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ICHTHYOPLANKTON AND STATION DATA FOR SURFACE (MANTA) AND OBLIQUE (BONGO) PLANKTON TOWS FOR CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS SURVEY CRUISES IN 2007

Sharon R. Charter, William Watson, and Susan M. Manion

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

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ABSTRACT

This report provides ichthyoplankton data from Manta net (surface) tows and Bongo net (oblique) tows and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) cruises conducted in the Southern California Bight region in 2007. It is the 66th report in a series that presents these data for all biological-oceanographic CalCOFI surveys from 1951 to the present. A total of 289 CalCOFI and 23 SCCOOS (near shore) stations was occupied during quarterly cruises over the survey area which extended from Monterey Bay (winter, spring), and Avila Beach (summer, fall), to San Diego, California. Transects extended seaward in a south-westerly direction to a maximum of approximately 330 n. mi. from shore. 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 eight tables; the background, methodology, and information necessary for interpretation of the data are presented in the accompanying text. All pertinent station and tow data, including volumes of water strained and standard haul factors, are listed in the first and fifth tables. Other tables list, by station and month, counts (number per 100 cubic meters of water filtered) of each of the 71 larval fish categories identified in Manta net tows and standardized counts of each of the 137 larval fish categories identified in Bongo net tows. 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 66th 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 2007. This program was initiated in 1949, under the sponsorship of the Marine Research Committee of the State of California, to study population fluctuations of the Pacific sardine (*Sardinops sagax*) and environmental factors that may affect this fluctuation. 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 and cephalopod paralarvae. SIO processes and analyzes hydrographic and biological samples; analyzing most of the remaining 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 conducted annually with monthly cruises. The survey area was occupied quarterly during 1961-1965. In 1966 the surveys became triennial with monthly cruises. Beginning in 1985 annual surveys were resumed, with quarterly cruises restricted to only the Southern California Bight region (see Hewitt 1988, and Moser et al. 1993, 1994, 2001a, 2002 for summaries of CalCOFI historical sampling effort). Neuston[1] sampling with the Manta net (Figure 1) was initiated in 1977-78. Alhstrom and Stevens (1976), Gruber et al. (1982), and Doyle (1992a,b) provided initial information on the distribution and abundance of surface ichthyoplankton in the northeastern Pacific.

[1] Useage of the term “neuston” for surface-living marine organisms is controversial because it was applied originally to organisms associated with the surface film in freshwater habitats (Naumann 1917). Banse (1975) reviewed in detail the evolution of this term, a related term “pleuston”, and the various subdivisions of each. Neuston is now used by most workers in referring to the uppermost (upper ~10 - 20 cm) layer of the sea and to the assemblage of organisms that lives in that zone, either permanently or facultatively (Zaitsev 1970; Hemple and Weikert 1972; Peres 1982; Doyle 1992b). We accept this definition and use it interchangeably with the more general term “surface” (e.g., surface waters, surface zone, surface tow, surface assemblage).

Moser et al. (2002) summarized the spatial and temporal distribution and abundance of ichthyoplankton collected in Manta net tows on CalCOFI survey cruises from 1977-2000.

Hydrographic and biological data from CalCOFI surveys in 2007 were published by the Scripps Institution of Oceanography (Univ. of Calif., SIO 2008a, b, c, 2009) and may be found online at <http://www.calcofi.org/newhome/publications/Data_Reports/data_reports.htm>. All available records for the four 2007 CalCOFI cruises 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. This report includes both Manta net tow data and Bongo net tow data. Prior to the 2001 survey these data were reported separately. Citations for other reports in this series follow and also may be found online. (search: Technical Memorandum, Ichthyoplankton at: http://swfsc.noaa.gov/publications/PubBIN/qrypublications.asp?ParentMenuId=32)

Survey	Manta Tow Report	Survey	Manta Tow Report
1977-78	Moser et al. 2001b	1992	Watson et al. 2002b
1980-81	Ambrose et al. 2002a	1993	Ambrose et al. 2002d
1984	Charter et al. 2002a	1994	Charter et al. 2002d
1985	Ambrose et al. 2002b	1995	Sandknop et al. 2002c
1986	Charter et al. 2002b	1996	Watson et al. 2002c
1987	Sandknop et al. 2002a	1997	Ambrose et al. 2002e
1988	Watson et al. 2002a	1998	Ambrose et al. 2002f
1989	Ambrose et al. 2002c	1999	Ambrose et al. 2002g
1990	Charter et al. 2002c	2000	Watson et al. 2002d
1991	Sandknop et al. 2002b		

Survey	Oblique Tow Report	Survey	Oblique Tow Report
1951	Ambrose et al. 1987a	1960	Ambrose et al. 1987c
1952	Sandknop et al. 1987a	1961	Sandknop et al. 1988a
1953	Stevens et al. 1987a	1962	Sumida et al. 1988a
1954	Sumida et al. 1987a	1963	Ambrose et al. 1988a
1955	Ambrose et al. 1987b	1964	Sandknop et al. 1988b
1956	Stevens et al. 1987b	1965	Stevens et al. 1988a
1957	Sumida et al. 1987b	1966	Sumida et al. 1988b
1958	Sandknop et al. 1987b	1967	Ambrose et al. 1988b
1959	Stevens et al. 1987c	1968	Sandknop et al. 1988c

Survey	Oblique Tow Report
1969	Stevens et al. 1988b
1972	Sumida et al. 1988c
1975	Ambrose et al. 1988c
1978	Sandknop et al. 1988d
1981	Ambrose et al. 1988d
1984	Stevens et al. 1990
1985	Ambrose et al. 1999a
1986	Charter et al. 1999a
1987	Sandknop et al. 1999a
1988	Watson et al. 1999a
1989	Ambrose et al. 1999b

Survey	Oblique Tow Report
1990	Charter et al. 1999b
1991	Sandknop et al. 1999b
1992	Watson et al. 1999b
1993	Ambrose et al. 1999c
1994	Charter et al. 1999c
1995	Sandknop et al. 1999c
1996	Watson et al. 1999c
1997	Ambrose et al. 1999d
1998	Charter et al. 1999d
1999	Ambrose et al. 2001
2000	Watson et al. 2001

Survey	Manta and Oblique Tows Report
2001	Ambrose et al. 2003a
2002	Charter et al. 2003
2003	Acuña et al. 2005

Survey	Manta and Oblique Tow Report
2004	Watson et al. 2005
2005	Ambrose et al. 2006
2006	Bowlin et al. 2009

Survey	Special cruises
1997-98	Ambrose et al. 2003b

SAMPLING AREA AND PATTERN

A total of 289 standard CalCOFI survey and 23 added inshore SCCOOS (Southern California Coastal Ocean Observing System) stations was occupied on four cruises in 2007, employing two research vessels:

0701, RV *David Starr Jordan*, 79 stations, 8 SCCOOS, January 12 - February 1;

0704, RV *David Starr Jordan*, 70 stations, 4 SCCOOS, March 27 - April 29;

0707, RV *New Horizon*, 73 stations, 4 SCCOOS, June 28 – July 13;

0711, RV *New Horizon*, 67 stations, 7 SCCOOS, November 3 - 17.

The core survey area extended from Avila Beach to San Diego, California and seaward on six survey lines to approximately 120-330 n. mi. (Figures 2 - 4).[2] During the winter (January) and spring (April) CalCOFI cruises one additional survey line was sampled northward in the vicinity of Monterey Bay, California (Line 66.7 in cooperation with Monterey Bay Aquarium Research Institute) (Figures 2 and 3). On cruise 0701 line 66.7 extended seaward to station 80.0 and on cruise 0704 to station 100.0. The most seaward station, 90.0 120.0, was approximately 400 n. mi. west of Punta Baja, Baja California, Mexico. On all cruises lines 76.7 and 80.0 extended seaward to station 100.0, lines 83.3 and 86.7 extended to station 110.0, and lines 90.0 and 93.3 extended to station 120.0. Also on all cruises additional bongos were taken at nearshore stations between lines 80.0 and 93.4; on cruise 0701 8 stations, cruise 0707 4 stations, cruise 0707 7 stations, and cruise 0711 5 stations. On cruise 0704 bongos were not taken at stations 76.7 90.0 and 86.7 60.0.

SAMPLING GEAR AND METHODS

Surface plankton tows were made with a modified version of the Manta net originally described by Brown and Cheng (1981). It consists of a rectangular mouth 15.5 cm deep and 86 cm wide attached to a frame that supports square lateral extensions covered with plywood and urethane foam (Figure 1). These extensions stabilize the net when it is towed and keep the top of the net at the sea surface. The net is constructed of 0.505 mm nylon mesh. The towing bridle is asymmetrical with one side longer than the other; when the net is towed, this bridle arrangement forces the mouth away from the ship at a slight angle. A General Oceanics flowmeter was suspended across the center of the net mouth to measure the amount of water filtered during each tow. At each Manta net tow station the tow line from the bridle was attached to a hydrographic wire and then lowered to slightly below the surface before the net was deployed. The net was towed at a ship speed of 1.0-2.0 knots for 15 minutes. Samples were preserved in 5% formalin buffered with sodium borate and returned to the plankton sorting laboratory at the SWFSC at the end of the cruise.

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; (e.g.) 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 2007 was a double oblique haul to 212 m depth (to 15 m from the bottom in shallow areas) designed to filter a constant amount of water per depth interval (~ 2 m^3/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 ~ 212 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 20 m/minute (14 m of depth/minute). The angle of stray was recorded every 30 seconds and maintained at 45º (± 3º) 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

[2] 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 2 - 4 and see Univ. of Calif., SIO 2008a, b, c, 2009).

net. Detailed descriptions of gear and methods were 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

The ichthyoplankton was removed from the invertebrate portion of each sample and bottled separately in 3% buffered formalin. In addition to fish eggs and larvae, some samples contained juvenile, and occasionally adult, stages of fishes; these were removed and bottled separately in 3% formalin. The volume of water filtered by each net was computed from the flowmeter readings. A "standard haul factor" is used for oblique CalCOFI net tows to calculate the total number of ichthyoplankters of a taxon per unit surface area (Kramer et al. 1972; Smith and Richardson 1977; Moser et al. 1993). A requirement for this is that the entire depth distribution of the taxon must be encompassed during the tow. The Manta net samples only the upper ~15.5 cm of the water column and most, if not all, ichthyoplankton taxa that inhabit the surface zone have a vertical range > 15.5 cm. Even taxa associated with the immediate surface layer may range deeper than 15.5 cm as a result of diel migratory patterns or vertical mixing (Hempel and Weikert 1972; Doyle 1992b). Calculation of total numbers of eggs or larvae per unit surface area from Manta net samples awaits accurate information on the fine-scale vertical distribution of these organisms in the upper region of the water column. Even if there are few species whose larvae are restricted to the upper 15.5 cm of the water column, the time series of Manta samples provides a useful index of relative abundance for species whose larvae appear in these samples. In this report we express quantities of eggs or larvae in each sample as unadjusted counts or as numbers of eggs or larvae per unit volume of water filtered by the Manta net. We determined a zooplankton displacement volume for each Bongo net 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 (Manta net samples are not fractioned). Aliquot percentages for fractioned samples are listed in Table 5 under the "Percent Sorted" column. The sorting process included the removal of all 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. Presently, bongo net tow samples are being resorted for lobster phyllosoma and squid paralarvae; in the process additional fish eggs and larvae may be sorted, identified, and added to their respective databases.

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

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

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^3) 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^2) of the mouth of the net

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

Tow depth, volume of water strained, and standard haul factor are listed in Table 5 for each tow taken during 2007. 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 that comprise 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 2007 surveys could be identified to species. A total of 71 larval fish categories (including disintegrated and unidentified) was identified in Manta net tows for 2007: 58 to species, 10 to genus, and 1 to family. A total of 137 larval fish categories (including disintegrated and unidentified) was identified in the Bongo net tows: 115 to species, 16 to genus, and 4 to family. Identifications were done in the Ichthyoplankton Ecology Laboratory of the Fisheries Resources Division by W. Watson, E. M. Sandknop, and the senior author of this report.

With few exceptions, taxonomic categories above species represent small specimens that were damaged and partly disintegrated during capture. The following taxonomic categories in Tables 2-4 and 6-8 require special explanation:

Bathylagidae – Kobyliansky (1986) changed bathylagid generic designations in the CalCOFI region as follows: 1) *Bathylagus longirostris* was changed to *Dolicholagus longirostris*; 2) *Bathylagus milleri* to *Pseudobathylagus milleri*; 3) *Bathylagus ochotensis* to *Lipolagus ochotensis*; and 4) *Leuroglossus stilbius* to *Bathylagus stilbius*. However, *L. stilbius* remains valid as *Leuroglossus stilbius* Gilbert 1890 (Eschmeyer 2010). *Bathylagus wesethi* currently is valid as *Bathylagoides wesethi* (Bolin 1938) (Eschmeyer 2010).

Chiasmodon subniger – in a revision of the genus *Chiasmodon*, Melo (2009) identified the eastern Pacific species as *C. subniger*; in previous data reports this species was reported as *C. niger*, an Atlantic species.

Cyclothone spp. – small or damaged larvae, mostly *C. acclinidens* and/or *C. pseudopallida* lacking diagnostic 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.

Gibbonsia spp. – small larvae that have not yet developed diagnostic meristic characters; morphology and pigmentation are consistent with larvae from other collections tentatively identified as *G. elegans.*

Gigantactis spp. – small or damaged larvae, lacking diagnostic characters.

Hexagrammos spp. – small or damaged larvae, lacking diagnostic characters.

Hypsoblennius spp. – small or damaged larvae lacking diagnostic characters; the majority are likely to be *H. jenkinsi* but *H. gentilis* and *H. gilberti* might be included as well.

Lipolagus ochotensis – see comment for Bathylagidae.

Lyopsetta exilis - see comment for Pleuronectidae.

Melamphaes spp. – small or damaged larvae, mostly *M. lugubris* and/or *M. parvus* lacking diagnostic characters.

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

Nannobrachium – Zahuranec (2000) moved the subgroup of *Lampanyctus* characterized by small or absent pectoral fins in adults to the genus *Nannobrachium*; two *Nannobrachium* species, *N. ritteri* (formerly *L. ritteri*) and *N. regale* (formerly *L. regalis*), occur commonly in the present CalCOFI survey pattern; larvae of these species > ~ 5 mm have been identified in oblique tow samples since 1954; beginning in 1985, larvae of two other species, *N. bristori* and *N. hawaiiensis*, have been identified and included in the CalCOFI data reports; in previous data reports these were referred to as *Lampanyctus* "niger" and *Lampanyctus* "no pectorals", respectively (see Moser 1996). Currently samples dating back to 1967 have been reexamined, these two species have been identified and the CalCOFI database has been updated accordingly.

Odontopyxis trispinosa – McAllister (1990) changed *O. trispinosus to O. trispinosa*.

Paralabrax spp. – larvae of the *Paralabrax* species in the study area cannot be reliably identified to species using standard morphometric and pigmentation characters; this category may include both *P. clathratus* and *P. nebulifer*.

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, Moser 1996, and Matarese et al. 1989).

Pseudobathylagus milleri – see comment for Bathylagidae.

Rhinogobiops nicholsii – Coryphopterus nicholsii was removed from *Coryphopterus* and placed in *Rhinogobiops* by Thacker and Cole (2002); in CalCOFI ichthyoplankton data reports through the 2003

report *R. nicholsii* was reported as *C. nicholsii*.

Scopelogadus m. bispinosus – *Scopelogadus mizolepis* has two valid subspecies: *S. mizolepis mizolepis*, occurring in the Atlantic, Indian, and Western Pacific oceans; and *S. mizolepis bispinosus* in the Eastern Pacific ocean, including the California Current region (McAllister1990); prior to the 2006 data report *S. m. bispinosus* was reported as *S. bispinosus*.

Scopelosaurus spp. – according to Balanov and Savinykh (1999) there are two valid species of this genus in the north Pacific, *S. adleri* and *S. harryi*, but only the former spawns in the California Current region; the generic designation is used here since we have not yet reexamined the historical CalCOFI samples to confirm the findings of Balanov and Savinykh (1999).

Sebastolobus spp. – larvae of this genus < 10 mm in length are not identifiable to species; larvae > 10 mm are identified as *S. alascanus* or *S. altivelis*.

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

Manta Net

Of the five most abundant larvae collected in Manta net tows on CalCOFI cruises in 2007, Pacific sardine (*Sardinops sagax*) ranked first in abundance with 50.2% of the total fish larvae and second in occurrence with larvae collected in 17.9% of the total samples (Tables 2 and 3).They were over four times more abundant than the second most abundant species, northern anchovy (*Engraulis mordax*) with 12.6% of the total larvae and ranked 4th in occurrence with 8.4% positive tows. Pacific saury (*Cololabis saira*) was the third most abundant with 8.3% of the total larvae and first in total occurrence (18.0 % of the samples). Mussel blenny *Hypsoblennius jenkinsi* ranked fourth in abundance with 8.1% of the total larvae and tied for sixth in total occurrence (4.1% of the samples). The rockfish genus (*Sebastes*) ranked fifth in abundance (6.2% of total larvae); it ranked third in frequency of occurrence (8.4% of the samples). The next five most abundant taxa were Cabezon *Scorpaenichthys marmoratus* (2.5% of total larvae), shortbelly rockfish *Sebastes jordani* (1.9%), jack mackerel *Trachurus symmetricus* (1.3%), dogtooth lampfish *Ceratoscopelus townsendi* (1.2%), and Opaleye *Girella nigricans* (0.9%). These species ranked 5th, 9th, tied for 6th, tied for 11th, and tied with five other taxa for 18th in frequency of occurrence, respectively. The ten most abundant taxa comprised 93.2% of all the larvae collected in Manta net tows on CalCOFI cruises in 2007. The remaining 6.8% was distributed among 61 other categories (including the disintegrated and unidentified categories). Of the ten most abundant taxa, four are coastal demersal taxa; three are coastal pelagic species; one is an epipelagic species; one is coastal, primarily epibenthic species; and one is a midwater species that migrates towards the surface at night.

Bongo Net

Of the five most abundant larvae collected in Bongo net tows on the 2007 CalCOFI survey, Pacific sardine (*Sardinops sagax*) ranked first in abundance, with 30.6% of the total larvae, and tenth in occurrence, with 2.8% positive tows (Tables 6 and 7). They were almost three times more abundant than the second most abundant taxon, the rockfish genus *Sebastes*, which accounted for 13.8% of the total larvae and ranked first in

occurrence (7.1% of the samples). California smoothtongue *Leuroglossus stilbius* ranked third with 5.9% of the larvae and fourth in occurrence (5.3% of the stations). Panama lightfish (*Vinciguerria lucetia*) ranked fourth in abundance with 5.5% of the total larvae and twelfth in frequency of occurrence with 2.4% positive tows. The Northern lampfish (*Stenobrachius leucopsarus*) ranked fifth in abundance (4.7% of total larvae) and second in occurrence (5.8% positive tows). The next five most abundant taxa were Northern anchovy *Engraulis mordax* (4.6% of total larvae), dogtooth lampfish *Ceratoscopelus townsendi* (2.8%), popeye blacksmelt *Lipolagus ochotensis* (2.6%), California flashlightfish *Protomyctophum crockeri* (2.5%), and Pacific hake *Merluccius productus* (2.3%). These species ranked tied for 5th, tied for 14th, 7th, 3rd, and tied for 16th with two other species, in frequency of occurrence, respectively. The ten most abundant taxa comprised 75.3% of all the larvae collected in Bongo net tows on CalCOFI cruises in 2007. The remaining 24.7% was distributed among 127 other categories (including the disintegrated and unidentified categories). Of the ten most abundant taxa, two are coastal demersal taxa, two are coastal pelagic species, one is an epipelagic species, and the rest are midwater species that migrate towards the surface at night.

EXPLANATION OF TABLES

Table 1. This table lists for each tow the pertinent station and tow data, the volume of water filtered, and the total number of fish eggs and larvae for Manta net tow stations occupied during the 2007 CalCOFI survey. 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 2 - 4). 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. Ship codes are JD, *David Starr Jordan* or NH, *New Horizon*. Time is listed as Pacific Standard Time (PST) at the start of each tow in 24-hour designation. The values for total fish eggs and larvae are raw counts (unadjusted for volume of water filtered). 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.

Table 2. Pooled occurrences of all larval fish taxa taken in Manta nets on the RV *David Starr Jordan* and the RV *New Horizon* during the 2007 CalCOFI survey. Taxa are listed in rank order.

Table 3. Pooled counts (unadjusted for volume of water filtered) of all larval fish taxa taken in Manta net tows on the the RV *David Starr Jordan* and the RV *New Horizon* during the 2007 CalCOFI survey. Taxa are listed in rank order.

Table 4. Numbers of fish larvae for each taxon taken in Manta net tows on the RV *David Starr Jordan* and the RV *New Horizon* during the 2007 CalCOFI survey. Numbers of larvae are listed as number per 100 m^3 of water filtered. Taxa are listed in phylogenetic sequence (Eschmeyer 1998); genera are listed alphabetically.

Table 5. This table lists for each Bongo net 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 during the 2007 CalCOFI survey. 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 2 - 4). 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. Ship codes are JD, *David Starr Jordan* or NH, *New Horizon*. Plankton

displacement volumes were determined after removal of large organisms (those with individual displacement volumes > 5 ml) and expressed as ml per 1000 m^3 of water filtered. Time is listed as Pacific Standard Time (PST) at the start of each tow in 24-hour designation. The values for total fish eggs and larvae are raw counts (unadjusted for percent of sample sorted or standard haul factor). 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 2 - 4 for the beginning and end of each cruise are based on PST at the first and last Bongo 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 6. Pooled occurrences of all larval fish taxa taken in Bongo net tows on CalCOFI survey cruises in 2007 listed in rank order.

Table 7. Pooled counts of all larval fish taxa taken in Bongo net tows on CalCOFI survey cruises in 2007 listed in rank order. Numbers are adjusted for percent sorted and standard haul factors.

Table 8. Numbers of fish larvae for each taxon, listed by station and calendar month of the Bongo net tow. Counts are adjusted for percentage of sample sorted and standard haul factor. Taxa are listed in phylogenetic sequence (Eschmeyer 1998); genera are listed alphabetically.

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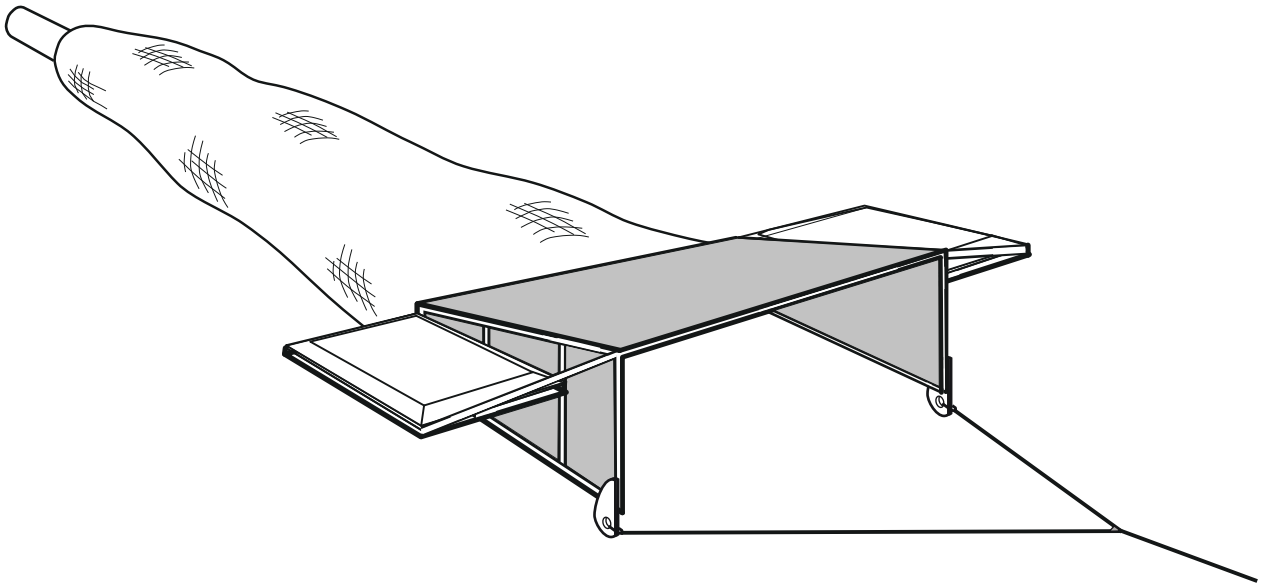

Figure 1. Diagram of the Manta net used on CalCOFI cruises.

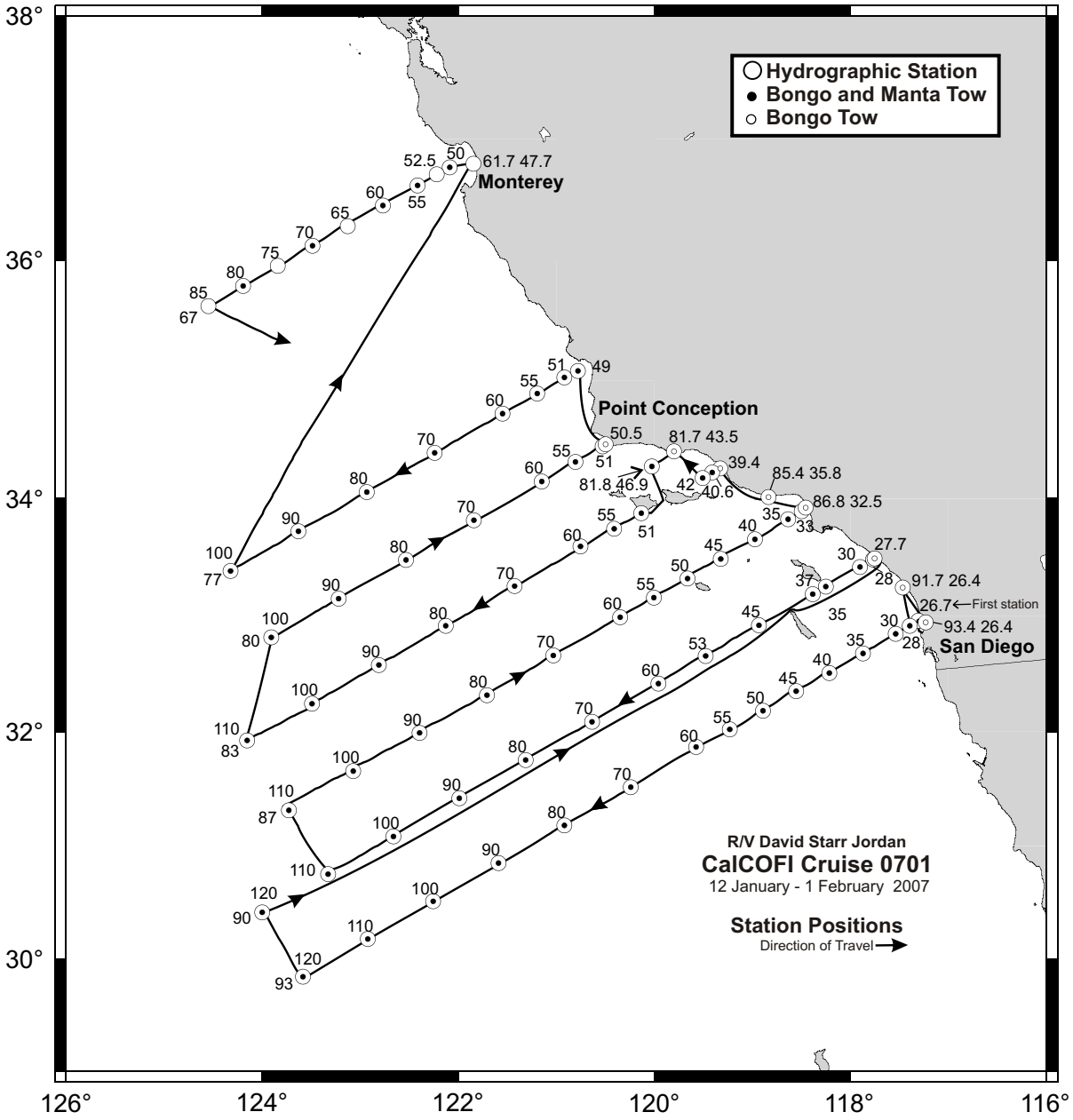

Figure 2. Stations and cruise track for CalCOFI cruise 0701JD. Circles indicate hydrographic stations; dots indicate net tow stations. A Bongo tow was taken unaccompanied by a Manta tow at the eight added inshore stations: 80.0 50.5, 81.7 43.5, 83.3 39.4, 85.4 35.8, 86.8 32.5, 90.0 27.7, 91.7 26.4, 93.4 26.4.

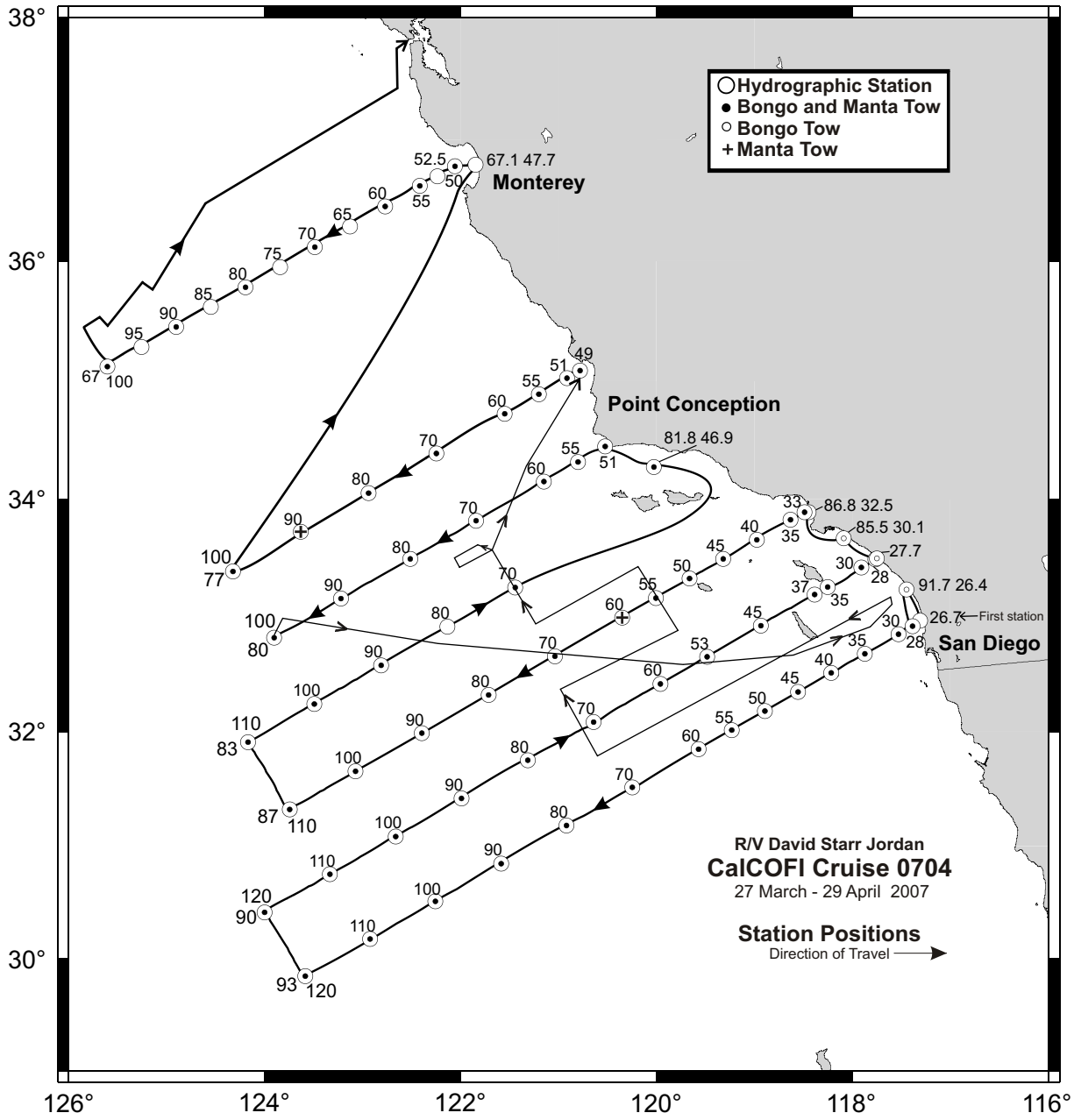

Figure 3. Stations and cruise track for the CalCOFI cruise 0704JD. Manta tows unaccompanied by Bongo tows were taken at stations 86.7 60.0 and 76.7 90.0. A Bongo tow was taken unaccompanied by a Manta tow at the four added inshore stations: 86.8 32.5, 88.5 30.1, 90.0 27.7 and 91.7 26.4. Symbols are as in Figure 2.

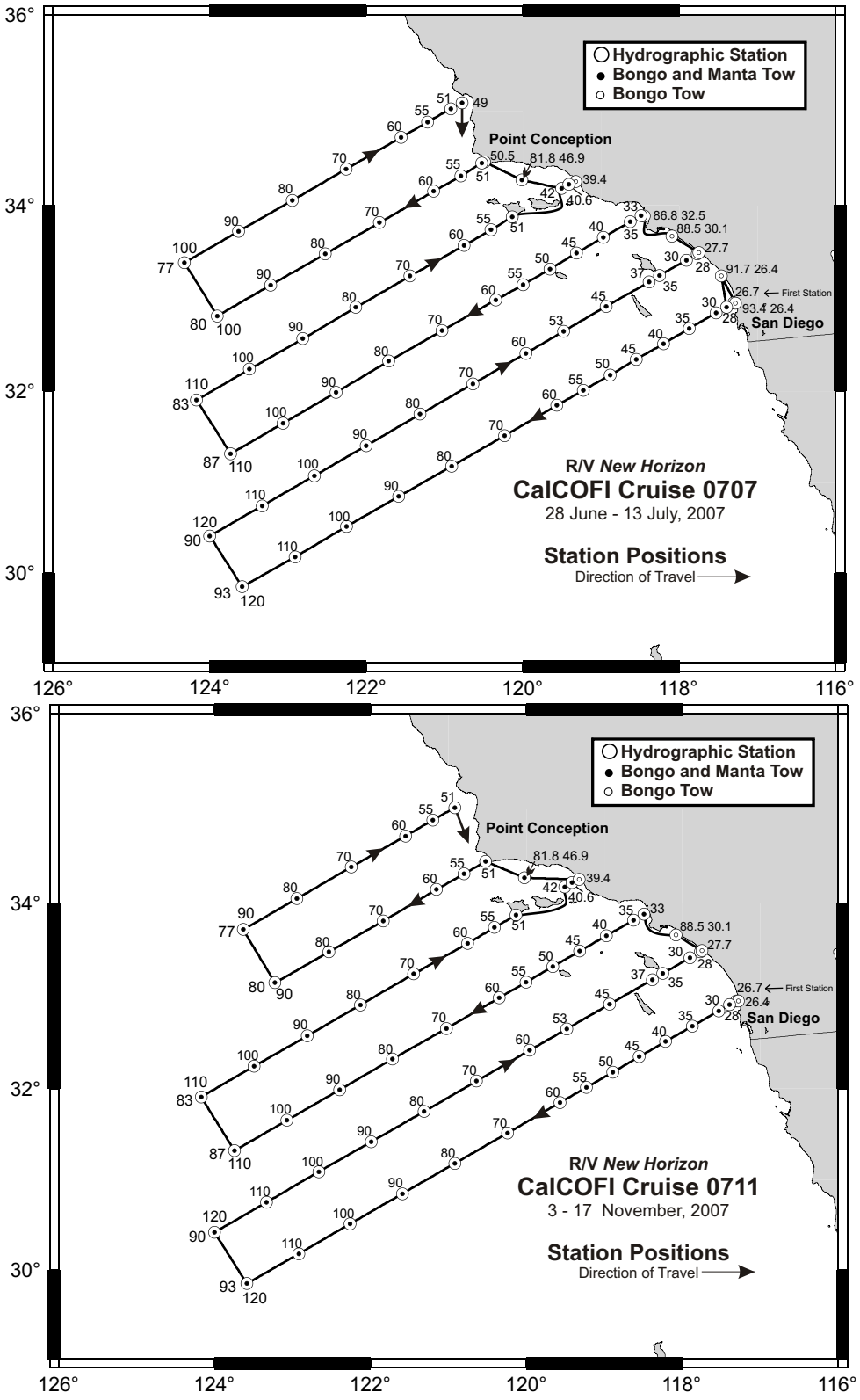

Figure 4. Stations and cruise tracks for CalCOFI cruises 0707NH (above) and 0711NH (below). On cruise 0707NH, a Bongo tow was taken unaccompanied by a Manta tow at the seven added inshore stations: 93.4 26.4, 91.7 26.4, 90.0 27.7, 88.5 30.1, 86.8 32.5, 83.3 39.4 and 80.0 50.5. On cruise 0711NH, a Bongo tow was taken unaccompanied by a Manta tow at the four added inshore stations: 93.4 26.4, 90.0 27.7, 88.5 30.1, 83.3 39.4.

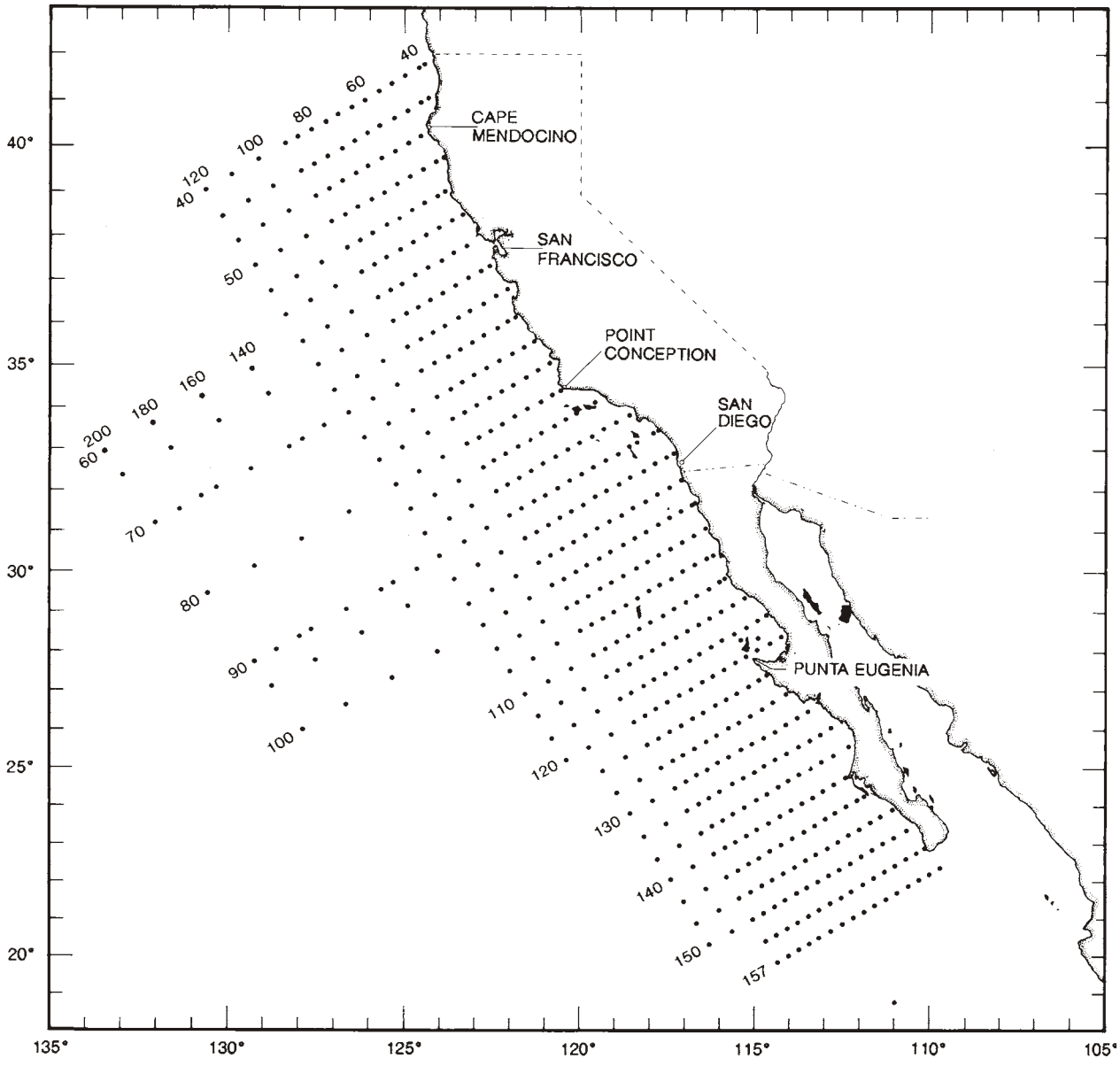

Figure 5. The basic CalCOFI station pattern occupied, in part, by cruises during 1951-1984.

Table 1. Station and plankton tow data for Manta tows taken on the 2007 CalCOFI cruises. Numbers of fish eggs and larvae are raw counts, unadjusted for volume (cubic meters) of water filtered.

CalCOFI Cruise 0701

Line	Station	Latitude (N) deg.	min.	Longitude (W) deg.	min.	Ship Code	Tow Date yr.	mo	day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
66.7	50.0	36	46.1	122	05.1	JD	07	01	31	1231	71	2	8
66.7	55.0	36	37.3	122	24.9	JD	07	01	31	1735	71	4	0
66.7	60.0	36	27.3	122	46.3	JD	07	01	31	2147	61	0	0
66.7	70.0	36	07.3	123	29.1	JD	07	02	01	0510	66	12	1
66.7	80.0	35	47.3	124	11.7	JD	07	02	01	1229	69	0	3
76.7	49.0	35	04.9	120	46.7	JD	07	01	28	1209	79	13	182
76.7	51.0	35	01.4	120	55.0	JD	07	01	28	1637	73	0	4
76.7	55.0	34	53.3	121	11.8	JD	07	01	28	2030	57	5	9
76.7	60.0	34	43.3	121	32.8	JD	07	01	29	0024	69	29	5109
76.7	70.0	34	23.3	122	14.6	JD	07	01	29	0613	72	6	44
76.7	80.0	34	03.5	122	56.0	JD	07	01	29	1211	78	0	9
76.7	90.0	33	43.3	123	37.9	JD	07	01	29	1801	71	6	33
76.7	100.0	33	23.2	124	19.4	JD	07	01	29	2342	75	20	10
80.0	51.0	34	26.8	120	31.6	JD	07	01	28	0545	76	17	79
80.0	55.0	34	18.9	120	48.3	JD	07	01	28	0215	70	12	166
80.0	60.0	34	08.9	121	09.0	JD	07	01	27	2211	56	3	11
80.0	70.0	33	49.0	121	50.6	JD	07	01	27	1556	69	0	1
80.0	80.0	33	28.8	122	32.1	JD	07	01	27	0822	65	0	3
80.0	90.0	33	08.9	123	13.3	JD	07	01	27	0232	67	1	1
80.0	100.0	32	48.9	123	54.4	JD	07	01	26	2004	65	6	2
81.8	46.9	34	16.5	120	01.6	JD	07	01	24	1707	90	0	2
83.3	40.6	34	13.4	119	24.7	JD	07	01	24	0810	82	1	429
83.3	42.0	34	10.7	119	30.6	JD	07	01	24	1042	80	49	46
83.3	51.0	33	52.8	120	07.9	JD	07	01	24	2219	66	6	124
83.3	55.0	33	44.7	120	24.6	JD	07	01	25	0207	68	4	91
83.3	60.0	33	35.8	120	45.1	JD	07	01	25	0623	46	16	12
83.3	70.0	33	15.3	121	25.5	JD	07	01	25	1244	67	0	11
83.3	80.0	32	54.8	122	07.6	JD	07	01	25	1835	57	2	8
83.3	90.0	32	34.7	122	48.7	JD	07	01	26	0021	70	0	16
83.3	100.0	32	14.6	123	29.5	JD	07	01	26	0620	64	0	1
83.3	110.0	31	55.3	124	09.1	JD	07	01	26	1218	75	8	5
86.7	33.0	33	53.7	118	30.0	JD	07	01	23	2231	69	4	71
86.7	35.0	33	49.5	118	38.1	JD	07	01	23	2014	66	10	4
86.7	40.0	33	39.4	118	58.4	JD	07	01	23	1546	65	0	73
86.7	45.0	33	29.2	119	19.5	JD	07	01	23	1101	68	2	44
86.7	50.0	33	19.3	119	39.8	JD	07	01	23	0637	64	4	43
86.7	55.0	33	09.4	120	00.4	JD	07	01	23	0241	66	9	6
86.7	60.0	32	59.3	120	21.0	JD	07	01	22	2223	65	1	5
86.7	70.0	32	39.4	121	02.0	JD	07	01	22	1543	61	0	30
86.7	80.0	32	18.8	121	42.6	JD	07	01	22	0800	69	0	0
86.7	90.0	31	59.3	122	23.6	JD	07	01	22	0141	62	1	1
86.7	100.0	31	39.3	123	04.2	JD	07	01	21	1754	59	0	0

Table 1. (cont.) CalCOFI Cruise 0701 (cont.)

Line	Station	Latitude (N) deg.	min.	Longitude (W) deg.	min.	Ship Code	Tow Date yr.	mo.	day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
86.7	110.0	31	18.8	123	43.7	JD	07	01	21	0809	70	1	1
90.0	28.0	33	29.0	117	46.2	JD	07	01	18	0255	64	8	10
90.0	30.0	33	25.1	117	54.2	JD	07	01	18	0824	64	3	0
90.0	35.0	33	15.1	118	15.0	JD	07	01	18	1410	60	2	14
90.0	37.0	33	11.1	118	23.2	JD	07	01	18	1737	66	10	20
90.0	45.0	32	55.0	118	56.0	JD	07	01	18	2331	64	0	0
90.0	53.0	32	39.2	119	28.5	JD	07	01	19	0533	58	1	0
90.0	60.0	32	25.0	119	57.5	JD	07	01	19	1117	59	0	0
90.0	70.0	32	05.1	120	38.1	JD	07	01	19	1827	59	6	4
90.0	80.0	31	45.2	121	18.7	JD	07	01	20	0133	60	0	2
90.0	90.0	31	25.1	121	59.4	JD	07	01	20	0830	70	5	2
90.0	100.0	31	05.1	122	39.6	JD	07	01	20	1740	54	4	3
90.0	110.0	30	45.1	123	19.8	JD	07	01	21	0040	70	4	5
90.0	120.0	30	25.0	123	59.9	JD	07	01	16	0755	66	0	3
93.3	26.7	32	57.5	117	18.5	JD	07	01	12	1855	58	2	2
93.3	28.0	32	54.8	117	23.7	JD	07	01	13	0321	59	4	1
93.3	30.0	32	50.8	117	32.2	JD	07	01	13	0638	71	1	21
93.3	35.0	32	40.5	117	52.4	JD	07	01	13	1141	60	0	0
93.3	40.0	32	30.5	118	13.0	JD	07	01	13	1607	60	1	0
93.3	45.0	32	21.0	118	33.1	JD	07	01	13	2020	61	0	0
93.3	50.0	32	10.8	118	53.6	JD	07	01	14	0043	58	2	0
93.3	55.0	32	01.1	119	13.8	JD	07	01	14	0511	66	2	1
93.3	60.0	31	51.9	119	34.4	JD	07	01	14	0841	62	0	3
93.3	70.0	31	30.9	120	14.6	JD	07	01	14	1629	63	0	1
93.3	80.0	31	10.8	120	55.1	JD	07	01	14	2241	56	1	0
93.3	90.0	30	50.9	121	35.5	JD	07	01	15	0500	57	1	1
93.3	100.0	30	30.8	122	15.3	JD	07	01	15	1131	62	1	6
93.3	110.0	30	10.8	122	55.4	JD	07	01	15	1927	70	6	1
93.3	120.0	29	50.7	123	35.2	JD	07	01	16	0152	56	3	7

CalCOFI Cruise 0704

Line	Station	Latitude (N) deg.	min.	Longitude (W) deg.	min.	Ship Code	Tow Date yr.	mo	day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
66.7	50.0	36	47.2	122	03.3	JD	07	04	27	1446	72	0	9
66.7	55.0	36	37.4	122	25.0	JD	07	04	27	2040	78	2	2
66.7	60.0	36	27.2	122	46.3	JD	07	04	28	0051	67	1	2
66.7	70.0	36	07.2	123	29.1	JD	07	04	28	1057	67	8	96
66.7	80.0	35	47.2	124	11.8	JD	07	04	28	1927	67	0	214
66.7	90.0	35	27.3	124	54.1	JD	07	04	29	0743	72	5	94
66.7	100.0	35	07.3	125	36.2	JD	07	04	29	1608	81	0	4
76.7	49.0	35	05.3	120	46.9	JD	07	04	23	1726	95	15	127
76.7	51.0	35	01.5	120	54.8	JD	07	04	23	1945	75	1	0

Table 1. (cont.) CalCOFI Cruise 0704 (cont.)

Line	Station	Latitude (N) deg.	min.	Longitude (W) deg.	min.	Ship Code	Tow Date yr.	mo.	day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
76.7	55.0	34	53.3	121	11.9	JD	07	04	23	2328	65	6	4
76.7	60.0	34	43.4	121	32.8	JD	07	04	24	0339	71	0	5
76.7	70.0	34	23.4	122	14.7	JD	07	04	24	1031	73	7	23
76.7	80.0	34	03.3	122	56.4	JD	07	04	24	1834	81	178	44
76.7	90.0	33	43.3	123	38.0	JD	07	04	25	0236	72	37	31
76.7	100.0	33	23.2	124	19.4	JD	07	04	25	1329	85	0	7
80.0	51.0	34	26.9	120	31.4	JD	07	04	13	1626	77	0	19
80.0	55.0	34	19.0	120	48.1	JD	07	04	13	2047	68	11	23
80.0	60.0	34	09.1	121	08.9	JD	07	04	14	0054	71	5	15
80.0	70.0	33	49.1	121	50.5	JD	07	04	14	0700	70	1	111
80.0	80.0	33	29.4	122	30.9	JD	07	04	14	1235	73	8	464
80.0	90.0	33	09.0	123	13.3	JD	07	04	14	1943	73	50	103
80.0	100.0	32	49.0	123	54.3	JD	07	04	15	0139	70	6	113
81.8	46.9	34	16.5	120	01.5	JD	07	04	13	1146	84	0	103
83.3	70.0	33	14.7	121	26.6	JD	07	04	11	1114	65	10	246
83.3	90.0	32	34.7	122	48.7	JD	07	04	10	1129	72	20	260
83.3	100.0	32	14.6	123	29.5	JD	07	04	10	0426	70	56	39
83.3	110.0	31	54.7	124	10.3	JD	07	04	09	2127	73	25	0
86.7	33.0	33	53.4	118	29.3	JD	07	04	07	0436	80	1	220
86.7	35.0	33	49.5	118	37.7	JD	07	04	07	0729	70	0	2351
86.7	40.0	33	39.4	118	58.5	JD	07	04	07	1243	75	2	508
86.7	45.0	33	29.5	119	19.1	JD	07	04	07	1720	71	52	1351
86.7	50.0	33	19.5	119	39.7	JD	07	04	07	2122	68	44	1102
86.7	55.0	33	09.4	120	00.4	JD	07	04	08	0138	77	3	32
86.7	60.0	32	59.4	120	20.8	JD	07	04	08	0610	73	117	196
86.7	70.0	32	39.3	121	02.2	JD	07	04	08	1303	73	21	4388
86.7	80.0	32	19.3	121	42.9	JD	07	04	08	1919	67	114	469
86.7	90.0	31	59.4	122	23.6	JD	07	04	09	0120	69	78	410
86.7	100.0	31	39.4	123	04.2	JD	07	04	09	0735	77	0	1
86.7	110.0	31	19.4	123	44.5	JD	07	04	09	1501	75	0	0
90.0	28.0	33	29.3	117	45.9	JD	07	04	06	1940	86	60	190
90.0	30.0	33	25.1	117	54.4	JD	07	04	06	1702	76	153	733
90.0	35.0	33	15.1	118	15.0	JD	07	04	06	1222	71	1	138
90.0	37.0	33	11.1	118	23.2	JD	07	04	06	0818	79	3	1324
90.0	45.0	32	55.1	118	56.1	JD	07	04	06	0306	72	39	15
90.0	53.0	32	39.1	119	29.0	JD	07	04	05	2135	72	12	37
90.0	60.0	32	25.0	119	57.6	JD	07	04	05	1548	75	6	541
90.0	70.0	32	05.1	120	38.4	JD	07	04	05	0749	79	90	118
90.0	80.0	31	45.1	121	18.9	JD	07	04	05	0207	72	164	234
90.0	90.0	31	25.0	121	59.5	JD	07	04	04	1937	74	169	1952
90.0	100.0	31	05.0	122	39.8	JD	07	04	04	1252	75	0	1
90.0	110.0	30	45.0	123	20.0	JD	07	04	04	0624	78	1	0
90.0	120.0	30	25.0	123	59.9	JD	07	04	03	2359	74	5	2
93.3	28.0	32	54.8	117	23.2	JD	07	03	28	0457	41	26	3
93.3	30.0	32	50.8	117	31.8	JD	07	03	28	0813	63	5	76

Table 1. (cont.) CalCOFI Cruise 0704 (cont.)

Line	Station	Latitude (N) deg.	min.	Longitude (W) deg.	min.	Ship Code	Tow Date yr.	mo.	day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
93.3	35.0	32	40.6	117	52.2	JD	07	03	28	1251	75	0	95
93.3	40.0	32	30.8	118	12.8	JD	07	03	28	1736	80	0	41
93.3	45.0	32	20.8	118	33.3	JD	07	03	28	2159	67	13	8
93.3	50.0	32	10.8	118	53.6	JD	07	03	29	0229	73	30	70
93.3	55.0	32	00.9	119	13.9	JD	07	03	29	0704	80	63	687
93.3	60.0	31	50.8	119	34.3	JD	07	03	29	1315	76	0	649
93.3	70.0	31	30.8	120	14.8	JD	07	04	02	0745	66	26	57
93.3	80.0	31	10.8	120	55.0	JD	07	04	02	1540	84	17	162
93.3	90.0	30	50.8	121	35.2	JD	07	04	02	2204	70	232	17
93.3	100.0	30	30.8	122	15.3	JD	07	04	03	0442	75	1	262
93.3	110.0	30	10.8	122	55.3	JD	07	04	03	1121	81	1	2
93.3	120.0	29	50.8	123	35.1	JD	07	04	03	1727	76	3	8

CalCOFI Cruise 0707

Line	Station	Latitude (N) deg.	min.	Longitude (W) deg.	min.	Ship Code	Tow Date yr.	mo	day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
76.7	49.0	35	05.1	120	46.5	NH	07	07	13	0810	80	3	943
76.7	51.0	35	01.3	120	55.2	NH	07	07	13	0623	65	0	124
76.7	55.0	34	53.0	121	12.8	NH	07	07	13	0312	78	19	8
76.7	60.0	34	43.3	121	33.1	NH	07	07	12	2312	90	12	201
76.7	70.0	34	23.1	122	15.4	NH	07	07	12	1731	83	0	37
76.7	80.0	34	03.1	122	56.7	NH	07	07	12	1140	86	0	20
76.7	90.0	33	43.3	123	38.0	NH	07	07	12	0556	74	0	3
76.7	100.0	33	23.3	124	19.4	NH	07	07	12	0011	67	3	1
80.0	51.0	34	27.0	120	31.5	NH	07	07	10	0602	82	3	662
80.0	55.0	34	18.7	120	47.4	NH	07	07	10	0900	77	0	2
80.0	60.0	34	09.0	121	08.4	NH	07	07	10	1448	87	1	7
80.0	70.0	33	49.0	121	49.7	NH	07	07	10	2255	71	28	379
80.0	80.0	33	29.0	122	31.4	NH	07	07	11	0517	73	3	7
80.0	90.0	33	08.9	123	13.2	NH	07	07	11	1204	65	1	14
80.0	100.0	32	49.0	123	54.0	NH	07	07	11	1821	81	0	8
81.8	46.9	34	16.3	120	00.7	NH	07	07	10	0152	71	15	6
83.3	40.6	34	13.4	119	24.5	NH	07	07	09	1849	60	66	412
83.3	42.0	34	10.8	119	30.3	NH	07	07	09	2049	61	12	3
83.3	51.0	33	52.7	120	08.1	NH	07	07	09	1130	88	3	33
83.3	55.0	33	44.4	120	24.3	NH	07	07	09	0800	57	7	348
83.3	60.0	33	34.5	120	44.8	NH	07	07	09	0341	53	14	0
83.3	70.0	33	14.7	121	26.4	NH	07	07	08	2050	62	0	15
83.3	80.0	32	54.5	122	08.0	NH	07	07	08	1311	68	0	63
83.3	90.0	32	34.2	122	48.5	NH	07	07	08	0622	61	2	75
83.3	100.0	32	14.4	123	29.5	NH	07	07	07	2324	67	3	9
83.3	110.0	31	54.3	124	10.0	NH	07	07	07	1630	62	0	47
86.7	33.0	33	53.5	118	29.3	NH	07	07	04	2355	67	163	1665

Table 1. (cont.) CalCOFI Cruise 0707 (cont.)

Line	Station	Latitude (N) deg.	min.	Longitude (W) deg.	min.	Ship Code	Tow Date yr.	mo.	day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
86.7	35.0	33	49.6	118	37.5	NH	07	07	05	0255	100	106	197
86.7	40.0	33	39.6	118	58.3	NH	07	07	05	0721	76	3	718
86.7	45.0	33	29.5	119	18.8	NH	07	07	05	1150	79	0	6
86.7	50.0	33	19.3	119	39.1	NH	07	07	05	1558	52	2	90
86.7	55.0	33	09.1	119	59.6	NH	07	07	05	2011	57	8	2
86.7	60.0	32	59.4	120	20.6	NH	07	07	06	0043	63	3	6
86.7	70.0	32	39.5	121	01.7	NH	07	07	06	0651	65	2	52
86.7	80.0	32	19.6	121	42.8	NH	07	07	06	1321	64	2	60
86.7	90.0	31	59.3	122	23.1	NH	07	07	06	1957	59	1	120
86.7	100.0	31	39.0	123	03.8	NH	07	07	07	0214	74	5	87
86.7	110.0	31	19.1	123	43.9	NH	07	07	07	0744	68	2	31
90.0	28.0	33	29.1	117	46.1	NH	07	07	04	1518	77	29	115
90.0	30.0	33	25.0	117	54.5	NH	07	07	04	1249	76	1	0
90.0	35.0	33	15.1	118	15.2	NH	07	07	04	0842	77	2	10
90.0	37.0	33	10.9	118	23.0	NH	07	07	04	0559	75	1	505
90.0	45.0	32	55.2	118	56.1	NH	07	07	04	0009	63	5	0
90.0	53.0	32	39.0	119	28.7	NH	07	07	03	1810	66	1	0
90.0	60.0	32	24.8	119	57.5	NH	07	07	03	1246	57	0	8
90.0	70.0	32	04.9	120	38.1	NH	07	07	03	0555	61	1	44
90.0	80.0	31	45.0	121	18.7	NH	07	07	02	2304	63	4	1
90.0	90.0	31	24.4	121	59.9	NH	07	07	02	1618	60	0	0
90.0	100.0	31	04.6	122	39.6	NH	07	07	02	0813	59	0	134
90.0	110.0	30	44.7	123	19.7	NH	07	07	02	0244	63	4	14
90.0	120.0	30	24.7	123	59.9	NH	07	07	01	1952	65	43	139
93.3	26.7	32	57.4	117	18.3	NH	07	06	28	1048	69	14	563
93.3	28.0	32	54.7	117	23.6	NH	07	06	28	1843	89	2	27
93.3	30.0	32	50.9	117	31.8	NH	07	06	28	2131	87	1	1
93.3	35.0	32	40.8	117	52.4	NH	07	06	29	0139	79	3	0
93.3	40.0	32	30.9	118	11.9	NH	07	06	29	0530	69	3	1
93.3	45.0	32	20.8	118	33.0	NH	07	06	29	0905	75	0	1
93.3	50.0	32	10.6	118	52.8	NH	07	06	29	1446	63	0	1
93.3	55.0	32	00.6	119	13.6	NH	07	06	29	1853	59	0	7
93.3	60.0	31	50.8	119	33.7	NH	07	06	29	2306	67	4	343
93.3	70.0	31	30.9	120	13.9	NH	07	06	30	0519	57	5	432
93.3	80.0	31	10.7	120	54.6	NH	07	06	30	1151	58	0	3
93.3	90.0	30	50.9	121	35.0	NH	07	06	30	1813	67	0	3
93.3	100.0	30	31.0	122	15.0	NH	07	07	01	0018	63	7	30
93.3	110.0	30	10.8	122	54.4	NH	07	07	01	0643	59	0	339
93.3	120.0	29	50.8	123	35.0	NH	07	07	01	1301	69	1	140

Table 1. (cont.) CalCOFI Cruise 0711

Line	Station	Latitude (N) deg.	min.	Longitude (W) deg.	min.	Ship Code	Tow Date yr.	mo.	day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
76.7	51.0	35	01.1	120	55.1	NH	07	11	17	2143	69	25	37
76.7	55.0	34	53.2	121	12.0	NH	07	11	17	1810	70	5	0
76.7	60.0	34	43.1	121	32.9	NH	07	11	17	1328	71	0	0
76.7	70.0	34	23.3	122	14.8	NH	07	11	17	0528	80	4	2
76.7	80.0	34	03.1	122	56.5	NH	07	11	17	0008	71	1	0
76.7	90.0	33	43.3	123	38.0	NH	07	11	16	1751	72	10	0
80.0	51.0	34	27.0	120	31.4	NH	07	11	15	0722	76	0	201
80.0	55.0	34	19.0	120	48.1	NH	07	11	15	1105	83	0	1
80.0	60.0	34	09.0	121	09.2	NH	07	11	15	1546	65	0	0
80.0	70.0	33	48.8	121	50.3	NH	07	11	15	2203	71	0	0
80.0	80.0	33	29.0	122	32.0	NH	07	11	16	0440	70	2	4
80.0	90.0	33	09.0	123	13.4	NH	07	11	16	1150	73	7	0
81.8	46.9	34	16.5	120	01.5	NH	07	11	15	0312	85	0	191
83.3	40.6	34	13.5	119	24.8	NH	07	11	14	1504	100	1	46
83.3	42.0	34	10.7	119	30.5	NH	07	11	14	1052	96	2	5700
83.3	51.0	33	52.7	120	08.0	NH	07	11	14	0450	77	2	1094
83.3	55.0	33	44.7	120	24.6	NH	07	11	14	0129	68	4	2
83.3	60.0	33	34.4	120	45.3	NH	07	11	13	2048	78	0	0
83.3	70.0	33	14.7	121	26.8	NH	07	11	13	1359	83	0	0
83.3	80.0	32	54.7	122	07.7	NH	07	11	13	0643	77	3	4
83.3	90.0	32	34.5	122	48.7	NH	07	11	12	2333	63	1	1
83.3	100.0	32	14.8	123	29.5	NH	07	11	12	1642	65	4	3
83.3	110.0	31	54.7	124	10.2	NH	07	11	12	0806	75	2	6
86.7	33.0	33	53.3	118	29.6	NH	07	11	09	1825	78	2	12
86.7	35.0	33	49.3	118	37.6	NH	07	11	09	2056	76	8	0
86.7	40.0	33	39.4	118	58.5	NH	07	11	10	0129	73	1	0
86.7	50.0	33	19.4	119	39.8	NH	07	11	10	0828	68	5	52
86.7	55.0	33	09.4	120	00.3	NH	07	11	10	1336	75	0	1
86.7	60.0	32	59.3	120	20.9	NH	07	11	10	1750	68	1	1
86.7	70.0	32	39.3	121	01.6	NH	07	11	11	0019	74	1	1
86.7	80.0	32	19.5	121	43.1	NH	07	11	11	0617	69	0	3
86.7	90.0	31	59.4	122	23.6	NH	07	11	11	1216	79	1	0
86.7	100.0	31	39.3	123	04.2	NH	07	11	11	1817	64	4	0
86.7	110.0	31	19.2	123	44.7	NH	07	11	12	0032	64	0	2
90.0	28.0	33	29.1	117	46.1	NH	07	11	09	0910	96	1	0
90.0	30.0	33	25.1	117	54.3	NH	07	11	09	0648	79	2	0
90.0	35.0	33	15.1	118	15.0	NH	07	11	09	0157	97	4	0
90.0	37.0	33	11.0	118	23.1	NH	07	11	08	2249	82	7	0
90.0	45.0	32	55.1	118	56.1	NH	07	11	08	1711	81	1	0
90.0	53.0	32	39.1	119	28.9	NH	07	11	08	1127	84	1	0
90.0	60.0	32	25.1	119	57.6	NH	07	11	08	0619	83	3	0
90.0	70.0	32	05.0	120	38.4	NH	07	11	07	2239	85	28	3
90.0	80.0	31	45.0	121	18.7	NH	07	11	07	1614	77	17	6
90.0	90.0	31	25.1	121	59.4	NH	07	11	07	0822	77	3	7
90.0	100.0	31	05.4	122	39.7	NH	07	11	07	0148	80	4	0

Table 1. (cont.) CalCOFI Cruise 0711 (cont.)

Line	Station	Latitude (N) deg.	min.	Longitude (W) deg.	min.	Ship Code	Tow Date yr.	mo.	day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
90.0	110.0	30	45.1	123	19.9	NH	07	11	06	1854	63	5	2
90.0	120.0	30	25.1	123	59.9	NH	07	11	06	1218	82	0	3
93.3	26.7	32	57.2	117	18.6	NH	07	11	03	0012	72	10	35
93.3	28.0	32	54.8	117	23.7	NH	07	11	03	0544	85	9	0
93.3	30.0	32	50.8	117	31.9	NH	07	11	03	0810	96	2	0
93.3	35.0	32	40.8	117	52.4	NH	07	11	03	1249	85	1	0
93.3	40.0	32	30.9	118	12.8	NH	07	11	03	1825	85	4	0
93.3	45.0	32	20.9	118	33.1	NH	07	11	04	0019	79	5	0
93.3	50.0	32	10.8	118	53.6	NH	07	11	04	0439	90	2	105
93.3	55.0	32	00.8	119	14.0	NH	07	11	04	0809	96	3	6
93.3	60.0	31	50.9	119	34.2	NH	07	11	04	1445	77	1	0
93.3	70.0	31	30.8	120	14.6	NH	07	11	04	2129	90	2	0
93.3	80.0	31	10.8	120	55.2	NH	07	11	05	0357	69	7	0
93.3	90.0	30	50.8	121	35.4	NH	07	11	05	1033	82	6	4
93.3	100.0	30	30.8	122	15.6	NH	07	11	05	1647	74	7	13
93.3	110.0	30	10.7	122	55.2	NH	07	11	05	2301	79	2	2
93.3	120.0	29	50.8	123	35.2	NH	07	11	06	0505	68	1	1

Table 2. Pooled occurrences of fish larvae taken in Manta net tows on the 2007 CalCOFI cruises.

Rank	Taxon	Occurrences
1	*Cololabis saira*	75
2	*Sardinops sagax*	46
3	*Sebastes* spp.	39
4	*Engraulis mordax*	35
5	*Scorpaenichthys marmoratus*	22
6	*Trachurus symmetricus*	17
6	*Hypsoblennius jenkinsi*	17
8	*Sebastes diploproa*	13
9	*Sebastes jordani*	12
10	*Hypsoblennius gilberti*	11
11	*Ceratoscopelus townsendi*	8
11	*Vinciguerria lucetia*	8
13	*Chromis punctipinnis*	6
14	*Sphyraena argentea*	5
14	*Hexagrammos decagrammus*	5
14	*Hypsoblennius gentilis*	5
14	*Symbolophorus californiensis*	5
18	*Nannobrachium* spp.	4
18	*Oxylebius pictus*	4
18	*Merluccius productus*	4
18	*Girella nigricans*	4
18	*Stenobrachius leucopsarus*	4
18	*Leuresthes tenuis*	4
24	*Paralabrax* spp.	3
24	*Cyclothone signata*	3
24	*Cyclothone* spp.	3
24	*Pleuronichthys coenosus*	3
28	*Cheilopogon pinnatibarbatus*	2
28	*Stomias atriventer*	2
28	*Neoclinus blanchardi*	2
28	*Hypsoblennius* spp.	2
28	*Atherinopsis californiensis*	2
28	*Peprilus simillimus*	2
28	*Oxyjulis californica*	2
35	*Triphoturus mexicanus*	1
35	*Trachipterus altivelis*	1
35	*Nannobrachium ritteri*	1
35	*Lampanyctus* spp.	1
35	*Lampadena urophaos*	1
35	*Diaphus* spp.	1
35	Myctophidae	1
35	*Lestidiops ringens*	1
35	*Tactostoma macropus*	1
35	*Argyropelecus lychnus*	1
35	*Leuroglossus stilbius*	1
35	*Lipolagus ochotensis*	1
35	*Bolinichthys longipes*	1

Table 2. (cont.)

Rank	Taxon	Occurrences
35	*Genyonemus lineatus*	1
35	Disintegrated fish larvae	1
35	*Hippoglossina stomata*	1
35	*Citharichthys stigmaeus*	1
35	*Citharichthys sordidus*	1
35	*Scomber japonicus*	1
35	*Rhinogobiops nicholsii*	1
35	*Icosteus aenigmaticus*	1
35	*Gibbonsia* spp.	1
35	*Rathbunella* spp.	1
35	*Sebastes levis*	1
35	*Seriphus politus*	1
35	*Chilara taylori*	1
35	*Anisotremus davidsoni*	1
35	*Liparis mucosus*	1
35	*Hemilepidotus spinosus*	1
35	*Clinocottus analis*	1
35	*Hexagrammos* spp.	1
35	Unidentified fish larvae	1
35	*Anoplopoma fimbria*	1
35	*Poromitra crassiceps*	1
35	*Gigantactis* spp.	1
35	*Brosmophycis marginata*	1
35	*Medialuna californiensis*	1
	Total	416

Table 3. Pooled raw counts of fish larvae taken in Manta net tows on the 2007 CalCOFI cruises.

Rank	Taxon	Count
1	*Sardinops sagax*	1567
2	*Engraulis mordax*	400
3	*Cololabis saira*	265
4	*Hypsoblennius jenkinsi*	257
5	*Sebastes* spp.	197
6	*Scorpaenichthys marmoratus*	79
7	*Sebastes jordani*	61
8	*Trachurus symmetricus*	42
9	*Ceratoscopelus townsendi*	37
10	*Girella nigricans*	28
11	*Hypsoblennius gentilis*	21
11	*Hypsoblennius gilberti*	21
13	*Hexagrammos decagrammus*	18
14	*Sebastes diploproa*	16
15	*Leuresthes tenuis*	15
16	*Sphyraena argentea*	13
17	*Vinciguerria lucetia*	10
18	*Symbolophorus californiensis*	9
18	*Oxylebius pictus*	9
18	*Hypsoblennius* spp.	9
21	*Bolinichthys longipes*	8
21	*Chromis punctipinnis*	8
23	*Neoclinus blanchardi*	7
24	*Nannobrachium* spp.	6
25	*Pleuronichthys coenosus*	5
26	*Paralabrax* spp.	4
26	*Merluccius productus*	4
26	*Stenobrachius leucopsarus*	4
29	*Genyonemus lineatus*	3
29	*Cyclothone signata*	3
29	*Cyclothone* spp.	3
29	*Lampadena urophaos*	3
33	*Peprilus simillimus*	2
33	*Cheilopogon pinnatibarbatus*	2
33	*Diaphus* spp.	2
33	*Atherinopsis californiensis*	2
33	*Oxyjulis californica*	2
33	*Stomias atriventer*	2
33	*Hemilepidotus spinosus*	2
33	*Rhinogobiops nicholsii*	2
33	*Gibbonsia* spp.	2
33	Disintegrated fish larvae	2
33	*Anoplopoma fimbria*	2
44	Myctophidae	1
44	*Tactostoma macropus*	1
44	*Argyropelecus lychnus*	1
44	*Leuroglossus stilbius*	1

Table 3. (cont.)

Rank	Taxon	Count
44	*Nannobrachium ritteri*	1
44	*Lipolagus ochotensis*	1
44	*Sebastes levis*	1
44	*Gigantactis* spp.	1
44	*Hippoglossina stomata*	1
44	*Citharichthys stigmaeus*	1
44	*Citharichthys sordidus*	1
44	*Chilara taylori*	1
44	*Brosmophycis marginata*	1
44	*Rathbunella* spp.	1
44	*Liparis mucosus*	1
44	*Scomber japonicus*	1
44	*Hexagrammos* spp.	1
44	*Triphoturus mexicanus*	1
44	*Medialuna californiensis*	1
44	*Seriphus politus*	1
44	*Lampanyctus* spp.	1
44	*Anisotremus davidsoni*	1
44	Unidentified fish larvae	1
44	*Icosteus aenigmaticus*	1
44	*Poromitra crassiceps*	1
44	*Trachipterus altivelis*	1
44	*Lestidiops ringens*	1
44	*Clinocottus analis*	1
	Total	3182

Table 4. Numbers of fish larvae taken in Manta net tows on the 2007 CalCOFI cruises, listed by taxon, station, and month. Numbers of larvae are expressed as larvae per 100 cubic meters of water filtered. Unoccupied stations are indicated by a dash.

Sardinops sagax

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	0.0	-	4.7	-	-	-	-	-	-	-	-
66.7 90.0	-	-	-	3.6	-	-	-	-	-	-	-	-
76.7 70.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-
76.7 80.0	0.0	-	-	138.4	-	-	0.0	-	-	-	0.0	-
76.7 90.0	0.0	-	-	26.7	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	-	0.0	-	-	1.3	-	-	-	-	-
80.0 51.0	0.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 70.0	0.0	-	-	0.0	-	-	17.8	-	-	-	0.0	-
80.0 80.0	0.0	-	-	5.9	-	-	0.0	-	-	-	0.0	-
80.0 90.0	0.0	-	-	36.7	-	-	0.0	-	-	-	0.0	-
80.0 100.0	0.0	-	-	3.5	-	-	0.0	-	-	-	-	-
83.3 51.0	0.7	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 60.0	0.0	-	-	-	-	-	2.1	-	-	-	0.0	-
83.3 70.0	0.0	-	-	6.5	-	-	0.0	-	-	-	0.0	-
83.3 90.0	0.0	-	-	14.5	-	-	0.0	-	-	-	0.0	-
83.3 100.0	0.0	-	-	35.8	-	-	0.7	-	-	-	0.0	-
83.3 110.0	0.0	-	-	16.9	-	-	0.0	-	-	-	0.0	-
86.7 35.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 45.0	0.0	-	-	0.7	-	-	0.0	-	-	-	-	-
86.7 55.0	0.0	-	-	1.5	-	-	0.0	-	-	-	0.0	-
86.7 60.0	0.0	-	-	80.8	-	-	0.0	-	-	-	0.0	-
86.7 70.0	0.0	-	-	15.3	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	-	76.0	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	-	52.7	-	-	0.6	-	-	-	0.0	-
86.7 100.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-
90.0 28.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-
90.0 30.0	0.0	-	-	0.8	-	-	0.0	-	-	-	0.0	-
90.0 35.0	1.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 37.0	4.6	-	-	1.6	-	-	0.0	-	-	-	0.0	-

Table 4. (cont.)

Sardinops sagax (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	45.0	0.0	-	-	23.2	-	-	0.0	-	-	-	0.0	-
90.0	53.0	0.0	-	-	2.1	-	-	0.0	-	-	-	0.0	-
90.0	70.0	0.0	-	-	65.9	-	-	0.0	-	-	-	0.0	-
90.0	80.0	0.0	-	-	116.7	-	-	0.6	-	-	-	0.0	-
90.0	90.0	0.0	-	-	125.2	-	-	0.0	-	-	-	0.0	-
93.3	50.0	0.0	-	15.4	-	-	0.0	-	-	-	-	0.0	-
93.3	55.0	0.0	-	44.6	-	-	0.0	-	-	-	-	0.0	-
93.3	60.0	0.0	-	0.0	-	-	0.7	-	-	-	-	0.0	-
93.3	70.0	0.0	-	-	11.9	-	0.0	-	-	-	-	0.0	-
93.3	80.0	0.0	-	-	14.2	-	0.0	-	-	-	-	0.0	-
93.3	90.0	0.0	-	-	161.7	-	0.0	-	-	-	-	0.0	-
93.3	100.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-
93.3	110.0	0.0	-	-	0.8	-	-	0.0	-	-	-	0.0	-

Engraulis mordax

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	49.0	0.8	-	-	0.0	-	-	2.4	-	-	-	-	-
76.7	51.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-
76.7	55.0	0.0	-	-	0.0	-	-	6.3	-	-	-	0.0	-
76.7	60.0	0.0	-	-	0.0	-	-	9.9	-	-	-	0.0	-
80.0	60.0	1.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
81.8	46.9	0.0	-	-	0.0	-	-	1.4	-	-	-	0.0	-
83.3	40.6	0.0	-	-	-	-	-	27.5	-	-	-	0.0	-
83.3	42.0	0.0	-	-	-	-	-	0.6	-	-	-	0.0	-
83.3	60.0	0.0	-	-	-	-	-	3.2	-	-	-	0.0	-
86.7	33.0	0.0	-	-	0.8	-	-	0.7	-	-	-	0.0	-
86.7	35.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	40.0	0.0	-	-	0.8	-	-	0.0	-	-	-	0.0	-
86.7	45.0	0.0	-	-	27.8	-	-	0.0	-	-	-	-	-
86.7	50.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-
86.7	55.0	0.0	-	-	0.8	-	-	2.3	-	-	-	0.0	-
86.7	60.0	0.0	-	-	2.9	-	-	1.3	-	-	-	0.0	-

Table 4. (cont.)

Engraulis mordax (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 28.0	4.5	-	-	49.2	-	-	0.0	-	-	-	0.0	-
90.0 30.0	0.0	-	-	108.2	-	-	0.0	-	-	-	0.0	-
90.0 45.0	0.0	-	-	0.7	-	-	0.6	-	-	-	0.0	-
90.0 53.0	0.0	-	-	5.0	-	-	0.0	-	-	-	0.0	-
90.0 60.0	0.0	-	-	3.0	-	-	0.0	-	-	-	0.0	-
93.3 28.0	0.0	-	9.9	-	-	0.0	-	-	-	-	0.0	-
93.3 30.0	0.0	-	2.5	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	0.0	-	0.7	-	-	0.0	-	-	-	-	0.0	-
93.3 50.0	0.0	-	5.1	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	3.2	-	-	0.0	-	-	-	-	0.0	-
93.3 60.0	0.0	-	0.0	-	-	1.3	-	-	-	-	0.0	-
93.3 70.0	0.0	-	-	0.0	-	1.1	-	-	-	-	0.0	-
93.3 110.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Leuroglossus stilbius

Station	Jan.	Feb.	Mar.	Apr.	May	*June*	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 90.0	0.6	-	-	0.0	-	0.0	-	-	-	-	0.0	-

Lipolagus ochotensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 90.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

***Cyclothone* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.8	-
90.0 110.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.7	-	0.0	-	-	0.0	-	-	-	-	0.0	-

Cyclothone signata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 100.0	0.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 100.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Table 4. (cont.)

Argyropelecus lychnus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 35.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-

Vinciguerria lucetia

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 80.0	0.0	-	-	-	-	-	0.0	-	-	-	0.8	-
86.7 100.0	0.0	-	-	0.0	-	-	1.5	-	-	-	0.0	-
86.7 110.0	0.7	-	-	0.0	-	-	1.4	-	-	-	0.0	-
90.0 110.0	0.7	-	-	0.0	-	-	0.6	-	-	-	0.0	-
93.3 100.0	0.0	-	-	0.0	-	-	0.6	-	-	-	0.0	-
93.3 110.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Stomias atriventer

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 90.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.6	-	-	0.0	-	0.0	-	-	-	-	0.0	-

Tactostoma macropus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-

Lestidiops ringens

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 50.0	0.6	-	0.0	-	-	0.0	-	-	-	-	0.0	-

Myctophidae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 30.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Bolinichthys longipes

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	-

Table 4. (cont.)

Ceratoscopelus townsendi

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	0.0	-	-	0.8	-	-	0.0	-	-	-	0.0	-
83.3 80.0	0.0	-	-	-	-	-	0.0	-	-	-	1.5	-
83.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	1.3	-
90.0 100.0	1.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.0	-	-	0.8	-	-	0.6	-	-	-	0.0	-
90.0 120.0	0.0	-	-	0.0	-	-	16.2	-	-	-	0.0	-
93.3 120.0	0.0	-	-	2.3	-	-	0.0	-	-	-	0.0	-

***Diaphus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	0.0	-	-	1.3	-	-	-	0.0	-

Lampadena urophaos

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	0.0	-	-	1.9	-	-	-	0.0	-

***Lampanyctus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 110.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

***Nannobrachium* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	-	2.1	-	-	0.0	-	-	-	0.0	-
93.3 40.0	0.6	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3 50.0	0.6	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3 120.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Nannobrachium ritteri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 30.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Stenobrachius leucopsarus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 55.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-

Table 4. (cont.)

Stenobrachius leucopsarus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	0.0	-	-	0.7	-	-	0.0	-	-	-	-	-
90.0 28.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.8	-	-	0.0	-	-	-	-	0.0	-

Triphoturus mexicanus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 55.0	0.0	-	-	0.0	-	-	0.6	-	-	-	0.0	-

Symbolophorus californiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-
90.0 90.0	2.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 70.0	0.0	-	-	0.0	-	1.1	-	-	-	-	0.0	-
93.3 110.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Trachipterus altivelis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 60.0	0.0	-	0.0	-	-	0.0	-	-	-	-	0.8	-

Merluccius productus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 40.0	0.0	-	-	0.8	-	-	0.0	-	-	-	0.0	-
86.7 50.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-
86.7 55.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Chilara taylori

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 35.0	0.0	-	-	0.0	-	-	1.0	-	-	-	0.0	-

Brosmophycis marginata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 50.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-

Table 4. (cont.)

***Gigantactis* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	0.7	-	-	0.0	-	-	0.0	-	-	-	-	-

Atherinopsis californiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 51.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-
86.7 35.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Leuresthes tenuis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 33.0	0.0	-	-	0.0	-	-	2.0	-	-	-	0.0	-
86.7 35.0	0.0	-	-	0.0	-	-	1.0	-	-	-	0.0	-
90.0 28.0	0.0	-	-	0.0	-	-	7.7	-	-	-	0.0	-
93.3 26.7	0.0	-	-	-	-	0.7	-	-	-	-	0.0	-

Cololabis saira

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 50.0	0.7	-	-	0.0	-	-	-	-	-	-	-	-
76.7 51.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.7	-
76.7 55.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.7	-
76.7 70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.8	-
76.7 80.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.7	-
76.7 90.0	0.7	-	-	0.0	-	-	0.0	-	-	-	7.2	-
76.7 100.0	14.2	-	-	0.0	-	-	0.7	-	-	-	-	-
80.0 80.0	0.0	-	-	0.0	-	-	0.7	-	-	-	1.4	-
80.0 90.0	0.7	-	-	0.0	-	-	0.6	-	-	-	5.1	-
80.0 100.0	3.9	-	-	0.0	-	-	0.0	-	-	-	-	-
83.3 42.0	0.0	-	-	-	-	-	0.0	-	-	-	1.0	-
83.3 60.0	0.0	-	-	-	-	-	1.6	-	-	-	0.0	-
83.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.6	-
83.3 100.0	0.0	-	-	0.7	-	-	0.0	-	-	-	1.3	-
83.3 110.0	6.0	-	-	0.0	-	-	0.0	-	-	-	1.5	-
86.7 33.0	1.4	-	-	0.0	-	-	0.7	-	-	-	1.6	-
86.7 35.0	0.7	-	-	0.0	-	-	1.0	-	-	-	0.0	-

Table 4. (cont.)

Cololabis saira (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 40.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.7	-
86.7 45.0	1.4	-	-	0.0	-	-	0.0	-	-	-	-	-
86.7 60.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.7	-
86.7 90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.8	-
86.7 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	2.6	-
90.0 30.0	0.0	-	-	0.0	-	-	0.8	-	-	-	1.6	-
90.0 35.0	0.0	-	-	0.0	-	-	0.0	-	-	-	3.9	-
90.0 37.0	0.0	-	-	0.8	-	-	0.0	-	-	-	5.7	-
90.0 45.0	0.0	-	-	4.3	-	-	1.3	-	-	-	0.0	-
90.0 53.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 60.0	0.0	-	-	0.0	-	-	0.0	-	-	-	2.5	-
90.0 70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	23.7	-
90.0 80.0	0.0	-	-	0.7	-	-	1.9	-	-	-	13.1	-
90.0 90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	2.3	-
90.0 100.0	0.5	-	-	0.0	-	-	0.0	-	-	-	2.4	-
90.0 110.0	0.0	-	-	0.0	-	-	1.3	-	-	-	3.2	-
90.0 120.0	0.0	-	-	3.0	-	-	2.6	-	-	-	0.0	-
93.3 26.7	0.0	-	-	-	-	0.0	-	-	-	-	6.5	-
93.3 28.0	2.4	-	0.0	-	-	1.8	-	-	-	-	7.7	-
93.3 30.0	0.0	-	0.0	-	-	0.0	-	-	-	-	1.9	-
93.3 35.0	0.0	-	0.0	-	-	1.6	-	-	-	-	0.9	-
93.3 40.0	0.0	-	0.0	-	-	2.1	-	-	-	-	3.4	-
93.3 45.0	0.0	-	2.7	-	-	0.0	-	-	-	-	3.9	-
93.3 55.0	0.0	-	0.8	-	-	0.0	-	-	-	-	2.9	-
93.3 60.0	0.0	-	0.0	-	-	0.7	-	-	-	-	0.0	-
93.3 70.0	0.0	-	-	0.0	-	0.0	-	-	-	-	1.8	-
93.3 80.0	0.0	-	-	0.0	-	0.0	-	-	-	-	4.8	-
93.3 90.0	0.0	-	-	0.0	-	0.0	-	-	-	-	4.9	-
93.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.2	-
93.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	-	1.6	-
93.3 120.0	1.1	-	-	0.0	-	-	0.7	-	-	-	0.7	-

Table 4. (cont.)

Cheilopogon pinnatibarbatus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	80.0	0.0	-	-	0.0	-	-	0.6	-	-	-	0.0	-
90.0	35.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-

Poromitra crassiceps

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	120.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-

***Sebastes* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	50.0	0.7	-	-	0.0	-	-	-	-	-	-	-	-
66.7	55.0	1.4	-	-	0.8	-	-	-	-	-	-	-	-
66.7	60.0	0.0	-	-	0.7	-	-	-	-	-	-	-	-
76.7	49.0	4.7	-	-	11.4	-	-	0.0	-	-	-	-	-
76.7	60.0	14.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7	70.0	2.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7	90.0	2.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	51.0	3.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	55.0	0.0	-	-	4.1	-	-	0.0	-	-	-	0.0	-
80.0	60.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
81.8	46.9	0.0	-	-	0.0	-	-	1.4	-	-	-	0.0	-
83.3	42.0	0.8	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	51.0	2.6	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	55.0	2.7	-	-	-	-	-	1.7	-	-	-	0.0	-
83.3	60.0	7.3	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	80.0	0.6	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	1.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	45.0	0.0	-	-	8.6	-	-	0.0	-	-	-	-	-
86.7	50.0	2.6	-	-	27.3	-	-	0.0	-	-	-	1.4	-
86.7	55.0	3.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	60.0	0.0	-	-	1.5	-	-	0.0	-	-	-	0.0	-
90.0	28.0	0.0	-	-	0.9	-	-	0.0	-	-	-	0.0	-
90.0	30.0	0.6	-	-	7.6	-	-	0.0	-	-	-	0.0	-

Table 4. (cont.)

***Sebastes* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	35.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-
90.0	37.0	1.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0	53.0	0.0	-	-	1.4	-	-	0.0	-	-	-	0.0	-
90.0	60.0	0.0	-	-	1.5	-	-	0.0	-	-	-	0.0	-
90.0	70.0	3.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3	26.7	0.6	-	-	-	-	0.0	-	-	-	-	0.0	-
93.3	30.0	0.0	-	0.6	-	-	0.0	-	-	-	-	0.0	-
93.3	45.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3	50.0	0.0	-	1.5	-	-	0.0	-	-	-	-	0.0	-
93.3	55.0	0.7	-	0.0	-	-	0.0	-	-	-	-	0.0	-

Sebastes diploproa

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	55.0	1.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7	60.0	1.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7	70.0	1.4	-	-	0.0	-	-	0.0	-	-	-	0.8	-
80.0	60.0	0.0	-	-	0.0	-	-	0.9	-	-	-	0.0	-
83.3	42.0	0.0	-	-	-	-	-	0.0	-	-	-	1.0	-
83.3	55.0	0.0	-	-	-	-	-	0.6	-	-	-	0.7	-
83.3	80.0	0.6	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.8	-
90.0	45.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.8	-
90.0	53.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.8	-
90.0	70.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Sebastes jordani

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	55.0	0.0	-	-	0.8	-	-	-	-	-	-	-	-
76.7	49.0	0.0	-	-	2.8	-	-	0.0	-	-	-	-	-
76.7	55.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	51.0	0.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3	40.6	0.8	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	42.0	38.4	-	-	-	-	-	0.0	-	-	-	0.0	-

Table 4. (cont.)

Sebastes jordani (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 50.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-
86.7 55.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 37.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 26.7	0.6	-	-	-	-	0.0	-	-	-	-	0.0	-
93.3 30.0	0.7	-	0.0	-	-	0.0	-	-	-	-	0.0	-

Sebastes levis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 55.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-

Anoplopoma fimbria

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 55.0	1.4	-	-	0.0	-	-	-	-	-	-	-	-

***Hexagrammos* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 51.0	0.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Hexagrammos decagrammus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	1.3	-	0.0	-	-	-	-	-	-	-	-
76.7 49.0	3.9	-	-	0.0	-	-	0.0	-	-	-	-	-
76.7 60.0	2.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 55.0	4.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 60.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-

Oxylebius pictus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 55.0	0.0	-	-	2.6	-	-	0.0	-	-	-	0.0	-
80.0 60.0	0.0	-	-	1.4	-	-	0.0	-	-	-	0.0	-
80.0 70.0	0.0	-	-	0.0	-	-	1.4	-	-	-	0.0	-
86.7 60.0	0.0	-	-	0.0	-	-	0.6	-	-	-	0.0	-

Table 4. (cont.)

Clinocottus analis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 28.0	0.0	-	-	0.9	-	-	0.0	-	-	-	0.0	-

Hemilepidotus spinosus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	1.3	-	0.0	-	-	-	-	-	-	-	-

Scorpaenichthys marmoratus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	5.3	-	0.0	-	-	-	-	-	-	-	-
76.7 49.0	0.8	-	-	0.0	-	-	0.0	-	-	-	-	-
76.7 51.0	0.0	-	-	0.0	-	-	0.0	-	-	-	16.7	-
76.7 55.0	0.0	-	-	0.7	-	-	0.0	-	-	-	2.8	-
76.7 60.0	2.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7 70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	1.6	-
76.7 90.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 51.0	7.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 55.0	3.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 60.0	0.0	-	-	1.4	-	-	0.0	-	-	-	0.0	-
80.0 70.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-
83.3 51.0	0.7	-	-	-	-	-	0.0	-	-	-	1.5	-
83.3 55.0	0.0	-	-	-	-	-	0.0	-	-	-	2.0	-
86.7 33.0	1.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 35.0	2.6	-	-	0.0	-	-	0.0	-	-	-	0.8	-
86.7 50.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.7	-
86.7 55.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 60.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.7	-
90.0 28.0	0.0	-	-	0.9	-	-	0.0	-	-	-	0.0	-

Liparis mucosus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 55.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-

Table 4. (cont.)

***Paralabrax* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 42.0	0.0	-	-	-	-	-	1.2	-	-	-	0.0	-
86.7 33.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-
90.0 28.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-

Trachurus symmetricus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	0.0	-	0.7	-	-	-	-	-	-	-	-
76.7 80.0	0.0	-	-	5.7	-	-	0.0	-	-	-	0.0	-
83.3 40.6	0.0	-	-	-	-	-	0.6	-	-	-	0.0	-
83.3 90.0	0.0	-	-	0.0	-	-	1.2	-	-	-	0.0	-
83.3 100.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-
83.3 110.0	0.0	-	-	1.5	-	-	0.0	-	-	-	0.0	-
86.7 50.0	0.0	-	-	0.0	-	-	0.5	-	-	-	0.0	-
86.7 70.0	0.0	-	-	0.0	-	-	1.3	-	-	-	0.0	-
86.7 90.0	0.0	-	-	0.7	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	-	0.0	-	-	1.5	-	-	-	0.0	-
90.0 70.0	0.0	-	-	3.1	-	-	0.6	-	-	-	0.0	-
90.0 120.0	0.0	-	-	0.0	-	-	0.6	-	-	-	0.0	-
93.3 55.0	0.0	-	0.8	-	-	0.0	-	-	-	-	0.0	-
93.3 70.0	0.0	-	-	5.3	-	0.0	-	-	-	-	0.0	-
93.3 90.0	0.0	-	-	0.7	-	0.0	-	-	-	-	0.0	-
93.3 100.0	0.0	-	-	0.0	-	-	3.8	-	-	-	0.0	-

Anisotremus davidsoni

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 40.6	0.0	-	-	-	-	-	0.6	-	-	-	0.0	-

Genyonemus lineatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 40.6	0.0	-	-	-	-	-	1.8	-	-	-	0.0	-

Table 4. (cont.)

Seriphus politus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	33.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-

Girella nigricans

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	40.6	0.0	-	-	-	-	-	6.0	-	-	-	0.0	-
83.3	55.0	0.0	-	-	-	-	-	0.6	-	-	-	0.0	-
86.7	33.0	0.0	-	-	0.0	-	-	10.0	-	-	-	0.0	-
86.7	35.0	0.0	-	-	0.0	-	-	2.0	-	-	-	0.0	-

Medialuna californiensis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	80.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-

Chromis punctipinnis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	55.0	0.0	-	-	0.0	-	-	1.6	-	-	-	0.0	-
81.8	46.9	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-
83.3	40.6	0.0	-	-	-	-	-	0.6	-	-	-	0.0	-
86.7	35.0	0.0	-	-	0.0	-	-	1.0	-	-	-	0.0	-
86.7	55.0	0.0	-	-	0.0	-	-	1.1	-	-	-	0.0	-
93.3	70.0	0.0	-	-	0.0	-	0.6	-	-	-	-	0.0	-

Oxyjulis californica

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	50.0	0.0	-	-	0.0	-	-	0.5	-	-	-	0.0	-
90.0	53.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-

***Rathbunella* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	55.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-

***Gibbonsia* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	50.0	0.0	-	-	0.0	-	-	0.0	-	-	-	1.4	-

Table 4. (cont.)

Neoclinus blanchardi

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8	46.9	0.0	-	-	0.0	-	-	4.2	-	-	-	0.0	-
83.3	40.6	0.0	-	-	-	-	-	0.0	-	-	-	1.0	-

***Hypsoblennius* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	70.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-
90.0	28.0	0.0	-	-	0.0	-	-	6.2	-	-	-	0.0	-

Hypsoblennius gentilis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	33.0	0.0	-	-	0.0	-	-	6.7	-	-	-	0.0	-
86.7	35.0	0.0	-	-	0.0	-	-	0.0	-	-	-	0.8	-
86.7	40.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-
90.0	28.0	0.0	-	-	0.0	-	-	6.2	-	-	-	1.0	-

Hypsoblennius gilberti

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	55.0	0.0	-	-	0.0	-	-	3.1	-	-	-	0.0	-
76.7	60.0	0.0	-	-	0.0	-	-	0.9	-	-	-	0.0	-
80.0	51.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-
81.8	46.9	0.0	-	-	0.0	-	-	1.4	-	-	-	0.0	-
83.3	42.0	0.0	-	-	-	-	-	0.6	-	-	-	0.0	-
83.3	55.0	0.0	-	-	-	-	-	0.6	-	-	-	0.0	-
83.3	60.0	0.0	-	-	-	-	-	0.5	-	-	-	0.0	-
86.7	33.0	0.0	-	-	0.0	-	-	2.0	-	-	-	0.0	-
86.7	35.0	0.0	-	-	0.0	-	-	4.0	-	-	-	1.5	-
86.7	80.0	0.0	-	-	0.0	-	-	0.6	-	-	-	0.0	-

Hypsoblennius jenkinsi

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	55.0	0.0	-	-	0.0	-	-	1.6	-	-	-	0.0	-
80.0	80.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-
83.3	40.6	0.0	-	-	-	-	-	2.4	-	-	-	0.0	-

Table 4. (cont.)

Hypsoblennius jenkinsi (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 42.0	0.0	-	-	-	-	-	4.3	-	-	-	0.0	-
86.7 33.0	0.0	-	-	0.0	-	-	82.8	-	-	-	0.0	-
86.7 35.0	0.0	-	-	0.0	-	-	89.7	-	-	-	2.3	-
86.7 40.0	0.0	-	-	0.0	-	-	1.5	-	-	-	0.0	-
86.7 55.0	0.0	-	-	0.0	-	-	0.6	-	-	-	0.0	-
90.0 37.0	0.0	-	-	0.0	-	-	0.7	-	-	-	0.0	-
90.0 45.0	0.0	-	-	0.0	-	-	1.3	-	-	-	0.0	-
93.3 26.7	0.0	-	-	-	-	8.9	-	-	-	-	0.7	-
93.3 28.0	0.0	-	0.8	-	-	0.0	-	-	-	-	0.0	-
93.3 30.0	0.0	-	0.0	-	-	0.9	-	-	-	-	0.0	-
93.3 35.0	0.0	-	0.0	-	-	0.8	-	-	-	-	0.0	-
93.3 50.0	0.0	-	0.0	-	-	0.0	-	-	-	-	1.8	-

Icosteus aenigmaticus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 90.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Rhinogobiops nicholsii

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 55.0	0.0	-	-	1.4	-	-	0.0	-	-	-	0.0	-

Sphyraena argentea

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 51.0	0.0	-	-	-	-	-	1.8	-	-	-	0.0	-
83.3 55.0	0.0	-	-	-	-	-	0.6	-	-	-	0.0	-
86.7 33.0	0.0	-	-	0.0	-	-	2.7	-	-	-	0.0	-
86.7 35.0	0.0	-	-	0.0	-	-	5.0	-	-	-	0.0	-
90.0 28.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-

Scomber japonicus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 42.0	0.0	-	-	-	-	-	0.6	-	-	-	0.0	-

Table 4. (cont.)

Peprilus simillimus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	0.0	-	-	0.0	-	-	0.8	-	-	-	0.0	-
86.7	35.0	0.0	-	-	0.0	-	-	1.0	-	-	-	0.0	-

Citharichthys sordidus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	55.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Citharichthys stigmaeus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	55.0	0.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Hippoglossina stomata

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	55.0	0.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Pleuronichthys coenosus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	55.0	0.0	-	-	0.7	-	-	1.6	-	-	-	0.0	-
81.8	46.9	0.0	-	-	0.0	-	-	1.4	-	-	-	0.0	-

Disintegrated fish larvae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	70.0	0.0	-	-	1.6	-	-	0.0	-	-	-	0.0	-

Unidentified fish larvae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	51.0	0.0	-	-	-	-	-	0.9	-	-	-	0.0	-

Table 5. Station and Bongo net tow data for CalCOFI cruises in 2007. 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 0701

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
66.7	50.0	36	46.1	122	05.1	JD	07	01	31	1250	212	428	4.95	54	100.0	65	4
66.7	55.0	36	37.3	122	24.9	JD	07	01	31	1753	207	445	4.65	72	50.0	8	9
66.7	60.0	36	27.3	122	46.3	JD	07	01	31	2206	212	415	5.10	60	100.0	70	11
66.7	70.0	36	07.3	123	29.1	JD	07	02	01	0530	214	452	4.73	38	100.0	19	5
66.7	80.0	35	47.3	124	11.7	JD	07	02	01	1248	210	440	4.77	23	100.0	7	5
76.7	49.0	35	04.9	120	46.7	JD	07	01	28	1229	64	136	4.69	22	100.0	4	56
76.7	51.0	35	01.4	120	55.0	JD	07	01	28	1656	206	430	4.78	123	49.0	5	5
76.7	55.0	34	53.3	121	11.8	JD	07	01	28	2049	208	394	5.28	106	52.3	29	55
76.7	60.0	34	43.3	121	32.8	JD	07	01	29	0043	212	419	5.05	91	52.6	8	42
76.7	70.0	34	23.3	122	14.6	JD	07	01	29	0631	211	408	5.16	61	100.0	16	22
76.7	80.0	34	03.5	122	56.0	JD	07	01	29	1231	212	429	4.93	21	100.0	23	5
76.7	90.0	33	43.3	123	37.9	JD	07	01	29	1820	213	430	4.94	93	47.5	12	2
76.7	100.0	33	23.2	124	19.4	JD	07	01	30	0001	213	415	5.14	43	100.0	26	17
80.0	50.5	34	27.8	120	29.8	JD	07	01	28	0703	20	57	3.51	70	100.0	11	29
80.0	51.0	34	26.8	120	31.6	JD	07	01	28	0605	69	148	4.65	54	100.0	91	63
80.0	55.0	34	18.9	120	48.3	JD	07	01	28	0235	214	417	5.13	94	46.1	48	65
80.0	60.0	34	08.9	121	09.0	JD	07	01	27	2231	206	426	4.83	82	51.4	26	102
80.0	70.0	33	49.0	121	50.6	JD	07	01	27	1616	207	433	4.79	42	100.0	4	18
80.0	80.0	33	28.8	122	32.1	JD	07	01	27	0841	209	456	4.58	50	100.0	7	1
80.0	90.0	33	08.9	123	13.3	JD	07	01	27	0251	212	456	4.65	57	46.1	2	2
80.0	100.0	32	48.9	123	54.4	JD	07	01	26	2023	212	446	4.75	56	100.0	7	5
81.7	43.5	34	24.2	119	47.9	JD	07	01	24	1355	12	44	2.65	23	100.0	0	17
81.8	46.9	34	16.5	120	01.6	JD	07	01	24	1726	203	431	4.70	44	100.0	53	732
83.3	39.4	34	15.5	119	19.6	JD	07	01	24	0643	11	70	1.64	14	100.0	15	75
83.3	40.6	34	13.4	119	24.7	JD	07	01	24	0831	33	91	3.62	22	100.0	1	36
83.3	42.0	34	10.7	119	30.6	JD	07	01	24	1101	177	357	4.96	39	100.0	23	95
83.3	51.0	33	52.8	120	07.9	JD	07	01	24	2238	83	171	4.86	64	100.0	14	191

Table 5. (cont.) CalCOFI Cruise 0701 (cont.)

Line	Station	Latitude (N) deg.	Latitude (N) min.	Longitude (W) deg.	Longitude (W) min.	Ship Code	Tow Date yr.	Tow Date mo.	Tow Date day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
83.3	55.0	33	44.7	120	24.6	JD	07	01	25	0226	210	424	4.96	59	100.0	66	460
83.3	60.0	33	35.8	120	45.1	JD	07	01	25	0643	212	435	4.87	67	51.7	11	7
83.3	70.0	33	15.3	121	25.5	JD	07	01	25	1303	213	424	5.01	87	51.3	5	30
83.3	80.0	32	54.8	122	07.6	JD	07	01	25	1854	200	445	4.49	103	45.6	17	6
83.3	90.0	32	34.7	122	48.7	JD	07	01	26	0040	213	430	4.94	142	50.8	1	13
83.3	100.0	32	14.6	123	29.5	JD	07	01	26	0640	207	465	4.44	47	100.0	5	8
83.3	110.0	31	55.3	124	09.1	JD	07	01	26	1237	212	436	4.85	18	100.0	2	2
85.4	35.8	34	00.8	118	50.2	JD	07	01	24	0251	13	48	2.74	104	100.0	10	67
86.7	33.0	33	53.7	118	30.0	JD	07	01	23	2249	47	107	4.44	113	100.0	37	32
86.7	35.0	33	49.5	118	38.1	JD	07	01	23	2033	213	397	5.37	126	52.0	24	25
86.7	40.0	33	39.4	118	58.4	JD	07	01	23	1606	208	397	5.25	83	54.5	20	116
86.7	45.0	33	29.2	119	19.5	JD	07	01	23	1120	207	418	4.95	62	50.0	6	125
86.7	50.0	33	19.3	119	39.8	JD	07	01	23	0657	74	165	4.45	176	51.7	73	18
86.7	55.0	33	09.4	120	00.4	JD	07	01	23	0300	213	434	4.89	120	51.9	21	11
86.7	60.0	32	59.3	120	21.0	JD	07	01	22	2242	209	416	5.01	125	53.8	34	113
86.7	70.0	32	39.4	121	02.0	JD	07	01	22	1604	195	447	4.35	107	52.0	8	3
86.7	80.0	32	18.8	121	42.6	JD	07	01	22	0819	214	437	4.88	59	53.8	3	6
86.7	90.0	31	59.3	122	23.6	JD	07	01	22	0200	214	441	4.85	82	100.0	7	5
86.7	100.0	31	39.3	123	04.2	JD	07	01	21	1817	187	534	3.50	41	100.0	2	6
86.7	110.0	31	18.8	123	43.7	JD	07	01	21	0829	213	439	4.85	11	100.0	2	6
86.8	32.5	33	55.6	118	27.5	JD	07	01	24	0005	12	49	2.46	40	100.0	0	102
90.0	27.7	33	29.6	117	45.1	JD	07	01	18	0415	16	62	2.63	33	100.0	8	104
90.0	28.0	33	29.0	117	46.2	JD	07	01	18	0315	100	194	5.14	180	54.2	9	9
90.0	30.0	33	25.1	117	54.2	JD	07	01	18	0843	217	392	5.52	92	47.2	10	36
90.0	35.0	33	15.1	118	15.0	JD	07	01	18	1432	215	383	5.62	44	100.0	9	155
90.0	37.0	33	11.1	118	23.2	JD	07	01	18	1800	211	403	5.24	47	100.0	27	146
90.0	45.0	32	55.0	118	56.0	JD	07	01	18	2349	212	409	5.17	81	51.5	6	118
90.0	53.0	32	39.2	119	28.5	JD	07	01	19	0553	212	441	4.79	82	52.7	1	3
90.0	60.0	32	25.0	119	57.5	JD	07	01	19	1137	214	429	4.97	49	100.0	3	9
90.0	70.0	32	05.1	120	38.1	JD	07	01	19	1846	217	417	5.20	180	53.3	8	1

Table 5. (cont.) CalCOFI Cruise 0701 (cont.)

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	80.0	31	45.2	121	18.7	JD	07	01	20	0153	211	458	4.61	41	100.0	2	17
90.0	90.0	31	25.1	121	59.4	JD	07	01	20	0850	220	402	5.47	10	100.0	3	3
90.0	100.0	31	05.1	122	39.6	JD	07	01	20	1800	207	475	4.34	25	100.0	9	29
90.0	110.0	30	45.1	123	19.8	JD	07	01	21	0100	210	449	4.68	24	100.0	11	26
90.0	120.0	30	25.0	123	59.9	JD	07	01	16	0815	216	426	5.06	12	100.0	26	23
91.7	26.4	33	14.5	117	28.1	JD	07	01	12	2336	16	62	2.56	96	100.0	7	2208
93.3	26.7	32	57.5	117	18.5	JD	07	01	12	1934	54	139	3.92	65	100.0	5	0
93.3	28.0	32	54.8	117	23.7	JD	07	01	13	0344	215	446	4.82	83	51.3	2	8
93.3	30.0	32	50.8	117	32.2	JD	07	01	13	0659	208	441	4.72	41	100.0	2	18
93.3	35.0	32	40.5	117	52.4	JD	07	01	13	1203	211	438	4.82	41	100.0	3	7
93.3	40.0	32	30.5	118	13.0	JD	07	01	13	1627	217	461	4.69	15	100.0	1	3
93.3	45.0	32	21.0	118	33.1	JD	07	01	13	2047	213	459	4.64	37	100.0	5	26
93.3	50.0	32	10.8	118	53.6	JD	07	01	14	0104	214	449	4.77	47	100.0	9	16
93.3	55.0	32	01.1	119	13.8	JD	07	01	14	0536	253	500	4.38	38	100.0	10	17
93.3	60.0	31	51.9	119	34.4	JD	07	01	14	0904	215	454	4.72	68	51.6	2	12
93.3	70.0	31	30.9	120	14.6	JD	07	01	14	1647	221	426	5.17	52	100.0	10	23
93.3	80.0	31	10.8	120	55.1	JD	07	01	14	2300	214	426	5.02	28	100.0	17	32
93.3	90.0	30	50.9	121	35.5	JD	07	01	15	0523	219	425	5.15	26	100.0	12	27
93.3	100.0	30	30.8	122	15.3	JD	07	01	15	1326	215	439	4.90	14	100.0	53	21
93.3	110.0	30	10.8	122	55.4	JD	07	01	15	1943	214	414	5.17	19	100.0	21	26
93.3	120.0	29	50.7	123	35.2	JD	07	01	16	0212	214	440	4.87	18	100.0	24	22
93.4	26.4	32	56.9	117	16.7	JD	07	01	12	2044	11	40	2.71	99	100.0	2	74

Table 5. (cont.)

CalCOFI Cruise 0704

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
66.7	50.0	36	47.2	122	03.3	JD	07	04	27	1506	192	457	4.20	64	51.7	7	9
66.7	55.0	36	37.4	122	25.0	JD	07	04	27	2059	202	440	4.60	134	47.4	2	0
66.7	60.0	36	27.2	122	46.3	JD	07	04	28	0111	212	377	5.63	223	52.3	12	1
66.7	70.0	36	07.2	123	29.1	JD	07	04	28	1115	212	387	5.46	59	100.0	4	2
66.7	80.0	35	47.2	124	11.8	JD	07	04	28	1945	212	386	5.49	130	100.0	10	16
66.7	90.0	35	27.3	124	54.1	JD	07	04	29	0803	217	392	5.55	36	100.0	20	37
66.7	100.0	35	07.3	125	36.2	JD	07	04	29	1627	204	405	5.05	41	100.0	10	9
76.7	49.0	35	05.3	120	46.9	JD	07	04	23	1746	64	168	3.80	24	100.0	8	56
76.7	51.0	35	01.5	120	54.8	JD	07	04	23	2005	207	397	5.21	78	51.6	7	24
76.7	55.0	34	53.3	121	11.9	JD	07	04	23	2348	213	387	5.51	140	50.0	1	41
76.7	60.0	34	43.4	121	32.8	JD	07	04	24	0359	208	419	4.97	45	100.0	3	11
76.7	70.0	34	23.4	122	14.7	JD	07	04	24	1049	213	420	5.07	26	100.0	1	1
76.7	80.0	34	03.3	122	56.4	JD	07	04	24	1853	211	413	5.11	15	100.0	53	14
76.7	100.0	33	23.2	124	19.4	JD	07	04	25	1348	163	490	3.33	4	100.0	6	27
80.0	51.0	34	26.9	120	31.4	JD	07	04	13	1647	74	189	3.94	42	100.0	4	38
80.0	55.0	34	19.0	120	48.1	JD	07	04	13	2105	200	442	4.53	86	47.3	14	5
80.0	60.0	34	09.1	121	08.9	JD	07	04	14	0113	212	403	5.27	136	49.0	6	212
80.0	70.0	33	49.1	121	50.5	JD	07	04	14	0719	212	382	5.54	42	100.0	17	93
80.0	80.0	33	29.4	122	30.9	JD	07	04	14	1255	213	401	5.31	30	100.0	17	15
80.0	90.0	33	09.0	123	13.3	JD	07	04	14	2002	172	502	3.43	40	100.0	60	50
80.0	100.0	32	49.0	123	54.3	JD	07	04	15	0159	204	411	4.96	51	100.0	25	139
81.8	46.9	34	16.5	120	01.5	JD	07	04	13	1205	214	391	5.47	59	100.0	12	555
83.3	70.0	33	14.7	121	26.6	JD	07	04	11	1133	213	395	5.39	40	100.0	19	49
83.3	90.0	32	34.7	122	48.7	JD	07	04	10	1148	199	428	4.65	42	100.0	13	43
83.3	100.0	32	14.6	123	29.5	JD	07	04	10	0445	216	386	5.61	26	100.0	96	109
83.3	110.0	31	54.7	124	10.3	JD	07	04	09	2147	213	420	5.07	17	100.0	31	12
86.7	33.0	33	53.4	118	29.3	JD	07	04	07	0455	47	95	4.97	105	100.0	33	123
86.7	35.0	33	49.5	118	37.7	JD	07	04	07	0749	206	388	5.31	41	100.0	16	254
86.7	40.0	33	39.4	118	58.5	JD	07	04	07	1303	212	389	5.45	26	100.0	8	364
86.7	45.0	33	29.5	119	19.1	JD	07	04	07	1739	205	399	5.14	58	100.0	41	487

Table 5. (cont.)

CalCOFI Cruise 0704 (cont.)

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	19.5	119	39.7	JD	07	04	07	2142	70	126	5.57	71	100.0	262	867
86.7	55.0	33	09.4	120	00.4	JD	07	04	08	0156	213	348	6.12	89	48.3	4	9
86.7	70.0	32	39.3	121	02.2	JD	07	04	08	1323	206	397	5.18	40	100.0	83	140
86.7	80.0	32	19.3	121	42.9	JD	07	04	08	1939	217	394	5.51	51	100.0	105	35
86.7	90.0	31	59.4	122	23.6	JD	07	04	09	0139	214	377	5.67	72	48.1	64	88
86.7	100.0	31	39.4	123	04.2	JD	07	04	09	0754	207	414	5.01	19	100.0	7	19
86.7	110.0	31	19.4	123	44.5	JD	07	04	09	1520	208	413	5.03	24	100.0	18	19
86.8	32.5	33	53.4	118	26.7	JD	07	04	07	0325	13	38	3.32	105	100.0	0	115
88.5	30.1	33	40.1	118	05.1	JD	07	04	06	2343	12	38	3.13	240	100.0	10	1665
90.0	27.7	33	29.8	117	45.0	JD	07	04	06	2102	14	65	2.14	123	100.0	22	95
90.0	28.0	33	29.3	117	45.9	JD	07	04	06	2000	65	147	4.41	259	55.2	17	17
90.0	30.0	33	25.1	117	54.4	JD	07	04	06	1722	203	384	5.29	138	54.7	9	182
90.0	35.0	33	15.1	118	15.0	JD	07	04	06	1242	213	375	5.68	40	100.0	26	509
90.0	37.0	33	11.1	118	23.2	JD	07	04	06	0837	207	392	5.27	41	100.0	7	209
90.0	45.0	32	55.1	118	56.1	JD	07	04	06	0325	216	389	5.55	118	47.8	38	5
90.0	53.0	32	39.1	119	29.0	JD	07	04	05	2154	215	400	5.38	180	48.6	35	23
90.0	60.0	32	25.0	119	57.6	JD	07	04	05	1607	209	393	5.32	84	51.5	34	34
90.0	70.0	32	05.1	120	38.4	JD	07	04	05	0808	208	408	5.09	24	100.0	63	121
90.0	80.0	31	45.1	121	18.9	JD	07	04	05	0226	213	386	5.51	96	100.0	302	182
90.0	90.0	31	25.0	121	59.5	JD	07	04	04	1957	209	387	5.34	106	100.0	407	878
90.0	100.0	31	05.0	122	39.8	JD	07	04	04	1312	213	381	5.59	47	100.0	82	15
90.0	110.0	30	45.0	123	20.0	JD	07	04	04	0643	214	374	5.73	37	100.0	23	33
90.0	120.0	30	25.0	123	59.9	JD	07	04	04	0017	212	395	5.38	33	100.0	121	22
91.7	26.4	33	13.9	117	26.8	JD	07	03	28	0117	20	56	3.46	106	100.0	4	662
93.3	28.0	32	54.8	117	23.2	JD	07	03	28	0517	214	404	5.29	59	100.0	32	18
93.3	30.0	32	50.8	117	31.8	JD	07	03	28	0830	215	399	5.38	40	100.0	33	55
93.3	35.0	32	40.6	117	52.2	JD	07	03	28	1311	214	409	5.23	24	100.0	38	118
93.3	40.0	32	30.8	118	12.8	JD	07	03	28	1758	210	414	5.08	39	100.0	28	15
93.3	45.0	32	20.8	118	33.3	JD	07	03	28	2219	216	398	5.42	161	100.0	51	7
93.3	50.0	32	10.8	118	53.6	JD	07	03	29	0248	211	426	4.95	132	50.0	23	37

Table 5. (cont.)

CalCOFI Cruise 0704 (cont.)

Line	Station	Latitude (N) deg.	Latitude (N) min.	Longitude (W) deg.	Longitude (W) min.	Ship Code	Tow Date yr.	Tow Date mo.	Tow Date day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
93.3	55.0	32	00.9	119	13.9	JD	07	03	29	0723	217	399	5.44	30	100.0	196	360
93.3	60.0	31	50.8	119	34.3	JD	07	03	29	1338	214	408	5.24	69	50.0	62	159
93.3	70.0	31	30.8	120	14.8	JD	07	04	02	0805	242	468	5.17	30	100.0	46	64
93.3	80.0	31	10.8	120	55.0	JD	07	04	02	1601	210	401	5.25	55	100.0	67	77
93.3	90.0	30	50.8	121	35.2	JD	07	04	02	2224	211	390	5.42	98	100.0	191	79
93.3	100.0	30	30.8	122	15.3	JD	07	04	03	0503	212	404	5.26	30	100.0	29	504
93.3	110.0	30	10.8	122	55.3	JD	07	04	03	1138	214	410	5.21	22	100.0	36	86
93.3	120.0	29	50.8	123	35.1	JD	07	04	03	1747	209	410	5.11	32	100.0	52	49

CalCOFI Cruise 0707

Line	Station	Latitude (N) deg.	Latitude (N) min.	Longitude (W) deg.	Longitude (W) min.	Ship Code	Tow Date yr.	Tow Date mo.	Tow Date 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	05.1	120	46.5	NH	07	07	13	0830	41	109	3.72	73	100.0	1	103
76.7	51.0	35	01.3	120	55.2	NH	07	07	13	0642	171	215	7.96	1094	49.7	1	0
76.7	55.0	34	53.0	121	12.8	NH	07	07	13	0333	200	428	4.66	599	48.8	2	0
76.7	60.0	34	43.3	121	33.1	NH	07	07	12	2331	210	437	4.81	330	52.7	12	69
76.7	70.0	34	23.1	122	15.4	NH	07	07	12	1750	212	417	5.08	77	50.0	1	1
76.7	80.0	34	03.1	122	56.7	NH	07	07	12	1159	214	444	4.80	72	53.1	10	5
76.7	90.0	33	43.3	123	38.0	NH	07	07	12	0615	214	398	5.38	40	100.0	2	12
76.7	100.0	33	23.3	124	19.4	NH	07	07	12	0036	210	452	4.65	40	100.0	3	1
80.0	50.5	34	27.7	120	29.1	NH	07	07	10	0515	14	49	2.86	122	100.0	5	356
80.0	51.0	34	27.0	120	31.5	NH	07	07	10	0621	49	109	4.51	146	100.0	21	76
80.0	55.0	34	18.7	120	47.4	NH	07	07	10	0919	212	276	7.66	72	100.0	8	4
80.0	60.0	34	09.0	121	08.4	NH	07	07	10	1507	212	433	4.89	159	53.6	2	0
80.0	70.0	33	49.0	121	49.7	NH	07	07	10	2315	208	461	4.50	134	51.6	2	0
80.0	80.0	33	29.0	122	31.4	NH	07	07	11	0537	209	435	4.79	37	100.0	15	13
80.0	90.0	33	08.9	123	13.2	NH	07	07	11	1223	209	435	4.81	55	100.0	2	15
80.0	100.0	32	49.0	123	54.0	NH	07	07	11	1840	213	417	5.09	96	100.0	3	3

Table 5. (cont.)

CalCOFI Cruise 0707 (cont.)

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
81.8	46.9	34	16.3	120	00.7	NH	07	07	10	0212	215	427	5.03	150	51.5	12	7
83.3	39.4	34	15.3	119	19.5	NH	07	07	09	1730	18	61	2.88	82	100.0	1	8
83.3	40.6	34	13.4	119	24.5	NH	07	07	09	1909	28	71	3.95	84	100.0	42	92
83.3	42.0	34	10.8	119	30.3	NH	07	07	09	2110	119	264	4.51	57	100.0	4	2
83.3	51.0	33	52.7	120	08.1	NH	07	07	09	1149	55	129	4.25	147	100.0	11	245
83.3	55.0	33	44.4	120	24.3	NH	07	07	09	0819	210	427	4.90	80	52.9	2	0
83.3	60.0	33	34.5	120	44.8	NH	07	07	09	0401	206	399	5.17	196	51.2	2	1
83.3	70.0	33	14.7	121	26.4	NH	07	07	08	2110	213	412	5.17	209	51.1	3	4
83.3	80.0	32	54.5	122	08.0	NH	07	07	08	1331	205	475	4.30	183	52.8	3	45
83.3	90.0	32	34.2	122	48.5	NH	07	07	08	0641	218	421	5.17	74	51.6	3	32
83.3	100.0	32	14.4	123	29.5	NH	07	07	07	2345	211	484	4.36	45	100.0	7	40
83.3	110.0	31	54.3	124	10.0	NH	07	07	07	1649	211	475	4.44	23	100.0	3	80
86.7	33.0	33	53.5	118	29.3	NH	07	07	05	0018	31	92	3.41	501	52.1	18	176
86.7	35.0	33	49.6	118	37.5	NH	07	07	05	0317	212	427	4.95	98	52.3	7	2
86.7	40.0	33	39.6	118	58.3	NH	07	07	05	0741	212	431	4.92	132	49.1	1	15
86.7	45.0	33	29.5	119	18.8	NH	07	07	05	1210	209	429	4.88	96	53.6	3	0
86.7	50.0	33	19.3	119	39.1	NH	07	07	05	1617	77	172	4.47	145	100.0	9	16
86.7	55.0	33	09.1	119	59.6	NH	07	07	05	2031	208	480	4.32	92	52.2	5	2
86.7	60.0	32	59.4	120	20.6	NH	07	07	06	0103	205	497	4.12	121	50.0	9	1
86.7	70.0	32	39.5	121	01.7	NH	07	07	06	0710	212	430	4.93	58	100.0	29	80
86.7	80.0	32	19.6	121	42.8	NH	07	07	06	1340	208	447	4.64	121	48.1	5	33
86.7	90.0	31	59.3	122	23.1	NH	07	07	06	2017	213	403	5.29	224	48.8	2	60
86.7	100.0	31	39.0	123	03.8	NH	07	07	07	0234	217	432	5.01	28	100.0	49	358
86.7	110.0	31	19.1	123	43.9	NH	07	07	07	0802	211	472	4.47	21	100.0	49	63
86.8	32.5	33	53.3	118	26.7	NH	07	07	04	2204	13	48	2.77	166	100.0	3	660
88.5	30.1	33	40.3	118	05.5	NH	07	07	04	1900	13	46	2.82	65	100.0	17	823
90.0	27.7	33	29.9	117	45.0	NH	07	07	04	1608	14	47	2.88	43	100.0	13	479
90.0	28.0	33	29.1	117	46.1	NH	07	07	04	1538	41	100	4.06	139	100.0	29	82
90.0	30.0	33	25.0	117	54.5	NH	07	07	04	1309	211	423	4.98	45	100.0	6	2

Table 5. (cont.)

CalCOFI Cruise 0707 (cont.)

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	35.0	33	15.1	118	15.2	NH	07	07	04	0900	142	299	4.74	80	100.0	4	4
90.0	37.0	33	10.9	118	23.0	NH	07	07	04	0618	208	418	4.96	77	50.0	5	0
90.0	45.0	32	55.2	118	56.1	NH	07	07	04	0029	207	435	4.74	161	51.4	3	0
90.0	53.0	32	39.0	119	28.7	NH	07	07	03	1830	218	428	5.10	164	48.5	3	0
90.0	60.0	32	24.8	119	57.5	NH	07	07	03	1306	214	445	4.81	117	51.9	8	0
90.0	70.0	32	04.9	120	38.1	NH	07	07	03	0614	208	428	4.85	47	100.0	11	38
90.0	80.0	31	45.0	121	18.7	NH	07	07	02	2327	212	492	4.31	31	100.0	4	7
90.0	90.0	31	24.4	121	59.9	NH	07	07	02	1638	209	465	4.48	32	100.0	2	10
90.0	100.0	31	04.6	122	39.6	NH	07	07	02	0832	211	472	4.47	6	100.0	27	321
90.0	110.0	30	44.7	123	19.7	NH	07	07	02	0304	214	485	4.41	23	100.0	94	63
90.0	120.0	30	24.7	123	59.9	NH	07	07	01	2011	210	483	4.35	14	100.0	184	348
91.7	26.4	33	14.7	117	27.7	NH	07	06	28	1503	15	40	3.83	25	100.0	14	420
93.3	26.7	32	57.4	117	18.3	NH	07	06	28	1113	32	91	3.47	241	100.0	2	27
93.3	28.0	32	54.7	117	23.6	NH	07	06	28	1903	208	417	4.98	60	100.0	4	0
93.3	30.0	32	50.9	117	31.8	NH	07	06	28	2152	211	398	5.30	98	51.2	4	0
93.3	35.0	32	40.8	117	52.4	NH	07	06	29	0158	213	413	5.15	65	51.8	2	0
93.3	40.0	32	30.9	118	11.9	NH	07	06	29	0617	205	411	4.98	73	53.3	2	0
93.3	45.0	32	20.8	118	33.0	NH	07	06	29	0926	212	451	4.70	49	100.0	4	0
93.3	50.0	32	10.6	118	52.8	NH	07	06	29	1509	213	426	5.00	129	50.9	2	2
93.3	55.0	32	00.6	119	13.6	NH	07	06	29	1913	215	437	4.91	64	53.5	1	0
93.3	60.0	31	50.8	119	33.7	NH	07	06	29	2326	213	473	4.50	57	51.8	5	52
93.3	70.0	31	30.9	120	13.9	NH	07	06	30	0541	215	424	5.06	85	47.2	4	93
93.3	80.0	31	10.7	120	54.6	NH	07	06	30	1211	221	456	4.84	57	100.0	2	25
93.3	90.0	30	50.9	121	35.0	NH	07	06	30	1832	204	467	4.38	19	100.0	8	27
93.3	100.0	30	31.0	122	15.0	NH	07	07	01	0038	207	499	4.16	8	100.0	114	7
93.3	110.0	30	10.8	122	54.4	NH	07	07	01	0702	208	480	4.32	4	100.0	14	26
93.3	120.0	29	50.8	123	35.0	NH	07	07	01	1322	212	427	4.95	12	100.0	41	302
93.4	26.4	32	57.2	117	16.9	NH	07	06	28	1223	14	49	2.76	82	100.0	39	290

Table 5. (cont.)

CalCOFI Cruise 0711

Line	Station	Latitude (N) deg.	Latitude (N) min.	Longitude (W) deg.	Longitude (W) min.	Ship Code	Tow Date yr.	Tow Date mo.	Tow Date day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
76.7	51.0	35	01.1	120	55.1	NH	07	11	17	2201	210	461	4.56	65	53.3	0	23
76.7	55.0	34	53.2	121	12.0	NH	07	11	17	1829	201	488	4.11	141	49.2	1	0
76.7	60.0	34	43.1	121	32.9	NH	07	11	17	1348	210	457	4.59	26	100.0	2	2
76.7	70.0	34	23.3	122	14.8	NH	07	11	17	0546	217	432	5.01	42	100.0	5	0
76.7	80.0	34	03.1	122	56.5	NH	07	11	17	0028	210	470	4.46	68	53.1	0	0
76.7	90.0	33	43.3	123	38.0	NH	07	11	16	1810	209	460	4.53	143	53.0	1	0
80.0	51.0	34	27.0	120	31.4	NH	07	11	15	0742	47	137	3.45	37	100.0	2	27
80.0	55.0	34	19.0	120	48.1	NH	07	11	15	1125	190	490	3.88	49	50.0	2	1
80.0	60.0	34	09.0	121	09.2	NH	07	11	15	1606	210	434	4.83	23	100.0	5	0
80.0	70.0	33	48.8	121	50.3	NH	07	11	15	2223	212	443	4.77	56	100.0	4	0
80.0	80.0	33	29.0	122	32.0	NH	07	11	16	0458	205	474	4.32	51	100.0	4	2
80.0	90.0	33	09.0	123	13.4	NH	07	11	16	1209	208	460	4.50	54	100.0	4	1
81.8	46.9	34	16.5	120	01.5	NH	07	11	15	0331	208	437	4.75	105	52.1	0	74
83.3	39.4	34	15.4	119	19.4	NH	07	11	14	1647	14	46	2.99	22	100.0	0	0
83.3	40.6	34	13.5	119	24.8	NH	07	11	14	1523	27	80	3.39	12	100.0	1	9
83.3	42.0	34	10.7	119	30.5	NH	07	11	14	1113	111	246	4.51	12	100.0	1	42
83.3	51.0	33	52.7	120	08.0	NH	07	11	14	0511	67	171	3.88	23	100.0	1	24
83.3	55.0	33	44.7	120	24.6	NH	07	11	14	0148	202	472	4.27	59	53.5	0	2
83.3	60.0	33	34.4	120	45.3	NH	07	11	13	2107	208	474	4.39	42	100.0	7	2
83.3	70.0	33	14.7	121	26.8	NH	07	11	13	1418	221	441	5.00	20	100.0	0	0
83.3	80.0	32	54.7	122	07.7	NH	07	11	13	0703	209	464	4.49	13	100.0	6	8
83.3	90.0	32	34.5	122	48.7	NH	07	11	12	2354	214	473	4.52	23	100.0	6	5
83.3	100.0	32	14.8	123	29.5	NH	07	11	12	1701	208	472	4.40	8	100.0	11	4
83.3	110.0	31	54.7	124	10.2	NH	07	11	12	0826	210	492	4.25	12	100.0	5	7
86.7	33.0	33	53.3	118	29.6	NH	07	11	09	1845	42	100	4.20	20	100.0	10	19
86.7	35.0	33	49.3	118	37.6	NH	07	11	09	2115	213	435	4.90	37	100.0	4	2
86.7	40.0	33	39.4	118	58.5	NH	07	11	10	0147	221	415	5.33	67	50.0	0	0

Table 5. (cont.)

CalCOFI Cruise 0711 (cont.)

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	45.0	33	29.4	119	19.1	NH	07	11	10	0543	208	412	5.05	75	51.6	0	0
86.7	50.0	33	19.4	119	39.8	NH	07	11	10	0845	70	161	4.38	56	100.0	15	25
86.7	55.0	33	09.4	120	00.3	NH	07	11	10	1355	217	402	5.40	20	100.0	1	1
86.7	60.0	32	59.3	120	20.9	NH	07	11	10	1810	218	389	5.61	146	50.8	3	9
86.7	70.0	32	39.3	121	01.6	NH	07	11	11	0039	219	409	5.35	120	51.0	3	0
86.7	80.0	32	19.5	121	43.1	NH	07	11	11	0637	215	440	4.88	18	100.0	1	1
86.7	90.0	31	59.4	122	23.6	NH	07	11	11	1236	205	449	4.56	13	100.0	1	1
86.7	100.0	31	39.3	123	04.2	NH	07	11	11	1836	203	477	4.25	38	100.0	3	0
86.7	110.0	31	19.2	123	44.7	NH	07	11	12	0053	209	545	3.83	39	100.0	1	4
88.5	30.1	33	39.8	118	04.8	NH	07	11	09	1429	14	46	3.08	22	100.0	0	107
90.0	27.7	33	29.7	117	44.9	NH	07	11	09	1141	13	47	2.75	21	100.0	1	9
90.0	28.0	33	29.1	117	46.1	NH	07	11	09	0933	56	136	4.15	37	100.0	4	1
90.0	30.0	33	25.1	117	54.3	NH	07	11	09	0708	213	408	5.21	61	100.0	0	0
90.0	35.0	33	15.1	118	15.0	NH	07	11	09	0216	210	402	5.22	62	100.0	1	1
90.0	37.0	33	11.0	118	23.1	NH	07	11	08	2308	212	417	5.09	101	47.6	2	0
90.0	45.0	32	55.1	118	56.1	NH	07	11	08	1731	208	421	4.93	135	52.6	1	0
90.0	53.0	32	39.1	119	28.9	NH	07	11	08	1146	205	395	5.18	46	100.0	4	1
90.0	60.0	32	25.1	119	57.6	NH	07	11	08	0637	210	401	5.24	50	100.0	1	6
90.0	70.0	32	05.0	120	38.4	NH	07	11	07	2259	211	418	5.04	851	51.6	2	1
90.0	80.0	31	45.0	121	18.7	NH	07	11	07	1634	213	406	5.23	135	47.2	1	5
90.0	90.0	31	25.1	121	59.4	NH	07	11	07	0847	209	440	4.74	43	100.0	0	19
90.0	100.0	31	05.4	122	39.7	NH	07	11	07	0212	208	415	5.00	58	100.0	1	41
90.0	110.0	30	45.1	123	19.9	NH	07	11	06	1915	213	419	5.09	41	100.0	1	1
90.0	120.0	30	25.1	123	59.9	NH	07	11	06	1237	219	390	5.63	44	100.0	7	24
93.3	26.7	32	57.2	117	18.6	NH	07	11	03	0041	173	369	4.70	92	52.9	0	0
93.3	28.0	32	54.8	117	23.7	NH	07	11	03	0625	211	421	5.02	312	50.3	0	0
93.3	30.0	32	50.8	117	31.9	NH	07	11	03	0831	208	426	4.88	40	100.0	1	0
93.3	35.0	32	40.8	117	52.4	NH	07	11	03	1309	218	401	5.44	20	100.0	0	0

Table 5. (cont.) CalCOFI Cruise 0711 (cont.)

Line	Station	Latitude (N) deg.	Latitude (N) min.	Longitude (W) deg.	Longitude (W) min.	Ship Code	Tow Date yr.	Tow Date mo.	Tow Date day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
93.3	40.0	32	30.9	118	12.8	NH	07	11	03	1847	208	434	4.78	62	51.8	4	0
93.3	45.0	32	20.9	118	33.1	NH	07	11	04	0040	208	419	4.96	155	49.2	0	0
93.3	50.0	32	10.8	118	53.6	NH	07	11	04	0500	217	391	5.54	120	53.1	0	3
93.3	55.0	32	00.8	119	14.0	NH	07	11	04	0829	210	425	4.95	19	100.0	3	0
93.3	60.0	31	50.9	119	34.2	NH	07	11	04	1504	209	447	4.67	25	100.0	3	2
93.3	70.0	31	30.8	120	14.6	NH	07	11	04	2148	209	443	4.71	108	54.1	2	1
93.3	80.0	31	10.8	120	55.2	NH	07	11	05	0421	201	455	4.41	75	100.0	9	7
93.3	90.0	30	50.8	121	35.4	NH	07	11	05	1052	211	458	4.61	37	100.0	5	5
93.3	100.0	30	30.8	122	15.6	NH	07	11	05	1706	219	445	4.92	67	100.0	2	18
93.3	110.0	30	10.7	122	55.2	NH	07	11	05	2320	214	427	4.99	19	100.0	3	3
93.3	120.0	29	50.8	123	35.2	NH	07	11	06	0526	219	427	5.14	28	100.0	11	35
93.4	26.4	32	57.2	117	16.8	NH	07	11	03	0223	15	44	3.50	23	100.0	0	12

Table 6. Pooled occurrences of fish larvae taken in Bongo net tows on CalCOFI cruises 2007.

Rank	Taxon	Occurrences
1	*Sebastes* spp.	90
2	*Stenobrachius leucopsarus*	74
3	*Protomyctophum crockeri*	70
4	*Leuroglossus stilbius*	68
5	*Engraulis mordax*	46
5	*Symbolophorus californiensis*	46
7	*Lipolagus ochotensis*	45
8	*Nannobrachium* spp.	42
9	*Citharichthys stigmaeus*	41
10	*Sardinops sagax*	36
11	*Triphoturus mexicanus*	34
12	*Vinciguerria lucetia*	31
13	*Cyclothone signata*	30
14	*Diogenichthys atlanticus*	26
14	*Ceratoscopelus townsendi*	26
16	*Merluccius productus*	25
16	*Nannobrachium ritteri*	25
16	*Bathylagoides wesethi*	25
19	*Sebastes jordani*	24
20	*Danaphos oculatus*	23
20	*Diaphus* spp.	23
22	*Trachurus symmetricus*	20
23	*Citharichthys sordidus*	17
24	*Sebastes paucispinis*	15
25	*Chauliodus macouni*	13
26	*Tarletonbeania crenularis*	11
26	*Genyonemus lineatus*	11
26	*Hypsoblennius jenkinsi*	11
26	Myctophidae	11
26	*Idiacanthus antrostomus*	11
26	*Microstoma* spp.	11
32	*Stomias atriventer*	9
32	*Sternoptyx* spp.	9
32	*Rhinogobiops nicholsii*	9
35	*Lestidiops ringens*	8
35	*Argyropelecus sladeni*	8
37	*Cyclothone* spp.	7
38	*Melamphaes lugubris*	6
38	*Melamphaes* spp.	6
38	*Sphyraena argentea*	6
41	*Cololabis saira*	5
41	*Hypsoblennius gilberti*	5
41	Unidentified fish larvae	5
41	*Argyropelecus affinis*	5
41	*Lyopsetta exilis*	5
41	*Benthalbella dentata*	5
41	*Zaniolepis latipinnis*	5

Table 6. (cont.)

Rank	Taxon	Occurrences
41	*Odontopyxis trispinosa*	5
41	*Icelinus quadriseriatus*	5
41	Disintegrated fish larvae	5
51	*Hypsoblennius* spp.	4
51	*Argyropelecus* spp.	4
51	*Paralabrax* spp.	4
51	*Liparis mucosus*	4
51	*Atherinopsis californiensis*	4
51	*Lepidogobius lepidus*	4
51	*Melamphaes parvus*	4
51	*Scopelosaurus* spp.	4
51	*Aristostomias scintillans*	4
51	*Pseudobathylagus milleri*	4
51	*Sebastes diploproa*	4
62	*Rosenblattichthys volucris*	3
62	*Electrona risso*	3
62	*Myctophum nitidulum*	3
62	*Chiasmodon subniger*	3
62	*Nansenia candida*	3
62	*Nannobrachium regale*	3
62	*Nannobrachium bristori*	3
62	*Typhlogobius californiensis*	3
62	*Sebastolobus* spp.	3
62	*Sebastes levis*	3
62	*Seriphus politus*	3
62	*Pleuronichthys verticalis*	3
62	*Poromitra crassiceps*	3
62	*Tactostoma macropus*	3
62	*Scorpaenichthys marmoratus*	3
62	*Sebastes aurora*	3
78	*Quietula y-cauda*	2
78	*Ichthyococcus irregularis*	2
78	*Argyropelecus lychnus*	2
78	*Brosmophycis marginata*	2
78	*Citharichthys* spp.	2
78	*Vinciguerria poweriae*	2
78	*Argyropelecus hemigymnus*	2
78	*Paralichthys californicus*	2
78	*Hypsypops rubicundus*	2
78	*Argentina sialis*	2
78	*Ruscarius creaseri*	2
78	*Artedius harringtoni*	2
78	*Zaniolepis frenata*	2
78	*Bathylagus pacificus*	2
78	*Parophrys vetulus*	2
78	*Chromis punctipinnis*	2
78	*Diogenichthys laternatus*	2
78	*Oxyjulis californica*	2

Table 6. (cont.)

Rank	Taxon	Occurrences
78	*Hygophum reinhardtii*	2
78	*Rathbunella spp.*	2
78	*Notolychnus valdiviae*	2
78	*Leuresthes tenuis*	2
78	*Melamphaes simus*	2
101	Sternoptychidae	1
101	*Peprilus simillimus*	1
101	*Pleuronichthys coenosus*	1
101	*Vinciguerria* spp.	1
101	*Microstomus pacificus*	1
101	*Cyclothone acclinidens*	1
101	*Sigmops elongatum*	1
101	*Hypsopsetta guttulata*	1
101	*Hippoglossina stomata*	1
101	*Xystreurys liolepis*	1
101	*Trachipterus altivelis*	1
101	*Xeneretmus latifrons*	1
101	*Bathyagonus pentacanthus*	1
101	*Artedius lateralis*	1
101	*Oxylebius pictus*	1
101	*Scorpaenodes xyris*	1
101	*Menticirrhus undulatus*	1
101	*Sebastes goodei*	1
101	*Medialuna californiensis*	1
101	*Macroramphosus gracilis*	1
101	*Scopelogadus mizolepis bispinosus*	1
101	*Poromitra megalops*	1
101	*Hypsoblennius gentilis*	1
101	Macrouridae	1
101	*Tetragonurus cuvieri*	1
101	*Gibbonsia* spp.	1
101	*Neoclinus* spp.	1
101	*Neoclinus stephensae*	1
101	*Parvilux ingens*	1
101	*Nannobrachium hawaiiensis*	1
101	*Lampanyctus tenuiformis*	1
101	*Lampanyctus steinbecki*	1
101	*Arctozenus risso*	1
101	Paralepididae	1
101	*Scopelarchus analis*	1
101	*Diplospinus multistriatus*	1
101	*Cataetyx rubrirostris*	1
	Total	1274

Table 7. Pooled counts of fish larvae taken in Bongo net tows on CalCOFI cruises in 2007. Counts are adjusted for percent of sample sorted and standard haul factor (see text).

Rank	Taxon	Count
1	*Sardinops sagax*	9998
2	*Sebastes* spp.	4501
3	*Leuroglossus stilbius*	1940
4	*Vinciguerria lucetia*	1810
5	*Stenobrachius leucopsarus*	1537
6	*Engraulis mordax*	1508
7	*Ceratoscopelus townsendi*	917
8	*Lipolagus ochotensis*	836
9	*Protomyctophum crockeri*	815
10	*Merluccius productus*	768
11	*Sebastes jordani*	682
12	*Symbolophorus californiensis*	571
13	*Triphoturus mexicanus*	513
14	*Nannobrachium* spp.	496
15	*Trachurus symmetricus*	425
16	*Cyclothone signata*	381
17	*Bathylagoides wesethi*	354
18	*Citharichthys stigmaeus*	337
19	*Diaphus* spp.	282
20	*Hypsoblennius jenkinsi*	250
21	*Diogenichthys atlanticus*	230
22	*Nannobrachium ritteri*	197
23	*Sebastes paucispinis*	187
24	*Danaphos oculatus*	168
25	*Citharichthys sordidus*	167
26	*Rhinogobiops nicholsii*	130
27	*Idiacanthus antrostomus*	123
28	*Chauliodus macouni*	120
29	*Genyonemus lineatus*	99
30	*Microstoma* spp.	93
30	*Tarletonbeania crenularis*	93
32	*Hypsoblennius* spp.	76
33	Myctophidae	72
34	*Cyclothone* spp.	62
35	*Sternoptyx* spp.	58
36	*Cololabis saira*	52
36	*Sphyraena argentea*	52
38	*Stomias atriventer*	51
39	*Melamphaes lugubris*	50
40	*Melamphaes* spp.	49
41	*Liparis mucosus*	48
42	*Atherinopsis californiensis*	46
43	*Argyropelecus sladeni*	43
44	*Sebastes diploproa*	42
45	*Odontopyxis trispinosa*	41

Table 7. (cont.)

Rank	Taxon	Count
46	*Lestidiops ringens*	39
46	*Zaniolepis latipinnis*	39
48	*Nannobrachium bristori*	37
49	*Sebastes levis*	35
50	*Benthalbella dentata*	34
50	*Lyopsetta exilis*	34
52	*Argyropelecus affinis*	32
52	*Pseudobathylagus milleri*	32
52	*Nannobrachium regale*	32
52	*Melamphaes parvus*	32
52	*Seriphus politus*	32
57	*Notolychnus valdiviae*	31
58	*Icelinus quadriseriatus*	30
59	*Citharichthys* spp.	29
59	Disintegrated fish larvae	29
59	*Myctophum nitidulum*	29
62	*Paralabrax* spp.	28
63	*Brosmophycis marginata*	27
64	*Argyropelecus* spp.	26
64	*Sebastolobus* spp.	26
64	*Hypsoblennius gilberti*	26
67	*Argentina sialis*	25
67	*Sebastes aurora*	25
67	*Aristostomias scintillans*	25
70	*Scorpaenichthys marmoratus*	24
71	Unidentified fish larvae	23
72	*Gibbonsia* spp.	22
72	*Scopelosaurus* spp.	22
74	*Macroramphosus gracilis*	21
74	*Typhlogobius californiensis*	21
76	*Diogenichthys laternatus*	20
76	*Hygophum reinhardtii*	20
76	*Medialuna californiensis*	20
76	*Leuresthes tenuis*	20
80	*Oxyjulis californica*	19
81	*Nansenia candida*	18
81	*Rosenblattichthys volucris*	18
83	*Lepidogobius lepidus*	17
84	*Lampanyctus steinbecki*	16
84	*Pleuronichthys verticalis*	16
84	*Poromitra crassiceps*	16
84	*Paralichthys californicus*	16
88	*Chiasmodon subniger*	15
88	*Chromis punctipinnis*	15
88	*Electrona risso*	15
91	*Ichthyococcus irregularis*	14
92	*Argyropelecus hemigymnus*	13
92	*Tactostoma macropus*	13

Table 7. (cont.)

Rank	Taxon	Count
94	*Hypsypops rubicundus*	12
94	*Ruscarius creaseri*	12
96	*Bathylagus pacificus*	11
96	*Cyclothone acclinidens*	11
96	*Sebastes goodei*	11
99	*Vinciguerria poweriae*	10
99	*Microstomus pacificus*	10
99	*Artedius harringtoni*	10
99	*Bathyagonus pentacanthus*	10
99	*Melamphaes simus*	10
104	*Rathbunella* spp.	9
104	*Argyropelecus lychnus*	9
104	*Zaniolepis frenata*	9
104	Paralepididae	9
108	*Cataetyx rubrirostris*	8
108	*Quietula y-cauda*	8
108	*Peprilus simillimus*	8
108	*Parophrys vetulus*	8
112	*Tetragonurus cuvieri*	5
112	*Parvilux ingens*	5
112	*Diplospinus multistriatus*	5
112	*Scorpaenodes xyris*	5
112	*Arctozenus risso*	5
112	Macrouridae	5
112	*Trachipterus altivelis*	5
112	*Lampanyctus tenuiformis*	5
112	*Scopelarchus analis*	5
112	*Nannobrachium hawaiiensis*	5
112	*Hippoglossina stomata*	5
112	*Scopelogadus mizolepis bispinosus*	5
124	*Pleuronichthys coenosus*	4
124	*Sigmops elongatum*	4
124	*Hypsopsetta guttulata*	4
124	*Vinciguerria* spp.	4
124	*Sternoptychidae*	4
124	*Neoclinus* spp.	4
124	*Xeneretmus latifrons*	4
124	*Oxylebius pictus*	4
124	*Poromitra megalops*	4
133	*Hypsoblennius gentilis*	3
133	*Neoclinus stephensae*	3
133	*Xystreurys liolepis*	3
133	*Menticirrhus undulatus*	3
133	*Artedius lateralis*	3
	Total	32724

Table 8. Numbers of fish larvae taken in Bongo net tows at stations occupied on CalCOFI cruises in 2007, listed by taxon, station, and month. Counts are adjusted for percent of sample sorted and standard haul factor (see text). Unoccupied stations are indicated by a dash.

Sardinops sagax

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 90.0	-	-	-	16.7	-	-	-	-	-	-	-	-
66.7 100.0	-	-	-	20.2	-	-	-	-	-	-	-	-
76.7 80.0	0.0	-	-	153.3	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	-	3.3	-	-	0.0	-	-	-	-	-
80.0 70.0	0.0	-	-	77.6	-	-	17.4	-	-	-	0.0	-
80.0 80.0	0.0	-	-	85.0	-	-	0.0	-	-	-	0.0	-
80.0 90.0	0.0	-	-	192.1	-	-	0.0	-	-	-	0.0	-
80.0 100.0	0.0	-	-	79.4	-	-	0.0	-	-	-	-	-
83.3 70.0	0.0	-	-	80.9	-	-	0.0	-	-	-	0.0	-
83.3 90.0	0.0	-	-	55.8	-	-	0.0	-	-	-	0.0	-
83.3 100.0	0.0	-	-	482.5	-	-	0.0	-	-	-	0.0	-
83.3 110.0	0.0	-	-	91.3	-	-	0.0	-	-	-	0.0	-
86.7 33.0	26.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 45.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-
86.7 50.0	0.0	-	-	5.6	-	-	0.0	-	-	-	0.0	-
86.7 70.0	0.0	-	-	393.7	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	-	451.8	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	-	613.0	-	-	0.0	-	-	-	0.0	-
86.7 110.0	0.0	-	-	10.1	-	-	0.0	-	-	-	0.0	-
90.0 35.0	22.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 37.0	68.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 45.0	0.0	-	-	150.9	-	-	0.0	-	-	-	0.0	-
90.0 60.0	0.0	-	-	62.0	-	-	0.0	-	-	-	0.0	-
90.0 70.0	0.0	-	-	310.5	-	-	0.0	-	-	-	0.0	-
90.0 80.0	0.0	-	-	1476.7	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	-	2013.2	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	374.5	-	-	0.0	-	-	-	0.0	-
91.7 26.4	0.0	-	0.0	-	-	3.8	-	-	-	-	-	-

Table 8. (cont.)

Sardinops sagax (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3	45.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3	55.0	0.0	-	739.8	-	-	0.0	-	-	-	-	0.0	-
93.3	60.0	0.0	-	545.0	-	-	0.0	-	-	-	-	0.0	-
93.3	70.0	0.0	-	-	165.4	-	0.0	-	-	-	-	0.0	-
93.3	80.0	0.0	-	-	294.0	-	0.0	-	-	-	-	0.0	-
93.3	90.0	0.0	-	-	899.7	-	0.0	-	-	-	-	0.0	-
93.4	26.4	0.0	-	-	-	-	5.5	-	-	-	-	0.0	-

Engraulis mordax

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	51.0	0.0	-	-	10.1	-	-	0.0	-	-	-	0.0	-
76.7	55.0	10.1	-	-	0.0	-	-	19.1	-	-	-	0.0	-
76.7	60.0	0.0	-	-	0.0	-	-	100.4	-	-	-	0.0	-
80.0	51.0	0.0	-	-	0.0	-	-	4.5	-	-	-	0.0	-
81.8	46.9	0.0	-	-	0.0	-	-	39.1	-	-	-	0.0	-
83.3	40.6	0.0	-	-	-	-	-	150.1	-	-	-	0.0	-
83.3	42.0	0.0	-	-	-	-	-	9.0	-	-	-	0.0	-
83.3	51.0	0.0	-	-	-	-	-	17.0	-	-	-	0.0	-
83.3	55.0	9.9	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	60.0	0.0	-	-	-	-	-	10.1	-	-	-	0.0	-
86.7	33.0	4.4	-	-	34.8	-	-	0.0	-	-	-	0.0	-
86.7	35.0	10.3	-	-	5.3	-	-	9.5	-	-	-	0.0	-
86.7	45.0	0.0	-	-	133.6	-	-	0.0	-	-	-	0.0	-
86.7	50.0	8.6	-	-	78.0	-	-	0.0	-	-	-	0.0	-
86.7	60.0	0.0	-	-	-	-	-	16.5	-	-	-	0.0	-
88.5	30.1	-	-	-	25.0	-	-	0.0	-	-	-	0.0	-
90.0	27.7	2.6	-	-	44.9	-	-	0.0	-	-	-	0.0	-
90.0	28.0	19.0	-	-	111.8	-	-	8.1	-	-	-	0.0	-
90.0	30.0	0.0	-	-	9.7	-	-	0.0	-	-	-	0.0	-
90.0	35.0	0.0	-	-	17.0	-	-	0.0	-	-	-	0.0	-
90.0	45.0	0.0	-	-	11.6	-	-	0.0	-	-	-	0.0	-
90.0	53.0	0.0	-	-	22.1	-	-	0.0	-	-	-	0.0	-
90.0	60.0	0.0	-	-	82.6	-	-	27.8	-	-	-	0.0	-
90.0	70.0	9.8	-	-	0.0	-	-	4.9	-	-	-	0.0	-

Table 8. (cont.)

Engraulis mordax (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 26.4	5.1	-	6.9	-	-	7.7	-	-	-	-	-	-
93.3 28.0	0.0	-	74.1	-	-	0.0	-	-	-	-	0.0	-
93.3 30.0	0.0	-	53.8	-	-	0.0	-	-	-	-	0.0	-
93.3 35.0	0.0	-	83.7	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	0.0	-	16.3	-	-	0.0	-	-	-	-	0.0	-
93.3 50.0	0.0	-	69.3	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	54.4	-	-	0.0	-	-	-	-	0.0	-
93.3 60.0	0.0	-	31.4	-	-	17.4	-	-	-	-	0.0	-
93.3 70.0	0.0	-	-	0.0	-	10.7	-	-	-	-	0.0	-

Argentina sialis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8 46.9	0.0	-	-	5.5	-	-	19.5	-	-	-	0.0	-

***Microstoma* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	0.0	-	-	3.4	-	-	0.0	-	-	-	0.0	-
80.0 100.0	0.0	-	-	5.0	-	-	0.0	-	-	-	-	-
83.3 55.0	0.0	-	-	-	-	-	9.3	-	-	-	0.0	-
83.3 80.0	9.8	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7 55.0	0.0	-	-	0.0	-	-	16.6	-	-	-	0.0	-
86.7 70.0	8.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-
90.0 37.0	0.0	-	-	0.0	-	-	9.9	-	-	-	0.0	-
90.0 70.0	0.0	-	-	0.0	-	-	4.9	-	-	-	0.0	-
90.0 100.0	0.0	-	-	11.2	-	-	0.0	-	-	-	0.0	-
93.3 60.0	9.1	-	0.0	-	-	0.0	-	-	-	-	0.0	-

Nansenia candida

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 80.0	0.0	-	-	0.0	-	-	8.6	-	-	-	0.0	-
90.0 100.0	0.0	-	-	0.0	-	-	4.5	-	-	-	0.0	-
93.3 90.0	0.0	-	-	5.4	-	0.0	-	-	-	-	0.0	-

Bathylagoides wesethi

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Bathylagoides wesethi (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 80.0	0.0	-	-	-	-	-	0.0	-	-	-	4.5	-
83.3 90.0	0.0	-	-	0.0	-	-	10.0	-	-	-	0.0	-
83.3 100.0	0.0	-	-	0.0	-	-	4.4	-	-	-	4.4	-
83.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.3	-
86.7 100.0	0.0	-	-	0.0	-	-	60.1	-	-	-	0.0	-
86.7 110.0	0.0	-	-	0.0	-	-	17.9	-	-	-	0.0	-
90.0 45.0	0.0	-	-	11.6	-	-	0.0	-	-	-	0.0	-
90.0 80.0	0.0	-	-	27.6	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	-	10.7	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	0.0	-	-	22.4	-	-	-	0.0	-
90.0 110.0	0.0	-	-	0.0	-	-	4.4	-	-	-	0.0	-
90.0 120.0	0.0	-	-	0.0	-	-	52.2	-	-	-	5.6	-
93.3 40.0	0.0	-	5.1	-	-	0.0	-	-	-	-	0.0	-
93.3 70.0	0.0	-	-	15.5	-	0.0	-	-	-	-	0.0	-
93.3 80.0	0.0	-	-	0.0	-	0.0	-	-	-	-	8.8	-
93.3 90.0	5.2	-	-	21.7	-	17.5	-	-	-	-	4.6	-
93.3 100.0	19.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 120.0	4.9	-	-	0.0	-	-	5.0	-	-	-	0.0	-

Bathylagus pacificus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 80.0	4.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.0	-	-	5.7	-	-	0.0	-	-	-	0.0	-

Leuroglossus stilbius

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 50.0	29.7	-	-	0.0	-	-	-	-	-	-	-	-
66.7 55.0	18.6	-	-	0.0	-	-	-	-	-	-	-	-
66.7 60.0	132.6	-	-	10.8	-	-	-	-	-	-	-	-
66.7 70.0	-	18.9	-	0.0	-	-	-	-	-	-	-	-
76.7 51.0	0.0	-	-	30.3	-	-	0.0	-	-	-	0.0	-
76.7 55.0	80.8	-	-	11.0	-	-	0.0	-	-	-	0.0	-
76.7 60.0	9.6	-	-	9.9	-	-	0.0	-	-	-	0.0	-
76.7 70.0	5.2	-	-	5.1	-	-	0.0	-	-	-	0.0	-
76.7 90.0	20.8	-	-	-	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Leuroglossus stilbius (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	167.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	55.0	100.2	-	-	28.7	-	-	0.0	-	-	-	0.0	-
80.0	60.0	75.2	-	-	43.0	-	-	0.0	-	-	-	0.0	-
80.0	70.0	4.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	80.0	4.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	90.0	10.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
81.8	46.9	51.7	-	-	27.4	-	-	19.5	-	-	-	0.0	-
83.3	51.0	0.0	-	-	-	-	-	4.3	-	-	-	0.0	-
83.3	55.0	44.6	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	60.0	47.1	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	70.0	9.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3	80.0	49.2	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	0.0	-	-	31.9	-	-	9.5	-	-	-	0.0	-
86.7	40.0	19.3	-	-	21.8	-	-	0.0	-	-	-	0.0	-
86.7	45.0	0.0	-	-	15.4	-	-	18.2	-	-	-	0.0	-
86.7	50.0	0.0	-	-	16.7	-	-	4.5	-	-	-	0.0	-
86.7	55.0	9.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	60.0	18.6	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7	70.0	8.4	-	-	25.9	-	-	0.0	-	-	-	0.0	-
86.7	80.0	0.0	-	-	27.6	-	-	9.6	-	-	-	0.0	-
86.7	90.0	0.0	-	-	23.6	-	-	0.0	-	-	-	0.0	-
90.0	37.0	41.9	-	-	15.8	-	-	0.0	-	-	-	0.0	-
90.0	45.0	20.1	-	-	46.4	-	-	0.0	-	-	-	0.0	-
90.0	53.0	0.0	-	-	33.2	-	-	10.5	-	-	-	0.0	-
90.0	60.0	0.0	-	-	41.3	-	-	9.3	-	-	-	0.0	-
90.0	80.0	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-
90.0	90.0	0.0	-	-	37.4	-	-	0.0	-	-	-	0.0	-
93.3	28.0	0.0	-	52.9	-	-	0.0	-	-	-	-	0.0	-
93.3	30.0	0.0	-	64.6	-	-	20.7	-	-	-	-	0.0	-
93.3	35.0	0.0	-	41.8	-	-	0.0	-	-	-	-	0.0	-
93.3	45.0	4.6	-	37.9	-	-	0.0	-	-	-	-	0.0	-
93.3	50.0	0.0	-	49.5	-	-	9.8	-	-	-	-	0.0	-
93.3	55.0	0.0	-	21.8	-	-	0.0	-	-	-	-	0.0	-

Table 8. (cont.)

Leuroglossus stilbius (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3	60.0	0.0	-	0.0	-	-	8.7	-	-	-	-	0.0	-
93.3	70.0	5.2	-	-	10.3	-	0.0	-	-	-	-	0.0	-
93.3	80.0	0.0	-	-	5.3	-	0.0	-	-	-	-	0.0	-
93.3	90.0	0.0	-	-	10.8	-	0.0	-	-	-	-	0.0	-

Lipolagus ochotensis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	50.0	9.9	-	-	0.0	-	-	-	-	-	-	-	-
66.7	55.0	9.3	-	-	0.0	-	-	-	-	-	-	-	-
66.7	60.0	102.0	-	-	10.8	-	-	-	-	-	-	-	-
66.7	70.0	-	4.7	-	0.0	-	-	-	-	-	-	-	-
66.7	80.0	-	9.5	-	11.0	-	-	-	-	-	-	-	-
66.7	90.0	-	-	-	5.6	-	-	-	-	-	-	-	-
76.7	55.0	0.0	-	-	0.0	-	-	0.0	-	-	-	8.4	-
76.7	60.0	19.2	-	-	5.0	-	-	0.0	-	-	-	0.0	-
76.7	70.0	10.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7	100.0	15.4	-	-	0.0	-	-	0.0	-	-	-	-	-
80.0	55.0	0.0	-	-	19.2	-	-	0.0	-	-	-	0.0	-
80.0	60.0	112.8	-	-	10.8	-	-	0.0	-	-	-	0.0	-
80.0	70.0	9.6	-	-	5.5	-	-	0.0	-	-	-	4.8	-
80.0	80.0	9.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	100.0	0.0	-	-	9.9	-	-	0.0	-	-	-	-	-
83.3	60.0	28.3	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	80.0	39.4	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7	50.0	8.6	-	-	5.6	-	-	0.0	-	-	-	0.0	-
86.7	70.0	8.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	80.0	18.1	-	-	33.1	-	-	0.0	-	-	-	0.0	-
86.7	90.0	4.9	-	-	11.8	-	-	0.0	-	-	-	0.0	-
86.7	100.0	7.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0	37.0	0.0	-	-	5.3	-	-	0.0	-	-	-	10.7	-
90.0	45.0	0.0	-	-	34.8	-	-	0.0	-	-	-	0.0	-
90.0	53.0	0.0	-	-	22.1	-	-	0.0	-	-	-	0.0	-
90.0	60.0	0.0	-	-	41.3	-	-	0.0	-	-	-	0.0	-
90.0	90.0	0.0	-	-	26.7	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Lipolagus ochotensis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 28.0	0.0	-	10.6	-	-	0.0	-	-	-	-	0.0	-
93.3 30.0	0.0	-	0.0	-	-	10.4	-	-	-	-	0.0	-
93.3 35.0	0.0	-	5.2	-	-	0.0	-	-	-	-	0.0	-
93.3 40.0	0.0	-	15.2	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	0.0	-	10.8	-	-	0.0	-	-	-	-	0.0	-
93.3 50.0	0.0	-	19.8	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	49.0	-	-	0.0	-	-	-	-	0.0	-
93.3 80.0	0.0	-	-	5.3	-	0.0	-	-	-	-	0.0	-

Pseudobathylagus milleri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 60.0	0.0	-	-	10.8	-	-	-	-	-	-	-	-
66.7 90.0	-	-	-	5.6	-	-	-	-	-	-	-	-
76.7 80.0	4.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 55.0	0.0	-	-	9.6	-	-	0.0	-	-	-	0.0	-

***Cyclothone* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	25.7	-	-	0.0	-	-	0.0	-	-	-	-	-
86.7 110.0	0.0	-	-	5.0	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.0	-	-	0.0	-	-	8.8	-	-	-	0.0	-
93.3 80.0	0.0	-	-	0.0	-	0.0	-	-	-	-	4.4	-
93.3 90.0	0.0	-	-	0.0	-	0.0	-	-	-	-	4.6	-
93.3 100.0	0.0	-	-	0.0	-	-	4.2	-	-	-	0.0	-
93.3 110.0	0.0	-	-	0.0	-	-	8.6	-	-	-	0.0	-

Cyclothone acclinidens

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	10.8	-	-	0.0	-	-	-	0.0	-

Cyclothone signata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 90.0	-	-	-	5.6	-	-	-	-	-	-	-	-
76.7 80.0	0.0	-	-	20.4	-	-	0.0	-	-	-	0.0	-
76.7 100.0	5.1	-	-	0.0	-	-	0.0	-	-	-	-	-
80.0 80.0	0.0	-	-	0.0	-	-	4.8	-	-	-	0.0	-
80.0 90.0	0.0	-	-	3.4	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Cyclothone signata (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 80.0	0.0	-	-	-	-	-	0.0	-	-	-	4.5	-
83.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.4	-
83.3 110.0	0.0	-	-	5.1	-	-	0.0	-	-	-	4.3	-
86.7 100.0	0.0	-	-	5.0	-	-	0.0	-	-	-	0.0	-
90.0 80.0	4.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 100.0	13.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.0	-	-	0.0	-	-	13.2	-	-	-	0.0	-
90.0 120.0	10.1	-	-	96.8	-	-	21.8	-	-	-	5.6	-
93.3 45.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 70.0	5.2	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3 80.0	10.0	-	-	0.0	-	0.0	-	-	-	-	4.4	-
93.3 90.0	10.3	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3 100.0	34.3	-	-	10.5	-	-	8.3	-	-	-	0.0	-
93.3 110.0	25.9	-	-	15.6	-	-	0.0	-	-	-	0.0	-
93.3 120.0	9.7	-	-	10.2	-	-	0.0	-	-	-	0.0	-

Sigmops elongatum

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.4	-

Sternoptychidae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 100.0	0.0	-	-	0.0	-	-	4.2	-	-	-	0.0	-

***Argyropelecus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 35.0	5.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	0.0	-	-	4.5	-	-	-	0.0	-
90.0 110.0	0.0	-	-	11.5	-	-	0.0	-	-	-	0.0	-
93.3 80.0	5.0	-	-	0.0	-	0.0	-	-	-	-	0.0	-

Argyropelecus affinis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 100.0	0.0	-	-	0.0	-	-	5.0	-	-	-	0.0	-
86.7 110.0	0.0	-	-	5.0	-	-	0.0	-	-	-	0.0	-
90.0 80.0	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Argyropelecus affinis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 45.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 80.0	0.0	-	-	10.5	-	0.0	-	-	-	-	0.0	-

Argyropelecus hemigymnus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 35.0	0.0	-	-	0.0	-	-	9.5	-	-	-	0.0	-
93.3 80.0	0.0	-	-	0.0	-	0.0	-	-	-	-	4.4	-

Argyropelecus lychnus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	5.4	-	-	0.0	-	-	-	0.0	-
93.3 55.0	4.4	-	0.0	-	-	0.0	-	-	-	-	0.0	-

Argyropelecus sladeni

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	0.0	-	-	0.0	-	-	4.8	-	-	-	0.0	-
83.3 80.0	0.0	-	-	-	-	-	0.0	-	-	-	4.5	-
86.7 100.0	0.0	-	-	5.0	-	-	5.0	-	-	-	0.0	-
86.7 110.0	0.0	-	-	10.1	-	-	0.0	-	-	-	0.0	-
93.3 55.0	4.4	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 120.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-

Danaphos oculatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	4.7	-	0.0	-	-	-	-	-	-	-	-
83.3 110.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-
86.7 35.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.9	-
86.7 55.0	9.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 70.0	0.0	-	-	0.0	-	-	9.9	-	-	-	0.0	-
86.7 90.0	0.0	-	-	11.8	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	-	0.0	-	-	5.0	-	-	-	0.0	-
86.7 110.0	0.0	-	-	5.0	-	-	0.0	-	-	-	0.0	-
90.0 70.0	9.8	-	-	0.0	-	-	9.7	-	-	-	0.0	-
90.0 80.0	0.0	-	-	11.0	-	-	0.0	-	-	-	0.0	-
90.0 110.0	4.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 120.0	5.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 28.0	0.0	-	5.3	-	-	0.0	-	-	-	-	0.0	-

Table 8. (cont.)

Danaphos oculatus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 30.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 35.0	0.0	-	5.2	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	0.0	-	10.8	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	4.4	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3 60.0	0.0	-	0.0	-	-	0.0	-	-	-	-	4.7	-
93.3 90.0	0.0	-	-	10.8	-	0.0	-	-	-	-	0.0	-
93.3 100.0	4.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 110.0	5.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	-	0.0	-	-	0.0	-	-	-	15.4	-

***Sternoptyx* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 100.0	-	-	-	5.1	-	-	-	-	-	-	-	-
76.7 100.0	5.1	-	-	0.0	-	-	0.0	-	-	-	-	-
83.3 100.0	0.0	-	-	5.6	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	-	0.0	-	-	5.0	-	-	-	0.0	-
90.0 70.0	0.0	-	-	0.0	-	-	4.9	-	-	-	0.0	-
90.0 100.0	0.0	-	-	5.6	-	-	4.5	-	-	-	0.0	-
90.0 120.0	0.0	-	-	0.0	-	-	17.4	-	-	-	0.0	-
93.3 28.0	0.0	-	0.0	-	-	5.0	-	-	-	-	0.0	-

Ichthyococcus irregularis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 60.0	9.3	-	-	-	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.1	-

***Vinciguerria* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 100.0	4.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Vinciguerria lucetia

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 80.0	0.0	-	-	0.0	-	-	0.0	-	-	-	8.6	-
83.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.5	-
83.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.4	-
83.3 110.0	0.0	-	-	0.0	-	-	8.9	-	-	-	0.0	-
86.7 100.0	0.0	-	-	0.0	-	-	80.2	-	-	-	0.0	-

Table 8. (cont.)

Vinciguerria lucetia (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 110.0	4.9	-	-	0.0	-	-	134.1	-	-	-	0.0	-
90.0 45.0	10.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 80.0	0.0	-	-	11.0	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	0.0	-	-	58.1	-	-	-	0.0	-
90.0 110.0	0.0	-	-	0.0	-	-	224.9	-	-	-	0.0	-
90.0 120.0	15.2	-	-	64.6	-	-	435.0	-	-	-	0.0	-
93.3 40.0	0.0	-	5.1	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	0.0	-	10.8	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	17.5	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3 80.0	25.1	-	-	0.0	-	4.8	-	-	-	-	0.0	-
93.3 90.0	10.3	-	-	0.0	-	0.0	-	-	-	-	4.6	-
93.3 100.0	58.8	-	-	78.9	-	-	291.2	-	-	-	0.0	-
93.3 110.0	5.2	-	-	20.8	-	-	17.3	-	-	-	0.0	-
93.3 120.0	19.5	-	-	20.4	-	-	133.7	-	-	-	20.6	-

Vinciguerria poweriae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 90.0	5.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	-	5.4	-	-	0.0	-	-	-	0.0	-

Chauliodus macouni

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	4.7	-	0.0	-	-	-	-	-	-	-	-
76.7 80.0	0.0	-	-	0.0	-	-	18.1	-	-	-	0.0	-
83.3 80.0	0.0	-	-	-	-	-	0.0	-	-	-	4.5	-
83.3 90.0	0.0	-	-	4.7	-	-	0.0	-	-	-	0.0	-
83.3 110.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-
86.7 45.0	0.0	-	-	0.0	-	-	9.1	-	-	-	0.0	-
86.7 55.0	0.0	-	-	12.7	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.9	-
90.0 37.0	0.0	-	-	0.0	-	-	19.8	-	-	-	0.0	-
90.0 45.0	0.0	-	-	11.6	-	-	0.0	-	-	-	0.0	-
90.0 60.0	0.0	-	-	0.0	-	-	9.3	-	-	-	0.0	-
90.0 110.0	0.0	-	-	5.7	-	-	0.0	-	-	-	0.0	-
93.3 40.0	0.0	-	0.0	-	-	9.3	-	-	-	-	0.0	-

Table 8. (cont.)

Stomias atriventer

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.4	-
90.0 90.0	5.5	-	-	10.7	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	5.6	-	-	0.0	-	-	-	0.0	-
90.0 120.0	5.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 45.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 100.0	0.0	-	-	5.3	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-

Tactostoma macropus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 90.0	0.0	-	-	-	-	-	5.4	-	-	-	0.0	-
93.3 100.0	0.0	-	-	0.0	-	-	4.2	-	-	-	0.0	-
93.3 110.0	0.0	-	-	0.0	-	-	4.3	-	-	-	0.0	-

Aristostomias scintillans

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	10.8	-	-	0.0	-	-	-	0.0	-
93.3 80.0	5.0	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3 110.0	0.0	-	-	0.0	-	-	4.3	-	-	-	0.0	-
93.3 120.0	4.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Idiacanthus antrostomus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.0	-
80.0 60.0	0.0	-	-	0.0	-	-	0.0	-	-	-	14.5	-
80.0 80.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.3	-
80.0 100.0	14.3	-	-	0.0	-	-	0.0	-	-	-	-	-
83.3 60.0	0.0	-	-	-	-	-	0.0	-	-	-	22.0	-
83.3 80.0	0.0	-	-	-	-	-	0.0	-	-	-	4.5	-
83.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.5	-
83.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	8.8	-
86.7 80.0	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-
90.0 120.0	5.1	-	-	0.0	-	-	34.8	-	-	-	0.0	-

Table 8. (cont.)

Benthalbella dentata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	4.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3 70.0	0.0	-	-	5.4	-	-	0.0	-	-	-	0.0	-
83.3 80.0	9.8	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7 80.0	9.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 70.0	5.2	-	-	0.0	-	0.0	-	-	-	-	0.0	-

Rosenblattichthys volucris

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 40.0	0.0	-	0.0	-	-	0.0	-	-	-	-	9.2	-
93.3 55.0	4.4	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3 120.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-

Scopelarchus analis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 110.0	0.0	-	-	5.0	-	-	0.0	-	-	-	0.0	-

***Scopelosaurus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	-	5.6	-	-	0.0	-	-	-	0.0	-
83.3 110.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	5.6	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	-	5.4	-	-	0.0	-	-	-	0.0	-

Paralepididae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 60.0	9.4	-	-	-	-	-	0.0	-	-	-	0.0	-

Arctozenus risso

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	4.8	-	-	0.0	-	-	0.0	-	-	-	-	-

Lestidiops ringens

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.5	-
86.7 100.0	0.0	-	-	0.0	-	-	5.0	-	-	-	0.0	-
90.0 110.0	0.0	-	-	0.0	-	-	4.4	-	-	-	0.0	-
90.0 120.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.6	-
93.3 50.0	4.8	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3 80.0	0.0	-	-	0.0	-	0.0	-	-	-	-	4.4	-

Table 8. (cont.)

Lestidiops ringens (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.9	-
93.3 120.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.1	-

Myctophidae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	10.3	-	-	0.0	-	-	0.0	-	-	-	-	-
80.0 80.0	0.0	-	-	0.0	-	-	9.6	-	-	-	0.0	-
86.7 100.0	0.0	-	-	0.0	-	-	5.0	-	-	-	0.0	-
86.7 110.0	0.0	-	-	0.0	-	-	4.5	-	-	-	0.0	-
90.0 100.0	4.3	-	-	0.0	-	-	4.5	-	-	-	0.0	-
90.0 120.0	0.0	-	-	0.0	-	-	4.4	-	-	-	0.0	-
93.3 80.0	0.0	-	-	0.0	-	0.0	-	-	-	-	4.4	-
93.3 100.0	4.9	-	-	0.0	-	-	16.6	-	-	-	0.0	-
93.3 110.0	5.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Ceratoscopelus townsendi

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-
80.0 80.0	0.0	-	-	0.0	-	-	4.8	-	-	-	0.0	-
83.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.3	-
86.7 60.0	0.0	-	-	-	-	-	8.2	-	-	-	0.0	-
86.7 70.0	0.0	-	-	0.0	-	-	4.9	-	-	-	0.0	-
86.7 100.0	0.0	-	-	0.0	-	-	20.0	-	-	-	0.0	-
86.7 110.0	0.0	-	-	0.0	-	-	26.8	-	-	-	0.0	-
90.0 100.0	0.0	-	-	0.0	-	-	8.9	-	-	-	0.0	-
90.0 110.0	4.7	-	-	5.7	-	-	70.6	-	-	-	0.0	-
90.0 120.0	25.3	-	-	285.1	-	-	169.7	-	-	-	0.0	-
93.3 28.0	0.0	-	0.0	-	-	5.0	-	-	-	-	0.0	-
93.3 80.0	10.0	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3 90.0	0.0	-	-	0.0	-	4.4	-	-	-	-	0.0	-
93.3 100.0	4.9	-	-	21.0	-	-	49.9	-	-	-	0.0	-
93.3 110.0	25.9	-	-	5.2	-	-	0.0	-	-	-	0.0	-
93.3 120.0	29.2	-	-	86.9	-	-	19.8	-	-	-	10.3	-

Table 8. (cont.)

***Diaphus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 90.0	-	-	-	5.6	-	-	-	-	-	-	-	-
76.7 80.0	0.0	-	-	0.0	-	-	27.1	-	-	-	0.0	-
76.7 100.0	0.0	-	-	0.0	-	-	4.7	-	-	-	-	-
80.0 80.0	0.0	-	-	0.0	-	-	24.0	-	-	-	0.0	-
80.0 100.0	0.0	-	-	0.0	-	-	5.1	-	-	-	-	-
83.3 60.0	0.0	-	-	-	-	-	10.1	-	-	-	0.0	-
83.3 80.0	0.0	-	-	-	-	-	8.1	-	-	-	4.5	-
83.3 90.0	0.0	-	-	0.0	-	-	20.0	-	-	-	4.5	-
83.3 100.0	0.0	-	-	0.0	-	-	8.7	-	-	-	0.0	-
86.7 60.0	0.0	-	-	-	-	-	24.7	-	-	-	0.0	-
86.7 70.0	0.0	-	-	0.0	-	-	34.5	-	-	-	0.0	-
86.7 80.0	0.0	-	-	0.0	-	-	19.3	-	-	-	0.0	-
86.7 90.0	0.0	-	-	0.0	-	-	21.7	-	-	-	0.0	-
86.7 110.0	0.0	-	-	0.0	-	-	4.5	-	-	-	0.0	-
90.0 45.0	0.0	-	-	0.0	-	-	9.2	-	-	-	0.0	-
90.0 53.0	0.0	-	-	0.0	-	-	10.5	-	-	-	0.0	-
90.0 70.0	0.0	-	-	5.1	-	-	14.6	-	-	-	0.0	-
93.3 80.0	5.0	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3 90.0	0.0	-	-	0.0	-	4.4	-	-	-	-	0.0	-
93.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.0	-

Lampanyctus steinbecki

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	16.1	-	-	0.0	-	-	-	0.0	-

Lampanyctus tenuiformis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	5.4	-	-	0.0	-	-	-	0.0	-

***Nannobrachium* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 90.0	-	-	-	5.6	-	-	-	-	-	-	-	-
66.7 100.0	-	-	-	5.1	-	-	-	-	-	-	-	-
76.7 70.0	5.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7 80.0	19.7	-	-	61.3	-	-	0.0	-	-	-	0.0	-
76.7 90.0	41.6	-	-	-	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

***Nannobrachium* spp.** (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	20.6	-	-	10.0	-	-	0.0	-	-	-	-	-
80.0 70.0	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-
80.0 80.0	0.0	-	-	5.3	-	-	9.6	-	-	-	0.0	-
80.0 100.0	0.0	-	-	5.0	-	-	5.1	-	-	-	-	-
83.3 100.0	0.0	-	-	22.4	-	-	8.7	-	-	-	0.0	-
83.3 110.0	4.9	-	-	10.1	-	-	0.0	-	-	-	0.0	-
86.7 70.0	0.0	-	-	0.0	-	-	9.9	-	-	-	0.0	-
86.7 90.0	0.0	-	-	11.8	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	-	5.0	-	-	0.0	-	-	-	0.0	-
86.7 110.0	4.9	-	-	5.0	-	-	0.0	-	-	-	0.0	-
90.0 35.0	5.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	5.6	-	-	0.0	-	-	-	0.0	-
90.0 110.0	4.7	-	-	40.1	-	-	0.0	-	-	-	0.0	-
90.0 120.0	5.1	-	-	26.9	-	-	4.4	-	-	-	0.0	-
93.3 40.0	0.0	-	10.2	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	0.0	-	10.8	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 80.0	0.0	-	-	15.8	-	0.0	-	-	-	-	0.0	-
93.3 90.0	5.2	-	-	5.4	-	0.0	-	-	-	-	0.0	-
93.3 100.0	0.0	-	-	10.5	-	-	4.2	-	-	-	0.0	-
93.3 110.0	15.5	-	-	15.6	-	-	0.0	-	-	-	0.0	-
93.3 120.0	4.9	-	-	10.2	-	-	5.0	-	-	-	0.0	-

Nannobrachium bristori

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	26.9	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	-	5.2	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-

Nannobrachium hawaiiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 80.0	0.0	-	-	0.0	-	-	4.8	-	-	-	0.0	-

Nannobrachium regale

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 60.0	0.0	-	-	21.5	-	-	-	-	-	-	-	-

Table 8. (cont.)

Nannobrachium regale (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	70.0	0.0	-	-	0.0	-	-	4.9	-	-	-	0.0	-
93.3	90.0	5.2	-	-	0.0	-	0.0	-	-	-	-	0.0	-

Nannobrachium ritteri

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	90.0	-	-	-	5.6	-	-	-	-	-	-	-	-
76.7	100.0	0.0	-	-	3.3	-	-	0.0	-	-	-	-	-
80.0	100.0	0.0	-	-	5.0	-	-	0.0	-	-	-	-	-
83.3	100.0	4.4	-	-	11.2	-	-	0.0	-	-	-	0.0	-
83.3	110.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-
86.7	50.0	8.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	70.0	0.0	-	-	0.0	-	-	4.9	-	-	-	0.0	-
86.7	80.0	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-
86.7	90.0	0.0	-	-	23.6	-	-	0.0	-	-	-	0.0	-
86.7	100.0	0.0	-	-	5.0	-	-	5.0	-	-	-	0.0	-
86.7	110.0	0.0	-	-	20.1	-	-	0.0	-	-	-	0.0	-
90.0	30.0	0.0	-	-	0.0	-	-	5.0	-	-	-	0.0	-
90.0	37.0	0.0	-	-	5.3	-	-	0.0	-	-	-	0.0	-
90.0	45.0	0.0	-	-	23.2	-	-	0.0	-	-	-	0.0	-
90.0	90.0	0.0	-	-	5.3	-	-	0.0	-	-	-	0.0	-
90.0	110.0	14.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0	120.0	0.0	-	-	0.0	-	-	8.7	-	-	-	0.0	-
93.3	35.0	4.8	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3	50.0	4.8	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3	55.0	4.4	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3	60.0	0.0	-	0.0	-	-	0.0	-	-	-	-	4.7	-
93.3	70.0	5.2	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3	80.0	0.0	-	-	0.0	-	0.0	-	-	-	-	4.4	-

Notolychnus valdiviae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	120.0	0.0	-	-	16.1	-	-	0.0	-	-	-	0.0	-
93.3	120.0	0.0	-	-	15.3	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Parvilux ingens

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 110.0	0.0	-	-	5.2	-	-	0.0	-	-	-	0.0	-

Stenobrachius leucopsarus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 50.0	94.1	-	-	0.0	-	-	-	-	-	-	-	-
66.7 55.0	18.6	-	-	9.7	-	-	-	-	-	-	-	-
66.7 60.0	112.2	-	-	10.8	-	-	-	-	-	-	-	-
66.7 70.0	-	37.8	-	10.9	-	-	-	-	-	-	-	-
66.7 80.0	-	23.9	-	27.5	-	-	-	-	-	-	-	-
66.7 90.0	-	-	-	44.4	-	-	-	-	-	-	-	-
66.7 100.0	-	-	-	20.2	-	-	-	-	-	-	-	-
76.7 51.0	0.0	-	-	20.2	-	-	0.0	-	-	-	0.0	-
76.7 55.0	20.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7 60.0	9.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7 70.0	36.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7 80.0	54.2	-	-	5.1	-	-	9.0	-	-	-	0.0	-
76.7 90.0	62.4	-	-	-	-	-	0.0	-	-	-	0.0	-
80.0 50.5	3.5	-	-	-	-	-	0.0	-	-	-	-	-
80.0 51.0	46.5	-	-	3.9	-	-	0.0	-	-	-	0.0	-
80.0 55.0	33.4	-	-	19.2	-	-	7.7	-	-	-	0.0	-
80.0 70.0	4.8	-	-	5.5	-	-	0.0	-	-	-	4.8	-
80.0 100.0	9.5	-	-	5.0	-	-	0.0	-	-	-	-	-
81.8 46.9	56.4	-	-	5.5	-	-	0.0	-	-	-	0.0	-
83.3 42.0	9.9	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 51.0	19.4	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 55.0	99.2	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 70.0	9.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3 80.0	19.7	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 100.0	0.0	-	-	5.6	-	-	0.0	-	-	-	0.0	-
86.7 33.0	4.4	-	-	5.0	-	-	0.0	-	-	-	0.0	-
86.7 35.0	20.7	-	-	10.6	-	-	0.0	-	-	-	0.0	-
86.7 40.0	28.9	-	-	10.9	-	-	0.0	-	-	-	0.0	-
86.7 45.0	0.0	-	-	20.6	-	-	0.0	-	-	-	0.0	-
86.7 50.0	51.6	-	-	11.1	-	-	0.0	-	-	-	4.4	-

Table 8. (cont.)

Stenobrachius leucopsarus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 55.0	0.0	-	-	0.0	-	-	8.3	-	-	-	0.0	-
86.7 70.0	0.0	-	-	5.2	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	-	11.0	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	-	11.8	-	-	0.0	-	-	-	0.0	-
90.0 27.7	2.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 37.0	5.2	-	-	10.5	-	-	9.9	-	-	-	0.0	-
90.0 45.0	0.0	-	-	46.4	-	-	9.2	-	-	-	0.0	-
90.0 53.0	0.0	-	-	22.1	-	-	0.0	-	-	-	0.0	-
90.0 60.0	0.0	-	-	20.7	-	-	0.0	-	-	-	0.0	-
90.0 70.0	9.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 120.0	5.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
91.7 26.4	0.0	-	3.5	-	-	0.0	-	-	-	-	-	-
93.3 28.0	0.0	-	21.2	-	-	0.0	-	-	-	-	0.0	-
93.3 30.0	0.0	-	32.3	-	-	0.0	-	-	-	-	0.0	-
93.3 35.0	0.0	-	47.1	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	0.0	-	5.4	-	-	9.4	-	-	-	-	0.0	-
93.3 50.0	0.0	-	29.7	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	16.3	-	-	0.0	-	-	-	-	0.0	-
93.3 70.0	0.0	-	-	5.2	-	0.0	-	-	-	-	0.0	-
93.3 80.0	0.0	-	-	0.0	-	4.8	-	-	-	-	0.0	-
93.3 90.0	0.0	-	-	10.8	-	0.0	-	-	-	-	0.0	-
93.3 110.0	0.0	-	-	0.0	-	-	8.6	-	-	-	0.0	-

Triphoturus mexicanus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	0.0	-	-	0.0	-	-	4.7	-	-	-	-	-
80.0 90.0	0.0	-	-	0.0	-	-	4.8	-	-	-	0.0	-
80.0 100.0	0.0	-	-	0.0	-	-	5.1	-	-	-	-	-
83.3 51.0	0.0	-	-	-	-	-	4.3	-	-	-	0.0	-
86.7 35.0	0.0	-	-	0.0	-	-	9.5	-	-	-	0.0	-
86.7 40.0	0.0	-	-	0.0	-	-	10.0	-	-	-	0.0	-
86.7 55.0	0.0	-	-	0.0	-	-	8.3	-	-	-	0.0	-
86.7 60.0	0.0	-	-	-	-	-	8.2	-	-	-	0.0	-
86.7 70.0	0.0	-	-	0.0	-	-	19.7	-	-	-	0.0	-

Table 8. (cont.)

Triphoturus mexicanus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 100.0	0.0	-	-	0.0	-	-	20.0	-	-	-	4.3	-
86.7 110.0	0.0	-	-	20.1	-	-	0.0	-	-	-	0.0	-
90.0 30.0	0.0	-	-	0.0	-	-	14.9	-	-	-	0.0	-
90.0 80.0	0.0	-	-	27.6	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	-	5.3	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	16.8	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.0	-	-	17.2	-	-	39.7	-	-	-	0.0	-
90.0 120.0	0.0	-	-	10.8	-	-	30.5	-	-	-	0.0	-
93.3 35.0	0.0	-	5.2	-	-	9.9	-	-	-	-	0.0	-
93.3 40.0	0.0	-	15.2	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	0.0	-	16.3	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	21.8	-	-	0.0	-	-	-	-	0.0	-
93.3 60.0	0.0	-	21.0	-	-	8.7	-	-	-	-	0.0	-
93.3 70.0	0.0	-	-	10.3	-	10.7	-	-	-	-	0.0	-
93.3 100.0	0.0	-	-	21.0	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	-	41.7	-	-	4.3	-	-	-	0.0	-
93.3 120.0	0.0	-	-	35.8	-	-	9.9	-	-	-	0.0	-

Diogenichthys atlanticus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 70.0	5.2	-	-	0.0	-	-	0.0	-	-	-	5.0	-
76.7 100.0	5.1	-	-	0.0	-	-	0.0	-	-	-	-	-
80.0 70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.8	-
83.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.5	-
83.3 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.4	-
83.3 110.0	0.0	-	-	5.1	-	-	0.0	-	-	-	4.3	-
90.0 45.0	10.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	0.0	-	-	4.5	-	-	-	0.0	-
90.0 110.0	0.0	-	-	5.7	-	-	0.0	-	-	-	0.0	-
90.0 120.0	15.2	-	-	26.9	-	-	0.0	-	-	-	16.9	-
93.3 45.0	0.0	-	10.8	-	-	0.0	-	-	-	-	0.0	-
93.3 50.0	0.0	-	9.9	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	0.0	-	-	-	-	5.0	-
93.3 70.0	0.0	-	-	5.2	-	0.0	-	-	-	-	0.0	-

Table 8. (cont.)

Diogenichthys atlanticus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 80.0	5.0	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3 90.0	10.3	-	-	5.4	-	0.0	-	-	-	-	0.0	-
93.3 100.0	14.7	-	-	0.0	-	-	12.5	-	-	-	0.0	-
93.3 110.0	0.0	-	-	5.2	-	-	0.0	-	-	-	0.0	-
93.3 120.0	14.6	-	-	15.3	-	-	0.0	-	-	-	0.0	-

Diogenichthys laternatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	10.5	-
93.3 110.0	10.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Electrona risso

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 80.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.3	-
90.0 110.0	0.0	-	-	5.7	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	-	5.3	-	0.0	-	-	-	-	0.0	-

Hygophum reinhardtii

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.3	-
90.0 120.0	0.0	-	-	16.1	-	-	0.0	-	-	-	0.0	-

Myctophum nitidulum

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 100.0	4.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 120.0	5.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 100.0	19.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Protomyctophum crockeri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 55.0	0.0	-	-	9.7	-	-	-	-	-	-	-	-
66.7 60.0	5.1	-	-	0.0	-	-	-	-	-	-	-	-
76.7 60.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.6	-
76.7 70.0	0.0	-	-	0.0	-	-	10.2	-	-	-	5.0	-
76.7 80.0	24.7	-	-	0.0	-	-	9.0	-	-	-	0.0	-
76.7 100.0	20.6	-	-	0.0	-	-	0.0	-	-	-	-	-
80.0 55.0	0.0	-	-	0.0	-	-	0.0	-	-	-	7.8	-
80.0 60.0	9.4	-	-	0.0	-	-	0.0	-	-	-	4.8	-

Table 8. (cont.)

Protomyctophum crockeri (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 80.0	0.0	-	-	0.0	-	-	9.6	-	-	-	0.0	-
80.0 90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.5	-
83.3 60.0	0.0	-	-	-	-	-	0.0	-	-	-	8.8	-
83.3 80.0	9.8	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.5	-
83.3 100.0	13.3	-	-	0.0	-	-	0.0	-	-	-	8.8	-
83.3 110.0	0.0	-	-	10.1	-	-	0.0	-	-	-	0.0	-
86.7 35.0	10.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 40.0	9.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 55.0	9.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 70.0	8.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	-	22.0	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	-	23.6	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	-	0.0	-	-	5.0	-	-	-	0.0	-
90.0 35.0	0.0	-	-	0.0	-	-	9.5	-	-	-	5.2	-
90.0 45.0	10.0	-	-	46.4	-	-	0.0	-	-	-	0.0	-
90.0 60.0	9.9	-	-	0.0	-	-	9.3	-	-	-	5.2	-
90.0 70.0	0.0	-	-	5.1	-	-	0.0	-	-	-	9.8	-
90.0 80.0	4.6	-	-	33.1	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	-	5.3	-	-	9.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	11.2	-	-	0.0	-	-	-	0.0	-
90.0 110.0	9.4	-	-	22.9	-	-	0.0	-	-	-	0.0	-
90.0 120.0	25.3	-	-	0.0	-	-	13.1	-	-	-	0.0	-
93.3 28.0	0.0	-	0.0	-	-	5.0	-	-	-	-	0.0	-
93.3 40.0	4.7	-	45.7	-	-	0.0	-	-	-	-	9.2	-
93.3 45.0	9.3	-	16.3	-	-	0.0	-	-	-	-	0.0	-
93.3 50.0	14.3	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	10.9	-	-	0.0	-	-	-	-	5.0	-
93.3 60.0	9.1	-	0.0	-	-	0.0	-	-	-	-	4.7	-
93.3 70.0	20.7	-	-	10.3	-	0.0	-	-	-	-	0.0	-
93.3 80.0	5.0	-	-	5.3	-	0.0	-	-	-	-	4.4	-
93.3 90.0	0.0	-	-	5.4	-	0.0	-	-	-	-	4.6	-
93.3 100.0	44.1	-	-	0.0	-	-	8.3	-	-	-	4.9	-

Table 8. (cont.)

Protomyctophum crockeri (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 110.0	5.2	-	-	20.8	-	-	0.0	-	-	-	5.0	-
93.3 120.0	9.7	-	-	15.3	-	-	0.0	-	-	-	0.0	-

Symbolophorus californiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	0.0	-	-	20.4	-	-	9.0	-	-	-	0.0	-
76.7 100.0	10.3	-	-	3.3	-	-	4.7	-	-	-	-	-
80.0 80.0	0.0	-	-	0.0	-	-	4.8	-	-	-	0.0	-
80.0 90.0	0.0	-	-	3.4	-	-	0.0	-	-	-	0.0	-
80.0 100.0	4.8	-	-	0.0	-	-	0.0	-	-	-	-	-
83.3 90.0	9.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3 100.0	4.4	-	-	0.0	-	-	0.0	-	-	-	4.4	-
83.3 110.0	4.9	-	-	10.1	-	-	0.0	-	-	-	0.0	-
86.7 70.0	0.0	-	-	0.0	-	-	4.9	-	-	-	0.0	-
86.7 100.0	0.0	-	-	5.0	-	-	5.0	-	-	-	0.0	-
86.7 110.0	0.0	-	-	5.0	-	-	26.8	-	-	-	3.8	-
90.0 27.7	0.0	-	-	0.0	-	-	2.9	-	-	-	0.0	-
90.0 80.0	0.0	-	-	22.0	-	-	4.3	-	-	-	0.0	-
90.0 90.0	5.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 100.0	4.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 110.0	9.4	-	-	11.5	-	-	44.1	-	-	-	0.0	-
90.0 120.0	0.0	-	-	16.1	-	-	4.4	-	-	-	5.6	-
93.3 35.0	0.0	-	5.2	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	0.0	-	21.7	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	21.8	-	-	0.0	-	-	-	-	0.0	-
93.3 70.0	10.3	-	-	5.2	-	0.0	-	-	-	-	0.0	-
93.3 80.0	5.0	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3 90.0	15.5	-	-	43.4	-	4.4	-	-	-	-	0.0	-
93.3 100.0	49.0	-	-	0.0	-	-	16.6	-	-	-	0.0	-
93.3 110.0	0.0	-	-	46.9	-	-	4.3	-	-	-	0.0	-
93.3 120.0	14.6	-	-	25.6	-	-	9.9	-	-	-	0.0	-

Tarletonbeania crenularis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 50.0	5.0	-	-	0.0	-	-	-	-	-	-	-	-

Table 8. (cont.)

Tarletonbeania crenularis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 80.0	-	0.0	-	5.5	-	-	-	-	-	-	-	-
76.7 80.0	0.0	-	-	0.0	-	-	9.0	-	-	-	0.0	-
76.7 90.0	0.0	-	-	-	-	-	5.4	-	-	-	0.0	-
83.3 70.0	0.0	-	-	0.0	-	-	30.4	-	-	-	0.0	-
90.0 53.0	0.0	-	-	0.0	-	-	10.5	-	-	-	0.0	-
90.0 90.0	0.0	-	-	5.3	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	-	0.0	-	-	4.4	-	-	-	0.0	-
93.3 60.0	0.0	-	0.0	-	-	8.7	-	-	-	-	0.0	-
93.3 100.0	0.0	-	-	5.3	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-

Trachipterus altivelis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 110.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.0	-

Macrouridae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	4.7	-	0.0	-	-	-	-	-	-	-	-

Merluccius productus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 90.0	-	-	-	5.6	-	-	-	-	-	-	-	-
76.7 51.0	19.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7 55.0	90.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 51.0	46.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 55.0	233.7	-	-	19.2	-	-	0.0	-	-	-	0.0	-
80.0 100.0	0.0	-	-	9.9	-	-	0.0	-	-	-	-	-
81.8 46.9	112.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3 51.0	14.6	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 55.0	24.8	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 70.0	0.0	-	-	16.2	-	-	0.0	-	-	-	0.0	-
86.7 33.0	13.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 35.0	0.0	-	-	5.3	-	-	0.0	-	-	-	0.0	-
86.7 40.0	19.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 45.0	9.9	-	-	5.1	-	-	0.0	-	-	-	0.0	-
86.7 50.0	17.2	-	-	44.6	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Merluccius productus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 55.0	0.0	-	-	12.7	-	-	0.0	-	-	-	0.0	-
90.0 28.0	0.0	-	-	8.0	-	-	0.0	-	-	-	0.0	-
90.0 35.0	5.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 45.0	10.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 53.0	0.0	-	-	11.1	-	-	0.0	-	-	-	0.0	-
93.3 28.0	0.0	-	5.3	-	-	0.0	-	-	-	-	0.0	-
93.3 40.0	0.0	-	5.1	-	-	0.0	-	-	-	-	0.0	-

Brosmophycis marginata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 50.0	0.0	-	-	16.7	-	-	0.0	-	-	-	0.0	-
90.0 30.0	0.0	-	-	0.0	-	-	10.0	-	-	-	0.0	-

Cataetyx rubrirostris

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 28.0	0.0	-	-	8.0	-	-	0.0	-	-	-	0.0	-

Atherinopsis californiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 50.5	3.5	-	-	-	-	-	0.0	-	-	-	-	-
83.3 39.4	23.0	-	-	-	-	-	0.0	-	-	-	0.0	-
85.4 35.8	16.4	-	-	-	-	-	-	-	-	-	-	-
93.4 26.4	2.7	-	-	-	-	0.0	-	-	-	-	0.0	-

Leuresthes tenuis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.8 32.5	0.0	-	-	0.0	-	-	2.8	-	-	-	-	-
88.5 30.1	-	-	-	0.0	-	-	16.9	-	-	-	0.0	-

Cololabis saira

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	10.3	-	-	0.0	-	-	0.0	-	-	-	-	-
90.0 70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	9.8	-
93.3 40.0	0.0	-	0.0	-	-	0.0	-	-	-	-	18.5	-
93.3 70.0	0.0	-	-	0.0	-	0.0	-	-	-	-	8.7	-
93.3 120.0	4.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

***Melamphaes* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	0.0	-	-	3.4	-	-	0.0	-	-	-	0.0	-
80.0 100.0	0.0	-	-	5.0	-	-	0.0	-	-	-	-	-
83.3 80.0	9.8	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7 50.0	8.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	-	11.8	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	-	10.0	-	-	0.0	-	-	-	0.0	-

Melamphaes lugubris

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 60.0	19.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7 70.0	5.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	-	5.3	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	11.2	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	0.0	-	-	-	-	5.0	-
93.3 110.0	5.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Melamphaes parvus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 80.0	4.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 90.0	10.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	-	11.8	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	-	5.3	-	0.0	-	-	-	-	0.0	-

Melamphaes simus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	-	5.4	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	-	5.2	-	-	0.0	-	-	-	0.0	-

Poromitra crassiceps

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 70.0	0.0	-	-	0.0	-	-	4.9	-	-	-	0.0	-
90.0 80.0	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-
93.3 40.0	0.0	-	5.1	-	-	0.0	-	-	-	-	0.0	-

Poromitra megalops

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 80.0	0.0	-	-	0.0	-	-	4.3	-	-	-	0.0	-

Table 8. (cont.)

Scopelogadus mizolepis bispinosus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	120.0	5.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Macroramphosus gracilis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	35.0	20.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

***Sebastes* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	50.0	153.5	-	-	8.1	-	-	-	-	-	-	-	-
66.7	55.0	18.6	-	-	0.0	-	-	-	-	-	-	-	-
66.7	60.0	5.1	-	-	10.8	-	-	-	-	-	-	-	-
66.7	70.0	-	0.0	-	5.5	-	-	-	-	-	-	-	-
66.7	80.0	-	0.0	-	5.5	-	-	-	-	-	-	-	-
76.7	49.0	18.8	-	-	26.6	-	-	0.0	-	-	-	-	-
76.7	51.0	0.0	-	-	10.1	-	-	16.0	-	-	-	0.0	-
76.7	55.0	70.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7	60.0	19.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7	70.0	5.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	51.0	60.5	-	-	7.9	-	-	0.0	-	-	-	0.0	-
80.0	55.0	144.7	-	-	28.7	-	-	46.0	-	-	-	0.0	-
80.0	60.0	28.2	-	-	10.8	-	-	9.1	-	-	-	0.0	-
80.0	80.0	4.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
81.8	46.9	9.4	-	-	16.4	-	-	0.0	-	-	-	0.0	-
83.3	42.0	74.4	-	-	-	-	-	0.0	-	-	-	4.5	-
83.3	51.0	14.6	-	-	-	-	-	0.0	-	-	-	3.9	-
83.3	55.0	99.2	-	-	-	-	-	9.3	-	-	-	0.0	-
83.3	60.0	18.8	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	70.0	19.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3	80.0	0.0	-	-	-	-	-	8.1	-	-	-	0.0	-
83.3	100.0	0.0	-	-	0.0	-	-	4.4	-	-	-	0.0	-
85.4	35.8	2.7	-	-	-	-	-	-	-	-	-	-	-
86.7	33.0	22.2	-	-	124.3	-	-	0.0	-	-	-	29.4	-
86.7	35.0	92.9	-	-	31.9	-	-	0.0	-	-	-	14.7	-
86.7	40.0	48.2	-	-	10.9	-	-	0.0	-	-	-	0.0	-
86.7	45.0	0.0	-	-	30.8	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

***Sebastes* spp.** (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	50.0	370.1	-	-	1236.5	-	-	31.3	-	-	-	30.7	-
86.7	55.0	122.5	-	-	12.7	-	-	0.0	-	-	-	0.0	-
86.7	60.0	260.7	-	-	-	-	-	8.2	-	-	-	0.0	-
86.7	70.0	33.5	-	-	0.0	-	-	9.9	-	-	-	0.0	-
86.7	80.0	0.0	-	-	0.0	-	-	19.3	-	-	-	0.0	-
86.7	90.0	14.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0	27.7	5.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0	28.0	9.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0	30.0	35.1	-	-	58.0	-	-	0.0	-	-	-	0.0	-
90.0	35.0	5.6	-	-	90.9	-	-	0.0	-	-	-	0.0	-
90.0	37.0	15.7	-	-	0.0	-	-	9.9	-	-	-	0.0	-
90.0	45.0	0.0	-	-	46.4	-	-	9.2	-	-	-	0.0	-
90.0	53.0	0.0	-	-	254.6	-	-	0.0	-	-	-	10.4	-
90.0	60.0	0.0	-	-	82.6	-	-	9.3	-	-	-	0.0	-
90.0	70.0	29.3	-	-	0.0	-	-	4.9	-	-	-	0.0	-
93.3	26.7	3.9	-	-	-	-	0.0	-	-	-	-	0.0	-
93.3	28.0	18.8	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3	30.0	4.7	-	16.1	-	-	0.0	-	-	-	-	0.0	-
93.3	35.0	0.0	-	5.2	-	-	9.9	-	-	-	-	0.0	-
93.3	40.0	0.0	-	35.6	-	-	0.0	-	-	-	-	0.0	-
93.3	45.0	4.6	-	59.6	-	-	4.7	-	-	-	-	0.0	-
93.3	50.0	9.5	-	29.7	-	-	9.8	-	-	-	-	0.0	-
93.3	55.0	0.0	-	16.3	-	-	9.2	-	-	-	-	0.0	-
93.3	60.0	0.0	-	10.5	-	-	0.0	-	-	-	-	0.0	-
93.3	70.0	0.0	-	-	0.0	-	21.4	-	-	-	-	0.0	-

Sebastes aurora

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	53.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.2	-
90.0	70.0	9.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3	50.0	0.0	-	9.9	-	-	0.0	-	-	-	-	0.0	-

Sebastes diploproa

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.0	-

Table 8. (cont.)

Sebastes diploproa (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	23.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	60.0	0.0	-	-	0.0	-	-	9.1	-	-	-	0.0	-
93.3	30.0	0.0	-	0.0	-	-	0.0	-	-	-	-	4.9	-

Sebastes goodei

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	60.0	0.0	-	-	10.8	-	-	-	-	-	-	-	-

Sebastes jordani

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	50.0	5.0	-	-	48.7	-	-	-	-	-	-	-	-
66.7	55.0	9.3	-	-	0.0	-	-	-	-	-	-	-	-
66.7	60.0	0.0	-	-	10.8	-	-	-	-	-	-	-	-
76.7	55.0	10.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	51.0	60.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	55.0	22.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	60.0	9.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3	42.0	29.8	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	55.0	29.8	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7	33.0	48.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	35.0	72.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	40.0	48.2	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	45.0	9.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	50.0	60.3	-	-	27.9	-	-	0.0	-	-	-	0.0	-
86.7	70.0	0.0	-	-	5.2	-	-	0.0	-	-	-	0.0	-
90.0	28.0	19.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0	30.0	70.2	-	-	19.3	-	-	0.0	-	-	-	0.0	-
90.0	35.0	5.6	-	-	39.8	-	-	0.0	-	-	-	0.0	-
93.3	26.7	15.7	-	-	-	-	0.0	-	-	-	-	0.0	-
93.3	30.0	4.7	-	0.0	-	-	0.0	-	-	-	-	0.0	-

Sebastes levis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	50.0	8.6	-	-	16.7	-	-	0.0	-	-	-	0.0	-
86.7	60.0	9.3	-	-	-	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Sebastes paucispinis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 50.0	24.8	-	-	0.0	-	-	-	-	-	-	-	-
66.7 60.0	0.0	-	-	21.5	-	-	-	-	-	-	-	-
66.7 70.0	-	4.7	-	5.5	-	-	-	-	-	-	-	-
76.7 51.0	9.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0 60.0	9.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3 55.0	5.0	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 80.0	9.8	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7 35.0	10.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 40.0	9.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 45.0	9.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 50.0	8.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 55.0	37.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 28.0	9.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 37.0	10.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-

***Sebastolobus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 90.0	-	-	-	11.1	-	-	-	-	-	-	-	-
93.3 45.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 60.0	0.0	-	10.5	-	-	0.0	-	-	-	-	0.0	-

Scorpaenodes xyris

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 50.0	4.8	-	0.0	-	-	0.0	-	-	-	-	0.0	-

Oxylebius pictus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	0.0	-	-	3.8	-	-	0.0	-	-	-	-	-

Zaniolepis frenata

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	-
83.3 51.0	0.0	-	-	-	-	-	4.3	-	-	-	0.0	-

Zaniolepis latipinnis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8 46.9	4.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3 51.0	4.9	-	-	-	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Zaniolepis latipinnis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 35.0	10.3	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 45.0	9.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 50.0	8.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Artedius harringtoni

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 50.5	7.0	-	-	-	-	-	0.0	-	-	-	-	-
83.3 39.4	0.0	-	-	-	-	-	2.9	-	-	-	0.0	-

Artedius lateralis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 51.0	0.0	-	-	0.0	-	-	0.0	-	-	-	3.5	-

Icelinus quadriseriatus

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	-
83.3 55.0	5.0	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7 33.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.2	-
86.7 50.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.4	-
90.0 28.0	0.0	-	-	0.0	-	-	12.2	-	-	-	0.0	-

Ruscarius creaseri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 28.0	0.0	-	-	8.0	-	-	4.1	-	-	-	0.0	-

Scorpaenichthys marmoratus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	4.7	-	0.0	-	-	-	-	-	-	-	-
86.7 45.0	9.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7 50.0	8.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Bathyagonus pentacanthus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 40.0	9.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Odontopyxis trispinosa

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 50.5	3.5	-	-	-	-	-	0.0	-	-	-	-	-
80.0 51.0	0.0	-	-	0.0	-	-	18.0	-	-	-	0.0	-

Table 8. (cont.)

Odontopyxis trispinosa (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8 46.9	0.0	-	-	0.0	-	-	9.8	-	-	-	0.0	-
83.3 51.0	4.9	-	-	-	-	-	0.0	-	-	-	0.0	-
90.0 28.0	0.0	-	-	0.0	-	-	4.1	-	-	-	0.0	-

Xeneretmus latifrons

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 51.0	0.0	-	-	3.9	-	-	0.0	-	-	-	0.0	-

Liparis mucosus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 50.5	3.5	-	-	-	-	-	0.0	-	-	-	-	-
80.0 51.0	0.0	-	-	0.0	-	-	31.6	-	-	-	0.0	-
80.0 55.0	0.0	-	-	0.0	-	-	7.7	-	-	-	0.0	-
83.3 51.0	0.0	-	-	-	-	-	4.3	-	-	-	0.0	-

***Paralabrax* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 40.6	0.0	-	-	-	-	-	4.0	-	-	-	0.0	-
86.7 55.0	0.0	-	-	0.0	-	-	8.3	-	-	-	0.0	-
90.0 28.0	0.0	-	-	0.0	-	-	12.2	-	-	-	0.0	-
91.7 26.4	0.0	-	0.0	-	-	3.8	-	-	-	-	-	-

Trachurus symmetricus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	0.0	-	-	0.0	-	-	9.0	-	-	-	0.0	-
83.3 100.0	0.0	-	-	5.6	-	-	4.4	-	-	-	0.0	-
83.3 110.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-
86.7 70.0	0.0	-	-	0.0	-	-	34.5	-	-	-	0.0	-
86.7 80.0	0.0	-	-	11.0	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	-	0.0	-	-	15.0	-	-	-	0.0	-
86.7 110.0	0.0	-	-	0.0	-	-	4.5	-	-	-	0.0	-
90.0 70.0	0.0	-	-	0.0	-	-	4.9	-	-	-	0.0	-
90.0 80.0	0.0	-	-	33.1	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	-	48.1	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	-	11.2	-	-	8.9	-	-	-	0.0	-
93.3 45.0	0.0	-	21.7	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	0.0	-	87.0	-	-	0.0	-	-	-	-	0.0	-

Table 8. (cont.)

Trachurus symmetricus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 60.0	0.0	-	21.0	-	-	0.0	-	-	-	-	0.0	-
93.3 70.0	0.0	-	-	10.3	-	0.0	-	-	-	-	0.0	-
93.3 90.0	0.0	-	-	16.3	-	0.0	-	-	-	-	0.0	-
93.3 100.0	0.0	-	-	0.0	-	-	54.1	-	-	-	0.0	-
93.3 120.0	0.0	-	-	0.0	-	-	19.8	-	-	-	0.0	-

Genyonemus lineatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 50.5	10.5	-	-	-	-	-	0.0	-	-	-	-	-
80.0 51.0	0.0	-	-	0.0	-	-	18.0	-	-	-	0.0	-
83.3 39.4	1.6	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3 55.0	5.0	-	-	-	-	-	0.0	-	-	-	0.0	-
85.4 35.8	2.7	-	-	-	-	-	-	-	-	-	-	-
86.7 33.0	31.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 27.7	7.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 28.0	9.5	-	-	0.0	-	-	0.0	-	-	-	4.2	-
91.7 26.4	5.1	-	0.0	-	-	0.0	-	-	-	-	-	-
93.4 26.4	2.7	-	-	-	-	0.0	-	-	-	-	0.0	-

Menticirrhus undulatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 27.7	0.0	-	-	0.0	-	-	2.9	-	-	-	0.0	-

Seriphus politus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 33.0	0.0	-	-	0.0	-	-	19.6	-	-	-	0.0	-
90.0 28.0	0.0	-	-	0.0	-	-	8.1	-	-	-	0.0	-
91.7 26.4	0.0	-	0.0	-	-	3.8	-	-	-	-	-	-

Medialuna californiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 33.0	0.0	-	-	0.0	-	-	19.6	-	-	-	0.0	-

Chromis punctipinnis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
88.5 30.1	-	-	-	0.0	-	-	2.8	-	-	-	0.0	-
90.0 27.7	0.0	-	-	0.0	-	-	11.5	-	-	-	0.0	-

Table 8. (cont.)

Hypsypops rubicundus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	28.0	0.0	-	-	0.0	-	-	8.1	-	-	-	0.0	-
91.7	26.4	0.0	-	0.0	-	-	3.8	-	-	-	-	-	-

Oxyjulis californica

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	35.0	0.0	-	-	0.0	-	-	9.5	-	-	-	0.0	-
90.0	60.0	0.0	-	-	10.3	-	-	0.0	-	-	-	0.0	-

***Rathbunella* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8	46.9	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-
86.7	50.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.4	-

Chiasmodon subniger

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	100.0	0.0	-	-	0.0	-	-	5.0	-	-	-	0.0	-
93.3	80.0	5.0	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3	100.0	4.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-

***Gibbonsia* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	50.0	0.0	-	-	0.0	-	-	0.0	-	-	-	21.9	-

***Neoclinus* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	3.5	-	-	-	-	-	0.0	-	-	-	-	-

Neoclinus stephensae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	0.0	-	-	0.0	-	-	0.0	-	-	-	3.5	-

***Hypsoblennius* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
88.5	30.1	-	-	-	0.0	-	-	25.4	-	-	-	0.0	-
90.0	27.7	0.0	-	-	0.0	-	-	8.6	-	-	-	0.0	-
91.7	26.4	0.0	-	0.0	-	-	23.0	-	-	-	-	-	-
93.4	26.4	0.0	-	-	-	-	19.3	-	-	-	-	0.0	-

Hypsoblennius gentilis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7	26.4	2.6	-	0.0	-	-	0.0	-	-	-	-	-	-

Table 8. (cont.)

Hypsoblennius gilberti

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	40.6	0.0	-	-	-	-	-	0.0	-	-	-	3.4	-
88.5	30.1	-	-	-	6.3	-	-	0.0	-	-	-	0.0	-
90.0	35.0	0.0	-	-	0.0	-	-	4.7	-	-	-	0.0	-
93.3	40.0	0.0	-	0.0	-	-	9.3	-	-	-	-	0.0	-
93.4	26.4	0.0	-	-	-	-	2.8	-	-	-	-	0.0	-

Hypsoblennius jenkinsi

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	0.0	-	-	-	-	-	14.3	-	-	-	-	-
80.0	51.0	0.0	-	-	0.0	-	-	4.5	-	-	-	0.0	-
83.3	40.6	0.0	-	-	-	-	-	4.0	-	-	-	0.0	-
86.7	33.0	0.0	-	-	0.0	-	-	58.9	-	-	-	0.0	-
86.7	35.0	0.0	-	-	0.0	-	-	9.5	-	-	-	0.0	-
86.8	32.5	0.0	-	-	0.0	-	-	5.5	-	-	-	-	-
90.0	27.7	0.0	-	-	0.0	-	-	11.5	-	-	-	0.0	-
90.0	28.0	0.0	-	-	0.0	-	-	48.7	-	-	-	8.3	-
93.3	26.7	0.0	-	-	-	-	6.9	-	-	-	-	0.0	-
93.4	26.4	0.0	-	-	-	-	77.3	-	-	-	-	0.0	-

Lepidogobius lepidus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	3.5	-	-	-	-	-	0.0	-	-	-	-	-
86.7	33.0	0.0	-	-	0.0	-	-	0.0	-	-	-	8.4	-
90.0	27.7	2.6	-	-	2.1	-	-	0.0	-	-	-	0.0	-

Quietula y-cauda

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
85.4	35.8	2.7	-	-	-	-	-	-	-	-	-	-	-
91.7	26.4	5.1	-	0.0	-	-	0.0	-	-	-	-	-	-

Rhinogobiops nicholsii

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	60.0	0.0	-	-	10.8	-	-	-	-	-	-	-	-
81.8	46.9	0.0	-	-	0.0	-	-	9.8	-	-	-	0.0	-
83.3	51.0	0.0	-	-	-	-	-	8.5	-	-	-	0.0	-
86.7	33.0	4.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	50.0	51.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Table 8. (cont.)

Rhinogobiops nicholsii (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 60.0	0.0	-	-	-	-	-	0.0	-	-	-	11.0	-
90.0 45.0	0.0	-	-	11.6	-	-	0.0	-	-	-	0.0	-
90.0 53.0	0.0	-	-	11.1	-	-	0.0	-	-	-	0.0	-
93.3 50.0	0.0	-	9.9	-	-	0.0	-	-	-	-	0.0	-

Typhlogobius californiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 55.0	10.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3 80.0	0.0	-	-	-	-	-	8.1	-	-	-	0.0	-
93.4 26.4	0.0	-	-	-	-	2.8	-	-	-	-	0.0	-

Sphyraena argentea

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 40.6	0.0	-	-	-	-	-	7.9	-	-	-	0.0	-
83.3 42.0	0.0	-	-	-	-	-	9.0	-	-	-	0.0	-
86.7 33.0	0.0	-	-	0.0	-	-	19.6	-	-	-	0.0	-
88.5 30.1	-	-	-	0.0	-	-	2.8	-	-	-	0.0	-
90.0 28.0	0.0	-	-	0.0	-	-	4.1	-	-	-	0.0	-
91.7 26.4	0.0	-	0.0	-	-	7.7	-	-	-	-	-	-

Diplospinus multistriatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 120.0	0.0	-	-	5.1	-	-	0.0	-	-	-	0.0	-

Tetragonurus cuvieri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 90.0	0.0	-	-	0.0	-	0.0	-	-	-	-	4.6	-

Peprilus simillimus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 28.0	0.0	-	-	0.0	-	-	8.1	-	-	-	0.0	-

***Citharichthys* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 45.0	9.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 28.0	19.0	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Citharichthys sordidus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	4.7	-	0.0	-	-	-	-	-	-	-	-

Table 8. (cont.)

Citharichthys sordidus (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	51.0	19.5	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7	70.0	10.3	-	-	0.0	-	-	0.0	-	-	-	5.0	-
80.0	51.0	18.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
80.0	80.0	4.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
81.8	46.9	14.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3	70.0	9.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
83.3	80.0	9.8	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7	55.0	0.0	-	-	12.7	-	-	0.0	-	-	-	0.0	-
86.7	80.0	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-
90.0	53.0	0.0	-	-	11.1	-	-	0.0	-	-	-	0.0	-
90.0	60.0	5.0	-	-	10.3	-	-	9.3	-	-	-	0.0	-
90.0	70.0	9.8	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3	30.0	0.0	-	5.4	-	-	0.0	-	-	-	-	0.0	-

Citharichthys stigmaeus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	60.0	0.0	-	-	0.0	-	-	9.1	-	-	-	4.6	-
76.7	80.0	4.9	-	-	0.0	-	-	0.0	-	-	-	0.0	-
76.7	90.0	0.0	-	-	-	-	-	0.0	-	-	-	8.5	-
80.0	55.0	0.0	-	-	0.0	-	-	0.0	-	-	-	7.8	-
80.0	60.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.8	-
80.0	70.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.8	-
80.0	90.0	0.0	-	-	0.0	-	-	0.0	-	-	-	13.5	-
81.8	46.9	0.0	-	-	0.0	-	-	9.8	-	-	-	0.0	-
83.3	51.0	4.9	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	55.0	5.0	-	-	-	-	-	0.0	-	-	-	0.0	-
86.7	33.0	4.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	35.0	0.0	-	-	0.0	-	-	9.5	-	-	-	0.0	-
86.7	50.0	8.6	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	55.0	9.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-
86.7	60.0	18.6	-	-	-	-	-	8.2	-	-	-	22.1	-
86.7	70.0	0.0	-	-	0.0	-	-	4.9	-	-	-	21.0	-
86.7	90.0	14.6	-	-	0.0	-	-	0.0	-	-	-	4.6	-
86.7	100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	8.5	-

Table 8. (cont.)

Citharichthys stigmaeus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 28.0	0.0	-	-	0.0	-	-	0.0	-	-	-	4.2	-
90.0 35.0	0.0	-	-	0.0	-	-	4.7	-	-	-	0.0	-
90.0 37.0	0.0	-	-	0.0	-	-	0.0	-	-	-	10.7	-
90.0 45.0	0.0	-	-	0.0	-	-	0.0	-	-	-	9.4	-
90.0 53.0	9.1	-	-	0.0	-	-	0.0	-	-	-	5.2	-
90.0 80.0	0.0	-	-	0.0	-	-	0.0	-	-	-	11.1	-
90.0 100.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.0	-
90.0 110.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.1	-
93.3 28.0	0.0	-	0.0	-	-	5.0	-	-	-	-	0.0	-
93.3 35.0	9.6	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3 45.0	4.6	-	0.0	-	-	4.7	-	-	-	-	0.0	-
93.3 50.0	4.8	-	0.0	-	-	0.0	-	-	-	-	0.0	-
93.3 55.0	4.4	-	5.4	-	-	0.0	-	-	-	-	0.0	-
93.3 60.0	0.0	-	10.5	-	-	0.0	-	-	-	-	0.0	-
93.3 70.0	0.0	-	-	0.0	-	0.0	-	-	-	-	8.7	-

Hippoglossina stomata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 55.0	0.0	-	-	0.0	-	-	0.0	-	-	-	5.4	-

Paralichthys californicus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 40.6	3.6	-	-	-	-	-	0.0	-	-	-	0.0	-
90.0 30.0	11.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Xystreurys liolepis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 27.7	0.0	-	-	0.0	-	-	0.0	-	-	-	2.8	-

Hypsopsetta guttulata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 33.0	4.4	-	-	0.0	-	-	0.0	-	-	-	0.0	-

Lyopsetta exilis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 80.0	-	0.0	-	5.5	-	-	-	-	-	-	-	-
80.0 55.0	0.0	-	-	9.6	-	-	0.0	-	-	-	0.0	-
81.8 46.9	0.0	-	-	5.5	-	-	9.8	-	-	-	0.0	-

Table 8. (cont.)

Lyopsetta exilis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 50.0	0.0	-	-	0.0	-	-	4.5	-	-	-	0.0	-

Microstomus pacificus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 30.0	0.0	-	0.0	-	-	10.4	-	-	-	-	0.0	-

Parophrys vetulus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 51.0	4.9	-	-	-	-	-	0.0	-	-	-	0.0	-
85.4 35.8	2.7	-	-	-	-	-	-	-	-	-	-	-

Pleuronichthys coenosus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 51.0	0.0	-	-	-	-	-	4.3	-	-	-	0.0	-

Pleuronichthys verticalis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	0.0	-	-	0.0	-	-	3.7	-	-	-	-	-
80.0 51.0	0.0	-	-	0.0	-	-	9.0	-	-	-	0.0	-
91.7 26.4	0.0	-	3.5	-	-	0.0	-	-	-	-	-	-

Disintegrated fish larvae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 80.0	0.0	-	-	5.5	-	-	0.0	-	-	-	0.0	-
90.0 100.0	8.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
90.0 110.0	4.7	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	-	5.3	-	0.0	-	-	-	-	0.0	-
93.3 110.0	0.0	-	-	0.0	-	-	4.3	-	-	-	0.0	-

Unidentified fish larvae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	5.1	-	-	0.0	-	-	0.0	-	-	-	-	-
83.3 110.0	0.0	-	-	0.0	-	-	4.4	-	-	-	0.0	-
90.0 120.0	5.1	-	-	0.0	-	-	0.0	-	-	-	0.0	-
93.3 80.0	5.0	-	-	0.0	-	0.0	-	-	-	-	0.0	-
93.3 90.0	0.0	-	-	0.0	-	4.4	-	-	-	-	0.0	-

PHYLOGENETIC INDEX TO TABLES 4 AND 8

ALPHABETICAL INDEX TO TABLES 4 AND 8

RECENT TECHNICAL MEMORANDUMS

SWFSC Technical Memorandums are accessible online at the SWFSC web site (http://swfsc.noaa.gov). Copies are also available form the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161 (http://www.ntis.gov). Recent issues of NOAA Technical Memorandums from the NMFS Southwest Fisheries Science Center are listed below:

NOAA-TM-NMFS-SWFSC-468 Is the September 1 river return date approximation appropriate for Klamath River fall Chinook?
M.R. O'FARRELL, M.L. PALMER-ZWAHLEN and J. SIMON
(November 2010)

469 Assessment of the Pacific sardine resource in 2010 for U.S. management in 2011.
K.T. HILL, N.C.H. LO, B.J. MACEWICZ, P.R. CRONE, and R. FELIX-URAGA
(December 2010)

470 AMLR 2009/10 Field Season Report.
A.M. VAN CISE, Editor
(December 2010)

471 Rationale for the 2010 revision of stock boundaries for the Hawai'i insular and pelagic stocks of false killer whales, *Pseudorca crassidens*.
K.A. FORNEY, R.W. BAIRD, and E.M. OLESON
(December 2010)

472 Historical occurrence of coho salmon *(Oncorhynchus kisutch)* in streams of the Santa Cruz Mountain region of California: response to an Endangered Species Act petition to delist coho salmon south of San Francisco Bay.
B.C. SPENCE, W.G. DUFFY, J.C. GARZA, B C. HARVEY, S.M. SOGARD, L.A. WEITKAMP, T.H. WILLIAMS, and D.A. BOUGHTON
(February 2011)

473 Comparison of real-time and post-cruise acoustic species identification of dolphin whistles using ROCCA (Real-time Odontocete Call Classification Algorithm).
Y. BARKLEY, J.N. OSWALD, J.V. CARRETTA, S. RANKIN, A.RUDD, and M.O. LAMMERS
(February 2011)

474 Global review of Humpback whale, *(Megaptera novaeangliae)*
A. FLEMING and J. JACKSON
(March 2011)

475 Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Central California Coast Coho Salmon ESU.
B.C. SPENCE and T.H. WILLIAMS
(March 2011)

476 U.S. Pacific marine mammal stock assessments: 2011.
J.V. CARRETTA, K.A. FORNEY, E. OLESON, K. MARTIEN, M.M. MUTO, M.S. LOWRY, J. BARLOW, J. BAKER, B. HANSON, D. LYNCH, L. CARSWELL, R.L. BROWNELL JR., J. ROBBINS, D.K. MATTILA, K. RALLS, and M.C. HILL
(May 2011)

477 Osteological specimens of tropical dolphins *(Delphinus, Grampus, Lagenodelphis, Stenella, Steno and Tursiops)* killed in the tuna fishery in the tuna fishery in the eastern tropical Pacific (1966-1992) and placed in museums by the Southwest Fisheries Science Center.
W.F. PERRIN and S.J. CHIVERS
(May 2011)