SOME OBSERVATIONS ON THE DISTRIBUTION OF PENAEID SHRIMP IN EASTERN VENEZUELA 1/

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ABSTRACT

From the presence of larvae in the plankton samples and catching of adults in trawls a preliminary survey was made on the distribution and abundance of Penaeid shrimp around the Island of Margarita and in the Gulf of Paria. The species found around the Island of Margarita were Penaeus brasiliensis (brown), P. aztecus (brown), Xiphopenaeus kroyeri (sea bob), Hymenopenaeus robustus (royal-red), and Aristaeomorpha foliacea, and in the Gulf of Paria P. schmitti (white), P. aztecus, Xiphopenaeus kroyeri, and Trachypenaeus similis.

INTRODUCTION

Off the eastern part of Venezuela there are vast ocean areas with depths of less than 1 fathoms. Those areas are part of the Continental Shelf around the Island of Margarita, the delta of the River Orinoco, and the Gulf of Paria. The Gulf of Paria has an average depth only 10 fathoms with large estuarine areas. At present there is no offshore fishery for shri

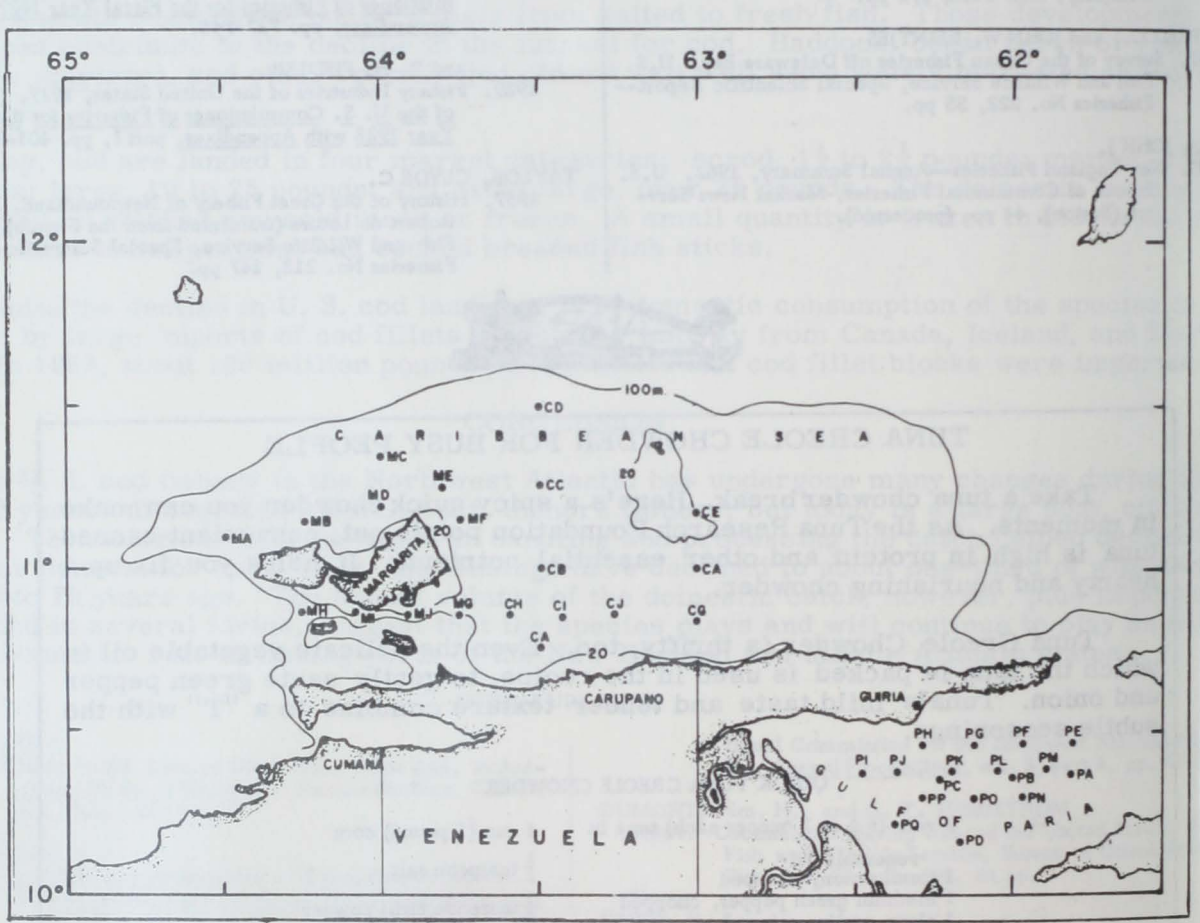

Fig. 1 - Shows 37 stations in April and August 1963 at which shrimp larvae were collected from plankton samples.

1/A part of the paper is based on some results of cruise 87 of the exploratory fishing vessel Oregon of the U.S. Bureau of Comm Fisheries, Pascagoula, Miss.

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t area. Apparently those areas seem to have potentiality and Fiedler (1947) indicated ere should be rich shrimp fishing grounds in the Gulf of Paria.

o find out the distribution and abundance it is necessary to do exploratory fishing. The vailable information about exploratory fishing in those areas is of limited trawling done M/V Oregon of the U. S. Bureau of Commercial Fisheries in the delta of River Orinoco s and Thompson 1959). Plans were made to explore first the nearer waters, the Conti- Shelf around the Island of Margarita, and the Gulf of Paria.

METHODS AND RESULTS

s a preliminary step it was decided to look first for shrimp larvae as an indicator for the ce of adults. Shrimp larvae were collected from plankton samples at 37 stations (fig. 1) il and August 1963. At every station a vertical haul was made for 15 minutes with a eter plankton net.

ble 1 - Number of Larvae Collected in April 1963

Sta	Depth		Penaeidae	Penaeus
	Meters	Feet	. . . . . (Number)	
M	26	85	385	0
M	58	190	10	5
M	32	105	5	0
M	28	92	5	0
M	30	98	0	0
M	20	66	0	0
M	25	82	55	55
OC	33	108	10	10
OC	46	151	0	0
OC	40	131	15	0
OC	67	220	20	0
OC	40	131	0	0
OC	50	164	0	0
OC	30	98	0	0
PP	25	82	10	0
PP	30	98	35	25
PP	20	66	10	10
PP	20	66	10	10

Table 2 - Number of Larvae Collected in August 1963

Stations	Depth		Penaeidae	Penaeus
	Meters	Feet	. . . . . (Number)	
MH	63	207	105	0
MI	40	131	30	0
MJ	15	49	0	0
MG	25	82	50	30
CH	45	148	35	30
CI	50	164	190	190
CJ	59	194	15	15
PE	20	66	0	0
PF	30	98	0	0
PG	30	98	25	25
PH	20	66	0	0
PI	12	39	0	0
PJ	15	49	0	0
PK	25	82	0	0
PL	25	82	0	0
PM	30	98	0	0
PN	25	82	0	0
PO	30	98	0	0
PP	15	49	35	35
PQ	10	33	5	5

bles 1 and 2 show the number of larvae at the different stations. Larvae of Penaeid were found in 20 stations, and in 12 stations larvae of the genus Penaeus. For lack of n the early life history of many Penaeus sp. it was not possible to identify all the lar- he specific level. However, an attempt was made to identify the postlarvae as suggest- Williams (1959). Accordingly, postlarvae at stations MG, CA, CH, CI, and CJ of the an Sea were identified as brown shrimp (P. aztecus). Postlarvae at stations PB, PC, , PP, and PQ of the Gulf of Paria resembled that of white shrimp (P. setiferus) as ed by Pearson (1939), but probably they were South American white shrimp (P. schmitti) s the common species known from that area.

er on in October of that year an opportunity was found to do some exploratory fishing e author was invited to participate in cruise 87 of the Bureau of Commercial Fisher- oratory fishing vessel Oregon. Through the cooperation of vessel scientific personnel ossible to do some trawling in those areas. Drags of one hour's duration were con- with a 40-foot flat trawl.

ne drag at 225 fathoms north of the Island of Margarita small quantities of royal red (Hymenopenaeus robustus) and another penaeid shrimp (Aristaeomorpha foliacea) ught. Two other drags were made in the same area but in lesser depths, of which one d 35 individual brown shrimp (Penaeus brasiliensis) at a depth of 35 fathoms. On the side of the Island of Margarita 8 drags were made. Although most fishing was carried epths between 15 and 20 fathoms, the best catch, consisting of only 35 individual P. , was made in 35 fathoms north of Carupano.

Four drags were done in the Gulf of Paria. In depths greater than 10 fathoms a small number of P. aztecus were caught. Catches in lesser depths were also small. In one ha 35 and in another 50 P. schmitti were caught along with a few P. aztecus, Xyphopenae kroyeri, and Trachypenaeus similis.

The author did some trawling in the northern part of the Island of Margarita in March 1964. This was done with a 6 x $1\frac{1}{2}$ foot "beam trawl." Xyphopenaeus kroyeri were found abundant at depths below 5 fathoms. Some P. brasiliensis were caught between 20 to 35 fathoms, but the quantity was always very small and did not suggest any possibility of commercial exploitation.

Fig. 2 - Research vessel Guaiqueri of the Instituto Oceanog Universidad de Oriente, Cumaná, Venezuela.

CONCLUSION

The results of these explorations show that favorable trawling bottom exists in the eastern part of the Island of Margarita and in the Gulf of Paria and with the best showings o aztecus in the first mentioned area and of P. schmitti in the last mentioned area. It was furth observed that in those areas shrimp have a different depth distribution than normally found in Gulf of Mexico. Renfro and Brusher (1962) in their exploratory fishing reported the capture the greatest number of P. aztecus between 15 to 20 fathoms. Kutkuhn (1962) also reported th in the Apalachicola area, year-round exploitation rarely goes beyond 20 fathoms. In the of Mexico white shrimp (P. setiferus) are mostly taken from 20 fathoms or less, but in th Gulf of Paria P. schmitti were found only in depths below 10 fathoms. However, more ex atory fishing will be necessary before the distribution and the abundance can be accurate delineated.

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