of the world tuna catch.

The primary objectives of the IATTC are: 1) To carry out scientific studies on tunas and tuna-like species that are commercially harvested in the eastern Pacific region and also to study species associated with these fisheries; and 2) To make conservation recommendations based on these studies to member nations and other nations involved in the fisheries in order to suppport stocks at levels that are capable of producing maximum sustainable yields. The two most important species of concern are yellowfin and skipjack

tuna, but bluefin, bigeye, and black skipjack tuna are also studied, as are billfishes which in the eastern Pacific are harvested by the longline fishery. During the Commission's early years baitfishing was the most important method for harvesting tunas, and there were major baitfish operations in the coastal waters of a number of Latin American nations. For example, there was an important anchoveta fishery off Panama. For this reason, studies of baitfish species originally constituted an important part of the Commission's research program, but these studies diminished as purse seining replaced baitfishing as the major method for harvesting tunas in the eastern Pacific. Now there is very little baitfishing by member countries of the Commission, and there is no current IATTC research on these species.

Since 1977 the Commission has conducted a research program on various dolphin species which are commonly associated with tunas, primarily larger yellowfin, in the eastern Pacific. Fishermen take advantage of this association by using dolphin to locate yellowfin schools and then setting their purse seines around both the dolphin and the associated yellowfin. In the process, dolphin mortality can occur. The objectives adopted in 1976 by the IATTC with respect to its tuna-dolphin program are threefold: 1) To maintain a high level of tuna production; 2) To maintain dolphin stocks at or above levels that assure their survival in perpetuity; and 3) To ensure that every reasonable effort is made to avoid needless or careless killing of dolphins. The level of effort expended on tuna-dolphin studies has increased steadily and now constitutes a major portion of the IATTC's overall research effort.

Collection of catch and effort data and related information pertaining to commercial fishing activities, as well as collection of data on marine mammal abundance and mortality, has been fundamental to the success of the Commission's research programs over the years. To collect this information the Commission maintains offices and field stations in Peru, Ecuador, Panama (an important tuna transshipment point), Mexico, the U.S.A. (San Diego and Terminal Island), Venezuela, and Puerto Rico. Much of the information (such as catches by time and area strata) is derived from logbooks which are maintained at sea by the fishermen. Information on factors such as landings, size composition, and transshipments are collected by Commission personnel in the various ports.

One important key to the success of the Commission's scientific program is the confidentiality of the data that are collected. Data are published in summary form only, and when necessary, country data are grouped to further assure confidentiality. Also, because of the Commission's status as an international organization, data that are collected are protected by immunity privileges and are not subject to subpoena. A second key to the scientific program's success is the excellent cooperation of nations involved in the eastern Pacific fishery, both IATTC members and non-members alike. Without this cooperation the scientific program could not have been as successful over the years as it has been. A measure of this success is that the Commission staff has published roughly 500 scientific papers over the years, both in its own IATTC Bulletin series and in a wide variety of outside journals. Various other documents and several books have also been published.

Several Commission activities focus on tuna spawning and the recruitment of fish of catchable size into the commercial fishery. Some species of fish

show a relationship between the number of adult spawners and subsequent recruitment, but in spite of considerable effort over the years, well-defined spawner-recruit relationships have not been demonstrated for tunas. The staff has also examined relationships between recruitment and ocean environmental parameters, and this potentially promising approach may eventually lead to useful information for predicting future stock abundance. Recently spawning behavior has been studied indirectly by examining gonads collected at sea on sport-fishing boats in the Clipperton Island area. These studies suggest that spawning takes place at night and that females spawn frequently during the spawning season.

A research program that will focus on the growth of young tunas is presently in its early stages, and will be largely carried out at the Commission's Achotines facility in Panama. Mr. Vernon Scholey, the resident scientist at Achotines, was introduced by Dr. Joseph. It was noted that one black skipjack juvenile had been successfully reared from a very small size (about 15 mm) to 30 cm indicating that significant progress is being made in learning how to rear small tunas.

Continuing on other aspects of growth research, Dr. Joseph observed that tropical species such as yellowfin and skipjack do not regularly form annual growth marks on their scales or other hard parts as do species from more temperate waters. Thus, in the past, growth information has been derived from tagging studies and by following the progression of modes (representing year classes) in length-frequency samples from the commercial catch. More recently the Commission has made intensive studies of microscopic growth increments deposited on tuna otoliths. Experiments have been conducted that combine tagging with the injection of the antibiotic, tetracycline, which causes a flourescent mark to be deposited on the otolith. These experiments have shown that in the case of yellowfin increments are laid down on a daily basis. From this information more accurate growth curves have been calculated for yellowfin, and it has been determined that males and females show different growth patterns with males reaching older ages and larger sizes. It seems likely that females have higher energy requirements (possibly associated with egg production) that restrict their growth potential and longevity.

Dr. Joseph then briefly mentioned the Commission's tagging program. In the past, tagging has been used as a tool to study such important factors as growth, mortality, and migrations. These tagging studies involve a high level of international cooperation. For example, the IATTC and the government of Japan have cooperated over a period of several years in a northern bluefin tagging program which has demonstrated that this species makes complicated trans-Pacific migrations.

A problem of general interest in tuna fisheries is that of interactions among different types of fishing gear. In the eastern Pacific, the interaction is between surface-fishing gear (i.e., purse seines) and longline gear which is fished at greater depth. Yellowfin tuna are taken in substantial quantities by both types of gear with longlines taking larger fish and purse seines taking both larger and smaller fish. Based on comparisons for large fish, it has been determined that, on a daily basis, the effort expended by one modern purse seiner is roughly equivalent to 75 thousand longline hooks. Also, for large fish the catch per unit of effort for both types of gear follows biomass trends. Because purse seiners take over ten

times the catch of the longliners, as well as both large and small tunas, it follows that the surface fishery is the most important determining factor of both the biomass of large fish and longline success.

The Commission has carried out climatological studies for many years and publishes charts showing sea-surface temperatures on a monthly basis. These studies are especially important in regard to the El Niño phenomenon which impacts heavily on fishing success in the eastern Pacific. The last El Niño occurred in 1982 and 1983 and was a major event. There are indications suggesting that we are presently experiencing a mild El Niño, but one that is atypical in some respects. For example, in a typical El Niño the intertropical convergence zone moves south causing heavy rains in Ecuador but less rain in Central America. This year there is considerable rain in both areas. Because of the mildness of the current El Niño, not much effect on the tuna fishery is expected.

At this point Chairman Martínez asked if there were any questions for Dr. Joseph based on his research review thus far. There were no questions, and the meeting was adjourned for lunch at 12:15 PM.

The meeting reconvened at 2:20 PM, at which time Dr. Joseph introduced Dr. Martín Hall of his staff. Dr. Hall is in charge of the Commission's tuna-dolphin studies. Dr. Hall indicated that he would be discussing recent work concerning the association of tunas with dolphin schools and floating objects. He began by noting that purse-seine sets can be divided into three basic categories: dolphin sets, log sets, and school sets (i.e., sets on schools not associated with anything on the surface). In this context, the term "log" refers to any type of floating object regardless of origin. When yellowfin are involved they tend to be smaller than those found in association with dolphin schools. Tunas caught in school sets are similar in size composition to those caught in log sets. Tunas are found in association with floating objects in all oceans, but the association of yellowfin with dolphin schools is known to be common only in the eastern Pacific region.

A key question is: Why do tunas associate with logs and dolphin schools? Dr. Hall indicated that it is useful to think of these two basic forms of association as two aspects of a single process. This, in turn, suggests that in the case of the tuna-dolphin association, it is the tunas that are associating with the dolphins rather than vice-versa. To further explore these association phenomena, the geographical distribution of different types of sets has been analyzed with respect to time of day, ocean currents, and seasonal changes.

With respect to time of day, a high proportion of all log sets are made early in the morning suggesting that the association of tunas with floating objects is a nighttime phenomenon with schools apparently leaving the logs in the early morning. During daylight hours fish presumably forage for food, reassociating with floating objects in the evening. School sets and dolphin sets do not follow this pattern and are more evenly distributed throughout the day.

The distribution of set types with respect to currents and on a seasonal time scale has suggested some further interesting correlations. In the eastern Pacific the north and south equatorial currents carry water from more

inshore areas westward; between them the north equatorial countercurrent flows eastward. When the geographical distribution of log sets is examined, it is clear that they tend to occur in areas of high productivity where tuna feeding conditions are favorable. Thus, floating objects, many of which originate from rivers during the rainy season, tend to be concentrated by currents in ocean areas of high productivity, and it is here that tuna are taken in log sets. Areas which have less vegetation and less rainfall tend to produce fewer floating objects, so log sets are less frequent off such areas.

The distribution of log sets also shows seasonal patterns. Typically from late spring to fall when the equatorial countercurrent is strong, log sets are concentrated in inshore waters off Panama and Colombia. Later this concentration breaks up, and log sets are made on an arc going from that area to the northwest along the 10°N parallel. The large-scale changes in ocean conditions associated with strong El Niños probably change the distribution of logs, with more logs in some areas and fewer in others. This, in turn, could relate to changes in the distribution of tunas during El Niño years and to the productivity of coastal waters which probably determines the success of recruitment.

Turning to dolphin sets, few such sets are made in the coastal areas off Panama and Colombia where log sets are common. Instead dolphin sets are widespread in offshore waters, mostly north of 5°N latitude and also off northern Peru. The fact that larger yellowfin associate with dolphins suggests that smaller tunas probably cannot keep up with dolphin schools. This means that as yellowfin grow larger they have the option of associating with dolphin schools rather than logs. In a sense then, dolphin schools can be seen as high-speed floating objects.

If what has been hypothesized so far is more or less correct, what advantage do large yellowfin derive from associating with dolphin schools? One strong possibility is that dolphins, with their sonar capability, are good at locating food and that this benefits the tuna. If so, one can summarize by saying that tunas associate with logs because logs tend to be concentrated by oceanographic conditions in areas of high productivity and good foraging. Similarly, tunas associate with dolphins because dolphin schools enable tunas to find good foraging conditions. Because dolphin schools are mobile, only larger yellowfin can take advantage of this association, while tunas of all sizes can associate with logs.

In completing his presentation, Dr. Hall emphasized that much work remains to be done on the problem of understanding the association of dolphin and yellowfin in the eastern Pacific and that factors other than those considered in his present discussion are also undoubtedly involved. However, the analysis of relationships between set types, time of day, seasons, and current patterns has provided some interesting insights and can hopefully serve as a good basis for further work.

There were no questions from the attendees concerning Dr. Hall's presentation, so the Chairman thanked Dr. Joseph and Dr. Hall for their interesting review of current IATTC research and proceeded to the next agenda item.

AGENDA ITEM 4 - THE 1986 FISHING YEAR and AGENDA ITEM 5 - STATUS OF TUNA

STOCKS

Chairman Martínez called on Dr. Joseph to discuss the 1986 fishing year. Dr. Joseph indicated that it would be convenient for him to cover this agenda item (Background Paper 1) simultaneously with the next agenda item dealing with the status of tuna stocks (Background Papers 2, 4, and 5).

Dr. Joseph said that in past years IATTC Annual Meetings have been held in the fall so that governments could act upon the Commission's conservation recommendations for the upcoming calendar year in a timely manner. This was especially important in the 1970s when the eastern Pacific fleet was very large relative to the available yellowfin resource, and closure occurred as early in the year as March. In the 1980s, however, due in part to the political climate in the eastern Pacific region regarding access to tuna resources, regulatory programs, although recommended, have not been implemented. Because this situation was not expected to change in 1986, it was decided at the 43rd meeting (convened in Tokyo, Japan, in October 1985) to hold the 44th meeting (i.e. the present meeting) in the spring. Also, because yellowfin were very abundant, if a regulatory program incorporating a high quota were to be implemented following a spring meeting, it was anticipated that any needed closure would not come until late in the year, well after establishment of the quota. It was also recognized that a spring meeting would permit the staff to prepare statistics for the full calendar year most recently ended (in this instance 1986). Finally, in the spring, conflicts with meetings of other organizations could be minimized.

Dr. Joseph then summarized some of the highlights of the 1986 fishing year covering mainly material from Background Paper 1. The carrying capacity of the eastern Pacific tuna fleet averaged close to 125 thousand short tons in 1986. With no regulatory regime and unrestricted year-round fishing, 65 thousand tons of capacity were at sea at any given time throughout most of the year. It is of interest to compare these 1986 figures with data from the mid-1970s when the fleet was very large and a regulatory regime was in effect. In 1976 fleet carrying capacity was about 185 thousand tons, and capacity at sea averaged about 100 thousand tons over the year as a whole. However, in the 1970s capacity at sea was very high early in the year, dropped somewhat as vessels completed their first trips, increased again, and then declined steadily as the year progressed. Following closure of the yellowfin season in the 1970s, some boats departed from the eastern Pacific to fish in other ocean areas, and lay-up time between trips also tended to increase. These factors largely accounted for the decline in capacity at sea as the fishing year progressed.

The 1986 CYRA (Commission's Yellowfin Regulatory Area) yellowfin catch was 256 thousand tons breaking the record of 217 thousand tons established in 1985. Prior to that the record annual CYRA catch for yellowfin was 210 thousand tons taken in 1976 when the fleet was considerably larger. The CYRA skipjack catch was low in 1986 with about 68 thousand tons being taken. The total 1986 tuna catch for the CYRA was 333 thousand tons which includes small catches of bluefin, bigeye, and several other species. The area west of the CYRA also produced about 43 thousand tons of tuna (almost all yellowfin), somewhat below the record outside catch of about 52 thousand tons. Altogether then, the eastern Pacific (east of 150°W longitude) produced 376 thousand tons of tunas, well below the record catch level of 435 thousand tons achieved in

1976. In terms of catch per ton of carrying capacity, 1986 has been a very good year, as was 1985.

Considering that the 1986 skipjack catch was less than half of that achieved in several earlier years, one might be tempted to conclude that abundance was low in 1986. However, this would be an incorrect conclusion. The low skipjack catch was due primarily to fishermen not targeting on lower-value skipjack for much of the year in favor of large yellowfin which commanded a significantly higher price. This conclusion is supported by the fact that Ecuadorian vessels, which have historically concentrated on skipjack in waters off Ecuador and Colombia, and which had no price incentive to take larger fish, continued to have good skipjack in fishing in 1986. Also, when the U.S. suspended fishing on tunas associated with dolphins (primarily larger yellowfin) on October 22, many U.S. vessels began to set on skipjack schools which previously would have been passed up. As a result, the skipjack catch increased sharply during the last two months of 1986.

In terms of both carrying capacity and catches, Mexico is the leading participant in the fishery, with the U.S. a close second. Considering the eastern Pacific region as a whole, Mexico's fleet with a carrying capacity of about 45 thousand tons took 125 thousand tons of tunas of all species combined. The U.S. fleet with a carrying capacity of 42 thousand tons took catches of 117 thousand tons. Venezuela (capacity 13 thousand tons, catch 42 thousand tons) and Ecuador (capacity 7 thousand tons, catch 46 thousand tons) trailed Mexico and the U.S., although Ecuador was the leading nation in terms of skipjack catches.

Yellowfin catches were generally centered around 10°N latitude from the coastal waters of Central America west to about 140°W longitude. Good catches were also made around the entrance to the Gulf of California. Skipjack catches were concentrated in waters off Panama, Colombia, and Ecuador, where they were targeted upon. The area around the Revillagigedo Islands, which often produces good skipjack catches, had very low catches in 1986. This reflects the fact that boats were not targeting skipjack, however, rather than poor skipjack availability.

The status of yellowfin tuna is discussed in Background Paper 2. Yellowfin abundance in the CYRA has been monitored for a number of years using three indices based, respectively, on catch per days fishing, searching time, and cohort biomass analysis. All three indices show a steady increase in yellowfin abundance since 1983. The first two indices show 1986 abundance to be roughly equivalent to the historical highs of the early 1970s, while the biomass index is at a record high, well above the early 1970s level. This high abundance (and the record catch that it produced in 1986) result from two major factors. First, recruitment was very high in 1984 and 1985, and second, those two strong year classes are being harvested at a near optimum size that is well above the sub-optimal size at which year classes were harvested in the late 1970s and early 1980s.

Because of the exceptional recruitment and the significant increase in average size at capture, stock production models tend to underestimate the current conditions of the CYRA yellowfin stock. Production models are based on a long time series of catch and effort data and generate conclusions concerning future catch and effort levels that apply to roughly average

conditions. In the past they have played an important role in determining the recommendations of the staff to the Commission, and historical trends in the fishery have confirmed their usefulness. The present conditions in the fishery, however, are highly atypical when compared to conditions in earlier years upon which production models are based. The 1986 data point (record high catch produced by a relatively low level of effort) falls far above the curves fitted to production model data, and 1987 production can (and almost certainly will) substantially exceed the estimated average maximum sustainable yield of about 175 thousand tons (symmetrical model) with no cause for concern over the impact of this high catch on future catch levels.

Age-structured models provide an alternative to production model analysis. This type of model can be applied under current conditions because individual year classes (cohorts) are followed as they pass through the fishery, and changes in recruitment levels and exploitation patterns can be taken into account. (In the past, especially prior to the major El Niño of 1982-83, conditions in the fishery have been relatively stable and conclusions based on the two types of models have been fairly consistent.) Age-structured models indicate that under present conditions theoretical yield has increased by about 65% with approximately 40% of the increase being due to strong recruitment and 25% being due to increased average harvest size.

From the late 1970s through 1981 smaller yellowfin dominated the catches. This was followed by a transition period from 1982 through 1984 during which both larger and smaller fish were well represented in the catch. In 1985 and 1986 it was primarily large yellowfin that were being caught. One factor that contributed to this shift was purely economic: Fishermen were paid more for large yellowfin than for small yellowfin or skipjack. Because larger yellowfin have been abundant, fishermen have avoided areas where smaller fish predominate. (Ecuadorian vessels targeting on skipjack have been the exception to this pattern.) Both yield-per-recruit studies and cohort analysis support the overall conclusion that yield from the yellowfin stock has increased due to harvesting fish at a larger average size in 1985 and 1986 as a result of market pricing considerations. (The Commission has stated for many years that yellowfin yield could be increased by harvesting at a larger average size, but it has not been practical to implement such a policy.)

Turning to recruitment, the Commission staff has followed groups of fish recruited during half-year periods as they progress through the fishery. From the contribution that each group makes during the period that it is in the fishery, estimates of numbers recruited during each half-year period can be made. From such analysis, it has been estimated that an average of 50 million yellowfin are recruited to the eastern Pacific fishery annually, with the figures for individual years ranging from 29 million to 84 million, close to a three-fold range.

In 1984 an estimated 65 million yellowfin were recruited, a figure which had been exceeded only twice since 1967. This strong recruitment year was followed in 1985 by a record estimated recruitment of 84 million. (The previous high estimate was 83 million in 1974.) Taken together, the combined recruitment for 1984 and 1985 exceeded that for any prior pair of years and, as noted earlier, played a major role in the greatly increased productivity of the fishery. These two years of high recruitment followed strong El Niño conditions in 1982 and 1983 which modified current patterns and produced

general warming of surface waters in the eastern Pacific. El Niño conditions in earlier years have also been followed in 2 years by strong year classes.

Looking to the future, several scenarios are possible. If recruitment is average and size composition of the catch remains the same as in 1985 and 1986, then the staff believes that the CYRA catch level in 1987 can be about the same as in 1986 (about 256 thousand tons). Thereafter catches will fall gradually from this historical high level over a period of several years, stabilizing at about 190 thousand tons in 1990. If recruitment is below normal or fish are taken at a significantly lower average size, then catches could fall to a lower level.

With his yellowfin review completed, Dr. Joseph said that at this point he would normally present the staff's recommendation concerning a yellowfin quota for the forthcoming calendar year (1987). This year, however, because of the high yellowfin abundance level, it does not appear possible for the fleet to overharvest the resource. Therefore, the staff has made no quota recommendation for 1987.

Given these circumstances, it appears that the Commission has two reasonable alternatives. It could maintain its tradition of recommending a quota to member (and non-member) governments, and in its resolution on yellowfin set the recommended quota at a high level to reflect current favorable conditions. Or it could adopt a resolution that does not specify a quota level, but instead summarizes the situation stressing that if and when conditions return to a more normal state, then a quota will once again be recommended.

There were no questions for Dr. Joseph at this time, and Chairman Martínez adjourned the meeting at 4:45 PM. The meeting was reconvened the following day, Wednesday, May 6, 1987, at 9:10 AM.

Dr. Joseph continued his presentation on the condition of tuna stocks by moving on from yellowfin to a discussion of skipjack resources (see Background Paper 4). From a world perspective, skipjack is the most important tuna species in terms of total catch even though it is the smallest of the principal market species, being taken at an average size of about 6 pounds in the world fishery versus about 25 pounds for yellowfin. Throughout most of the past decade skipjack catches in the western and central Pacific have increased steadily, reaching almost 900 thousand metric tons in 1984. The catch dropped by about 200 thousand tons in 1985, but this area still produces far more skipjack than any other area. Catches have also been increasing in the Atlantic and Indian Oceans. In the eastern Pacific there has been no increase in skipjack catches; in fact, they have fallen during the 1980s. In recent years this decline has been mainly due to most fishermen not targeting on skipjack because of the low market price paid for this species.

Historically the skipjack fishery in the eastern Pacific has been divided into northern and southern components. The northern fishery has been centered off Baja California and around the Revillagigedo Islands, while the southern fishery has been centered off Panama, Ecuador, and Colombia. Generally the southern fishery produces about twice as much skipjack as the northern fishery, but in some years catches in the north and south are out of phase. The center of activity seems to shift from time to time, and in 1985 it was

concentrated off Colombia and Panama rather than off Ecuador where large catches have often been made in the past.

There is considerable evidence indicating that skipjack exploited in the eastern Pacific are not year-around residents of the area. No sexually mature skipjack are taken in the eastern Pacific, and few skipjack larvae are found there indicating that there is little spawning in the region. From tagging studies, there is little evidence of significant movement between the northern and southern fishing grounds. Instead, a few long-range recoveries from tagging in the eastern Pacific have been made in Hawaiian waters and beyond which suggests east and west movement into and out of the eastern Pacific. This evidence suggests that skipjack probably originate somewhere in the central Pacific.

Because of their migratory patterns, production models and cohort analyses used for yellowfin cannot properly be applied to skipjack. Rather, yield-per-recruit models have been developed for skipjack. Strictly from the point of view of maximizing biological yield, and not considering size-related differences in desirability to canners, these models suggest that the best strategy is to fish skipjack as heavily as possible whenever they become available regardless of size. Because of their high turnover rate, if skipjack aren't caught while they are available in the eastern Pacific they may never be caught in large numbers.

In the past there have been large fluctuations in skipjack abundance in the eastern Pacific. It would be desirable for the Commission staff to be able to predict these fluctuations and advise industry accordingly. The staff has looked at two parameters in the central Pacific which were thought to be possibly correlated to future skipjack abundance in the eastern Pacific: sea-surface temperature and an index of wind mixing of surface waters. Sea-surface temperatures proved to be very weakly correlated at best, but there may be some tendency for temperatures in a given year to be positively related to abundance a year and a half later. Analysis of data on the wind mixing index has been much more fruitful. There is a good relationship between winds in the central Pacific in a given year and skipjack abundance in the eastern Pacific a year and a half later. High winds correlate with lower skipjack abundance while lower winds are associated with higher abundance. The mechanism of this relationship is thought to involve the effects of winds on the concentrations of organisms that larval skipjack feed upon.

Dr. Joseph closed his discussion on skipjack by reiterating that low catches in 1985 and 1986 are not due to overfishing and do not indicate a low availability of skipjack during these years. Evidence in support of this conclusion is provided by Ecuadorian-flag vessels that targeted skipjack and had good fishing success. Also, when U.S. restrictions on fishing on tunas associated with dolphins took effect late in the year, skipjack catches increased rapidly.

Having completed his presentation on yellowfin and skipjack tuna, the two species that are of primary importance to the surface fishery in the eastern Pacific and the two species to which the bulk of staff research efforts are directed, Dr. Joseph turned to discussion of three species to which staff has devoted somewhat less attention. These species, northern bluefin, bigeye, and black skipjack tuna, are discussed in the Background Paper 5.

Northern bluefin catches in the eastern Pacific have averaged about 9 thousand tons annually and have never exceeded 16 thousand tons. Northern bluefin are also exploited in Japanese waters where an average of 11 thousand tons is taken annually making the total average annual catch about 20 thousand tons.

Northern bluefin are known to spawn only in an area that lies south of Japan and northeast of Taiwan and in the Sea of Japan. Small bluefin are taken in troll fisheries off Japan in their first and second years before some of them undertake a transpacific migration to waters off California and Baja California where they are taken by purse seiners. As maturing fish they later recross the Pacific where they again enter the Japanese fishery on their way to the spawning grounds. In addition to these transpacific migrations, some northern bluefin move south to waters off Australia and New Zealand where they are also exploited.

In recent years northern bluefin catches in the western Pacific have declined sharply from their 1981 peak. Over this same period eastern Pacific catches have been extremely low, although they have recovered somewhat in 1985 and 1986. Relationships between catches in different areas and environmental factors are not well understood, but it is known that bluefin effort in the eastern Pacific has changed in recent years with less effort being expended off Mexico. The IATTC staff has been working with the Far Seas Fisheries Laboratory in Shimizu on a joint tagging program to try to resolve some of these problems, but catch statistics and size composition data from the Japanese fishery are also needed. At present, no general conclusions can be drawn.

Bigeye tuna are very similar to yellowfin in appearance and are exploited throughout the Pacific. However, the greatest catches are made in the eastern Pacific. Bigeye are well adapted to living well below the surface where they are taken by longline gear. In the eastern Pacific catches are made mainly along the equator and off Baja California in the spring. Limited amounts of bigeye are also taken in the surface purse-seine fishery mostly off Central America, Colombia, and Ecuador. Based on preliminary yield-per-recruit models, the longline fishery takes bigeye at around the optimum size, while the surface fishery takes somewhat smaller fish. Generally speaking, the bigeye resource seems to be in good shape in the eastern Pacific.

Black skipjack are harvested from Mexico to northern Peru and appear to be most abundant off Panama and Costa Rica. Catches have been low due to low demand, but the resource is very abundant and increased effort on black skipjack can be expected in the future if demand increases. At present the Commission staff is focusing its efforts on life history work in anticipation of future expansion of the fishery. Black skipjack studies will play an important role in Commission research at the Achotines facility where work on the early life history of tunas will be emphasized.

At this point Chairman Martínez opened the floor for questions concerning any aspect of Dr. Joseph's presentation on the status of tuna stocks in the eastern Pacific.

Commissioner Beasley of the U.S. inquired as to the possible effects of this year's mild El Niño on the fishery and future recruitment. Dr. Joseph

replied that in contrast to the strong El Niño of 1982-83, the current mild El Niño has had no observed effect on the yellowfin fishery. In 1982-83 the thermocline dropped from its normal depth of around 100 feet (where it tended to keep fish in the net prior to pursing) down to several hundred feet. Also surface warming both to the north and the south tended to spread fish out over a much larger area than usual. In contrast, this year's El Niño has had little effect on thermocline depth, and surface warming has been less pronounced. With regard to future recruitment, past El Niño events have had a positive effect, so the present El Niño may help future recruitment somewhat, although the effect may not be great because of the mildness of current El Niño conditions. There were no further questions on the status of tuna stocks.

AGENDA ITEM 6 - REVIEW OF TUNA-DOLPHIN PROGRAM

Chairman Martínez asked Dr. Joseph to review the Commission's tuna-dolphin program. Dr. Joseph said that this program is covered in Background Papers 6 and 7. He began the staff presentation by recalling the three objectives of the program adopted in 1976. (These are mentioned on page 3 of these minutes.) He then called on Dr. Hall to summarize activities of the Commission's tuna-dolphin investigation.

Dr. Hall outlined the major components of the Commission's activities relating to the problem of dolphin mortality, most of which are covered in background Paper 6. These are a scientific technician program, a gear research program, an educational program conducted jointly with the United Nations Environment Programme (UNEP) that focuses on activities in Latin America, and a research program. Major components of the research program include dolphin mortality estimation, dolphin abundance estimation, studies on the nature of the tuna-dolphin association (not covered in Background Paper 6 but discussed previously under Agenda Item 3), and studies on the biology of bottlenose dolphins.

Placement of scientific technicians aboard purse seiners operating in the eastern Pacific is a key activity of the Commissions's dolphin research program. With the exception of U.S.-flag vessels, the basic objective of this program in 1986 was to sample one-third of the trips made by vessels participating in the purse seine fishery for tunas associated with dolphins. Under U.S. regulations U.S. vessels could be be required to carry either an IATTC scientific technician or a U.S. National Marine Fisheries Service (NMFS) observer. For 1986, the IATTC and the NMFS agreed to divide the sampled U.S. trips on a 50-50 basis with data for these trips being exchanged between the two bodies in summary form.

In the case of non-U.S. vessels, 75 out of a total of 288 trips were sampled, with vessels operating under the flags of Costa Rica, Ecuador, Mexico, Panama, Vanuatu, and Venezuela participating. Thus the Commission came close to its goal of one-third coverage. (The shortfall was mostly due to a variety of logistic problems.) In addition, 40 U.S. trips were covered, 20 by the IATTC and 20 by the NMFS. Overall, IATTC technicians sampled 95 trips which, with the 20 trips covered by U.S. observers, represented about 30% of the purse seiner departures by the international fleet in 1986 (115 out of 381 trips). The 95 trips sampled by the IATTC in 1986 was about double the number sampled in 1985 with the increase being due largely to the

participation of Mexico in the international program for the first time. The placement of scientific technicians is fundamental to the success of the Commission's tuna-dolphin research and to its efforts to reduce dolphin mortality. In view of this, Dr. Hall especially thanked both member and non-member nations for their cooperation in the program.

The IATTC gear program focuses on reducing dolphin mortality by improving fishing gear and techniques. In 1986, 40 floodlights were loaned to purse seiners operating under Latin American flags for use when backdown takes place during darkness. It is believed that the use of floodlights can reduce dolphin mortality on sets made late in the day, and they are required equipment on U.S. purse seiners. Other activities included: holding informal meetings with captains and owners of vessels that have had mortality problems to identify and resolve any systematic problems that might exist; participation in net-alignment sets; improvement of data on gear carried by purse seiners through observations made by IATTC technicians; development of a computer program for analyzing and summarizing trip data pertaining to dolphin mortality so that this information can be quickly provided to the vessel captain or owner; and distribution of literature and video tapes on dolphin mortality reduction.

In 1985 the IATTC staff developed a proposal to intensify its tuna-dolphin activities in Latin America. Late in that year the UNEP offered to partially fund this project. This offer of funding was accepted with the understanding that the objectives of this program would not conflict with the stated objectives of the IATTC program. The first activity under the UNEP-IATTC program was a training course for scientific technicians that was held in Mexico in December 1985. In 1986, two more of these training courses were held, one in Venezuela and the other in Ecuador. (Two more training courses were conducted in 1986 without UNEP participation, one in Mexico and one in the U.S.) In addition, two courses were presented that dealt with different aspects of marine mammal research. One entitled "Estimation of the Abundance of Marine Mammals" was held in Cumaná, Venezuela; the second, entitled "Biology and Ecology of Marine Mammals" was held in Guayaquil, Ecuador. In addition to supporting these educational and training activities, funds from the UNEP-IATTC program were used in the late 1985 to purchase the floodlights that were distributed to Latin American vessels (as described earlier) and to translate certain scientific materials dealing with dolphins from English into Spanish.

Turning to research activities of the tuna-dolphin program, Dr. Hall mentioned first studies that were conducted on the distribution and herd structure of bottlenose dolphins. This species is not sought by purse seiners. However, bottlenose dolphins occur over a wide range in the eastern Pacific and are sometimes associated with spotted dolphins, which are important in the tuna fishery. The main objective of these studies was to test the hypothesis that herd size and/or the occurrence of mixed species herds would be greater in pelagic populations. (For a summary of results, see Background Paper 6.)

Dr. Hall then went on to the subject of estimating the incidental mortality of dolphins in connection with tuna purse seining operations during 1986. Mortality estimation is based on stratifications of the fishing area in the eastern Pacific. Stratification is necessary because some species or

stocks inhabit well-defined areas and are rarely caught outside of them. Others are present throughout the eastern Pacific fishery, but their mortality rates vary from area to area. In heavily-fished areas dolphins apparently have adapted behaviorally to being caught in purse seine nets and do not panic. This results in lower mortality than that observed in areas where dolphins have been less exposed to the fishery. Area stratification was used in making mortality estimates for offshore spotted, whitebelly spinner, eastern spinner, and common dolphins. Stratification in this manner helps to reduce bias and variances in the resulting estimates.

The actual mortality estimates are derived from data collected by IATTC scientific technicians and NMFS observers on kill per set and kill per ton within each of the stock-area strata. These kill rate estimates are combined with data on the total number of sets or total tons of tunas caught to derive strata mortality estimates that are in turn combined to produce an overall total kill estimate for each dolphin species or stock. In deriving the final total kill estimates, data for vessels of all flags are combined because tests for the 1979-83 period showed no significant differences in mortality rates between U.S. and non-U.S. vessels for most areas.

The Chairman adjourned the meeting for lunch at 11:45 AM. The meeting reconvened at 2:40 PM.

Continuing with his presentation, Dr. Hall presented estimates of dolphin mortality by species for 1986 based on both kill-per-set data and kill-per-ton data. The total dolphin kill estimates were 129,459 animals (kill-per-set data) and 124,597 animals (kill-per-ton data). A little over 50% of this mortality involved offshore spotted dolphins. Eastern and whitebelly spinner dolphins made up nearly 25% of the mortality with the two species being killed in about equal numbers. Common dolphins accounted for about 20% of the kill; the remaining kill was divided among several other species.

Overall dolphin mortality was up considerably over levels observed in recent years. It appears that a combination of factors relating to the nature of the 1986 fishery resulted in increased mortality. As Dr. Joseph had noted earlier, the yellowfin catch reached an all-time high in 1986 and was also very high in 1985. During these years the fishery focused on larger yellowfin which are caught on dolphins because of their high availability and the higher price paid for them. This resulted in a very large proportion of the effort being targeted on dolphins. Other factors such as a larger than usual proportion of sets finishing in darkness and of sets on species with higher mortality rates also contributed to the large increase.

Over 10,000 sets were made on dolphins in both 1985 and 1986 (an all-time high level and well over half of all sets) as compared to about 6,000 dolphin sets per year in the 1982-84 period. Because the total dolphin kill increases as the number of dolphin sets increases, this factor alone plays an important role in explaining the increased mortality. In addition, however, the catch per set of tunas in dolphin sets has also increased steadily in all areas. For the eastern Pacific as a whole the figure has gone from about 11 tons per set in the 1979-83 period to 20 tons per set in 1986. With more tuna in the net the time required to complete a set increases and dolphin mortality goes up. The increased mortality could be due to the larger number of tuna in the net, to the extended set time, or to a combination of both factors.

Sets started late in the day during which the backdown stage is not reached until after dark are sometimes associated with higher dolphin mortality. Because the number of sets on large yellowfin associated with dolphins was high in 1985 and 1986, and because the duration of such sets increased due to larger tuna catches, these dark-backdown sets increased from 4-5% of all sets in the early 1980s to 10-14% in 1985 and 1986 with a concomitant increase in dolphin mortality. As noted earlier, it is believed that use of proper floodlights can reduce mortality on these sets.

Dolphin mortality also seems to increase when there are larger numbers of juveniles present, and this was the case for offshore spotted dolphins during 1986. The proportion of pre-adult stages among incidentally killed animals was the highest since 1979. Young animals are less experienced in escaping from the nets and thus suffer higher mortality.

Given that they have been captured in a purse-seine set, certain species of dolphins are more subject to mortality than others. The common dolphin is especially vulnerable, but in many years very few common dolphin herds are set on. For example, for the 1982-84 period common dolphin were involved in only about 1% of all observed dolphin sets. This figure increased to about 4% in 1985 and to almost 7% in 1986. Related to this type of species-specific consideration is the fact that vessels operating under different flags concentrate their activities in different areas with some fleets operating in areas where mortality is higher. In these higher mortality rate areas, vessels of all flags tend to encounter similar difficulties. When vessels of a particular flag predominate in such an area, their higher kills cannot simply be taken to indicate that less effort is being made to avoid incidental dolphin mortality. Rather, kill rates for different areas of the fishery must be carefully evaluated taking into account such things as the species set on, herd size, herd composition, and environmental factors that are present during the set.

In addition to obtaining estimates of incidental dolphin mortality, a second major requirement in assessing the impact of tuna fishing on dolphin populations in the eastern Pacific is to monitor the sizes of the populations themselves. To discuss this aspect of the Commission's research program, Dr. Hall introduced Dr. Stephen Buckland, an ITTAC staff member who is an expert on marine mammal population estimation.

Dr. Buckland explained that the IATTC uses a line transect method for making estimates of dolphin populations. This method is based on data pertaining to dolphin sightings and sets as recorded by IATTC scientific technicians and NMFS observers aboard purse seiners. The basic idea is to estimate the numbers and sizes of dolphin schools within the area searched by purse seiners in the course of their fishing operations. From this information estimates of the overall population sizes or indices of relative abundance can be derived.

Although the idea underlying line transect estimation is conceptually simple, the procedures involved in application of the technique are relatively complex mathematically. A basic reason for this complexity is that the probability of visually detecting a dolphin school depends both on its size and its distance from the searching vessel. It is also necessary for either the dolphin schools or the searching effort to be randomly distributed.

Obviously this condition cannot be met over the entire area occupied by a particular population, but it can be approximately satisfied if the population can be stratified in an appropriate manner. After study of the problems involved, the staff has determined that area stratification based on encounter rates provides a reasonable approach for those stocks that are well sampled (northern offshore spotted, eastern spinner, northern whitebelly spinner, and central common dolphin stocks).

A number of other assumptions are also important. For example, it is assumed that all schools near the track line are seen; that school movement is slow relative to vessel speed and independent of the vessel prior to detection (may not always be satisfied); that all sighting angles and distances are measured correctly; that schools are properly identified as to species; and that school sizes are accurately determined. In addition to making these assumptions, several techniques are used to reduce bias and improve robustness of estimates. These include several procedures for data quality control and "smearing" of data to adjust for rounding errors in sighting data. Further information on technical aspects of line transect estimation is contained in Background Paper 6.

Population estimates are available from the mid-1970s through 1986. In some years, such as 1985 and 1986 when the number of dolphin sets was up sharply, estimates are generally considered more reliable, but in other years certain stocks and areas are not well sampled and the resulting population estimates are less satisfactory.

The most abundant dolphin stock utilized by fishermen in the eastern Pacific is the northern offshore spotted dolphin. There is strong evidence for a decline in this stock from about 5 million animals in 1975 to about 2 1/2 million animals in 1981. Since then the stock has been relatively stable with some evidence of recovery in 1985 and 1986. A very low estimate for 1983 is considered unreliable because of El Niño effects on the behavior of both the dolphins and the fleet. It is of interest that over the entire period since 1975, the estimated number of northern offshore dolphin schools has been relatively stable, but the average school size has apparently declined.

The southern offshore spotted dolphin has been poorly sampled, and population estimates are not considered very reliable. However, the available information suggests some decline since 1976 with the stock being relatively stable in the 1980s.

All three spinner dolphin stocks (eastern, northern whitebelly, southern whitebelly) show a similar pattern of decreasing abundance through the late 1970s, relative stability in the early 1980s, and increased abundance in recent years. The data are most reliable for eastern spinners. This stock, which declined from about 500 thousand in the late 1970s to a low of about 300 thousand in the early 1980s, has rebuilt itself to over 600 thousand animals in 1985.

Estimates of common dolphin abundance are made less reliable by the fact that fishermen often do not treat this species as a target species. The northern common dolphin stock was poorly sampled prior to Mexico's participation in the IATTC scientific technician program beginning in 1987. The data that are available, however, indicate a more or less stable stock of

about 700 thousand animals. The central common dolphin stock, for which somewhat better data are available, shows a decline in abundance from roughly 500 thousand in the late 1970s to about 250 thousand in the 1980s. Data for the southern common dolphin suggest a large reduction in this stock, but because of large standard errors and possible large biases the decline may not be as serious as it seems.

Dr. Buckland closed his presentation by saying that while information for certain individual species may be somewhat questionable, general trends for all dolphin species combined are probably fairly accurate. These combined data indicate that the overall dolphin population, which declined from about 9 million animals in the late 1970s to about 4 million in the early 1980s, has since recovered to its present level of about 6 million animals.

Continuing with the discussion of staff activities relating to incidental dolphin mortality, Dr. Joseph said the mortality and population estimates for 1986 are considered to be better than in past years because all major participants in the fishery are now cooperating in the IATTC program. Populations that had generally declined in the 1970s now appear to be increasing somewhat. This is a favorable development, especially in light of the second objective of the Commission's tuna-dolphin program, to assure the survival of dolphin stocks in perpetuity. Mortality estimates, however, were up sharply in 1986 over levels observed in previous years. As Dr. Hall indicated, a number of interrelated factors have contributed to the mortality increase. In keeping with the Commission's third objective (to ensure that every reasonable effort is made to avoid needless and careless killing of dolphin), the staff has recommended that certain measures for reducing dolphin mortality be adopted by all nations whose purse-seine vessels operate in the eastern Pacific. These measures are discussed in Background Paper 7 which also briefly summarizes the development of the fishery for tunas associated with dolphins and IATTC involvement in the dolphin mortality problem since 1976.

First, all vessels should make use of the backdown procedure whenever dolphin sets are made. This procedure involves putting the vessel's engine in reverse at an appropriate stage in the set and pulling the pursed net backward through the water. The net forms an elongated channel, and the corkline at the far end of the channel (away from the vessel) sinks slightly below the surface allowing captured dolphins to escape. Second, a fine-mesh dolphin safety panel system should be installed in the part of the net that forms the apex of the backdown channel. This prevents dolphins (which often come into contact with this part of the net) from becoming entangled. Third, speedboats should be equipped to tow on the purse seine during a set to prevent net collapse and canopy formation. Speedboats should also assist in hand rescue of animals tangled in the net during and after backdown. Fourth, a raft equipped with an underwater viewing device should be deployed during backdown to assure that the backdown procedure is continued until all dolphins are released including sleepers. ("Sleepers" are individuals that sometimes lie without moving against the net and can go undetected if a raft is not used.) The raft can also be used to assist in hand rescue. Fifth, high-intensity lights should be installed for use during night-backdown sets when backdown takes place in darkness.

All of the first five recommended measures pertain to techniques and equipment involved in the purse-seining process itself. The sixth and final recommendation is that each nation with purse seiners operating in the eastern Pacific should establish an advisory panel of experienced skippers and gear experts which would work to reduce dolphin mortality. Its activities could include organizing workshops, working individually with captains experiencing mortality problems, and arranging trial sets for dolphin safety panel alignment.

In concluding, Dr. Joseph stressed that the six recommended measures would only affect nations with purse seiners active in the eastern Pacific Ocean. Other fishing methods such as longlining, which do not cause dolphin mortality, would not be affected in any way.

Chairman Martinez thanked Dr. Joseph and his staff for their presentations. He then asked for questions or comments pertaining to the Commission's tuna-dolphin program.

Mr. Okuno of Japan took the floor and asked Dr. Joseph if illustrations or plans were available for the purse-seine modifications and other measures recommended by the staff. Dr. Joseph responded that he did not have such illustrations with him but that they could certainly be provided. Mr. Okuno then noted that his delegation had not heard of the Commission's joint program with UNEP until Dr. Hall discussed the program activities earlier in the day. He inquired as to why such an agreement was not taken up with member governments before being finalized and asked if any Commission rules had been violated in the process.

Dr. Joseph responded by noting that the last annual meeting of the IATTC (the 43rd meeting) was held in Tokyo mid-October of 1985, at which time the joint program with UNEP was just getting underway. The joint program was discussed in Background Paper 6 for the Tokyo meeting, and program activities have been fully documented in the Commission's quarterly reports which go to all member governments. The 1986 Annual Report will also include coverage of the program. Dr. Joseph also noted that the Commission has authority to enter into contracts to secure research funding, and over the years such contracts have been entered into with a number of outside organizations. It has not been the practice in the past to seek consent from all member governments prior to entering into such contracts, and this was not done in the case of the UNEP agreement. Finally, UNEP funding was accepted with no conditions attached and was used for worthwhile projects that were consistent with IATTC objectives. Having made these points, Dr. Joseph indicated that he could perhaps have made a greater effort in advising Japan regarding the UNEP-IATTC joint program. Mr. Okuno thanked Dr. Joseph for his explanation.

The Chairman then recognized Ambassador Castro y Castro of Mexico who presented a statement entitled: "Mexican Policy for the Protection of Dolphin Captured Incidentally by Tuna Purse Seiners." This statement dealt with a wide range of subjects, among them Mexico's historical concern for conservation of marine mammals including dolphins, regulations pertaining to protection of dolphins which were first adopted in 1977, a new law that takes effect this year and will include further provisions for protection of dolphins, Mexico's involvement in the IATTC scientific technician program (within the framework of the UNEP Global Plan of Action for the Conservation,

Management, and Utilization of Marine Mammals), establishment of Technical Advisory Committees for the Tuna and Marine Mammal Programs of the National Fisheries Institute, Mexico's current priorities for dolphin conservation (reduction of dolphin mortality through research to improve fishing technology and interactions among skippers and tuna industry representatives), and establishment of a national observer program. An English translation of the text (prepared by IATTC staff) of Ambassador Castro y Castro's statement is presented in Appendix 3 of these Minutes. The original Spanish version is available upon request.

There were no further comments on the review of this tuna-dolphin program, so the Chairman moved on to the next agenda item.

AGENDA ITEM 7 - RECOMMENDATIONS FOR 1987

Chairman Martínez noted that the staff had recommended that the Commission consider taking action in two areas in 1987. The first is adoption of a resolution concerning the question of a 1987 yellowfin quota; the second is possible adoption of a resolution recommending dolphin mortality reduction measures. He suggested to the delegates that they first take up the question of a yellowfin resolution.

Commissioner Beasley of the U.S. began by recalling that Dr. Joseph, in reviewing the current condition of the yellowfin stock, had concluded that the fleet could not seriously overfish the resource this year because of its present high level of abundance, and therefore had made no quota recommendation for 1987. Dr. Joseph had gone on to suggest two possible courses that the Commission could take in adopting a yellowfin resolution: It could either set a quota at a very high level to reflect the favorable stock conditions or, alternatively, it could set no quota but instead stress that a quota would again be necessary whenever conditions return to a more normal state.

Commissioner Beasley said that his government favored the latter course. The final resolution could take note of the fact that high levels of recruitment in 1984 and 1985 and the favorable size composition of the 1985 and 1986 catches would enable the stock to support high catch levels in 1987 as it had in 1986. It could also emphasize that present stock conditions are unprecedented and cannot be expected to continue indefinitely. In future years quotas will again be necessary to prevent overexploitation of yellowfin. Providing that the other delegations agreed with this proposal, Commissioner Beasley asked if Dr. Joseph and his staff could draft a resolution along the indicated lines for further consideration.

Lic. Dalva Arosemena of Panama indicated that her Government supported the U.S. position, but she stressed that the favorable 1987 figures for yellowfin must be accepted and acted upon very cautiously.

Mr. Okuno of Japan asked Commissioner Beasley if the U.S. had a draft of its proposed resolution available. Commissioner Beasley responded that his delegation had not drafted a resolution and reiterated that it was requesting Dr. Joseph and his staff to draft such a resolution.

The Chairman, noting general concurrence among the delegations with the U.S. proposal, then called on Dr. Joseph. Dr. Joseph said that he and his staff would be glad to draft a 1987 yellowfin resolution along the lines suggested and that the draft would be available for further consideration at the following morning's session.

Ambassador Castro y Castro of Mexico was then recognized by Chairman Martínez. He began his presentation by saying that Mexico was pleased at the good news contained in Background Paper 2 which indicates that the yellowfin stock is at an optimum level. But Mexico is surprised and concerned that the Commission staff has not recommended an overall yellowfin catch quota for the first time since such quotas were first established in 1966. In spite of the unprecedented conditions resulting from the 1982-83 El Niño and subsequent high recruitment, failure to recommend a quota for 1987 could be taken to imply that a conservation regime is no longer necessary in the eastern Pacific or that the fishery is not fully exploited.

An integrated regional conservation regime is required in the eastern Pacific. Since 1983 Latin American coastal states have been working within the framework of OLDEPESCA (Latin-American Organization for Fishery Development) to create an authentically regional regulatory regime that will fully respect the sovereign rights of the coastal states regarding resources in their Exclusive Economic Zones. A proposed Convention structured along such lines is now in its final stages of negotiation. Other projects being negotiated in the region are simply access systems that do not contemplate conservation measures, and this would create a serious risk of overfishing the resource. (The full text of Ambassador Castro y Castro's statement is available from the Commission upon request.)

Dr. Joseph took the floor to respond to the Ambassador's comments. He reiterated the conclusions that he had presented previously concerning yellowfin. For 1987 the existing fleet poses no overfishing threat to the yellowfin resource at its current level of abundance. If the fleet operates in 1987 as it did in 1986, then the 1987 catch should be similar to the 1986 catch. Such a catch would not reduce the population below its optimum size. Under these circumstances, a quota cannot be recommended for conservation purposes. If the Commission decides to set a quota at a high level, it will be for political reasons rather than to control catches. Political considerations are the responsibility of the member nations and lie beyond the scope of staff responsibility.

Ambassador Castro y Castro acknowledged Dr. Joseph's remarks and noted that the Commission staff and the representatives of the various involved nations have worked together for 20 years to maintain a sound conservation program. He noted that he himself had worked with Dr. Joseph for many of those years and that all involved deserved congratulations.

There were no further comments on the proposed tuna resolution, so Chairman Martínez opened the floor for discussion of a resolution on reduction of dolphin mortality.

Lic. Arosemena of Panama began by congratulating Mexico for its efforts on behalf of dolphin conservation as summarized by Ambassador Castro y Castro. Panama is pleased to note that dolphin population estimates indicate that

stocks are increasing. However, the incidental kill was up substantially in 1986 and this is cause for concern. Lic. Arosemena suggested that the Commission should consider adopting a resolution recommending provisions for minimizing dolphin mortality along the lines outlined by Dr. Joseph, and she asked if he and his staff could draft such a resolution.

Mr. Okuno of Japan asked the representative of Panama if it was her intention that such a draft resolution would be limited to the six recommendations presented in Background Paper 7. Lic. Arosemena replied in the affirmative and noted that the resolution would apply only to nations with purse-seine fleets active in the eastern Pacific. Mr. Okuno continued, saying that the primary objective of the fishermen is to catch tunas and that they want to avoid killing dolphins in the process. In keeping with the first objective of the Commission's tuna-dolphin program, which is to maintain a high level of tuna production, a dolphin resolution, if adopted, should not impose an excessive burden on the fishermen. Such a resolution should also be based on scientific findings and should be clearly restricted to tuna purse-seine operations in the eastern Pacific Ocean. Finally, he suggested that any gear modifications required for dolphin mortality reduction should be on a 2-year trial basis.

Commissioner Beasley of the U.S. noted that the Commission staff has unique insight into the problem of incidental dolphin mortality as well as knowledge of what can be done to reduce this mortality. All of the Commission member governments want to improve the situation. Therefore, the U.S. supports the Panamanian proposal that Dr. Joseph draft an appropriate resolution.

Mr. Piney of France observed that the survival of the various dolphin stocks does not seem to be in jeopardy. He asked Dr. Joseph if he thought this was the right time to adopt such a resolution and, if so, whether it should include all of the measures mentioned in Background Paper 7. Dr. Joseph responded, noting that Mr. Piney had raised some interesting points. With regard to the proposals for reducing dolphin mortality, nothing can be considered certain. However, it is believed that each of the proposals contained in Background Paper 7 can contribute to the goal of reducing incidental dolphin mortality. Much of the data concerning the effectiveness of these methods was first presented at the Commission's 40th meeting in 1982, although information on the use of high-intensity lighting is more recent. He indicated that he would have a draft of such a resolution ready for consideration at the next morning's session.

Dr. Amado Acuña, the observer from Venezuela, asked if any distinction should be made between passing a resolution and making recommendations. Chairman Martínez said that he saw no problems in this regard. Mr. Piney of France reiterated that he supported the idea of drafting a resolution and had just wanted some clarification on the status of scientific studies on mortality reduction techniques. Commissioner Beasley of the U.S. stressed his nation's concern about the increase in dolphin mortality in 1986 and its desire to proceed with a resolution aimed at reducing the mortality.

At this point Chairman Martínez concluded the session, noting that Dr. Joseph and his staff would have drafts of the two resolutions (one concerning yellowfin tuna and the other concerning dolphin mortality

reduction) ready for further consideration at the following morning's session. The meeting was adjourned at 5:05 PM.

The meeting reconvened on the following day, Thursday, May 7, 1987, at 10:30 AM. Drafts of the two resolutions discussed during the prior session had been completed by Dr. Joseph and his staff. These drafts were made available to the delegations immediately prior to the opening of the session. Chairman Martínez suggested that the resolution dealing with yellowfin tuna be taken up first.

Commissioner Beasley of the U.S. indicated that his government favored adoption of the draft resolution essentially as written.

Mr. Okuno of Japan observed that the draft yellowfin resolution contained no recommendation for a 1987 yellowfin catch quota. In 1985 an initial quota for 1986 of 175 thousand tons was recommended by the Commission with provisions for incremental increases to a maximum of 205 thousand tons. The actual yellowfin catches considerably exceeded these levels without causing damage to the resource. Because the basic objective of the IATTC is to manage and conserve tunas and considering the present favorable stock condition, Japan believes that the tuna resolution should recommend that a 1987 yellowfin quota be established at the high level of 260 thousand tons.

The Chairman noted that during the prior session an apparent consensus had been reached to the effect that no yellowfin quota would be recommended for 1987. In view of Mr. Okuno's comments, he asked if the delegates wished to reconsider this matter.

Commissioner Beasley of the U.S. observed that the yellowfin resolution as drafted was fully in accord with the spirit of the Convention and quoted from Article II-5 which states that it is the duty of the Commission to "recommend from time to time, on the basis of scientific investigations, proposals for joint action by the High Contracting Parties designed to keep the populations of fishes covered by this Convention at these levels of abundance which will permit the maximum sustained catch." Because the resource is currently at a record level of abundance and is capable of sustaining any possible level of catch by the present fleet without damage to future productivity, it would be inappropriate to recommend a quota. In fact, recommendation of a very high quota could be misleading in that this might be taken to imply that such a catch level could be maintained indefinitely. On the contrary, our main concern should be to adequately caution that, in the future, quotas will in all likelihood have to be set well below the level of 1986 and 1987 catches. The draft resolution provided by Dr. Joseph accomplishes this goal and, in the opinion of the U.S., is the approach that should be adopted.

Lic. Arosemena of Panama stressed that the key objective is to maintain tuna resources at maximum sustained yield levels, with or without quotas as appropriate.

Mr. Okuno of Japan said that Japan could support the yellowfin resolution as drafted, but he indicated that the record should reflect Japan's concern over the fact that no quota was being recommended for 1987. Chairman Martínez indicated that the summary minutes would reflect Japan's concern on this

point. He then suggested that the delegations move on to consideration of the second draft resolution dealing with reduction of incidental dolphin mortality.

Lic. Arosemena stated that the draft resolution provided by Dr. Joseph was acceptable to Panama except for some minor matters of form in the Spanish version. The Chairman said that these could be taken care of with the assistance of the interpreter, Mr. Carlos Diez.

Mr. Piney of France inquired as to the distinction between a resolution and a recommendation. Chairman Martínez noted that a resolution of the Commission can include recommendations to the High Contracting Parties. Dr. Joseph affirmed the Chairman's observation and added that this was the manner in which the Commission has traditionally taken action. Detailed summary minutes of this meeting with the resolutions attached will go to all member governments.

Mr. Okuno of Japan proposed that the wording of the resolution on reduction of dolphin mortality should recommend that governments "encourage" rather than "require" their flag vessels to adopt the protective measures enumerated therein. Commissioner Beasley of the U.S. indicated that the wording suggested by Japan was acceptable.

The Chairman completed consideration of Agenda Item 7 by requesting Dr. Joseph to refine the wording of both Spanish and English versions of the two resolutions to conform with the conclusions reached in the discussions. Dr. Joseph agreed to do so. The final text of the resolution on yellowfin tuna is presented in Appendix 4. The final text of the resolution on reduction of dolphin mortality is presented in Appendix 5.

AGENDA ITEM 8 - RECOMMENDED RESEARCH PROGRAM AND BUDGET FOR 1988-89

Chairman Martínez asked Dr. Joseph to comment on the research program and budget proposal for the 1989 fiscal year. Dr. Joseph noted that the proposed budget for FY 89 (October 1, 1988, through September 30, 1989) is presented in considerable detail in Background Paper 3 which was distributed well in advance of the meeting. It is similar to the FY 88 budget in most respects.

Going through the budget by major project categories, the administrative costs category and the tuna life history and biology project show no significant changes. The compilation of catch statistics project shows a small increase of about 4% due principally to inflationary trends. The oceanography project used to be funded at a substantially higher level, but is now funded on a reduced scale with only a slight increase proposed for FY 89. For the tuna tagging project a major 23% funding reduction is proposed because no tagging cruises are planned in the eastern Pacific during FY 89. However, analysis of data from past tagging experiments will continue, and an effort will be made to tag a few large yellowfin from sport-fishing boats. These tagged fish will also be injected with tetracycline so that their growth can be studied. The Commission staff will continue to cooperate with Japanese scientists from the Far Seas Fisheries Research Laboratory in a bluefin tagging program. In the tuna-dolphin project a substantial increase of 26% is proposed to expand the Commission's program for placing scientific technicians aboard tuna vessels. This proposed increase stems from Mexico's participation

in the program. Overall the proposed FY 89 budget of $3,525,454 represents an increase of $222,262 (or 6.73%) as compared to the FY 88 budget. About 3% of this increase is to account for inflationary factors.

Commissioner Beasley said that the proposed FY 89 budget was appropriate and acceptable to the U.S. Mr. Piney of France commented that the increase in funding for tuna-dolphin studies suggests that these are far from completed. He also observed one-third of the Commission funding in the proposed budget will be going into tuna-dolphin studies, an activity that is not directly mentioned in the original Convention text. France found the proposed FY 89 budget acceptable, however. Chairman Martínez closed discussion of this agenda item, noting the consensus for approval of the FY 89 budget as proposed.

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

Chairman Martínez asked Dr. Joseph to introduce this agenda item. Dr. Joseph said that this item first became a part of the agenda several years ago when he was asked to review discussions then underway among nations concerned with future arrangements for tuna management in the eastern Pacific region. There have been three major initiatives on this matter. The first series of discussions took place from 1977 through 1979. These discussions were spearheaded by Costa Rica, Mexico, and the U.S., but at times also involved other coastal states as well as non-coastal states whose fleets were active in the eastern Pacific. These talks were aimed at producing a comprehensive agreement for the utilization and conservation of highly-migratory species throughout the region. Although much progress was made, a final agreement could not be reached. Subsequently two new initiatives were undertaken, one involving Costa Rica, Guatemala, Honduras, Panama, and the U.S., and the second, as noted the previous day by Ambassador Castro y Castro of Mexico, involving members of OLDEPESCA. Both of these latter initiatives are presently being actively pursued.

At this point Commissioner Beasley introduced Mr. Brian Hallman, a member of the U.S. delegation representing the Department of State. Mr. Hallman reviewed efforts to conclude an Eastern Pacific Ocean Tuna Fishing Agreement (EPOTFA). EPOTFA is the first of the two current initiatives mentioned by Dr. Joseph. It is a regional access agreement under which a new international licensing authority would be created. The body would issue regional tuna fishing licenses to flag vessels of participating nations. A proportion of the fees collected from sale of these licenses would be used to defray the expenses of the issuing body, but the bulk of the proceeds would go to participating coastal states in proportion to tuna catches made within their national 200-mile zones. So far five nations (Costa Rica, Guatemala, Honduras, Panama, and the U.S.) have signed the EPOTFA agreement, and the U.S. is hopeful that it will soon enter into force. Mr. Hallman stressed that EPOTFA is not a management agreement and does not conflict in any way with the IATTC. On the contrary, EPOTFA is supportive of and complementary to IATTC management of tuna resources. Also EPOTFA, if and when adopted, will be an interim agreement in that it mandates negotiations aimed at producing a more comprehensive agreement for the eastern Pacific region. It is conceived of as an important first step toward full regional cooperation in the utilization and management of the region's tuna resources.

Mr. Hallman then turned to recent developments in the western Pacific. On April 12, 1987, the U.S. and 12 Pacific Island nations signed a regional tuna treaty following 2 years of negotiations. This new agreement, although different from EPOTFA in some ways, is similar in other important respects. For example, regional fishing licenses will be issued. Mr. Hallman said he could provide full details on the new western Pacific agreement to anyone who might be interested.

The Chairman then recognized Dr. Alba Bustamante, an observer representing OLDEPESCA. Dr. Alba Bustamante indicated that his organization, with the close cooperation of the South Pacific Permanent Commission, has been working on development of a regional agreement for the conservation of tunas that will be based upon the sovereign rights of coastal states over all resources occurring within their 200-mile economic zones, including highly-migratory species. A draft convention creating an Eastern Pacific Tuna Organization has been approved, and a final document establishing the new Organization should be completed at Guatemala City in the near future.

Lic. Arosemena of Panama then introduced Abog. Adela López, a legal advisor from the Ministry of Commerce and Industry. Abog. López reviewed actions taken by Panama with respect to the EPOTFA agreement. Panama is a signatory nation to this agreement and is presently in the ratification process. The process has been completed at the legislative level and Panama's ratification soon will have the power of law.

Lic. Eduardo Medina Mora of Mexico was recognized. He referred to his government's efforts in coordination with the South Pacific Permanent Commission to develop an OLDEPESCA tuna agreement that would entail creation of a new regional body for management of tuna resources. He took note of the important contributions that the IATTC has made to the conservation of tunas over the years. But he stressed the importance of developing a new tuna agreement that fully takes into account the sovereign rights of coastal states.

AGENDA ITEM 10 - PLACE AND DATE OF NEXT MEETING

Chairman Martínez observed that the honor of hosting the annual meeting of the Commission has traditionally rotated among member governments. However, in recent years the meeting has occasionally been held in La Jolla, California, where Commission headquarters are located. One advantage of meeting in La Jolla is that a greater degree of staff participation is possible, and he suggested that the 45th meeting be held there. All delegations concurred with the Chairman's proposal.

Mr. Okuno of Japan suggested that the meeting might be held in the autumn so that, if necessary, a yellowfin quota can be established in timely manner.

Dr. Joseph observed that for many years the annual meeting had been held in the autumn for the reason suggested by Mr. Okuno. It has always been recognized that if a meeting could be held in the spring, much more complete data would be available from the previous year upon which to base a decision as to quota level. But spring meetings were not possible for many years prior to 1987 because of the strong possibility that the recommended quota, if adopted, would be set at a level that might necessitate closure of the fishery

early in the calendar year. However, at the 43rd meeting in Tokyo, it was agreed that the 44th meeting in Panama (i.e., the present meeting) could be held in the spring because the yellowfin stock was in excellent condition, and no possibility of an early closure could be foreseen. This judgement has now been borne out because there have been no problems associated with the timing of the present meeting. It is also clear that the yellowfin situation remains extremely favorable, so a spring meeting date for the 1988 meeting is both feasible and desirable. A second reason for meeting in the spring is that conflicts are avoided with autumn meetings of other organizations (e.g., the International Commission for the Conservation of Atlantic Tunas and the Indian Ocean Fisheries Commission).

Commissioner Beasley of the U.S. raised a further question as to whether much new information would become available in the few months between the present meeting and a meeting next fall. Based on this consideration and the points made by Dr. Joseph, he supported a spring meeting date for the 45th meeting.

Considering these discussions, a spring meeting seemed preferable, and Chairman Martínez suggested March 8-10, 1988. Mr. Piney of France indicated his support for this proposal. There being no further comments, the Chairman announced that the 45th meeting of the IATTC would be held March 8-10, 1988, in La Jolla, California.

AGENDA ITEM 11 - ELECTION OF OFFICERS

Commissioner Beasley of the U.S. proposed that the present Chairman and Secretary continue to serve through the 45th meeting because that meeting would be held at Commission Headquarters in La Jolla rather than being hosted by a member government. France seconded this proposal and the other delegations concurred. Hence Chairman Martínez of Panama and Commissioner Aróstegui of Nicaragua will continue to serve as Chairman and Secretary respectively.

AGENDA ITEM 12 - OTHER BUSINESS

Chairman Martínez noted that Dr. Joseph's personal bilingual secretary, Mrs. Regina Newman, was retiring following the meeting after 16 years of dedicated service. In view of the fact that Mrs. Newman has participated in most of the Commission's meetings over this long period and contributed greatly to their success, it is appropriate to present her with a plaque upon which is inscribed a Resolution of Commendation and Appreciation in both Spanish and English. The Chairman then asked Mrs. Newman to come forward to accept her well-deserved award. She did so and thanked the delegates for their thoughtfulness. (The text of this Resolution of Commendation is presented in Appendix 6.)

Chairman Martínez asked if there was any further business. Commissioner Beasley of the U.S. noted that several very complex issues had been handled effectively and congratulated the Chairman, Dr. Joseph, and members of the IATTC staff for their contributions. The Chairman also thanked Dr. Joseph and his staff, as well as Mr. Diez, the interpreter. Dr. Joseph added his thanks to the Panamanian staff members from the Ministry of Commerce and Industry, Department of Marine Resources.

AGENDA ITEM 13 - ADJOURNMENT

Chairman Martínez congratulated the delegates on the adoption of appropriate and timely resolutions concerning yellowfin tuna conservation and reduction of dolphin mortality. He then declared the 44th meeting of the IATTC closed at 12:10 PM.

APPENDIX 1--ANEXO 1

LIST OF ATTENDEES--LISTA DE PARTICIPANTES

MEMBER GOVERNMENTS--GOBIERNOS MIEMBROS

FRANCE--FRANCIA

Dominique Piney
Frederic De Heere

JAPAN--JAPON

Masaru Okuno
Shuichiro Kawaguchi
Haruyuki Miyauchi
Tsutomu Watanabe

NICARAGUA

Abelino Aróstegui V., Commissioner-Delegado

PANAMA

Armando R. Martínez V., Commissioner-Delegado
Jesus Antonio Correa, Commissioner-Delegado
Dalva Helena Arosemena Machado
Betsy Mariela Abrego
Sonia E. Bosquez
Juan L. De Obarrio
Epiménides Díaz
Carlos E. Icaza
Gustavo Justine
Adela Del C. López Muñoz
Darío López
Tilcia Maria Monteza
Octavio E. Sousa
Yukinobu Takafuji
Ricardo Traad Porras

U.S.A.--ESTADOS UNIDOS

R. Henry Beasley, Commissioner-Delegado
Robert C. Macdonald, Commissioner-Delegado
Izadore Barrett
John De Beer
August Felando
Bernard D. Fink
Charles Fullerton
Brian S. Hallman

OBSERVER GOVERNMENTS--GOBIERNOS OBSERVADORES

CANADA

William Brett

CHILE

Carlos Vega

COLOMBIA

Antonio Jose Infante

ECUADOR

Susana Alvear De Acosta

EL SALVADOR

Bruno A. Urbina

GUATEMALA

Jorge Alberto García Mejía
Victor Hugo Sánchez Ulloa

MEXICO

Fernando Castro y Castro
Eduardo Medina Mora Icaza

VANUATU

Richard Kaltongga

VENEZUELA

Amado C. Acuña

INTERNATIONAL ORGANIZATIONS--ORGANIZACIONES INTERNACIONALES

ORGANIZACION LATINOAMERICANA DE DESARROLLO PESQUERO (OLDEPESCA)

Alba Bustamante

INTER-AMERICAN TROPICAL TUNA COMMISSION (IATTC)--COMISION INTERAMERICANA DEL ATUN TROPICAL (CIAT)

James Joseph
Stephen Buckland
Joseph Greenough
Martín Hall
Regina Newman

Vernon Scholey

SECRETARIAL STAFF--SECRETARIA
MINISTERIO DE COMERCIO E INDUSTRIAS, DIRECCION GENERAL DE RECURSOS MARINOS (PANAMA)

Gloria Batista
Nitzia De Degracia
Mitzi De Medina
Irma I. De Sáenz
Efraín Huertas
Angela Rodríguez

INTERPRETER--INTERPRETE
Carlos Diez

APPENDIX 2

PROVISIONAL AGENDAS FOR THE 44TH MEETING OF THE
INTER-AMERICAN TUNA COMMISSION

PROVISIONAL AGENDA PROPOSED BY IATTC STAFF

1. Opening of the meeting
2. Consideration and adoption of agenda
3. Review of current research
   a. Tuna
   b. Dolphins
4. The 1986 fishing year
   a. Tuna catches and current condition of stocks
   b. Dolphin mortality
5. Recommendations for 1987
   a. Yellowfin tuna
   b. Dolphin
6. Recommended research program and budget for 1988-89
7. An update of activities concerning arrangements for the management of tunas and dolphins in the eastern Pacific
8. Place and date of next meeting
9. Election of officers
10. Other business
11. Adjournment

December 12, 1986

PROVISIONAL AGENDA PROPOSED BY JAPAN

1. Opening of the meeting
2. Consideration and adoption of the agenda
3. Review of current tuna research
4. Review of the tuna-dolphin program
5. The 1986 fishing year
6. Recommendation for 1987
7. Recommended research program and budget for 1988-89
8. An update of activities concerning arrangements for tuna management in the eastern Pacific
9. Place and date of next meeting
10. Election of officers
11. Other business
12. Adjournment

March 18, 1987

APPENDIX 3

STATEMENT PRESENTED BY AMBASSADOR FERNANDO CASTRO Y CASTRO
AT THE 44TH MEETING OF THE IATTC

MEXICAN POLICY FOR THE PROTECTION OF DOLPHINS
CAPTURED INCIDENTALLY BY TUNA PURSE SEINERS

Mexico has always been deeply concerned about the conservation of the populations of marine mammals in waters of national jurisdiction, both in Mexico's territorial sea and in its Exclusive Economic Zone.

This concern has been expressed through the implementation of various regulations and administrative measures which have secured international recognition for my country in this field, particularly with regard to grey whales, sea lions, and seals. Several refuge and protection zones have been created for these animals, and this has had very positive effects on the conservation and abundance of those populations.

A similar concern has been felt by my government and by Mexican fishermen for dolphin populations incidentally captured in association with tunas by Mexican purse seiners in the eastern tropical Pacific Ocean.

Since 1977, several administrative measures have been established and published which regulate permits granted to purse-seine vessels that fish for tunas associated with dolphins in this oceanic region, in order to protect dolphins associated with this fishery.

Circular No. 20, of September 12, 1977, issued by the corresponding Directorate to Delegados Federales de Pesca and to holders of permits for tuna fishing, expressly forbids the capture of marine mammals during tuna fishing activities and mandates the prompt release of these animals when they become entangled in purse-seine nets.

The administrative regulations mentioned above make it mandatory for all Mexican tuna purse seiners to use the "Medina safety panel" or super apron and to carry the necessary equipment on board (inflatable rafts, floodlights, intermittent searchlights, and speed boats) and to perform the necessary maneuvers, including backdown, to facilitate the release of dolphins entrapped during fishing operations.

These same conditions are invariably specified in fishing permits for Mexican vessels which fish for tunas as an integral part of the permit itself, thus conditioning the authorization to the fulfillment of these technical specifications.

Furthermore, the Congreso de los Estados Unidos Mexicanos recently passed a new Ley Federal de Pesca, promulgated by the President, and published in the Diario Oficial on December 26, 1986.

This law, which became effective on January 25, 1987, enables the Secretaría de Pesca to establish and specify conservation measures for the various populations of living marine resources, and to dictate technical specifications which the holders of permits and concessions must observe, as

in the case of the incidental capture of dolphins in the tuna fishery mentioned above.

It also establishes that, in a period not to exceed 180 working days from the effective date of the law, the Executive Branch must issue the corresponding bylaws which, undoubtedly, will contain provisions for the protection of dolphin populations associated with tuna fishing.

Furthermore, as a result of the Mexican government's interest in protecting the various dolphin populations as much as possible, the Secretaría de Pesca, through the Instituto Nacional de la Pesca, maintains a cooperative program with the Inter-American Tropical Tuna Commission in order to jointly establish mechanisms to acquire greater knowledge and promote the conservation of these species, taking into consideration current national laws and fishing policy.

Within this framework of cooperation, inscribed in the Global Plan of Action for the Conservation, Management, and Utilization of Marine Mammals sponsored by the United Nations Environment Programme, a program for placing Mexican observers on national vessels, which became effective during the 1986 fishing season, was established jointly with the IATTC.

The main purpose of the observer program is to evaluate incidental mortality of dolphin populations in the Mexican tuna fishery and to acquire further knowledge on these species so as to facilitate their conservation.

The goals of the Mexican fisheries authorities for 1987 include the active involvement of Mexican scientists in the evaluation and interpretation of data jointly collected by Mexican observers and the IATTC staff.

At this point, it is necessary to emphasize the relevance of two events which occurred in 1986 and which will have great impact on Mexican research studies on these resources: the establishment of the Comités Técnicos Consultivos de los Programas de Atún y Mamíferos Marinos del Instituto Nacional de la Pesca (Technical Advisory Committees for the Tuna and Marine Mammals Programs of the National Fisheries Institute).

These committees, established in November 1985 for Tuna and in December 1986 for Marine Mammals, assemble all national research organizations and other sectors involved in the fishery, including the Mexican tuna fleet. Their objective is to coordinate and provide guidance for national research efforts on these resources under a common perspective.

It is also necessary to point out that the owners of Mexican tuna vessels have shown great interest in participating in these committees and, consequently, in national efforts to promote research and conservation of dolphin populations.

As part of the national policy for conservation of dolphin populations and the activities for the current year, there are two issues which must be granted priority.

First, bearing in mind that research resources available in Mexico are limited, it has been considered inappropriate to concentrate Mexico's efforts

on estimating the abundance and mortality of dolphin populations because these investigations are adequately conducted by the research staff of the IATTC, with an important degree of Mexican collaboration through the program mentioned above.

In this context, Mexican fisheries authorities have considered it more appropriate to direct their efforts toward technological development which will help to reduce incidental dolphin mortality, i.e., through the development of fishing gear and methods which will help to achieve this objective, a new and, in our opinion, useful approach.

Second, it has been considered that the establishment of a series of programs to provide guidance and promote exchange of experiences between captains of Mexican tuna vessels may help to improve fishing operations and, consequently, reduce incidental dolphin mortality. In the first meetings with high-level representatives of the Mexican tuna industry to organize these activities, a high degree of interest and willingness to collaborate was observed, which undoubtedly is due to the fact that the conservation of these populations is of benefit to the fishery.

Similarly, regarding the observer program, the possibility of establishing a national program to broaden the coverage of the sample program currently underway with the IATTC is being evaluated.

These policy objectives and the activities to be carried out in the near future produce an adequate and original approach which may serve to illustrate the efforts being undertaken by Mexico with regard to this issue.

May 5, 1987

APPENDIX 4

RESOLUTION ON YELLOWFIN TUNA PASSED AT THE 44TH MEETING OF THE IATTC

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 toward the study of such resources,

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

Recognizes, based on past experience in the fishery, that this resource can be overexploited by excessive fishing effort;

Recalls that implementation of a successful conservation program from 1966 through 1979 based on annual catch quotas maintained the yellowfin stock at high levels of abundance, and

Notes that, although no mechanism for implementing a conservation program existed from 1980 through 1986, catch quotas were nevertheless recommended by its scientific staff to the Commissioners and in turn such quotas were recommended by the Commissioners to their respective governments;

Observes that, due principally to exceptionally high levels of recruitment during 1984 and 1985 and the favorable size composition of the 1985 and 1986 catches, stock abundance in 1987 is at its highest level in recent years, and

Concludes that at this high level of abundance the stock is capable of supporting catches similar to those taken in 1986.

The Inter-American Tropical Tuna Commission, therefore, does not recommend a yellowfin catch quota for 1987; but

Cautions that the occurrence of two such large year classes as those entering the fishery in 1984 and 1985 is unprecedented and should be expected to occur in the future only infrequently; and

Finally emphasizes that as these abundant year classes grow older and their contribution to the catch diminishes, catch quotas will be necessary to prevent overfishing and at that time quotas will be once again recommended.

APPENDIX 5

RESOLUTION ON REDUCTION OF DOLPHIN MORTALITY PASSED AT THE 44TH MEETING OF THE IATTC

Noting that certain species of tuna and dolphin occur throughout the tuna fishing regions of the world, but that they occur in close association only in the eastern Pacific Ocean; and

Observing that in the eastern Pacific Ocean purse seine fishermen take advantage of this association to capture tuna and that during this fishing process some dolphin are accidentally killed; and

Recognizing that dolphin mortality associated with purse seine fishing activities in the eastern Pacific Ocean, though reduced substantially from levels observed in earlier years, continues to occur at a significant level; and

Recalling that the objectives of the Commission with regard to this problem are 1) to maintain a high level of tuna production, 2) to maintain dolphin stocks at or above levels that assure their survival in perpetuity, and 3) to ensure that every reasonable effort is made to avoid needless or careless killing of dolphins; and

Noting that scientific studies, including extensive research into gear modifications and development of fishing techniques to reduce dolphin mortality as well as frequent placement of observers on purse seiners to monitor dolphin abundance and mortality, have now provided a solid basis for taking further action to reduce dolphin mortality;

The Inter-American Tropical Tuna Commission therefore recommends to the High Contracting Parties and other interested nations whose flag vessels participate in the eastern Pacific purse seine fishery, that they take appropriate steps to encourage their flag vessels that fish for tunas associated with dolphins to adopt the following measures to reduce dolphin mortality:

1. Each purse seine should incorporate a fine-mesh, double-depth dolphin safety panel either with or without an attached triangular apron to protect and facilitate release of dolphins in the perimeter of the backdown area;

2. All purse seiners should employ the backdown procedure during sets in which dolphins are captured, and backdown should continue until it is no longer possible to release live dolphins by this procedure; following backdown every effort should be made by speedboat and raft occupants to continue hand-rescue procedures until all live dolphins have been released;

3. Purse seiners should carry speedboats equipped to tow on corklines when necessary to prevent dolphin entrapment due to net collapses or canopy formation, and at least one crewman should be deployed in such a speedboat near the apex of the backdown channel to assist in dolphin rescue;

4. Each purse seiner should carry and deploy a one- or two-man raft equipped with facemasks and snorkels or viewboxes to serve as a platform for dolphin rescue during and after backdown, provided conditions do not jeopardize the safety of raft occupants;

5. Each purse seiner should carry high-pressure sodium vapor floodlights of sufficient illumination output to allow observation from the vessel of dolphin rescue and release procedures during sets in which all or part of the backdown procedure is carried out during darkness;

6. Each nation with a purse seine fleet operating in the eastern Pacific Ocean should establish an advisory group of experienced captains and fishing gear experts to improve the performance of their flag vessels and chartered vessels operated under other flags by means of mortality reduction workshops, contact with individual captains, recommendation of trial sets for dolphin safety panel alignment, and other appropriate actions; and

Further advises member nations and other interested nations that detailed gear and equipment specifications and technical assistance necessary to implement the above recommendations are available from the Commission staff and encourages all such nations to request staff assistance whenever needed.

APPENDIX 6

RESOLUTION OF COMMENDATION AND APPRECIATION PASSED AT THE 44TH MEETING OF THE IATTC

Observing that Mrs. Regina Newman (Reggie) has faithfully served as the bilingual personal secretary to the Director throughout her 16-year period of employment with this Commission; and

Noting that at the completion of this 44th meeting she will be retiring from this position which she has so effectively occupied;

The Inter-American Tropical Tuna Commission, on behalf of the Commissioners, staff members, and representatives of all nations present, is pleased to take this opportunity to express its feelings as follows:

To you, Reggie, our most sincere appreciation for your years of dedicated and loyal service, your unfailing good humor, your unique ability to deal with all contingencies, both large and small, and the warmth and hospitality you have extended to the many visitors from all parts of the world who come to the Commission Headquarters in La Jolla;

You have our best wishes for future success, health, and happiness in all that you undertake;

Please know that we are going to miss you, both as a respected colleague and as a trusted friend--think of us often, as we will be thinking of you.