

# NOAA Technical Memorandum NMFS



SEPTEMBER 1999

## ICHTHYOPLANKTON AND STATION DATA FOR CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS SURVEY CRUISES IN 1995

Elaine M. Sandknop  
Richard L. Charter  
H. Geoffrey Moser

NOAA-TM-NMFS-SWFSC-276

U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Southwest Fisheries Science Center

**The National Oceanic and Atmospheric Administration (NOAA), organized in 1970, has evolved into an agency which establishes national policies and manages and conserves our oceanic, coastal, and atmospheric resources. An organizational element within NOAA, the Office of Fisheries is responsible for fisheries policy and the direction of the National Marine Fisheries Service (NMFS).**

**In addition to its formal publications, the NMFS uses the NOAA Technical Memorandum series to issue informal scientific and technical publications when complete formal review and editorial processing are not appropriate or feasible. Documents within this series, however, reflect sound professional work and may be referenced in the formal scientific and technical literature.**



## **NOAA Technical Memorandum NMFS**

This TM series is used for documentation and timely communication of preliminary results, interim reports, or special purpose information. The TMs have not received complete formal review, editorial control, or detailed editing.

**SEPTEMBER 1999**

# **ICHTHYOPLANKTON AND STATION DATA FOR CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS SURVEY CRUISES IN 1995**

Elaine M. Sandknop  
Richard L. Charter  
H. Geoffrey Moser

National Marine Fisheries Service, NOAA  
Southwest Fisheries Science Center  
La Jolla Laboratory  
P.O. Box 271  
La Jolla, California 92038-0271

NOAA-TM-NMFS-SWFSC-276

**U.S. DEPARTMENT OF COMMERCE**  
William M. Daley, Secretary  
**National Oceanic and Atmospheric Administration**  
D. James Baker, Under Secretary for Oceans and Atmosphere  
**National Marine Fisheries Service**  
Penelope Dalton, Assistant Administrator for Fisheries

## CONTENTS

	Page
List of Figures .....	iii
List of Tables .....	iii
Abstract .....	1
Introduction .....	1
Sampling Area and Pattern .....	2
Sampling Gear and Methods .....	3
Laboratory Procedures .....	3
Identification .....	4
Species Summary .....	5
Explanation of Tables .....	6
Acknowledgments .....	6
Literature Cited .....	7
Figures .....	12
Tables .....	15
Phylogenetic Index to Table 4 .....	80
Alphabetical Index to Table 4 .....	83

## LIST OF FIGURES

	Page
Figure 1. Stations and cruise tracks for CalCOFI cruises 9501 and 9504 .....	12
Figure 2. Stations and cruise tracks for CalCOFI cruises 9507 and 9510 .....	13
Figure 3. Basic station plan for CalCOFI cruises .....	14

## LIST OF TABLES

	Page
Table 1. Station and plankton tow data for CalCOFI cruises in 1995 .....	15
Table 2. Pooled occurrences of fish larvae taken on CalCOFI cruises in 1995 .....	24
Table 3. Pooled counts of fish larvae taken on CalCOFI cruises in 1995 .....	27
Table 4. Standardized counts of fish larvae taken on CalCOFI cruises in 1995, listed by taxon, station, and month .....	30

## ABSTRACT

This report provides ichthyoplankton data and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) cruises conducted in the Southern California Bight region in 1995. It is the 35<sup>th</sup> report in a series that presents these data for all biological-oceanographic CalCOFI surveys from 1951 to the present. A total of 251 stations was occupied during quarterly cruises over the survey area which extended from Avila Beach to San Diego, California. Transects extended seaward in a southwesterly direction to a maximum of approximately 330 n. mi. The most seaward station, 90.0 120.0, was approximately 400 n. mi. west of Punta Baja, Baja California, Mexico. The data are listed in a series of four tables; the background, methodology, and information necessary for interpretation of the data are presented in an accompanying text. All pertinent station and tow data, including volumes of water strained and standard haul factors, are listed in the first table. Another table lists, by station and month, standardized counts of each of the 130 larval fish categories identified from survey samples. This series of reports makes the CalCOFI ichthyoplankton and station data available to all investigators and serves as a guide to the computer data base.

## INTRODUCTION

This report, the 35<sup>th</sup> in the series, provides ichthyoplankton and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) joint biological-oceanographic survey cruises conducted in 1995. This program was initiated in 1949, under the sponsorship of the Marine Research Committee of the State of California, to study the population fluctuations of the Pacific sardine (*Sardinops sagax*) and the environmental factors that may play a role in these fluctuations. CalCOFI is a partnership among the Southwest Fisheries Science Center of the National Marine Fisheries Service (NMFS), the Scripps Institution of Oceanography (SIO), and the California Department of Fish and Game (CDFG). NMFS and SIO supply ships and personnel to conduct the sea surveys, NMFS processes the plankton samples and analyzes the ichthyoplankton from them. SIO processes and analyzes hydrographic and biological samples and analyzes invertebrate groups from the plankton samples.

The boundaries, station placement, and sampling frequency for the CalCOFI surveys were based on the results of joint biological-oceanographic cruises conducted by NMFS and SIO during 1939-41. Originally, CalCOFI cruises were designed to collect sardine eggs and larvae and associated hydrographic data over the entire areal and seasonal spawning range of the species. From 1951 to 1960 the surveys were annual with cruises conducted monthly. The survey area was occupied quarterly during 1961-1965 and in 1966 the surveys became triennial with monthly cruises. Beginning in 1985 annual surveys were resumed, with quarterly cruises occupying only the Southern California Bight region (see Hewitt 1988 and Moser et al. 1993, 1994 for summaries of CalCOFI historical sampling effort).

Hydrographic and biological data from the 1995 CalCOFI survey have been published by the Scripps Institution of Oceanography (Univ. of Calif., SIO 1995, 1996). All available records for the 1995 CalCOFI surveys were verified and edited to produce this ichthyoplankton data report. These reports make the CalCOFI ichthyoplankton and station data available to all investigators and serve as guides to the computer data base. They are the basic documents against which changes in the data base can be compared as it is modified to correct errors and update earlier identifications. Citations for previous reports in this series are:

Survey	Report	Survey	Report
1951	Ambrose et al. 1987a	1968	Sandknop et al. 1988c
1952	Sandknop et al. 1987a	1969	Stevens et al. 1988b
1953	Stevens et al. 1987a	1972	Sumida et al. 1988c
1954	Sumida et al. 1987a	1975	Ambrose et al. 1988c
1955	Ambrose et al. 1987b	1978	Sandknop et al. 1988d
1956	Stevens et al. 1987b	1981	Ambrose et al. 1988d
1957	Sumida et al. 1987b	1984	Stevens et al. 1990
1958	Sandknop et al. 1987b	1985	Ambrose et al. 1999a
1959	Stevens et al. 1987c	1986	Charter et al. 1999a
1960	Ambrose et al. 1987c	1987	Sandknop et al. 1999a
1961	Sandknop et al. 1988a	1988	Watson et al. 1999a
1962	Sumida et al. 1988a	1989	Ambrose et al. 1999b
1963	Ambrose et al. 1988a	1990	Charter et al. 1999b
1964	Sandknop et al. 1988b	1991	Sandknop et al. 1999b
1965	Stevens et al. 1988a	1992	Watson et al. 1999b
1966	Sumida et al. 1988b	1993	Ambrose et al. 1999c
1967	Ambrose et al. 1988b	1994	Charter et al. 1999c

### SAMPLING AREA AND PATTERN

A total of 251 standard CalCOFI survey stations was occupied on four cruises in 1996, employing two research vessels:

9501, RV *David Starr Jordan*, 64 stations, January 4–21;

9504, RV *New Horizon*, 55 stations, April 6–22;

9507, RV *David Starr Jordan*, 66 stations, July 6–23;

9510, RV *New Horizon*, 66 stations, October 10–28.

The survey area extended from Avila Beach to San Diego, California and seaward on six survey lines to approximately 120–330 n. mi. (Figures 1 and 2).<sup>1</sup> The most seaward station, 90.0 120.0, was approximately

---

<sup>1</sup> Beginning in 1981 we changed our designation of ordinal survey lines (those ending in "3" and "7") to an exact decimal notation. Thus, lines 77, 83, 87, 93, etc. were changed to 76.7, 83.3, 86.7, 93.3, etc. to indicate the spacing between cardinal lines (those ending in "0"). Scripps Institution of Oceanography continues to use the original designation for ordinal lines (Figures 1 and 2 and see Univ. of Calif., SIO 1995, 1996).

400 n. mi. west of Punta Baja, Baja California, Mexico. Stations on CalCOFI lines 76.7 and 80.0 extended seaward to station 100.0 on cruises 9501, 9507, and 9510. On cruise 9504 line 76.7 extended to station 90.0 and line 80.0 extended to station 70.0. Stations on lines 83.3 and 86.7 extended seaward to station 110.0 on all cruises and stations on lines 90.0 and 93.3 extended seaward to station 120.0 on all cruises (Figures 1 and 2).

## SAMPLING GEAR AND METHODS

In 1978, the standard 1-m ring net with towing bridle was replaced by a bridle-free "bongo" net. The bongo frame (McGowan and Brown 1966; Smith and Richardson 1977) consists of a pair of circular frames connected to a central axle. The axle is free to rotate so that the mouth openings are vertical during the tow. The standard CalCOFI net has 71 cm diameter frames and net material constructed of nylon mesh. Each net consists of a cylindrical section ~ 146 cm long, a truncated conical section ~ 161 cm long, and a detachable cod end. The starboard net, from which the standard sample is taken, is constructed of 0.505 mm mesh. The sample from the port side is used for other purposes; the mesh size is either 0.505 mm or 0.333 mm depending on requirements. The cod end of each net is constructed of 0.333 mm mesh.

The standard tow in 1995 was a double oblique haul to 210 m depth (to 15 m from the bottom in shallow areas) designed to filter a constant amount of water per depth interval (~ 2 m<sup>3</sup>/m of depth) over the vertical range of most ichthyoplankters. Hauls were made at a ship speed of 1.5–2.0 knots and initiated by clamping the net to the towing cable above a 34 kg weight suspended below the surface. The net was lowered to ~ 210 m depth by paying out 300 m of wire at 50 m/minute (35 m of depth/minute). After fishing at depth for 30 seconds, the net was retrieved at 20m/minute (14 m of depth/minute). The angle of stray was recorded every 30 seconds and maintained at 45° (± 3°) by adjusting ship speed and course. After reaching the surface, the nets were washed down and the samples preserved in 5% formalin buffered with sodium borate. At the beginning and end of each tow, readings were made from a flow meter suspended in the mouth of the starboard net. Detailed descriptions of gear and methods are given by Kramer et al. (1972) and Smith and Richardson (1977); Ohman and Smith (1995) provided summaries of historical CalCOFI zooplankton methods and calibration factors for the various gear types.

## LABORATORY PROCEDURES

We determined a zooplankton displacement volume for each sample (methods described in Staff, SPFI 1953 and Kramer et al. 1972). Samples containing > 25 ml of plankton were fractioned to ~ 50% of their original volume. Aliquot percentages for fractioned samples are listed in Table 1 under the "Percent Sorted" column. Sorting involved the removal of ichthyoplankton from the samples and identification and separation of: eggs and larvae of Pacific sardine, northern anchovy, and Pacific saury and larvae of Pacific hake. Body lengths of sardine, anchovy, and hake larvae were measured to the nearest 0.5 mm.

A standard haul factor (SHF) was calculated for each tow to make them comparable and to allow estimation of areal abundance. The SHF is calculated by the formula:

$$\text{SHF} = \frac{10 D}{V}$$

where D = depth of haul = cosine of the average angle of stray of the towing cable multiplied by cable length (m)



V = total volume of water (m<sup>3</sup>) strained during the haul

$$V = R \cdot a \cdot p$$

where R = total number of revolutions of the current meter during the haul

a = area (m<sup>2</sup>) of the mouth of the net

p = length of the column of water needed produce one revolution of the current meter

Tow depth, volume of water strained, and standard haul factor are listed in Table 1 for each tow taken during 1996. Detailed descriptions of factors involved in calculating these values are presented in Ahlstrom (1948), Kramer et al. (1972), and Smith and Richardson (1977).

## IDENTIFICATION

Identification of ichthyoplankton species beyond those separated during the sorting process was done by a separate group of specialists. Early ontogenetic stages of fishes are inherently difficult to identify and this is further complicated by the large number and diversity of species which contribute to the ichthyoplankton of the California Current region. Most identifications were accomplished by establishing ontogenetic series on the basis of morphology, meristics, and pigmentation, and then linking these series through overlapping features to known metamorphic, juvenile, or adult stages (Powles and Markle 1984). Our ability to identify larvae in the California Current region improved greatly during 1988–1995 as a result of an intensive research project aimed at producing a taxonomic monograph on the ontogenetic stages of fishes of this region (Moser 1996). Except for damaged specimens, most larvae in the 1995 surveys could be identified to species. A total of 130 larval fish categories (including unidentified and disintegrated) was identified for 1995: 108 to species, 14 to genus, and 6 to family. Identifications were done in the Ichthyoplankton Ecology Laboratory of the Coastal Fisheries Resources Division.

With few exceptions, taxonomic categories above species represent small specimens which were damaged and partly disintegrated during capture. The following taxonomic categories in Tables 2–4 require special explanation:

*Cyclothone acclinidens*, *C. pseudopallida* – Larger larvae (primarily postflexion stage) having diagnostic pigmentation characters.

*Diaphus* spp. – *Diaphus theta* is the dominant *Diaphus* species in the survey area and most, if not all, of the larvae from the Southern California Bight region are this species; the generic category is used because a small proportion of the *Diaphus* larvae captured at the outer margin of the survey pattern may represent other species whose larvae are identical to those of *D. theta*.

Disintegrated fish larvae – larvae that could not be identified because of their poor condition; separated from the "unidentified" category to monitor the general condition of the ichthyoplankton samples through the time series.

*Glyptocephalus zachirus* – see comment for Pleuronectidae.

*Howella* spp. – larvae represent a single species, either *H. brodiei* or *H. sherborni*; taxonomy of the adult unresolved.

*Isopsetta isolepis* – see comment for Pleuronectidae.

*Lampanyctus* spp. – primarily small (< 5.0 mm) larvae of *L. ritteri* and *L. regalis*; Zahuranec (In Press) has placed 17 species of *Lampanyctus* with small or absent pectoral fins in the genus *Nannobranchium*; four of these species occur in the current CalCOFI survey area (*L. regalis*, *L. ritteri*, and two undescribed species designated here by the descriptive names *Lampanyctus* "no pectorals" and *Lampanyctus* "niger").

*Lyopsetta exilis* – see comment for Pleuronectidae.

*Microstoma* spp. – larvae of a distinct but undescribed microstomatid species.

*Neoclinus* – *Neoclinus blanchardi*, *N. stephensae* and *N. uninotatus* occur in the area, but only the first two species have been identified in samples; larvae < 6 mm have not been identified to species.

Paralepididae – small or damaged larvae, probably *Lestidiops ringens* lacking diagnostic characters.

*Parophrys vetulus* – see comment for Pleuronectidae.

Pleuronectidae – Sakamoto (1984) changed pleuronectid generic designations for species in the CalCOFI area as follows: 1) *Glyptocephalus zachirus* was changed to *Errex zachirus*; 2) *Isopsetta isolepis*, *Lepidopsetta bilineata*, and *Parophrys vetulus* were transferred into *Pleuronectes* and 3) *Lyopsetta exilis* was changed to *Eopsetta exilis*; although these changes were incorporated in the lists of Robins et al. (1991) and Eschmeyer (1998) we follow Nelson (1994) in retaining the older nomenclature because Sakamoto's (1984) changes were based on a phenetic study; also, the older names are used in the major identification guides to fishes of our region (Miller and Lea 1972, Eschmeyer et al. 1983, Matarese et al. 1989, and Moser 1996).

Unidentified fish larvae – larvae that were generally in good condition but could not be identified because of their small size or early stage of development.

*Vinciguerria lucetia* – *V. lucetia*, an eastern tropical Pacific species, is common in the present CalCOFI region whereas the central water mass species *V. poweriae* is encountered rarely, usually only at the most seaward CalCOFI stations; a small percentage of *V. poweriae* larvae may have been included in the *V. lucetia* category because of the difficulty in separating early larvae which often are virtually identical.

## SPECIES SUMMARY

Of the five most abundant larvae in 1995, the Panama lightfish (*Vinciguerria lucetia*) ranked first in abundance and occurrence with 35.1% of the total larvae occurring on 34.3% of the total stations (Tables 2 and 3). The northern anchovy (*Engraulis mordax*) ranked second in abundance with 26.2% of the total larvae and was seventh in occurrence (26.7% of the samples). The Pacific hake (*Merluccius productus*) ranked third with 9.0% of the larvae but ranked 12<sup>th</sup> in occurrence (21.9% of the stations). The rockfish genus *Sebastes* was the fourth most abundant taxon with 3.8% of the total larvae and ranked second in frequency of occurrence (33.9% of the samples). The dogtooth lampfish *Ceratoscopelus townsendi* ranked fifth in abundance (2.6% of total larvae) and eighth in occurrence (24.3% of the samples). The next five most abundant taxa were the Pacific sardine *Sardinops sagax* (2.3% of the total larvae), the northern lampfish *Stenobranchius leucopsarus* (1.78%), the showy bristlemouth *Cyclothone signata* (1.75%), the snubnose

blacksmelt *Bathylagus wesethi* (1.6%), and the California smoothtongue *Leuroglossus stilbius* (1.5%). These species ranked 19<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 11<sup>th</sup>, and 9<sup>th</sup> in frequency of occurrence, respectively. The ten most abundant taxa comprised 85.6% of all the larvae collected on CalCOFI cruises in 1995. The remaining 14.4% was distributed among 120 other taxa (including the "disintegrated" and "unidentified" categories). Of the ten most abundant taxa, six are midwater species, two are coastal pelagic species, and two are coastal pelagic species.

#### EXPLANATION OF TABLES

Table 1. This table lists for each tow the pertinent station and tow data, the volume of water filtered, the standard haul factor, the plankton volume, the percentage of sample sorted, and the total number of fish eggs and larvae. CalCOFI cruises are designated by four digits; the first two indicate the year and the second two the month. Within each cruise the data are listed in order of increasing line and station number (southerly and seaward directions); the order of station occupancy is shown on the station charts (Figures 1 and 2). Stations are designated by two groups of numbers; the first set indicates the line and decimal fraction and the second set indicates the station and decimal fraction. Time is listed as Pacific Standard Time at the start of each tow in 24-hour designation. Plankton displacement volumes were determined after removal of large organisms (those with individual displacement volumes > 5 ml) and expressed as ml per 1000 m<sup>3</sup> of water filtered. The values for total fish eggs and larvae are raw counts (unadjusted for percent of sample sorted or standard haul factor). Ship codes are as follows: JD, *David Starr Jordan*; NH, *New Horizon*. The listings for station latitude and longitude in this table may differ from values given for the same station in the SIO data reports, reflecting the slight difference in position of the net tow and hydrocast. Dates given here and in Figures 1 and 2 for the beginning and end of each cruise are based on Pacific Standard time at the first and last net tow station of the cruise and do not include transit time from port to the first station and to port after the last station. Thus, our cruise dates may differ slightly from those in SIO reports which are based on GMT prior to 1990 and include transit time to the first station and from the last station.

Table 2. Pooled occurrences of all larval fish taxa taken on CalCOFI survey cruises in 1995 listed in rank order.

Table 3. Pooled counts of all larval fish taxa taken on CalCOFI survey cruises in 1995 listed in rank order. Numbers are adjusted for percent sorted and standard haul factors.

Table 4. Numbers of fish larvae for each taxon, listed by station and calendar month of the tow. Counts are adjusted for percentage of sample sorted and standard haul factor. The orders are listed in phylogenetic sequence (Eschmeyer 1998).

#### ACKNOWLEDGMENTS

The following NMFS personnel were responsible for making the collections at sea: Dimitry Abramenkoff (9501, 9507, 9510) Ronald Dotson (9501, 9507, 9510), David Griffith (9501, 9507, 9510), Amy Hays (all cruises), and Robert Nishimoto (9504). The samples were sorted by Lucy Dunn and Jean Haddox. The senior author and other members of the ichthyoplankton group (David Ambrose, Sharon Charter, William Watson) identified the samples. Amy Hays and Sue Manion entered the data and Susan Jacobson provided programming assistance. The cooperation and assistance provided by the crews of the CalCOFI research vessels were instrumental in making the collections and observations at sea.

## LITERATURE CITED

- Ahlstrom, E. H. 1948. A record of pilchard eggs and larvae collected during surveys made in 1939 to 1941. U.S. Wildl. Serv. Spec. Sci. Rep. Fish. SSRF-54. 82 pp.
- Ambrose, D.A., R. L. Charter, H. G. Moser, and C. R. Santos Methot. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1951. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-79. 196 pp.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Santos Methot. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1955. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-83. 185 pp.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Santos Methot. 1987c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1960. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-88. 253 pp.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1963. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-94. 209 pp.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1967. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-98. 103 pp.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1975. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-110. 221 pp.
- Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988d. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1981. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-112. 170 pp.
- Ambrose, D. A., R. L. Charter, and H. G. Moser. 1999a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1985. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-266. 79 pp.
- Ambrose, D. A., R. L. Charter, and H. G. Moser. 1999b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1989. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-270. 87 pp.
- Ambrose, D. A., R. L. Charter, and H. G. Moser. 1999c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1993. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-274. 88 pp.
- Charter, S. R., R. L. Charter, and H. G. Moser. 1999a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1986. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-267. 79 pp.

- Charter, S. R., R. L. Charter, and H. G. Moser. 1999b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1990. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-271. 86 pp.
- Charter, S. R., R. L. Charter, and H. G. Moser. 1999c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1994. U. S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-275. 89 pp.
- Eschmeyer, W. N. (ed.). 1998. Catalog of fishes. Center for Biodiversity Research and Information. California Academy of Sciences. Spec. Publ. 1. Vols. I-III. 2905 pp.
- Eschmeyer, W. N., E. S. Herald, and H. Hammann. 1983. A field guide to Pacific coast fishes of North America. Houghton Mifflin Co. Boston. 336 pp.
- Hewitt, R. P. 1988. Historical review of the oceanographic approach to fishery research. Calif. Coop. Oceanic Fish. Invest. Rep. 29:27-41.
- Kramer, D., M. Kalin, E. G. Stevens, J. R. Thrailkill, and J. R. Zweifel. 1972. Collecting and processing data on fish eggs and larvae in the California Current Region. NOAA Tech. Rep. NMFS Circ. 370. 38 pp.
- Matarese, A. C., A. W. Kendall, Jr., D. M. Blood, and B. M. Vinter. 1989. Laboratory guide to early life history stages of northeast Pacific fishes. U.S. Dep. Commer., NOAA Tech. Rep. NMFS 80. 652 pp.
- McGowan, J. S. and D. M. Brown. 1966. A new opening-closing paired zooplankton net. Scripps Inst. Oceanogr. Ref. 66-23. 23 pp.
- Miller, D. J. and R. N. Lea. 1972. Guide to the coastal marine fishes of California. Calif. Dep. Fish Game Fish Bull. 157. 235 pp.
- Moser, H. G. (ed.). 1996. The early stages of fishes in the California Current region. CalCOFI Atlas 33. 1505 pp.
- Moser, H. G., R. L. Charter, P. E. Smith, D. A. Ambrose, S. R. Charter, C. A. Meyer, E. M. Sandknop, and W. Watson. 1993. Distributional atlas of fish larvae and eggs in the California Current region: taxa with 1000 or more total larvae, 1951 through 1984. CalCOFI Atlas 31. 233 pp.
- Moser, H. G., R. L. Charter, P. E. Smith, D. A. Ambrose, S. R. Charter, C. A. Meyer, E. M. Sandknop, and W. Watson. 1994. Distributional atlas of fish larvae in the California Current region: taxa with less than 1000 total larvae, 1951 through 1984. CalCOFI Atlas 32. 181 pp.
- Nelson, J. S. 1994. Fishes of the world. Third edition. John Wiley and Sons, N.Y. 600 pp.
- Ohman, M. D. and P. E. Smith. 1995. A comparison of zooplankton sampling methods in the CalCOFI time series. Calif. Coop. Oceanic Fish. Invest. Rep. 36:153-158.
- Powles, H. and D. F. Markle. 1984. Identification of larvae. Pages 31-33 in H. G. Moser, W. J. Richards, D. M. Cohen, M. P. Fahay, A. W. Kendall, Jr., and S. L. Richardson, eds. Ontogeny and Systematics of Fishes. Am. Soc. Ichthyol. Herpetol. Spec. Publ. 1. 760 pp.

- Robins, C. R., R. M. Bailey, C. E. Bond, J. R. Brooker, E. A. Lachner, R. N. Lea, and W. B. Scott. 1991. Common and scientific names of fishes from the United States and Canada. Fifth edition. Am. Fish. Soc. Spec. Publ. 20. 183 pp.
- Sakamoto, K. 1984. Interrelationships of the family Pleuronectidae (Pisces: Pleuronectiformes). Mem. Fac. Fish. Hokkaido Univ. 31:95-215.
- Sandknop, E. M., R. L. Charter, H. G. Moser, and J. D. Ryan. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1952. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-80. 207 pp.
- Sandknop, E. M., R. L. Charter, H. G. Moser, and J. D. Ryan. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1958. U.S. Dep. Commer. NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-86. 248 pp.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1961. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-92. 167 pp.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1964. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-95. 222 pp.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1968. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-99. 112 pp.
- Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988d. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1978. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-111. 216 pp.
- Sandknop, E. M., R. L. Charter, and H. G. Moser. 1999a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1987. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-268. 91 pp.
- Sandknop, E. M., R. L. Charter, and H. G. Moser. 1999b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1991. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-272. 90 pp.
- Smith, P. E. and S. L. Richardson. 1977. Standard techniques for pelagic fish egg and larva surveys. FAO Fish. Tech. Pap. 175. 100 pp.
- Staff, South Pacific Fisheries Investigations. 1953. Zooplankton volumes off the Pacific Coast, 1952. U.S. Fish. Wildl. Serv. Spec. Sci. Rep. Fish. SSRF-100. 41 pp.
- Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1953. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-81. 186 pp.

- Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1956. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-84. 189 pp.
- Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1959. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-87. 273 pp.
- Stevens, E. G., R. L. Charter, H. G. Moser, and L. R. Zins. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1965. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-96. 220 pp.
- Stevens, E. G., R. L. Charter, H. G. Moser, and L. R. Zins. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1969. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-100. 265 pp.
- Stevens, E. G., R. L. Charter, H. G. Moser, and C. A. Meyer. 1990. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1984. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-141. 157 pp.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1954. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-82. 207 pp.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1957. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-85. 225 pp.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1962. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-93. 179 pp.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1966. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-97. 287 pp.
- Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1972. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-109. 219 pp.
- University of California, Scripps Institution of Oceanography. 1995. Data Report. Physical, chemical and biological data. CalCOFI Cruise 9501, 4–21 January 1995 and CalCOFI Cruise 9504, 6–22 April 1996. SIO Ref. 95-33. 97 pp.
- University of California, Scripps Institution of Oceanography. 1996. Data Report. Physical, chemical and biological data. CalCOFI Cruise 9507, 6–23 July 1995 and CalCOFI Cruise 9510, 6–28 October 1995. SIO Ref. 96-11. 102 pp.

- Watson, W., R. L. Charter, and H. G. Moser. 1999a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1988. U. S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-269. 88 pp.
- Watson, W., R. L. Charter, and H. G. Moser. 1999b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1992. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-273. 90 pp.
- Zahuranec, B. J. In Press. Zoogeography and systematics of the lanternfishes of the genus *Nannobrachium* (Lampanyctini: Myctophidae). *Smithson. Contrib. Zool.* 607.



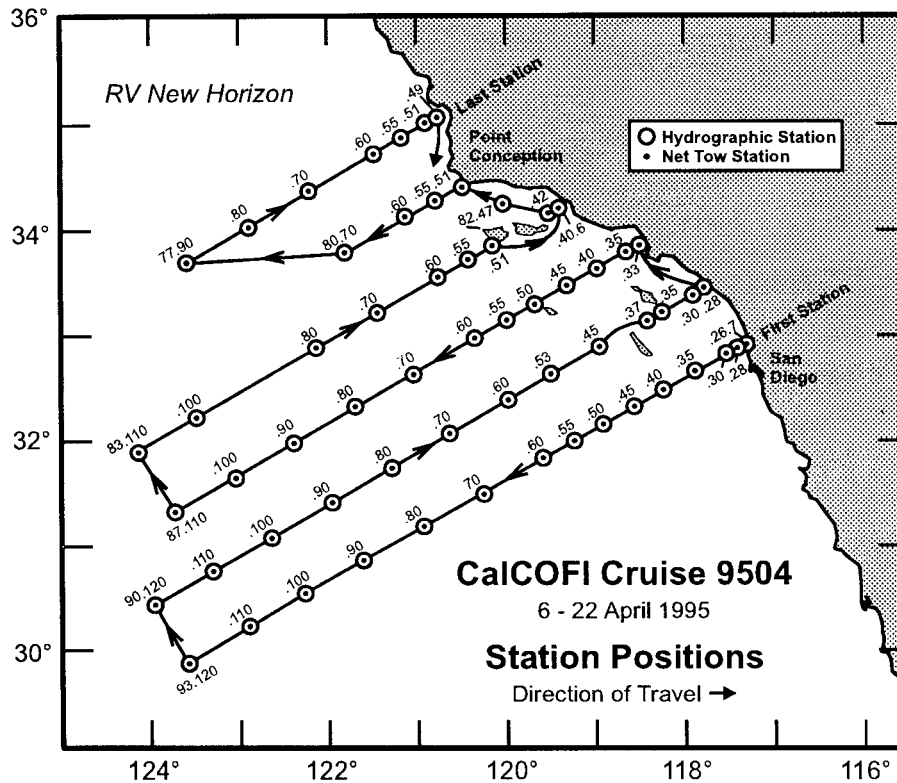
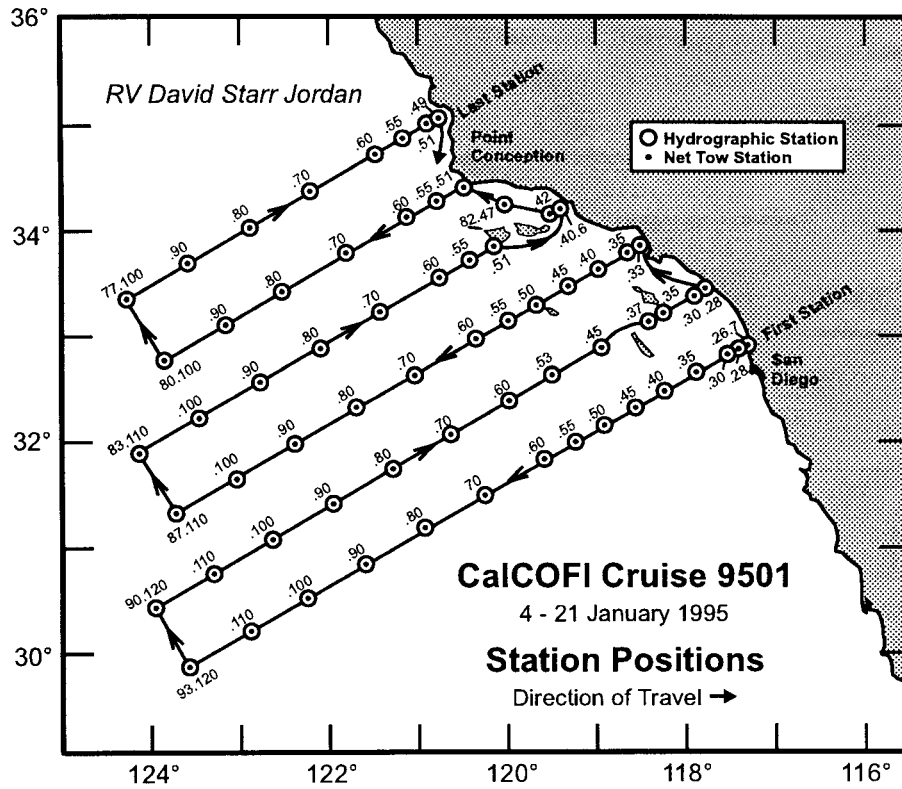


Figure 1. Stations and cruise tracks for CalCOFI cruises 9501 (above) and 9504 (below). Circles indicate hydrographic stations; dots indicate net tow stations.

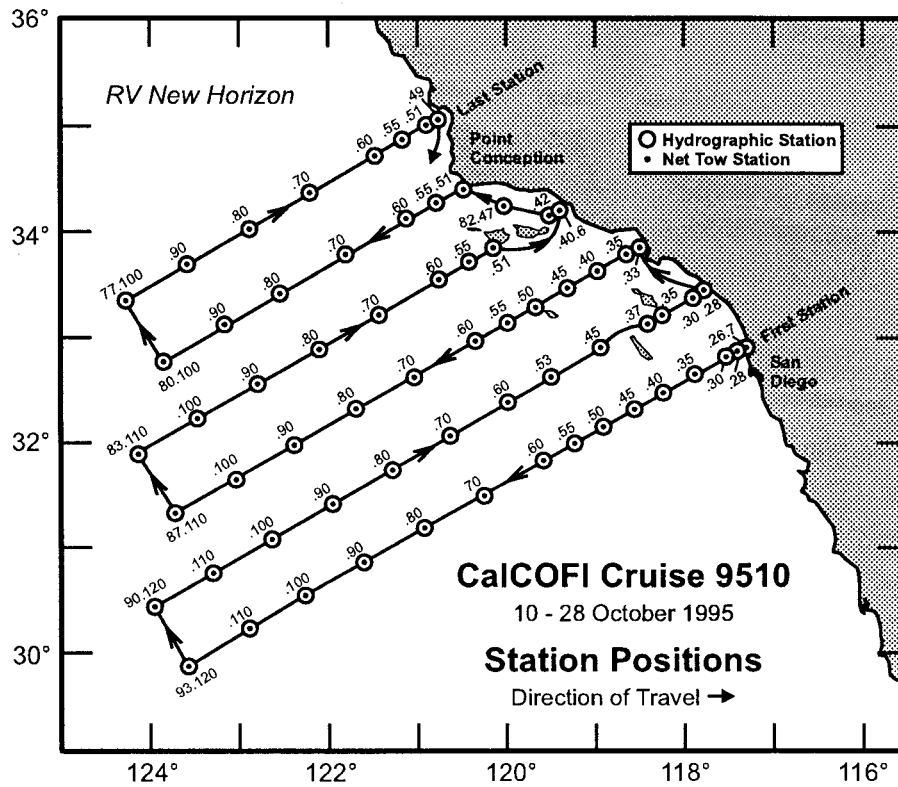
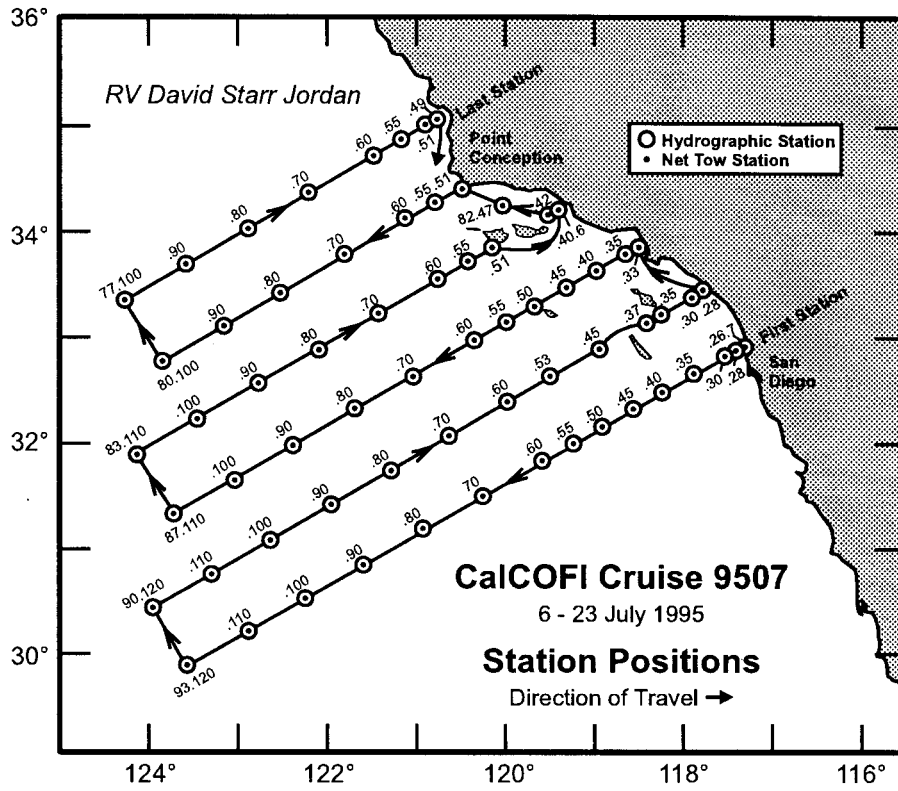


Figure 2. Stations and cruise tracks for CalCOFI cruises 9507 (above) and 9510 (below). Symbols as in figure 1.

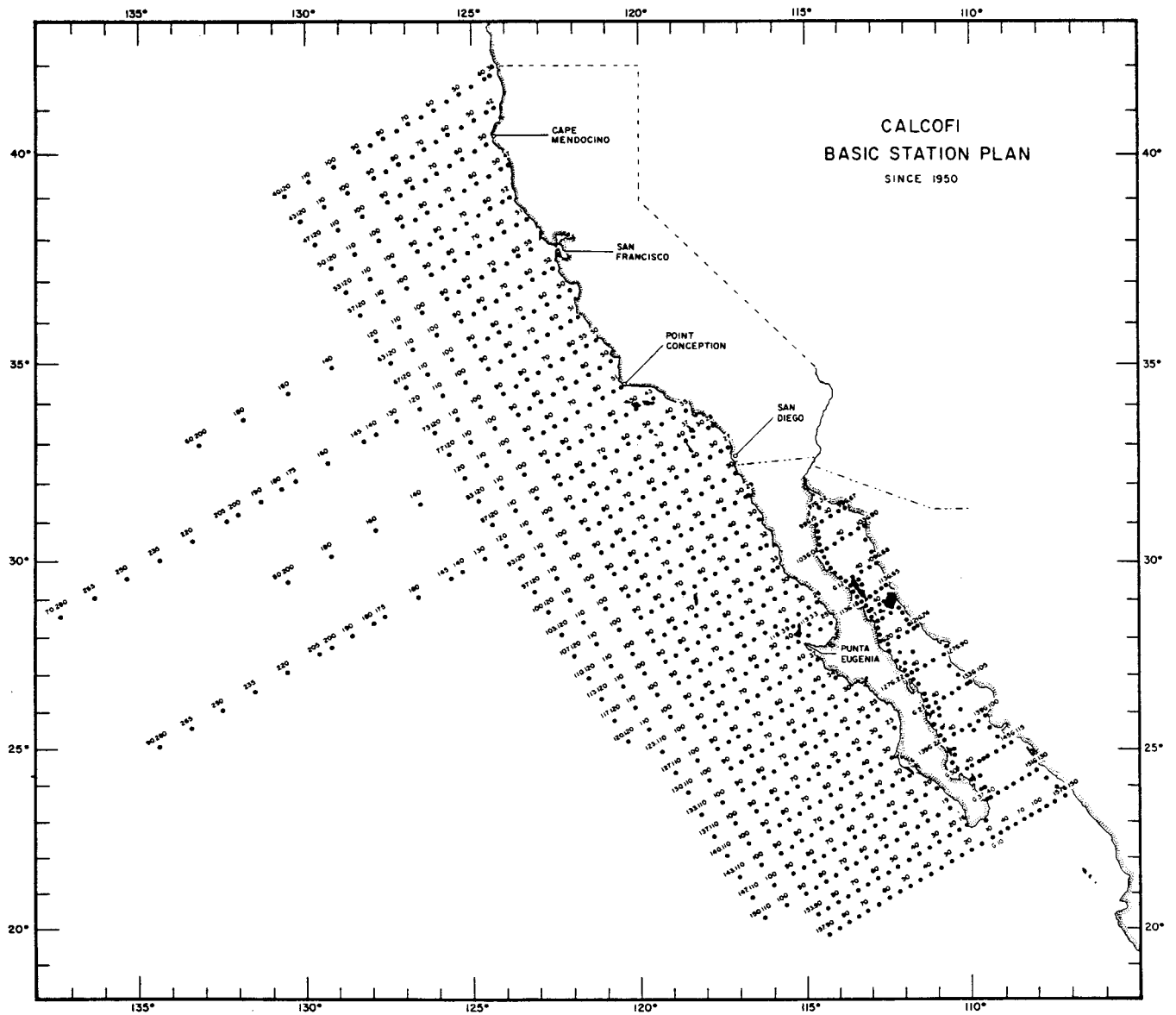


Figure 3. Basic station plan for CalCOFI Cruises.

TABLE 1. Station and plankton tow data for CalCOFI cruises in 1995. Counts for fish eggs and larvae are not adjusted for standard haul factor or percent of sample sorted. Plankton volume given as milliliters per 1000 cubic meters of water strained.

CalCOFI Cruise 9501														
Line	Station	Latitude (N) deg. min.	Longitude (W) deg. min.	Ship Code	Tow Date yr mo. day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs	
76.7	49.0	35 05.3	120 46.6	JD	95 01 20	1641	53	142	3.69	35	100.0	6	64	
76.7	51.0	35 01.3	120 55.1	JD	95 01 20	1353	212	440	4.82	89	46.2	99	10	
76.7	60.0	34 43.4	121 32.6	JD	95 01 20	0421	198	478	4.14	40	100.0	1	119	
76.7	70.0	34 23.2	122 15.0	JD	95 01 19	2217	214	440	4.87	139	50.8	6	8	
76.7	80.0	34 03.3	122 56.6	JD	95 01 19	1635	210	449	4.67	31	100.0	4	5	
76.7	90.0	33 43.3	123 37.8	JD	95 01 19	1044	217	438	4.95	30	100.0	17	8	
76.7	100.0	33 23.3	124 19.3	JD	95 01 19	0508	210	442	4.75	34	100.0	18	3	
80.0	51.0	34 27.0	120 31.3	JD	95 01 17	1442	63	143	4.44	49	100.0	29	48	
80.0	55.0	34 19.0	120 48.1	JD	95 01 17	1828	209	425	4.91	61	100.0	2	14404	
80.0	60.0	34 09.0	121 09.0	JD	95 01 17	2235	211	462	4.56	84	46.2	60	384	
80.0	70.0	33 49.0	121 50.7	JD	95 01 18	0444	210	428	4.92	37	100.0	249	26	
80.0	80.0	33 29.0	122 32.0	JD	95 01 18	1057	210	442	4.75	27	100.0	9	3	
80.0	90.0	33 09.0	123 13.2	JD	95 01 18	1725	207	426	4.85	99	47.6	2	2	
80.0	100.0	32 49.1	123 54.2	JD	95 01 18	2310	212	440	4.82	41	100.0	12	2	
81.8	46.9	34 16.4	120 01.6	JD	95 01 17	0739	210	436	4.82	55	100.0	32	804	
83.3	40.6	34 13.5	119 24.7	JD	95 01 17	0338	22	59	3.70	85	100.0	29	965	
83.3	42.0	34 10.7	119 30.4	JD	95 01 17	0155	91	200	4.56	65	100.0	56	26	
83.3	51.0	33 52.8	120 08.0	JD	95 01 16	1904	78	205	3.81	29	100.0	27	184	
83.3	55.0	33 44.8	120 24.8	JD	95 01 16	1538	214	455	4.70	64	100.0	20	227	
83.3	60.0	33 34.7	120 45.3	JD	95 01 16	0810	212	398	5.33	73	100.0	1	70	
83.3	70.0	33 14.6	121 26.7	JD	95 01 16	0117	212	441	4.81	77	50.0	6	22	
83.3	80.0	32 54.7	122 07.8	JD	95 01 15	1807	213	459	4.64	26	100.0	3	4	
83.3	90.0	32 34.7	122 48.8	JD	95 01 15	0712	210	509	4.13	20	100.0	5	13	
83.3	100.0	32 14.7	123 29.7	JD	95 01 15	0118	204	499	4.09	56	100.0	4	7	
83.3	110.0	31 54.6	124 10.2	JD	95 01 14	1838	209	456	4.58	53	100.0	3	4	
86.7	33.0	33 53.4	118 29.3	JD	95 01 12	0236	46	122	3.77	41	100.0	17	10	
86.7	35.0	33 49.4	118 39.6	JD	95 01 12	0512	197	412	4.78	24	100.0	17	15	
86.7	40.0	33 39.6	118 58.6	JD	95 01 12	0827	211	454	4.64	24	100.0	23	354	
86.7	45.0	33 29.5	119 19.0	JD	95 01 12	1450	214	437	4.90	46	100.0	132	570	

Table 1. (cont.)

## CalCOFI Cruise 9501

Line	Station	Latitude (N) deg. min.	Longitude (W) deg. min.	Ship Code	Tow Date yr mo. day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
86.7	50.0	33 19.3	119 39.8	JD	95 01 12	1830	49	116	4.27	86	100.0	89	30
86.7	55.0	33 09.4	120 00.0	JD	95 01 12	2220	215	459	4.68	87	47.5	4	33
86.7	60.0	32 59.5	120 20.9	JD	95 01 13	0241	214	444	4.82	65	51.7	7	138
86.7	70.0	32 39.5	121 02.0	JD	95 01 13	0809	211	427	4.95	54	100.0	38	28
86.7	80.0	32 19.2	121 43.0	JD	95 01 13	1641	219	423	5.17	33	100.0	5	6
86.7	90.0	31 59.5	122 23.5	JD	95 01 13	2254	210	441	4.76	39	100.0	9	9
86.7	100.0	31 39.4	123 04.1	JD	95 01 14	0521	218	435	5.01	39	100.0	3	1
86.7	110.0	31 19.4	123 44.6	JD	95 01 14	1148	213	458	4.65	44	100.0	6	5
90.0	30.0	33 25.1	117 54.3	JD	95 01 11	1738	196	463	4.23	39	100.0	15	56
90.0	35.0	33 15.1	118 15.1	JD	95 01 11	1337	200	418	4.77	22	100.0	57	374
90.0	37.0	33 11.1	118 23.3	JD	95 01 11	0927	211	439	4.82	32	100.0	4	172
90.0	45.0	32 55.2	118 56.2	JD	95 01 11	0250	205	467	4.38	34	100.0	57	196
90.0	53.0	32 39.0	119 29.0	JD	95 01 10	2131	210	425	4.95	64	100.0	116	78
90.0	60.0	32 24.9	119 57.6	JD	95 01 10	1636	208	483	4.30	37	100.0	31	14
90.0	70.0	32 05.1	120 38.1	JD	95 01 10	0653	196	483	4.06	25	100.0	1118	27
90.0	80.0	31 45.0	121 19.0	JD	95 01 10	0121	219	452	4.83	51	100.0	9	4
90.0	90.0	31 25.1	121 59.6	JD	95 01 09	1837	207	485	4.27	31	100.0	9	21
90.0	100.0	31 05.0	122 39.7	JD	95 01 09	1216	204	470	4.34	17	100.0	4	5
90.0	110.0	30 45.0	123 20.0	JD	95 01 09	0558	208	466	4.46	52	100.0	3	7
90.0	120.0	30 25.1	123 59.9	JD	95 01 09	0006	211	369	5.71	30	100.0	8	7
93.3	26.7	32 57.4	117 18.2	JD	95 01 04	1410	67	175	3.86	63	100.0	22	20
93.3	28.0	32 54.8	117 23.7	JD	95 01 05	0956	216	449	4.81	29	100.0	4	29
93.3	30.0	32 50.5	117 32.0	JD	95 01 05	1705	211	459	4.59	26	100.0	0	28
93.3	35.0	32 41.0	117 52.3	JD	95 01 05	2156	211	465	4.54	60	100.0	2	39
93.3	40.0	32 30.7	118 13.1	JD	95 01 06	0232	211	462	4.56	45	100.0	7	4
93.3	45.0	32 20.9	118 33.0	JD	95 01 06	0649	214	442	4.84	27	100.0	13	21
93.3	50.0	32 10.8	118 53.7	JD	95 01 06	1129	213	446	4.76	83	54.1	21	13074
93.3	55.0	32 00.8	119 14.1	JD	95 01 06	1626	208	461	4.51	33	100.0	1	42
93.3	60.0	31 50.7	119 34.0	JD	95 01 06	2111	212	433	4.89	58	100.0	6	6
93.3	70.0	31 30.7	120 14.8	JD	95 01 07	0458	203	474	4.28	32	100.0	4	4
93.3	80.0	31 10.8	120 55.3	JD	95 01 07	1159	212	470	4.51	19	100.0	7	7
93.3	90.0	30 50.7	121 35.3	JD	95 01 07	1825	208	482	4.32	42	100.0	11	26

Table 1. (cont.)

## CalCOFI Cruise 9501

Line	Station	Latitude (N) deg. min.	Longitude (W) deg. min.	Ship Code	Tow Date yr mo. day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
93.3	100.0	30 30.9	122 15.2	JD	95 01 08	0048	212	472	4.49	152	100.0	8	9
93.3	110.0	30 10.8	122 55.4	JD	95 01 08	0616	212	440	4.82	23	100.0	17	10
93.3	120.0	29 51.0	123 35.0	JD	95 01 08	1733	198	479	4.14	25	100.0	9	20

Table 1. (cont.)

CalCOFI Cruise 9504

Line	Station	Latitude (N) deg. min.	Longitude (W) deg. min.	Ship Code	Tow Date yr mo. day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
76.7	49.0	35 05.3	120 46.5	NH	95 04 21	0530	47	136	3.47	88	100.0	21	30
76.7	51.0	35 01.3	120 55.3	NH	95 04 21	0816	204	487	4.20	113	47.3	19	7
76.7	60.0	34 43.3	121 33.0	NH	95 04 20	1010	165	513	3.22	84	48.8	44	41
76.7	70.0	34 23.3	122 14.7	NH	95 04 20	0503	199	503	3.96	155	48.7	22	89
76.7	80.0	34 03.3	122 56.5	NH	95 04 19	2306	197	470	4.19	26	100.0	33	194
76.7	90.0	33 43.2	123 38.0	NH	95 04 19	1710	202	471	4.29	21	100.0	13	210
80.0	51.0	34 27.0	120 31.2	NH	95 04 17	2002	50	171	2.89	117	100.0	1	0
80.0	55.0	34 19.0	120 48.2	NH	95 04 17	2313	202	485	4.17	43	100.0	149	46
80.0	60.0	34 09.0	121 09.0	NH	95 04 18	0254	207	428	4.83	33	100.0	21	160
81.8	46.9	34 16.5	120 01.5	NH	95 04 17	1529	197	457	4.31	131	50.0	7	42
83.3	40.6	34 13.9	119 24.2	NH	95 04 17	0915	26	81	3.24	223	100.0	11	7142
83.3	42.0	34 10.7	119 30.5	NH	95 04 17	0732	103	224	4.62	295	50.0	19	23
83.3	51.0	33 52.8	120 07.9	NH	95 04 17	0119	64	200	3.21	580	50.0	20	4
83.3	55.0	33 44.7	120 24.6	NH	95 04 16	2205	205	478	4.29	50	100.0	122	25
83.3	60.0	33 34.7	120 45.3	NH	95 04 16	1735	172	524	3.29	27	100.0	73	64
83.3	100.0	32 14.7	123 31.4	NH	95 04 15	1829	192	487	3.94	25	100.0	44	17
83.3	110.0	31 53.3	124 09.2	NH	95 04 15	1228	205	543	3.78	15	100.0	29	12
86.7	33.0	33 53.4	118 29.5	NH	95 04 12	1808	46	145	3.18	165	100.0	66	161
86.7	35.0	33 49.4	118 37.7	NH	95 04 12	2036	205	412	4.99	109	46.7	36	249
86.7	40.0	33 39.4	118 58.4	NH	95 04 13	0011	204	424	4.80	90	47.4	189	65
86.7	45.0	33 29.4	119 19.2	NH	95 04 13	0412	206	469	4.38	89	45.2	27	44
86.7	50.0	33 19.4	119 39.8	NH	95 04 13	0810	79	177	4.44	209	45.9	69	17
86.7	55.0	33 09.4	120 00.4	NH	95 04 13	1219	167	514	3.24	43	100.0	109	590
86.7	60.0	32 59.4	120 21.1	NH	95 04 13	1628	206	456	4.51	22	100.0	11	60
86.7	70.0	32 39.5	121 02.0	NH	95 04 14	0125	194	489	3.97	49	100.0	29	126
86.7	80.0	32 19.5	121 43.0	NH	95 04 14	0817	210	496	4.23	26	100.0	13	413
86.7	90.0	31 59.4	122 23.7	NH	95 04 14	1756	214	464	4.60	56	100.0	35	256
90.0	28.0	33 29.1	117 46.2	NH	95 04 12	1201	198	439	4.51	116	49.0	5	6
90.0	30.0	33 25.1	117 54.2	NH	95 04 12	0929	192	458	4.18	39	100.0	20	484
90.0	35.0	33 15.2	118 15.0	NH	95 04 12	0503	216	412	5.25	95	51.3	81	44
90.0	37.0	33 11.2	118 23.2	NH	95 04 12	0235	190	413	4.59	46	100.0	67	492
90.0	45.0	32 55.1	118 56.2	NH	95 04 11	2135	213	408	5.22	44	100.0	38	318

Table 1. (cont.)

## CalCOFI Cruise 9504

Line	Station	Latitude (N) deg. min.	Longitude (W) deg. min.	Ship Code	Tow Date yr mo. day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
90.0	53.0	32 39.1	119 28.9	NH	95 04 11	1453	195	453	4.30	26	100.0	223	69
90.0	60.0	32 25.1	119 57.7	NH	95 04 11	1152	205	434	4.73	28	100.0	31	97
90.0	70.0	32 05.2	120 38.4	NH	95 04 11	0451	207	491	4.21	51	100.0	101	606
90.0	80.0	31 45.0	121 19.0	NH	95 04 10	2238	213	440	4.84	66	100.0	71	198
90.0	90.0	31 25.1	121 59.4	NH	95 04 10	1710	210	435	4.83	16	100.0	41	91
90.0	100.0	31 05.1	122 39.6	NH	95 04 10	0720	214	471	4.54	17	100.0	26	52
90.0	110.0	30 45.3	123 19.9	NH	95 04 10	0217	193	507	3.81	22	100.0	11	23
90.0	120.0	30 25.1	123 59.9	NH	95 04 09	1947	207	488	4.24	25	100.0	38	19
93.3	26.7	32 57.4	117 18.3	NH	95 04 06	1220	214	405	5.29	64	46.2	30	23
93.3	28.0	32 54.7	117 23.7	NH	95 04 06	1519	206	384	5.36	39	100.0	54	39
93.3	30.0	32 50.8	117 32.0	NH	95 04 06	1850	208	433	4.80	48	100.0	290	195
93.3	35.0	32 40.8	117 52.3	NH	95 04 06	2259	210	391	5.38	79	100.0	180	293
93.3	40.0	32 30.8	118 12.8	NH	95 04 07	0319	212	430	4.92	33	100.0	61	74
93.3	45.0	32 20.5	118 33.2	NH	95 04 07	0755	210	411	5.10	24	100.0	63	74
93.3	50.0	32 10.8	118 53.5	NH	95 04 07	1209	205	422	4.85	26	100.0	92	130
93.3	55.0	32 00.8	119 14.1	NH	95 04 07	1626	211	425	4.95	33	100.0	71	157
93.3	60.0	31 50.8	119 34.2	NH	95 04 07	2022	213	424	5.02	35	100.0	116	201
93.3	70.0	31 30.8	120 15.0	NH	95 04 08	0203	211	423	5.00	31	100.0	20	100
93.3	80.0	31 10.8	120 55.2	NH	95 04 08	0709	207	427	4.84	16	100.0	22	65
93.3	90.0	30 50.8	121 35.5	NH	95 04 08	1620	209	466	4.50	19	100.0	31	80
93.3	100.0	30 30.8	122 15.6	NH	95 04 08	2235	209	470	4.45	28	100.0	25	64
93.3	110.0	30 10.8	122 55.5	NH	95 04 09	0427	212	474	4.48	27	100.0	10	65
93.3	120.0	29 50.9	123 35.1	NH	95 04 09	1221	199	489	4.08	29	100.0	8	251



Table 1. (cont.)

CalCOFI Cruise 9507

Line	Station	Latitude (N) deg. min.	Longitude (W) deg. min.	Ship Code	Tow Date yr. mo. day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
76.7	49.0	35 05.3	120 46.6	JD	95 07 21	2309	63	121	5.22	198	50.0	3	24
76.7	51.0	35 01.3	120 55.1	JD	95 07 21	1847	212	410	5.18	188	48.1	4	17
76.7	55.0	34 53.2	121 12.0	JD	95 07 21	1517	209	389	5.38	157	52.5	4	2
76.7	60.0	34 43.3	121 32.9	JD	95 07 21	0951	212	381	5.56	192	47.9	7	5
76.7	70.0	34 23.2	122 14.9	JD	95 07 21	0450	214	380	5.63	152	51.7	8	15
76.7	80.0	34 03.3	122 56.5	JD	95 07 20	2239	212	401	5.29	62	100.0	23	15
76.7	90.0	33 43.3	123 38.0	JD	95 07 20	1646	210	388	5.42	59	100.0	18	39
76.7	100.0	33 23.3	124 19.4	JD	95 07 20	0920	207	401	5.17	37	100.0	232	80
80.0	51.0	34 27.2	120 31.3	JD	95 07 18	1552	53	118	4.52	43	100.0	4	52
80.0	55.0	34 19.0	120 48.0	JD	95 07 18	2033	211	388	5.44	222	46.5	3	3
80.0	60.0	34 09.0	121 09.0	JD	95 07 19	0025	216	387	5.60	401	48.4	5	2
80.0	70.0	33 49.0	121 50.6	JD	95 07 19	0926	209	407	5.14	54	100.0	48	24
80.0	80.0	33 29.0	122 31.9	JD	95 07 19	1620	210	405	5.18	49	100.0	35	68
80.0	90.0	33 09.0	123 13.3	JD	95 07 19	2212	211	369	5.73	49	100.0	274	259
80.0	100.0	32 49.1	123 54.3	JD	95 07 20	0404	207	403	5.13	27	100.0	456	29
81.8	46.9	34 16.4	120 01.5	JD	95 07 18	0920	212	382	5.54	131	50.0	2	8
83.3	40.6	34 13.5	119 24.8	JD	95 07 18	0350	26	72	3.58	139	100.0	7	1096
83.3	42.0	34 10.7	119 30.5	JD	95 07 18	0201	101	180	5.59	205	45.9	5	52
83.3	51.0	33 52.7	120 08.0	JD	95 07 17	2006	104	206	5.05	97	100.0	5	79
83.3	55.0	33 44.7	120 24.7	JD	95 07 17	1632	215	398	5.39	334	49.6	6	0
83.3	60.0	33 34.7	120 45.3	JD	95 07 17	0945	211	382	5.51	118	51.1	19	8
83.3	70.0	33 14.6	121 26.8	JD	95 07 17	0500	209	412	5.09	49	100.0	112	152
83.3	80.0	32 54.6	122 07.7	JD	95 07 16	2320	210	407	5.17	54	100.0	126	188
83.3	90.0	32 34.5	122 48.6	JD	95 07 16	1737	214	403	5.31	27	100.0	189	197
83.3	100.0	32 14.7	123 29.4	JD	95 07 16	0850	205	420	4.88	31	100.0	308	89
83.3	110.0	31 54.5	124 10.1	JD	95 07 16	0242	209	416	5.03	36	100.0	764	719
86.7	33.0	33 53.3	118 29.4	JD	95 07 13	1136	41	129	3.20	70	100.0	4	151
86.7	35.0	33 49.5	118 37.5	JD	95 07 13	1450	212	400	5.29	85	50.0	7	10
86.7	40.0	33 39.4	118 58.5	JD	95 07 13	1939	209	403	5.18	174	51.4	2	2
86.7	45.0	33 29.5	119 18.7	JD	95 07 13	2333	212	386	5.49	228	50.0	4	0
86.7	50.0	33 19.4	119 39.8	JD	95 07 14	0302	68	144	4.76	264	52.6	4	1
86.7	55.0	33 09.4	120 00.5	JD	95 07 14	0641	204	401	5.10	190	50.0	2	4
86.7	60.0	32 59.4	120 21.0	JD	95 07 14	1120	214	398	5.38	181	51.4	2	2

Table 1. (cont.)

CalCOFI Cruise 9507

Line	Station	Latitude (N)		Longitude (W)		Ship Code	Tow Date		Time (PST)	Tow Depth (m)	Volume		Standard		Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
		deg.	min.	deg.	min.		yr.	mo.			day	Water Strained	Haul Factor					
76.7	49.0	35	05.3	120	46.6	JD	95	07	21	2309	63	121	5.22	198	50.0	3	24	
76.7	51.0	35	01.3	120	55.1	JD	95	07	21	1847	212	410	5.18	188	48.1	4	17	
76.7	55.0	34	53.2	121	12.0	JD	95	07	21	1517	209	389	5.38	157	52.5	4	2	
76.7	60.0	34	43.3	121	32.9	JD	95	07	21	0951	212	381	5.56	192	47.9	7	5	
76.7	70.0	34	23.2	122	14.9	JD	95	07	21	0450	214	380	5.63	152	51.7	8	15	
76.7	80.0	34	03.3	122	56.5	JD	95	07	20	2239	212	401	5.29	62	100.0	23	15	
76.7	90.0	33	43.3	123	38.0	JD	95	07	20	1646	210	388	5.42	59	100.0	18	39	
76.7	100.0	33	23.3	124	19.4	JD	95	07	20	0920	207	401	5.17	37	100.0	232	80	
80.0	51.0	34	27.2	120	31.3	JD	95	07	18	1552	53	118	4.52	43	100.0	4	52	
80.0	55.0	34	19.0	120	48.0	JD	95	07	18	2033	211	388	5.44	222	46.5	3	3	
80.0	60.0	34	09.0	121	09.0	JD	95	07	19	0025	216	387	5.60	401	48.4	5	2	
80.0	70.0	33	49.0	121	50.6	JD	95	07	19	0926	209	407	5.14	54	100.0	48	24	
80.0	80.0	33	29.0	122	31.9	JD	95	07	19	1620	210	405	5.18	49	100.0	35	68	
80.0	90.0	33	09.0	123	13.3	JD	95	07	19	2212	211	369	5.73	49	100.0	274	259	
80.0	100.0	32	49.1	123	54.3	JD	95	07	20	0404	207	403	5.13	27	100.0	456	29	
81.8	46.9	34	16.4	120	01.5	JD	95	07	18	0920	212	382	5.54	131	50.0	2	8	
83.3	40.6	34	13.5	119	24.8	JD	95	07	18	0350	26	72	3.58	139	100.0	7	1096	
83.3	42.0	34	10.7	119	30.5	JD	95	07	18	0201	101	180	5.59	205	45.9	5	52	
83.3	51.0	33	52.7	120	08.0	JD	95	07	17	2006	104	206	5.05	97	100.0	5	79	
83.3	55.0	33	44.7	120	24.7	JD	95	07	17	1632	215	398	5.39	334	49.6	6	0	
83.3	60.0	33	34.7	120	45.3	JD	95	07	17	0945	211	382	5.51	118	51.1	19	8	
83.3	70.0	33	14.6	121	26.8	JD	95	07	17	0500	209	412	5.09	49	100.0	112	152	
83.3	80.0	32	54.6	122	07.7	JD	95	07	16	2320	210	407	5.17	54	100.0	126	188	
83.3	90.0	32	34.5	122	48.6	JD	95	07	16	1737	214	403	5.31	27	100.0	189	197	
83.3	100.0	32	14.7	123	29.4	JD	95	07	16	0850	205	420	4.88	31	100.0	308	89	
83.3	110.0	31	54.5	124	10.1	JD	95	07	16	0242	209	416	5.03	36	100.0	764	719	
86.7	33.0	33	53.3	118	29.4	JD	95	07	13	1136	41	129	3.20	70	100.0	4	151	
86.7	35.0	33	49.5	118	37.5	JD	95	07	13	1450	212	400	5.29	85	50.0	7	10	
86.7	40.0	33	39.4	118	58.5	JD	95	07	13	1939	209	403	5.18	174	51.4	2	2	
86.7	45.0	33	29.5	119	18.7	JD	95	07	13	2333	212	386	5.49	228	50.0	4	0	
86.7	50.0	33	19.4	119	39.8	JD	95	07	14	0302	68	144	4.76	264	52.6	4	1	
86.7	55.0	33	09.4	120	00.5	JD	95	07	14	0641	204	401	5.10	190	50.0	2	4	
86.7	60.0	32	59.4	120	21.0	JD	95	07	14	1120	214	398	5.38	181	51.4	2	2	

Table 1. (cont.)

## CalCOFI Cruise 9510

Line	Station	Latitude (N) deg. min.	Longitude (W) deg. min.	Ship Code	Tow Date yr. mo. day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
76.7	49.0	35 05.4	120 46.5	NH	95 10 27	0703	58	134	4.31	97	100.0	28	51
76.7	51.0	35 01.3	120 55.2	NH	95 10 27	0435	204	423	4.82	38	100.0	2	0
76.7	55.0	34 53.3	121 12.0	NH	95 10 27	0125	194	455	4.25	103	51.1	86	18
76.7	60.0	34 43.3	121 32.9	NH	95 10 26	1922	214	438	4.88	105	45.7	5	1
76.7	70.0	34 23.3	122 14.8	NH	95 10 26	1110	217	457	4.75	42	100.0	19	5
76.7	80.0	34 03.2	122 56.6	NH	95 10 26	0336	209	448	4.66	127	47.4	7	2
76.7	90.0	33 43.3	123 38.0	NH	95 10 25	2212	213	459	4.64	59	100.0	42	7
76.7	100.0	33 23.3	124 19.4	NH	95 10 25	1642	204	475	4.30	59	100.0	23	6
80.0	51.0	34 27.0	120 31.6	NH	95 10 24	0215	54	156	3.49	64	100.0	256	392
80.0	55.0	34 18.9	120 48.3	NH	95 10 24	0525	212	420	5.05	74	51.6	28	93
80.0	60.0	34 09.0	121 09.1	NH	95 10 24	0827	213	437	4.87	46	100.0	7	10
80.0	70.0	33 49.0	121 50.5	NH	95 10 24	1609	197	450	4.37	104	46.8	1	4
80.0	80.0	33 28.9	122 31.9	NH	95 10 24	2141	211	453	4.65	55	100.0	20	17
80.0	90.0	33 09.1	123 13.2	NH	95 10 25	0317	205	468	4.38	26	100.0	130	9
80.0	100.0	32 49.0	123 54.4	NH	95 10 25	0920	210	476	4.41	15	100.0	106	19
81.8	46.9	34 16.5	120 01.5	NH	95 10 23	2226	213	433	4.91	106	52.2	52	307
83.3	40.6	34 13.5	119 24.7	NH	95 10 23	1755	25	72	3.50	83	100.0	643	1163
83.3	42.0	34 10.6	119 30.5	NH	95 10 23	1540	206	372	5.52	38	100.0	2731	684
83.3	51.0	33 52.7	120 08.0	NH	95 10 23	0832	89	213	4.18	47	100.0	19	248
83.3	55.0	33 44.6	120 24.5	NH	95 10 23	0136	203	443	4.59	88	46.2	22	6
83.3	60.0	33 34.7	120 45.4	NH	95 10 22	1858	204	462	4.42	67	51.6	5	0
83.3	70.0	33 14.7	121 26.7	NH	95 10 22	1217	207	465	4.44	54	100.0	20	10
83.3	80.0	32 54.6	122 07.6	NH	95 10 22	0530	206	502	4.11	32	100.0	22	12
83.3	90.0	32 34.7	122 48.8	NH	95 10 21	2257	208	502	4.14	32	100.0	112	7
83.3	100.0	32 14.6	123 29.6	NH	95 10 21	1640	192	460	4.18	22	100.0	79	9
83.3	110.0	31 54.7	124 10.2	NH	95 10 21	0853	211	461	4.57	50	100.0	62	25
86.7	33.0	33 53.3	118 29.5	NH	95 10 18	1930	50	113	4.40	27	100.0	1	33
86.7	35.0	33 49.4	118 37.6	NH	95 10 18	2144	209	445	4.70	92	46.3	1	1
86.7	40.0	33 39.4	118 58.4	NH	95 10 19	0125	188	444	4.24	54	100.0	4	291
86.7	45.0	33 29.4	119 19.0	NH	95 10 19	0514	201	440	4.58	168	50.0	9	2
86.7	50.0	33 19.3	119 39.9	NH	95 10 19	0942	71	154	4.60	195	46.7	7	10
86.7	55.0	33 09.5	120 00.4	NH	95 10 19	1703	208	453	4.58	135	47.5	3	3
86.7	60.0	32 59.4	120 21.0	NH	95 10 19	2315	218	439	4.96	130	52.6	1	1

Table 1. (cont.)

CalCOFI Cruise 9510

Line	Station	Latitude (N) deg. min.	Longitude (W) deg. min.	Ship Code	Tow Date yr. mo. day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
86.7	70.0	32 39.5	121 02.0	NH	95 10 20	0447	195	465	4.19	144	49.3	23	0
86.7	80.0	32 19.3	121 42.8	NH	95 10 20	0907	211	476	4.43	63	100.0	11	4
86.7	90.0	31 59.4	122 23.5	NH	95 10 20	1655	195	461	4.23	76	100.0	27	9
86.7	100.0	31 39.4	123 04.2	NH	95 10 20	2203	209	462	4.53	30	100.0	123	13
86.7	110.0	31 19.5	123 44.5	NH	95 10 21	0320	208	451	4.61	38	100.0	189	30
90.0	28.0	33 29.1	117 46.1	NH	95 10 18	1247	68	156	4.33	26	100.0	4	36
90.0	30.0	33 25.1	117 54.4	NH	95 10 18	0903	208	439	4.73	32	100.0	7	0
90.0	35.0	33 15.1	118 15.0	NH	95 10 18	0524	202	443	4.55	23	100.0	15	235
90.0	37.0	33 11.1	118 23.2	NH	95 10 18	0232	190	449	4.24	65	100.0	6	3
90.0	45.0	32 55.1	118 56.1	NH	95 10 17	2142	204	434	4.71	88	50.0	4	2
90.0	53.0	32 39.1	119 29.0	NH	95 10 17	1653	197	458	4.29	68	48.4	6	0
90.0	60.0	32 25.1	119 57.6	NH	95 10 17	1150	189	472	4.02	34	100.0	23	3
90.0	70.0	32 05.1	120 38.4	NH	95 10 16	2258	208	478	4.34	48	100.0	8	3
90.0	80.0	31 45.1	121 19.0	NH	95 10 16	1703	210	455	4.61	84	100.0	4	5
90.0	90.0	31 25.1	121 59.3	NH	95 10 16	0903	202	486	4.17	68	100.0	9	5
90.0	100.0	31 05.1	122 39.8	NH	95 10 16	0351	201	451	4.46	29	100.0	108	87
90.0	110.0	30 45.1	123 19.9	NH	95 10 15	2221	211	477	4.42	23	100.0	206	8
90.0	120.0	30 25.1	123 59.9	NH	95 10 15	1647	210	464	4.53	13	100.0	25	10
93.3	26.7	32 57.3	117 18.3	NH	95 10 12	1134	55	133	4.16	45	100.0	4	1
93.3	28.0	32 54.8	117 23.6	NH	95 10 12	1532	204	488	4.18	27	100.0	3	2
93.3	30.0	32 50.7	117 31.8	NH	95 10 12	1835	203	465	4.37	221	47.6	1	0
93.3	35.0	32 40.8	117 52.4	NH	95 10 12	2213	213	448	4.75	36	100.0	7	3
93.3	40.0	32 30.8	118 12.8	NH	95 10 13	0215	196	474	4.14	57	100.0	8	0
93.3	45.0	32 20.7	118 33.1	NH	95 10 13	0654	206	448	4.59	36	100.0	8	0
93.3	50.0	32 10.9	118 53.4	NH	95 10 13	1130	201	467	4.30	88	48.8	3	0
93.3	55.0	32 00.8	119 13.9	NH	95 10 13	1552	187	441	4.24	41	100.0	21	1
93.3	60.0	31 50.7	119 34.1	NH	95 10 13	1944	209	449	4.65	67	100.0	9	2
93.3	70.0	31 30.8	120 14.7	NH	95 10 14	0130	198	477	4.16	50	100.0	15	5
93.3	80.0	31 10.8	120 55.1	NH	95 10 14	0854	203	473	4.29	53	100.0	4	7
93.3	90.0	30 50.8	121 35.3	NH	95 10 14	1636	206	424	4.86	24	100.0	59	121
93.3	100.0	30 30.8	122 15.5	NH	95 10 14	2203	213	483	4.41	35	100.0	312	123
93.3	110.0	30 10.8	122 55.3	NH	95 10 15	0333	212	446	4.75	40	100.0	231	165
93.3	120.0	29 50.8	123 35.1	NH	95 10 15	0840	212	468	4.52	26	100.0	163	16

TABLE 2. Pooled occurrences of fish larvae taken on CalCOFI cruises in 1995.

Rank	Taxon	Occurrences
1	<i>Vinciguerria lucetia</i>	86
2	<i>Sebastes</i> spp.	85
3	<i>Protomyctophum crockeri</i>	77
4	<i>Triphoturus mexicanus</i>	74
5	<i>Engraulis mordax</i>	70
6	<i>Stenobranchius leucopsarus</i>	69
7	<i>Cyclothone signata</i>	68
8	<i>Ceratoscopelus townsendi</i>	61
9	<i>Leuroglossus stilbius</i>	58
9	<i>Diogenichthys atlanticus</i>	58
11	<i>Bathylagus wesethi</i>	57
12	<i>Merluccius productus</i>	55
13	<i>Lampanyctus ritteri</i>	48
14	<i>Citharichthys sordidus</i>	45
14	<i>Symbolophorus californiensis</i>	45
16	<i>Citharichthys stigmaeus</i>	42
17	<i>Trachurus symmetricus</i>	39
18	<i>Lampanyctus</i> spp.	30
19	<i>Sardinops sagax</i>	29
20	<i>Bathylagus ochotensis</i>	28
21	<i>Tarletonbeania crenularis</i>	27
22	<i>Idiacanthus antrostomus</i>	24
22	<i>Diaphus</i> spp.	24
24	<i>Sebastes jordani</i>	21
24	<i>Argyrolepecus sladeni</i>	21
26	<i>Lestidiops ringens</i>	20
27	<i>Danaphos oculatus</i>	18
27	<i>Melamphaes lugubris</i>	18
29	<i>Vinciguerria poweriae</i>	17
30	<i>Hygophum reinhardtii</i>	15
30	<i>Chauliodus macouni</i>	15
30	<i>Coryphopterus nicholsii</i>	15
33	<i>Scopelogadus bispinosus</i>	14
33	<i>Cyclothone</i> spp.	14
33	<i>Sternoptyx</i> spp.	14
33	<i>Notoscopelus resplendens</i>	14
37	<i>Citharichthys</i> spp.	13
37	<i>Cyclothone acclinidens</i>	13
39	<i>Tetragonurus cuvieri</i>	12
39	<i>Myctophum nitidulum</i>	12
41	<i>Chiasmodon niger</i>	11
41	<i>Lampanyctus regalis</i>	11
41	<i>Scomber japonicus</i>	11
44	<i>Microstoma</i> spp.	10
44	<i>Argentina sialis</i>	10
46	<i>Stomias atriventer</i>	9
46	<i>Lyopsetta exilis</i>	9
46	<i>Rosenblattichthys volucris</i>	9
46	<i>Sebastes diploproa</i>	9
50	<i>Icichthys lockingtoni</i>	8

TABLE 2. (cont.)

Rank	Taxon	Occurrences
50	<i>Electrona risso</i>	8
50	<i>Oxyjulis californica</i>	8
50	<i>Genyonemus lineatus</i>	8
50	<i>Bathylagus pacificus</i>	8
50	<i>Argyropelecus hemigymnus</i>	8
56	<i>Poromitra crassiceps</i>	7
56	<i>Argyropelecus affinis</i>	7
58	<i>Sebastes aurora</i>	6
58	<i>Arctozenus risso</i>	6
58	<i>Notolychnus valdiviae</i>	6
58	<i>Lampadena urophaos</i>	6
58	<i>Melamphaes</i> spp.	6
63	<i>Trachipterus altivelis</i>	5
63	<i>Paralichthys californicus</i>	5
63	<i>Lampanyctus steinbecki</i>	5
63	<i>Gigantactis</i> spp.	5
63	<i>Cololabis saira</i>	5
68	<i>Argyropelecus lychnus</i>	4
68	Disintegrated fish larvae	4
68	Myctophidae	4
71	<i>Lampanyctus</i> "no pectorals"	3
71	<i>Scopelarchus analis</i>	3
71	<i>Scopelarchus guentheri</i>	3
71	<i>Aristostomias scintillans</i>	3
71	<i>Peprilus simillimus</i>	3
71	<i>Hypsoblennius</i> spp.	3
71	<i>Hypsoblennius jenkinsi</i>	3
71	<i>Melamphaes parvus</i>	3
71	<i>Zaniolepis latipinnis</i>	3
71	Stichaeidae	3
71	<i>Sebastes paucispinis</i>	3
71	<i>Scopeloberyx robustus</i>	3
71	Unidentified fish larvae	3
84	<i>Parophrys vetulus</i>	2
84	<i>Pleuronichthys verticalis</i>	2
84	<i>Typhlogobius californiensis</i>	2
84	<i>Lepidogobius lepidus</i>	2
84	<i>Scopelosaurus harryi</i>	2
84	<i>Bathophilus flemingi</i>	2
84	<i>Neoclinus stephensae</i>	2
84	<i>Benthalbella dentata</i>	2
84	<i>Semicossyphus pulcher</i>	2
84	<i>Diogenichthys laternatus</i>	2
84	<i>Chromis punctipinnis</i>	2
84	<i>Odontopyxis trispinosa</i>	2
84	<i>Icelinus quadriseriatus</i>	2
84	<i>Cataetyx rubrirostrus</i>	2
84	<i>Chilara taylori</i>	2
84	<i>Cyema atrum</i>	2
100	Bathylagidae	1
100	<i>Cyclothone pseudopallida</i>	1
100	<i>Argyropelecus</i> spp.	1

TABLE 2. (cont.)

Rank	Taxon	Occurrences
100	<i>Leptocephalus holti</i>	1
100	<i>Ichthyococcus irregularis</i>	1
100	<i>Artemius creaseri</i>	1
100	<i>Pleuronichthys ritteri</i>	1
100	<i>Microstomus pacificus</i>	1
100	<i>Glyptocephalus zachirus</i>	1
100	<i>Lythrypnus zebra</i>	1
100	<i>Rathbunella alleni</i>	1
100	<i>Girella nigricans</i>	1
100	<i>Paralabrax</i> spp.	1
100	<i>Xeneretmus latifrons</i>	1
100	Agonidae	1
100	<i>Scorpaenichthys marmoratus</i>	1
100	<i>Radiicephalus elongatus</i>	1
100	<i>Artemius lateralis</i>	1
100	<i>Tactostoma macropus</i>	1
100	Cottidae	1
100	<i>Zaniolepis frenata</i>	1
100	<i>Sebastolobus altivelis</i>	1
100	<i>Oneirodes</i> spp.	1
100	<i>Coryphaenoides leptolepis</i>	1
100	<i>Desmodema lorum</i>	1
100	<i>Hygophum</i> spp.	1
100	<i>Centrobranchus nigroocellatus</i>	1
100	<i>Stemonosudis macrura</i>	1
100	<i>Synodus lucioceps</i>	1
100	Scopelarchidae	1
100	<i>Chitonotus pugetensis</i>	1
	<b>Total</b>	<b>1785</b>

TABLE 3. Pooled counts of fish larvae taken on CalCOFI cruises in 1995. Counts are adjusted for percent of sample sorted and standard haul factor (see text).

Rank	Taxon	Count
1	<i>Vinciguerria lucetia</i>	33815
2	<i>Engraulis mordax</i>	25360
3	<i>Merluccius productus</i>	8697
4	<i>Sebastes</i> spp.	3638
5	<i>Ceratoscopelus townsendi</i>	2537
6	<i>Sardinops sagax</i>	2212
7	<i>Stenobranchius leucopsarus</i>	1713
8	<i>Cyclothone signata</i>	1693
9	<i>Bathylagus wesethi</i>	1542
10	<i>Leuroglossus stilbius</i>	1478
11	<i>Triphoturus mexicanus</i>	1463
12	<i>Trachurus symmetricus</i>	1040
13	<i>Citharichthys sordidus</i>	1029
14	<i>Citharichthys stigmaeus</i>	751
15	<i>Lampanyctus ritteri</i>	745
16	<i>Diogenichthys atlanticus</i>	676
17	<i>Protomyctophum crockeri</i>	671
18	<i>Sebastes jordani</i>	567
19	<i>Vinciguerria poweriae</i>	552
20	<i>Diaphus</i> spp.	484
21	<i>Symbolophorus californiensis</i>	413
22	<i>Idiacanthus antrostomus</i>	381
23	<i>Lampanyctus</i> spp.	321
24	<i>Genyonemus lineatus</i>	293
25	<i>Tarletonbeania crenularis</i>	250
26	<i>Bathylagus ochotensis</i>	239
27	<i>Lestidiops ringens</i>	207
28	<i>Scomber japonicus</i>	178
29	<i>Coryphopterus nicholsii</i>	176
30	<i>Cyclothone</i> spp.	173
31	<i>Scopelogadus bispinosus</i>	125
31	<i>Argyrolepecus sladeni</i>	125
31	<i>Danaphos oculatus</i>	125
34	<i>Notoscopelus resplendens</i>	115
35	<i>Melamphaes lugubris</i>	105
36	<i>Hygophum reinhardtii</i>	104
37	<i>Hypsoblennius jenkinsi</i>	98
37	<i>Cyclothone acclinidens</i>	98
39	<i>Citharichthys</i> spp.	96
40	<i>Chauliodus macouni</i>	95
41	<i>Lyopsetta exilis</i>	88
42	<i>Myctophum nitidulum</i>	84
43	<i>Argentina sialis</i>	77
44	<i>Tetragonurus cuvieri</i>	72
45	<i>Sternoptyx</i> spp.	71
45	<i>Sebastes diploproa</i>	71
45	<i>Lampanyctus regalis</i>	71
48	<i>Bathylagus pacificus</i>	69
49	Stichaeidae	68



TABLE 3. (cont.)

Rank	Taxon	Count
50	<i>Icichthys lockingtoni</i>	61
50	<i>Stomias atriventer</i>	61
52	<i>Oxyjulis californica</i>	53
53	<i>Microstoma</i> spp.	52
54	Unidentified fish larvae	51
54	<i>Electrona risso</i>	51
56	<i>Chiasmodon niger</i>	50
56	<i>Argyrolepecus hemigymnus</i>	50
58	<i>Sebastes aurora</i>	47
58	<i>Poromitra crassiceps</i>	47
60	<i>Rosenblattichthys volucris</i>	41
60	<i>Paralichthys californicus</i>	41
62	<i>Lampadena urophaos</i>	38
63	<i>Argyrolepecus affinis</i>	34
64	<i>Hypsoblennius</i> spp.	33
64	<i>Melamphaes</i> spp.	33
66	<i>Notolychnus valdiviae</i>	31
67	Myctophidae	30
68	<i>Arctozemus risso</i>	29
69	<i>Trachipterus altivelis</i>	28
70	<i>Icelinus quadriseriatus</i>	27
71	<i>Lampanyctus steinbecki</i>	26
72	<i>Lampanyctus</i> "no pectorals"	24
73	<i>Cololabis saira</i>	23
73	<i>Peprilus simillimus</i>	23
73	<i>Gigantactis</i> spp.	23
73	<i>Argyrolepecus lychnus</i>	23
77	Disintegrated fish larvae	21
78	<i>Pleuronichthys verticalis</i>	19
78	<i>Sebastes paucispinis</i>	19
80	<i>Chromis punctipinnis</i>	17
81	<i>Scopeloberyx robustus</i>	16
81	<i>Melamphaes parvus</i>	16
83	<i>Scopelarchus guentheri</i>	15
83	<i>Semicossyphus pulcher</i>	15
83	<i>Chilara taylori</i>	15
86	<i>Cataetyx rubrirostrus</i>	14
87	Agonidae	13
87	<i>Scopelarchus analis</i>	13
87	<i>Zaniolepis latipinnis</i>	13
87	<i>Aristostomias scintillans</i>	13
91	<i>Scopelosaurus harryi</i>	11
91	<i>Stemonosudis macrura</i>	11
91	<i>Bathophilus flemingi</i>	11
91	<i>Girella nigricans</i>	11
91	Cottidae	11
96	<i>Benthalbella dentata</i>	10
96	<i>Lepidogobius lepidus</i>	10
96	<i>Diogenichthys laternatus</i>	10
96	<i>Xeneretmus latifrons</i>	10
96	<i>Typhlogobius californiensis</i>	10

TABLE 3. (cont.)

Rank	Taxon	Count
96	<i>Glyptocephalus zachirus</i>	10
96	<i>Sebastolobus altivelis</i>	10
96	Bathylagidae	10
104	<i>Odontopyxis trispinosa</i>	9
105	<i>Cyema atrum</i>	8
105	<i>Neoclinus stephensae</i>	8
107	<i>Rathbunella alleni</i>	6
107	<i>Chitonotus pugetensis</i>	6
107	<i>Zaniolepis frenata</i>	6
107	<i>Pleuronichthys ritteri</i>	6
107	<i>Synodus lucioceps</i>	6
107	<i>Parophrys vetulus</i>	6
113	<i>Microstomus pacificus</i>	5
113	<i>Lythrypnus zebra</i>	5
113	<i>Coryphaenoides leptolepis</i>	5
113	<i>Cyclothone pseudopallida</i>	5
113	<i>Ichthyococcus irregularis</i>	5
113	<i>Scorpaenichthys marmoratus</i>	5
113	<i>Tactostoma macropus</i>	5
113	<i>Leptocephalus holti</i>	5
113	<i>Hygophum</i> spp.	5
113	<i>Oneirodes</i> spp.	5
113	Scopelarchidae	5
124	<i>Argyropelecus</i> spp.	4
124	<i>Artedius lateralis</i>	4
124	<i>Centrobranchus nigroocellatus</i>	4
124	<i>Paralabrax</i> spp.	4
124	<i>Radiicephalus elongatus</i>	4
124	<i>Desmodema lorum</i>	4
130	<i>Artedius creaseri</i>	3
	Total	96578

TABLE 4. Number of fish larvae taken at stations occupied on CalCOFI cruises in 1995. Counts are adjusted for percent of sample sorted and standard haul factor (see text). Unoccupied stations are indicated by a dash.

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Cyema atrum</i>												
80.0	0.0	-	-	-	-	-	5.2	-	-	0.0	-	-
86.7	0.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-
<i>Leptocephalus holti</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
<i>Sardinops sagax</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	70.0	-	-	24.4	-	-	0.0	-	-	0.0	-	-
76.7	80.0	-	-	8.4	-	-	0.0	-	-	0.0	-	-
76.7	90.0	-	-	8.6	-	-	0.0	-	-	0.0	-	-
80.0	55.0	-	-	33.4	-	-	0.0	-	-	0.0	-	-
80.0	60.0	-	-	14.5	-	-	0.0	-	-	0.0	-	-
83.3	55.0	-	-	21.4	-	-	0.0	-	-	0.0	-	-
83.3	60.0	-	-	207.3	-	-	0.0	-	-	0.0	-	-
86.7	45.0	-	-	29.1	-	-	0.0	-	-	0.0	-	-
86.7	55.0	-	-	162.0	-	-	0.0	-	-	0.0	-	-
86.7	60.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
86.7	70.0	-	-	63.5	-	-	0.0	-	-	0.0	-	-
86.7	80.0	-	-	38.1	-	-	0.0	-	-	0.0	-	-
86.7	90.0	-	-	27.6	-	-	0.0	-	-	0.0	-	-
90.0	37.0	-	-	9.2	-	-	0.0	-	-	0.0	-	-
90.0	45.0	-	-	26.1	-	-	0.0	-	-	0.0	-	-
90.0	53.0	-	-	675.1	-	-	0.0	-	-	0.0	-	-
90.0	60.0	-	-	14.2	-	-	0.0	-	-	0.0	-	-
90.0	70.0	-	-	223.1	-	-	0.0	-	-	0.0	-	-
90.0	80.0	-	-	135.5	-	-	0.0	-	-	0.0	-	-
90.0	90.0	-	-	38.6	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

		<i>Sardinops sagax</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
90.0	100.0	0.0	-	4.5	-	-	0.0	-	-	0.0	-	-	
93.3	35.0	0.0	-	10.8	-	-	0.0	-	-	0.0	-	-	
93.3	40.0	0.0	-	127.9	-	-	0.0	-	-	0.0	-	-	
93.3	45.0	0.0	-	56.1	-	-	0.0	-	-	0.0	-	-	
93.3	50.0	0.0	-	155.2	-	-	0.0	-	-	0.0	-	-	
93.3	55.0	0.0	-	64.4	-	-	0.0	-	-	0.0	-	-	
93.3	60.0	0.0	-	10.0	-	-	0.0	-	-	0.0	-	-	
93.3	80.0	0.0	-	14.5	-	-	0.0	-	-	0.0	-	-	
93.3	110.0	0.0	-	4.5	-	-	0.0	-	-	0.0	-	-	
		<i>Engraulis mordax</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	49.0	3.7	-	10.4	-	-	10.4	-	-	60.3	-	-	
76.7	51.0	20.9	-	53.3	-	-	0.0	-	-	9.6	-	-	
76.7	55.0	-	-	-	-	-	0.0	-	-	390.9	-	-	
76.7	60.0	0.0	-	79.2	-	-	0.0	-	-	10.7	-	-	
76.7	70.0	0.0	-	16.3	-	-	0.0	-	-	0.0	-	-	
80.0	51.0	66.6	-	2.9	-	-	4.5	-	-	663.1	-	-	
80.0	55.0	0.0	-	0.0	-	-	0.0	-	-	176.2	-	-	
81.8	46.9	38.6	-	0.0	-	-	0.0	-	-	254.0	-	-	
83.3	40.6	51.8	-	9.7	-	-	14.3	-	-	2198.0	-	-	
83.3	42.0	4.6	-	37.0	-	-	48.7	-	-	14694.2	-	-	
83.3	51.0	0.0	-	51.4	-	-	10.1	-	-	4.2	-	-	
83.3	55.0	4.7	-	308.9	-	-	0.0	-	-	0.0	-	-	
83.3	70.0	19.2	-	-	-	-	0.0	-	-	4.4	-	-	
86.7	33.0	15.1	-	143.1	-	-	0.0	-	-	0.0	-	-	
86.7	35.0	14.3	-	160.3	-	-	0.0	-	-	0.0	-	-	
86.7	40.0	0.0	-	1579.7	-	-	0.0	-	-	0.0	-	-	
86.7	45.0	352.8	-	19.4	-	-	0.0	-	-	0.0	-	-	
86.7	50.0	0.0	-	77.4	-	-	0.0	-	-	0.0	-	-	
86.7	55.0	9.9	-	25.9	-	-	0.0	-	-	0.0	-	-	

TABLE 4. (cont.)

		<i>Engraulis mordax</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7	70.0	-	-	4.0	-	-	0.0	-	-	8.5	-	-	
90.0	28.0	-	-	27.6	-	-	0.0	-	-	0.0	-	-	
90.0	30.0	-	-	16.7	-	-	0.0	-	-	0.0	-	-	
90.0	35.0	-	-	736.8	-	-	0.0	-	-	0.0	-	-	
90.0	37.0	-	-	91.8	-	-	10.8	-	-	0.0	-	-	
90.0	60.0	-	-	9.5	-	-	0.0	-	-	0.0	-	-	
90.0	70.0	-	-	16.8	-	-	0.0	-	-	4.3	-	-	
90.0	80.0	-	-	33.9	-	-	0.0	-	-	0.0	-	-	
93.3	26.7	-	-	206.1	-	-	12.6	-	-	4.2	-	-	
93.3	28.0	-	-	198.3	-	-	5.4	-	-	0.0	-	-	
93.3	30.0	-	-	1161.6	-	-	42.5	-	-	0.0	-	-	
93.3	35.0	-	-	790.9	-	-	0.0	-	-	0.0	-	-	
93.3	40.0	-	-	4.9	-	-	0.0	-	-	0.0	-	-	
		<i>Argentina stialis</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	55.0	-	-	-	-	-	0.0	-	-	8.3	-	-	
80.0	51.0	-	-	0.0	-	-	0.0	-	-	3.5	-	-	
80.0	55.0	-	-	0.0	-	-	0.0	-	-	9.8	-	-	
81.8	46.9	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
83.3	42.0	-	-	0.0	-	-	0.0	-	-	16.6	-	-	
90.0	30.0	-	-	4.2	-	-	0.0	-	-	0.0	-	-	
90.0	45.0	-	-	5.2	-	-	0.0	-	-	0.0	-	-	
93.3	70.0	-	-	0.0	-	-	11.4	-	-	0.0	-	-	
		<i>Microstoma</i> spp.											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	90.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
80.0	70.0	-	-	-	-	-	0.0	-	-	0.0	-	-	
83.3	70.0	-	-	-	-	-	0.0	-	-	4.4	-	-	
83.3	90.0	-	-	-	-	-	5.3	-	-	0.0	-	-	
86.7	60.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
86.7	80.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	

TABLE 4. (cont.)

		<i>Microstoma</i> spp. (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
90.0	80.0	4.8	-	0.0	-	-	0.0	-	-	0.0	-	-	
90.0	90.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-	
90.0	120.0	0.0	-	0.0	-	-	0.0	-	-	4.5	-	-	
93.3	100.0	4.5	-	0.0	-	-	0.0	-	-	0.0	-	-	
<b>Bathylagidae</b>													
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	51.0	10.4	-	0.0	-	-	0.0	-	-	0.0	-	-	
<b>Bathylagus ochotensis</b>													
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	51.0	52.2	-	8.9	-	-	0.0	-	-	0.0	-	-	
76.7	60.0	0.0	-	6.6	-	-	11.6	-	-	0.0	-	-	
76.7	70.0	0.0	-	8.1	-	-	0.0	-	-	0.0	-	-	
76.7	90.0	0.0	-	0.0	-	-	5.4	-	-	0.0	-	-	
80.0	70.0	0.0	-	-	-	-	5.1	-	-	0.0	-	-	
80.0	100.0	0.0	-	-	-	-	5.1	-	-	0.0	-	-	
81.8	46.9	4.8	-	0.0	-	-	0.0	-	-	0.0	-	-	
83.3	42.0	4.6	-	0.0	-	-	0.0	-	-	0.0	-	-	
83.3	55.0	4.7	-	4.3	-	-	0.0	-	-	0.0	-	-	
86.7	35.0	0.0	-	0.0	-	-	10.6	-	-	0.0	-	-	
86.7	40.0	4.6	-	10.1	-	-	0.0	-	-	0.0	-	-	
86.7	45.0	9.8	-	0.0	-	-	0.0	-	-	0.0	-	-	
86.7	55.0	0.0	-	3.2	-	-	0.0	-	-	0.0	-	-	
86.7	60.0	9.3	-	4.5	-	-	0.0	-	-	0.0	-	-	
86.7	90.0	0.0	-	4.6	-	-	0.0	-	-	0.0	-	-	
90.0	53.0	0.0	-	8.6	-	-	0.0	-	-	0.0	-	-	
90.0	60.0	0.0	-	4.7	-	-	0.0	-	-	0.0	-	-	
93.3	28.0	4.8	-	5.4	-	-	0.0	-	-	0.0	-	-	
93.3	40.0	0.0	-	14.8	-	-	0.0	-	-	0.0	-	-	
93.3	50.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-	
93.3	60.0	0.0	-	0.0	-	-	10.5	-	-	0.0	-	-	
93.3	80.0	4.5	-	0.0	-	-	0.0	-	-	0.0	-	-	

TABLE 4. (cont.)

<i>Bathylagus pacificus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	49.0	0.0	-	3.5	-	-	0.0	-	-	0.0	-	-
76.7	51.0	20.9	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7	70.0	0.0	-	4.0	-	-	0.0	-	-	0.0	-	-
86.7	90.0	0.0	-	9.2	-	-	0.0	-	-	0.0	-	-
90.0	70.0	0.0	-	16.8	-	-	0.0	-	-	0.0	-	-
90.0	80.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-
90.0	90.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-
93.3	35.0	0.0	-	5.4	-	-	0.0	-	-	0.0	-	-
<i>Bathylagus wesethi</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	70.0	0.0	-	0.0	-	-	0.0	-	-	4.8	-	-
76.7	80.0	0.0	-	0.0	-	-	10.6	-	-	0.0	-	-
76.7	90.0	0.0	-	0.0	-	-	5.4	-	-	18.6	-	-
76.7	100.0	0.0	-	-	-	-	227.5	-	-	4.3	-	-
80.0	60.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-
80.0	70.0	0.0	-	-	-	-	61.7	-	-	0.0	-	-
80.0	80.0	0.0	-	-	-	-	31.1	-	-	14.0	-	-
80.0	90.0	0.0	-	-	-	-	80.2	-	-	8.8	-	-
80.0	100.0	0.0	-	-	-	-	169.3	-	-	0.0	-	-
83.3	60.0	0.0	-	3.3	-	-	0.0	-	-	8.6	-	-
83.3	70.0	0.0	-	-	-	-	56.0	-	-	0.0	-	-
83.3	80.0	0.0	-	-	-	-	124.1	-	-	4.1	-	-
83.3	90.0	0.0	-	-	-	-	15.9	-	-	8.3	-	-
83.3	100.0	0.0	-	31.5	-	-	83.0	-	-	0.0	-	-
83.3	110.0	0.0	-	3.8	-	-	25.2	-	-	9.1	-	-
86.7	80.0	0.0	-	0.0	-	-	0.0	-	-	4.4	-	-
86.7	90.0	0.0	-	0.0	-	-	77.9	-	-	12.7	-	-
86.7	100.0	0.0	-	-	-	-	40.1	-	-	4.5	-	-
90.0	53.0	0.0	-	4.3	-	-	0.0	-	-	0.0	-	-
90.0	60.0	0.0	-	4.7	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

		<i>Bathylagus wesethi</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
90.0	80.0	0.0	-	0.0	-	-	15.0	-	-	0.0	-	-	
90.0	90.0	0.0	-	0.0	-	-	15.3	-	-	8.3	-	-	
90.0	100.0	0.0	-	45.4	-	-	0.0	-	-	4.5	-	-	
90.0	110.0	0.0	-	15.2	-	-	20.6	-	-	8.8	-	-	
90.0	120.0	0.0	-	12.7	-	-	10.3	-	-	0.0	-	-	
93.3	50.0	0.0	-	0.0	-	-	11.2	-	-	0.0	-	-	
93.3	55.0	0.0	-	0.0	-	-	0.0	-	-	8.5	-	-	
93.3	60.0	0.0	-	5.0	-	-	0.0	-	-	0.0	-	-	
93.3	70.0	0.0	-	5.0	-	-	22.9	-	-	0.0	-	-	
93.3	80.0	0.0	-	14.5	-	-	10.4	-	-	0.0	-	-	
93.3	90.0	0.0	-	18.0	-	-	10.5	-	-	0.0	-	-	
93.3	100.0	0.0	-	22.3	-	-	52.2	-	-	8.8	-	-	
93.3	110.0	0.0	-	0.0	-	-	5.3	-	-	0.0	-	-	
93.3	120.0	0.0	-	4.1	-	-	26.1	-	-	0.0	-	-	
		<i>Leuroglossus stilbius</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	49.0	0.0	-	3.5	-	-	0.0	-	-	0.0	-	-	
76.7	51.0	0.0	-	8.9	-	-	21.5	-	-	0.0	-	-	
76.7	70.0	0.0	-	16.3	-	-	0.0	-	-	0.0	-	-	
80.0	55.0	0.0	-	37.5	-	-	0.0	-	-	9.8	-	-	
80.0	60.0	9.9	-	0.0	-	-	0.0	-	-	0.0	-	-	
80.0	70.0	9.8	-	-	-	-	0.0	-	-	0.0	-	-	
81.8	46.9	9.6	-	17.2	-	-	0.0	-	-	56.4	-	-	
83.3	42.0	50.2	-	18.5	-	-	0.0	-	-	5.5	-	-	
83.3	51.0	3.8	-	0.0	-	-	0.0	-	-	0.0	-	-	
83.3	55.0	28.2	-	8.6	-	-	0.0	-	-	0.0	-	-	
83.3	70.0	28.9	-	-	-	-	0.0	-	-	0.0	-	-	
86.7	35.0	0.0	-	32.1	-	-	21.2	-	-	10.2	-	-	
86.7	40.0	37.1	-	40.5	-	-	10.1	-	-	0.0	-	-	
86.7	45.0	122.5	-	29.1	-	-	0.0	-	-	0.0	-	-	
86.7	55.0	0.0	-	13.0	-	-	0.0	-	-	0.0	-	-	





TABLE 4. (cont.)

		<i>Cyclothone</i> spp. (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
93.3 60.0	9.8	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
93.3 90.0	0.0	-	-	0.0	-	-	10.5	-	-	0.0	-	-	
93.3 100.0	4.5	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
93.3 110.0	4.8	-	-	0.0	-	-	5.3	-	-	4.8	-	-	
93.3 120.0	0.0	-	-	0.0	-	-	31.3	-	-	0.0	-	-	
		<i>Cyclothone acclinidens</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0 90.0	0.0	-	-	-	-	-	0.0	-	-	8.8	-	-	
80.0 100.0	0.0	-	-	-	-	-	10.3	-	-	0.0	-	-	
83.3 60.0	0.0	-	-	0.0	-	-	10.8	-	-	0.0	-	-	
83.3 90.0	0.0	-	-	-	-	-	0.0	-	-	8.3	-	-	
86.7 90.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-	
90.0 100.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-	
90.0 110.0	0.0	-	-	0.0	-	-	0.0	-	-	8.8	-	-	
90.0 120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-	
93.3 70.0	0.0	-	-	5.0	-	-	0.0	-	-	0.0	-	-	
93.3 100.0	0.0	-	-	4.5	-	-	0.0	-	-	13.2	-	-	
93.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	9.5	-	-	
93.3 120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-	
		<i>Cyclothone pseudopalpida</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7 100.0	0.0	-	-	-	-	-	0.0	-	-	4.5	-	-	
		<i>Cyclothone signata</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7 80.0	0.0	-	-	0.0	-	-	15.9	-	-	0.0	-	-	
76.7 90.0	0.0	-	-	0.0	-	-	0.0	-	-	23.2	-	-	
76.7 100.0	14.3	-	-	-	-	-	31.0	-	-	4.3	-	-	
80.0 55.0	0.0	-	-	4.2	-	-	0.0	-	-	0.0	-	-	
80.0 60.0	9.9	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
80.0 70.0	0.0	-	-	-	-	-	10.3	-	-	0.0	-	-	
80.0 80.0	14.3	-	-	-	-	-	0.0	-	-	14.0	-	-	

TABLE 4. (cont.)

Station	<i>Cyclothone signata</i> (cont.)											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	10.2	-	-	-	-	-	108.9	-	-	13.1	-	-
80.0 100.0	9.6	-	-	-	-	-	66.7	-	-	35.3	-	-
83.3 60.0	0.0	-	-	0.0	-	-	0.0	-	-	8.6	-	-
83.3 70.0	0.0	-	-	-	-	-	40.7	-	-	0.0	-	-
83.3 80.0	0.0	-	-	-	-	-	51.7	-	-	0.0	-	-
83.3 90.0	0.0	-	-	-	-	-	53.1	-	-	16.6	-	-
83.3 100.0	0.0	-	-	27.6	-	-	29.3	-	-	16.7	-	-
83.3 110.0	0.0	-	-	26.5	-	-	135.8	-	-	32.0	-	-
86.7 60.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
86.7 80.0	5.2	-	-	0.0	-	-	0.0	-	-	8.9	-	-
86.7 90.0	0.0	-	-	0.0	-	-	62.3	-	-	16.9	-	-
86.7 100.0	0.0	-	-	-	-	-	25.0	-	-	45.3	-	-
86.7 110.0	0.0	-	-	-	-	-	0.0	-	-	59.9	-	-
90.0 45.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
90.0 70.0	4.1	-	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0 80.0	0.0	-	-	0.0	-	-	20.0	-	-	0.0	-	-
90.0 90.0	8.5	-	-	0.0	-	-	20.4	-	-	0.0	-	-
90.0 100.0	0.0	-	-	9.1	-	-	10.6	-	-	40.1	-	-
90.0 110.0	0.0	-	-	3.8	-	-	30.9	-	-	44.2	-	-
90.0 120.0	0.0	-	-	21.2	-	-	56.8	-	-	13.6	-	-
93.3 35.0	0.0	-	-	0.0	-	-	0.0	-	-	9.5	-	-
93.3 40.0	0.0	-	-	0.0	-	-	22.9	-	-	0.0	-	-
93.3 55.0	0.0	-	-	5.0	-	-	0.0	-	-	4.2	-	-
93.3 60.0	0.0	-	-	45.2	-	-	0.0	-	-	0.0	-	-
93.3 70.0	0.0	-	-	5.0	-	-	22.9	-	-	0.0	-	-
93.3 80.0	0.0	-	-	14.5	-	-	0.0	-	-	0.0	-	-
93.3 90.0	8.6	-	-	13.5	-	-	10.5	-	-	9.7	-	-
93.3 100.0	4.5	-	-	8.9	-	-	41.8	-	-	39.7	-	-
93.3 110.0	0.0	-	-	4.5	-	-	0.0	-	-	52.3	-	-
93.3 120.0	0.0	-	-	0.0	-	-	0.0	-	-	27.1	-	-

TABLE 4. (cont.)

<i>Argyrolepecus</i> spp.												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 60.0	4.3	-	-	0.0	-	-	0.0	-	-	0.0	-	-
<i>Argyrolepecus affinis</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
83.3 70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
86.7 90.0	0.0	-	-	4.6	-	-	0.0	-	-	0.0	-	-
86.7 100.0	0.0	-	-	-	-	-	0.0	-	-	4.5	-	-
90.0 90.0	0.0	-	-	0.0	-	-	5.1	-	-	0.0	-	-
90.0 100.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
93.3 90.0	0.0	-	-	0.0	-	-	5.3	-	-	0.0	-	-
<i>Argyrolepecus hemigymnus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 60.0	0.0	-	-	0.0	-	-	0.0	-	-	4.9	-	-
80.0 90.0	0.0	-	-	-	-	-	0.0	-	-	13.1	-	-
80.0 100.0	0.0	-	-	-	-	-	0.0	-	-	4.4	-	-
86.7 40.0	4.6	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 80.0	0.0	-	-	0.0	-	-	5.4	-	-	0.0	-	-
86.7 100.0	0.0	-	-	-	-	-	0.0	-	-	9.1	-	-
90.0 100.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
93.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	4.9	-	-
<i>Argyrolepecus lychinus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	4.7	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 110.0	0.0	-	-	-	-	-	0.0	-	-	9.2	-	-
90.0 53.0	5.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	4.4	-	-
<i>Argyrolepecus stadeni</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 90.0	0.0	-	-	0.0	-	-	5.4	-	-	0.0	-	-
76.7 100.0	0.0	-	-	-	-	-	0.0	-	-	4.3	-	-
80.0 100.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-

TABLE 4. (cont.)

<i>Argyroleucus sladeni</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 70.0	0.0	-	-	-	-	-	10.2	-	-	0.0	-	-
83.3 90.0	0.0	-	-	-	-	-	5.3	-	-	0.0	-	-
83.3 100.0	0.0	-	-	0.0	-	-	9.8	-	-	0.0	-	-
83.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	4.6	-	-
86.7 45.0	4.9	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 70.0	5.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 80.0	5.2	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 90.0	0.0	-	-	0.0	-	-	0.0	-	-	4.2	-	-
86.7 100.0	0.0	-	-	-	-	-	5.0	-	-	4.5	-	-
86.7 110.0	0.0	-	-	-	-	-	0.0	-	-	4.6	-	-
90.0 30.0	4.2	-	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0 100.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
90.0 110.0	0.0	-	-	0.0	-	-	15.5	-	-	0.0	-	-
90.0 120.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3 50.0	0.0	-	-	4.8	-	-	0.0	-	-	0.0	-	-
93.3 60.0	0.0	-	-	10.0	-	-	0.0	-	-	0.0	-	-
93.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	4.4	-	-
<i>Danaphos oculatus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 70.0	4.9	-	-	-	-	-	0.0	-	-	0.0	-	-
80.0 90.0	0.0	-	-	-	-	-	0.0	-	-	4.4	-	-
83.3 70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
86.7 45.0	0.0	-	-	0.0	-	-	0.0	-	-	9.2	-	-
86.7 60.0	9.3	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 70.0	5.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 100.0	0.0	-	-	-	-	-	0.0	-	-	18.1	-	-
86.7 110.0	4.7	-	-	-	-	-	0.0	-	-	9.2	-	-
90.0 53.0	0.0	-	-	8.6	-	-	0.0	-	-	0.0	-	-
90.0 70.0	4.1	-	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0 80.0	0.0	-	-	4.8	-	-	0.0	-	-	0.0	-	-
90.0 100.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Danaphos oculatus</i> (cont.)													
Station													
93.3	90.0	4.3	-	-	0.0	-	-	15.8	-	-	4.9	-	-
93.3	100.0	4.5	-	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3	120.0	4.1	-	-	0.0	-	-	0.0	-	-	0.0	-	-
<i>Sternophyx</i> spp.													
Station													
80.0	100.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
83.3	70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
83.3	90.0	0.0	-	-	-	-	-	0.0	-	-	4.1	-	-
83.3	110.0	0.0	-	-	7.6	-	-	5.0	-	-	0.0	-	-
86.7	70.0	0.0	-	-	0.0	-	-	5.5	-	-	0.0	-	-
86.7	100.0	0.0	-	-	-	-	-	0.0	-	-	4.5	-	-
86.7	110.0	0.0	-	-	-	-	-	5.1	-	-	4.6	-	-
90.0	35.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
93.3	80.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3	90.0	0.0	-	-	4.5	-	-	5.3	-	-	0.0	-	-
93.3	100.0	0.0	-	-	0.0	-	-	0.0	-	-	4.4	-	-
<i>Ichthyococcus irregularis</i>													
Station													
93.3	55.0	0.0	-	-	5.0	-	-	0.0	-	-	0.0	-	-
<i>Vinciguerria lucetia</i>													
Station													
76.7	60.0	0.0	-	-	0.0	-	-	11.6	-	-	0.0	-	-
76.7	70.0	0.0	-	-	0.0	-	-	0.0	-	-	4.8	-	-
76.7	80.0	0.0	-	-	0.0	-	-	21.2	-	-	0.0	-	-
76.7	90.0	0.0	-	-	0.0	-	-	21.7	-	-	88.2	-	-
76.7	100.0	9.5	-	-	-	-	-	749.6	-	-	47.3	-	-
80.0	60.0	9.9	-	-	0.0	-	-	0.0	-	-	0.0	-	-
80.0	70.0	0.0	-	-	-	-	-	113.1	-	-	0.0	-	-
80.0	80.0	0.0	-	-	-	-	-	10.4	-	-	23.3	-	-
80.0	90.0	0.0	-	-	-	-	-	1071.5	-	-	398.6	-	-
80.0	100.0	24.1	-	-	-	-	-	1728.8	-	-	299.9	-	-

TABLE 4. (cont.)

Station	<i>Vinciguerria lucetia</i> (cont.)											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 70.0	0.0	-	-	-	-	-	208.7	-	-	0.0	-	-
83.3 80.0	13.9	-	-	-	-	-	237.8	-	-	49.3	-	-
83.3 90.0	0.0	-	-	-	-	-	716.8	-	-	335.3	-	-
83.3 100.0	4.1	-	-	15.8	-	-	1083.4	-	-	263.3	-	-
83.3 110.0	0.0	-	-	15.1	-	-	2982.8	-	-	118.8	-	-
86.7 70.0	0.0	-	-	0.0	-	-	5.5	-	-	0.0	-	-
86.7 80.0	0.0	-	-	0.0	-	-	102.0	-	-	17.7	-	-
86.7 90.0	4.8	-	-	0.0	-	-	1178.1	-	-	46.5	-	-
86.7 100.0	0.0	-	-	-	-	-	2429.8	-	-	348.8	-	-
86.7 110.0	0.0	-	-	-	-	-	3665.6	-	-	553.2	-	-
90.0 30.0	0.0	-	-	0.0	-	-	0.0	-	-	4.7	-	-
90.0 45.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
90.0 60.0	8.6	-	-	0.0	-	-	0.0	-	-	72.4	-	-
90.0 70.0	0.0	-	-	0.0	-	-	31.7	-	-	8.7	-	-
90.0 80.0	9.7	-	-	0.0	-	-	139.7	-	-	0.0	-	-
90.0 90.0	8.5	-	-	0.0	-	-	412.3	-	-	12.5	-	-
90.0 100.0	0.0	-	-	0.0	-	-	633.6	-	-	307.7	-	-
90.0 110.0	8.9	-	-	3.8	-	-	1771.6	-	-	747.0	-	-
90.0 120.0	5.7	-	-	0.0	-	-	1728.6	-	-	49.8	-	-
93.3 35.0	0.0	-	-	0.0	-	-	11.6	-	-	4.8	-	-
93.3 40.0	0.0	-	-	9.8	-	-	0.0	-	-	29.0	-	-
93.3 45.0	0.0	-	-	0.0	-	-	0.0	-	-	4.6	-	-
93.3 55.0	0.0	-	-	0.0	-	-	0.0	-	-	72.1	-	-
93.3 60.0	9.8	-	-	306.2	-	-	0.0	-	-	14.0	-	-
93.3 70.0	4.3	-	-	0.0	-	-	45.8	-	-	12.5	-	-
93.3 80.0	0.0	-	-	0.0	-	-	186.8	-	-	0.0	-	-
93.3 90.0	17.3	-	-	9.0	-	-	678.5	-	-	199.3	-	-
93.3 100.0	0.0	-	-	0.0	-	-	2662.2	-	-	1124.6	-	-
93.3 110.0	24.1	-	-	0.0	-	-	788.8	-	-	840.8	-	-
93.3 120.0	20.7	-	-	4.1	-	-	1146.2	-	-	578.6	-	-

TABLE 4. (cont.)

Station	<i>Vinciguerria poweriae</i>											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	0.0	-	-	-	-	-	0.0	-	-	21.9	-	-
80.0 100.0	0.0	-	-	-	-	-	0.0	-	-	61.7	-	-
83.3 90.0	0.0	-	-	-	-	-	0.0	-	-	20.7	-	-
83.3 100.0	0.0	-	-	0.0	-	-	83.0	-	-	29.3	-	-
83.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	13.7	-	-
86.7 100.0	5.0	-	-	-	-	-	0.0	-	-	18.1	-	-
86.7 110.0	0.0	-	-	-	-	-	0.0	-	-	46.1	-	-
90.0 100.0	0.0	-	-	0.0	-	-	0.0	-	-	17.8	-	-
90.0 110.0	0.0	-	-	0.0	-	-	0.0	-	-	39.8	-	-
90.0 120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
93.3 70.0	0.0	-	-	0.0	-	-	0.0	-	-	4.2	-	-
93.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	14.6	-	-
93.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	39.7	-	-
93.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	71.3	-	-
93.3 120.0	0.0	-	-	0.0	-	-	0.0	-	-	58.8	-	-
<i>Chauliodus macouni</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 60.0	0.0	-	-	0.0	-	-	11.6	-	-	0.0	-	-
76.7 70.0	0.0	-	-	0.0	-	-	10.9	-	-	0.0	-	-
76.7 80.0	0.0	-	-	4.2	-	-	0.0	-	-	0.0	-	-
76.7 100.0	0.0	-	-	-	-	-	5.2	-	-	0.0	-	-
80.0 55.0	0.0	-	-	8.3	-	-	0.0	-	-	0.0	-	-
80.0 70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
83.3 100.0	0.0	-	-	3.9	-	-	0.0	-	-	0.0	-	-
86.7 55.0	0.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-
86.7 90.0	0.0	-	-	4.6	-	-	0.0	-	-	0.0	-	-
90.0 53.0	5.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0 80.0	14.5	-	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3 70.0	0.0	-	-	5.0	-	-	0.0	-	-	0.0	-	-
93.3 80.0	0.0	-	-	4.8	-	-	0.0	-	-	0.0	-	-



TABLE 4. (cont.)

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Chaulioides macouni</i> (cont.)													
Station													
93.3	90.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
93.3	100.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
<i>Stomias atriventer</i>													
Station													
80.0	55.0	0.0	-	-	8.3	-	-	0.0	-	-	0.0	-	-
83.3	80.0	0.0	-	-	-	-	-	5.2	-	-	0.0	-	-
86.7	90.0	4.8	-	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0	100.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
90.0	120.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3	55.0	0.0	-	-	9.9	-	-	0.0	-	-	0.0	-	-
93.3	80.0	0.0	-	-	9.7	-	-	0.0	-	-	0.0	-	-
93.3	120.0	0.0	-	-	8.2	-	-	5.2	-	-	0.0	-	-
<i>Bathophilus flemingi</i>													
Station													
80.0	90.0	0.0	-	-	-	-	-	5.7	-	-	0.0	-	-
93.3	60.0	0.0	-	-	5.0	-	-	0.0	-	-	0.0	-	-
<i>Tactostoma macropus</i>													
Station													
90.0	120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
<i>Aristostomias scintillans</i>													
Station													
83.3	70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
90.0	110.0	0.0	-	-	0.0	-	-	0.0	-	-	4.4	-	-
90.0	120.0	0.0	-	-	4.2	-	-	0.0	-	-	0.0	-	-
<i>Idiacanthus antrostomus</i>													
Station													
76.7	90.0	0.0	-	-	0.0	-	-	0.0	-	-	13.9	-	-
76.7	100.0	0.0	-	-	-	-	-	20.7	-	-	0.0	-	-
80.0	80.0	0.0	-	-	-	-	-	0.0	-	-	18.6	-	-
80.0	90.0	0.0	-	-	-	-	-	68.8	-	-	21.9	-	-
80.0	100.0	0.0	-	-	-	-	-	30.8	-	-	4.4	-	-
83.3	60.0	0.0	-	-	0.0	-	-	10.8	-	-	0.0	-	-

TABLE 4. (cont.)

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Idiacanthus antrostomus</i> (cont.)													
Station													
83.3	70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
83.3	80.0	0.0	-	-	-	-	-	5.2	-	-	0.0	-	-
83.3	90.0	0.0	-	-	-	-	-	10.6	-	-	4.1	-	-
83.3	100.0	0.0	-	-	0.0	-	-	29.3	-	-	0.0	-	-
83.3	110.0	0.0	-	-	0.0	-	-	30.2	-	-	4.6	-	-
86.7	80.0	0.0	-	-	0.0	-	-	5.4	-	-	0.0	-	-
86.7	90.0	0.0	-	-	0.0	-	-	5.2	-	-	4.2	-	-
86.7	100.0	0.0	-	-	-	-	-	10.0	-	-	0.0	-	-
86.7	110.0	0.0	-	-	-	-	-	40.6	-	-	4.6	-	-
90.0	100.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
90.0	120.0	0.0	-	-	0.0	-	-	20.6	-	-	0.0	-	-
93.3	90.0	0.0	-	-	0.0	-	-	5.3	-	-	0.0	-	-
<b>Scopelarchidae</b>													
Station													
93.3	120.0	0.0	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
			-	-	0.0	-	-	0.0	-	-	4.5	-	-
<i>Benthalbella dentata</i>													
Station													
76.7	80.0	0.0	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
			-	-	0.0	-	-	5.3	-	-	0.0	-	-
86.7	90.0	4.8	-	-	0.0	-	-	0.0	-	-	0.0	-	-
<i>Rosenblattichthys volucris</i>													
Station													
80.0	90.0	0.0	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
			-	-	-	-	-	0.0	-	-	4.4	-	-
83.3	100.0	4.1	-	-	0.0	-	-	4.9	-	-	0.0	-	-
83.3	110.0	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-
86.7	100.0	0.0	-	-	-	-	-	0.0	-	-	4.5	-	-
90.0	100.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
90.0	120.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3	100.0	0.0	-	-	4.5	-	-	5.2	-	-	0.0	-	-
<i>Scopelarchus analis</i>													
Station													
76.7	100.0	4.8	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
			-	-	-	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

		<i>Scopelarchus analis</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0	90.0	-	-	-	-	-	0.0	-	-	4.4	-	-	
83.3	100.0	-	-	0.0	-	-	0.0	-	-	4.2	-	-	
		<i>Scopelarchus guentheri</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	100.0	-	-	-	-	-	0.0	-	-	0.0	-	-	
86.7	100.0	-	-	-	-	-	5.0	-	-	0.0	-	-	
93.3	120.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-	
		<i>Scopelosaurus harryi</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0	90.0	-	-	-	-	-	5.7	-	-	0.0	-	-	
86.7	110.0	-	-	-	-	-	5.1	-	-	0.0	-	-	
		<i>Synodus lucioceps</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
83.3	42.0	-	-	0.0	-	-	0.0	-	-	5.5	-	-	
		<i>Arctozenus risso</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	90.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
80.0	100.0	-	-	-	-	-	0.0	-	-	0.0	-	-	
90.0	100.0	-	-	4.5	-	-	0.0	-	-	4.5	-	-	
90.0	120.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-	
93.3	100.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-	
		<i>Lestidiops ringens</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	60.0	-	-	0.0	-	-	0.0	-	-	10.7	-	-	
76.7	90.0	-	-	0.0	-	-	0.0	-	-	9.3	-	-	
80.0	70.0	-	-	-	-	-	10.3	-	-	0.0	-	-	
80.0	90.0	-	-	-	-	-	17.2	-	-	0.0	-	-	
83.3	70.0	-	-	-	-	-	45.8	-	-	0.0	-	-	
83.3	90.0	-	-	-	-	-	5.3	-	-	0.0	-	-	
86.7	55.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-	
86.7	90.0	-	-	0.0	-	-	15.6	-	-	0.0	-	-	

TABLE 4. (cont.)

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Lestidiops ringens</i> (cont.)													
Station	90.0	80.0	0.0	-	0.0	-	-	10.0	-	-	0.0	-	-
	90.0	90.0	4.3	-	0.0	-	-	0.0	-	-	0.0	-	-
	90.0	100.0	0.0	-	4.5	-	-	0.0	-	-	0.0	-	-
	90.0	120.0	0.0	-	4.2	-	-	0.0	-	-	0.0	-	-
	93.3	28.0	0.0	-	0.0	-	-	0.0	-	-	4.2	-	-
	93.3	40.0	0.0	-	9.8	-	-	0.0	-	-	0.0	-	-
	93.3	45.0	0.0	-	5.1	-	-	0.0	-	-	0.0	-	-
	93.3	50.0	0.0	-	0.0	-	-	11.2	-	-	0.0	-	-
	93.3	60.0	0.0	-	10.0	-	-	0.0	-	-	0.0	-	-
	93.3	70.0	0.0	-	0.0	-	-	11.4	-	-	0.0	-	-
	93.3	90.0	0.0	-	0.0	-	-	10.5	-	-	0.0	-	-
<i>Stemonosudis macrura</i>													
Station	90.0	70.0	0.0	-	0.0	-	-	10.6	-	-	0.0	-	-
Myctophidae													
Station	76.7	80.0	0.0	-	4.2	-	-	0.0	-	-	0.0	-	-
	86.7	80.0	0.0	-	0.0	-	-	10.7	-	-	0.0	-	-
	90.0	80.0	0.0	-	0.0	-	-	10.0	-	-	0.0	-	-
	90.0	90.0	0.0	-	0.0	-	-	5.1	-	-	0.0	-	-
<i>Ceratoscopelus townsendi</i>													
Station	76.7	90.0	0.0	-	0.0	-	-	0.0	-	-	18.6	-	-
	76.7	100.0	14.3	-	-	-	-	25.9	-	-	12.9	-	-
	80.0	80.0	4.8	-	-	-	-	10.4	-	-	4.7	-	-
	80.0	90.0	0.0	-	-	-	-	45.8	-	-	30.7	-	-
	80.0	100.0	4.8	-	-	-	-	77.0	-	-	26.5	-	-
	83.3	70.0	0.0	-	-	-	-	30.5	-	-	0.0	-	-
	83.3	80.0	0.0	-	-	-	-	25.9	-	-	0.0	-	-
	83.3	90.0	4.1	-	-	-	-	63.7	-	-	24.8	-	-
	83.3	100.0	0.0	-	27.6	-	-	39.0	-	-	8.4	-	-

TABLE 4. (cont.)

<i>Ceratoscopelus townsendi</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 110.0	0.0	-	-	15.1	-	-	402.4	-	-	41.1	-	-
86.7 80.0	5.2	-	-	0.0	-	-	10.7	-	-	0.0	-	-
86.7 90.0	0.0	-	-	0.0	-	-	36.3	-	-	4.2	-	-
86.7 100.0	0.0	-	-	-	-	-	45.1	-	-	45.3	-	-
86.7 110.0	0.0	-	-	-	-	-	86.2	-	-	101.4	-	-
90.0 80.0	0.0	-	-	0.0	-	-	20.0	-	-	0.0	-	-
90.0 90.0	8.5	-	-	4.8	-	-	40.7	-	-	0.0	-	-
90.0 100.0	0.0	-	-	0.0	-	-	84.5	-	-	49.1	-	-
90.0 110.0	0.0	-	-	0.0	-	-	77.3	-	-	39.8	-	-
90.0 120.0	34.3	-	-	8.5	-	-	216.7	-	-	4.5	-	-
93.3 50.0	0.0	-	-	0.0	-	-	0.0	-	-	8.8	-	-
93.3 60.0	0.0	-	-	30.1	-	-	0.0	-	-	0.0	-	-
93.3 80.0	0.0	-	-	4.8	-	-	5.2	-	-	0.0	-	-
93.3 90.0	8.6	-	-	4.5	-	-	26.3	-	-	14.6	-	-
93.3 100.0	4.5	-	-	0.0	-	-	57.4	-	-	101.4	-	-
93.3 110.0	33.7	-	-	9.0	-	-	106.6	-	-	95.0	-	-
93.3 120.0	4.1	-	-	0.0	-	-	104.2	-	-	36.2	-	-
<i>Diaphus</i> spp.												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 60.0	0.0	-	-	0.0	-	-	11.6	-	-	0.0	-	-
76.7 80.0	0.0	-	-	0.0	-	-	15.9	-	-	0.0	-	-
76.7 90.0	0.0	-	-	0.0	-	-	37.9	-	-	0.0	-	-
76.7 100.0	0.0	-	-	-	-	-	5.2	-	-	4.3	-	-
80.0 90.0	0.0	-	-	-	-	-	5.7	-	-	0.0	-	-
83.3 60.0	0.0	-	-	0.0	-	-	32.3	-	-	0.0	-	-
83.3 70.0	0.0	-	-	-	-	-	25.4	-	-	0.0	-	-
83.3 90.0	0.0	-	-	-	-	-	10.6	-	-	0.0	-	-
83.3 100.0	0.0	-	-	0.0	-	-	39.0	-	-	0.0	-	-
83.3 110.0	0.0	-	-	0.0	-	-	40.2	-	-	4.6	-	-
86.7 40.0	0.0	-	-	0.0	-	-	10.1	-	-	0.0	-	-

TABLE 4. (cont.)

		<i>Diaphus</i> spp. (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7 50.0	0.0	-	-	0.0	-	-	27.1	-	-	0.0	-	-	
86.7 100.0	0.0	-	-	-	-	-	50.1	-	-	0.0	-	-	
86.7 110.0	0.0	-	-	-	-	-	35.5	-	-	4.6	-	-	
90.0 90.0	0.0	-	-	0.0	-	-	5.1	-	-	4.2	-	-	
90.0 100.0	0.0	-	-	0.0	-	-	15.8	-	-	0.0	-	-	
90.0 110.0	0.0	-	-	0.0	-	-	36.1	-	-	0.0	-	-	
93.3 90.0	0.0	-	-	0.0	-	-	26.3	-	-	0.0	-	-	
93.3 100.0	0.0	-	-	0.0	-	-	20.9	-	-	0.0	-	-	
93.3 120.0	0.0	-	-	0.0	-	-	15.6	-	-	0.0	-	-	
		<i>Lampadena urophaos</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
83.3 110.0	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-	
86.7 110.0	0.0	-	-	-	-	-	5.1	-	-	9.2	-	-	
90.0 110.0	0.0	-	-	0.0	-	-	0.0	-	-	8.8	-	-	
93.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	4.9	-	-	
93.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	4.8	-	-	
		<i>Lampanyctus</i> spp.											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7 80.0	0.0	-	-	0.0	-	-	26.4	-	-	0.0	-	-	
76.7 100.0	4.8	-	-	-	-	-	25.9	-	-	0.0	-	-	
80.0 70.0	4.9	-	-	-	-	-	5.1	-	-	0.0	-	-	
80.0 80.0	4.8	-	-	-	-	-	0.0	-	-	0.0	-	-	
80.0 90.0	0.0	-	-	-	-	-	5.7	-	-	0.0	-	-	
80.0 100.0	0.0	-	-	-	-	-	20.5	-	-	0.0	-	-	
83.3 70.0	0.0	-	-	-	-	-	25.4	-	-	0.0	-	-	
83.3 80.0	0.0	-	-	-	-	-	15.5	-	-	0.0	-	-	
83.3 100.0	0.0	-	-	0.0	-	-	14.6	-	-	0.0	-	-	
83.3 110.0	0.0	-	-	0.0	-	-	30.2	-	-	9.1	-	-	
86.7 70.0	0.0	-	-	4.0	-	-	0.0	-	-	0.0	-	-	
86.7 90.0	0.0	-	-	0.0	-	-	15.6	-	-	0.0	-	-	
86.7 100.0	0.0	-	-	-	-	-	5.0	-	-	0.0	-	-	

TABLE 4. (cont.)

		<i>Lampanyctus</i> spp. (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7	110.0	0.0	-	-	-	-	10.1	-	-	0.0	-	-	
90.0	35.0	0.0	-	0.0	-	-	19.6	-	-	0.0	-	-	
90.0	37.0	0.0	-	4.6	-	-	0.0	-	-	0.0	-	-	
90.0	45.0	0.0	-	5.2	-	-	5.2	-	-	0.0	-	-	
90.0	70.0	0.0	-	8.4	-	-	0.0	-	-	0.0	-	-	
90.0	80.0	0.0	-	9.7	-	-	5.0	-	-	0.0	-	-	
90.0	90.0	0.0	-	0.0	-	-	5.1	-	-	0.0	-	-	
90.0	100.0	0.0	-	0.0	-	-	5.3	-	-	0.0	-	-	
90.0	110.0	0.0	-	0.0	-	-	10.3	-	-	0.0	-	-	
93.3	60.0	0.0	-	0.0	-	-	0.0	-	-	4.7	-	-	
93.3	100.0	0.0	-	4.5	-	-	0.0	-	-	0.0	-	-	
93.3	110.0	4.8	-	0.0	-	-	0.0	-	-	0.0	-	-	
		<i>Lampanyctus</i> "no pectorals"											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7	100.0	0.0	-	-	-	-	0.0	-	-	9.1	-	-	
90.0	120.0	0.0	-	0.0	-	-	0.0	-	-	4.5	-	-	
93.3	90.0	0.0	-	0.0	-	-	0.0	-	-	9.7	-	-	
		<i>Lampanyctus regalis</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	55.0	-	-	-	-	-	10.2	-	-	0.0	-	-	
80.0	60.0	0.0	-	0.0	-	-	11.6	-	-	0.0	-	-	
83.3	90.0	0.0	-	-	-	-	0.0	-	-	4.1	-	-	
83.3	110.0	0.0	-	3.8	-	-	0.0	-	-	4.6	-	-	
86.7	100.0	0.0	-	-	-	-	5.0	-	-	0.0	-	-	
86.7	110.0	0.0	-	-	-	-	0.0	-	-	4.6	-	-	
90.0	90.0	0.0	-	0.0	-	-	5.1	-	-	0.0	-	-	
90.0	110.0	0.0	-	0.0	-	-	5.2	-	-	0.0	-	-	
93.3	55.0	0.0	-	0.0	-	-	10.9	-	-	0.0	-	-	
93.3	80.0	0.0	-	0.0	-	-	5.2	-	-	0.0	-	-	

TABLE 4. (cont.)

Station	<i>Lampanyctus ritteri</i>											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 70.0	0.0	-	-	8.1	-	-	0.0	-	-	0.0	-	-
76.7 80.0	0.0	-	-	62.9	-	-	0.0	-	-	0.0	-	-
76.7 90.0	14.9	-	-	4.3	-	-	0.0	-	-	0.0	-	-
76.7 100.0	0.0	-	-	-	-	-	0.0	-	-	8.6	-	-
80.0 55.0	0.0	-	-	75.1	-	-	0.0	-	-	0.0	-	-
80.0 60.0	0.0	-	-	53.1	-	-	0.0	-	-	0.0	-	-
80.0 80.0	0.0	-	-	-	-	-	15.5	-	-	0.0	-	-
80.0 90.0	0.0	-	-	-	-	-	34.4	-	-	0.0	-	-
83.3 55.0	0.0	-	-	8.6	-	-	0.0	-	-	0.0	-	-
83.3 60.0	0.0	-	-	19.7	-	-	10.8	-	-	0.0	-	-
83.3 100.0	0.0	-	-	19.7	-	-	0.0	-	-	0.0	-	-
83.3 110.0	4.6	-	-	15.1	-	-	15.1	-	-	0.0	-	-
86.7 55.0	0.0	-	-	6.5	-	-	0.0	-	-	0.0	-	-
86.7 60.0	0.0	-	-	22.5	-	-	0.0	-	-	0.0	-	-
86.7 90.0	0.0	-	-	13.8	-	-	0.0	-	-	4.2	-	-
86.7 100.0	5.0	-	-	-	-	-	5.0	-	-	0.0	-	-
90.0 30.0	0.0	-	-	0.0	-	-	10.1	-	-	0.0	-	-
90.0 35.0	4.8	-	-	0.0	-	-	9.8	-	-	0.0	-	-
90.0 53.0	0.0	-	-	4.3	-	-	0.0	-	-	0.0	-	-
90.0 60.0	0.0	-	-	4.7	-	-	0.0	-	-	0.0	-	-
90.0 70.0	0.0	-	-	8.4	-	-	0.0	-	-	0.0	-	-
90.0 80.0	0.0	-	-	4.8	-	-	0.0	-	-	0.0	-	-
90.0 90.0	0.0	-	-	19.3	-	-	0.0	-	-	0.0	-	-
90.0 100.0	0.0	-	-	4.5	-	-	5.3	-	-	0.0	-	-
90.0 110.0	0.0	-	-	3.8	-	-	0.0	-	-	0.0	-	-
90.0 120.0	0.0	-	-	21.2	-	-	0.0	-	-	0.0	-	-
93.3 35.0	4.5	-	-	0.0	-	-	34.8	-	-	4.8	-	-
93.3 40.0	0.0	-	-	29.5	-	-	0.0	-	-	0.0	-	-
93.3 45.0	0.0	-	-	15.3	-	-	0.0	-	-	0.0	-	-
93.3 50.0	0.0	-	-	14.5	-	-	0.0	-	-	0.0	-	-



TABLE 4. (cont.)

<i>Lampanyctus ritteri</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 60.0	0.0	-	-	20.1	-	-	0.0	-	-	0.0	-	-
93.3 70.0	0.0	-	-	10.0	-	-	34.3	-	-	0.0	-	-
93.3 80.0	0.0	-	-	19.4	-	-	0.0	-	-	0.0	-	-
93.3 90.0	0.0	-	-	13.5	-	-	0.0	-	-	0.0	-	-
93.3 110.0	4.8	-	-	4.5	-	-	0.0	-	-	0.0	-	-
93.3 120.0	0.0	-	-	4.1	-	-	0.0	-	-	0.0	-	-
<i>Lampanyctus steinbecki</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	0.0	-	-	-	-	-	5.7	-	-	0.0	-	-
83.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	4.6	-	-
86.7 110.0	0.0	-	-	-	-	-	0.0	-	-	4.6	-	-
93.3 90.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
93.3 120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
<i>Notolychnus valdiviae</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	0.0	-	-	-	-	-	5.7	-	-	0.0	-	-
83.3 110.0	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-
86.7 90.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
86.7 110.0	0.0	-	-	-	-	-	0.0	-	-	4.6	-	-
90.0 110.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3 90.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
<i>Notoscopelus resplendens</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	4.8	-	-	-	-	-	0.0	-	-	0.0	-	-
80.0 70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
80.0 90.0	0.0	-	-	-	-	-	11.5	-	-	0.0	-	-
83.3 100.0	0.0	-	-	0.0	-	-	9.8	-	-	0.0	-	-
83.3 110.0	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-
86.7 100.0	0.0	-	-	-	-	-	10.0	-	-	0.0	-	-
86.7 110.0	0.0	-	-	-	-	-	5.1	-	-	9.2	-	-
90.0 110.0	0.0	-	-	0.0	-	-	15.5	-	-	0.0	-	-

TABLE 4. (cont.)

<i>Notoscopelus resplendens</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	120.0	0.0	-	0.0	-	-	15.5	-	-	0.0	-	-
93.3	90.0	0.0	-	0.0	-	-	5.3	-	-	0.0	-	-
93.3	100.0	0.0	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3	110.0	0.0	-	0.0	-	-	5.3	-	-	0.0	-	-
93.3	120.0	0.0	-	0.0	-	-	10.4	-	-	0.0	-	-
<i>Stenobranchius leucopsarus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	49.0	0.0	-	3.5	-	-	0.0	-	-	0.0	-	-
76.7	51.0	31.3	-	35.5	-	-	10.8	-	-	0.0	-	-
76.7	55.0	-	-	-	-	-	10.2	-	-	0.0	-	-
76.7	60.0	0.0	-	59.4	-	-	0.0	-	-	0.0	-	-
76.7	70.0	19.2	-	97.6	-	-	0.0	-	-	0.0	-	-
76.7	80.0	9.3	-	8.4	-	-	0.0	-	-	0.0	-	-
76.7	90.0	54.5	-	0.0	-	-	0.0	-	-	0.0	-	-
76.7	100.0	0.0	-	-	-	-	15.5	-	-	0.0	-	-
80.0	51.0	8.9	-	0.0	-	-	0.0	-	-	0.0	-	-
80.0	55.0	0.0	-	137.6	-	-	23.4	-	-	0.0	-	-
80.0	70.0	24.6	-	-	-	-	0.0	-	-	0.0	-	-
81.8	46.9	4.8	-	0.0	-	-	0.0	-	-	0.0	-	-
83.3	40.6	0.0	-	13.0	-	-	0.0	-	-	0.0	-	-
83.3	42.0	9.1	-	55.4	-	-	0.0	-	-	0.0	-	-
83.3	51.0	7.6	-	0.0	-	-	0.0	-	-	0.0	-	-
83.3	55.0	4.7	-	128.7	-	-	0.0	-	-	0.0	-	-
83.3	110.0	0.0	-	3.8	-	-	0.0	-	-	0.0	-	-
86.7	33.0	0.0	-	28.6	-	-	0.0	-	-	0.0	-	-
86.7	35.0	0.0	-	32.1	-	-	0.0	-	-	0.0	-	-
86.7	40.0	0.0	-	40.5	-	-	0.0	-	-	0.0	-	-
86.7	45.0	49.0	-	29.1	-	-	0.0	-	-	0.0	-	-
86.7	50.0	0.0	-	9.7	-	-	0.0	-	-	0.0	-	-
86.7	55.0	0.0	-	55.1	-	-	0.0	-	-	0.0	-	-
86.7	60.0	18.6	-	4.5	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

		<i>Stenobrachius leucopsarus</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7	70.0	9.9	-	7.9	-	-	0.0	-	-	0.0	-	-	
86.7	90.0	0.0	-	4.6	-	-	0.0	-	-	0.0	-	-	
90.0	30.0	4.2	-	8.4	-	-	0.0	-	-	0.0	-	-	
90.0	35.0	4.8	-	20.5	-	-	0.0	-	-	0.0	-	-	
90.0	37.0	0.0	-	64.3	-	-	0.0	-	-	0.0	-	-	
90.0	45.0	17.5	-	0.0	-	-	0.0	-	-	0.0	-	-	
90.0	53.0	34.6	-	21.5	-	-	10.6	-	-	0.0	-	-	
90.0	60.0	0.0	-	52.0	-	-	10.7	-	-	0.0	-	-	
90.0	70.0	24.4	-	12.6	-	-	0.0	-	-	0.0	-	-	
90.0	80.0	4.8	-	9.7	-	-	5.0	-	-	0.0	-	-	
90.0	90.0	0.0	-	24.1	-	-	0.0	-	-	0.0	-	-	
90.0	120.0	0.0	-	4.2	-	-	0.0	-	-	0.0	-	-	
93.3	26.7	0.0	-	34.4	-	-	0.0	-	-	0.0	-	-	
93.3	28.0	0.0	-	10.7	-	-	10.9	-	-	0.0	-	-	
93.3	30.0	0.0	-	62.4	-	-	0.0	-	-	0.0	-	-	
93.3	35.0	0.0	-	10.8	-	-	11.6	-	-	0.0	-	-	
93.3	45.0	0.0	-	25.5	-	-	0.0	-	-	0.0	-	-	
93.3	50.0	35.2	-	19.4	-	-	22.4	-	-	0.0	-	-	
93.3	55.0	4.5	-	34.6	-	-	0.0	-	-	0.0	-	-	
93.3	60.0	0.0	-	0.0	-	-	10.5	-	-	0.0	-	-	
93.3	70.0	0.0	-	5.0	-	-	11.4	-	-	0.0	-	-	
		<i>Triphoturus mexicanus</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0	60.0	0.0	-	0.0	-	-	23.1	-	-	0.0	-	-	
80.0	70.0	0.0	-	-	-	-	5.1	-	-	0.0	-	-	
80.0	80.0	0.0	-	-	-	-	20.7	-	-	0.0	-	-	
80.0	90.0	0.0	-	-	-	-	17.2	-	-	0.0	-	-	
80.0	100.0	0.0	-	-	-	-	56.4	-	-	0.0	-	-	
83.3	42.0	0.0	-	0.0	-	-	0.0	-	-	5.5	-	-	
83.3	80.0	0.0	-	-	-	-	82.7	-	-	0.0	-	-	
83.3	90.0	0.0	-	-	-	-	26.5	-	-	0.0	-	-	

TABLE 4. (cont.)

Station	<i>Triphoturus mexicanus</i> (cont.)											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	100.0	0.0	15.8	-	-	-	29.3	-	-	4.2	-	-
83.3	110.0	0.0	3.8	-	-	-	35.2	-	-	0.0	-	-
86.7	45.0	0.0	0.0	-	-	-	11.0	-	-	0.0	-	-
86.7	70.0	0.0	0.0	-	-	-	5.5	-	-	0.0	-	-
86.7	80.0	0.0	0.0	-	-	-	43.0	-	-	0.0	-	-
86.7	90.0	0.0	4.6	-	-	-	10.4	-	-	0.0	-	-
86.7	100.0	0.0	-	-	-	-	10.0	-	-	0.0	-	-
86.7	110.0	0.0	-	-	-	-	15.2	-	-	4.6	-	-
90.0	30.0	0.0	0.0	-	-	-	30.4	-	-	23.7	-	-
90.0	35.0	0.0	10.2	-	-	-	9.8	-	-	36.4	-	-
90.0	37.0	0.0	9.2	-	-	-	0.0	-	-	0.0	-	-
90.0	45.0	0.0	0.0	-	-	-	5.2	-	-	0.0	-	-
90.0	53.0	0.0	4.3	-	-	-	10.6	-	-	26.6	-	-
90.0	60.0	0.0	4.7	-	-	-	0.0	-	-	8.0	-	-
90.0	70.0	0.0	4.2	-	-	-	0.0	-	-	0.0	-	-
90.0	80.0	0.0	14.5	-	-	-	59.9	-	-	0.0	-	-
90.0	90.0	0.0	19.3	-	-	-	20.4	-	-	8.3	-	-
90.0	100.0	0.0	9.1	-	-	-	10.6	-	-	13.4	-	-
90.0	110.0	0.0	0.0	-	-	-	41.2	-	-	4.4	-	-
90.0	120.0	0.0	0.0	-	-	-	41.3	-	-	0.0	-	-
93.3	28.0	0.0	0.0	-	-	-	5.4	-	-	4.2	-	-
93.3	30.0	0.0	0.0	-	-	-	10.6	-	-	9.2	-	-
93.3	35.0	0.0	0.0	-	-	-	81.3	-	-	9.5	-	-
93.3	40.0	0.0	14.8	-	-	-	11.5	-	-	4.1	-	-
93.3	45.0	0.0	5.1	-	-	-	34.8	-	-	27.5	-	-
93.3	50.0	0.0	29.1	-	-	-	44.9	-	-	17.6	-	-
93.3	55.0	0.0	29.7	-	-	-	0.0	-	-	0.0	-	-
93.3	60.0	0.0	45.2	-	-	-	0.0	-	-	18.6	-	-
93.3	70.0	0.0	0.0	-	-	-	11.4	-	-	4.2	-	-
93.3	80.0	0.0	0.0	-	-	-	51.9	-	-	4.3	-	-

TABLE 4. (cont.)

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Triphoturus mexicanus</i> (cont.)													
Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3	90.0	0.0	-	-	9.0	-	-	42.1	-	-	0.0	-	-
93.3	100.0	0.0	-	-	4.5	-	-	36.5	-	-	13.2	-	-
93.3	120.0	0.0	-	-	8.2	-	-	20.8	-	-	0.0	-	-
<i>Centrobranchus nigroocellatus</i>													
Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	100.0	0.0	-	-	-	-	-	0.0	-	-	4.4	-	-
<i>Diogenichthys atlanticus</i>													
Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	80.0	0.0	-	-	0.0	-	-	5.3	-	-	0.0	-	-
76.7	100.0	9.5	-	-	-	-	-	25.9	-	-	0.0	-	-
80.0	70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
80.0	80.0	9.5	-	-	-	-	-	0.0	-	-	9.3	-	-
80.0	90.0	0.0	-	-	-	-	-	5.7	-	-	21.9	-	-
80.0	100.0	4.8	-	-	-	-	-	30.8	-	-	8.8	-	-
83.3	70.0	0.0	-	-	-	-	-	15.3	-	-	0.0	-	-
83.3	80.0	0.0	-	-	-	-	-	31.0	-	-	37.0	-	-
83.3	90.0	0.0	-	-	-	-	-	5.3	-	-	8.3	-	-
83.3	100.0	4.1	-	-	3.9	-	-	9.8	-	-	0.0	-	-
83.3	110.0	0.0	-	-	7.6	-	-	60.4	-	-	9.1	-	-
86.7	80.0	0.0	-	-	0.0	-	-	0.0	-	-	4.4	-	-
86.7	90.0	14.3	-	-	0.0	-	-	26.0	-	-	8.5	-	-
86.7	100.0	0.0	-	-	-	-	-	25.0	-	-	4.5	-	-
86.7	110.0	0.0	-	-	-	-	-	15.2	-	-	9.2	-	-
90.0	70.0	0.0	-	-	0.0	-	-	0.0	-	-	4.3	-	-
90.0	80.0	0.0	-	-	0.0	-	-	15.0	-	-	0.0	-	-
90.0	90.0	4.3	-	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0	100.0	4.3	-	-	0.0	-	-	5.3	-	-	4.5	-	-
90.0	110.0	0.0	-	-	0.0	-	-	20.6	-	-	4.4	-	-
90.0	120.0	5.7	-	-	4.2	-	-	31.0	-	-	9.1	-	-
93.3	45.0	0.0	-	-	0.0	-	-	11.6	-	-	0.0	-	-
93.3	50.0	8.8	-	-	0.0	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

<i>Diogenichthys atlanticus</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 60.0	9.8	-	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3 70.0	4.3	-	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3 80.0	0.0	-	-	0.0	-	-	5.2	-	-	4.3	-	-
93.3 90.0	0.0	-	-	9.0	-	-	0.0	-	-	4.9	-	-
93.3 100.0	9.0	-	-	0.0	-	-	15.7	-	-	13.2	-	-
93.3 110.0	0.0	-	-	0.0	-	-	10.7	-	-	4.8	-	-
93.3 120.0	4.1	-	-	0.0	-	-	5.2	-	-	9.0	-	-
<i>Diogenichthys laternatus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 45.0	0.0	-	-	5.2	-	-	0.0	-	-	0.0	-	-
93.3 55.0	0.0	-	-	5.0	-	-	0.0	-	-	0.0	-	-
<i>Electrona risso</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 90.0	0.0	-	-	4.3	-	-	0.0	-	-	0.0	-	-
76.7 100.0	9.5	-	-	-	-	-	0.0	-	-	0.0	-	-
83.3 90.0	4.1	-	-	-	-	-	0.0	-	-	4.1	-	-
83.3 100.0	0.0	-	-	0.0	-	-	9.8	-	-	0.0	-	-
83.3 110.0	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-
86.7 90.0	4.8	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 100.0	0.0	-	-	-	-	-	0.0	-	-	9.1	-	-
<i>Hygophum</i> spp.												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	-	0.0	-	-	4.9	-	-	0.0	-	-
<i>Hygophum reinhardtii</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	10.2	-	-	-	-	-	0.0	-	-	4.4	-	-
80.0 100.0	0.0	-	-	-	-	-	0.0	-	-	8.8	-	-
83.3 80.0	0.0	-	-	-	-	-	5.2	-	-	0.0	-	-
83.3 90.0	0.0	-	-	-	-	-	5.3	-	-	4.1	-	-
83.3 110.0	0.0	-	-	3.8	-	-	15.1	-	-	4.6	-	-
86.7 110.0	0.0	-	-	-	-	-	10.1	-	-	13.8	-	-

TABLE 4. (cont.)

<i>Hygophum reinhardtii</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	120.0	0.0	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3	80.0	0.0	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3	100.0	4.5	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3	110.0	0.0	-	0.0	-	-	0.0	-	-	4.8	-	-
<i>Myctophum nitidulum</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	80.0	0.0	-	0.0	-	-	5.3	-	-	0.0	-	-
80.0	90.0	0.0	-	-	-	-	5.7	-	-	0.0	-	-
83.3	90.0	0.0	-	-	-	-	0.0	-	-	4.1	-	-
83.3	110.0	0.0	-	0.0	-	-	20.1	-	-	4.6	-	-
86.7	100.0	0.0	-	-	-	-	5.0	-	-	0.0	-	-
86.7	110.0	0.0	-	-	-	-	15.2	-	-	4.6	-	-
90.0	100.0	0.0	-	0.0	-	-	0.0	-	-	4.5	-	-
93.3	100.0	0.0	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3	110.0	0.0	-	0.0	-	-	5.3	-	-	0.0	-	-
93.3	120.0	0.0	-	0.0	-	-	5.2	-	-	0.0	-	-
<i>Protomyctophum crockeri</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	55.0	-	-	-	-	-	10.2	-	-	0.0	-	-
76.7	60.0	4.1	-	0.0	-	-	11.6	-	-	0.0	-	-
76.7	70.0	9.6	-	0.0	-	-	21.8	-	-	0.0	-	-
76.7	80.0	4.7	-	21.0	-	-	0.0	-	-	9.8	-	-
76.7	90.0	0.0	-	12.9	-	-	0.0	-	-	4.6	-	-
76.7	100.0	0.0	-	-	-	-	0.0	-	-	4.3	-	-
80.0	60.0	0.0	-	24.1	-	-	11.6	-	-	4.9	-	-
80.0	70.0	0.0	-	-	-	-	5.1	-	-	0.0	-	-
80.0	80.0	0.0	-	-	-	-	5.2	-	-	4.7	-	-
80.0	90.0	0.0	-	-	-	-	5.7	-	-	0.0	-	-
80.0	100.0	0.0	-	-	-	-	5.1	-	-	4.4	-	-
83.3	51.0	3.8	-	0.0	-	-	0.0	-	-	0.0	-	-
83.3	55.0	4.7	-	4.3	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

Station	<i>Protomyctophum crockeri</i> (cont.)											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	60.0	0.0	-	6.6	-	-	21.6	-	-	8.6	-	-
83.3	70.0	0.0	-	-	-	-	0.0	-	-	4.4	-	-
83.3	90.0	0.0	-	-	-	-	10.6	-	-	0.0	-	-
83.3	100.0	0.0	-	3.9	-	-	0.0	-	-	4.2	-	-
83.3	110.0	0.0	-	0.0	-	-	0.0	-	-	9.1	-	-
86.7	45.0	4.9	-	9.7	-	-	0.0	-	-	0.0	-	-
86.7	55.0	0.0	-	3.2	-	-	0.0	-	-	0.0	-	-
86.7	60.0	9.3	-	4.5	-	-	0.0	-	-	9.4	-	-
86.7	70.0	9.9	-	4.0	-	-	0.0	-	-	0.0	-	-
86.7	80.0	0.0	-	0.0	-	-	0.0	-	-	4.4	-	-
86.7	100.0	5.0	-	-	-	-	0.0	-	-	0.0	-	-
86.7	110.0	0.0	-	-	-	-	0.0	-	-	4.6	-	-
90.0	35.0	4.8	-	0.0	-	-	0.0	-	-	4.5	-	-
90.0	37.0	0.0	-	0.0	-	-	0.0	-	-	4.2	-	-
90.0	45.0	0.0	-	5.2	-	-	0.0	-	-	0.0	-	-
90.0	53.0	0.0	-	8.6	-	-	0.0	-	-	0.0	-	-
90.0	60.0	0.0	-	9.5	-	-	10.7	-	-	4.0	-	-
90.0	70.0	0.0	-	0.0	-	-	10.6	-	-	0.0	-	-
90.0	80.0	4.8	-	19.4	-	-	0.0	-	-	0.0	-	-
90.0	90.0	0.0	-	0.0	-	-	10.2	-	-	0.0	-	-
90.0	100.0	8.7	-	0.0	-	-	0.0	-	-	4.5	-	-
90.0	110.0	0.0	-	3.8	-	-	5.2	-	-	0.0	-	-
90.0	120.0	0.0	-	8.5	-	-	0.0	-	-	0.0	-	-
93.3	28.0	4.8	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3	35.0	0.0	-	16.1	-	-	0.0	-	-	0.0	-	-
93.3	40.0	0.0	-	14.8	-	-	11.5	-	-	0.0	-	-
93.3	50.0	0.0	-	4.8	-	-	11.2	-	-	0.0	-	-
93.3	55.0	0.0	-	5.0	-	-	0.0	-	-	0.0	-	-
93.3	60.0	0.0	-	0.0	-	-	31.4	-	-	0.0	-	-
93.3	70.0	0.0	-	10.0	-	-	11.4	-	-	12.5	-	-



TABLE 4. (cont.)

<i>Protomyctophum crockeri</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 80.0	18.0	-	-	0.0	-	-	5.2	-	-	4.3	-	-
93.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	4.9	-	-
93.3 100.0	0.0	-	-	31.2	-	-	0.0	-	-	0.0	-	-
93.3 110.0	4.8	-	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3 120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
<i>Symbolophorus californiensis</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	0.0	-	-	8.4	-	-	5.3	-	-	0.0	-	-
76.7 90.0	0.0	-	-	4.3	-	-	0.0	-	-	4.6	-	-
76.7 100.0	9.5	-	-	-	-	-	15.5	-	-	0.0	-	-
80.0 70.0	9.8	-	-	-	-	-	5.1	-	-	0.0	-	-
80.0 80.0	4.8	-	-	-	-	-	0.0	-	-	4.7	-	-
80.0 90.0	0.0	-	-	-	-	-	5.7	-	-	0.0	-	-
80.0 100.0	4.8	-	-	-	-	-	41.0	-	-	0.0	-	-
83.3 60.0	0.0	-	-	0.0	-	-	10.8	-	-	0.0	-	-
83.3 70.0	0.0	-	-	-	-	-	20.4	-	-	0.0	-	-
83.3 80.0	0.0	-	-	-	-	-	25.9	-	-	0.0	-	-
83.3 90.0	4.1	-	-	-	-	-	0.0	-	-	0.0	-	-
83.3 100.0	0.0	-	-	3.9	-	-	4.9	-	-	0.0	-	-
83.3 110.0	0.0	-	-	3.8	-	-	0.0	-	-	0.0	-	-
86.7 55.0	0.0	-	-	6.5	-	-	0.0	-	-	0.0	-	-
86.7 70.0	0.0	-	-	0.0	-	-	5.5	-	-	0.0	-	-
86.7 80.0	0.0	-	-	0.0	-	-	0.0	-	-	4.4	-	-
86.7 90.0	0.0	-	-	0.0	-	-	10.4	-	-	0.0	-	-
90.0 45.0	0.0	-	-	0.0	-	-	10.4	-	-	0.0	-	-
90.0 60.0	0.0	-	-	4.7	-	-	0.0	-	-	0.0	-	-
90.0 80.0	0.0	-	-	0.0	-	-	20.0	-	-	0.0	-	-
90.0 90.0	4.3	-	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0 100.0	0.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-
90.0 110.0	0.0	-	-	3.8	-	-	0.0	-	-	0.0	-	-
90.0 120.0	0.0	-	-	8.5	-	-	5.2	-	-	0.0	-	-

TABLE 4. (cont.)

<i>Symbolophorus californiensis</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 30.0	0.0	-	-	0.0	-	-	10.6	-	-	0.0	-	-
93.3 35.0	0.0	-	-	0.0	-	-	11.6	-	-	0.0	-	-
93.3 60.0	0.0	-	-	20.1	-	-	0.0	-	-	0.0	-	-
93.3 70.0	0.0	-	-	5.0	-	-	11.4	-	-	0.0	-	-
93.3 80.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3 90.0	4.3	-	-	18.0	-	-	10.5	-	-	0.0	-	-
93.3 100.0	0.0	-	-	8.9	-	-	0.0	-	-	0.0	-	-
93.3 110.0	4.8	-	-	13.4	-	-	0.0	-	-	0.0	-	-
93.3 120.0	4.1	-	-	0.0	-	-	0.0	-	-	0.0	-	-
<i>Tarletonbeania crenularis</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 51.0	0.0	-	-	8.9	-	-	0.0	-	-	0.0	-	-
76.7 60.0	0.0	-	-	6.6	-	-	11.6	-	-	10.7	-	-
76.7 70.0	0.0	-	-	0.0	-	-	10.9	-	-	4.8	-	-
76.7 80.0	0.0	-	-	0.0	-	-	5.3	-	-	0.0	-	-
76.7 90.0	0.0	-	-	0.0	-	-	5.4	-	-	0.0	-	-
83.3 55.0	0.0	-	-	0.0	-	-	0.0	-	-	9.9	-	-
83.3 60.0	0.0	-	-	0.0	-	-	10.8	-	-	0.0	-	-
83.3 70.0	0.0	-	-	-	-	-	5.1	-	-	4.4	-	-
83.3 110.0	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-
86.7 50.0	0.0	-	-	0.0	-	-	9.0	-	-	9.9	-	-
86.7 90.0	0.0	-	-	4.6	-	-	0.0	-	-	0.0	-	-
90.0 45.0	0.0	-	-	0.0	-	-	10.4	-	-	0.0	-	-
90.0 53.0	5.0	-	-	12.9	-	-	0.0	-	-	0.0	-	-
90.0 100.0	0.0	-	-	4.5	-	-	5.3	-	-	0.0	-	-
90.0 110.0	0.0	-	-	0.0	-	-	30.9	-	-	0.0	-	-
90.0 120.0	0.0	-	-	0.0	-	-	20.6	-	-	0.0	-	-
93.3 80.0	0.0	-	-	0.0	-	-	10.4	-	-	0.0	-	-
93.3 90.0	0.0	-	-	0.0	-	-	10.5	-	-	0.0	-	-
93.3 100.0	0.0	-	-	0.0	-	-	10.4	-	-	0.0	-	-
93.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	4.8	-	-

TABLE 4. (cont.)

		<i>Radiicephalus elongatus</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0	100.0	-	-	-	-	-	0.0	-	-	4.4	-	-	
		<i>Desmodema lorum</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
90.0	90.0	-	-	0.0	-	-	0.0	-	-	4.2	-	-	
		<i>Trachipterus altivelis</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	80.0	-	-	0.0	-	-	5.3	-	-	0.0	-	-	
83.3	60.0	-	-	0.0	-	-	10.8	-	-	0.0	-	-	
90.0	100.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
90.0	110.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
93.3	70.0	-	-	0.0	-	-	0.0	-	-	4.2	-	-	
		<i>Coryphaenoides leptolepis</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7	70.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
		<i>Merluccius productus</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	49.0	-	-	10.4	-	-	0.0	-	-	12.9	-	-	
76.7	51.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
76.7	55.0	-	-	-	-	-	0.0	-	-	66.5	-	-	
80.0	51.0	-	-	0.0	-	-	0.0	-	-	90.7	-	-	
80.0	55.0	-	-	266.9	-	-	0.0	-	-	0.0	-	-	
80.0	60.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
80.0	70.0	-	-	-	-	-	0.0	-	-	0.0	-	-	
80.0	100.0	-	-	-	-	-	0.0	-	-	0.0	-	-	
81.8	46.9	-	-	0.0	-	-	0.0	-	-	9.4	-	-	
83.3	42.0	-	-	0.0	-	-	0.0	-	-	5.5	-	-	
83.3	51.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
83.3	55.0	-	-	8.6	-	-	0.0	-	-	0.0	-	-	
83.3	90.0	-	-	-	-	-	0.0	-	-	0.0	-	-	
86.7	35.0	-	-	74.8	-	-	0.0	-	-	0.0	-	-	
86.7	40.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	

TABLE 4. (cont.)

		<i>Merluccius productus</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7	45.0	68.6	-	9.7	-	-	0.0	-	-	0.0	-	-	
86.7	50.0	0.0	-	67.7	-	-	0.0	-	-	0.0	-	-	
86.7	55.0	19.7	-	16.2	-	-	0.0	-	-	9.6	-	-	
86.7	60.0	0.0	-	4.5	-	-	0.0	-	-	0.0	-	-	
86.7	70.0	79.2	-	7.9	-	-	0.0	-	-	0.0	-	-	
86.7	80.0	0.0	-	4.2	-	-	0.0	-	-	0.0	-	-	
86.7	90.0	0.0	-	4.6	-	-	0.0	-	-	0.0	-	-	
90.0	28.0	-	-	9.2	-	-	0.0	-	-	0.0	-	-	
90.0	30.0	4.2	-	0.0	-	-	0.0	-	-	0.0	-	-	
90.0	35.0	9.5	-	30.7	-	-	0.0	-	-	0.0	-	-	
90.0	37.0	9.6	-	22.9	-	-	0.0	-	-	0.0	-	-	
90.0	45.0	26.3	-	83.5	-	-	0.0	-	-	0.0	-	-	
90.0	53.0	440.6	-	4.3	-	-	0.0	-	-	0.0	-	-	
90.0	60.0	116.1	-	0.0	-	-	0.0	-	-	0.0	-	-	
90.0	70.0	4494.4	-	29.5	-	-	0.0	-	-	0.0	-	-	
90.0	80.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-	
93.3	30.0	0.0	-	28.8	-	-	0.0	-	-	0.0	-	-	
93.3	35.0	0.0	-	53.8	-	-	0.0	-	-	0.0	-	-	
93.3	40.0	0.0	-	54.1	-	-	0.0	-	-	0.0	-	-	
93.3	45.0	19.4	-	147.9	-	-	0.0	-	-	0.0	-	-	
93.3	50.0	70.4	-	29.1	-	-	0.0	-	-	0.0	-	-	
93.3	55.0	0.0	-	79.2	-	-	0.0	-	-	0.0	-	-	
<i>Chilara taylori</i>													
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7	55.0	0.0	-	0.0	-	-	10.2	-	-	0.0	-	-	
93.3	50.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-	
<i>Catactyx rubrirostris</i>													
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	55.0	-	-	-	-	-	10.2	-	-	0.0	-	-	
90.0	30.0	0.0	-	4.2	-	-	0.0	-	-	0.0	-	-	

TABLE 4. (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
<b><i>Oneirodes</i> spp.</b>												
80.0 100.0	0.0	-	-	-	-	-	0.0	-	-	4.4	-	-
83.3 90.0	0.0	-	-	-	-	-	0.0	-	-	4.1	-	-
83.3 110.0	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-
86.7 100.0	0.0	-	-	-	-	-	0.0	-	-	4.5	-	-
90.0 120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
<b><i>Gigantactis</i> spp.</b>												
80.0 100.0	0.0	-	-	-	-	-	0.0	-	-	4.4	-	-
83.3 90.0	0.0	-	-	-	-	-	0.0	-	-	4.1	-	-
83.3 110.0	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-
86.7 100.0	0.0	-	-	-	-	-	0.0	-	-	4.5	-	-
90.0 120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
<b><i>Cololabis saira</i></b>												
83.3 110.0	0.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-
86.7 80.0	0.0	-	-	0.0	-	-	0.0	-	-	4.4	-	-
86.7 110.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-
93.3 90.0	4.3	-	-	0.0	-	-	0.0	-	-	4.9	-	-
<b><i>Melamphaes</i> spp.</b>												
76.7 90.0	0.0	-	-	8.6	-	-	5.4	-	-	0.0	-	-
83.3 90.0	0.0	-	-	-	-	-	0.0	-	-	4.1	-	-
90.0 120.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3 100.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-
93.3 110.0	0.0	-	-	0.0	-	-	5.3	-	-	0.0	-	-
<b><i>Melamphaes lugubris</i></b>												
76.7 70.0	0.0	-	-	0.0	-	-	10.9	-	-	0.0	-	-
76.7 90.0	0.0	-	-	4.3	-	-	0.0	-	-	0.0	-	-
76.7 100.0	0.0	-	-	-	-	-	0.0	-	-	4.3	-	-
83.3 100.0	0.0	-	-	3.9	-	-	14.6	-	-	0.0	-	-
83.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	4.6	-	-
86.7 55.0	0.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-
86.7 70.0	5.0	-	-	0.0	-	-	5.5	-	-	0.0	-	-
86.7 90.0	0.0	-	-	0.0	-	-	5.2	-	-	0.0	-	-

TABLE 4. (cont.)

		<i>Melamphaes lugubris</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
86.7	100.0	0.0	-	-	-	-	0.0	-	-	4.5	-	-	
90.0	70.0	0.0	-	4.2	-	-	0.0	-	-	0.0	-	-	
90.0	100.0	0.0	-	0.0	-	-	0.0	-	-	4.5	-	-	
90.0	120.0	0.0	-	0.0	-	-	0.0	-	-	4.5	-	-	
93.3	45.0	0.0	-	0.0	-	-	11.6	-	-	0.0	-	-	
93.3	60.0	0.0	-	5.0	-	-	0.0	-	-	0.0	-	-	
93.3	80.0	0.0	-	0.0	-	-	5.2	-	-	0.0	-	-	
93.3	110.0	0.0	-	4.5	-	-	0.0	-	-	0.0	-	-	
		<i>Melamphaes parvus</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0	55.0	4.9	-	0.0	-	-	0.0	-	-	0.0	-	-	
80.0	90.0	0.0	-	-	-	-	5.7	-	-	0.0	-	-	
90.0	80.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-	
		<i>Poromitra crassiceps</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	90.0	0.0	-	0.0	-	-	5.4	-	-	0.0	-	-	
80.0	90.0	0.0	-	-	-	-	5.7	-	-	0.0	-	-	
80.0	100.0	0.0	-	-	-	-	5.1	-	-	0.0	-	-	
83.3	60.0	0.0	-	0.0	-	-	10.8	-	-	0.0	-	-	
83.3	100.0	0.0	-	0.0	-	-	4.9	-	-	0.0	-	-	
93.3	70.0	0.0	-	0.0	-	-	11.4	-	-	0.0	-	-	
93.3	100.0	0.0	-	4.5	-	-	0.0	-	-	0.0	-	-	
		<i>Scopeloberyx robustus</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0	90.0	0.0	-	-	-	-	5.7	-	-	0.0	-	-	
83.3	110.0	0.0	-	0.0	-	-	0.0	-	-	4.6	-	-	
86.7	110.0	0.0	-	-	-	-	0.0	-	-	4.6	-	-	
		<i>Scopelogadus bispinosus</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	100.0	0.0	-	-	-	-	10.3	-	-	0.0	-	-	
80.0	90.0	0.0	-	-	-	-	22.9	-	-	4.4	-	-	

TABLE 4. (cont.)

		<i>Scopelogadus bispinosus</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0	100.0	0.0	-	-	-	-	41.0	-	-	0.0	-	-	
83.3	80.0	0.0	-	-	-	5.2	-	-	-	0.0	-	-	
83.3	100.0	0.0	-	3.9	-	0.0	-	-	-	0.0	-	-	
86.7	100.0	0.0	-	-	-	0.0	-	-	-	4.5	-	-	
90.0	120.0	0.0	-	0.0	-	5.2	-	-	-	0.0	-	-	
93.3	90.0	0.0	-	4.5	-	0.0	-	-	-	0.0	-	-	
93.3	100.0	0.0	-	4.5	-	5.2	-	-	-	0.0	-	-	
93.3	110.0	0.0	-	0.0	-	0.0	-	-	-	4.8	-	-	
93.3	120.0	0.0	-	4.1	-	5.2	-	-	-	0.0	-	-	
<i>Sebastes</i> spp.													
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	49.0	11.1	-	38.2	-	-	10.4	-	-	12.9	-	-	
76.7	51.0	386.0	-	17.8	-	-	0.0	-	-	0.0	-	-	
76.7	55.0	-	-	-	-	-	0.0	-	-	8.3	-	-	
76.7	60.0	0.0	-	66.0	-	-	0.0	-	-	0.0	-	-	
76.7	80.0	0.0	-	0.0	-	-	0.0	-	-	19.7	-	-	
80.0	51.0	31.1	-	0.0	-	-	0.0	-	-	7.0	-	-	
80.0	55.0	0.0	-	29.2	-	-	11.7	-	-	9.8	-	-	
80.0	60.0	0.0	-	0.0	-	-	11.6	-	-	0.0	-	-	
81.8	46.9	38.6	-	43.1	-	-	22.2	-	-	0.0	-	-	
83.3	40.6	25.9	-	3.2	-	-	0.0	-	-	0.0	-	-	
83.3	42.0	95.8	-	64.7	-	-	0.0	-	-	16.6	-	-	
83.3	51.0	57.1	-	0.0	-	-	10.1	-	-	16.7	-	-	
83.3	55.0	23.5	-	8.6	-	-	43.5	-	-	0.0	-	-	
83.3	70.0	9.6	-	-	-	-	0.0	-	-	0.0	-	-	
83.3	110.0	4.6	-	0.0	-	-	0.0	-	-	0.0	-	-	
86.7	33.0	33.9	-	12.7	-	-	0.0	-	-	4.4	-	-	
86.7	35.0	52.6	-	42.7	-	-	10.6	-	-	0.0	-	-	
86.7	40.0	27.8	-	222.8	-	-	0.0	-	-	8.5	-	-	
86.7	45.0	14.7	-	116.3	-	-	0.0	-	-	0.0	-	-	
86.7	50.0	375.8	-	425.6	-	-	0.0	-	-	29.6	-	-	

TABLE 4. (cont.)

<i>Sebastes spp.</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	55.0	9.9	-	32.4	-	-	0.0	-	-	0.0	-	-
86.7	70.0	34.6	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7	80.0	5.2	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7	110.0	4.7	-	-	-	-	0.0	-	-	0.0	-	-
90.0	28.0	-	-	0.0	-	-	6.6	-	-	4.3	-	-
90.0	30.0	4.2	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0	35.0	23.8	-	20.5	-	-	0.0	-	-	0.0	-	-
90.0	37.0	4.8	-	9.2	-	-	0.0	-	-	0.0	-	-
90.0	45.0	184.0	-	47.0	-	-	41.6	-	-	0.0	-	-
90.0	53.0	44.6	-	107.5	-	-	21.2	-	-	0.0	-	-
90.0	60.0	0.0	-	9.5	-	-	0.0	-	-	0.0	-	-
90.0	70.0	4.1	-	8.4	-	-	0.0	-	-	0.0	-	-
90.0	80.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-
93.3	26.7	65.6	-	11.5	-	-	0.0	-	-	0.0	-	-
93.3	28.0	4.8	-	5.4	-	-	0.0	-	-	0.0	-	-
93.3	30.0	0.0	-	33.6	-	-	0.0	-	-	0.0	-	-
93.3	35.0	4.5	-	0.0	-	-	11.6	-	-	4.8	-	-
93.3	40.0	22.8	-	0.0	-	-	45.8	-	-	0.0	-	-
93.3	45.0	33.9	-	5.1	-	-	0.0	-	-	0.0	-	-
93.3	50.0	26.4	-	111.6	-	-	0.0	-	-	0.0	-	-
93.3	55.0	0.0	-	54.5	-	-	10.9	-	-	0.0	-	-
93.3	60.0	0.0	-	0.0	-	-	10.5	-	-	0.0	-	-
93.3	70.0	4.3	-	0.0	-	-	0.0	-	-	0.0	-	-
<i>Sebastes aurora</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	51.0	3.8	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7	40.0	0.0	-	20.3	-	-	0.0	-	-	0.0	-	-
86.7	45.0	4.9	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7	50.0	0.0	-	9.7	-	-	0.0	-	-	0.0	-	-
86.7	55.0	0.0	-	3.2	-	-	0.0	-	-	0.0	-	-
93.3	55.0	0.0	-	5.0	-	-	0.0	-	-	0.0	-	-



TABLE 4. (cont.)

<i>Sebastes diploproa</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	70.0	0.0	8.1	-	-	-	0.0	-	-	0.0	-	-
86.7	35.0	0.0	10.7	-	-	-	0.0	-	-	0.0	-	-
86.7	70.0	0.0	0.0	-	-	-	0.0	-	-	8.5	-	-
86.7	80.0	0.0	4.2	-	-	-	0.0	-	-	0.0	-	-
90.0	28.0	-	0.0	-	-	-	0.0	-	-	4.3	-	-
90.0	45.0	0.0	0.0	-	-	-	0.0	-	-	9.4	-	-
93.3	45.0	9.7	0.0	-	-	-	11.6	-	-	4.6	-	-
<i>Sebastes jordani</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	49.0	0.0	-	3.5	-	-	0.0	-	-	0.0	-	-
76.7	51.0	177.4	-	35.5	-	-	0.0	-	-	0.0	-	-
76.7	60.0	0.0	-	66.0	-	-	0.0	-	-	0.0	-	-
81.8	46.9	9.6	-	0.0	-	-	0.0	-	-	0.0	-	-
83.3	40.6	11.1	-	0.0	-	-	0.0	-	-	0.0	-	-
83.3	42.0	59.3	-	0.0	-	-	0.0	-	-	0.0	-	-
83.3	51.0	15.2	-	0.0	-	-	0.0	-	-	0.0	-	-
83.3	55.0	0.0	-	4.3	-	-	0.0	-	-	0.0	-	-
86.7	33.0	15.1	-	9.5	-	-	0.0	-	-	0.0	-	-
86.7	35.0	14.3	-	21.4	-	-	0.0	-	-	0.0	-	-
86.7	45.0	4.9	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7	50.0	0.0	-	48.4	-	-	0.0	-	-	9.9	-	-
90.0	30.0	0.0	-	4.2	-	-	0.0	-	-	0.0	-	-
90.0	35.0	33.4	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0	45.0	4.4	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3	26.7	0.0	-	11.5	-	-	0.0	-	-	0.0	-	-
93.3	28.0	0.0	-	10.7	-	-	0.0	-	-	0.0	-	-
<i>Sebastes paucispinis</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	70.0	9.9	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0	37.0	0.0	-	0.0	-	-	0.0	-	-	4.2	-	-
90.0	80.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 55.0	0.0	-	-	0.0	-	-	0.0	-	-	9.6	-	-
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 42.0	0.0	-	-	0.0	-	-	0.0	-	-	5.5	-	-
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 51.0	0.0	-	-	0.0	-	-	0.0	-	-	4.2	-	-
83.3 55.0	4.7	-	-	0.0	-	-	0.0	-	-	0.0	-	-
90.0 45.0	4.4	-	-	0.0	-	-	0.0	-	-	0.0	-	-
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 30.0	0.0	-	-	0.0	-	-	10.6	-	-	0.0	-	-
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 33.0	0.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 51.0	0.0	-	-	0.0	-	-	0.0	-	-	4.2	-	-
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 51.0	0.0	-	-	6.4	-	-	0.0	-	-	0.0	-	-
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 33.0	0.0	-	-	6.4	-	-	0.0	-	-	20.9	-	-
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 45.0	0.0	-	-	5.2	-	-	0.0	-	-	0.0	-	-
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 51.0	0.0	-	-	12.8	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Odontopyxis trispinosa</i>												
80.0 51.0	0.0	-	-	0.0	-	-	4.5	-	-	0.0	-	-
83.3 51.0	0.0	-	-	0.0	-	-	0.0	-	-	4.2	-	-
<i>Xeneretmus latifrons</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	0.0	-	-	0.0	-	-	10.4	-	-	0.0	-	-
<i>Paralabrax spp.</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 40.6	0.0	-	-	0.0	-	-	3.6	-	-	0.0	-	-
<i>Trachurus symmetricus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 70.0	0.0	-	-	0.0	-	-	21.8	-	-	0.0	-	-
76.7 80.0	0.0	-	-	8.4	-	-	0.0	-	-	0.0	-	-
76.7 90.0	0.0	-	-	8.6	-	-	0.0	-	-	0.0	-	-
76.7 100.0	0.0	-	-	-	-	-	41.4	-	-	0.0	-	-
80.0 60.0	0.0	-	-	4.8	-	-	0.0	-	-	0.0	-	-
80.0 80.0	0.0	-	-	-	-	-	82.9	-	-	0.0	-	-
80.0 90.0	0.0	-	-	-	-	-	17.2	-	-	0.0	-	-
80.0 100.0	0.0	-	-	-	-	-	35.9	-	-	0.0	-	-
83.3 60.0	0.0	-	-	3.3	-	-	21.6	-	-	0.0	-	-
83.3 70.0	0.0	-	-	-	-	-	45.8	-	-	0.0	-	-
83.3 80.0	0.0	-	-	-	-	-	36.2	-	-	0.0	-	-
83.3 90.0	0.0	-	-	-	-	-	58.4	-	-	0.0	-	-
83.3 100.0	0.0	-	-	7.9	-	-	0.0	-	-	0.0	-	-
86.7 55.0	0.0	-	-	9.7	-	-	0.0	-	-	0.0	-	-
86.7 70.0	0.0	-	-	7.9	-	-	10.9	-	-	0.0	-	-
86.7 80.0	0.0	-	-	8.5	-	-	5.4	-	-	0.0	-	-
86.7 90.0	0.0	-	-	55.2	-	-	10.4	-	-	0.0	-	-
90.0 53.0	0.0	-	-	30.1	-	-	0.0	-	-	8.9	-	-
90.0 60.0	0.0	-	-	18.9	-	-	0.0	-	-	0.0	-	-
90.0 70.0	0.0	-	-	63.1	-	-	0.0	-	-	0.0	-	-
90.0 80.0	0.0	-	-	58.1	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

		<i>Trachurus symmetricus</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
90.0	90.0	-	-	48.3	-	-	0.0	-	-	0.0	-	-	
90.0	110.0	-	-	7.6	-	-	0.0	-	-	0.0	-	-	
90.0	120.0	-	-	63.6	-	-	0.0	-	-	0.0	-	-	
93.3	45.0	-	-	5.1	-	-	0.0	-	-	0.0	-	-	
93.3	50.0	-	-	14.5	-	-	0.0	-	-	0.0	-	-	
93.3	55.0	-	-	34.6	-	-	0.0	-	-	0.0	-	-	
93.3	60.0	-	-	70.3	-	-	0.0	-	-	0.0	-	-	
93.3	70.0	-	-	50.0	-	-	0.0	-	-	0.0	-	-	
93.3	80.0	-	-	24.2	-	-	5.2	-	-	0.0	-	-	
93.3	90.0	-	-	22.5	-	-	0.0	-	-	0.0	-	-	
93.3	100.0	-	-	8.9	-	-	0.0	-	-	0.0	-	-	
93.3	110.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-	
		<i>Genyonemus lineatus</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	49.0	-	-	0.0	-	-	0.0	-	-	4.3	-	-	
76.7	55.0	-	-	-	-	-	0.0	-	-	8.3	-	-	
80.0	51.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
81.8	46.9	-	-	0.0	-	-	0.0	-	-	28.2	-	-	
83.3	40.6	-	-	0.0	-	-	0.0	-	-	38.5	-	-	
83.3	42.0	-	-	0.0	-	-	0.0	-	-	193.2	-	-	
93.3	26.7	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
		<i>Girella nigricans</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
83.3	55.0	-	-	0.0	-	-	10.9	-	-	0.0	-	-	
		<i>Chromis punctipinnis</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
83.3	42.0	-	-	0.0	-	-	0.0	-	-	5.5	-	-	
83.3	55.0	-	-	0.0	-	-	10.9	-	-	0.0	-	-	
		<i>Oxyjulis californica</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	55.0	-	-	-	-	-	0.0	-	-	8.3	-	-	

TABLE 4. (cont.)

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<b><i>Oxyjulis californica</i> (cont.)</b>													
Station	80.0	55.0	0.0	-	0.0	-	-	0.0	-	-	9.8	-	-
	80.0	60.0	0.0	-	0.0	-	-	0.0	-	-	4.9	-	-
	83.3	42.0	0.0	-	0.0	-	-	0.0	-	-	5.5	-	-
	83.3	51.0	0.0	-	0.0	-	-	5.0	-	-	4.2	-	-
	93.3	50.0	0.0	-	4.8	-	-	0.0	-	-	0.0	-	-
	93.3	60.0	0.0	-	0.0	-	-	10.5	-	-	0.0	-	-
<b><i>Semicossyphus putcher</i></b>													
Station	80.0	55.0	0.0	Feb.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	90.0	45.0	0.0	-	0.0	-	-	0.0	-	-	9.8	-	-
				-	5.2	-	-	0.0	-	-	0.0	-	-
<b><i>Rathbunella alleni</i></b>													
Station	83.3	42.0	0.0	Feb.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
				-	0.0	-	-	0.0	-	-	5.5	-	-
<b>Stichaeidae</b>													
Station	83.3	51.0	0.0	Feb.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	86.7	50.0	4.3	-	51.4	-	-	0.0	-	-	12.5	-	-
				-	0.0	-	-	0.0	-	-	0.0	-	-
<b><i>Chiasmodon niger</i></b>													
Station	76.7	100.0	0.0	Feb.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	80.0	90.0	0.0	-	-	-	-	0.0	-	-	4.3	-	-
	80.0	100.0	0.0	-	-	-	-	0.0	-	-	4.4	-	-
	83.3	90.0	0.0	-	-	-	-	5.1	-	-	0.0	-	-
	83.3	110.0	0.0	-	0.0	-	-	5.3	-	-	0.0	-	-
	86.7	90.0	0.0	-	0.0	-	-	5.0	-	-	0.0	-	-
	90.0	100.0	0.0	-	4.5	-	-	0.0	-	-	4.2	-	-
	93.3	90.0	0.0	-	0.0	-	-	0.0	-	-	4.5	-	-
	93.3	100.0	0.0	-	0.0	-	-	0.0	-	-	4.9	-	-
				-	0.0	-	-	5.2	-	-	4.4	-	-
<b><i>Neoclinus stephensae</i></b>													
Station	76.7	49.0	0.0	Feb.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	83.3	51.0	0.0	-	0.0	-	-	0.0	-	-	4.3	-	-
				-	0.0	-	-	0.0	-	-	4.2	-	-

TABLE 4. (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Hypsoblennius</i> spp.												
86.7 35.0	0.0	-	-	0.0	-	-	21.2	-	-	0.0	-	-
90.0 30.0	0.0	-	-	4.2	-	-	0.0	-	-	0.0	-	-
93.3 26.7	0.0	-	-	0.0	-	-	8.4	-	-	0.0	-	-
<i>Hypsoblennius jenkinsi</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 42.0	0.0	-	-	0.0	-	-	0.0	-	-	5.5	-	-
93.3 26.7	0.0	-	-	0.0	-	-	79.8	-	-	12.5	-	-
<i>Coryphopterus nicholsii</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 51.0	0.0	-	-	0.0	-	-	0.0	-	-	10.5	-	-
80.0 55.0	0.0	-	-	0.0	-	-	0.0	-	-	9.8	-	-
81.8 46.9	9.6	-	-	0.0	-	-	0.0	-	-	47.0	-	-
83.3 42.0	4.6	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 45.0	0.0	-	-	0.0	-	-	0.0	-	-	9.2	-	-
86.7 60.0	0.0	-	-	0.0	-	-	10.5	-	-	0.0	-	-
90.0 70.0	0.0	-	-	4.2	-	-	0.0	-	-	4.3	-	-
90.0 80.0	0.0	-	-	0.0	-	-	0.0	-	-	4.6	-	-
93.3 30.0	0.0	-	-	0.0	-	-	10.6	-	-	0.0	-	-
93.3 50.0	0.0	-	-	19.4	-	-	11.2	-	-	0.0	-	-
93.3 55.0	0.0	-	-	0.0	-	-	10.9	-	-	0.0	-	-
93.3 60.0	0.0	-	-	0.0	-	-	10.5	-	-	0.0	-	-
<i>Lepidogobius lepidus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	0.0	-	-	0.0	-	-	0.0	-	-	4.3	-	-
83.3 42.0	0.0	-	-	0.0	-	-	0.0	-	-	5.5	-	-
<i>Lythrypnus zebra</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 35.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
<i>Typhlogobius californiensis</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 51.0	0.0	-	-	0.0	-	-	4.5	-	-	0.0	-	-
93.3 30.0	0.0	-	-	4.8	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

		<i>Scomber japonicus</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
83.3 40.6	0.0	-	-	0.0	-	-	3.6	-	-	0.0	-	-	
83.3 60.0	0.0	-	-	0.0	-	-	43.1	-	-	0.0	-	-	
86.7 90.0	0.0	-	-	9.2	-	-	0.0	-	-	0.0	-	-	
90.0 70.0	0.0	-	-	21.1	-	-	0.0	-	-	0.0	-	-	
90.0 80.0	0.0	-	-	14.5	-	-	0.0	-	-	0.0	-	-	
90.0 90.0	0.0	-	-	14.5	-	-	0.0	-	-	0.0	-	-	
93.3 28.0	0.0	-	-	0.0	-	-	5.4	-	-	0.0	-	-	
93.3 30.0	0.0	-	-	0.0	-	-	10.6	-	-	0.0	-	-	
93.3 40.0	0.0	-	-	14.8	-	-	0.0	-	-	0.0	-	-	
93.3 45.0	0.0	-	-	25.5	-	-	0.0	-	-	0.0	-	-	
93.3 55.0	0.0	-	-	14.9	-	-	0.0	-	-	0.0	-	-	
		<i>Icichthys lockingtoni</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7 70.0	0.0	-	-	0.0	-	-	10.9	-	-	0.0	-	-	
80.0 70.0	0.0	-	-	-	-	-	5.1	-	-	0.0	-	-	
83.3 60.0	0.0	-	-	0.0	-	-	10.8	-	-	0.0	-	-	
86.7 55.0	0.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-	
86.7 90.0	0.0	-	-	4.6	-	-	0.0	-	-	0.0	-	-	
90.0 70.0	0.0	-	-	0.0	-	-	10.6	-	-	0.0	-	-	
93.3 45.0	0.0	-	-	5.1	-	-	0.0	-	-	0.0	-	-	
93.3 60.0	0.0	-	-	0.0	-	-	10.5	-	-	0.0	-	-	
		<i>Tetragonurus cuvieri</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7 90.0	0.0	-	-	0.0	-	-	0.0	-	-	4.6	-	-	
80.0 80.0	4.8	-	-	-	-	-	0.0	-	-	0.0	-	-	
80.0 90.0	0.0	-	-	-	-	-	0.0	-	-	4.4	-	-	
83.3 90.0	0.0	-	-	-	-	-	0.0	-	-	8.3	-	-	
83.3 100.0	4.1	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
83.3 110.0	4.6	-	-	0.0	-	-	0.0	-	-	0.0	-	-	
86.7 90.0	0.0	-	-	0.0	-	-	0.0	-	-	8.5	-	-	
86.7 100.0	0.0	-	-	-	-	-	0.0	-	-	9.1	-	-	

TABLE 4. (cont.)

<i>Tetragonurus cuvieri</i> (cont.)												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 110.0	0.0	-	-	-	-	-	10.1	-	-	0.0	-	-
93.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	4.9	-	-
93.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	4.4	-	-
93.3 120.0	0.0	-	-	0.0	-	-	0.0	-	-	4.5	-	-
<i>Peprilus simillimus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	0.0	-	-	0.0	-	-	0.0	-	-	4.3	-	-
76.7 55.0	-	-	-	-	-	-	0.0	-	-	8.3	-	-
83.3 42.0	0.0	-	-	0.0	-	-	0.0	-	-	11.0	-	-
<i>Citharichthys</i> spp.												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 51.0	10.4	-	-	0.0	-	-	0.0	-	-	0.0	-	-
76.7 55.0	-	-	-	-	-	-	0.0	-	-	8.3	-	-
76.7 70.0	9.6	-	-	0.0	-	-	0.0	-	-	0.0	-	-
80.0 51.0	0.0	-	-	0.0	-	-	4.5	-	-	0.0	-	-
83.3 40.6	7.4	-	-	0.0	-	-	3.6	-	-	3.5	-	-
83.3 42.0	0.0	-	-	0.0	-	-	12.2	-	-	11.0	-	-
86.7 45.0	4.9	-	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7 110.0	4.7	-	-	-	-	-	0.0	-	-	0.0	-	-
93.3 26.7	3.9	-	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3 30.0	0.0	-	-	0.0	-	-	10.6	-	-	0.0	-	-
<i>Citharichthys sordidus</i>												
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	0.0	-	-	0.0	-	-	0.0	-	-	12.9	-	-
76.7 51.0	83.5	-	-	0.0	-	-	10.8	-	-	0.0	-	-
76.7 55.0	-	-	-	-	-	-	0.0	-	-	183.0	-	-
76.7 60.0	0.0	-	-	0.0	-	-	11.6	-	-	21.4	-	-
76.7 70.0	0.0	-	-	0.0	-	-	0.0	-	-	61.8	-	-
76.7 80.0	0.0	-	-	0.0	-	-	0.0	-	-	29.5	-	-
76.7 90.0	0.0	-	-	0.0	-	-	0.0	-	-	9.3	-	-
80.0 51.0	0.0	-	-	0.0	-	-	0.0	-	-	104.7	-	-



TABLE 4. (cont.)

		<i>Citharichthys sordidus</i> (cont.)											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0	55.0	0.0	0.0	4.2	-	-	0.0	-	-	29.4	-	-	
80.0	60.0	0.0	0.0	0.0	-	-	0.0	-	-	14.6	-	-	
81.8	46.9	0.0	0.0	0.0	-	-	0.0	-	-	47.0	-	-	
83.3	40.6	3.7	0.0	0.0	-	-	0.0	-	-	0.0	-	-	
83.3	42.0	9.1	0.0	0.0	-	-	0.0	-	-	38.6	-	-	
83.3	51.0	3.8	0.0	0.0	-	-	0.0	-	-	4.2	-	-	
83.3	55.0	4.7	4.3	0.0	-	-	0.0	-	-	29.8	-	-	
83.3	60.0	0.0	0.0	0.0	-	-	0.0	-	-	17.1	-	-	
83.3	70.0	0.0	-	-	-	-	0.0	-	-	53.3	-	-	
86.7	40.0	0.0	0.0	0.0	-	-	0.0	-	-	8.5	-	-	
86.7	45.0	4.9	0.0	0.0	-	-	22.0	-	-	18.3	-	-	
86.7	50.0	0.0	0.0	0.0	-	-	0.0	-	-	19.7	-	-	
86.7	70.0	5.0	0.0	0.0	-	-	0.0	-	-	68.0	-	-	
86.7	90.0	0.0	0.0	4.6	-	-	0.0	-	-	0.0	-	-	
90.0	37.0	0.0	0.0	0.0	-	-	0.0	-	-	4.2	-	-	
90.0	45.0	0.0	0.0	0.0	-	-	0.0	-	-	9.4	-	-	
90.0	53.0	9.9	0.0	0.0	-	-	0.0	-	-	0.0	-	-	
90.0	60.0	4.3	0.0	0.0	-	-	0.0	-	-	4.0	-	-	
90.0	70.0	0.0	0.0	4.2	-	-	0.0	-	-	0.0	-	-	
90.0	80.0	0.0	0.0	0.0	-	-	0.0	-	-	9.2	-	-	
93.3	28.0	0.0	0.0	0.0	-	-	0.0	-	-	4.2	-	-	
93.3	30.0	0.0	0.0	14.4	-	-	0.0	-	-	0.0	-	-	
93.3	40.0	0.0	0.0	0.0	-	-	11.5	-	-	0.0	-	-	
93.3	70.0	0.0	0.0	0.0	-	-	0.0	-	-	4.2	-	-	
93.3	80.0	4.5	0.0	0.0	-	-	0.0	-	-	4.3	-	-	
		<i>Citharichthys stigmaeus</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
76.7	49.0	0.0	-	0.0	-	-	0.0	-	-	4.3	-	-	
76.7	55.0	-	-	-	-	-	0.0	-	-	25.0	-	-	
76.7	70.0	19.2	-	0.0	-	-	0.0	-	-	14.3	-	-	
76.7	80.0	0.0	-	0.0	-	-	0.0	-	-	9.8	-	-	

TABLE 4. (cont.)

Station	<i>Citharichthys stigmæus</i> (cont.)											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	0.0	-	0.0	-	-	0.0	-	-	14.0	-	-
80.0	55.0	0.0	-	4.2	-	-	0.0	-	-	9.8	-	-
80.0	60.0	0.0	-	0.0	-	-	0.0	-	-	4.9	-	-
81.8	46.9	0.0	-	0.0	-	-	0.0	-	-	37.6	-	-
83.3	40.6	3.7	-	0.0	-	-	0.0	-	-	0.0	-	-
83.3	42.0	9.1	-	0.0	-	-	0.0	-	-	22.1	-	-
83.3	55.0	0.0	-	4.3	-	-	0.0	-	-	178.8	-	-
83.3	60.0	5.3	-	0.0	-	-	0.0	-	-	0.0	-	-
83.3	70.0	0.0	-	-	-	-	0.0	-	-	17.8	-	-
86.7	45.0	0.0	-	0.0	-	-	11.0	-	-	9.2	-	-
86.7	50.0	0.0	-	29.0	-	-	0.0	-	-	0.0	-	-
86.7	55.0	0.0	-	0.0	-	-	0.0	-	-	9.6	-	-
86.7	60.0	9.3	-	0.0	-	-	0.0	-	-	0.0	-	-
86.7	70.0	0.0	-	0.0	-	-	0.0	-	-	110.5	-	-
90.0	28.0	-	-	0.0	-	-	0.0	-	-	4.3	-	-
90.0	30.0	0.0	-	0.0	-	-	0.0	-	-	4.7	-	-
90.0	35.0	0.0	-	0.0	-	-	9.8	-	-	18.2	-	-
90.0	37.0	0.0	-	0.0	-	-	0.0	-	-	12.7	-	-
90.0	45.0	0.0	-	0.0	-	-	0.0	-	-	18.8	-	-
90.0	53.0	9.9	-	0.0	-	-	0.0	-	-	17.7	-	-
90.0	60.0	0.0	-	0.0	-	-	0.0	-	-	4.0	-	-
90.0	70.0	0.0	-	0.0	-	-	10.6	-	-	13.0	-	-
90.0	80.0	0.0	-	0.0	-	-	0.0	-	-	4.6	-	-
93.3	45.0	0.0	-	5.1	-	-	0.0	-	-	0.0	-	-
93.3	50.0	8.8	-	0.0	-	-	0.0	-	-	0.0	-	-
93.3	55.0	0.0	-	0.0	-	-	0.0	-	-	4.2	-	-
93.3	60.0	0.0	-	0.0	-	-	10.5	-	-	4.7	-	-
93.3	70.0	0.0	-	0.0	-	-	0.0	-	-	20.8	-	-
93.3	80.0	4.5	-	0.0	-	-	0.0	-	-	0.0	-	-

TABLE 4. (cont.)

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Paratichthys californicus</i>													
Station													
81.8	46.9	0.0	-	-	0.0	-	-	0.0	-	-	9.4	-	-
83.3	40.6	0.0	-	-	0.0	-	-	0.0	-	-	10.5	-	-
83.3	42.0	0.0	-	-	0.0	-	-	0.0	-	-	5.5	-	-
86.7	35.0	0.0	-	-	0.0	-	-	10.6	-	-	0.0	-	-
90.0	28.0	-	-	-	0.0	-	-	0.0	-	-	4.3	-	-
<i>Glyptocephalus zachirus</i>													
Station													
86.7	55.0	0.0	-	-	0.0	-	-	10.2	-	-	0.0	-	-
<i>Lyopsetta exilis</i>													
Station													
76.7	60.0	0.0	-	-	6.6	-	-	0.0	-	-	0.0	-	-
80.0	55.0	0.0	-	-	12.5	-	-	0.0	-	-	0.0	-	-
83.3	40.6	0.0	-	-	6.5	-	-	0.0	-	-	0.0	-	-
83.3	55.0	0.0	-	-	8.6	-	-	0.0	-	-	0.0	-	-
86.7	33.0	0.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-
86.7	35.0	0.0	-	-	10.7	-	-	0.0	-	-	0.0	-	-
86.7	45.0	0.0	-	-	19.4	-	-	0.0	-	-	0.0	-	-
90.0	35.0	0.0	-	-	10.2	-	-	0.0	-	-	0.0	-	-
93.3	30.0	0.0	-	-	9.6	-	-	0.0	-	-	0.0	-	-
<i>Microstomus pacificus</i>													
Station													
76.7	90.0	0.0	-	-	0.0	-	-	5.4	-	-	0.0	-	-
<i>Parophrys vetulus</i>													
Station													
83.3	40.6	0.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-
86.7	33.0	0.0	-	-	3.2	-	-	0.0	-	-	0.0	-	-
<i>Pleuronichthys ritteri</i>													
Station													
83.3	42.0	0.0	-	-	0.0	-	-	0.0	-	-	5.5	-	-

TABLE 4. (cont.)

		<i>Pleuromichthys verticalis</i>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
83.3	42.0	-	-	0.0	-	-	0.0	-	-	5.5	-	-	
86.7	33.0	-	-	0.0	-	-	12.8	-	-	0.0	-	-	
		<b>Disintegrated fish larvae</b>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
83.3	51.0	-	-	6.4	-	-	0.0	-	-	0.0	-	-	
90.0	80.0	-	-	0.0	-	-	5.0	-	-	0.0	-	-	
90.0	90.0	-	-	4.8	-	-	0.0	-	-	0.0	-	-	
90.0	100.0	-	-	4.5	-	-	0.0	-	-	0.0	-	-	
		<b>Unidentified fish larvae</b>											
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
80.0	70.0	-	-	-	-	-	0.0	-	-	9.3	-	-	
83.3	90.0	-	-	-	-	-	5.3	-	-	0.0	-	-	
86.7	45.0	-	-	0.0	-	-	0.0	-	-	36.6	-	-	



<i>Trachipterus altivelis</i> .....	62	Serranidae	
Gadiformes		<i>Paralabrax</i> spp. ....	70
Macrouridae		Carangidae	
<i>Coryphaenoides leptolepis</i> .....	62	<i>Trachurus symmetricus</i> .....	70
Merlucciidae		Sciaenidae	
<i>Merluccius productus</i> .....	62	<i>Genyonemus lineatus</i> .....	71
Ophidiiformes		Kyphosidae	
Ophidiidae		<i>Girella nigricans</i> .....	71
<i>Chilara taylori</i> .....	63	Labroidei	
Bythitidae		Pomacentridae	
<i>Cataetyx rubrirostris</i> .....	63	<i>Chromis punctipinnis</i> .....	71
Lophiiformes		Labridae	
Oneirodidae		<i>Oxyjulis californica</i> .....	71
<i>Oneirodes</i> spp. ....	64	<i>Semicossyphus pulcher</i> .....	72
Gigantactinidae		Zoarcoidei	
<i>Gigantactis</i> spp. ....	64	Bathymasteridae	
Beloniformes		<i>Rathbunella alleni</i> . ....	72
Scomberesocidae		Stichaeidae .....	72
<i>Cololabis saira</i> .....	64	Trachinoidei	
Stephanoberyciformes		Chiasmodontidae	
Melamphaidae		<i>Chiasmodon niger</i> .....	72
<i>Melamphaes</i> spp. ....	64	Blennioidei	
<i>Melamphaes lugubris</i> .....	64	Chaenopsidae	
<i>Melamphaes parvus</i> .....	65	<i>Neoclinus stephensae</i> . ....	72
<i>Poromitra crassiceps</i> .....	65	Blenniidae	
<i>Scopeloberyx robustus</i> .....	65	<i>Hypsoblennius</i> spp. ....	73
<i>Scopelogadus bispinosus</i> .....	65	<i>Hypsoblennius jenkinsi</i> .....	73
Scorpaeniformes		Gobioidei	
Sebastidae		Gobiidae	
<i>Sebastes</i> spp. ....	66	<i>Coryphopterus nicholsii</i> .....	73
<i>Sebastes aurora</i> .....	67	<i>Lepidogobius lepidus</i> .....	73
<i>Sebastes diploproa</i> .....	68	<i>Lythrypnus zebra</i> .....	73
<i>Sebastes jordani</i> .....	68	<i>Typhlogobius californiensis</i> .....	73
<i>Sebastes paucispinis</i> .....	68	Scombroidei	
<i>Sebastolobus altivelis</i> .....	69	Scombridae	
Zaniolepididae		<i>Scomber japonicus</i> .....	74
<i>Zaniolepis frenata</i> .....	69	Stromateoidei	
<i>Zaniolepis latipinnis</i> .....	69	Centrolophidae	
Cottidae .....	69	<i>Icichthys lockingtoni</i> .....	74
<i>Artedius creaseri</i> .....	69	Tetragonuridae	
<i>Artedius lateralis</i> .....	69	<i>Tetragonurus cuvieri</i> .....	74
<i>Chitonotus pugetensis</i> .....	69	Stromateidae	
<i>Icelinus quadriseriatus</i> .....	69	<i>Peprilus simillumus</i> .....	75
<i>Scorpaenichthys marmoratus</i> .....	69	Pleuronectiformes	
Agonidae .....	69	Paralichthyidae	
<i>Odontopyxis trispinosa</i> .....	70	<i>Citharichthys</i> spp. ....	75
<i>Xeneretmus latifrons</i> .....	70	<i>Citharichthys sordidus</i> .....	75
Perciformes		<i>Citharichthys stigmaeus</i> .....	76
Percoidei		<i>Paralichthys californicus</i> .....	78

<b>Pleuronectidae</b>	
<i>Glyptocephalus zachirus</i> .....	78
<i>Lyopsetta exilis</i> .....	78
<i>Microstomus pacificus</i> .....	78
<i>Parophrys vetulus</i> .....	78
	<i>Pleuronichthys ritteri</i> .....
	<i>Pleuronichthys verticalis</i> .....
	Disintegrated fish larvae .....
	Unidentified fish larvae .....

## ALPHABETICAL INDEX TO TABLE 4

Agonidae	69	<i>Girella nigricans</i>	71
<i>Arctozenus risso</i>	46	<i>Glyptocephalus zachirus</i>	78
<i>Argentina sialis</i>	32	<i>Hygophum reinhardtii</i>	57
<i>Argyropelecus affinis</i>	39	<i>Hygophum</i> spp.	57
<i>Argyropelecus hemigymnus</i>	39	<i>Hypsoblennius jenkinsi</i>	73
<i>Argyropelecus lychnus</i>	39	<i>Hypsoblennius</i> spp.	73
<i>Argyropelecus sladeni</i>	39	<i>Icelinus quadriseriatus</i>	69
<i>Argyropelecus</i> spp.	39	<i>Ichthyococcus irregularis</i>	41
<i>Aristostomias scintillans</i>	44	<i>Icichthys lockingtoni</i>	74
<i>Artedius creaseri</i>	69	<i>Idiacanthus antrostomus</i>	44
<i>Artedius lateralis</i>	69	<i>Lampadena urophaos</i>	49
<i>Bathophilus flemingi</i>	44	<i>Lampanyctus</i> "no pectorals"	50
Bathylagidae	33	<i>Lampanyctus regalis</i>	50
<i>Bathylagus ochotensis</i>	33	<i>Lampanyctus ritteri</i>	51
<i>Bathylagus pacificus</i>	34	<i>Lampanyctus</i> spp.	49
<i>Bathylagus wesethi</i>	34	<i>Lampanyctus steinbecki</i>	52
<i>Benthalbella dentata</i>	45	<i>Lepidogobius lepidus</i>	73
<i>Cataetyx rubrirostris</i>	63	<i>Leptocephalus holti</i>	30
<i>Centrobranchus nigroocellatus</i>	56	<i>Lestidiops ringens</i>	46
<i>Ceratoscopelus townsendi</i>	47	<i>Leuroglossus stilbius</i>	35
<i>Chauliodus macouni</i>	43	<i>Lyopsetta exilis</i>	78
<i>Chiasmodon niger</i>	72	<i>Lythrypnus zebra</i>	73
<i>Chilara taylori</i>	63	<i>Melamphaes lugubris</i>	64
<i>Chitonotus pugetensis</i>	69	<i>Melamphaes parvus</i>	65
<i>Chromis punctipinnis</i>	71	<i>Melamphaes</i> spp.	64
<i>Citharichthys sordidus</i>	75	<i>Merluccius productus</i>	62
<i>Citharichthys</i> spp.	75	<i>Microstoma</i> spp.	32
<i>Citharichthys stigmaeus</i>	76	<i>Microstomus pacificus</i>	78
<i>Cololabis saira</i>	64	Myctophidae	47
<i>Coryphaenoides leptolepis</i>	62	<i>Myctophum nitidulum</i>	58
<i>Coryphopterus nicholsii</i>	73	<i>Neoclinus stephensae</i>	72
Cottidae	69	<i>Notolychnus valdiviae</i>	52
<i>Cyclothone acclinidens</i>	37	<i>Notoscopelus resplendens</i>	52
<i>Cyclothone pseudopallida</i>	37	<i>Odontopyxis trispinosa</i>	70
<i>Cyclothone signata</i>	37	<i>Oneirodes</i> spp.	64
<i>Cyclothone</i> spp.	36	<i>Oxyjulis californica</i>	71
<i>Cyema atrum</i>	30	<i>Paralabrax</i> spp.	70
<i>Danaphos oculatus</i>	40	<i>Paralichthys californicus</i>	78
<i>Desmodema lorum</i>	62	<i>Parophrys vetulus</i>	78
<i>Diaphus</i> spp.	48	<i>Peprilus simillimus</i>	75
<i>Diogenichthys atlanticus</i>	56	<i>Pleuronichthys ritteri</i>	78
<i>Diogenichthys laternatus</i>	57	<i>Pleuronichthys verticalis</i>	79
Disintegrated fish larvae	79	<i>Poromitra crassiceps</i>	65
<i>Electrona risso</i>	57	<i>Protomyctophum crockeri</i>	58
<i>Engraulis mordax</i>	31	<i>Radiicephalus elongatus</i>	62
<i>Genyonemus lineatus</i>	71	<i>Rathbunella alleni</i>	72
<i>Gigantactis</i> spp.	64	<i>Rosenblattichthys volucris</i>	45



<i>Sardinops sagax</i> .....	30	<i>Sternoptyx</i> spp. ....	41
<i>Scomber japonicus</i> .....	74	Stichaeidae .....	72
Scopelarchidae .....	45	<i>Stomias atriventer</i> .....	44
<i>Scopelarchus analis</i> .....	45	<i>Symbolophorus californiensis</i> .....	60
<i>Scopelarchus guentheri</i> .....	46	<i>Synodus lucioceps</i> .....	46
<i>Scopeloberyx robustus</i> .....	65	<i>Tactostoma macropus</i> .....	44
<i>Scopelogadus bispinosus</i> .....	65	<i>Tarletonbeania crenularis</i> .....	61
<i>Scopelosaurus harryi</i> .....	46	<i>Tetragonurus cuvieri</i> .....	74
<i>Scorpaenichthys marmoratus</i> .....	69	<i>Trachipterus altivelis</i> .....	62
<i>Sebastes aurora</i> .....	67	<i>Trachurus symmetricus</i> .....	70
<i>Sebastes diploproa</i> .....	68	<i>Triphoturus mexicanus</i> .....	54
<i>Sebastes jordani</i> .....	68	<i>Typhlogobius californiensis</i> .....	73
<i>Sebastes paucispinis</i> .....	68	Unidentified fish larvae .....	79
<i>Sebastes</i> spp. ....	66	<i>Vinciguerria lucetia</i> .....	41
<i>Sebastolobus altivelis</i> .....	69	<i>Vinciguerria poweriae</i> .....	43
<i>Semicossyphus pulcher</i> .....	72	<i>Xeneretmus latifrons</i> .....	70
<i>Stemonosudis macrura</i> .....	47	<i>Zaniolepis frenata</i> .....	69
<i>Stenobranchius leucopsarus</i> .....	53	<i>Zaniolepis latipinnis</i> .....	69

## RECENT TECHNICAL MEMORANDUMS

Copies of this and other NOAA Technical Memorandums are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22167. Paper copies vary in price. Microfiche copies cost \$9.00. Recent issues of NOAA Technical Memorandums from the NMFS Southwest Fisheries Science Center are listed below:

- NOAA-TM-NMFS-SWFSC-266 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1985.  
D.A. AMBROSE, R.L. CHARTER, and H. G. MOSER  
(September 1999)
- 267 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1986.  
S.R. CHARTER, R.L. CHARTER, and H. G. MOSER  
(September 1999)
- 268 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1987.  
E.M. SANDKNOP, R.L. CHARTER, and H. G. MOSER  
(September 1999)
- 269 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1988.  
W. WATSON, R.L. CHARTER, and H. G. MOSER  
(September 1999)
- 270 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1989.  
D.A. AMBROSE, R.L. CHARTER, and H. G. MOSER  
(September 1999)
- 271 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1990.  
S.R. CHARTER, R.L. CHARTER, and H. G. MOSER  
(September 1999)
- 272 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1991.  
E.M. SANDKNOP, R.L. CHARTER, and H. G. MOSER  
(September 1999)
- 273 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1992.  
W. WATSON, R.L. CHARTER, and H. G. MOSER  
(September 1999)
- 274 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1993.  
D.A. AMBROSE, R.L. CHARTER, and H. G. MOSER  
(September 1999)
- 275 Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1994.  
S.R. CHARTER, R.L. CHARTER, and H. G. MOSER  
(September 1999)