

A UNITED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION



EASTROPAC ATLAS

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



CIRCULAR
330
VOLUME 8
MARCH
1974

EASTROPAC Atlas

Volume 1	Physical oceanographic and meteorological data from principal participating ships, first survey cruise, February-March 1967.	Published June 1972
Volume 2	Biological and nutrient chemistry data from principal participating ships, first survey cruise, February-March 1967.	Published April 1971
Volume 3	Physical oceanographic and meteorological data from principal participating ships, first and second monitor cruises, April-July 1967.	Published September 1971
Volume 4	Biological and nutrient chemistry data from principal participating ships, first and second monitor cruises, April-July 1967.	Published November 1970
Volume 5	Physical oceanographic and meteorological data from principal participating ships, second survey cruise, August-September 1967.	Published September 1972
Volume 6	Biological and nutrient chemistry data from principal participating ships, second survey cruise, August-September 1967.	Published December 1972
Volume 7	Physical oceanographic and meteorological data from principal participating ships and <i>Oceanographer</i> , third and fourth monitor cruises, October 1967-January 1968.	Published July 1973
Volume 8	Biological and nutrient chemistry data from principal participating ships and <i>Oceanographer</i> , third and fourth monitor cruises, October 1967-January 1968.	Published March 1974
Volume 9	Physical oceanographic and meteorological data from principal participating ships, third survey cruise, February-March 1968.	In preparation
Volume 10	Biological and nutrient chemistry data from principal participating ships, third survey cruise, February-March 1968.	In preparation
Volume 11	Data from Latin American cooperating ships and ships of opportunity, all cruises, February 1967-March 1968.	In preparation

ABSTRACT

This atlas contains charts depicting the distribution of physical, chemical, and biological oceanographic properties and associated meteorological properties observed during EASTROPAC. EASTROPAC was an international cooperative investigation of the eastern tropical Pacific Ocean (20° N. to 20° S., and from the west coasts of the American continents to 119° W.) which was intended to provide data necessary for a more effective use of the marine resources of the area, especially tropical tunas, and also to increase knowledge of the ocean circulation, air-sea interaction, and ecology. The Bureau of Commercial Fisheries (now National Marine Fisheries Service) was the coordinating agency. The field work, from February 1967 through March 1968, was divided into seven 2-month cruise periods. During each cruise period one or more ships were operating in the study area.

On completion of the field work the data seemed too numerous for a classical data report. Instead, it was decided to produce an 11-volume atlas of the results, with 5 volumes containing physical oceanographic and meteorological data from the principal participating ships, 5 volumes containing biological and nutrient chemistry data from the same ships, and 1 volume containing all data from Latin American cooperating ships and ships of opportunity. Extensive use was made of a computer and automatic plotter in preparation of the atlas charts. Methods used to collect and process the data upon which the atlas is based are described in detail by the contributors of the following categories of charts: temperature, salinity, and derived quantities; thickness of the upper mixed layer; dissolved oxygen; meteorology; nutrient chemistry; phytoplankton standing stocks and production; zooplankton and fish larvae; micronekton; birds, fish schools, and marine mammals.

Cover. Immature magnificent frigatebirds near Cocos Island.
Photo by John H. Taylor, Scripps Institution of Oceanography.

EASTROPAC Atlas

VOLUME 7

ERRATA Number 1

July 1973

FIGURE 50-6300-z. There should be a 25 m contour in the vicinity of 8°S., 85°W. The chartlet below shows its location:

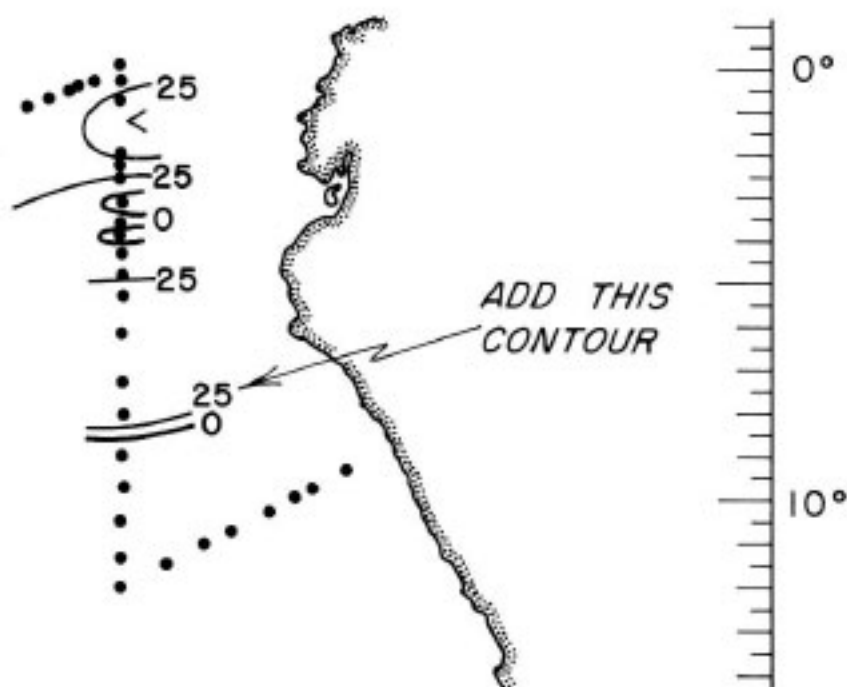


FIGURE 60-S-v5. The short unlabeled line at a depth of 170 m between stations 207 and 213 is extraneous and should be disregarded. The heavy contour which intersects the sea surface at 8.1°N and 9.7°N should be labeled 33.5.

EASTROPAC Atlas

VOLUME 7

ERRATA Number 2

December 1973

- FIGURE 50-S-v5. The closed heavy contour at a depth of 50-100m in the vicinity of 1° - 2° S should be labeled 35.0. The heavy contour which intersects the sea surface at 2.2° N and 4.3° N should be labeled 34.0.
- FIGURE 50-S-v6. The heavy contour which intersects the sea surface at 6.8° N and 7.7° N should be labeled 33.0.
- FIGURE OP-S-v4. The dot at the sea surface near 10° N is not a contour and should be disregarded.
- FIGURE OP-02-v1.
FIGURE OP-02-v3.
FIGURE OP-02-v4. The whole numbered contours (1.00, 2.00, etc.) on these charts have not been accented with heavier lines as is the case with other oxygen sections in this and other volumes.
- FIGURE OP-02-v1. The contour at the top center of the chart should be labeled 5.50 instead of 55.0.
- FIGURE OP-02-v3. Some of the contours near the surface are incorrectly labeled. The short contour at the very top, in the vicinity of 2° S should be labeled 5.25. The contour immediately below it should be labeled 5.00. The next contour down (the first one to extend across the whole section) should be labeled 4.75 instead of 4.50.
- FIGURE 60-S-v3. The small heavy contour which intersects the sea surface twice in the vicinity of 15.6° N should be labeled 33.5.

VOLUME 1

- INTRODUCTION ---- Page 9, Paragraph 2, Line 1 now reads "... 20 cm diameter Secchi disc.", this should read "... 30 cm diameter Secchi disc."

UNITED STATES DEPARTMENT OF COMMERCE

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EASTROPAC ATLAS

VOLUME 8

BIOLOGICAL AND NUTRIENT CHEMISTRY DATA FROM
PRINCIPAL PARTICIPATING SHIPS AND OCEANOGRAPHER
THIRD AND FOURTH MONITOR CRUISES, OCTOBER 1967-JANUARY 1968

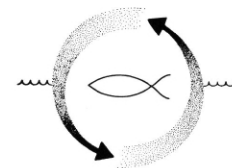
CUTHBERT M. LOVE, *Editor*

CIRCULAR 330

WASHINGTON, D.C.

MARCH 1974

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402—Price \$4.75 per volume



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INTRODUCTION

EASTROPAC was an international cooperative investigation of the eastern tropical Pacific Ocean which was intended to provide data necessary for a more effective use of the marine resources of the area, especially tropical tunas, and also to increase knowledge of the ocean circulation, air-sea interaction, and ecology. The National Marine Fisheries Service (NMFS)—the Bureau of Commercial Fisheries (BCF) at the time of the investigations—was the coordinating agency. The field work, from February 1967 through March 1968, was divided into seven 2-month cruise periods.

At a meeting of the EASTROPAC Coordinating Committee held at La Jolla in April 1968, it was decided that the data derived from the cruises were so numerous as to render classical data reports impractical and that a comprehensive atlas of the physical and biological results of the project should be produced instead. The atlas has been divided into 11 volumes, with five volumes containing physical oceanographic and meteorological data from the principal participating ships, five volumes containing biological and nutrient chemistry data from the same ships, and one volume containing all data from Latin-American cooperating ships and ships of opportunity.

Volume 8 contains biological and nutrient chemistry data collected by the principal participating ships and *Oceanographer* during the third and fourth monitor cruise periods: cruise 50, October-November 1967, and cruise 60, December 1967-January 1968. The companion volume presenting the corresponding physical oceanographic and meteorological data is volume 7. The locations of stations occupied by participating ships are shown in figure 50-TC and figure 60-TC.

Information concerning the history and organization of the EASTROPAC Project, a description of the cruises undertaken, the program of observations, the methods used for preparation of the charts, and remarks on the organization of the atlas is contained in volumes 1 and 4 with descriptions by the contributing scientists of the methods used to collect and process the data upon which the atlas charts are based.

CUTHBERT M. LOVE
Editor

Cruise or cruise period	Property represented	Mnemonic to explain choice of letters	Indicator for vertical sections or type of horizontal surface
Numbers 11, 12, 13, etc., indicate principal cruises. See figure 1.	T Temperature S Salinity δ Thermobaric anomaly (δ_θ) G Geostrophic velocity O ₂ Oxygen concentration O ₂ Sa Oxygen saturation ML Thickness of the mixed layer 300 300 c/l, thermobaric anomaly surface AP Acceleration Potential		v1, v2, etc., indicate vertical sections. Vertical sections are assigned consecutive numbers within each cruise which follow the chronological order in which the ship ran the sections. Number 10 or 100 following O ₂ Sa or horizontal P, Si, NO ₃ , NO ₂ , or NH ₃ charts indicates distribution at that depth (m.).
Letters or letter-number combinations indicate cruises of Latin American cooperating ships or ships of opportunity, as follows:	P Phosphate-phosphorus Si Silicate-silicon NO ₃ Nitrate-nitrogen NO ₂ Nitrite-nitrogen NH ₃ Ammonia-nitrogen		s Distribution at the sea surface 300 Distribution on the surface where $\delta_\theta = 300$ c/l. ei Distribution integrated over the euphotic layer
MZ-4 <i>Yolanda</i> , MZ-4 MZ-5 <i>Yolanda</i> , MZ-5 MZ-6 <i>Yolanda</i> , MZ-6 MZ-7 <i>Defiance</i> , MZ-7 MZ-8 <i>Tuxpan</i> , MZ-8	EL Thickness of the euphotic layer FCp Fish and cephalopod standing stock Cr Crustacean standing stock Nk Total micronekton standing stock ZhN Zooplankton standing stock from 50-cm. net hauls, night ZIN Zooplankton standing stock from 1-m. net hauls, night Zhd Zooplankton standing stock from 50-cm. net hauls, day ZID Zooplankton standing stock from 1-m. net hauls, day	Zooplankton, half-meter, Night Zooplankton, 1-meter, Night Zooplankton, half-meter, Day Zooplankton, 1-meter, Day	150i Distribution integrated to 150 m. depth z Depth of a surface
H1 <i>Huayaip</i> -1 H2 <i>Huayaip</i> -2 H3 <i>Huayaip</i> -3	FLN Total fish larvae, night hauls FLD Total fish larvae, day hauls FE Total fish eggs FS Total skipjack tuna larvae FA Total <i>Aurist</i> larvae FC Total <i>Coryphaena</i> larvae	Fish Larvae, Night Fish Larvae, Day Fish, Skipjack Fish, <i>Aurist</i> Fish, <i>Coryphaena</i>	Number 1 or 2 following SP or SW charts indicates one of two 6-month periods into which those observations were divided.
Y5 <i>Yelcho</i> Y6 <i>Yelcho</i> Y7 <i>Yelcho</i>	FMN Total myctophid larvae, night hauls FMD Total myctophid larvae, day hauls FGN Total gonostomatid and sternopygid larvae, night hauls FGD Total gonostomatid and sternopygid larvae, day hauls	Fish, Myctophid, Night Fish, Myctophid, Day Fish, Gonostomatid, Night Fish, Gonostomatid, Day	Numbers 1 to 4 or 1 to 6 following MT or MW charts indicate one of the approximate 2-week periods into which those observations were divided. For all cruise periods except 40, the MT and MW charts were drawn for four 2-week periods. For the 40 cruise period these charts were drawn for six periods ranging from 12 to 16 days in length, but with several days overlap between some periods. Number 1 or 2 following MC charts indicates one of the monthly periods for which those charts were drawn.
E6 <i>Esmeralda</i> BE VI	BP Relative abundance of plankton-feeding birds BF Relative abundance of fish and cephalopod-feeding birds SP Porpoise sightings SW Whale sightings ST Tuna school sightings, all cruises	Birds, Plankton-feeding Birds, Fish-feeding Sightings, Porpoise Sightings, Whales Sightings, Tuna	
OP <i>Oceanographer</i> CD <i>Charles H. Davis</i>	UA Upper atmosphere meteorology MW Surface meteorological analysis, winds and pressure MC Surface meteorological analysis, clouds, dewpoint, temperature MT Surface meteorological analysis, sea temperature, sea-air temperature difference, sea temperature anomaly	Meteorology, Winds Meteorology, Clouds Meteorology, Temperature	
T3 <i>Te Vega</i> 13 T4 <i>Te Vega</i> 14 T5 <i>Te Vega</i> 15 T6 <i>Te Vega</i> 16 T7 <i>Te Vega</i> 17	RM Reference map TC Track chart		
Numbers 10, 20, 30, 40, 50, 60, 70, indicate 2-month cruise periods.			

Abbreviations used in figure designation system

LIST OF FIGURES

Reference maps and track charts—White pages

FIGURE RM-a.—Reference map of the main portion of the EASTROPAC area. The topographic shading and bathymetric contours are approximate only and should not be considered as portraying the latest available information.

FIGURE RM-b.—Reference map of the southern coastal portion of the EASTROPAC area. The topographic shading and bathymetric contours are approximate only and should not be considered as portraying the latest available information.

FIGURE 50-TC.—Locations of stations occupied by participating ships during the third monitor period, October-November 1967.

FIGURE 60-TC.—Locations of stations occupied by participating ships during the fourth monitor period, December 1967-January 1968.

Nutrient chemistry—White pages

FIGURE 50-P-10.—Phosphate-phosphorus ($\mu\text{g-at./l.}$) at 10 meters, October-November 1967.

FIGURE 50-Si-10.—Silicate-silicon ($\mu\text{g-at./l.}$) at 10 meters, October-November 1967.

FIGURE 50-NO₃-10.—Nitrate-nitrogen ($\mu\text{g-at./l.}$) at 10 meters, October-November 1967.

FIGURE 50-NO₂-10.—Nitrite-nitrogen ($\mu\text{g-at./l.}$) at 10 meters, October-November 1967.

FIGURE 50-NH₃-10.—Ammonia-nitrogen ($\mu\text{g-at./l.}$) at 10 meters, October-November 1967. Because the distribution is so irregular no contours have been drawn. Instead, the concentration at each station is shown.

FIGURE 50-P-100.—Phosphate-phosphorus ($\mu\text{g-at./l.}$) at 100 meters, October-November 1967.

FIGURE 50-Si-100.—Silicate-silicon ($\mu\text{g-at./l.}$) at 100 meters, October-November 1967.

FIGURE 50-NO₃-100.—Nitrate-nitrogen ($\mu\text{g-at./l.}$) at 100 meters, October-November 1967.

FIGURE 50-NH₃-100.—Ammonia-nitrogen ($\mu\text{g-at./l.}$) at 100 meters, October-November 1967. Because the distribution is so irregular no contours have been drawn. Instead, the concentration at each station is shown.

Phytoplankton—Green pages

FIGURE 50-Ch-s.—Chlorophyll-a (mg./m.^3) at the sea surface, October-November 1967.

FIGURE 50-Ch-ei.—Chlorophyll-a (mg./m.^2) integrated over the euphotic layer, October-November 1967.

FIGURE 50-Ch-150i.—Chlorophyll-a (mg./m.^2) integrated from the sea surface to 150 meters depth, October-November 1967.

FIGURE 50-Ph-150i.—Phaeophytin (mg./m.^2) integrated from the sea surface to 150 meters depth, October-November 1967.

FIGURE 50-PP-s.—Primary productions ($\text{mg. C/m.}^3/\text{day}$) at the sea surface, October-November 1967.

FIGURE 50-PP-ei.—Primary production ($\text{mg. C/m.}^2/\text{day}$) integrated over the euphotic layer, October-November 1967.

FIGURE 50-EL.—Thickness of the euphotic layer in meters, October-November 1967.

Sightings of birds—Buff pages

FIGURE 50-BP.—Relative abundance of plankton-feeding birds (birds/mile), October-November 1967.

FIGURE 50-BF.—Relative abundance of fish and cephalopod-feeding birds (birds/mile), October-November 1967.

Zooplankton and micronekton—Blue pages

FIGURE 50-FCp.—Distribution of standing stock (ml./1,000 m.^3) of total fish and cephalopods taken in night micronekton hauls during October-November 1967.

FIGURE 50-Cr.—Distribution of standing stock (ml./1,000 m.^3) of total crustaceans taken in night micronekton hauls during October-November 1967.

FIGURE 50-Nk.—Distribution of standing stock (ml./1,000 m.^3) of total micronekton taken in night micronekton hauls during October-November 1967.

FIGURE 50-ZhN.—Distribution of standing stock (ml./1,000 m.^3) of zooplankton taken in 50-cm. net hauls at night, October-November 1967. East of 92° W. the displacement volume for each station is shown because there are not sufficient data to contour.

FIGURE 50-ZIN.—Distribution of standing stock (ml./1,000 m.^3) of zooplankton taken in 1-m. net hauls at night, October-November 1967. East of 92° W. the displacement volume for each station is shown because there are not sufficient data to contour.

FIGURE 50-ZhD.—Distribution of standing stock (ml./1,000 m.^3) of zooplankton taken in 50-cm. net hauls during the day, October-November 1967. East of 92° W. the displacement volume for each station is shown because there are not sufficient data to contour.

FIGURE 50-ZID.—Distribution of standing stock (ml./1,000 m.^3) of zooplankton taken in 1-m. net hauls during the day, October-November 1967. East of 92° W. the displacement volume for each station is shown because there are not sufficient data to contour.

Fish larvae—Yellow pages

FIGURE 50-FLN.—Total fish larvae (number/haul) taken in 1-m. oblique plankton hauls at night during October-November 1967.

FIGURE 50-FLD.—Total fish larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, October-November 1967.

FIGURE 50-FE.—Total fish eggs (number/haul) taken in 1-m. oblique plankton hauls during October-November 1967.

FIGURE 50-FS.—Total skipjack tuna, *Katsuwonus pelamis*, larvae (number/haul) taken in 1-m. oblique plankton hauls during October-November 1967.

FIGURE 50-FA.—Total frigate mackerel, *Auxis*, larvae (number/haul) taken in 1-m. oblique plankton hauls during October-November 1967.

FIGURE 50-FC.—Total dolphin (fish), *Coryphaena*, larvae (number/haul) taken in 1-m. oblique plankton hauls during October-November 1967.

FIGURE 50-FMN.—Total myctophid larvae (number/haul) taken in 1-m. oblique plankton hauls at night during October-November 1967.

FIGURE 50-FMD.—Total myctophid larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, October-November 1967.

FIGURE 50-FGN.—Total gonostomatid and sternoptychid larvae (number/haul) taken in 1-m. oblique plankton hauls at night during October-November 1967.

FIGURE 50-FGD.—Total gonostomatid and sternoptychid larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, October-November 1967.

Nutrient chemistry—White pages

FIGURE 50-P-v1.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along 119°10' W., October 20-29, 1967.

FIGURE 50-P-v2.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along 112°10' W., October 30-November 4, 1967.

FIGURE 50-P-v3.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along a section from 12° N., 112°10' W. to Manzanillo, November 4-7, 1967.

FIGURE 50-P-v4.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along a section from Acapulco to 12° N., 105°10' W., November 11-13, 1967.

FIGURE 50-P-v5.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along 105°10' W., November 13-18, 1967.

FIGURE 50-P-v6.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along 98°10' W., November 20-27, 1967.

FIGURE 50-Si-v1.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along 119°10' W., October 20-29, 1967.

FIGURE 50-NO₂-v6.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along 98°10' W., November 20-27, 1967.

FIGURE 50-PP-v4.—Vertical distribution of primary production (mg. C/m.³/day) along a section from Acapulco to 12° N., 105°10' W., November 12-13, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

FIGURE OP-NO₂-v4.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along 92° W., November 21-26, 1967.

FIGURE O1'-P'P-v2.—Vertical distribution of primary production (mg. C/m.³/day) along 85° W., November 15-18, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

FIGURE OP-Ch-v3.—Vertical distribution of chlorophyll-a (mg./m.^3) along a northeast-southwest section from the Equator at 85° W. to 3° S., 92° W., November 19-21, 1967.

FIGURE OP-Ph-v3.—Vertical distribution of phaeophytin (mg./m.^3) along a northeast-southwest section from the Equator at 85° W. to 3° S., 92° W., November 19-21, 1967.

FIGURE OP-PP-v3.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along a northeast-southwest section from the Equator at 85° W. to 3° S., 92° W., November 19-21, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

FIGURE OP-Ch-v4.—Vertical distribution of chlorophyll-a (mg./m.^3) along 92° W., November 21-26, 1967.

FIGURE OP-Ph-v4.—Vertical distribution of phaeophytin (mg./m.^3) along 92° W., November 21-26, 1967.

FIGURE OP-PP-v4.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along 92° W., November 21-26, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

Nutrient chemistry—White pages

FIGURE 60-P-10.—Phosphate-phosphorus ($\mu\text{g.-at./L.}$) at 10 meters, December 1967-January 1968.

FIGURE 60-Si-10.—Silicate-silicon ($\mu\text{g.-at./L.}$) at 10 meters, December 1967-January 1968.

FIGURE 60-NO₃-10.—Nitrate-nitrogen ($\mu\text{g.-at./L.}$) at 10 meters, December 1967-January 1968.

FIGURE 60-NO₂-10.—Nitrite-nitrogen ($\mu\text{g.-at./L.}$) at 10 meters, December 1967-January 1968.

FIGURE 60-NH₃-10.—Ammonia-nitrogen ($\mu\text{g.-at./L.}$) at 10 meters, December 1967-January 1968. Because the distribution is so irregular no contours have been drawn. Instead, the concentration at each station is shown.

FIGURE 60-P-100.—Phosphate-phosphorus ($\mu\text{g.-at./L.}$) at 100 meters, December 1967-January 1968.

FIGURE 60-Si-100.—Silicate-silicon ($\mu\text{g.-at./L.}$) at 100 meters, December 1967-January 1968.

FIGURE 60-NO₃-100.—Nitrate-nitrogen ($\mu\text{g.-at./L.}$) at 100 meters, December 1967-January 1968.

FIGURE 60-NH₃-100.—Ammonia nitrogen ($\mu\text{g.-at./L.}$) at 100 meters, December 1967-January 1968. Because the distribution is so irregular no contours have been drawn. Instead, the concentration at each station is shown.

Phytoplankton—Green pages

FIGURE 60-Ch-s.—Chlorophyll-a (mg./m.^3) at the sea surface, December 1967-January 1968.

FIGURE 60-Ch-ei.—Chlorophyll-a (mg./m.^3) integrated over the euphotic layer, December 1967-January 1968.

FIGURE 60-Ch-150i.—Chlorophyll-a (mg./m.^3) integrated from the sea surface to 150 meters depth, December 1967-January 1968.

FIGURE 60-Ph-150i.—Phaeophytin (mg./m.^3) integrated from the sea surface to 150 meters depth, December 1967-January 1968.

FIGURE 60-PP-s.—Primary production ($\text{mg. C/m.}^3/\text{day}$) at the sea surface, December 1967-January 1968.

FIGURE 60-PP-ei.—Primary production ($\text{mg. C/m.}^3/\text{day}$) integrated over the euphotic layer, December 1967-January 1968.

FIGURE 60-EL.—Thickness of the euphotic layer in meters, December 1967-January 1968.

Zooplankton and micronekton—Blue pages

FIGURE 60-FCp.—Distribution of standing stock (ml./1,000 m.^3) of total fish and cephalopods taken in night micronekton hauls during December 1967-January 1968.

FIGURE 60-Cr.—Distribution of standing stock (ml./1,000 m.^3) of total crustaceans taken in night micronekton hauls during December 1967-January 1968.

FIGURE 60-Nk.—Distribution of standing stock (ml./1,000 m.^3) of total micronekton taken in night micronekton hauls during December 1967-January 1968.

FIGURE 60-ZhN.—Distribution of standing stock (ml./1,000 m.^3) of zooplankton taken in 50-cm. net hauls at night, December 1967-January 1968.

FIGURE 60-ZIN.—Distribution of standing stock (ml./1,000 m.^3) of zooplankton taken in 1-m. net hauls at night, December 1967-January 1968.

FIGURE 60-ZhD.—Distribution of standing stock (ml./1,000 m.^3) of zooplankton taken in 50-cm. net hauls during the day, December 1967-January 1968.

FIGURE 60-ZID.—Distribution of standing stock (ml./1,000 m.^3) of zooplankton taken in 1-m. net hauls during the day, December 1967-January 1968.

Fish larvae—Yellow pages

FIGURE 60-FLN.—Total fish larvae (number/haul) taken in 1-m. oblique plankton hauls at night during December 1967-January 1968.

FIGURE 60-FLD.—Total fish larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, December 1967-January 1968.

FIGURE 60-FE.—Total fish eggs (number/haul) taken in 1-m. oblique plankton hauls during December 1967-January 1968.

FIGURE 60-FS.—Total skipjack tuna, *Katsuwonus pelamis*, larvae (number/haul) taken in 1-m. oblique plankton hauls during December 1967-January 1968.

FIGURE 60-FA.—Total frigate mackerel, *Auxis*, larvae (number/haul) taken in 1-m. oblique plankton hauls during December 1967-January 1968.

FIGURE 60-FC.—Total dolphin (fish), *Coryphaena*, larvae (number/haul) taken in 1-m. oblique plankton hauls during December 1967-January 1968.

FIGURE 60-FMN.—Total mystophid larvae (number/haul) taken in 1-m. oblique plankton hauls at night during December 1967-January 1968.

FIGURE 60-FMD.—Total myctophid larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, December 1967-January 1968.

FIGURE 60-FGN.—Total gonostomatid and sternoptychid larvae (number/haul) taken in 1-m. oblique plankton hauls at night during December 1967-January 1968.

FIGURE 60-FGD.—Total gonostomatid and sternoptychid larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, December 1967-January 1968.

Nutrient chemistry—White pages

FIGURE 60-P-v1.—Vertical distribution of phosphate-phosphorus ($\mu\text{g.-at./L.}$) along 118°45' W., December 21-31, 1967.

FIGURE 60-P-v2.—Vertical distribution of phosphate-phosphorus ($\mu\text{g.-at./L.}$) along 111°45' W., January 1-6, 1968.

FIGURE 60-P-v3.—Vertical distribution of phosphate-phosphorus ($\mu\text{g.-at./L.}$) along a section from 12° N., 111°45' W., to Manzanillo, January 6-9, 1968.

FIGURE 60-P-v4.—Vertical distribution of phosphate-phosphorus ($\mu\text{g.-at./L.}$) along a section from Acapulco to 12° N., 104°45' W., January 13-15, 1968.

FIGURE 60-P-v5.—Vertical distribution of phosphate-phosphorus ($\mu\text{g.-at./L.}$) along 104°45' W., January 15-21, 1968.

FIGURE 60-P-v6.—Vertical distribution of phosphate-phosphorus ($\mu\text{g.-at./L.}$) along 97°45' W., January 22-29, 1968.

FIGURE 60-Si-v1.—Vertical distribution of silicate-silicon ($\mu\text{g.-at./L.}$) along 118°45' W., December 21-31, 1967.

FIGURE 60-Si-v2.—Vertical distribution of silicate-silicon ($\mu\text{g.-at./L.}$) along 111°45' W., January 1-6, 1968.

FIGURE 60-Si-v3.—Vertical distribution of silicate-silicon ($\mu\text{g.-at./L.}$) along a section from 12° N., 111°45' W. to Manzanillo, January 6-9, 1968.

FIGURE 60-Si-v4.—Vertical distribution of silicate-silicon ($\mu\text{g.-at./L.}$) along a section from Acapulco to 12° N., 104°45' W., January 13-15, 1968.

FIGURE 60-Si-v5.—Vertical distribution of silicate-silicon ($\mu\text{g.-at./L.}$) along 104°45' W., January 15-21, 1968.

FIGURE 60-Si-v6.—Vertical distribution of silicate-silicon ($\mu\text{g.-at./L.}$) along 97°45' W., January 22-29, 1968.

FIGURE 60-NO₃-v1.—Vertical distribution of nitrate-nitrogen ($\mu\text{g.-at./L.}$) along 118°45' W., December 21-31, 1967.

FIGURE 60-NO₃-v2.—Vertical distribution of nitrate-nitrogen ($\mu\text{g.-at./l.}$) along 111°45' W., January 1-6, 1968.

FIGURE 60-NO₃-v3.—Vertical distribution of nitrate-nitrogen ($\mu\text{g.-at./l.}$) along a section from 12° N., 111°45' W., to Manzanillo, January 6-9, 1968.

FIGURE 60-NO₃-v4.—Vertical distribution of nitrate-nitrogen ($\mu\text{g.-at./l.}$) along a section from Acapulco to 12° N., 104°45' W., January 13-15, 1968.

FIGURE 60-NO₃-v5.—Vertical distribution of nitrate-nitrogen ($\mu\text{g.-at./l.}$) along 104°45' W., January 15-21, 1968.

FIGURE 60-NO₃-v6.—Vertical distribution of nitrate-nitrogen ($\mu\text{g.-at./l.}$) along 97°45' W., January 22-29, 1968.

FIGURE 60-NO₂-v1.—Vertical distribution of nitrite-nitrogen ($\mu\text{g.-at./l.}$) along 118°45' W., December 21-31, 1967.

FIGURE 60-NO₂-v2.—Vertical distribution of nitrite-nitrogen ($\mu\text{g.-at./l.}$) along 111°45' W., January 1-6, 1968.

FIGURE 60-NO₂-v3.—Vertical distribution of nitrite-nitrogen ($\mu\text{g.-at./l.}$) along a section from 12° N., 111°45' W. to Manzanillo, January 6-9, 1968.

FIGURE 60-NO₂-v4.—Vertical distribution of nitrite-nitrogen ($\mu\text{g.-at./l.}$) along a section from Acapulco to 12° N., 104°45' W., January 13-15, 1968.

FIGURE 60-NO₂-v5.—Vertical distribution of nitrite-nitrogen ($\mu\text{g.-at./l.}$) along 104°45' W., January 15-21, 1968.

FIGURE 60-NO₂-v6.—Vertical distribution of nitrite-nitrogen ($\mu\text{g.-at./l.}$) along 97°45' W., January 22-29, 1968.

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FIGURE 60-Ch-v1.—Vertical distribution of chlorophyll-a (mg./m.^3) along 118°45' W., December 22-31, 1967.

FIGURE 60-Ph-v1.—Vertical distribution of phaeophytin (mg./m.^3) along 118°45' W., December 22-31, 1967.

FIGURE 60-PP-v1.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along 118°45' W., December 22-30, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

FIGURE 60-Ch-v2.—Vertical distribution of chlorophyll-a (mg./m.^3) along 111°45' W., January 2-6, 1968.

FIGURE 60-Ph-v2.—Vertical distribution of phaeophytin (mg./m.^3) along 111°45' W., January 2-6, 1968.

FIGURE 60-PP-v2.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along 111°45' W., January 2-6, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.

FIGURE 60-Ch-v3.—Vertical distribution of chlorophyll-a (mg./m.^3) along a section from 12° N., 111°45' W. to Manzanillo, January 6-9, 1968.

FIGURE 60-Ph-v3.—Vertical distribution of phaeophytin (mg./m.^3) along a section from 12° N., 111°45' W. to Manzanillo, January 6-9, 1968.

FIGURE 60-PP-v3.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along a section from 12° N., 111°45' W. to Manzanillo, January 6-9, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.

FIGURE 60-Ch-v4.—Vertical distribution of chlorophyll-a (mg./m.^3) along a section from Acapulco to 12° N., 104°45' W., January 14-16, 1968.

FIGURE 60-Ph-v4.—Vertical distribution of phaeophytin (mg./m.^3) along a section from Acapulco to 12° N., 104°45' W., January 14-16, 1968.

FIGURE 60-PP-v4.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along a section from Acapulco to 12° N., 104°45' W., January 14-15, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.

FIGURE 60-Ch-v5.—Vertical distribution of chlorophyll-a (mg./m.^3) along 104°45' W., January 16-21, 1968.

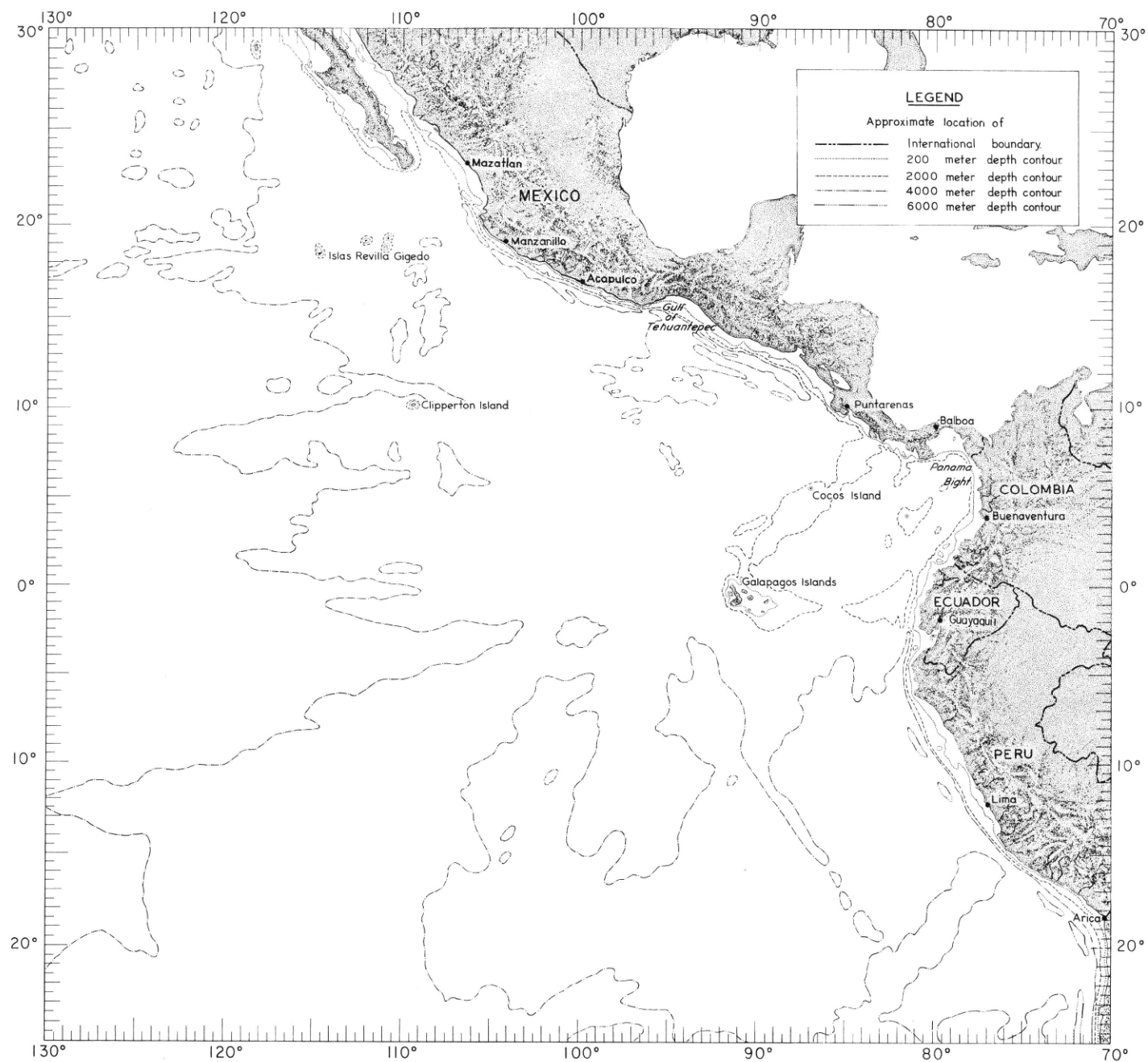
FIGURE 60-Ph-v5.—Vertical distribution of phaeophytin (mg./m.^3) along 104°45' W., January 16-21, 1968.

FIGURE 60-PP-v5.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along 104°45' W., January 16-20, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.

FIGURE 60-Ch-v6.—Vertical distribution of chlorophyll-a (mg./m.^3) along 97°45' W., January 22-25, 1968.

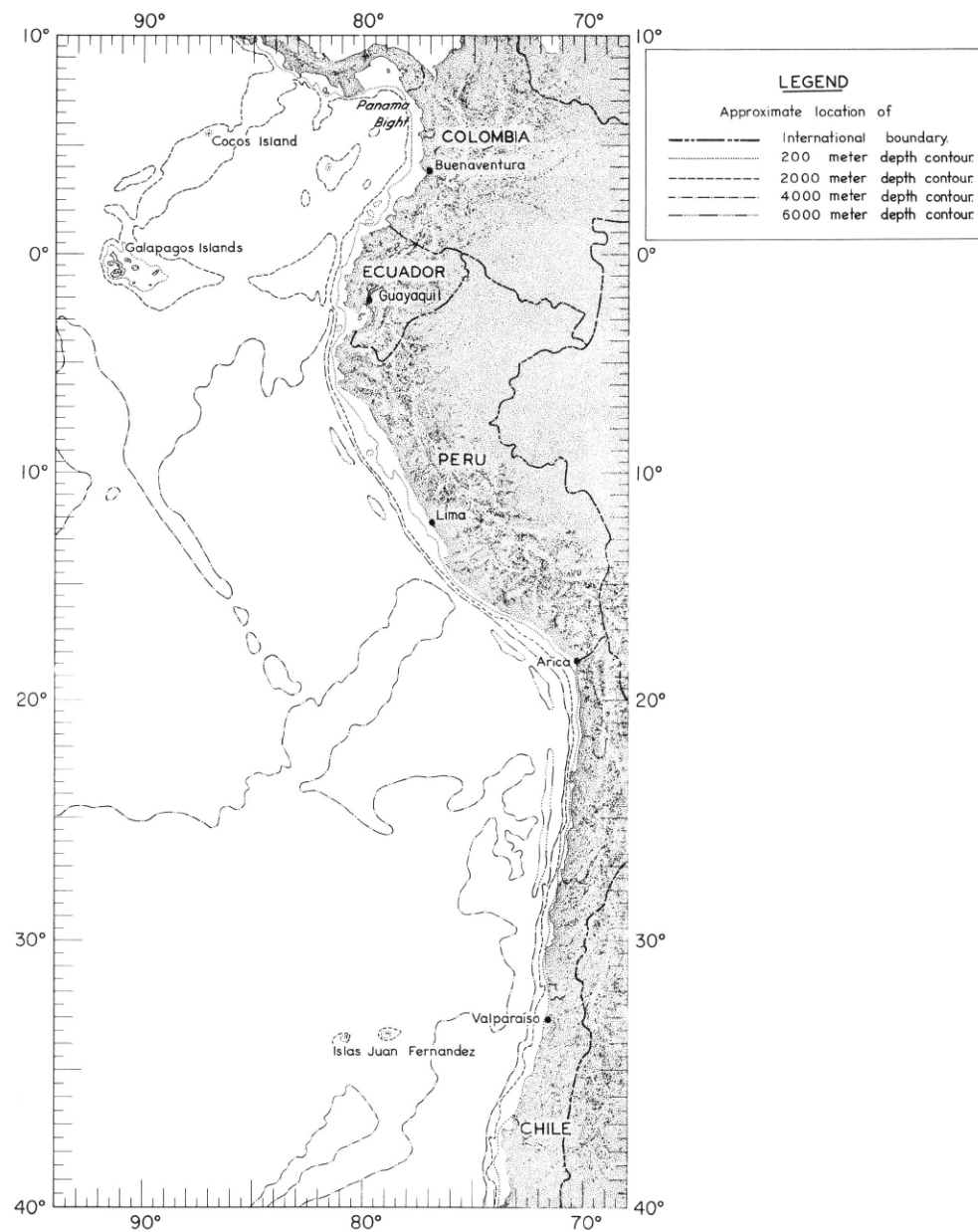
FIGURE 60-Ph-v6.—Vertical distribution of phaeophytin (mg./m.^3) along 97°45' W., January 22-25, 1968.

FIGURE 60-PP-v6.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along 97°45' W., January 23-29, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.



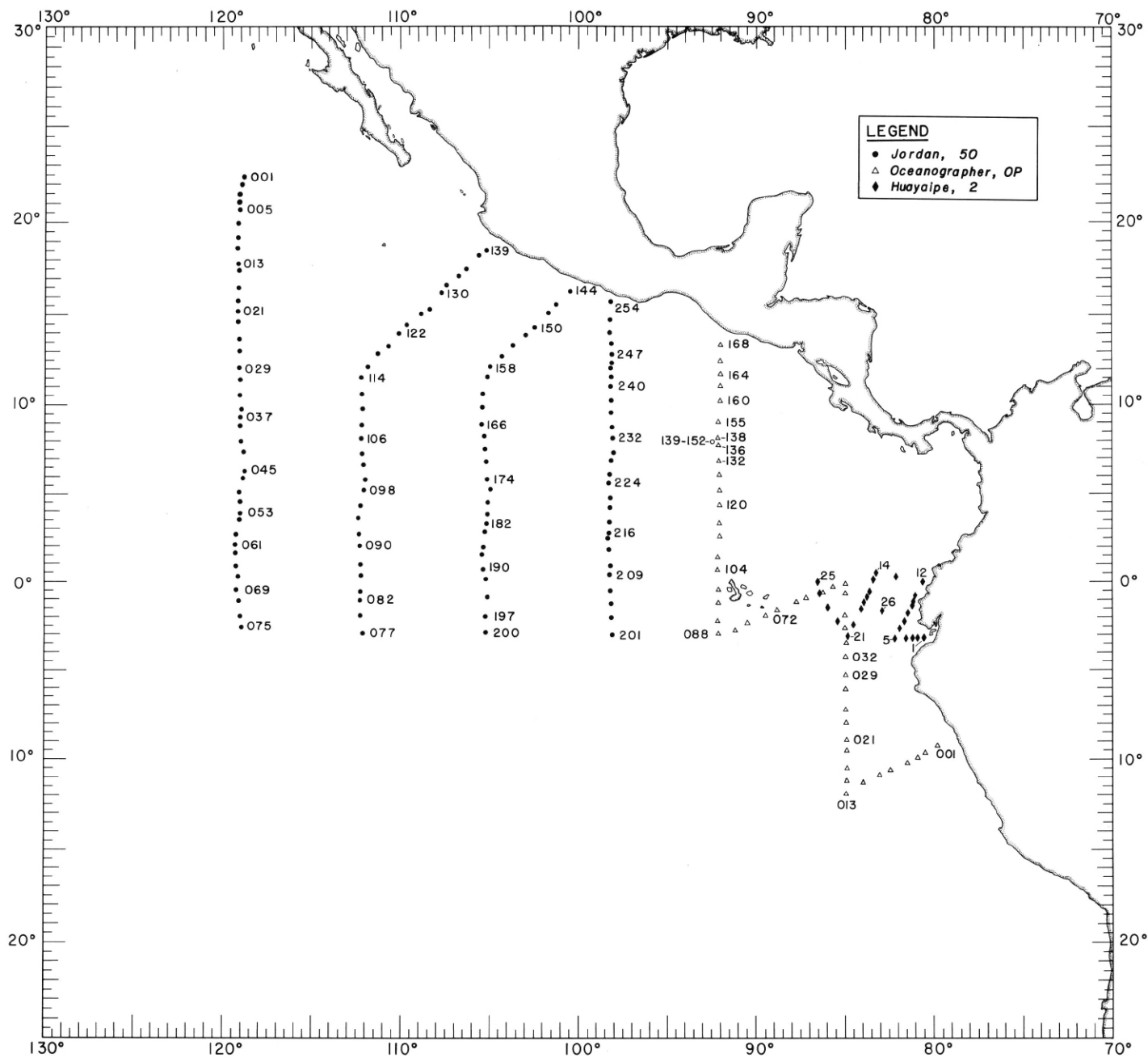
RM-a.

FIGURE RM-a. — Reference map of the main portion of the EASTROPAC area. The topographic shading and bathymetric contours are approximate only and should not be considered as portraying the latest available information.



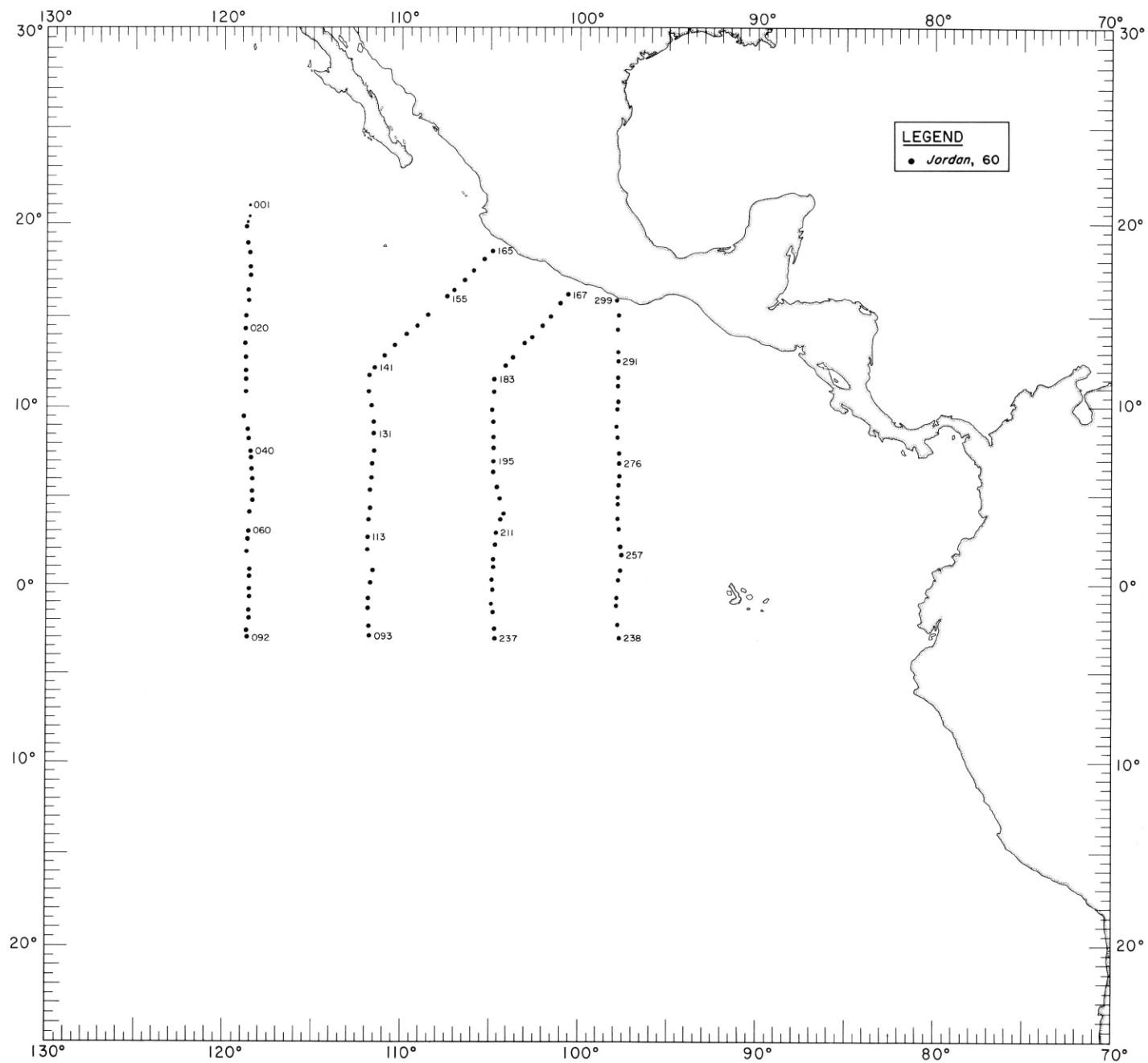
RM-b

FIGURE RM-b — Reference map of the southern coastal portion of the EASTROPAC area. The topographic shading and bathymetric contours are approximate only and should not be considered as portraying the latest available information.



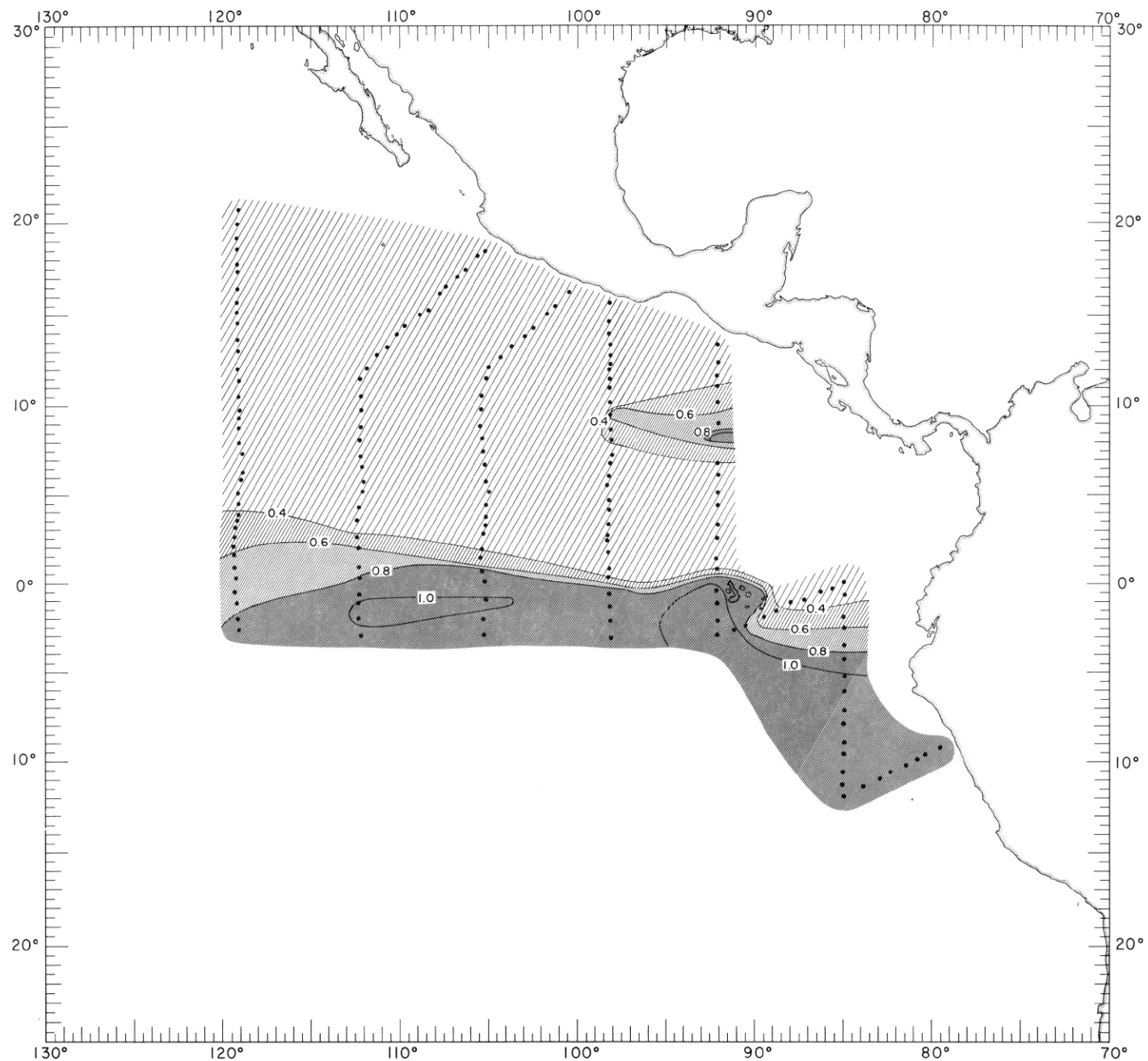
50-TC.

FIGURE 50-TC. — Locations of stations occupied by participating ships during the third monitor period, October-November 1967.



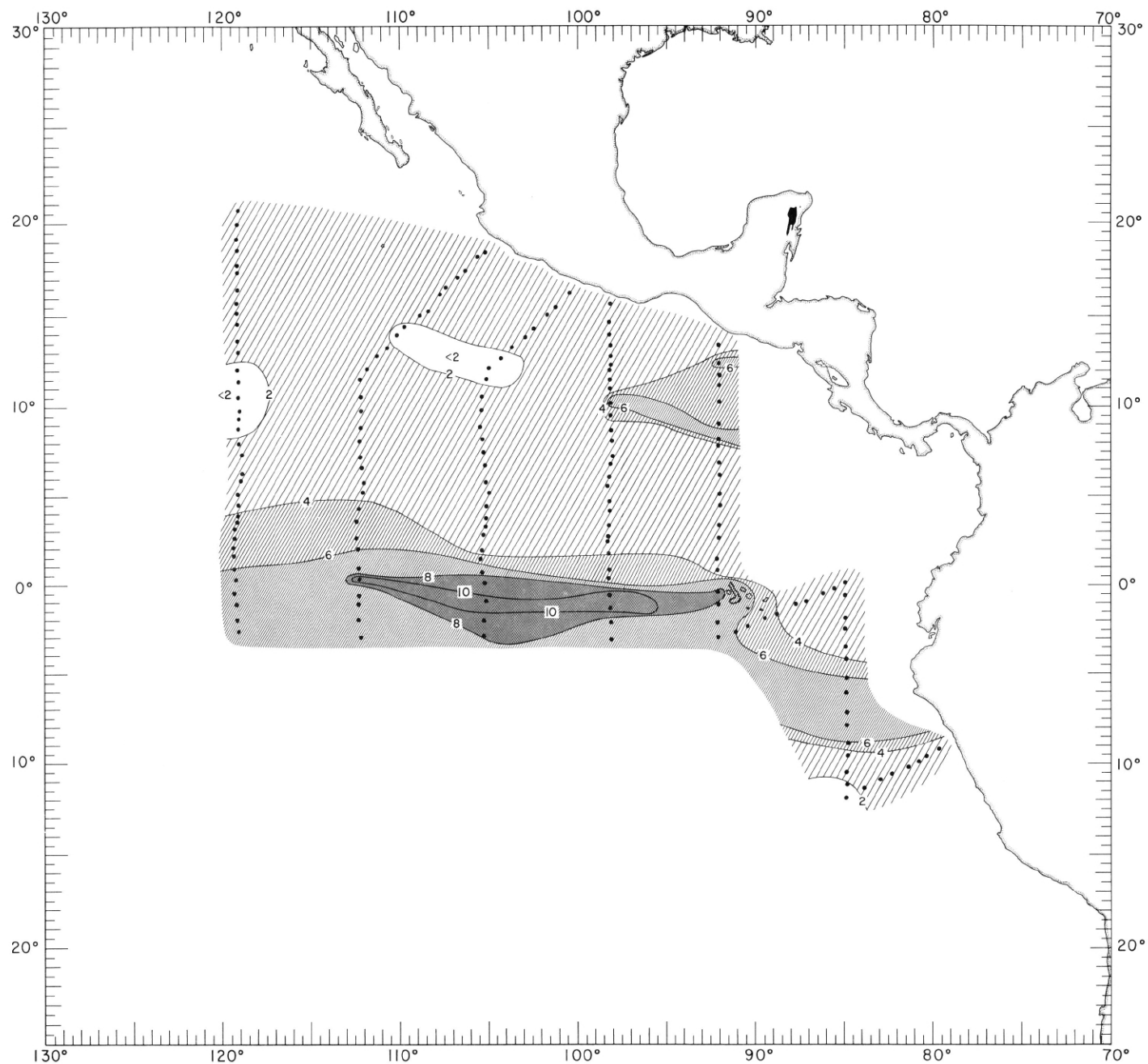
60-TC.

FIGURE 60-TC. — Locations of stations occupied by participating ships during the fourth monitor period, December 1967-January 1968.



50-P-10.

FIGURE 50-P-10. — Phosphate-phosphorus ($\mu\text{g-at./l.}$) at 10 meters, October-November 1967.



50-Si-10.

FIGURE 50-Si-10. — Silicate-silicon ($\mu\text{g.-at./l.}$) at 10 meters, October-November 1967.

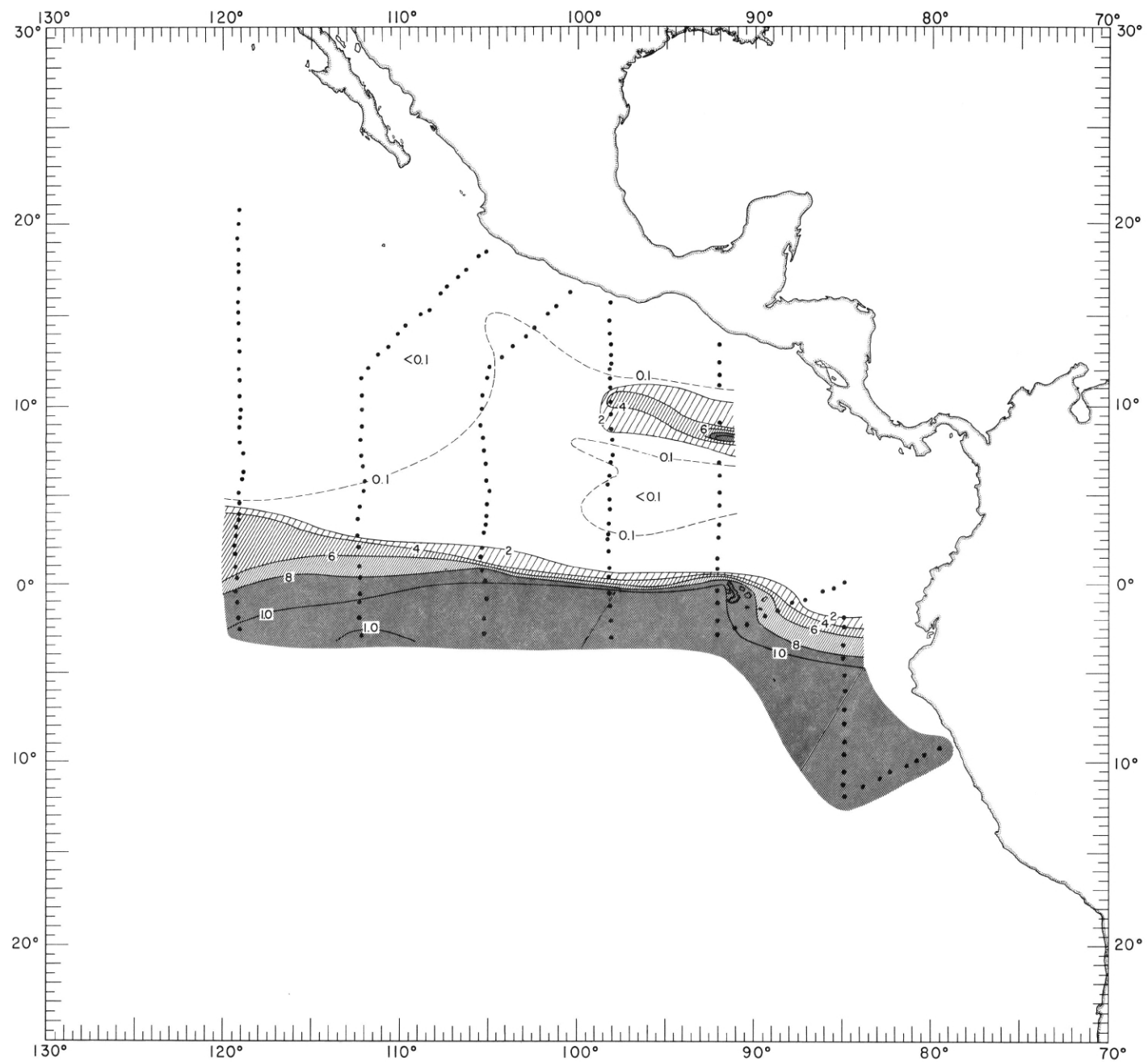
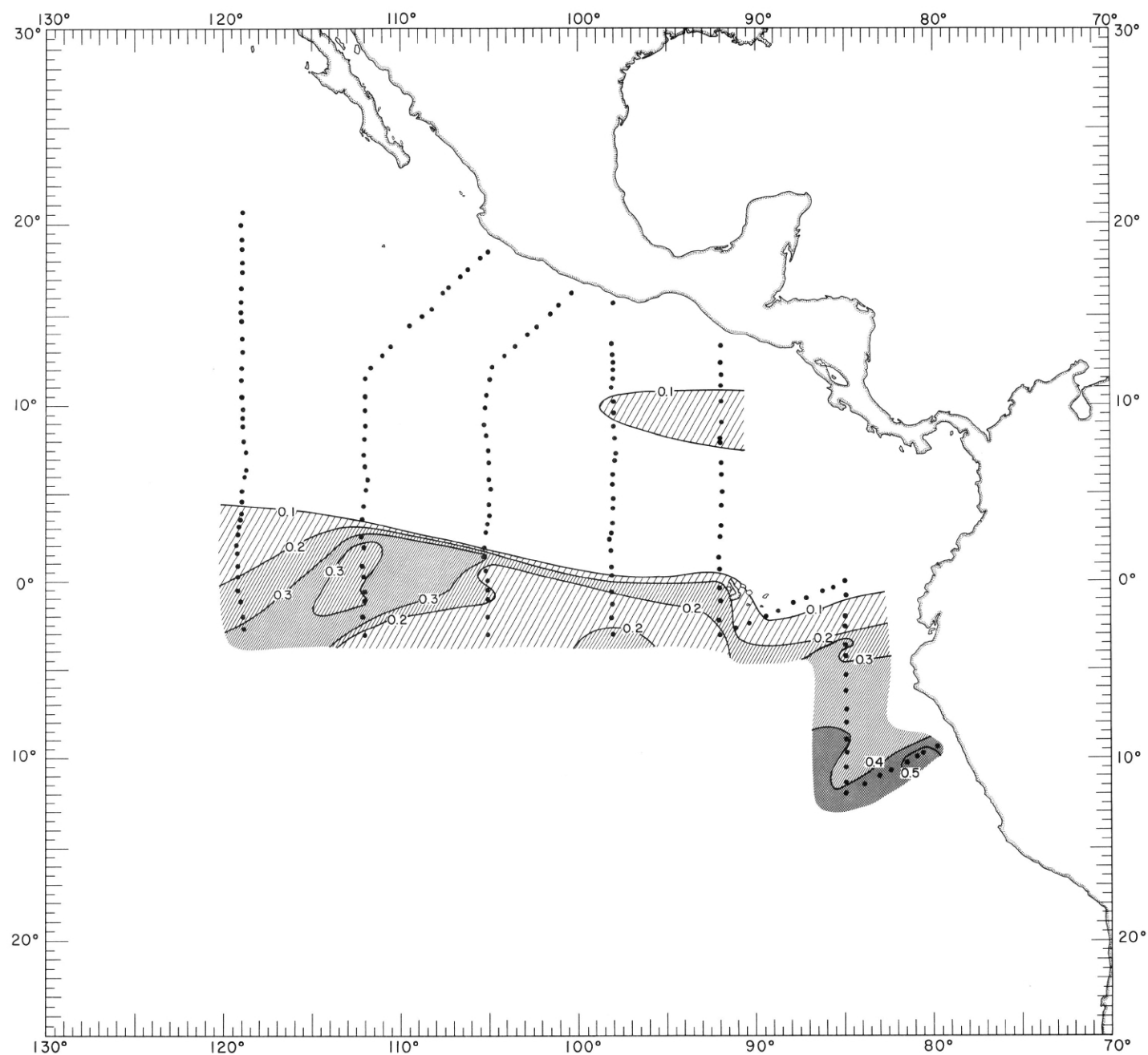
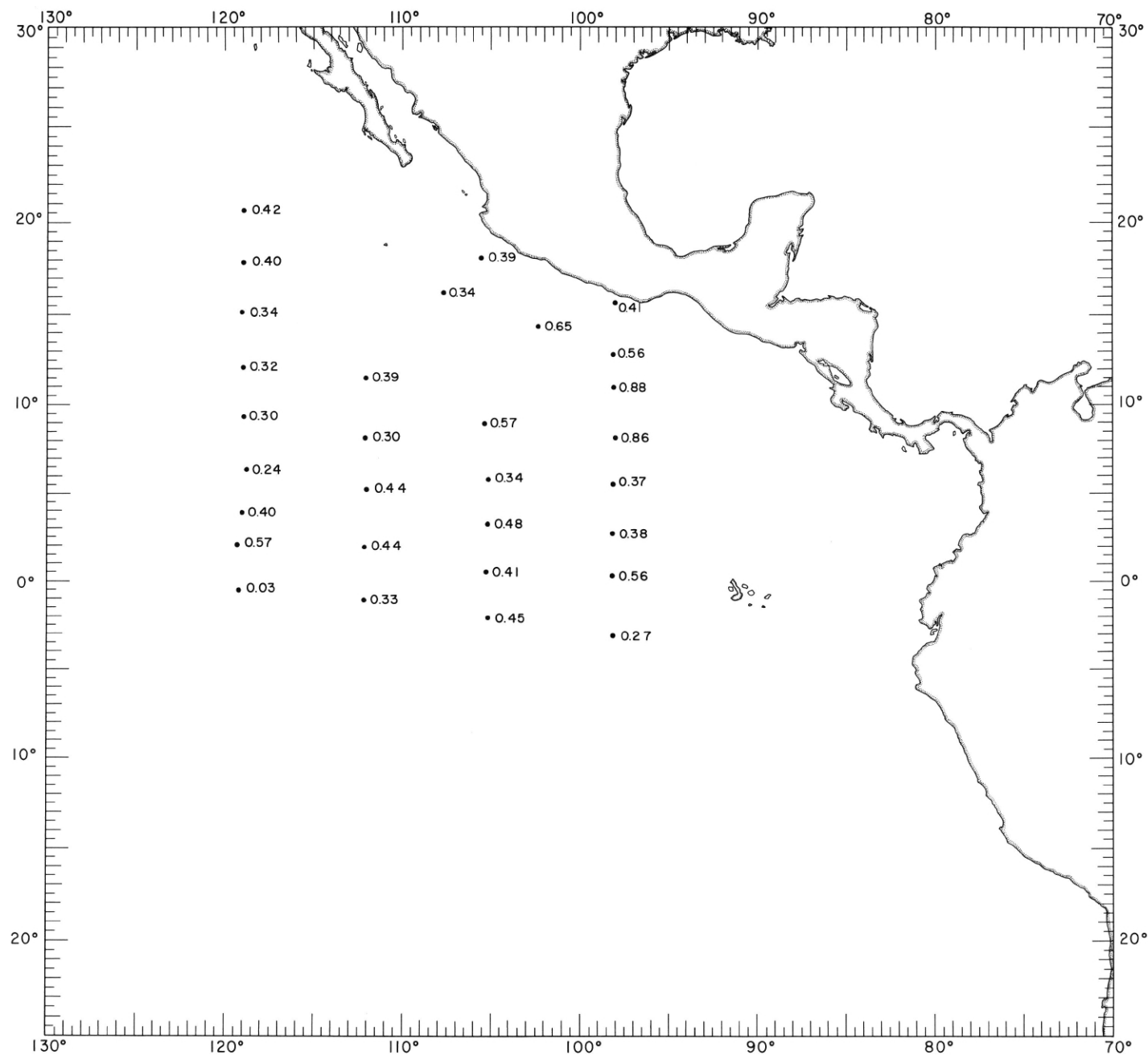


FIGURE 50-NO₃-10. — Nitrate-nitrogen ($\mu\text{g-at./l.}$) at 10 meters, October-November 1967.



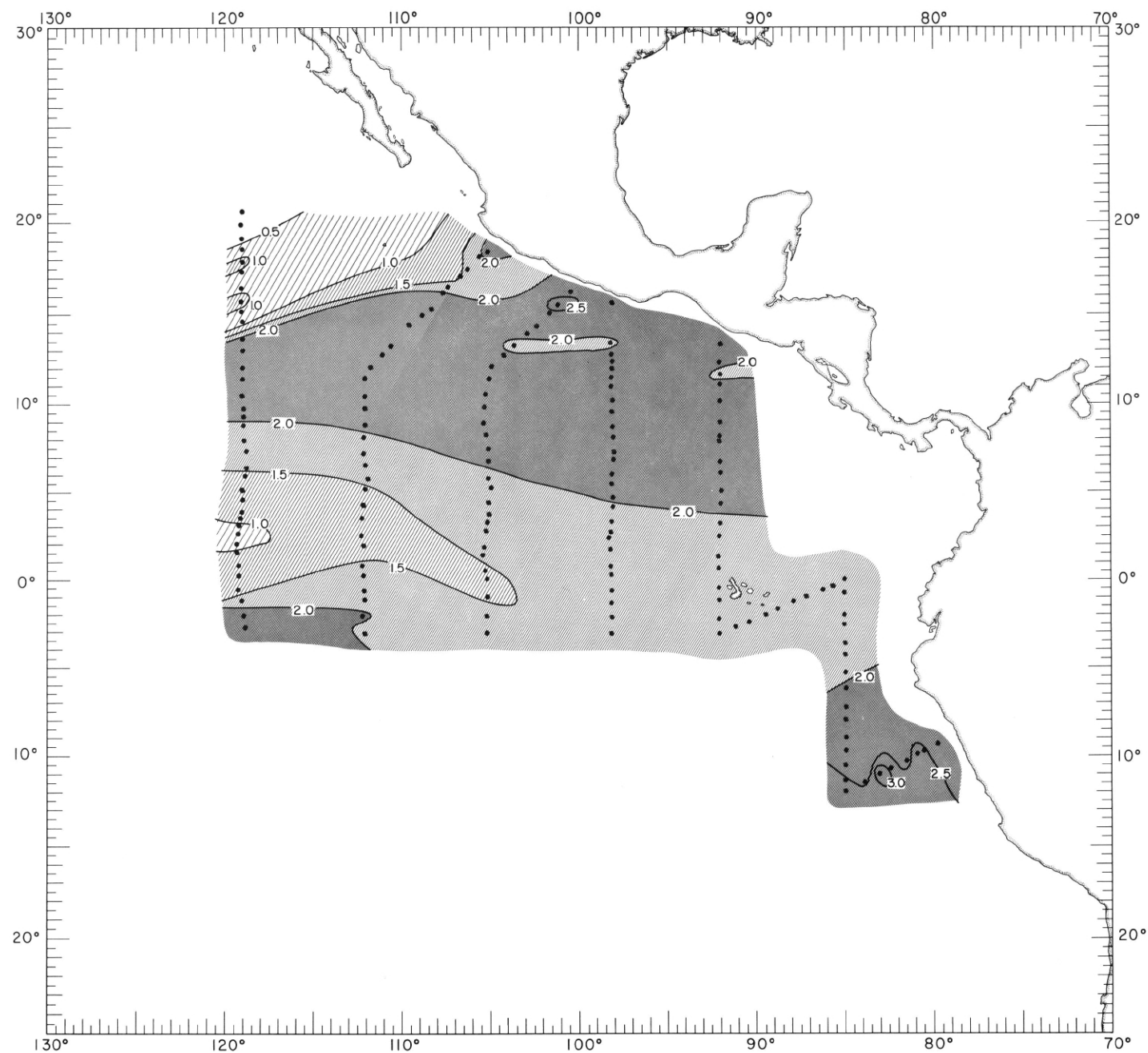
50-NO₂-10.

FIGURE 50-NO₂-10.—Nitrite-nitrogen ($\mu\text{g.-at./l.}$) at 10 meters, October - November 1967.



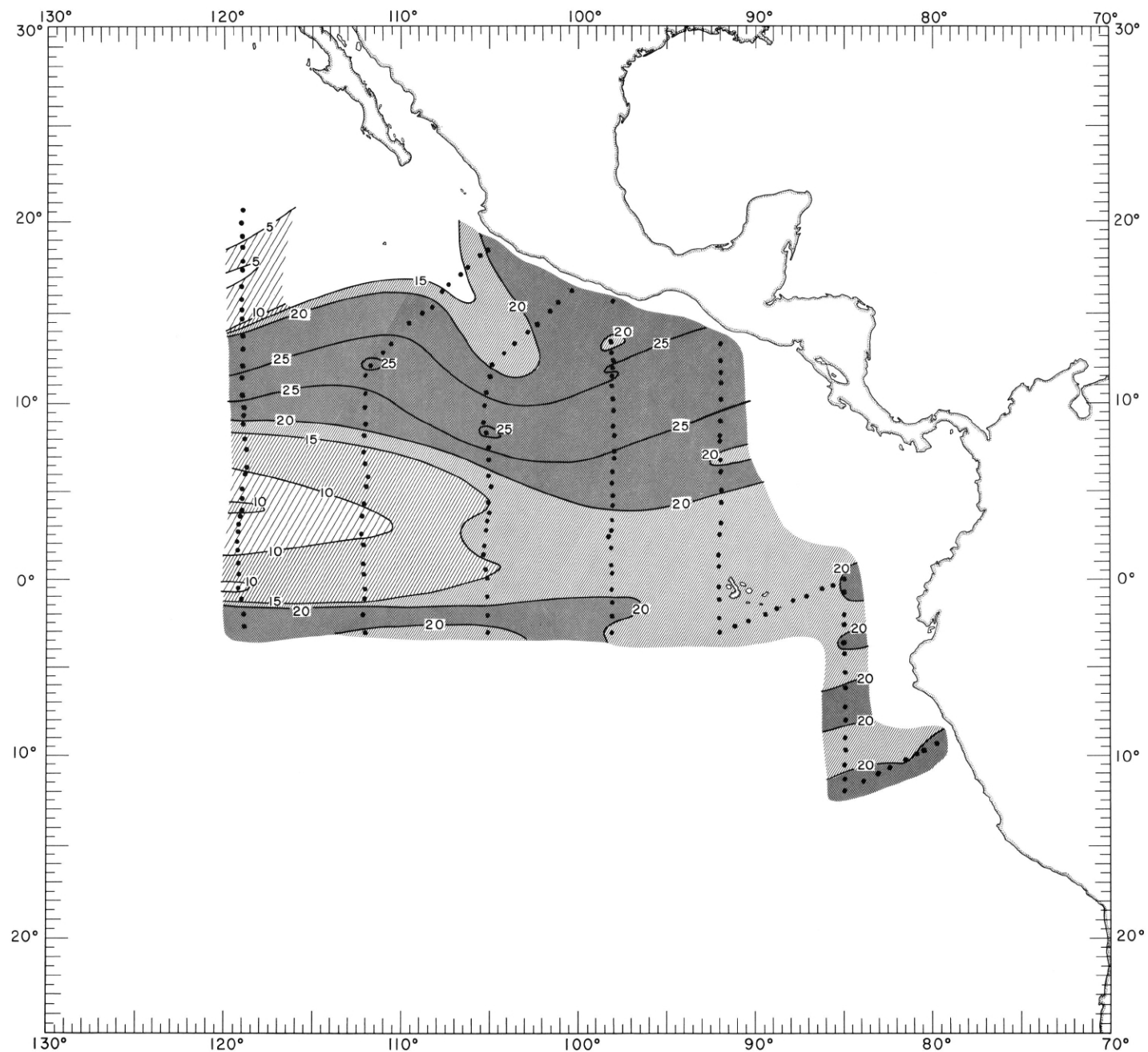
50-NH₃-10.

FIGURE 50-NH₃-10.—Ammonia-nitrogen ($\mu\text{g-at./l.}$) at 10 meters, October-November 1967. Because the distribution is so irregular no contours have been drawn. Instead, the concentration at each station is shown.



50-P-100.

FIGURE 50-P-100.—Phosphate-phosphorus ($\mu\text{g-at./l.}$) at 100 meters, October-November 1967.



50-Si-100.

FIGURE 50-Si-100.—Silicate-silicon ($\mu\text{g-at./l.}$) at 100 meters, October-November 1967.

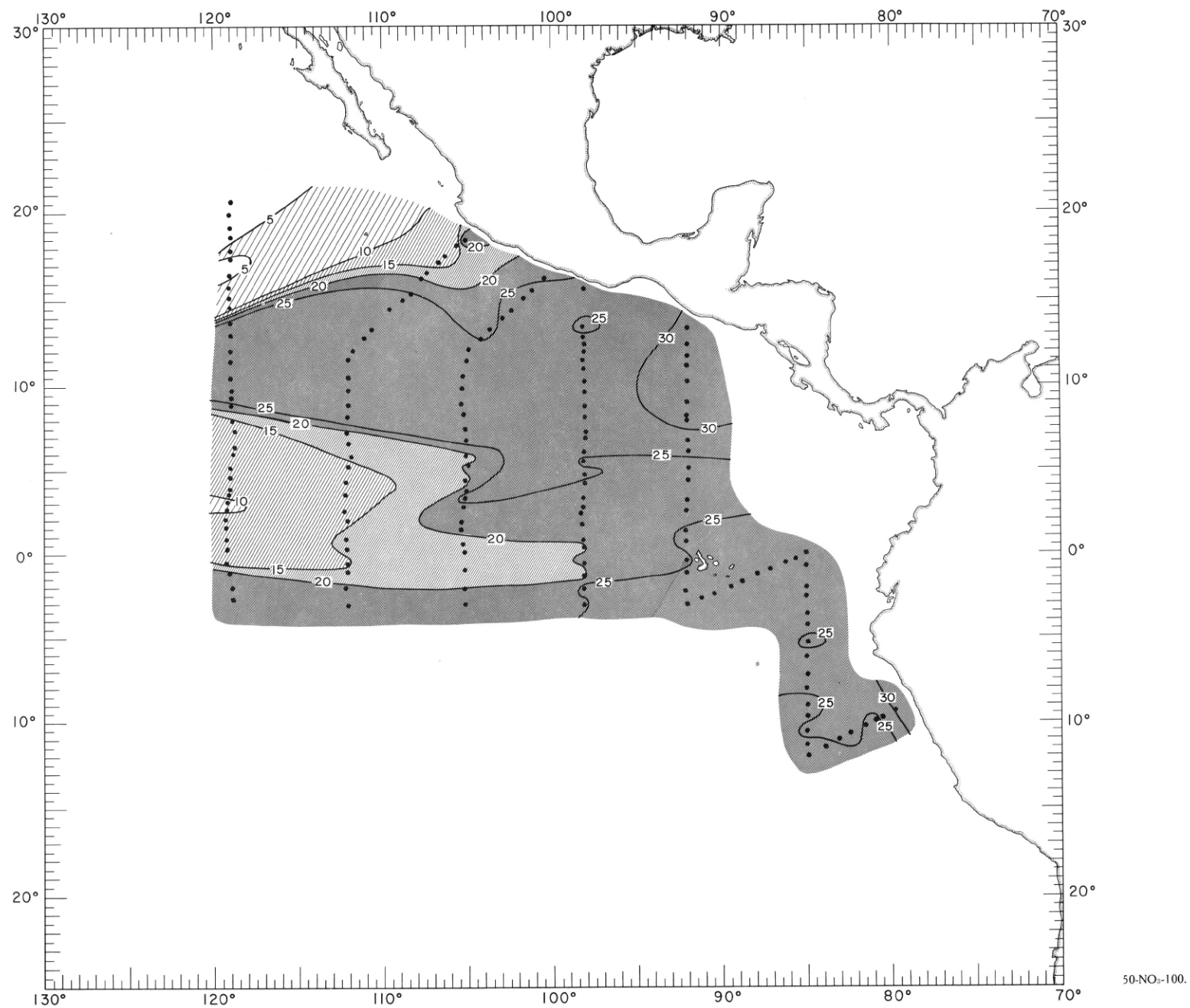


FIGURE 50-NO₃-100.—Nitrate-nitrogen ($\mu\text{g-at./l.}$) at 100 meters, October-November 1967.

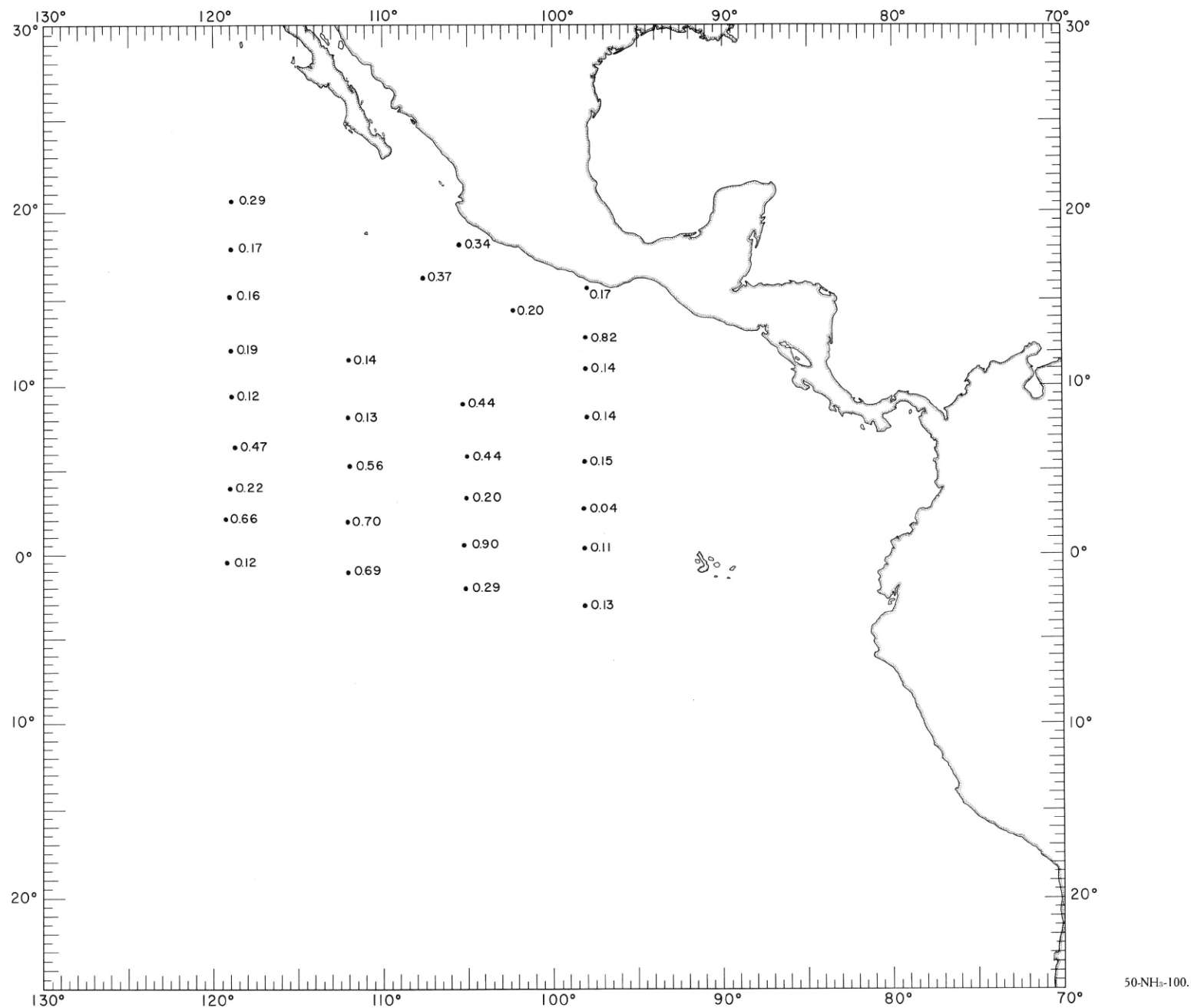


FIGURE 50-NH₂-100.—Ammonia-nitrogen ($\mu\text{g-at./l.}$) at 100 meters, October-November 1967. Because the distribution is so irregular no contours have been drawn. Instead, the concentration at each station is shown.

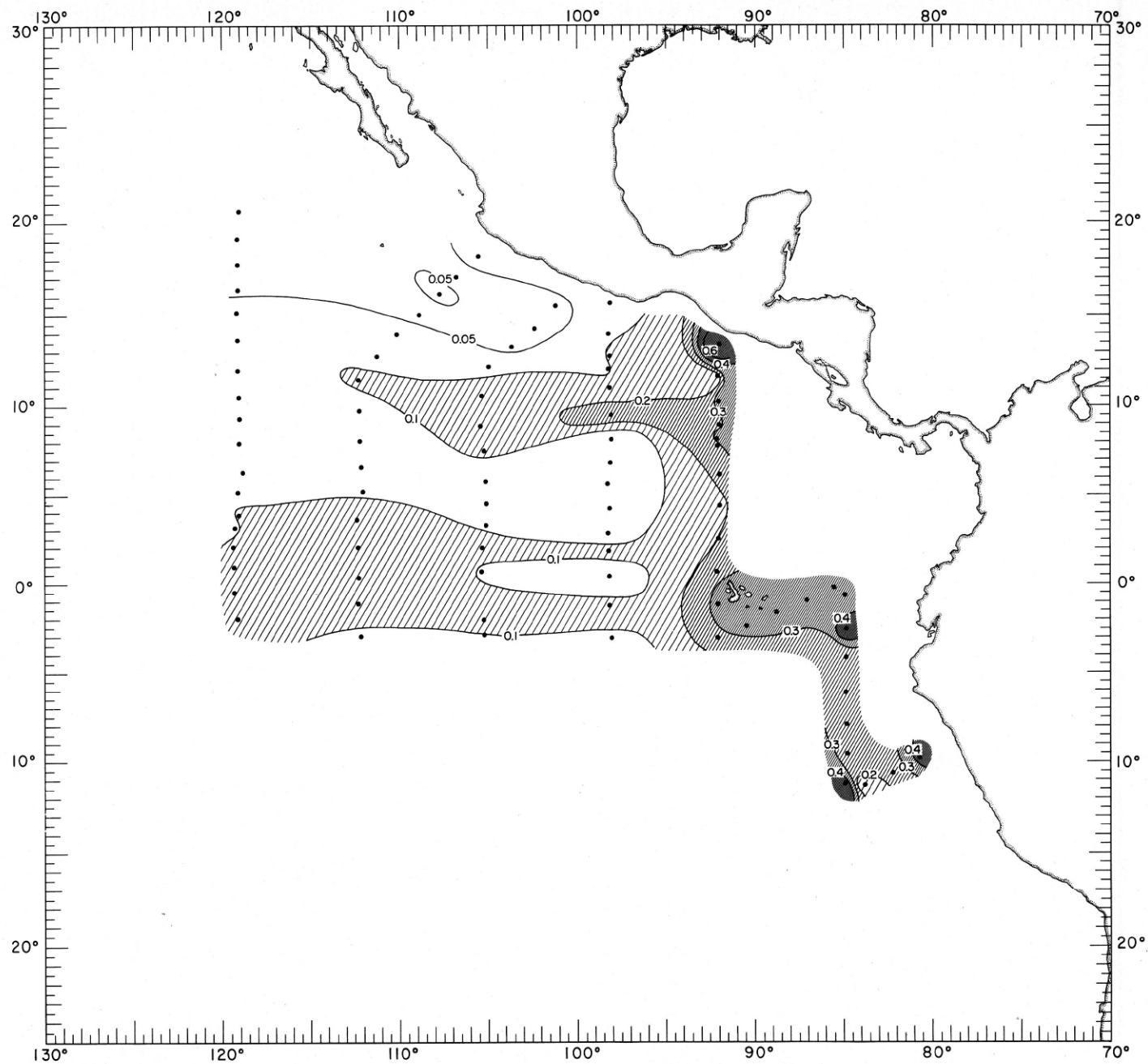
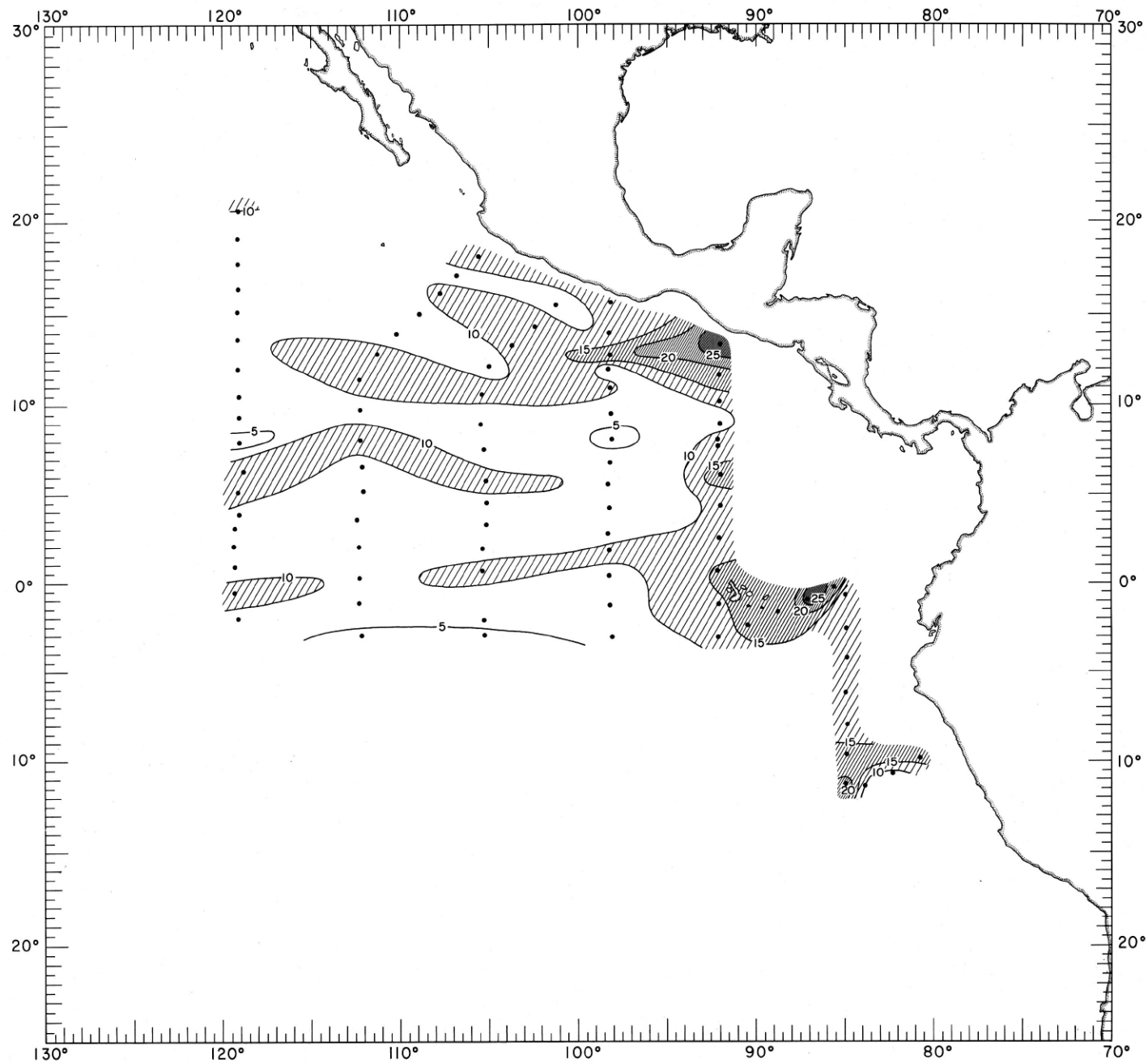
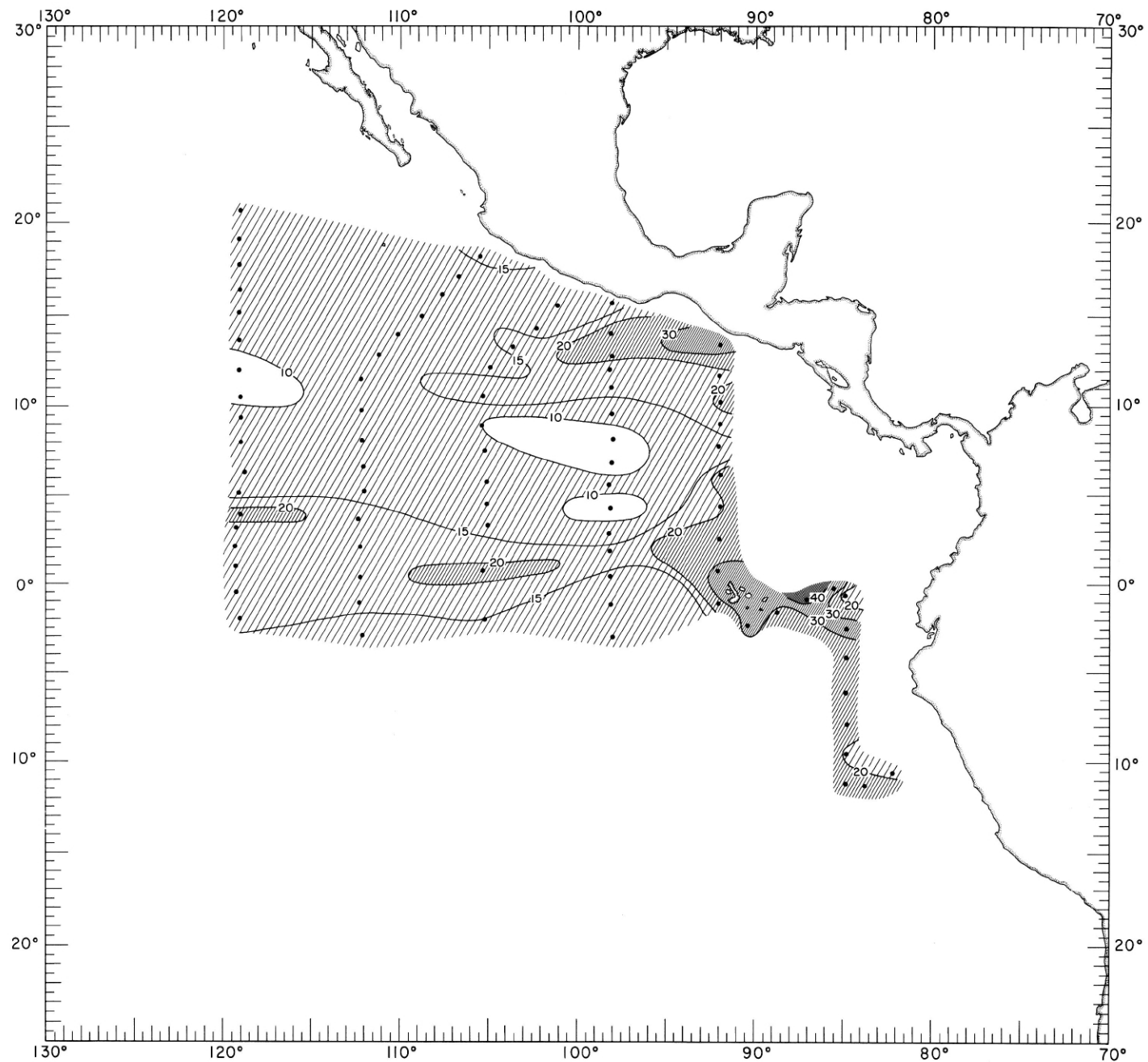


FIGURE 50-Ch-s. — Chlorophyll-a (mg./m.³) at the sea surface, October-November 1967.



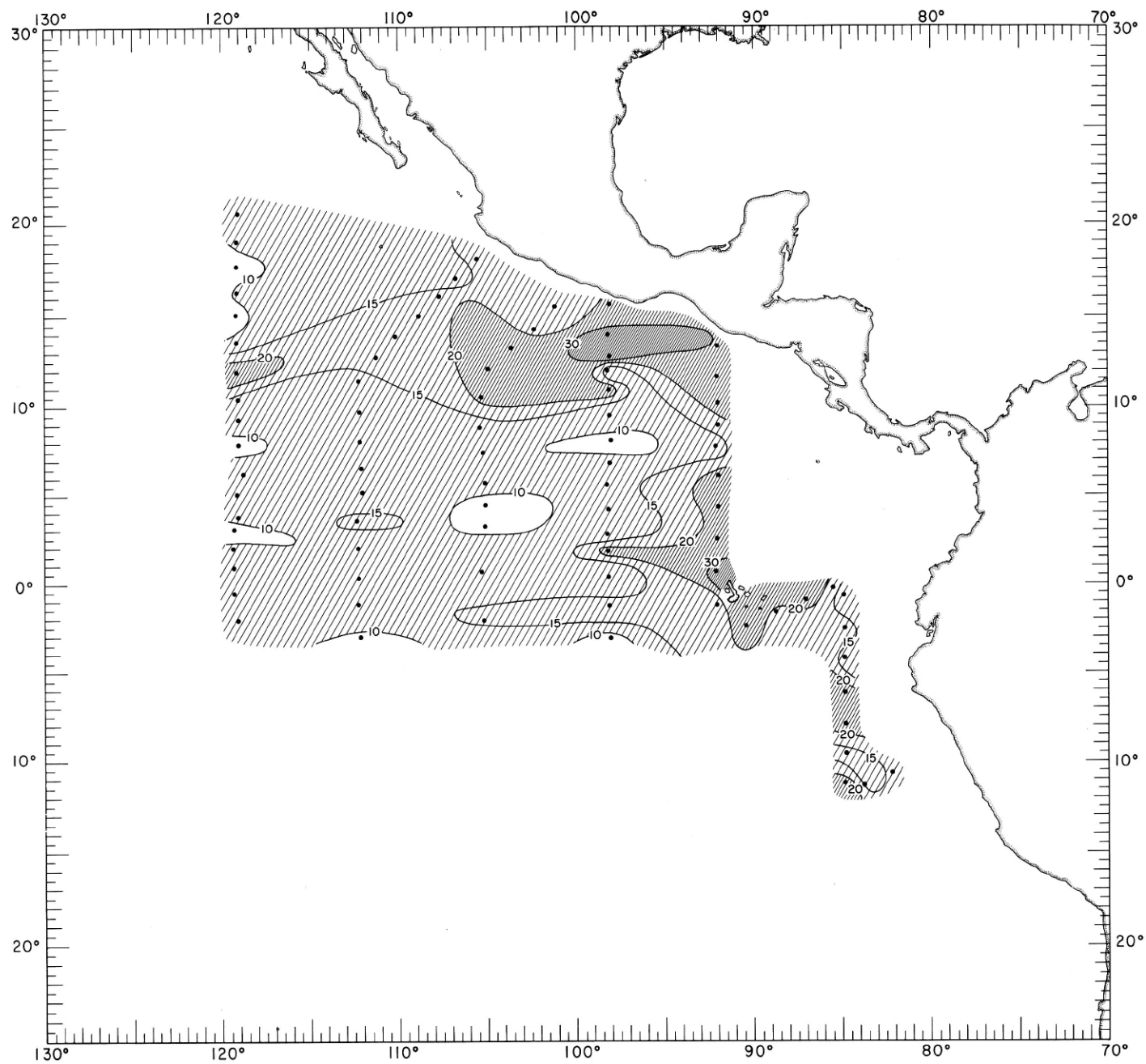
50-Ch-ei.

FIGURE 50-Ch-ei. — Chlorophyll-a (mg./m.²) integrated over the euphotic layer, October-November 1967.



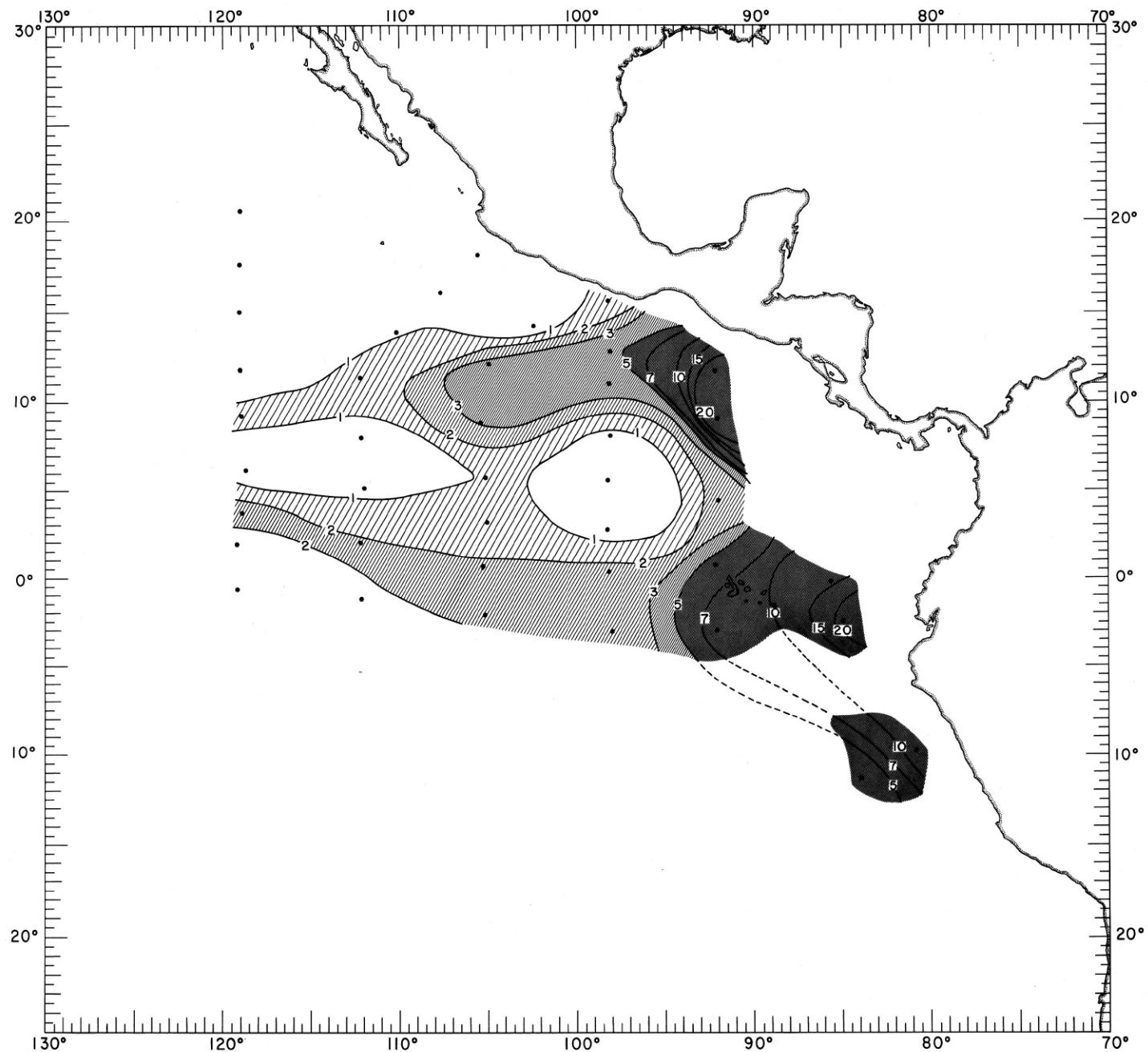
50-Ch-150i.

FIGURE 50-Ch-150i. — Chlorophyll-a (mg./m.²) integrated from the sea surface to 150 meters depth, October-November 1967.



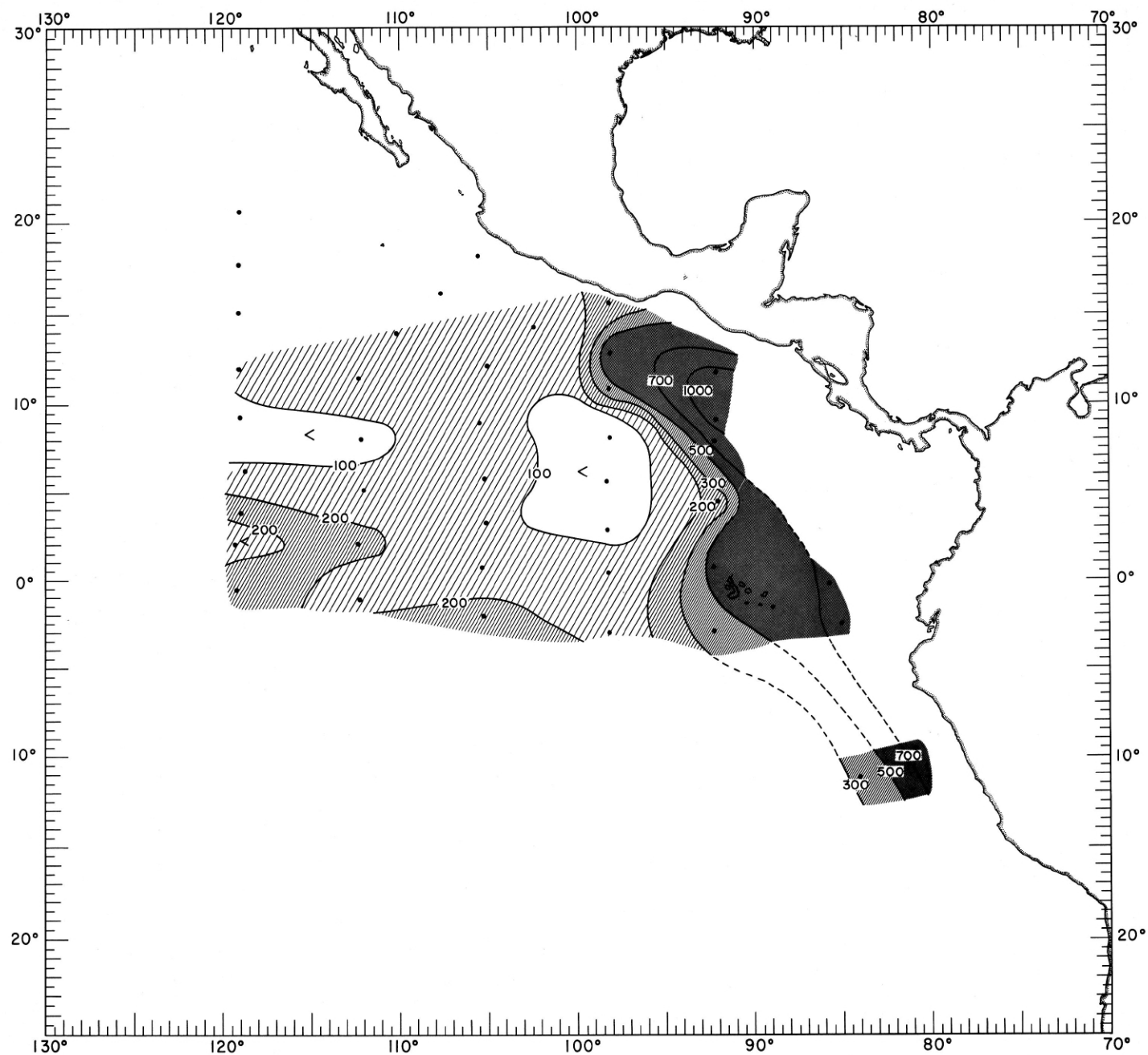
50-Ph-150i.

FIGURE 50-Ph-150i. — Phaeophytin (mg./m.²) integrated from the sea surface to 150 meters depth, October-November 1967.



50-PP-s.

FIGURE 50-PP-s.—Primary production (mg. C/m.³/day) at the sea surface, October-November 1967.



50-PP-ei.

FIGURE 50-PP-ei.—Primary production (mg. C/m.²/day) integrated over the euphotic layer, October-November 1967.

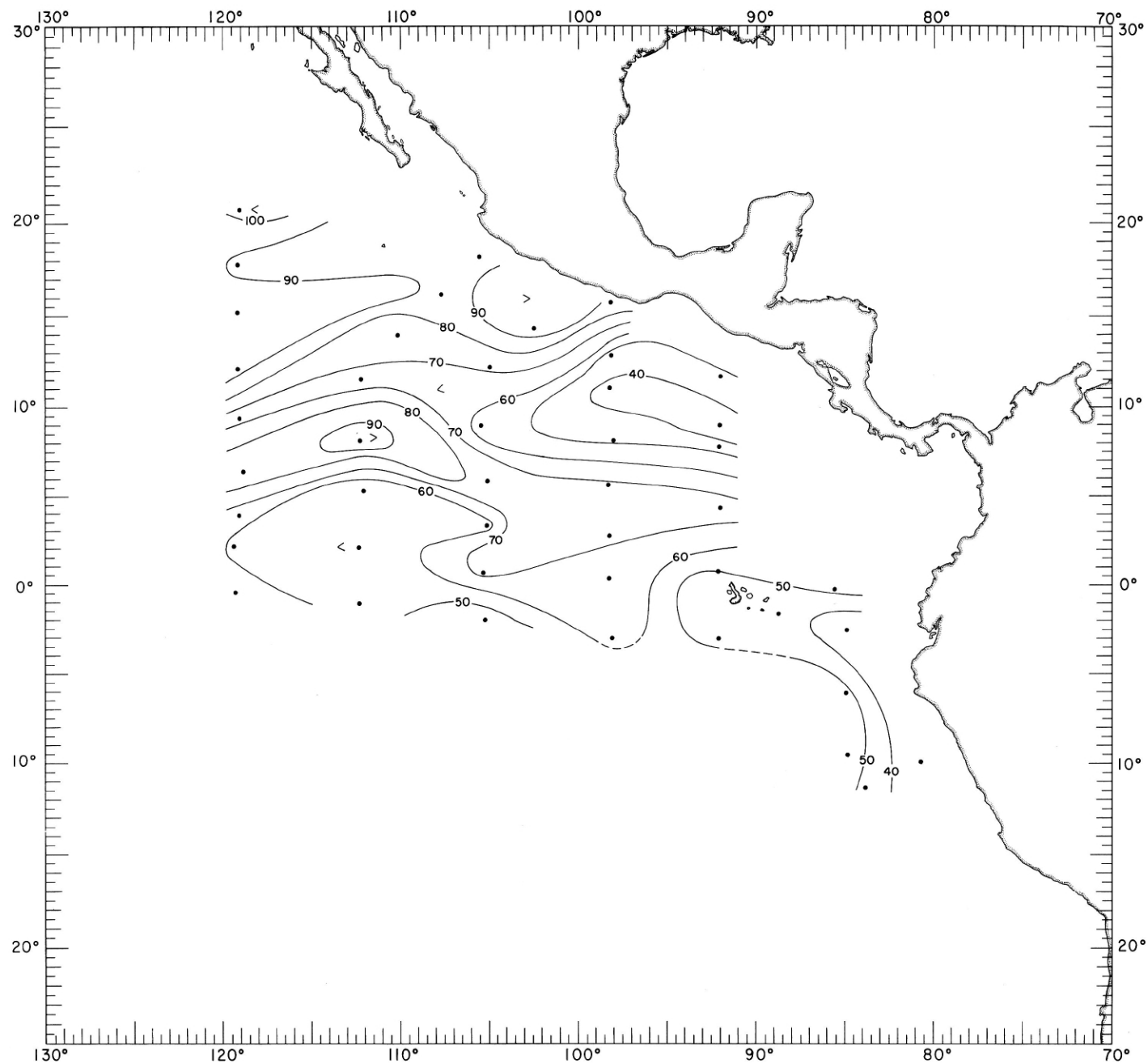


FIGURE 50-EL. — Thickness of the euphotic layer in meters, October-November 1967.

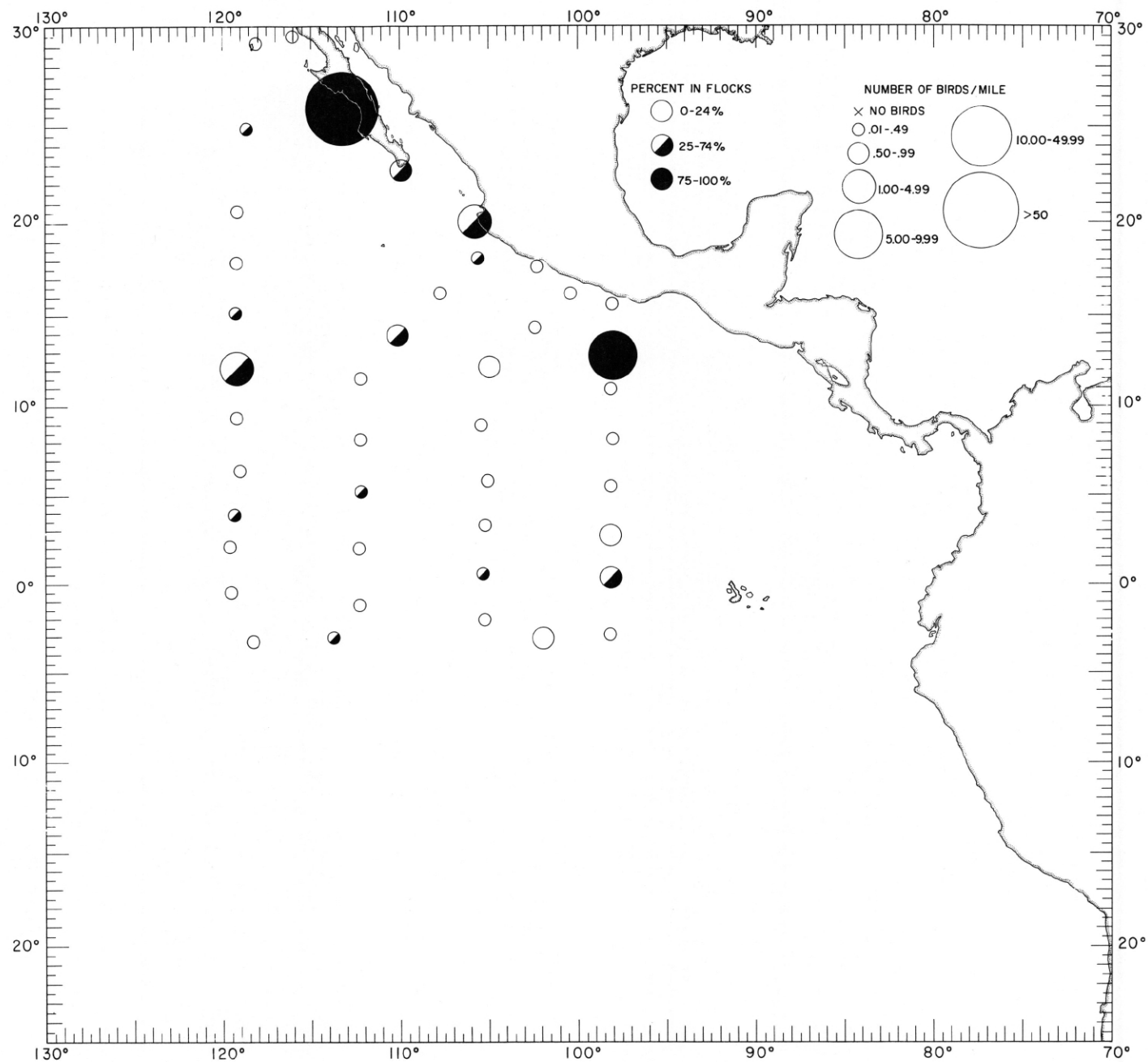


FIGURE 50-BP. — Relative abundance of plankton-feeding birds (birds/mile), October-November 1967.

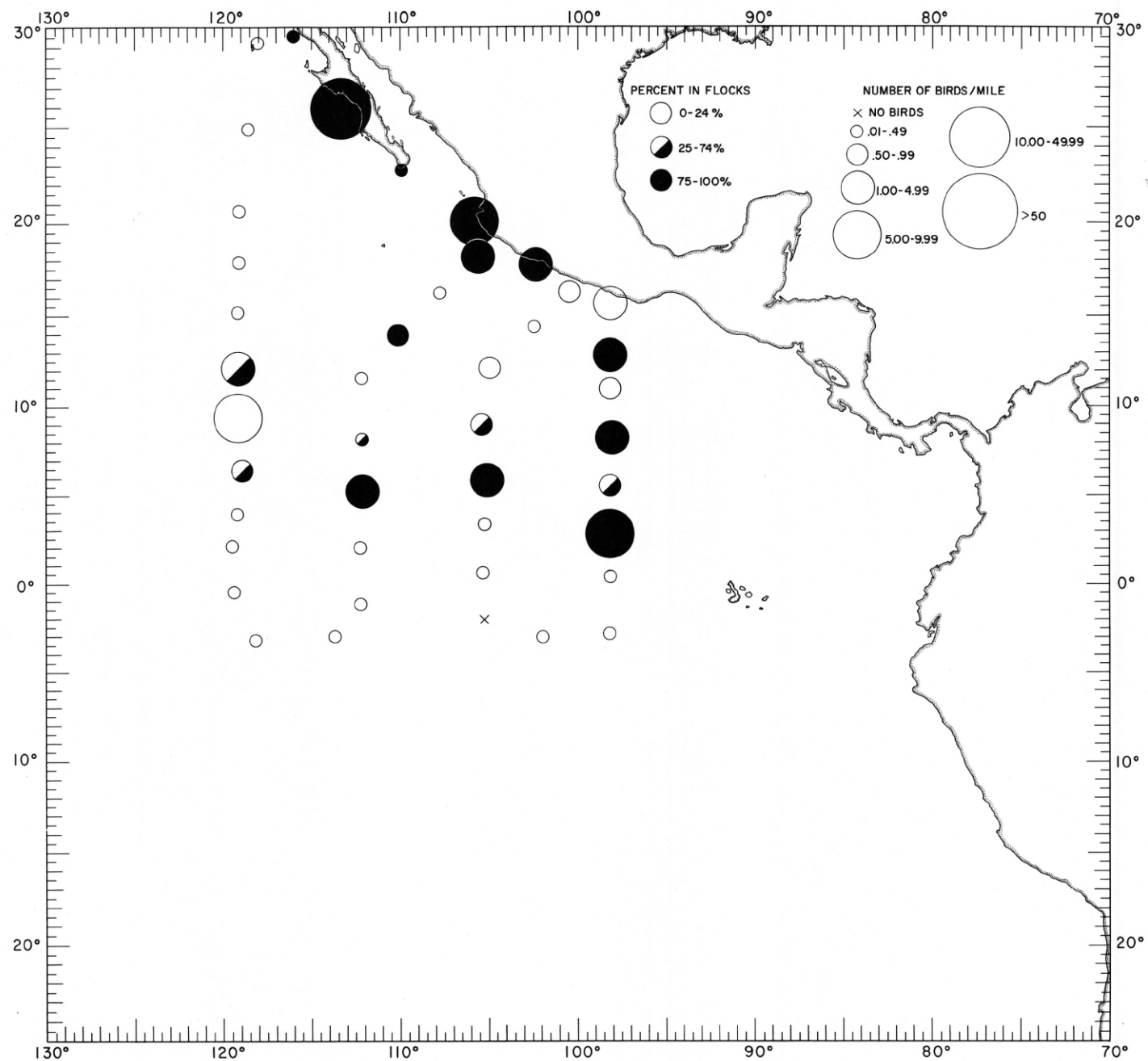
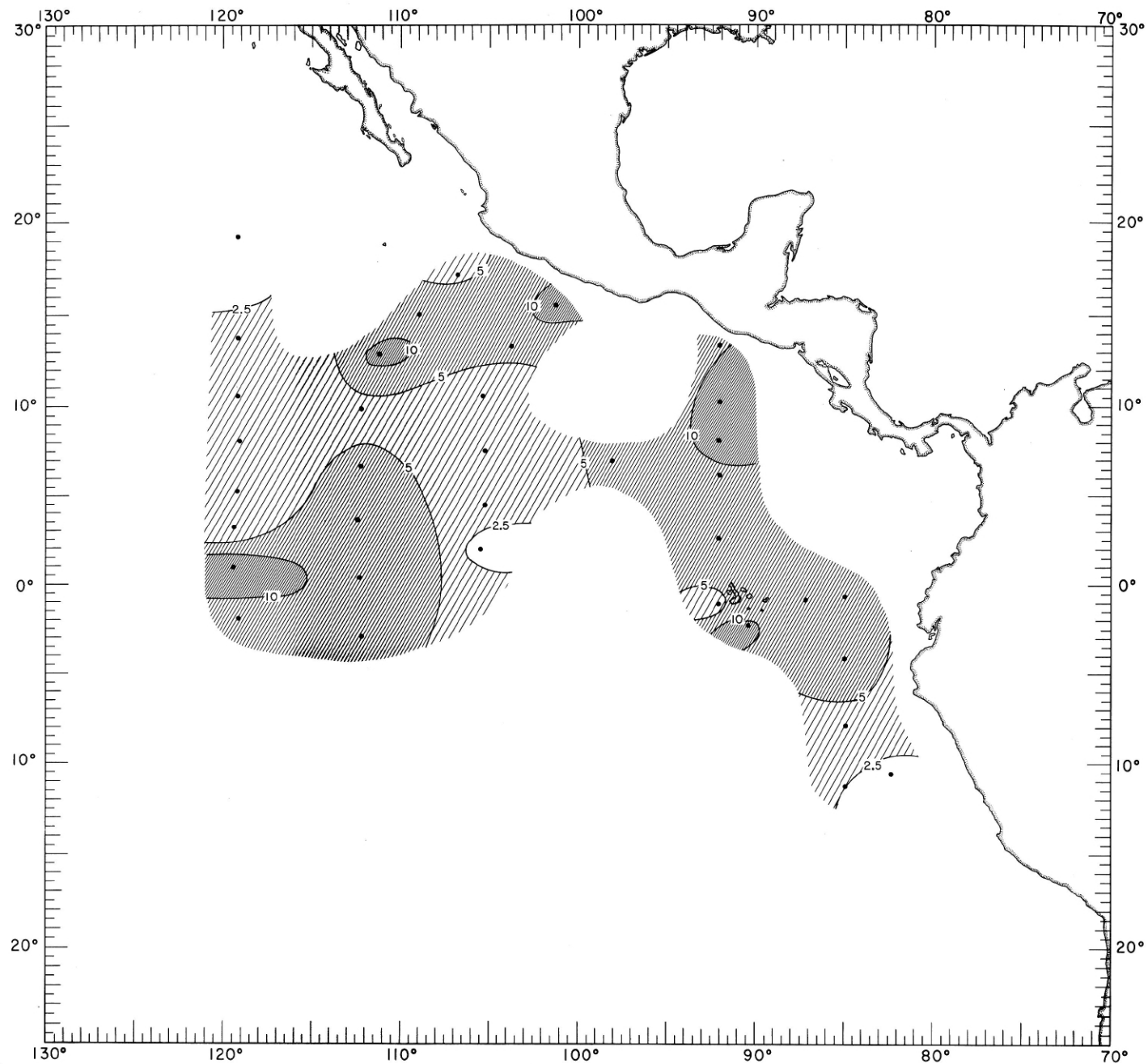


FIGURE 50-BF. — Relative abundance of fish and cephalopod-feeding birds (birds/mile), October-November 1967.



50-FCp.

FIGURE 50-FCp. — Distribution of standing stock (ml./1,000 m.³) of total fish and cephalopods taken in night micronekton hauls during October-November 1967.

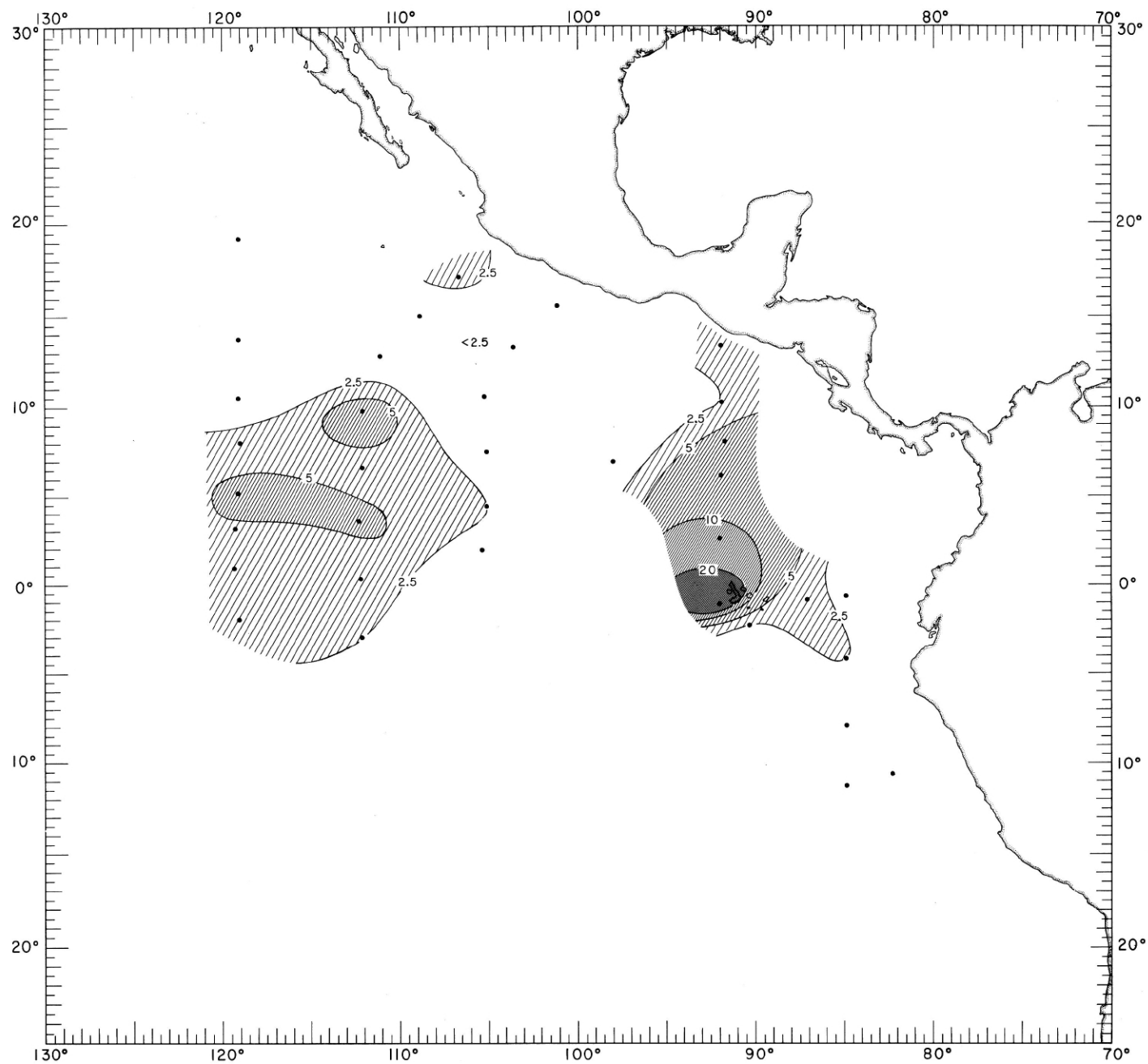


FIGURE 50-Cr. — Distribution of standing stock (ml./1,000 m.³) of total crustaceans taken in night micronekton hauls during October-November 1967.

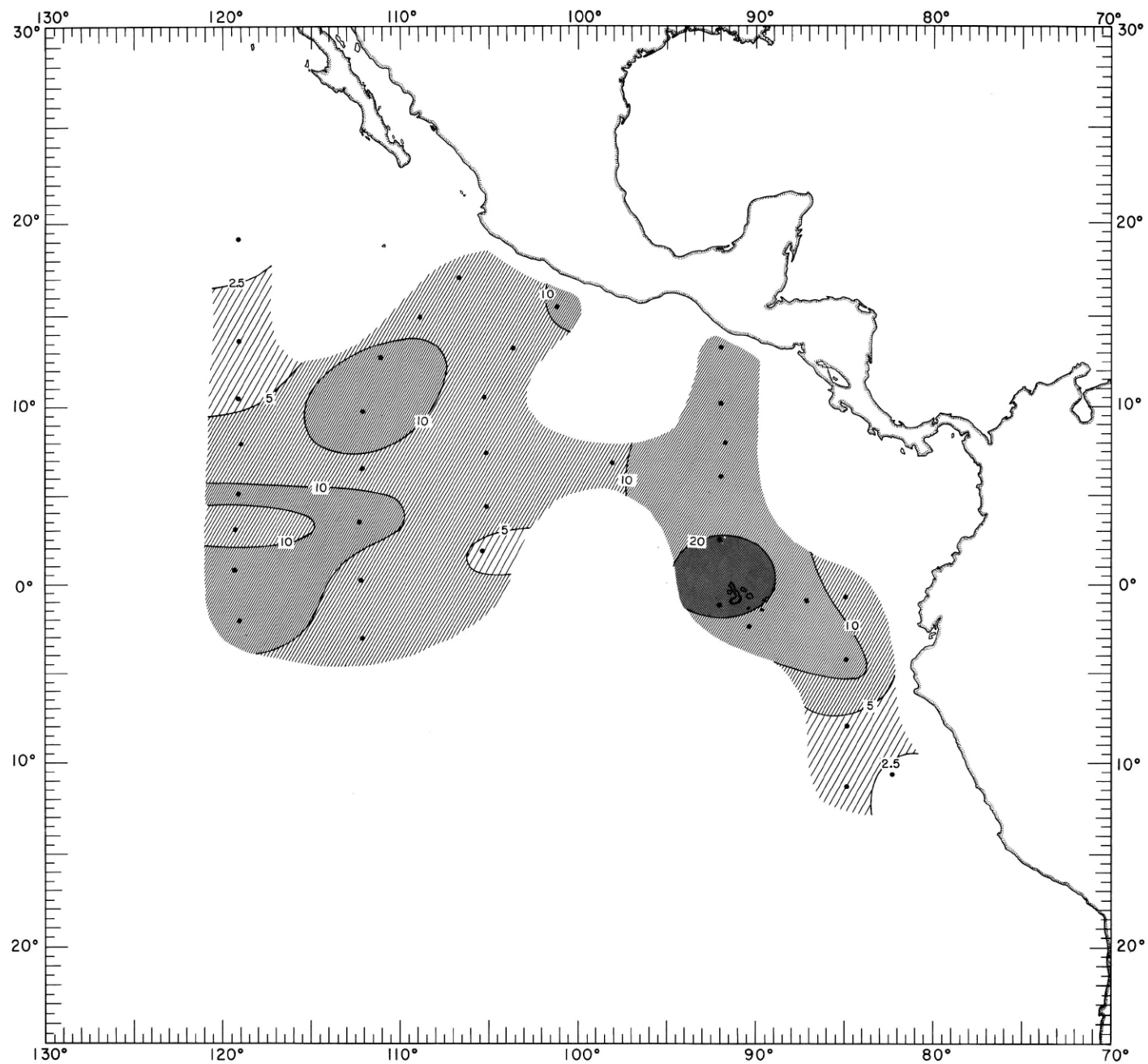
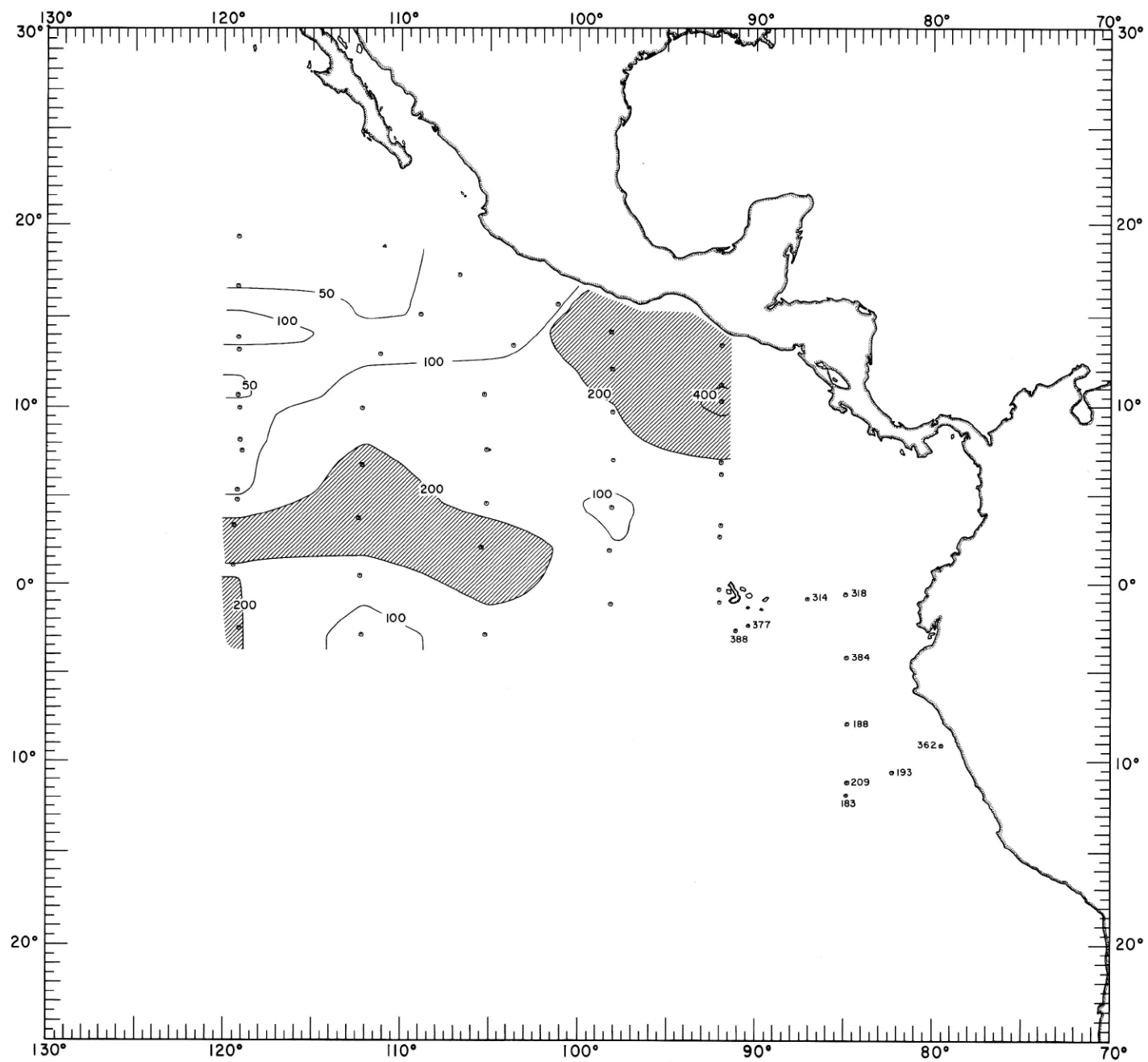


FIGURE 50-Nk. — Distribution of standing stock (ml./1,000 m.³) of total micronekton taken in night micronekton hauls during October-November 1967.



50-ZhN.

FIGURE 50-ZhN. — Distribution of standing stock (ml./1,000 m.³) of zooplankton taken in 50-cm. net hauls at night, October-November 1967. East of 92° W. the displacement volume for each station is shown because there are not sufficient data to contour.

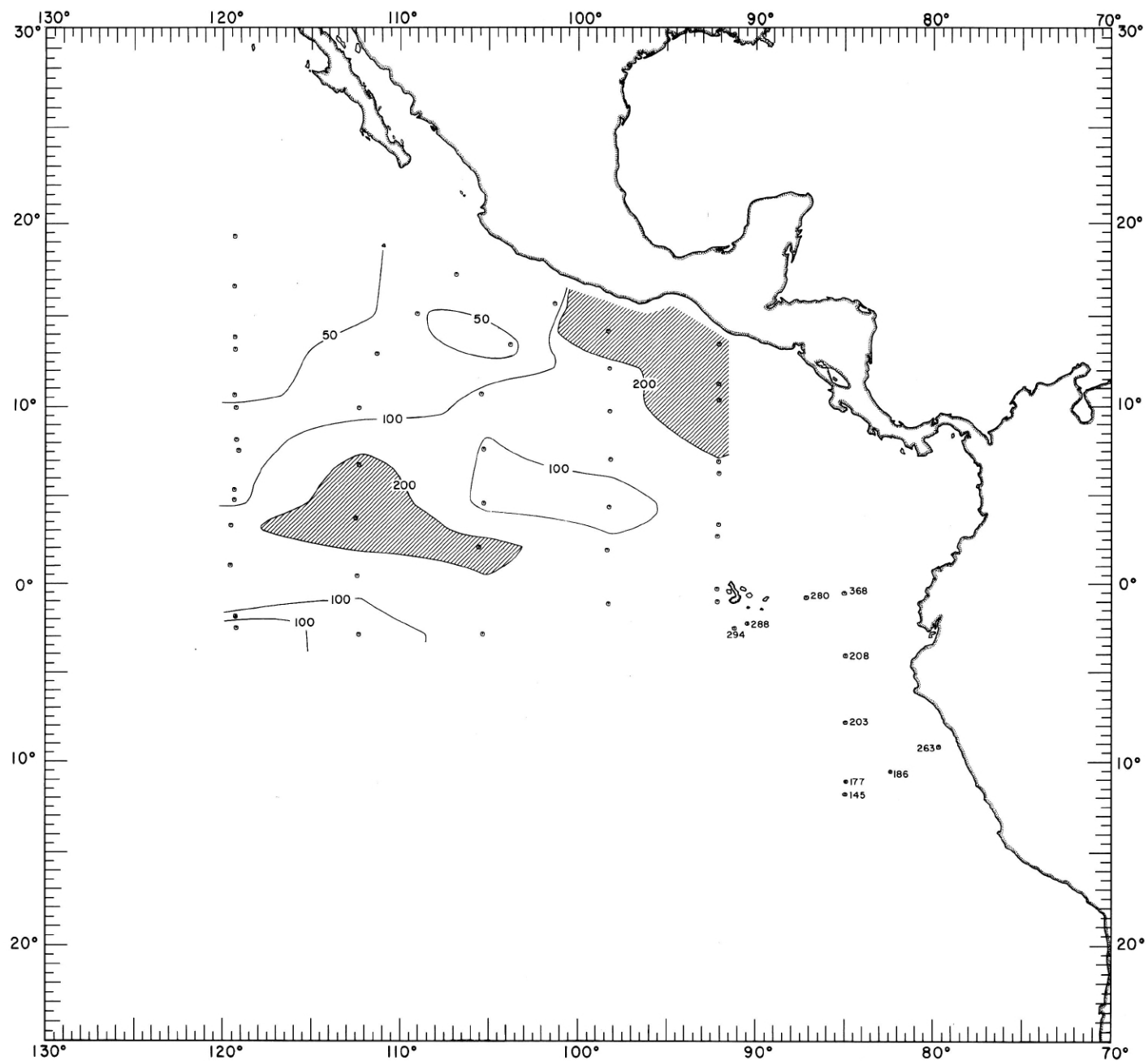
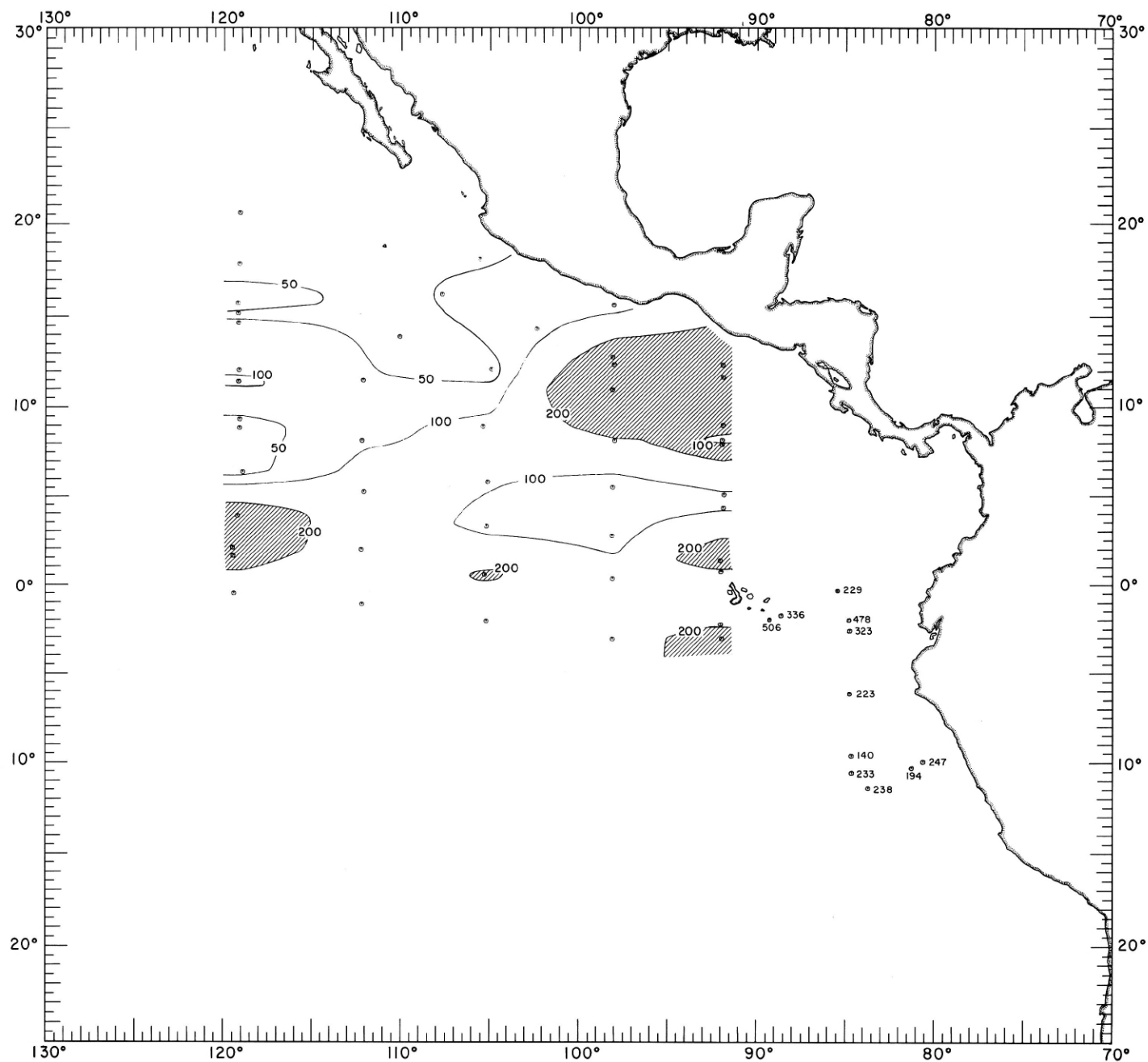
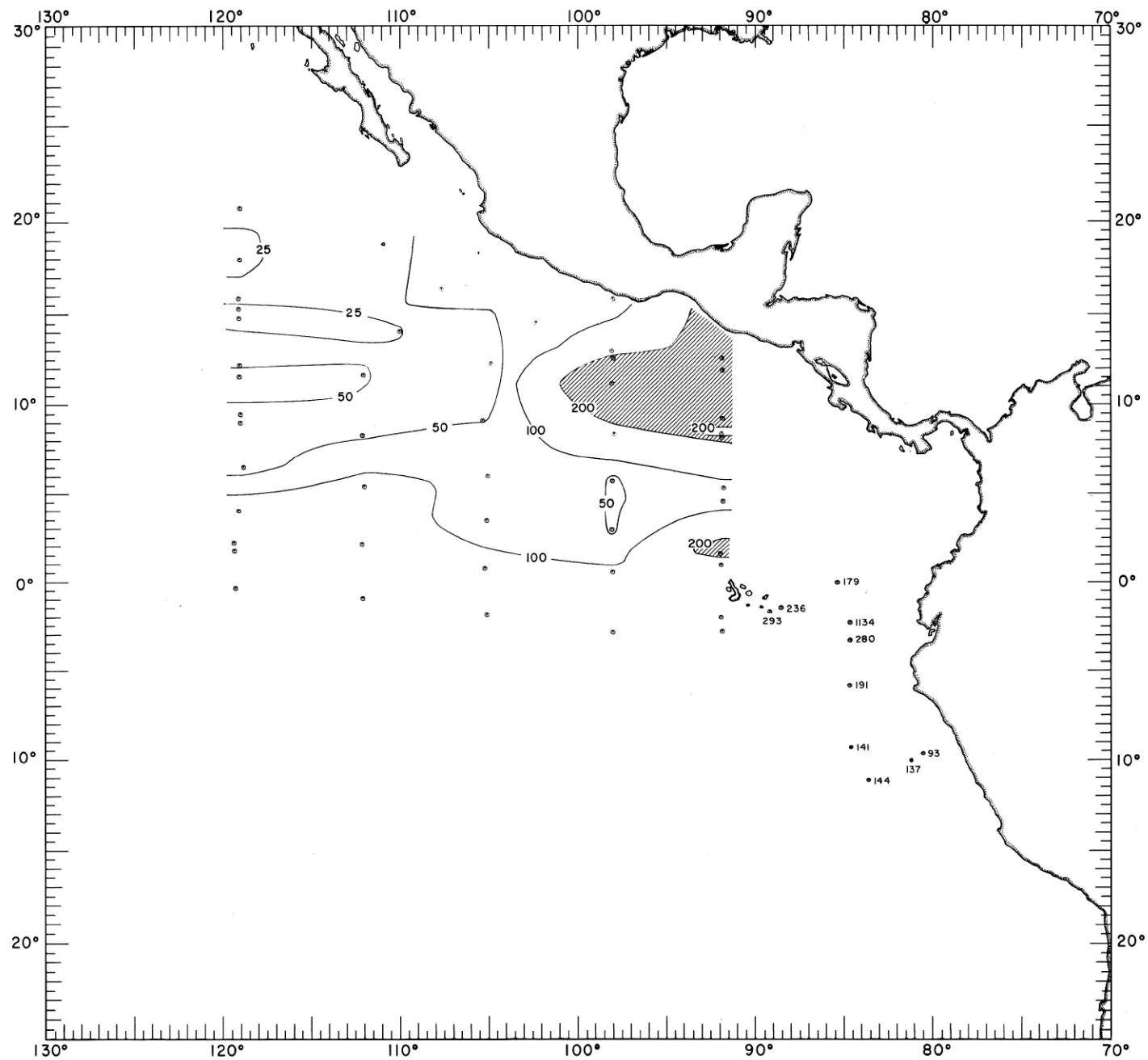


FIGURE 50-Z1N. — Distribution of standing stock (ml./1,000 m.³) of zooplankton taken in 1-m. net hauls at night, October-November 1967. East of 92° W. the displacement volume for each station is shown because there are not sufficient data to contour.



50-ZhD.

FIGURE 50-ZhD. — Distribution of standing stock (ml./1,000 m.³) of zooplankton taken in 50-cm. net hauls during the day, October-November 1967. East of 92° W, the displacement volume for each station is shown because there are not sufficient data to contour.



50-Z1D.

FIGURE 50-Z1D. — Distribution of standing stock (ml./1,000 m³) of zooplankton taken in 1-m. net hauls during the day, October-November 1967. East of 92° W, the displacement volume for each station is shown because there are not sufficient data to contour.

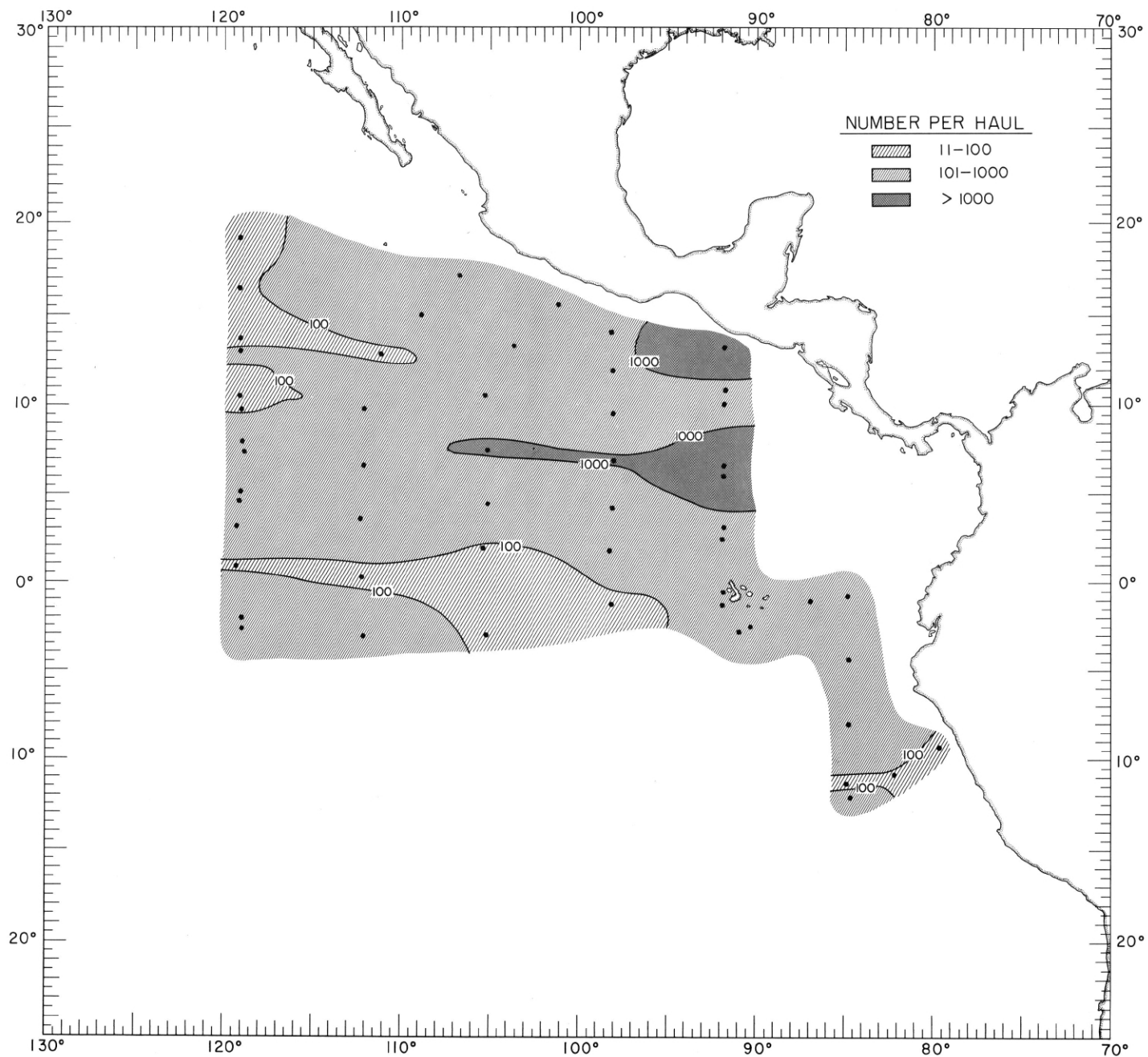
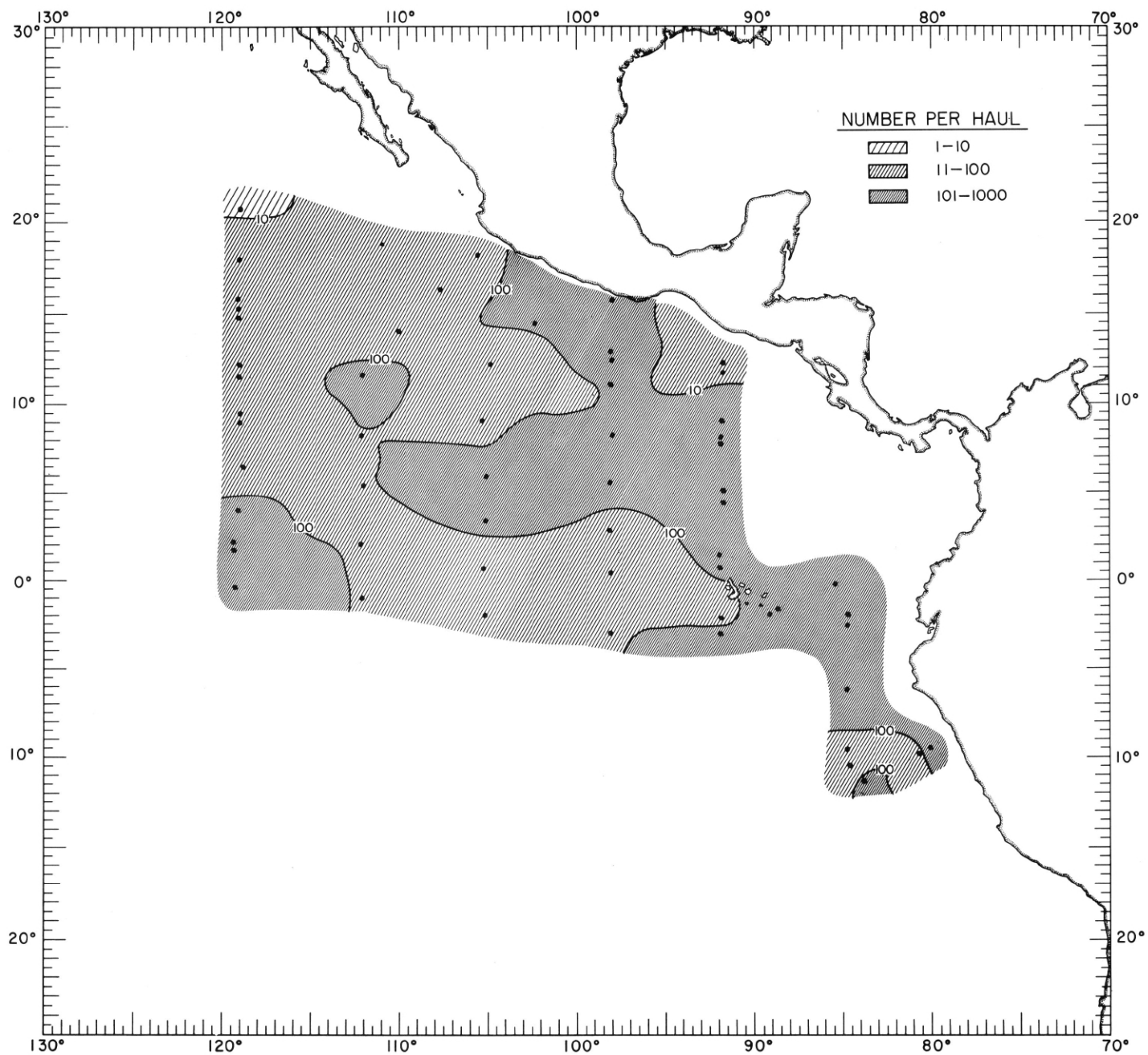


FIGURE 50-FLN.—Total fish larvae (number/haul) taken in 1-m. oblique plankton hauls at night during October-November 1967.



50-FLD.

FIGURE 50-FLD.—Total fish larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, October-November 1967.

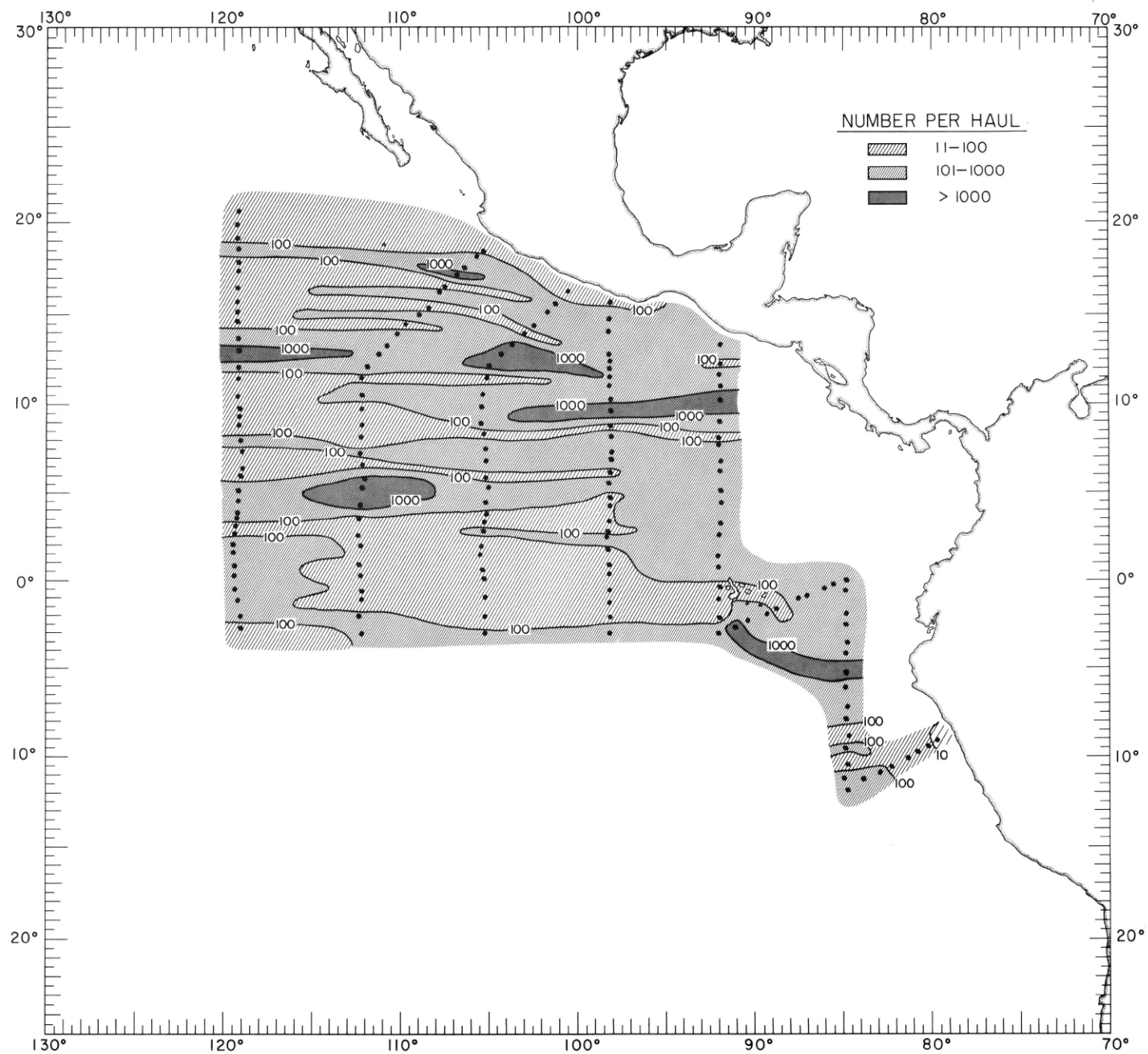
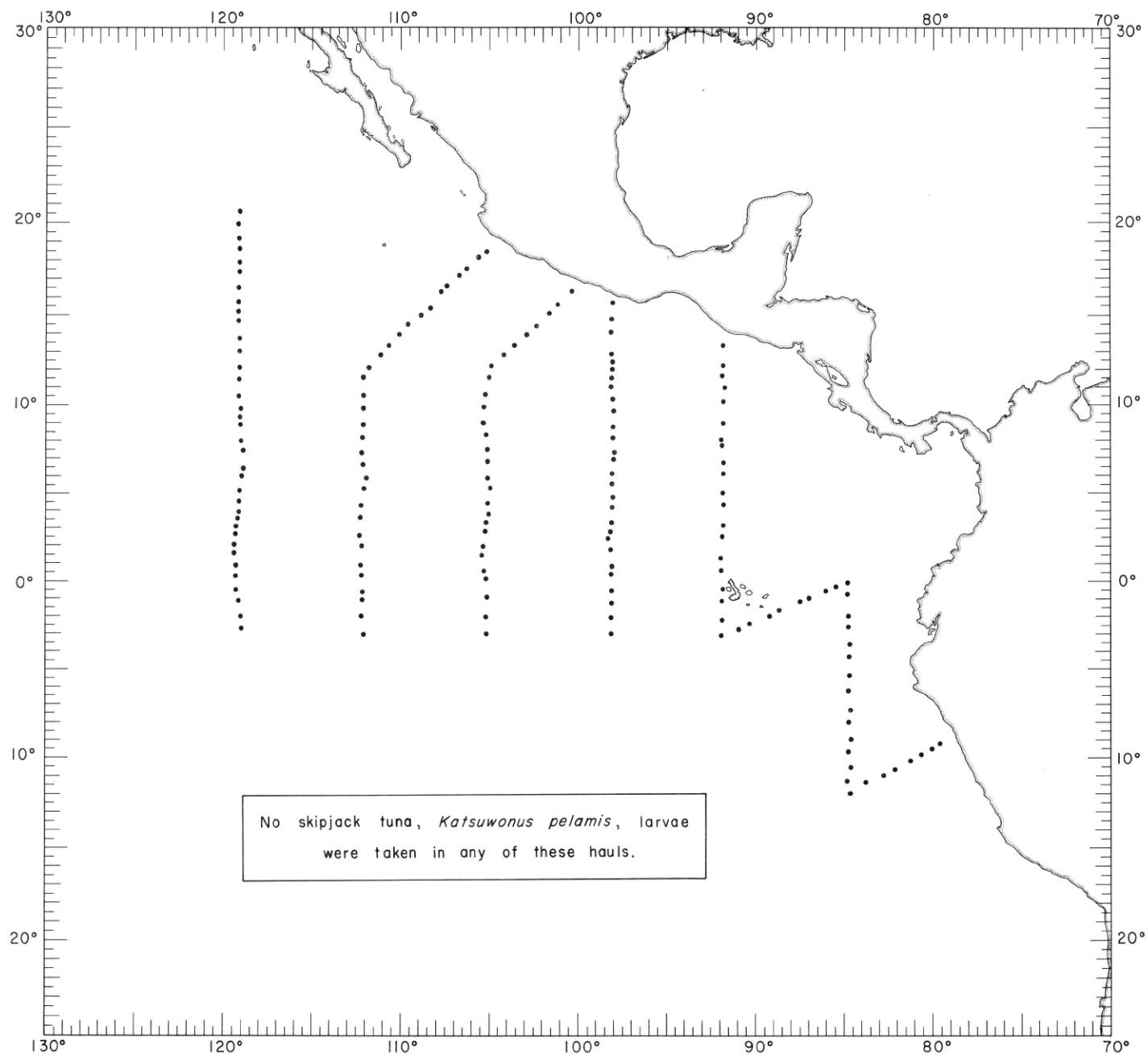
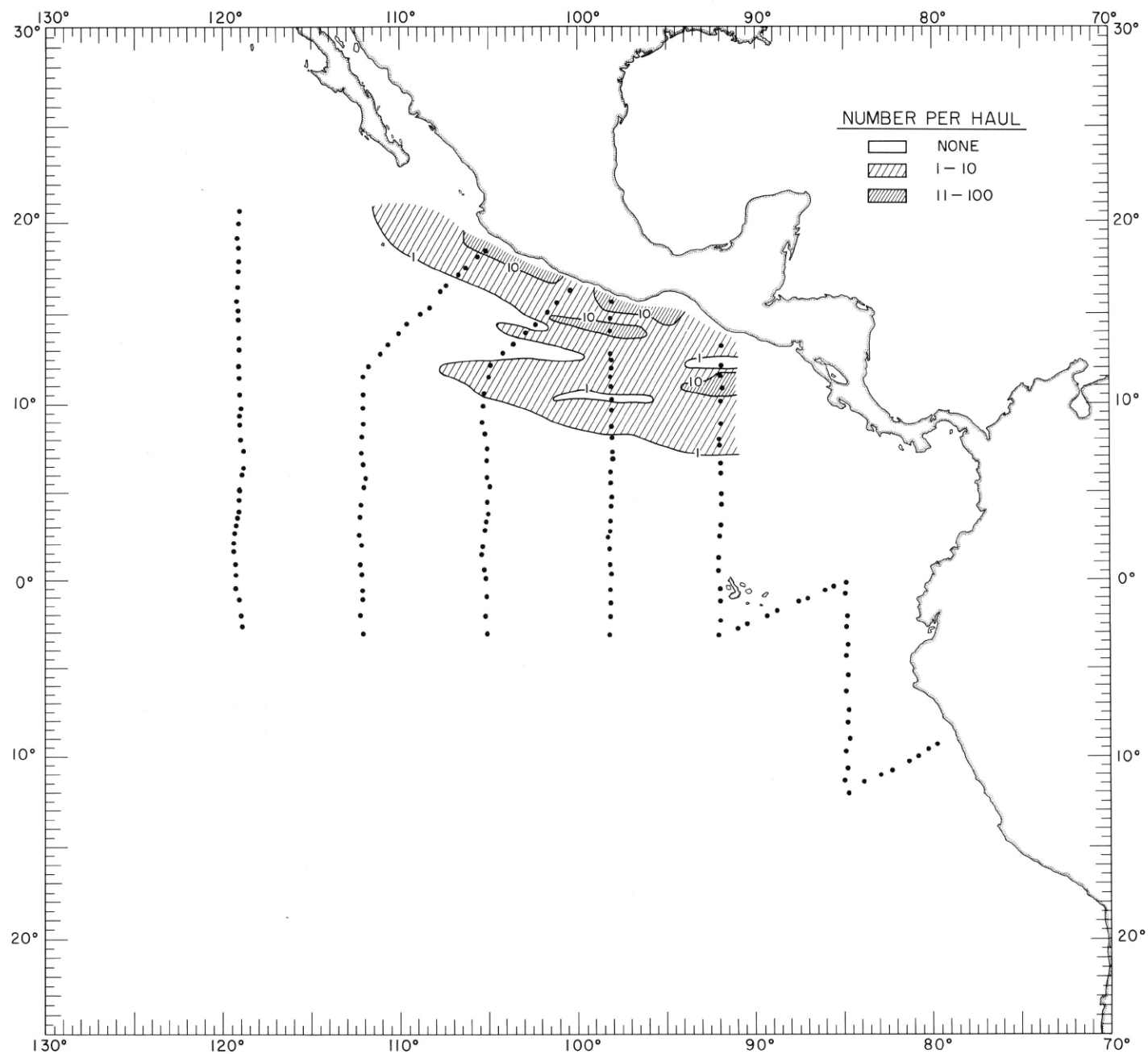


FIGURE 50-FE.—Total fish eggs (number/haul) taken in 1-m. oblique plankton hauls during October-November 1967.



50-FS.

FIGURE 50-FS.—Total skipjack tuna, *Katsuwonus pelamis*, larvae (number/haul) taken in 1-m. oblique plankton hauls during October-November 1967.



50-FA.

FIGURE 50-FA.—Total frigate mackerel, *Auxis*, larvae (number/haul) taken in 1-m. oblique plankton hauls during October-November 1967.

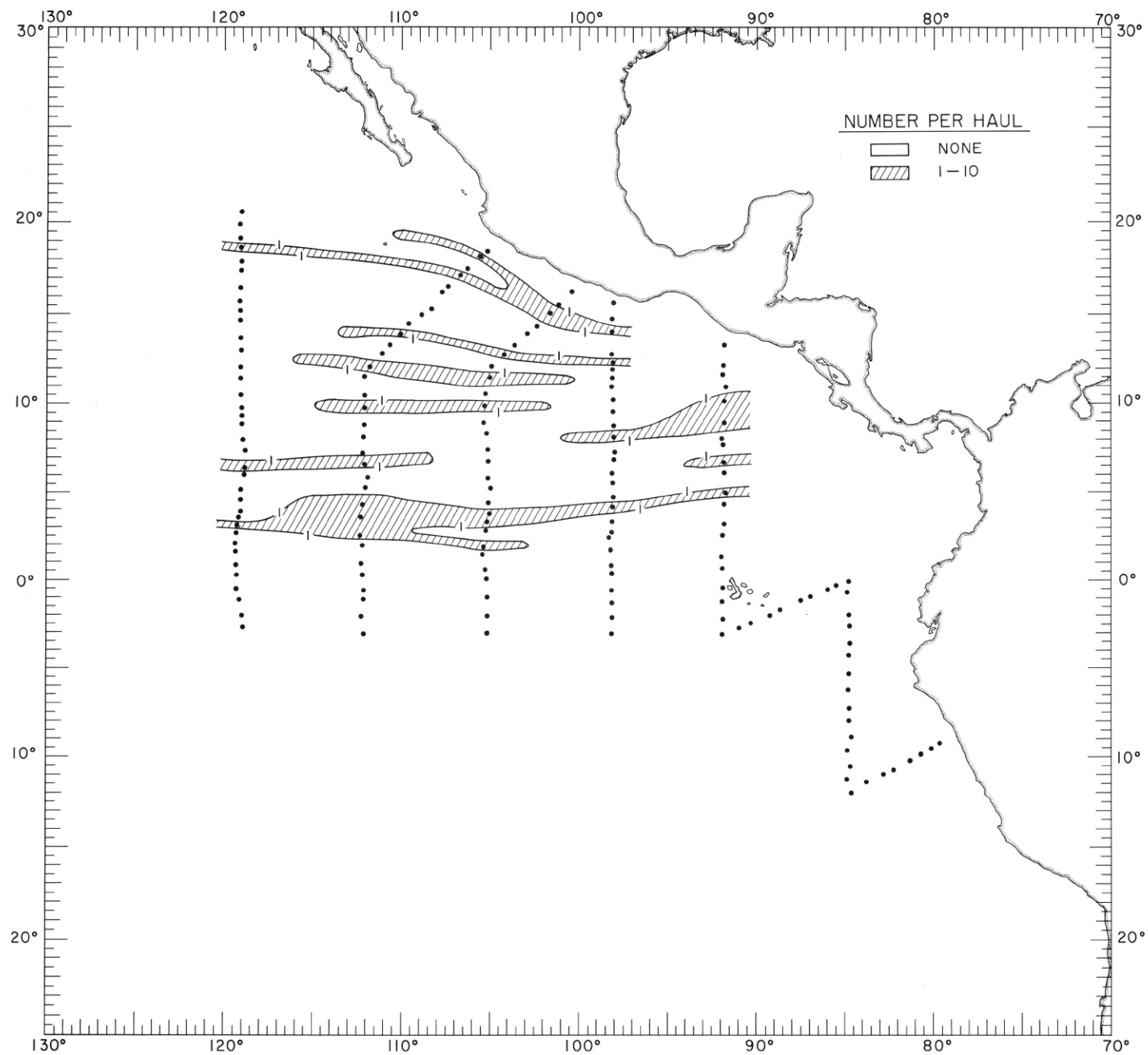
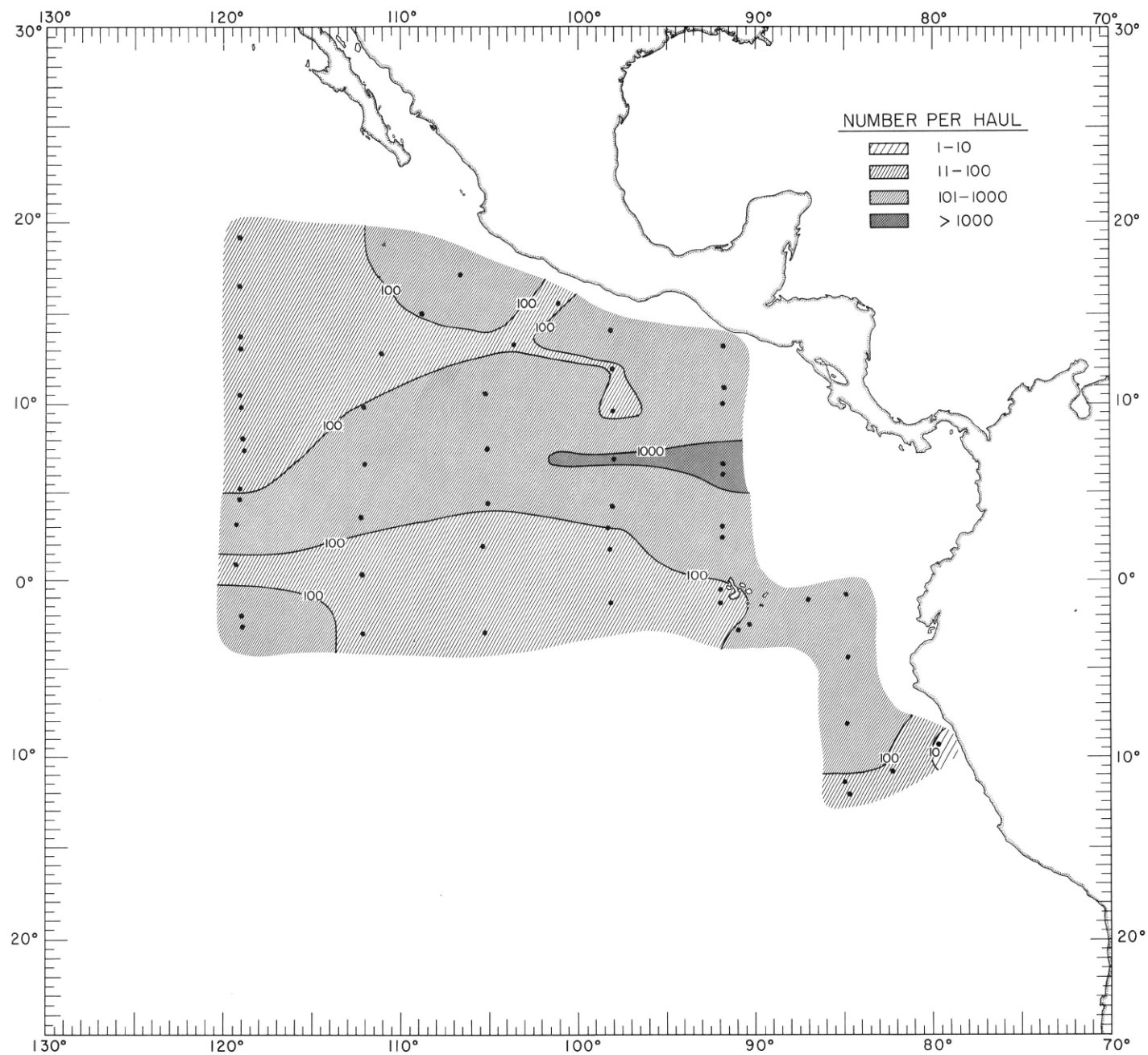
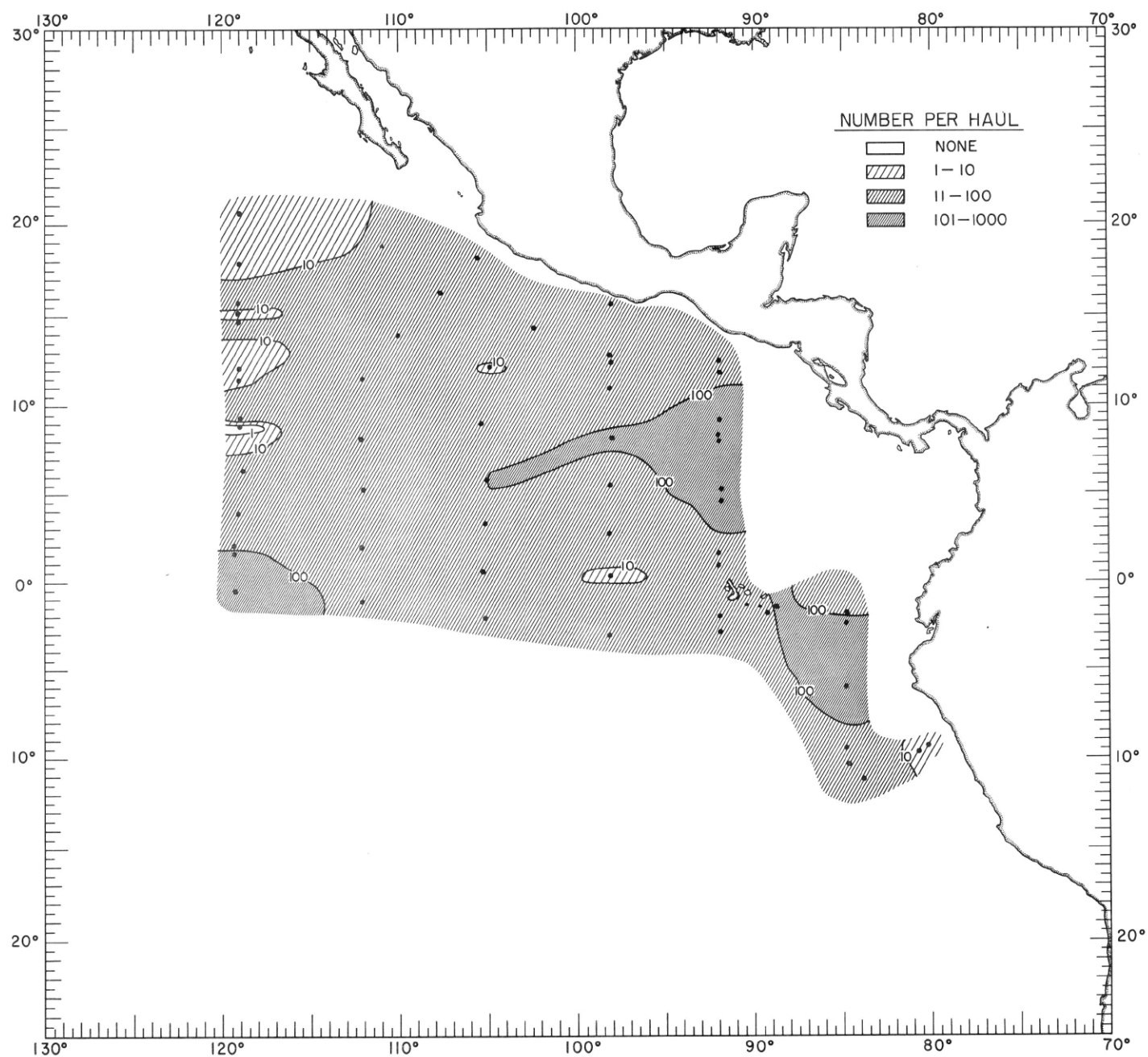


FIGURE 50-FC.—Total dolphin (fish), *Coryphaena*, larvae (number/haul) taken in 1-m. oblique plankton hauls during October-November 1967.



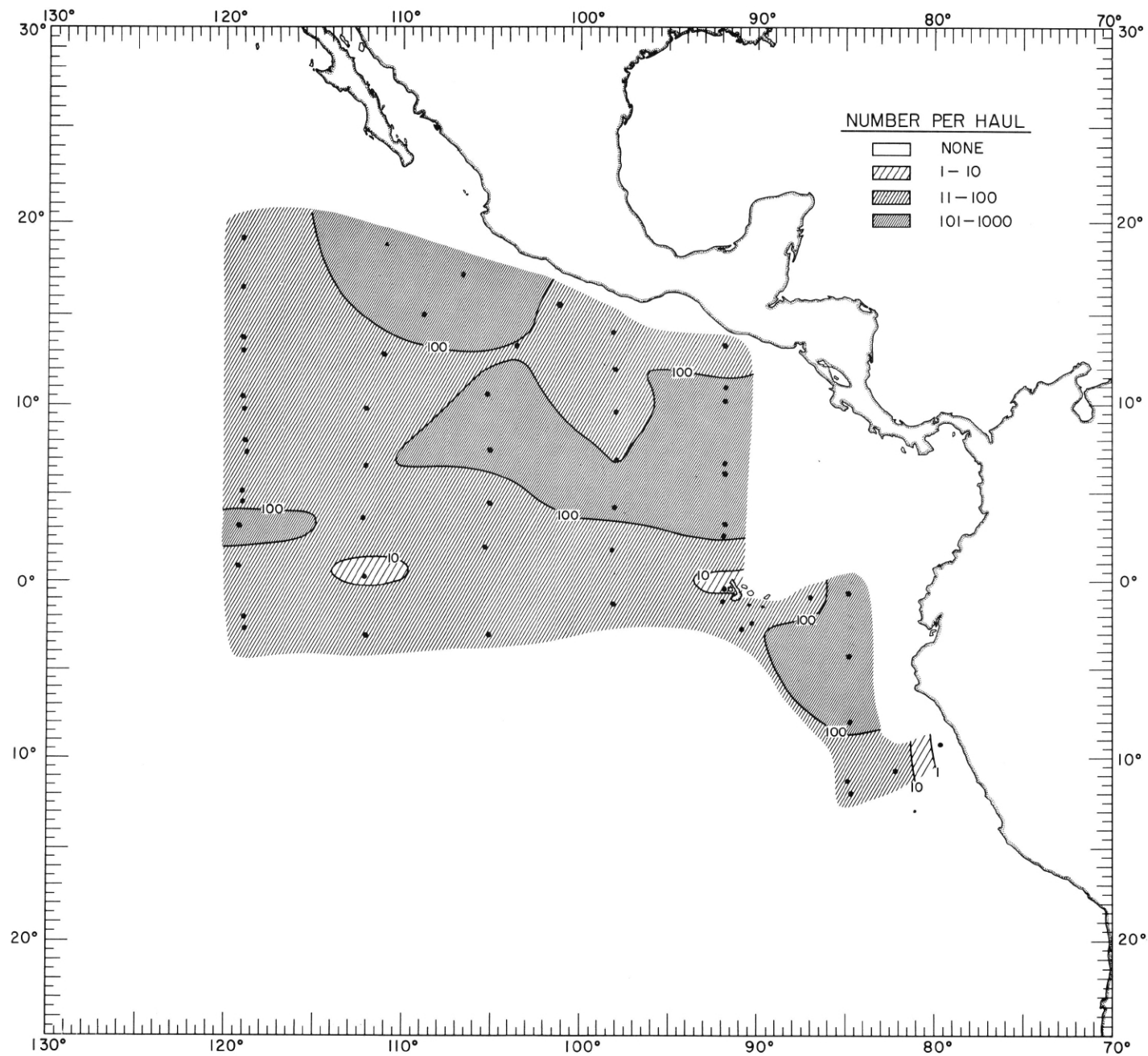
50-FMN.

FIGURE 50-FMN.—Total myctophid larvae (number/haul) taken in 1-m. oblique plankton hauls at night during October-November 1967.



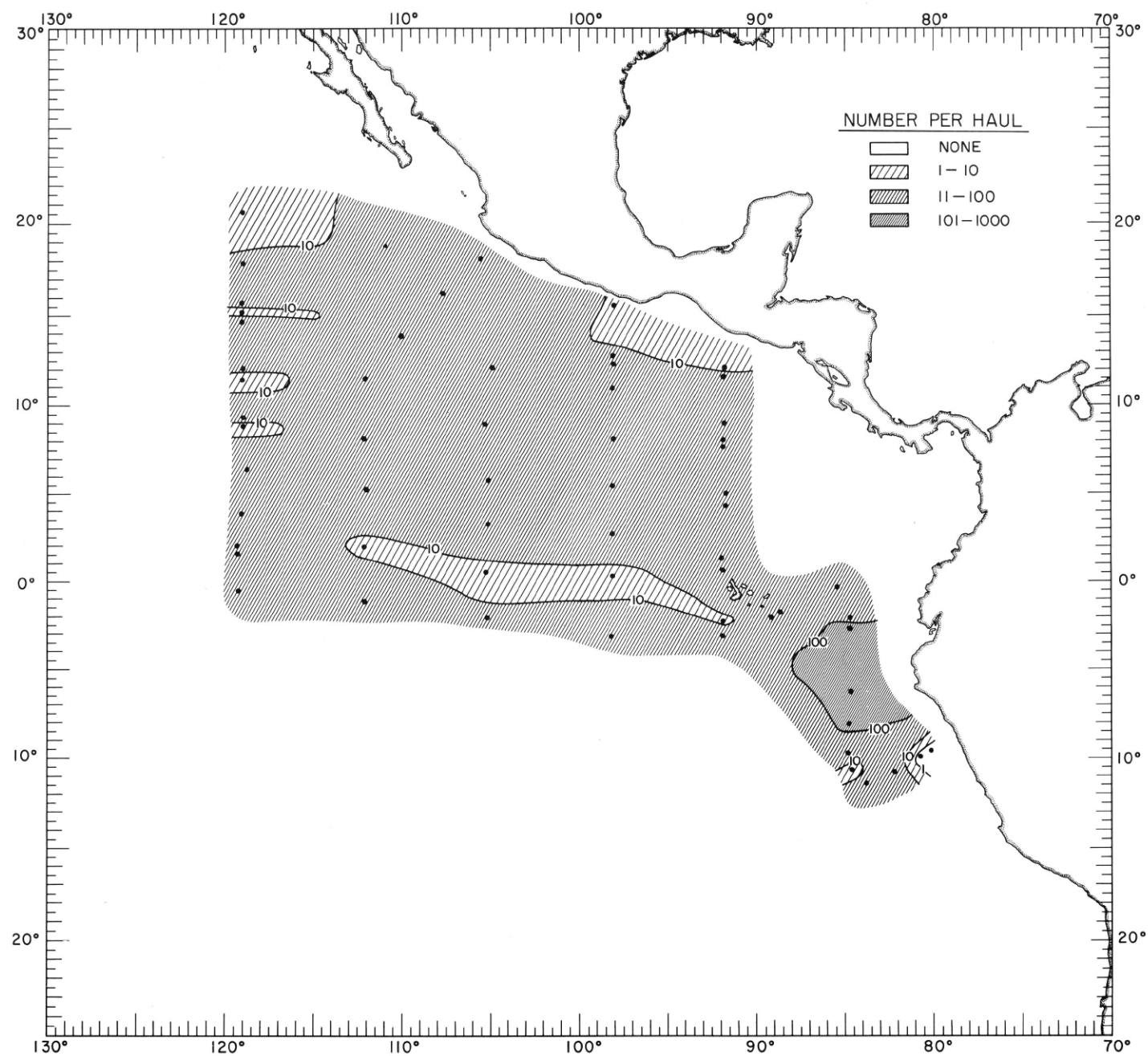
50-FMD.

FIGURE 50-FMD.—Total myctophid larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, October-November 1967.



50-FGN.

FIGURE 50-FGN.—Total gonostomatid and sternoptychid larvae (number/haul) taken in 1-m. oblique plankton hauls at night during October-November 1967.



50-FGD.

FIGURE 50-FGD.—Total gonostomatid and sternoptychid larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, October-November 1967.

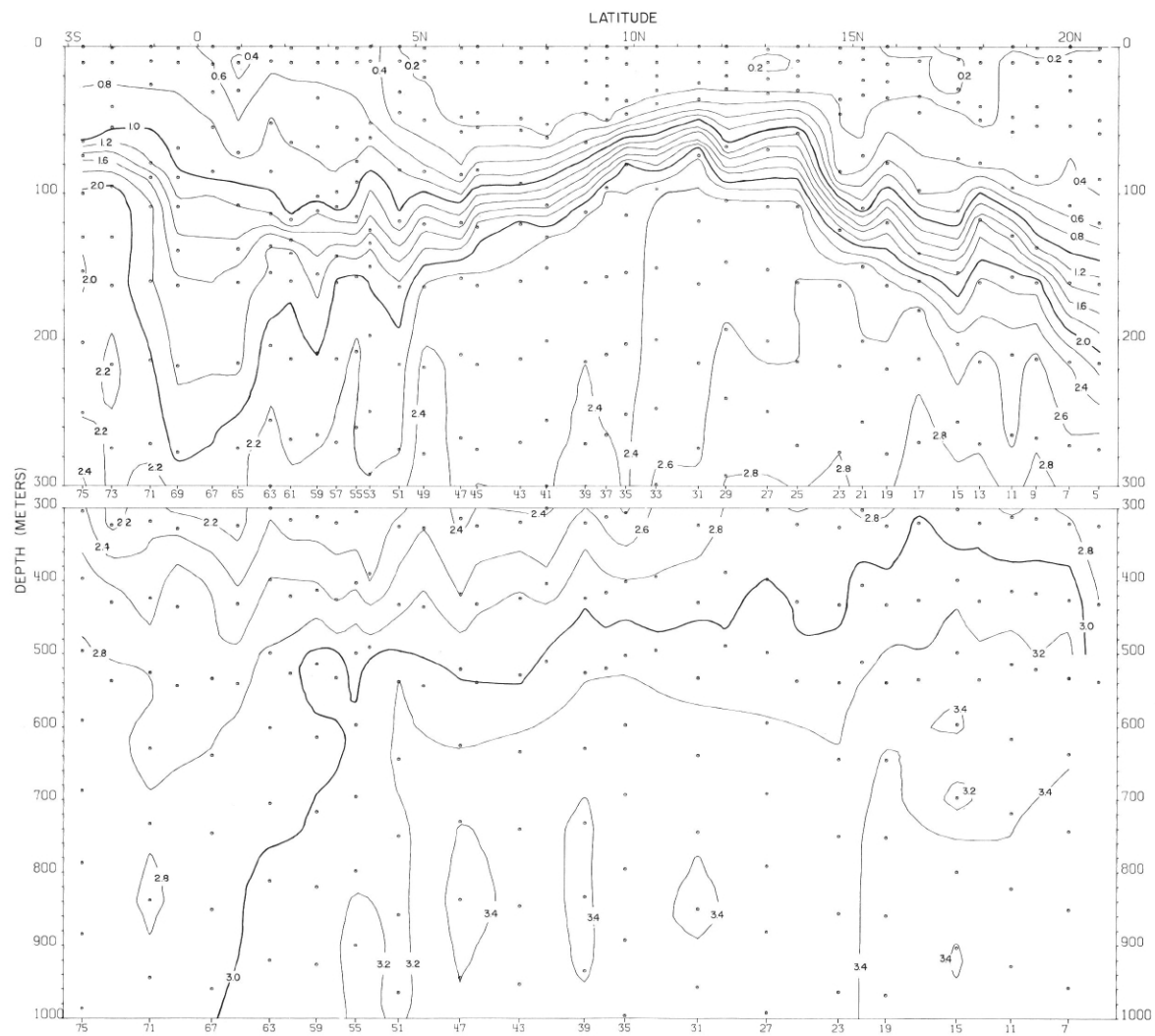
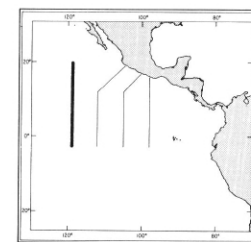


FIGURE 50-P-v1.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along $119^{\circ}10' \text{ W.}$, October 20-29, 1967.



50-P-v1.

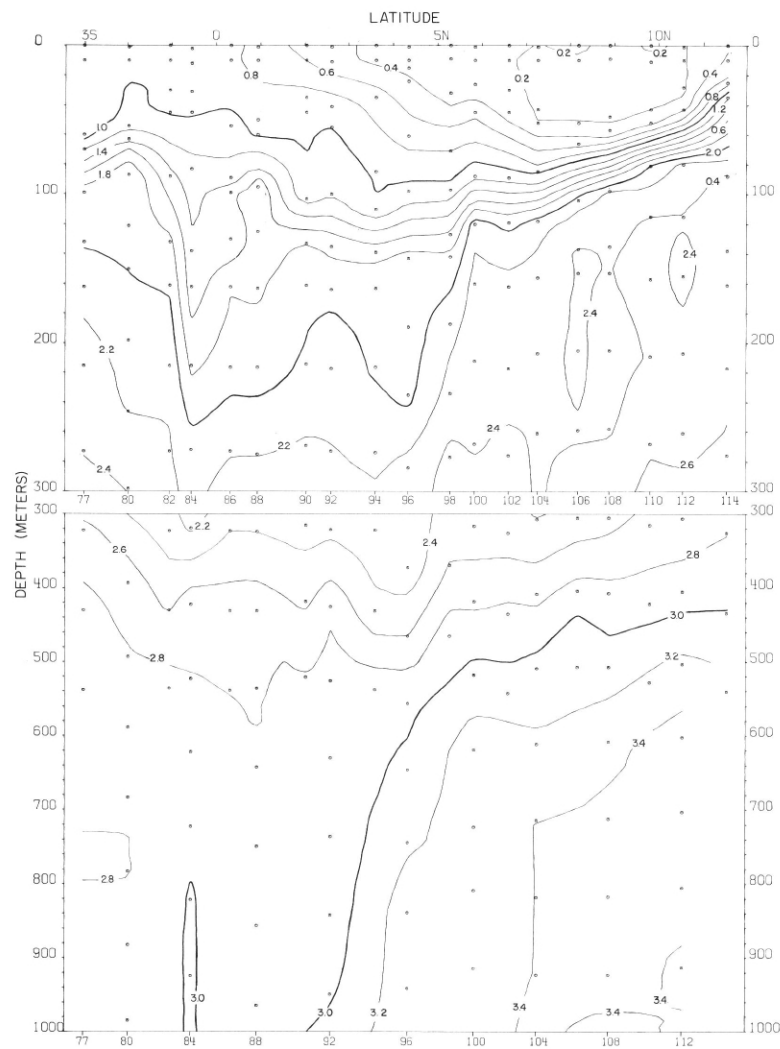


FIGURE 60-P-v2.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along $111^{\circ}45' \text{ W.}$, January 1-6, 1968.

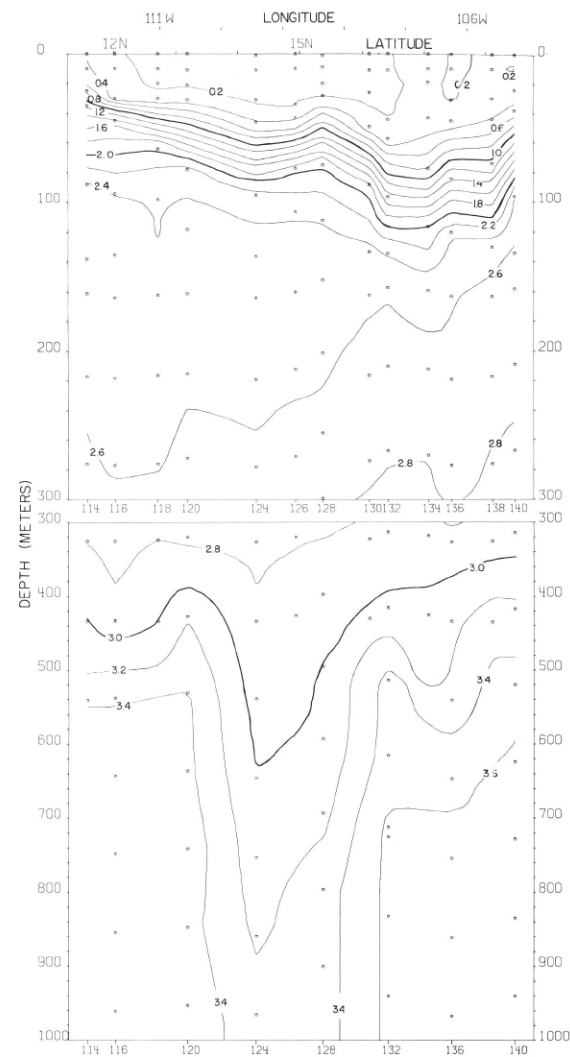
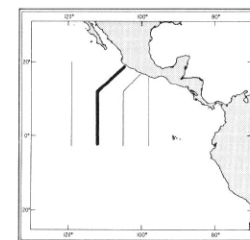


FIGURE 50-P-v3.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along a section from 12° N. , $112^{\circ}10' \text{ W.}$ to Manzanillo, November 4-7, 1967.



50-P-v2.

50-P-v3.

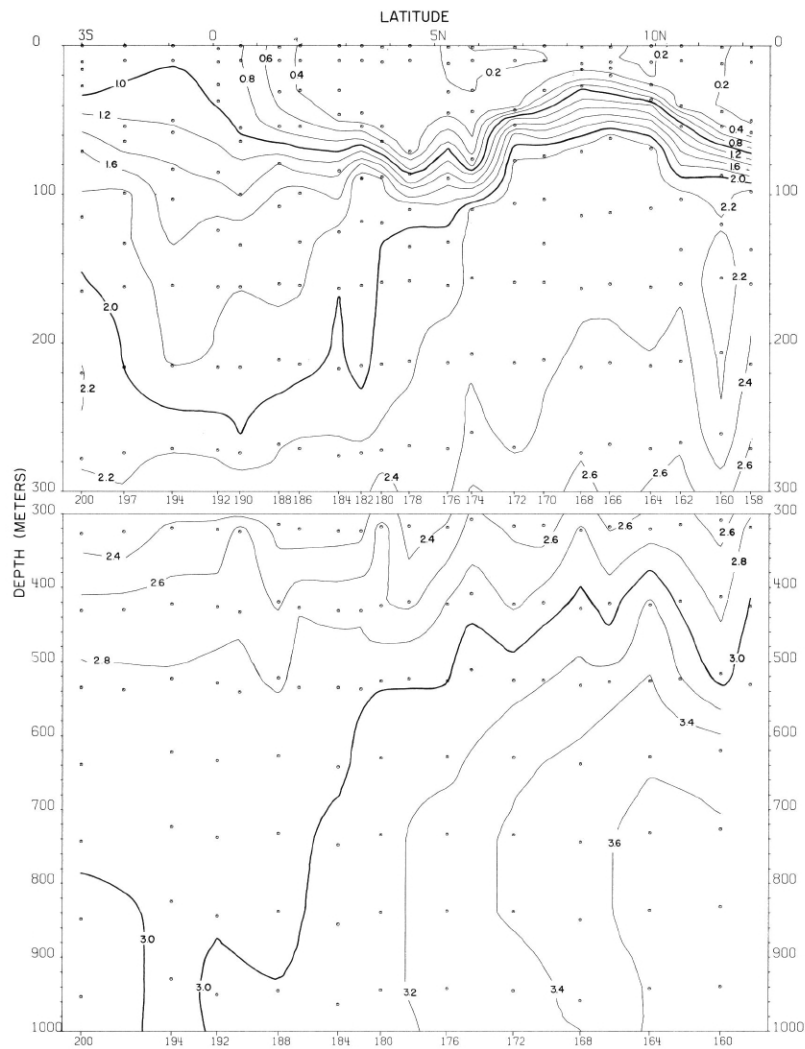


FIGURE 50-P-v5.—Vertical distribution of phosphate-phosphorus ($\mu\text{g.-at./l.}$) along $105^{\circ}10' \text{ W.}$, November 13-18, 1967.

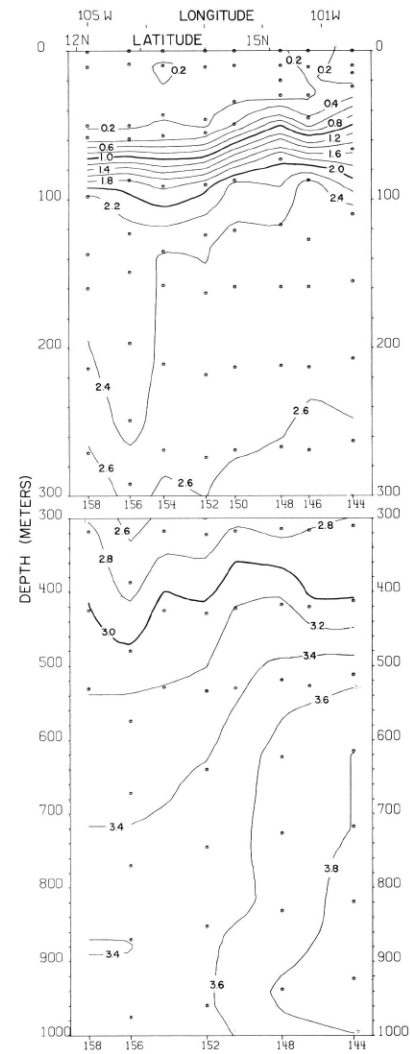
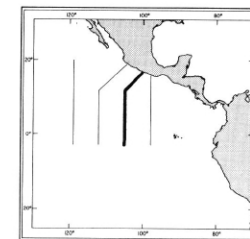


FIGURE 50-P-v4.—Vertical distribution of phosphate-phosphorus ($\mu\text{g.-at./l.}$) along a section from Acapulco to 12° N. , $105^{\circ}10' \text{ W.}$, November 11-13, 1967.



50-P-v4.

50-P-v5.

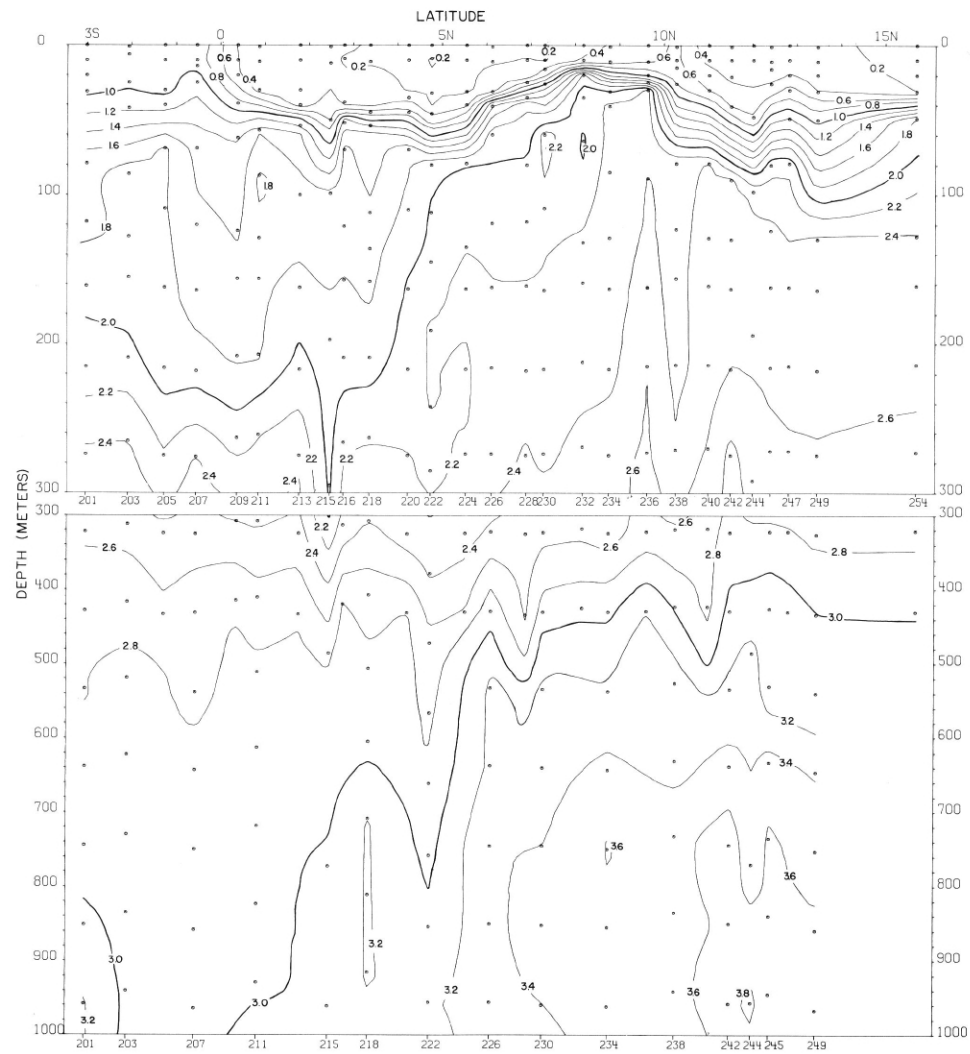
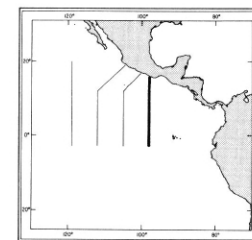


FIGURE 50-P-v6.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along 98°10' W., November 20-27, 1967.



50-P-v6.

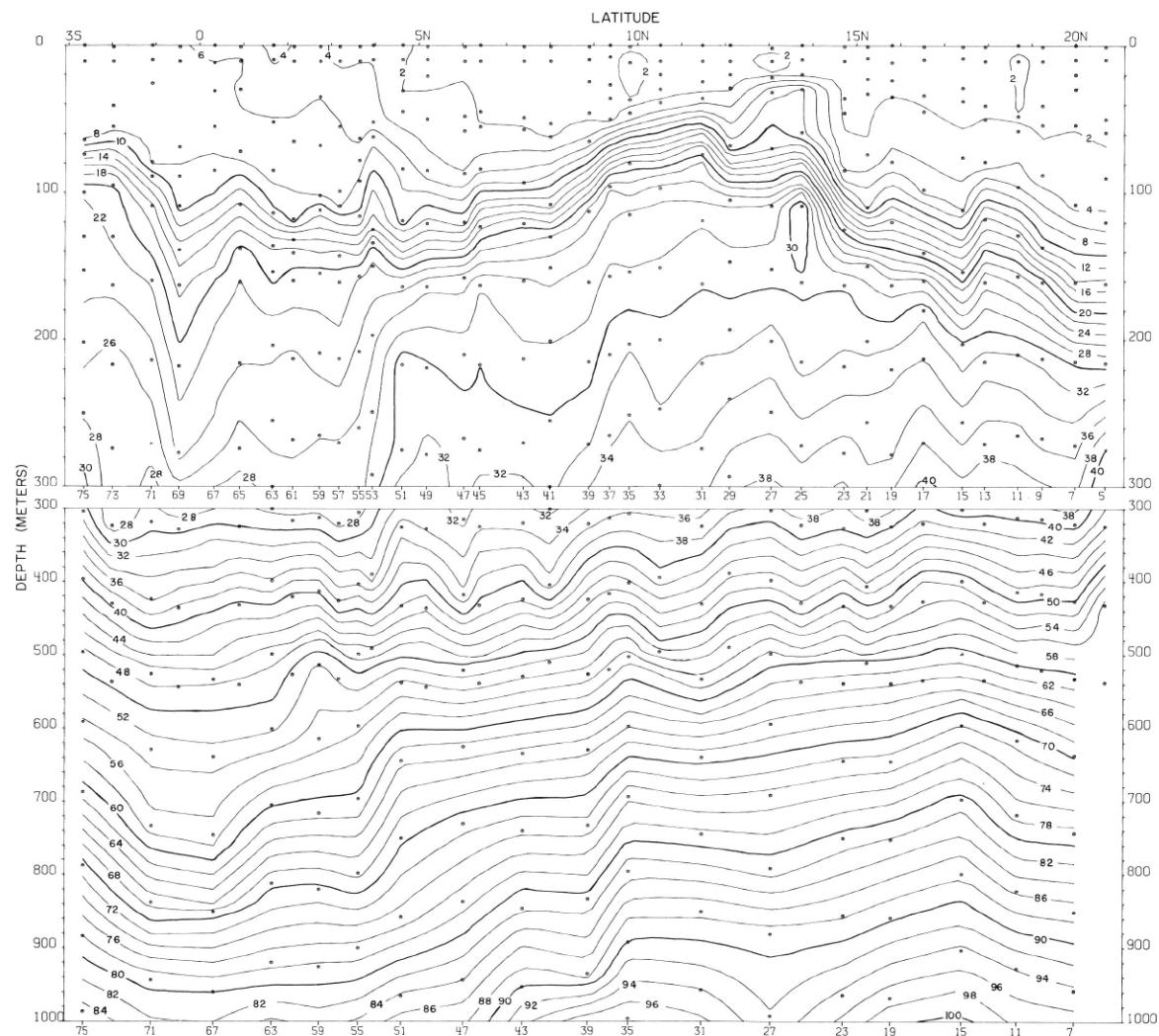
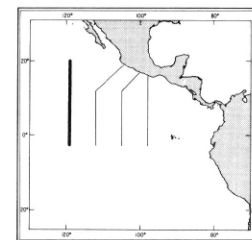


FIGURE 50-Si-v1.—Vertical distribution of silicate-silicon ($\mu\text{g-at./L.}$) along $119^{\circ}10' \text{ W.}$, October 20-29, 1967.



50-Si-v1.

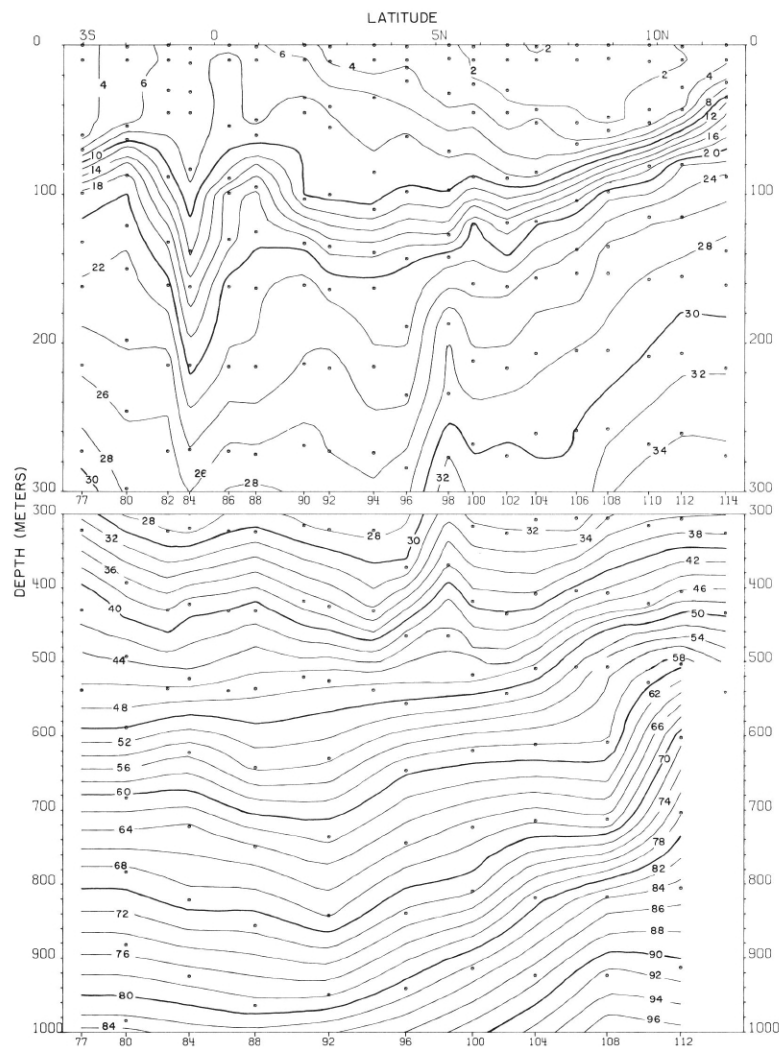


FIGURE 50-Si-v2.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along $112^{\circ}10' \text{ W.}$, October 30–November 4, 1967.

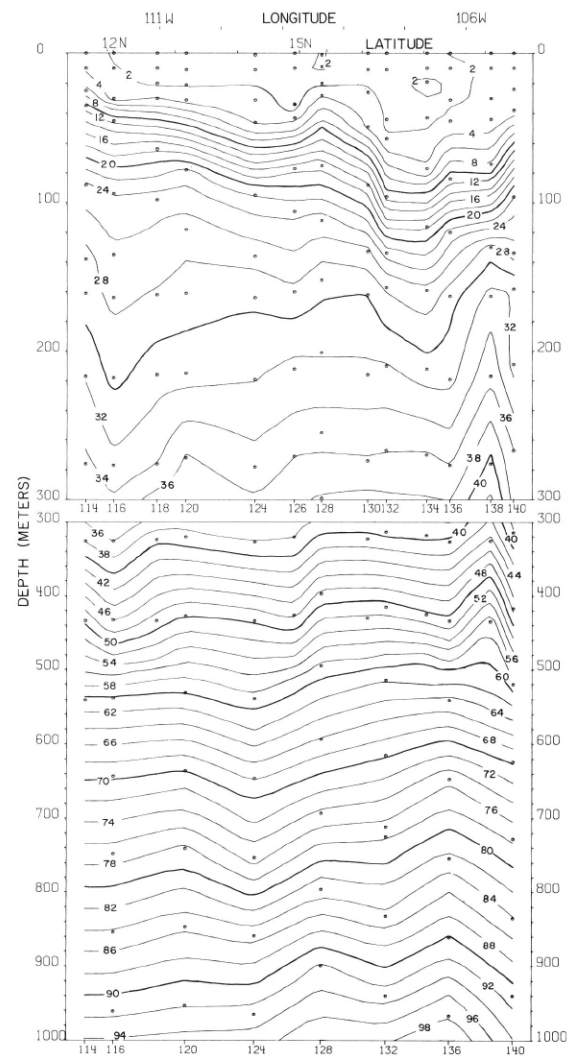
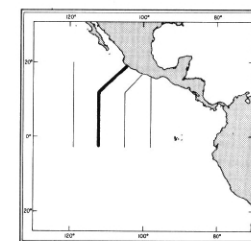


FIGURE 50-Si-v3.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along a section from $12^{\circ} \text{ N.}, 112^{\circ}10' \text{ W.}$ to Manzanillo, November 4–7, 1967.



50-Si-v2.

50-Si-v3.

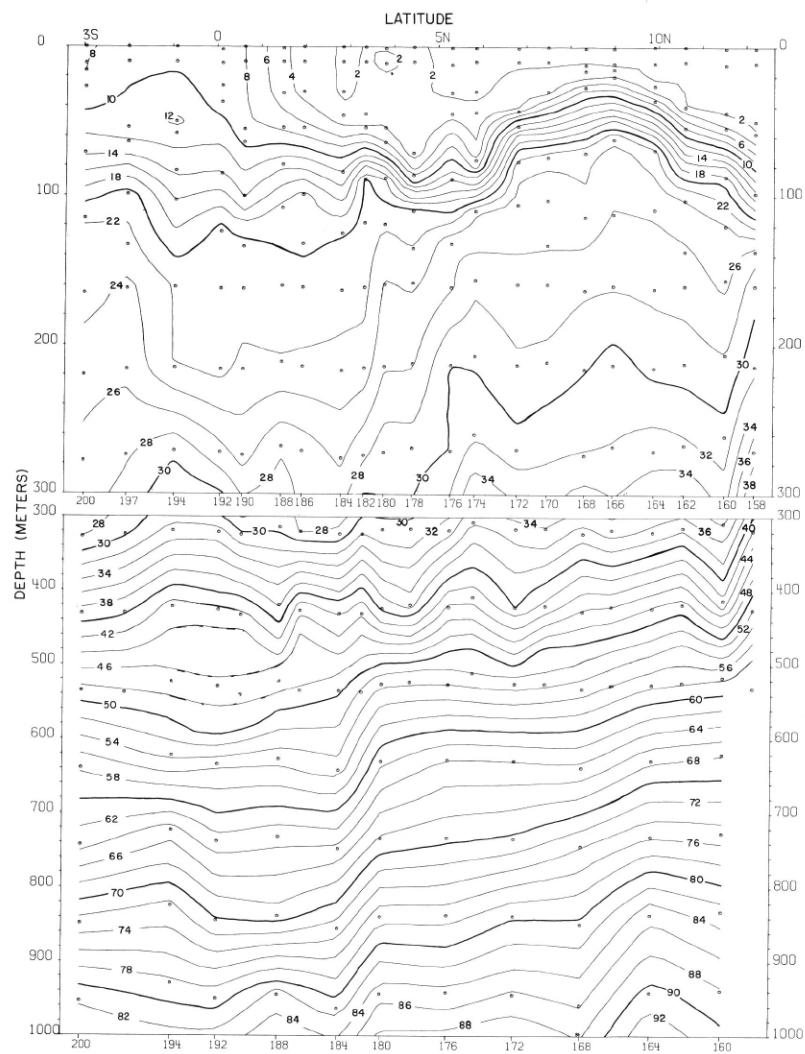


FIGURE 50-Si-v5.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along $105^{\circ}10' \text{ W.}$, November 13-18, 1967.

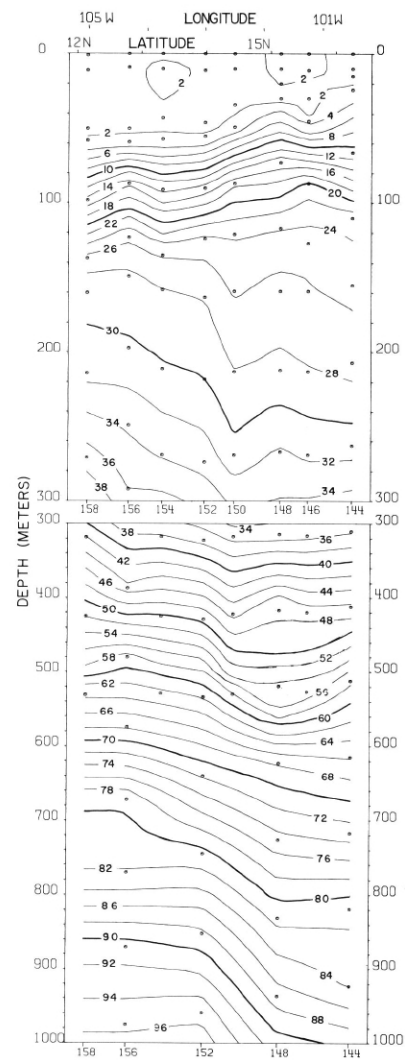
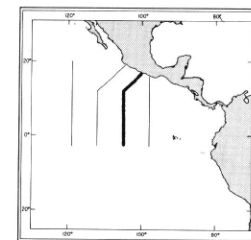


FIGURE 50-Si-v4.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along a section from Acapulco to 12° N. , $105^{\circ}10' \text{ W.}$, November 11-13, 1967.



50-Si-v4.

50-Si-v5.

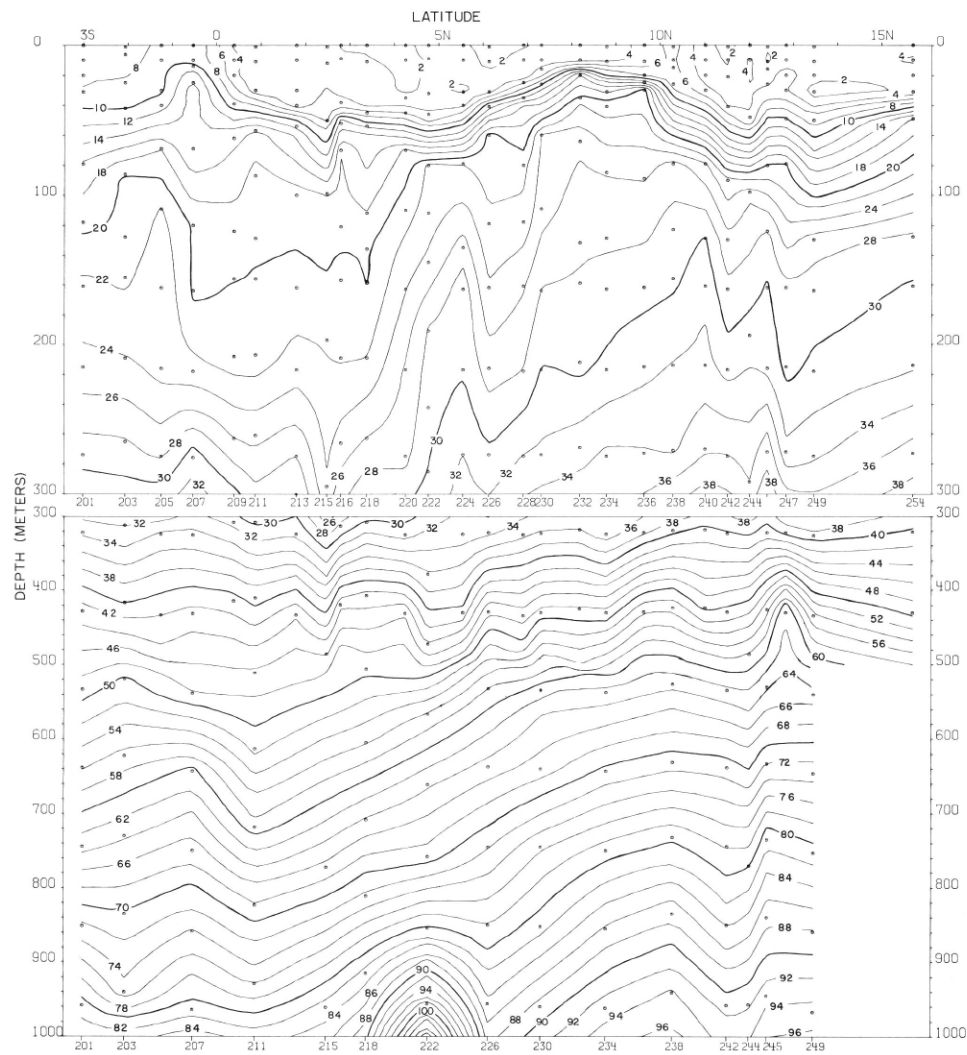
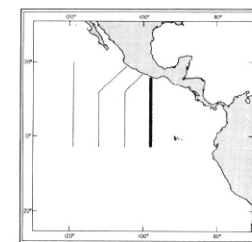


FIGURE 50-Si-v6.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along $98^{\circ}10' \text{W.}$, November 20-27, 1967.



50-Si-v6.

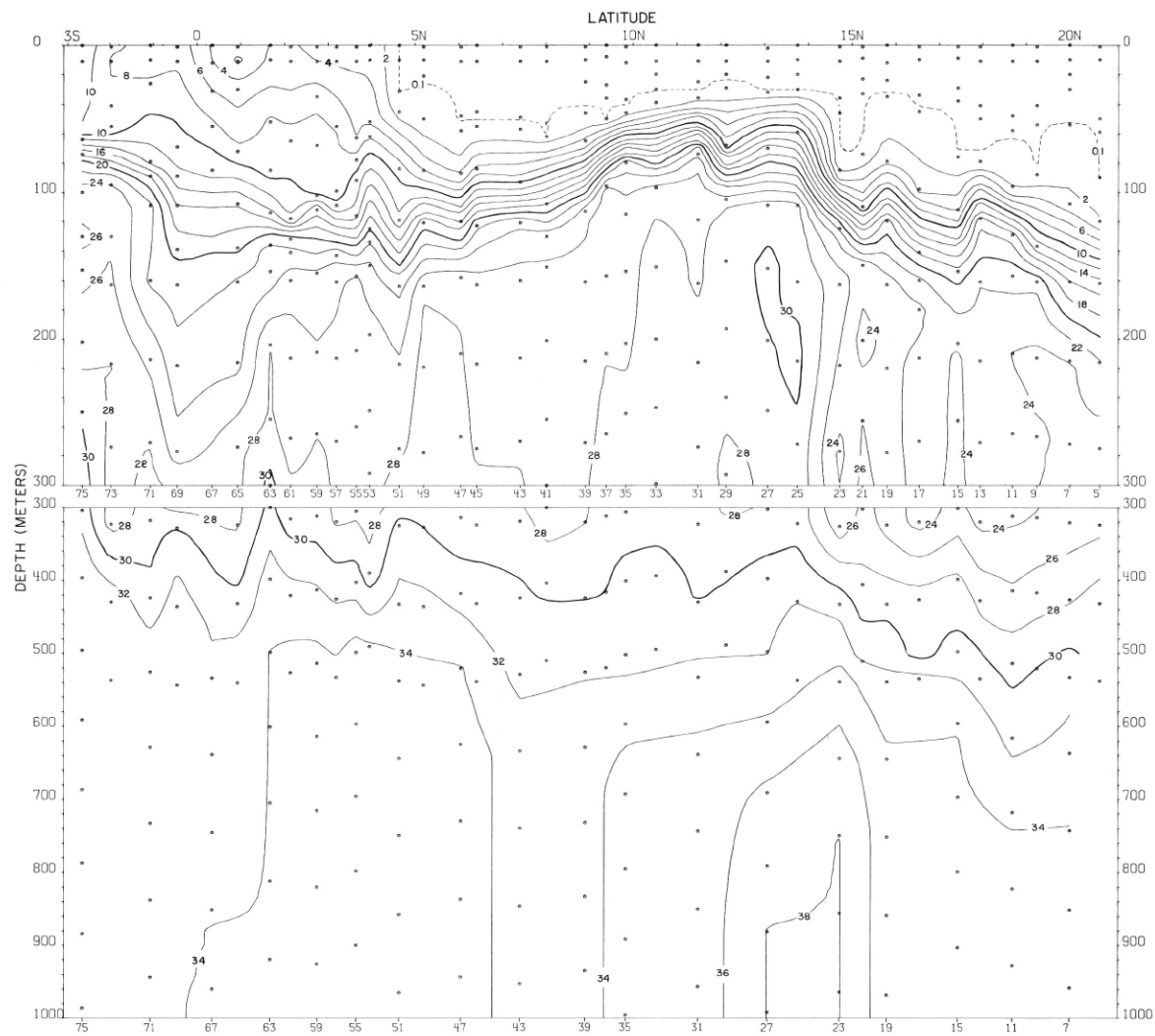
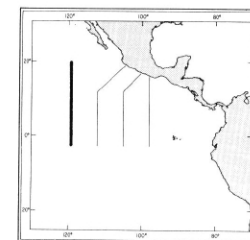


FIGURE 50-NO₃-v1.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along 119°10' W., October 20-29, 1967.



50-NO₃-v1.

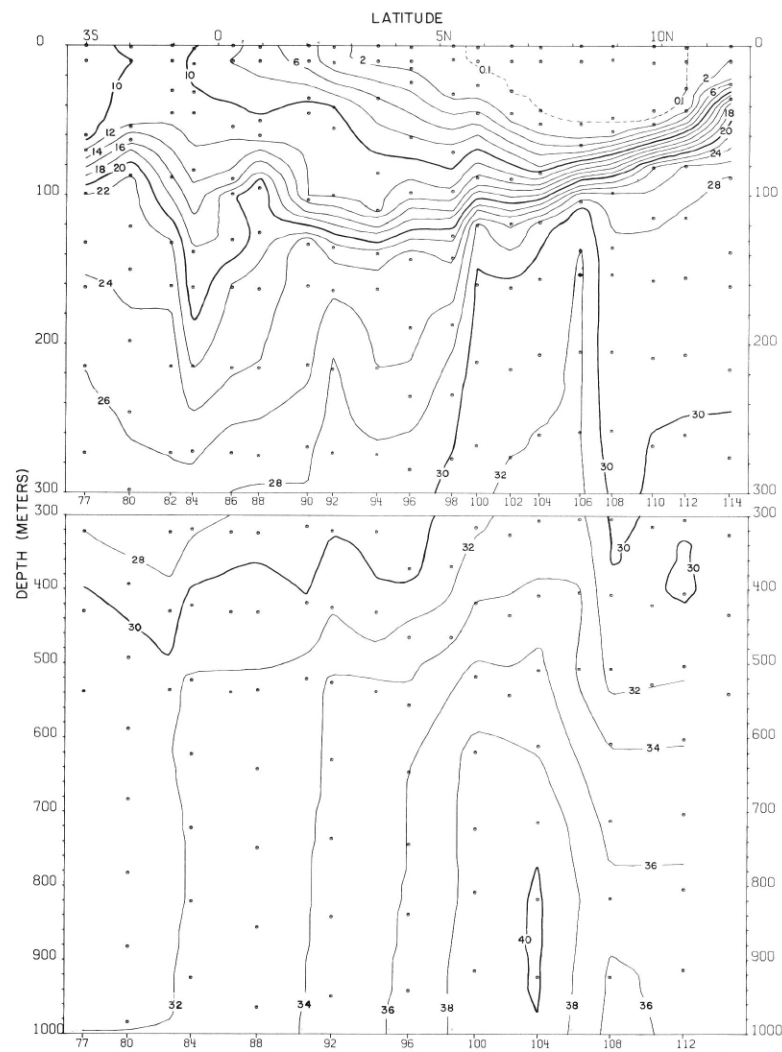


FIGURE 50-NO₃-v2.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along $112^{\circ}10' \text{ W.}$, October 30-November 4, 1967.

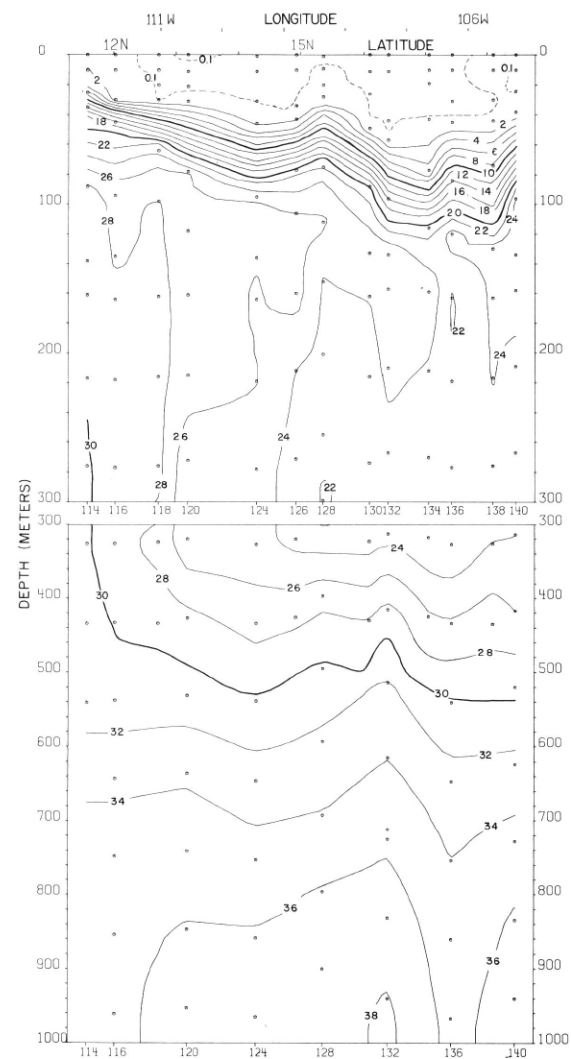
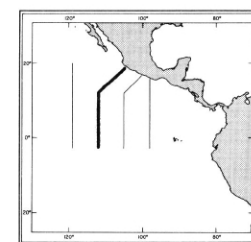


FIGURE 50-NO₃-v3.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along a section from 12° N. , $112^{\circ}10' \text{ W.}$ to Manzanillo, November 4-7, 1967.



50-NO₃-v2.

50-NO₃-v3.

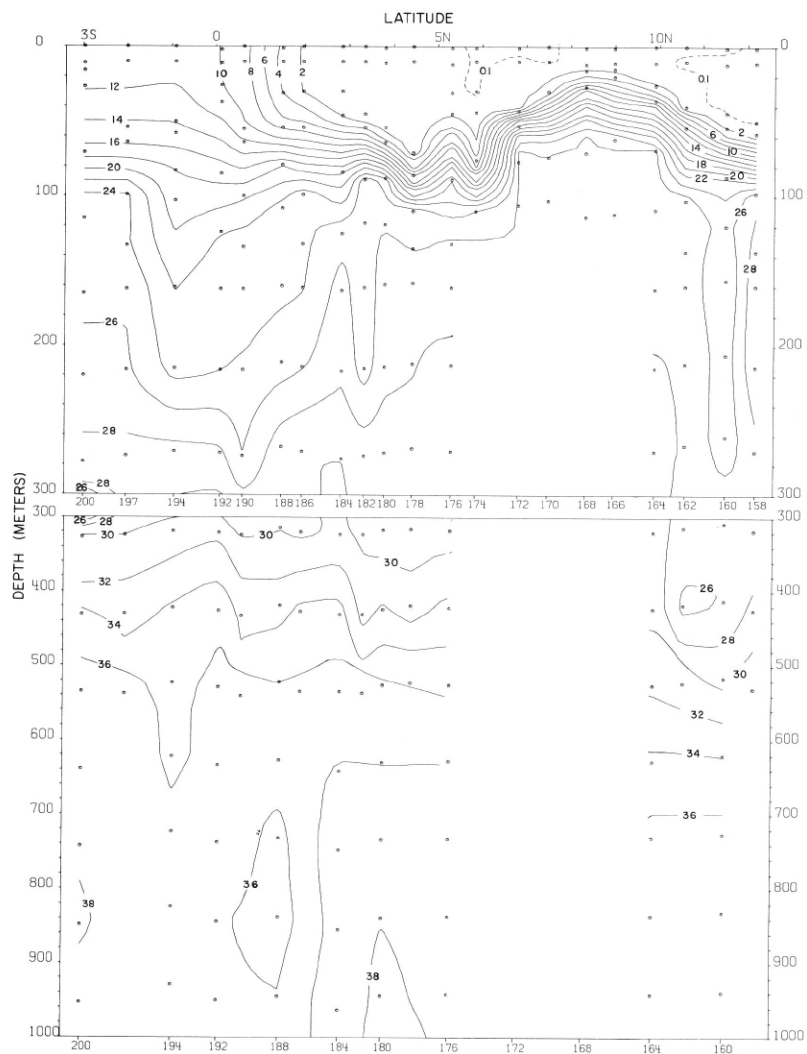


FIGURE 50-NO₃-v5.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along $105^{\circ}10'$ W., November 13-18, 1967.

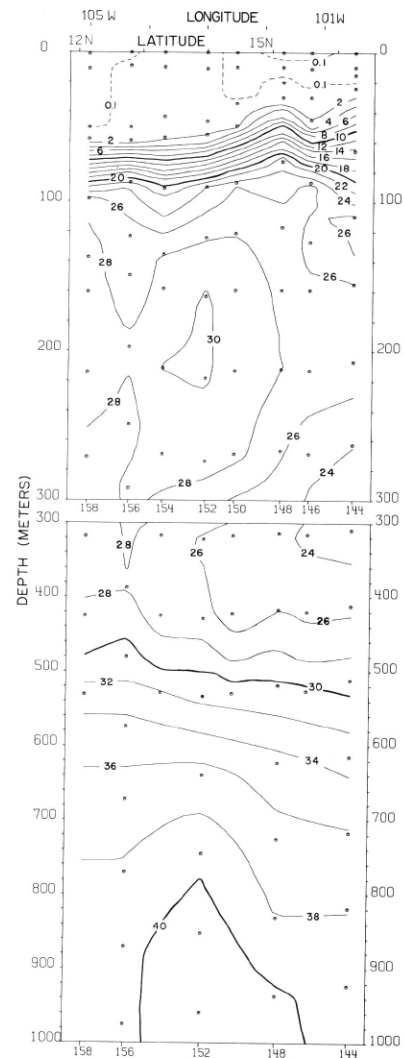
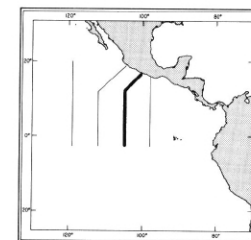


FIGURE 50-NO₃-v4.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along a section from Acapulco to 12° N., $105^{\circ}10'$ W., November 11-13, 1967.



50-NO₃-v4.

50-NO₃-v5.

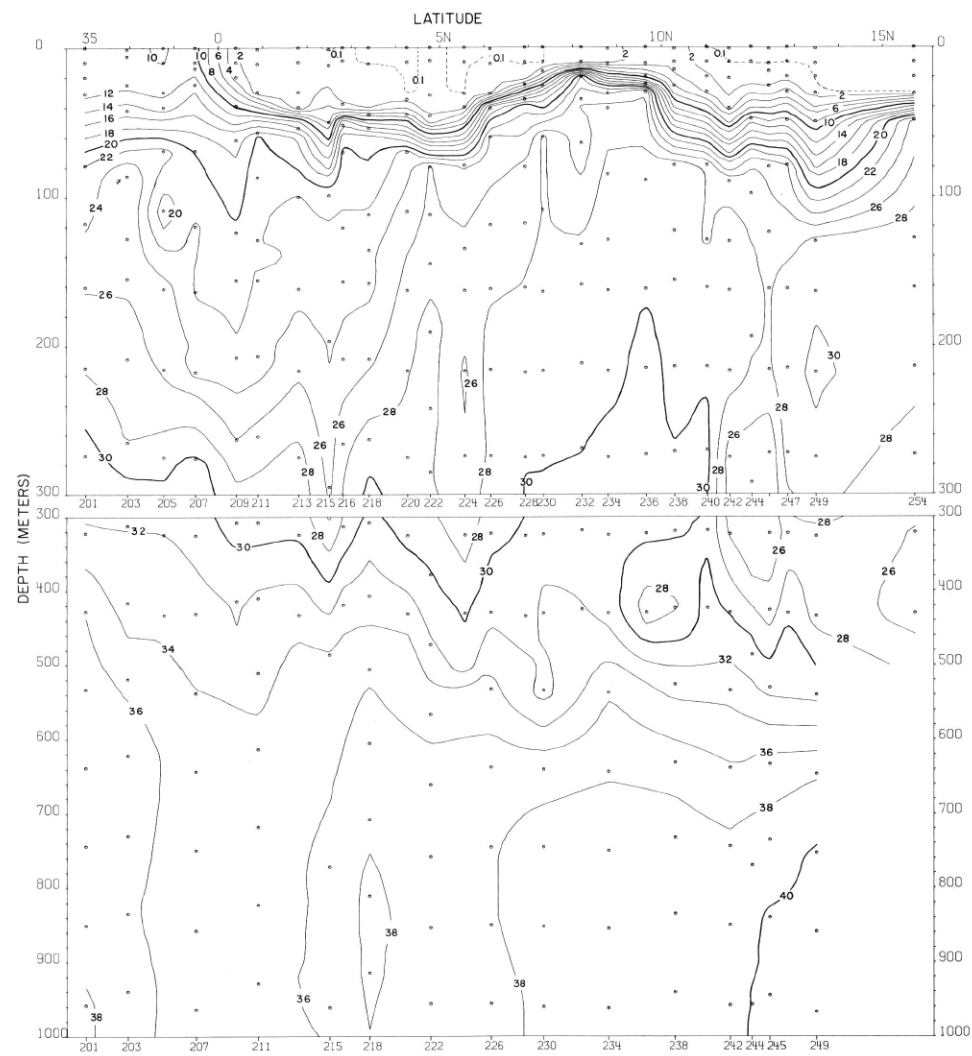
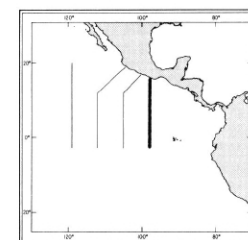


FIGURE 50-NO₃-v6.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along $98^{\circ}10' \text{W.}$, November 20-27, 1967.



50-NO₃-v6.

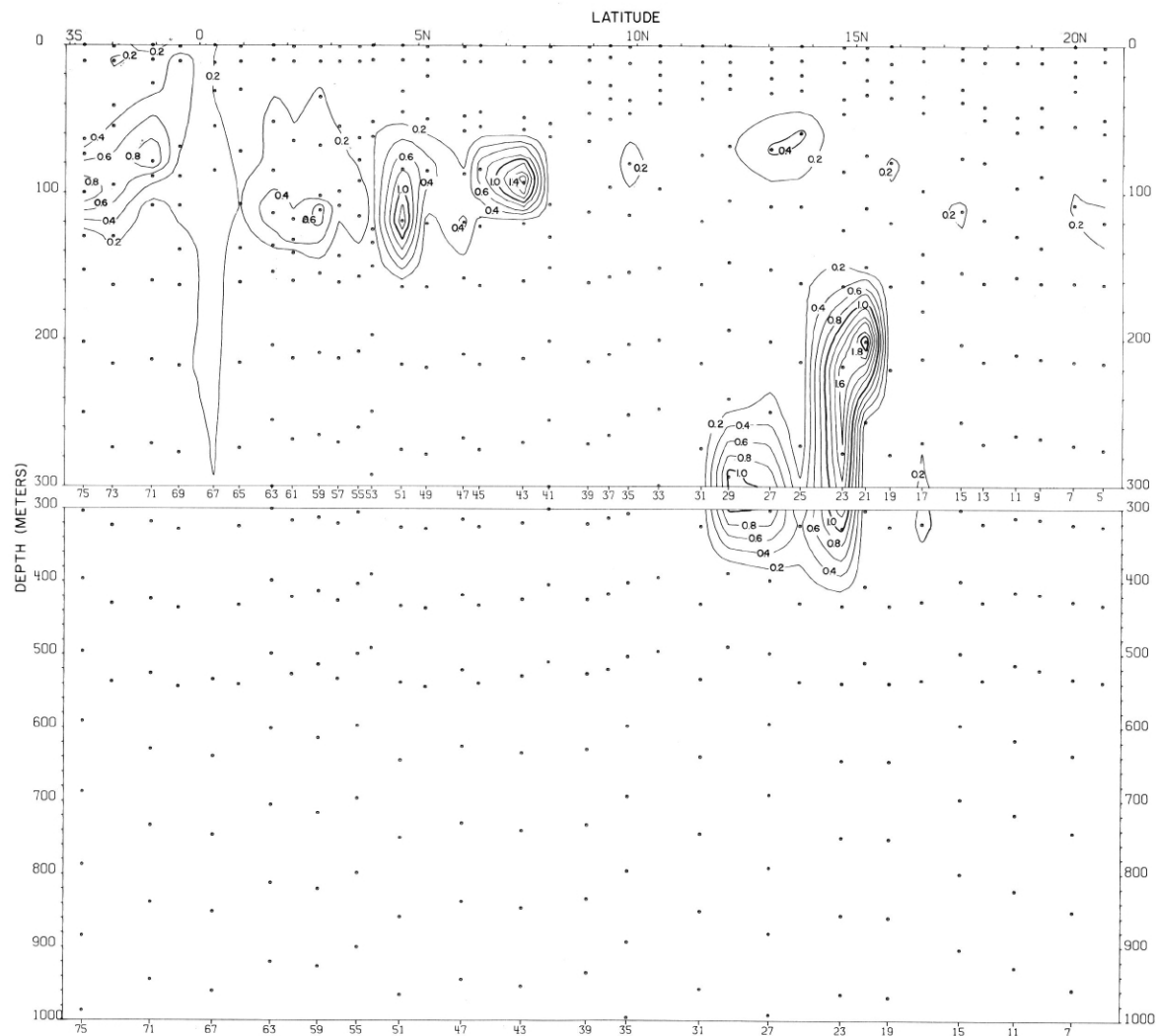
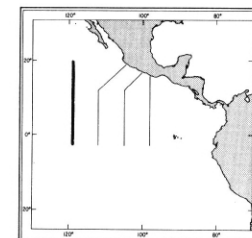


FIGURE 50-NO₂-v1.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along 119°10' W., October 20-29, 1967.



50-NO₂-v1.

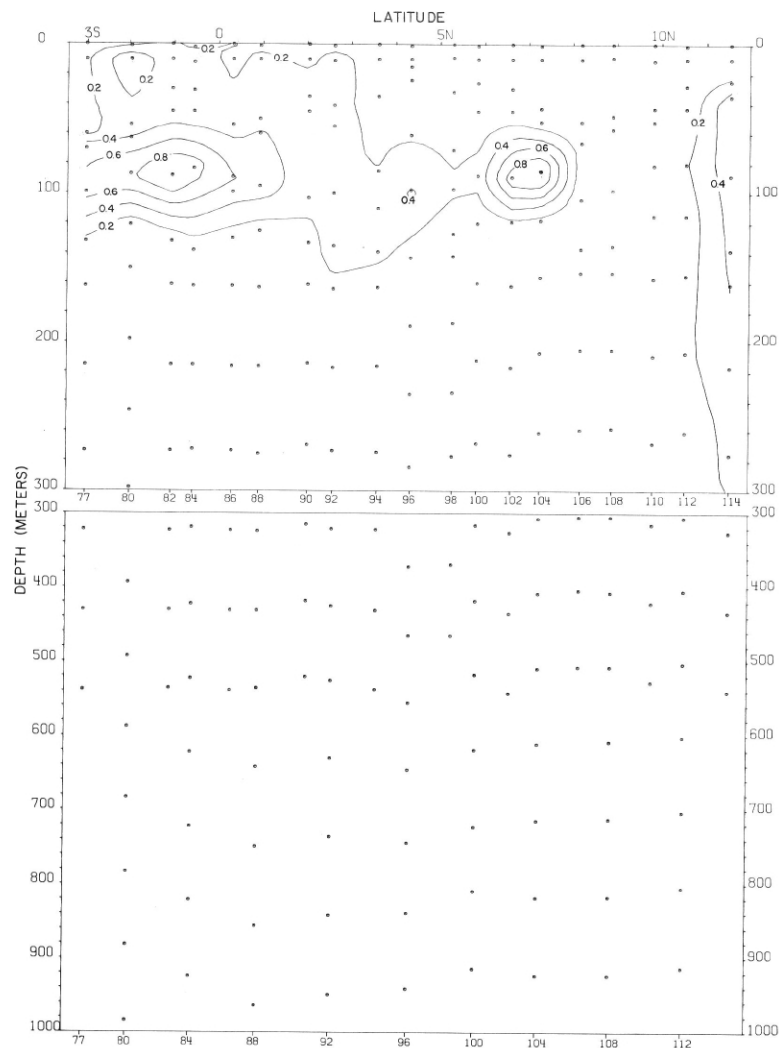


FIGURE 50-NO₂-v2.—Vertical distribution of nitrite-nitrogen (μg-at./l.) along 112°10' W., October 30-November 4, 1967.

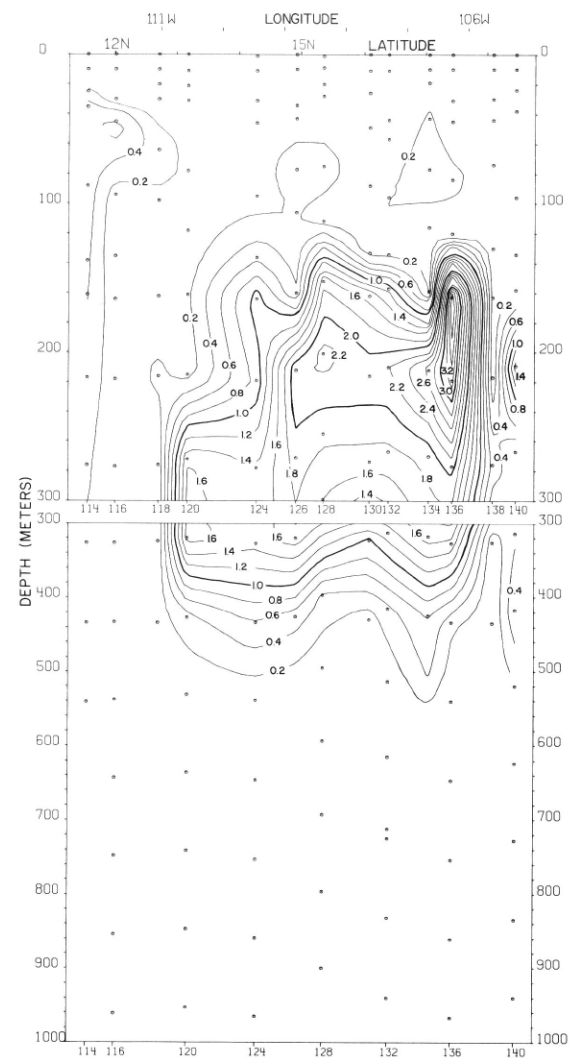
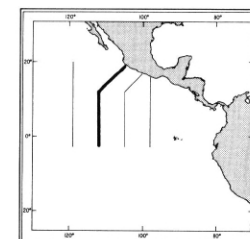


FIGURE 50-NO₂-v3.—Vertical distribution of nitrite-nitrogen (μg-at./l.) along a section from 12° N., 112°10' W. to Manzanillo, November 4-7, 1967.



50-NO₂-v2.

50-NO₂-v3.

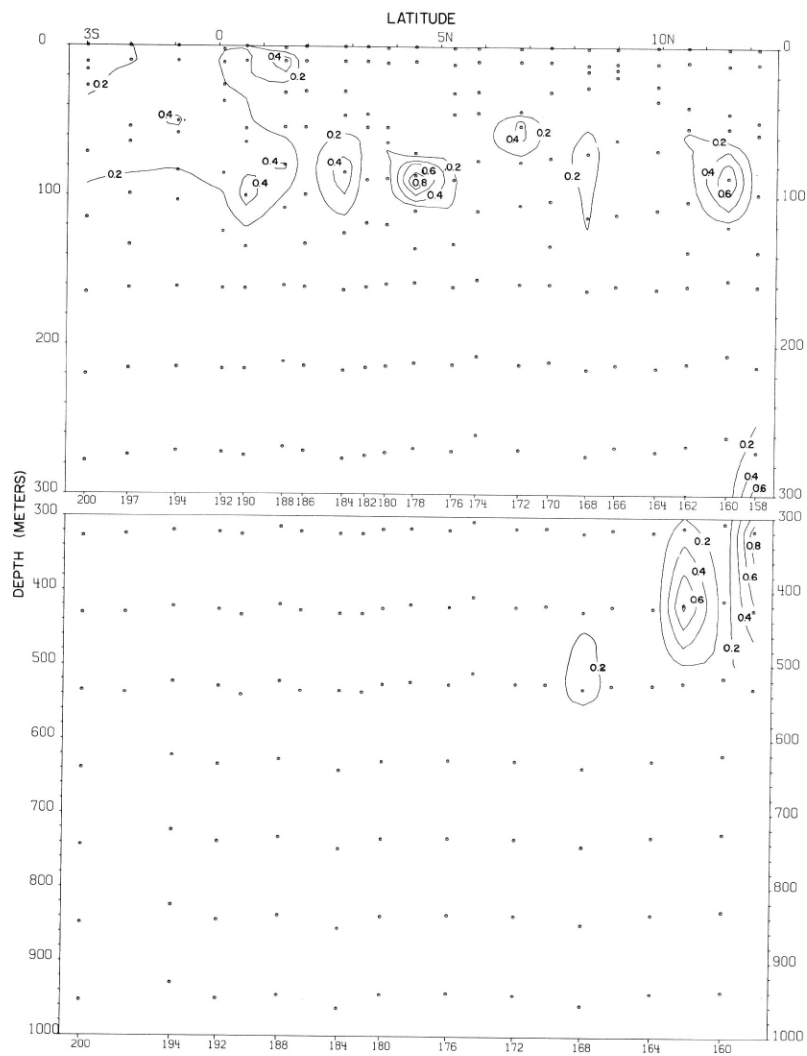


FIGURE 50-NO₂-v5.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along $105^{\circ}10' \text{ W.}$, November 13-18, 1967.

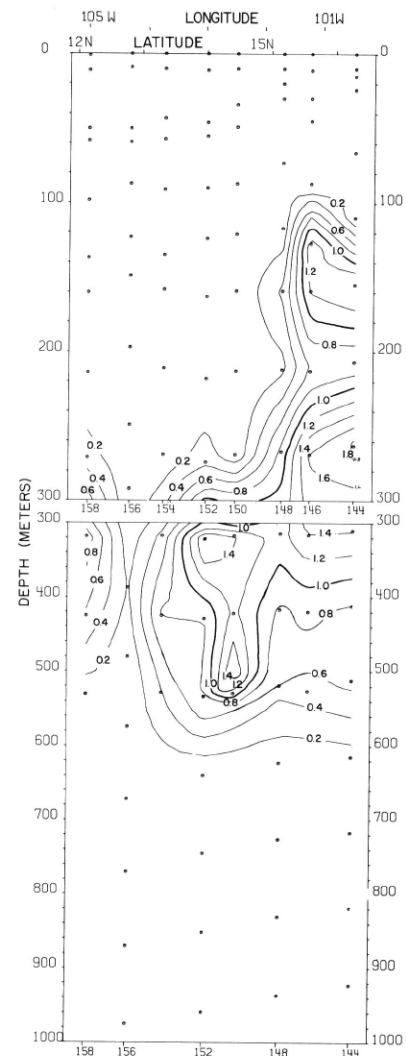
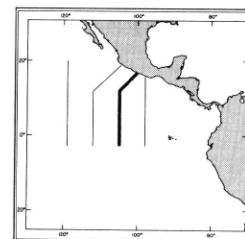


FIGURE 50-NO₂-v4.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along a section from Acapulco to 12° N. , $105^{\circ}10' \text{ W.}$, November 11-13, 1967.



50-NO₂-v4.

50-NO₂-v5.

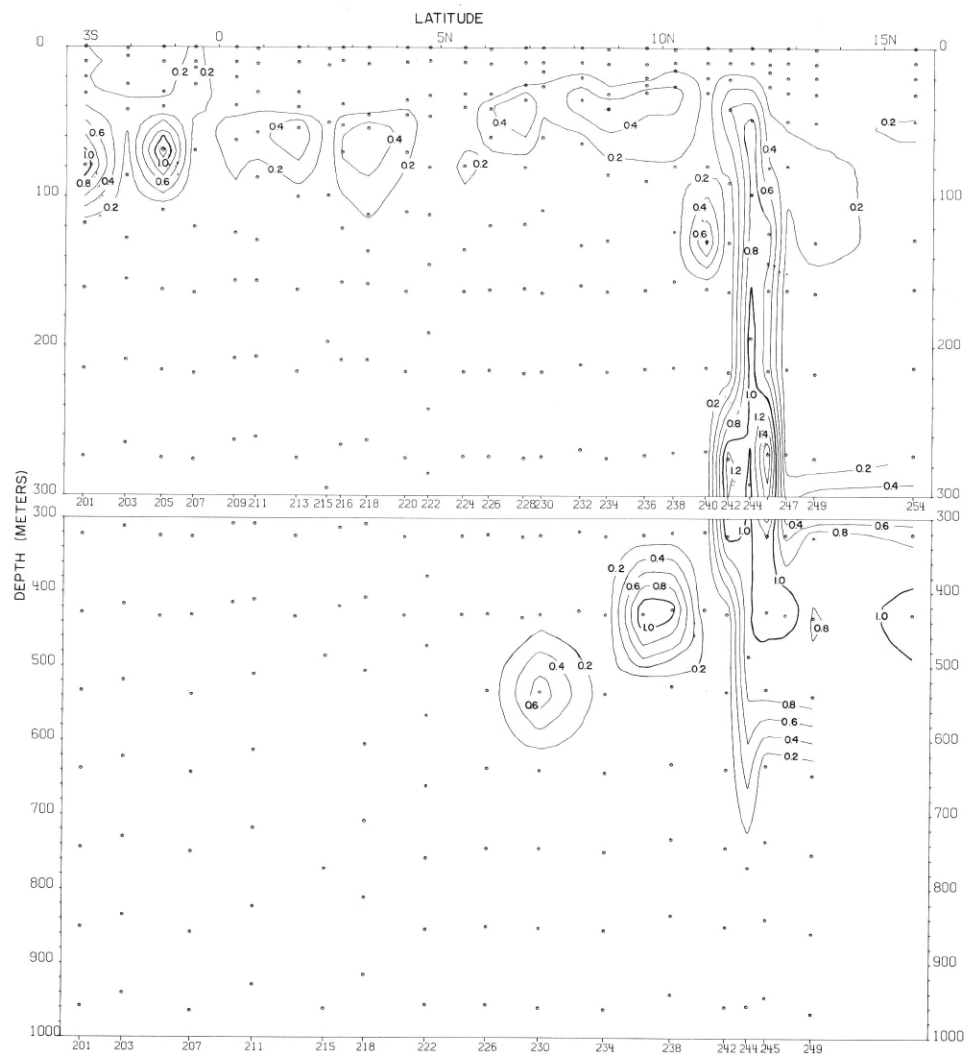
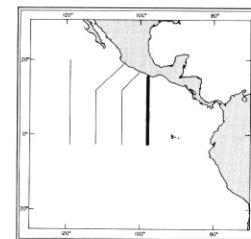


FIGURE 50-NO₂-v6.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along 98°10' W., November 20-27, 1967.



50-NO₂-v6.

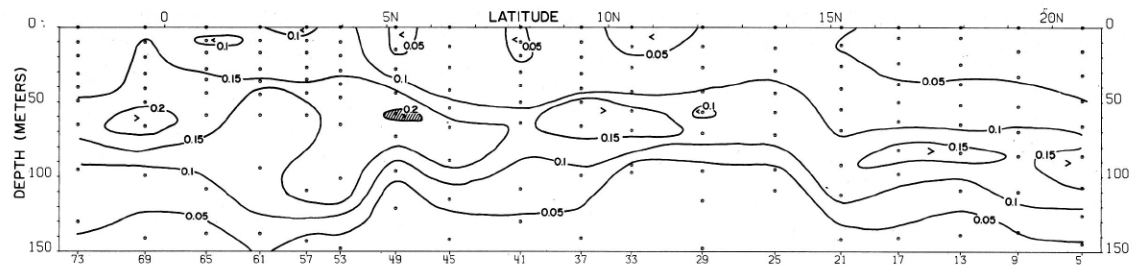


FIGURE 50-Ch-v1.—Vertical distribution of chlorophyll-a (mg./m.³) along 119°10' W., October 20-28, 1967.

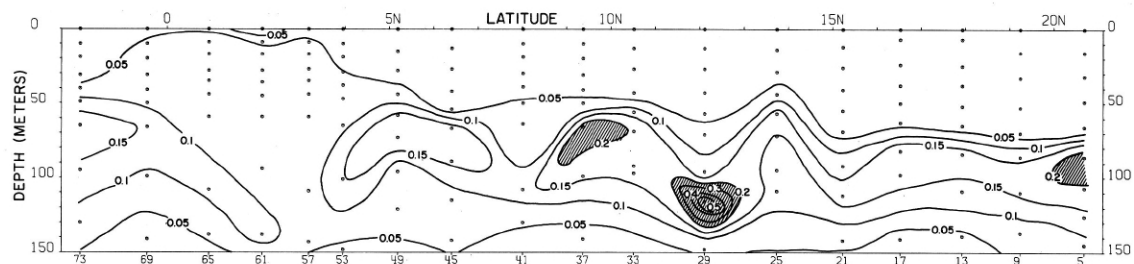


FIGURE 50-Ph-v1.—Vertical distribution of phaeophytin (mg./m.³) along 119°10' W., October 20-28, 1967.

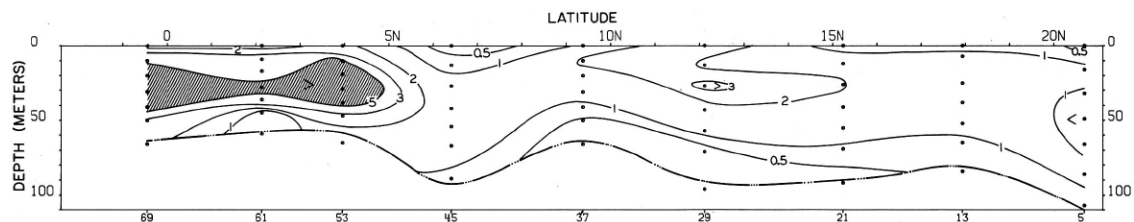
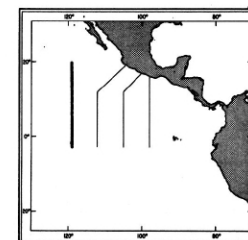


FIGURE 50-PP-v1.—Vertical distribution of primary production (mg. C/m.³/day) along 119°10' W., October 20-28, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.



50-Ch-v1.

50-Ph-v1.

50-PP-v1.

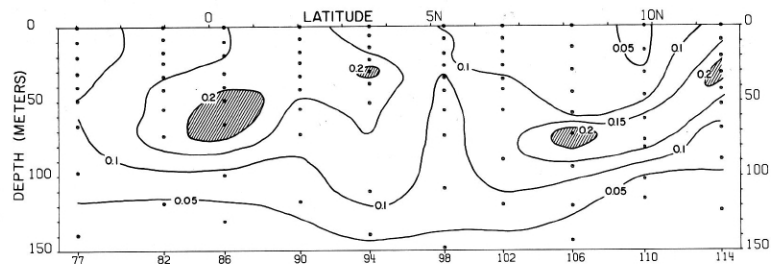


FIGURE 50-Ch-v2.—Vertical distribution of chlorophyll-a (mg./m.^3) along $112^\circ 10' \text{ W.}$, October 30-November 4, 1967.

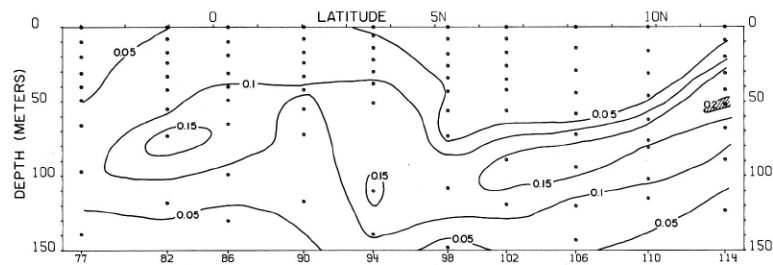


FIGURE 50-Ph-v2.—Vertical distribution of phaeophytin (mg./m.^3) along $112^\circ 10' \text{ W.}$, October 30-November 4, 1967.

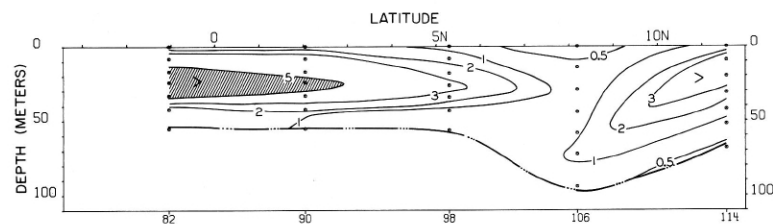


FIGURE 50-PP-v2.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along $112^\circ 10' \text{ W.}$, October 31-November 4, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

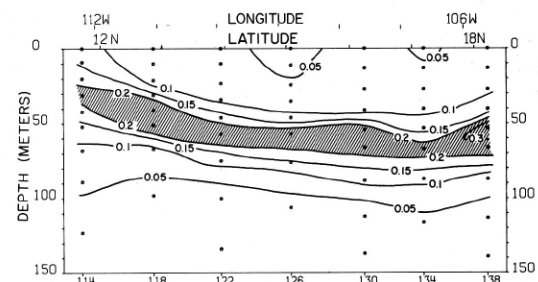


FIGURE 50-Ch-v3.—Vertical distribution of chlorophyll-a (mg./m.^3) along a section from 12° N. , $112^\circ 10' \text{ W.}$, to Manzanillo, November 4-7, 1967.

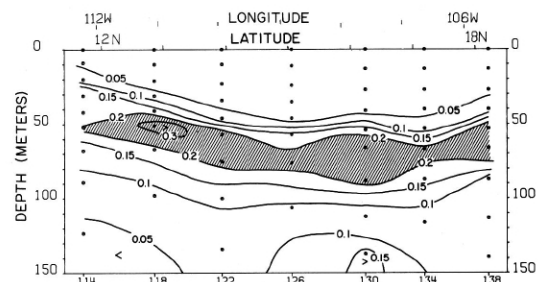


FIGURE 50-Ph-v3.—Vertical distribution of phaeophytin (mg./m.^3) along a section from 12° N. , $112^\circ 10' \text{ W.}$, to Manzanillo, November 4-7, 1967.

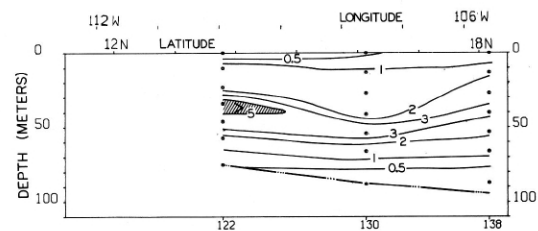
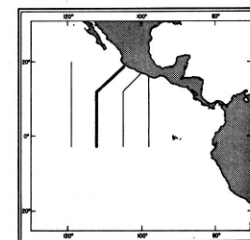


FIGURE 50-PP-v3.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along a section from 12° N. , $112^\circ 10' \text{ W.}$, to Manzanillo, November 5-7, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.



50-Ch-v2.

50-Ph-v2.

50-PP-v2.

50-Ch-v3.

50-Ph-v3.

50-PP-v3.

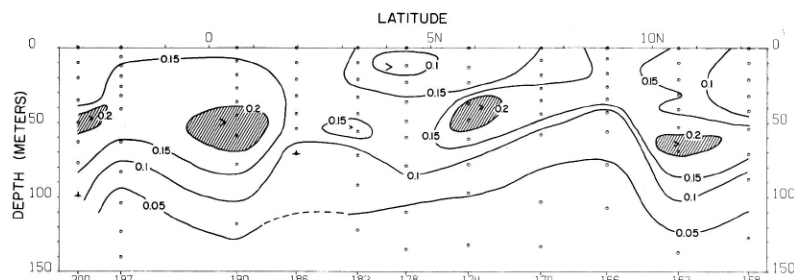


FIGURE 50-Ch-v5.—Vertical distribution of chlorophyll-a (mg./m.³) along 105°10' W., November 13-18, 1967.

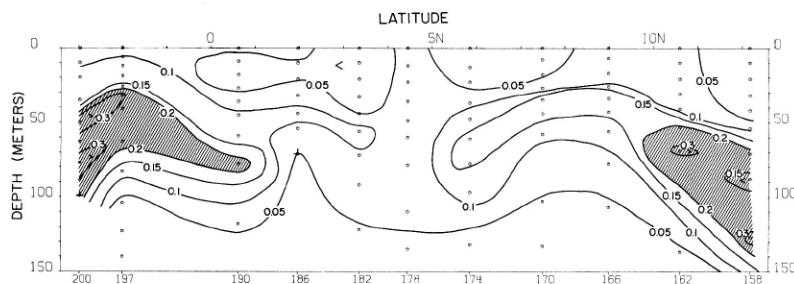


FIGURE 50-Ph-v5.—Vertical distribution of phaeophytin (mg./m.³) along 105°10' W., November 13-18, 1967.

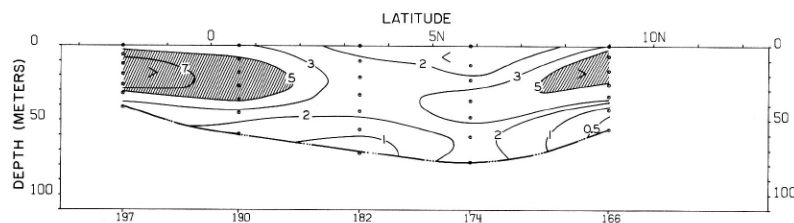


FIGURE 50-PP-v5.—Vertical distribution of primary production (mg. C/m.²/day) along 105°10' W., November 14-18, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

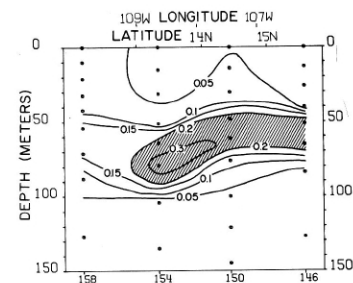


FIGURE 50-Ch-v4.—Vertical distribution of chlorophyll-a (mg./m.³) along a section from Acapulco to 12° N., 105°10' W., November 11-13, 1967.

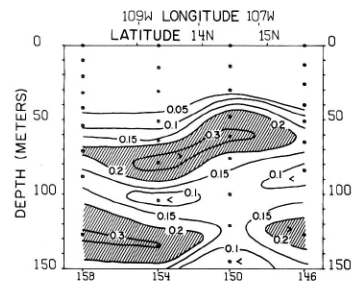


FIGURE 50-Ph-v4.—Vertical distribution of phaeophytin (mg./m.³) along a section from Acapulco to 12° N., 105°10' W., November 11-13, 1967.

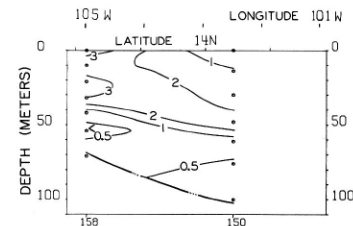
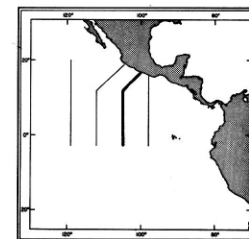


FIGURE 50-PP-v4.—Vertical distribution of primary production (mg. C/m.²/day) along a section from Acapulco to 12° N., 105°10' W., November 12-13, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.



50-Ch-v4.

50-Ph-v4.

50-PP-v4.

50-Ch-v5.

50-Ph-v5.

50-PP-v5.

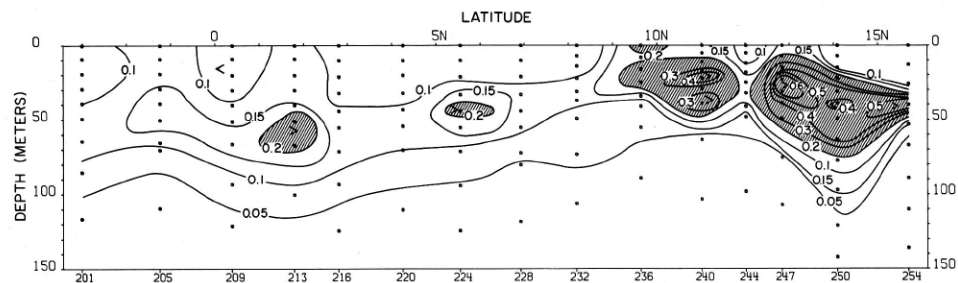


FIGURE 50-Ch-v6.—Vertical distribution of chlorophyll-a (mg./m.³) along 98°10' W., November 20-27, 1967.

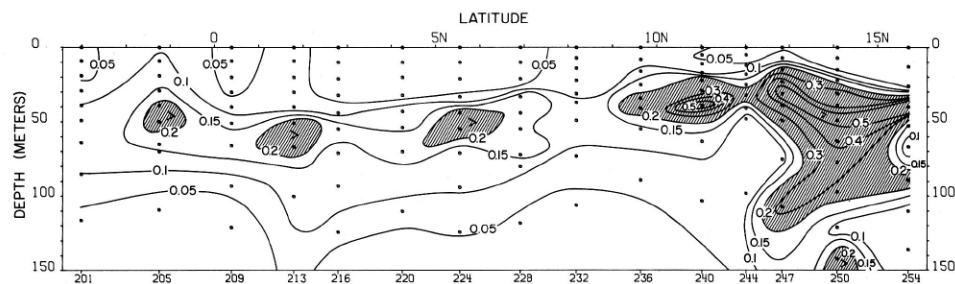


FIGURE 50-Ph-v6.—Vertical distribution of phaeophytin (mg./m.³) along 98°10' W., November 20-27, 1967.

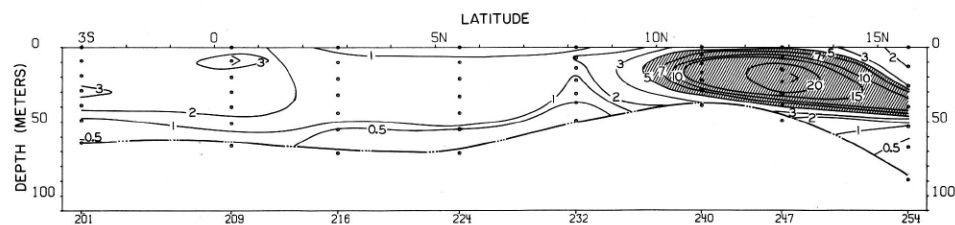
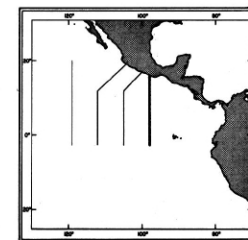


FIGURE 50-PP-v6.—Vertical distribution of primary production (mg. C/m.³/day) along 98°10' W., November 20-27, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.



50-Ch-v6.
50-Ph-v6.
50-PP-v6.

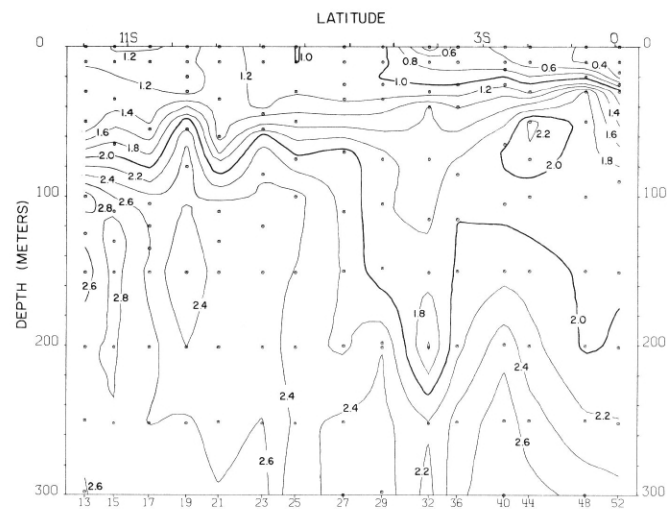


FIGURE OP-P-v2.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./L.}$) along 85°W. , November 15-19, 1967.

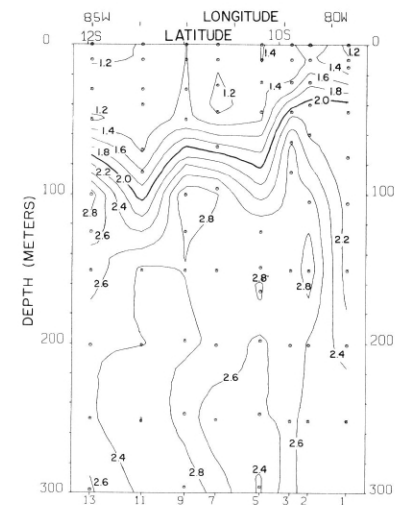


FIGURE OP-P-v1.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./L.}$) along a northeast-southwest section from the coast of Peru to 12°S , 85°W. , November 14-15, 1967.

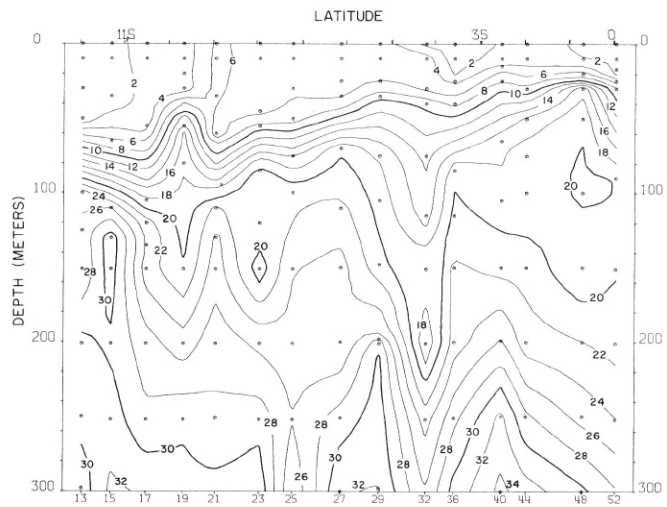


FIGURE OP-Si-v2.—Vertical distribution of silicate-silicon ($\mu\text{g-at./L.}$) along 85°W. , November 15-19, 1967.

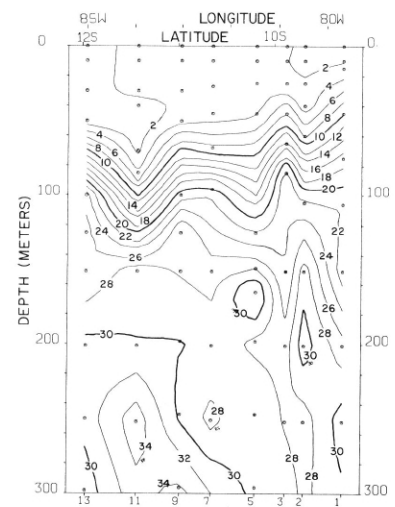
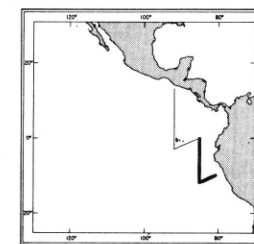


FIGURE OP-Si-v1.—Vertical distribution of silicate-silicon ($\mu\text{g-at./L.}$) along a northeast-southwest section from the coast of Peru to 12°S , 85°W. , November 14-15, 1967.



- OP-P-v1.
- OP-P-v2.
- OP-Si-v1.
- OP-Si-v2.

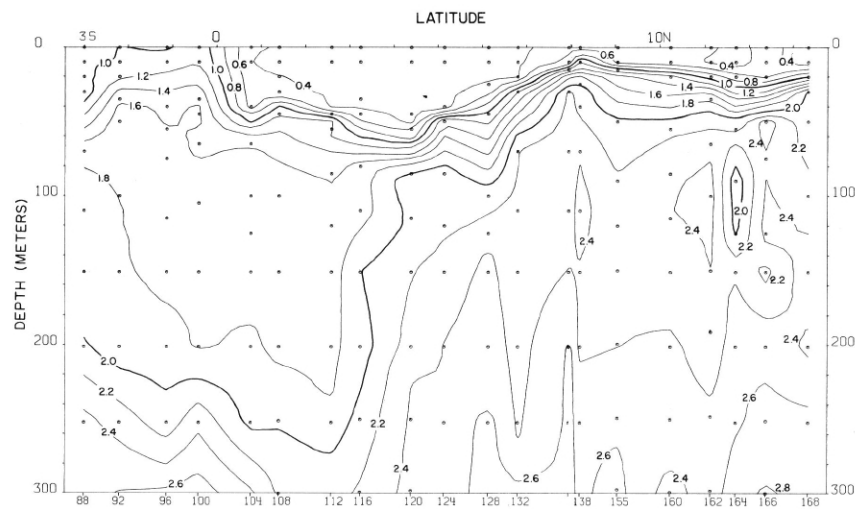


FIGURE OP-P-v4.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along 92°W. , November 21-26, 1967.

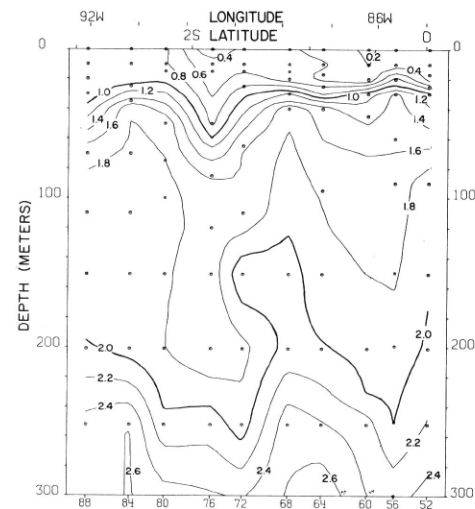


FIGURE OP-P-v3.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along a northeast-southwest section from the Equator at 85°W. to 3°S. , 92°W. , November 19-21, 1967.

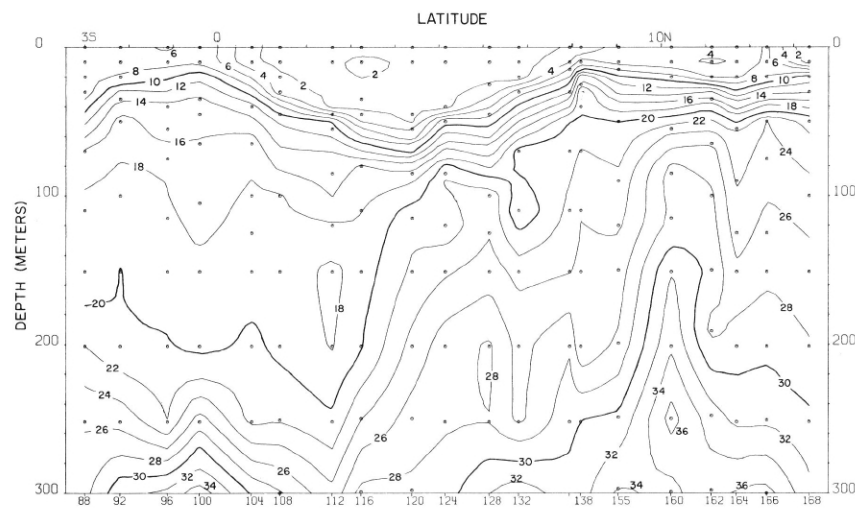


FIGURE OP-Si-v4.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along 92°W. , November 21-26, 1967.

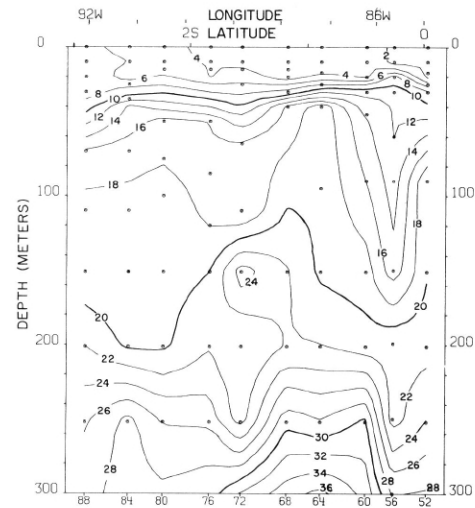
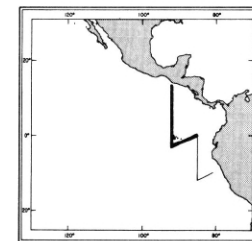


FIGURE OP-Si-v3.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along a northeast-southwest section from the Equator at 85°W. to 3°S. , 92°W. , November 19-21, 1967.



OP-P-v3.

OP-P-v4.

OP-Si-v3.

OP-Si-v4.

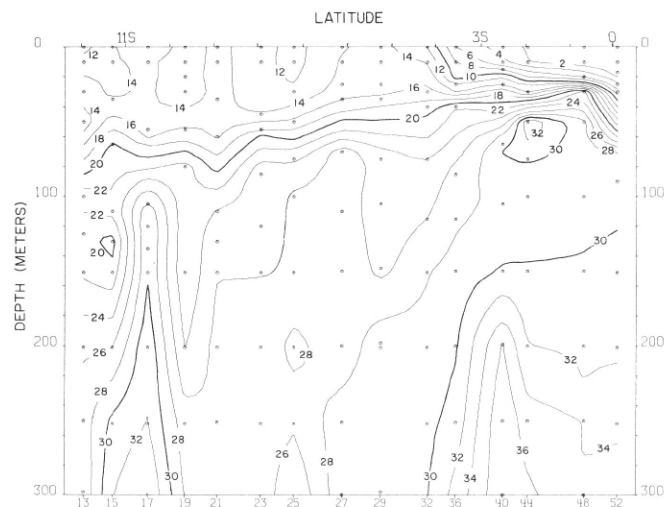


FIGURE OP-NO₃-v2.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along 85° W., November 15-19, 1967.

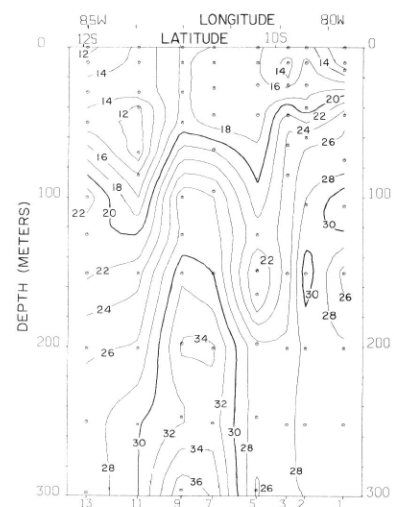


FIGURE OP-NO₃-v1.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along a northeast-southwest section from the coast of Peru to 12° S., 85° W., November 14-15, 1967.

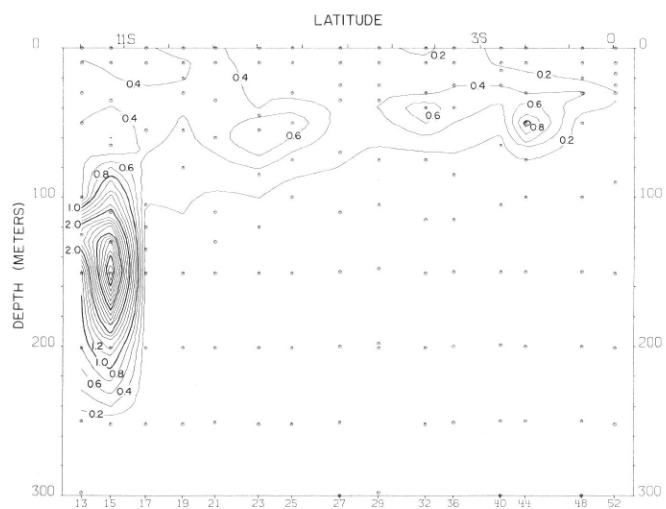


FIGURE OP-NO₂-v2.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along 85° W., November 15-19, 1967.

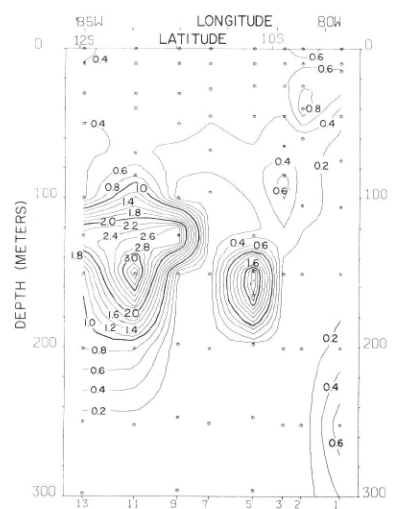
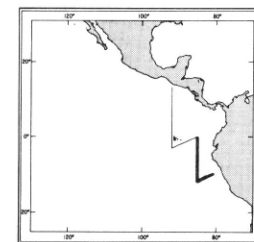


FIGURE OP-NO₂-v1.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along a northeast-southwest section from the coast of Peru to 12° S., 85° W., November 14-15, 1967.



OP-NO₃-v1.
OP-NO₃-v2.
OP-NO₂-v1.
OP-NO₂-v2.

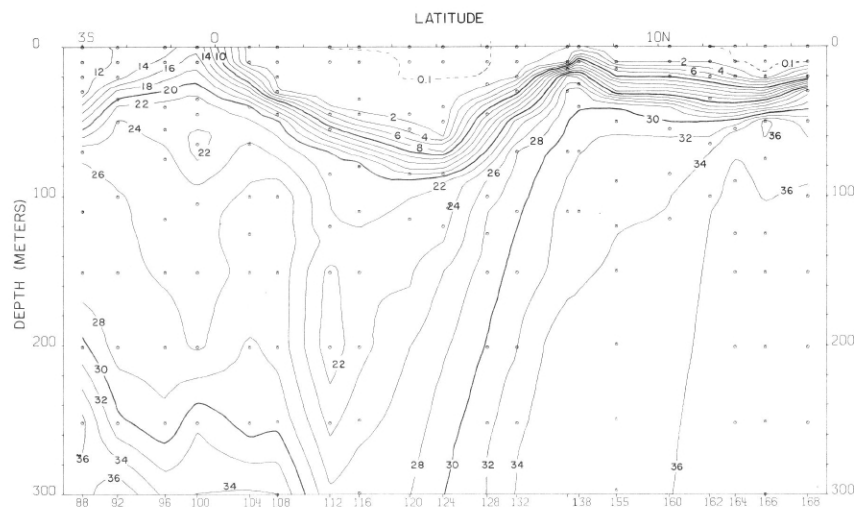


FIGURE OP-NO₃-v4.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along 92° W., November 21-26, 1967.

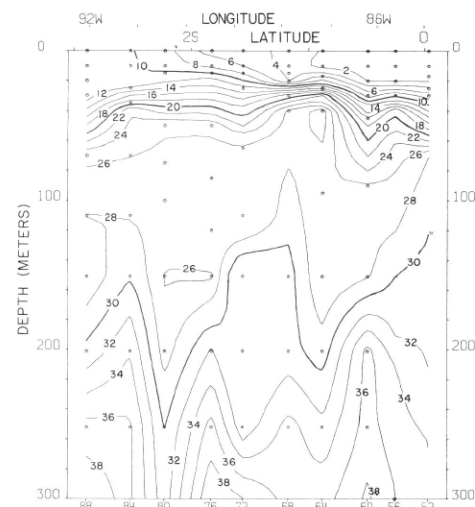


FIGURE OP-NO₃-v3.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along a northeast-southwest section from the Equator at 85° W. to 3° S., 92° W., November 19-21, 1967.

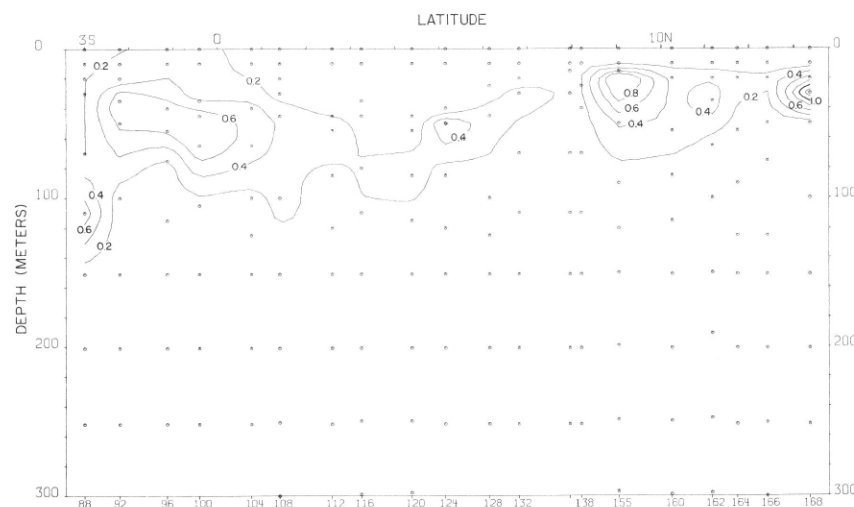


FIGURE OP-NO₂-v4.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along 92° W., November 21-26, 1967.

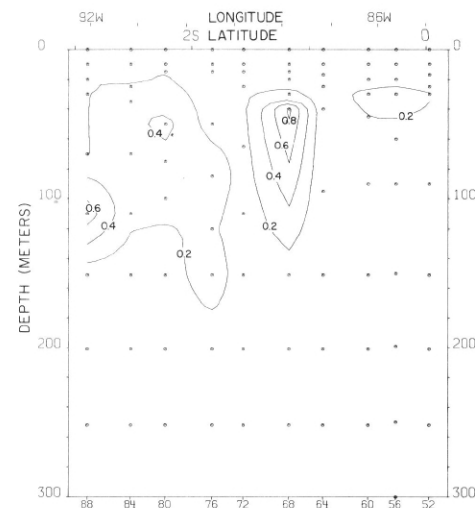
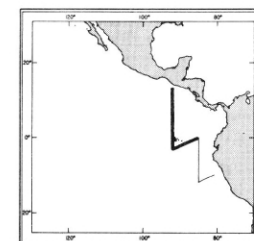


FIGURE OP-NO₂-v3.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along a northeast-southwest section from the Equator at 85° W. to 3° S., 92° W., November 19-21, 1967.



OP-NO₃-v3.

OP-NO₃-v4.

OP-NO₂-v3.

OP-NO₂-v4.

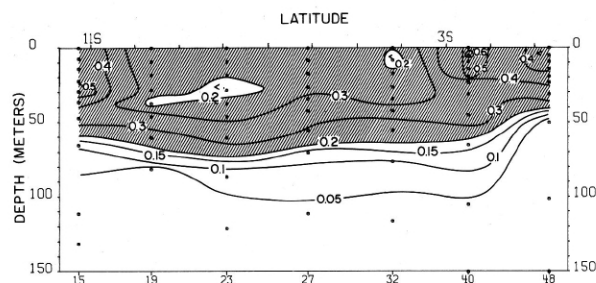


FIGURE OP-Ch-v2.—Vertical distribution of chlorophyll-a (mg./m.^3) along 85°W. , November 15-19, 1967.

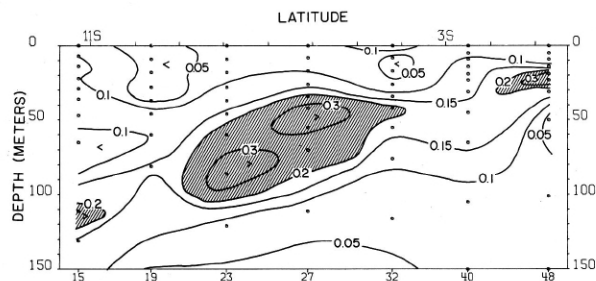


FIGURE OP-Ph-v2.—Vertical distribution of phaeophytin (mg./m.^3) along 85°W. , November 15-19, 1967.

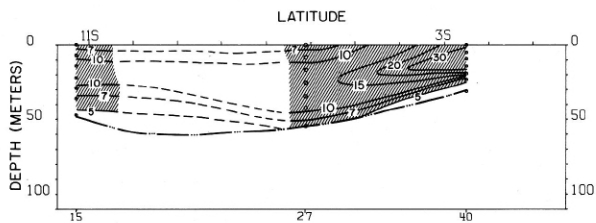


FIGURE OP-PP-v2.—Vertical distribution of primary production ($\text{mg. C/m.}^2/\text{day}$) along 85°W. , November 15-18, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

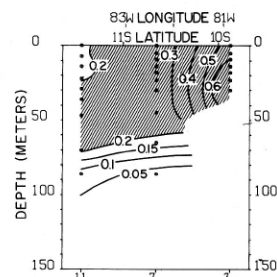


FIGURE OP-Ch-v1.—Vertical distribution of chlorophyll-a (mg./m.^3) along a northeast-southwest section from the coast of Peru to 12°S. , 85°W. , November 14-15, 1967.

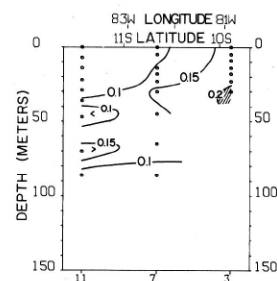


FIGURE OP-Ph-v1.—Vertical distribution of phaeophytin (mg./m.^3) along a northeast-southwest section from the coast of Peru to 12°S. , 85°W. , November 14-15, 1967.

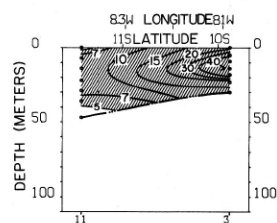
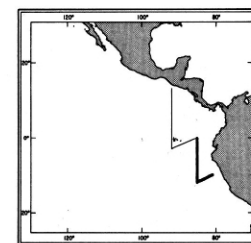


FIGURE OP-PP-v1.—Vertical distribution of primary production ($\text{mg. C/m.}^2/\text{day}$) along a northeast-southwest section from the coast of Peru to 12°S. , 85°W. , November 14-15, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.



OP-Ch-v1.
OP-Ph-v1.
OP-PP-v1.
OP-Ch-v2.
OP-Ph-v2.
OP-PP-v2.

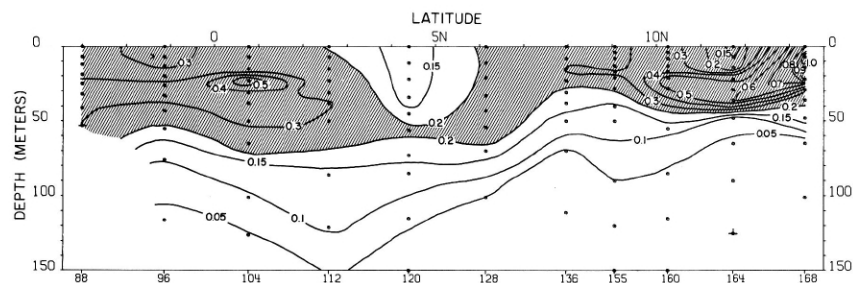


FIGURE OP-Ch-v4.—Vertical distribution of chlorophyll-a (mg./m.^3) along 92°W. , November 21-26, 1967.

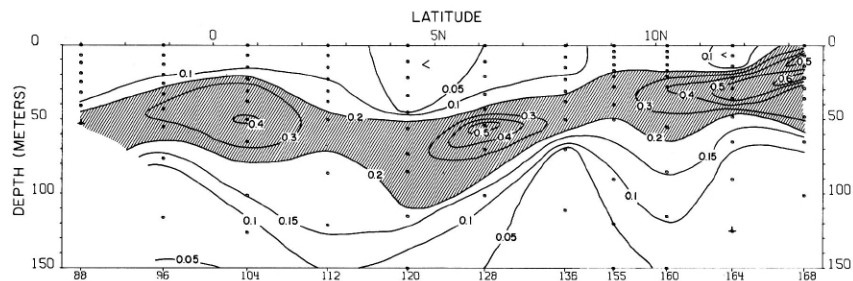


FIGURE OP-Ph-v4.—Vertical distribution of phaeophytin (mg./m.^3) along 92°W. , November 21-26, 1967.

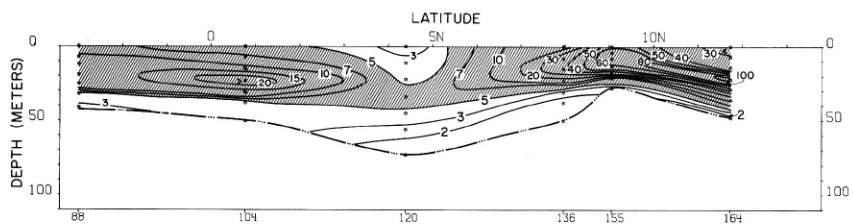


FIGURE OP-PP-v4.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along 92°W. , November 21-26, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

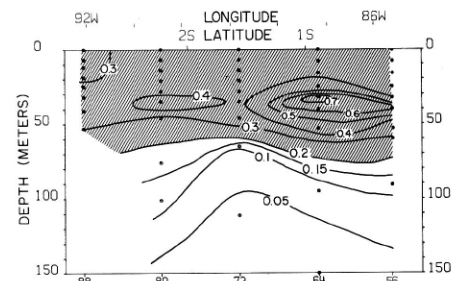


FIGURE OP-Ch-v3.—Vertical distribution of chlorophyll-a (mg./m.^3) along a northeast-southwest section from the Equator at 85°W. to 3°S. , 92°W. , November 19-21, 1967.

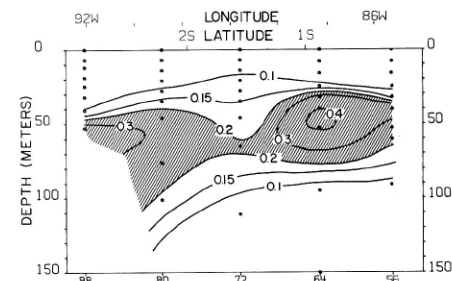


FIGURE OP-Ph-v3.—Vertical distribution of phaeophytin (mg./m.^3) along a northeast-southwest section from the Equator at 85°W. to 3°S. , 92°W. , November 19-21, 1967.

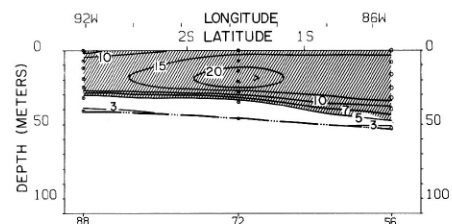
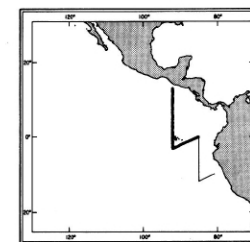
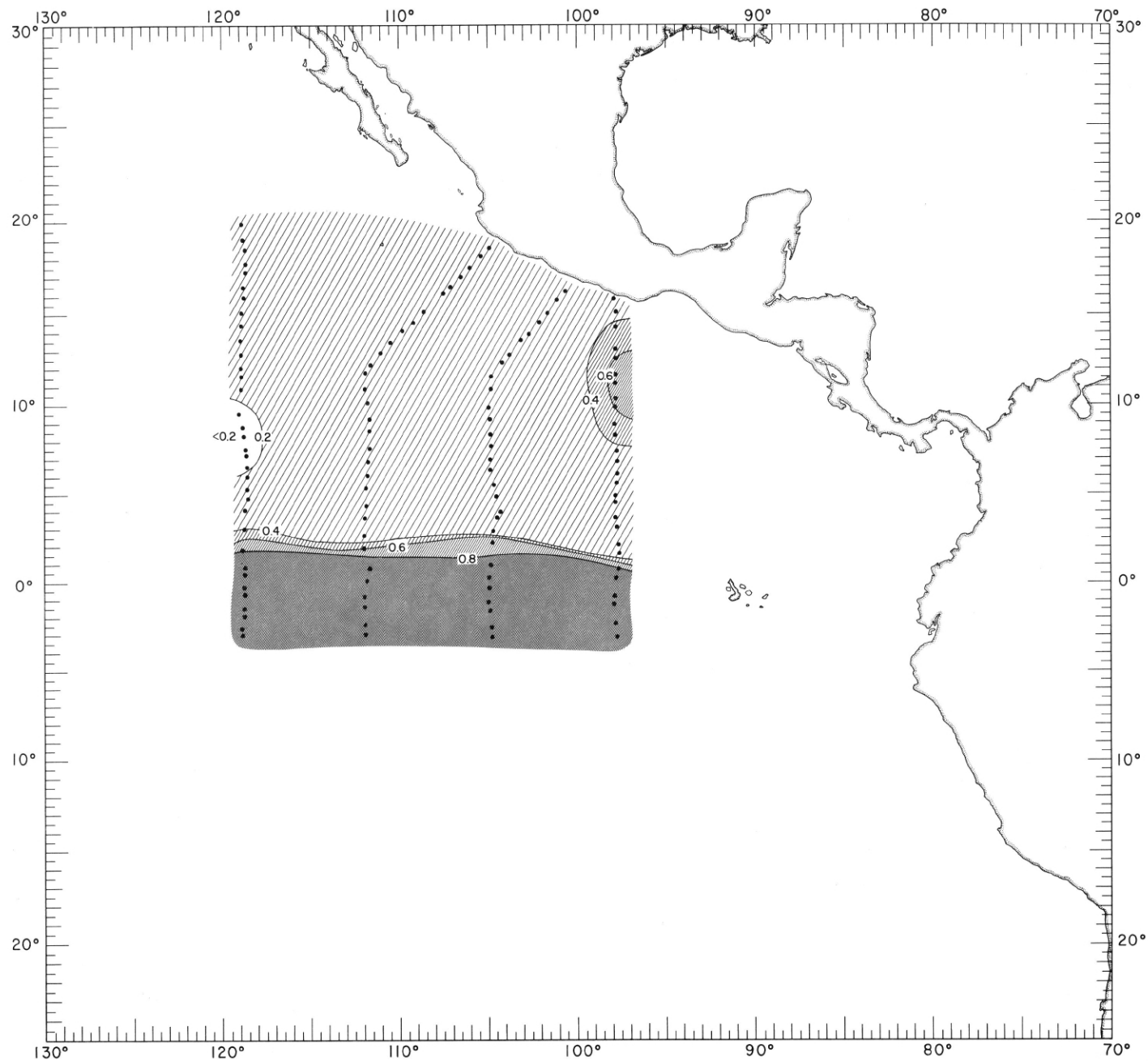


FIGURE OP-PP-v3.—Vertical distribution of primary production ($\text{mg. C/m.}^3/\text{day}$) along a northeast-southwest section from the Equator at 85°W. to 3°S. , 92°W. , November 19-21, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.

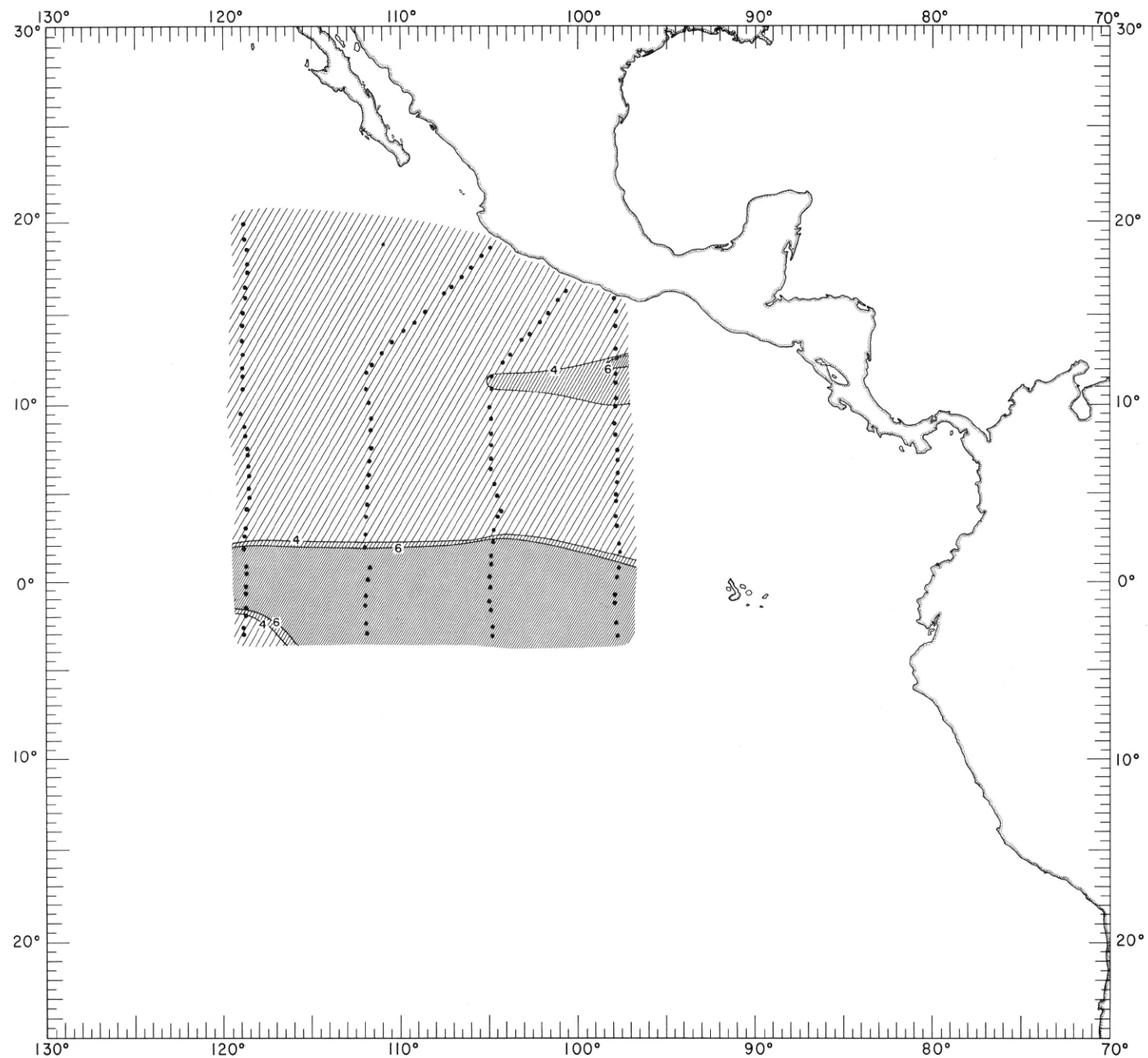


OP-Ch-v3.
OP-Ph-v3.
OP-PP-v3.
OP-Ch-v4.
OP-Ph-v4.
OP-PP-v4.



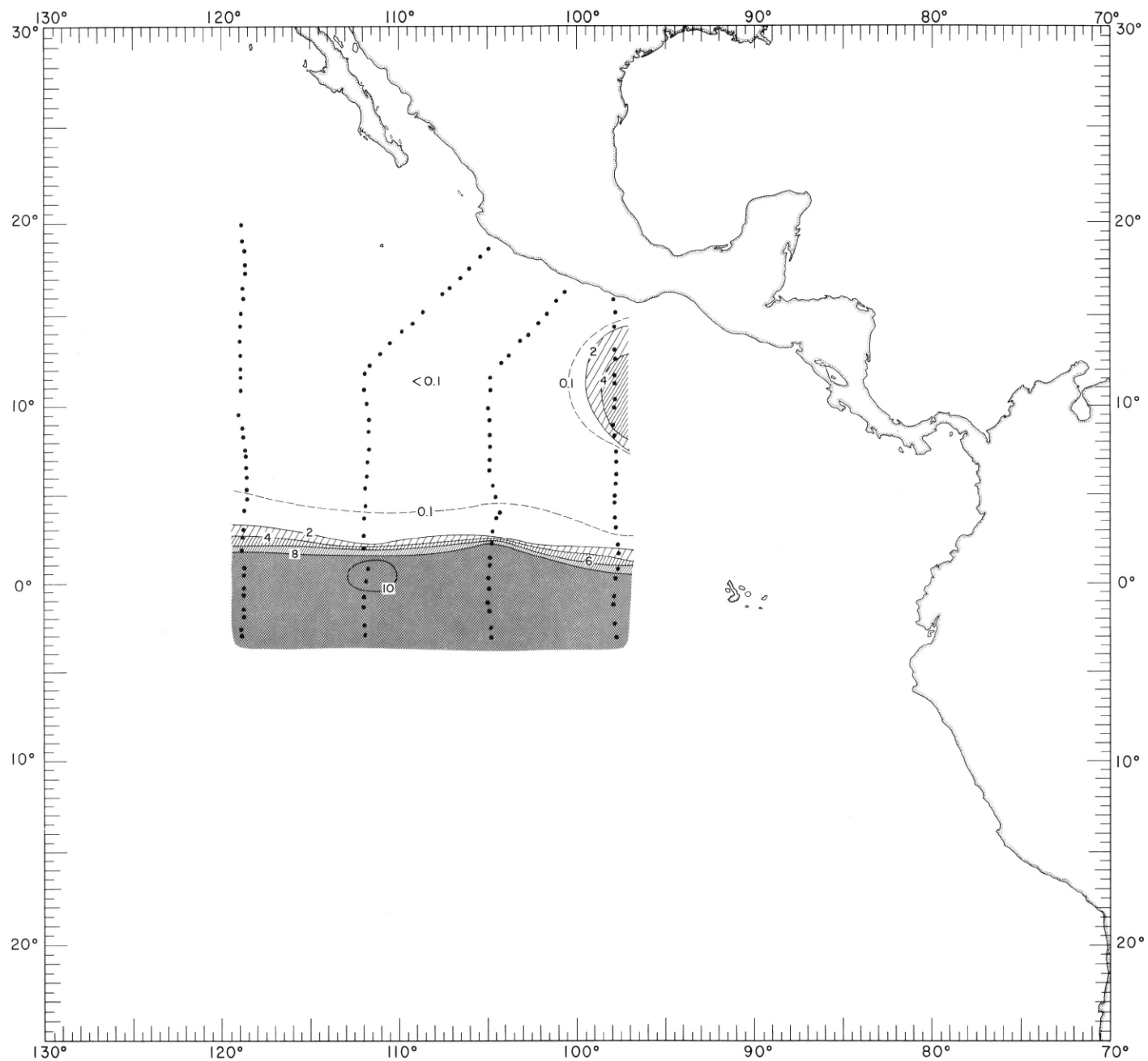
60-P-10.

FIGURE 60-P-10. — Phosphate-phosphorus ($\mu\text{g-at./l.}$) at 10 meters, December 1967-January 1968.



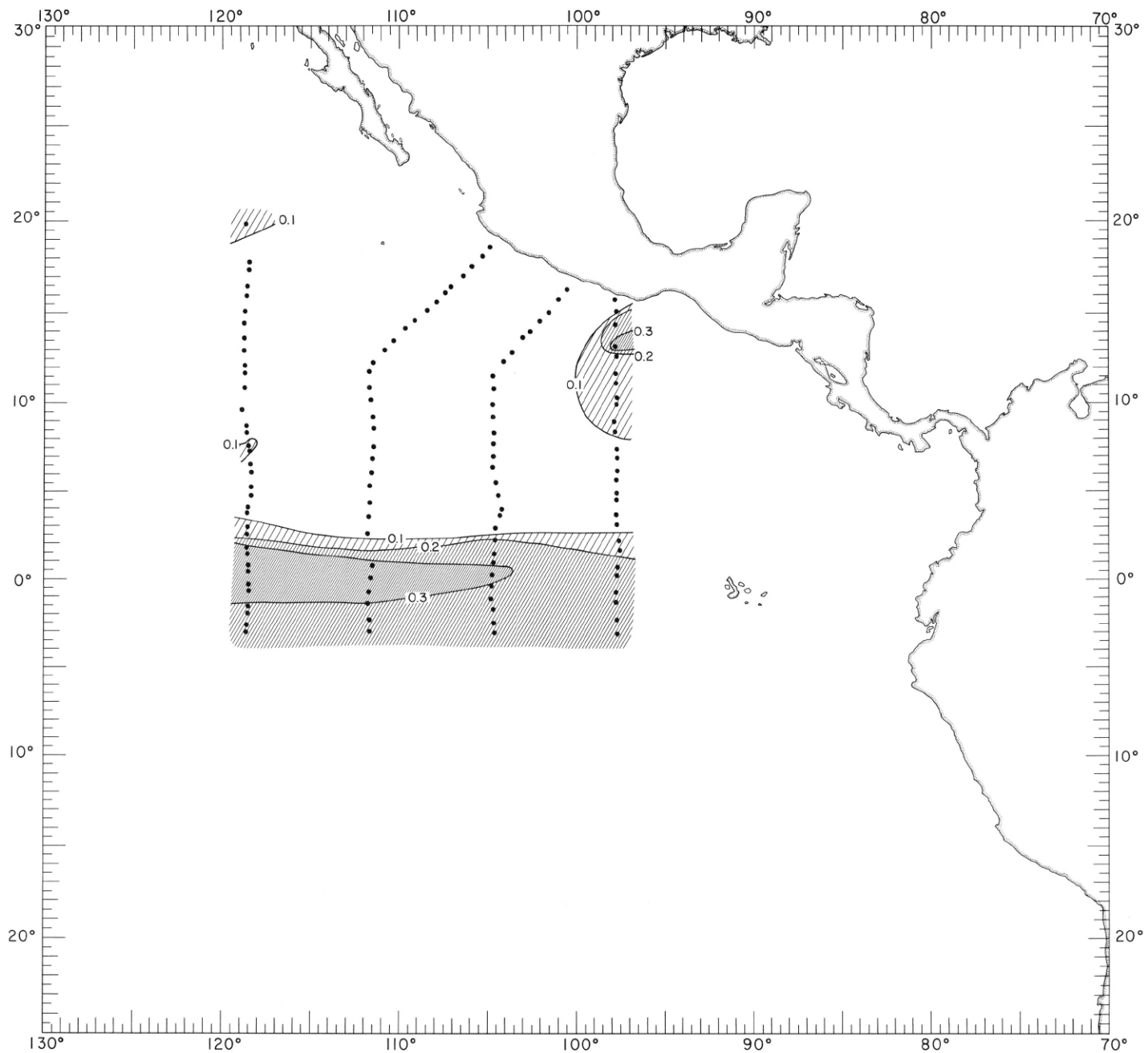
60-Si-10.

FIGURE 60-Si-10. — Silicate-silicon ($\mu\text{g-at./l.}$) at 10 meters, December 1967-January 1968.



60-NO₃-10.

FIGURE 60-NO₃-10. — Nitrate-nitrogen ($\mu\text{g-at./l.}$) at 10 meters, December 1967-January 1968.



60-NO₂-10.

FIGURE 60-NO₂-10.—Nitrite-nitrogen ($\mu\text{g-at./l.}$) at 10 meters, December 1967-January 1968.

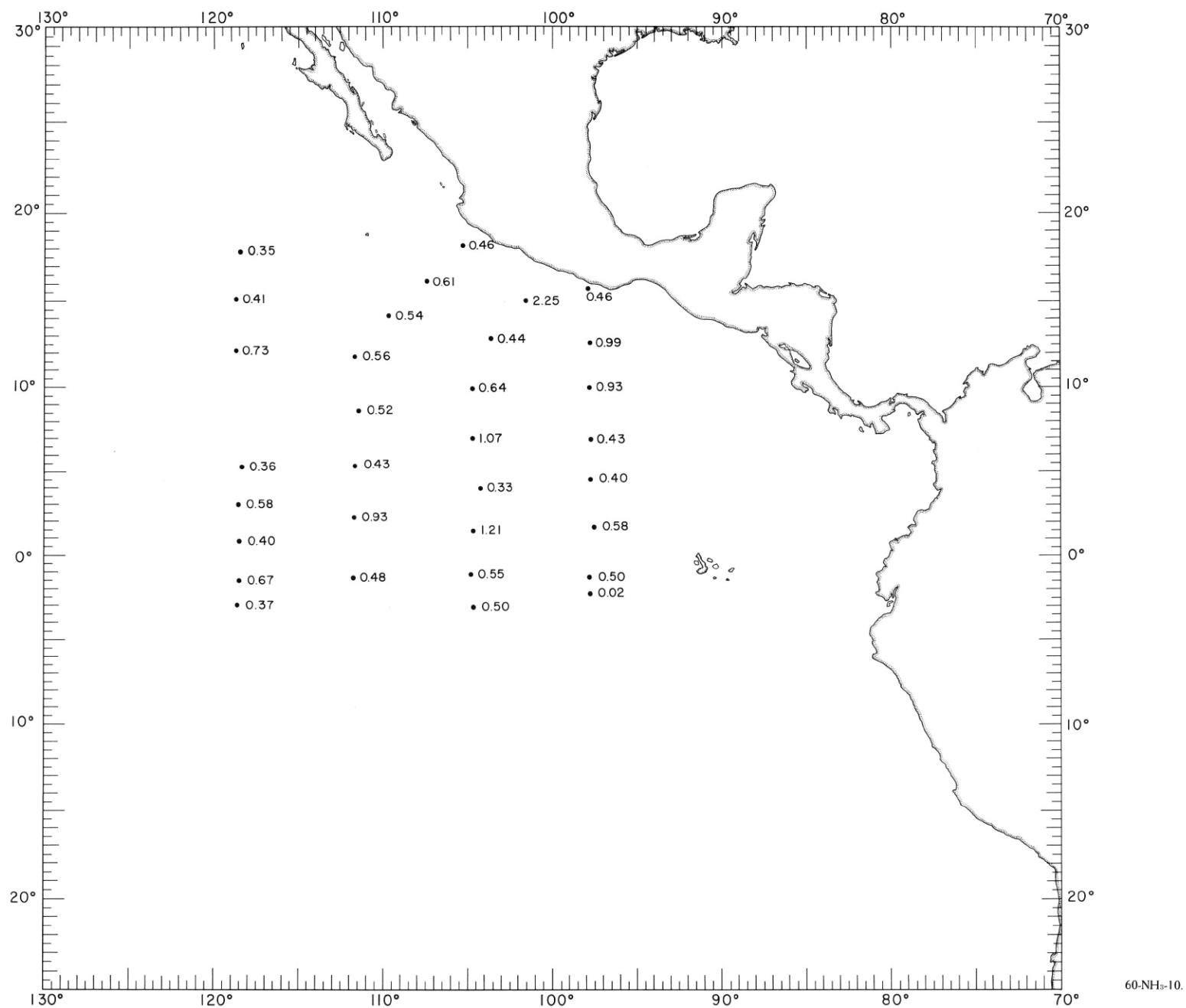
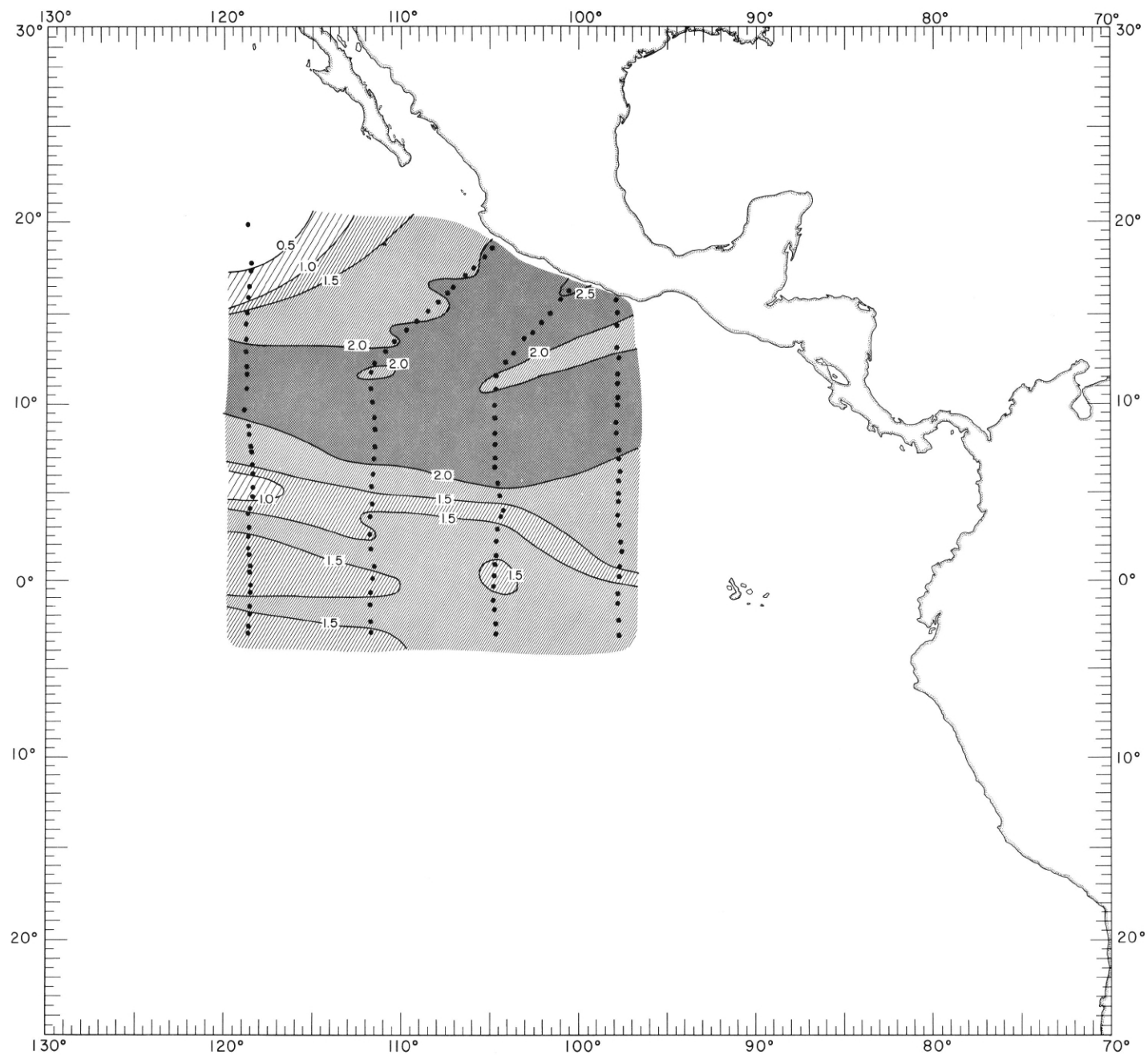


FIGURE 60-NH₃-10.—Ammonia-nitrogen (µg-at./L) at 10 meters, December 1967-January 1968. Because the distribution is so irregular no contours have been drawn. Instead, the concentration at each station is shown.



60-P-100.

FIGURE 60-P-100.—Phosphate-phosphorus ($\mu\text{g-at./l.}$) at 100 meters, December 1967-January 1968.

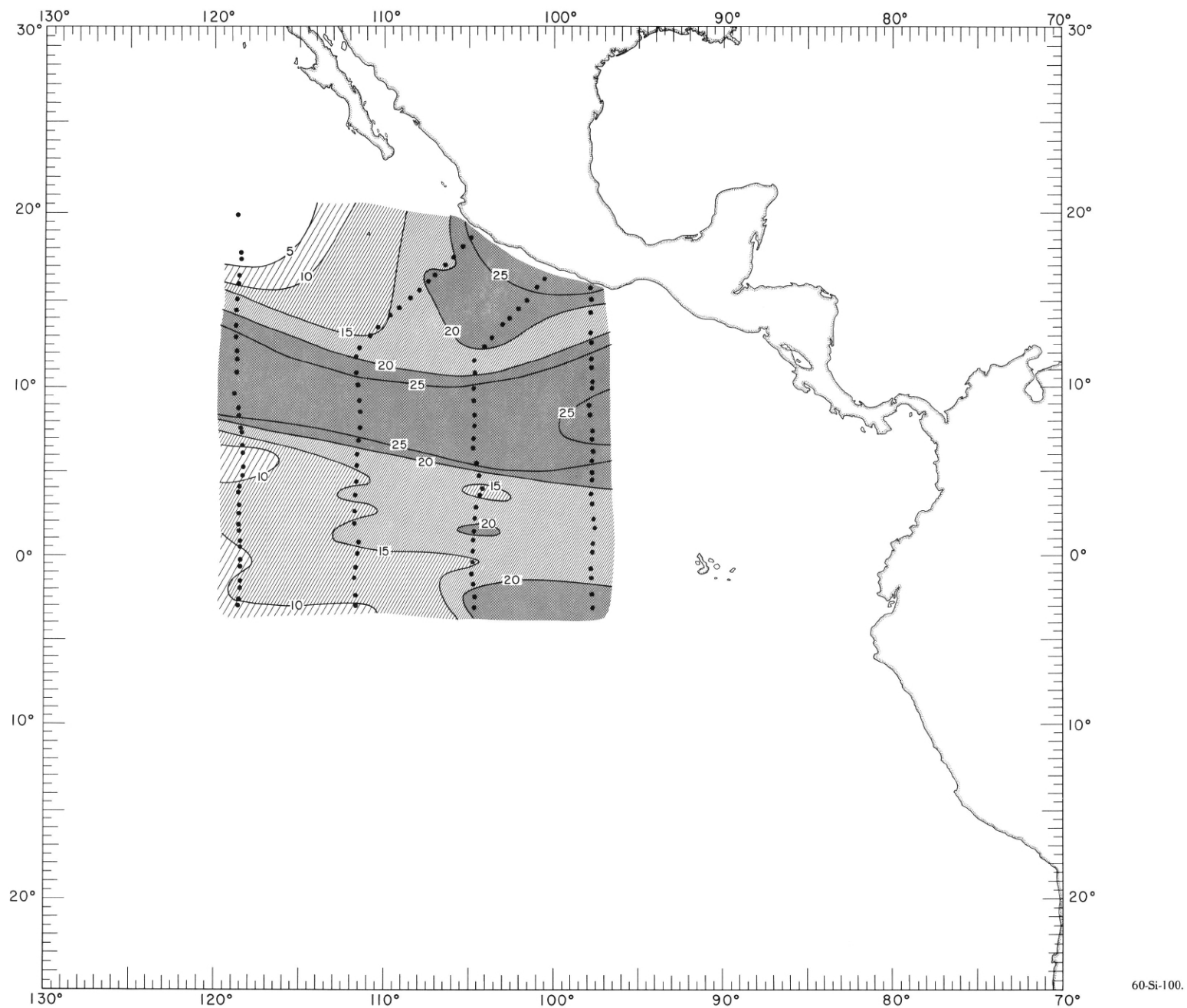


FIGURE 60-Si-100.—Silicate-silicon ($\mu\text{g-at./l.}$) at 100 meters, December 1967-January 1968.

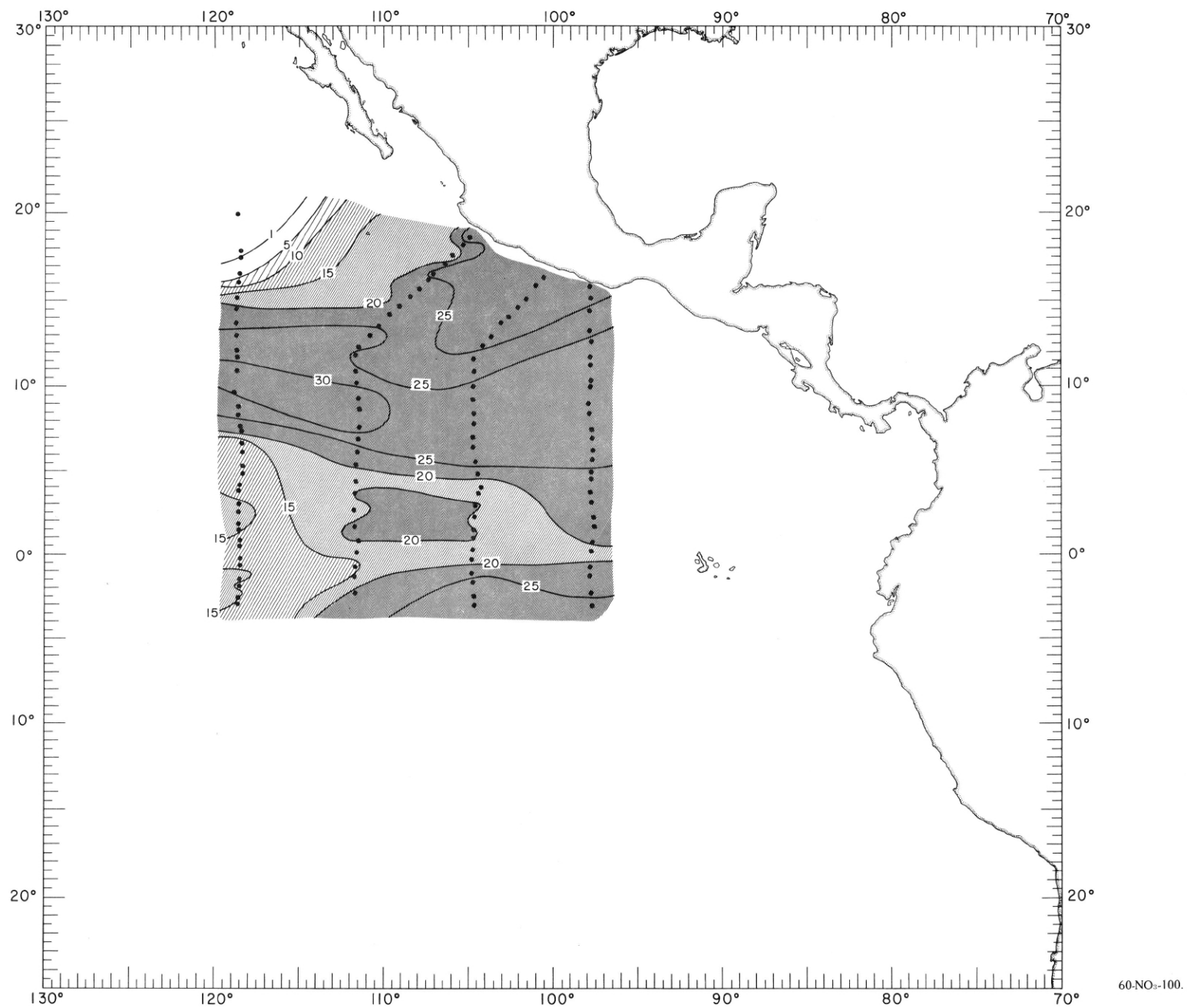


FIGURE 60-NO₃-100.—Nitrate-nitrogen ($\mu\text{g.-at./l.}$) at 100 meters, December 1967-January 1968.

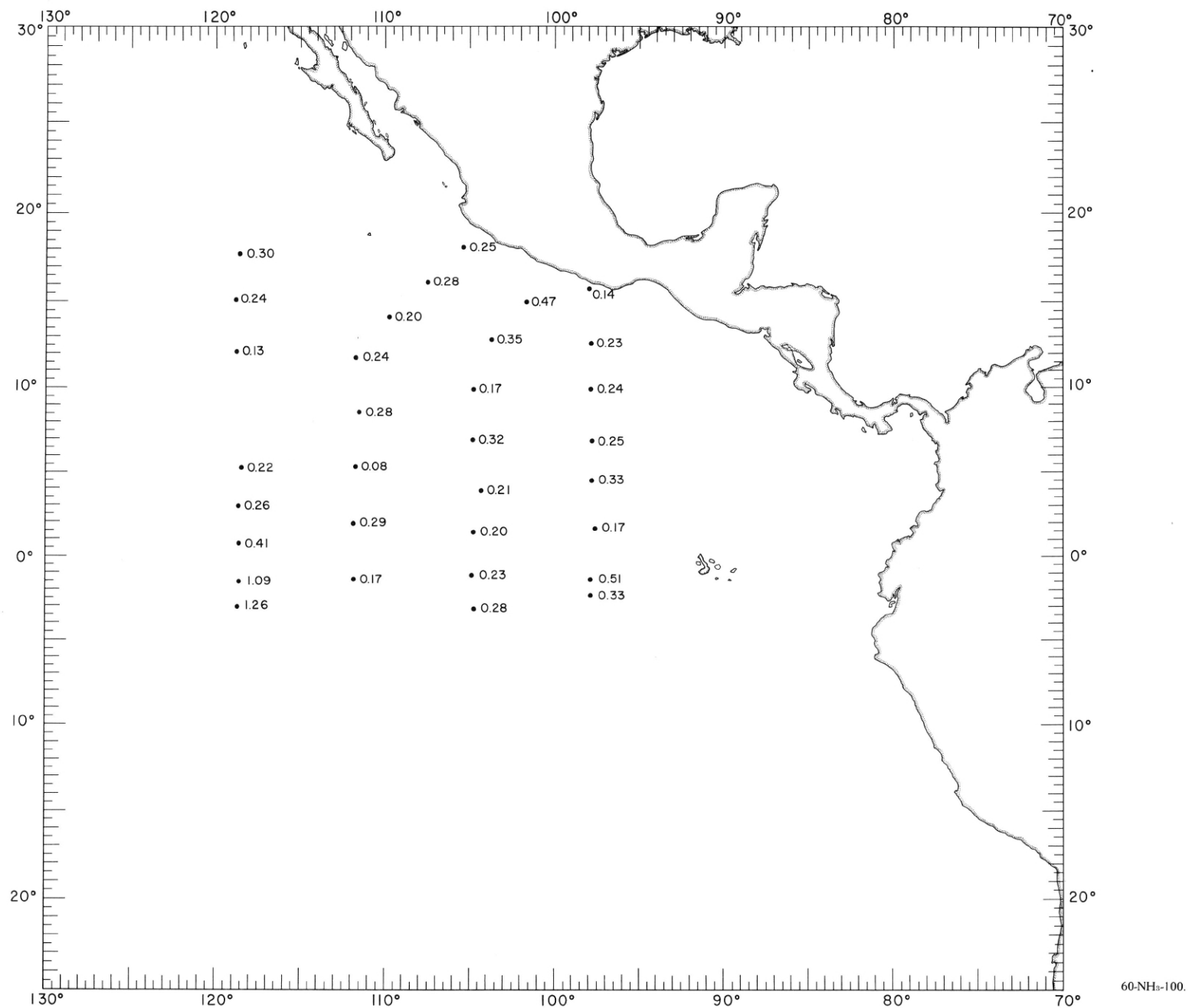
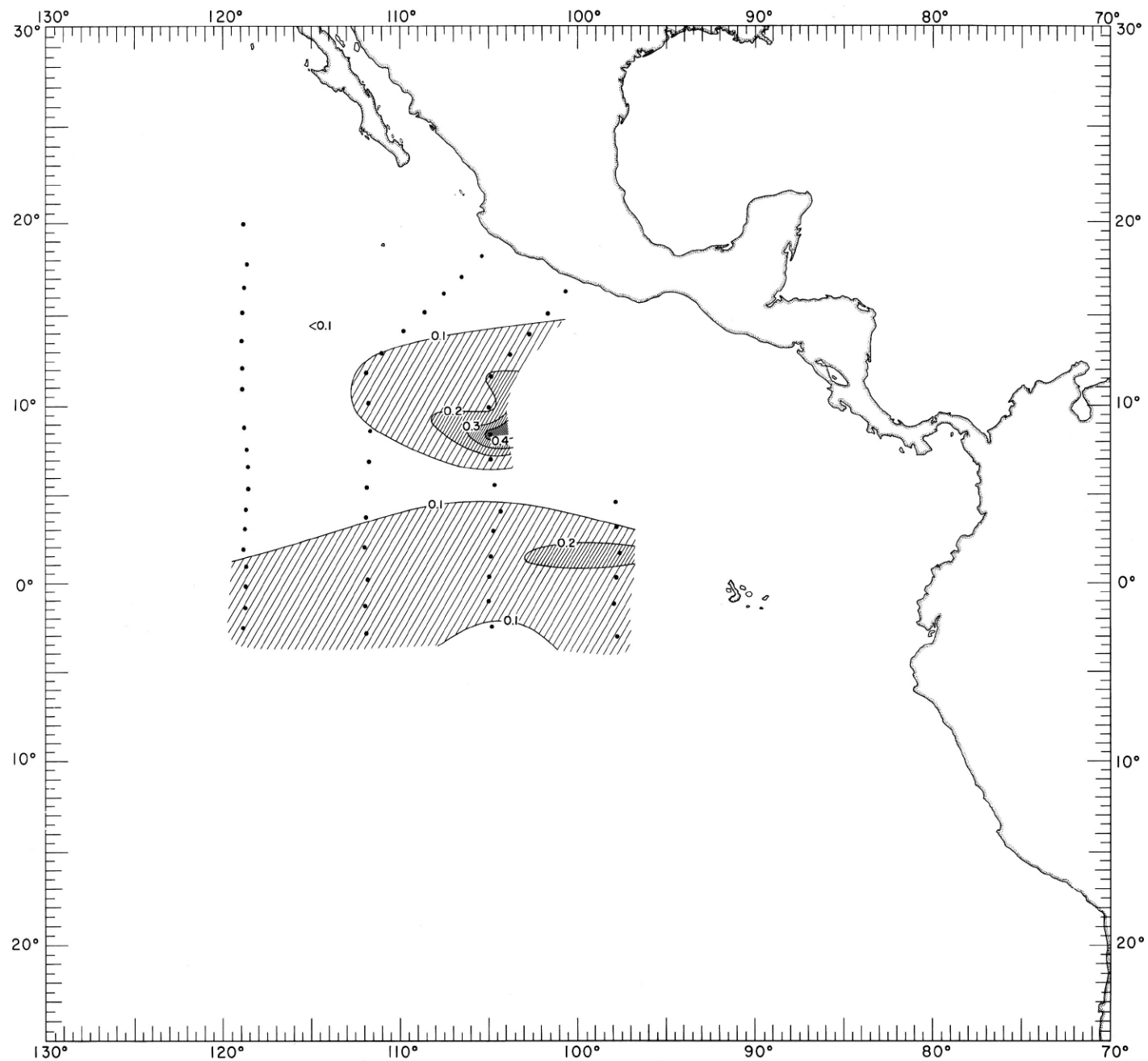
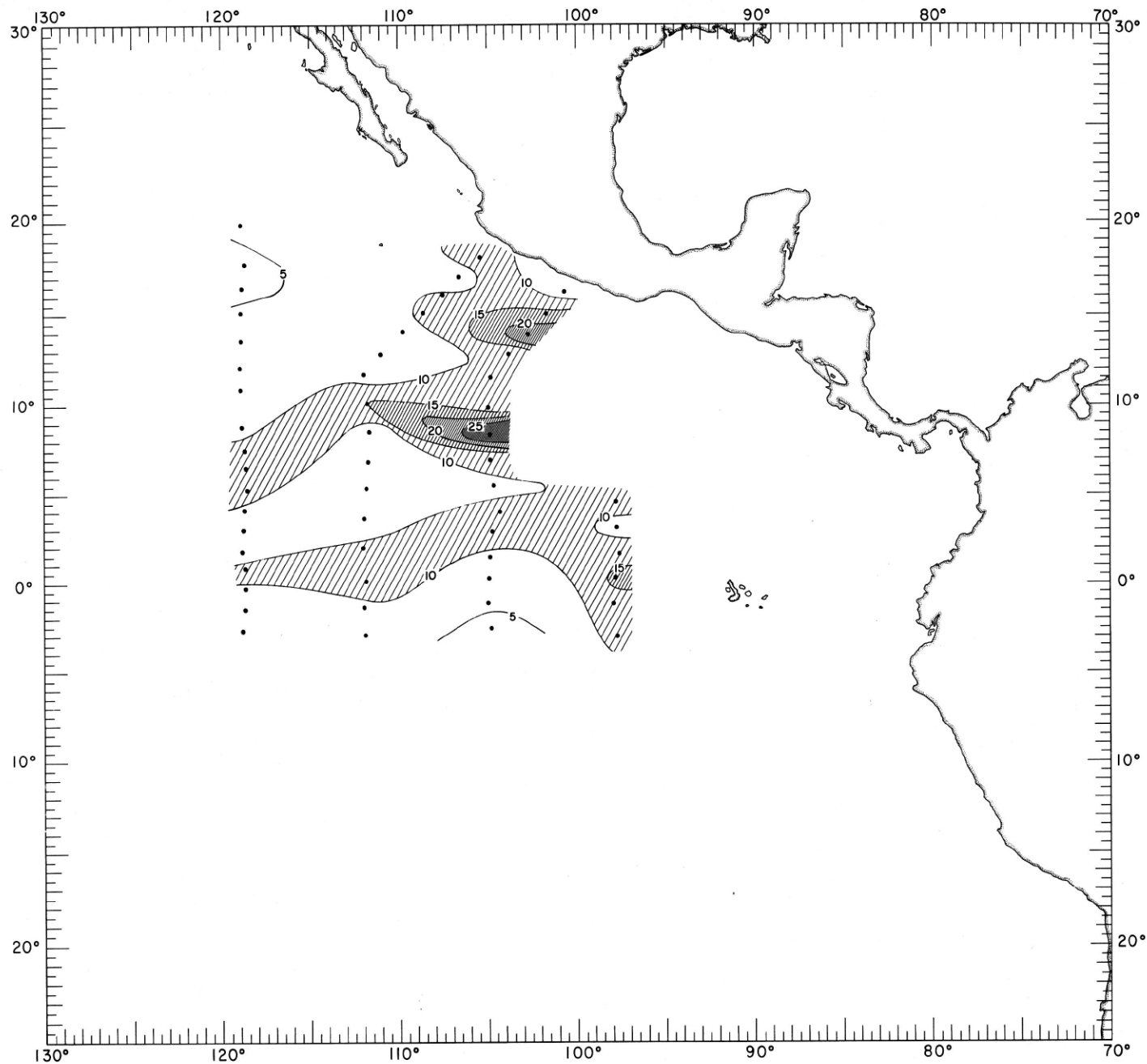


FIGURE 60-NH₃-100.—Ammonia-nitrogen ($\mu\text{g-at./l.}$) at 100 meters, December 1967-January 1968. Because the distribution is so irregular no contours have been drawn. Instead, the concentration at each station is shown.



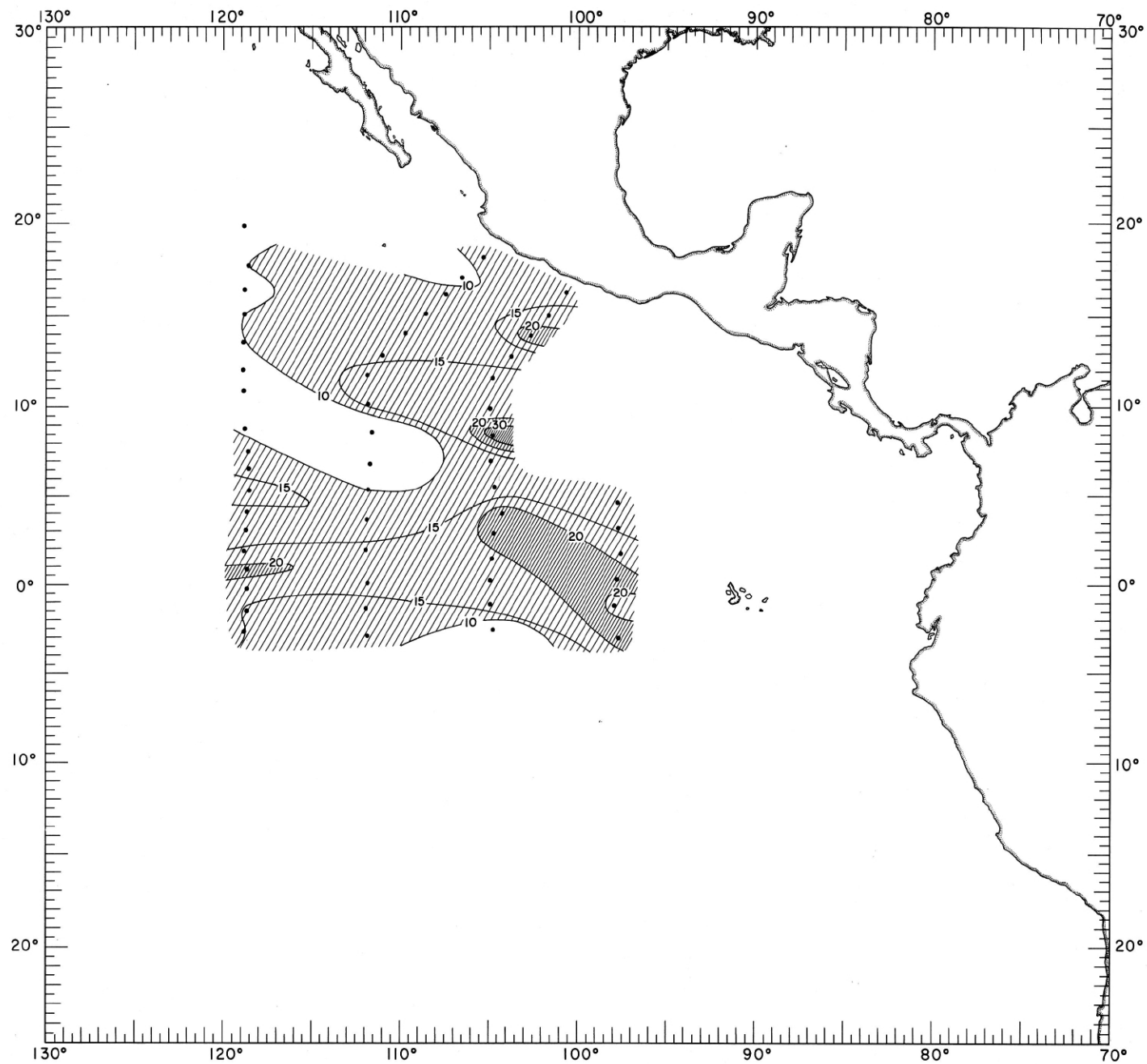
60-Ch-s.

FIGURE 60-Ch-s. — Chlorophyll-a (mg./m.³) at the sea surface, December 1967-January 1968.



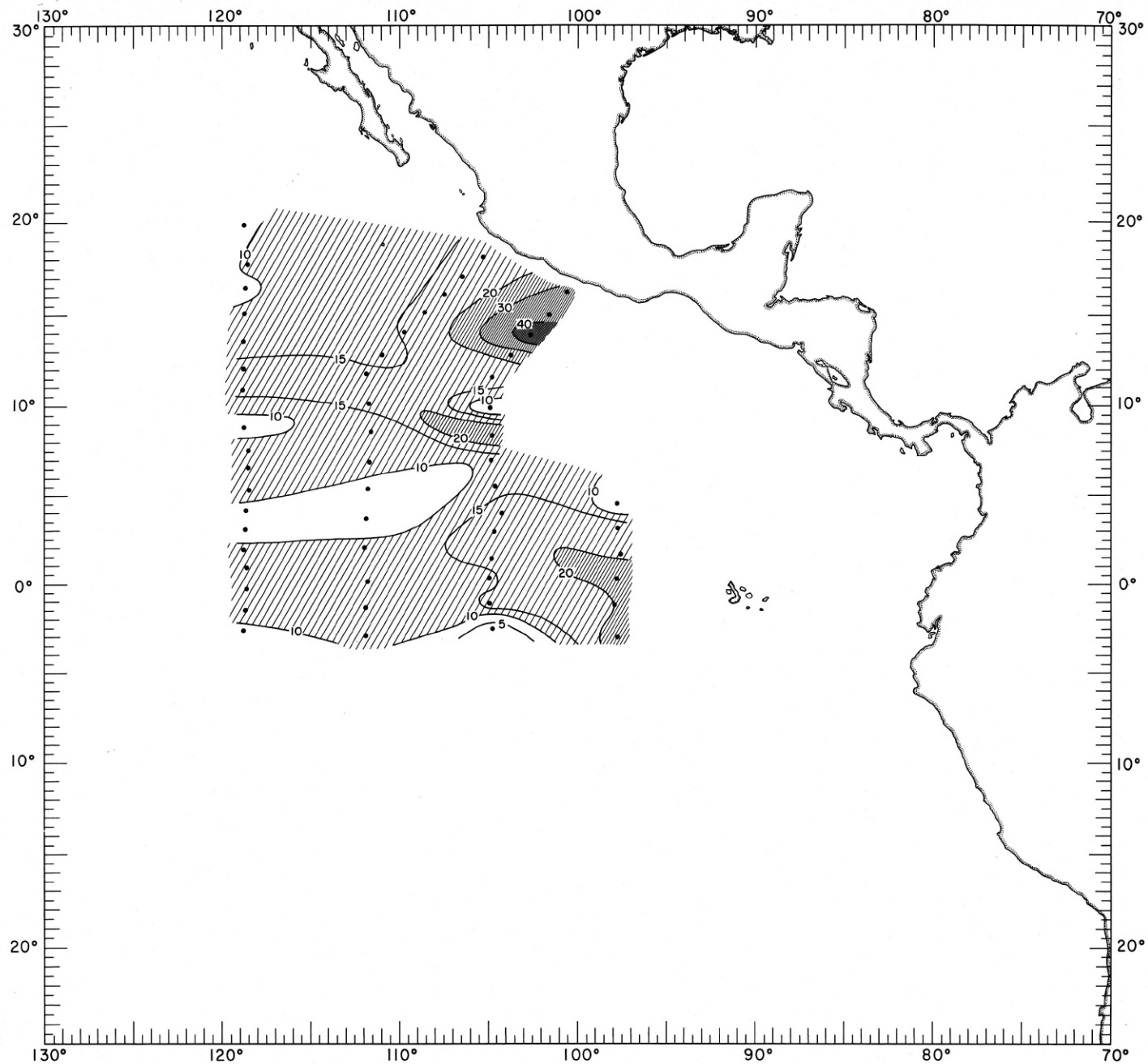
60-Ch-ei.

FIGURE 60-Ch-ei. — Chlorophyll-a (mg./m.²) integrated over the euphotic layer, December 1967-January 1968.



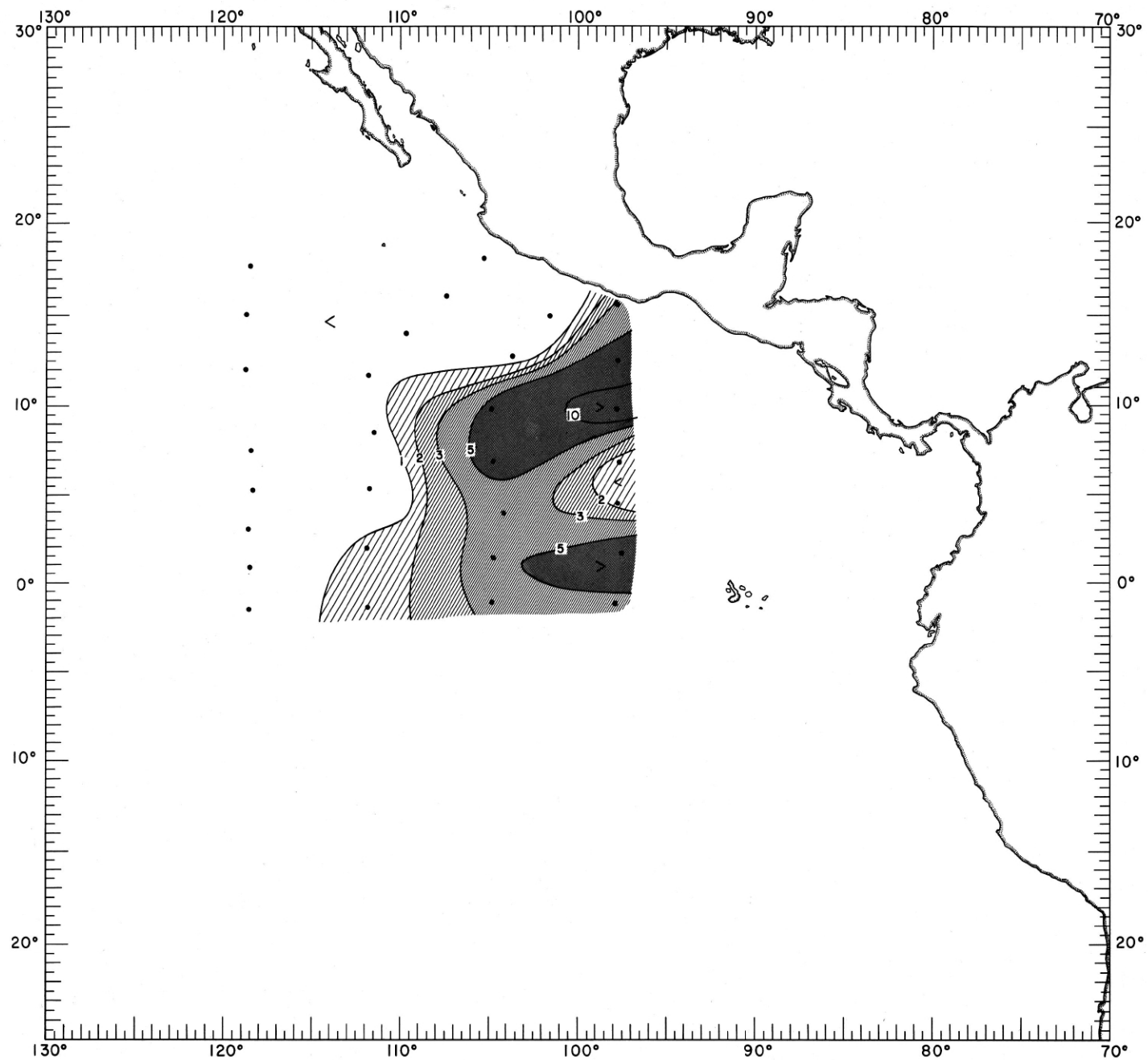
60-Ch-150i.

FIGURE 60-Ch-150i. — Chlorophyll-a (mg./m.³) integrated from the sea surface to 150 meters depth, December 1967-January 1968.



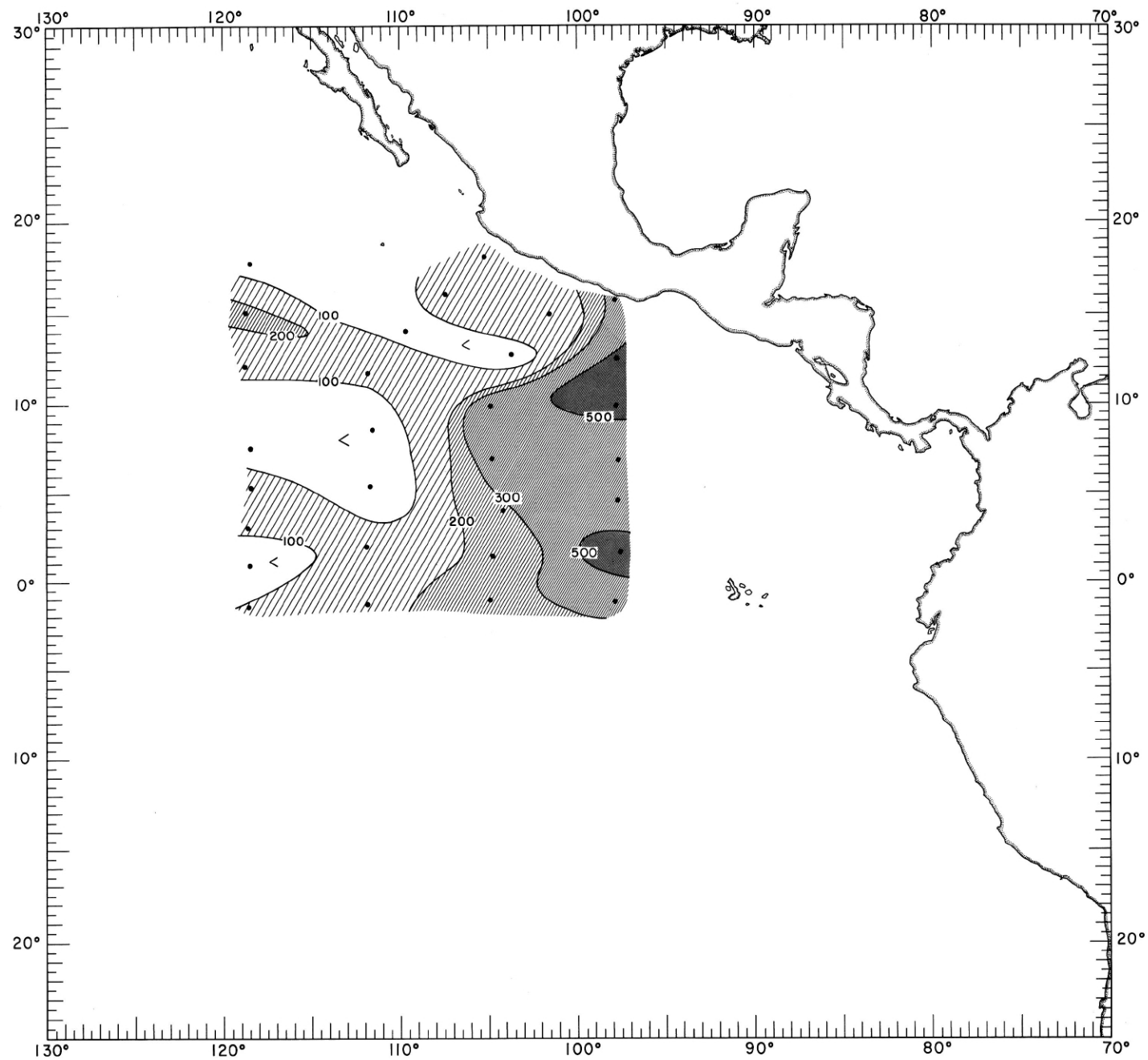
60-Ph-150i.

FIGURE 60-Ph-150i. — Phaeophytin (mg./m.²) integrated from the sea surface to 150 meters depth, December 1967-January 1968.



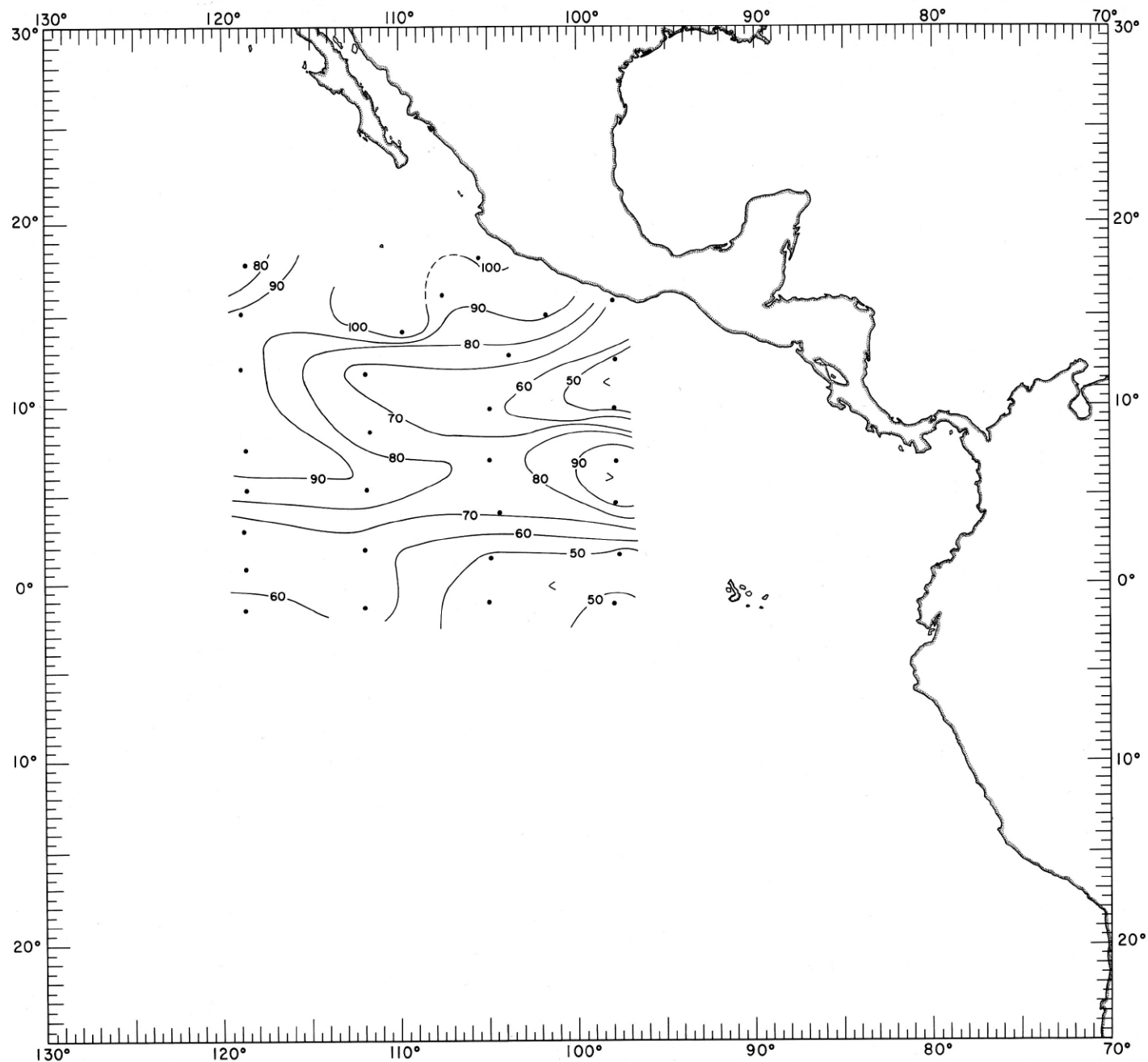
60-PP-s.

FIGURE 60-PP-s.—Primary production (mg. C/m.³/day) at the sea surface, December 1967-January 1968.



60-PP-ei.

FIGURE 60-PP-ei.—Primary production (mg. C/m.³/day) integrated over the euphotic layer, December 1967-January 1968.



60-EL

FIGURE 60-EL. — Thickness of the euphotic layer in meters, December 1967-January 1968.

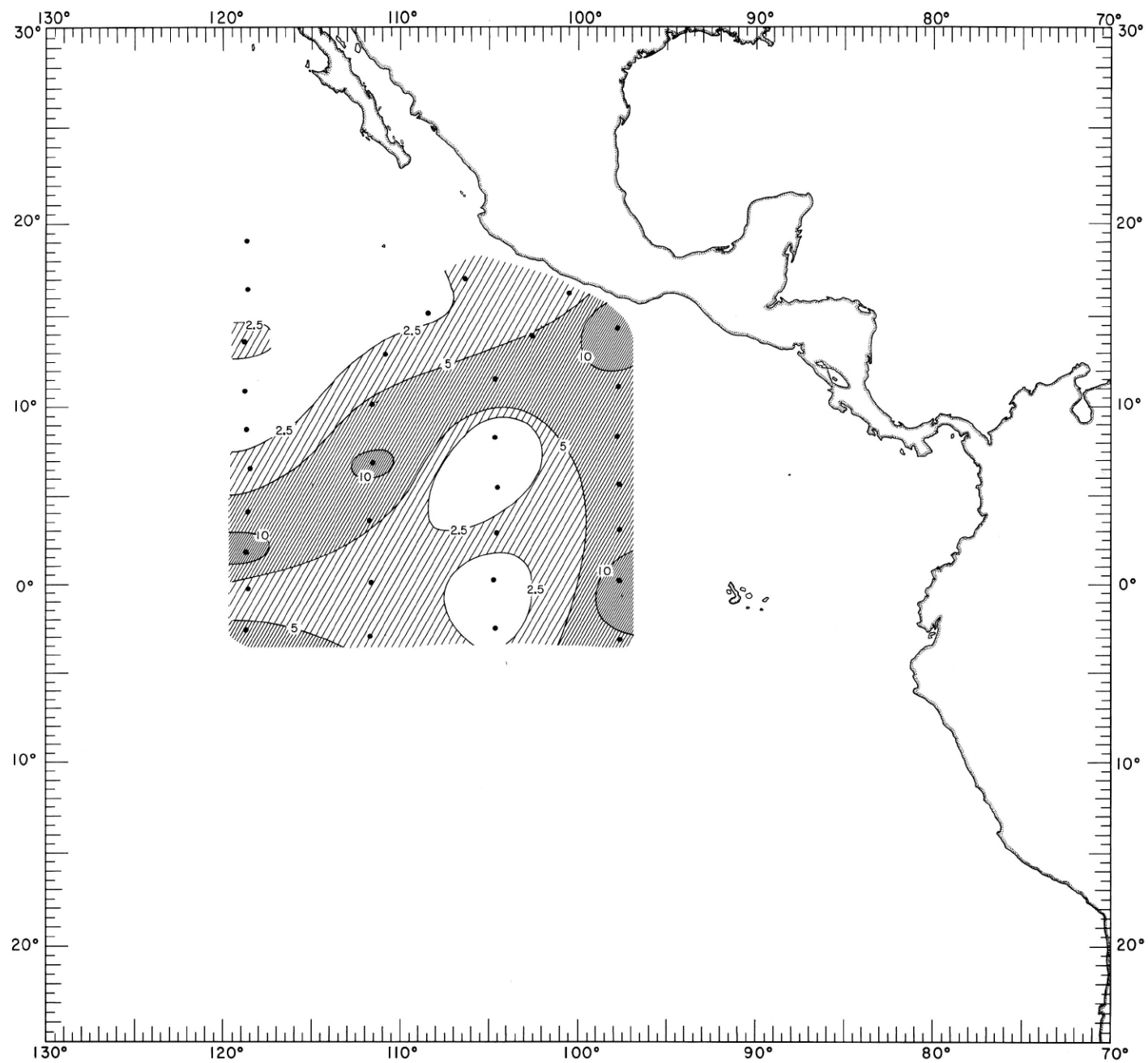
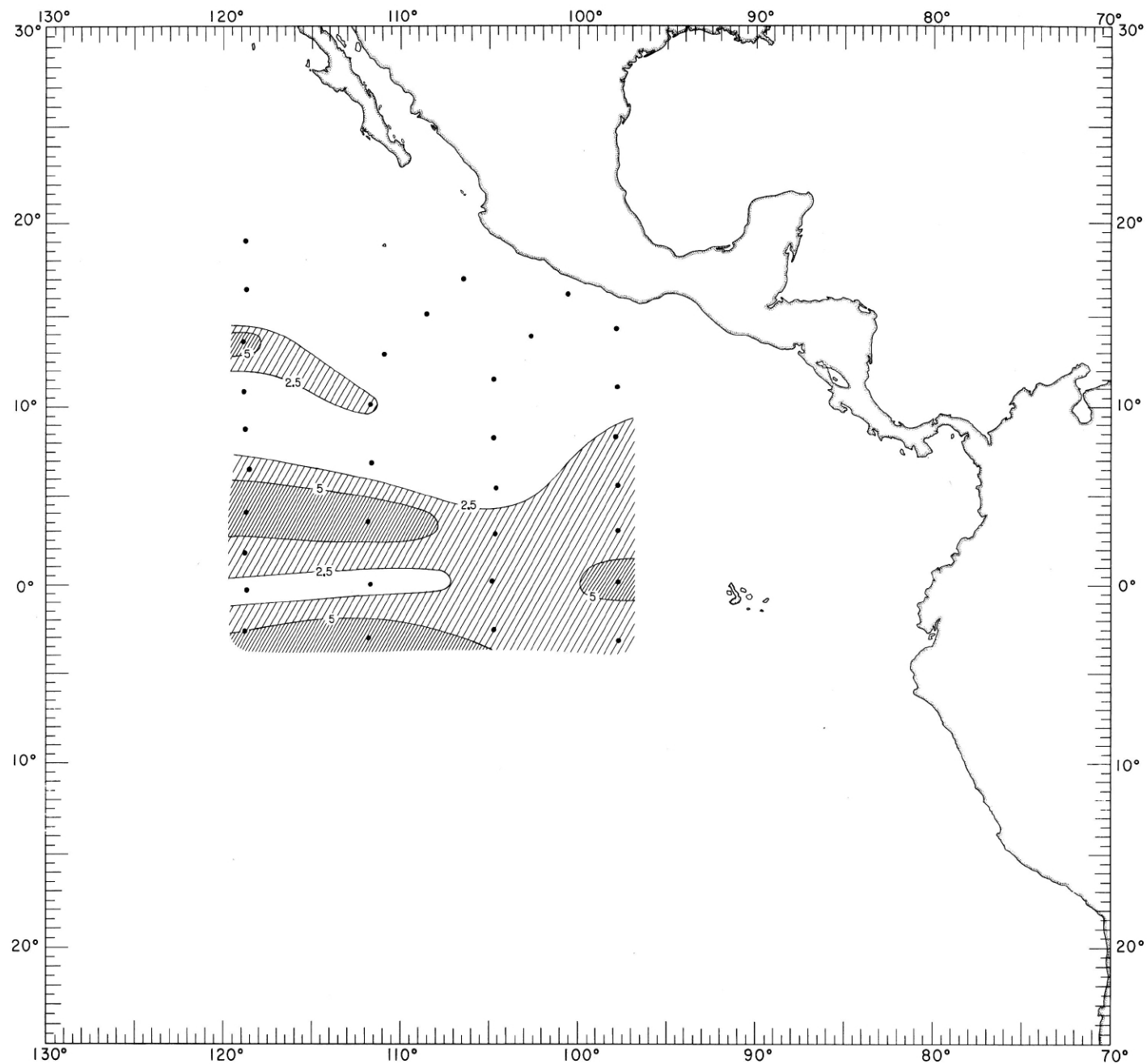
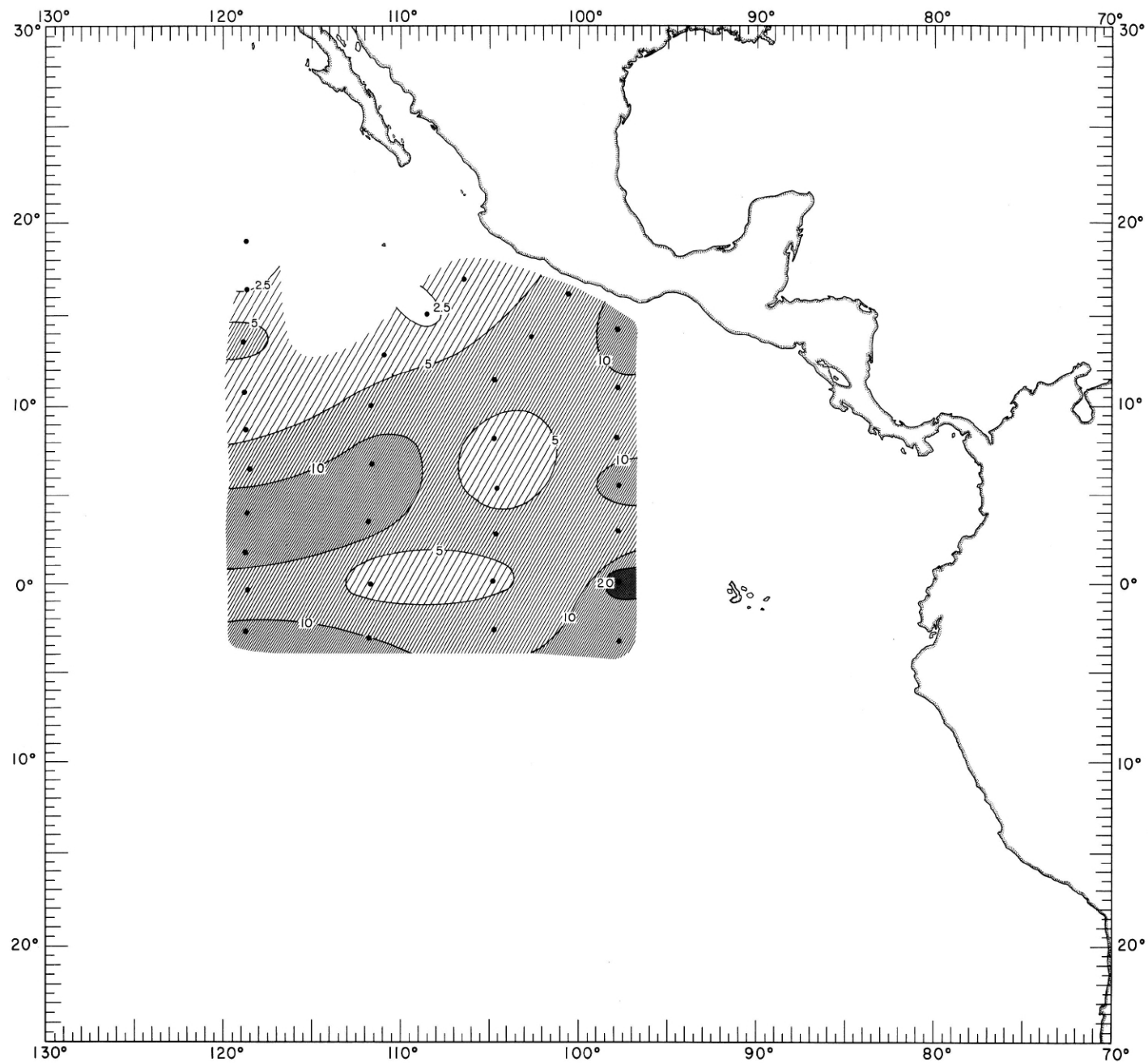


FIGURE 60-FCp. — Distribution of standing stock (ml./1,000 m.³) of total fish and cephalopods taken in night micronekton hauls during December 1967-January 1968.



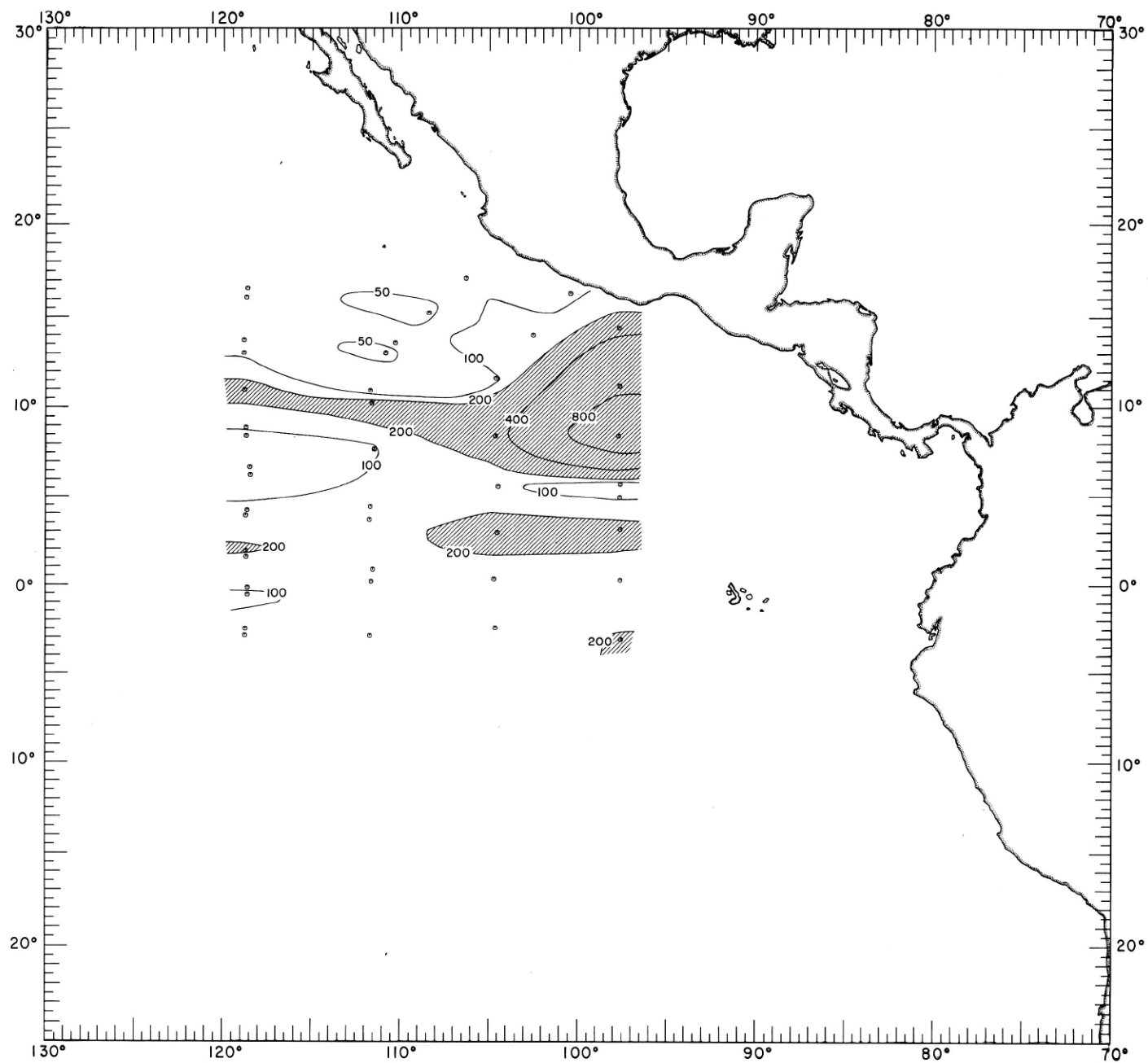
60-Cr.

FIGURE 60-Cr. — Distribution of standing stock (ml./1,000 m.³) of total crustaceans taken in night micronekton hauls during December 1967-January 1968.



60-Nk.

FIGURE 60-Nk. — Distribution of standing stock (ml./1,000 m.³) of total micronekton taken in night micronekton hauls during December 1967-January 1968.



60-ZhN.

FIGURE 60-ZhN. — Distribution of standing stock (ml./1,000 m.³) of zooplankton taken in 50-cm. net hauls at night, December 1967-January 1968.

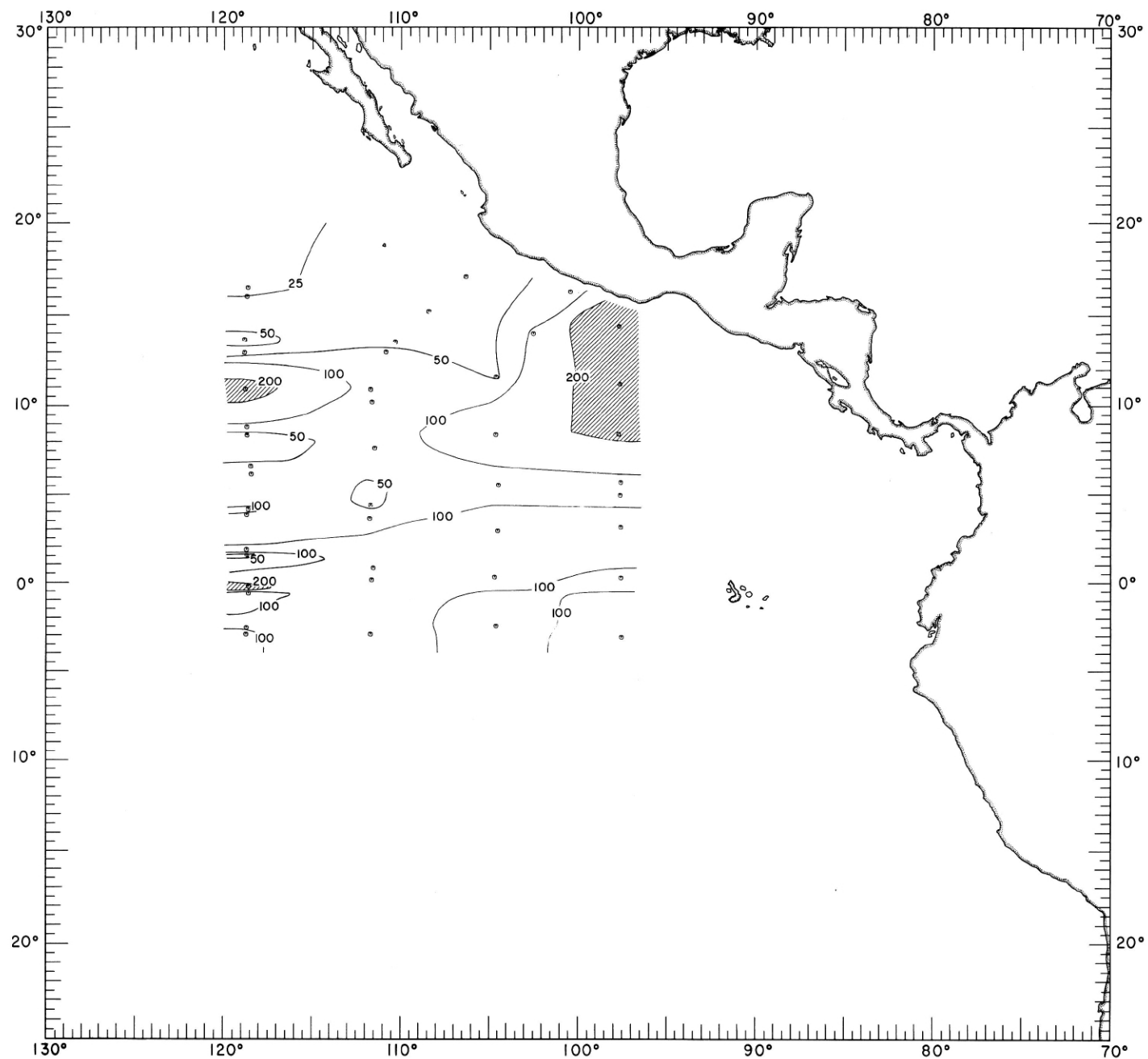


FIGURE 60-Z1N.—Distribution of standing stock (ml./1,000 m.³) of zooplankton taken in 1-m. net hauls at night, December 1967-January 1968.

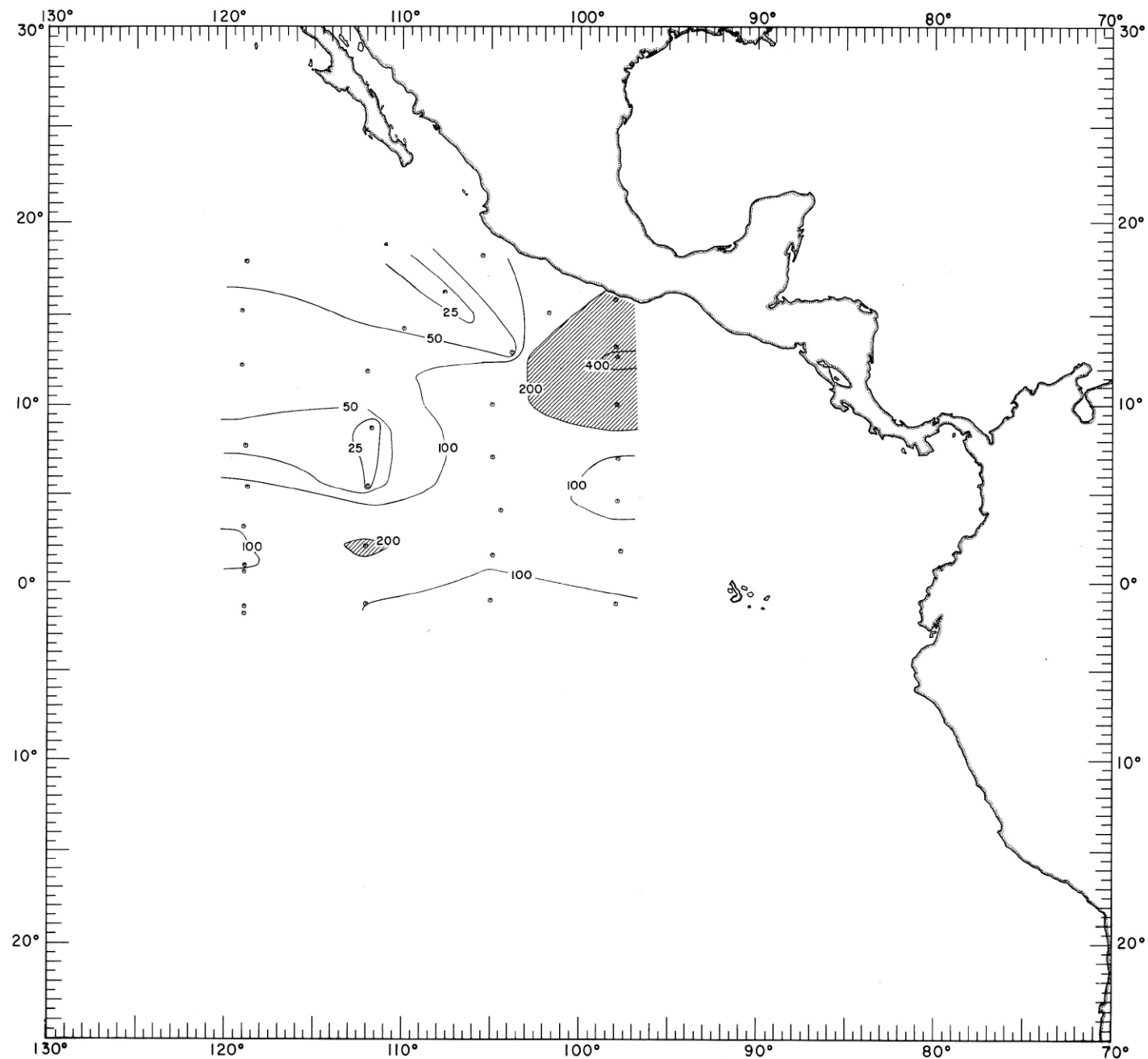
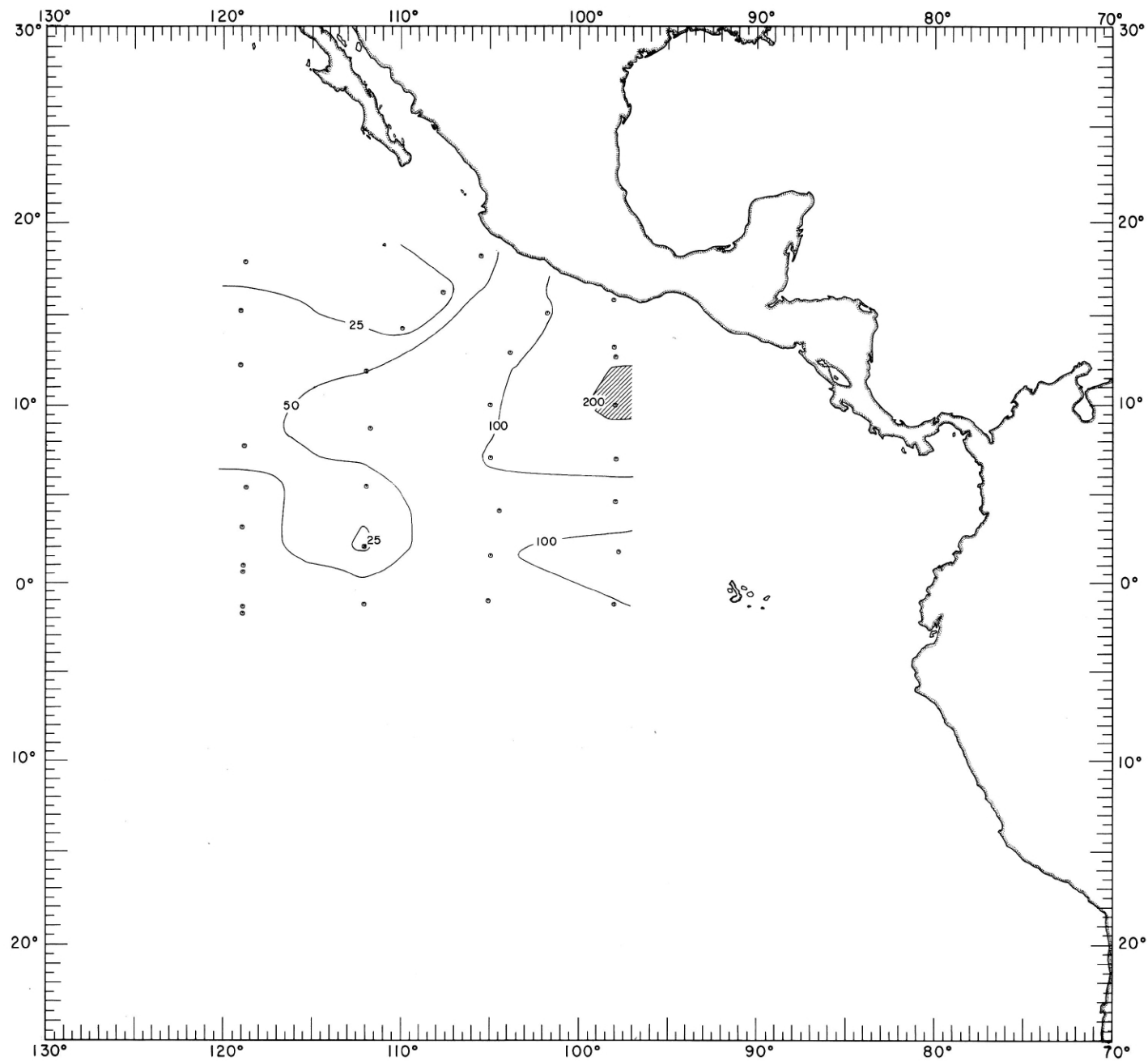
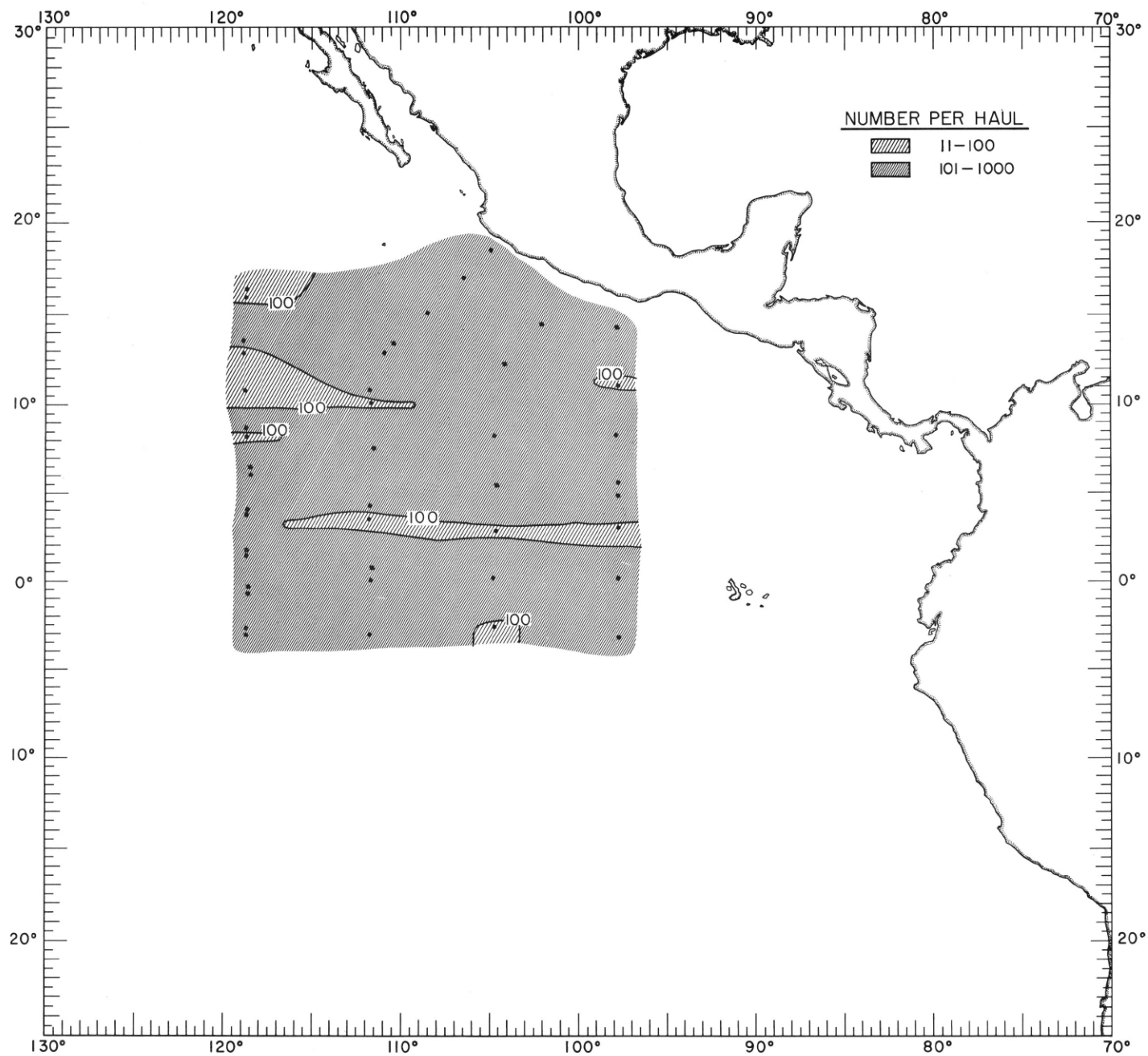


FIGURE 60-ZhD. — Distribution of standing stock (ml./1,000 m.³) of zooplankton taken in 50-cm. net hauls during the day, December 1967-January 1968.



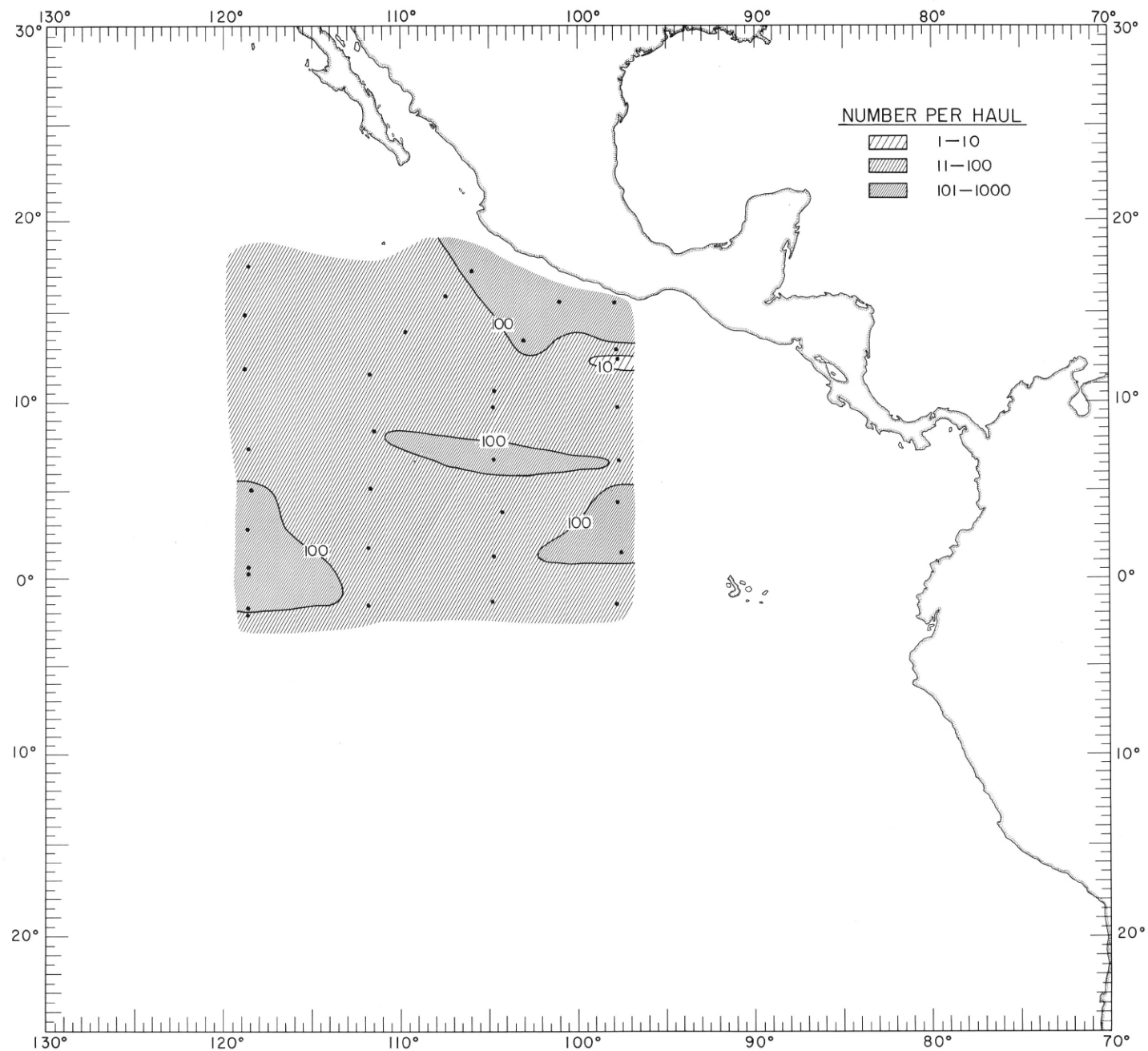
60-Z1D.

FIGURE 60-Z1D. — Distribution of standing stock (ml./1,000 m.³) of zooplankton taken in 1-m. net hauls during the day, December 1967-January 1968.



60-FLN.

FIGURE 60-FLN.—Total fish larvae (number/haul) taken in 1-m. oblique plankton hauls at night during December 1967-January 1968.



60-FLD.

FIGURE 60-FLD.—Total fish larvae (number/haul) taken in 1-m oblique plankton hauls during the day, December 1967-January 1968.

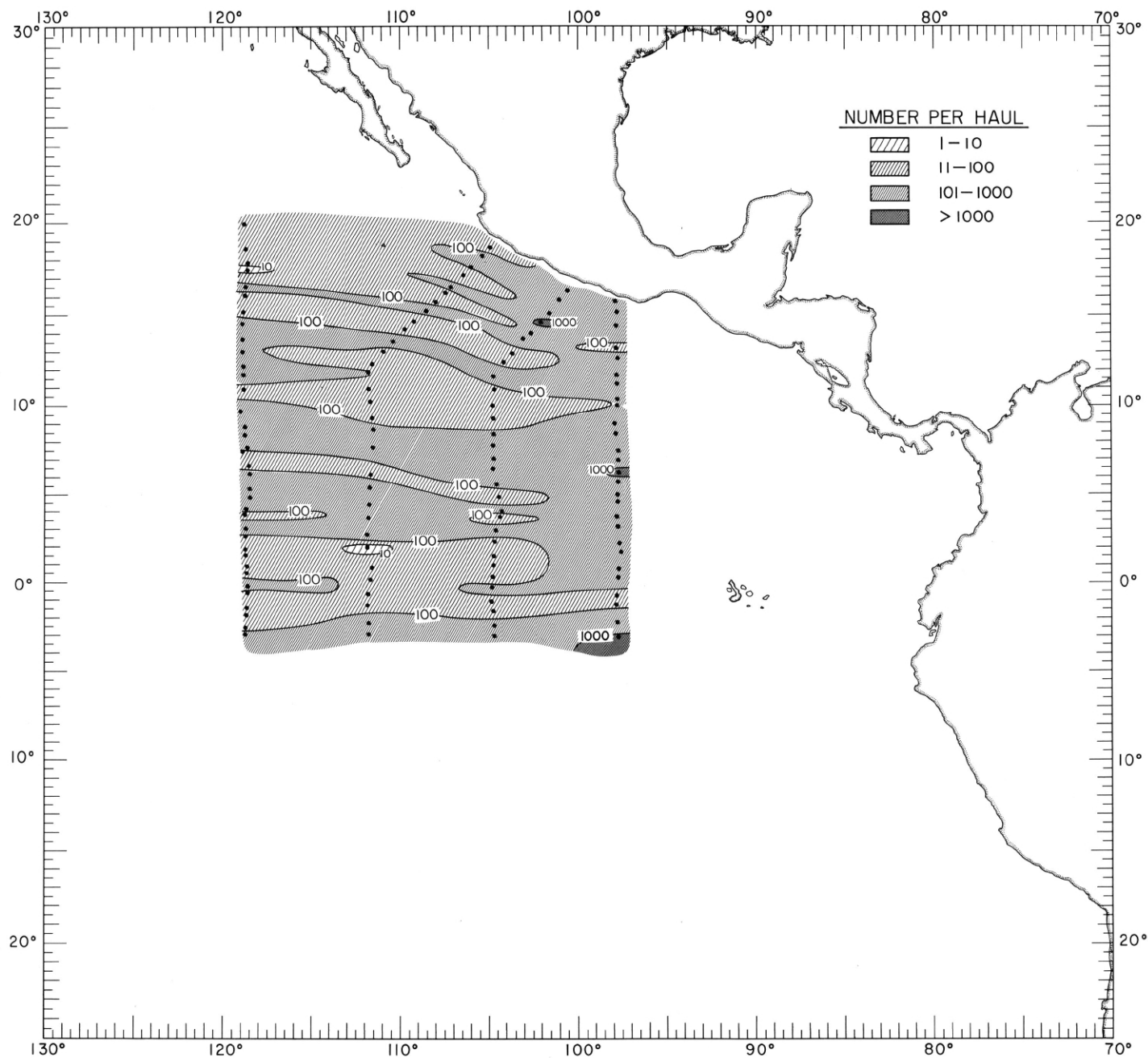


FIGURE 60-FE.—Total fish eggs (number/haul) taken in 1-m. oblique plankton hauls during December 1967-January 1968.

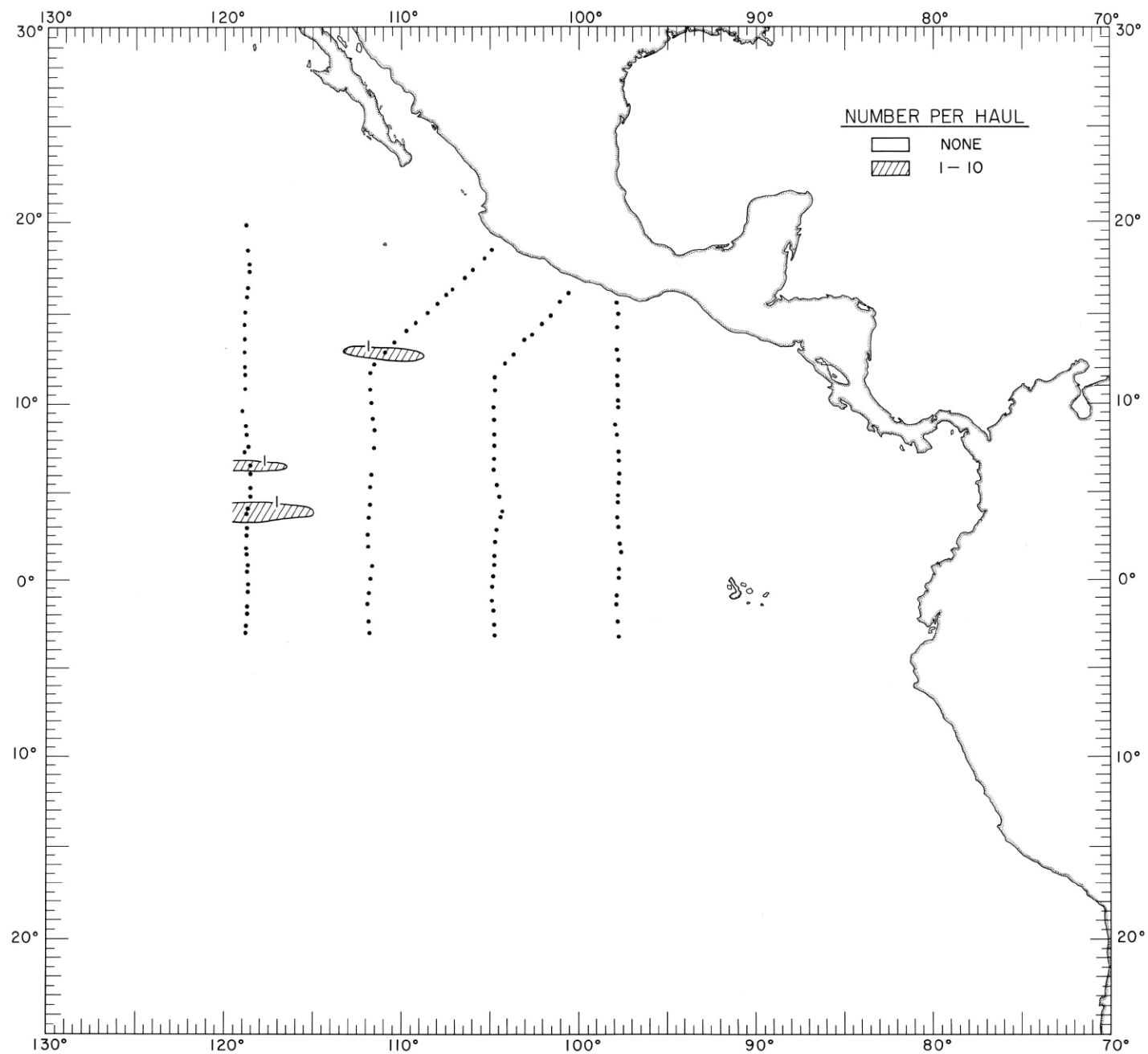
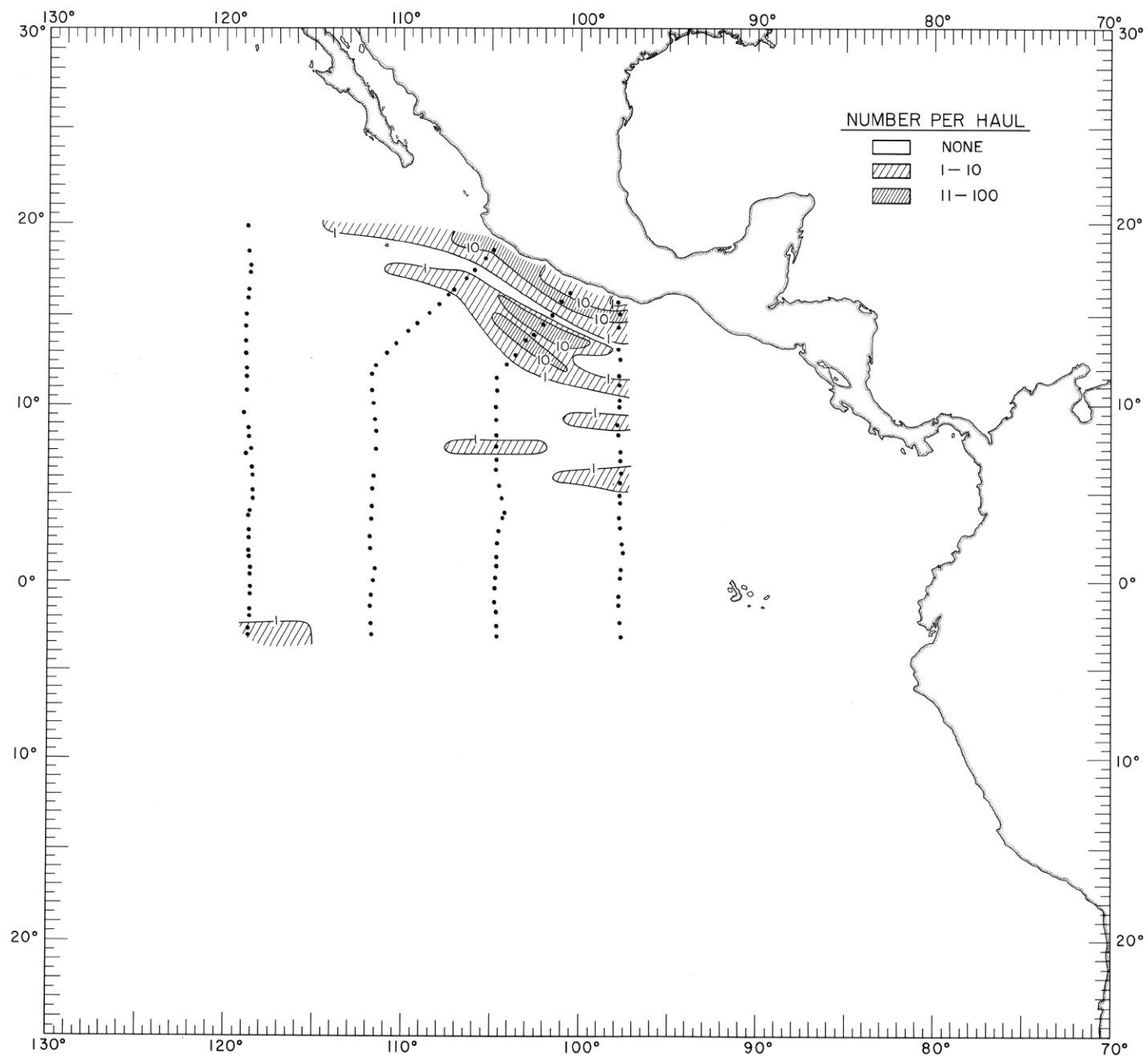
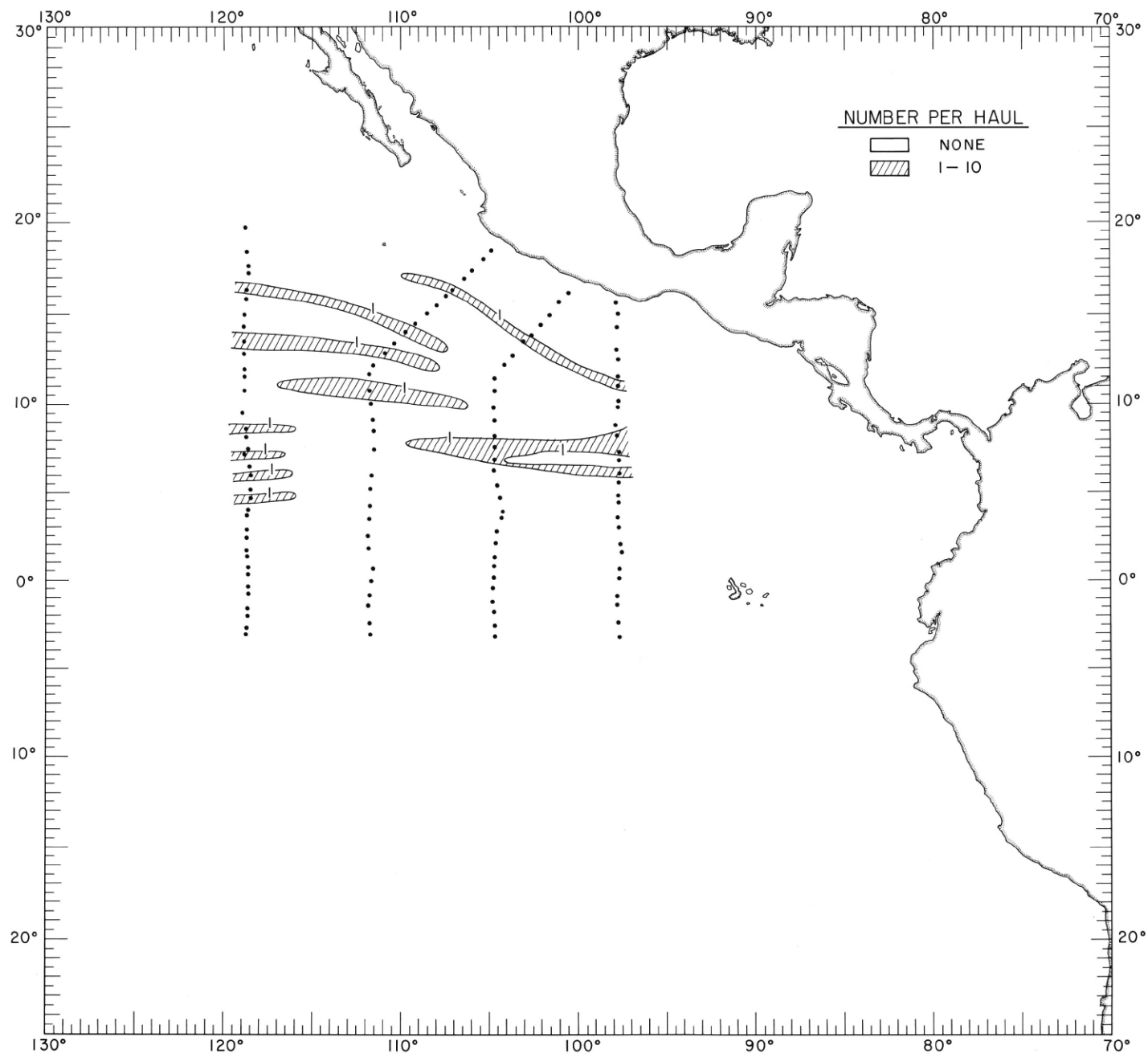


FIGURE 60-FS.—Total skipjack tuna, *Katsuwonus pelamis*, larvae (number/haul) taken in 1-m. oblique plankton hauls during December 1967-January 1968.



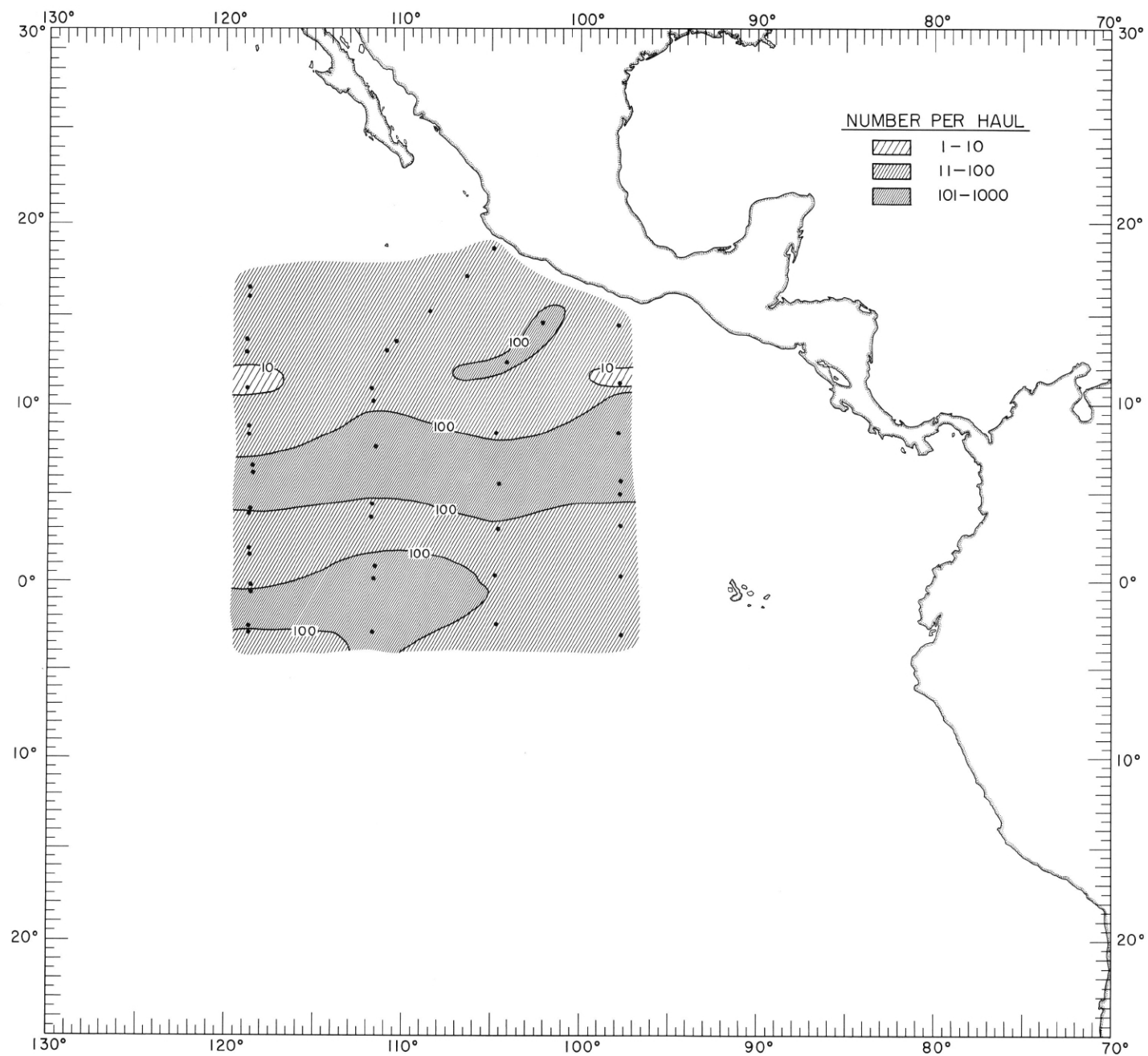
60-FA.

FIGURE 60-FA.—Total frigate mackerel, *Auxis*, larvae (number/haul) taken in 1-m. oblique plankton hauls during December 1967-January 1968.



60-FC.

FIGURE 60-FC.—Total dolphin (fish), *Coryphaena*, larvae (number/haul) taken in 1-m. oblique plankton hauls during December 1967-January 1968.



60-FMN.

FIGURE 60-FMN.—Total myctophid larvae (number/haul) taken in 1-m. oblique plankton hauls at night during December 1967-January 1968.

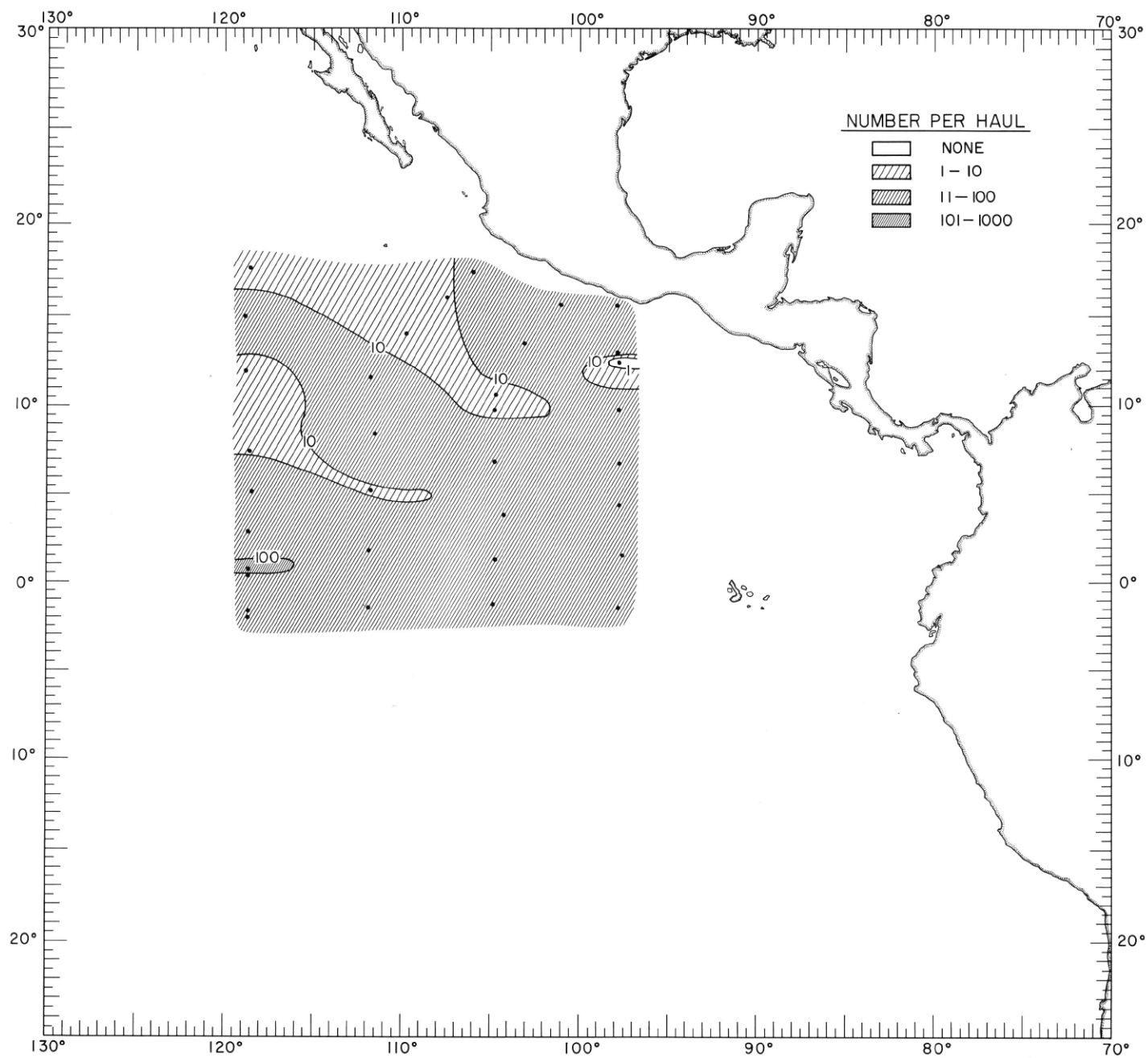
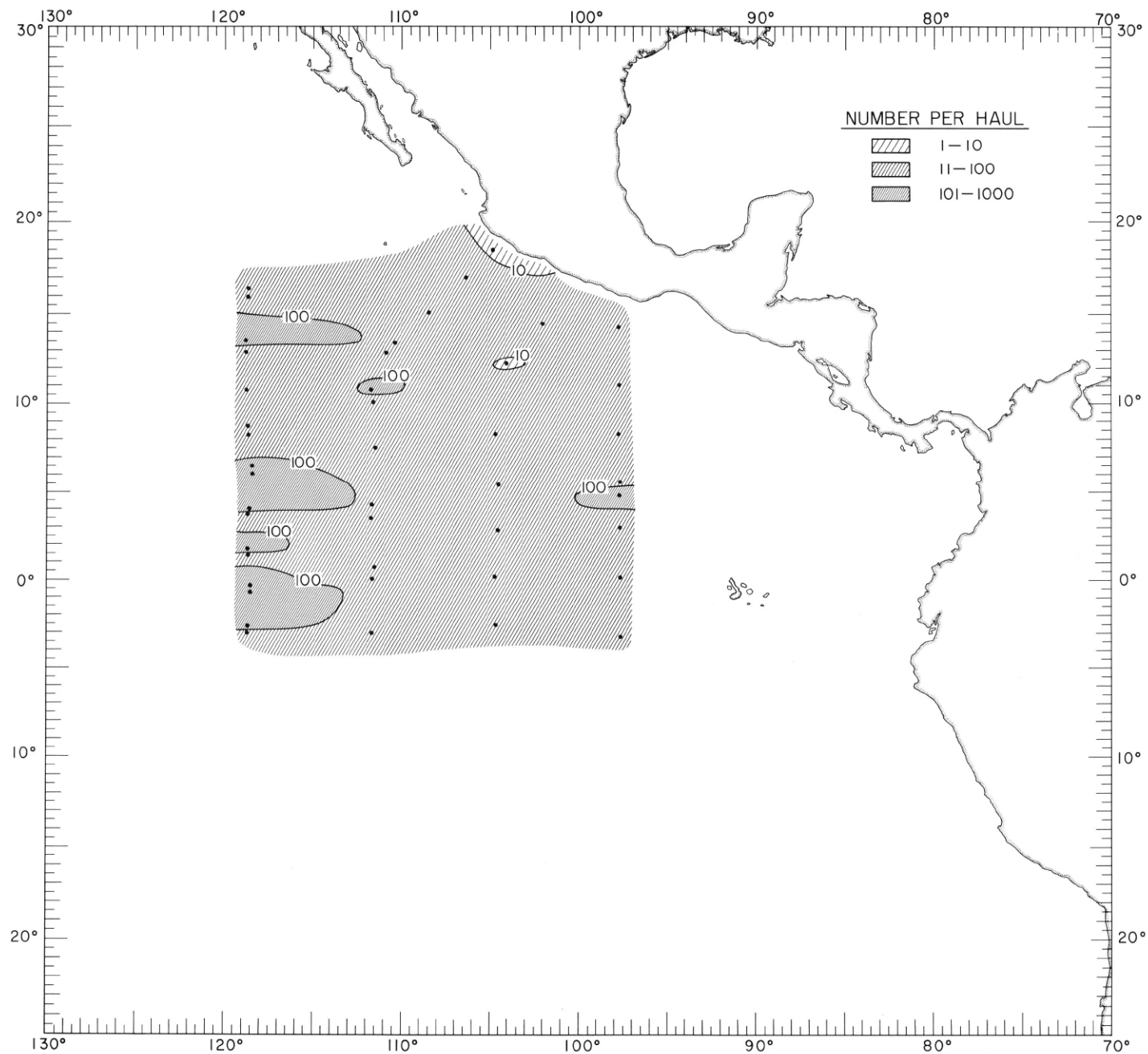
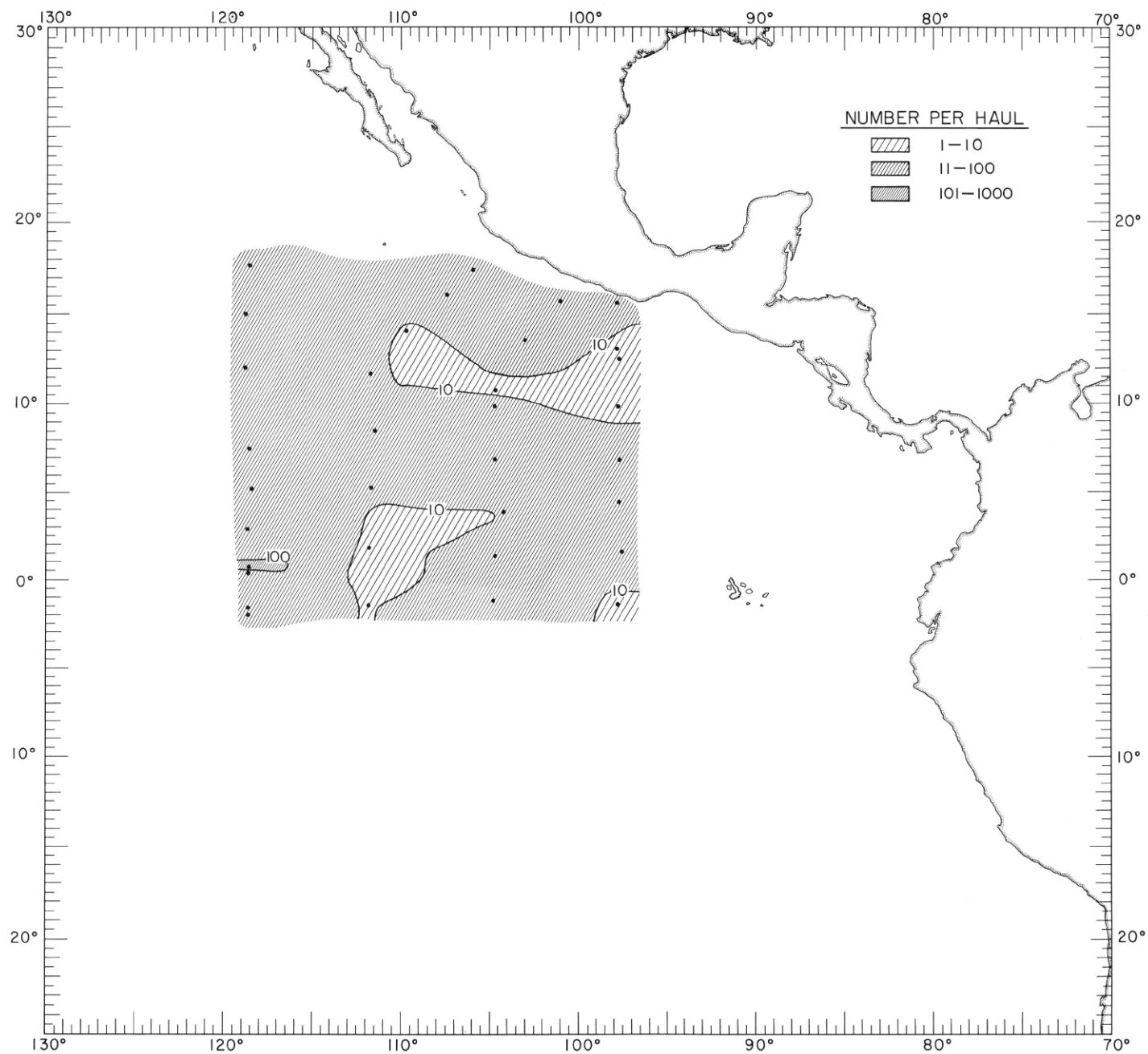


FIGURE 60-FMD.—Total myctophid larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, December 1967-January 1968.



60-FGN.

FIGURE 60-FGN.—Total gonostomatid and sternoptychid larvae (number/haul) taken in 1-m. oblique plankton hauls at night during December 1967-January 1968.



60-FGD.

FIGURE 60-FGD.—Total gonostomatid and sternopychid larvae (number/haul) taken in 1-m. oblique plankton hauls during the day, December 1967-January 1968.

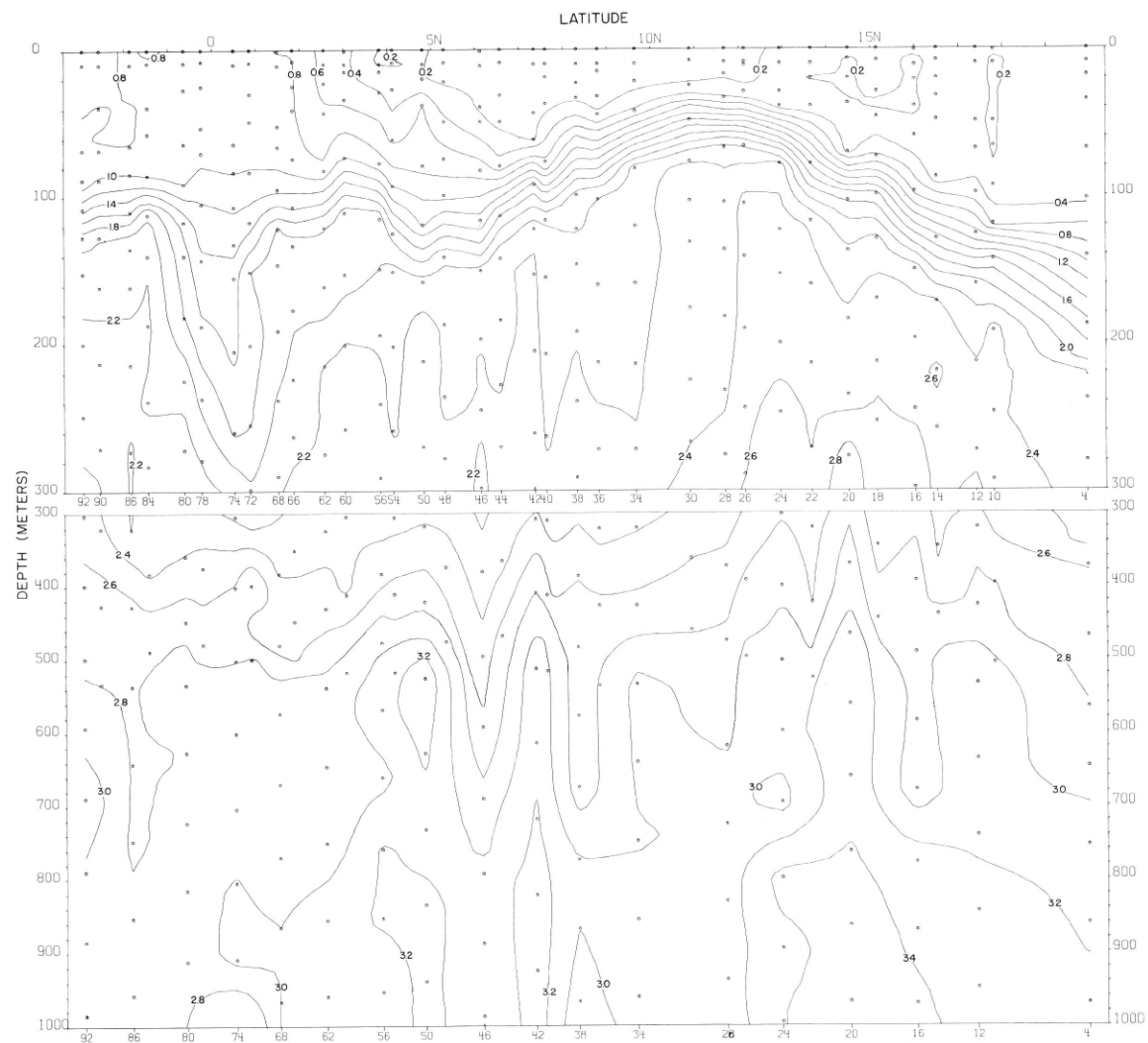
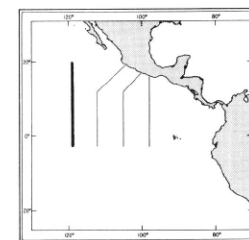


FIGURE 60-P-v1.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along $118^{\circ}45' \text{W.}$, December 21-31, 1967.



60-P-v1.

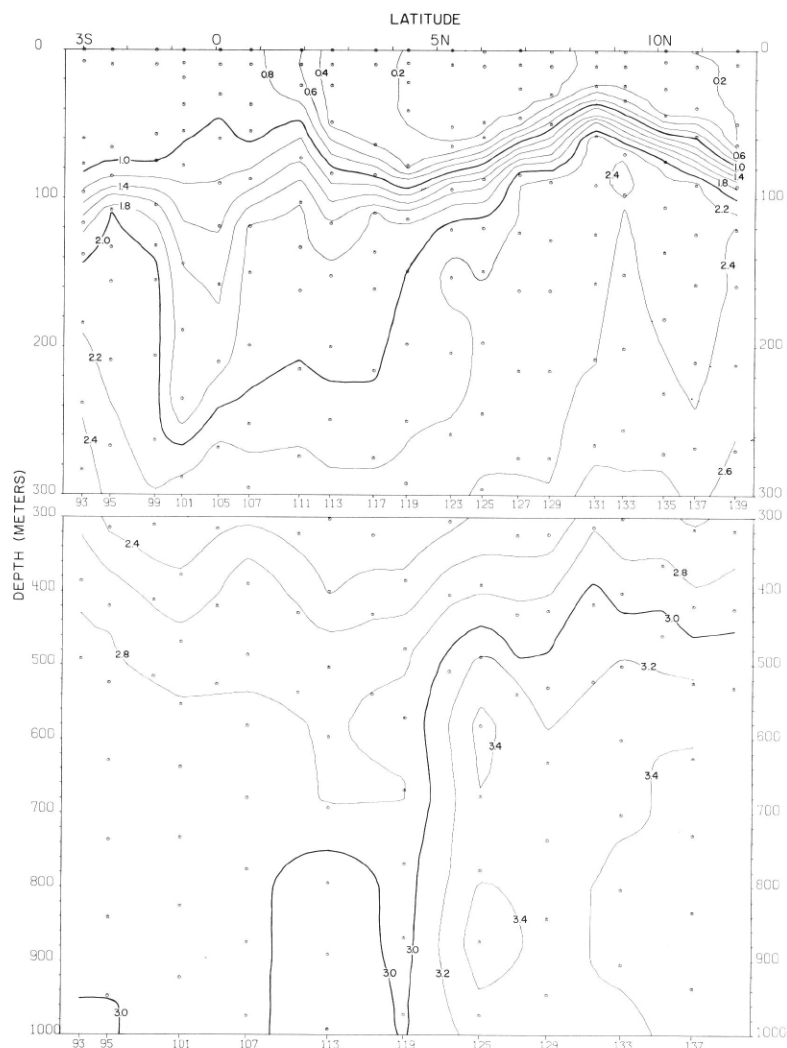


FIGURE 60-P-v2.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along $111^{\circ}45' \text{ W.}$, January 1-6, 1968.

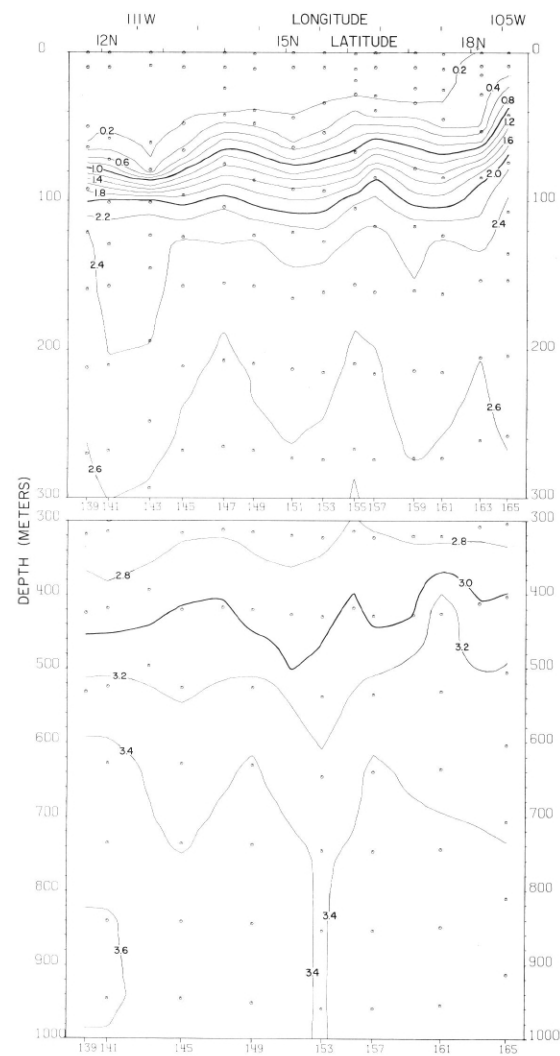
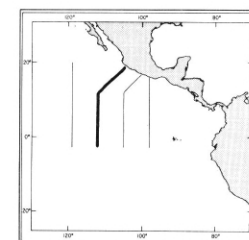


FIGURE 60-P-v3.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along a section from 12° N. , $111^{\circ}45' \text{ W.}$ to Manzanillo, January 6-9, 1968.



60-P-v2.

60-P-v3.

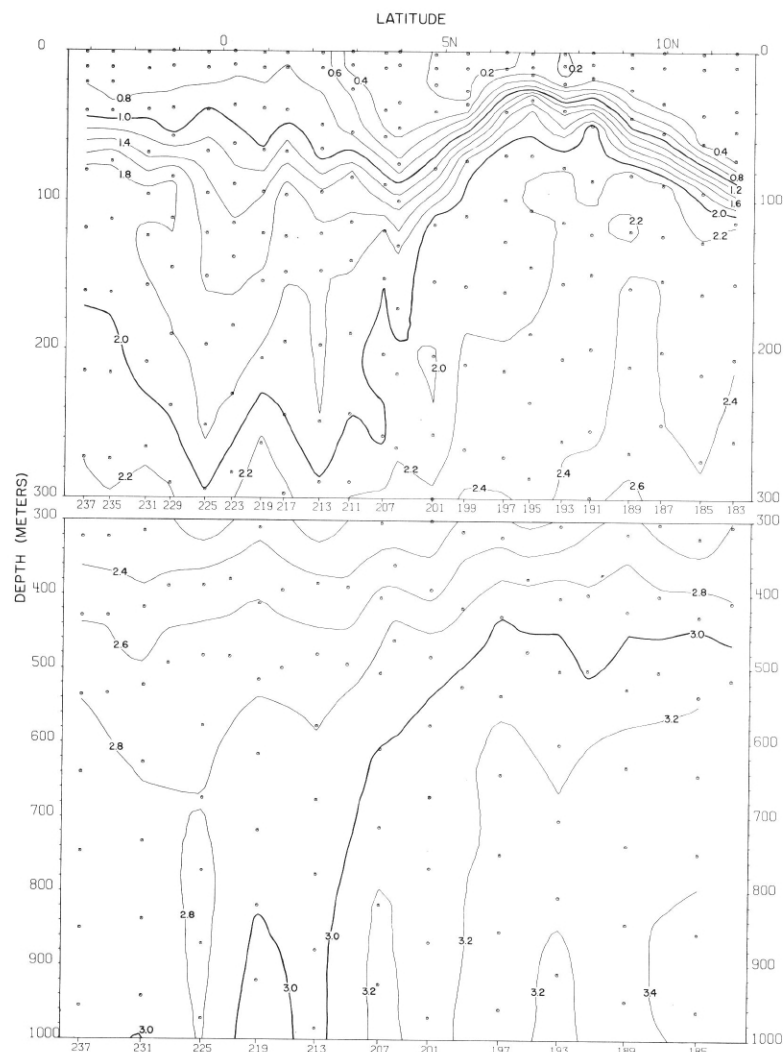


FIGURE 60-P-v5.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along $104^{\circ}45' \text{ W.}$, January 15-21, 1968.

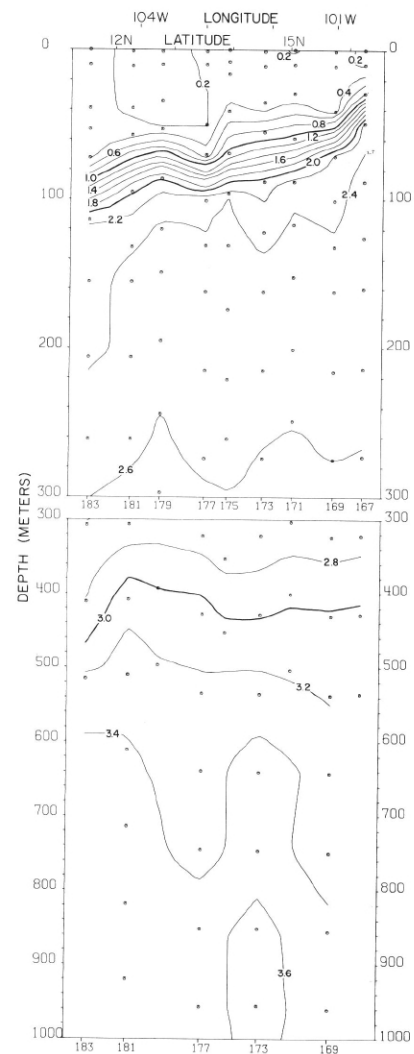
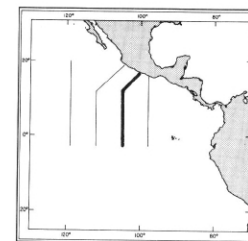


FIGURE 60-P-v4.—Vertical distribution of phosphate-phosphorus ($\mu\text{g-at./l.}$) along a section from Acapulco to 12° N. , $104^{\circ}45' \text{ W.}$, January 13-15, 1968.



60-P-v4.

60-P-v5.

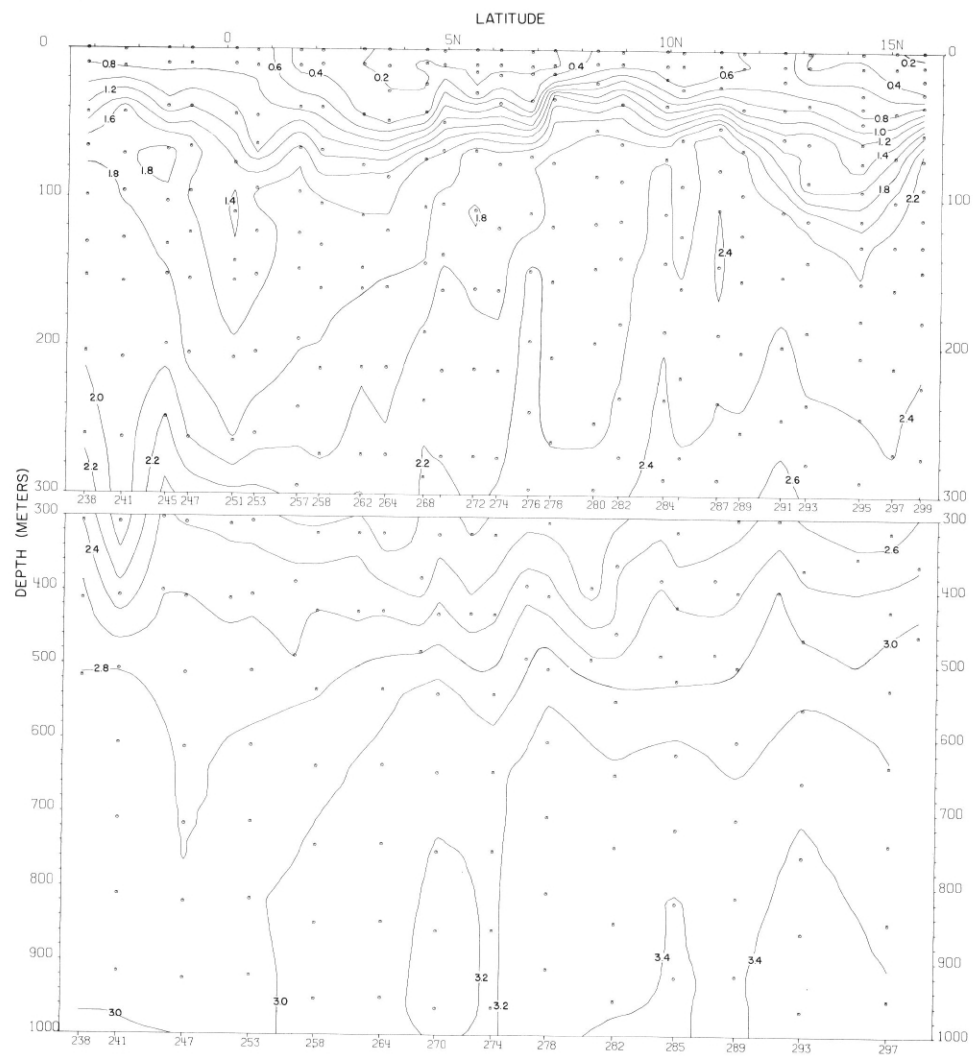
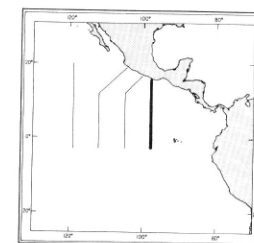


FIGURE 60-P-v6.—Vertical distribution of phosphate-phosphorus ($\mu\text{g.-at./l.}$) along $97^{\circ}45'$ W., January 22-29, 1968.



60-P-v6.

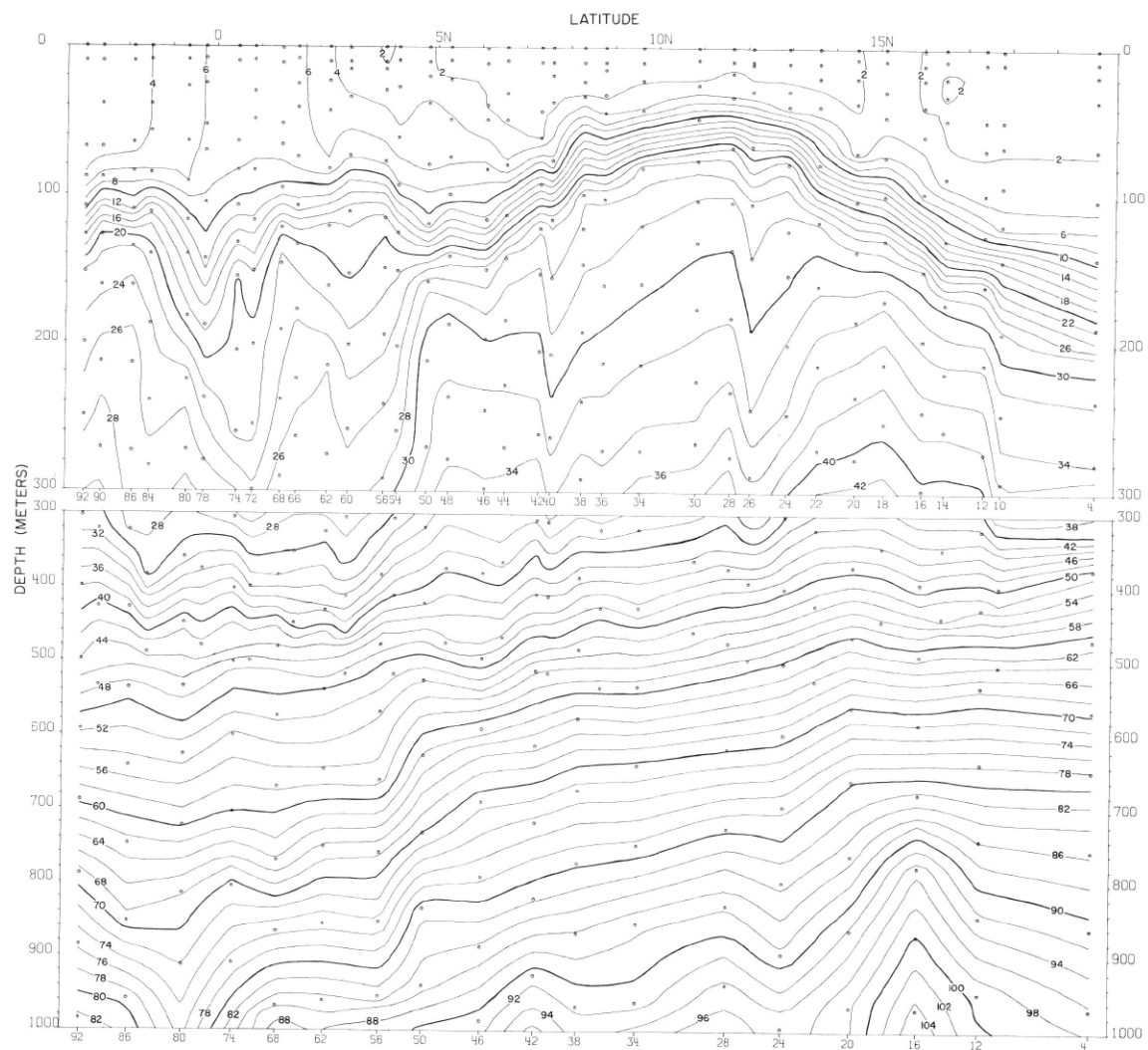
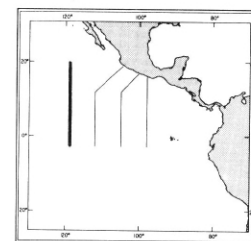


FIGURE 60-Si-v1.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along $118^{\circ}45' \text{ W.}$, December 21-31, 1967.



60-Si-v1.

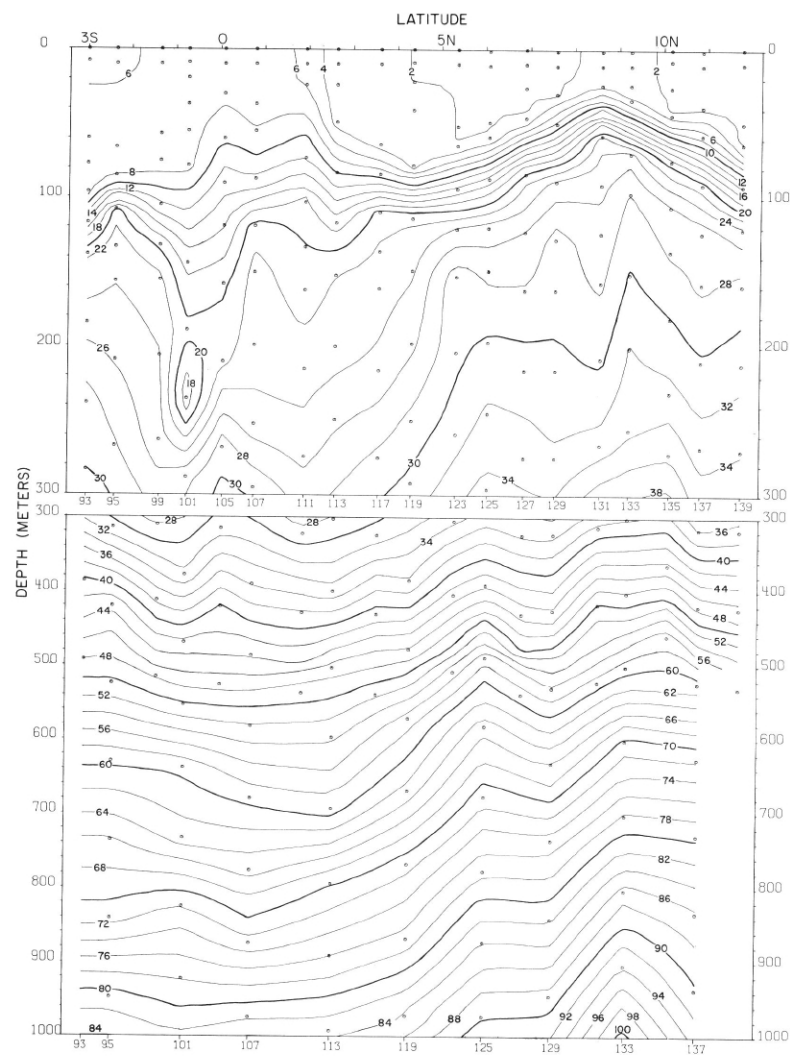


FIGURE 60-Si-v2.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along $111^{\circ}45'$ W., January 1-6, 1968.

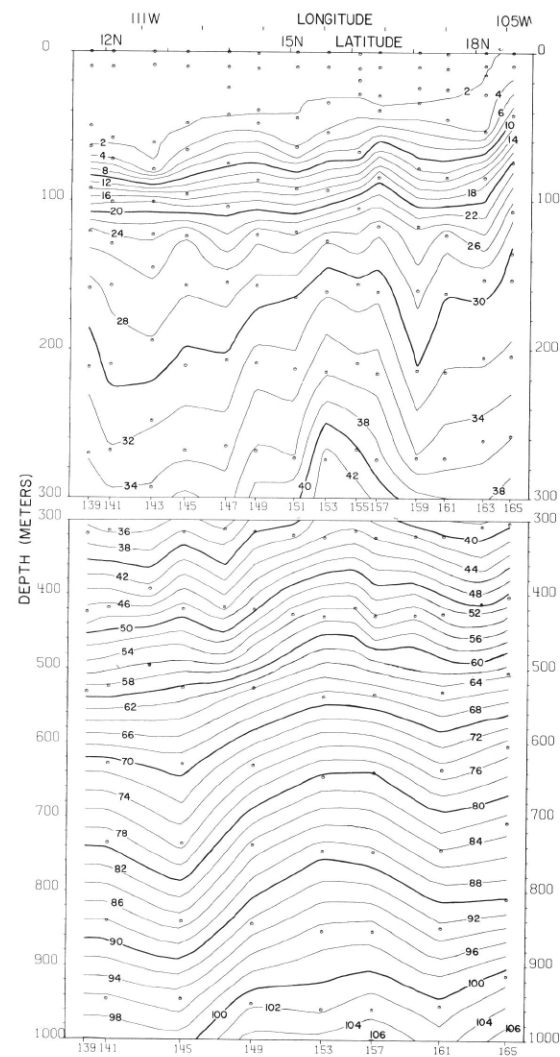
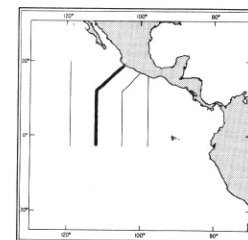


FIGURE 60-Si-v3.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along a section from 12° N., $111^{\circ}45'$ W. to Manzanillo, January 6-9, 1968.



60-Si-v2.

60-Si-v3.

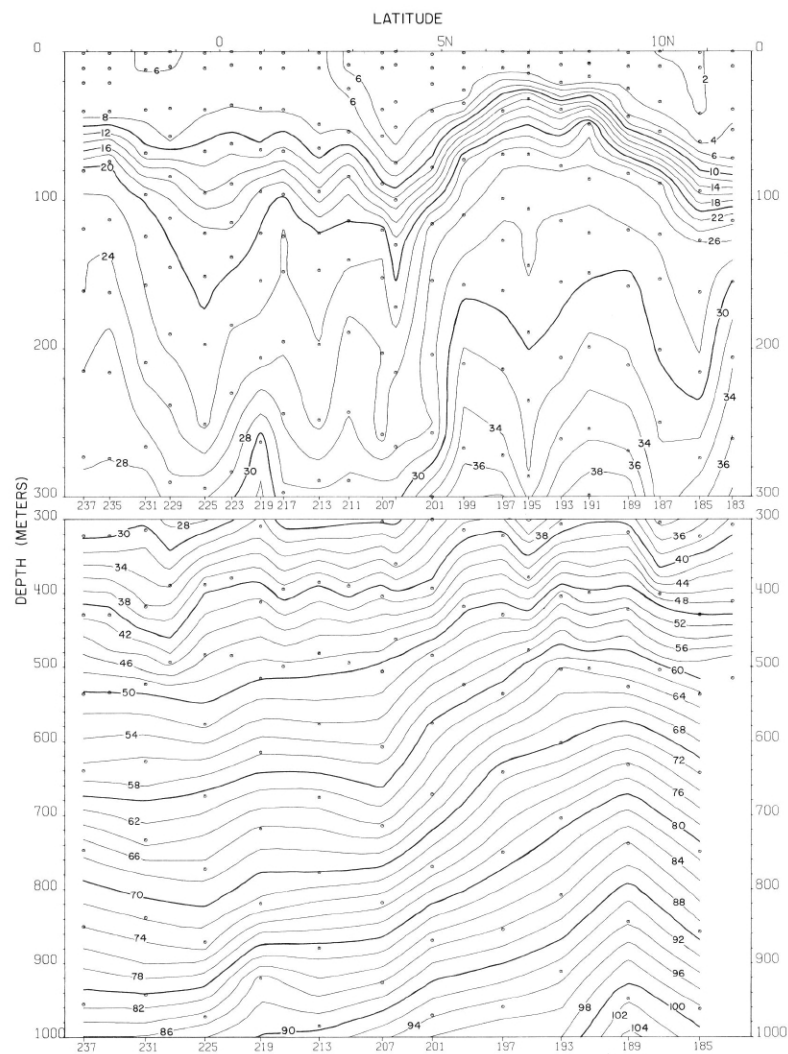


FIGURE 60-Si-v5.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along $104^{\circ}45'W$, January 15-21, 1968.

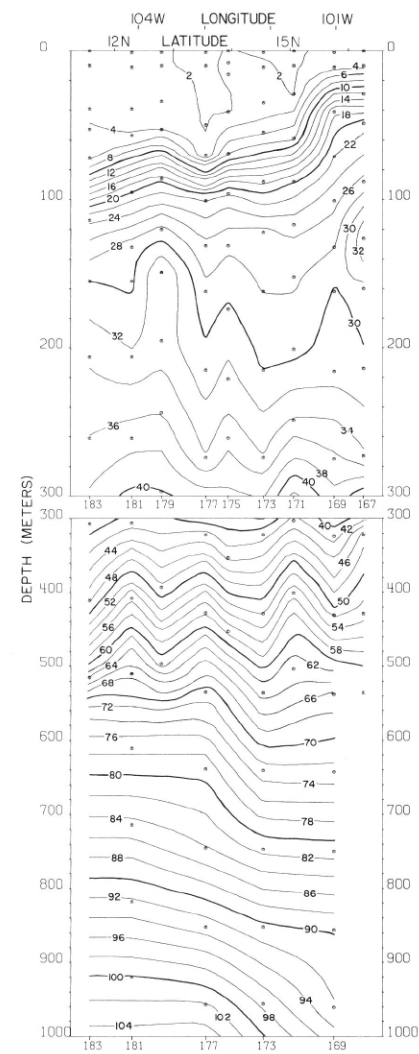
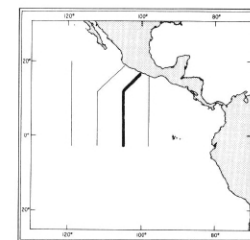


FIGURE 60-Si-v4.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along a section from Acapulco to $12^{\circ}N$, $104^{\circ}45'W$, January 13-15, 1968.



60-Si-v4.

60-Si-v5.

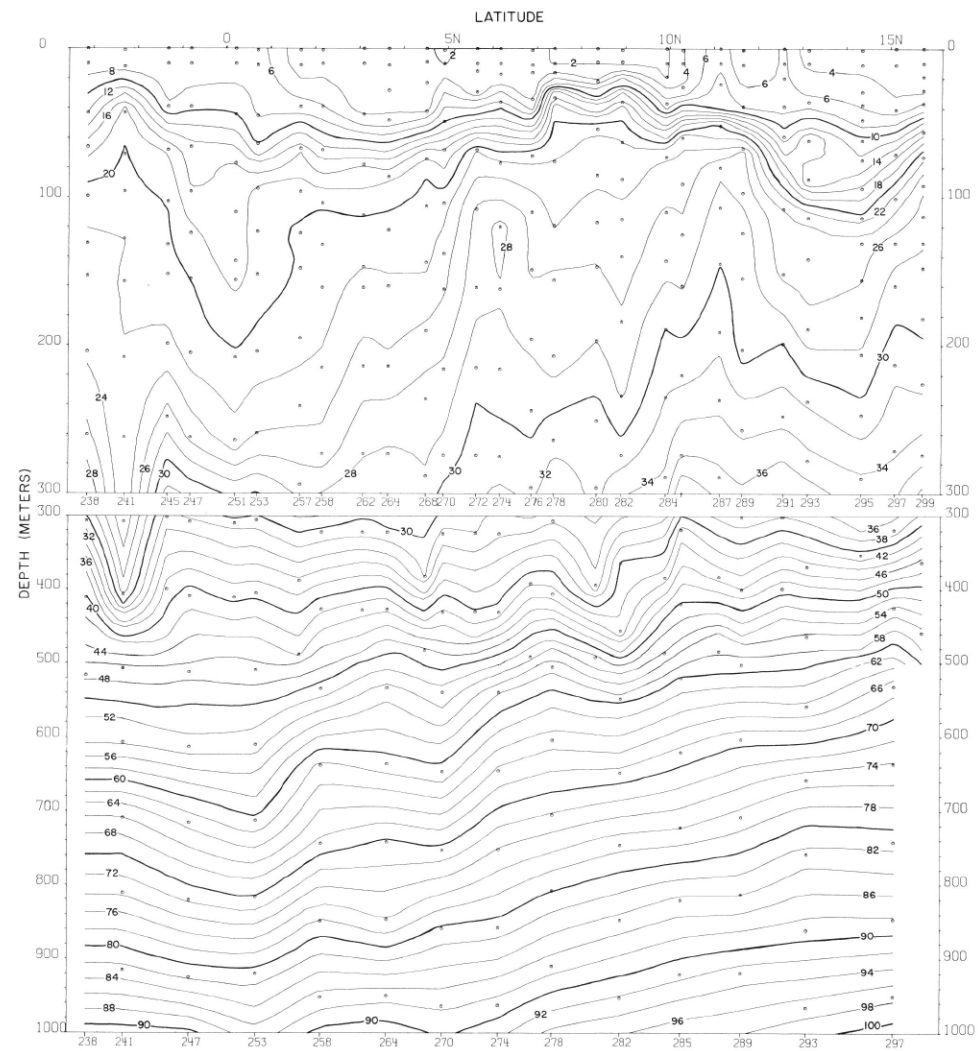
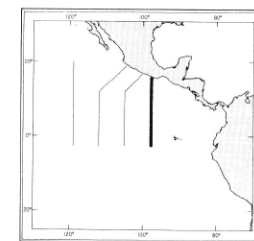


FIGURE 60-Si-v6.—Vertical distribution of silicate-silicon ($\mu\text{g-at./l.}$) along $97^{\circ}45' \text{ W.}$, January 22-29, 1968.



60-Si-v6.

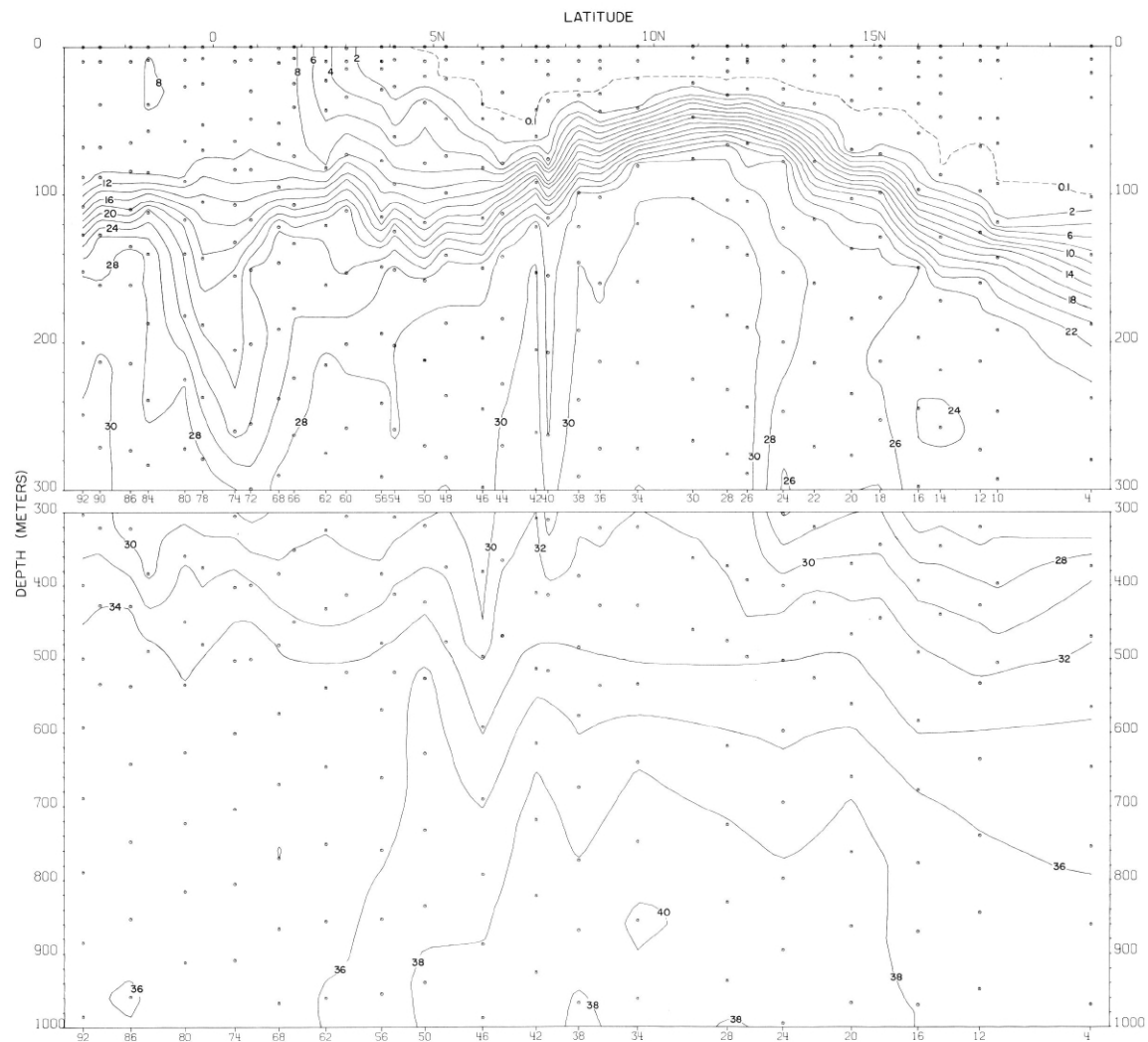
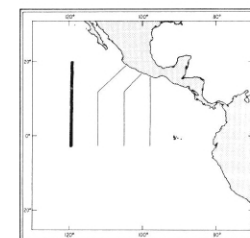


FIGURE 60-NO₃-v1.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along $118^{\circ}45' \text{W.}$, December 21-31, 1967.



60-NO₃-v1.

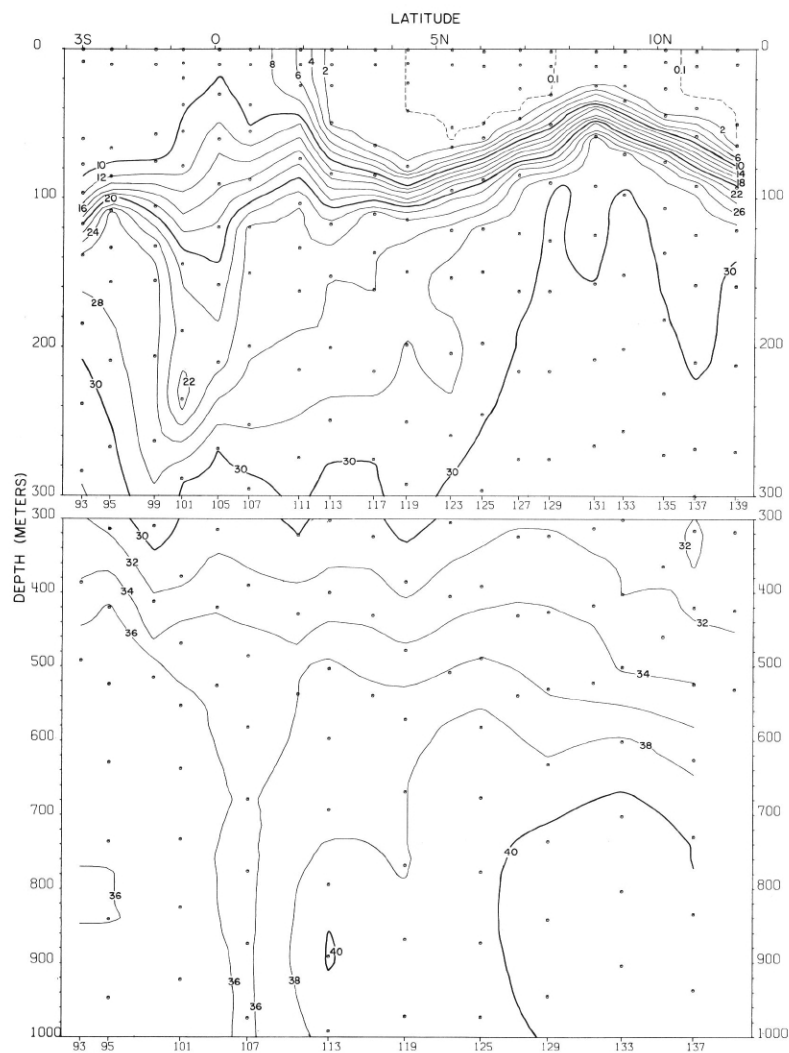


FIGURE 60-NO₃-v2.—Vertical distribution of nitrate-nitrogen ($\mu\text{g.-at./l.}$) along $111^{\circ}45' \text{ W.}$, January 1-6, 1968.

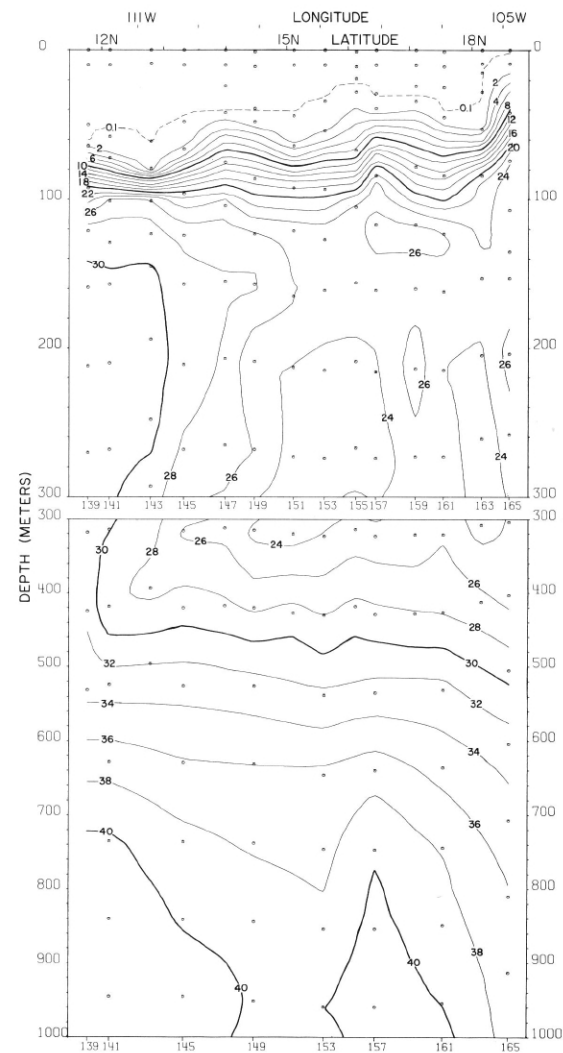
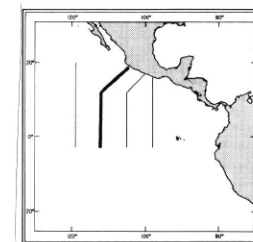


FIGURE 60-NO₃-v3.—Vertical distribution of nitrate-nitrogen ($\mu\text{g.-at./l.}$) along a section from 12° N. , $111^{\circ}45' \text{ W.}$ to Manzanillo, January 6-9, 1968.



60-NO₃-v2.

60-NO₃-v3.

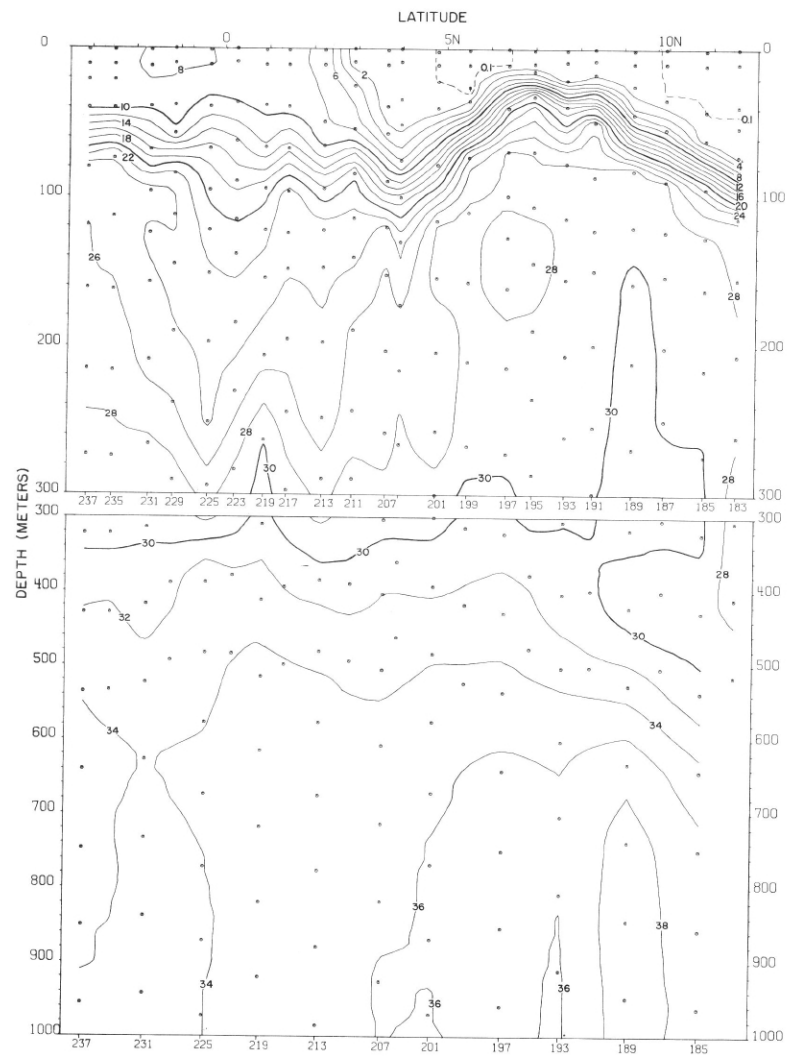


FIGURE 60-NO₃-v5.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along 104°45' W., January 15-21, 1968.

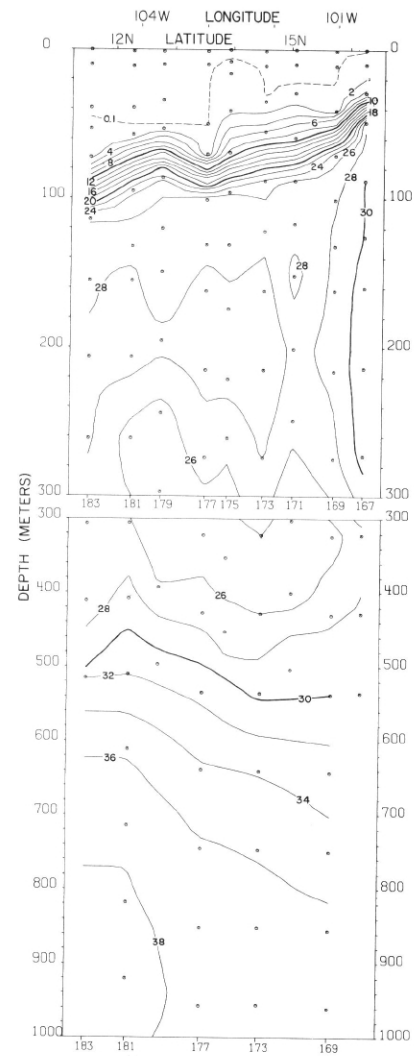
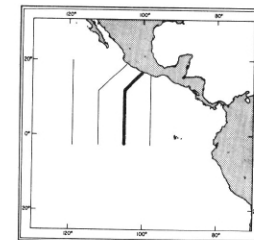


FIGURE 60-NO₃-v4.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along a section from Acapulco to 12° N., 104°45' W., January 13-15, 1968.



60-NO₃-v4.

60-NO₃-v5.

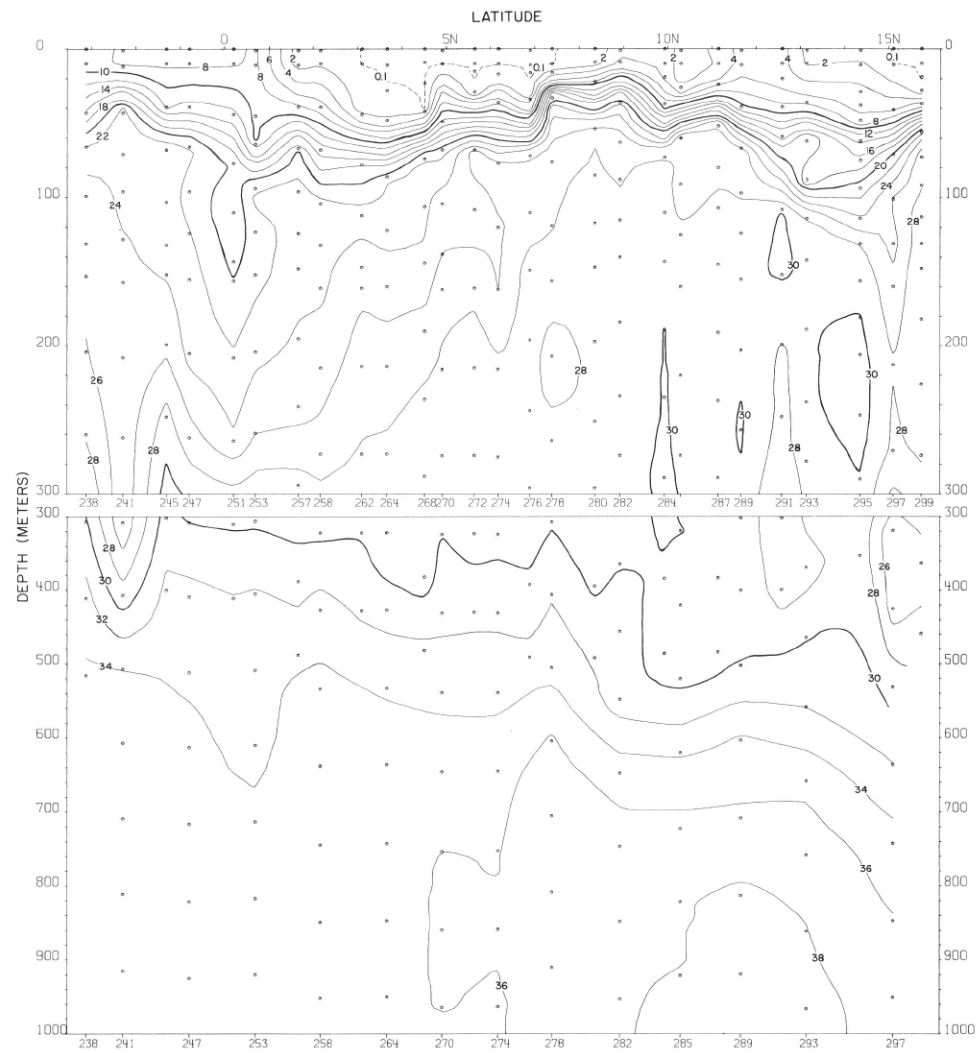
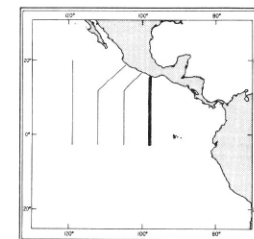


FIGURE 60-NO₃-v6.—Vertical distribution of nitrate-nitrogen ($\mu\text{g-at./l.}$) along $97^{\circ}45' \text{ W.}$, January 22-29, 1968.



60-NO₃-v6.

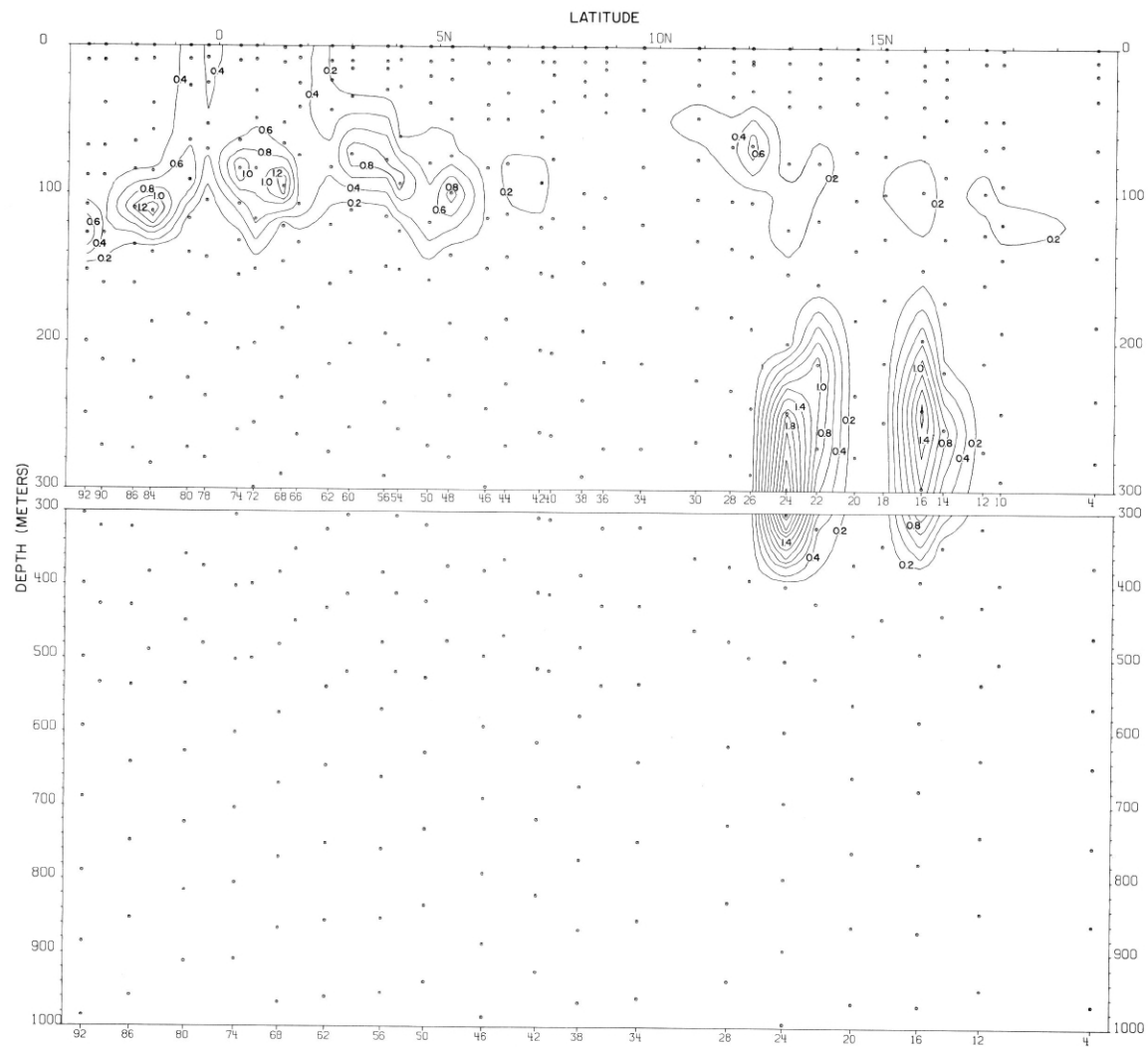
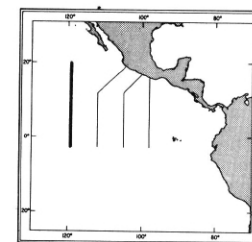


FIGURE 60-NO₂-v1.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along $118^{\circ}45' \text{ W.}$, December 21-31, 1967.



60-NO₂-v1.

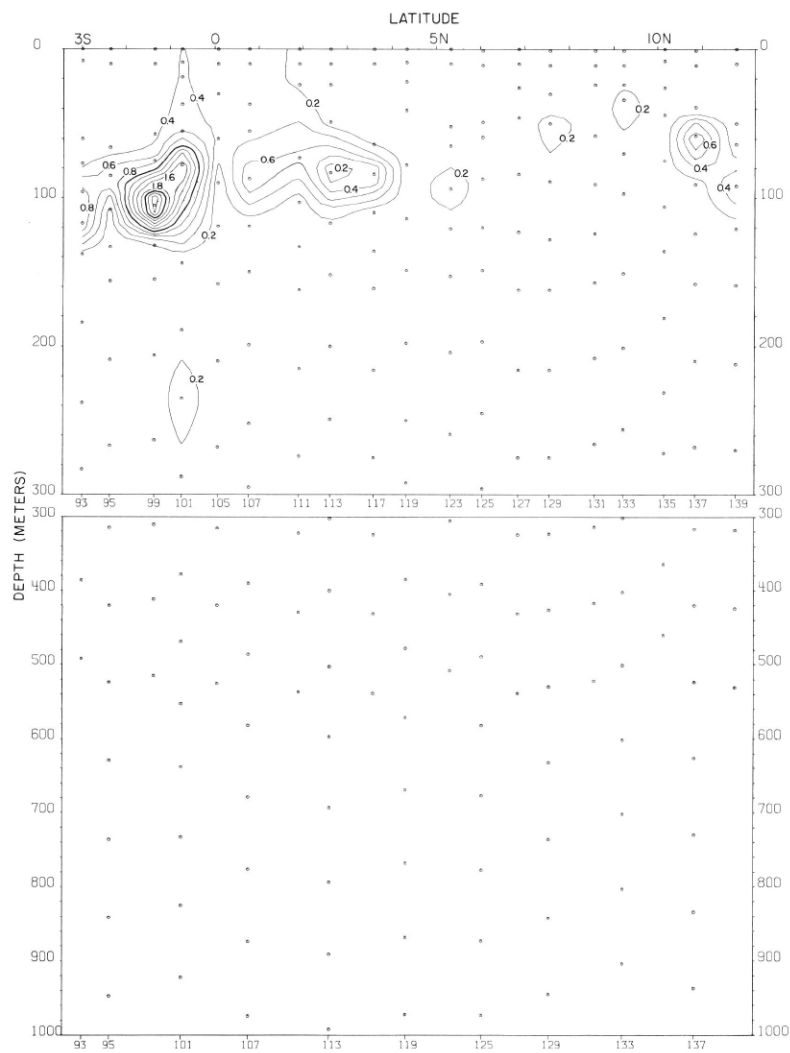


FIGURE 60-NO₂-v2.—Vertical distribution of nitrite-nitrogen (μg-at./l.) along 111°45' W., January 1-6, 1968.

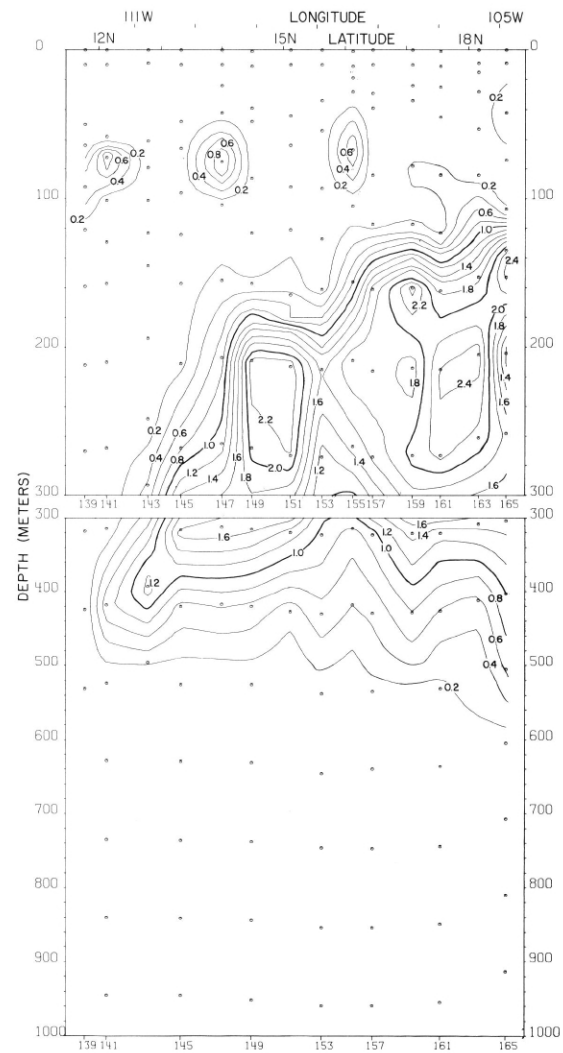
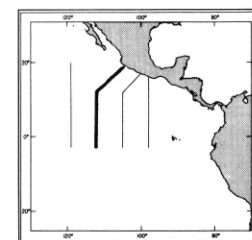


FIGURE 60-NO₂-v3.—Vertical distribution of nitrite-nitrogen (μg-at./l.) along a section from 12° N., 111°45' W. to Manzanillo, January 6-9, 1968.



60-NO₂-v2.

60-NO₂-v3.

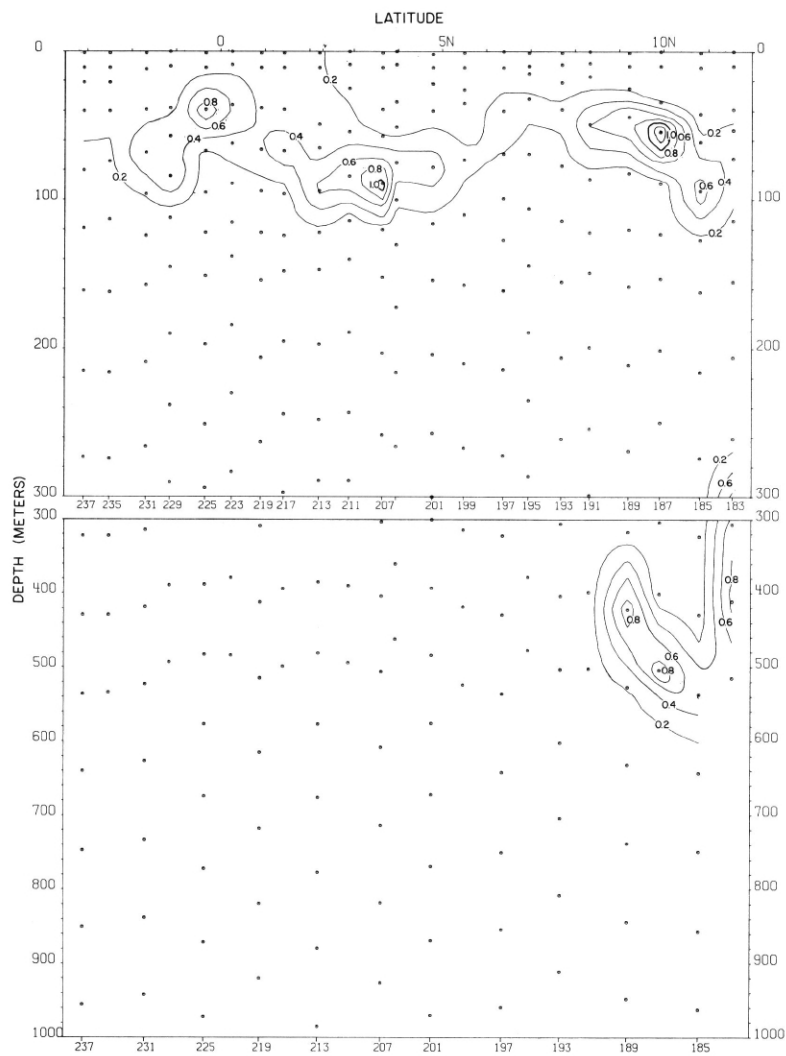


FIGURE 60-NO₂-v5.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along $104^{\circ}45'$ W., January 15-21, 1968.

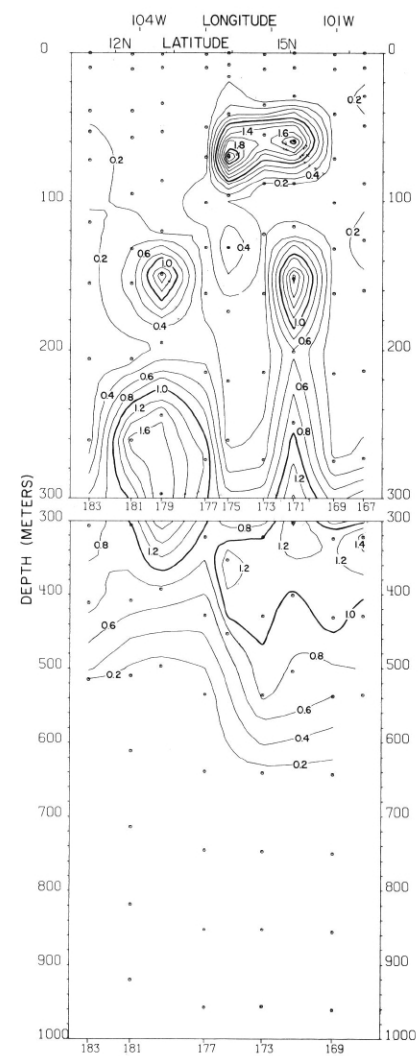
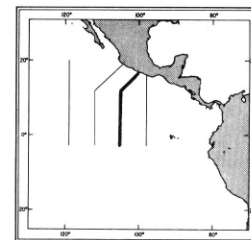


FIGURE 60-NO₂-v4.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along a section from Acapulco to 12° N., $104^{\circ}45'$ W., January 13-15, 1968.



60-NO₂-v4.

60-NO₂-v5.

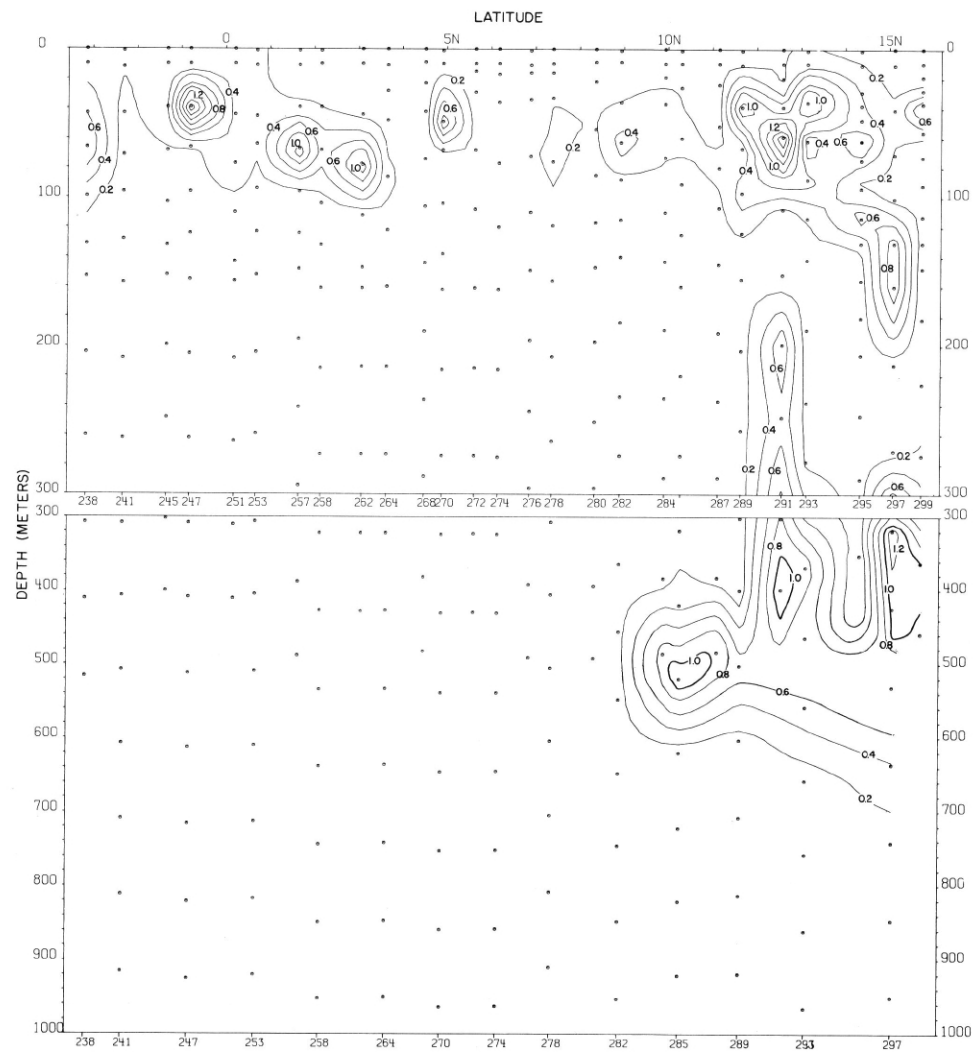
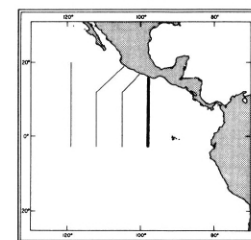


FIGURE 60-NO₂-v6.—Vertical distribution of nitrite-nitrogen ($\mu\text{g-at./l.}$) along $97^{\circ}45'$ W., January 22-29, 1968.



60-NO₂-v6.

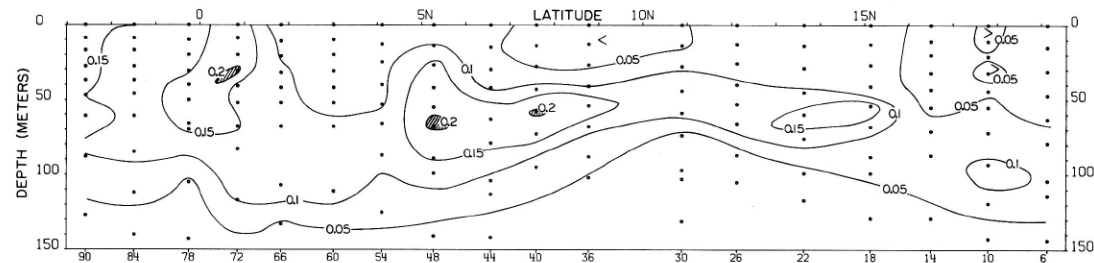


FIGURE 60-Ch-v1.—Vertical distribution of chlorophyll-a (mg./m.³) along 118°45' W., December 22-31, 1967.

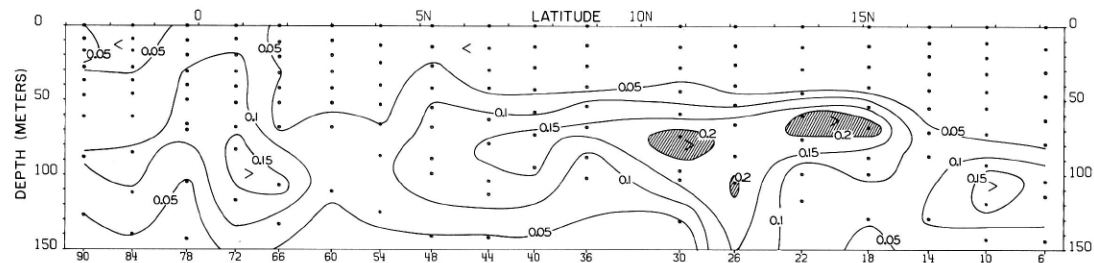


FIGURE 60-Ph-v1.—Vertical distribution of phaeophytin (mg./m.³) along 118°45' W., December 22-31, 1967.

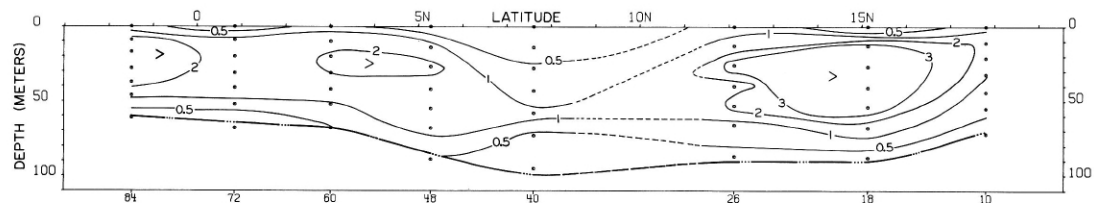
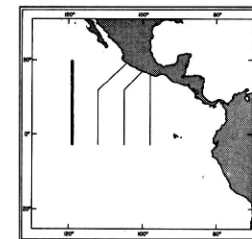


FIGURE 60-PP-v1.—Vertical distribution of primary production (mg. C/m.³/day) along 118°45' W., December 22-30, 1967. The heavy dash-dot line indicates the bottom of the euphotic layer.



60-Ch-v1.

60-Ph-v1.

60-PP-v1.

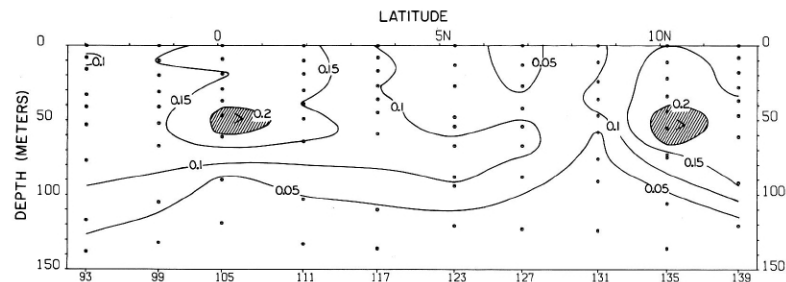


FIGURE 60-Ch-v2.—Vertical distribution of chlorophyll-a (mg./m.³) along 111°45' W., January 2-6, 1968.

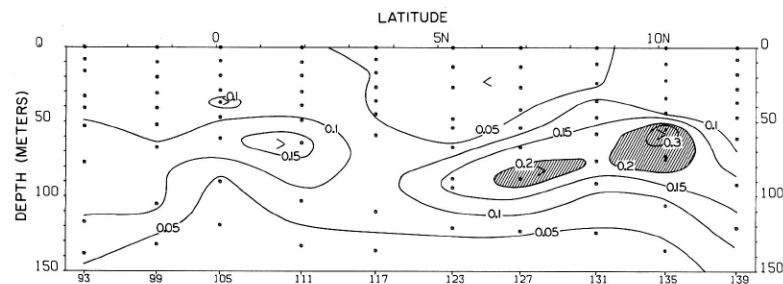


FIGURE 60-Ph-v2.—Vertical distribution of phaeophytin (mg./m.³) along 111°45' W., January 2-6, 1968.

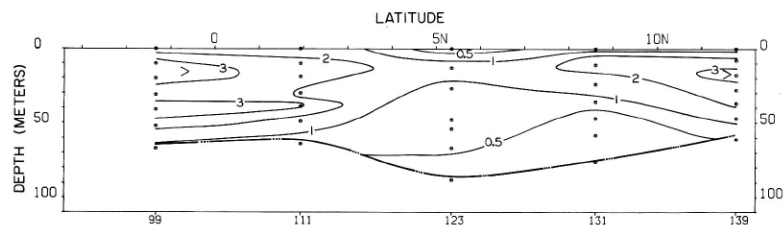


FIGURE 60-PP-v2.—Vertical distribution of primary production (mg. C/m.³/day) along 111°45' W., January 2-6, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.

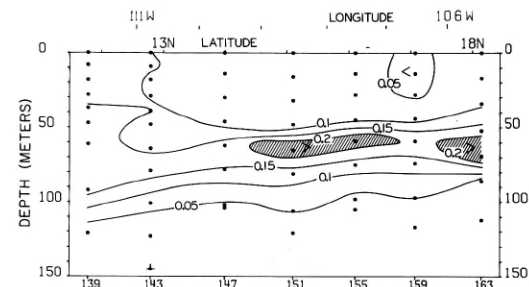


FIGURE 60-Ch-v3.—Vertical distribution of chlorophyll-a (mg./m.³) along a section from 12° N, 111°45' W. to Manzanillo, January 6-9, 1968.

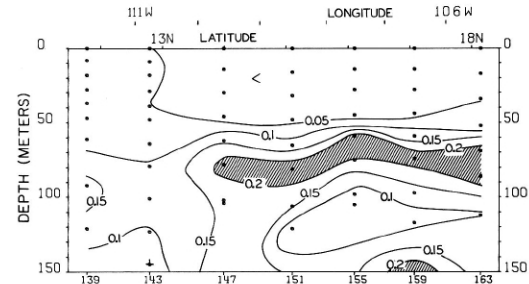


FIGURE 60-Ph-v3.—Vertical distribution of phaeophytin (mg./m.³) along a section from 12° N, 111°45' W. to Manzanillo, January 6-9, 1968.

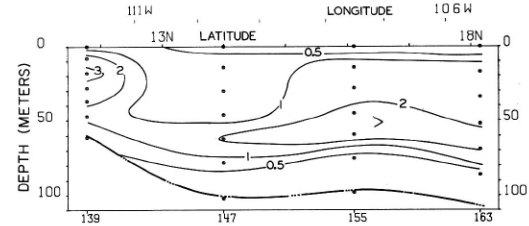
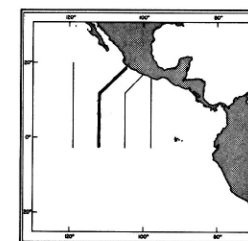


FIGURE 60-PP-v3.—Vertical distribution of primary production (mg. C/m.³/day) along a section from 12° N, 111°45' W. to Manzanillo, January 6-9, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.



60-Ch-v2.

60-Ph-v2.

60-PP-v2.

60-Ch-v3.

60-Ph-v3.

60-PP-v3.

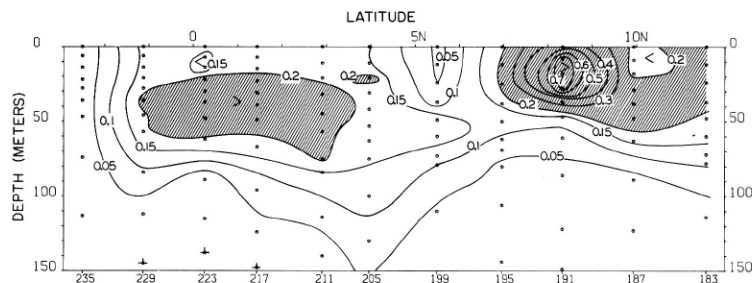


FIGURE 60-Ch-v5.—Vertical distribution of chlorophyll-a (mg./m.³) along 104°45' W., January 16-21, 1968.

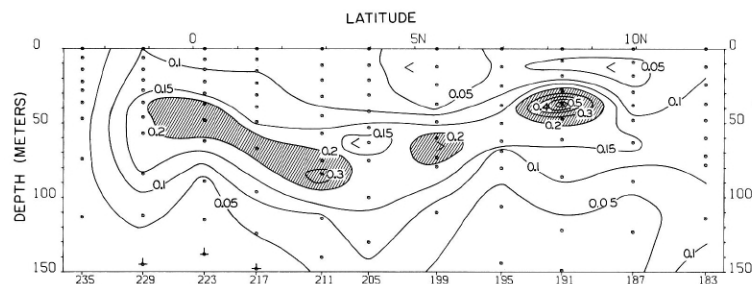


FIGURE 60-Ph-v5.—Vertical distribution of phaeophytin (mg./m.³) along 104°45' W., January 16-21, 1968.

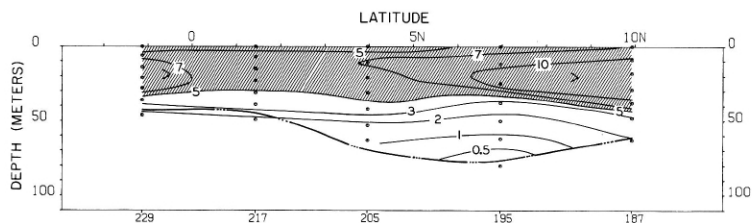


FIGURE 60-PP-v5.—Vertical distribution of primary production (mg. C/m.³/day) along 104°45' W., January 16-20, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.

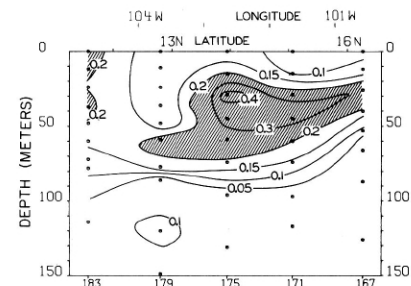


FIGURE 60-Ch-v4.—Vertical distribution of chlorophyll-a (mg./m.³) along a section from Acapulco to 12° N., 104°45' W., January 14-16, 1968.

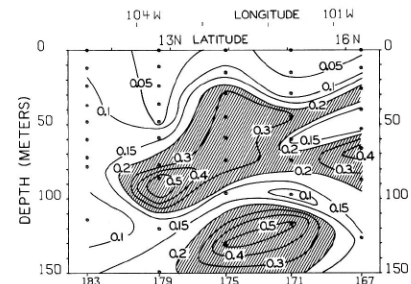


FIGURE 60-Ph-v4.—Vertical distribution of phaeophytin (mg./m.³) along a section from Acapulco to 12° N., 104°45' W., January 14-16, 1968.

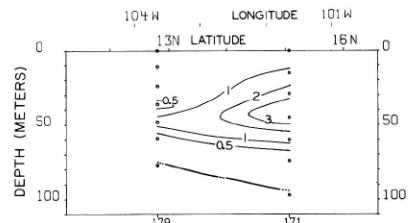
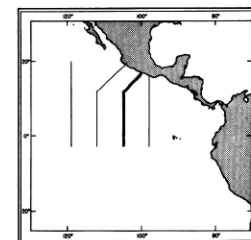


FIGURE 60-PP-v4.—Vertical distribution of primary production (mg. C/m.³/day) along a section from Acapulco to 12° N., 104°45' W., January 14-15, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.



60-Ch-v4.

60-Ph-v4.

60-PP-v4.

60-Ch-v5.

60-Ph-v5.

60-PP-v5.

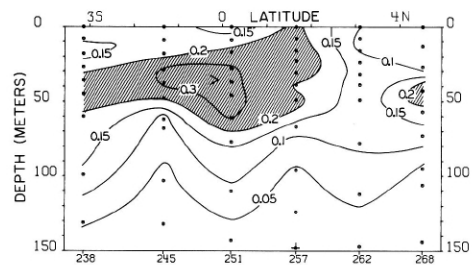


FIGURE 60-Ch-v6.—Vertical distribution of chlorophyll-a (mg./m.³) along 97°45' W., January 22-25, 1968.

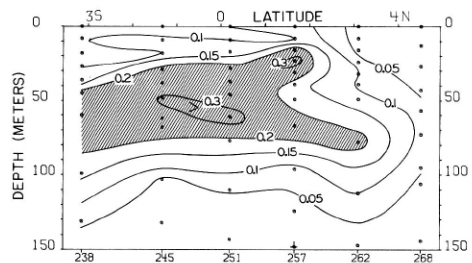


FIGURE 60-Ph-v6.—Vertical distribution of phaeophytin (mg./m.³) along 97°45' W., January 22-25, 1968.

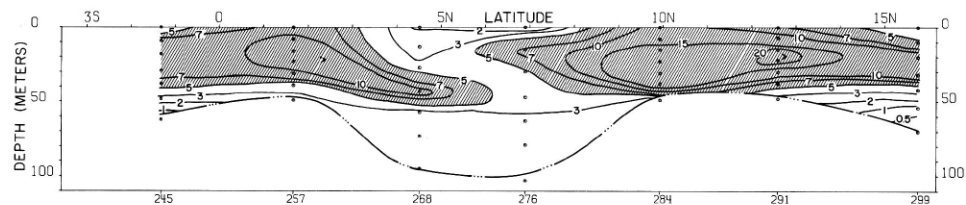
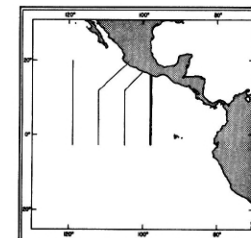


FIGURE 60-PP-v6.—Vertical distribution of primary production (mg. C/m.³/day) along 97°45' W., January 23-29, 1968. The heavy dash-dot line indicates the bottom of the euphotic layer.



60-Ch-v6.

60-Ph-v6.

60-PP-v6.