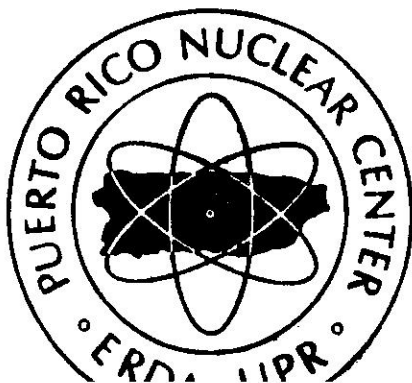


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PUERTO RICO NUCLEAR CENTER

PUNTA HIGUERO ENVIRONMENTAL STUDIES
SUPPLEMENTARY REPORT
MAY 1, 1975

Prepared for the Puerto Rico Water Resources Authority
By the Staff of Puerto Rico Nuclear Center of the
University of Puerto Rico



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PUNTA HIGUERO ENVIRONMENTAL STUDIES

by

James D. Parrish

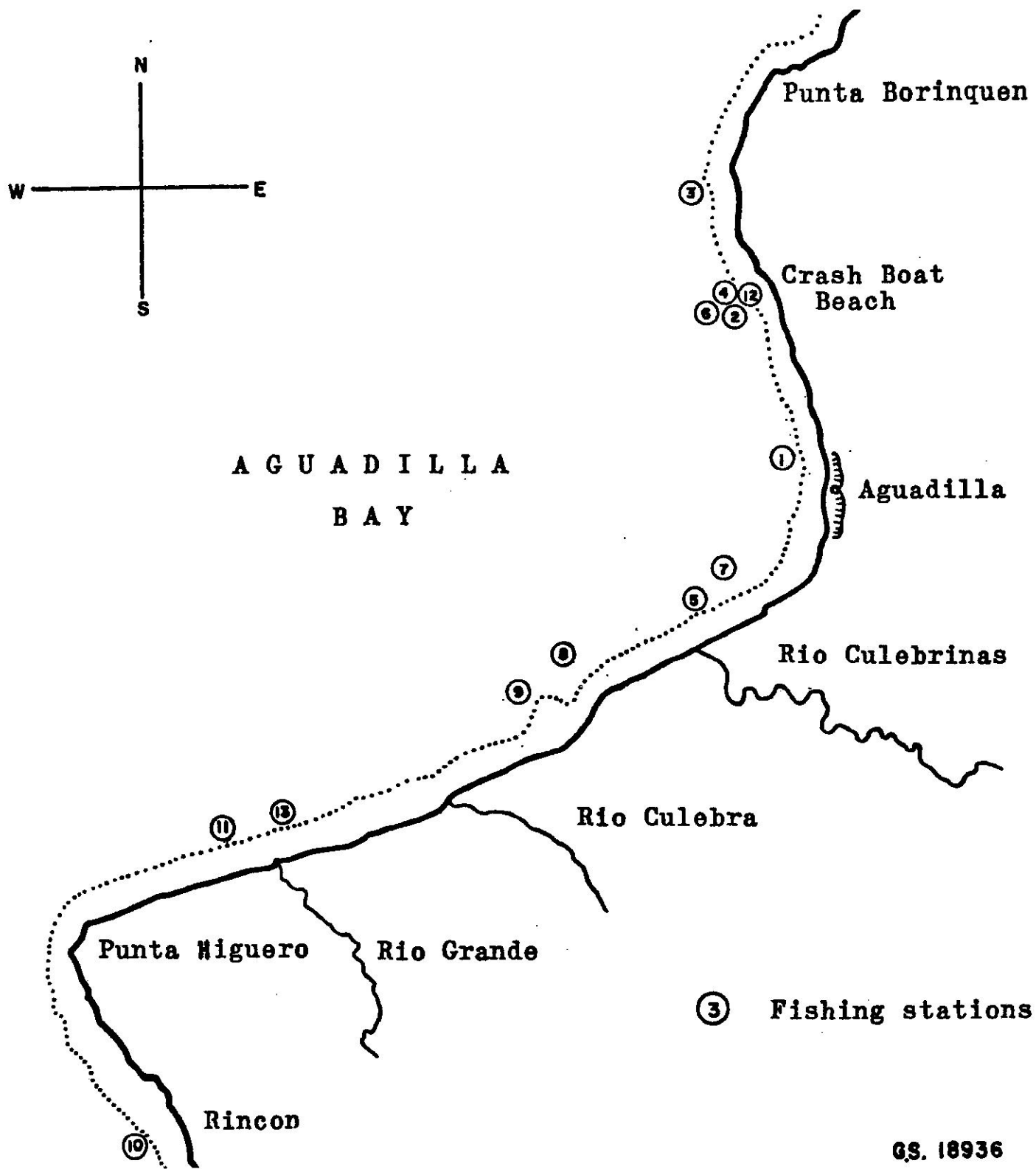
SUPPLEMENTARY REPORT ON FISHES AND FISHING
AT PUNTA HIGUERO AND THE SURROUNDING AREA

A limited number of collections were made during this study in the very shallow waters near shore. A substantial volume of information is also available regarding fishes in deeper waters and slightly more distant areas. These data appear in published and unpublished sources. (Erdman (1961, 1963), FAO (1962), Juhl (1972).)

Erdman (1963) is a data compilation made from A.B. Cochran's collections, for the most part, on total landings in the Aguadilla area. These data present catch by common name, number of fish caught and weight. The bulk of the catch was landed at "Crashboat" beach, north of Aguadilla, and some landings may have been made at the beach of the town of Aguadilla. In general, there is a heavier fishing effort northwestward from "Crashboat" beach and Aguadilla than toward Punta Higuero, and most of the fishing is done over a mile from shore. The Erdman (1963) data are primarily useful in that they give an extended historical record of the fishing activity in the general area. More recent statistics on commercial fish landings at nearby ports appear in Juhl (1972).

FAO (1962) relates exploratory fishing efforts for tuna and tuna live bait west and south of Aguadilla. Three of the stations were located within about a mile of Punta Higuero (see Figure 1). Others were somewhat farther away. The stations were within 1 or 2 miles of shore but some were much closer. Erdman (1961) lists species and numbers of specimens collected during the baitfishing. Table 1 is based on this list with estimates of locations corresponding to the FAO (1962) stations.

Juhl (1972) summarizes exploratory fishing results for the Punta Higuero region based on sampling done in November 1970-January 1971 and May-June 1972 by the Laboratorio Pesquero of the Department of Agriculture. The data are reported by locations, total weight of catch, and gear type. More complete information is available from the Department of Agriculture in the original data sheets. The locations of the collections are shown in Figure 2 as numbered squares, each 3.5 kilometers per side.



GS. 18936

Fig. 1 Bait survey fishing stations. - October 1961. From FAO (1962).

Table 1

Fish Collections in the Aguadilla-Punta Higuero Region during Fall 1961. Adapted from Erdman (1961).

Probable location (see Fig. 1)	Date	Time	No. individuals	SPECIES			Remarks			
				Scientific name	English common name ¹	Spanish common name ²				
2, 4, 6, or 12	29 Sep	Un-known	9	<u>Polydactylus virginicus</u>	barbu	barbudo	Leptocephalus larva. Juvenile. Postlarvae.			
			1	<u>Albula vulpes</u>	bonefish	macaco				
			1	<u>Mugilidae</u>	mullet	bocona				
			6	<u>Engraulidae</u>	anchovy	agujon				
			4	<u>Strongylura</u> sp.	needlefish					
			INVERTEBRATES							
			1		Dawn			octopus sp.	pulpo	Caught with lampara net.
			3			little tunny		vaca		
			1			bigeye scad		chicharra		
			1			bar jack		chibi, cojinuda		
2			thread herring	arenque						
1	28 Sep	0100 to 0500		<u>Auxis thazard</u>	frigate mackerel	maduro	Caught with beach seine.			
			1	<u>Caranx bartholomaei</u>	yellow jack	guaymen amarillo				
			1	<u>C. latus</u>	horse-eye jack	jurel ojon				
			1	<u>C. ruber</u>	bar jack	chibi, cojinuda				
			1	<u>Polydactylus virginicus</u>	barbu	barbudo				
			1	<u>Harengula humeralis</u>	redear sardine	machuelo				
			1	<u>H. pensacolae</u>	scaled sardine	cascarua				
			1	<u>Sardinella anchovia</u>	Spanish sardine	sardina				
			1	<u>Spheroides</u> sp.	purfer	tambor				
			1	<u>Strongylura</u> sp.	needlefish	agujon				
INVERTEBRATES										
			5	squid						
			1	octopus						

Table 1

Probable location (see Fig. 1)	Date	Time	No. individuals	Scientific name	SPECIES						
					English common name ¹	Spanish common name ²	Remarks				
5 or 7	6 Oct	Un-known	1 1 5 1 25 1 1 2 1 1 1	<u>Holocentrus rufus</u>	longspine squirrelfish	gallo					
				<u>Polydactylus virginicus</u>	barbu	barbudo					
				<u>Agonostomus monticola</u>	mountain mullet	dajao	Juveniles.				
				<u>Albula vulpes</u>	bonefish	macaco	Leptocephalus.				
				<u>Anchoa lyolepis?</u>	anchovy						
				<u>Synodus sp.</u>	lizardfish	doncella					
				<u>A. brownii?</u>	anchovy						
				<u>Anguilla rostrata</u>	American eel	anguila	Juveniles.				
				<u>Synphobranchidae</u>	deepsea eel						
				<u>Pomacentridae?</u>	damselfish						
				<u>Decapterus macarellus</u>	mackerel scad	caballa azul	Juvenile. Caught with lampara net.				
				5 or 7	14 Oct	Un-known	Sev-eral 2 Sev-eral 2 21 1 1 1 12 1 1 2 1 1	crab			Megalops larvae.
								squid			
shrimp								Caught night lighting.			
<u>Paraxocoetus brachypterus</u>	sailfin flyingfish	volador									
<u>Alectis crinitus</u>	African pompano	pompano									
<u>Paralepis ? Suidae</u>	pike jawed deep sea fishes	picuilla larga									
<u>Mvctophidae</u>	lantern fishes	guarda trafico									
<u>Blennidae</u>	transparent blenny										
<u>Acanthurus sp.</u>	surgeonfish										
<u>Oostethus lineatus</u>	opossum pipefish										
	anchovies										
<u>Anguilla rostrata</u>	American eel	anguilla	Leptocephalus.								
<u>Myrophis egmontis?</u>	myrid eel										
<u>Synphobranchidae</u>	deepsea eel										
<u>Sardinella anchovila</u>	Spanish sardine	sardina									
<u>Monacanthus tuckeri</u>	slender filefish	pereza									

Table 1

Probable location (see Fig. 1)	Date	Time	No. individuals	SPECIES			Remarks
				Scientific name	English common name ¹	Spanish common name ²	
			1	<u>Monacanthus ciliatus?</u>	fringed filefish		Postlarva.
			1	<u>Etropus sp.</u>	flounder	tambor	
			8	<u>Canthigaster rostrata</u>	sharpnose puffer		
			1	<u>Strongylura sp.</u>	needlefish		
			6				
			8	<u>Panulirus argus</u>	stomatopods		Larvae. Small.
			Sev-eral		spiny lobster		
			2		shrimp		
			2		squid		Small.
			Sev-eral		octopus		Megalops larvae.
			1		crab		
		Dawn	Many	<u>Opisthonema oglinum</u>	thread herring	arenque	Caught with lampara net.
			1	<u>Harengula humeralis</u>	redear sardine	machuelo	~ 100 lb. total.
			1	<u>Harengula pensacolatae</u>	scaled sardine	cascarua	
			1	<u>Scomberomorus regalis</u>	cero	sierra	
			Several	<u>Caranx latus</u>	horse-eye jack	jurel ojon	
			Several	<u>C. bartholomaei</u>	yellow jack	guaymen amarillo	
			Several	<u>C. ruber</u>	bar jack	chibi, cojinuda	
Unknown	13 Oct	Un-known	1	<u>Hemiramphus balao?</u>	balao	balaju	Caught with beach seine.
			1	<u>Citharichthys sp.</u>	flounder		
			2	<u>Diapterus rhombus</u>	rhomboid mojarra	mojarreta	
			2	<u>Decapterus punctatus</u>	round scad	caballa amarilla	
			4	Mugilidae	mullet		Caught night lighting.
Near Aguadilla	27 Oct	Night	1	<u>Strongylura sp.</u>	needlefish		Postlarvae.
			1	<u>Rhomboplites aurorubens</u>	vermillion snapper	besugo	Caught bottom fishing.
			1	<u>Lutjanus buccanella</u>	blackfin snapper	negra	" "

Table 1

SPECIES							
Probable location (see Fig. 1)	Date	Time	No. individuals	Scientific name	English common name ¹	Spanish common name ²	Remarks
11 or 13	20 Oct		2	<u>Anchovia choerostoma</u>	lookdown	corcobado	Abundant, 2-3" length.
			1	<u>Selene vomer</u>	lizardfish	mariposa	
			1	<u>Synodus sp.</u>	butterflyfish	arenque	
			1	<u>Chaetodon sp.</u>	thread herring	barbudo	
11 or 13 $\frac{1}{2}$ mi. offshore	28 Oct	Morning	4	<u>Polydactylus virginicus</u>	barbu		Juvenile. Juvenile.
			1	<u>Allanetta araea</u>	silverside		
			1	<u>Anchovia sp.</u>	anchovy		
10	19 Oct		1	<u>Myctophidae</u>	lantern fishes	volador	Many small individuals
				<u>Parexocoetus brachypterus hillianus</u>	sailfin flyingfish		
10	19 Oct	Dawn	1	<u>Callinectes</u>	crab	arenque cascarua	Caught with lampara net. Fork length ~3".
			1	<u>Opisthonema oglinum</u>	thread herring		
			2	<u>Harengula pensacola</u>	scaled sardine		

1. Based on Bailey (1970).
2. Based on Erdman (1971).
3. (= Ahlia egmontis?).

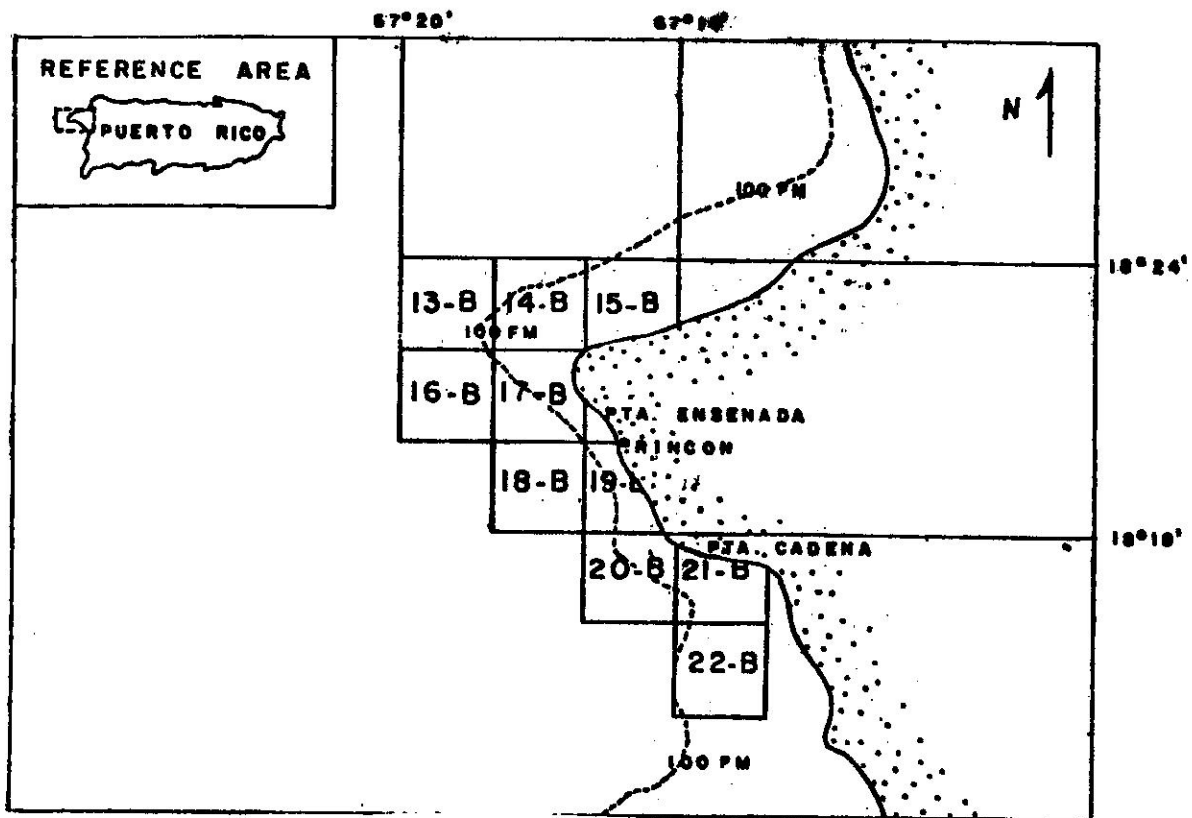


Fig. 2 Phase XVI Rincon. Exploratory and test fishing area showing grid pattern covered, May 6, 1972-June 30, 1972 (from Juhl (1972))

The relevant data extracted from these sheets* for the region appear in Table 2. The data in Table 2 are derived from a total of 55 fish and 10 lobster trap sets in winter, 70 fish trap sets in summer and 15 total gill net sets. All fish were originally reported by local Spanish common name. The most likely identifications of the species were later made from Erdman (1971) and other sources. Some errors may have occurred in identifications and the most doubtful cases have been noted in Table 2. In addition to the species reported it is likely that some smaller and less commercially valuable species were caught but not reported. This crude information is the best available to date for the area. It represents a considerable effort in exploratory fishing.

Among other fishery statistics in the Contribuciones Agropecuarias y Pesquerias series, numbers of fishermen and boats in various coastal ports are reported. There is no harbor within many miles of Punta Higuero, but most fishing vessels are small craft which can be beached at any convenient location when not at sea therefore the fishery statistics may not be entirely accurate or complete on the number of boats in the area.

* Generously provided by Mr. Jon Cole of Laboratorio Pesquero.

Table 2

Catch data in the vicinity of Punta Higuero extracted from Laboratorio Pesquero exploratory fishing activities. Catch is entered as No. individuals.
Depth of capture (ft)

Scientific name	SPECIES		Date caught (Mo/Yr)	Location (see Fig. 2)					
	English common name ¹	Spanish common name ²		13B	14B	15B	17B	19B	21B
<u>Albula vulpes</u>	Bonefish	Macaco	12/70						$\frac{10}{18}$
<u>Balistes vetula</u>	Queen triggerfish	Puerco	12/70	$\frac{10}{120-180}$		$\frac{1}{180-270}$			
			5/72		$\frac{2}{90-120}$	$\frac{1}{120-150}$			
			6/72		$\frac{2}{240-270}$		$\frac{1}{108}$	$\frac{4}{270-300}$	
							$\frac{2}{420}$		
<u>Caranx fusus</u> (?)	Blue runner (?)	Cojinua	11/70					$\frac{42}{18}$	
			12/70	$\frac{31}{120-180}$	$\frac{25}{130-210}$		$\frac{45}{*}$		$\frac{4}{18}$
					$\frac{8}{180-210}$				

Table 2

Scientific name	English common name ¹	Spanish common name ²	Date caught (Mo/Yr)	Location (see Fig. 2)					
				13B	14B	15B	17B	19B	21B
			5/72		$\frac{36}{*}$	$\frac{81}{*}$	$\frac{11}{*}$	$\frac{24}{*}$	
			6/72			$\frac{54}{*}$		$\frac{14}{*}$	
<u>Chloroscombrus chrysurus</u>	Atlantic bumper	Casabe	12/70						
<u>Epinephelus guttatus</u>	Red hind	Cabrilla	12/70		$\frac{12}{120-180}$		$\frac{11}{180-270}$	$\frac{3}{150-240}$	$\frac{5}{18}$
			5/72			$\frac{1}{540}$	$\frac{1}{180-210}$	$\frac{1}{270}$	
						$\frac{2}{90-120}$	$\frac{14}{270-300}$		
						$\frac{11}{120-150}$	$\frac{1}{540}$		
						$\frac{9}{240-270}$			
			6/72	$\frac{2}{210-360}$			$\frac{24}{270-300}$		
			5/72				$\frac{1}{420}$		
<u>Epinephelus mystacinus</u>	Misty grouper	Guasa	5/72				$\frac{5}{810-840}$		

Table 2

SPECIES		Date caught (Mo/Yr)	Spanish common name ²	English common name ¹	Location (see Fig. 2)					
Scientific name	13B				14A	15B	17B	19B	21B	
<u>Epinephelus striatus</u> (?)		5/72	Cherna, Mero cherna	Nassau grouper (?)				$\frac{1}{270-300}$		
		6/72						$\frac{1}{90}$		
<u>Cerres cinereus</u> (?)		12/70	Muniana	Yellowfin mojarra (?)						$\frac{8}{18}$
<u>Haemulon album</u>		12/70	Viuda	Margate		$\frac{23}{120-180}$	$\frac{1}{130-210}$			
<u>Haemulon aurolineatum</u>		12/70	Mula	Tomtate		$\frac{9}{120-180}$	$\frac{56}{130-210}$	$\frac{4}{180-270}$	$\frac{3}{150-240}$	
<u>Holocentrus ascensionis</u>		12/70	Gallo	Squirrelfish		$\frac{59}{120-180}$		$\frac{70}{180-270}$		
<u>Lachnolaimus maximus</u>		5/72	Capitan	Hogfish		$\frac{2}{*}$	$\frac{2}{*}$			
		6/72					$\frac{1}{*}$			
		12/70	Negra	Blackfin snapper		$\frac{2}{120-180}$	$\frac{6}{180-270}$	$\frac{3}{270}$	$\frac{10}{150-240}$	
		5/72					$\frac{10}{240-270}$	$\frac{1}{180-210}$		
		6/72					$\frac{24}{270-300}$	$\frac{3}{540}$		
								$\frac{13}{270-300}$		
								$\frac{1}{420}$		

Table 2

SPECIES	Scientific name	English common name ¹	Spanish common name ²	Date caught (Mo/Yr)	Location (see Fig. 2)					
					13B	14B	15B	17B	19B	21B
	<u>Lutjanus synagris</u>	Lane snapper	Manchego, Arrayado	12/70		$\frac{14}{120-180}$	$\frac{56}{130-210}$ $\frac{15}{180-270}$		$\frac{6}{18}$	
				6/72				$\frac{2}{108}$		
	<u>Lutjanus</u> , probably <u>vivanus</u>	Silk snapper (?)	Chillo	12/70		$\frac{13}{120-180}$	$\frac{9}{130-210}$ $\frac{5}{180-270}$	$\frac{65}{180-270}$	$\frac{16}{150-240}$	
				5/72			$\frac{19}{240-270}$	$\frac{6}{180-210}$		
				6/72				$\frac{63}{270-300}$		
	<u>Mycteroperca venenosa</u>	Yellowfin grouper	Guañil, Mero guañil	5/72		$\frac{1}{*}$	$\frac{3}{540}$			
	<u>Myripristis jacobus</u>	Blackbar soldierfish	Toro	12/70		$\frac{4}{120-180}$				
	<u>Ocyurus chrysurus</u>	Yellowtail snapper	Colirrubia	6/72						
	<u>Peprilus alepidotus</u> or <u>Trachinotus goodii</u>	Southern harvestfish Palometa	Palometa	12/70		$\frac{4}{120-180}$		$\frac{4}{180-270}$		

Table 2

SPECIES	Location (see Fig. 2)					
	13B	14B	15B	17B	19B	21B
Scientific name						
English common name ¹						
Spanish common name ²						
Date caught (Mo/Yr)						
<u>Rhomboplites aurorbens</u>		$\frac{11}{120-180}$	$\frac{10}{130-210}$ $\frac{16}{180-270}$ $\frac{15}{240-270}$	$\frac{8}{270-300}$	$\frac{10}{150-240}$	
<u>Scomberomorus regalis</u>				$\frac{1}{*}$		
\square		$\frac{2}{*}$	$\frac{1}{*}$		$\frac{2}{*}$	
<u>Seriola dumerili</u>			$\frac{1}{130-210}$			
<u>Thunnus atlanticus</u>			$\frac{2}{120-150}$ $\frac{2}{240-270}$	$\frac{1}{420}$ $\frac{2}{270-300}$		
				$\frac{1}{90}$ $\frac{2}{108}$		

Table 2

SPECIES	Scientific name	English common name ¹	Spanish common name ²	Date caught (Mo/Yr)	Location (see Fig. 2)					
					13B	14B	15B	17B	19B	21B
Goatfish**			Salmonete	12/70			$\frac{2}{180-270}$			
				6/72	$\frac{35}{120-180}$		$\frac{2}{90}$			
							$\frac{8}{270-300}$			
Grunt**			Ronco	11/70					$\frac{1}{18}$	
				12/70	$\frac{45}{120-180}$	$\frac{2}{130-210}$		$\frac{2}{180-210}$		
				5/72		$\frac{1}{90-120}$				
Parrotfish**			Loro	6/72						
				11/70		$\frac{9}{120-150}$			$\frac{1}{18}$	
				5/72	$\frac{2}{*}$				$\frac{2}{*}$	
				6/72						

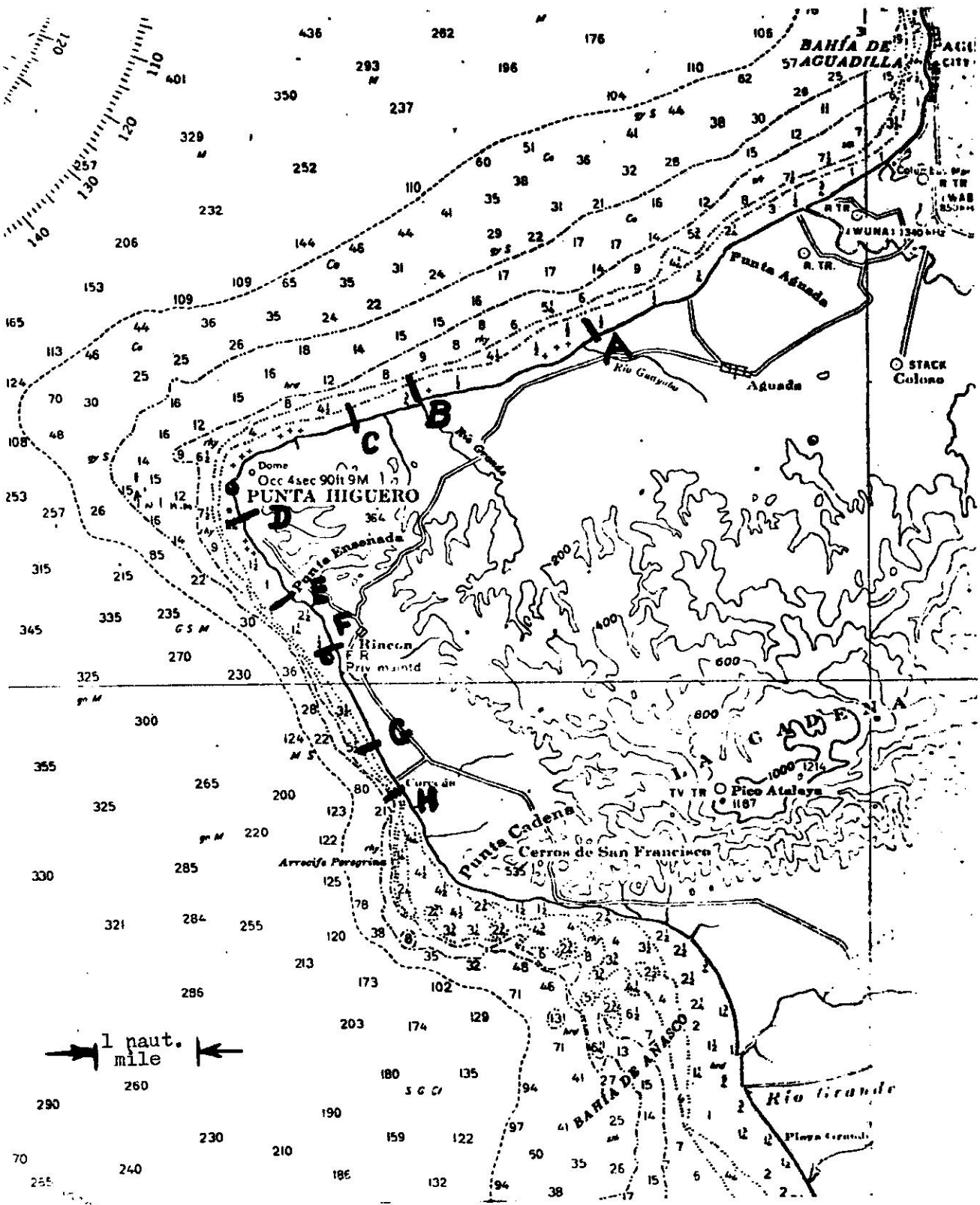
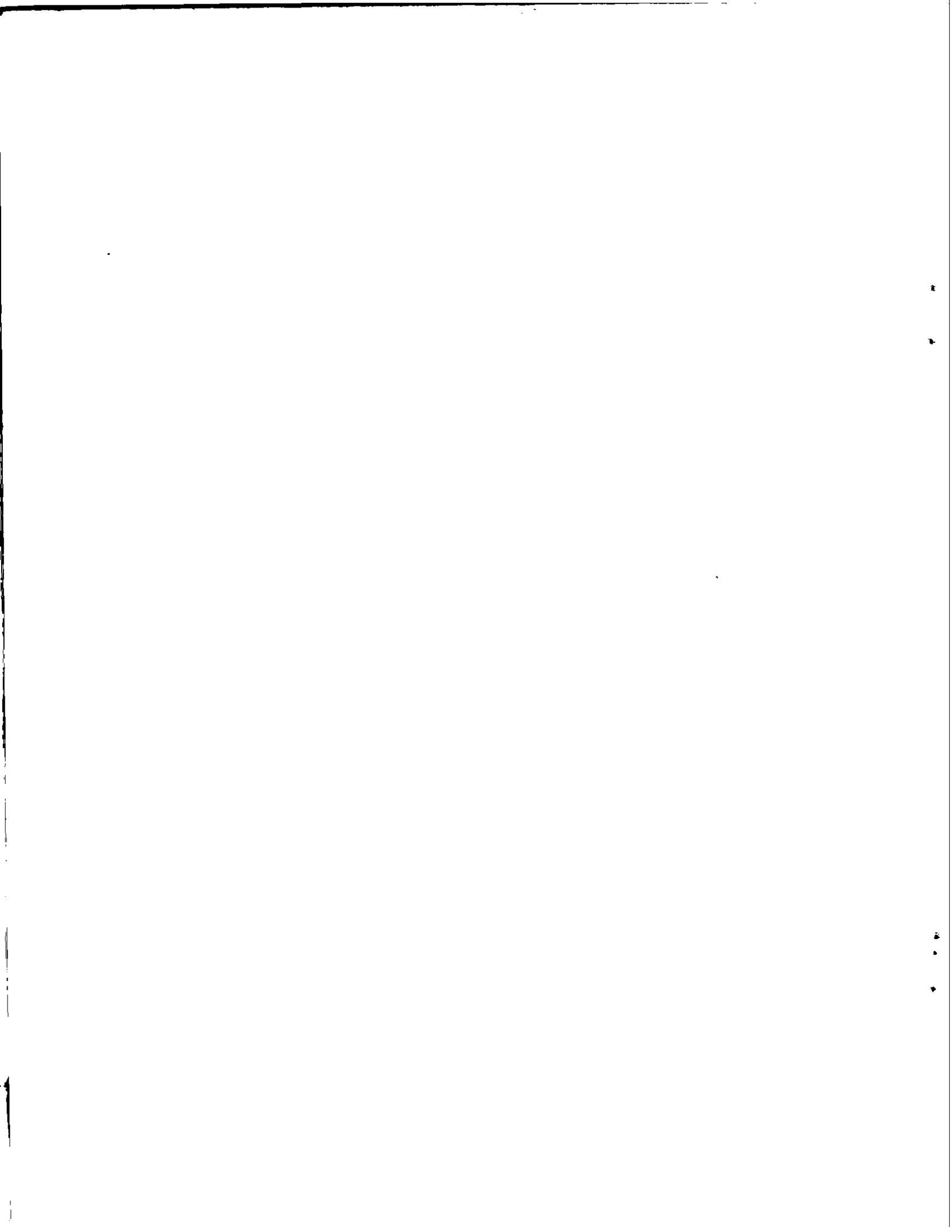


Fig. 3 Portion of coast where census of fishing boats was made 2 October 1974.

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