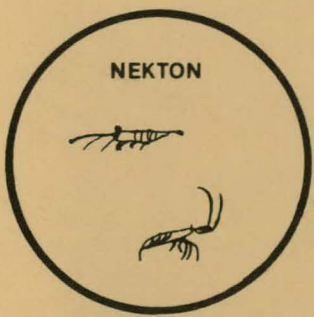


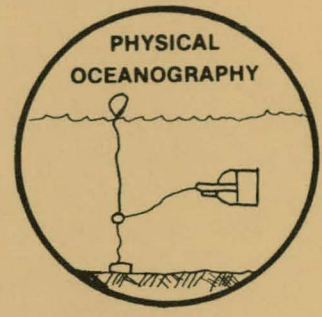
27
2-9-81
JWB
240
292a
1
DOE/PO/10114-1, Vol. II

MASTER

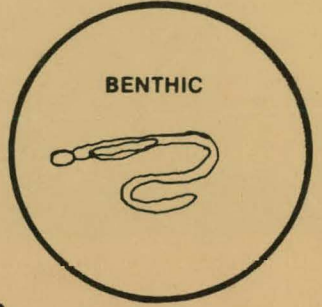
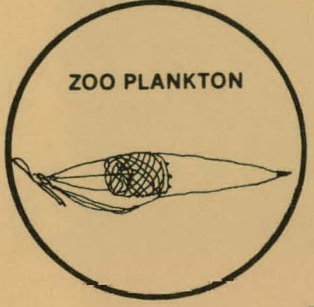
EVALUATION OF BRINE DISPOSAL
FROM THE BRYAN MOUND SITE OF THE
STRATEGIC PETROLEUM RESERVE PROGRAM



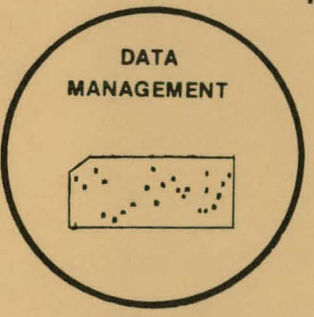
FINAL REPORT



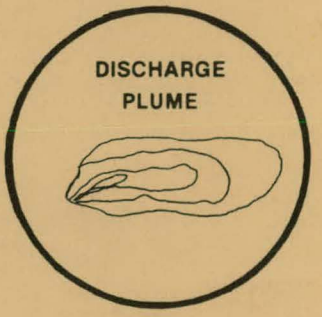
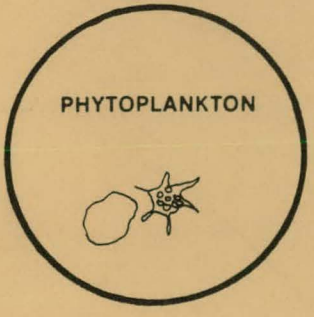
OF



PREDISPOSAL STUDIES



DECEMBER 1980



VOLUME II

TEXAS A & M UNIVERSITY

AND

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

TEXAS A & M RESEARCH FOUNDATION

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

NOTICE
PORTIONS OF THIS REPORT ARE ILLEGIBLE

It has been reproduced from the best available copy to permit the broadest possible availability.

This report has been reviewed by the Department of Energy and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Department, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

DISCLAIMER

This book was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED
fly

EVALUATION OF BRINE DISPOSAL FROM THE BRYAN MOUND SITE
OF THE STRATEGIC PETROLEUM RESERVE PROGRAM

Final Report of Predisposal Studies

Volume 2

Draft June 1980

Final December 1980

Editors

Roy W. Hann, Jr., Program Manager
Robert E. Randall, Associate Program Manager

Principal Investigators

Robert J. Case, Data Management
Mark E. Chittenden, Jr., Nekton Studies
Donald E. Harper, Jr., Benthic Studies
Francis J. Kelly, Jr., Physical Oceanography
Laurel A. Loeblich, Phytoplankton Studies
Larry D. McKinney, Benthic Studies
Thomas J. Minello, Zooplankton Studies
E. Taisoo Park, Zooplankton Studies
Robert E. Randall, Analysis of Discharge Plume
J. Frank Slowey, Sediment and Water Quality

Texas A&M University

through

Texas A&M Research Foundation

prepared for the Department of Energy
under Contract No. DE-FC96-79P010114

TABLE OF CONTENTS

LIST OF TABLES	iv
LIST OF FIGURES.	v
Introduction	xviii
Appendix 1. Compilation of the Vertical Cross Sections of Hydrographic Data.	1-1
Appendix 2. Maps of GUS III Surface Salinity Data	2-1
Appendix 3. Monthly Weather Information and Meteorological Data	3-1
Appendix 4. Time Series Plots of Current Meter Data	4-1
Appendix 5. Description of Diving Operations in Support of Physical Oceanography.	5-1
Appendix 6. Concentration Profiles for Horizontal Diffusion Coefficients.	6-1
Appendix 7. Nekton (to be submitted at a later date).	7-1
Appendix 8. Supporting Data for Zooplankton Studies	8-1

LIST OF TABLES

Number	Title	Page
3-1	Monthly summary of precipitation, temperature and miscellaneous facts for the period October 1976 through November 1979.	3-1
8-1	Mean densities of zooplankton groups from seven cruises made between June 1979 and January 1980 near the diffuser site	8-2
8-2	Mean densities of copepod species from seven zooplankton cruises made between June 1979 and January 1980 near the diffuser site.	8-23
8-3	Monthly densities of zooplankton groups at Station W2 for the years 1963 and 1964	8-44
8-4	Monthly densities of zooplankton groups at Station W3 for the years 1963 and 1964	8-49
8-5	Monthly densities of copepod species at Station W2 for the years 1963 and 1964.	8-53
8-6	Monthly densities of copepod species at Station W3 for the years 1963 and 1964.	8-63

LIST OF FIGURES

Number	Title	Page
1- 1	Hydrography for cross-shelf transect offshore Freeport, Texas for September 16, 1977	1- 1
1- 2	Hydrography for cross shelf transect offshore Freeport, Texas for October 20, 1977.	1- 2
1- 3	Hydrography for cross-shelf transect offshore Freeport, Texas for November 17, 1977	1- 3
1- 4	Hydrography for cross-shelf transect offshore Freeport, Texas for December 18, 1977	1- 4
1- 5	Hydrography of the cross-shelf transect offshore Freeport, Texas for February 3, 1978	1- 5
1- 6	Hydrography for cross-shelf transect offshore Freeport, Texas for February 25, 1978	1- 6
1- 7	Hydrography for cross shelf transect offshore Freeport, Texas for March 23, 1978	1- 7
1- 8	Hydrography for cross-shelf transect offshore Freeport, Texas for March 25, 1978	1- 8
1- 9	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for April 19, 1978	1- 9
1-10	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for April 21, 1978	1-10
1-11	Hydrography for cross-shelf transect offshore Freeport, Texas for May 25, 1978	1-11
1-12	Hydrography for cross shelf and alongshore transect offshore Freeport, Texas for May 26, 1978	1-12
1-13	Hydrography for cross shelf transect offshore Freeport, Texas for May 27, 1978	1-13
1-14	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for June 20, 1978	1-14

LIST OF FIGURES (continued)

Number	Title	Page
1-15	Hydrography for cross shelf and alongshore transects for offshore Freeport, Texas for June 21, 1978	1-15
1-16	Hydrography for cross shelf transect offshore Freeport, Texas for June 22, 1978	1-16
1-17	Hydrography for cross shelf and alongshore transects for offshore Freeport, Texas for July 18, 1978.	1-17
1-18	Hydrography for cross shelf transect offshore Freeport, Texas for July 20, 1973	1-18
1-19	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for July 26, 1978	1-19
1-20	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for August 30, 1978.	1-20
1-21	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for August 31, 1978	1-21
1-22	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for September 1, 1978	1-22
1-23	Hydrography for cross shelf transect offshore Freeport, Texas for September 19, 1978	1-23
1-24	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for September 25, 1978	1-24
1-25	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for October 16, 1978	1-25
1-26	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for October 20, 1978	1-26
1-27	Hydrography for cross shelf transect offshore Freeport, Texas for November 17, 1978	1-27
1-28	Hydrography for cross shelf and alongshore transect offshore Freeport, Texas for November 18, 1978	1-28
1-29	Hydrography for cross shelf and alongshore transects offshore Freeport, Texas for December 18, 1978	1-29
1-30	Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, TX for February 12, 1979	1-30

LIST OF FIGURES (continued)

Number	Title	Page
1-31	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for March 11, 1979.	1-31
1-32	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for March 12, 1979.	1-32
1-33	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for April 13, 1979.	1-33
1-34	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for April 16, 1979.	1-34
1-35	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for May 25, 1979.	1-35
1-36	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for June 1, 1979.	1-36
1-37	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for June 21, 1979	1-37
1-38	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for June 28, 1979	1-38
1-39	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for July 11, 1979	1-39
1-40	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for July 12, 1979	1-40
1-41	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for August 14, 1979	1-41
1-42	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for August 15, 1979	1-42
1-43	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for September 6, 1979	1-43
1-44	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for September 7, 1979	1-44
1-45	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for October 5, 1979	1-45
1-46	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for October 11, 1979.	1-46

LIST OF FIGURES (continued)

Number	Title	Page
1-47	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for November 6, 1979.	1-47
1-48	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for November 14, 1979	1-48
1-49	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for December 4, 1979.	1-49
1-50	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for December 7, 1979.	1-50
1-51	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for January 6, 1980	1-51
1-52	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for January 26, 1980.	1-52
1-53	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for February 6, 1980.	1-53
1-54	Hydrography for cross-shelf and alongshore transects offshore Freeport, Texas for February 22, 1980	1-54
2-1	Maps of GUS III surface salinity data for the Texas-Louisiana Shelf for January, February, and March, 1964. . .	2-1
2-2	Maps of GUS III surface salinity data for the Texas-Louisiana Shelf for April, May and June, 1964	2-2
2-3	Maps of GUS III surface salinity data for the Texas-Louisiana shelf for July, August and September, 1964. . . .	2-3
2-4	Maps of GUS III surface salinity data for the Texas-Louisiana shelf for October, November and December, 1964 .	2-4
2-5	Maps of GUS III surface salinity data for the Texas-Louisiana shelf for January, February and March, 1965 . . .	2-5
2-6	Maps of GUS III surface salinity data for the Texas-Louisiana shelf for April, May and June, 1965	2-6
2-7	Maps of GUS III surface salinity data for the Texas-Louisiana shelf for August, September and October, 1965 . .	2-7
2-8	Maps of GUS III surface salinity data for the Texas-Louisiana shelf for December, 1965.	2-8

LIST OF FIGURES (continued)

Number	Title	Page
3-1	July 1978: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-14
3-2	August 1978: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-15
3-3	September 1978: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-16
3-4	October 1978: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-17
3-5	November 1978: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-18
3-6	December 1978: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-19
3-7	January 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-20
3-8	February 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-21
3-9	March 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-22
3-10	April 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-23
3-11	May 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-24
3-12	June 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-25
3-13	July 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-26
3-14	August 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-27
3-15	September 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-28
3-16	November 1979: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A . .	3-29

LIST OF FIGURES (continued)

Number	Title	Page
4-1	June 1978 current velocity time series plots for near surface instrument at site A	4-1
4-2	July 1978 current velocity time series plots for near near surface instrument at site A	4-2
4-3	August 1978 current velocity time series plots for near surface instrument at site A	4-3
4-4	September 1978 current velocity time series plots for near surface instrument at site A	4-4
4-5	October 1978 current velocity time series plots for near surface instrument at site A	4-5
4-6	November 1978 current velocity time series plots for near surface instrument at site A	4-6
4-7	December 1978 current velocity time series plots for near surface instrument at site A	4-7
4-8	Janaury 1979 current velocity time series plots for near surface instrument at site A	4-8
4-9	February 1979 current velocity time series plots for near surface instrument at site A	4-9
4-10	March 1979 current velocity time series plots for near surface instrument at site A	4-10
4-11	April 1979 current velocity time series plots for near surface instrument at site A.	4-11
4-12	May 1979 current velocity time series plots for near surface instrument at site A	4-12
4-13	June 1979 current velocity time series plots for near surface instrument at site A	4-13
4-14	July 1979 current velocity time series plots for near surface instrument at site A	4-14
4-15	August 1979 current velocity time series plots for near surface instrument at site A	4-15
4-16	October 1979 current velocity, temperature and salinity time series plots for near surface instrument at site A	4-16

LIST OF FIGURES (continued)

Number	Title	Page
4-17	November 1979 current velocity, temperature and salinity time series plots for near instrument at site A	4-17
4-18	December 1979 current velocity, temperature and salinity time series plots for near instrument at site A	4-18
4-19	January 1980 current velocity, temperature and salinity time series plots instrument at site A	4-19
4-20	February 1980 current velocity, temperature and salinity time series plots instrument at site A	4-20
4-21	July 1979 current velocity time series plots for mid depth instrument at site A	4-21
4-22	August 1979 current velocity time series plots for mid depth instrument at site A	4-22
4-23	September 1979 current velocity time series plots for mid depth instrument at site A	4-23
4-24	October 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site A	4-24
4-25	November 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site A	4-25
4-26	December 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site A	4-26
4-27	January 1980 current velocity, temperature and salinity time series plots for mid depth instrument at site A	4-27
4-28	February 1980 current velocity, temperature and salinity time series plots for mid depth instrument at site A	4-28
4-29	June 1978 current velocity time series plots for near bottom instrument at site A	4-29
4-30	July 1978 current velocity time series plots for near bottom instrument at site A	4-30
4-31	August 1978 current velocity time series plots for near bottom instrument at site A	4-31
4-32	September 1978 current velocity time series plots for near bottom instrument at site A	4-32

LIST OF FIGURES (continued)

Number	Title	Page
4-33	October 1978 current velocity time series plots for near bottom instrument at site A	4-33
4-34	November 1978 current velocity time series plots for near bottom instrument at site A	4-34
4-35	December 1978 current velocity time series plots for near bottom instrument at site A	4-35
4-36	January 1979 current velocity time series plots for near bottom instrument at site A	4-36
4-37	February 1979 current velocity time series plots for near bottom instrument at site A	4-37
4-38	March 1979 current velocity time series plots for near bottom instrument at site A	4-38
4-39	April 1979 velocity time series plots for near bottom instrument at site A	4-39
4-40	May 1979 current velocity time series plots for near bottom instrument at site A	4-40
4-41	June 1979 current velocity time series plots for near bottom instrument at site A	4-41
4-42	July 1979 current velocity time series plots for near bottom instrument at site A	4-42
4-43	August 1979 current velocity time series plots for near bottom instrument at site A	4-43
4-44	September 1979 current velocity time series plots for near bottom instrument at site A	4-44
4-45	October 1979 current velocity time series plots for near bottom instrument at site A	4-45
4-46	November 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site A	4-46
4-47	December 1979 current velocity ,temperature and salinity time series plots for near bottom instrument at site A	4-47

LIST OF FIGURES (continued)

4-48	January 1980 current velocity, temperature, and salinity time series plots for near-bottom instrument at site A.	4-48
4-49	February 1980 current velocity, temperature and salinity time series plots for near-bottom instrument at site A.	4-49
4-50	May 1979 current velocity time series plots for near surface instrument at site B	4-50
4-51	June 1979 current velocity time series plots for near surface instrument at site B.	4-51
4-52	July 1979 current velocity time series plots for near surface instrument at site B.	4-52
4-53	August 1979 current velocity time series plots for near surface instrument at site B.	4-53
4-54	September 1979 current velocity time series plots for near surface instrument at site B.	4-54
4-55	October 1979 current velocity, temperature and salinity time series plots for near surface instruments at site B	4-55
4-56	Decmeber 1979 current velocity, temperature and salinity time series plots for near surface instrument at site B . . .	4-56
4-57	January 1980 current velocity, temperature and salinity time series plots for near surface instrument at site B . . .	4-57
4-58	February 1980 current velocity, temperature and salinity time series plots for near surface instrument at site B . . .	4-58
4-59	May 1979 current velocity time series plots for mid depth instrument at site B	4-59
4-60	June 1979 current velocity time series plots for mid depth instrument at site B.	4-60
4-61	November 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site B	4-61
4-62	November 1979 current velocity time series plots for mid depth instrument at site B	4-62
4-63	December 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site B.	4-63
4-64	January 1980 current velocity, temperature and salinity time series plots for mid depth instrument at site B.	4-64

LIST OF FIGURES (continued)

Number	Title	Page
4-65	February 1980 current velocity, temperature and salinity time series plots for mid depth instrument at site B.	4-65
4-66	May 1979 current velocity time series plots for near bottom instrument at site B	4-66
4-67	June 1979 current velocity time series plots for near bottom instrument at site B	4-67
4-68	July 1979 current velocity time series plots for near bottom instrument at site B	4-68
4-69	August 1979 current velocity time series plots for near bottom instrument at site B	4-69
4-70	September 1979 current velocity, temperature, and salinity time series plots for near bottom instrument at site B. . . .	4-70
4-71	October 1979 current velocity, temperature, and salinity time series plots for near bottom instrument at site B. . . .	4-71
4-72	November 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site B. . . .	4-72
4-73	December 1979 current velocity, temperature, and salinity time series plots for near bottom instrument at site B. . . .	4-73
4-74	January 1980 current velocity, temperature and salinity time series plots for near bottom instrument at site B. . . .	4-74
4-75	August 1979 current velocity time series plots for near surface instrument at site C.	4-75
4-76	September 1979 current velocity time series plots for near surface instrument at site C.	4-76
4-77	October 1979 current velocity, temperature and salinity time series plots for near surface instrument at site C . . .	4-77
4-78	November 1979 current velocity, temperature and salinity time series plots for near surface instrument at site C . . .	4-78
4-79	December 1979 current velocity, temperature and salinity time series plots for near surface instrument at site C . . .	4-79
4-80	September 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site C.	4-80
4-81	October 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site C	4-81

LIST OF FIGURES (continued)

Number	Title	Page
4-82	November 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site C	4-82
4-83	December 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site C	4-83
4-84	January 1980 current velocity time series plots for mid depth instrument at site C	4-84
4-85	August 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C	4-85
4-86	September 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C	4-86
4-87	October 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C	4-87
4-88	November 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C	4-88
4-89	December 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C	4-89
4-90	January 1980 current velocity, temperature and salinity time series plots for near bottom instrument at site C	4-90

LIST OF FIGURES (continued)

Number	Title	Page
6-1	Cross plume profile No. 9, 9/5/78.	6-2
6-2	Cross plume profile No. 10, 9/5/78	6-3
6-3	Cross plume profile No. 11, 9/5/78	6-4
6-4	Cross plume profile No. 12, 9/5/78	6-5
6-5	Cross plume profile No. 13, 9/5/78	6-6
6-6	Cross plume profile No. 17, 9/5/78	6-7
6-7	Cross plume profile No. 18, 9/5/78	
6-8	Cross plume profile No. 4, 11/2/78.	6-9
6-9	Cross plume profile No. 5, 11/2/78.	6-10
6-10	Cross plume profile No. 6, 11/2/78.	6-11
6-11	Cross plume profile No. 7, 11/2/78.	6-12
6-12	Cross plume profile No. 10, 11/2/78	6-13
6-13	Cross plume profile No. 11, 11/2/78	6-14
6-14	Cross plume profile No. 12, 11/2/78	6-15
6-15	Cross plume profile No. 13, 11/2/78	6-16
6-16	Cross plume profile No. 2, 1/9/79	6-17
6-17	Cross plume profile No. 3, 1/9/79	6-18
6-18	Cross plume profile No. 4, 1/9/79	6-19
6-19	Cross plume profile No. 5, 1/9/79	6-20

Introduction

The final report of the predisposal study entitled "Evaluation of Brine Disposal from the Bryan Mound Site of the Strategic Petroleum Reserve Program" is divided into two volumes. Volume 1 describes the results of the predisposal study, and it is divided into eight chapters entitled: Physical Oceanography (Chapter 1), Analysis of the Discharge Plume (Chapter 2), Water and Sediment Quality (Chapter 3), Nekton (Chapter 4), Benthos (Chapter 5), Zooplankton (Chapter 6), Phytoplankton (Chapter 7), and Data Management (Chapter 8).

Volume 2 consists of appendices which contain additional supporting data in the form of figures and tables. Appendices 1 through 5 are in support of the physical oceanography chapter of Volume 1. A complete set of the vertical cross sections of the hydrographic data are contained in Appendix 1. A summary of the GUS III data are summarized in Appendix 2, and pertinent meteorological data and monthly weather information are contained in Appendix 3. The large volume of current meter data is presented in the form of time series plots in Appendix 4. Appendix 5 describes the diving operation procedures which are necessary for the maintenance and support of the current meter systems.

Appendix 6 contains the cross plume concentration profiles used in the evaluation of diffusion coefficients for Chapter 2, Analysis of the Discharge Plume, of Volume 1. The supporting data for the Nekton studies described in Chapter 4 of the first volume is contained in Appendix 7. Appendix 8 contains the supporting data for the zooplankton, Chapter 6, studies.

APPENDIX 1

Compilation of the Vertical Cross Sections
of Hydrographic Data

1-1

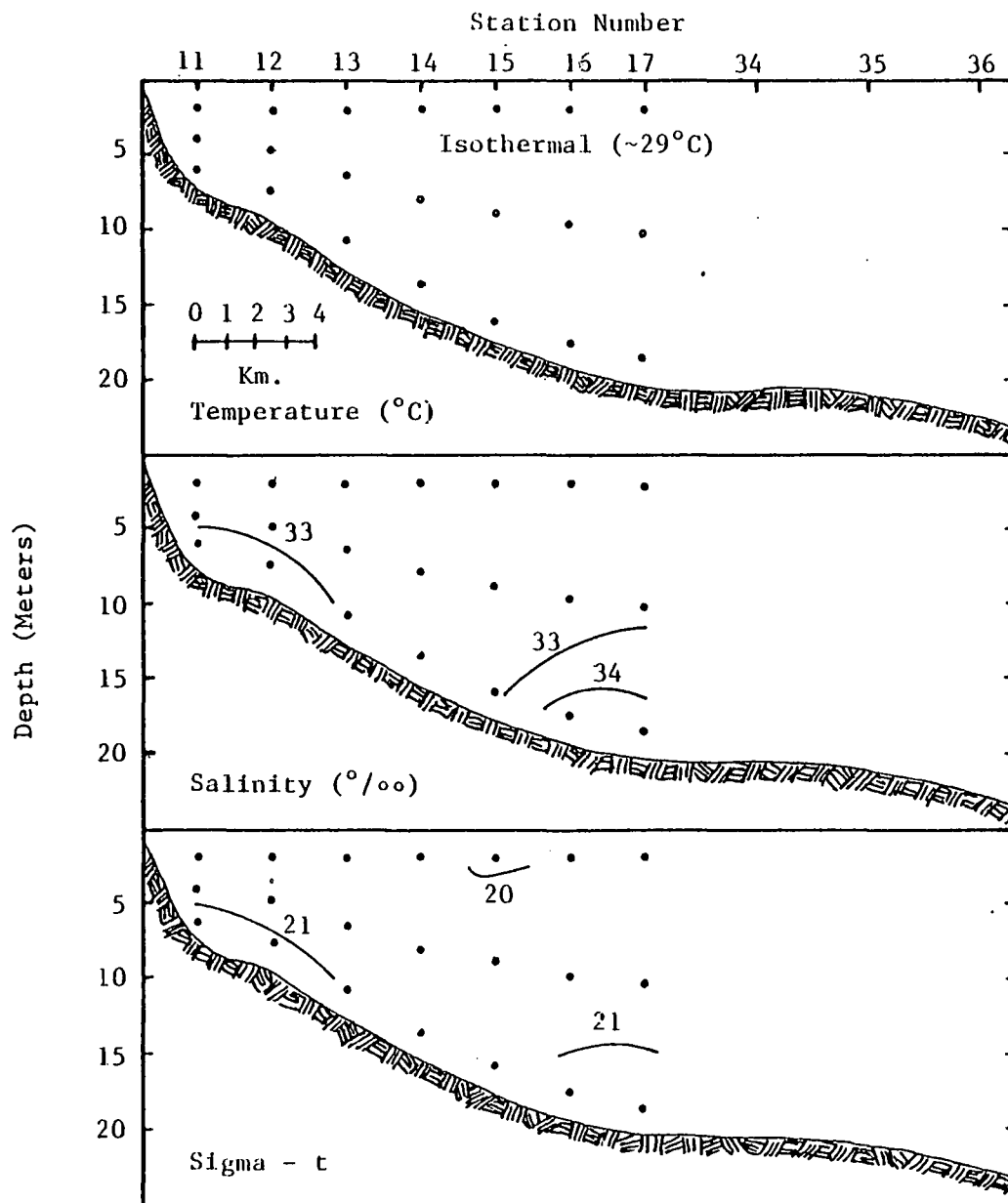


Figure 1-1. Hydrography for cross-shelf transect offshore Freeport, Texas for September 16, 1977.

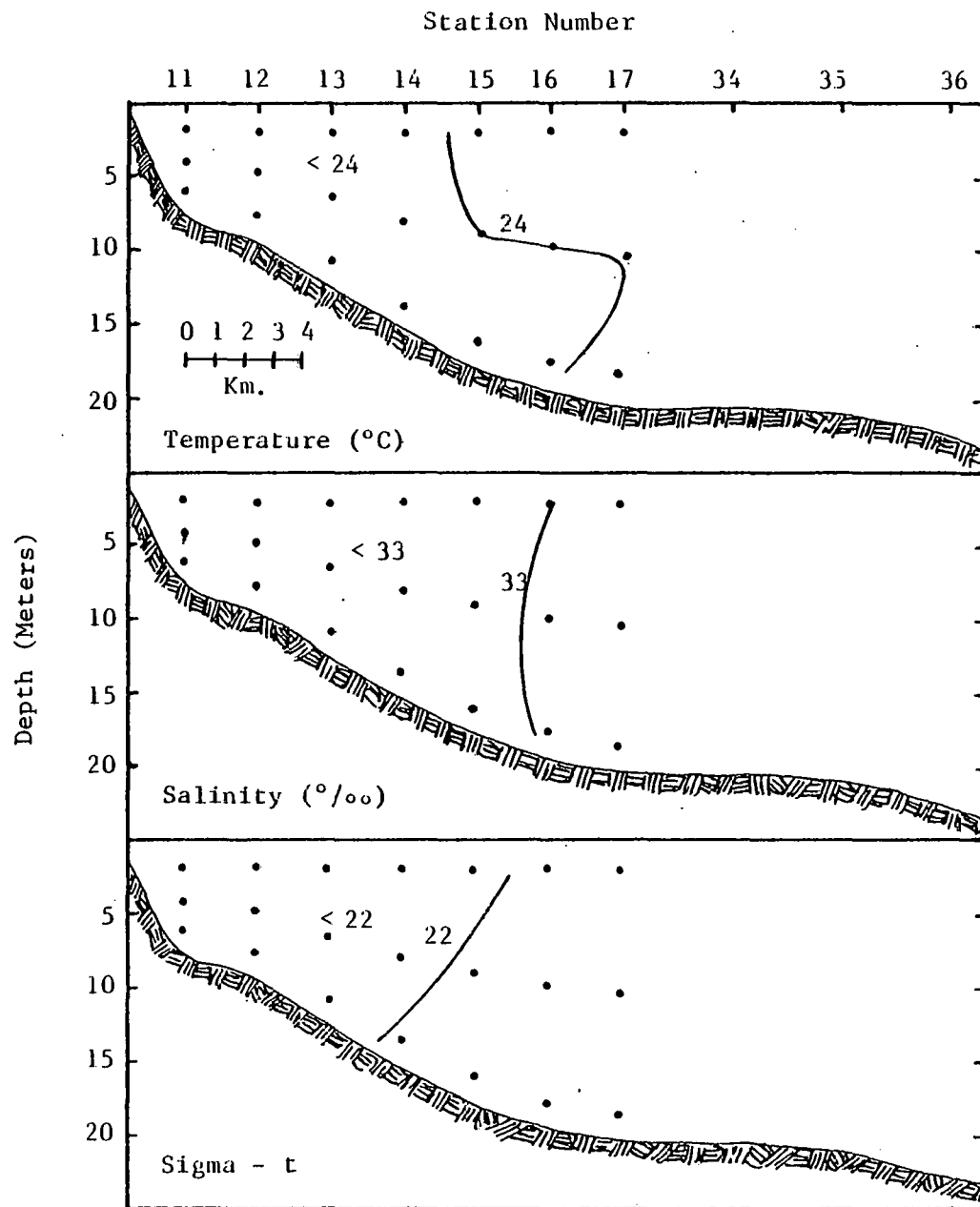


Figure 1-2. Hydrography for cross-shelf transect offshore Freeport, Texas for October 20, 1977.

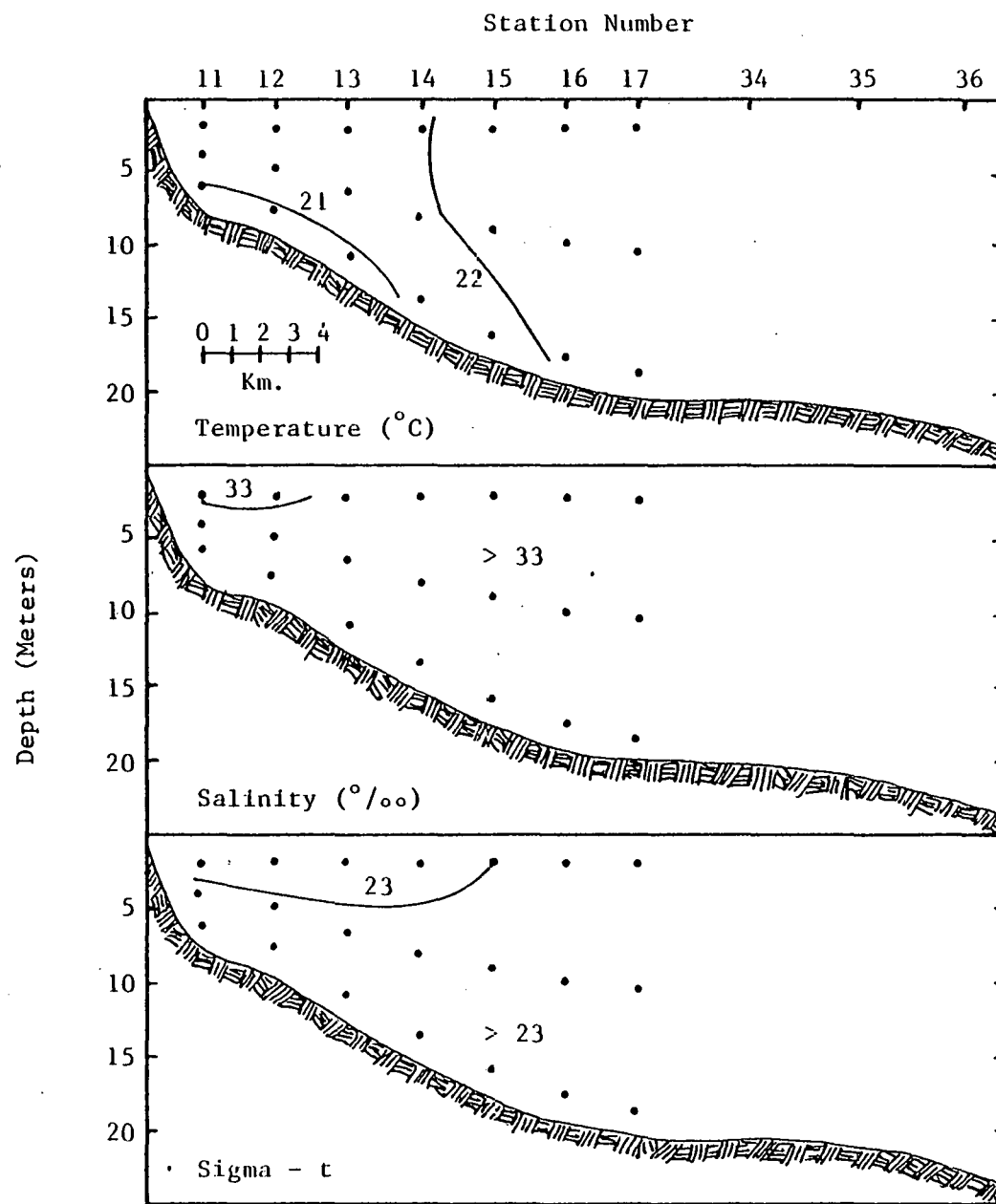


Figure 1-3. Hydrography for cross-shelf transect offshore Freeport, Texas for November 17, 1977.

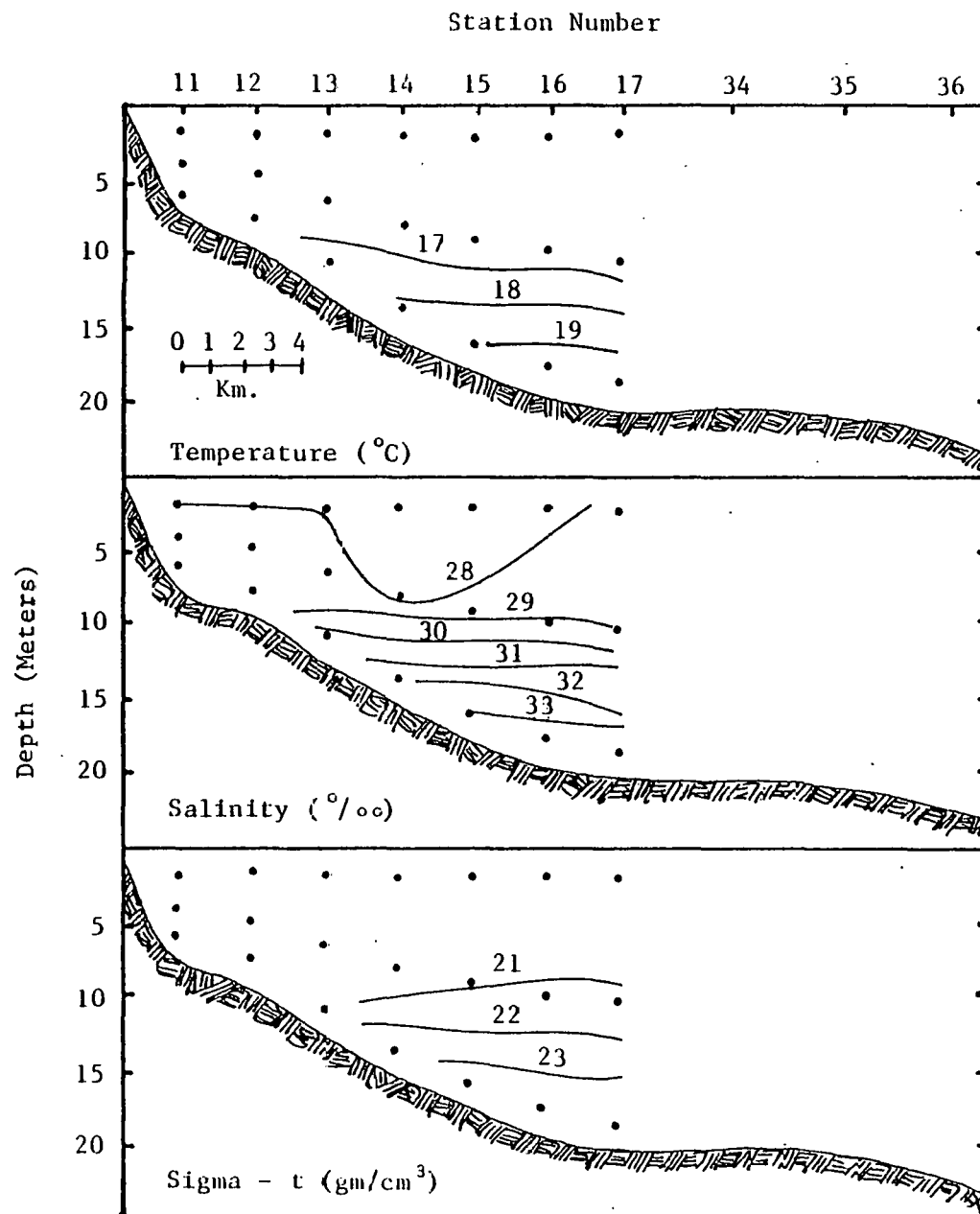


Figure 1-4. Hydrography for cross-shelf transect offshore Freeport, Texas for December 18, 1977.

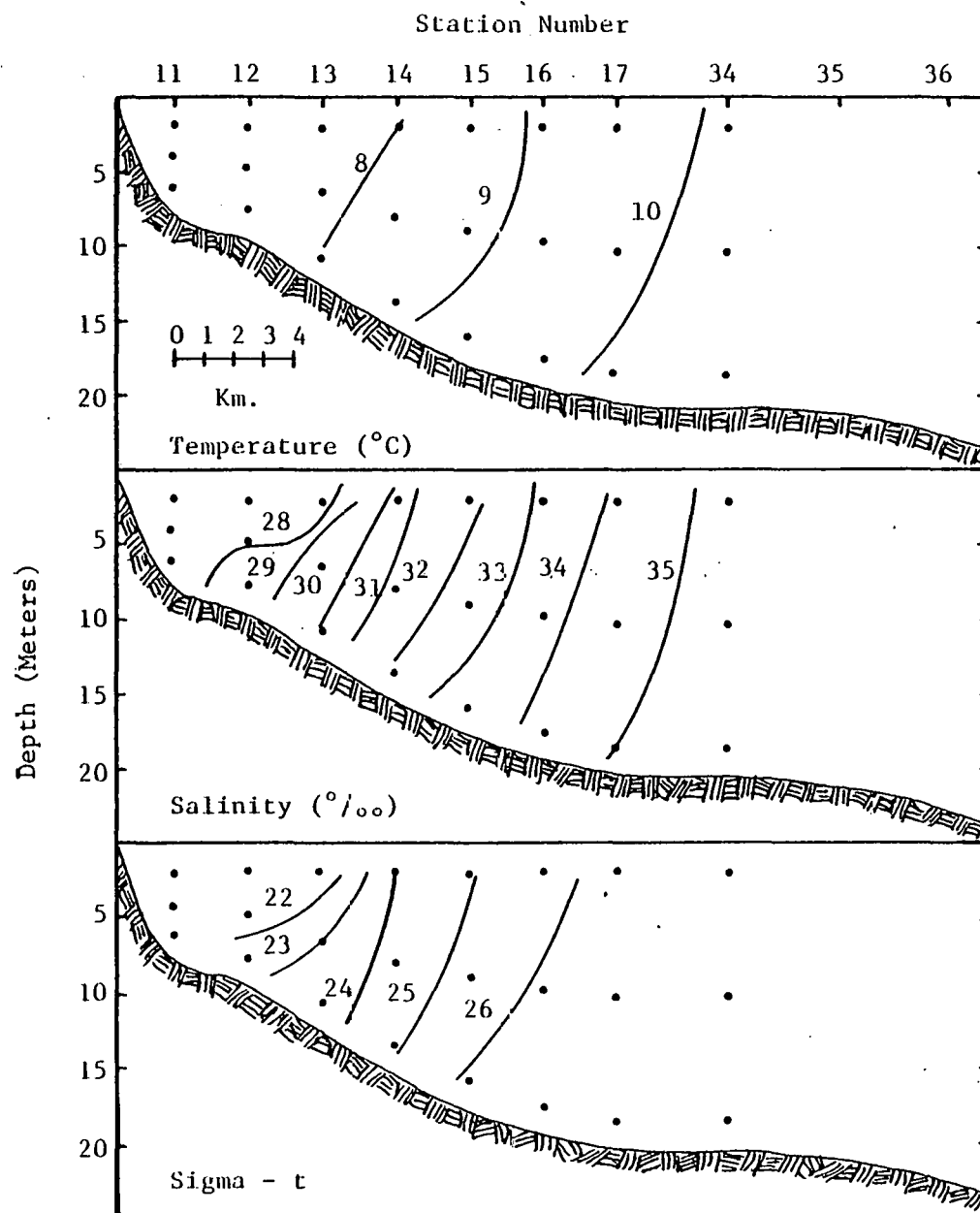


Figure 1-5. Hydrography for cross-shelf transect offshore Freeport, Texas for February 3, 1978.

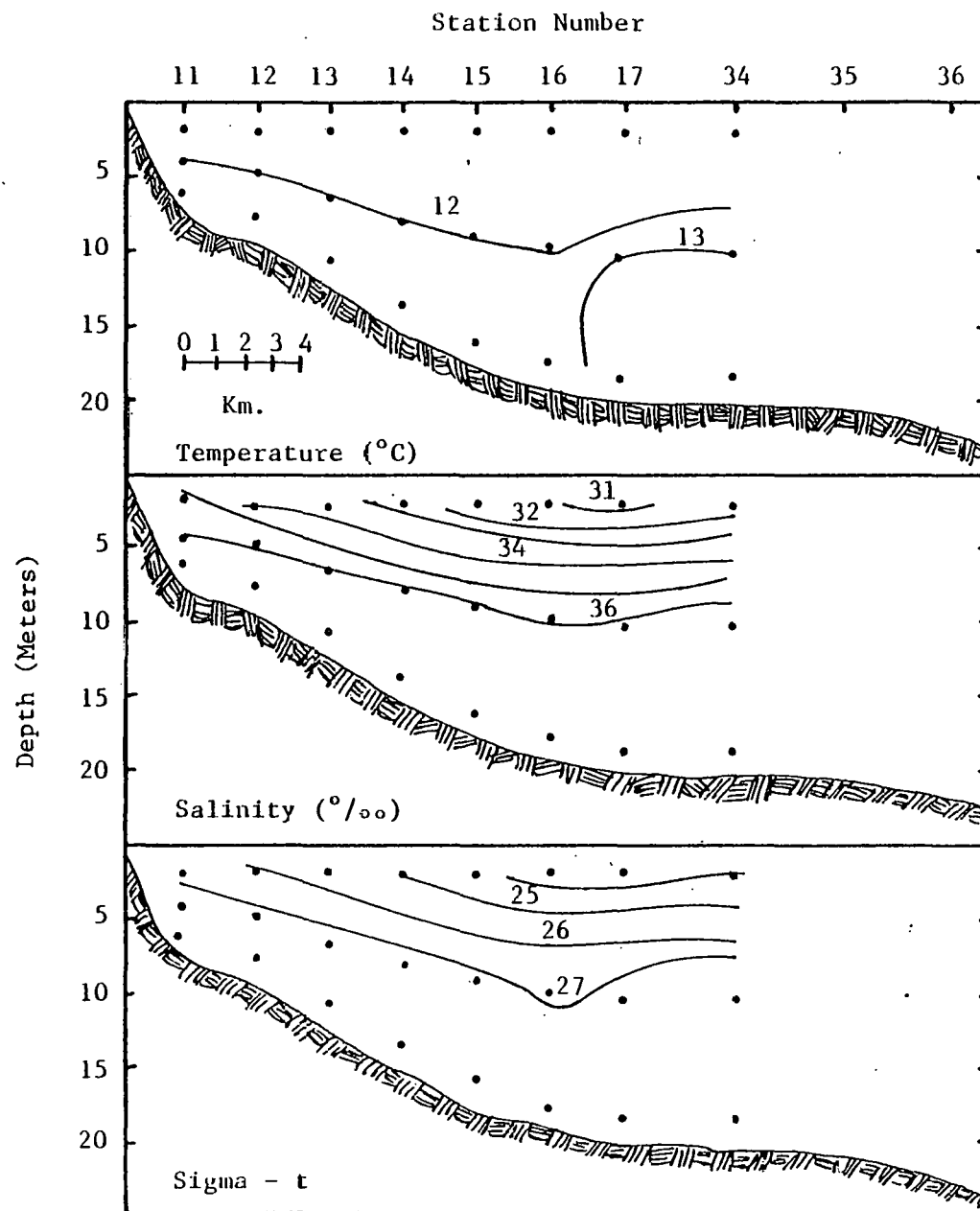


Figure 1-6. Hydrography for cross-shelf transect offshore Freeport, Texas, for February 25, 1978.

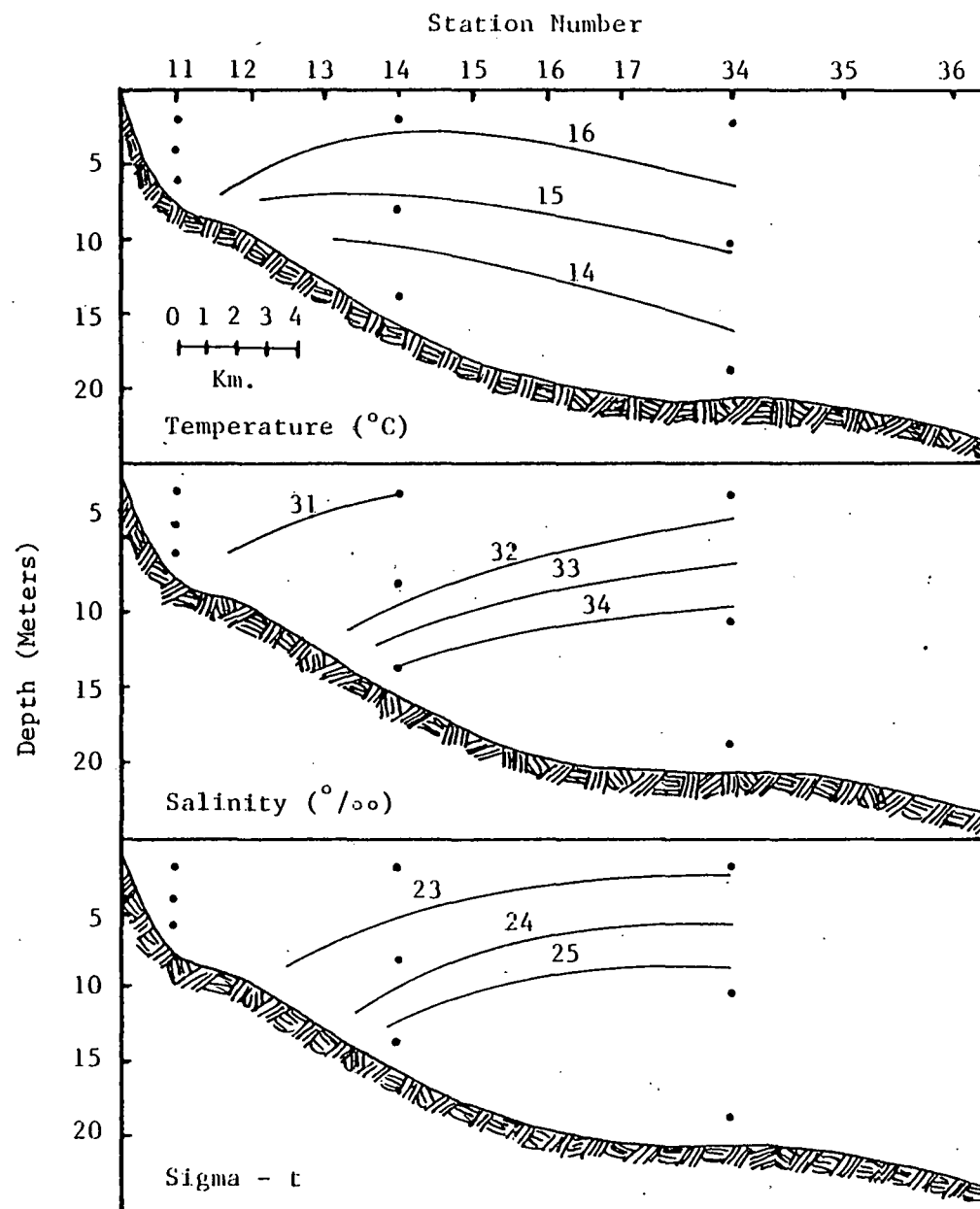


Figure 1-7. Hydrography for cross-shelf transect offshore Freeport, Texas, for March 23, 1978.

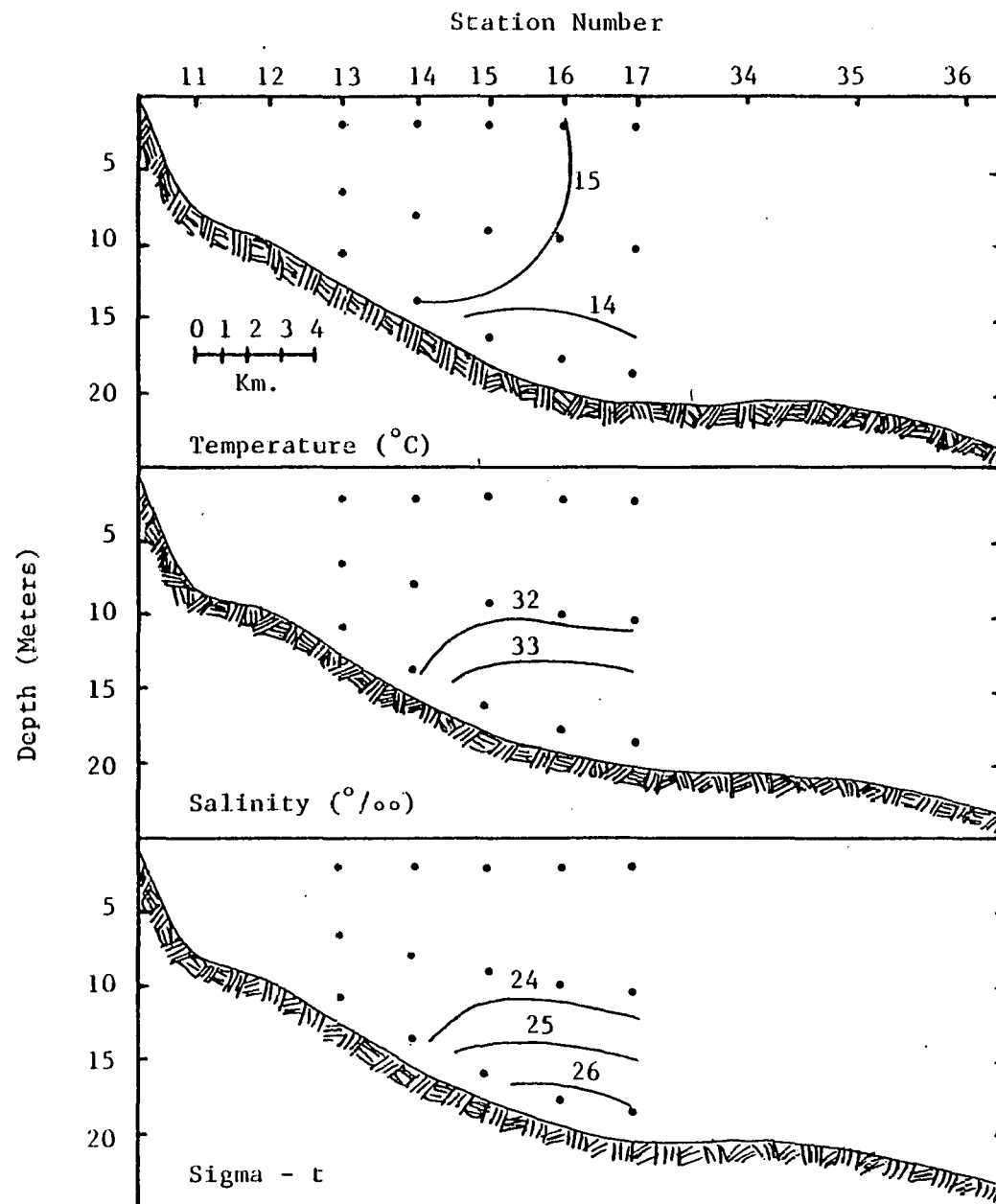


Figure 1-8. Hydrography for cross-shelf transect offshore Freeport, Texas for March 25, 1978.

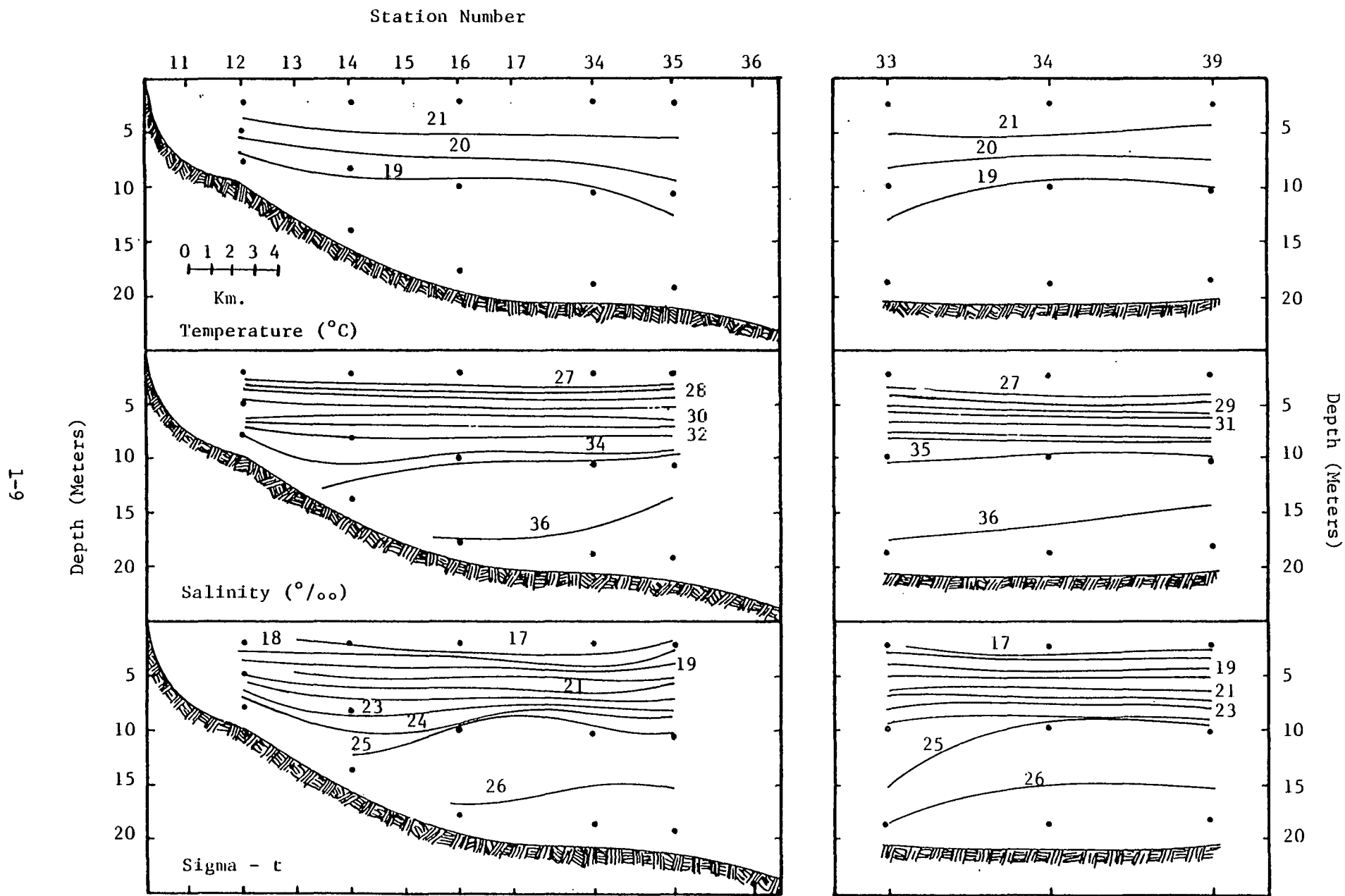


Figure 1-9. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for April 19, 1978.

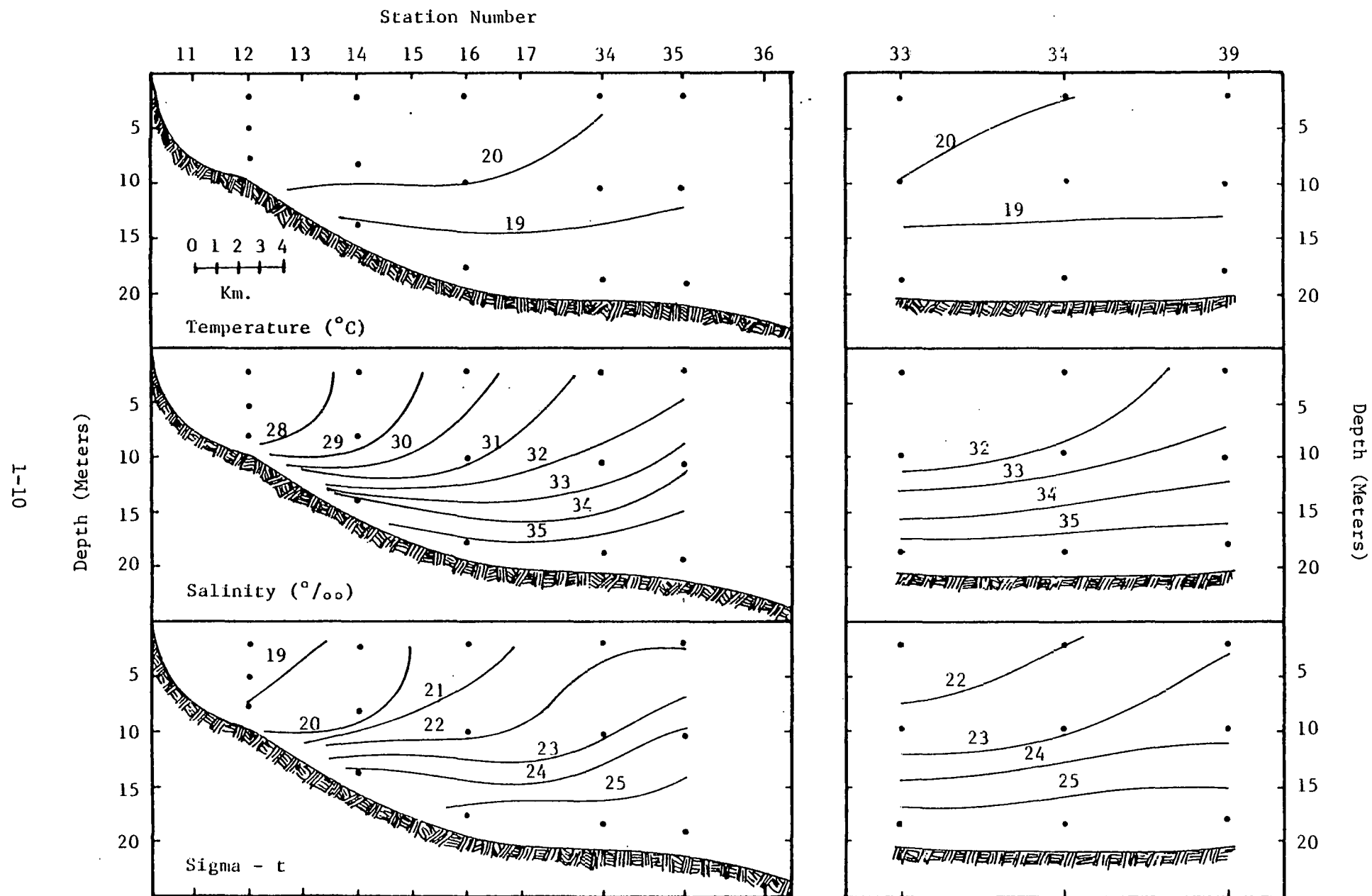


Figure 1-10. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for April 21, 1978.

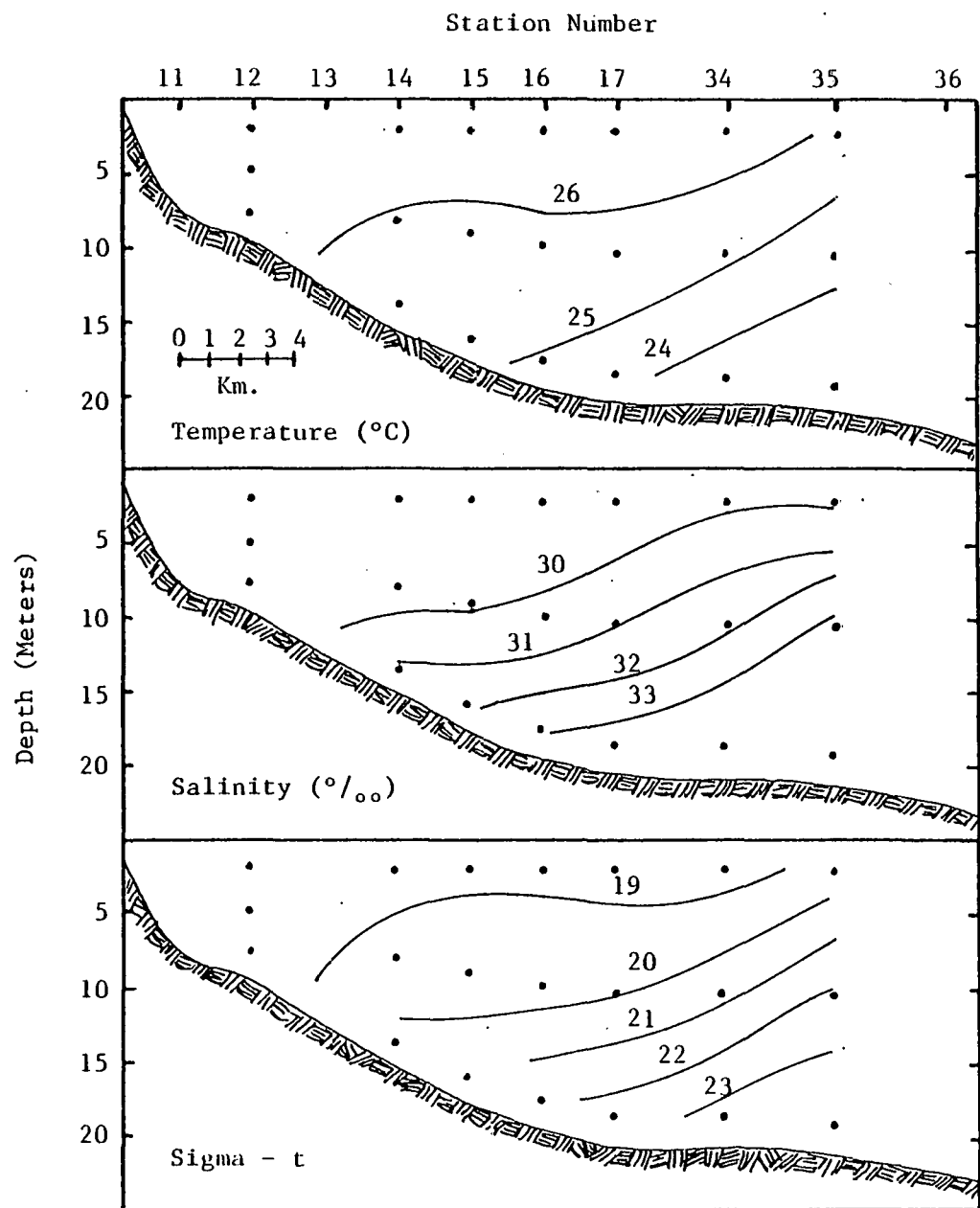


Figure 1-11. Hydrography for cross-shelf transect offshore Freeport, Texas for May 25, 1978.

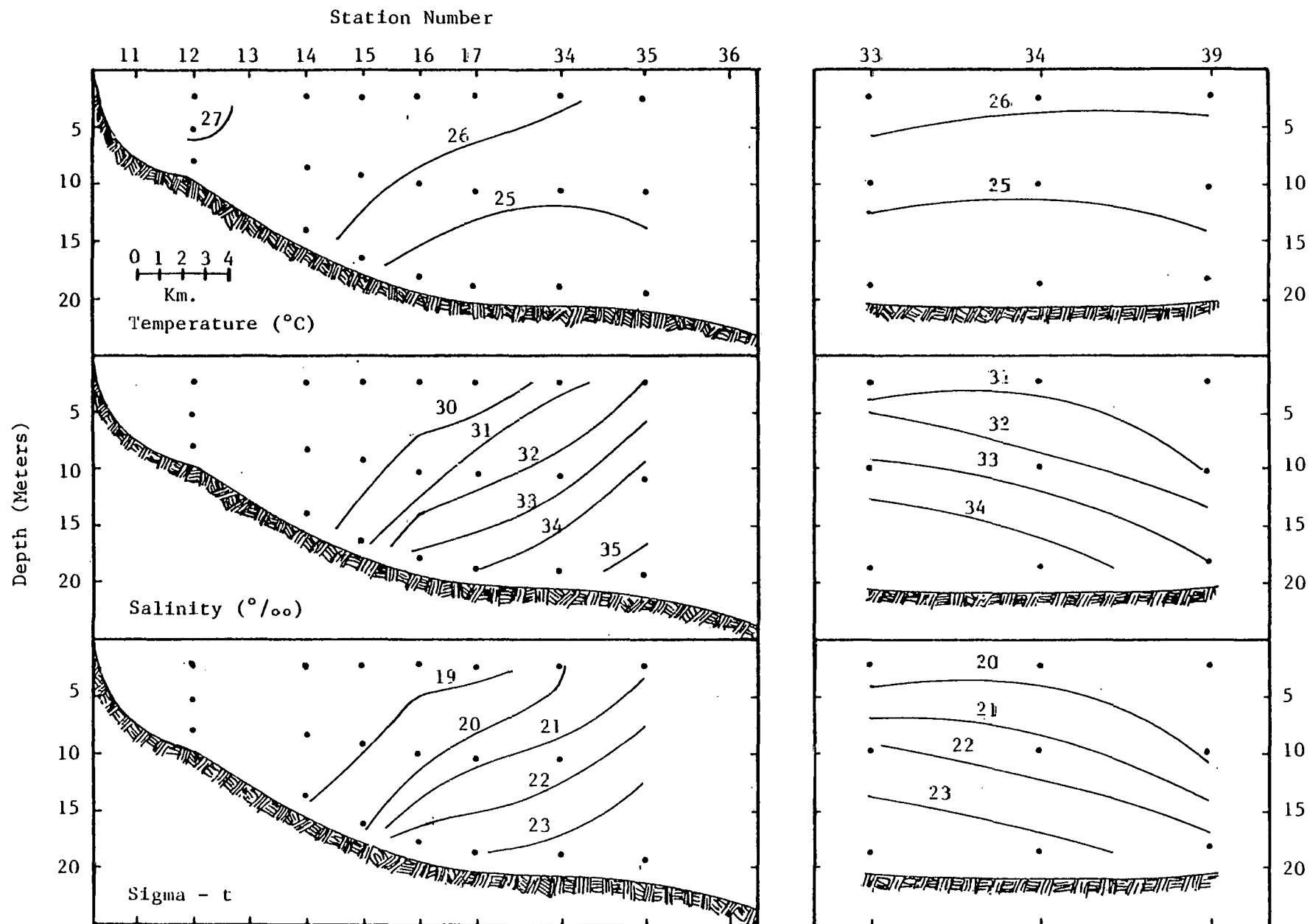


Figure 1-12. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for May 26, 1978.

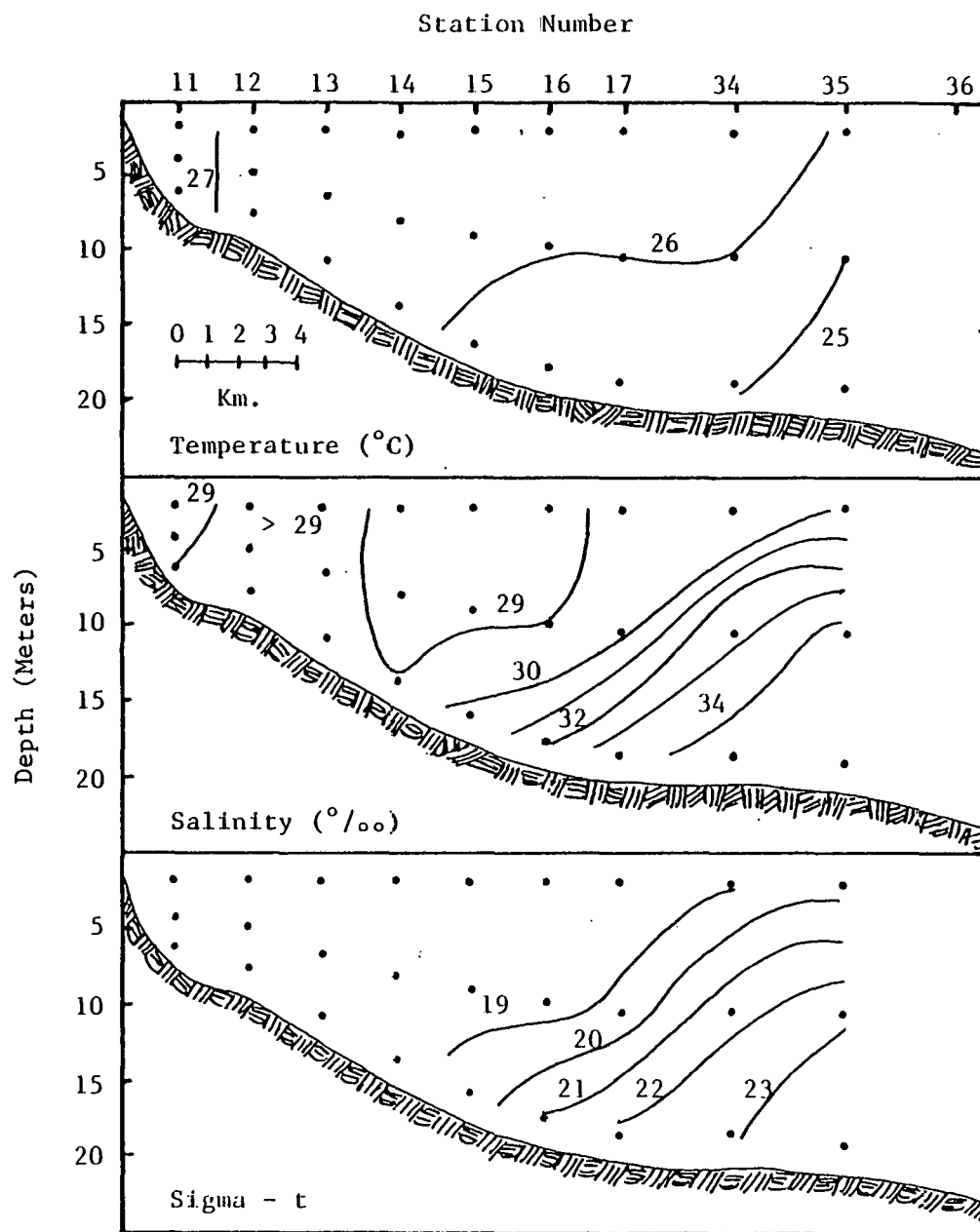


Figure 1-13. Hydrography for cross-shelf transect offshore Freeport, Texas for May 27, 1978.

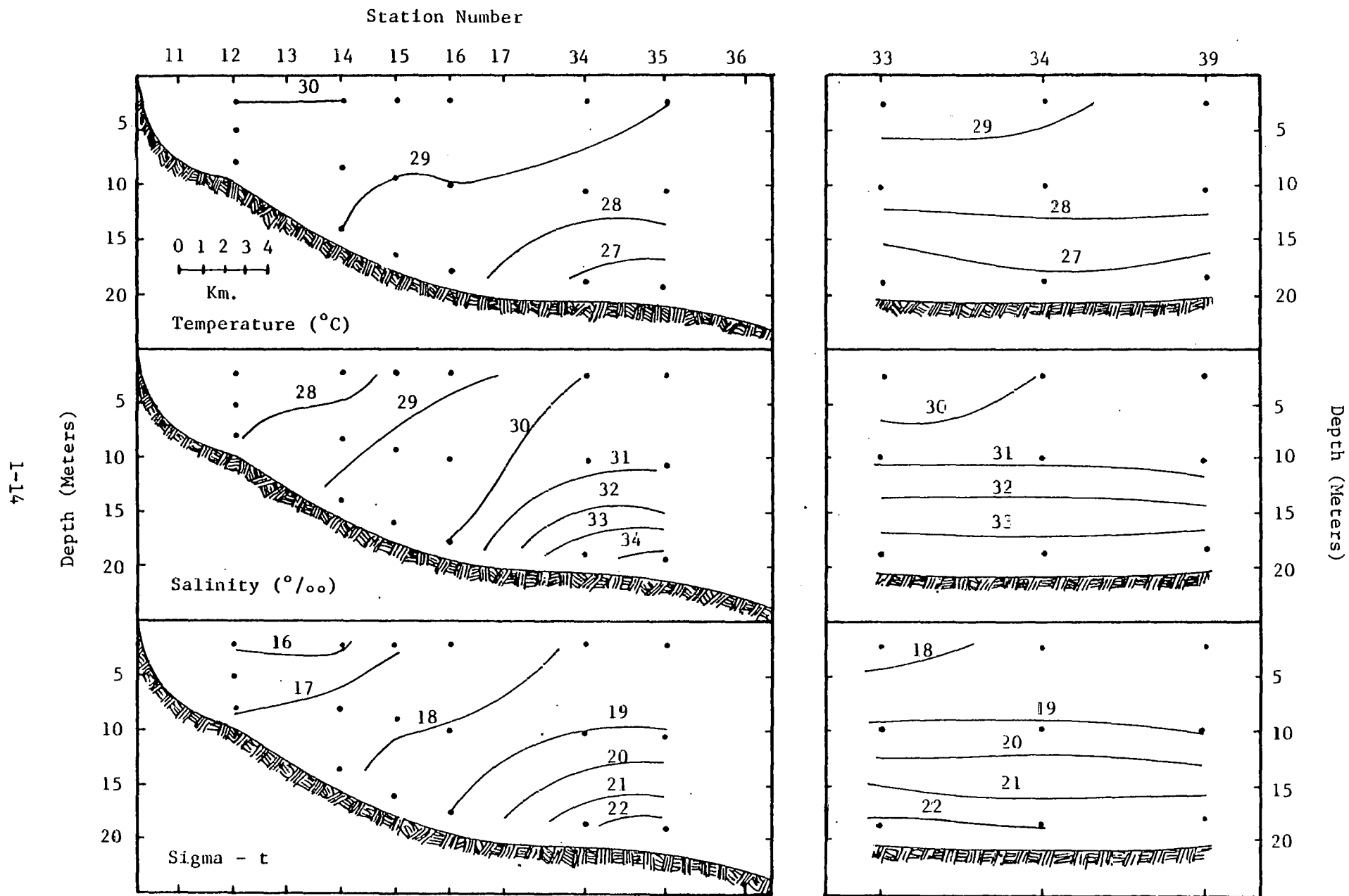


Figure 1-14. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for June 20, 1978.

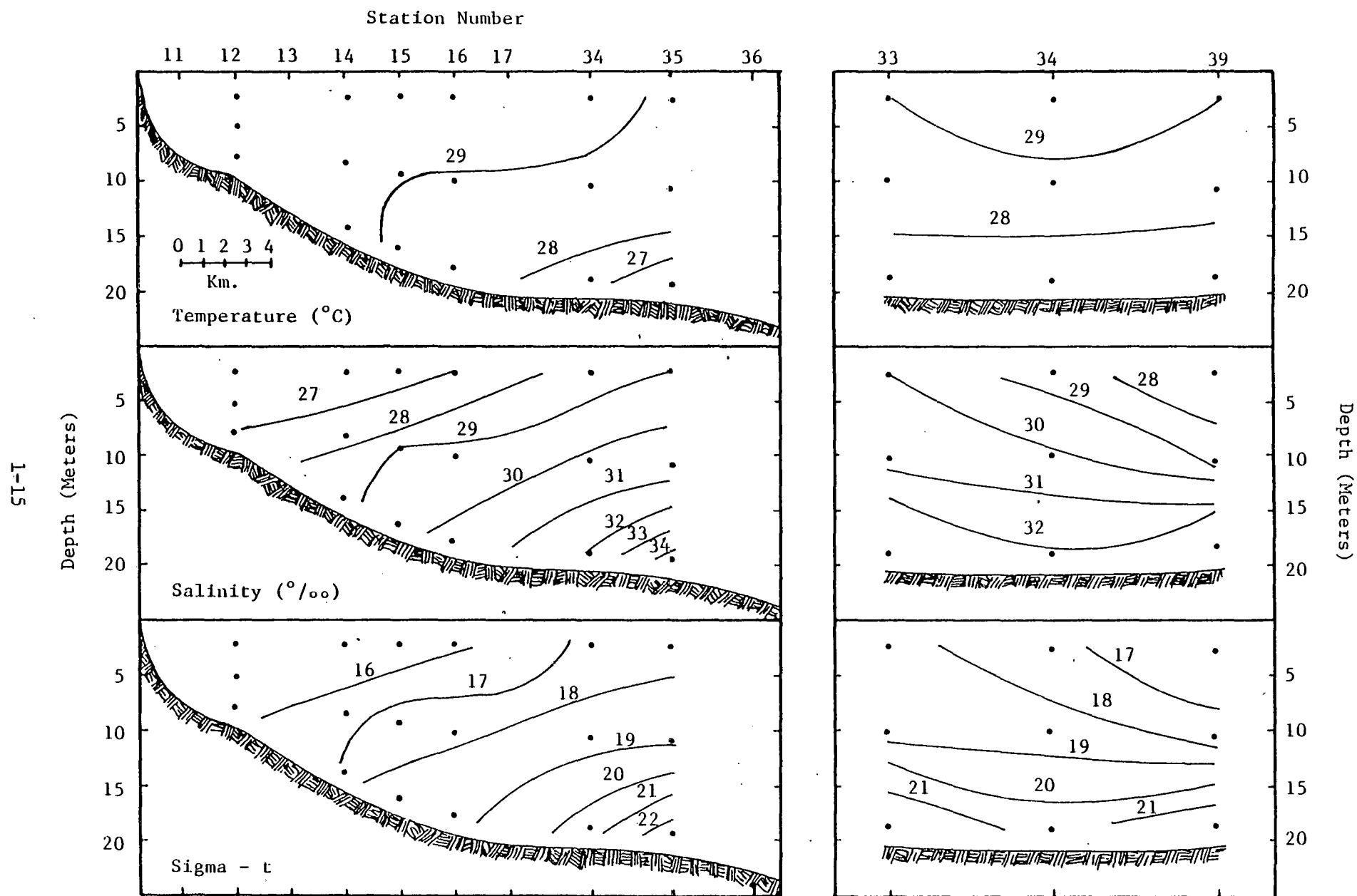


Figure 1-15. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for June 21, 1978.

Station Number

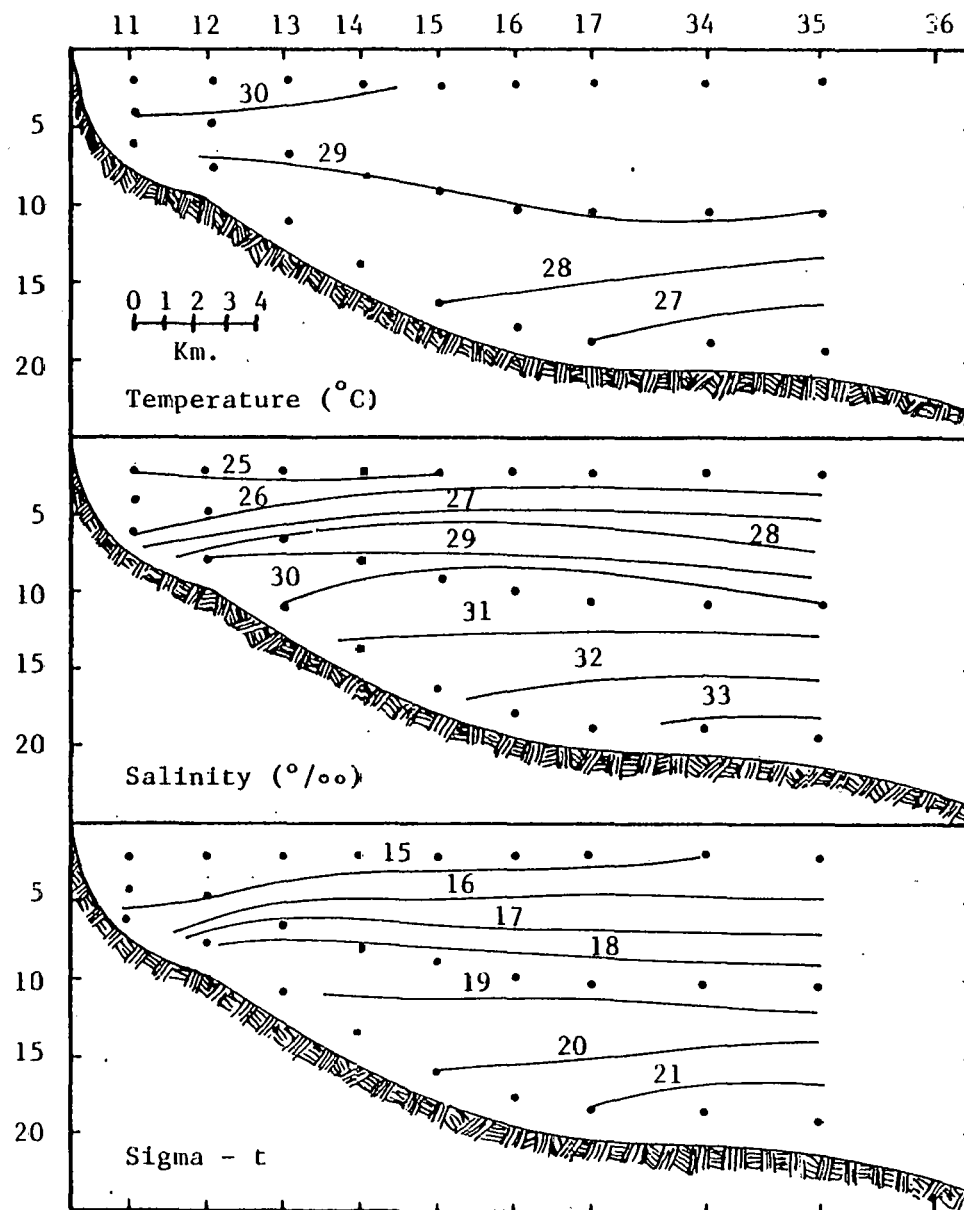


Figure 1-16. Hydrography for cross-shelf transect offshore Freeport, Texas for June 22, 1978.

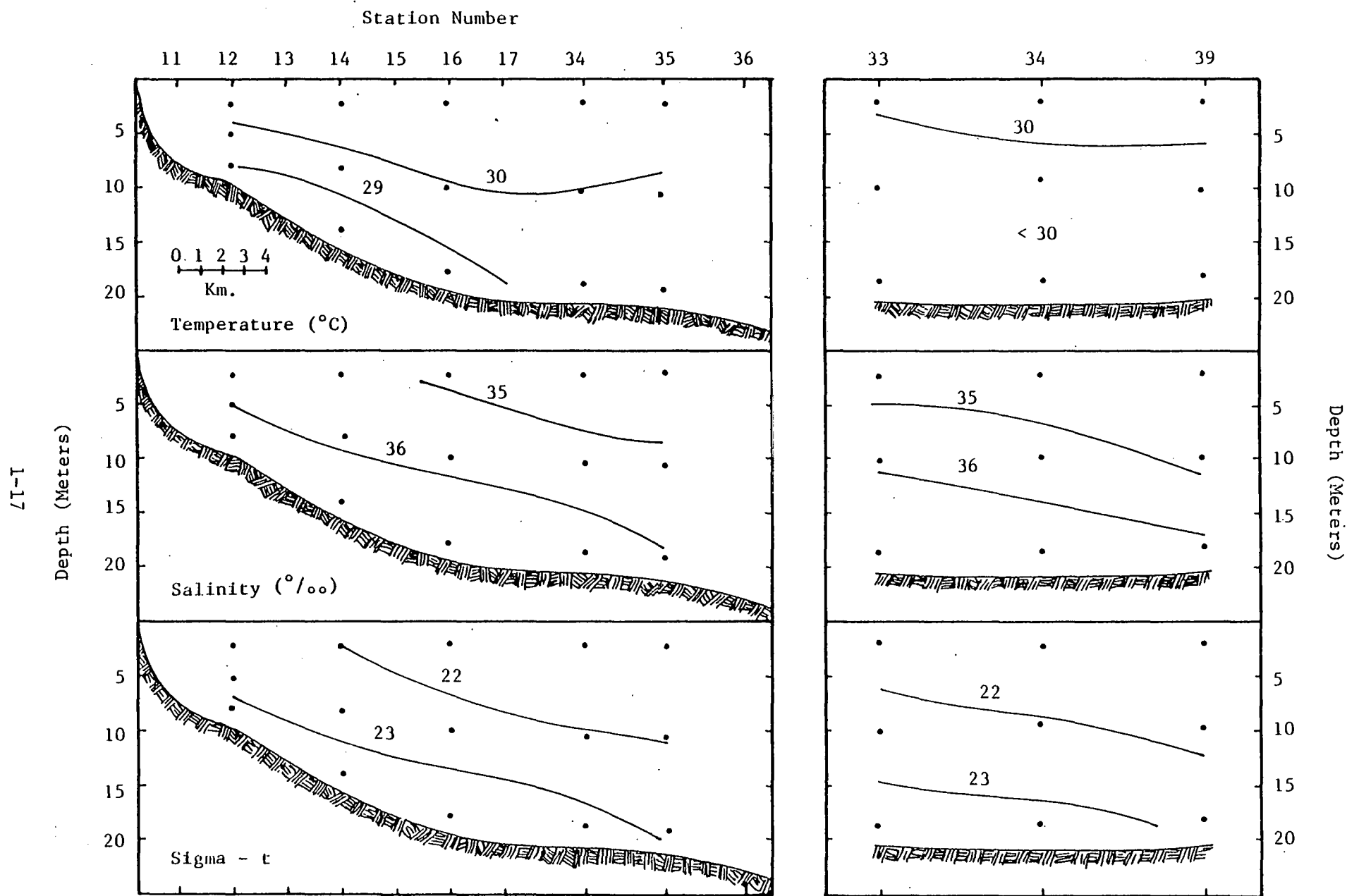


Figure 1-17. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for July 18, 1978.

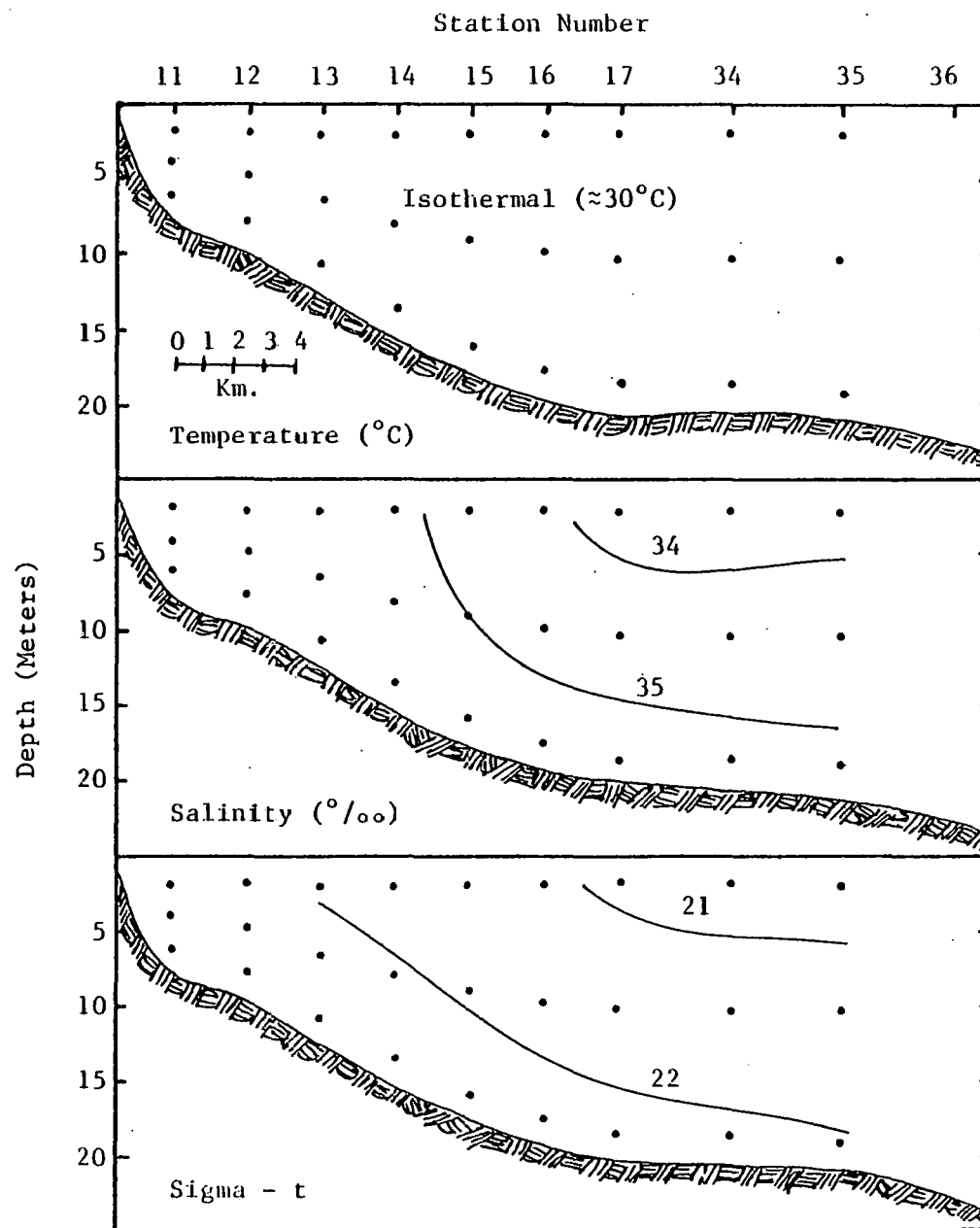


Figure 1-18. Hydrography for cross-shelf transect offshore Freeport, Texas for July 20, 1978.

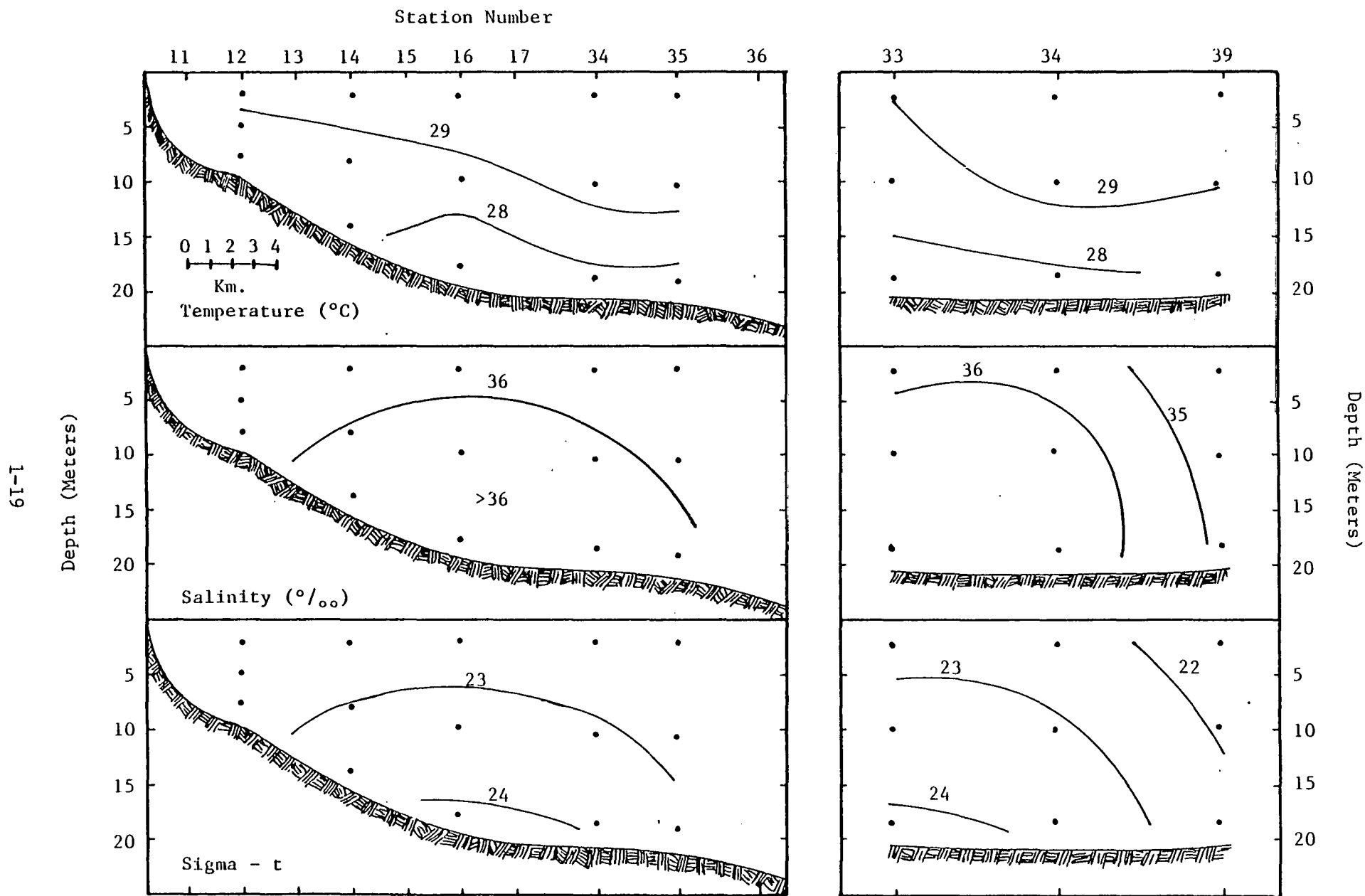


Figure 1-19. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for July 26, 1978.

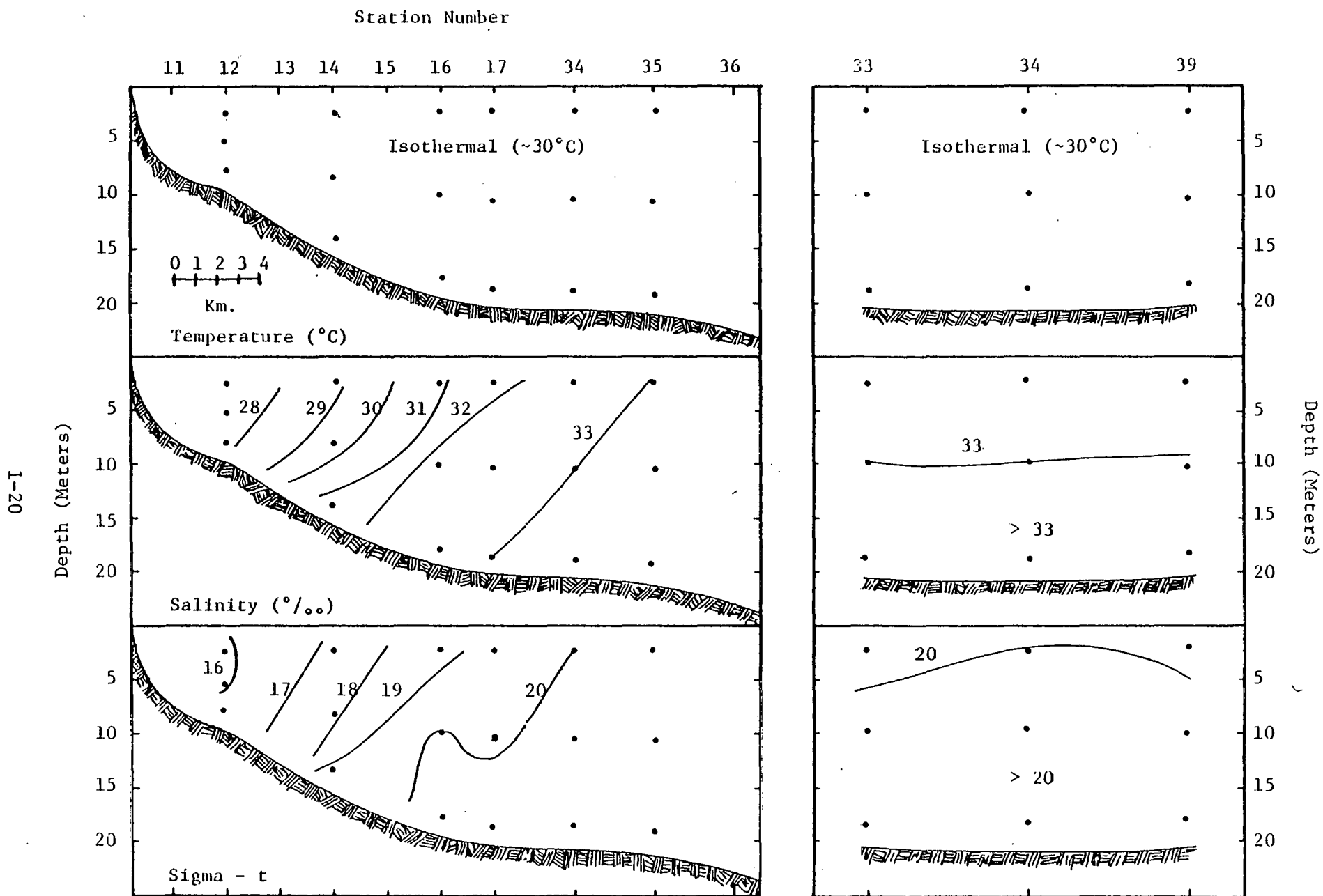


Figure 1-20. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for August 30, 1978.

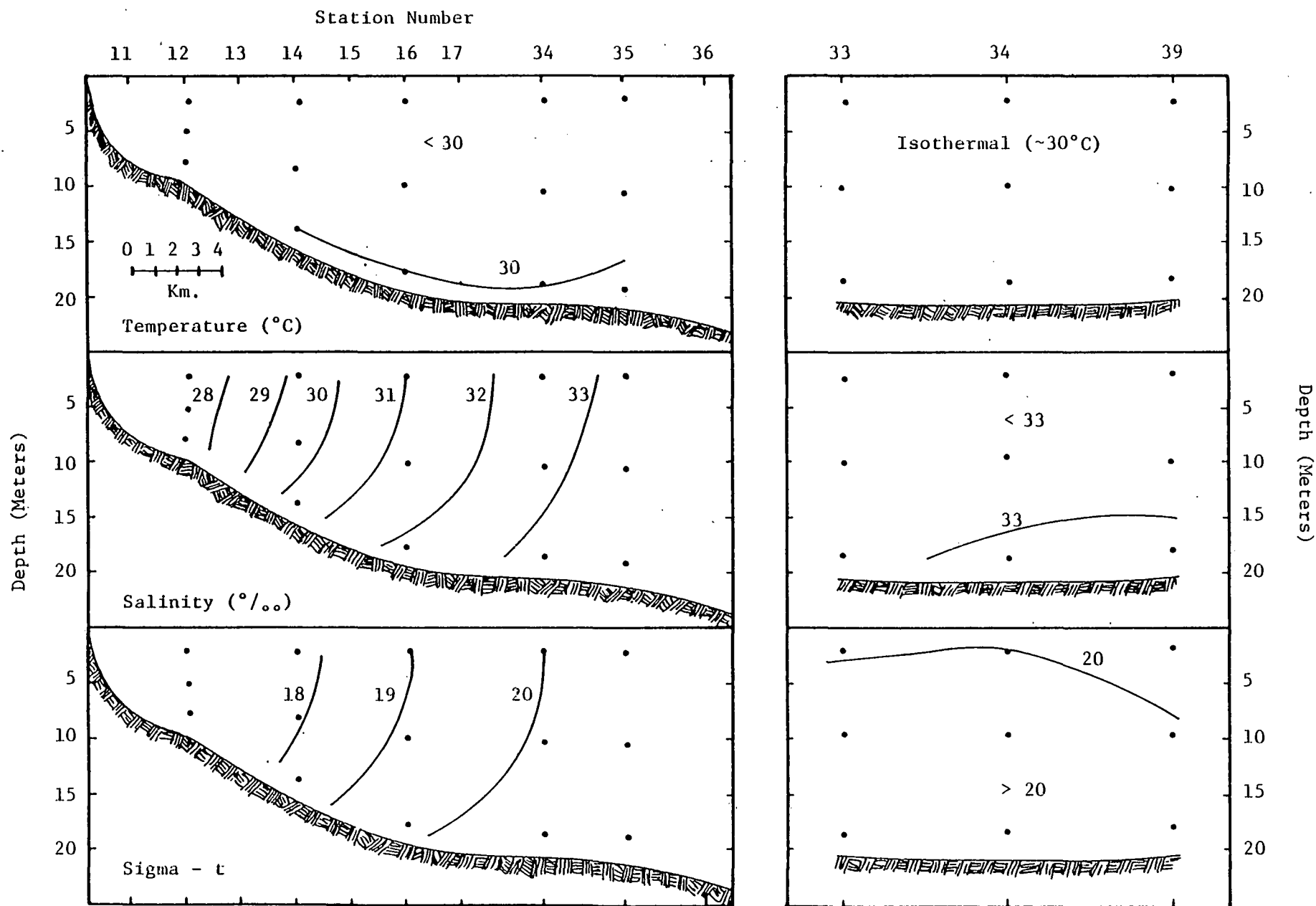


Figure 1-21. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for August 31, 1978.

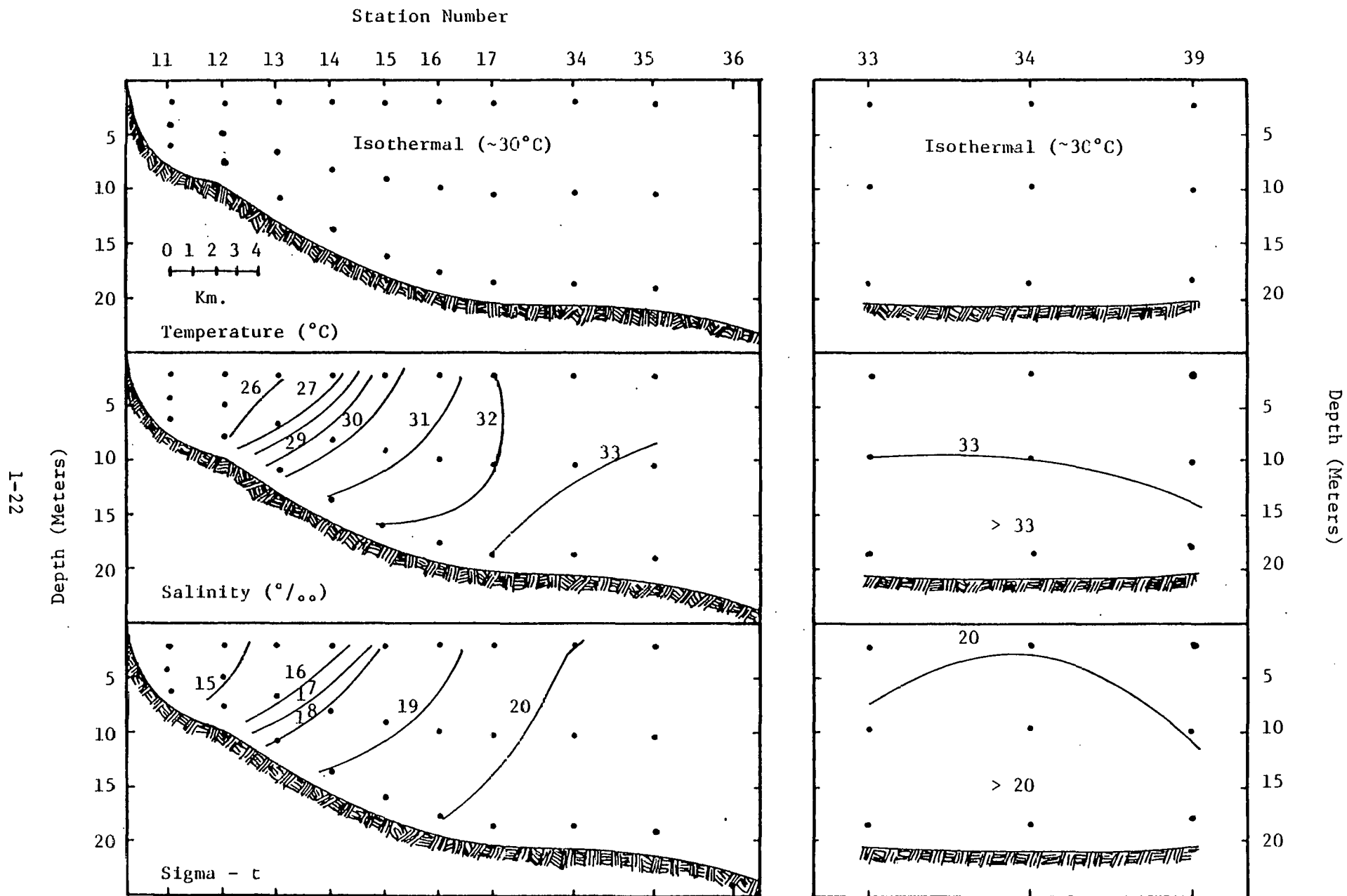


Figure 1-22. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for September 1, 1978.

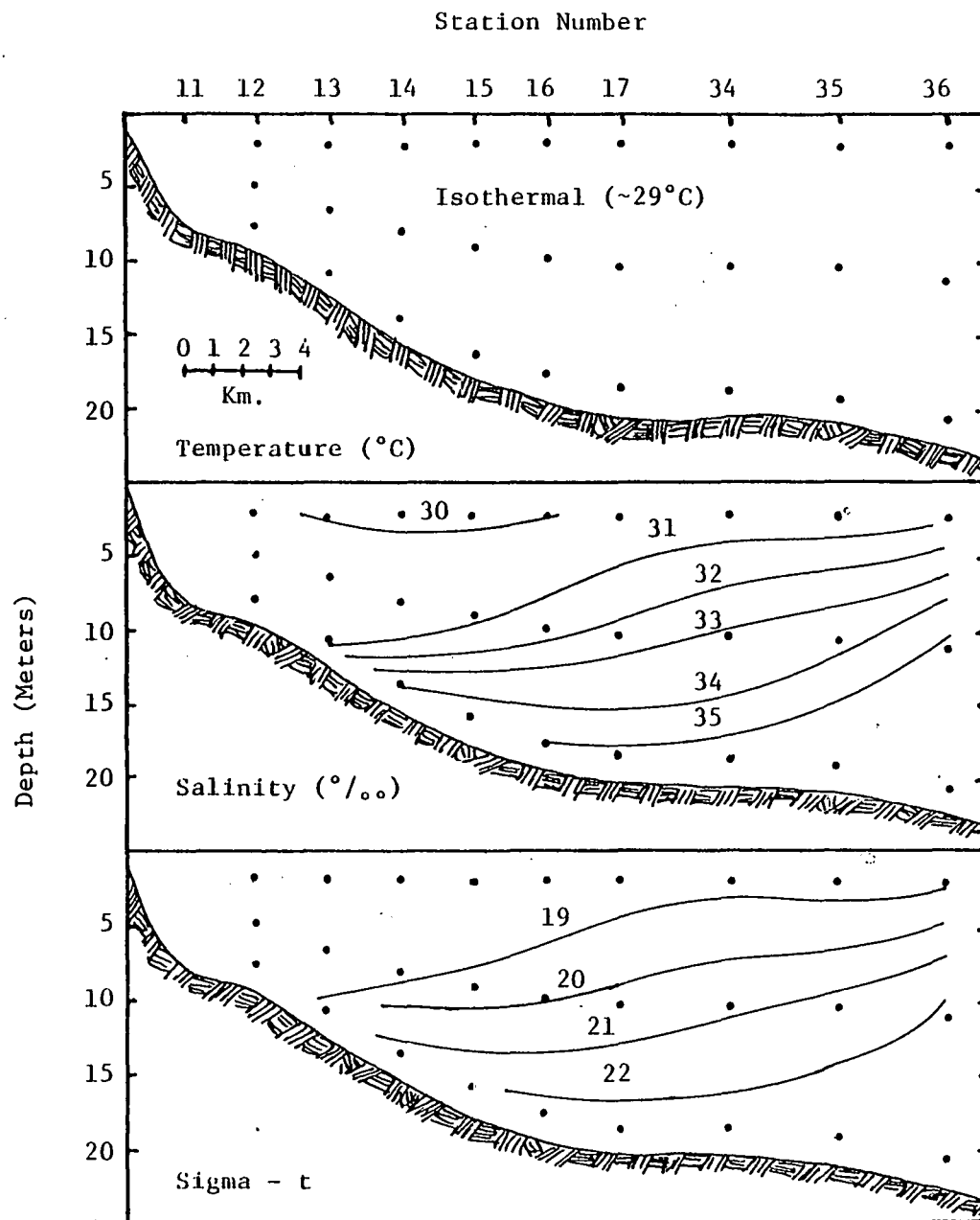


Figure 1-23. Hydrography for cross-shelf transect offshore Freeport, Texas for September 19, 1978.

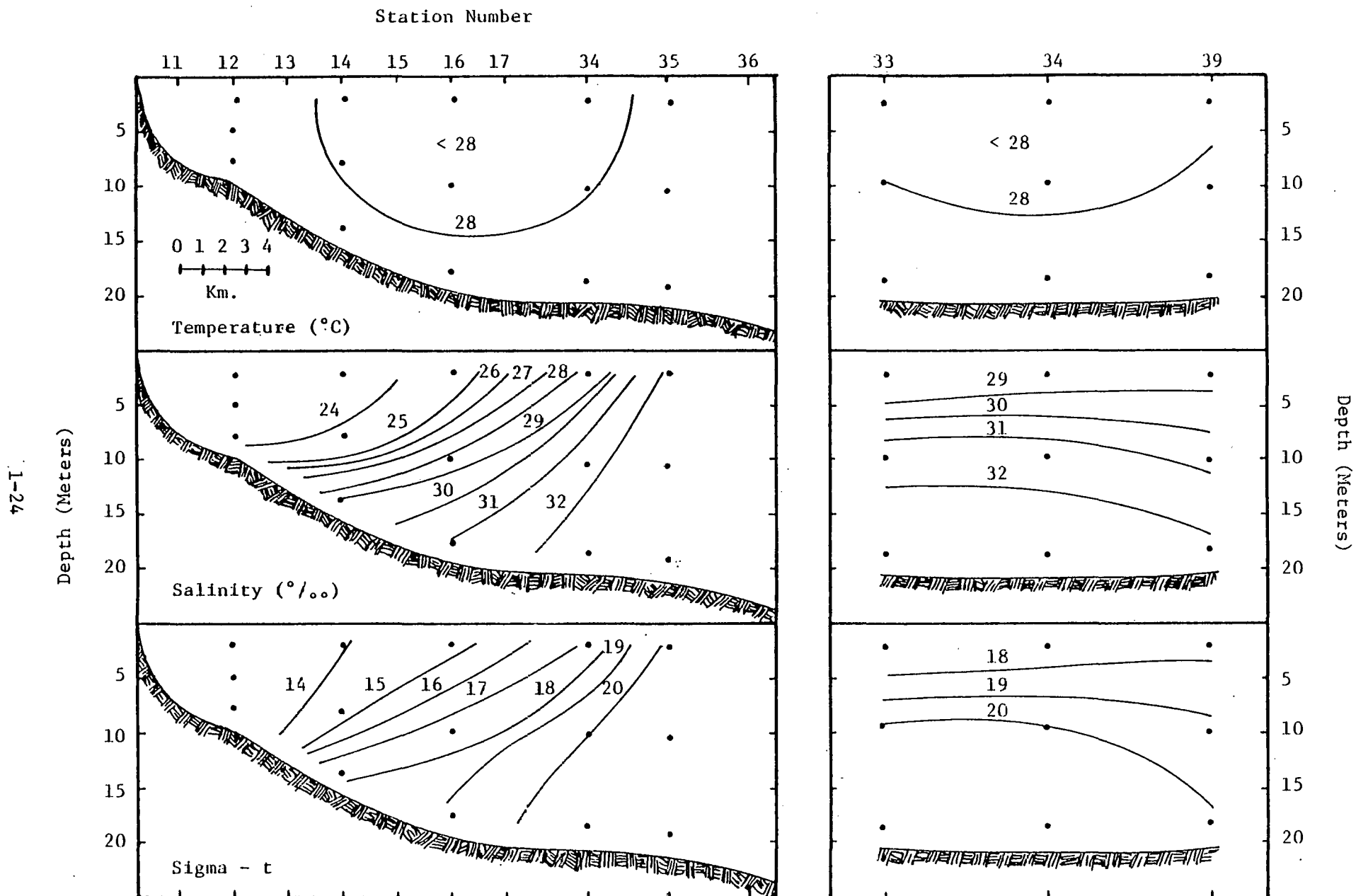


Figure 1-24. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for September 25, 1978.

Station Number

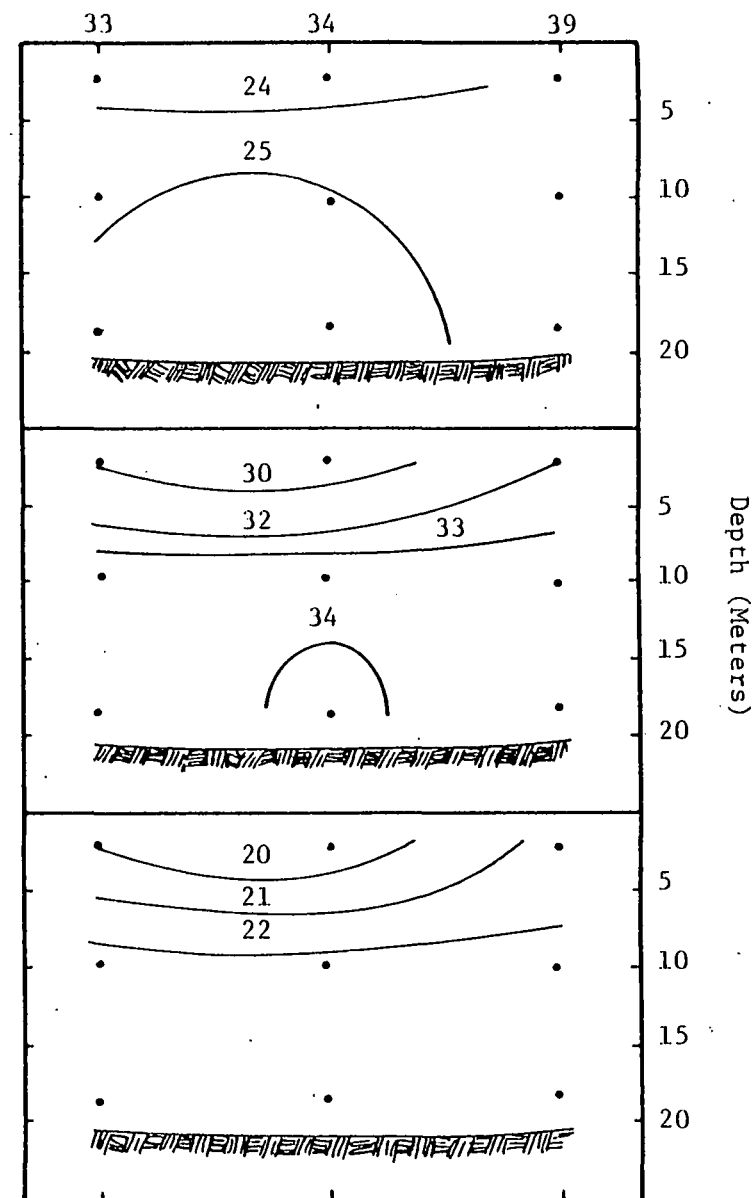
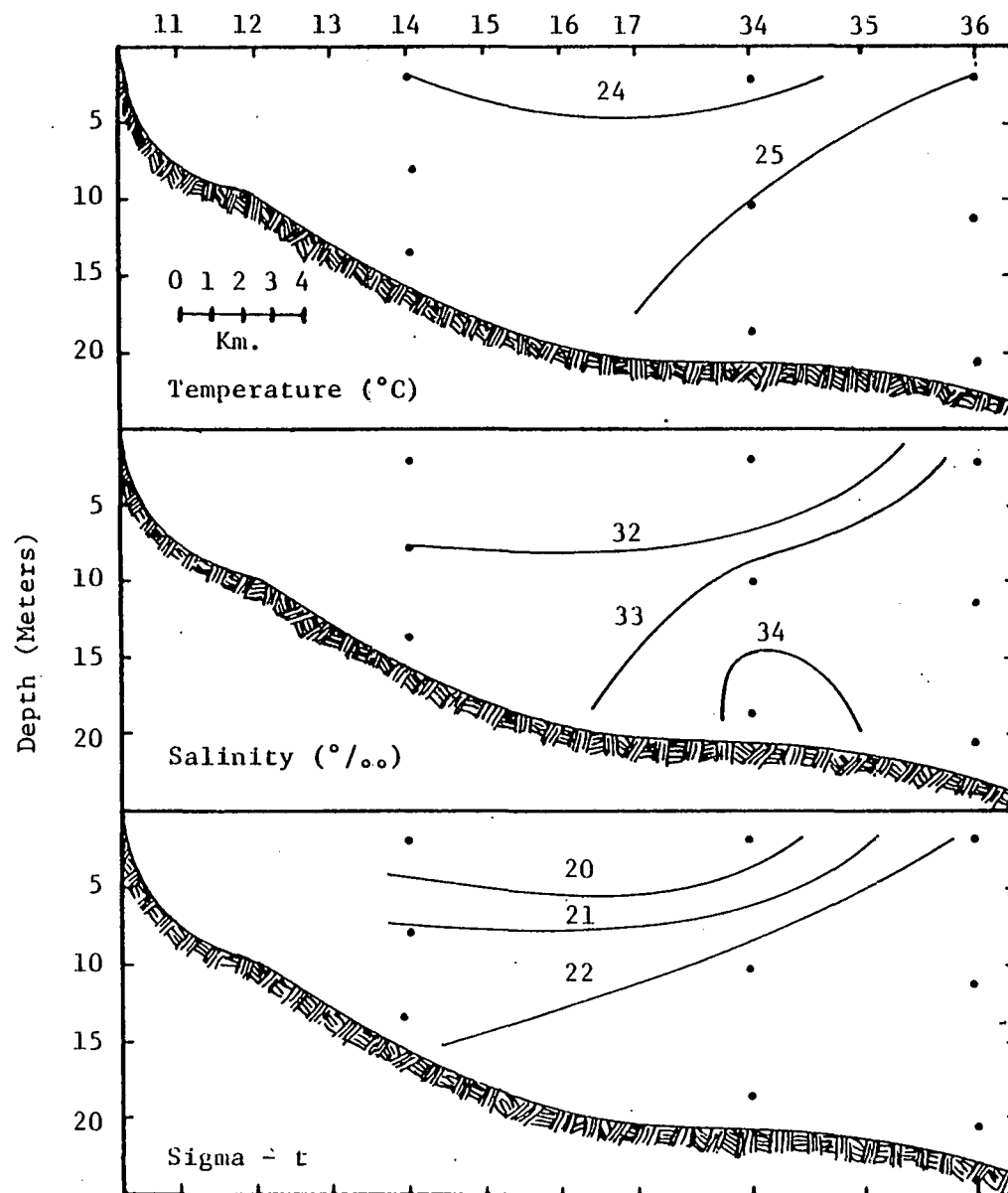


Figure 1-25. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for October 16, 1978.

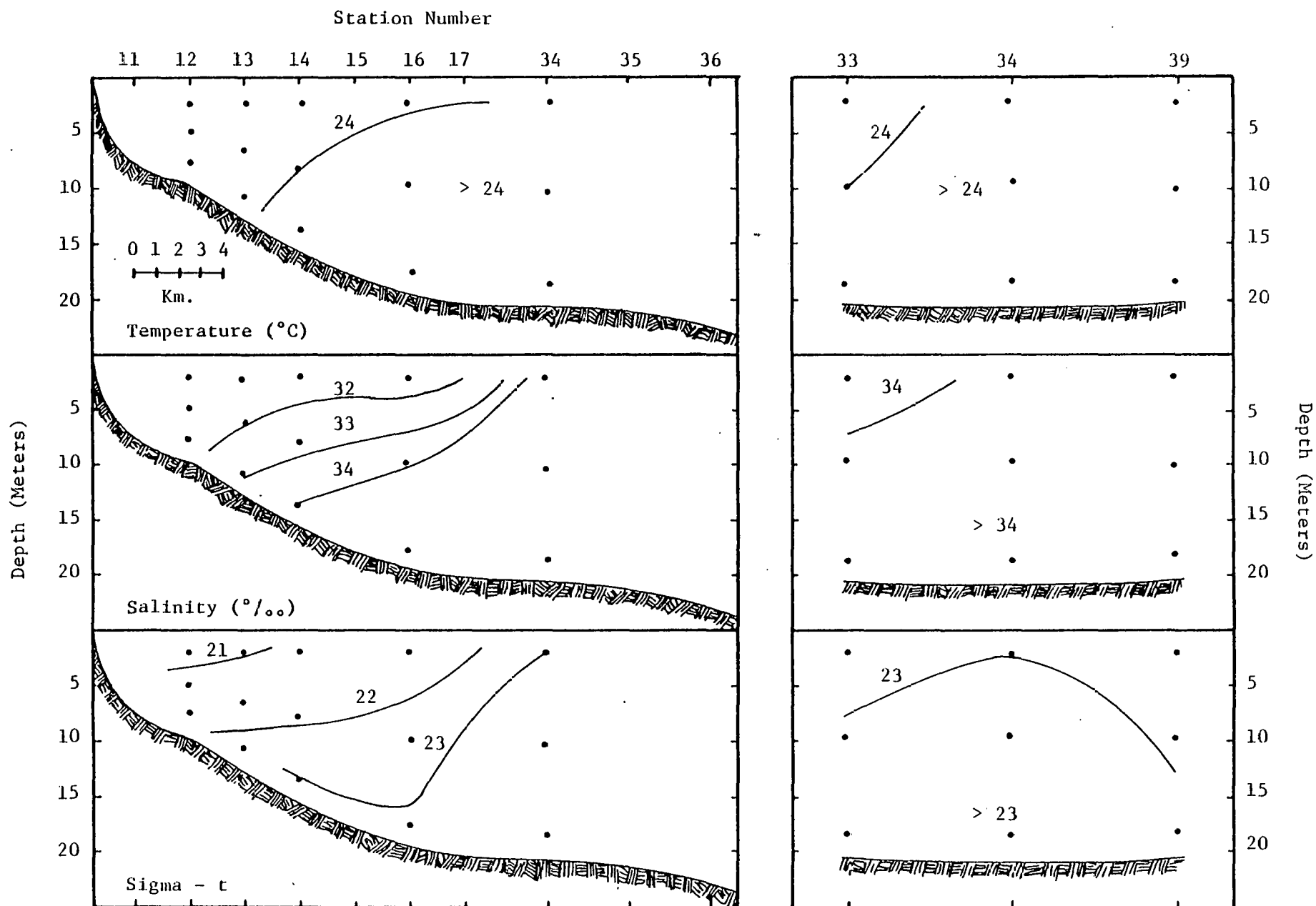


Figure 1-26. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for October 20, 1978.

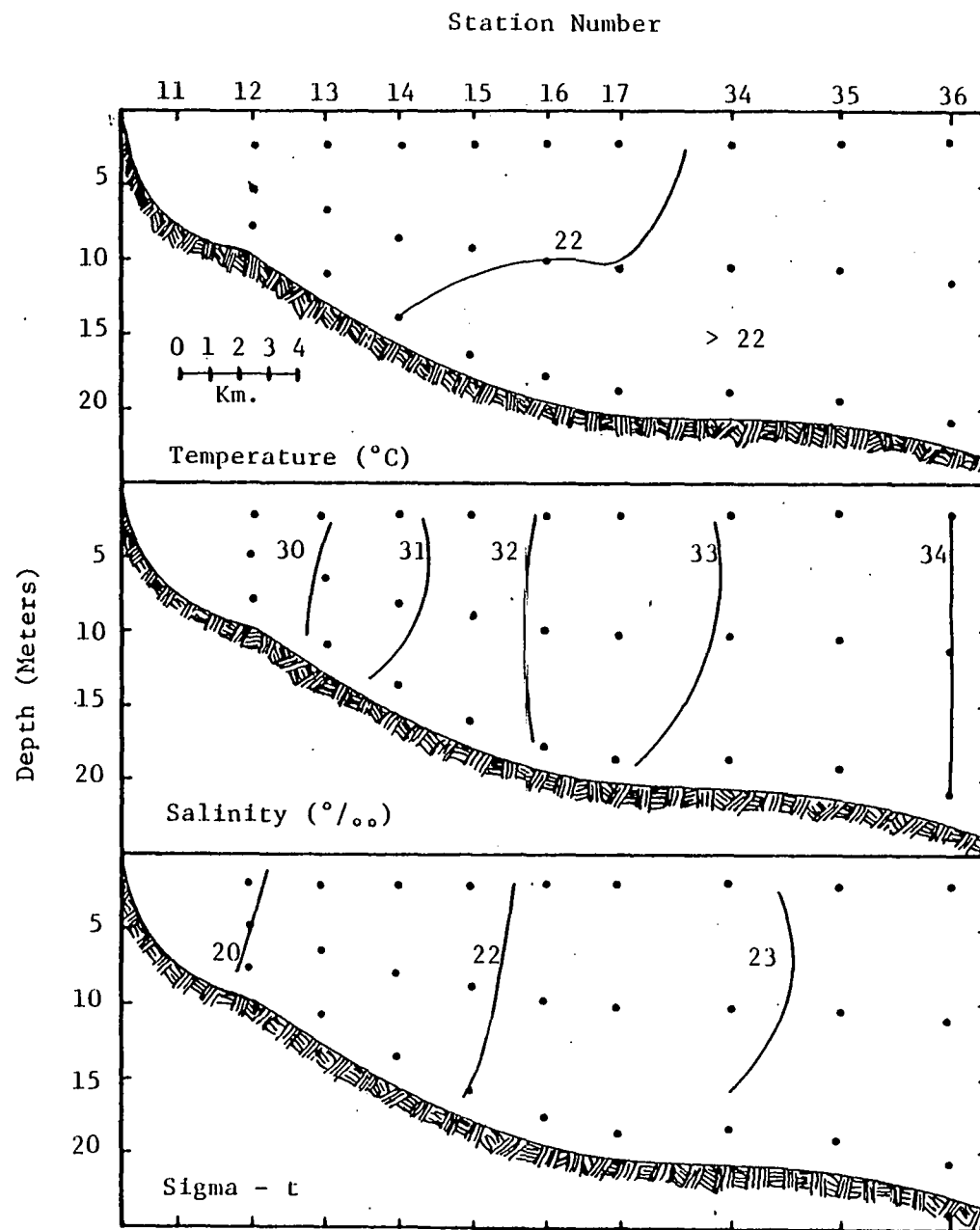


Figure 1-27. Hydrography for cross-shelf transect offshore Freeport, Texas for November 17, 1978.

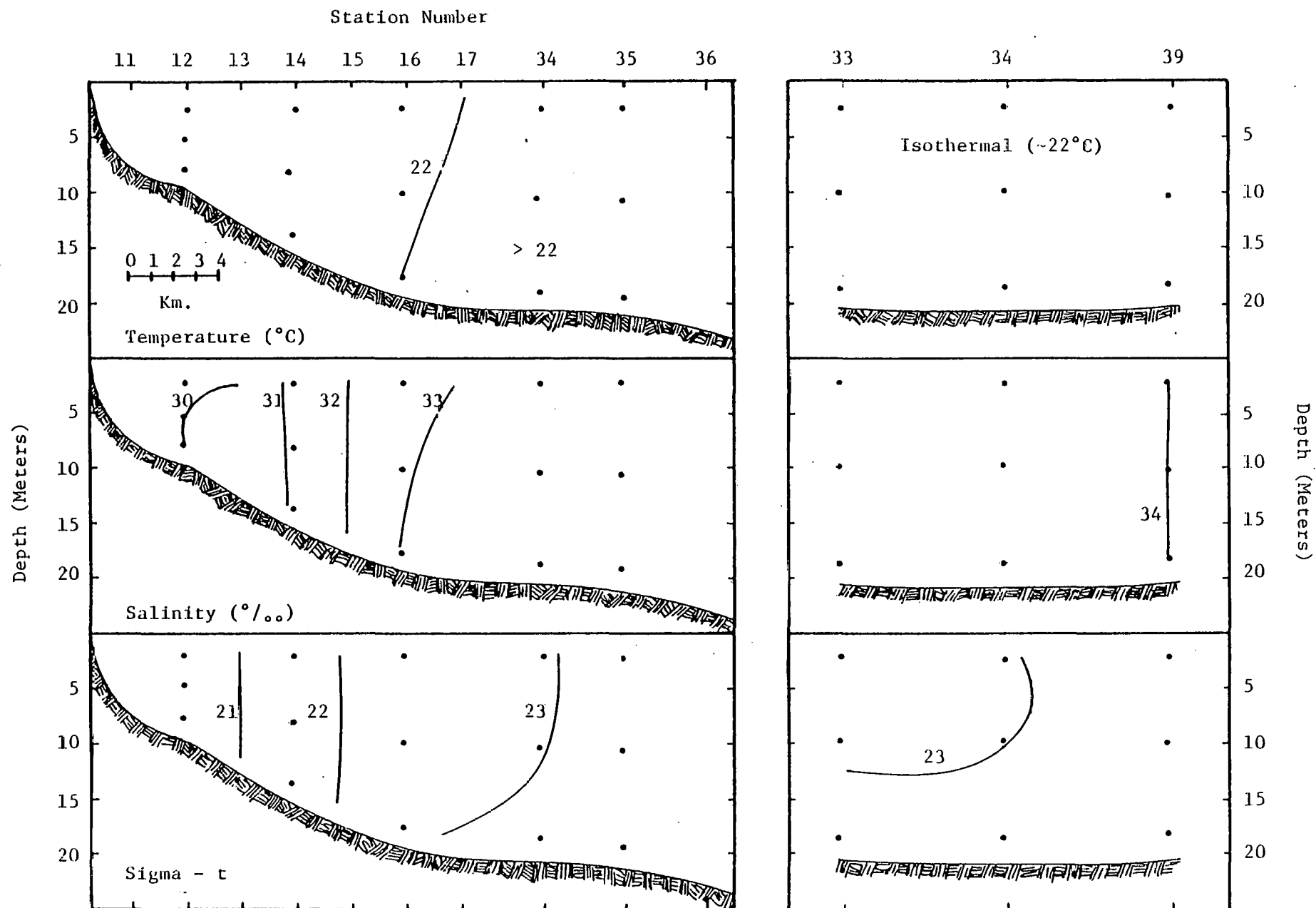


Figure 1-28. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for November 18, 1978.

1-29

Depth (Meters)

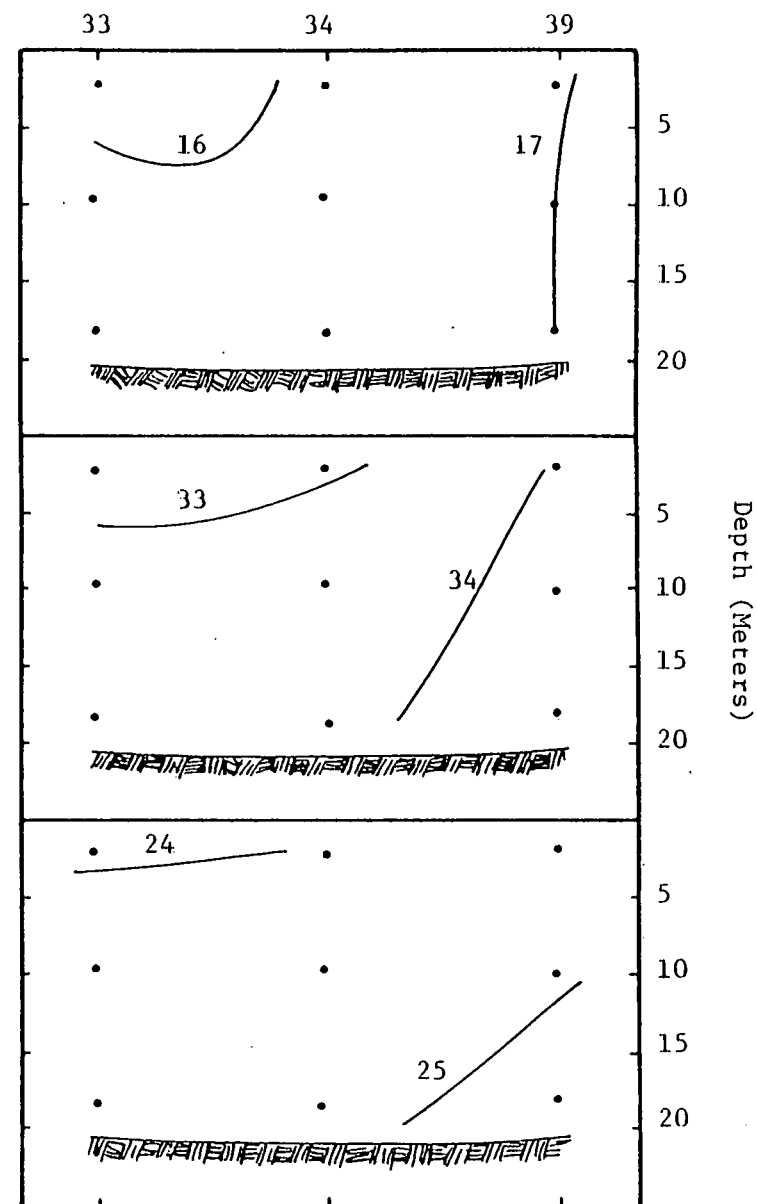
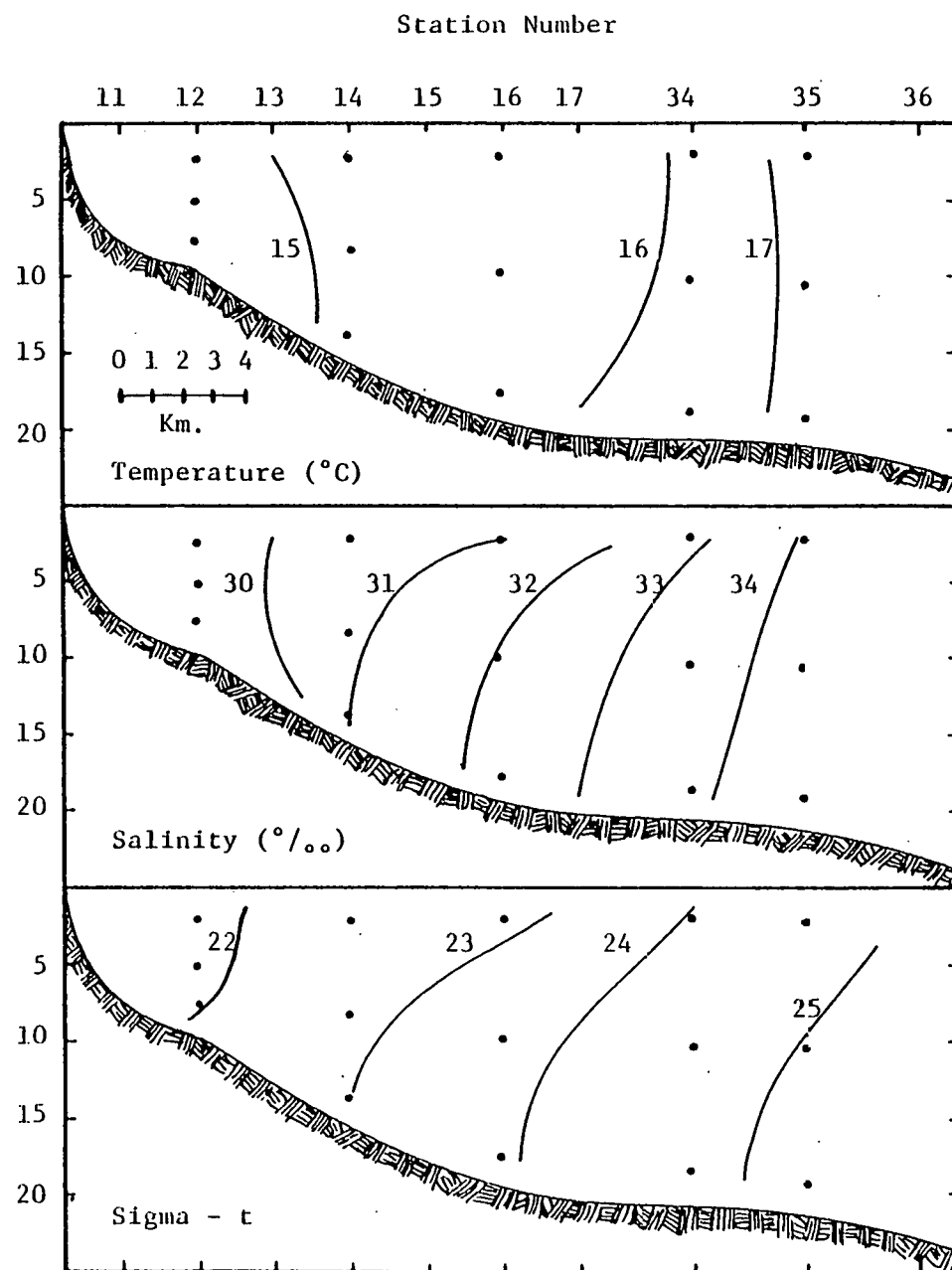


Figure 1-29. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for December 18, 1978.

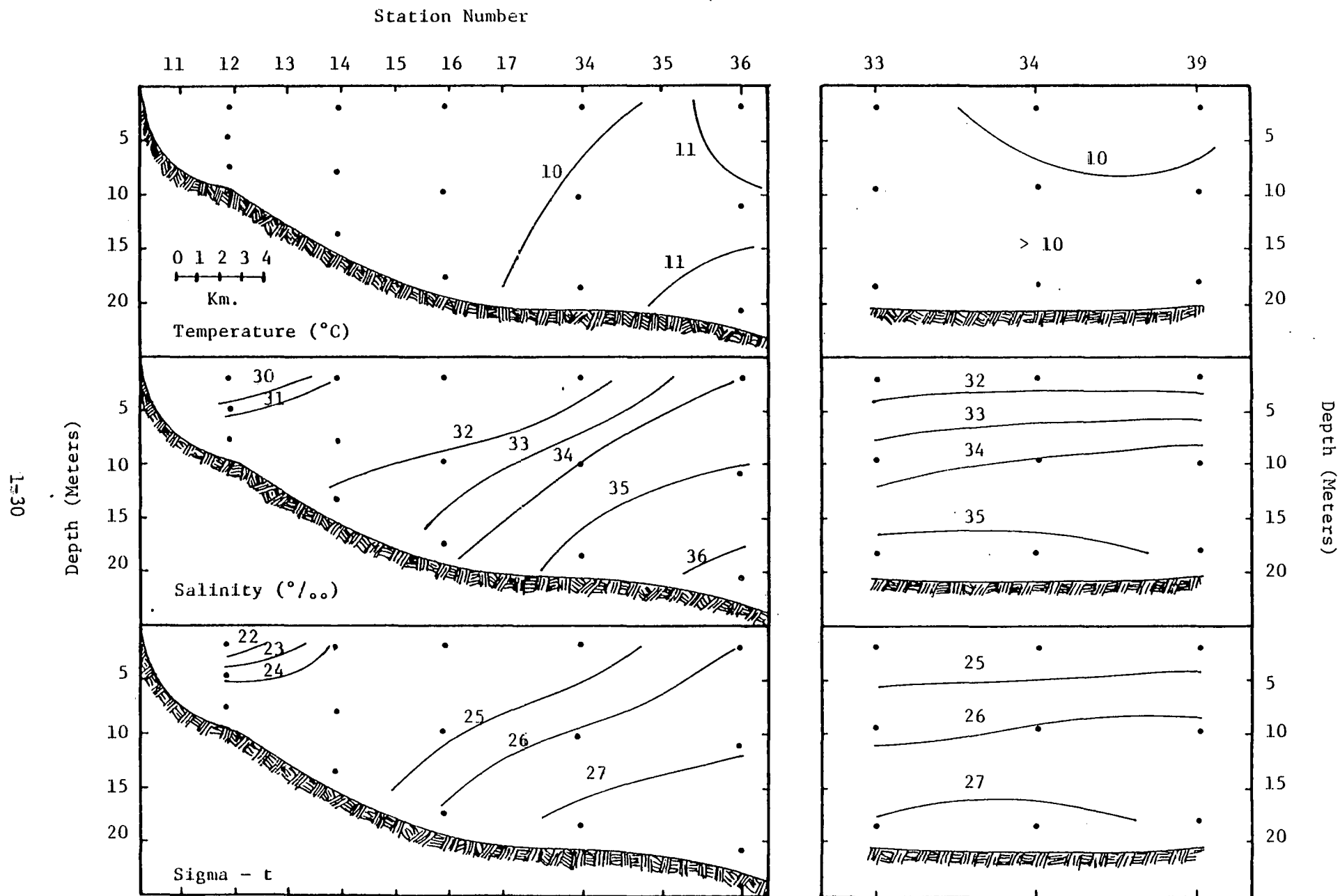


Figure 1-30. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for February 12, 1979.

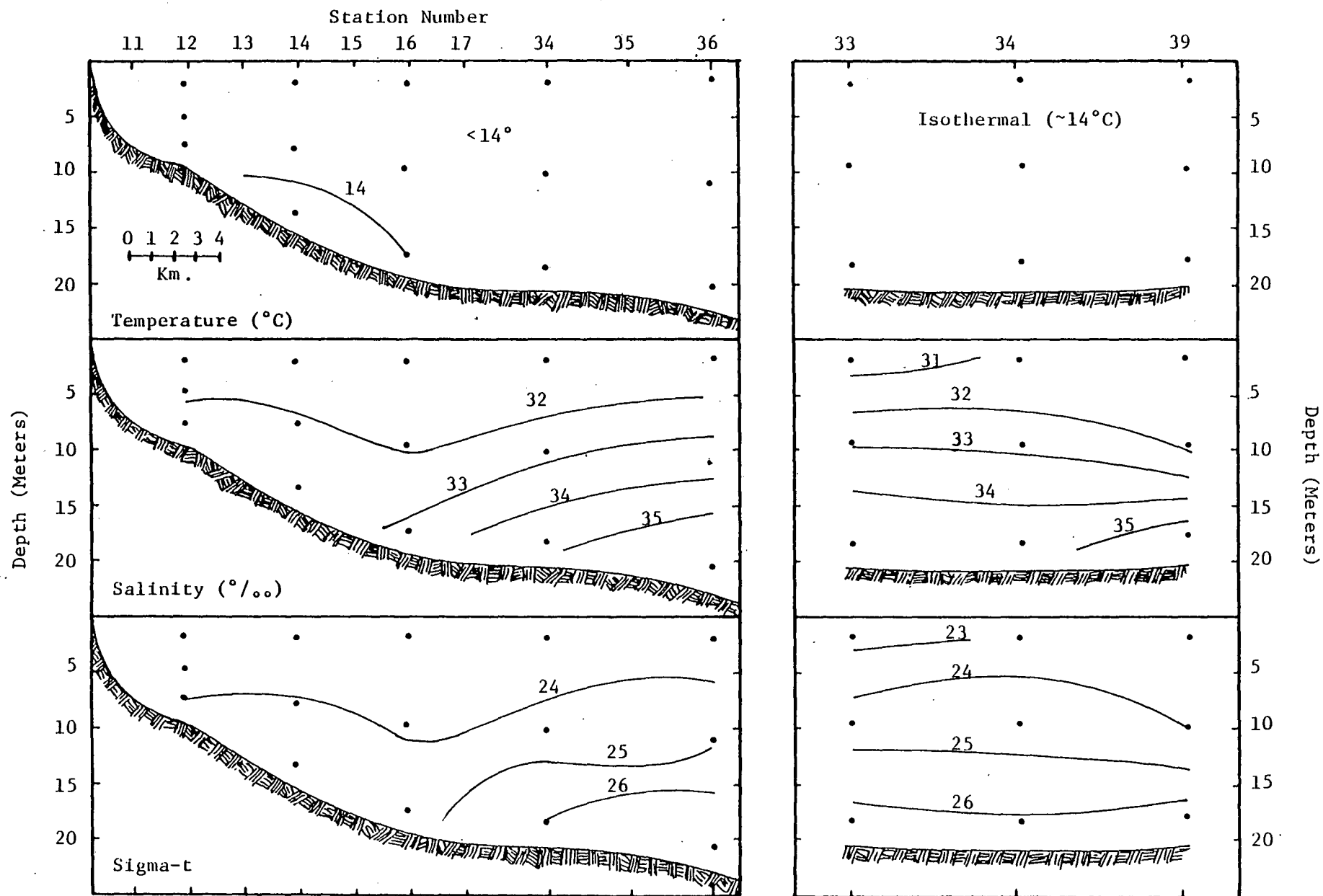


Figure 1-31. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for March 11, 1979

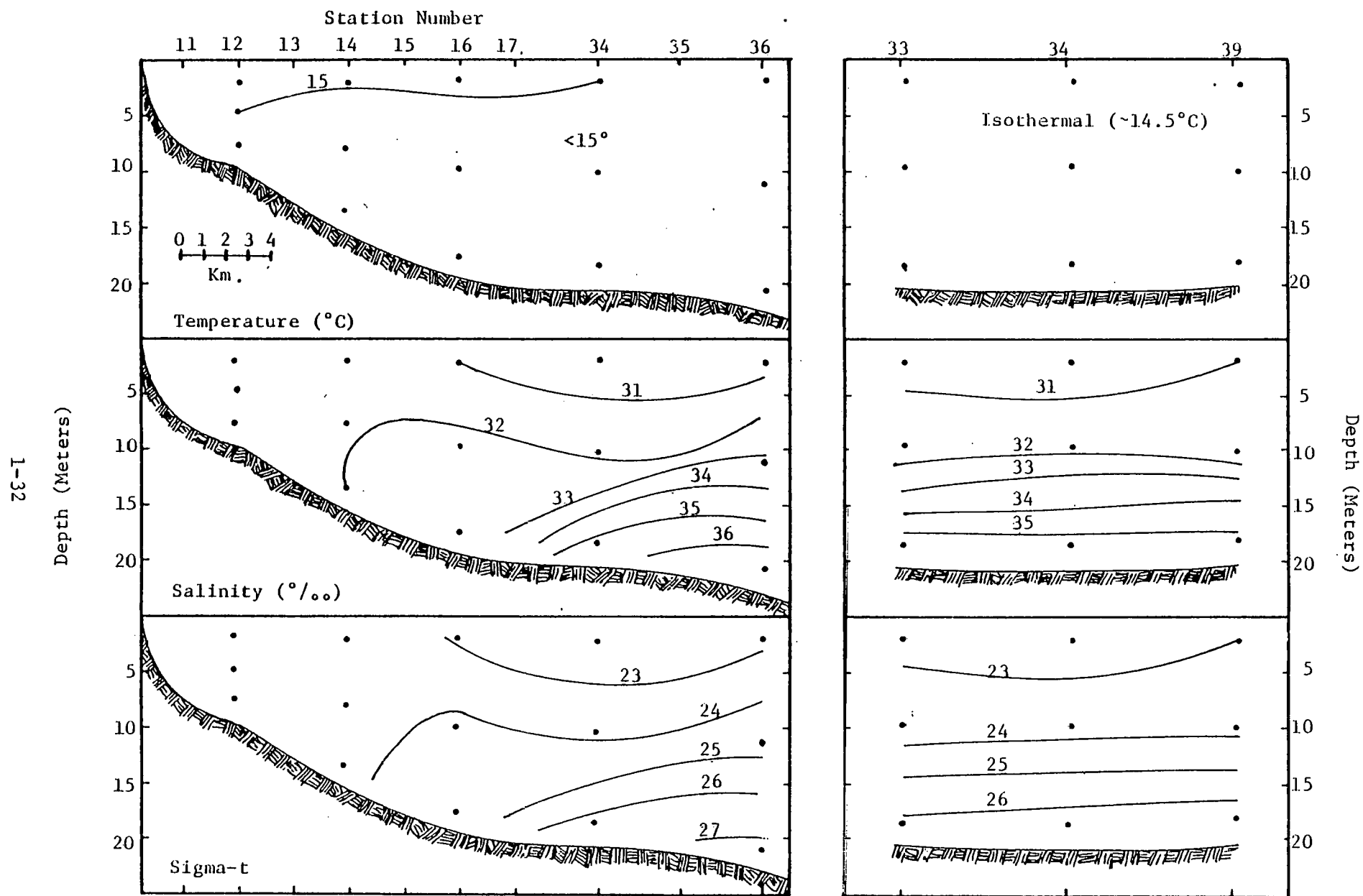


Figure 1-32. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for March 12, 1979

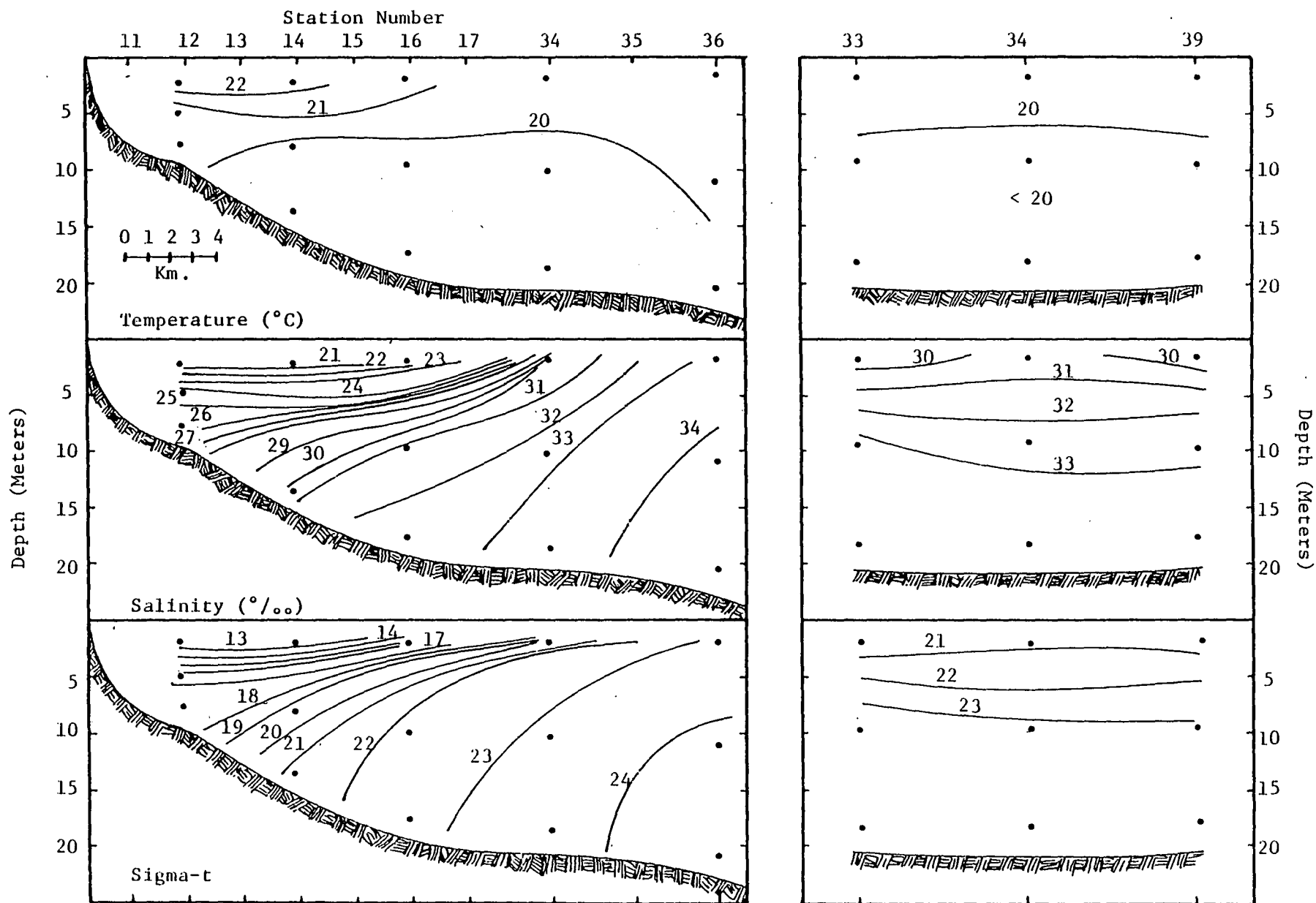


Figure 1-33. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for April 13, 1979

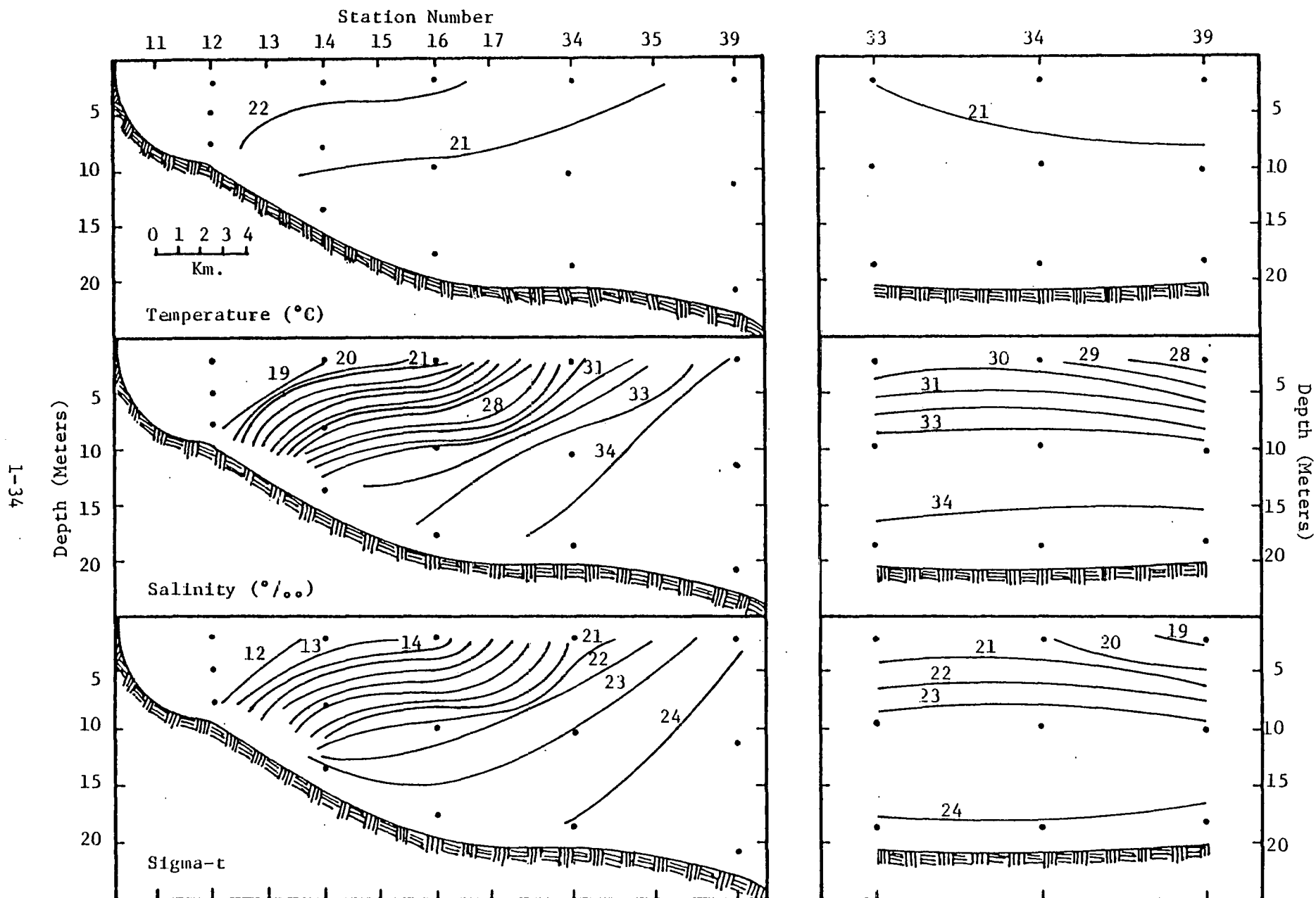


Figure 1-34. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas, for April 16, 1979.

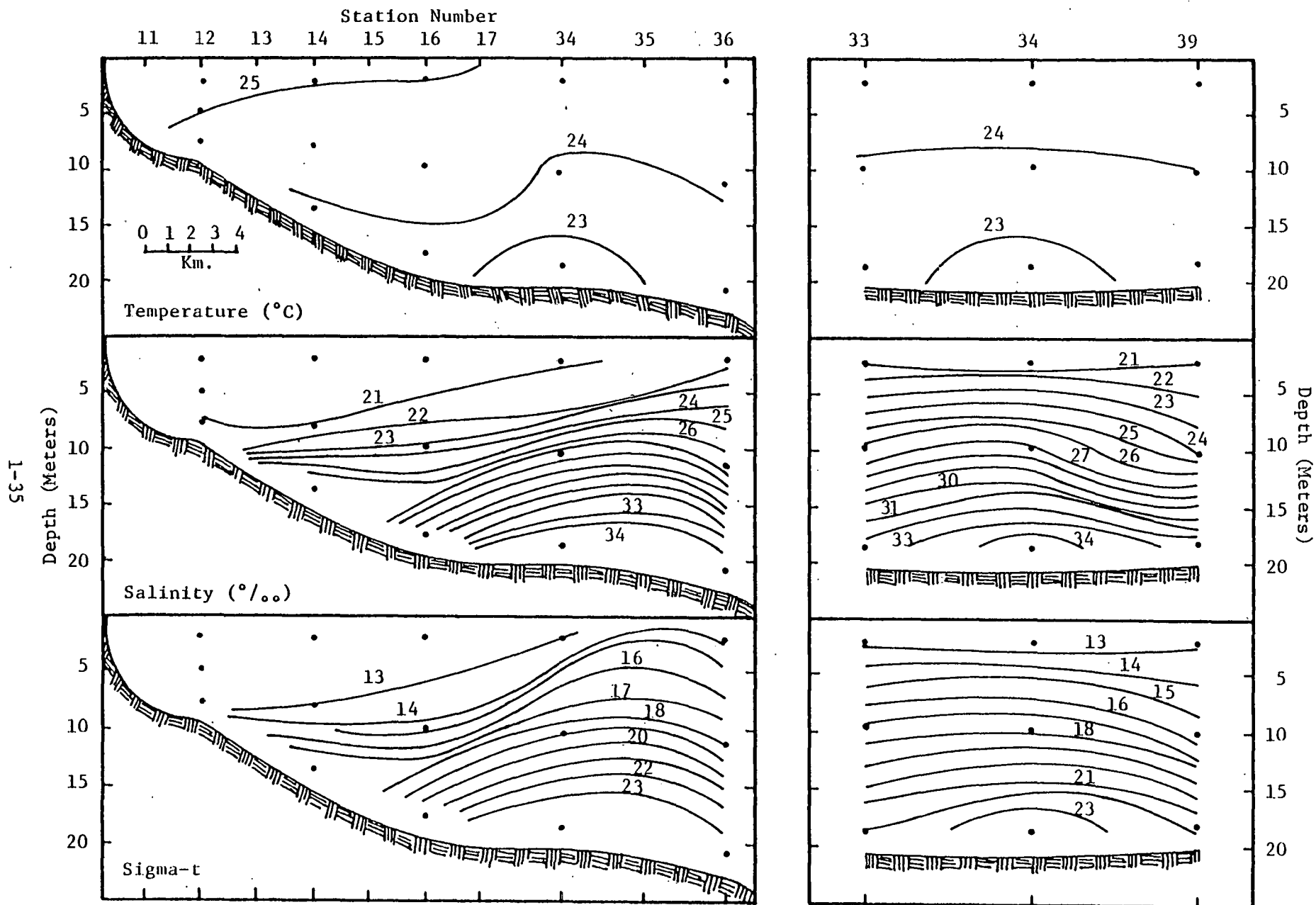


Figure 1-35, Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas, for May 25, 1979.

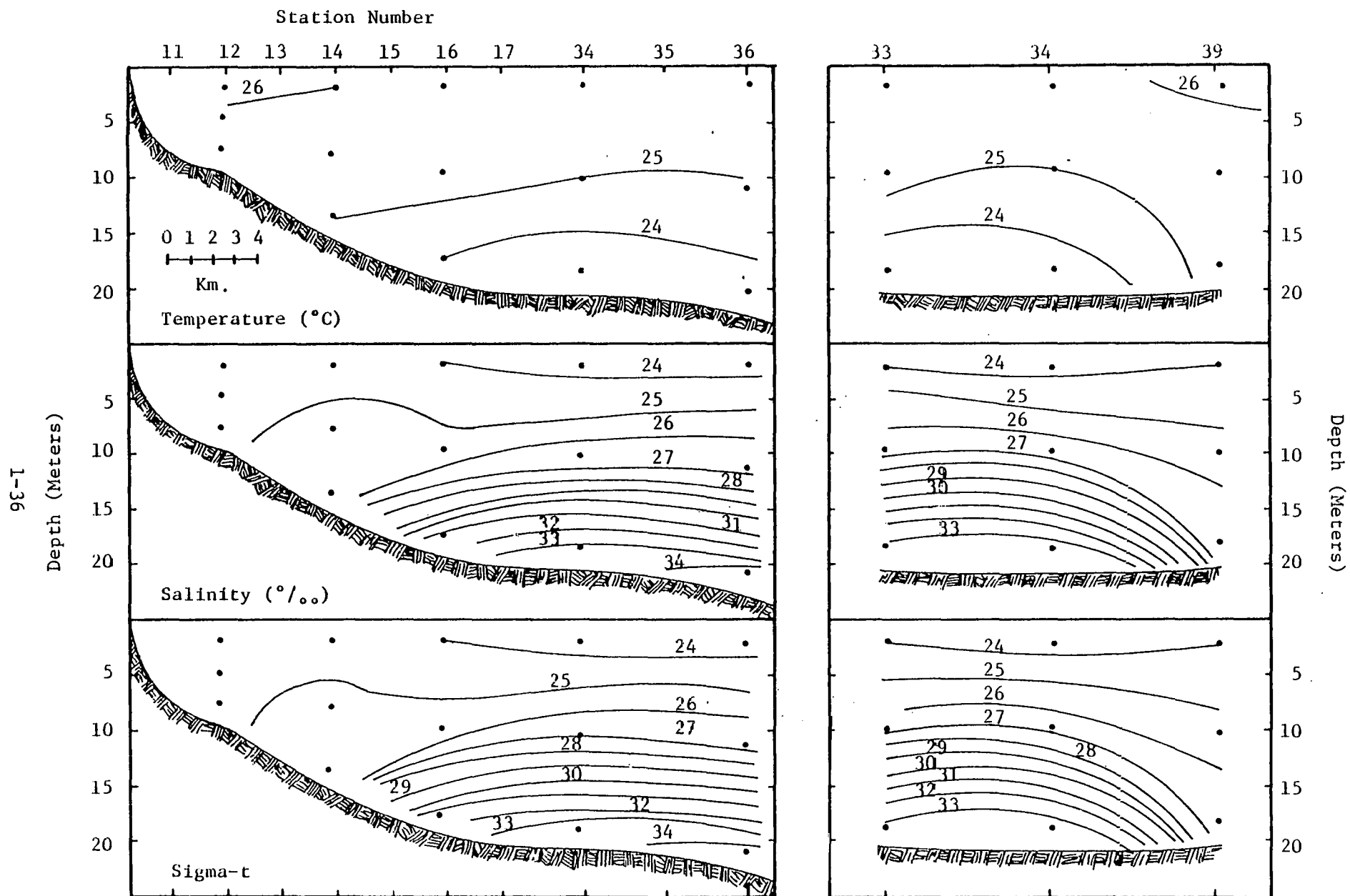


Figure 1-36. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for June 1, 1979

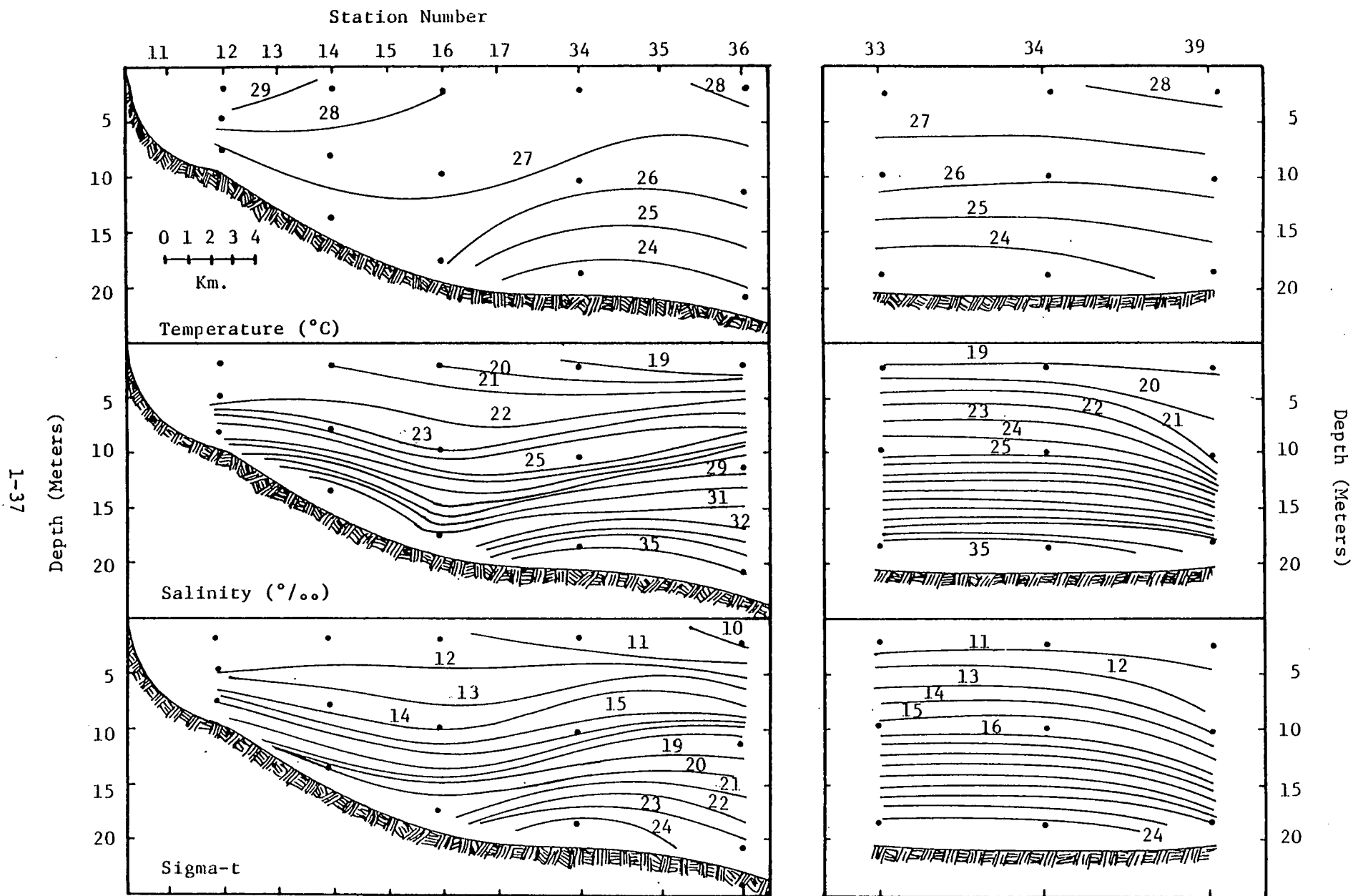


Figure 1-37. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for June 21, 1979

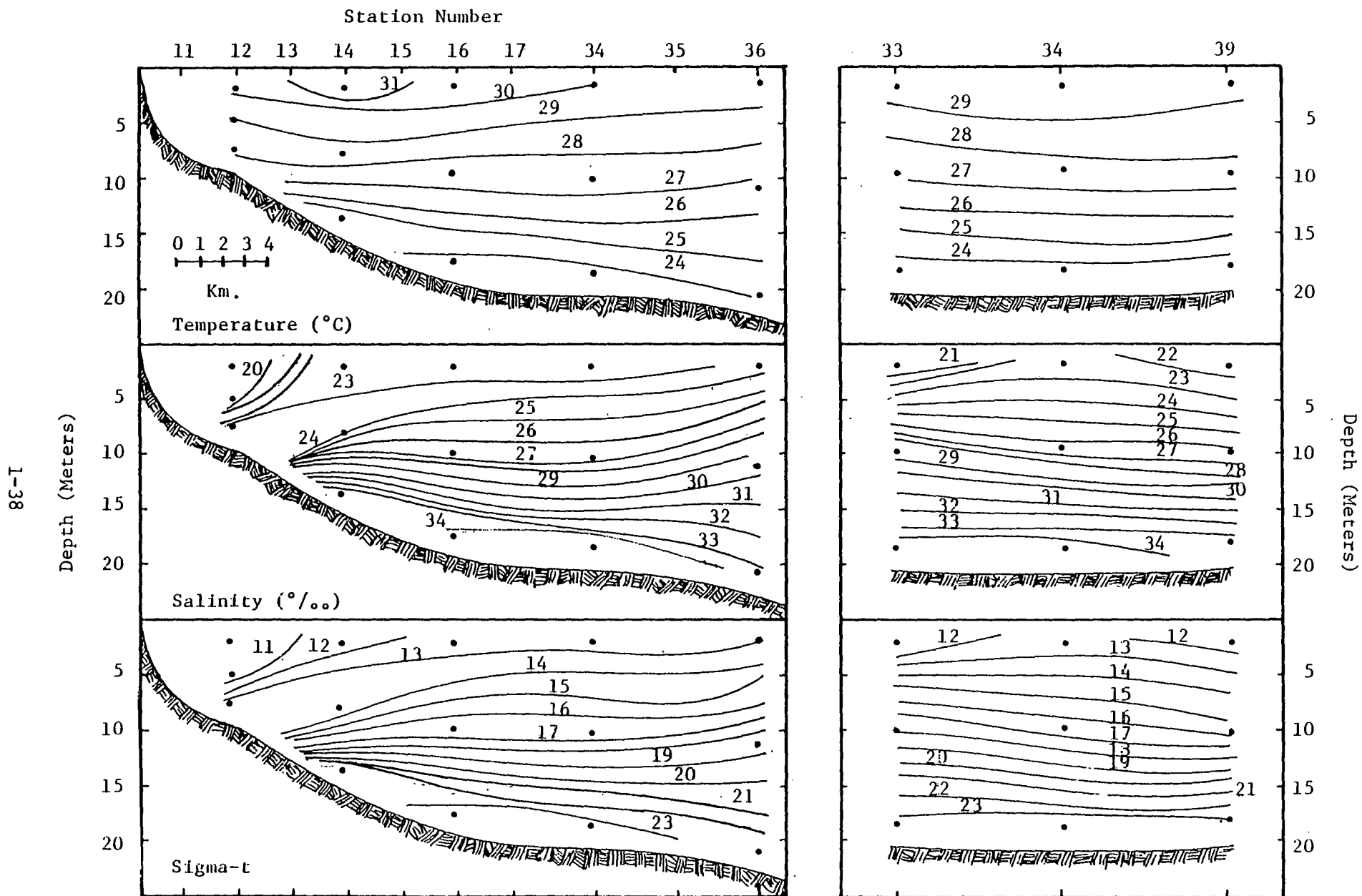


Figure 1-38. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for June 28, 1979

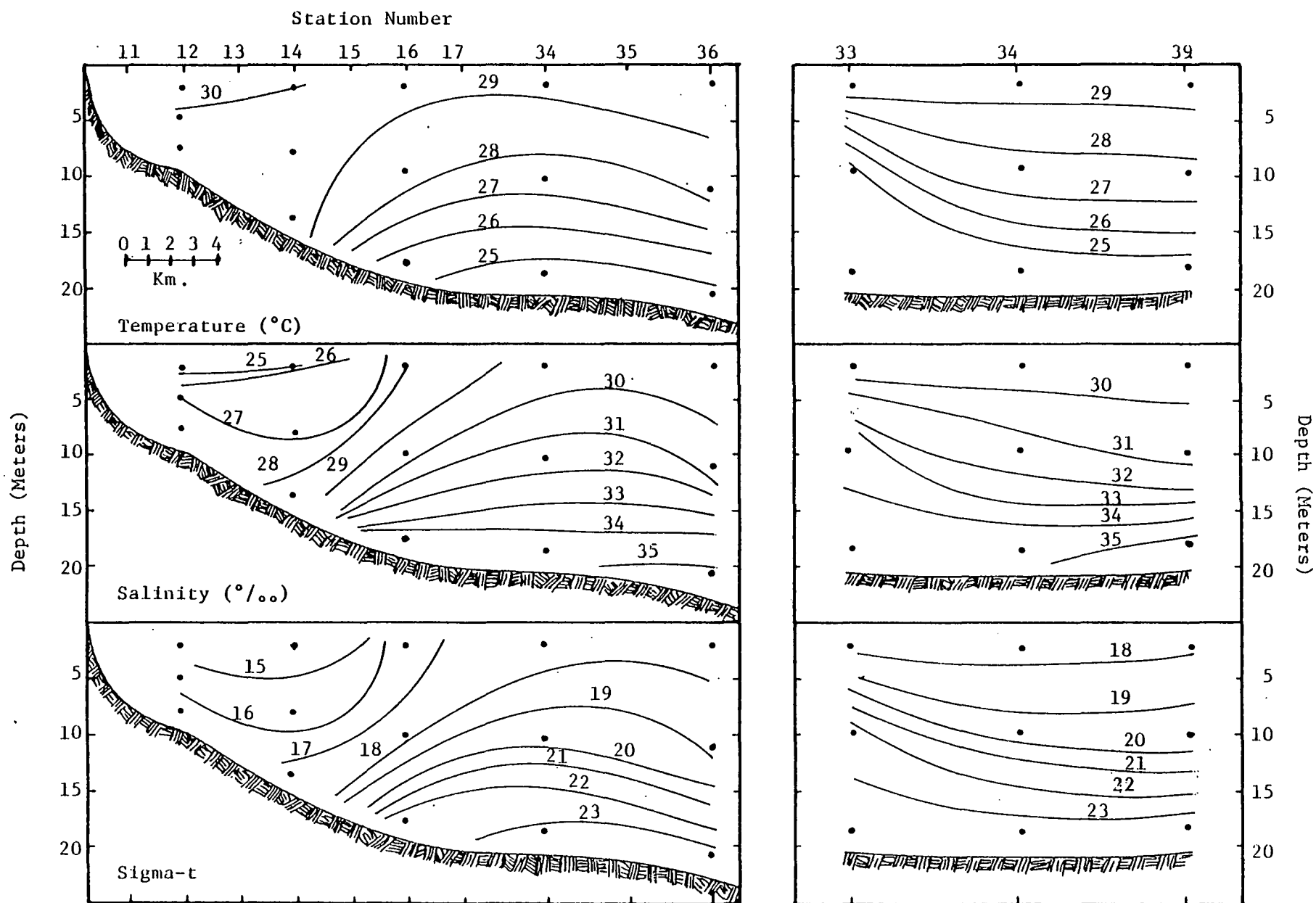


Figure 1-39. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for July 11, 1979

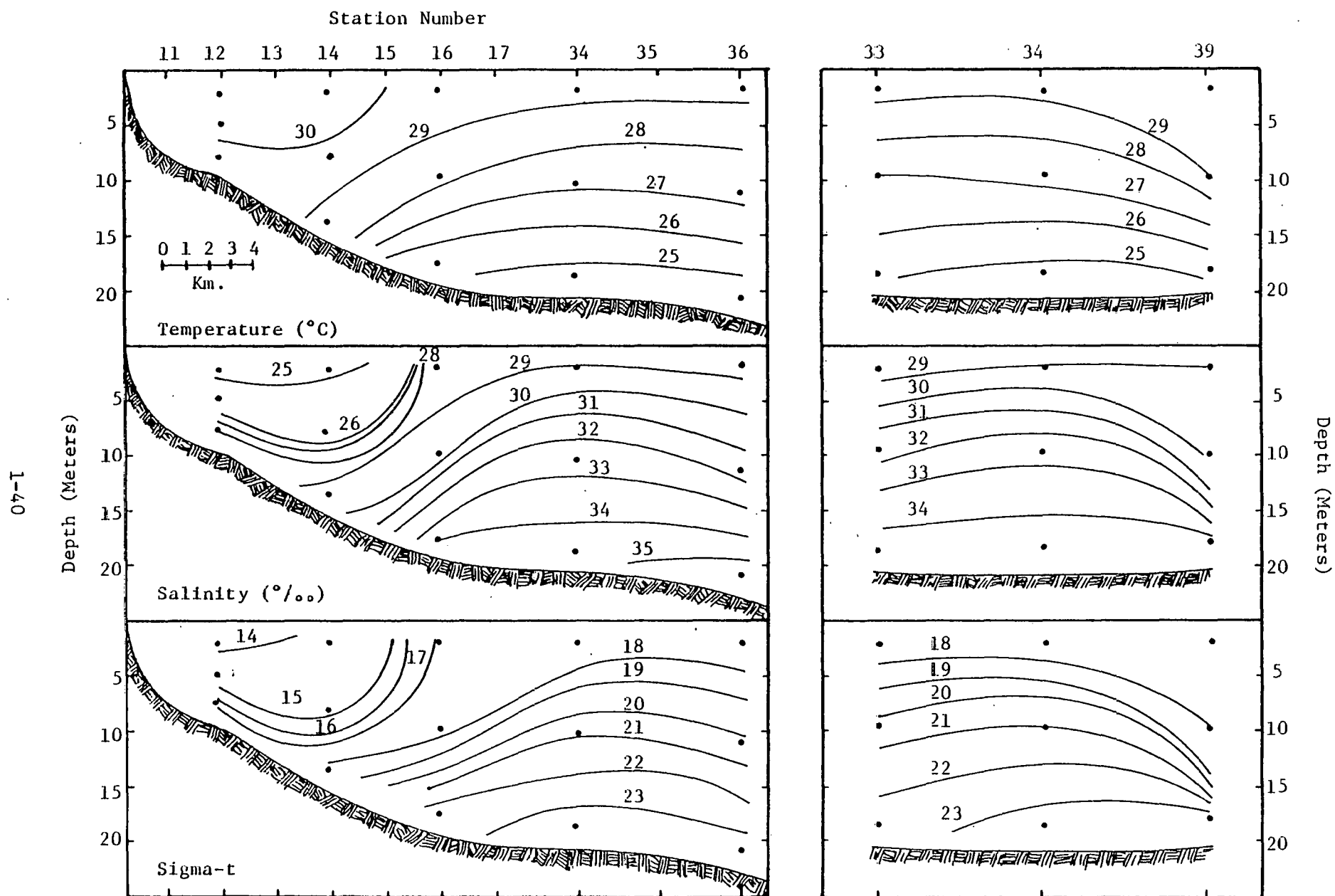


Figure 1-40. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for July 12, 1979

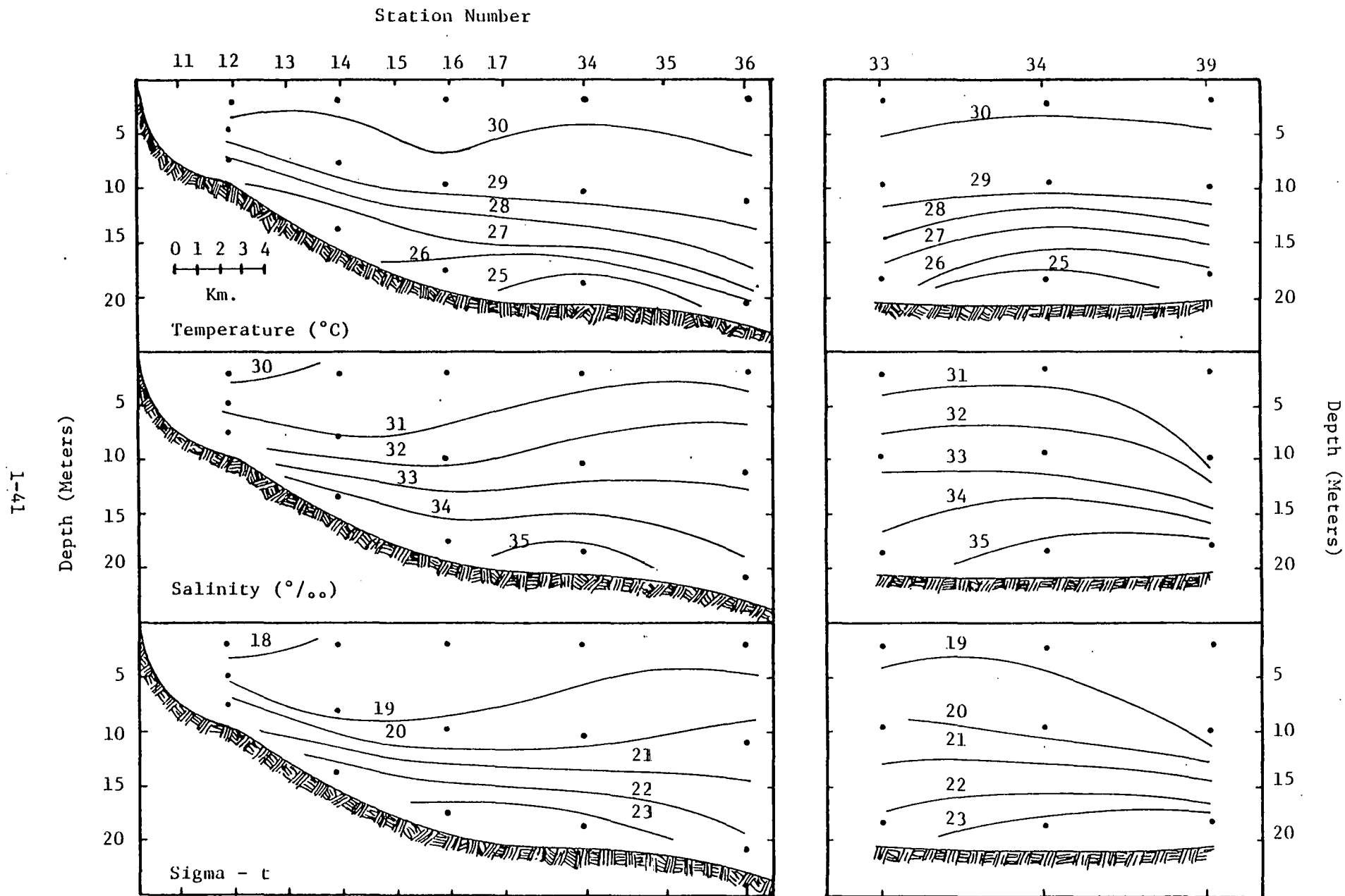


Figure 1-41. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for August 14, 1979.

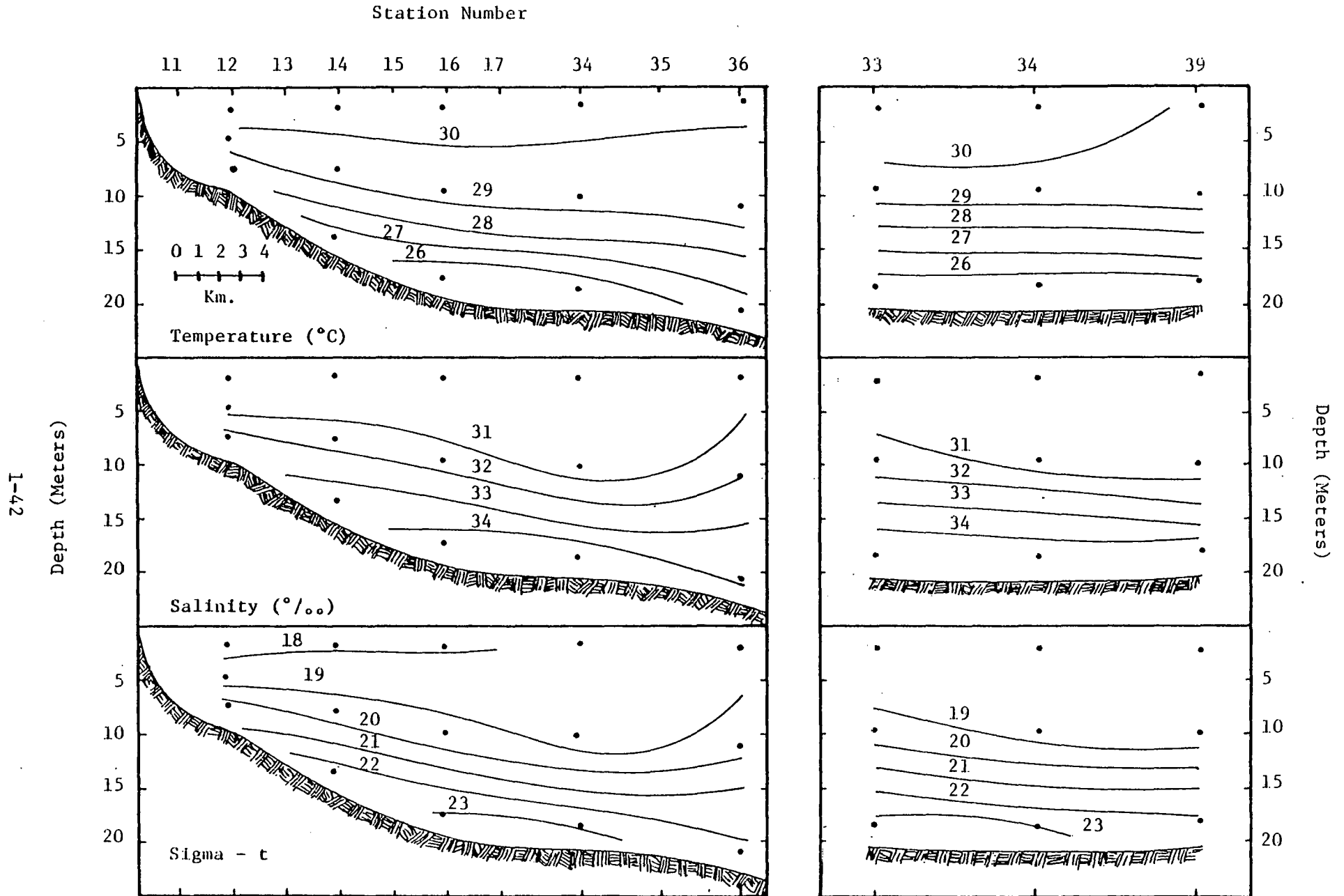


Figure 1-42. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for August 15, 1979.

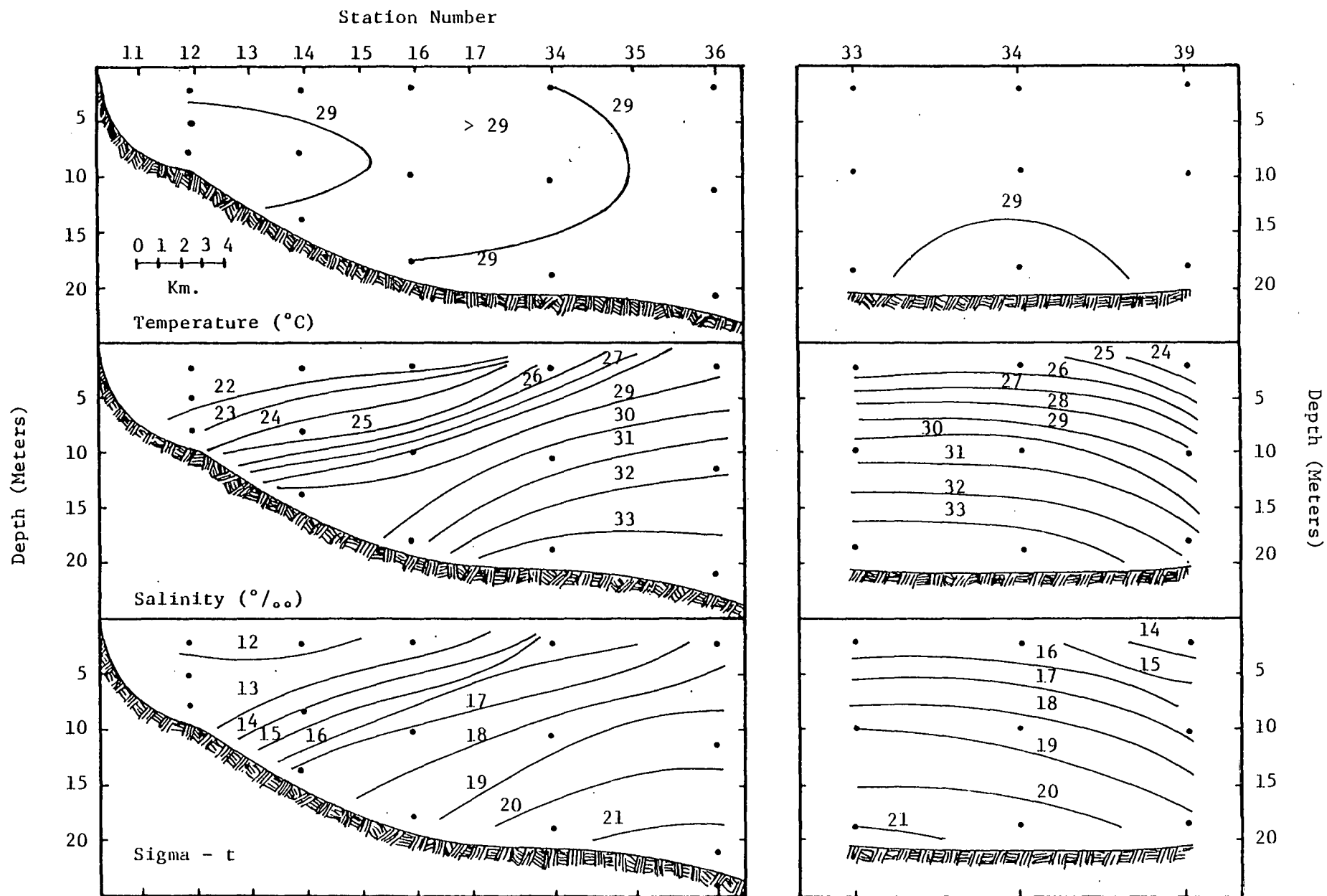


Figure 1-43. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for September 6, 1979.

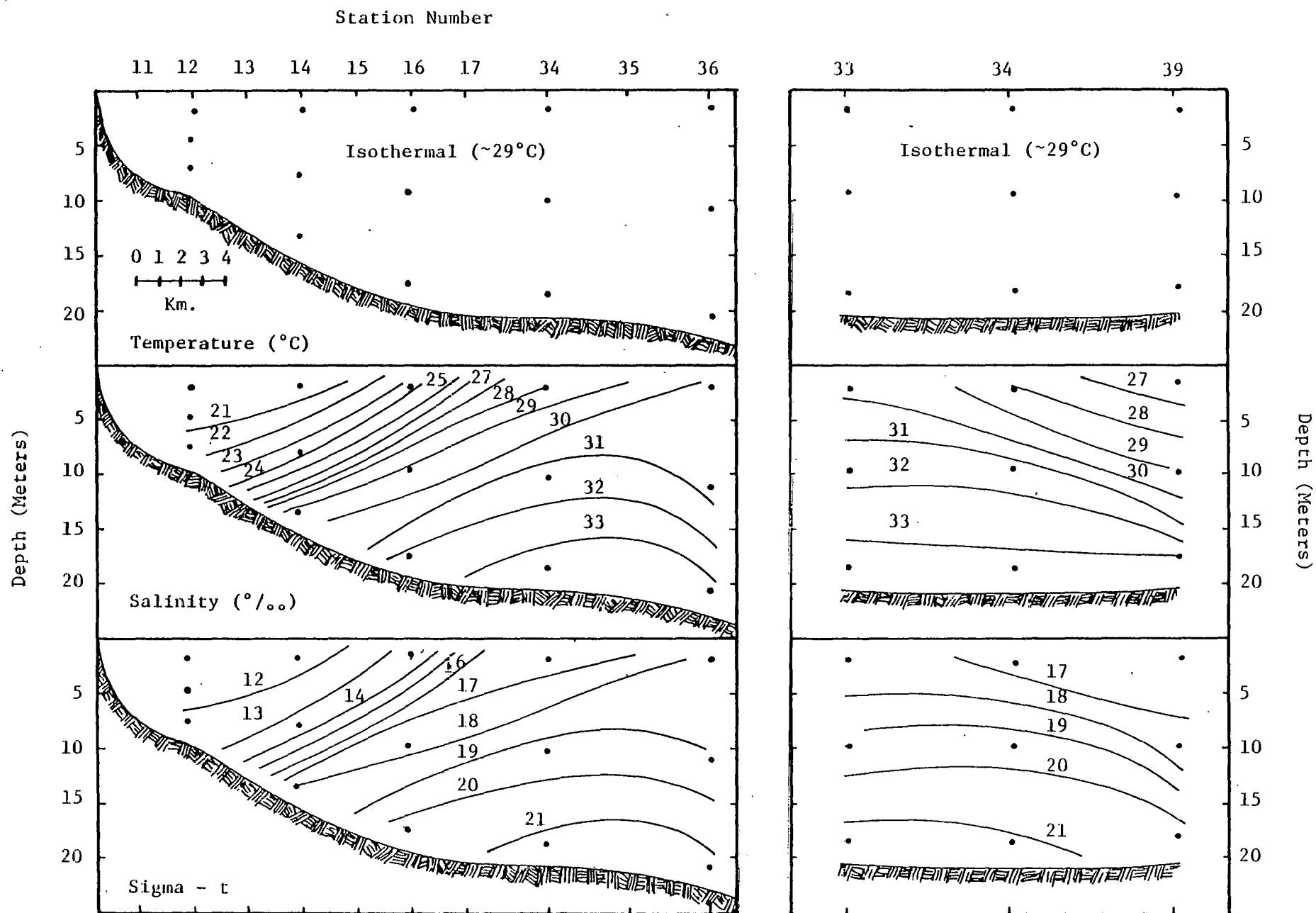


Figure 1-44. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for September 7, 1979.

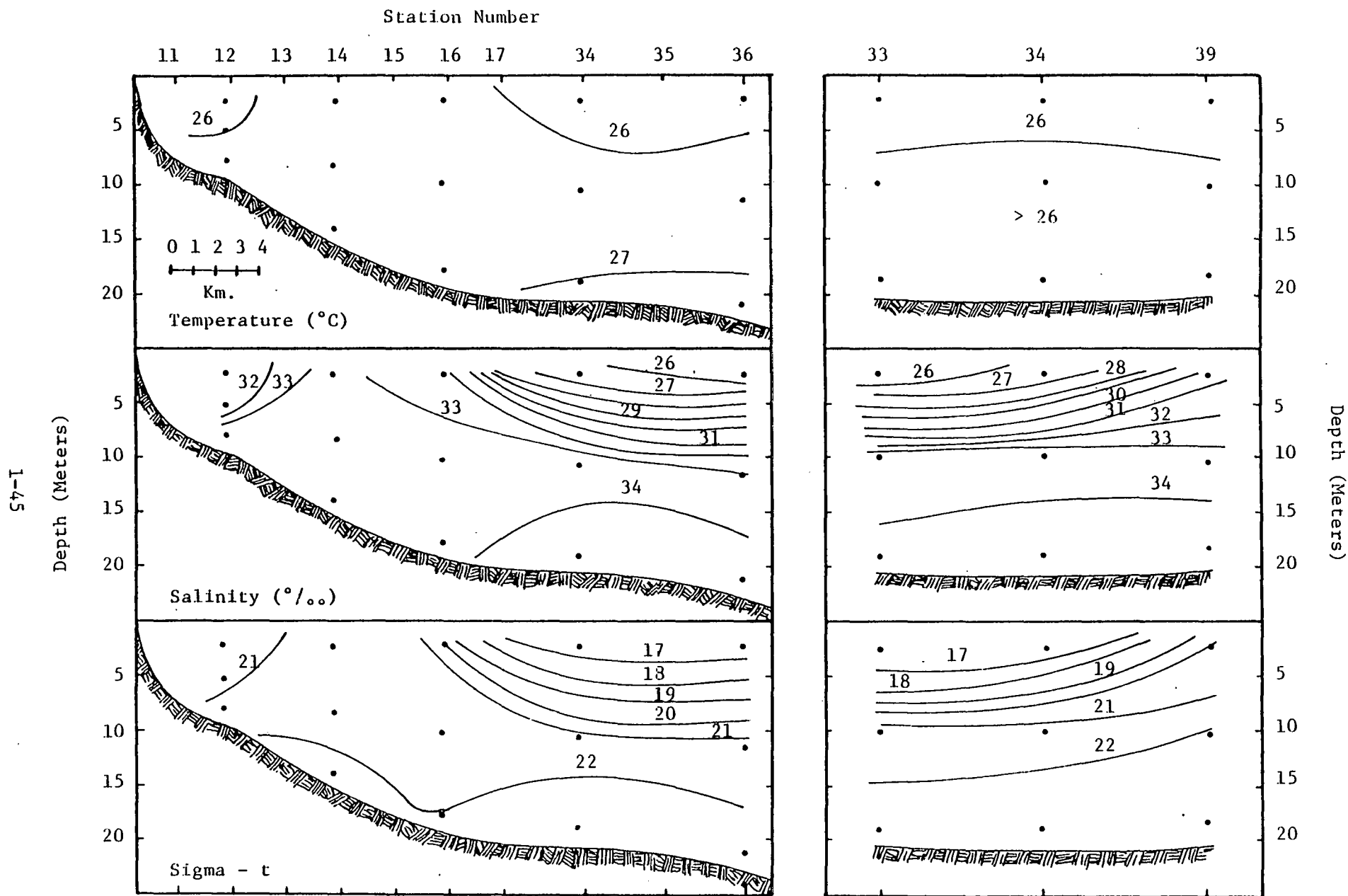


Figure 1-45. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for October 5, 1979.

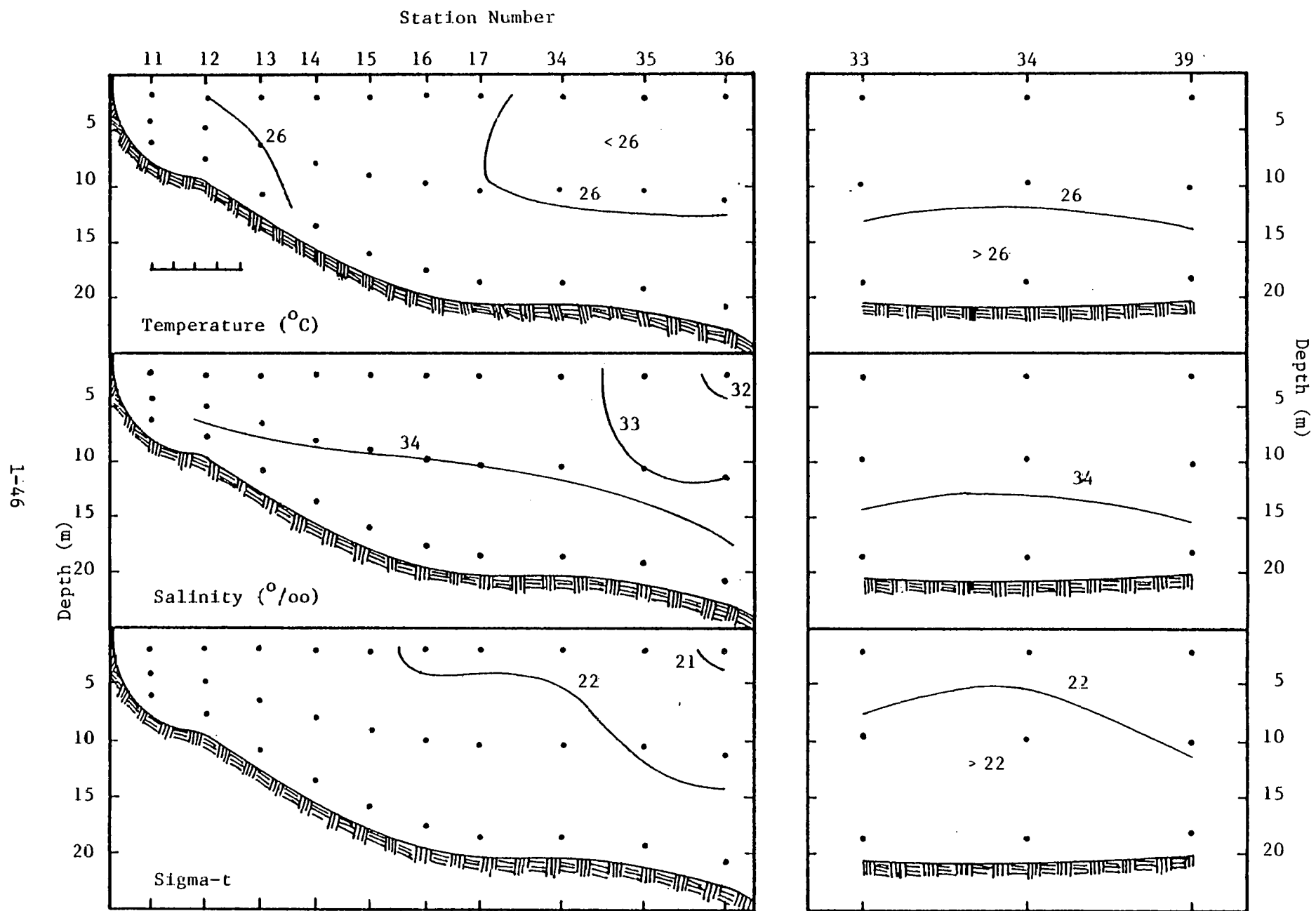


Figure 1-46. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Tx. for October 11, 1979.

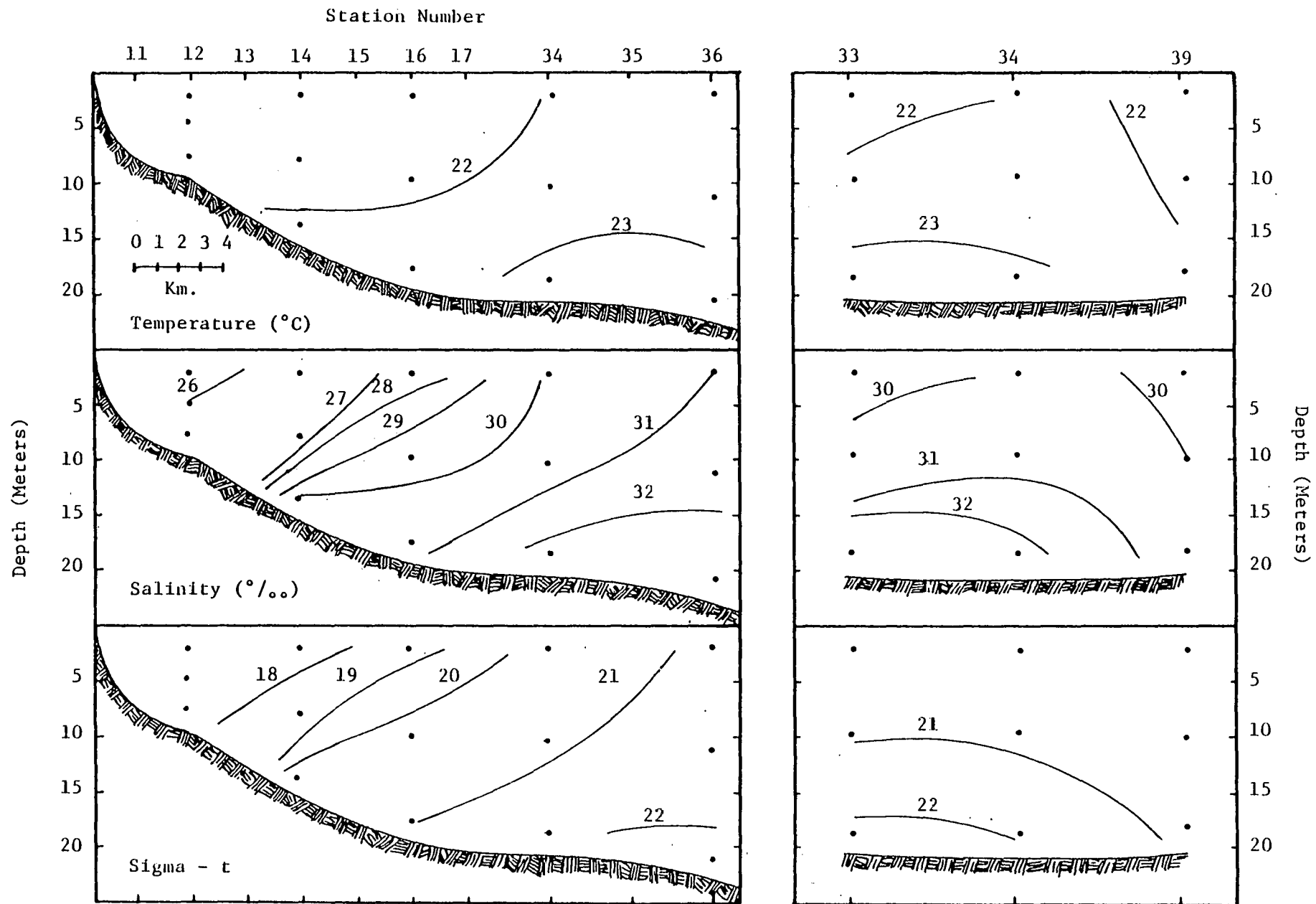


Figure 1-47. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for November 6, 1979.

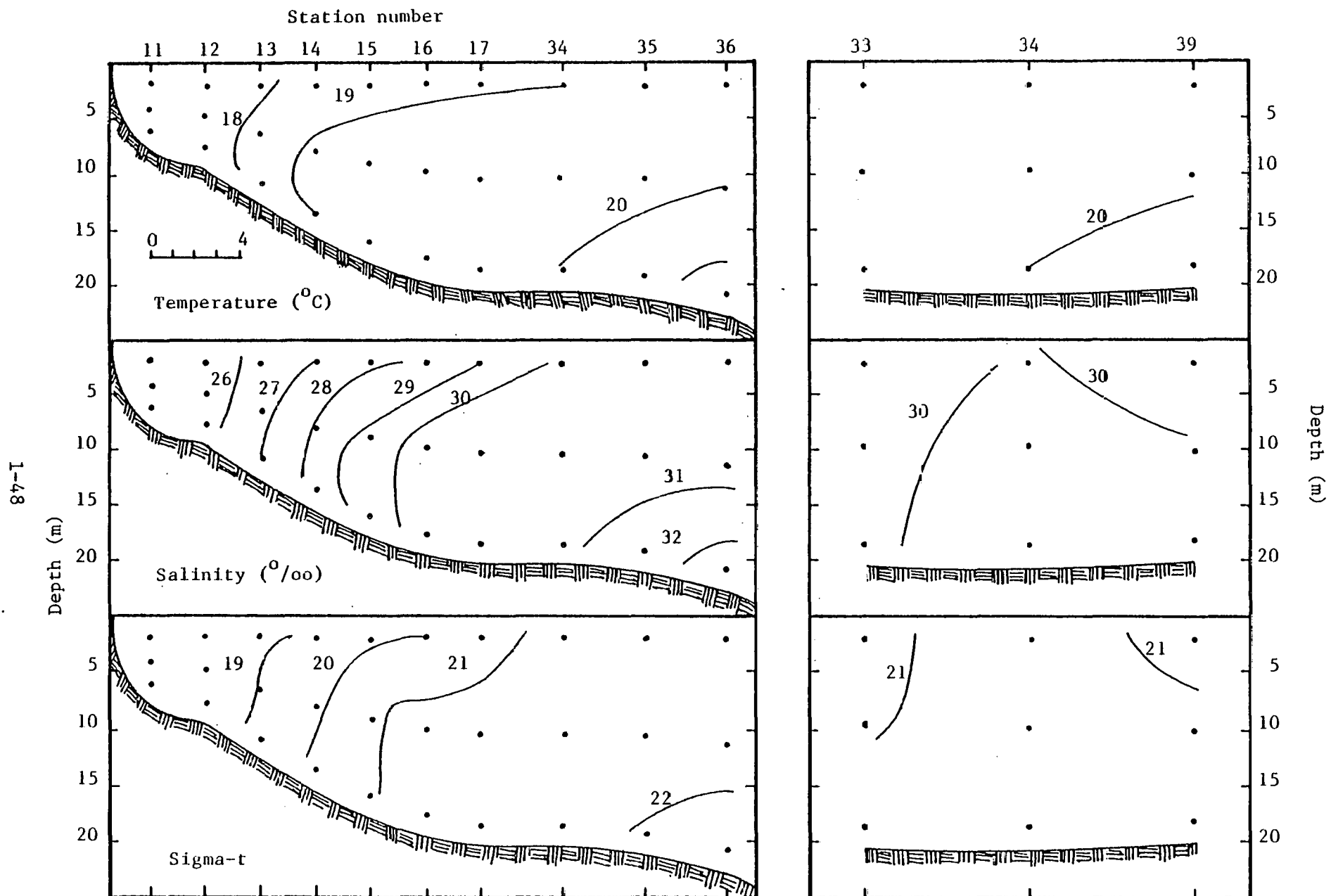


Figure 1-48. Hydrography for cross-shelf (left) and along shore (right) transects offshore Freeport, Tx. for November 14, 1979.

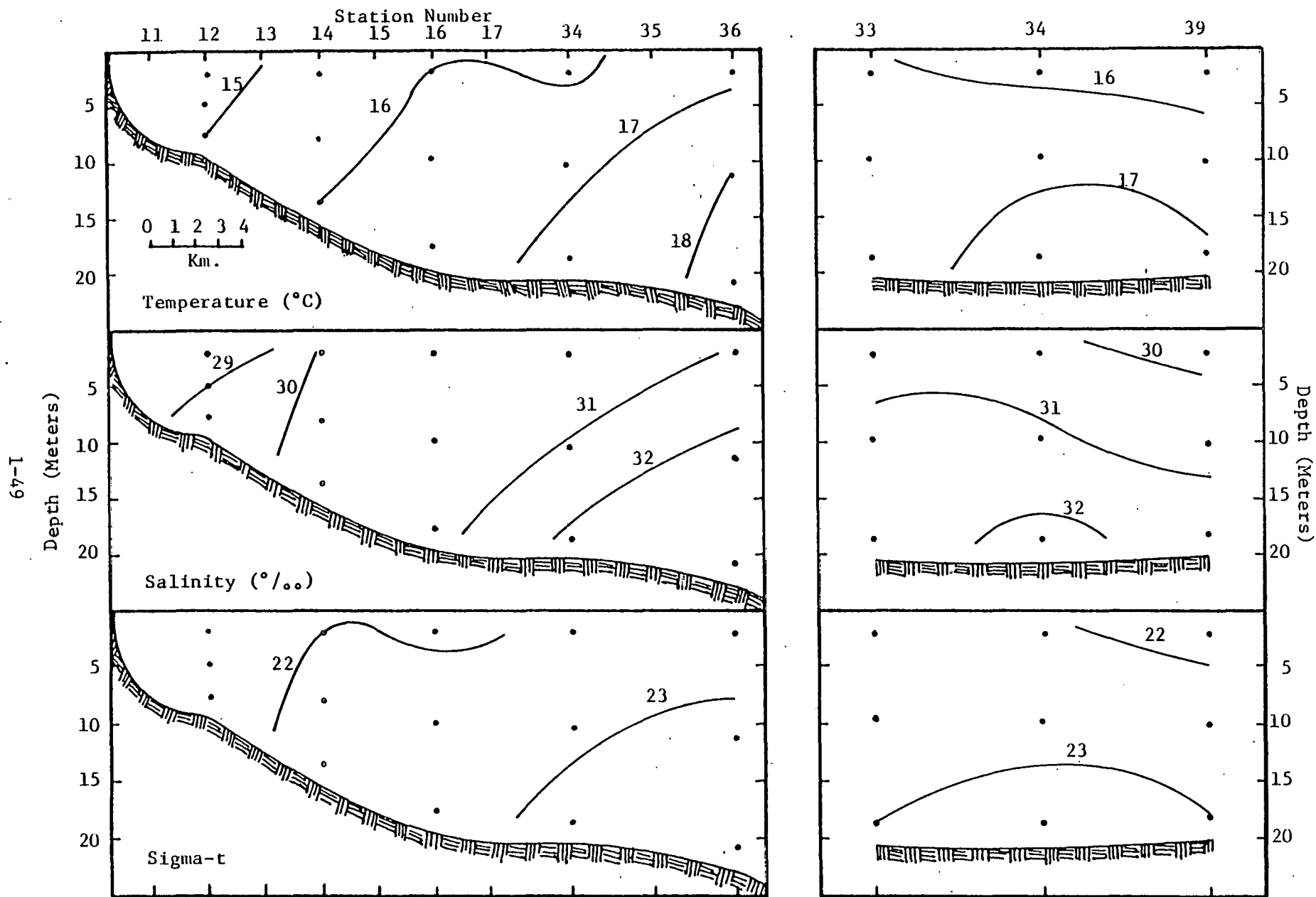


Figure 1-49. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas, for December 4, 1979.

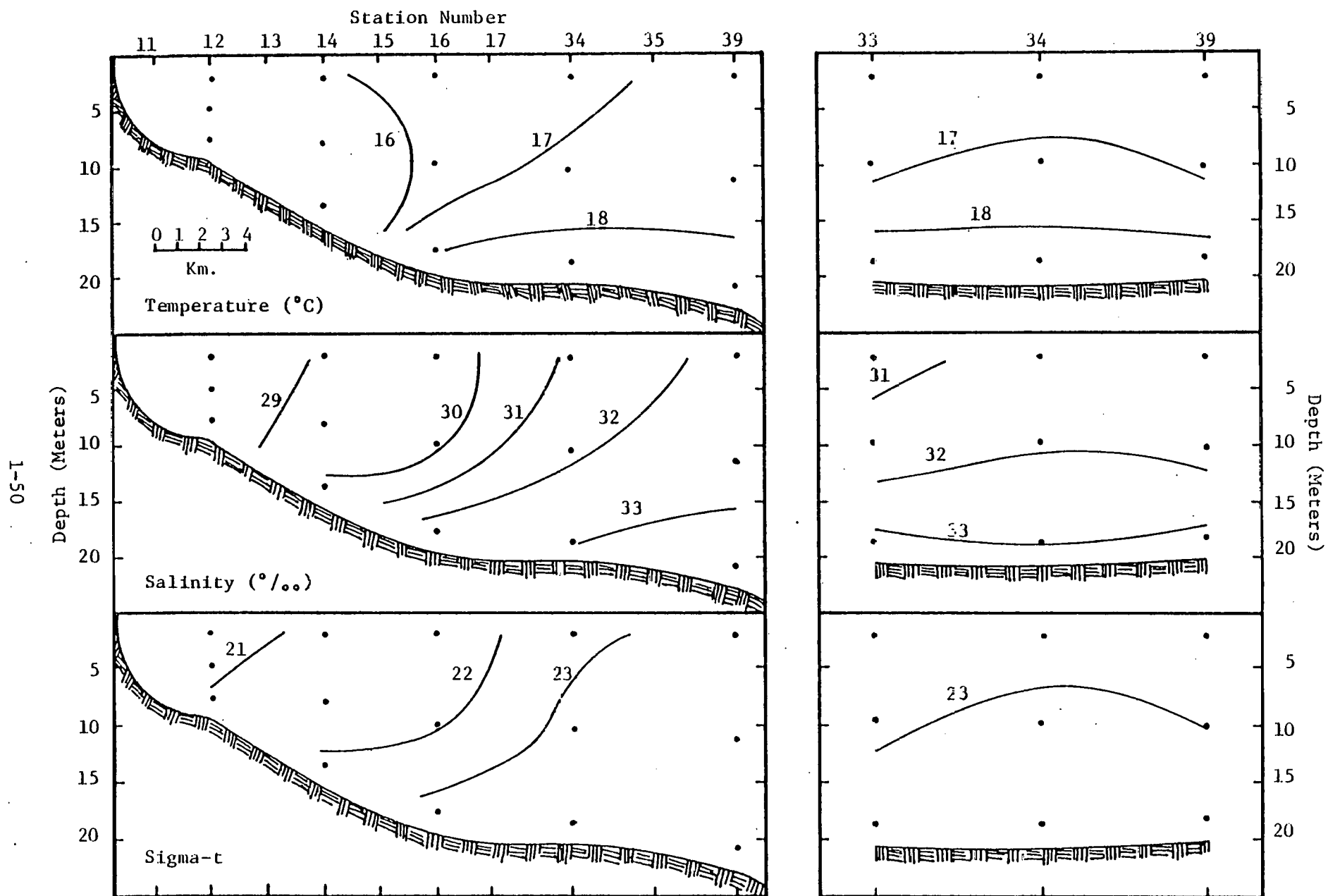


Figure 1-50. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas, for December 7, 1979.

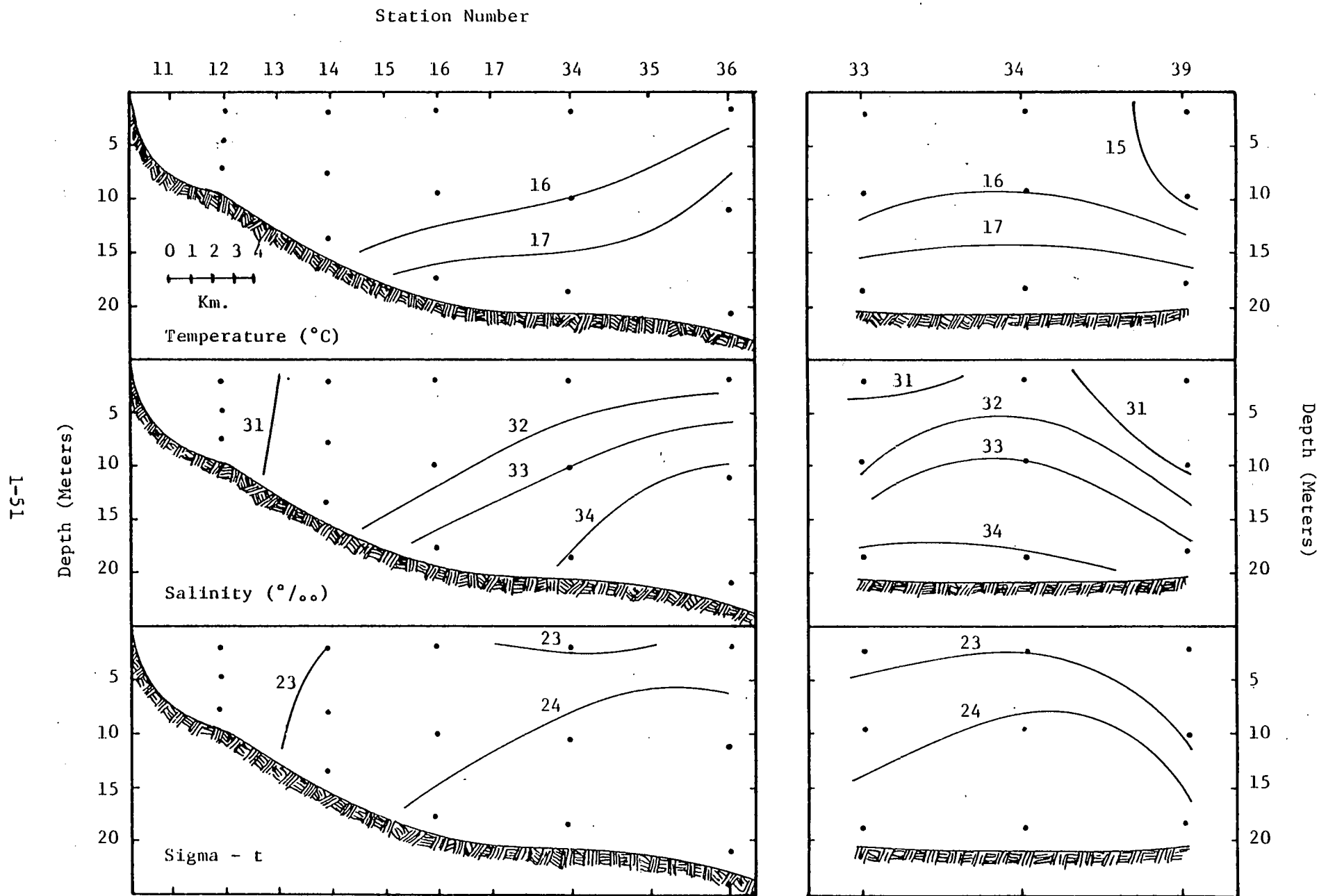


Figure 1-51. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for January 6, 1980.

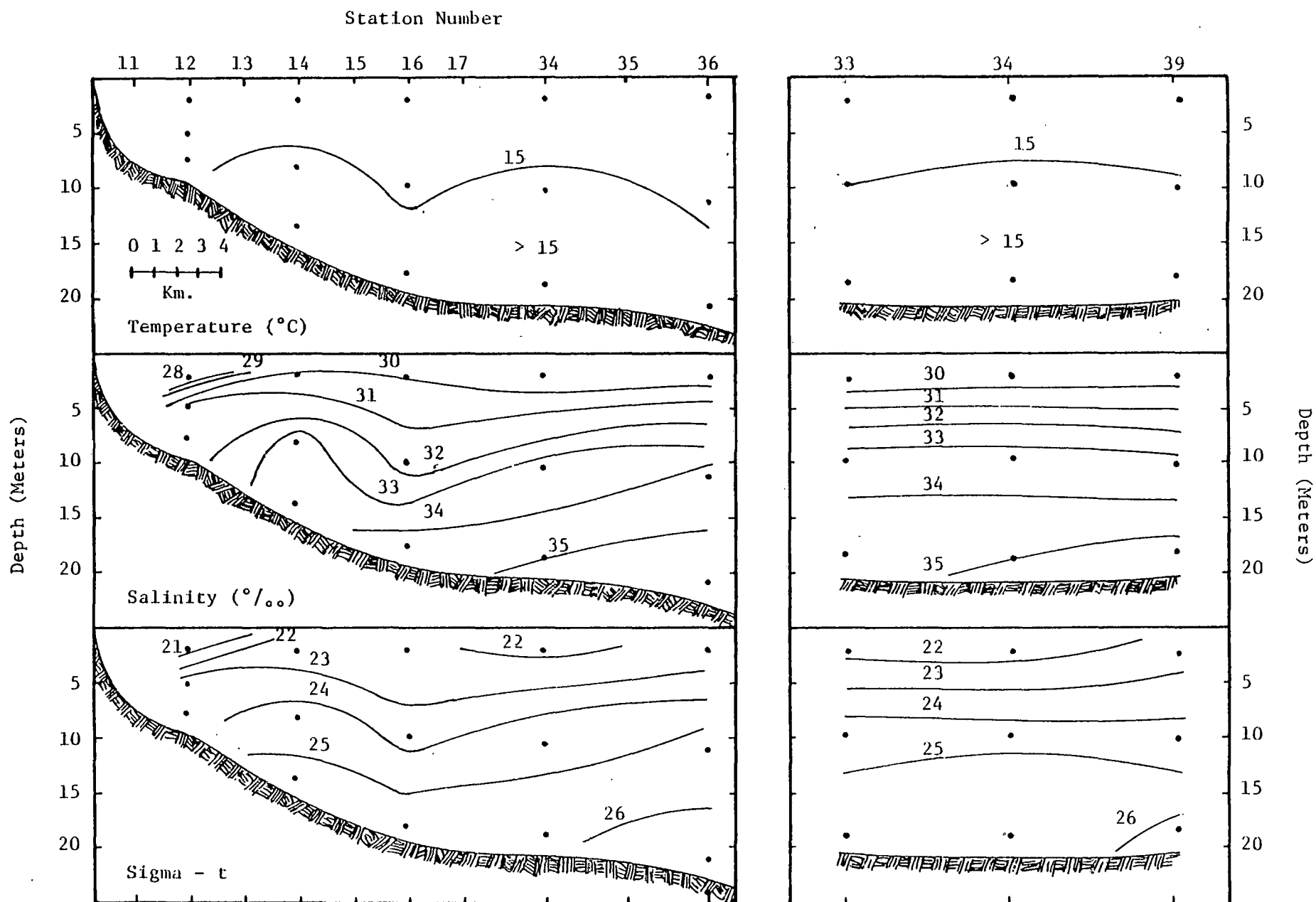


Figure 1-52. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for January 26, 1980.

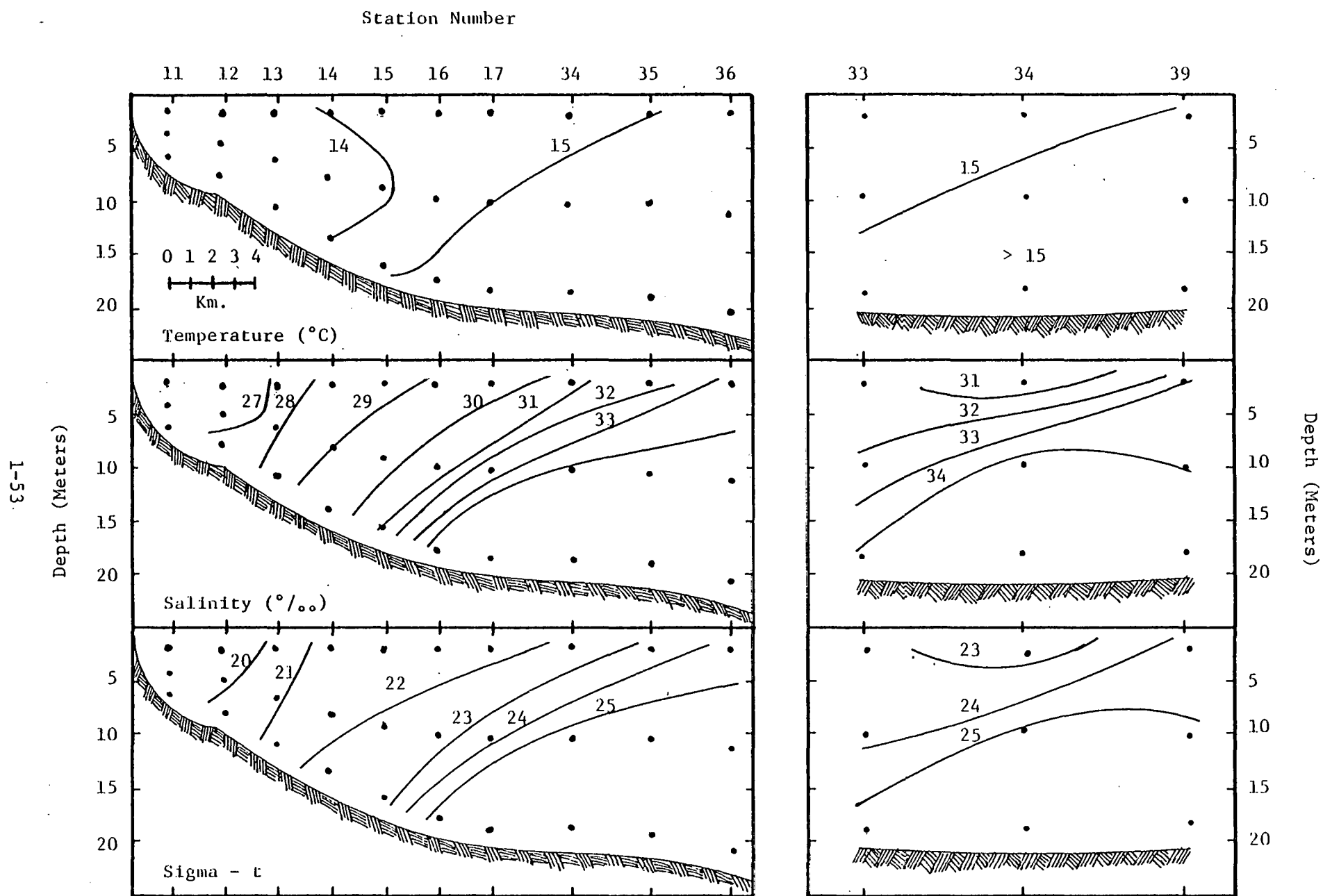


Figure 1-53. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for February 6, 1980.

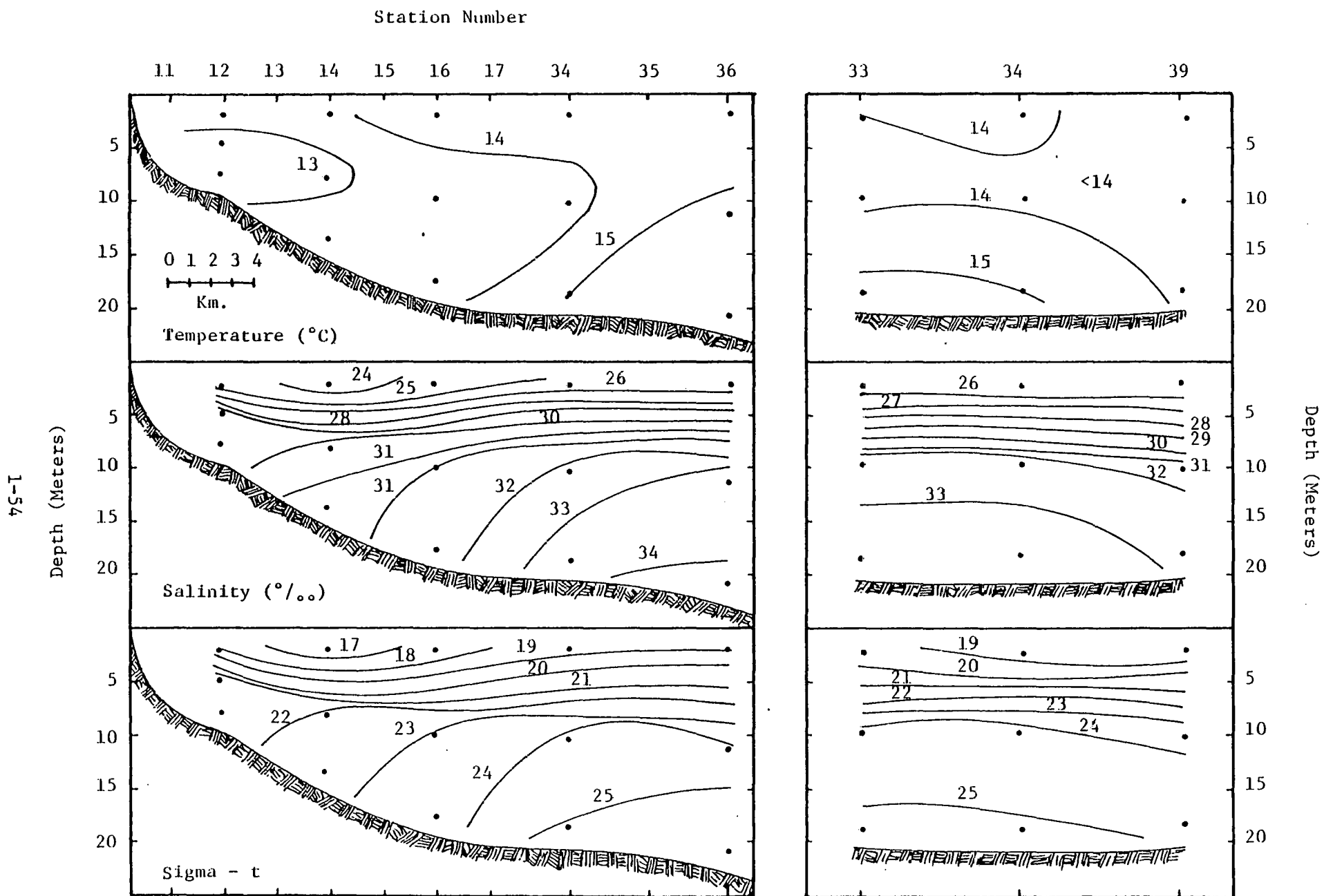


Figure 1-54. Hydrography for cross-shelf (left) and alongshore (right) transects offshore Freeport, Texas for February 22, 1980.

APPENDIX 2

Maps of GUS III Surface Salinity Data

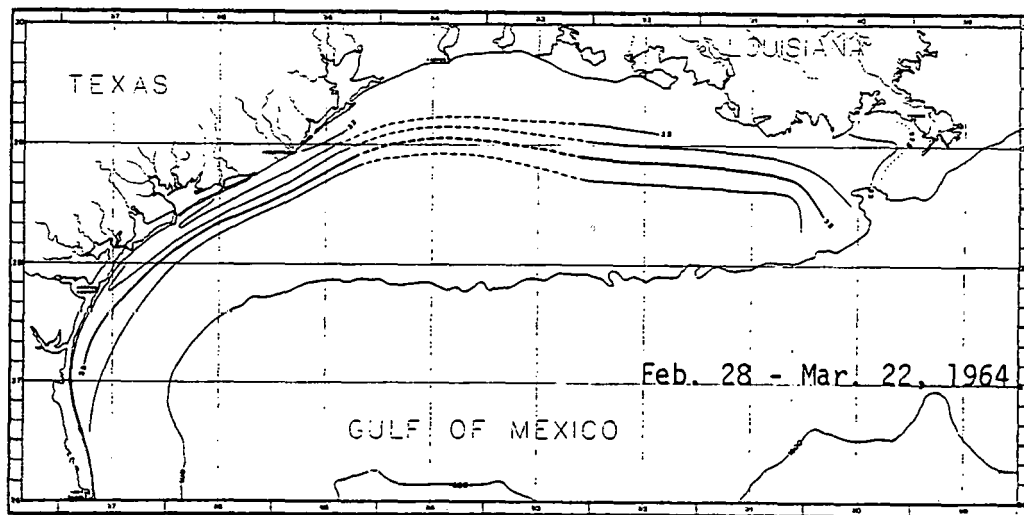
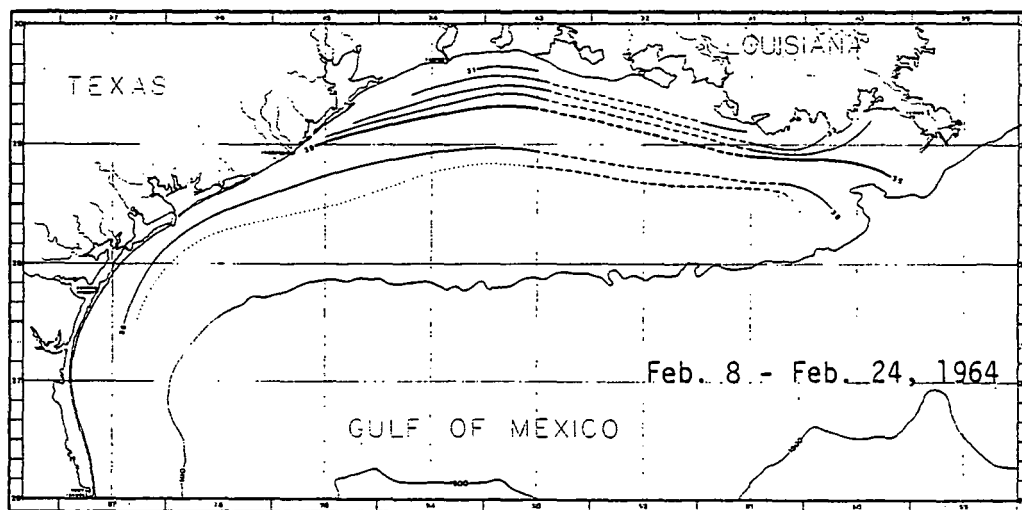
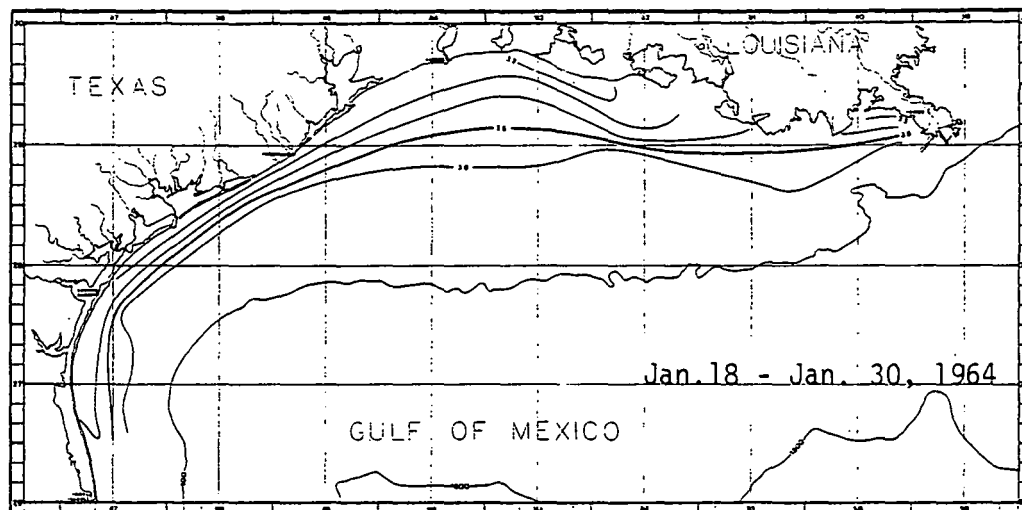


Figure 2-1. Maps of GUS III surface salinity data for the Texas-Louisiana Shelf for January, February and March, 1964.

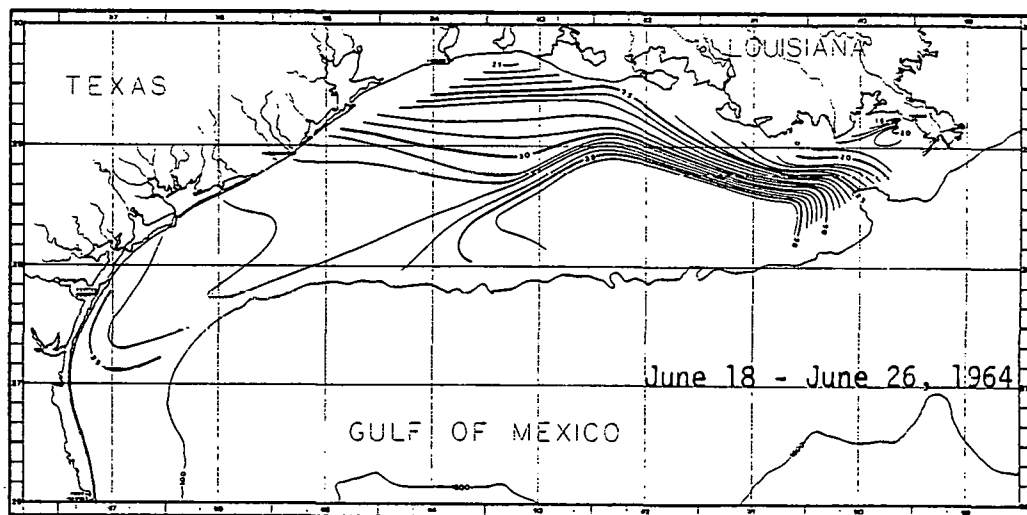
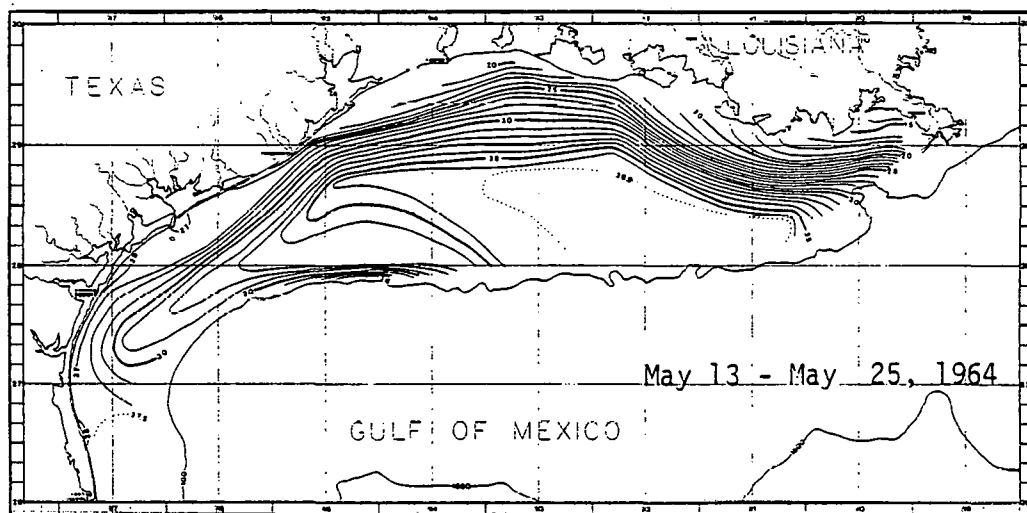
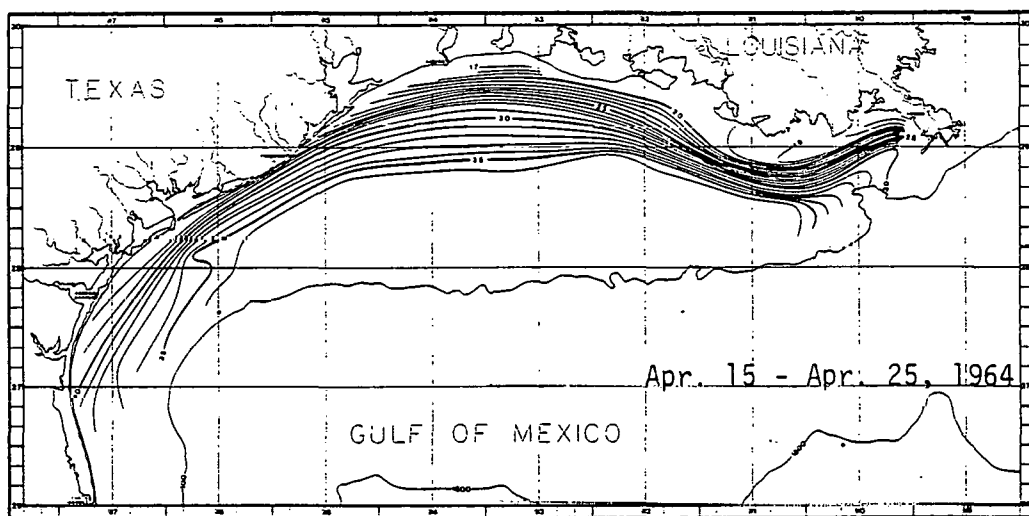


Figure 2-2. Maps of GUS III surface salinity data for the Texas- Louisiana shelf for April, May and June, 1964.

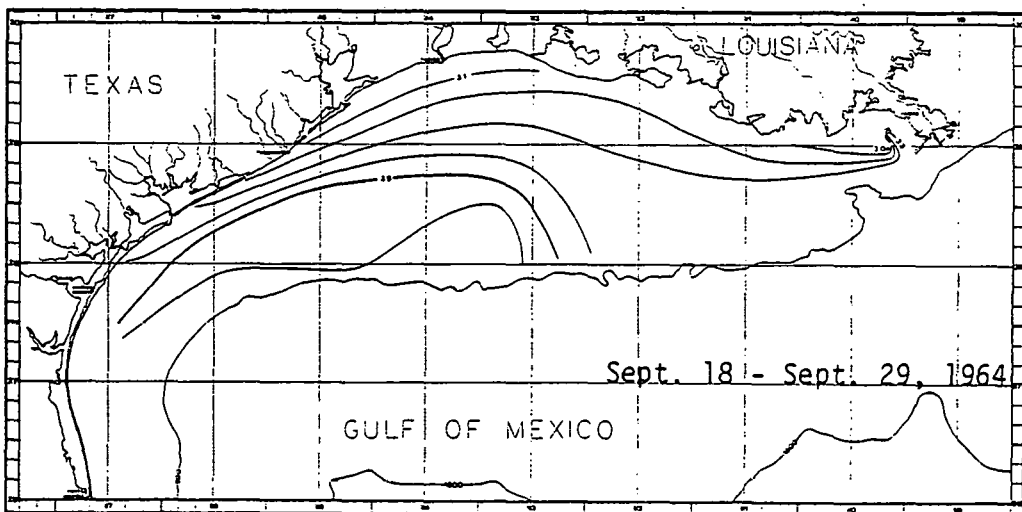
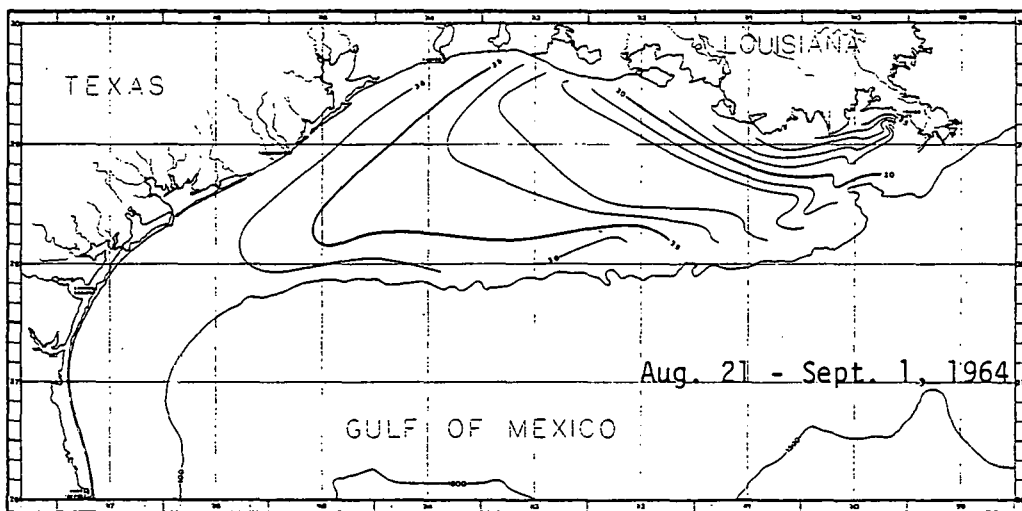
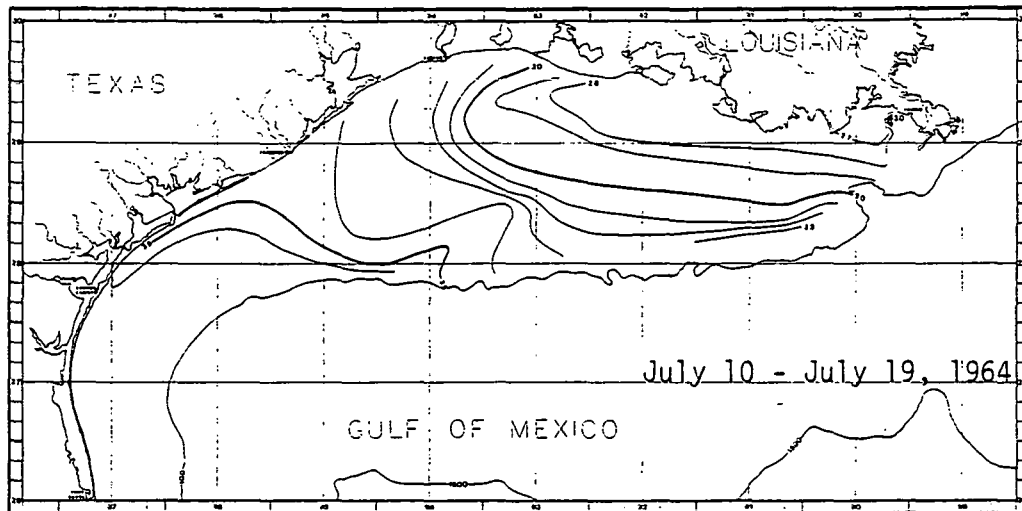


Figure 2-3. Maps of GUS III surface salinity data for the Texas-Louisiana shelf for July, August and September, 1964.

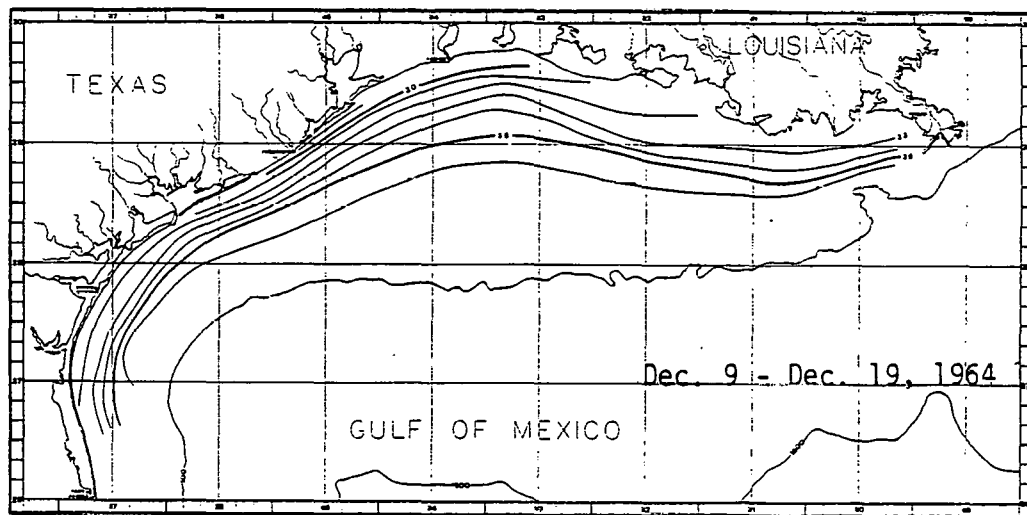
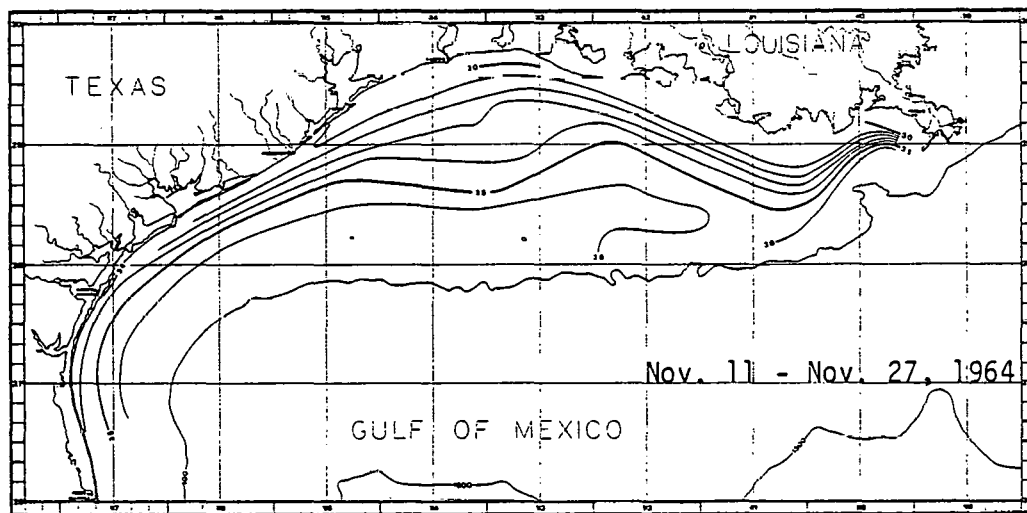
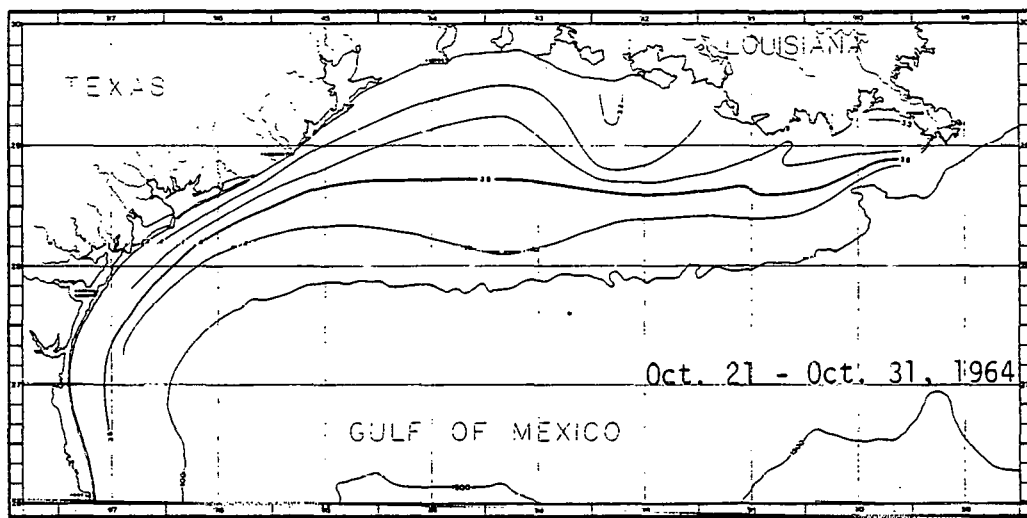


Figure 2-4. Maps of GUS III surface salinity data for the Texas-Louisiana shelf for October, November and December, 1964.

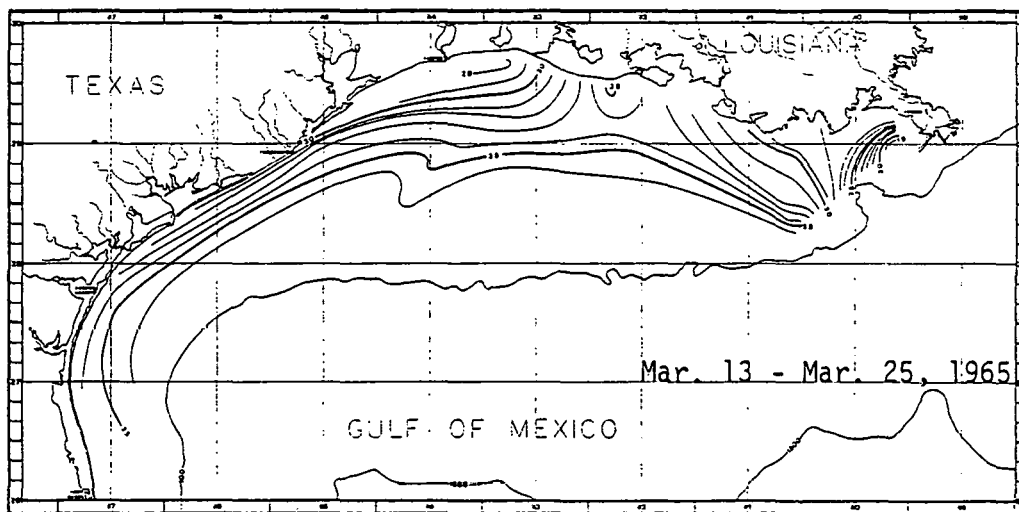
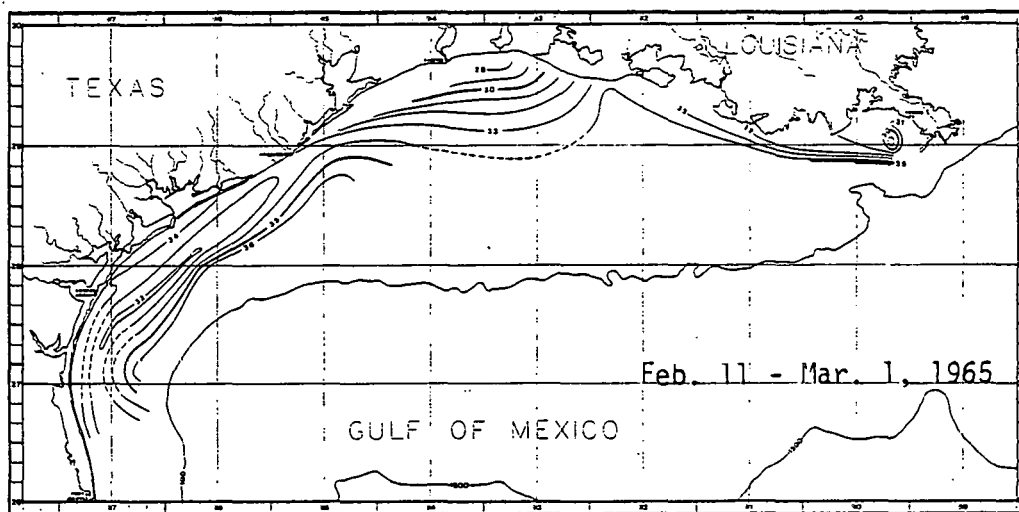
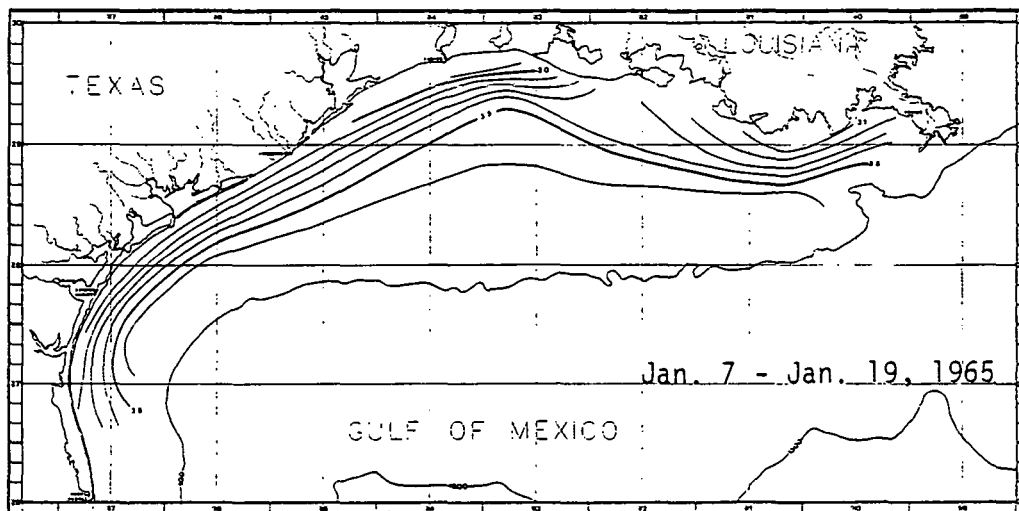


Figure 2-5. Maps of GUS III surface salinity data for the Texas-Louisiana shelf for January, February and March, 1965.

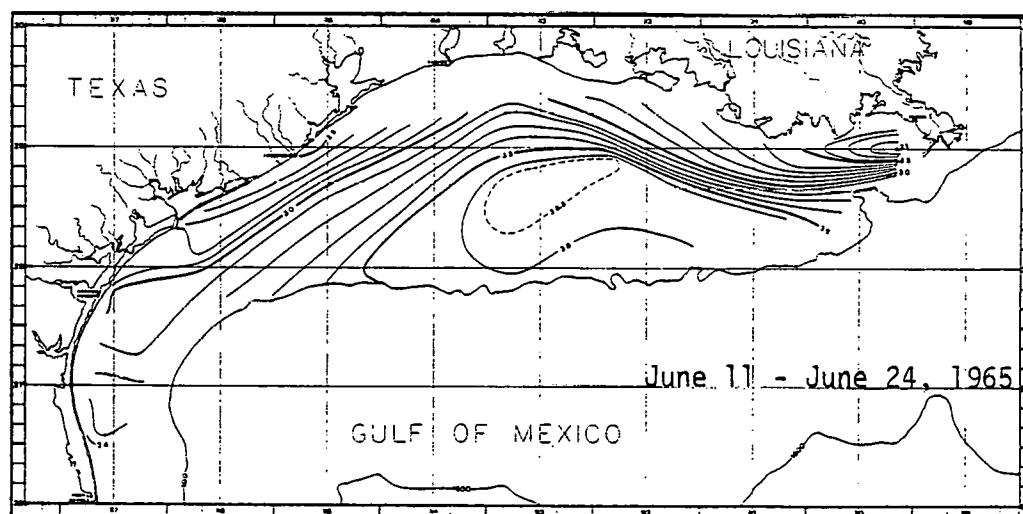
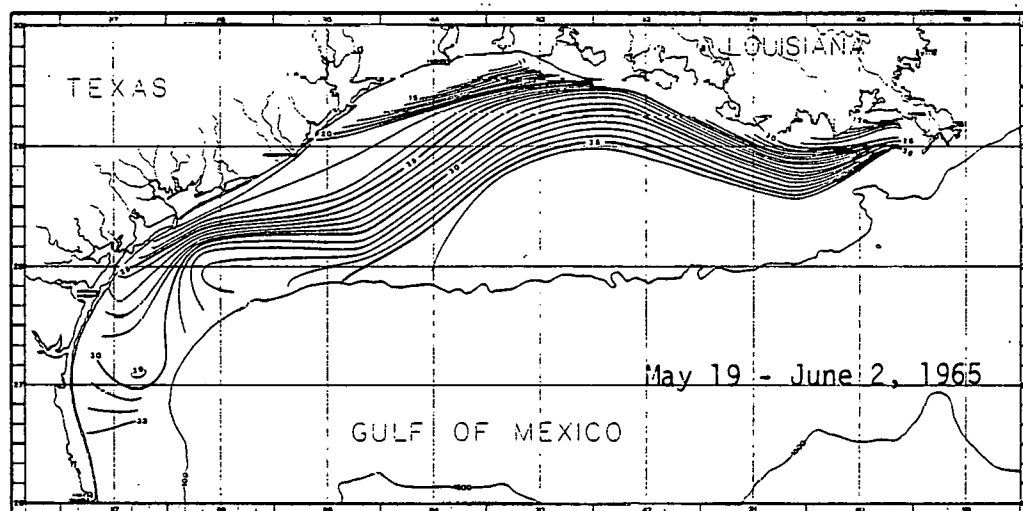
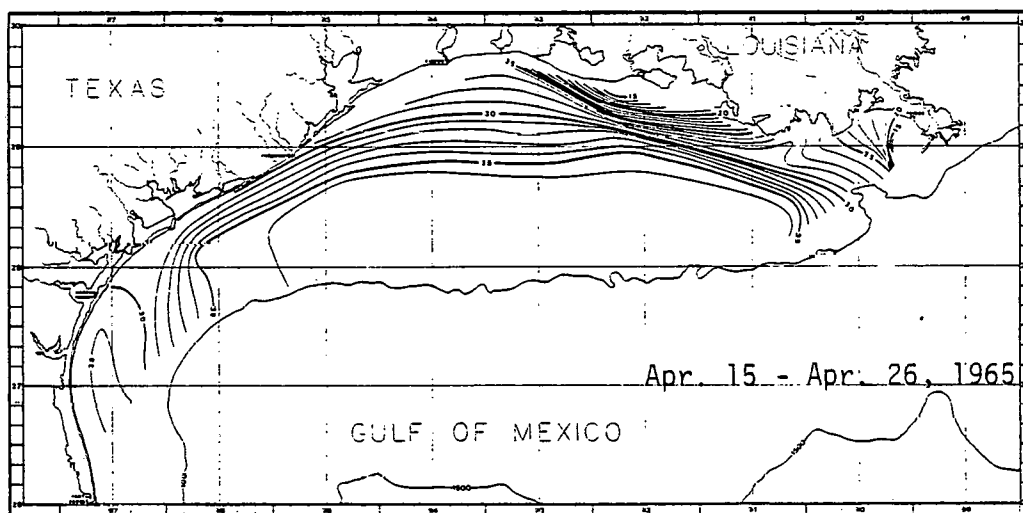


Figure 2-6. Maps of GUS III surface salinity data for the Texas-Louisiana shelf for April, May and June, 1965.

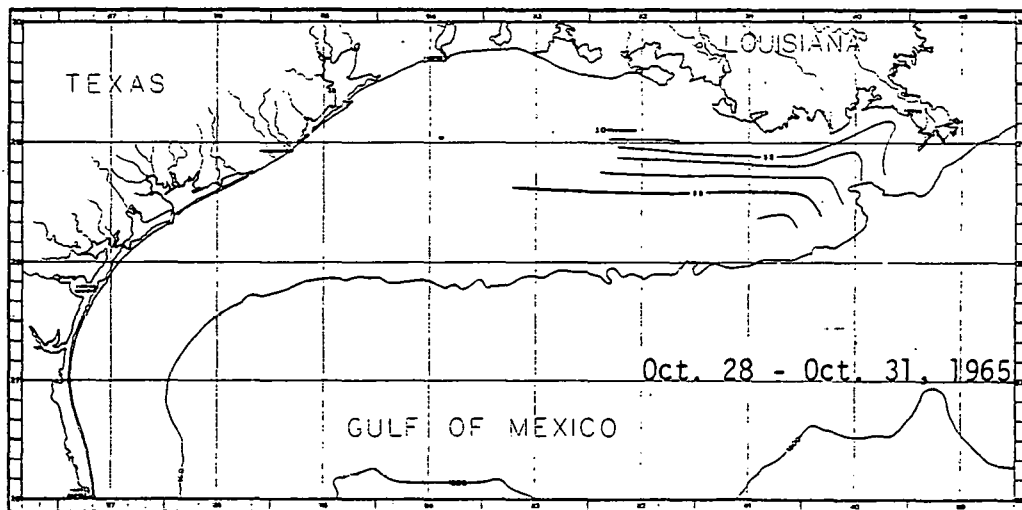
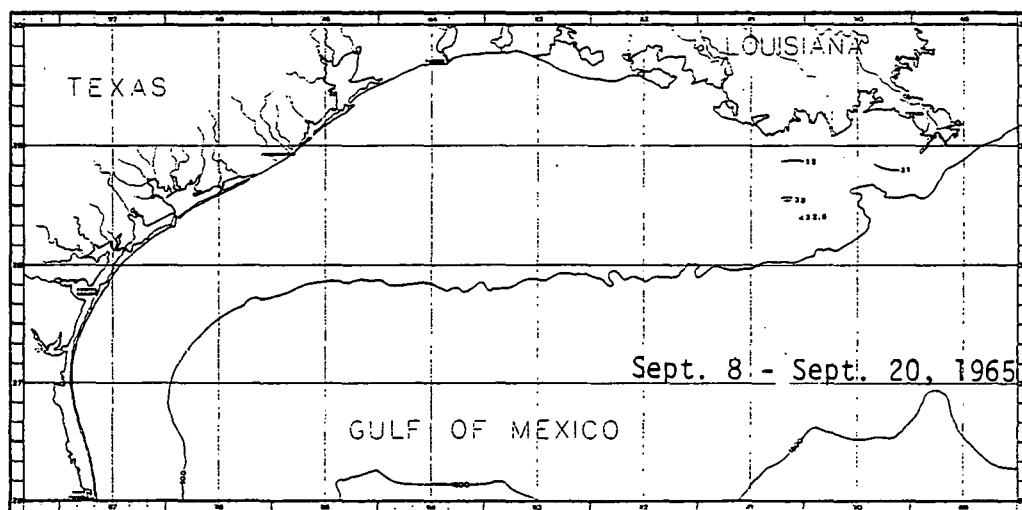
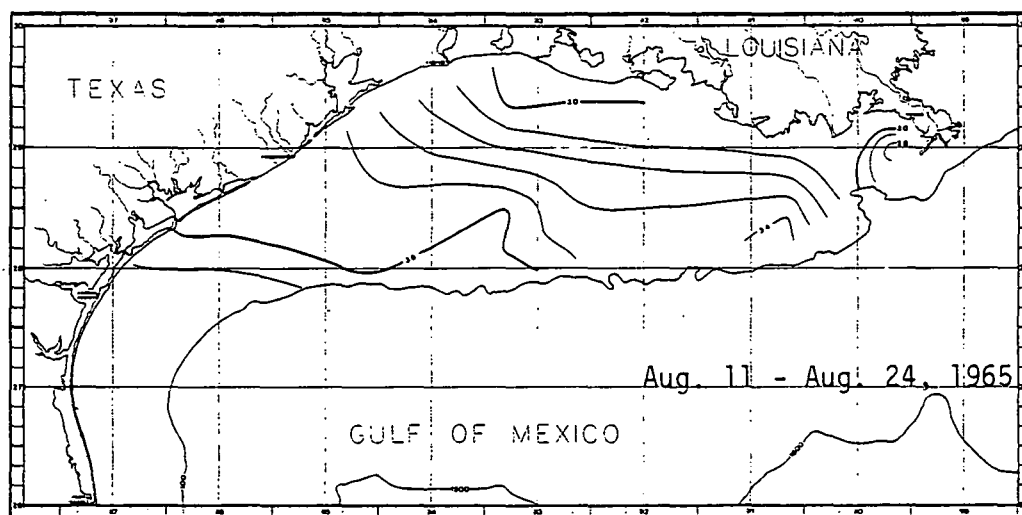


Figure 2-7. Maps of GUS III surface salinity data for the Texas-Louisiana shelf for August, September and October, 1965.

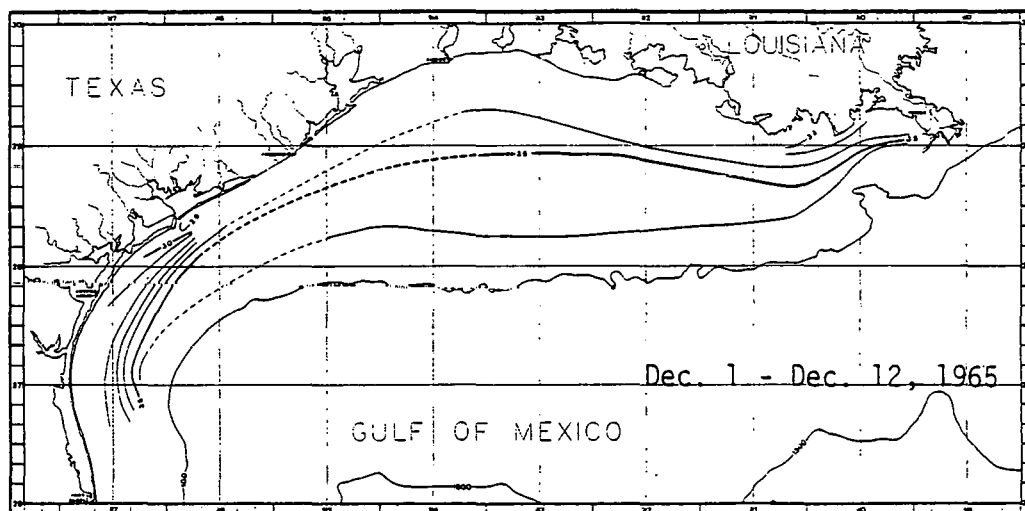


Figure 2-8. Maps of GUS III surface salinity data for the Texas-Louisiana shelf for December, 1965.

APPENDIX 3

Monthly Weather Information

and

Meteorological Data

Table 3-1. Monthly summary of precipitation , temperature and miscellaneous facts for the period October 1976 through November 1979. Excerpted from Monthly Weather Review.

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
October 1976	Eagle Pass-Laredo-San Angelo area had >300% decreasing to 100-150% in East Texas and <50% in Dalhart-Dumas area. Louisiana had >150% in Delta; 100-150% at Calcasieu to 75-100% in northern portion of state.	Panhandle and Hill Country colder by -10°; -8° along coast. Louisiana -8° colder.	Several storms developed over eastern Gulf of Mexico among them, hurricanes Gloria and Holly. Coldest October on record for El Paso, Port Arthur, Galveston and New Orleans.
November 1976	>150% in Rio Grande Valley decreasing to <25% along Red River and Panhandle. Louisiana had >150% in East, Delta and along coast decreasing to <50% in northern portion of the state.	Southern half of state -8° colder with tongue extending almost to Red River. Northern portion -6° colder. Louisiana -6 to -8° colder.	El Paso, Austin, Corpus Christi, Brownsville, Port Arthur, New Orleans, Shreveport, coldest November. Snowiest month of record in El Paso.
December 1976	>150% from Rio Grande to coast decreasing northward to 25% in all of Panhandle. ≥150% in Louisiana Delta decreasing to 75-100% in North.	Most of central Texas from east to west boundaries -2 to -4° colder. Houston and Del Rio areas -6° colder. Panhandle normal to +2° warmer. Louisiana from -2 to -4° colder than normal.	Heavier than normal precipitation in Gulf and South Atlantic coastal states.

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
January 1977	Most of central Texas received 100-150% with a >150% band from Del Rio-Eagle Pass to Port LaVaca-Corpus Christi area.	East-West gradient 0 to +2° warmer in El Paso decreasing across state to <-12° near Paris.	Temperature averaged below normal over all but far Southwest and limited areas of Northwest United States.
	Most of Louisiana 100-150% decreasing to 75-100% in north.	Louisiana from -8 to -11° colder than normal.	
February 1977	Dallas-Ft.Worth region >150%. Portions of Panhandle (Amarillo to Wichita Falls) 100-150% with Dalhart 50%. Texarkana to Brownsville area 100-150% with Houston to Louisiana border <50%.	On a line from El Paso to Port Arthur temperature normal. Increased to +6° in Panhandle and decreased to -2° in Eagle Pass-Laredo area.	
	Louisiana: precipitation ranges from 50-75% in Delta region and north to <50% in southwest. 75-100% in lower Mississippi Valley.	Louisiana temperatures colder by -2 to -4° in Delta region and 0 to +2° warmer in the North.	
March 1977	Panhandle and Brownsville <50% increasing to >150% in Northeast to central Texas. Generally from 75-100% along coast.	All of Texas except Rio Grande border was up to +6° warmer than average.	Warmer than normal temperatures.
	Louisiana: North-South gradient decreasing from >150% in north to 75-100% along coast.	Louisiana on the order of +4° warmer.	

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
April 1977	>200% over most of Texas with >500% at Brownsville. 75-100% along Red River and Texas- Louisiana border.	Panhandle and northeast Texas more than +2° warmer. El Paso to Wichita Falls to Tyler colder ranging to -4° between Del Rio and Laredo.	
	White and Grand Lakes regions of Louisiana >200% decreasing to >50% in the north.	Louisiana warmer by +2° in north and most of Delta. 0 to -2° colder in south and along coast.	
May 1977	Most of Texas and Louisiana <50% normal precipitation with >150% in northeast, Panhandle and Rio Grande.	Coast 0 to +2° warmer as was most of Texas increasing to +4° in Gainesville area. Below normal in Big Bend region to -2° at Del Rio on Rio Grande.	
	Louisiana had 75-100% in Delta region.	Louisiana from South (+2°) to North (+4°) warmer than normal.	
June 1977	Most of Texas had >50% normal precipitation with coastal regions >150%. Panhandle and some portions of Southwest Texas had <50% normal amount.	All of Texas except extreme west Texas along Rio Grande warmer by up to +4°. Region along border colder than normal by <-2°.	Warmer than normal.
	<50% in Delta and east Louisiana decreasing from 100-150% in Calcasieu region.	Louisiana on order of +2 to +4° warmer.	

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
July 1977	Rio Grande border generally dry (<50%) with precipitation increasing to north and east (100-150%), 50-75% along coast.	Most of Texas +2° warmer with two isolated spots (one about Houston, the other along Rio Grande at Del Rio) which were cooler than normal.	Temperatures above normal for all but northwest U.S.A.
	Louisiana >75% over most of state increasing to >150% along coast from Vermillion Bay to Delta.	Most of Louisiana +2° warmer. East and Delta more than +2° warmer.	
August 1977	Most of west and central Texas <50% increasing to >150% in Panhandle and east to Gainesville, Brownsville area ranging to >150% also.	Most of Texas was +2° warmer. Portions (Pampa, Wichita Falls, Abilene, Lubbock) of north central and east Texas-Louisiana border were colder by >-2° in some spots.	Greater than normal precipitation in most areas east of the Continental Divide.
	Louisiana >300% in Delta with most of state >150%.	Most of Louisiana cooler by -2° with east Delta region warmer than average.	Anita southeast of New Orleans; not much effect during August.
September 1977	Approximately 80% of Texas <50% normal precipitation, 3 small areas near Dalhart, Brownsville and Galveston >100%.	Most of Texas >+2° warmer ranging to > +8° in West Texas.	Abilene - 5th driest September. Anita born late August; aground in eastern Mexico on 2 Sept.
	Louisiana Delta >150% decreasing to <50% in northwest.	Louisiana between +2 and +4° warmer over entire state.	Babe strikes Louisiana coast on 5 Sept. causing measurable rainfall over all of Louisiana (8 in.) and most of Texas.

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
October 1977	Precipitation ranges from <50% in Panhandle and east Texas to >150% in El Paso-Del Rio area. Precipitation decreases to 75-100% at Brownsville. Northwest corner of Louisiana <50% increasing to >150% along coast and Delta region.	Most of Texas warmer than 30-year mean by as much as +4°. All of east Texas colder by 0 to -2°. Louisiana colder by -2 to -4°.	
November 1977	Small region of <50% from west Panhandle to Big Bend, >300% in Hill country and Brownsville area, >150% along coast. Delta region of Louisiana >150% decreasing to < 75% in North.	Most of Texas +2° warmer ranging to +4° near El Paso. Louisiana on the order of +2° warmer.	
December 1977	90% of Texas had <50% normal precipitation. Increases to ~100% precipitation for Brazos Valley eastward to Texas-Louisiana border. Most of Louisiana ranged from 50- 75% with Delta approaching 100%.	Excluding east Texas and Rio Grande Valley, temperatures were above normal by as much as +6° at El Paso. In Texarkana and Corpus Christi areas -2° below average. Louisiana between 0 and -2° colder with coast line 0 to +2° warmer than average.	

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
January 1978	Rio Grande border of Texas <50% ranging to >150% along coast, parts of Panhandle >100% with central Texas 50-75%.	East-West temperature gradient; warmer than 30 year mean at El Paso to -12° colder in north- east Texas. -6° colder at Brownsville.	Coldest January on record: Wichita Falls, Texas and Shreveport, Louisiana. Third coldest January in Austin, Texas.
	Louisiana for most part >150%.	Louisiana between -10 to -12° colder.	
February 1978	Most of Texas >150% with >300% in Panhandle, <50% along Rio Grande increasing to 100-150% in Houston-Corpus Christi area.	East-West gradient with El Paso warmer than 30 year mean, north central Texas colder by -14°.	Wichita Falls: coldest February; second coldest: Austin.
	Central Louisiana <50% increasing to 75% in northwest corner of Delta.	Louisiana on order of -10 to -12° colder.	
March 1978	Most of Texas (Panhandle west and coast) <50%, >150% in Wichita Falls area and >100% in Hill country.	Temperatures west of line from Wichita Falls to Big Springs to Port Mansfield are warmer than mean (up to +6° at El Paso). East of line temperature as much as -4° colder.	
	Most of Louisiana <50% north and Delta region up to 75%.	Louisiana on order of -2° colder.	

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
April 1978	50% of area from El Paso to Texas-Louisiana border <50%. Up to 75% in Panhandle and >100% in Big Bend, Del Rio, San Antonio, Brownsville areas.	All except the coast was warmer than 30 year mean be as much as +6°. Coast cooler by -2°.	For portions of West Texas drought and blowing dust were a problem.
	Southwest to northeast Louisiana <50%. Northwest 50-75%, same in Southeast increasing to 100% over Delta.	Central Louisiana cooler by approximately -2° while North and Southeast warmer by +2°.	
May 1978	>200% rainfall in Panhandle and east Texas. Central Texas (Abilene area) had <50% as did coast, >100% in Del Rio-Eagle Pass area.	Texas Panhandle and Red River area into east Texas up to -2° colder. Remainder of state up to +4° warmer.	Driest May for Port Arthur, Texas.
	All but southwest third of state >150% (200% over Delta). Southwest corner decreases to <50%.	Louisiana: North half of state colder by >-2°. Southern half warmer by more than +2°.	
June 1978	Regions from Texarkana to Dallas-Ft. Worth <50% normal precipitation increasing on each side of this band to >150% in Panhandle and coastal regions.	90% of Texas warmer than average (up to +2°). In Midland-Odessa area and Houston colder than average by as much as -2°.	No hurricanes or tropical storms formed over Atlantic or adjacent waters.
	Louisiana: northern portion for most part <50% increasing to 100% along northeast border and >150% in Delta	Louisiana warmer by +2° all over state.	

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
July 1978	Most of north Texas (Panhandle, Red River) <50% precipitation, Big Bend, Del Rio region and some of coast >150%, >100% in Tyler, Longview area. Louisiana Delta >150% decreasing to 75-100% in north.	Texas warmer by more than +2° all over state and +4° in Wichita Falls, Childress, Abilene area. Louisiana warmer by at least +2° all over state.	Warmer than normal over southern half of the U.S. On July 30, tropical storm Amelia formed in southern Gulf of Mexico. Came ashore that evening at Brownsville bringing several days of rain to central Texas in August.
August 1978	From Rio Grande to Red River >150%, Hill country and Abilene area >300%, <50% east of Dallas-Ft. Worth to Red River, Big Bend to Amarillo and along coast; east Texas and north Panhandle 100-150%. Most of Louisiana >150% precipitation.	On a line from Wichita Falls to Brownsville temperatures to west were up to -2° colder. In east Texas and along coast the temperatures were almost +2° warmer. All of Louisiana approaching +2° warmer.	Above normal precipitation for most of U.S. caused by two storms Amelia and Debra. Debra formed just south of Texas-Louisiana border on 28 August and downgraded the same day. Not identifiable by August 31.
September 1978	Rio Grande Valley, Panhandle, and West Texas >150% with El Paso nearly 500%. North central has approximately 50%. Decreases along coast. Most of Louisiana 100-150%, northwest and north central decreasing to 50-75%, northeast >150%, Delta decreasing to 75%	West Texas approaching +4° with East on order of +2 to +4° warmer. Louisiana +2 to +4° warmer.	Heavier than normal precipitation in parts of Southwest Texas. Wettest September for Victoria, Texas.

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
October 1978	East of a line from Amarillo to Corpus Christi <50% normal moisture; to the west >150% at El Paso, Big Bend and Rio Grande Valley.	East portion of Panhandle and north central Texas approaching +2° warmer. Rest of state colder with Big Bend and Del Rio areas approximately -4° colder.	Houston: tied for second driest October (1944).
	South and Central Louisiana <50% increasing to 75-100% in northwest corner of state.	Louisiana colder except for Delta region which was warmer than 30 year mean.	Baton Rouge: tied for driest October (1940).
November 1978	Most of Texas >150% with El Paso and northwest Panhandle >300%. East Texas decreasing to 75-100% and Rio Grande Valley 50-75% of normal.	All of Texas warmer except northwest Panhandle (<-2° colder), Midland-Odessa (>-2° colder) and Waco (>-2°), Port Arthur >+6° warmer and El Paso >+4° warmer.	
	Louisiana from 75-100%.	Louisiana from +4 to +6° warmer than normal.	
December 1978	Most of Panhandle and north central Texas <50%, increasing to 150% in south and west and to 100% in east.	All of Texas except coast line and El Paso colder than normal, with northwest Panhandle approaching -8° colder.	
	Louisiana from <50% along coast to >150% in northern part of state.	Northwest and central Louisiana colder; coast and east Louisiana warmer than normal.	

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
January 1979	Big Bend-Midland-Odessa area <50%, increasing in all directions to >150% in east Texas, Panhandle, and El Paso. All but coastal and Delta Louisiana >150%. This region had from 100-150% of normal precipitation.	Texas was colder than normal in all parts of state from Rio Grande Valley (-6°) to north- east corner of Panhandle (-12°). Louisiana was colder, from -6° along coast to -10° along northern border.	Colder than normal. Amarillo: coldest January; Wichita Falls and Austin: second coldest January Shreveport: fourth coldest January.
February 1979	East to west through central Texas, 100-150%, >150% at El Paso and Abilene, decreasing to <50% in Pandandle and 50-75% in Rio Grande Valley. Southern two-thirds of Louisiana >150% (except for southwest cor- ner), southeast corner and north- ern third had 100-150% normal precipitation.	Except for northwest Panhandle all of Texas colder than normal. From -4° in Rio Grande Valley and Beaumont-Port Arthur area to -9° along Red River. Louisiana between -4° and -8° colder than normal.	Third coldest February in Wichita Falls.
March 1979	Most of Texas >150% precipitation with >300% in Lubbock-Abilene area, decreases to <50% at El Paso and Brownsville and 100-150% at Texarkana. Northeast to southwest gradient 75% in northeast to >150% in southwest corner at Sabine Lake.	Warmer than normal by approxi- mately +2° over all of state except portion from Big Bend to El Paso. Louisiana: all of state with above average temperatures (+2°).	

Table 3-1. (cont.)

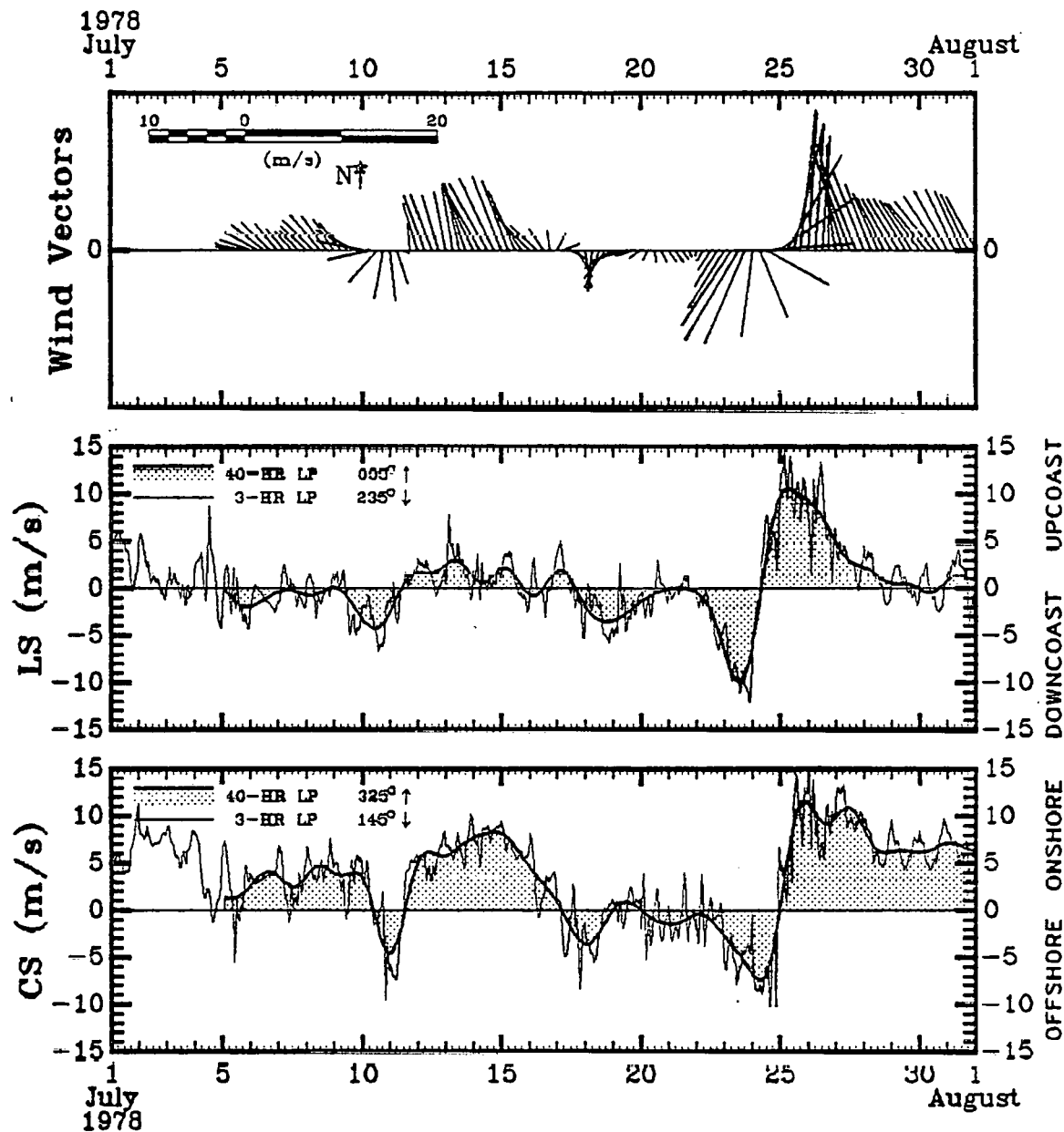
MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
April 1979	Coast and up toward Midland >150%, Dallas-Ft. Worth to Austin <50%.	Most of Texas colder than nor- mal (colder by > -2°) except for western Panhandle, El Paso and coast which were warmer by +2°. Southern tip of Texas colder than normal.	Houston and Baton Rouge: second wettest April.
	All of Louisiana greater than 100% precipitation with coast >150%.	North half of Louisiana colder, coast and Delta warmer by +2°.	Major tornado in Wichita Falls, Texas, on 10 April. Flood producing rains over Texas and Louisiana. Six inches of rain within 24 hours in Houston 19 and 20 April.
May 1979	Ft. Stockton-Midland-Laredo area <50% normal precipitation, increasing to north (>150% in Panhandle) and east (>150% Houston to Texarkana). South- east Texas 75-150%.	All of Texas colder by -2°, -4° in parts of Panhandle and east Texas.	
	North Louisiana >150%, south and east from 100-150%.	All of Louisiana colder by -2°.	
June 1979	West Texas along Rio Grande >150% decreasing to <50% at El Paso and Galveston areas, 75-100% in Pan- handle, >150% along Red River.	Most of Texas colder than normal. Coast and Nocona areas warmer.	
	North-south gradient in Louisi- ana. North 100-150% to <50% in south and Delta.	All of Louisiana except Delta colder than normal.	

Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
July 1979	Most of Texas >150%, Wichita Falls, Abilene, Ozona 75-100% of normal. All of Louisiana >100%, most >150% of normal precipitation.	West portion of state from El Paso to Brownsville warmer than usual (+2°). Panhandle, central and east Texas as much as -4° colder. North and central Louisiana colder by -2°. Coast, south and east warmer by +2°.	Austin, Galveston: third wettest July. San Antonio, Port Arthur: fourth wettest July. Tropical storm Bob formed on 10 July; came ashore 11 July at Grand Isle, Louisiana causing heavy rains. Storm moved into Port Arthur 24 July. Affected east Texas two days with heavy rains.
August 1979	>150% in Panhandle, east and central Texas and Brownsville. Some areas of <50% in Hill country and Laredo area. Louisiana 100-150% along coast decreasing to 50-75% in north.	All of Texas colder except tip at Brownsville; as much as -4° colder in Panhandle and central Texas. East and Delta region of Louisiana warmer than normal ranging to colder by -2° in northwest Louisiana.	On 31 August, two storms formed: Elena in Gulf of Mexico and Frederic east of Lesser Antilles.
September 1979	More than half of Texas had <50% precipitation from Panhandle to Rio Grande through central Texas, coast had >300%, El Paso nearing 150%. Band from southwest to northeast >150%, northwest corner 100-150%, southeast half of state decreasing to 75-100%.	Panhandle through Big Bend warmer, coast and Brownsville tip colder by -4°. Except for Delta all of Louisiana colder by -2°.	Elena produced a few showers over south-eastern Texas on 1 September. Frederic struck near Mobile, Alabama.

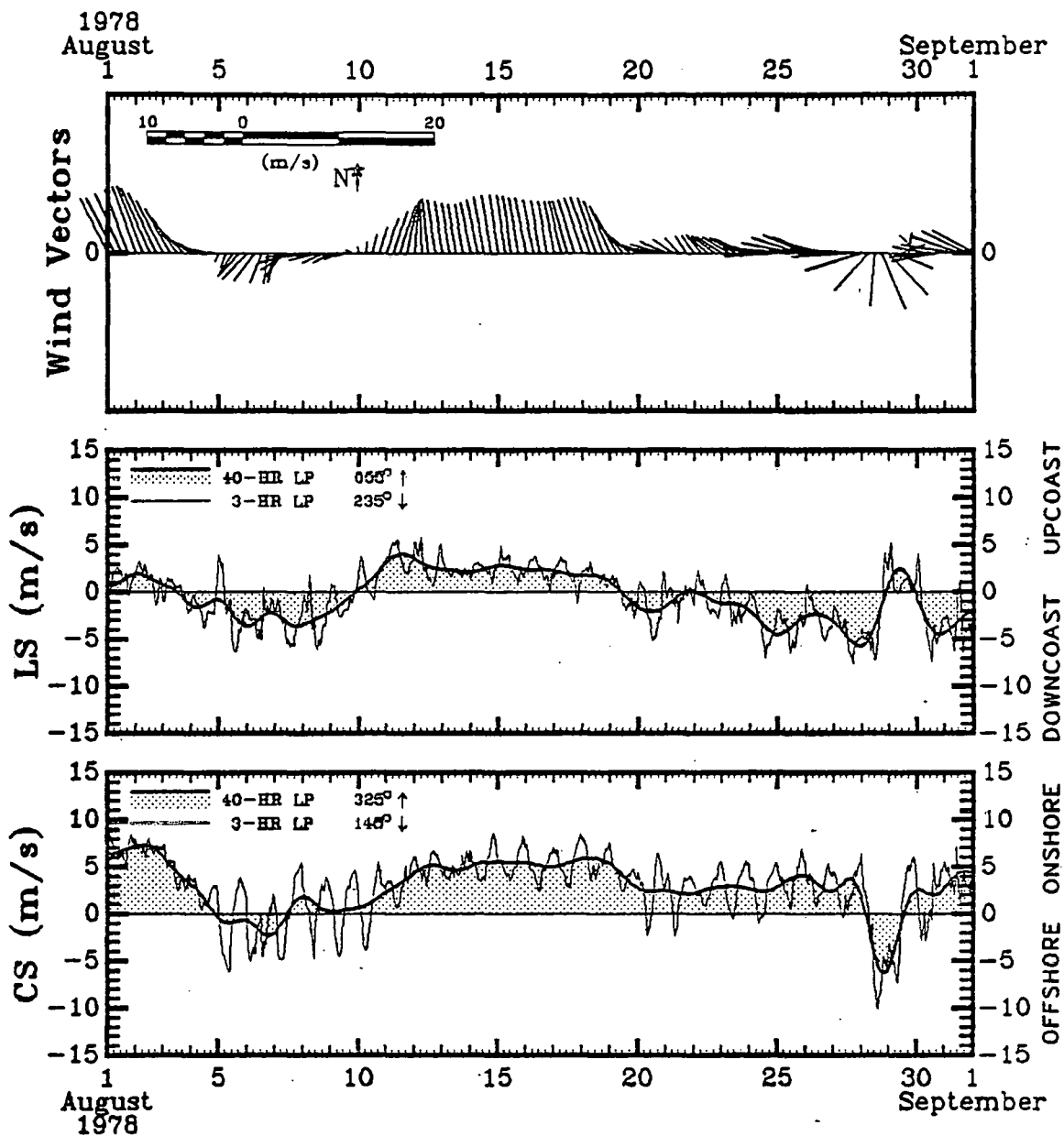
Table 3-1. (cont.)

MONTH	PERCENTAGE OF NORMAL PRECIPITATION	TEMPERATURE DEPARTURE (F°) from 30-YR MEAN	COMMENTS
October 1979	Most of west Texas and Amarillo to Galveston had <50%, increasing to 100-150% along Red River and >150% at Beaumont-Port Arthur.	All but small area of Texas warmer than usual.	
	Louisiana had large area 100-150%, Delta from 50-75% and north 75-100%.	Coast and Delta of Louisiana warmer, rest of state remaining as much as -2° colder.	
November 1979	Most of Texas <50%, Panhandle wetter increasing to >150% in Wichita Falls area, Bryan-College Station also had 100-150%.	All of Texas colder with east Texas as much as -6° colder.	
	Most of Louisiana 100-150%, eastern portion >150%.	Most of Louisiana in excess of -4° colder.	



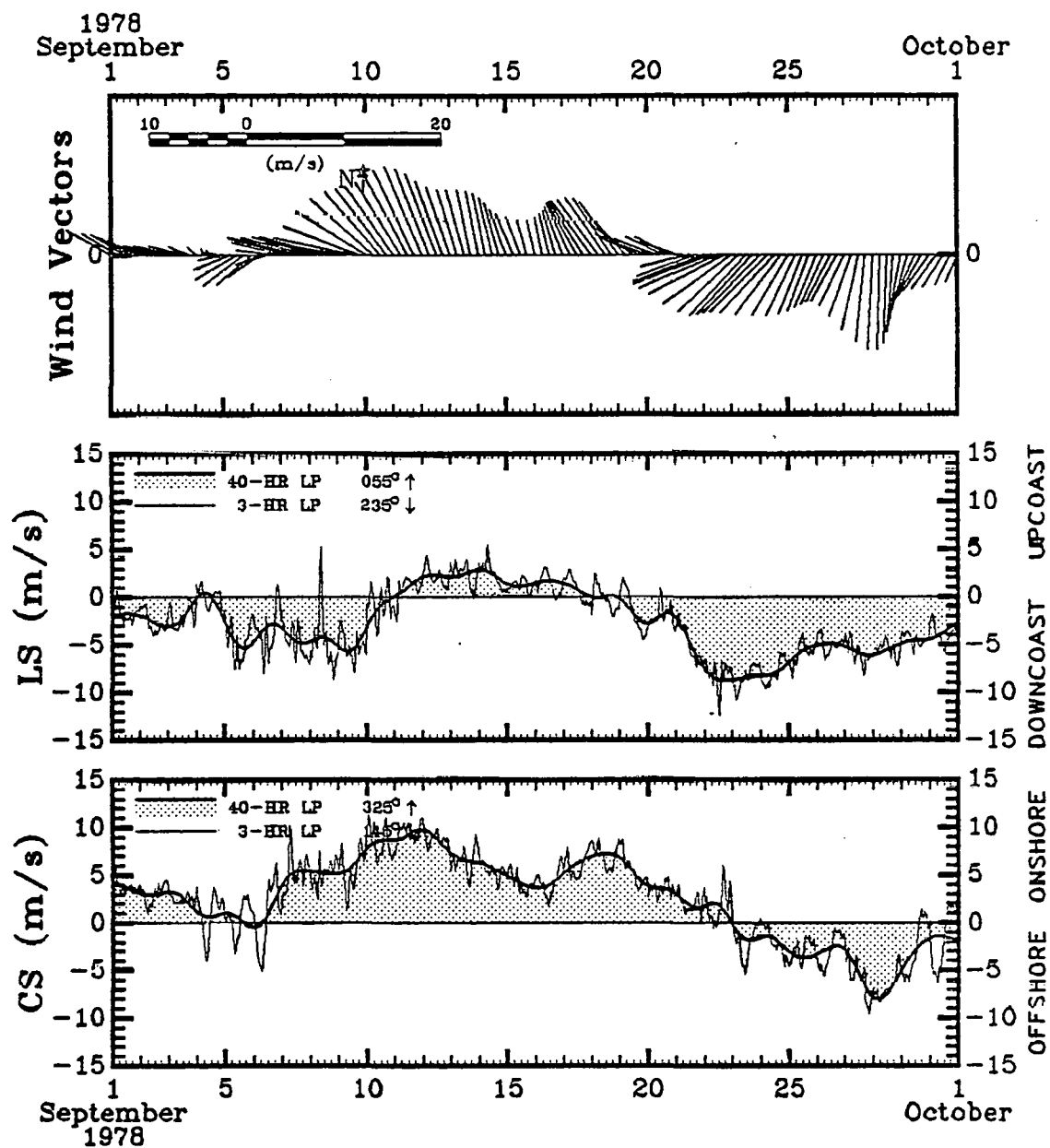
Site A, Wind

Figure 3-1: July 1978: Wind velocity time series plots from NOAA/NDBO meterological package atop a fixed gas platform near Site A.



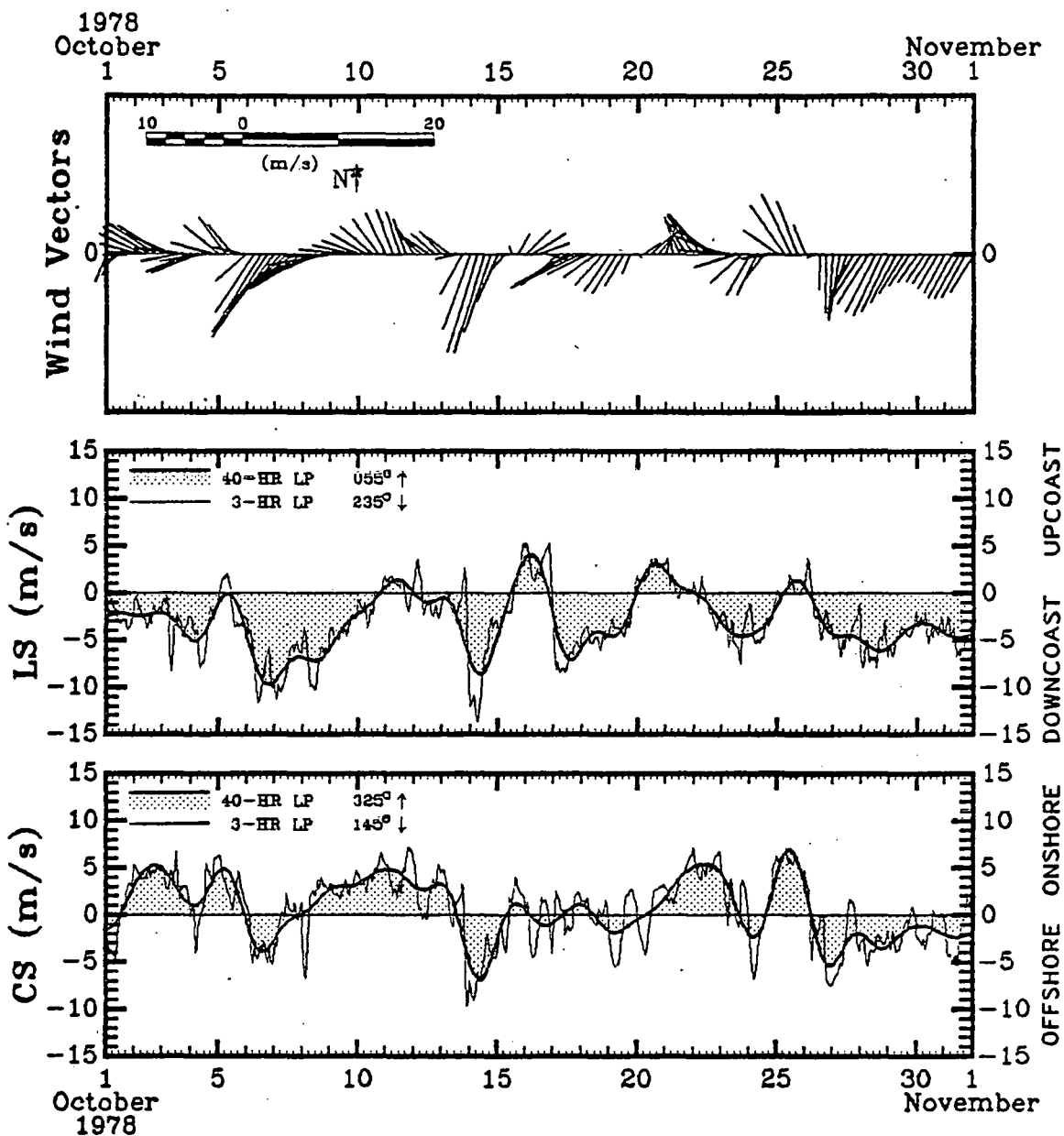
Site A, Wind

Figure 3-2. August 1978: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



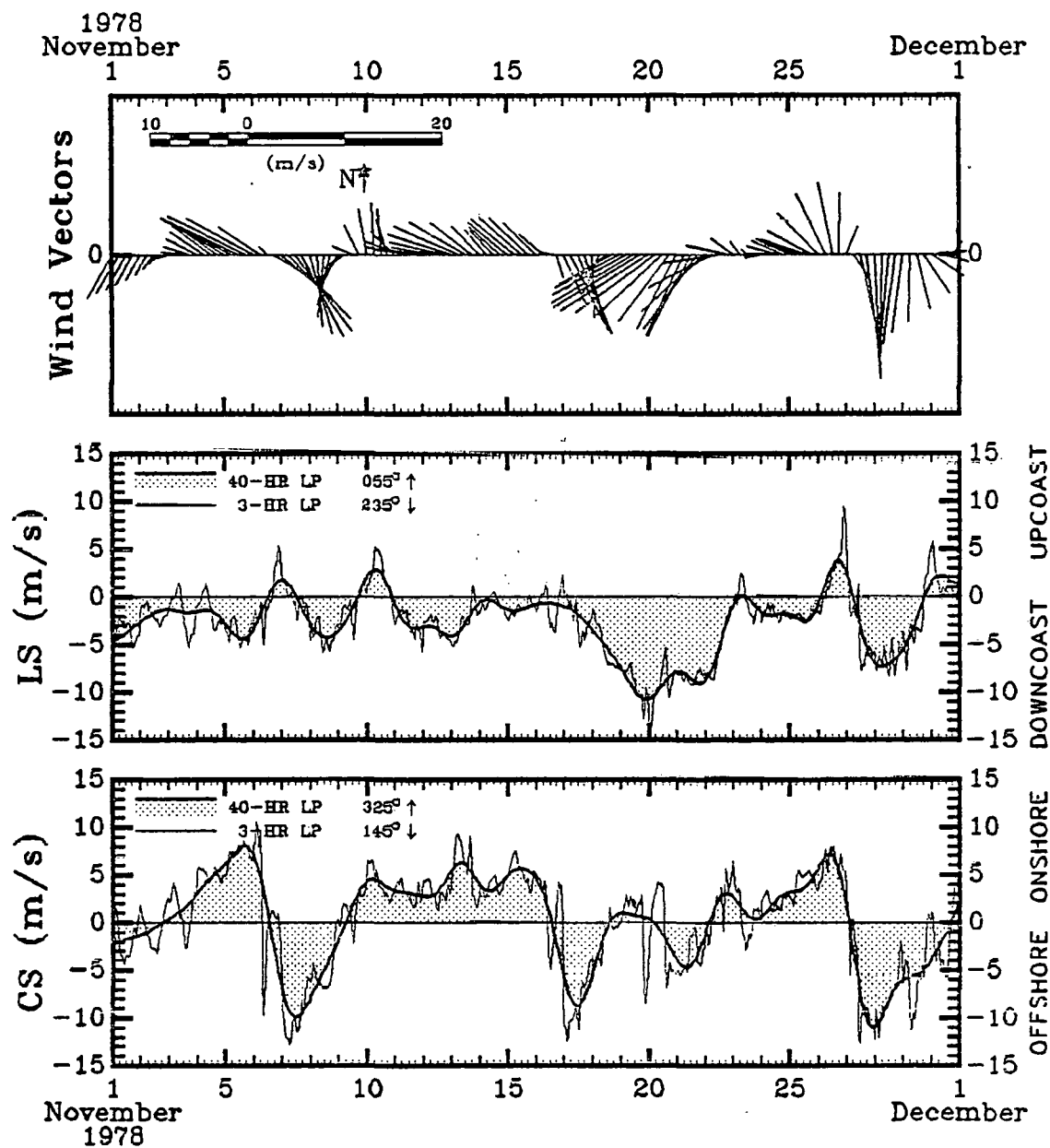
Site A, Wind

Figure 3-3. September 1978: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



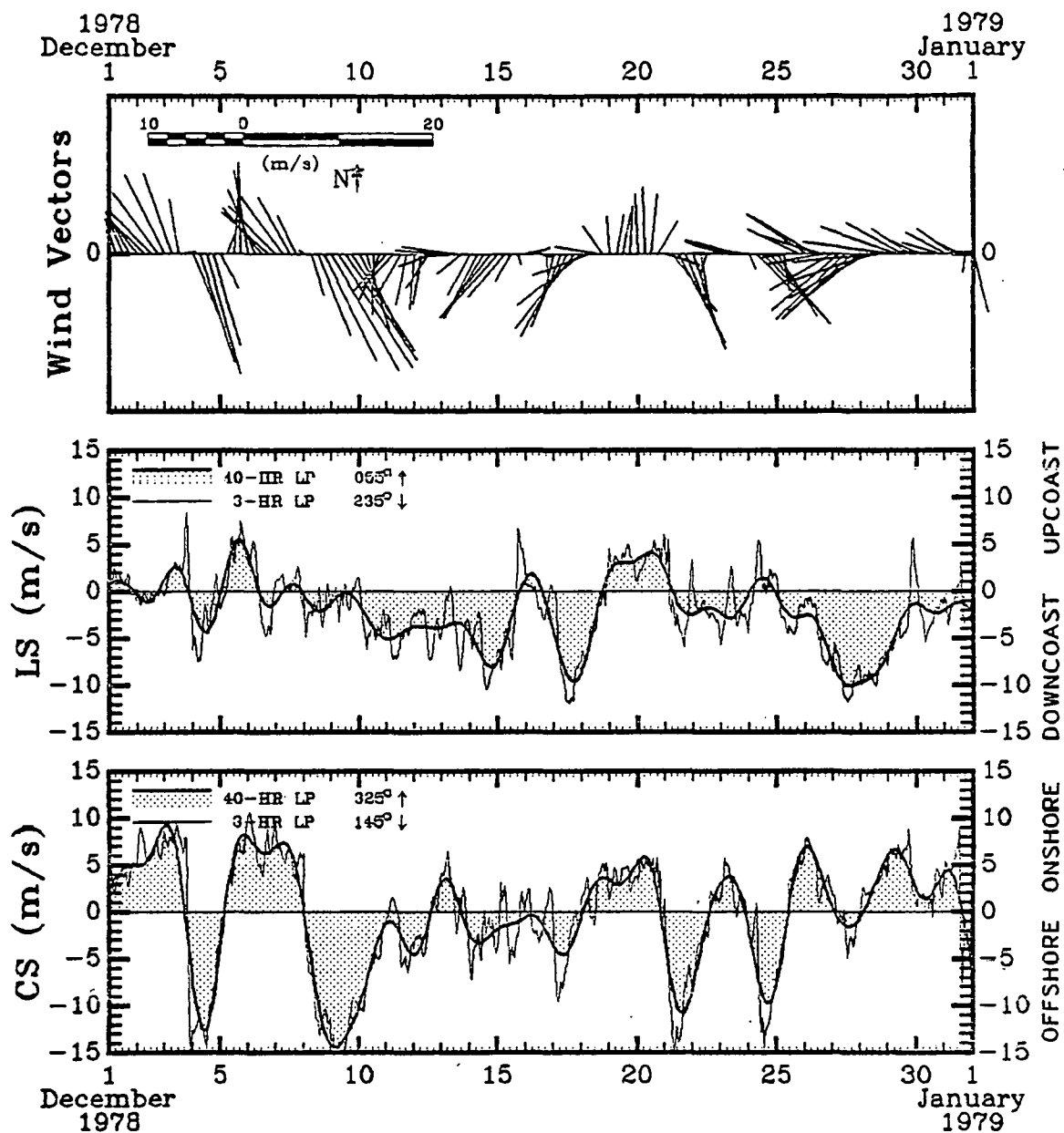
Site A, Wind

Figure 3-4. October 1978: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



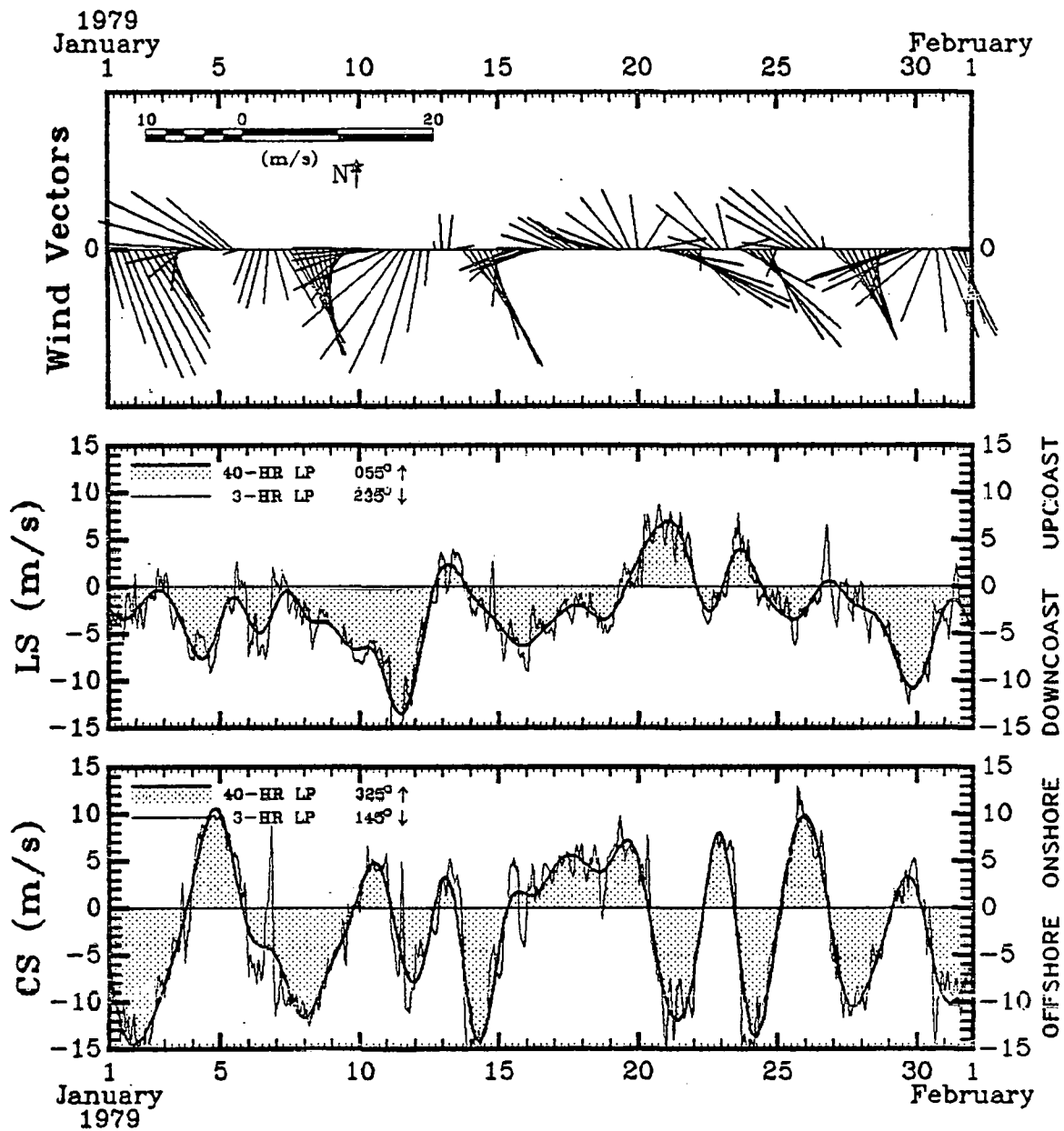
Site A, Wind

Figure 3-5. November 1978: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



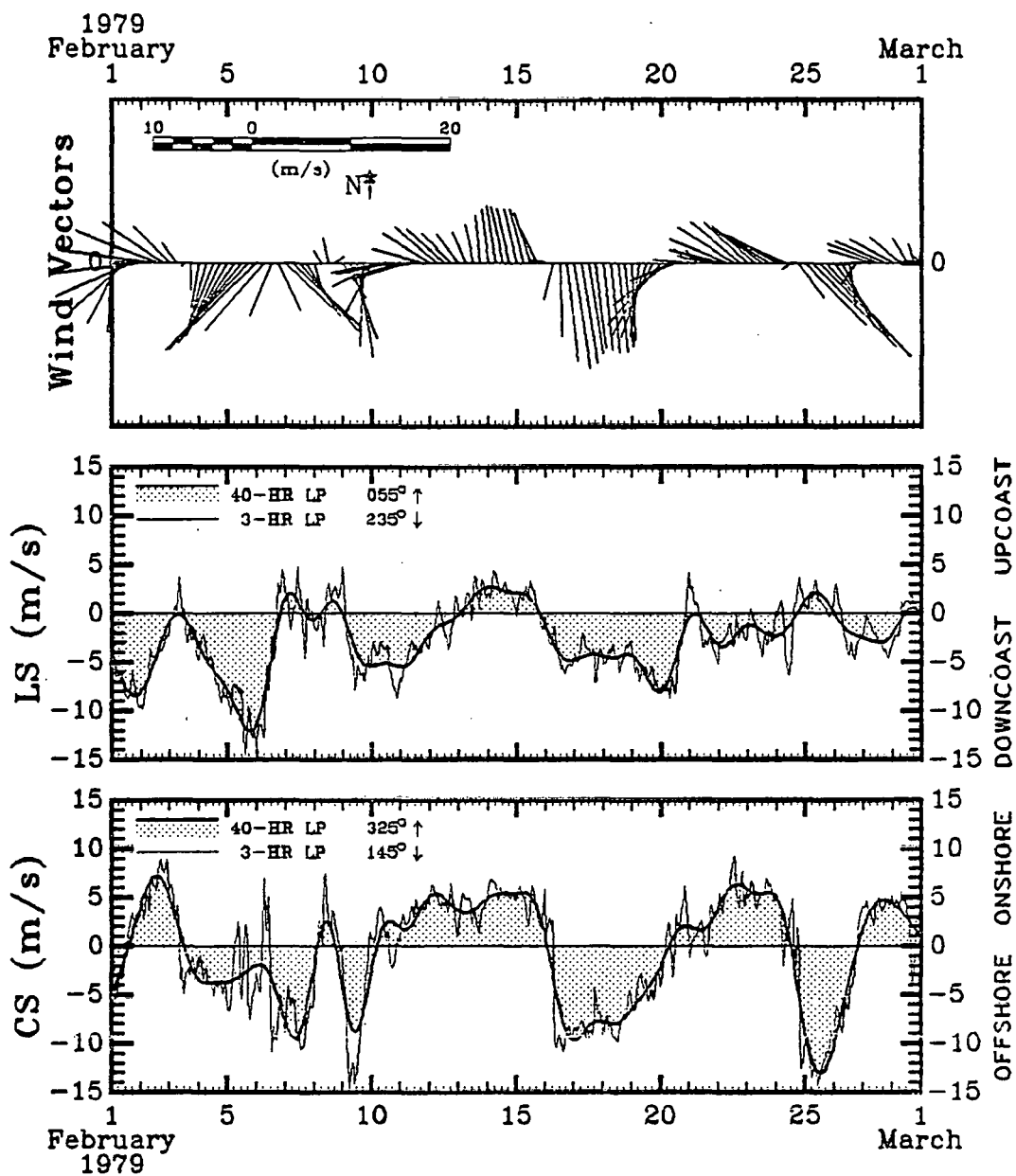
Site A, Wind

Figure 3-6. December 1978: Wind velocity time series plots from NOAA/NBDO meteorological package atop a fixed gas platform near Site A.



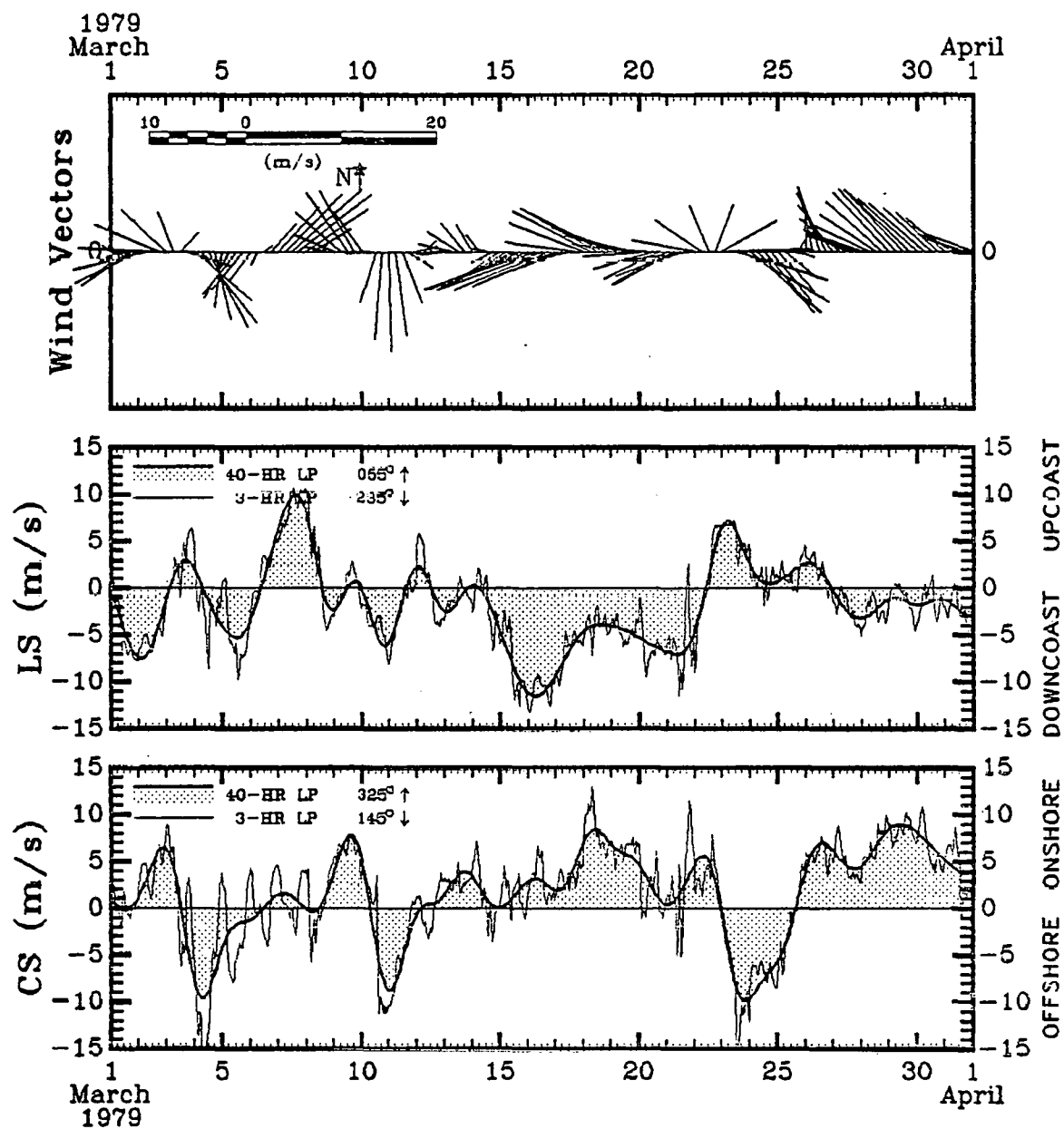
Site A, Wind

Figure 3-7. January 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



Site A, Wind

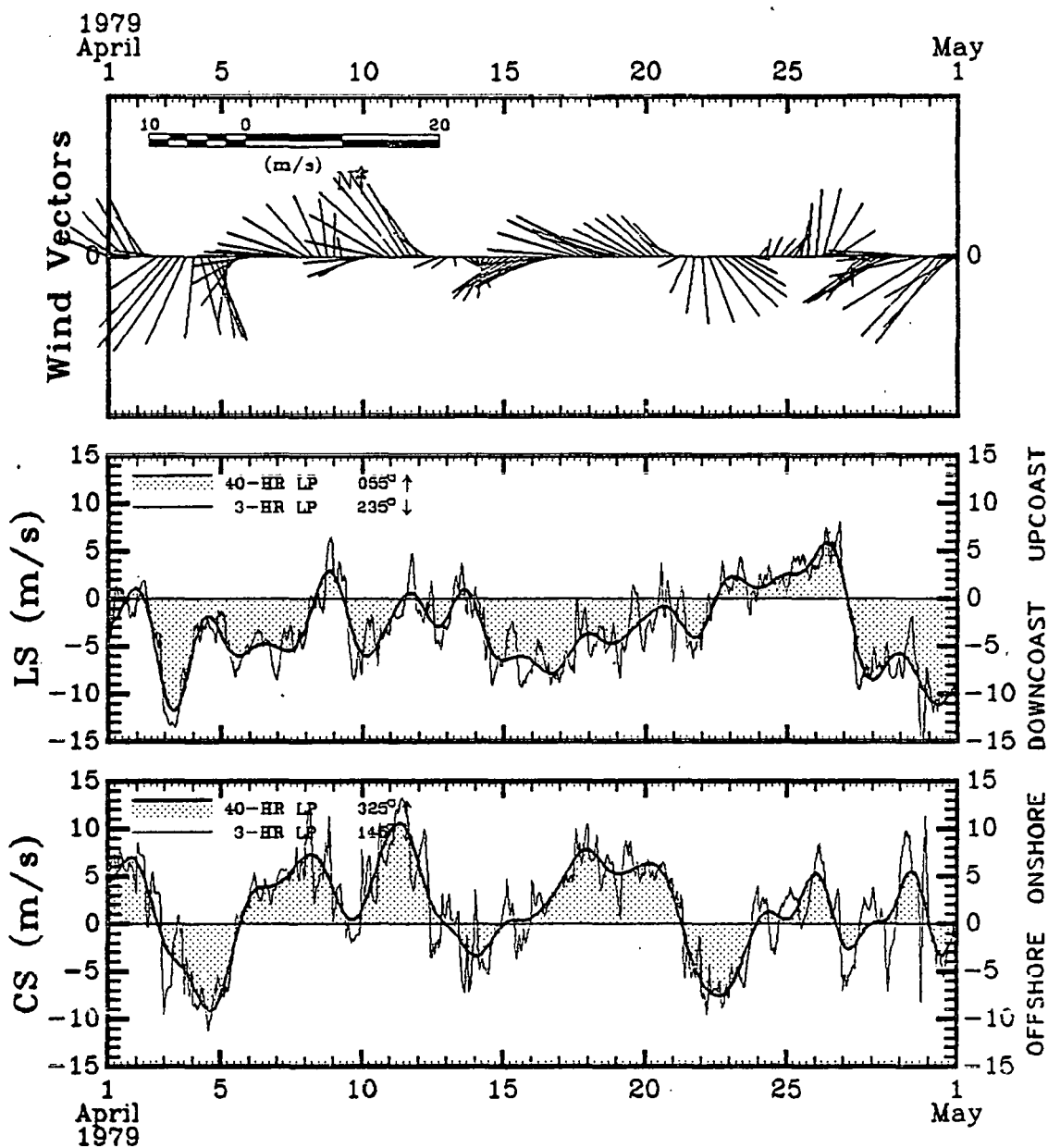
Figure 3-8. February 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



Site A, Wind

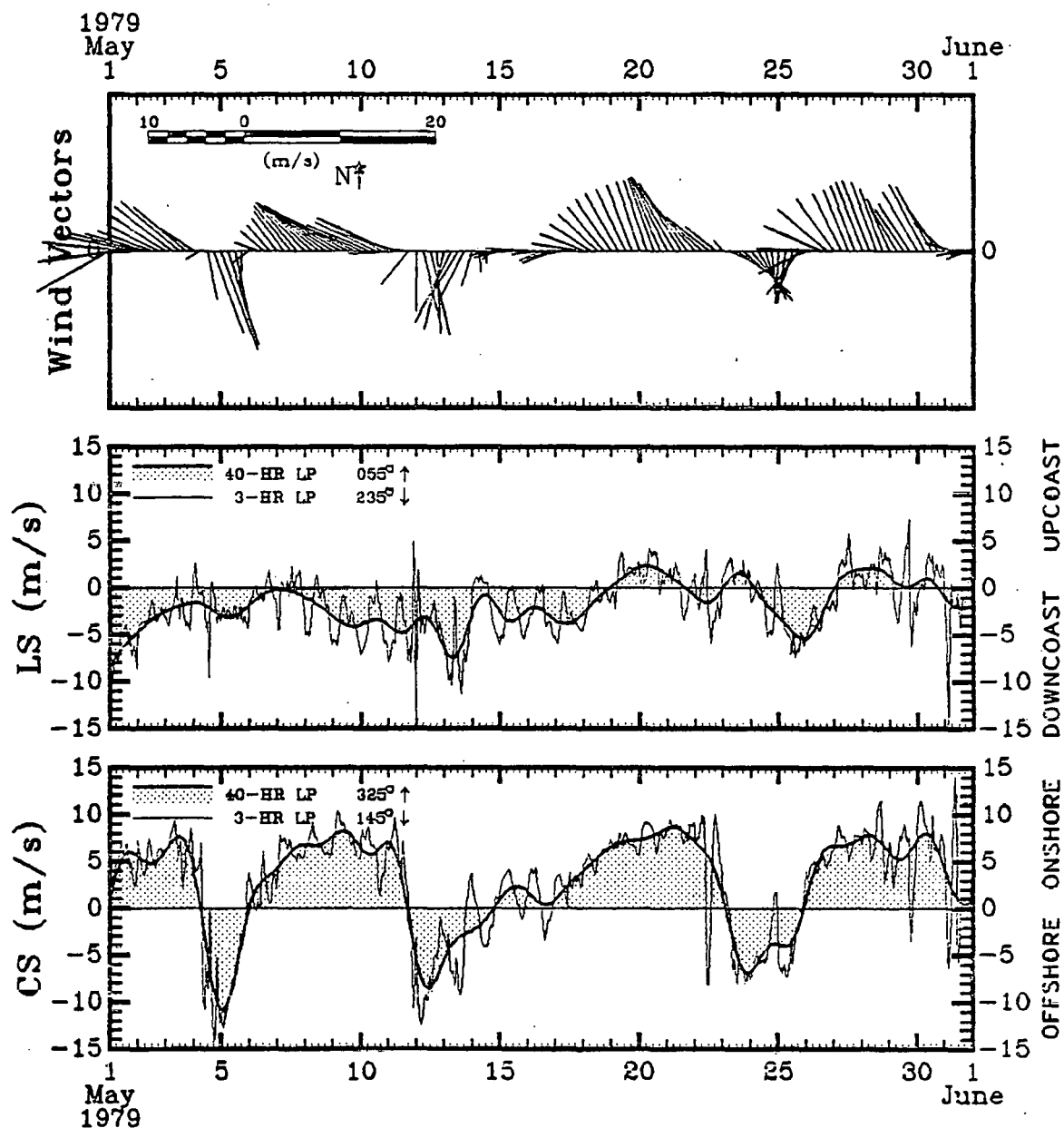
Figure 3-9.

March 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



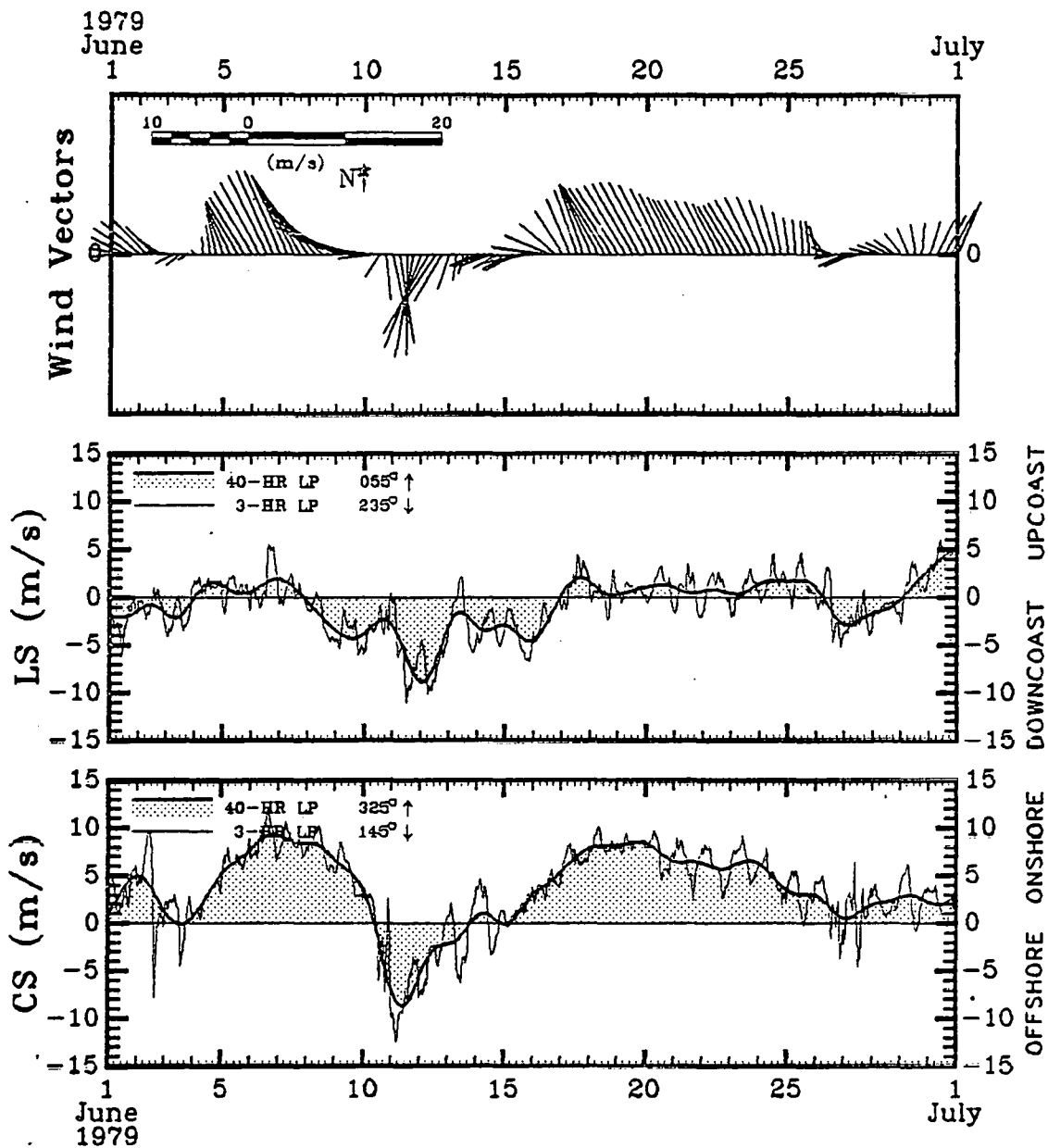
Site A, Wind

Figure 3-10. April 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



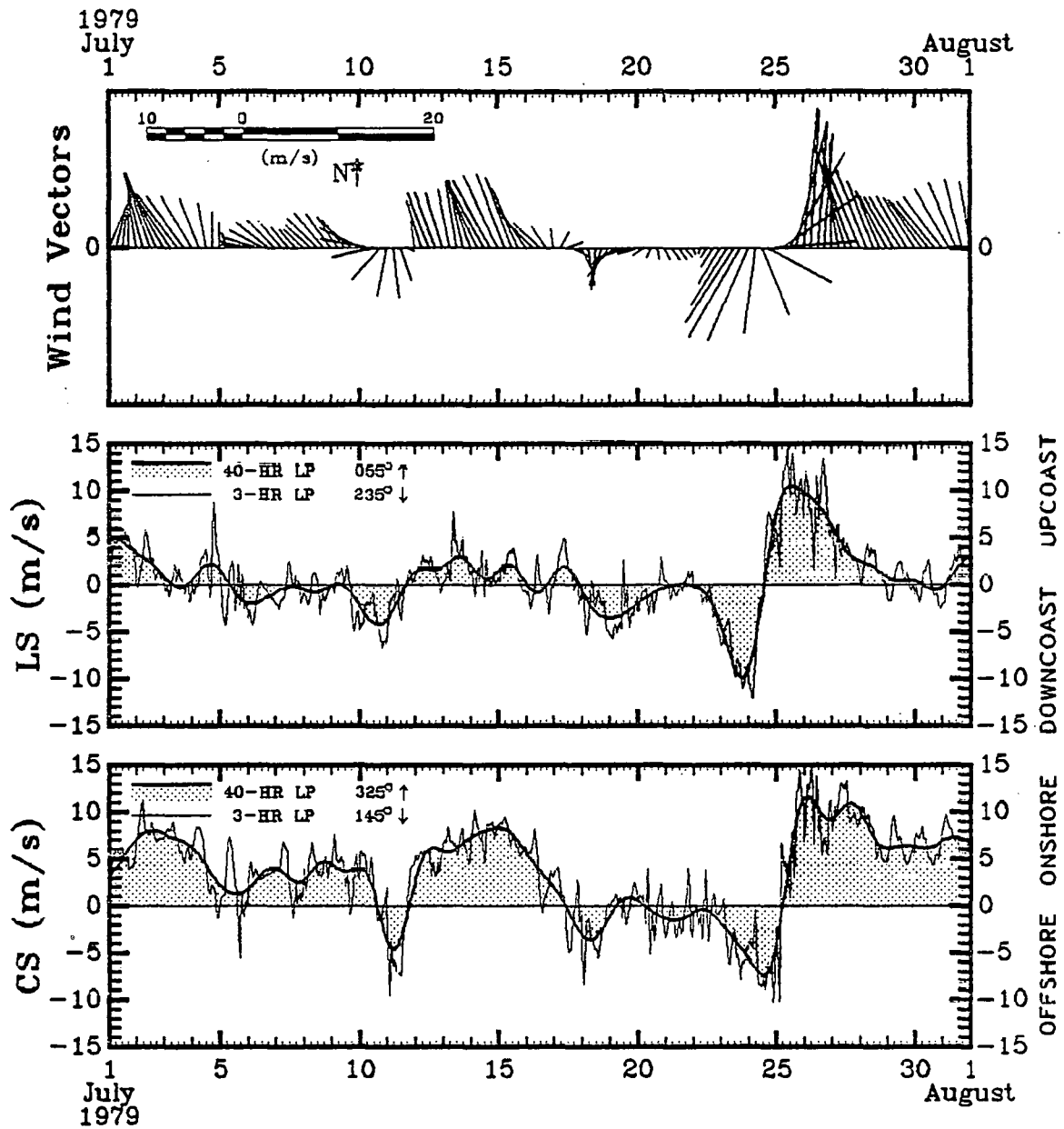
Site A, Wind

Figure 3-11. May 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



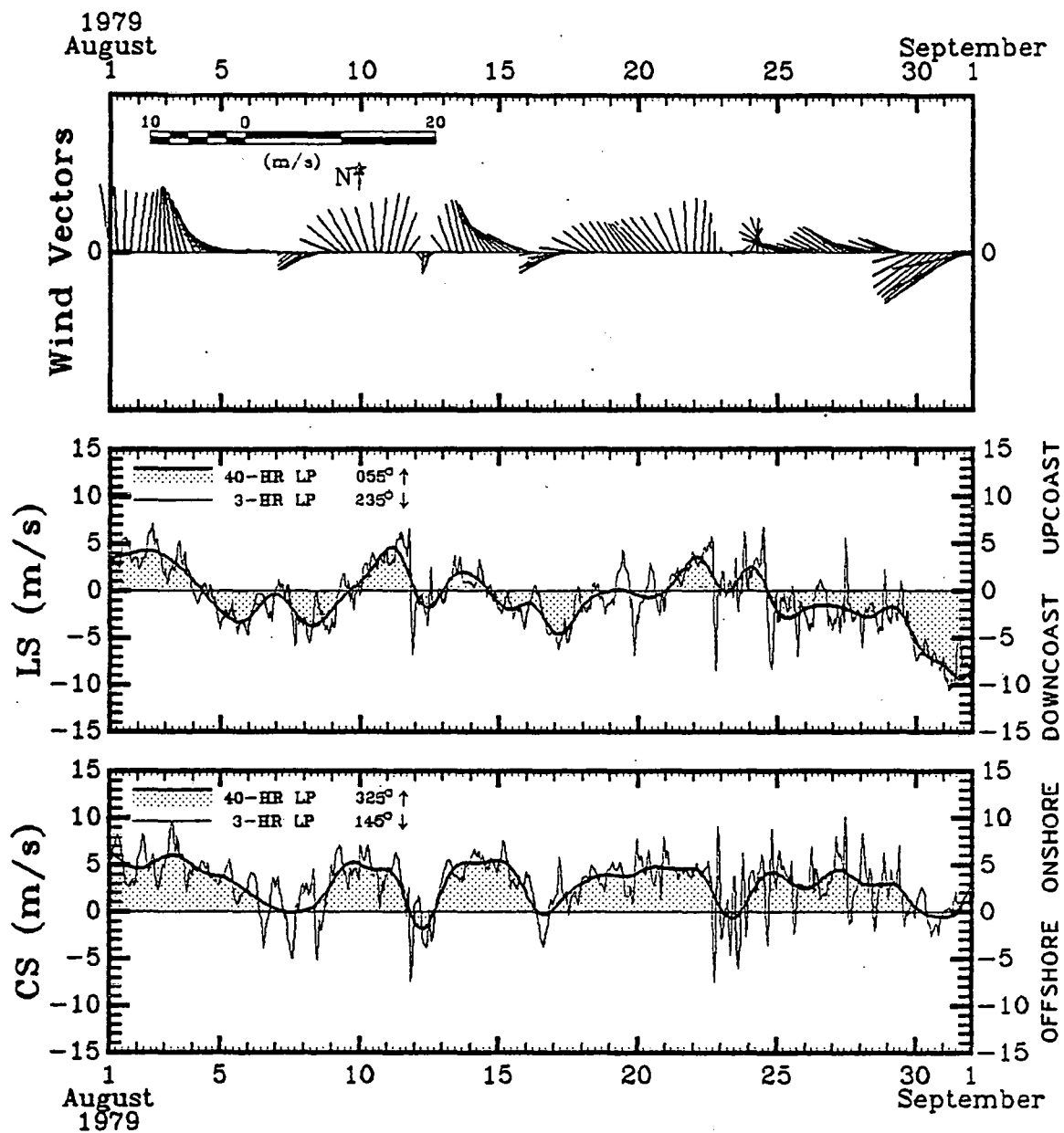
Site A, Wind

Figure 3-12. June 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



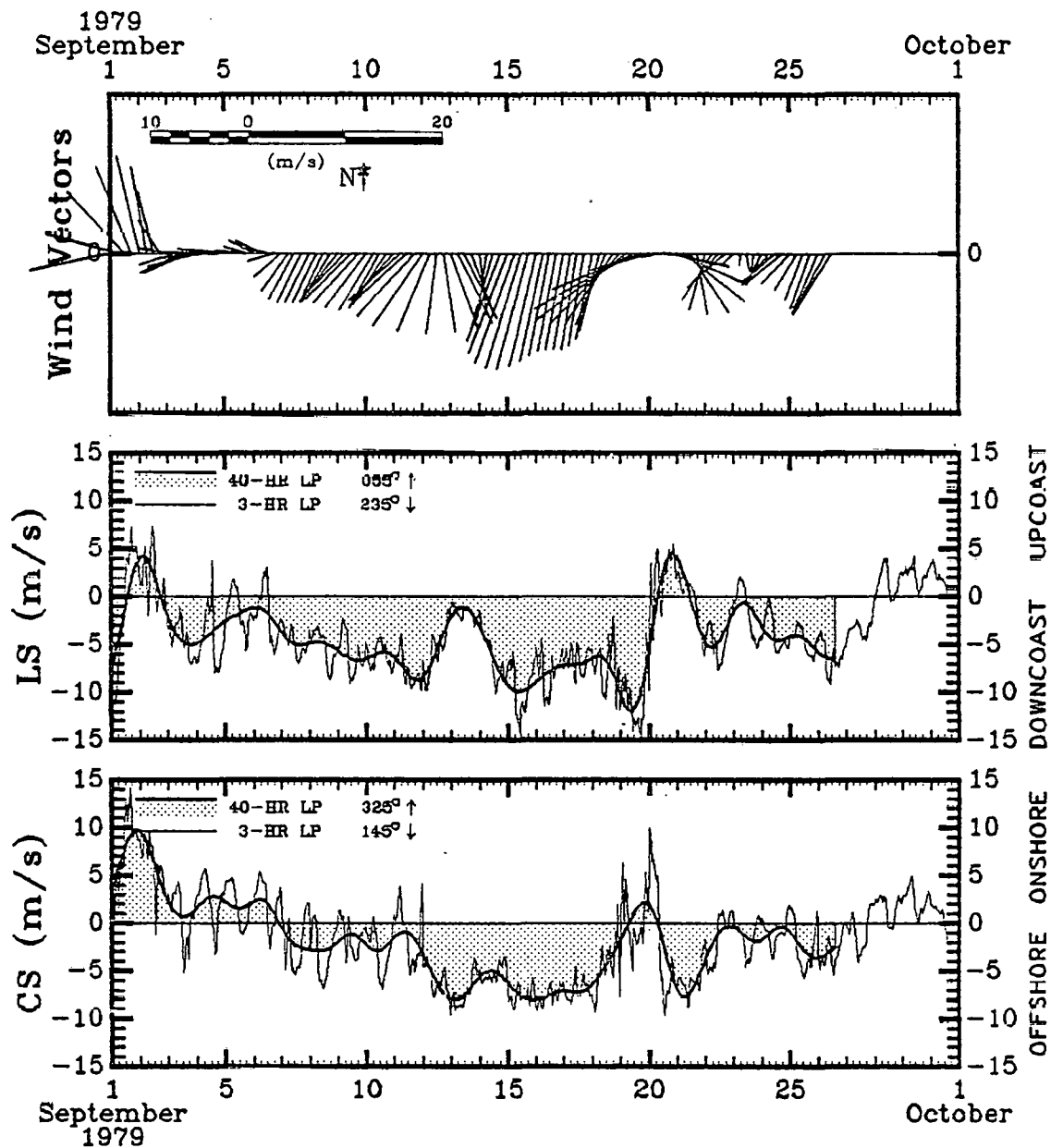
Site A, Wind

Figure 3-13. July 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



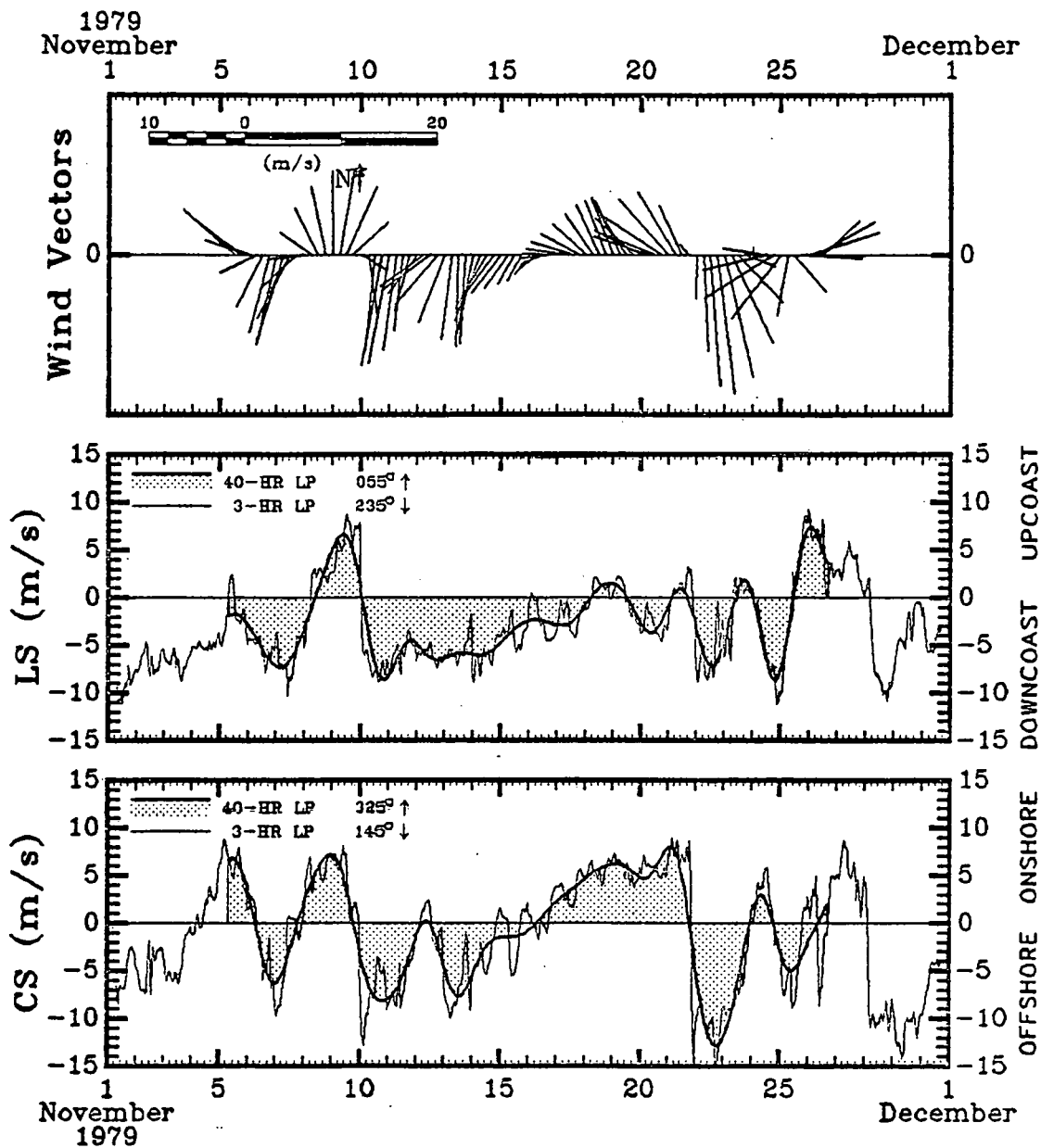
Site A, Wind

Figure 3-14. August 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



Site A, Wind

Figure 3-15. September 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.



Site A, Wind

Figure 3-16. November 1979: Wind velocity time series plots from NOAA/NDBO meteorological package atop a fixed gas platform near Site A.

APPENDIX 4

Time Series Plots of Current Meter Data

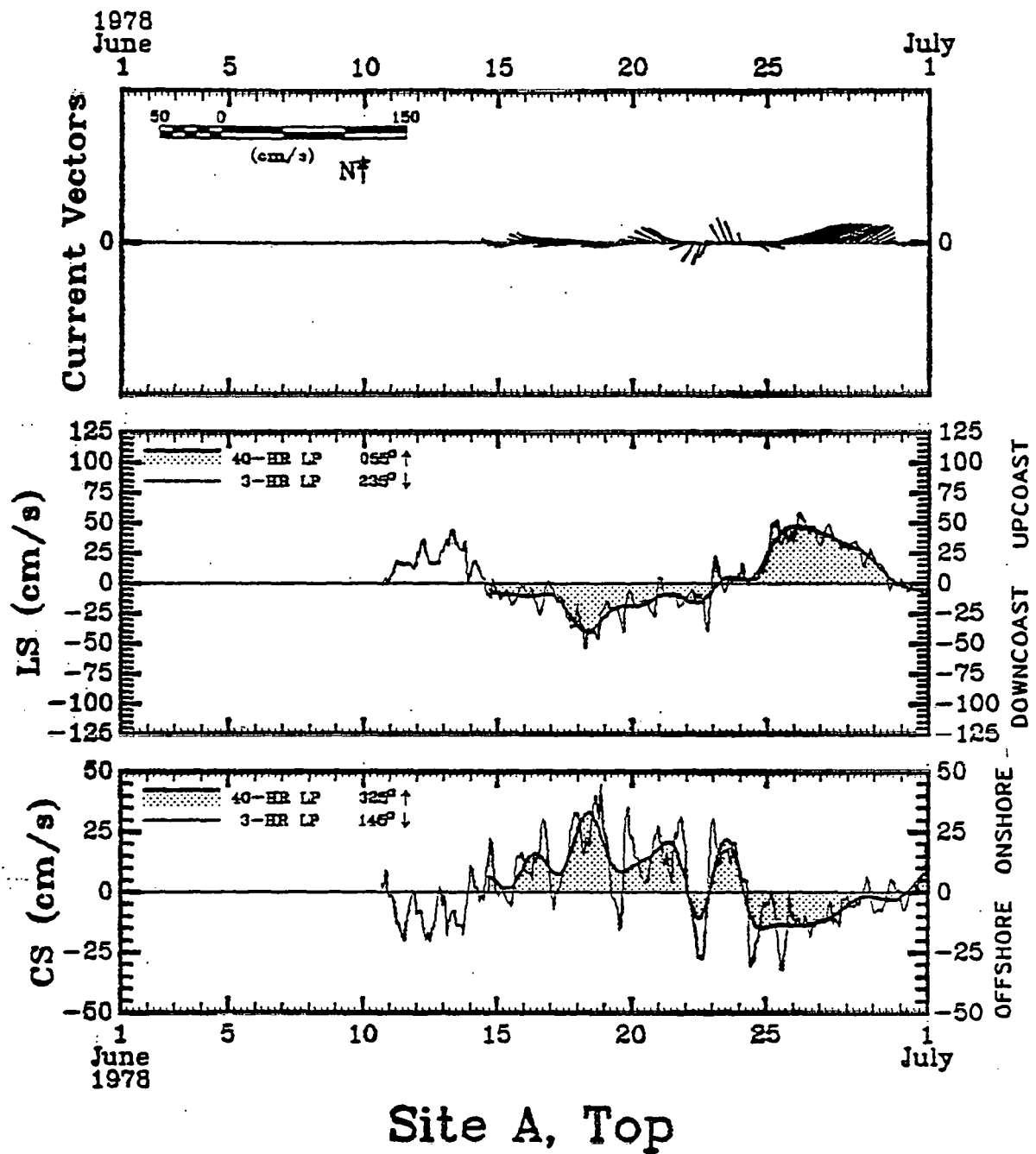
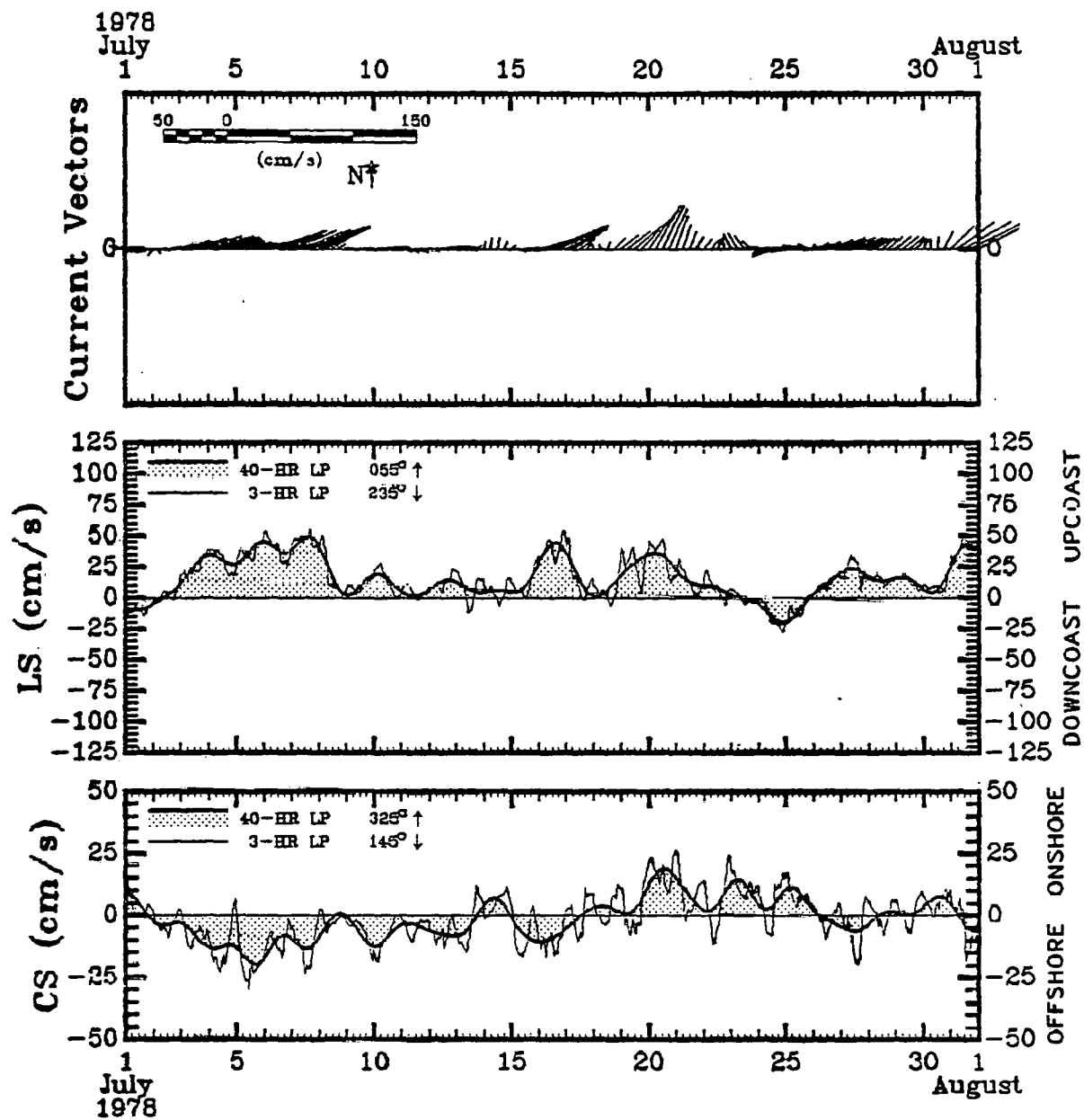


Figure 4-1. June 1978 current velocity time series plots for near surface instrument at site A



Site A, Top

Figure 4-2. July 1978 current velocity time series plots for near surface instrument at site A

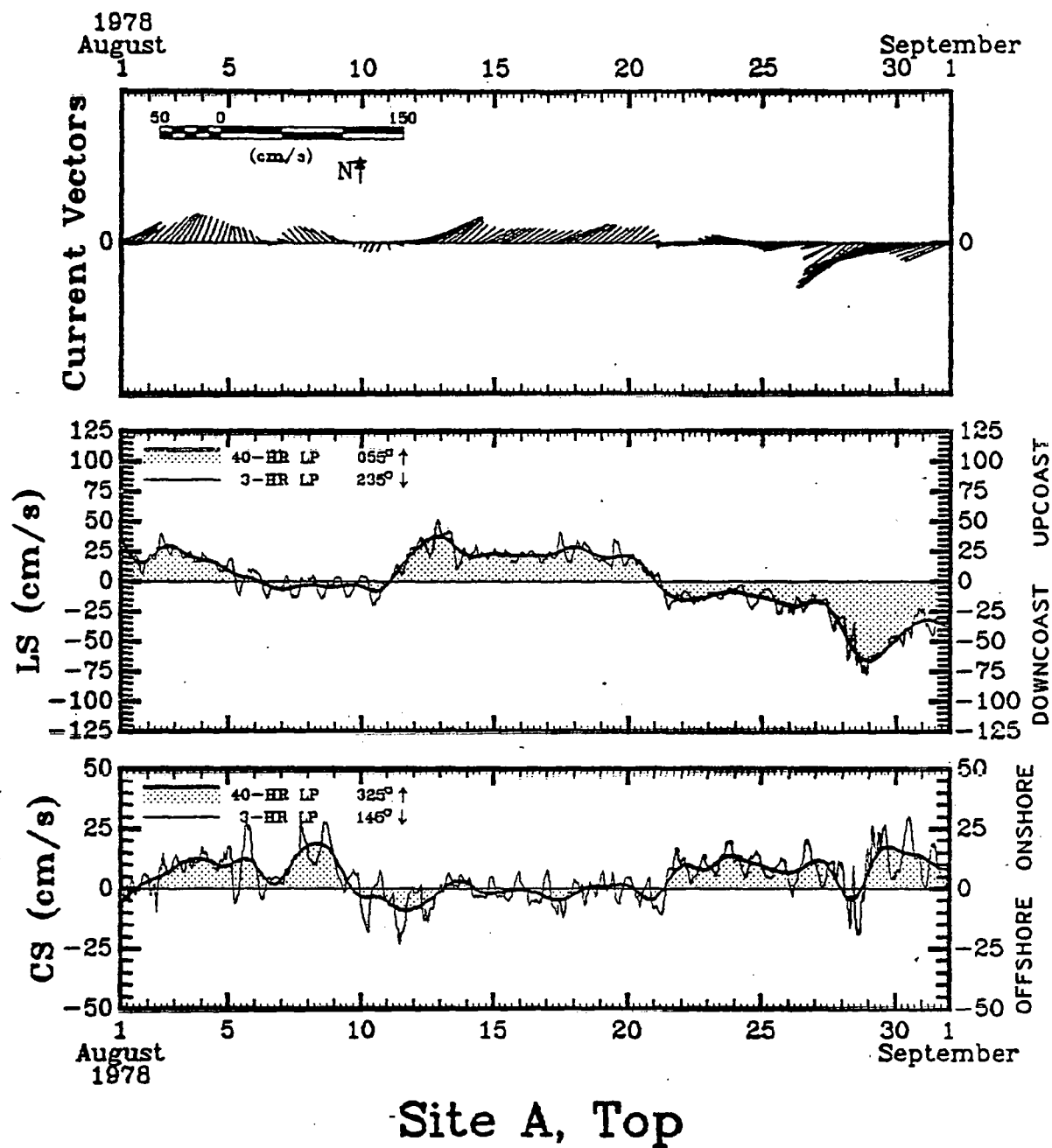
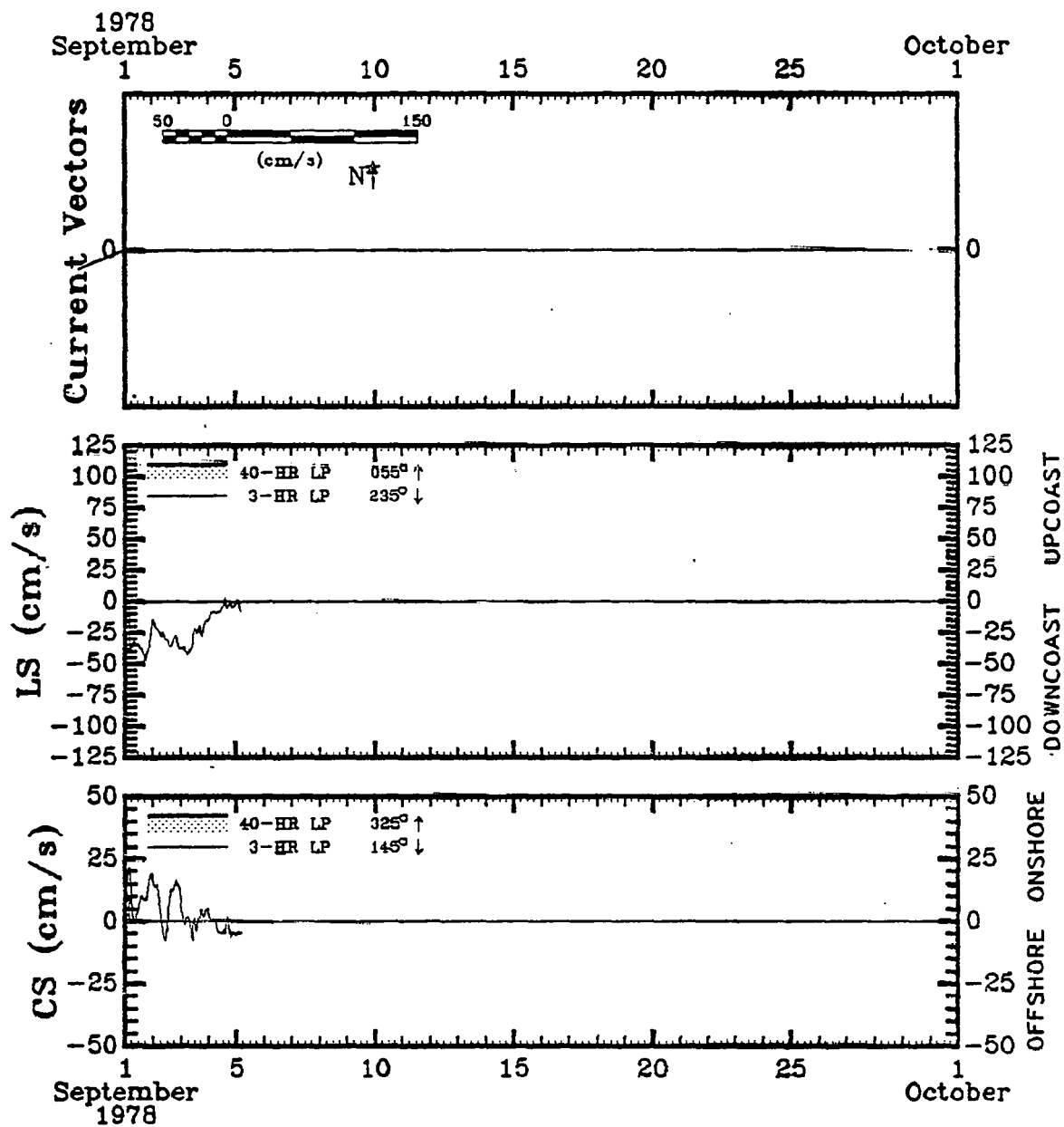
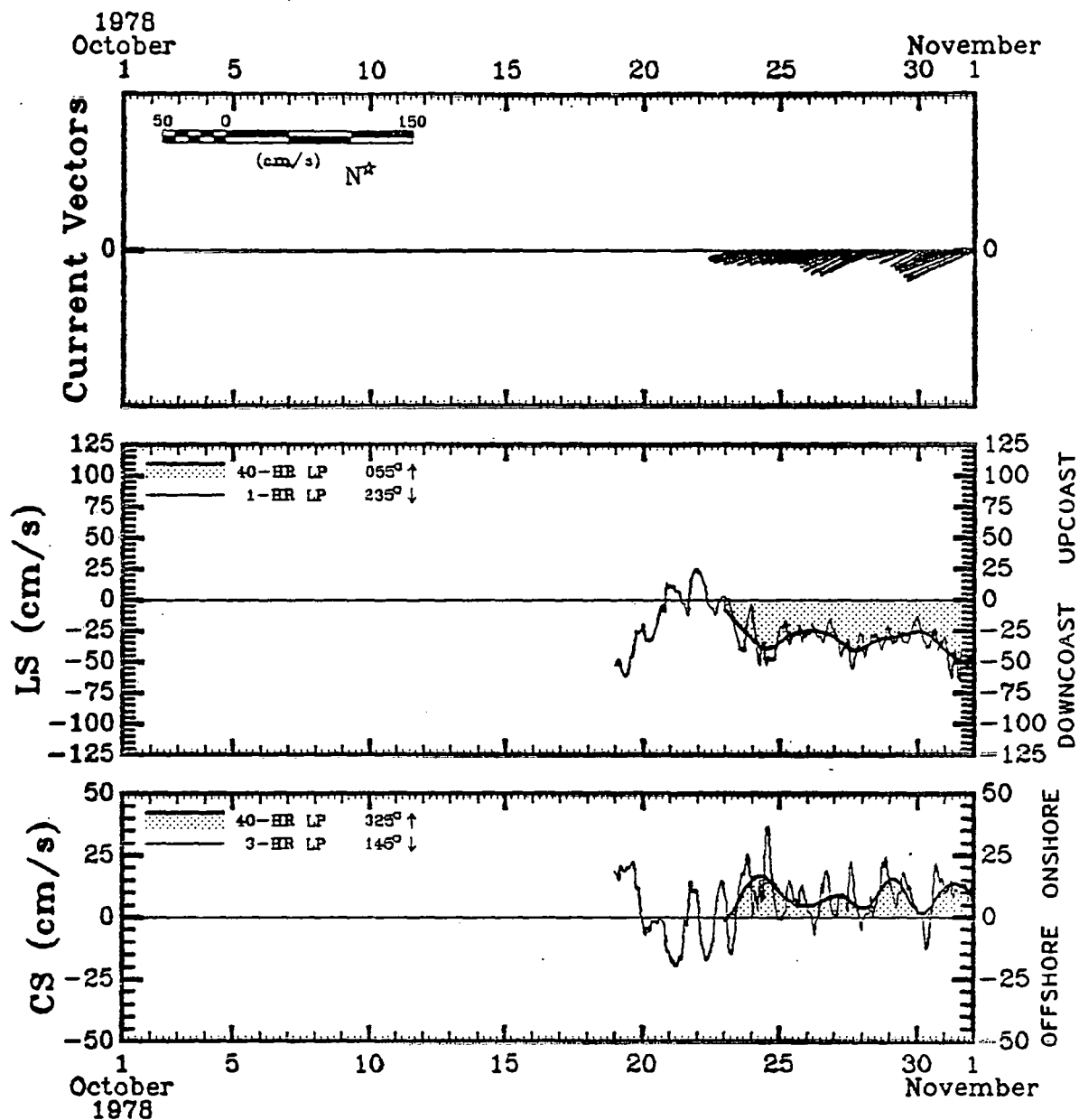


Figure 4-3. August 1978 current velocity time series plots for near surface instrument at site A



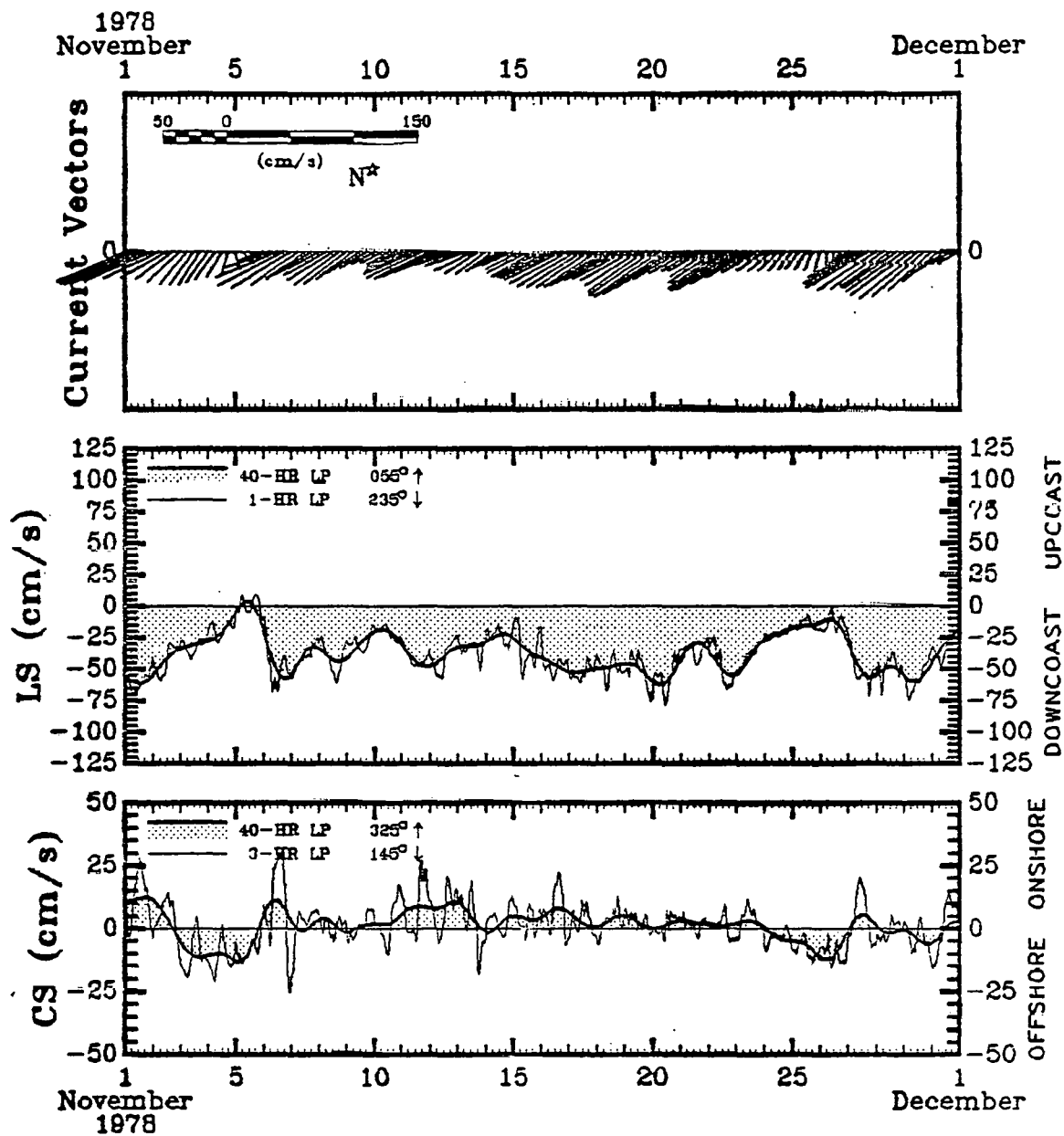
Site A, Top

Figure 4-4. September 1978 current velocity time series plots for near surface instrument at site A



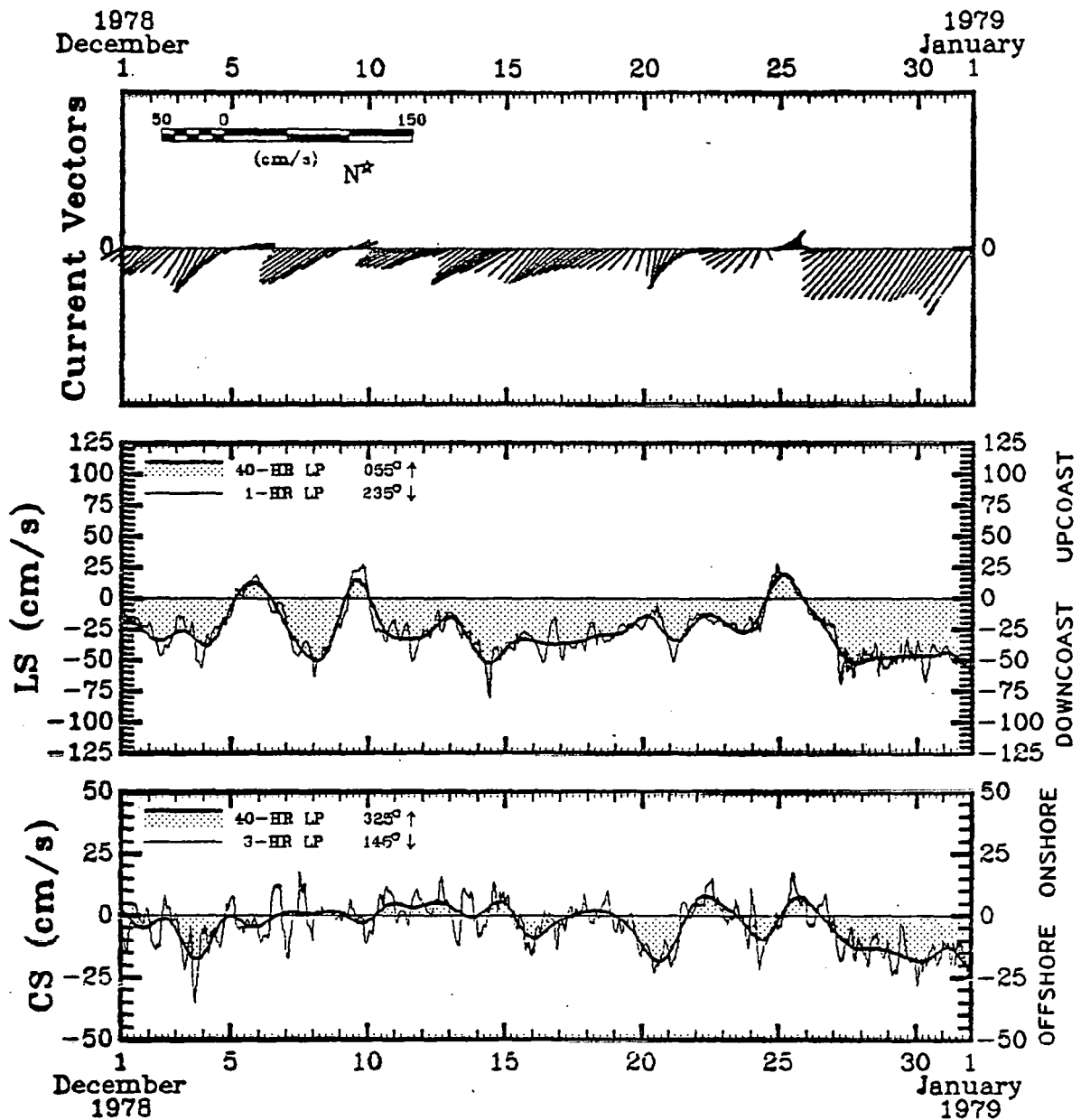
Site A, Top

Figure 4-5. October 1978 current velocity time series plots for near surface instrument at site A



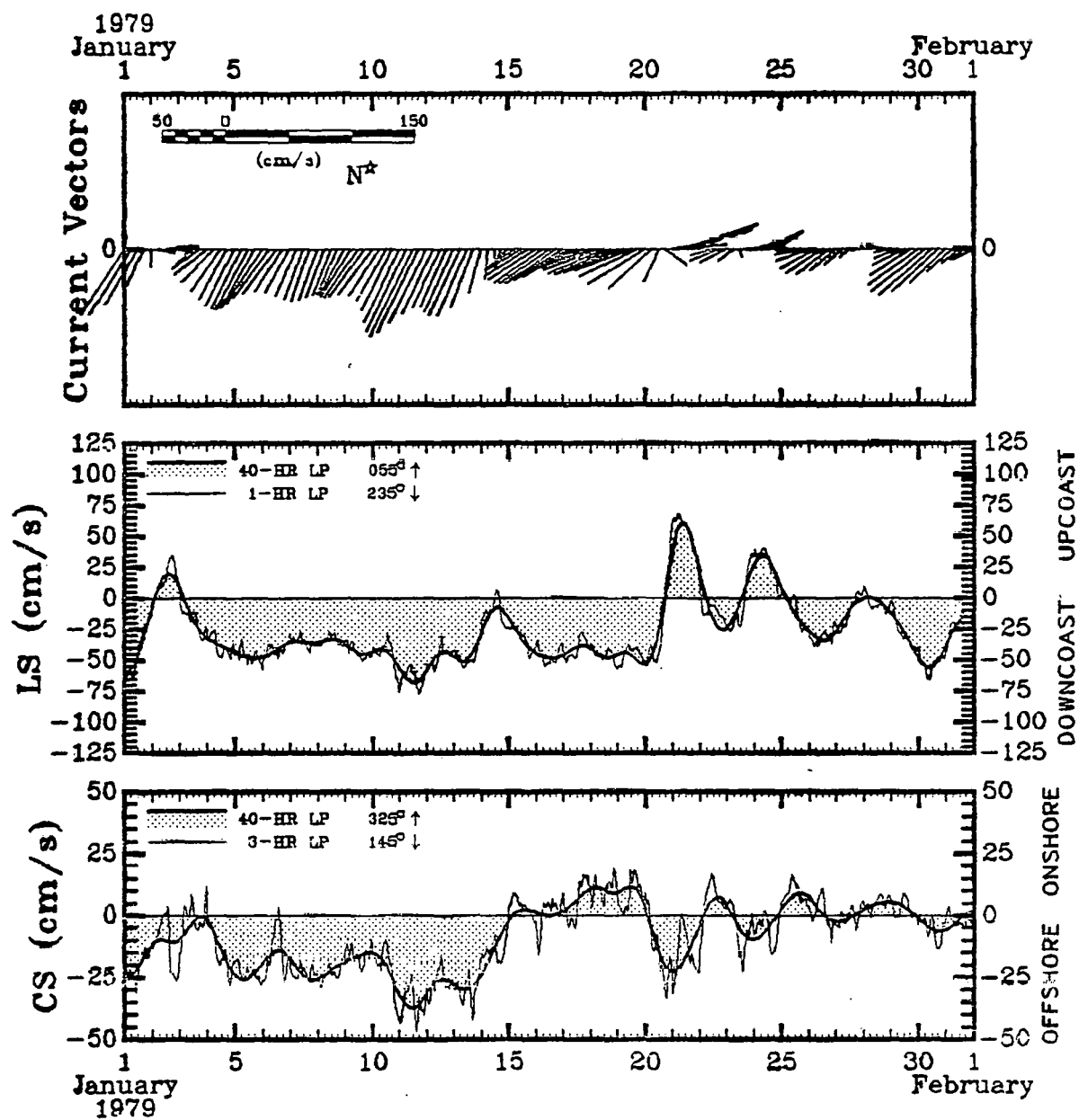
Site A, Top

Figure 4-6. November 1978 current velocity time series plots for near surface instrument at site A



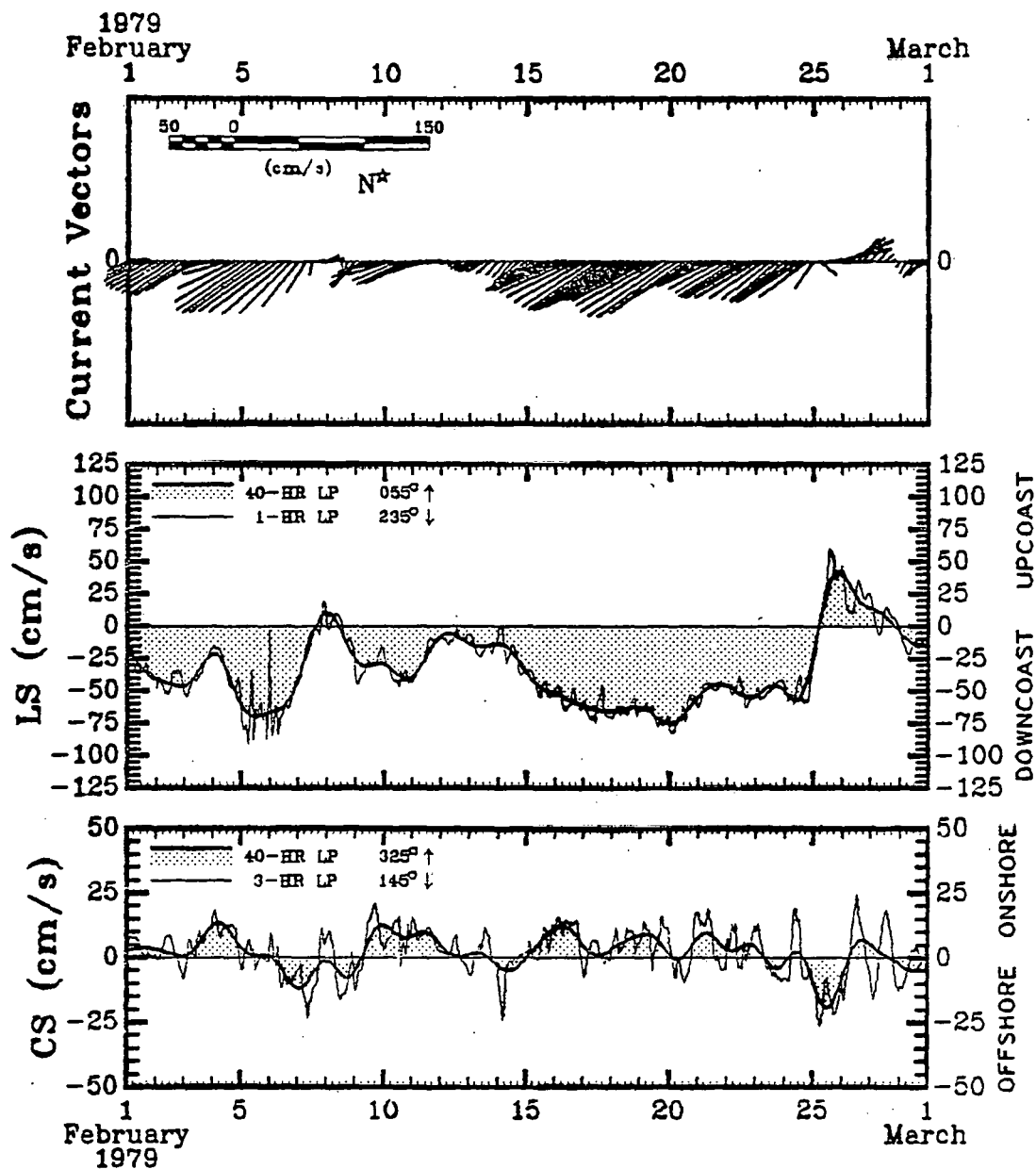
Site A, Top

Figure 4-7. December 1978 current velocity time series plots for near surface instrument at site A



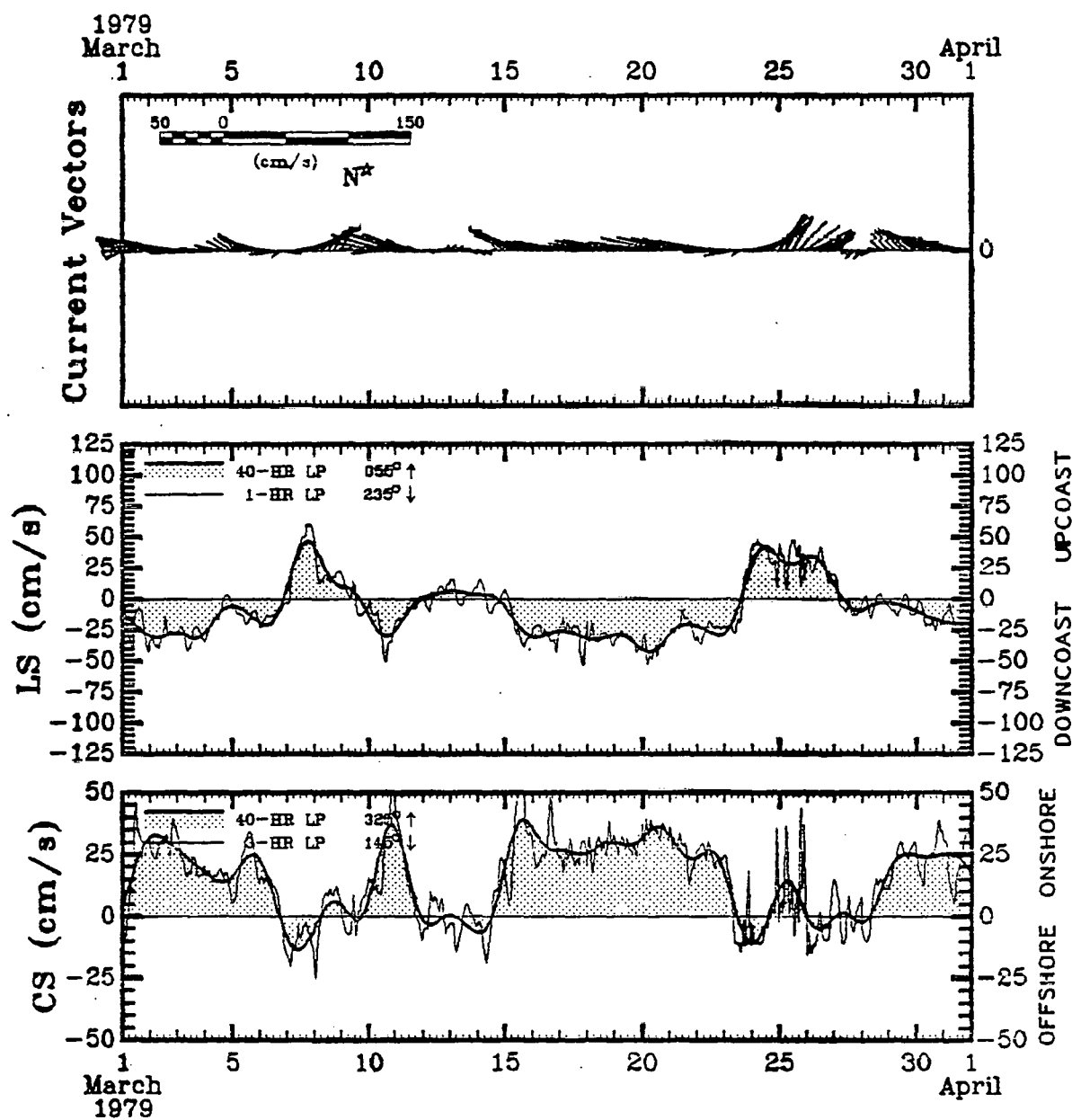
Site A, Top

Figure 4-8. January 1979 current velocity time series plots for near surface instrument at site A



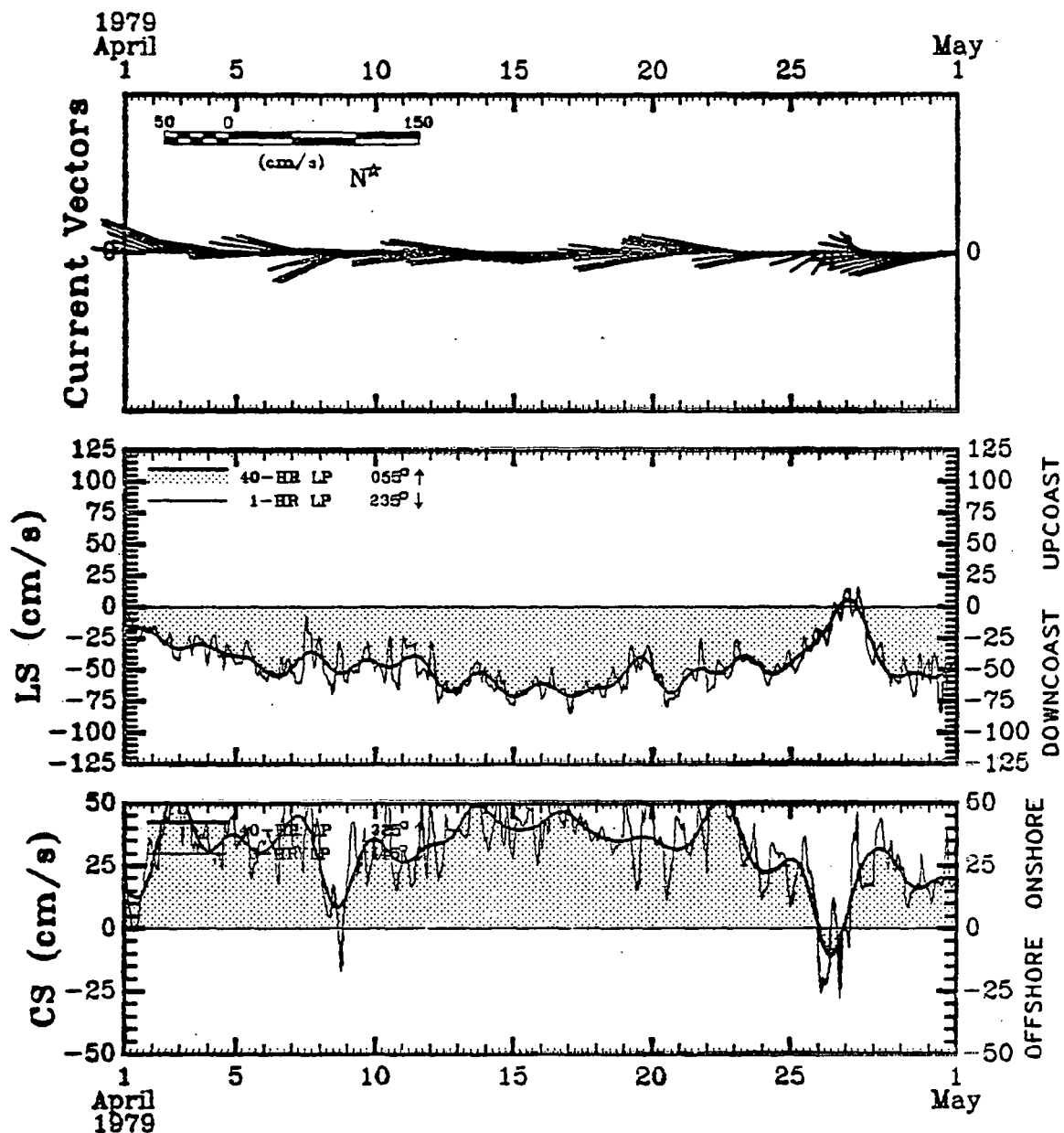
Site A, Top

Figure 4-9. February 1979 current velocity time series plots for near surface instrument at site A



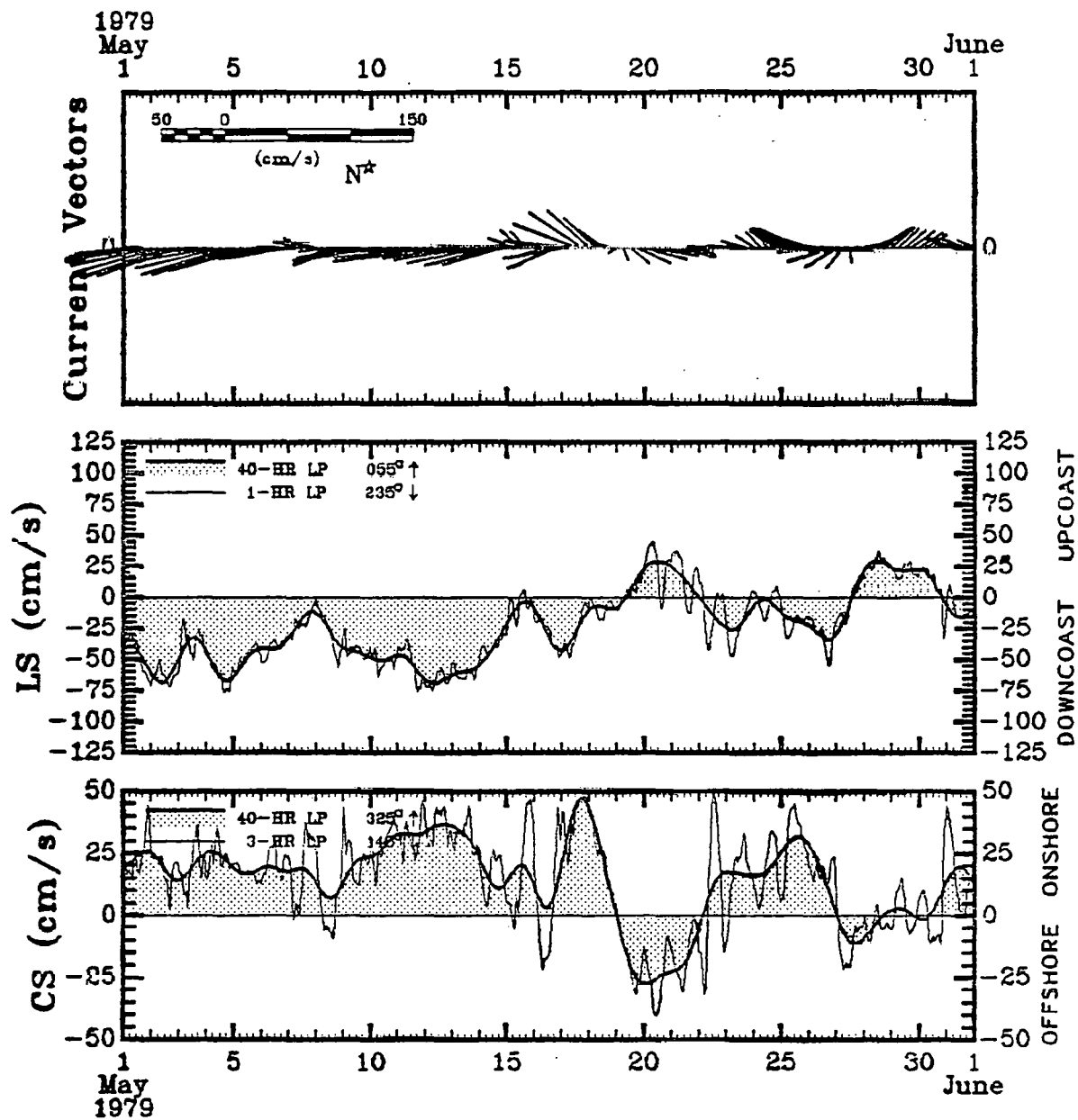
Site A, Top

Figure 4-10. March 1979 current velocity time series plots for near surface instrument at site A



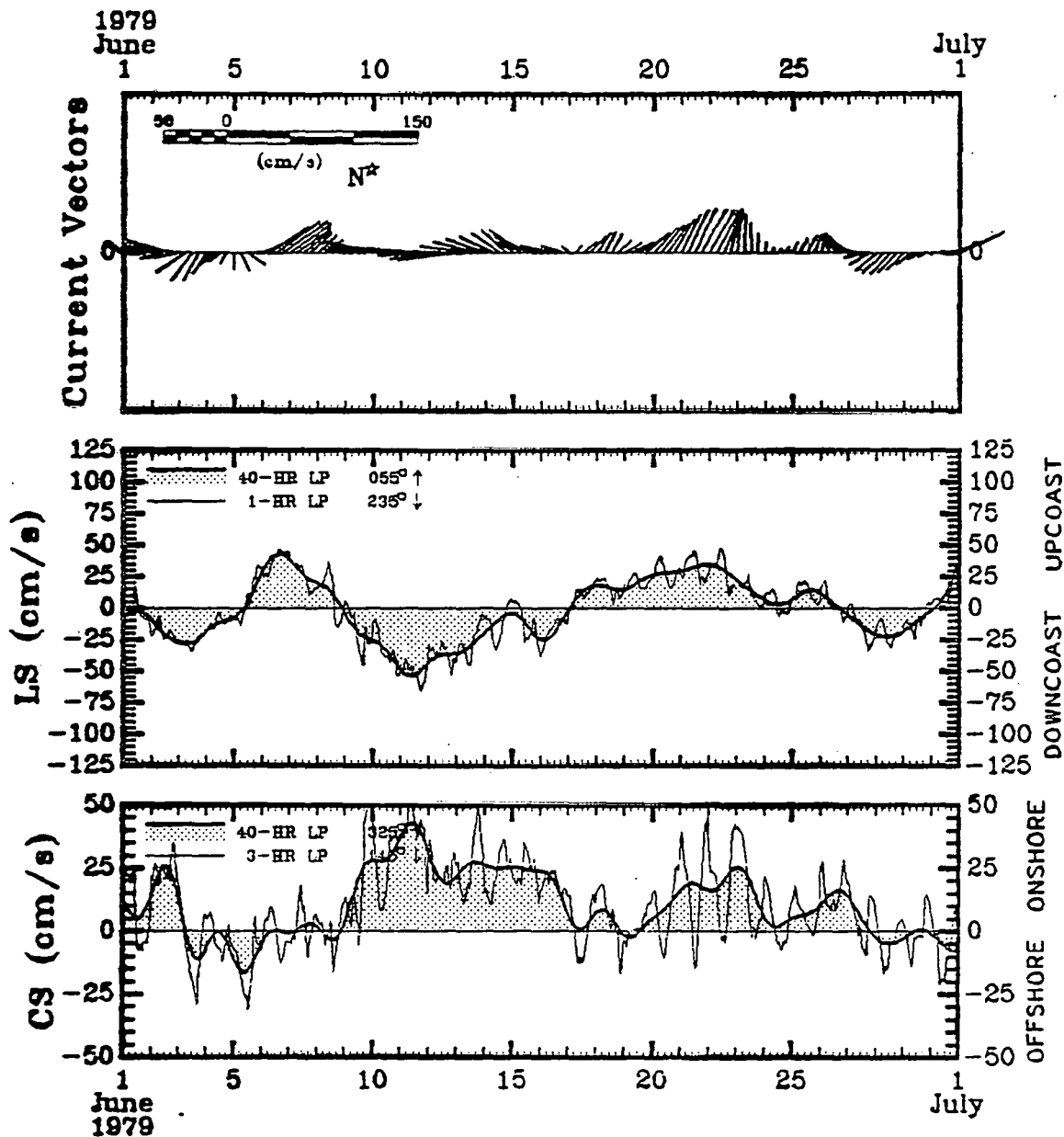
Site A, Top

Figure 4-11. April 1979 current velocity time series plots for near surface instrument at site A



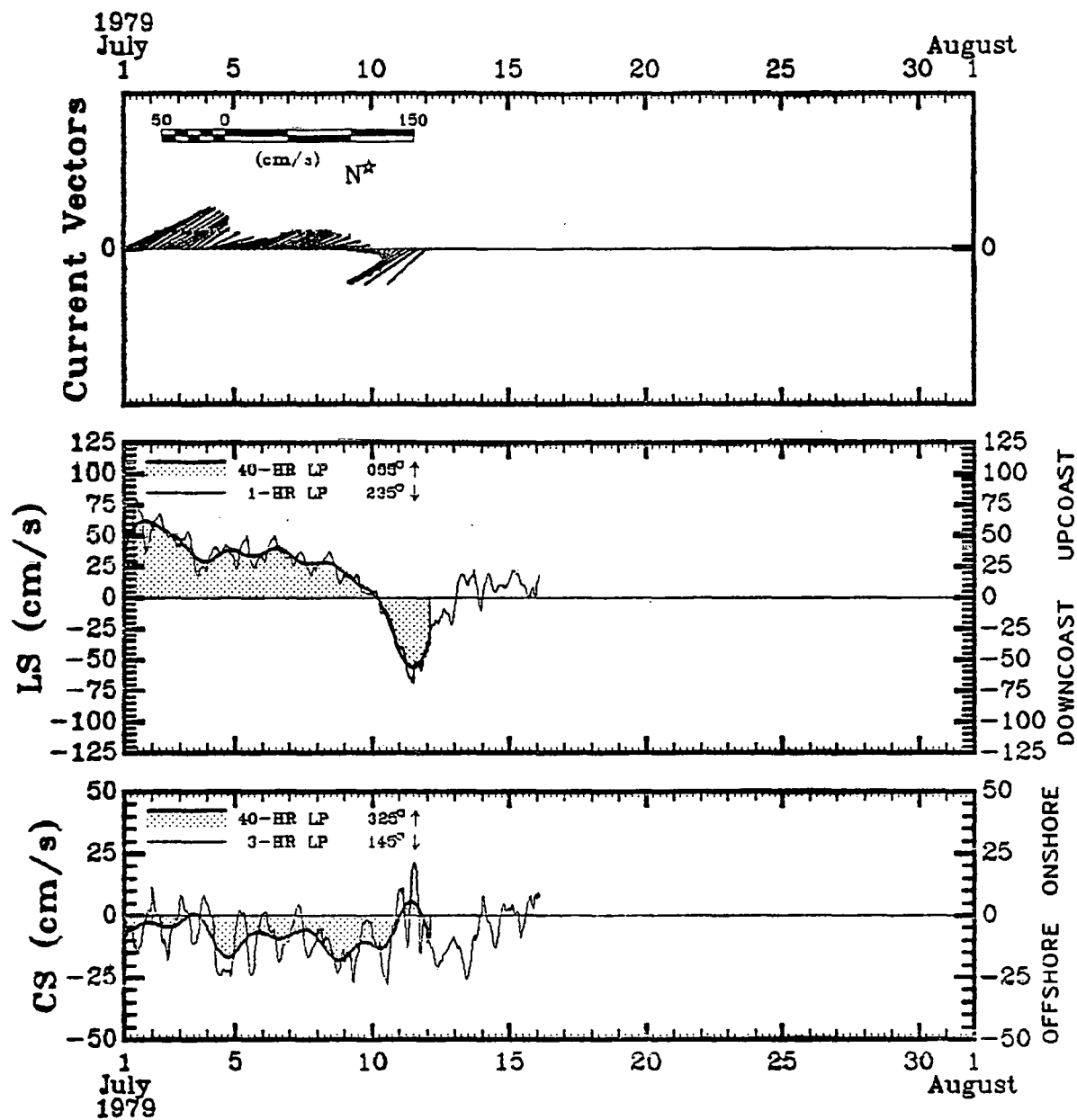
Site A, Top

Figure 4-12. May 1979 current velocity time series plots for near surface instrument at site A



Site A, Top

Figure 4-13. June 1979 current velocity time series plots for near surface instrument at site A



Site A, Top

Figure 4-14. July 1979 current velocity time series plots for near surface instrument at site A

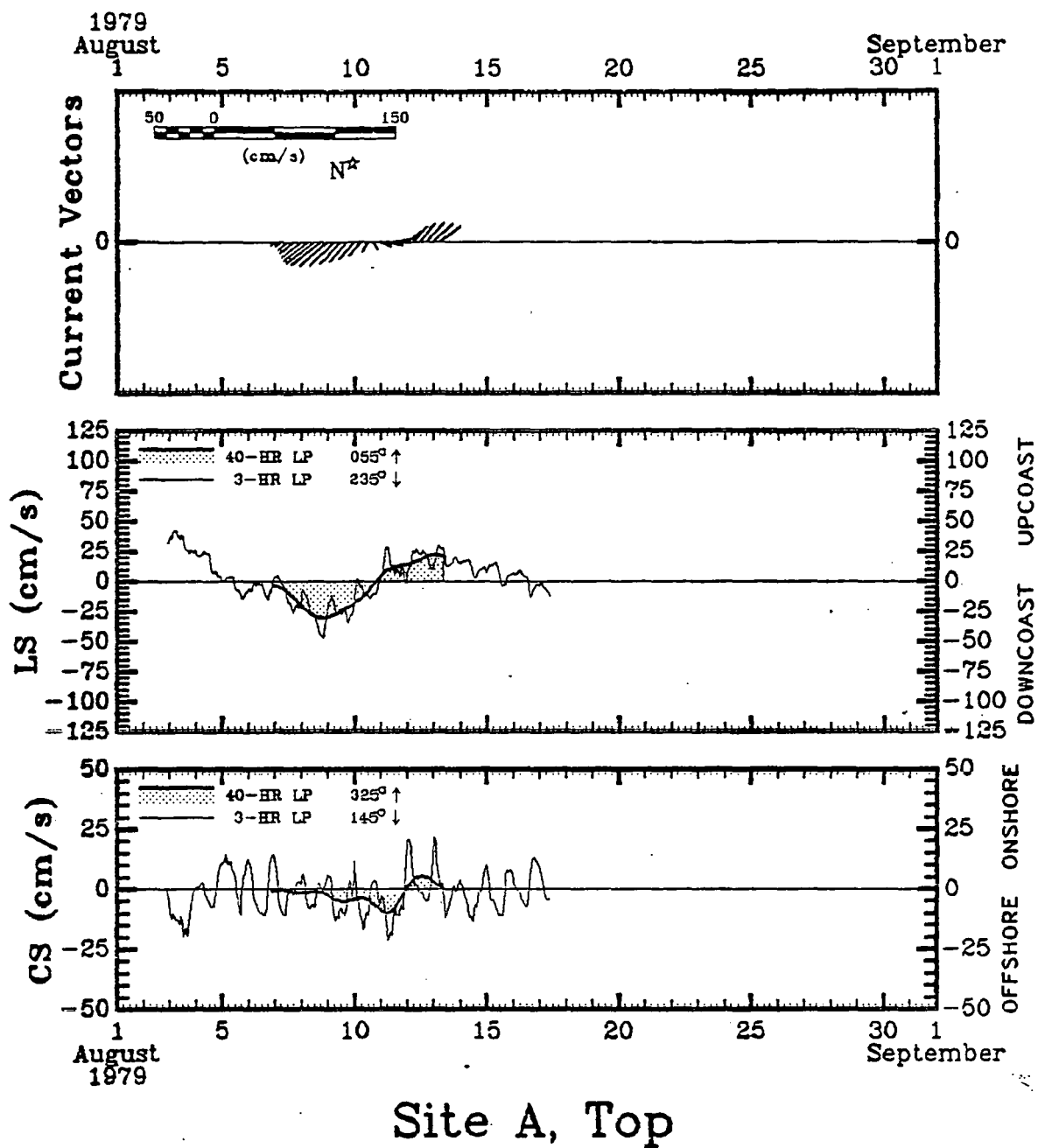
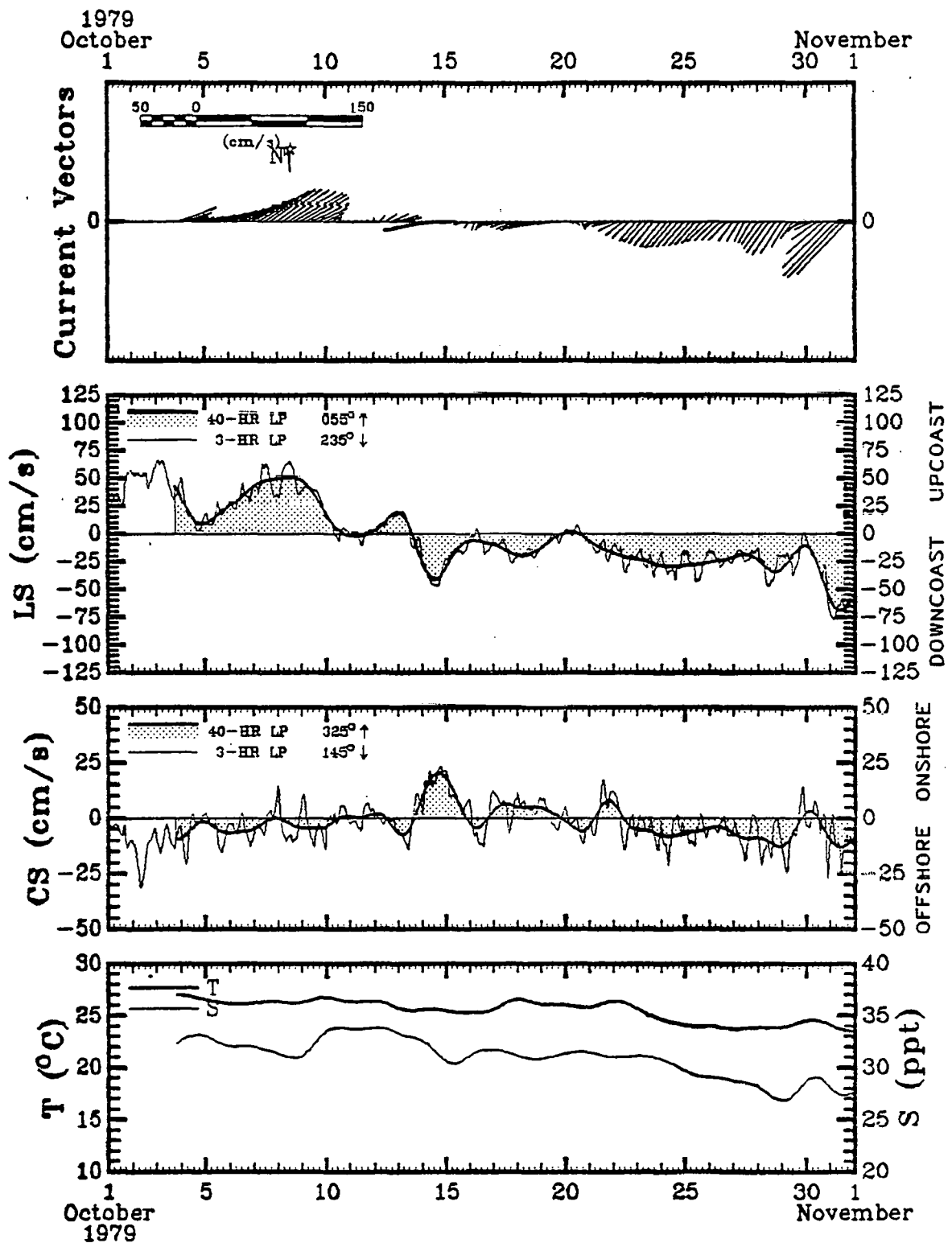
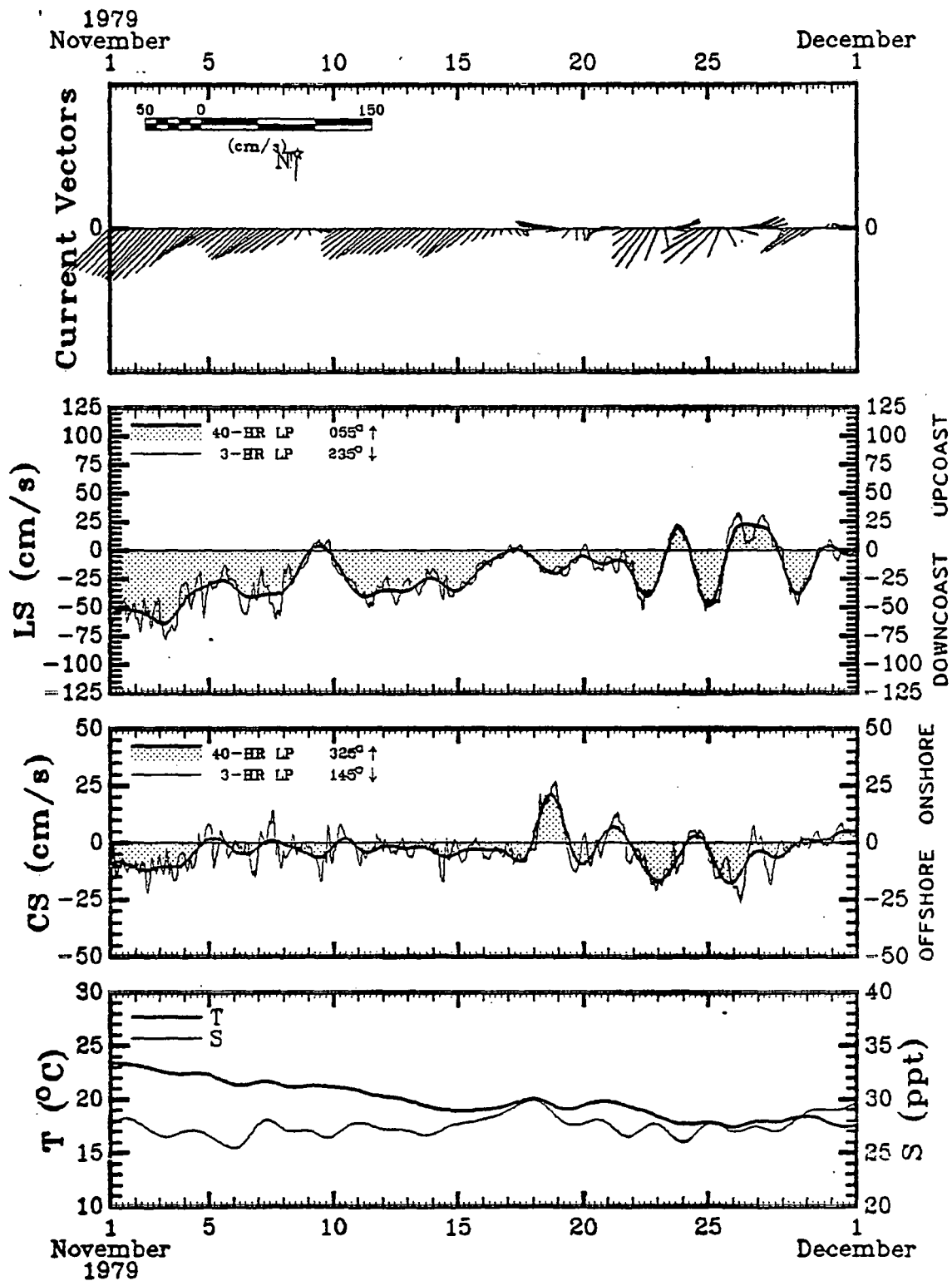


Figure 4-15. August 1979 current velocity time series plots for near surface instrument at site A



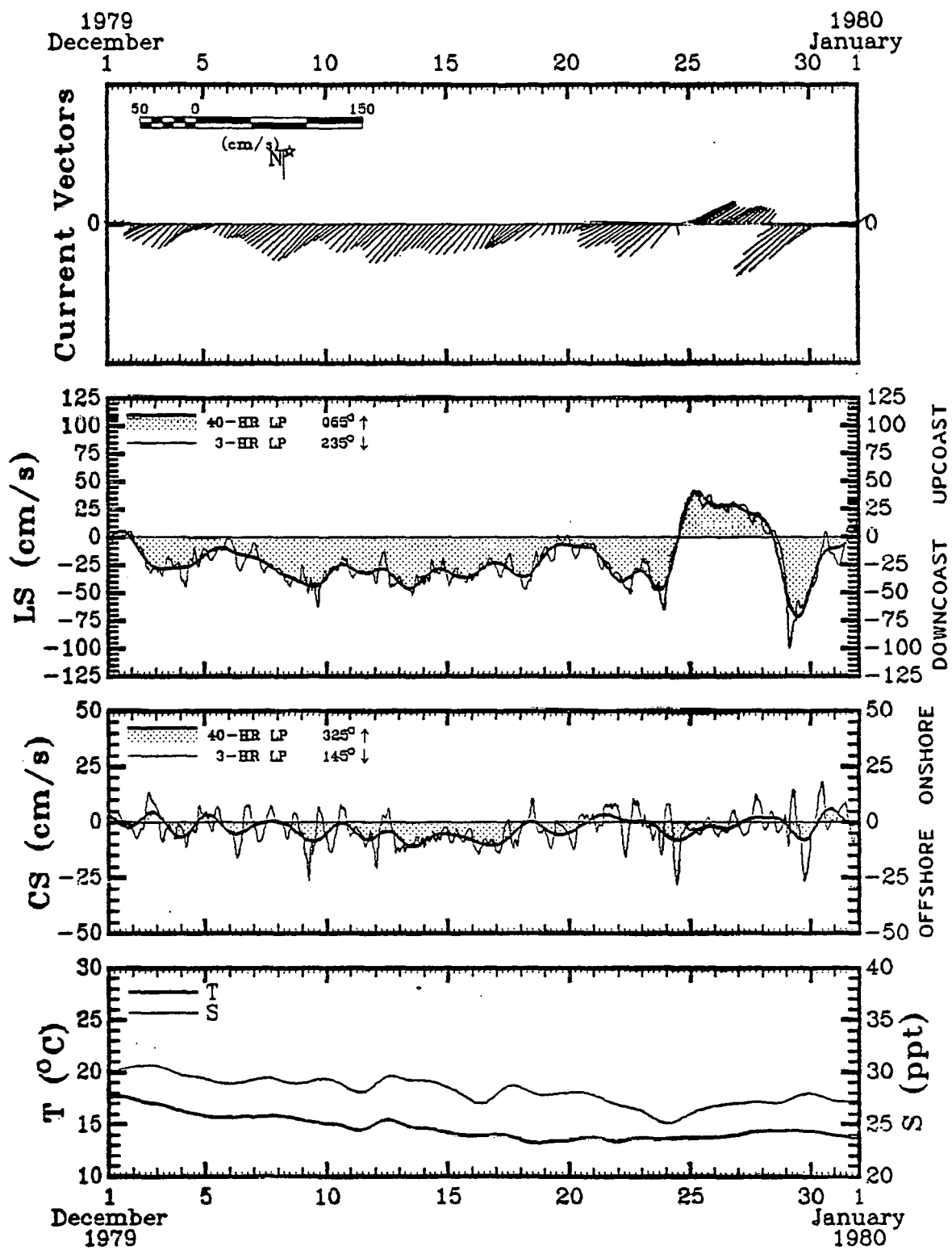
Site A, Top

Figure 4-16. October 1979 current velocity, temperature and salinity time series plots for near surface instrument at site A



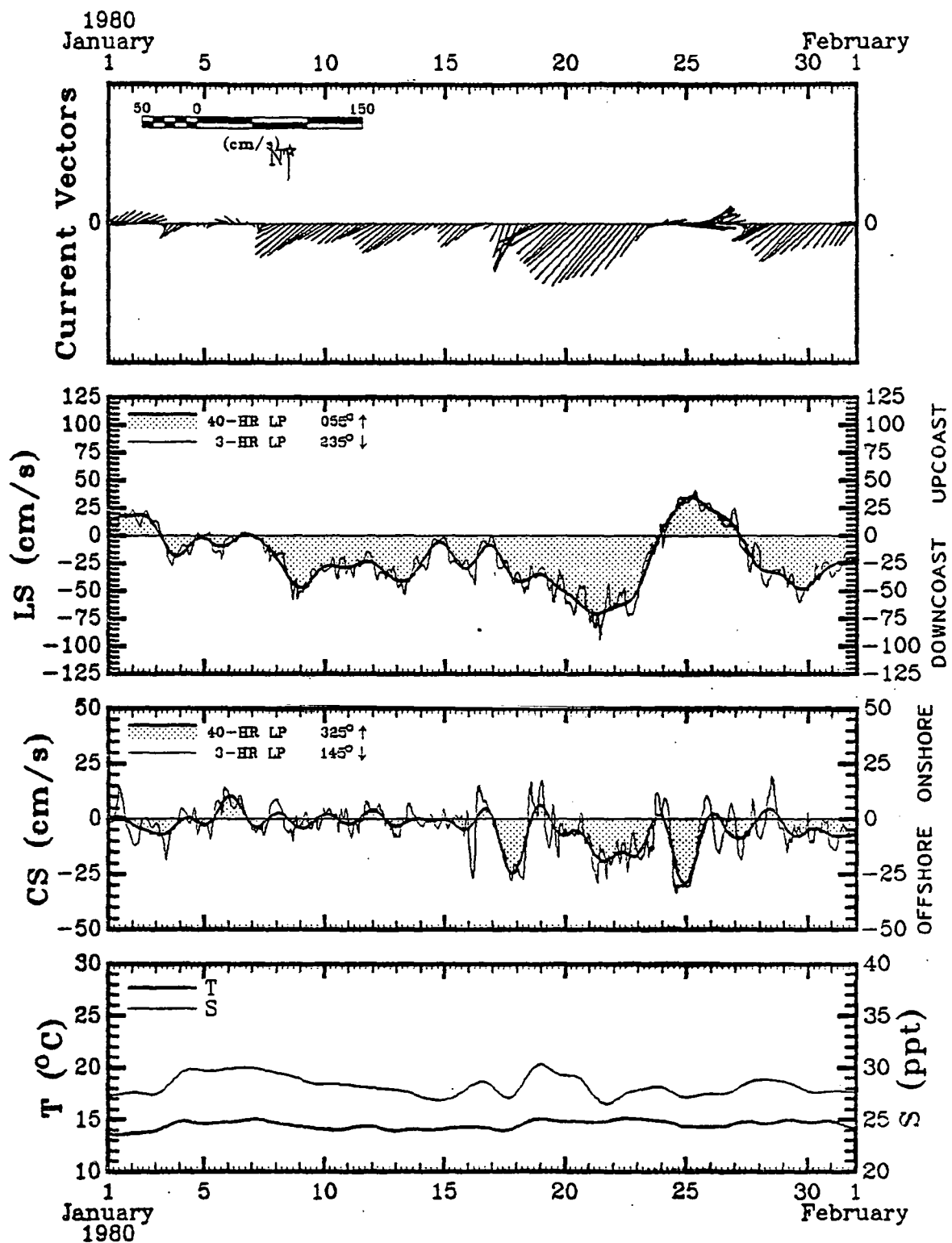
Site A, Top

Figure 4-17. November 1979 current velocity, temperature and salinity time series plots for near surface instrument at site A



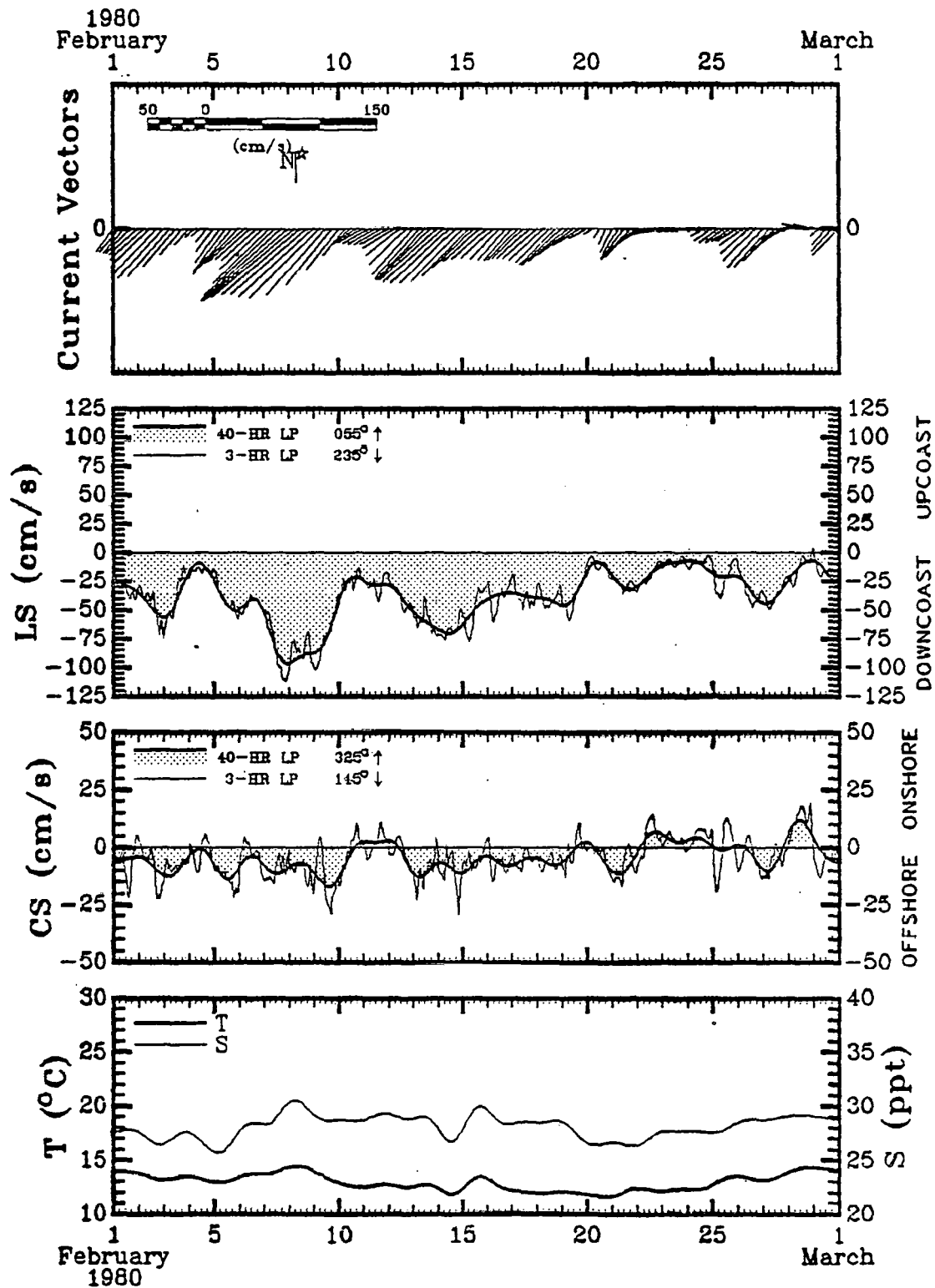
Site A, Top

Figure 4-18. December 1979 current velocity, temperature and salinity time series plots for near surface instrument at site A



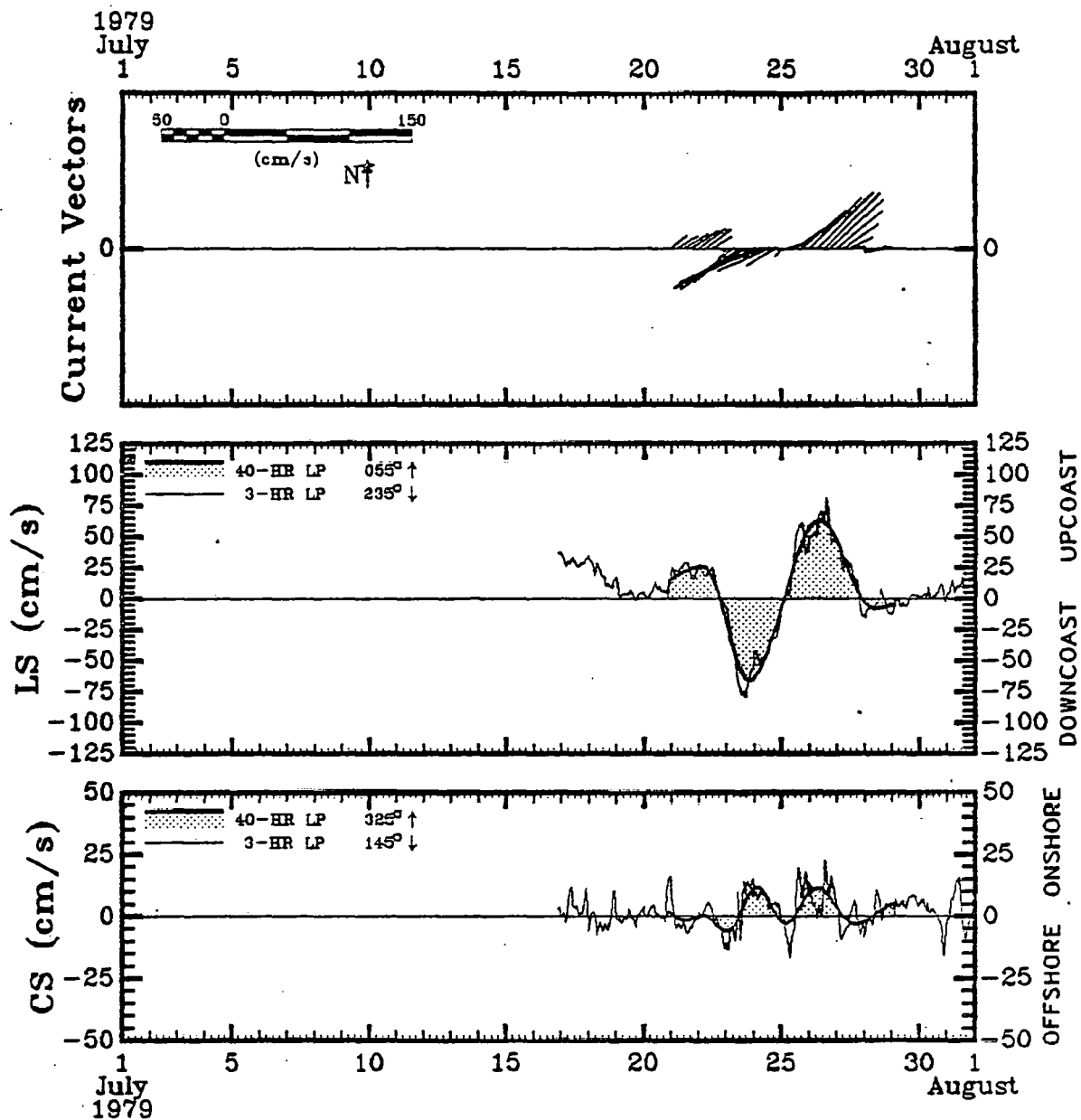
Site A, Top

Figure 4-19. January 1980 current velocity, temperature and salinity time series plots for near surface instrument at site A



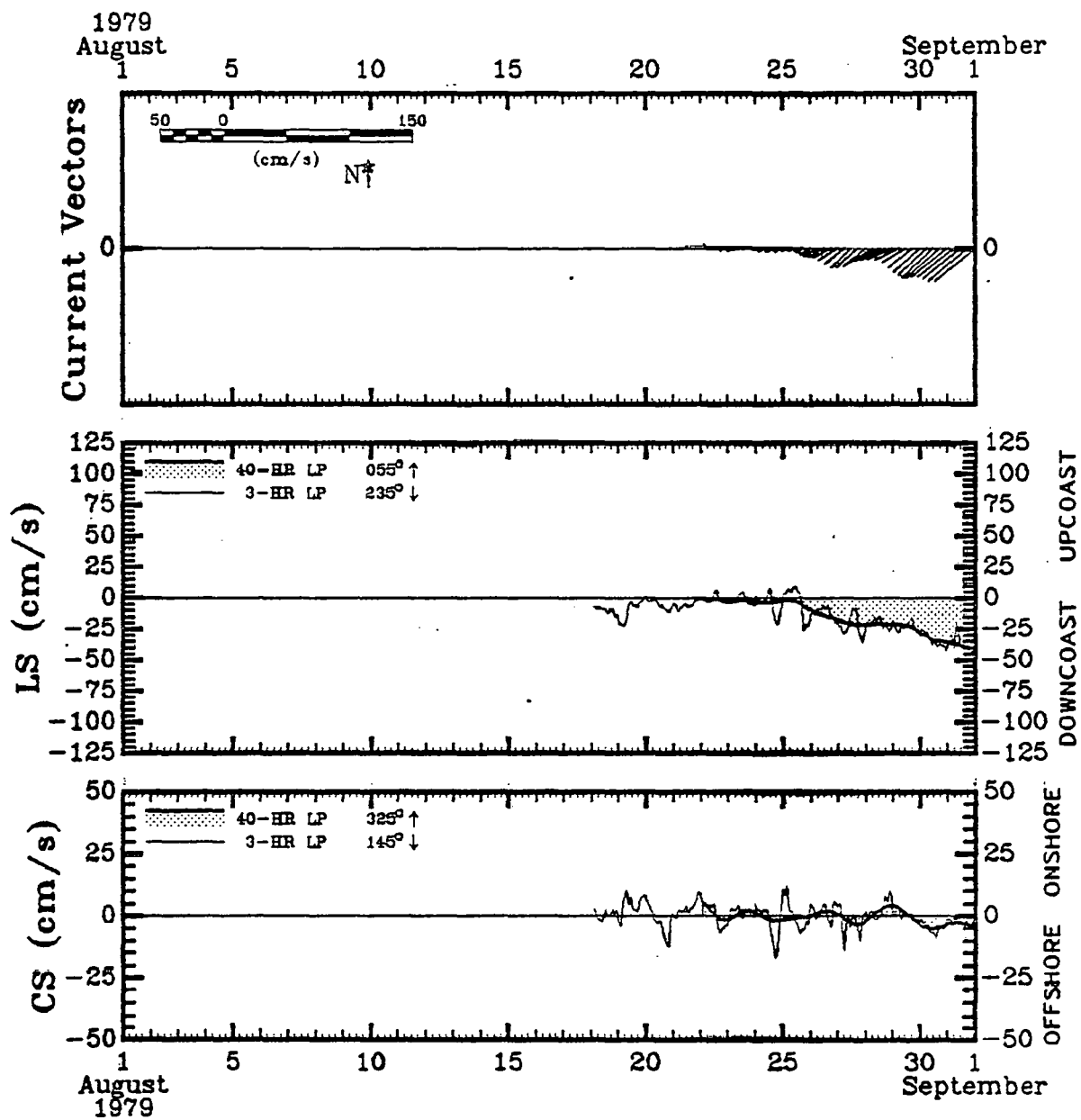
Site A, Top

Figure 4-20. February 1980 current velocity, temperature and salinity time series plots for near surface instrument at site A



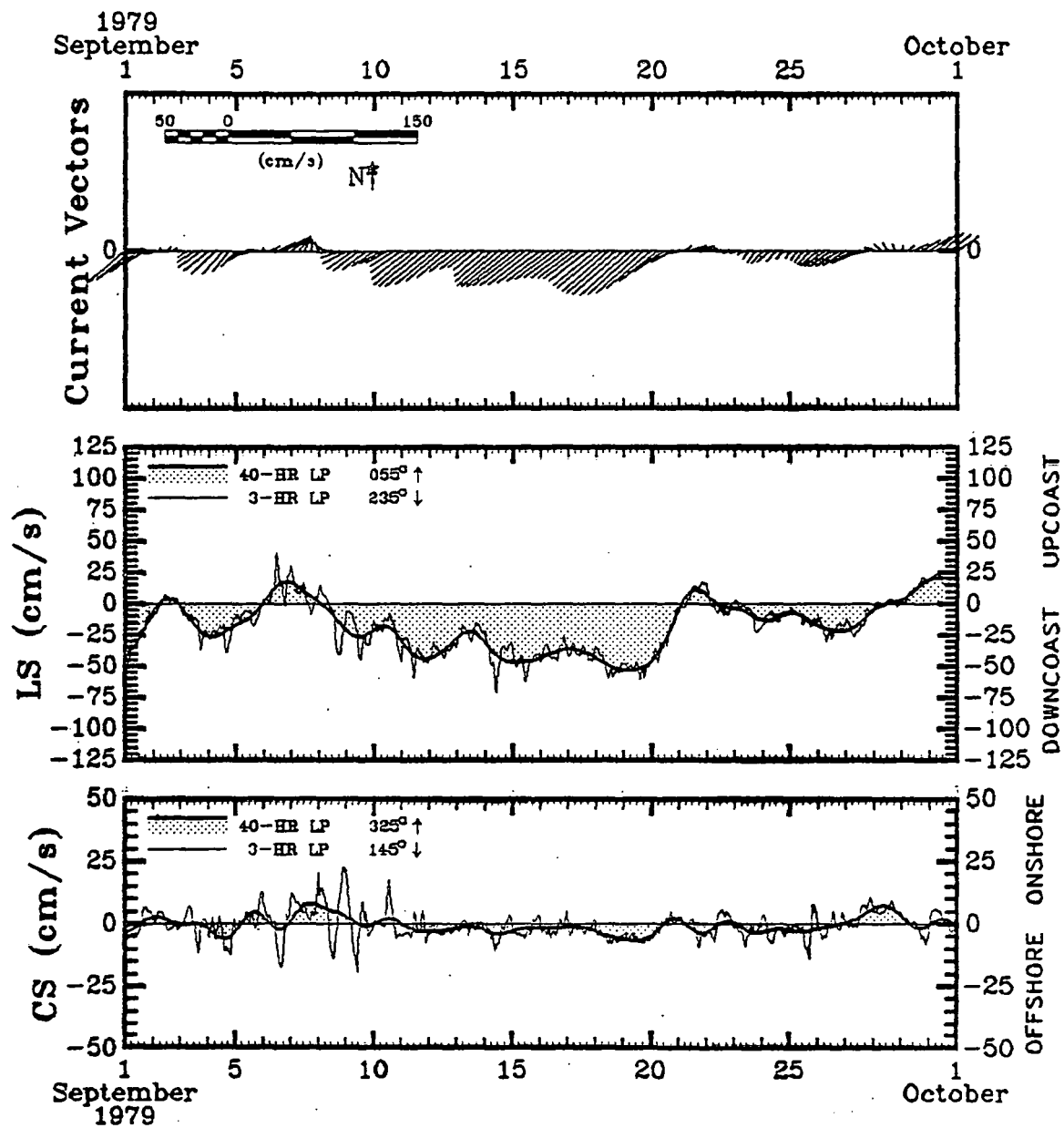
Site A, Middle

Figure 4-21. July 1979 current velocity time series plots for mid depth instrument at site A



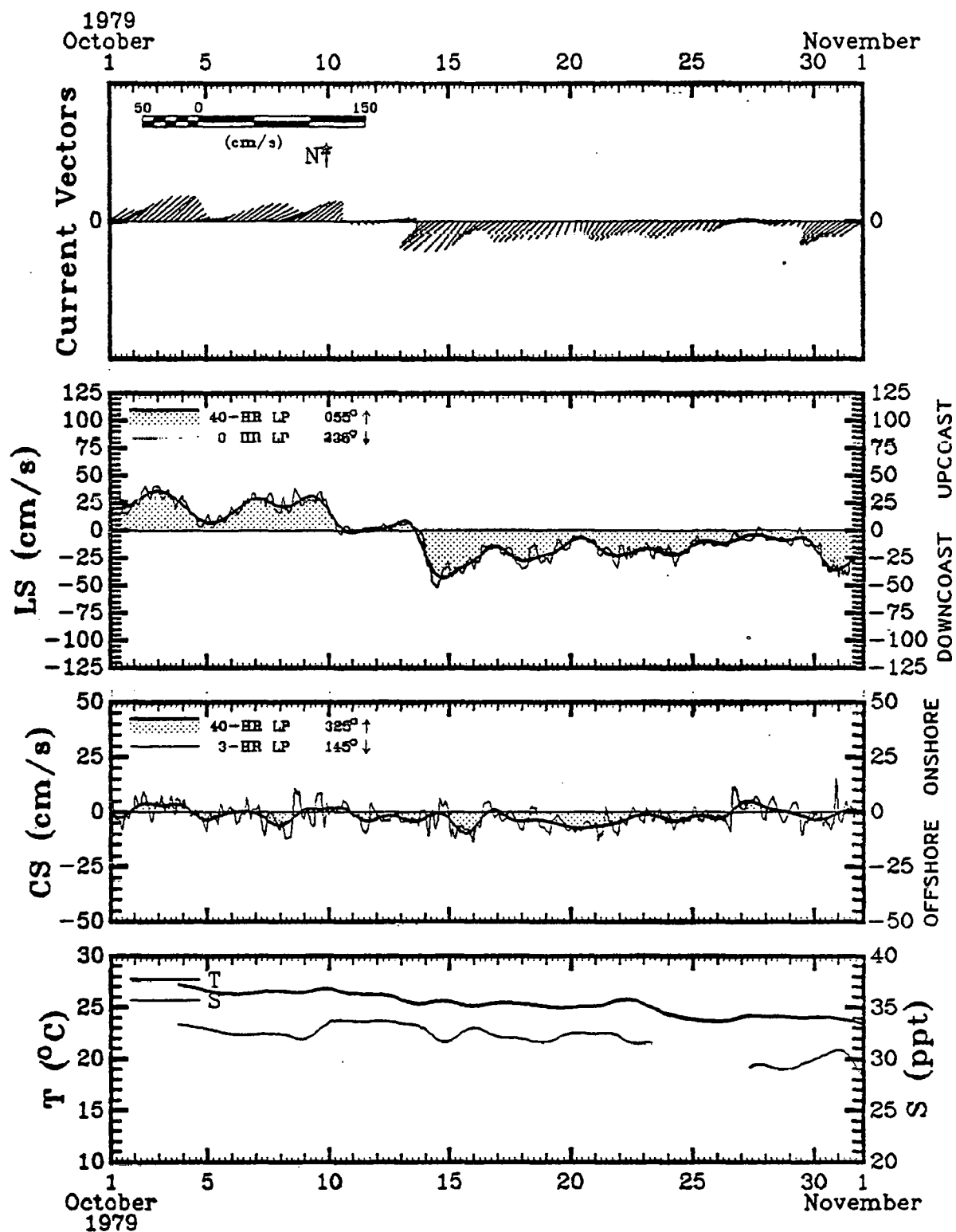
Site A, Middle

Figure 4-22. August 1979 current velocity time series plots for mid depth instrument at site A



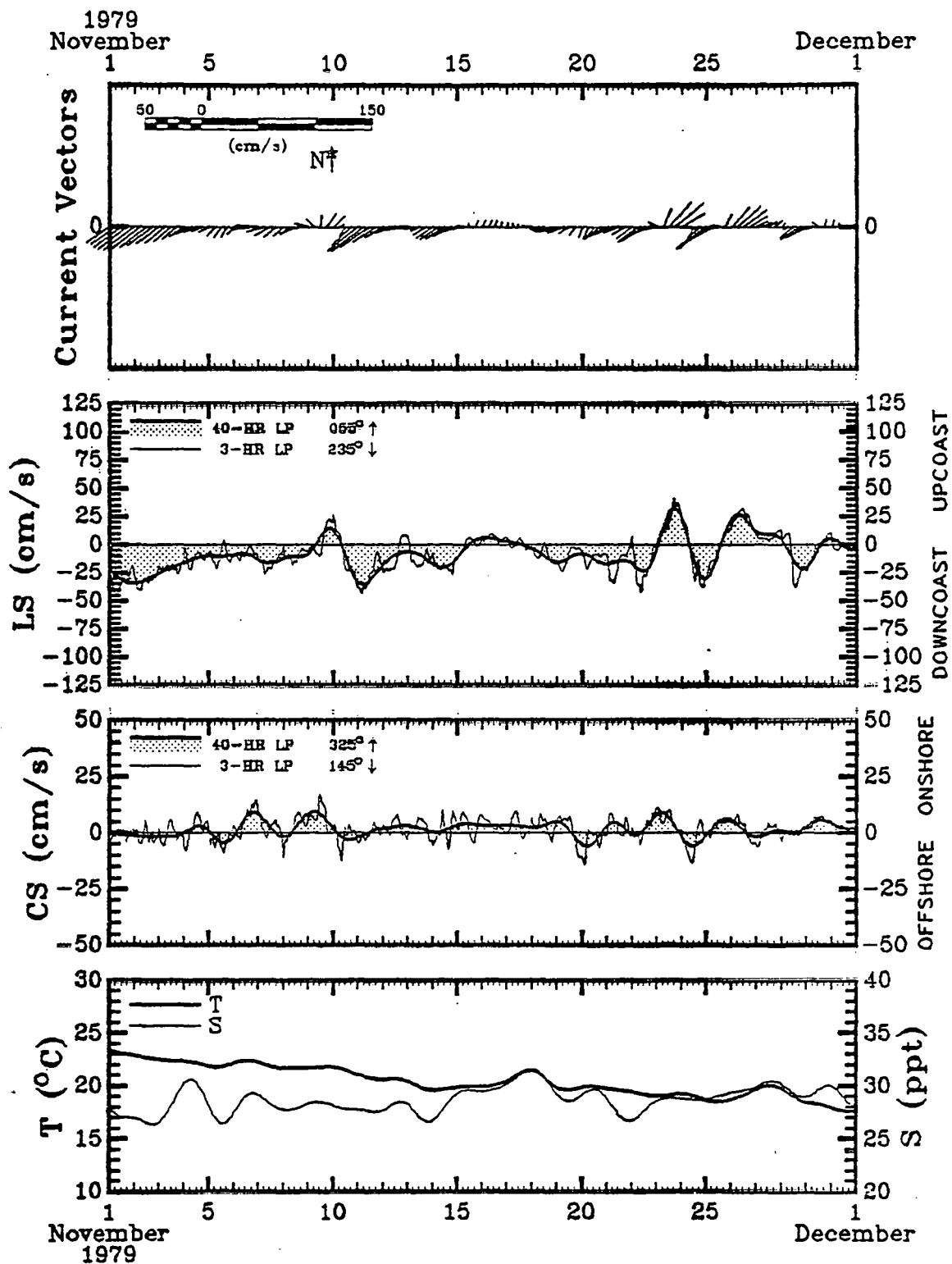
Site A, Middle

Figure 4-23. September 1979 current velocity time series plots for mid depth instrument at site A



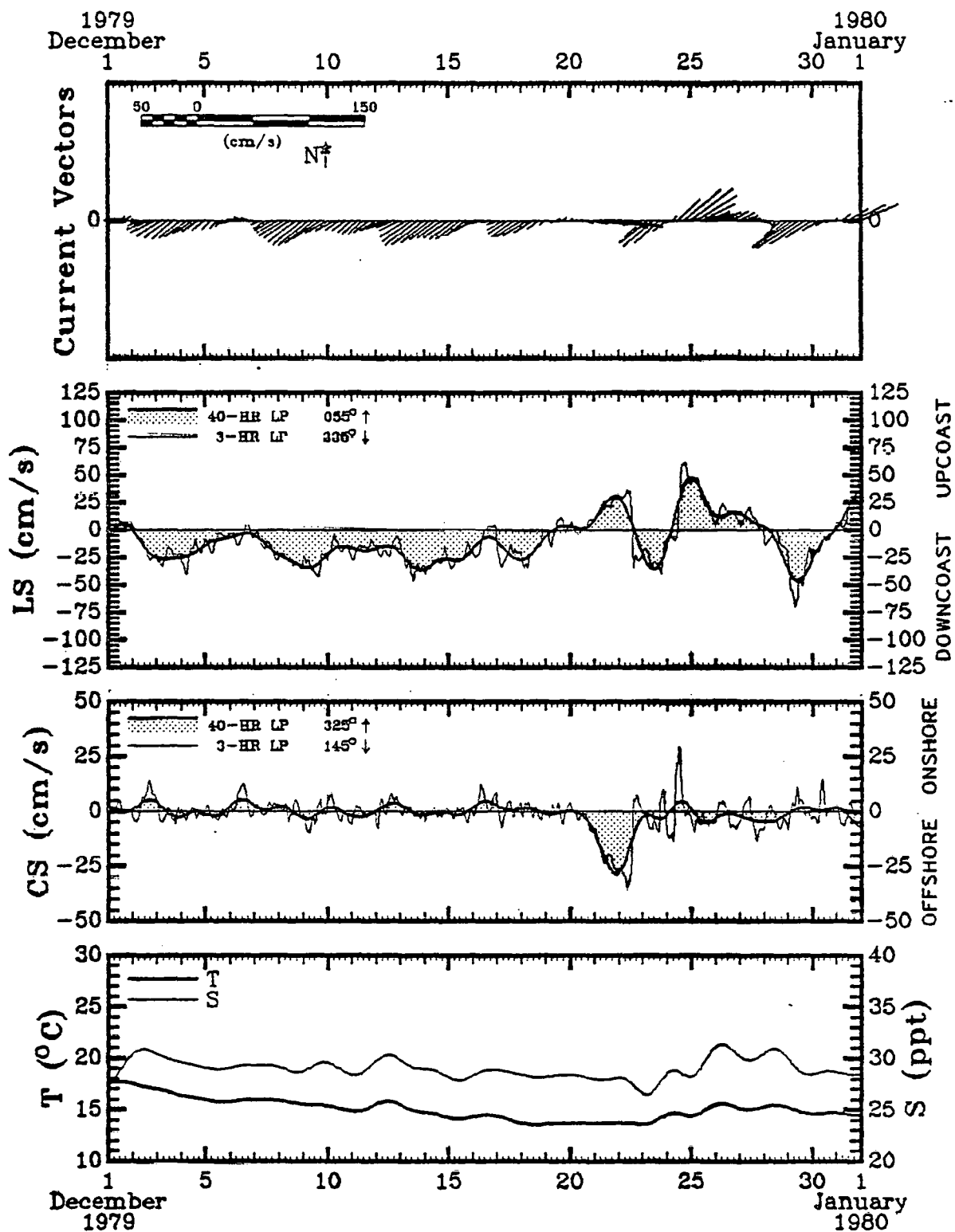
Site A, Middle

Figure 4-24. October 1979 current velocity, temperature, and salinity time series plots for mid depth instrument at site A



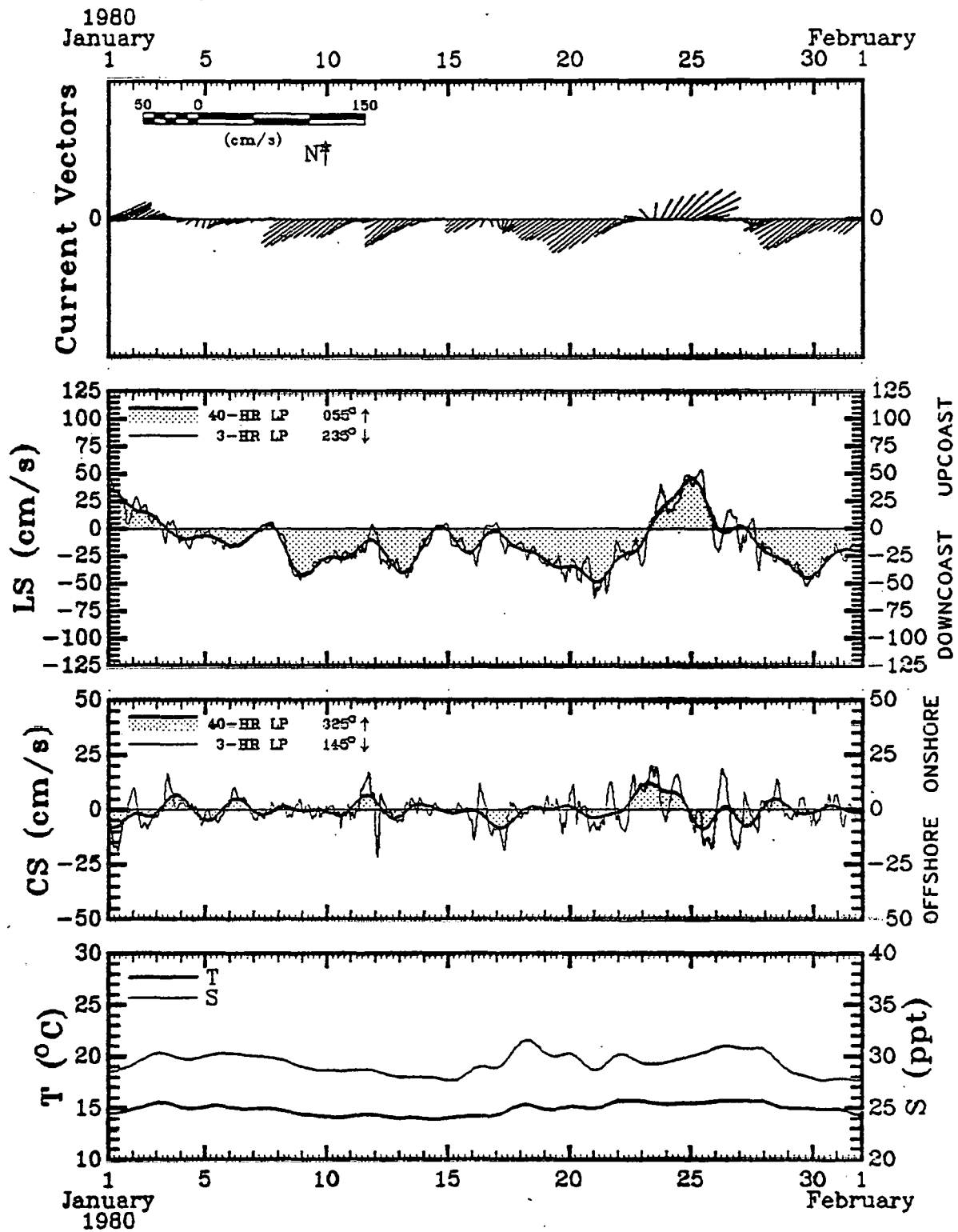
Site A, Middle

Figure 4-25. November 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site A



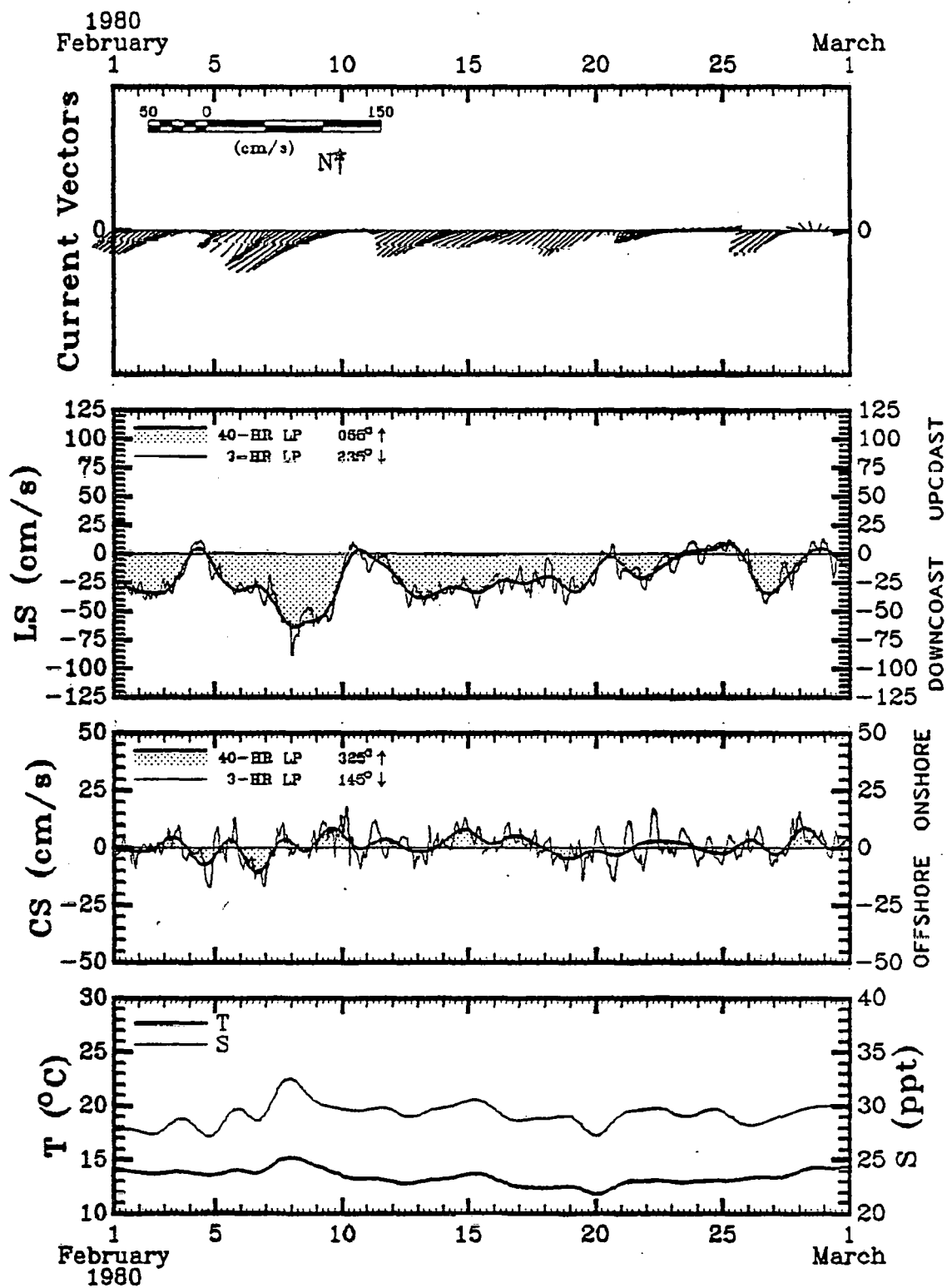
Site A, Middle

Figure 4-26. December 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site A



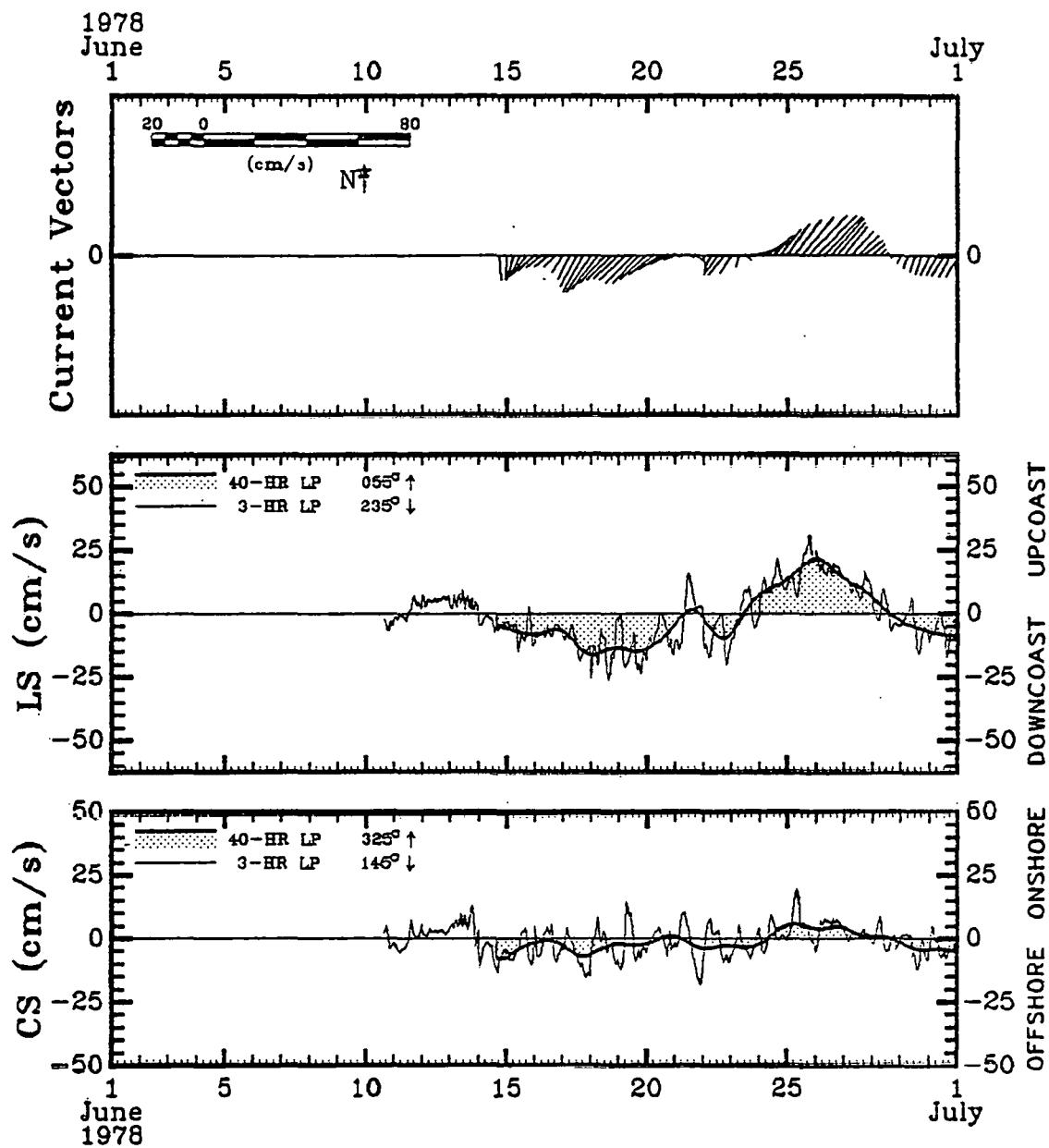
Site A, Middle

Figure 4-27. January 1980 current velocity, temperature and salinity time series plots for mid depth instrument at site A



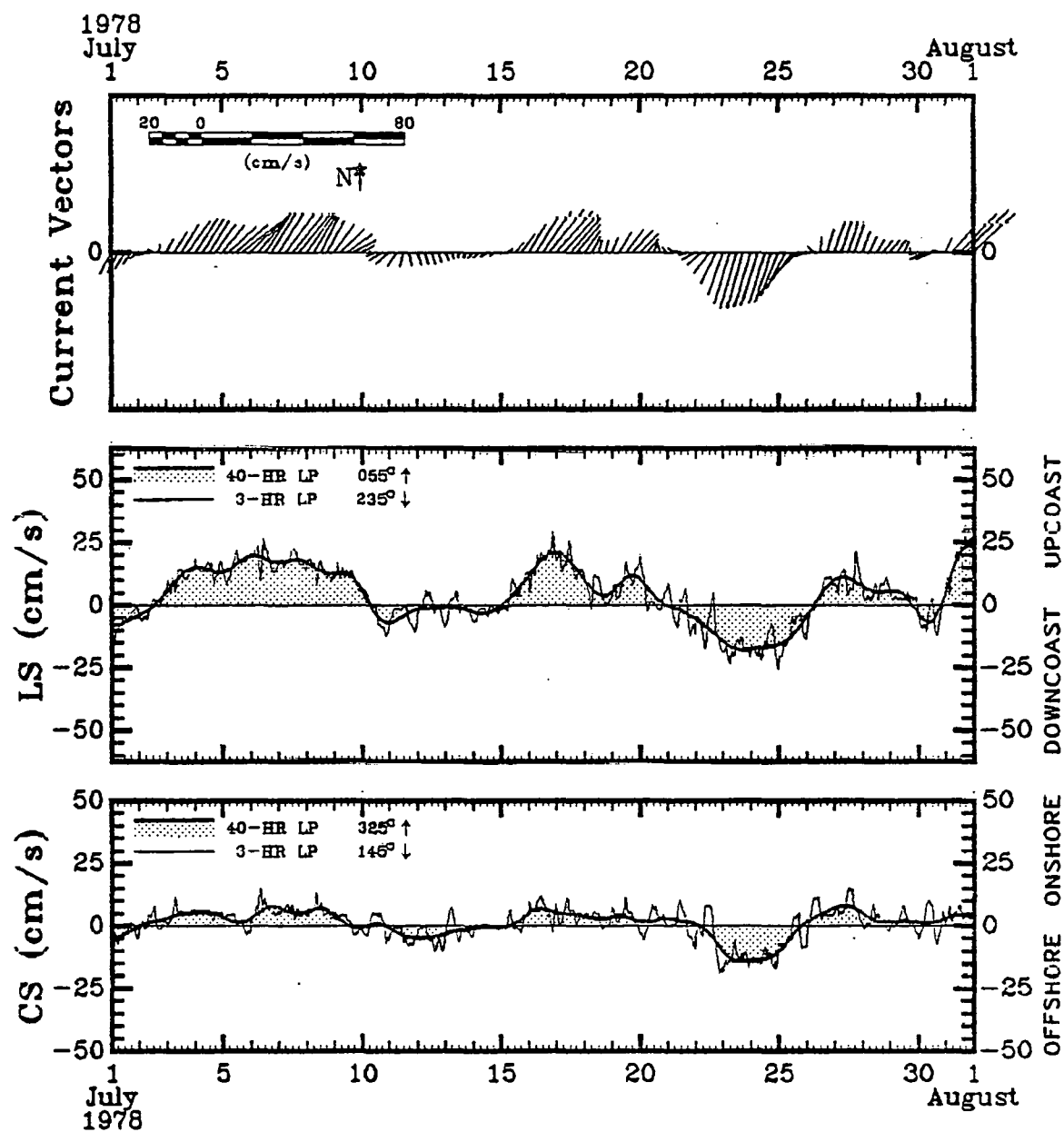
Site A, Middle

Figure 4-28. February 1980 current velocity, temperature and salinity time series plots for mid depth instrument at site A



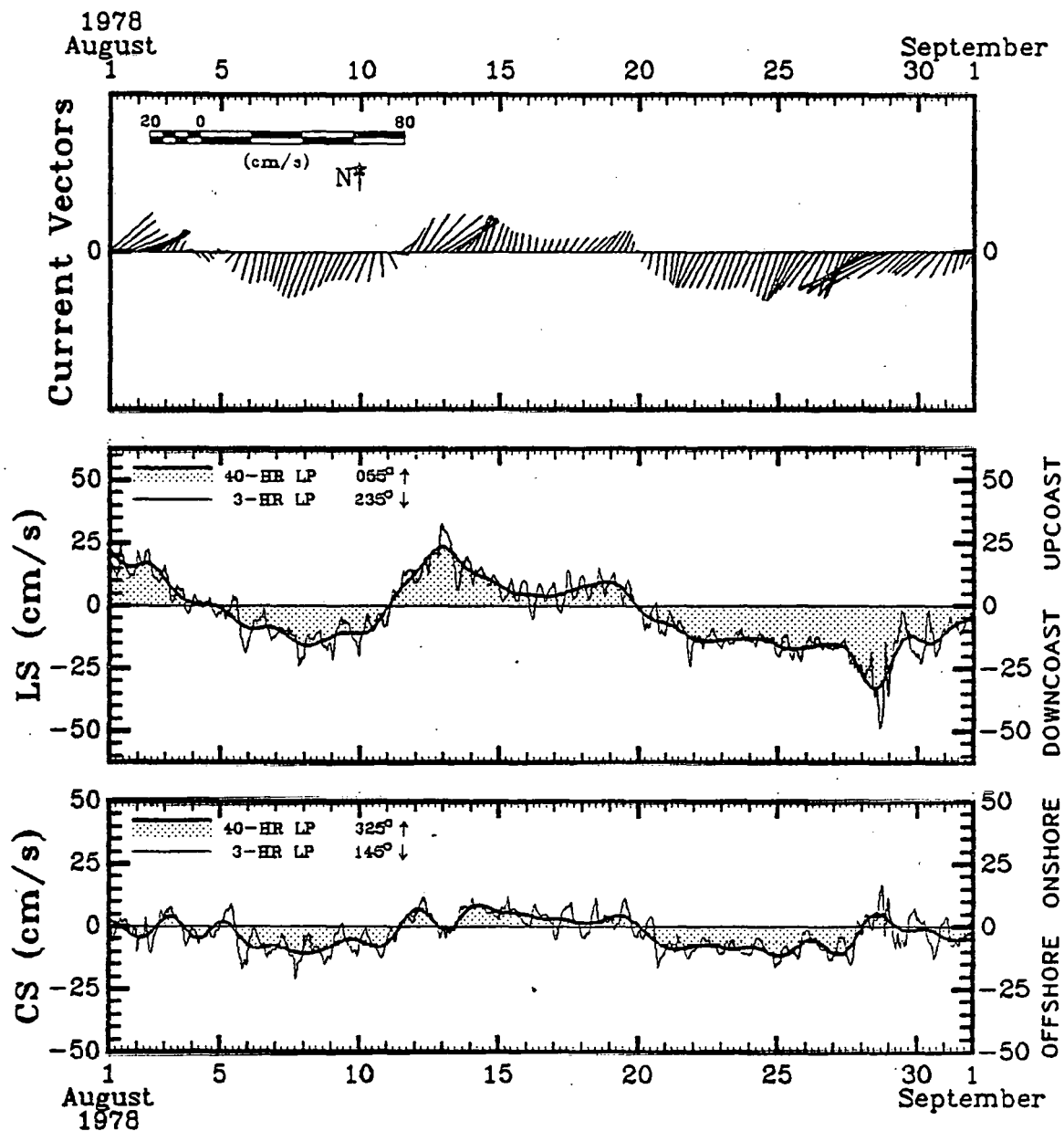
Site A, Bottom

Figure 4-29. June 1978 current velocity time series plots for near bottom instrument at site A



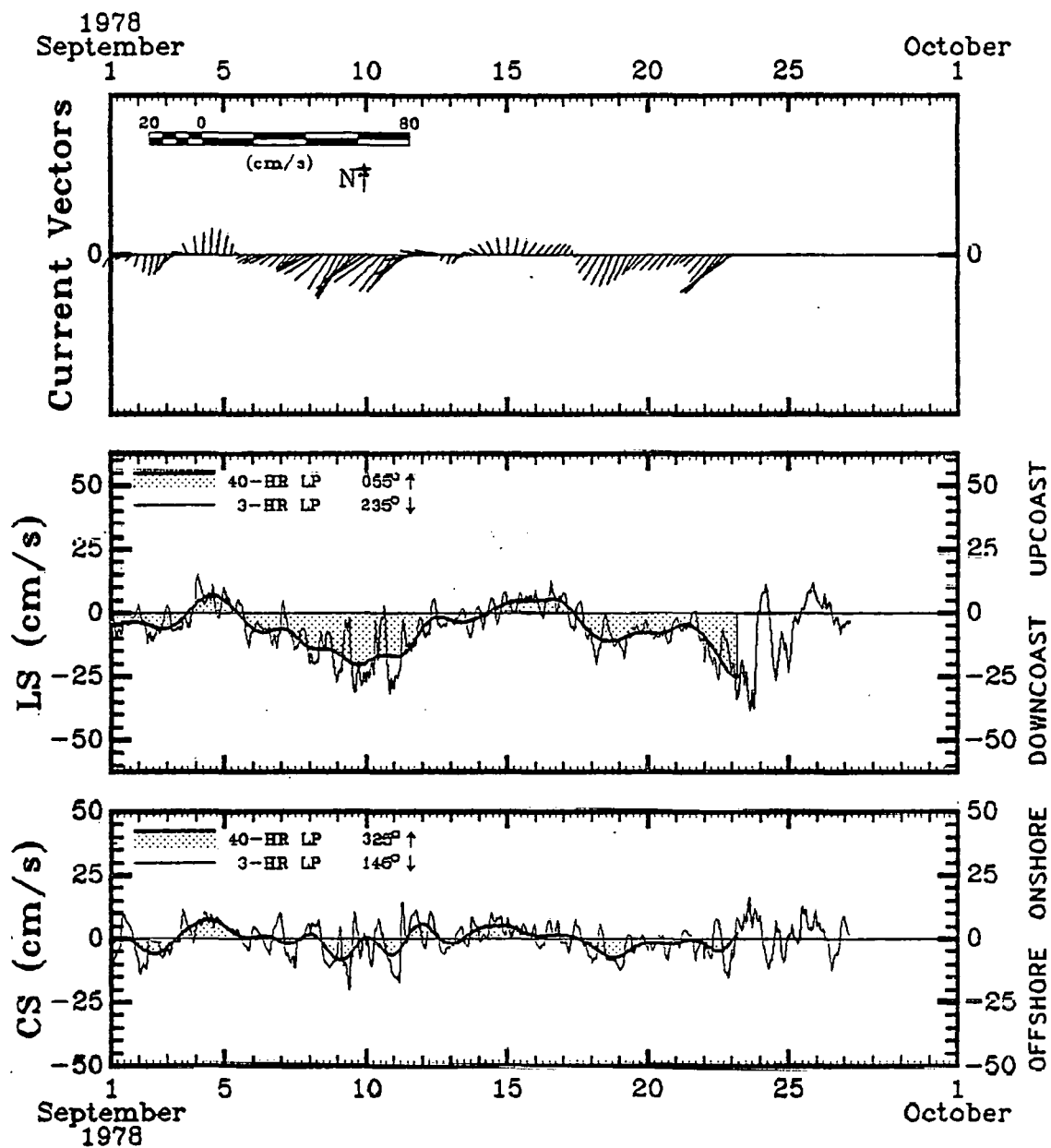
Site A, Bottom

Figure 4-30. July 1978 current velocity time series plots for near bottom instrument at site A



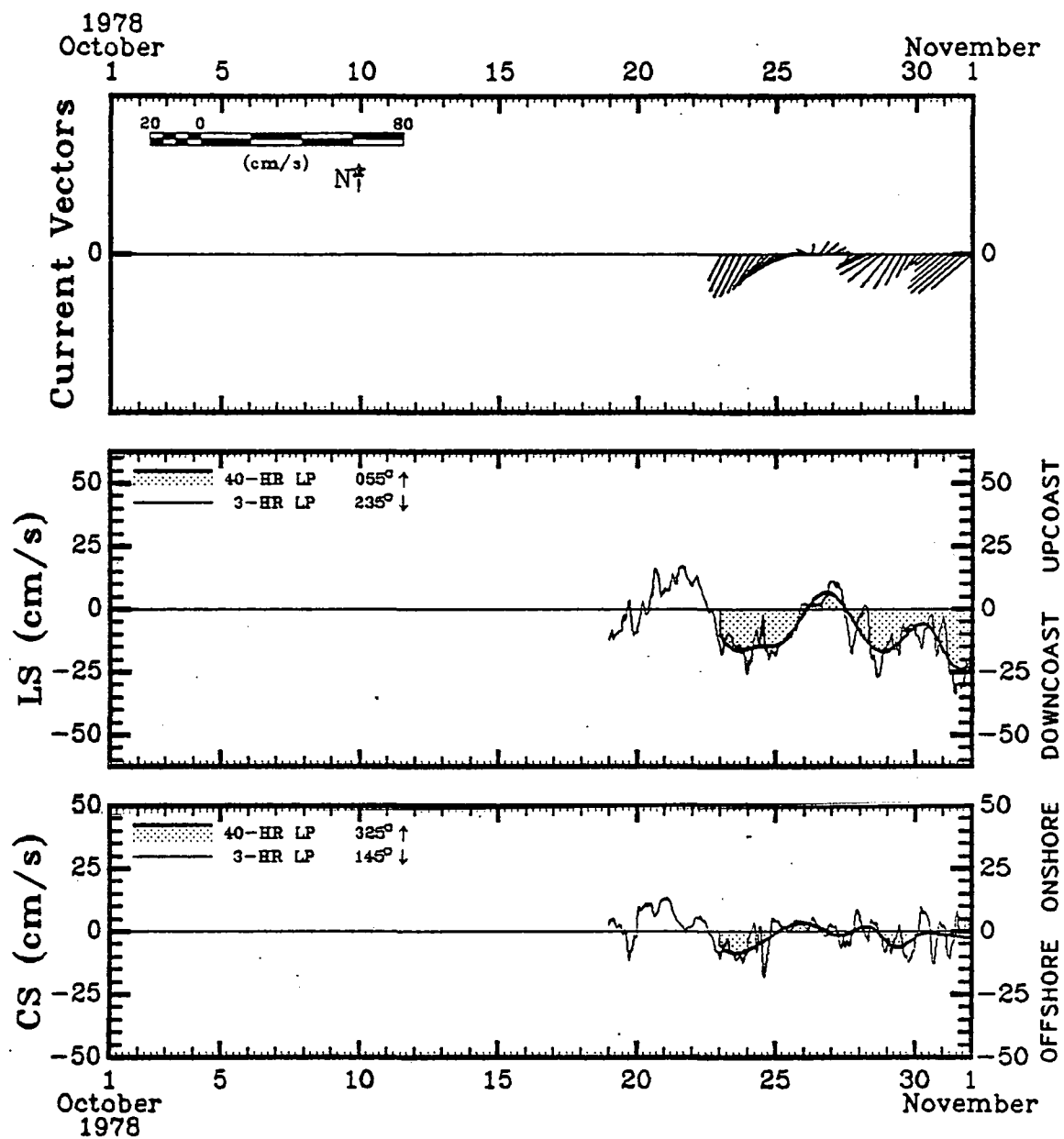
Site A, Bottom

Figure 4-31. August 1978 current velocity time series plots for near bottom instrument at site A



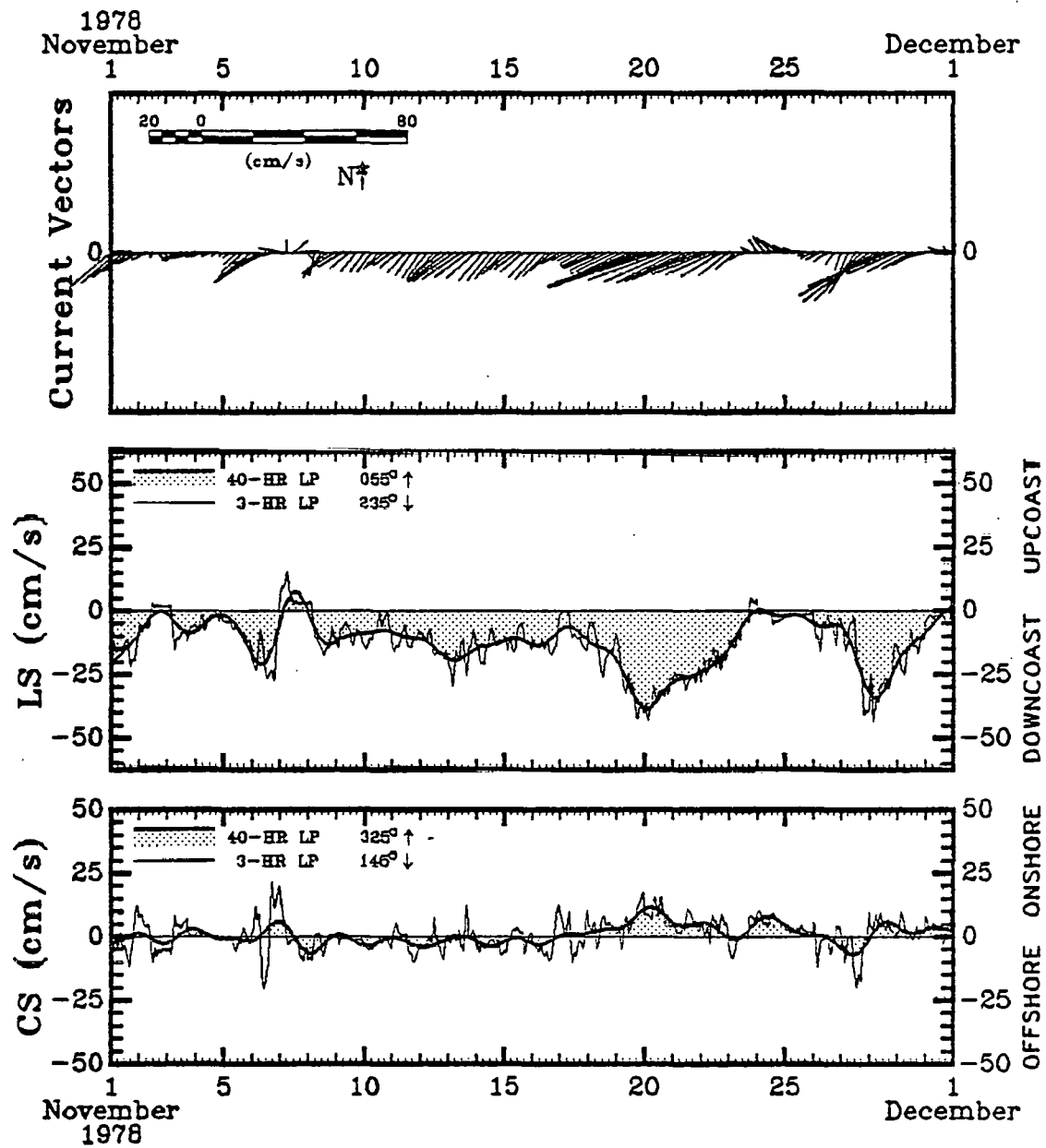
Site A, Bottom

Figure 4-32. September 1978 current velocity time series plots for near bottom instrument at site A



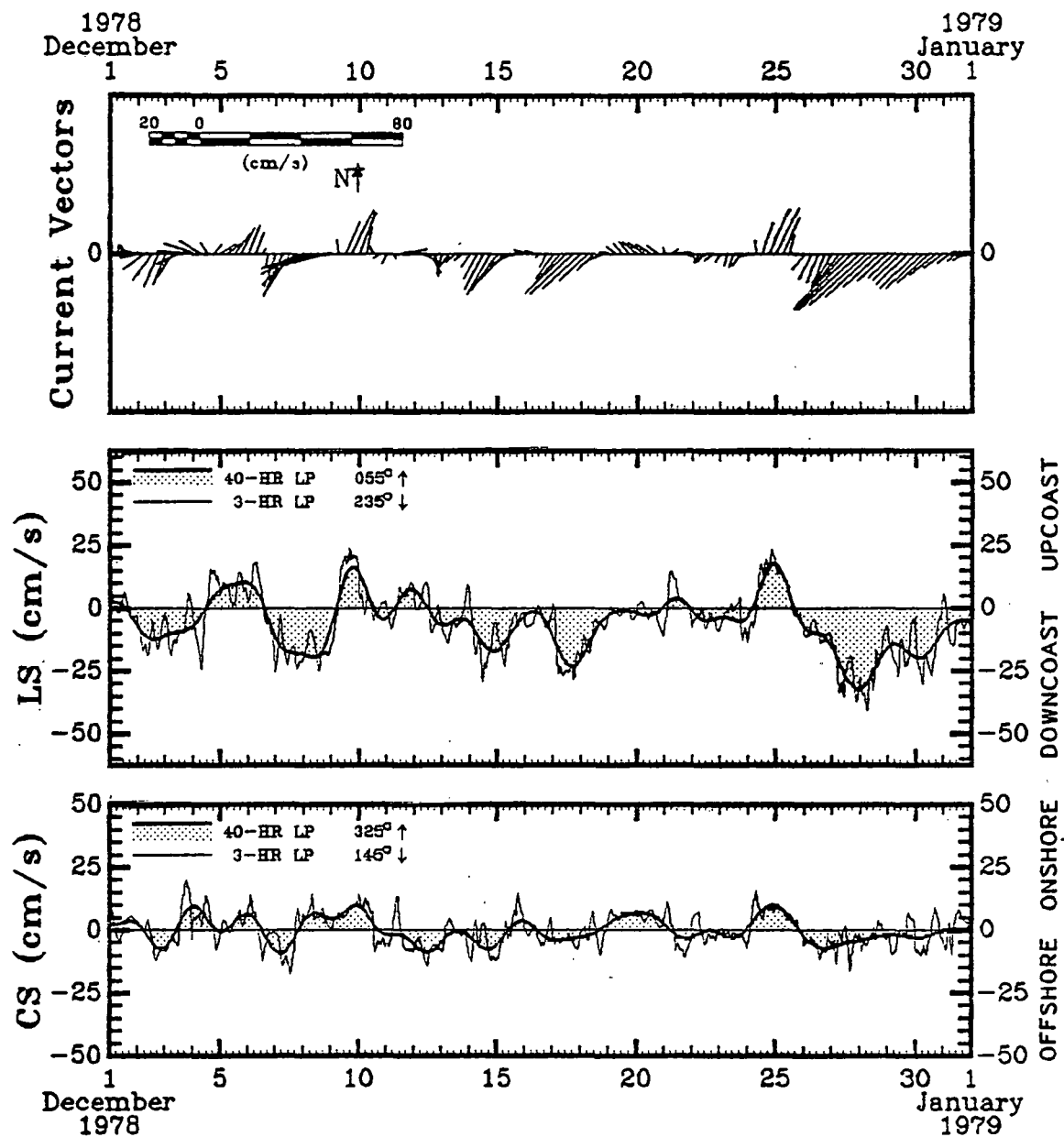
Site A, Bottom

Figure 4-33. October 1978 current velocity time series plots for near bottom instrument at site A



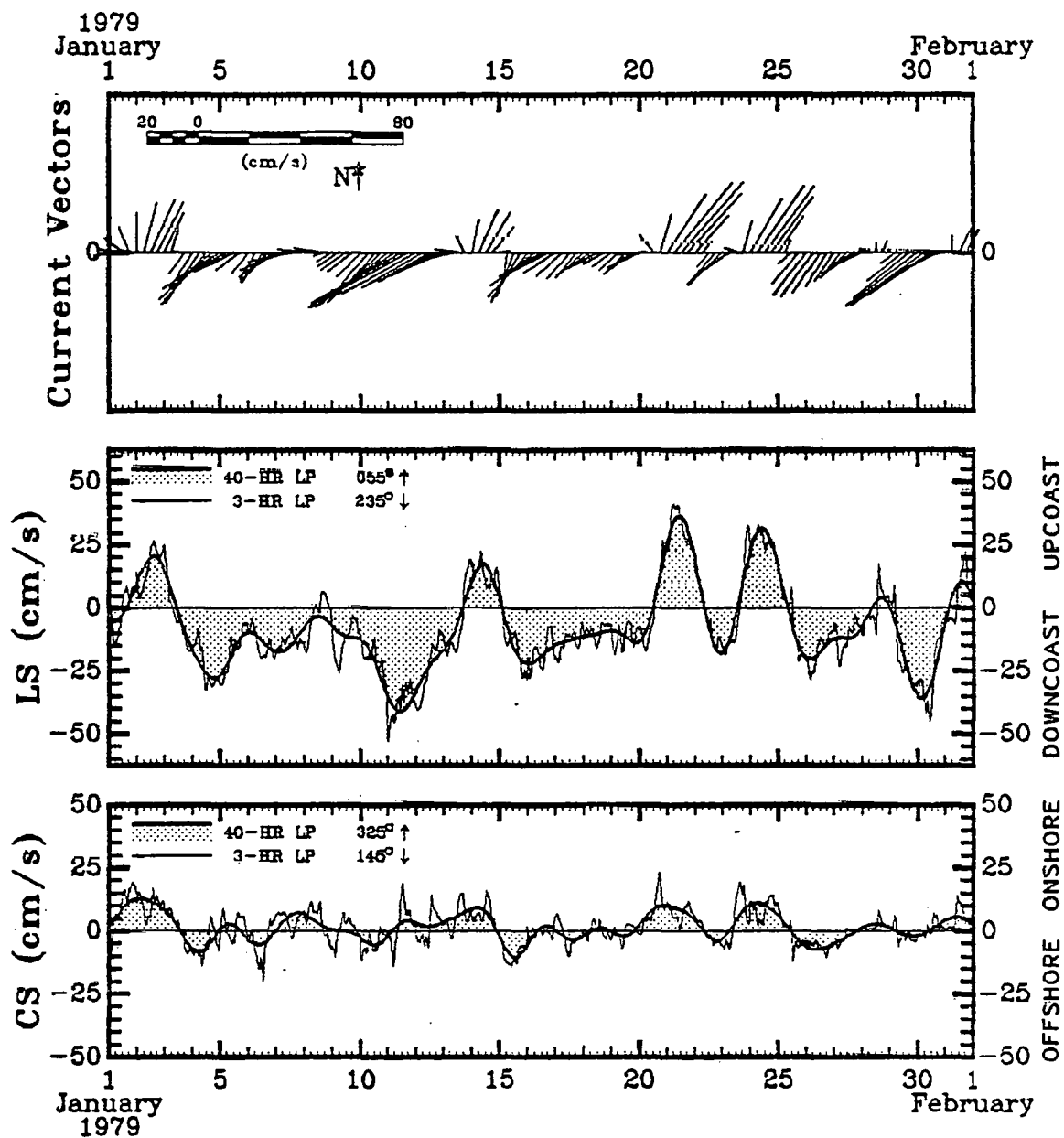
Site A, Bottom

Figure 4-34. November 1978 current velocity time series plots for near bottom instrument at site A



Site A, Bottom

Figure 4-35. December 1978 current velocity time series plots for near bottom instrument at site A



Site A, Bottom

Figure 4-36. January 1979 current velocity time series plots for near bottom instrument at site A

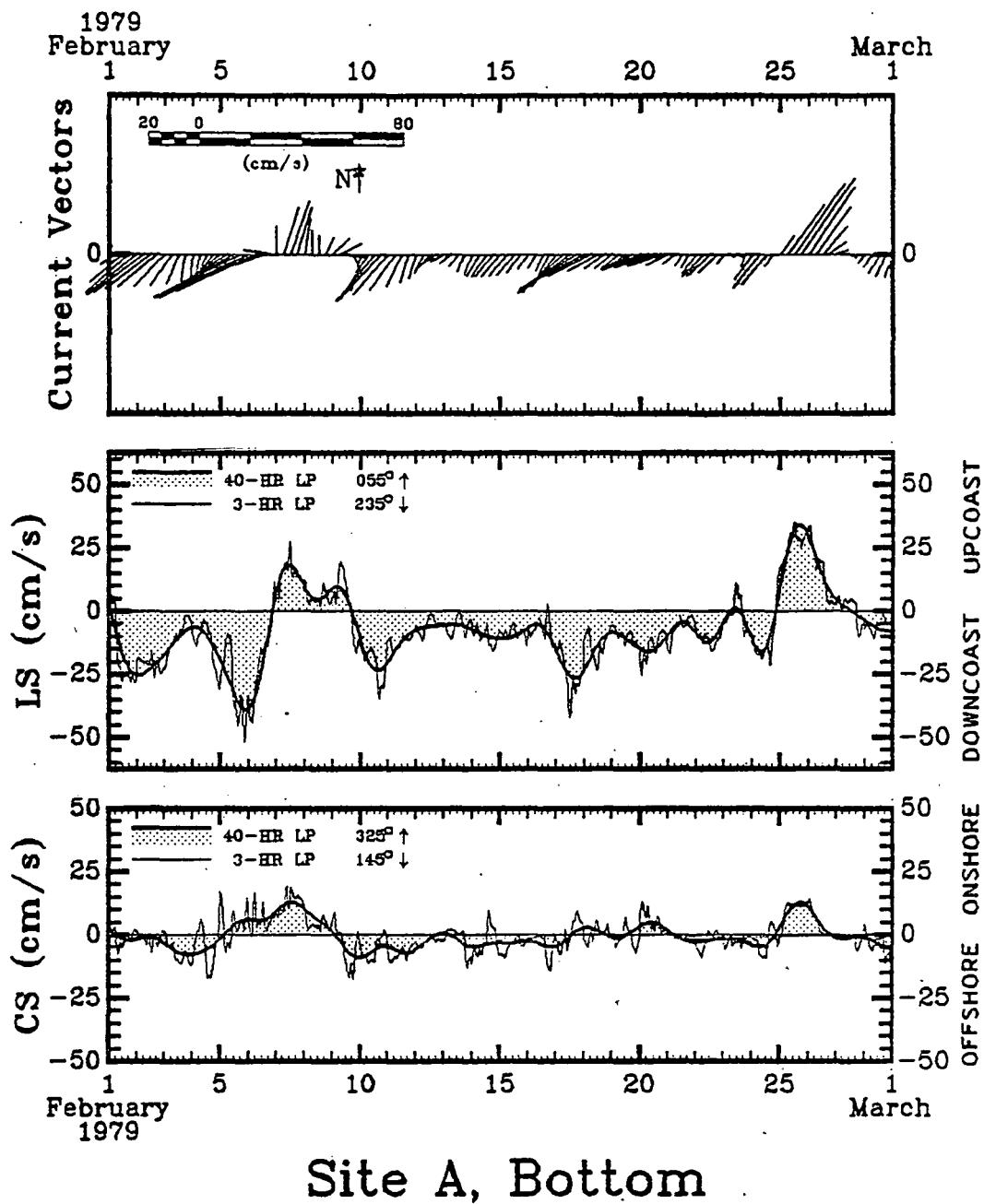
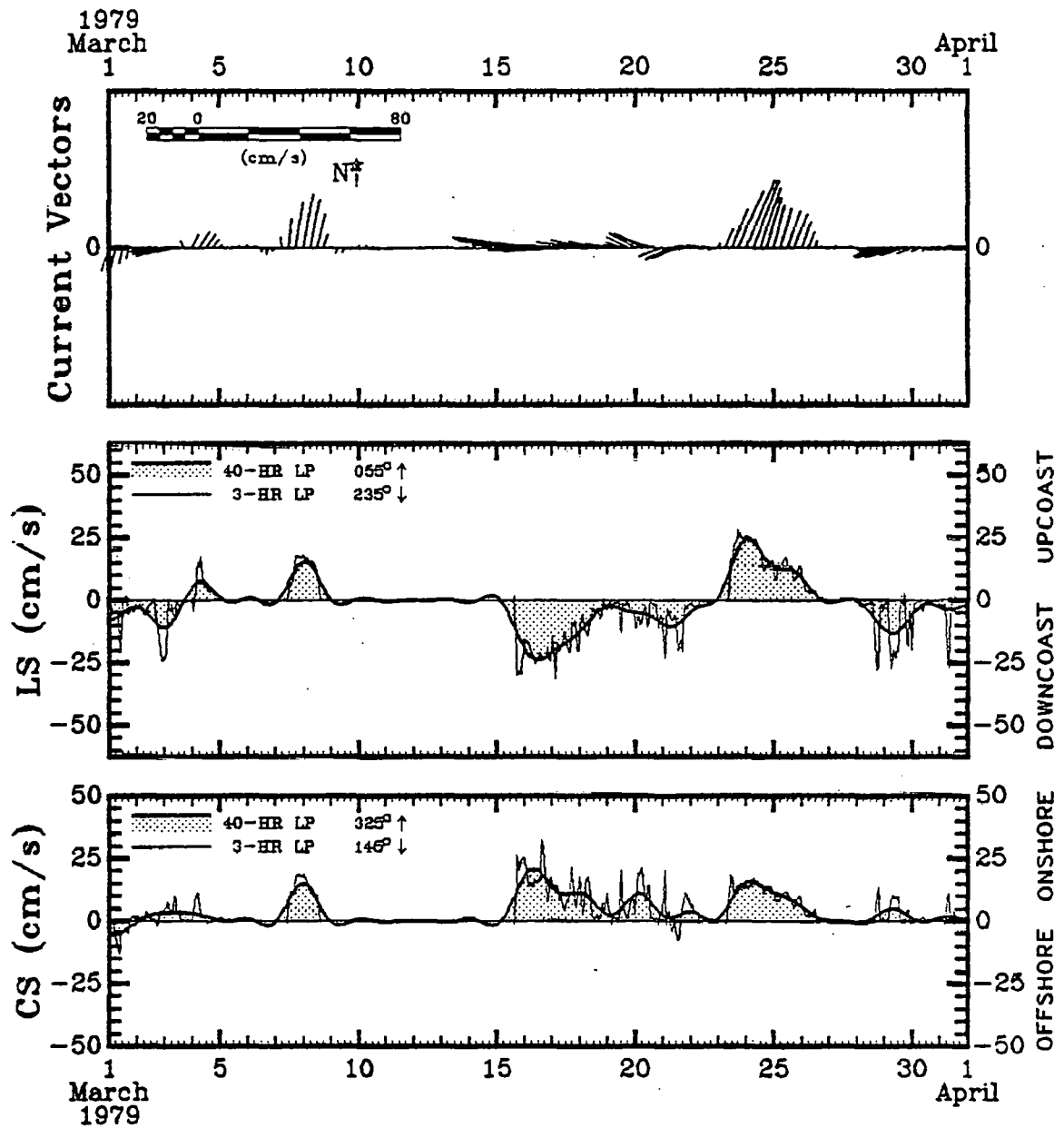
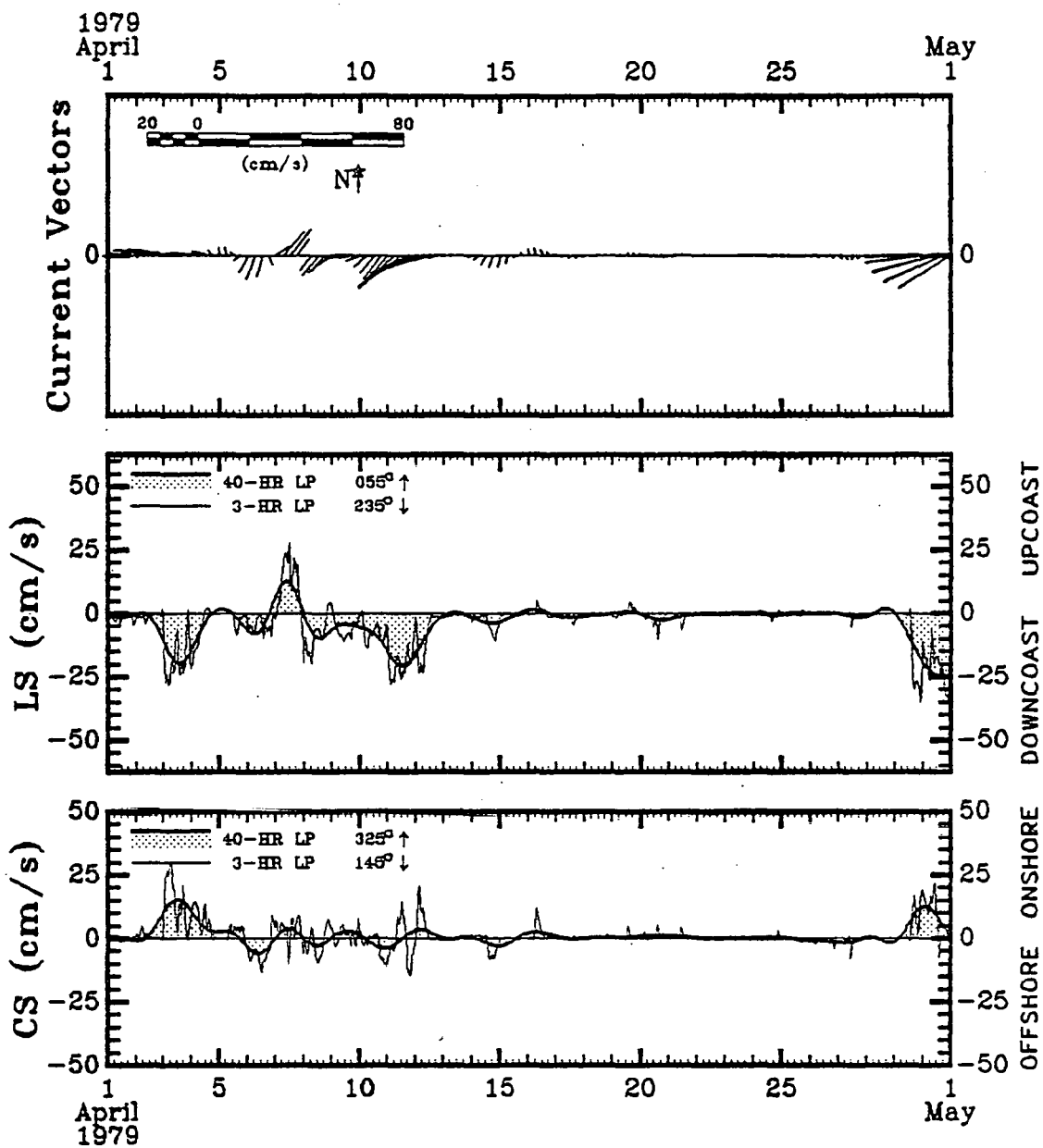


Figure 4-37. February 1979 current velocity time series plots for near bottom instrument at site A



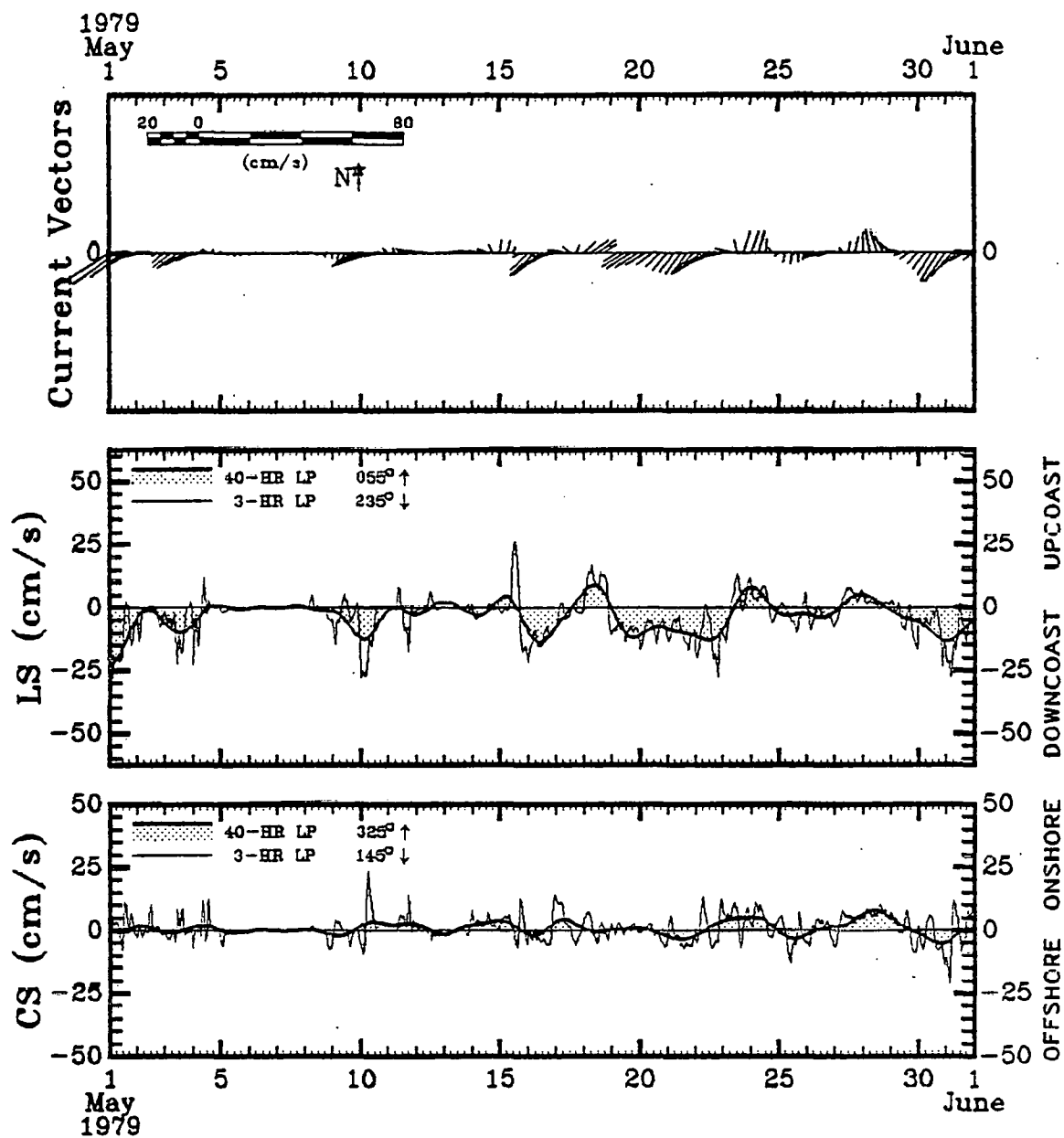
Site A, Bottom

Figure 4-38. March 1979 current velocity time series plots for near bottom instrument at site A



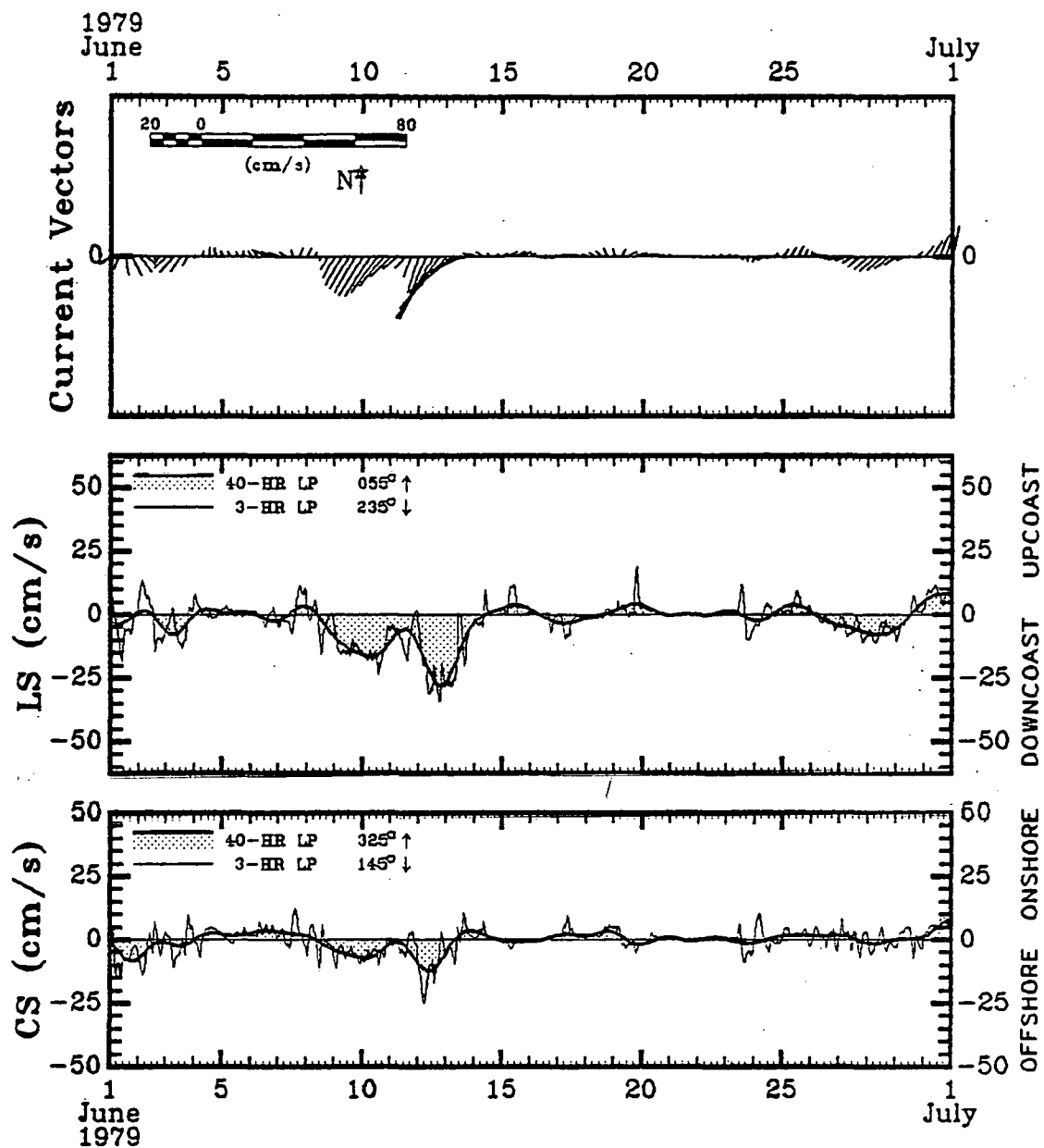
Site A, Bottom

Figure 4-39. April 1979 current velocity time series plots for near bottom instrument at site A



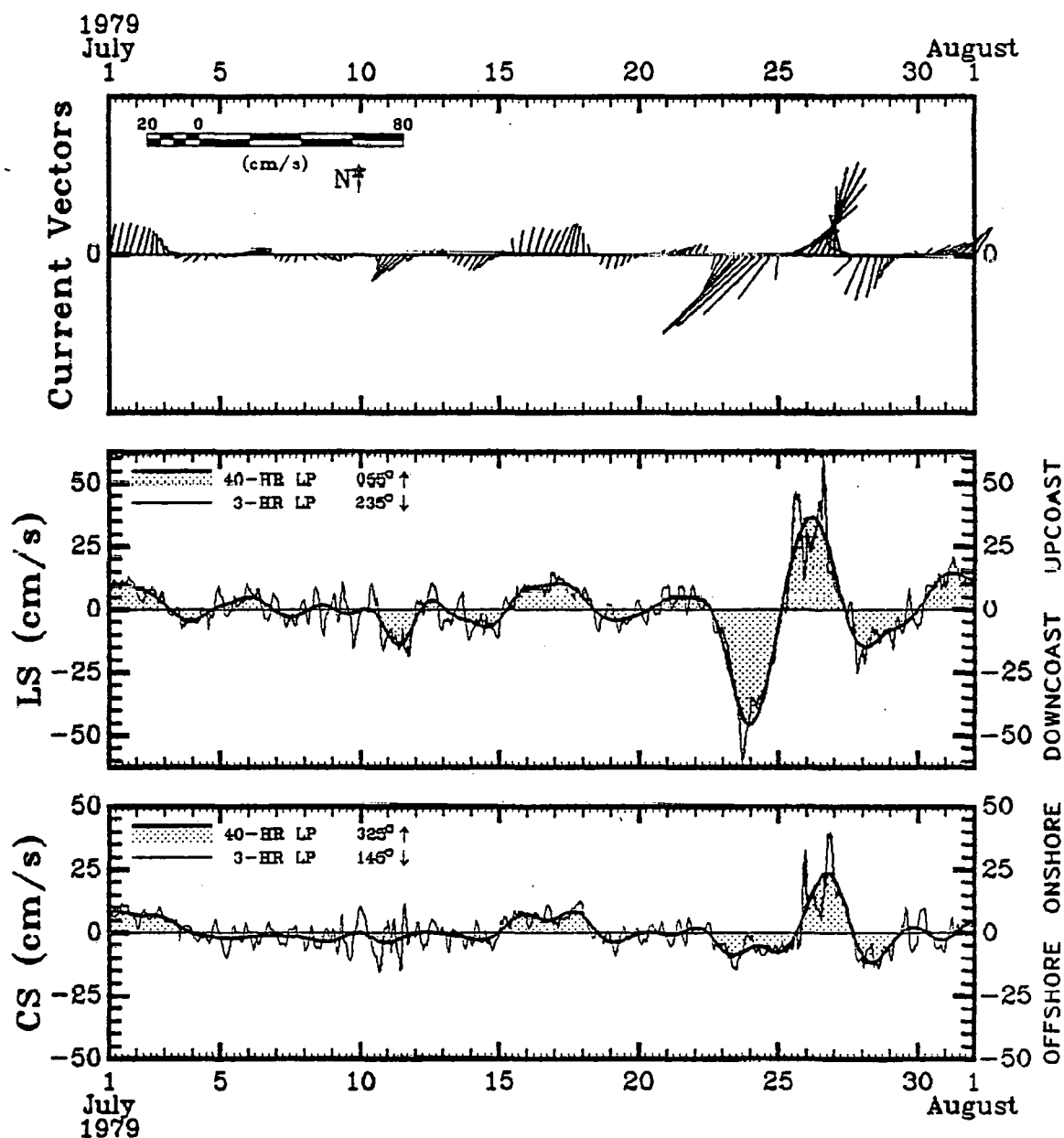
Site A, Bottom

Figure 4-40. May 1979 current velocity time series plots for near bottom instrument at site A



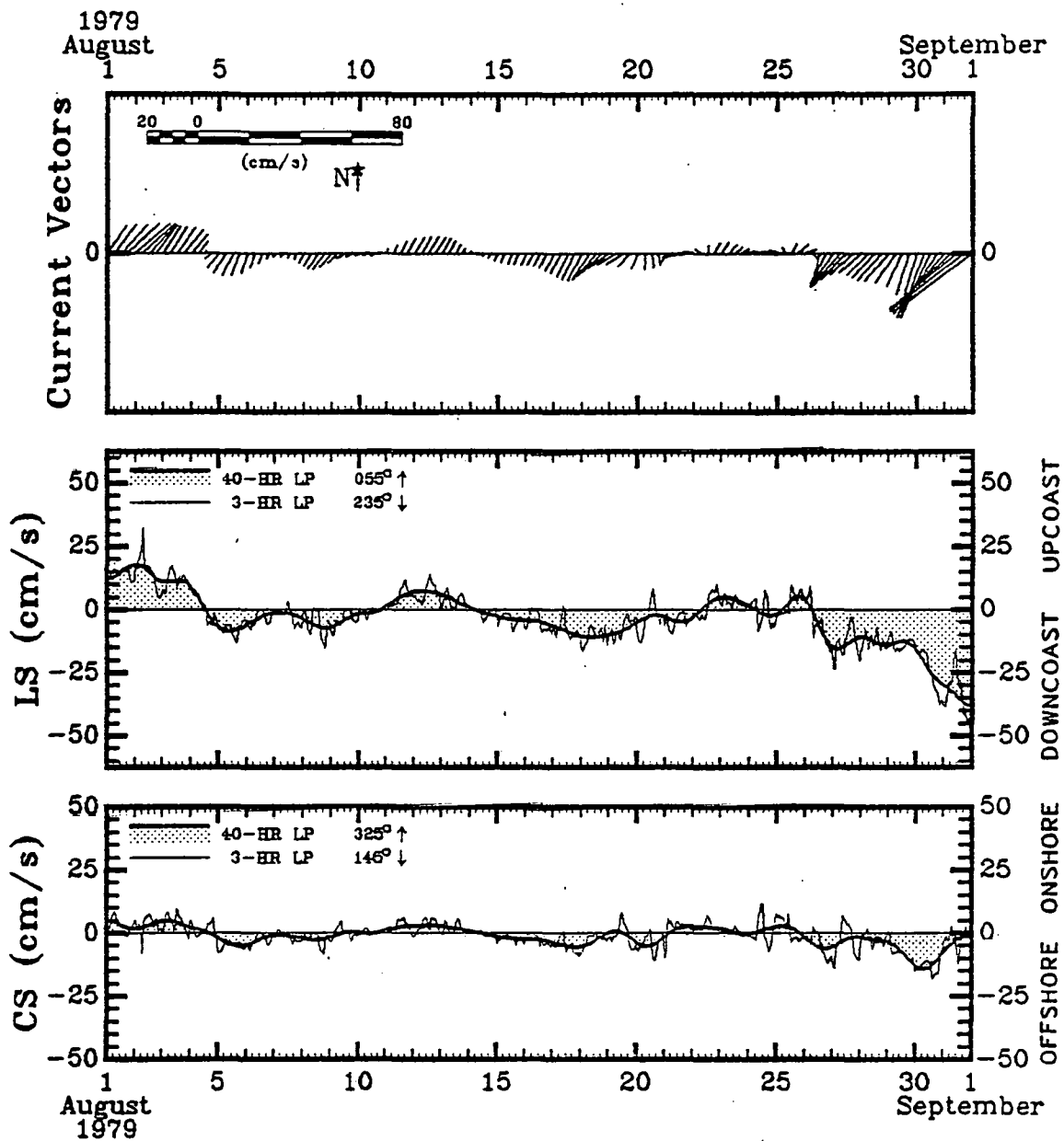
Site A, Bottom

Figure 4-41. June 1979 current velocity time series plots for near bottom instrument at site A



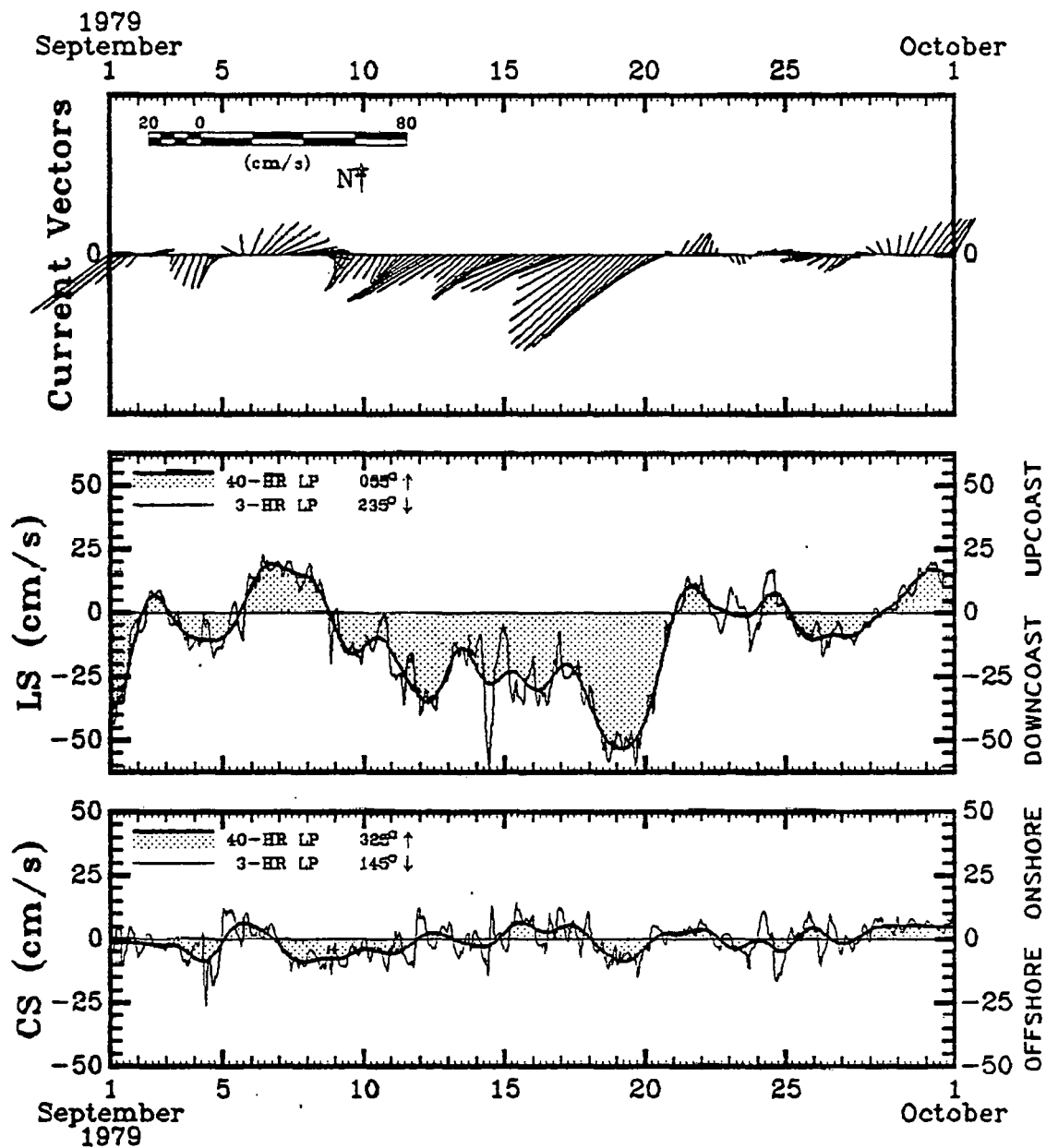
Site A, Bottom

Figure 4-42. July 1979 current velocity time series plots for near bottom instrument at site A



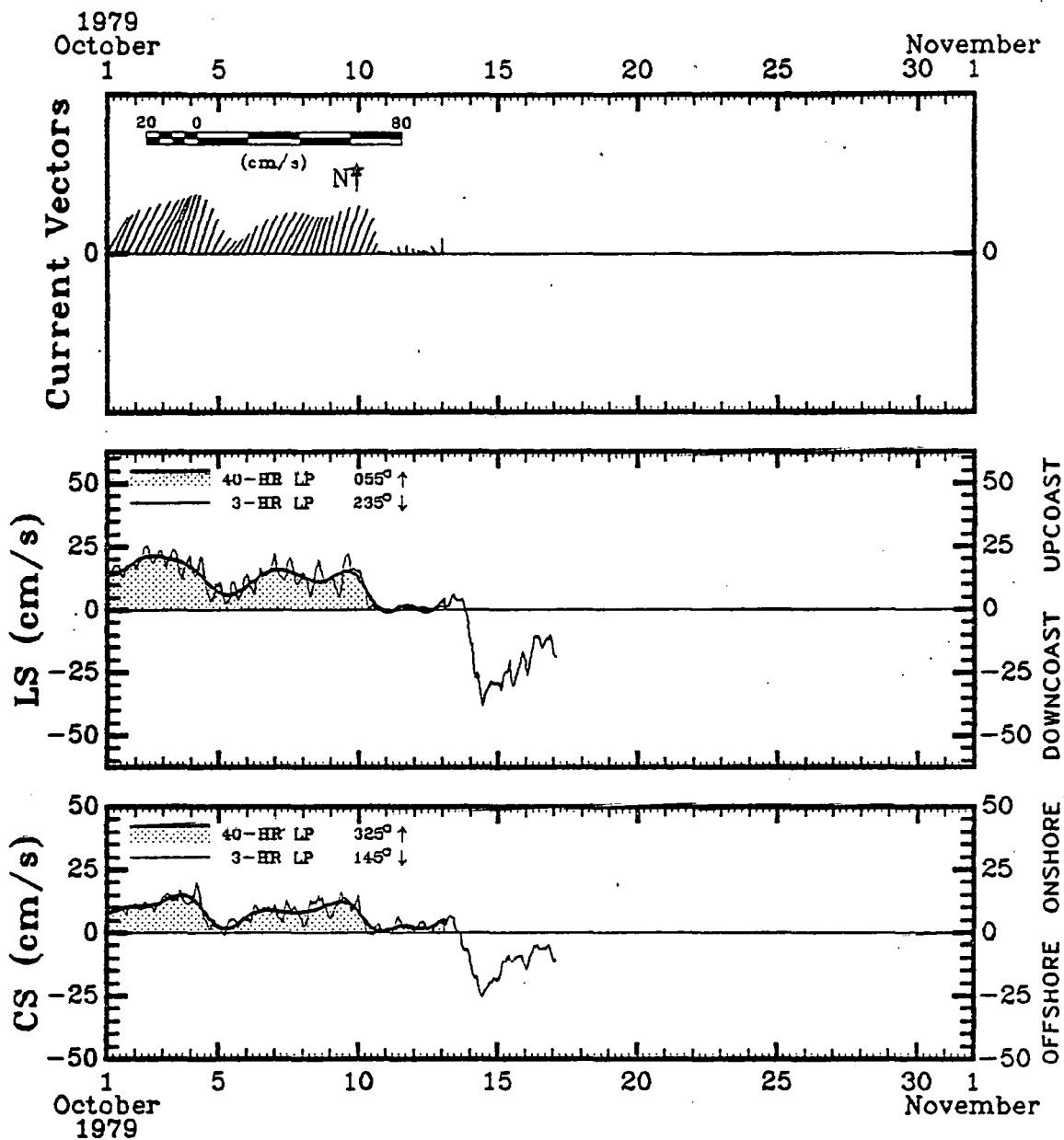
Site A, Bottom

Figure 4-43. August 1979 current velocity time series plots for near bottom instrument at site A



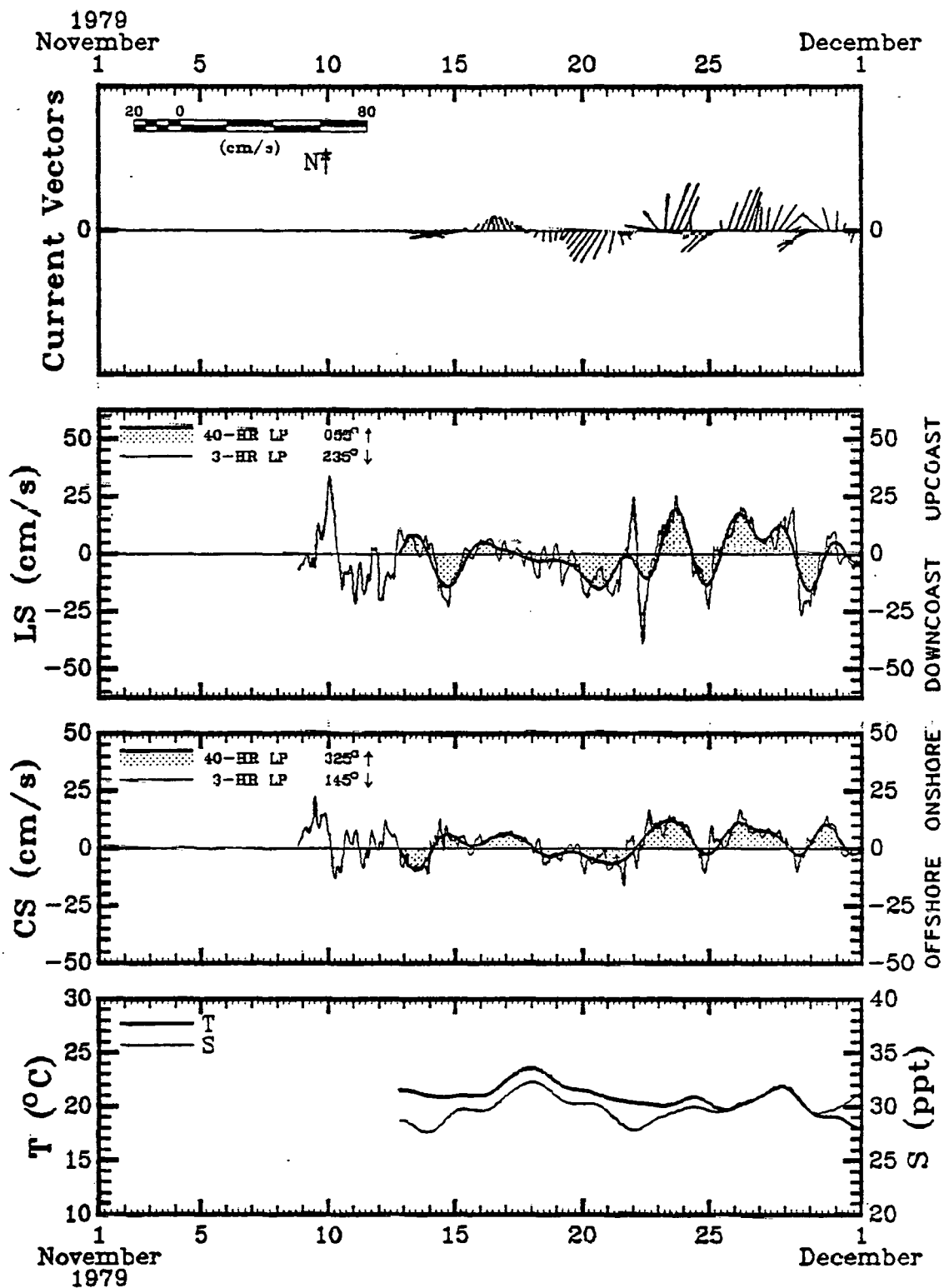
Site A, Bottom

Figure 4-44. September 1979 current velocity time series plots for near bottom instrument at site A



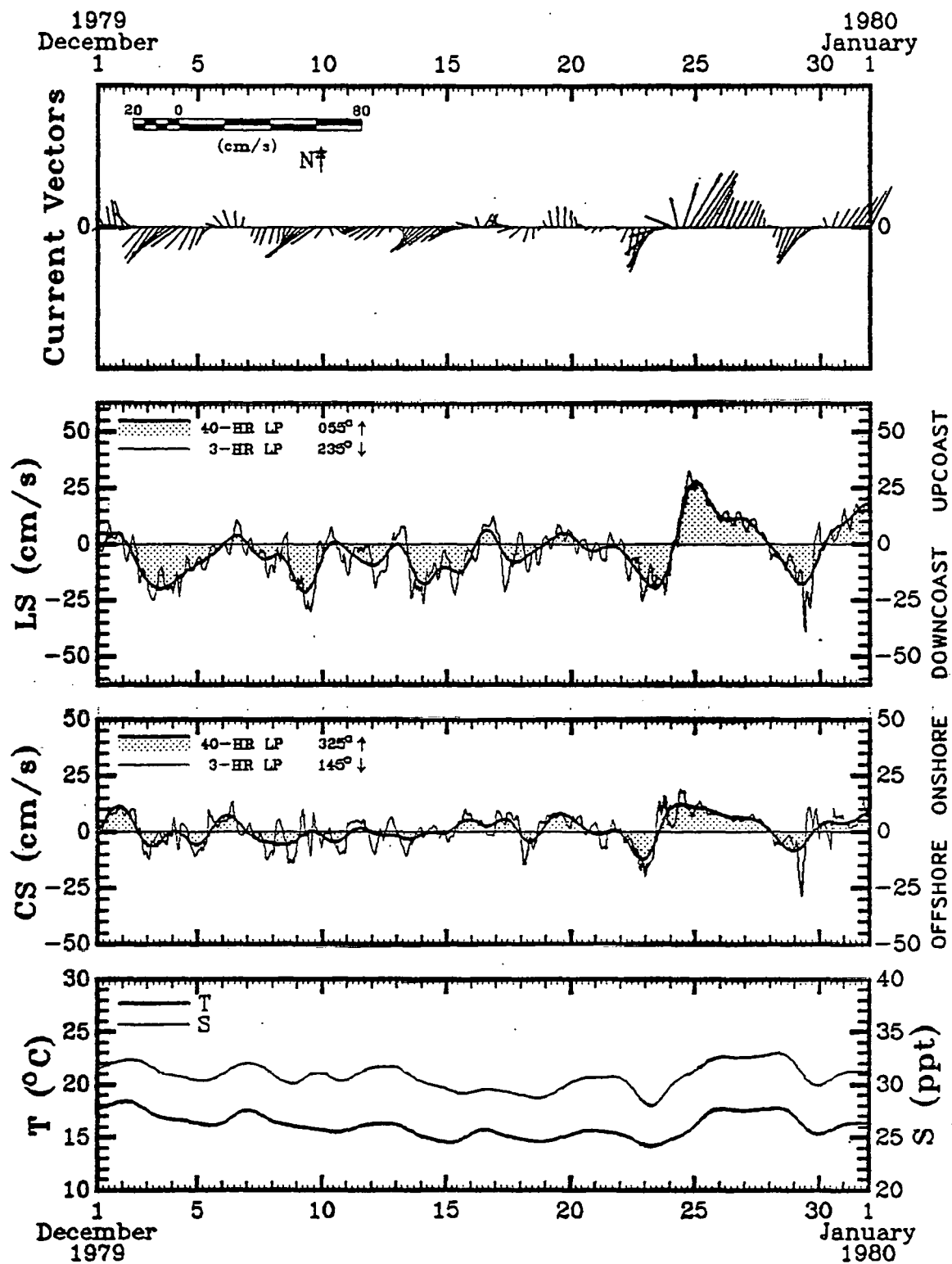
Site A, Bottom

Figure 4-45. October 1979 current velocity time series plots for near bottom instrument at site A



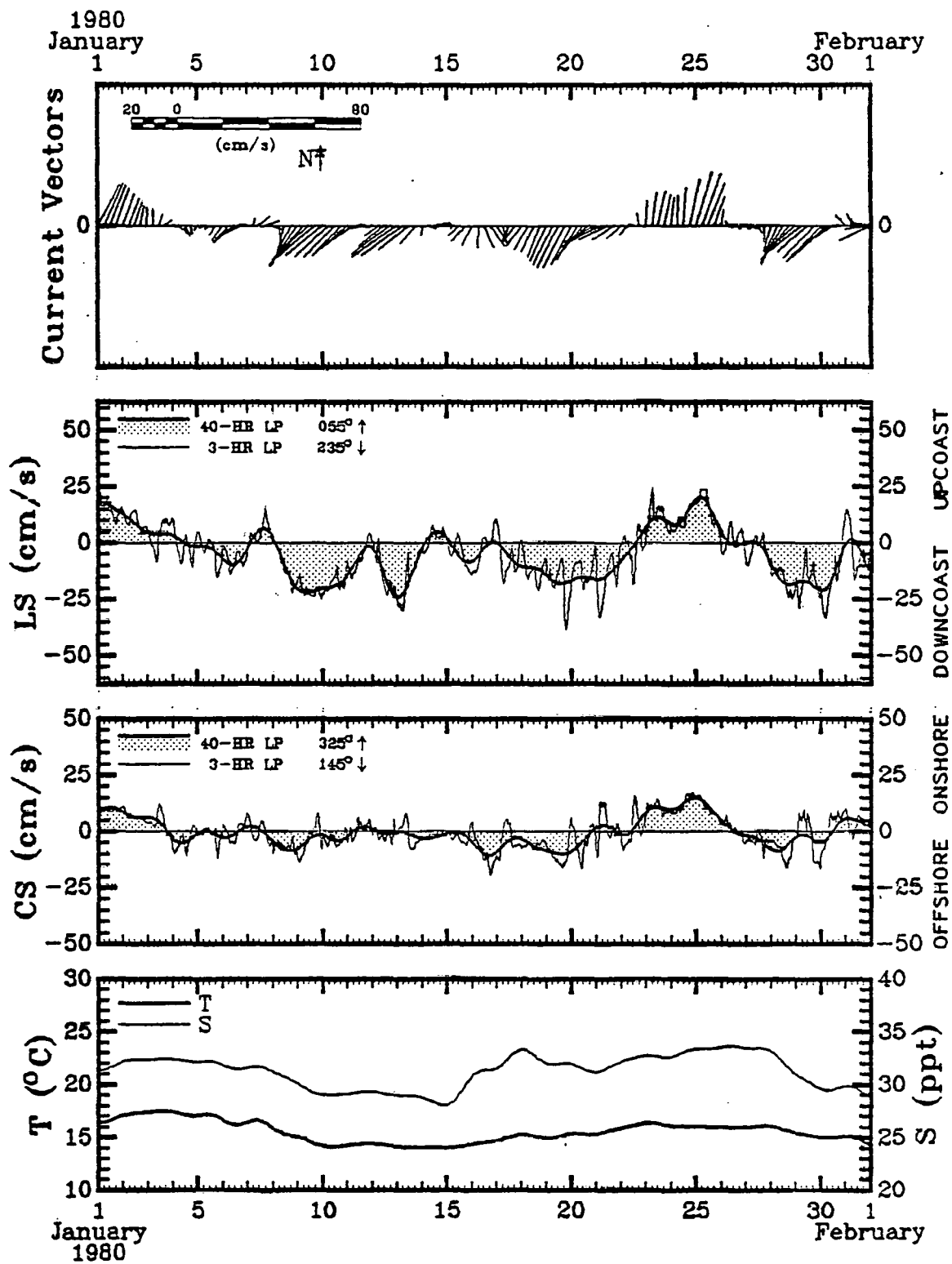
Site A, Bottom

Figure 4-46. November, 1979 current velocity, temperature, and salinity time series plots for near-bottom instrument at site A



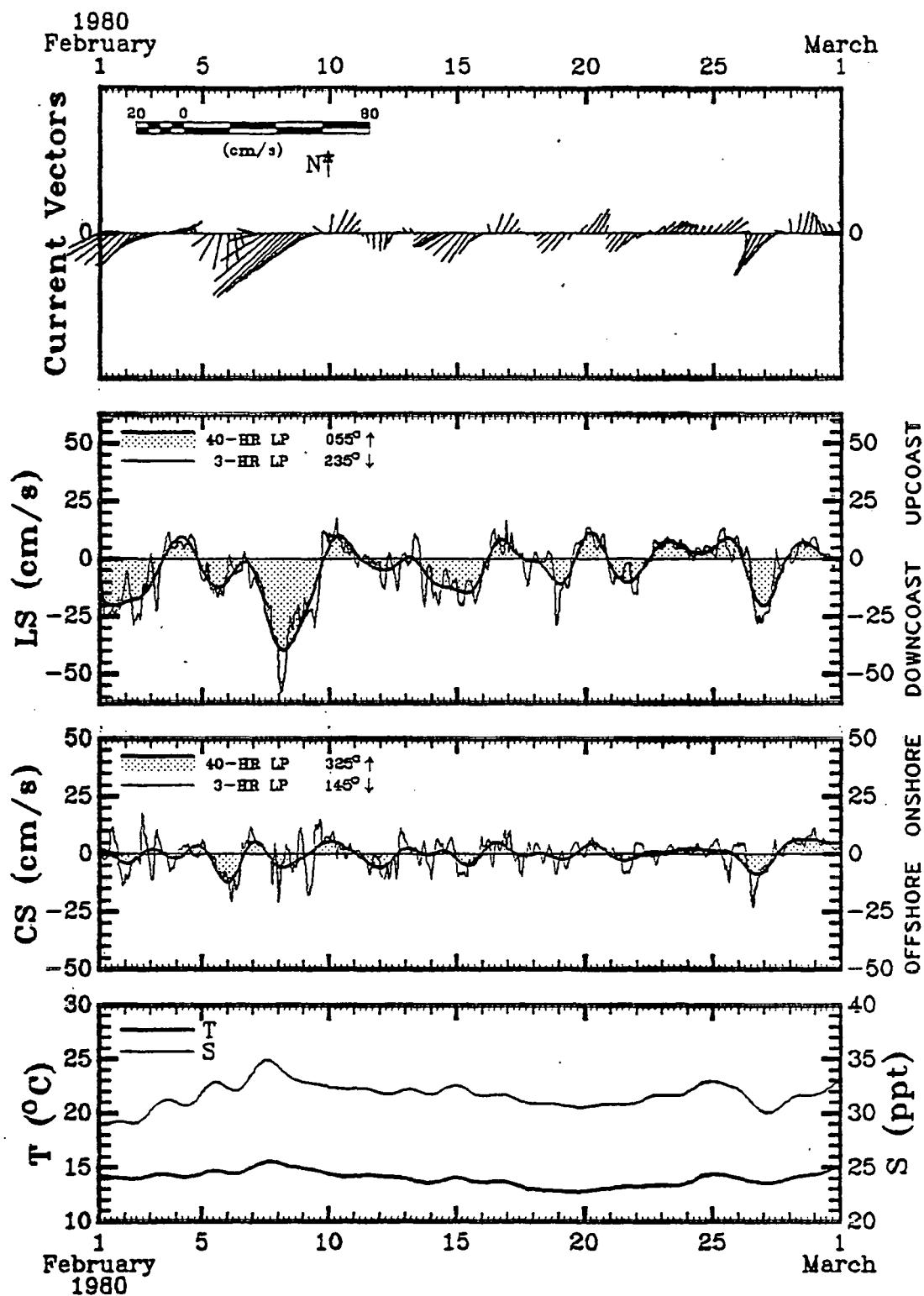
Site A, Bottom

Figure 4-47. December, 1979 current velocity, temperature, and salinity time series plots for near-bottom instrument at site A



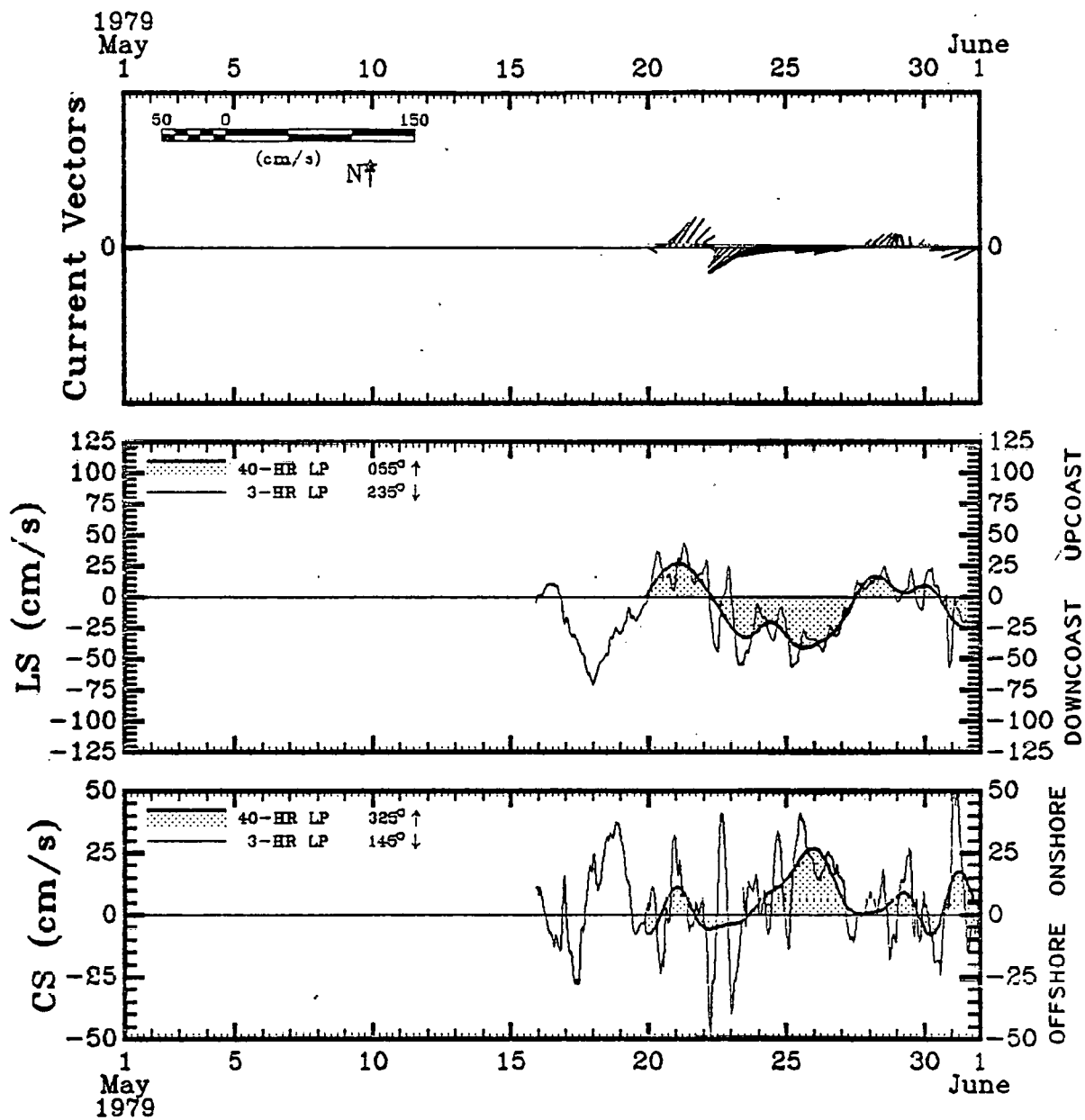
Site A, Bottom

Figure 4-48. January, 1980 current velocity, temperature, and salinity time series plots for near-bottom instrument at site A



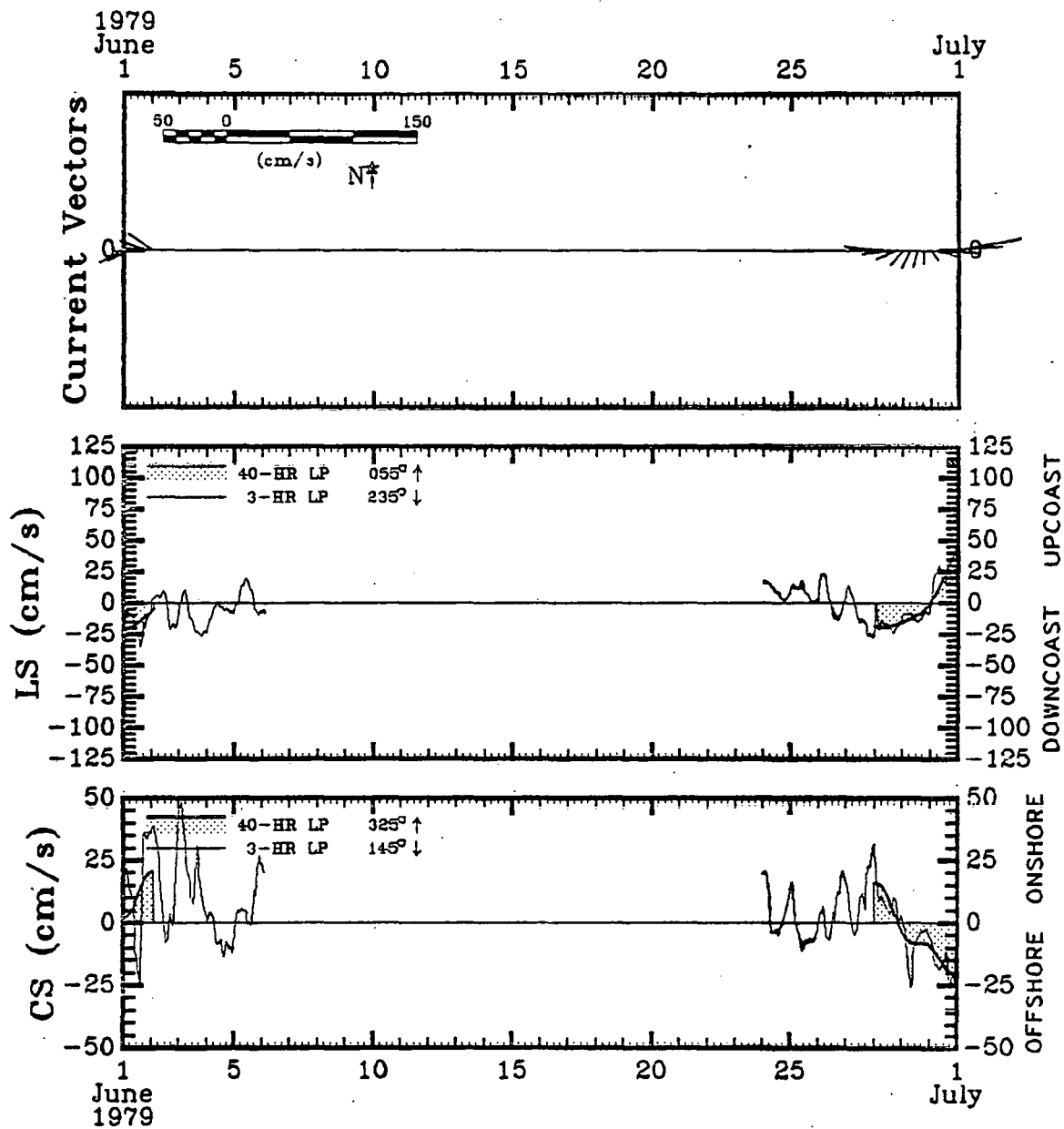
Site A, Bottom

Figure 4-49. February, 1980 current velocity, temperature and salinity time series plots for near-bottom instrument at site A



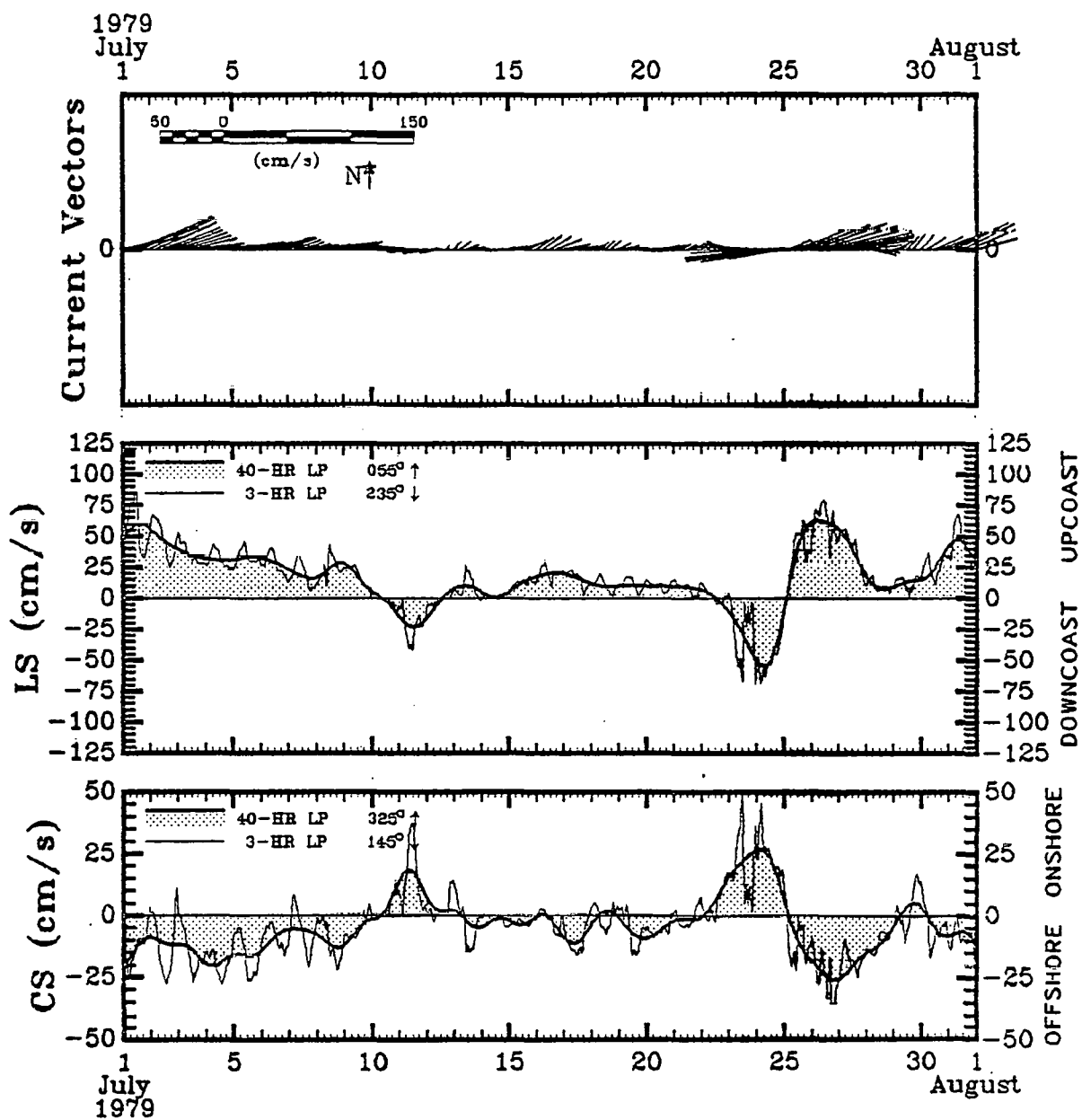
Site B, Top

Figure 4-50. May, 1979 current velocity time series plots for near surface instrument at site B



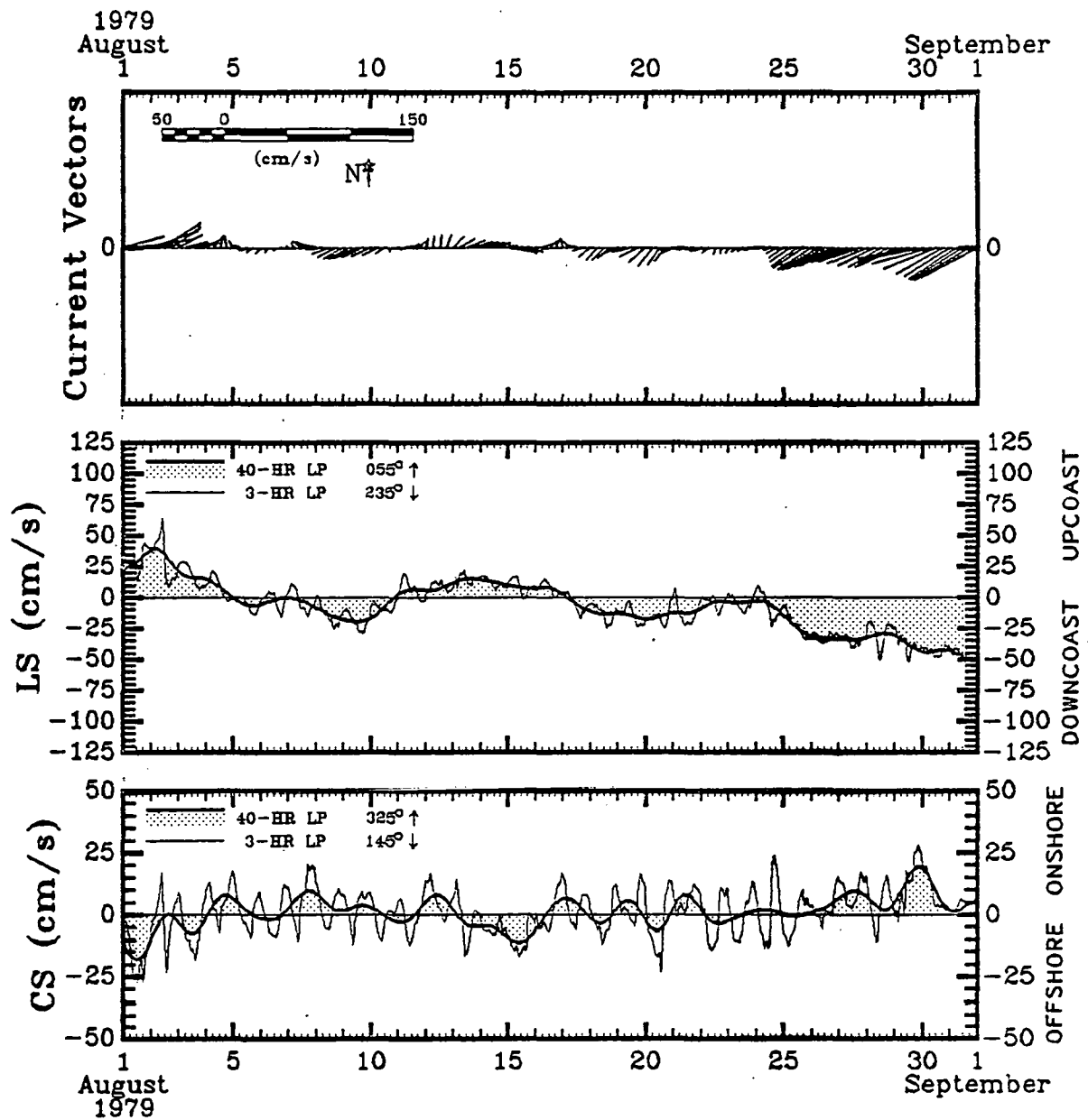
Site B, Top

Figure 4-51. June, 1979 current velocity time series plots for near surface instrument at site B



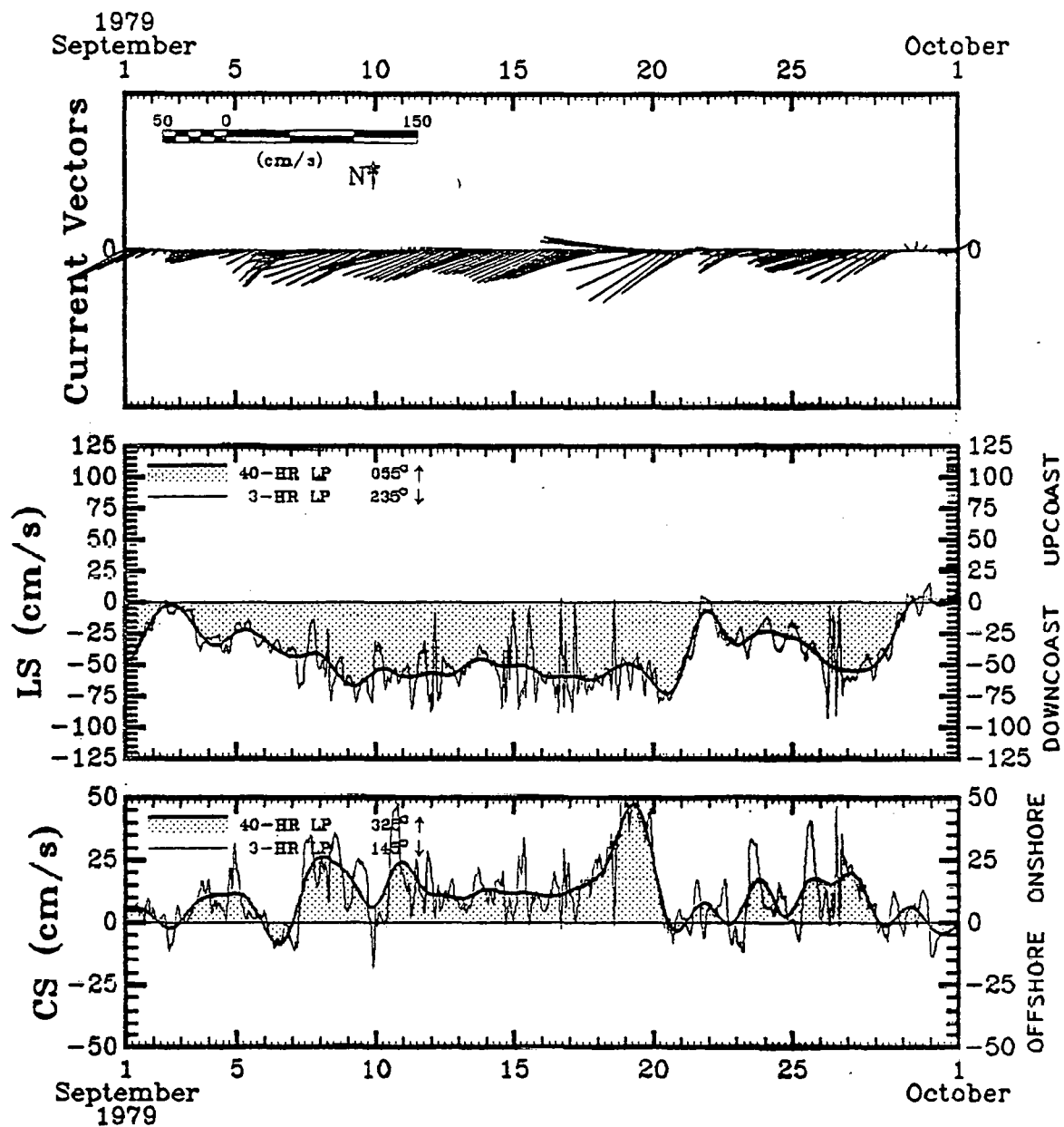
Site B, Top

Figure 4-52. July, 1979 current velocity time series plots for near surface instrument at site B



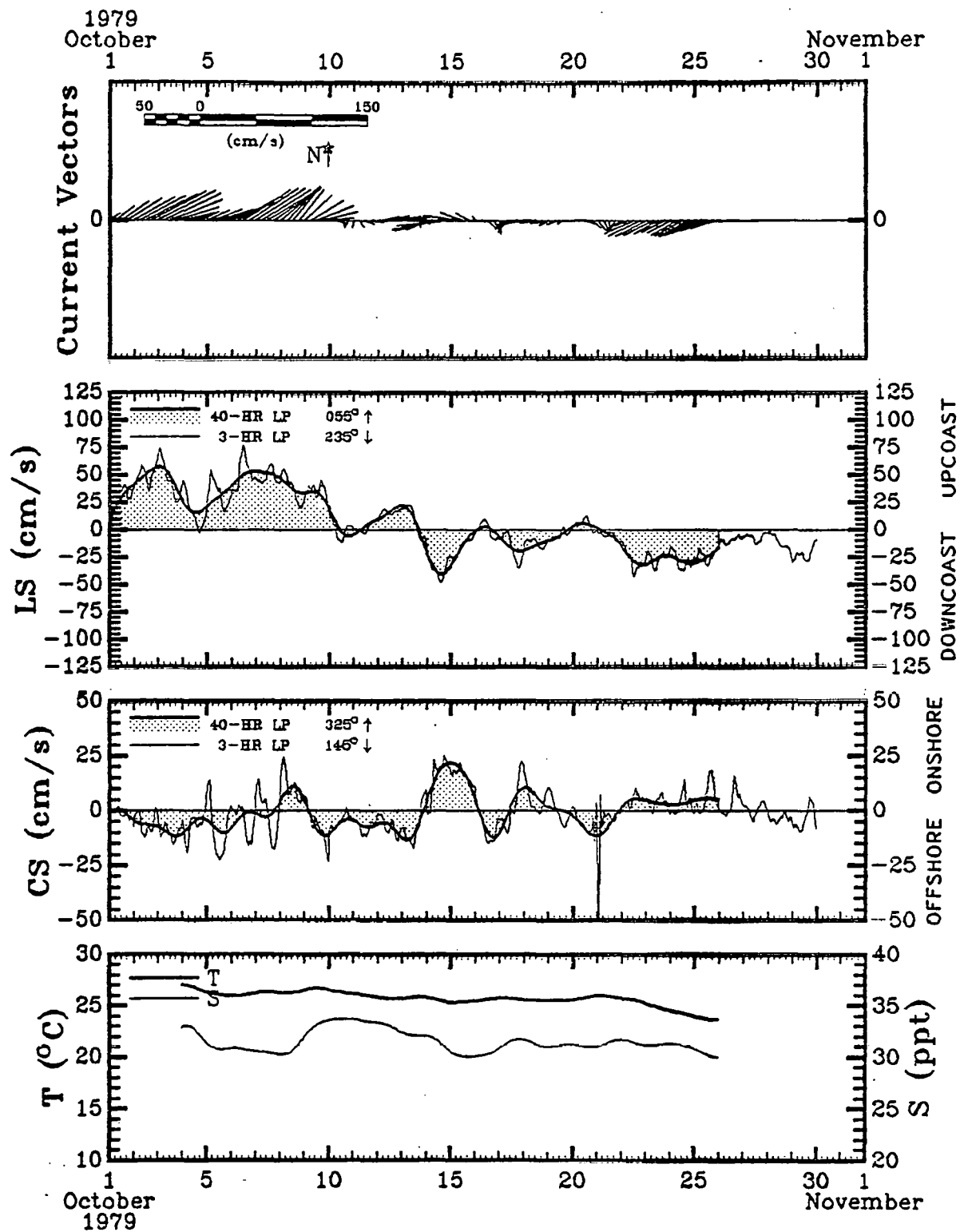
Site B, Top

Figure 4-53. August, 1979 current velocity time series plots for near surface instrument at site B



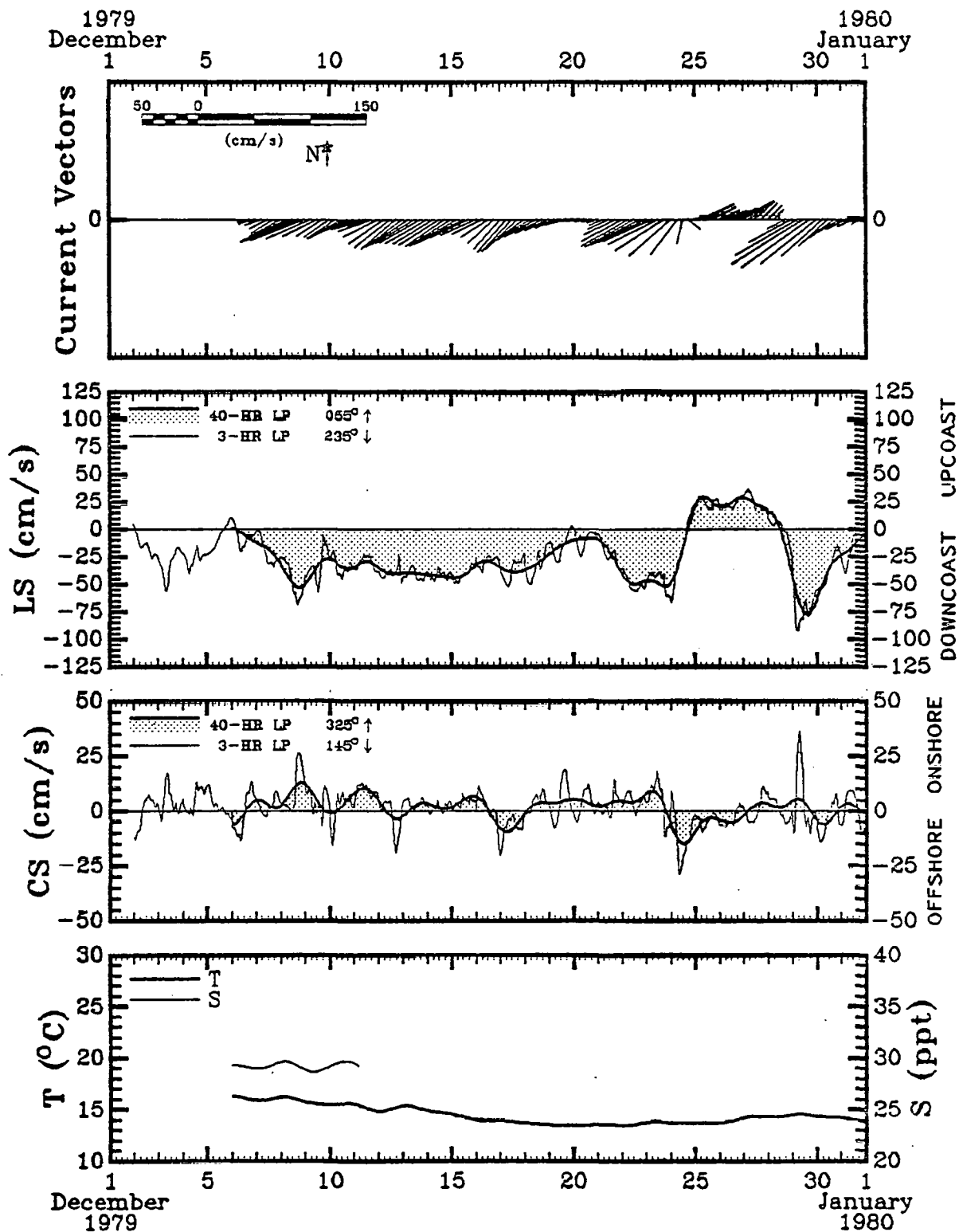
Site B, Top

Figure 4-54. September, 1979 current velocity time series plots for near surface instrument at site B



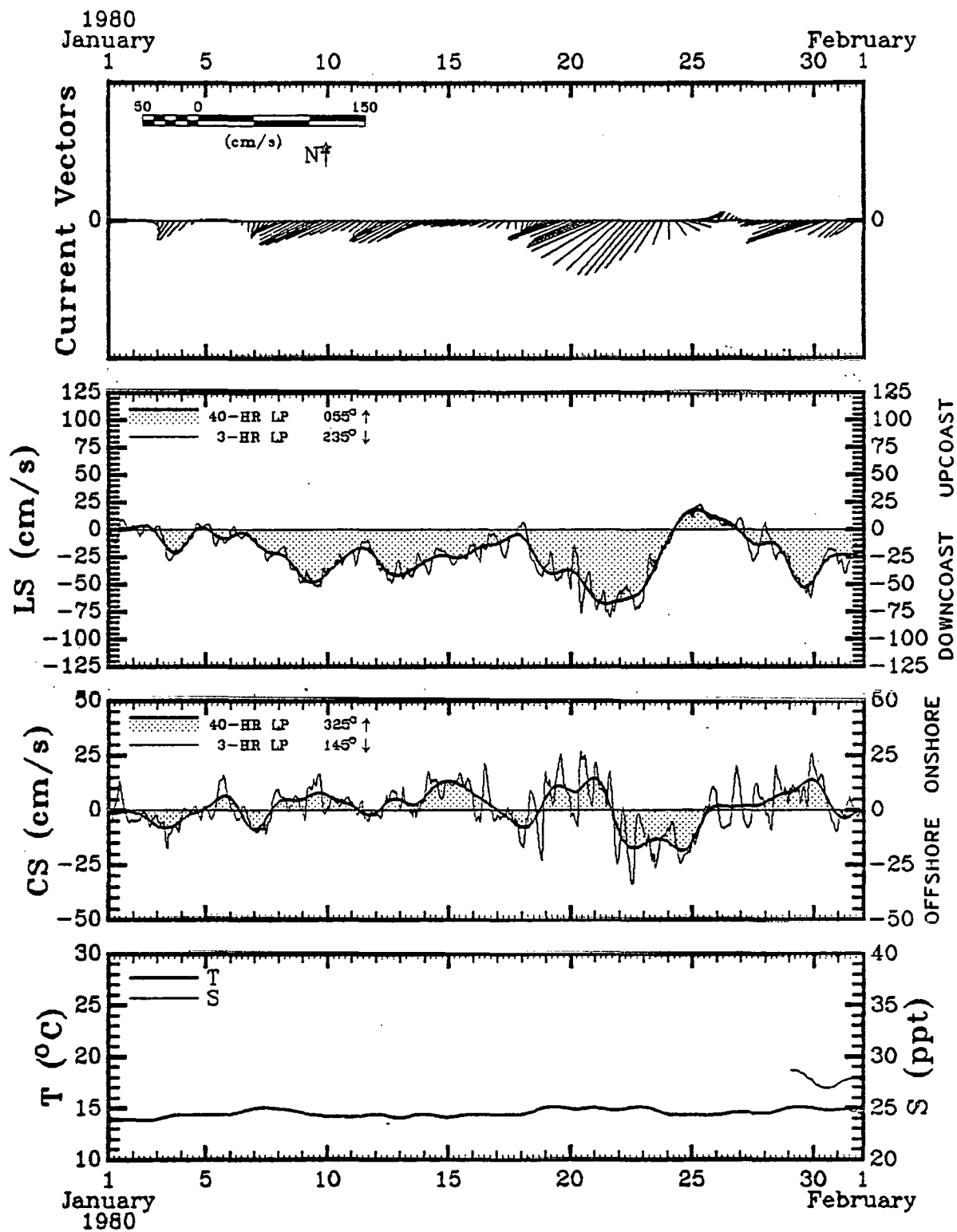
Site B, Top

Figure 4-55. October, 1979 current velocity, temperature and salinity time series plots for near surface instrument at site B.



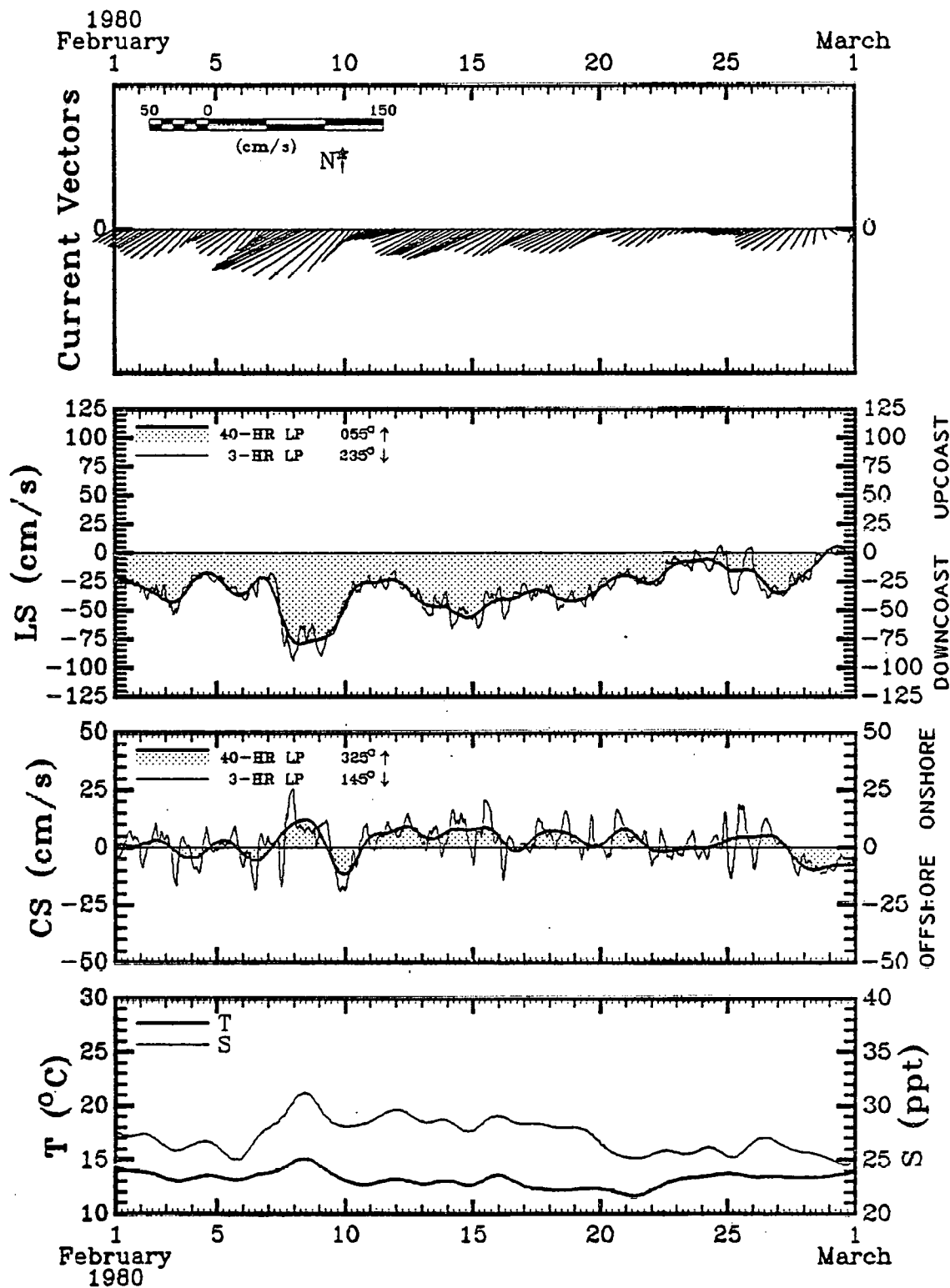
Site B, Top

Figure 4-56. December, 1979 current velocity, temperature and salinity time series plots for near surface instrument at site B.



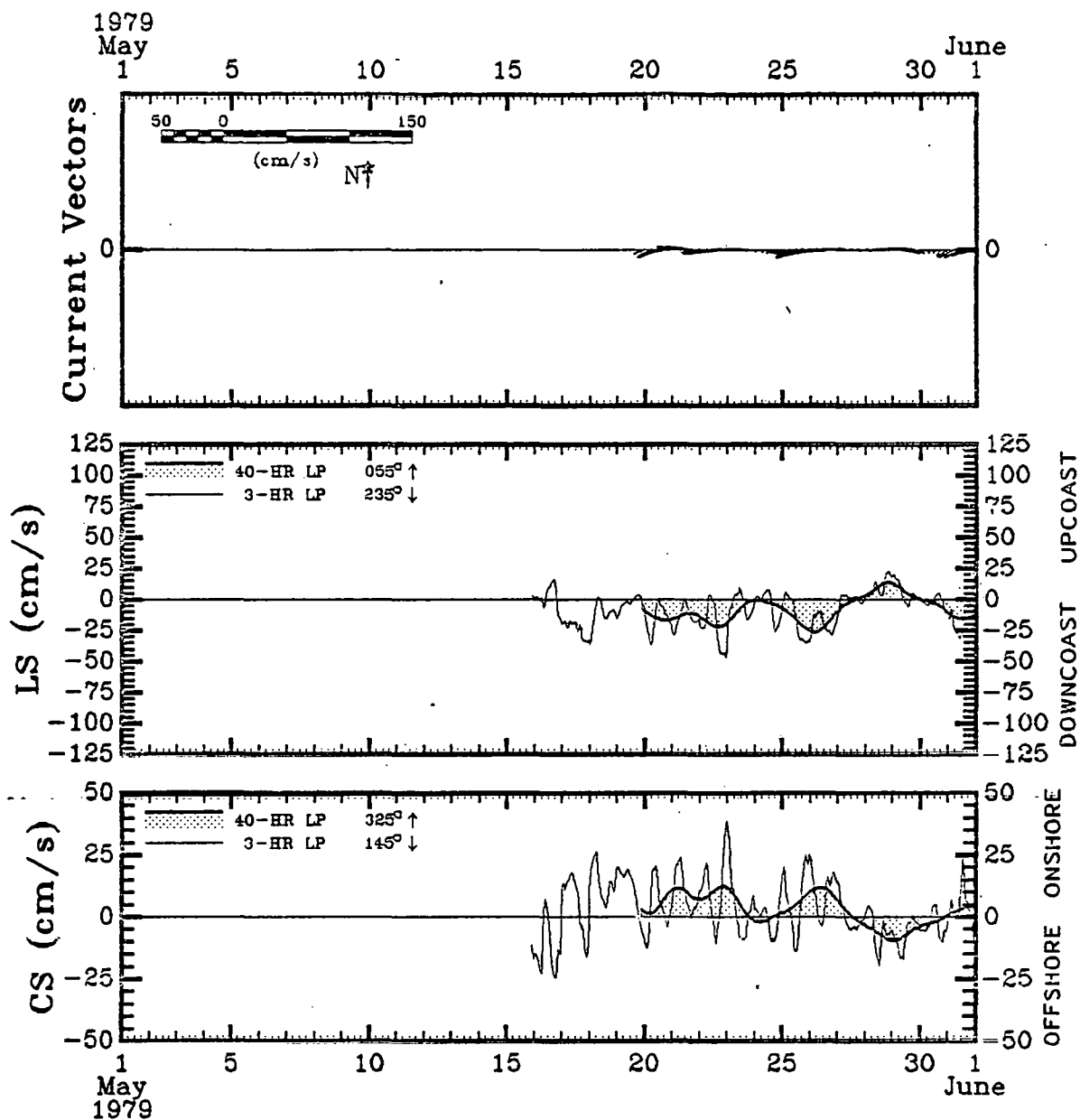
Site B, Top

Figure 4-57. January, 1980 current velocity, temperature and salinity time series plots for near surface instrument at site B



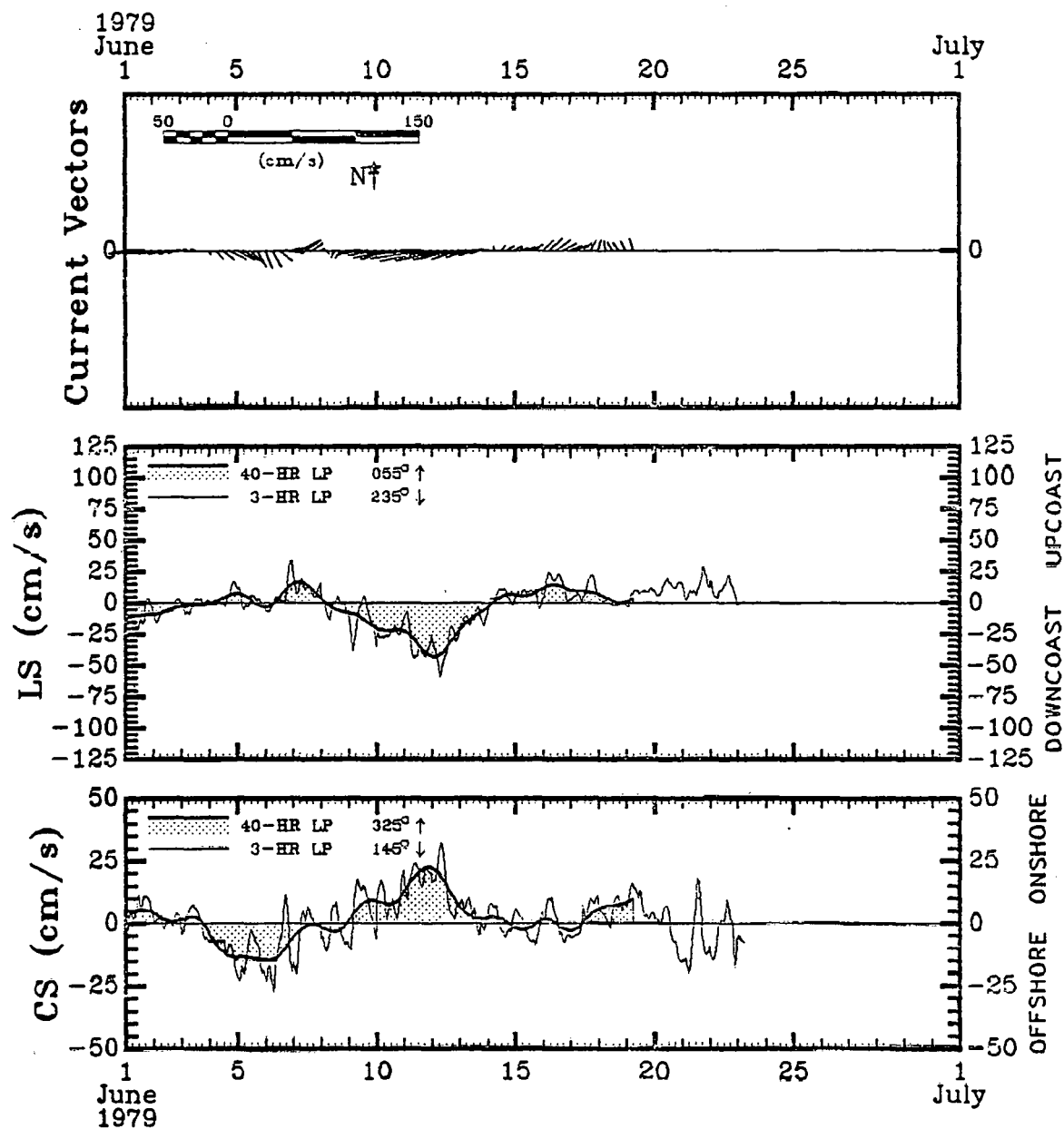
Site B, Top

Figure 4-58. February, 1980 current velocity, temperature and salinity time series plots for near surface instrument at site B



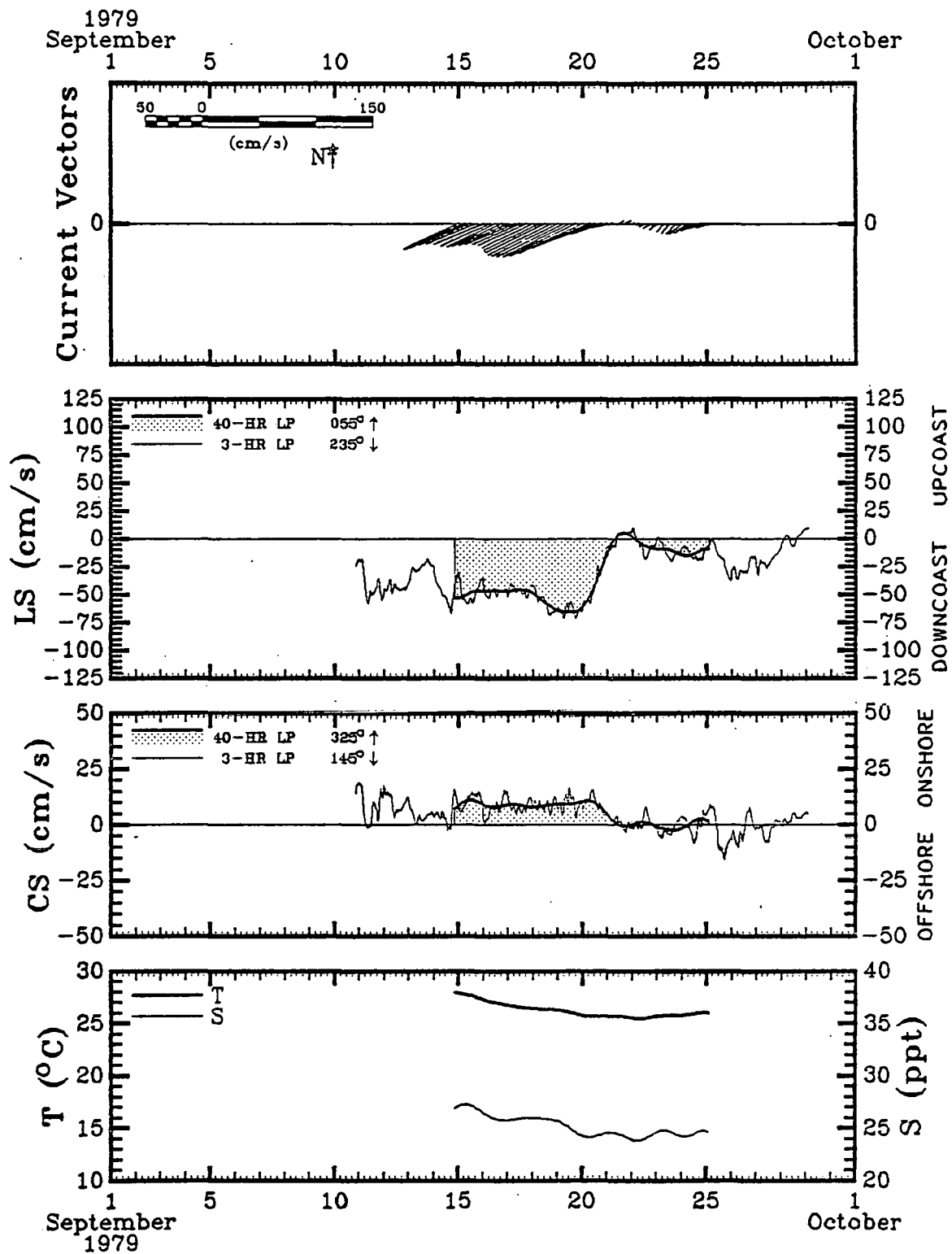
Site B, Middle

Figure 4-59. May, 1979 current velocity time series plots for mid-depth instrument at site B



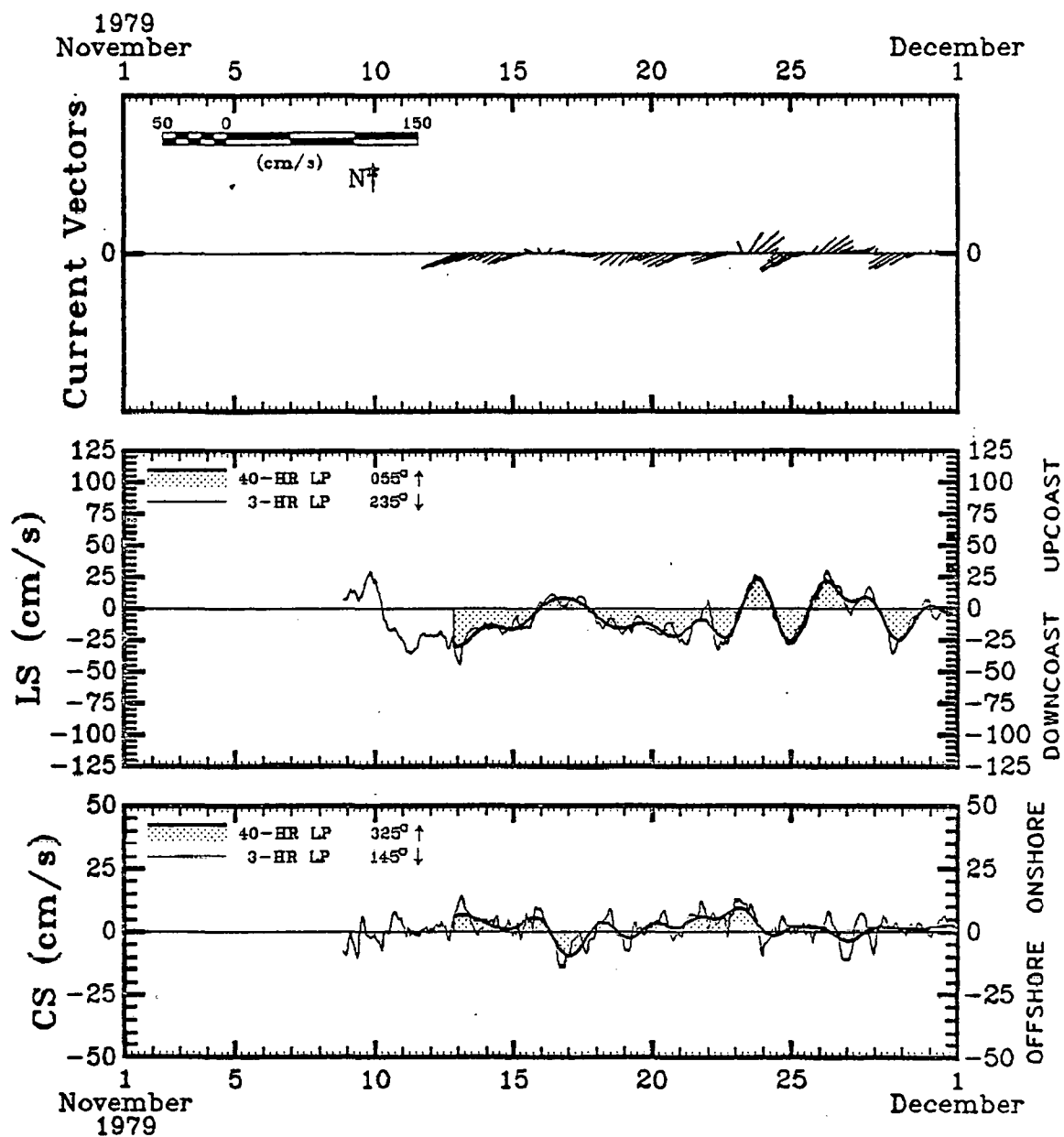
Site B, Middle

Figure 4-60. June, 1979 current velocity time series plots for mid-depth instrument at site B



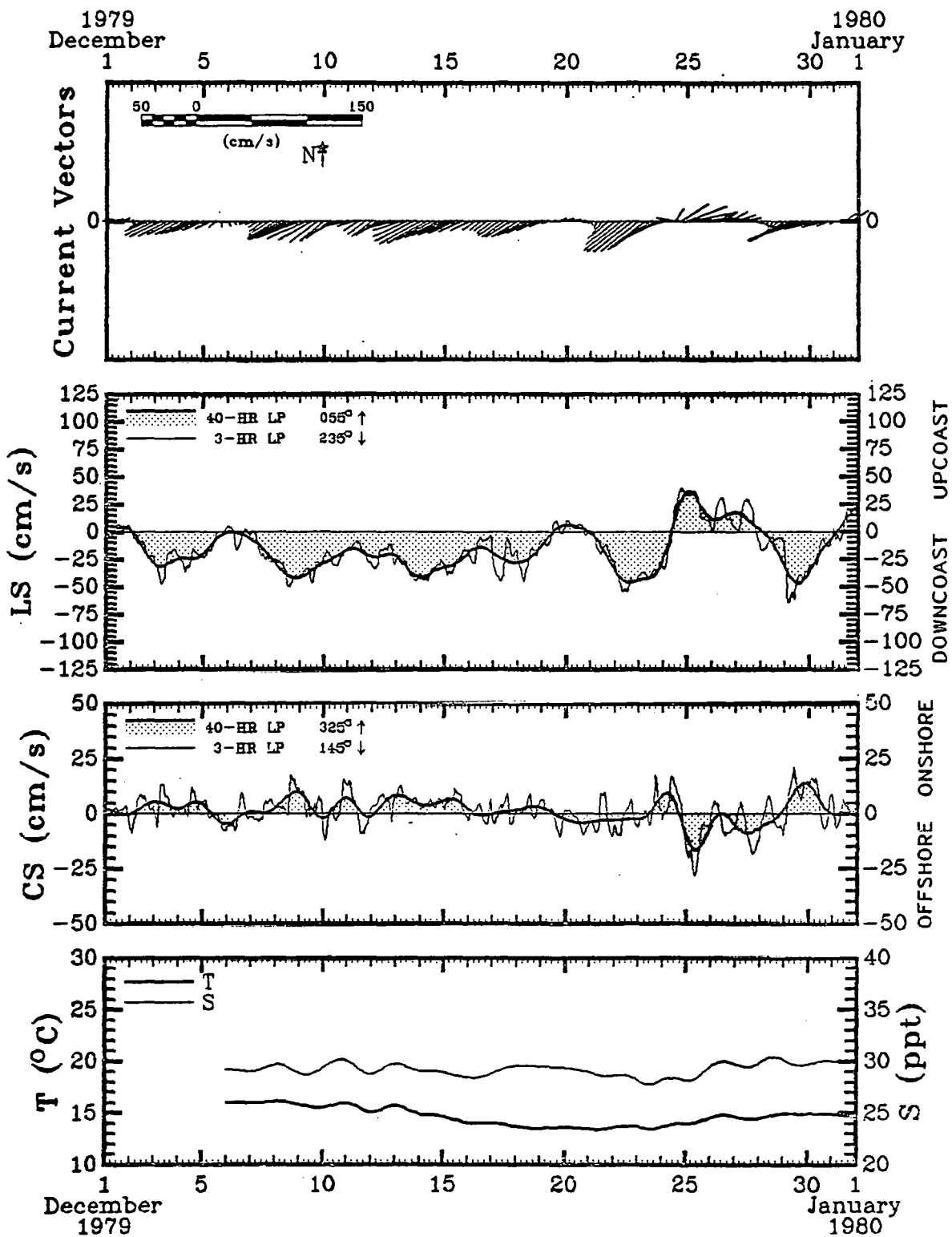
Site B, Middle

Figure 4-61. November, 1970 current velocity, temperature and salinity time series plots for mid-depth instrument at site B



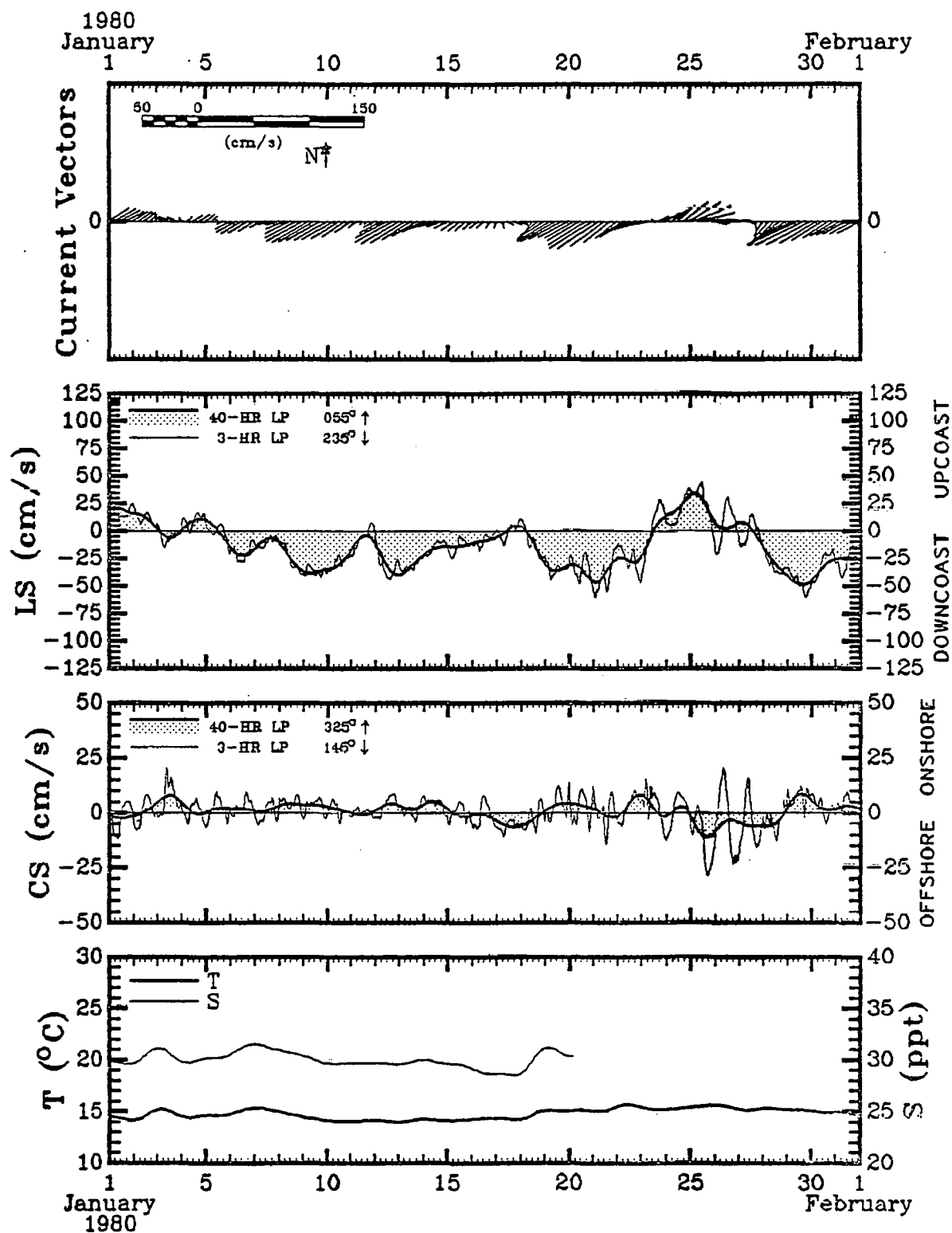
Site B, Middle

Figure 4-62. November, 1979 current velocity time series plots for mid-depth instrument at site B



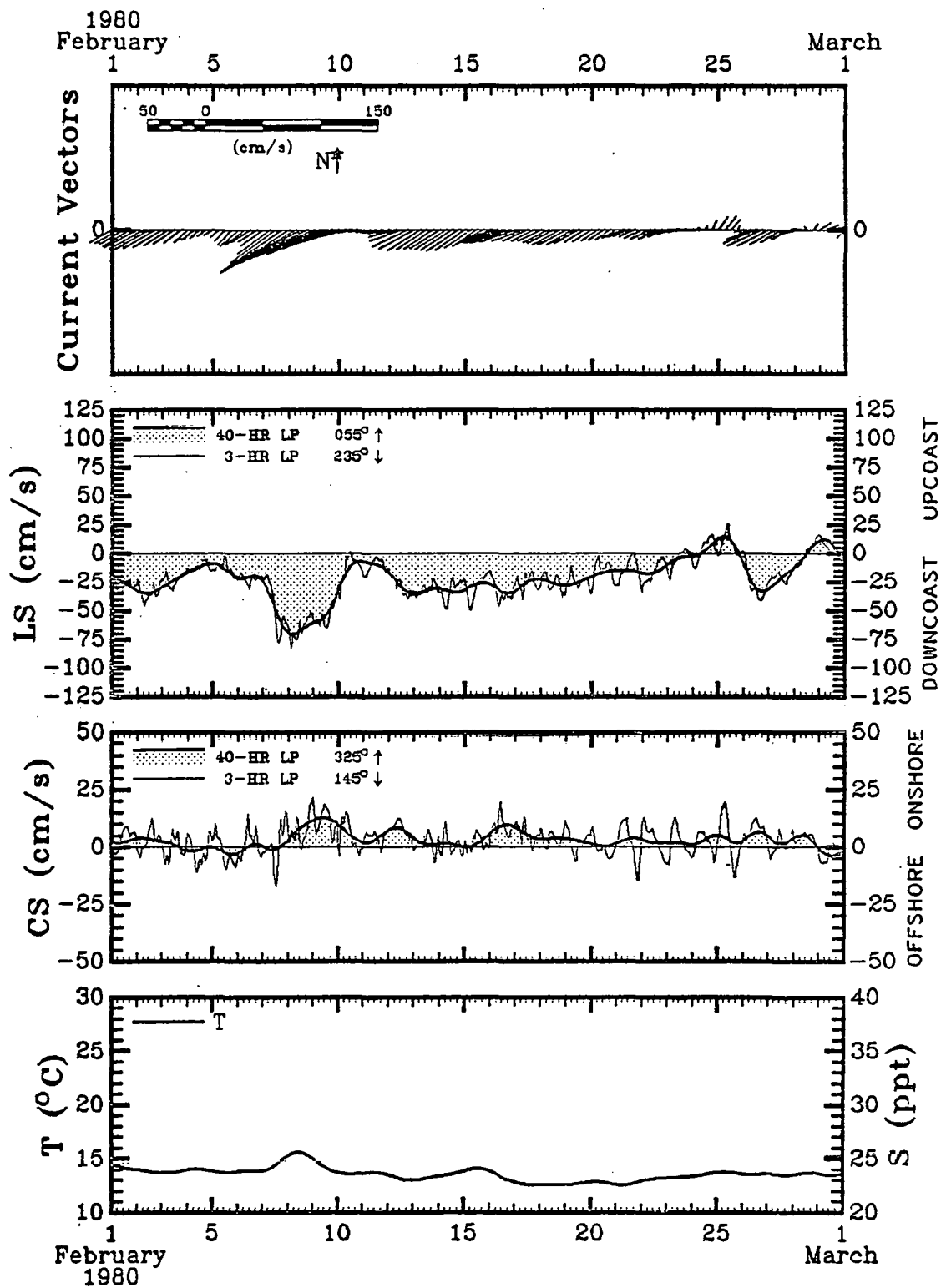
Site B, Middle

Figure 4-63. December, 1979 current velocity, temperature and salinity time series plots for mid-depth instrument at site B



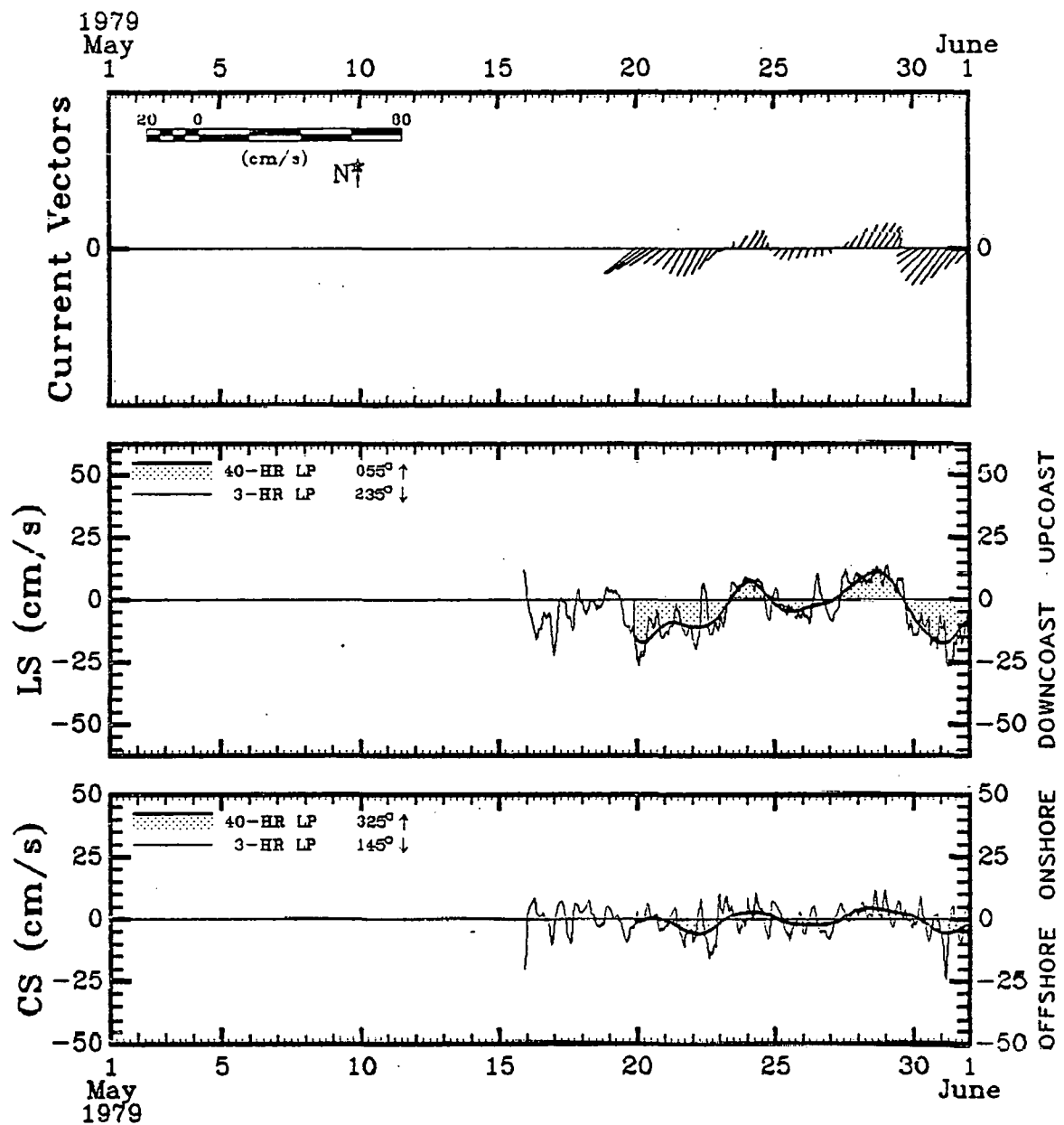
Site B, Middle

Figure 4-64. January, 1980 current velocity, temperature and salinity time series plots for mid-depth instrument at site B



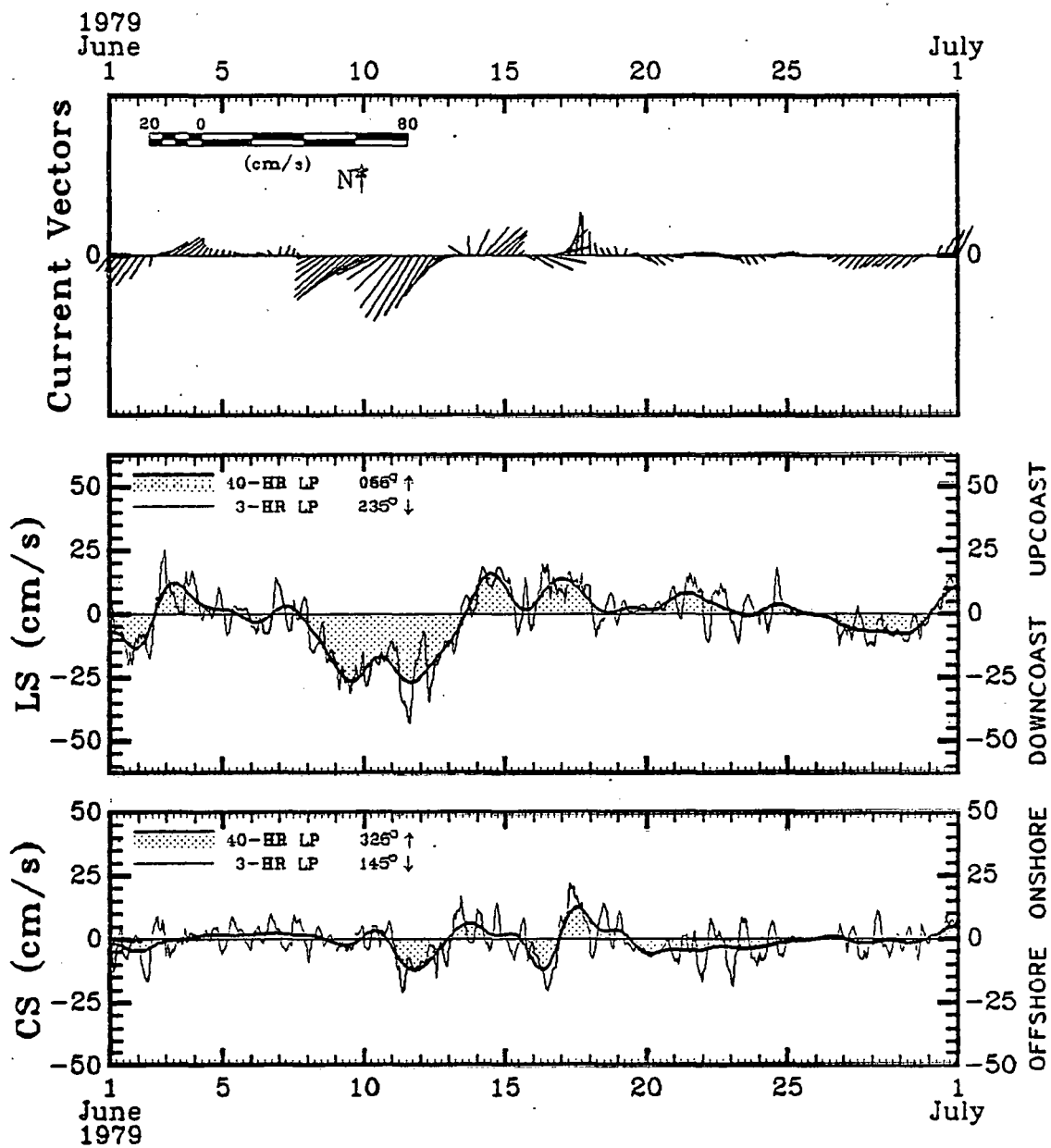
Site B, Middle

Figure 4-65. February, 1980 current velocity, temperature and salinity time series plots for mid-depth instrument at site B



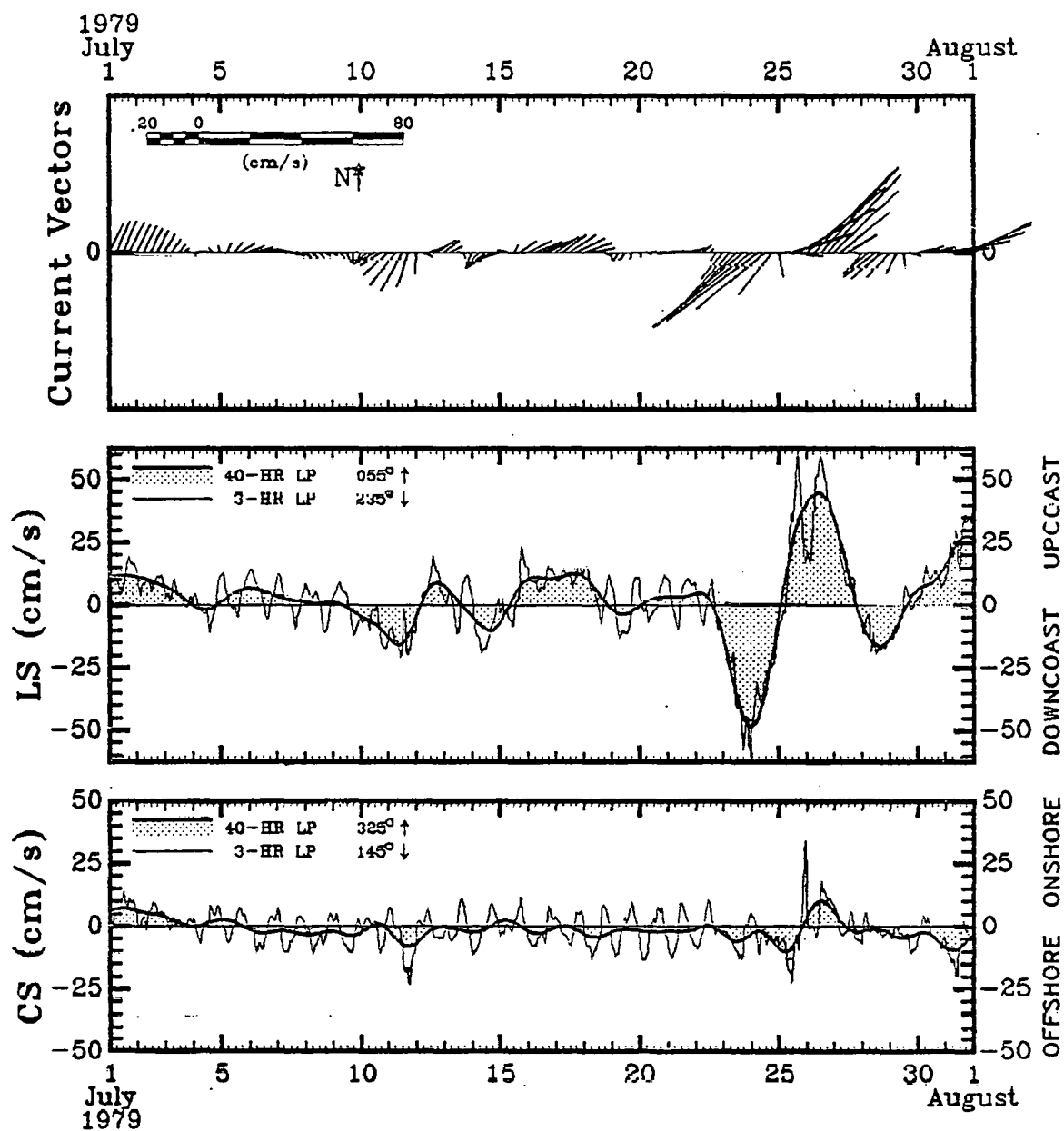
Site B, Bottom

Figure 4-66. May, 1979 current velocity time series plots for near bottom instrument at site B



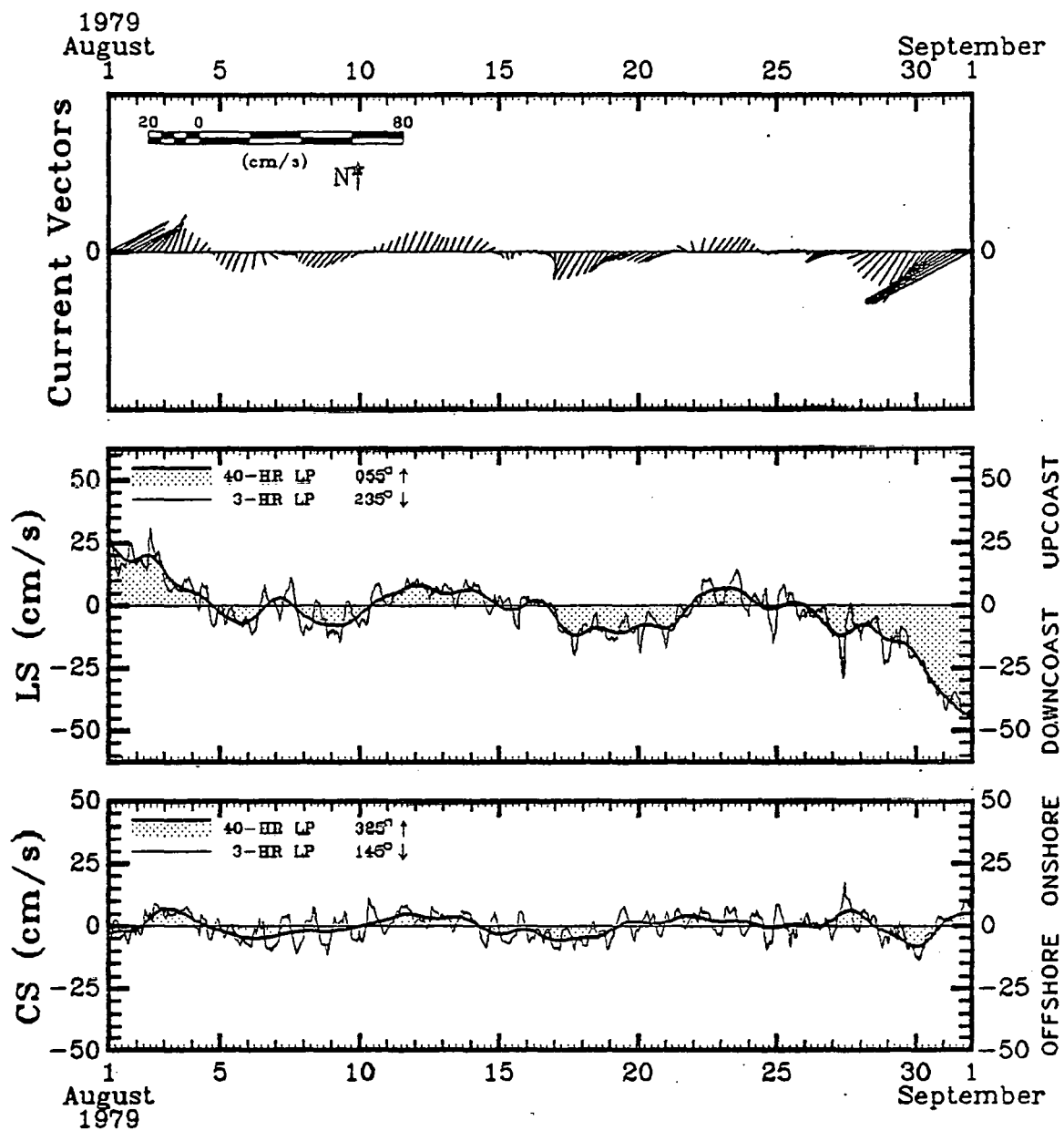
Site B, Bottom

Figure 4-67. June, 1979 current velocity time series plots for near bottom instrument at site B



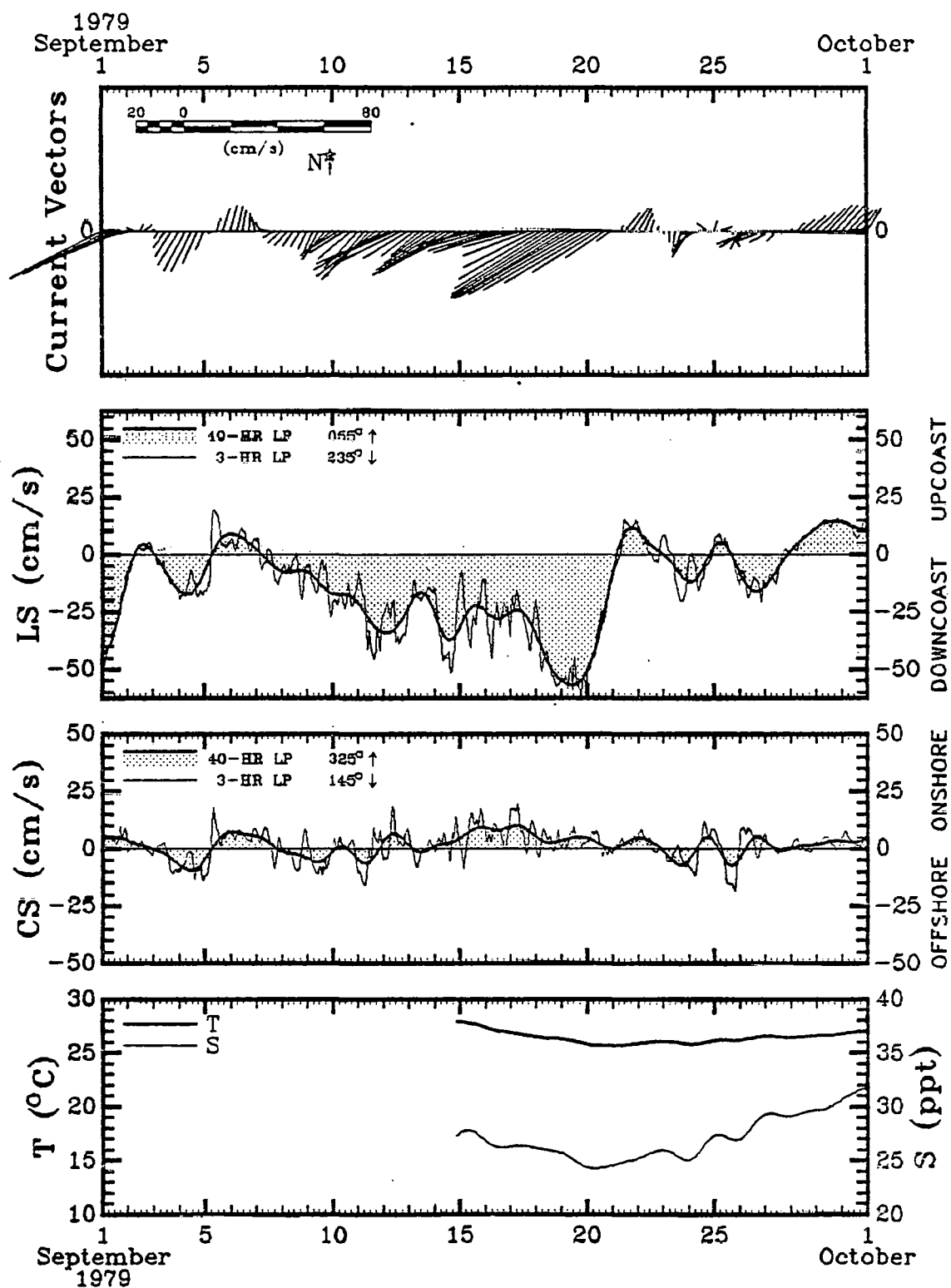
Site B, Bottom

Figure 4-68. July, 1979 current velocity time series plots for near bottom instrument at site B



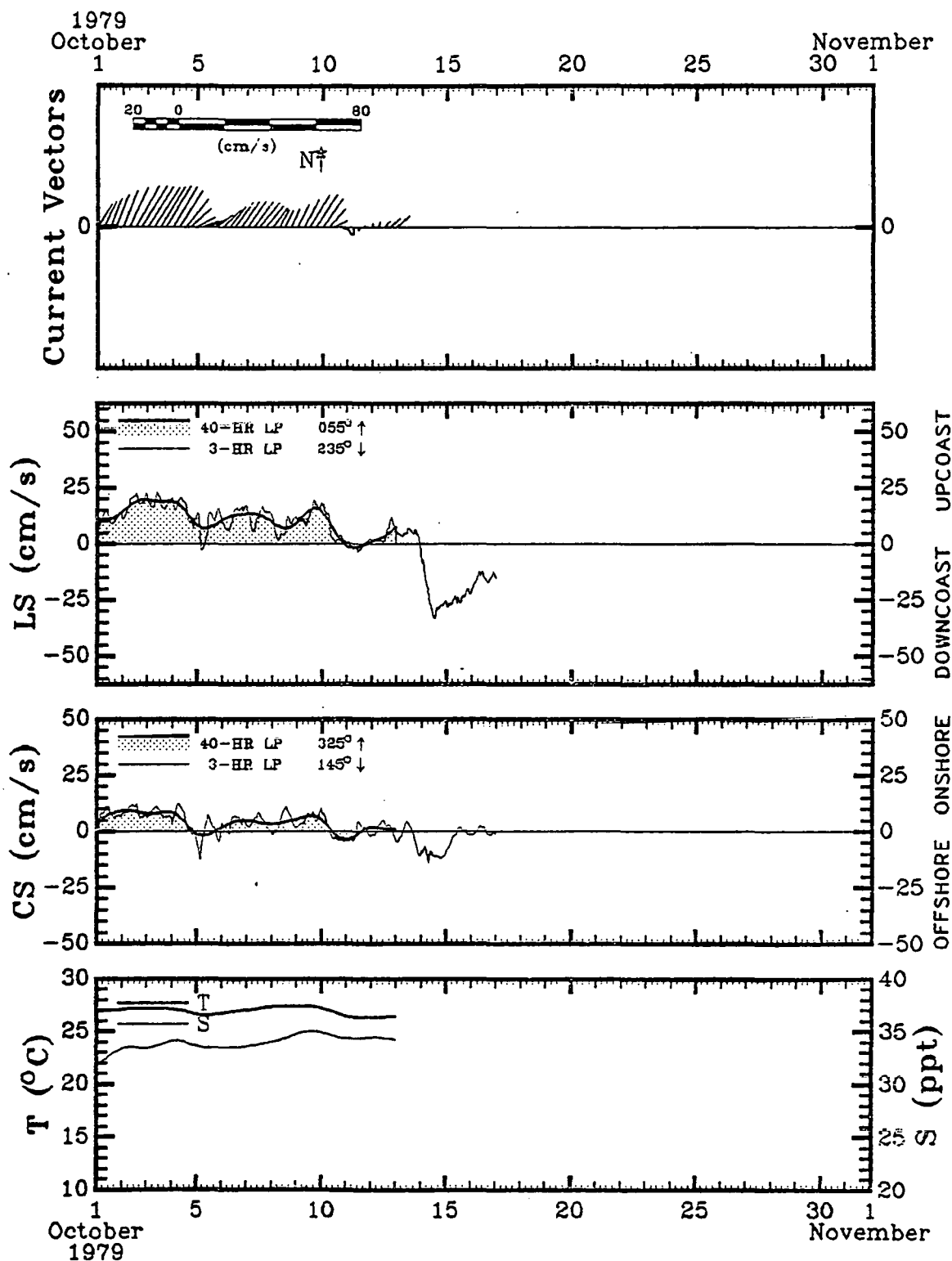
Site B, Bottom

Figure 4-69. August, 1979 current velocity time series plots for near bottom instrument at site B



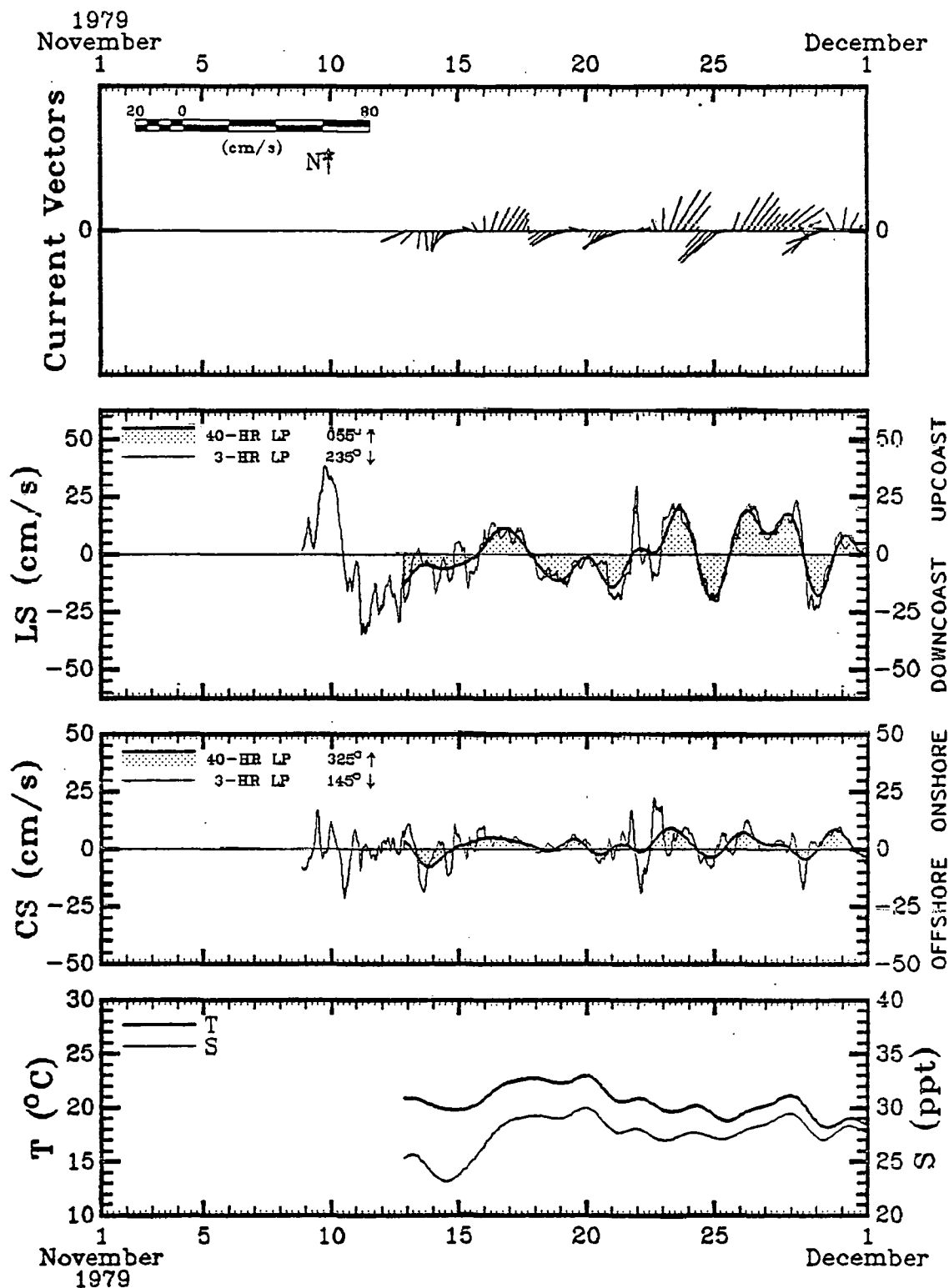
Site B, Bottom

Figure 4-70. September, 1979 current velocity, temperature, and salinity time series plots for near bottom instrument at site B



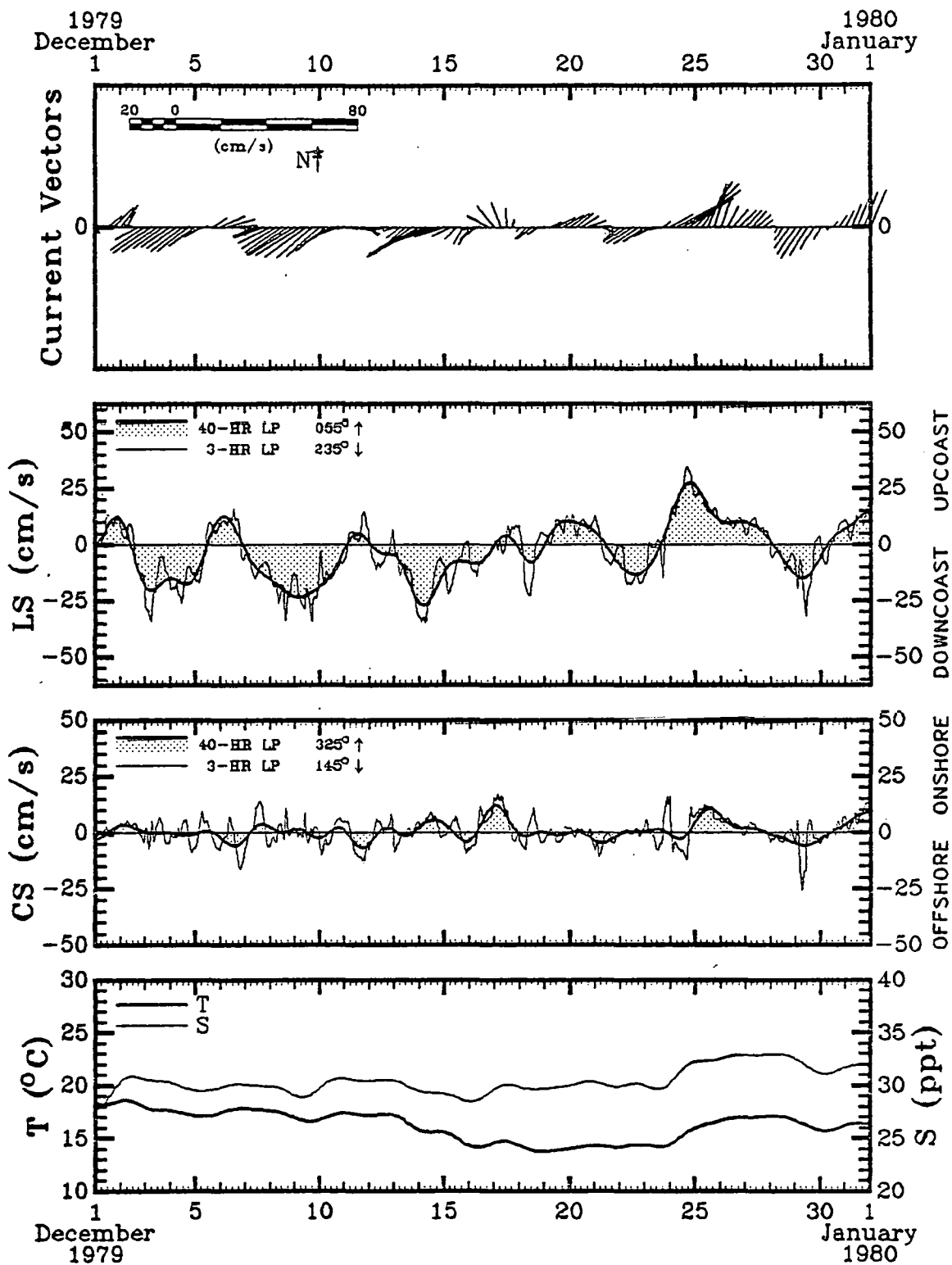
Site B, Bottom

Figure 4-71. October, 1979 current velocity, temperature, and salinity time series plots for near bottom instrument at site B



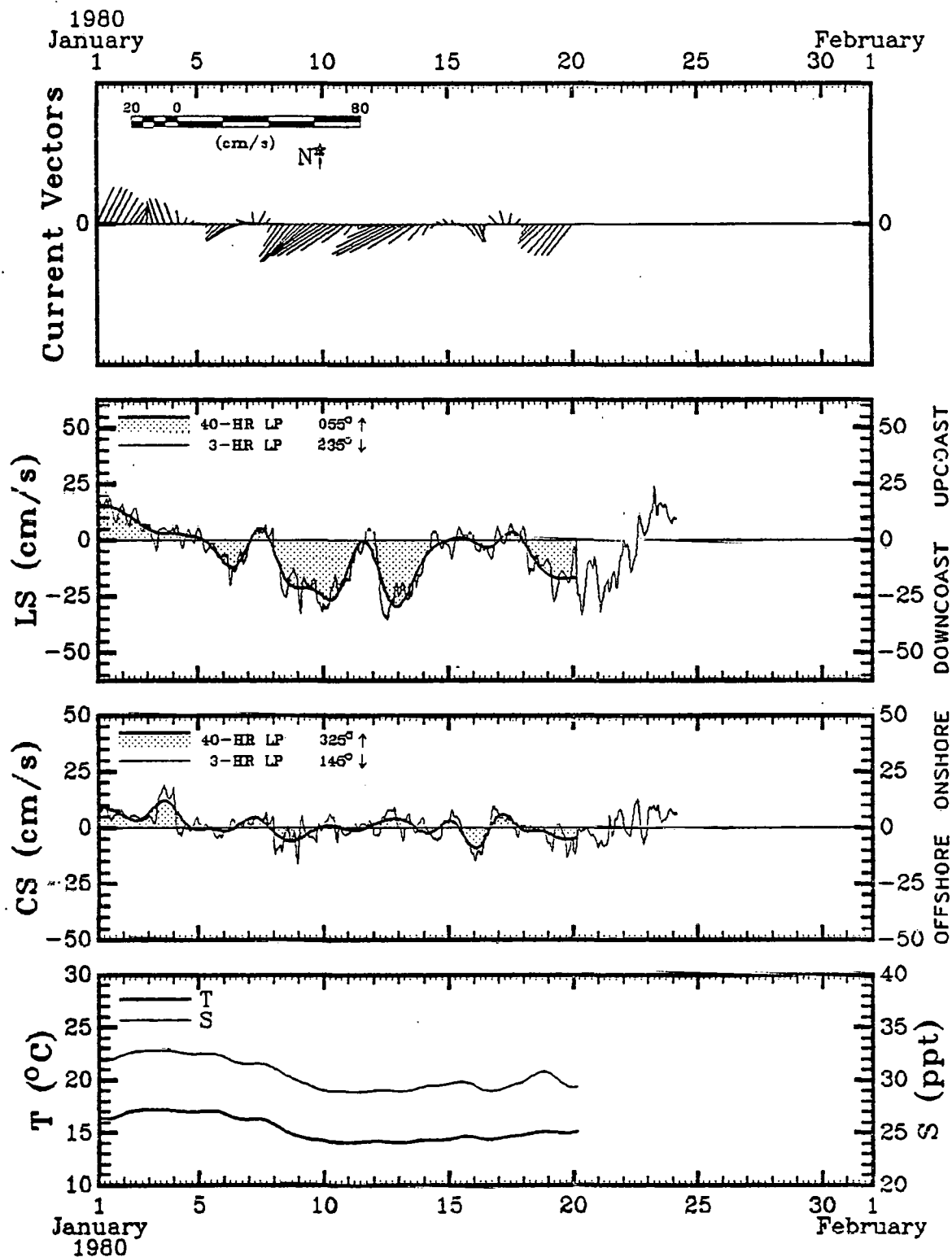
Site B, Bottom

Figure 4-72. November, 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site B



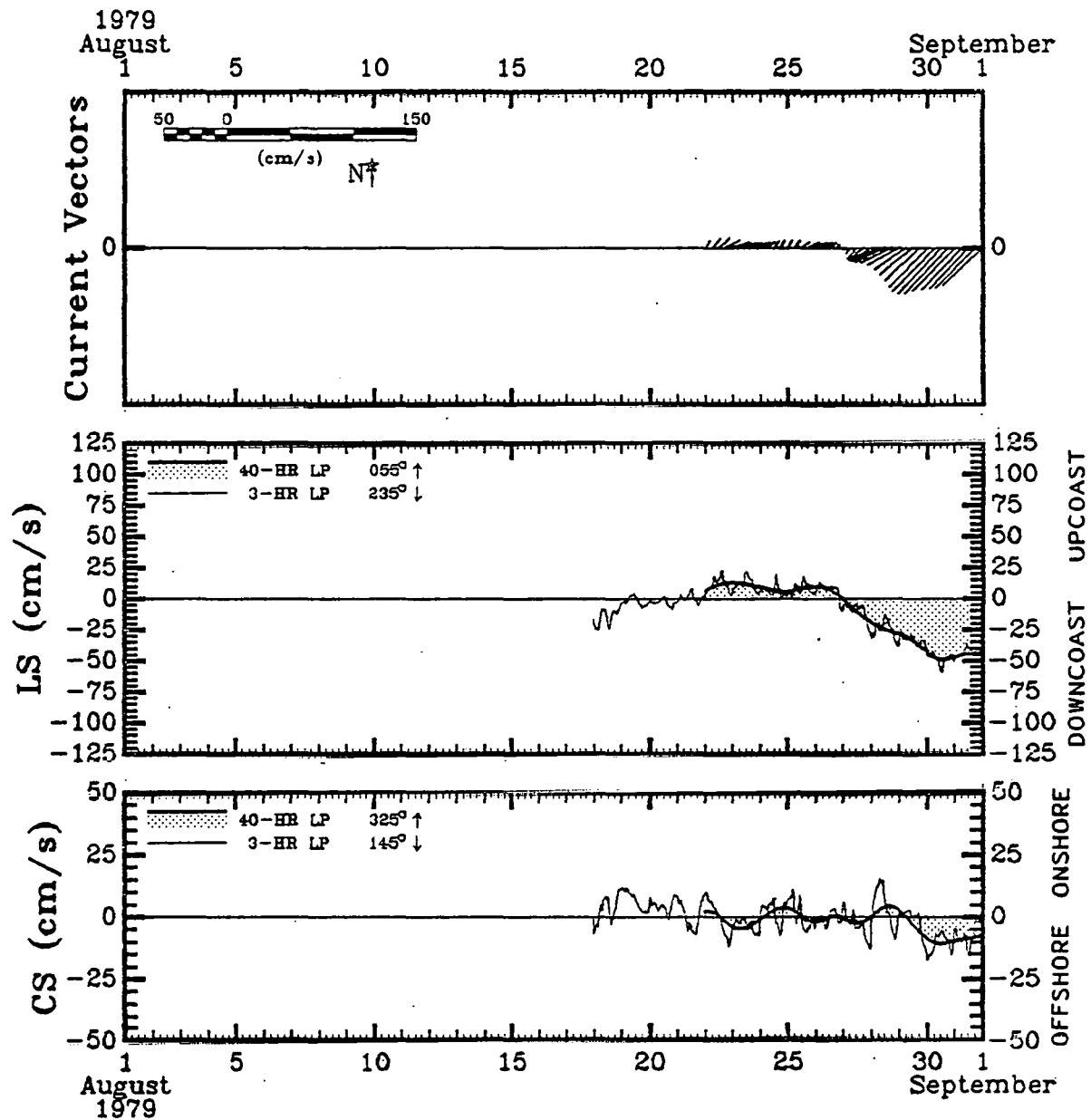
Site B, Bottom

Figure 4-73. December, 1979 current velocity, temperature, and salinity time series plots for near bottom instrument at site B



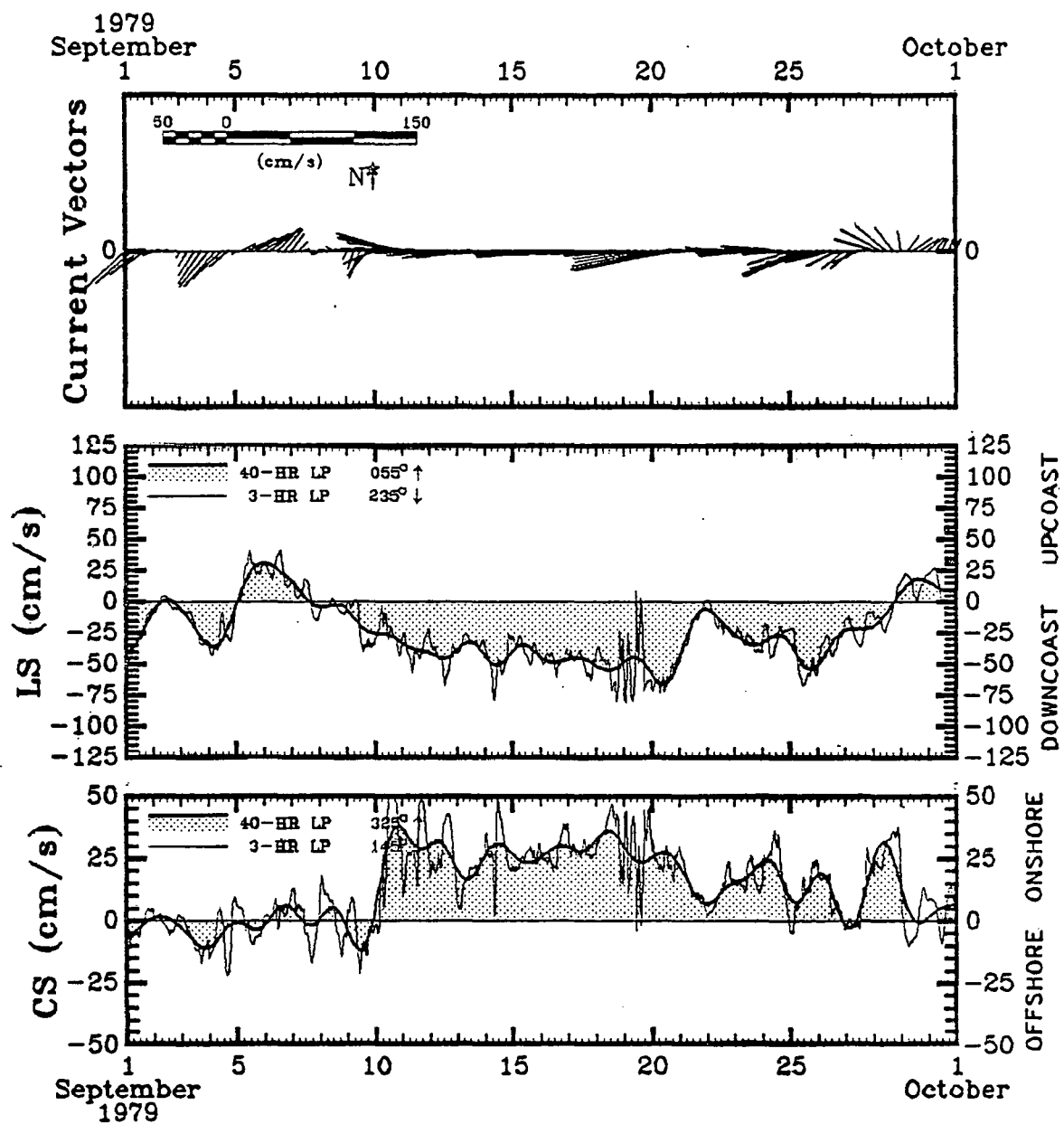
Site B, Bottom

Figure 4-74. January, 1980 current velocity, temperature and salinity time series plots for near bottom instrument at site B



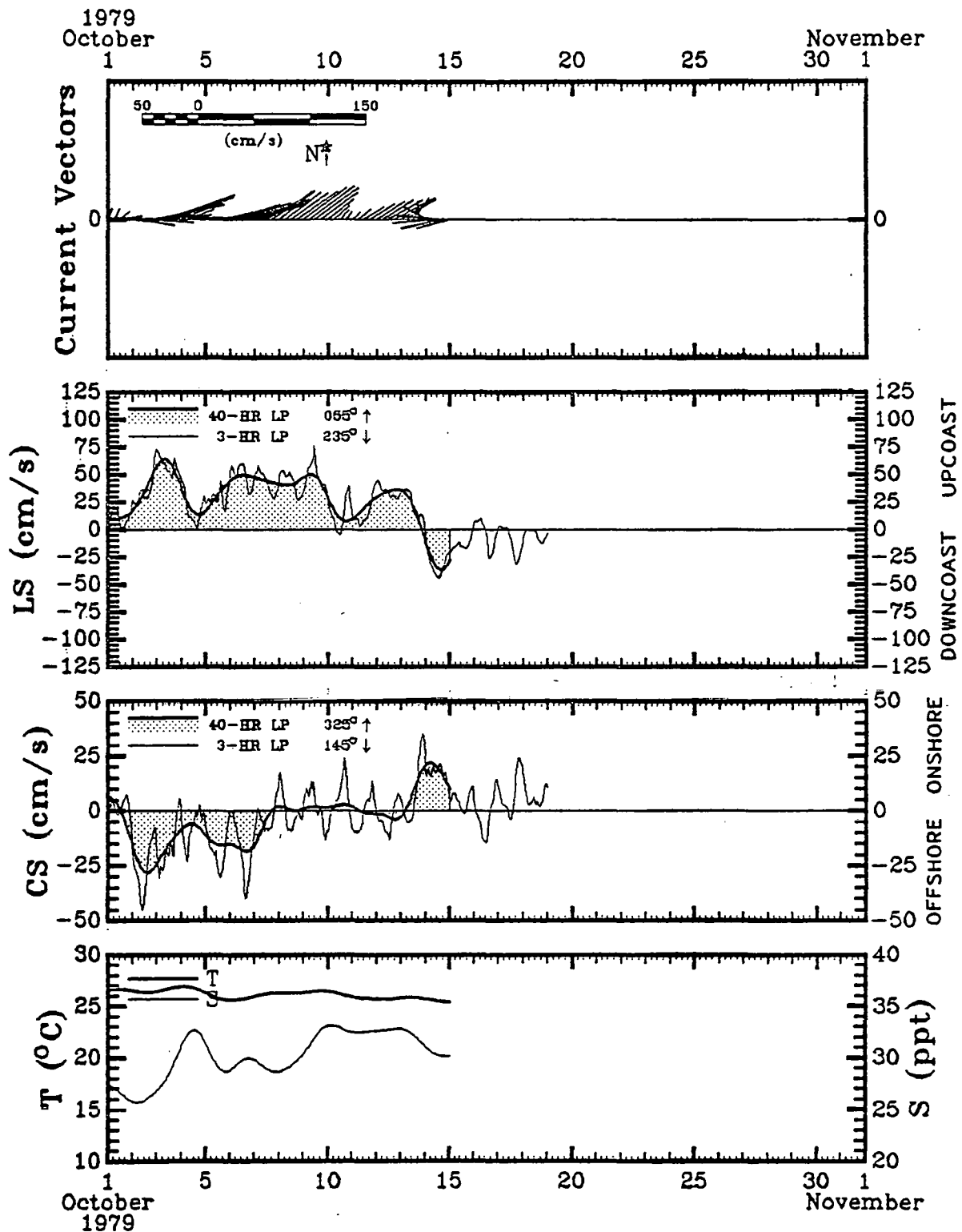
Site C, Top

Figure 4-75. August, 1979 current velocity time series plots for near surface instrument at site C



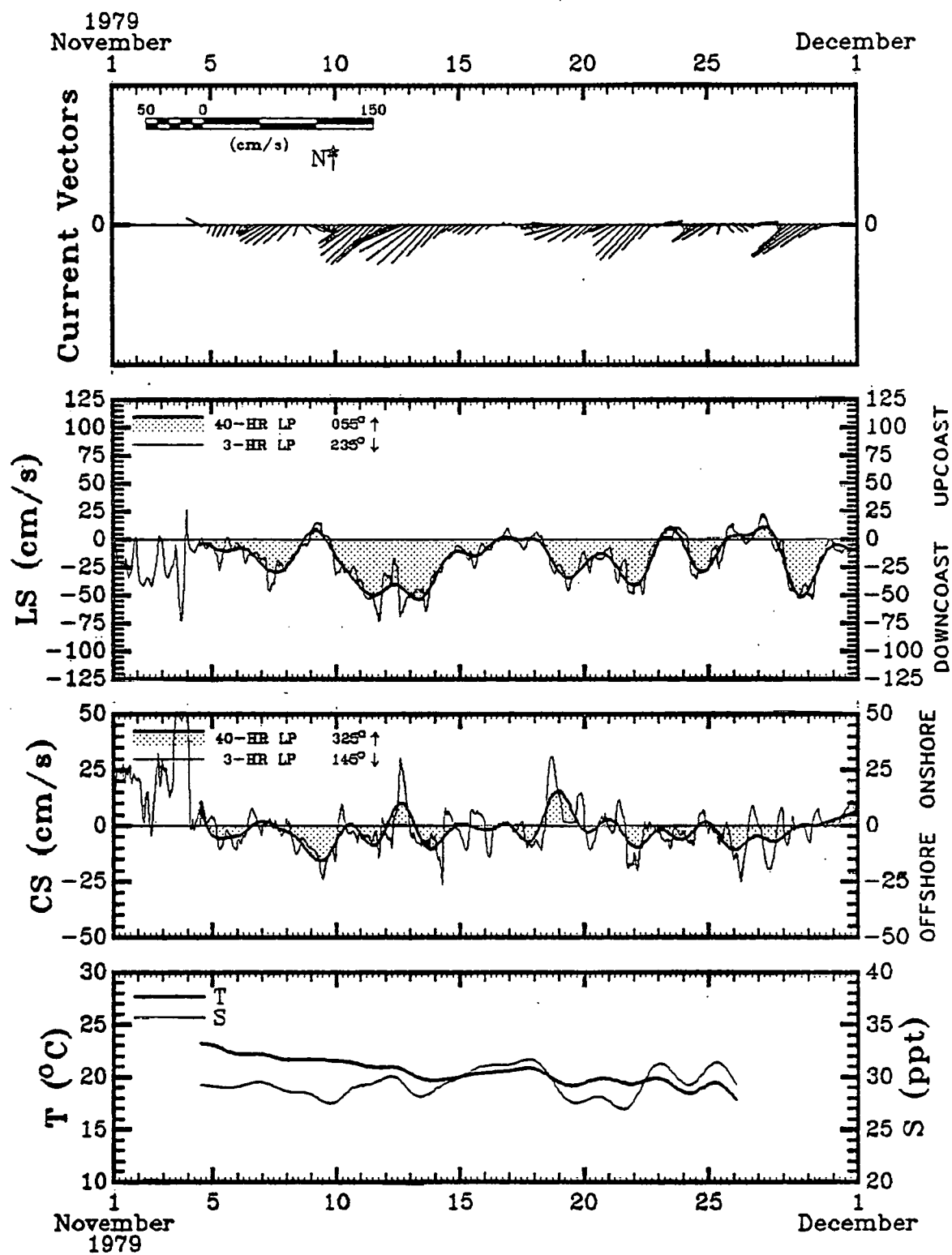
Site C, Top

Figure 4-76. September 1979 current velocity time series plots for near surface instrument at site C



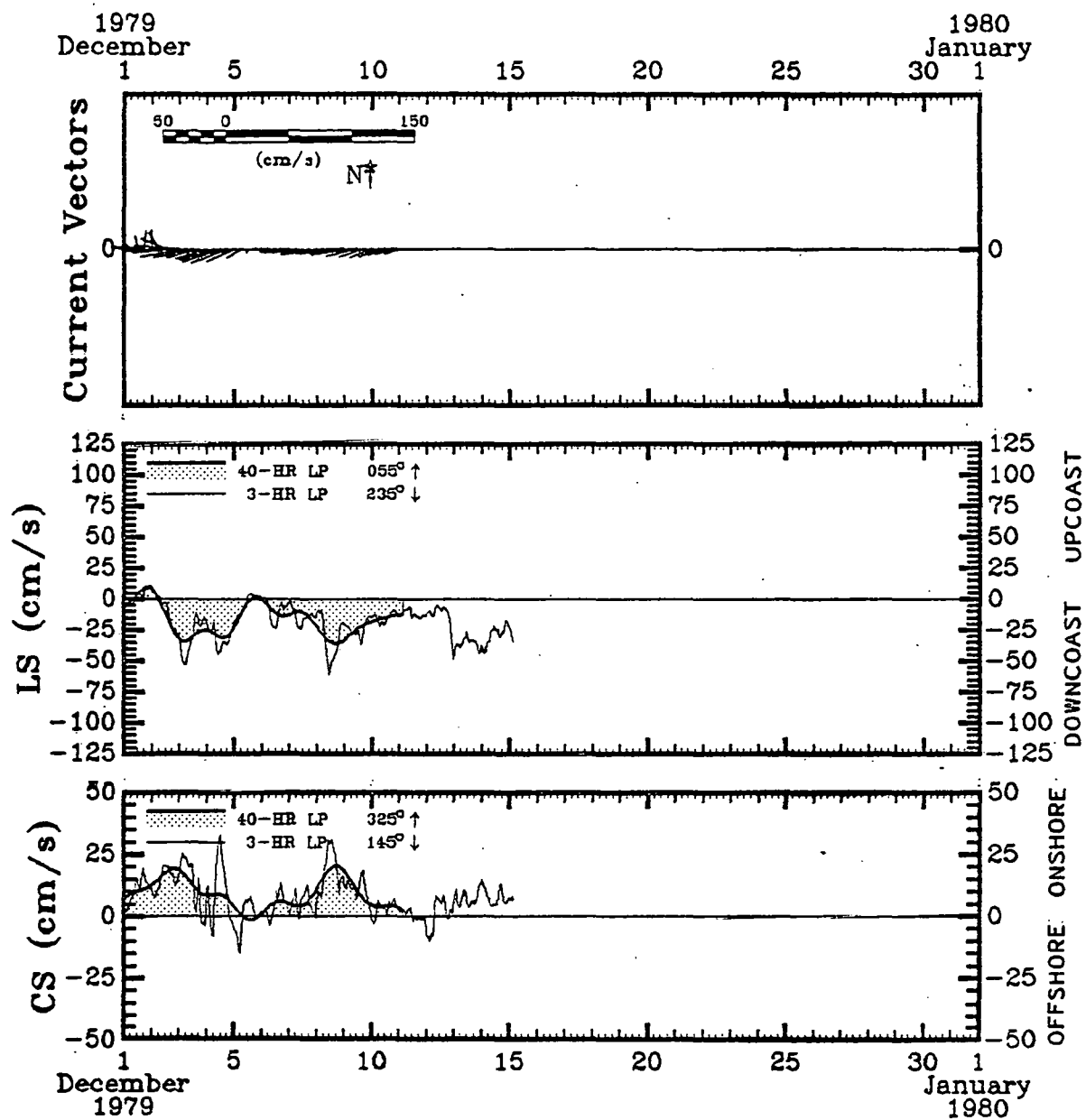
Site C, Top

Figure 4-77. October 1979 current velocity, temperature and salinity time series plots for near surface instrument at site C



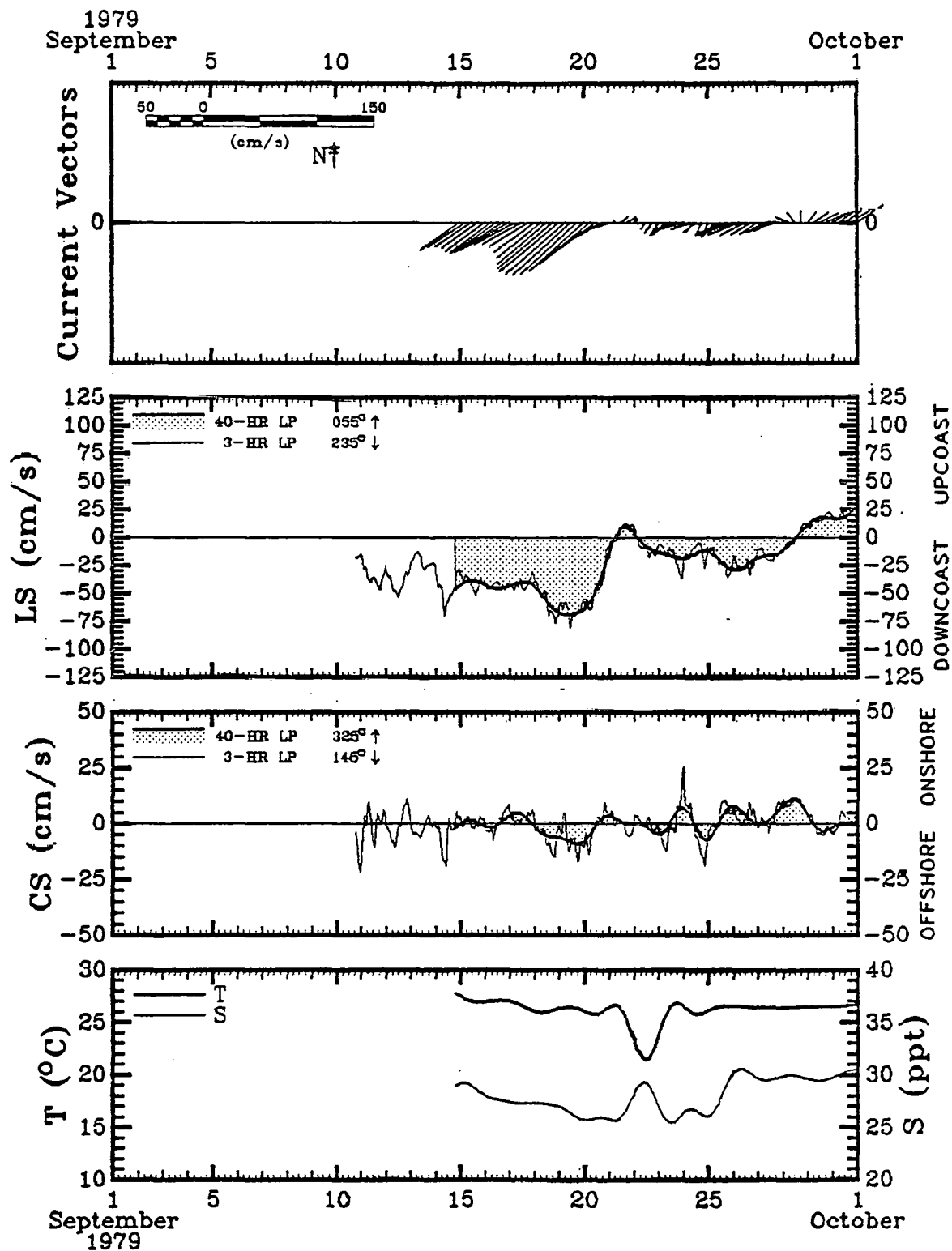
Site C, Top

Figure 4-78. November 1979 current velocity, temperature and salinity time series plots for near surface instrument at site C



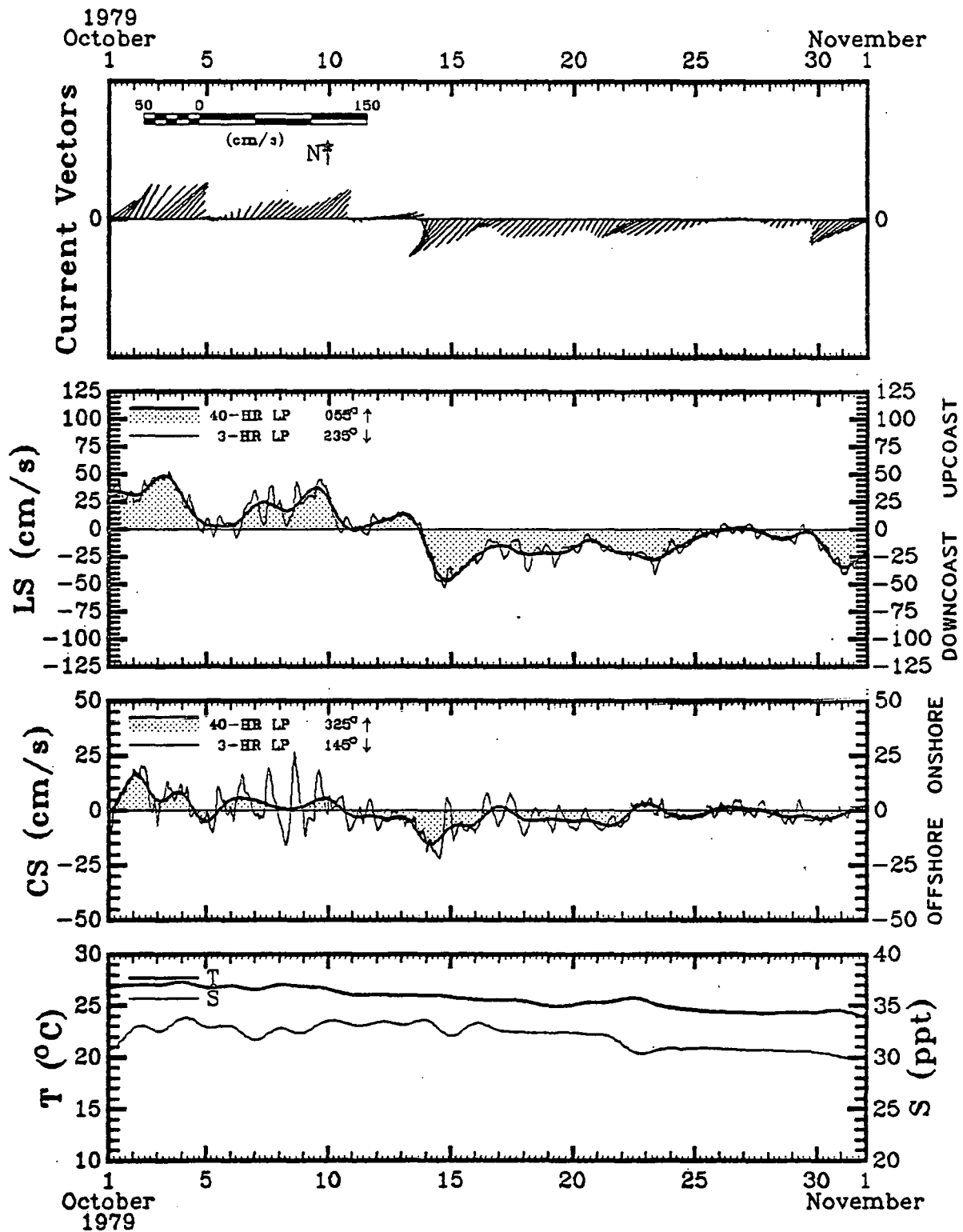
Site C, Top

Figure 4-79. December 1979 current velocity time series plots for near surface instrument at site C



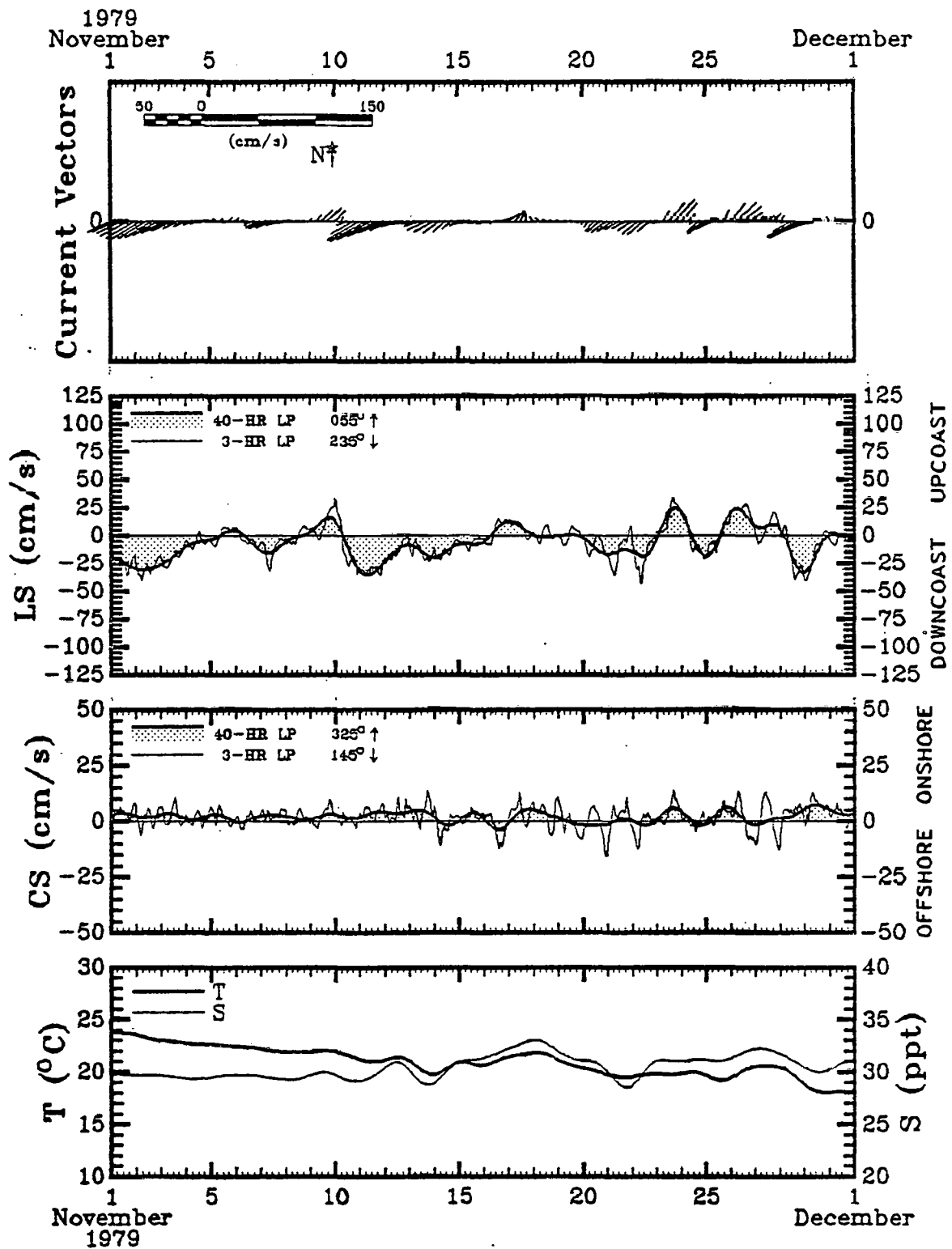
Site C, Middle

Figure 4-80. September 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site C



Site C, Middle

Figure 4-81. October 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site C



Site C, Middle

Figure 4-82. November 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site C

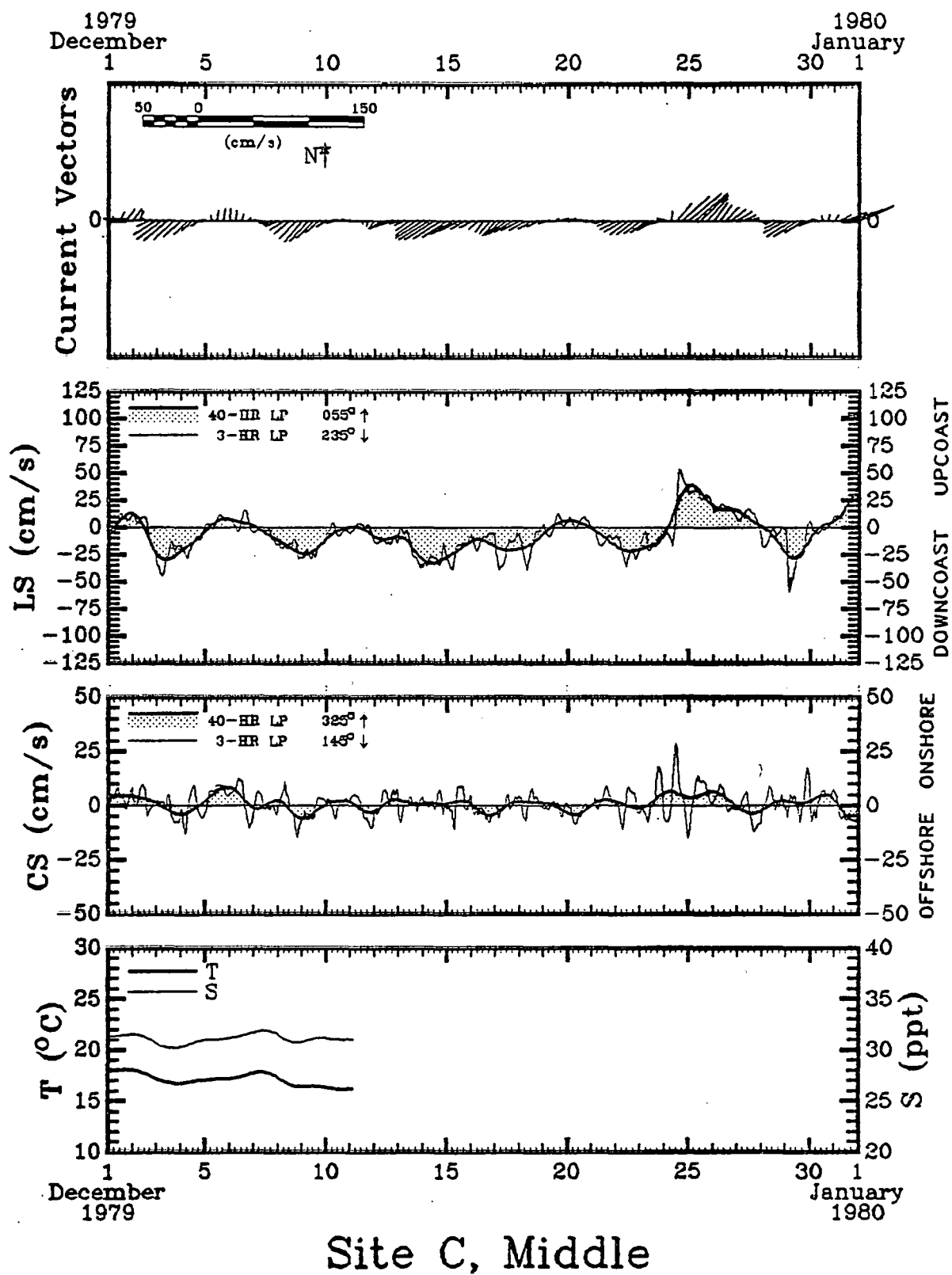


Figure 4-83. December 1979 current velocity, temperature and salinity time series plots for mid depth instrument at site C

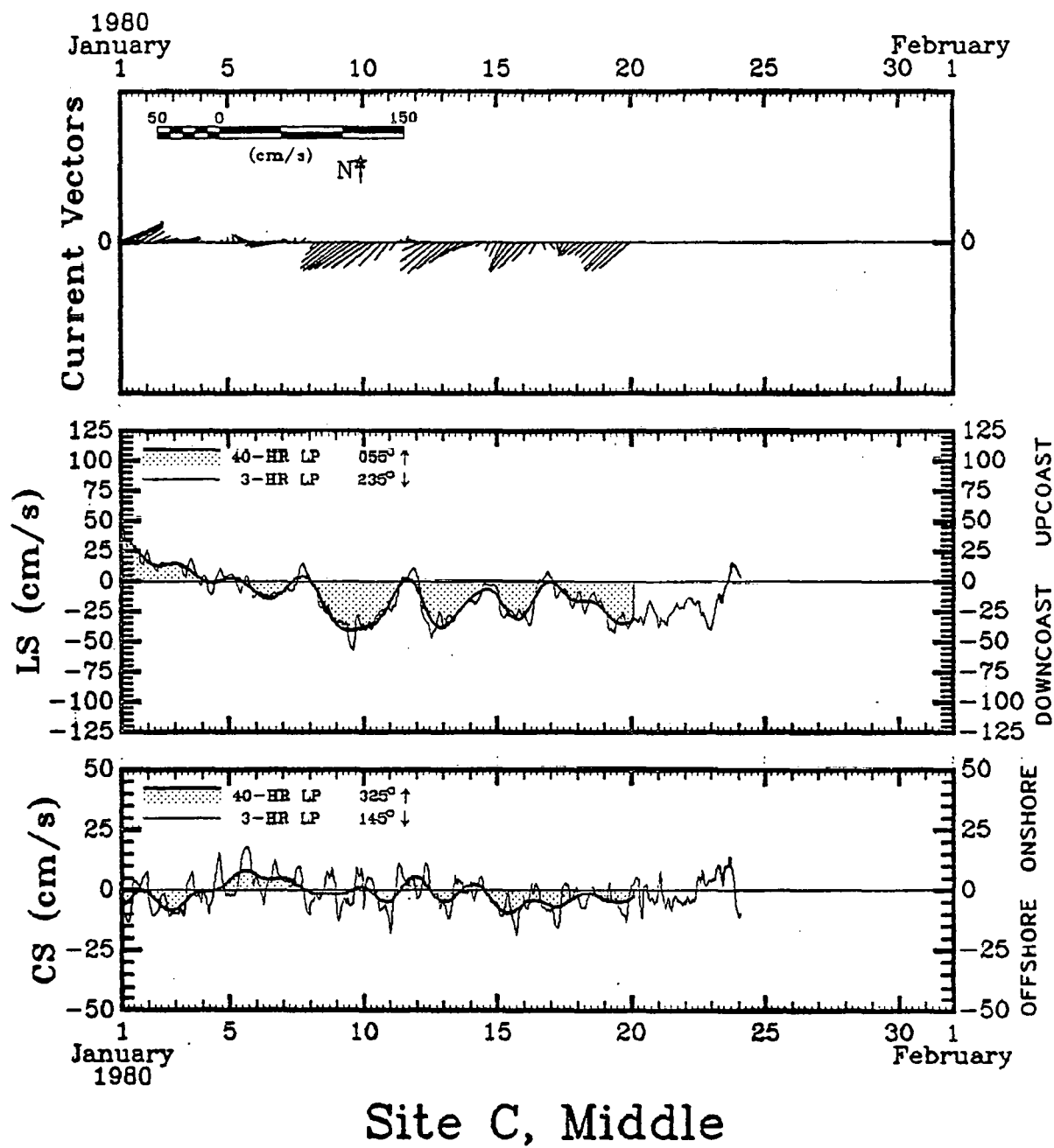
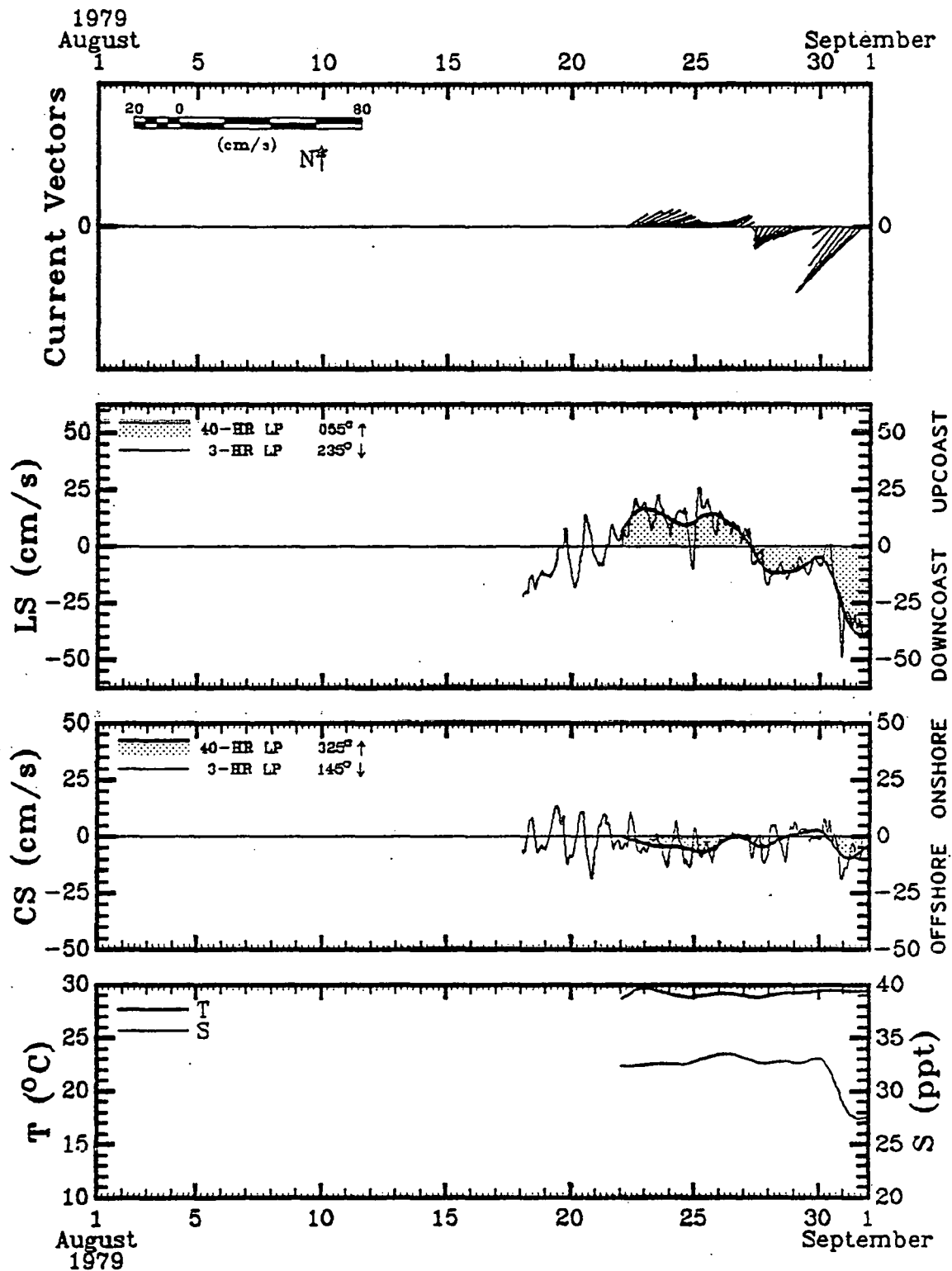
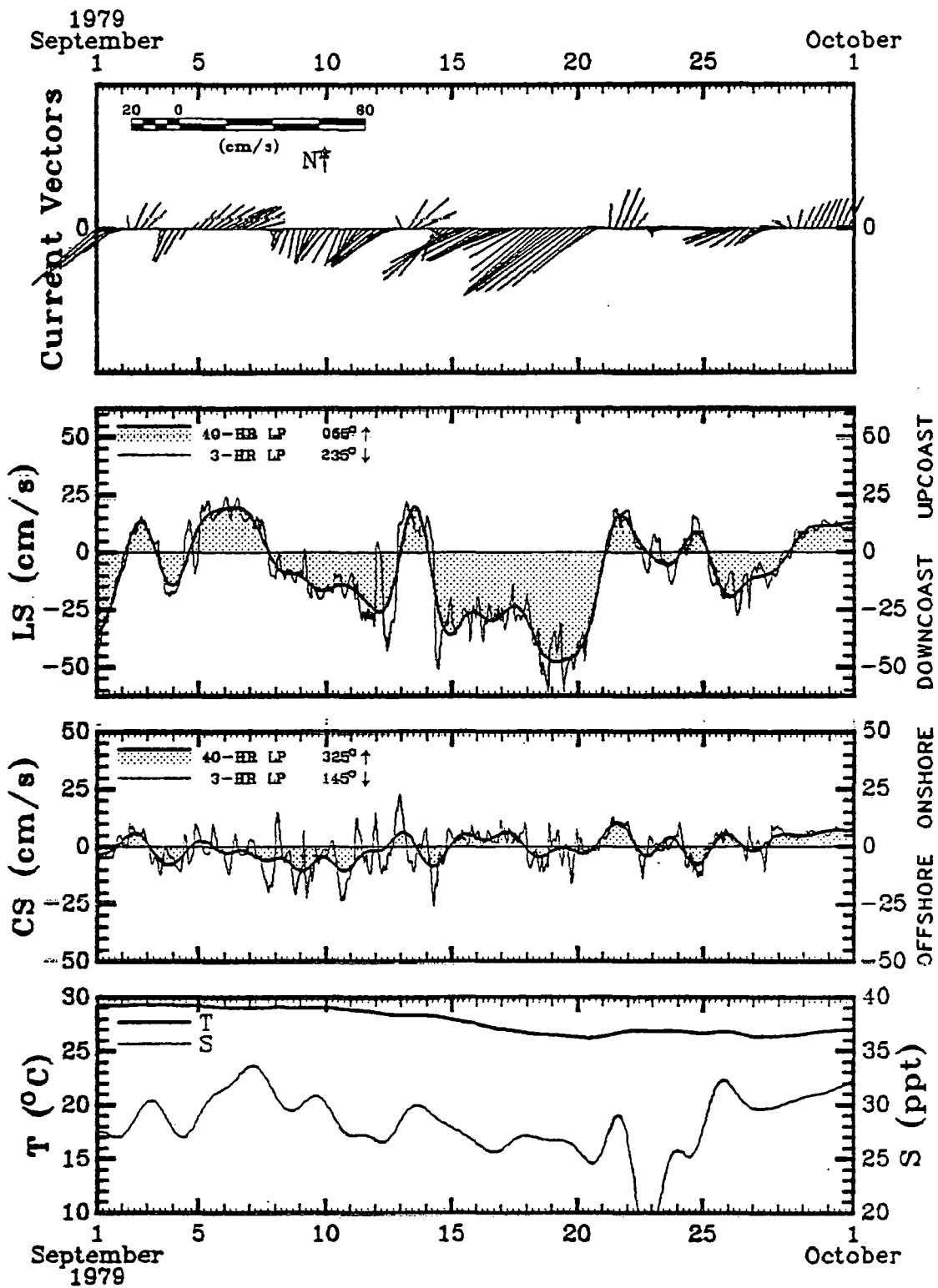


Figure 4-84. January 1980 current velocity time series plots for mid depth instrument at site C



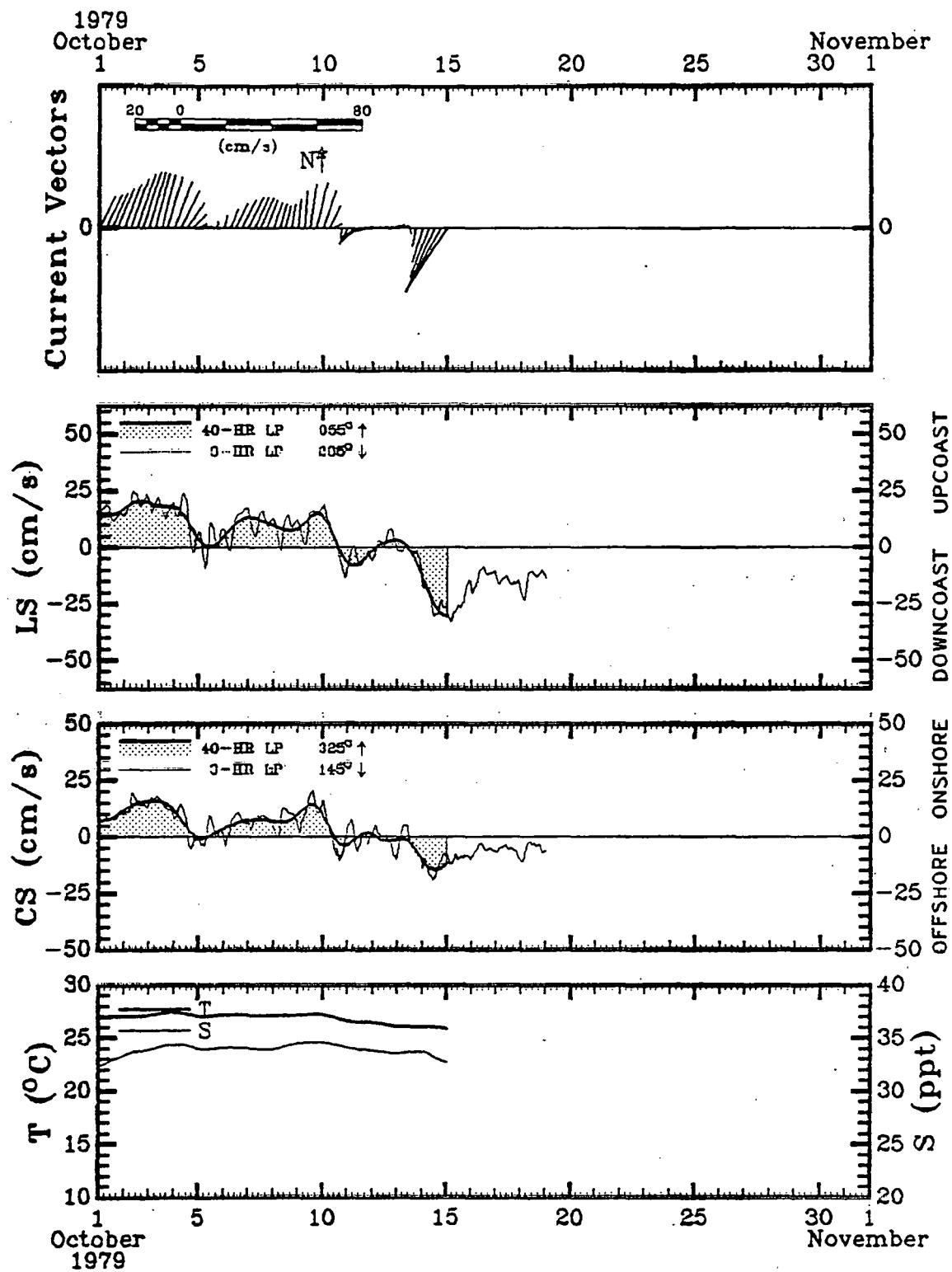
Site C, Bottom

Figure 4-85. August 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C



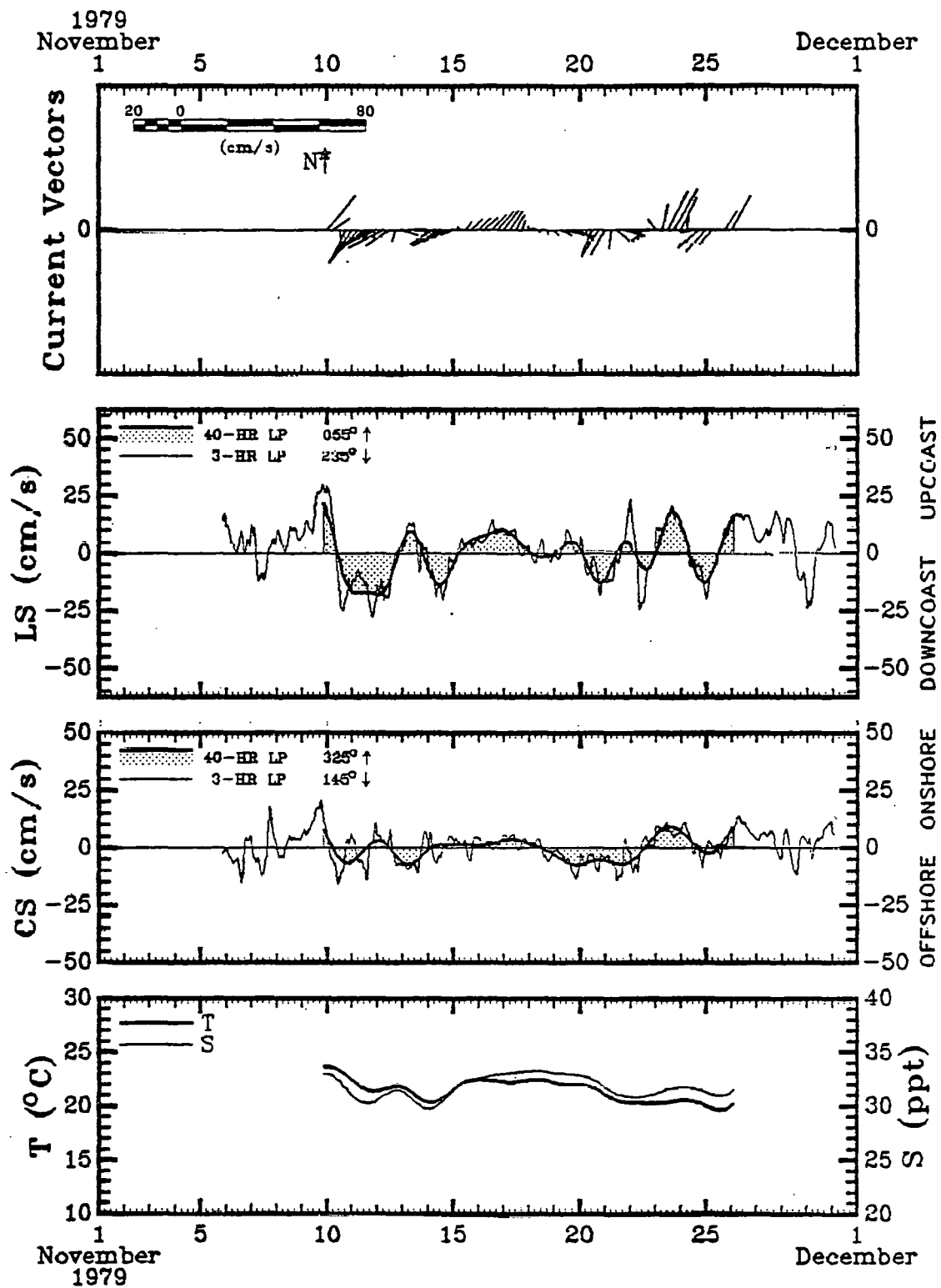
Site C, Bottom

Figure 4-86. September 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C



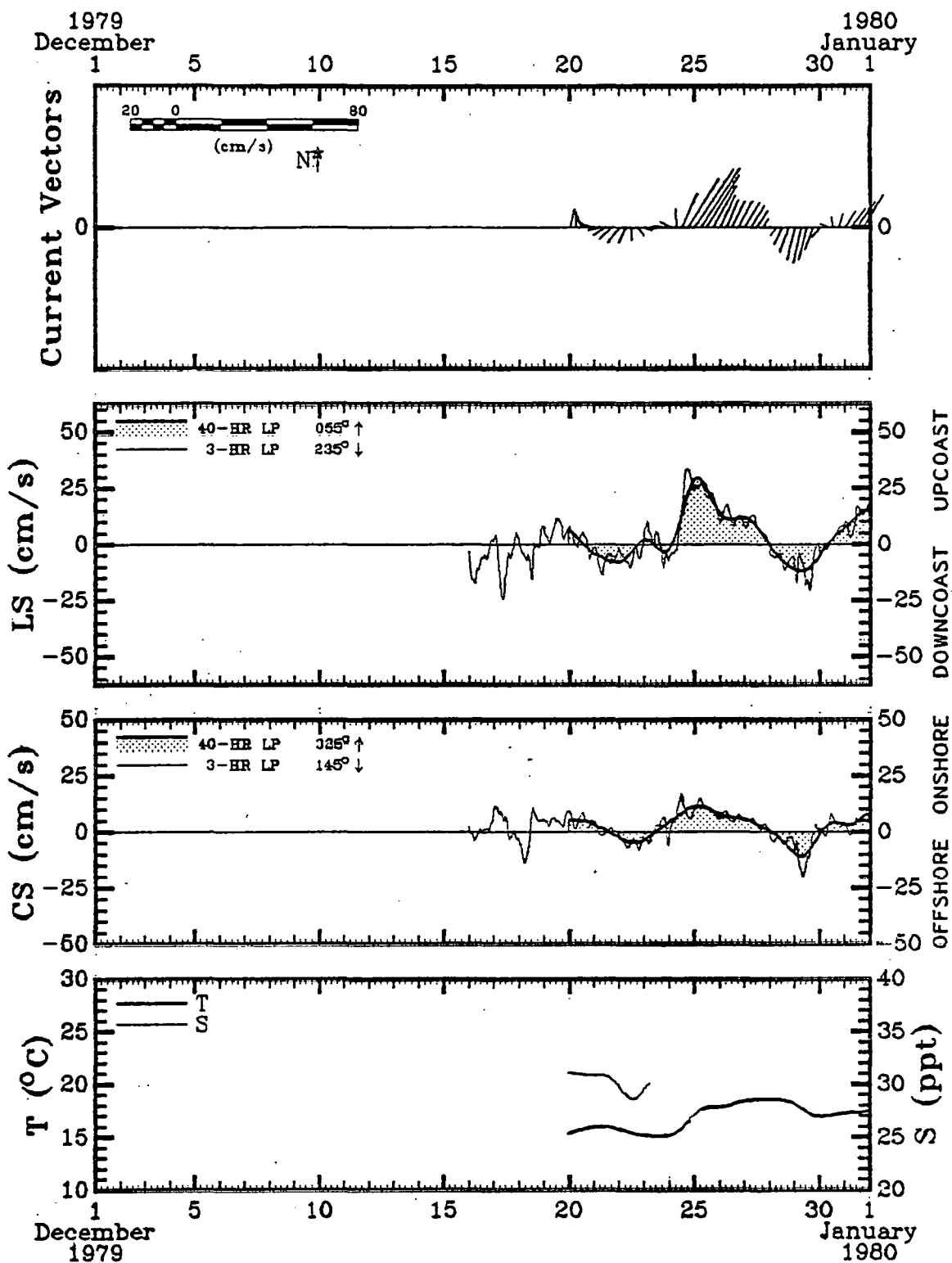
Site C, Bottom

Figure 4-87. October 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C



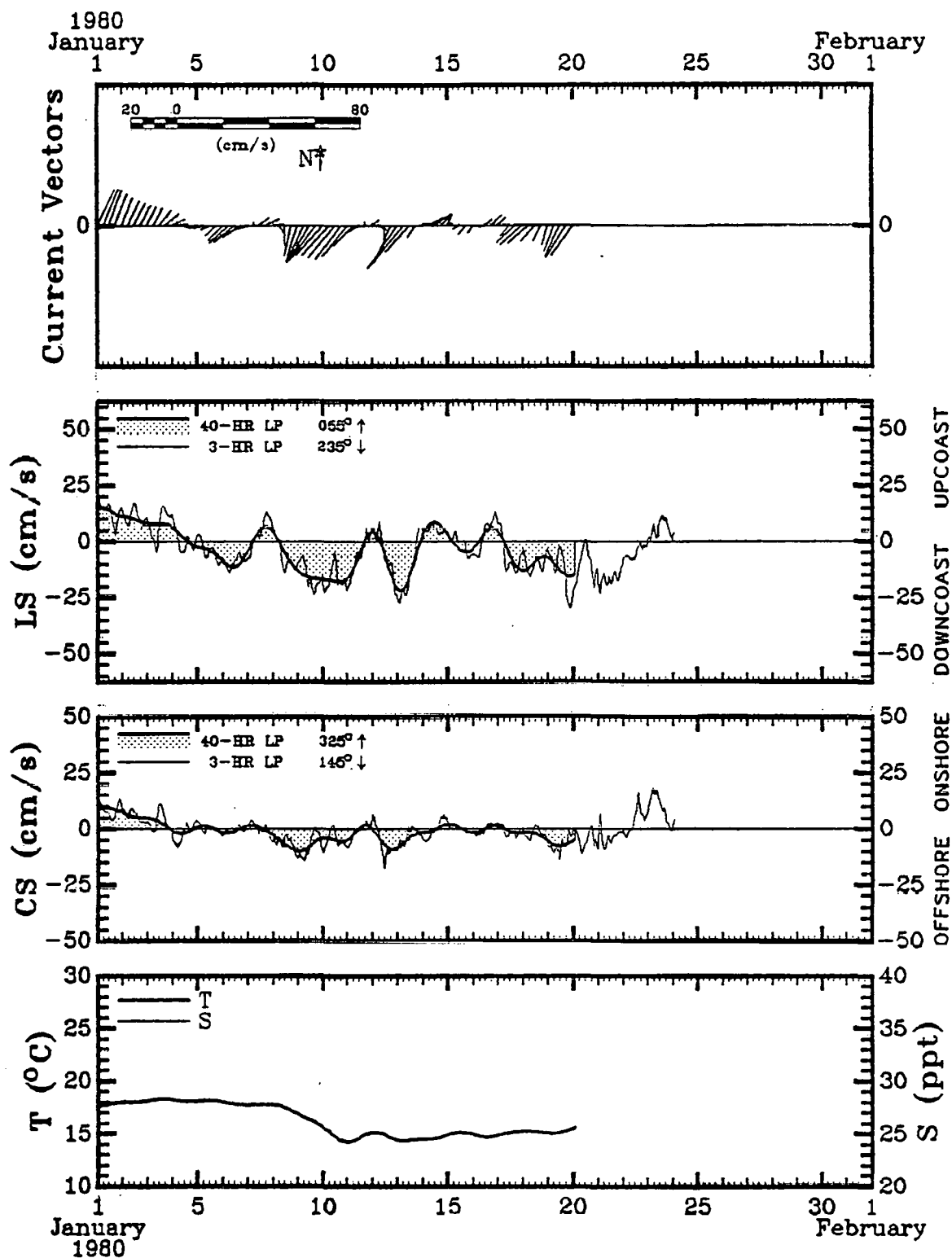
Site C, Bottom

Figure 4-88. November 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C



Site C, Bottom

Figure 4-89. December 1979 current velocity, temperature and salinity time series plots for near bottom instrument at site C



Site C, Bottom

Figure 4-90. January 1980 current velocity, temperature and salinity time series plots for near bottom instrument at site C

APPENDIX 5

Description of Diving Operations in Support of Physical Oceanography

APPENDIX 5

Description of Diving Operations in Support of Physical Oceanography

Scuba diving is required to service the oceanographic instruments and maintain the moorings used in the collection of physical oceanographic data for this project. Over 100 dives have been made, to depths of 18 to 24 meters in normally low visibility conditions. The dives have been conducted year round in moderate wave conditions (1-2 m). Most of the diving has been from the R/V EXCELLENCE, but when she was not available other vessels were used. Dives were cancelled if seas were greater than one to two meters or the current was greater than two knots to insure the safety of divers and instruments. When currents were strong the divers had to exert great physical effort to maneuver in the water. Because one hand was occupied with holding on to the mooring line, less equipment could be carried. Some operations such as replacing an elastic tether in a buoy mooring line required calm seas (< 1 m) and a negligible current ($< .5$ kt). Visibility was often near zero close to the bottom. In turbid water divers always maintained physical contact, usually by holding hands, which reduced the amount of equipment that a diver could carry. Work was also slowed in dark waters because everything was done by touch, and finding a hand line becomes difficult under such conditions.

A diving first aid kit and an oxygen supply were kept aboard the R/V EXCELLENCE for use in the event of a diving emergency. Also, divers carried flares so that they could signal the EXCELLENCE if they were carried away by the current. A 120 cubic foot tank of oxygen (minimum

2 hour supply) was equipped with a Scott oral-nasal mask including a demand regulator. This was to insure a pure supply of oxygen during transport of a victim of embolism or bends to a recompression chamber. Several chambers are available for emergency use in the Freeport area.

Initially, one subsurface taut line mooring system was located approximately 60 meters from the pipe stand owned by Rutherford Oil Co. which has been identified as instrument site A. There were three teflon current meter brackets and two wire loops for thermographs on this mooring. The mooring was located by a hand line, which was connected from the anchor to the base of the pipe stand. Hand lines were essential to guide divers in turbid water.

A 15 foot inflatable dive boat was towed about 100 feet behind the EXCELLENCE with the engine in place and locked down while enroute to the diving sites. Fully suited divers enter the dive boat by way of a ladder located amidship the EXCELLENCE (this was preferable to entering astern) or directly into the water from the EXCELLENCE. The transfer of divers and equipment to the dive boat can be hazardous to equipment as well as divers in rough seas, and bow and stern lines were sometimes needed to stabilize the dive boat. It was also important to have the ladder extend far enough into the water so that it would not break the surface and snag the dive boat. There was always a person in the dive boat, in addition to the divers, to steer the boat, record data, handle equipment, and help divers aboard.

During the first 18 months of the project, divers were put into the water up current from the pipe stand with the engine in neutral. The divers swam to and down the pipe stand, located the hand line, and followed it to the mooring. This procedure proved effective but was time consuming

because of the long bottom swim from the pipe stand to the mooring.

During May 1979, two large tethered buoy systems were deployed at instrument sites A and B, and in August a third system was installed at instrument site C as illustrated in Figure 1-34. Both surface and subsurface moorings contained three stainless steel current meter brackets. Each subsurface mooring contained a bracket for a wave-tide gauge.

Diving on the new buoy system was much simpler because the dive boat could tie off directly to the surface buoy before the divers entered the water. At sites A and C the subsurface buoys were only about 40 feet from the surface buoy, and the anchors of the surface and subsurface buoys were connected with hand lines.

A mistake by the buoy manufacturer in assembling the subsurface mooring at site A resulted in the top of the subsurface buoy resting at the surface instead of 10 feet below the surface. In order to correct this situation the original chain had to be replaced with a shorter piece. This was accomplished by placing a block and tackle with a double shive pulley at the anchor and a single shive pulley above the piece of chain to be removed. The buoy was then winched down using the capstan aboard the EXCELLENCE. A safety line was connected above and below the chain to be removed, and then the tension was released from the block and tackle. The safety line was two feet shorter than the piece of chain to be installed. The old chain was removed and replaced with a chain of shorter length and the block and tackle was removed and the safety line cut. As a result the subsurface buoy was lowered to the required 10 foot depth.

Three months later (August 1979) the tethers on the subsurface buoy at site A were inspected and were found to be coming apart near the bridle

connections. The entire tether system was replaced using a coffin hoist instead of a block and tackle. The coffin hoist gave the divers better control over how far and how fast the buoy was moved and did not require support from the surface. The buoy was winched down with the hoist until the tethers became slack. The tethers were then taken out leaving the coffin hoist holding the tension of the mooring. A line was attached to the tether so that it could be hauled up to the dive boat. Finally the new tether was installed and the tension released from the coffin hoist.

After several months of service, routine inspection of the moorings indicated that the tethers for the subsurface moorings had too much strain on them. Also the current meters on these moorings were being damaged as a result of heavy seas and stiffness of the mooring line. It was decided to replace the subsurface buoys at sites A and C with smaller buoys located just above the wave-tide gauge brackets, and the current meters were removed to the surface mooring. This system was altered by using a deflated polyform buoy which was shackled by divers into the top of the wave-tide gauge brackets and inflated to approximately 150 pounds of lift from a pony bottle equipped with a Seatec low pressure air gun. The tethers were then cut releasing the old subsurface buoys.

The current meters on the moorings of the surface buoys were becoming tangled and damaged by contact with the mooring line. It appeared that fouling between the stainless steel brackets and current meter clamps stopped the swiveling action. Also the elastic qualities of the tethers caused excessive movement of the mooring line especially at the upper brackets. This made equipment recovery difficult in rough seas and at times

caused the current meters to repeatedly strike the brackets. As a result of damage to the current meters on the moorings, new taut mooring lines (Figure 1-34) were deployed at all three instrument sites. The new moorings had only 70 pounds tension and each contained three teflon current meter brackets. The top of the moorings are 10 feet under the surface and are located 40 feet from the surface buoys with hand lines between the anchor of the surface buoys and the anchors of the taut line moorings.

Current meter change-outs were included in most dives. Normally there were nine current meters in the water (three per site) and these were changed every two to four weeks. A change-out involved two dives; the first dive was to remove the old current meters from the mooring, and the second to install the new meters. One diver could usually handle two current meters, leaving a single meter for his buddy. Divers descended and ascended the mooring line of the surface buoys and follow the hand lines from the anchor of the subsurface buoy mooring (Figure 1-34). The old current meters were brought to the surface and exchanged for new ones while the divers remained in the water. The new meters were premarked to indicate their position on the mooring line (i.e. top, middle, or bottom). The current meters were held in place with a large clamp that wrapped around the bracket.

The most difficult instrument to service has been the wave-tide gauge because of its size and weight. The procedure for installing a wave gauge is for a safety line to be attached so that the weight of the gauge can be held by the person in the dive boat. Then the divers guide the gauge down the surface buoy mooring line and carry it along the bottom to the subsurface mooring. The gauge can be lifted to the bracket either by using the diver's buoyancy compensator, or by the person in the dive boat.

The wave gauge is secured in the bracket with large plastic wire wraps and then the safety line is removed. To remove the gauge a safety line was attached and the wire wraps cut, the gauge is released after the slack is removed from the safety line and the person in the dive boat hauls up the gauge.

APPENDIX 6

Concentration Profiles

for

Horizontal Diffusion Coefficients

APPENDIX 6 CROSS PLUME PROFILES

Appended are the experimental cross plume profiles used in the analysis of diffusion coefficients reported in this paper. The data and environmental conditions for the three days of experimentation are as follows:

- (1) September 5, 1978
Current: 1.1 ft/s (0.34 m/s)
Seas: 2-3 ft (0.6-0.9 m)
Wind: SE Light
- (2) November 2, 1978
Current: 1.4 ft/s (0.43 m/s)
Seas: 2-3 ft (0.6-0.9 m)
Wind: NW Light
- (3) January 9, 1979
Current: 1.6 ft/s (0.49 m/s)
Seas: 4-5 ft (1.2-1.5 m)
Wind: NW Light to Moderate

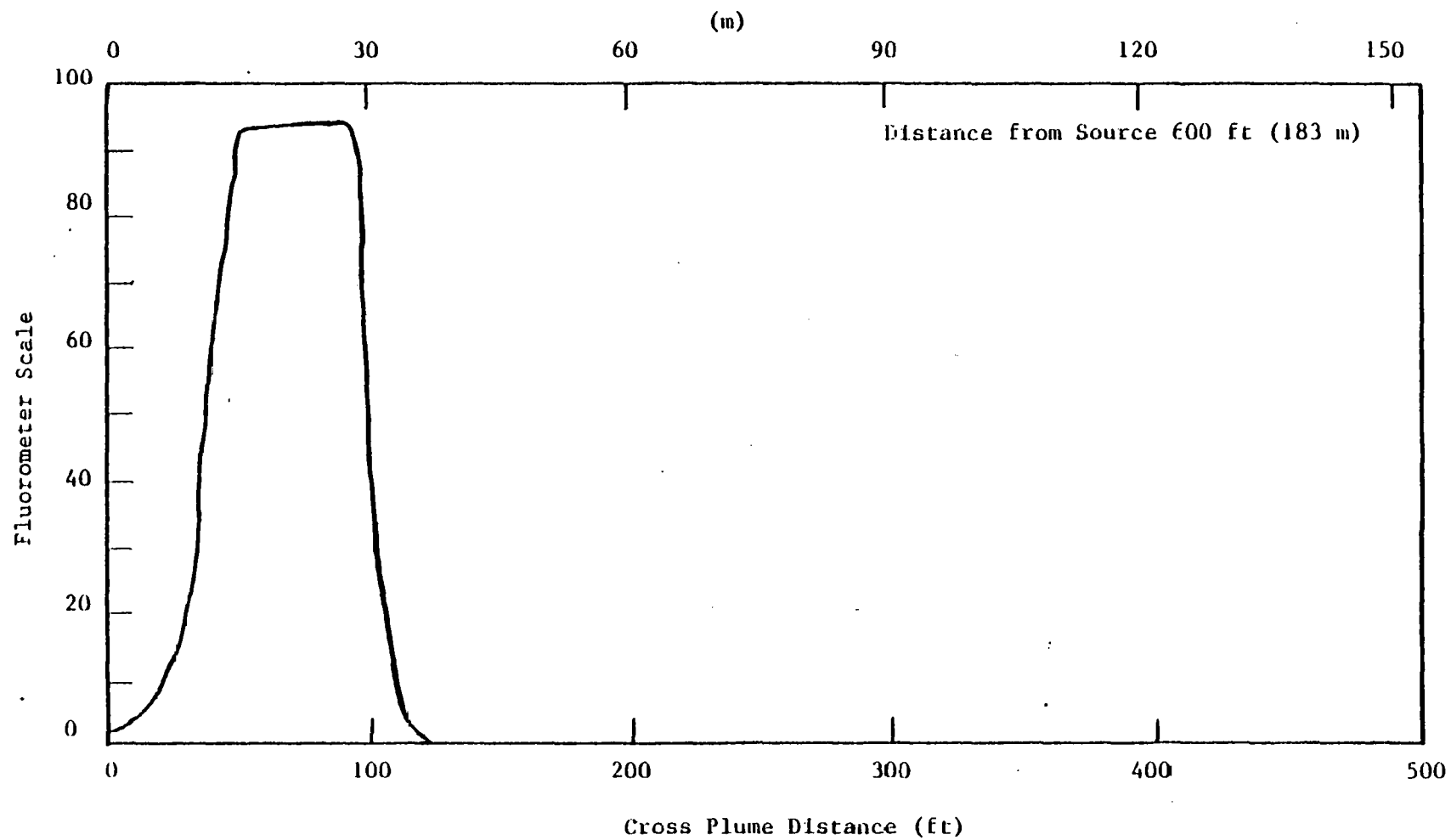


Figure 6-1. Cross plume profile No. 9, 9/5/78

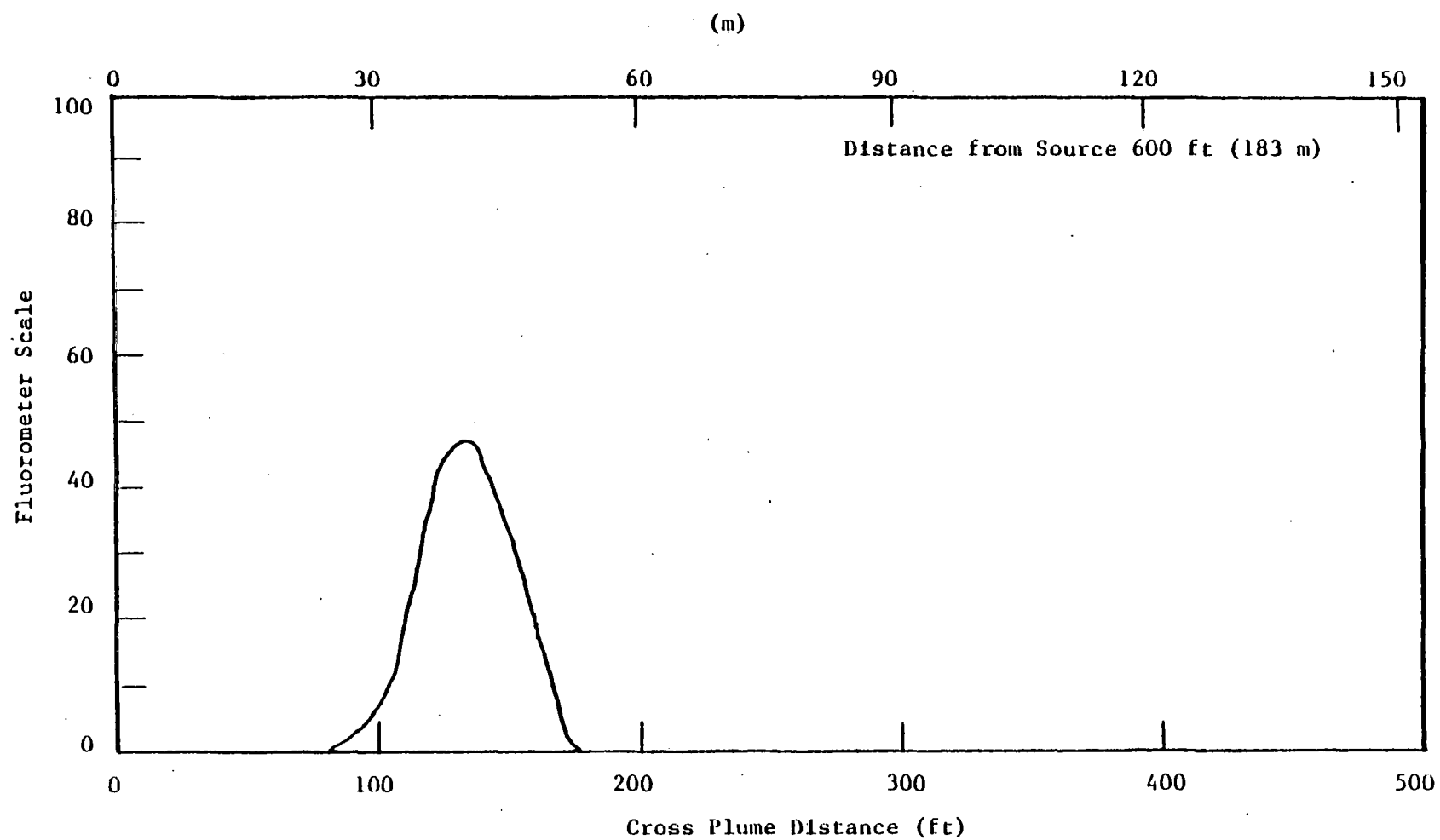


Figure 6-2. Cross plume profile No. 10, 9/5/78

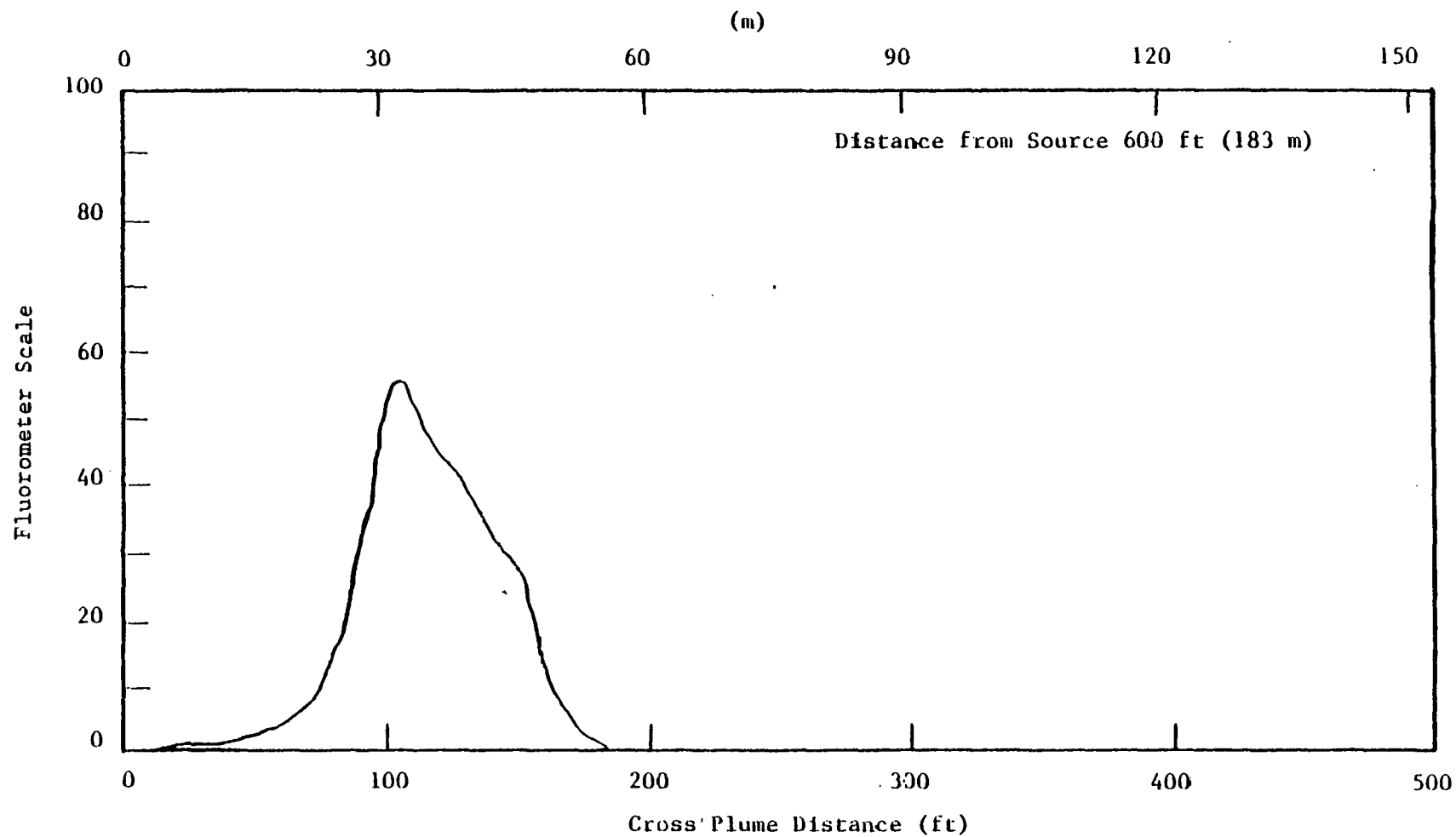


Figure 6-3. Cross plume profile No. 11, 9/5/78

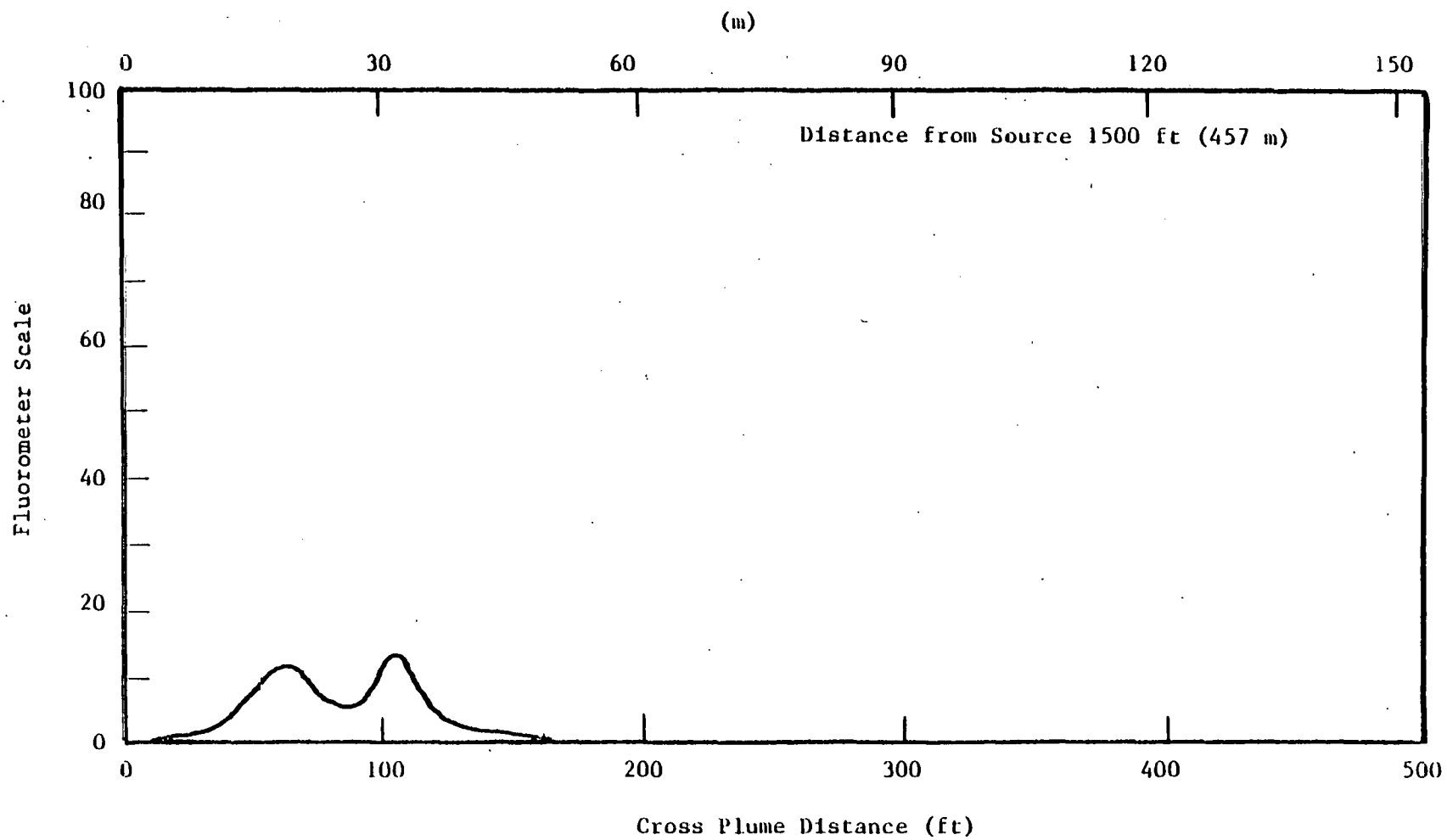


Figure 6-4. Cross plume profile No. 12, 9/5/78

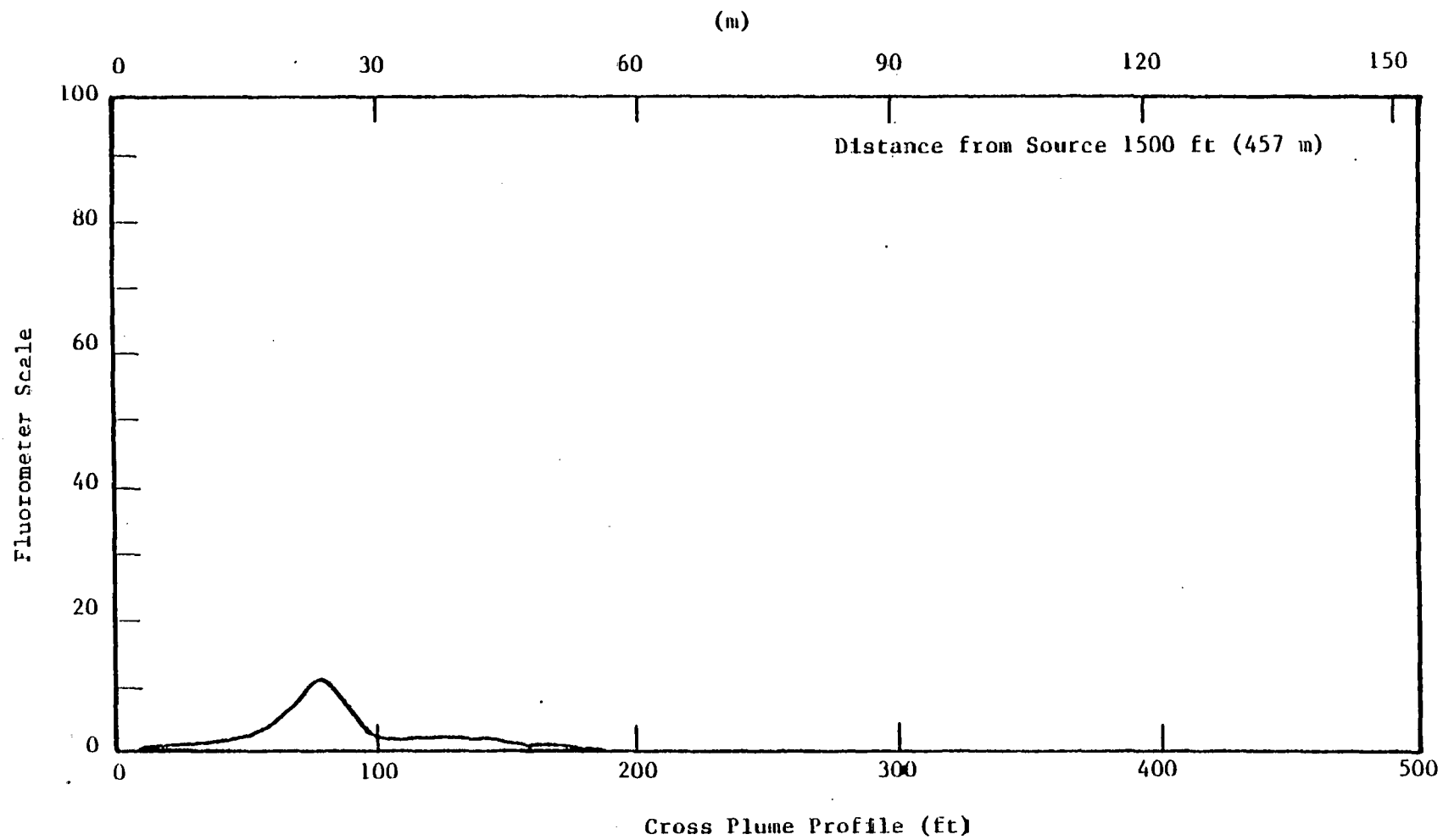


Figure 6-5. Cross plume profile No. 13, 9/5/78

6-9

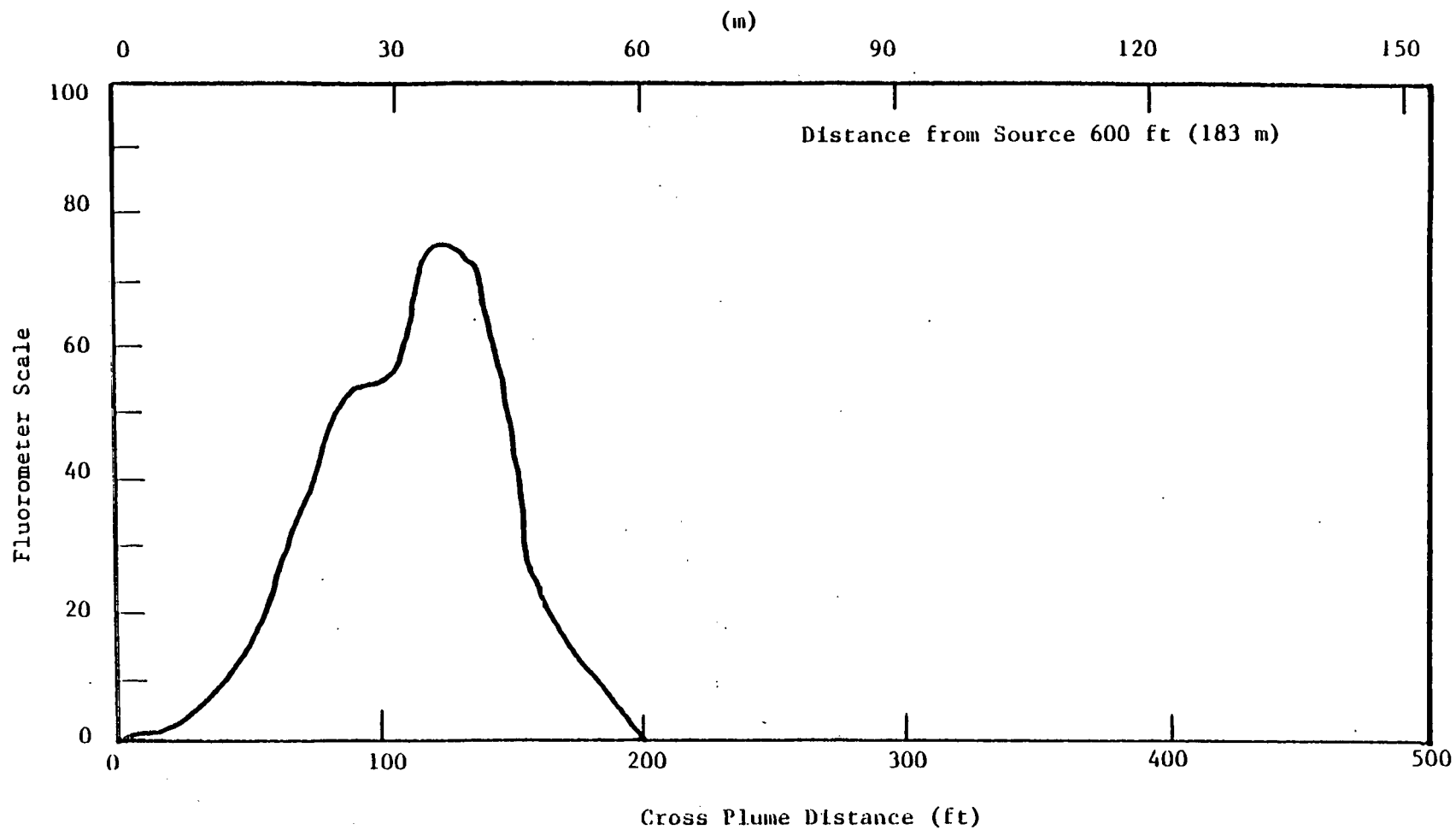


Figure 6-6. Cross plume profile No. 17, 9/5/78

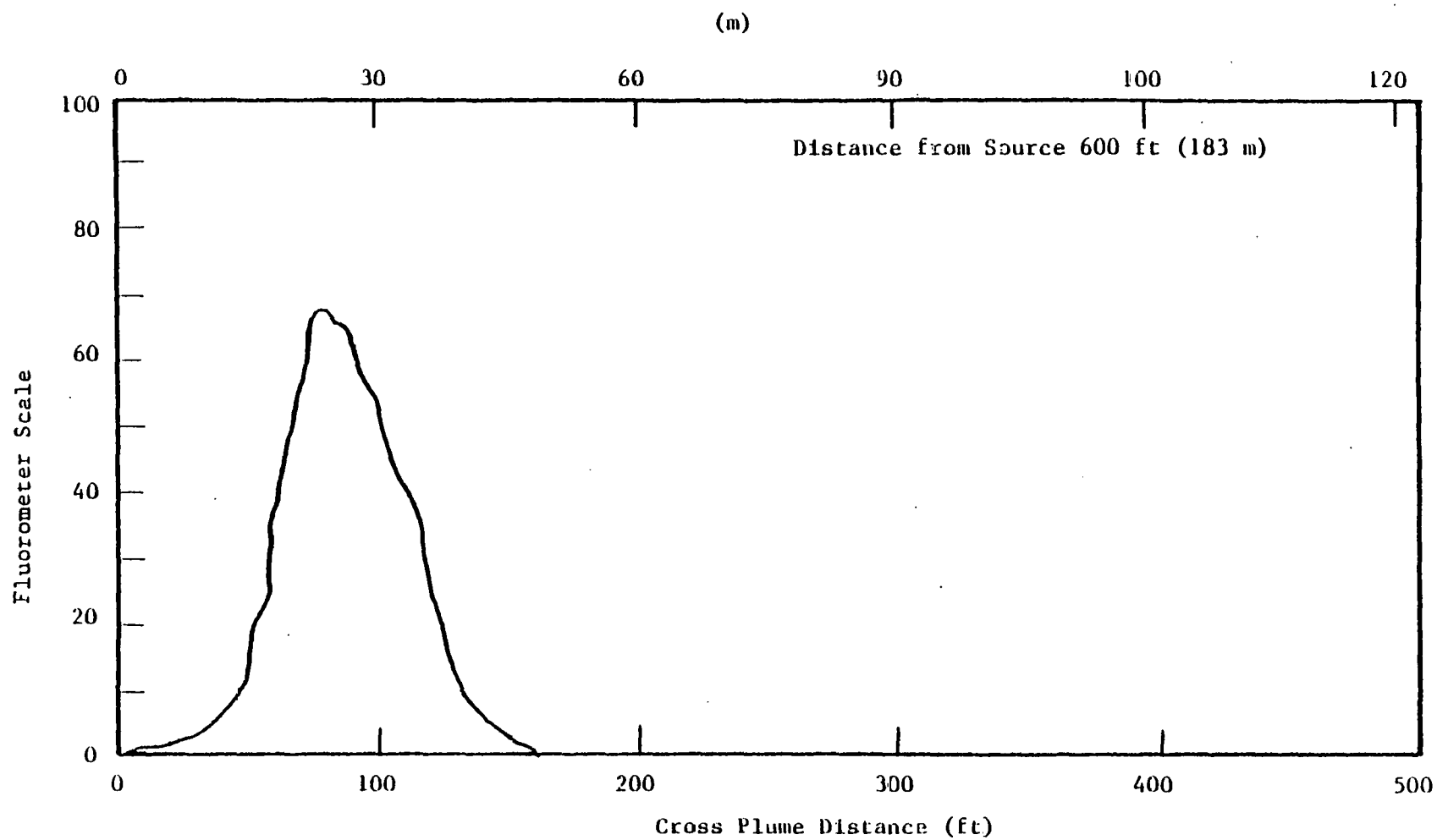


Figure 6-7. Cross plume profile No. 18, 9/5/78

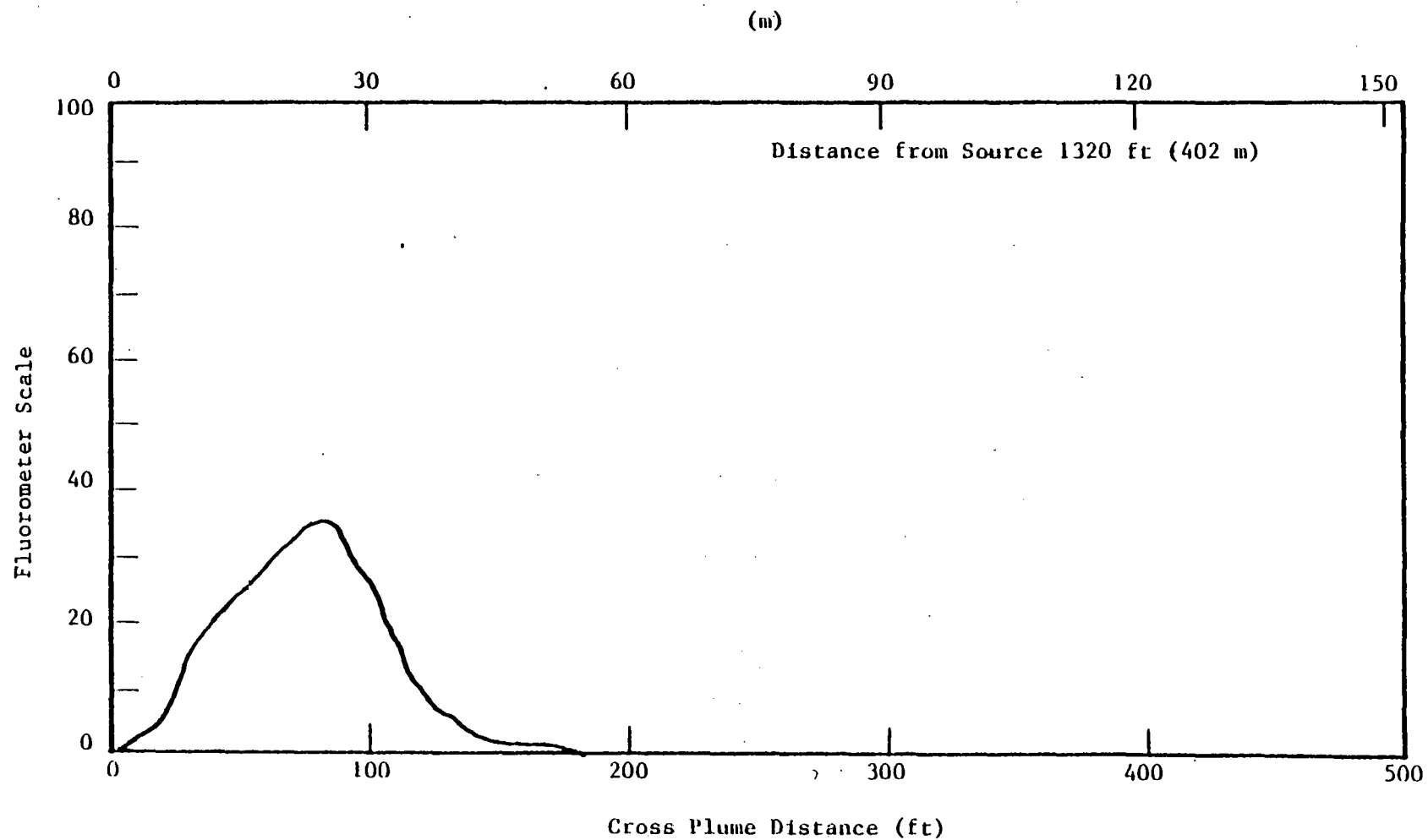


Figure 6-8. Cross plume profile No. 4, 11/2/78

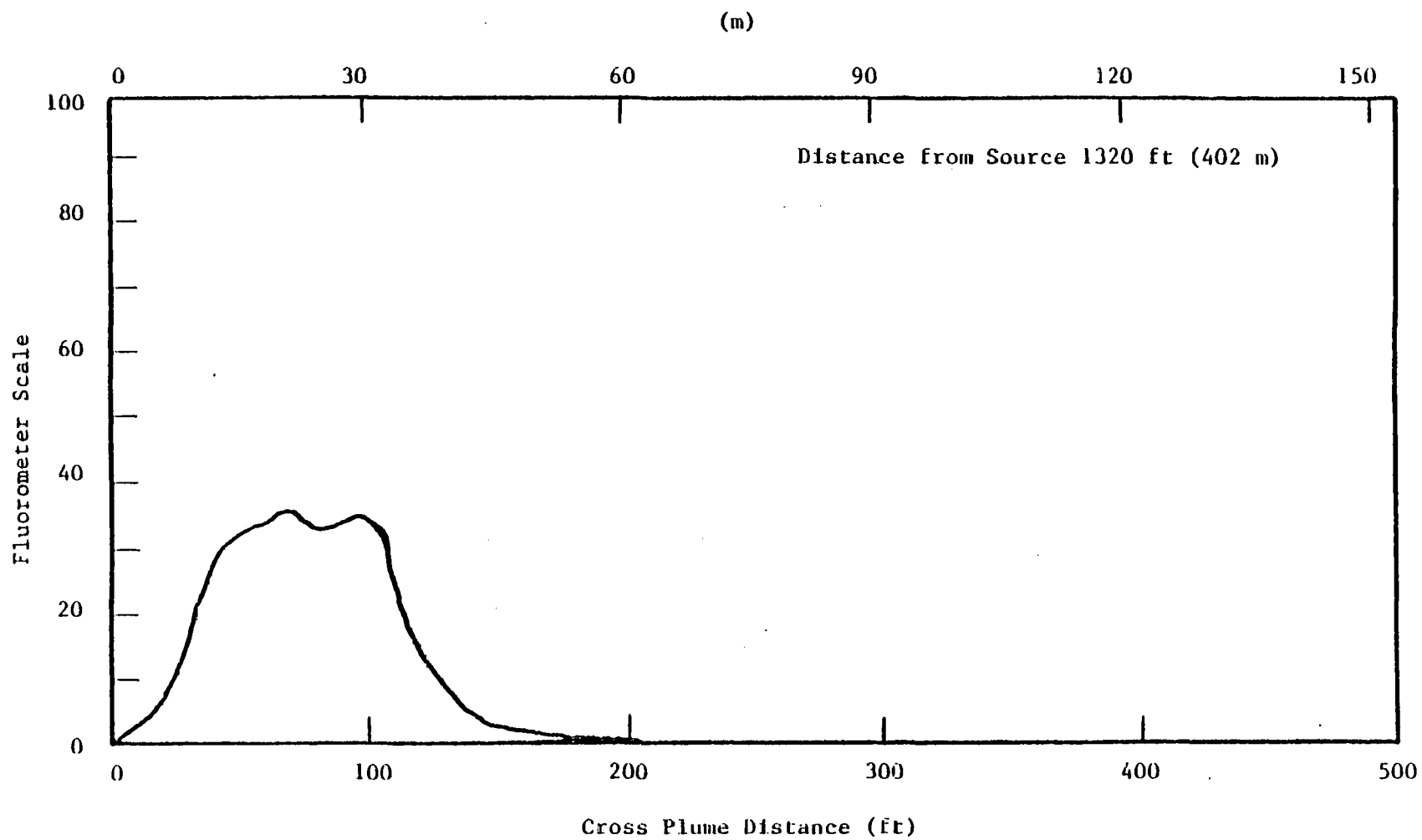


Figure 6-9. Cross plume profile No. 5, 11/2/78

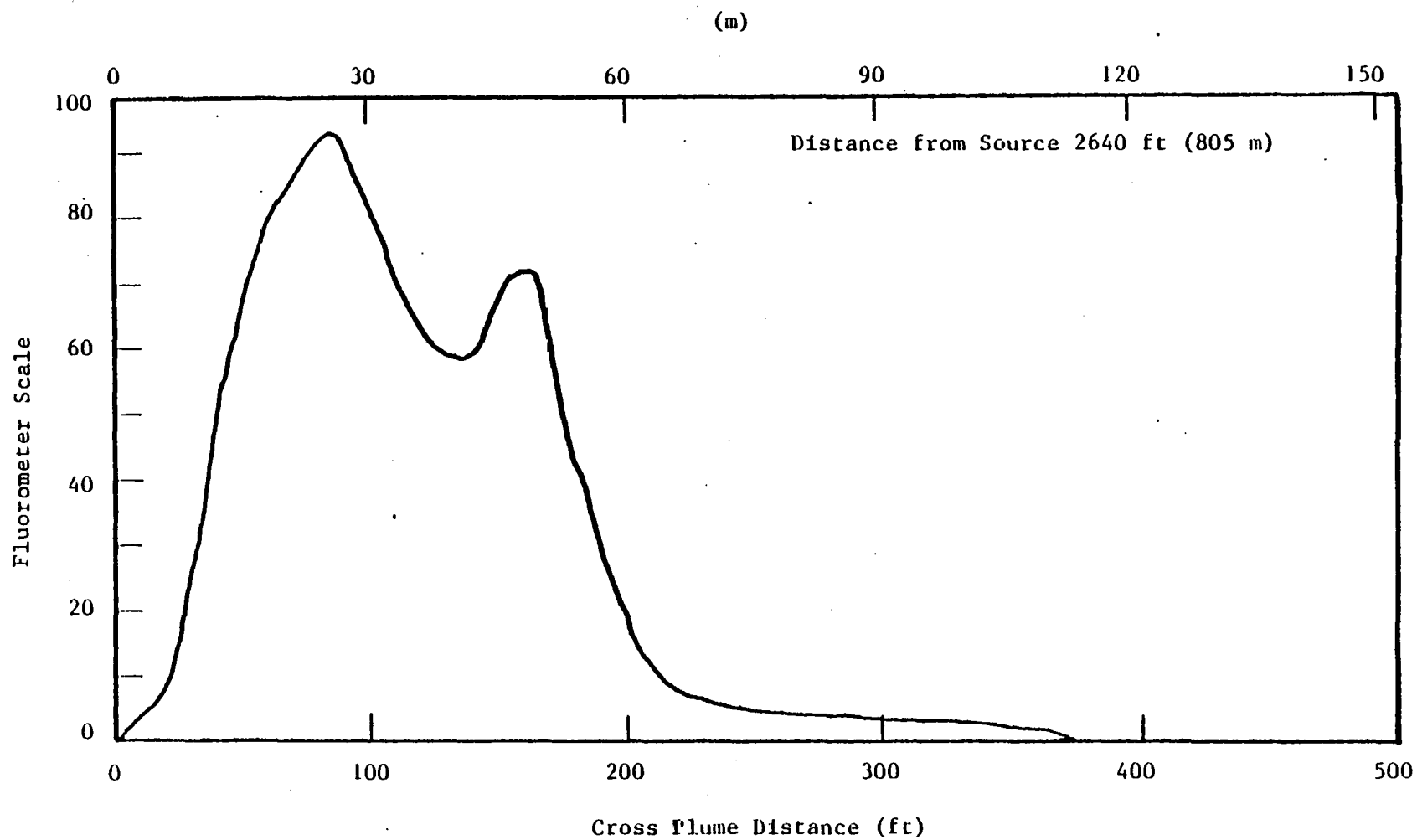


Figure 6-10. Cross plume profile No. 6, 11/2/78

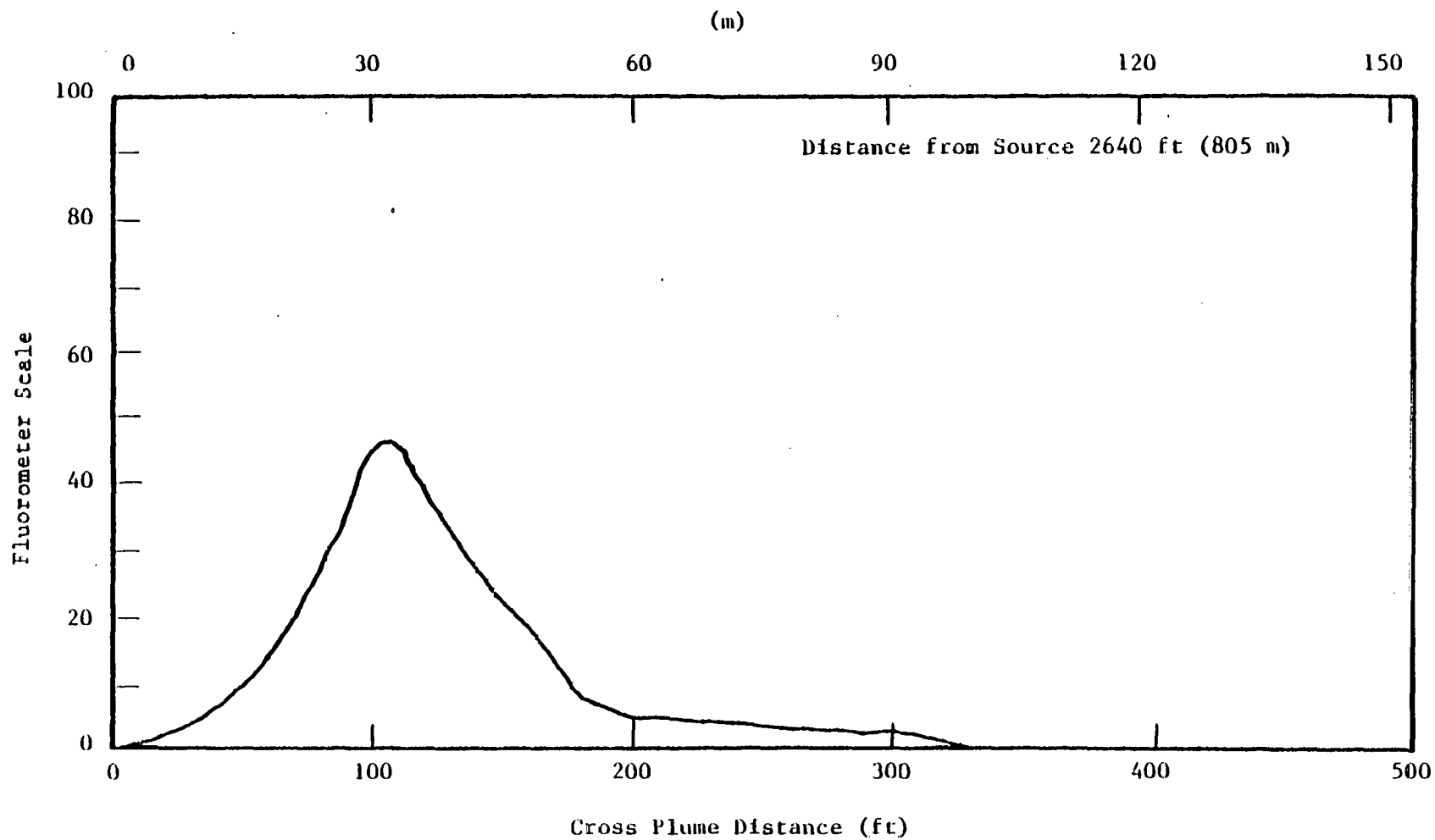


Figure 6-11. Cross plume profile NO. 7, 11/2/78

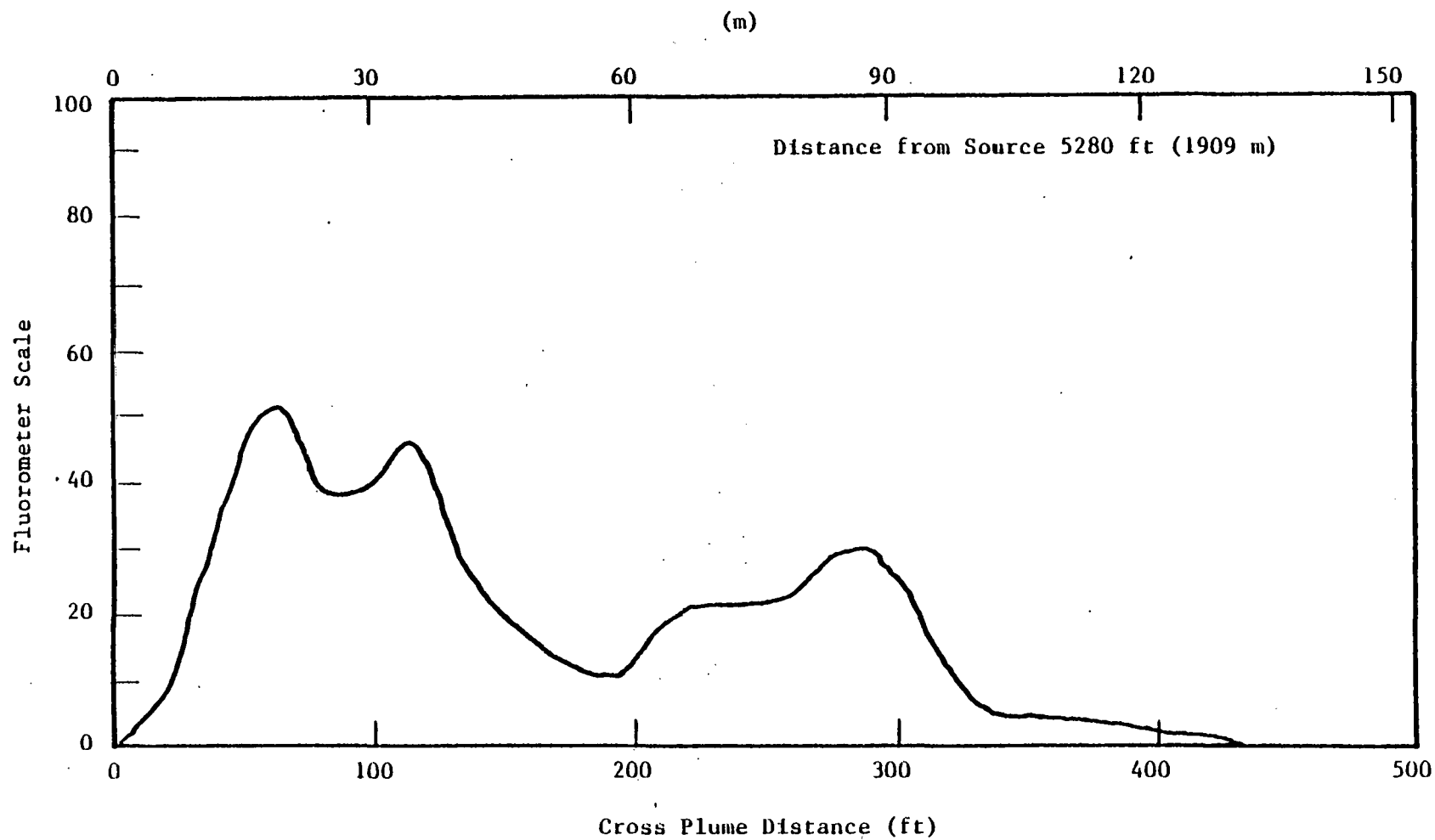


Figure 6-12. Cross plume profile No. 10, 11/2/78

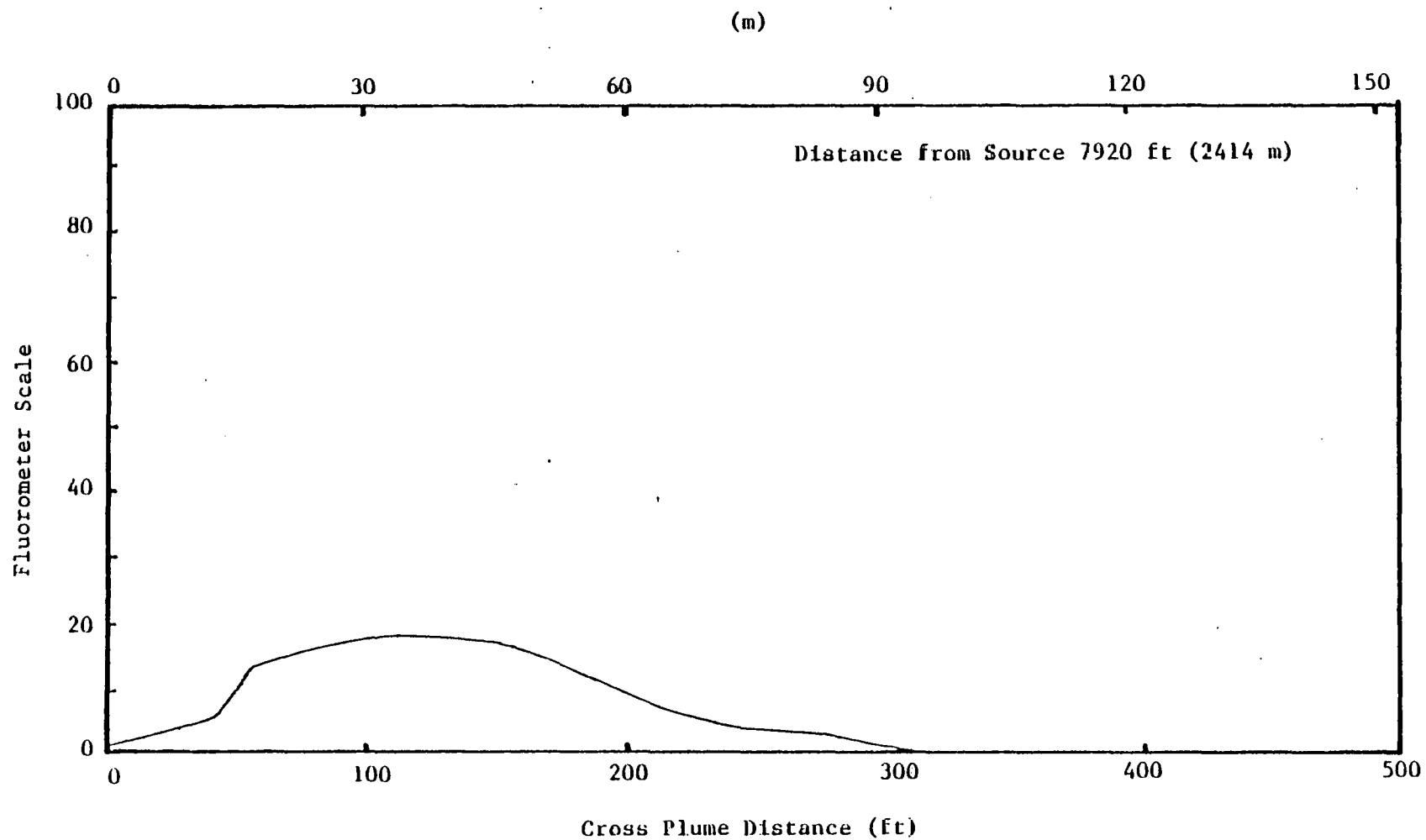


Figure 6-13. Cross plume profile No. 11, 11/2/78

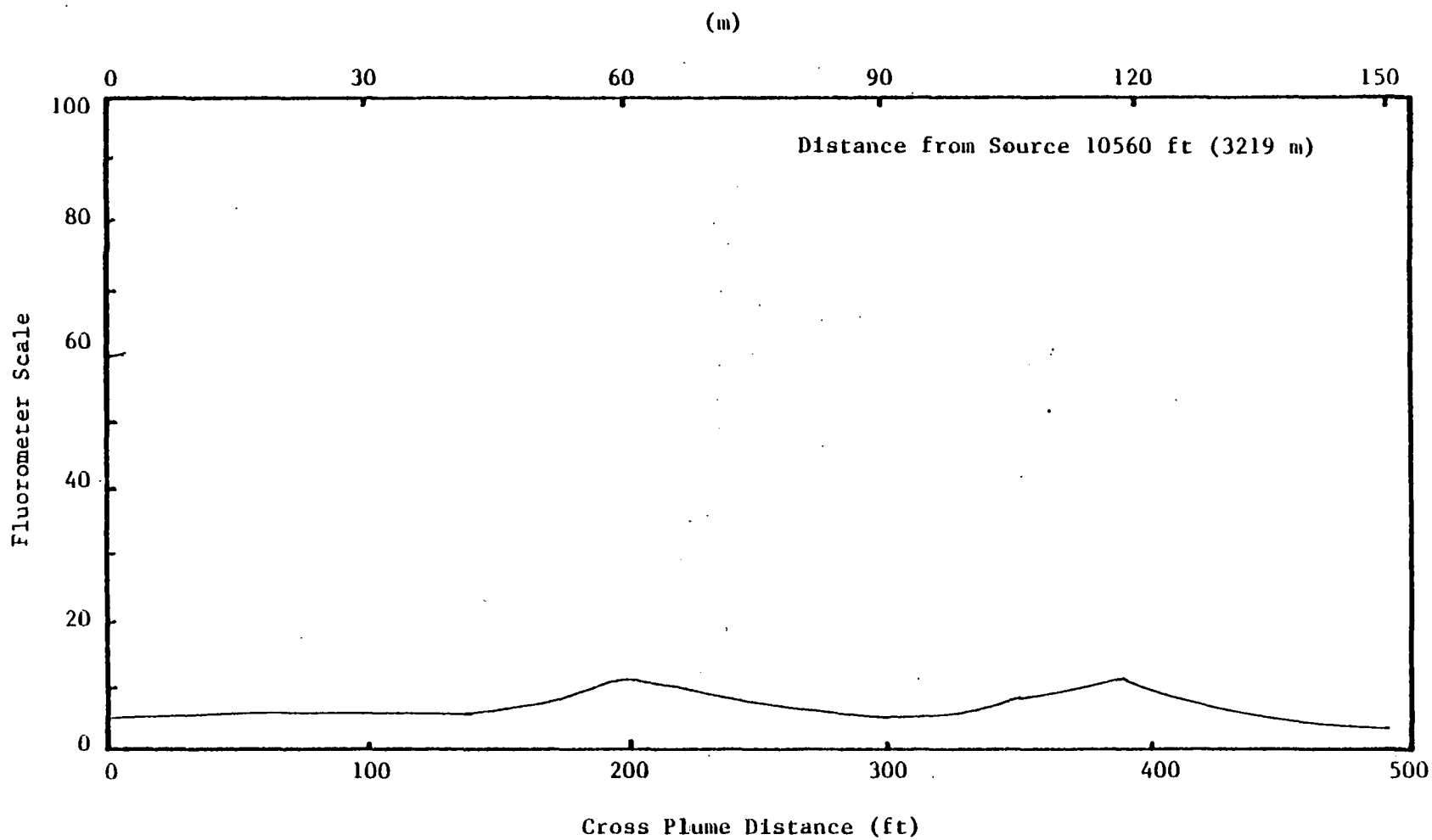


Figure 6-14. Cross plume profile No. 12, 11/2/78

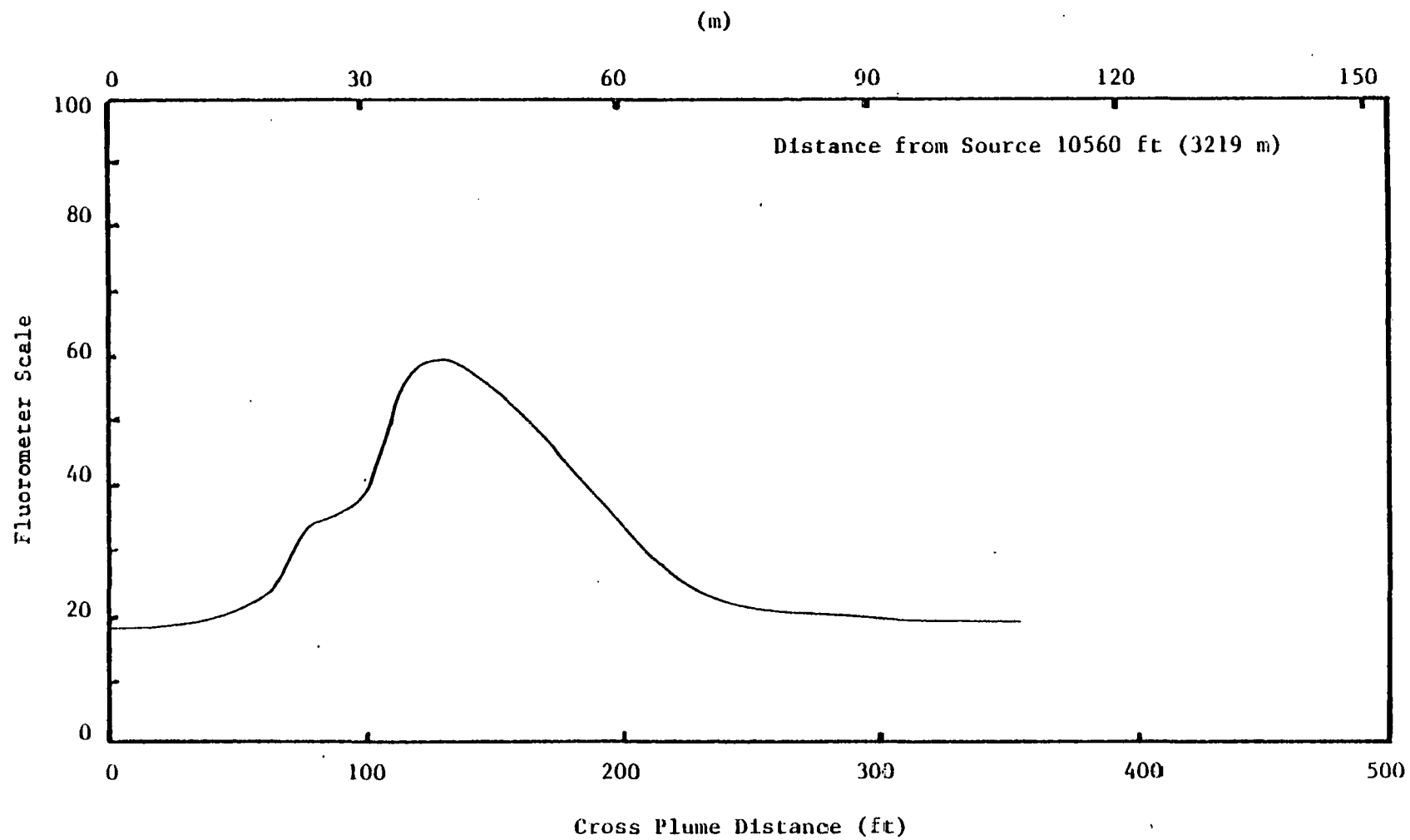


Figure 6-15. Cross plume profile No. 13, 11/2/78

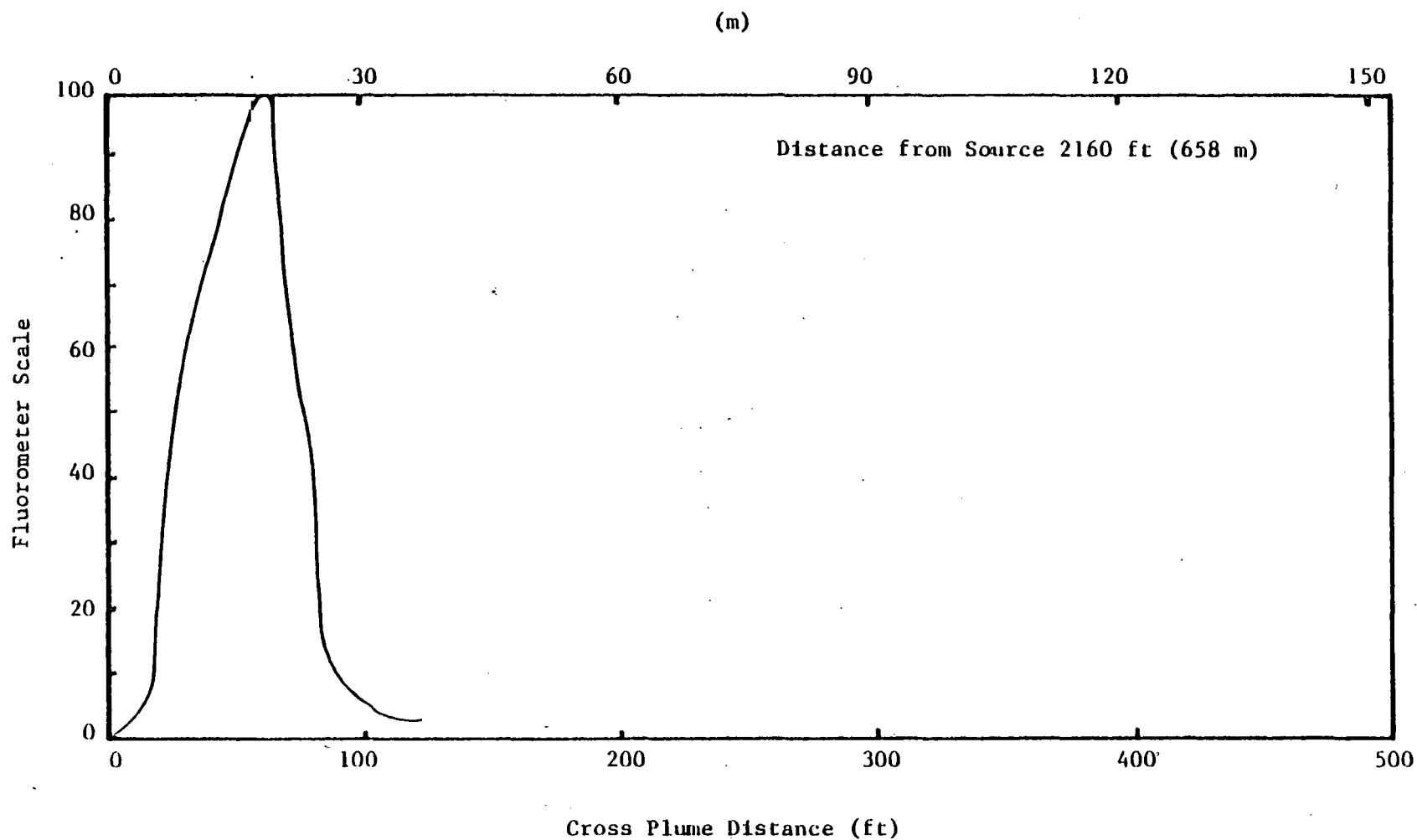


Figure 6-16. Cross plume profile No. 2, 1/9/79

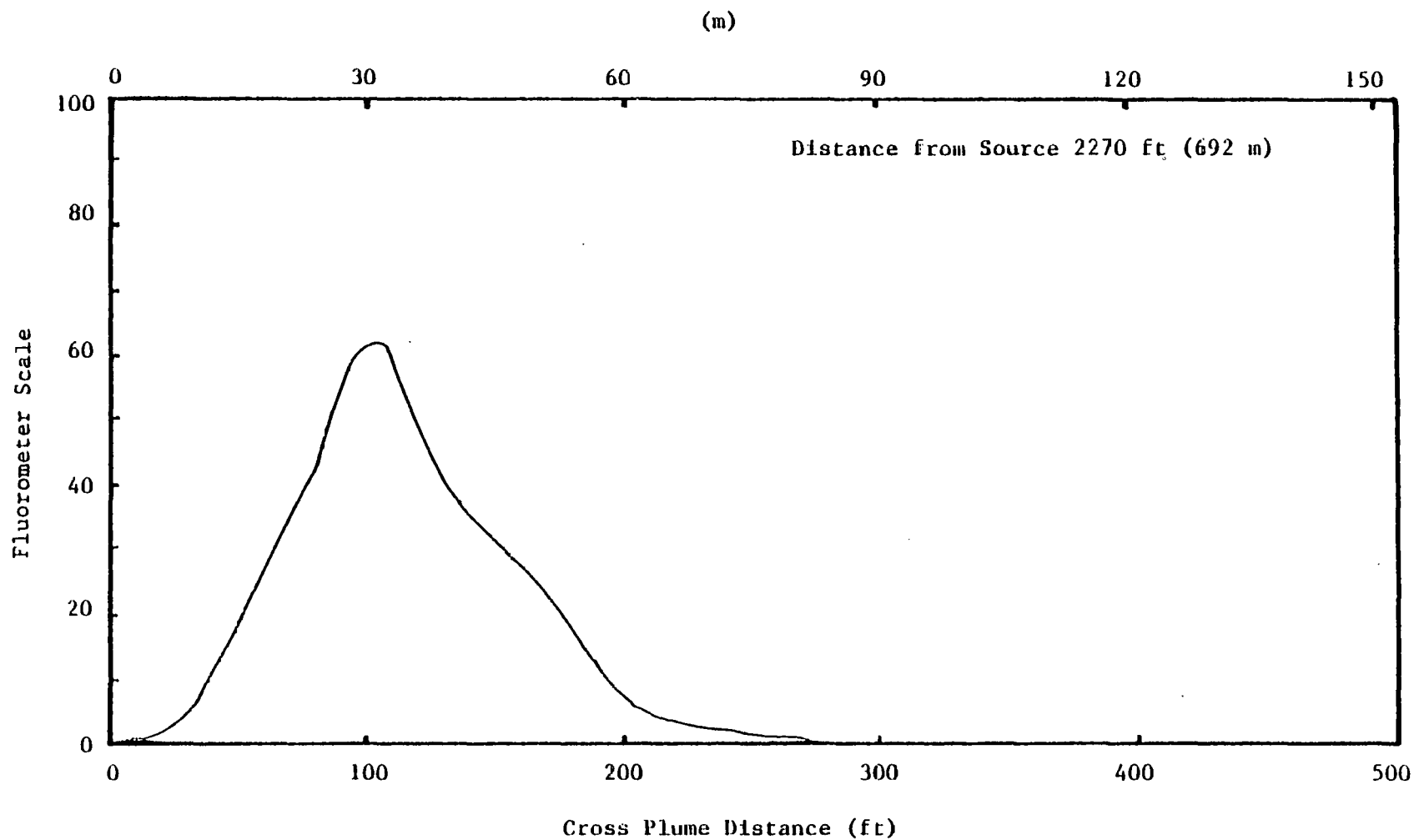


Figure 5-17. Cross plume profile No. 3, 1/9/79

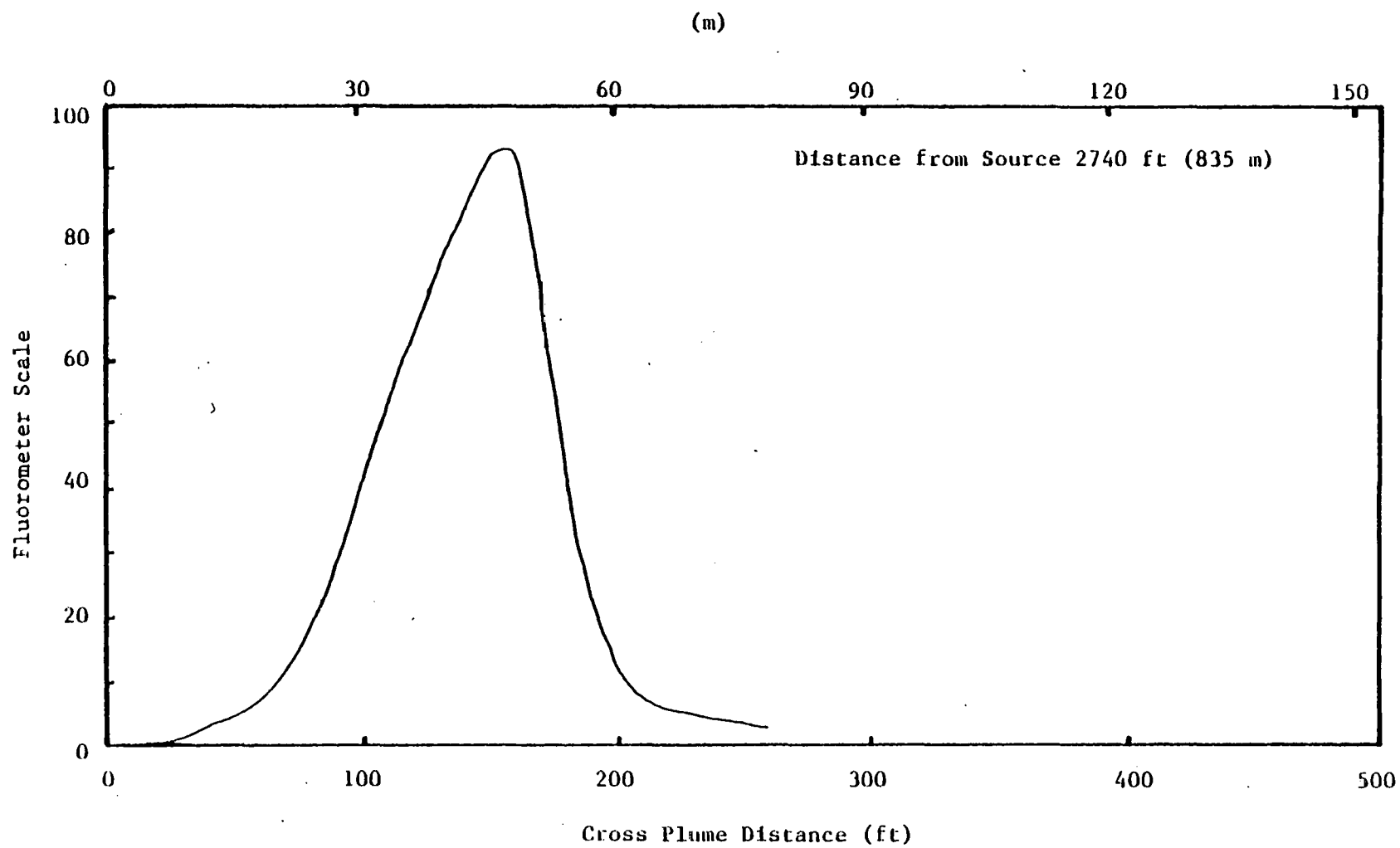


Figure 6-18. Cross plume profile No. 4, 1/9/79

(m)

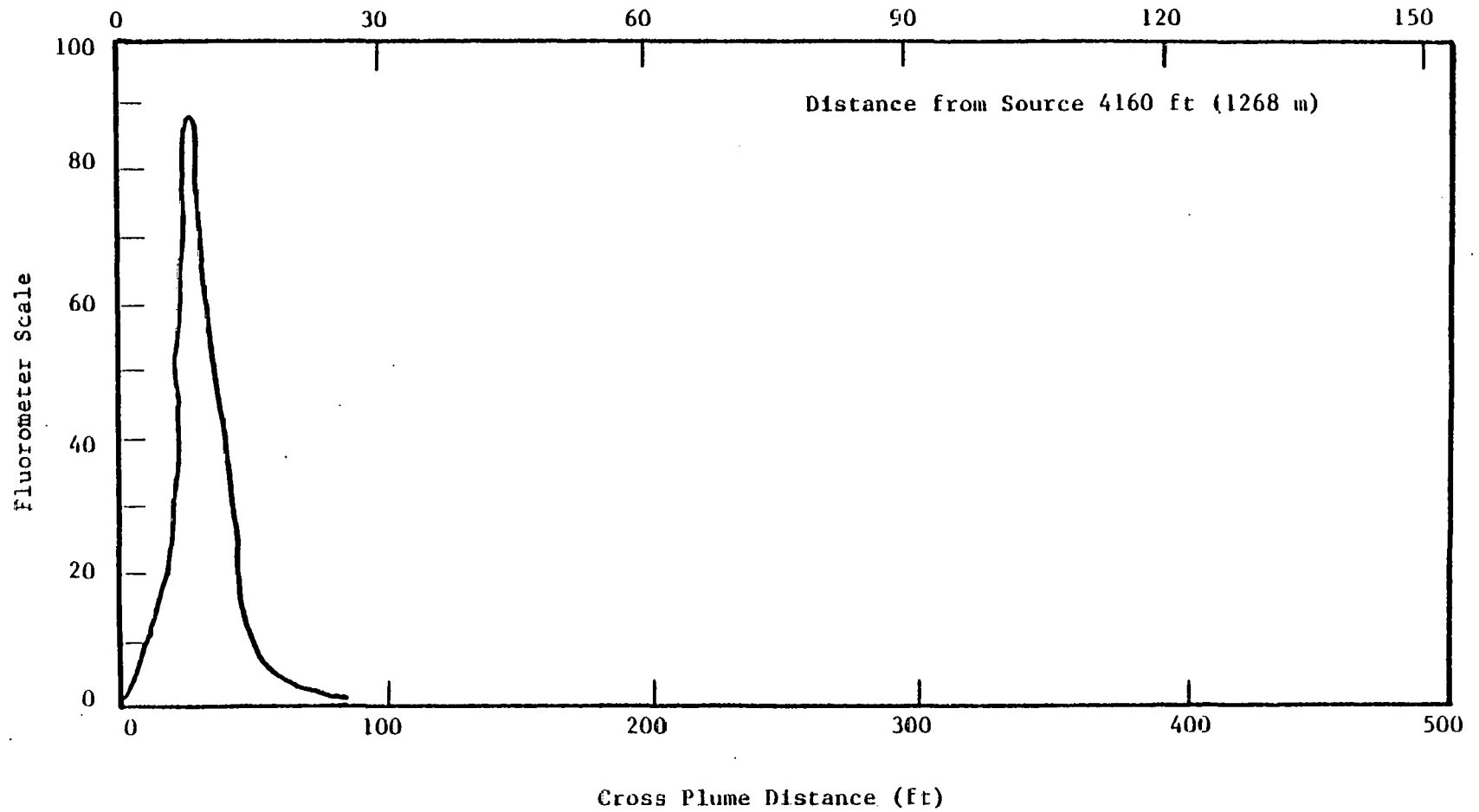


Figure 6-19. Cross plume profile No. 5, 1/9/79

APPENDIX 7

Appendix 7 contains Tables and Figures related to the Nekton study which will be submitted at a later date.

APPENDIX 8

Supporting Data for Zooplankton Studies

Table 8-1. Mean densities ($\#/m^3$) of zooplankton groups from seven cruises made between June 1979 and January 1980 near the diffuser site. Mean values from three subsamples are listed for the three replicate tows taken at each station (A,B,C).

CRUISE/STATION/TOW	1/A/1	1/A/2	1/A/3	1/A/4
MEDUSAE	97.2	0.0	48.9	83.3
POLYCHAETA	842.2	112.2	48.9	41.7
BIVALVE LARVAE	64.8	0.0	0.0	0.0
GASTROPOD LARVAE	0.0	0.0	0.0	0.0
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	0.0	0.0
CLADOCERA				
EVADNE	129.6	0.0	97.7	125.0
PENILIA	226.7	37.4	244.3	166.7
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	0.0	0.0	0.0	0.0
COPEPODA				
CALANOIDA	48651.4	37481.3	59706.8	55333.3
CYCLOPOIDA	485.9	299.3	390.9	250.0
HARPACTICOIDA	194.3	149.6	342.0	83.3
BARNACLE NAUPLII	0.0	37.4	0.0	0.0
BARNACLE CYPRIS	194.3	37.4	97.7	41.7
AMPHIPODA	0.0	0.0	48.9	41.7
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	162.0	0.0	48.9	41.7
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	226.7	149.6	293.2	250.0
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	129.6	37.4	195.4	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	615.4	74.8	0.0	41.7
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	64.8	112.2	97.7	41.7
OTHERS	97.2	37.4	0.0	0.0

Table 8-1.(continued)

CRUISE/STATION/TOW	1/B/1	1/B/2	1/B/3	1/B/4
MEDUSAE	33.3	48.2	123.0	46.9
POLYCHAETA	33.3	48.2	61.5	0.0
BIVALVE LARVAE	0.0	0.0	61.5	0.0
GASTROPOD LARVAE	0.0	48.2	0.0	0.0
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	0.0	0.0
CLADOCERA				
EVADNE	33.3	48.2	61.5	46.9
PENILIA	266.7	530.7	307.6	187.5
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	0.0	0.0	0.0	0.0
COPEPODA				
CALANOIDA	50300.0	47956.1	69826.6	51515.6
CYCLOPIDA	433.3	578.9	799.8	234.4
HARPACTICOIDA	33.3	48.2	184.6	46.9
BARNACLE NAUPLII	0.0	0.0	0.0	0.0
BARNACLE CYPRIS	33.3	48.2	61.5	0.0
AMPHIPODA	0.0	0.0	0.0	0.0
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	66.7	0.0	184.6	0.0
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	61.5	0.0
OTHER CRUSTACEAN LARVAE	266.7	530.7	123.0	93.8
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	333.3	386.0	738.3	140.6
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	400.0	241.2	307.6	0.0
FISH LARVAE	33.3	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	33.3	0.0	123.0	93.8
OTHERS	100.0	48.2	0.0	0.0

Table 8-1. (continued)

CRUISE/STATION/TOW	1/C/1	1/C/2	1/C/3	1/C/4
MEDUSAE	16.9	184.5	127.7	59.9
POLYCHAETA	0.0	0.0	42.6	0.0
BIVALVE LARVAE	16.9	0.0	127.7	0.0
GASTROPOD LARVAE	0.0	0.0	0.0	0.0
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	36.9	0.0	0.0
CLADOCERA				
EVADNE	33.9	73.8	0.0	179.6
PENILIA	84.7	221.4	255.3	0.0
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	84.7	147.6	42.6	0.0
COPEPODA				
CALANOIDA	28355.9	38524.0	34638.3	24191.6
CYCLOPOIDA	220.3	221.4	468.1	239.5
HARPACTICOIDA	84.7	110.7	85.1	0.0
BARNACLE NAUPLII	0.0	0.0	42.6	0.0
BARNACLE CYPRIS	50.8	0.0	170.2	0.0
AMPHIPODA	0.0	36.9	0.0	0.0
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	16.9	36.9	42.6	59.9
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	203.4	258.3	851.1	329.3
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	254.2	442.8	468.1	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	16.9	73.8	42.6	29.9
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	33.9	0.0	170.2	0.0
OTHERS	33.9	36.9	0.0	0.0

Table 8-1. (continued)

CRUISE/STATION/TOW	2/A/1	2/A/2	2/A/3
MEDUSAE	46.1	119.7	49.3
POLYCHAETA	2.2	50.8	17.8
BIVALVE LARVAE	2.2	7.3	11.8
GASTROPOD LARVAE	4.4	3.6	2.0
HETEROPODA	0.0	0.0	0.0
PTEROPODA	0.0	10.9	9.9
CLADOCERA			
EVADNE	0.0	0.0	0.0
PENILIA	19.7	134.2	110.5
PODON	4.4	0.0	0.0
EUCONCHOECIA (OSTRACODA)	2.2	101.5	17.8
COPEPODA			
CALANOIDA	1184.2	1301.9	1373.3
CYCLOPOIDA	52.6	68.9	57.2
HARPACTICOIDA	0.0	0.0	0.0
BARNACLE NAUPLII	0.0	0.0	2.0
BARNACLE CYPRIS	0.0	18.1	13.8
AMPHIPODA	2.2	3.6	0.0
EUPHAUSIACEA	0.0	0.0	0.0
LUCIFER	8.8	10.9	0.0
MYSIDACEA	0.0	0.0	0.0
STOMATOPOD LARVAE	2.2	0.0	0.0
OTHER CRUSTACEANS	0.0	7.3	0.0
OTHER CRUSTACEAN LARVAE	46.1	39.9	39.5
TORNARIA LARVAE	0.0	0.0	0.0
DOLIOLIDA	399.1	736.1	193.4
SALPIDA	6.6	7.3	0.0
LARVACEA	15.4	7.3	5.9
FISH LARVAE	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0
CHAETOGNATHA	46.1	301.0	124.3
OTHERS	6.6	7.3	0.0

Table 8-1. (continued)

CRUISE/STATION/TOW	2/B/1	2/B/2	2/B/3	2/B/4
MEDUSAE	41.8	35.9	34.2	12.6
POLYCHAETA	31.3	227.5	31.8	10.8
BIVALVE LARVAE	7.0	7.2	0.0	0.6
GASTROPOD LARVAE	20.9	4.8	22.0	0.0
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	3.5	4.8	4.9	1.2
CLADOCERA				
EVADNE	0.0	0.0	0.0	1.8
PENILIA	174.1	110.2	117.4	34.9
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	264.6	172.4	183.5	0.6
COPEPODA				
CALANOIDA	1055.0	811.8	560.2	516.2
CYCLOPOIDA	149.7	88.6	78.3	8.4
HARPACTICOIDA	0.0	0.0	2.4	0.6
BARNACLE NAUPLII	0.0	0.0	0.0	0.6
BARNACLE CYPRIS	31.3	14.4	2.4	0.0
AMPHIPODA	10.4	2.4	12.2	2.4
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	7.0	7.2	4.9	3.6
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	4.8	0.0	0.0
OTHER CRUSTACEANS	0.0	7.2	0.0	0.0
OTHER CRUSTACEAN LARVAE	38.3	31.1	46.5	30.1
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	362.1	294.5	344.9	143.2
SALPIDA	20.9	19.2	41.6	6.6
LARVACEA	0.0	2.4	4.9	1.2
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	313.4	361.6	212.8	96.3
OTHERS	153.2	9.6	88.1	63.2

Table 8-1. (continued)

CRUISE/STATION/TOW	2/C/1	2/C/2	2/C/3	2/C/4
MEDUSAE	9.8	17.5	11.5	7.2
POLYCHAETA	6.8	1.6	2.0	4.3
BIVALVE LARVAE	2.3	1.6	1.3	1.4
GASTROPOD LARVAE	4.5	3.2	1.3	1.4
HETEROPODA	0.0	1.6	0.0	0.0
PTEROPODA	0.8	1.6	1.3	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	1.4
PENILIA	2.3	12.8	3.4	4.3
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	3.0	0.0	0.0	0.0
COPEPODA				
CALANOIDA	579.2	733.7	677.7	937.0
CYCLOPOIDA	17.4	14.4	9.4	5.8
HARPACTICOIDA	0.0	0.0	0.0	0.0
BARNACLE NAUPLII	0.0	0.0	0.0	0.0
BARNACLE CYPRIS	6.8	0.0	0.7	0.0
AMPHIPODA	0.0	0.0	2.0	2.9
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	3.8	3.2	7.4	13.0
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	27.2	35.1	30.3	44.6
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	155.0	127.6	134.1	66.2
SALPIDA	9.1	3.2	10.8	0.0
LARVACEA	2.3	3.2	2.0	2.9
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	133.8	141.9	99.0	146.8
OTHERS	75.6	25.5	36.4	11.5

Table 8-1. (continued)

CRUISE/STATION/TOW	3/A/1	3/A/2	3/A/3	3/A/4
MEDUSAE	26.1	40.9	35.3	10.3
POLYCHAETA	1.5	3.9	0.0	0.0
BIVALVE LARVAE	4.6	7.8	18.8	13.7
GASTROPOD LARVAE	7.7	3.9	2.4	13.7
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	0.0	0.0
CLADOCERA				
EVADNE	1.5	1.9	2.4	0.0
PENILIA	4.6	9.7	0.0	0.0
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	0.0	0.0	0.0	0.0
COPEPODA				
CALANOIDA	1211.8	1689.5	2881.4	4342.8
CYCLOPOIDA	146.1	225.8	244.8	96.0
HARPACTICOIDA	9.2	7.8	4.7	13.7
BARNACLE NAUPLII	1.5	3.9	2.4	3.4
BARNACLE CYPRIS	0.0	1.9	0.0	3.4
AMPHIPODA	3.1	1.9	2.4	0.0
EUPHAUSLACEA	0.0	0.0	0.0	0.0
LUCIFER	20.0	56.4	65.9	20.6
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	1.9	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	110.7	221.9	268.4	188.5
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	6.2	1.9	0.0	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	186.1	338.7	209.5	58.3
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	138.4	307.5	280.1	89.1
OTHERS	23.1	11.7	7.1	0.0

Table 8-1. (continued)

CRUISE/STATION/TOW	3/B/1	3/B/2	3/B/3	3/B/4
MEDUSAE	29.0	45.8	29.6	55.6
POLYCHAETA	0.0	0.0	0.0	6.2
BIVALVE LARVAE	0.0	12.0	0.0	6.2
GASTROPOD LARVAE	5.3	9.6	5.4	0.0
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	2.6	0.0	0.0	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	5.3	9.6	5.4	6.2
PUDON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	0.0	0.0	0.0	0.0
COPEPODA				
CALANOIDA	2534.3	2374.8	2174.4	3345.7
CYCLOPOIDA	256.1	366.1	306.8	222.2
HARPACTICOIDA	10.6	7.2	10.8	0.0
BARNACLE NAUPLII	0.0	0.0	2.7	0.0
BARNACLE CYPRIS	0.0	4.8	2.7	0.0
AMPHIPODA	18.5	9.6	16.1	6.2
EUPHAUSIACEA	0.0	4.8	0.0	0.0
LUCIFER	44.9	53.0	21.5	86.4
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	2.7	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	203.3	231.2	177.6	333.3
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	0.0	0.0	0.0	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	200.6	517.8	374.1	530.9
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	179.5	320.3	156.1	216.0
OTHERS	7.9	14.5	0.0	6.2

Table 8-1. (continued)

CRUISE/STATION/TOW	3/C/1	3/C/2	3/C/3	3/C/4
MEDUSAE	20.9	32.6	67.0	28.3
POLYCHAETA	7.0	7.2	2.8	0.0
BIVALVE LARVAE	0.0	14.5	5.6	2.2
GASTROPOD LARVAE	13.9	7.2	5.6	0.0
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	0.0	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	0.0	0.0	0.0	2.2
PODON	0.0	0.0	2.8	0.0
EUCONCHOECIA (OSTRACODA)	0.0	3.6	0.0	2.2
COPEPODA				
CALANOIDA	3224.7	2652.2	2723.2	1541.8
CYCLOPOIDA	571.1	282.6	357.1	141.6
HARPACTICOIDA	13.9	0.0	5.6	2.2
BARNACLE NAUPLII	0.0	0.0	0.0	0.0
BARNACLE CYPRIS	0.0	0.0	0.0	0.0
AMPHIPODA	7.0	18.1	16.7	0.0
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	34.8	94.2	41.9	47.9
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	2.8	2.2
OTHER CRUSTACEAN LARVAE	257.7	188.4	242.7	139.4
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	0.0	0.0	0.0	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	146.3	217.4	502.2	341.9
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	397.0	242.8	320.9	163.3
OTHERS	7.0	0.0	22.3	6.5

Table 8-1. (continued)

CRUISE/STATION/TOW	4/A/1	4/A/2	4/A/3	4/A/4
MEDUSAE	1.9	7.0	1.9	4.9
POLYCHAETA	1.9	0.0	1.0	1.0
BIVALVE LARVAE	64.4	59.0	137.5	169.8
GASTROPOD LARVAE	0.0	44.1	1.0	87.3
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	0.0	0.0
EVADNE	0.0	0.0	0.0	0.0
PENILIA	0.0	0.0	0.0	1.0
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	2.9	0.9	2.9	0.0
COPEPODA				
CALANOIDA	640.0	597.4	542.2	707.2
CYCLOPOIDA	249.9	234.4	270.1	269.7
HARPACTICOIDA	3.8	2.6	1.9	5.8
BARNACLE NAUPLII	0.0	0.0	0.0	0.0
BARNACLE CYPRIS	0.0	0.0	0.0	0.0
AMPHIPODA	5.8	3.5	3.9	0.0
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	1.0	4.4	4.8	5.8
MYSIDACEA	0.0	0.9	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	66.3	79.3	65.8	114.5
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	0.0	0.0	0.0	1.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	13.5	22.0	22.3	34.9
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	133.6	155.1	152.0	186.3
OTHERS	1.0	0.0	1.0	2.9

Table 8-1. (continued)

CRUISE/STATION/TOW	4/B/1	4/B/2	4/B/3	4/B/4
MEDUSAE	8.2	6.2	6.8	9.6
POLYCHAETA	0.0	1.2	2.5	1.2
BIVALVE LARVAE	75.0	88.6	71.7	114.6
GASTROPOD LARVAE	0.7	1.2	3.4	0.0
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	0.0	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	0.0	0.0	0.0	1.2
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	2.2	5.0	11.0	1.2
COPEPODA				
CALANOIDA	392.0	520.4	536.8	284.2
CYCLOPOIDA	219.7	243.5	233.0	248.4
HARPACTICOIDA	4.5	4.3	2.5	6.0
BARNACLE NAUPLII	0.0	0.0	0.0	0.0
BARNACLE CYPRIS	0.0	0.6	0.0	0.0
AMPHIPODA	4.5	4.3	9.3	1.2
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	3.0	3.7	2.5	13.1
MYSIDACEA	0.0	0.6	2.5	0.0
STOMATOPOD LARVAE	0.0	0.6	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	1.2
OTHER CRUSTACEAN LARVAE	132.1	84.9	70.9	66.9
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	0.0	0.0	0.0	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	14.8	9.3	7.6	44.2
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	145.5	145.6	108.9	482.5
OTHERS	0.0	0.0	0.0	1.2

Table 8-1. (continued)

CRUISE/STATION/TOW	4/C/1	4/C/2	4/C/3	4/C/4
MEDUSAE	5.7	5.7	7.7	4.0
POLYCHAETA	0.0	0.0	1.7	0.0
BIVALVE LARVAE	55.2	111.5	385.4	164.7
GASTROPOD LARVAE	0.0	0.6	0.0	0.7
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	0.0	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	0.0	0.0	0.0	0.0
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	2.2	5.7	0.0	0.0
COPEPODA				
CALANOIDA	234.9	405.6	477.9	283.1
CYCLOPOIDA	176.6	237.6	215.8	144.2
HARPACTICOIDA	2.2	2.5	4.3	3.3
BARNACLE NAUPLII	0.0	0.0	0.0	0.0
BARNACLE CYPRIS	0.0	0.0	0.0	0.0
AMPHIPODA	3.1	5.7	5.1	0.7
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	4.8	2.5	4.3	2.0
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.6	0.0	0.0
OTHER CRUSTACEAN LARVAE	44.3	79.8	87.4	168.7
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	0.0	0.0	0.0	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	1.3	2.5	18.0	7.3
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	57.4	110.9	336.6	293.7
OTHERS	0.4	0.6	0.0	0.0

Table 8-1.(continued)

CRUISE/STATION/TOW	5/A/1	5/A/2	5/A/3	5/A/4
MEDUSAE	0.0	0.0	0.0	0.0
POLYCHAETA	0.0	0.0	0.0	0.0
BIVALVE LARVAE	1201.8	934.2	1237.7	1353.9
GASTROPOD LARVAE	0.0	3.3	0.0	7.2
CLADOCERA				
HETEROPODA	0.0	0.0	4.9	0.0
PTEROPODA	0.0	0.0	0.0	7.2
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	4.2	0.0	0.0	0.0
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	12.6	29.6	54.2	21.5
COPEPODA				
CALANOIDA	2077.1	2207.2	2228.8	3596.0
CYCLOPOIDA	75.4	111.8	202.2	293.7
HARPACTICOIDA	4.2	6.6	4.9	7.2
BARNACLE NAUPLII	0.0	0.0	0.0	0.0
BARNACLE CYPRIS	0.0	0.0	0.0	0.0
AMPHIPODA	4.2	6.6	0.0	14.3
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	8.4	23.0	39.4	43.0
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	20.9	29.6	39.4	50.1
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	0.0	0.0	0.0	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	221.9	197.4	290.9	816.6
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	3.3	0.0	0.0
CHAETOGNATHA	96.3	118.4	187.4	265.0
OTHERS	0.0	0.0	0.0	7.2

Table 8-1. (continued)

CRUISE/STATION/TOW	5/B/1	5/B/2	5/B/3	5/B/4
MEDUSAE	0.0	0.0	4.4	0.0
POLYCHAETA	4.7	0.0	4.4	0.0
BIVALVE LARVAE	1032.2	471.4	852.9	1002.0
GASTROPOD LARVAE	4.7	11.6	0.0	20.4
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	8.7	6.8
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	0.0	5.8	13.1	13.6
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	4.7	17.5	13.1	34.1
COPEPODA				
CALANOIDA	3657.6	3532.4	3355.1	4137.7
CYCLOPOIDA	165.0	133.8	169.7	190.9
HARPACTICOIDA	0.0	0.0	0.0	6.8
BARNACLE NAUPLII	0.0	0.0	0.0	0.0
BARNACLE CYPRIS	0.0	0.0	0.0	6.8
AMPHIPODA	0.0	0.0	0.0	0.0
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	14.1	17.5	13.1	34.1
MYSIDACEA	0.0	0.0	8.7	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	14.1	23.3	17.4	47.7
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	0.0	0.0	0.0	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	249.8	261.9	213.2	381.7
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	254.5	128.0	143.6	361.3
OTHERS	0.0	0.0	0.0	0.0

Table 8-1. (continued)

CRUISE/STATION/TOW	5/C/1	5/C/2	5/C/3	5/C/4
MEDUSAE	0.0	0.0	0.0	0.0
POLYCHAETA	4.7	0.0	0.0	6.0
BIVALVE LARVAE	366.5	256.9	474.5	240.7
GASTROPOD LARVAE	9.4	5.1	0.0	120.3
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	0.0	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	4.7	0.0	0.0	12.0
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	0.0	5.1	10.2	18.1
COPEPODA				
CALANOIDA	5902.3	4464.7	4331.6	5758.1
CYCLOPOIDA	89.3	128.4	204.1	102.3
HARPACTICOIDA	0.0	0.0	0.0	6.0
BARNACLE NAUPLII	0.0	0.0	0.0	0.0
BARNACLE CYPRIS	0.0	5.1	0.0	0.0
AMPHIPODA	0.0	0.0	0.0	0.0
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	14.1	10.3	30.6	18.1
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	12.0
OTHER CRUSTACEAN LARVAE	14.1	15.4	51.0	48.1
TORNARIA LARVAE	0.0	0.0	0.0	0.0
DOLIOLIDA	0.0	0.0	0.0	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	108.1	169.5	148.0	174.5
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	352.4	287.7	275.5	330.9
OTHERS	0.0	0.0	0.0	0.0

Table 8-1. (continued)

CRUISE/STATION/TOW	6/A/1	6/A/2	6/A/3	6/A/4
MEDUSAE	32.6	36.7	12.6	33.4
POLYCHAETA	157.4	210.9	107.1	36.2
BIVALVE LARVAE	526.6	311.7	560.7	481.7
GASTROPOD LARVAE	43.4	32.1	44.1	16.7
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	10.9	13.8	0.0	13.9
CLADOCERA				
EVADNE	0.0	0.0	0.0	2.8
PENILIA	48.9	41.3	50.4	55.7
PODON	5.4	0.0	0.0	2.8
EUCONCHOECIA (OSTRACODA)	0.0	4.6	6.3	2.8
COPEPODA				
CALANOIDA	884.9	1104.7	1247.3	632.1
CYCLOPOIDA	298.6	275.0	189.0	172.6
HARPACTICOIDA	16.3	22.9	0.0	0.0
BARNACLE NAUPLII	0.0	9.2	25.2	2.8
BARNACLE CYPRIS	0.0	0.0	6.3	0.0
AMPHIPODA	10.9	0.0	12.6	2.8
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	0.0	0.0	0.0	0.0
MYSIDACEA	16.3	0.0	6.3	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	5.4	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	27.1	41.3	6.3	22.3
TORNARIA LARVAE	1161.8	1104.7	1045.7	0.0
DOLIOLIDA	5.4	13.8	12.6	11.1
SALPIDA	0.0	4.6	0.0	0.0
LARVACEA	276.9	348.4	453.6	320.2
FISH LARVAE	0.0	4.6	0.0	0.0
FISH EGGS	0.0	0.0	0.0	2.8
CHAETOGNATHA	331.2	499.6	441.0	150.4
OTHERS	0.0	0.0	0.0	30.6

Table 8-1. (continued)

CRUISE/STATION/TOW	6/B/1	6/B/2	6/B/3	6/B/4
MEDUSAE	48.7	14.5	63.9	115.2
POLYCHAETA	64.9	101.6	164.2	83.8
BIVALVE LARVAE	3033.3	2205.6	1231.8	4292.3
GASTROPOD LARVAE	48.7	29.0	54.7	52.3
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	16.2	0.0	0.0	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	48.7	159.6	164.2	188.4
PODON	16.2	14.5	9.1	20.9
EUCONCHOECIA (OSTRACODA)	0.0	0.0	0.0	0.0
COPEPODA				
CALANOIDA	1849.1	1828.4	1760.9	1706.4
CYCLOPOIDA	259.5	333.7	173.4	303.6
HARPACTICOIDA	16.2	14.5	9.1	41.9
BARNACLE NAUPLII	0.0	0.0	0.0	10.5
BARNACLE CYPRIS	0.0	0.0	0.0	0.0
AMPHIPODA	0.0	0.0	0.0	0.0
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	0.0	0.0	0.0	0.0
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	16.2	14.5	0.0	31.4
TORNARIA LARVAE	8824.0	8271.1	2709.9	1287.7
DOLIOLIDA	0.0	0.0	0.0	31.4
SALPIDA	0.0	0.0	0.0	10.5
LARVACEA	97.3	159.6	200.7	460.6
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	32.4	14.5	0.0	0.0
CHAETOGNATHA	243.3	304.7	337.6	439.7
OTHERS	0.0	0.0	0.0	0.0

Table 8-1. (continued)

CRUISE/STATION/TOW	6/C/1	6/C/2	6/C/3	6/C/4
MEDUSAE	21.7	5.1	33.3	20.2
POLYCHAETA	27.1	55.9	72.1	11.2
BIVALVE LARVAE	3006.5	1737.8	1098.5	1024.7
GASTROPOD LARVAE	16.3	45.7	27.7	13.5
HETEROPODA	0.0	5.1	5.5	0.0
PTEROPODA	27.1	20.3	22.2	13.5
CLADOCERA				
EVADNE	0.0	0.0	0.0	4.5
PENILIA	59.6	50.8	38.8	35.9
PODON	5.4	5.1	11.1	0.0
EUCONCHOECIA (OSTRACODA)	0.0	10.2	0.0	0.0
COPEPODA				
CALANOIDA	2193.9	2012.2	1808.7	917.0
CYCLOPOIDA	357.5	340.4	338.4	266.8
HARPACTICOIDA	54.2	91.5	44.4	17.9
BARNACLE NAUPLII	0.0	5.1	0.0	0.0
BARNACLE CYPRIS	0.0	5.1	0.0	0.0
AMPHIPODA	0.0	0.0	0.0	0.0
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	0.0	0.0	0.0	0.0
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	0.0	40.7	5.5	4.5
TORNARIA LARVAE	0.0	0.0	549.3	0.0
DOLIOLIDA	32.5	0.0	27.7	0.0
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	173.3	279.5	199.7	201.8
FISH LARVAE	0.0	5.1	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	81.3	116.9	105.4	60.5
OTHERS	59.6	25.4	0.0	159.2

Table 8-1. (continued)

CRUISE/STATION/TOW	7/A/1	7/A/2	7/A/3	7/A/4
MEDUSAE	13.0	29.4	25.2	10.5
POLYCHAETA	26.1	58.9	63.0	62.8
BIVALVE LARVAE	39.1	7.4	12.6	62.8
GASTROPOD LARVAE	0.0	0.0	12.6	10.5
HETEROPODA	0.0	7.4	0.0	10.5
PTEROPODA	0.0	0.0	0.0	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	32.6	7.4	37.8	20.9
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	32.6	95.7	75.6	31.4
COPEPODA				
CALANOIDA	4753.5	4532.7	3995.8	10762.1
CYCLOPOIDA	899.8	1317.1	983.2	753.8
HARPACTICOIDA	13.0	7.4	0.0	0.0
BARNACLE NAUPLII	0.0	14.7	75.6	73.3
BARNACLE CYPRIS	97.8	58.9	37.8	20.9
AMPHIPODA	13.0	0.0	0.0	10.5
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	0.0	0.0	0.0	0.0
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	13.0	14.7	25.2	52.3
TORNARIA LARVAE	0.0	0.0	680.7	0.0
DOLIOLIDA	19.6	29.4	37.8	41.9
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	176.1	309.1	567.2	261.7
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	6.5	0.0	0.0	0.0
CHAETOGNATHA	254.3	412.1	315.1	209.4
OTHERS	580.3	2465.0	1235.3	167.5

Table 8-1. (continued)

CRUISE/STATION/TOW	7/B/1	7/B/2	7/B/3	7/B/4
MEDUSAE	0.0	14.2	42.5	40.7
POLYCHAETA	20.7	0.0	0.0	67.8
BIVALVE LARVAE	31.1	14.2	14.2	94.9
GASTROPOD LARVAE	20.7	42.5	56.6	27.1
HETEROPODA	0.0	0.0	0.0	0.0
PTEROPODA	0.0	0.0	14.2	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	0.0	0.0	14.2	27.1
PODON	0.0	0.0	0.0	0.0
EUCONCHOECIA (OSTRACODA)	41.5	42.5	113.2	13.6
COPEPODA				
CALANOIDA	3910.8	6488.9	5476.4	9566.4
CYCLOPOIDA	2157.7	1119.3	1301.9	2059.6
HARPACTICOIDA	10.4	14.2	0.0	40.7
BARNACLE NAUPLII	0.0	0.0	14.2	0.0
BARNACLE CYPRIS	580.9	3272.8	3877.4	2330.6
AMPHIPODA	0.0	28.3	14.2	13.6
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	0.0	0.0	0.0	0.0
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	0.0	0.0
OTHER CRUSTACEAN LARVAE	10.4	56.7	0.0	40.7
TORNARIA LARVAE	4087.1	3782.8	3820.8	54.2
DOLIOLIDA	41.5	28.3	56.6	67.8
SALPIDA	0.0	0.0	0.0	0.0
LARVACEA	757.3	453.4	721.7	1653.1
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	809.1	212.5	283.0	406.5
OTHERS	0.0	0.0	0.0	230.4

Table 8-1. (continued)

CRUISE/STATION/TOW	7/C/1	7/C/2	7/C/3	7/C/4
MEDUSAE	15.1	35.3	39.9	4.7
POLYCHAETA	45.3	63.5	49.9	33.2
BIVALVE LARVAE	15.1	28.2	19.9	9.5
GASTROPOD LARVAE	7.6	14.1	24.9	52.2
HETEROPODA	0.0	0.0	5.0	0.0
PTEROPODA	3.8	0.0	0.0	0.0
CLADOCERA				
EVADNE	0.0	0.0	0.0	0.0
PENILIA	11.3	28.2	0.0	4.7
PODON	11.3	7.1	5.0	9.5
EUCONCHOECIA (OSTRACODA)	18.9	63.5	64.8	23.7
COPEPODA				
CALANOIDA	2639.7	2742.5	2263.2	3875.7
CYCLOPOIDA	1087.6	1247.9	1410.8	2016.1
HARPACTICOIDA	18.9	21.2	5.0	23.7
BARNACLE NAUPLII	3.8	21.2	0.0	4.7
BARNACLE CYPRIS	162.4	902.4	658.0	33.2
AMPHIPODA	3.8	14.1	10.0	4.7
EUPHAUSIACEA	0.0	0.0	0.0	0.0
LUCIFER	0.0	0.0	0.0	0.0
MYSIDACEA	0.0	0.0	0.0	0.0
STOMATOPOD LARVAE	0.0	0.0	0.0	0.0
OTHER CRUSTACEANS	0.0	0.0	5.0	0.0
OTHER CRUSTACEAN LARVAE	37.8	14.1	19.9	19.0
TORNARIA LARVAE	0.0	49.4	159.5	0.0
DOLIOLIDA	18.9	35.3	15.0	33.2
SALPIDA	3.8	0.0	0.0	4.7
LARVACEA	389.0	571.1	383.8	640.4
FISH LARVAE	0.0	0.0	0.0	0.0
FISH EGGS	0.0	0.0	0.0	0.0
CHAETOGNATHA	173.7	239.7	269.2	327.3
OTHERS	22.7	211.5	129.6	4.7

Table 8-2. Mean densities (#/m³) of copepod species from seven zooplankton cruises made between June 1979 and January 1980 near the diffuser site. Mean values from three subsamples are listed for the three replicate tows taken at each station (A,B,C).

CRUISE/STATION/TOW	1/A/1	1/A/2	1/A/3	1/A/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	12664.9	8715.7	14022.8	7250.0
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	64.8	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	323.9	74.8	390.9	208.3
CLAUSOCALANUS FURCATUS	64.8	0.0	0.0	0.0
CLAUSOCALANUS JOBEI	32.4	74.8	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	0.0	0.0	97.7	0.0
EUCHAETA PARACONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	162.0	74.8	146.6	83.3
PARACALANUS INDICUS	0.0	0.0	0.0	0.0
PARACALANUS QUASIMODO	971.7	785.5	1612.4	958.3
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	0.0	0.0
TEMORA TURBINATA	583.0	224.4	537.5	333.3
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	32.4	37.4	0.0	0.0
CORYCAEUS AMERICANUS	32.4	37.4	0.0	0.0
CORYCAEUS GIESBRECHTI	0.0	0.0	0.0	0.0
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	32.4	0.0	48.9	0.0
OITHONA NANA	0.0	74.8	0.0	41.7
OITHONA PLUMIFERA	32.4	0.0	48.9	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	32.4	0.0	0.0	0.0
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	1/B/1	1/B/2	1/B/3	1/B/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	11566.7	10662.3	14826.6	7078.1
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	46.9
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	200.0	144.7	0.0	281.3
CLAUSOCALANUS FURCATUS	0.0	48.2	0.0	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	33.3	48.2	0.0	0.0
EUCHAETA PARACONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	133.3	96.5	369.1	0.0
PARACALANUS INDICUS	0.0	48.2	0.0	0.0
PARACALANUS QUASIMODO	1000.0	964.9	1045.9	1359.4
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	0.0	0.0
TEMORA TURBINATA	400.0	482.5	369.1	93.8
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	0.0	48.2	61.5	0.0
CORYCAEUS AMERICANUS	33.3	0.0	0.0	0.0
CORYCAEUS GIESBRECHTI	0.0	48.2	0.0	0.0
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	66.7	96.5	61.5	93.8
OITHONA NANA	0.0	96.5	0.0	0.0
OITHONA PLUMIFERA	0.0	0.0	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	33.3	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	0.0	0.0	0.0	0.0
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	1/C/1	1/C/2	1/C/3	1/C/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	10813.6	14723.2	9021.3	1886.2
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	16.9	0.0	0.0	0.0
CALANOPIA AMERICANA	16.9	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	36.9	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	118.6	36.9	170.2	269.5
CLAUSOCALANUS FURCATUS	0.0	0.0	0.0	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	33.9	0.0	0.0	29.9
EUCHAETA PARACONGINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	33.9	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	84.7	36.9	42.6	149.7
PARACALANUS INDICUS	0.0	0.0	0.0	0.0
PARACALANUS QUASIMODO	254.2	553.5	255.3	1107.8
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	36.9	0.0	0.0
TEMORA TURBINATA	271.2	369.0	85.1	179.6
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	33.9	0.0	42.6	0.0
CORYCAEUS AMERICANUS	0.0	73.8	42.6	0.0
CORYCAEUS GIESBRECHTI	0.0	0.0	0.0	0.0
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	16.9	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	29.9
OITHONA NANA	0.0	0.0	0.0	0.0
OITHONA PLUMIFERA	16.9	36.9	42.6	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	0.0	36.9	0.0	0.0
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	2/A/1	2/A/2	2/A/3
CALANOIDA			
ACARTIA DANAE	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0
ACARTIA TONSA	6.6	7.3	0.0
ACROCALANUS ANDERSONI	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	3.6	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	118.4	72.5	55.2
CLAUSOCALANUS FURCATUS	0.0	0.0	23.7
CLAUSOCALANUS JOBEI	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0
EUCALANUS PILEATUS	6.6	14.5	13.8
EUCHAETA PARAONCINNA	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	0.0
PARACALANUS INDICUS	0.0	0.0	0.0
PARACALANUS QUASIMODO	83.3	87.0	35.5
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	0.0
TEMORA TURBINATA	0.0	25.4	5.9
UNDINULA VULGARIS	0.0	0.0	0.0
CYCLOPOIDA			
COPILIA MIRABILIS	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	15.4	21.8	23.7
CORYCAEUS AMERICANUS	0.0	10.9	2.0
CORYCAEUS GIESBRECHTI	0.0	0.0	0.0
CORYCAEUS SPECIOSUS	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0
OITHONA NANA	0.0	0.0	0.0
OITHONA PLUMIFERA	0.0	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0
ONCAEA MEDIA	0.0	3.6	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0
ONCAEA VENUSTA	0.0	3.6	0.0
SAPPHIRINA NIGROMACULATA	6.6	0.0	0.0
CYCLOPOID SPP.	0.0	3.6	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	2/B/1	2/B/2	2/B/3	2/B/4
CALANOIDA				
ACARTIA DANAЕ	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	10.4	26.3	12.2	12.6
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	114.9	107.8	93.0	173.3
CLAUSOCALANUS FURCATUS	0.0	0.0	0.0	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	34.8	19.2	9.8	4.8
EUCHAETA PARACONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	3.5	0.0	0.0	0.6
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	0.0	0.0
PARACALANUS INDICUS	3.5	0.0	0.0	0.6
PARACALANUS QUASIMODO	191.5	81.4	53.8	46.9
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	2.4	0.6
TEMORA TURBINATA	135.8	117.3	22.0	8.4
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.6
CORYCAEUS AMAZONICUS	7.0	2.4	0.0	0.6
CORYCAEUS AMERICANUS	48.7	16.8	9.8	0.0
CORYCAEUS GIESBRECHTI	0.0	0.0	0.0	1.2
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	0.0	0.0	0.0
OITHONA PLUMIFERA	0.0	0.0	0.0	0.6
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	10.4	12.0	12.2	0.0
SAPPHIRINA NIGROMACULATA	3.5	2.4	2.4	0.6
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	2/C/1	2/C/2	2/C/3	2/C/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	18.9	28.7	29.0	31.7
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	150.5	188.2	148.2	312.3
CLAUSOCALANUS FURCATUS	0.0	0.0	0.0	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	6.8	1.6	2.0	4.3
EUCHAETA PARACONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	0.0	0.0
PARACALANUS INDICUS	0.0	0.0	0.7	0.0
PARACALANUS QUASIMODO	42.3	33.5	80.8	28.8
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	2.3	0.0	0.7	0.0
TEMORA TURBINATA	0.8	0.0	0.7	1.4
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	4.5	1.6	0.0	0.0
CORYCAEUS AMERICANUS	0.8	0.0	0.0	0.0
CORYCAEUS GIESBRECHTI	0.0	0.0	0.0	1.4
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	0.0	0.0	0.0
OITHONA PLUMIFERA	0.0	0.0	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	1.5	0.0	0.0	0.0
SAPPHIRINA NIGROMACULATA	0.0	1.6	0.7	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2.(continued)

CRUISE/STATION/TOW	3/A/1	3/A/2	3/A/3	3/A/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	76.9	118.7	317.8	647.8
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	6.2	15.6	11.8	0.0
CLAUSOCALANUS FURCATUS	0.0	0.0	0.0	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	12.3	9.7	35.3	3.4
EUCHAETA PARAONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	1.5	1.9	2.4	3.4
PARACALANUS INDICUS	0.0	1.9	0.0	0.0
PARACALANUS QUASIMODO	9.2	5.8	18.8	6.9
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	0.0	0.0
TEMORA TURBINATA	23.1	37.0	21.2	102.8
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	10.8	13.6	9.4	6.9
CORYCAEUS AMERICANUS	0.0	0.0	0.0	0.0
CORYCAEUS GIESBRECHTI	4.6	5.8	7.1	3.4
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	1.5	0.0	0.0	0.0
OITHONA NANA	1.5	11.7	2.4	10.3
OITHONA PLUMIFERA	1.5	1.9	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	13.8	21.4	30.6	10.3
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 3-2.(continued)

CRUISE/STATION/TOW	3/B/1	3/B/2	3/B/3	3/B/4
CALANOIDA				
ACARTIA DANAÉ	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	89.8	84.3	94.2	129.6
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	37.0	69.8	80.7	104.9
CLAUSOCALANUS FURCATUS	0.0	0.0	0.0	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	103.0	77.1	75.3	74.1
EUCHAETA PARAONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	2.6	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	2.7	0.0
PARACALANUS CRASSIROSTRIS	0.0	2.4	5.4	6.2
PARACALANUS INDICUS	2.6	0.0	0.0	0.0
PARACALANUS QUASIMODO	84.5	57.8	78.0	67.9
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	13.2	26.5	13.5	6.2
TEMORA TURBINATA	89.8	96.3	61.9	154.3
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	52.8	77.1	45.7	18.5
CORYCAEUS AMERICANUS	0.0	0.0	0.0	0.0
CORYCAEUS GIESBRECHTI	18.5	7.2	2.7	12.3
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	18.5	24.1	51.1	12.3
OITHONA PLUMIFERA	0.0	0.0	2.7	6.2
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	23.8	21.7	8.1	24.7
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	5.4	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	3/C/1	3/C/2	3/C/3	3/C/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	76.6	43.5	61.4	71.9
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	2.8	2.2
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	55.7	39.9	44.6	28.3
CLAUSOCALANUS FURCATUS	0.0	0.0	0.0	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	76.6	76.1	103.2	54.4
EUCHAETA PARAONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	7.0	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	0.0	0.0
PARACALANUS INDICUS	0.0	10.9	5.6	0.0
PARACALANUS QUASIMODO	111.4	123.2	217.6	119.8
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	7.0	43.5	44.6	58.8
TEMORA TURBINATA	146.3	97.8	58.6	63.2
UNDINULA VULGARIS	0.0	0.0	0.0	2.2
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	146.3	54.3	67.0	32.7
CORYCAEUS AMERICANUS	0.0	3.6	0.0	0.0
CORYCAEUS GIESBRECHTI	20.9	10.9	16.7	2.2
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	0.0	2.8	0.0
OITHONA PLUMIFERA	7.0	3.6	0.0	0.0
OITHONA SPP.	7.0	7.2	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	20.9	36.2	30.7	30.5
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	4/A/1	4/A/2	4/A/3	4/A/4
CALANOIDA				
ACARTIA DANAЕ	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	66.3	77.5	39.7	41.7
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	33.6	29.1	33.9	16.5
CLAUSOCALANUS FURCATUS	0.0	0.0	0.0	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	10.6	8.8	3.9	4.9
EUCHAETA PARACONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.9	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	1.9	2.6	4.8	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	0.0	0.0
PARACALANUS INDICUS	34.6	0.0	21.3	0.0
PARACALANUS QUASIMODO	88.4	103.1	90.0	45.6
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	1.9	0.0	1.0	1.0
TEMORA TURBINATA	18.3	4.4	3.9	9.7
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	3.8	11.5	7.7	11.6
CORYCAEUS AMERICANUS	0.0	0.0	0.0	0.0
CORYCAEUS GIESBRECHTI	44.2	37.0	31.0	16.5
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	1.0	0.0	0.0	1.9
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	1.9	1.8	0.0	2.9
OITHONA PLUMIFERA	1.0	0.0	1.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	1.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	52.9	47.6	66.8	77.6
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	4/B/1	4/B/2	4/B/3	4/B/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	42.3	47.1	79.3	15.5
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.8	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.6	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	25.2	24.8	21.9	9.6
CLAUSOCALANUS FURCATUS	0.0	0.0	0.0	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	9.7	17.3	10.1	6.0
EUCHAETA PARACONCINNA	0.0	0.0	0.8	0.0
LABIDOCERA AESTIVA	0.0	0.6	0.0	1.2
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.6	0.0	0.0
PARACALANUS ACULEATUS	0.7	2.5	4.2	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	0.0	0.0
PARACALANUS INDICUS	0.0	11.8	0.0	0.0
PARACALANUS QUASIMODO	60.9	112.1	126.6	22.7
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.7	0.0	0.0	0.0
TEMORA STYLIFERA	0.7	3.1	1.7	1.2
TEMORA TURBINATA	8.2	13.6	6.8	6.0
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	16.3	14.3	16.0	25.1
CORYCAEUS AMERICANUS	1.5	0.6	0.0	0.0
CORYCAEUS GIESBRECHTI	28.2	29.7	38.0	31.1
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	1.2	2.5	0.0
OITHONA PLUMIFERA	0.0	0.6	0.0	1.2
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	46.8	64.4	43.0	38.2
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	4/C/1	4/C/2	4/C/3	4/C/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	13.1	37.4	64.2	24.5
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.6	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.6	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	10.1	25.3	23.1	5.3
CLAUSOCALANUS FURCATUS	0.0	0.0	0.0	0.7
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	1.8	4.4	6.0	1.3
EUCHAETA PARAONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.4	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	0.0	0.0
PARACALANUS INDICUS	0.0	2.5	3.4	0.0
PARACALANUS QUASIMODO	13.1	20.3	35.1	0.7
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	1.7	0.0
TEMORA TURBINATA	8.3	17.1	18.0	1.3
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	9.6	10.1	30.0	11.9
CORYCAEUS AMERICANUS	0.0	0.0	0.9	1.3
CORYCAEUS GIESBRECHTI	14.9	28.5	29.1	11.2
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	1.3	2.6	0.7
OITHONA PLUMIFERA	0.4	0.0	0.0	0.7
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONFIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.6	0.0	0.0
ONCAEA VENUSTA	56.1	55.1	23.1	30.4
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2.(continued)

CRUISE/STATION/TOW	5/A/1	5/A/2	5/A/3	5/A/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	4.2	0.0	0.0	0.0
ACARTIA TONSA	309.9	391.4	369.8	637.5
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	6.6	24.7	7.2
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	4.2	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	4.2	13.2	24.7	35.8
CLAUSOCALANUS FURCATUS	8.4	3.3	4.9	0.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	46.1	55.9	64.1	57.3
EUCHAETA PARACONCINNA	0.0	0.0	0.0	7.2
LABIDOCERA AESTIVA	12.6	9.9	9.9	28.7
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	3.3	0.0	0.0
PARACALANUS CRASSIROSTRIS	8.4	6.6	4.9	14.3
PARACALANUS INDICUS	0.0	0.0	4.9	0.0
PARACALANUS QUASIMODO	117.3	200.7	187.4	322.3
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	14.8	0.0
TEMORA TURBINATA	62.8	72.4	19.7	43.0
UNDINULA VULGARIS	0.0	3.3	4.9	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	4.2	0.0	29.6	7.2
CORYCAEUS AMERICANUS	0.0	0.0	0.0	7.2
CORYCAEUS GIESBRECHTI	8.4	13.2	9.9	21.5
CORYCAEUS SPECIOSUS	4.2	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	14.3
OITHONA NANA	4.2	6.6	14.8	14.3
OITHONA PLUMIFERA	0.0	0.0	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	0.0	29.6	24.7	35.8
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	5/B/1	5/B/2	5/B/3	5/B/4
CALANOIDA				
ACARTIA DANAЕ	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	645.7	744.9	522.2	804.4
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	5.8	13.1	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	23.6	0.0	13.1	20.4
CLAUSOCALANUS FURCATUS	0.0	0.0	4.4	6.8
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	75.4	17.5	17.4	47.7
EUCHAETA PARAONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	28.3	17.5	21.8	34.1
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	4.7	0.0	0.0	0.0
PARACALANUS ACULEATUS	9.4	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	14.1	5.8	0.0	0.0
PARACALANUS INDICUS	4.7	5.8	17.4	0.0
PARACALANUS QUASIMODO	169.7	192.0	139.3	286.3
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	0.0	0.0
TEMORA TURBINATA	23.6	34.9	13.1	34.1
UNDINULA VULGARIS	4.7	0.0	4.4	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	42.4	5.8	21.8	20.4
CORYCAEUS AMERICANUS	0.0	0.0	0.0	0.0
CORYCAEUS GIESBRECHTI	9.4	23.3	13.1	54.5
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	5.8	13.1	0.0
OITHONA PLUMIFERA	0.0	0.0	4.4	6.8
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	18.9	5.8	8.7	27.3
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 3-2. (continued)

CRUISE/STATION/TOW	5/C/1	5/C/2	5/C/3	5/C/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	1381.6	1161.1	943.9	1101.1
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	5.1	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	5.1	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	9.4	0.0	25.5	0.0
CLAUSSOCALANUS FURCATUS	9.4	25.7	15.3	6.0
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	42.3	36.0	71.4	36.1
EUCHAETA PARACONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	37.6	5.1	45.9	42.1
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	4.7	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	4.7	5.1	15.3	6.0
PARACALANUS INDICUS	0.0	0.0	5.1	102.3
PARACALANUS QUASIMODO	178.6	118.2	219.4	114.3
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	4.7	0.0	0.0	0.0
TEMORA TURBINATA	37.6	20.6	20.4	12.0
UNDINULA VULGARIS	0.0	0.0	5.1	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	4.7	15.4	35.7	18.1
CORYCAEUS AMERICANUS	0.0	0.0	0.0	0.0
CORYCAEUS GIESBRECHTI	23.5	10.3	25.5	12.0
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	0.0	0.0	0.0
OITHONA PLUMIFERA	0.0	0.0	0.0	12.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	28.2	20.6	30.6	12.0
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2.(continued)

CRUISE/STATION/TOW	6/A/1	6/A/2	6/A/3	6/A/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	21.7	27.5	50.4	61.3
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	6.3	0.0
CENTROPAGES VELIFICATUS	10.9	0.0	0.0	0.0
CLAUSOCALANUS FURCATUS	0.0	18.3	0.0	25.1
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	0.0	13.8	12.6	0.0
EUCHAETA PARAONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	9.2	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	2.8
PARACALANUS CRASSIROSTRIS	5.4	9.2	0.0	13.9
PARACALANUS INDICUS	0.0	0.0	0.0	11.1
PARACALANUS QUASIMODO	347.4	504.2	592.2	323.0
PARUNDINELLA SPINODENTICULA	0.0	4.6	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	0.0	0.0
TEMORA TURBINATA	43.4	68.8	37.8	11.1
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	43.4	45.8	12.6	8.4
CORYCAEUS AMERICANUS	54.3	32.1	31.5	11.1
CORYCAEUS GIESBRECHTI	5.4	4.6	0.0	2.8
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	0.0	6.3	8.4
OITHONA PLUMIFERA	0.0	0.0	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	6.3	2.8
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	38.0	59.6	6.3	47.3
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	6/B/1	6/B/2	6/B/3	6/B/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	52.3
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	64.9	116.1	36.5	31.4
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	10.5
CENTROPAGES VELIFICATUS	16.2	29.0	27.4	31.4
CLAUSOCALANUS FURCATUS	16.2	29.0	36.5	41.9
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	0.0
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	16.2	0.0	0.0	10.5
EUCHAETA PARACONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	0.0	10.5
PARACALANUS INDICUS	32.4	14.5	27.4	10.5
PARACALANUS QUASIMODO	616.4	464.3	492.7	827.1
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	0.0	0.0
TEMORA TURBINATA	48.7	43.5	18.2	62.8
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	16.2	72.6	45.6	20.9
CORYCAEUS AMERICANUS	32.4	43.5	63.9	20.9
CORYCAEUS GIESBRECHTI	0.0	29.0	18.2	20.9
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	16.2	29.0	0.0	0.0
OITHONA PLUMIFERA	0.0	0.0	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	16.2	0.0	0.0	10.5
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	48.7	58.0	9.1	20.9
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2.(continued)

CRUISE/STATION/TOW	6/C/1	6/C/2	6/C/3	6/C/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	0.0	15.2	22.2	6.7
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	5.1	0.0	0.0
CENTROPAGES HAMATUS	0.0	0.0	0.0	0.0
CENTROPAGES VELIFICATUS	5.4	20.3	22.2	6.7
CLAUSOCALANUS FURCATUS	43.3	30.5	55.5	35.9
CLAUSOCALANUS JOBEI	0.0	0.0	0.0	2.2
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	16.3	0.0	5.5	6.7
EUCHAETA PARACONCINNA	0.0	5.1	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	5.5	2.2
PARACALANUS INDICUS	10.8	35.6	0.0	11.2
PARACALANUS QUASIMODO	1088.8	1148.4	1142.9	670.4
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	5.4	0.0	0.0	0.0
TEMORA TURBINATA	43.3	55.9	27.7	17.9
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	5.4	5.1	11.1	2.2
CORYCAEUS AMERICANUS	5.4	15.2	5.5	6.7
CORYCAEUS GIESBRECHTI	10.8	10.2	11.1	13.5
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	2.2
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	0.0	0.0	0.0
OITHONA PLUMIFERA	0.0	0.0	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	5.4	0.0	5.5	9.0
ONCAEA MEDITERRANEA	0.0	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	54.2	116.9	105.4	69.5
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2.(continued)

CRUISE/STATION/TOW	7/A/1	7/A/2	7/A/3	7/A/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	860.7	993.4	731.1	2502.1
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	19.6	29.4	37.8	41.9
CENTROPAGES VELIFICATUS	6.5	7.4	0.0	20.9
CLAUSOCALANUS FURCATUS	58.7	44.2	50.4	52.3
CLAUSOCALANUS JOBEI	6.5	44.2	0.0	10.5
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS FILEATUS	13.0	0.0	0.0	10.5
EUCHAETA PARACONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	13.0	22.1	0.0	20.9
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	12.6	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	13.0	0.0	0.0	10.5
PARACALANUS INDICUS	0.0	0.0	0.0	0.0
PARACALANUS QUASIMODO	176.1	184.0	88.2	240.8
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	0.0	0.0	10.5
TEMORA TURBINATA	32.6	66.2	50.4	62.8
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	52.2	36.8	25.2	10.5
CORYCAEUS AMERICANUS	97.8	95.7	100.8	52.3
CORYCAEUS GIESBRECHTI	0.0	0.0	0.0	0.0
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	6.5	7.4	0.0	0.0
OITHONA PLUMIFERA	0.0	22.1	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	12.6	0.0
ONCAEA MEDITERRANEA	6.5	0.0	0.0	10.5
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	13.0	0.0	25.2	10.5
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2.(continued)

CRUISE/STATION/TOW	7/B/1	7/B/2	7/B/3	7/B/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	975.1	694.2	1089.6	1341.5
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	41.5	0.0	0.0	13.6
CENTROPAGES VELIFICATUS	10.4	14.2	14.2	0.0
CLAUSOCALANUS FURCATUS	20.7	28.3	14.2	40.7
CLAUSOCALANUS JOBEI	10.4	28.3	0.0	13.6
CTENOCALANUS VANUS	0.0	0.0	0.0	0.0
EUCALANUS PILEATUS	31.1	28.3	28.3	40.7
EUCHAETA PARAONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	0.0	0.0	14.2	0.0
LUCICUTIA PARACLAUSI	10.4	0.0	0.0	0.0
NANNOCALANUS MINOR	0.0	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	14.2	27.1
PARACALANUS INDICUS	0.0	0.0	0.0	27.1
PARACALANUS QUASIMODO	207.5	340.0	410.4	487.8
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	0.0	14.2	0.0	0.0
TEMORA TURBINATA	41.5	28.3	28.3	67.8
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	103.7	42.5	28.3	40.7
CORYCAEUS AMERICANUS	332.0	141.7	212.3	216.8
CORYCAEUS GIESBRECHTI	10.4	0.0	0.0	0.0
CORYCAEUS SPECIOSUS	0.0	0.0	0.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	0.0
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	0.0	0.0	0.0
OITHONA PLUMIFERA	0.0	0.0	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	13.6
ONCAEA CONIFERA	0.0	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	0.0	0.0
ONCAEA MEDITERRANEA	51.9	0.0	0.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	41.5	14.2	0.0	67.8
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-2. (continued)

CRUISE/STATION/TOW	7/C/1	7/C/2	7/C/3	7/C/4
CALANOIDA				
ACARTIA DANAE	0.0	0.0	0.0	0.0
ACARTIA LILLJEBORGII	0.0	0.0	0.0	0.0
ACARTIA TONSA	456.9	444.2	239.3	398.5
ACROCALANUS ANDERSONI	0.0	0.0	0.0	0.0
ACROCALANUS LONGICORNIS	0.0	0.0	0.0	0.0
CALANOPIA AMERICANA	0.0	0.0	0.0	0.0
CALOCALANUS PAVONINUS	0.0	0.0	0.0	0.0
CALOCALANUS STYLIREMIS	0.0	0.0	0.0	0.0
CENTROPAGES HAMATUS	26.4	7.1	5.0	9.5
CENTROPAGES VELIFICATUS	3.8	7.1	0.0	0.0
CLAUSOCALANUS FURCATIS	22.7	42.3	24.9	42.7
CLAUSOCALANUS JOBEI	3.8	21.2	10.0	33.2
CTENOCALANUS VANUS	0.0	7.1	0.0	0.0
EUCALANUS PILEATUS	3.8	14.1	10.0	14.2
EUCHAETA PARACONCINNA	0.0	0.0	0.0	0.0
LABIDOCERA AESTIVA	3.8	0.0	0.0	0.0
LUCICUTIA PARACLAUSI	0.0	0.0	0.0	0.0
NANNOCALANUS MINOR	3.8	0.0	0.0	0.0
PARACALANUS ACULEATUS	0.0	0.0	0.0	0.0
PARACALANUS CRASSIROSTRIS	0.0	0.0	5.0	9.5
PARACALANUS INDICUS	15.1	14.1	10.0	9.5
PARACALANUS QUASIMODO	468.3	444.2	344.0	602.5
PARUNDINELLA SPINODENTICULA	0.0	0.0	0.0	0.0
PONTELLINA PLUMATA	0.0	0.0	0.0	0.0
TEMORA STYLIFERA	3.8	0.0	0.0	0.0
TEMORA TURBINATA	45.3	42.3	34.9	47.4
UNDINULA VULGARIS	0.0	0.0	0.0	0.0
CYCLOPOIDA				
COPILIA MIRABILIS	0.0	0.0	0.0	0.0
CORYCAEUS AMAZONICUS	11.3	28.2	39.9	33.2
CORYCAEUS AMERICANUS	98.2	204.5	154.5	132.8
CORYCAEUS GIESBRECHTI	0.0	7.1	0.0	4.7
CORYCAEUS SPECIOSUS	0.0	0.0	5.0	0.0
FARRANULA GRACILIS	0.0	0.0	0.0	4.7
OITHONA COLCARVA	0.0	0.0	0.0	0.0
OITHONA NANA	0.0	0.0	19.9	0.0
OITHONA PLUMIFERA	0.0	0.0	0.0	0.0
OITHONA SPP.	0.0	0.0	0.0	0.0
ONCAEA CONIFERA	3.8	0.0	0.0	0.0
ONCAEA MEDIA	0.0	0.0	5.0	0.0
ONCAEA MEDITERRANEA	15.1	0.0	10.0	0.0
ONCAEA SIMILIS	0.0	0.0	0.0	0.0
ONCAEA VENUSTA	34.0	42.3	34.9	28.5
SAPPHIRINA NIGROMACULATA	0.0	0.0	0.0	0.0
CYCLOPOID SPP.	0.0	0.0	0.0	0.0

Table 8-3. Monthly densities of zooplankton groups at Station W2
for the years 1963 and 1964.

PHYLUM group	3-3-63	4-3-63	5-7-63	5-20-63	6-26-63
CNIDARIA					
medusae	76.8	34.6	120.0	30.4	24.3
ANNELIDA					
polychaete larvae	64.0	39.7	24.0	8.7	0.6
MOLLUSCA					
bivalve larvae	27.6	32.0	34.0	45.6	6.4
gastropod larvae	12.8	21.8	32.0	34.7	62.7
Heteropoda	0.0	0.0	0.0	0.0	1.9
Pteropoda	0.0	0.0	0.0	4.3	15.4
ARTHROPODA					
Crustacea					
Cladocera					
<i>Evdane</i>	0.0	1.3	2.0	0.0	16.0
<i>Penilia</i>	2.0	37.1	718.0	507.7	11.5
<i>Podon</i>	0.0	1.3	26.0	514.2	97.9
Ostracoda					
<i>Euconchoecia</i>	26.6	1.3	0.0	0.0	0.0
Copepoda					
Calanoida	598.6	1729.3	950.0	546.7	309.8
Cyclopoida	301.3	551.7	334.0	154.0	129.3
Harpacticoida	124.1	5.1	106.0	134.5	0.0
Cirripedia					
barnacle nauplii	0.0	48.6	12.0	0.0	0.0
barnacle cypris	0.0	0.0	0.0	10.8	0.0
Malacostraca					
Amphipoda	0.0	1.3	4.0	8.7	3.2
Cumacea	0.0	0.0	0.0	0.0	0.0
Isopoda	0.0	0.0	0.0	0.0	0.0
<i>Lucifer</i>	0.0	0.0	0.0	0.0	0.0
Mysidacea	0.0	0.0	6.0	4.3	0.0
Stomatopod larvae	0.0	0.0	2.0	2.2	1.3
Other crustaceans	0.0	0.0	0.0	0.0	0.0
Other crustacean larvae	23.6	44.8	50.0	47.7	12.2
CHORDATA					
Urochordata					
Thaliacea					
<i>Doliolum</i>	0.0	70.4	0.0	8.7	6.4
<i>Salpa</i>	0.0	0.0	4.0	60.7	3.2
Larvacea	39.4	112.6	196.0	199.6	23.0
Vertebrata					
fish larvae	2.0	1.3	0.0	0.0	8.3
fish eggs	0.0	0.0	16.0	4.3	4.5
CHAETOGNATHA	43.3	12.8	26.0	41.2	32.0
Others	7.9	1.3	0.0	28.2	0.6

Table 8-3.(continued)

PHYLUM group	7-17-63	10-2-63	10-31-63	11-30-63	12-19-63
CNIDARIA					
medusae	20.1	25.6	17.9	20.5	45.2
ANNELIDA					
polychaete larvae	5.9	115.2	5.8	43.0	43.3
MOLLUSCA					
bivalve larvae	24.9	149.8	25.0	235.5	94.1
gastropod larvae	66.4	482.6	18.6	110.6	50.8
Heteropoda	0.0	1.3	1.3	0.0	0.9
Pteropoda	54.5	51.2	9.0	14.3	56.5
ARTHROPODA					
Crustacea					
Cladocera					
<i>Evdne</i>	0.0	0.0	0.0	0.0	0.0
<i>Penilia</i>	1.2	6.4	1.3	16.4	84.7
<i>Podon</i>	51.0	0.0	0.0	0.0	0.0
Ostracoda					
<i>Euconchoecia</i>	2.4	14.1	1.9	163.8	526.1
Copepoda					
Calanoida	509.6	1827.8	364.8	909.3	425.4
Cyclopoida	165.9	546.6	243.2	389.1	210.8
Harpacticoida	1.2	25.6	21.1	63.5	28.2
Cirripedia					
barnacle nauplii	0.0	0.0	0.0	0.0	0.0
barnacle cypris	2.4	0.0	0.0	0.0	0.0
Malacostraca					
Amphipoda	14.2	11.5	1.9	0.0	11.3
Cumacea	0.0	0.0	0.6	0.0	0.0
Isopoda	0.0	0.0	0.0	0.0	0.0
<i>Lucifer</i>	2.4	1.3	12.2	2.0	1.9
Mysidacea	0.0	1.3	2.6	2.0	0.0
Stomatopod larvae	4.7	0.0	0.0	0.0	0.0
Other crustaceans	0.0	0.0	0.0	0.0	0.0
Other crustacean larvae	61.6	139.5	99.8	65.5	27.3
CHORDATA					
Urochordata					
Thaliacea					
<i>Doliolum</i>	23.7	30.7	15.4	6.1	9.4
<i>Salpa</i>	0.0	0.0	54.4	0.0	0.0
Larvacea	160.0	506.9	522.2	75.8	25.4
Vertebrata					
fish larvae	14.2	6.4	1.3	0.0	3.8
fish eggs	1.2	1.3	2.6	0.0	0.0
CHAETOGNATHA	59.3	73.0	67.2	65.5	103.5
Others	0.0	3.8	0.0	2.0	0.9

Table 8-3.(continued)

PHYLUM group	1-26-64	2-23-64	3-18-64	4-15-64	5-22-64
CNIDARIA					
medusae	155.5	82.9	80.6	46.9	239.2
ANNELIDA					
polychaete larvae	123.3	19.9	3.3	14.9	92.3
MOLLUSCA					
bivalve larvae	185.6	50.4	36.4	20.6	83.9
gastropod larvae	32.2	7.3	11.0	41.1	537.2
Heteropoda	0.0	0.0	0.0	0.0	0.0
Pteropoda	11.4	0.0	2.2	0.0	4.2
ARTHROPODA					
Crustacea					
Cladocera					
<i>Evadne</i>	0.0	0.0	0.0	0.0	146.9
<i>Penilia</i>	24.7	1.0	1.1	0.0	21.0
<i>Podon</i>	0.0	0.0	0.0	1.1	512.0
Ostracoda					
<i>Euconchoecia</i>	275.0	23.1	2.2	0.0	25.2
Copepoda					
Calanoida	438.0	685.1	505.4	377.1	2190.7
Cyclopoida	400.1	170.0	555.0	281.1	713.4
Harpacticoida	83.4	24.1	34.2	62.9	71.3
Cirripedia					
barnacle nauplii	1.9	0.0	0.0	0.0	0.0
barnacle cypris	0.0	0.0	0.0	1.1	4.2
Malacostraca					
Amphipoda	0.0	1.0	3.3	3.4	0.0
Cumacea	0.0	0.0	1.1	0.0	0.0
Isopoda	0.0	0.0	0.0	0.0	0.0
<i>Lucifer</i>	0.0	0.0	0.0	0.0	16.8
Mysidacea	0.0	0.0	1.1	1.1	0.0
Stomatopod larvae	0.0	0.0	0.0	0.0	0.0
Other crustaceans	0.0	0.0	0.0	0.0	0.0
Other crustacean larvae	3.8	9.4	22.1	42.3	96.5
CHORDATA					
Urochordata					
Thaliacea					
<i>Doliolum</i>	68.3	35.7	0.0	0.0	142.7
<i>Salpa</i>	0.0	0.0	0.0	0.0	4.2
Larvacea	134.6	92.3	222.9	220.6	188.9
Vertebrata					
fish larvae	1.9	0.0	1.1	0.0	4.2
fish eggs	0.0	0.0	0.0	0.0	12.6
CHAETOGNATHA	81.5	35.7	210.8	64.0	470.0
Others	13.3	3.1	5.5	5.7	8.4

Table 8-3. (continued)

PHYLUM group	6-25-64	7-16-64	8-29-64	9-29-64	10-28-64
CNIDARIA					
medusae	28.4	15.8	33.9	70.0	28.4
ANNELIDA					
polychaete larvae	6.3	36.9	50.9	7.4	6.6
MOLLUSCA					
bivalve larvae	25.3	36.9	41.6	9.2	258.2
gastropod larvae	53.7	211.1	155.8	156.5	85.3
Heteropoda	4.7	0.0	0.0	0.0	0.0
Pteropoda	6.3	139.9	40.1	11.1	17.5
ARTHROPODA					
Crustacea					
Cladocera					
<i>Evadne</i>	49.0	0.0	0.0	0.0	0.0
<i>Penilia</i>	1058.8	2.6	24.7	0.0	26.3
<i>Podon</i>	162.8	21.1	15.4	5.5	0.0
Ostracoda					
<i>Euconchoecia</i>	1.6	63.3	10.8	16.6	129.1
Copepoda					
Calanoida	433.0	1153.3	928.4	1280.0	890.5
Cyclopoida	109.0	564.8	419.5	600.4	503.2
Harpacticoida	6.3	13.2	55.5	5.5	83.1
Cirripedia					
barnacle nauplii	0.0	0.0	0.0	0.0	0.0
barnacle cypris	0.0	10.6	0.0	0.0	0.0
Malacostraca					
Amphipoda	4.7	2.6	3.1	16.6	21.9
Cumacea	0.0	0.0	0.0	0.0	0.0
Isopoda	0.0	0.0	0.0	0.0	0.0
<i>Lucifer</i>	3.2	5.3	12.3	0.0	15.3
Mysidacea	0.0	0.0	0.0	5.5	4.4
Stomatopod larvae	3.2	5.3	1.5	0.0	0.0
Other crustaceans	0.0	0.0	0.0	0.0	0.0
Other crustacean larvae	22.1	23.8	101.8	46.0	179.4
CHORDATA					
Urochordata					
Thaliacea					
<i>Doliolum</i>	0.0	0.0	3.1	1.8	0.0
<i>Salpa</i>	15.8	5.3	1.5	0.0	0.0
Larvacea	259.2	295.6	1071.6	90.2	967.1
Vertebrata					
fish larvae	7.9	13.2	29.3	3.7	4.4
fish eggs	1.6	23.8	6.2	1.8	0.0
CHAETOGNATHA	107.5	134.6	94.1	114.2	514.2
Others	0.0	0.0	1.5	0.0	0.0

Table 8-3. (continued)

PHYLUM group	11-27-64	12-16-64
CNIDARIA		
medusae	91.4	12.1
ANNELIDA		
polychaete larvae	81.0	12.1
MOLLUSCA		
bivalve larvae	647.8	192.3
gastropod larvae	164.6	17.7
Heteropoda	5.2	0.0
Pteropoda	70.5	0.0
ARTHROPODA		
Crustacea		
Cladocera		
<i>Evadne</i>	0.0	0.0
<i>Penilia</i>	62.7	0.0
<i>Podon</i>	0.0	0.0
Ostracoda		
<i>Euconchoecia</i>	1081.5	0.0
Copepoda		
Calanoida	1731.9	106.2
Cyclopoida	1013.6	83.0
Harpacticoida	81.0	22.3
Cirripedia		
barnacle nauplii	2.6	0.0
barnacle cypris	5.2	0.0
Malacostraca		
Amphipoda	28.7	38.9
Cumacea	0.0	0.0
Isopoda	0.0	0.0
<i>Lucifer</i>	2.6	1.1
Mysidacea	18.3	0.3
Stomatopod larvae	0.0	0.0
Other crustaceans	0.0	0.0
Other crustacean larvae	65.3	7.7
CHORDATA		
Urochordata		
Thaliacea		
<i>Doliolum</i>	13.1	0.0
<i>Salpa</i>	0.0	0.0
Larvacea	188.1	3.3
Vertebrata		
fish larvae	15.7	0.3
fish eggs	0.0	0.0
CHAETOGNATHA	378.8	66.2
Others	0.0	0.3

Table 8-4. Monthly densities of zooplankton groups at Station W3 for the years 1963 and 1964.

PHYLUM group	4-3-63	5-7-63	5-20-63	6-26-63	7-17-63
CNIDARIA					
medusae	39.3	15.7	39.8	30.7	23.9
ANNELIDA					
polychaete larvae	0.7	0.0	4.3	0.0	2.8
MOLLUSCA					
bivalve larvae	6.7	5.2	2.6	5.8	8.3
gastropod larvae	16.7	17.0	9.5	37.1	23.4
Heteropoda	0.0	0.0	0.9	0.0	0.0
Pteropoda	12.7	3.9	5.2	10.2	2.2
ARTHROPODA					
Crustacea					
Cladocera					
<i>Evadne</i>	4.0	2.6	72.6	7.7	2.2
<i>Penilia</i>	0.7	1.3	122.8	3.2	0.0
<i>Podon</i>	0.0	0.0	205.8	49.9	3.3
Ostracoda					
<i>Euconchoecia</i>	176.7	730.1	222.3	67.8	45.6
Copepoda					
Calanoida	528.0	472.8	441.9	508.2	359.0
Cyclopoida	366.0	297.8	258.6	212.5	129.7
Harpacticoida	81.3	2.6	80.4	3.8	9.5
Cirripedia					
barnacle nauplii	0.0	0.0	0.0	0.0	0.0
barnacle cypris	2.7	0.0	5.2	0.0	0.0
Malacostraca					
Amphipoda	13.3	6.5	6.1	6.4	9.5
Cumacea	0.0	0.0	0.9	0.0	0.0
Isopoda	0.0	0.0	0.0	0.0	0.0
<i>Lucifer</i>	0.0	0.0	0.9	0.0	0.0
Mysidacea	0.0	0.0	1.7	0.0	0.6
Stomatopod larvae	0.0	0.0	0.0	1.3	0.6
Other crustaceans	0.0	0.0	0.0	0.0	0.0
Other crustacean larvae	10.0	23.5	15.6	20.5	7.8
CHORDATA					
Urochordata					
Thaliacea					
<i>Doliolum</i>	1.3	3.9	18.2	7.7	1.1
<i>Salpa</i>	4.0	0.0	5.2	4.5	1.7
Larvacea	162.0	17.0	65.7	37.1	101.3
Vertebrata					
fish larvae	2.7	2.6	1.7	4.5	7.2
fish eggs	0.7	0.0	0.0	0.6	0.0
CHAETOGNATHA	60.7	108.4	67.5	57.6	30.1
Others	0.7	7.8	0.9	0.0	2.2

Table 8-4. (continued)

PHYLUM group	10-2-63	10-31-63	11-30-63	12-19-63	1-12-64
CNIDARIA					
medusae	32.7	12.0	16.5	5.1	26.3
ANNELIDA					
polychaete larvae	76.8	3.7	11.0	0.9	7.4
MOLLUSCA					
bivalve larvae	110.9	9.2	33.4	18.8	10.7
gastropod larvae	99.6	9.2	1.8	3.4	6.6
Heteropoda	0.0	0.0	0.0	0.0	0.0
Pteropoda	7.1	4.6	1.8	5.4	0.8
ARTHROPODA					
Crustacea					
Cladocera					
<i>Evadne</i>	0.0	0.0	0.0	0.0	0.0
<i>Penilia</i>	5.7	0.9	0.9	0.0	0.0
<i>Podon</i>	4.3	3.7	0.0	0.0	0.0
Ostracoda					
<i>Euconchoecia</i>	295.8	133.5	264.2	63.6	144.4
Copepoda					
Calanoida	583.1	380.3	190.2	88.4	575.2
Cyclopoida	324.3	244.0	125.7	47.2	159.2
Harpacticoida	42.7	16.6	10.5	2.4	34.5
Cirripedia					
barnacle nauplii	0.0	0.0	0.0	0.0	0.0
barnacle cypris	0.0	0.0	0.0	0.0	0.8
Malacostraca					
Amphipoda	19.9	3.7	4.6	2.9	15.6
Cumacea	0.0	0.9	0.0	0.0	0.0
Isopoda	0.0	0.0	0.0	0.2	0.0
<i>Lucifer</i>	1.4	3.7	6.4	1.6	0.8
Mysidacea	0.0	0.0	1.4	0.2	0.8
Stomatopod larvae	0.0	0.0	0.0	0.0	0.0
Other crustaceans	0.0	0.0	0.0	0.0	0.0
Other crustacean larvae	66.8	37.8	26.5	12.7	75.5
CHORDATA					
Urochordata					
Thaliacea					
<i>Doliolum</i>	0.0	5.5	8.2	1.1	60.7
<i>Salpa</i>	0.0	0.0	0.0	0.0	0.0
Larvacea	180.6	77.4	36.6	5.1	160.8
Vertebrata					
fish larvae	4.3	0.9	2.7	0.5	0.8
fish eggs	0.0	0.0	0.0	0.5	2.5
CHAETOGNATHA	96.7	78.3	48.0	14.3	25.4
Others	0.0	0.0	0.5	0.0	0.0

Table 8-4.(continued)

PHYLUM group	3-18-64	4-15-64	5-22-64	6-25-64	7-16-64
CNIDARIA					
medusae	22.5	16.9	29.3	26.3	22.2
ANNELIDA					
polychaete larvae	3.6	16.9	14.1	4.8	3.4
MOLLUSCA					
bivalve larvae	35.2	33.7	5.4	29.9	16.2
gastropod larvae	12.0	44.7	39.1	39.5	51.2
Heteropoda	0.0	0.0	0.0	0.0	0.0
Pteropoda	2.5	2.0	7.6	12.0	15.4
ARTHROPODA					
Crustacea					
Cladocera					
<i>Evdne</i>	0.0	2.0	14.0	1.2	1.7
<i>Penilia</i>	0.2	4.0	24.9	966.6	4.3
<i>Podon</i>	0.0	4.0	22.8	75.4	12.8
Ostracoda					
<i>Euconchoecia</i>	26.5	15.9	152.9	45.5	55.5
Copepoda					
Calanoida	133.5	419.7	367.7	711.8	434.3
Cyclopoida	154.3	595.3	294.0	266.8	302.1
Harpacticoida	15.2	12.9	3.3	27.5	0.0
Cirripedia					
barnacle nauplii	0.0	1.0	0.0	0.0	0.0
barnacle cypris	0.0	1.0	0.0	7.2	1.7
Malacostraca					
Amphipoda	1.7	1.0	1.1	14.4	6.0
Cumacea	0.0	0.0	0.0	0.0	0.0
Isopoda	0.0	0.0	0.0	0.0	0.0
<i>Lucifer</i>	0.4	1.0	0.0	0.0	0.0
Mysidacea	0.0	0.0	0.0	0.0	0.0
Stomatopod larvae	0.0	0.0	0.0	0.0	0.0
Other crustaceans	0.0	0.0	0.0	0.0	0.0
Other crustacean larvae	6.3	66.5	10.8	81.3	10.2
CHORDATA					
Urochordata					
Thaliacea					
<i>Doliolum</i>	27.4	2.0	31.5	6.0	15.4
<i>Salpa</i>	0.2	0.0	0.0	0.0	0.0
Larvacea	145.9	26.8	133.4	350.5	271.4
Vertebrata					
fish larvae	0.6	1.0	1.1	3.6	4.3
fish eggs	0.0	0.0	1.1	0.0	0.9
CHAETOGNATHA	154.9	196.5	62.9	330.2	98.1
Others	3.4	7.9	0.0	0.0	0.0

Table 8-4. (continued)

PHYLUM group	8-29-64	9-29-64	10-28-64	11-27-64	12-16-64
CNIDARIA					
medusae	13.0	37.2	26.9	38.8	10.3
ANNELIDA					
polychaete larvae	33.1	27.4	15.7	5.8	2.0
MOLLUSCA					
bivalve larvae	29.3	13.7	24.7	30.2	5.8
gastropod larvae	71.6	48.3	139.2	44.6	10.3
Heteropoda	0.5	0.0	2.2	0.0	0.0
Pteropoda	4.9	9.8	11.2	1.4	1.3
ARTHROPODA					
Crustacea					
Cladocera					
<i>Eudane</i>	0.0	0.0	0.0	0.0	0.0
<i>Penilia</i>	82.4	0.0	9.0	2.9	0.5
<i>Podon</i>	76.5	11.8	2.2	0.0	0.0
Ostracoda					
<i>Euconchoecia</i>	3.8	346.8	211.1	179.8	139.3
Copepoda					
Calanoida	186.6	868.6	943.2	714.8	217.7
Cyclopoida	328.7	522.4	803.9	294.8	72.6
Harpacticoida	6.0	12.4	15.7	7.2	4.8
Cirripedia					
barnacle nauplii	0.5	0.0	0.0	0.0	0.0
barnacle cypris	4.9	0.7	0.0	1.4	0.0
Malacostraca					
Amphipoda	6.0	7.8	4.5	5.8	0.8
Cumacea	0.0	0.0	0.0	0.0	0.0
Isopoda	0.0	0.0	0.2	0.0	0.0
<i>Lucifer</i>	0.5	1.3	0.0	0.0	0.3
Mysidacea	0.0	2.0	0.0	0.0	0.3
Stomatopod larvae	0.0	0.7	0.0	0.0	0.0
Other crustaceans	0.0	0.7	0.0	0.0	0.0
Other crustacean larvae	18.4	10.4	38.2	17.3	5.5
CHORDATA					
Urochordata					
Thaliacea					
<i>Doliolum</i>	3.3	0.7	0.0	18.7	2.8
<i>Salpa</i>	1.6	1.3	0.0	0.0	0.0
Larvacea	207.2	77.1	229.1	148.1	8.6
Vertebrata					
fish larvae	1.1	2.0	0.0	1.4	1.0
fish eggs	1.1	0.0	2.2	1.4	0.5
CHAETOGNATHA	76.5	109.7	78.6	61.8	11.6
Others	0.0	0.0	0.0	0.0	0.0

Table 8-5. Monthly densities of copepod species at Station W2 for the years 1963 and 1964.

Copepod Species	3-3-63	4-3-63	5-7-63	5-20-63	6-26-63
Calanoida					
<i>Acartia danae</i>	0.0	0.0	0.0	0.0	0.0
<i>Acartia lilljeborgi</i>	0.0	0.0	0.0	0.0	0.0
<i>Acartia tonsa</i>	0.0	2.6	36.0	0.0	11.5
<i>Acrocalanus longicornis</i>	0.0	0.0	0.0	0.0	0.6
<i>Calanopia americana</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus gracilis</i>	0.0	2.6	2.0	0.0	0.0
<i>Calocalanus pavo</i>	0.0	0.0	0.0	0.0	7.0
<i>Calocalanus pavoninus</i>	0.0	0.0	0.0	2.2	5.8
<i>Calocalanus styliremis</i>	0.0	1.3	0.0	0.0	3.2
<i>Centropages hamatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages velificatus</i>	1.0	0.0	0.0	0.0	0.0
<i>Clausocalanus furcatus</i>	3.0	1.3	0.0	4.3	32.6
<i>Clausocalanus jobei</i>	3.0	0.0	0.0	0.0	0.0
<i>Ctenocalanus vanus</i>	1.0	0.0	0.0	0.0	0.0
<i>Eucalanus pileatus</i>	0.0	0.0	0.0	2.2	0.6
<i>Labidocera aestiva</i>	0.0	0.0	0.0	0.0	0.0
<i>Nannocalanus minor</i>	0.0	0.0	0.0	0.0	0.0
<i>Paracalanus aculeatus</i>	0.0	0.0	0.0	0.0	22.4
<i>Paracalanus crassirostris</i>	108.3	277.8	6.0	10.8	0.0
<i>Paracalanus indicus</i>	68.9	35.8	74.0	8.7	27.5
<i>Paracalanus quasimodo</i>	27.6	110.1	16.0	13.0	25.6
<i>Pontellopsis villosa</i>	0.0	0.0	0.0	0.0	0.0

Table 8-5. (continued)

<i>Stephos deichmannae</i>	2.0	0.0	0.0	0.0	0.0
<i>Temora stylifera</i>	2.0	0.0	0.0	0.0	0.0
<i>Temora turbinata</i>	9.8	37.1	28.0	17.4	0.0
<i>Undinula vulgaris</i>	0.0	0.0	0.0	0.0	0.0
Cyclopoida					
<i>Corycaeus amazonicus</i>	4.9	1.3	24.0	6.5	5.8
<i>Corycaeus americanus</i>	10.8	5.1	12.0	4.3	0.6
<i>Corycaeus giesbrechti</i>	0.0	0.0	0.0	0.0	0.6
<i>Corycaeus latus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus speciosus</i>	0.0	0.0	0.0	0.0	0.6
<i>Corycaeus sp.</i>	0.0	0.0	0.0	0.0	0.0
<i>Farranula gracilis</i>	0.0	0.0	0.0	2.2	3.2
<i>Kelleria sp.</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona colcarva</i>	1.0	0.0	0.0	0.0	0.0
<i>Oithona hebes</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona nana</i>	60.1	28.2	68.0	39.1	5.8
<i>Oithona plumifera</i>	3.0	0.0	4.0	4.3	19.2
<i>Oithona setigera</i>	1.0	0.0	0.0	0.0	0.0
<i>Oithona similis</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona simplex</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona tenuis</i>	0.0	0.0	2.0	0.0	0.0
<i>Oithona spp.</i>	4.9	2.6	0.0	0.0	0.0
<i>Oncaea media</i>	103.4	9.0	12.0	15.2	0.6
<i>Oncaea mediterranea</i>	0.0	0.0	0.0	0.0	0.0
<i>Oncaea venusta</i>	0.0	0.0	0.0	2.2	16.0
<i>Saphirella sp.</i>	0.0	0.0	0.0	0.0	0.0
<i>Sapphirina nigromaculata</i>	0.0	0.0	0.0	0.0	0.0

Table 8-5. (continued)

Copepod Species	7-17-63	10-2-63	10-31-63	11-30-63	12-19-63
Calanoida					
<i>Acartia danae</i>	1.2	0.0	0.0	0.0	0.0
<i>Acartia lilljeborgi</i>	0.0	0.0	0.6	0.0	0.0
<i>Acartia tonsa</i>	0.0	0.0	3.2	2.0	0.9
<i>Acrocalanus longicornis</i>	1.2	5.1	0.0	0.0	0.0
<i>Calanopia americana</i>	0.0	7.7	7.7	22.5	2.8
<i>Calocalanus gracilis</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus pavo</i>	7.1	0.0	0.0	0.0	0.0
<i>Calocalanus pavoninus</i>	15.4	0.0	0.0	0.0	0.0
<i>Calocalanus styliremis</i>	3.6	0.0	0.0	6.1	0.0
<i>Centropages hamatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages velificatus</i>	1.2	3.8	6.4	8.2	1.9
<i>Clausocalanus furcatus</i>	94.8	5.1	1.9	24.6	24.5
<i>Clausocalanus jobei</i>	0.0	0.0	0.0	0.0	0.0
<i>Ctenocalanus vanus</i>	0.0	0.0	0.0	0.0	0.0
<i>Eucalanus pileatus</i>	28.4	5.1	0.6	6.1	0.0
<i>Labidocera aestiva</i>	0.0	0.0	0.6	0.0	0.0
<i>Nannocalanus minor</i>	0.0	0.0	0.0	0.0	0.0
<i>Paracalanus aculeatus</i>	45.0	183.0	16.0	10.2	29.2
<i>Paracalanus crassirostris</i>	0.0	3.8	5.1	2.0	0.0
<i>Paracalanus indicus</i>	8.3	203.5	36.5	57.3	35.8
<i>Paracalanus quasimodo</i>	7.1	192.0	9.6	43.0	58.4
<i>Pontellopsis villosa</i>	0.0	0.0	0.0	0.0	0.0

Table 8-5. (continued)

<i>Stephos deichmannae</i>	0.0	0.0	0.0	0.0	0.0
<i>Temora stylifera</i>	1.2	20.5	0.6	0.0	0.9
<i>Temora turbinata</i>	2.4	2.6	1.9	18.4	3.8
<i>Undinula vulgaris</i>	0.0	1.3	0.0	0.0	0.0
Cyclopoida					
<i>Corycaeus amazonicus</i>	0.0	32.0	15.4	18.4	13.2
<i>Corycaeus americanus</i>	0.0	1.3	4.5	10.2	16.0
<i>Corycaeus giesbrechti</i>	7.1	12.8	7.0	18.4	11.3
<i>Corycaeus latus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus speciosus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus sp.</i>	0.0	0.0	0.0	0.0	0.0
<i>Farranula gracilis</i>	20.1	0.0	0.0	0.0	0.0
<i>Kelleria sp.</i>	0.0	0.0	1.9	2.0	0.9
<i>Oithona colcarva</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona hebes</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona nana</i>	1.2	49.9	11.5	45.1	0.9
<i>Oithona plumifera</i>	27.3	139.5	26.2	12.3	17.9
<i>Oithona setigera</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona similis</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona simplex</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona tenuis</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona spp.</i>	0.0	0.0	0.0	0.0	0.0
<i>Oncaea media</i>	16.6	2.6	13.4	34.8	13.2
<i>Oncaea mediterranea</i>	0.0	0.0	0.0	0.0	0.0
<i>Oncaea venusta</i>	3.6	3.8	4.5	6.1	16.0
<i>Saphirella sp.</i>	0.0	0.0	0.0	2.0	0.9
<i>Sapphirina nigromaculata</i>	0.0	1.3	0.0	0.0	0.0

Table 8-5. (continued)

Copepod Species	1-26-64	2-23-64	3-18-64	4-15-64	5-22-64
Calanoida					
<i>Acartia danae</i>	0.0	0.0	0.0	0.0	0.0
<i>Acartia lilljeborgi</i>	0.0	0.0	0.0	0.0	0.0
<i>Acartia tonsa</i>	19.0	5.2	7.7	1.1	457.4
<i>Acrocalanus longicornis</i>	0.0	0.0	0.0	0.0	0.0
<i>Calanopia americana</i>	0.0	0.0	1.1	0.0	0.0
<i>Calocalanus gracilis</i>	1.9	0.0	0.0	0.0	0.0
<i>Calocalanus pavo</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus pavoninus</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus styliremis</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages hamatus</i>	0.0	2.1	0.0	0.0	0.0
<i>Centropages velificatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Clausocalanus furcatus</i>	9.5	1.0	0.0	0.0	29.4
<i>Clausocalanus jobei</i>	1.9	0.0	0.0	0.0	0.0
<i>Ctenocalanus vanus</i>	0.0	0.0	1.1	0.0	0.0
<i>Eucalanus pileatus</i>	0.0	0.0	0.0	0.0	12.6
<i>Labidocera aestiva</i>	0.0	0.0	0.0	0.0	0.0
<i>Nannocalanus minor</i>	0.0	1.0	0.0	0.0	0.0
<i>Paracalanus aculeatus</i>	1.9	1.0	0.0	0.0	21.0
<i>Paracalanus crassirostris</i>	5.7	6.3	2.2	10.3	0.0
<i>Paracalanus indicus</i>	49.3	25.2	12.1	38.9	243.4
<i>Paracalanus quasimodo</i>	77.7	130.1	14.3	36.6	323.1
<i>Pontellopsis villosa</i>	0.0	0.0	0.0	0.0	0.0

Table 8-5. (continued)

<i>Stephos deichmannae</i>	0.0	0.0	0.0	0.0	0.0
<i>Temora stylifera</i>	0.0	0.0	0.0	0.0	0.0
<i>Temora turbinata</i>	0.0	7.3	0.0	2.3	29.4
<i>Undinula vulgaris</i>	0.0	0.0	0.0	0.0	0.0
Cyclopoida					
<i>Corycaeus amazonicus</i>	20.9	6.3	1.1	5.7	46.2
<i>Corycaeus americanus</i>	26.5	11.5	6.6	34.3	104.9
<i>Corycaeus giesbrechti</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus latus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus speciosus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus sp.</i>	0.0	0.0	0.0	0.0	4.2
<i>Farranula gracilis</i>	1.9	0.0	0.0	0.0	4.2
<i>Kelleria sp.</i>	1.9	0.0	13.2	0.0	0.0
<i>Oithona colcarva</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona hebes</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona nana</i>	9.5	9.4	45.2	5.7	4.2
<i>Oithona plumifera</i>	15.2	1.0	0.0	0.0	12.6
<i>Oithona setigera</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona similis</i>	0.0	0.0	41.9	0.0	0.0
<i>Oithona simplex</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona tenuis</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona spp.</i>	0.0	1.0	1.1	2.3	0.0
<i>Oncaea media</i>	157.4	23.1	46.3	9.1	230.6
<i>Oncaea mediterranea</i>	5.7	0.0	0.0	0.0	0.0
<i>Oncaea venusta</i>	0.0	2.1	0.0	0.0	0.0
<i>Saphirella sp.</i>	0.0	0.0	2.2	0.0	4.2
<i>Sapphirina nigromaculata</i>	0.0	0.0	0.0	0.0	0.0

Table 8-5. (continued)

Copepod Species	6-25-64	7-16-64	8-29-64	9-29-64	10-28-64
Calanoida					
<i>Acartia danae</i>	0.0	0.0	0.0	0.0	0.0
<i>Acartia lilljeborgi</i>	0.0	0.0	6.2	0.0	0.0
<i>Acartia tonsa</i>	0.0	0.0	0.0	0.0	0.0
<i>Acrocalanus longicornis</i>	0.0	0.0	0.0	23.9	0.0
<i>Calanopia americana</i>	0.0	0.0	7.7	7.4	19.7
<i>Calocalanus gracilis</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus pavo</i>	3.2	15.8	1.5	51.6	0.0
<i>Calocalanus pavoninus</i>	0.0	15.8	0.0	0.0	0.0
<i>Calocalanus styliremis</i>	0.0	7.9	0.0	1.8	0.0
<i>Centropages hamatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages velificatus</i>	15.8	2.6	26.2	5.5	21.9
<i>Clausocalanus furcatus</i>	50.8	221.7	7.7	383.1	0.0
<i>Clausocalanus jobei</i>	0.0	0.0	0.0	0.0	0.0
<i>Ctenocalanus vanus</i>	0.0	0.0	0.0	0.0	0.0
<i>Eucalanus pileatus</i>	3.2	21.1	7.7	0.0	8.8
<i>Labidocera aestiva</i>	0.0	0.0	0.0	0.0	0.0
<i>Nannocalanus minor</i>	0.0	0.0	0.0	0.0	0.0
<i>Paracalanus aculeatus</i>	7.9	15.8	21.6	29.5	24.1
<i>Paracalanus crassirostris</i>	1.6	2.6	3.1	0.0	4.4
<i>Paracalanus indicus</i>	148.5	100.3	89.4	90.2	137.8
<i>Paracalanus quasimodo</i>	33.2	31.7	30.8	71.8	61.3
<i>Pontellopsis villosa</i>	0.0	0.0	0.0	1.8	0.0

Table 8-5. (continued)

<i>Stephos deichmannae</i>	0.0	0.0	0.0	0.0	0.0
<i>Temora stylifera</i>	0.0	2.6	1.5	5.5	0.0
<i>Temora turbinata</i>	0.0	0.0	26.2	3.7	8.8
<i>Undinula vulgaris</i>	0.0	0.0	0.0	23.9	0.0
Cyclopoida					
<i>Corycaeus amazonicus</i>	7.9	2.6	41.6	0.0	10.9
<i>Corycaeus americanus</i>	1.6	0.0	7.7	0.0	2.2
<i>Corycaeus giesbrechti</i>	4.7	15.8	24.7	5.5	0.0
<i>Corycaeus latus</i>	1.6	0.0	0.0	0.0	0.0
<i>Corycaeus speciosus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus sp.</i>	0.0	0.0	0.0	0.0	0.0
<i>Farranula gracilis</i>	4.7	253.4	0.0	57.1	0.0
<i>Kelleria sp.</i>	0.0	0.0	1.5	0.0	4.4
<i>Oithona colcarva</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona hebes</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona nana</i>	9.5	13.2	23.1	0.0	124.7
<i>Oithona plumifera</i>	0.0	42.2	4.6	82.9	8.8
<i>Oithona setigera</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona similis</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona simplex</i>	0.0	0.0	10.8	0.0	4.4
<i>Oithona tenuis</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona spp.</i>	0.0	0.0	0.0	0.0	0.0
<i>Oncaea media</i>	0.0	2.6	9.3	5.5	21.9
<i>Oncaea mediterranea</i>	0.0	0.0	0.0	0.0	0.0
<i>Oncaea venusta</i>	6.3	10.6	12.3	105.0	17.5
<i>Saphirella sp.</i>	0.0	2.6	1.5	0.0	0.0
<i>Sapphirina nigromaculata</i>	0.0	0.0	0.0	0.0	0.0

Table 8-5(continued)

Copepod Species	11-27-64	12-16-64
Calanoida		
<i>Acartia danae</i>	0.0	0.3
<i>Acartia lilljeborgi</i>	0.0	0.0
<i>Acartia tonsa</i>	0.0	0.3
<i>Acrocalanus longicornis</i>	0.0	0.0
<i>Calanopia americana</i>	18.3	3.3
<i>Calocalanus gracilis</i>	0.0	0.0
<i>Calocalanus pavo</i>	0.0	0.0
<i>Calocalanus pavoninus</i>	0.0	0.0
<i>Calocalanus styliremis</i>	2.6	0.0
<i>Centropages hamatus</i>	0.0	0.0
<i>Centropages velificatus</i>	7.8	0.0
<i>Clausocalanus furcatus</i>	73.1	0.0
<i>Clausocalanus jobei</i>	2.6	0.0
<i>Ctenocalanus vanus</i>	0.0	0.0
<i>Eucalanus pileatus</i>	5.2	1.1
<i>Labidocera aestiva</i>	0.0	0.0
<i>Nannocalanus minor</i>	0.0	0.0
<i>Paracalanus aculeatus</i>	52.2	2.2
<i>Paracalanus crassirostris</i>	5.2	0.6
<i>Paracalanus indicus</i>	350.0	21.5
<i>Paracalanus quasimodo</i>	96.7	7.7
<i>Pontellopsis villosa</i>	0.0	0.0

Table 8-5. (continued)

<i>Stephos deichmannae</i>	2.6	0.0
<i>Temora stylifera</i>	0.0	0.3
<i>Temora turbinata</i>	10.4	1.1
<i>Undinula vulgaris</i>	0.0	0.0
Cyclopoida		
<i>Corycaeus amazonicus</i>	18.3	1.4
<i>Corycaeus americanus</i>	13.1	3.6
<i>Corycaeus giesbrechti</i>	31.3	0.3
<i>Corycaeus latus</i>	0.0	0.0
<i>Corycaeus speciosus</i>	0.0	0.0
<i>Corycaeus sp.</i>	0.0	0.0
<i>Farranula gracilis</i>	15.7	0.0
<i>Kelleria sp.</i>	13.1	0.3
<i>Oithona colcarva</i>	0.0	0.0
<i>Oithona hebes</i>	2.6	0.0
<i>Oithona nana</i>	10.4	1.1
<i>Oithona plumifera</i>	49.6	2.2
<i>Oithona setigera</i>	0.0	0.0
<i>Oithona similis</i>	0.0	0.0
<i>Oithona simplex</i>	0.0	0.3
<i>Oithona tenuis</i>	0.0	0.0
<i>Oithona spp.</i>	0.0	0.0
<i>Oncaea media</i>	370.9	38.6
<i>Oncaea mediterranea</i>	5.2	0.0
<i>Oncaea venusta</i>	81.0	0.3
<i>Saphirella sp.</i>	0.0	0.0
<i>Sapphirina nigromaculata</i>	0.0	0.0

Table 8-6. Monthly densities of copepod species at Station W3 for the years 1963 and 1964.

Copepod species	4-3-63	5-7-63	5-20-63	6-26-63	7-17-63
<i>Calanoida</i>					
<i>Acartia danae</i>	0.0	0.0	1.7	0.0	1.7
<i>Acartia lilljeborgi</i>	0.0	0.0	0.0	0.0	0.0
<i>Acartia tonsa</i>	0.7	0.0	0.9	0.0	0.0
<i>Acrocalanus andersoni</i>	0.0	0.0	0.0	0.0	0.0
<i>Acrocalanus longicornis</i>	0.0	0.0	0.0	0.0	0.0
<i>Calanopia americana</i>	0.0	0.0	10.4	0.0	0.0
<i>Calanus tenuicornis</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus contractus</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus gracilis</i>	0.0	9.1	0.9	0.6	0.6
<i>Calocalanus pavo</i>	0.0	0.0	1.7	0.6	3.3
<i>Calocalanus pavoninus</i>	0.0	2.6	0.0	7.0	11.7
<i>Calocalanus styliremis</i>	0.0	2.6	0.9	6.4	2.8
<i>Calocalanus sp.</i>	0.0	0.0	0.0	0.0	0.0
<i>Candacia curta</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages hamatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages velificatus</i>	1.3	3.9	0.0	0.0	0.0
<i>Clausocalanus arcuicornis</i>	0.7	0.0	0.0	0.0	0.0
<i>Clausocalanus furcatus</i>	27.3	41.8	20.8	57.0	88.5
<i>Clausocalanus jobei</i>	0.7	22.2	0.0	6.4	0.6
<i>Clausocalanus mastigophorus</i>	0.0	0.0	0.0	0.0	0.0
<i>Ctenocalanus vanus</i>	0.0	0.0	0.0	0.0	0.0
<i>Eucalanus pileatus</i>	4.0	6.5	1.7	6.4	0.6

Table 8-6. (continued)

<i>Euchaeta marina</i>	0.0	0.0	0.0	0.0	0.0
<i>Euchaeta paraconcinna</i>	0.0	0.0	0.0	0.0	0.0
<i>Ischnocalanus plumulosus</i>	0.0	0.0	0.0	0.6	0.0
<i>Lucicutia flavicornis</i>	0.0	0.0	0.0	0.0	1.7
<i>Lucicutia gaussae</i>	0.0	0.0	0.0	0.0	0.0
<i>Lucicutia paraclausii</i>	0.0	0.0	0.0	0.0	0.0
<i>Mecynocera clausii</i>	0.0	0.0	0.0	0.0	1.1
<i>Nannocalanus minor</i>	8.7	10.4	0.9	3.2	0.0
<i>Paracalanus aculeatus</i>	12.0	5.2	4.3	15.4	13.4
<i>Paracalanus crassirostris</i>	0.0	0.0	2.6	2.6	0.0
<i>Paracalanus denudatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Paracalanus indicus</i>	99.3	41.6	17.3	80.0	6.1
<i>Paracalanus nudus</i>	0.0	0.0	0.0	0.6	0.0
<i>Paracalanus quasimodo</i>	54.7	20.9	33.7	90.9	3.3
<i>Parundinella spinodenticula</i>	0.0	0.0	0.0	0.0	0.0
<i>Scolecithrix danae</i>	0.0	0.0	0.0	0.0	0.0
<i>Stephos deichmannae</i>	0.0	0.0	0.0	0.0	0.0
<i>Temora stylifera</i>	0.0	3.9	0.9	1.9	3.9
<i>Temora turbinata</i>	0.7	20.9	31.1	11.5	3.3
<i>Undinula vulgaris</i>	0.0	0.0	0.0	0.0	0.0
Cyclopoida					
<i>Copilia mirabilis</i>	0.0	0.0	0.0	0.6	0.0
<i>Corycaeus amazonicus</i>	21.3	1.3	7.8	10.2	0.0
<i>Corycaeus americanus</i>	6.7	2.6	1.7	1.9	0.6
<i>Corycaeus flaccus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus giesbrechti</i>	2.0	7.8	0.0	10.9	1.7
<i>Corycaeus latus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus speciosus</i>	0.0	0.0	0.0	1.3	0.0

Table 8-6. (continued)

<i>Farranula gracilis</i>	3.3	3.9	0.0	31.4	11.7
<i>Farranula rostrata</i>	0.0	0.0	0.0	0.0	0.0
<i>Kelleria</i> sp.	5.3	0.0	0.9	0.0	0.0
<i>Lubbockia squillimana</i>	0.0	0.0	0.0	0.0	0.6
<i>Oithona nana</i>	0.7	1.3	32.0	12.8	0.0
<i>Oithona plumifera</i>	12.7	24.8	11.2	24.3	16.7
<i>Oithona robusta</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona setigera</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona similis</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona simplex</i>	0.0	0.0	0.0	0.6	0.0
<i>Oithona tenuis</i>	0.7	0.0	0.0	0.0	0.0
<i>Oithona</i> sp 1	0.0	0.0	0.0	0.0	0.0
<i>Oithona</i> spp.	0.0	0.0	0.9	0.0	0.0
<i>Oncaea conifera</i>	0.0	0.0	0.0	0.0	1.7
<i>Oncaea dentipes</i>	0.0	0.0	0.0	0.0	0.0
<i>Oncaea media</i>	26.0	20.9	95.1	4.5	10.6
<i>Oncaea mediterranea</i>	10.7	6.5	2.6	2.6	0.6
<i>Oncaea venusta</i>	18.7	90.1	8.6	21.8	15.6
<i>Saphirella</i> sp.	0.0	0.0	0.9	0.0	0.0
<i>Sapphirina nigromaculata</i>	0.0	0.0	0.0	0.0	0.0
<i>Siphonostomata</i> sp.	0.0	0.0	0.0	0.0	0.0

Table 8-6. (continued)

Copepod species	10-2-63	10-31-63	11-30-63	12-19-63	2-23-64
Calanoida					
<i>Acartia danae</i>	0.0	0.0	0.0	0.0	0.0
<i>Acartia lilljeborgi</i>	0.0	0.9	0.5	0.0	0.0
<i>Acartia tonsa</i>	0.0	0.0	0.0	0.0	0.0
<i>Aerocalanus andersoni</i>	0.0	0.0	0.0	0.5	0.0
<i>Aerocalanus longicornis</i>	2.8	0.9	1.4	0.5	0.0
<i>Calanopia americana</i>	2.8	0.9	1.4	1.1	0.0
<i>Calanus tenuicornis</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus contractus</i>	0.0	0.0	0.0	0.7	0.0
<i>Calocalanus gracilis</i>	0.0	0.0	0.0	0.9	0.0
<i>Calocalanus pavo</i>	10.0	0.0	0.0	0.0	0.8
<i>Calocalanus pavoninus</i>	1.4	0.0	0.5	2.5	0.0
<i>Calocalanus styliremis</i>	1.4	2.8	2.7	1.6	0.8
<i>Calocalanus sp.</i>	0.0	0.0	0.0	0.4	0.0
<i>Candacia curta</i>	0.0	0.0	0.0	0.0	0.8
<i>Centropages hamatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages velificatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Clausocalanus arcuicornis</i>	0.0	0.0	0.0	0.2	0.0
<i>Clausocalanus furcatus</i>	69.7	23.0	13.7	9.8	0.8
<i>Clausocalanus jobei</i>	0.0	0.0	0.0	0.2	1.6
<i>Clausocalanus mastigophorus</i>	0.0	0.0	0.0	0.4	0.0
<i>Ctenocalanus vanus</i>	0.0	0.0	0.5	0.5	1.6
<i>Eucalanus pileatus</i>	0.0	0.0	0.0	0.0	0.8

Table 8-6. (continued)

<i>Euchaeta marina</i>	0.0	0.0	0.0	0.2	0.0
<i>Euchaeta paraconcinna</i>	0.0	0.0	0.0	0.0	0.0
<i>Ischnocalanus plumulosus</i>	0.0	1.8	0.0	0.4	0.0
<i>Lucicutia flavicornis</i>	0.0	0.0	0.0	0.7	1.6
<i>Lucicutia gaussae</i>	0.0	0.0	0.0	0.2	0.0
<i>Lucicutia paraclausi</i>	0.0	0.0	0.0	0.0	0.0
<i>Mecynocera clausii</i>	0.0	0.0	0.0	0.4	0.0
<i>Nannocalanus minor</i>	0.0	0.0	0.0	0.2	2.5
<i>Paracalanus aculeatus</i>	25.6	23.0	7.3	1.3	1.6
<i>Paracalanus crassirostris</i>	0.0	0.0	0.5	0.0	2.5
<i>Paracalanus denudatus</i>	0.0	0.0	0.0	0.5	0.0
<i>Paracalanus indicus</i>	44.1	45.1	22.4	6.0	49.2
<i>Paracalanus nudus</i>	0.0	0.0	0.0	0.2	0.0
<i>Paracalanus quasimodo</i>	39.8	6.4	14.6	3.8	41.8
<i>Parundinella spinodenticula</i>	0.0	0.0	0.0	0.5	0.8
<i>Scolecithrix danae</i>	0.0	0.0	0.0	0.0	0.0
<i>Stephos deichmannae</i>	0.0	0.0	0.9	0.2	0.0
<i>Temora stylifera</i>	2.8	2.8	0.0	0.4	0.0
<i>Temora turbinata</i>	1.4	16.6	1.8	0.4	0.8
<i>Undinula vulgaris</i>	0.0	0.0	0.0	0.0	0.0
Cyclopoida					
<i>Copilia mirabilis</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus amazonicus</i>	5.7	0.9	4.6	0.4	8.2
<i>Corycaeus americanus</i>	1.4	0.9	0.9	0.5	17.2
<i>Corycaeus flaccus</i>	0.0	0.0	0.0	0.0	0.8
<i>Corycaeus giesbrechti</i>	4.3	3.7	5.5	1.3	0.0
<i>Corycaeus latus</i>	0.0	0.0	0.5	0.2	0.0
<i>Corycaeus speciosus</i>	0.0	0.0	0.0	0.2	0.0

Table 8-6.(continued)

<i>Farranula gracilis</i>	0.0	0.0	0.5	0.0	0.0
<i>Farranula rostrata</i>	0.0	0.0	0.0	0.2	0.0
<i>Kelleria</i> sp.	1.4	0.0	0.5	0.0	1.6
<i>Lubbockia squillimana</i>	0.0	0.0	0.0	0.0	0.8
<i>Oithona nana</i>	1.4	0.0	3.7	0.0	1.6
<i>Oithona plumifera</i>	138.0	68.1	16.0	1.6	6.6
<i>Oithona robusta</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona setigera</i>	0.0	0.0	0.0	0.0	0.8
<i>Oithona similis</i>	0.0	0.0	0.0	0.0	4.1
<i>Oithona simplex</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona tenuis</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona</i> sp 1	0.0	0.0	0.0	0.0	4.1
<i>Oithona</i> spp.	0.0	0.0	0.0	0.4	0.0
<i>Oncaea conifera</i>	0.0	0.0	0.0	0.0	0.0
<i>Oncaea dentipes</i>	0.0	0.0	0.0	0.0	0.8
<i>Oncaea media</i>	1.4	2.8	2.7	2.4	27.9
<i>Oncaea mediterranea</i>	1.4	0.9	0.5	1.8	9.8
<i>Oncaea venusta</i>	2.8	6.4	5.9	5.8	0.0
<i>Saphirella</i> sp.	0.0	0.0	0.0	0.0	0.0
<i>Sapphirina nigromaculata</i>	0.0	0.0	0.0	0.0	1.6
<i>Siphonostomata</i> sp.	0.0	0.0	0.0	0.2	0.0

Table 8-6. (continued)

Copepod species	3-18-64	4-15-64	5-22-64	6-25-64	7-16-64
Calanoida					
<i>Acartia danae</i>	0.0	0.0	0.0	0.0	0.0
<i>Acartia lilljeborgi</i>	0.0	0.0	1.1	0.0	0.0
<i>Acartia tonsa</i>	0.0	4.0	0.0	0.0	0.0
<i>Acrocalanus andersoni</i>	0.0	0.0	0.0	0.0	0.0
<i>Acrocalanus longicornis</i>	0.0	0.0	1.1	0.0	0.9
<i>Calanopia americana</i>	0.0	0.0	0.0	0.0	0.0
<i>Calanus tenuicornis</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus contractus</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus gracilis</i>	0.0	0.0	0.0	0.0	0.9
<i>Calocalanus pavo</i>	0.0	0.0	4.3	0.0	27.3
<i>Calocalanus pavoninus</i>	0.0	0.0	2.2	0.0	0.0
<i>Calocalanus styliremis</i>	0.0	1.0	0.0	2.4	0.9
<i>Calocalanus sp.</i>	0.0	0.0	0.0	0.0	0.0
<i>Candacia curta</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages hamatus</i>	0.2	0.0	0.0	0.0	0.0
<i>Centropages velificatus</i>	0.2	0.0	0.0	13.2	2.6
<i>Clausocalanus arcuicornis</i>	0.0	0.0	0.0	0.0	0.0
<i>Clausocalanus furcatus</i>	4.0	6.0	0.0	45.5	123.7
<i>Clausocalanus jobei</i>	0.4	1.0	0.0	0.0	0.0
<i>Clausocalanus mastigophorus</i>	0.0	0.0	0.0	0.0	0.0
<i>Ctenocalanus vanus</i>	0.0	1.0	0.0	0.0	0.0
<i>Eucalanus pileatus</i>	0.2	0.0	1.1	3.6	1.7

Table 8-6. (continued)

<i>Euchaeta marina</i>	0.0	0.0	0.0	0.0	0.0
<i>Euchaeta paraconcinna</i>	0.0	0.0	0.0	0.0	0.0
<i>Ischnocalanus plumulosus</i>	0.0	0.0	0.0	0.0	0.0
<i>Lucicutia flavicornis</i>	0.0	0.0	0.0	0.0	0.0
<i>Lucicutia gaussae</i>	0.0	0.0	0.0	0.0	0.0
<i>Lucicutia paraclausi</i>	0.0	0.0	0.0	0.0	0.0
<i>Mecynocera clausii</i>	0.0	0.0	0.0	0.0	0.0
<i>Nannocalanus minor</i>	0.0	0.0	0.0	1.2	0.9
<i>Paracalanus aculeatus</i>	0.4	0.0	2.2	3.6	12.8
<i>Paracalanus crassirostris</i>	0.2	0.0	0.0	1.2	0.0
<i>Paracalanus denudatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Paracalanus indicus</i>	13.5	54.6	16.3	155.5	10.2
<i>Paracalanus nudus</i>	0.0	0.0	0.0	0.0	0.0
<i>Paracalanus quasimodo</i>	28.8	109.1	48.8	56.2	53.8
<i>Parundinella spinodenticula</i>	0.0	0.0	0.0	0.0	0.0
<i>Scolecithrix danae</i>	0.0	0.0	0.0	0.0	0.0
<i>Stephos deichmannae</i>	0.0	0.0	0.0	0.0	0.0
<i>Temora stylifera</i>	0.0	0.0	0.0	0.0	0.0
<i>Temora turbinata</i>	0.2	0.0	2.2	2.4	1.7
<i>Undinula vulgaris</i>	0.0	0.0	0.0	0.0	0.0
Cyclopoida					
<i>Copilia mirabilis</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus amazonicus</i>	2.5	16.9	8.7	23.9	1.7
<i>Corycaeus americanus</i>	14.1	15.9	1.1	19.1	0.9
<i>Corycaeus flaccus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus giesbrechti</i>	0.0	0.0	1.1	2.4	3.4
<i>Corycaeus latus</i>	0.0	0.0	1.1	1.2	1.7
<i>Corycaeus speciosus</i>	0.0	0.0	0.0	0.0	0.0

Table 8-6. (continued)

<i>Farranula gracilis</i>	0.0	0.0	4.3	0.0	93.0
<i>Farranula rostrata</i>	0.0	0.0	0.0	0.0	0.0
<i>Kelleria</i> sp.	0.0	3.0	1.1	0.0	0.0
<i>Lubbockia squillimana</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona nana</i>	3.8	8.9	0.0	40.7	3.4
<i>Oithona plumifera</i>	0.6	12.9	3.3	25.1	36.7
<i>Oithona robusta</i>	0.2	0.0	0.0	0.0	0.0
<i>Oithona setigera</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona similis</i>	2.3	6.9	0.0	0.0	0.0
<i>Oithona simplex</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona tenuis</i>	2.1	0.0	0.0	0.0	0.0
<i>Oithona</i> sp 1	0.0	0.0	0.0	0.0	0.0
<i>Oithona</i> spp.	0.0	0.0	0.0	0.0	0.0
<i>Oncaea conifera</i>	0.0	0.0	0.0	0.0	0.0
<i>Oncaea dentipes</i>	0.2	0.0	0.0	0.0	0.0
<i>Oncaea media</i>	7.6	51.6	220.2	20.3	12.8
<i>Oncaea mediterranea</i>	0.0	0.0	0.0	0.0	2.6
<i>Oncaea venusta</i>	1.3	1.0	0.0	1.2	9.4
<i>Saphirella</i> sp.	0.0	0.0	0.0	0.0	0.0
<i>Sapphirina nigromaculata</i>	0.0	0.0	0.0	0.0	0.0
<i>Siphonostomata</i> sp.	0.0	0.0	0.0	0.0	0.0

Table 8-6. (continued)

Copepod species	8-29-64	9-29-64	10-28-64	11-27-64	12-16-64
Calanoida					
<i>Acartia danae</i>	0.5	0.0	0.0	0.0	0.0
<i>Acartia lilljeborgi</i>	0.0	0.0	0.0	0.0	0.0
<i>Acartia tonsa</i>	0.0	0.0	0.0	0.0	0.0
<i>Acrocalanus andersoni</i>	0.0	0.0	0.0	1.4	0.0
<i>Acrocalanus longicornis</i>	0.0	24.6	2.2	14.4	2.5
<i>Calanopia americana</i>	0.0	3.9	0.0	7.2	0.8
<i>Calanus tenuicornis</i>	0.0	0.0	0.0	1.4	0.0
<i>Calocalanus contractus</i>	0.0	0.0	0.0	0.0	0.0
<i>Calocalanus gracilis</i>	0.0	0.7	2.2	0.0	0.0
<i>Calocalanus pavo</i>	3.3	13.7	13.7	14.4	0.3
<i>Calocalanus pavoninus</i>	0.5	6.5	13.5	21.6	1.8
<i>Calocalanus styliremis</i>	0.0	7.2	15.7	12.9	1.8
<i>Calocalanus sp.</i>	0.0	0.0	0.0	0.0	0.3
<i>Candacia curta</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages hamatus</i>	0.0	0.0	0.0	0.0	0.0
<i>Centropages velificatus</i>	1.6	1.3	2.2	0.0	0.3
<i>Clausocalanus arcuicornis</i>	0.0	0.0	0.0	0.0	0.0
<i>Clausocalanus furcatus</i>	11.9	195.3	114.5	132.3	21.9
<i>Clausocalanus jobei</i>	0.0	0.0	0.0	11.5	0.0
<i>Clausocalanus mastigophorus</i>	0.0	0.0	0.0	0.0	0.0
<i>Ctenocalanus vanus</i>	0.0	0.0	0.0	0.0	0.0
<i>Eucalanus pileatus</i>	0.5	2.0	0.0	1.4	1.3

Table 8-6.(continued)

<i>Euchaeta marina</i>	0.0	0.0	0.0	0.0	0.0
<i>Euchaeta paraconcinna</i>	0.0	0.0	0.0	0.0	0.0
<i>Ischnocalanus plumulosus</i>	0.0	0.0	0.0	5.8	0.0
<i>Lucicutia flavicornis</i>	0.5	0.0	0.0	1.4	0.0
<i>Lucicutia gaussae</i>	0.0	0.0	0.0	0.0	0.0
<i>Lucicutia paraclausi</i>	0.0	0.0	0.0	0.0	0.3
<i>Mecynocera clausii</i>	0.0	0.0	2.2	1.4	0.0
<i>Nannocalanus minor</i>	0.0	0.7	0.0	2.9	0.0
<i>Paracalanus aculeatus</i>	6.0	22.2	47.2	17.3	11.1
<i>Paracalanus crassirostris</i>	0.0	0.0	0.0	0.0	0.0
<i>Paracalanus denudatus</i>	0.0	0.0	0.0	1.4	0.3
<i>Paracalanus indicus</i>	3.8	50.9	0.0	23.0	32.5
<i>Paracalanus nudus</i>	0.0	0.0	0.0	0.0	0.0
<i>Paracalanus quasimodo</i>	0.0	35.9	13.5	11.5	6.0
<i>Parundinella spinodenticula</i>	0.0	0.0	0.0	0.0	0.0
<i>Scolecithrix danae</i>	0.0	0.0	11.2	0.0	0.0
<i>Stephos deichmannae</i>	0.5	0.0	0.0	1.4	0.5
<i>Temora stylifera</i>	1.6	8.5	0.0	0.0	0.0
<i>Temora turbinata</i>	0.0	2.0	4.5	1.4	1.5
<i>Undinula vulgaris</i>	0.0	0.7	0.0	0.0	0.0
Cyclopoida					
<i>Copilia mirabilis</i>	0.0	0.7	0.0	0.0	0.0
<i>Corycaeus amazonicus</i>	6.0	5.9	4.5	4.3	2.0
<i>Corycaeus americanus</i>	0.0	0.0	0.0	1.4	1.5
<i>Corycaeus flaccus</i>	0.0	0.0	0.0	0.0	0.0
<i>Corycaeus giesbrechti</i>	8.7	19.6	15.7	0.0	0.8
<i>Corycaeus latus</i>	1.6	5.9	0.0	1.4	0.0
<i>Corycaeus speciosus</i>	0.5	0.7	0.0	1.4	0.0

Table 8-6. (continued)

<i>Farranula gracilis</i>	20.1	78.4	13.5	10.1	0.8
<i>Farranula rostrata</i>	0.5	0.0	0.0	0.0	0.0
<i>Kelleria</i> sp.	0.0	0.0	0.0	4.3	0.0
<i>Lubbockia squillimana</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona nana</i>	0.5	0.0	0.0	1.4	0.5
<i>Oithona plumifera</i>	6.0	68.6	38.2	43.1	10.8
<i>Oithona robusta</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona setigera</i>	0.0	0.0	0.0	1.4	0.3
<i>Oithona similis</i>	0.0	0.0	0.0	0.0	0.3
<i>Oithona simplex</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona tenuis</i>	0.0	0.0	0.0	0.0	0.0
<i>Oithona</i> sp 1	0.0	0.0	0.0	0.0	0.0
<i>Oithona</i> spp.	0.0	0.0	0.0	0.0	0.0
<i>Oncaea conifera</i>	0.0	0.0	0.0	5.8	0.3
<i>Oncaea dentipes</i>	0.0	0.0	0.0	0.0	0.0
<i>Oncaea media</i>	6.5	12.4	13.5	5.8	1.3
<i>Oncaea mediterranea</i>	0.0	0.0	18.0	18.7	1.8
<i>Oncaea venusta</i>	36.9	62.9	208.8	44.6	12.1
<i>Saphirella</i> sp.	0.0	0.0	0.0	0.0	0.0
<i>Sapphirina nigromaculata</i>	0.5	0.0	0.0	0.0	0.0
<i>Siphonostomata</i> sp.	0.0	0.0	0.0	0.0	0.0