NOAA Technical Memorandum NMFS

JUNE 2012

ICHTHYOPLANKTON AND STATION DATA FOR SURFACE (MANTA) AND OBLIQUE (BONGO) PLANKTON TOWS FOR CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS CRUISES AND CALIFORNIA CURRENT ECOSYSTEM SURVEY IN 2009

Andrew R. Thompson
William Watson
Susan M. Manion

National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center
8604 La Jolla Shores Drive
La Jolla, California 92037-1508

NOAA-TM-NMFS-SWFSC-492

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

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

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

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

JUNE 2012

ICHTHYOPLANKTON AND STATION DATA FOR SURFACE (MANTA) AND OBLIQUE (BONGO) PLANKTON TOWS FOR CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS CRUISES AND CALIFORNIA CURRENT ECOSYSTEM SURVEY IN 2009

Andrew R. Thompson
William Watson
Susan M. Manion

National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center
8604 La Jolla Shores Drive
La Jolla, California 92037-1508

NOAA-TM-NMFS-SWFSC-492

U.S. DEPARTMENT OF COMMERCE
Rebecca M. Blank, Acting Secretary
National Oceanic and Atmospheric Administration
Jane Lubchenco, Undersecretary for Oceans and Atmosphere
National Marine Fisheries Service
Samuel D. Rauch, Acting Assistant Administrator for Fisheries

CONTENTS

LIST OF FIGURES

Page

LIST OF TABLES

Page

ABSTRACT

This report provides paralarval cephalopod and ichthyoplankton data from Manta net (surface) tows and Bongo net (oblique) tows and associated station and tow data from quarterly California Cooperative Oceanic Fisheries Investigations (CalCOFI) cruises and a single California Current Ecosystem Survey (CCES) conducted in the Southern California Bight region and central California in 2009. It is the 68th report in a series that presents these data for all of the biological-oceanographic CalCOFI surveys from 1951 to the present. CalCOFI cruises occupied a total of 321 stations covering the area from Avila Beach to San Diego, CA in winter, spring and fall and Point Reyes to San Diego in summer. CalCOFI transects extended seaward in a southwesterly direction to 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 CCES cruise occupied 83 stations along 10 transects from just north of Santa Cruz to San Diego, California in spring. CCES transects extended seaward in a westerly direction to a maximum of approximately 160 n. mi. The data are listed in a series of twelve tables; the background, methodology, and information necessary for data interpretation are presented in the accompanying text. All pertinent station and tow data, including volumes of water strained and standard haul factors, are listed in Tables 1 and 7. Other tables detail, by station and month, raw and standardized (number per 100 cubic meters of water filtered for Manta nets and number under 10 square meters of sea surface for Bongo nets) counts of each of the 5 paralarval cephalopod and 57 larval fish categories identified in Manta net tows and each of the 20 paralarval cephalopod and 152 larval fish categories identified in Bongo net tows. This series of reports makes the CalCOFI and CCES paralarval cephalopod, ichthyoplankton and station data available to all investigators and help interpret the computer data base.

INTRODUCTION

This report, the 68th in the series, provides paralarval cephalopod, ichthyoplankton and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) joint biological-oceanographic survey cruises conducted in 2009. This program was initiated in 1949, under the sponsorship of the Marine Research Committee of the State of California, to study the population fluctuations of the Pacific sardine (*Sardinops sagax*) and the environmental factors that may affect these dynamics. CalCOFI is a partnership among the Southwest Fisheries Science Center (SWFSC) 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 paralarval cephalopod[1] and ichthyoplankton from the samples. SIO processes and analyzes hydrographic and biological samples as well as other 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 known areal and seasonal spawning range of the species. From 1951 to 1960 surveys were conducted monthly. The survey area was then occupied quarterly between 1961 and 1965, and in 1966 the surveys became triennial with monthly cruises. Annual surveys resumed in 1985 with quarterly cruises that occupied only the Southern California Bight region (see Hewitt 1988, and Moser et al. 1993, 1994, 2001a, 2002 for summaries of CalCOFI historical sampling effort). Beginning in 2003 the surveyed region was expanded northward to the Monterrey or Point Reyes vicinity during the winter and spring

[1] Paralarva" is a termed coined by Young and Harman (1988) to describe the early developmental stage of cephalopods from hatching to subadult; it includes both morphological and ecological components. The morphological distinction between paralarval and juvenile stages has been defined for some families but not for all; we made no attempt to distinguish between these stages.

cruises (with the exception of 2009; see below). Neuston[2] sampling with the Manta net (Figure 1) was initiated in 1977–78 to complement ongoing oblique plankton-net (Bongo) sampling. Ahlstrom 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. 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.

In addition to the CalCOFI sampling, this report includes paralarval cephalopod, ichthyoplankton, and associated station and tow data from the California Current Ecosystem Survey (CCES), which was conducted three weeks after the conclusion of the spring CalCOFI cruise. The primary purpose of the CCES cruise was to provide data for the 2009 Pacific sardine stock assessment by obtaining relatively fine-scale ichthyoplankton data during the spring peak in the Pacific sardine spawning season. In addition to the routine, CalCOFI-like collection of plankton and associated biological and hydrographic data, adult Pacific sardine samples were collected for use in the spawning biomass estimate, which resulted in an updated stock assessment.

Hydrographic and biological data from CalCOFI surveys are published by Scripps Institution of Oceanography and can be obtained on line at the CalCOFI web site <http://www.calcofi.org/newhome/publications/Data_Reports/data_reports.htm>. All available records for all four CalCOFI cruises and the CCES cruise in 2009 were verified and edited to produce this ichthyoplankton data report. These reports make the CalCOFI and CCES ichthyoplankton and station data available to all investigators and serve as guides to the computer data base. These data reports 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 and Bongo net tow data. Prior to the 2001 survey these data were reported separately. Citations for other reports in this series are:

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		

[2]The term “neuston” 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).

Survey	Oblique Tow Report
1951	Ambrose et al. 1987a
1952	Sandknop et al. 1987a
1953	Stevens et al. 1987a
1954	Sumida et al. 1987a
1955	Ambrose et al. 1987b
1956	Stevens et al. 1987b
1957	Sumida et al. 1987b
1958	Sandknop et al. 1987b
1959	Stevens et al. 1987c
1960	Ambrose et al. 1987c
1961	Sandknop et al. 1988a
1962	Sumida et al. 1988a
1963	Ambrose et al. 1988a
1964	Sandknop et al. 1988b
1965	Stevens et al. 1988a
1966	Sumida et al. 1988b
1967	Ambrose et al. 1988b
1968	Sandknop et al. 1988c
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
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
2004	Watson et al. 2005
2005	Ambrose et al. 2006
2006	Bowlin et al. 2009
2007	Charter et al. 2011
2008	Watson et al. 2011

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

SAMPLING AREA AND PATTERN

A total of 321 standard CalCOFI survey and added inshore stations were occupied on four cruises in 2009, employing three research vessels:

0901, RV *New Horizon*, 75 stations, January 7 – 22;

0903, RV *David Starr Jordan*,71 stations, March 7 - 22;

0907, RV *McArthur II*, 100 stations, July 14 – August 3;

0911, RV *New Horizon*, 75 stations, November 6 – November 22.

The core CalCOFI survey area extended from Avila Beach to San Diego, California and seaward on six survey lines to approximately 120–330 n. mi. from shore (Figures 2 and 4).[3] The most seaward station, 90.0 120.0, was approximately 400 n. mi. west of Punta Baja, Baja California, Mexico. On all four CalCOFI cruises, lines 76.7 and 80.0 extended seaward to station 100.0; lines 83.3 and 86.7 extended seaward to station 110.0; and lines 90.0 and 93.3 extended to station 120.0. On all CalCOFI cruises, up to seven nearshore (Southern California Coastal Ocean Observing System or SCCOOS) stations were added between lines 80.0 and 93.3. During the summer (July) cruise an additional two survey lines (60.0 and 66.7) were sampled in the vicinity of San Francisco, California (Figure 4). Both of these northern stations extended seaward to station 90 (Figure 4).

A total of 83 stations were occupied on the CCES cruise in 2009, employing one vessel:

0904, FR *Frosty*, 83 stations, April 16 – May 7.

The survey area of the CCES cruise extended from just north of Santa Cruz to San Diego, California (Figure 3). The CCES included eight survey lines and encompassed the core CalCOFI area. Lines 63.3 through 73.7 extended seaward to station 90 whereas lines 77.5 through 95.0 extended seaward to station 100. Of the eight CCES lines only two (66.7 and 88.3) overlapped with standard CalCOFI lines.

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 the hydrographic wire and then lowered to slightly below the surface of the water before the net was deployed. The net was towed at a ship speed of 1.0–2.0 knots for 15 minutes. Samples were

[3]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.

preserved in 5% formalin buffered with sodium borate and returned to the plankton sorting laboratory at the SWFSC at the end of the cruise.

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

The standard bongo tow on both the CalCOFI and CCES cruises was a double oblique haul to 212 m depth (or 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 a 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 45° by adjusting ship speed and course. After reaching the surface, the nets were washed down and starboard samples preserved in 5% formalin buffered with sodium borate. At the beginning and end of each tow, readings were made from a flow meter suspended in the mouth of the starboard net. Detailed descriptions of gear and methods are given by Kramer et al. (1972) and Smith and Richardson (1977); Ohman and Smith (1995) provided summaries of historical CalCOFI zooplankton methods and calibration factors for the various gear types.

LABORATORY PROCEDURES

All paralarval cephalopod and ichthyoplankton were removed from the invertebrate portion of each sample and bottled separately in 3% buffered formalin. As part of the sorting process eggs and larvae of Pacific sardine, northern anchovy (*Engraulis mordax*), and Pacific saury (*Cololabis saira*); and larvae of Pacific hake (*Merluccius productus*) were identified, and body lengths of sardine, anchovy, and hake larvae were measured to the nearest 0.5 mm. Bongo (but not Manta) samples containing a large volume of plankton were fractioned to ~50% of their original volume. Aliquot percentages for fractioned samples are listed in Table 7 under the "Percent Sorted" column. In addition, some samples contained juvenile, and occasionally adult, stages of fishes; these were removed and bottled separately in 3% buffered formalin. A zooplankton displacement volume was determined for each Bongo net sample (methods described in Staff, SPFI 1953 and Kramer et al. 1972).

IDENTIFICATION

Identification of ichthyoplankton species beyond those separated during the sorting process was done by a separate group of specialists. Early ontogenetic stages of fishes are inherently difficult to identify, and this is further complicated by the large number and diversity of species which contribute to the ichthyoplankton of the California Current region. Most identifications were accomplished by establishing ontogenetic series on the basis of morphology, meristics, and pigmentation, and then linking these series through overlapping features to known metamorphic, juvenile, or adult stages (Powles and Markle 1984). Our ability to identify larvae in the California Current region improved greatly during 1988–1995 as a result of an intensive research project aimed at producing a taxonomic monograph on the ontogenetic stages of fishes of this region (Moser 1996).

Except for damaged specimens, most fish larvae in the 2009 surveys could be identified to species. A total of 58 larval fish categories (including unidentified) were identified in Manta net tows for 2009: 49 to species (52% of the total larvae collected in the Manta net tows), 7 to genus (48% of the total larvae), and 1 to family (< 1% of the total larvae). A total of 153 larval fish categories (including disintegrated) were identified in the Bongo net tows: 126 to species (86% of the total larvae collected in the Bongo net tows), 20 to genus (13% of the total larvae), and 6 to family (< 1% of the total larvae). Cephalopod paralarvae were also identified to the lowest possible taxonomic category. A total of 5 paralarval cephalopod categories were identified from all of the 2009 Manta samples: 4 to species (99% of the total paralarvae from all Manta net tows) and 1 to order (1% of the total paralarvae). Twenty cephalopod categories were detected in the 2009 Bongo samples with 12 identified to species (72% of the total paralarvae in the Bongo net tows), 2 to genus (15% of the total paralarvae), 5 to family (10% of the total paralarvae), and 1 to order (2% of the total paralarvae). Identifications were done in the Ichthyoplankton Ecology Laboratory of the Fisheries Resources Division mainly by William Watson, Noelle Bowlin, Andrew Thompson, Sharon Charter and Elaine Sandknop.

With few exceptions, taxonomic categories above species represent small specimens which were damaged and/or partly disintegrated during capture. The following taxonomic categories in Tables 2–6 and 8–12 require explanation:

Doryteuthis opalescens – Market Squid, commonly known as *Loligo opalescens*, was placed in *Doryteuthis* by Vecchione et al. (2005).

Enoploteuthidae – small specimens having tentacle and sucker characteristics perhaps more consistent with *Enoploteuthis* than with *Abraliopsis*.

Galiteuthis spp. – small or damaged specimens of *G. phyllura* and/or *G. pacifica* lacking diagnostic characters.

Gonatus spp. – small or damaged specimens lacking diagnostic characters; most probably are *G. onyx* or *G. pyros*.

Octopodidae – most likely *Octopus* spp., although no attempt was made to identify specimens below the level of family.

Pyroteuthidae – small or damaged *Pterygioteuthis* and/or *Pyroteuthis* paralarvae in which diagnostic visceral photophores are not yet developed or are damaged.

Bathylagidae – in a revision of the family, Kobylyanskiy (1986) placed *Bathylagus milleri* in *Pseudobathylagus*, *B. ochotensis* in *Lipolagus*, *B. wesethi* in *Bathylagoides*, and *Leuroglossus stilbius* in *Bathylagus.* Currently, *Leuroglossus stilbius* is considered valid (Eschmeyer 2010).

Bathylagoides wesethi – see comment for Bathylagidae.

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 some *Diaphus* larvae captured at the outer margin of the survey pattern may be 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; these are separated from the "unidentified" category to monitor the general condition of the ichthyoplankton samples through the time series.

Leuroglossus stilbius – see comment for Bathylagidae.

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 sp. – 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 species, *N. ritteri* (formerly *L. ritteri*) and *N. regale* (formerly *L. regalis*), occur commonly in the present CalCOFI survey pattern and their larvae > ~ 5 mm have been identified in oblique tow samples since 1954; larvae of two other species, *N. bristori* and *N. hawaiiensis*, have been identified and included in the CalCOFI data base from 1967 to the present; in data reports prior to 1985 these were referred to as *Lampanyctus* "niger" and *Lampanyctus* "no pectorals", respectively (see Moser 1996).

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), the older nomenclature currently is considered valid and Sakamoto's (1984) changes are treated as synonyms.

Pseudobathylagus milleri – see comment for Bathylagidae.

Rhinogobiops nicholsii – *Coryphopterus nicholsii* was placed in *Rhinogobiops* by Thacker and Cole (2002); in CalCOFI ichthyoplankton data reports through the 2003 report *R. nicholsii* was reported as *C. nicholsii*.

Scopelosaurus spp. – according to Balanov and Savinykh (1999) the valid *Scopelosaurus* species in north Pacific subarctic and transitional waters are *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 all 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 more common in the CalCOFI region than the central water mass species *V. poweriae*, which is encountered rarely, usually at the most seaward stations; some *V. poweriae* larvae may be included in the *V. lucetia* category because of the difficulty in separating early larvae which often are virtually identical.

DATA PRESENTATION

We present paralarval cephalopod, fish egg, fish larvae values from each sample in several forms. First, we provide values of raw total counts of paralavae, eggs, and larvae from each station that was sampled either with a Manta or Bongo net. These values are unadjusted by factors such as sampling effort or proportion of the sample sorted. Second, we report, for each taxon, the total number of stations from

which at least one individual of that taxon was collected in Manta and/or Bongo samples (i.e., "occurrences"). Third, we present values of paralarval cephalopod and fish larvae that are standardized by sampling effort. The type of standardization differs for Manta versus Bongo samples.

To standardize samples, the volume of water filtered by each net was computed from the flowmeter readings for both Manta and Bongo nets. A "standard haul factor" (SHF) is used for oblique CalCOFI Bongo net tows to standardize counts among stations by calculating 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 technique is that the entire depth distribution of the taxon must be encompassed during the tow. The SHF, which makes samples comparable and allows estimating of areal abundance, was calculated with 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

$$V = R * a * p$$

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 produce one revolution of the current meter

Standardized values for Bongo samples are then expressed by dividing the raw count by the percent sorted and multiplying by the SHF with quantities expressed as larvae per 10 m^2 of surface area.

In contrast to the oblique Bongo tows, 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. Paralarval and larval counts are standardized for Manta samples by dividing the raw value by the amount of water filtered and expressed in units of larvae per 100 m^3 of water filtered.

Station and tow data for Manta net tows are presented in Table 1; station data, tow depth, volume of water strained, and standard haul factor for each Bongo tow are listed in Table 7. Detailed descriptions of factors involved in calculating these values are presented in Ahlstrom (1948), Kramer et al. (1972), and Smith and Richardson (1977).

SPECIES SUMMARY

Manta Net

In 2009 a total of 261 surface samples were collected south of and including line 60.0 during the four CalCOFI cruises (no Manta samples were collected on the CCES) (Figures 2-4). The total number of

cephalopod paralarvae collected in 2009 Manta samples decreased by 84% compared with 2008 samples taken from the same sample area. Market squid (*Doryteuthis opalescens*) ranked first in abundance among cephalopods (64% of total paralarvae) and frequency of occurrence (detected in 4.2% of the samples) in 2009 (Tables 2 and 3). Although market squid were more common than any other cephalopod taxa in 2009, there was an 89% drop in abundance and a 4% drop in the frequency of occurrence in comparison with 2008. *Abraliopsis felis* was the second most abundant paralarva in 2009. This species comprised 21.4% of the total paralarvae and was found at 3% of the sampled samples in 2009. From 2008 to 2009 the number of *A. felis* paralarvae increased by 7% but the frequency of occurrences dropped by 1.2%. *Pyroteuthis addolux* ranked third in cephalopod abundance (10% of total) and frequency of occurrence (0.38% of samples) in 2009. *Onychoteuthis borealijaponicus* was the fourth most common cephalopod taxon in 2009, both in terms of abundance (2.8% of total) and frequency of occurrence (0.38% of samples). Neither *P. addolux* nor *O. borealijaponicus* were found in any of the comparable 2008 Manta samples. Unidentified paralarvae in the family Pyroteuthidae made up the least abundant (1.4%) and tied for least frequently observed (0.38%) cephalopod taxon in 2009. One individual of this group was also detected in 2008.

The total number of fish larvae collected in surface samples on CalCOFI cruises in 2009 increased by 12.7% in comparison with samples taken from the same lines in 2008. Of the five most abundant taxa collected in the Manta net tows in 2009 unidentified larvae of the rockfish genus *Sebastes* ranked first in abundance (47.4% of the total larvae) and frequency of occurrence (detected in 16.5% of samples) (Tables 4 and 5). The total number of *Sebastes* spp. larvae increased by 605% and the frequency of occurrence increased by 1.6% from 2008 to 2009. Pacific sardine was the second most abundant species (26.9% of the total larvae) and ranked third in frequency of occurrence in 2009. 2009 Pacific sardine abundance decreased by 22% and frequency of occurrence by 11.8% relative to 2008. Northern anchovy ranked third in abundance (9.6% of the total larvae) and fifth in frequency of occurrence (9.6%) in 2009. Although the abundance of northern anchovy decreased by 34.6%, the frequency of occurrence increased by 2.1% from 2008 to 2009. Cabezon (*Scorpaenichthys marmoratus*) ranked fourth in abundance (4% of the total larvae) and fourth in frequency of occurrence in 2009. Whereas cabezon abundance decreased by 32% from 2008 to 2009, its frequency of occurrence increased by 0.58% during this period. Pacific saury ranked fifth in abundance (3.1% of the total larvae) and second in frequency of occurrence (13.8% of samples) in 2009. These values represented a 25% reduction in abundance and a 3.8% reduction in frequency of occurrence relative to 2008. The next four most abundant taxa were chub mackerel (*Scomber japonicus*) with 1.7% of the total larvae, baby blenny (*Hypsoblennius gentilis*) with 1.3% of the total, blacksmith (*Chromis punctipinnis*) with 1.2% of the total and shortbelly rockfish (*Sebastes jordani*), also with 1.2% of the total. These species ranked 7th, 10th, 8th, and 9th in frequency of occurrence, respectively. The 10 most common taxa comprised 94% of all the larvae collected in 2009 Manta tows. The remaining 6% was distributed among 49 other categories (including the unidentified category). Of the ten most abundant taxa, habitat affinities of five were coastal demersal and three were coastal pelagic, and one was epipelagic.

Bongo Net

Oblique tows from the four CalCOFI cruises (298 samples) and the CCES cruise (81 samples) were all collected south of and including line 60.0 in 2009 (Figures 2-4). The total number of cephalopod paralarvae collected in 2009 increased by 90.7% relative to the total number collected from this region in 2008. *Abraliopsis felis* ranked first among cephalopod taxa both in abundance (56.4% of the total paralarvae) and frequency of occurrence (28.2% of the samples) in 2009 (Tables 8 and 9). The number of *A. felis* collected in 2009 was 136% greater than in 2008, and the frequency of occurrence increased by 9.6% over this period. *Gonatus* spp. ranked second in both abundance (13% of the total paralarvae) and frequency of occurrence (13% of samples) in 2009. The number of *Gonatus* spp. caught in 2009 increased by 178% relative to 2008, and the frequency of occurrence increased by 5.5% between years. Unidentified cephalopods in the family Octopodidae ranked third in abundance (7.5% of the total paralarvae) and frequency of occurrence (9.5% of the samples) in 2009. Octopodidae was not detected in 2008. Market squid was the fourth most abundant (5.7%) and frequently occurring (5.3%) cephalopod taxon in 2009. The number of market squid that were collected increased 21.4% from 2008 to 2009

although the frequency of occurrence decreased by 3.27% during this span of time. *Chiroteuthis calyx* was the fifth most abundant (3.3% of the total) and frequently occurring (4.2% of the samples) cephalopod taxa in 2009. The number of *C. calyx* collected in 2009 was 233% greater than in 2008, and the frequency of occurrence increased by 2.3% during this time. The next five most abundant cephalopod taxon in 2009 were undetermined species in the order Teuthida (2.3% of the total), *Leachia pacifica* (2.2% of the total), undetermined species in the family Pyroteuthidae (2% of the total), and, tied for ninth, undetermined species in the genus *Galiteuthis* (1.7% of the total) and *Onychoteuthis borealijaponica* (1.7% of the total). These taxa ranked 6th, 7th, 9th, 8th, and 10th in frequency of occurrence, respectively. The ten most abundant taxa comprised 95.8% of all the cephalopod paralarva collected in Bongo tows in 2009. The remaining 4.2% was distributed among 12 additional categories.

Of the five most abundant fish taxa collected in Bongo net tows in the CalCOFI and CCES cruises in 2009, Pacific sardine was the most abundant (37% of the total fish larvae) and was fourth in frequency of occurrence (detected in 25.9% of the samples) (Tables 10 and 11). The abundance of Pacific sardine larvae collected during 2009 increased by 186%, and frequency of occurrence by 16%, compared with 2008. Northern lampfish (*Stenobrachius leucopsarus*) larvae ranked second in abundance (9.7% of the total) and were first in frequency of occurrence (43% of the samples). The number of northern lampfish collected in 2009 was 71.8% greater than in 2008, and the frequency of occurrence increased by 11.1% between years. Unidentified rockfish in the genus *Sebastes* ranked third in both abundance (8.9% of the total) and frequency of occurrence (33.2% of the samples) in 2009. *Sebastes* spp. increased both in abundance (112%) and frequency of occurrence (8.7%) between 2008 and 2009. Panama lightfish (*Vinciguerria lucetia*) was the fourth most abundant (6.3% of the total) and thirteenth most frequently occurring (15.3% of the samples) taxon in 2009. The number of Panama lightfish larvae collected increased by 138.7%, and the frequency of occurrence increased by 8.1%, between 2008 and 2009. Northern anchovy was the fifth most abundant (4.6% of the total), and was ninth most frequently collected (17.4% of samples), fish taxon in 2009. The number of collected northern anchovy increased 227.6% from 2008 to 2009, and their frequency of occurrence increased by 14.2% over this time span. The next five most abundant taxa in 2009 were jack mackerel, *Trachurus symmetricus* (2.3% of of the total); Mexican lampfish, *Triphoturus mexicanus* (2.2% of the total), unidentified species in the headlightfish genus *Diaphus* (2.2%), snubnose blacksmelt, *Bathylagoides wesethi* (2.1% of the total), and California flashlightfish, *Protomyctophum crockeri* (2% of the total). These taxa ranked 21st, 10th, 8th, 16th, and 2nd in frequency of occurrence, respectively. The ten most abundant taxa comprised 77.8% of all the larvae that were collected with Bongo nets in 2009. The remaining 22.2% were distributed among 143 additional categories (including the disintegrated fish larvae category). Of the ten most abundant taxa two are coastal pelagic species, one is a coastal demersal taxa, one is an epipelagic species and six are mesopelagic species that migrate into the epipelagic zone 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 larvae, fish eggs, and paralarval cephalopods for Manta net tow stations occupied during the 2009 CalCOFI survey and CCES cruise. 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*, M2, *McArthur II*, and 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, fish larvae, and cephalopod paralarvae 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 paralarval cephalopod taxa taken in Manta net tows during the four 2009 CalCOFI cruises. Taxa are listed in rank order.

Table 3. Pooled raw counts (not adjusted for volume of water filtered) of all paralarval cephalopod taxa taken in Manta net tows during the four 2009 CalCOFI cruises. Taxa are listed in rank order.

Table 4. Pooled occurrences of all fish larvae categories collected in Manta net tows during the four 2009 CalCOFI cruises. Taxa are listed in rank order.

Table 5. Pooled raw counts (not adjusted for volume of water filtered) of all fish larvae taxa taken in Manta net tows during the four 2009 CalCOFI cruises. Taxa are listed in rank order.

Table 6. Numbers of paralarval cephalopod and fish larvae for each taxon taken in Manta net tows during the 2009 CalCOFI cruises. Numbers of larvae are listed as number per 100 m^3 of water filtered. The first six taxa are cephalopods and the rest are fishes. Taxa are listed in phylogenetic sequence (Eschmeyer 1998; Sweeny and Roper 1998); genera are listed alphabetically.

Table 7. 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 larvae, fish eggs, paralarval cephalopods during the 2009 CalCOFI survey and the CCES cruise. 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*, FR, *Frosti*, M2, *McArthur II*, 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 larvae, fish eggs, and paralaval cephalopods 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 8. Pooled occurrences of all paralaval cephalopod taxa taken in Bongo net tows in the 2009 CalCOFI and CCES cruises, listed in rank order.

Table 9. Pooled counts (adjusted for percent of sample sorted and standard haul factor) of all paralaval cephalopod taxa taken in Bongo net tows from the 2009 CalCOFI and CCES cruises, listed in rank order.

Table 10. Pooled occurrences of all fish larvae taxa taken in Bongo net tows in the 2009 CalCOFI and CCES cruises, listed in rank order.

Table 11. Pooled counts (adjusted for percent of sample sorted and standard haul factor) of all fish larvae taxa taken in Bongo net tows from the 2009 CalCOFI and CCES cruises, listed in rank order.

Table 12. Numbers of paralaval cephalopods and fish larvae for each taxon taken in Bongo net tows during the 2009 CalCOFI cruises. Counts are adjusted for percentage of sample sorted and standard haul factor. The first twenty three taxa are cephalopods and the rest are fishes. Taxa are listed in phylogenetic sequence (Eschmeyer 1998; Sweeny and Roper 1998); genera are listed alphabetically.

ACKNOWLEDGMENTS

The following personnel were responsible for making the collections at sea: Dimitry Abramenkoff (0903, 0904, 0911), Ronald Dotson (0904), David Griffith (0903, 0904), Amy Hays (0901, 0903, 0904, 0907, 0911), Susan Manion (0901, 0907), Beverly Macewicz (0904), and Bryan Overcash (0901, 0903, 0907, 0911). The samples were sorted primarily by Lucy Dunn, Sarah Zao and Noelle Bowlin. Amy Hays and Susan Manion assisted with data entry and Susan Jacobson provided programming assistance. The cooperation and assistance provided by the crews of the CalCOFI and CCES research vessels were instrumental in making the collections and observations at sea.

LITERATURE CITED

Acuña, E. S., R. L. Charter, and W. Watson. 2005. Ichthyoplankton and station data for surface (Manta) and oblique (Bongo) plankton tows for California Cooperative Oceanic Fisheries Investigations survey cruises in 2003. U.S. Dep. Commer., NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-370. 112 pp.

Ahlstrom, E. H. 1948. A record of pilchard eggs and larvae collected during surveys made in 1939 to 1941. U.S. Wildl. Serv. Spec. Sci. Rep. Fish. SSRF-54. 2 pp.

Ahlstrom, E. H. and E. G. Stevens. 1976. Report of neuston (surface) collections made on an extended CalCOFI cruise during May 1972. Calif. Coop. Oceanic Fish. Invest. Rep. 18:167–10.

Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Santos Methot. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1951. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-79. 196 pp.

Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Santos Methot. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1955. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-83. 15 pp.

Ambrose, D. A., R. L. Charter, H. G. Moser, and C. R. Santos Methot. 1987c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1960. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-88. 253 pp.

Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1963. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-94. 209 pp.

Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1967. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-98. 103 pp.

Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1975. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-110. 221 pp.

Ambrose, D. A., R. L. Charter, H. G. Moser, and B. S. Earhart. 1988d. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1981. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-112. 170 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 1999a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1985. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-266. 79 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 1999b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1989. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-270. 87 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 1999c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1993. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-274. 88 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 1999d. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1997. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-278. 86 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2001. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1999. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-311. 69 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2002a. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1980–81. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-319. 100 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2002b. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1985. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-321. 36 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2002c. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1989. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-325. 45 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2002d. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1993. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-329. 41 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2002e. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1997. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-333. 41 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2002f. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1998. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-334. 43 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2002g. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1999. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-335. 39 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2003a. Ichthyoplankton and station data for surface (Manta) and oblique (Bongo) plankton tows for California Cooperative Oceanic Fisheries Investigations survey cruises in 2001. U.S. Dep. Commer., NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-348. 104 pp.

Ambrose, D. A., R. L. Charter, and H. G. Moser. 2003b. Ichthyoplankton and station data for surface (Manta) and oblique (Bongo) plankton tows for "Mini" California Cooperative Oceanic Fisheries Investigations survey cruises in 1997 and 1998. U.S. Dep. Commer., NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-351. 69 pp.

Ambrose, D. A., R. L. Charter, S. M. Manion. 2006. Ichthyoplankton and station data for surface (Manta) and oblique (Bongo) plankton tows for California Cooperative Oceanic Fisheries Investigations survey cruises in 2005. U.S. Dep. Commer., NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-392. 125 pp.

Balanov, A. A. and V. F. Savinykh. 1999. Redescriptions of *Scopelosaurus harryi* and *S. adleri* (Notosudidae): two valid mesopelagic species inhabiting the northern part of the Pacific Ocean. J. Ichthyol. 39 (8): 616–625.

Banse, K. 1975. Pleuston and neuston: on the categories of organisms in the uppermost pelagial. Int.Rev. ges.Hydrobiol. 60(4):439–447.

Bowlin, N. M., W. Watson, R. L. Charter, and S. M. Manion. 2009. Ichthyoplankton and station data for surface (Manta) and oblique (Bongo) plankton tows for California Cooperative Oceanic Fisheries Investigations survey cruises and California Current Ecosystem Survey in 2006. U.S. Dep. Commer., NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-442. 152 pp.

Brown, D. M. and L. Cheng. 1981. New net for sampling the ocean surface. Mar. Ecol. Prog. Ser. 5:224–227.

Charter, S. R., R. L. Charter, and H. G. Moser. 1999a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1986. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-267. 79 pp.

Charter, S. R., R. L. Charter, and H. G. Moser. 1999b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1990. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-271. 86 pp.

Charter, S. R., R. L. Charter, and H. G. Moser. 1999c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1994. U. S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-275. 89 pp.

Charter, S. R., R. L. Charter, and H. G. Moser. 1999d. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1998. U. S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-279. 104 pp.

Charter, S. R., R. L. Charter, and H. G. Moser. 2002a. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1984. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-320. 84 pp.

Charter, S. R., R. L. Charter, and H. G. Moser. 2002b. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1986. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-322. 40 pp.

Charter, S. R., R. L. Charter, and H. G. Moser. 2002c. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1990. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-326. 41 pp.

Charter, S. R., R. L. Charter, and H. G. Moser. 2002d. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1994. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-330. 40 pp.

Charter, S. R., R. L. Charter, and H. G. Moser. 2003. Ichthyoplankton and station data for surface (Manta) and oblique (Bongo) plankton tows for California Cooperative Oceanic Fisheries Investigations survey cruises in 2002. U. S. Dep. Commer., NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-352. 97 pp.

Charter, S. R., W. Watson, and S. M. Manion. 2011 Ichthyoplankton and station data for surface (Manta) and oblique (Bongo) plankton tows for California Cooperative Oceanic Fisheries Investigations survey cruises in 2007. U. S. Dep. Commer., NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-478. 112 pp.

Doyle, M. J. 1992a. Patterns in distribution and abundance of ichthyoplankton off Washington, Oregon, and northern California (1980–1987). U.S. Dep. Commer., Nat. Mar. Fish. Serv., Alaska Fish. Sci. Ctr. Proc. Rep. 92-14. 344 pp.

Doyle, M. J. 1992b. Neuston ichthyoplankton in the northern region of the California Current ecosystem. Calif. Coop. Oceanic Fish. Invest. Rep. 33:141–161.

Eschmeyer, W. N. (ed.). 1998. Catalog of fishes. Center for Biodiversity Research and Information. California Academy of Sciences. Spec. Publ. 1. Vols. I-III. 2905 pp.

Eschmeyer, W. N. (ed.). 2010. Catalogue of fishes electronic version (26 August 2010). http://research.calacademy.org/ichthyology/catalog/fishcatmain.asp

Gruber, D., E. H. Ahlstrom, and M. M. Mullin. 1982. Distribution of ichthyoplankton in the Southern California Bight. Calif. Coop. Oceanic Fish. Invest. Rep. 23:172–179.

Hempel, G. and H. Weikert. 1972. The neuston of the subtropical and boreal northeastern Atlantic Ocean. A Review. Mar. Biol. 13:70–88.

Hewitt, R. P. 1988. Historical review of the oceanographic approach to fishery research. Calif. Coop. Oceanic Fish. Invest. Rep. 29:27–41.

Kobyliansky, S. H. 1986. Materials for a revision of the family Bathylagidae (Teleostei, Salmoniformes). Trans. Shirshov Inst. Oceanol. V. 121: 6-50. [In Russian, English summ.]

Kramer, D., M. Kalin, E. G. Stevens, J. R. Thrailkill, and J. R. Zweifel. 1972. Collecting and processing data on fish eggs and larvae in the California Current Region. NOAA Tech. Rep. NMFS Circ. 370. 38 pp.

Lo, N. C. H., B. J. Macewicz, D. A. Griffith, and R. L. Charter. 2007. Spawning Biomass of Pacific sardine (*Sardinops sagax*) off U. S. and Canada in 2006. U.S. Dep. Commer., NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-401. 32 pp.

Matarese, A. C., A. W. Kendall, Jr., D. M. Blood, and B. M. Vinter. 1989. Laboratory guide to early life history stages of northeast Pacific fishes. U.S. Dep. Commer., NOAA Tech. Rep. NMFS 80. 652 pp.

McAllister, D. E. 1990. A list of the fishes of Canada. Syllogeus No. 64: 1–310.

McGowan, J. S. and D. M. Brown. 1966. A new opening-closing paired zooplankton net. Scripps Inst. Oceanogr. Ref. 66-23. 23 pp.

Miller, D. J. and R. N. Lea. 1972. Guide to the coastal marine fishes of California. Calif. Dep. Fish Game Fish Bull. 157. 235 pp.

Morita, T. 1999. Molecular phylogenetic relationships of the deep-sea fish genus *Coryphaenoides* (Gadiformes: Macrouridae) based on mitochondrial DNA. Mol. Phylogenet. Evol. 13:447–454.

Moser, H. G. (ed.). 1996. The early stages of fishes in the California Current region. CalCOFI Atlas 33. 1505 pp.

Moser, H. G., R. L. Charter, P. E. Smith, D. A. Ambrose, S. R. Charter, C. A. Meyer, E. M. Sandknop, and W. Watson. 1993. Distributional atlas of fish larvae and eggs in the California Current region: taxa with 1000 or more total larvae, 1951 through 1984. CalCOFI Atlas 31. 233 pp.

Moser, H. G., R. L. Charter, P. E. Smith, D. A. Ambrose, S. R. Charter, C. A. Meyer, E. M. Sandknop, and W. Watson. 1994. Distributional atlas of fish larvae in the California Current region: taxa with less than 1000 total larvae, 1951 through 1984. CalCOFI Atlas 32. 181 pp.

Moser, H. G., R. L. Charter, P. E. Smith, D. A. Ambrose, W. Watson, S. R. Charter, and E. M. Sandknop. 2001a. Distributional atlas of fish larvae and eggs in the Southern California Bight region: 1951–1998. CalCOFI Atlas 34. 166 pp.

Moser, H. G., R. L. Charter, D. A. Ambrose, and E. M. Sandknop. 2001b. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations

survey cruises in 1977–78. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-313. 58 pp.

Moser, H. G., R. L. Charter, P. E. Smith, D. A. Ambrose, W. Watson, S. R. Charter, and E. M. Sandknop. 2002. Distributional atlas of fish larvae and eggs from Manta (surface) samples collected on CalCOFI surveys from 1977 to 2000. CalCOFI Atlas 35. 97 pp.

Naumann, E. 1917. Beiträge zur Kenntnis des Teichnannoplanktons. II. Über das Neuston das Süsswassers. Biol. Zentralbl. 37:98–106.

Nelson, J. S. 1994. Fishes of the world. Third edition. John Wiley and Sons, N.Y. 600 pp.

Ohman, M. D. and P. E. Smith. 1995. A comparison of zooplankton sampling methods in the CalCOFI time series. Calif. Coop. Oceanic Fish. Invest. Rep. 36:153–158.

Peres, J. M. 1982. Specific pelagic assemblages: 1. Assemblages at the air-ocean interface *In* Marine Ecology. O. Kinne (ed.). 5 (1):313–372.

Powles, H. and D. F. Markle. 1984. Identification of larvae. Pages 31–33 *in* H. G. Moser, W. J. Richards, D. M. Cohen, M. P. Fahay, A. W. Kendall, Jr., and S. L. Richardson, eds. Ontogeny and Systematics of Fishes. Am. Soc. Ichthyol. Herpetol. Spec. Publ. 1. 760 pp.

Robins, C. R., R. M. Bailey, C. E. Bond, J. R. Brooker, E. A. Lachner, R. N. Lea, and W. B. Scott. 1991. Common and scientific names of fishes from the United States and Canada. Fifth edition. Am. Fish. Soc. Spec. Publ. 20. 183 pp.

Sakamoto, K. 1984. Interrelationships of the family Pleuronectidae (Pisces: Pleuronectiformes). Mem. Fac. Fish. Hokkaido Univ. 31:95–215.

Sandknop, E. M., R. L. Charter, H. G. Moser, and J. D. Ryan. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1952. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-80. 207 pp.

Sandknop, E. M., R. L. Charter, H. G. Moser, and J. D. Ryan. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1958. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-86. 248 pp.

Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1961. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-92. 167 pp.

Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1964. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-95. 222 pp.

Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1968. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-99. 112 pp.

Sandknop, E. M., R. L. Charter, H. G. Moser, C. A. Meyer, and A. E. Hays. 1988d. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1978. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-111. 216 pp.

Sandknop, E. M., R. L. Charter, and H. G. Moser. 1999a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1987. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-268. 91 pp.

Sandknop, E. M., R. L. Charter, and H. G. Moser. 1999b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1991. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-272. 90 pp.

Sandknop, E. M., R. L. Charter, and H. G. Moser. 1999c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1995. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-276. 84 pp.

Sandknop, E. M., R. L. Charter, and H. G. Moser. 2002a. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1987. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-323. 40 pp.

Sandknop, E. M., R. L. Charter, and H. G. Moser. 2002b. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1991. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-327. 41 pp.

Sandknop, E. M., R. L. Charter, and H. G. Moser. 2002c. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1995. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-331. 42 pp.

Smith, P. E. and S. L. Richardson. 1977. Standard techniques for pelagic fish egg and larva surveys. FAO Fish. Tech. Pap. 175. 100 pp.

Staff, South Pacific Fisheries Investigations. 1953. Zooplankton volumes off the Pacific Coast, 1952. U.S. Fish. Wildl. Serv. Spec. Sci. Rep. Fish. SSRF-100. 41 pp.

Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1953. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-81. 186 pp.

Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1956. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-84. 189 pp.

Stevens, E. G., R. L. Charter, H. G. Moser, and M. S. Busby. 1987c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1959. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-87. 273 pp.

Stevens, E. G., R. L. Charter, H. G. Moser, and L. R. Zins. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1965. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-96. 220 pp.

Stevens, E. G., R. L. Charter, H. G. Moser, and L. R. Zins. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1969. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-100. 265 pp.

Stevens, E. G., R. L. Charter, H. G. Moser, and C. A. Meyer. 1990. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1984. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-141. 157 pp.

Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1987a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1954. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-82. 207 pp.

Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1987b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1957. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-85. 225 pp.

Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1962. U.S. Dep. Commer., NOAA Tech. Memo, NOAA-TM-NMFS-SWFC-93. 179 pp.

Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1966. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-97. 287 pp.

Sumida, B. Y., R. L. Charter, H. G. Moser, and D. L. Snow. 1988c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1972. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFC-109. 219 pp.

Sweeney, M. J., C. F. Roper, K. M. Mangold, M. R. Clarke, and S. V. Boletzky (eds.). 1992. “Larval” and juvenile cephalopods: a manual for their identification. Smiths. Contrib.. Zool. No. 513. 282 pp.

Thacker, C. E. and K. S. Cole. 2002. Phylogeny and evolution of the gobiid genus *Coryphopterus*. Bull. Mar. Sci. 70:837–850.

Watson, W., R. L. Charter, and H. G. Moser. 1999a. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1988. U. S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-269. 88 pp.

Watson, W., R. L. Charter, and H. G. Moser. 1999b. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1992. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-273. 90 pp.

Watson, W., R. L. Charter, and H. G. Moser. 1999c. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 1996. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-277. 91 pp.

Watson, W., R. L. Charter, and H. G. Moser. 2001. Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises in 2000. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-312. 73 pp.

Watson, W., R. L. Charter, and H. G. Moser. 2002a. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1988. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-324. 46 pp.

Watson, W., R. L. Charter, and H. G. Moser. 2002b. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1992. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-328. 40 pp.

Watson, W., R. L. Charter, and H. G. Moser. 2002c. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 1996. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-332. 45 pp.

Watson, W., R. L. Charter, and H. G. Moser. 2002d. Ichthyoplankton and station data for Manta (surface) tows taken on California Cooperative Oceanic Fisheries Investigations survey cruises in 2000. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-336. 40 pp.

Watson, W., R. L. Charter, and S. M. Manion. 2005. Ichthyoplankton and station data for surface (Manta) and oblique (Bongo) tows taken for California Cooperative Oceanic Fisheries Investigations survey cruises in 2005. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-384. 123 pp.

Watson W., and S. M. Manion. 2011. Ichthyoplankton, paralarval cephalopod, and station data for surface (manta) and oblique (Bongo) plankton tows for California Cooperative Oceanic Fisheries Investigations survey and California Current Ecosystem survey cruises in 2008. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-481. 177 pp.

Young, R. E., and R. F. Harman. 1988. "Larva", "paralarva" and "subadult" in cephalopod terminology. Malacologia 29:201-207.

Zahuranec, B. J. 2000. Zoogeography and systematics of the lanternfishes of the genus *Nannobrachium* (Lampanyctini: Myctophidae). Smiths. Contrib. Zool. 607. 69 pp.

Zaitsev, Y. P. 1970. Marine neustonology. Naukova Dumka. Kiev. 264 pp. [In Russian]. [English transl.: 1971. Israel Progr. Sci. Transl. No. 5976. 207 pp.]

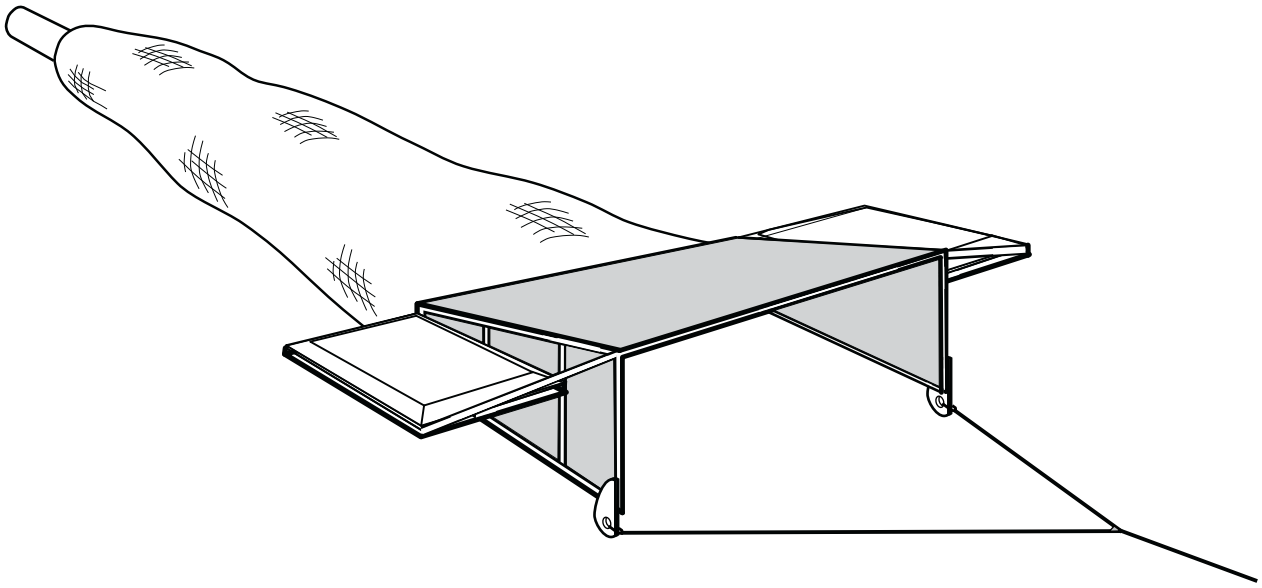

Figure 1. Diagram of the Manta net used on CalCOFI cruises and the CCES cruise.

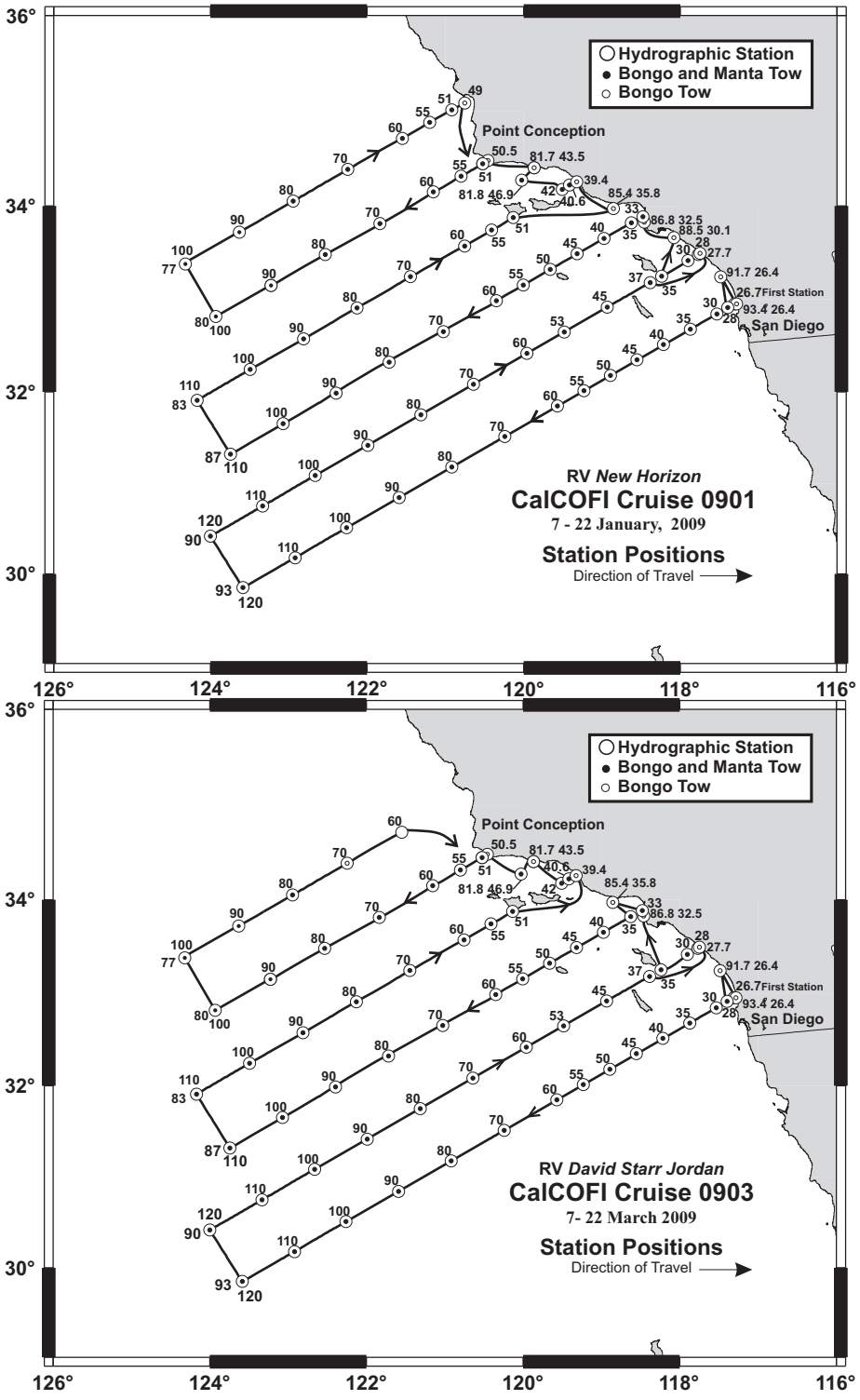

Figure 2. Stations and cruise tracks for CalCOFI cruises 0901NH (above) and 0903JD (below). On cruise 0901NH, a Bongo tow was taken unaccompanied by a Manta tow at stations: 76.7 49.0, 80.0 50.5, 81.7 43.5, 83.3 39.4, 85.4 35.8, 86.8 32.5, 88.5 30.1, 90.0 27.7, 91.7 26.4, and 93.4 26.4. On cruise 0903JD, a Bongo tow was taken unaccompanied by a Manta tow at stations: 76.7 70.0, 80.0 50.5, 81.7 43.5, 83.3 39.4, 85.4 35.8, 86.8 32.5, 90.0 28.0, 90.0 27.7, 91.7 26.4, and 93.4 26.4. On cruise 0903JD net tows were not taken at station 76.7 60.0.

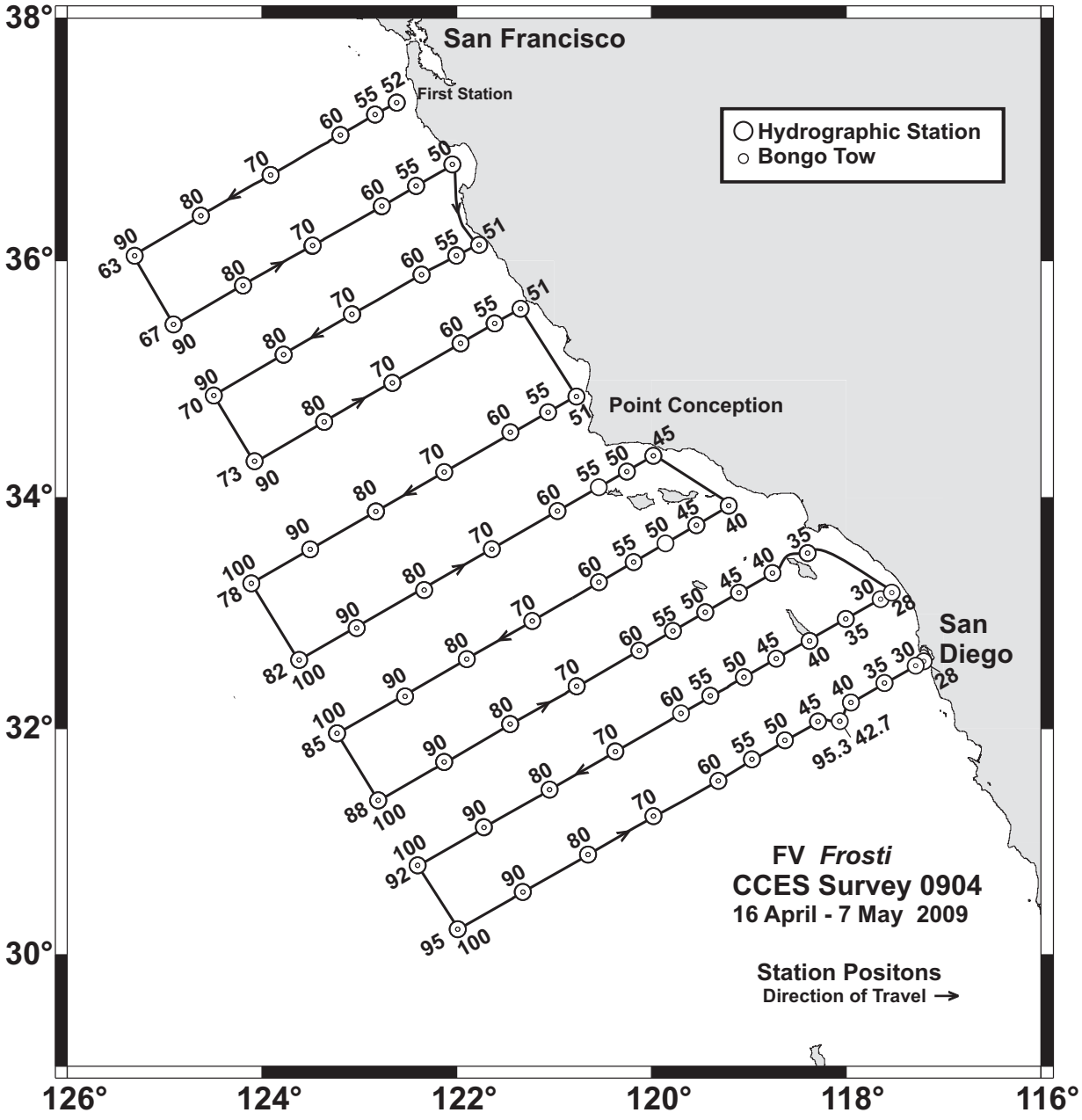

Figure 3. Stations and cruise track for CCES cruise 0904FR. A CTD was taken unaccompanied by a Bongo tow on stations 81.7 55.0 and 85.0 50.0.

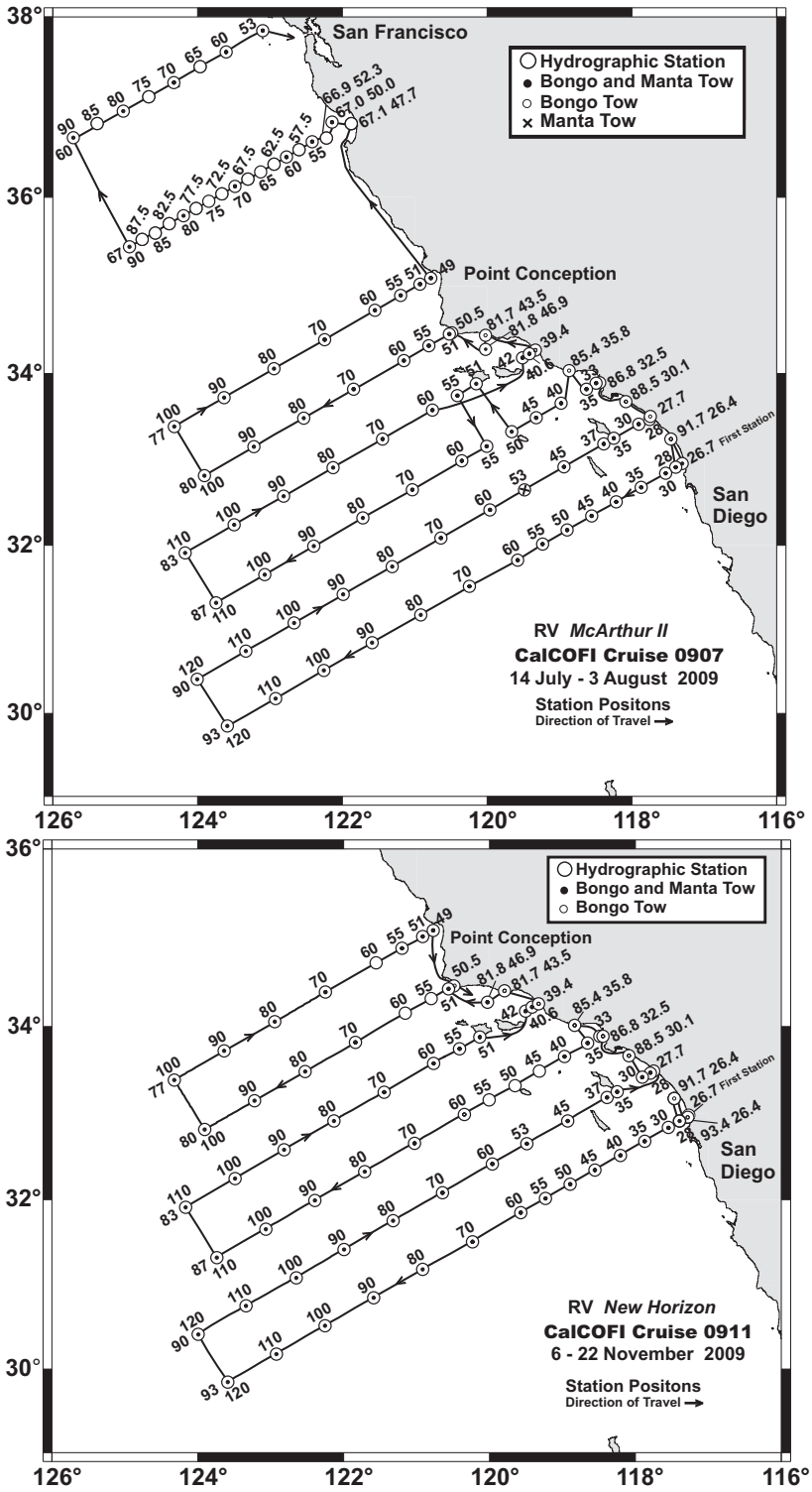

Figure 4. Stations and cruise tracks for CalCOFI cruises 0907M2 (above) and 0911NH (below). On cruise 0907M2, a Bongo tow was taken unaccompanied by a Manta tow at stations: 80.0 50.5, 81.7 43.5, 83.3 39.4, 85.4 35.8, 86.8 32.5, 88.5 30.1, 90.0 27.7, and 91.7 26.4. A Manta tow was taken unaccompanied by a Bongo tow at station 90.0 53.0. On cruise 0911NH, a Bongo tow was taken unaccompanied by a Manta tow at stations: 80.0 50.5, 81.7 43.5, 83.3 39.4, 86.7 60.0, 85.4 35.8, 86.8 32.5, 88.5 30.1, 90.0 27.7, 91.7 26.4 and 93.4 26.4.

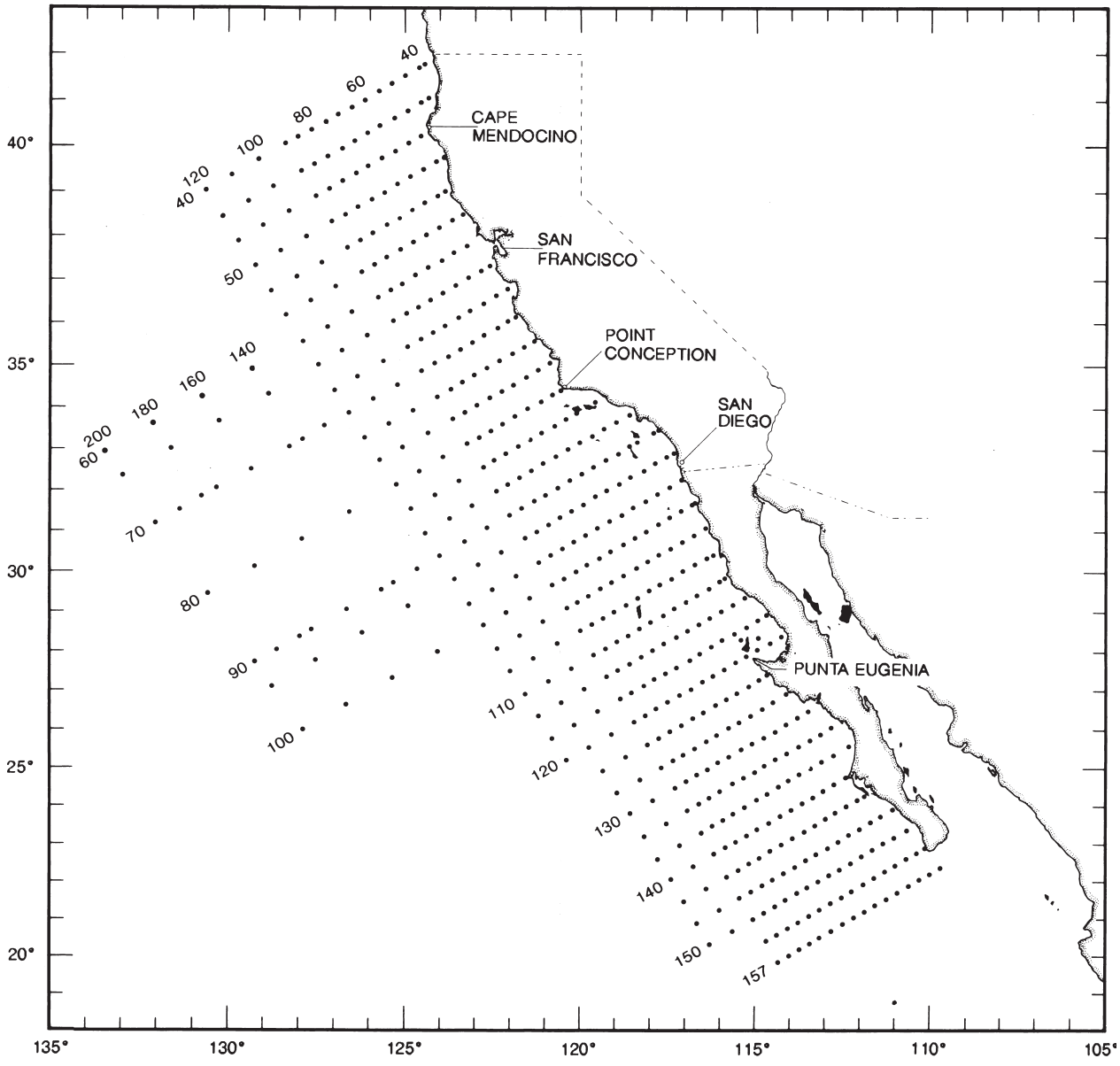

Figure 5. The basic CalCOFI station pattern occupied, in part, by cruises during 1951-1984.

Table 1. Station and Manta net tow data for CalCOFI cruises in 2009. Numbers of eggs and larvae are raw counts, unadjusted for volume (cubic meters) of water filtered.

CalCOFI Cruise 0901

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)	Volume Water Strained	Total Larvae	Total Eggs	Total Para-Larvae
76.7	51.0	35	01.3	120	55.1	NH	09	01	22	1759	66	38	0	0
76.7	55.0	34	53.7	121	12.0	NH	09	01	22	1431	66	0	6	0
76.7	60.0	34	43.3	121	32.9	NH	09	01	22	1034	63	1	16	0
76.7	70.0	34	23.3	122	14.9	NH	09	01	22	0430	76	0	0	0
76.7	80.0	34	03.2	122	56.4	NH	09	01	21	2216	73	0	0	0
76.7	90.0	33	43.2	123	38.1	NH	09	01	21	1555	72	0	0	0
76.7	100.0	33	23.3	124	19.4	NH	09	01	21	0810	71	0	0	0
80.0	51.0	34	27.0	120	31.4	NH	09	01	19	1723	61	17	1131	0
80.0	55.0	34	19.0	120	48.2	NH	09	01	19	2100	77	2	2	0
80.0	60.0	34	09.1	121	09.0	NH	09	01	20	0124	92	7	129	0
80.0	70.0	33	48.7	121	51.9	NH	09	01	20	0810	78	0	6	0
80.0	80.0	33	29.4	122	31.9	NH	09	01	20	1516	105	0	0	0
80.0	90.0	33	09.0	123	13.5	NH	09	01	20	2114	72	0	0	0
80.0	100.0	32	49.0	123	54.3	NH	09	01	21	0325	81	0	0	0
81.8	46.9	34	16.5	120	01.5	NH	09	01	19	0815	78	2	1	0
83.3	40.6	34	13.6	119	24.6	NH	09	01	19	0214	96	1	25	0
83.3	42.0	34	10.7	119	30.2	NH	09	01	19	0431	91	4	4	1
83.3	51.0	33	52.7	120	08.0	NH	09	01	18	1255	92	3	31	0
83.3	55.0	33	44.7	120	24.6	NH	09	01	18	0831	87	5	1178	0
83.3	60.0	33	34.6	120	45.3	NH	09	01	18	0504	81	11	6	0
83.3	70.0	33	14.8	121	26.5	NH	09	01	17	2246	56	0	0	0
83.3	80.0	32	54.7	122	07.7	NH	09	01	17	1615	85	0	1	0
83.3	90.0	32	34.7	122	48.7	NH	09	01	17	0948	68	0	10	0
83.3	100.0	32	14.8	123	29.5	NH	09	01	17	0352	88	0	2	0
83.3	110.0	31	54.7	124	10.2	NH	09	01	16	2149	60	0	2	0
86.7	33.0	33	53.4	118	29.4	NH	09	01	14	0853	83	0	385	0
86.7	35.0	33	49.4	118	37.7	NH	09	01	14	1141	86	2	16	0
86.7	40.0	33	39.4	118	58.4	NH	09	01	14	1618	86	0	22	0
86.7	45.0	33	29.5	119	19.0	NH	09	01	14	2034	64	2	4	0
86.7	50.0	33	19.4	119	39.8	NH	09	01	15	0038	58	1	2	0
86.7	55.0	33	09.4	120	00.5	NH	09	01	15	0436	81	10	30	0
86.7	60.0	32	59.4	120	20.9	NH	09	01	15	0734	94	4	11	0
86.7	70.0	32	39.5	121	01.9	NH	09	01	15	1514	104	1	18	0
86.7	80.0	32	19.4	121	43.0	NH	09	01	15	2127	80	2	5	0
86.7	90.0	31	59.3	122	23.4	NH	09	01	16	0335	103	0	1	0
86.7	100.0	31	39.4	123	04.2	NH	09	01	16	0824	78	1	1	0
86.7	110.0	31	19.4	123	44.6	NH	09	01	16	1541	84	7	3	0
90.0	28.0	33	29.1	117	46.1	NH	09	01	13	1630	81	3	54	0
90.0	30.0	33	25.1	117	54.2	NH	09	01	13	1916	98	0	1	0
90.0	35.0	33	15.1	118	15.1	NH	09	01	13	2334	108	1	231	0
90.0	37.0	33	11.1	118	23.2	NH	09	01	13	0910	76	0	46	0
90.0	45.0	32	52.9	119	00.6	NH	09	01	13	0410	86	2	11	0
90.0	53.0	32	39.2	119	28.9	NH	09	01	12	2242	80	2	58	0

Table 1. (cont.)

CalCOFI Cruise 0901 (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)	Volume Water Strained	Total Larvae	Total Eggs	Total Para-Larvae
90.0	60.0	32	25.1	119	57.6	NH	09	01	12	1741	78	0	7	0
90.0	70.0	32	05.1	120	38.3	NH	09	01	12	1117	72	0	4	0
90.0	80.0	31	45.1	121	19.0	NH	09	01	12	0444	67	0	0	0
90.0	90.0	31	25.1	121	59.3	NH	09	01	11	2221	72	0	0	0
90.0	100.0	31	05.4	122	39.8	NH	09	01	11	1609	70	0	0	0
90.0	110.0	30	45.1	123	19.9	NH	09	01	11	0837	88	4	1	0
90.0	120.0	30	25.0	123	59.8	NH	09	01	11	0309	87	9	0	0
93.3	26.7	32	57.4	117	18.3	NH	09	01	07	1908	82	0	1	1
93.3	28.0	32	54.8	117	23.8	NH	09	01	08	0340	85	0	10	1
93.3	30.0	32	50.8	117	31.8	NH	09	01	08	0625	82	7	0	0
93.3	35.0	32	40.8	117	52.4	NH	09	01	08	1033	83	0	0	0
93.3	40.0	32	30.9	118	12.8	NH	09	01	08	1438	82	0	0	0
93.3	45.0	32	20.8	118	33.3	NH	09	01	08	1844	66	8	0	0
93.3	50.0	32	10.8	118	53.6	NH	09	01	08	2249	92	0	4	0
93.3	55.0	32	00.9	119	13.9	NH	09	01	09	0310	71	2	0	0
93.3	60.0	31	50.8	119	34.2	NH	09	01	09	0716	70	0	1	0
93.3	70.0	31	31.4	120	14.0	NH	09	01	09	1327	90	1	2	0
93.3	80.0	31	10.9	120	55.2	NH	09	01	09	1954	67	0	0	0
93.3	90.0	30	50.9	121	35.3	NH	09	01	10	0211	79	0	0	0
93.3	100.0	30	30.9	122	15.3	NH	09	01	10	0715	69	0	0	0
93.3	110.0	30	10.8	122	55.5	NH	09	01	10	1442	93	0	1	0
93.3	120.0	29	50.9	123	35.2	NH	09	01	10	2038	85	6	3	0

CalCOFI Cruise 0903

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)	Volume Water Strained	Total Larvae	Total Eggs	Total Para-Larvae
76.7	80.0	34	03.3	122	56.5	JD	09	03	22	0111	93	16	4	0
76.7	90.0	33	43.3	123	38.1	JD	09	03	21	1917	84	163	43	0
76.7	100.0	33	23.6	124	19.0	JD	09	03	21	1353	94	1	80	0
80.0	51.0	34	27.0	120	31.4	JD	09	03	19	2117	73	3	192	4
80.0	55.0	34	19.2	120	48.1	JD	09	03	20	0102	67	10	8	0
80.0	60.0	34	09.1	121	09.0	JD	09	03	20	0545	72	0	7	0
80.0	70.0	33	49.0	121	50.6	JD	09	03	20	1225	79	0	0	0
80.0	80.0	33	29.0	122	32.0	JD	09	03	20	1837	72	136	15	0
80.0	90.0	33	09.1	123	13.3	JD	09	03	21	0051	85	63	81	0
80.0	100.0	32	49.0	123	54.4	JD	09	03	21	0602	78	54	80	0
81.8	46.9	34	16.5	120	01.5	JD	09	03	19	1615	91	52	27	0
83.3	40.6	34	13.5	119	24.7	JD	09	03	19	0722	75	8	3221	0
83.3	42.0	34	11.3	119	30.7	JD	09	03	19	0919	87	156	95	0
83.3	51.0	33	53.0	120	08.0	JD	09	03	18	2328	96	8	67	0
83.3	55.0	33	44.7	120	24.6	JD	09	03	18	1956	76	1	0	0
83.3	60.0	33	34.7	120	45.3	JD	09	03	18	1533	63	4	5	0
83.3	70.0	33	14.7	121	26.6	JD	09	03	18	0647	80	16	60	0
83.3	80.0	32	54.8	122	07.8	JD	09	03	18	0049	74	28	97	0
83.3	90.0	32	34.7	122	48.8	JD	09	03	17	1753	70	0	23	0

Table 1. (cont.)

CalCOFI Cruise 0903 (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)	Volume Water Strained	Total Larvae	Total Eggs	Total Para-Larvae
83.3	100.0	32	14.7	123	29.8	JD	09	03	17	1115	82	0	13	0
83.3	110.0	31	54.7	124	10.2	JD	09	03	17	0427	76	10	38	0
86.7	33.0	33	53.4	118	29.4	JD	09	03	14	1138	93	678	512	0
86.7	35.0	33	49.5	118	38.0	JD	09	03	14	1751	80	197	4	0
86.7	40.0	33	39.4	118	58.3	JD	09	03	14	2220	81	16	6	4
86.7	45.0	33	29.5	119	19.2	JD	09	03	15	0246	78	16	737	0
86.7	50.0	33	19.4	119	39.9	JD	09	03	15	0632	68	95	7	0
86.7	55.0	33	09.4	120	00.4	JD	09	03	15	1105	85	4	152	0
86.7	60.0	32	59.4	120	20.9	JD	09	03	15	1524	77	1	158	0
86.7	70.0	32	39.4	121	01.9	JD	09	03	15	2136	81	24	40	0
86.7	80.0	32	19.5	121	42.7	JD	09	03	16	0319	77	59	561	0
86.7	90.0	32	00.5	122	23.9	JD	09	03	16	0821	73	14	332	0
86.7	100.0	31	39.5	123	04.2	JD	09	03	16	1600	76	1	76	0
86.7	110.0	31	19.4	123	44.5	JD	09	03	16	2220	76	30	111	0
90.0	30.0	33	25.2	117	54.2	JD	09	03	14	0000	94	25	2	25
90.0	35.0	33	15.1	118	15.1	JD	09	03	14	0424	89	2	2	0
90.0	37.0	33	11.1	118	23.3	JD	09	03	13	1404	85	0	41	0
90.0	45.0	32	55.1	118	56.3	JD	09	03	13	0714	76	0	1	0
90.0	53.0	32	39.0	119	29.0	JD	09	03	13	0232	76	3	4	0
90.0	60.0	32	25.1	119	57.6	JD	09	03	12	2121	87	0	0	0
90.0	70.0	32	05.1	120	38.4	JD	09	03	12	1452	77	15	289	0
90.0	80.0	31	45.1	121	19.0	JD	09	03	12	0658	70	22	54	0
90.0	90.0	31	25.2	121	59.5	JD	09	03	12	0114	83	15	21	0
90.0	100.0	31	05.1	122	39.8	JD	09	03	11	1844	70	0	2	0
90.0	110.0	30	45.1	123	19.9	JD	09	03	11	1217	78	0	8	0
90.0	120.0	30	25.1	123	59.9	JD	09	03	11	0535	72	6	92	0
93.3	26.7	32	57.3	117	18.4	JD	09	03	07	1825	91	17	41	0
93.3	28.0	32	54.7	117	23.7	JD	09	03	08	0221	94	4	53	1
93.3	30.0	32	50.8	117	32.1	JD	09	03	08	0509	91	23	129	3
93.3	35.0	32	40.8	117	52.3	JD	09	03	08	0838	101	2	586	0
93.3	40.0	32	30.8	118	12.9	JD	09	03	08	1447	71	2	6	0
93.3	45.0	32	20.8	118	33.3	JD	09	03	08	1850	71	7	3	3
93.3	50.0	32	10.8	118	53.6	JD	09	03	08	2255	77	11	2	0
93.3	55.0	32	00.9	119	14.0	JD	09	03	09	0305	71	1	0	0
93.3	60.0	31	50.9	119	34.3	JD	09	03	09	0716	76	0	0	0
93.3	70.0	31	31.8	120	12.8	JD	09	03	09	1327	86	0	22	0
93.3	80.0	31	10.7	120	55.0	JD	09	03	09	2105	75	3	26	0
93.3	90.0	30	51.1	121	35.3	JD	09	03	10	0319	75	20	11	0
93.3	100.0	30	30.9	122	15.1	JD	09	03	10	0840	79	3	9	0
93.3	110.0	30	10.8	122	55.4	JD	09	03	10	1642	71	3	3	0
93.3	120.0	29	50.8	123	35.2	JD	09	03	10	2240	83	0	44	1

Table 1. (cont.)

CalCOFI Cruise 0907

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)	Volume Water Strained	Total Larvae	Total Eggs	Total Para-Larvae
60.0	53.0	37	50.9	123	05.9	M2	09	08	03	0946	78	0	362	0
60.0	60.0	37	36.7	123	36.5	M2	09	08	03	0419	88	4	1	0
60.0	70.0	37	16.9	124	19.9	M2	09	08	02	2120	58	1	0	0
60.0	80.0	36	56.8	125	03.2	M2	09	08	02	1359	96	0	31	0
60.0	90.0	36	36.8	125	46.1	M2	09	08	02	0640	72	0	22	1
66.7	55.0	36	37.3	122	24.9	M2	09	07	31	1110	95	0	6	0
66.7	60.0	36	27.3	122	46.0	M2	09	07	31	1626	101	0	1	0
66.7	70.0	36	07.2	123	29.1	M2	09	08	01	0148	101	2	0	0
66.7	80.0	35	47.2	124	11.7	M2	09	08	01	1101	88	1	43	0
66.7	90.0	35	27.2	124	54.1	M2	09	08	01	1956	95	1	30	0
67.0	50.0	36	44.1	122	00.7	M2	09	07	31	0556	94	0	4	0
76.7	49.0	35	05.3	120	46.6	M2	09	07	30	1229	115	1	259	0
76.7	51.0	35	01.4	120	55.1	M2	09	07	30	0801	68	0	74	0
76.7	55.0	34	53.5	121	11.6	M2	09	07	30	0421	100	0	4	0
76.7	60.0	34	43.3	121	32.8	M2	09	07	30	0006	91	1	9	0
76.7	70.0	34	23.4	122	14.8	M2	09	07	29	1752	87	2	7	0
76.7	80.0	34	03.3	122	56.6	M2	09	07	29	1129	71	0	6	0
76.7	90.0	33	43.4	123	38.2	M2	09	07	29	0510	124	0	31	0
76.7	100.0	33	23.2	124	19.5	M2	09	07	28	2227	92	0	4	0
80.0	51.0	34	27.1	120	31.3	M2	09	07	27	0445	81	0	276	0
80.0	55.0	34	18.9	120	48.3	M2	09	07	27	0914	76	0	22	0
80.0	60.0	34	09.1	121	08.8	M2	09	07	27	1257	50	0	2	0
80.0	70.0	33	49.0	121	50.7	M2	09	07	27	1911	73	0	0	0
80.0	80.0	33	28.1	122	29.7	M2	09	07	28	0131	95	2	9	2
80.0	90.0	33	09.0	123	13.2	M2	09	07	28	0712	70	0	3	6
80.0	100.0	32	49.0	123	54.3	M2	09	07	28	1536	111	0	1	0
81.8	46.9	34	16.3	120	01.5	M2	09	07	26	2314	95	6	2	1
83.3	40.6	34	13.5	119	24.6	M2	09	07	26	1446	108	4	546	0
83.3	42.0	34	10.7	119	30.6	M2	09	07	26	1246	100	2	172	0
83.3	51.0	33	52.4	120	08.4	M2	09	07	22	0854	89	2	207	0
83.3	55.0	33	44.6	120	24.6	M2	09	07	22	1406	69	0	11	0
83.3	60.0	33	34.7	120	45.4	M2	09	07	26	0202	78	3	0	0
83.3	70.0	33	14.7	121	26.4	M2	09	07	25	1844	61	0	30	0
83.3	80.0	32	54.7	122	07.7	M2	09	07	25	1149	103	1	0	0
83.3	90.0	32	34.3	122	48.8	M2	09	07	25	0520	101	0	2	0
83.3	100.0	32	14.7	123	29.6	M2	09	07	24	2254	91	0	1	0
83.3	110.0	31	54.5	124	10.2	M2	09	07	24	1620	114	2	0	0
86.7	33.0	33	53.2	118	29.4	M2	09	07	21	0824	100	1	742	0
86.7	35.0	33	49.3	118	37.7	M2	09	07	21	1143	108	3	7	0
86.7	40.0	33	39.4	118	58.3	M2	09	07	21	1912	67	2	2	0
86.7	45.0	33	29.4	119	19.2	M2	09	07	21	2334	73	0	5	0
86.7	50.0	33	19.4	119	39.8	M2	09	07	22	0315	106	0	309	0
86.7	55.0	33	09.3	120	00.4	M2	09	07	22	2028	87	2	0	0
86.7	60.0	32	59.3	120	21.0	M2	09	07	23	0057	92	0	0	0
86.7	70.0	32	39.3	121	02.3	M2	09	07	23	0620	116	0	0	0

Table 1. (cont.)

CalCOFI Cruise 0907 (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)	Volume Water Strained	Total Larvae	Total Eggs	Total Para-Larvae
86.7	80.0	32	19.5	121	42.6	M2	09	07	23	1431	68	0	0	0
86.7	90.0	31	59.2	122	23.7	M2	09	07	23	2029	92	0	8	0
86.7	100.0	31	39.4	123	04.3	M2	09	07	24	0216	69	0	8	0
86.7	110.0	31	19.7	123	44.9	M2	09	07	24	0706	111	1	61	2
90.0	28.0	33	29.1	117	46.1	M2	09	07	20	2244	83	147	70	0
90.0	30.0	33	25.1	117	54.4	M2	09	07	20	2020	72	63	24	0
90.0	35.0	33	15.3	118	14.8	M2	09	07	20	1536	96	6	19	0
90.0	37.0	33	11.1	118	23.1	M2	09	07	20	1233	122	1	840	0
90.0	45.0	32	55.2	118	56.2	M2	09	07	20	0708	96	0	118	0
90.0	53.0	32	39.1	119	28.9	M2	09	07	20	0146	96	2	0	0
90.0	60.0	32	25.0	119	57.6	M2	09	07	19	2002	32	0	0	0
90.0	70.0	32	05.1	120	38.2	M2	09	07	19	1323	96	0	1	1
90.0	80.0	31	45.1	121	19.0	M2	09	07	19	0652	73	0	21	0
90.0	90.0	31	25.0	121	59.3	M2	09	07	19	0010	87	1	56	0
90.0	100.0	31	05.0	122	39.6	M2	09	07	18	1739	77	0	127	0
90.0	110.0	30	45.1	123	20.0	M2	09	07	18	1101	107	0	1402	0
90.0	120.0	30	25.0	123	59.8	M2	09	07	18	0407	89	2	332	1
93.3	26.7	32	57.3	117	18.4	M2	09	07	14	2042	77	30	6	0
93.3	28.0	32	54.8	117	23.7	M2	09	07	15	0405	96	19	4	0
93.3	30.0	32	50.5	117	31.9	M2	09	07	15	0701	111	1	17	0
93.3	35.0	32	40.8	117	52.3	M2	09	07	15	1141	111	8	0	0
93.3	40.0	32	30.7	118	12.8	M2	09	07	15	1610	92	11	386	0
93.3	45.0	32	20.8	118	33.1	M2	09	07	15	2018	68	1	0	0
93.3	50.0	32	10.8	118	53.7	M2	09	07	16	0021	68	0	7	0
93.3	55.0	32	00.8	119	14.0	M2	09	07	16	0430	96	0	0	0
93.3	60.0	31	50.7	119	34.3	M2	09	07	16	0724	71	0	2	0
93.3	70.0	31	30.9	120	15.0	M2	09	07	16	1537	87	0	124	0
93.3	80.0	31	10.8	120	55.1	M2	09	07	16	2127	83	0	449	0
93.3	90.0	30	50.8	121	35.0	M2	09	07	17	0327	96	22	238	0
93.3	100.0	30	30.9	122	15.5	M2	09	07	17	0816	75	1	127	0
93.3	110.0	30	10.8	122	55.4	M2	09	07	17	1554	85	1	92	0
93.3	120.0	29	50.8	123	35.1	M2	09	07	17	2143	92	4	81	1

CalCOFI Cruise 0911

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)	Volume Water Strained	Total Larvae	Total Eggs	Total Para-Larvae
76.7	49.0	35	05.3	120	47.0	NH	09	11	22	1148	73	4	363	0
76.7	51.0	35	01.3	120	55.2	NH	09	11	22	0923	69	2	1	0
76.7	55.0	34	53.5	121	12.0	NH	09	11	22	0537	70	22	7	0
76.7	70.0	34	23.4	122	14.7	NH	09	11	21	0633	58	0	1	0
76.7	80.0	34	03.1	122	56.4	NH	09	11	21	0104	70	0	1	0
76.7	90.0	33	43.1	123	38.2	NH	09	11	20	1830	59	0	1	0
76.7	100.0	33	23.3	124	19.3	NH	09	11	20	1220	67	1	1	0
80.0	51.0	34	26.8	120	31.3	NH	09	11	18	1527	59	1	25	0
80.0	70.0	33	49.9	121	51.6	NH	09	11	19	0707	67	2	4	0

Table 1. (cont.)

CalCOFI Cruise 0911 (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)	Volume Water Strained	Total Larvae	Total Eggs	Total Para-Larvae
80.0	80.0	33	29.1	122	31.9	NH	09	11	19	1549	70	0	1	0
80.0	90.0	33	08.9	123	13.1	NH	09	11	19	2153	75	1	0	0
80.0	100.0	32	48.9	123	54.1	NH	09	11	20	0557	73	5	0	2
81.8	46.9	34	16.5	120	01.6	NH	09	11	18	1054	72	0	0	0
83.3	40.6	34	13.4	119	24.8	NH	09	11	18	0330	72	3	611	0
83.3	42.0	34	10.4	119	30.5	NH	09	11	18	0115	72	5	11	0
83.3	51.0	33	52.5	120	07.8	NH	09	11	17	1856	80	4	12	0
83.3	55.0	33	44.4	120	24.6	NH	09	11	17	1523	73	0	0	0
83.3	60.0	33	34.6	120	45.1	NH	09	11	17	1042	70	1	0	0
83.3	70.0	33	14.6	121	26.6	NH	09	11	17	0416	67	1	0	0
83.3	80.0	32	54.6	122	07.6	NH	09	11	16	2200	73	0	4	0
83.3	90.0	32	34.3	122	48.8	NH	09	11	16	1611	74	1	0	1
83.3	100.0	32	14.7	123	29.5	NH	09	11	16	1016	80	1	4	0
83.3	110.0	31	54.3	124	10.1	NH	09	11	16	0400	64	5	0	0
86.7	33.0	33	53.4	118	29.5	NH	09	11	13	0305	70	1	0	0
86.7	35.0	33	49.2	118	38.3	NH	09	11	13	0847	76	0	0	0
86.7	40.0	33	39.4	118	58.4	NH	09	11	13	1446	66	0	58	0
86.7	70.0	32	39.2	121	01.5	NH	09	11	14	2035	68	0	0	0
86.7	80.0	32	19.3	121	42.7	NH	09	11	15	0241	63	0	0	0
86.7	90.0	31	59.9	122	24.1	NH	09	11	15	0745	70	1	3	0
86.7	100.0	31	39.1	123	03.9	NH	09	11	15	1553	62	1	5	0
86.7	110.0	31	19.3	123	44.6	NH	09	11	15	2147	77	4	0	0
90.0	28.0	33	29.1	117	45.9	NH	09	11	12	1620	91	0	30	0
90.0	30.0	33	25.0	117	53.8	NH	09	11	12	1901	78	5	0	1
90.0	35.0	33	15.2	118	15.0	NH	09	11	12	1058	85	0	3	0
90.0	37.0	33	10.9	118	23.0	NH	09	11	12	0741	81	0	0	0
90.0	45.0	32	55.0	118	56.1	NH	09	11	12	0220	75	0	1	0
90.0	53.0	32	38.9	119	28.8	NH	09	11	11	2041	86	1	1	0
90.0	60.0	32	25.0	119	57.5	NH	09	11	11	1536	61	2	5	7
90.0	70.0	32	05.4	120	39.0	NH	09	11	11	0749	84	0	0	0
90.0	80.0	31	44.9	121	19.1	NH	09	11	11	0225	72	0	1	0
90.0	90.0	31	24.6	121	59.5	NH	09	11	10	1955	84	0	5	0
90.0	100.0	31	05.0	122	39.8	NH	09	11	10	1336	68	2	0	0
90.0	110.0	30	45.0	123	20.2	NH	09	11	10	0503	64	0	0	0
90.0	120.0	30	25.0	123	59.8	NH	09	11	09	2245	72	1	0	0
93.3	26.7	32	57.5	117	18.2	NH	09	11	06	1212	71	7	11	0
93.3	28.0	32	54.8	117	23.6	NH	09	11	06	1946	87	4	1	0
93.3	30.0	32	50.8	117	31.8	NH	09	11	06	2323	68	0	0	0
93.3	35.0	32	40.6	117	52.2	NH	09	11	07	0324	81	2	1	0
93.3	40.0	32	31.0	118	12.4	NH	09	11	07	0739	57	0	0	0
93.3	45.0	32	20.8	118	33.4	NH	09	11	07	1156	62	0	0	0
93.3	50.0	32	10.9	118	53.3	NH	09	11	07	1626	55	0	0	0
93.3	55.0	32	00.7	119	14.1	NH	09	11	07	2100	59	0	5	0
93.3	60.0	31	51.0	119	34.3	NH	09	11	08	0134	53	2	1	0
93.3	70.0	31	30.7	120	14.8	NH	09	11	08	0656	67	0	2	0
93.3	80.0	31	10.8	120	55.0	NH	09	11	08	1531	65	0	1	0

Table 1. (cont.)

CalCOFI Cruise 0911 (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)	Volume Water Strained	Total Larvae	Total Eggs	Total Para-Larvae
93.3	90.0	30	50.7	121	35.3	NH	09	11	08	2139	77	13	0	0
93.3	100.0	30	30.7	122	15.3	NH	09	11	09	0343	61	0	1	0
93.3	110.0	30	10.8	122	55.2	NH	09	11	09	0957	70	1	0	0
93.3	120.0	29	50.6	123	35.0	NH	09	11	09	1608	73	2	1	0

Table 2. Pooled occurrences of paralarval cephalopods taken in Manta net tows on CalCOFI cruises in 2009.

Rank	Taxon	Occurrences
1	*Dorytheuthis opalescens*	11
2	*Abraliopsis felis*	8
3	*Onychoteuthis borealijaponica*	1
3	*Pyroteuthis addolux*	1
3	Pyroteuthidae	1
	Total	22

Table 3. Pooled raw counts of paralarval cephalopods taken in Manta net tows on CalCOFI cruises in 2009.

Rank	Taxon	Count
1	*Doryteuthis opalescens*	45
2	*Abraliopsis felis*	15
3	*Pyroteuthis addolux*	7
4	*Onychoteuthis borealijaponica*	2
5	Pyroteuthidae	1
	Total	70

Table 4. Pooled occurrences of fish larvae taken in Manta net tows on CalCOFI cruises in 2009.

Rank	Taxon	Occurrences
1	*Sebastes* spp.	43
2	*Cololabis saira*	36
3	*Sardinops sagax*	35
4	*Scorpaenichthys marmoratus*	27
5	*Engraulis mordax*	25
6	*Medialuna californiensis*	8
7	*Chromis punctipinnis*	7
7	*Scomber japonicus*	7
7	*Sebastes jordani*	7
10	*Hypsoblennius gentilis*	6
11	*Ceratoscopelus townsendi*	5
11	*Trachurus symmetricus*	5
11	*Vinciguerria lucetia*	5
11	*Hypsoblennius jenkinsi*	5
15	*Sebastes diploproa*	4
15	*Ophiodon elongatus*	4
17	*Leuresthes tenuis*	3
17	*Nannobrachium* spp.	3
17	*Sebastes aurora*	3
17	*Rathbunella* spp.	3
21	*Cyclothone signata*	2
21	*Parophrys vetulus*	2
21	*Tactostoma macropus*	2
21	*Aristostomias scintillans*	2
21	*Citharichthys stigmaeus*	2
21	*Lampadena urophaos*	2
21	*Nannobrachium ritteri*	2
21	*Stenobrachius leucopsarus*	2
21	*Oxylebius pictus*	2
21	*Cheilopogon heterurus*	2
21	*Cheilopogon pinnatibarbatus*	2
21	*Hexagrammos lagocephalus*	2
21	Unidentified fish larvae	2
21	Mullidae	2
21	*Hexagrammos decagrammus*	2
21	*Oxyjulis californica*	2
21	*Hypsoblennius gilberti*	2
39	*Pleuronichthys decurrens*	1
39	*Bathylagoides wesethi*	1
39	*Cyclothone* spp.	1
39	*Eucinostomus* spp.	1
39	*Paralabrax clathratus*	1
39	*Liparis mucosus*	1
39	*Oligocottus maculosus*	1
39	*Citharichthys sordidus*	1
39	*Diogenichthys laternatus*	1
39	*Tarletonbeania crenularis*	1

Table 4. (cont.)

Rank	Taxon	Occurrences
39	*Radiicephalus elongatus*	1
39	*Desmodema lorum*	1
39	*Merluccius productus*	1
39	*Gigantactis* spp.	1
39	*Zaniolepis latipinnis*	1
39	*Girella nigricans*	1
39	*Macroramphosus gracilis*	1
39	*Hypsoblennius* spp.	1
39	*Sphyraena argentea*	1
39	*Triphoturus mexicanus*	1
	Total	297

Table 5. Pooled raw counts of fish larvae taken in Manta net tows on CalCOFI cruises in 2009.

Rank	Taxon	Count
1	*Sebastes* spp.	1276
2	*Sardinops sagax*	722
3	*Engraulis mordax*	192
4	*Scorpaenichthys marmoratus*	108
5	*Cololabis saira*	84
6	*Scomber japonicus*	45
7	*Hypsoblennius gentilis*	35
8	*Chromis punctipinnis*	33
9	*Sebastes jordani*	31
10	*Hypsoblennius jenkinsi*	15
11	*Vinciguerria lucetia*	13
12	*Medialuna californiensis*	9
12	*Trachurus symmetricus*	9
14	*Ophiodon elongatus*	8
15	*Sebastes diploproa*	7
15	*Tactostoma macropus*	7
15	*Rathbunella* spp.	7
18	*Leuresthes tenuis*	6
19	*Ceratoscopelus townsendi*	5
19	*Citharichthys stigmaeus*	5
19	*Paralabrax clathratus*	5
22	*Oxylebius pictus*	4
22	*Hypsoblennius gilberti*	4
22	*Sebastes aurora*	4
25	*Hexagrammos lagocephalus*	3
25	*Aristostomias scintillans*	3
25	*Nannobrachium* spp.	3
25	*Stenobrachius leucopsarus*	3
30	*Cyclothone signata*	2
30	*Cheilopogon pinnatibarbatus*	2
30	*Cheilopogon heterurus*	2
30	*Parophrys vetulus*	2
30	*Lampadena urophaos*	2
30	*Nannobrachium ritteri*	2
30	*Oxyjulis californica*	2
30	Mullidae	2
30	Unidentified fish larvae	2
30	*Hexagrammos decagrammus*	2
40	*Pleuronichthys decurrens*	1
40	*Hypsoblennius* spp.	1
40	*Bathylagoides wesethi*	1
40	*Cyclothone* spp.	1
40	*Macroramphosus gracilis*	1
40	*Liparis mucosus*	1
40	*Oligocottus maculosus*	1
40	*Zaniolepis latipinnis*	1

Table 5. (cont.)

Rank	Taxon	Count
40	*Sphyraena argentea*	1
40	*Girella nigricans*	1
40	*Radiicephalus elongatus*	1
40	*Gigantactis* spp.	1
40	*Diogenichthys laternatus*	1
40	*Citharichthys sordidus*	1
40	*Eucinostomus* spp.	1
40	*Tarletonbeania crenularis*	1
40	*Triphoturus mexicanus*	1
40	*Desmodema lorum*	1
40	*Merluccius productus*	1
	Total	2688

Table 6. Numbers of paralarval cephalopods and fish larvae taken in Manta net tows on CalCOFI cruises in 2009, 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.

Doryteuthis opalescens

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	0.0	-	2.9	-	-	-	0.0	-	-	-	0.0	-
81.8	46.9	0.0	-	0.0	-	-	-	0.9	-	-	-	0.0	-
83.3	42.0	0.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	0.0	-	3.2	-	-	-	0.0	-	-	-	0.0	-
90.0	30.0	0.0	-	23.5	-	-	-	0.0	-	-	-	0.8	-
93.3	26.7	0.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3	28.0	0.8	-	0.9	-	-	-	0.0	-	-	-	0.0	-
93.3	30.0	0.0	-	2.7	-	-	-	0.0	-	-	-	0.0	-
93.3	45.0	0.0	-	2.1	-	-	-	0.0	-	-	-	0.0	-

Abraliopsis felis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0	90.0	-	-	-	-	-	-	-	0.7	-	-	-	-
80.0	80.0	0.0	-	0.0	-	-	-	1.9	-	-	-	0.0	-
80.0	90.0	0.0	-	0.0	-	-	-	4.2	-	-	-	0.0	-
86.7	110.0	0.0	-	0.0	-	-	-	2.2	-	-	-	0.0	-
90.0	70.0	0.0	-	0.0	-	-	-	1.0	-	-	-	0.0	-
90.0	120.0	0.0	-	0.0	-	-	-	0.9	-	-	-	0.0	-
93.3	120.0	0.0	-	0.8	-	-	-	0.9	-	-	-	0.0	-

Pyroteuthidae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-

Pyroteuthis addolux

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-

Table 6. (cont.)

Onychoteuthis borealijaponica

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	1.5	-

Sardinops sagax

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 60.0	-	-	-	-	-	-	-	3.5	-	-	-	-
60.0 70.0	-	-	-	-	-	-	-	0.6	-	-	-	-
76.7 60.0	0.0	-	-	-	-	-	0.9	-	-	-	-	-
76.7 80.0	0.0	-	13.9	-	-	-	0.0	-	-	-	0.0	-
76.7 90.0	0.0	-	134.4	-	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-
80.0 80.0	0.0	-	97.8	-	-	-	0.0	-	-	-	0.0	-
80.0 90.0	0.0	-	52.9	-	-	-	0.0	-	-	-	0.0	-
80.0 100.0	0.0	-	42.0	-	-	-	0.0	-	-	-	0.0	-
83.3 55.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
83.3 60.0	0.0	-	1.3	-	-	-	0.0	-	-	-	0.0	-
83.3 70.0	0.0	-	12.8	-	-	-	0.0	-	-	-	0.0	-
83.3 80.0	0.0	-	20.7	-	-	-	0.0	-	-	-	0.0	-
83.3 110.0	0.0	-	6.8	-	-	-	0.0	-	-	-	0.0	-
86.7 33.0	0.0	-	6.5	-	-	-	0.0	-	-	-	0.0	-
86.7 50.0	0.0	-	1.4	-	-	-	0.0	-	-	-	-	-
86.7 55.0	0.0	-	1.7	-	-	-	0.9	-	-	-	-	-
86.7 60.0	0.0	-	0.8	-	-	-	0.0	-	-	-	-	-
86.7 70.0	0.0	-	16.3	-	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	44.6	-	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	10.3	-	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
86.7 110.0	0.0	-	21.9	-	-	-	0.0	-	-	-	0.0	-
90.0 28.0	0.0	-	-	-	-	-	7.5	-	-	-	0.0	-
90.0 70.0	0.0	-	11.5	-	-	-	0.0	-	-	-	0.0	-
90.0 80.0	0.0	-	15.5	-	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	9.1	-	-	-	0.9	-	-	-	0.0	-
93.3 26.7	0.0	-	0.0	-	-	-	0.8	-	-	-	0.0	-

Table 6. (cont.)

Sardinops sagax (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 28.0	0.0	-	0.0	-	-	-	8.6	-	-	-	0.0	-
93.3 30.0	0.0	-	0.0	-	-	-	1.1	-	-	-	0.0	-
93.3 35.0	0.0	-	0.0	-	-	-	3.3	-	-	-	0.0	-
93.3 40.0	0.0	-	0.0	-	-	-	4.6	-	-	-	0.0	-
93.3 90.0	0.0	-	14.2	-	-	-	0.0	-	-	-	0.0	-

Engraulis mordax

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 70.0	-	-	-	-	-	-	-	2.0	-	-	-	-
76.7 49.0	-	-	-	-	-	-	0.0	-	-	-	2.2	-
76.7 51.0	1.3	-	-	-	-	-	0.0	-	-	-	0.7	-
76.7 55.0	0.0	-	-	-	-	-	0.0	-	-	-	10.5	-
80.0 80.0	0.0	-	0.0	-	-	-	1.9	-	-	-	0.0	-
81.8 46.9	0.0	-	0.9	-	-	-	3.8	-	-	-	0.0	-
83.3 40.6	0.0	-	1.5	-	-	-	0.0	-	-	-	0.0	-
83.3 42.0	0.0	-	0.0	-	-	-	0.0	-	-	-	1.4	-
83.3 60.0	0.0	-	0.0	-	-	-	2.3	-	-	-	0.0	-
83.3 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
83.3 110.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
86.7 35.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
86.7 40.0	0.0	-	1.6	-	-	-	0.0	-	-	-	0.0	-
86.7 45.0	0.0	-	2.3	-	-	-	0.0	-	-	-	-	-
90.0 28.0	0.0	-	-	-	-	-	68.0	-	-	-	0.0	-
90.0 30.0	0.0	-	0.0	-	-	-	29.4	-	-	-	0.0	-
90.0 35.0	0.0	-	0.9	-	-	-	4.8	-	-	-	0.0	-
90.0 53.0	0.0	-	0.0	-	-	-	1.9	-	-	-	0.0	-
93.3 26.7	0.0	-	11.9	-	-	-	0.8	-	-	-	0.0	-
93.3 28.0	0.0	-	0.9	-	-	-	1.0	-	-	-	0.0	-

Bathylagoides wesethi

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

Table 6. (cont.)

***Cyclothone* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 110.0	0.0	-	0.0	-	-	-	1.1	-	-	-	0.0	-

Cyclothone signata

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

Vinciguerria lucetia

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.8	-
93.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	1.1	-
93.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	6.1	-
93.3 100.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-

Tactostoma macropus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 90.0	0.0	-	0.0	-	-	-	5.8	-	-	-	0.0	-
93.3 100.0	0.0	-	0.0	-	-	-	0.7	-	-	-	0.0	-

Aristostomias scintillans

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	1.2	-
90.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-

Ceratoscopelus townsendi

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
83.3 110.0	0.0	-	0.0	-	-	-	1.1	-	-	-	0.0	-
93.3 110.0	0.0	-	0.7	-	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-

Table 6. (cont.)

Lampadena urophaos

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
93.3 120.0	0.0	-	0.0	-	-	-	0.9	-	-	-	0.0	-

***Nannobrachium* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.8	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.8	-
93.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.8	-

Nannobrachium ritteri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 90.0	-	-	-	-	-	-	-	1.0	-	-	-	-
93.3 110.0	0.0	-	0.7	-	-	-	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	-	1.3	-	-	-	0.0	-	-	-	-	-
86.7 70.0	1.0	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Triphoturus mexicanus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 35.0	0.0	-	0.0	-	-	-	1.1	-	-	-	0.0	-

Diogenichthys laternatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	-	-	-	-	-	-	1.2	-	-	-	0.0	-

Tarletonbeania crenularis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-

Radiicephalus elongatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 26.7	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-

Table 6. (cont.)

Desmodema lorum

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

Merluccius productus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 40.0	0.0	-	0.7	-	-	-	0.0	-	-	-	0.0	-

***Gigantactis* spp.**

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

Leuresthes tenuis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8 46.9	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-
83.3 40.6	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-
86.7 40.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-

Cololabis saira

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 70.0	0.0	-	-	-	-	-	1.7	-	-	-	0.0	-
76.7 80.0	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-
76.7 90.0	0.0	-	1.7	-	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	2.2	-
83.3 80.0	0.0	-	0.0	-	-	-	1.0	-	-	-	0.0	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.8	-
83.3 110.0	0.0	-	0.0	-	-	-	1.1	-	-	-	3.2	-
86.7 70.0	0.0	-	1.6	-	-	-	0.0	-	-	-	0.0	-
86.7 80.0	1.6	-	0.8	-	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.6	-
86.7 110.0	5.9	-	0.8	-	-	-	0.0	-	-	-	1.5	-
90.0 28.0	0.0	-	-	-	-	-	0.8	-	-	-	0.0	-
90.0 90.0	0.0	-	1.7	-	-	-	0.0	-	-	-	0.0	-

Table 6. (cont.)

Cololabis saira (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 110.0	3.5	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	7.9	-	4.3	-	-	-	0.9	-	-	-	0.7	-
93.3 28.0	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-
93.3 30.0	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-
93.3 35.0	0.0	-	1.0	-	-	-	0.0	-	-	-	0.0	-
93.3 40.0	0.0	-	0.7	-	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.7	-	-	-	0.0	-	-	-	0.0	-
93.3 90.0	0.0	-	0.7	-	-	-	5.8	-	-	-	2.3	-
93.3 110.0	0.0	-	0.7	-	-	-	0.9	-	-	-	0.0	-
93.3 120.0	5.1	-	0.0	-	-	-	2.8	-	-	-	0.7	-

Cheilopogon heterurus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 37.0	0.0	-	0.0	-	-	-	1.2	-	-	-	0.0	-
93.3 45.0	0.0	-	0.0	-	-	-	0.7	-	-	-	0.0	-

Cheilopogon pinnatibarbatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 35.0	0.0	-	0.0	-	-	-	1.1	-	-	-	0.0	-
93.3 26.7	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-

Macroramphosus gracilis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 70.0	0.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-

***Sebastes* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	-	-	-	-	-	-	0.0	-	-	-	0.7	-
76.7 51.0	19.9	-	-	-	-	-	0.0	-	-	-	0.7	-
76.7 60.0	0.6	-	-	-	-	-	0.0	-	-	-	-	-
80.0 51.0	6.1	-	0.0	-	-	-	0.0	-	-	-	0.6	-

Table 6. (cont.)

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

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	55.0	0.8	-	0.0	-	-	-	0.0	-	-	-	-	-
80.0	70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	1.3	-
81.8	46.9	0.8	-	44.7	-	-	-	0.0	-	-	-	0.0	-
83.3	40.6	0.0	-	3.0	-	-	-	0.0	-	-	-	0.0	-
83.3	42.0	1.8	-	134.6	-	-	-	0.0	-	-	-	1.4	-
83.3	51.0	0.9	-	0.0	-	-	-	0.0	-	-	-	1.6	-
83.3	60.0	0.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	33.0	0.0	-	621.1	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	0.0	-	155.4	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	0.0	-	5.6	-	-	-	0.7	-	-	-	0.0	-
86.7	45.0	0.0	-	10.2	-	-	-	0.0	-	-	-	-	-
86.7	50.0	0.6	-	43.6	-	-	-	0.0	-	-	-	-	-
86.7	55.0	1.6	-	1.7	-	-	-	0.0	-	-	-	-	-
86.7	60.0	0.9	-	0.0	-	-	-	0.0	-	-	-	-	-
86.7	70.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
86.7	100.0	0.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0	28.0	2.4	-	-	-	-	-	0.0	-	-	-	0.0	-
90.0	53.0	0.8	-	2.3	-	-	-	0.0	-	-	-	0.0	-
93.3	26.7	0.0	-	0.9	-	-	-	0.0	-	-	-	0.7	-
93.3	28.0	0.0	-	1.9	-	-	-	0.0	-	-	-	0.0	-
93.3	30.0	2.5	-	18.3	-	-	-	0.0	-	-	-	0.0	-
93.3	35.0	0.0	-	1.0	-	-	-	0.0	-	-	-	0.0	-
93.3	45.0	1.3	-	2.1	-	-	-	0.0	-	-	-	0.0	-
93.3	50.0	0.0	-	8.4	-	-	-	0.0	-	-	-	0.0	-
93.3	55.0	0.7	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3	80.0	0.0	-	2.2	-	-	-	0.0	-	-	-	0.0	-

Sebastes aurora

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	1.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
83.3	60.0	0.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Table 6. (cont.)

Sebastes aurora (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	60.0	0.9	-	0.0	-	-	-	0.0	-	-	-	-	-

Sebastes diploproa

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	40.6	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
83.3	42.0	0.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
83.3	55.0	3.5	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	55.0	0.8	-	0.0	-	-	-	0.0	-	-	-	-	-

Sebastes jordani

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	40.6	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
83.3	42.0	0.0	-	1.7	-	-	-	0.0	-	-	-	0.0	-
83.3	55.0	0.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	1.7	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
86.7	50.0	0.0	-	15.7	-	-	-	0.0	-	-	-	-	-
86.7	70.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-

Hexagrammos decagrammus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8	46.9	0.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
83.3	40.6	1.0	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Hexagrammos lagocephalus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	0.0	-	0.7	-	-	-	0.0	-	-	-	0.0	-
80.0	55.0	0.0	-	1.3	-	-	-	0.0	-	-	-	-	-

Ophiodon elongatus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	51.0	0.7	-	-	-	-	-	0.0	-	-	-	0.0	-
83.3	51.0	1.8	-	3.8	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-

Table 6. (cont.)

Oxylebius pictus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 42.0	0.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 45.0	2.0	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Zaniolepis latipinnis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 30.0	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-

Oligocottus maculosus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 26.7	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-

Scorpaenichthys marmoratus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 51.0	3.3	-	-	-	-	-	0.0	-	-	-	0.0	-
76.7 55.0	0.0	-	-	-	-	-	0.0	-	-	-	4.9	-
80.0 51.0	3.0	-	0.0	-	-	-	0.0	-	-	-	0.0	-
80.0 55.0	0.8	-	3.4	-	-	-	0.0	-	-	-	-	-
80.0 60.0	6.4	-	0.0	-	-	-	0.0	-	-	-	-	-
81.8 46.9	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-
83.3 40.6	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
83.3 51.0	0.0	-	3.8	-	-	-	0.0	-	-	-	1.6	-
83.3 60.0	7.3	-	1.3	-	-	-	0.0	-	-	-	0.0	-
86.7 40.0	0.0	-	3.2	-	-	-	0.0	-	-	-	0.0	-
86.7 45.0	1.3	-	0.0	-	-	-	0.0	-	-	-	-	-
86.7 50.0	0.0	-	3.4	-	-	-	0.0	-	-	-	-	-
86.7 55.0	5.7	-	0.0	-	-	-	0.0	-	-	-	-	-
86.7 60.0	1.9	-	0.0	-	-	-	0.0	-	-	-	-	-
90.0 30.0	0.0	-	22.6	-	-	-	0.0	-	-	-	0.0	-
90.0 35.0	1.1	-	0.9	-	-	-	0.0	-	-	-	0.0	-
90.0 45.0	0.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 53.0	0.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Table 6. (cont.)

Scorpaenichthys marmoratus (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3	26.7	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-
93.3	30.0	0.0	-	1.8	-	-	-	0.0	-	-	-	0.0	-
93.3	45.0	2.0	-	2.8	-	-	-	0.0	-	-	-	0.0	-
93.3	55.0	0.7	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Liparis mucosus

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

Paralabrax clathratus

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

Trachurus symmetricus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	90.0	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-
83.3	42.0	0.0	-	0.0	-	-	-	1.0	-	-	-	0.0	-
90.0	90.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
93.3	35.0	0.0	-	0.0	-	-	-	1.1	-	-	-	0.0	-
93.3	90.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-

***Eucinostomus* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	35.0	0.0	-	0.0	-	-	-	1.0	-	-	-	0.0	-

Mullidae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3	28.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.9	-
93.3	35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.8	-

Girella nigricans

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	28.0	0.0	-	-	-	-	-	0.8	-	-	-	0.0	-

Table 6. (cont.)

Medialuna californiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 80.0	-	-	-	-	-	-	-	0.9	-	-	-	-
83.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
86.7 35.0	0.0	-	0.0	-	-	-	1.1	-	-	-	0.0	-
90.0 28.0	0.0	-	-	-	-	-	0.8	-	-	-	0.0	-
90.0 53.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.9	-
93.3 28.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.9	-
93.3 35.0	0.0	-	0.0	-	-	-	2.2	-	-	-	0.8	-

Chromis punctipinnis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 51.0	0.0	-	0.0	-	-	-	1.8	-	-	-	0.0	-
90.0 28.0	0.0	-	-	-	-	-	18.2	-	-	-	0.0	-
90.0 30.0	0.0	-	0.0	-	-	-	0.7	-	-	-	0.0	-
93.3 26.7	0.0	-	0.0	-	-	-	2.3	-	-	-	0.0	-
93.3 28.0	0.0	-	0.0	-	-	-	1.0	-	-	-	0.0	-
93.3 35.0	0.0	-	0.0	-	-	-	1.1	-	-	-	0.0	-
93.3 40.0	0.0	-	0.0	-	-	-	2.8	-	-	-	0.0	-

Oxyjulis californica

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 40.0	0.0	-	0.0	-	-	-	0.7	-	-	-	0.0	-
93.3 40.0	0.0	-	0.0	-	-	-	0.9	-	-	-	0.0	-

***Rathbunella* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 50.0	0.0	-	0.7	-	-	-	0.0	-	-	-	-	-
93.3 26.7	0.0	-	0.0	-	-	-	3.9	-	-	-	0.0	-
93.3 28.0	0.0	-	0.0	-	-	-	1.0	-	-	-	0.0	-

***Hypsoblennius* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 40.6	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-

Table 6. (cont.)

Hypsoblennius gentilis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	40.6	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
83.3	42.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
86.7	55.0	0.0	-	0.0	-	-	-	0.9	-	-	-	-	-
90.0	30.0	0.0	-	0.0	-	-	-	5.0	-	-	-	0.0	-
93.3	26.7	0.0	-	0.0	-	-	-	14.6	-	-	-	0.0	-
93.3	28.0	0.0	-	0.0	-	-	-	5.7	-	-	-	0.0	-

Hypsoblennius gilberti

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	33.0	0.0	-	0.0	-	-	-	0.0	-	-	-	0.7	-
90.0	28.0	0.0	-	-	-	-	-	2.5	-	-	-	0.0	-

Hypsoblennius jenkinsi

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8	46.9	0.0	-	0.0	-	-	-	1.9	-	-	-	0.0	-
86.7	33.0	0.0	-	0.0	-	-	-	1.0	-	-	-	0.0	-
90.0	30.0	0.0	-	0.0	-	-	-	0.0	-	-	-	3.9	-
93.3	26.7	0.0	-	0.0	-	-	-	0.0	-	-	-	3.6	-
93.3	28.0	0.0	-	0.0	-	-	-	0.0	-	-	-	1.7	-

Sphyraena argentea

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	120.0	0.0	-	0.0	-	-	-	0.9	-	-	-	0.0	-

Scomber japonicus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	28.0	0.0	-	-	-	-	-	22.4	-	-	-	0.0	-
90.0	30.0	0.0	-	0.0	-	-	-	6.4	-	-	-	0.0	-
93.3	26.7	0.0	-	0.0	-	-	-	0.8	-	-	-	0.0	-
93.3	28.0	0.0	-	0.0	-	-	-	1.0	-	-	-	0.0	-
93.3	35.0	0.0	-	0.0	-	-	-	1.1	-	-	-	0.0	-
93.3	40.0	0.0	-	0.0	-	-	-	0.9	-	-	-	0.0	-
93.3	90.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-

Table 6. (cont.)

Citharichthys sordidus

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

Citharichthys stigmaeus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	42.0	0.0	-	0.0	-	-	-	1.0	-	-	-	0.0	-
93.3	30.0	3.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Parophrys vetulus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	0.0	-	0.7	-	-	-	0.0	-	-	-	0.0	-
86.7	33.0	0.0	-	0.9	-	-	-	0.0	-	-	-	0.0	-

Pleuronichthys decurrens

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	45.0	0.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Unidentified fish larvae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	35.0	0.0	-	0.8	-	-	-	0.0	-	-	-	0.0	-
93.3	40.0	0.0	-	0.0	-	-	-	0.9	-	-	-	0.0	-

Table 7. Station and Bongo net tow data for CalCOFI and CCES cruises in 2009. Counts for fish larvae, fish eggs and paralarval cephalopods 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 0901

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 Fish Larvae	Total Fish Eggs	Total Para-Larval
76.7	49.0	35	05.3	120	46.6	NH	09	01	22	2027	48	119	4.04	118	100.0	36	110	3
76.7	51.0	35	01.3	120	55.1	NH	09	01	22	1818	210	383	5.49	107	53.6	74	7	0
76.7	55.0	34	53.7	121	12.0	NH	09	01	22	1450	213	417	5.11	101	47.6	14	2	1
76.7	60.0	34	43.3	121	32.9	NH	09	01	22	1051	213	398	5.34	96	52.6	3	15	1
76.7	70.0	34	23.3	122	14.9	NH	09	01	22	0450	207	442	4.68	158	52.8	1	4	0
76.7	80.0	34	03.2	122	56.4	NH	09	01	21	2235	214	404	5.28	42	100.0	6	6	0
76.7	90.0	33	43.2	123	38.1	NH	09	01	21	1614	210	476	4.41	15	100.0	3	3	0
76.7	100.0	33	23.3	124	19.4	NH	09	01	21	0829	208	458	4.54	24	100.0	0	5	0
80.0	50.5	34	27.7	120	28.9	NH	09	01	19	1613	14	42	3.32	95	100.0	3	49	0
80.0	51.0	34	27.0	120	31.4	NH	09	01	19	1745	62	125	4.96	367	52.1	8	15	0
80.0	55.0	34	19.0	120	48.2	NH	09	01	19	2119	215	428	5.01	86	45.9	11	6	0
80.0	60.0	34	09.1	121	09.0	NH	09	01	20	0311	211	431	4.88	100	46.5	2	37	0
80.0	70.0	33	48.7	121	51.9	NH	09	01	20	0830	215	406	5.29	54	100.0	3	16	0
80.0	80.0	33	29.4	122	31.9	NH	09	01	20	1537	210	437	4.79	16	100.0	3	2	0
80.0	90.0	33	09.0	123	13.5	NH	09	01	20	2134	213	436	4.90	48	100.0	1	0	1
80.0	100.0	32	49.0	123	54.3	NH	09	01	21	0345	209	429	4.88	47	100.0	4	5	0
81.7	43.5	34	24.5	119	48.1	NH	09	01	19	1154	13	45	2.83	22	100.0	0	3	0
81.8	46.9	34	16.5	120	01.5	NH	09	01	19	0835	216	411	5.27	90	51.3	10	190	0
83.3	39.4	34	15.5	119	19.4	NH	09	01	19	0051	15	40	3.77	51	100.0	0	98	0
83.3	40.6	34	13.6	119	24.6	NH	09	01	19	0235	20	62	3.27	130	100.0	0	375	0
83.3	42.0	34	10.7	119	30.2	NH	09	01	19	0451	79	183	4.34	71	100.0	16	44	0
83.3	51.0	33	52.7	120	08.0	NH	09	01	18	1315	59	107	5.48	177	100.0	17	37	0
83.3	55.0	33	44.7	120	24.6	NH	09	01	18	0851	202	444	4.55	32	100.0	33	2	1
83.3	60.0	33	34.6	120	45.3	NH	09	01	18	0524	209	451	4.64	124	53.5	2	2	0
83.3	70.0	33	14.8	121	26.5	NH	09	01	17	2305	211	437	4.84	57	100.0	3	8	2
83.3	80.0	32	54.7	122	07.7	NH	09	01	17	1634	213	429	4.96	56	100.0	2	2	4
83.3	90.0	32	34.7	122	48.7	NH	09	01	17	0912	209	416	5.01	38	100.0	5	10	3

Table 7. (cont.)

CalCOFI Cruise 0901 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
83.3	100.0	32	14.8	123	29.5	NH	09	01	17	0410	212	437	4.85	41	100.0	3	1	0
83.3	110.0	31	54.7	124	10.2	NH	09	01	16	2208	210	434	4.84	76	100.0	6	4	0
85.4	35.8	34	00.8	118	49.9	NH	09	01	18	2050	13	46	2.90	87	100.0	0	121	0
86.7	33.0	33	53.4	118	29.4	NH	09	01	14	0914	48	92	5.16	65	100.0	4	70	0
86.7	35.0	33	49.4	118	37.7	NH	09	01	14	1200	215	417	5.15	48	100.0	24	14	1
86.7	40.0	33	39.4	118	58.4	NH	09	01	14	1637	217	395	5.48	48	100.0	7	66	0
86.7	45.0	33	29.5	119	19.0	NH	09	01	14	2054	191	428	4.47	82	51.4	6	24	1
86.7	50.0	33	19.4	119	39.8	NH	09	01	15	0100	43	112	3.83	107	100.0	64	7	1
86.7	55.0	33	09.4	120	00.5	NH	09	01	15	0453	212	412	5.13	61	100.0	4	3	0
86.7	60.0	32	59.4	120	20.9	NH	09	01	15	0756	222	439	5.06	59	50.0	1	13	0
86.7	70.0	32	39.5	121	01.9	NH	09	01	15	1534	211	442	4.77	57	100.0	5	2	0
86.7	80.0	32	19.4	121	43.0	NH	09	01	15	2146	210	407	5.16	57	100.0	4	6	0
86.7	90.0	31	59.3	122	23.4	NH	09	01	16	0357	213	425	5.00	33	100.0	1	2	0
86.7	100.0	31	39.4	123	04.2	NH	09	01	16	0842	214	420	5.07	33	100.0	2	6	1
86.7	110.0	31	19.4	123	44.6	NH	09	01	16	1559	213	416	5.11	31	100.0	6	4	1
86.8	32.5	33	53.2	118	26.7	NH	09	01	14	0742	13	49	2.64	61	100.0	0	49	0
88.5	30.1	33	40.5	118	05.6	NH	09	01	14	0357	13	43	3.02	47	100.0	3	55	0
90.0	27.7	33	29.6	117	44.8	NH	09	01	13	1524	16	43	3.67	70	100.0	2	4	0
90.0	28.0	33	29.1	117	46.1	NH	09	01	13	1649	36	83	4.32	12	100.0	1	0	0
90.0	30.0	33	25.1	117	54.2	NH	09	01	13	1936	215	410	5.25	68	50.0	0	0	0
90.0	35.0	33	15.1	118	15.1	NH	09	01	13	2355	191	458	4.18	107	51.0	7	40	1
90.0	37.0	33	11.1	118	23.2	NH	09	01	13	0935	191	473	4.04	25	100.0	5	6	0
90.0	45.0	32	52.9	119	00.6	NH	09	01	13	0430	211	425	4.96	71	50.0	8	1	0
90.0	53.0	32	39.2	119	28.9	NH	09	01	12	2302	200	485	4.12	47	100.0	27	45	0
90.0	60.0	32	25.1	119	57.6	NH	09	01	12	1759	215	411	5.22	49	100.0	7	21	0
90.0	70.0	32	05.1	120	38.3	NH	09	01	12	1134	211	434	4.85	28	100.0	7	15	1
90.0	80.0	31	45.1	121	19.0	NH	09	01	12	0505	213	430	4.94	30	100.0	4	0	1
90.0	90.0	31	25.1	121	59.3	NH	09	01	11	2241	208	439	4.74	52	100.0	9	1	1
90.0	100.0	31	05.4	122	39.8	NH	09	01	11	1628	211	435	4.86	44	100.0	2	2	0
90.0	110.0	30	45.1	123	19.9	NH	09	01	11	0858	200	481	4.17	23	100.0	7	11	0

Table 7. (cont.)

CalCOFI Cruise 0901 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
90.0	120.0	30	25.0	123	59.8	NH	09	01	11	0329	204	447	4.56	31	100.0	15	13	0
91.7	26.4	33	14.9	117	28.0	NH	09	01	07	2325	14	48	2.99	42	100.0	0	1	0
93.3	26.7	32	57.4	117	18.3	NH	09	01	07	1930	83	178	4.67	67	100.0	1	0	0
93.3	28.0	32	54.8	117	23.8	NH	09	01	08	0401	215	408	5.26	51	100.0	0	1	0
93.3	30.0	32	50.8	117	31.8	NH	09	01	08	0645	213	402	5.30	37	100.0	6	5	1
93.3	35.0	32	40.8	117	52.4	NH	09	01	08	1053	205	398	5.15	53	100.0	5	1	0
93.3	40.0	32	30.9	118	12.8	NH	09	01	08	1458	212	403	5.26	35	100.0	1	12	0
93.3	45.0	32	20.8	118	33.3	NH	09	01	08	1903	214	393	5.45	79	51.6	11	40	1
93.3	50.0	32	10.8	118	53.6	NH	09	01	08	2310	206	486	4.25	76	45.9	2	93	0
93.3	55.0	32	00.9	119	13.9	NH	09	01	09	0332	224	473	4.73	42	100.0	1	32	0
93.3	60.0	31	50.8	119	34.2	NH	09	01	09	0737	196	586	3.34	32	100.0	0	8	2
93.3	70.0	31	31.4	120	14.0	NH	09	01	09	1347	222	433	5.13	32	100.0	3	22	1
93.3	80.0	31	10.9	120	55.2	NH	09	01	09	2014	205	515	3.98	47	100.0	3	11	0
93.3	90.0	30	50.9	121	35.3	NH	09	01	10	0231	203	435	4.66	28	100.0	1	7	0
93.3	100.0	30	30.9	122	15.3	NH	09	01	10	0735	213	424	5.02	14	100.0	8	12	0
93.3	110.0	30	10.8	122	55.5	NH	09	01	10	1502	211	470	4.49	38	100.0	3	13	0
93.3	120.0	29	50.9	123	35.2	NH	09	01	10	2057	209	466	4.48	60	100.0	5	15	0
93.4	26.4	32	57.2	117	17.0	NH	09	01	07	2042	13	54	2.39	37	100.0	0	2	0

CalCOFI Cruise 0903

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 Fish Larvae	Total Fish Eggs	Total Para-Larval
76.7	70.0	34	23.3	122	14.8	JD	09	03	22	0631	191	477	4.00	105	52.0	37	10	6
76.7	80.0	34	03.3	122	56.5	JD	09	03	22	0131	206	454	4.53	40	100.0	21	21	2
76.7	90.0	33	43.3	123	38.1	JD	09	03	21	1937	210	410	5.12	34	100.0	85	87	1
76.7	100.0	33	23.6	124	19.0	JD	09	03	21	1412	191	453	4.22	44	100.0	138	120	2
80.0	50.5	34	28.0	120	29.6	JD	09	03	19	2007	25	68	3.72	178	100.0	97	194	0

Table 7. (cont.)

CalCOFI Cruise 0903 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
80.0	51.0	34	27.0	120	31.4	JD	09	03	19	2139	56	111	5.07	181	100.0	62	284	1
80.0	55.0	34	19.2	120	48.1	JD	09	03	20	0122	216	407	5.29	88	50.0	39	24	4
80.0	60.0	34	09.1	121	09.0	JD	09	03	20	0605	213	421	5.06	109	52.1	17	24	3
80.0	70.0	33	49.0	121	50.6	JD	09	03	20	1244	211	440	4.81	14	100.0	8	13	0
80.0	80.0	33	29.0	122	32.0	JD	09	03	20	1856	212	426	4.97	28	100.0	22	45	2
80.0	90.0	33	09.1	123	13.3	JD	09	03	21	0111	216	430	5.02	37	100.0	78	20	0
80.0	100.0	32	49.0	123	54.4	JD	09	03	21	0622	211	437	4.81	37	100.0	116	78	1
81.7	43.5	34	23.9	119	48.1	JD	09	03	19	1317	33	81	4.02	99	100.0	10	1171	0
81.8	46.9	34	16.5	120	01.5	JD	09	03	19	1635	207	423	4.90	147	48.3	77	2115	0
83.3	39.4	34	15.7	119	19.9	JD	09	03	19	0550	10	40	2.55	503	100.0	108	2857	0
83.3	40.6	34	13.5	119	24.7	JD	09	03	19	0742	17	60	2.81	303	100.0	6	3298	0
83.3	42.0	34	11.3	119	30.7	JD	09	03	19	0940	72	166	4.35	144	100.0	168	645	3
83.3	51.0	33	53.0	120	08.0	JD	09	03	18	2347	65	155	4.22	129	100.0	406	45	0
83.3	55.0	33	44.7	120	24.6	JD	09	03	18	2017	217	422	5.13	83	51.4	7	28	2
83.3	60.0	33	34.7	120	45.3	JD	09	03	18	1553	215	412	5.22	49	100.0	11	17	0
83.3	70.0	33	14.7	121	26.6	JD	09	03	18	0707	211	429	4.93	19	100.0	34	20	0
83.3	80.0	32	54.8	122	07.8	JD	09	03	18	0111	216	434	4.97	32	100.0	75	4	0
83.3	90.0	32	34.7	122	48.8	JD	09	03	17	1814	211	430	4.90	35	100.0	14	10	1
83.3	100.0	32	14.7	123	29.8	JD	09	03	17	1135	220	423	5.20	14	100.0	2	11	1
83.3	110.0	31	54.7	124	10.2	JD	09	03	17	0447	213	421	5.04	57	100.0	13	3	0
85.4	35.8	34	00.6	118	50.2	JD	09	03	14	1454	28	68	4.05	88	100.0	17	445	0
86.7	33.0	33	53.4	118	29.4	JD	09	03	14	1155	40	99	4.00	61	100.0	101	603	4
86.7	35.0	33	49.5	118	38.0	JD	09	03	14	1811	213	404	5.26	329	49.6	14	25	0
86.7	40.0	33	39.4	118	58.3	JD	09	03	14	2238	212	420	5.05	62	100.0	138	72	0
86.7	45.0	33	29.5	119	19.2	JD	09	03	15	0306	211	443	4.77	72	46.8	9	1764	0
86.7	50.0	33	19.4	119	39.9	JD	09	03	15	0652	59	94	6.29	1170	50.9	35	5	0
86.7	55.0	33	09.4	120	00.4	JD	09	03	15	1126	208	448	4.63	22	100.0	4	46	0
86.7	60.0	32	59.4	120	20.9	JD	09	03	15	1544	213	429	4.95	19	100.0	0	5	0
86.7	70.0	32	39.4	121	01.9	JD	09	03	15	2156	215	402	5.35	45	100.0	80	59	1
86.7	80.0	32	19.5	121	42.7	JD	09	03	16	0339	212	433	4.88	37	100.0	151	60	1

Table 7. (cont.)

CalCOFI Cruise 0903 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
86.7	90.0	32	00.5	122	23.9	JD	09	03	16	0842	218	410	5.31	24	100.0	108	45	0
86.7	100.0	31	39.5	123	04.2	JD	09	03	16	1620	214	417	5.13	19	100.0	10	12	0
86.7	110.0	31	19.4	123	44.5	JD	09	03	16	2238	208	410	5.07	63	100.0	95	15	2
86.8	32.5	33	53.3	118	26.8	JD	09	03	14	1021	12	43	2.77	139	100.0	5	583	0
90.0	27.7	33	29.4	117	45.2	JD	09	03	13	2027	27	72	3.74	112	100.0	3	0	0
90.0	28.0	33	29.1	117	46.1	JD	09	03	13	2146	206	419	4.92	91	47.3	11	18	0
90.0	30.0	33	25.2	117	54.2	JD	09	03	14	0035	195	433	4.51	60	100.0	17	5	0
90.0	35.0	33	15.1	118	15.1	JD	09	03	14	0447	208	433	4.80	42	100.0	20	19	0
90.0	37.0	33	11.1	118	23.3	JD	09	03	13	1423	213	414	5.13	34	100.0	18	14	0
90.0	45.0	32	55.1	118	56.3	JD	09	03	13	0735	209	424	4.92	76	56.2	7	2	0
90.0	53.0	32	39.0	119	29.0	JD	09	03	13	0252	214	435	4.91	41	100.0	3	5	0
90.0	60.0	32	25.1	119	57.6	JD	09	03	12	2140	212	418	5.07	60	100.0	63	50	4
90.0	70.0	32	05.1	120	38.4	JD	09	03	12	1512	216	418	5.15	29	100.0	52	64	11
90.0	80.0	31	45.1	121	19.0	JD	09	03	12	0716	217	419	5.16	29	100.0	76	29	1
90.0	90.0	31	25.2	121	59.5	JD	09	03	12	0134	214	425	5.04	28	100.0	149	27	1
90.0	100.0	31	05.1	122	39.8	JD	09	03	11	1902	216	418	5.15	53	100.0	34	18	0
90.0	110.0	30	45.1	123	19.9	JD	09	03	11	1235	217	431	5.03	21	100.0	106	34	0
90.0	120.0	30	25.1	123	59.9	JD	09	03	11	0555	215	429	5.01	28	100.0	103	152	2
91.7	26.4	33	14.5	117	27.9	JD	09	03	07	2250	12	62	1.93	97	100.0	3	149	0
93.3	26.7	32	57.3	117	18.4	JD	09	03	07	1847	63	140	4.53	43	100.0	10	50	1
93.3	28.0	32	54.7	117	23.7	JD	09	03	08	0238	209	429	4.87	56	100.0	8	38	0
93.3	30.0	32	50.8	117	32.1	JD	09	03	08	0527	235	428	5.48	89	52.6	7	24	1
93.3	35.0	32	40.8	117	52.3	JD	09	03	08	0859	197	454	4.33	37	100.0	15	4	6
93.3	40.0	32	30.8	118	12.9	JD	09	03	08	1507	227	365	6.22	214	48.7	22	14	4
93.3	45.0	32	20.8	118	33.3	JD	09	03	08	1910	213	378	5.62	180	50.0	65	22	0
93.3	50.0	32	10.8	118	53.6	JD	09	03	08	2315	232	436	5.31	57	100.0	28	48	4
93.3	55.0	32	00.9	119	14.0	JD	09	03	09	0326	220	416	5.29	38	100.0	6	1	0
93.3	60.0	31	50.9	119	34.3	JD	09	03	09	0738	222	451	4.91	40	100.0	33	9	0
93.3	70.0	31	31.8	120	12.8	JD	09	03	09	1348	215	446	4.80	22	100.0	21	4	1
93.3	80.0	31	10.7	120	55.0	JD	09	03	09	2125	212	435	4.88	55	100.0	18	28	1

Table 7. (cont.)

CalCOFI Cruise 0903 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
93.3	90.0	30	51.1	121	35.3	JD	09	03	10	0341	213	448	4.75	31	100.0	38	26	2
93.3	100.0	30	30.9	122	15.1	JD	09	03	10	0900	213	439	4.85	23	100.0	50	36	1
93.3	110.0	30	10.8	122	55.4	JD	09	03	10	1702	211	438	4.82	18	100.0	65	23	0
93.3	120.0	29	50.8	123	35.2	JD	09	03	10	2300	212	442	4.81	25	100.0	35	261	2
93.4	26.4	32	56.9	117	16.8	JD	09	03	07	1955	13	44	2.98	46	100.0	2	85	0

CCES Cruise 0904

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 Fish Larvae	Total Fish Eggs	Total Para-Larval
63.3	52.0	37	18.5	122	37.1	FR	09	04	16	1908	60	212	2.84	85	100.0	62	19	0
63.3	55.0	37	12.4	122	50.0	FR	09	04	16	2329	123	417	2.94	348	49.6	23	20	0
63.3	60.0	37	01.4	123	10.5	FR	09	04	17	0350	129	272	4.75	434	50.8	3	3	2
63.3	70.0	36	42.6	123	54.9	FR	09	04	17	0927	112	386	2.89	83	50.0	66	10	12
63.3	80.0	36	22.6	124	37.6	FR	09	04	17	1422	135	271	5.00	126	47.0	56	5	6
63.3	90.0	36	02.5	125	20.6	FR	09	04	17	2016	115	382	3.01	194	51.3	100	103	19
66.7	50.0	36	47.2	122	03.6	FR	09	04	19	0531	123	317	3.88	196	51.6	11	5	0
66.7	55.0	36	37.2	122	24.9	FR	09	04	19	0144	124	329	3.78	152	52.0	10	4	2
66.7	60.0	36	28.6	122	48.0	FR	09	04	18	2121	149	275	5.43	189	50.0	14	5	3
66.7	70.0	36	06.9	123	29.6	FR	09	04	18	1455	147	300	4.90	103	51.6	41	22	4
66.7	80.0	35	47.2	124	11.6	FR	09	04	18	0918	147	270	5.44	118	50.0	101	21	1
66.7	90.0	35	29.0	124	55.5	FR	09	04	18	0320	122	324	3.78	201	49.2	76	49	6
70.0	51.0	36	10.9	121	43.5	FR	09	04	19	1119	112	246	4.56	12	100.0	26	7	0
70.0	55.0	36	02.9	122	00.6	FR	09	04	19	1354	129	330	3.91	76	100.0	21	22	1
70.0	60.0	35	53.0	122	21.9	FR	09	04	19	1657	142	277	5.12	43	100.0	61	6	1
70.0	70.0	35	35.2	123	05.2	FR	09	04	20	0004	137	286	4.78	91	53.8	76	26	3
70.0	80.0	35	13.1	123	46.3	FR	09	04	20	0704	146	273	5.35	51	100.0	55	13	4
70.0	90.0	34	53.0	124	28.8	FR	09	04	20	1223	136	269	5.07	60	100.0	68	62	8

Table 7. (cont.)

CCES Cruise 0904 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
73.3	51.0	35	36.3	121	20.4	FR	09	04	21	1910	138	243	5.67	99	100.0	97	5	0
73.3	55.0	35	28.7	121	36.8	FR	09	04	21	1638	138	282	4.90	67	100.0	64	9	6
73.3	60.0	35	18.5	121	58.1	FR	09	04	21	1321	148	287	5.16	63	100.0	149	15	4
73.3	70.0	34	58.4	122	40.1	FR	09	04	21	0725	136	344	3.94	58	100.0	60	7	4
73.3	80.0	34	39.3	123	24.4	FR	09	04	21	0128	133	260	5.13	92	100.0	39	52	2
73.3	90.0	34	18.7	124	03.8	FR	09	04	20	1733	141	262	5.38	61	100.0	261	161	2
77.5	51.0	34	54.0	120	50.3	FR	09	04	22	0143	116	230	5.06	61	100.0	16	47	0
77.5	55.0	34	45.7	121	05.5	FR	09	04	22	0506	136	275	4.94	138	52.6	24	18	0
77.5	60.0	34	35.0	121	27.2	FR	09	04	22	0814	139	278	4.99	137	52.6	32	6	2
77.5	70.0	34	15.0	122	08.8	FR	09	04	22	1323	129	368	3.49	71	46.1	24	5	2
77.5	80.0	33	56.8	122	50.1	FR	09	04	23	0108	128	307	4.15	46	100.0	556	106	6
77.5	90.0	33	35.1	123	31.9	FR	09	04	23	0721	134	327	4.09	49	100.0	116	112	2
77.5	100.0	33	15.0	124	13.2	FR	09	04	23	1206	137	328	4.16	30	100.0	112	50	6
81.7	45.0	34	21.6	119	58.4	FR	09	04	25	1031	126	329	3.83	49	100.0	14	10	1
81.7	50.0	34	11.4	120	15.2	FR	09	04	25	0756	130	333	3.89	75	100.0	30	13	1
81.7	60.0	33	51.8	120	57.3	FR	09	04	24	2354	137	312	4.38	131	48.7	6	6	1
81.7	70.0	33	31.8	121	38.3	FR	09	04	24	1540	129	391	3.30	18	100.0	74	58	0
81.7	80.0	33	11.3	122	19.7	FR	09	04	24	1010	144	263	5.46	46	100.0	128	205	4
81.7	90.0	32	50.0	123	00.5	FR	09	04	24	0320	131	301	4.36	96	48.2	118	67	5
81.7	100.0	32	31.6	123	41.7	FR	09	04	23	1834	133	296	4.49	54	100.0	331	282	7
85.0	40.0	33	57.0	119	10.3	FR	09	04	26	0905	142	271	5.24	55	100.0	23	62	1
85.0	45.0	33	47.3	119	30.8	FR	09	04	26	1138	134	303	4.41	56	100.0	40	27	1
85.0	55.0	33	27.2	120	12.4	FR	09	04	27	0937	135	303	4.44	119	50.0	12	30	0
85.0	60.0	33	16.9	120	33.2	FR	09	04	27	1229	130	304	4.28	40	100.0	35	124	1
85.0	70.0	32	57.1	121	14.0	FR	09	04	27	1724	130	313	4.15	70	100.0	86	63	2
85.0	80.0	32	36.9	121	55.6	FR	09	04	28	0257	123	357	3.44	104	51.3	84	79	2
85.0	90.0	32	16.9	122	36.1	FR	09	04	28	0858	139	298	4.67	57	100.0	243	124	12
85.0	100.0	31	57.1	123	16.5	FR	09	04	28	1327	135	357	3.76	22	100.0	289	63	2
88.3	35.0	33	32.8	118	27.0	FR	09	04	30	1845	150	260	5.78	119	48.3	30	7	0
88.3	40.0	33	22.9	118	47.5	FR	09	04	30	1603	129	303	4.25	218	51.5	5	12	2

Table 7. (cont.)

CCES Cruise 0904 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
88.3	45.0	33	12.4	119	08.4	FR	09	04	30	1231	132	364	3.62	49	100.0	46	7	4
88.3	50.0	33	02.7	119	28.6	FR	09	04	30	0945	137	315	4.33	57	100.0	176	17	0
88.3	55.0	32	52.6	119	49.1	FR	09	04	30	0632	129	335	3.84	89	53.3	73	40	0
88.3	60.0	32	39.8	120	07.2	FR	09	04	30	0253	129	321	4.01	69	100.0	72	33	1
88.3	70.0	32	22.8	120	50.4	FR	09	04	29	1709	131	340	3.85	41	100.0	34	9	2
88.3	80.0	32	02.8	121	31.2	FR	09	04	29	1059	132	357	3.68	73	100.0	346	156	7
88.3	90.0	31	43.2	122	12.9	FR	09	04	29	0427	132	345	3.83	104	100.0	417	142	0
88.3	100.0	31	23.2	122	52.7	FR	09	04	28	1942	127	297	4.27	47	100.0	255	58	6
91.7	28.0	33	11.6	117	34.7	FR	09	05	01	0240	136	269	5.06	115	61.2	12	13	0
91.7	30.0	33	07.5	117	42.6	FR	09	05	01	0405	139	297	4.66	145	55.8	27	2	0
91.7	35.0	32	57.5	118	03.5	FR	09	05	01	0702	133	308	4.30	201	51.6	8	1	0
91.7	40.0	32	47.5	118	23.8	FR	09	05	01	0950	66	141	4.70	511	51.3	76	58	4
91.7	45.0	32	37.5	118	43.9	FR	09	05	01	1246	130	339	3.83	97	54.5	23	17	1
91.7	50.0	32	27.3	119	04.9	FR	09	05	01	1550	89	181	4.93	88	100.0	115	22	0
91.7	55.0	32	17.5	119	24.8	FR	09	05	01	1851	136	311	4.35	64	100.0	48	18	0
91.7	60.0	32	09.2	119	46.3	FR	09	05	02	0106	132	295	4.45	122	55.5	31	35	2
91.7	70.0	31	47.4	120	26.2	FR	09	05	02	0735	139	289	4.79	55	100.0	484	391	1
91.7	80.0	31	27.5	121	06.6	FR	09	05	02	1240	137	333	4.10	30	100.0	72	17	0
91.7	90.0	31	07.4	121	47.1	FR	09	05	02	1758	140	325	4.30	37	100.0	24	11	4
91.7	100.0	30	49.8	122	27.3	FR	09	05	03	0116	139	294	4.74	106	100.0	231	45	4
95.0	28.0	32	37.4	117	12.2	FR	09	05	07	1512	20	61	3.29	65	100.0	49	143	0
95.0	30.0	32	34.7	117	20.7	FR	09	05	07	1348	130	302	4.30	142	51.1	11	38	0
95.0	35.0	32	31.8	117	53.3	FR	09	05	07	0940	134	318	4.19	113	52.7	37	473	3
95.0	40.0	32	14.3	118	05.1	FR	09	05	07	0629	139	303	4.58	63	100.0	268	323	3
95.0	45.0	32	03.1	118	21.4	FR	09	05	06	1455	134	313	4.27	67	100.0	111	205	10
95.0	50.0	31	53.2	118	41.6	FR	09	05	06	1143	137	314	4.37	80	100.0	217	804	9
95.0	55.0	31	43.1	119	02.4	FR	09	05	04	1909	132	325	4.05	111	50.0	17	4	1
95.0	60.0	31	33.2	119	22.3	FR	09	05	04	1558	137	343	4.00	93	50.0	14	21	4
95.0	70.0	31	12.9	120	02.9	FR	09	05	04	0914	135	310	4.36	45	100.0	161	45	4
95.0	80.0	30	53.8	120	44.6	FR	09	05	04	0057	141	305	4.61	72	100.0	76	5	3

Table 7. (cont.)

CCES Cruise 0904 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
95.0	90.0	30	33.1	121	23.5	FR	09	05	03	1731	141	300	4.71	30	100.0	115	100	0
95.0	100.0	30	12.8	122	03.1	FR	09	05	03	1205	145	285	5.07	42	100.0	94	99	8
95.3	42.7	32	04.6	118	10.6	FR	09	05	06	1640	146	286	5.10	49	100.0	65	47	14

CalCOFI Cruise 0907

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 Fish Larvae	Total Fish Eggs	Total Para-Larval
60.0	53.0	37	50.9	123	05.9	M2	09	08	03	1003	57	164	3.47	49	100.0	5	36	0
60.0	60.0	37	36.7	123	36.5	M2	09	08	03	0438	202	440	4.59	93	48.7	10	0	0
60.0	70.0	37	16.9	124	19.9	M2	09	08	02	2138	215	429	5.01	70	46.6	14	0	11
60.0	80.0	36	56.8	125	03.2	M2	09	08	02	1417	197	490	4.02	78	52.6	4	2	3
60.0	90.0	36	36.8	125	46.1	M2	09	08	02	0658	221	414	5.33	58	100.0	19	2	5
66.7	55.0	36	37.3	122	24.9	M2	09	07	31	1128	206	438	4.70	64	50.0	5	0	2
66.7	60.0	36	27.3	122	46.0	M2	09	07	31	1646	212	406	5.22	30	100.0	5	2	0
66.7	70.0	36	07.2	123	29.1	M2	09	08	01	0206	190	481	3.95	54	53.8	35	1	3
66.7	80.0	35	47.2	124	11.7	M2	09	08	01	1121	202	472	4.27	78	48.6	6	2	12
66.7	90.0	35	27.2	124	54.1	M2	09	08	01	2014	210	434	4.83	106	52.1	10	10	0
67.0	50.0	36	44.1	122	00.7	M2	09	07	31	0615	198	468	4.22	28	100.0	1	2	1
76.7	49.0	35	05.3	120	46.6	M2	09	07	30	1248	57	148	3.84	608	26.6	0	31	0
76.7	51.0	35	01.4	120	55.1	M2	09	07	30	0820	192	480	4.01	67	50.0	4	5	1
76.7	55.0	34	53.5	121	11.6	M2	09	07	30	0440	191	472	4.04	150	52.1	4	0	6
76.7	60.0	34	43.3	121	32.8	M2	09	07	30	0025	201	428	4.69	226	50.5	10	1	1
76.7	70.0	34	23.4	122	14.8	M2	09	07	29	1810	211	429	4.91	126	51.8	4	7	3
76.7	80.0	34	03.3	122	56.6	M2	09	07	29	1147	204	443	4.60	79	48.5	3	11	8
76.7	90.0	33	43.4	123	38.2	M2	09	07	29	0528	185	495	3.74	153	50.0	17	21	7
76.7	100.0	33	23.2	124	19.5	M2	09	07	28	2245	200	483	4.14	33	100.0	15	4	1

Table 7. (cont.)

CalCOFI Cruise 0907 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
80.0	50.5	34	28.1	120	30.0	M2	09	07	27	0338	26	84	3.05	143	100.0	9	370	1
80.0	51.0	34	27.1	120	31.3	M2	09	07	27	0504	59	152	3.89	66	100.0	1	1395	1
80.0	55.0	34	18.9	120	48.3	M2	09	07	27	0933	203	427	4.74	70	53.3	12	44	0
80.0	60.0	34	09.1	121	08.8	M2	09	07	27	1316	227	397	5.71	86	47.0	6	1	1
80.0	70.0	33	49.0	121	50.7	M2	09	07	27	1930	214	446	4.79	175	51.2	23	3	2
80.0	80.0	33	28.1	122	29.7	M2	09	07	28	0150	234	384	6.09	130	52.0	4	4	4
80.0	90.0	33	09.0	123	13.2	M2	09	07	28	0730	172	546	3.15	227	50.0	0	1	7
80.0	100.0	32	49.0	123	54.3	M2	09	07	28	1556	199	453	4.38	406	100.0	8	25	8
81.7	43.5	34	24.0	119	48.0	M2	09	07	26	2008	25	82	3.07	86	100.0	25	501	0
81.8	46.9	34	16.3	120	01.5	M2	09	07	26	2333	187	471	3.97	187	50.0	24	2	2
83.3	39.4	34	15.8	119	19.8	M2	09	07	26	1623	14	36	3.84	56	100.0	1	158	0
83.3	40.6	34	13.5	119	24.6	M2	09	07	26	1507	25	80	3.05	50	100.0	4	488	0
83.3	42.0	34	10.7	119	30.6	M2	09	07	26	1304	129	254	5.08	47	100.0	55	140	1
83.3	51.0	33	52.4	120	08.4	M2	09	07	22	0914	192	475	4.04	25	100.0	2	411	1
83.3	55.0	33	44.6	120	24.6	M2	09	07	22	1425	229	442	5.18	45	100.0	7	8	0
83.3	60.0	33	34.7	120	45.4	M2	09	07	26	0221	208	447	4.66	105	53.1	7	0	1
83.3	70.0	33	14.7	121	26.4	M2	09	07	25	1903	205	478	4.28	65	45.1	16	74	3
83.3	80.0	32	54.7	122	07.7	M2	09	07	25	1207	202	469	4.31	13	100.0	5	4	6
83.3	90.0	32	34.3	122	48.8	M2	09	07	25	0539	206	464	4.43	50	100.0	3	3	2
83.3	100.0	32	14.7	123	29.6	M2	09	07	24	2315	214	437	4.90	48	100.0	8	4	0
83.3	110.0	31	54.5	124	10.2	M2	09	07	24	1640	192	497	3.86	171	100.0	15	28	9
85.4	35.8	34	00.3	118	50.6	M2	09	07	21	1448	46	115	4.02	96	100.0	0	27	0
86.7	33.0	33	53.2	118	29.4	M2	09	07	21	0844	39	108	3.58	157	100.0	11	857	2
86.7	35.0	33	49.3	118	37.7	M2	09	07	21	1203	209	426	4.91	106	51.1	28	13	1
86.7	40.0	33	39.4	118	58.3	M2	09	07	21	1933	195	475	4.09	177	48.8	3	14	0
86.7	45.0	33	29.4	119	19.2	M2	09	07	21	2352	205	446	4.59	65	51.7	3	0	0
86.7	50.0	33	19.4	119	39.8	M2	09	07	22	0337	46	120	3.83	208	100.0	4	332	0
86.7	55.0	33	09.3	120	00.4	M2	09	07	22	2048	222	470	4.72	75	48.5	3	1	1
86.7	60.0	32	59.3	120	21.0	M2	09	07	23	0117	206	455	4.53	90	51.2	2	0	1
86.7	70.0	32	39.3	121	02.3	M2	09	07	23	0641	190	515	3.69	54	46.4	0	3	1

Table 7. (cont.)

CalCOFI Cruise 0907 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
86.7	80.0	32	19.5	121	42.6	M2	09	07	23	1451	204	495	4.11	69	50.0	3	8	0
86.7	90.0	31	59.2	122	23.7	M2	09	07	23	2048	215	478	4.49	50	100.0	14	29	2
86.7	100.0	31	39.4	123	04.3	M2	09	07	24	0234	217	452	4.81	71	100.0	11	30	2
86.7	110.0	31	19.7	123	44.9	M2	09	07	24	0720	192	533	3.59	58	100.0	8	371	3
86.8	32.5	33	53.4	118	26.6	M2	09	07	21	0714	12	58	2.11	209	100.0	86	1073	0
88.5	30.1	33	40.5	118	05.0	M2	09	07	21	0241	12	24	5.14	249	100.0	23	323	0
90.0	27.7	33	29.3	117	45.2	M2	09	07	20	2356	20	61	3.22	1289	53.1	125	127	0
90.0	28.0	33	29.1	117	46.1	M2	09	07	20	2305	29	69	4.25	289	100.0	148	128	0
90.0	30.0	33	25.1	117	54.4	M2	09	07	20	2040	189	457	4.13	140	53.1	57	23	0
90.0	35.0	33	15.3	118	14.8	M2	09	07	20	1555	216	433	4.97	79	52.9	54	169	0
90.0	37.0	33	11.1	118	23.1	M2	09	07	20	1252	203	450	4.52	87	53.8	15	30	1
90.0	45.0	32	55.2	118	56.2	M2	09	07	20	0726	219	408	5.37	64	50.0	1	3	0
90.0	60.0	32	25.0	119	57.6	M2	09	07	19	2021	207	467	4.43	208	48.4	22	3	6
90.0	70.0	32	05.1	120	38.2	M2	09	07	19	1342	211	441	4.79	100	52.2	9	11	8
90.0	80.0	31	45.1	121	19.0	M2	09	07	19	0711	195	497	3.92	38	100.0	2	51	1
90.0	90.0	31	25.0	121	59.3	M2	09	07	19	0029	218	426	5.12	94	100.0	29	59	0
90.0	100.0	31	05.0	122	39.6	M2	09	07	18	1758	210	430	4.89	174	100.0	19	165	7
90.0	110.0	30	45.1	123	20.0	M2	09	07	18	1121	205	513	4.00	23	100.0	180	1290	6
90.0	120.0	30	25.0	123	59.8	M2	09	07	18	0427	204	426	4.79	16	100.0	499	161	4
91.7	26.4	33	14.7	117	27.9	M2	09	07	15	0009	15	45	3.31	312	100.0	50	563	0
93.3	26.7	32	57.3	117	18.4	M2	09	07	14	2105	201	467	4.29	126	45.7	4	2	1
93.3	28.0	32	54.8	117	23.7	M2	09	07	15	0427	176	514	3.42	76	51.2	7	4	0
93.3	30.0	32	50.5	117	31.9	M2	09	07	15	0722	223	398	5.59	63	100.0	48	88	0
93.3	35.0	32	40.8	117	52.3	M2	09	07	15	1201	203	443	4.58	50	100.0	12	3	0
93.3	40.0	32	30.7	118	12.8	M2	09	07	15	1630	211	452	4.67	69	51.6	88	43	0
93.3	45.0	32	20.8	118	33.1	M2	09	07	15	2038	205	436	4.69	101	52.2	7	3	0
93.3	50.0	32	10.8	118	53.7	M2	09	07	16	0045	216	432	5.00	155	53.7	3	2	0
93.3	55.0	32	00.8	119	14.0	M2	09	07	16	0457	206	427	4.83	119	52.9	3	0	1
93.3	60.0	31	50.7	119	34.3	M2	09	07	16	0745	197	458	4.29	81	54.0	4	5	3
93.3	70.0	31	30.9	120	15.0	M2	09	07	16	1556	229	380	6.02	66	48.0	8	44	1

Table 7. (cont.)

CalCOFI Cruise 0907 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
93.3	80.0	31	10.8	120	55.1	M2	09	07	16	2147	210	442	4.75	63	100.0	54	254	0
93.3	90.0	30	50.8	121	35.0	M2	09	07	17	0346	208	428	4.85	54	100.0	178	222	2
93.3	100.0	30	30.9	122	15.5	M2	09	07	17	0836	211	424	4.96	38	100.0	82	396	2
93.3	110.0	30	10.8	122	55.4	M2	09	07	17	1613	206	458	4.51	26	100.0	93	173	2
93.3	120.0	29	50.8	123	35.1	M2	09	07	17	2202	196	481	4.07	35	100.0	397	65	5

CalCOFI Cruise 0911

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 Fish Larvae	Total Fish Eggs	Total Para-Larval
76.7	49.0	35	05.3	120	47.0	NH	09	11	22	1208	65	142	4.55	70	100.0	33	82	2
76.7	51.0	35	01.3	120	55.2	NH	09	11	22	0942	207	445	4.66	40	100.0	24	5	1
76.7	55.0	34	53.5	121	12.0	NH	09	11	22	0556	212	447	4.73	49	100.0	34	67	1
76.7	70.0	34	23.4	122	14.7	NH	09	11	21	0653	207	472	4.39	42	100.0	12	7	1
76.7	80.0	34	03.1	122	56.4	NH	09	11	21	0124	210	475	4.41	70	51.5	4	3	0
76.7	90.0	33	43.1	123	38.2	NH	09	11	20	1850	207	488	4.24	49	100.0	13	8	1
76.7	100.0	33	23.3	124	19.3	NH	09	11	20	1242	215	468	4.59	15	100.0	8	1	0
80.0	50.5	34	27.5	120	29.3	NH	09	11	22	1721	14	51	2.65	19	100.0	136	21	2
80.0	51.0	34	26.8	120	31.3	NH	09	11	18	1548	86	194	4.44	10	100.0	19	115	2
80.0	70.0	33	49.9	121	51.6	NH	09	11	19	0727	214	433	4.95	58	100.0	23	8	0
80.0	80.0	33	29.1	122	31.9	NH	09	11	19	1609	214	433	4.94	18	100.0	3	2	0
80.0	90.0	33	08.9	123	13.1	NH	09	11	19	2214	207	475	4.36	34	100.0	19	8	2
80.0	100.0	32	48.9	123	54.1	NH	09	11	20	0618	211	439	4.79	46	100.0	44	14	5
81.7	43.5	34	24.3	119	47.8	NH	09	11	18	0746	13	45	3.00	45	100.0	6	20	0
81.8	46.9	34	16.5	120	01.6	NH	09	11	18	1113	211	436	4.84	55	100.0	53	495	1
83.3	39.4	34	15.5	119	19.5	NH	09	11	18	0447	17	47	3.62	42	100.0	1	42	0
83.3	40.6	34	13.4	119	24.8	NH	09	11	18	0349	20	57	3.47	18	100.0	1	372	0
83.3	42.0	34	10.4	119	30.5	NH	09	11	18	0137	140	279	5.01	36	100.0	17	417	1

Table 7. (cont.)

CalCOFI Cruise 0911 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
83.3	51.0	33	52.5	120	07.8	NH	09	11	17	1915	94	178	5.27	45	100.0	5	14	0
83.3	55.0	33	44.4	120	24.6	NH	09	11	17	1542	211	432	4.88	23	100.0	7	6	0
83.3	60.0	33	34.6	120	45.1	NH	09	11	17	1101	214	405	5.28	49	100.0	6	26	1
83.3	70.0	33	14.6	121	26.6	NH	09	11	17	0435	215	390	5.51	128	48.0	9	15	0
83.3	80.0	32	54.6	122	07.6	NH	09	11	16	2219	212	443	4.78	77	52.9	6	1	0
83.3	90.0	32	34.3	122	48.8	NH	09	11	16	1630	217	410	5.28	19	100.0	13	7	1
83.3	100.0	32	14.7	123	29.5	NH	09	11	16	1034	210	422	4.98	24	100.0	28	15	2
83.3	110.0	31	54.3	124	10.1	NH	09	11	16	0419	219	421	5.19	38	100.0	17	18	4
85.4	35.8	34	00.6	118	49.8	NH	09	11	13	0637	20	54	3.75	18	100.0	2	5	0
86.7	33.0	33	53.4	118	29.5	NH	09	11	13	0326	51	127	3.98	16	100.0	4	16	1
86.7	35.0	33	49.2	118	38.3	NH	09	11	13	0906	213	414	5.14	29	100.0	9	9	6
86.7	40.0	33	39.4	118	58.4	NH	09	11	13	1505	207	425	4.87	42	100.0	14	125	1
86.7	60.0	32	58.9	120	20.7	NH	09	11	14	1425	213	434	4.91	48	100.0	7	10	0
86.7	70.0	32	39.2	121	01.5	NH	09	11	14	2052	214	438	4.87	46	100.0	12	5	1
86.7	80.0	32	19.3	121	42.7	NH	09	11	15	0302	219	452	4.84	31	100.0	20	5	2
86.7	90.0	31	59.9	122	24.1	NH	09	11	15	0804	212	458	4.63	26	100.0	10	12	1
86.7	100.0	31	39.1	123	03.9	NH	09	11	15	1613	209	436	4.79	48	100.0	29	16	1
86.7	110.0	31	19.3	123	44.6	NH	09	11	15	2206	211	449	4.70	27	100.0	43	21	2
86.8	32.5	33	53.1	118	26.7	NH	09	11	13	0150	23	60	3.84	34	100.0	3	54	0
88.5	30.1	33	40.4	118	05.5	NH	09	11	12	2205	13	55	2.40	18	100.0	1	31	0
90.0	27.7	33	29.6	117	44.9	NH	09	11	12	1505	14	45	3.15	22	100.0	0	55	0
90.0	28.0	33	29.1	117	45.9	NH	09	11	12	1639	56	117	4.78	34	100.0	0	41	0
90.0	30.0	33	25.0	117	53.8	NH	09	11	12	1920	215	403	5.34	60	100.0	12	18	0
90.0	35.0	33	15.2	118	15.0	NH	09	11	12	1116	212	401	5.28	30	100.0	5	18	1
90.0	37.0	33	10.9	118	23.0	NH	09	11	12	0800	211	417	5.07	60	100.0	11	13	1
90.0	45.0	32	55.0	118	56.1	NH	09	11	12	0239	210	436	4.81	57	100.0	12	1	0
90.0	53.0	32	38.9	119	28.8	NH	09	11	11	2100	208	423	4.91	104	54.5	14	2	2
90.0	60.0	32	25.0	119	57.5	NH	09	11	11	1554	215	421	5.11	59	100.0	5	15	0
90.0	70.0	32	05.4	120	39.0	NH	09	11	11	0808	207	432	4.79	35	100.0	22	11	1
90.0	80.0	31	44.9	121	19.1	NH	09	11	11	0245	193	452	4.27	86	100.0	6	1	0

Table 7. (cont.)

CalCOFI Cruise 0911 (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 Fish Larvae	Total Fish Eggs	Total Para-Larval
90.0	90.0	31	24.6	121	59.5	NH	09	11	10	2015	204	442	4.62	54	100.0	14	10	3
90.0	100.0	31	05.0	122	39.8	NH	09	11	10	1353	215	432	4.97	28	100.0	33	23	3
90.0	110.0	30	45.0	123	20.2	NH	09	11	10	0522	206	457	4.50	35	100.0	13	6	2
90.0	120.0	30	25.0	123	59.8	NH	09	11	09	2305	202	467	4.33	30	100.0	33	11	1
91.7	26.4	33	14.8	117	27.8	NH	09	11	06	1615	13	39	3.25	26	100.0	0	13	0
93.3	26.7	32	57.5	117	18.2	NH	09	11	06	1235	71	133	5.36	45	100.0	4	2	1
93.3	28.0	32	54.8	117	23.6	NH	09	11	06	2005	203	468	4.34	47	100.0	7	0	0
93.3	30.0	32	50.8	117	31.8	NH	09	11	06	2342	198	433	4.56	51	100.0	4	0	1
93.3	35.0	32	40.6	117	52.2	NH	09	11	07	0346	215	387	5.55	49	100.0	8	0	0
93.3	40.0	32	31.0	118	12.4	NH	09	11	07	0759	215	450	4.76	22	100.0	5	1	0
93.3	45.0	32	20.8	118	33.4	NH	09	11	07	1215	213	474	4.49	21	100.0	3	0	0
93.3	50.0	32	10.9	118	53.3	NH	09	11	07	1646	211	434	4.85	21	100.0	9	3	0
93.3	55.0	32	00.7	119	14.1	NH	09	11	07	2123	208	493	4.21	45	100.0	25	13	0
93.3	60.0	31	51.0	119	34.3	NH	09	11	08	0154	208	482	4.30	50	100.0	27	7	0
93.3	70.0	31	30.7	120	14.8	NH	09	11	08	0716	208	482	4.32	54	100.0	5	0	0
93.3	80.0	31	10.8	120	55.0	NH	09	11	08	1550	209	484	4.32	66	100.0	7	4	2
93.3	90.0	30	50.7	121	35.3	NH	09	11	08	2156	209	461	4.53	30	100.0	64	5	4
93.3	100.0	30	30.7	122	15.3	NH	09	11	09	0403	212	480	4.41	40	100.0	47	18	2
93.3	110.0	30	10.8	122	55.2	NH	09	11	09	1016	212	468	4.52	38	100.0	13	21	2
93.3	120.0	29	50.6	123	35.0	NH	09	11	09	1627	212	433	4.91	18	100.0	42	10	1
93.4	26.4	32	57.2	117	16.9	NH	09	11	06	1325	13	45	2.80	22	100.0	1	20	0

Table 8. Pooled occurrences of paralarval cephalopods taken in Bongo net tows on CalCOFI and CCES cruises in 2009.

Rank	Taxon	Occurrences
1	*Abraliopsis felis*	107
2	*Gonatus* spp.	50
3	Octopodidae	37
4	*Doryteuthis opalescens*	20
5	*Chiroteuthis calyx*	16
6	Teuthida	10
7	*Galiteuthis* spp.	9
7	*Leachia pacifica*	9
9	Pyroteuthidae	8
10	*Onychoteuthis borealijaponica*	7
11	*Gonatopsis borealis*	4
12	*Galiteuthis phyllura*	3
13	*Pyroteuthis addolux*	2
13	*Octopoteuthis deletron*	2
13	*Gonatus pyros*	2
13	*Histioteuthis heteropsis*	2
13	Ommastrephidae	2
18	Enoploteuthidae	1
18	Cranchiidae	1
18	*Gonatus onyx*	1
	Total	293

Table 9. Pooled counts of paralarval cephalopods taken in Bongo net tows on CalCOFI and CCES cruises in 2009. Counts are adjusted for percent of sample sorted and standard haul factor (see text).

Rank	Taxon	Count
1	*Abraliopsis felis*	2037
2	*Gonatus* spp.	540
3	Octopodidae	314
4	*Doryteuthis opalescens*	170
5	*Chiroteuthis calyx*	112
6	Teuthida	72
7	*Onychoteuthis borealijaponica*	66
8	*Leachia pacifica*	61
9	Pyroteuthidae	56
10	*Galiteuthis* spp.	55
11	*Pyroteuthis addolux*	20
11	*Gonatopsis borealis*	20
13	*Gonatus pyros*	18
14	*Histioteuthis heteropsis*	16
15	*Galiteuthis phyllura*	14
16	Ommastrephidae	13
17	*Octopoteuthis deletron*	8
17	*Gonatus onyx*	8
19	Cranchiidae	5
19	Enoploteuthidae	5
	Total	3610

Table 10. Pooled occurrences of fish larvae taken in Bongo net tows on CalCOFI and CCES cruises in 2009

.

Rank	Taxon	Occurrences
1	*Stenobrachius leucopsarus*	163
2	*Protomyctophum crockeri*	146
3	*Sebastes* spp.	126
4	*Sardinops sagax*	98
5	*Lipolagus ochotensis*	77
6	*Nannobrachium* spp.	72
6	*Diaphus* spp.	72
6	*Leuroglossus stilbius*	72
9	*Triphoturus mexicanus*	66
9	*Engraulis mordax*	66
11	*Citharichthys stigmaeus*	62
12	*Nannobrachium ritteri*	59
13	*Vinciguerria lucetia*	58
14	*Symbolophorus californiensis*	56
15	*Cyclothone signata*	55
16	*Bathylagoides wesethi*	48
17	*Diogenichthys atlanticus*	44
18	*Tarletonbeania crenularis*	43
18	*Sebastes jordani*	43
20	Disintegrated fish larvae	39
21	*Idiacanthus antrostomus*	32
21	*Argyropelecus sladeni*	32
21	*Trachurus symmetricus*	32
24	*Merluccius productus*	31
25	*Ceratoscopelus townsendi*	30
26	*Citharichthys sordidus*	29
27	*Lestidiops ringens*	26
28	Myctophidae	25
28	*Chauliodus macouni*	25
30	*Danaphos oculatus*	21
31	*Genyonemus lineatus*	20
32	*Melamphaes* spp.	19
32	*Rhinogobiops nicholsii*	19
34	*Lyopsetta exilis*	17
35	*Parophrys vetulus*	15
36	*Microstoma* sp.	14
37	*Citharichthys* spp.	13
37	*Chiasmodon niger*	13
37	*Nansenia candida*	13
37	*Sebastes paucispinis*	13
37	*Scopelogadus mizolepis bispinosus*	13
42	*Tactostoma macropus*	11
42	Paralepididae	11
42	*Tetragonurus cuvieri*	11
45	*Sebastes aurora*	10
45	*Sebastes levis*	10
47	*Sebastes goodei*	9

Table 10. (cont.)

Rank	Taxon	Occurrences
47	*Ichthyococcus irregularis*	9
47	*Argyropelecus affinis*	9
47	*Paralichthys californicus*	9
51	*Arctozenus risso*	8
51	*Pleuronichthys verticalis*	8
51	*Cyclothone* spp.	8
54	*Oxyjulis californica*	7
54	*Paralabrax* spp.	7
54	*Sternoptyx* spp.	7
54	*Stomias atriventer*	7
54	*Sebastes diploproa*	7
54	*Notoscopelus resplendens*	7
54	*Odontopyxis trispinosa*	7
61	*Nannobrachium regale*	6
61	*Poromitra crassiceps*	6
61	*Microstomus pacificus*	6
61	*Myctophum nitidulum*	6
61	*Liparis mucosus*	6
66	*Hypsoblennius jenkinsi*	5
66	*Rathbunella* spp.	5
66	*Diogenichthys laternatus*	5
66	*Scomber japonicus*	5
66	*Seriphus politus*	5
66	*Trachipterus altivelis*	5
66	*Zaniolepis latipinnis*	5
66	*Argyropelecus lychnus*	5
74	*Hypsoblennius* spp.	4
74	*Notolychnus valdiviae*	4
74	*Nannobrachium hawaiiensis*	4
74	*Icelinus quadriseriatus*	4
74	*Hypsypops rubicundus*	4
74	*Brosmophycis marginata*	4
74	*Scopelosaurus* spp.	4
74	*Rosenblattichthys volucris*	4
74	*Aristostomias scintillans*	4
83	Paralichthyidae	3
83	*Typhlogobius californiensis*	3
83	*Glyptocephalus zachirus*	3
83	*Sphyraena argentea*	3
83	*Chromis punctipinnis*	3
83	*Electrona risso*	3
83	*Howella* spp.	3
83	*Scorpaenichthys marmoratus*	3
83	*Benthalbella dentata*	3
83	*Bathylagus pacificus*	3
83	*Hypsoblennius gilberti*	3
83	*Hippoglossina stomata*	3
83	Cottidae	3

Table 10. (cont.)

Rank	Taxon	Occurrences
83	*Oneirodes* spp.	3
83	*Artedius harringtoni*	3
83	*Melamphaes parvus*	3
99	*Argyropelecus* spp.	2
99	*Argyropelecus hemigymnus*	2
99	*Citharichthys fragilis*	2
99	*Lampadena urophaos*	2
99	*Argentina sialis*	2
99	*Scopelarchus analis*	2
99	*Symphurus atricaudus*	2
99	Pleuronectidae	2
99	*Icichthys lockingtoni*	2
99	*Cololabis saira*	2
99	*Chitonotus pugetensis*	2
99	*Melamphaes lugubris*	2
99	*Sebastolobus* spp.	2
99	*Chilara taylori*	2
99	*Bathyagonus pentacanthus*	2
99	*Loweina rara*	2
99	*Hygophum reinhardtii*	2
99	*Lepidogobius lepidus*	2
99	*Lythrypnus dalli*	2
118	*Pleuronichthys coenosus*	1
118	*Ophiodon elongatus*	1
118	*Artedius fenestralis*	1
118	*Artedius lateralis*	1
118	*Lepidopsetta bilineata*	1
118	*Cyclothone acclinidens*	1
118	*Radulinus asprellus*	1
118	*Ruscarius meanyi*	1
118	*Ruscarius creaseri*	1
118	*Brama japonica*	1
118	*Hexagrammos decagrammus*	1
118	*Medialuna californiensis*	1
118	*Pleuronichthys decurrens*	1
118	*Pseudobathylagus milleri*	1
118	*Pleuronichthys ritteri*	1
118	Osmeridae	1
118	*Plectobranchus evides*	1
118	*Lampanyctus steinbecki*	1
118	*Peprilus simillimus*	1
118	*Icosteus aenigmaticus*	1
118	*Cataetyx rubrirostris*	1
118	*Leuresthes tenuis*	1
118	*Scopelarchus guentheri*	1
118	*Neoclinus stephensae*	1
118	*Valenciennellus tripunctulatus*	1
118	*Gibbonsia* spp.	1

Table 10. (cont.)

Rank	Taxon	Occurrences
118	*Oxylebius pictus*	1
118	Stichaeidae	1
118	*Semicossyphus pulcher*	1
118	*Xystreurys liolepis*	1
118	*Lythrypnus zebra*	1
118	*Vinciguerria* spp.	1
118	*Diogenichthys* spp.	1
118	*Sebastolobus altivelis*	1
118	*Citharichthys xanthostigma*	1
	Total	2306

Table 11. Pooled counts of fish larvae taken in Bongo net tows on CalCOFI and CCES cruises in 2009. Counts are adjusted for percent of sample sorted and standard haul factor (see text).

Rank	Taxon	Count
1	*Sardinops sagax*	28405
2	*Stenobrachius leucopsarus*	9353
3	*Sebastes* spp.	7738
4	*Vinciguerria lucetia*	4486
5	*Engraulis mordax*	3709
6	*Diaphus* spp.	2257
7	*Triphoturus mexicanus*	1801
8	*Trachurus symmetricus*	1742
9	*Protomyctophum crockeri*	1644
10	*Bathylagoides wesethi*	1541
11	*Leuroglossus stilbius*	1523
12	*Citharichthys stigmaeus*	1274
13	*Sebastes jordani*	1177
14	*Lipolagus ochotensis*	1023
15	*Symbolophorus californiensis*	987
16	*Cyclothone signata*	926
17	*Merluccius productus*	845
18	*Ceratoscopelus townsendi*	810
19	*Nannobrachium* spp.	772
20	*Tarletonbeania crenularis*	577
21	*Diogenichthys atlanticus*	521
22	*Genyonemus lineatus*	504
23	*Idiacanthus antrostomus*	492
24	*Nannobrachium ritteri*	436
25	*Citharichthys sordidus*	372
26	*Parophrys vetulus*	336
27	*Tactostoma macropus*	303
28	*Sebastes goodei*	300
29	Disintegrated fish larvae	280
30	*Argyropelecus sladeni*	254
31	*Scomber japonicus*	253
32	*Lyopsetta exilis*	206
33	*Lestidiops ringens*	197
34	Myctophidae	174
35	*Chauliodus macouni*	154
36	*Rhinogobiops nicholsii*	145
37	*Nansenia candida*	143
38	*Danaphos oculatus*	129
39	*Paralichthys californicus*	124
40	*Melamphaes* spp.	123
41	*Chiasmodon niger*	107
42	*Hypsoblennius jenkinsi*	102
43	*Sebastes paucispinis*	94
44	*Citharichthys* spp.	92

Table 11. (cont.)

Rank	Taxon	Count
45	*Oxyjulis californica*	83
46	*Scopelogadus mizolepis bispinosus*	79
46	*Lampadena urophaos*	79
46	*Sebastes levis*	79
49	*Microstoma* sp.	78
50	*Sebastes aurora*	77
51	*Tetragonurus cuvieri*	76
52	*Pleuronichthys verticalis*	73
53	*Paralabrax* spp.	69
54	*Rathbunella* spp.	68
55	Paralepididae	64
56	*Argyropelecus affinis*	60
57	*Ichthyococcus irregularis*	55
58	*Seriphus politus*	53
59	*Arctozenus risso*	50
59	*Sebastes diploproa*	50
59	*Cyclothone* spp.	50
59	*Notoscopelus resplendens*	50
63	*Argyropelecus lychnus*	48
64	*Notolychnus valdiviae*	47
65	*Sternoptyx* spp.	46
65	*Zaniolepis latipinnis*	46
67	*Liparis mucosus*	45
68	*Microstomus pacificus*	43
68	*Icelinus quadriseriatus*	43
70	*Hypsoblennius* spp.	41
70	*Nannobrachium hawaiiensis*	41
72	*Myctophum nitidulum*	38
72	*Stomias atriventer*	38
72	*Nannobrachium regale*	38
75	*Sphyraena argentea*	37
75	*Poromitra crassiceps*	37
77	*Odontopyxis trispinosa*	34
78	*Scopelosaurus* spp.	32
79	*Artedius harringtoni*	30
80	*Rosenblattichthys volucris*	28
81	*Neoclinus stephensae*	27
81	*Gibbonsia* spp.	27
83	*Hypsypops rubicundus*	25
84	*Trachipterus altivelis*	24
84	*Diogenichthys laternatus*	24
86	*Pleuronichthys ritteri*	21
86	*Melamphaes parvus*	21
86	*Chilara taylori*	21
86	*Bathylagus pacificus*	21
90	*Benthalbella dentata*	19
91	*Brosmophycis marginata*	18
91	*Aristostomias scintillans*	18

Table 11. (cont.)

Rank	Taxon	Count
91	*Glyptocephalus zachirus*	18
91	*Scorpaenichthys marmoratus*	18
91	*Melamphaes lugubris*	18
91	*Howella* spp.	18
91	*Chromis punctipinnis*	18
98	*Icichthys lockingtoni*	17
98	*Hypsoblennius gilberti*	17
100	*Argentina sialis*	16
100	*Bathyagonus pentacanthus*	16
100	Cottidae	16
103	*Electrona risso*	15
103	*Sebastolobus* spp.	15
103	*Loweina rara*	15
103	*Oneirodes* spp.	15
107	*Lythrypnus dalli*	14
107	*Citharichthys fragilis*	14
109	*Hippoglossina stomata*	13
109	*Symphurus atricaudus*	13
109	*Lepidogobius lepidus*	13
109	Paralichthyidae	13
109	*Typhlogobius californiensis*	13
114	*Ruscarius meanyi*	11
115	*Argyropelecus* spp.	10
115	*Hygophum reinhardtii*	10
117	*Cololabis saira*	9
117	*Argyropelecus hemigymnus*	9
117	*Medialuna californiensis*	9
117	*Ruscarius creaseri*	9
117	*Scopelarchus analis*	9
122	*Vinciguerria* spp.	8
122	*Oxylebius pictus*	8
122	*Valenciennellus tripunctulatus*	8
122	*Pleuronichthys coenosus*	8
122	*Cataetyx rubrirostris*	8
122	*Citharichthys xanthostigma*	8
128	Pleuronectidae	7
129	*Lythrypnus zebra*	6
129	Stichaeidae	6
129	*Hexagrammos decagrammus*	6
129	*Ophiodon elongatus*	6
129	*Chitonotus pugetensis*	6
134	*Cyclothone acclinidens*	5
134	*Pseudobathylagus milleri*	5
134	*Sebastolobus altivelis*	5
134	*Diogenichthys* spp.	5
134	*Pleuronichthys decurrens*	5
134	*Scopelarchus guentheri*	5
134	*Icosteus aenigmaticus*	5

Table 11. (cont.)

Rank	Taxon	Count
134	*Brama japonica*	5
134	*Plectobranchus evides*	5
134	*Radulinus asprellus*	5
134	*Peprilus simillimus*	5
145	*Artedius lateralis*	4
145	*Leuresthes tenuis*	4
145	*Semicossyphus pulcher*	4
145	*Lampanyctus steinbecki*	4
149	*Xystreurys liolepis*	3
149	Osmeridae	3
149	*Lepidopsetta bilineata*	3
149	*Artedius fenestralis*	3
	Total	81171

Table 12. Number of paralarval cephalopods and fish larvae taken in Bongo net tows at stations occupied on CalCOFI and CCES cruises in 2009, 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.

Teuthida

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 70.0	-	-	-	11.6	-	-	-	-	-	-	-	-
63.3 80.0	-	-	-	10.6	-	-	-	-	-	-	-	-
70.0 80.0	-	-	-	10.7	-	-	-	-	-	-	-	-
73.3 90.0	-	-	-	5.4	-	-	-	-	-	-	-	-
77.5 80.0	-	-	-	8.3	-	-	-	-	-	-	-	-
77.5 90.0	-	-	-	4.1	-	-	-	-	-	-	-	-
80.0 50.5	0.0	-	0.0	-	-	-	0.0	-	-	-	2.7	-
80.0 80.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
93.3 35.0	0.0	-	4.3	-	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.0	-

Doryteuthis opalescens

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	12.1	-	-	-	-	-	0.0	-	-	-	9.1	-
81.7 45.0	-	-	-	3.8	-	-	-	-	-	-	-	-
81.8 46.9	0.0	-	0.0	-	-	-	7.9	-	-	-	0.0	-
83.3 42.0	0.0	-	8.7	-	-	-	0.0	-	-	-	5.0	-
83.3 51.0	0.0	-	0.0	-	-	-	4.0	-	-	-	0.0	-
83.3 90.0	0.0	-	0.0	-	-	-	4.4	-	-	-	0.0	-
85.0 40.0	-	-	-	5.2	-	-	-	-	-	-	-	-
86.7 33.0	0.0	-	16.0	-	-	-	7.2	-	-	-	0.0	-
86.7 50.0	3.8	-	0.0	-	-	-	0.0	-	-	-	-	-
88.3 40.0	-	-	-	8.3	-	-	-	-	-	-	-	-
88.3 45.0	-	-	-	10.9	-	-	-	-	-	-	-	-
91.7 26.4	0.0	-	1.9	-	-	-	0.0	-	-	-	0.0	-
91.7 40.0	-	-	-	-	27.5	-	-	-	-	-	-	-
91.7 45.0	-	-	-	-	7.0	-	-	-	-	-	-	-
93.3 30.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-
95.0 35.0	-	-	-	-	8.0	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	15.3	-	-	-	-	-	-	-

Table 12. (cont.)

Enoploteuthidae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-

Abraliopsis felis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 70.0	-	-	-	-	-	-	-	107.5	-	-	-	-
60.0 80.0	-	-	-	-	-	-	-	15.3	-	-	-	-
60.0 90.0	-	-	-	-	-	-	-	10.7	-	-	-	-
63.3 70.0	-	-	-	46.2	-	-	-	-	-	-	-	-
63.3 80.0	-	-	-	10.6	-	-	-	-	-	-	-	-
63.3 90.0	-	-	-	82.1	-	-	-	-	-	-	-	-
66.7 60.0	-	-	-	10.9	-	-	0.0	-	-	-	-	-
66.7 70.0	-	-	-	19.0	-	-	-	14.7	-	-	-	-
66.7 80.0	-	-	-	10.9	-	-	-	87.9	-	-	-	-
66.7 90.0	-	-	-	38.4	-	-	-	0.0	-	-	-	-
70.0 60.0	-	-	-	5.1	-	-	-	-	-	-	-	-
70.0 70.0	-	-	-	17.8	-	-	-	-	-	-	-	-
70.0 80.0	-	-	-	5.4	-	-	-	-	-	-	-	-
70.0 90.0	-	-	-	35.5	-	-	-	-	-	-	-	-
73.3 55.0	-	-	-	19.6	-	-	-	-	-	-	-	-
73.3 60.0	-	-	-	5.2	-	-	-	-	-	-	-	-
73.3 70.0	-	-	-	15.8	-	-	-	-	-	-	-	-
76.7 51.0	0.0	-	-	-	-	-	8.0	-	-	-	0.0	-
76.7 55.0	0.0	-	-	-	-	-	38.8	-	-	-	0.0	-
76.7 70.0	0.0	-	0.0	-	-	-	19.0	-	-	-	0.0	-
76.7 80.0	0.0	-	0.0	-	-	-	75.9	-	-	-	0.0	-
76.7 90.0	0.0	-	0.0	-	-	-	52.4	-	-	-	4.2	-
77.5 80.0	-	-	-	16.6	-	-	-	-	-	-	-	-
77.5 90.0	-	-	-	4.1	-	-	-	-	-	-	-	-
77.5 100.0	-	-	-	25.0	-	-	-	-	-	-	-	-
80.0 70.0	0.0	-	0.0	-	-	-	9.4	-	-	-	0.0	-
80.0 80.0	0.0	-	0.0	-	-	-	46.8	-	-	-	0.0	-
80.0 90.0	0.0	-	0.0	-	-	-	25.2	-	-	-	8.7	-
80.0 100.0	0.0	-	4.8	-	-	-	30.7	-	-	-	0.0	-
81.7 80.0	-	-	-	10.9	-	-	-	-	-	-	-	-

Table 12. (cont.)

Abraliopsis felis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.7 90.0	-	-	-	36.2	-	-	-	-	-	-	-	-
81.7 100.0	-	-	-	26.9	-	-	-	-	-	-	-	-
83.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 70.0	0.0	-	0.0	-	-	-	19.0	-	-	-	0.0	-
83.3 80.0	5.0	-	0.0	-	-	-	21.6	-	-	-	0.0	-
83.3 90.0	10.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 100.0	0.0	-	5.2	-	-	-	0.0	-	-	-	0.0	-
83.3 110.0	0.0	-	0.0	-	-	-	34.7	-	-	-	5.2	-
85.0 60.0	-	-	-	4.3	-	-	-	-	-	-	-	-
85.0 70.0	-	-	-	8.3	-	-	-	-	-	-	-	-
85.0 80.0	-	-	-	13.4	-	-	-	-	-	-	-	-
85.0 90.0	-	-	-	56.0	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	3.8	-	-	-	-	-	-	-	-
86.7 33.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.0	-
86.7 40.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7 70.0	0.0	-	0.0	-	-	-	8.0	-	-	-	0.0	-
86.7 90.0	0.0	-	0.0	-	-	-	4.5	-	-	-	0.0	-
86.7 100.0	0.0	-	0.0	-	-	-	9.6	-	-	-	0.0	-
86.7 110.0	5.1	-	0.0	-	-	-	10.8	-	-	-	0.0	-
88.3 45.0	-	-	-	3.6	-	-	-	-	-	-	-	-
88.3 60.0	-	-	-	4.0	-	-	-	-	-	-	-	-
88.3 80.0	-	-	-	25.8	-	-	-	-	-	-	-	-
88.3 100.0	-	-	-	25.6	-	-	-	-	-	-	-	-
90.0 35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
90.0 37.0	0.0	-	0.0	-	-	-	8.4	-	-	-	5.1	-
90.0 53.0	0.0	-	0.0	-	-	-	-	-	-	-	18.0	-
90.0 60.0	0.0	-	20.3	-	-	-	36.6	-	-	-	0.0	-
90.0 70.0	0.0	-	56.7	-	-	-	73.4	-	-	-	4.8	-
90.0 80.0	0.0	-	5.2	-	-	-	3.9	-	-	-	0.0	-
90.0 90.0	0.0	-	5.0	-	-	-	25.6	-	-	-	9.2	-
90.0 100.0	0.0	-	0.0	-	-	-	29.3	-	-	-	5.0	-
90.0 110.0	0.0	-	0.0	-	-	-	8.0	-	-	-	9.0	-
91.7 40.0	-	-	-	-	9.2	-	-	-	-	-	-	-

Table 12. (cont.)

Abraliopsis felis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 90.0	-	-	-	-	12.9	-	-	-	-	-	-	-
91.7 100.0	-	-	-	-	19.0	-	-	-	-	-	-	-
93.3 35.0	0.0	-	17.3	-	-	-	0.0	-	-	-	0.0	-
93.3 40.0	0.0	-	12.8	-	-	-	0.0	-	-	-	0.0	-
93.3 50.0	0.0	-	15.9	-	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	-	9.1	-	-	-	0.0	-
93.3 60.0	3.3	-	0.0	-	-	-	23.8	-	-	-	0.0	-
93.3 70.0	0.0	-	4.8	-	-	-	12.5	-	-	-	0.0	-
93.3 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	4.3	-
93.3 90.0	0.0	-	4.8	-	-	-	9.7	-	-	-	0.0	-
93.3 120.0	0.0	-	4.8	-	-	-	8.1	-	-	-	0.0	-
95.0 35.0	-	-	-	-	15.9	-	-	-	-	-	-	-
95.0 40.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 45.0	-	-	-	-	38.4	-	-	-	-	-	-	-
95.0 50.0	-	-	-	-	26.2	-	-	-	-	-	-	-
95.0 55.0	-	-	-	-	8.1	-	-	-	-	-	-	-
95.0 60.0	-	-	-	-	32.0	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	4.4	-	-	-	-	-	-	-
95.0 80.0	-	-	-	-	13.8	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	40.6	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	40.8	-	-	-	-	-	-	-

Pyroteuthidae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	14.4	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.7	-
90.0 110.0	0.0	-	0.0	-	-	-	8.0	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.5	-
93.3 100.0	0.0	-	0.0	-	-	-	9.9	-	-	-	0.0	-
93.3 110.0	0.0	-	0.0	-	-	-	4.5	-	-	-	0.0	-
93.3 120.0	0.0	-	0.0	-	-	-	4.1	-	-	-	0.0	-

Table 12. (cont.)

Pyroteuthis addolux

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	15.6	-
90.0 120.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-

Octopoteuthis deletron

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
93.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-

Onychoteuthis borealijaponica

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 90.0	-	-	-	-	-	-	-	16.0	-	-	-	-
66.7 55.0	-	-	-	0.0	-	-	9.4	-	-	-	-	-
66.7 80.0	-	-	-	0.0	-	-	-	17.6	-	-	-	-
67.0 50.0	-	-	-	-	-	-	4.2	-	-	-	-	-
76.7 70.0	0.0	-	0.0	-	-	-	9.5	-	-	-	0.0	-
91.7 70.0	-	-	-	-	4.8	-	-	-	-	-	-	-
93.3 70.0	5.1	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Gonatopsis borealis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 90.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-
93.3 120.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-

***Gonatus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 70.0	-	-	-	-	-	-	-	10.8	-	-	-	-
63.3 60.0	-	-	-	18.7	-	-	-	-	-	-	-	-
63.3 80.0	-	-	-	42.6	-	-	-	-	-	-	-	-
63.3 90.0	-	-	-	23.5	-	-	-	-	-	-	-	-
66.7 55.0	-	-	-	14.5	-	-	0.0	-	-	-	-	-
66.7 60.0	-	-	-	21.7	-	-	0.0	-	-	-	-	-
66.7 70.0	-	-	-	19.0	-	-	-	0.0	-	-	-	-
66.7 90.0	-	-	-	7.7	-	-	-	0.0	-	-	-	-
70.0 55.0	-	-	-	3.9	-	-	-	-	-	-	-	-
70.0 90.0	-	-	-	5.1	-	-	-	-	-	-	-	-

Table 12. (cont.)

***Gonatus* spp.** (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
73.3	55.0	-	-	-	4.9	-	-	-	-	-	-	-	-
73.3	60.0	-	-	-	5.2	-	-	-	-	-	-	-	-
73.3	80.0	-	-	-	10.3	-	-	-	-	-	-	-	-
73.3	90.0	-	-	-	5.4	-	-	-	-	-	-	-	-
76.7	55.0	0.0	-	-	-	-	-	7.8	-	-	-	0.0	-
76.7	60.0	0.0	-	-	-	-	-	9.3	-	-	-	-	-
76.7	70.0	0.0	-	38.5	-	-	-	0.0	-	-	-	4.4	-
76.7	90.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
77.5	60.0	-	-	-	9.5	-	-	-	-	-	-	-	-
77.5	70.0	-	-	-	15.1	-	-	-	-	-	-	-	-
80.0	55.0	0.0	-	21.2	-	-	-	0.0	-	-	-	-	-
80.0	60.0	0.0	-	9.7	-	-	-	12.1	-	-	-	-	-
80.0	70.0	0.0	-	0.0	-	-	-	9.4	-	-	-	0.0	-
80.0	90.0	4.9	-	0.0	-	-	-	18.9	-	-	-	0.0	-
80.0	100.0	0.0	-	0.0	-	-	-	4.4	-	-	-	0.0	-
81.7	80.0	-	-	-	5.5	-	-	-	-	-	-	-	-
81.7	90.0	-	-	-	9.0	-	-	-	-	-	-	-	-
81.7	100.0	-	-	-	4.5	-	-	-	-	-	-	-	-
83.3	80.0	14.9	-	0.0	-	-	-	4.3	-	-	-	0.0	-
86.7	60.0	0.0	-	0.0	-	-	-	8.8	-	-	-	0.0	-
86.7	70.0	0.0	-	5.4	-	-	-	0.0	-	-	-	0.0	-
86.7	90.0	0.0	-	0.0	-	-	-	4.5	-	-	-	0.0	-
86.7	110.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
88.3	40.0	-	-	-	8.3	-	-	-	-	-	-	-	-
90.0	90.0	0.0	-	0.0	-	-	-	10.2	-	-	-	0.0	-
91.7	60.0	-	-	-	-	16.0	-	-	-	-	-	-	-
91.7	90.0	-	-	-	-	4.3	-	-	-	-	-	-	-
93.3	30.0	5.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3	35.0	0.0	-	4.3	-	-	-	0.0	-	-	-	0.0	-
93.3	40.0	0.0	-	12.8	-	-	-	0.0	-	-	-	0.0	-
93.3	45.0	10.6	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3	50.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
95.0	40.0	-	-	-	-	9.2	-	-	-	-	-	-	-

Table 12. (cont.)

***Gonatus* spp.** (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
95.0 50.0	-	-	-	-	8.7	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	4.4	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	15.3	-	-	-	-	-	-	-

Gonatus onyx

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8 46.9	0.0	-	0.0	-	-	-	7.9	-	-	-	0.0	-

Gonatus pyros

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 60.0	0.0	-	0.0	-	-	-	8.8	-	-	-	0.0	-
83.3 70.0	0.0	-	0.0	-	-	-	9.5	-	-	-	0.0	-

Histioteuthis heteropsis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 55.0	0.0	-	10.6	-	-	-	0.0	-	-	-	-	-
86.7 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-

Ommastrephidae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
93.3 120.0	0.0	-	0.0	-	-	-	8.1	-	-	-	0.0	-

Chiroteuthis calyx

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 70.0	-	-	-	11.6	-	-	-	-	-	-	-	-
66.7 70.0	-	-	-	0.0	-	-	-	7.3	-	-	-	-
70.0 70.0	-	-	-	8.9	-	-	-	-	-	-	-	-
70.0 80.0	-	-	-	5.4	-	-	-	-	-	-	-	-
76.7 80.0	0.0	-	4.5	-	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	8.4	-	-	-	0.0	-	-	-	0.0	-
80.0 80.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
81.7 60.0	-	-	-	9.0	-	-	-	-	-	-	-	-
81.7 80.0	-	-	-	5.5	-	-	-	-	-	-	-	-
83.3 70.0	9.7	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7 100.0	5.1	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

Chiroteuthis calyx (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 60.0	0.0	-	0.0	-	-	-	9.2	-	-	-	0.0	-
90.0 70.0	4.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 90.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
95.0 45.0	-	-	-	-	4.3	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	8.7	-	-	-	-	-	-	-

Cranchiidae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-

Leachia pacifica

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
86.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.7	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.7	-
90.0 80.0	4.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.9	-
93.3 60.0	3.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	13.6	-
93.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
93.3 120.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-

***Galiteuthis* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 80.0	-	-	-	-	-	-	-	7.6	-	-	-	-
66.7 55.0	-	-	-	0.0	-	-	9.4	-	-	-	-	-
76.7 80.0	0.0	-	4.5	-	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	0.0	-	-	-	4.1	-	-	-	0.0	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
83.3 90.0	5.0	-	0.0	-	-	-	0.0	-	-	-	0.0	-
85.0 100.0	-	-	-	3.8	-	-	-	-	-	-	-	-
90.0 120.0	0.0	-	10.0	-	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	0.0	-	-	-	4.5	-	-	-	0.0	-

Galiteuthis phyllura

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
73.3 60.0	-	-	-	5.2	-	-	-	-	-	-	-	-

Table 12. (cont.)

Galiteuthis phyllura (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	90.0	0.0	-	0.0	-	-	-	4.4	-	-	-	0.0	-
93.3	100.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-

Octopodidae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	90.0	-	-	-	5.9	-	-	-	-	-	-	-	-
73.3	55.0	-	-	-	4.9	-	-	-	-	-	-	-	-
73.3	60.0	-	-	-	5.2	-	-	-	-	-	-	-	-
76.7	51.0	0.0	-	-	-	-	-	0.0	-	-	-	4.7	-
76.7	55.0	10.7	-	-	-	-	-	0.0	-	-	-	4.7	-
76.7	60.0	10.2	-	-	-	-	-	0.0	-	-	-	-	-
76.7	70.0	0.0	-	7.7	-	-	-	0.0	-	-	-	0.0	-
77.5	60.0	-	-	-	9.5	-	-	-	-	-	-	-	-
80.0	50.5	0.0	-	0.0	-	-	-	3.1	-	-	-	2.7	-
80.0	51.0	0.0	-	5.1	-	-	-	3.9	-	-	-	8.9	-
80.0	55.0	0.0	-	10.6	-	-	-	0.0	-	-	-	-	-
80.0	60.0	0.0	-	19.4	-	-	-	0.0	-	-	-	-	-
81.7	50.0	-	-	-	3.9	-	-	-	-	-	-	-	-
81.8	46.9	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
83.3	42.0	0.0	-	4.4	-	-	-	5.1	-	-	-	0.0	-
83.3	55.0	4.6	-	20.0	-	-	-	0.0	-	-	-	0.0	-
88.3	70.0	-	-	-	7.7	-	-	-	-	-	-	-	-
85.0	45.0	-	-	-	4.4	-	-	-	-	-	-	-	-
86.7	35.0	5.2	-	0.0	-	-	-	9.6	-	-	-	30.8	-
86.7	45.0	8.7	-	0.0	-	-	-	0.0	-	-	-	-	-
86.7	55.0	0.0	-	0.0	-	-	-	9.7	-	-	-	-	-
90.0	35.0	8.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0	60.0	0.0	-	0.0	-	-	-	9.2	-	-	-	0.0	-
90.0	90.0	4.7	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3	26.7	0.0	-	0.0	-	-	-	9.4	-	-	-	5.4	-
93.3	30.0	0.0	-	10.4	-	-	-	0.0	-	-	-	0.0	-
93.3	40.0	0.0	-	25.5	-	-	-	0.0	-	-	-	0.0	-
95.0	50.0	-	-	-	-	4.4	-	-	-	-	-	-	-

Table 12. (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
					Sardinops sagax								
63.3	80.0	-	-	-	63.8	-	-	-	-	-	-	-	-
63.3	90.0	-	-	-	17.6	-	-	-	-	-	-	-	-
66.7	55.0	-	-	-	7.3	-	-	0.0	-	-	-	-	-
66.7	70.0	-	-	-	256.4	-	-	-	0.0	-	-	-	-
66.7	80.0	-	-	-	881.3	-	-	-	0.0	-	-	-	-
66.7	90.0	-	-	-	161.3	-	-	-	0.0	-	-	-	-
70.0	60.0	-	-	-	117.8	-	-	-	-	-	-	-	-
70.0	70.0	-	-	-	444.2	-	-	-	-	-	-	-	-
70.0	80.0	-	-	-	192.6	-	-	-	-	-	-	-	-
70.0	90.0	-	-	-	207.9	-	-	-	-	-	-	-	-
73.3	55.0	-	-	-	127.4	-	-	-	-	-	-	-	-
73.3	60.0	-	-	-	51.6	-	-	-	-	-	-	-	-
73.3	80.0	-	-	-	107.7	-	-	-	-	-	-	-	-
73.3	90.0	-	-	-	920.0	-	-	-	-	-	-	-	-
76.7	70.0	0.0	-	7.7	-	-	-	0.0	-	-	-	0.0	-
76.7	80.0	0.0	-	58.9	-	-	-	0.0	-	-	-	0.0	-
76.7	90.0	0.0	-	373.8	-	-	-	0.0	-	-	-	0.0	-
76.7	100.0	0.0	-	523.3	-	-	-	0.0	-	-	-	0.0	-
77.5	60.0	-	-	-	28.5	-	-	-	-	-	-	-	-
77.5	70.0	-	-	-	15.1	-	-	-	-	-	-	-	-
77.5	80.0	-	-	-	2079.2	-	-	-	-	-	-	-	-
77.5	90.0	-	-	-	364.0	-	-	-	-	-	-	-	-
77.5	100.0	-	-	-	349.4	-	-	-	-	-	-	-	-
80.0	50.5	0.0	-	122.8	-	-	-	0.0	-	-	-	0.0	-
80.0	51.0	0.0	-	40.6	-	-	-	0.0	-	-	-	0.0	-
80.0	70.0	0.0	-	28.9	-	-	-	0.0	-	-	-	0.0	-
80.0	80.0	0.0	-	89.5	-	-	-	0.0	-	-	-	0.0	-
80.0	90.0	0.0	-	361.4	-	-	-	0.0	-	-	-	0.0	-
80.0	100.0	0.0	-	490.6	-	-	-	0.0	-	-	-	0.0	-
81.7	50.0	-	-	-	3.9	-	-	-	-	-	-	-	-
81.7	70.0	-	-	-	204.6	-	-	-	-	-	-	-	-
81.7	80.0	-	-	-	567.8	-	-	-	-	-	-	-	-
81.7	90.0	-	-	-	886.5	-	-	-	-	-	-	-	-

Table 12. (cont.)

Sardinops sagax (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.7 100.0	-	-	-	893.5	-	-	-	-	-	-	-	-
81.8 46.9	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
83.3 39.4	0.0	-	81.6	-	-	-	0.0	-	-	-	0.0	-
83.3 40.6	0.0	-	11.2	-	-	-	0.0	-	-	-	0.0	-
83.3 60.0	0.0	-	26.1	-	-	-	0.0	-	-	-	0.0	-
83.3 70.0	0.0	-	152.8	-	-	-	0.0	-	-	-	0.0	-
83.3 80.0	0.0	-	342.9	-	-	-	0.0	-	-	-	0.0	-
83.3 90.0	0.0	-	53.9	-	-	-	0.0	-	-	-	0.0	-
83.3 100.0	0.0	-	5.2	-	-	-	0.0	-	-	-	0.0	-
83.3 110.0	0.0	-	30.2	-	-	-	0.0	-	-	-	0.0	-
85.0 60.0	-	-	-	72.8	-	-	-	-	-	-	-	-
85.0 70.0	-	-	-	307.1	-	-	-	-	-	-	-	-
85.0 80.0	-	-	-	516.3	-	-	-	-	-	-	-	-
85.0 90.0	-	-	-	789.2	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	537.7	-	-	-	-	-	-	-	-
86.7 35.0	0.0	-	0.0	-	-	-	9.6	-	-	-	0.0	-
86.7 70.0	0.0	-	401.3	-	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	673.4	-	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	488.5	-	-	-	0.0	-	-	-	0.0	-
86.7 110.0	0.0	-	380.3	-	-	-	0.0	-	-	-	0.0	-
86.8 32.5	0.0	-	0.0	-	-	-	44.3	-	-	-	0.0	-
88.3 40.0	-	-	-	8.3	-	-	-	-	-	-	-	-
88.3 55.0	-	-	-	7.2	-	-	-	-	-	-	-	-
88.3 60.0	-	-	-	160.4	-	-	-	-	-	-	-	-
88.3 70.0	-	-	-	88.6	-	-	-	-	-	-	-	-
88.3 80.0	-	-	-	1207.0	-	-	-	-	-	-	-	-
88.3 90.0	-	-	-	1574.1	-	-	-	-	-	-	-	-
88.3 100.0	-	-	-	414.2	-	-	-	-	-	-	-	-
90.0 27.7	0.0	-	0.0	-	-	-	48.5	-	-	-	0.0	-
90.0 28.0	0.0	-	0.0	-	-	-	25.5	-	-	-	0.0	-
90.0 30.0	0.0	-	0.0	-	-	-	85.6	-	-	-	0.0	-
90.0 35.0	0.0	-	0.0	-	-	-	18.8	-	-	-	0.0	-
90.0 37.0	0.0	-	0.0	-	-	-	25.2	-	-	-	0.0	-

Table 12. (cont.)

Sardinops sagax (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 53.0	0.0	-	0.0	-	-	-	-	-	-	-	36.0	-
90.0 60.0	0.0	-	152.1	-	-	-	0.0	-	-	-	0.0	-
90.0 70.0	0.0	-	200.9	-	-	-	0.0	-	-	-	0.0	-
90.0 80.0	0.0	-	232.2	-	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	574.6	-	-	-	0.0	-	-	-	0.0	-
91.7 26.4	0.0	-	0.0	-	-	-	23.2	-	-	-	0.0	-
91.7 30.0	-	-	-	-	8.4	-	-	-	-	-	-	-
91.7 40.0	-	-	-	-	27.5	-	-	-	-	-	-	-
91.7 55.0	-	-	-	-	26.1	-	-	-	-	-	-	-
91.7 60.0	-	-	-	-	144.3	-	-	-	-	-	-	-
91.7 70.0	-	-	-	-	2280.0	-	-	-	-	-	-	-
91.7 80.0	-	-	-	-	254.2	-	-	-	-	-	-	-
91.7 90.0	-	-	-	-	38.7	-	-	-	-	-	-	-
91.7 100.0	-	-	-	-	957.5	-	-	-	-	-	-	-
93.3 30.0	0.0	-	0.0	-	-	-	11.2	-	-	-	0.0	-
93.3 35.0	0.0	-	0.0	-	-	-	9.2	-	-	-	0.0	-
93.3 40.0	0.0	-	0.0	-	-	-	425.4	-	-	-	0.0	-
93.3 60.0	0.0	-	39.3	-	-	-	0.0	-	-	-	0.0	-
93.3 70.0	0.0	-	28.8	-	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
93.3 90.0	0.0	-	114.0	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
95.0 40.0	-	-	-	-	586.2	-	-	-	-	-	-	-
95.0 45.0	-	-	-	-	234.9	-	-	-	-	-	-	-
95.0 50.0	-	-	-	-	808.5	-	-	-	-	-	-	-
95.0 55.0	-	-	-	-	48.6	-	-	-	-	-	-	-
95.0 60.0	-	-	-	-	32.0	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	614.8	-	-	-	-	-	-	-
95.0 80.0	-	-	-	-	281.2	-	-	-	-	-	-	-
95.0 90.0	-	-	-	-	325.0	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	233.2	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	5.1	-	-	-	-	-	-	-

Table 12. (cont.)

Station		*Engraulis mordax*											
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	49.0	8.1	-	-	-	-	-	0.0	-	-	-	27.3	-
76.7	51.0	0.0	-	-	-	-	-	0.0	-	-	-	28.0	-
76.7	55.0	0.0	-	-	-	-	-	0.0	-	-	-	28.4	-
80.0	50.5	3.3	-	156.2	-	-	-	9.2	-	-	-	0.0	-
80.0	51.0	0.0	-	91.3	-	-	-	3.9	-	-	-	0.0	-
80.0	55.0	0.0	-	0.0	-	-	-	53.4	-	-	-	-	-
81.7	43.5	0.0	-	24.1	-	-	-	70.6	-	-	-	12.0	-
81.7	45.0	-	-	-	3.8	-	-	-	-	-	-	-	-
81.7	50.0	-	-	-	3.9	-	-	-	-	-	-	-	-
81.8	46.9	0.0	-	20.3	-	-	-	39.7	-	-	-	0.0	-
83.3	39.4	0.0	-	176.0	-	-	-	0.0	-	-	-	0.0	-
83.3	40.6	0.0	-	2.8	-	-	-	3.1	-	-	-	0.0	-
83.3	42.0	0.0	-	0.0	-	-	-	142.2	-	-	-	0.0	-
83.3	70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	11.5	-
85.0	40.0	-	-	-	26.2	-	-	-	-	-	-	-	-
85.0	45.0	-	-	-	4.4	-	-	-	-	-	-	-	-
85.4	35.8	0.0	-	4.1	-	-	-	0.0	-	-	-	7.5	-
86.7	33.0	0.0	-	92.0	-	-	-	10.7	-	-	-	4.0	-
86.7	35.0	0.0	-	21.2	-	-	-	201.8	-	-	-	0.0	-
86.7	40.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
86.7	45.0	0.0	-	10.2	-	-	-	0.0	-	-	-	-	-
86.8	32.5	0.0	-	11.1	-	-	-	44.3	-	-	-	11.5	-
88.3	35.0	-	-	-	35.9	-	-	-	-	-	-	-	-
88.3	45.0	-	-	-	3.6	-	-	-	-	-	-	-	-
88.3	50.0	-	-	-	65.0	-	-	-	-	-	-	-	-
88.3	55.0	-	-	-	21.6	-	-	-	-	-	-	-	-
88.5	30.1	0.0	-	-	-	-	-	46.3	-	-	-	0.0	-
90.0	27.7	0.0	-	0.0	-	-	-	624.6	-	-	-	0.0	-
90.0	28.0	0.0	-	10.4	-	-	-	539.8	-	-	-	0.0	-
90.0	30.0	0.0	-	0.0	-	-	-	132.2	-	-	-	10.7	-
90.0	35.0	0.0	-	9.6	-	-	-	422.8	-	-	-	0.0	-
90.0	37.0	0.0	-	10.3	-	-	-	8.4	-	-	-	0.0	-
91.7	26.4	0.0	-	3.9	-	-	-	33.1	-	-	-	0.0	-

Table 12. (cont.)

Engraulis mordax (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 28.0	-	-	-	-	24.8	-	-	-	-	-	-	-
91.7 30.0	-	-	-	-	41.8	-	-	-	-	-	-	-
91.7 40.0	-	-	-	-	36.6	-	-	-	-	-	-	-
91.7 45.0	-	-	-	-	14.1	-	-	-	-	-	-	-
93.3 26.7	0.0	-	0.0	-	-	-	0.0	-	-	-	5.4	-
93.3 28.0	0.0	-	4.9	-	-	-	13.4	-	-	-	0.0	-
93.3 30.0	0.0	-	0.0	-	-	-	123.0	-	-	-	0.0	-
93.3 35.0	0.0	-	0.0	-	-	-	18.3	-	-	-	0.0	-
93.3 40.0	0.0	-	0.0	-	-	-	9.1	-	-	-	0.0	-
93.4 26.4	0.0	-	3.0	-	-	-	-	-	-	-	0.0	-
95.0 28.0	-	-	-	-	26.3	-	-	-	-	-	-	-
95.0 30.0	-	-	-	-	33.7	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	5.1	-	-	-	-	-	-	-

Argentina sialis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 35.0	5.2	-	10.6	-	-	-	0.0	-	-	-	0.0	-

***Microstoma* sp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
76.7 100.0	0.0	-	4.2	-	-	-	0.0	-	-	-	0.0	-
80.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
83.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
85.0 90.0	-	-	-	4.7	-	-	-	-	-	-	-	-
86.7 110.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
91.7 100.0	-	-	-	-	4.7	-	-	-	-	-	-	-
93.3 50.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
93.3 55.0	0.0	-	0.0	-	-	-	9.1	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.5	-
93.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.5	-
95.0 40.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 60.0	-	-	-	-	8.0	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	8.7	-	-	-	-	-	-	-

Table 12. (cont.)

Nansenia candida

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 90.0	-	-	-	5.9	-	-	-	-	-	-	-	-
70.0 60.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3 90.0	-	-	-	10.8	-	-	-	-	-	-	-	-
76.7 100.0	0.0	-	4.2	-	-	-	0.0	-	-	-	0.0	-
81.7 90.0	-	-	-	18.1	-	-	-	-	-	-	-	-
81.7 100.0	-	-	-	18.0	-	-	-	-	-	-	-	-
83.3 110.0	0.0	-	0.0	-	-	-	3.9	-	-	-	0.0	-
85.0 90.0	-	-	-	32.7	-	-	-	-	-	-	-	-
86.7 100.0	0.0	-	0.0	-	-	-	9.6	-	-	-	0.0	-
88.3 80.0	-	-	-	3.7	-	-	-	-	-	-	-	-
90.0 80.0	0.0	-	15.5	-	-	-	0.0	-	-	-	0.0	-
91.7 100.0	-	-	-	-	4.7	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	10.1	-	-	-	-	-	-	-

Bathylagoides wesethi

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
77.5 80.0	-	-	-	4.2	-	-	-	-	-	-	-	-
80.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.7	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	24.0	-
81.7 100.0	-	-	-	22.5	-	-	-	-	-	-	-	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	29.9	-
85.0 90.0	-	-	-	9.3	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	7.5	-	-	-	-	-	-	-	-
86.7 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7 90.0	0.0	-	10.6	-	-	-	0.0	-	-	-	4.6	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	24.0	-
86.7 110.0	0.0	-	5.1	-	-	-	0.0	-	-	-	4.7	-
88.3 40.0	-	-	-	8.3	-	-	-	-	-	-	-	-
88.3 100.0	-	-	-	34.2	-	-	-	-	-	-	-	-
90.0 70.0	0.0	-	0.0	-	-	-	18.4	-	-	-	0.0	-
90.0 90.0	0.0	-	0.0	-	-	-	5.1	-	-	-	0.0	-
90.0 100.0	0.0	-	10.3	-	-	-	14.7	-	-	-	39.8	-
90.0 110.0	0.0	-	55.3	-	-	-	76.0	-	-	-	9.0	-

Table 12. (cont.)

Bathylagoides wesethi (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	60.1	-	-	-	172.4	-	-	-	4.3	-
91.7 80.0	-	-	-	-	4.1	-	-	-	-	-	-	-
91.7 90.0	-	-	-	-	21.5	-	-	-	-	-	-	-
93.3 50.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
93.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
93.3 70.0	0.0	-	0.0	-	-	-	12.5	-	-	-	4.3	-
93.3 80.0	0.0	-	0.0	-	-	-	19.0	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	82.5	-	-	-	0.0	-
93.3 100.0	0.0	-	58.2	-	-	-	119.0	-	-	-	39.7	-
93.3 110.0	0.0	-	33.7	-	-	-	63.1	-	-	-	4.5	-
93.3 120.0	0.0	-	9.6	-	-	-	240.1	-	-	-	14.7	-
95.0 70.0	-	-	-	-	8.7	-	-	-	-	-	-	-
95.0 80.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 90.0	-	-	-	-	51.8	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	65.9	-	-	-	-	-	-	-

Bathylagus pacificus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 70.0	0.0	-	5.2	-	-	-	0.0	-	-	-	0.0	-
93.3 45.0	0.0	-	11.2	-	-	-	0.0	-	-	-	0.0	-
93.3 60.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-

Leuroglossus stilbius

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 55.0	-	-	-	7.3	-	-	0.0	-	-	-	-	-
66.7 70.0	-	-	-	9.5	-	-	-	0.0	-	-	-	-
66.7 90.0	-	-	-	7.7	-	-	-	0.0	-	-	-	-
70.0 51.0	-	-	-	9.1	-	-	-	-	-	-	-	-
70.0 60.0	-	-	-	10.2	-	-	-	-	-	-	-	-
73.3 55.0	-	-	-	4.9	-	-	-	-	-	-	-	-
73.3 60.0	-	-	-	15.5	-	-	-	-	-	-	-	-
73.3 70.0	-	-	-	3.9	-	-	-	-	-	-	-	-
76.7 51.0	10.2	-	-	-	-	-	0.0	-	-	-	18.6	-
76.7 55.0	42.9	-	-	-	-	-	0.0	-	-	-	23.7	-
76.7 60.0	10.2	-	-	-	-	-	0.0	-	-	-	-	-

Table 12. (cont.)

Leuroglossus stilbius (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
77.5	60.0	-	-	-	9.5	-	-	-	-	-	-	-	-
80.0	51.0	0.0	-	0.0	-	-	-	0.0	-	-	-	26.6	-
80.0	55.0	21.8	-	84.6	-	-	-	0.0	-	-	-	-	-
80.0	70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
81.7	45.0	-	-	-	19.2	-	-	-	-	-	-	-	-
81.7	50.0	-	-	-	7.8	-	-	-	-	-	-	-	-
81.8	46.9	30.8	-	101.4	-	-	-	0.0	-	-	-	145.2	-
85.0	40.0	-	-	-	15.7	-	-	-	-	-	-	-	-
85.0	45.0	-	-	-	70.6	-	-	-	-	-	-	-	-
85.0	60.0	-	-	-	12.8	-	-	-	-	-	-	-	-
86.7	35.0	0.0	-	10.6	-	-	-	0.0	-	-	-	15.4	-
86.7	40.0	11.0	-	75.8	-	-	-	0.0	-	-	-	14.6	-
86.7	45.0	0.0	-	10.2	-	-	-	0.0	-	-	-	-	-
86.7	50.0	0.0	-	12.4	-	-	-	0.0	-	-	-	-	-
86.7	55.0	0.0	-	4.6	-	-	-	9.7	-	-	-	-	-
86.7	60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7	70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
88.3	35.0	-	-	-	59.8	-	-	-	-	-	-	-	-
88.3	45.0	-	-	-	14.5	-	-	-	-	-	-	-	-
88.3	50.0	-	-	-	8.7	-	-	-	-	-	-	-	-
88.3	55.0	-	-	-	7.2	-	-	-	-	-	-	-	-
88.3	90.0	-	-	-	3.8	-	-	-	-	-	-	-	-
90.0	30.0	0.0	-	4.5	-	-	-	0.0	-	-	-	0.0	-
90.0	35.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
90.0	37.0	0.0	-	20.5	-	-	-	0.0	-	-	-	0.0	-
90.0	45.0	0.0	-	8.8	-	-	-	0.0	-	-	-	0.0	-
90.0	53.0	4.1	-	0.0	-	-	-	-	-	-	-	0.0	-
90.0	60.0	5.2	-	71.0	-	-	-	9.2	-	-	-	0.0	-
90.0	70.0	0.0	-	20.6	-	-	-	0.0	-	-	-	0.0	-
91.7	28.0	-	-	-	-	8.3	-	-	-	-	-	-	-
91.7	30.0	-	-	-	-	25.1	-	-	-	-	-	-	-
91.7	55.0	-	-	-	-	4.4	-	-	-	-	-	-	-
91.7	60.0	-	-	-	-	8.0	-	-	-	-	-	-	-

Table 12. (cont.)

Leuroglossus stilbius (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7	80.0	-	-	-	-	4.1	-	-	-	-	-	-	-
93.3	26.7	0.0	-	0.0	-	-	-	9.4	-	-	-	0.0	-
93.3	28.0	0.0	-	9.7	-	-	-	0.0	-	-	-	0.0	-
93.3	30.0	0.0	-	20.8	-	-	-	0.0	-	-	-	0.0	-
93.3	35.0	0.0	-	8.7	-	-	-	0.0	-	-	-	0.0	-
93.3	40.0	0.0	-	38.3	-	-	-	0.0	-	-	-	0.0	-
93.3	45.0	10.6	-	146.1	-	-	-	0.0	-	-	-	0.0	-
93.3	50.0	0.0	-	15.9	-	-	-	0.0	-	-	-	0.0	-
93.3	55.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
93.3	60.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
93.3	80.0	0.0	-	14.6	-	-	-	0.0	-	-	-	4.3	-
95.0	40.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0	50.0	-	-	-	-	13.1	-	-	-	-	-	-	-
95.0	55.0	-	-	-	-	8.1	-	-	-	-	-	-	-
95.3	42.7	-	-	-	-	15.3	-	-	-	-	-	-	-

Lipolagus ochotensis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	55.0	-	-	-	5.9	-	-	-	-	-	-	-	-
63.3	70.0	-	-	-	5.8	-	-	-	-	-	-	-	-
63.3	80.0	-	-	-	42.6	-	-	-	-	-	-	-	-
63.3	90.0	-	-	-	29.3	-	-	-	-	-	-	-	-
66.7	55.0	-	-	-	14.5	-	-	0.0	-	-	-	-	-
66.7	60.0	-	-	-	21.7	-	-	0.0	-	-	-	-	-
66.7	70.0	-	-	-	38.0	-	-	-	0.0	-	-	-	-
66.7	80.0	-	-	-	43.5	-	-	-	0.0	-	-	-	-
66.7	90.0	-	-	-	53.8	-	-	-	0.0	-	-	-	-
70.0	55.0	-	-	-	7.8	-	-	-	-	-	-	-	-
70.0	60.0	-	-	-	5.1	-	-	-	-	-	-	-	-
70.0	90.0	-	-	-	35.5	-	-	-	-	-	-	-	-
73.3	51.0	-	-	-	5.7	-	-	-	-	-	-	-	-
73.3	55.0	-	-	-	44.1	-	-	-	-	-	-	-	-
73.3	60.0	-	-	-	31.0	-	-	-	-	-	-	-	-
73.3	70.0	-	-	-	11.8	-	-	-	-	-	-	-	-

Table 12. (cont.)

Lipolagus ochotensis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
73.3 80.0	-	-	-	5.1	-	-	-	-	-	-	-	-
76.7 51.0	0.0	-	-	-	-	-	0.0	-	-	-	4.7	-
76.7 60.0	0.0	-	-	-	-	-	9.3	-	-	-	-	-
76.7 70.0	0.0	-	7.7	-	-	-	0.0	-	-	-	0.0	-
76.7 90.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	0.0	-	-	-	4.1	-	-	-	0.0	-
77.5 60.0	-	-	-	9.5	-	-	-	-	-	-	-	-
77.5 80.0	-	-	-	4.2	-	-	-	-	-	-	-	-
80.0 70.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
80.0 90.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
80.0 100.0	4.9	-	9.6	-	-	-	0.0	-	-	-	0.0	-
81.7 60.0	-	-	-	9.0	-	-	-	-	-	-	-	-
81.7 80.0	-	-	-	5.5	-	-	-	-	-	-	-	-
83.3 55.0	0.0	-	10.0	-	-	-	0.0	-	-	-	0.0	-
83.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 70.0	4.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
85.0 45.0	-	-	-	8.8	-	-	-	-	-	-	-	-
85.0 55.0	-	-	-	17.8	-	-	-	-	-	-	-	-
85.0 60.0	-	-	-	4.3	-	-	-	-	-	-	-	-
85.0 70.0	-	-	-	4.2	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	15.0	-	-	-	-	-	-	-	-
86.7 40.0	5.5	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7 70.0	0.0	-	5.4	-	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-
88.3 45.0	-	-	-	3.6	-	-	-	-	-	-	-	-
88.3 50.0	-	-	-	8.7	-	-	-	-	-	-	-	-
88.3 55.0	-	-	-	7.2	-	-	-	-	-	-	-	-
88.3 60.0	-	-	-	4.0	-	-	-	-	-	-	-	-
88.3 90.0	-	-	-	3.8	-	-	-	-	-	-	-	-
90.0 53.0	4.1	-	0.0	-	-	-	-	-	-	-	9.0	-
90.0 60.0	5.2	-	55.8	-	-	-	0.0	-	-	-	0.0	-
90.0 70.0	0.0	-	10.3	-	-	-	18.4	-	-	-	4.8	-

Table 12. (cont.)

Lipolagus ochotensis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 80.0	0.0	-	25.8	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-
91.7 45.0	-	-	-	-	14.1	-	-	-	-	-	-	-
91.7 55.0	-	-	-	-	4.4	-	-	-	-	-	-	-
91.7 60.0	-	-	-	-	16.0	-	-	-	-	-	-	-
91.7 70.0	-	-	-	-	4.8	-	-	-	-	-	-	-
91.7 100.0	-	-	-	-	9.5	-	-	-	-	-	-	-
93.3 35.0	0.0	-	4.3	-	-	-	4.6	-	-	-	0.0	-
93.3 40.0	0.0	-	12.8	-	-	-	0.0	-	-	-	0.0	-
93.3 45.0	10.6	-	67.4	-	-	-	0.0	-	-	-	0.0	-
93.3 50.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
93.3 60.0	0.0	-	9.8	-	-	-	0.0	-	-	-	0.0	-
93.3 70.0	0.0	-	24.0	-	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
93.3 90.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
95.0 40.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 45.0	-	-	-	-	12.8	-	-	-	-	-	-	-
95.0 50.0	-	-	-	-	21.9	-	-	-	-	-	-	-
95.0 55.0	-	-	-	-	16.2	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	13.1	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	15.3	-	-	-	-	-	-	-

Pseudobathylagus milleri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 55.0	0.0	-	-	-	-	-	0.0	-	-	-	4.7	-

Osmeridae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 52.0	-	-	-	2.8	-	-	-	-	-	-	-	-

***Cyclothone* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.6	-
85.0 100.0	-	-	-	7.5	-	-	-	-	-	-	-	-
88.3 100.0	-	-	-	4.3	-	-	-	-	-	-	-	-
90.0 120.0	0.0	-	0.0	-	-	-	9.6	-	-	-	0.0	-

Table 12. (cont.)

***Cyclothone* spp.** (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 45.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.5	-
93.3 100.0	0.0	-	4.9	-	-	-	0.0	-	-	-	4.4	-
93.3 110.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-

Cyclothone acclinidens

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.7	-

Cyclothone signata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.6	-
76.7 90.0	4.4	-	0.0	-	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	12.7	-	-	-	4.1	-	-	-	0.0	-
77.5 80.0	-	-	-	12.5	-	-	-	-	-	-	-	-
77.5 90.0	-	-	-	24.5	-	-	-	-	-	-	-	-
80.0 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
80.0 90.0	0.0	-	5.0	-	-	-	0.0	-	-	-	4.4	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	28.7	-
81.7 90.0	-	-	-	18.1	-	-	-	-	-	-	-	-
81.7 100.0	-	-	-	18.0	-	-	-	-	-	-	-	-
83.3 80.0	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.6	-
83.3 100.0	0.0	-	0.0	-	-	-	4.9	-	-	-	19.9	-
85.0 90.0	-	-	-	4.7	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	18.8	-	-	-	-	-	-	-	-
86.7 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	9.7	-
86.7 110.0	0.0	-	5.1	-	-	-	0.0	-	-	-	28.2	-
88.3 100.0	-	-	-	8.5	-	-	-	-	-	-	-	-
90.0 35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
90.0 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
90.0 90.0	0.0	-	0.0	-	-	-	5.1	-	-	-	4.6	-
90.0 100.0	0.0	-	10.3	-	-	-	4.9	-	-	-	19.9	-
90.0 110.0	4.2	-	70.4	-	-	-	40.0	-	-	-	9.0	-
90.0 120.0	4.6	-	40.1	-	-	-	105.4	-	-	-	26.0	-
93.3 30.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-

Table 12. (cont.)

Cyclothone signata (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.6	-
93.3 50.0	0.0	-	10.6	-	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.4	-
93.3 70.0	0.0	-	0.0	-	-	-	12.5	-	-	-	0.0	-
93.3 80.0	0.0	-	0.0	-	-	-	19.0	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	43.7	-	-	-	13.6	-
93.3 100.0	0.0	-	14.6	-	-	-	5.0	-	-	-	4.4	-
93.3 110.0	0.0	-	38.6	-	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	19.2	-	-	-	65.1	-	-	-	4.9	-
95.0 90.0	-	-	-	-	28.3	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	5.1	-	-	-	-	-	-	-

***Argyropelecus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
93.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.5	-

Argyropelecus affinis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
90.0 100.0	0.0	-	15.5	-	-	-	0.0	-	-	-	5.0	-
90.0 110.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	10.0	-	-	-	0.0	-	-	-	0.0	-
93.3 70.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	5.0	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-

Argyropelecus hemigymnus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 110.0	4.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 120.0	4.5	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Argyropelecus lychnus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 90.0	0.0	-	10.6	-	-	-	0.0	-	-	-	0.0	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.4	-

Table 12. (cont.)

Argyropelecus lychnus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 55.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
93.3 70.0	0.0	-	0.0	-	-	-	12.5	-	-	-	0.0	-
93.3 110.0	0.0	-	9.6	-	-	-	0.0	-	-	-	0.0	-

Argyropelecus sladeni

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 55.0	0.0	-	-	-	-	-	0.0	-	-	-	4.7	-
77.5 100.0	-	-	-	4.2	-	-	-	-	-	-	-	-
80.0 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
80.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	17.4	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
86.7 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	10.6	-	-	-	0.0	-	-	-	4.6	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.6	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	14.1	-
90.0 53.0	4.1	-	0.0	-	-	-	-	-	-	-	0.0	-
90.0 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	24.0	-
90.0 80.0	4.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.2	-
90.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	14.9	-
90.0 110.0	0.0	-	5.0	-	-	-	8.0	-	-	-	0.0	-
90.0 120.0	0.0	-	5.0	-	-	-	4.8	-	-	-	0.0	-
91.7 80.0	-	-	-	-	4.1	-	-	-	-	-	-	-
93.3 45.0	0.0	-	0.0	-	-	-	9.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.2	-
93.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.6	-
93.3 100.0	15.1	-	0.0	-	-	-	0.0	-	-	-	8.8	-
93.3 110.0	4.5	-	4.8	-	-	-	4.5	-	-	-	4.5	-
95.0 40.0	-	-	-	-	13.7	-	-	-	-	-	-	-

Danaphos oculatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.2	-

Table 12. (cont.)

Danaphos oculatus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
80.0 80.0	4.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
80.0 100.0	4.9	-	4.8	-	-	-	4.4	-	-	-	0.0	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.2	-
86.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
86.7 90.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	5.1	-	-	-	4.8	-	-	-	4.8	-
86.7 110.0	5.1	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 60.0	5.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 80.0	0.0	-	10.3	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	15.0	-	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	-	9.1	-	-	-	0.0	-
93.3 60.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
93.3 70.0	0.0	-	0.0	-	-	-	12.5	-	-	-	4.3	-

***Sternoptyx* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.2	-
90.0 90.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
93.3 90.0	0.0	-	0.0	-	-	-	4.9	-	-	-	4.5	-
93.3 120.0	0.0	-	0.0	-	-	-	16.3	-	-	-	0.0	-
95.0 40.0	-	-	-	-	4.6	-	-	-	-	-	-	-

Valenciennellus tripunctulatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 120.0	0.0	-	0.0	-	-	-	8.1	-	-	-	0.0	-

Ichthyococcus irregularis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
85.0 100.0	-	-	-	3.8	-	-	-	-	-	-	-	-
90.0 100.0	0.0	-	5.2	-	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.0	-	0.0	-	-	-	4.0	-	-	-	0.0	-
90.0 120.0	0.0	-	15.0	-	-	-	0.0	-	-	-	0.0	-
93.3 50.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-

Table 12. (cont.)

Ichthyococcus irregularis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
93.3 110.0	0.0	-	4.8	-	-	-	0.0	-	-	-	9.0	-
95.0 70.0	-	-	-	-	4.4	-	-	-	-	-	-	-

***Vinciguerria* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 110.0	0.0	-	0.0	-	-	-	7.7	-	-	-	0.0	-

Vinciguerria lucetia

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.6	-
76.7 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.2	-
76.7 100.0	0.0	-	0.0	-	-	-	4.1	-	-	-	0.0	-
77.5 100.0	-	-	-	8.3	-	-	-	-	-	-	-	-
80.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	19.2	-
81.7 50.0	-	-	-	3.9	-	-	-	-	-	-	-	-
81.7 100.0	-	-	-	53.9	-	-	-	-	-	-	-	-
83.3 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.0	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.0	-
83.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	26.0	-
85.0 90.0	-	-	-	23.4	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	267.0	-	-	-	-	-	-	-	-
86.7 70.0	4.8	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	24.2	-
86.7 90.0	5.0	-	15.9	-	-	-	4.5	-	-	-	9.3	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	28.7	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	47.0	-
88.3 100.0	-	-	-	187.9	-	-	-	-	-	-	-	-
90.0 53.0	4.1	-	0.0	-	-	-	-	-	-	-	9.0	-
90.0 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.6	-
90.0 90.0	4.7	-	0.0	-	-	-	10.2	-	-	-	9.2	-
90.0 100.0	0.0	-	0.0	-	-	-	4.9	-	-	-	19.9	-
90.0 110.0	0.0	-	155.9	-	-	-	328.0	-	-	-	13.5	-
90.0 120.0	4.6	-	160.3	-	-	-	1034.6	-	-	-	30.3	-

Table 12. (cont.)

Vinciguerria lucetia (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 50.0	0.0	-	0.0	-	-	-	9.3	-	-	-	14.6	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	25.3	-
93.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.6	-
93.3 70.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	0.0	-	-	-	66.5	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	121.3	-	-	-	185.7	-
93.3 100.0	0.0	-	4.9	-	-	-	129.0	-	-	-	66.2	-
93.3 110.0	0.0	-	62.7	-	-	-	121.8	-	-	-	9.0	-
93.3 120.0	0.0	-	91.4	-	-	-	777.4	-	-	-	127.7	-
95.0 80.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 90.0	-	-	-	-	65.9	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	15.2	-	-	-	-	-	-	-

Chauliodus macouni

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 70.0	-	-	-	-	-	-	-	10.8	-	-	-	-
60.0 90.0	-	-	-	-	-	-	-	5.3	-	-	-	-
63.3 70.0	-	-	-	5.8	-	-	-	-	-	-	-	-
63.3 90.0	-	-	-	5.9	-	-	-	-	-	-	-	-
70.0 55.0	-	-	-	3.9	-	-	-	-	-	-	-	-
76.7 55.0	0.0	-	-	-	-	-	7.8	-	-	-	0.0	-
76.7 100.0	0.0	-	0.0	-	-	-	4.1	-	-	-	0.0	-
77.5 60.0	-	-	-	9.5	-	-	-	-	-	-	-	-
80.0 80.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
83.3 55.0	4.6	-	0.0	-	-	-	0.0	-	-	-	0.0	-
83.3 110.0	0.0	-	0.0	-	-	-	3.9	-	-	-	0.0	-
85.0 40.0	-	-	-	5.2	-	-	-	-	-	-	-	-
86.7 70.0	4.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.7	-
88.3 40.0	-	-	-	8.3	-	-	-	-	-	-	-	-
90.0 53.0	4.1	-	0.0	-	-	-	-	-	-	-	0.0	-
90.0 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	14.4	-
90.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	13.9	-

Table 12. (cont.)

Chauliodus macouni (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
93.3 28.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
93.3 50.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
93.3 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
93.3 90.0	4.7	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-

Stomias atriventer

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
73.3 80.0	-	-	-	5.1	-	-	-	-	-	-	-	-
85.0 90.0	-	-	-	4.7	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	7.5	-	-	-	-	-	-	-	-
86.7 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	5.0	-	-	-	4.8	-	-	-	0.0	-
93.3 100.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-

Tactostoma macropus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 60.0	-	-	-	-	-	-	-	9.4	-	-	-	-
60.0 80.0	-	-	-	-	-	-	-	15.3	-	-	-	-
60.0 90.0	-	-	-	-	-	-	-	5.3	-	-	-	-
66.7 80.0	-	-	-	0.0	-	-	-	8.8	-	-	-	-
66.7 90.0	-	-	-	0.0	-	-	-	9.3	-	-	-	-
90.0 110.0	0.0	-	0.0	-	-	-	28.0	-	-	-	0.0	-
90.0 120.0	0.0	-	0.0	-	-	-	9.6	-	-	-	0.0	-
93.3 80.0	0.0	-	0.0	-	-	-	23.8	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	106.7	-	-	-	0.0	-
93.3 100.0	0.0	-	0.0	-	-	-	9.9	-	-	-	0.0	-
93.3 110.0	0.0	-	0.0	-	-	-	76.7	-	-	-	0.0	-

Aristostomias scintillans

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 90.0	0.0	-	0.0	-	-	-	4.9	-	-	-	0.0	-
93.3 120.0	4.5	-	4.8	-	-	-	4.1	-	-	-	0.0	-

Table 12. (cont.)

Idiacanthus antrostomus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.2	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
83.3 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.0	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
83.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.4	-
86.7 80.0	5.2	-	0.0	-	-	-	0.0	-	-	-	14.5	-
86.7 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	23.5	-
90.0 53.0	8.2	-	0.0	-	-	-	-	-	-	-	0.0	-
90.0 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.1	-
90.0 70.0	4.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 80.0	4.9	-	0.0	-	-	-	0.0	-	-	-	4.3	-
90.0 90.0	4.7	-	0.0	-	-	-	0.0	-	-	-	4.6	-
90.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
90.0 110.0	0.0	-	0.0	-	-	-	12.0	-	-	-	0.0	-
90.0 120.0	0.0	-	0.0	-	-	-	105.4	-	-	-	13.0	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	42.1	-
93.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	38.7	-
93.3 70.0	0.0	-	0.0	-	-	-	25.1	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.1	-
93.3 100.0	5.0	-	0.0	-	-	-	0.0	-	-	-	8.8	-
93.3 110.0	4.5	-	0.0	-	-	-	4.5	-	-	-	0.0	-
93.3 120.0	4.5	-	0.0	-	-	-	81.4	-	-	-	4.9	-

Benthalbella dentata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-
86.7 60.0	0.0	-	0.0	-	-	-	8.8	-	-	-	0.0	-
90.0 120.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-

Rosenblattichthys volucris

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 100.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	0.0	-	-	-	14.4	-	-	-	0.0	-

Table 12. (cont.)

Rosenblattichthys volucris (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
93.3 120.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-

Scopelarchus analis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.2	-

Scopelarchus guentheri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 100.0	0.0	-	5.2	-	-	-	0.0	-	-	-	0.0	-

***Scopelosaurus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 80.0	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-
90.0 70.0	0.0	-	0.0	-	-	-	18.4	-	-	-	0.0	-
90.0 90.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-

Paralepididae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	0.0	-	4.5	-	-	-	0.0	-	-	-	0.0	-
76.7 90.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
77.5 80.0	-	-	-	4.2	-	-	-	-	-	-	-	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
85.0 80.0	-	-	-	6.7	-	-	-	-	-	-	-	-
90.0 100.0	0.0	-	0.0	-	-	-	4.9	-	-	-	0.0	-
90.0 110.0	0.0	-	10.1	-	-	-	8.0	-	-	-	0.0	-
93.3 60.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	0.0	-	-	-	4.5	-	-	-	0.0	-
95.0 100.0	-	-	-	-	5.1	-	-	-	-	-	-	-

Arctozenus risso

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 60.0	-	-	-	-	-	-	-	9.4	-	-	-	-
80.0 70.0	0.0	-	0.0	-	-	-	9.4	-	-	-	5.0	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
90.0 53.0	0.0	-	0.0	-	-	-	-	-	-	-	9.0	-

Table 12. (cont.)

Arctozenus risso (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 90.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
93.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-

Lestidiops ringens

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 80.0	-	-	-	10.9	-	-	-	0.0	-	-	-	-
70.0 60.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3 60.0	-	-	-	5.2	-	-	-	-	-	-	-	-
76.7 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	21.2	-
76.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	13.8	-
80.0 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
81.7 100.0	-	-	-	4.5	-	-	-	-	-	-	-	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.6	-
86.7 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7 70.0	4.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.6	-
86.7 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.7	-
90.0 45.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
90.0 60.0	0.0	-	0.0	-	-	-	9.2	-	-	-	0.0	-
90.0 70.0	0.0	-	10.3	-	-	-	9.2	-	-	-	0.0	-
90.0 90.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
90.0 100.0	4.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.5	-
93.3 50.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
93.3 90.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	0.0	-	4.9	-	-	-	0.0	-	-	-	13.2	-
93.3 110.0	0.0	-	0.0	-	-	-	4.5	-	-	-	0.0	-
95.0 80.0	-	-	-	-	4.6	-	-	-	-	-	-	-

Myctophidae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 60.0	-	-	-	10.9	-	-	0.0	-	-	-	-	-
76.7 100.0	0.0	-	4.2	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

Myctophidae (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
83.3 51.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 90.0	0.0	-	0.0	-	-	-	4.4	-	-	-	0.0	-
85.0 80.0	-	-	-	6.7	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	3.8	-	-	-	-	-	-	-	-
86.7 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
86.7 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-
88.3 35.0	-	-	-	12.0	-	-	-	-	-	-	-	-
88.3 45.0	-	-	-	3.6	-	-	-	-	-	-	-	-
88.3 50.0	-	-	-	8.7	-	-	-	-	-	-	-	-
90.0 60.0	0.0	-	0.0	-	-	-	9.2	-	-	-	0.0	-
90.0 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
90.0 110.0	0.0	-	0.0	-	-	-	12.0	-	-	-	0.0	-
90.0 120.0	9.1	-	0.0	-	-	-	0.0	-	-	-	13.0	-
91.7 100.0	-	-	-	-	9.5	-	-	-	-	-	-	-
93.3 45.0	10.6	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.2	-
93.3 100.0	0.0	-	0.0	-	-	-	9.9	-	-	-	0.0	-
93.3 120.0	0.0	-	0.0	-	-	-	4.1	-	-	-	0.0	-
95.0 40.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	4.4	-	-	-	-	-	-	-

Ceratoscopelus townsendi

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-
77.5 80.0	-	-	-	8.3	-	-	-	-	-	-	-	-
80.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.6	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.0	-
83.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	15.6	-
85.0 100.0	-	-	-	11.3	-	-	-	-	-	-	-	-
86.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
86.7 110.0	5.1	-	0.0	-	-	-	3.6	-	-	-	14.1	-

Table 12. (cont.)

Ceratoscopelus townsendi (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
88.3 100.0	-	-	-	29.9	-	-	-	-	-	-	-	-
90.0 90.0	0.0	-	0.0	-	-	-	5.1	-	-	-	0.0	-
90.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
90.0 110.0	0.0	-	30.2	-	-	-	24.0	-	-	-	0.0	-
90.0 120.0	0.0	-	0.0	-	-	-	373.6	-	-	-	13.0	-
91.7 70.0	-	-	-	-	4.8	-	-	-	-	-	-	-
93.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
93.3 80.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	43.7	-	-	-	13.6	-
93.3 100.0	0.0	-	4.9	-	-	-	0.0	-	-	-	4.4	-
93.3 120.0	4.5	-	14.4	-	-	-	118.0	-	-	-	14.7	-
95.0 40.0	-	-	-	-	4.6	-	-	-	-	-	-	-

***Diaphus* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 60.0	-	-	-	-	-	-	-	37.7	-	-	-	-
60.0 70.0	-	-	-	-	-	-	-	43.0	-	-	-	-
60.0 80.0	-	-	-	-	-	-	-	15.3	-	-	-	-
60.0 90.0	-	-	-	-	-	-	-	48.0	-	-	-	-
66.7 70.0	-	-	-	0.0	-	-	-	220.3	-	-	-	-
66.7 80.0	-	-	-	10.9	-	-	-	35.1	-	-	-	-
66.7 90.0	-	-	-	15.4	-	-	-	64.9	-	-	-	-
70.0 60.0	-	-	-	5.1	-	-	-	-	-	-	-	-
70.0 70.0	-	-	-	88.8	-	-	-	-	-	-	-	-
70.0 80.0	-	-	-	42.8	-	-	-	-	-	-	-	-
70.0 90.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3 55.0	-	-	-	4.9	-	-	-	-	-	-	-	-
73.3 60.0	-	-	-	56.8	-	-	-	-	-	-	-	-
73.3 80.0	-	-	-	20.5	-	-	-	-	-	-	-	-
73.3 90.0	-	-	-	16.1	-	-	-	-	-	-	-	-
76.7 60.0	0.0	-	-	-	-	-	9.3	-	-	-	-	-
76.7 70.0	0.0	-	0.0	-	-	-	28.4	-	-	-	0.0	-
76.7 90.0	0.0	-	0.0	-	-	-	44.9	-	-	-	0.0	-
76.7 100.0	0.0	-	0.0	-	-	-	4.1	-	-	-	0.0	-

Table 12. (cont.)

***Diaphus* spp.** (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
77.5	60.0	-	-	-	19.0	-	-	-	-	-	-	-	-
77.5	70.0	-	-	-	45.4	-	-	-	-	-	-	-	-
77.5	80.0	-	-	-	37.4	-	-	-	-	-	-	-	-
77.5	90.0	-	-	-	45.0	-	-	-	-	-	-	-	-
77.5	100.0	-	-	-	4.2	-	-	-	-	-	-	-	-
80.0	70.0	0.0	-	0.0	-	-	-	177.8	-	-	-	0.0	-
80.0	80.0	0.0	-	0.0	-	-	-	35.1	-	-	-	0.0	-
80.0	100.0	0.0	-	0.0	-	-	-	17.5	-	-	-	0.0	-
81.7	60.0	-	-	-	9.0	-	-	-	-	-	-	-	-
81.7	70.0	-	-	-	3.3	-	-	-	-	-	-	-	-
81.7	80.0	-	-	-	98.3	-	-	-	-	-	-	-	-
81.7	90.0	-	-	-	108.5	-	-	-	-	-	-	-	-
81.7	100.0	-	-	-	4.5	-	-	-	-	-	-	-	-
83.3	70.0	0.0	-	0.0	-	-	-	47.5	-	-	-	0.0	-
83.3	100.0	0.0	-	0.0	-	-	-	19.6	-	-	-	0.0	-
83.3	110.0	0.0	-	0.0	-	-	-	23.2	-	-	-	0.0	-
85.0	70.0	-	-	-	4.2	-	-	-	-	-	-	-	-
85.0	80.0	-	-	-	20.1	-	-	-	-	-	-	-	-
85.0	90.0	-	-	-	60.7	-	-	-	-	-	-	-	-
86.7	90.0	0.0	-	0.0	-	-	-	18.0	-	-	-	0.0	-
88.3	35.0	-	-	-	47.9	-	-	-	-	-	-	-	-
88.3	45.0	-	-	-	3.6	-	-	-	-	-	-	-	-
88.3	70.0	-	-	-	3.9	-	-	-	-	-	-	-	-
88.3	80.0	-	-	-	25.8	-	-	-	-	-	-	-	-
88.3	90.0	-	-	-	3.8	-	-	-	-	-	-	-	-
90.0	30.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
90.0	45.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
90.0	60.0	0.0	-	0.0	-	-	-	119.0	-	-	-	0.0	-
90.0	90.0	0.0	-	5.0	-	-	-	35.8	-	-	-	0.0	-
90.0	100.0	0.0	-	0.0	-	-	-	9.8	-	-	-	5.0	-
90.0	110.0	0.0	-	0.0	-	-	-	24.0	-	-	-	0.0	-
90.0	120.0	0.0	-	0.0	-	-	-	47.9	-	-	-	4.3	-
91.7	55.0	-	-	-	-	4.4	-	-	-	-	-	-	-

Table 12. (cont.)

***Diaphus* spp.** (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 80.0	-	-	-	-	4.1	-	-	-	-	-	-	-
91.7 90.0	-	-	-	-	4.3	-	-	-	-	-	-	-
91.7 100.0	-	-	-	-	52.1	-	-	-	-	-	-	-
93.3 30.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.1	-
93.3 40.0	0.0	-	0.0	-	-	-	9.1	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.2	-
93.3 60.0	0.0	-	4.9	-	-	-	23.8	-	-	-	8.6	-
93.3 90.0	0.0	-	0.0	-	-	-	48.5	-	-	-	0.0	-
93.3 100.0	0.0	-	0.0	-	-	-	24.8	-	-	-	0.0	-
93.3 110.0	0.0	-	0.0	-	-	-	27.1	-	-	-	4.5	-
93.3 120.0	0.0	-	0.0	-	-	-	20.4	-	-	-	0.0	-
95.0 100.0	-	-	-	-	45.6	-	-	-	-	-	-	-

Lampadena urophaos

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	0.0	-	-	-	33.5	-	-	-	0.0	-
93.3 120.0	0.0	-	0.0	-	-	-	44.8	-	-	-	0.0	-

Lampanyctus steinbecki

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 120.0	0.0	-	0.0	-	-	-	4.1	-	-	-	0.0	-

***Nannobrachium* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
70.0 60.0	-	-	-	10.2	-	-	-	-	-	-	-	-
70.0 70.0	-	-	-	35.5	-	-	-	-	-	-	-	-
70.0 80.0	-	-	-	21.4	-	-	-	-	-	-	-	-
70.0 90.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3 55.0	-	-	-	4.9	-	-	-	-	-	-	-	-
73.3 60.0	-	-	-	15.5	-	-	-	-	-	-	-	-
73.3 70.0	-	-	-	3.9	-	-	-	-	-	-	-	-
73.3 80.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3 90.0	-	-	-	21.5	-	-	-	-	-	-	-	-
76.7 80.0	10.6	-	0.0	-	-	-	0.0	-	-	-	0.0	-
76.7 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.5	-
76.7 100.0	0.0	-	12.7	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

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

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
77.5 80.0	-	-	-	33.2	-	-	-	-	-	-	-	-
77.5 90.0	-	-	-	12.3	-	-	-	-	-	-	-	-
77.5 100.0	-	-	-	20.8	-	-	-	-	-	-	-	-
80.0 80.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
80.0 90.0	0.0	-	5.0	-	-	-	0.0	-	-	-	4.4	-
80.0 100.0	0.0	-	9.6	-	-	-	4.4	-	-	-	0.0	-
81.7 80.0	-	-	-	5.5	-	-	-	-	-	-	-	-
81.7 100.0	-	-	-	13.5	-	-	-	-	-	-	-	-
83.3 42.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
83.3 80.0	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 100.0	0.0	-	0.0	-	-	-	4.9	-	-	-	0.0	-
85.0 100.0	-	-	-	7.5	-	-	-	-	-	-	-	-
86.7 40.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	5.3	-	-	-	18.0	-	-	-	0.0	-
86.7 100.0	5.1	-	0.0	-	-	-	0.0	-	-	-	9.6	-
86.7 110.0	5.1	-	20.3	-	-	-	0.0	-	-	-	14.1	-
88.3 100.0	-	-	-	17.1	-	-	-	-	-	-	-	-
90.0 45.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
90.0 53.0	4.1	-	0.0	-	-	-	-	-	-	-	0.0	-
90.0 60.0	5.2	-	5.1	-	-	-	0.0	-	-	-	0.0	-
90.0 70.0	0.0	-	10.3	-	-	-	0.0	-	-	-	14.4	-
90.0 80.0	0.0	-	41.3	-	-	-	0.0	-	-	-	0.0	-
90.0 90.0	4.7	-	20.2	-	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	5.2	-	-	-	4.9	-	-	-	9.9	-
90.0 110.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	15.0	-	-	-	14.4	-	-	-	0.0	-
91.7 35.0	-	-	-	-	8.3	-	-	-	-	-	-	-
91.7 70.0	-	-	-	-	4.8	-	-	-	-	-	-	-
91.7 80.0	-	-	-	-	20.5	-	-	-	-	-	-	-
91.7 100.0	-	-	-	-	14.2	-	-	-	-	-	-	-
93.3 30.0	5.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 35.0	0.0	-	8.7	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

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

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3	45.0	0.0	-	11.2	-	-	-	0.0	-	-	-	4.5	-
93.3	50.0	0.0	-	15.9	-	-	-	0.0	-	-	-	0.0	-
93.3	55.0	4.7	-	5.3	-	-	-	0.0	-	-	-	0.0	-
93.3	60.0	0.0	-	34.4	-	-	-	0.0	-	-	-	0.0	-
93.3	70.0	0.0	-	9.6	-	-	-	0.0	-	-	-	0.0	-
93.3	90.0	0.0	-	9.5	-	-	-	0.0	-	-	-	0.0	-
93.3	110.0	0.0	-	4.8	-	-	-	4.5	-	-	-	0.0	-
93.3	120.0	0.0	-	0.0	-	-	-	12.2	-	-	-	0.0	-
95.0	45.0	-	-	-	-	4.3	-	-	-	-	-	-	-
95.0	80.0	-	-	-	-	13.8	-	-	-	-	-	-	-
95.0	90.0	-	-	-	-	14.1	-	-	-	-	-	-	-
95.0	100.0	-	-	-	-	5.1	-	-	-	-	-	-	-

Nannobrachium hawaiiensis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	90.0	-	-	-	0.0	-	-	-	9.3	-	-	-	-
76.7	90.0	0.0	-	0.0	-	-	-	15.0	-	-	-	0.0	-
80.0	60.0	0.0	-	0.0	-	-	-	12.1	-	-	-	-	-
90.0	100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-

Nannobrachium regale

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0	90.0	-	-	-	-	-	-	-	5.3	-	-	-	-
77.5	90.0	-	-	-	4.1	-	-	-	-	-	-	-	-
80.0	80.0	0.0	-	0.0	-	-	-	11.7	-	-	-	0.0	-
91.7	90.0	-	-	-	-	4.3	-	-	-	-	-	-	-
95.0	35.0	-	-	-	-	8.0	-	-	-	-	-	-	-
95.0	80.0	-	-	-	-	4.6	-	-	-	-	-	-	-

Nannobrachium ritteri

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	70.0	-	-	-	5.8	-	-	-	-	-	-	-	-
66.7	70.0	-	-	-	0.0	-	-	-	7.3	-	-	-	-
70.0	60.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3	70.0	-	-	-	3.9	-	-	-	-	-	-	-	-
76.7	80.0	5.3	-	0.0	-	-	-	0.0	-	-	-	8.6	-

Table 12. (cont.)

Nannobrachium ritteri (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 90.0	4.4	-	0.0	-	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	4.2	-	-	-	0.0	-	-	-	0.0	-
77.5 60.0	-	-	-	9.5	-	-	-	-	-	-	-	-
77.5 70.0	-	-	-	7.6	-	-	-	-	-	-	-	-
77.5 80.0	-	-	-	4.2	-	-	-	-	-	-	-	-
77.5 90.0	-	-	-	4.1	-	-	-	-	-	-	-	-
77.5 100.0	-	-	-	4.2	-	-	-	-	-	-	-	-
80.0 50.5	0.0	-	3.7	-	-	-	0.0	-	-	-	0.0	-
80.0 60.0	0.0	-	0.0	-	-	-	12.1	-	-	-	-	-
80.0 100.0	0.0	-	4.8	-	-	-	0.0	-	-	-	4.8	-
81.7 100.0	-	-	-	9.0	-	-	-	-	-	-	-	-
83.3 70.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.6	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
85.0 100.0	-	-	-	3.8	-	-	-	-	-	-	-	-
86.7 35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.1	-
86.7 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7 80.0	0.0	-	14.6	-	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	0.0	-	-	-	4.5	-	-	-	0.0	-
86.7 100.0	0.0	-	10.3	-	-	-	4.8	-	-	-	0.0	-
86.7 110.0	0.0	-	10.1	-	-	-	3.6	-	-	-	4.7	-
88.3 60.0	-	-	-	4.0	-	-	-	-	-	-	-	-
90.0 37.0	4.0	-	0.0	-	-	-	0.0	-	-	-	15.2	-
90.0 53.0	8.2	-	0.0	-	-	-	-	-	-	-	0.0	-
90.0 60.0	0.0	-	5.1	-	-	-	9.2	-	-	-	0.0	-
90.0 80.0	4.9	-	5.2	-	-	-	0.0	-	-	-	0.0	-
90.0 90.0	4.7	-	10.1	-	-	-	5.1	-	-	-	0.0	-
90.0 100.0	0.0	-	20.6	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	4.6	-	5.0	-	-	-	0.0	-	-	-	0.0	-
91.7 100.0	-	-	-	-	4.7	-	-	-	-	-	-	-
93.3 28.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.7	-
93.3 30.0	5.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 35.0	0.0	-	8.7	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

Nannobrachium ritteri (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 40.0	0.0	-	25.5	-	-	-	0.0	-	-	-	0.0	-
93.3 45.0	31.7	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 50.0	9.3	-	0.0	-	-	-	0.0	-	-	-	4.9	-
93.3 60.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
93.3 90.0	0.0	-	9.5	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	5.0	-	0.0	-	-	-	5.0	-	-	-	0.0	-
93.3 110.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-

Notolychnus valdiviae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
77.5 100.0	-	-	-	4.2	-	-	-	-	-	-	-	-
90.0 110.0	0.0	-	15.1	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
93.3 120.0	0.0	-	0.0	-	-	-	24.4	-	-	-	0.0	-

Notoscopelus resplendens

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 110.0	0.0	-	0.0	-	-	-	8.0	-	-	-	0.0	-
90.0 120.0	0.0	-	5.0	-	-	-	14.4	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	4.9	-	-	-	0.0	-
93.3 110.0	0.0	-	0.0	-	-	-	4.5	-	-	-	0.0	-
93.3 120.0	0.0	-	0.0	-	-	-	8.1	-	-	-	0.0	-
95.0 80.0	-	-	-	-	4.6	-	-	-	-	-	-	-

Stenobrachius leucopsarus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 53.0	-	-	-	-	-	-	-	10.4	-	-	-	-
60.0 60.0	-	-	-	-	-	-	-	9.4	-	-	-	-
60.0 70.0	-	-	-	-	-	-	-	86.0	-	-	-	-
60.0 90.0	-	-	-	-	-	-	-	16.0	-	-	-	-
63.3 55.0	-	-	-	11.9	-	-	-	-	-	-	-	-
63.3 60.0	-	-	-	9.4	-	-	-	-	-	-	-	-
63.3 70.0	-	-	-	312.1	-	-	-	-	-	-	-	-
63.3 80.0	-	-	-	372.3	-	-	-	-	-	-	-	-
63.3 90.0	-	-	-	410.7	-	-	-	-	-	-	-	-

Table 12. (cont.)

Stenobrachius leucopsarus (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	55.0	-	-	-	21.8	-	-	18.8	-	-	-	-	-
66.7	60.0	-	-	-	76.0	-	-	5.2	-	-	-	-	-
66.7	70.0	-	-	-	76.0	-	-	-	7.3	-	-	-	-
66.7	80.0	-	-	-	108.8	-	-	-	0.0	-	-	-	-
66.7	90.0	-	-	-	276.6	-	-	-	0.0	-	-	-	-
70.0	51.0	-	-	-	13.7	-	-	-	-	-	-	-	-
70.0	55.0	-	-	-	35.2	-	-	-	-	-	-	-	-
70.0	60.0	-	-	-	76.8	-	-	-	-	-	-	-	-
70.0	70.0	-	-	-	106.6	-	-	-	-	-	-	-	-
70.0	80.0	-	-	-	21.4	-	-	-	-	-	-	-	-
70.0	90.0	-	-	-	71.0	-	-	-	-	-	-	-	-
73.3	51.0	-	-	-	482.0	-	-	-	-	-	-	-	-
73.3	55.0	-	-	-	102.9	-	-	-	-	-	-	-	-
73.3	60.0	-	-	-	521.2	-	-	-	-	-	-	-	-
73.3	70.0	-	-	-	208.8	-	-	-	-	-	-	-	-
73.3	80.0	-	-	-	35.9	-	-	-	-	-	-	-	-
73.3	90.0	-	-	-	403.5	-	-	-	-	-	-	-	-
76.7	49.0	76.8	-	-	-	-	-	0.0	-	-	-	18.2	-
76.7	51.0	368.7	-	-	-	-	-	0.0	-	-	-	0.0	-
76.7	55.0	32.2	-	-	-	-	-	0.0	-	-	-	0.0	-
76.7	60.0	10.2	-	-	-	-	-	27.9	-	-	-	-	-
76.7	70.0	0.0	-	215.4	-	-	-	9.5	-	-	-	0.0	-
76.7	80.0	0.0	-	18.1	-	-	-	0.0	-	-	-	0.0	-
76.7	90.0	0.0	-	15.4	-	-	-	0.0	-	-	-	0.0	-
77.5	51.0	-	-	-	50.6	-	-	-	-	-	-	-	-
77.5	55.0	-	-	-	159.7	-	-	-	-	-	-	-	-
77.5	60.0	-	-	-	170.8	-	-	-	-	-	-	-	-
77.5	70.0	-	-	-	98.4	-	-	-	-	-	-	-	-
77.5	80.0	-	-	-	70.6	-	-	-	-	-	-	-	-
80.0	50.5	0.0	-	18.6	-	-	-	0.0	-	-	-	0.0	-
80.0	51.0	0.0	-	20.3	-	-	-	0.0	-	-	-	0.0	-
80.0	55.0	0.0	-	296.2	-	-	-	0.0	-	-	-	-	-
80.0	60.0	21.0	-	97.1	-	-	-	0.0	-	-	-	-	-

Table 12. (cont.)

Stenobrachius leucopsarus (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	70.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
80.0	80.0	9.6	-	5.0	-	-	-	0.0	-	-	-	0.0	-
80.0	90.0	0.0	-	10.0	-	-	-	0.0	-	-	-	0.0	-
80.0	100.0	4.9	-	33.7	-	-	-	0.0	-	-	-	0.0	-
81.7	45.0	-	-	-	19.2	-	-	-	-	-	-	-	-
81.7	50.0	-	-	-	31.1	-	-	-	-	-	-	-	-
81.7	60.0	-	-	-	36.0	-	-	-	-	-	-	-	-
81.7	70.0	-	-	-	23.1	-	-	-	-	-	-	-	-
81.7	80.0	-	-	-	10.9	-	-	-	-	-	-	-	-
81.7	90.0	-	-	-	9.0	-	-	-	-	-	-	-	-
81.8	46.9	20.5	-	284.1	-	-	-	7.9	-	-	-	29.0	-
83.3	39.4	0.0	-	2.6	-	-	-	0.0	-	-	-	0.0	-
83.3	42.0	8.7	-	60.9	-	-	-	0.0	-	-	-	0.0	-
83.3	51.0	0.0	-	168.8	-	-	-	0.0	-	-	-	0.0	-
83.3	55.0	72.8	-	20.0	-	-	-	0.0	-	-	-	0.0	-
83.3	60.0	17.3	-	31.3	-	-	-	8.8	-	-	-	0.0	-
83.3	70.0	9.7	-	9.9	-	-	-	19.0	-	-	-	0.0	-
83.3	80.0	5.0	-	9.9	-	-	-	0.0	-	-	-	0.0	-
83.3	90.0	10.0	-	0.0	-	-	-	4.4	-	-	-	0.0	-
83.3	100.0	4.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
83.3	110.0	9.7	-	15.1	-	-	-	0.0	-	-	-	0.0	-
85.0	40.0	-	-	-	10.5	-	-	-	-	-	-	-	-
85.0	45.0	-	-	-	52.9	-	-	-	-	-	-	-	-
85.0	55.0	-	-	-	35.5	-	-	-	-	-	-	-	-
85.0	60.0	-	-	-	47.1	-	-	-	-	-	-	-	-
85.0	70.0	-	-	-	37.4	-	-	-	-	-	-	-	-
85.0	80.0	-	-	-	6.7	-	-	-	-	-	-	-	-
85.0	90.0	-	-	-	46.7	-	-	-	-	-	-	-	-
85.0	100.0	-	-	-	45.1	-	-	-	-	-	-	-	-
85.4	35.8	0.0	-	12.2	-	-	-	0.0	-	-	-	0.0	-
86.7	33.0	0.0	-	120.0	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	5.2	-	21.2	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	5.5	-	146.5	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

Stenobrachius leucopsarus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 45.0	0.0	-	20.4	-	-	-	0.0	-	-	-	-	-
86.7 50.0	3.8	-	37.1	-	-	-	3.8	-	-	-	-	-
86.7 55.0	0.0	-	4.6	-	-	-	0.0	-	-	-	-	-
86.7 70.0	4.8	-	10.7	-	-	-	0.0	-	-	-	0.0	-
86.7 80.0	5.2	-	9.8	-	-	-	0.0	-	-	-	0.0	-
86.7 110.0	0.0	-	15.2	-	-	-	0.0	-	-	-	0.0	-
86.8 32.5	0.0	-	2.8	-	-	-	0.0	-	-	-	0.0	-
88.3 35.0	-	-	-	155.6	-	-	-	-	-	-	-	-
88.3 40.0	-	-	-	16.5	-	-	-	-	-	-	-	-
88.3 45.0	-	-	-	76.0	-	-	-	-	-	-	-	-
88.3 50.0	-	-	-	251.1	-	-	-	-	-	-	-	-
88.3 55.0	-	-	-	50.4	-	-	-	-	-	-	-	-
88.3 60.0	-	-	-	84.2	-	-	-	-	-	-	-	-
88.3 70.0	-	-	-	15.4	-	-	-	-	-	-	-	-
88.3 80.0	-	-	-	29.4	-	-	-	-	-	-	-	-
88.3 100.0	-	-	-	8.5	-	-	-	-	-	-	-	-
90.0 30.0	0.0	-	22.6	-	-	-	0.0	-	-	-	0.0	-
90.0 35.0	0.0	-	9.6	-	-	-	0.0	-	-	-	0.0	-
90.0 37.0	4.0	-	41.0	-	-	-	0.0	-	-	-	0.0	-
90.0 45.0	0.0	-	26.3	-	-	-	0.0	-	-	-	0.0	-
90.0 53.0	61.8	-	0.0	-	-	-	-	-	-	-	0.0	-
90.0 60.0	0.0	-	0.0	-	-	-	18.3	-	-	-	0.0	-
90.0 80.0	0.0	-	51.6	-	-	-	0.0	-	-	-	4.3	-
90.0 90.0	4.7	-	20.2	-	-	-	0.0	-	-	-	0.0	-
91.7 28.0	-	-	-	-	41.3	-	-	-	-	-	-	-
91.7 30.0	-	-	-	-	125.3	-	-	-	-	-	-	-
91.7 35.0	-	-	-	-	50.0	-	-	-	-	-	-	-
91.7 40.0	-	-	-	-	36.6	-	-	-	-	-	-	-
91.7 45.0	-	-	-	-	49.2	-	-	-	-	-	-	-
91.7 50.0	-	-	-	-	54.2	-	-	-	-	-	-	-
91.7 55.0	-	-	-	-	74.0	-	-	-	-	-	-	-
91.7 60.0	-	-	-	-	32.1	-	-	-	-	-	-	-
91.7 90.0	-	-	-	-	8.6	-	-	-	-	-	-	-

Table 12. (cont.)

Stenobrachius leucopsarus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 100.0	-	-	-	-	14.2	-	-	-	-	-	-	-
93.3 28.0	0.0	-	19.5	-	-	-	0.0	-	-	-	0.0	-
93.3 30.0	0.0	-	31.3	-	-	-	0.0	-	-	-	0.0	-
93.3 35.0	0.0	-	8.7	-	-	-	0.0	-	-	-	0.0	-
93.3 40.0	5.3	-	25.5	-	-	-	0.0	-	-	-	0.0	-
93.3 45.0	10.6	-	78.7	-	-	-	0.0	-	-	-	0.0	-
93.3 50.0	0.0	-	26.6	-	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
93.3 60.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
93.3 70.0	10.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	29.3	-	-	-	0.0	-	-	-	0.0	-
93.3 90.0	0.0	-	14.3	-	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
95.0 30.0	-	-	-	-	50.5	-	-	-	-	-	-	-
95.0 35.0	-	-	-	-	55.7	-	-	-	-	-	-	-
95.0 40.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 50.0	-	-	-	-	35.0	-	-	-	-	-	-	-
95.0 55.0	-	-	-	-	8.1	-	-	-	-	-	-	-
95.0 60.0	-	-	-	-	16.0	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	4.4	-	-	-	-	-	-	-
95.0 80.0	-	-	-	-	9.2	-	-	-	-	-	-	-
95.0 90.0	-	-	-	-	4.7	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	10.2	-	-	-	-	-	-	-

Triphoturus mexicanus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
77.5 100.0	-	-	-	12.5	-	-	-	-	-	-	-	-
81.7 50.0	-	-	-	3.9	-	-	-	-	-	-	-	-
81.7 100.0	-	-	-	80.8	-	-	-	-	-	-	-	-
83.3 42.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
85.0 90.0	-	-	-	46.7	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	33.8	-	-	-	-	-	-	-	-
86.7 33.0	0.0	-	0.0	-	-	-	3.6	-	-	-	4.0	-
86.7 35.0	0.0	-	0.0	-	-	-	38.4	-	-	-	0.0	-

Table 12. (cont.)

Triphoturus mexicanus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 40.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.7	-
86.7 90.0	0.0	-	15.9	-	-	-	9.0	-	-	-	0.0	-
86.7 100.0	0.0	-	20.5	-	-	-	0.0	-	-	-	0.0	-
86.7 110.0	0.0	-	0.0	-	-	-	3.6	-	-	-	0.0	-
88.3 100.0	-	-	-	51.2	-	-	-	-	-	-	-	-
90.0 28.0	0.0	-	0.0	-	-	-	8.5	-	-	-	0.0	-
90.0 30.0	0.0	-	0.0	-	-	-	31.1	-	-	-	10.7	-
90.0 35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
90.0 37.0	0.0	-	0.0	-	-	-	75.6	-	-	-	15.2	-
90.0 45.0	0.0	-	0.0	-	-	-	10.7	-	-	-	14.4	-
90.0 60.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
90.0 70.0	0.0	-	0.0	-	-	-	9.2	-	-	-	9.6	-
90.0 90.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	10.3	-	-	-	4.9	-	-	-	5.0	-
90.0 110.0	0.0	-	15.1	-	-	-	20.0	-	-	-	4.5	-
90.0 120.0	0.0	-	85.2	-	-	-	320.9	-	-	-	0.0	-
91.7 40.0	-	-	-	-	9.2	-	-	-	-	-	-	-
91.7 80.0	-	-	-	-	4.1	-	-	-	-	-	-	-
91.7 90.0	-	-	-	-	12.9	-	-	-	-	-	-	-
93.3 28.0	0.0	-	0.0	-	-	-	6.7	-	-	-	13.0	-
93.3 30.0	0.0	-	0.0	-	-	-	22.4	-	-	-	4.6	-
93.3 35.0	0.0	-	0.0	-	-	-	13.7	-	-	-	11.1	-
93.3 40.0	0.0	-	0.0	-	-	-	54.3	-	-	-	4.8	-
93.3 45.0	0.0	-	0.0	-	-	-	44.9	-	-	-	0.0	-
93.3 60.0	0.0	-	14.7	-	-	-	0.0	-	-	-	0.0	-
93.3 70.0	0.0	-	9.6	-	-	-	12.5	-	-	-	0.0	-
93.3 80.0	0.0	-	0.0	-	-	-	33.3	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	174.6	-	-	-	4.5	-
93.3 100.0	0.0	-	0.0	-	-	-	54.6	-	-	-	8.8	-
93.3 110.0	0.0	-	24.1	-	-	-	13.5	-	-	-	0.0	-
93.3 120.0	0.0	-	0.0	-	-	-	118.0	-	-	-	0.0	-
95.0 45.0	-	-	-	-	17.1	-	-	-	-	-	-	-

Table 12. (cont.)

Triphoturus mexicanus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
95.0 50.0	-	-	-	-	8.7	-	-	-	-	-	-	-
95.0 55.0	-	-	-	-	16.2	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	4.4	-	-	-	-	-	-	-
95.0 80.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 90.0	-	-	-	-	14.1	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	40.6	-	-	-	-	-	-	-

***Diogenichthys* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-

Diogenichthys atlanticus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 80.0	10.6	-	0.0	-	-	-	0.0	-	-	-	0.0	-
76.7 90.0	4.4	-	5.1	-	-	-	0.0	-	-	-	0.0	-
76.7 100.0	0.0	-	4.2	-	-	-	0.0	-	-	-	0.0	-
80.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	43.1	-
81.7 100.0	-	-	-	22.5	-	-	-	-	-	-	-	-
83.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
83.3 110.0	4.8	-	5.0	-	-	-	0.0	-	-	-	0.0	-
85.0 90.0	-	-	-	4.7	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	15.0	-	-	-	-	-	-	-	-
86.7 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
86.7 90.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	5.1	-	-	-	19.2	-	-	-	9.6	-
88.3 100.0	-	-	-	34.2	-	-	-	-	-	-	-	-
90.0 90.0	0.0	-	15.1	-	-	-	0.0	-	-	-	4.6	-
90.0 100.0	0.0	-	25.8	-	-	-	0.0	-	-	-	5.0	-
90.0 110.0	8.3	-	65.4	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	4.6	-	25.1	-	-	-	0.0	-	-	-	0.0	-
93.3 40.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
93.3 45.0	0.0	-	11.2	-	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.2	-

Table 12. (cont.)

Diogenichthys atlanticus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.6	-
93.3 90.0	0.0	-	9.5	-	-	-	4.9	-	-	-	13.6	-
93.3 100.0	0.0	-	38.8	-	-	-	5.0	-	-	-	4.4	-
93.3 110.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	9.6	-	-	-	8.1	-	-	-	4.9	-
95.0 55.0	-	-	-	-	8.1	-	-	-	-	-	-	-
95.0 80.0	-	-	-	-	9.2	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	5.1	-	-	-	-	-	-	-

Diogenichthys laternatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 53.0	4.1	-	0.0	-	-	-	-	-	-	-	0.0	-
90.0 110.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-
93.3 100.0	5.0	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-

Electrona risso

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 80.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
90.0 70.0	4.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	5.2	-	-	-	0.0	-	-	-	0.0	-

Hygophum reinhardtii

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 120.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-
93.3 120.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-

Loweina rara

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 110.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	10.0	-	-	-	0.0	-	-	-	0.0	-

Myctophum nitidulum

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
77.5 100.0	-	-	-	4.2	-	-	-	-	-	-	-	-
85.0 90.0	-	-	-	4.7	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	3.8	-	-	-	-	-	-	-	-

Table 12. (cont.)

Myctophum nitidulum (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
90.0 110.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	0.0	-	9.7	-	-	-	0.0	-	-	-	0.0	-

Protomyctophum crockeri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 60.0	-	-	-	-	-	-	-	18.9	-	-	-	-
60.0 70.0	-	-	-	-	-	-	-	10.8	-	-	-	-
60.0 90.0	-	-	-	-	-	-	-	16.0	-	-	-	-
63.3 70.0	-	-	-	5.8	-	-	-	-	-	-	-	-
63.3 90.0	-	-	-	5.9	-	-	-	-	-	-	-	-
66.7 70.0	-	-	-	0.0	-	-	-	22.0	-	-	-	-
66.7 90.0	-	-	-	7.7	-	-	-	0.0	-	-	-	-
70.0 80.0	-	-	-	5.4	-	-	-	-	-	-	-	-
73.3 55.0	-	-	-	9.8	-	-	-	-	-	-	-	-
73.3 60.0	-	-	-	5.2	-	-	-	-	-	-	-	-
73.3 80.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3 90.0	-	-	-	5.4	-	-	-	-	-	-	-	-
76.7 55.0	0.0	-	-	-	-	-	7.8	-	-	-	0.0	-
76.7 80.0	5.3	-	9.1	-	-	-	0.0	-	-	-	8.6	-
76.7 90.0	0.0	-	25.6	-	-	-	0.0	-	-	-	17.0	-
76.7 100.0	0.0	-	8.4	-	-	-	41.4	-	-	-	0.0	-
77.5 80.0	-	-	-	12.5	-	-	-	-	-	-	-	-
77.5 90.0	-	-	-	12.3	-	-	-	-	-	-	-	-
77.5 100.0	-	-	-	4.2	-	-	-	-	-	-	-	-
80.0 70.0	5.3	-	0.0	-	-	-	9.4	-	-	-	5.0	-
80.0 80.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
80.0 90.0	4.9	-	5.0	-	-	-	0.0	-	-	-	26.2	-
80.0 100.0	4.9	-	0.0	-	-	-	8.8	-	-	-	19.2	-
81.7 80.0	-	-	-	5.5	-	-	-	-	-	-	-	-
81.7 90.0	-	-	-	9.0	-	-	-	-	-	-	-	-
81.7 100.0	-	-	-	4.5	-	-	-	-	-	-	-	-
83.3 55.0	9.1	-	0.0	-	-	-	0.0	-	-	-	4.9	-
83.3 60.0	0.0	-	0.0	-	-	-	8.8	-	-	-	0.0	-

Table 12. (cont.)

Protomyctophum crockeri (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	11.5	-
83.3 80.0	5.0	-	19.9	-	-	-	4.3	-	-	-	36.1	-
83.3 90.0	5.0	-	14.7	-	-	-	4.4	-	-	-	5.3	-
83.3 100.0	9.7	-	0.0	-	-	-	0.0	-	-	-	19.9	-
83.3 110.0	0.0	-	15.1	-	-	-	0.0	-	-	-	5.2	-
85.0 60.0	-	-	-	4.3	-	-	-	-	-	-	-	-
85.0 90.0	-	-	-	18.7	-	-	-	-	-	-	-	-
86.7 35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.3	-
86.7 40.0	0.0	-	0.0	-	-	-	8.4	-	-	-	0.0	-
86.7 45.0	0.0	-	0.0	-	-	-	26.6	-	-	-	-	-
86.7 55.0	15.4	-	0.0	-	-	-	0.0	-	-	-	-	-
86.7 70.0	0.0	-	10.7	-	-	-	0.0	-	-	-	24.4	-
86.7 80.0	0.0	-	9.8	-	-	-	0.0	-	-	-	14.5	-
86.7 90.0	0.0	-	0.0	-	-	-	4.5	-	-	-	4.6	-
86.7 100.0	0.0	-	5.1	-	-	-	4.8	-	-	-	9.6	-
86.7 110.0	15.3	-	25.4	-	-	-	14.4	-	-	-	9.4	-
88.3 90.0	-	-	-	3.8	-	-	-	-	-	-	-	-
88.3 100.0	-	-	-	12.8	-	-	-	-	-	-	-	-
90.0 30.0	0.0	-	0.0	-	-	-	7.8	-	-	-	5.3	-
90.0 35.0	8.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 45.0	9.9	-	0.0	-	-	-	0.0	-	-	-	14.4	-
90.0 53.0	4.1	-	9.8	-	-	-	-	-	-	-	0.0	-
90.0 60.0	10.4	-	15.2	-	-	-	9.2	-	-	-	5.1	-
90.0 70.0	14.6	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 80.0	4.9	-	10.3	-	-	-	3.9	-	-	-	4.3	-
90.0 90.0	14.2	-	25.2	-	-	-	20.5	-	-	-	13.9	-
90.0 100.0	4.9	-	20.6	-	-	-	4.9	-	-	-	9.9	-
90.0 110.0	12.5	-	25.2	-	-	-	0.0	-	-	-	13.5	-
90.0 120.0	4.6	-	25.1	-	-	-	24.0	-	-	-	8.7	-
91.7 50.0	-	-	-	-	4.9	-	-	-	-	-	-	-
91.7 55.0	-	-	-	-	4.4	-	-	-	-	-	-	-
91.7 70.0	-	-	-	-	4.8	-	-	-	-	-	-	-
91.7 90.0	-	-	-	-	12.9	-	-	-	-	-	-	-

Table 12. (cont.)

Protomyctophum crockeri (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 100.0	-	-	-	-	4.7	-	-	-	-	-	-	-
93.3 28.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.7	-
93.3 35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.6	-
93.3 40.0	0.0	-	12.8	-	-	-	0.0	-	-	-	4.8	-
93.3 45.0	0.0	-	11.2	-	-	-	9.0	-	-	-	0.0	-
93.3 50.0	0.0	-	26.6	-	-	-	18.6	-	-	-	4.9	-
93.3 55.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
93.3 60.0	0.0	-	19.6	-	-	-	7.9	-	-	-	4.3	-
93.3 70.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 80.0	8.0	-	9.8	-	-	-	4.8	-	-	-	8.6	-
93.3 90.0	0.0	-	9.5	-	-	-	4.9	-	-	-	22.7	-
93.3 100.0	5.0	-	9.7	-	-	-	5.0	-	-	-	13.2	-
93.3 110.0	0.0	-	77.1	-	-	-	0.0	-	-	-	13.6	-
93.3 120.0	0.0	-	0.0	-	-	-	16.3	-	-	-	19.6	-
95.0 40.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 45.0	-	-	-	-	4.3	-	-	-	-	-	-	-
95.0 50.0	-	-	-	-	8.7	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	8.7	-	-	-	-	-	-	-
95.0 80.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 90.0	-	-	-	-	9.4	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	15.2	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	5.1	-	-	-	-	-	-	-

Symbolophorus californiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
70.0 80.0	-	-	-	5.4	-	-	-	-	-	-	-	-
77.5 80.0	-	-	-	12.5	-	-	-	-	-	-	-	-
77.5 90.0	-	-	-	8.2	-	-	-	-	-	-	-	-
77.5 100.0	-	-	-	16.6	-	-	-	-	-	-	-	-
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.6	-
81.7 70.0	-	-	-	3.3	-	-	-	-	-	-	-	-
81.7 90.0	-	-	-	9.0	-	-	-	-	-	-	-	-
81.7 100.0	-	-	-	44.9	-	-	-	-	-	-	-	-
83.3 80.0	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-

Table 12. (cont.)

Symbolophorus californiensis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	0.0	-	-	-	9.8	-	-	-	5.0	-
83.3 110.0	0.0	-	0.0	-	-	-	7.7	-	-	-	5.2	-
85.0 90.0	-	-	-	32.7	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	60.2	-	-	-	-	-	-	-	-
86.7 35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.1	-
86.7 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
86.7 90.0	0.0	-	5.3	-	-	-	4.5	-	-	-	9.3	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
86.7 110.0	0.0	-	10.1	-	-	-	0.0	-	-	-	18.8	-
88.3 100.0	-	-	-	42.7	-	-	-	-	-	-	-	-
90.0 60.0	5.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 70.0	9.7	-	0.0	-	-	-	0.0	-	-	-	4.8	-
90.0 90.0	0.0	-	25.2	-	-	-	10.2	-	-	-	0.0	-
90.0 100.0	0.0	-	41.2	-	-	-	24.5	-	-	-	0.0	-
90.0 110.0	4.2	-	15.1	-	-	-	100.0	-	-	-	0.0	-
90.0 120.0	36.5	-	0.0	-	-	-	57.5	-	-	-	17.3	-
93.3 50.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.2	-
93.3 60.0	0.0	-	4.9	-	-	-	0.0	-	-	-	4.3	-
93.3 80.0	4.0	-	4.9	-	-	-	9.5	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	82.5	-	-	-	4.5	-
93.3 100.0	0.0	-	63.1	-	-	-	9.9	-	-	-	4.4	-
93.3 110.0	4.5	-	4.8	-	-	-	22.6	-	-	-	0.0	-
93.3 120.0	0.0	-	0.0	-	-	-	36.6	-	-	-	0.0	-
95.0 80.0	-	-	-	-	4.6	-	-	-	-	-	-	-
95.0 90.0	-	-	-	-	9.4	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	15.2	-	-	-	-	-	-	-

Tarletonbeania crenularis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
60.0 53.0	-	-	-	-	-	-	-	6.9	-	-	-	-
60.0 60.0	-	-	-	-	-	-	-	9.4	-	-	-	-
60.0 90.0	-	-	-	-	-	-	-	5.3	-	-	-	-
63.3 70.0	-	-	-	17.3	-	-	-	-	-	-	-	-

Table 12. (cont.)

Tarletonbeania crenularis (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	80.0	-	-	-	31.9	-	-	-	-	-	-	-	-
63.3	90.0	-	-	-	52.8	-	-	-	-	-	-	-	-
66.7	55.0	-	-	-	14.5	-	-	18.8	-	-	-	-	-
66.7	60.0	-	-	-	0.0	-	-	10.4	-	-	-	-	-
66.7	80.0	-	-	-	10.9	-	-	-	8.8	-	-	-	-
66.7	90.0	-	-	-	30.7	-	-	-	0.0	-	-	-	-
67.0	50.0	-	-	-	-	-	-	4.2	-	-	-	-	-
70.0	55.0	-	-	-	7.8	-	-	-	-	-	-	-	-
70.0	60.0	-	-	-	5.1	-	-	-	-	-	-	-	-
70.0	90.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3	51.0	-	-	-	11.3	-	-	-	-	-	-	-	-
73.3	55.0	-	-	-	9.8	-	-	-	-	-	-	-	-
73.3	60.0	-	-	-	31.0	-	-	-	-	-	-	-	-
73.3	70.0	-	-	-	3.9	-	-	-	-	-	-	-	-
73.3	90.0	-	-	-	5.4	-	-	-	-	-	-	-	-
76.7	49.0	0.0	-	-	-	-	-	0.0	-	-	-	9.1	-
76.7	55.0	10.7	-	-	-	-	-	0.0	-	-	-	4.7	-
76.7	60.0	0.0	-	-	-	-	-	46.4	-	-	-	-	-
76.7	70.0	0.0	-	15.4	-	-	-	0.0	-	-	-	0.0	-
76.7	80.0	0.0	-	0.0	-	-	-	19.0	-	-	-	0.0	-
76.7	90.0	0.0	-	0.0	-	-	-	52.4	-	-	-	0.0	-
77.5	60.0	-	-	-	9.5	-	-	-	-	-	-	-	-
77.5	80.0	-	-	-	4.2	-	-	-	-	-	-	-	-
80.0	60.0	0.0	-	0.0	-	-	-	12.1	-	-	-	-	-
80.0	70.0	5.3	-	0.0	-	-	-	9.4	-	-	-	0.0	-
81.7	80.0	-	-	-	5.5	-	-	-	-	-	-	-	-
83.3	42.0	0.0	-	4.4	-	-	-	0.0	-	-	-	0.0	-
83.3	55.0	0.0	-	10.0	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	0.0	-	15.2	-	-	-	0.0	-	-	-	0.0	-
86.7	80.0	0.0	-	0.0	-	-	-	8.2	-	-	-	0.0	-
88.3	45.0	-	-	-	10.9	-	-	-	-	-	-	-	-
90.0	53.0	0.0	-	0.0	-	-	-	-	-	-	-	9.0	-
90.0	90.0	0.0	-	0.0	-	-	-	5.1	-	-	-	0.0	-

Table 12. (cont.)

Tarletonbeania crenularis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 55.0	-	-	-	-	8.7	-	-	-	-	-	-	-
93.3 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-

Trachipterus altivelis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
83.3 110.0	0.0	-	0.0	-	-	-	3.9	-	-	-	0.0	-
86.7 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.7 80.0	5.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7 100.0	5.1	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Merluccius productus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 80.0	-	-	-	31.9	-	-	-	-	-	-	-	-
66.7 80.0	-	-	-	10.9	-	-	-	0.0	-	-	-	-
70.0 60.0	-	-	-	5.1	-	-	-	-	-	-	-	-
70.0 90.0	-	-	-	10.1	-	-	-	-	-	-	-	-
73.3 60.0	-	-	-	15.5	-	-	-	-	-	-	-	-
76.7 49.0	0.0	-	-	-	-	-	0.0	-	-	-	36.4	-
76.7 51.0	0.0	-	-	-	-	-	0.0	-	-	-	23.3	-
76.7 55.0	10.7	-	-	-	-	-	0.0	-	-	-	14.2	-
77.5 60.0	-	-	-	9.5	-	-	-	-	-	-	-	-
80.0 51.0	9.5	-	86.2	-	-	-	0.0	-	-	-	0.0	-
80.0 55.0	0.0	-	10.6	-	-	-	0.0	-	-	-	-	-
80.0 60.0	0.0	-	9.7	-	-	-	0.0	-	-	-	-	-
81.7 50.0	-	-	-	3.9	-	-	-	-	-	-	-	-
81.7 90.0	-	-	-	9.0	-	-	-	-	-	-	-	-
81.8 46.9	0.0	-	192.8	-	-	-	0.0	-	-	-	0.0	-
83.3 42.0	0.0	-	56.6	-	-	-	0.0	-	-	-	5.0	-
85.0 45.0	-	-	-	4.4	-	-	-	-	-	-	-	-
86.7 40.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
88.3 45.0	-	-	-	3.6	-	-	-	-	-	-	-	-
88.3 60.0	-	-	-	8.0	-	-	-	-	-	-	-	-
88.3 80.0	-	-	-	3.7	-	-	-	-	-	-	-	-
90.0 28.0	4.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

Merluccius productus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 45.0	-	-	-	-	21.1	-	-	-	-	-	-	-
91.7 100.0	-	-	-	-	9.5	-	-	-	-	-	-	-
93.3 40.0	0.0	-	89.4	-	-	-	0.0	-	-	-	0.0	-
93.3 45.0	0.0	-	123.6	-	-	-	0.0	-	-	-	0.0	-
95.0 45.0	-	-	-	-	12.8	-	-	-	-	-	-	-
95.0 50.0	-	-	-	-	4.4	-	-	-	-	-	-	-

Chilara taylori

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8 46.9	0.0	-	0.0	-	-	-	15.9	-	-	-	0.0	-
95.0 40.0	-	-	-	-	4.6	-	-	-	-	-	-	-

Brosmophycis marginata

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
88.3 45.0	-	-	-	3.6	-	-	-	-	-	-	-	-
88.3 50.0	-	-	-	4.3	-	-	-	-	-	-	-	-
90.0 90.0	0.0	-	0.0	-	-	-	5.1	-	-	-	0.0	-
95.3 42.7	-	-	-	-	5.1	-	-	-	-	-	-	-

Cataetyx rubrirostris

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 30.0	-	-	-	-	8.4	-	-	-	-	-	-	-

***Oneirodes* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
83.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.2	-
93.3 120.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-

Leuresthes tenuis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 39.4	0.0	-	0.0	-	-	-	3.8	-	-	-	0.0	-

Cololabis saira

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.2	-
93.3 120.0	4.5	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

***Melamphaes* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 70.0	-	-	-	5.8	-	-	-	-	-	-	-	-
66.7 90.0	-	-	-	7.7	-	-	-	0.0	-	-	-	-
76.7 100.0	0.0	-	4.2	-	-	-	0.0	-	-	-	0.0	-
81.7 70.0	-	-	-	3.3	-	-	-	-	-	-	-	-
83.3 70.0	0.0	-	0.0	-	-	-	9.5	-	-	-	11.5	-
83.3 90.0	5.0	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.6	-
90.0 90.0	4.7	-	5.0	-	-	-	0.0	-	-	-	0.0	-
90.0 120.0	0.0	-	10.0	-	-	-	4.8	-	-	-	0.0	-
91.7 60.0	-	-	-	-	8.0	-	-	-	-	-	-	-
93.3 40.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
93.3 55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.2	-
93.3 70.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	0.0	-	9.7	-	-	-	0.0	-	-	-	0.0	-
93.3 110.0	0.0	-	4.8	-	-	-	4.5	-	-	-	0.0	-

Melamphaes lugubris

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 80.0	0.0	-	0.0	-	-	-	8.2	-	-	-	0.0	-
90.0 120.0	0.0	-	10.0	-	-	-	0.0	-	-	-	0.0	-

Melamphaes parvus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 60.0	-	-	-	10.9	-	-	0.0	-	-	-	-	-
83.3 110.0	4.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
90.0 110.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-

Poromitra crassiceps

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
85.0 100.0	-	-	-	3.8	-	-	-	-	-	-	-	-
90.0 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.5	-
93.3 40.0	0.0	-	12.8	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
95.0 100.0	-	-	-	-	5.1	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	5.1	-	-	-	-	-	-	-

Table 12. (cont.)

Scopelogadus mizolepis bispinosus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 110.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.2	-
85.0 100.0	-	-	-	3.8	-	-	-	-	-	-	-	-
90.0 110.0	0.0	-	0.0	-	-	-	8.0	-	-	-	0.0	-
90.0 120.0	0.0	-	5.0	-	-	-	14.4	-	-	-	0.0	-
93.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
93.3 80.0	0.0	-	0.0	-	-	-	9.5	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	4.9	-	-	-	0.0	-
93.3 100.0	0.0	-	4.9	-	-	-	5.0	-	-	-	0.0	-
93.3 110.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	4.8	-	-	-	4.1	-	-	-	0.0	-

***Sebastes* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 52.0	-	-	-	36.9	-	-	-	-	-	-	-	-
63.3 55.0	-	-	-	47.4	-	-	-	-	-	-	-	-
63.3 70.0	-	-	-	11.6	-	-	-	-	-	-	-	-
63.3 90.0	-	-	-	5.9	-	-	-	-	-	-	-	-
66.7 90.0	-	-	-	23.0	-	-	-	0.0	-	-	-	-
70.0 51.0	-	-	-	59.3	-	-	-	-	-	-	-	-
70.0 55.0	-	-	-	7.8	-	-	-	-	-	-	-	-
70.0 60.0	-	-	-	10.2	-	-	-	-	-	-	-	-
73.3 51.0	-	-	-	11.3	-	-	-	-	-	-	-	-
76.7 49.0	44.4	-	-	-	-	-	0.0	-	-	-	0.0	-
76.7 51.0	122.9	-	-	-	-	-	0.0	-	-	-	9.3	-
76.7 55.0	10.7	-	-	-	-	-	0.0	-	-	-	9.5	-
76.7 60.0	10.2	-	-	-	-	-	0.0	-	-	-	-	-
76.7 70.0	0.0	-	30.8	-	-	-	0.0	-	-	-	0.0	-
77.5 51.0	-	-	-	20.2	-	-	-	-	-	-	-	-
77.5 55.0	-	-	-	9.4	-	-	-	-	-	-	-	-
77.5 60.0	-	-	-	19.0	-	-	-	-	-	-	-	-
77.5 70.0	-	-	-	7.6	-	-	-	-	-	-	-	-
80.0 50.5	3.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-
80.0 51.0	38.1	-	45.6	-	-	-	0.0	-	-	-	0.0	-
80.0 55.0	65.5	-	21.2	-	-	-	0.0	-	-	-	-	-

Table 12. (cont.)

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

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	60.0	0.0	-	38.8	-	-	-	12.1	-	-	-	-	-
80.0	70.0	5.3	-	0.0	-	-	-	0.0	-	-	-	5.0	-
81.7	45.0	-	-	-	3.8	-	-	-	-	-	-	-	-
81.7	50.0	-	-	-	11.7	-	-	-	-	-	-	-	-
81.7	70.0	-	-	-	3.3	-	-	-	-	-	-	-	-
81.8	46.9	51.4	-	60.9	-	-	-	0.0	-	-	-	9.7	-
83.3	39.4	0.0	-	10.2	-	-	-	0.0	-	-	-	0.0	-
83.3	42.0	43.4	-	343.7	-	-	-	5.1	-	-	-	35.1	-
83.3	51.0	27.4	-	1401.0	-	-	-	0.0	-	-	-	5.3	-
83.3	55.0	59.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
83.3	70.0	0.0	-	0.0	-	-	-	9.5	-	-	-	11.5	-
83.3	110.0	0.0	-	0.0	-	-	-	3.9	-	-	-	0.0	-
85.0	40.0	-	-	-	31.4	-	-	-	-	-	-	-	-
85.0	45.0	-	-	-	17.6	-	-	-	-	-	-	-	-
85.0	55.0	-	-	-	26.6	-	-	-	-	-	-	-	-
85.0	60.0	-	-	-	8.6	-	-	-	-	-	-	-	-
85.0	100.0	-	-	-	18.8	-	-	-	-	-	-	-	-
86.7	33.0	0.0	-	124.0	-	-	-	0.0	-	-	-	4.0	-
86.7	35.0	56.7	-	74.2	-	-	-	0.0	-	-	-	5.1	-
86.7	40.0	11.0	-	348.5	-	-	-	0.0	-	-	-	39.0	-
86.7	45.0	43.5	-	30.6	-	-	-	0.0	-	-	-	-	-
86.7	50.0	183.8	-	346.0	-	-	-	11.5	-	-	-	-	-
86.7	55.0	5.1	-	4.6	-	-	-	0.0	-	-	-	-	-
86.7	60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.8	-
86.7	80.0	5.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
88.3	35.0	-	-	-	12.0	-	-	-	-	-	-	-	-
88.3	45.0	-	-	-	25.3	-	-	-	-	-	-	-	-
88.3	50.0	-	-	-	372.4	-	-	-	-	-	-	-	-
88.3	55.0	-	-	-	410.7	-	-	-	-	-	-	-	-
88.3	60.0	-	-	-	20.1	-	-	-	-	-	-	-	-
88.3	70.0	-	-	-	19.3	-	-	-	-	-	-	-	-
90.0	27.7	7.3	-	11.2	-	-	-	0.0	-	-	-	0.0	-
90.0	28.0	0.0	-	104.0	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

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

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	30.0	0.0	-	40.6	-	-	-	0.0	-	-	-	10.7	-
90.0	35.0	8.2	-	43.2	-	-	-	9.4	-	-	-	5.3	-
90.0	37.0	8.1	-	10.3	-	-	-	0.0	-	-	-	15.2	-
90.0	45.0	59.5	-	26.3	-	-	-	0.0	-	-	-	0.0	-
90.0	53.0	0.0	-	4.9	-	-	-	-	-	-	-	0.0	-
90.0	60.0	0.0	-	5.1	-	-	-	9.2	-	-	-	0.0	-
90.0	70.0	0.0	-	10.3	-	-	-	0.0	-	-	-	0.0	-
91.7	28.0	-	-	-	-	16.5	-	-	-	-	-	-	-
91.7	30.0	-	-	-	-	8.4	-	-	-	-	-	-	-
91.7	40.0	-	-	-	-	568.0	-	-	-	-	-	-	-
91.7	45.0	-	-	-	-	42.2	-	-	-	-	-	-	-
91.7	50.0	-	-	-	-	463.4	-	-	-	-	-	-	-
91.7	55.0	-	-	-	-	82.7	-	-	-	-	-	-	-
91.7	60.0	-	-	-	-	40.1	-	-	-	-	-	-	-
91.7	70.0	-	-	-	-	9.6	-	-	-	-	-	-	-
93.3	26.7	0.0	-	36.2	-	-	-	0.0	-	-	-	5.4	-
93.3	28.0	0.0	-	0.0	-	-	-	13.4	-	-	-	0.0	-
93.3	30.0	15.9	-	20.8	-	-	-	11.2	-	-	-	0.0	-
93.3	35.0	10.3	-	21.7	-	-	-	0.0	-	-	-	0.0	-
93.3	40.0	0.0	-	38.3	-	-	-	0.0	-	-	-	0.0	-
93.3	45.0	42.2	-	134.9	-	-	-	0.0	-	-	-	0.0	-
93.3	50.0	0.0	-	26.6	-	-	-	0.0	-	-	-	0.0	-
93.3	55.0	0.0	-	5.3	-	-	-	9.1	-	-	-	0.0	-
93.3	70.0	5.1	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3	80.0	0.0	-	14.6	-	-	-	0.0	-	-	-	0.0	-
93.4	26.4	0.0	-	3.0	-	-	-	-	-	-	-	0.0	-
95.0	35.0	-	-	-	-	119.3	-	-	-	-	-	-	-
95.0	40.0	-	-	-	-	151.1	-	-	-	-	-	-	-
95.0	45.0	-	-	-	-	42.7	-	-	-	-	-	-	-
95.0	50.0	-	-	-	-	17.5	-	-	-	-	-	-	-
95.0	55.0	-	-	-	-	24.3	-	-	-	-	-	-	-
95.0	60.0	-	-	-	-	56.0	-	-	-	-	-	-	-
95.0	70.0	-	-	-	-	8.7	-	-	-	-	-	-	-

Table 12. (cont.)

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

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
95.3 42.7	-	-	-	-	188.7	-	-	-	-	-	-	-

Sebastes aurora

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
70.0 51.0	-	-	-	4.6	-	-	-	-	-	-	-	-
76.7 55.0	10.7	-	-	-	-	-	0.0	-	-	-	0.0	-
80.0 55.0	10.9	-	0.0	-	-	-	0.0	-	-	-	-	-
86.7 40.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
86.7 55.0	0.0	-	4.6	-	-	-	0.0	-	-	-	-	-
88.3 50.0	-	-	-	8.7	-	-	-	-	-	-	-	-
91.7 30.0	-	-	-	-	8.4	-	-	-	-	-	-	-
91.7 100.0	-	-	-	-	4.7	-	-	-	-	-	-	-
93.3 50.0	9.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-
95.0 45.0	-	-	-	-	8.5	-	-	-	-	-	-	-

Sebastes diploproa

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 60.0	-	-	-	0.0	-	-	5.2	-	-	-	-	-
76.7 51.0	0.0	-	-	-	-	-	8.0	-	-	-	0.0	-
76.7 55.0	10.7	-	-	-	-	-	7.8	-	-	-	0.0	-
76.7 70.0	0.0	-	7.7	-	-	-	0.0	-	-	-	0.0	-
83.3 110.0	0.0	-	0.0	-	-	-	3.9	-	-	-	0.0	-
93.3 35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.6	-

Sebastes goodei

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 55.0	-	-	-	7.3	-	-	0.0	-	-	-	-	-
76.7 51.0	215.1	-	-	-	-	-	0.0	-	-	-	0.0	-
76.7 55.0	10.7	-	-	-	-	-	0.0	-	-	-	0.0	-
80.0 51.0	28.6	-	0.0	-	-	-	0.0	-	-	-	0.0	-
80.0 55.0	10.9	-	0.0	-	-	-	0.0	-	-	-	-	-
83.3 42.0	4.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-
83.3 51.0	0.0	-	8.4	-	-	-	0.0	-	-	-	0.0	-
90.0 30.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
90.0 45.0	9.9	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

Station		***Sebastes jordani***											
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	55.0	-	-	-	59.3	-	-	-	-	-	-	-	-
63.3	80.0	-	-	-	21.3	-	-	-	-	-	-	-	-
63.3	90.0	-	-	-	5.9	-	-	-	-	-	-	-	-
66.7	50.0	-	-	-	37.6	-	-	-	-	-	-	-	-
66.7	60.0	-	-	-	10.9	-	-	0.0	-	-	-	-	-
66.7	80.0	-	-	-	10.9	-	-	-	0.0	-	-	-	-
70.0	55.0	-	-	-	11.7	-	-	-	-	-	-	-	-
73.3	51.0	-	-	-	11.3	-	-	-	-	-	-	-	-
76.7	51.0	10.2	-	-	-	-	-	0.0	-	-	-	0.0	-
76.7	55.0	10.7	-	-	-	-	-	0.0	-	-	-	0.0	-
77.5	55.0	-	-	-	37.6	-	-	-	-	-	-	-	-
81.7	43.5	0.0	-	4.0	-	-	-	0.0	-	-	-	0.0	-
81.7	50.0	-	-	-	7.8	-	-	-	-	-	-	-	-
81.8	46.9	0.0	-	101.4	-	-	-	0.0	-	-	-	0.0	-
83.3	42.0	8.7	-	230.6	-	-	-	0.0	-	-	-	0.0	-
83.3	51.0	11.0	-	113.9	-	-	-	0.0	-	-	-	0.0	-
83.3	55.0	0.0	-	10.0	-	-	-	0.0	-	-	-	0.0	-
85.0	40.0	-	-	-	10.5	-	-	-	-	-	-	-	-
85.0	55.0	-	-	-	17.8	-	-	-	-	-	-	-	-
86.7	33.0	20.6	-	8.0	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	46.4	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	5.5	-	50.5	-	-	-	0.0	-	-	-	0.0	-
86.7	45.0	0.0	-	20.4	-	-	-	0.0	-	-	-	-	-
86.7	50.0	0.0	-	24.7	-	-	-	0.0	-	-	-	-	-
88.3	45.0	-	-	-	7.2	-	-	-	-	-	-	-	-
88.3	50.0	-	-	-	4.3	-	-	-	-	-	-	-	-
88.3	55.0	-	-	-	21.6	-	-	-	-	-	-	-	-
88.3	60.0	-	-	-	4.0	-	-	-	-	-	-	-	-
90.0	35.0	24.6	-	24.0	-	-	-	0.0	-	-	-	0.0	-
90.0	37.0	4.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
91.7	45.0	-	-	-	-	14.1	-	-	-	-	-	-	-
91.7	50.0	-	-	-	-	19.7	-	-	-	-	-	-	-
93.3	26.7	4.7	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

Sebastes jordani (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3	30.0	5.3	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3	35.0	15.5	-	0.0	-	-	-	0.0	-	-	-	0.0	-
93.3	40.0	0.0	-	12.8	-	-	-	0.0	-	-	-	0.0	-
93.3	45.0	0.0	-	89.9	-	-	-	0.0	-	-	-	0.0	-

Sebastes levis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	49.0	0.0	-	-	-	-	-	0.0	-	-	-	4.6	-
76.7	51.0	10.2	-	-	-	-	-	0.0	-	-	-	0.0	-
80.0	60.0	0.0	-	9.7	-	-	-	0.0	-	-	-	-	-
83.3	42.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.0	-
83.3	51.0	0.0	-	12.7	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	5.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
86.7	50.0	3.8	-	0.0	-	-	-	0.0	-	-	-	-	-
90.0	35.0	8.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
95.0	45.0	-	-	-	-	4.3	-	-	-	-	-	-	-

Sebastes paucispinis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
73.3	60.0	-	-	-	5.2	-	-	-	-	-	-	-	-
80.0	55.0	10.9	-	0.0	-	-	-	0.0	-	-	-	-	-
83.3	39.4	0.0	-	2.6	-	-	-	0.0	-	-	-	0.0	-
83.3	55.0	4.6	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	5.2	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
86.7	45.0	8.7	-	0.0	-	-	-	0.0	-	-	-	-	-
86.7	50.0	23.0	-	0.0	-	-	-	0.0	-	-	-	-	-
88.3	50.0	-	-	-	4.3	-	-	-	-	-	-	-	-
88.5	30.1	0.0	-	-	-	-	-	0.0	-	-	-	2.4	-
90.0	35.0	8.2	-	4.8	-	-	-	0.0	-	-	-	0.0	-
95.0	50.0	-	-	-	-	4.4	-	-	-	-	-	-	-

***Sebastolobus* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	90.0	-	-	-	5.9	-	-	-	-	-	-	-	-

Table 12. (cont.)

***Sebastolobus* spp.** (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
77.5	60.0	-	-	-	9.5	-	-	-	-	-	-	-	-

Sebastolobus altivelis

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

Hexagrammos decagrammus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	55.0	-	-	-	5.9	-	-	-	-	-	-	-	-

Ophiodon elongatus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	55.0	-	-	-	5.9	-	-	-	-	-	-	-	-

Oxylebius pictus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	50.0	-	-	-	7.5	-	-	-	-	-	-	-	-

Zaniolepis latipinnis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8	46.9	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
83.3	42.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
83.3	51.0	27.4	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7	33.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.0	-
86.7	40.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-

Cottidae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	52.0	-	-	-	2.8	-	-	-	-	-	-	-	-
81.7	50.0	-	-	-	3.9	-	-	-	-	-	-	-	-
91.7	40.0	-	-	-	-	9.2	-	-	-	-	-	-	-

Artedius fenestralis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	0.0	-	0.0	-	-	-	3.1	-	-	-	0.0	-

Artedius harringtoni

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	52.0	-	-	-	5.7	-	-	-	-	-	-	-	-
66.7	50.0	-	-	-	15.0	-	-	-	-	-	-	-	-
70.0	51.0	-	-	-	9.1	-	-	-	-	-	-	-	-

Table 12. (cont.)

Artedius lateralis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	0.0	-	3.7	-	-	-	0.0	-	-	-	0.0	-

Chitonotus pugetensis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	52.0	-	-	-	2.8	-	-	-	-	-	-	-	-
95.0	28.0	-	-	-	-	3.3	-	-	-	-	-	-	-

Icelinus quadriseriatus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	52.0	-	-	-	19.9	-	-	-	-	-	-	-	-
80.0	50.5	0.0	-	0.0	-	-	-	3.1	-	-	-	0.0	-
83.3	51.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
91.7	50.0	-	-	-	-	14.8	-	-	-	-	-	-	-

Radulinus asprellus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
70.0	51.0	-	-	-	4.6	-	-	-	-	-	-	-	-

Ruscarius creaseri

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
70.0	51.0	-	-	-	9.1	-	-	-	-	-	-	-	-

Ruscarius meanyi

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	52.0	-	-	-	11.4	-	-	-	-	-	-	-	-

Scorpaenichthys marmoratus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	51.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.9	-
83.3	51.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
88.3	80.0	-	-	-	3.7	-	-	-	-	-	-	-	-

Bathyagonus pentacanthus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
70.0	51.0	-	-	-	4.6	-	-	-	-	-	-	-	-
93.3	45.0	0.0	-	11.2	-	-	-	0.0	-	-	-	0.0	-

Odontopyxis trispinosa

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	52.0	-	-	-	2.8	-	-	-	-	-	-	-	-
66.7	50.0	-	-	-	7.5	-	-	-	-	-	-	-	-

Table 12. (cont.)

Odontopyxis trispinosa (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
77.5 51.0	-	-	-	5.1	-	-	-	-	-	-	-	-
80.0 50.5	0.0	-	3.7	-	-	-	6.1	-	-	-	0.0	-
86.7 33.0	0.0	-	0.0	-	-	-	3.6	-	-	-	0.0	-
88.3 50.0	-	-	-	4.3	-	-	-	-	-	-	-	-

Liparis mucosus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 52.0	-	-	-	11.4	-	-	-	-	-	-	-	-
70.0 51.0	-	-	-	4.6	-	-	-	-	-	-	-	-
80.0 50.5	0.0	-	3.7	-	-	-	3.1	-	-	-	0.0	-
80.0 51.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
80.0 60.0	0.0	-	0.0	-	-	-	12.1	-	-	-	-	-

***Howella* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 110.0	0.0	-	0.0	-	-	-	8.0	-	-	-	0.0	-
90.0 120.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-
93.3 80.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-

***Paralabrax* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.8 46.9	0.0	-	0.0	-	-	-	7.9	-	-	-	0.0	-
83.3 60.0	0.0	-	0.0	-	-	-	8.8	-	-	-	0.0	-
86.8 32.5	0.0	-	0.0	-	-	-	8.4	-	-	-	0.0	-
90.0 27.7	0.0	-	0.0	-	-	-	6.1	-	-	-	0.0	-
90.0 28.0	0.0	-	0.0	-	-	-	12.8	-	-	-	0.0	-
90.0 30.0	0.0	-	0.0	-	-	-	15.6	-	-	-	0.0	-
90.0 35.0	0.0	-	0.0	-	-	-	9.4	-	-	-	0.0	-

Trachurus symmetricus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
73.3 80.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3 90.0	-	-	-	21.5	-	-	-	-	-	-	-	-
77.5 80.0	-	-	-	16.6	-	-	-	-	-	-	-	-
77.5 100.0	-	-	-	33.3	-	-	-	-	-	-	-	-
81.7 100.0	-	-	-	291.9	-	-	-	-	-	-	-	-
83.3 70.0	0.0	-	0.0	-	-	-	9.5	-	-	-	0.0	-

Table 12. (cont.)

Trachurus symmetricus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
85.0 90.0	-	-	-	51.4	-	-	-	-	-	-	-	-
85.0 100.0	-	-	-	3.8	-	-	-	-	-	-	-	-
86.7 110.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
88.3 90.0	-	-	-	7.7	-	-	-	-	-	-	-	-
88.3 100.0	-	-	-	222.0	-	-	-	-	-	-	-	-
90.0 70.0	0.0	-	0.0	-	-	-	9.2	-	-	-	0.0	-
90.0 90.0	0.0	-	0.0	-	-	-	35.8	-	-	-	0.0	-
90.0 100.0	0.0	-	0.0	-	-	-	4.9	-	-	-	0.0	-
90.0 110.0	0.0	-	0.0	-	-	-	4.0	-	-	-	0.0	-
91.7 70.0	-	-	-	-	9.6	-	-	-	-	-	-	-
91.7 100.0	-	-	-	-	4.7	-	-	-	-	-	-	-
93.3 40.0	0.0	-	0.0	-	-	-	54.3	-	-	-	0.0	-
93.3 70.0	0.0	-	0.0	-	-	-	12.5	-	-	-	0.0	-
93.3 80.0	0.0	-	0.0	-	-	-	42.8	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	67.9	-	-	-	0.0	-
93.3 100.0	0.0	-	0.0	-	-	-	19.8	-	-	-	0.0	-
93.3 110.0	0.0	-	0.0	-	-	-	49.6	-	-	-	0.0	-
95.0 30.0	-	-	-	-	8.4	-	-	-	-	-	-	-
95.0 35.0	-	-	-	-	95.4	-	-	-	-	-	-	-
95.0 40.0	-	-	-	-	403.0	-	-	-	-	-	-	-
95.0 45.0	-	-	-	-	132.4	-	-	-	-	-	-	-
95.0 50.0	-	-	-	-	21.9	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	17.4	-	-	-	-	-	-	-
95.0 90.0	-	-	-	-	18.8	-	-	-	-	-	-	-
95.0 100.0	-	-	-	-	5.1	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	56.1	-	-	-	-	-	-	-

Brama japonica

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-

Genyonemus lineatus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	4.0	-	-	-	-	-	0.0	-	-	-	18.2	-
76.7 51.0	0.0	-	-	-	-	-	0.0	-	-	-	4.7	-

Table 12. (cont.)

Genyonemus lineatus (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	3.3	-	7.4	-	-	-	0.0	-	-	-	349.8	-
80.0	51.0	0.0	-	0.0	-	-	-	0.0	-	-	-	44.4	-
81.7	43.5	0.0	-	8.0	-	-	-	0.0	-	-	-	3.0	-
81.7	50.0	-	-	-	3.9	-	-	-	-	-	-	-	-
83.3	39.4	0.0	-	2.6	-	-	-	0.0	-	-	-	3.6	-
83.3	42.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
83.3	51.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
85.4	35.8	0.0	-	8.1	-	-	-	0.0	-	-	-	0.0	-
86.7	33.0	0.0	-	4.0	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.1	-
88.5	30.1	6.0	-	-	-	-	-	0.0	-	-	-	0.0	-
90.0	30.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.7	-
95.0	28.0	-	-	-	-	6.6	-	-	-	-	-	-	-

Seriphus politus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.8	32.5	0.0	-	0.0	-	-	-	12.7	-	-	-	0.0	-
88.5	30.1	0.0	-	-	-	-	-	15.4	-	-	-	0.0	-
90.0	27.7	0.0	-	0.0	-	-	-	18.2	-	-	-	0.0	-
90.0	28.0	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-
91.7	26.4	0.0	-	0.0	-	-	-	3.3	-	-	-	0.0	-

Medialuna californiensis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	70.0	-	-	-	9.5	-	-	-	0.0	-	-	-	-

Chromis punctipinnis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	33.0	0.0	-	0.0	-	-	-	7.2	-	-	-	0.0	-
86.8	32.5	0.0	-	0.0	-	-	-	2.1	-	-	-	0.0	-
93.3	40.0	0.0	-	0.0	-	-	-	9.1	-	-	-	0.0	-

Hypsypops rubicundus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	60.0	0.0	-	0.0	-	-	-	8.8	-	-	-	0.0	-
86.8	32.5	0.0	-	0.0	-	-	-	6.3	-	-	-	0.0	-
90.0	27.7	0.0	-	0.0	-	-	-	6.1	-	-	-	0.0	-

Table 12. (cont.)

Hypsypops rubicundus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 28.0	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-

Oxyjulis californica

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 40.0	0.0	-	0.0	-	-	-	16.8	-	-	-	0.0	-
90.0 35.0	0.0	-	0.0	-	-	-	9.4	-	-	-	0.0	-
91.7 26.4	0.0	-	0.0	-	-	-	3.3	-	-	-	0.0	-
93.3 40.0	0.0	-	0.0	-	-	-	27.2	-	-	-	0.0	-
95.0 50.0	-	-	-	-	4.4	-	-	-	-	-	-	-
95.0 55.0	-	-	-	-	8.1	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	15.3	-	-	-	-	-	-	-

Semicossyphus pulcher

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 28.0	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-

***Rathbunella* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 52.0	-	-	-	36.9	-	-	-	-	-	-	-	-
66.7 50.0	-	-	-	7.5	-	-	-	-	-	-	-	-
86.7 50.0	3.8	-	12.4	-	-	-	0.0	-	-	-	-	-
95.0 28.0	-	-	-	-	6.6	-	-	-	-	-	-	-

Stichaeidae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 52.0	-	-	-	5.7	-	-	-	-	-	-	-	-

Plectobranchus evides

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 26.7	0.0	-	4.5	-	-	-	0.0	-	-	-	0.0	-

Chiasmodon subniger

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	19.2	-
81.7 100.0	-	-	-	4.5	-	-	-	-	-	-	-	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.0	-
85.0 100.0	-	-	-	7.5	-	-	-	-	-	-	-	-
88.3 100.0	-	-	-	4.3	-	-	-	-	-	-	-	-
90.0 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-

Table 12. (cont.)

Chiasmodon subniger (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
90.0 110.0	0.0	-	25.2	-	-	-	0.0	-	-	-	0.0	-
93.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
93.3 110.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 120.0	0.0	-	4.8	-	-	-	8.1	-	-	-	0.0	-
95.0 100.0	-	-	-	-	5.1	-	-	-	-	-	-	-

***Gibbonsia* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 51.0	27.4	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Neoclinus stephensae

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7 50.0	26.8	-	0.0	-	-	-	0.0	-	-	-	-	-

***Hypsoblennius* spp.**

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.7 43.5	0.0	-	0.0	-	-	-	3.1	-	-	-	0.0	-
83.3 40.6	0.0	-	0.0	-	-	-	3.1	-	-	-	0.0	-
86.8 32.5	0.0	-	0.0	-	-	-	25.3	-	-	-	0.0	-
88.5 30.1	0.0	-	-	-	-	-	10.3	-	-	-	0.0	-

Hypsoblennius gilberti

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 55.0	0.0	-	0.0	-	-	-	8.9	-	-	-	-	-
83.3 40.6	0.0	-	0.0	-	-	-	3.1	-	-	-	0.0	-
83.3 42.0	0.0	-	0.0	-	-	-	5.1	-	-	-	0.0	-

Hypsoblennius jenkinsi

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
81.7 43.5	0.0	-	0.0	-	-	-	0.0	-	-	-	3.0	-
90.0 30.0	0.0	-	0.0	-	-	-	7.8	-	-	-	0.0	-
91.7 26.4	0.0	-	0.0	-	-	-	56.3	-	-	-	0.0	-
93.3 26.7	0.0	-	0.0	-	-	-	28.2	-	-	-	0.0	-
93.3 28.0	0.0	-	0.0	-	-	-	6.7	-	-	-	0.0	-

Icosteus aenigmaticus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 90.0	5.0	-	0.0	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

Lepidogobius lepidus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 52.0	-	-	-	8.5	-	-	-	-	-	-	-	-
81.7 43.5	0.0	-	4.0	-	-	-	0.0	-	-	-	0.0	-

Lythrypnus dalli

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 40.0	-	-	-	-	9.2	-	-	-	-	-	-	-
93.3 26.7	0.0	-	0.0	-	-	-	0.0	-	-	-	5.4	-

Lythrypnus zebra

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 30.0	0.0	-	0.0	-	-	-	5.6	-	-	-	0.0	-

Rhinogobiops nicholsii

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7 80.0	-	-	-	10.9	-	-	-	0.0	-	-	-	-
76.7 51.0	0.0	-	-	-	-	-	8.0	-	-	-	0.0	-
80.0 60.0	0.0	-	9.7	-	-	-	0.0	-	-	-	-	-
81.8 46.9	0.0	-	0.0	-	-	-	7.9	-	-	-	0.0	-
83.3 51.0	0.0	-	4.2	-	-	-	0.0	-	-	-	0.0	-
85.0 40.0	-	-	-	5.2	-	-	-	-	-	-	-	-
86.7 40.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
86.7 80.0	0.0	-	0.0	-	-	-	8.2	-	-	-	0.0	-
86.7 110.0	0.0	-	0.0	-	-	-	3.6	-	-	-	0.0	-
88.3 45.0	-	-	-	3.6	-	-	-	-	-	-	-	-
90.0 30.0	0.0	-	4.5	-	-	-	0.0	-	-	-	0.0	-
93.3 30.0	0.0	-	0.0	-	-	-	5.6	-	-	-	0.0	-
93.3 35.0	0.0	-	0.0	-	-	-	4.6	-	-	-	0.0	-
93.3 40.0	0.0	-	12.8	-	-	-	0.0	-	-	-	0.0	-
93.3 45.0	0.0	-	22.5	-	-	-	0.0	-	-	-	0.0	-
93.3 50.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
95.0 35.0	-	-	-	-	8.0	-	-	-	-	-	-	-
95.0 70.0	-	-	-	-	4.4	-	-	-	-	-	-	-
95.3 42.7	-	-	-	-	5.1	-	-	-	-	-	-	-

Typhlogobius californiensis

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 30.0	0.0	-	0.0	-	-	-	7.8	-	-	-	0.0	-

Table 12. (cont.)

Typhlogobius californiensis (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 26.4	0.0	-	1.9	-	-	-	3.3	-	-	-	0.0	-

Sphyraena argentea

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 42.0	0.0	-	0.0	-	-	-	15.2	-	-	-	0.0	-
86.8 32.5	0.0	-	0.0	-	-	-	10.6	-	-	-	0.0	-
93.3 30.0	0.0	-	0.0	-	-	-	11.2	-	-	-	0.0	-

Scomber japonicus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
88.3 100.0	-	-	-	17.1	-	-	-	-	-	-	-	-
90.0 37.0	0.0	-	0.0	-	-	-	8.4	-	-	-	0.0	-
93.3 40.0	0.0	-	0.0	-	-	-	199.1	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	24.3	-	-	-	0.0	-
93.3 110.0	0.0	-	0.0	-	-	-	4.5	-	-	-	0.0	-

Icichthys lockingtoni

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 70.0	-	-	-	5.8	-	-	-	-	-	-	-	-
63.3 80.0	-	-	-	10.6	-	-	-	-	-	-	-	-

Tetragonurus cuvieri

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	14.4	-
83.3 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
83.3 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
86.7 100.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.6	-
90.0 120.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
93.3 70.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	0.0	-	-	-	4.8	-	-	-	0.0	-
93.3 90.0	0.0	-	0.0	-	-	-	4.9	-	-	-	13.6	-
93.3 120.0	0.0	-	0.0	-	-	-	4.1	-	-	-	4.9	-

Peprilus simillimus

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 42.0	0.0	-	0.0	-	-	-	5.1	-	-	-	0.0	-

Table 12. (cont.)

Paralichthyidae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	0.0	-	0.0	-	-	-	3.1	-	-	-	0.0	-
83.3	40.6	0.0	-	0.0	-	-	-	3.1	-	-	-	0.0	-
86.7	33.0	0.0	-	0.0	-	-	-	7.2	-	-	-	0.0	-

***Citharichthys* spp.**

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	80.0	-	-	-	10.6	-	-	-	-	-	-	-	-
76.7	55.0	0.0	-	-	-	-	-	0.0	-	-	-	4.7	-
80.0	50.5	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
80.0	55.0	0.0	-	0.0	-	-	-	8.9	-	-	-	-	-
80.0	70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.0	-
81.8	46.9	0.0	-	0.0	-	-	-	7.9	-	-	-	9.7	-
83.3	40.6	0.0	-	0.0	-	-	-	0.0	-	-	-	3.5	-
83.3	70.0	0.0	-	0.0	-	-	-	19.0	-	-	-	0.0	-
86.8	32.5	0.0	-	0.0	-	-	-	4.2	-	-	-	0.0	-
88.5	30.1	3.0	-	-	-	-	-	0.0	-	-	-	0.0	-
90.0	35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
93.3	90.0	0.0	-	0.0	-	-	-	4.9	-	-	-	0.0	-

Citharichthys fragilis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7	50.0	-	-	-	-	4.9	-	-	-	-	-	-	-
95.0	40.0	-	-	-	-	9.2	-	-	-	-	-	-	-

Citharichthys sordidus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	60.0	-	-	-	0.0	-	-	5.2	-	-	-	-	-
66.7	90.0	-	-	-	0.0	-	-	-	9.3	-	-	-	-
73.3	51.0	-	-	-	5.7	-	-	-	-	-	-	-	-
73.3	60.0	-	-	-	5.2	-	-	-	-	-	-	-	-
76.7	51.0	20.5	-	-	-	-	-	0.0	-	-	-	4.7	-
76.7	55.0	0.0	-	-	-	-	-	0.0	-	-	-	14.2	-
76.7	70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	39.5	-
80.0	60.0	0.0	-	0.0	-	-	-	12.1	-	-	-	-	-
80.0	70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	59.4	-
81.8	46.9	0.0	-	0.0	-	-	-	7.9	-	-	-	9.7	-

Table 12. (cont.)

Citharichthys sordidus (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	42.0	0.0	-	0.0	-	-	-	0.0	-	-	-	15.0	-
83.3	55.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.8	-
86.7	60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	14.7	-
88.3	35.0	-	-	-	12.0	-	-	-	-	-	-	-	-
88.3	45.0	-	-	-	7.2	-	-	-	-	-	-	-	-
90.0	30.0	0.0	-	0.0	-	-	-	7.8	-	-	-	0.0	-
90.0	37.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
90.0	45.0	0.0	-	0.0	-	-	-	0.0	-	-	-	9.6	-
90.0	53.0	0.0	-	0.0	-	-	-	-	-	-	-	27.0	-
90.0	60.0	0.0	-	0.0	-	-	-	9.2	-	-	-	15.3	-
90.0	70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
91.7	50.0	-	-	-	-	4.9	-	-	-	-	-	-	-
93.3	60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.6	-
93.3	70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	8.6	-
93.3	80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-
95.0	40.0	-	-	-	-	13.7	-	-	-	-	-	-	-

Citharichthys stigmaeus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	90.0	-	-	-	11.7	-	-	-	-	-	-	-	-
66.7	55.0	-	-	-	0.0	-	-	9.4	-	-	-	-	-
70.0	60.0	-	-	-	51.2	-	-	-	-	-	-	-	-
76.7	49.0	0.0	-	-	-	-	-	0.0	-	-	-	36.4	-
76.7	51.0	0.0	-	-	-	-	-	8.0	-	-	-	18.6	-
76.7	55.0	0.0	-	-	-	-	-	7.8	-	-	-	52.0	-
76.7	70.0	8.9	-	0.0	-	-	-	0.0	-	-	-	8.8	-
76.7	80.0	0.0	-	4.5	-	-	-	9.5	-	-	-	0.0	-
76.7	90.0	0.0	-	0.0	-	-	-	7.5	-	-	-	0.0	-
80.0	51.0	0.0	-	10.1	-	-	-	0.0	-	-	-	0.0	-
80.0	55.0	0.0	-	0.0	-	-	-	35.6	-	-	-	-	-
80.0	70.0	0.0	-	0.0	-	-	-	9.4	-	-	-	19.8	-
81.8	46.9	0.0	-	10.1	-	-	-	95.3	-	-	-	48.4	-
83.3	42.0	4.3	-	0.0	-	-	-	106.7	-	-	-	0.0	-
83.3	51.0	0.0	-	4.2	-	-	-	8.1	-	-	-	0.0	-

Table 12. (cont.)

Citharichthys stigmaeus (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 55.0	0.0	-	10.0	-	-	-	31.1	-	-	-	19.5	-
83.3 60.0	0.0	-	0.0	-	-	-	35.1	-	-	-	15.8	-
83.3 70.0	0.0	-	0.0	-	-	-	38.0	-	-	-	57.4	-
83.3 110.0	4.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7 35.0	0.0	-	0.0	-	-	-	19.2	-	-	-	0.0	-
86.7 40.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
86.7 60.0	10.1	-	0.0	-	-	-	0.0	-	-	-	0.0	-
86.7 70.0	4.8	-	0.0	-	-	-	0.0	-	-	-	0.0	-
88.3 50.0	-	-	-	4.3	-	-	-	-	-	-	-	-
88.3 60.0	-	-	-	4.0	-	-	-	-	-	-	-	-
90.0 28.0	0.0	-	0.0	-	-	-	8.5	-	-	-	0.0	-
90.0 30.0	0.0	-	4.5	-	-	-	147.8	-	-	-	5.3	-
90.0 35.0	0.0	-	0.0	-	-	-	28.2	-	-	-	0.0	-
90.0 37.0	0.0	-	0.0	-	-	-	0.0	-	-	-	10.1	-
90.0 45.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.8	-
90.0 53.0	0.0	-	0.0	-	-	-	-	-	-	-	27.0	-
90.0 80.0	0.0	-	0.0	-	-	-	0.0	-	-	-	12.8	-
90.0 90.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.6	-
91.7 35.0	-	-	-	-	8.3	-	-	-	-	-	-	-
93.3 26.7	0.0	-	0.0	-	-	-	0.0	-	-	-	5.4	-
93.3 28.0	0.0	-	0.0	-	-	-	6.7	-	-	-	0.0	-
93.3 30.0	0.0	-	0.0	-	-	-	78.3	-	-	-	0.0	-
93.3 35.0	0.0	-	4.3	-	-	-	4.6	-	-	-	16.7	-
93.3 40.0	0.0	-	0.0	-	-	-	9.1	-	-	-	4.8	-
93.3 45.0	0.0	-	11.2	-	-	-	0.0	-	-	-	4.5	-
93.3 50.0	0.0	-	5.3	-	-	-	0.0	-	-	-	0.0	-
93.3 60.0	0.0	-	0.0	-	-	-	0.0	-	-	-	12.9	-
93.3 70.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.3	-

Citharichthys xanthostigma

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
91.7 28.0	-	-	-	-	8.3	-	-	-	-	-	-	-

Table 12. (cont.)

Hippoglossina stomata

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	27.7	0.0	-	0.0	-	-	-	6.1	-	-	-	0.0	-
90.0	28.0	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-
91.7	26.4	0.0	-	0.0	-	-	-	3.3	-	-	-	0.0	-

Paralichthys californicus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
85.4	35.8	0.0	-	4.1	-	-	-	0.0	-	-	-	0.0	-
86.7	40.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.9	-
86.8	32.5	0.0	-	0.0	-	-	-	19.0	-	-	-	0.0	-
88.5	30.1	0.0	-	-	-	-	-	5.1	-	-	-	0.0	-
90.0	27.7	0.0	-	0.0	-	-	-	30.3	-	-	-	0.0	-
90.0	28.0	0.0	-	0.0	-	-	-	12.8	-	-	-	0.0	-
90.0	35.0	0.0	-	0.0	-	-	-	0.0	-	-	-	5.3	-
91.7	26.4	0.0	-	0.0	-	-	-	39.7	-	-	-	0.0	-
95.0	28.0	-	-	-	-	3.3	-	-	-	-	-	-	-

Xystreurys liolepis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	0.0	-	0.0	-	-	-	0.0	-	-	-	2.7	-

Pleuronectidae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	0.0	-	0.0	-	-	-	0.0	-	-	-	2.7	-
81.7	50.0	-	-	-	3.9	-	-	-	-	-	-	-	-

Glyptocephalus zachirus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	90.0	-	-	-	5.9	-	-	-	-	-	-	-	-
77.5	70.0	-	-	-	7.6	-	-	-	-	-	-	-	-
86.7	33.0	0.0	-	4.0	-	-	-	0.0	-	-	-	0.0	-

Lepidopsetta bilineata

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	52.0	-	-	-	2.8	-	-	-	-	-	-	-	-

Lyopsetta exilis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
66.7	60.0	-	-	-	21.7	-	-	0.0	-	-	-	-	-
70.0	55.0	-	-	-	3.9	-	-	-	-	-	-	-	-

Table 12. (cont.)

Lyopsetta exilis (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
73.3	51.0	-	-	-	17.0	-	-	-	-	-	-	-	-
73.3	60.0	-	-	-	10.3	-	-	-	-	-	-	-	-
77.5	51.0	-	-	-	5.1	-	-	-	-	-	-	-	-
77.5	55.0	-	-	-	18.8	-	-	-	-	-	-	-	-
80.0	51.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
81.7	45.0	-	-	-	3.8	-	-	-	-	-	-	-	-
81.7	50.0	-	-	-	15.6	-	-	-	-	-	-	-	-
83.3	42.0	0.0	-	8.7	-	-	-	0.0	-	-	-	0.0	-
85.0	40.0	-	-	-	15.7	-	-	-	-	-	-	-	-
85.0	45.0	-	-	-	17.6	-	-	-	-	-	-	-	-
85.0	55.0	-	-	-	8.9	-	-	-	-	-	-	-	-
88.3	35.0	-	-	-	23.9	-	-	-	-	-	-	-	-
88.3	50.0	-	-	-	13.0	-	-	-	-	-	-	-	-
91.7	45.0	-	-	-	-	7.0	-	-	-	-	-	-	-
95.0	35.0	-	-	-	-	8.0	-	-	-	-	-	-	-

Microstomus pacificus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	80.0	-	-	-	10.6	-	-	-	-	-	-	-	-
73.3	51.0	-	-	-	5.7	-	-	-	-	-	-	-	-
73.3	55.0	-	-	-	4.9	-	-	-	-	-	-	-	-
76.7	90.0	0.0	-	0.0	-	-	-	7.5	-	-	-	0.0	-
86.7	55.0	0.0	-	0.0	-	-	-	9.7	-	-	-	-	-
90.0	80.0	0.0	-	0.0	-	-	-	3.9	-	-	-	0.0	-

Parophrys vetulus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	52.0	-	-	-	19.9	-	-	-	-	-	-	-	-
66.7	50.0	-	-	-	7.5	-	-	-	-	-	-	-	-
70.0	55.0	-	-	-	3.9	-	-	-	-	-	-	-	-
76.7	49.0	12.1	-	-	-	-	-	0.0	-	-	-	0.0	-
80.0	50.5	0.0	-	37.2	-	-	-	0.0	-	-	-	0.0	-
80.0	51.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
81.7	50.0	-	-	-	11.7	-	-	-	-	-	-	-	-
83.3	40.6	0.0	-	2.8	-	-	-	0.0	-	-	-	0.0	-

Table 12. (cont.)

Parophrys vetulus (cont.)

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3	42.0	0.0	-	26.1	-	-	-	0.0	-	-	-	0.0	-
85.4	35.8	0.0	-	28.4	-	-	-	0.0	-	-	-	0.0	-
86.7	33.0	0.0	-	52.0	-	-	-	0.0	-	-	-	0.0	-
86.7	35.0	0.0	-	10.6	-	-	-	0.0	-	-	-	0.0	-
88.3	50.0	-	-	-	4.3	-	-	-	-	-	-	-	-
93.3	26.7	0.0	-	4.5	-	-	-	0.0	-	-	-	0.0	-
95.0	28.0	-	-	-	-	108.6	-	-	-	-	-	-	-

Pleuronichthys coenosus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7	51.0	0.0	-	-	-	-	-	8.0	-	-	-	0.0	-

Pleuronichthys decurrens

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
73.3	80.0	-	-	-	5.1	-	-	-	-	-	-	-	-

Pleuronichthys ritteri

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
88.5	30.1	0.0	-	-	-	-	-	20.6	-	-	-	0.0	-

Pleuronichthys verticalis

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	50.5	0.0	-	3.7	-	-	-	0.0	-	-	-	0.0	-
81.7	43.5	0.0	-	0.0	-	-	-	3.1	-	-	-	0.0	-
85.4	35.8	0.0	-	12.2	-	-	-	0.0	-	-	-	0.0	-
86.7	33.0	0.0	-	0.0	-	-	-	3.6	-	-	-	0.0	-
88.5	30.1	0.0	-	-	-	-	-	20.6	-	-	-	0.0	-
90.0	27.7	0.0	-	0.0	-	-	-	18.2	-	-	-	0.0	-
90.0	28.0	0.0	-	0.0	-	-	-	4.3	-	-	-	0.0	-
95.0	28.0	-	-	-	-	6.6	-	-	-	-	-	-	-

Symphurus atricaudus

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	33.0	0.0	-	0.0	-	-	-	3.6	-	-	-	0.0	-
90.0	35.0	0.0	-	0.0	-	-	-	9.4	-	-	-	0.0	-

Disintegrated fish larvae

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3	52.0	-	-	-	5.7	-	-	-	-	-	-	-	-

Table 12. (cont.)

Disintegrated fish larvae (cont.)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
63.3 70.0	-	-	-	5.8	-	-	-	-	-	-	-	-
63.3 90.0	-	-	-	23.5	-	-	-	-	-	-	-	-
70.0 80.0	-	-	-	5.4	-	-	-	-	-	-	-	-
70.0 90.0	-	-	-	5.1	-	-	-	-	-	-	-	-
73.3 80.0	-	-	-	5.1	-	-	-	-	-	-	-	-
76.7 90.0	0.0	-	5.1	-	-	-	0.0	-	-	-	0.0	-
77.5 80.0	-	-	-	4.2	-	-	-	-	-	-	-	-
80.0 51.0	0.0	-	0.0	-	-	-	0.0	-	-	-	4.4	-
80.0 100.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
81.7 45.0	-	-	-	3.8	-	-	-	-	-	-	-	-
81.7 70.0	-	-	-	3.3	-	-	-	-	-	-	-	-
83.3 55.0	0.0	-	10.0	-	-	-	5.2	-	-	-	0.0	-
83.3 100.0	0.0	-	5.2	-	-	-	0.0	-	-	-	0.0	-
85.0 70.0	-	-	-	4.2	-	-	-	-	-	-	-	-
85.0 80.0	-	-	-	6.7	-	-	-	-	-	-	-	-
86.7 55.0	0.0	-	0.0	-	-	-	9.7	-	-	-	-	-
86.8 32.5	0.0	-	0.0	-	-	-	4.2	-	-	-	0.0	-
88.3 70.0	-	-	-	3.9	-	-	-	-	-	-	-	-
90.0 37.0	0.0	-	0.0	-	-	-	8.4	-	-	-	0.0	-
90.0 90.0	0.0	-	15.1	-	-	-	0.0	-	-	-	0.0	-
90.0 100.0	0.0	-	0.0	-	-	-	9.8	-	-	-	0.0	-
90.0 110.0	0.0	-	10.1	-	-	-	8.0	-	-	-	0.0	-
90.0 120.0	0.0	-	5.0	-	-	-	0.0	-	-	-	0.0	-
93.3 60.0	0.0	-	4.9	-	-	-	0.0	-	-	-	0.0	-
93.3 70.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.3 80.0	0.0	-	4.9	-	-	-	9.5	-	-	-	0.0	-
93.3 90.0	0.0	-	4.8	-	-	-	29.1	-	-	-	0.0	-
93.3 100.0	0.0	-	0.0	-	-	-	5.0	-	-	-	0.0	-
93.3 110.0	0.0	-	4.8	-	-	-	9.0	-	-	-	4.5	-
93.3 120.0	0.0	-	4.8	-	-	-	0.0	-	-	-	0.0	-
93.4 26.4	0.0	-	0.0	-	-	-	-	-	-	-	2.8	-
95.0 40.0	-	-	-	-	9.2	-	-	-	-	-	-	-

PHYLOGENETIC INDEX TO TABLES 6 AND 12

ALPHABETICAL INDEX TO TABLES 6 AND 12

RECENT TECHNICAL MEMORANDUMS

SWFSC Technical Memorandums are accessible online at the SWFSC web site (http://swfsc.noaa.gov). Copies are also available from 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-482 Toward a national animal telemetry observing network (ATN) for our oceans, coasts,and great lakes: Workshop synthesis report.
H. MOUSTAHFID, C. GRIMES, J. KOCIK, B. BLOCK, K. HOLLAND, J. PAYNE, D. FOX, A. SEITZ, and C. ALEXANDER
(July 2011)

483 Photographic catalog of California marine fish otoliths: Prey of California sea lions *(Zalophus californianus)*.
M.S. LOWRY
(November 2011)

484 Effective strip widths for ship-based line-transect surveys of cetaceans.
J. BARLOW, L.T. BALLANCE, and K.A. FORNEY
(November 2011)

485 Fin Whale acoustics as a tool to assess stock structure in the North Pacific.
B. JONES, S. RANKIN, and E. ARCHER
(November 2011)

486 Spawning biomass of Pacific Sardine (*Sardinops sagax*) off U.S. in 2011.
N.C.H. LO, B.J. MACEWICZ, and D.A. GRIFFITH
(November 2011)

487 Assessment of the Pacific sardine resource in 2011 for U.S. management in 2012.
K.T. HILL, P.R. CRONE, N.C.H. LO, B.J. MACEWICZ, E. DORVAL J.D. McDANIEL, and Y. GU
(January 2012)

488 U.S. Pacific marine mammal stock assessments: 2011
J.V. CARRETTA, K.A. FORNEY, E. OLESON, K. MARTIEN, M.M. MOTO, 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
(April 2012)

489 The winter-run harvest model (WRHM)
M.R. O'FARRELL, S.D. ALLEN, and M.S. MOHR
(May 2012)

490 Density and spacial distribution patterns of cetaceans in the central North Pacific based on habitat models.
E.A. BECKER, K.A. FORNEY, D.G. FOLEY, J. BARLOW
(June 2012)

491 Sacramento River winter Chinook cohort reconstruct: analysis of ocean fishery impacts.
M.R. O'FARRELL, M.S. MOHR, A.M. GROVER, and W.H. SATTERTHWAITE
(August 2012)