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KINDS AND ABUNDANCE OF FISH LARVAE IN THE EASTERN TROPICAL PACIFIC, BASED ON COLLECTIONS MADE ON EASTROPAC I

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ABSTRACT

This paper deals with kinds and counts of fish larvae obtained in 482 oblique plankton hauls taken over an extensive area of the eastern tropical Pacific on EASTROPAC I, a four-vessel cooperative survey made during February-March 1967. On the basis of abundance of larvae, the dominant fish group in oceanic waters are the myctophid lanternfishes (47 %), gonostomatid lightfishes (23 %), hatchetfishes, Sternoptychidae (6 %), bathylagid smelts (5 %). Scombrid larvae ranked fifth, and exceeded 2 % of the count.

Two kinds of larvae were outstandingly abundant: larvae of the lanternfish *Diogenichthys laternatus* made up over 25 % of the total, while larvae of the gonostomatid genus *Vinciguerria* made up almost 20 %. More fish larvae were obtained per haul, on the average, in the eastern tropical Pacific than were obtained per haul in the intensively surveyed waters of the California Current region off California and Baja California.

EASTROPAC I was the first and most wide-ranging of a series of cooperative cruises made in the eastern tropical Pacific between February 1967 and April 1968. A vast expanse of the eastern tropical Pacific was surveyed on EASTROPAC I, extending from lat 20° N to 20° S, and from the American coasts offshore to long 126° W (Fig. 1). Four research vessels participated in EASTROPAC I: *Alaminos* operated by Texas A & M, occupied the inner pattern, while *Rockaway* operated by the U.S. Coast Guard, *David Starr Jordan* operated by the Bureau of Commercial Fisheries (now the National Marine Fisheries Service), and *Argo* operated by the Scripps Institution of Oceanography, occupied patterns successively seaward. The oceanographic, biological, and meteorological data collected on EASTROPAC cruises will be graphically presented in a series of EASTROPAC atlases, including generalized charts dealing with fish eggs and larvae.

The present paper is the result of a chain of events that began 2 decades ago, at the initiation of CalCOFI (California Cooperative Oceanic Fisheries Investigations) in which a large-scale sea program was set up to investigate the distribution and abundance of sardine spawning, and the factors underlying fluctuations in survival of the early life-history stages of sardines. The plankton collections not only contained eggs and larvae of sardine but those of most other pelagic fishes in the California Current region. A decision was made to attempt to identify and enumerate all fish larvae in the collections in order to obtain more precise information about the ecological associates of the sardine. At that time few fish larvae, other than those of the sardine and anchovy, could be identified.

Within a few years most kinds of fish larvae were identified to genus or species. Once the larvae were identified and enumerated, it became obvious that this was an exceptionally useful tool for evaluating fish resources. Most oceanic fishes have pelagic eggs and/or larvae that are distributed in or just below the photic zone, i.e. within the upper 150 to 200 m of depth. At no other time in their life histories are so many kinds of fishes associated together—deep-sea fishes (mesopelagic and bathypelagic) as well as epipelagic species—where they can be collected quantitatively with a single type of gear, a plankton net.

Once the larvae of the pelagic fish fauna of a region, such as those in the California Current region, are known, there is a large trans-

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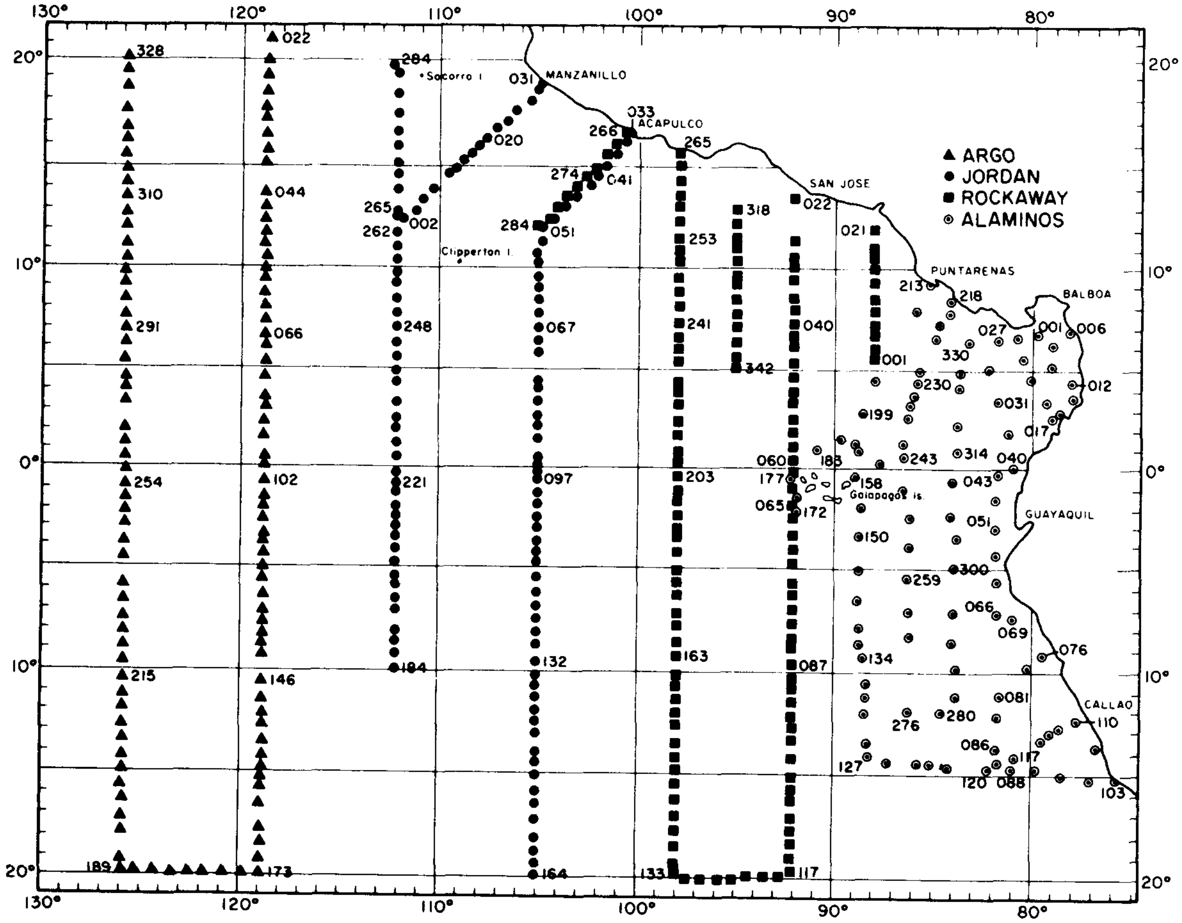

FIGURE 1.—Location of plankton stations occupied by four research vessels participating in EASTROPAC I. Symbols for vessels indicated in legend above. Samples collected from *Argo* are numbered as 11.000 series (as 11.022, 11.173), samples from *David Starr Jordan* as 12.000 series, *Rockaway* samples as 13.000 series and *Alaminos* samples as 14.000 series.

ference of the accumulated knowledge and skills for work in other areas, such as, in this instance, the eastern tropical Pacific. My study was undertaken to demonstrate the value of identifying all elements of the fish fauna of tropical regions, rather than restricting interest to scombrid larvae. Much information can be gained for little extra expense (a few percent of the cost of collecting the material at sea). Of equal consequence, identification of all kinds of fish larvae can be made more critically including scombrid larvae.

METHODS OF MAKING ZOOPLANKTON COLLECTIONS

Three nets, differing in size and in coarseness of mesh, were employed to collect zooplankton and micronekton on EASTROPAC cruises. In this paper I am concerned primarily with oblique hauls made with the net of intermediate size and mesh—a net, 1-m mouth diameter, constructed of 505 μ nylon (Nitex) cloth, with approximately a 5 to 1 ratio of effective straining surface (pore area) to mouth area. This net was paired in an assembly frame with a finer-meshed net when hauled obliquely, but was used alone for taking surface hauls. The finer-meshed net was 0.5 m in diameter at the mouth, constructed of 333 μ Nitex cloth, with approximately an 8 to 1 ratio of effective straining surface to mouth area. The third net, used for collecting micronekton, had a 5-ft square mouth opening and was constructed of mesh measuring approximately 5.5 $\times$ 2.5 mm; this net could not be operated from the research vessel *Rockaway* on EASTROPAC I but was employed from the other three vessels.

Usually four zooplankton collections were made at each "biological" station: an oblique collection and a surface collection with the 1-m net, an oblique collection with the 0.5-m net, and an oblique collection with the micronekton net.

In taking oblique plankton hauls, the 1-m net was paired in an assembly frame with the 0.5 m net. The assembly of nets was fastened to the towing cable by a bridle about 5 m above a 100-lb weight. The assembly was lowered to depth by paying out 300 m of towing cable at the controlled rate of 50 m of wire per minute. The assembly remained at depth for 0.5 min and then was retrieved at a uniform rate of 20 m per min. Total towing time was about 21.5 min. Towing speed was ca. 2 knots. The depth reached by the net was estimated from the angle of stray (departure from the vertical) of the towing cable. We sought to maintain an angle of stray of 45°, which lowered the assembly to a depth of approximately 210 m. Our concern was to sample the upper 200-m stratum. The average depths of hauls taken by the four research vessels are summarized in Table 1. Over 80 % of the hauls made on EASTROPAC I were lowered to depths of 200 m or more, and nearly 95 % reached depths of 180 m or greater. However, two hauls were exceptionally shallow (71-90 m), and nine additional hauls were taken to depths of less than 150 m.

Usually four paired net-assembly hauls were taken per day, spaced at about 6-hr intervals. Although the four hauls were planned to be taken at about midnight, dawn, noon, and sunset, the timing of hauls was not coordinated between research vessels. The middle-of-the-night hauls were all taken before midnight (2201-2400) on *Rockaway*, for example, while on *Argo* most hauls were made after midnight (between 0001 and 0400 hr). The time of day of occupancy of stations (based on the midtime of each haul) is summarized by hourly intervals in Table 2. At least some hauls were taken during every hour of the day, although fewer than 10 (2-8) were obtained during six of the hourly intervals. Fewest hauls were obtained between 0901 and 1000 hr (2 hauls) and between 2101 and 2200 hr (4 hauls), whereas the largest number of hauls were taken between 2201 and 2300 hr (59 hauls) and between 1001 and 1100 hr (53 hauls). Hauls were made with equal frequency during the four periods of the day on *Argo*, *Jordan*, and *Rockaway*; most plankton hauls were taken near midnight or noon from *Alaminos*.

The numbering system for observations employed on EASTROPAC cruises made use of five digits divided into two groups, as 11.022, 12.002, etc. The outer digit preceding the period is the cruise number common to all vessels participating in a given EASTROPAC cruise; for EASTROPAC I, this number is 1. The other digit preceding the period is the identifying number given to each research vessel, with the lowest

TABLE 1.—Depth of paired oblique plankton hauls taken by the four research vessels on EASTROPAC I. (Net lowered by paying out 300 m of towing cable)

Average depth of haul	Number of hauls taken to each depth interval from				
	Argo	*David Starr Jordan*	*Rockaway*	*Alaminos*	All vessels
M					
70.1- 80.0	--	--	--	1	1
80.1- 90.0	--	--	--	1	1
90.1-100.0	--	--	--	--	--
100.1-110.0	--	--	--	1	1
110.1-120.0	--	--	--	--	--
120.1-130.0	2	--	--	3	5
130.1-140.0	1	--	--	1	2
140.1-150.0	--	1	--	--	1
150.1-160.0	--	--	1	2	3
160.1-170.0	2	--	2	2	6
170.1-180.0	2	2	2	1	7
180.1-190.0	15	5	4	5	29
190.1-200.0	21	10	11	10	52
200.1-210.0	41	59	58	30	188
210.1-220.0	26	44	57	41	168
220.1-230.0	9	--	3	5	17
230.1-240.0	--	--	1	--	1
Total	119	121	139	103	482

TABLE 2.—Hour of day that paired oblique plankton hauls were taken from the four research vessels participating in EASTROPAC I. (Midtime of haul used.)

Hours of day	Number of hauls taken during each hour of the day from				
	Argo	*David Starr Jordan*	*Rockaway*	*Alaminos*	All vessels
0001-0100	7	10	0	3	20
0101-0200	8	7	0	2	17
0201-0300	5	2	0	0	7
0301-0400	9	0	7	0	16
0401-0500	1	1	17	1	20
0501-0600	2	9	10	3	24
0601-0700	7	10	1	1	19
0701-0800	13	10	0	0	23
0801-0900	7	0	0	0	7
0901-1000	0	0	0	2	2
1001-1100	1	0	26	26	53
1101-1200	1	5	5	10	21
1201-1300	7	22	3	1	33
1301-1400	12	3	1	4	20
1401-1500	8	0	0	0	8
1501-1600	1	1	12	1	15
1601-1700	0	0	10	3	13
1701-1800	8	6	12	6	32
1801-1900	7	19	1	0	27
1901-2000	10	1	0	0	11
2001-2100	3	3	0	0	6
2101-2200	0	1	0	3	4
2201-2300	2	2	23	32	59
2301-2400	0	9	11	5	25
Total	119	121	139	103	482

number given to the offshore vessel. The three digits following the period are numbers given to observations made from each vessel during a cruise, numbered sequentially. Not all "stations" included oblique plankton hauls; hence there are gaps in numbers applied to plankton collections.

The locations of plankton stations occupied by the four research vessels participating in EASTROPAC I are shown in Figure 1. Samples collected from the *Argo* are designated as the 11.000 series, samples from the *David Starr Jordan* as 12.000 series, *Rockaway* samples as 13.000 series and *Alaminos* samples as 14.000 series. In tables to follow, the series of samples taken by each vessel is designated by the above identifying series numbers. The aggregate of stations occupied by each vessel is referred to in text discussions as its pattern.

PROCESSING SAMPLES ASHORE

As noted above, only samples from 1-m oblique net hauls were sorted routinely for fish eggs and larvae. As a rule the entire sample was sorted; in fact only six collections out of 482 were aliquoted — four collections were split into 50 % aliquots, two collections into 25 % aliquots.

The author made all identifications and counts of larvae from EASTROPAC I collections. Actual counts of larvae rather than standardized values (see below) are used in tabulation throughout this paper, except one (Table 7). There are several reasons why I chose to do this. As indicated previously, all hauls were made in a roughly comparable fashion. In many studies the investigator is interested in the presence or absence of the larvae of a given species or assemblage of species as such relate to water masses, community composition, time of day, etc. Such information is most readily obtained from records of actual counts. Some statistical tests require the use of original counts rather than standardized data. For persons interested in deriving standardized counts comparable with those employed for CalCOFI data (Ahlstrom, 1953), standard haul factors for the 482 oblique hauls taken with the 1-m net on EASTROPAC I are given in Appendix Table 7.

Two major considerations in the quantitative sampling of fish larvae for resources evaluation are (1) how well has their depth range been covered and (2) how effectively have the larvae been sampled within this layer?

We do not have direct answers to either of these questions from EASTROPAC cruises. No studies were made on depth distributions of fish eggs and larvae in the EASTROPAC area. As will appear, fewer fish larvae were obtained during daylight hours than in night hauls; however, we lack information on how completely larvae were sampled in night hauls.

DEPTH DISTRIBUTION OF FISH LARVAE

Although collecting methods used on EASTROPAC did not permit a study of depth distribution of fish larvae, such information for the California Current region off California and Baja California and in a less detailed way for the NORPAC Expedition of 1955 are available (Ahlstrom, 1959).

In the California Current region, most fish eggs and larvae were distributed within the upper mixed layer or in the upper portion of the thermocline, between the surface and approximately 125 m. Of the 15 most common kinds of fish larvae taken in vertical distribution series, 12 were so distributed (ibid., p. 134). Two of the kinds that occurred most commonly below the thermocline were bathylagid smelts, closely related to the two common bathylagid smelts taken on EASTROPAC I.

On the NORPAC Expedition of August 1955, two depth strata were sampled at most stations; a closing net, fastened to the towing cable 200 m below a standard open plankton net, sampled the level between 262 and 131 m on the average, while the upper net sampled from the surface to approximately 131 m deep. Only about one-ninth as many larvae were taken in the closing net hauls as in the upper net hauls; fully half of these were larvae of hatchetfish, family Sternoptychidae, largely absent from upper net hauls. The two most abundant kinds of fish larvae taken on EASTROPAC I were those of the myctophid lanternfish, *Diogenichthys laternatus,* and of the gonostomatid lightfish, *Vinciguerria* spp. In NORPAC collections, only 3 % of the larvae of *D. laternatus* were taken in the closing net hauls and only 2 % of the *Vinciguerria* larvae. Among the kinds of larvae common to both the NORPAC and EASTROPAC surveys that occurred in significant numbers in the deeper NORPAC collections were those of *Chauliodus* (72 % taken in closing net hauls), *Protomyctophum* (48 %) and *Idiacanthus* (32 %).

Inasmuch as the vertical distribution studies in the California Current region had pointed up the importance of the thermocline in the depth distribution of larvae, the pattern of thermocline depth was analyzed for EASTROPAC I (Table 3).

Thermocline depth was invariably shallow in the inner pattern occupied by *Alaminos* (data not included in Table 3); the greatest depth recorded was only 40 m, and the majority of observations were at depths shallower than 20 m. Along the six station lines covered in Table 3, thermocline depths were shallowest near the equator, and usually were deepest at the northern (20-15° N) and southern (15-20° S) ends of the lines. The thermocline also deepened offshore; approximately three-fourths of the records of thermocline depths of 50 m or greater were from the two outer lines, occupied by *Argo.*

Most oblique plankton hauls taken on EASTROPAC I sampled to depths of 200 m or more (Table 2), hence sampled considerably deeper than the thermocline in all parts of the EASTROPAC area.

EFFECTIVENESS OF SAMPLING FISH LARVAE IN DAYLIGHT HAULS AS COMPARED WITH NIGHT HAULS

Fewer fish larvae were obtained in hauls made during daylight hours than at night (Table 4). Original (unstandardized) counts of larvae averaged 2.76 times as many in night hauls as in day hauls, 285 larvae per occupancy as compared with 103 larvae. Hauls made within 1 hr of sunrise or sunset contained intermediate numbers of larvae, averaging 217 larvae per occupancy.

TABLE 3.—Summary of records of thermocline depths along six station lines occupied by the research vessels *Rockaway, David Starr Jordan,* and *Argo* on EASTROPAC I.

Station line along longitude	Range in depth of thermocline (m) at latitudes								All latitudes
	20-15° N	15-10° N	10-5° N	5° N-0°	0-5° S	5-10° S	10-15° S	15-20° S	
92° W	--	0-15	7-14	5-29	0-16	15-40	24-45	30-54	0-54
98°	16-30	13-68	23-44	5-13	2-27	13-32	20-48	40-60	2-68
105°	--	37-50	27-44	0-20	0-28	23-45	26-55	54-66	0-66
112°	8-42	41-79	32-58	0-37	2-22	33-52	--	--	0-79
119°	36-67	44-90	42-55	0-85	0-65	34-76	50-73	30-71	0-90
126°	52-116	45-79	35-49	0-42	0-60	40-71	43-71	43-70	0-116
% obs. with T. D. shallower than 10.1 m	17 %	8 %	7 %	46 %	43 %	0	0	0	20 %
% obs. with T. D. deeper than 49.9 m	56 %	46 %	9 %	11 %	9 %	25 %	35 %	63 %	26 %

TABLE 4.—Occurrence (positive hauls) and abundance (original counts) of fish larvae in day hauls as compared with night hauls and with hauls taken within 1 hr of sunrise or sunset, summarized by family and vessel pattern.

Vessel pattern and family	Day hauls			Night hauls				Hauls within ± 1 hr of sunrise or sunset			Total hauls		
	Number positive hauls	Total larvae	Average number per occupancy ($\bar{D}$)	Number positive hauls	Total larvae	Average number per occupancy ($\bar{N}$)	$\bar{N}/\bar{D}$	Number positive hauls	Total larvae	Average number per occupancy	Number positive hauls	Total larvae	Average number per occupancy
11.000 series													
Argo	(44)[1]			(42)				(33)			(119)		
Myctophidae	43	1,129	25.7	42	4,412	105.0	4.09	33	1,452	44.0	118	6,993	58.8
Gonostomatidae	44	727	16.5	42	2,619	62.4	3.78	32	1,317	39.9	118	4,663	39.2
Sternoptychidae	36	327	7.4	33	343	8.2	1.10	21	253	7.7	90	923	7.8
Bathylagidae	15	96	2.2	21	103	2.4	1.12	13	85	2.6	49	284	2.4
Melamphaidae	26	65	1.5	23	65	1.6	1.05	17	35	1.1	66	165	1.4
Scombridae	5	21	0.5	13	29	0.7	1.44	8	187	5.7	26	237	2.0
All others	42	687	15.6	42	1,012	24.1	1.54	32	555	16.8	116	2,254	18.9
Total	44	3,052	69.4	42	8,583	204.4	2.95	33	3,884	117.8	119	15,519	130.5
12.000 series													
Jordan	(34)			(37)				(50)			(121)		
Myctophidae	34	1,257	37.0	37	5,389	145.6	3.94	50	4,628	92.6	121	11,274	93.2
Gonostomatidae	32	451	13.3	37	2,417	65.3	4.91	49	1,914	38.1	118	4,782	39.5
Sternoptychidae	22	452	13.3	21	503	13.6	1.02	31	757	15.1	74	1,712	14.1
Bathylagidae	20	105	3.1	20	168	4.5	1.45	33	223	4.5	73	496	4.1
Melamphaidae	21	43	1.3	28	58	1.6	1.25	28	70	1.4	77	171	1.4
Scombridae	9	80	2.4	16	129	3.5	1.49	19	133	2.7	44	342	2.8
All others	34	766	22.5	37	2,009	56.8	2.52	49	1,244	24.9	120	4,109	34.0
Total	34	3,154	92.9	37	10,763	290.9	3.13	50	8,969	179.5	121	22,886	189.1
13.000 series													
Rockaway	(65)			(59)				(15)			(139)		
Myctophidae	65	3,761	57.9	58	8,557	145.0	2.50	14	2,911	194.1	137	15,229	109.6
Gonostomatidae	62	1,138	17.5	59	5,608	95.0	5.43	14	1,383	92.2	135	8,129	58.5
Sternoptychidae	47	798	12.3	45	829	14.1	1.14	14	534	35.6	106	2,161	15.5
Bathylagidae	43	475	7.3	37	411	7.0	0.95	13	189	12.6	93	1,075	7.7
Melamphaidae	42	130	2.0	43	132	2.2	1.12	11	59	3.9	96	321	2.3
Scombridae	30	131	2.0	29	435	7.4	3.65	10	39	2.6	69	605	4.4
All others	62	1,009	15.5	59	2,422	41.1	2.65	15	429	28.6	136	3,860	27.8
Total	65	7,442	114.5	59	18,394	311.8	2.72	15	5,544	369.6	139	31,380	225.8
14.000 series													
Alaminos	(50)			(46)				(7)			(103)		
Myctophidae	46	2,523	50.5	43	6,640	144.3	2.86	7	2,254	322.0	96	11,417	110.8
Gonostomatidae	41	874	17.5	41	2,550	55.4	3.17	6	1,048	149.7	88	4,472	43.4
Sternoptychidae	31	312	6.2	31	565	12.3	1.97	5	14	2.0	67	891	8.7
Bathylagidae	40	1,015	20.3	43	1,809	39.3	1.94	6	201	28.7	89	3,025	29.4
Melamphaidae	28	69	1.4	26	104	2.3	1.64	5	27	3.9	59	200	1.9
Scombridae	16	65	1.3	25	448	9.7	7.49	5	222	31.7	46	735	7.2
All others	45	1,406	28.1	45	2,557	55.6	1.98	6	621	88.7	96	4,584	44.5
Total	46	6,264	125.3	46	14,673	318.9	2.55	7	4,387	626.7	99	25,324	245.9
Complete EASTROPAC I	(193)			(184)				(105)			(482)		
Myctophidae	188	8,670	44.9	180	24,998	135.9	3.03	104	11,245	107.1	472	44,913	93.2
Gonostomatidae	179	3,190	16.5	179	13,194	71.7	4.35	101	5,662	53.9	459	22,046	45.7
Sternoptychidae	136	1,889	9.8	140	2,240	12.2	1.24	71	1,558	14.8	337	5,687	11.8
Bathylagidae	118	1,691	8.8	121	2,491	13.5	1.54	65	698	6.7	304	4,880	10.1
Melamphaidae	117	307	1.6	120	359	1.9	1.23	61	191	1.8	298	857	1.8
Scombridae	60	297	1.5	83	1,041	5.7	3.68	42	581	5.5	185	1,919	4.0
All others	183	3,868	20.0	183	8,090	44.0	2.20	102	2,849	27.2	468	14,807	30.7
Total	189	19,912	103.1	184	52,413	284.9	2.76	105	22,784	217.0	478	95,109	197.3

[1] Total number of hauls.

Larvae of some families of fishes were sampled almost as well in day hauls as in night hauls —including Sternoptychidae, Bathylagidae, and Melamphaidae. In contrast, less than one-fourth as many gonostomatid larvae and one-third as many myctophid larvae were taken in day hauls, on the average, as in night hauls. Catches of scombrid larvae were more variable with regard to time of sampling—the night-day ratio in the outer half of the EASTROPAC area was only about 1.5 to 1, whereas the ratio jumped to about 7.5 to 1 in the inner pattern occupied by *Alaminos*. Larvae collected about in equal amounts in day and night hauls were those known to occur principally below the thermocline.

Despite the lower abundance of larvae in day hauls as compared with night hauls, the percentage of hauls containing larvae of most families was only slightly lower (Table 5). The most marked day/night difference in frequency of occurrence was for scombrid larvae, these were taken in 45 % of night hauls, but in only 31 % of day hauls. In the discussions that follow I make use of all collection data, irrespective of time of collection.

TABLE 5.—Percentage of hauls containing larvae of the more abundant fish families on EASTROPAC I, grouped by day, night and dawn or sunset.

Family	Day hauls	Night hauls	Dawn or sunset hauls (± 1 hr)	All hauls
	%	%	%	%
Myctophidae	97.4	97.8	99.0	97.9
Gonostomatidae	92.7	97.3	95.2	95.0
Sternoptychidae	70.5	76.1	67.6	69.9
Bathylagidae	61.1	65.2	61.9	62.9
Melamphaidae	60.6	65.2	58.1	61.8
Scombridae	31.1	45.1	40.0	38.4
All others	94.8	99.5	97.1	97.1
Total	97.9	100.0	100.0	99.2

NUMBERS OF FISH LARVAE OBTAINED ON EASTROPAC I

Fish larvae were obtained in 478 of 482 oblique plankton tows made with the 1-m plankton net on EASTROPAC I. The number of larvae per collection ranged from 0 to 2,197, averaging 197 larvae (actual counts).

Differences in abundance of larvae with latitude are summarized for the four series in Table 6. Fish larvae were obtained in largest numbers, on the average, in an equatorial band extending from about lat 10° N to 5° S. The least productive waters for fish larvae were in the central water mass of the South Pacific, especially between lat 15° and 20° S.

Abundance of fish larvae also decreased offshore, averaging only 130 larvae per haul in the outer pattern, occupied by *Argo*, as compared with 246 larvae per haul in the inner pattern, occupied by *Alaminos*.

Tropical waters and oceanic waters are usually considered to be relatively unproductive, compared with temperate coastal regions such as the California Current region (Ryther, 1969). Hence, it is surprising to find that the average number of fish larvae obtained per haul on EASTROPAC I was larger than either on the CalCOFI cruises from the California Current region (Ahlstrom, 1969) or on NORPAC (un-

TABLE 6.—Total catches of fish larvae (actual counts) taken by the four research vessels on EASTROPAC I, summarized by latitude.

Latitude	*Argo* 11.000 Series		*David Starr Jordan* 12.000 Series		*Rockaway* 13.000 Series		*Alaminos* 14.000 Series		Total EASTROPAC I		
	No. hauls	No. larvae	No. hauls	No. larvae	No. hauls	No. larvae	No. hauls	No. larvae	No. hauls	No. larvae	Average no. larvae per haul
20° N-15° N	16	1,070	20	4,128	5	462	--	--	41	5,660	138.0
15° N-10° N	14	1,372	23	3,130	26	5,508	--	--	63	10,010	158.0
10° N- 5° N	14	2,516	14	3,344	29	10,104	15	5,167	72	21,131	293.5
5° N- 0°	14	4,797	15	4,403	14	4,331	27	11,329	70	24,860	355.1
0° - 5° S	14	2,089	18	5,454	14	4,350	17	5,042	63	16,935	268.8
5° S-10° S	13	1,370	15	1,051	14	2,360	16	2,113	58	6,894	118.9
10° S-15° S	14	1,512	8	863	15	2,337	28	1,673	65	6,385	98.2
15° S-20° S	20	793	8	513	22	1,928	--	--	50	3,234	64.7
Total	119	15,519	121	22,886	139	31,380	103	25,324	482	95,109	197.3

published data). Standard haul totals of larvae are used in this comparison (Table 7) not original counts. CalCOFI cruises repeatedly surveyed a coastal area extending 200 to 300 miles offshore between San Francisco, California, and Magdalena Bay, Baja California. NORPAC was the first comprehensive survey of the North Pacific, made in August-September 1955; the area surveyed by four CalCOFI vessels participating in NORPAC was between lat 20° and 45° N and offshore to long 150° W.

TABLE 7.—Comparison of the average number of fish larvae obtained per haul (standard haul values) EASTROPAC I, NORPAC, and CalCOFI cruises.

Cruises	Year	Number hauls	Average depth of hauls	Total number of fish larvae[1]	Average number larvae/haul
EASTROPAC I	1967	482	ca. 200 m	274,131	569
NORPAC	1955	196	ca. 260 m	27,000	[2]138
CalCOFI cruises	1956	1,407	ca. 140 m	408,140	290
	1957	1,493	ca. 140 m	493,550	331
	1958	1,852	ca. 140 m	456,020	246
	1959	2,182	ca. 140 m	470,450	216
	1960	1,826	ca. 140 m	504,980	277

[1] Standard haul totals.
[2] Data from two net hauls combined: an average of 124 larvae per haul were taken in upper net hauls (0 to 130 m) and an average of 14 larvae per haul in closing net hauls, sampling between ca. 260 and 130 m.

EASTROPAC hauls sampled a somewhat deeper stratum than hauls made on CalCOFI cruises, ca. 200 m as compared to ca. 140 m. As indicated previously, information is available for the majority of NORPAC stations on the relative abundance of fish larvae in the level between ca. 130 and 260 m (closing net hauls) as compared with the level above, 0 to 130 m. Only about one-ninth as many larvae were taken in the deeper hauls.

The difference between catches of larvae on EASTROPAC I and NORPAC are particularly marked—four times as many larvae were taken per haul, on the average, on EASTROPAC I as on NORPAC (both nets combined). For comparison with shallower CalCOFI hauls, I am assuming that 10 % of the EASTROPAC larvae were obtained in the level between ca. 140 and 200 m. The adjusted value for EASTROPAC larvae, 512 larvae per haul, on the average, is 1.55 times as large as the highest CalCOFI value listed (331 larvae per haul in 1957) and 2.35 times as large as the lowest value (216 larvae per haul in 1959).

The majority of EASTROPAC larvae were those of fishes which never attain a large size as adults—myctophids, gonostomatids, sternoptychids, etc.—hence numbers of larvae, per se, cannot be considered reliable indices of biomass. The familial composition of larvae was not dissimilar on NORPAC and EASTROPAC, however; hence this comparison of relative abundance of larvae is more relevant, as regards biomass, than the comparison with CalCOFI fauna.

KINDS OF FISH LARVAE OBTAINED ON EASTROPAC I

The kinds of larvae obtained on EASTROPAC I are summarized by family and vessel pattern in Table 8, the principal summary table in this paper. Larvae of more than 50 families are listed, but larvae of 10 families contributed 90 % of the total. The myctophids were the dominant group with 47.2 % of the larvae occurring in nearly 98 % of the collections. Gonostomatid larvae were about half as numerous, contributing 23.2 % of the larvae while occurring in 95 % of the collections. Hatchetfish larvae (Sternoptychidae) ranked third in abundance with 6 % of the larvae taken in 70 % of the hauls. Bathylagid larvae also exceeded 5 % of the total and occurred in 63 % of the collections. Scombrid larvae ranked fifth and exceeded 2 % of the count, followed by Bregmacerotidae, 1.9 %, Paralepididae, 1.7 %, Idiacanthidae, 1.0 %, Nomeidae, 1.0 %, and Melamphaidae, 0.9 %. About one-third of the remaining larvae were too poorly preserved (disintegrated) to identity.

On the basis of larval abundance, the dominant orders of fishes in oceanic waters are the Myctophiformes and Salmoniformes, making up between 85 and 88 %; the latter value assumes a proportionate representation of larvae of these groups in the "disintegrated" category, i.e., larvae too damaged or disintegrated to identify with certainty. Despite the dominance of fishes of the above two orders, a number of other groups of fishes are represented in the oceanic pelagic fish fauna. The berycoid fishes are rep-

TABLE 8.—Occurrences and counts of fish larvae taken in oblique 1.0-m plankton hauls on EASTROPAC I, summarized by family or larger grouping and by research vessel.

Family or larger grouping	Basic station data contained in Appendix Table no.		*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I	
	By family or larger grouping	By genus or species	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae
[1]*1 Clupeidae	4		0	0	1	1	3	5	6	75	10	81
*2 Engraulidae	4		0	0	1	2	2	20	7	183	10	205
*3 Argentinidae		3	8	12	22	54	11	19	2	2	43	87
*4 Bathylagidae	1	3	49	284	73	496	93	1,075	89	3,025	304	4,880
*5 Gonostomatidae	1	3	118	4,663	118	4,782	135	8,129	88	4,472	459	22,046
*6 Sternoptychidae	1		90	923	74	1,712	106	2,161	67	891	337	5,687
*7 Astronesthidae	1		5	6	4	4	1	1	2	2	12	13
*8 Chauliodontidae	1		19	37	23	75	20	30	18	23	80	165
*9 Idiacanthidae	1		42	147	46	395	46	311	33	107	167	960
*10 Other Stomiatoidei	1	3	41	77	58	155	60	170	44	100	203	502
*11 Synodontidae	4		0	0	1	1	2	2	7	38	10	41
*12 Chlorophthalmidae			0	0	0	0	1	4	0	0	1	4
*13 Myctophidae	1	2	118	6,993	121	11,274	137	15,229	96	11,417	472	44,913
*14 Paralepididae	1	3	67	242	97	558	82	523	44	325	290	1,648
*15 Evermannellidae	3		14	20	4	6	9	12	0	0	27	38
*16 Scopelarchidae	1		35	64	46	104	39	120	22	41	142	329
*17 Scopelosauridae		3	2	2	3	3	1	1	3	10	9	16
18 Other Myctophiformes			7	8	2	2	1	2	2	2	12	14
19 Giganturidae			1	1	0	0	0	0	0	0	1	1
*20 Eel leptocephali	1		19	46	15	22	23	38	30	73	87	179
*21 Melamphaidae	1		66	165	77	171	96	321	59	200	298	857
22 Holocentridae			0	0	0	0	3	4	1	1	4	5
*23 Bregmacerotidae	1		62	291	56	825	56	435	21	254	195	1,805
24 Macrouridae			0	0	0	0	1	1	2	2	3	3
25 Scomberesocidae			0	0	0	0	1	1	0	0	1	1
*26 Exocoetidae	1	3	9	15	26	65	28	75	15	34	78	189
27 Trachypteridae	3		13	13	14	16	8	8	10	10	45	47
*28 Gempylidae-Trichiuridae	1	5	19	26	18	28	31	103	35	74	103	231
*29 Scombridae	1	3	26	237	44	342	69	605	46	735	185	1,919
*30 Istiophoridae			2	2	0	0	0	0	0	0	2	2
31 Ammodytidae			0	0	0	0	3	4	4	4	7	8
*32 Apogonidae		3	35	115	15	64	9	23	2	2	61	204
33 Balistidae			0	0	0	0	1	1	1	2	2	3
34 Bramidae	1		28	46	9	10	13	14	9	11	59	81
35 Callionymidae			0	0	0	0	0	0	8	12	8	12
*36 Carangidae	4	3	1	1	7	12	4	84	19	86	31	183
37 Carapidae			0	0	0	0	1	1	2	2	3	3
38 Champsodontidae			5	6	0	0	0	0	0	0	5	6
39 Chiasmodontidae	1		15	43	11	28	20	40	18	30	64	141
*40 Coryphaenidae		3	24	29	23	36	19	25	20	28	86	118
41 Gobiidae	4		0	0	7	17	23	262	30	251	60	530
42 Labridae	4		0	0	3	4	6	8	19	28	28	40
43 Mugilidae			0	0	0	0	0	0	5	9	5	9
*44 Nomeidae	1		39	178	52	346	51	291	36	146	178	961
45 Ophidiidae			1	1	1	1	0	0	4	18	6	20
46 Polynemidae			0	0	0	0	2	3	3	8	5	11
47 Sciaenidae			0	0	1	6	2	4	1	2	4	12
48 Scorpaenidae	4		1	1	5	8	15	41	27	113	48	163
49 Serranidae	4		0	0	3	15	3	53	20	184	26	252
50 Sphyraenidae			0	0	0	0	2	2	1	1	3	3
*51 Tetragonuridae		3	4	5	0	0	2	2	0	0	6	7
52 Triglidae			0	0	0	0	2	4	4	19	6	23
53 Uranoscopidae			0	0	0	0	0	0	1	1	1	1
*54 Bothidae		6	0	0	3	14	24	106	29	79	56	199
*55 Cynoglossidae		6	0	0	5	17	21	102	37	185	63	304
56 Lophiiformes	3		31	48	34	55	37	69	38	95	140	267
57 Other, including unidentified	1		69	257	56	323	54	436	57	523	236	1,539
58 Disintegrated larvae	1		89	515	97	837	90	400	73	1,389	348	3,141
Total			119	15,519	121	22,886	139	31,380	[2]99	25,324	[2]478	95,109

[1] Categories preceded by an asterisk are discussed in the text.
[2] No fish larvae were taken in four hauls of 14.000 series, hence total number of oblique 1.0-m collections was 482.

resented by Melamphaidae, a family of fishes that is almost as ubiquitous as the myctophids or gonostomatids. Fishes of the gadoid family, Bregmacerotidae, also are widely distributed in the warmer waters of all oceans. Among the ubiquitous epipelagics are the flyingfishes, Exocoetidae.

Only a moderate number of perciform fishes are widely distributed in offshore, oceanic waters. Among the more important are fishes of the families Scombridae, Gempylidae, Trichiuridae, Istiophoridae, Coryphaenidae, Bramidae, Nomeidae, Apogonidae, Chiasmodontidae, and Tetragonuridae.

Larvae of some demersal fishes have a much wider offshore distribution than one would associate with the known distribution of adults. Included in this group are larvae of bothid and cynoglossid flatfishes, and larvae of Scorpaenidae, Gobiidae, and Labridae.

Another widely distributed group in oceanic waters are the bizarre ceratioid fishes. The rotund larvae of these fishes were taken in about 30 % of the EASTROPAC collections, always in small numbers.

The basic data on the kinds and numbers of fish larvae obtained in the 482 EASTROPAC I collections are contained in six appendix tables, whose contents are summarized below, and keyed to Table 8 and to other tables in this report.

Appendix Table 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I. This table contains 22 categories, mostly families, but for completeness, a category is included for "other identified larvae," one for "unidentified larvae" and one for "disintegrated larvae" (i.e., larvae too damaged or disintegrated to identify with any certainty).

Appendix Table 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. Myctophid larvae are tabulated by species for 12 kinds, and by genus for 8 kinds. Also included are categories for unidentified myctophids, and total myctophids. A summary of this appendix table is contained in Table 15.

Appendix Table 3.—Counts of selected categories of fish larvae by station. Table contains 23 categories including 10 species, 10 genera, 2 families, and 1 suborder; 9 of these were included in the category "other identified larvae" in Appendix Table 1.

Appendix Table 4.—Summary of occurrences and numbers of larvae of eight families limited in distribution to a broad coastal band or around offshore islands. Only positive stations are included. These eight families also were included in the category " other identified larvae" in Appendix Table 1.

Appendix Table 5.—Numbers and kinds of larvae of Gempylidae-Trichiuridae obtained in EASTROPAC I collections. Only positive stations are included. A summary of this appendix table is given in Table 19.

Appendix Table 6.—Numbers and kinds of flatfish (Pleuronectiformes) larvae obtained in EASTROPAC I collections. Only positive hauls are included. A summary of this appendix table is given in Table 22.

Appendix Table 7.—Standardized haul factors for the 482 oblique 1-m net hauls taken on EASTROPAC I. These factors adjust original counts of larvae to the comparable standard of numbers of larvae in 10 m^3 of water strained per meter of depth fished.

I will not attempt to comment on all 58 categories (family or larger grouping) summarized in Table 8, but will limit my discussion to 31 of these. In order to tie the text discussion closely to this table, I retain the numbers for categories as given in Table 8; those discussed in the text are preceded by an asterisk in this table.

COMMENTS ON LARVAE OF THE MAJOR FISH FAMILIES COLLECTED ON EASTROPAC I

1. CLUPEIDAE
(10 occurrences, 81 larvae)

Three species of clupeid larvae were taken in EASTROPAC I collections—*Opisthonema* sp.

(5 occurrences, 12 larvae), *Etrumeus acuminatus* Gilbert (2 occurrences, 6 larvae), and *Sardinops sagax* (Jenyns) (3 occurrences, 63 larvae). The latter two species were collected in the vicinity of the Galápagos Islands.

2. ENGRAULIDAE
(10 occurrences, 205 larvae)

The majority of the engraulids (5 occurrences, 174 specimens) were those of the Peruvian anchovy, *Engraulis ringens* Jenyns, collected at coastal stations between lat 6° and 13.5° S. Although larvae from only a few surface hauls have been sorted as yet, one haul was outstanding: the surface tow taken at station 14.069 contained 10,466 larvae and transforming specimens of Peruvian anchovy, *E. ringens*. Specimens ranged in size from 3.5 to 37.5 mm; most were between 4.0 and 7.5 mm in length but even transforming specimens, 20.0 to 37.5 mm long, were rather common (83 individuals). In the oblique 1-m haul at this station, 97 anchovy larvae were obtained.

3. ARGENTINIDAE
(43 occurrences, 87 larvae)

Three kinds of argentinid larvae were obtained: *Argentina* sp. (1 specimen), *Nansenia* sp. A (84 larvae), and *Nansenia* sp. B. (2 larvae). The specific identities of the two kinds of *Nansenia* larvae are still uncertain. On EASTROPAC I, *Nansenia* sp. A was taken most commonly in an equatorial band between lat 5° N and 5° S (Fig. 2). Larvae of *Nansenia* sp. A also occur in the southern portion of the area surveyed on cruises of CalCOFI, particularly to the south of Point San Eugenio, Baja California. A *Nansenia* larva with markedly different pigmentation pattern was obtained at station 11.154 in the central water mass of the South Pacific. A similarly pigmented *Nansenia* larva was obtained on NORPAC from the central water mass of the North Pacific.

4. BATHYLAGIDAE
(304 occurrences, 4,880 larvae)

Although two kinds of *Bathylagus* larvae were obtained, one species was taken in only two contiguous southern stations, 12.142 and 12.144. The eyes of the latter were carried on short stalks. The distribution of larvae of the commonly occurring species, *B. nigrigenys* Parr (296 occurrences, 2,987 larvae), was almost identical with that of the myctophid, *Diogenichthys laternatus* (Garman) (Fig. 3). The larvae of neither species occurred in the central South Pacific water mass; on the four outer lines, surveyed by *Argo* and *Jordan*, the occurrences of *B. nigrigenys* larvae ended at about lat 5° S. In the portion of the EASTROPAC area in which larvae of this species were distributed, they occurred in three-fourths of the stations occupied.

In the innermost pattern occupied by *Alaminos*, larvae of *Leuroglossus stilbius urotranus* (Bussing, 1965) were common (37 occurrences, 1,890 larvae). All but four specimens were obtained between lat 10° N and 10° S, and most within 300 miles of the coast (Fig. 2).

5. GONOSTOMATIDAE
(459 occurrences, 22,046 larvae)

Areal occurrence and relative abundance of gonostomatid larvae on EASTROPAC I are summarized in Table 9. They were obtained in 95 % of the hauls and made up approximately 23.2 % of the larvae.

As noted earlier, gonostomatid larvae were markedly more abundant in night hauls than in day hauls: 4.35 times as many, on the average. In contrast, larvae of the closely related hatchetfishes, Sternoptychidae, were taken in only slightly larger numbers at night (1.24 times as many as in day hauls). In the section dealing with depth distribution of fish larvae it was pointed out that the gonostomatid, *Vinciguerria* spp. occurred no deeper than ca. 130 m in NORPAC collections, whereas sternoptychid larvae were inhabitants of the aphotic zone below 130 m. An interesting exception should be noted: gonostomatid larvae of the subfamily Maurolicinae had depth distributions similar to sternoptychid larvae on NORPAC. Larvae of two Maurolicinae, *Maurolicus* and *Araiophos*, genera were taken on EASTROPAC. Although the depth distribution of these genera has not

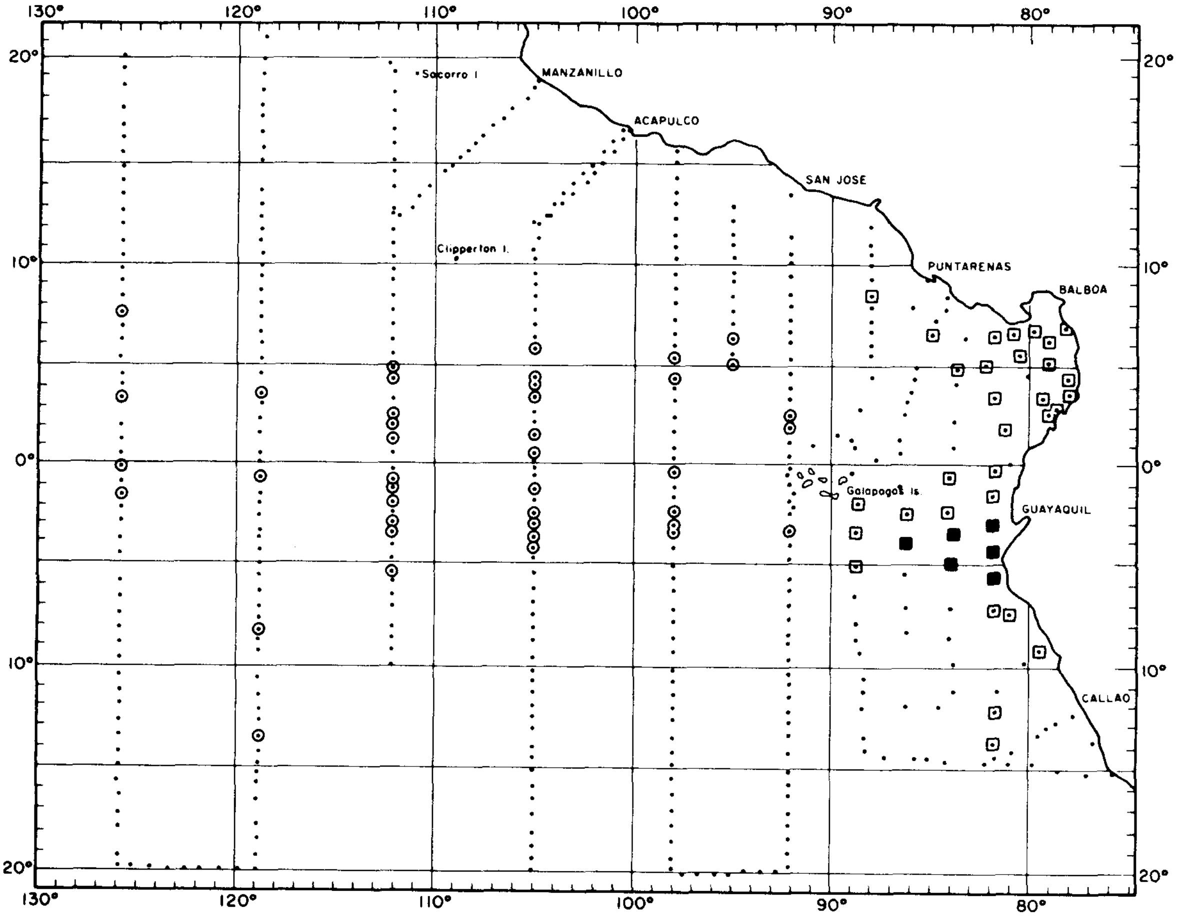

FIGURE 2.—Distribution of larvae of the argentinid, *Nansenia* spp., and of the bathylagid, *Leuroglossus stilbius urotranus* (Bussing) on EASTROPAC I. Records of occurrence of *Nansenia* larvae are shown as open circles with dot in center, while those of *Leuroglossus* larvae are open squares with dot (1 to 100 larvae) or closed squares (101 to 490 larvae). Small solid circles represent other stations occupied on EASTROPAC I.

TABLE 9.—Areal occurrence and relative abundance of larvae of Gonostomatidae on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20° N-15° N	16	418	20	1,534	5	115	--	--	41	2,067	50.4
15° N-10° N	14	380	22	745	24	607	--	--	60	1,732	28.9
10° N- 5° N	13	185	13	242	27	2,085	14	417	67	2,929	43.7
5° N- 0°	14	2,112	15	637	14	1,825	27	1,882	70	6,456	92.2
0° - 5° S	14	409	18	912	14	1,577	16	1,036	62	3,934	63.5
5° S-10° S	13	202	14	161	14	799	10	647	51	1,809	35.5
10° S-15° S	14	635	8	368	15	524	21	490	58	2,017	34.8
15° S-20° S	20	322	8	183	22	597	--	--	50	1,102	22.0
Total	118	4,663	118	4,782	135	8,129	88	4,472	459	22,046	48.0

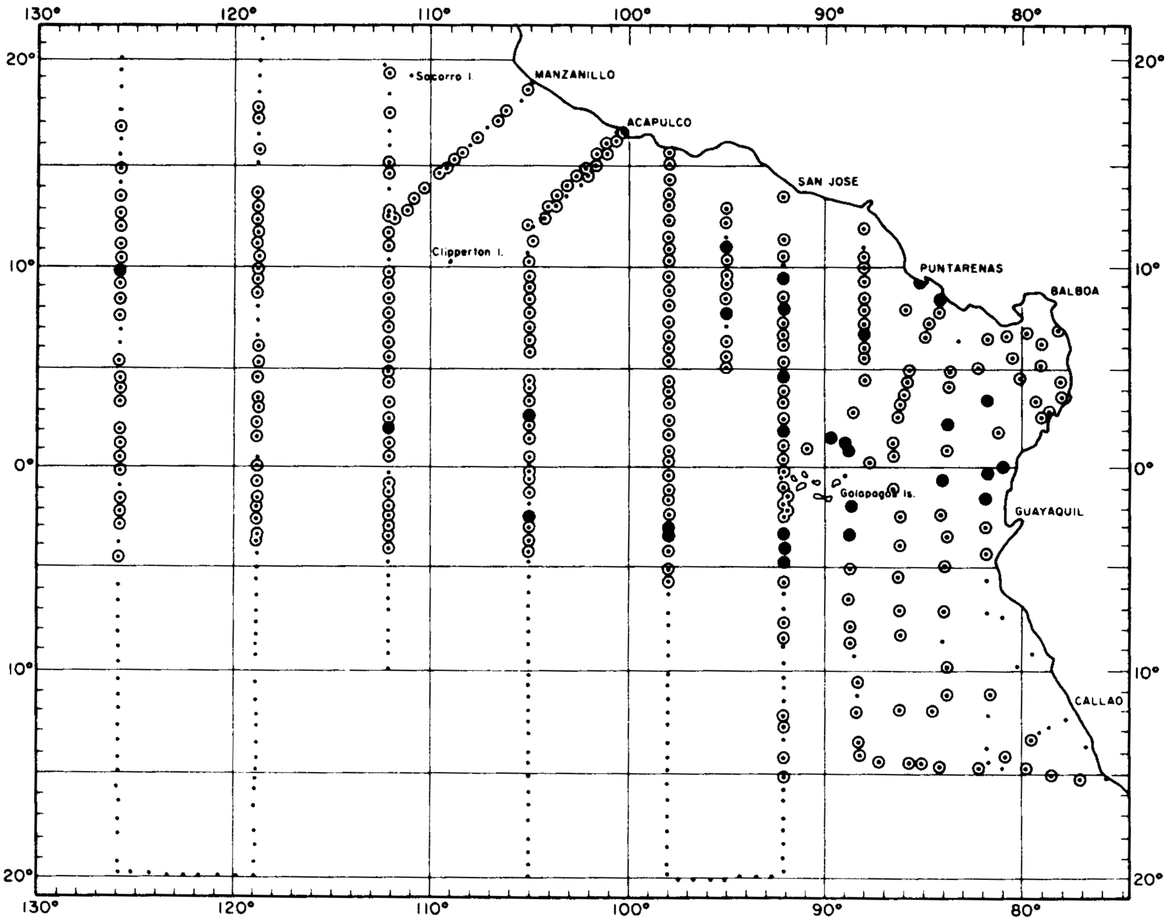

FIGURE 3.—Distribution of larvae of *Bathylagus nigrigenys* Parr on EASTROPAC I. Two orders of abundance are shown: open circles with dot in center represent counts of 1 to 25 larvae, large solid circles represent counts of 26 or more larvae. Small solid circles represent negative hauls.

been determined, they were sampled more fully during daylight hours than other gonostomatids; the night/day ratio for *Maurolicus* and *Araiophos* larvae was ca. 1.6 and 2.0 respectively.

Larvae belonging to six gonostomatid genera were common to abundant (Table 10) and larvae of several additional genera were taken occasionally. Larvae of two genera were of outstanding importance in the EASTROPAC area—*Vinciguerria* and *Cyclothone*. *Vinciguerria occurred* in 87.5 % of the collections, *Cyclothone* in 62.4 %.

Charts showing the distribution and relative abundance of larvae of Gonostomatidae and Sternoptychidae (combined) on EASTROPAC I will be included in the EASTROPAC Atlas.

Araiophos eastropas **Ahlstrom and Moser (18 occurrences, 529 larvae)**

Larvae of *Araiophos eastropas* were obtained only on the outermost pattern to the south of lat 10° S (Fig. 4). Within this limited area it was the most common gonostomatid. The species taken on EASTROPAC represented an undescribed species in a genus that previously

TABLE 10.—Frequency of occurrence and relative abundance of the kinds of gonostomatid larvae on EASTROPAC I.

Gonostomatid larvae	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I	
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae
Araiophos eastropas	18	529	0	0	0	0	0	0	18	529
Cyclothone spp.	94	697	71	582	89	735	47	167	301	2,181
Diplophos taenia	18	51	40	107	14	24	1	1	73	183
Ichthyococcus spp.	7	9	11	16	18	31	5	5	41	61
Maurolicus muelleri	0	0	11	43	19	143	13	78	43	264
Vinciguerria spp.	96	3,339	109	4,011	131	7,179	86	4,211	422	18,740
Other gonostomatids	13	38	9	23	12	17	8	10	42	88
Total	118	4,663	118	4,782	135	8,129	88	4,472	459	22,046

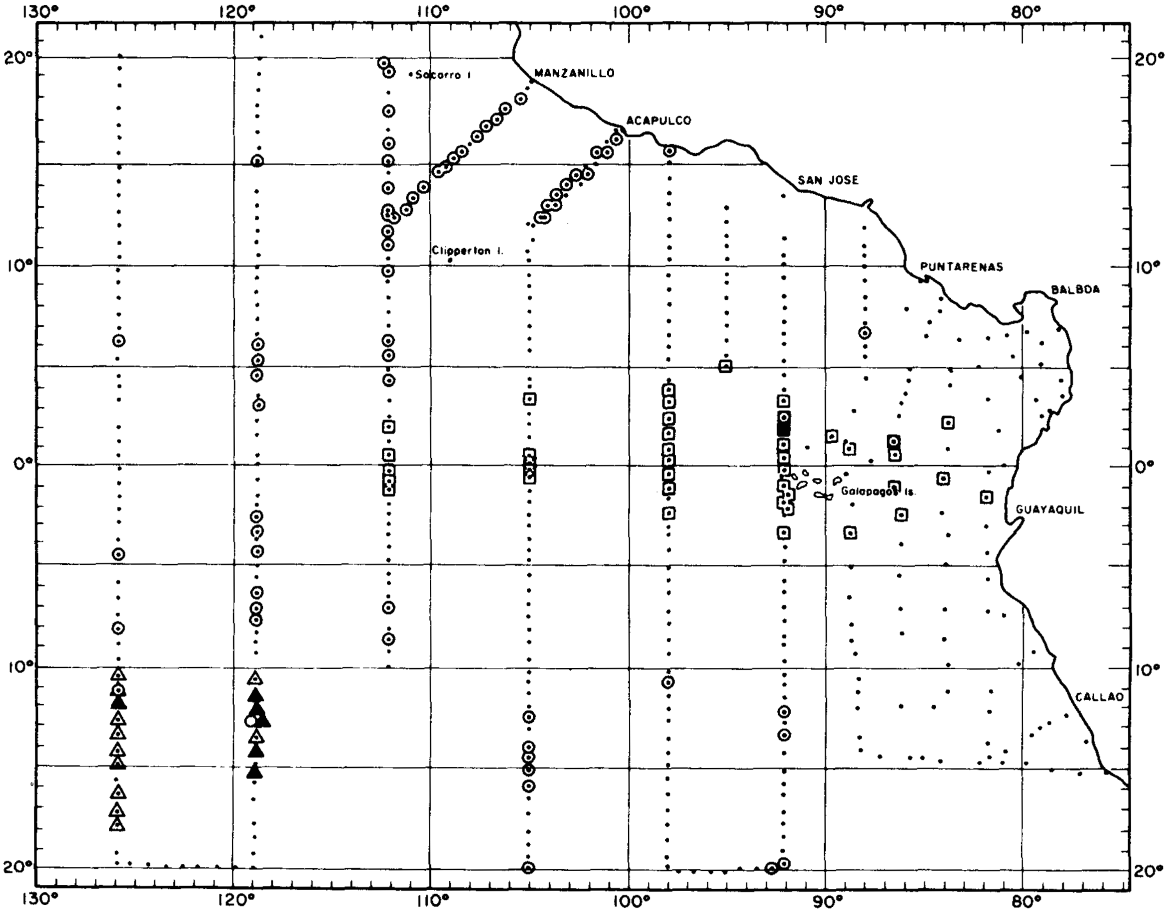

FIGURE 4.—Distribution of larvae of three species of Gonostomatidae on EASTROPAC I. Records of occurrence of larvae of *Araiophos eastropas* Ahlstrom and Moser are shown as triangles, *Diplophos taenia* (Günther) as large open circles, and *Maurolicus muelleri* (Gmelin) as squares. Solid triangles and squares are for counts of 26 or more larvae. Small solid circles represent negative hauls.

was known from a single collection made off Hawaii (Grey, 1961). Adults and larvae were described by Ahlstrom and Moser (1969).

Cyclothone spp. (301 occurrences, 2,181 larvae)

Larvae of *Cyclothone* spp. were taken least frequently in the northern quarter of the EASTROPAC pattern (betweeen lat 10° and 20° N, and in the inner pattern occupied by *Alaminos* (Table 11 and Fig. 5). In the former area, less than 20 % of the hauls (20 of 103) contained *Cyclothone* larvae; in the inshore pattern only about 45 % of the hauls (47 of 103) contained *Cyclothone* larvae. Over the remainder of the EASTROPAC I pattern *Cyclothone* larvae occurred at most stations (234 of 276). The lowest number of larvae per positive haul, 2.15 larvae, was obtained in the northern section; the next lowest, 3.55 larvae per positive haul, in the *Alaminos* pattern. Over the remainder of the pattern, 8.42 larvae were obtained per positive haul.

No attempt was made to identify the larvae of *Cyclothone* to species, and our hauls did not extend deep enough to collect adults.

Diplophos taenia Günther (73 occurrences, 183 larvae)

A study was made of larval and adult specimens of *Diplophos* in an attempt to determine whether the Pacific specimens should be assigned to *D. taenia* or retained as a distinct species, *D. pacificus* Günther. Grey (1960) had placed Pacific specimens in *D. taenia* but later she (Grey, 1964, p. 89) developed reservations because of the consistently lower photophore count of the ventral series in Pacific specimens. Without detailing my observations on *Diplophos*, which I plan to publish separately, I have concluded that our eastern Pacific *Diplophos* is not separable from the Atlantic *D. taenia*.

Larvae of *Diplophos* were taken most commonly to the north of lat 10° N—36 occurrences, 105 larvae (Fig. 4). The remaining 37 occurrences, 78 larvae were distributed throughout the EASTROPAC I pattern.

Ichthyococcus spp. (41 occurrences, 61 larvae)

Two kinds of *Ichthyococcus* larvae were taken on EASTROPAC I. The specific identity of the more common form has been determined as *I. irregularis* Rechnitzer and Böhlke; the other form has yet to be identified to species.

Maurolicus muelleri (Gmelin) (43 occurrences, 264 larvae)

Larvae of this species were taken only on an equatorial band between lat 5° N and 5° S and were not taken in the outer pattern occupied by *Argo* (Fig. 4). This distribution, without additional information, could be misleading. *Maurolicus* is known to have a wide latitudinal distribution in the South Pacific. For example, *Maurolicus* larvae were obtained at lat 33° S on MARCHILE VI, the portion of EASTROPAC II occupied by the Chilean vessel *Yelcho*. We also have collections from south of New Zealand, obtained on an *Eltanin* cruise. The species may be carried northward off South America in the Humboldt Current and then offshore in the equatorial current system.

TABLE 11.—Areal occurrence and relative abundance of larvae of *Cyclothone* spp. on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20° N-10° N	12	31	4	8	4	4	--	--	20	43	2.2
10° N- 0°	24	136	25	137	33	235	23	69	105	577	5.5
0° -10° S	24	179	29	246	20	117	13	43	86	585	6.8
10° S-20° S	34	351	13	191	32	379	11	55	90	976	10.8
Total	94	697	71	582	89	735	47	167	301	2,181	7.2

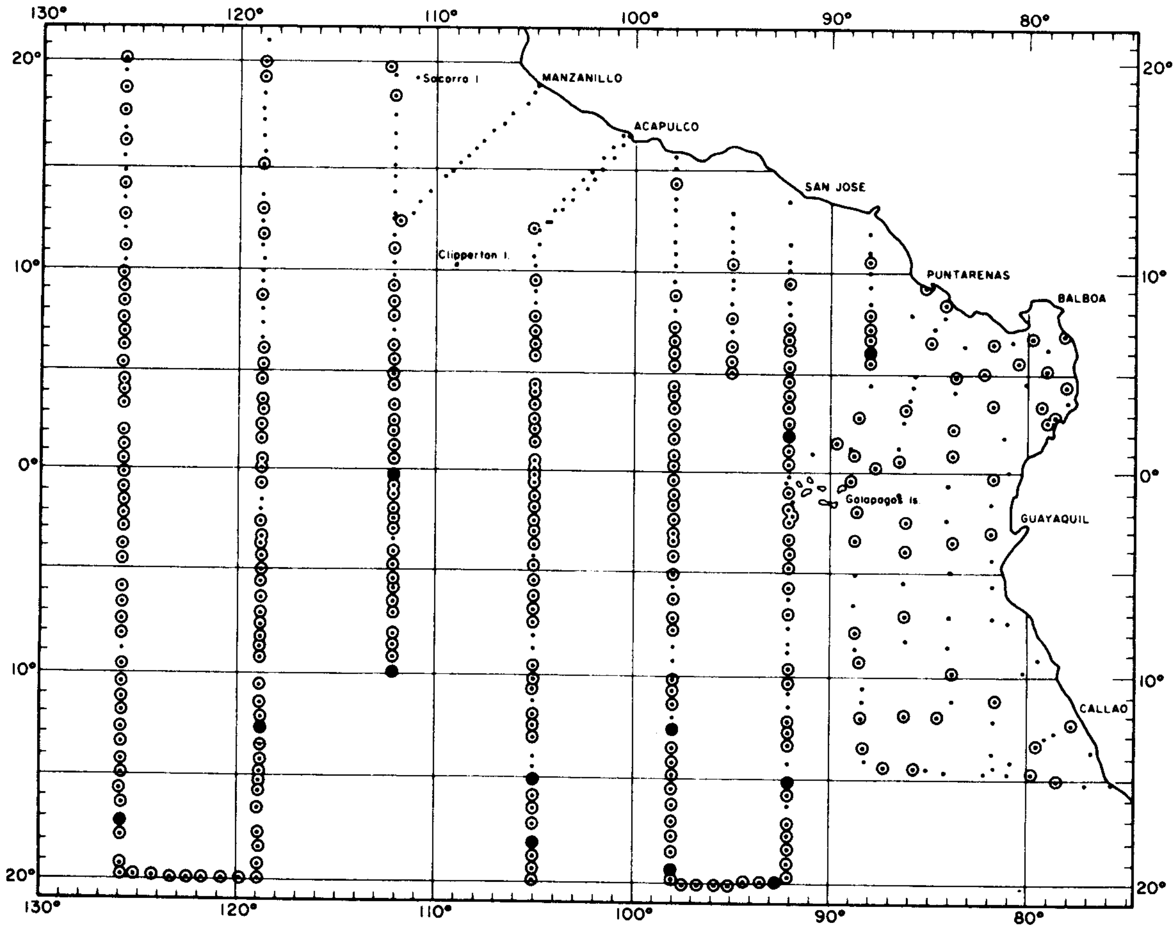

FIGURE 5.—Distribution of larvae of the gonostomatid *Cyclothone* spp. on EASTROPAC I. Collections of 1 to 25 larvae are shown as circles with dot in center, collections of 26 or more larvae as large solid circles; negative hauls are shown as small solid circles.

***Vinciguerria* spp. (422 occurrences, 18,740 larvae)**

Larvae of *Vinciguerria* occurred in more hauls than those of any other genus and ranked second in abundance to the myctophid genus *Diogenichthys*. The distribution of *Vinciguerria* larvae is shown in Figure 6. Although most of the material unquestionably is *V. lucetia* (Garman), some of the collections from offshore and particularly from the central South Pacific water mass between lat 5° and 20° S represent *V. nimbaria* (Jordan and Williams). The larvae of *V. nimbaria* are indistinguishable from those of *V. lucetia* (Ahlstrom and Counts, 1958), hence identification must be made on metamorphosing specimens, juveniles, and adults. The two species are closely allied, but readily separable from *V. poweriae* (Cocco) and *V. attenuata* (Cocco), the other two species of *Vinciguerria*, at all stages of development. A trenchant difference between the two "pairs" of species is the development of a pair of symphyseal photophores under the lower jaw in *V. lucetia* and *V. nimbaria* and the absence of this pair in *V. poweriae* and *V. attenuata*. The two characters most readily used for distinguishing

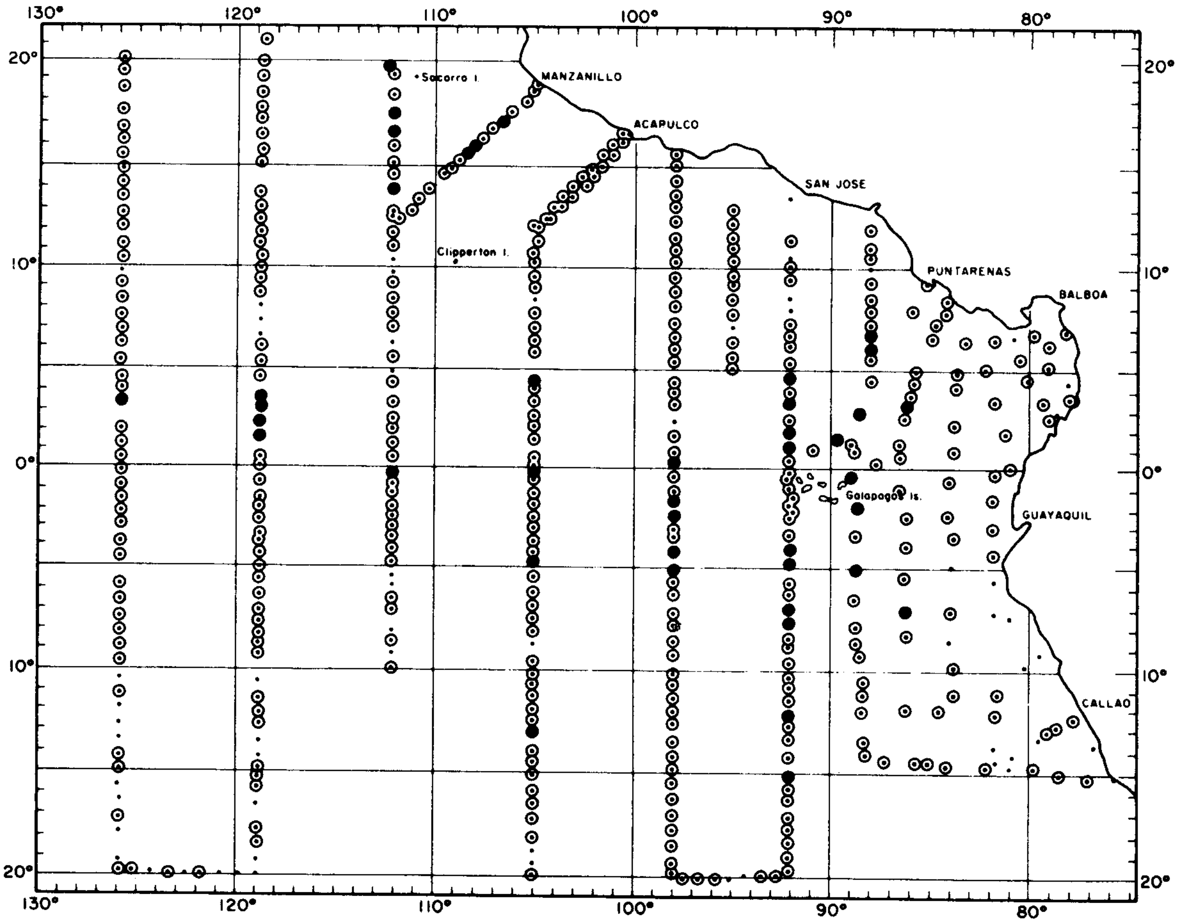

FIGURE 6.—Distribution of larvae of the gonostomatid, *Vinciguerria* spp. on EASTROPAC I. Collections of 1 to 100 larvae are shown as circles with dot in center, collections of 101 or more larvae as large solid circles; negative hauls are shown as small solid circles.

between *V. lucetia* and *V. nimbaria* are (1) number of gill rakers and (2) number of IV (and OV) photophores. Material of *V. nimbaria* studied from the eastern North Pacific (ibid.) had 5 to 6 + 15 gill rakers and 23 to 24 IV photophores (13 to 14 OV photophores) whereas *V. lucetia* had 8 to 10 + 18 to 23 gill rakers and 20 to 23 IV photophores (10 to 13 OV photophores). In the EASTROPAC area, *V. lucetia* maintained the high gill raker counts, but usually had 21 IV (11 OV) photophores. The offshore form referred to *V. nimbaria* usually had 22 IV (12 OV) photophores (1 less per group than in *V. nimbaria* from the temperate North Pacific) and 6 to 7 + 15 to 16 gill rakers (a slightly higher count).

In most areas the adults of the two species of *Vinciguerria* did not co-occur, hence the larvae can be assigned with some assurance to one or the other. For example, all collections made between lat 5° and 20° S from *Argo* and *Jordan* patterns were exclusively *V. nimbaria.* On these patterns the plankton hauls were supplemented by micronekton net hauls, and the latter contained material of *Vinciguerria* juveniles and adults from most stations occupied at night. Unfortunately, the micronekton net was not used on *Rockaway* (12.000 series), and insufficient numbers of older stages (metamorphosing specimens and juveniles) were taken in plankton hauls to permit a meaningful separation of the two species in waters to the south of lat 5° S in this series.

Vinciguerria poweriae (Cocco) co-occurred with *V. nimbaria* in the central water mass of the North Pacific (Ahlstrom and Counts, 1958), but no material of *V. poweriae* was obtained in EASTROPAC collections. However, material of *V. attenuata* (Cocco) was obtained from farther south in the eastern Pacific on the "Downwind Expedition"—hence all four species of *Vinciguerria* do occur in the eastern Pacific.

Other gonostomatids (42 occurrences, 88 larvae)

Included in this category are larvae of two identified genera, *Gonostoma* and *Woodsia,* and several kinds of larvae that are unmistakably gonostomatid, but not identified as to kind.

6. STERNOPTYCHIDAE
(337 occurrences, 5,687 larvae)

Hatchetfish larvae ranked third in abundance (5.98 % of total), exceeded by larvae of Myctophidae and Gonostomatidae. The majority of hatchetfish larvae were those of *Sternoptyx diaphana* Hermann, and most of the remainder of *Argyropelecus lychnus* Garman. Because larvae of Sternoptychidae are more fragile than most other kinds and are usually in poor condition, no attempt was made to identify them to genus or species. Areal occurrence and relative abundance of sternoptychid larvae on EASTROPAC I are summarized in Table 12. Larvae were not only taken in markedly more collections between lat 10° N and 10° S—94 % of the collections were positive as compared with only 41 % in the remainder of the pattern—but more larvae were taken per positive haul—21.1 larvae as compared with 5.2.

7. ASTRONESTHIDAE
(12 occurrences, 13 larvae)

Several kinds of astronesthid larvae were collected in the EASTROPAC area: only one kind had heavy pigmentation on the body; the others were lightly, but characteristically pigmented. Larvae of Astronesthidae are similar in appearance to other stomiatoid larvae; they have a slender, elongated body, and a long intestine that underlies the body for about 7/10 or more of the standard length, and usually has a free terminal, trailing portion that can be quite long, often trailing beyond the caudal fin. Astronesthid larvae can be distinguished readily from other stomiatoid larvae by the forward position of the dorsal fin in relation to the anal fin. Developmental series of astronesthid larvae have not been described in literature. Eleven of the 12 occurrences of astronesthid larvae were taken within 10° ± of the equator.

8. CHAULIODONTIDAE
(80 occurrences, 165 larvae)

Larvae of *Chauliodus* are readily identifiable to genus, but are difficult to separate at the spe-

TABLE 12.—Areal occurrence and relative abundance of larvae of Sternoptychidae on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20° N-15° N	8	44	0	0	0	0	--	--	8	44	5.5
15° N-10° N	6	41	3	31	9	66	--	--	18	138	7.7
10° N- 5° N	14	312	14	479	29	1,006	14	237	71	2,034	28.6
5° N- 0°	14	133	15	430	13	456	22	414	64	1,433	22.4
0° - 5° S	14	140	18	353	14	303	16	129	62	925	14.9
5° S-10° S	12	198	14	317	14	210	10	104	50	829	16.6
10° S-15° S	13	40	8	98	11	83	5	7	37	228	6.2
15° S-20° S	9	15	2	4	16	37	--	--	27	56	2.1
Total	90	923	74	1,712	106	2,161	67	891	337	5,687	16.9

cies level, because of lack of pigmentation. It has not been determined yet whether one or more species of *Chauliodus* occur in the EASTROPAC area. *Chauliodus* larvae were widely distributed, usually occurring singly (50 such occurrences). In only five hauls were six or more larvae obtained per haul; all of these were in the outer patterns occupied by *Jordan* and *Argo*.

9. IDIACANTHIDAE
(167 occurrences, 960 larvae)

It is not known definitely whether one or two species of *Idiacanthus* occur in the eastern Pacific; the problem hinges on whether *I. panamensis* is distinct from *I. antrostomus* Gilbert. Gibbs (1964) considered the two species to be "probably synonymous." In the EASTROPAC area, *Idiacanthus* occurred more frequently in the northern portion of the pattern, between lat 10° and 20° N, as is shown in Table 13.

10. OTHER STOMIATOIDEI
(203 occurrences, 502 larvae)

Larvae belonging to three families are included as other Stomiatoidei—i.e., of Stomiatidae, Melanostomiatidae, and Malacosteidae. The most common larva in this category, that of *Bathophilus filifer* (Garman) (86 occurrences, 227 larvae) is separately tabulated in Appendix Table 3. Larvae of *Eustomias*, representing several species, occurred in 17 collections. Larvae of *Stomias* were separately tabulated from only eight collections; however, a number of larvae tabulated as unidentified stomiatoid larvae undoubtedly are those of *Stomias*. According to Gibbs (1969), no fewer than three species of *Stomias* occur in the eastern Pacific. Many stomiatoid larvae were poorly preserved, and were not identifiable with any certainty.

11. SYNODONTIDAE
(10 occurrences, 41 larvae)

All but three specimens were taken in the inner pattern, occupied by *Alaminos*. Six of the seven occurrences in this pattern were at contiguous stations occupied off Ecuador and the Gulf of Panama (Fig. 7). Synodontidae are coastal forms. No attempt was made to identify the larvae to the species level.

12. CHLOROPHTHALMIDAE
(1 occurrence, 4 larvae)

The only record of *Chlorophthalmus* larvae was from station 13.052. Larvae in this sample ranged from 5.0 to 6.5 mm long. Pigmentation was limited to a large, single peritoneal pigment patch—and to a few small melanophores on the dorsal and ventral margin of the tail soon before the tip of the notochord. Two larger specimens of *Chlorophthalmus* were taken in the micronekton net hauls, a 23.0-mm specimen at station 14.018 and a 39.5-mm specimen at station 14.051. Pigment on both was limited to the peritoneal patch, and a midline melanophore over the hypural complex; otherwise both specimens were milky white, without scales. The larger specimen had the following fin counts: D. 11, A. 11, V. 9, P. 17. These are identical to counts given by Garman (1899) for his species, *C. mento* from the Gulf of Panama, to which our material probably is referable.

TABLE 13.—Areal occurrence and relative abundance of larvae of Idiacanthidae on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20° N-10° N	18	107	34	379	17	149	--	--	69	635	9.2
10° N- 0°	11	19	7	10	14	65	20	56	52	150	2.9
0° -10° S	4	6	2	4	7	44	4	9	17	61	3.6
10° S-20° S	9	15	3	4	8	53	9	42	29	114	3.9
Total	42	147	46	395	46	311	33	107	167	960	5.7

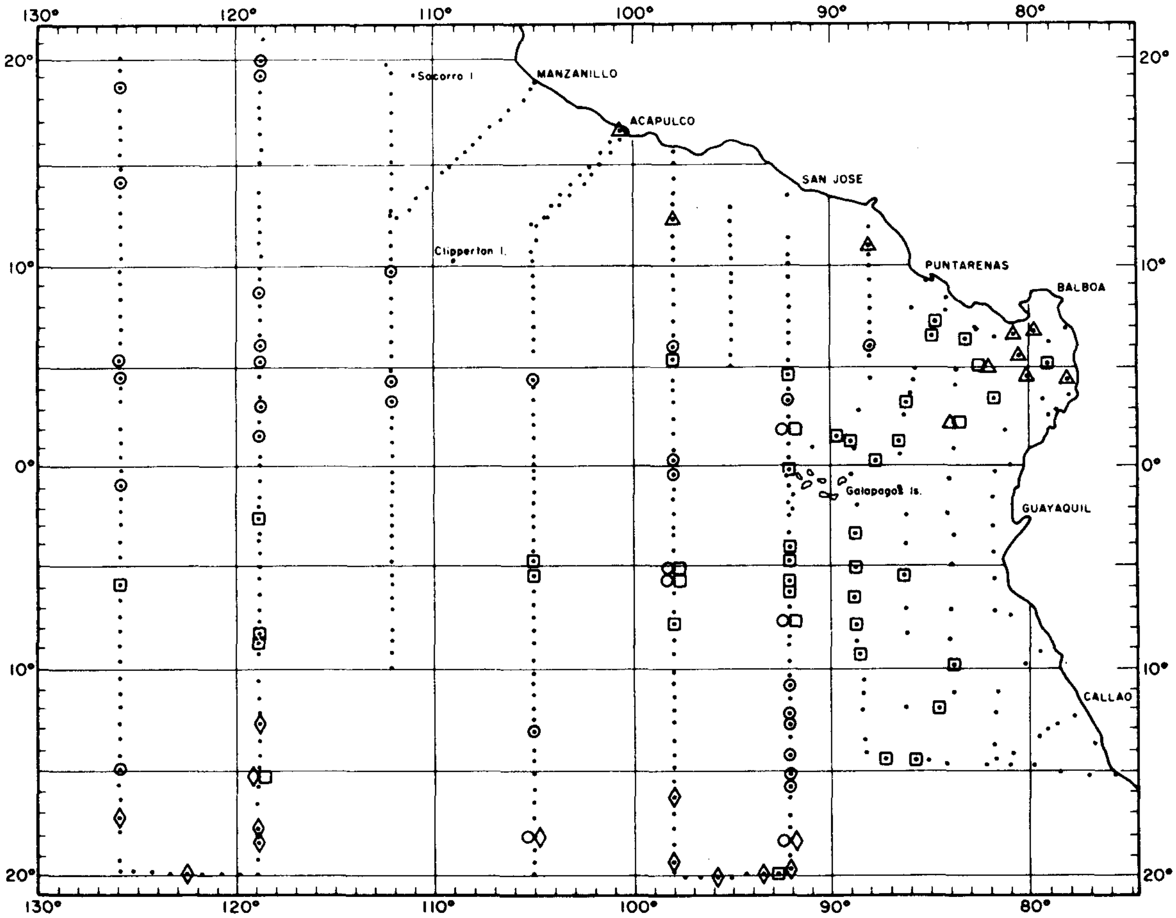

FIGURE 7.—Distribution of larvae of the paralepidids, *Macroparalepis macrurus* Ege and *Sudis atrox* Rofen, of *Synodus* spp., and of the gempylid *Nealotus tripes* Johnson on EASTROPAC I. Records of occurrence of larvae of *Macroparalepis macrurus* are shown as an open circle, larvae of *Sudis atrox* as a diamond, larvae of *Synodus* spp. as a triangle, and larvae of *Nealotus tripes* as a square; negative hauls are shown as small solid circles.

13. MYCTOPHIDAE
(472 occurrences, 44,913 larvae)

Myctophids made up 47.2% of the fish larvae taken on EASTROPAC I. Of the 482 oblique hauls taken on EASTROPAC I, 472 contained myctophid larvae. This dominant group occurred almost everywhere. However, as is shown in Table 14, larger numbers of myctophid larvae were taken per haul between lat 10° N and 5° S.

The myctophid fauna is a large one in numbers of genera and species represented in the eastern tropical Pacific. This diversity is shown in Table 15, in which occurrence and abundance of myctophid larvae are summarized by genus or species; the number of genera listed is 19. Even so, larvae of *Diogenichthys laternatus* made up over half of the total.

The study of larval myctophids is aided by the diversity of larval morphology found in this family, and by the fact that the larvae of most genera have a characteristic form that permits identification to genus, even for genera in which the species composition has not been fully worked out. This point was stressed in two recent papers dealing with identification of myctophid larvae (Pertseva-Ostroumova, 1964; Moser and Ahlstrom, 1970).

Because of the importance of this group in the tropical ichthyoplankton, I will discuss its composition in more detail than for any other family except the Gonostomatidae.

Moser and Ahlstrom (1970) described developmental series for 14 species of lanternfishes with narrow-eyed larvae in the California Current. The following species also occur in the EASTROPAC area: *Electrona rissoi, Diogenichthys atlanticus, D. laternatus, Benthosema panamense, Hygophum atratum, H. reinhardti, Myctophum nitidulum, Loweina rara, Gonichthys tenuiculus,* and *Centrobranchus choerocephalus.*

TABLE 14.—Areal occurrence and relative abundance of larvae of Myctophidae on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20° N-15° N	16	430	20	1,000	5	116	--	--	41	1,546	37.7
15° N-10° N	14	568	23	1,444	24	2,826	--	--	61	4,838	79.3
10° N- 5° N	14	1,323	14	2,136	29	5,856	15	2,730	72	12,045	167.3
5° N- 0°	14	1,988	15	2,327	14	1,325	27	6,075	70	11,715	167.4
0° - 5° S	14	1,233	18	3,413	14	1,635	16	1,209	62	7,490	120.8
5° S-10° S	13	567	15	408	14	994	13	635	55	2,604	47.3
10° S-15° S	14	563	8	296	15	1,362	25	768	62	2,989	48.2
15° S-20° S	19	321	8	250	22	1,115	--	--	49	1,686	34.4
Total	118	6,993	121	11,274	137	15,229	96	11,417	472	44,913	95.2

TABLE 15.—Summary, by genus or species, of occurrences and relative abundance of myctophid larvae in the four vessel patterns occupied on EASTROPAC I.[1]

Myctophid larvae	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I	
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae
Benthosema panamense	0	0	1	63	5	918	1	46	7	1,027
Centrobranchus spp.	0	0	3	4	0	0	0	0	3	[2]4
Ceratoscopelus townsendi-complex	46	235	24	140	42	633	5	12	117	1,020
Diaphus spp.	62	490	96	1,363	72	949	21	71	251	2,873
Diogenichthys laternatus	69	2,202	89	5,259	92	9,089	89	8,775	339	25,325
Diogenichthys atlanticus	3	4	6	11	18	75	2	2	29	92
Electrona sp.	5	6	9	34	19	34	0	0	33	74
Gonichthys tenuiculus	5	8	20	56	39	101	28	67	92	232
Gonichthys sp.	0	0	0	0	0	3	0	0	3	3
Hygophum atratum & *H. reinhardti*	30	177	52	352	37	268	8	90	127	887
Hygophum proximum	67	611	30	215	19	72	0	0	116	898
Lampadena spp.	13	27	10	21	15	71	0	0	38	119
Lampanyctus spp.	99	1,240	96	2,063	107	1,347	74	1,232	376	5,882
Lepidophanes pyrsobolus-complex	7	26	14	109	10	22	3	6	34	163
Lobianchia sp.	2	14	2	3	12	22	0	0	16	39
Loweina rara	18	25	7	11	13	14	4	5	43	56
Myctophum spp.	52	624	48	323	47	160	40	286	187	1,393
Notolynchus valdiviae	40	210	47	290	60	344	11	24	158	868
Notoscopelus resplendens	13	37	21	104	21	73	15	69	70	283
Protomyctophum sp.	3	4	19	37	14	37	0	0	36	78
Symbolophorus evermanni	71	535	47	248	58	381	36	318	212	1,482
Triphoturus spp.	17	33	25	82	54	256	44	135	140	506
Unidentified myctophid larvae	39	98	36	65	62	190	26	56	163	409
Disintegrated myctophid larvae	75	387	60	423	64	170	42	223	241	1,203
Total myctophid larvae	118	6,993	121	11,274	137	15,229	96	11,417	472	44,913

[1] The table summarizes the data presented by individual station in Appendix Table 2.
[2] *Centrobranchus* larvae are included under unidentified myctophid larvae in Appendix Table 2.

Benthosema panamense **(Tåning) (7 occurrences, 1,027 larvae)**

The relatively large number of larvae taken in a few hauls probably results from the adults of this species occurring in more compact aggregations than other myctophids (Alverson, 1961). All occurrences were within a few hundred miles of the coast, mostly off Mexico and Costa Rica. Distribution of larvae of *B. panamense* in the eastern tropical Pacific was illustrated in Moser and Ahlstrom (1970).

Centrobranchus **spp. (3 occurrences, 4 larvae)**

The larvae assigned to *Centrobranchus* represent two kinds; one of these is identical to the larvae described as *C. choerocephalus* (Moser and Ahlstrom, 1970). The other is possibly *C. andrae*.

***Ceratoscopelus townsendi*-complex (117 occurrences, 1,020 larvae)**

Until recently, only two species of *Ceratoscopelus* were recognized: *C. townsendi* (Eigenmann and Eigenmann) and *C. maderensis* (Lowe). The larvae of these two species are distinctively different, especially in pigmentation. Nafpaktitis and Nafpaktitis (1969) concluded that *C. warmingi* (Lutken) was distinct from *C. townsendi* and was the more widely distributed species. They indicated that *C. townsendi* probably was restricted in its distribution to the eastern North Pacific. The major difference between the two species is the presence on *C. townsendi* of a large patch of luminous tissue along the dorsal rim of the orbit on specimens larger than ca. 21 mm SL; otherwise, the two species are almost identical in meristic characters, arrangement of photophores, and the placement of most luminous patches.

Subsequent to the publication of the paper by Nafpaktitis and Nafpaktitis (1969), my colleague, H. G. Moser, and I studied developmental series of *Ceratoscopelus* larvae previously assigned to *C. townsendi*. Moser (unpublished) studied eastern North Pacific material (CalCOFI and NORPAC) and material from the eastern South Pacific obtained on EASTROPAC I; I had the opportunity to examine a number of collections of *Ceratoscopelus* larvae collected by the *Meteor* in the Indian Ocean (through the generosity of W. Nellen of the Institut für Meereskunde, University of Kiel, Germany). Based on criteria of Nafpaktitis and Nafpaktitis, adults from both the Indian Ocean and southern portion of the EASTROPAC area were referable to *C. warmingi*, those from CalCOFI and NORPAC to *C. townsendi*. Larvae from the three regions were strikingly similar in appearance. Observed differences were mostly in rate of development, particularly in the sizes at which fin formation took place and at which photophores developed. Even so, somewhat greater differences were observed between *Ceratoscopelus* larvae from the Indian Ocean and those from the EASTROPAC area, than between larvae from the two eastern Pacific regions. For the present, I choose to call attention to the complexity of this problem by referring EASTROPAC material to the *C. townsendi*-complex.

Distribution of *C. townsendi*-complex larvae on EASTROPAC I is illustrated in Figure 8. Most occurrences were in offshore waters between lat 5° and 20° S, i.e., in the South Pacific central water mass. *Ceratoscopelus* larvae are known to have a complementary distribution in the eastern North Pacific. On the NORPAC Expedition *Ceratoscopelus* larvae were the dominant myctophid in the North Pacific central water mass between ca. lat 20° and 40° N. The occurrences of *Ceratoscopelus* larvae in the *Argo* pattern between lat 17° and 20° N are a fragment of this northern population. The few occurrences of *Ceratoscopelus* larvae in waters of the equatorial current system were small individuals. A few adults also were collected in this region, hence tropical waters may not be a barrier to the interchange of fish between the populations in the North and South Pacific.

Diaphus **spp. (251 occurrences, 2,873 larvae)**

Diaphus, the genus of myctophids with the largest number of species, is represented in the tropical eastern Pacific by a number of larval forms whose specific identities have been worked out only partially.

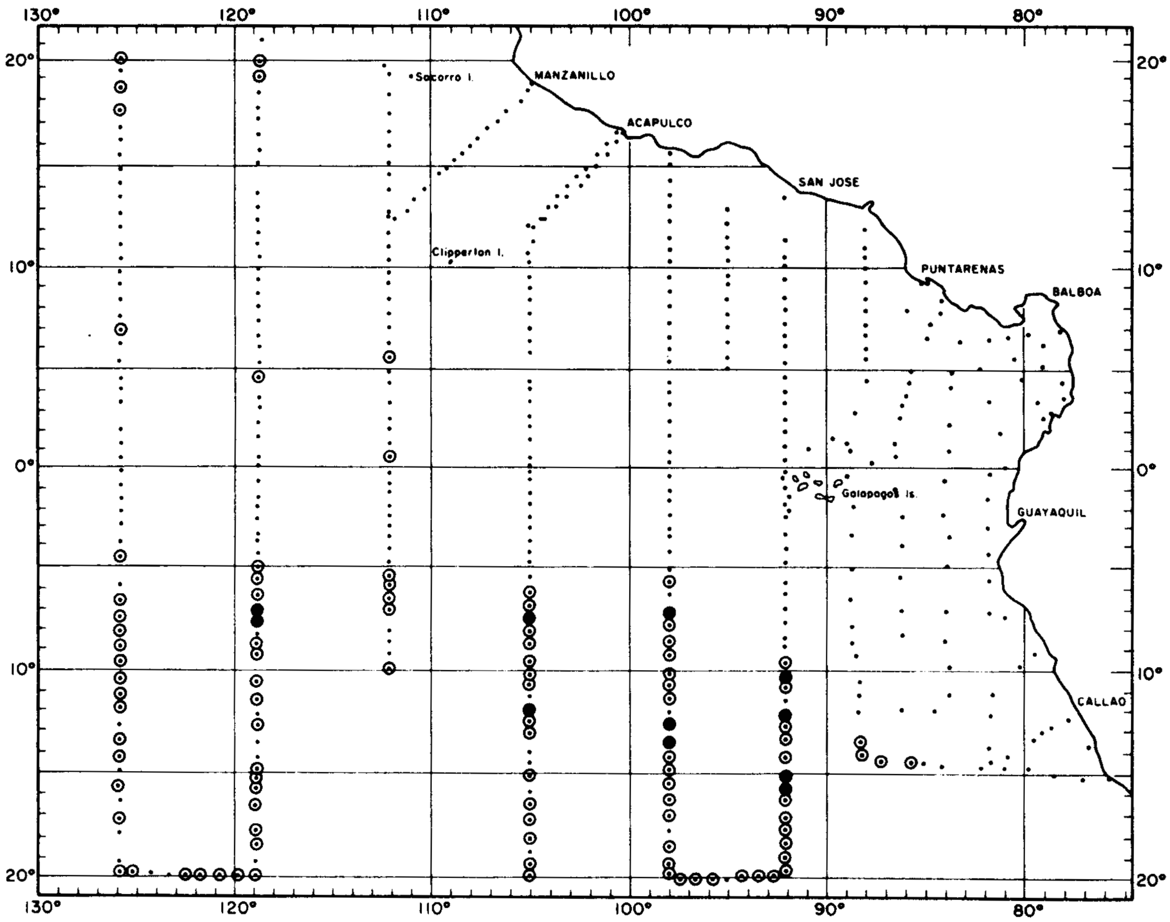

FIGURE 8.—Distribution of larvae of the myctophid, *Ceratoscopelus townsendi*-complex on EASTROPAC I. Collections of 1 to 25 larvae are shown as circles with dot in center, collections of 26 or more larvae as large solid circles; negative hauls are shown as small solid circles.

The genus *Diaphus* is not a natural assemblage, inasmuch as there are two distinctive larval morphs for the species in the EASTROPAC area. One group has slender-bodied larvae with persistent ventral midline pigment on the tail; the adults of this group possess both Vn and So occular photophores (subgenus *Diaphus* of Fraser-Brunner, 1949). The other and larger group has stubby-bodied larvae which usually are but lightly pigmented; in the EASTROPAC area the larvae of *Diaphus pacificus* Parr is a representative example.

Although *Diaphus* larvae were distributed over most of the area covered on EASTROPAC I, they were least common in the inner pattern occupied by *Alaminos* (21 occurrences, 71 larvae) and most consistently taken in the intermediate pattern occupied by *Jordan* (96 occurrences, 1,363 larvae).

***Diogenichthys laternatus* (Garman) (339 occurrences, 25,325 larvae)**

Although this is by far the most abundant kind of larva taken on EASTROPAC I, it did not occur in the central water mass of the South

Pacific (Fig. 9). This species similarly is absent from the central water mass of the North Pacific (Moser and Ahlstrom, 1970). There is a striking similarity in the distributions of larvae of *D. laternatus* and those of *Bathylagus nigrigenys* Parr (Fig. 3) in the EASTROPAC area. *D. laternatus* is one of the smaller species of myctophids, measuring only 20.0 to 30.0 mm as adults; hence its biomass probably is not as great as its larval abundance would suggest.

Diogenichthys atlanticus **(Tåning)**
(29 occurrences, 92 larvae)

In contrast to its cogener, larvae of *Diogenichthys atlanticus* were taken mostly in the central water mass of the South Pacific on EASTROPAC I (Fig. 9). Most of the occurrences were to the south of lat 10° S on three adjacent lines (along long 92°, 98°, and 115° W). Two occurrences at the southern end of the *Alaminos* pattern, however, indicate that this

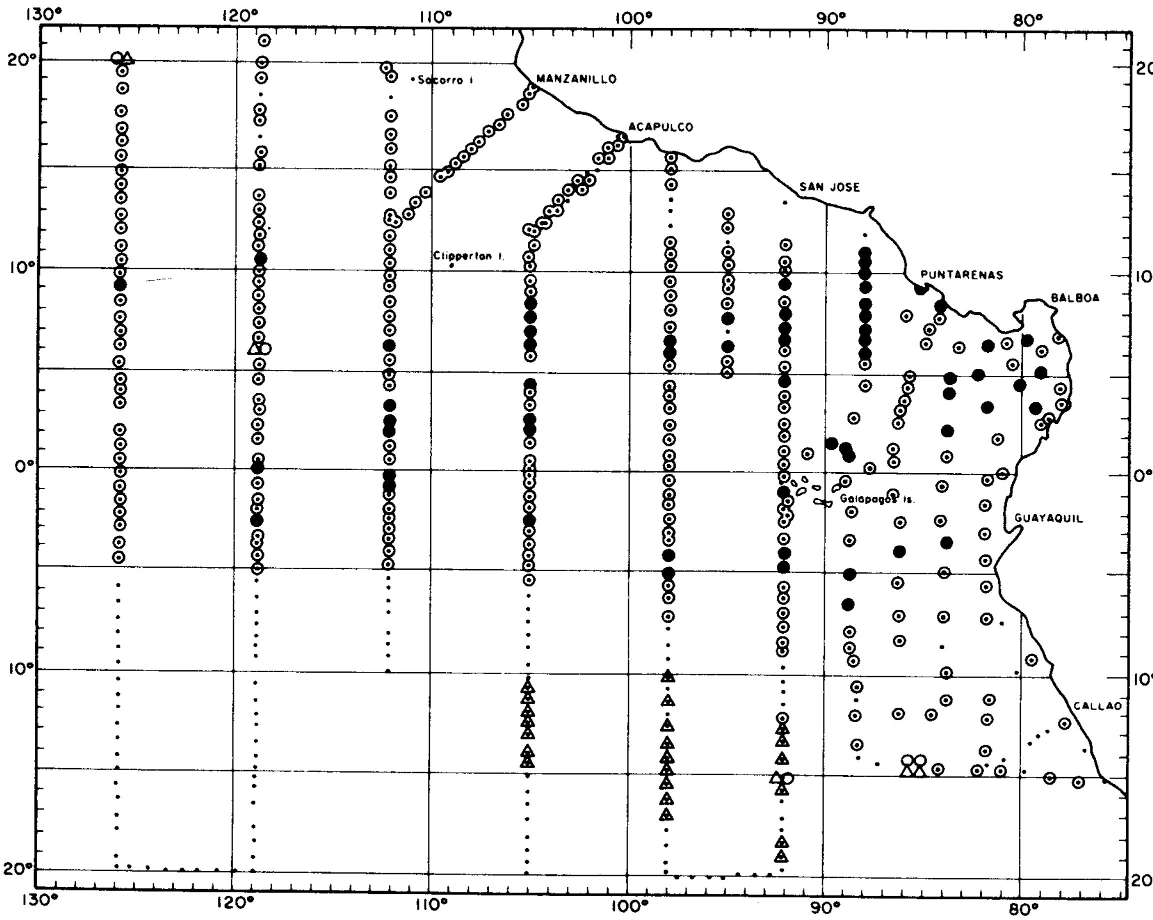

FIGURE 9.—Distribution of larvae of two species of myctophids of the genus *Diogenichthys* on EASTROPAC I. Records of occurrence of larvae of *D. atlanticus* (Tåning) are shown as triangles, records of occurrences of larvae of *D. laternatus* (Garman) as large circles with dot in center for hauls containing 0 to 100 larvae, and as large solid circles for hauls containing 101 or more specimens of this species; negative hauls are shown as small solid circles.

species is not restricted to the central water mass but also can occur in the transitional waters of the Humboldt Current. Larvae of this species were taken close to the Chilean coast between lat 20° and 30° S on MARCHILE VI, the Chilean contribution to EASTROPAC II. *D. atlanticus* appears to be a temperate-subtropical species, whereas *D. laternatus* is a tropical-subtropical species. The distribution of larvae of this species in the eastern North Pacific is given in Moser and Ahlstrom (1970, figs. 41 and 42). A larval specimen taken at lat 6° N along long 119° W shows that this species can bridge the tropical gap between its areas of usual occurrence in more temperate waters of the North and South Pacific.

***Electrona* sp.** (33 occurrences, 74 larvae)

Distribution of *Electrona* larvae on EASTROPAC I was limited to two bands—one centering on lat 5° N (6 occurrences, 16 larvae) the other in the central water mass of the South Pacific, between lat 8° and 20° S (27 occurrences, 58 larvae). The *Electrona* larvae all resemble *E. rissoi,* although two kinds may be present.

***Gonichthys tenuiculus* (Garman)**
(92 occurrences, 232 larvae)

Larvae of *Gonichthys tenuiculus* have a similar distribution in the eastern tropical Pacific to those of *Diogenichthys laternatus.* Larvae of a different species of *Gonichthys* (3 occurrences, 3 larvae) were obtained at the southern end of the *Rockaway* pattern. Beebe and Vander Pyl (1944) reported collecting more adults of *G. tenuiculus* (reported as *Myctophum coccoi* (Cocco)), than of any other myctophid on the Arcturus Expedition to the eastern Pacific in 1925. Their collections were made on adults aggregating at the surface. Based on larval evidence, *Gonichthys tenuiculus* is only moderately common.

Hygophum atratum-reinhardti **(127 occurrences, 887 larvae)**

Larvae of these two species are similar in appearance and difficult to distinguish at some stages of larval development. Larvae of *Hygophum atratum* (Garman) were distributed over much of the EASTROPAC pattern; however some occurrences at the southern end of the patterns of *Rockaway, Jordan,* and *Argo* were referable to *H. reinhardti* (Lutken).

Hygophum proximum **Becker (116 occurrences, 898 larvae)**

Hygophum proximum is a truly oceanic species, not occurring at all in the inner pattern worked by *Alaminos,* and it was most abundant in the outer pattern occupied by *Argo* (Fig. 10). It occurs in the central water masses of the North and South Pacific, but also in the equatorial current system; the largest collection of larvae (103 specimens) was obtained at the equator.

***Lampadena* spp.** (38 occurrences, 119 specimens)

Two and possibly three kinds of *Lampadena* larvae were obtained on EASTROPAC. A developmental series definitely has been established for only one species, *Lampadena urophaos* Paxton. The relatively few occurrences of *Lampadena* larvae on EASTROPAC I were mostly in the southern portion of the three outer vessels (24 of 38 occurrences) and most of the remainder in an offshore band lying between lat 4° and 8° N (9 occurrences).

***Lampanyctus* spp.** (376 occurrences, 5,882 larvae)

Larvae of *Lampanyctus* were taken in more collections than those of any other myctophid genus but were not identified to species. A number of species of *Lampanyctus* occur in the EASTROPAC area, of which *L. idostigma* Parr, L. *omostigma* Gilbert, *L. parvicauda* (Parr), and *L. steinbecki* Bolin are among the more common. Larval series are being worked out for these.

***Lepidophanes* sp.** (34 occurrences, 163 larvae)

The species of *Lepidophanes* that occur in the EASTROPAC area belong to the *Lepidophanes*

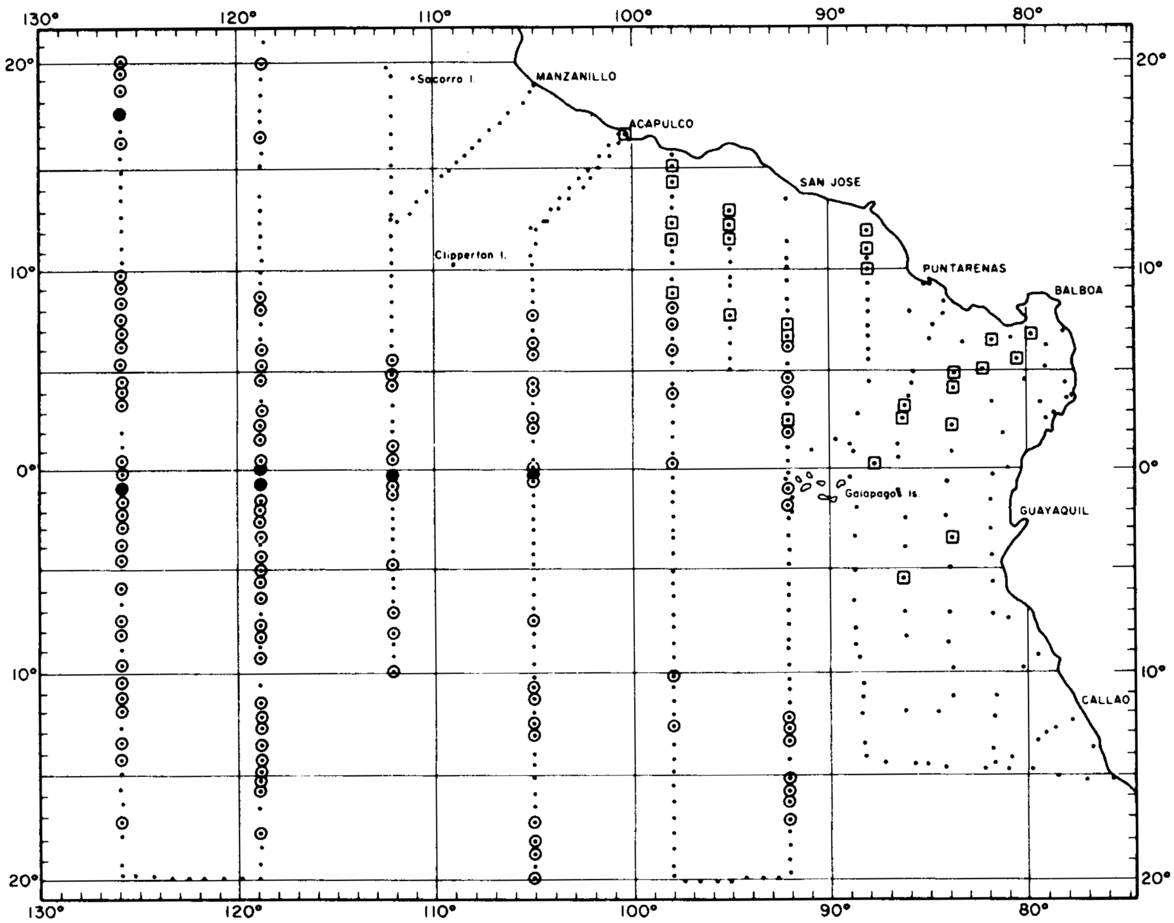

FIGURE 10.—Distribution of larvae of the myctophid *Hygophum proximum* (Becker) and of the bothid flatfish *Bothus leopardinus* (Günther) on EASTROPAC I. Records of occurrence of larvae of *H. proximum* are shown as open circles with dot in center for hauls containing 1 to 25 larvae, and as large solid circles for hauls containing 26 or more larvae; records of occurrence of larvae of *B. leopardinus* are shown as squares; negative hauls are shown as small solid circles.

pyrsobolus (Alcock) complex. Larvae of *Lepidophanes* are almost unpigmented, big eyed, and moderately deep bodied. They have few distinctive characters and can be confused with larvae of *Diaphus* and *Ceratoscopelus*. The majority of the records for *Lepidophanes* were of large larvae.

***Lobianchia* sp. (16 occurrences, 39 larvae)**

Larvae of *Lobianchia* were not recognized until the identification of EASTROPAC larvae was well underway, hence our records of occurrences may be incomplete (some but not all samples were rechecked subsequently). The head of *Lobianchia* larvae is more massive than in most myctophid larvae. The most diagnostic feature, however, is the unusual manner in which the pectoral fins develop: the upper fin rays in each pectoral develop sooner than the remainder of the fin rays and become conspicuously elongated (Tåning, 1918). Twelve of the 16 occurrences were in the pattern worked by *Alaminos* and half of these were at adjacent stations located between lat 6° and 2° N along long 92° W.

Loweina rara **(Lutken) (43 occurrences, 56 larvae)**

The larger larvae of *Loweina rara* are among the most elegant of myctophid larvae. Larvae of this species were rather uncommon in the EASTROPAC area, although widely distributed. Larvae were taken most frequently, however, in the vicinity of the equator, between ca. lat 8° N and 7° S; 36 of the 43 occurrences were in the equatorial zone. The largest collection of *Loweina* larvae was only four specimens, and only a single specimen was obtained in most collections (i.e., in 35 of 43). The distribution of larvae of *L. rara* on EASTROPAC I is illustrated in Moser and Ahlstrom (1970).

Myctophum **spp. (187 occurrences, 1,393 larvae)**

Myctophum is one of the more abundant genera represented in the eastern tropical Pacific. Juvenile and adults of five species were obtained in 1-m plankton hauls and micronekton net hauls: *Myctophum aurolaternatum* Garman, *M. asperum* Richardson, *M. brachygnathos* (Bleeker), *M. lychnobium* Bolin, and *M. nitidulum* Garman. Body form and pigmentation of the five of six kinds of *Myctophum* larvae taken in EASTROPAC I are as diverse as has been observed within a myctophid genus. Larvae of *M. nitidulum*, described by Moser and Ahlstrom (1970), are broad headed and deep bodied with eyes on short stalks; larger larvae of this species are among the most heavily pigmented myctophid larvae.

A quite different developmental pattern is displayed by larvae of *M. asperum* and *M. brachygnathos*. The larvae of these species are also deep bodied and big headed, but the eyes are not borne on stalks. The most characteristic feature of the development of these larvae is the early appearance of Dn photophores which form on larvae between 4.0 to 5.0 mm in length, soon after the appearance of the Br_2 photophores. Larvae of *M. asperum* develop large characteristic melanophores (Pertseva-Ostroumova, 1964), but larvae of *M. brachygnathos* are only slightly pigmented.

Larvae of *M. lychnobium* also are but lightly pigmented; they are much more slender and elongated than larvae of *M. brachygnathos* and do not develop the Dn photophores early. A notable feature is the marked length of the teardrop (choroid) tissue that develops under the eyes (as long as in *Gonichthys* or *Centrobranchus* larvae).

The extraordinary larvae of *M. aurolaternatum* were only recently recognized and are not included in the above counts of *Myctophum*.

Notolychnus valdiviae **(Brauer) (158 occurrences, 868 larvae)**

This is probably the smallest species of myctophid, and certainly one of the most widespread in offshore, oceanic waters. The larvae seldom occur in large numbers (average number per positive haul was 5.5 larvae). They were present in about one-third of the collections made on EASTROPAC I, although most occurrences were farther offshore than 300 miles of the coast (Fig. 11). Juvenile and adult *N. valdiviae* were frequently taken in the oblique plankton hauls. Perhaps as many juvenile and adult specimens of *N. valdiviae* were obtained by this means as of all other myctophids combined. Since this species has only a middling rank with regard to abundance of larvae, the frequency of capture of adults is probably less a measure of abundance than of their shallow depth distribution and poor swimming ability.

Notoscopelus resplendens **(Richardson) (70 occurrences, 283 larvae)**

This is the species of *Notoscopelus* known to occur in the eastern Pacific. On EASTROPAC, *Notoscopelus* larvae were taken more frequently and in larger numbers in the equatorial zone between lat 5° N and 5° S (40 occurrences, 209 larvae).

Protomyctophum **sp. (36 occurrences, 78 larvae)**

All occurrences of *Protomyctophum* larvae, except one, were between lat 10° N and 5° S.

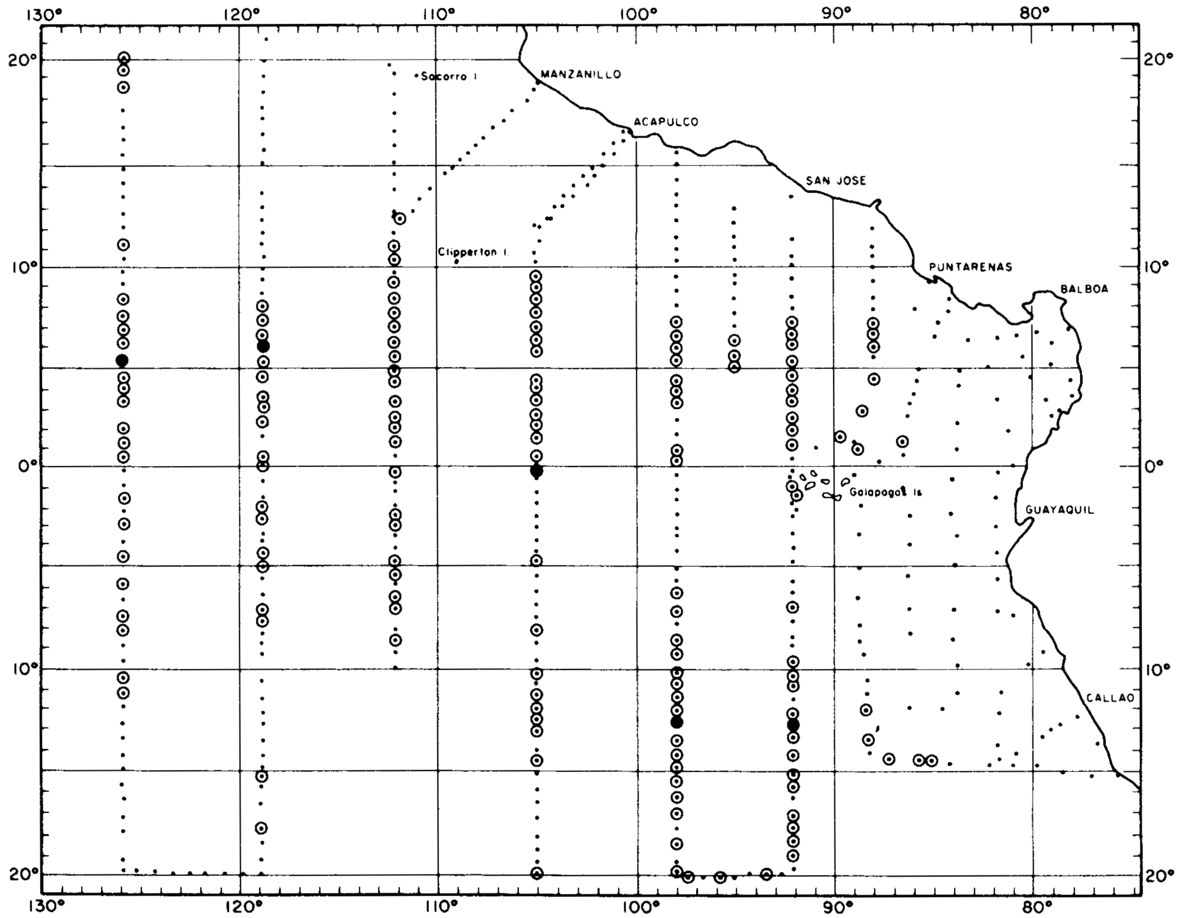

FIGURE 11.—Distribution of larvae of the myctophid, *Notolychnus valdiviae* (Brauer) on EASTROPAC I. Collections of 1 to 25 larvae are shown as circles with dot in center, collections of 26 or more larvae as large solid circles; negative hauls are shown as small solid circles.

Only one kind of *Protomyctophum* larva, belonging to the subgenus *Hierops,* was taken on EASTROPAC. The specific identity is unknown, as no juveniles or adults were obtained. The larva has a single lateral pigment spot per side over the gut, resembling in this respect the larva of *P. crockeri* (Bolin) (Moser and Ahlstrom, 1970). However, internal pigment develops over the hypural bones of the caudal complex in older larvae—resembling in this respect the pigmentation of older larvae of *P. thompsoni* (Chapman). The tropical form lacks ventral pigment on the tail posterior to the anus, such as is developed on larvae of *P. thompsoni,* and probably represents an undescribed species.

Symbolophorus evermanni (Gilbert) (212 occurrences, 1,482 larvae)

Only one kind of *Symbolophorus* larvae appears to be present in the EASTROPAC survey area, despite its distribution in different water masses including the central water mass of the South Pacific. Fewest occurrences were in the northern portion of the EASTROPAC pattern, between lat 10° and 20° N. The number of larvae per positive haul ranged from 1 to 72 (average 7.0); 15 collections contained 25 or more larvae, most distributed between lat 7° and 20° S. Distribution of the larvae of *S. evermanni* on EASTROPAC I is illustrated in Figure 12.

***Triphoturus* spp. (140 occurrences, 506 larvae)**

Larvae of at least two species of *Triphoturus* were taken in the EASTROPAC area. Of particular interest are larvae of *Triphoturus oculeus* (Garman); this species previously was considered a synonym of *T. mexicanus* (Gilbert), but larvae of the two species are differently pigmented. *T. oculeus* occurs in a broad coastal band between Panama and Chile, having in this respect a complementary distribution of that of *T. mexicanus* off California and Baja California.

14. PARALEPIDIDAE
(290 occurrences, 1,648 larvae)

Larvae of Paralepididae were taken in approximately 60 % of the stations occupied on EASTROPAC I. The area of heaviest concentrations was in an equatorial band between lat 5° N and 5° S (Table 16). Two species are

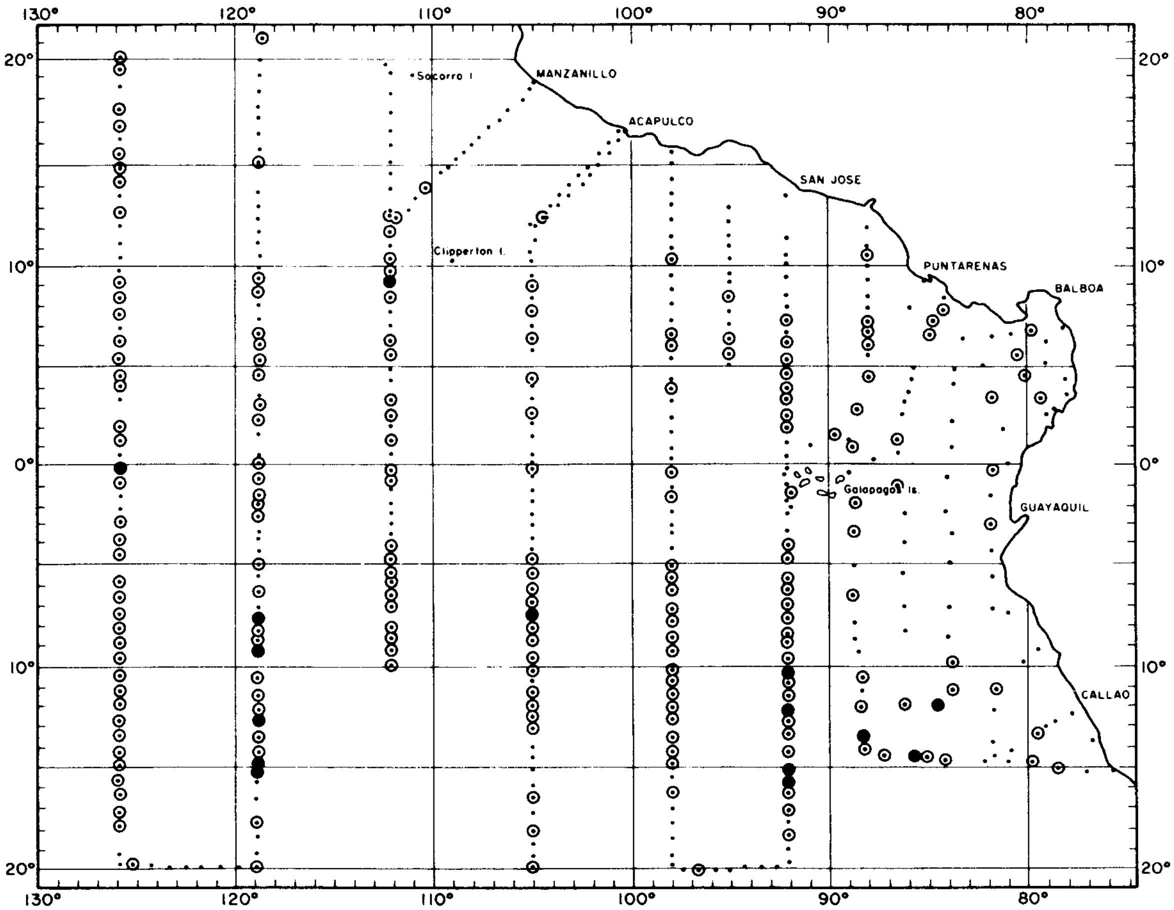

FIGURE 12.—Distribution of larvae of the myctophid, *Symbolophorus evermanni* (Eigenmann and Eigenmann) on EASTROPAC I. Collections of 1 to 25 larvae are shown as large circles with dot in center, collections of 26 or more larvae as large solid circles; negative hauls are shown as small solid circles.

TABLE 16.—Areal occurrence and relative abundance of larvae of Paralepididae on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20° N-15° N	7	9	15	63	4	19	--	--	26	91	3.5
15° N-10° N	3	6	22	105	14	77	--	--	39	188	4.8
10° N- 5° N	10	38	10	25	8	39	8	21	36	123	3.4
5° N- 0°	12	83	15	100	11	145	21	219	59	547	9.3
0° - 5° S	8	22	18	217	14	136	11	72	51	447	8.8
5° S-10° S	8	36	7	17	8	62	2	11	25	126	5.0
10° S-15° S	13	32	6	24	9	20	2	2	30	78	2.6
15° S-20° S	6	16	4	7	14	25	--	--	24	48	2.0
Total	67	242	97	558	82	523	44	325	290	1,648	5.7

separately tabulated in Appendix Table 3: *Macroparalepis macrurus* Ege (35 occurrences, 44 larvae), and *Sudis atrox* Rofen (13 occurrences, 15 larvae). These two species have such characteristic larvae that they are readily identifiable. The larvae of *Macroparalepis macrurus* were widely distributed in the EASTROPAC area, except in the inner pattern occupied by *Alaminos* (Fig. 7). In contrast, the larvae of *Sudis atrox* were confined to the central water mass of the South Pacific (Fig. 7). This species was originally described from the central water mass of the North Pacific (Rofen, 1963; see also Berry and Perkins, 1966). Preliminary study of the other paralepidid material indicated that a number of species were represented, but that the most common larva was the form illustrated by Ege (1953, Fig. 27), simply as "*Lestidium* spec."

15. EVERMANNELLIDAE
(27 occurrences, 38 larvae)

The larvae of Evermannellidae in the EASTROPAC area have not yet been worked out in detail. Three species of Evermannellidae are known to occur: *Coccorella atrata* (Alcock), *Evermannella indica* Brauer, and a form with a higher anal fin count than is found in these two species. The identity of the latter, known only as yet from larval specimens, remains uncertain. Although larvae of Evermannellidae were not common, the occurrences were distributed over much of the EASTROPAC pattern, except nearshore.

16. SCOPELARCHIDAE
(142 occurrences, 329 larvae)

Scopelarchids are widely distributed in the eastern tropical Pacific, usually occurring in small numbers, i.e., one to three larvae per haul. Only 15 % of the positive hauls contained larger numbers of larvae, i.e. 4 to 20 larvae per haul. Scopelarchid larvae were most common between lat 10° and 20° N, as is shown in Table 17.

There are at least five species of scopelarchids represented by the larvae, and perhaps six. I have not attempted to attach specific names to most of the kinds because the adult scopelarchids

TABLE 17.—Areal occurrence and relative abundance of larvae of Scopelarchidae on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20° N-10° N	16	38	25	67	15	84	--	--	56	189	3.4
10° N- 0°	4	4	7	12	10	14	13	27	34	57	1.7
0° -10° S	11	15	9	18	5	8	4	6	29	47	1.6
10° S-20° S	4	7	5	7	9	14	5	8	23	36	1.6
Total	35	64	46	104	39	120	22	41	142	329	2.3

of the eastern tropical Pacific are as yet inadequately known. Most larvae taken between lat 10° and 20° N were those of *Scopelarchoides nicholsi* Parr.

17. SCOPELOSAURIDAE
(9 occurrences, 16 larvae)

Two kinds of *Scopelosaurus* larvae were collected in the EASTROPAC area, but neither has been linked to its adult stages as yet; one of these occurred in only a single collection. Most of the specimens of the other form were taken in an equatorial band, between lat 5° N and 5° S.

20. EEL LEPTOCEPHALI
(87 occurrences, 179 larvae in 1.0-m oblique net hauls; 58 occurrences, 553 larvae in 5.0-ft micronekton net hauls)

A total of 10 families of true eels of the order Anguilliformes, suborder Anguilloidei, is represented in the EASTROPAC I collections. Eel leptocephali were decidedly more common in collections made with the 5-ft micronekton net than in the 1-m net collections: 9.5 larvae per positive haul as compared with 2.1 larvae. This difference probably was due in large part to the larger volume of water strained in taking micronekton net hauls, but the faster towing speed of these hauls, ca. 5 knots as compared with 1.5 to 2 knots for 1-m net hauls, also may have contributed. In the discussion of eel families that follows, I have utilized information on occurrence of eel leptocephali from the collections of both nets.

Congridae

Leptocephali of congrid eels were taken at more stations, 57, than those of any other family, yet no congrid larvae were obtained to the south of lat 6° S. Most congrid leptocephali could be identified to genus, of which five were represented; some larvae, however, could not be identified below the family level. Leptocephali of *Ariosoma* were widely distributed between lat 20° N and 3° S, occurring at 28 stations between the coast and the outer line occupied by *Argo*. Leptocephali of *Hildebrandia* were restricted to a broad coastal band, but leptocephali of *Bathyconger* and *Paraconger* were almost as widespread as those of *Ariosoma*. Only one record was obtained of *Gnathopis*.

Derichthyidae

The only definite record is a metamorphosing specimen obtained at station 11.167.

Moringuidae

Leptocephali of *Neoconger* were taken at five coastal stations between lat 8° N and 1° S.

Muraenesocidae

Leptocephali were taken at four stations in the inner pattern occupied by the *Alaminos*, all within 3° of the equator.

Muraenidae

Muraenid leptocephali were taken at 17 stations; two were on the line of stations occupied off Acapulco, Mexico, and the remainder in the broad corridor between Puntarenas, the Galápagos Islands, and the coast of Ecuador.

Nemichthyidae

Two genera of nemichthyid larvae were represented in the EASTROPAC area, *Nemichthys* and *Borodinula*. A specimen of *Nemichthys*, 310 mm long, was obtained at station 14.188. Leptocephali of this family were taken at 24 stations scattered throughout the EASTROPAC area, including the South Pacific central water mass.

Nettastomidae

Taken at 17 stations in the inner half of the EASTROPAC pattern between lat 9° N and 2° S; two kinds of nettastomid larvae were obtained, one of which was represented by a single specimen.

Ophichthidae

The 31 occurrences of ophichthid eels were distributed in a broad coastal band between Manzanillo, Mexico, and northern Peru (lat 7° S).

Serrivomeridae

Leptocephali of this family were taken at 33 stations, of which 21 were in the outer pattern occupied by *Argo*. Occurrences were grouped into two broad bands—one centered on lat 5° N, the other located between lat 7° and 20° S in the South Pacific central water mass.

Xenocongridae

The leptocephalus of *Chlopsis* was obtained at 22 stations, most located between Panama Bay and the Galápagos Islands.

21. MELAMPHAIDAE
(298 occurrences, 857 larvae)

Melamphaid fishes are the most important family of berycoid fishes in the mesopelagic zone. Four of the five recognized genera occur in the EASTROPAC area: *Melamphaes, Scopelogadus, Scopelobryx,* and *Poromitra.* According to Ebeling (1962) five species of *Melamphaes* are common in the eastern tropical Pacific, two additional species were collected within the EASTROPAC area, and four other species were collected on the fringes of the area. Only one kind of *Scopelogadus, S. mizolepis bispinosus* (Gilbert), is known from the eastern Pacific (Ebeling and Weed, 1963). The remaining two genera, *Scopeloberyx* and *Poromitra,* await revision; the species composition of these genera in the EASTROPAC area is inadequately known. Although melamphaid larvae can be identified to the generic level with some assurance, few developmental series have been worked out at the species level.

Larvae of Melamphaidae were widely distributed in the EASTROPAC area, occurring in 62 % of the collections. Although negative hauls were fewest between the equator and lat 15° N, the average number of larvae per positive haul was rather similar in all areas (Table 18).

23. BREGMACEROTIDAE
(194 occurrences, 1,805 larvae)

Larvae of the gadoid family, Bregmacerotidae, ranked sixth in abundance, contributing 1.9 % of the fish larvae of EASTROPAC I. The only genus, *Bregmaceros,* is widely distributed in pelagic waters of the tropical and subtropical regions of all oceans. D'Ancona and Cavinato (1965) recognized seven species in a worldwide treatment of the genus. These authors stressed the difficulties in species identification.

A preliminary study of EASTROPAC collections of *Bregmaceros* larvae, supplemented by collections of juveniles and adults obtained

TABLE 18.—Areal occurrence and relative abundance of larvae of Melamphaidae on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20°N-15°N	7	17	15	41	3	5	--	--	25	63	2.5
15° N-10° N	13	36	19	41	18	48	--	--	50	125	2.5
10° N- 5° N	14	59	11	26	24	104	9	24	58	213	3.7
5° N- 0°	7	12	11	19	11	36	24	100	53	167	3.2
0° - 5° S	8	12	9	17	11	56	10	41	38	126	3.3
5° S-10° S	9	18	8	17	9	27	10	21	36	83	2.3
10° S-15° S	6	8	2	6	11	29	6	14	25	57	2.3
15° S-20° S	2	3	2	4	9	16	--	--	13	23	1.7
Total	66	165	77	171	96	321	59	200	298	857	2.9

in micronekton hauls, has shown the presence of five kinds. Larvae of *B. bathymaster* Jordan and Bollman had the most limited distribution, being a coastal species, but were taken in the largest numbers. Two species occurred in the central water mass of the South Pacific (*B. japonicus* Tanaka, and perhaps *B. macclellandi* Thompson). Another species occurred in the equatorial current system, and a fifth species was widely distributed between lat 7° and 20° N. One or both of the latter may be undescribed.

26. EXOCOETIDAE
(78 occurrences, 189 larvae)

The species composition of flyingfish larvae has not been worked out in detail as yet. Only larvae of the most common species, *Oxyporhamphus micropterus* (Cuvier and Valenciennes) (51 occurrences, 121 larvae) have been separately tabulated (Appendix Table 3). Larvae of *Oxyporhamphus* were taken at a number of stations in a coastal band off Mexico and central America. Offshore occurrences were limited to an equatorial band between lat 5° S and 7° N. Only one occurrence of larvae of this species was obtained to the south of lat 5° S. Exocoetid larvae undoubtedly are undersampled in oblique plankton hauls, both because of their shallow depth distribution and their marked swimming ability. Much more material of exocoetids—eggs, larvae, and juveniles—are present in surface plankton hauls; only a few of these have been sorted as yet from EASTROPAC I.

28. GEMPYLIDAE-TRICHIURIDAE
(103 occurrences, 231 larvae)

The larvae of these two families are grouped together for reasons discussed below. Larvae of four species of gempylids-trichiurids appear to be widely distributed in the eastern Pacific: these are *Nealotus tripes* Johnson (42 occurrences, 82 larvae, Fig. 7), *Gempylus serpens* Cuvier and Valenciennes (40 occurrences, 57 larvae, Fig. 13), *Diplospinus multistriatus* Maul (26 occurrences, 62 larvae, Fig. 14), and *Lepidopus* sp. (7 occurrences, 25 larvae, Fig. 14). Records of the occurrence of these in EASTROPAC hauls also are given in Appendix Table 5, and summarized in Table 19. One or two specimens each were taken of larvae of two or three additional species of gempylids-trichiurids.

Late larval stages already have been described for three of the above species (Voss, 1954; Strasburg, 1964), but early developmental stages have not been described, except for a species of *Lepidopus*. We plan to describe the early stage larvae of all the above species.

The larval series of these four species raise questions about the distribution of genera between these two families, and perhaps, about the need for two families. Larvae of *Diplospinus multistriatus* are quite similar to those of *Gempylus serpens*. This similarity is marked enough to have led Voss (1954) to describe the larvae of *Diplospinus* as those of *Gempylus* (*i.e.* her *Gempylus* A). Her *Gempulus* B larvae are those of *Gempylus serpens*.

TABLE 19.—Summary of occurrences and relative abundance of species of Gempylidae-Trichiuridae in the four vessel patterns occupied on EASTROPAC I.

Species	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I	
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae
Nealotus tripes	6	6	2	7	12	34	22	35	42	82
Gempylus serpens	8	10	15	19	11	18	6	10	40	57
Diplospinus multistriatus	5	10	0	0	9	31	12	21	26	62
Lepidopus sp. (*xantusi*)	0	0	0	0	1	17	6	8	7	25
Other	0	0	2	2	2	3	0	0	4	5
Total	19	26	18	28	31	103	35	74	103	231

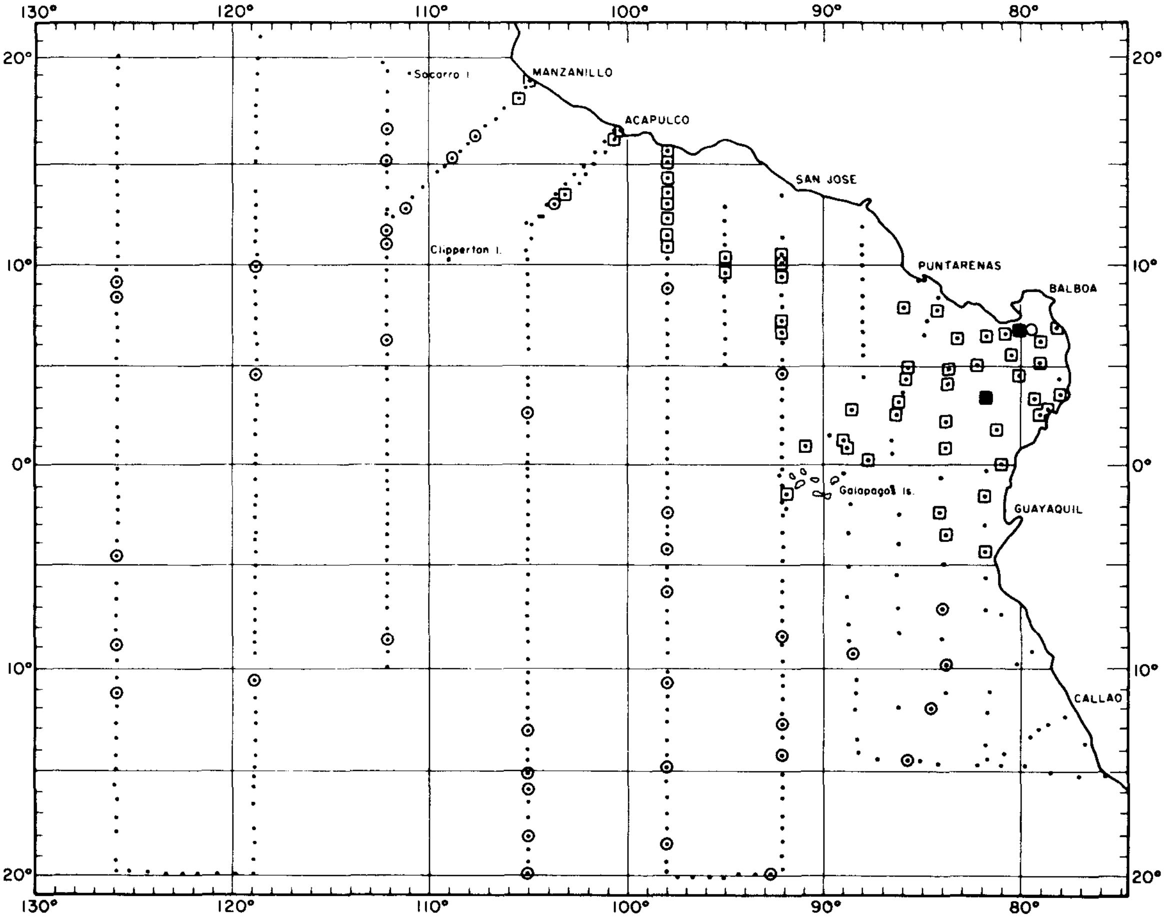

FIGURE 13.—Distribution of larvae of the gempylid, *Gempylus serpens* Cuvier and Valenciennes, and of the cynoglossid flatfish, *Symphurus* spp., on EASTROPAC I. Records of occurrence of larvae of *G. serpens* are shown as large circles with dot in center, *Symphurus* spp. as open squares for hauls containing 1 to 25 larvae and solid squares for hauls with 26 or more larvae; negative hauls are shown as small solid circles.

29. SCOMBRIDAE
(185 occurrences, 1,919 larvae)

Larvae of scombrid fishes ranked fifth in abundance, and made up over 2 % of the larvae. Larvae of the bullet mackerel, *Auxis* spp., (161 occurrences, 1,563 larvae) were by far the most abundant and widely distributed. Larvae of skipjack tuna, *Katsuwonus pelamis* (Linnaeus) (17 occurrences, 214 larvae) were taken mostly in the offshore southern portion of the EASTROPAC area. Other scombrid larvae included yellowfin tuna, *Thunnus albacares* (Bonnaterre) (19 occurrences, 40 larvae); bigeye tuna, *Thunnus obesus* Lowe (1 occurrence, 1 larva); black skipjack, *Euthynnus lineatus* Kishinouye (2 occurrences, 77 larvae); regular *Scomber* sp. (2 occurrences, 7 larvae); Spanish mackerel, *Scomberomorus* sp. (2 occurrences, 3 larvae); and the wahoo, *Acanthocybium solandri* (Cuvier) (1 occurrence, 1 larva). The tuna larvae have been turned over to W. Klawe of the Inter-American Tropical Tuna Commission for detailed study. He kindly has given me permission to include data on occurrence and abundance of larvae of skipjack and bullet mackerel in Ap-

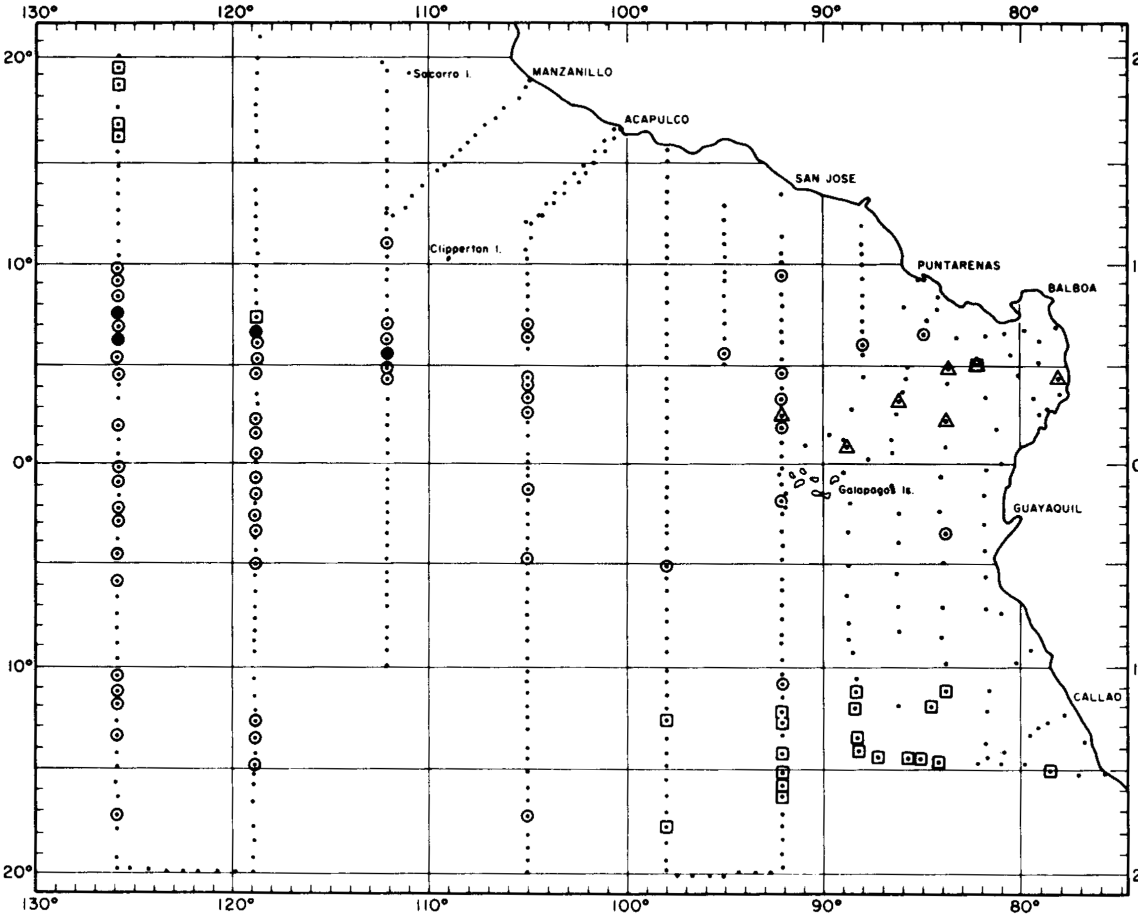

FIGURE 14.—Distribution of larvae of the apogonid, *Howella pammelas* (Heller and Snodgrass), and of the trichiurids, *Diplospinus multistriatus* Maul and *Lepidopus* sp. Records of occurrence of larvae of *H. pammelas* are shown as large circles with dot in center for hauls containing 1 to 10 larvae and large solid circles for hauls containing 11 or more larvae; records of occurrence of larvae of *D. multistriatus* are shown as squares, *Lepidopus* sp. are triangles; negative hauls are shown as small solid circles.

pendix Table 3. Charts showing distribution and relative abundance of larvae of *Auxis* sp. and of *Katsuwonus pelamis* on EASTROPAC cruises will be included in the EASTROPAC Atlas.

30. ISTIOPHORIDAE
(2 occurrences, 2 larvae)

The striking larvae of istiophorids are readily identified to family. The marked paucity of larvae of marlin and sailfish in EASTROPAC I collections was unanticipated, inasmuch as adult billfish are an important part of the Japanese longline catches from the tropical eastern Pacific (Kume and Schaefer, 1966).

32. APOGONIDAE
(61 occurrences, 204 larvae)

Most species of apogonids are coastal, shallow-water forms. A few larvae of these were taken on EASTROPAC I. However, the majority of apogonid larvae were those of *Howella pammelas* (Heller and Snodgrass), a pelagic species that occurred most commonly in the offshore pattern occupied by *Argo* (Fig. 14). An excellent developmental series has been obtained of this species.

36. CARANGIDAE
(31 occurrences, 183 larvae)

Although a number of kinds of carangid larvae were obtained on EASTROPAC I only larvae of the pilotfish, *Naucrates ductor* (L.), are separately tabulated (Appendix Table 3). Most carangid larvae were taken at stations adjacent to the coast or in the vicinity of offshore islands or banks, and over 50 % of the carangid larvae were obtained at two stations (13.019-70 larvae, 14.016-34 larvae). In these larger collections, the most common carangid larvae were *Chloroscombrus orqueta* Jordan and Gilbert and *Selene brevoorti* (Gill). Several times as many young carangids were taken in one haul of the 5-ft micronekton net as in all plankton samples: 384 specimens at station 14.014. Species composition was as follows: *Naucrates ductor,* 288 specimens, 13.0 to 27.5 mm; *Elagatis bipinnulatus* Quoy and Gaimard, 71 specimens, 18.5 to 42.0 mm; and *Caranx caballus* Günther, 25 specimens, 12.0 to 25.0 mm.

40. CORYPHAENIDAE
(86 occurrences, 118 larvae)

Larvae of the dolphin, *Coryphaena* spp., were widely distributed throughout the EASTROPAC area, but occurred in small numbers, usually one or two specimens per positive haul (average 1.4). The occurrence and abundance of *Coryphaena* larvae in various parts of the EASTROPAC area are summarized in Table 20. The majority of specimens obtained were early-stage larvae; no attempt was made to distinguish between the two species of *Coryphaena.* Charts showing distribution of *Coryphaena* larvae on EASTROPAC cruises will be included in the EASTROPAC Atlas.

44. NOMEIDAE
(178 occurrences, 961 specimens)

The nomeids are an important constituent of the epipelagic fauna of the open ocean. Two genera were represented in the EASTROPAC collections, *Psenes* and *Cubiceps.* Larvae of *Cubiceps* were the more common, but more kinds of *Psenes* larvae were obtained. Altogether, eight different kinds of nomeid larvae have been observed, which differ in meristics, pigmentation, and body shape. In several developmental series of larvae of the genus *Psenes* the pelvic fins developed early, and became conspicuously long and pigmented on older larvae. The larger collections of nomeid larvae were obtained between lat 10° N and 5° S (Fig. 15). Only a few collections were obtained to the south of lat 7° S in the patterns occupied by the *Argo, Jordan,* and *Rockaway,* i.e. in the central water mass of the South Pacific. Areal occurrences and relative abundance of nomeid larvae on EASTROPAC I are summarized in Table 21.

TABLE 20.—Areal occurrence and relative abundance of larvae of *Coryphaena* spp. on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20° N-10° N	3	4	7	9	6	6	--	--	16	19	1.2
10° N- 0°	14	17	9	17	6	6	9	13	38	53	1.4
0° -10° S	5	6	6	9	4	10	5	7	20	32	1.6
10° S-20° S	2	2	1	1	3	3	6	8	12	14	1.2
Total	24	29	23	36	19	25	20	28	86	118	1.4

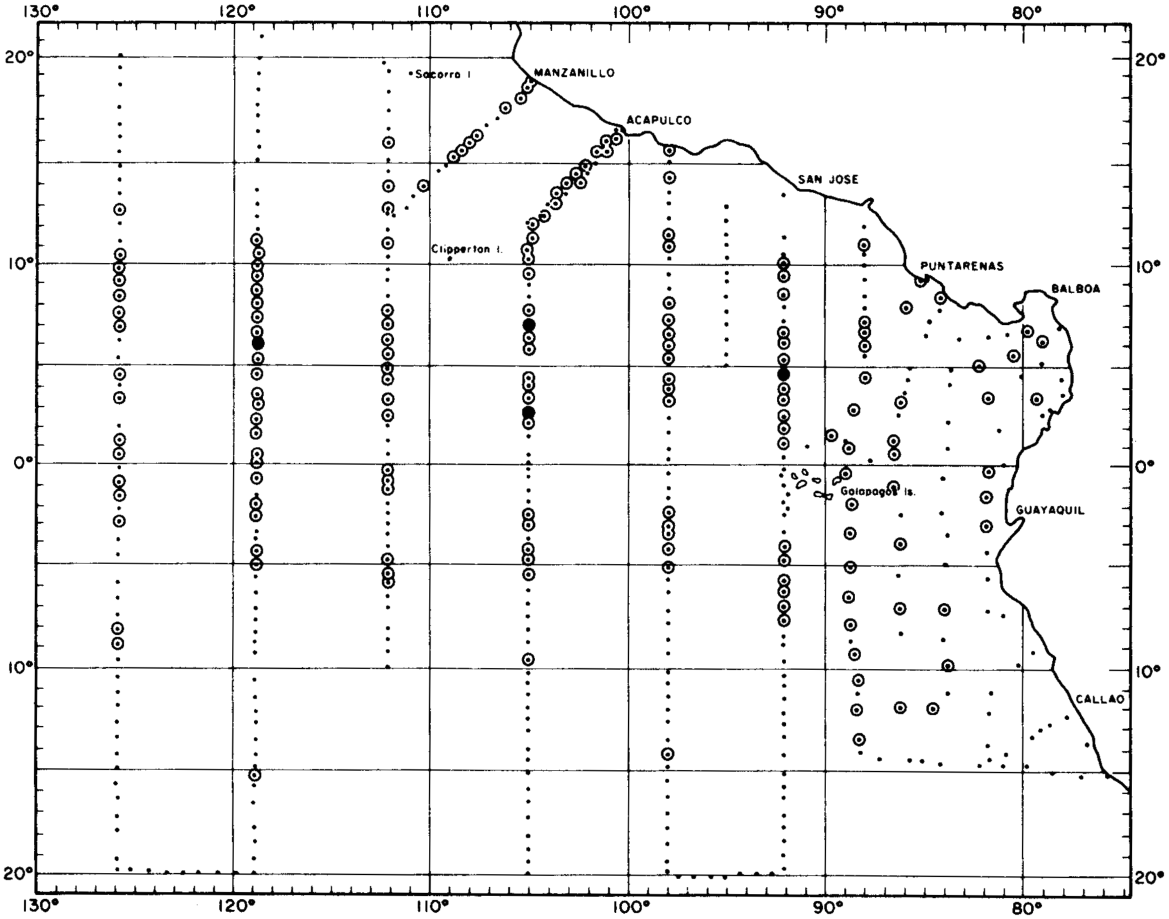

FIGURE 15.—Distribution of larvae of the family Nomeidae on EASTROPAC I. Collections of 1 to 25 larvae are shown as large circles with dot in center, of 26 or more larvae as large solid circles; negative hauls are shown as small solid circles.

TABLE 21.—Areal occurrence and relative abundance of larvae of Nomeidae on EASTROPAC I.

Latitude	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I		
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	Average no. larvae per positive haul
20° N-15° N	0	0	11	39	3	7	--	--	14	46	3.3
15° N-10° N	5	12	11	24	10	26	--	--	26	62	2.4
10° N- 5° N	12	81	9	87	17	87	7	21	45	276	6.1
5° N- 0°	11	46	9	130	9	76	9	39	38	291	7.7
0° - 5° S	8	26	8	60	6	78	8	30	30	194	6.5
5° S-10° S	2	3	4	6	5	16	7	44	18	69	3.8
10° S-15° S	0	0	0	0	1	1	5	12	6	13	2.2
15° S-20° S	1	10	0	0	0	0	--	--	1	10	10.0
Total	39	178	52	346	51	291	36	146	178	961	5.4

51. TETRAGONURIDAE
(6 occurrences, 7 specimens)

Only a few specimens of *Tetragonurus* larvae were obtained in EASTROPAC I collections. Larvae of *Tetragonurus* have been taken rather commonly in the California Current region and were an important constituent in NORPAC collections. These interesting oceanic fishes were revised by Grey (1955), who recognized three species. Two of these were present in the EASTROPAC area: *T. atlanticus* Lowe and *T. cuvieri* Risso. Late-stage larvae of the two species can be separated by differences in their meristics, and also by differences in pigmentation and body form; larvae of *T. atlanticus* are more heavily and uniformly pigmented and are deeper bodied than larvae of *T. cuvieri* (Grey, 1955).

PLEURONECTIFORMES
(79 occurrences, 503 larvae)

Larvae of flatfishes (Pleuronectiformes) in EASTROPAC collections belonged only to the families Bothidae and Cynoglossidae. Information concerning the kinds and numbers of flatfish larvae taken at each of 79 EASTROPAC I stations is contained in Appendix Table 6; this information is summarized in Table 22.

Flatfish larvae were taken in a broad coastal band, several hundred miles wide, between Manzanillo, Mexico, and northern Peru. The occurrences of some kinds of flatfish larvae and juveniles at considerable distances from shore have been commented upon by a number of workers. Kyle (1913) obtained larvae of *Bothus* from across the North Atlantic and larvae of *Syacium* at considerable distances from shore. Bruun (1937a, 1937b) described bathypelagic occurrences of the bothid flatfish, *Chascanopsetta* and *Monolene*, the latter from off Panama, and of the pleuronectid flatfish, *Poecilopsetta*. Ahlstrom (1965) illustrated the widespread offshore distribution of larvae of *Citharichthys* spp. in the California Current region.

54. BOTHIDAE
(56 occurrences, 199 larvae)

Several kinds of bothid flatfish larvae were taken in 20 or more collections, including larvae of *Bothus leopardinus* (Günther), *Syacium ovale*, and *Citharichthys-Etropus*. Some interesting forms taken less frequently included larvae of *Cyclopsetta* sp., *Engyophrys sancti-laurentii* Jordan and Bollman, and of *Monolene*. A short section will be devoted to each of the above.

Bothus leopardinus (Günther) (28 occurrences, 50 larvae)

Although Norman (1934) lists three species of *Bothus* as occurring in the eastern tropical Pacific—*Bothus mancus* (Broussonet), *B. leop-*

TABLE 22.—Frequency of occurrence and relative abundance of the principal kinds of flatfish larvae, Pleuronectiformes, on EASTROPAC I, summarized by vessel pattern.

Flatfish larvae	*Argo* 11.000 series		*David Starr Jordan* 12.000 series		*Rockaway* 13.000 series		*Alaminos* 14.000 series		Total EASTROPAC I	
	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae	No. positive hauls	No. larvae
BOTHIDAE										
Bothus leopardinus	0	0	1	4	15	32	12	14	28	50
Citharichthys-Etropus	0	0	2	2	6	8	18	40	26	50
Cyclopsetta sp.	0	0	0	0	2	2	1	2	3	4
Engyophrys sancti-laurentii	0	0	0	0	2	3	6	6	8	9
Syacium ovale	0	0	2	8	13	60	9	16	24	84
Other Bothidae	0	0	0	0	1	1	1	1	2	2
Total Bothidae	0	0	3	14	24	106	29	79	56	199
CYNOGLOSSIDAE										
Symphurus spp.	0	0	5	17	21	102	37	185	63	304
Total Pleuronectiformes	0	0	6	31	30	208	43	264	79	503

pardinus (Günther), and *B. constellatus* (Jordan) —he notes that the latter is very doubtfully distinct from *B. leopardinus*. Based on larval material, there appears to be only one common, widely distributed species in the eastern Pacific (Fig. 10), which is referred to *B. leopardinus*. It lacks pigmentation, except for a dorsal and ventral finfold spot near the end of the notochord. This finfold pigment has been observed on a number of species of *Bothus*, hence may be a generic character. *Bothus* larvae are readily separable from other bothid flatfish larvae in the EASTROPAC area by a number of characteristics. Young-stage larvae possess a single elongated anterior dorsal ray, which becomes inconspicuous in older larvae. Older larvae are very deep bodied, usually lack pigmentation and lack head spination. The pelvic fin base on the left side originates mostly anterior to the cleithrum, not posterior as in *Syacium, Engyophrys, Cyclopsetta,* or *Citharichthys,* and the fin on the ventral midline is much broader based than in these genera. Almost 100 specimens of *Bothus* larvae from the tropical eastern Pacific have been cleared and stained (based in part on EASTROPAC material, in part on previous expeditions). The modal number of vertebrae was 10 + 28 = 38.

Several specimens of flatfish larvae were taken on EASTROPAC I, and on previous expeditions, that had an exceptionally heavy, elongated, single anterior dorsal ray, such as have been described for several genera of bothid flatfish of the subfamily Bothinae. However, the pelvic fins formed behind the cleithrum and the fin on the ventral margin was not much wider based than its recessed partner. These intriguing larvae appear to be those of *Monolene*. Two different kinds have been obtained from the eastern tropical Pacific, one form has 10 + 35 vertebrae, the other has 10 + 28 vertebrae. The latter may be the larva of *Monolene asaedai* (Perkins, 1963).

Cyclopsetta sp. (3 occurrences, 4 specimens)

Larvae of *Cyclopsetta* are more closely related to those of *Syacium* than to other bothid genera. Larvae of both genera develop marked opercular spination as well as a sphenotic spine on either side of the head. *Cyclopsetta* larvae develop 8 to 11 elongated anterior dorsal rays, rather than 5 to 8 as in *Syacium*. *Cyclopsetta* larvae also attain a larger size before transformation; larval specimens as large as 32 mm have been observed in the EASTROPAC area. In late-stage larvae of *Cyclopsetta* the anterior group of dorsal rays is quite elongated, but a more striking feature is the marked development of three rays of the left pelvic fin which may extend almost to the base of the caudal fin. The *Cyclopsetta* larvae have a larger number of vertebrae—usually 10 + 29, as compared to 10 + 25 for larvae of *Syacium ovale* (Günther). Three species of *Cyclopsetta* have been described from the tropical eastern Pacific—*C. querna* (Jordan and Bollman), *C. panamensis* (Steindachner), and *C. maculifera* (Garman), but only *C. querna* has been collected with any frequency as juveniles and adults. The usual count of vertebrae in *C. querna* and *C. panamensis* is 10 + 29; the vertebral count of *C. maculifera* is not known.

Engyrophrys sancti-laurentii Jordan and Bollman (8 occurrences, 9 larvae)

Larvae of *Engyophrys* are about as deep bodied as those of *Bothus*. They possess heavy serrations on the ventral edge of the body both fore and aft of the cleithrum; three small spines also develop on the otic region of the head. The pelvic fins develop immediately posterior to the cleithrum and anterior to the posterior group of ventral serrations. A cleared and stained specimen, 18 mm long, from station 13.040 had 10 + 31 vertebrae, 86 dorsal rays, 71 anal rays, and 17 caudal rays.

Syacium ovale (Günther) (24 occurrences, 84 larvae)

A larval stage of *Syacium* was first illustrated by Kyle (1913) as "*Ancylopsetta* sp." *Syacium* has a distinctive larva with heavy opercular spination, a sphenotic spine on either side of the head, and 5 to 8 elongated anterior dorsal rays. Larvae of the closely related genus, *Cyclopsetta,* also develop opercular and head spination. The opercular spination is more pronounced in *Syacium*—particularly an antlerlike spine that develops on the posterior border of the preoperculum. The three anterior rays of the left pelvic fin become only moderately elongated in *Syacium* larvae; the rays are of about equal length, firmly joined together by a membrane, and pigmented distally. The full complement of dorsal and anal fin rays usually are laid down before the larvae attain a standard length of 10 mm; the largest specimens studied, ca. 20 mm long, were undergoing metamorphosis.

Citharichthys-Etropus (26 occurrences, 50 larvae)

Before discussing problems in identification of *Citharichthys-Etropus* larvae from the EASTROPAC area, some background information will be given on *Citharichthys* larvae in the CalCOFI region. Illustrations of larvae of three species of *Citharichthys* were given in Ahlstrom (1965). Two species, *Citharichthys sordidus* (Girard) and *C. xanthostigma* Gilbert, develop 2 elongated dorsal rays and also 2 elongated ventral rays on larvae larger than about 5 mm; the other species never develops such rays. Another species that occurs off central and southern Baja California, *C. fragilis* Gilbert, also develops 2 elongated rays on the dorsal and ventral fins.

Two species of *Citharichthys, C. gilberti* Jenkins and Evermann, and *C. platophrys* Gilbert, and the widely distributed *Etropus crossotus* Jordan and Gilbert are known to occur in the EASTROPAC area. Three kinds of larvae were taken in EASTROPAC collections referable to *Citharichthys* or *Etropus.* The most common kind developed 3 elongated dorsal rays, a less common form developed 2 elongated dorsal rays, and some specimens lacked elongated rays. The form with 3 elongated dorsal rays is almost certainly referable to *Citharichthys.* Larvae of a common Atlantic species, *C. arctifrons* Goode, develop 3 elongated dorsal rays, confirming the presence of this combination in *Citharichthys* larvae. A cleared and stained specimen from station 13.040 with 3 elongated dorsal rays possessed 10 + 25 vertebrae, 78 dorsal rays, and 59 anal rays. The meristics of the dorsal and anal fins could fit either *C. platophrys* or *C. gilberti.* Yet so little is known of *C. platophrys* that I would hesitate to refer the common *Citharichthys* larvae in EASTROPAC material to this species. A similar problem attends larvae of the form that lacks elongated dorsal rays. Two specimens, 11.5 and 12.0 mm, from station 14.014 each had 88 dorsal and 67 anal rays; vertebrae counts were 10 + 23 and 10 + 24. These counts best fit *E. crossotus,* except that the vertebral counts are low. No material of the form with 2 dorsal rays (undoubtedly a *Citharichthys*) has been cleared and stained for precise meristics. A definite identification has yet to be made on all three kinds of larvae.

55. CYNOGLOSSIDAE
(63 occurrences, 304 larvae)

Only one cynoglossid genus, *Symphurus,* occurs in the eastern Pacific. Five or more kinds of *Symphurus* larvae were obtained in EASTROPAC collections; these were obtained in more collections than larvae of bothid flatfishes (63 as compared with 56), and made up a larger percentage of the total flatfish larvae (ca. 60 %). A moderate number of recently transformed specimens of *Symphurus* were obtained in EASTROPAC collections; in contrast, all specimens of bothid flatfish were pretransformation larvae. The distribution of *Symphurus* larvae in EASTROPAC I is shown in Figure 13.

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APPENDIX TABLE 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I.

STATION NUMBER	Bathylagidae	Gonostomatidae	Sternoptychidae	Astronesthidae	Chauliodontidae	Idiacanthidae	Other Stomiatoidei	Myctophidae	Paralepididae	Scopelarchidae	Eel leptocephali	Melamphaeidae	Bregmacerotidae	Exocoetidae	Scombridae	Gempylidae-Trichiuridae	Nomeidae	Bramidae	Chiasmodontidae	Other identified larvae	Unidentified larvae	Disintegrated larvae	Total fish larvae
11.022	0	10	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
.025	0	52	0	0	0	0	0	11	1	3	0	0	0	0	0	0	0	0	0	0	2	0	69
.027	0	36	0	0	0	4	0	14	1	0	0	0	0	0	0	0	0	0	0	1	0	1	57
.030	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
.032	1	15	0	0	0	0	0	19	0	0	0	0	2	0	0	0	0	0	0	0	2	1	40
.034	1	88	0	0	0	1	0	35	0	0	0	0	0	0	0	0	0	0	0	0	1	2	128
.036	0	26	0	0	0	0	1	3	1	0	0	0	3	0	0	0	0	0	0	0	0	0	34
.038	4	22	0	0	0	4	0	21	2	0	0	0	6	0	0	0	0	0	0	0	1	0	60
.040	0	20	0	0	0	11	0	55	0	3	0	3	3	0	0	0	0	0	0	4	1	0	100
.044	2	9	0	0	0	20	0	5	1	0	0	2	4	0	0	0	0	0	0	0	3	0	46
.046	3	58	0	0	0	22	0	50	0	4	0	1	2	0	0	0	0	0	1	1	1	3	146
.048	12	41	0	0	0	12	0	20	3	1	0	3	1	0	0	0	0	0	0	0	0	1	94
.050	24	23	0	0	0	3	1	36	0	1	0	2	0	0	0	0	0	0	0	0	1	10	101
.052	15	3	15	0	0	2	0	58	0	0	0	4	2	0	0	0	1	1	0	0	0	1	102
.054	11	8	17	0	0	0	0	159	0	1	0	2	0	0	0	0	3	0	0	0	0	4	205
.056	10	8	0	0	0	0	0	67	0	5	0	0	0	0	0	1	5	0	0	0	5	12	113
.058	10	3	14	0	0	0	0	28	0	0	0	6	2	0	0	0	1	0	0	1	1	10	76
.060	13	9	30	2	1	0	0	72	2	0	0	2	0	0	3	0	5	0	0	2	5	1	147
.062	0	0	6	0	0	0	0	21	2	0	0	5	1	0	0	0	1	0	0	0	1	3	40
.064	0	1	22	0	0	0	2	51	0	0	0	3	3	0	0	1	7	2	0	2	3	2	99
.066	0	2	16	1	0	0	0	63	4	0	0	1	7	3	3	0	4	2	0	15	0	5	126
.068	5	77	49	0	2	0	3	229	4	0	3	6	45	1	2	0	26	1	1	10	9	0	473
.070	1	24	21	0	5	1	0	96	6	0	3	1	25	1	0	0	9	1	0	12	8	9	223
.072	2	73	20	0	6	1	4	178	4	0	1	2	11	0	0	1	16	1	0	12	8	0	340
.076	6	689	21	0	5	4	3	90	0	1	0	2	0	0	4	0	2	0	0	4	7	20	858
.080	7	142	11	0	0	0	6	36	3	0	0	2	1	0	0	0	4	0	0	0	7	0	219
.084	11	361	3	0	1	1	0	131	6	1	0	0	1	0	4	0	3	0	1	2	0	26	552
.088	1	324	3	0	0	0	1	104	3	1	0	0	0	0	0	0	7	0	0	3	0	8	455
.094	0	50	2	0	1	0	0	66	14	0	0	0	0	0	0	0	1	0	0	5	4	4	147
.098	2	107	2	0	0	0	0	907	20	0	0	2	1	0	1	0	4	0	23	12	4	12	1097
11.102	6	33	4	0	0	0	0	99	7	0	0	0	0	0	0	0	1	0	0	12	1	5	168
.106	1	10	2	0	1	0	2	22	0	0	1	0	0	0	0	0	0	2	0	6	0	1	48
.110	8	9	7	0	0	0	0	57	0	1	0	0	0	0	0	0	1	0	0	0	3	1	87
.114	1	57	43	0	0	0	1	243	1	0	0	1	0	0	0	1	3	0	0	5	1	1	358
.118	4	7	6	0	0	0	0	84	0	0	0	3	0	0	0	0	0	1	0	2	2	3	112
.120	1	3	2	0	0	0	0	9	0	0	0	1	0	0	0	0	0	0	1	2	3	0	22
.124	0	25	11	0	0	0	0	66	0	0	0	0	0	0	1	0	5	0	0	0	0	3	111
.128	0	98	6	0	0	0	2	98	4	1	0	1	0	0	0	0	10	1	0	3	4	2	230
.130	0	7	6	0	2	0	1	29	2	0	0	0	0	0	0	0	0	1	0	0	3	0	51
.132	0	8	4	0	1	1	5	16	0	0	0	0	0	0	0	0	0	2	0	1	4	0	42
.134	0	28	0	0	0	0	2	109	4	0	0	1	0	4	171	0	0	0	0	3	8	4	334
.136	0	46	33	0	0	2	2	168	9	2	6	4	0	0	2	0	0	0	0	0	7	1	282
.138	0	8	34	0	0	0	5	21	4	0	0	2	6	0	0	1	0	3	0	2	1	0	87
.140	0	5	9	0	0	0	0	12	0	2	2	0	0	0	0	1	0	0	0	0	1	1	33
.142	0	13	7	0	0	0	0	69	8	1	0	1	1	0	0	0	0	0	1	2	0	7	110
.146	0	22	3	0	0	0	0	17	0	0	0	0	0	0	3	1	0	0	0	0	0	3	49
.148	0	77	2	0	0	0	0	13	1	0	0	1	1	0	0	0	0	0	0	0	2	6	103
.150	0	82	2	0	0	1	2	38	2	0	0	0	0	0	4	0	0	0	0	0	0	10	141
.152	0	138	4	0	0	0	1	115	3	0	0	0	1	0	1	0	0	0	0	4	1	0	268
.154	0	8	4	0	0	2	0	15	1	0	0	2	1	0	0	0	0	0	0	5	0	7	45
.156	0	88	3	0	0	0	2	29	4	0	0	2	2	0	0	0	0	0	0	1	5	21	157
.158	0	40	2	0	1	6	0	103	6	0	0	1	3	0	0	1	0	1	0	4	2	29	199
.159	0	102	2	0	0	1	1	117	9	0	1	2	0	1	0	1	10	4	0	3	5	27	286
.161	0	12	3	0	0	1	0	10	0	0	0	0	2	0	0	0	0	0	0	1	0	2	31

APPENDIX TABLE 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagidae	Gonostomatidae	Sternoptychidae	Astronesthidae	Chauliodontidae	Idiacanthidae	Other Stomiatoidei	Myctophidae	Paralepididae	Scopelarchidae	Eel leptocephali	Melamphaeidae	Bregmacerotidae	Exocoetidae	Scombridae	Gempylidae-Trichiuridae	Nomeidae	Bramidae	Chiasmodontidae	Other identified larvae	Unidentified larvae	Disintegrated larvae	Total fish larvae
11.163	0	8	1	0	0	0	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	14
.167	0	30	0	0	0	0	1	20	1	0	0	0	0	0	1	0	0	0	0	0	3	0	56
.169	0	4	1	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9
.171	0	11	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	13
.173	0	9	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	1	0	0	16
.175	0	2	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1	1	0	0	8
.177	0	5	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	1	11
.179	0	5	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	1	0	0	19
.181	0	13	3	0	0	0	0	13	1	0	0	0	0	0	0	0	0	0	0	1	0	0	31
.183	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	8
.185	0	5	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
.187	0	22	1	0	0	0	1	24	0	1	0	0	0	1	0	0	0	0	0	1	0	1	52
.189	0	21	1	0	0	0	0	19	0	0	0	0	0	0	0	0	0	1	0	0	0	1	43
.191	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4
.195	0	14	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
.197	0	45	1	0	0	0	1	60	3	0	0	0	1	0	2	0	0	0	0	6	0	5	124
.199	0	6	0	0	0	1	0	9	0	0	0	1	0	0	1	0	0	0	0	3	0	5	26
11.201	0	2	2	0	0	0	0	8	0	0	1	0	1	0	0	0	0	0	0	1	0	0	15
.203	0	24	1	0	0	0	0	17	1	0	0	0	1	0	0	0	0	0	0	2	0	4	50
.205	0	53	1	0	0	1	3	40	2	0	0	0	7	0	0	0	0	0	0	0	0	5	112
.207	0	15	0	0	0	1	0	21	2	0	0	0	0	0	0	0	0	0	0	1	0	7	47
.209	0	7	1	0	0	1	0	12	2	3	0	1	4	0	0	0	0	0	0	2	1	2	36
.211	0	39	5	0	0	0	1	28	1	0	0	1	1	0	0	0	0	0	0	2	6	5	89
.213	0	37	5	0	0	0	3	71	3	2	0	0	3	0	4	1	0	0	0	2	4	1	136
.215	0	5	7	0	0	0	0	44	4	0	0	0	6	0	3	0	0	0	0	2	4	5	80
.217	0	8	7	0	0	0	1	16	0	0	0	1	4	0	0	0	0	1	0	3	0	1	42
.219	0	2	15	0	0	0	0	10	1	0	0	0	6	0	1	1	1	0	0	0	2	1	40
.221	0	56	35	0	0	0	0	74	6	2	3	2	6	0	1	0	2	2	0	1	3	1	194
.223	0	13	32	1	0	0	0	20	0	0	1	3	5	0	0	0	0	0	0	0	0	1	76
.226	0	5	4	0	0	1	0	7	0	1	3	1	3	0	0	0	0	0	0	0	0	0	25
.228	0	3	12	1	0	2	0	16	2	0	2	3	4	0	0	1	0	0	0	1	4	3	54
.234	2	17	19	0	0	0	0	46	1	2	0	1	0	0	0	1	0	0	0	6	5	17	117
.238	0	8	7	0	1	0	1	10	0	0	0	1	0	0	0	0	0	2	0	1	0	13	44
.242	4	50	20	1	1	0	0	95	1	1	0	2	0	1	0	0	2	2	1	5	3	6	195
.246	2	52	6	0	4	0	0	198	1	1	0	0	0	0	0	0	0	1	0	4	3	2	274
.250	1	20	6	0	0	0	0	57	1	0	0	2	0	0	0	0	2	0	0	6	0	5	100
.254	0	20	1	0	0	0	2	149	6	1	0	0	0	2	0	0	2	0	7	2	8	23	223
.258	3	54	6	0	0	0	0	108	9	0	0	2	0	0	0	0	0	0	0	2	3	2	189
.262	2	68	1	0	0	0	3	85	9	0	0	0	0	0	0	0	2	0	0	0	2	3	175
.266	3	33	5	0	0	0	0	38	1	0	0	0	0	0	0	0	5	0	0	0	4	0	89
.270	4	19	8	0	0	0	0	17	0	0	0	0	0	0	7	0	0	0	0	1	6	4	66
.278	13	155	13	0	0	1	0	116	3	0	1	1	4	0	0	0	1	0	0	2	4	3	317
.282	1	27	4	0	1	1	1	82	6	0	5	0	7	0	0	0	0	3	1	3	5	4	151
.285	9	10	34	0	0	1	1	30	5	0	3	1	13	1	0	0	1	0	0	5	3	25	142
.287	1	18	13	0	0	3	2	87	8	1	4	5	13	0	0	0	0	0	0	5	5	7	172
.289	0	17	18	0	0	4	1	131	2	0	3	10	6	0	0	0	0	0	0	25	2	10	229
.291	0	2	19	0	0	1	0	39	0	0	2	6	10	0	0	0	1	0	0	5	0	6	91
.293	7	3	46	0	0	1	1	50	2	0	1	5	5	0	6	0	9	3	1	16	2	8	166
.295	10	15	40	0	0	0	0	130	4	0	0	4	0	0	1	2	12	1	0	7	3	3	232
.297	5	12	3	0	0	0	0	297	4	0	0	1	4	0	3	2	2	0	1	5	1	9	349
.299	27	2	15	0	0	0	0	29	0	0	0	4	0	0	5	0	4	1	0	4	0	2	93
11.301	1	13	0	0	0	6	0	8	0	1	0	2	1	0	2	0	2	1	0	4	0	3	44
.303	12	47	0	0	1	8	0	44	0	0	0	4	1	0	0	0	0	1	0	2	0	7	127
.306	4	64	0	0	0	3	0	40	0	0	0	4	1	0	1	0	0	0	1	1	0	4	123

APPENDIX TABLE 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagidae	Gonostomatidae	Sternoptychidae	Astronesthidae	Chauliodontidae	Idiacanthidae	Other Stomiatoidei	Myctophidae	Paralepididae	Scopelarchidae	Eel leptocephali	Melamphaeidae	Bregmacerotidae	Exocoetidae	Scombridae	Gempylidae-Trichiuridae	Nomeidae	Bramidae	Chiasmodontidae	Other identified larvae	Unidentified larvae	Disintegrated larvae	Total fish larvae
11.308	1	6	2	0	1	0	0	13	0	1	0	2	8	0	0	0	1	0	1	3	0	5	44
.310	4	6	2	0	1	0	0	15	0	1	0	6	10	0	0	0	0	0	1	2	2	3	53
.312	0	62	3	0	0	0	0	26	2	0	0	3	1	0	0	0	0	0	0	2	0	1	100
.314	5	32	2	0	0	1	1	27	0	1	0	1	0	0	0	0	0	1	0	1	1	1	74
.316	0	3	3	0	0	0	1	8	0	0	0	3	2	0	0	0	0	3	0	2	1	0	26
.318	0	3	13	0	0	0	0	34	0	1	0	1	2	0	0	5	0	0	0	1	0	1	61
.320	1	10	5	0	0	2	0	11	1	0	0	0	2	0	0	1	0	0	0	1	0	6	40
.322	0	35	11	0	0	2	1	115	0	10	0	3	1	0	0	0	0	0	0	1	1	6	186
.324	0	21	1	0	1	1	0	13	1	1	0	1	4	0	0	1	0	0	0	·0	0	3	48
.326	0	36	3	0	0	1	1	31	0	1	0	1	4	0	0	2	0	0	0	0	0	1	81
.328	0	40	7	0	0	4	1	55	2	3	0	5	2	0	0	0	0	0	0	0	0	3	122
12.002	3	13	0	0	0	21	1	37	1	4	0	2	0	0	0	0	0	0	0	0	0	1	83
.004	3	12	0	0	0	32	3	85	1	2	0	3	3	0	0	1	0	0	0	4	0	3	152
.006	2	15	1	0	1	29	5	33	5	1	0	2	2	0	0	0	0	0	1	24	0	2	123
.008	3	65	0	0	0	17	2	88	1	9	0	0	1	0	0	0	2	0	0	12	0	3	203
.010	8	98	0	0	0	22	0	121	1	1	0	7	2	0	0	0	0	0	0	6	1	2	269
.012	4	24	0	0	0	10	1	31	6	1	0	1	1	0	0	0	0	1	0	8	0	2	90
.014	4	38	0	0	0	8	2	23	5	0	0	4	1	0	0	1	3	0	0	8	0	9	106
.016	8	182	0	0	0	10	4	69	6	4	0	2	1	0	1	0	3	0	0	9	0	2	301
.018	0	199	0	0	0	10	7	137	3	2	0	2	1	1	0	0	1	0	0	7	0	0	370
.020	3	23	0	0	0	5	4	74	4	0	0	4	1	0	0	1	2	0	0	4	1	1	127
.022	0	21	0	0	0	0	1	16	6	0	0	0	1	1	0	0	0	0	0	5	0	5	56
.024	3	242	0	0	0	0	32	97	6	0	0	1	0	0	0	0	0	0	0	13	1	5	400
.026	4	101	0	0	0	1	3	121	6	3	0	4	1	0	0	0	3	0	2	19	0	0	268
.028	0	32	0	0	0	0	3	13	3	0	0	4	0	2	3	0	3	0	0	8	2	0	73
.030	6	12	0	0	0	1	0	24	3	0	0	0	6	0	1	0	14	0	0	7	1	3	78
.032	0	13	0	0	0	0	1	20	2	0	1	1	12	0	7	0	3	0	1	23	0	314	398
.033	3	36	0	0	0	2	4	87	5	1	2	2	533	0	6	0	0	0	0	38	5	4	728
.035	1	73	0	0	0	0	4	23	2	1	0	1	70	5	2	0	4	0	1	18	0	3	208
.037	9	11	0	0	0	3	1	36	3	1	0	0	2	0	3	0	2	0	0	0	0	0	71
.039	4	3	0	0	0	10	0	17	2	3	1	1	5	3	0	0	0	0	0	0	0	1	50
.041	3	22	0	0	0	6	3	108	4	1	2	1	3	3	1	0	0	0	0	8	0	2	167
.043	0	28	0	0	0	16	2	94	22	2	0	1	16	6	1	0	1	0	0	4	0	7	200
.045	0	7	0	0	0	4	0	33	2	2	0	1	5	3	0	0	0	0	0	3	0	3	63
.047	1	4	0	0	0	4	0	61	5	2	0	1	21	4	1	2	1	0	0	3	6	5	121
.049	2	54	0	0	0	6	1	61	2	2	0	2	6	0	2	0	1	0	0	2	0	6	147
.051	0	68	0	0	0	7	1	51	1	0	1	1	2	0	0	0	3	0	0	1	0	2	138
.053	1	18	0	0	0	2	0	6	1	0	0	3	2	0	2	0	2	1	0	1	1	0	40
.055	0	7	0	0	0	1	1	7	4	0	0	2	0	0	0	0	2	0	0	2	0	0	26
.057	2	13	0	0	0	2	0	37	6	0	0	2	0	0	0	0	4	1	0	0	1	0	68
.059	21	78	11	0	0	0	0	99	2	0	2	4	0	0	0	0	1	0	1	4	0	1	224
.061	8	6	16	0	0	1	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	4	76
.063	8	0	32	0	0	0	0	109	1	0	0	4	0	0	0	0	0	0	0	1	2	3	160
.065	11	47	70	0	1	0	2	614	0	0	0	1	0	0	0	0	1	0	0	5	3	2	757
.067	2	35	57	0	3	0	1	366	1	0	0	2	0	3	19	0	45	0	0	13	0	3	550
.069	5	18	50	0	1	0	2	227	0	2	0	2	1	0	2	0	15	1	0	13	0	4	343
.071	9	18	52	0	4	2	0	71	2	0	0	1	7	0	0	0	4	0	1	5	2	5	183
.075	19	126	74	1	8	0	2	294	3	0	0	1	0	2	0	0	20	0	0	10	7	14	582
.077	13	26	13	0	0	0	0	110	3	0	0	2	2	2	1	0	2	0	1	6	11	8	200
.079	17	48	14	0	0	0	0	129	3	2	0	1	6	2	42	0	3	0	0	7	2	26	302
.081	29	75	46	0	1	0	0	389	4	1	0	0	0	2	31	1	68	0	0	4	0	85	736
.084	14	11	45	0	0	0	0	207	7	0	0	2	0	0	9	0	7	0	0	0	1	8	311
.087	13	16	12	0	0	0	0	64	8	0	0	0	0	0	1	0	0	0	0	1	0	2	117

APPENDIX TABLE 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagidae	Gonostomatidae	Sternoptychidae	Astronesthidae	Chauliodontidae	Idiacanthidae	Other Stomiatoidei	Myctophidae	Paralepididae	Scopelarchidae	Eel leptocephali	Melamphaeidae	Bregmacerotidae	Exocoetidae	Scombridae	Gempylidae-Trichiuridae	Nomeidae	Bramidae	Chiasmodontidae	Other identified larvae	Unidentified larvae	Disintegrated larvae	Total fish larvae
12.090	4	16	1	0	0	0	0	18	5	0	0	0	0	0	0	0	0	0	0	2	0	0	46
.092	0	50	3	0	0	0	0	71	9	0	0	0	0	0	0	0	0	0	0	1	1	16	151
.094	3	133	1	0	0	0	3	377	38	0	0	2	0	0	0	0	0	0	5	0	0	0	562
.097	3	61	4	0	0	0	0	101	16	1	0	0	0	0	0	0	0	0	0	2	0	19	207
12.100	12	14	11	0	0	0	3	56	5	1	0	1	0	0	1	0	0	0	0	6	1	11	122
.103	0	37	23	0	0	0	0	124	3	0	0	0	0	0	0	0	0	0	0	0	1	4	192
.106	26	41	33	0	0	1	0	319	5	0	0	0	0	1	4	0	6	0	0	6	3	7	452
.109	1	23	14	0	0	0	0	65	14	0	0	0	0	0	0	0	18	0	0	3	0	3	141
.112	6	5	17	0	0	0	0	32	1	0	0	0	0	0	0	0	0	0	0	1	1	4	67
.115	17	12	55	0	0	0	0	72	8	0	0	4	0	0	36	2	10	0	0	8	1	10	235
.118	0	159	9	0	0	0	0	107	6	1	0	0	0	2	11	7	18	1	0	7	0	2	330
.120	0	6	57	0	0	0	0	15	3	0	0	2	0	0	3	1	1	0	0	0	0	4	92
.122	0	5	36	0	2	0	0	30	2	0	0	0	0	0	0	0	0	0	0	0	4	3	82
.124	0	8	24	0	0	0	0	27	0	0	0	1	2	0	0	0	0	0	0	1	0	3	66
.126	0	22	17	0	14	0	0	108	0	0	0	1	0	2	0	0	0	0	0	1	1	6	172
.128	0	8	8	0	1	0	0	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66
.130	0	0	3	0	2	0	0	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	18
.132	0	7	8	0	0	0	0	8	0	0	0	0	0	0	0	0	1	0	0	0	0	0	24
.134	0	28	11	0	0	0	1	20	1	0	0	0	0	0	0	0	0	0	0	0	0	1	62
.136	0	16	17	0	0	0	0	19	1	0	0	0	0	0	0	0	0	0	0	0	1	2	56
.138	0	12	6	0	0	0	0	10	3	0	1	0	2	0	0	0	0	0	0	0	0	2	36
.140	0	21	9	0	0	0	1	69	0	0	0	2	0	11	2	0	0	0	0	3	2	0	120
.142	0	110	11	0	1	0	1	84	11	3	2	4	3	1	3	0	0	0	0	0	1	4	241
.144	1	162	37	0	1	0	0	72	7	1	2	0	0	1	0	1	0	0	0	1	3	3	292
.146	0	13	1	0	1	1	0	11	1	1	0	0	0	0	0	0	0	0	0	1	0	0	30
.148	0	6	6	0	0	1	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	2	26
.150	0	36	0	1	0	0	2	86	1	0	0	0	0	0	17	3	0	0	0	1	4	0	151
.152	0	16	3	0	0	2	0	37	0	0	0	0	1	0	0	1	0	0	0	2	0	7	69
.154	0	11	0	0	0	0	0	12	0	1	0	0	4	0	0	0	0	0	0	0	1	2	31
.156	0	8	0	0	0	0	1	14	1	0	0	0	0	0	0	0	0	0	0	3	0	0	27
.158	0	50	1	0	0	0	0	41	4	1	0	1	0	0	0	1	0	0	0	1	0	0	100
.160	0	19	0	0	0	0	1	19	0	0	0	0	0	1	0	0	0	0	0	0	0	2	42
.162	0	1	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	0	0	1	0	0	8
.164	0	42	0	0	0	0	1	36	1	0	1	3	0	0	0	0	0	0	0	1	0	0	85
.184	0	49	25	0	0	1	0	45	4	5	0	1	0	0	0	0	0	0	0	1	1	1	133
.186	0	2	20	0	7	0	1	5	1	0	0	0	0	0	0	0	0	0	0	1	0	0	37
.188	0	4	31	0	2	0	1	8	3	0	0	1	2	0	0	1	0	0	0	0	0	3	56
.190	0	11	0	0	0	0	1	6	0	0	0	0	0	0	2	0	0	0	0	0	1	1	22
.192	0	27	7	0	0	0	0	45	3	1	0	1	0	1	0	0	0	0	0	0	2	1	88
.194	0	5	3	0	0	0	0	16	0	1	0	0	2	0	0	0	0	0	0	0	1	2	30
.196	0	5	34	0	10	0	0	22	0	0	0	5	0	0	0	0	3	0	0	3	8	7	97
.198	0	2	44	0	1	0	0	12	0	0	0	5	0	0	0	0	1	0	0	1	0	2	68
12.200	0	6	8	0	0	0	0	36	1	0	0	0	0	1	14	0	5	0	0	1	3	4	79
.203	1	4	38	0	0	0	0	91	2	0	0	0	0	0	1	0	0	0	0	0	0	3	140
.206	4	15	14	0	0	0	1	36	2	0	0	3	0	0	1	0	0	1	0	4	0	2	83
.209	4	6	35	0	0	0	0	70	4	0	0	1	0	0	2	0	0	0	0	6	0	1	129
.212	16	34	21	0	0	0	0	300	8	0	0	1	0	0	5	0	0	0	0	3	6	8	402
.215	7	45	23	0	0	0	0	202	6	0	3	0	0	0	12	0	0	0	0	7	0	3	308
.218	1	22	23	0	0	0	0	127	8	1	0	1	0	0	6	0	1	1	0	12	1	8	212
.221	2	44	13	0	0	0	0	209	24	2	0	2	0	0	0	0	1	0	4	8	4	17	330
.224	0	251	11	0	0	0	3	1089	66	5	0	2	0	0	2	0	1	0	10	13	0	10	1463
.227	1	94	14	0	0	0	3	162	27	0	0	1	1	1	1	0	0	0	1	3	5	22	336
.230	3	5	3	0	0	0	0	49	5	1	0	1	0	0	0	0	0	0	0	8	0	3	78
.233	45	52	24	0	0	0	2	250	10	1	0	2	0	0	0	0	0	0	0	3	0	1	390

APPENDIX TABLE 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagidae	Gonostomatidae	Sternoptychidae	Astronesthidae	Chauliodontidae	Idiacanthidae	Other Stomiatoidei	Myctophidae	Paralepididae	Scopelarchidae	Eel leptocephali	Melamphaeidae	Bregmacerotidae	Exocoetidae	Scombridae	Gempylidae-Trichiuridae	Nomeidae	Bramidae	Chiasmodontidae	Other identified larvae	Unidentified larvae	Disintegrated larvae	Total fish larvae
12.235	25	59	11	0	3	0	4	280	11	0	1	1	0	0	11	0	6	0	0	2	0	5	419
.238	17	39	56	0	4	1	3	225	2	3	0	5	4	0	18	0	10	0	0	0	4	5	396
.240	11	19	70	0	3	0	7	54	2	0	0	1	5	0	24	0	10	0	0	6	1	10	223
.242	1	1	44	0	0	1	2	25	1	0	1	2	4	2	12	0	4	2	0	6	3	5	116
.244	3	14	99	1	3	2	2	105	3	2	0	1	8	1	10	0	14	1	0	29	3	2	303
.246	11	3	42	1	0	0	0	248	3	0	1	4	0	1	8	2	5	0	0	14	2	3	348
.248	1	6	8	0	1	0	1	51	0	0	0	1	1	0	1	0	1	0	0	4	0	2	78
.250	1	8	9	0	0	0	0	54	1	0	0	5	6	0	0	0	1	0	0	1	0	3	89
.252	1	3	5	0	0	1	0	44	2	0	0	1	1	0	0	0	0	0	0	0	0	6	64
.254	1	5	13	0	0	2	0	84	5	0	0	0	1	0	0	0	0	0	0	1	0	1	113
.256	3	1	15	0	0	0	2	23	5	0	0	0	5	0	0	0	0	0	0	1	0	1	56
.258	0	0	26	0	0	0	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
.260	2	20	4	0	0	1	0	74	4	2	0	4	0	0	0	1	1	0	0	4	0	3	120
.262	2	102	0	0	0	7	3	161	10	4	0	0	3	0	0	1	0	0	0	2	0	0	295
.264	2	20	0	0	0	29	1	26	10	0	0	3	8	0	0	0	0	0	0	3	2	6	110
.265	3	18	0	0	0	32	1	54	5	7	0	2	17	0	0	0	2	0	0	1	2	1	145
.268	0	105	0	0	0	14	1	156	6	6	0	0	4	0	0	0	5	0	0	12	1	6	316
.270	1	29	0	0	0	17	1	60	6	4	0	2	7	0	0	0	0	0	0	3	1	3	135
.272	4	43	0	0	0	6	2	81	4	1	0	5	11	0	0	1	0	0	0	3	5	2	168
.274	0	40	0	0	0	36	1	85	5	1	0	8	4	0	0	0	1	0	0	1	1	4	187
.276	0	138	0	0	0	6	0	20	0	0	0	0	1	0	0	1	0	0	0	0	0	1	167
.278	1	165	0	0	0	1	2	45	0	0	0	1	3	0	0	0	0	0	0	0	1	0	219
.280	0	22	0	0	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	1	29
.282	1	23	0	0	0	0	0	8	0	0	0	1	1	0	0	0	0	0	0	0	1	0	35
.284	0	120	0	0	0	0	2	16	0	0	0	0	0	0	0	0	0	0	0	0	0	1	139
13.001	8	93	108	0	1	8	0	41	0	1	0	6	0	0	1	0	0	0	0	0	1	6	274
.003	14	1165	39	0	2	10	1	385	14	1	0	9	0	0	0	0	2	0	0	11	0	4	1657
.005	54	310	18	0	0	11	3	1075	0	1	0	14	0	0	3	0	1	0	0	7	0	6	1503
.007	9	13	38	0	2	4	3	133	0	0	0	10	0	0	7	0	2	0	0	4	0	0	225
.009	9	10	15	0	1	0	1	494	0	0	0	7	0	0	7	0	0	0	0	1	0	5	550
.011	6	2	15	0	0	1	1	374	0	0	0	0	0	0	0	0	0	0	0	2	0	0	401
.013	18	9	5	0	0	0	0	207	0	0	0	1	1	1	1	0	0	0	0	5	0	3	251
.015	4	1	21	0	0	0	0	479	0	0	0	2	0	0	4	0	0	0	0	2	0	0	513
.017	16	63	20	0	1	0	2	559	0	0	0	3	0	5	8	0	0	0	0	3	5	3	688
.019	9	82	19	0	0	2	0	1219	0	0	9	5	62	10	106	0	2	0	0	275	48	12	1860
.021	4	2	0	0	0	0	0	409	0	0	1	1	176	0	24	0	0	0	0	58	6	9	690
.022	1	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	5
.028	4	6	0	0	0	0	0	2	0	0	1	0	1	0	1	0	0	1	0	0	0	0	16
.030	7	0	0	0	0	0	0	24	0	0	0	7	2	0	7	0	0	0	0	9	0	0	56
.032	0	24	0	0	0	0	0	44	4	0	0	4	8	0	52	0	4	0	0	36	12	0	188
.034	23	61	4	0	0	0	2	158	0	0	0	4	0	6	43	0	7	1	1	46	8	3	367
.036	8	0	2	0	0	0	0	13	0	0	1	3	0	2	0	0	1	0	0	1	0	0	31
.038	28	0	20	0	0	0	0	142	0	0	0	8	0	0	2	0	0	0	0	2	0	10	212
.040	20	17	65	0	0	0	4	469	0	1	2	2	1	0	20	0	0	0	0	10	0	10	621
.042	11	14	85	0	1	0	0	307	0	0	0	3	0	1	4	0	4	0	0	15	0	3	448
.044	10	14	73	0	0	3	1	109	0	1	0	3	0	0	2	0	1	0	1	1	0	1	220
.046	10	78	95	0	1	5	10	105	11	0	0	6	1	0	1	0	3	0	0	3	2	16	347
.048	29	311	177	0	3	6	5	300	22	0	2	12	1	1	1	3	44	0	0	6	0	15	948
.050	10	41	68	0	0	8	1	133	2	0	0	5	0	0	0	0	5	0	0	1	0	3	277
.052	13	199	73	0	0	3	1	79	24	0	0	6	1	0	0	0	4	0	0	22	4	26	455
.054	14	91	26	0	0	1	4	77	24	0	0	2	2	3	11	17	5	0	1	9	7	8	302
.056	33	513	10	0	0	0	18	144	28	0	0	2	1	0	0	2	7	0	0	15	9	4	786
.058	6	338	9	0	0	0	2	83	10	0	0	3	0	0	7	0	3	0	0	0	3	6	470

APPENDIX TABLE 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagidae	Gonostomatidae	Sternoptychidae	Astronesthidae	Chauliodontidae	Idiacanthidae	Other Stomiatoidei	Myctophidae	Paralepididae	Scopelarchidae	Eel leptocephali	Melamphaeidae	Bregmacerotidae	Exocoetidae	Scombridae	Gempylidae-Trichiuridae	Nomeidae	Bramidae	Chiasmodontidae	Other identified larvae	Unidentified larvae	Disintegrated larvae	Total fish larvae
.060	5	26	0	0	0	0	0	59	4	0	0	1	0	0	18	0	0	0	0	2	3	2	120
.062	7	8	1	0	0	0	0	44	5	0	1	0	0	0	1	0	0	0	0	8	5	3	83
.064	15	71	6	0	0	0	2	274	21	0	1	2	0	0	1	0	0	0	1	0	5	7	406
.065	2	72	6	0	0	0	4	31	6	0	0	1	0	0	0	0	0	0	0	1	4	1	128
.067	7	54	3	0	0	0	1	34	6	0	0	1	0	0	0	0	0	0	0	1	0	0	107
.069	37	60	33	0	0	1	6	99	7	0	0	7	0	0	1	0	0	0	0	3	0	3	257
.071	37	572	8	0	1	8	6	318	9	0	0	8	0	1	14	6	3	0	1	13	7	3	1015
.073	42	167	53	0	2	27	1	172	27	0	0	11	0	0	3	7	10	1	1	16	7	8	555
.075	8	21	3	0	1	0	0	39	25	0	0	6	0	0	1	2	1	1	0	1	0	4	113
.077	0	59	38	0	0	0	2	89	14	2	0	1	0	0	5	3	3	0	1	2	2	36	257
.079	0	135	43	0	0	0	0	69	3	3	2	1	0	0	5	0	6	0	0	1	0	0	268
.081	2	164	13	0	0	0	1	16	2	0	1	0	0	0	0	8	4	0	0	1	0	3	215
.083	5	43	4	0	0	0	0	17	1	0	0	6	0	0	0	1	0	0	0	0	0	1	78
.085	0	2	1	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
.087	0	66	6	0	0	1	0	37	0	1	0	0	1	0	0	0	0	0	0	3	0	0	115
.089	0	26	29	0	0	0	0	105	2	0	0	1	0	0	0	0	0	0	2	3	0	15	183
.091	0	11	2	0	0	1	1	49	6	0	0	3	2	0	2	0	0	1	1	3	2	17	101
.093	0	3	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	2	13
.095	6	146	4	1	0	29	3	195	1	0	2	4	7	0	10	7	0	0	6	12	2	4	439
.097	3	103	11	0	0	7	2	205	2	2	0	6	4	0	1	5	0	1	4	9	2	1	368
.099	0	16	7	0	1	0	1	48	0	0	0	1	1	0	0	0	0	0	6	1	1	0	83
13.101	3	11	0	0	1	0	0	45	2	3	0	1	7	0	0	7	0	0	0	4	1	0	85
.103	1	162	6	0	1	3	4	255	5	0	0	5	3	0	0	7	0	0	3	14	3	7	479
.105	0	50	4	0	0	1	1	166	2	0	0	3	1	0	0	2	0	1	4	5	2	0	242
.107	0	1	0	0	0	0	0	13	0	0	0	0	0	0	0	1	0	0	1	0	0	0	16
.109	0	12	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	2	0	0	41
.111	0	18	1	0	0	0	0	49	1	0	0	1	0	0	0	0	0	0	0	1	0	0	71
.113	0	30	2	0	0	0	1	72	2	0	0	0	2	1	0	0	0	0	0	2	0	0	112
.115	0	8	0	0	0	0	0	25	1	0	0	0	1	0	0	0	0	0	0	1	0	1	37
.117	0	9	4	0	0	0	4	52	1	2	0	1	3	1	0	0	0	0	0	1	1	2	81
.119	0	36	0	0	0	0	4	86	4	0	0	0	0	0	0	4	0	0	0	0	0	0	134
.121	0	17	3	0	0	0	0	22	1	0	0	0	0	0	0	0	0	0	0	0	0	2	45
.123	0	3	2	0	0	0	0	3	1	1	0	2	0	0	0	0	0	0	2	0	0	0	14
.125	0	1	1	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
.127	0	20	2	0	0	0	3	39	1	1	0	1	1	0	0	0	0	0	0	0	0	1	69
.129	0	11	1	0	0	0	2	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
.131	0	6	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	3	16
.133	0	5	4	0	0	0	0	9	0	0	1	0	0	0	0	0	0	0	0	0	2	0	21
.135	0	56	1	0	0	0	1	78	2	0	0	1	1	0	0	0	0	0	0	0	0	0	140
.137	0	40	1	0	0	0	0	50	1	0	0	0	0	0	0	2	0	0	0	2	0	0	96
.139	0	12	1	0	0	0	0	8	0	0	0	0	0	0	0	1	0	0	0	0	1	1	24
.141	0	4	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
.143	0	76	2	0	0	0	0	86	1	0	0	1	1	0	0	0	0	0	0	0	6	0	173
.145	0	20	2	0	0	0	2	44	2	0	0	0	2	0	0	0	0	0	0	0	0	0	72
.147	0	17	0	0	0	0	0	33	0	0	0	3	4	0	0	2	0	0	0	3	3	0	65
.149	0	14	6	0	0	0	0	29	0	0	0	2	0	0	0	0	1	0	0	0	0	3	59
.151	0	22	0	0	3	0	1	72	0	1	0	0	0	2	0	0	0	0	0	0	1	1	103
.153	0	103	1	0	1	3	1	394	2	1	1	5	3	0	0	1	0	2	0	17	1	3	539
.155	0	8	4	0	0	0	0	16	0	2	0	2	0	0	0	0	0	0	0	2	4	0	38
.157	0	8	8	0	0	1	0	45	1	0	0	0	1	0	1	0	0	0	0	0	0	2	67
.159	0	12	5	0	0	8	0	53	1	1	0	1	0	0	4	2	0	0	0	2	2	1	92
.161	0	24	6	0	0	0	0	65	3	0	0	0	2	0	0	0	0	0	0	0	0	2	102
.163	0	5	2	0	0	0	0	14	0	0	0	0	1	0	0	0	0	0	0	0	0	0	22
.165	0	4	17	0	0	0	0	24	0	0	0	1	2	0	0	0	0	0	0	0	0	0	48

APPENDIX TABLE 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagidae	Gonostomatidae	Sternoptychidae	Astronesthidae	Chauliodontidae	Idiacanthidae	Other Stomiatoidei	Myctophidae	Paralepididae	Scopelarchidae	Eel leptocephali	Melamphaeidae	Bregmacerotidae	Exocoetidae	Scombridae	Gempylidae-Trichiuridae	Nomeidae	Bramidae	Chiasmodontidae	Other identified larvae	Unidentified larvae	Disintegrated larvae	Total fish larvae
13.167	0	19	11	0	0	0	0	33	0	0	0	0	0	0	0	1	0	0	0	1	0	1	66
.169	0	83	10	0	0	0	0	169	0	0	0	1	0	0	0	0	0	0	0	0	0	1	264
.171	0	18	38	0	0	0	1	104	10	0	0	3	0	0	14	1	0	0	0	2	1	3	195
.173	7	4	10	0	0	3	1	121	2	1	0	3	0	0	6	1	0	0	0	1	0	4	164
.175	22	176	14	0	3	1	0	245	5	0	0	5	0	3	45	1	2	0	0	6	5	2	535
.179	15	111	75	0	0	0	0	133	2	1	0	1	0	1	7	3	4	0	0	2	0	0	355
.183	50	39	39	0	2	3	0	80	13	0	0	15	0	0	7	0	22	1	0	3	2	1	277
.187	43	29	49	0	0	0	3	67	7	0	0	3	0	0	1	2	21	0	1	6	0	4	236
.191	10	148	23	0	0	0	1	126	24	0	0	5	0	1	7	1	18	0	0	8	1	3	376
.195	10	202	2	0	0	0	0	182	2	0	0	0	0	0	0	0	0	1	0	1	0	3	403
.199	5	28	3	0	0	0	0	55	5	0	0	2	0	0	0	0	0	0	1	1	0	2	102
13.203	3	16	2	0	0	0	0	20	2	0	0	0	0	0	0	0	0	0	1	3	0	3	50
.207	11	161	4	0	0	0	0	129	11	0	0	1	0	0	0	0	0	0	0	2	0	1	320
.211	5	36	2	0	0	0	1	68	3	0	0	0	0	0	1	0	0	0	0	0	1	1	118
.215	6	7	5	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	2	27
.219	9	10	14	0	0	0	0	11	0	0	1	0	0	0	0	0	0	0	0	0	0	4	49
.223	2	20	3	0	0	0	0	32	5	0	0	2	0	0	0	0	3	0	0	1	3	1	72
.227	9	38	30	0	0	0	0	121	12	0	1	1	0	4	1	0	3	0	0	0	1	0	221
.231	9	34	35	0	0	0	0	82	0	0	0	1	0	0	0	0	2	0	1	1	0	1	166
.235	9	36	78	0	0	1	1	106	0	2	0	1	0	1	1	1	5	0	0	3	6	7	258
.237	6	47	97	0	1	0	1	189	2	1	0	3	0	0	7	0	7	0	0	3	4	3	371
.239	3	44	58	0	0	0	3	179	0	0	0	1	0	0	0	0	7	0	0	4	0	2	301
.241	2	5	36	0	0	0	0	59	1	0	0	0	0	0	1	0	6	0	0	0	0	4	114
.243	11	13	5	0	0	0	0	93	0	0	0	3	1	0	0	0	5	0	0	1	0	9	141
.245	7	14	11	0	1	0	0	57	3	3	0	2	0	0	0	1	0	0	0	15	0	0	114
.247	9	11	3	0	0	0	0	26	0	2	0	1	0	0	1	0	0	0	0	7	0	0	60
.249	1	3	4	0	0	0	0	46	0	0	0	0	0	0	0	0	0	0	0	1	0	0	55
.251	6	10	9	0	0	1	2	25	15	2	3	1	0	0	3	0	1	1	0	1	0	1	81
.253	20	22	2	0	0	2	4	6	2	0	2	2	0	0	0	0	6	0	0	80	0	0	148
.255	7	29	0	0	0	2	0	29	2	2	0	3	4	1	15	0	0	0	0	29	3	2	128
.257	8	3	0	0	0	0	2	10	3	0	0	1	5	0	0	0	0	0	0	2	0	4	38
.259	17	18	0	0	0	4	0	23	0	0	0	1	2	0	5	0	0	0	0	3	0	6	79
.261	8	37	0	0	0	3	0	13	6	3	0	1	5	0	0	0	1	0	0	44	0	1	122
.263	19	54	0	0	0	4	0	46	1	5	0	3	3	1	11	0	0	0	0	15	1	2	165
.265	6	13	0	0	0	0	8	14	6	1	1	0	5	0	2	0	2	0	0	5	5	1	69
.266	0	2	0	0	0	0	0	14	0	0	0	0	22	0	2	0	0	0	0	8	5	1	54
.268	3	26	0	0	0	7	0	33	5	1	0	1	3	0	1	0	3	0	0	2	4	7	96
.270	4	20	0	0	0	5	4	9	7	1	0	1	1	12	1	0	2	0	0	3	2	6	78
.272	2	3	1	0	0	0	2	13	1	0	0	1	1	0	0	0	1	0	0	1	0	2	28
.274	1	52	0	0	0	21	6	63	15	4	1	8	3	3	2	0	7	0	0	9	2	1	198
.276	5	91	0	0	0	13	3	89	10	0	0	1	3	3	20	0	2	0	0	9	1	0	250
.278	1	21	0	0	0	18	2	7	0	3	0	1	2	0	0	0	1	0	0	0	0	1	59
.280	8	8	0	0	0	27	2	31	2	15	0	0	34	0	0	1	0	0	0	6	0	0	134
.282	0	36	0	0	0	9	6	89	5	20	0	0	7	1	0	0	0	0	0	15	1	0	189
.284	18	61	0	0	0	23	3	34	10	15	0	1	13	2	0	0	0	0	0	3	0	2	185
13.318	13	1	0	0	0	5	0	3	0	2	0	2	5	0	1	0	0	0	0	5	0	0	37
.320	8	16	9	0	0	0	0	18	1	4	1	5	2	0	13	0	0	0	0	23	0	0	100
.322	0	5	0	0	0	0	0	0	0	0	1	0	0	2	9	0	0	0	0	6	0	0	23
.324	10	4	1	0	0	3	0	26	1	0	0	0	1	3	4	0	1	0	0	1	0	0	55
.326	13	10	1	0	0	0	0	44	0	4	0	0	2	0	18	0	0	0	0	4	0	0	96
.328	2	9	1	0	0	0	0	35	2	1	0	5	1	1	7	0	23	0	0	4	3	2	96
.330	4	12	8	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	4	0	0	52
.332	11	2	19	0	0	0	0	63	0	0	0	0	0	0	2	0	0	1	0	1	0	1	100

APPENDIX TABLE 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagidae	Gonostomatidae	Sternoptychidae	Astronesthidae	Chauliodontidae	Idiacanthidae	Other Stomiatoidei	Myctophidae	Paralepididae	Scopelarchidae	Eel leptocephali	Melamphaeidae	Bregmacerotidae	Exocoetidae	Scombridae	Gempylidae-Trichiuridae	Nomeidae	Bramidae	Chiasmodontidae	Other identified larvae	Unidentified larvae	Disintegrated larvae	Total fish larvae
13.334	37	21	17	0	0	0	1	116	2	0	0	3	0	0	1	0	1	0	0	5	3	1	208
.338	9	49	26	0	0	0	0	295	0	0	1	0	0	2	5	0	8	0	0	24	0	3	422
.340	4	11	23	0	0	2	0	47	0	0	0	4	0	0	0	0	4	1	0	4	0	0	100
.342	9	24	21	0	0	2	0	76	4	0	1	3	0	0	4	0	0	0	0	1	0	2	147
14.001	39	97	1	1	1	0	6	867	4	5	2	0	194	0	9	1	12	0	0	261	15	195	1710
.006	32	19	38	0	0	0	1	66	2	0	8	0	2	0	10	0	0	0	0	15	25	8	226
.008	34	4	32	0	0	2	1	86	1	0	2	0	1	0	1	0	2	0	0	25	4	2	197
.010	14	19	40	0	0	4	2	198	1	0	2	3	0	0	0	1	0	0	0	12	2	3	301
.012	6	1	7	0	0	1	1	57	1	0	0	3	1	0	0	2	0	0	0	2	4	4	90
.014	42	4	9	0	0	1	0	67	0	0	1	0	9	0	2	0	0	0	0	30	5	28	198
.016	19	1	20	0	0	0	0	8	0	0	0	2	4	0	2	0	0	0	0	44	16	5	121
.017	17	2	16	0	0	1	0	61	1	0	0	2	0	0	0	0	0	0	0	4	0	1	105
.018	41	48	64	0	0	2	2	424	0	0	0	4	0	0	0	0	5	0	0	24	1	19	634
.020	6	10	12	0	0	0	1	229	1	0	0	2	0	0	0	0	0	0	0	10	0	54	325
.022	7	22	14	0	0	0	3	80	0	0	0	5	1	0	0	0	1	0	0	32	4	0	169
.024	6	0	0	0	0	0	0	47	0	0	1	0	0	1	0	0	0	0	0	29	5	22	111
.027	23	31	42	0	0	0	3	387	0	0	2	7	9	0	6	0	0	0	0	87	34	19	650
.029	24	42	25	0	0	0	5	382	0	1	1	2	6	0	1	3	1	0	0	119	47	26	685
.031	30	43	46	0	0	9	2	594	15	0	2	6	0	0	1	1	3	0	0	75	5	43	875
.033	21	5	0	0	0	0	2	26	1	0	0	1	0	0	0	0	0	0	0	9	3	3	71
.040	48	2	0	0	0	0	2	36	8	0	3	4	0	0	6	0	0	0	1	21	3	21	155
.043	65	17	2	0	0	0	1	159	8	0	0	8	1	0	22	0	1	0	3	15	7	4	313
.047	111	3	4	0	0	0	4	22	3	0	0	2	0	3	9	0	6	0	0	7	0	44	218
.051	225	27	1	1	0	0	5	78	3	0	0	1	0	1	46	0	11	0	1	1	3	25	429
.055	154	2	2	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	4	0	8	210
.060	139	0	0	0	0	0	0	18	0	0	1	2	0	0	0	0	0	0	0	54	2	15	231
.066	13	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	11	0	1	26
.069	20	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	97	0	0	119
.076	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	11	0	0	15
.078	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.081	2	16	1	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
.084	2	3	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	1	0	2	13
.086	2	0	0	0	1	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	3	13
.088	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
.091	2	40	0	0	0	0	1	43	0	0	0	0	0	0	0	0	0	0	0	3	2	0	91
.095	2	3	0	0	0	0	1	50	0	0	0	0	0	0	0	1	0	0	1	1	0	0	59
.099	2	3	0	0	0	1	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
14.103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	11	0	14
.110	0	8	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	1	0	1	37
.112	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5
.114	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.115	2	6	0	0	1	0	0	5	0	0	0	1	0	0	0	0	0	0	0	2	0	0	17
.117	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	5
.118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.120	1	6	0	0	1	0	0	15	0	0	0	0	0	1	1	0	0	0	0	0	0	0	25
.122	2	11	1	0	0	1	0	19	0	0	0	0	0	0	0	1	0	0	0	1	0	0	36
.123	7	23	0	0	0	7	0	51	0	0	0	1	1	0	0	1	0	0	2	9	0	0	102
.124	7	76	0	0	0	6	0	152	0	0	0	0	4	2	0	3	0	0	2	12	0	4	268
.126	3	20	1	0	2	6	0	53	0	1	0	0	3	0	0	2	0	0	3	4	1	15	114
.127	5	5	0	0	0	0	1	22	0	0	0	0	2	0	0	3	0	0	0	3	0	3	44
.128	5	60	0	0	3	9	0	145	0	0	0	0	5	0	0	6	1	0	1	13	0	0	248
.130	3	44	1	0	1	7	0	45	0	0	0	2	2	0	4	3	2	1	5	3	4	15	142

APPENDIX TABLE 1.—Counts of fish larvae, tabulated by family, for all stations occupied on EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagidae	Gonostomatidae	Sternoptychidae	Astronesthidae	Chauliodontidae	Idiacanthidae	Other Stomiatoidei	Myctophidae	Paralepididae	Scopelarchidae	Eel leptocephali	Melamphaeidae	Bregmacerotidae	Exocoetidae	Scombridae	Gempylidae-Trichiuridae	Nomeidae	Bramidae	Chiasmodontidae	Other identified larvae	Unidentified larvae	Disintegrated larvae	Total fish larvae
14.131	0	14	0	0	0	0	1	2	0	2	0	0	0	0	0	1	0	0	0	0	2	2	24
.132	8	17	3	0	0	0	0	8	1	2	2	3	0	0	0	0	2	2	0	5	1	0	54
.134	0	4	2	0	0	0	0	11	0	0	2	2	0	0	0	2	2	0	0	1	0	1	27
.136	1	18	3	0	0	0	0	43	0	0	0	0	0	0	0	0	0	0	1	0	0	0	66
.138	9	92	32	0	0	0	0	29	1	1	0	0	0	1	9	3	5	0	1	1	1	4	189
.142	1	53	31	0	0	0	4	110	0	0	0	1	0	0	1	2	5	0	0	1	0	4	213
.146	46	111	9	0	2	0	2	176	10	0	0	3	0	1	8	2	17	1	0	2	0	4	394
.150	34	48	13	0	0	0	1	52	4	0	0	4	0	4	5	1	2	1	3	6	0	87	265
.154	34	382	17	0	0	0	0	92	6	0	0	5	0	2	7	0	1	0	1	20	1	2	570
.158	0	224	2	0	0	0	1	30	10	0	0	0	0	0	3	0	6	0	0	27	5	21	329
.164	8	53	0	0	0	0	2	135	39	0	3	0	0	0	6	1	0	0	1	8	2	26	284
.172	1	97	20	0	0	0	0	26	0	0	2	0	0	0	16	0	0	0	0	43	3	1	209
.174	3	37	12	0	0	0	0	26	7	0	0	1	0	0	0	0	0	0	0	12	7	32	137
.177	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	77	5	0	86
.183	1	1	0	0	1	0	0	4	1	0	0	0	0	0	0	0	0	0	0	1	0	2	11
.188	34	168	5	0	0	4	1	261	25	1	5	7	0	3	36	1	3	0	0	5	2	0	561
.194	161	129	1	0	0	3	4	1753	40	0	4	23	0	0	22	2	12	0	0	12	7	24	2197
.195	54	17	0	0	0	2	1	252	24	3	0	1	0	0	0	1	0	0	0	6	0	68	429
.199	15	203	20	0	1	2	0	16	13	3	3	5	0	0	20	0	2	1	1	12	5	4	326
14.203	3	2	12	0	0	0	0	179	2	0	0	1	0	0	1	0	2	0	0	4	0	2	208
.209	5	2	5	0	0	0	0	25	0	0	2	0	1	10	0	0	2	0	0	3	0	1	56
.213	34	96	9	0	1	2	2	206	1	2	1	3	0	1	11	0	2	0	0	6	1	0	378
.218	27	39	1	0	0	1	0	177	0	2	0	1	0	2	4	0	1	0	0	3	1	7	266
.220	2	3	6	0	0	0	0	22	9	0	0	1	0	0	13	0	0	0	0	5	4	21	86
.222	2	5	2	0	1	2	2	49	0	2	1	1	0	0	1	1	0	0	0	1	2	1	73
.224	12	37	19	0	0	0	2	115	2	1	1	1	0	0	8	1	0	0	0	12	4	6	221
.228	2	5	10	0	0	1	0	30	3	2	1	2	1	0	2	0	0	0	0	14	3	0	76
.230	1	5	9	0	1	0	1	41	2	0	0	1	0	0	10	0	0	1	0	8	2	8	90
.232	9	49	23	0	0	0	0	31	1	2	0	3	0	0	12	0	0	0	0	8	0	1	139
.234	9	869	1	0	0	3	8	228	10	0	12	1	0	0	185	9	9	0	0	5	1	350	1748
.236	3	16	3	0	0	1	0	34	2	1	1	3	0	0	10	0	0	0	0	8	1	0	83
.240	21	36	18	0	0	2	0	116	16	2	2	5	1	0	85	1	2	0	0	12	3	8	330
.243	24	28	11	0	0	0	0	44	7	0	1	1	0	1	5	0	1	0	0	3	0	2	128
.247	4	52	9	0	0	2	0	86	9	0	0	0	0	0	1	0	1	0	0	2	2	1	169
.251	11	25	6	0	1	1	0	25	8	0	0	4	0	0	1	0	0	0	0	8	0	1	91
.255	210	86	11	0	1	2	0	227	0	1	0	1	0	0	59	0	2	1	0	8	5	17	631
.259	16	40	6	0	0	4	1	53	0	3	1	6	0	0	0	3	0	2	0	7	3	4	149
.263	2	233	4	0	0	0	0	105	0	0	0	1	0	0	0	0	4	0	0	3	0	2	354
.267	3	33	3	0	0	0	1	8	0	0	0	2	0	0	0	0	0	0	0	6	1	0	57
.276	9	58	0	0	0	1	0	13	0	2	0	3	0	0	0	0	3	0	0	3	3	0	95
.280	7	63	0	0	0	4	2	44	1	0	0	0	0	0	0	6	4	0	0	9	4	10	154
.283	3	13	0	0	2	0	0	22	0	1	0	4	0	0	0	1	0	0	1	2	0	1	50
.287	5	62	12	0	1	0	0	15	0	1	0	2	0	0	0	3	10	1	0	10	0	1	123
.291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.295	4	1	2	0	0	0	0	65	0	0	0	1	0	0	63	1	1	0	0	8	3	1	150
14.300	287	0	5	0	0	0	2	18	0	0	0	0	0	0	1	0	0	0	0	1	0	8	322
.303	493	10	6	0	0	0	3	200	0	0	0	2	0	0	0	0	0	0	0	9	0	0	723
.306	34	2	1	0	0	0	2	32	8	0	0	6	0	0	0	0	0	0	1	1	0	5	92
.310	91	21	18	0	0	0	3	96	6	0	0	8	0	0	0	0	0	0	0	0	0	5	248
.314	24	25	20	0	0	0	2	59	7	0	0	4	0	0	0	0	0	0	0	2	0	1	144
.318	32	70	39	0	0	9	1	566	0	0	0	4	0	0	1	3	0	0	1	93	0	9	828
.323	11	24	37	0	0	0	3	165	0	0	0	2	0	0	0	0	0	0	0	15	0	5	262
.326	27	66	31	0	0	4	4	659	0	0	2	13	1	0	8	1	0	0	0	49	13	33	911
.330	0	1	3	0	0	0	0	23	1	0	0	0	5	0	0	1	0	0	0	1	0	3	38

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I.

STATION NUMBER	Benthosema panamense	Ceratoscopelus townsendi	Diaphus spp.	Diogenichthys laternatus	Diogenichthys atlanticus	Electrona sp.	Gonichthys tenuiculus	Hygophum atratum	Hygophum proximum	Lampadena spp.	Lampanyctus spp.	Lepidophanes pyrsobolus	Lobianchia sp.	Loweina rara	Myctophum spp.	Notolychnus valdiviae	Notoscopelus resplendens	Protomyctophum sp.	Symbolophorus evermanni	Triphoturus spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
11.022	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	4
.025	0	1	1	1	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	11
.027	0	1	1	4	0	0	0	4	0	0	2	0	0	1	0	0	0	0	0	0	1	0	14
.030	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.032	0	0	0	6	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
.034	0	0	2	10	0	0	0	16	0	0	7	0	0	0	0	0	0	0	0	0	0	0	35
.036	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
.038	0	0	2	10	0	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	2	2	21
.040	0	0	5	4	0	0	0	39	0	0	1	0	0	0	0	0	0	0	4	0	2	0	55
.044	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
.046	0	0	4	41	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1	50
.048	0	0	1	6	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	20
.050	0	0	0	33	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	36
.052	0	0	0	56	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	58
.054	0	0	3	147	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	159
.056	0	0	0	56	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	3	67
.058	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	28
.060	0	0	4	53	0	0	1	0	3	0	9	0	0	0	0	0	0	0	1	0	1	0	72
.062	0	0	0	16	0	0	0	0	1	0	2	0	0	0	0	1	0	0	0	0	1	0	21
.064	0	0	2	43	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	1	0	51
.066	0	0	4	14	0	0	2	0	9	0	4	0	0	0	20	3	0	0	4	1	2	0	63
.068	0	0	67	33	1	0	0	0	14	2	4	7	0	4	21	32	1	0	21	8	0	14	229
.070	0	1	15	8	0	0	0	0	6	0	0	0	0	1	48	6	2	0	4	0	0	5	96
.072	0	0	28	6	0	0	0	0	22	1	12	7	0	0	44	21	2	0	24	7	0	4	178
.076	0	0	0	23	0	0	0	0	0	0	27	0	0	0	0	20	5	0	0	1	1	13	90
.080	0	0	1	18	0	0	0	2	1	0	6	0	0	0	3	2	0	0	1	0	1	1	36
.084	0	0	0	63	0	0	0	0	7	0	13	0	0	0	1	3	0	0	2	0	0	42	131
.088	0	0	2	10	0	0	0	1	9	0	67	0	0	1	7	0	2	0	0	2	0	3	104
.094	0	0	5	8	0	0	0	0	4	0	32	0	0	0	9	1	0	0	0	1	4	2	66
.098	0	0	3	107	0	0	2	50	109	1	404	0	12	1	180	8	10	0	9	1	1	9	907
11.102	0	0	0	21	0	0	0	3	26	0	12	0	0	0	26	0	0	0	1	0	0	10	99
.106	0	0	0	6	0	0	0	0	4	0	0	0	0	0	7	0	0	0	4	0	0	1	22
.110	0	0	0	41	0	0	0	1	1	0	3	0	0	0	7	1	0	0	1	1	0	1	57
.114	0	0	0	182	0	0	0	3	9	0	31	0	0	1	11	1	1	0	2	0	2	0	243
.118	0	0	0	70	0	0	0	1	1	0	9	0	0	0	0	0	0	0	0	0	0	3	84
.120	0	0	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	9
.124	0	0	0	37	0	0	0	2	5	0	17	0	0	1	0	3	0	0	0	0	0	1	66
.128	0	1	0	31	0	0	0	3	1	0	29	0	0	2	0	6	0	0	16	1	0	8	98
.130	0	1	11	0	0	0	0	0	3	0	4	0	0	0	1	0	0	0	0	0	8	1	29
.132	0	4	3	0	0	0	0	0	1	3	0	0	0	0	1	0	0	0	4	0	0	0	16
.134	0	26	39	0	0	0	0	0	0	0	30	0	0	0	0	2	0	0	0	0	6	6	109
.136	0	30	39	0	0	0	0	0	5	4	5	0	0	0	8	2	0	0	60	0	15	0	168
.138	0	0	10	0	1*	0	0	0	1	2	1	0	0	0	1	0	0	0	2	1	0	2	21
.140	0	2	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	1	0	12
.142	0	4	6	0	0	0	0	0	1	0	16	0	0	0	0	0	0	0	31	0	2	9	69
.146	0	10	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	1	17
.148	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	3	13
.150	0	0	4	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	15	0	0	13	38
.152	0	10	13	0	0	0	0	3	19	1	20	0	0	0	1	0	3	0	43	0	2	0	115
.154	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0	0	5	0	0	3	15

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. —*Continued.*

STATION NUMBER	Benthosema panamense	Ceratoscopelus townsendi	Diaphus spp.	Diogenichthys laternatus	Diogenichthys atlanticus	Electrona sp.	Gonichthys tenuiculus	Hygophum atratum	Hygophum proximum	Lampadena spp.	Lampanyctus spp.	Lepidophanes pyrsobolus	Lobianchia sp.	Loweina rara	Myctophum spp.	Notolychnus valdiviae	Notoscopelus resplendens	Protomyctophum sp.	Symbolophorus evermanni	Triphoturus spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
11.156	0	4	0	0	0	1	0	0	9	0	9	0	0	0	0	0	0	0	5	0	0	1	29
.158	0	8	14	0	0	2	0	0	23	0	7	0	0	0	2	0	0	0	27	0	1	19	103
.159	0	19	14	0	0	1	0	0	16	0	17	0	0	0	2	1	0	0	25	0	0	22	117
.161	0	3	0	0	0	0	0	0	2	0	2	0	0	0	1	0	0	0	0	0	0	2	10
.163	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.167	0	1	5	0	0	0	0	0	1	0	6	1	0	0	2	0	0	0	4	0	0	0	20
.169	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
.171	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
.173	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	1	0	5
.175	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	4
.177	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
.179	0	2	1	0	0	0	0	2	0	0	7	0	0	0	1	0	0	0	0	0	0	0	13
.181	0	3	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	3	13
.183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.185	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	0	4
.187	0	4	0	0	0	0	0	4	0	0	11	0	0	0	0	0	0	0	1	0	0	4	24
.189	0	3	5	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	5	19
.191	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
.195	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	1	0	0	0	4
.197	0	14	13	0	0	1	0	0	3	0	7	0	0	0	3	0	0	0	6	0	5	8	60
.199	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	2	0	0	3	9
11.201	0	1	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	1	0	0	2	8
.203	0	0	4	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	2	0	1	2	17
.205	0	5	9	0	0	0	0	0	6	0	3	0	0	0	5	0	0	0	8	0	0	4	40
.207	0	7	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3	0	0	8	21
.209	0	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0	2	12
.211	0	3	0	0	0	0	0	0	13	0	5	0	0	0	0	0	0	0	2	0	0	5	28
.213	0	17	16	0	0	0	0	0	6	0	5	0	0	0	3	0	0	0	17	0	4	3	71
.215	0	4	0	0	0	0	0	0	13	0	8	0	0	0	2	2	0	0	7	0	0	8	44
.217	0	1	2	0	0	0	0	0	5	0	2	0	0	0	0	0	0	0	5	0	0	1	16
.219	0	3	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	3	0	1	0	10
.221	0	0	26	0	0	0	0	0	11	0	4	3	0	0	1	8	0	0	19	0	0	2	74
.223	0	4	0	0	0	0	0	0	3	0	2	0	0	0	2	2	0	0	6	0	1	0	20
.226	0	2	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0	1	7
.228	0	0	2	0	0	0	0	0	4	0	0	0	0	0	0	6	1	0	3	0	0	0	16
.234	0	9	1	14	0	0	0	0	7	0	2	0	0	0	1	4	0	0	1	0	0	7	46
.238	0	0	0	3	0	0	0	0	1	0	2	0	0	0	0	0	0	0	2	0	0	2	10
.242	0	0	0	58	0	0	0	2	9	0	13	0	0	1	2	3	0	0	1	2	0	4	95
.246	0	0	1	62	0	0	0	1	14	0	98	0	0	0	16	0	0	0	0	0	0	6	198
.250	0	0	1	17	0	0	0	2	15	0	8	0	0	0	11	1	0	0	0	1	0	1	57
.254	0	1	2	18	0	0	2	1	30	0	4	0	0	0	85	0	0	0	4	0	0	2	149
.258	0	0	0	32	0	0	0	5	1	0	20	0	0	1	0	0	0	0	36	0	11	2	108
.262	0	0	4	57	0	0	0	2	2	0	5	0	0	4	4	2	0	0	0	0	0	5	85
.266	0	1	3	19	0	0	0	0	0	0	1	0	0	1	3	3	0	0	1	1	2	3	38
.270	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	1	2	2	17
.278	0	0	9	51	0	1	0	2	3	0	20	0	2	1	7	13	4	0	0	2	0	1	116
.282	0	0	0	14	0	0	0	0	7	0	19	4	0	0	26	3	0	0	8	1	0	0	82
.285	0	0	0	7	0	0	0	0	6	0	0	0	0	0	6	1	0	0	2	0	0	8	30
.287	0	0	17	2	0	0	0	0	14	1	6	2	0	0	16	18	0	0	5	1	2	3	87
.289	0	0	33	17	0	0	0	0	19	8	4	2	0	0	8	12	2	0	14	0	0	12	131

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. —*Continued.*

STATION NUMBER	Benthosema panamense	Ceratoscopelus townsendi	Diaphus spp.	Diogenichthys laternatus	Diogenichthys atlanticus	Electrona sp.	Gonichthys tenuiculus	Hygophum atratum	Hygophum proximum	Lampadena spp.	Lampanyctus spp.	Lepidophanes pyrsobolus	Lobianchia sp.	Loweina rara	Myctophum spp.	Notolychnus valdiviae	Notoscopelus resplendens	Protomyctophum sp.	Symbolophorus evermanni	Triphoturus spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
11.291	0	2	3	13	0	0	0	0	6	0	1	0	0	1	2	3	0	0	0	0	1	7	39
.293	0	0	0	36	0	0	0	0	2	0	2	0	0	1	1	1	0	1	3	0	2	1	50
.295	0	0	7	94	0	0	0	0	4	0	18	0	0	0	0	1	0	1	4	0	0	1	130
.297	0	0	6	263	0	0	0	0	3	0	3	0	0	0	0	0	0	0	1	0	1	20	297
.299	0	1	0	23	0	0	0	0	2	0	2	0	0	0	1	0	0	0	0	0	0	0	29
11.301	0	0	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	8
.303	0	0	0	42	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	44
.306	0	0	0	37	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	40
.308	0	0	0	6	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	13
.310	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	15
.312	0	0	0	16	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4	0	0	4	26
.314	0	0	2	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	1	1	27
.316	0	0	1	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	0	8
.318	0	0	0	26	0	0	1	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	34
.320	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	6	11
.322	0	4	2	21	0	0	0	3	55	0	12	0	0	1	2	0	0	0	1	0	0	14	115
.324	0	2	0	2	0	0	0	0	1	1	4	0	0	0	2	1	0	0	0	0	0	0	13
.326	0	0	1	2	0	0	0	0	3	0	17	0	0	0	1	1	0	0	2	0	2	2	31
.328	0	3	2	3	2	0	0	3	16	1	6	0	0	1	0	5	3	2	6	0	2	0	55
12.002	0	0	7	12	0	0	0	0	0	0	4	0	0	0	0	8	0	0	3	0	2	1	37
.004	0	0	13	69	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	85
.006	0	0	6	22	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	1	0	33
.008	0	0	24	45	0	0	0	10	0	0	8	0	0	0	0	0	0	0	1	0	0	0	88
.010	0	0	18	73	0	0	0	22	0	0	4	0	0	0	0	0	0	0	0	0	0	4	121
.012	0	0	8	12	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
.014	0	0	7	13	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	23
.016	0	0	20	38	0	0	0	4	0	0	7	0	0	0	0	0	0	0	0	0	0	0	69
.018	0	0	60	65	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	137
.020	0	0	8	60	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	74
.022	0	0	1	13	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	16
.024	0	0	24	72	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97
.026	0	0	29	80	0	0	0	9	0	0	2	1	0	0	0	0	0	0	0	0	0	0	121
.028	0	0	6	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	2	1	13
.030	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	24
.032	0	0	10	6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	20
.033	63	0	21	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	87
.035	0	0	14	6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	23
.037	0	0	22	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	36
.039	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
.041	0	0	107	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108
.043	0	0	82	2	0	0	3	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	94
.045	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
.047	0	0	48	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	61
.049	0	0	53	7	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	61
.051	0	0	35	13	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	51
.053	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
.055	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
.057	0	0	2	32	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	37

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. —*Continued.*

STATION NUMBER	*Benthosema panamense*	*Ceratoscopelus townsendi*	*Diaphus* spp.	*Diogenichthys laternatus*	*Diogenichthys atlanticus*	*Electrona* sp.	*Gonichthys tenuiculus*	*Hygophum atratum*	*Hygophum proximum*	*Lampadena* spp.	*Lampanyctus* spp.	*Lepidophanes pyrsobolus*	*Lobianchia* sp.	*Loweina rara*	*Myctophum* spp.	*Notolychnus valdiviae*	*Notoscopelus resplendens*	*Protomyctophum* sp.	*Symbolophorus evermanni*	*Triphoturus* spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
12.059	0	0	0	26	0	0	5	0	0	0	56	0	0	0	0	7	0	0	0	0	0	5	99
.061	0	0	0	32	0	0	1	0	0	0	5	0	0	0	0	2	0	0	1	0	0	0	41
.063	0	0	0	104	0	0	1	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	109
.065	0	0	0	555	0	0	3	0	2	0	25	0	0	0	2	17	4	2	2	0	1	1	614
.067	0	0	4	337	0	0	0	0	0	0	17	1	0	0	0	4	0	0	0	0	0	3	366
.069	0	0	0	195	0	0	0	0	2	0	14	0	0	1	0	6	3	1	4	0	1	0	227
.071	0	0	2	25	0	1	0	0	0	0	15	0	2	0	6	11	0	4	0	0	2	3	71
.075	0	0	16	204	0	1	0	0	12	2	11	0	0	0	10	11	3	0	2	3	1	18	294
.077	0	0	6	65	0	0	0	0	7	0	1	0	0	2	4	10	6	0	0	3	0	6	110
.079	0	0	18	80	0	0	0	1	0	0	5	0	0	0	12	10	0	0	0	0	0	3	129
.081	0	3	7	103	0	0	0	0	9	0	37	0	0	0	11	16	2	7	1	0	0	193	389
.084	0	0	27	127	0	0	0	2	2	0	30	0	0	0	1	13	0	3	0	0	1	1	207
.087	0	0	3	38	0	0	0	0	0	0	12	1	0	1	2	2	0	0	0	1	4	0	64
.090	0	0	1	5	0	0	0	0	0	0	7	0	0	0	0	4	0	0	0	0	1	0	18
.092	0	0	0	12	0	0	0	2	12	0	20	0	0	0	6	0	13	0	0	0	5	1	71
.094	0	0	5	62	0	0	13	25	42	0	140	0	0	0	34	35	0	0	3	11	0	7	377
.097	0	0	0	36	0	0	0	3	3	0	27	0	0	0	9	0	3	0	0	0	0	20	101
12.100	0	0	4	33	0	0	1	0	0	0	5	0	0	0	3	0	2	1	0	1	4	2	56
.103	0	0	6	67	0	0	2	2	0	0	35	0	0	0	3	0	1	0	0	5	0	3	124
.106	0	0	10	277	0	0	0	0	0	0	25	0	0	0	0	0	0	1	0	4	2	0	319
.109	0	0	4	41	0	0	0	0	0	0	8	0	0	0	3	0	0	0	0	7	0	2	65
.112	0	0	1	25	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	3	32
.115	0	0	0	48	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	2	0	5	72
.118	0	0	12	7	0	0	1	4	0	0	54	0	0	0	2	6	0	0	20	1	0	0	107
.120	0	0	5	1	0	0	0	0	0	0	7	0	0	0	0	0	0	0	2	0	0	0	15
.122	0	8	14	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	6	0	0	0	30
.124	0	8	5	0	0	0	0	1	0	0	6	1	0	1	1	0	0	0	3	0	0	3	29
.126	0	28	19	0	0	0	0	2	2	1	14	0	0	0	3	0	0	0	39	0	0	0	108
.128	0	2	28	0	0	0	0	2	0	0	6	0	0	0	1	1	0	0	8	0	0	1	49
.130	0	5	2	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	2	0	0	0	12
.132	0	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	1	0	8
.134	0	10	2	0	0	0	0	1	0	0	2	0	0	0	0	3	0	0	1	0	0	1	20
.136	0	6	3	0	1	0	1*	0	1	1	3	0	0	0	1	0	1	0	0	0	1	0	19
.138	0	0	1	1	0	0	0	0	1	0	2	0	0	0	2	1	0	0	1	0	0	1	10
.140	0	0	6	0	2	0	0	0	0	0	3	48	0	0	3	3	0	0	3	0	1	0	69
.142	0	19	11	0	2	7	0	1	5	0	4	3	0	0	3	5	2	0	7	9	0	6	84
.144	0	4	21	0	4	14	0	0	10	0	0	0	0	0	2	1	4	0	3	3	2	4	72
.146	0	0	2	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	11
.148	0	0	5	0	1	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	2	11
.150	0	0	47	0	0	0	0	1	0	8	13	11	0	0	0	0	1	0	0	0	0	5	86
.152	0	0	7	0	0	1	0	1	0	0	1	22	0	0	0	0	0	0	0	3	0	2	37
.154	0	3	0	0	0	4	0	0	0	2	1	0	0	0	0	0	0	0	1	0	1	0	12
.156	0	1	2	0	0	0	1*	0	1	0	4	2	0	0	1	0	0	0	0	0	2	0	14
.158	0	7	6	0	0	0	0	2	7	0	5	6	0	0	4	0	0	0	2	0	0	2	41
.160	0	0	1	0	0	0	0	0	5	2	2	3	0	0	2	0	0	0	0	0	0	4	19
.162	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5
.164	0	11	7	0	0	0	0	1	3	0	6	0	0	0	1	1	0	0	2	0	3	1	36
.184	0	1	15	0	0	1	0	0	1	0	10	0	0	0	2	0	0	0	14	1	0	0	45
.186	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	5
.188	0	0	3	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1	0	8

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. —*Continued.*

STATION NUMBER	Benthosema panamense	Ceratoscopelus townsendi	Diaphus spp.	Diogenichthys laternatus	Diogenichthys atlanticus	Electrona sp.	Gonichthys tenuiculus	Hygophum atratum	Hygophum proximum	Lampadena spp.	Lampanyctus spp.	Lepidophanes pyrsobolus	Lobianchia sp.	Loweina rara	Myctophum spp.	Notolychnus valdiviae	Notoscopelus resplendens	Protomyctophum sp.	Symbolophorus evermanni	Triphoturus spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
12.190	0	0	2	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2	0	0	0	6
.192	0	13	1	0	0	0	0	0	2	1	5	4	0	0	1	8	0	0	9	0	1	0	45
.194	0	1	0	0	0	0	0	0	0	0	8	3	0	0	1	1	0	0	1	0	0	1	16
.196	0	2	5	0	0	0	0	0	0	1	9	0	0	1	0	0	0	0	3	0	0	1	22
.198	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	5	0	0	2	0	1	0	12
12.200	0	0	0	1	0	0	0	1	1	0	13	0	0	0	0	5	0	1	12	0	1	1	36
.203	0	0	0	80	0	0	0	0	0	0	10	0	0	0	0	0	0	0	1	0	0	0	91
.206	0	0	0	10	0	0	0	0	0	0	21	0	0	0	0	0	0	1	0	0	1	3	36
.209	0	0	0	28	0	0	0	1	0	0	35	0	0	0	0	2	0	1	0	1	0	2	70
.212	0	0	13	92	0	0	0	0	0	0	176	0	0	0	1	6	0	5	0	1	0	6	300
.215	0	0	7	92	0	0	0	1	0	0	98	0	0	0	0	0	0	0	0	2	0	2	202
.218	0	0	4	22	0	0	11	4	2	0	61	0	0	0	6	0	12	0	0	0	2	3	127
.221	0	0	2	102	0	0	2	3	13	0	47	0	0	0	18	0	5	0	5	1	0	11	209
.224	0	0	5	315	0	0	5	63	39	0	471	0	1	0	105	6	30	0	6	5	0	38	1089
.227	0	1	6	98	0	0	1	5	4	0	30	0	0	0	10	0	2	0	0	0	1	4	162
.230	0	0	1	22	0	0	1	1	1	0	16	0	0	0	2	3	0	1	1	0	0	0	49
.233	0	0	3	126	0	0	1	0	0	0	107	0	0	2	2	4	0	1	0	1	2	1	250
.235	0	0	0	194	0	0	1	1	0	0	61	0	0	0	3	17	1	1	1	0	0	0	280
.238	0	0	2	145	0	0	0	1	0	0	42	0	0	3	16	11	4	0	1	0	0	0	225
.240	0	0	0	23	0	0	0	1	5	0	5	0	0	1	8	2	3	0	0	0	0	6	54
.242	0	0	0	14	0	0	0	0	3	0	1	0	0	0	1	2	0	1	0	2	1	0	25
.244	0	0	10	17	0	0	0	1	17	2	10	0	0	0	7	15	0	3	12	8	0	3	105
.246	0	0	7	205	0	0	1	0	0	0	16	0	0	0	0	2	2	0	2	4	3	6	248
.248	0	0	0	43	0	0	0	0	0	0	5	0	0	0	0	2	0	0	0	0	0	1	51
.250	0	0	6	38	0	0	1	0	0	0	6	0	0	0	0	2	0	0	0	0	0	1	54
.252	0	0	7	13	0	0	0	0	0	0	12	0	0	0	0	6	0	1	5	0	0	0	44
.254	0	0	9	22	0	0	0	0	0	0	16	0	0	0	0	1	0	1	35	0	0	0	84
.256	0	0	5	11	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3	0	1	0	23
.258	0	0	0	38	0	0	1	0	0	0	1	0	0	0	0	2	0	0	1	0	0	0	43
.260	0	0	0	26	0	0	0	0	0	0	40	0	0	0	2	6	0	0	0	0	0	0	74
.262	0	0	127	24	0	0	0	1	0	0	2	0	0	0	0	0	0	0	7	0	0	0	161
.264	0	1	3	15	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	2	26
.265	0	0	17	31	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	4	54
.268	0	0	57	44	0	0	0	54	0	0	1	0	0	0	0	0	0	0	0	0	0	0	156
.270	0	0	12	35	0	0	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0	1	60
.272	0	0	1	61	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	3	0	81
.274	0	1	17	25	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	2	0	85
.276	0	0	7	8	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	1	20
.278	0	0	6	19	0	0	0	13	0	0	7	0	0	0	0	0	0	0	0	0	0	0	45
.280	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5
.282	0	0	0	5	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	8
.284	0	0	0	10	0	0	0	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	16
13.001	0	0	0	31	0	0	0	0	0	0	6	0	0	0	0	0	1	0	0	1	2	0	41
.003	0	3	0	315	0	0	0	0	0	0	34	0	0	0	0	12	0	0	8	10	3	0	385
.005	0	0	0	1020	0	0	3	0	0	0	21	0	0	0	0	24	2	0	2	1	2	0	1075
.007	0	0	0	115	0	0	1	0	0	0	6	0	0	0	1	7	0	0	2	0	1	0	133
.009	0	0	0	470	0	0	0	0	0	0	21	0	0	0	0	0	1	0	0	0	2	0	494
.011	0	0	0	372	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	374

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. —*Continued.*

STATION NUMBER	Benthosema panamense	Ceratoscopelus townsendi	Diaphus spp.	Diogenichthys laternatus	Diogenichthys atlanticus	Electrona sp.	Gonichthys tenuiculus	Hygophum atratum	Hygophum proximum	Lampadena spp.	Lampanyctus spp.	Lepidophanes pyrsobolus	Lobianchia sp.	Loweina rara	Myctophum spp.	Notolychnus valdiviae	Notoscopelus resplendens	Protomyctophum sp.	Symbolophorus evermanni	Triphoturus spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
13.013	0	0	0	186	0	0	1	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	207
.015	0	0	0	477	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	479
.017	0	0	0	550	0	0	2	0	0	0	5	0	0	0	0	1	0	0	1	0	0	0	559
.019	482	0	0	715	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	13	1219
.021	407	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	409
.022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.028	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.030	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
.032	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
.034	0	0	0	142	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	158
.036	0	0	0	11	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	13
.038	0	0	0	122	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	2	142
.040	0	0	0	408	0	0	3	0	0	0	47	0	0	0	0	1	1	6	1	0	0	2	469
.042	0	0	0	271	0	0	0	0	0	0	25	0	0	1	0	3	0	6	0	0	0	1	307
.044	0	0	0	79	0	0	0	0	1	0	14	0	0	0	2	7	1	3	1	0	1	0	109
.046	0	0	0	44	0	0	1	0	0	0	28	0	1	0	2	8	0	3	7	1	4	6	105
.048	0	0	1	160	0	0	4	0	3	0	76	3	2	0	5	19	0	4	9	10	2	2	300
.050	0	0	1	71	0	0	2	0	1	0	25	7	1	0	2	11	1	2	4	4	1	0	133
.052	0	0	0	42	0	0	0	0	0	0	14	0	1	1	1	5	0	0	4	4	5	2	79
.054	0	0	0	36	0	0	1	0	0	0	20	0	3	0	0	12	0	0	2	0	3	0	77
.056	0	0	3	33	0	0	0	0	8	0	43	0	2	1	5	8	0	0	4	12	21	4	144
.058	0	0	2	50	0	0	3	0	0	0	16	0	0	1	0	1	0	0	0	5	5	0	83
.060	0	0	0	54	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	2	59
.062	0	0	4	22	0	0	1	3	0	0	7	0	0	0	0	0	1	0	0	3	2	1	44
.064	0	0	5	191	0	0	15	2	1	0	18	0	0	0	6	1	21	1	0	10	3	0	274
.065	0	0	1	12	0	0	2	1	1	0	8	0	0	0	1	0	1	1	0	1	0	2	31
.067	0	0	2	24	0	0	2	0	0	0	2	0	0	0	0	0	3	0	0	0	0	1	34
.069	0	0	2	73	0	0	2	0	0	0	10	0	0	1	0	0	5	0	0	2	1	3	99
.071	0	0	0	284	0	0	6	0	0	0	20	0	0	0	0	0	0	0	2	5	0	1	318
.073	0	0	0	122	0	0	3	0	0	0	40	0	0	0	0	0	0	0	2	5	0	0	172
.075	0	0	0	28	0	0	2	0	0	0	5	0	0	0	0	0	0	0	1	0	0	3	39
.077	0	0	0	60	0	0	1	0	0	0	23	0	0	0	0	0	0	0	1	3	0	1	89
.079	0	0	0	50	0	0	1	0	0	0	8	0	0	0	0	1	0	0	7	2	0	0	69
.081	0	0	0	11	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	1	0	0	16
.083	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	17
.085	0	0	0	9	0	0	0	0	0	0	2	0	0	0	0	0	0	0	6	0	0	0	17
.087	0	9	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0	18	0	1	2	37
.089	0	25	1	0	0	0	0	2	0	0	3	0	0	0	0	7	0	0	34	0	32	1	105
.091	0	13	12	0	0	0	0	10	0	0	0	0	0	0	1	1	0	0	8	0	0	4	49
.093	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	0	2	8
.095	0	45	11	1	2*	0	0	45	3	0	7	0	0	1	15	21	4	0	30	3	3	4	195
.097	0	20	21	0	18	2	1	33	4	0	3	1	4	0	18	37	7	0	24	6	5	1	205
.099	0	15	4	0	2	0	0	5	2	0	1	0	0	0	0	7	0	0	5	6	1	0	48
13.101	0	6	10	0	1	0	0	6	0	0	0	0	0	0	3	4	0	0	10	5	0	0	45
.103	0	29	46	9	12*	3	0	42	9	0	19	0	4	0	11	16	13	0	26	6	10	0	255
.105	0	30	19	0	6	3	0	22	3	0	5	0	0	0	5	7	0	0	33	24	4	5	166
.107	0	2	1	0	0	0	0	2	1	0	1	0	0	0	2	0	0	0	1	0	2	1	13
.109	0	1	15	0	0	1	0	2	2	0	1	0	0	0	0	1	0	0	1	1	1	1	27
.111	0	6	17	0	0	1	0	5	0	0	3	1	1	0	7	2	1	0	0	4	0	1	49
.113	0	17	26	0	4	1	0	1	0	7	5	1	0	0	1	1	0	0	2	2	2	2	72

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. —*Continued.*

STATION NUMBER	Benthosema panamense	Ceratoscopelus townsendi	Diaphus spp.	Diogenichthys laternatus	Diogenichthys atlanticus	Electrona sp.	Gonichthys tenuiculus	Hygophum atratum	Hygophum proximum	Lampadena spp.	Lampanyctus spp.	Lepidophanes pyrsobolus	Lobianchia sp.	Loweina rara	Myctophum spp.	Notolychnus valdiviae	Notoscopelus resplendens	Protomyctophum sp.	Symbolophorus evermanni	Triphoturus spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
13.115	0	2	4	0	4	2	1*	0	0	2	0	0	0	0	3	1	0	0	0	0	4	2	25
.117	0	2	20	0	0	0	0	0	0	18	7	0	0	1	1	0	0	0	0	0	3	0	52
.119	0	7	56	0	0	2	0	3	0	6	3	1	0	0	0	0	0	0	0	4	4	0	86
.121	0	6	1	0	0	1	1*	4	0	1	2	0	0	0	1	2	0	0	0	0	2	1	22
.123	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
.125	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
.127	0	7	3	0	0	3	2*	4	4	3	5	0	1	0	1	4	0	0	0	0	2	0	39
.129	0	7	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1	0	2	0	14
.131	0	2	1	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	7
.133	0	2	1	0	0	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	2	9
.135	0	12	35	0	0	1	1*	0	1	11	7	0	1	0	0	0	0	0	0	5	2	2	78
.137	0	5	13	0	0	3	0	2	0	2	6	0	0	0	2	6	0	0	0	9	0	2	50
.139	0	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	2	8
.141	0	1	0	0	1	0	0	0	0	0	1	0	0	0	3	1	0	0	0	0	0	1	8
.143	0	15	21	0	6	2	0	4	0	5	7	2	0	0	5	1	0	0	1	13	2	2	86
.145	0	16	6	0	4	0	0	2	0	0	4	0	0	0	0	2	2	0	0	8	0	0	44
.147	0	2	5	0	2	2	0	0	0	0	2	0	0	0	3	2	3	0	1	10	0	1	33
.149	0	2	2	0	2	0	0	1	0	0	1	2	0	0	3	5	0	0	5	3	1	2	29
.151	0	43	6	0	2	0	0	0	0	4	0	3	0	0	2	1	0	0	1	8	1	1	72
.153	0	83	172	0	7	0	0	30	23	0	9	0	0	0	7	26	1	0	11	8	3	14	394
.155	0	4	2	0	0	2	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	16
.157	0	11	19	0	1	1	0	4	0	0	0	0	0	0	0	2	0	0	1	2	0	4	45
.159	0	12	16	0	0	0	0	3	0	0	1	0	0	0	0	7	0	0	7	0	2	5	53
.161	0	27	11	0	1	0	0	4	1	0	4	0	0	0	0	4	0	0	10	0	1	2	65
.163	0	1	2	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	6	0	0	1	14
.165	0	3	6	0	0	0	0	0	0	0	0	0	1	0	2	3	0	0	8	0	0	1	24
.167	0	16	2	0	0	0	0	2	0	0	3	0	0	0	1	0	0	0	8	0	1	0	33
.169	0	115	1	8	0	0	0	2	0	0	20	1	0	0	0	1	0	0	17	0	0	4	169
.171	0	5	13	54	0	0	1	0	0	0	7	0	0	0	0	2	0	0	8	0	3	11	104
.173	0	2	0	98	0	0	0	0	0	0	13	0	0	1	0	0	0	0	2	0	1	4	121
.175	0	0	1	168	0	0	0	1	0	0	52	0	0	1	2	0	0	0	18	0	2	0	245
.179	0	0	0	122	0	0	1	0	0	0	7	0	0	0	2	0	0	0	0	1	0	0	133
.183	0	0	0	64	0	0	3	0	0	0	7	0	0	1	2	0	0	0	0	2	0	1	80
.187	0	0	0	49	0	0	2	0	0	0	11	0	0	0	0	0	1	0	0	3	0	1	67
.191	0	0	0	78	0	0	2	0	0	0	43	0	0	0	0	0	0	0	0	3	0	0	126
.195	0	0	4	34	0	0	0	0	0	0	125	0	0	2	0	0	0	0	1	16	0	0	182
.199	0	0	1	31	0	0	4	2	0	0	12	0	0	0	3	0	2	0	0	0	0	0	55
13.203	0	0	0	7	0	0	1	3	0	0	3	0	0	0	4	0	0	0	1	0	0	1	20
.207	0	0	1	72	0	0	12	8	1	0	24	0	0	1	2	1	0	0	0	4	0	3	129
.211	0	0	3	40	0	0	5	1	0	0	9	0	0	0	3	1	0	0	0	2	4	0	68
.215	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	7
.219	0	0	0	6	0	0	1	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	11
.223	0	0	0	18	0	1	0	0	0	0	9	0	0	0	0	1	0	0	0	2	1	0	32
.227	0	0	2	90	0	0	1	0	3	0	15	0	0	0	0	2	0	0	1	1	6	0	121
.231	0	0	0	29	0	0	2	0	0	0	39	0	0	0	4	3	1	0	0	0	2	2	82
.235	0	0	1	64	0	1	3	0	0	0	14	0	0	1	5	7	0	3	0	1	1	5	106
.237	0	0	0	133	0	0	0	0	0	4	34	0	0	0	0	8	0	1	1	2	1	5	189
.239	0	0	0	131	0	0	1	0	0	0	29	0	0	0	0	7	0	4	2	5	0	0	179
.241	0	0	0	52	0	0	0	0	0	1	1	0	0	0	1	1	0	1	0	0	0	2	59
.243	0	0	0	67	0	0	0	0	0	1	21	0	0	0	0	0	0	0	0	1	0	3	93

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. —*Continued.*

STATION NUMBER	*Benthosema panamense*	*Ceratoscopelus townsendi*	*Diaphus* spp.	*Diogenichthys laternatus*	*Diogenichthys atlanticus*	*Electrona* sp.	*Gonichthys tenuiculus*	*Hygophum atratum*	*Hygophum proximum*	*Lampadena* spp.	*Lampanyctus* spp.	*Lepidophanes pyrsobolus*	*Lobianchia* sp.	*Loweina rara*	*Myctophum* spp.	*Notolychnus valdiviae*	*Notoscopelus resplendens*	*Protomyctophum* sp.	*Symbolophorus evermanni*	*Triphoturus* spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
13.245	0	0	0	37	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	57
.247	0	0	0	17	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	26
.249	0	0	0	43	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	46
.251	0	0	0	15	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	25
.253	0	0	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	6
.255	12	0	11	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	2	0	29
.257	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	10
.259	0	0	16	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	4	23
.261	0	0	8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	13
.263	0	0	33	5	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	46
.265	0	0	11	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	14
.266	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
.268	0	0	12	19	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
.270	0	0	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	9
.272	0	0	11	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	13
.274	0	0	26	33	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	63
.276	0	0	38	48	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	89
.278	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7
.280	0	0	23	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	31
.282	0	0	80	7	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	89
.284	0	0	13	7	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	1	0	34
13.318	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
.320	3	0	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
.322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.324	0	0	0	25	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
.326	0	0	5	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
.328	0	0	0	28	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	35
.330	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
.332	0	0	0	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	63
.334	0	0	0	111	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	116
.338	0	0	0	274	0	0	0	0	0	0	15	0	0	0	0	1	0	1	0	2	1	1	295
.340	0	0	0	33	0	0	0	0	0	0	5	0	0	0	3	3	0	1	0	1	1	0	47
.342	0	0	0	62	0	0	0	0	0	0	6	0	0	0	2	3	0	0	0	1	1	1	76
14.001	46	0	0	725	0	0	1	0	0	0	49	0	0	0	18	0	0	0	5	17	0	6	867
.006	0	0	9	43	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	2	8	0	66
.008	0	0	0	78	0	0	0	0	0	0	3	0	0	0	5	0	0	0	0	0	0	0	86
.010	0	0	6	179	0	0	0	2	0	0	4	0	0	0	6	0	0	0	0	0	0	1	198
.012	0	0	0	47	0	0	0	0	0	0	2	0	0	0	7	0	0	0	0	0	0	1	57
.014	0	0	1	65	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	67
.016	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
.017	0	0	0	54	0	0	1	0	0	0	1	0	0	0	4	0	0	0	0	0	0	1	61
.018	0	0	0	246	0	0	1	0	0	0	148	0	0	0	23	0	0	0	4	1	0	1	424
.020	0	0	0	225	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	1	0	229
.022	0	0	1	73	0	0	0	0	0	0	3	0	0	0	2	0	0	0	1	0	0	0	80
.024	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	47
.027	0	0	0	372	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	4	387
.029	0	0	5	371	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	382
.031	0	0	4	540	0	0	1	1	0	0	19	0	0	0	13	0	0	0	6	2	1	7	594

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. —*Continued.*

STATION NUMBER	Benthosema panamense	Ceratoscopelus townsendi	Diaphus spp.	Diogenichthys laternatus	Diogenichthys atlanticus	Electrona sp.	Gonichthys tenuiculus	Hygophum atratum	Hygophum proximum	Lampadena spp.	Lampanyctus spp.	Lepidophanes pyrsobolus	Lobianchia sp.	Loweina rara	Myctophum spp.	Notolychnus valdiviae	Notoscopelus resplendens	Protomyctophum sp.	Symbolophorus evermanni	Triphoturus spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
14.033	0	0	0	21	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	2	26
.040	0	0	1	16	0	0	4	0	0	0	5	0	0	0	9	0	0	0	0	1	0	0	36
.043	0	0	4	25	0	0	9	0	0	0	40	0	0	0	41	0	25	0	2	3	1	9	159
.047	0	0	0	9	0	0	0	0	0	0	4	0	0	0	8	0	0	0	0	1	0	0	22
.051	0	0	0	31	0	0	0	0	0	0	27	0	0	0	12	0	0	0	1	1	0	6	78
.055	0	0	0	37	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	40
.060	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	18
.066	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.069	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.076	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.078	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.081	0	0	0	5	0	0	0	0	0	0	8	0	0	0	0	0	0	0	3	1	0	1	18
.084	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
.086	0	0	0	1	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	1	7
.088	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
.091	0	1	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	1	1	0	0	43
.095	0	0	0	17	0	0	0	0	0	0	1	0	0	0	0	0	1	0	19	0	0	12	50
.099	0	0	0	7	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	1	15
14.103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.110	0	0	0	6	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	1	0	6	27
.112	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
.114	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
.115	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	5
.117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
.118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.120	0	0	1	5	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	4	2	0	15
.122	0	0	0	7	0	0	0	0	0	0	1	0	0	0	0	0	1	0	8	1	0	1	19
.123	0	0	0	7	1	0	1	6	0	0	4	1	0	0	0	1	0	0	16	1	0	13	51
.124	0	6	4	15	1	0	0	40	0	0	18	0	0	1	2	1	2	0	51	1	10	0	152
.126	0	1	3	0	0	0	0	5	0	0	1	0	0	0	5	3	0	0	21	1	0	13	53
.127	0	1	1	0	0	0	1	2	0	0	1	0	0	0	1	0	0	0	5	9	0	1	22
.128	0	3	10	2	0	0	0	33	0	0	5	2	0	0	0	4	3	0	72	9	2	0	145
.130	0	0	1	7	0	0	0	1	0	0	0	3	0	0	5	2	0	0	21	0	0	5	45
.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
.132	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	1	0	1	8
.134	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	11
.136	0	0	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
.138	0	0	0	15	0	0	1	0	0	0	11	0	0	0	0	0	0	0	0	2	0	0	29
.142	0	0	0	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	110
.146	0	0	0	152	0	0	5	0	0	0	13	0	0	0	0	0	0	0	0	6	0	0	176
.150	0	0	0	39	0	0	0	0	0	0	6	0	0	0	0	0	0	0	2	0	0	5	52
.154	0	0	2	12	0	0	0	0	0	0	49	0	0	0	16	0	0	0	8	2	3	0	92
.158	0	0	0	17	0	0	0	0	0	0	7	0	0	0	2	0	0	0	0	0	0	4	30
.164	0	0	0	76	0	0	1	0	0	0	30	0	0	0	5	0	1	0	0	2	0	20	135
.172	0	0	0	16	0	0	2	0	0	0	6	0	0	0	0	0	1	0	0	1	0	0	26
.174	0	0	4	11	0	0	1	0	0	0	4	0	0	0	2	3	0	0	1	0	0	0	26
.177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.183	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	4
.188	0	0	0	181	0	0	3	0	0	0	49	0	0	0	6	2	9	0	5	6	0	0	261

APPENDIX TABLE 2.—Myctophid larvae, tabulated by genus or species, for all stations occupied on EASTROPAC I. —*Continued.*

STATION NUMBER	*Benthosema panamense*	*Ceratoscopelus townsendi*	*Diaphus* spp.	*Diogenichthys laternatus*	*Diogenichthys atlanticus*	*Electrona* sp.	*Gonichthys tenuiculus*	*Hygophum atratum*	*Hygophum proximum*	*Lampadena* spp.	*Lampanyctus* spp.	*Lepidophanes pyrsobolus*	*Lobianchia* sp.	*Loweina rara*	*Myctophum* spp.	*Notolychnus valdiviae*	*Notoscopelus resplendens*	*Protomyctophum* sp.	*Symbolophorus evermanni*	*Triphoturus* spp.	Unidentified myctophids	Disintegrated myctophids	Total myctophids
14.194	0	0	0	1551	0	0	7	0	0	0	158	0	0	2	12	4	8	0	5	5	1	0	1753
.195	0	0	0	243	0	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4	252
.199	0	0	1	10	0	0	0	0	0	0	2	0	0	0	0	1	0	0	2	0	0	0	16
14.203	0	0	0	90	0	0	1	0	0	0	65	0	0	0	3	1	3	0	4	4	1	7	179
.209	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	25
.213	0	0	0	181	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	206
.218	0	0	0	168	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	1	0	0	177
.220	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	22
.220	0	0	0	46	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	49
.224	0	0	0	90	0	0	0	0	0	0	21	0	0	0	0	0	0	0	2	0	0	2	115
.228	0	0	0	28	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	30
.230	0	0	0	39	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	41
.232	0	0	0	21	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	1	0	0	31
.234	0	0	0	98	0	0	0	0	0	0	81	0	0	0	0	0	0	0	0	0	1	48	228
.236	0	0	0	30	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	34
.240	0	0	0	70	0	0	4	0	0	0	12	0	0	1	20	2	2	0	1	1	0	3	116
.243	0	0	0	23	0	0	2	0	0	0	14	0	0	0	2	0	2	0	0	0	0	1	44
.247	0	0	0	41	0	0	3	0	0	0	27	0	0	0	5	0	2	0	1	6	0	1	86
.251	0	0	0	19	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	1	1	0	25
.255	0	0	1	216	0	0	1	0	0	0	2	0	0	0	3	0	0	0	0	3	1	0	227
.259	0	0	0	46	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	3	1	53
.263	0	0	0	94	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	1	0	0	105
.267	0	0	0	4	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	8
.276	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	2	1	13
.280	0	0	0	6	0	0	2	0	0	0	2	0	0	0	0	0	0	0	26	3	0	5	44
.283	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	1	0	22
.287	0	0	0	3	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	2	4	1	15
.291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.295	0	0	0	49	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	1	0	65
.300	0	0	0	16	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	18
.303	0	0	0	189	0	0	0	0	0	0	5	0	0	0	3	0	0	0	0	3	0	0	200
.306	0	0	0	27	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0	0	32
.310	0	0	1	61	0	0	2	0	0	0	8	0	0	1	5	0	4	0	0	14	0	0	96
.314	0	0	0	38	0	0	0	0	0	0	14	0	0	0	5	0	0	0	0	0	2	0	59
.318	0	0	0	491	0	0	7	0	0	0	38	0	0	0	23	0	5	0	0	2	0	0	566
.323	0	0	8	149	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	3	165
.326	0	0	3	573	0	0	0	0	0	0	73	0	0	0	1	0	0	0	0	4	0	5	659
.330	0	0	0	22	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	23

APPENDIX TABLE 3.—Counts of selected categories of fish larvae, tabulated by station, EASTROPAC I.

STATION NUMBER	Bathylagus nigrigenys	Leuroglossus stilbius urotranus	Nansenia spp.	Araiophos sp.	Cyclothone spp.	Diplophos sp.	Ichthyococcus spp.	Maurolicus muelleri	Vinciguerria spp.	Bathophilus filifer	Evermannellidae	Macroparalepis macrurus	Sudis atrox	Scopelo saurus spp.	Oxyporhamphus micropterus	Trachypteridae	Auxis spp.	Katsuwonis pelamis	Coryphaena spp.	Naucrates ductor	Howella pammelas	Tetragonurus sp.	Ceratioidei
11.022	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.025	0	0	0	0	6	0	0	0	46	0	0	1	0	0	0	0	0	0	0	0	0	0	0
.027	0	0	0	0	2	0	0	0	34	0	1	1	0	0	0	0	0	0	0	0	0	0	0
.030	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.032	1	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.034	1	0	0	0	0	0	0	0	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.036	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.038	4	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.040	0	0	0	0	1	1	0	0	18	0	0	0	0	0	0	1	0	0	0	0	0	0	1
.044	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.046	3	0	0	0	1	0	0	0	57	0	0	0	0	0	0	1	0	0	0	0	0	0	0
.048	12	0	0	0	0	0	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.050	24	0	0	0	1	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.052	15	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.054	11	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.056	10	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.058	10	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0
.060	13	0	0	0	1	0	1	0	7	0	0	1	0	0	0	0	3	0	1	0	0	0	0
.062	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.064	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
.066	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2	1	1	0	11	0	1
.068	5	0	0	0	6	1	0	0	70	0	0	1	0	0	0	0	0	0	3	0	3	0	4
.070	1	0	0	0	6	1	0	0	17	0	3	1	0	0	1	0	0	0	0	0	8	0	1
.072	2	0	2	0	6	2	0	0	65	0	0	0	0	0	0	0	0	0	1	0	9	0	1
.076	6	0	0	0	5	0	2	0	682	1	1	0	0	0	0	0	0	4	0	0	0	0	0
.080	7	0	0	0	2	1	0	0	139	3	0	1	0	0	0	0	0	0	0	0	0	0	0
.084	11	0	0	0	3	0	0	0	358	0	0	0	0	0	0	0	3	0	0	0	2	0	0
.088	1	0	0	0	9	0	0	0	315	1	0	1	0	0	0	0	0	0	1	0	2	0	0
.094	0	0	0	0	9	0	0	0	41	0	0	0	0	0	0	1	0	0	1	0	1	0	2
.098	2	0	0	0	20	0	0	0	87	0	0	0	0	0	0	0	0	1	0	0	0	0	1
11.102	6	0	3	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0
.106	1	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	4	0	2
.110	8	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.114	1	0	0	0	11	2	0	0	44	0	0	0	0	0	0	0	0	0	0	0	3	0	1
.118	4	0	0	0	1	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0
.120	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1
.124	0	0	0	0	7	1	0	0	17	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.128	0	0	0	0	6	0	0	0	92	0	0	0	0	0	0	0	0	0	0	0	2	0	1
.130	0	0	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.132	0	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0
.134	0	0	0	0	3	24	0	0	1	0	0	0	0	0	0	1	0	166	0	0	0	2	0
.136	0	0	0	0	24	2	0	0	20	0	0	0	0	0	0	0	0	2	0	0	0	0	0
.138	0	0	1	0	6	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.140	0	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.142	0	0	0	0	9	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0
.146	0	0	0	20	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
.148	0	0	0	61	15	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.150	0	0	0	70	11	0	0	0	1	0	0	0	0	0	0	0	0	4	0	0	0	0	0
.152	0	0	0	89	38	1	0	0	9	0	0	0	1	0	0	0	0	1	1	0	2	1	0
.154	0	0	2	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
.156	0	0	0	83	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.158	0	0	0	20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
.159	0	0	0	70	24	0	0	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0	0
.161	0	0	0	0	10	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1

APPENDIX TABLE 3.—Counts of selected categories of fish larvae, tabulated by station, EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagus nigrigenys	Leuroglossus stilbius urotranus	Nansenia spp.	Araiophos sp.	Cyclothone spp.	Diplophos sp.	Ichthyococcus spp.	Maurolicus muelleri	Vinciguerria spp.	Bathophilus filifer	Evermannellidae	Macroparalepis macrurus	Sudis atrox	Scopelo saurus spp.	Oxyporhamphus micropterus	Trachypteridae	Auxis spp.	Katsuwonis pelamis	Coryphaena spp.	Naucrates ductor	Howella pammelas	Tetragonurus sp.	Ceratioidei
11.163	0	0	0	0	8	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
.167	0	0	0	0	25	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0
.169	0	0	0	0	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
.171	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.173	0	0	0	0	9	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
.175	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.177	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.179	0	0	0	0	4	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
.181	0	0	0	0	13	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
.183	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.185	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.187	0	0	0	0	19	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0
.189	0	0	0	0	20	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.191	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.195	0	0	0	4	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.197	0	0	0	8	32	0	0	0	5	0	2	0	1	0	0	0	1	1	0	0	3	0	0
.199	0	0	0	5	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
11.201	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
.203	0	0	0	8	12	0	0	0	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0
.205	0	0	0	22	20	0	2	0	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0
.207	0	0	0	10	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
.209	0	0	0	3	3	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
.211	0	0	0	35	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
.213	0	0	0	13	10	1	0	0	12	0	0	0	0	0	0	0	1	3	0	0	1	0	0
.215	0	0	0	3	2	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	1	0	0
.217	0	0	0	0	3	0	0	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	1
.219	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.221	0	0	0	0	18	2	0	0	36	0	0	0	0	0	0	0	1	0	1	0	0	0	0
.223	0	0	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.226	0	0	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.228	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0
.234	2	0	0	0	7	2	0	0	8	0	0	0	0	0	0	1	0	0	2	0	1	1	1
.238	0	0	0	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0
.242	4	0	0	0	13	0	1	0	36	0	0	0	0	0	0	0	0	0	0	0	4	0	0
.246	2	0	0	0	15	0	0	0	36	0	0	0	0	0	0	0	0	0	1	0	1	0	1
.250	1	0	1	0	12	0	0	0	8	0	0	0	0	0	0	1	0	0	1	0	0	0	1
.254	0	0	0	0	5	0	0	0	15	1	0	1	0	0	1	0	0	0	0	0	2	0	0
.258	3	0	1	0	8	0	0	0	46	0	0	0	0	0	0	0	0	0	0	0	1	0	0
.262	2	0	0	0	10	0	0	0	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.266	3	0	0	0	3	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.270	4	0	0	0	1	0	0	0	17	0	0	0	0	0	0	0	7	0	0	0	1	0	0
.278	13	0	1	0	13	0	0	0	142	0	0	0	0	0	0	0	0	0	1	0	0	0	0
.282	1	0	0	0	6	0	1	0	20	0	1	0	0	0	0	0	0	0	1	0	0	0	0
.285	9	0	0	0	5	0	0	0	5	0	2	1	0	0	1	0	0	0	1	0	1	0	1
.287	1	0	0	0	4	0	0	0	14	0	1	2	0	0	0	0	0	0	0	0	2	0	2
.289	0	0	0	0	7	4	0	0	5	0	0	0	0	0	0	0	0	0	1	0	18	0	6
.291	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	4	0	0
.293	7	0	1	0	1	0	0	0	2	0	0	0	0	0	0	0	6	0	0	0	14	0	1
.295	10	0	0	0	5	0	0	0	10	0	0	0	0	0	0	1	0	1	1	0	3	0	2
.297	5	0	0	0	3	0	0	0	9	0	0	0	0	0	0	0	2	1	0	0	1	0	4
.299	27	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5	0	1	0	1	0	1
11.301	1	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	1	0	1	0	0	0	3
.303	12	0	0	0	2	0	0	0	45	0	0	0	0	0	0	1	0	0	0	0	0	0	1
.306	4	0	0	0	0	0	0	0	64	0	0	0	0	0	0	0	1	0	0	0	0	0	1

APPENDIX TABLE 3.—Counts of selected categories of fish larvae, tabulated by station, EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagus nigrigenys	Leuroglossus stilbius urotranus	Nansenia spp.	Araiophos sp.	Cyclothone spp.	Diplophos sp.	Ichthyococcus spp.	Maurolicus muelleri	Vinciguerria spp.	Bathophilus filifer	Evermannellidae	Macroparalepis macrurus	Sudis atrox	Scopelo saurus spp.	Oxyporhamphus micropterus	Trachypteridae	Auxis spp.	Katsuwonis pelamis	Coryphaena spp.	Naucrates ductor	Howella pammelas	Tetragonurus sp.	Ceratioidei
11.308	1	0	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	2	0	0	0	1
.310	4	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.312	0	0	0	0	2	1	0	0	59	0	0	1	0	0	0	1	0	0	0	0	0	0	1
.314	5	0	0	0	0	0	0	0	32	1	0	0	0	0	0	0	0	0	1	0	0	0	0
.316	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	0
.318	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.320	1	0	0	0	0	0	0	0	10	0	0	0	0	0	0	1	0	0	0	0	0	0	0
.322	0	0	0	0	2	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.324	0	0	0	0	2	0	0	0	19	0	0	1	0	0	0	0	0	0	0	0	0	0	0
.326	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.328	0	0	0	0	9	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.002	3	0	0	0	1	1	0	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0
.004	3	0	0	0	0	1	0	0	11	3	0	0	0	0	0	0	0	0	0	0	0	0	0
.006	2	0	0	0	0	3	0	0	12	5	0	0	0	0	0	0	0	0	2	0	0	0	0
.008	3	0	0	0	0	6	0	0	59	2	0	0	0	0	0	0	0	0	1	0	0	0	0
.010	8	0	0	0	0	1	0	0	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.012	4	0	0	0	0	8	0	0	16	1	0	0	0	0	0	0	0	0	1	0	0	0	0
.014	4	0	0	0	0	5	0	0	33	2	0	0	0	0	0	0	0	0	0	0	0	0	0
.016	8	0	0	0	0	4	0	0	178	4	0	0	0	0	0	1	0	0	0	0	0	0	2
.018	0	0	0	0	0	0	0	0	199	7	0	0	0	0	1	0	0	0	0	0	0	0	0
.020	3	0	0	0	0	3	0	0	20	4	0	0	0	0	0	0	0	0	1	0	0	0	0
.022	0	0	0	0	0	4	0	0	11	1	0	0	0	0	1	0	0	0	0	0	0	0	0
.024	3	0	0	0	0	8	0	0	234	32	0	0	0	0	0	0	0	0	0	1	0	0	0
.026	4	0	0	0	0	2	0	0	99	3	0	0	0	0	0	0	0	0	0	0	0	0	0
.028	0	0	0	0	0	1	0	0	31	0	0	0	0	0	2	0	3	0	0	0	0	0	1
.030	6	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	1	0	0	0	0	0	3
.032	0	0	0	0	0	0	0	0	13	1	0	0	0	0	0	0	7	0	0	0	0	0	3
.033	3	0	0	0	0	0	0	0	36	3	0	0	0	0	0	0	6	0	1	0	0	0	0
.035	1	0	0	0	0	1	0	0	72	4	0	0	0	0	5	0	2	0	0	0	0	0	2
.037	9	0	0	0	0	1	0	0	10	1	0	0	0	0	0	0	2	0	0	0	0	0	0
.039	4	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0
.041	3	0	0	0	0	2	0	0	20	3	0	0	0	0	3	0	1	0	0	0	0	0	0
.043	0	0	0	0	0	0	0	0	28	2	0	0	0	0	3	1	0	0	0	0	0	0	0
.045	0	0	0	0	0	0	0	0	7	0	0	0	0	0	3	0	0	0	0	0	0	0	0
.047	1	0	0	0	0	2	0	0	2	0	0	0	0	0	3	0	1	0	0	0	0	0	1
.049	2	0	0	0	0	2	0	0	52	1	0	0	0	0	0	0	2	0	0	0	0	0	0
.051	0	0	0	0	0	0	0	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.053	1	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	2	0	1	0	0	0	0
.055	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	2	0	0	0	0	0	0	0
.057	2	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.059	21	0	0	0	12	0	0	0	66	0	0	0	0	0	0	1	0	0	0	0	0	0	0
.061	8	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.063	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.065	11	0	0	0	3	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.067	2	0	0	0	4	0	0	0	31	0	0	0	0	0	2	0	19	0	7	0	3	0	1
.069	5	0	0	0	6	0	1	0	11	0	0	0	0	0	0	1	2	0	1	0	7	0	0
.071	9	0	3	0	2	0	0	0	16	0	0	0	0	0	0	0	0	0	1	0	0	0	1
.075	19	0	2	0	6	0	1	0	119	1	2	1	0	0	2	0	0	0	1	0	1	0	2
.077	13	0	1	0	3	0	0	0	23	0	0	0	0	0	2	1	1	0	0	0	4	0	0
.079	17	0	1	0	24	0	0	2	21	0	0	0	0	0	2	0	42	0	0	0	3	0	2
.081	29	0	0	0	15	0	0	0	59	0	0	0	0	0	2	0	30	0	0	0	2	0	1
.084	14	0	0	0	5	0	0	0	6	0	0	0	0	0	0	0	8	0	0	0	0	0	0
.087	13	0	1	0	6	0	0	0	10	0	0	0	0	0	0	0	1	0	0	0	0	0	0

APPENDIX TABLE 3.—Counts of selected categories of fish larvae, tabulated by station, EASTROPAC I.—*Continued.*

STATION NUMBER	*Bathylagus nigrigenys*	*Leuroglossus stilbius urotranus*	*Nansenia* spp.	*Araiophos* sp.	*Cyclothone* spp.	*Diplophos* sp.	*Ichthyococcus* spp.	*Maurolicus muelleri*	*Vinciguerria* spp.	*Bathophilus filifer*	Evermannellidae	*Macroparalepis macrurus*	*Sudis atrox*	*Scopelosaurus* spp.	*Oxyporhamphus micropterus*	Trachypteridae	*Auxis* spp.	*Katsuwonis pelamis*	*Coryphaena* spp.	*Naucrates ductor*	*Howella pammelas*	*Tetragonurus* sp.	Ceratioidei
12.090	4	0	2	0	2	0	1	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.092	0	0	0	0	5	0	0	4	41	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.094	3	0	0	0	8	0	0	1	124	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.097	3	0	0	0	7	0	0	8	46	0	0	0	0	0	0	1	0	0	0	0	0	0	1
12.100	12	0	3	0	4	0	0	0	10	0	0	0	0	0	0	1	1	0	0	0	1	0	0
.103	0	0	0	0	3	0	0	1	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.106	26	0	5	0	6	0	0	0	35	0	0	0	0	0	1	1	3	0	0	0	0	0	0
.109	1	0	2	0	7	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.112	6	0	1	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.115	17	0	4	0	0	0	0	0	12	0	0	0	0	0	0	0	36	0	3	0	0	0	1
.118	0	0	0	0	18	0	0	0	141	0	1	0	0	0	1	0	11	0	2	0	3	0	1
.120	0	0	0	0	2	0	0	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0
.122	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.124	0	0	0	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.126	0	0	0	0	4	0	0	0	18	0	0	0	0	0	0	1	0	0	0	0	0	0	0
.128	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.132	0	0	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.134	0	0	0	0	10	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.136	0	0	0	0	3	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.138	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.140	0	0	0	0	3	0	0	0	18	0	0	0	0	0	0	0	0	2	0	0	0	0	2
.142	0	0	0	0	22	2	0	0	86	0	0	0	0	0	0	0	1	1	0	0	0	0	0
.144	0	0	0	0	15	0	0	0	147	0	0	1	0	0	0	0	0	0	0	0	0	0	1
.146	0	0	0	0	0	1	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.148	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.150	0	0	0	0	28	2	0	0	6	1	0	0	0	0	0	0	0	16	1	0	0	0	0
.152	0	0	0	0	9	1	0	0	5	0	2	0	0	0	0	0	0	0	0	0	0	0	0
.154	0	0	0	0	8	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.156	0	0	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0
.158	0	0	0	0	42	0	0	0	8	0	0	2	1	1	0	0	0	0	0	0	0	0	0
.160	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.162	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.164	0	0	0	0	24	1	0	0	15	0	0	0	0	0	0	1	0	0	0	0	0	0	0
.184	0	0	0	0	31	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.186	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
.188	0	0	0	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.190	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
.192	0	0	0	0	14	1	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.194	0	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.196	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.198	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.200	0	0	0	0	3	0	0	0	3	0	1	0	0	0	1	0	13	0	0	0	0	0	0
.203	1	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.206	4	0	1	0	0	0	0	0	15	1	0	0	0	0	0	0	1	0	0	0	0	0	0
.209	4	0	5	0	3	0	2	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0
.212	16	0	0	0	17	0	0	0	17	0	0	0	0	0	0	0	5	0	1	0	0	0	0
.215	7	0	2	0	16	0	2	0	27	0	0	0	0	1	0	2	12	0	1	0	0	0	1
.218	1	0	4	0	9	0	0	2	11	0	0	0	0	0	0	0	6	0	0	0	0	0	4
.221	2	0	3	0	15	0	4	9	16	0	0	0	0	0	0	0	0	0	1	0	0	0	0
.224	0	0	0	0	48	0	0	2	201	0	0	0	0	0	0	0	2	0	0	0	0	0	2
.227	1	0	0	0	8	0	0	5	81	1	0	0	0	1	1	0	1	0	0	0	0	0	1
.230	3	0	6	0	1	0	0	0	4	0	0	0	0	0	0	1	0	0	0	0	0	0	0
.233	45	0	3	0	3	0	1	2	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX TABLE 3.—Counts of selected categories of fish larvae, tabulated by station, EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagus nigrigenys	Leuroglossus stilbius urotranus	Nansenia spp.	Araiophos sp.	Cyclothone spp.	Diplophos sp.	Ichthyococcus spp.	Maurolicus muelleri	Vinciguerria spp.	Bathophilus filifer	Evermannellidae	Macroparalepis macrurus	Sudis atrox	Scopelo saurus spp.	Oxyporhamphus micropterus	Trachypteridae	Auxis spp.	Katsuwonis pelamis	Coryphaena spp.	Naucrates ductor	Howella pammelas	Tetragonurus sp.	Ceratioidei
12.235	25	0	1	0	9	0	1	0	49	0	0	0	0	0	0	0	11	0	0	0	0	0	1
.238	17	0	0	0	7	0	1	0	31	3	0	1	0	0	0	0	17	0	0	0	0	0	0
.240	11	0	1	0	3	2	0	0	14	3	0	1	0	0	0	0	23	0	1	0	2	0	1
.242	1	0	2	0	1	0	0	0	0	7	0	0	0	0	2	0	12	0	1	0	3	0	0
.244	3	0	0	0	8	2	0	0	4	2	0	0	0	0	1	0	9	0	2	0	22	0	5
.246	11	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	8	0	1	0	7	0	2
.248	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	1	1	0	2	0	1	0	0
.250	1	0	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.252	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.254	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.256	3	0	0	0	0	1	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0
.258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.260	2	0	0	0	4	1	0	0	15	0	0	0	0	0	0	0	0	0	0	0	2	0	2
.262	2	0	0	0	0	5	0	0	97	3	0	0	0	0	0	0	0	0	0	1	0	0	0
.264	2	0	0	0	0	6	0	0	14	1	0	0	0	0	0	0	0	0	0	1	0	0	0
.265	3	0	0	0	0	7	0	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0
.268	0	0	0	0	0	2	0	0	103	1	0	0	0	0	0	0	0	0	2	0	0	0	2
.270	1	0	0	0	0	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.272	4	0	0	0	0	5	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.274	0	0	0	0	0	4	0	0	36	1	0	0	0	0	0	0	0	0	0	0	0	0	0
.276	0	0	0	0	0	0	0	0	138	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.278	1	0	0	0	0	1	0	0	164	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.280	0	0	0	0	2	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.282	1	0	0	0	0	2	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.284	0	0	0	0	1	1	0	0	118	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.001	8	0	0	0	3	0	0	0	90	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.003	14	0	0	0	35	0	0	0	1130	1	1	2	0	0	0	0	0	0	0	0	1	0	0
.005	54	0	0	0	6	1	2	0	300	0	0	0	0	0	0	0	3	0	1	0	0	0	0
.007	9	0	0	0	2	0	0	0	11	0	0	0	0	0	0	0	7	0	0	0	0	0	1
.009	8	0	0	0	1	0	0	0	9	0	0	0	0	0	0	0	7	0	0	0	0	0	0
.011	6	1	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
.013	18	0	0	0	0	0	1	0	8	0	0	0	0	0	1	0	1	0	0	0	0	0	0
.015	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
.017	16	0	0	0	1	0	1	0	61	1	0	0	0	0	0	1	8	0	1	0	0	0	0
.019	9	0	0	0	0	0	0	0	82	0	0	0	0	0	9	0	33	0	1	0	0	0	1
.021	4	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	20	0	0	0	0	0	0
.022	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.028	4	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.030	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	2
.032	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	52	0	0	0	0	0	8
.034	23	0	0	0	1	0	0	0	60	0	0	0	0	0	4	0	41	0	0	0	1	0	3
.036	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.038	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
.040	20	0	0	0	5	0	2	0	10	1	0	0	0	0	0	0	20	0	0	0	0	0	1
.042	11	0	0	0	5	0	3	0	6	0	0	0	0	0	0	1	4	0	0	0	0	0	0
.044	10	0	0	0	3	0	0	0	11	0	0	0	0	0	0	1	1	0	0	0	0	0	0
.046	10	0	0	0	5	0	0	0	73	4	0	0	0	0	0	1	0	0	1	0	0	0	0
.048	29	0	0	0	19	0	0	0	291	2	0	0	0	0	1	0	1	0	1	0	6	0	4
.050	10	0	0	0	5	0	0	0	36	1	0	0	0	0	0	0	0	0	0	0	0	0	0
.052	13	0	0	0	16	0	1	1	181	0	0	4	0	0	0	0	0	0	1	0	5	0	0
.054	14	0	1	0	9	1	0	5	76	4	0	0	0	0	3	0	11	0	0	0	0	0	1
.056	33	0	1	0	29	0	2	27	454	16	1	1	0	0	0	0	0	0	0	0	6	0	0
.058	6	0	0	0	8	0	1	10	319	1	0	0	0	0	0	0	7	0	0	0	0	0	0

APPENDIX TABLE 3.—Counts of selected categories of fish larvae, tabulated by station, EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagus nigrigenys	Leuroglossus stilbius urotranus	Nansenia spp.	Araiophos sp.	Cyclothone spp.	Diplophos sp.	Ichthyococcus spp.	Maurolicus muelleri	Vinciguerria spp.	Bathophilus filifer	Evermannellidae	Macroparalepis macrurus	Sudis atrox	Scopelo saurus spp.	Oxyporhamphus micropterus	Trachypteridae	Auxis spp.	Katsuwonis pelamis	Coryphaena spp.	Naucrates ductor	Howella pammelas	Tetragonurus sp.	Ceratioidei
13.060	5	0	0	0	2	0	2	14	8	0	0	0	0	0	0	0	17	0	0	0	0	0	0
.062	7	0	0	0	0	0	0	3	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.064	15	0	0	0	5	0	3	18	45	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.065	2	0	0	0	4	0	1	11	56	0	0	0	0	0	0	0	0	0	0	0	1	0	0
.067	7	0	0	0	2	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.069	37	0	1	0	2	0	0	13	45	1	0	0	0	0	0	0	1	0	0	0	0	0	0
.071	37	0	0	0	17	0	0	0	555	6	0	0	0	0	1	0	14	0	4	0	0	0	1
.073	42	0	0	0	13	0	0	0	153	1	0	0	0	0	0	0	3	0	4	0	0	0	5
.075	8	0	0	0	3	0	0	0	18	0	0	0	0	0	0	0	1	0	1	0	0	0	0
.077	0	0	0	0	0	0	0	0	59	2	0	0	0	0	0	0	5	0	0	0	0	0	2
.079	0	0	0	0	1	0	0	0	134	0	0	0	0	0	0	0	5	0	0	0	0	0	1
.081	2	0	0	0	0	0	0	0	164	0	0	1	0	0	0	0	0	0	0	0	0	0	1
.083	5	0	0	0	0	0	0	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.085	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.087	0	0	0	0	2	0	0	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.089	0	0	0	0	9	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.091	0	0	0	0	0	0	0	0	11	0	0	1	0	0	0	0	2	0	1	0	1	0	0
.093	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.095	6	0	0	0	25	1	0	0	120	2	1	1	0	0	0	0	10	0	0	0	0	0	1
.097	3	0	0	0	11	0	1	0	87	1	1	2	0	0	0	0	1	0	0	0	0	0	0
.099	0	0	0	0	4	1	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.101	3	0	0	0	0	0	1	0	7	0	0	2	0	0	0	0	0	0	1	0	0	0	0
.103	1	0	0	0	36	0	0	0	125	1	2	2	0	0	0	0	0	0	0	0	0	0	6
.105	0	0	0	0	20	0	0	0	30	0	0	1	0	0	0	0	0	0	0	0	0	1	2
.107	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.109	0	0	0	0	1	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.111	0	0	0	0	7	0	0	0	11	0	0	0	0	1	0	0	0	0	0	0	0	0	0
.113	0	0	0	0	12	0	0	0	18	0	0	1	1	0	0	1	0	0	0	0	0	0	1
.115	0	0	0	0	4	0	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0
.117	0	0	0	0	4	1	0	0	4	1	0	0	1	0	0	0	0	0	0	0	0	1	0
.119	0	0	0	0	26	3	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.121	0	0	0	0	10	0	1	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0
.123	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.125	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.127	0	0	0	0	13	0	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	0
.129	0	0	0	0	9	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.131	0	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.133	0	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.135	0	0	0	0	46	0	0	0	10	0	0	0	1	0	0	0	0	0	0	0	0	0	0
.137	0	0	0	0	12	0	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.139	0	0	0	0	3	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.141	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.143	0	0	0	0	21	0	0	0	55	0	0	0	1	0	0	0	5	0	0	0	0	0	0
.145	0	0	0	0	12	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.147	0	0	0	0	1	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	3
.149	0	0	0	0	6	0	0	0	8	0	0	0	0	0	0	1	0	0	1	0	0	0	0
.151	0	0	0	0	7	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.153	0	0	0	0	44	0	0	0	59	0	3	0	0	0	0	0	0	0	0	0	0	0	0
.155	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.157	0	0	0	0	3	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.159	0	0	0	0	8	1	0	0	3	0	1	1	0	0	0	0	4	0	0	0	0	0	0
.161	0	0	0	0	11	0	0	0	13	0	0	1	0	0	0	0	0	0	0	0	0	0	0
.163	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.165	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX TABLE 3.—Counts of selected categories of fish larvae, tabulated by station, EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagus nigrigenys	Leuroglossus stilbius urotranus	Nansenia spp.	Araiophos sp.	Cyclothone spp.	Diplophos sp.	Ichthyococcus spp.	Maurolicus muelleri	Vinciguerria spp.	Bathophilus filifer	Evermannellidae	Macroparalepis macrurus	Sudis atrox	Scopelo saurus spp.	Oxyporhamphus micropterus	Trachypteridae	Auxis spp.	Katsuwonis pelamis	Coryphaena spp.	Naucrates ductor	Howella pammelas	Tetragonurus sp.	Ceratioidei
13.167	0	0	0	0	5	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.169	0	0	0	0	7	0	0	0	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.171	0	0	0	0	2	0	0	0	16	0	0	0	0	0	0	0	13	0	0	0	0	0	0
.173	7	0	0	0	0	0	0	0	4	0	0	1	0	0	0	0	6	0	0	0	0	0	0
.175	22	0	0	0	6	0	0	0	169	0	1	1	0	0	0	0	45	0	0	0	1	0	1
.179	15	0	0	0	6	0	0	0	105	0	0	0	0	0	1	0	7	0	0	0	0	0	1
.183	50	0	3	0	3	0	0	0	36	0	0	0	0	0	0	0	6	0	0	0	0	0	0
.187	43	0	2	0	3	0	0	0	26	0	0	0	0	0	0	0	0	0	1	0	0	0	0
.191	10	0	6	0	25	0	0	5	118	0	0	0	0	0	1	0	7	0	0	0	0	0	1
.195	10	0	0	0	8	0	0	0	194	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.199	5	0	0	0	1	0	0	2	25	0	0	0	0	0	0	0	0	0	0	0	0	0	1
13.203	3	0	1	0	2	0	0	9	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.207	11	0	0	0	11	0	0	7	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.211	5	0	0	0	6	0	2	1	27	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.215	6	0	0	0	3	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.219	9	0	0	0	1	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.223	2	0	0	0	3	0	0	2	15	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.227	9	0	0	0	14	0	0	4	20	0	0	0	0	0	3	0	1	0	0	0	0	0	0
.231	9	0	1	0	5	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.235	9	0	1	0	3	0	2	0	31	0	0	0	0	0	1	0	1	0	0	0	0	0	0
.237	6	0	0	0	12	0	2	0	33	0	0	1	0	0	0	0	7	0	1	1	0	0	0
.239	3	0	0	0	7	0	3	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.241	2	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.243	11	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.245	7	0	0	0	1	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.247	9	0	0	0	0	0	0	0	11	0	0	0	0	0	0	1	2	0	1	0	0	0	0
.249	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.251	6	0	0	0	0	0	0	0	10	2	0	0	0	0	0	0	3	0	0	0	0	0	0
.253	20	0	0	0	0	0	0	0	22	4	0	0	0	0	0	0	0	0	0	0	0	0	0
.255	7	0	0	0	0	0	0	0	29	0	0	0	0	0	1	0	15	0	1	0	0	0	3
.257	8	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0
.259	17	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	5	0	0	0	0	0	0
.261	8	0	0	0	1	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.263	19	0	0	0	0	0	0	0	54	0	0	0	0	0	1	0	11	0	0	0	0	0	0
.265	6	0	0	0	0	1	0	0	12	8	0	0	0	0	0	0	1	0	0	0	0	0	1
.266	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0
.268	3	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.270	4	0	0	0	0	2	0	0	18	3	0	0	0	0	12	0	1	0	0	0	0	0	1
.272	2	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0
.274	1	0	0	0	0	3	0	0	49	6	0	0	0	0	3	0	1	0	1	0	0	0	0
.276	5	0	0	0	0	2	0	0	89	3	0	0	0	0	3	0	19	0	0	0	0	0	0
.278	1	0	0	0	0	1	0	0	20	2	0	0	0	0	0	0	0	0	0	0	0	0	0
.280	8	0	0	0	0	3	0	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0
.282	0	0	0	0	0	3	0	0	33	6	0	0	0	0	1	0	0	0	1	0	0	0	0
.284	18	0	0	0	1	0	0	0	60	1	0	0	0	0	2	0	0	0	0	0	0	0	1
13.318	13	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1
.320	8	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	13	0	0	0	0	0	0
.322	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0	9	0	1	0	0	0	0
.324	10	0	0	0	0	0	0	0	4	0	0	0	0	0	2	0	4	0	0	0	0	0	0
.326	13	0	0	0	1	0	0	0	9	0	0	0	0	0	0	0	18	0	0	0	0	0	1
.328	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	7	0	0	0	0	0	0
.330	4	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.332	11	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	1

APPENDIX TABLE 3.—Counts of selected categories of fish larvae, tabulated by station, EASTROPAC I.—*Continued.*

STATION NUMBER	Bathylagus nigrigenys	Leuroglossus stilbius urotranus	Nansenia spp.	Araiophos sp.	Cyclothone spp.	Diplophos sp.	Ichthyococcus spp.	Maurolicus muelleri	Vinciguerria spp.	Bathophilus filifer	Evermannellidae	Macroparalepis macrurus	Sudis atrox	Scopelo saurus spp.	Oxyporhamphus micropterus	Trachypteridae	Auxis spp.	Katsuwonis pelamis	Coryphaena spp.	Naucrates ductor	Howella pammelas	Tetragonurus sp.	Ceratioidei
13.334	37	0	0	0	2	0	0	0	19	1	0	0	0	0	0	1	0	0	0	0	0	0	2
.338	9	0	1	0	1	0	0	0	48	0	0	0	0	0	2	0	5	0	0	0	0	0	0
.340	4	0	0	0	3	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	1	0	0
.342	9	0	1	0	8	0	0	2	14	0	0	0	0	0	0	0	4	0	0	0	0	0	0
14.001	9	30	0	0	3	0	0	0	94	0	0	0	0	0	0	0	8	0	0	0	0	0	0
.006	3	29	0	0	3	0	0	0	15	0	0	0	0	0	0	0	10	0	0	0	0	0	0
.008	9	25	1	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	1	0	0	0	1
.010	1	13	0	0	3	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.012	2	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.014	3	39	0	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0	0	0	0	0
.016	10	9	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
.017	11	6	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.018	24	17	0	0	6	0	0	0	42	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.020	6	0	0	0	0	0	0	0	10	0	0	0	0	0	0	1	0	0	0	0	0	0	0
.022	1	6	0	0	3	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.024	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.027	17	6	0	0	1	0	0	0	30	0	0	0	0	0	0	0	6	0	0	0	0	0	0
.029	13	11	0	0	1	0	0	0	41	0	0	0	0	0	0	0	0	0	2	0	0	0	2
.031	29	1	0	0	2	0	0	0	41	0	0	0	0	1	0	0	1	0	1	0	0	0	0
.033	20	1	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0
.040	48	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	6	0	2	0	0	0	0
.043	59	6	0	0	3	0	0	0	14	1	0	0	0	6	0	0	22	0	0	0	0	0	5
.047	49	62	0	0	0	0	0	1	2	0	0	0	0	0	2	0	9	0	1	1	0	0	0
.051	20	205	0	0	2	0	0	0	25	0	0	0	0	0	0	0	46	0	0	1	0	0	0
.055	2	152	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.060	0	139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.066	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.069	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.076	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.078	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.081	2	0	0	0	3	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.084	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.086	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.088	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.091	2	0	0	0	8	0	0	0	32	1	0	0	0	0	0	0	0	0	1	0	0	0	2
.095	2	0	0	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
.099	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.110	0	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0
.112	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.115	2	0	0	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.117	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.120	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.122	2	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.123	7	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.124	7	0	0	0	18	0	0	0	58	0	0	0	0	0	0	1	0	0	1	0	0	0	8
.126	3	0	0	0	3	0	1	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.127	5	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.128	5	0	0	0	4	0	0	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.130	3	0	0	0	2	0	0	0	42	0	0	0	0	0	0	0	4	0	0	0	0	0	0

APPENDIX TABLE 3.—Counts of selected categories of fish larvae, tabulated by station, EASTROPAC I.—*Continued.*

STATION NUMBER	*Bathylagus nigrigenys*	*Leuroglossus stilbius urotranus*	*Nansenia* spp.	*Araiophos* sp.	*Cyclothone* spp.	*Diplophos* sp.	*Ichthyococcus* spp.	*Maurolicus muelleri*	*Vinciguerria* spp.	*Bathophilus filifer*	Evermannellidae	*Macroparalepis macrurus*	*Sudis atrox*	*Scopelosaurus* spp.	*Oxyporhamphus micropterus*	Trachypteridae	*Auxis* spp.	*Katsuwonis pelamis*	*Coryphaena* spp.	*Naucrates ductor*	*Howella pammelas*	*Tetragonurus* sp.	Ceratioidei
14.131	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.132	8	0	0	0	0	0	0	0	17	0	0	0	0	0	0	1	0	0	1	0	0	0	2
.134	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1
.136	1	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.138	9	0	0	0	2	0	0	0	90	0	0	0	0	0	0	0	9	0	0	0	0	0	0
.142	1	0	0	0	0	0	0	0	53	4	0	0	0	0	0	0	1	0	0	0	0	0	1
.146	16	30	0	0	0	0	0	0	111	1	0	0	0	0	0	0	8	0	0	0	0	0	0
.150	33	1	0	0	2	0	0	1	45	0	0	0	0	0	4	1	5	0	0	0	0	0	0
.154	28	6	0	0	9	0	1	0	372	0	0	0	0	0	1	0	7	0	0	0	0	0	3
.158	0	0	0	0	4	0	0	1	219	1	0	0	0	0	0	0	0	0	0	0	0	0	1
.164	8	0	0	0	4	0	1	0	48	0	0	0	0	3	0	0	6	0	0	0	0	0	1
.172	1	0	0	0	2	0	0	5	90	0	0	0	0	0	0	0	12	0	0	0	0	0	0
.174	3	0	0	0	0	0	1	3	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.177	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.183	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.188	34	0	0	0	4	0	0	9	155	1	0	0	0	0	2	0	36	0	1	0	0	0	1
.194	161	0	0	0	7	0	0	22	98	0	0	0	0	0	0	1	22	0	1	0	0	0	4
.195	54	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	2	0	0	0	0
.199	15	0	0	0	5	0	0	0	196	0	0	0	0	0	0	1	20	0	0	0	0	0	3
14.203	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1
.209	5	0	0	0	0	0	0	0	2	0	0	0	0	0	10	0	0	0	0	0	0	0	0
.213	34	0	0	0	10	0	0	0	86	0	0	0	0	0	0	0	11	0	1	0	0	0	0
.218	27	0	0	0	1	0	0	0	38	0	0	0	0	0	2	1	4	0	2	0	0	0	0
.220	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	13	0	0	0	0	0	0
.222	2	0	0	0	0	0	0	0	4	2	0	0	0	0	0	0	1	0	0	0	0	0	0
.224	9	3	0	0	6	0	0	0	31	1	0	0	0	0	0	0	7	0	0	0	1	0	0
.228	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0
.230	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	9	0	0	0	0	0	0
.232	9	0	0	0	0	0	0	0	49	0	0	0	0	0	0	0	12	0	0	0	0	0	0
.234	9	0	0	0	2	0	0	0	867	0	0	0	0	0	0	1	161	1	0	0	0	0	0
.236	3	0	0	0	0	0	0	0	16	0	0	0	0	0	0	1	10	0	0	0	0	0	0
.240	21	0	0	0	0	1	0	4	31	0	0	0	0	0	0	0	85	0	0	0	0	0	1
.243	24	0	0	0	1	0	0	7	19	0	0	0	0	0	0	0	5	0	0	0	0	0	0
.247	4	0	0	0	0	0	0	13	39	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.251	8	3	0	0	1	0	0	1	23	0	0	0	0	0	0	0	1	0	0	0	0	0	6
.255	1	209	0	0	10	0	0	0	76	0	0	0	0	0	0	0	59	0	1	0	0	0	6
.259	16	0	0	0	0	0	0	0	40	1	0	0	0	0	0	0	0	0	0	0	0	0	5
.263	2	0	0	0	2	0	0	0	231	0	0	0	0	0	0	0	0	0	0	0	0	0	2
.267	3	0	0	0	0	0	0	0	33	0	0	0	0	0	0	1	0	0	2	0	0	0	3
.276	9	0	0	0	6	0	0	0	52	0	0	0	0	0	0	0	0	0	2	0	0	0	1
.280	7	0	0	0	3	0	0	0	59	2	0	0	0	0	0	0	0	0	2	0	0	0	6
.283	3	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	1	0	0	0	1
.287	5	0	0	0	3	0	0	0	59	0	0	0	0	0	0	0	0	0	0	0	0	0	9
.291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.295	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	63	0	2	0	0	0	5
.300	1	286	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
.303	3	490	0	0	2	0	0	0	8	0	0	0	0	0	0	0	0	0	1	0	1	0	1
.306	12	22	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.310	70	21	0	0	0	0	0	9	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0
.314	24	0	0	0	1	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.318	32	0	0	0	2	0	0	2	66	0	0	0	0	0	0	0	1	0	0	0	0	0	1
.323	11	0	0	0	0	0	0	0	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0
.326	15	12	0	0	1	0	0	0	65	0	0	0	0	0	0	0	8	0	0	0	0	0	0
.330	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX TABLE 4.—Summary of occurrences and numbers of larvae of eight families, limited in distribution to a broad coastal band or around offshore islands.

STATION NUMBER	Clupeidae	Engraulidae	Synodontidae	Carangidae	Serranidae	Labridae	Gobiidae	Scorpaenidae
11.076	0	0	0	1	0	0	0	0
11.246	0	0	0	0	0	0	0	1
12.020	0	0	0	0	0	1	0	0
.024	0	0	0	1	4	0	0	0
.026	0	0	0	0	10	0	0	0
.028	0	0	0	0	0	0	3	3
.030	0	0	0	0	0	0	1	1
.031	0	0	0	0	0	0	7	0
.033	1	2	1	2	1	2	1	1
.035	0	0	0	5	0	0	3	1
.041	0	0	0	1	0	0	1	0
.059	0	0	0	0	0	0	1	0
12.221	0	0	0	0	0	0	0	2
.256	0	0	0	0	0	1	0	0
.262	0	0	0	1	0	0	0	0
.264	0	0	0	1	0	0	0	0
.268	0	0	0	1	0	0	0	0
13.003	0	0	0	1	0	0	1	0
.005	0	0	0	0	0	0	1	1
.007	0	0	0	0	0	0	0	1
.011	0	0	0	0	0	0	1	0
.019	0	13	1	70	49	2	47	12
.021	2	7	0	11	3	0	3	1
.030	0	0	0	0	0	0	1	2
.032	0	0	0	0	0	0	12	8
.034	0	0	0	0	0	0	23	3
.040	0	0	0	0	0	0	0	1
.042	0	0	0	0	0	1	0	0
.054	0	0	0	0	1	0	0	0
.056	0	0	0	0	0	0	1	0
.062	0	0	0	0	0	2	0	0
13.235	0	0	0	0	0	0	0	1
.237	0	0	0	1	0	0	0	0
.239	0	0	0	0	0	0	2	0
.245	0	0	0	0	0	0	13	0
.247	0	0	0	0	0	0	5	0
.249	0	0	0	0	0	0	1	0
.253	0	0	0	0	0	0	72	0
.255	2	0	1	2	0	0	2	3
.257	0	0	0	0	0	0	0	1
.261	0	0	0	0	0	0	41	0
.263	0	0	0	0	0	0	0	2
.265	0	0	0	0	0	0	0	1
.266	0	0	0	0	0	1	0	0
.268	0	0	0	0	0	1	0	0
.274	0	0	0	0	0	0	3	0
.276	0	0	0	0	0	0	2	0
13.320	1	0	0	0	0	1	7	3
.328	0	0	0	0	0	0	2	1
.330	0	0	0	0	0	0	4	0
.334	0	0	0	0	0	0	1	0
.338	0	0	0	0	0	0	17	0

STATION NUMBER	Clupeidae	Engraulidae	Synodontidae	Carangidae	Serranidae	Labridae	Gobiidae	Scorpaenidae
14.001	0	5	1	1	84	0	55	11
.006	0	0	0	0	1	0	5	1
.008	0	0	0	0	0	0	2	5
.010	0	0	0	0	0	0	3	2
.012	0	0	1	0	0	1	1	0
.014	6	0	0	4	0	0	11	1
.016	0	0	0	34	0	0	0	0
.017	0	0	0	0	0	1	0	0
.018	0	0	0	0	0	3	10	4
.020	0	0	0	0	0	1	1	1
.022	0	0	0	0	14	0	2	1
.024	0	4	0	6	5	0	0	6
.027	0	0	3	5	1	4	36	9
.029	0	0	7	2	12	0	9	37
.031	0	0	3	0	3	1	18	4
.033	0	0	0	1	0	1	1	2
.040	0	0	0	6	5	0	1	0
.043	0	0	0	0	0	1	2	0
.047	0	0	0	1	0	1	0	3
.051	0	0	0	1	0	0	0	0
.055	0	0	0	0	0	1	0	0
.060	0	52	0	2	0	0	0	0
.066	0	11	0	0	0	0	0	0
.069	0	97	0	0	0	0	0	0
.076	0	11	0	0	0	0	0	0
14.106	0	3	0	0	0	0	0	0
.110	0	0	0	1	0	0	0	0
.154	0	0	0	0	5	0	0	1
.158	5	0	0	1	8	0	3	4
.164	0	0	0	0	0	0	0	1
.172	2	0	0	11	22	3	0	1
.174	1	0	0	0	4	2	1	1
.177	60	0	0	2	6	1	1	0
.194	1	0	0	1	0	1	0	0
.195	0	0	0	0	2	0	0	0
.199	0	0	0	2	0	0	1	0
14.209	0	0	0	0	0	1	0	0
.213	0	0	0	0	0	0	3	0
.220	0	0	0	0	0	1	1	0
.222	0	0	0	0	0	1	0	0
.224	0	0	0	3	0	0	0	1
.228	0	0	0	0	1	0	0	4
.230	0	0	0	2	0	0	0	2
.232	0	0	0	0	0	0	2	0
.234	0	0	0	0	3	0	8	3
.236	0	0	0	0	0	0	1	0
.240	0	0	0	0	0	0	1	1
.243	0	0	0	0	0	0	1	0
.247	0	0	0	0	0	0	2	0
14.303	0	0	0	0	1	1	0	0
.314	0	0	0	0	0	0	0	1
.318	0	0	10	0	4	2	43	5
.323	0	0	0	0	1	0	3	1
.326	0	0	13	0	2	0	23	0

APPENDIX TABLE 5.—Numbers and kinds of larvae of Gempylidae-Trichiuridae obtained in EASTROPAC I collections.

STATION NUMBER	Nealotus tripes	Gempylus serpens	Diplospinus multistriatus	Lepidopus sp.	Other	STATION NUMBER	Nealotus tripes	Gempylus serpens	Diplospinus multistriatus	Lepidopus sp.	Other
11.056	0	1	0	0	0	13.107	0	0	1	0	0
.064	0	0	1	0	0	.119	1	3	0	0	0
.072	0	1	0	0	0	.137	0	2	0	0	0
11.114	1	0	0	0	0	.139	0	0	1	0	0
.138	1	0	0	0	0	.147	0	0	1	0	0
.140	1	0	0	0	0	.153	0	0	1	0	0
.146	0	1	0	0	0	.159	0	2	0	0	0
.158	1	0	0	0	0	.167	1	0	0	0	0
.159	1	0	0	0	0	.171	0	1	0	0	0
11.213	0	1	0	0	0	.173	1	0	0	0	0
.219	0	1	0	0	0	.175	1	0	0	0	0
.228	1	0	0	0	0	.179	0	3	0	0	0
.234	0	1	0	0	0	.187	0	0	0	0	2
.295	0	2	0	0	0	.191	0	1	0	0	0
.297	0	2	0	0	0	13.235	1	0	0	0	0
11.318	0	0	5	0	0	.245	0	1	0	0	0
.320	0	0	1	0	0	.280	0	0	0	0	1
.324	0	0	1	0	0						
.326	0	0	2	0	0	14.001	0	1	0	0	0
						.010	1	0	0	0	0
12.004	0	1	0	0	0	.012	0	0	0	1	0
.014	0	1	0	0	0	.029	1	0	1	1	0
.020	0	1	0	0	0	.031	1	0	0	0	0
.047	0	2	0	0	0	.095	0	0	1	0	0
.081	0	1	0	0	0	14.122	0	0	1	0	0
12.115	0	0	0	0	1	.123	0	0	1	0	0
.118	6	0	0	0	1	.124	1	1	1	0	0
.120	1	0	0	0	0	.126	1	0	1	0	0
.144	0	1	0	0	0	.127	0	0	3	0	0
.150	0	3	0	0	0	.128	0	0	6	0	0
.152	0	1	0	0	0	.130	0	0	3	0	0
.158	0	1	0	0	0	.131	0	0	1	0	0
.188	0	1	0	0	0	.134	1	1	0	0	0
12.246	0	2	0	0	0	.138	3	0	0	0	0
.260	0	1	0	0	0	.142	2	0	0	0	0
.262	0	1	0	0	0	.146	2	0	0	0	0
.272	0	1	0	0	0	.150	1	0	0	0	0
.276	0	1	0	0	0	.164	1	0	0	0	0
						.188	1	0	0	0	0
13.048	1	2	0	0	0	.194	0	0	0	2	0
.054	0	0	0	17	0	.195	1	0	0	0	0
.056	2	0	0	0	0	14.222	1	0	0	0	0
.071	6	0	0	0	0	.224	1	0	0	0	0
.073	7	0	0	0	0	.234	8	0	0	1	0
.075	2	0	0	0	0	.240	1	0	0	0	0
.077	3	0	0	0	0	.259	3	0	0	0	0
.081	8	0	0	0	0	.280	1	4	1	0	0
.083	0	1	0	0	0	.283	0	0	1	0	0
.095	0	0	7	0	0	.287	1	2	0	0	0
.097	0	1	4	0	0	.295	0	1	0	0	0
.101	0	1	6	0	0	14.318	1	0	0	2	0
.103	0	0	7	0	0	.326	0	0	0	1	0
.105	0	0	2	0	0	.330	1	0	0	0	0

APPENDIX TABLE 6.—Numbers and kinds of flatfish (Pleuronectiformes) larvae obtained in EASTROPAC I collections.

Station number	Bothus leopardinus	Citharichthus - Etropus	Cyclopsetta sp.	Engyophrys sancti-laurentii	Syacium ovale	Symphurus spp.	Other Pleuronectiformes
12.028	0	0	0	0	0	1	0
.030	0	1	0	0	0	0	0
.031	0	0	0	0	2	6	0
.033	4	1	0	0	6	6	0
.035	0	0	0	0	0	3	0
.045	0	0	0	0	0	1	0
13.007	0	0	0	0	1	0	0
.009	0	1	0	0	0	0	0
.011	0	1	0	0	0	0	0
.013	0	0	0	0	0	5	0
.015	1	0	0	0	0	1	0
.019	6	1	1	0	25	31	1
.021	2	2	0	0	13	8	0
.030	0	0	0	0	0	4	0
.032	0	0	0	0	0	8	0
.034	0	0	0	2	4	9	0
.036	0	0	0	0	1	0	0
.040	1	2	0	1	0	3	0
.042	1	0	1	0	6	1	0
.054	1	0	0	0	0	0	0
13.245	1	0	0	0	0	0	0
.251	0	0	0	0	0	1	0
.253	4	0	0	0	0	4	0
.255	3	1	0	0	0	9	0
.257	0	0	0	0	0	1	0
.259	0	0	0	0	1	1	0
.261	1	0	0	0	1	1	0
.263	1	0	0	0	3	8	0
.265	0	0	0	0	2	1	0
13.318	2	0	0	0	1	1	0
.320	2	0	0	0	0	2	0
.322	5	0	0	0	0	0	0
.324	0	0	0	0	1	0	0
.326	0	0	0	0	1	2	0
.328	0	0	0	0	0	1	0
.334	1	0	0	0	0	0	0

Station number	Bothus leopardinus	Citharichthys - Etropus	Cyclopsetta sp.	Engyophrys sancti-laurentii	Syacium ovale	Symphurus spp.	Other Pleuronectiformes
14.001	1	5	0	1	0	35	0
.006	0	1	0	0	0	2	0
.008	0	1	0	0	0	3	0
.010	0	1	0	1	0	1	0
.014	0	2	0	0	0	4	0
.016	0	0	0	0	0	5	1
.017	0	0	0	0	0	2	0
.018	0	1	0	0	0	1	0
.020	0	0	0	0	0	5	0
.022	1	3	0	0	0	1	0
.024	0	1	0	0	0	9	0
.027	1	6	0	1	3	9	0
.029	1	5	0	0	2	24	0
.031	0	0	0	1	0	30	0
.033	0	0	0	1	0	2	0
.040	0	1	0	0	2	4	0
.047	0	0	0	0	0	1	0
.055	0	1	0	0	0	2	0
14.164	1	0	0	0	0	1	0
.174	0	0	0	0	0	1	0
.183	0	0	0	0	0	1	0
.194	0	0	0	0	0	1	0
.195	0	0	0	0	0	1	0
.199	0	0	0	0	0	1	0
14.209	0	0	0	0	0	1	0
.213	0	0	0	0	1	0	0
.220	0	0	0	0	0	3	0
.228	0	1	0	0	0	3	0
.230	0	0	0	0	0	1	0
.232	0	0	0	0	1	0	0
.234	2	0	2	0	3	1	0
.236	1	0	0	0	0	2	0
.240	0	0	0	0	1	0	0
.259	2	0	0	0	0	0	0
.295	0	1	0	0	0	0	0
14.300	0	0	0	0	1	0	0
.303	1	1	0	0	0	1	0
.306	0	0	0	0	0	1	0
.314	0	0	0	0	0	1	0
.318	1	2	0	1	0	19	0
.323	1	3	0	0	2	2	0
.326	1	4	0	0	0	3	0
.330	0	0	0	0	0	1	0

APPENDIX TABLE 7.—Standardized haul factors (SHF): These factors are used to adjust original counts of larvae to the comparable standard of numbers of larvae in 10 m³ of water strained per meter of depth fished.

Station	SHF	Station	SHF	Station	SHF	Station	SHF	Station	SHF
11.022	3.06	11.156	2.74	11.291	3.46	12.061	3.33	12.192	3.27
11.025	2.87	11.158	3.12	11.293	2.93	12.063	3.27	12.194	3.45
11.027	2.38	11.159	2.64	11.295	3.16	12.065	3.23	12.196	3.32
11.030	2.47	11.161	3.35	11.297	2.86	12.067	3.36	12.198	3.40
11.032	3.01	11.163	2.64	11.299	3.57	12.068	3.39	12.200	3.18
11.034	3.64	11.167	2.97	11.301	3.31	12.071	3.34	12.203	3.29
11.036	3.04	11.169	3.27	11.303	3.19	12.075	3.33	12.206	3.53
11.038	2.80	11.171	2.92	11.306	3.22	12.077	3.42	12.209	3.51
11.040	3.32	11.173	2.94	11.308	3.15	12.079	3.56	12.212	3.32
11.044	2.81	11.175	3.47	11.310	3.19	12.091	3.53	12.215	3.27
11.046	3.24	11.177	1.36	11.312	3.42	12.084	3.73	12.218	3.02
11.048	3.08	11.179	3.37	11.314	3.18	12.087	3.86	12.221	3.07
11.050	2.36	11.181	2.74	11.316	2.84	12.090	3.10	12.224	2.58
11.052	2.86	11.183	2.92	11.318	3.27	12.092	2.55	12.227	2.96
11.054	2.54	11.185	3.19	11.320	3.34	12.094	2.29	12.230	3.72
11.056	2.90	11.187	2.75	11.322	3.01	12.097	3.01	12.233	2.66
11.058	3.28	11.189	3.00	11.324	3.02	12.100	2.48	12.235	3.56
11.060	3.15	11.191	3.79	11.326	2.84	12.103	3.28	12.238	3.21
11.062	3.72	11.195	3.11	11.328	2.62	12.106	3.55	12.240	3.22
11.064	3.01	11.197	3.14			12.109	3.39	12.242	3.41
11.066	2.12	11.199	2.46	12.002	3.12	12.112	3.43	12.244	3.36
11.068	2.62	11.201	3.27	12.004	3.02	12.115	3.48	12.246	3.14
11.070	2.25	11.203	3.09	12.006	3.31	12.118	2.45	12.248	3.07
11.072	3.43	11.205	3.20	12.008	3.08	12.120	3.46	12.250	2.49
11.076	2.92	11.207	3.65	12.010	3.13	12.122	3.43	12.252	2.33
11.080	2.45	11.209	3.06	12.012	3.17	12.124	3.17	12.254	3.30
11.084	2.70	11.211	3.39	12.014	3.28	12.126	3.47	12.256	3.26
11.088	3.19	11.213	2.87	12.016	3.17	12.128	3.30	12.258	3.26
11.094	3.61	11.215	3.13	12.018	3.13	12.130	3.35	12.260	3.51
11.098	1.78	11.217	2.90	12.020	3.12	12.132	3.38	12.262	2.98
11.102	2.72	11.219	3.36	12.022	3.43	12.134	3.29	12.264	3.38
11.106	1.36	11.221	2.92	12.024	3.11	12.136	3.22	12.265	3.27
11.110	2.95	11.223	3.71	12.026	3.30	12.138	3.38	12.268	3.35
11.114	3.35	11.226	3.05	12.028	3.44	12.140	3.00	12.270	3.36
11.118	4.65	11.228	3.29	12.030	3.44	12.142	3.42	12.272	3.12
11.120	3.68	11.234	3.65	12.032	3.32	12.144	3.20	12.274	3.28
11.124	3.67	11.238	3.41	12.033	3.21	12.146	4.36	12.276	3.34
11.128	2.85	11.242	3.77	12.035	3.35	12.148	3.21	12.278	3.00
11.130	3.80	11.246	3.01	12.037	3.20	12.150	3.14	12.280	3.39
11.132	3.37	11.250	2.77	12.039	3.47	12.152	3.17	12.282	3.58
11.134	3.22	11.254	2.51	12.041	3.42	12.154	3.27	12.284	3.41
11.136	3.24	11.258	2.86	12.043	3.33	12.156	3.28		
11.138	3.38	11.262	3.23	12.045	3.35	12.158	3.22	13.001	2.26
11.140	2.77	11.266	2.91	12.047	3.42	12.160	3.49	13.003	2.45
11.142	3.35	11.270	3.69	12.049	3.39	12.162	3.21	13.005	1.42
11.146	3.25	11.278	3.09	12.051	3.31	12.164	2.98	13.007	2.42
11.148	2.54	11.282	3.99	12.053	3.27	12.184	3.22	13.009	2.56
11.150	3.45	11.285	3.20	12.055	2.84	12.186	3.22	13.011	3.68
11.152	2.59	11.287	3.45	12.057	3.22	12.188	3.35	13.013	2.29
11.154	3.40	11.289	3.12	12.059	3.41	12.190	3.39	13.015	2.76

APPENDIX TABLE 7.—Standardized haul factors (SHF): These factors are used to adjust original counts of larvae to the comparable standard of numbers of larve in 10 m³ of water strained per meter of depth fished.—*Continued.*

Station	SHF	Station	SHF	Station	SHF	Station	SHF	Station	SHF
13.017	2.16	13.119	2.67	13.249	3.46	14.047	4.10	14.203	3.15
13.019	1.88	13.121	3.14	13.251	3.46	14.051	2.93	14.209	3.23
13.021	2.12	13.123	3.06	13.253	3.13	14.055	3.77	14.213	3.26
13.022	2.72	13.125	3.50	13.255	3.58	14.060	3.58	14.218	2.87
13.028	1.53	13.127	3.30	13.257	3.68	14.066	3.81	14.220	3.42
13.030	2.50	13.129	4.01	13.259	3.42	14.069	3.65	14.222	3.64
13.032	3.05	13.131	3.64	13.261	1.85	14.076	3.61	14.224	3.77
13.034	3.21	13.133	3.84	13.263	3.49	14.078	3.64	14.228	3.87
13.036	2.34	13.135	2.51	13.265	3.29	14.081	3.39	14.230	2.96
13.038	2.25	13.137	2.58	13.266	3.31	14.084	3.86	14.232	2.70
13.040	2.85	13.139	3.57	13.268	3.47	14.086	3.95	14.234	0.72
13.042	2.74	13.141	3.36	13.270	3.30	14.088	3.54	14.236	2.96
13.044	2.58	13.143	3.23	13.272	3.06	14.091	3.08	14.240	3.43
13.046	3.08	13.145	3.49	13.274	3.73	14.095	3.87	14.243	3.55
13.048	2.71	13.147	3.58	13.276	3.54	14.099	3.70	14.247	3.52
13.050	3.02	13.149	3.56	13.278	3.16	14.103	3.57	14.251	3.49
13.052	2.91	13.151	3.11	13.280	3.48	14.106	3.68	14.255	3.64
13.054	3.07	13.153	3.25	13.282	3.37	14.110	3.55	14.259	3.54
13.056	2.87	13.155	3.34	13.284	3.36	14.112	3.66	14.263	3.68
13.058	2.75	13.157	3.40	13.318	3.17	14.114	4.84	14.267	3.04
13.060	3.62	13.159	3.00	13.320	2.93	14.115	3.24	14.276	3.47
13.062	3.15	13.161	3.30	13.322	3.22	14.117	4.29	14.280	3.56
13.064	2.76	13.163	2.70	13.324	3.12	14.118	4.03	14.283	3.60
13.065	2.81	13.165	3.22	13.326	3.05	14.120	3.76	14.287	3.53
13.067	2.67	13.167	3.64	13.328	3.15	14.122	3.78	14.291	3.11
13.069	2.12	13.169	3.25	13.330	3.03	14.123	3.51	14.295	2.28
13.071	2.61	13.171	3.12	13.332	3.13	14.124	3.38	14.300	3.58
13.073	3.11	13.173	2.80	13.334	2.85	14.126	3.69	14.303	3.48
13.075	3.42	13.175	2.71	13.338	3.02	14.127	3.89	14.306	3.29
13.077	2.72	13.179	2.46	13.340	3.00	14.128	3.66	14.310	2.85
13.079	2.53	13.183	3.39	13.342	3.03	14.130	3.62	14.314	3.60
13.081	2.75	13.187	3.31			14.131	3.56	14.318	3.51
13.083	3.06	13.191	3.53	14.001	0.99	14.132	3.56	14.323	3.15
13.085	4.11	13.195	3.02	14.006	2.94	14.134	3.67	14.326	1.51
13.087	2.87	13.199	2.77	14.008	3.56	14.136	3.47	14.330	3.49
13.089	2.65	13.203	2.60	14.010	5.83	14.138	3.83		
13.091	2.97	13.207	3.31	14.012	3.50	14.142	3.69		
13.093	2.87	13.211	3.01	14.014	3.51	14.146	3.75		
13.095	2.81	13.215	2.97	14.016	3.28	14.150	3.60		
13.097	3.02	13.219	2.44	14.017	4.19	14.154	4.24		
13.099	2.64	13.223	3.01	14.018	3.13	14.158	2.45		
13.101	2.75	13.227	3.32	14.020	2.89	14.164	1.01		
13.103	2.77	13.231	2.42	14.022	3.45	14.172	3.55		
13.105	2.77	13.235	3.05	14.024	3.55	14.174	3.57		
13.107	2.76	13.237	3.56	14.027	3.55	14.177	3.88		
13.109	2.90	13.239	3.51	14.029	2.63	14.183	3.94		
13.111	2.88	13.241	3.55	14.031	2.03	14.188	2.15		
13.113	2.85	13.243	3.42	14.033	5.05	14.194	1.57		
13.115	3.46	13.245	2.98	14.040	3.65	14.195	1.39		
13.117	2.99	13.247	3.27	14.043	3.53	14.199	1.54		