

SPECIAL ICCAT PROJECT TO ASSIST VENEZUELA IN DEVELOPING BIOLOGICAL SAMPLING SYSTEM FOR COMMERCIAL TUNA FISHERY

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TUNA FISHERY IN VENEZUELA

Venezuela has a long history of tuna fishery mostly by longliners and baitboats. Until 1980, the annual catches (Table 1) had been in the order of 7-8,000 MT including tuna-like species (ICCAT, 1985). Almost all the catches, with some minor exceptions of longliners, were made in the waters very close to the coast, in the Caribbean Sea. (Griffiths and Nemoto, 1957; Hooft and Ramos, 1972; Novoa and Ramos, 1974; Ramos, 1975; Ramos and Gerardo Guerra, 1976).

In 1980, a new purse seine fishery started based from Cumaná, Sucre, which had been the base for most of the Venezuelan tuna fisheries. Large purse seiners started fishing in the eastern Pacific and unloading the catches at either Panama or Cumaná in 1980 and 1981. On the way to or returning from the eastern Pacific, the boats occasionally fished in the Caribbean Sea. Fishing effort in the Caribbean began increasing, with the introduction of the new techniques of using baitboats to attract and hold tuna schools near the surface while the purse seiner set its net around the aggregation of fish (unpublished sources).

A further increase in fishing by this fleet, particularly the large vessels, in the Caribbean and western and eastern Atlantic occurred in 1982, as tuna fishing conditions became unfavorable in the eastern Pacific (ICCAT, 1985 and unpublished sources), and continued up to 1985.

The present Venezuelan-based fleet consists of about 15 modern baitboats, 16 large longliners, 17 small longliners, 17 large seiners, several small seiners, 12 foreign flag large seiners and 4 foreign flag baitboats (personal communications). There are also many artisanal fishing boats, catching tuna-like species in the coastal waters along with other species.

All the seiners, small longliners and baitboats are Cumaná based. Some boats, particularly the smaller longliners and baitboats, are owned entirely by the canneries and others by associated or private owners. Most of the large seiners were owned by VENATUN S.A., a cooperative of various investors. Recently, the ownership has changed, so the influence of VENATUN on the fleet has been greatly reduced. In 1984, the boat owners' association was founded in Cumaná with Mr. Montesino elected President. He was formerly the Director of the Cumaná Lab and has a good understanding of sampling requirements.

Most of the baitboats and small longliners and seiners fish only in the Caribbean Sea. Trip length is about 10 days to a maximum of 3 weeks. The capacity of these boats does not exceed 50 MT. Large seiners with the fish hold of 600 MT or more can fish almost anywhere and a trip lasts from a month to several months. When they operate in the Pacific, they unload their catches (often partially) in the ports outside Venezuela.

Much of the Venezuelan surface tuna catch is exported to Europe (Italy) and to the U. S. A. (Puerto Rico). Some tuna are sold in the fresh fish markets in Venezuela and much more are sold to the four national canneries; Productos Mar located near the docks in Cumaná, Gaviota and CAIP a few miles east of the dock and Alimentos Margaritas about 50 miles from the port, about half way to Carupano.

Besides these fleets at Cumaná, there are 16 longliners fishing from Carupano, which is a small port located about 80 miles east of Cumaná. One of the longliners has been converted into a training vessel for local fishermen and four into gill-nets, mostly fishing for sharks, with some incidental catches of tunas. Of the remaining vessels, 8 are equipped with low-temperature freezers, -45 to -50°C, and 3 are equipped with standard freezers. The vessels with low-temperature freezers fish mostly for bigeye

(about 60% of the catch) with yellowfin tuna as a secondary species. The bigeye are exported to the Japanese "sashimi" market. The vessels are all Venezuelan flag with Korean crews (at least key members of the crews) and are owned by Trio Pines de Pesca, (an affiliate of Sam Soh industry, Seoul, Korea). The trips last from 3 months to 6 months, the major fishing ground being the western Atlantic. The 40% required to remain in Venezuela (see next paragraph) is sold fresh (mostly sharks) or canned by Propisca in Carupano and by Compañia Castaneda on Margarita Island.

Venezuelan fisheries regulations require all boats (including those with a foreign flag) to unload at least 40% of their catches to the national market. Therefore, even a boat which operates entirely in the Pacific, has to deliver to the domestic ports the part of the catch required by law.

HISTORY OF TUNA RESEARCH AND COLLECTION OF STATISTICS IN VENEZUELA

Venezuela has had great interest in the ICCAT scientific research for a long time. Many members of the Laboratory at Cumaná participated in the ICCAT annual meetings and training courses, etc.. The laboratory has provided the Commission with biological and statistical data that dates back to late 1970 (Novoar and Ramos, 1974; Ramos, 1975; Ramos and Gerardo Guerra, 1976). However, when the Director and other active members of the laboratory in Cumaná assumed new positions, the interest in tuna research was somehow lost. This was most unfortunate because it coincided with the time of rapid development of tuna fishery in Venezuela.

The previous statistical system to collect landing statistics, established in the 1970's, was used to collect data from this new developing purse seine fishery. Since the system had been developed for the local near coast fishery, it did not produce complete statistics on the wider ranging vessels. For example, landings by seiners at foreign ports were not covered, and no distinction was made as to the origin (Pacific or Atlantic) of the landings made at the Venezuelan ports. Furthermore, although the longline fleet had a traditional logbook system, there was no provision to develop logbook data for the surface fishery.

Recognising the lack and inadequacy of data, the Secretariat staff visited the country and urged the use of the fishing logbook system. Accordingly, the Venezuelan government (Ministerio de Agricultura y CRIA) took action and from 1982 required all tuna boats (including foreign flag boats) to maintain and submit logbooks (Calderón de Vizcaino and Salazar, 1984; ICCAT-SCRS/85/10). Logbook data have been received, processed and made available through the Secretariat.

However, biological sampling was not carried out on this new developing fishery. Early in 1985, the Assistant Executive Secretary of the Commission visited Venezuela and made arrangements with the Venezuelan Government for ICCAT to send an expert for about a month to establish a sampling procedure and train the local technicians for port sampling (SCRS/85/10). The United States offered an expert to work with ICCAT for about a month's period on this assignment.

Agreements were made between the ICCAT and the National Marine Fisheries Service (Southwest Fisheries Center) in La Jolla, California, U.S.A.. Mr. Eugene P. Holzapfel, who is in charge of the Southwest Fisheries Center field office in Puerto Rico since 1974 and who was on assignment in Tema, Ghana in 1973, was selected for this purpose.

He had instructions to assist in establishing a biological sampling system at major landing ports in Venezuela (Cumaná and Carupano) and train the local technicians. The sampling would be for size and species composition, and properly stratified. Samples would consist of 50 fish for measuring fork length. Associated information should include vessel name, gear type, flag of vessel, length of trip, area and month of catch and tonnage of catch from which the sample is taken, as well as total catch for the trip, etc.. Ten samples per month per area was given as a guideline. Priorities of species to be sampled were yellowfin, skipjack, bigeye, and lastly albacore. Identification samples for species composition of the catch was also suggested. Two samples of 100 fish in each stratum was specified in order to verify available logbook data. Tag recovery and handling procedures were also included in the training.

ACTIVITIES OF THE ICCAT BIOLOGIST IN VENEZUELA

ICCAT biologist (Mr. Holzapfel), arrived in Cumaná, Venezuela on June 10, 1985 and was met by Mr. D. Sánchez, Director of the Fondo Nacional de Investigaciones Agropecuarias, Estación Experimental, Cumaná (Fisheries Lab.). Mr. Sánchez provided office space at the laboratory and introduced Holzapfel to the biologist, Mr. H. Salazar, who is in charge of the tuna statistics and research at the Cumaná lab. and Mr. Luis Armando, an assistant. The port of Cumaná, where the fishing vessels land their catch, consists of 3 piers or docks: (1) Muelle Puerto Sucre, where transshipping from catcher to cargo vessels takes place; (2) Muelle Puerto Cannavo, a shipyard for repairs and outfitting for all vessels; and (3) Muelle Pesquero (Centro Pesca) where some transshipping is done and where all fishing vessels unload their catches for the domestic market. Baitboats, purse seiners and small longliners operate out of Cumaná.

Arrangements for sampling were made with Dr. H. J. Montesinos Castillo, President of AVTUN C.C. (Asociación Venezolana de Armadores Atuneros - boat owners' association) and his assistant, A. Vallejo. A meeting was held at their office and a general outline of the work to be accomplished was provided for their staff and the staff of the Fisheries Lab.

Since there is a complication related to the landing procedures (large fish being transferred to the European market while the small mixed catch goes to the U.S. and the rest to the local market), it was determined that sampling should be done accurately as the fish leave the well of the fishing vessels. While the large fish exported to Europe is nearly 100% yellowfin, the mixed species to the U.S. is never separated into species in Cumaná. It seems that no effort is made to separate into species for the fish retained in Venezuela, either, and all the mixed fish were loaded on to trucks and taken to cold stores. The samplers were instructed that to estimate species composition, 100 fish each from 2 or more wells should be sampled as they leave the well of the fishing vessels.

ICCAT sample data forms for both size and species composition samples and copies of the Inter-American Tropical Tuna Commission and NMFS sampling forms were supplied to the Fisheries Lab. These data forms served as the bases for those prepared for the Venezuela sampling. One of the first tasks was to prepare data forms specifically for the size and species composition samplings. Several lined plastic sheets were provided for recording measurements aboard vessels sampled.

As described earlier, catches from the Pacific are also unloaded in Venezuela, but no sampling is made from these fish as Venezuela is not a member of IATTC. Training of sampling was conducted aboard vessels in port. Aboard the first vessel on which sampling was conducted, the well was sampled as it was being unloaded. The large yellowfin were removed and transferred to the cargo vessel which was to take them to Italy. All other fish were transferred to an adjoining well for storage until they could either be unloaded to a cargo vessel for transshipment to Puerto Rico or sold to the local canneries. All the catches unloaded during the training period were from the Caribbean. While no bigeye tuna were observed during the sampling, perhaps 10 to 20% of the so-called yellowfin catch was actually blackfin tuna and, hopefully, the species composition sampling will help to find out the real percentage of blackfin.

Personnel from the Fisheries Lab. in Cumaná indicated that vessels fishing for tunas were landing their catch in Guiria, Venezuela. This was also noted in the records of the Venezuelan catches received earlier by the Secretariat. The ICCAT biologist made a trip to Guiria to investigate and discovered that no tunas had ever been landed there (according to Mr. César Barreto of the M. A. C. office in Guiria).

Arrangements were made at Carupano, following the ICCAT Assistant Executive Secretary's visit (in March, 1985) and the expert's visit (in June, 1985) that the longliners' fishing records may be sent directly to the Secretariat by the company (Trio Pines) operating these boats. The expert also requested the company to start biological sampling of the longliners' catches using their own personnel, since the M.A.C. office in the Carupano has no funding for sampling. This is presently being pursued further by the Secretariat. The difficulty is that the fish are deep-frozen and are transferred from the fishing boats directly to freezer boats. Therefore measurements might have to be made at sea by fishermen when the fish are caught.

A final meeting of all personnel responsible for the tuna program was held on July 4, 1985 which was the last day for the biologist sent to assist Venezuela. The ICCAT's needs and requirements were made clear.

The degree of cooperation from both industry and government personnel was quite high, which made the tasks simple and pleasant to accomplish. The relationship between the Fisheries Lab. technicians and the vessel crews appeared to be excellent and permission was granted when asked to sample aboard the seiners. All information for area, time and amount of catches, well capacity, etc. were freely provided.

OBSERVATIONS ON THE VENEZUELAN STATISTICAL SYSTEM

As explained earlier in this report, Venezuela has required that logbooks be maintained by all tuna boats (including foreign flag boats). The boats have to unload at a Venezuelan port, in order to meet the requirements of unloading 40% of their catches at the domestic market, and the boats are not given sailing permits until the captain submits the logbooks for past trip(s). Therefore, the authorities are able to collect the logs from almost all the boats.

Logbooks are collected at the port in Cumaná by Lic. A. Calderón de Vizcaíno and her assistant Nerza Chacón. In Carupano, there is also a M.A.C. office on Calle Monagas 5, that is responsible for collecting statistics. The M.A.C. office in Rio Caribe eventually gets the logs from longliners fishing from Carupano. Those logbooks collected by the regional office of M.A.C. are forwarded to Mr. Oscar Baloa, Chief of Servicio de Información Pesquera (SIP) in Caracas. A copy is also provided to the Cumaná Fisheries Lab for their use in statistics.

Log records are processed at the M.A.C., using the Ministry's computer and their own format (i.e. only for the Caribbean Sea, dates are by landing and effort is in number of days with catches). Total tuna catches are estimated by M.A.C. from the logbook records, but also using some landing records for cross checking. However, the catches recorded for the Pacific

and Atlantic are not separated in this estimation. The ICCAT Secretariat made an arrangement to get copies of the logs and to reprocess them into the ICCAT format (in March, 1985). Data collected for 1982-1984 have been completed and a summary table has been sent back to Venezuela for verification.

Purse seiner crews indicated that vessels fishing in the Pacific seldom fish or catch tuna in the Caribbean between Panama and Venezuela. This has also been confirmed in the past from vessels landing their catch in P.R. While the above is "normal", some experience in Ponce, P.R. as well as logbook records, indicated that some boats did operate in both oceans during one trip.

The current logbook system has some shortcomings, and the M.A.C. was informed of these sometime ago and improvements have been recommended. These are as follows:

1. The common format of a logbook for all tuna fisheries is not workable. Because fishing operations are different and the species being caught are different, separate formats are recommended for each fishery (BB and PS may share the same format). Particularly for the longliners, the world standard format is recommended.
2. The logbook has not enough columns to record species (e.g. bigeye, blackfin are missing from the column). More species columns should be printed in the log form in order to encourage recordings of these catches.
3. Instructions to the fishermen are not clear as to what should be recorded. Most of the fishermen fill in the log only for the days when the catches were made. This causes a problem in estimating fishing efforts. Some longline fishermen even accumulate catches for every 5 days and record it on one line. A recommendation was made that the captains record at least a line each day as long as the boat is at sea, with a brief explanation of what the boat was doing on those days and the noon positions.

DIFFICULTIES ASSOCIATED WITH SAMPLING PROGRAM

Large seiners do not unload their catches all at once. As described before, the catches are sent to different destinations. Large fish are mostly sent to the European market and small fish mostly to the local canneries. The rest can go anywhere according to the companies' policy and market situation prevailing at the time of unloading.

Obtaining accurate weights of these unloadings is very difficult. Final certified weights are available only for the fish actually landed in Venezuela. The manifested and cargo loading plan weights are estimated and do not become final until a weigh master certifies them at the site of importation.

The suggested solution is that all samplings (for size as well as species compositions) should be made when the fish leave the well of the fishing vessels.

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TABLE VENEZUELAN NOMINAL TUNA CATCHES BY SPECIES AND BY GEAR

YEAR	GEAR	TOTAL	YFT	ALB	BET	CATCHES								OTH
						LTA	SKJ	BON	FRI	KGM	SSM	BIL	SWO	
1974	TOTAL	8258	1308	0	0	373	87	522	903	2308	2459	274	24	0
	BBF	144	98				46							
	LL	1508	1210									274	24	
	SURF	6565				373		522	903	2308	2459			
	TROL	41					41							
1975	TOTAL	7880	652	93	0	357	98	562	993	2415	2375	251	52	22
	BBF	194	96				98							
	LL	981	563	93								251	52	22
	SURF	6702				357		562	993	2415	2375			
	UNCL	3	3											
1976	TOTAL	8088	626	133	21	501	0	756	1253	1798	1989	239	43	729
	LL	1791	626	133	21							239	43	729
	SURF	6297				501		756	1253	1798	1989			
1977	TOTAL	7645	827	102	464	425	0	767	907	1595	2202	241	15	0
	LL	1649	827	102	464							241	15	
	SURF	5997				425		767	907	1595	2202			
1978	TOTAL	6997	1306	397	244	390	0	382	550	1382	1952	284	46	54
	LL	2277	1306	397	244							284	46	
	SURF	4720				390		382	550	1382	1952			54
1979	TOTAL	12554	2811	593	347	1270	0	443	1845	2088	2531	404	182	40
	LL	2526	1000	593	347							404	182	
	SURF	10028	1811			1270		443	1845	2088	2531			40
1980	TOTAL	15651	5397	300	661	721	1890	861	1176	1418	2791	244	192	0
	LL	2036	1000	300	300							244	192	
	PS	6648	4397		361		1890							
	SURF	6967				721		861	1176	1418	2791			
1981	TOTAL	18337	4500	331	1684	791	2900	833	944	1643	2375	312	24	0
	BB	4000	1000				3000							
	LL	3151	1000	331	1484							312	24	
	PS	4500	2500		200		1900							
	SURF	6586				791		833	944	1643	2375			
1982	TOTAL	23922	14426	137	999	311	12645	864	509	2080	1677	249	25	0
	BB	5074	1912	50			3112							
	LL	1727	484	7	962							249	25	
	PS	21680	12030	80	37		9533							
	SURF	5441				311		864	509	2080	1677			

YEAR	GEAR	TOTAL	YFT	ALB	BET	CATCH		BON	FRI	KGM	SSM	BIL	SWO	OTH
						LTA	SKJ							
1983	TOTAL	41388	16750	823	4284	573	11711	554	1171	1976	2121	512	35	976
	BB	6090	1825	163	756		2714							532
	GILL	41					41							
	LL	4706	1248	296	2372							512	35	243
	PS	24156	13677	364	1156		8956							3
	SURF	6395				573		554	1171	1976	2121			
1984	TOTAL	33362	16427	580	3315	0	11807	0	0	0	0	329	23	881
	BB	4882	1996	86	775		2025							
	GILL	111												
	LL	5240	1658	403	1572							329	23	855
	PS	23129	12773	91	457		9782							26

FIG. ANNUAL TUNA CATCH (IN 1000 MT) BY VENEZUELAN FISHERIES, BY GEAR.

