Surveys of the Fish Resources on the Pacific Shelf Between Southern Mexico and Colombia. - Preliminary Report Cruise No II. - Part 3: Guatemala - Golfo de Tehuantepec, Mexico - 4 - 13 June 1987

CRUISE REPORTS “DR. FRIDTJOF NANSEN”

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The research programme SURVEYS OF THE FISH RESOURCES ON THE PACIFIC SHELF BETWEEN SOUTHERN MEXICO AND COLOMBIA is sponsored by The Norwegian Agency for Development Assistance NORAD, The Food and Agriculture Organization of the United Nations FAO, and the United Nations Development Programme UNDP. The programme is being planned through the OLDEPESCA/FAO Working Group on Fisheries Research in the Region of Central America and Panama. Its execution is the responsibility of the Institute of Marine Research, Bergen in cooperation with FAO and national fisheries administrations.

The programme will comprise four coverages of the region. This preliminary cruise report describes the work and some of the findings of the second coverage. Full reports will be issued after the completion of the programme.

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1. Introduction

Tasks. The agreed work tasks included the following: To conduct an acoustic fishing survey for small pelagic fish on the shelf; to conduct bottom trawling experiments for demersal fish, deep water shrimp and langostinos; to test the availability of squid off the shelf with light and jigging. The hydrographic profiles run during the previous survey were to be repeated, and one new section to be set out off Salina Cruz.

Survey plan. The time available for the work between El Salvador and Salina Cruz in Mexico according to the original plan, allowed a mean rate of coverage of abt 20 nm between course tracks over the shelf with some more dense coverage of the inshore area, leaving abt 10 hrs per day for fishing. The acoustic survey was to be supplemented with a demersal trawling programme for swept area estimates and faunistic/biological stock studies. In the area of the slope off San Jose prelocated hauls were set out to check the abundance of langostino and deep water shrimps. Programmes for studying the distribution and abundance of small pelagics in shallow waters and of crystal shrimp at intermediate depths were to be conducted. A testing programme on the availability of oceanic squid using light and jigs was to be performed. In order to make the best use of the time, the daytime was allocated for work in inshore waters and on the shelf, whereas the work on the edge of the shelf and farther off was done during night.

Scientific staff. The following participated from the region;

Guatemala: Fernando Roseals, Antonio Salaverria, Herman Kinn.
Mexico: Armando Arias, Miguel Cisneros.
From FAO: Luis Villegas.

The vessels own scientific staff was: Johannes Hamre, Helge Ullebust, Øivind Torgersen, Martin Dahl.

2. Narrative

The vessels itinerary was as follows:

Departure:	Acajutla 4 June.
Arrival:	Salina Cruz 13 June.

After an unsuccessful attempt to get bunkers in El Salvador, the ship left Acajutla one day delayed according to the original plan. During 4 days of work in Guatemalan waters the vessel steamed abt. 600 nm and 30 trawl stations were made. A hydrographic profile was worked off Champerico. After 1 day of work in Mexican waters troubles started in the ship's main engine and it was decided to steam toward Salina Cruz for repairs. After 100 nm steaming northwestward this decision was reconsidered and the ship continued the work in the Tehuantepec Gulf after 1 day brake of the work programme. The distance steamed in Mexican waters was abt. 800 nm and 38 fishing stations were worked. The hydrographic profile southeast of the San Marcos Bar was repeated but cut with one station seawards, and a new short profile off Salina Cruz was made.

The course tracks and the fishing stations for the whole area is shown in Figure 1. The distribution of course tracks and fishing stations reflect the main survey objectives: to cover and sample the small pelagic fish species found in the inshore areas, and to carry out a trawl survey for langostino and deep water shrimp near the edge of the shelf off Guatemala. During the previous survey it appeared that the bottom fauna of the shelf in the Tehuantepec Gulf between 200 and 300 m depth was poor consisting mainly of Squilla. This is due to very low level of oxygen content. The main survey effort was therefore concentrated over the more important nearshore parts of the Gulf.

The weather conditions were favourable and did not limited the work.

3. Hydrography

Figure 2 shows the surface temperature over the shelf. There is less than 1° C variation in the sea surface temperature off Guatemala. Figure 3 a shows the hydrographic profile off Champerico. Except for a slight increase in surface temperature, the hydrographic situation is similar to that observed in March. The transition layer is located from 50 to 100 m depth, and has a temperature drop of 8°C and a reduction in dissolved oxygen from 4 to 1 ml/l. The cool oxygen-depleted bottom water seems thus to cover the edge of the shelf which is relatively steep below 100 m depth in this part of the region.

The sea surface temperature in the Tehuantepec Gulf shows a slight increase shorewards in the north but otherwise no gradient along the coast was observed. In the previous survey a distinct northward decrease from abt. 28°C to 25 - 26°C was observed together with some shoreward decrease in temperature. The hydrographic profile over the shelf to the east of the San Marcos bar is shown in Figure 3 a. The profile shows a similar hydro-graphic situation to that observed in March. The transition layer as indicated by the oxygen content lifts from inshore to offshore and drops again further seawards. This dome or ridge is known from previous hydrographic surveys of the Gulf and is explained as an effect of the existing current - and wind systems. The new profile run off Salina Cruz (Figure 3 b) shows a different hydrographic situation, the transition layer showing a tendency to lift shorewards. The layer has a drop in temperature of some 10°C from 50 to 100 m and has a reduction in dissolved oxygen from 4 to 1 ml/l. The lower part of the layer lifts sligthly shorewards, but this sign of upwelling is however not recognized in the sea surface temperature.

4. Fish distribution

Figure 4 illustrates the distribution of all fish as observed with the acoustic integration system. The unit of fish abundance is 0.1 m^2 per nm^2 acoustic reflection. Fish that occurs from 10 m below surface level down to about 0.5 m from the bottom will be observed with this system. The distribution chart shows three categories of fish concentration: 1-9 units = scattered fish; 10-49 units = slightly gathered fish; > 50 units = concentrated fish.

Guatemala

The fish distribution on the shelf as observed by the acoustic system consists of an inshore community found along the coast out to a depth of about 50 m. This community contains small pelagics, mainly carangids, anchovies and clupeids, and various bottom fish, predominantly pomadasyidae (grunts) and lutjanidae (snappers). Good concentrations were found in two small areas to the west of San Jose. In the very inshore waters at depth of abt 20 m, schools of small pelagics were occassionally observed in significant numbers at the surface above the transducer range.

High concentrations of mesopelagics were recorded over most of the slope and further off during the survey (not included in the fish distribution chart). Practically no other fish concentration could be identified from the echo traces in the offshore waters.

Golfo de Tehuantepec, Mexico.

Figure 4 shows that the distribution of pelagic fish found inshore along the Guatemalan coast continues along the Tehuantepec Gulf coast to Salina Cruz. The fish observed by the acoustic system are located close to the shore, generally at depths between 20 and 40 m. No area of high fish density was found.

The most common pelagic species were carangids, (specially bumper), mackerel and lookdown. The bottom fish were predominantly grunts and fish from the family Gerridae.

Over the offshore parts of the shelf only mesopelagic fish (Myctophids) were recorded (not included in Figure 4).

5. Results of fishing experiments

The bottom trawl used is a shrimp-cum-fish trawl (see Annex 1) and it may not be as efficient for shrimp as specially designed shrimp-trawls.

Guatemala.

The records of all the fishing stations made during this part of the cruise are shown in Annex 2, where those numbered from 418 through 448 refer to the area off Guatemala (cfr. Figure 1). Most of the trawl stations represent prelocated hauls for faunistic studies and swept area estimates. The catch composition and catch rates can conveniently be described in an inshore and an offshore community refering to the depth of the transition layer, ie. above and below 100 metres. The inshore catches consist of a large variety of species, and the fish catches made, standardized to rates per hour towed (in kilos) and grouped as pelagics (clupeids, anchovies, bumpers), bottom fish and shrimps plus lobsters are shown in Table 1. The dominating pelagic species are the bumpers (74%) and the anchovies (17%), whereas fish from a large variety of species constitute the community grouped as bottom fish. The dominating bottom fish are grunt (25%), snapper (11%) and croaker (Sciaenidae) (9%). Some few lobsters (Panulirus gracilis) were caught in the coastal area to the southeast. The mean catch rate from 20 hauls inshore, including all species, is 450 kg/h. Abt. 2% of the catch is shrimps. Most of the shrimp caught at st. 420 is of low commercial value.

Table 1. Fish catches, inshore community, Guatemala. Catch rates in Kg. per hour towed.

St. no.	Depth m	Pelagic fish	Bottom fish	Shrimps	Total
420	94		562	70	632
421	58	7	44	2	53
422	24	16	18		34
423	37	50	316	24	390
424	74		389	30	419
425	30	176	333	6	515
426	31	45	109	3	157
432	57	78	689		767
433	20	117	35		152
434	38	24	227	14	265
435	27	135	166	9	310
436	67	650	1261	14	1925
440	85	360	87		447
441	44	500	298		798
442	22	131	58	2	191
443	45	176	272		448
444	21	21	10		31
445	33	101	123	4	228
447	52	883	293		1176
448	21	52	12		64

Fishing offshore was arranged to cover different depths between 100 and 300 m in testing for langostino and shrimp. The mean catch rate from 9 offshore stations is 0.8 tons/hour and the main groups of species are shown in Table 2. The dominating fish species are sea bass, Family Serranidae (34%), and fish of the Family Scorpaenidae (17%). One large catch of silver smelt Family Argentinidae was made (st.439). Good catches of langostino (Pleuroncodes planipes) were made at the edge of the shelf below 200 m depth but the catch rate is low compared to that found in the El Salvador/Nicaragua region. The deep sea shrimp (Heterocarpus vicarius) which were found to be abundant more south was absent and mantis shrimp (Squilla sp) was found in large quantities at depth below 200 m. On the whole these results indicate that the offshore part of the shelf of the Guatemala region has a somewhat poorer fauna compared to that observed in the south.

Table 2. Fish catches, offshore community, Guatemala. Standardized to rates of kilo per hour towed.

St. no.	Depth m	Fishes	Squilla	Langostino	Total
418	156	257	361	71	689
419	252	142	1467	391	2000
427	118	306			306
428	165	156	308		464
429	247	58	324	669	1051
430	173	317	281		598
431	118	493	19		512
438	200	142	5	373	520
439	232	535	40	475	1050

Golfo de Tehuantepec, Mexico

The fishing stations worked in Mexican waters are listed in Annex 2, stations no 449 through 486. Results from the hauls in the areas of inshore fish distribution, made at prelocated positions and worked during day-time, are shown in table 3. The stations are ranged from the border of Guatemala and westwards to the area off Salina Cruz. During the previous survey it was found that the catches made south of Barra de Tonala differ in composition and size compared to those being made in inshore waters to the north of that position. The stations in Table 3 are listed accordingly, those being worked south of Barra de Tonala are shown above the open line of the table. The mean catch in the north standardized to rates per hour towed and grouped as pelagics, bottom fish and shrimps is 515 kg/h, consisting of 58 % pelagics, 41 % bottom fish and 1 % shrimps. The figures for the area south of Barra of Tonala are 378 kg/hr, corresponding to the above mentioned groups 45%, 54% and 1% respectively. The main reason for this difference in catch rate and species composition is the large catch of pelagics (3047 kg/hr) at st. 485, which consisted of some 80 % bumper (Chloroscombrus orqueta). Otherwise there are small differences in catch rates by species at the two areas. The pelagics are dominated by bumpers, whereas grunts (41%), gerrids (18 %) and catfishes (7%) predominate in the group of bottom fish.

Table 3. Fish catches, inshore community, Mexico. Catch rates in Kg. per hour towed.

St. no.	Depth m	Pelagic fish	Bottom fish	Shrimps	Total
449	38	57	282		339
450	22	105	147	1	253
451	45	84	153		237
455	84	928			982
461	54	465	480		945
462	25	52	134	15	201
463	44	180	423		603
464	28	30	105	1	136
465	25	119	218	7	349
466	46	33	235	12	280
469	58	32	432	1	465
470	37	33	103	3	139
471	24	138	142	5	285
472	40	165	88		253
473	24	125	144		269
456	54	1010	405		1415
457	56	340	648		988
458	58	59	183		242
459	58	50	121		171
460	52	23	126		149
474	26	66	178	5	249
475	41	50	74		124
482	36	49	158	4	211
483	28	143	24		167
484	37	46	8		54
485	23	3660	328		3988
486	24	94	388		482

Table 4 shows the records of the offshore trawling for langostino, squilla and shrimps. These are prelocated catches, all but station no 476 being made during night. The latter gave a record catch of fish of 4 tons/hour, and consisted mainly of jack mackerel (Decapterus sp). The catch rate of fish in the former stations are relatively low and consist mainly of fish from the family Scorpaenidae (66%). Good catches of langostino (Pleuroncodes planipes) and Squilla sp were made at the edge of the shelf below 150 m depth, but the samples are too few to assess the abundance or destribution of these stocks in the Mexican region. No deep sea shrimp was caught. region. No deep sea shrimp was caught.

Table 4. Fish catches, off shore community, Mexico. Standardized to rates of kilo per hour towed.

St. no.	Depth m	Fishes	Squilla	Langostino	Total
453	226	44	630	540	1214
454	153	103	360	1224	1687
467	174		52	988	1040
468	143	7	3	5	15
476	103	4000			4000

Some trials were made for fishing Crystal shrimp (Penaeus brevirostris) in the 50 - 100 m depth range in the north western part of the Gulf. During the previous cruise this species gave insignificant catches in daylight fishing compared to night fishing, and the stations were therefore sampled during night. The results, standardized to catch/hour towed (kilos), are shown in Table 5. Good catches of crystal shrimp Penaeus brevirostris were made between 80 and 100 m depth, which is some 20 m deeper then the main distribution depth found in March. The other shrimp species, except for a few specimens of brown shrimp, are of low commercial value. The catch rate of fish is low, the main species are lizard fish Family Synodonteidae and catfish (Family Ariidae).

Table 5. Catches of crystal shrimp, Golfî de Tehuantepec, Mexico. Catch rate in kilo per hour towed.

St. no.	Depth m	Fish	Crystal shrimp	Other shrimps	Total
477	56	242		3	245
478	79	95	6	5	106
479	89	116	40	11	167
480	99	144	41	5	190
481	83	62	75		137

6. Catch of oceanic squid

Some few stations were made in testing the availability of oceanic squids (Dosidiscus gigas) by light and jigging. The catch rate in numbers per 30 min. jigging (2 handjigs) by station is shown in Fig. 5. Only a few specimens were caught.

7. Fish biology

Pooled size compositions of the main species caught are shown in Annex 3 for Guatemala and the Golfî de Tehuantepec.

Annex 4 gives a list of all species caught.

FIGURE 1. COURSE TRACKS AND FISHING STATIONS - FIGURA 1. RED DE RUMBOS Y ESTACIONES DE PESCA

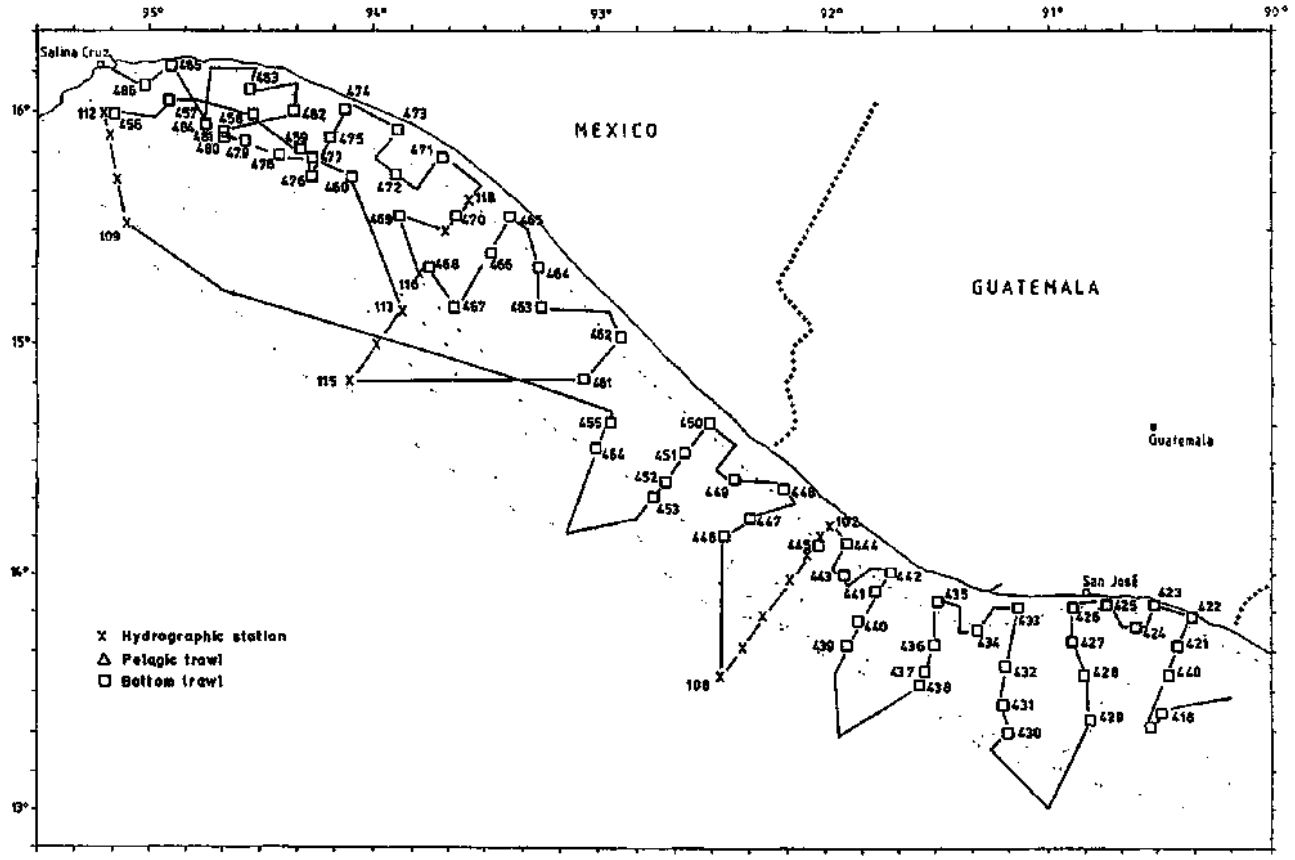


FIGURE 2. DEA SURFACE TEMPERATURES - FIGURA 2. TEMPERATURAS SUPERFICIALES DEL MAR

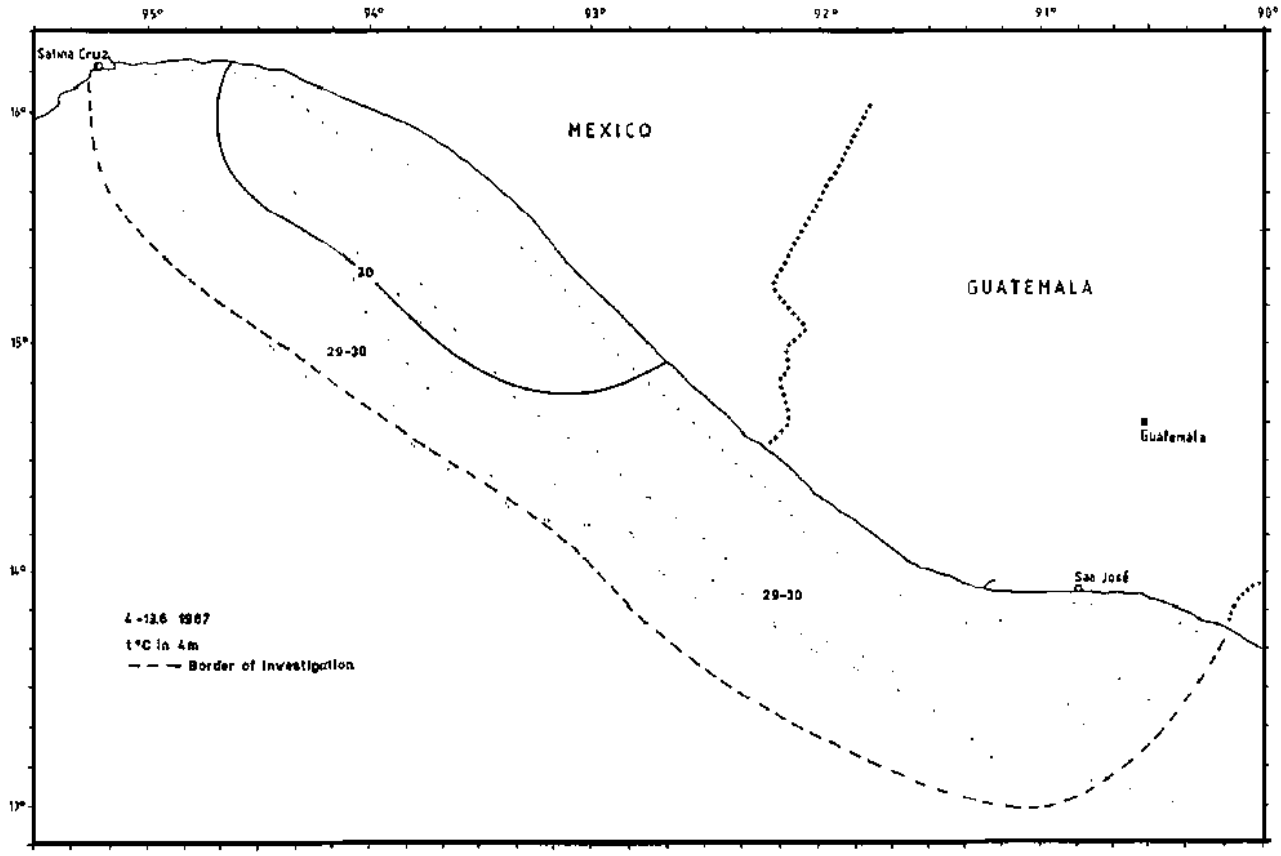


FIGURE 3a. HYDROGRAPHIC PRIFILES - FIGURE 3a. PERFILES HIDROGRAFICOS

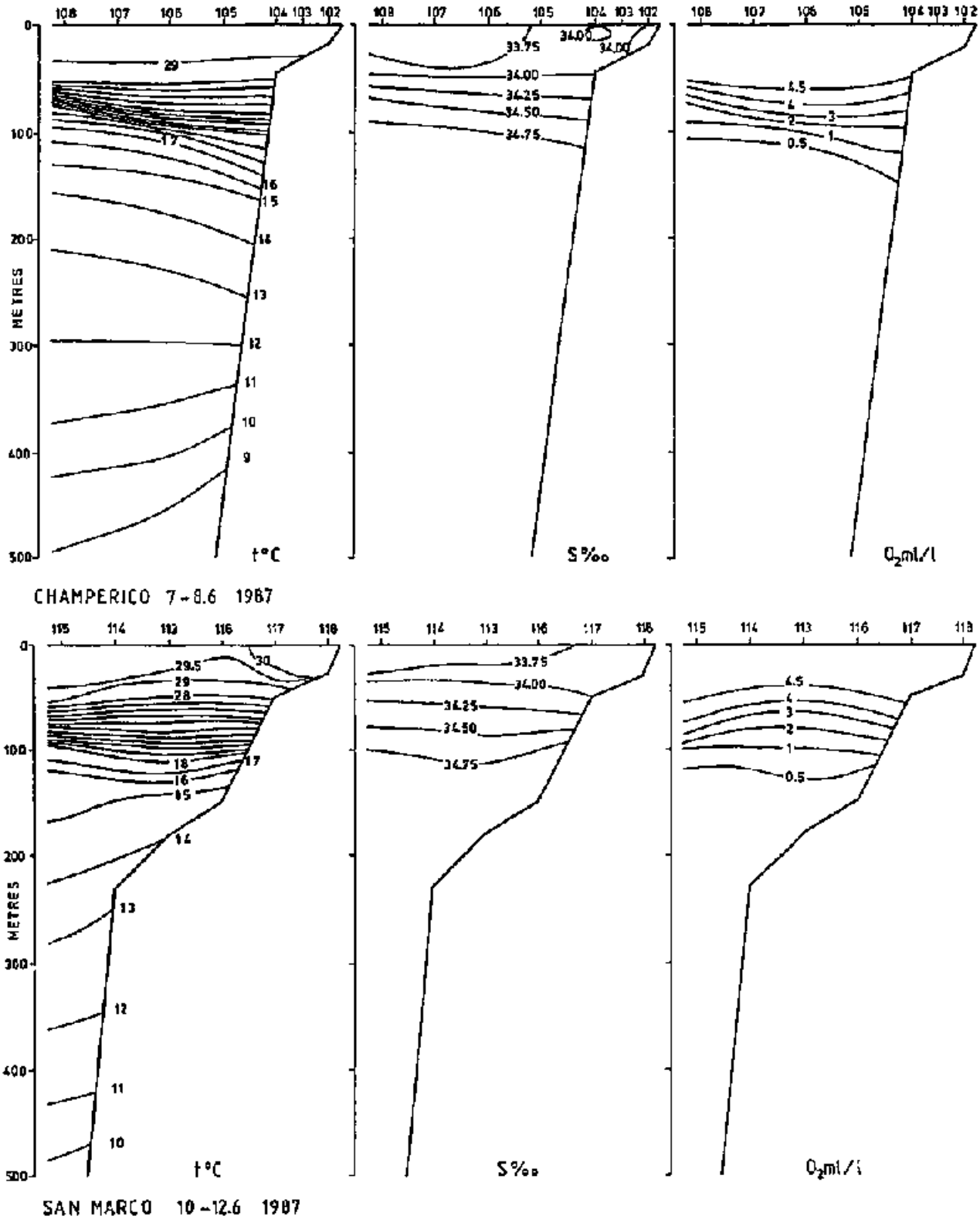


FIGURE 3b. HYDROGRAPHIC PROFILES - FIGURA 3b. PERFILES HIDROGRAFICOS

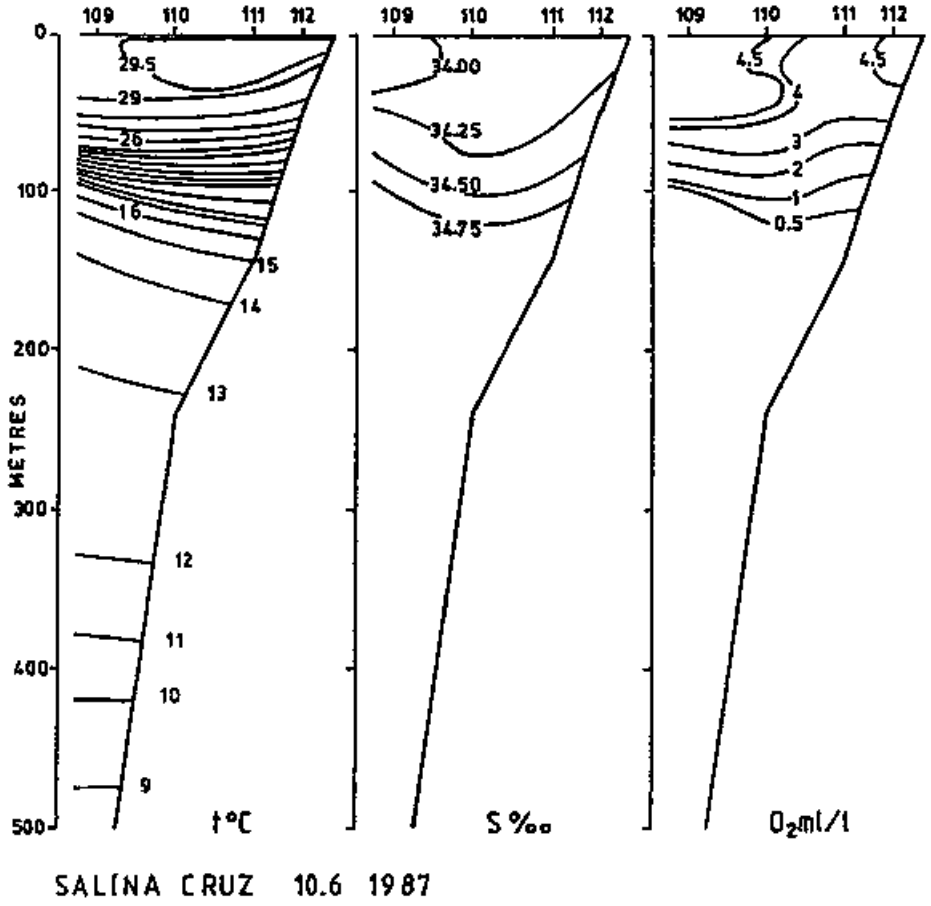


FIGURE 4. FISH DISTRIBUTION - FIGURA 4. DISTRIBUCION DE LOS PECES

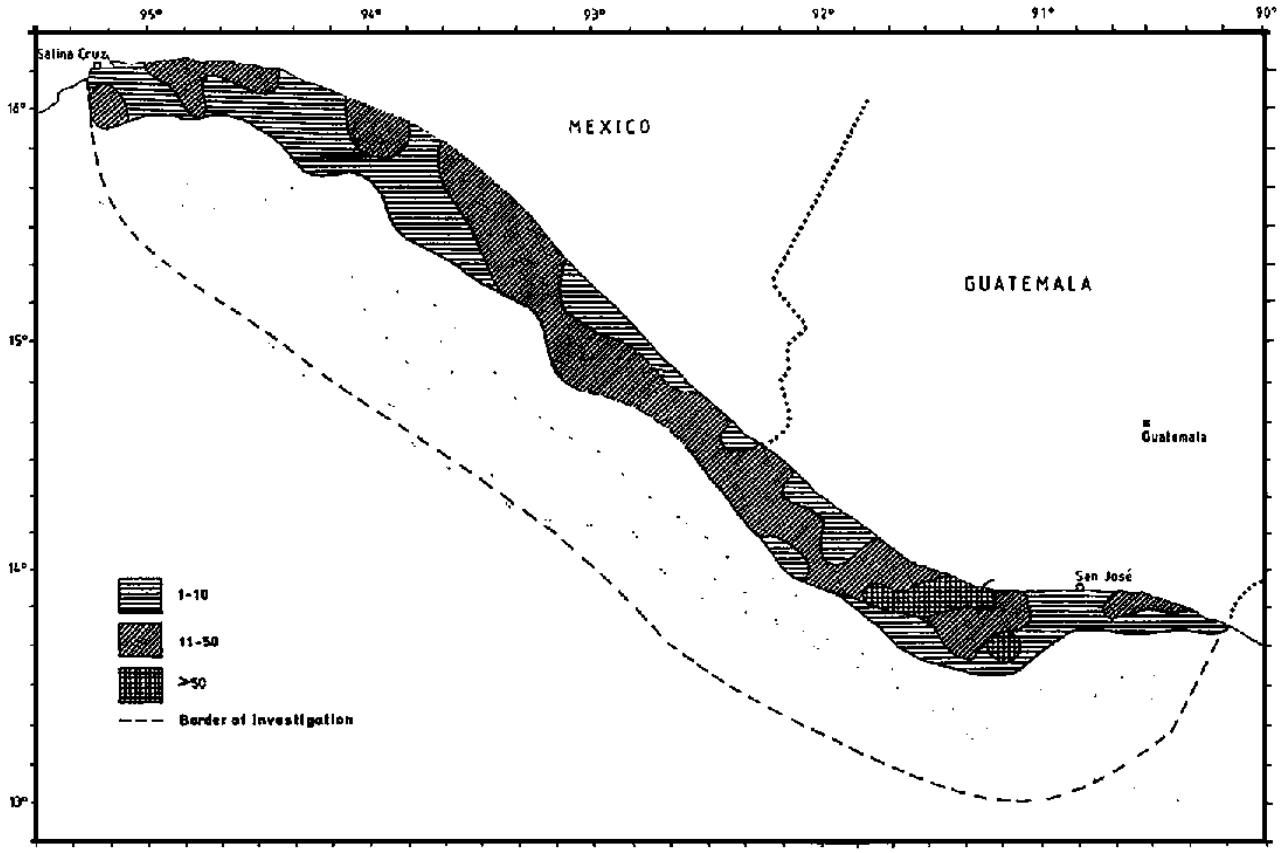
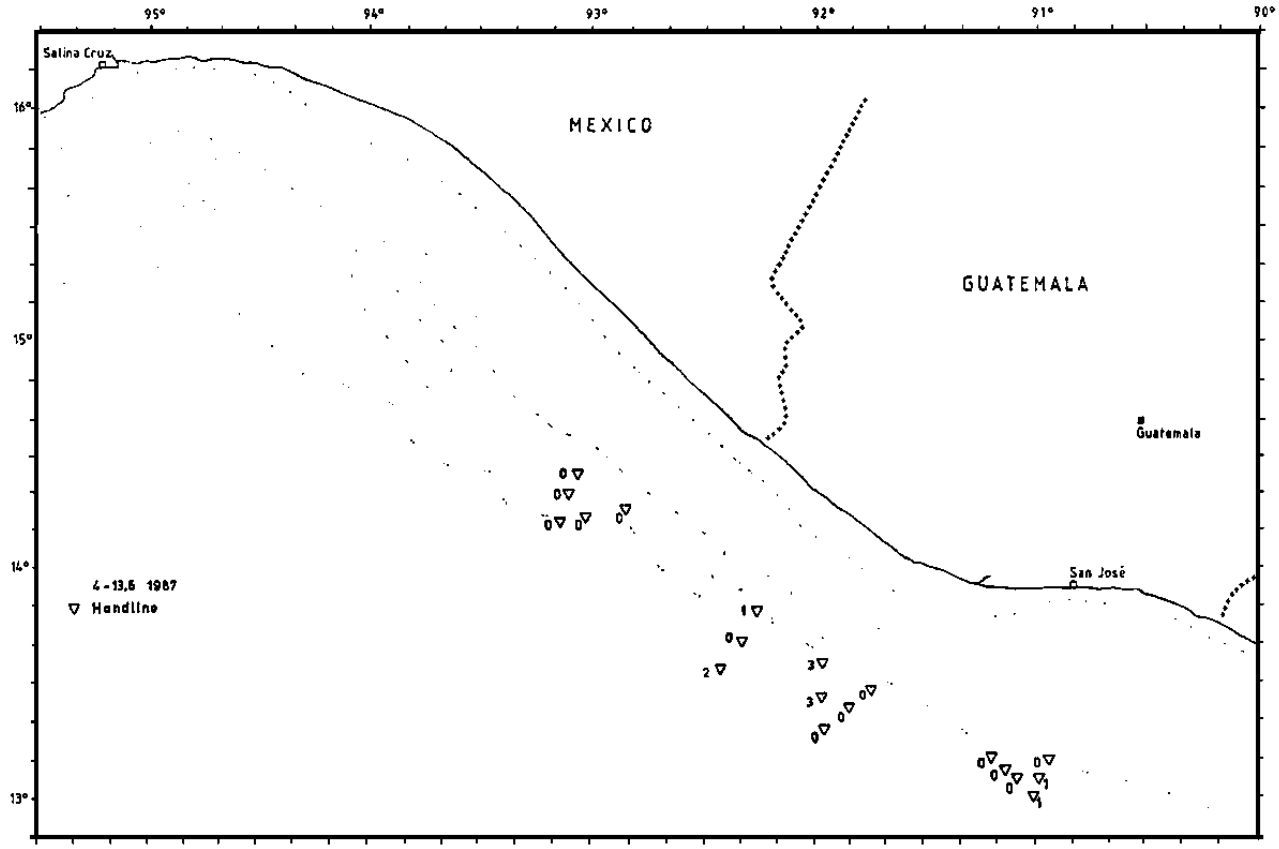
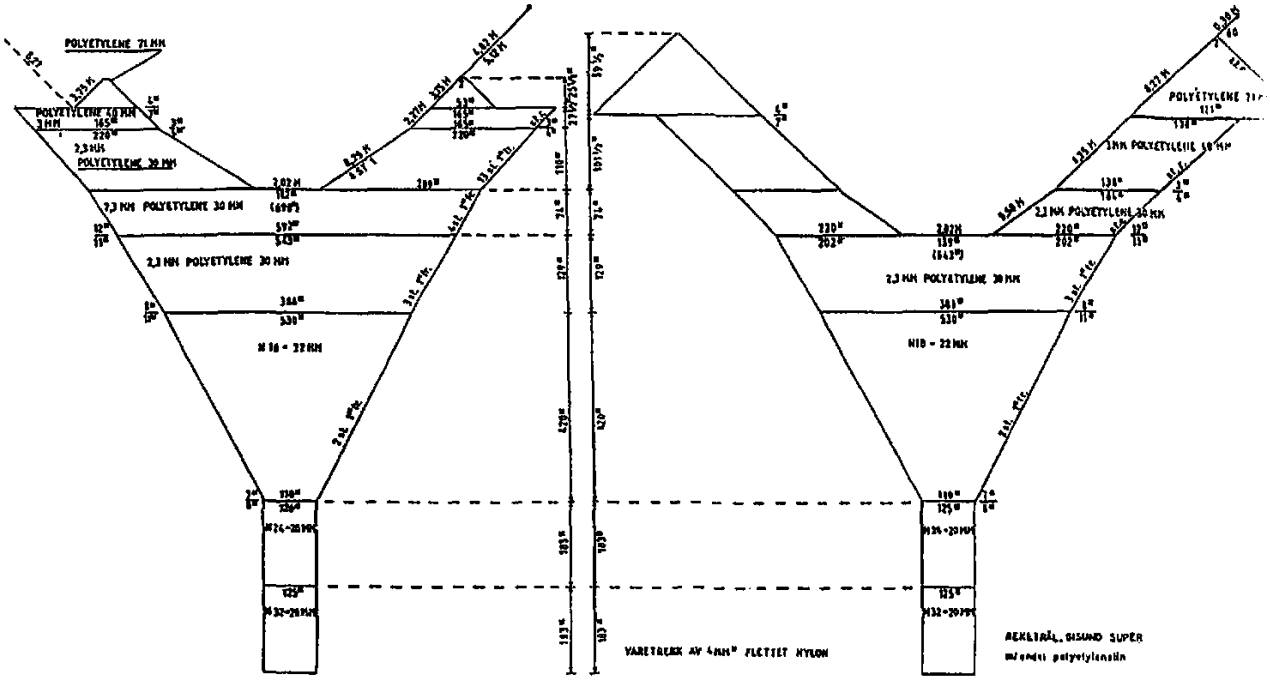


FIGURE 5. NUMBER OF SQUIDS CAUGHT BY TWO HAND JIGGING IN 30 MIN. EXPERIMENTS - FIGURA 5. CANTIDAD DE CALAMARES OCEANICOS CAPTURADOS CON DOS POTERAS MANUALES DURANTE PESCAS DE 30 MIN.



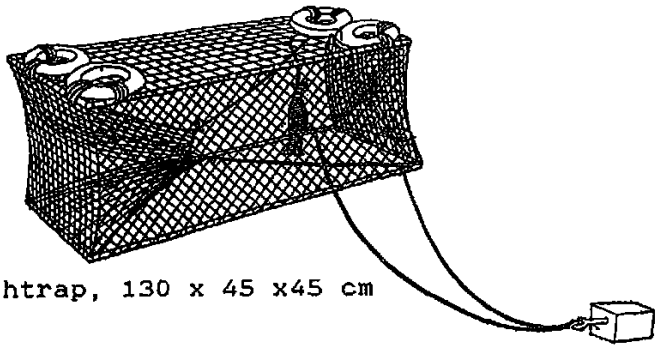
ANNEX 1 DESCRIPTION OF TRAWL AND FISH TRAPS

APENDICE 1 DESCRIPCION DE RED DE ARRASTRE Y TRAMPAS



Upper part
Headline 41 m
Sweep 40 m

Lower part
Groundrope 47 m
Sweep 40 m



Fishtrap, 130 x 45 x45 cm

ANNEX 2 RECORD OF FISHING STATIONS, GUATEMALA AND MEXICO

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 418

PROJECT: LA

DATE:	6/4/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1325
	start	stop	duration			Long W 9029
TIME:	22:48:00	23:18:00	30 (min)	Purpose code:	3	
LOG:	7162.60	7164.60	2.00	Area code:	7	
FDEPTH:	155	157		GearCond.code:	1	
BDEPTH:	155	157		Validity code:	3	
Towing dir: 350°			Wire out: 600 m		Speed: 35 kn*10	

Sorted: 25 Kg Total catch: 344.40 CATCH/HOUR: 688.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO
	weight	numbers		
Squilla sp	361.20	18962	52.43	
Argentina aliceae	98.00	8232	14.22	234
Bothus constellatus	89.60	11798	13.00	
Pleuroncodes planipes	70.00	14210	10.16	
Solenocera agassizii	11.20	2016	1.62	
Axius sp	11.20	112	1.62	
OPHIDIIDAE	11.20	392	1.62	
Synodus evermanni	11.20	112	1.62	
Zalieutes elater	11.20	1120	1.62	
Merluccius angustimanus	5.60	224	0.81	
MYCTOPHIDAE	2.80	1120	0.40	
CRABS	0.56	56	0.08	
Pontinus dubius	0.28	168	0.04	
Symphurus sp	0.28	56	0.04	
Citharichthys sp	0.28	56	0.04	
Lophiodes caulinaris	0.14	28	0.02	
TRIGLIDAE	0.14	28	0.02	
	0.00			
Total	684.88		99.36	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 419

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1324
	start	stop	duration			Long W 9031
TIME:	00:18:00	00:48: 00	30 (min)	Purpose code:	3	
LOG:	7170.90	7172.30	1.40	Area code:	7	
FDEPTH:	255	250		GearCond.code:	1	
BDEPTH:	255	250		Validity code:	3	
Towing dir: 340°			Wire out: 900 m		Speed: 30 kn*10	

Sorted: 20 Kg Total catch: 1000.00 CATCH/HOUR: 2000.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Squilla sp	1467.00	83944	73.35	
Pleuroncodes planipes	391.20	39120	19.56	
Pontinus dubius	97.80	2954	4.89	
CONGRIDAE	39.40	2348	1.97	
Diplectrum sp	4.80	98	0.24	
Zalieutes elater	0.00	98		
Total	2000.20		100.01	

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 420

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No:1		POSITION: Lat N 1333
	start	stop	duration		Long W 9027
TIME:	02:20:00	02:50:00	30 (min)	Purpose code: 3	
LOG:	7183.20	7185.20	2.00	Area code: 7	
FDEPTH:	100	88		GearCond.code: 1	
BDEPTH:	100	88		Validity code: 3	
Towing dir: 26°			Wire out: 450 m		Speed: 38 kn*10

Sorted: 16 Kg — Total catch: 316.00 — CATCH/HOUR: 632.00

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	%. OF TOT. C	SAMP. NO.
Diplectrum pacificum	140.00	5960	22.15	
Porichthys margaritatus	120.00	17250	18.98	
Prionotus albirostris	120.00	23520	18.98	
BOTHIDAE	80.00	11680	12.65	
Solenocera mutator	64.00	32000	10.12	
CYNOGLOSSIDAE	28.00	4320	4.43	
Prionotus sp	16.00	1600	2.53	
Merluccius angustimanus	16.00	360	2.53	
Synodus evermanni	14.00	1640	2.21	
Pontinus dubius	12.00	640	1.89	
GOBIIDAE	8.00	1120	1.26	
Zalieutes elater	8.00	480	1.26	
Penaeus brevirostris	6.00	160	0.94	
Total	632.00		99.93	

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 421

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No:1		POSITION: Lat N 1340
	start	stop	duration		Long W 9024
TIME:	03:49:00	04:19:00	30 (min)	Purpose code: 3	
LOG:	7191.30	7193.00	1.70	Area code: 7	
FDEPTH:	62	54		GearCond.code: 1	
BDEPTH:	62	54		Validity code: 3	
Towing dir: 28°			Wire out: 300 m		Speed: 32 kn*10

Sorted: 26 Kg — Total catch: 26.40 — CATCH/HOUR:52.80

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	%. OF TOT. C	SAMP.NO.
Callinectes sp	5.40		10.22	
Lutjanus guttatus	5.20	72	9.84	235
Carangoides sp	4.60	6	8.71	
Isopisthus remifer	4.40	96	8.33	
Lepophidium prorates	4.00	80	7.57	
Cyclopsetta querna	3.00	6	5.68	
Arius sp	3.00	6	5.68	
Eucinostomus argenteus	3.00	58	5.68	
Polydactylus opercularis	2.40	18	4.54	
Parapsettus panamensis	2.20	6	4.16	
Synodus evermanni	2.20	100	4.16	
Alphestes multiguttatus	2.00	2	3.78	
Cyclopsetta sp.	2.00	200	3.78	
Shrimps. small. non comm.	1.40		2.65	
Sphoeroides sp	1.40	126	2.65	
Selene brevoorti	1.20	4	2.27	
Prionotus ruscarius	1.00	30	1.89	
Symphurus sp	1.00	160	1.89	
Pomadasys panamensis	1.00	38	1.89	

Diapterus aureolus	0.60	28	1.13
Cynoscion reticulatus	0.60	2	1.13
Pseudupeneus grandisquamis	0.40	18	0.75
Chloroscombrus orqueta	0.40	2	0.75
Squilla sp	0.20	88	0.37
Penaeus californiensis	0.14	4	0.26
Selene peruvianus	0.00	6	
OPHICHTHIDAE	0.00	22	
Anchoa starksi	0.00	32	
Opisthopterus sp	0.00	14	
Larimus acclivis	0.00	10	
Penaeus brevirostris	0.00	8	
GOBIIDAE	0.00	6	
OPHICHTHIDAE	0.00	22	
Sicyonia sp	0.00	44	
Orthopristis chalceus	0.00	4	
Total	52.74		99.76

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 422

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1349
	start	stop	duration		Long W 9020
TIME:	05:25:00	05:55:00	30 (min) Purpose code:	3	
LOG:	7201.10	7202.90	1.80 Area code:	7	
FDEPTH:	22	26	GearCond.code:	1	
BDEPTH:	22	26	Validity code:	3	
Towing dir: 285°			Wire out: 100 m	Speeds: 36 kn*10	

Sorted: 17 Kg Total catch: 17.10 CATCH/HOUR: 34.20

SPECIES	CATCH/HOUR weight	numbers	%. OF TOT. C	SAMP.NO.
Anchoa starksi	10.66		31.16	
Caranx caballus	4.80	18	14.03	
Scomberomorus sierra	4.80	10	14.03	
Callinectes sp	4.00		11.69	
Hemicaranx leucurus	3.00	20	8.77	
Opisthopterus sp	2.20		6.43	
Ablennes lians	2.00	2	5.84	
Sphyraena eneis	1.00	6	2.92	
Opisthonema libertate	0.60	6	1.75	
Polydactylus approximans	0.40	2	1.16	
Trachinotus rhodopus	0.40	2	1.16	
Chloroscombrus orqueta	0.40	4	1.16	
Oligoplites sp	0.00	10		
Opisthonema sp	0.00	22		
LOLIGINIDAE	0.00	246		
Total	34.26		100.10	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 423

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1352
	start	stop	duration		Long W 9031
TIME:	06:53:00	07:23:00	30 (min) Purpose code:	3	
LOG:	7210.80	7212.20	1.40 Area code:	7	
FDEPTH:	33	42	GearCond.code:	1	
BDEPTH:	33	42	Validity code:	3	
Towing dir: 210°			Wire out: 200 m	Speed: 28 kn*10	

Sorted: 21 Kg Total catch: 194.94 CATCH/HOUR: 389.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO
	weight	numbers		
Polydactylus approximans	38.40	408	9.84	
Callinectes sp	28.80		7.38	
Chloroscombrus orqueta	24.00	240	6.15	
Eucinostomus argenteus	24.00	408	6.15	
Umbrina sp	21.60	72	5.54	
Larimus acclivis	21.60	216	5.54	
Lutjanus guttatus	18.00	138	4.61	
Opisthopterus sp	16.80	4056	4.30	
Isopisthus remifer	16.80	912	4.30	
Haemulopsis sp	15.60	960	4.00	
Bairdiella chrysoleuca	14.40	216	3.69	
Dasyatis sp	12.00	48	3.07	
Pseudupeneus grandisquamis	12.00	240	3.07	
Diapterus peruvianus	11.60	228	2.97	
Lolliguncula panamensis	9.60	936	2.46	
Carcharhinus signatus	8.64	4	2.21	
Caranx caballus	7.20	24	1.84	
Sphoeroides annulatus	7.20	12	1.84	
Canthigaster sp	6.00	24	1.53	
RHINOBATIDAE	6.00	12	1.53	
Penaeus vannamei	6.00	210	1.53	236
Lepophidium prorates	4.80	48	1.23	
Xiphopenaeus riveti	4.80	1104	1.23	
Symphurus sp	4.80	672	1.23	
Arius sp	4.80	24	1.23	
Shrimps. small. non comm.	4.80		1.23	
Sphoeroides sechurae	4.80	528	1.23	
Cynoscion reticulatus	4.80	24	1.23	
Polydactylus opercularis	4.80	24	1.23	
Xiphopenaeus riveti	3.00	474	0.76	
Penaeus californiensis	3.00	42	0.76	
Anchovia macrolepidota	2.40	24	0.61	
Sphyraena ensis	2.40	24	0.61	
Porichthys margaritatus	2.40	240	0.61	
Cyclopsetta querna	2.40	72	0.61	
Anchoa starksi	2.40	1488	0.61	
Sphyraena ensis	2.40	12	0.61	
Panulirus gracilis	2.00	6	0.51	
Orthopristis chalceus	1.92	240	0.49	
Sicyonia sp	0.60	78	0.15	
Evibacus princeps	0.40	2	0.10	
Batrachiodes pacifici	0.00	24		
Squilla sp	0.00	72		
Sicyonia disdorsalis	0.00	432		
Synodus evermanni	0.00	24		
Selene peruvianus	0.00	120		
Diplectrum pacificum	0.00	24		
Diodon hystrix	0.00	24		
Prionotus horrens	0.00	72		
Pseudorhombus dendritica	0.00	24		
Cyclopsetta sp.	0.00	96		
CONGRIDAE	0.00	8		
Lepidochelys olivacea	0.00	2		
Total	389.96		99.82	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 424

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1346
	start	stop	duration			Long W 9036
TIME:	08:17:00	08:47:00	30 (min)	Purpose code:	3	
LOG:	7218.80	7220.00	1.20	Area code:	7	
FDEPTH:	72	77		GearCond.code:	1	
BDEPTH:	72	77		Validity code:	3	
Towing dir: 270°			Wire out: 350 m		Speed: 24 kn*10	

Sorted: 20 Kg Total catch: 209.60 CATCH/HOUR: 419.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Bagre panamensis	120.00	552	28.62	
Callinectes sp	72.00		17.17	
Diapterus aureolus	36.00	2784	8.58	
Penaeus brevirostris	25.20	1078	6.01	237
Porichthys margaritatus	24.00		5.72	
Cyclopsetta sp.	21.60	1992	5.15	
Prionotus ruscarius	21.60	744	5.15	
Sphyraena ensis	21.60	120	5.15	
Micropogonias altipinnis	18.80	10	4.48	
Synodus evermanni	16.80	432	4.00	
Peprilus snyderi	12.00	72	2.86	
Cyclopsetta querna	7.20	48	1.71	
Diplectrum pacificum	4.80	24	1.14	
Sphyrna lewini	4.80	2	1.14	
TORPEDINIDAE	4.20	6	1.00	
Sicyonia sp	2.40		0.57	
Shrimps. small. non comm.	2.40		0.57	
Epinephelus analogus	2.00	2	0.47	
Lutjanus guttatus	1.80	6	0.42	
OPHICHTHIDAE	0.00	72		
Lepophidium prorates	0.00	24		
Orthopristis chalceus	0.00	48		
Pseudupeneus grandisquamis	0.00	48		
GOBIIDAE	0.00	48		
Sphoeroides annulatus	0.00	48		
Trichiurus nitens	0.00	456		
Squilla sp	0.00	408		
Total	419.20		99.91	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 425

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1354
	Start	stop	duration			Long W 9043
TIME:	10:15:00	10:45:00	30 (min)	Purpose code:	3	
LOG:	7231.60	7233.00	1.40	Area code:	7	
FDEPTH:	31	29		GearCond.code:	1	
BDEPTH:	31	29		Validity code:	3	
Towing dir: 260°			Wire out: 200 m		Speed: 28 kn*10	

Sorted: 34 Kg Total catch: 207.60 CATCH/HOUR: 415.20

SPECIES	CATCH/HOUR		%. OF TOT. C	SAMP.NO.
	weight	numbers		
Anchoa argentivittata	45.60	21432	10.98	
Sphyraena ensis	42.00	204	10.11	
Chloroscombrus orqueta	37.20	420	8.95	

Selene brevoorti	37.20	936	8.95
Peudobalistes polylepis	36.00	84	8.67
Isopisthus remifer	24.00	252	5.78
Larimus sp	24.00	384	5.78
Bagre panamensis	21.60	120	5.20
Diapterus peruvianus	16.80	228	4.04
Opisthonema libertate	15.60	192	3.75
Caranx hippoe	12.00	24	2.89
Orthopristis chalceus	10.00	12	2.40
Peprilus snyderi	8.40	12	2.02
Opistherus equitorialis	8.40	3600	2.02
Polydactylus opercularis	7.20	36	1.73
Opisthopterus macrops	7.20	168	1.73
Alutera scripta	6.00	12	1.44
Polydactylus approximans	6.00	24	1.44
Peprilus medius	6.00	36	1.44
Selar crumenophthalmus	6.00	12	1.44
Pseudupeneus grandisquamis	5.40	84	1.30
Citharichthys gilberti	4.80	48	1.15
Hemicaranx leucurus	4.80	24	1.15
Lutjanus guttatus	4.40	16	1.05
Panulirus gracilis	3.80	16	0.91
Diplectrum maximum	3.60	24	0.86
Sphoeroides sechurae	3.60	504	0.86
Scomberomorus sierra	2.80	6	0.67
Xiphopenaeus riveti	2.40	192	0.57
Lycengraulis poeyi	2.40	24	0.57
Total	415.20		99.85

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 426

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No:1		POSITION: Lat N 1352
	start	stop	duration		Long W 9053
TIME:	11:44:00	12:14:00	30 (min)	Purpose code:	3
LOG:	7240.50	7242.20	1.70	Area code:	7
FDEPTH:	28	35		GearCond.code:	1
BDEPTH:	28	35		Validity code:	3

Towing dir: 175° — Wire out: 150 m — Speed: 33 kn*10

Sorted: 26 Kg — Total catch: 78.35 — CATCH/HOUR: 156.70

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Larimus sp	33.00	240	21.05	
Isopisthus remifer	21.00	558	13.40	
Opistherus equitorialis	16.80	5520	10.72	
Diapterus aureolus	13.20	48	8.42	
Anchoa argentivittata	12.00	9744	7.65	
Pomadasys panamensis	11.10	138	7.08	
Symphurus sp	10.80	444	6.89	
Orthopristis chalceus	3.60	36	2.29	
Polydactylus approximans	3.60	42	2.29	
Xiphopenaeus riveti	3.00	276	1.91	
Opisthopterus macrops	3.00	24	1.91	
Anchoa sp	3.00	18	1.91	
Sphyraena ensis	3.00	12	1.91	
Selene brevoorti	3.00	48	1.91	
Lycengraulis poeyi	2.40	42	1.53	
Anchovia macrolepidota	2.40	24	1.53	
Penaeus vannamei	2.40	44	1.53	
Pseudupeneus grandisquamis	2.40	66	1.53	
Diapterus peruvianus	1.80	12	1.14	

Chloroscombrus orqueta	1.80	12	1.14
Centropomus medius	1.20	6	0.76
Squilla sp	1.20	210	0.76
Porichthys margaritatus	0.60	18	0.38
Penaeus stylirostris	0.40	4	0.25
Total	156.70		99.89

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 427

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1343
	start	stop	duration		Long W 9051
TIME:	13:25:00	13:55:00	30 (min) Purpose code:	3	
LOG:	7250.10	7251.70	1.60 Area code:	7	
FDEPTH:	121	115	GearCond.code:	1	
BDEPTH:	121	115	Validity code:	3	
Towing dir: 40°			Wire out: 500 m	Speed: 32 kn*10	

Sorted: 30 Kg Total catch: 153.20 CATH/HOUR: 306.40

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
GOBIIDAE	66.00	6380	21.54	
Diplectrum Maximum	60.00	2836	19.58	
Synodus evermanni	58.00	1530	18.92	
Lutjanus Colorado	35.00	60	11.42	
Zalieutes elater	16.00	1540	5.22	
Trichiurus nitens	16.00	1140	5.22	
Prionotus albirostris	14.00	200	4.56	
Bothus constellatus	14.00	1180	4.56	
Porichthys margaritatus	8.00	500	2.61	
Symphurus sp	6.00	500	1.95	
Paralabray clathratus	5.00	20	1.63	
Penaeus brevirostris	4.50	256	1.46	
Prionotus xenisma	4.00	780	1.30	
Total	306.50		99.97	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION:428

PROJECT: LA

DATE:	6/5/87		GEAR TYPE: BT No: 1	POSITION:	Lat N 1335
	start	stop	duration		Long W 9051
TIME:	15:35:00	16:05:00	30 (min) Purpose code:	3	
LOG:	7262.60	7264.00	1.40 Area code:	7	
FDEPTH:	162	169	GearCond.code:	1	
BDEPTH:	162	169	Validity code:	3	
Towing dir: 163°			Wire out: 600 m	Speed: 30 kn*10	

Sorted: 21 Kg Total catch: 232.10 CATCH/HOUR: 464.20

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Squilla sp	308.00	10044	66.35	
Scorpaena sp	110.00	3024	23.69	
Synodus evermanni	22.00	1100	4.73	
Isopisthus remifer	11.00	638	2.36	
Peprilus snyderi	6.60	154	1.42	
CRABS	3.30	22	0.71	
Diplectrum maximum	2.20	44	0.47	
MYCTOPHIDAE	1.10	72	0.23	
Total	464.20		99.96	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 429

PROJECT: LA

DATE:	67 5/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1322
	start	stop	duration		Long W 9050
TIME:	18:03:00	18:33:00	30 (min) Purpose code:	3	
LOG:	7280.30	7281.60	1.30 Area code:	7	
FDEPTH:	245	249	GearCond.code:	1	
BDEPTH:	245	249	Validity code:	3	
Towing dir: 210°			Wire out: 900 m	Speed: 26 kn*10	

Sorted: 13 Kg Total catch: 525.30 CATCH/HOUR: 1050.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Pleuroncodes planipes	668.80	28982	63.65	238
Nanosquilla decemspinosa	323.80	15106	30.82	
Pontinus sierra	23.80	1584	2.26	
Merluccius angustimanus	11.00	198	1.04	
Monolene maculipinna	9.80	704	0.93	
Mystriophus sp	4.80	22	0.45	
Cynoscion stolzmanni	4.40	110	0.41	
Lophiodes caulinaris	4.20	22	0.39	
Otophidium sp	0.00	22		
Physiculus talarae	0.00	22		
Total	1050.60		99.95	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 430

PROJECT: LA

DATE:	6/6/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1319
	start	stop	duration		Long W 9112
TIME:	03:23:00	03:53:00	30 (min) Purpose code:	3	
LOG:	7325.90	7327.00	1.10 Area code:	7	
FDEPTH:	166	180	GearCond.code:	1	
BDEPTH:	166	180	Validity code:	3	
Towing dir: 270°			Wire out: 600 m	Speed: 28 kn*10	

Sorted: 26 Kg Total catch: 298.80 CATCH/HOUR: 597.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Diplectrum maximum	281.20	8718	47.05	
Pleuroncodes planipes	281.20	32940	47.05	
Citharichthys platophrys	9.40	420	1.57	
Zalieutes elater	9.40	980	1.57	
Monolene maculipinna	9.40	420	1.57	
Lophiodes caulinaris	7.00	186	1.17	
Synchiropus talarae	2.40	186	0.40	
Total	600.00		100.38	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 431

PROJECT: LA

DATE:	6/6/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1325
	start	stop	duration		Long W 9113
TIME:	05:41.00	06:11:00	30 (min) Purpose code:	3	
LOG:	7336.70	7337.90	1.20 Area code:	7	
FDEPTH:	117	119	GearCond.code:	1	
BDEPTH:	117	119	Validity code:	3	
Towing dir: 270°			Wire out: 450 m	Speed: 24 kn*10	

Sorted: 28 Kg Total catch: 256.00 CATCH/HOUR: 512.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Diplectrum euryplectrum	451.80	24906	88.24	239
Peprilus snyderi	20.60	450	4.02	
Nanosquilla decemspinosa	18.60	738	3.63	
Monolene maculipinna	12.60	936	2.46	
Zalieutes elater	4.40	378	0.85	
Synodus evermanni	2.60	90	0.50	
Mystriophus sp	1.40	18	0.27	
Citharichthys sp	0.00	18		
Engyophrys sancti-laurenti	0.00	18		
Lophiodes spilurus	0.00	18		
Porichthys margaritatus	0.00	18		
Pontinus sierra	0.00	18		
Lepophidium pardale	0.00	72		
Total	512.00		99.97	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 432

PROJECT: LA

DATE:	6/6/87		GEAR TYPE: BT No.:1		POSITION:	Lat N 1336
	start	stop	duration			Long W 9111
TIME:	07:47:00	08:17:00	30 (min)	Purpose code:	3	
LOG:	7351.40	7352.90	1.50	Area code	7	
FDEPTH:	56	59		GearCond.code:	1	
BDEPTH:	56	59		Validity code:	3	
Towing dir: 15°			Wire out: 300 m		Speed: 30 kn*10	

Sorted: 64 Kg Total catch: 383.40 CATCH/HOUR: 766.80

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Lutjanus peru	468.00	1696	61.03	240
Orthopristis chalceus	120.00	1106	15.64	241
Chloroscombrus orqueta	42.00	828	5.47	242
Arius troscheli	27.60	48	3.59	
Selene peruvianus	18.80	288	2.45	
Pristigenys serrula	13.40	60	1.74	
Ophioscion scierus	12.00	12	1.56	
Polydactylus approximans	9.40	132	1.22	
Eucinostomus argenteus	7.80	336	1.01	
Paralabrax nebulifer	7.40	72	0.96	
Sphyraena ensis	6.60	48	0.86	
Caranx hippos	6.40	12	0.83	
Opisthonema libertate	4.60	36	0.59	
Polydactylus opercularis	3.60	12	0.46	
Pseudupeneus grandisquamis	3.00	36	0.39	
Anchoa sp	3.00	1104	0.39	
Selene brevoorti	2.60	12	0.33	
Diplectrum pacificum	2.20	36	0.28	
Pseudorhombus dendritica	2.20	12	0.28	
Diapterus aureolus	1.80	24	0.23	
Prionotus ruscarius	1.80	36	0.23	
Sphoeroides annulatus	1.00	12	0.13	
Sphoeroides sechurae	0.80	24	0.10	
Bothus sp	0.00	12		
Citarichthys xanthostigma	0.00	12		
Porichthys margaritatus	0.00	12		
Scorpaena russula	0.00	12		
Porichthys notatus	0.00	72		
Total	766.00		99.77	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 433

PROJECT: LA

DATE:	6/6/87		GEAR TYPE: BT No:1	POSITION:	Lat N 135i
	start	stop	duration		Long W 9109
TIME:	11:52:00	12:22:00	30 (min) Purpose code:	3	
LOG:	7369.00	7370.50	1.50 Area code:	7	
FDEPTH:	20	20	GearCond.code:	1	
BDEPTH:	20	20	Validity code:	3	
Towing dir: 270°			Wire out: 100 m	Speed: 30 kn*10	

Sorted: 25 Kg Total catch: 75.80 CATCH/HOUR: 151.60

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Opisthopterus dovii	39.60	18684	26.12	
Selene brevoorti	34.20	672	22.55	243
Anchoa argentivittata	24.00	3180	15.83	
Sphyrna sp	9.00	12	5.93	
Opisthonema libertate	9.00	108	5.93	
Polydactylus opercularis	6.00	36	3.95	
Isopisthus remifer	3.60	150	2.37	
Diapterus aureolus	3.00	18	1.97	
Polydactylus approximans	3.00	12	1.97	
Sphyraena ensis	3.00	18	1.97	
Pomadasys panamensis	3.00	30	1.97	
Chloroscombrus orqueta	2.40	36	1.58	
Caranx hippos	1.80	6	1.18	
Anchovia macrolepidota	1.80	24	1.18	
Lycengraulis poeyi	1.60	24	1.05	
Conodon macrops	1.20	12	0.79	
Bagre panamensis	1.20	12	0.79	
Pliosteostoma lutipinnis	1.20	30	0.79	
Ophioscion scierus	1.20	6	0.79	
Anchoa starksi	1.20	48	0.79	
Pseudupeneus grandisquamis	0.60	6	0.39	
Penaeus vannamei	0.20	4	0.13	
Total	151.80		100.02	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 434

PROJECT: LA

DATE:	6/6/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1345
	start	stop	duration		Long W 9119
TIME:	13:35:00	14:05:00	30 (min) Purpose code:	3	
LOG:	7380.80	7382.30	1.50 Area code	7	
FDEPTH:	37	39	GearCond.code:	1	
BDEPTH:	37	39	Validity code:	3	
Towing dir: 27°			Wire out: 200 m	Speed: 28 kn*10	

Sorted: 31 Kg Total catch: 132.30 CATCH/HOUR: 264.60

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Orthopristis chalceus	64.00	664	24.18	244
Diapterus aureolus	48.00	224	18.14	245
Pomadasys panamensis	28.00	352	10.58	
Larimus acclivis	25.60	424	9.67	
Isopisthus remifer	16.00	48	6.04	
Chloroscombrus orqueta	10.40	184	3.93	
Selene brevoorti	8.00	104	3.02	
Peprilus medius	8.00	40	3.02	
Bardiella icistia	6.40	88	2.41	

Polydactylus approximans	6.40	96	2.41	
Diapterus peruvianus	6.40	88	2.41	
Pliosteostoma lutipinnis	4.80	56	1.81	
Penaeus californiensis	4.00	76	1.51	246
Lutjanus guttatus	4.00	4	1.51	
Centropomus armatus	4.00	24	1.51	
Polydactylus opercularis	4.00	24	1.51	
Panulirus gracilis	3.60	6	1.36	
Evibacus princeps	3.20	10	1.20	
Sphyraena ensis	3.20	32	1.20	
Conodon macrops	3.20	24	1.20	
Bagre panamensis	1.60	16	0.60	
Arius sp	0.80	8	0.30	
Anchoa ischana	0.40	16	0.15	
Anchoa argentivittata	0.40	16	0.15	
Penaeus vannamei	0.16	2	0.06	
Total	264.56		99.88	

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 435

PROJECT: LA

DATE:	6/6/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1352
	start	stop	duration			Long W 9129
TIME:	15:55:00	16:25:00	30 (min)	Purpose code:	3	
LOG:	7397.40	7399.10	1.70	Area code:	7	
FDEPTH:	24	30		GearCond.code:	1	
BDEPTH:	24	30		Validity code:	3	
Towing dir: 185 °			Wire out: 200 m		Speed: 34 kn*10	

Sorted: 29 Kg — Total catch: 155.10 — CATCH/HOUR: 310.20

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	%. OF TOT. C	SAMP.NO.
Opisthonema libertate	108.00	1392	34.81	247
Diapterus aureolus	60.00	372	19.34	248
Pomadasys panamensis	31.20	480	10.05	
Selene brevoorti	18.00	180	5.80	
Sphyraena ensis	18.00	132	5.80	
Polydactylus approximans	12.00	156	3.86	
Larimus acclivis	8.40	348	2.70	
Penaeus vannamei	8.00	156	2.57	249
Isopisthus remifer	7.20	72	2.32	
Sphyrna corona	6.00	12	1.93	
Pomadasys sp	4.80	36	1.54	
Anchoa starksi	4.80	336	1.54	
Polydactylus opercularis	4.80	24	1.54	
Parapsettus panamensis	2.40	24	0.77	
Bardiella sp	2.40	144	0.77	
Lycengraulis poeyi	2.40	12	0.77	
Arius sp	2.40	36	0.77	
Conodon macrops	1.80	24	0.58	
Diapterus peruvianus	1.80	24	0.58	
Chaetodipterus zonatus	1.20	12	0.38	
Anchoa ischana	1.20	24	0.38	
Squilla sp	1.20	24	0.38	
Xiphopenaeus riveti	0.96	84	0.30	
Symphurus sp	0.60	12	0.19	
Anchoa argentivittata	0.60	12	0.19	
Total	310.16		99.86	

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 436

PROJECT: LA

DATE:	6/6/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1342
	start	stop	duration		Long W 9130
TIME:	17:41:00	18:11:00	30 (min)	Purpose code:	3
LOG:	7407.10	7409.00	1.90	Area code	7
FDEPTH:	60	75		GearCond.code:	1
BDEPTH:	60	75		Validity code:	3
Towing dir: 185°			Wire out: 350 m		Speed: 38 kn*10

Sorted: 27 Kg — Total catch: 955.60 — CATCH/HOUR: 1911.20

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	%. OF TOT. C	SAMP.NO.
Orthopristis chalceus	696.00	6960	36.41	250
Chloroscombrus orqueta	406.00	6148	21.24	251
Rhizoprionodon longuris	319.00	202	16.69	
Selene peruvianus	197.20	2784	10.31	
Peprilus medius	58.00	232	3.03	
Polydactylus approximans	58.00	696	3.03	
Selar crumenophthalmus	46.40	232	2.42	
Bagre panamensis	43.40	86	2.27	
Ophioscion scierus	19.20	28	1.00	
Penaeus californiensis	14.40	550	0.75	
Larimus acclivis	11.60	116	0.60	
Eucinostomus argenteus	11.60	232	0.60	
Scorpaena guttata	11.60	580	0.60	
Lutjanus peru	7.20	28	0.37	
Prionotus ruscarius	5.80	116	0.30	
Xenichthys xanti	5.80	116	0.30	
Pseudupeneus grandisquamis	0.00	116		
Synodus evermanni	0.00	116		
Sphoeroides sp	0.00	116		
Squilla sp	0.00	232		
Sicyonia sp	0.00	232		
Porichthys margaritatus	0.00	232		
Lepidochelys olivacea	0.00	2		
Total	1911.20		99.92	

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 437

PROJECT: LA

DATE:	6/6/87		GEAR TYPE: PT No: 2	POSITION:	Lat N 1334
	start	stop	duration		Long W 9133
TIME:	19:35:00	19:50:00	15 (min)	Purpose code:	1
LOG:	7419.10	7419.80	0.70	Area code:	7
FDEPTH:	25	70		GearCond.code:	1
BDEPTH:	126	135		Validity code:	3
Towing dir: 202°			Wire out: 100 m		Speed: 28 kn*10

Sorted: 8 Kg — Total catch: 8.10 — CATCH/HOUR: 32.40

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
MYCTOPHIDAE	32.00		98.76	
Cynoscion stolzmanni	0.40	40	1.23	
Bregmaceros longipes	0.00			
Selene peruvianus	0.00	12		
Loliopsis diomedeae	0.00	8		
Lepidochelys olivacea	0.00	4		
Total	32.40		99.99	

R/V DR. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 438

PROJECT: LA

DATE:	6/6/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1333
	start	stop	duration		Long W 9135
TIME:	20:32:00	20:49:00	17 (min) Purpose code:	3	
LOG:	7423.40	7424.10	0.70 Area code:	7	
FDEPTH:	195	205	GearCond.code:	8	
BDEPTH:	195	205	Validity code:	3	
Towing dir: 310°			Wire out: 750 m	Speed: 28 kn*10	

Sorted: 18 Kg | Total catch: 147.20 | CATCH/HOUR: 519.52

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP. NO.
Pleuroncodes planipes	372.70	47703	71.73	252
Pontinus sierra	71.99	2848	13.85	
Mursia gaudichaudii	36.70	367	7.06	
Brotula clarkae	10.58	3	2.03	
Nanosquilla decemspinosa	4.94	225	0.95	
Monolene maculipinna	4.94	451	0.95	
LABRIDAE	4.94	169	0.95	
Pronotogrammus eos	4.94	112	0.95	
OPHICHTHIDAE	4.23	28	0.81	
Diplectrum sp	3.52	112	0.67	
Synchiropus talarae	0.00	28		
Argentina aliceae	0.00	28		
Lophiodes caulinaris	0.00	28		
Ogcocephalus sp	0.00	141		
Symphurus atramentatus	0.00	84		
Total	519.48		99.95	

R/V DR. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 439

PROJECT: LA

DATE:	6/7/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1342
	start	stop	duration		Long W 9155
TIME:	04:54:00	05:12:00	18 (min) Purpose code:	3	
LOG:	7473.00	7474.00	1.00 Area code:	7	
FDEPTH:	234	230	GearCond.code:	8	
BDEPTH:	234	230	Validity code:	3	
Towing dir: 280°			Wire out: 900 m	Speed: 30kn*10	

Sorted: 21 Kg | Total catch: 315.00 | CATCH/HOUR: 1049.99

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP. NO.
Pleuroncodes planipes	474.99	25649	45.23	253
Argentina aliceae	449.99	37813	42.85	254
Pontinus sierra	64.99	3099	6.18	
Nanosquilla decemspinosa	39.99	1549	3.80	
Mursia gaudichaudii	9.99	99	0.95	
Zalieutes elater	9.99	599	0.95	
OPHICHTHIDAE	0.00	49		
Pronotogrammus eos	0.00	49		
LABRIDAE	0.00	49		
Synchiropus talarae	0.00	49		
Monolene maculipinna	0.00	149		
Diplectrum maximum	0.00	99		
Lophiodes caulinaris	0.00	99		
Physiculus talarae	0.00	99		
Total	1049.94		99.96	

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 440

PROJECT: LA

DATE:	6/7/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1348
	start	stop	duration		Long W 9152
TIME:	07:28:00	07:58:00	30 (min) Purpose code:	3	
LOG:	7479.50	7481.20	1.70 Area code:	7	
FDEPTH:	87	84	GearCond.code:	1	
BDEPTH:	87	84	Validity code:	3	
Towing dir: 305°			Wire out: 450 m	Speed: 34kn*10	

Sorted: 26 Kg — Total catch: 237.10 — CATCH/HOUR: 474.20

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	%. OF TOT. C	SAMP. NO.
Chloroscombrus orqueta	333.00	5994	70.22	255
Orthopristis chalceus	45.00	540	9.48	256
Peprilus snyderi	27.00	126	5.69	
Selene peruvianus	27.00	378	5.69	
Caulolatilus cabezon	18.00	18	3.79	
Epinephelus niveatus	9.00	18	1.89	
Eucinostomus argenteus	9.00	162	1.89	
Lutjanus peru	5.40	18	1.13	
Diapterus aureolus	0.80	126	0.16	
Citarichthys xanthostigma	0.00	18		
Pseudorhombus dendritica	0.00	18		
Sphyraena ensis	0.00	18		
Prionotus ruscarius	0.00	18		
Larimus acclivis	0.00	18		
Total	474.20		99.94	

R/V DR. FRIADTJOF NANSEN — CATCH DATA — PROJECT STATION: 441

PROJECT: LA

DATE:	6/7/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1354
	start	stop	duration		Long W 9147
TIME:	09:20:00	09:50:00	30 (min) Purpose code:	3	
LOG:	7490.40	7492.00	1.60 Area code:	7	
FDEPTH:	45	44	GearCond.code:	1	
BDEPTH:	45	44	Validity code:	3	
Towing dir: 310°			Wire out: 250 m	Speed: 32 kn*10	

Sorted: 29 Kg — Total catch: 349.10 — CATCH/HOUR: 698.20

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP. NO.
Chloroscombrus orqueta	330.00	3994	47.26	
Opisthonema libertate	77.00	726	11.02	257
Orthopristis chalceus	44.00	352	6.30	
Selene peruvianus	33.00	440	4.72	
Anchoa ischana	29.60	16774	4.23	
Lutjanus guttatus	27.20	44	3.89	258
Scomberomorus sierra	26.40	88	3.78	
Cynoscion reticulatus	18.00	46	2.57	
Pseudobalistes naufragium	15.40	22	2.20	
Hemicaranx zelotes	15.40	66	2.20	
Larimus acclivis	15.40	176	2.20	
Albula vulpes	13.20	44	1.89	
Sphyraena ensis	11.00	44	1.57	
Opisthopterus dovii	9.80	3158	1.40	
Lutjanus argentiventris	8.60	8	1.23	
Hoplopagrus guntheri	8.00	2	1.14	
Polydactylus approximans	6.60	66	0.94	

Selene brevoorti	4.40	22	0.63
Xenichthys xanti	2.20	22	0.31
Haemulopsis sp	2.20	22	0.31
Anchoa argentivittata	0.80	120	0.11
Total	698.20		99.90

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 442

PROJECT: LA

DATE: 6/7/87			GEAR TYPE: BT No:1	POSITION:	Lat N 1400
	start	stop	duration		Long W 9142
TIME:	11:07:00	11:37:00	30 (min)	Purpose code:	3
LOG:	7501.70	7503.10	1.40	Area code:	7
FDEPTH:	23	21		GearCond.code:	1
BDEPTH:	23	21		Validity code:	3
Towing dir: 310°			Wire out: 150 m	Speed: 28 kn*l0	

Sorted: 32 Kg Total catch: 95.57 CATCH/HOUR: 191.14

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Opisthonema libertate	108.00	1668	56.50	259
Sphyraena ensis	18.00	72	9.41	
Diapterus peruvianus	10.80	66	5.65	
Chloroscombrus orqueta	7.80	120	4.08	
Bagre panamensis	6.00	6	3.13	
Peprilus medius	6.00	42	3.13	
Haemulopsis sp	4.80	60	2.51	
Polydactylus opercularis	4.80	48	2.51	
Opisthopterus dovii	3.60	1800	1.88	
Anchoa starksi	3.00	438	1.56	
Oligoplites refulgens	3.00	36	1.56	
Ophioscion scierus	3.00	6	1.56	
Anchoa argentivittata	1.80	1320	0.94	
Pliosteostoma lutipinnis	1.80	102	0.94	
Caranx hippos	1.80	6	0.94	
Polydactylus approximans	1.80	24	0.94	
Penaeus vannamei	1.60	24	0.83	
Pomadasys panamensis	1.20	12	0.62	
Selene peruvianus	0.60	6	0.31	
Conodon macrops	0.60	6	0.31	
Bardiella sp	0.60	6	0.31	
Larimus argenteus	0.36	12	0.18	
Callinectes sp	0.18	6	0.09	
Total	191.14		99.89	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 443

PROJECT: LA

DATE:	6/7/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1359
	start	stop	duration		Long W 9157
TIME:	13:23:00	13:53:00	30 (min)	Purpose code:	3
LOG:	7517.90	7519.70	1.80	Area code:	7
FDEPTH:	45	45		GearCond.code:	1
BDEPTH:	45	45		Validity code:	3
Towing dir: 309°			Wire out: 250 m	Speed: 30 kn*10	

Sorted: 32 Kg Total catch: 224.04 CATCH/HOUR: 448.06

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Anchoa argentivittata	65.80	50008	14.68	
Orthopristis chalceus	44.80	504	9.99	261
Chloroscombrus orqueta	42.00	700	9.37	260

Haemulopsis sp	42.00	602	9.37
Bagre panamensis	35.00	98	7.81
Opisthopterus dovii	32.20	24472	7.18
Larimus acclivis	30.80	406	6.87
Peprilus medius	28.00	210	6.24
Bardiella icistia	22.40	308	4.99
Sphyraena ensis	21.00	210	4.68
Opisthonema libertate	16.80	154	3.74
Selene peruvianus	16.80	168	3.74
Isopisthus remifer	14.00	126	3.12
Diapterus peruvianus	9.80	42	2.18
Cynoscion reticulatus	7.00	42	1.56
Pomadasys panamensis	5.60	28	1.24
Xenichthys xanti	4.20	42	0.93
Polydactylus opercularis	2.80	14	0.62
Polydactylus approximans	2.80	28	0.62
Scomberomorus sierra	1.20	2	0.26
Pliosteostoma lutipinnis	1.12	14	0.24
Lycengraulis poeyi	1.12	14	0.24
Squilla sp	0.42	14	0.09
Penaeus vannamei	0.28	14	0.06
Sphoeroides labors	0.14	14	0.03
Total	448.08		99.85

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 444

PROJECT: LA

DATE:	6/7/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1410
	start	stop	duration			Long W 9155
TIME:	15:12:00	15:42:00	30 (min)	Purpose code:	3	
LOG:	7530.70	7532.50	1.80	Area code:	7	
FDEPTH:	21	20		GearCond.code:	1	
BDEPTH:	21	20		Validity code:	3	
Towing dir: 320°			Wire out: 100 m		Speed: 32 kn*10	

Sorted: 30 Kg Total catch: 30.46 CATCH/HOUR: 60.92

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Anchoa argentivittata	17.40	11600	28.56	267
Opisthopterus dovii	11.60	7308	19.04	266
Opisthonema libertate	9.00	126	14.77	263
Sphyraena ensis	5.20	76	8.53	265
Scomberomorus sierra	5.00	24	8.20	262
Selene peruvianus	2.00	104	3.28	264
Chloroscombrus orqueta	1.60	26	2.62	
Oligoplites altus	1.40	6	2.29	
Peprilus medius	1.20	8	1.96	
Loliopsis diomedeae	1.00	12	1.64	
Caranx caballus	1.00	4	1.64	
Anchovia macrolepidota	1.00	24	1.64	
Isopisthus remifer	0.82	52	1.34	
Conodon macrops	0.80	10	1.31	
Pliosteostoma lutipinnis	0.64	26	1.05	
Anchoa starksi	0.60	40	0.98	
Trichiurus nitens	0.40	2	0.65	
Lycengraulis poeyi	0.12	2	0.19	
Penaeus vannamei	0.08	4	0.13	
Anchoa ischana	0.06	6	0.09	
Total	60.92		99.91	

R/V D. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 445

PROJECT: LA

DATE:	6/7/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1408
	start	Stop	duration		Long W 9201
TIME:	17:08:00	17:38:00	30 (min) Purpose code:	3	
LOG:	7540.20	7542.00	1.80 Area code:	7	
FDEPTH:	31	36	GearCond.code:	1	
BDEPTH:	31	36	Validity code:	3	
Towing dir: 218°			Wire out: 200 m	Speed: 35 kn*10	

Sorted: 28 Kg | Total catch: 114.20 | CATCH/HOUR : 228.40

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Chloroscombrus orqueta	48.00	736	21.01	268
Diapterus peruvianus	32.00	128	14.01	
Opisthonema libertate	20.00	272	8.75	269
Haemulopsis elongatus	20.00	288	8.75	
Polydactylus approximans	12.00	96	5.25	
Larimus acclivis	12.00	160	5.25	
Opisthopterus dovii	8.00		3.50	
Peprilus medius	8.00	64	3.50	
Isopisthus remifer	8.00	112	3.50	
Sphyraena ensis	8.00	88	3.50	
Scomberomorus sierra	8.00	24	3.50	
Bairdiella chrysoleuca	8.00	232	3.50	
Lutjanus guttatus	5.60	8	2.45	
Anchoa argentivittata	5.60		2.45	
Selene peruvianus	4.00	96	1.75	
Orthopristis chalceus	4.00	40	1.75	
Conodon macrops	4.00	40	1.75	
Caranx hippos	3.20	8	1.40	
Pseudupeneus grandisquamis	1.60	16	0.70	
Lolliguncula panamensis	1.60	48	0.70	
Xiphopenaeus sp.	1.60	88	0.70	
Penaeus stylirostris	1.20	16	0.52	
Diapterus aureolus	0.80	16	0.35	
Diplectrum pacificum	0.80	8	0.35	
Penaeus vannamei	0.80	16	0.35	
Anchoa ischana	0.80		0.35	
Anchoa starksi	0.80		0.35	
Arius sp	0.00	8		
Trinectes sp	0.00	8		
Anchovia macrolepidota	0.00	8		
Total	228.40		99.94	

R/V DR. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 446

PROJECT: LA

DATE:	6/8/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1409
	start	stop	duration		Long W 9226
TIME:	06:03:00	06:28:00	25 (min) Purpose code:	3	
LOG:	7621.60	7622.70	1.10 Area code:	7	
FDEPTH:	114	93	GearCond.code:	1	
BDEPTH:	114	93	Validity code:	3	
Towing dir: 35°			Wire out: 450 m	Speed: 30 kn*10	

Sorted: 10 Kg | Total catch: 10.40 | CATCH/HOUR: 24.96

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Decapterus macrosoma	18.48	254	74.03	270
Sarda orientalis	2.64	2	10.57	
Diplectrum euryplectrum	2.16	48	8.65	
Penaeus brevirostris	1.68	64	6.73	
Total	24.96		99.98	

R/V DR. FRIDTJOF NANSEN — CATCH DATA 1 — PROJECT STATION: 447

PROJECT: LA

DATE:	6/8/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1416
	start	stop	duration			Long W 9221
TIME:	08:00:00	08:30:00	30 (min)	Purpose code:	3	
LOG:	7630.90	7632.30	1.40	Area code:	7	
FDEPTH:	54	50		GearCond.code:	1	
BDEPTH:	54	50		Validity code:	3	
Towing dir: 80°			Wire out: 250 m		Speed: 28 kn*10	

Sorted: 59 Kg — Total catch: 588.20 — CATCH/HOUR: 1176.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Chloroscombrus orqueta	520.00	860	44.20	271
Selene peruvianus	240.00	780	20.40	272
Orthopristis chalceus	110.00	660	9.35	273
Bagre panamensis	72.00	200	6.12	
Anchoa argentivittata	58.00		4.93	
Scomberomorus sierra	38.00	20	3.23	
Opisthonema bulleri	30.00	260	2.55	274
Haemulopsis leuciscus	30.00	440	2.55	
Hemicaranx leucurus	13.40	60	1.13	
Opisthopterus dovii	12.00		1.02	
Pseudobalistes naufragium	10.00	20	0.85	
Larimus acclivis	10.00	80	0.85	
Polydactylus approximans	10.00	80	0.85	
Diapterus aureolus	8.00	180	0.68	
Chaetodipterus zonatus	6.00	20	0.51	
Selar crumenophthalmus	4.00	20	0.34	
Albula vulpes	3.00	20	0.25	
Larimus argenteus	2.00	20	0.17	
Total	1176.40		99.98	

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 448

PROJECT: LA

DATE:	6/8/87		GEAR TYPE: BT No: 1		POSITION:	Lat N 1423
	start	stop	duration			Long W 9211
TIME:	10:33: 00	10:55:00	22 (min)	Purpose code:	3	
LOG:	7650.40	7651.80	1.40	Area code:	7	
FDEPTH:	21	21		GearCond.code:	1	
BDEPTH:	21	21		Validity code:	3	
Towing dir: 316°			Wire out: 100 m		Speed: 32 kn*10	

Sorted: 23 Kg — Total catch: 23.30 — CATCH/HOUR: 63.54

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Opisthonema libertate	43.63	627	68.66	275
Scomberomorus sierra	8.18	21	12.87	
Chloroscombrus orqueta	4.09	68	6.43	
Sphyraena ensis	2.72	19	4.28	
Caranx caballus	2.18	5	3.43	

Hemicaranx zelotes	1.36	16	2.14
Bagre panamensis	1.36	5	2.14
Oligoplites refulgens	0.00	0	
Oligoplites saurus inornatus	0.00	2	
Total	63.52		99.95

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 449

PROJECT: LA

DATE:	6/8/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1425
	start	stop	duration			Long W 9224
TIME:	12:39:00	13:09:00	30 (min)	Purpose code:	3	
LOG:	7664.60	7666.30	1.70	Area code:	8	
FDEPTH:	38	38		GearCond.code:	1	
BDEPTH:	38	38		Validity code:	3	
Towing dir: 306°			Wire out: 200 m		Speed: 35 kn*10	

Sorted: 28 Kg Total catch: 169.68 CATCH/HOUR: 339.36

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP. NO.
Larimus acclivis	54.00	900	15.91	
Orthopristis sp	48.00	420	14.14	276
Peprilus medius	36.00	216	10.60	
Isopisthus remifer	36.00	276	10.60	
Peprilus snyderi	15.60	72	4.59	
Cynoscion sp	10.80	24	3.18	
Scomberomorus sierra	10.80	24	3.18	
Albula vulpes	10.80	24	3.18	
Chloroscombrus orqueta	10.80	132	3.18	
Opisthonema libertate	10.80	120	3.18	
Opisthopterus dovii	10.20	8952	3.00	
BALISTIDAE	8.40	12	2.47	
Selene peruvianus	8.40	132	2.47	
Sphyraena ensis	8.40	60	2.47	
Diapterus peruvianus	8.40	48	2.47	
Anchoa argentivittata	7.80	6492	2.29	
Haemulopsis sp	6.00	72	1.76	
Cynoscion nobilis	6.00	60	1.76	
Chaetodipterus zonatus	4.80	12	1.41	
Hemicaranx zelotes	4.80	12	1.41	
Bardiella icistia	4.80	48	1.41	
Arius sp	4.20	36	1.23	
Conodon macrops	4.20	36	1.23	
Xenichthys xanti	3.60	24	1.06	
Bagre panamensis	3.00	24	0.88	
Synodus evermanni	2.40	12	0.70	
Pliosteostoma lutipinnis	0.36	12	0.10	
Total	339.36		99.86	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 450

PROJECT: LA

DATE:	6/8/87		GEAR TYPE: BT No: 1		POSITION:	Lat N 1440
	start	stop	duration			Long W 9230
TIME:	15:22:00	15:52:00	30 (min)	Purpose code:	3	
LOG:	7686.10	7687.60	1.50	Area code	8	
FDEPTH:	21	24		GearCond.code:	1	
BDEPTH:	21	24		Validity code:	3	
Towing dir: 216°			Wire out: 150 m		Speed: 31 kn*10	

Sorted: 32 Kg Total catch: 126.70 CATCH/HOUR: 253.40

SPECIES	CATCH/HOUR		%. OF TOT. C	SAMP.NO.
	weight	numbers		
Sphyraena ensis	60.00	632	23.67	277
Diapterus peruvianus	31.20	160	12.31	
Hemicaranx zelotes	27.20	240	10.73	278
Opisthonema libertate	23.20	312	9.15	279
Peprilus snyderi	19.20	80	7.57	
Chloroscombrus orqueta	15.20	280	5.99	280
Anchoa argentivittata	8.60	7912	3.39	
Selene peruvianus	8.00	192	3.15	
Isopisthus remifer	7.20	72	2.84	
Haemulopsis leuciscus	7.20	168	2.84	
Scomberomorus sierra	6.40	24	2.52	
Opistherus equitorialis	6.40	4864	2.52	
SPHYRNIDAE	4.80	8	1.89	
Anchoa ischana	4.80	240	1.89	
Loliopsis diomedeae	3.20	240	1.26	
Cynoscion nobilis	3.20	8	1.26	
Polydactylus opercularis	2.40	24	0.94	
Opisthopterus dovii	2.40	320	0.94	
Caranx hippos	2.40	8	0.94	
Oligoplites saurus inornatus	2.40	24	0.94	
Bagre panamensis	1.60	16	0.63	
Bardiella icistia	1.60	16	0.63	
Anchovia macrolepidota	1.60	16	0.63	
Anchoa starksi	1.20	88	0.47	
Penaeus vannamei	0.80	16	0.31	
Pliosteostoma lutipinnis	0.80	16	0.31	
Lycengraulis poeyi	0.40	16	0.15	
Total	253.40		99.87	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 451

PROJECT: LA

DATE:	6/8/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1432
	start	stop	duration			Long W 9236
TIME:	16:48:00	17:18:00	30 (min)	Purpose code:	3	
LOG:	7694.70	7696.40	1.70	Area code:	8	
FDEPTH:	44	47		GearCond.code:	1	
BDEPTH:	44	47		Validity code:	3	

Towing dir: 216° Wire out: 250 m Speed: 35 kn*10

Sorted: 28 Kg Total catch: 118.40 CATCH/HOUR 236.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Haemulopsis leuciscus	52.00	944	21.95	
Chloroscombrus orqueta	42.00	688	17.73	281
Selene peruvianus	25.60	208	10.81	282
Orthopristis chalceus	23.20	232	9.79	
Lutjanus guttatus	14.80	18	6.25	
Bagre panamensis	13.20	24	5.57	
Scomberomorus sierra	9.80	8	4.13	
Albula vulpes	7.20	32	3.04	
Chaetodipterus zonatus	6.40	24	2.70	
Polydactylus approximans	6.40	40	2.70	
Peprilus snyderi	5.60	24	2.36	
Sphyraena ensis	5.00	24	2.11	
Selar crumenophthalmus	4.80	40	2.02	
Hemicaranx leucurus	4.80	24	2.02	
Anchoa argentivittata	3.20		1.35	
Pristigenys serrula	2.60	8	1.09	

Opisthopterus dovii	2.40		1.01
Larimus acclivis	1.80	16	0.76
Pseudupeneus grandisquamis	1.60	24	0.67
Polydactylus approximans	1.20	8	0.50
Opistherus equitorialis	1.20		0.50
Peprilus medius	1.00	8	0.42
Arius sp	1.00	8	0.42
Diapterus aureolus	0.00	16	
Lolliguncula panamensis	0.00	32	
Anchoa ischana	0.00	56	
Total	236.80		99.90

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 452

PROJECT: LA

DATE:	6/8/87		GEAR TYPE:BT No:1	POSITION:	Lat N 1425
	start	stop	duration		Long W 9242
TIME:	18:18:00	18:28:00	10 (min) Purpose code:	3	
LOG:	7703.50	7704.00	0.50 Area code:	8	
FDEPTH:	85	94	GearCond.code:	8	
BDEPTH:	85	94	Validity code:	3	
Towing dir: 216°			Wire out: 450 m	Speed: 30 kn*10	

Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
NO CATCH				
Total	0.00			

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 453

PROJECT: LA

DATE:	6/8/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1421
	start	stop	duration		Long W 9245
TIME:	20:37:00	21:07:00	30 (min) Purpose code:	3	
LOG:	7712.00	7713.20	1.20 Area code:	8	
FDEPTH:	202	250	GearCond.code:	1	
BDEPTH:	202	250	Validity code:	3	
Towing dir: 310°			Wire out: 750 m	Speed: 24kn*10	

Sorted: 40 Kg Total catch: 606.80 CATCH/HOUR: 1213.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Nanosquilla decemspinosa	630.00	28140	51.91	
Pleuroncodes planipes	540.00	41850	44.49	283
Monolene maculipinna	15.00	1530	1.23	
Pontinus sierra	10.80	390	0.88	
Lophiodes caulinaris	5.40	210	0.44	
Cynoscion stolzmanni	4.40	150	0.36	
Zalieutes elater	4.40	390	0.36	
OPHICHTHIDAE	3.60	30	0.29	
Argentina aliceae	0.00	90		
MYCTOPHIDAE	0.00	450		
BREGMACEROTIDAE	0.00	660		
Total	1213.60		99.96	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 454

PROJECT: LA

DATE:	á/9/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1435
	start	stop	duration		Long W 9259
TIME:	05:21:00	05:51:00	30 (min) Purpose code:	3	
LOG:	7764.10	7765.20	1.10 Area code:	8	
FDEPTH:	152	154	GearCond.code:	1	

BDEPTH: 152 154 Validity code: 3
Towing dir: 300° Wire out: 650 m Speed: 26 kn*10

Sorted: 19 Kg Total catch: 843.70 CATCH/HOUR: 1687.40

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	%. OF TOT. C	SAMP.NO.
Pleuroncodes planipes	1224.00	272160	72.53	284
Nanosquilla decemspinosa	360.00	15974	21.33	
Pontinus sierra	90.00	7830	5.33	285
Monolene maculipinna	13.40	2164	0.79	
Physiculus nematopus	0.00	360		
Total	1687.40		99.98	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION:455
PROJECT: LA

	start	stop	GEAR TYPE: NT No:1 duration		POSITION: Lat N 1439 Long W 9256
DATE: 6/9/87					
TIME:	07:07:00	07:37:00	30 (min)	Purpose code:	3
LOG:	7773.10	7774.50	1.40	Area code	8
FDEPTH:	83	86		GearCond.code:	1
BDEPTH:	83	86		Validity code:	3

Towing dir: 305° Wire out: 450 m Speed: 28 kn*10

Sorted: 29 Kg Total catch: 464.00 CATH/HOUR: 928.00

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Decapterus macrosoma	928.00	15776	100.00	286
Total	928.00		100.00	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION:456
PROJECT: LA

	start	stop	GEAR TYPE: BT No:1 duration		POSITION: Lat N 1659 Long W 9511
DATE:	6/10/87				
TIME:	08:40:00	09:10:00	30 (min)	Purpose code:	3
LOG:	7935.70	7937.40	1.70	Area code:	8
FDEPTH:	50	59		GearCond.code:	1
BDEPTH:	50	59		Validity code:	3

Towing dir: 120° Wire out: 300 m Speed: 32 kn*10

Sorted: 59 Kg Total catch: 707.30 CATCH/HOUR: 1414.60

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Opisthonema libertate	624.00	5542	44.11	287
Chloroscombrus orqueta	336.00	6340	23.75	289
Haemulopsis leuciscus	336.00	24500	23.75	288
Diapterus aureolus	38.40	1368	2.71	290
Selar crumenophthalmus	38.40	288	2.71	
Lutjanus guttatus	10.00	24	0.70	
Opisthonema bulleri	5.80	24	0.41	
Caranx caballus	5.80	24	0.41	
Lutjanus peru	3.80	24	0.26	
Sphyraena ensis	3.60	24	0.25	
Orthopristis chalceus	3.60	72	0.25	
Nasolamia velox	3.10	2	0.21	
Xenichthys xanti	2.40	96	0.16	
Elattarchus archidium	2.40	72	0.16	
Anchoa argentivittata	1.20	168	0.08	
Opisthopterus dovii	0.00	24		
Selene peruvianus	0.00	48		

Lolliguncula panamensis	0.00	384
Total	1414.50	99.92

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 457

PROJECT: LA

DATE:	6/10/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1603
	start	stop	duration		Long W 9454
TIME:	10:55:00	11:25:00	30 (min)	Purpose code:	3
LOG:	7953.80	7955.70	1.90	Area code	8
FDEPTH:	58	54		GearCond.code:	1
BDEPTH:	58	54		Validity code:	3
Towing dir: 60°			Wire out: 300 m		Speed: 38 kn*10

Sorted: 29 Kg Total catch: 494.00 CATCH/HOUR: 988.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Orthopristis chalceus	612.00	8710	61.94	291
Chloroscombrus orqueta	340.00	6800	34.41	292
Cyclopsetta querna	17.00	34	1.72	
Lutjanus peru	11.60	34	1.17	
Sphyrna lewini	7.40	2	0.74	
Selene peruvianus	0.00	68		
Lolliguncula panamensis	0.00	170		
Anchoa argentivittata	0.00	170		
Total	988.00		99.98	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 458

PROJECT: LA

DATE:	6/10/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1559
	start	stop	duration		Long W 9432
TIME:	13:06:00	13:36:00	30 (min)	Purpose code:	3
LOG:	7971.20	7972.70	1.50	Area code:	8
FDEPTH:	58	58		GearCond.code:	1
BDEPTH:	58	58		Validity code:	3
Towing dir: 110°			Wire out: 300 m		Speed: 31 kn*10

Sorted: 30 Kg Total catch: 120.84 CATCH/HOUR: 241.68

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Orthopristis sp	152.00	2382	62.89	293
Chloroscombrus orqueta	45.60	720	18.86	294
Selene peruvianus	11.20	128	4.63	
Bagre panamensis	10.40	48	4.30	
Diapterus aureolus	8.00	248	3.31	
Synodus evermanni	5.60	16	2.31	
Cyclopsetta querna	4.80	8	1.98	
Alectis ciliaris	1.60	8	0.66	
Selar crumenophthalmus	1.20	8	0.49	
Diplectrum maximum	1.20	16	0.49	
Eucinostomus argenteus	0.08	8	0.03	
Total	241.68		99.95	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 459

PROJECT: LA

DATE:	6/10/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1549
	start	Stop	duration		Long W 9419
TIME	:15:45:00	16:15:00	30 (min)	Purpose code:	3
LOG	:7992.80	7994.40	1.60	Area code:	8
FDEPTH	: 58	58		GearCond.code:	1
BDEPTH	: 58	58		Validity code:	3

Towing dir: 145° Wire out: 300 m Speed: 32 kn*10

Sorted: 34 Kg Total catch: 85.50 CATCH/HOUR: 171.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Eucinostomus sp	60.00	1158	35.08	295
Peprilus snyderi	30.00	146	17.54	296
Carangoides sp	26.00	56	15.20	
Bagre panamensis	7.50	16	4.38	
Opisthonema libertate	7.50	50	4.38	
Albula vulpes	6.50	26	3.80	
Selar crumenophthalmus	5.00	30	2.92	
Hemicaranx sp	5.00	20	2.92	
Chloroscumbrus orqueta	5.00	70	2.92	
Orthopristis chalceus	5.00	76	2.92	
Peudobalistes polylepis	3.50	10	2.04	
Sphyraena ensis	3.50	20	2.04	
Arius sp	2.50	16	1.46	
Synodus evermanni	1.50	10	0.87	
Decapterus macrosoma	1.00	20	0.58	
Conodon macrops	1.00	10	0.58	
Pseudupeneus grandisquamis	0.50	6	0.29	
Total	171.00		99.92	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 460

PROJECT: LA

DATE:	6/10/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1544
	start	stop	duration			Long W 9404
TIME:	17:54:00	18:24:00	30 (min)	Purpose code:	3	
LOG:	8009.50	8011.30	1.80	Area code:	8	
FDEPTH:	52	53		GearCond.code:	1	
BDEPTH:	52	53		Validity code:	3	

Towing dir: 150° Wire out: 300 m Speed: 35 kn*10

Sorted: 60 Kg Total catch: 74.60 CATCH/HOUR: 149.20

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Peprilus snyderi	72.40	350	48.52	297
Bagre panamensis	26.80	72	17.96	
Chloroscombrus orqueta	8.80	168	5.89	298
Haemulopsis leuciscus	7.40	154	4.95	
Orthopristis chalceus	7.00	122	4.69	
Eucinostomus gracilis	7.00	128	4.69	299
Anchoa argentivittata	6.00	260	4.02	300
Caranx caballus	3.80	18	2.54	
Carangoides dorsalis	3.20	2	2.14	
Arius platypogon	2.60	10	1.74	
Diapterus aureolus	1.20	78	0.80	
Peudobalistes polylepis	1.20	2	0.80	
Fistularia sp	0.80	2	0.53	
Hemicaranx leucurus	0.60	4	0.40	
Synodus lucioleps	0.20	4	0.13	
Decapterus macrosoma	0.20	2	0.13	
Selar crumenophthalmus	0.00	2		
Alectis ciliaris	0.00	2		
Selene peruvianus	0.00	8		
Total	149.20		99.93	

R/V DR. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 461

PROJECT: LA

DATE:	6/11/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1451
	start	stop	duration		Long W 9304
TIME:	07:35:00	08:05:00	30 (min) Purpose code:	3	
LOG:	8137.70	8139.70	2.00 Area code:	8	
FDEPTH:	55	53	GearCond.code:	1	
BDEPTH:	55	53	Validity code:	3	
Towing dir: 90°			Wire out: 300 m	Speed: 4 kn*10	

Sorted: 59 Kg | Total catch: 472.30 | CATCH/HOUR: 944.60

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO
Chloroscombrus orqueta	448.00	8670	47.42	301
Bagre panamensis	134.40	496	14.22	
Peprilus snyderi	132.80	784	14.05	302
Sphyraena ensis	68.00	368	7.19	303
Orthopristis chalceus	56.00	976	5.92	304
Haemulopsis leuciscus	46.40	736	4.91	305
Larimus acclivis	24.00	96	2.54	
Selene peruvianus	14.40	288	1.52	
Pseudupeneus grandisquamis	6.00	80	0.63	
Conodon macrops	4.80	48	0.50	
Chaetodipterus zonatus	4.00	16	0.42	
Selar crumenophthalmus	2.60	16	0.27	
Prionotus ruscarius	1.60	16	0.16	
Diapterus aureolus	1.60	48	0.16	
Anchoa argentivittata	0.00	176		
Total	944.60		99.91	

R/V DR. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 462

PROJECT: LA

DATE:	6/11/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1502
	start	stop	duration		Long W 9254
TIME:	09:42:00	10:12:00	30 (min) Purpose code:	3	
LOG:	8153.60	8155.50	1.90 Area code:	8	
FDEPTH:	26	25	GearCond.code:	1	
BDEPTH:	26	25	Validity code:	3	
Towing dir: 315°			Wire out: 150 m	Speed: 38 kn*10	

Sorted: 42 Kg | Total catch: 100.60 | CATCH/HOUR: 201.20

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Diapterus peruvianus	66.00	386	32.80	306
Sphyraena ensis	21.00	272	10.43	307
Anchoa ischana	18.60		9.24	
Opisthopterus dovii	18.00		8.94	
Penaeus vannamei	15.00	24	7.45	
Lolliguncula panamensis	9.80	1724	4.87	
Pomadasys panamensis	7.20	72	3.57	
Cynoscion nobilis	6.00	240	2.98	
Bardiella icistia	6.00	84	2.98	
Bagre panamensis	6.00		2.98	
Hemicaranx zelotes	3.60	36	1.78	
Polydactylus opercularis	3.00	24	1.49	
Anchoa starksi	2.40	216	1.19	
Chloroscombrus orqueta	2.40	24	1.19	
Caranx hippos	2.40	12	1.19	
Scomberomorus sierra	2.40	12	1.19	

Opisthonema libertate	2.40	36	1.19
Larimus acclivis	2.40	108	1.19
Haemulopsis leuciscus	2.40	168	1.19
Polydactylus approximans	1.80	72	0.89
Oligoplites altus	1.20	12	0.59
Oligoplites saurus inornatus	1.20	12	0.59
Xiphopenaeus sp.	0.00	18	
Symphurus sp	0.00	24	
Synodus scituliceps	0.00	24	
Total	201.20		99.91

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 463

PROJECT: LA

DATE:	6/11/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1508
	start	stop	duration		Long W 9314
TIME	:12:36:00	13:06:00	30 (min) Purpose code:	3	
LOG	:8177.50	8179.20	1.70 Area code:	8	
FDEPTH	: 45	43	GearCond.code:	1	
BDEPTH	: 45	43	Validity code:	3	

Towing dir: 355° Wire out: 250 m Speed: 35 kn*10

Sorted: 30 Kg Total catch: 301.50 CATCH/HOUR: 603.00

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Orthopristis chalceus	220.00	308	36.48	308
Opisthonema libertate	80.00	300	13.26	309
Sphyraena ensis	50.00	300	8.29	
Chloroscombrus orqueta	40.00	660	6.63	
Diapterus aureolus	40.00	420	6.63	
Bagre panamensis	34.00	100	5.63	
Peprilus snyderi	20.00	80	3.31	
Selene peruvianus	20.00	380	3.31	
Peprilus medius	20.00	140	3.31	
Hemicaranx zelotes	16.00	120	2.65	
Haemulopsis leuciscus	10.00	280	1.65	
Larimus acclivis	10.00	120	1.65	
Opisthonema bulleri	8.00	140	1.32	
Anchoa argentivittata	6.00	400	0.99	
Hemicaranx leucurus	6.00	20	0.99	
Albula vulpes	5.00	20	0.82	
Eucinostomus sp	4.00	60	0.66	
Chaetodipterus zonatus	3.00	20	0.49	
Scomberomorus sierra	3.00	20	0.49	
Opisthopterus dovii	3.00	100	0.49	
Pseudupeneus grandisquarmis	2.00	20	0.33	
Conodon nobilis	2.00	20	0.33	
Harengula thrissina	1.00	40	0.16	
Total	603.00		99.87	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION :464

PROJECT: LA

DATE:	6/11/87	GEAR TYPE: BT No:1	POSITION:		Lat N 1521
	start	stop	duration		Long W 9315
TIME:	14:25:00	14:55:00	30 (min) Purpose code:	3	
LOG:	8190.20	8192.00	1.80 Area code:	8	
FDEPTH:	28	28	GearCond.code:	1	
BDEPTH:	28	28	Validity code:	3	

Towing dir: 355° Wire out: 150 m Speed: 32 kn*10

Sorted: 34 Kg Total catch: 67.82 CATCH/HOUR: 135.64

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Diapterus peruvianus	46.00	360	33.91	312
Isopisthus remifer	20.00	224	14.74	314
Sphyraena ensis	12.00	436	8.84	313
Opistherus equitorialis	8.16	3590	6.01	
Haemulopsis leuciscus	6.00	200	4.42	
Anchoa argentivittata	5.44	2970	4.01	
Larimus acclivis	4.40	136	3.24	
Anchoa ischana	4.00	260	2.94	310
Chaetodipterus zonatus	3.60	16	2.65	
Sphyrna sp	2.40	4	1.76	
Caranx hippos	2.40	16	1.76	
Bagre panamensis	2.00	40	1.47	
Loliopsis diomedeae	2.00	56	1.47	
Anchoa starksi	2.00	244	1.47	311
Umbrina sp	1.60	8	1.17	
Oligoplites refulgens	1.60	8	1.17	
Hemicaranx zelotes	1.60	4	1.17	
Conodon nobilis	1.40	16	1.03	
Hemicaranx sp	1.20	16	0.88	
Penaeus vannamei	1.20	12	0.88	
Mugil sp	0.80	8	0.58	
Oligoplites altus	0.80	12	0.58	
Hemicaranx leucurus	0.80	4	0.58	
Anchovia macrolepidota	0.60	4	0.44	
Opisthonema libertate	0.60	8	0.44	
Bardiella icistia	0.60	8	0.44	
Oligoplites saurus inornatus	0.60	12	0.44	
Trichiurus nitens	0.40	4	0.29	
Polydactylus approximans	0.40	16	0.29	
Pliosteostoma lutipinnis	0.32	2	0.23	
Selene peruvianus	0.24	32	0.17	
Callinectes sp	0.12	4	0.08	
Synodus evermanni	0.12	16	0.08	
Cynoscion sp	0.12	4	0.08	
Total	135.52		99.71	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 465

PROJECT: LA

DATE:	6/11/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1532
	start	stop	duration			Long W 9323
TIME:	16:23:00	16:53:00	30 (min)	Purpose code:	3	
LOG:	8205.10	8206.60	1.50	Area code:	8	
FDEPTH:	23	27		GearCond.code:	1	
BDEPTH:	23	27		Validity code:	3	

Towing dir: 212° Wire out: 150 m Speed: 32 kn*10

Sorted: 36 Kg Total catch: 174.30 CATCH/HOUR: 348.60

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Diapterus peruvianus	80.00	720	22.94	
Anchoa argentivittata	51.00	61200	14.62	
Opistherus equitorialis	34.00	27200	9.75	
Sphyraena ensis	22.00	690	6.31	
Bardiella icistia	20.00	740	5.73	
Bagre panamensis	17.00	370	4.87	
Cynoscion sp	15.00	70	4.30	
Isopisthus remifer	11.00	320	3.15	
Hemicaranx leucurus	10.00	70	2.86	
Chloroscombrus orqueta	8.00	140	2.29	

Sphyrna lewini	7.00	10	2.00
Chaetodipterus zonatus	6.00	30	1.72
Pomadasys panamensis	6.00	20	1.72
Oligoplites saurus inornatus	6.00	60	1.72
Pomadasys panamensis	5.00	10	1.43
Scomberomorus sierra	5.00	10	1.43
Haemulopsis leuciscus	5.00	250	1.43
Larimus acclivis	5.00	250	1.43
Centropomus robalito	5.00	70	1.43
Xiphopenaeus riveti	4.00	570	1.14
Penaeus vannamei	3.40	66	0.97
Loliopsis diomedeae	3.00	100	0.86
Peprilus medius	3.00	30	0.86
Harengula thrissina	3.00	60	0.86
Symphurus sp	2.50	100	0.71
Polydactylus approximans	2.50	90	0.71
Anchoa starksi	2.00	190	0.57
Oligoplites altus	2.00	20	0.57
Mugil sp	1.50	10	0.43
Opisthopterus dovii	1.50	30	0.43
Anchoa ischana	1.00	40	0.28
Arius sp	0.60	20	0.17
Opisthonema libertate	0.60	10	0.17
Total	348.60		99.86

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 466

PROJECT: LA

DATE:	6/11/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1523
	start	stop	duration			Long W 9329
TIME:	17:57:00	18:27:00	30 (min)	Purpose code:	3	
LOG:	8215.10	8216.80	1.70	Area code:	8	
FDEPTH:	45	47		GearCond.code:	1	
BDEPTH:	45	47		Validity code:	3	
Towing dir: 230°			Wire out: 250 m		Speed: 32 kn*10	

Sorted: 56 Kg — Total catch: 140.20 — CATCH/HOUR: 280.40

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Diapterus peruvianus	105.00	762	37.44	315
Pseudobalistes naufragium	40.00	130	14.26	
Chloroscombrus orqueta	22.00	360	7.84	316
Bagre panamensis	18.00	84	6.41	
Haemulopsis leuciscus	15.00	320	5.34	317
Peprilus snyderi	13.20	60	4.70	
Sphyraena ensis	12.40	94	4.42	
Polydactylus opercularis	12.40	44	4.42	
Scomberomorus sierra	8.00	4	2.85	
Sphyrna lewini	7.40	14	2.63	
Lutjanus guttatus	3.80	14	1.35	
Pomadasys panamensis	3.80	10	1.35	
Opisthopterus dovii	3.20	1200	1.14	
Peprilus medius	3.00	14	1.06	
Selene peruvianus	2.40	54	0.85	
Larimus acclivis	2.00	20	0.71	
Anchoa argentivittata	2.00	130	0.71	
Polydactylus approximans	1.40	10	0.49	
Caranx caballus	1.20	10	0.42	
Chaetodipterus zonatus	1.00	4	0.35	
Orthopristis chalceus	1.00	14	0.35	
Opisthonema libertate	0.60	4	0.21	
Hemicaranx zelotes	0.60	4	0.21	

Decapterus macrosoma	0.60	4	0.21
Elattarchus archidium	0.20	4	0.07
Eucinostomus gracilis	0.20	4	0.07
Galeichthys peruvianus	0.00	4	
Diapterus aureolus	0.00	14	
Total	280.40		99.86

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 467
PROJECT: LA

DATE:	6/11/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1508
	start	stop	duration			Long W 9338
TIME:	20:25:00	20:55:00	30 (min)	Purpose code:	3	
LOG:	8234.60	8236.30	1.70	Area code:	8	
FDEPTH:	174	174		GearCond.code:	1	
BDEPTH:	174	174		Validity code:	3	
Towing dir: 310°			Wire out: 750 m		Speed: 34 kn*10	

Sorted: 20 Kg Total catch: 520.00 CATCH/HOUR: 1040.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Pleuroncodes planipes	988.00	21186	95.00	315
Nanosquilla decemspinosa	52.00	3224	5.00	
BREGMACEROTIDAE	0.00	52		
Pontinus sierra	0.00	52		
Monolene maculipinna	0.00	52		
Solenocera agassizii	0.00	52		
MYCTOPHIDAE	0.00	208		
Total	1040.00		100.00	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 468
PROJECT: LA

DATE:	6/11/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1519
	start	stop	duration			Long W 9346
TIME:	22:38: 00	23:08:00	30 (min)	Purpose code:	3	
LOG:	8249.70	8251.20	1.50	Area code:	8	
FDEPTH:	139	147		GearCond.code:	1	
BDEPTH:	139	147		Validity code:	3	
Towing dir: 150°			Wire out: 650 m		Speed: 30 kn*10	

Sorted: 7 Kg Total catch: 7.27 CATCH/HOUR: 14.54

SPECIES	CATCH/HOUR weight	numbers	%. OF TOT. C	SAMP.NO.
Pleuroncodes planipes	5.00	1092	34.38	
Nanosquilla decemspinosa	3.20	200	22.00	
Monolene maculipinna	2.60	664	17.88	
Bagre panamensis	1.20	4	8.25	
Pontinus sierra	1.16	368	7.97	
Synodus evermanni	1.10	70	7.56	
MYCTOPHIDAE	0.16	132	1.10	
Solenocera sp	0.08	28	0.55	
OPHICHTHIDAE	0.04	2	0.27	
Total	14.54		99.96	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 469
PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1533
	start	stop	duration			Long W 9353
TIME:	01:54:00	02:25:00	31 (min)	Purpose code:	3	
LOG:	8270.70	8272.40	1.70	Area code:	8	

FDEPTH:	60	57	GearCond.code:	1
BDEPTH:	60	57	Validity code:	3
Towing dir: 110°		Wire out: 300 m		Speed: 33 kn*10

Sorted: 30 Kg Total catch: 240.24 CATCH/HOUR: 464.98

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Orthopristis chalceus	193.54	3810	41.62	319
Bagre panamensis	71.22	387	15.31	
Eucinostomus gracilis	47.99	929	10.32	
Prionotus stephanophrys	40.25	665	8.65	
Synodus evermanni	26.32	185	5.66	
Trachinotus sp	18.58	15	3.99	
Eucinostomus sp	12.38	154	2.66	
Decapterus macrosoma	10.83	108	2.32	
Polydactylus opercularis	9.29	61	1.99	
Bothus constellatus	7.74	216	1.66	
Pseudorhombus dendritica	4.64	15	0.99	
Peudobalistes polylepis	3.09	15	0.66	
Cyclopsetta sp.	3.09	30	0.66	
Diapterus peruvianus	3.09	139	0.66	
Chloroscombrus orqueta	2.78	30	0.59	
OPHICHTHIDAE	2.32	30	0.49	
Cherublemma emmelas	1.54	15	0.33	
Penaeus californiensis	1.23	15	0.26	
SCORPAENIDAE	0.58	19	0.12	
Haemulopsis leuciscus	0.30	15	0.06	
Total	460.80		99.00	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 470

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1534
	start	stop	duration			Long W 9338
TIME:	05:33:00	06:03:00	30 (min)	Purpose code:	3	
LOG:	8287.70	8289.30	1.60	Area code:	8	
FDEPTH:	39	35		GearCond.code:	1	
BDEPTH:	39	35		Validity code:	3	
Towing dir: 31°			Wire out: 200 m		Speed: 31 kn*10	

Sorted: 34 Kg Total catch: 69.30 CATCH/HOUR: 138.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Diapterus peruvianus	44.00	510	31.74	320
Opisthonema libertate	17.60	304	12.69	321
Haemulopsis leuciscus	12.80	308	9.23	322
Peprilus medius	8.20	56	5.91	
Sphyraena ensis	8.00	56	5.77	
Polydactylus opercularis	6.00	40	4.32	
Anchoa argentivittata	4.40	288	3.17	323
Elattarchus archidium	3.60	4	2.59	
Peprilus snyderi	3.40	16	2.45	
Chloroscombrus orqueta	2.80	52	2.02	
Bagre panamensis	2.80	24	2.02	
Arius sp	2.80	16	2.02	
Scomberomorus sierra	2.60	8	1.87	
Opisthopterus sp	2.40		1.73	
Conodon macrops	2.00	20	1.44	
Panulirus gracilis	2.00	4	1.44	
Diapterus aureolus	1.80	68	1.29	
Opisthonema bulleri	1.60	56	1.15	

Hemicaranx leucurus	1.40	8	1.01
Chaetodipterus zonatus	1.20	8	0.86
Polydactylus approximans	1.20	12	0.86
Carangoides dorsalis	1.20	4	0.86
Larimus acclivis	1.20	12	0.86
Penaeus californiensis	1.00	20	0.72
Selene peruvianus	0.80	12	0.57
Hemicaranx zelotes	0.60	4	0.43
Pomadasys panamensis	0.60	8	0.43
Eucinostomus gracilis	0.60	12	0.43
Orthopristis chalceus	0.40	4	0.28
Synodus evermanni	0.40	4	0.28
Opisthopterus dovii	0.20	4	0.14
Total	139.60		100.58

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 471

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1549
	start	stop	duration			Long W 9342
TIME:	08:28:00	08:58:00	30 (min)	Purpose code:	3	
LOG:	8309.10	8310.90	1.80	Area code:	8	
FDEPTH:	22	27		GearCond.code:	1	
BDEPTH:	22	27		Validity code:	3	
Towing dir: 215°			Wire out: 150 m		Speed: 36 kn*10	

Sorted: 71 Kg Total catch: 142.60 CATCH/HOUR: 285.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Diapterus peruvianus	68.00	632	23.84	
Anchoa ischana	46.40		16.26	
Caranx hippos	26.00	60	9.11	
Opisthonema libertate	22.00	350	7.71	324
Sphyraena ensis	16.80	396	5.89	325
Bairdiella chrysoleuca	9.80	208	3.43	
Opisthopterus dovii	8.00		2.80	
Bagre panamensis	6.80	56	2.38	
Scomberomorus sierra	6.60	20	2.31	
Anchoa starksi	6.40	344	2.24	
Caranx caballus	6.40	28	2.24	
Mugil cephalus	6.00	68	2.10	
Hemicaranx zelotes	5.60	64	1.96	
Haemulopsis leuciscus	5.00	344	1.75	
Anchovia macrolepidota	4.80	112	1.68	
Lolliguncula panamensis	4.60	832	1.61	326
Penaeus vannamei	3.40	68	1.19	
Pomadasys bayanus	2.80	16	0.98	
Polydactylus approximans	2.80	108	0.98	
Centropomus robalito	2.80	32	0.98	
Chloroscombrus orqueta	2.80	48	0.98	
Larimus acclivis	2.80	120	0.98	327
Isopisthus remifer	2.60	196	0.91	328
Oligoplites altus	2.40	12	0.84	
Cynoscion nobilis	2.00	4	0.70	
Polydactylus opercularis	1.80	8	0.63	
Oligoplites saurus inornatus	1.80	108	0.63	
Oligoplites refulgens	1.40	16	0.49	
Hemicaranx leucurus	1.20	8	0.42	
Penaeus stylirostris	1.20	12	0.42	
Selene peruvianus	1.00	232	0.35	
Selar crumenophthalmus	0.80	4	0.28	
Peprilus medius	0.80	4	0.28	

Parapsettus panamensis	0.60	4	0.21
Harengula thrissina	0.60	12	0.21
Arius troscheli	0.40	4	0.14
Total	285.20		99.91

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 472

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1545
	start	stop	duration			Long W 9353
TIME:	10:30:00	11:00:00	30 (min)	Purpose code:	3	
LOG:	8323.90	8325.80	1.90	Area code:	8	
FDEPTH:	40	40		GearCond.code:	1	
BDEPTH:	40	40		Validity code:	3	
Towing dir: 309°			Wire out: 250 m		Speed: 38 kn*10	

Sorted: 32 Kg Total catch: 126.90 CATCH/HOUR: 253.80

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Chloroscombrus orqueta	56.80	1080	22.37	
Diapterus peruvianus	56.80	490	22.37	329
Carangoides dorsalis	23.20	16	9.14	
Opisthonema bulleri	22.80	200	8.98	330
Opisthonema libertate	21.20	240	8.35	331
Hemicaranx zelotes	12.00	88	4.72	
Albula vulpes	11.80	88	4.64	
Bagre panamensis	10.00	32	3.94	
Hemicaranx leucurus	8.00	40	3.15	
Caranx caballus	5.20	32	2.04	
Caranx sexfasciatus	5.20	32	2.04	
Selar crumenophthalmus	5.00	40	1.97	
Decapterus macarellus	4.00	40	1.57	
Conodon macrops	3.20	32	1.26	
Peudobalistes polylepis	2.40	8	0.94	
Haemulopsis leuciscus	2.00	40	0.78	
Anchoa argentivittata	1.60	288	0.63	
Arius troscheli	1.40	8	0.55	
Urotrygon chilensis	1.20	8	0.47	
Total	253.80		99.91	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 473

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lot N 1556
	start	stop	duration			Long W 9353
TIME:	12:35:00	13:05:00	30 (min)	Purpose code:	3	
LOG:	8339.50	8341.20	1.70	Area code:	8	
FDEPTH:	24	24		GearCond.code:	1	
BDEPTH:	24	24		Validity code:	3	
Towing dir: 290°			Wire out: 150 m		Speed: 32 kn*10	

Sorted: 34 Kg Total catch: 134.60 CATCH/HOUR: 269.20

SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP.NO.
Diapterus peruvianus	80.00	714	29.71	
Caranx hippos	28.00	192	10.40	333
Opisthonema libertate	17.60	208	6.53	
Anchovia macrolepidota	17.60	400	6.53	332
Isopisthus remifer	16.00	208	5.94	
Opistherus equitorialis	14.72	13312	5.46	
Oligoplites saurus inornatus	9.60	112	3.56	

Chloroscombrus orqueta	9.60	144	3.56
Bagre panamensis	8.80	240	3.26
Haemulopsis leuciscus	8.00	144	2.97
Anchoa ischana	8.00	456	2.97
Albula vulpes	5.60	24	2.08
Selene peruvianus	5.60	96	2.08
Sphyraena ensis	4.80	136	1.78
Polydactylus opercularis	4.40	16	1.63
Pomadasys bayanus	4.00	24	1.48
Caranx caballus	4.00	24	1.48
Opisthopterus dovii	4.00	136	1.48
Hemicaranx leucurus	3.20	8	1.18
Ophioscion scierus	3.20	24	1.18
Larimus acclivis	2.40	48	0.89
Opisthonema bulleri	1.60	16	0.59
Chaetodipterus zonatus	1.60	8	0.59
Panulirus gracilis	1.40	2	0.52
Anchoa argentivittata	1.28	1536	0.47
Bardiella icistia	0.80	8	0.29
Centropomus robalito	0.80	8	0.29
Polydactylus approximans	0.80	16	0.29
Penaeus vannamei	0.20	4	0.07
Total	267.60		99.26

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 474

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat 1602
	start	stop	duration			Long 9408
TIME:	14:41:00	15:11:00	30 (min)	Purpose code:	3	
LOG:	8356.00	8357.40	1.40	Area code:	8	
FDEPTH:	23	30		GearCond.code:	1	
BDEPTH:	23	30		Validity code:	3	
Towing dir: 200°			Wire out: 150 m		Speed: 30 kn*10	

Sorted: 30 Kg Total catch: 124.30 CATCH/HOUR: 248.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Diapterus peruvianus	64.00	998	25.74	
Harengula thrissina	24.00	640	9.65	334
Polydactylus approximans	21.60	392	8.68	
Haemulopsis leuciscus	20.80	1228	8.36	
Sphyraena ensis	16.00	216	6.43	
Anchoa argentivittata	14.00	8458	5.63	
Larimus acclivis	12.00	320	4.82	
Bagre panamensis	8.80	200	3.53	
Isopisthus remifer	8.00	56	3.21	
Selene peruvianus	8.00	1400	3.21	
Cynoscion sp	7.20	32	2.89	
Oligoplites saurus inornatus	5.60	320	2.25	
Opisthopterus dovii	4.80	128	1.93	
Penaeus vannamei	4.50	116	1.81	
Bardiella icistia	4.00	40	1.60	
Chloroscombrus orqueta	4.00	80	1.60	
Polydactylus opercularis	3.20	40	1.28	
Elattarchus archidium	2.80	72	1.12	
Pomadasys panamensis	2.40	24	0.96	
Peprilus medius	2.40	8	0.96	
Pomadasys bayanus	2.00	8	0.80	
Opistherus equitorialis	2.00	3200	0.80	
Oligoplites altus	1.20	16	0.48	
Opisthonema libertate	1.20	16	0.48	

Synodus evermanni	0.96	32	0.38
Umbrina sp	0.96	8	0.38
Anchovia macrolepidota	0.64	8	0.25
Oligoplites refulgens	0.64	8	0.25
Orthopristis chalceus	0.40	8	0.16
Total	248.10		99.64

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 475

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1554
	start	stop	duration			Long W 9411
TIME:	16:02:00	16:32:00	30 (min)	Purpose code:	3	
LOG:	8363.60	8365.10	1.50	Area code	8	
FDEPTH:	40	42		GearCond.code:	1	
BDEPTH:	40	42		Validity code:	3	
Towing dir: 200°			Wire out: 250 m		Speed: 28 kn*10	

Sorted: 31 Kg Total catch: 61.84 CATCH/HOUR: 123.68

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Eucinostomus sp	32.00	716	25.87	
Hemicaranx leucurus	27.20	168	21.99	335
Bagre panamensis	13.20	88	10.67	
Peudobalistes polylepis	13.20	40	10.67	
Chloroscombrus orqueta	8.00	116	6.46	
Albula vulpes	7.20	48	5.82	
Anchoa argentivittata	4.00	156	3.23	
Chaetodipterus zonatus	3.20	16	2.58	
Decapterus macrosoma	2.80	24	2.26	
Haemulopsis leuciscus	2.80	48	2.26	
Hemicaranx zelotes	2.00	8	1.61	
Caranx caballus	2.00	12	1.61	
Selar crumenophthalmus	2.00	16	1.61	
Peprilus medius	1.20	4	0.97	
Opisthonema libertate	0.80	4	0.64	
Alectis ciliaris	0.80	12	0.64	
Synodus scituliceps	0.48	8	0.38	
Pseudupeneus grandisquamis	0.40	4	0.32	
Orthopristis chalceus	0 40	8	0.32	
Total	123.68		99.91	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 476

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1543
	start	stop	duration			Long W 9416
TIME:	17:56:00	18:26:00	30 (min)	Purpose code:	3	
LOG:	8376.80	8378.60	1.80	Area code:	8	
FDEPTH:	104	102		GearCond.code:	1	
BDEPTH:	104	102		Validity code:	3	
Towing dir: 290°			Wire out: 400 m		Speed: 36 kn*10	

Sorted: 30 Kg Total catch: 2000.00 CATCH/HOUR: 4000.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Decapterus macrosoma	3905.80	71280	97.64	336
Peprilus snyderi	53.80	404	1.34	
Synodus evermanni	40.40	538	1.01	
Cyclopsetta sp.	0.00	134		
Diplectrum euryplectrum	0.00	270		
Total	4000.00		99.99	

R/V DR. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 477

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat 1549
	start	stop	duration			Long 9417
TIME:	20:00:00	20:30:00	30 (min)	Purpose code:	3	
LOG:	8385.40	8387.10	1.70	Area code:	8	
FDEPTH:	55	57		GearCond.code:	1	
BDEPTH:	55	57		Validity code:	3	
Towing dir: 290°			Wire out: 300 m		Speed: 34 kn*10	

Sorted: 30 Kg | Total catch: 122.56 | CATCH/HOUR: 245.12

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Bagre panamensis	53.60	424	21.86	
Orthopristis chalceus	52.80	976	21.54	337
SCORPAENIDAE	19.00	608	7.75	
Carangoides dorsalis	16.00	64	6.52	
Arius platypogon	14.40	72	5.87	
Prionotus ruscarius	12.00	120	4.89	
Albula vulpes	10.40	48	4.24	
Eucinostomus gracilis	9.20	160	3.75	
Haemulopsis leuciscus	6.00	104	2.44	
Peprilus snyderi	5.60	24	2.28	
Eucinostomus sp	4.80	56	1.95	
Sarda oriental is	4.00	2	1.63	
OPHICHTHIDAE	4.00	104	1.63	
Synodus sechurae	4.00	48	1.63	
Citharichthys sordidus	4.00	80	1.63	
Engyophrys sp	4.00	128	1.63	
Sphoeroides sp	3.40	56	1.38	
Bairdiella chrysoleuca	3.00	8	1.22	
Callinectes sp	2.40	40	0.97	
Shrimps. small. non comm.	2.40		0.97	
Sphyraena ensis	2.40	8	0.97	
Polydactylus opercularis	2.20	8	0.89	
Narcine entemedor	2.00	24	0.81	
Cyclopsetta querna	1.60	8	0.65	
Diplectrum pacificum	1.20	16	0.48	
Penaeus californiensis	0.80	16	0.32	
Porichthys margaritatus	0.00	8		
Alectis ciliaris	0.00	16		
Diapterus aureolus	0.00	32		
Xiphopenaeus sp.	0.00	56		
Total	245.20		99.90	

R/V DR. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 478

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1549
	start	stop	duration			Long W 9425
TIME:	21:18:00	21:48:00	30 (min)	Purpose code:	3	
LOG:	8392.70	8394.20	1.50	Area code:	8	
FDEPTH:	80	78		GearCond.code:	1	
BDEPTH:	80	78		Validity code:	3	
Towing dir: 300°			Wire out: 300 m		Speed: 30 kn*40	

Sorted: 35 Kg | Total catch: 53.20 | CATCH/HOUR: 106.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Eucinostomus gracilis	20.20	1180	18.98	338
Synodus sechurae	19.80	210	18.60	339
Prionotus ruscarius	8.00	44	7.51	
Narcine entemedor	7.80	6	7.33	
Peprilus snyderi	6.40	18	6.01	
Penaeus brevirostris	6.00	222	5.63	340
Orthopristis chalceus	5.60	104	5.26	
Engyophrys sp	5.20	194	4.88	
Diplectrum labarum	5.20	78	4.88	
Cyclopsetta querna	4.40	54	4.13	
Scorpaena histrio	3.20	168	3.00	
Shrimps. small. non comm.	3.00		2.81	
Pristigenys serrula	1.80	8	1.69	
Bagre panamensis	1.80	8	1.69	
Penaeus californiensis	1.80	84	1.69	341
Decapterus macrosoma	1.40	24	1.31	
Porichthys margaritatus	1.40	138	1.31	
Sphoeroides labors	1.40	20	1.31	
OPHICHTHIDAE	0.60	20	0.56	
Callinectes sp	0.60	6	0.56	
Lophiodes caulinaris	0.40	2	0.37	
MYCTOPHIDAE	0.40	180	0.37	
Lepophidium pardale	0.00	2		
Hemicaranx leucurus	0.00	6		
BREGMACEROTIDAE	0.00	96		
Sicyonia sp	0.00	18		
Total	106.40		99.88	

R/V DR. FRIDTJOF NANSEN — CATCH DATA — PROJECT STATION: 479

PROJECT: LA

DATE:	6/12/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1553
	start	stop	duration			Long W 9433
TIME:	22: 50: 00	23:20:00	30 (min)	Purpose code:	3	
LOG:	8401.50	8402.90	1.40	Area code:	8	
FDEPTH:	90	88		GearCond.code:	1	
BDEPTH:	90	88		Validity code:	3	
Trowing dir: 280°			Wire out: 400 m		Speed: 28 kn*10	

Sorted: 33 Kg — Total catch: 83.88 — CATCH/HOUR: 167.76

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Synodus evermanni	52.50	1510	31.29	
Penaeus brevirostris	40.00	2528	23.84	
Symphurus sp	22.50	1876	13.41	
Citharichthys sordidus	13.50	136	8.04	
Solenocera mutator	11.00	2270	6.55	
Bothus constellatus	3.52	406	2.09	
Bagre panamensis	3.52	6	2.09	
OPHIDIIDAE	3.50	310	2.08	
Eucinostomus sp	2.50	366	1.49	
TRIGLIDAE	2.50	320	1.49	
Porichthys margaritatus	2.50	400	1.49	
Pristigenys serrula	2.50	10	1.49	
Diplectrum maximum	2.50	106	1.49	
OPHICHTHIDAE	1.76	70	1.04	
MYCTOPHIDAE	1.26	40	0.75	
RAJIDAE	1.26	6	0.75	
Total	166.82		99.38	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 480

PROJECT: LA

DATE:	6/13/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1554
	start	stop	duration			Long W 9439
TIME:	00:15:00	00:45:00	30 (min)	Purpose code:	3	
LOG:	8406.60	8407.70	1.10	Area code:	8	
FDEPTH:	99	100		GearCond.code:	1	
BDEPTH:	99	100		Validity code:	3	
Towing dir: 280°			Wire out: 400 m		Speed: 25 kn*10	

Sorted: 32 Kg Total catch: 94.95 CATCH/HOUR: 189.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Synodus evermanni	108.00	3600	56.87	
Penaeus brevirostris	40.80	2040	21.48	
Porichthys margaritatus	9.00	1080	4.73	
Citharichthys sordidus	7.20	432	3.79	
Solenocera mutator	5.40	2040	2.84	
TRIGLIDAE	5.40	696	2.84	
Diplectrum maximum	4.80	408	2.52	
OPHIDIIDAE	3.60	600	1.89	
OPHICHTHIDAE	1.50	48	0.78	
TRIGLIDAE	1.20	168	0.63	
Peprilus snyderi	1.20	24	0.63	
Isopisthus remifer	0.90	24	0.47	
MYCTOPHIDAE	0.30	168	0.15	
Total	189.30		99.62	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 481

PROJECT: LA

DATE:	6/13/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1555
	start	stop	duration			Long W 9439
TIME:	02:20:00	02:50:00	30 (min)	Purpose code:	3	
LOG:	8411.30	8413.00	1.70	Area code:	8	
FDEPTH:	81	85		GearCond.code:	1	
BDEPTH:	81	85		Validity code:	3	
Towing dir: 110°			Wire out: 450 m		Speed: 30 kn*10	

Sorted: 28 Kg Total catch: 68.68 CATCH/HOUR 137.36

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Penaeus brevirostris	75.00	3750	54.60	
Synodus evermanni	30.00	300	21.84	
Eucinostomus gracilis	10.00	714	7.28	
Citharichthys sp	7.00	200	5.09	
Cyclopsetta querna	3.00	10	2.18	
Porichthys margaritatus	2.50	160	1.82	
Lepophidium pardale	2.50	400	1.82	
Bagre panamensis	1.60	2	1.16	
Lophiodes caulinaris	1.50	6	1.09	
Symphurus sp	1.24	70	0.90	
OPHICHTHIDAE	1.00	30	0.72	
Scorpaena sp	1.00	96	0.72	
Decapterus macrosoma	0.76	16	0.55	
Bothus constellatus	0.26	10	0.18	
Total	137.36		99.95	

R/V DR. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 482

PROJECT: LA

DATE:	6/13/87		GEAR, TYPE: BT No:1		POSITION:	Lat N 1600
	start	stop	duration			Long W 9421
TIME:	05:26:00	05:56:00	30 (min)	Purpose code:	3	
LOG:	8431.80	8433.40	1.60	Area code:	8	
FDEPTH:	36	37		GearCond.code:	1	
BDEPTH:	36	37		Validity code:	3	
Towing dir: 280°			Wire out: 200 m		Speed: 31 kn*10	

Sorted: 79 Kg | Total catch: 105.50 | CATCH/HOUR: 211.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Orthopristis chalceus	129.40	1088	61.32	342
Chloroscombrus orqueta	31.20	522	14.78	343
Selar crumenophthalmus	11.80	92	5.59	344
Lutjanus peru	6.80	18	3.22	
Cynoscion reticulatus	5.40	10	2.55	
Arius platypogon	4.00	10	1.89	
Peudobalistes polylepis	2.40	10	1.13	
Cyclopsetta querna	2.20	2	1.04	
Sphyraena ensis	2.00	2	0.94	
Selene peruvianus	1.80	18	0.85	
Prionotus ruscarius	1.80	2	0.85	
Panulirus gracilis	1.60	2	0.75	
Bagre panamensis	1.40	2	0.66	
Decapterus macarellus	1.40	16	0.66	
Scomberomorus sierra	1.20	2	0.56	
Anchoa argentivittata	1.20	62	0.56	
Eucinostomus sp	1.00	64	0.47	
Opisthonema bulleri	1.00	6	0.47	
Caranx sexfasciatus	0.80	2	0.37	
Evibacus princeps	0.80	2	0.37	
Diplectrum labarum	0.60	10	0.28	
Pseudupeneus grandisquamis	0.60	8	0.28	
Rhinobatus planiceps	0.60	2	0.28	
Penaeus californiensis	0.00	2		
Porichthys margaritatus	0.00	2		
Sphoeroides sp	0.00	2		
Hemicaranx leucurus	0.00	6		
Total	211.00		99.87	

R/V DR. FRIDTJOF NANSEN | CATCH DATA | PROJECT STATION: 483

PROJECT: LA

DATE:	6/13/87		GEAR TYPE: BT No:1		POSITION:	Lat N 1605
	start	stop	duration			Long W 9432
TIME:	08:07:00	08:37:00	30 (min)	Purpose code:	3	
LOG:	8455.30	8456.90	1.60	Area code:	8	
FDEPTH:	31	26		GearCond.code:	1	
BDEPTH:	31	26		Validity code:	3	
Towing dir: 9°			Wire out: 200 m		Speed: 32 kn*10	

Sorted: 84 Kg | Total catch: 83.90 | CATCH/HOUR: 167.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Chloroscombrus orqueta	122.00	2386	72.70	345
Selene peruvianus	8.00	64	4.76	
Hemicaranx leucurus	8.00	56	4.76	
Peudobalistes polylepis	4.80	16	2.86	

Albula vulpes	3.60	20	2.14	
Anchoa argentivittata	3.00	170	1.78	346
Epinephelus analogus	2.20	0	1.31	
Fistularia corneta	2.20	26	1.31	
Orthopristis chalceus	2.00	20	1.19	
Diodon hystrix	1.80	10	1.07	
Urotrygon chilensis	1.80	20	1.07	
Peprilus medius	1.60	10	0.95	
Pomadasys panamensis	1.20	4	0.71	
Carangoides dorsalis	1.20	6	0.71	
Bagre panamensis	1.20	2	0.71	
Caranx hippos	0.80	2	0.47	
Sphyraena ensis	0.80	2	0.47	
Synodus evermanni	0.80	2	0.47	
Caranx caballus	0.40	2	0.23	
Peprilus snyderi	0.20	2	0.11	
Opisthonema bulleri	0.20	2	0.11	
Lepidochelys olivacea	0.00	2		
Total	167.80		99.89	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 484

PROJECT: LA

DATE:	6/13/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1606
	start	stop	duration		Long W 9445
TIME:	11:32:00	12:02:00	30 (min) Purpose code:	3	
LOG:	8477.90	8479.40	1.50 Area cods:	8	
FDEPTH:	38	37	GearCond.code:	1	
BDEPTH:	38	37	Validity code:	3	
Towing dir: 298°			Wire out: 200 m	Speed: 30 kn*10	

Sorted: 27 Kg Total catch: 27.16 CATCH/HOUR: 54.32

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Chloroscombrus orqueta	15.60	240	28.71	
Opisthonema bulleri	11.60	92	21.35	347
Caranx caballus	8.00	46	14.72	
Decapterus macrosoma	4.60	40	8.46	348
Hemicaranx leucurus	4.00	22	7.36	
Sphyrna sp	3.40	6	6.25	
Urotrygon spp.	1.60	14	2.94	
Selene peruvianus	1.20	18	2.20	
Albula vulpes	1.20	6	2.20	
Synodus scituliceps	0.80	4	1.47	
Carangoides dorsalis	0.60	4	1.10	
Eucinostomus argenteus	0.60	16	1.10	
Hemicaranx zelotes	0.40	2	0.73	
Rhinobatos sp.	0.40	2	0.73	
Orthopristis chalceus	0.24	4	0.44	
Loliopsis diomedeae	0.08	28	0.14	
Total	54.32		99.90	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 485

PROJECT: LA

DATE:	6/13/87		GEAR TYPE: BT No:1	POSITION:	Lat N 1611
	start	stop	duration		Long W 9454
TIME:	13:03:00	13:33:00	30 (min) Purpose code:	3	
LOG:	8487.90	8489.60	1.70 Area code:	8	
FDEPTH:	21	25	GearCond.code:	1	
BDEPTH:	21	25	Validity code:	3	
Towing dir: 240°			Wire out: 150 m	Speed: 32 kn*10	

Sorted: 27 Kg Total catch: 1994.00 CATCH/HOUR: 3988.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Chloroscombrus orqueta	3007.60	42380	75.41	349
Opisthonema libertate	584.00	1862	14.64	350
Diapterus peruvianus	146.00	1314	3.66	
Albula vulpes	116.80	584	2.92	
Haemulopsis leuciscus	43.80	1752	1.09	
Opisthonema bulleri	29.20	292	0.73	
Orthopristis chalceus	21.90	292	0.54	
Selene peruvianus	21.90	292	0.54	
Selar crumenophthalmus	17.52	146	0.43	
Total	3988.72		99.96	

R/V DR. FRIDTJOF NANSEN CATCH DATA PROJECT STATION: 486

PROJECT: LA

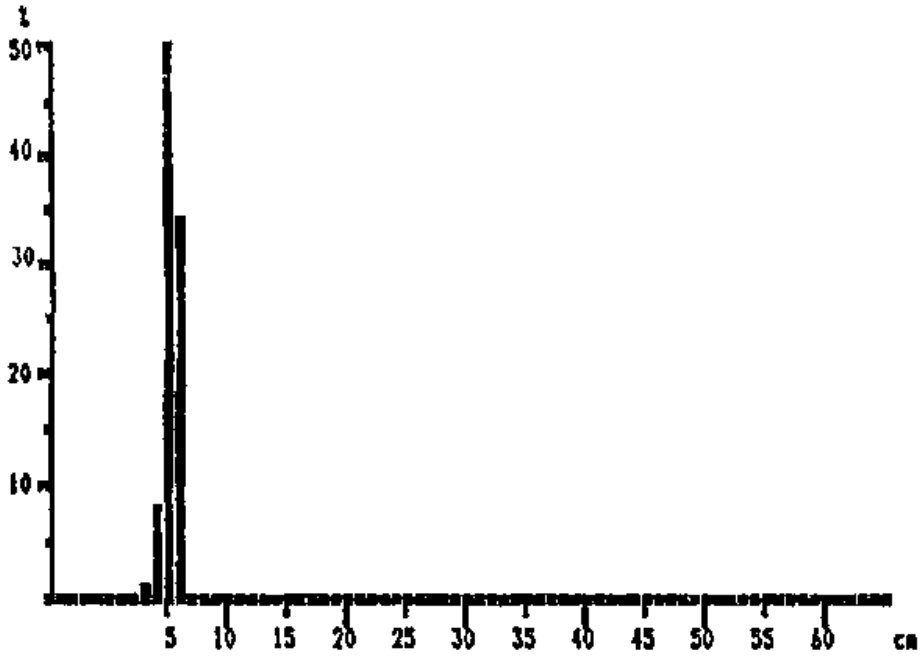
DATE: 6/13/87			GEAR TYPE: BT No:1		POSITION:	Lat N 1606
	start	stop	duration			Long W 9502
TIME:	14:21:00	14:51:00	30 (min)	Purpose code:	3	
LOG:	8496.70	8498.30	1.60	Area code:	8	
FDEPTH:	24	25		GearCond.code:	1	
BDEPTH:	24	25		Validity code:	3	
Towing dir: 246°			Wire out: 150 m		Speed: 32 kn*10	

Sorted: 27 Kg Total catch: 241.20 CATCH/HOUR: 482.40

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Haemulopsis leuciscus	189.00	5010	39.17	
Albula vulpes	180.00	1152	37.31	351
Chloroscombrus orqueta	45.00	810	9.32	
Hemicaranx leucurus	16.20	108	3.35	
Caranx caballus	10.80	54	2.23	
Opisthonema libertate	9.00	198	1.86	
Selene peruvianus	9.00	576	1.86	
Orthopristis chalceus	9.00	72	1.86	
Sphyraena ensis	5.40	54	1.11	
Chaetodipterus zonatus	2.16	18	0.44	
Hemicaranx sp	1.80	18	0.37	
Oligoplites refulgens	1.80	18	0.37	
Pseudupeneus grandisquamis	1.80	36	0.37	
Polydactylus approximans	0.90	18	0.18	
Loliopsis diomedeae	0.54	18	0.11	
Total	482.40		99.91	

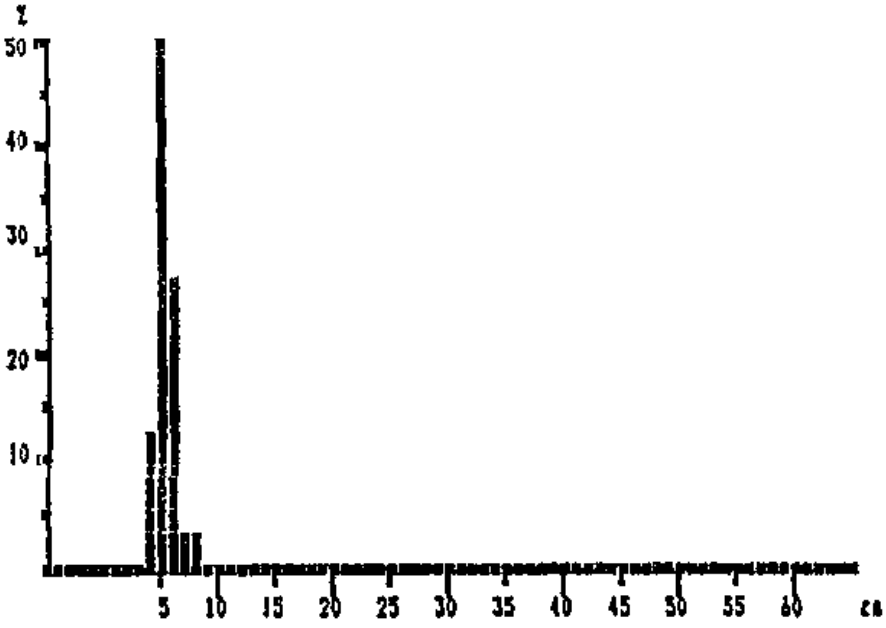
ANNEX 3 POOLED LENGTH FREQUENCY DISTRIBUTIONS OF MAIN SPECIES CAUGHT

Anchoa argentivittata (pooled data)



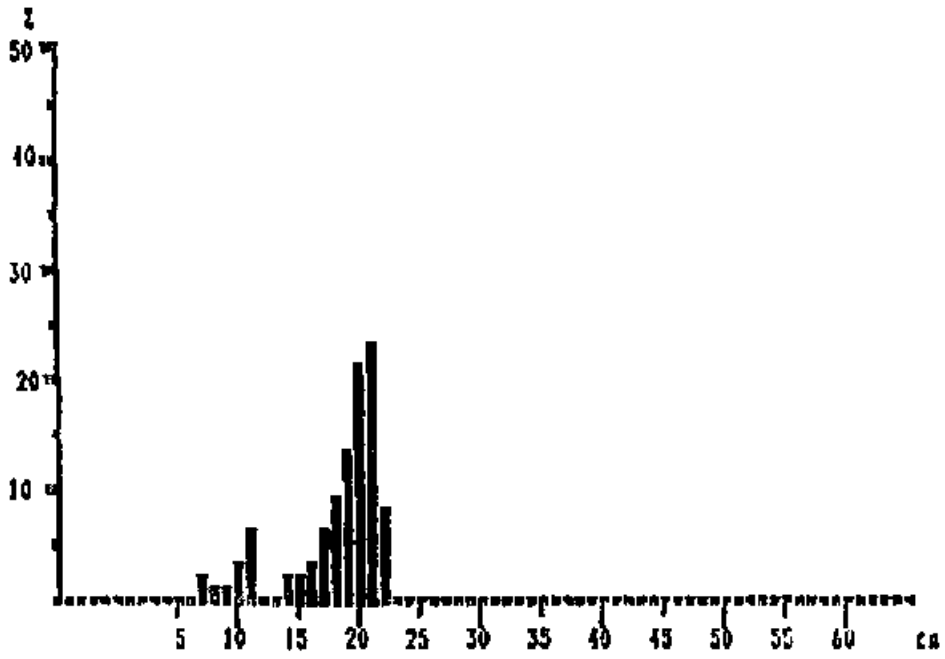
Guatemala
MEAN LENGTH= 5,2ca N= 100
Modes: , 5ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Opisthopterus dovii (pooled data)



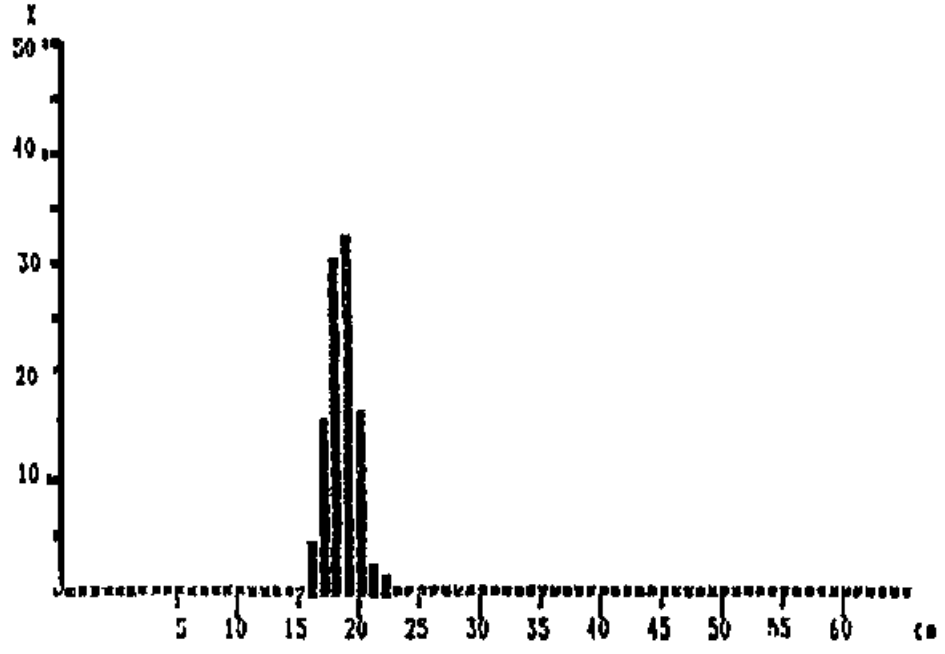
Guatemala
MEAN LENGTH= 5,2ca N= 67
Modes: , 5ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Opisthonema libertate (pooled data)



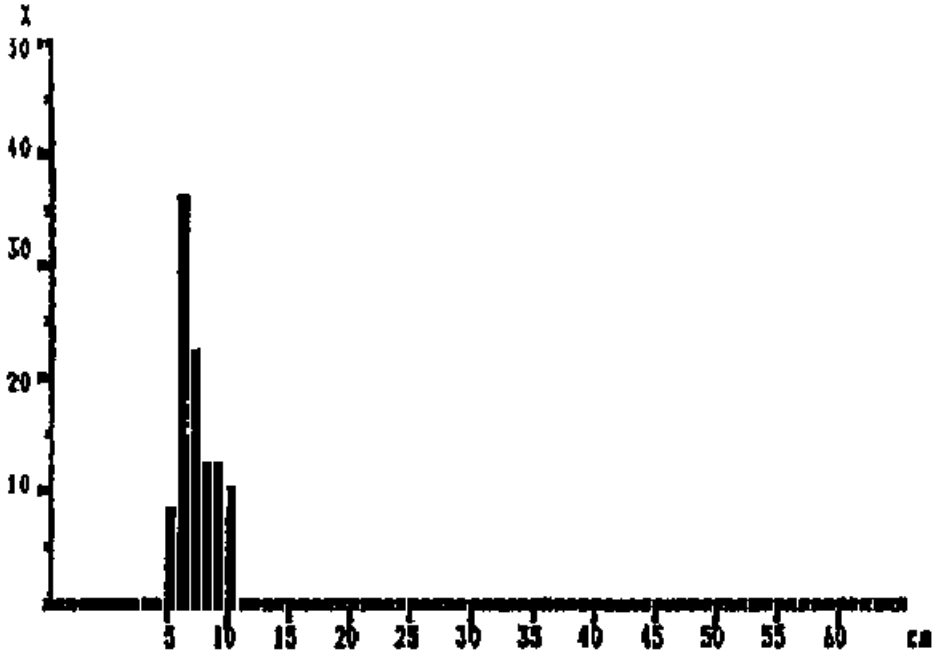
Guatemala
MEAN LENGTH= 18,3ca N= 428
Modes: , 7ca, 11ca, 21ca
NUMBER OF SUBSAMPLES: 6
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Chloroscambrus orqueta (pooled data)



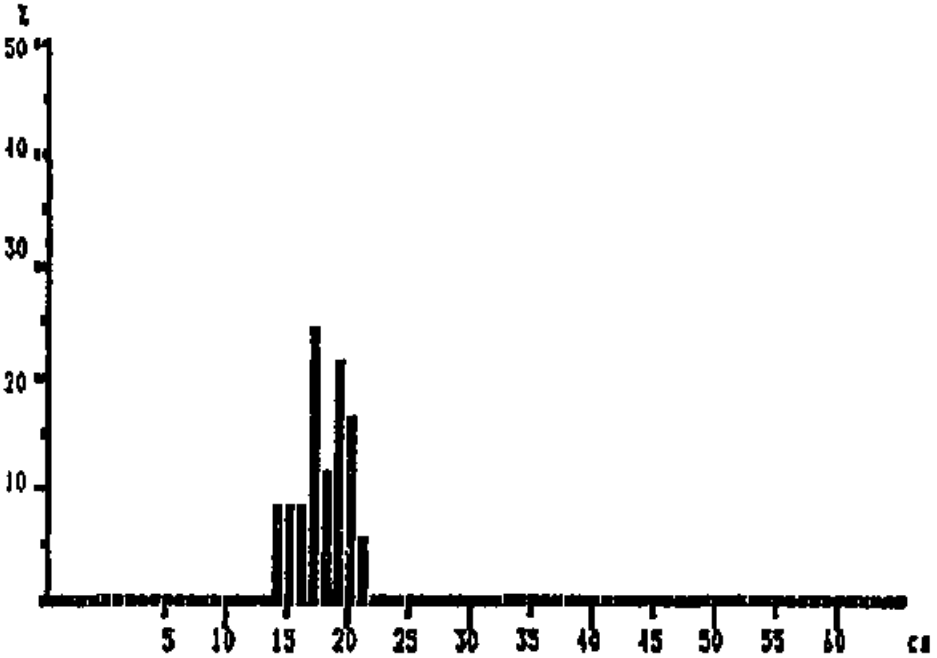
Guatemala
MEAN LENGTH= 18,5ca N= 306
Modes: , 19ca
NUMBER OF SUBSAMPLES: 6
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Pleuroncodes planipes (pooled data)



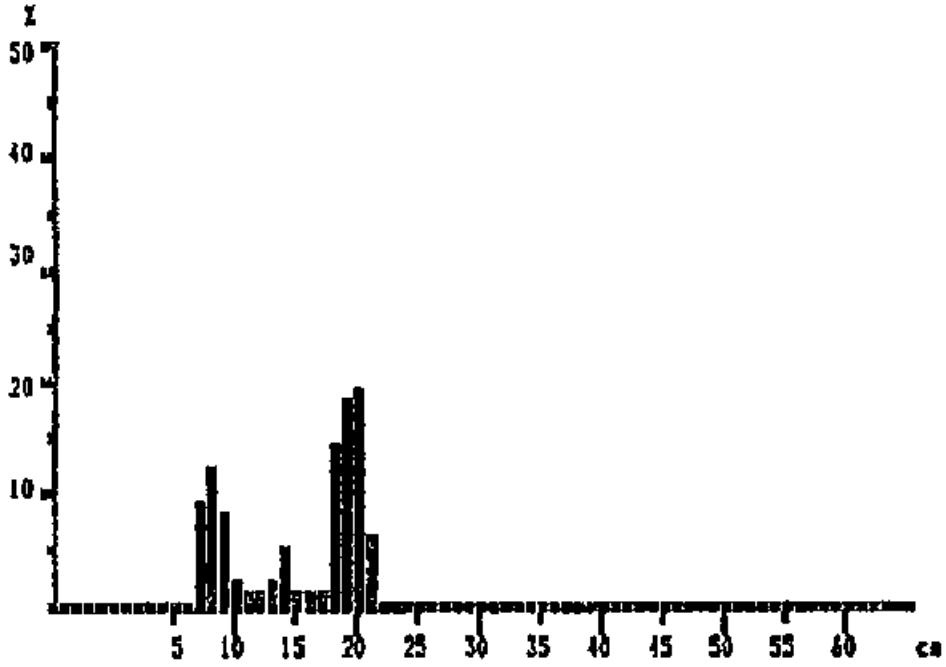
Guatemala
MEAN LENGTH= 7,1ca N= 230
Modes: , 6ca
NUMBER OF SUBSAMPLES: 3
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 483

Penaeus californiensis (pooled data)



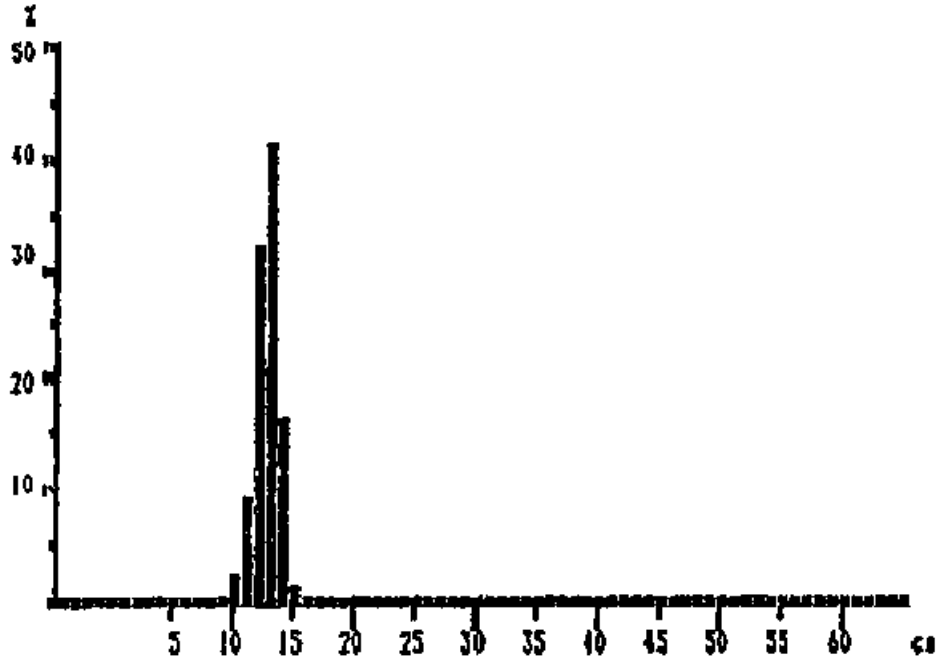
Guatemala
MEAN LENGTH= 17,7ca N= 38
Modes: , 17ca, 19ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 483

Selene brevoorti (pooled data)



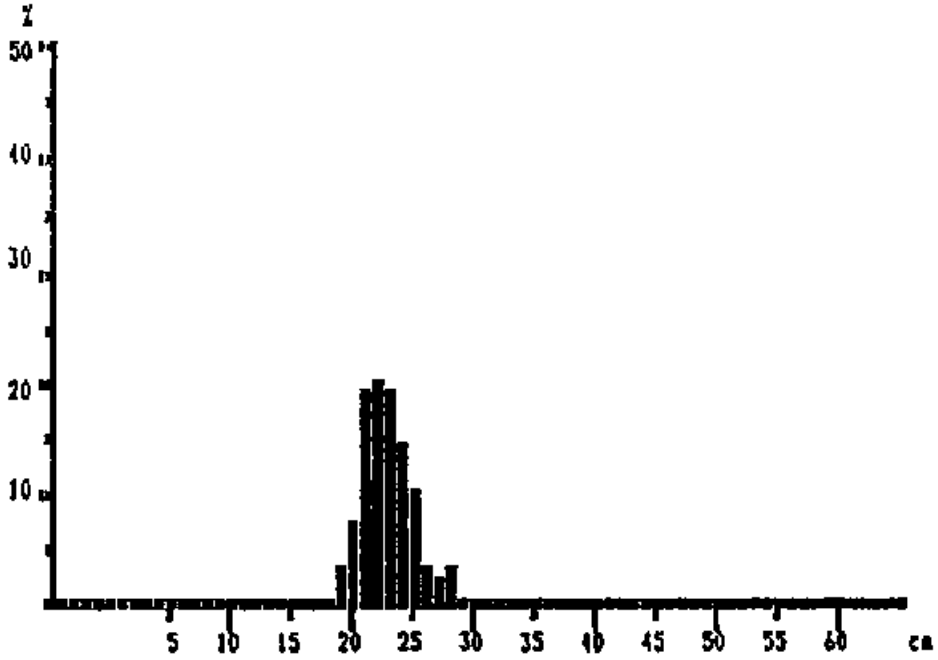
Guatemala
MEAN LENGTH= 15,2ca N= 109
Modes: , 8ca, 14ca, 20ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Argentina aliceae (pooled data)



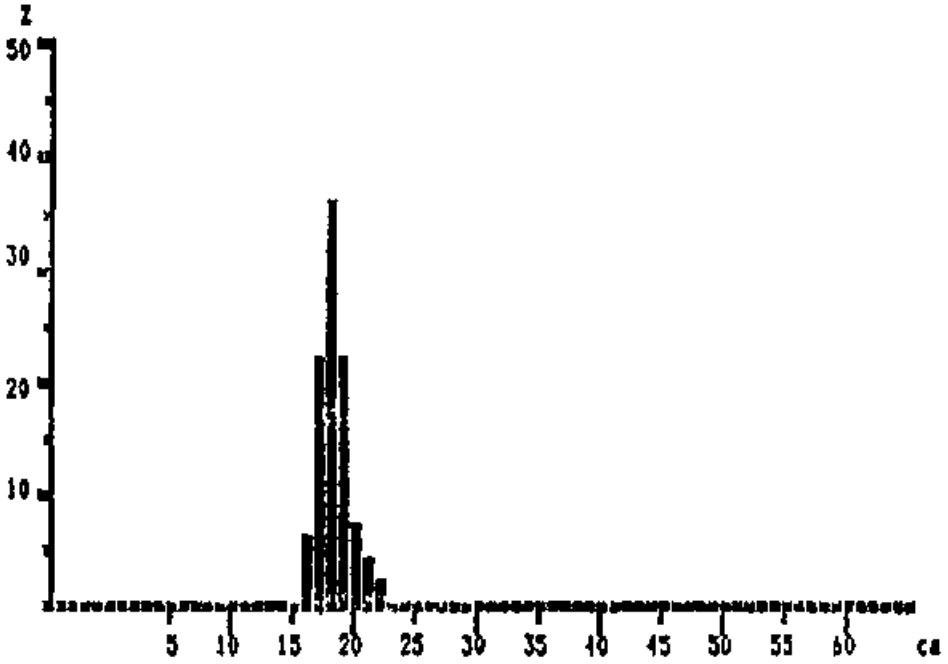
Guatemala
MEAN LENGTH= 12,6ca N= 184
Modes: , 13ca
NUMBER OF SUBSAMPLES: 2
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Diapterus aureolus (pooled data)



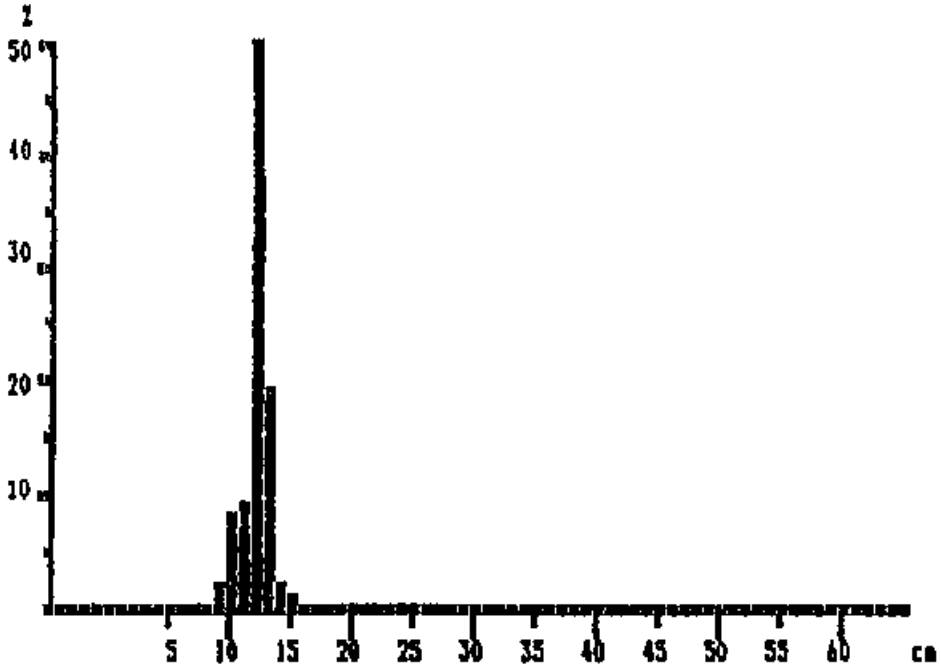
Guatemala
MEAN LENGTH= 22,7ca N= 59
Modes: , 22ca, 28ca
NUMBER OF SUBSAMPLES: 2
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Orthopristis chalceus (pooled data)



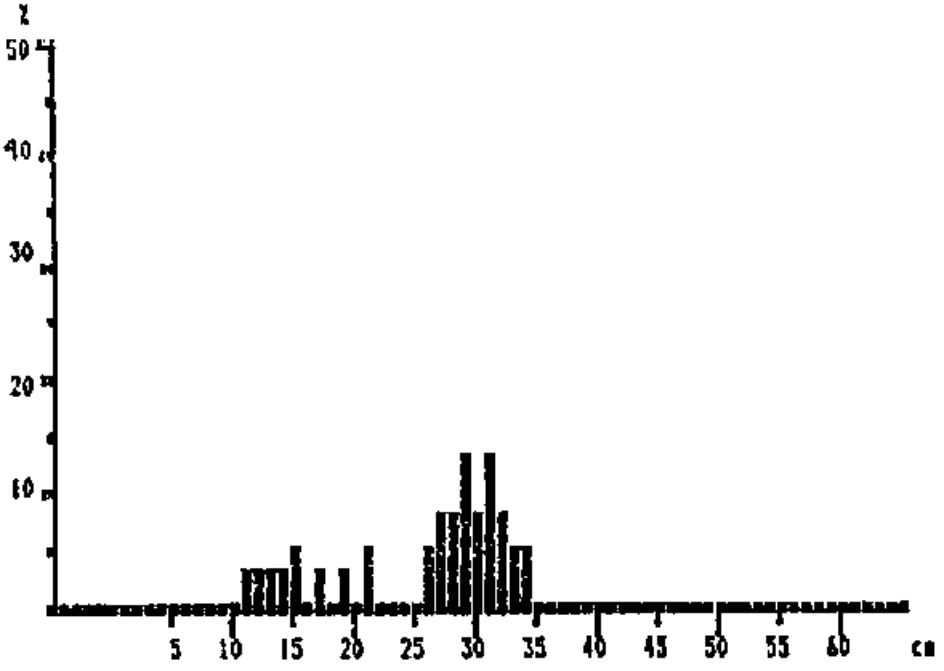
Guatemala
MEAN LENGTH= 18,3ca N= 252
Modes: , 18ca
NUMBER OF SUBSAMPLES: 6
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Diplectrm euryplectrum (pooled data)



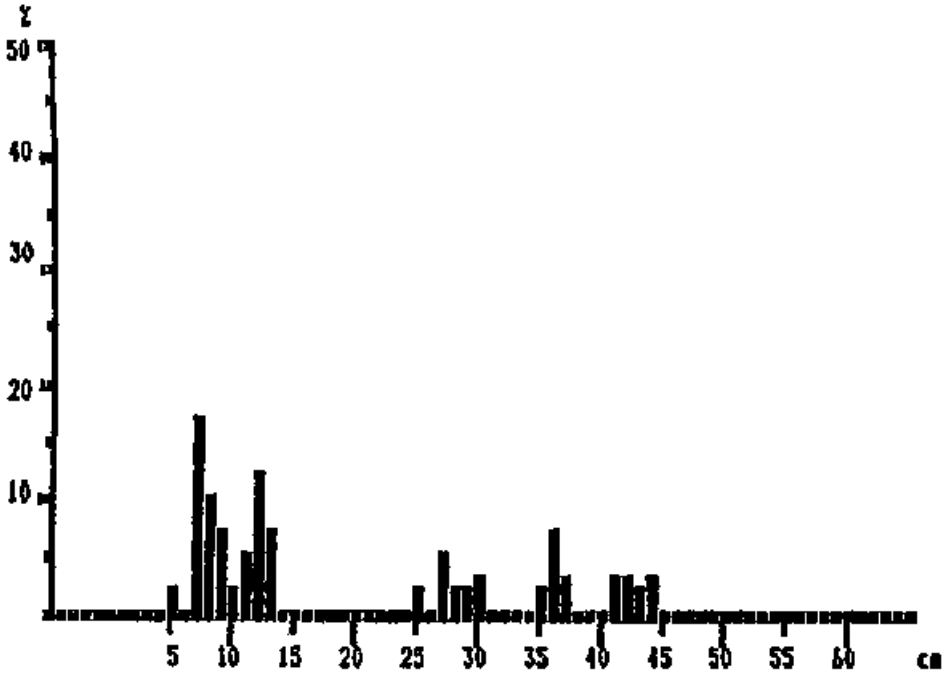
Guatemala
MEAN LENGTH= 11,9ca N= 86
Modes: , 12ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Sphyraena ensis (pooled data)



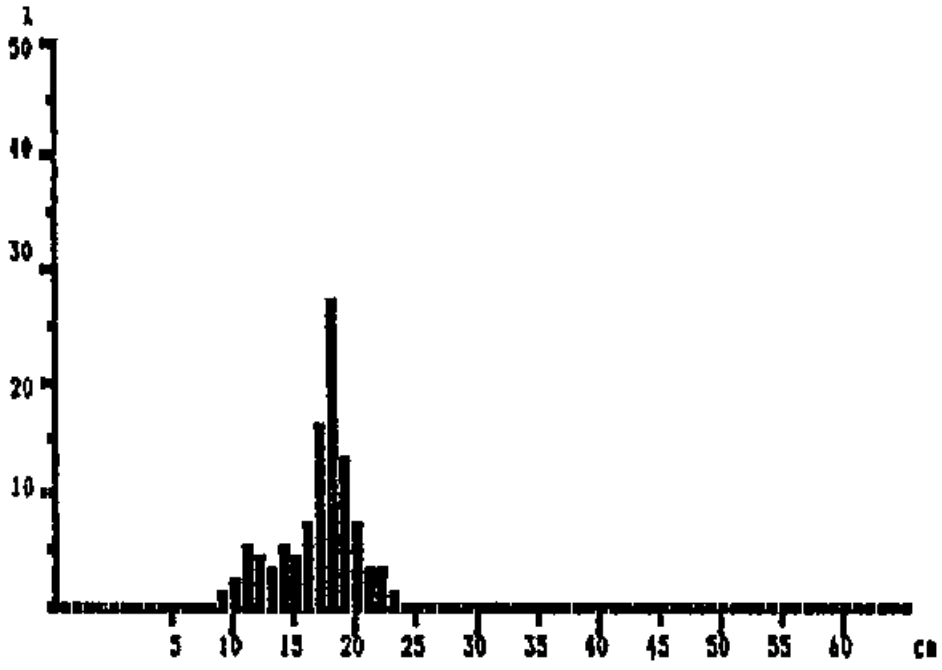
Guatemala
MEAN LENGTH= 26,1ca N= 38
Modes: , 15ca, 17ca, 19ca, 21ca, 29ca, 31ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Lutjanus guttatus (pooled data)



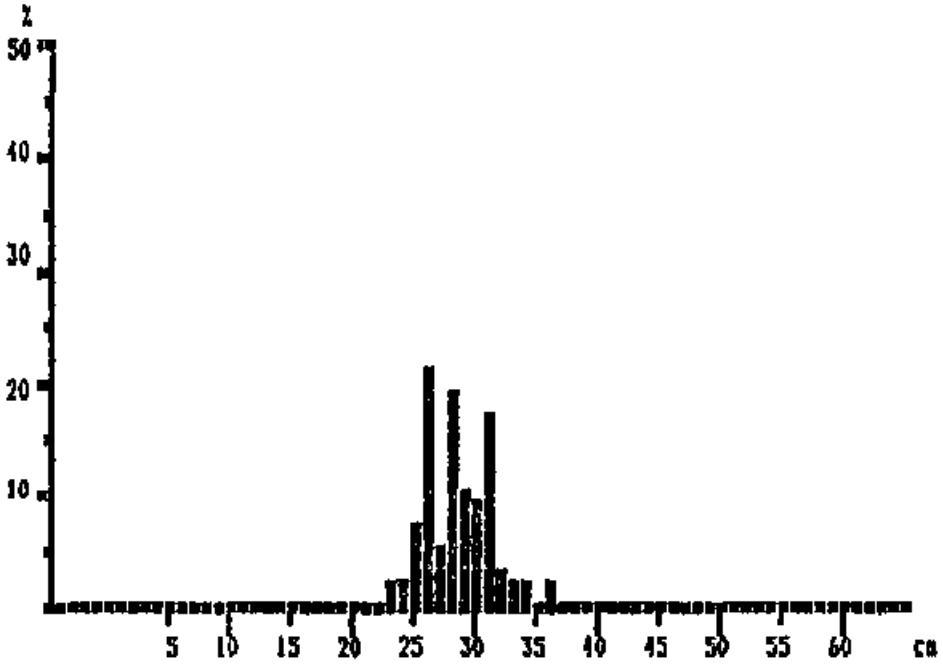
Guatemala
MEAN LENGTH= 19,1ca N= 58
Modes: , 36ca, 42ca, 44ca, 25ca, 27ca, 30ca
NUMBER OF SUBSAMPLES: 2
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Penaeus vannamei (pooled data)



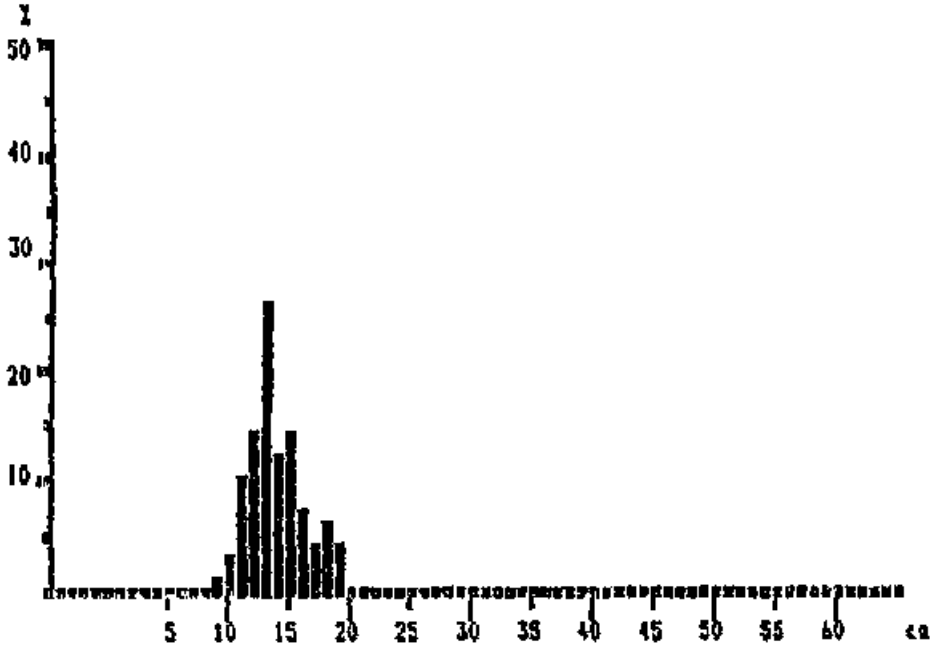
Guatemala
MEAN LENGTH= 16,8ca N= 113
Modes: , 11ca, 14ca, 18ca
NUMBER OF SUBSAMPLES: 2
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Lutjanus peru (pooled data)



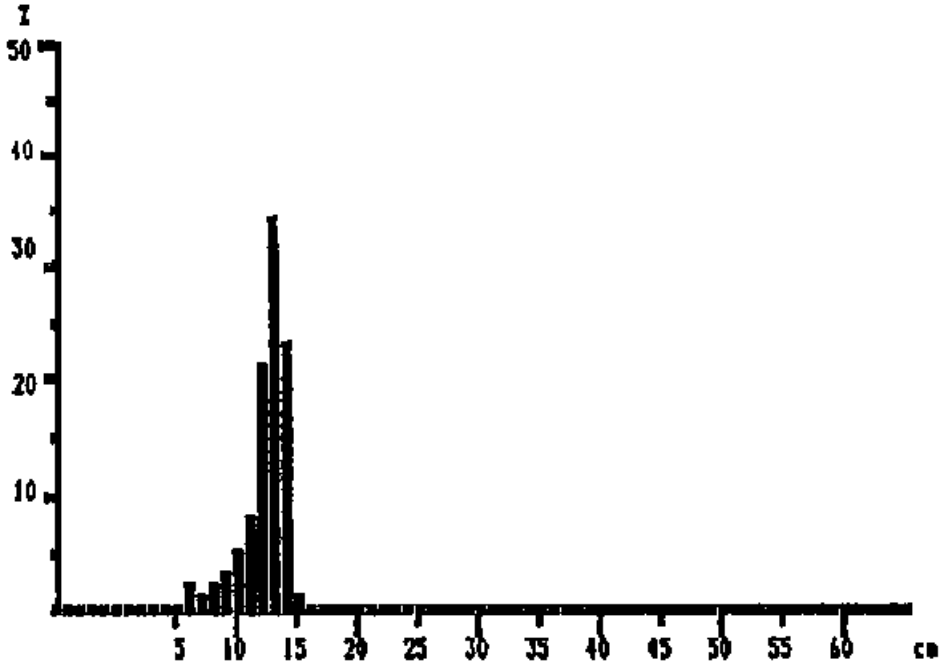
Guatemala
MEAN LENGTH= 28,4ca N= 58
Modes: , 26ca, 28ca, 31ca, 36ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Penaeus brevirostris (pooled data)



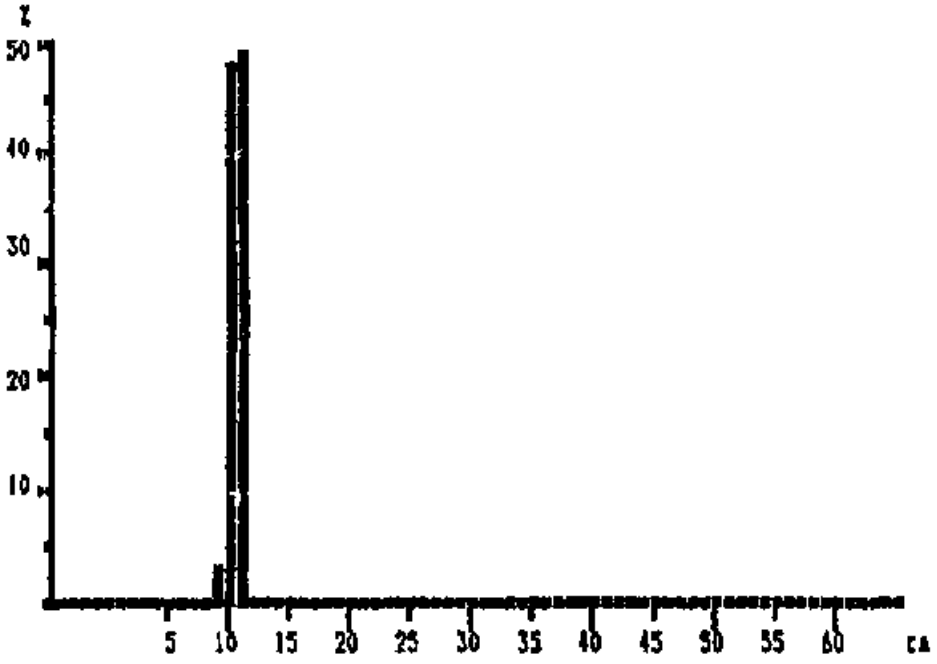
Guatemala
MEAN LENGTH= 13,8ca N= 154
Modes: , 13ca, 15ca, 18ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 418 UNTIL ST.NO.: 449
LOWEST STATION: 29 HIGHEST STATION: 478

Anchoa argentivittata (pooled data)



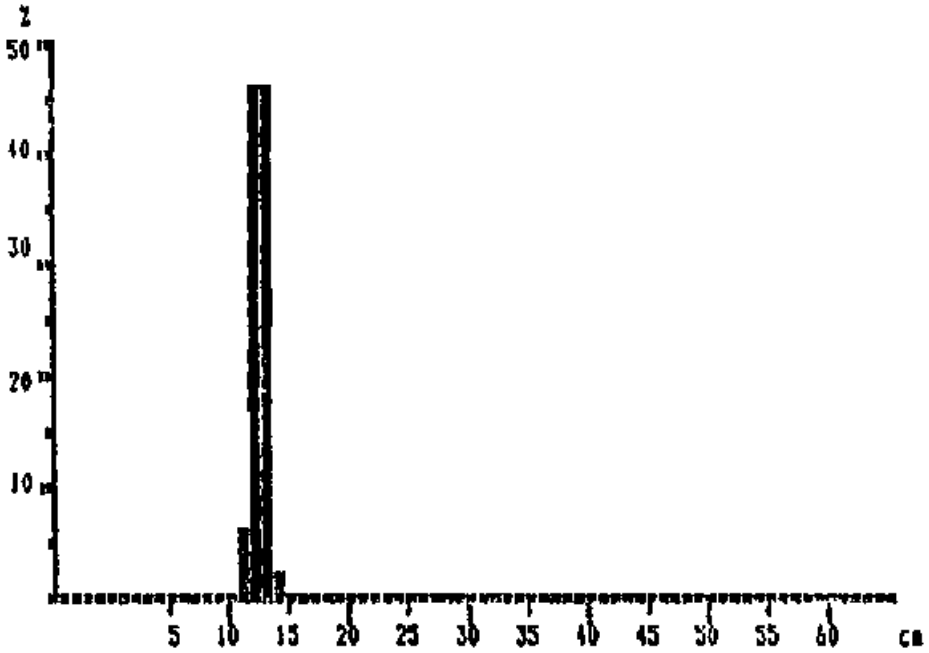
Mexico
MEAN LENGTH= 12,3ca N= 266
Modes: , 6ca, 13ca
NUMBER OF SUBSAMPLES: 3
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Anchoa starksi (pooled data)



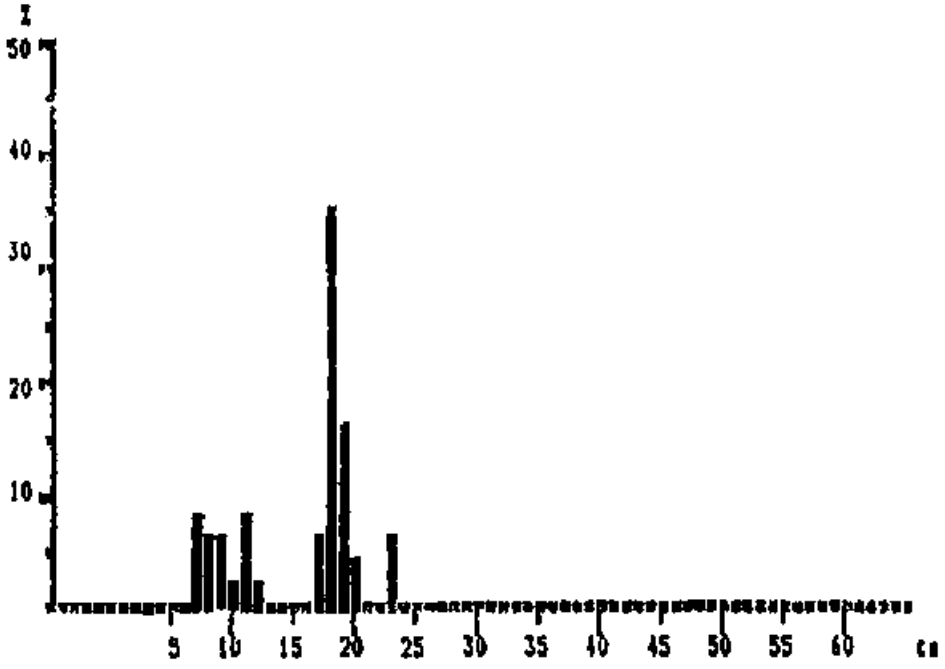
Mexico
MEAN LENGTH= 10,4ca N= 61
Modes: , 11ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Anchoa isichana (pooled data)



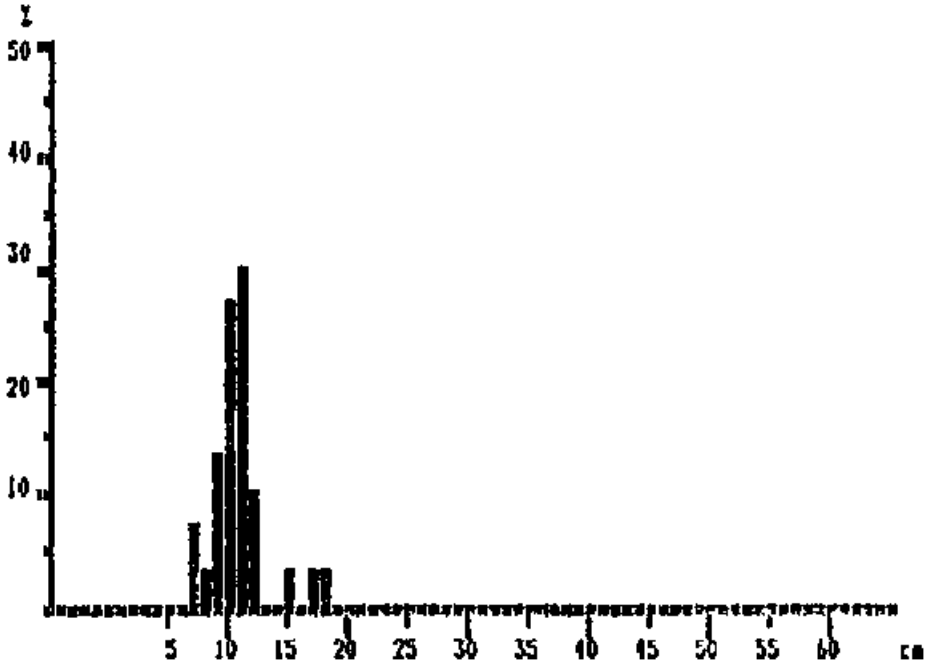
Mexico
MEAN LENGTH= 12,4ca N= 65
Modes: , 6ca, 13ca
NUMBER OF SUBSAMPLES: 3
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Isopisthus remifer (pooled data)



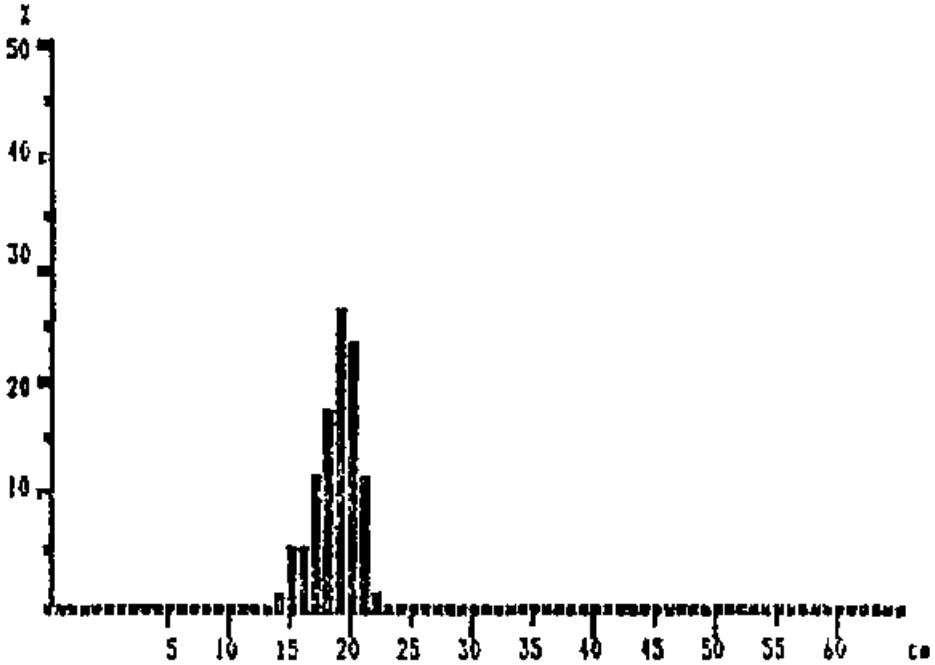
Mexico
MEAN LENGTH= 15,5ca N= 49
Modes: , 11ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Larimus acclivis (pooled data)



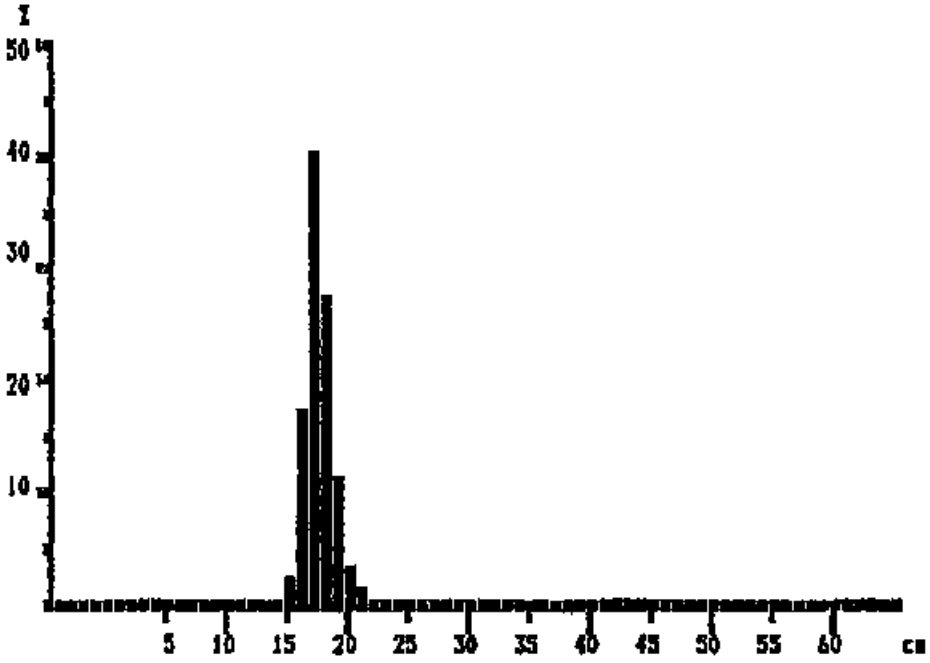
Mexico
MEAN LENGTH= 10,7ca N= 30
Modes: , 7ca, 11ca, 15ca, 18ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Opisthonema libertate (pooled data)



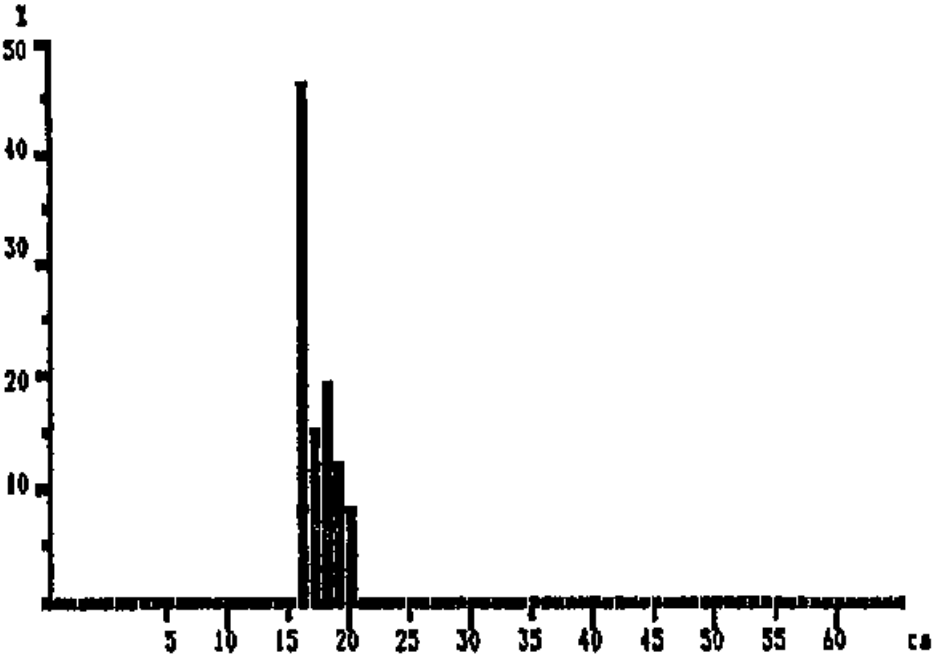
Mexico
MEAN LENGTH= 18,6ca N= 276
Modes: , 19ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Chlroecombrus orqueta (pooled data)



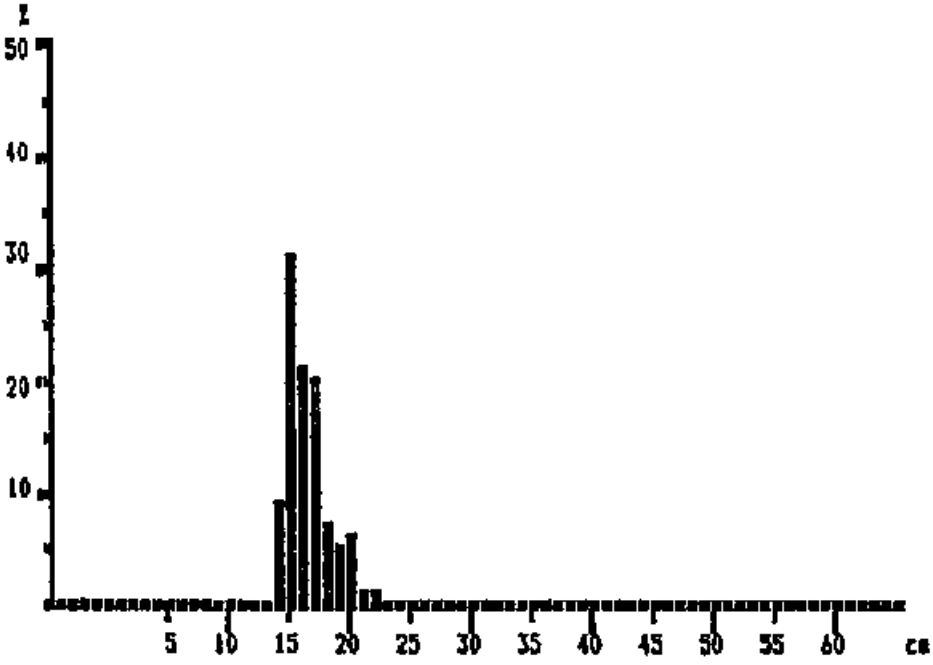
Mexico
MEAN LENGTH= 17,3ca N= 480
Modes: , 17ca
NUMBER OF SUBSAMPLES: 9
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Selene peruvianus (poolad data)



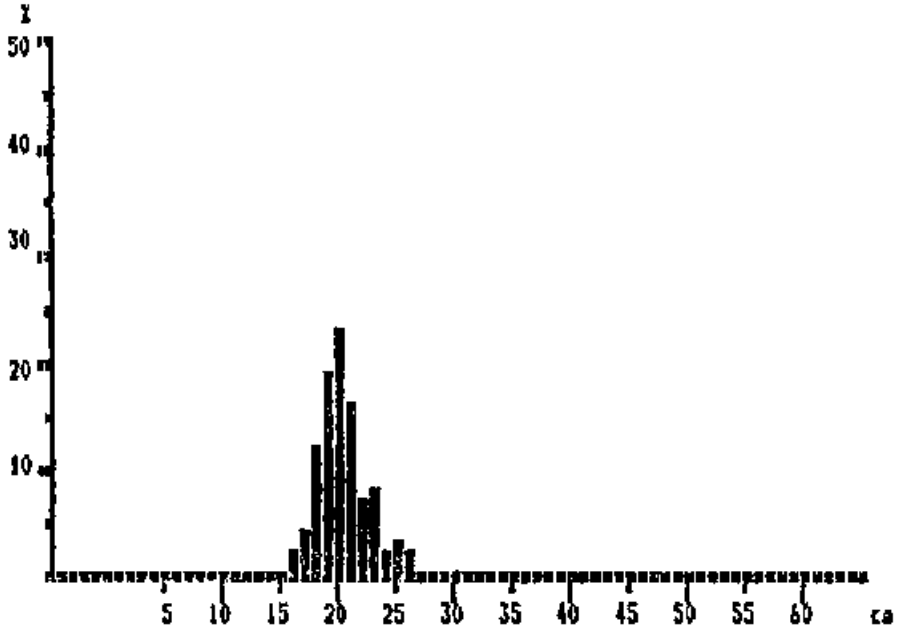
Mexico
MEAN LENGTH= 17,1ca N= 26
Modes: , 16ca, 18ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Orthopristis chalcaus (pooled data)



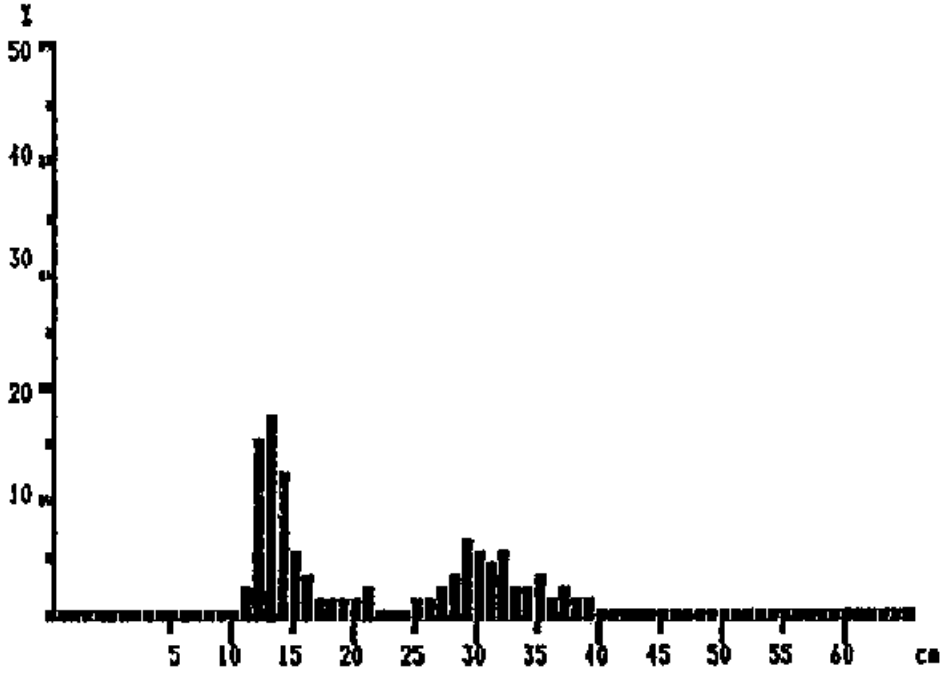
Mexico
MEAN LENGTH= 16,2ca N= 332
Modes: , 15ca, 20ca
NUMBER OF SUBSAMPLES: 6
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Diapterus peruvianus (pooled data)



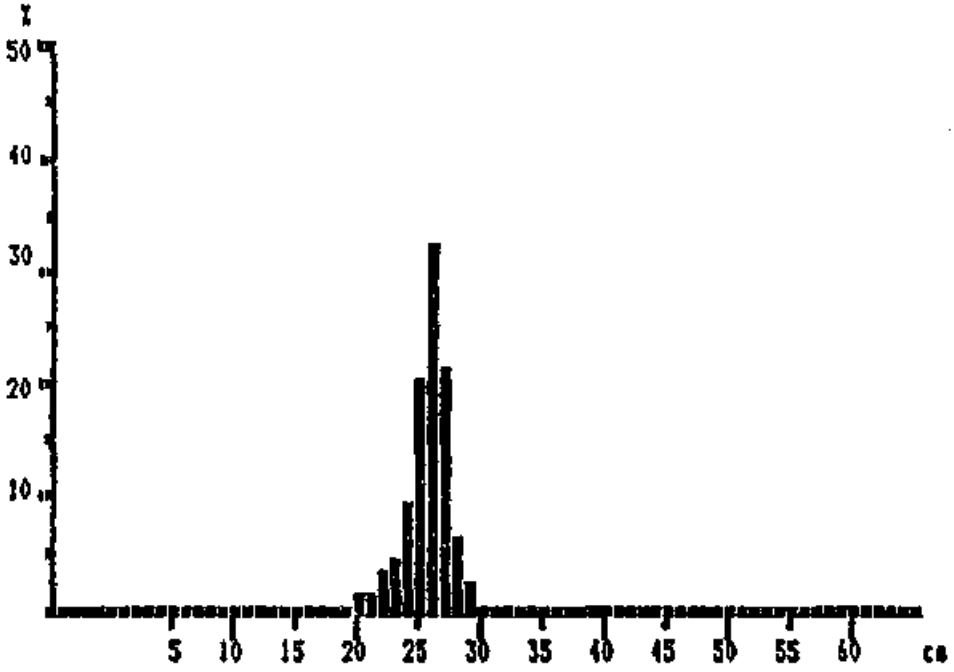
Mexico
MEAN LENGTH= 25,6ca N= 162
Modes: , 26ca
NUMBER OF SUBSAMPLES: 5
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Sphyraena ensis (pooled data)



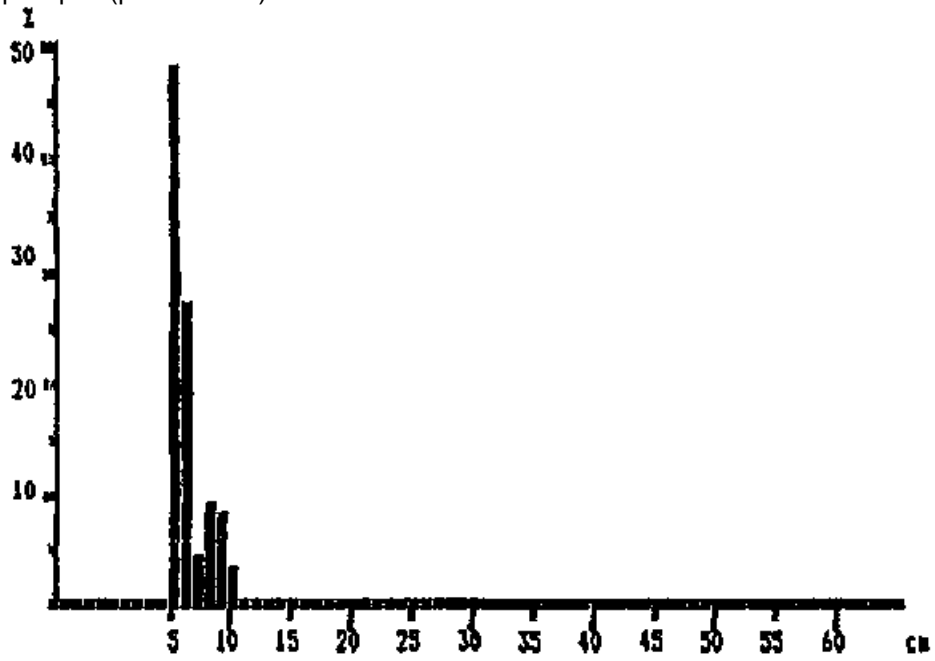
Mexico
MEAN LENGTH= 20,8ca N= 373
Modes: , 13ca, 21ca, 29ca, 32ca, 35ca, 37ca
NUMBER OF SUBSAMPLES: 5
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Peprilus snyderi (pooled data)



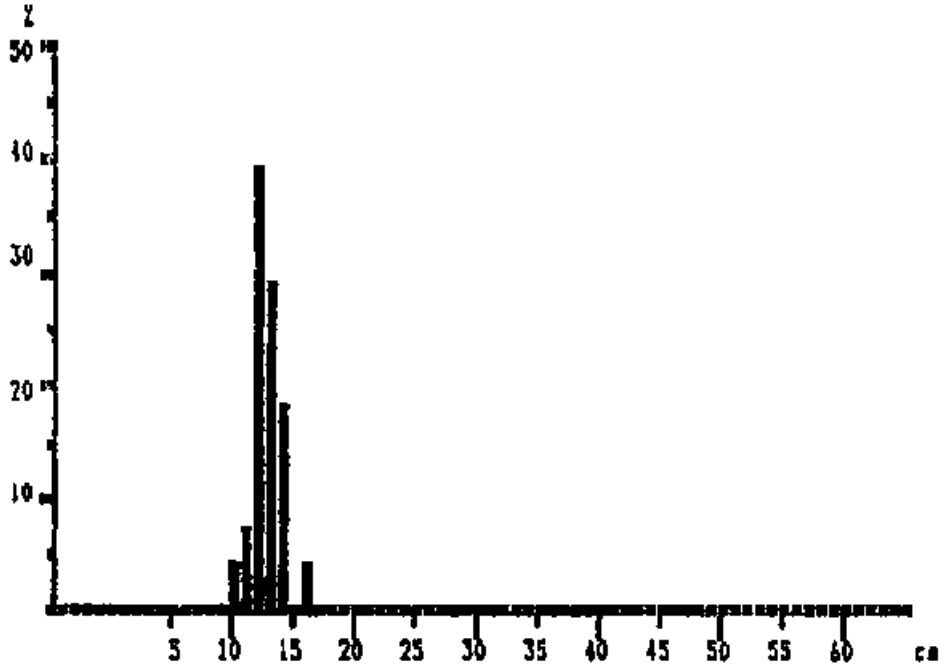
Mexico
MEAN LENGTH= 25,6ca N= 162
Modes: , 26ca
NUMBER OF SUBSAMPLES: 5
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Pleuroncodes planipes (pooled data)



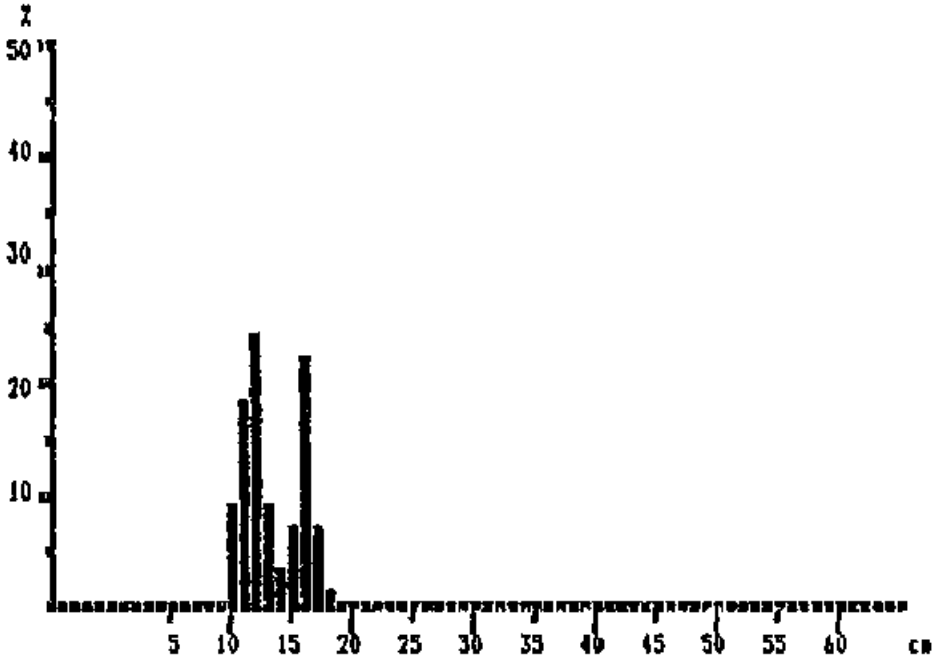
Mexico
MEAN LENGTH= 6,1ca N= 380
Modes: , 5ca, 8ca
NUMBER OF SUBSAMPLES: 3
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Penaeua californiensis (pooled data)



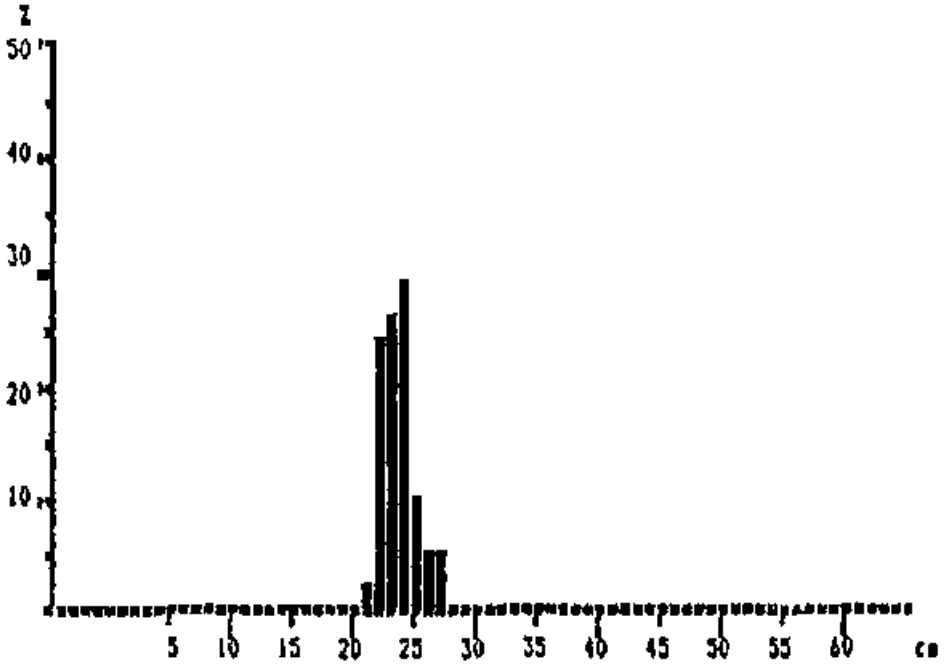
Mexico
MEAN LENGTH= 12,6ca N= 56
Modes: , 12ca, 16ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Penaeus brevirostris (pooled data)



Mexico
MEAN LENGTH= 13,2ca N= 74
Modes: , 12ca, 16ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483

Hemicaranx leucurus (pooled date)



Mexico
MEAN LENGTH= 23,5ca N= 42
Modes: , 24ca
NUMBER OF SUBSAMPLES: 1
SAMPLES FROM ST.NO.: 450 UNTIL ST.NO.: 483
LOWEST STATION: 29 HIGHEST STATION: 483