

FOURTH MEETING

INTER-AMERICAN TROPICAL TUNA COMMISSION

San José, Costa Rica

August 13, 1952

The fourth meeting of the Inter-American Tropical Tuna Commission was held at the Casa Amarilla in San José, Costa Rica, beginning at 10:20 a.m., Wednesday, 13 August 1952.

Present were His Excellency Don Otilio Ulate, President of Costa Rica, their Excellencies Don Fernando Lara Bustamante, Minister of Foreign Relations, Don Alfredo E. Hernández, Minister of Economics and Finance, and Don Lino Vicarioli, Under Secretary for Agriculture and Industries; Sr. Lic. Jose L. Cardona-Cooper, Secretary, and Sr. Lic. Virgilio Aguiluz, members of the Costa Rican Section; Dr. J. L. Kask, and Mr. Lee F. Payne, members of the United States Section; Dr. M. B. Schaefer, Director of Investigations; Mr. C. L. Peterson, and Mr. Rolf Juhl, of the scientific staff; members of the Costa Rican Advisory Committee; and others.

Mr. Eugene D. Bennett, Chairman of the Commission, was prevented by illness from attending. Mr. Lee F. Payne, therefore, acted as Chairman of the meeting in his absence.

Minister Fernando Lara Bustamante opened the session with the following address:

"Ladies and Gentlemen:

In the name of the Government of Costa Rica I am pleased to offer a cordial welcome to the distinguished visitors who honor us today with their presence at the fourth meeting of the Inter-American Tropical Tuna Commission, which is to be held in accordance with the Fisheries Convention signed by the Republic of Costa Rica and the United States of America.

It should be emphasized that the Inter-American Tropical Tuna Commission, created by the Fisheries Convention, has been in charge of the conservation of the most commercially valuable resources of the Eastern Pacific, and that their achievements performed in an atmosphere of sincere brotherhood and with thoughts toward the common good have been completely satisfactory.

The Government of Costa Rica has been notified by His Excellency, the Ambassador of the United States, of a change in the American Section of the Commission. This change

has deprived us of seeing here among us, Mr. Milton C. James, who was the first Secretary of the Organization when it was installed in 1950, at the time Costa Rica was honored with its Chairmanship. I know very well that Mr. James, since his retirement to his personal activities, has been greatly missed by the Inter-American Tropical Tuna Commission and the Department of the Interior of the United States of America. I am sorry not to have known him personally, but on the other hand, I am happy to find in his place the well known scientist, Dr. John L. Kask, the most important authority on fisheries in the Department of the Interior who, as such, forms a part of this international Commission. Previous to the time this Commission was formed, Dr. Kask played an important role when he first came to Costa Rica for a preliminary study in the year 1947, and because of his achievements he has been considered one of the most important pioneers.

I wish to express my sorrow because of the absence of the Chairman, the distinguished lawyer, Mr. Eugene D. Bennett. His inability to be with us is quite understandable since I have been informed that he has recently undergone a surgical operation. I want to express my sincere wishes for his prompt recovery.

Mr. Bennett has shown great wisdom in having himself represented by Mr. Lee F. Payne, a journalist of great merit who has been able to establish a reputation in the fisheries activities and in the conservation of natural resources in the State of California. I predict for Mr. Payne great success as Chairman of this Fourth Meeting.

The Ministry of Foreign Affairs is especially pleased to note that the Department of State of the United States of America, is represented here by the charming Miss Isla V. Davies, to whom I wish to express my respect and admiration.

This Ministry has been informed in detail of the progress which the Commission has been able to achieve in such a short time, and in spite of certain economic difficulties it has successfully carried out important investigations.

Costa Rica still does not receive direct benefits from tuna fishing. We do not yet possess our own fishing enterprises. However, we receive indirect benefits both from the fees paid by foreign boats which operate near our shores, and from the amounts spent in our Pacific port by crews and fishermen. It is well known that tuna is considered one of the most commercially valuable types of fish, and the day when we will have repopulated the Gulf of Nicoya with the "anchoveta" a project which has occupied the Commission since January of this year, the present wealth will be increased considerably.

I wish the American Delegates a pleasant stay in Costa Rica and I hope that this Fourth Meeting - which I declare

opened in the name of the President of the Republic - may be another link in the chain of successes of the Inter-American Tropical Tuna Commission."

Dr. Lino Vicarioli, Under Secretary for Agriculture and Industries, then welcomed the Commission as follows:

"Ladies and Gentlemen:

In the name of the Ministry of Agriculture and Industries I am pleased to present a cordial welcome to the North American Delegates.

Before leaving the Members of the Inter-American Tropical Tuna Commission to the scientific and administrative problems before them, it is opportune to point out some of the achievements which have been accomplished since the Commission was installed, achievements which are of great importance to our country.

First, I refer to the installation of a Regional Laboratory in Puntarenas for the purpose of marine biological studies. With this, they have carried out the Costa Rican Delegate's suggestion, which was promulgated in a resolution taken at the first meeting which was celebrated in San Diego, California.

Mr. Gerald V. Howard and Mr. Clifford L. Peterson arrived in Costa Rica in January of this year, from La Jolla, California, where the Commission headquarters are located, to proceed with the establishment of this laboratory. Thanks to this laboratory, greater progress in the study of the Gulf of Nicoya is constantly being furthered and plans have been made for the rehabilitation of this zone as a resource for bait fishing.

The species of bait for tuna, especially the "anchoveta" are an indispensable factor. The Gulf of Nicoya was frequently visited in the past by tuna fishing boats which were an excellent source of revenue to our country. Since 1947 there has been an alarming phenomena of the progressive disappearance of this kind of bait. To find the explanation for this phenomena, and, above all, to advise with regard to the measures which must be taken to repopulate the Gulf, is the work which is being done by this Regional Laboratory in Puntarenas.

Also, I wish to go on record to express our satisfaction with regard to the great success which has been achieved by Dr. Milner B. Schaefer, Director of Investigations, who was employed by the Commission. Thanks to his knowledge and skill, the Commission has made a notable advance in its studies. The idea of installing the offices and principal laboratories in the Scripps Institution of Oceanography has resulted in the securing of disinterested and valuable co-operation from that study center of the University of California.

Having enumerated these accomplishments, it is only right to say a word in praise of the efforts of the Members of the Commission, and there is nothing left but to wish for new triumphs on the part of this international organization, which is so useful to the countries interested in tuna fishing on the East Pacific.

We welcome the North American Delegates to this country."

Dr. Kask, on behalf of the United States Delegation, addressed himself to the President of the Republic, the Ministers and the Government of Costa Rica, thanking them for the splendid reception and hospitality accorded to the United States visitors.

He said that the co-operation which has been achieved between the United States and Costa Rica in the Commission's work has left no doubt of the ultimate success of this undertaking. He pointed out the importance of this to the management of the fisheries which are the common concern of the several nations fishing in the Eastern Pacific. He also said he wanted to reiterate the statements made by Dr. Vicarioli with regard to the accomplishments of the Commission's staff.

Dr. Kask then called attention to the fact that the Treaty between Costa Rica and the United States is an open one, and that any of the sister republics interested in the tuna fishery may join them in carrying on these investigations. He stated that it is the desire of the present signatories to the Treaty that all interested nations should have a part in the Commission's work, and be cordially invited them to join.

Mr. Cardona-Cooper said a few words of welcome and introduced the members of the U.S. delegation and the Commission's staff.

Following Mr. Cardona-Cooper's remarks, the Minister of Foreign Relations in the name of the President asked to be excused, following which the President, the Ministers, and those members of the diplomatic body and the observers not wishing to remain for the business meeting of the Commission left the room.

#### Rules of Procedure

Mr. Payne, Acting Chairman, took up the first point on the agenda, the rules of procedure proposed by Mr. James by correspondence of October 9, 1951. It was pointed out in the discussion that Rules 1, 2 and 3 were covered by the Treaty, but that it is desirable to include them in the Rules for the sake of clarity. With respect to proposed Rule 6, dealing with the election of Chairman and Secretary, two alternatives had been proposed. After considerable discussion of this point, it was decided that the first proposed alternative, that these offices should invariably alternate between member countries, should be adopted. With respect to Rule 8a, dealing with the signing of official communications directed to the

High Contracting Parties, it was decided that such communications should be signed by the Secretary alone, but with the previous approval of the Chairmen in each case.

The following motion was thereupon made, seconded and passed unanimously: That the rules of procedure as drafted by Mr. James, with the first alternative under Rule 6 and with the stipulation of previous approval of the Chairman for signing by the Secretary of official communications to High Contracting Parties, be adopted and a complete copy of the rules be appended to the minutes of the meeting. (See Appendix A).

#### Annual Report

The Annual Report of the Commission for the years 1950 and 1951 had been drafted and sent to the Commissioners for review and suggestions. It was moved, seconded and unanimously passed that: The annual report for the years 1950 and 1951 as drafted by the Director of Investigations be approved for publication.

#### Program of Investigations for fiscal year 1952-53

The Commission next took up the program of investigations for the current fiscal year. Because of the very drastic decrease in funds made available from those required for the program which had been recommended by the Commission to the member governments, it is impossible to carry on more than a fraction of the complete program. It was recommended by Dr. Schaefer that with available funds the items of highest priority which could be undertaken during the current fiscal year are:

1) Continuation at the present level of activity of compilation and analysis of catch statistics, logbook data, and other records and information respecting measurements of yield and abundance of tuna and bait-fish stocks.

2) Investigation, at current level of activity, of biology and utilization of bait species by means of (a) field studies in the Gulf of Nicoya, and (b) studies at San Diego of samples collected by the fishing fleet.

3) Limited participation in analysis and interpretation of oceanographic data obtained during Shellback, the co-operative operation with the Scripps Institution of Oceanography during the summer of 1952.

4) Studies of sub-surface distribution of tunas by long-lining, in co-operation with the California Division of Fish and Game, during January - March 1953, providing projected arrangements for this co-operative enterprise can be satisfactorily completed within the limits of available funds.

After discussion, it was moved, seconded and unanimously carried: That the program of investigations as recommended by the Director be approved and adopted.

It then being close to noon, a recess was declared until 2:00 p.m.

The meeting reconvened at 2:00 p.m.

#### Presentation and discussion of research now underway

At the request of the Chairman, Dr. Schaefer discussed at some length the researches which have been undertaken by the staff during the past year. He exhibited various charts and graphs illustrating studies of catch statistics and logbook data, as well as graphs showing the results of studies of racial differences in the anchovetas from different baiting areas, and studies of growth and age of this species of bait fish.

Mr. Rolf Juhl described the voyage of the Horizon for studying the physical, chemical, and biological oceanography of the tropical Eastern Pacific Ocean.

Mr. C. L. Peterson described the investigations which are being undertaken in the Gulf of Nicoya from the Puntarenas laboratory.

The Commissioners, and the technical observers of Mexico, El Salvador, Guatemala, and Italy, asked a number of questions respecting various points, which were duly discussed.

#### Program of Investigations and Budget for fiscal 1953-54

Dr. Schaefer had prepared and transmitted to the Commissioners and other interested persons, on May 8, his recommendations for investigations to be undertaken during fiscal 1953-54, and estimates of the funds needed to support them. These recommendations and estimates are attached to the minutes as Appendix B.

The program and budget were discussed at some length. It was brought out that this program is essentially the same as that recommended for the last two years, funds for which were not made available. It was also brought out that the estimates were made prior to the passage of appropriations for fiscal 1952-53 by the U.S. Government and it therefore was necessary to draw them up on a contingent basis, dependent on the extent of those appropriations. The appropriations for 1952-53 having been passed at the minimal amount of \$58,000, it becomes necessary to recommend the full sum of \$412,575 if the program recommended is to be conducted.

Miss Isla V. Davies, representing the U.S. State Department, discussed the matter of policy of the U.S. Government in keeping all expenditures to a minimum during the current military emergency and permitting no increases not directly related to the national defense. She answered a number of questions of the various Commissioners.

Following these discussions it was moved, seconded and unanimously voted that: The Commission approves the program of investigations for fiscal year 1953-54 prepared by the Director of Investigations and previously transmitted to the Commission, a copy of which is to be

appended to the minutes of this meeting; to carry out this program of investigations, and for other joint expenses of the Commission, it is hereby recommended that the budget for the period July 1, 1953 through June 30, 1954 be in the amount of \$412,575; the Director of Investigations is instructed to transmit detailed estimates and other supporting information respecting the program and budget to the cognizant agencies of the United States and Costa Rica in such form as may be required.

#### Election of Chairman and Secretary

Mr. Payne nominated Mr. Cardona-Cooper as Chairman of the Commission for the following year; this was seconded by Dr. Kask and unanimously approved.

Mr. Aguiluz then nominated Dr. Kask for Secretary for the ensuing year. This was seconded by Mr. Cardona-Cooper and unanimously approved.

#### Letters of appreciation, etc.

Mr. Cardona-Cooper moved that a letter be sent to Mr. Milton C. James thanking him for his service during the period of his membership in the Commission and stating that he had been greatly missed during the previous session. He further moved that a letter of sympathy be sent to Mr. Bennett.

It was suggested that Mr. Cardona-Cooper, as the new Chairman, should send these communications. His motion was then seconded and unanimously passed.

Mr. Cardona-Cooper then also moved that a letter of appreciation for the use of their boat on the Gulf of Nicoya be sent to Mr. Mario A. Esquivel and Mr. Mario Sabario. This was seconded and unanimously approved.

There being no further business, Mr. Payne declared closed the open session of the Commission.

#### Proportion of contributions during fiscal 1953-54

In the closed session of the Commission, the Director of Investigations, at the request of the Chairman, presented statistics showing that during calendar year 1951, the utilization of tuna from Convention waters by the United States was 152,000 tons and that of Costa Rica 201 tons; the relative proportion of Costa Rica is slightly higher so far during 1952 to date. In accordance with the terms of the Convention the share of contributions to joint expenses are to be related to the proportionate utilization by the High Contracting Parties of tunas captured in Convention waters. It was, therefore, moved, seconded and unanimously carried that: The ratio of apportionment of joint expenses shall continue to be 2/10 of 1% to Costa Rica and 99-8/10% to the United States.

There being no further business to come before the Commission, the meeting was adjourned.

## APPENDIX B

### RECOMMENDED RESEARCH PROGRAM OF THE INTER-AMERICAN TROPICAL TUNA COMMISSION FOR FISCAL 1953-54

The Convention between the United States and Costa Rica establishing the Inter-American Tropical Tuna Commission states that its purpose is the collection and interpretation of factual information needed for maintaining the populations of tunas and bait fishes at levels which will permit maximum sustained yields. The treaty further sets forth specifically the functions and duties of the Commission in conducting the necessary investigations.

Persuant to the provisions of the treaty, there was drawn up by the Director of Investigations a program of research including the several lines of investigation required to fulfill the duties of the Commission under the treaty. This program was approved by the Commission at its meeting on September 1, 1951 and was recommended to the member governments for initiation in fiscal year 1952-53.

This research program, which was described in some detail in an appendix to the minutes of the September 1, 1951 meeting, constitutes the initiation of lines of investigation which need to be followed during the next several years. In the development of these studies we must, of course, follow the facts as they are discovered, developing in detail the several lines of investigation as we go along. Some of the researches have now been commenced. We should continue these during fiscal 1952-53 and initiate such additional studies as funds made available by the member governments makes possible. (As this is written, the extent of such funds is not known, but it seems probable that they will be considerably less than the requirements for the complete program.) During fiscal 1953-54 we should continue the investigations commenced earlier, and make a start on those not previously initiated.

It seems convenient to consider the research program for fiscal 1953-54 under the same headings as the preceding year, indicating for each the present status of the research, expected activity during fiscal 1952-53, and recommendations for fiscal 1953-54.

I - Compilation and analysis of catch statistics, logbook records, and other data regarding the bait fisheries and tuna fisheries, in order to study success of fishing, changes in abundance and yield, and shifts in areas of baiting and fishing.

The central problem of our organization is the determination of the status of the tuna and bait stocks and the effects of the fishery



on them. In order to study the changes in the fish stocks in response to changes in the intensity of fishing, we must derive measurements of amount of fishing, of size of fish stock, and of yield. Such measurements are based upon interpretation of detailed records of the operations and results of the fishing fleet. Although additional information about the biology and life history of the fishes concerned is also necessary for the proper interpretation of the statistical data of the fishery, the latter are the indispensable foundation of the investigations. Because of their fundamental importance, the collection and analysis of these data have been given first priority and must continue to be the first item in the research program.

Current Activities - In order to obtain routinely detailed information on areas of fishing, amount of fishing, and resulting catches, both for bait species and tuna species, the scientific staff has developed and now has in full operation a system of collection of detailed information by means of logbooks, which are being kept by over 95% of both the clippers and seiners. In addition, statistics of landings are collected through canneries and through government agencies in the United States and Costa Rica. This growing body of statistical and logbook information provides a magnificent body of information upon which to base studies of the dynamics of the fishery.

It is, obviously, necessary for our purposes to have records of abundance and yield of the fisheries over a considerable period of years. Compilation of current information would require many years. Also it is desirable, if possible, to investigate the changes which have taken place in the fishery during the period of rapid growth over the last two decades, at least. It has, fortunately, been discovered that, by combining information from several sources, rather good statistical data respecting the yield of the tuna populations and the fishing effort expended are available for at least 20 years back, and that some information, although less complete than might be desired, may be obtained respecting the bait species. The available data are:

- (1) Statistics of tuna landings by species by boats for the California fleet from 1931 to date;
- (2) Similar data for vessels landing in Costa Rica from 1944 to date;
- (3) Data on time spent at sea for each boat for the major share of the fleet from 1932 to date;
- (4) Information on size, fish capacity, and other characteristics of the vessels involved, and
- (5) Logbook records for a sizable sample of the fleet since 1940 and for some vessels since 1930, showing activities by days on each trip. These logs which the masters have kept for their own use are quite good in most instances for tuna fishing, but are less complete for bait fishing activities.

Compilation and analysis of these data is a very large task. A good start has been made on the collection of the data in question

and this should be completed during fiscal 1952-53. Analysis of the data has been barely commenced. Increased effort during fiscal 1952-53 and subsequent years will be necessary to make significant progress.

Requirements during fiscal 1953-54 - It is recommended that sufficient effort be directed to the analysis of the historical data to complete this task as far as may be possible, and to complete a report for publication on the development of the fishery and on the apparent changes in the abundance of the yellowfin and skipjack tunas related thereto. Investigation of changes in abundance and yield of the bait species should also be carried as far as the historical records make possible.

The collection routinely of current logbooks and statistical data must, of course, be continued and the tabulation and analysis thereof should be kept on a current basis in order that the Commission may be cognizant of changes in the fishery as they occur.

II - Investigations of those aspects of the biology and life history of the tunas which we must know in order to properly interpret the statistical data on the fishery and in order to understand the reactions of the tuna stocks to changes in fishing intensity and to changes in the environment.

The statistical and other data obtainable from the fishery are essential to arriving at an understanding of the dynamics of the tuna populations, but they are not sufficient by themselves. Their interpretation in terms of the conservation of the tuna populations must depend on knowledge of the lives and behavior of the fishes themselves.

In interpreting statistics of abundance and catch we must deal with population units as they exist in the sea if the results are to be meaningful. We must know whether the tunas of each species which are the object of the commercial fishery are each composed of a single population, the members of which freely intermingle over the entire range, or whether we are dealing with a number of independent or semi-independent stocks or populations and, if so, the geographical boundaries of the habitat of each. In the former case, we may deal with the entire East Pacific population of each species as a unit; in the latter, we must consider separately the fishery on the several separate stocks, since fishing on one would have little or no effect on the others.

In order to understand how a tuna population reacts to intensive fishing we need to know how the population is renewed by birth, growth, and death. The effects of a fishery, and consequently the conservation problem, is quite different for fish populations that are renewed slowly by low birth and growth rates and low natural death rate, and for fish populations that are renewed rapidly by high rates of birth, growth and death.

The effects of the fishery on the tuna stocks is intimately connected with their distribution in the sea and their behavior at different ages. There is, for example, reason to suspect that the large, old yellowfin tuna do not normally school at the surface, but inhabit depths of the ocean perhaps in response to changed feeding habits, where they are not available to the fishing methods presently employed in our part of the Pacific Ocean.

Current Activities - To date the Commission has been financially unable to undertake any investigations in this field of research. It is hoped that during fiscal 1952-53 it will be possible to initiate some of the required studies. The State of California has become interested in limited studies of the sub-surface distribution of the tunas by means of long-line fishing and is planning to make available a vessel for this work next winter if the Commission can provide scientific personnel, expert fishermen, and some gear. This co-operative project is being given high priority in our planning.

Requirements during fiscal 1953-54 - The investigation of the biology and life histories of the tunas requires collection of data and materials by several means:

- 1) Systematic quantitative sampling of commercial landings at the principal ports of landing. By this means may be obtained information respecting age and growth, size and age at maturity, time of spawning, anatomical characteristics of separate populations, and estimates of mortality rates.
- 2) Studies at sea aboard commercial fishing vessels. Observations and materials collected by this means will yield information respecting schooling behavior, distribution of adults with respect to features of the environment, feeding habits, times and places of occurrence of larval and juvenile tunas as clues to times and places of spawning.
- 3) Special studies from research vessels. Particularly required at this stage of our investigations are two problems which require the use of research vessels:
  - (a) Study of the sub-surface distribution of the adult tunas and the relationships thereof to age, to distribution of food organisms, and to the oceanic circulation pattern;
  - (b) Studies of tuna migration and rates of exploitation by means of tagged fish (see below for more detail on this project).

Depending on extent of 1952-53 appropriations, a start may or may not have been made on the foregoing prior to fiscal 1954. The nature of all of these studies is such, however, that in any case more than one year will be required for their satisfactory completion. During fiscal 1953-54, therefore, we should plan to continue studies commenced during the previous year and to initiate those not yet started.

Necessary personnel and materials will be required to conduct the market-measurements referred to in 1) above at San Diego, San Pedro, and Puntarenas, and to make observations at sea aboard commercial fishing vessels. For the special studies of sub-surface distribution of tunas and for conducting tagging, where not possible from commercial fishing craft in the course of their regular work, provision needs to be made for charter of a suitable vessel for a period of at least two months in fiscal 1953-54, as well as provision for the special equipment required for the studies in question.

III - Tuna-tagging to determine migrations, growth, degree of independence of stocks, and rate of exploitation by the fishery.

This item is properly a part of the studies of tuna biology and life history. It is considered as a separate phase of the investigations, however, because of the very great importance of the tagging method to research on some extremely important aspects of life history and population dynamics of fishes.

Other means exist for inferring growth, migration, and independence of stocks. The employment of tagged specimens is, however, the only direct and certain means of studying the last two. In addition, the employment of marked specimens offers a direct means of estimating population numbers and the fraction captured by the fishery, knowledge of which are essential to our central problem, the determination of the present status of the fish stocks and the effects of the fishery thereon.

Successful tagging and recovery of tunas is a difficult matter; these fish are large and powerful, but at the same time extremely delicate. It is necessary to develop a tag, and a means of affixing it to the fish, that will not result in death of the fish or loss of the tag from the fish, and which is yet readily visible to the fisherman recapturing the tagged specimen. Such a tag then needs to be employed in large numbers throughout the range of the tunas.

Current Activities - The Commission has not been able to undertake any work on this phase of the investigations, and will not be able to engage in any during fiscal 1952-53 without appropriation of funds for the purpose.

Requirements during fiscal 1953-54 - During fiscal 1953-54 we should plan to complete experimental work to develop a suitable tag and put it into routine use. It is hoped that a tag may be developed that can be employed aboard commercial tuna vessels in the course of their regular voyages, because the cost will then be only that of the fish tagged, the salary and expenses of our agents doing the tagging, and the material used. During the development of a tag, and a tagging method, however, it will be necessary to provide work from a vessel not engaged in regular fishing. This will be possible from the chartered vessel mentioned above.

IV - Investigations of the life histories and biology of the several species of bait fishes, and studies of the effects of the fisheries on the bait stocks.

The supply of live bait is of major importance, because over 80% of the tuna catch is taken by this means. Use of the bait resources in a manner which will give sustained high bait production is essential to maintaining the tuna fisheries at maximum yield.

The investigation of each species of bait fish requires that we find out much the same sort of thing required for the tunas: changes in abundance and yield in response to changes in amount of fishing and in response to variations in natural environmental factors; degree of independence of stocks of each species among the various localities where it occurs; the life history of the species - how it grows, reproduces and dies; its ecological relationships - how it is fitted to its environment and how changes therein may affect its abundance.

Current Activities - The logbook data described on page 1 providing routinely current information on quantities of bait taken by the fleet, by species and by locality, as well as the amount of fishing effort required to obtain it. From these data, gathered over a series of years, we shall not only be able to find out how much is used of each species, and where it is captured, but should also be able in the course of time to arrive at measurements of changes of abundance in each of the baiting areas.

Historical data on fishing for bait is not readily available. No statistics of total quantities taken have been recorded. Logbooks from a sample of the fleet, referred to on page 2, for back years, have much useful information regarding baiting, but it is not yet apparent whether these data will be adequate for devising measurements of change in abundance. No analysis of these data has been made, and none is contemplated until additional funds are available.

Collection of samples of "commercial" sizes of the various bait species from different baiting areas at various seasons has been made possible by the excellent assistance of a number of the captains in the fleet, who have assisted by freezing and returning to our San Diego laboratory samples of their bait catches. From these samples important information is obtainable, by suitable procedures, regarding age and growth, spawning seasons, and independence of stocks from different baiting areas. Studies are being conducted on these aspects of the biology of the most important bait species, the anchoveta (Getenraulis mysticetus). Other species are being retained for future study, with the exception of the sardines (Sardinops caerulea) which are being turned over to the co-operative sardine investigations.

Our Puntarenas Laboratory was activated in February, 1952 with the primary purpose of studying the ecology and life history of bait

species in the Gulf of Nicoya. This Gulf was, until about 1947, one of the important baiting areas of the tuna fleet, yielding large quantities of anchovetas. Since 1947 or 1948 it has been little used for baiting because of a very sudden decline in the anchoveta population. At the present time we have been able to find no anchovetas at all in the Gulf, and it is probable that they are entirely absent.

A continuing study is being conducted to determine for certain whether the anchovetas are at present entirely absent from the Gulf of Nicoya, and to find out, if possible, the reasons for their disappearance and whether they can be re-established.

Other bait species, including two kinds of herrings and an anchovy closely related to the anchoveta, among others, are present in the Gulf of Nicoya in some numbers, and studies are being made of their life history and distribution.

One of the most important problems, particularly in the case of the anchovetas, is to determine whether or not they migrate from one baiting area to another. This is important for determining the population units with which we must deal in considering the relationships between fishing and abundance. It is also important with respect to the re-population of an area, such as the Gulf of Nicoya, from which the species has disappeared. For studying migrations, tagging is the best and most certain method. We are, therefore, conducting experiments in the Scripps aquarium toward the development of a suitable tag for use on bait fishes.

These investigations will be continued during fiscal 1952-53, and will be augmented along the lines indicated below if funds are available.

Requirements for fiscal 1953-54 - During fiscal year 1953-54 we should provide for:

- 1) Compilation of tabulation and analysis of logbook data on baiting during past years, as well as the tabulation and analysis of current logbook data;
- 2) Continue sampling the bait populations through the co-operation of the fleet, and extend the laboratory studies of these samples to include other species in addition to anchovetas.
- 3) Conduct field studies at suitable localities to obtain required materials for studies of biology of bait species not available from the "commercial" samples.
- 4) Conduct tagging experiments at least at Panama, and the Gulf of Fonseca, to determine the extent and rate of migration of anchovetas.
- 5) If it is established beyond doubt that anchovetas are completely absent from Nicoya, transplant a suitably large number from

Panama or Fonseca, and follow carefully these transplanted fish, some of which should be tagged, to determine whether a population which has disappeared may be re-established by such means.

V - Investigation of the oceanic circulation and other aspects of physical, chemical, and biological oceanography, and studies of the relationships of these to the tuna populations

High seas, pelagic fishes such as the tunas are oriented not to the features of the land but to features of the sea. Their aggregation, behavior, and abundance, is conditioned by the physical, chemical, and biological processes in the ocean. The features of the ocean current systems are of the same importance to the tunas as the topography of the land is to inshore and bottom fishes like halibut or salmon. If we are to obtain a clear understanding of the ways of life of the tunas and of what things determine their abundance and availability to the fishery, we must obtain a detailed description of the oceanic environment and its variations in space and time, because this is the only proper frame of reference for the biological and statistical studies of the fish and the fishery.

Current Activities - With the appropriations made available so far to the Commission, the large outlay needed for oceanographical observations is entirely out of the question. Fortunately, since the Tropical Eastern Pacific is one of the little known areas of the Pacific Ocean, the Scripps Institution of Oceanography, as part of a large project of exploration, is planning to undertake a rather extensive exploratory cruise throughout much of the area of interest to us between May and September, 1952. The staff of the Commission has participated in the planning of this cruise and two of the staff will participate in part of the cruise. There will be occupied some 250 stations at which observations will be made on physical, chemical, and biological properties. When analyzed, the results of this cruise are expected to provide us with a very good picture of the general features of the oceanic circulation of this region and with knowledge of some of its effects on biological productivity. This will provide a firm basis for future detailed studies to elucidate seasonal variations in the circulation, to examine in more detail the features of the circulation of greatest biological importance, and to investigate how these are related to the distribution, abundance, and behavior of the tunas.

Although the Scripps Institution is able to provide for the operation of the vessel for this cruise, funds for the processing and interpretation of the resulting data are meager. It will, therefore, be to the Commission's advantage to assist in this processing and analysis to as great an extent as possible. It is planned during fiscal 1952-53 to give high priority to the analysis and interpretation of the data from this cruise. This must, of course, be completed before intelligent detailed plans can be made for further investigations.

Requirements during fiscal 1953-54 - Continuation of oceanographical studies during fiscal 1953-54, as noted above, should be in the direction of providing more detailed observations of particular features of the oceanic circulation and distribution of properties and processes important to the tuna fisheries. Detailed plans for such studies must be based on the results of the exploratory cruise.

We cannot depend on the Scripps Institution to continue the oceanographic work for us. By a happy circumstance, our interests initially coincide very nicely, since the exploration of our region is a part of the Scripps Institution's broad mission of oceanic exploration, and is also the necessary first step in our investigations. Thereafter, however, our paths must diverge. While the Scripps scientists go on to explore other regions, we must continue to study our region in increasing detail. The Commission must itself provide the means for these continuing investigations.

During fiscal 1953-54 the Commission should plan to complete the analysis of such data from the exploratory cruise as has not been finished previously, and to plan and carry out the collection, analysis, and evaluation of more detailed observations, as indicated by the results of the exploratory cruise to be needed.

Observations of ocean currents, of distribution of physical and chemical properties, of the standing crops and rates of production of organisms at different stages in the food chain, and other such observations included in "physical, chemical, and biological oceanography" require a good deal of specialized equipment to be employed at sea and ashore. Unless funds should be provided for this purpose in fiscal 1952-53, which seems unlikely as this is written, we are faced with the necessity of making a sizable capital outlay for such equipment in fiscal 1953-54. In addition, vessel operating expenses will be incurred, it is estimated that three months time of a chartered research vessel should be planned for the fiscal year.

Estimated Budget for Recommended Research Program  
Fiscal 1953-1954

In drawing up estimated requirements for the recommended research program for fiscal 1953-54 it is convenient for budgeting and fiscal control to follow the same procedure employed in the previous fiscal year, that is, to make the estimates by natural categories of expenditures, which do not correspond exactly to the items of the recommended program. These budget groupings, or "projects" are based primarily on the kind of activity, but are also to some extent related to geographical location. Project categories, which are the same as those employed the previous fiscal year, are as follows:

Project A - General expenses of headquarters laboratory, including Director's salary and expenses, and laboratory and office expenses jointly chargeable to all activities;



Project B - Research on biology, life history, ecology and utilization of bait species; expenses of Puntarenas laboratory;

Project C - Study of current and past operations of the fishing fleet from catch statistics, logbook data, and other sources; measurement of changes in abundance and yield of the tuna stocks; expenses of office at San Pedro;

Project D - Research on biology, life history, ecology and population dynamics of tunas (including tagging program);

Project E - Analysis and evaluation of data on the physical, chemical, and biological oceanography of our region of study;

Project F - Vessel equipment and operation; observations at sea

In Table 1 attached hereto are presented the estimate of funds required for the recommended program, classified by projects and by U.S. Government budget object classifications.

The estimate of \$412,575 is based on the assumption, which appears most reasonable at the time this is written, that contributions during fiscal 1952-53 will be substantially less than the amount recommended, and that it will, therefore, be necessary to defer until 1953-54 most of the sizable capital outlay required for "tooling up" the investigations. On this basis, there is \$104,050 of equipment included in the recommended budget for fiscal 1953-54 which had also been included in the recommended budget for fiscal 1952-53. In the event that the U. S. Government should provide appropriations corresponding to the Commission's recommendations for fiscal 1952-53, these capital expenditures will have been made during that fiscal year. In such case, the funds required for fiscal 1953-54 will be only \$308,525. In Table 1, at the bottom, are tabulated the amounts of the total of \$104,050 for these capital outlay items which pertain to each project.

In Table 2 is exhibited the details of estimates for salaries and wages for each project. An organization chart is also attached showing the planned organization and its functional relationships.

5/8/52

TABLE 1

FISCAL 1953-1954 -- ESTIMATES CLASSIFIED BY PROJECTS AND U.S. GOVERNMENT BUDGET OBJECTS

Budget Objects	PROJECTS						
	A	B	C	D	E	F	
01-Personal services	37,885	28,930	24,800	26,270	14,730	4,800	\$137,415.
02-Travel expenses	3,000	7,670	400	2,500	1,000	2,000	16,570.
03-Transportation of things	250	400	50	150	-----	-----	850.
04-Communications	1,700	200	200	-----	-----	-----	2,100.
05-Rents and utilities	8,800	1,050	1,040	-----	-----	-----	10,890.
06-Printing, binding and reproduction	6,800	150	1,000	250	-----	-----	8,200.
07-Other contractual services	3,500	500	4,000	15,000	4,000	90,000	117,000.
08-Supplies and materials	3,200	1,400	550	1,300	1,900	1,000	9,350.
09-Equipment	5,400	17,000	5,050	5,250	6,000	71,500	110,200.
TOTALS:	70,535	57,300	37,090	50,720	27,630	169,300	\$412,575.

Capital outlay for equipment to be subtracted from 09 if 1953 recommended budget appropriated	3,800	16,100	4,550	4,600	5,000	70,000	\$104,050.
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Difference: \$308,525.

TABLE 2

ESTIMATES FOR FISCAL YEAR 1953-54, DETAILS OF PERSONAL SERVICES

PROJECT A

Director of Investigations . . . . .	\$10,557.
Assistant Director . . . . .	7,800.
Fiscal and Administrative Assistant . . . . .	4,000.
Secretary . . . . .	3,898.
Librarian - Stenographer . . . . .	3,630.
Fiscal and Accounting Clerk . . . . .	3,100.
Clerk - Stenographer . . . . .	3,100.
Translator (part-time) . . . . .	<u>1,800.</u>

Total: . . . . \$37,885.

PROJECT B

Senior Scientist . . . . .	6,580.
Scientist . . . . .	5,500.
2- Junior Scientists at 3,630 . . . . .	7,260.
Scientific Assistant . . . . .	3,190.
2- Field and laboratory assistants (local hire) at 2,000 . . . . .	4,000.
Clerk - Stenographer (local hire) . . . . .	1,800.
Boatman (local hire) . . . . .	<u>600.</u>

Total: . . . . \$28,930.

PROJECT C

Senior Scientist . . . . .	5,640.
2- Junior Scientists at 3,630 . . . . .	7,260.
2- Statistical clerks at 3,000 . . . . .	6,000.
Statistical draftsman . . . . .	3,000.
Clerk - typist . . . . .	<u>2,900.</u>

Total: . . . . \$24,800.

PROJECT D

Senior Scientist . . . . .	6,800.
Scientist . . . . .	5,400.
Scientist . . . . .	4,500.
3- Scientific assistants at 3,190 . . . . .	<u>9,570.</u>

Total: . . . . \$26,270.

PROJECT E

Senior Scientist . . . . .	6,000.
Junior Scientist . . . . .	3,630.
Laboratory assistants (temporary) 20.4 man months at 250 . . . . .	<u>5,100.</u>

Total: . . . . \$14,730.

PROJECT F

Expert fishermen (temporary) 8 man months at 600 . . . . .	<u>4,800.</u>
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Total: . . . . \$4,800.

GRAND TOTAL: . . . . \$137,175

Inter-American Tropical Tuna Commission  
Scripps Institution of Oceanography  
La Jolla, California  
May 26, 1952

Memorandum

From: Director of Investigations  
To: All Commissioners and members of Advisory Committee  
Subject: Research program for fiscal 1952-53

In considering the research program to be adopted for fiscal 1952-53 (item 4 of the agenda for the forthcoming meeting suggested in my memo of April 10, 1952), it will be necessary to take into account the amount of funds which may be available. Since the U. S. Congress has not completed consideration of our appropriation, this amount is not known at this time, but is expected to be substantially less than the amount recommended by the Commission.

I have listed for your consideration, and enclose herewith, the items which I believe should be included in the research program and for which money may conceivably be made available. These have been listed in order of recommended priority.

Items 1 and 2 constitute the present program, except for the additional item of our contribution of personnel to operation Shellback.

With the same appropriation as last year, about \$60,000, we can undertake items 1 and 2 and possibly limited participation in items 3 and 4.

It is anticipated that by the time of the meeting we will know the amount of the U. S. contribution for fiscal 1952-53 and so be able to decide what additional items may be included.



M. B. Schaefer

MBS:gh

Elements of Research Program for 1952-53 suggested in order of priority

1) Continuation at the present level of activity of compilation and analysis of catch statistics, logbook data, and other records and information respecting the measurement of changes of abundance and yield of the tuna and bait fish stocks.

2) Investigations, at the current level of activity, of biology and utilization of bait species by means of (a) field studies in the Gulf of Nicoya, and (b) studies at San Diego of samples collected by the fishing fleet.

3) Analysis and interpretation of oceanographic data from summer 1952 co-operative operation with Scripps Institution of Oceanography

4) Studies of sub-surface distribution of tunas by long-lining, in co-operation with California Division of Fish and Game, during February and March 1953. \$ 60,000

5) Increased effort to be devoted to the analysis and interpretation of current and historical data (catch statistics, logbooks, etc.) respecting the measurement of changes in abundance and yield of the tuna and bait stocks. \$ 75,000

6) Tagging program on anchovetas at Panama, Fonseca, and other localities as determined to be desirable to investigate rate of migration, and degree of exploitation. \$ 100,000

7) Collection of necessary materials for studies of life history of bait species, particularly anchovetas, which are not available from the "commercial" samples. Collections made by Commission representatives using the fishing fleet and locally available facilities at the principal baiting areas seem to be the most economical means of accomplishing this. \$ 10,000 to \$ 20,000

8) Collection and study of materials on tuna biology, with particular reference to racial divisions and growth rates, obtained by means of regular examination of landings at San Diego, San Pedro, and Puntarenas, and by observations at sea aboard commercial fishing vessels. \$ 150,000

9) Introduction of a sizable transplant of anchovetas from an adjacent baiting area to the Gulf of Nicoya to determine whether the species can be successfully re-established by this means. (To be given higher priority if arrangements can be made to accomplish this without cost to the Commission) \$ 175,000

10) Developmental work on a suitable tag for use on tunas. \$ 200,000

~~AMERICAN TROPICAL TUNA COMMISSION~~ (to members of meeting of 13 August 1952)

INTER-AMERICAN TROPICAL TUNA COMMISSION

Rules of Procedure

(Adopted ~~at~~ the fourth meeting, 13 August 1952)

Representation

Rule I

A High Contracting Party to the Convention between the United States of America and the Republic of Costa Rica for the Establishment of an Inter-American Tropical Tuna Commission, signed at Washington, May 31, 1949 (hereafter referred to as the Convention) shall have the right to appoint from one to four members. The member or members from each High Contracting Party shall be considered a national section.

Rule II

Advisory Committees established by the High Contracting Parties in conformity with Section II, Article I of the Convention shall be invited to attend the non-executive sessions of the Commission. Each national section shall keep the Secretary of the Commission currently informed concerning the members of its advisory committees. Members of advisory committees invited to attend non-executive sessions of the Commission may, at the discretion of the Chairman, address such sessions but shall not be entitled to vote.

Voting

Rule III

Each national section shall have one vote. The vote may be cast by any member of such national section.

Rule IV

All decisions, resolutions, recommendations, and other official actions of the Commission shall be taken only by a unanimous vote of all of the High Contracting Parties to the Convention. Votes shall be taken by a show of hands, or by a roll call, as in the opinion of the chairman appears to be most suitable.

Rule V

Between meetings of the Commission or in the case of emergency, a vote of the High Contracting Parties may be obtained by mail, or other means of communication.

## Chairman and Secretary

### Rule VI

At its first meeting the Commission shall select a chairman and a secretary from different national sections. The chairman and secretary shall hold office for a period of one year. During succeeding years, selection of the chairman and the secretary from the national sections shall be in such a manner that the chairman and the secretary will be of different nationalities, so as to provide each High Contracting Party annually, in turn, with an opportunity to be represented in those offices.

### Rule VII

The duties of the chairman shall be:

- (a) To set the time and place of regular and special meetings upon consultation with the other Commissioners.
- (b) To preside at all meetings of the Commission.
- (c) To decide all questions of order raised at the meetings of the Commission, subject to the right of any Commissioner to request that any ruling by the chairman shall be submitted to the Commission for decision by vote.
- (d) To call for votes and to announce the result of the vote to the Commission.
- (e) To take such other actions on behalf of the Commission as may be specifically assigned by decision of the Commission.
- (f) To approve the official minutes of all meetings of the Commission.

### Rule VIII

X

The duties of the Secretary shall be:

- (a) To sign official communications directed to the High Contracting Parties, with the previous approval of the Chairman in each case.
- (b) To receive and transmit to other Commissioners communications from the High Contracting Parties.
- (c) To maintain official files and records of actions taken under (a) and (b) above.
- (d) To perform such other duties as may be assigned by decision of the Commission.

Director of Investigations

Rule IX

The duties of the Director of Investigations shall be:

(a) The performance of the functions set forth in Article I, Section 13 of the Convention.

(b) The preparation of an agenda for regular and special meetings of the Commission.

Rule X

The Fiscal Year of the Commission shall be from July 1 to June 30.

Headquarters

Rule XI

The headquarters of the Commission shall be at San Diego, California. Field headquarters and laboratories shall be at such locations as are determined by the Commission.

Meetings

Rule XII

The Commission shall meet at least once a year, and at such other times as may be requested by a national section, at its headquarters or such other place as may be designated by the Chairman after consultation with the Commission.

Language of the Commission

Rule XIII

The official languages of the Commission shall be English and Spanish, and members of the Commission may use either language during meetings. When requested, translation shall be made to the other language. The minutes, official documents, and publications of the Commission shall be in both languages, but official correspondence of the Commission may be written, at the discretion of the Secretary, in either language.

Documents

Rule XIV

Upon request, the Commission shall provide each national section with certified copies of any documents pertaining to it.



Records of statistics of individual catches and individual company operations shall be treated as being confidential.

Amendments to Rules of Procedure

Rule IV

These rules of procedure may be amended from time to time as deemed necessary by the Commission, and in accordance with the voting procedure noted in Rules III and IV above.