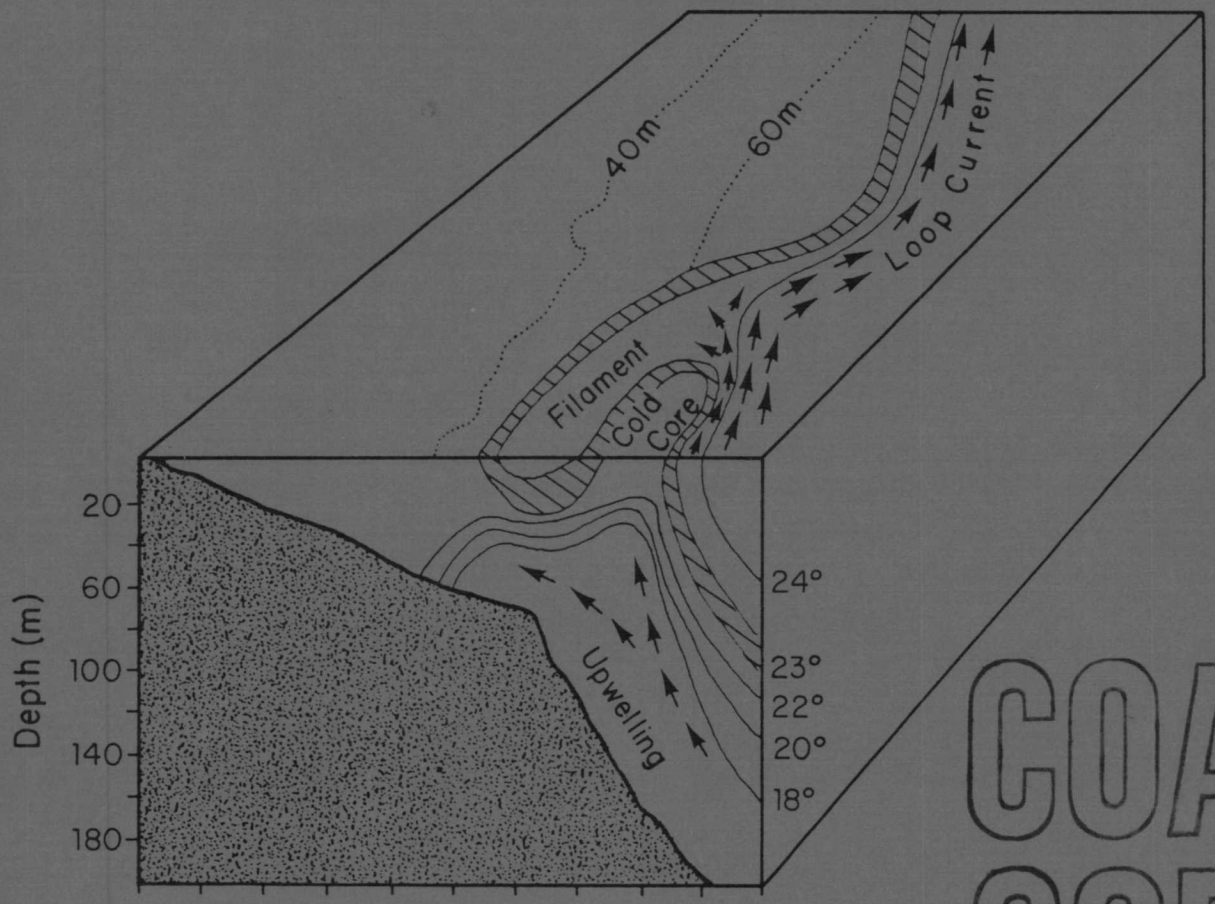
GULF OF MEXICO
OUTER CONTINENTAL
SHELF REGIONAL OFFICE

Volume 2 Data Appendix

Southwest Florida Shelf Ecosystem Study Year 2 Modification

(Contract No. 14-12-0001-29144)

Final Report



July 1, 1983

U.S. DEPARTMENT OF THE INTERIOR / MINERALS MANAGEMENT SERVICE

Final Report

Southwest Florida Shelf Ecosystems Study - Year 2

HYDROGRAPHY AND PRIMARY PRODUCTIVITY

Prepared for
Minerals Management Service
Gulf of Mexico OCS Region
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Woodward-Clyde Consultants
Skidaway Institute of Oceanography

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This report was prepared for the Minerals Management Service under contract No. 14-12-0001-29144 (AA851-CTI-45), Modification No. 1. The report has been reviewed by the Minerals Management Service and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Service, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

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PREFACE

This accompanying volume (appendix) to the main report (in volume I) has been compiled as a means of facilitating report presentation while still incorporating all of the project results into a single document. The contents of this volume are back-up data summaries that will be required for a more detailed interpretation of the results or additional analyses beyond the scope of this study. No conclusions are contained in this volume.

Appendix
Section A.1

Station Locations

Table A-1. Spring cruise station data.

STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR GMT	DEPTH M	CONSEC NUMBER
001C	25 41.3N	83 45.0W	82	04	02	9.7	97	1
002X	25 41.2N	83 53.1W	82	04	02	11.8	120	2
003C	25 38.7N	83 58.8W	82	04	02	13.0	135	3
004X	25 37.8N	84 06.0W	82	04	02	14.8	150	4
005C	25 37.9N	84 11.7W	82	04	02	16.4	160	5
006X	25 39.4N	84 17.9W	82	04	02	18.4	165	6
007C	25 39.9N	84 22.6W	82	04	02	19.9	201	7
008X	25 33.2N	84 28.1W	82	04	02	21.6	295	8
009X	25 33.4N	84 32.9W	82	04	02	22.2	351	9
010C	25 37.2N	84 39.0W	82	04	02	23.7	1046	10
011X	25 35.7N	84 45.8W	82	04	03	2.0	1630	11
012C	25 35.1N	84 51.7W	82	04	03	3.7	1740	12
024C	25 42.1N	83 05.1W	82	04	03	17.6	47	24
025X	25 40.1N	83 12.2W	82	04	03	20.1	57	25
026C	25 40.6N	83 18.8W	82	04	03	21.9	62	26
027X	25 40.8N	83 24.7W	82	04	03	23.2	66	27
028C	25 40.6N	83 32.0W	82	04	04	0.3	73	28
029X	25 40.8N	83 38.5W	82	04	04	1.5	80	29
030C	25 40.7N	83 45.8W	82	04	04	2.7	100	30
031X	25 40.5N	83 52.0W	82	04	04	3.9	116	31
032C	25 39.0N	83 58.9W	82	04	04	5.1	135	32
033X	25 39.4N	84 05.8W	82	04	04	6.5	146	33
034C	25 38.0N	84 11.9W	82	04	04	7.6	157	34

Table A-1. (Continued)

STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR GMT	DEPTH M	CONSEC NUMBER
035X	25 38.1N	84 18.0W	82	04	04	9.1	153	35
036C	25 37.9N	84 25.6W	82	04	04	10.0	215	36
037X	25 36.6N	84 31.7W	82	04	04	11.6	424	37
038C	25 35.2N	84 39.1W	82	04	04	12.8	424	38
039X	25 36.3N	84 38.7W	82	04	04	14.0	1016	39
040X	25 40.8N	84 39.0W	82	04	04	14.5	789	40
041X	25 44.8N	84 40.2W	82	04	04	15.0	760	41
042X	25 49.5N	84 41.7W	82	04	04	15.5	866	42
043X	25 54.1N	84 43.1W	82	04	04	16.0	884	43
044X	25 58.7N	84 44.7W	82	04	04	16.5	932	44
045X	26 03.5N	84 45.5W	82	04	04	17.0	1137	45
046X	26 08.5N	84 46.4W	82	04	04	17.5	1210	46
047X	26.09.3N	84 41.5W	82	04	04	18.0	596	47
048X	26 09.2N	84 37.9W	82	04	04	18.5	293	48
049X	26 09.5N	84 32.9W	82	04	04	19.0	221	49
050X	26 09.0N	84 28.0W	82	04	04	19.5	211	50
051X	26 09.1N	84 20.1W	82	04	04	21.0	193	51
052X	26 09.5N	84 14.8W	82	04	04	21.5	170	52
053X	26 10.0N	84 08.9W	82	04	04	22.0	158	53
054X	26 10.6N	84 03.4W	82	04	04	22.5	146	54
055X	26 10.8N	83 58.4W	82	04	04	23.0	128	55
056X	26 11.1N	83 53.9W	82	04	04	23.5	107	56
057C	26 11.1N	83 49.1W	82	04	05	0.3	96	57

Table A-1. (Continued)

STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR GMT	DEPTH M	CONSEC NUMBER
058C	26 10.2N	84 03.5W	82	04	05	2.8	146	58
059C	26 08.9N	84 18.0W	82	04	05	5.3	190	59
060C	26 08.1N	84 24.8W	82	04	05	8.8	226	60
061C	26 08.3N	84 46.2W	82	04	05	11.4	1027	61
062C	26 06.7N	85 00.0W	82	04	05	14.4	3230	62
063X	26 03.9N	84 57.0W	82	04	05	16.0	3225	63
064X	26 04.3N	84 54.5W	82	04	05	16.3	3220	64
065X	26 04.6N	84 50.3W	82	04	05	16.6	3085	65
066X	26 05.0N	84 48.0W	82	04	05	17.0	1210	66
067X	26 05.2N	84 43.8W	82	04	05	17.3	640	67
068X	26 05.7N	84 40.3W	82	04	05	17.6	402	60
069X	26 05.9N	84 37.4W	82	04	05	18.0	237	69
070X	26 06.8N	84 33.9W	82	04	05	18.3	219	70
071X	26 07.9N	84 30.1W	82	04	05	18.6	210	71
072X	26 08.0N	84 27.0W	82	04	05	19.0	210	72
073X	26 10.0N	84 20.6W	82	04	05	20.5	195	73
074X	26 09.3N	84 15.1W	82	04	05	21.0	177	74
075X	26 09.7N	84 09.1W	82	04	05	21.5	162	75
076X	26 10.4N	84 03.4W	82	04	05	22.0	146	76
077C	26 12.5N	83 19.2W	82	04	06	2.9	56	77
078X	26 12.5N	83 26.4W	82	04	06	4.3	61	78
079C	26 11.9N	83 33.8W	82	04	06	5.8	65	79
080X	26 12.2N	83 42.0W	82	04	06	7.6	72	80

Table A-1. (Continued)

STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR GMT	DEPTH M	CONSEC NUMBER
081C	26 11.5N	83 48.8W	82	04	06	8.9	98	81
082X	26 11.6N	83 55.9W	82	04	06	10.4	120	82
083C	26 09.9N	84 03.5W	82	04	06	11.6	146	83
084X	26 09.8N	84 10.8W	82	04	06	12.9	161	84
085C	26 08.9N	84 18.2W	82	04	06	14.0	186	85
086X	26 08.8N	84 25.3W	82	04	06	15.7	202	86
087C	26 08.2N	84 32.3W	82	04	06	16.8	218	87
088X	26 07.0N	84 38.8W	82	04	06	19.1	318	88
089C	26 06.5N	84 45.1W	82	04	06	20.2	899	89
090X	26 11.1N	84 47.0W	82	04	06	22.0	994	90
091X	26 14.5N	84 47.6W	82	04	06	22.5	1013	91
092X	26 17.4N	84 48.9W	82	04	06	23.0	1013	92
093X	26 20.3N	84 49.7W	82	04	06	23.5	1120	93
094X	26 22.1N	84 50.6W	82	04	06	24.0	1155	94
095X	26 25.8N	84 50.9W	82	04	07	0.5	1100	95
096X	26 28.5N	84 51.5W	82	04	07	1.0	1030	96
097X	26 34.0N	84 51.9W	82	04	07	2.0	865	97
098X	26 39.7N	84 53.1W	82	04	07	3.0	445	98
099X	26 46.0N	84 53.8W	82	04	07	4.0	650	99
100C	26 49.9N	84 55.0W	82	04	07	5.0	1020	100
101X	26 49.3N	84 47.4W	82	04	07	6.8	865	101
102C	26 55.4N	84 41.0W	82	04	07	8.3	223	102
103X	26 57.4N	84 34.1W	82	04	07	10.2	197	103

Table A-1. (Continued)

STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR GMT	DEPTH M	CONSEC NUMBER
104C	27 00.6N	84 27.7W	82	04	07	11.6	164	104
105X	27 02.7N	84 21.0W	82	04	07	13.2	139	105
106C	27 05.6N	84 14.2W	82	04	07	14.4	120	106
107X	27 08.1N	84 07.4W	82	04	07	15.8	84	107
108X	27 10.0N	84 00.9W	82	04	07	16.7	77	108
109X	27 13.0N	83 51.1W	82	04	07	17.4	65	109
110C	27 15.0N	83 47.2W	82	04	07	18.7	54	110

Table A-2. Summer cruise station data.

STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR GMT	DEPTH M	CONSEC NUMBER
001X	26 52.9N	83 46.9W	82	09	13	5.7	68	1
002X	26 44.0N	83 44.0W	82	09	13	7.0	72	2
003X	26 37.0N	83 41.0W	82	09	13	8.0	68	3
004X	26 28.0N	83 38.9W	82	09	13	9.2	68	4
005X	26 22.1N	83 35.0W	82	09	13	10.1	63	5
006X	26 13.1N	83 32.0W	82	09	13	11.3	63	6
007X	26 05.0N	83 30.0W	82	09	13	12.3	62	7
008X	25 57.1N	83 26.0W	82	09	13	13.4	63	8
009X	25.48.0N	83.24.0W	82	09	13	14.5	62	9
010B	25 50.0N	83 09.8W	82	09	13	17.0	54	10
011X	25 48.8N	83 15.4W	82	09	13	19.8	57	11
012C	25 47.1N	83 20.0W	82	09	13	20.7	60	12
013X	26 46.0N	83 26.0W	82	09	13	21.4	65	13
014C	256 45.0N	83 32.2W	82	09	13	22.0	70	14
015XB	25 42.2N	83 41.9W	82	09	14	0.8	88	15
016X	25 42.1N	83 47.7W	82	09	14	1.8	105	16
017XB	25 40.0N	83 52.0W	82	09	14	2.4	115	17
018X	25 38.5N	83 57.5W	82	09	14	3.5	132	18
019XB	25 37.0N	84 03.1W	82	09	14	4.1	140	19
020X	25 35.9N	84 08.2W	82	09	14	5.3	150	20
021XB	25 33.3N	84 14.1W	82	09	14	5.9	162	21
022X	25 31.9N	84 19.6W	82	09	14	7.1	162	22
023XB	25 29.3N	84 24.5W	82	09	14	7.7	217	23
024X	25 28.4N	84 30.4W	82	09	14	8.8	437	24

Table A-2. (Continued)

STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR GMT	DEPTH M	CONSEC NUMBER
025XB	25 27.2N	84 34.4W	82	09	14	9.3	1260	25
026X	25 24.8N	84 41.4W	82	09	14	10.9	1830	26
027C	25 24.9N	84 45.1W	82	09	14	11.3	1980	27
028X	25 31.8N	84 47.5W	82	09	14	13.8	2290	28
029X	25 39.4N	84 49.7W	82	09	14	14.9	1740	29
030C	25 47.6N	84 52.8W	82	09	14	16.3	1740	30
031C	25 50.1N	84 48.1W	82	09	14	19.1	1170	31
032X	25 47.8N	84 53.2W	82	09	14	20.1	1740	32
033C	25 46.0N	84 57.9W	82	09	14	20.7	3300	33
034C	25 38.6N	84 58.3W	82	09	14	22.0	3340	34
035C	25 29.7N	84 55.0W	82	09	14	23.4	3300	35
036CB	25 20.5N	84 53.1W	82	09	15	0.5	3350	36
037X	25 21.0N	84 48.8W	82	09	15	2.5	3340	37
038CB	25 24.1N	84 45.0W	82	09	15	3.3	1980	38
039X	25 23.4N	84 40.0W	82	09	15	5.2	1530	39
040CB	25 25.2N	84 33.5W	82	09	15	6.2	915	40
041X	25 26.7N	84 30.2W	82	09	15	8.1	440	41
042CB	25 28.7N	84 25.1W	82	09	15	8.7	220	42
043X	25 30.8N	84 18.9W	82	09	15	10.6	163	43
044CB	25 33.3N	84 14.1W	82	09	15	11.4	163	44
045X	25 35.2N	84 08.6W	82	09	15	13.2	152	45
046CB	25 36.2N	84 03.3W	82	09	15	13.7	142	46
047X	25 38.5N	83 57.3W	82	09	15	15.5	131	47
048CB	25 40.0N	83 52.0W	82	09	15	16.5	120	48

Table A-2. (Continued)

STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR GMT	DEPTH M	CONSEC NUMBER
049X	25 41.4N	83 47.5W	82	09	15	18.0	105	49
050X	25 42.2N	83 41.8W	82	09	15	18.7	88	50
051X	25 43.7N	83 36.8W	82	09	15	19.4	77	51
052X	25 44.8N	83 31.8W	82	09	15	20.0	70	52
053X	25 50.3N	83 24.9W	82	09	15	21.3	67	53
054X	25 47.2N	83 20.3W	82	09	15	22.0	64	54
055X	25 48.1N	83 15.1W	82	09	15	22.6	58	55
056X	25 50.0N	83 10.2W	82	09	15	23.2	54	56
057C	25 50.1N	83 10.4W	82	09	17	8.7	55	57
058X	25 49.3N	83 15.0W	82	09	17	9.7	58	58
059C	25 47.1N	83 20.0W	82	09	17	10.2	61	59
060X	25 46.3N	83.26.2W	82	09	17	11.2	65	60
061C	25 45.0N	83 32.2W	82	09	17	11.9	71	61
062X	25 43.6N	83 37.3W	82	09	17	12.8	75	62
063C	25 42.2N	83 41.9W	82	09	17	13.3	91	63
064X	25 40.8N	83 47.0W	82	09	17	14.2	102	64
065C	25 39.9N	83 52.0W	82	09	17	14.7	117	65
066X	25 38.5N	83 57.4W	82	09	17	16.5	135	66
067C	25 36.6N	84 03.6W	82	09	17	17.0	145	67
068X	25 35.2N	84 08.2W	82	09	17	18.6	153	68
069C	25 33.0N	84 14.7W	82	09	17	19.1	162	69
070X	25 30.8N	84 18.9W	82	09	17	20.3	159	70
071C	25 29.3N	84 25.1W	82	09	17	21.6	203	71
072X	25 27.9N	84 30.1W	82	09	17	22.2	484	72

Table A-2. (Continued)

STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR GMT	DEPTH M	CONSEC NUMBER
073C	25 27.2N	84 34.4W	82	09	17	22.7	1260	73
074C	25 24.4N	84 40.2W	82	09	17	24.0	1830	74
075C	25 25.0N	84 46.0W	82	09	18	2.1	1980	75
076C	25 25.0N	84 46.0W	82	09	18	3.6	2290	76
077C	25 22.5N	84 44.3W	82	09	18	5.9	1980	77
078X	25 23.8N	84 40.0W	82	09	18	6.9	1830	78
079C	25 25.5N	84 33.5W	82	09	18	8.3	1260	79
080X	25 26.7N	84 30.2W	82	09	18	8.9	445	80
081C	25 28.1N	84 24.6W	82	09	18	9.2	204	81
082X	25 30.5N	84 18.9W	82	09	18	10.8	1259	82
083C	25 33.0N	84 13.9W	82	09	18	11.5	163	83
084X	25 34.4N	84 08.1W	82	09	18	12.8	149	84
085C	25 37.0N	84 03.0W	82	09	18	13.5	143	85
086X	25 38.5N	83 57.3W	82	09	18	14.4	130	86
087C	25 40.0N	83 51.9W	82	09	18	15.2	117	87
088X	25 41.1N	83 47.6W	84	09	18	16.3	99	88
089C	25 42.1N	83 42.0W	82	09	18	16.9	90	89
090X	25 43.4N	83 36.7W	82	09	18	18.1	73	90
091C	25 45.0N	83 32.1W	82	09	18	19.0	71	91
092X	25 46.2N	83 26.2W	82	09	18	19.7	63	92
093C	25 47.0N	83 20.2W	82	09	18	20.4	61	93
094X	25 48.8N	83 15.1W	82	09	18	21.2	57	94
095C	25 50.0N	83 10.0W	82	09	18	21.8	55	95

Appendix
Section A.2

Spring Cruise
Phosphate and Silicate Sections

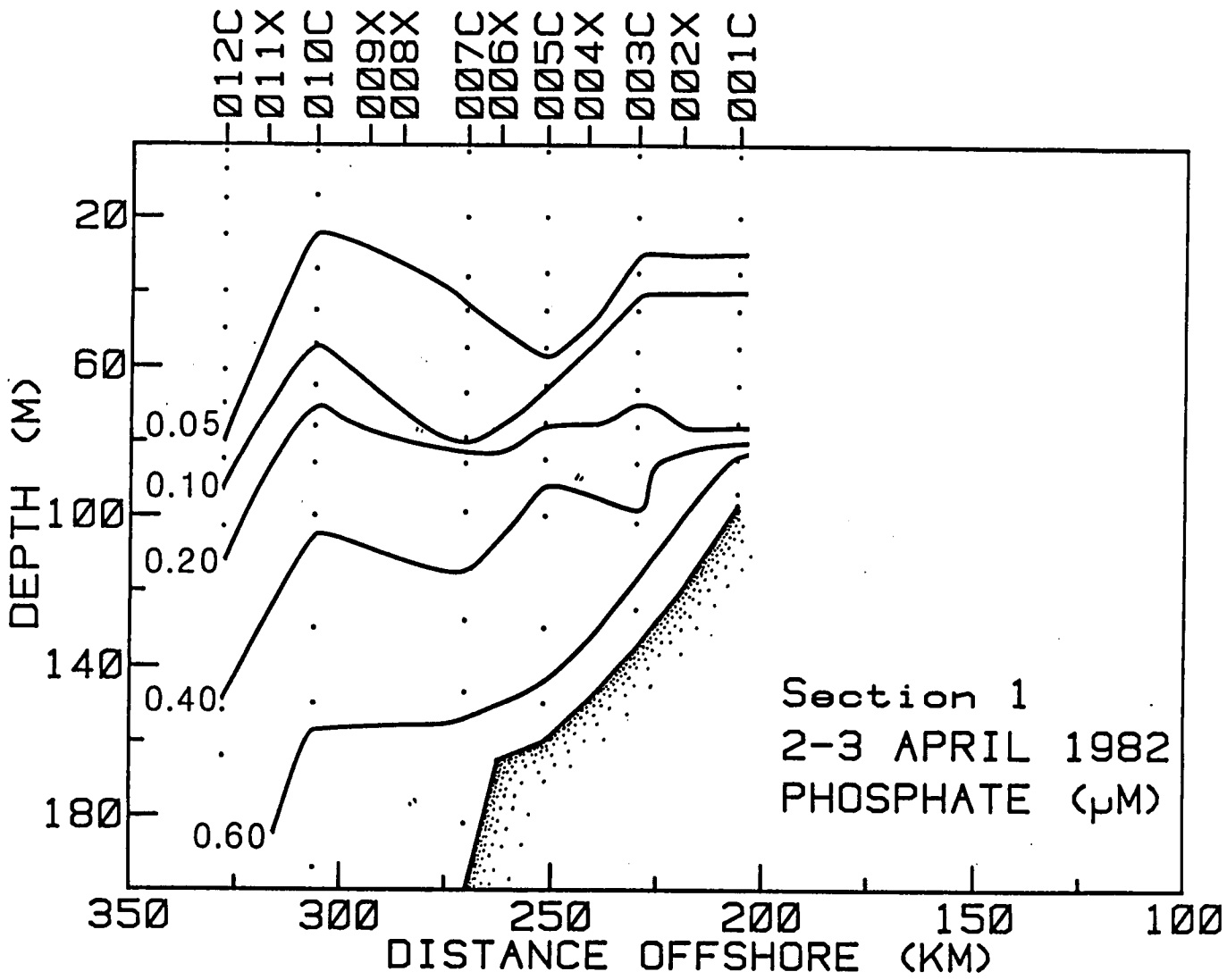

Figure A-1. Spring cruise, transect 1 phosphate section.

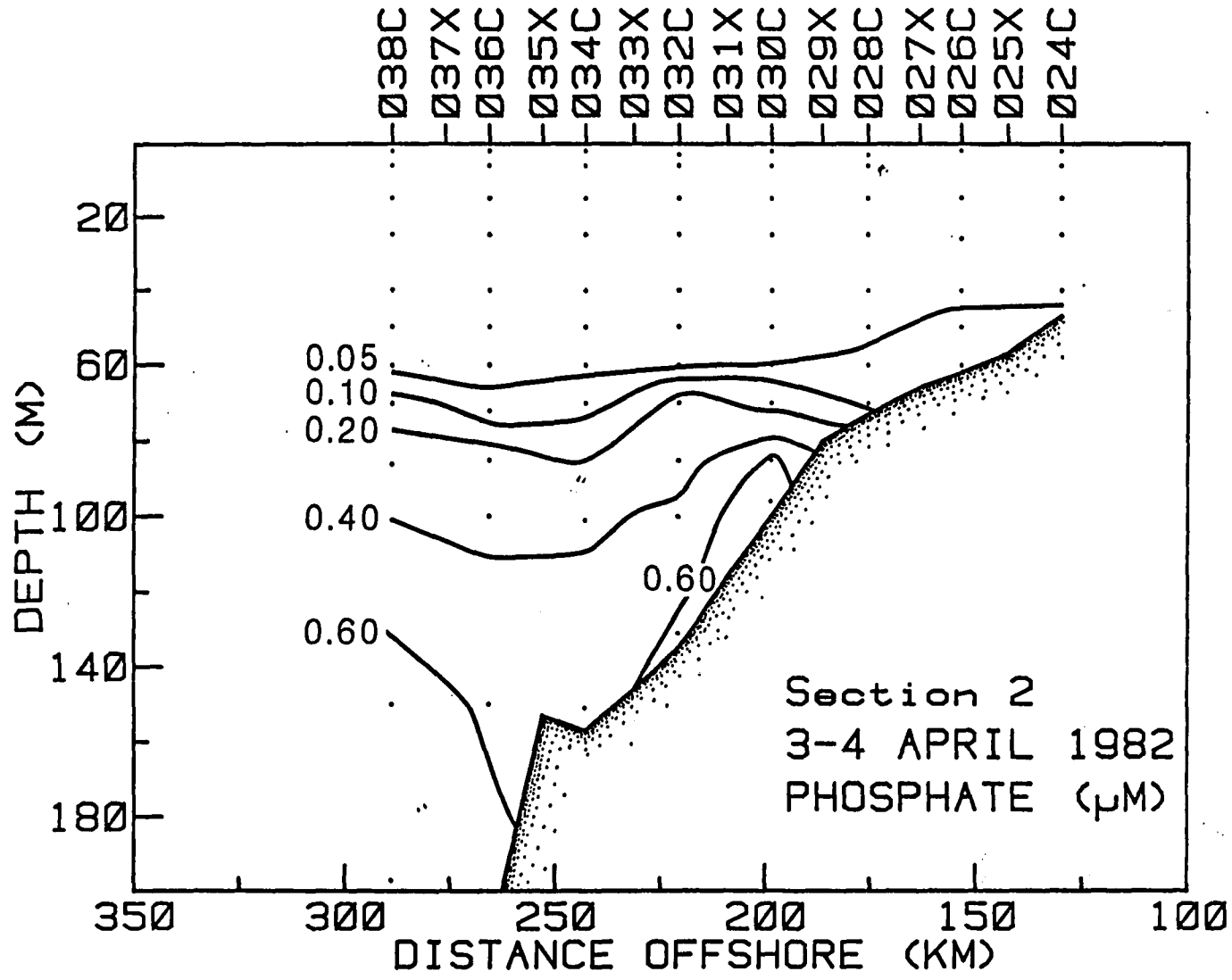

Figure A-2. Spring cruise, transect 2 phosphate section.

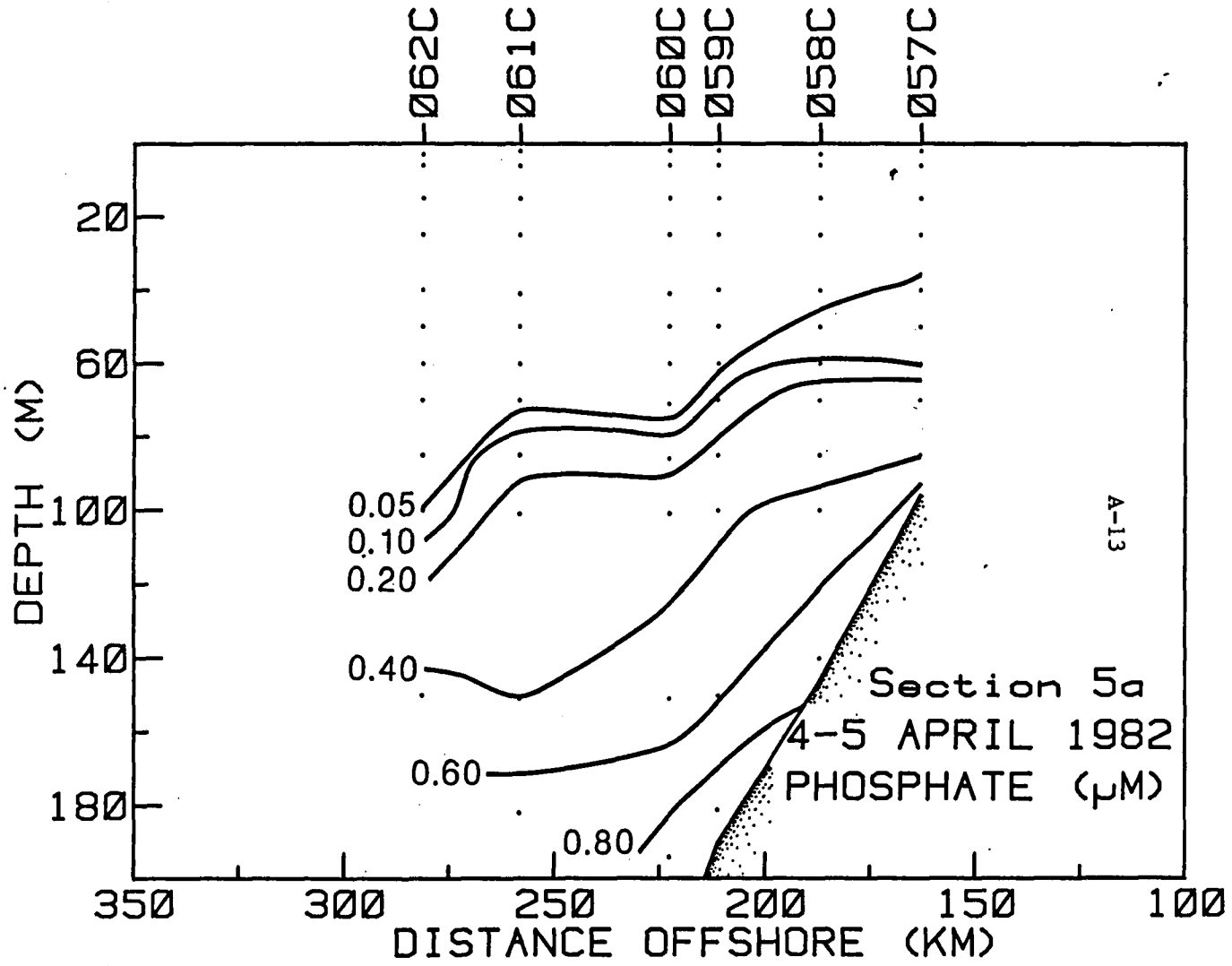

Figure A-3. Spring cruise, transect 5a phosphate section.

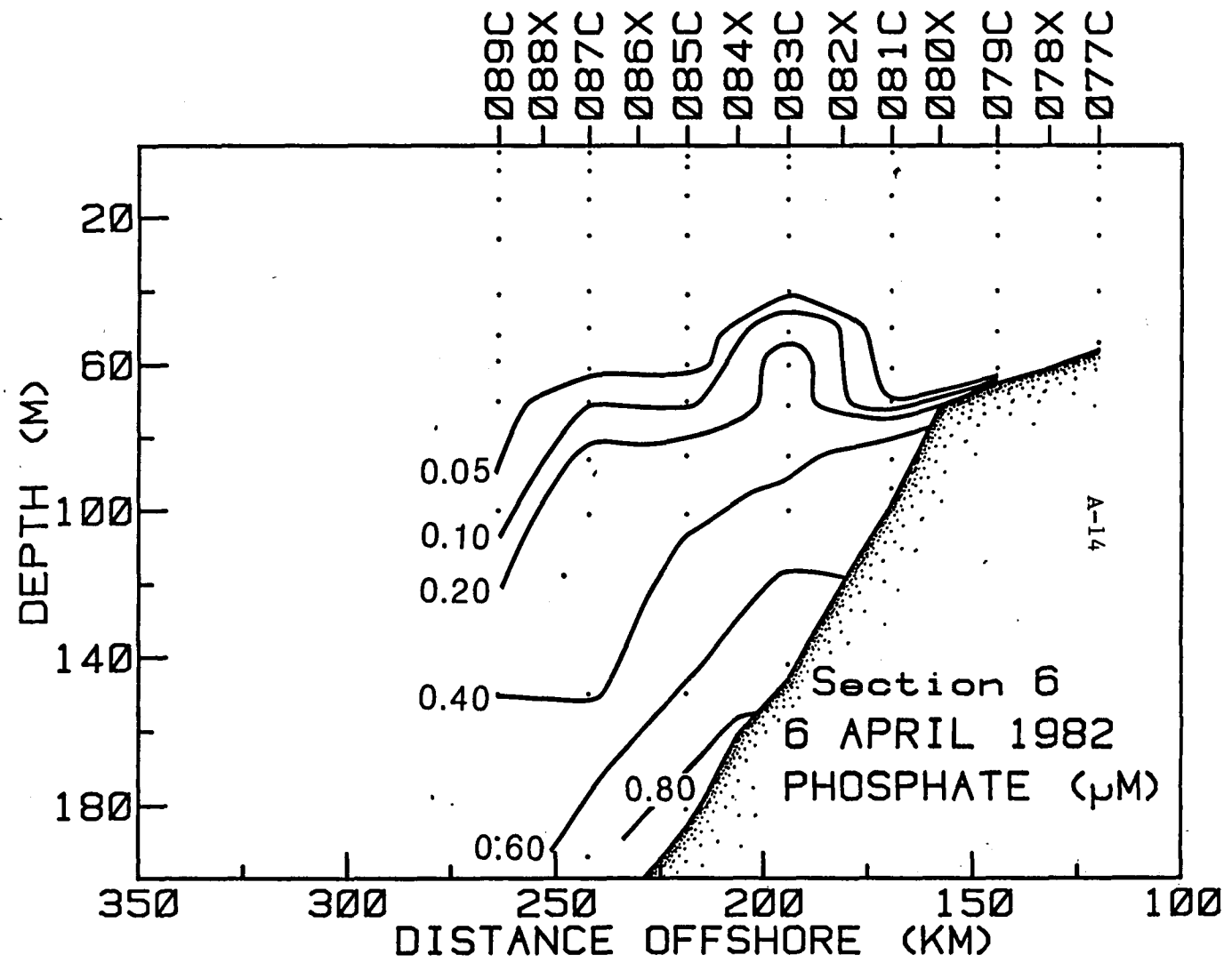

Figure A-4. Spring cruise, transect 6 phosphate section.

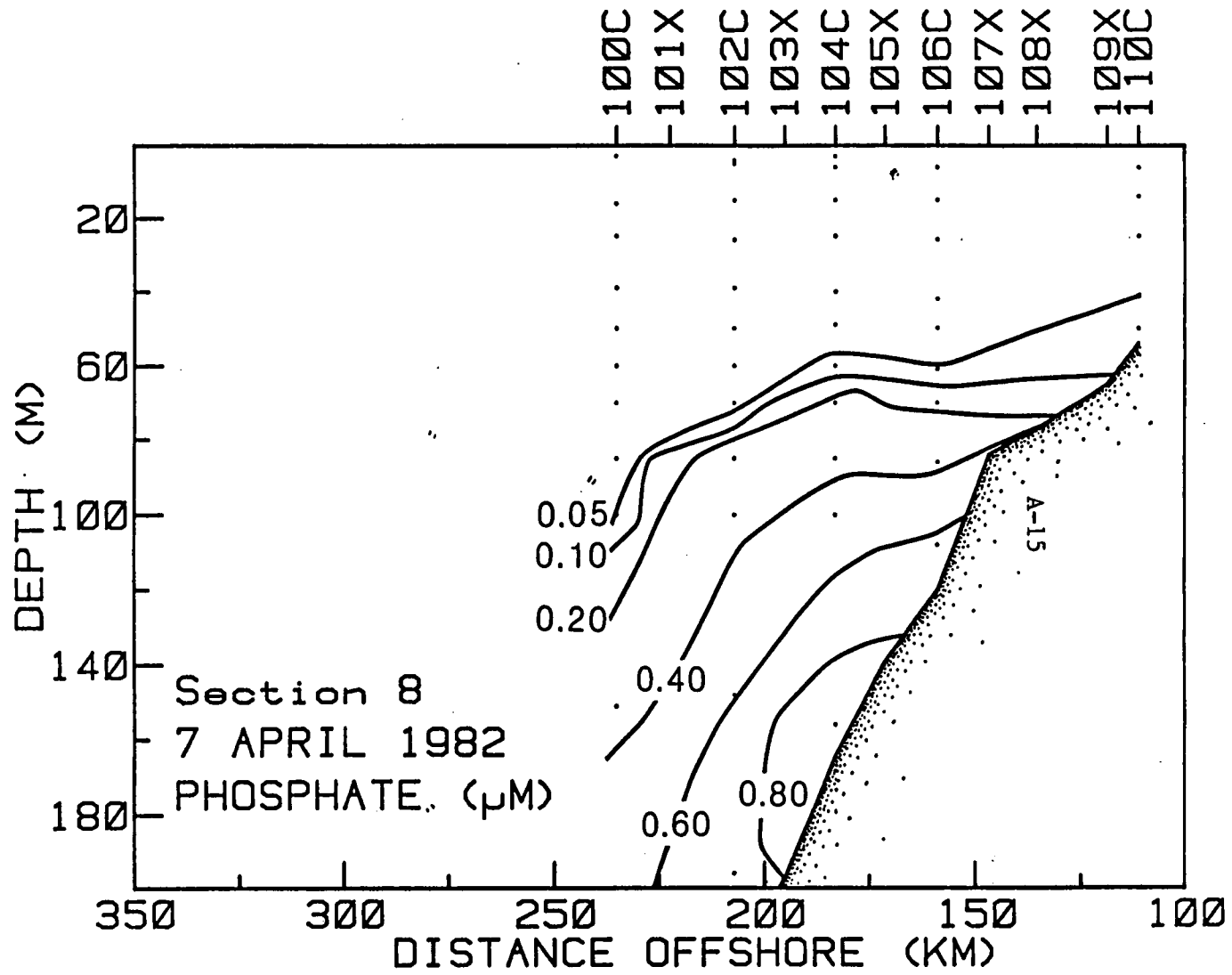

Figure A-5. Spring cruise, transect 8 phosphate section.

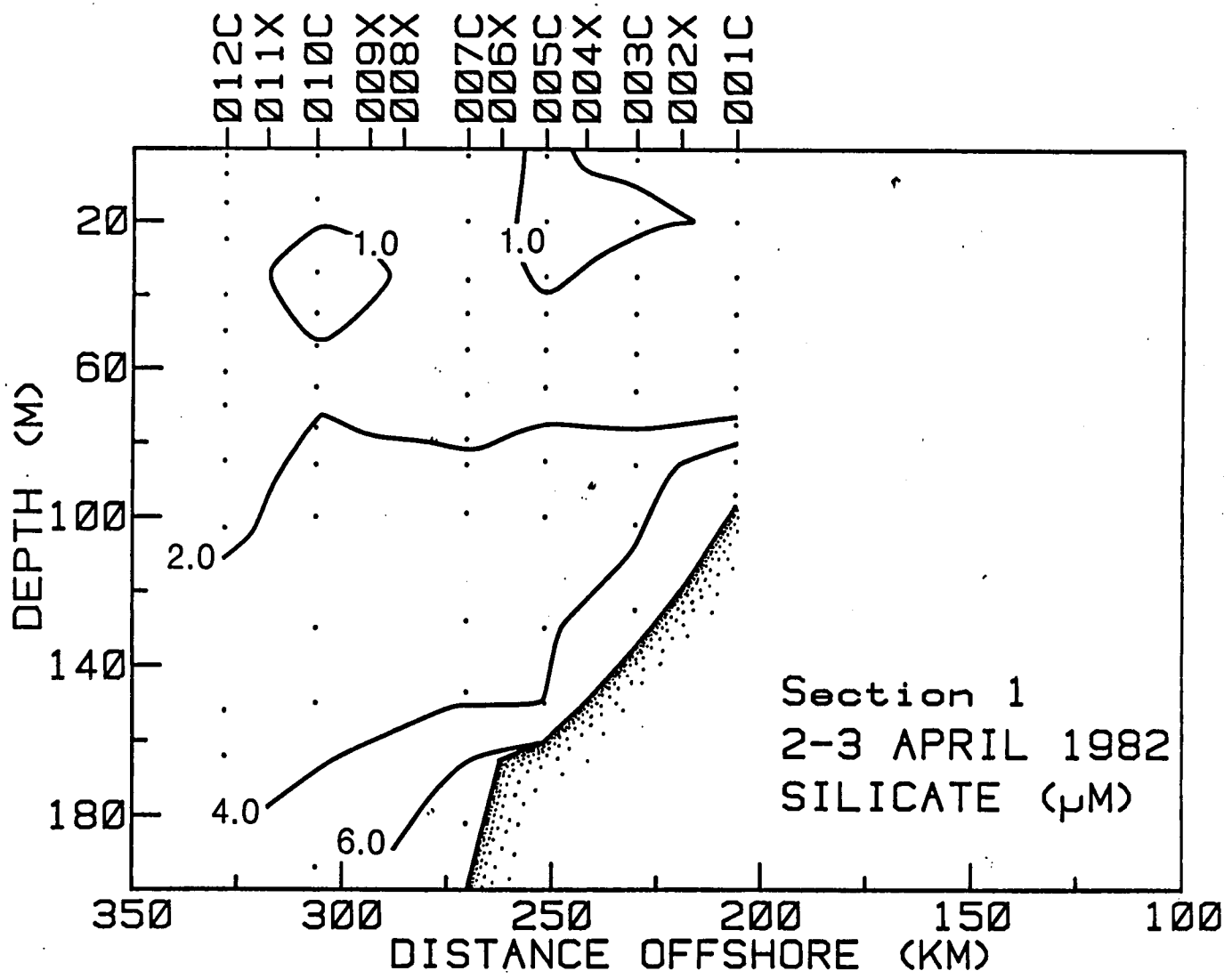

Figure A-6. Spring cruise, transect 1 silicate section.

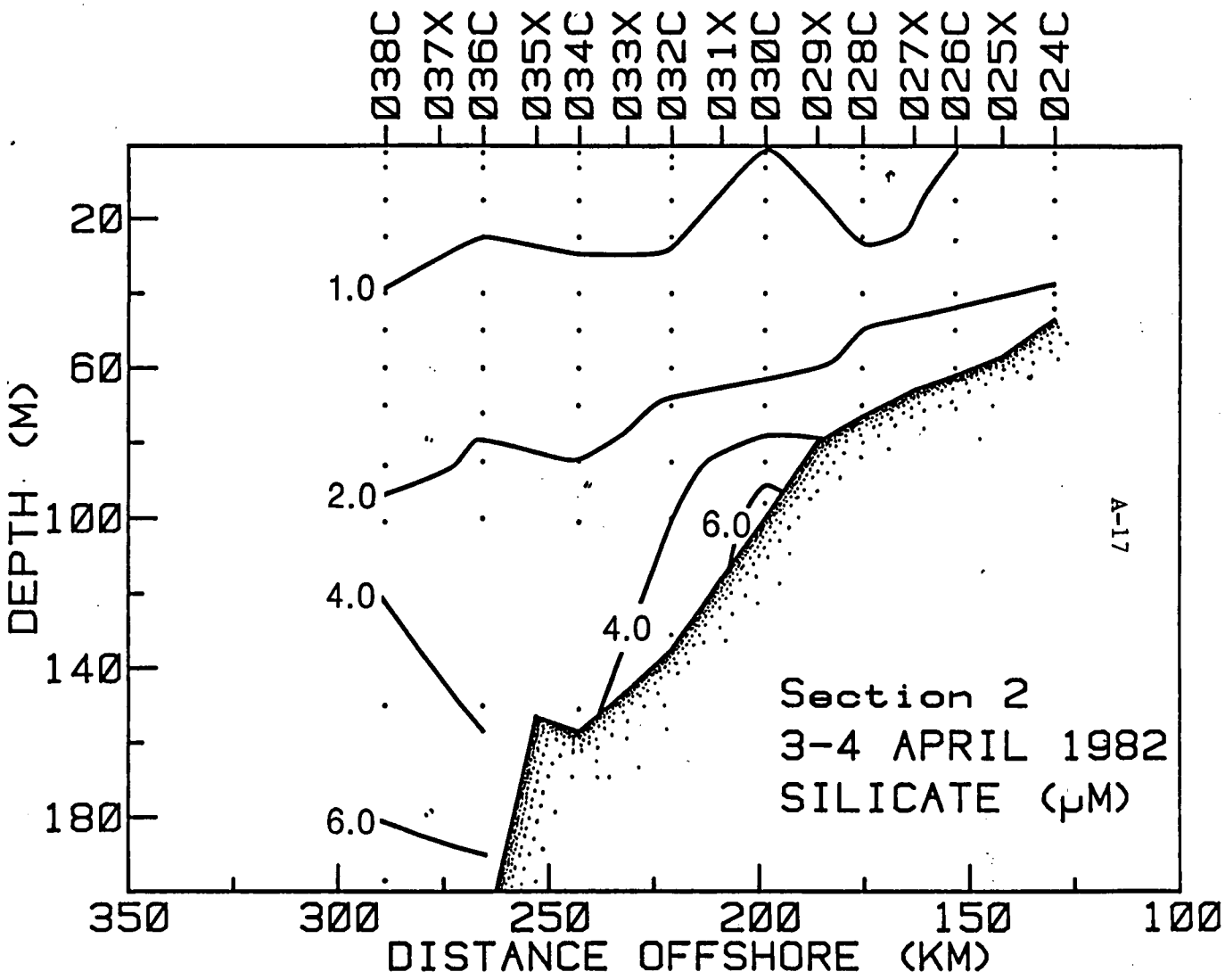

Figure A-7. Spring cruise, transect 2 silicate section.

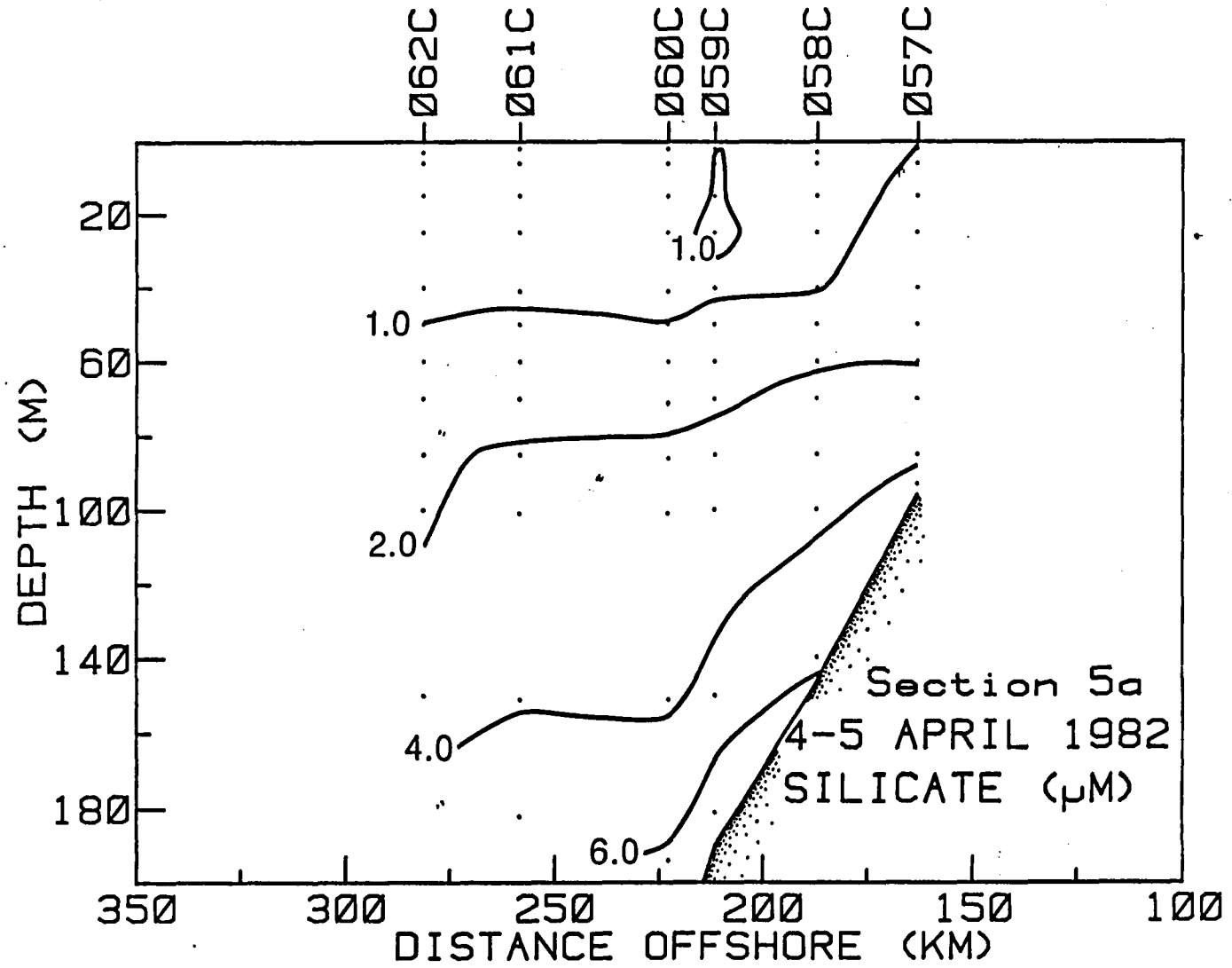

Figure A-8. Spring cruise, transect 5a silicate section.

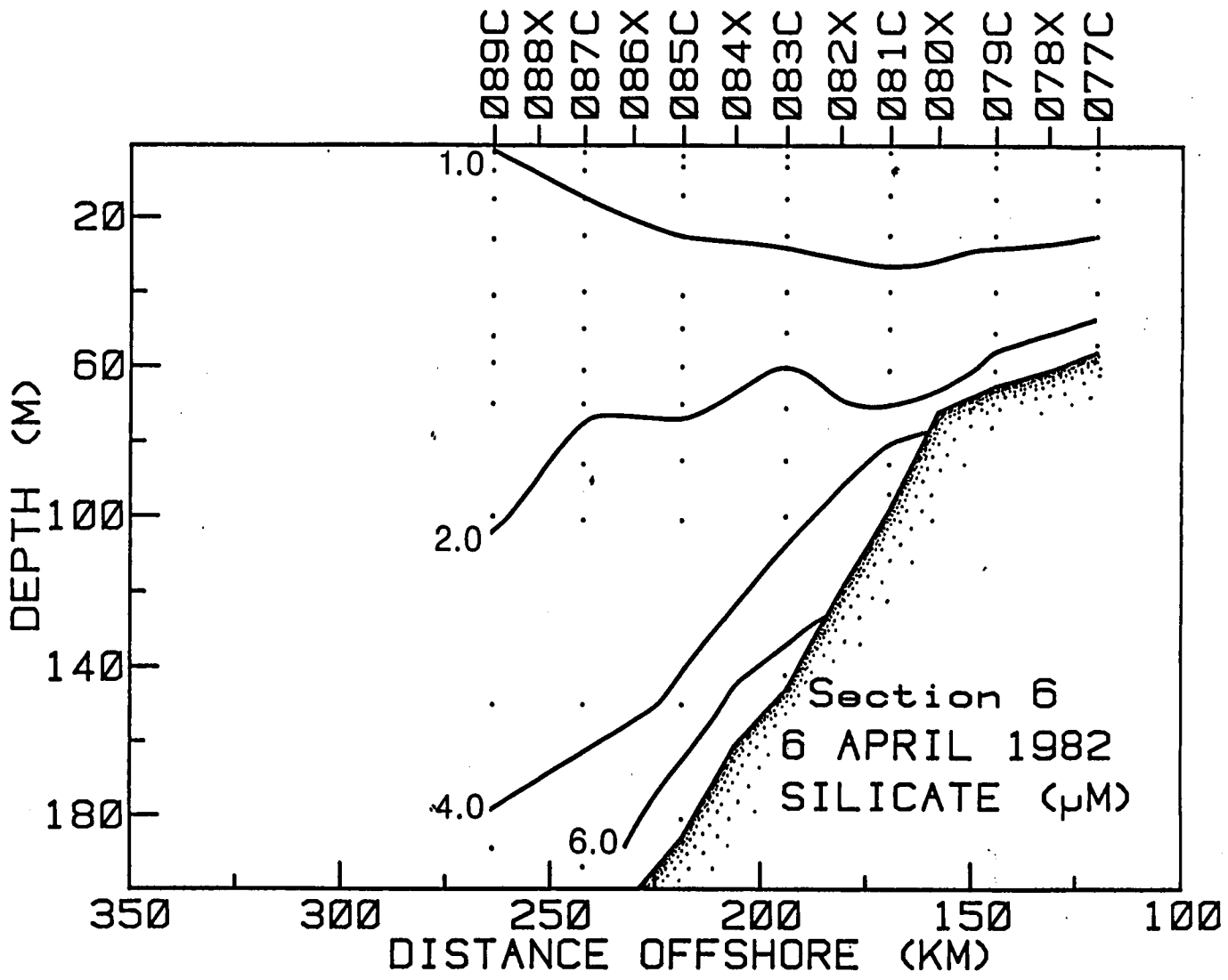

Figure A-9. Spring cruise, transect 6 silicate section.

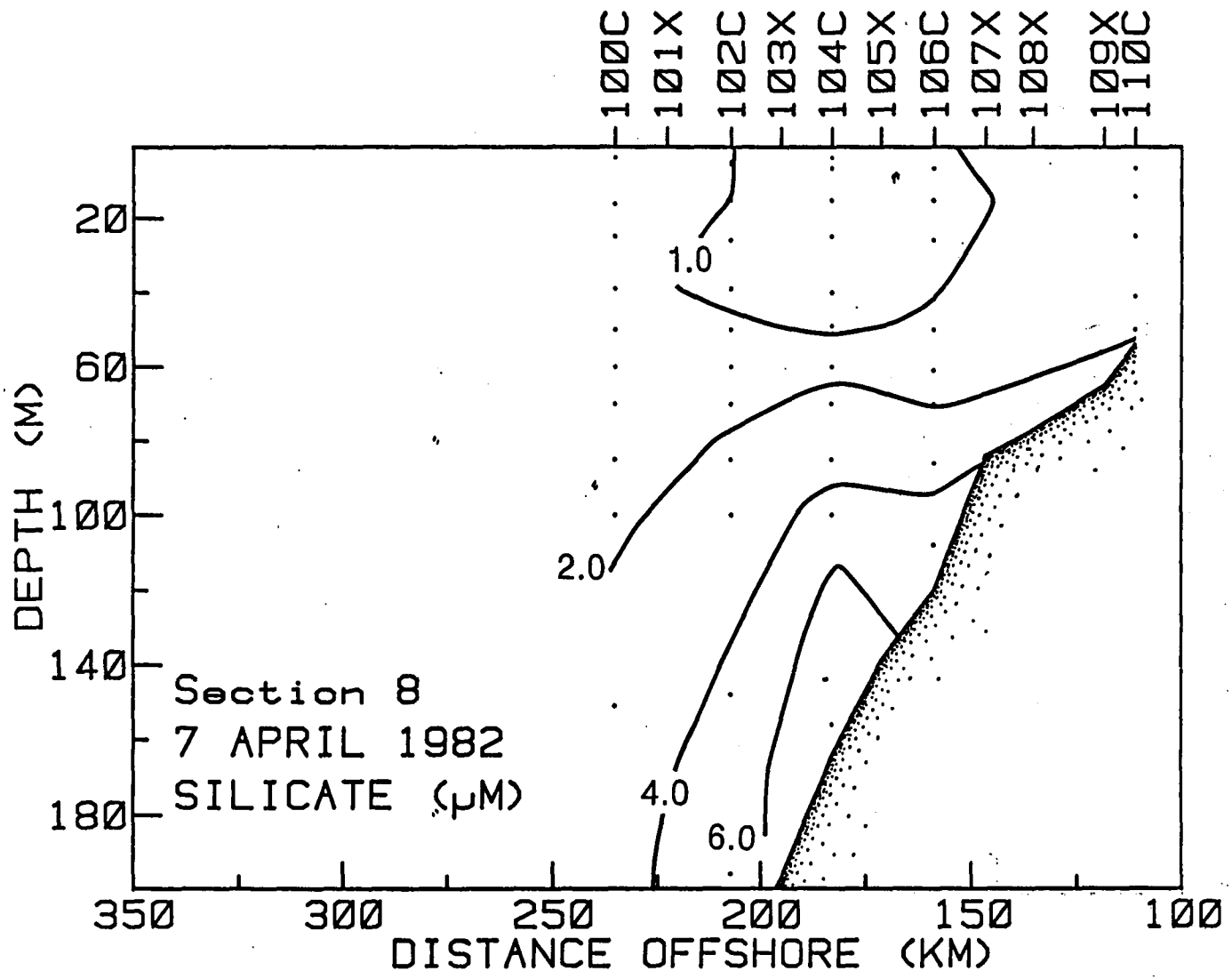

Figure A-10. Spring cruise, transect 8 silicate section.

Appendix
Section A.3

Summer Cruise
Phosphate and Silicate Sections

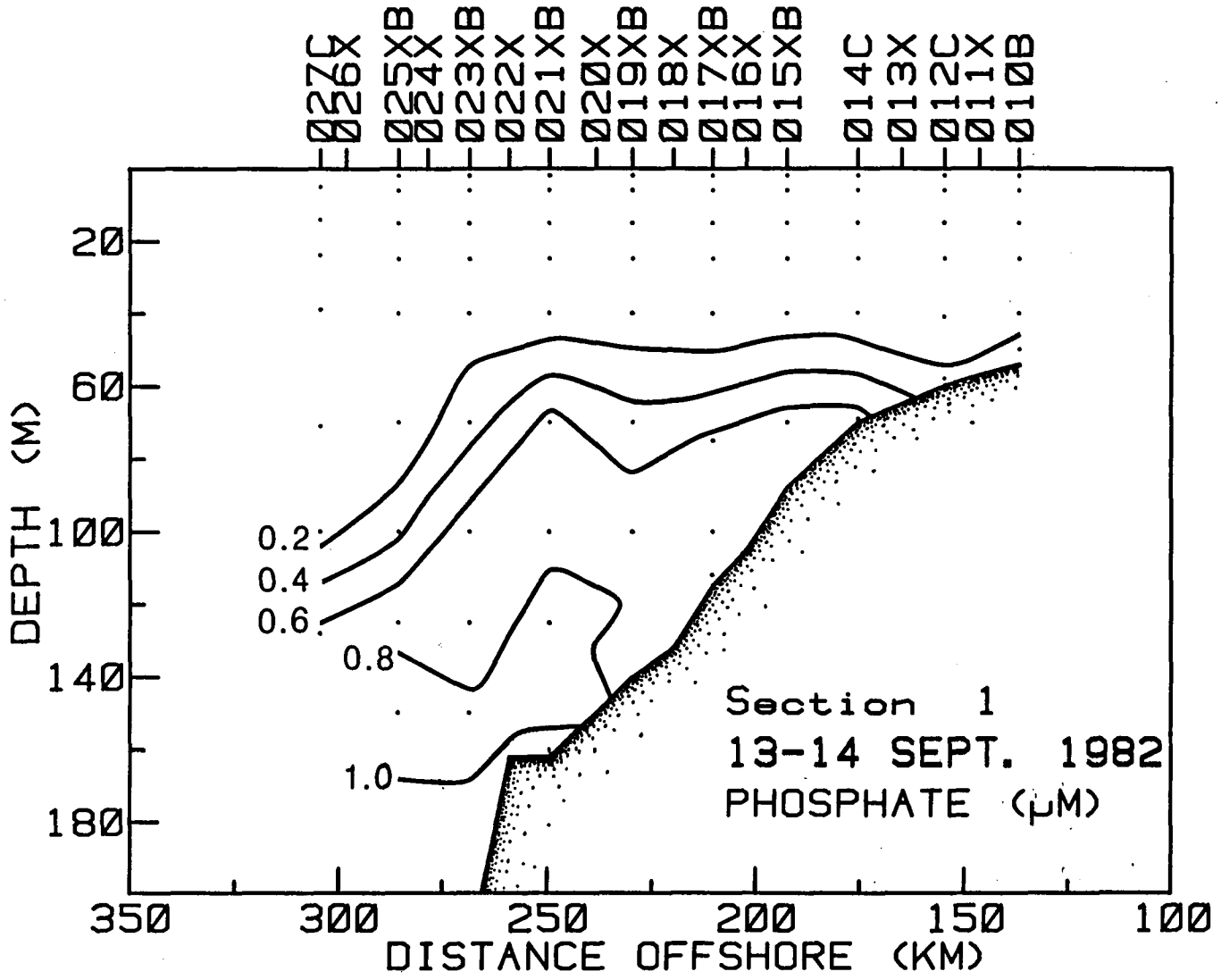

Figure A-11. Summer cruise, transect 1 phosphate section.

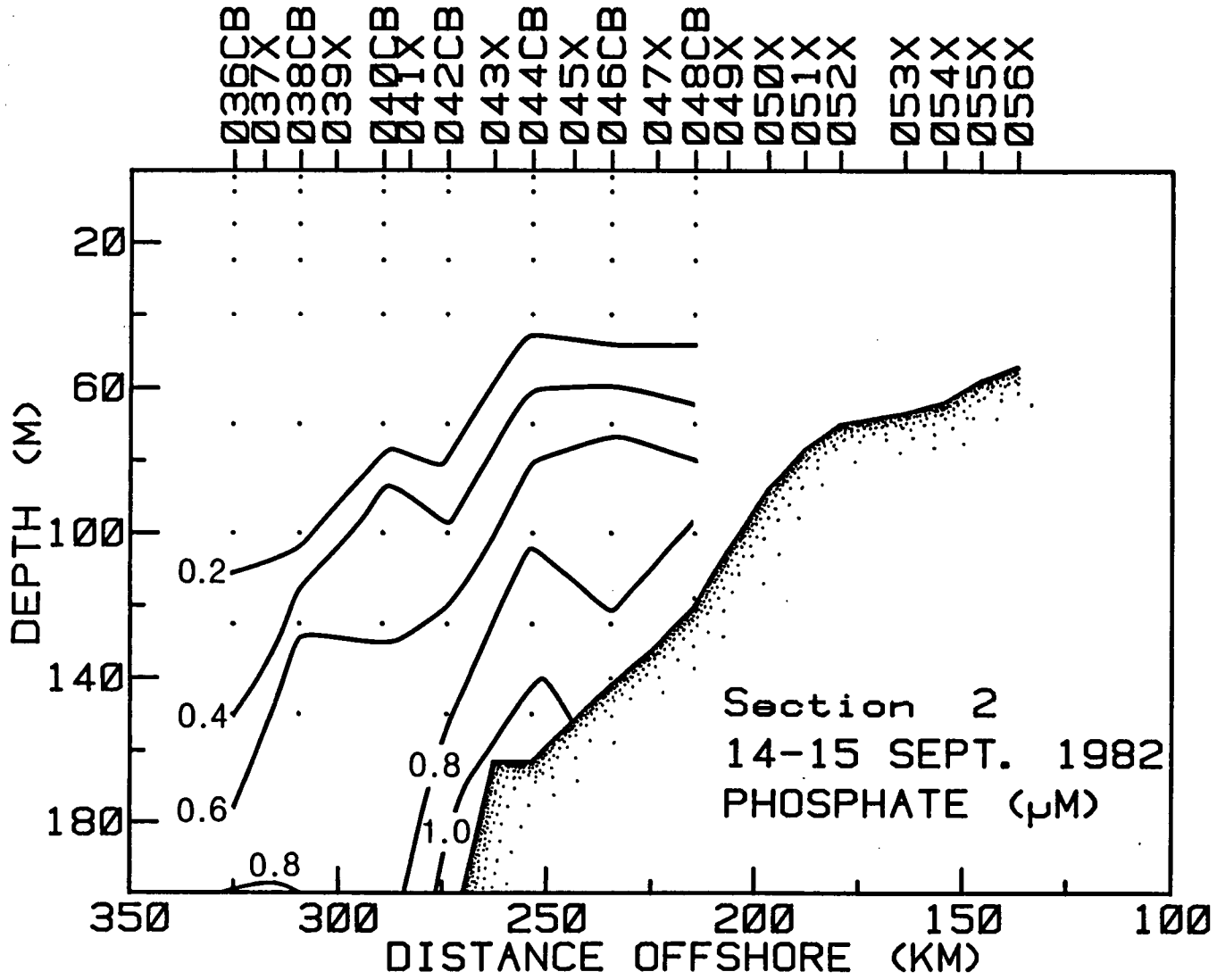

Figure A-12. Summer cruise, transect 2 phosphate section.

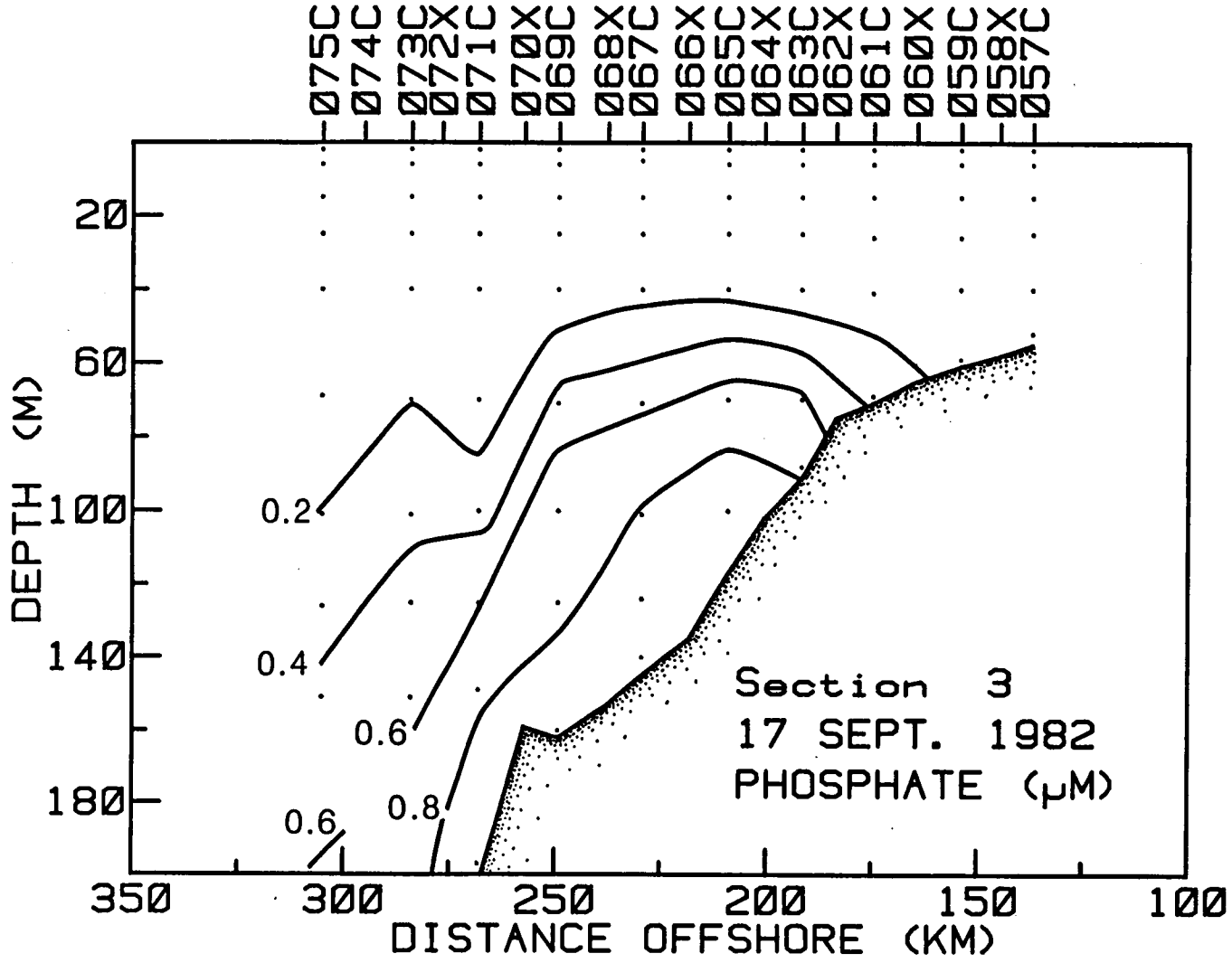

Figure A-13. Summer cruise, transect 3 phosphate section.

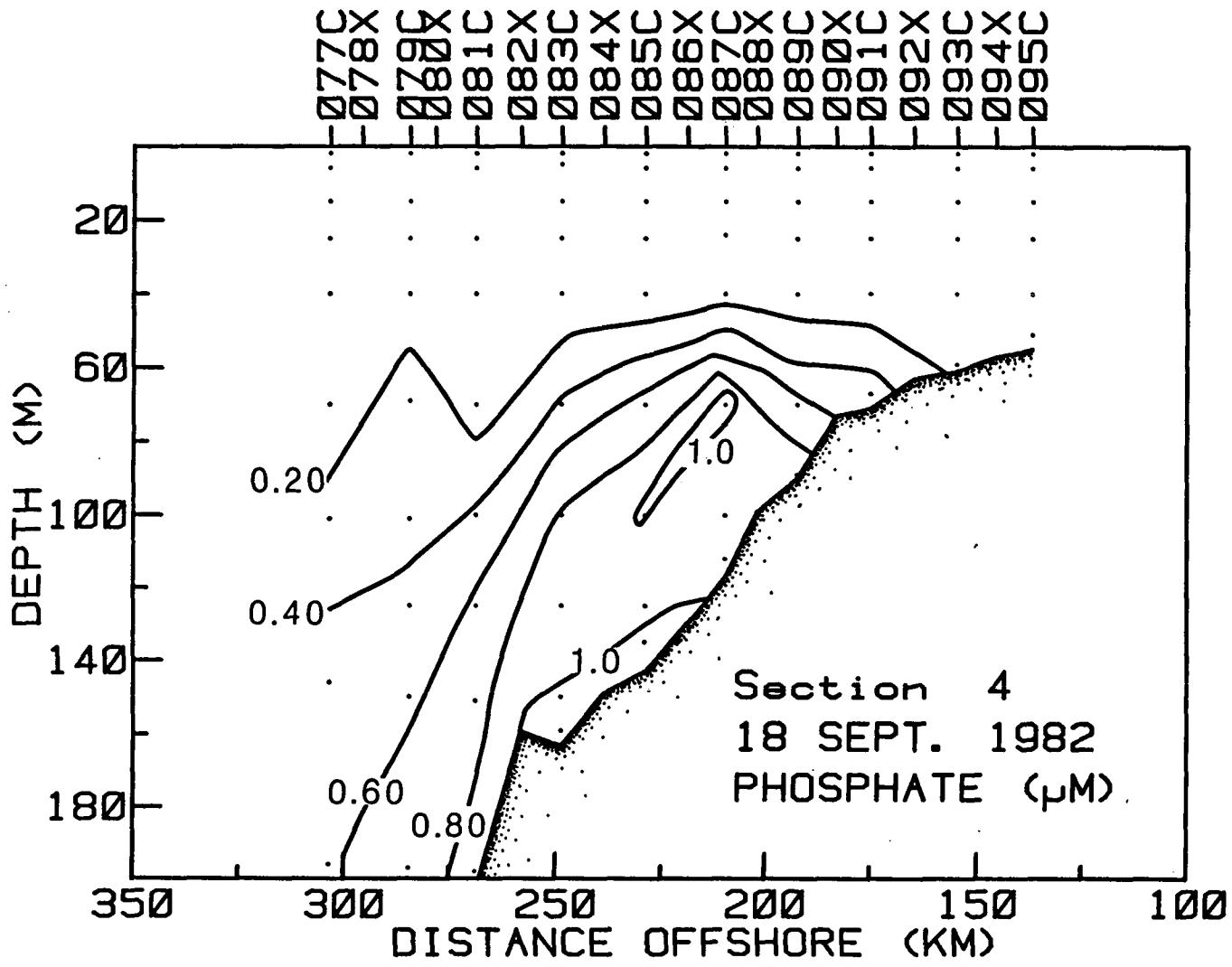

Figure A-14. Summer cruise, transect 4 phosphate section.

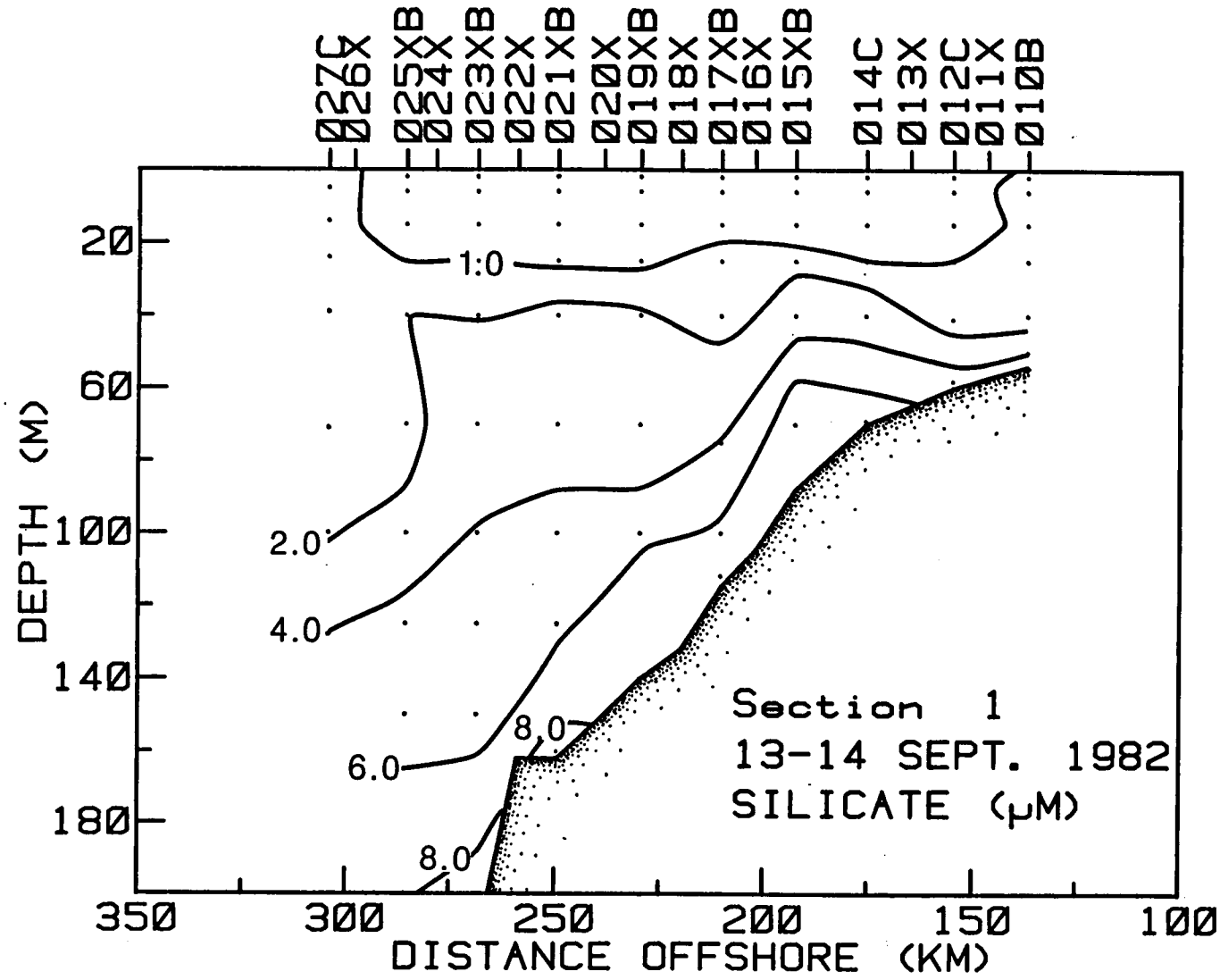

Figure A-15. Summer cruise, transect 1 silicate section.

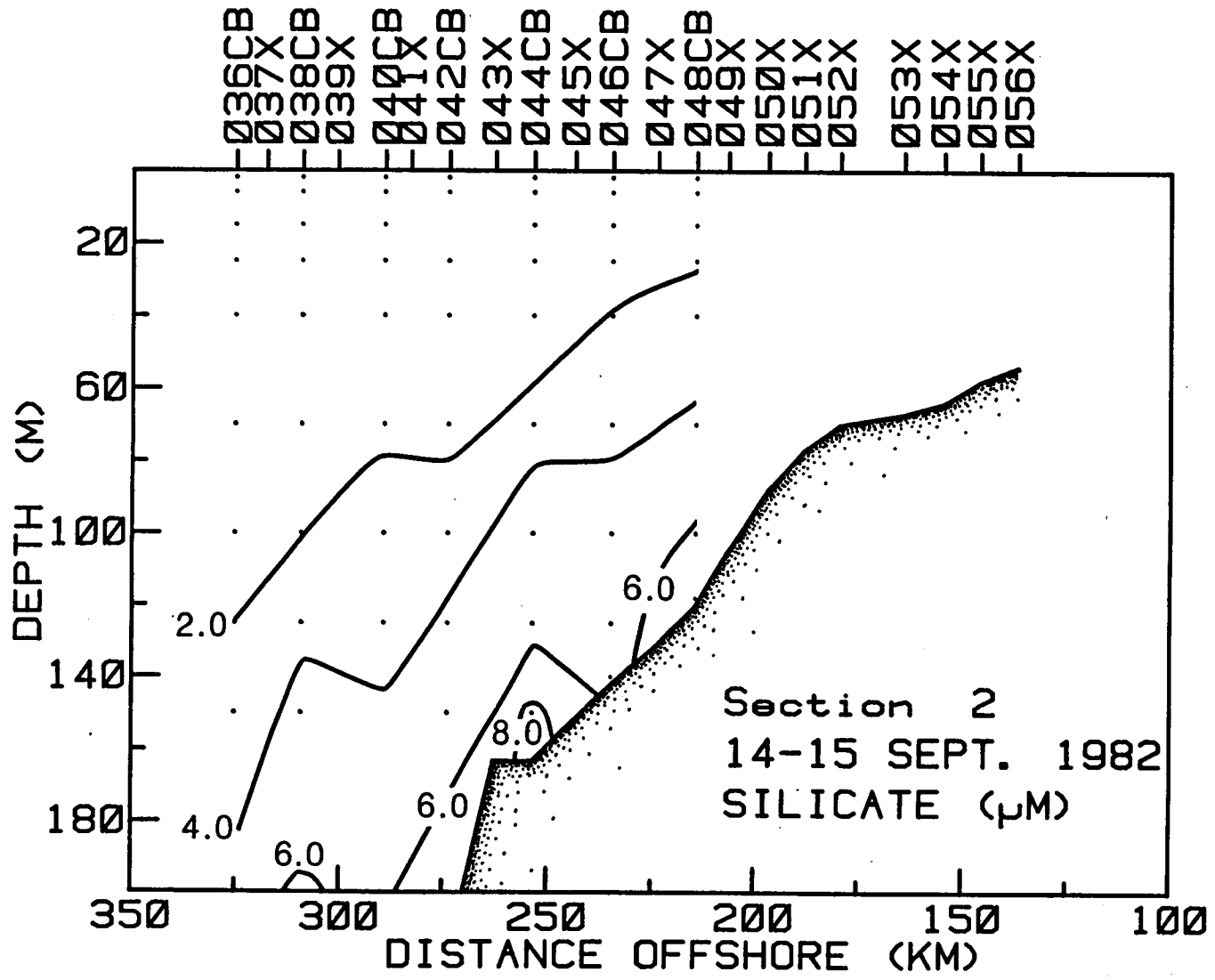

Figure A-16. Summer cruise, transect 2 silicate section.

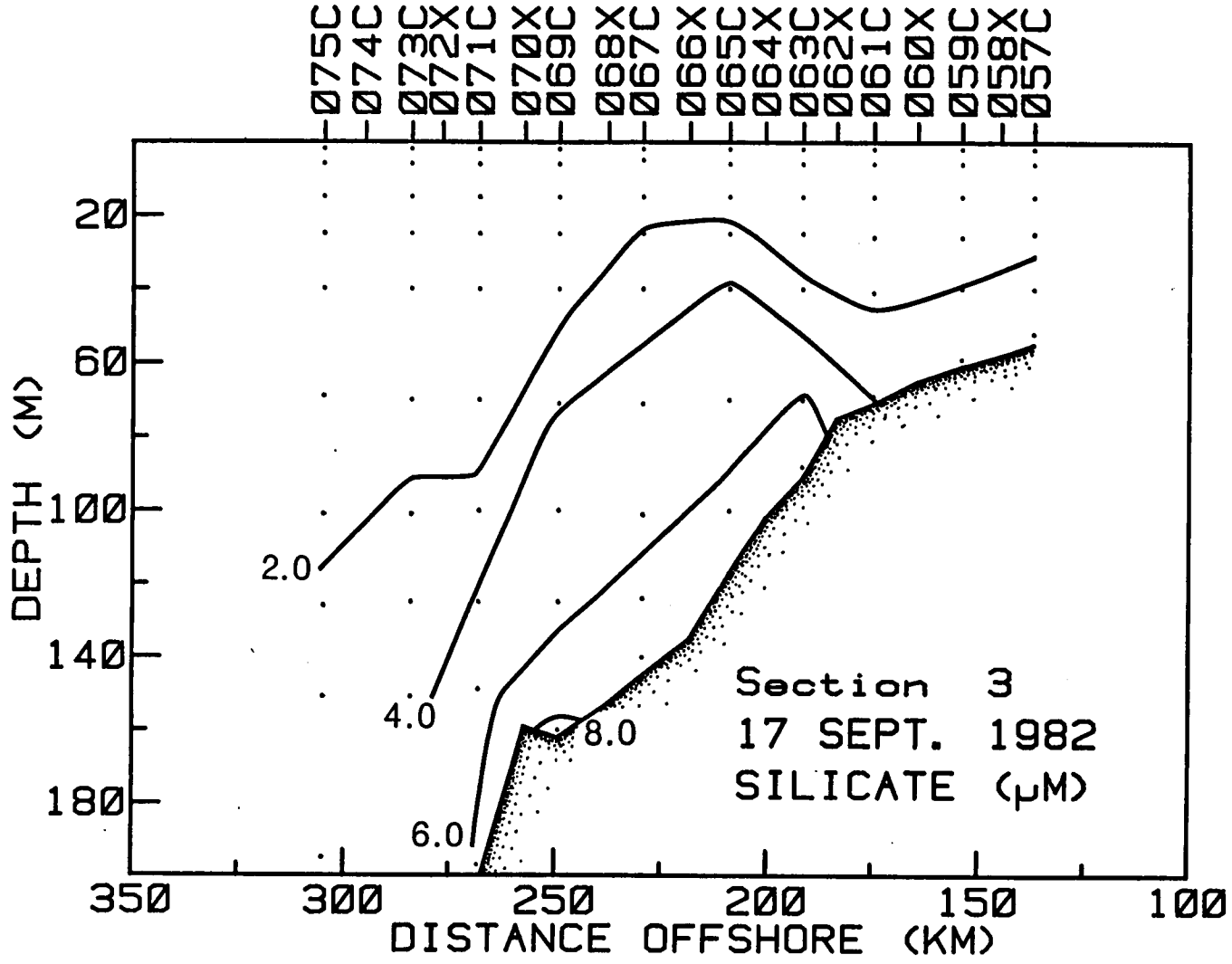

Figure A-17. Summer cruise, transect 3 silicate section.

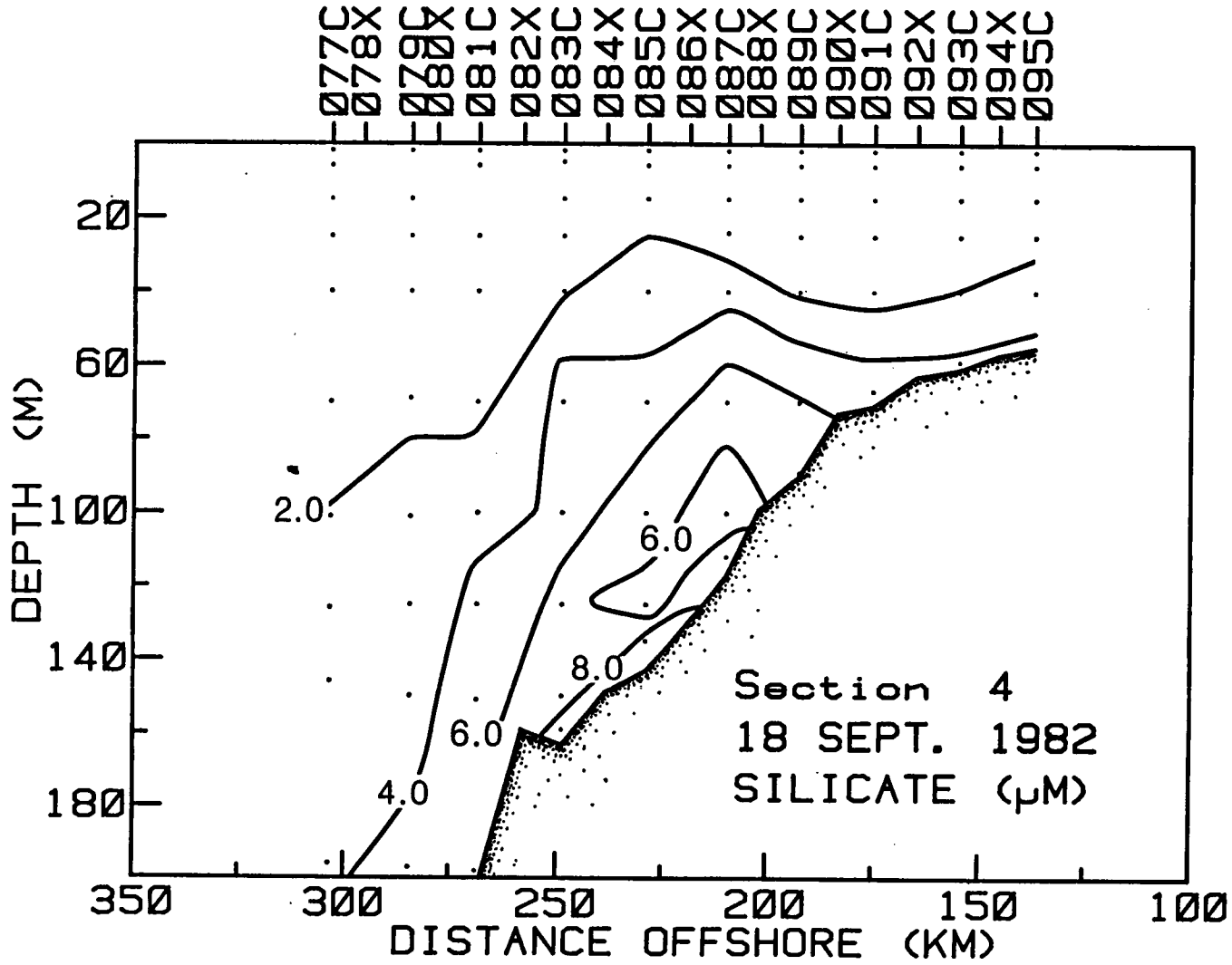

Figure A-18. Summer cruise, transect 4 silicate section.

Appendix
Section A.4

Correlation Computation Algorithm

```
10  REM  PROGRAM TO FIND AUTOCORR
     ELATION OF SALINITY AT FIXED
      SIGMA-T FROM
12  REM  GYRE CRUISE OF APRIL 198
     2
100  DIM N(50),X(50),Y(50),X2(50)
     ,Y2(50),XY(50),C(50)
110  DIM V(2,10,32)
520 D$ =  CHR$ (4)
530 F$ = "APR82.GYRE.ISOPYC"
540  REM
600  REM  LOAD ARRAY
610 V(0,0,0) = 256 *  PEEK (132) +
     PEEK (131)
620  PRINT D$;"BLOAD";F$;",A"; STR$
     (V(0,0,0))
630  REM
1000  REM   L1, L2, LS FIRST, LAS
     T LAGS AND LAG STEP
1010  REM  LW  LAG WINDOW
1012  REM  KILOMETERS
1020 L1 =  - 25:L2 = 125:LS = 12.
     5
1030 LW = 12.5
1040 J = 7
1041  REM  J IS INDEX OF SIGMA-T
     LEVEL
1200  REM  K=CTD#
1210  REM  KF, KL  FIRST, LAST K
     IN SECTION
1500  DATA  6,8,6,7,5: REM  KN, #
     OF CTD'S IN SECTION
1510 KL = 0
1800  GOSUB 3000
```

```
2000  FOR SN = 1 TO 5: REM  SECTI
      ON #
2010 KF = KL + 1
2020  READ KN
2030 KL = KF + KN - 1
2100  FOR K1 = KF TO KL
2110  FOR K2 = KF TO KL
2200  FOR L = L1 TO L2 STEP LS
2205 D =  ABS (V(1,1,K1) - V(1,1,
      K2) - L)
2206  REM  X-DISTANCE MINUS LAG
2210  IF D > LW / 2 THEN 2500
2212 A = V(1,J,K1):B = V(1,J,K2):
       REM  SALINITIES AT FIXED SI
      GMA-T
2214  IF A = 0 GOTO 2500
2216  IF B = 0 GOTO 2500
2218 A = A - 35:B = B - 35: REM
      REDUCE TRUNCATION ERROR
2220 IL = (L - L1) / LS
2240 N(IL) = N(IL) + 1
2245 X(IL) = X(IL) + A
2250 Y(IL) = Y(IL) + B
2255 X2(IL) = X2(IL) + A * A
2260 Y2(IL) = Y2(IL) + B * B
2265 XY(IL) = XY(IL) + A * B
2500  NEXT L
2600  NEXT K2
2605  NEXT K1
2650  NEXT SN
2800  FOR L = L1 TO L2 STEP LS
2810 IL = (L - L1) / LS
2815  IF N(IL) < 2 THEN C(IL) = 0
      : GOTO 2850
2816  IF N(IL) = 2 THEN C(IL) = 1
      : GOTO 2850
2820 C(IL) = XY(IL) - X(IL) * Y(I
      L) / N(IL)
2830 C(IL) = C(IL) /  SQR ((X2(IL
      ) - X(IL) * X(IL) / N(IL)) *
      (Y2(IL) - Y(IL) * Y(IL) / N(
      IL)))
2840  PRINT "LAG ";L,"CORR ";C(IL
      ),N(IL)
2850  NEXT L
2990  GOTO 5000
3000  REM  INITIALIZE
3005  FOR L = 0 TO (L2 - L1) / LS

3006 N(L) = 0:X(L) = 0:Y(L) = 0:X
     Z(L) = 0:Y2(L) = 0:XY(L) = 0

3007  NEXT L
3008  RETURN
5000  END
```

Appendix
Section A.5

Spring Cruise
Productivity Profiles

Legend

Left graph
sigma - t = dashed line
temperature (°C) = solid line

Center graph
Chl a ($mg \cdot m^{-3}$) = dashed line
nitrate (μM) = solid line

Right graph
primary productivity ($mgC \cdot m^{-3} \cdot day^{-1}$)

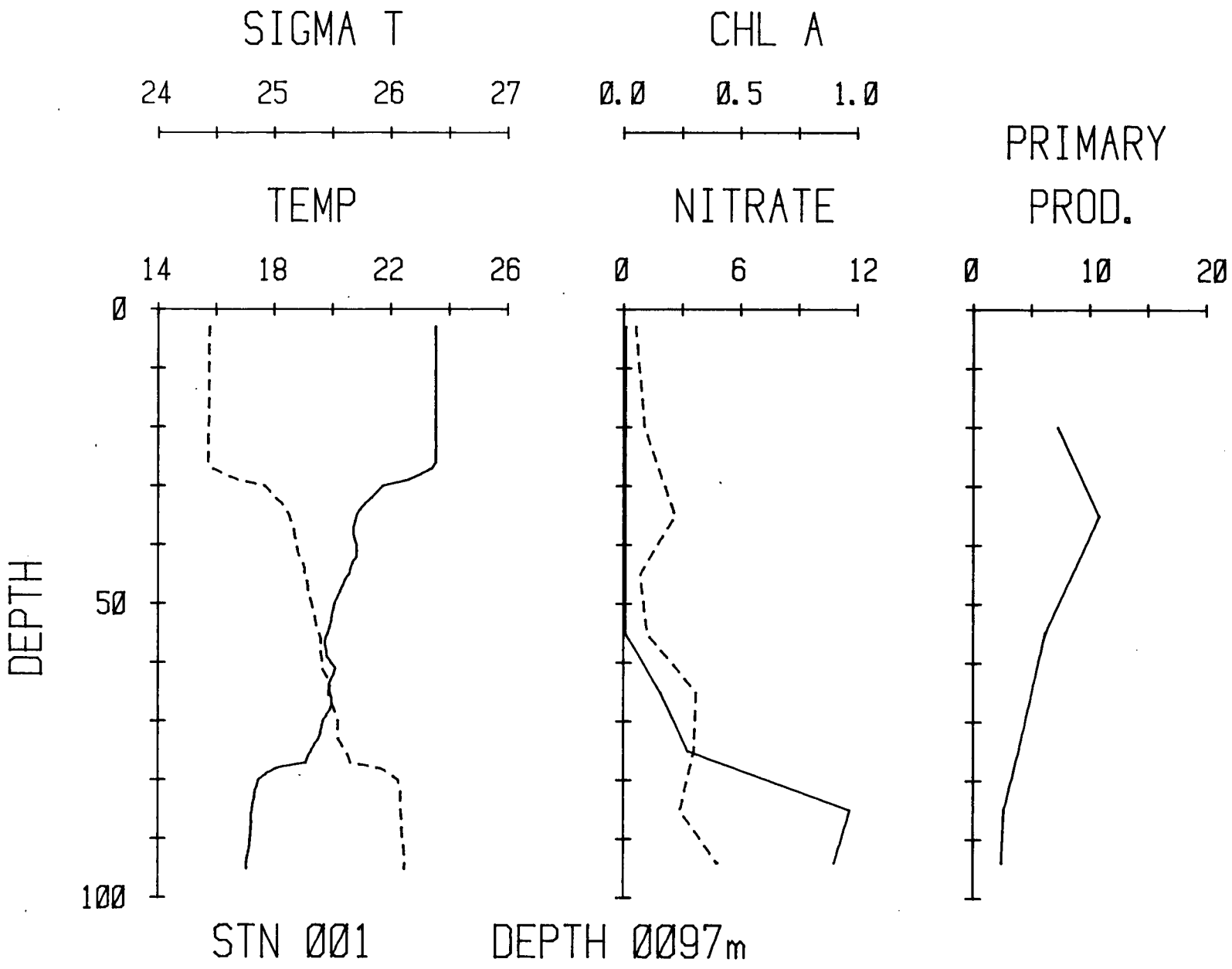

Figure A-19. Spring cruise, station 1 vertical productivity profiles.

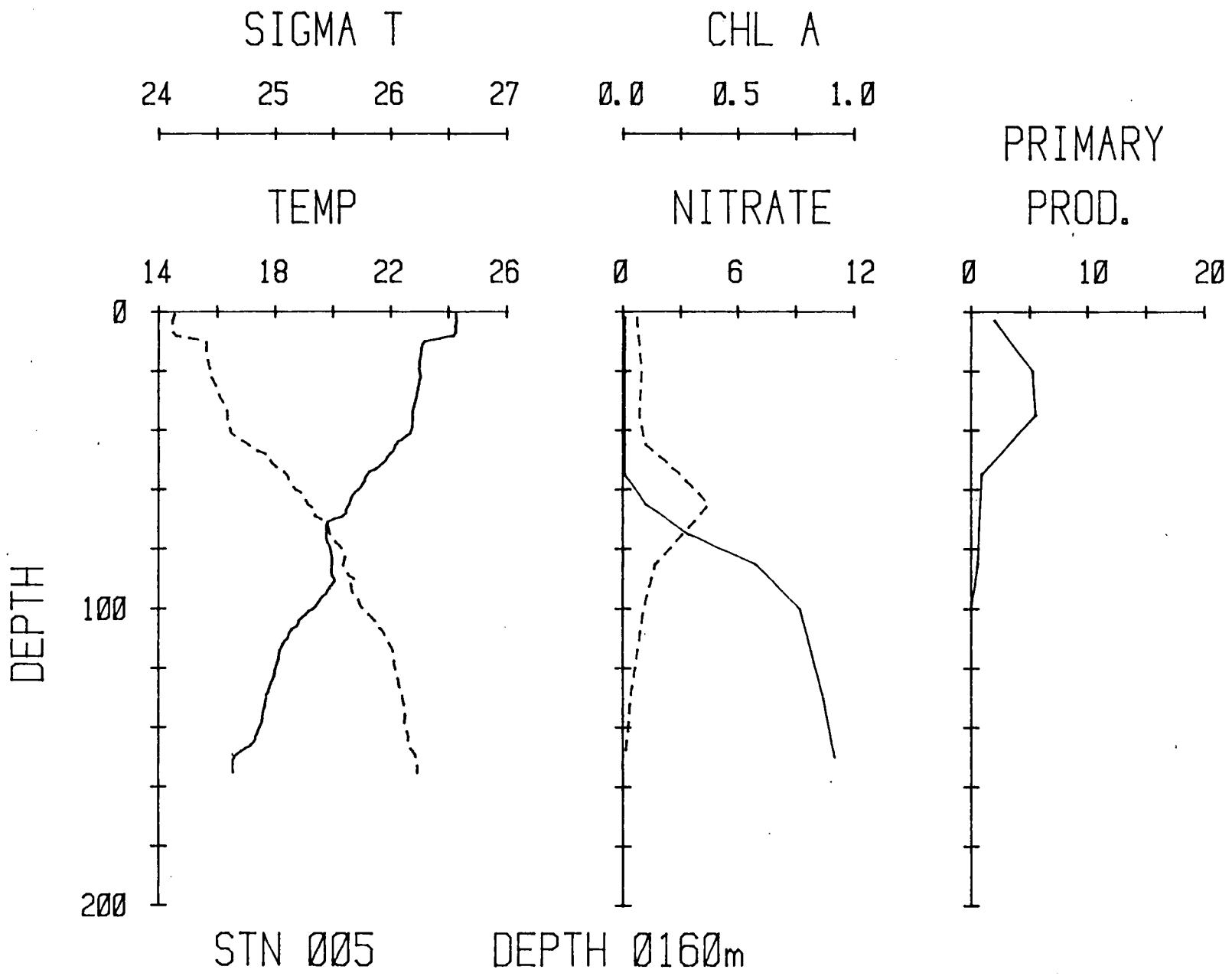

Figure A-20. Spring cruise, station 5 vertical productivity profiles.

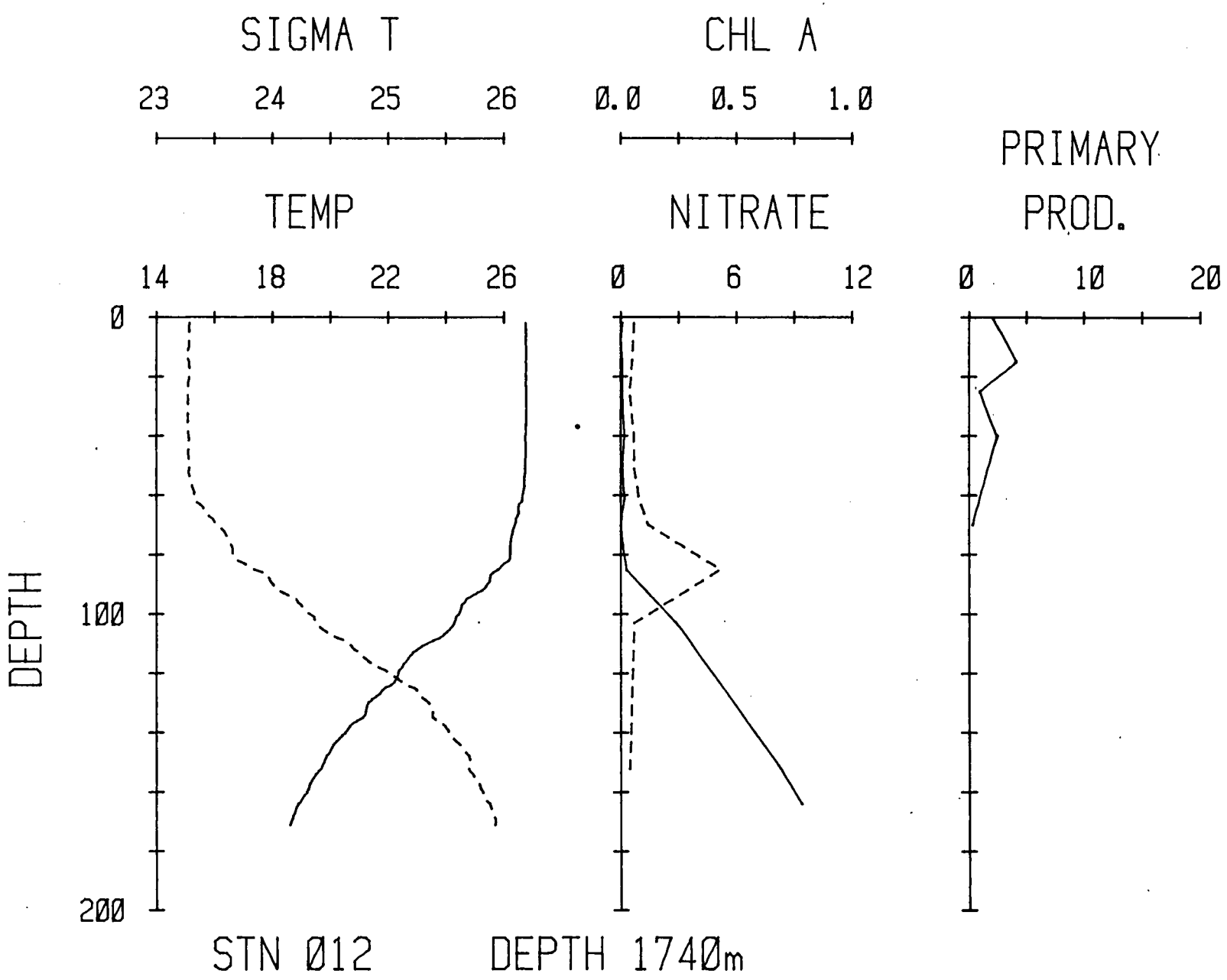

Figure A-21. Spring cruise, station 12 vertical productivity profiles.

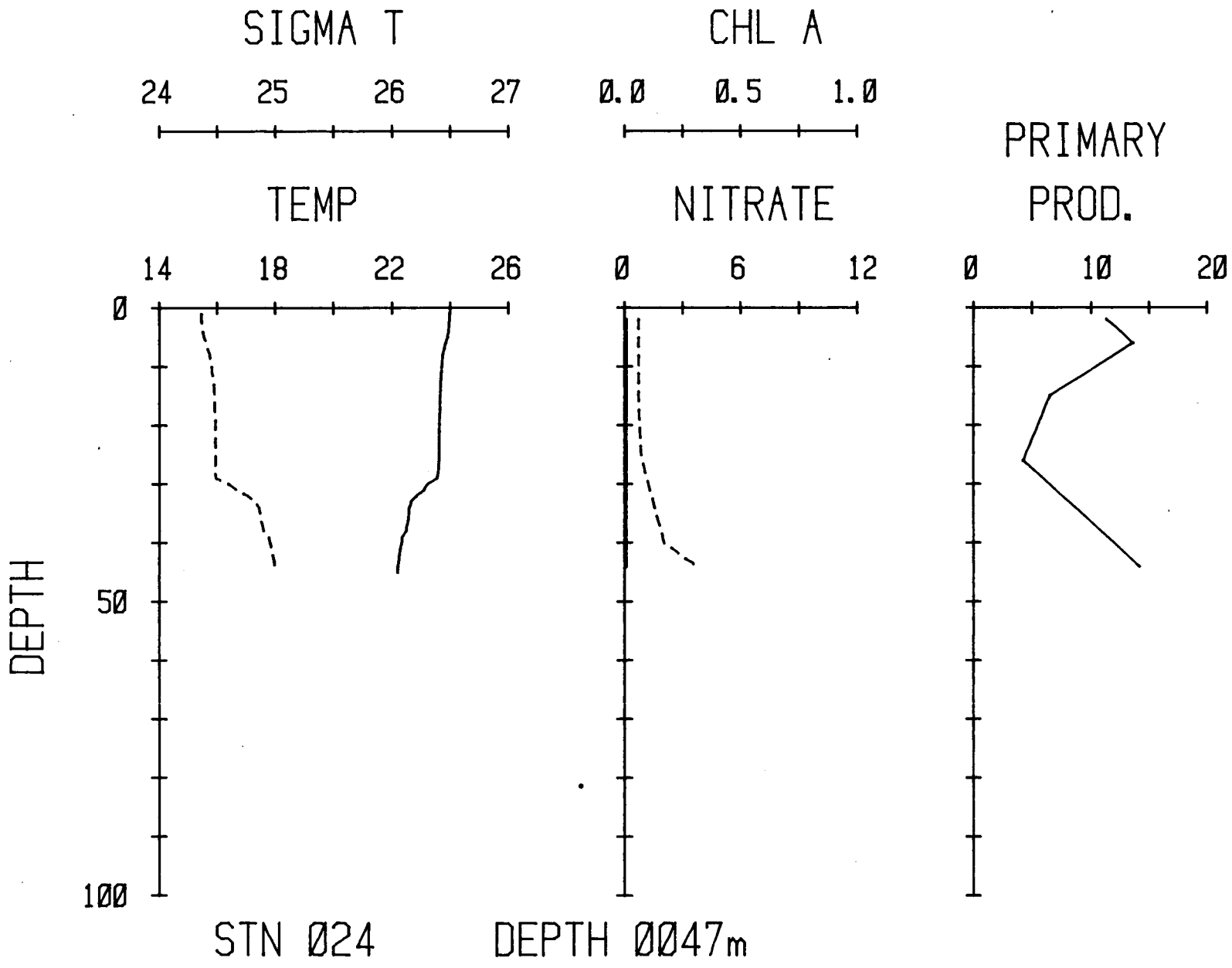

Figure A-22. Spring cruise, station 24 vertical productivity profiles.

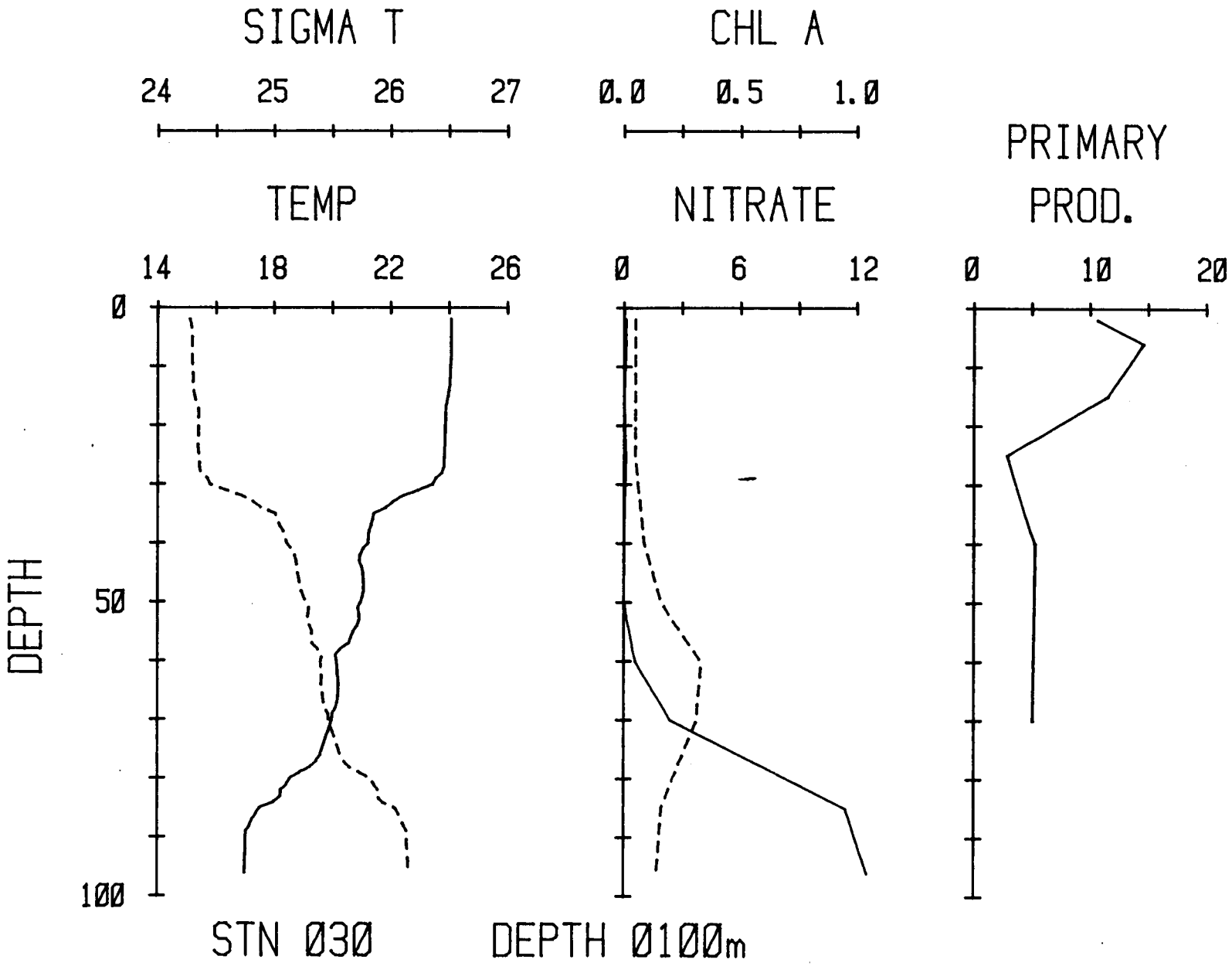

Figure A-23. Spring cruise, station 30 vertical productivity profiles.

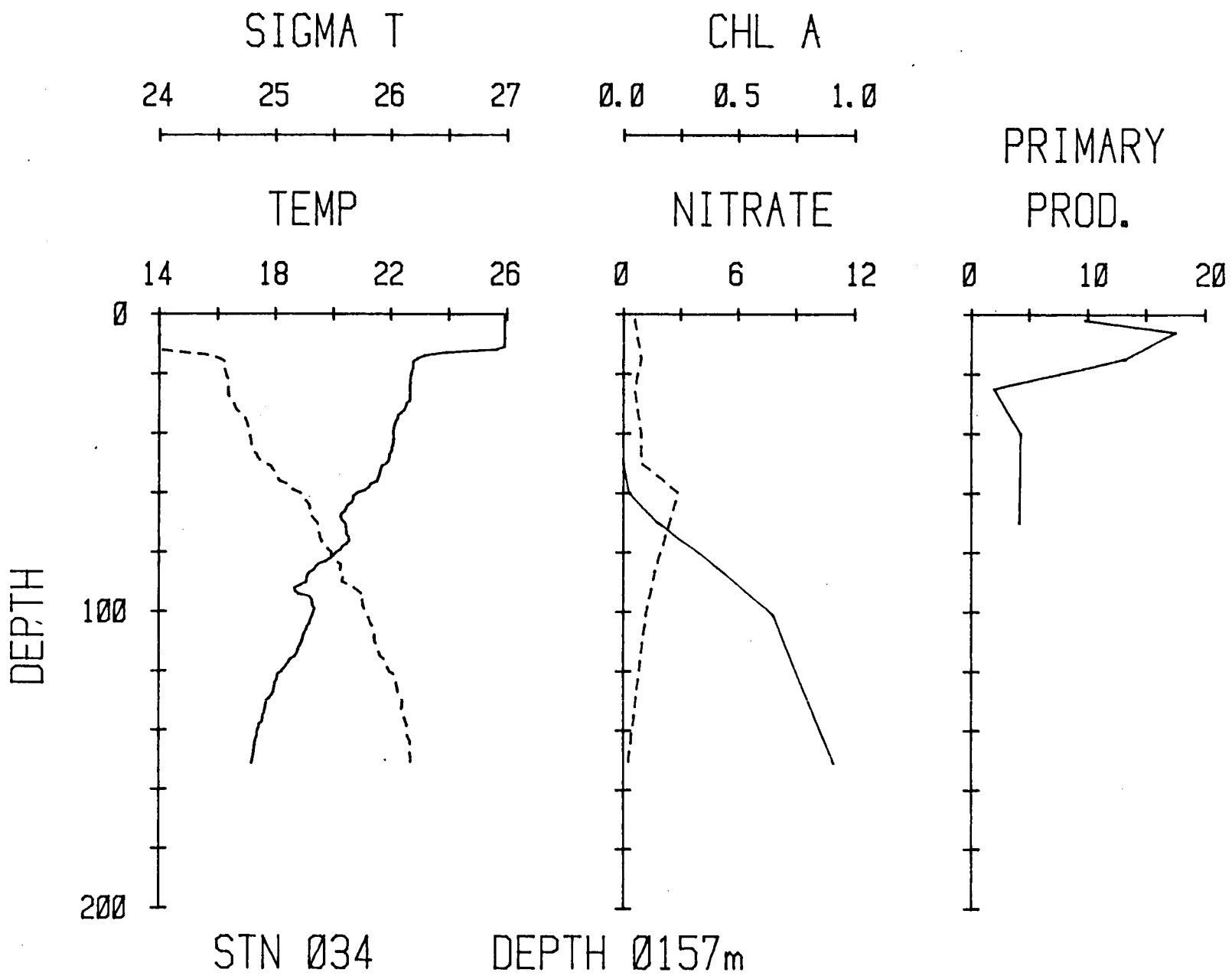

Figure A-24. Spring cruise, station 34 vertical productivity profiles.

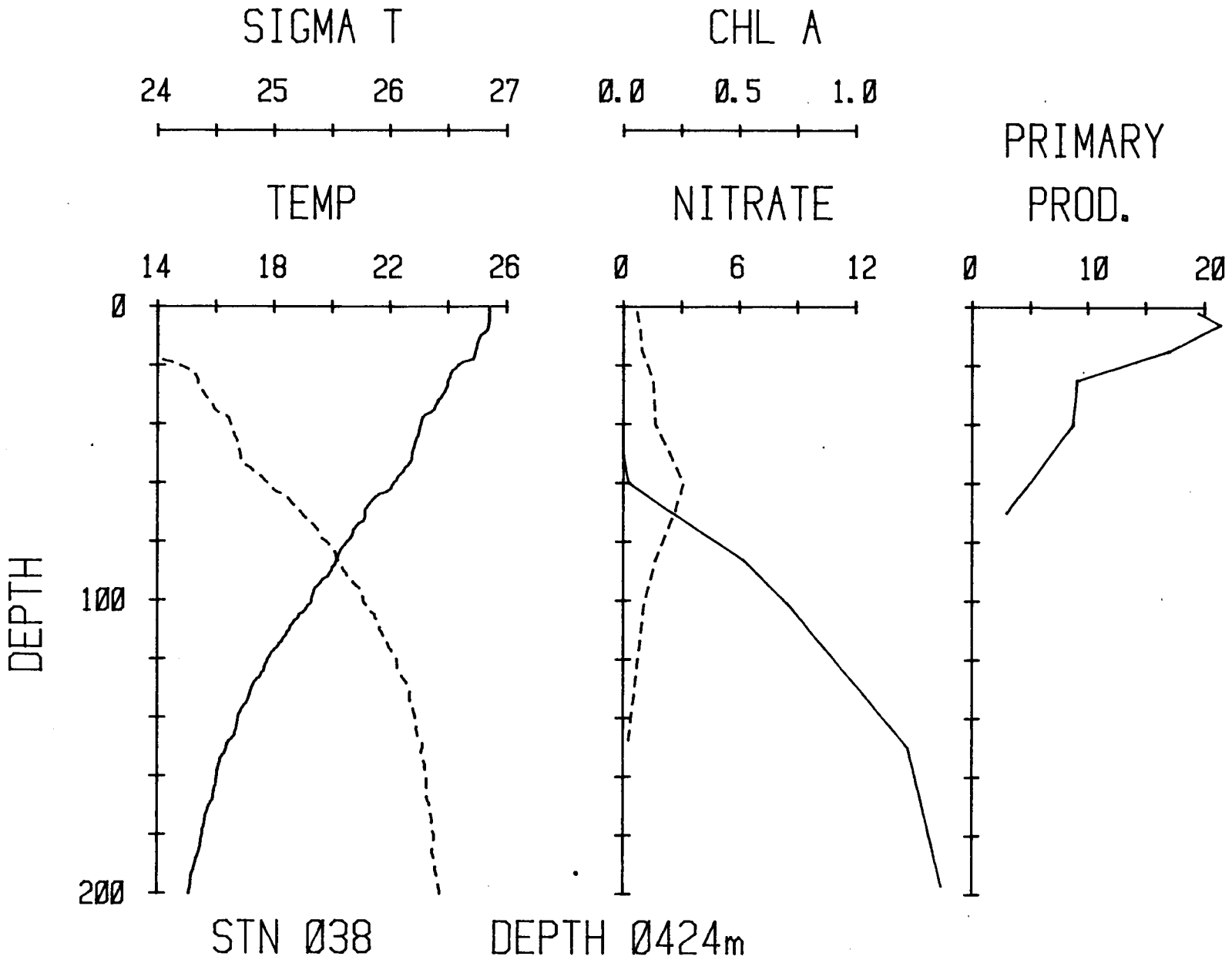

Figure A-25. Spring cruise, station 38 vertical productivity profiles.

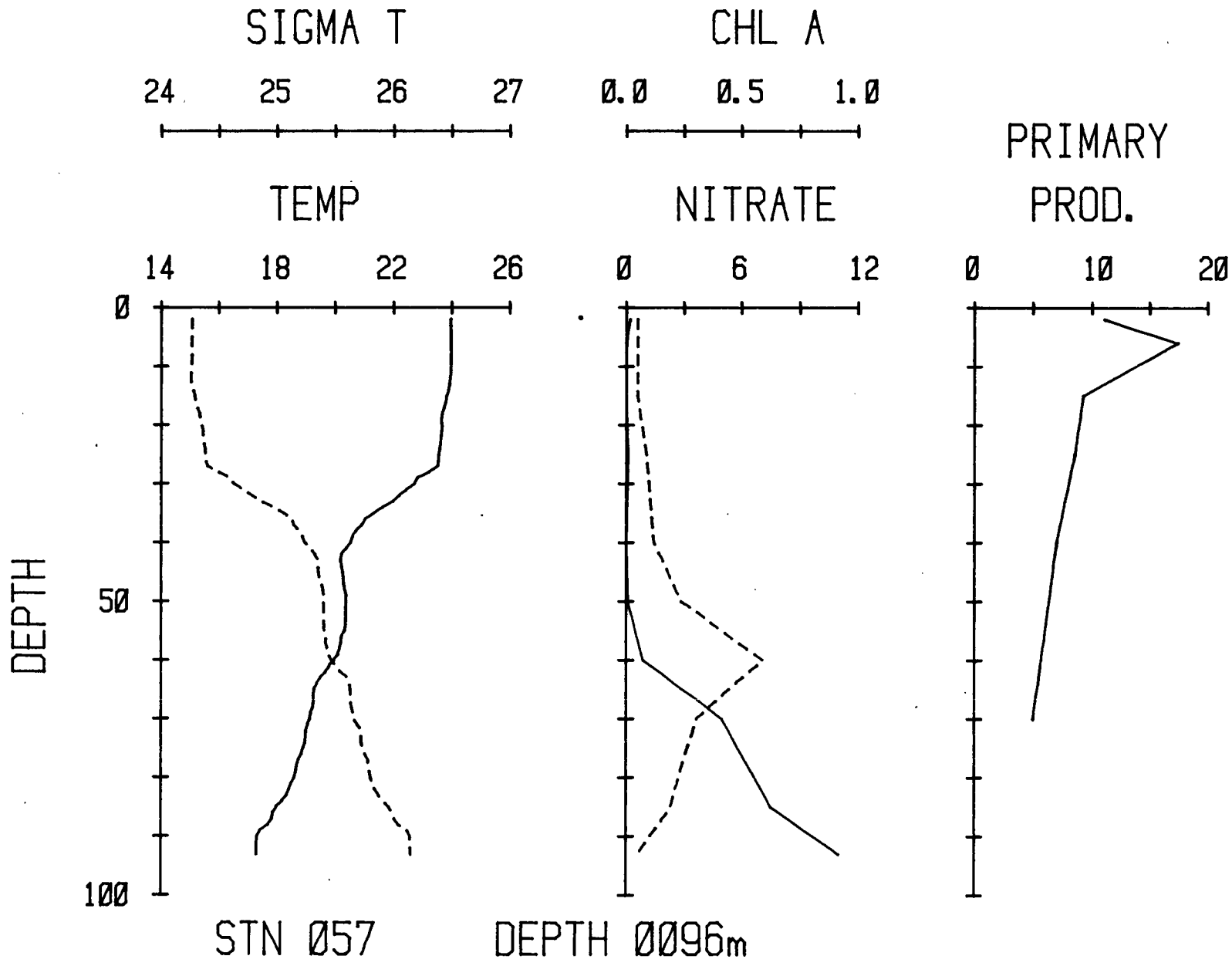

Figure A-26. Spring cruise, station 57 vertical productivity profiles.

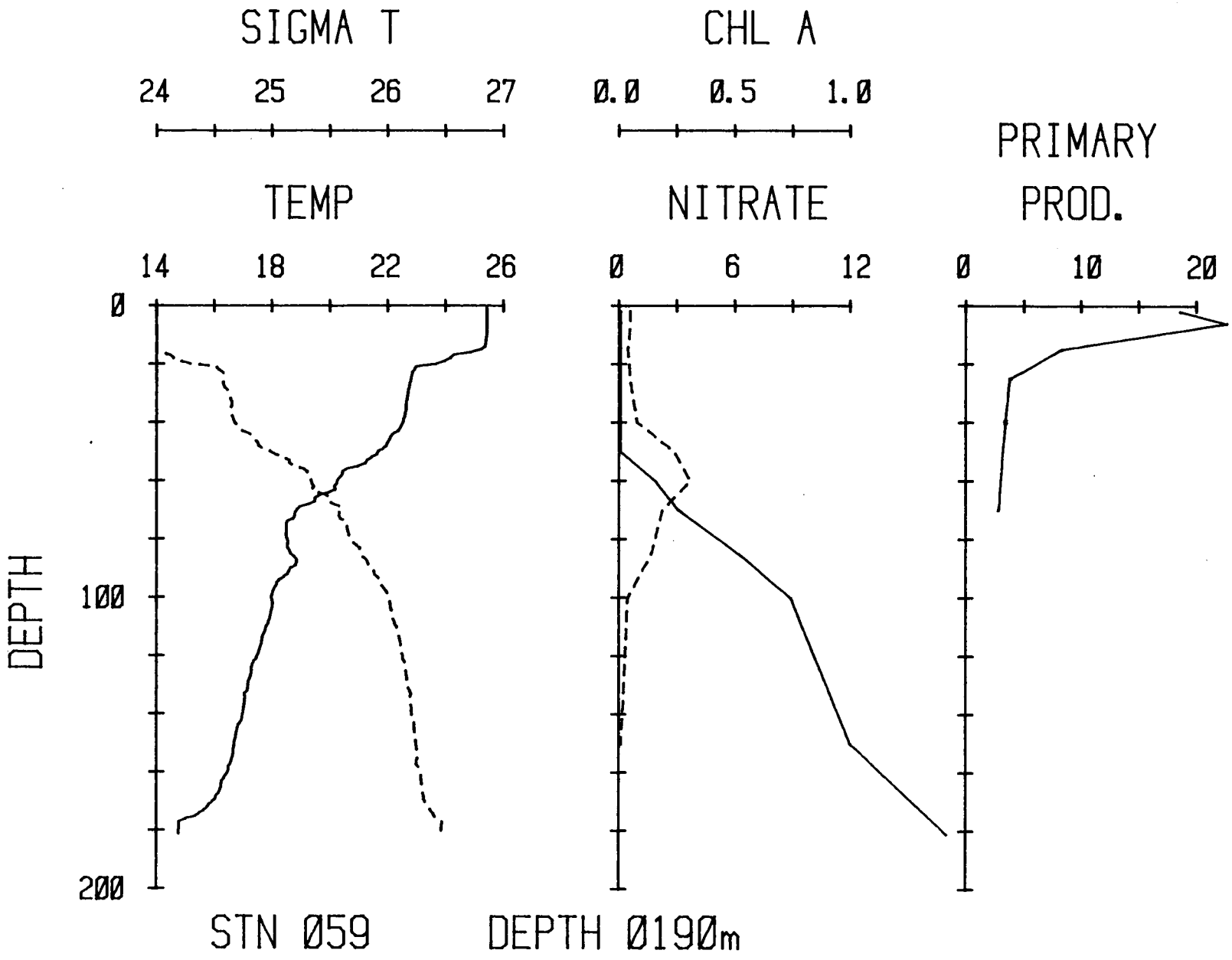

Figure A-27. Spring cruise, station 59 vertical productivity profiles.

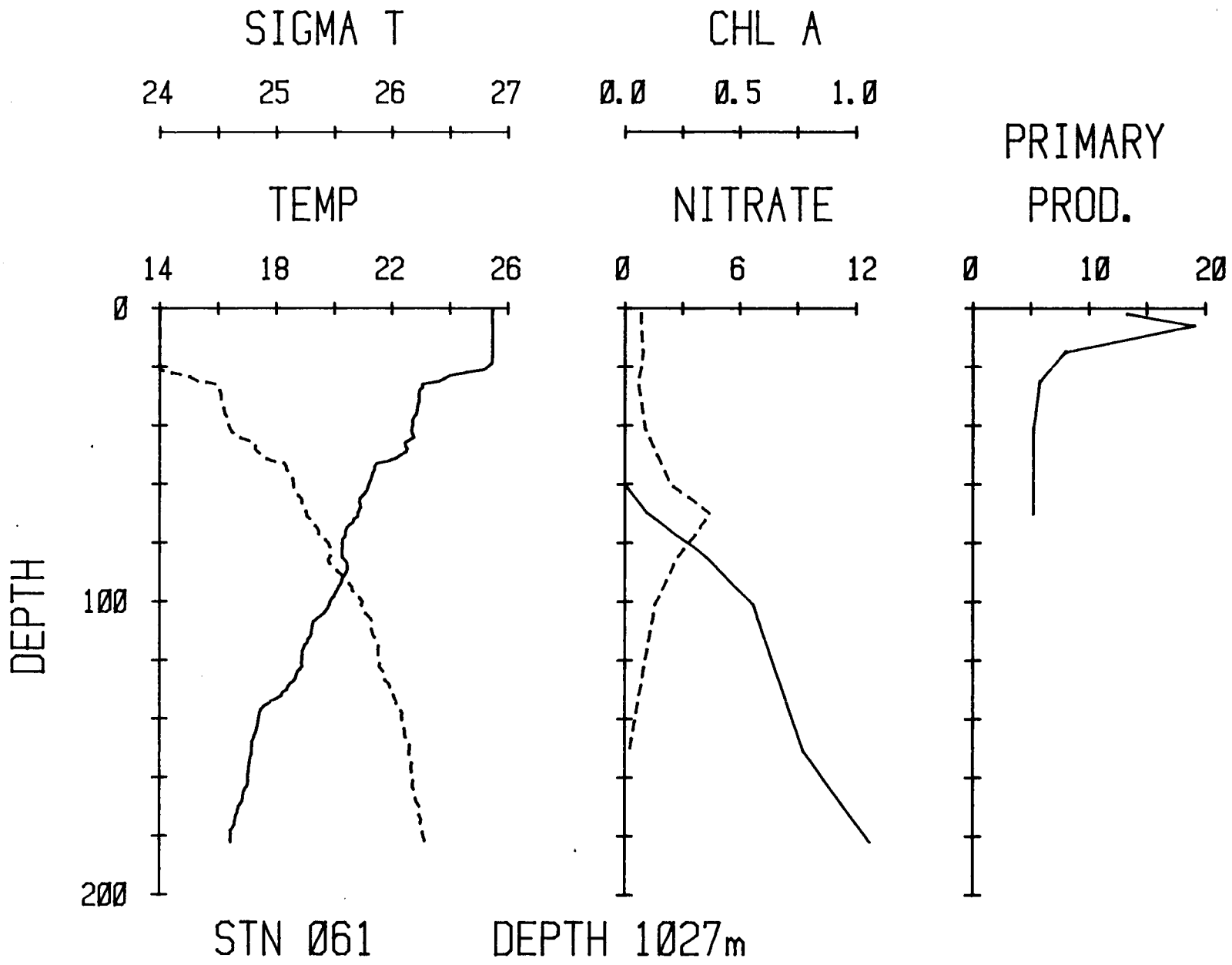

Figure A-28. Spring cruise, station 61 vertical productivity profiles.

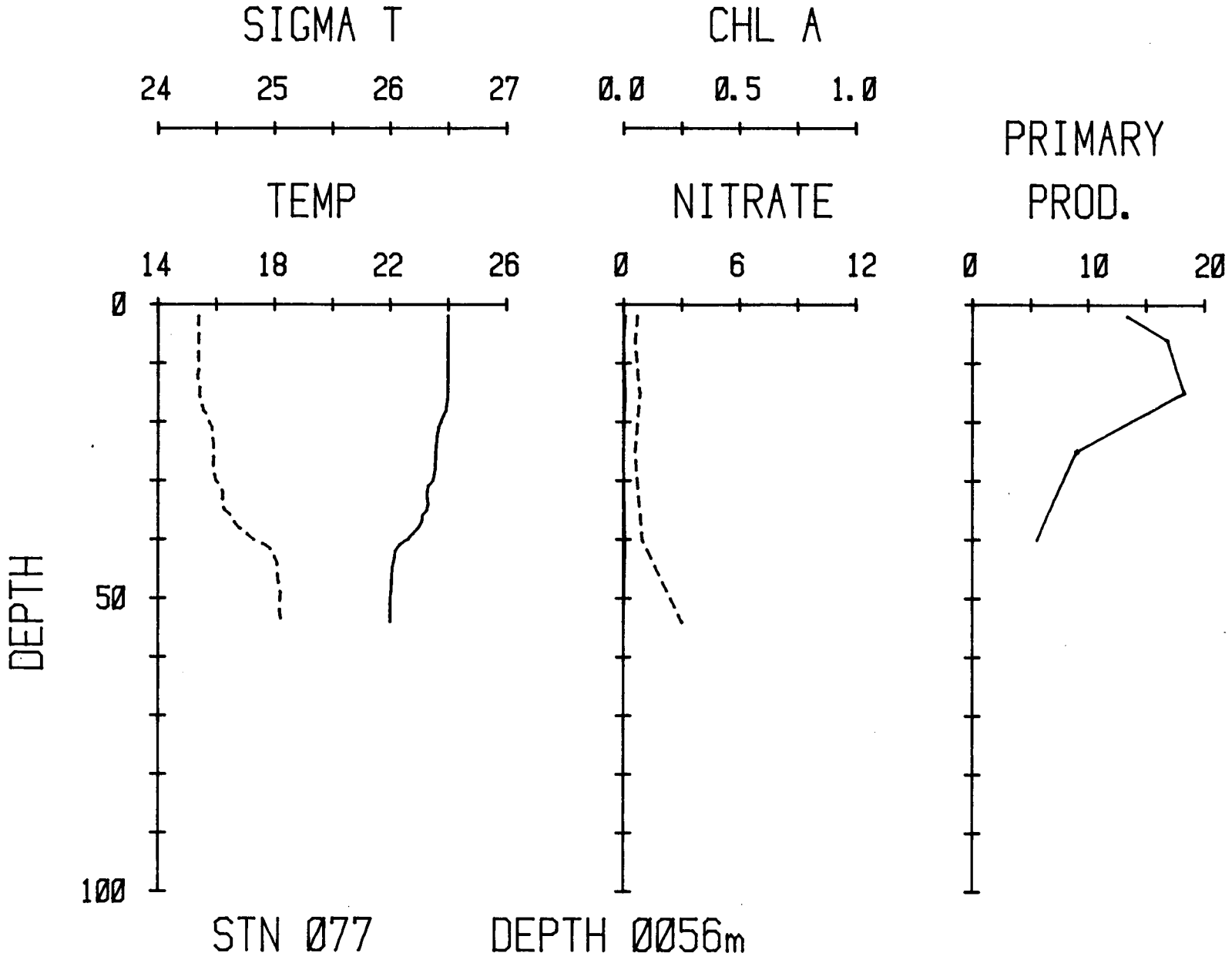

Figure A-29. Spring cruise, station 77 vertical productivity profiles.

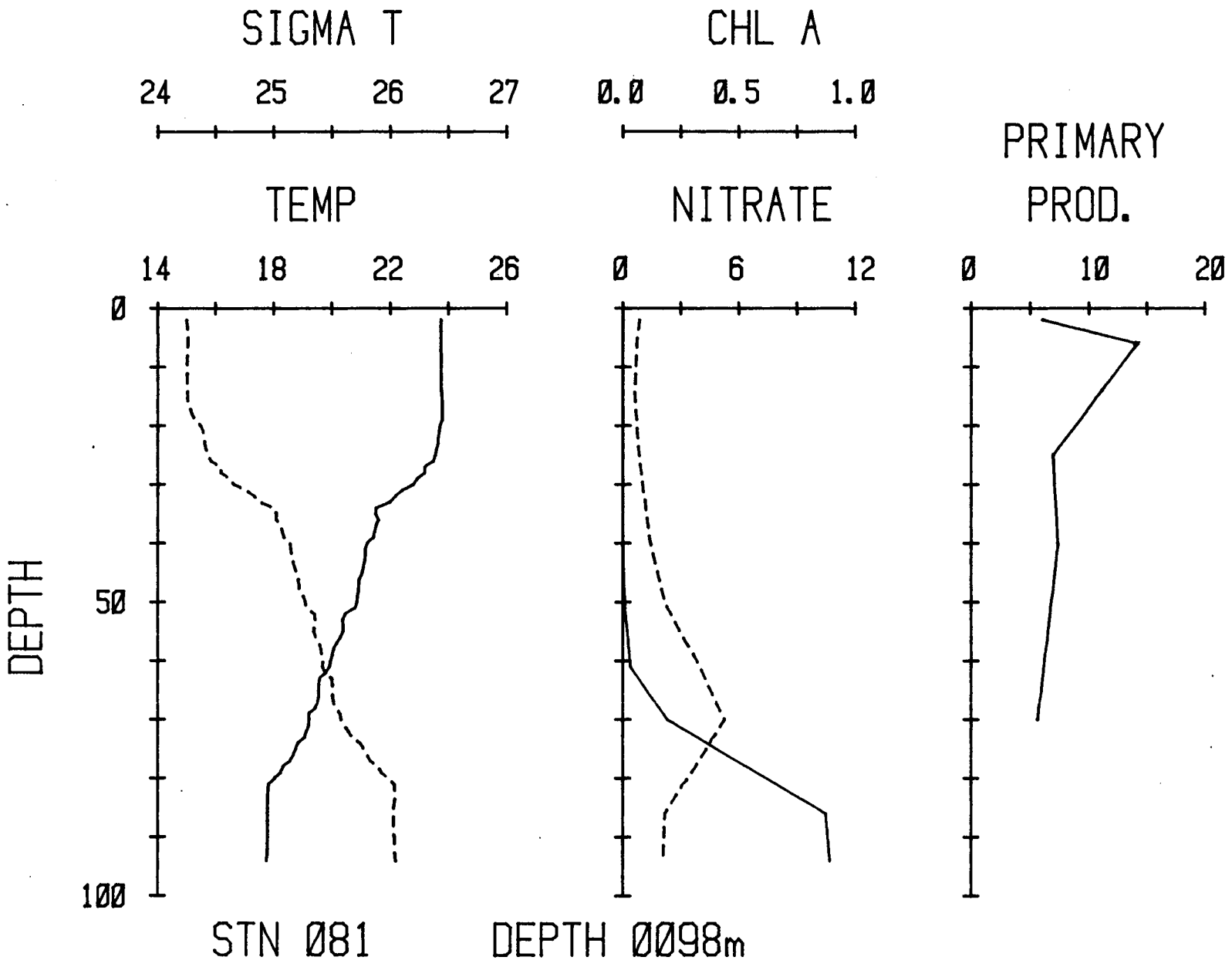

Figure A-30. Spring cruise, station 81 vertical productivity profiles.

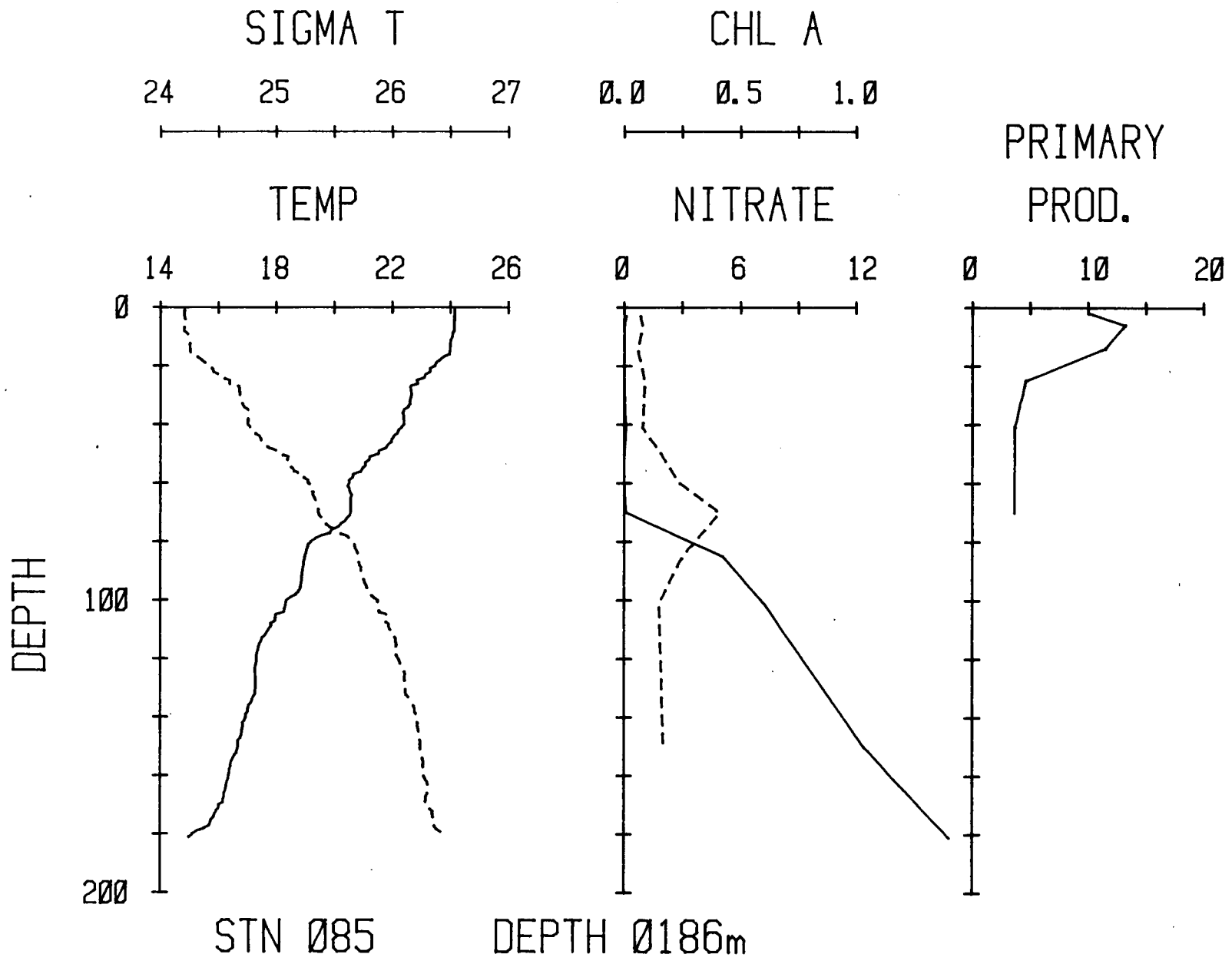

Figure A-31. Spring cruise, station 85 vertical productivity profiles.

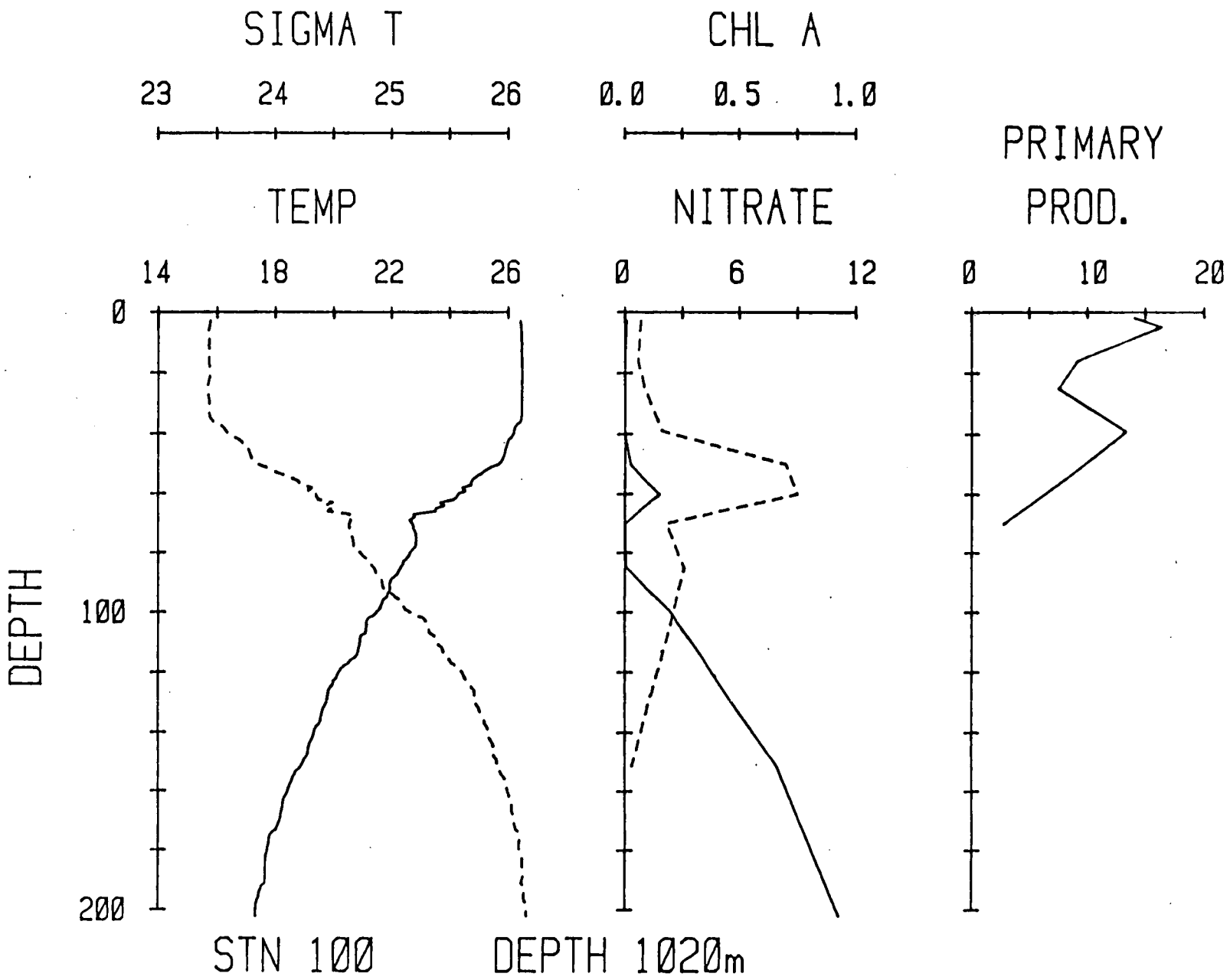

Figure A-32. Spring cruise, station 100 vertical productivity profiles.

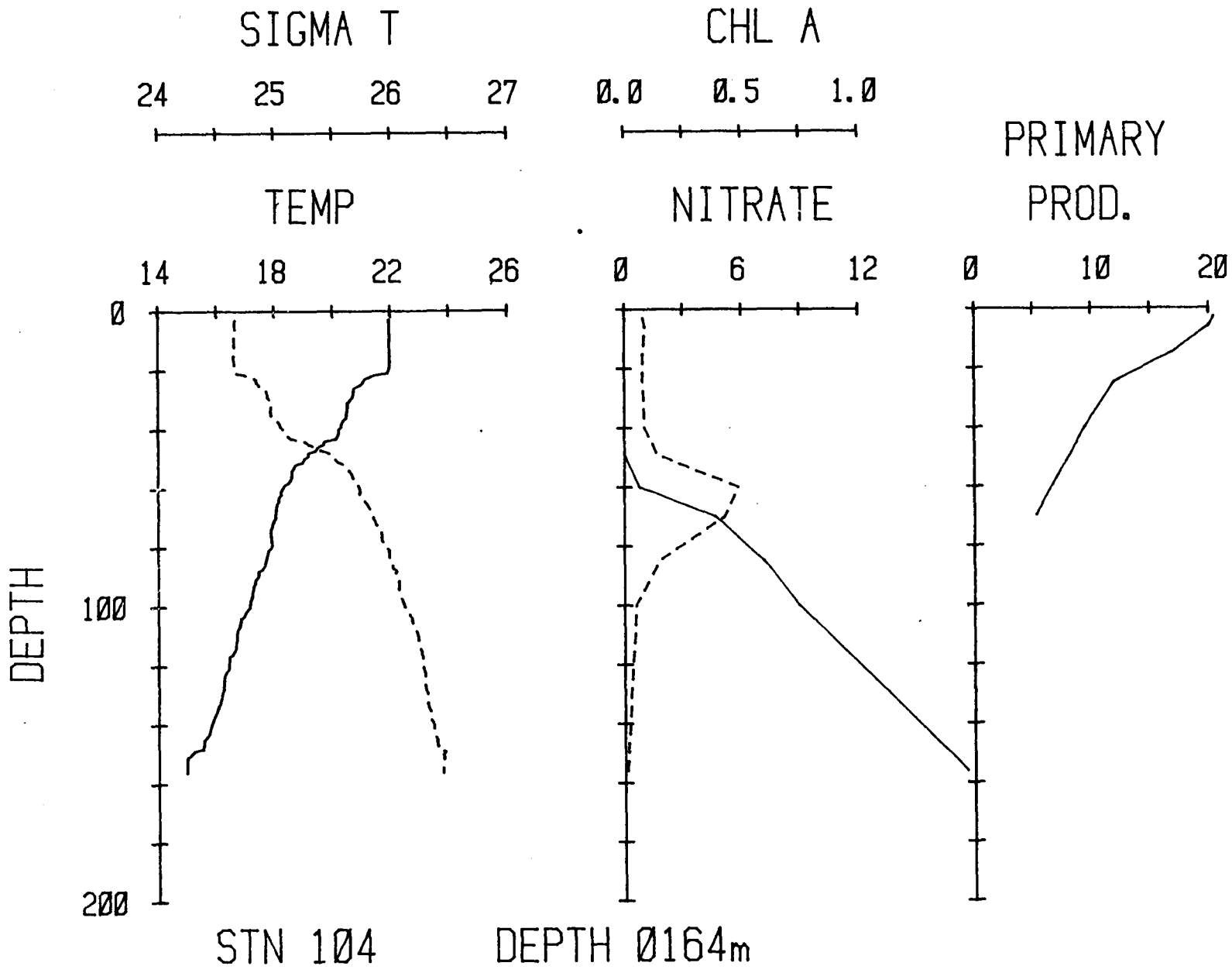

Figure A-33. Spring cruise, station 104 vertical productivity profiles.

Appendix
Section A.6

Spring Cruise
Phytoplankton Enumeration Results

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 1	Bottle Number	1	2	3	4	5
	Depth (m)	3	20	55	85	94
Species				Cells/Liter		
Diatoms						
Asteromphalus Sp.				850		
Cerataulina bergonii						5,000
Chaetoceros Sp.		1,300				
C. dichaeta		3,100				
Cyclotella Sp.		3,100				
Diploneis Sp.				850	2,400	
D. weissflogii					4,100	5,200
Fragilariopsis pseudonana		3,100				
Hemiaulus hauckii		3,100				
Navicula Sp.			320		4,100	4,500
N. membranacea			650	3,400	2,400	650
Nitzschia Sp.		6,300		2,600	810	1,900
N. bicapitata		12,000	1,900	2,600	4,100	5,800
N. delicatissima				9,400		35,700
N. panduriformis						650
Pachyneis gerlachii			320			
Pleurosigma aestuarii					6,500	
Rhizosolenia alata		6,300	320	850		
R. calcar avis			970			
R. stolterfothii						40,200
R. styliformis						5,800
R. fragilissima			5,500	7,700	810	8,400
Stephanopyxis palmeriana						7,800
Synedra Sp.			650			
Thalassionema nitzschioides		3,100	320	6,800		1,900
Thalassiosira			650	850	1,600	
T. symmetrica					1,600	1,300
Thalassiothrix frauenfeldii		3,100			9,700	13,600
T. mediterranea v. pacifica						5,200

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 1	Bottle Number	1	2	3	4	5
	Depth (m)	3	20	55	85	94
Species				Cells/Liter		
Dinoflagellates						
Cystodinium Sp.						
Dinophisis tripos				1,700		
Gonyaulax Sp.				850		
Gymnodinium		6,300	1,600	2,600		3,200
Oxytoxum compressum				1,700		
O. scolopax			320	6,000		650
Peridinium Sp.		3,100				
P. tuba				1,700		
Podolampas bipes		3,100				
Pronoctiluca						
Coccolithophorid						
Acanthoica aculeata			2,600	4,300	1,600	9,100
A. quattrospina				850		
Anthosphaera orysa			970			
A. robusta			2,600	1,700		3,200
Calciosolenia murrayi						1,900
Caneosphaera molischii			1,600	850		
Coronosphaera Sp.				850		
C. mediterranea		6,300	2,600	4,300		
Coccolithophorid Sp.		12,600	2,600			650
Coccolithus huxleyi		110,200	63,500	180,000	15,400	19,500
C. pelagicus					810	
Discosphaera tubifera		12,600	1,600			
Gephyrocapa oceanica		6,300				
Halopappas adriaticus				1,700		650
Periphyllophora mirabilis		3,100				
Scycosphaera apstenii						650
Syracosphaera histrica				2,600		
Umbellosphaera tenus		3,100				

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 1	Bottle Number	1	2	3	4	5
	Depth (m)	3	20	55	85	94
Species				Cells/Liter		
Misc.						
Pyrocystis						4,500
Scenedemus						1,900
Unidentified		15,700	970	10,200		5,200

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 5	Bottle Number	6	7	8	9	10
	Depth (m)	2	20	55	85	100
Species				Cells/Liter		
Diatoms						
Asteromphalus cleveaus cf.					660	
Bacteriastrum elongatum		3,900				
Chaetoceros		6,600			660	
C. dichaeta					4,000	
C. diversum		1,300				
C. laciniosum		2,600				
Coscinodiscus Sp.					660	
Detonula pumila		10,100				
Hemiaulus membranaceus						1,000
Leptocylindricus danicus		2,600				
Mastigloia rostrata		1,300				
Navicula Sp.		1,300	1,600	1,100	2,000	700
N. membranacea		3,900			4,000	2,100
N. platyventric		1,300				
Nitzschia Sp.		6,600	1,600		660	700
N. bicapitata		13,000	1,600	1,100	3,300	700
N. closterium		1,300			660	1,400
N. delicatissima		3,900			660	
N. panduriformia						350
Pleurosigma Sp.						350
Planktonella sol					660	
Rhizosolenia alata		5,300	1,600			
R. fragilissima			4,900			
R. stolterfothii						5,900
R. styliformis				2,000		
Synedra Sp.					1,300	
Thalassionema nitzschioides		5,300		4,900		1,700
Thalassiosira Sp.					1,300	350
T. symmetrica					2,000	
Thalassiothrix frauenfeldii		86,600	63,500			2,100
T. delicatula		5,300				
T. mediterranea v. pacifica		63,000		6,500		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 5	Bottle Number	6	7	8	9	10
	Depth (m)	2	20	55	85	100
Species				Cells/Liter		
Dinoflagellates						
Amphidinium Sp.		1,300				
A. crassum		1,300				
Ceratium fucus				1,100		
Dinophysis Sp.						350
Gymnodinium Sp.			11,400	11,000	2,600	350
Oxytoxum scolopax		1,300	22,800	4,100	1,300	
Peridinium Sp.		5,300	1,600		660	
P. tuba		1,300				
Silicoflagellates						
Dictyocha fibula		1,300		1,100		
D. spectulum v. polyactis					660	
Coccolithophorids						
Acanthoica aculeata			13,000		2,600	
Anthosphaera robusta		7,900	4,900	1,100	5,300	350
Calciosolenia murrayi		1,300	1,600	1,100	660	
Calyptrosphaera oblonga					660	
C. papillifera			1,600			
Coronosphaera mediterranea		3,900	11,400			
Coccolithophorid Sp.		1,300	1,600		1,300	1,000
Coccolithus huxleyi		135,000	320,500	298,500	123,000	19,500
Discosphaera tubifera			1,600			700
Gephyrocapa oceanica		1,300				
Halopappas adriaticus					660	
Helicosphaera carteri		1,300				
Pontosphaera syracusana						350
Scyphosphaera apsteinii					7,900	1,700
Syracosphaera histrica			1,600	1,100		350
Misc.						
Pyrocystis					660	
Unidentified		2,600			3,200	1,400

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 24	Bottle Number	11	12	13	14	15
	Depth (m)	2	6	15	15	45
Species				Cells/Liter		
Diatoms						
Asteromphalus heptactis					400	
Bacteriastrum delicatulum		1,700			400	
Cerataulina bergonii						1,900
Chaetoceros Sp.		1,700				2,400
C. brevis		1,700	660			
C. compressum		1,300				490
C. diversum						1,500
C. peruvianum		420				
Dactyliosolen mediterraneus			1,700			
Diploneis weissflogii						1,500
Eucampia cornuta						1,500
Hermiaulus hauckii				1,400	3,970	
H. membranaceus		1,300	1,300			490
H. sinensis				350		
Lauderia borealis						1,900
Leptocylindricus danicus		850			790	
Mastigloia rostrata		1,700	3,300	5,200	1,600	
Navicula Sp.			1,000	1,000		2,400
N. membranacea						970
N. platyventric		420		1,700	790	
N. praetexia						490
Nitzschia Sp.		1,700		1,400	400	970
N. bicapitata		420	1,000	1,400	1,600	970
N. closterium						490
N. delicatissima				1,700		1,500
Paralia sulcata						970
Pleurosigma Sp.				350	400	4,400
Rhizosolenia alata		1,300	330	690	2,400	
R. calcar avis		1,700			1,600	
R. fragilissima				1,700		
R. stolterfothii						6,800
R. styliformis		1,300	330	690	1,200	490

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 24	Bottle Number	11	12	13	14	15
	Depth (m)	2	6	15	15	45
Species				Cells/Liter		
Diatoms						
Thalassionema nitzschioides			330	1,000	400	1,500
Thalassiosira Sp.						490
Thalassiothrix frauenfeldii			660	3,500		35,000
T. mediterranea v. pacifica			1,300	1,400	790	1,500
Dinoflagellates						
Amphidinium Sp.			660	350	3,200	490
Ceratium Sp.				350		
C. buceros f. tenue				350		970
C. fucus var. setar		430		690	400	
Dinophysis Sp.		430				
D. rotundatum				350	400	
Gonyaulax Sp.		430	330	1,700		970
G. apiculata					9,500	
Gymnodinium Sp.		2,100		3,500	5,600	970
Oxytoxum compressum		430	330		790	490
O. solopax		430	1,300	2,000	3,970	3,400
Peridinium Sp.		3,400	1,300	1,000	790	
P. pellucidium			1,000			
P. bispinum				350		490
P. globulus v. quarnense					790	
Podolampas bipes		430				490
Procentrum Sp.					400	
P. compressum				350		
Pronoctiluca Sp.				350		
Coccolithophorids						
Acanthoica aculeata				1,400	1,200	490
Anoplosolenia bresiliensis			330			
Anthosphaera robusta		430	660	1,000	1,200	
Calcidiscus leptoporus		430	330	350	2,400	490
Calciosolenia murrayi			330			18,000

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 24	Bottle Number	11	12	13	14	15
	Depth (m)	2	6	15	15	45
Species				Cells/Liter		
Coccolithophorids						
Calyptrosphaera oblonga					3,200	490
Coronosphaera mediterranea		1,300	1,300	3,500	2,000	4,400
Coccolithophorid Sp.		1,700	600	350		
Coccolithus huxleyi		31,800	17,600	19,000	33,300	40,900
C. pelagiicus			330			
Corisphaera arethusae			330			
Discosphaera tubifera		3,000	2,000	3,800	3,200	
Halopappas adriaticus					400	490
Rhabdosphaera claviger		430	1,000	350	1,200	490
Scyphosphaera apsteinii		1,300				490
Syracosphaera histrica		430	330	690		490
S. pirus					2,400	
Ubellosphaera sibogae					400	
Misc.						
Oscillatoria Sp.		7,600				
Unidentified		430	1,000	350		270

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 77	Bottle Number	16	17	18	19	20
	Depth (m)	2	6	15	25	40
Species				Cells/Liter		
Diatoms						
Bacteriastrum delicatulum		740			780	
Cerataulina bergonii		1,500	400	1,300		
Chaetoceros Sp.		1,100	400			
C. affinis		370				
C. brevis		4,000	2,400	6,300		330
C. compressum		2,900	4,400	8,800		
C. dichaeta		1,800		3,800		
C. diversum		1,500	800		780	330
C. lorenzianum			1,600			
C. peruvianum			400		390	
Coscinodiscus Sp.						330
Hemiaulus hauckii		2,900	3,200	4,400	780	1,000
H. membranaceus				1,900		330
Leptocylindricus danicus		1,100	800	2,500		670
Mastigloia rostrata		4,000	1,600	5,600	390	4,000
Navicula Sp.		370				1,300
N. membranacea		370	1,200	630		
N. platyventric		4,000	400	3,800	4,300	1,300
Nitzschia Sp.		2,900	2,800	5,000	1,900	1,700
N. bicapitata		2,900	1,600	5,000	1,900	9,700
N. closterium				630		
N. delicatissma		2,200		1,300		
Pleuro sigma Sp.		740		630	390	1,300
Rhizosolenia alata		3,300	1,600	8,100	1,200	
R. calcar avis			800	630		
R. fragilissima		3,700	8,800	10,600	4,300	
R. styliformis			2,000	1,900	780	
Thalassionema nitzschioides		1,100	3,600	4,400	1,900	1,000
Thalassiosira Sp.			400	630		
Thalassiothrix frauenfeldii		5,200	3,600	9,400	1,900	670
T. mediterranea v. pacifica		2,600	4,400	3,100	390	330

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 77	Bottle Number	16	17	18	19	20
	Depth (m)	2	6	15	25	40
Species				Cells/Liter		
Dinoflagellates						
Amphidinium Sp.		1,500	800		780	
Ceratium buceros f. tenue						330
C fucus v. setar		370				330
C. teres		370				330
Dinophysis Sp.						330
D. rotundatum					390	
Erythroposidinium Sp.					390	
Gonyaulax Sp.		1,800	5,200	3,800	2,300	670
G. scrippsae cf				630		
B. apiculata		1,500				
Gymnodinium Sp.		1,100	2,400	11,300	4,700	12,300
Histiones pacifica						330
Oxytoxum compressum		370	800		390	
O. laticeps				5,000		
O. scolopax		2,900	2,400	3,800	2,300	4,700
O. viride					780	2,300
Phalacroma kofoidi cf						330
Podolampas bipes					390	
P. palmipes		370				330
Procentrum Sp.				630	390	
P. compressum				1,300		330
P. vaginalum cf				630		330
Pronoctiluca Sp.		370				
Peridinum Sp.		740	800	1,300	2,700	330
P. bispinum		370	400		780	670
P. pellucidium					390	
P. triquertrum cf					390	
Pyrocystis Sp.		370				670
Silicoflagellates						
D. speculum v. polyactis						330

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 77	Bottle Number	16	17	18	19	20
	Depth (m)	2	6	15	25	40
Species				Cells/Liter		
Coccolithophorids						
Acanthoica aculeata		740	400			
Anoplosolenia brasiliensis				1,300		
Anthosphaera robusta			400			
Calcidiscus leptoporus			3,200		2,700	670
Calytrolithophora papillifera					390	
Calystrosphaera oblonga		5,200	9,600	6,300	3,900	1,000
Coronosphaera mediterranea		1,800	1,200	1,300	780	670
Coccolithophorid Sp.				630	780	330
Coccolithus huxleyi		29,500	46,800	72,500	56,000	34,600
Discosphaera tubifera		2,600	3,200	3,100		
Rhabdosphaera claviger					1,900	330
Scyphosphaera apsteinii						670
Syracosphaera histrica		1,100			780	670
S. pirus		1,500	400	1,300	390	
Misc.						
Choanoflagellate				630		
Oscillatoria Sp.		1,100				
Unidentified		740	1,200	2,500	3,500	1,300

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 81	Bottle Number	21	22	23	24	25
	Depth (m)	2	6	25	40	70
Species				Cells/Liter		
Diatoms						
Asteromphalus Sp.						790
Cerataulina bergonii					2,400	1,600
Chaetoceros Sp.					390	3,200
C. brevis						790
C. compressum					390	790
C. dichaeta						7,100
C. laciniosum						7,900
C. peruvianum				640		
Corethron histrix						1,600
Coscinodiscus Sp.					390	
Dactyliosolen mediterraneus					2,000	
Eucampia zodiacus						3,000
Hemiaulus hauckii		300	2,600	1,300	2,000	
H. membranaceus				640		
Leptocylindricus danicus					1,200	
Mastigloia rostrata		2,100	660	1,900	390	
Navicula Sp.		1,500	660	1,900	390	5,600
N. membranacea						7,900
N. platyventric		300	1,300	3,200	1,600	1,600
Nitzschia Sp.		600	2,600	1,300	390	4,000
N. bicapitata		1,800	2,000	1,900	5,600	3,200
N. closterium						1,600
N. delicatissima					390	
Planktonella sol						790
Rhizosolenia calcar avis			660		1,200	
R. delicatula						4,000
R. fragilissima		300		640		
R. stolterfothii					1,200	8,700
R. styliformis				1,300	1,600	1,600
Thalassionema nitzschioides			660	1,900		2,400
Thalassiosira Sp.						2,400

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 81	Bottle Number	21	22	23	24	25
	Depth (m)	2	6	25	40	70
Species				Cells/Liter		
T. symmetrica		300				
Thalassiothrix frauenfeldii		900	1,300	5,100	390	5,600
T. mediterranea v. pacifica			660	1,300	790	790
Dinoflagellates						
Ceratium buceros f. tenue					390	
Dinophysis Sp.		300	660	640	790	
Erythropsidium pavalardi		300			1,200	
Gonyaulax Sp.			4,000	1,900	2,800	4,000
G. apiculata		2,100				
Gymnodinium Sp.			6,600	3,800	11,900	3,200
Oxytoxum solopax		4,500	5,300	2,500	7,500	4,000
O. viride		900		2,500	2,000	
Peridinium Sp.			660	640		
P. bispinum						790
P. pellucidium				640		
P. tuba					390	
Podolampas palmipes				640		
Procentrum Sp.					390	
P. compressum				640	390	
Silicoflagellates						
Dictyocha fibula				640	1,200	
D. speculum v. polyactis				640		3,200
Coccolithophorids						
Acanthoica aculeata			660		1,200	
Anoplosolenia brasiliensis		300			1,200	
Anthosphaera robusta						790
Calcidiscus leptopous		1,800	7,300	1,900	4,000	
Calciosolenia murrayi					790	6,400
Calyptrosphaera oblonga		2,700	2,600	9,600	390	

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 81	Bottle Number	21	22	23	24	25
	Depth (m)	2	6	25	40	70
Species				Cells/Liter		
Coccolithophorids						
Calytrolithophora papillifera			660			
Coronosphaera mediterranea		300	5,900	1,900		790
Coccolithophorid Sp.				640		1,600
Coccolithus huxleyi		63,000	153,000	131,000	53,200	125,000
Discosphaera tubifera		3,900	15,800	12,700		
Coccolithophorids						
Halopappas adriaticus					790	
Helicosphaera carteri					390	
Rhabdosphaera Sp.					1,600	
Scyphosphaera apsteinii						790
Syracosphaera histrica		900		1,300	2,800	
S. pirus		300		1,300	4,400	790
Periphyllophora Sp.				1,900		
Misc.						
Pyrocystis Sp.			2,600	640	1,200	1,600
Oscillatoria Sp.		2,700		1,300		
Unidentified		600	660	2,500	790	4,000

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 85	Bottle Number	26	27	28	29	30
	Depth (m)	2	6	25	41	70
Species				Cells/Liter		
Diatoms						
Bacteriastrum delicatulum		580	1,600			5,100
Cerataulina bergonii		2,900	7,100			3,400
Chaetoceros affinis			1,600			
C. brevis		580				
C. compressum		4,000				
C. decipiens		580				
C. dichaeta			1,600			
C. didymus			7,900		570	
C. lorenzianum		1,200				
C. peruvianaum			1,600			
Detonula pumila			1,600		850	850
Eucampia cornuta			2,400			
Hemiaulus hauckii		1,200	7,100	1,800		
Leptocylindricus danicus		1,200	790			
Mastigloia rostrata		1,700	3,100			
Navicula Sp.		2,300	790			
N. membranacea		580	1,600			
N. platyventric		1,200	790	1,700		
Nitzschia Sp.		580				
N. bicapitata		3,500	4,700	2,800	2,300	2,500
N. delicatissima		2,300	1,600			
Rhizosolenia alata		1,200				
R. calcar avis			1,600			850
R. fragilissima		580	7,100			
R. stolterfothii		4,000	3,100			
R. styliformis		1,700	790			2,500
Thalassionema nitzschioides		5,200	3,100		1,100	850
Thalassiosira Sp.				920		
Thalassiothrix frauenfeldii		36,300	40,800	1,800	1,100	
T. mediterranea v. pacifica		4,000	3,900			1,700

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 85	Bottle Number	26	27	28	29	30
	Depth (m)	2	6	25	41	70
Species				Cells/Liter		
Dinoflagellates						
Ceratium Sp.				920		
C. buceros f. tenue		1,200				
C. fucus v. setar				920		
C. teres		1,200				
Dinophysis Sp.		580			2,300	1,700
Erythropsidinum Sp.						850
Gonyaulax Sp.			3,900	5,500		
G. scrippsae				9,200	5,700	
Gymnodinium Sp.		580	7,100	7,400	4,500	5,100
Oxytoxum scolopax		2,300	3,100	920	7,900	2,500
O. viride		580	3,900	7,400	1,100	850
Procentrum Sp.		580				850
P. compressum		580		920	5,700	850
Peridinum Sp.			790			
P. bispinum		580				
P. tuba			790	920		
Silicoflagellates						
Dictyocha fibula					570	850
D. speculum v. polyactis						850
Coccolithophorids						
Acanthoica aculeata				5,500	1,100	2,500
Anoplosolenia brasiliensis						6,800
Calcidiscus leptoporus		580		4,600	2,800	3,400
Calciosolenia murrayi			790		1,100	
Calyptrosphaera oblonga		2,300	7,100	920		
Coronosphaera mediterranea		2,900			2,300	
Coccolithophorid Sp.				920		
Coccolithus huxleyi		79,000	109,000	206,000	129,000	225,000
Discosphaera tubifera		2,900	7,900	3,700		
Rhabdosphaera claviger				920	570	

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 85 (Cont.)	Bottle Number	26	27	28	29	30
	Depth (m)	2	6	25	41	70
Species				Cells/Liter		
Coccolithophorids						
Scyphosphaera apsteinii						850
Syracosphaera histrica		580		920	1,100	
S. pirus				2,800	1,700	
Misc.						
Pyrocystis Sp.		1,700			750	850
Oscillatoria Sp.		3,500				
Unidentified		580	2,400	3,700	1,700	5,100

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 100	Bottle Number	31	32	33	34	35
	Depth (m)	2	16	25	39	70
Species				Cells/Liter		
Diatoms						
Bacteriastrum delicatulum			4,500		2,560	
B. elongatum					6,400	
Cerataulina bergonii		6,100	9,100	7,770		
Chaetoceros Sp.		770	6,800			
C. brevis		3,800	6,800	19,400		
C. compressum				7,770	5,100	
C. decipiens				9,700	16,600	
C. dichaeta			11,400	5,800		
C. didymus					1,300	
C. laciniosum				19,400	12,800	
C. peruvianum			2,300	1,900		
Detonula pumila			4,500	5,800		
Eucampia cornuta			4,500			
Fragilariopsis pseudonana		770				
Hemiaulus hauckii		3,100	2,300	7,770	2,560	750
H. membranaceus			2,300			
H. sinensis				5,800	29,400	
Lauderia borealis						750
Leptocylindricus danicus		3,100	6,800	13,600	1,300	
Mastigloia rostrata		3,800	2,300	9,700		
Navicula Sp.		3,100	2,300	5,800	1,300	
N. membranacea		770	4,500		3,800	
N. platyventric		1,500	2,300	7,770	2,560	
Nitzschia Sp.		770	11,400	13,600	8,960	
N. bicapitata		4,600	18,200	9,700	15,400	2,980
N. delicatissima		1,500	22,700	15,500	7,680	
Rhizosolenia Sp.			4,500			1,500
R. alata		770	13,600	3,900	3,800	
R. calcar avis		770			3,800	
R fragilissima		1,500	11,400	15,500		2,200
R. stolterfothii				3,900		1,500

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 100	Bottle Number	31	32	33	34	35
	Depth (m)	2	16	25	39	70
Species				Cells/Liter		
Diatoms						
R. styliformis			4,500	7,770	5,100	1,500
Skeletonema costatum					10,200	
Thalassionema nitzschioides		4,600	27,800	33,000	8,900	
Thalassiothrix frauenfeldii		65,900	116,000	130,000	64,000	2,200
T. mediterranea v. pacifica		16,100	25,000	35,000	20,500	750
Dinoflagellates						
Ceratium teres			2,300			
Dinophysis Sp.		770				
D. rotundatum		770				
Gonyaulax Sp.			2,300			
G. africana				44,700	16,600	6,700
Gymnodinium Sp.		1,500	29,600			3,700
Gyrodinium splendens cf					1,300	
Oxytoxum scolopax		5,400	11,400	3,900	5,100	5,200
O. viride		770	4,500	1,900	1,300	2,200
O. compressum					1,300	
Peridinium Sp.			2,300		2,560	
P. bispinum		770				
P. pellucidium			4,500			
Procentrum Sp.					2,560	750
P. compressum		1,500	2,300	5,800	3,800	750
Coccolithophorids						
Acanthoica aculaeta		770				
Anthosphaera robusta					7,680	1,500
Calcidiscus leptoporus		8,400	4,500	11,700		2,980
Calciosolenia murrayi		3,800	4,500	15,500	16,600	3,700
Calypterosphaera oblonga					2,560	
Coronosphaera mediterranea		2,300		1,900		
Coccolithophorid Sp.				1,900	1,300	
Coccolithus huxleyi		88,100	325,000	219,000	111,000	170,000

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 100	Bottle Number	31	32	33	34	35
	Depth (m)	2	16	25	39	70
Species				Cells/Liter		
Coccolithophorids						
Discosphaera tubifera				1,900		
Gephyrocapsa oceanica				1,900		
Halopappas adriaticus			9,100		5,100	2,980
Rhabdosphaera claviger		770	2,300	1,900		750
Syracosphaera histrica						2,200
S. pirus			2,300		2,560	1,500
Misc.						
Pyrocystis Sp.					1,300	
Oscillatoria			2,300	1,900		
Unidentified		4,600		1,900		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 104	Bottle Number	36	37	38	39	40
	Depth (m)	3	6	15	40	70
Species				Cells/Liter		
Diatoms						
Asteromphalus Sp.			580	690		880
Bacteriastrum elongatum						880
Cerataulina bergonii						5,300
Chaetoceros brevis						1,760
C. laciniosum						7,900
C. peruvianum		580				
Coscinodiscus Sp.				690		
Leptocylindricus danicus		580				
Lauderia Sp.						1,760
Melosira Sp.		580				
Navicula Sp.			1,200	1,400	500	4,400
N. membranacea						11,400
N. platyventric		1,200				880
Nitzschia Sp.		2,900	1,700	1,400	2,000	880
N. bicapitata		2,900	2,300	3,500		2,600
Planktonella sol						880
Rhizosolenia alata		2,300				
R. calcar avis		1,200				
R. stolterfothii						2,600
Thalassiosira Sp.					500	13,600
Thalassiothrix frauenfeldii			580			17,600
T. mediterranea v. pacifica		1,700		1,400		
Dinoflagellates						
Dinophysis Sp.						880
D. robustus					500	
Gonyaulax Sp.						880
G. africana cf		2,300	5,800	1,400	3,000	880
Gymnodinium Sp.		1,200	2,300	11,800	4,000	6,000
G. abbreviatum cf					500	
Ceratium buceros f. tenue				690		
C. fucus v. setar					500	
C. trichoceros v. contrarium				690		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SPRING CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 104	Bottle Number	36	37	38	39	40
	Depth (m)	3	6	15	40	70
Species				Cells/Liter		
Dinoflagellates						
Oxytoxum scolopax		2,300	4,600	1,400	500	
O. viride			580	690		
Peridinium Sp.					2,500	3,500
Procentrum Sp.		1,200	1,200	2,800	1,500	
P. compressum			1,200	3,500	500	880
Choanoflagellates						
Acanthoecopsis Sp.		580				
Coccolithophorids						
Acanthoica aculeata		580	580	1,400		
Acanthosphaera robusta		4,000	6,400	4,900	500	880
Calcidiscus leptoporus		580	4,600		1,000	3,500
Calciosolenia murrayi			580			1,760
Calypterosphaera oblonga			580	690		
Caneosphaera molischii				690		
Coccolithophorid Sp.			580			
Coccolithus huxleyi		144,000	179,000	179,000	140,000	170,000
Coronosphaera mediterranea					500	
Discosphaera tubifera		3,500	580	690	500	
Rhabdosphaera claviger					1,000	
Scyphosphaera apsteinii						7,900
Syracosphaera histrica		3,500	1,200		500	
S. pirus		580	1,200	1,400		
Misc.						
Monad (flagellate)					500	
Unidentified					1,000	4,400

Appendix
Section A.7

Summer Cruise
Productivity Profiles

Legend

Left graph
sigma - t = dashed line
temperature (°C) = solid line

Center graph
Chl *a* ($mg \cdot m^{-3}$) = dashed line
nitrate (μM) = solid line

Right graph
primary productivity ($mgC \cdot m^{-3} \cdot day^{-1}$)

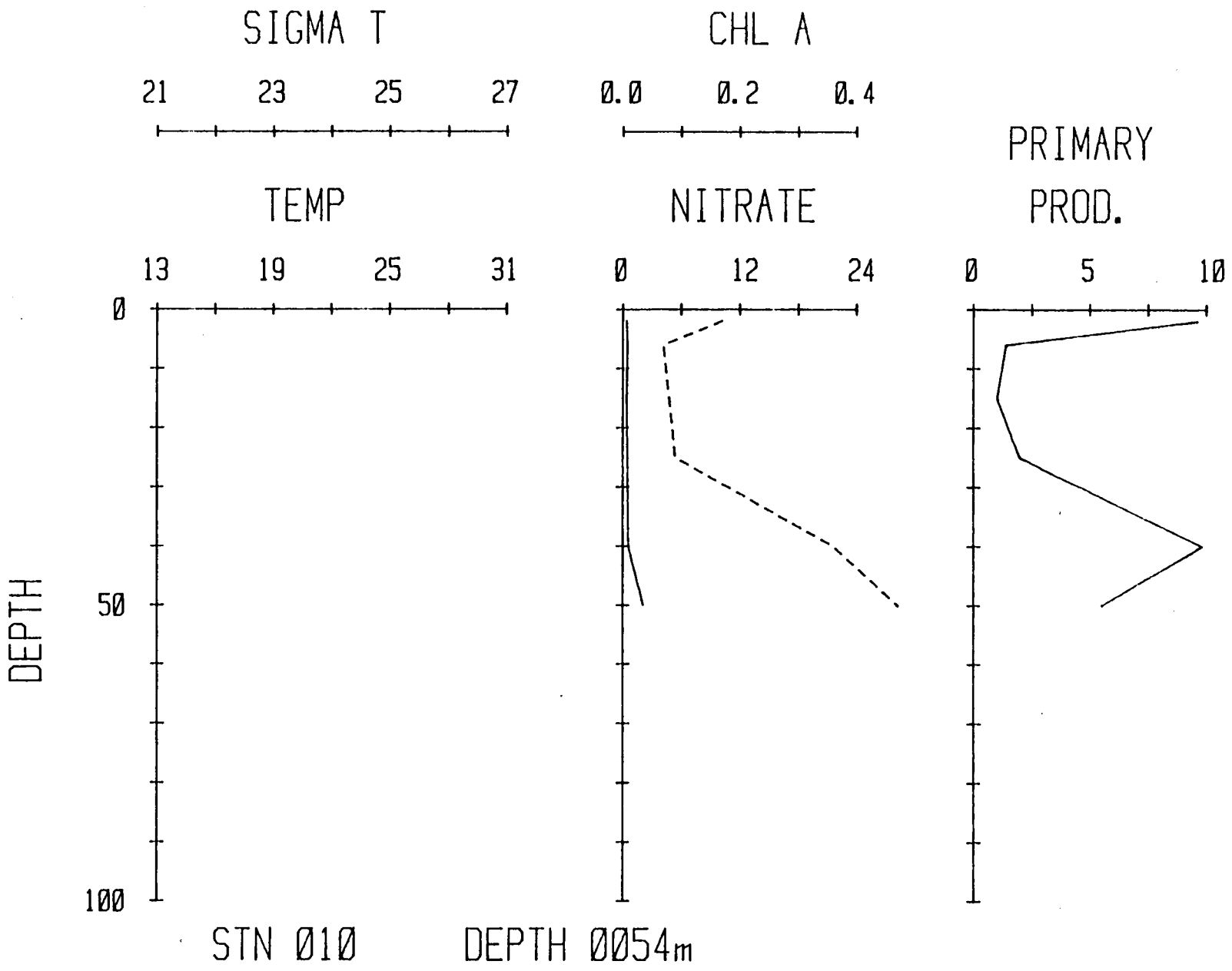

Figure A-34. Summer cruise, station 10 vertical productivity profiles.

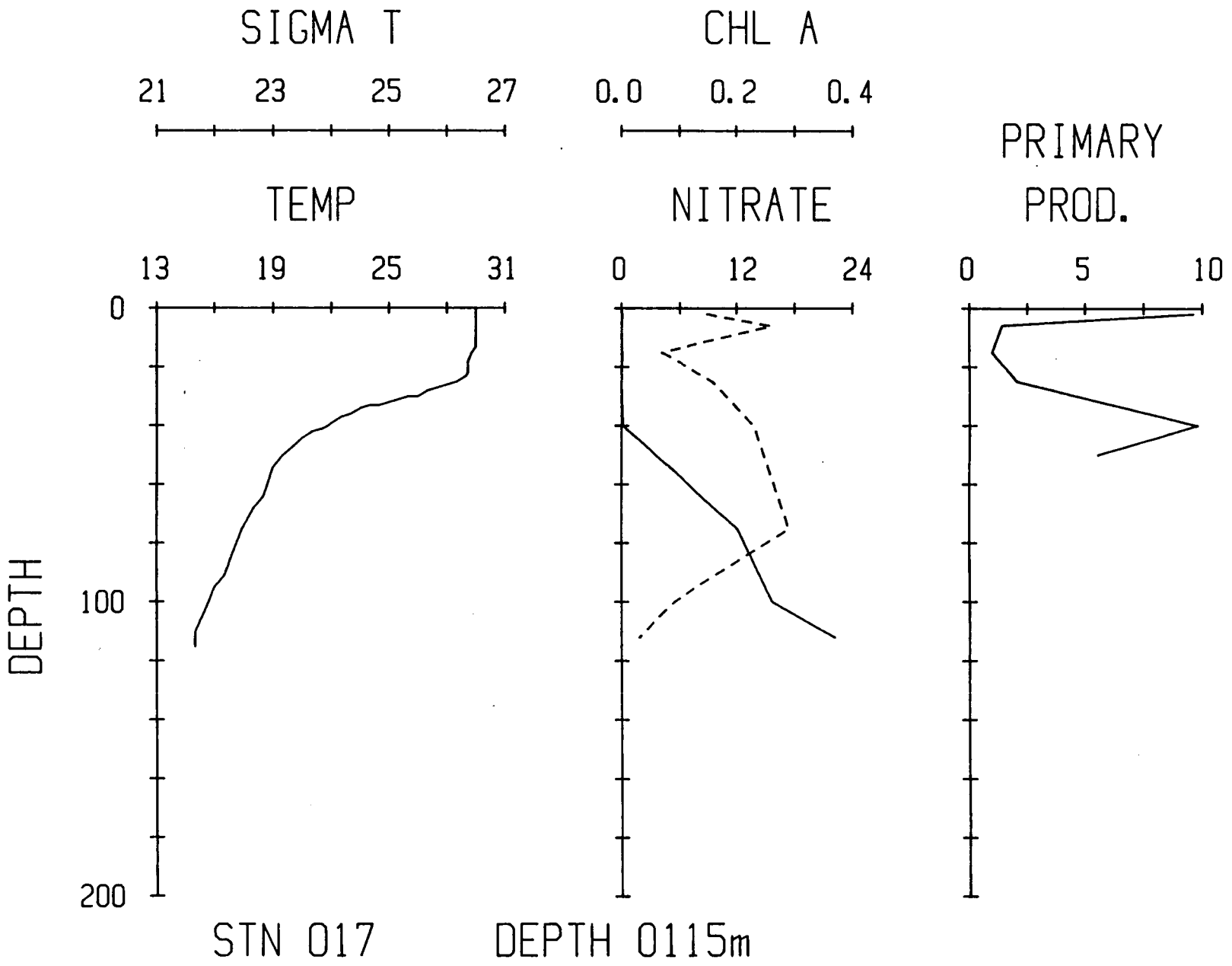

Figure A-35. Summer cruise, station 17 vertical productivity profiles.

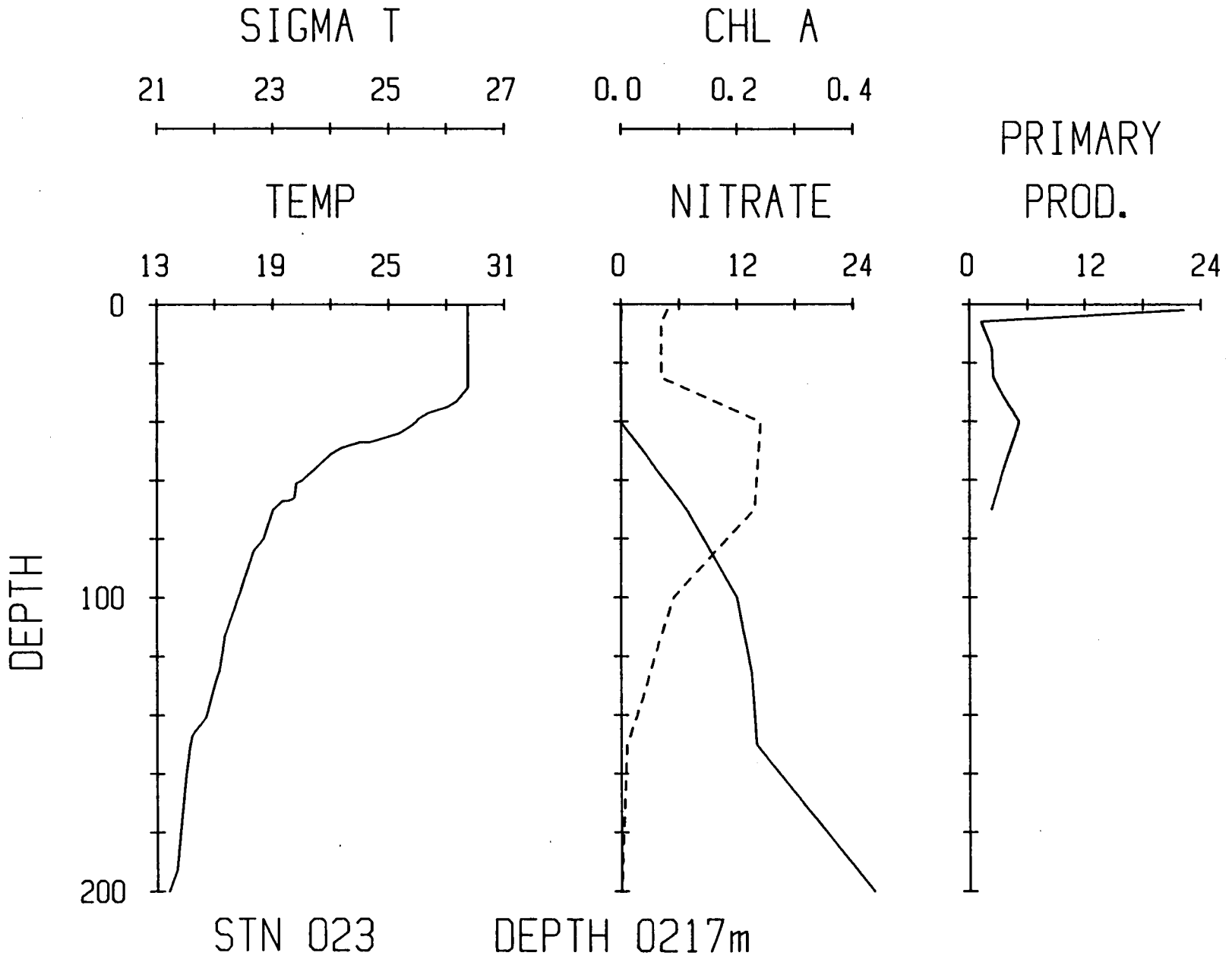

Figure A-36. Summer cruise, station 23 vertical productivity profiles.

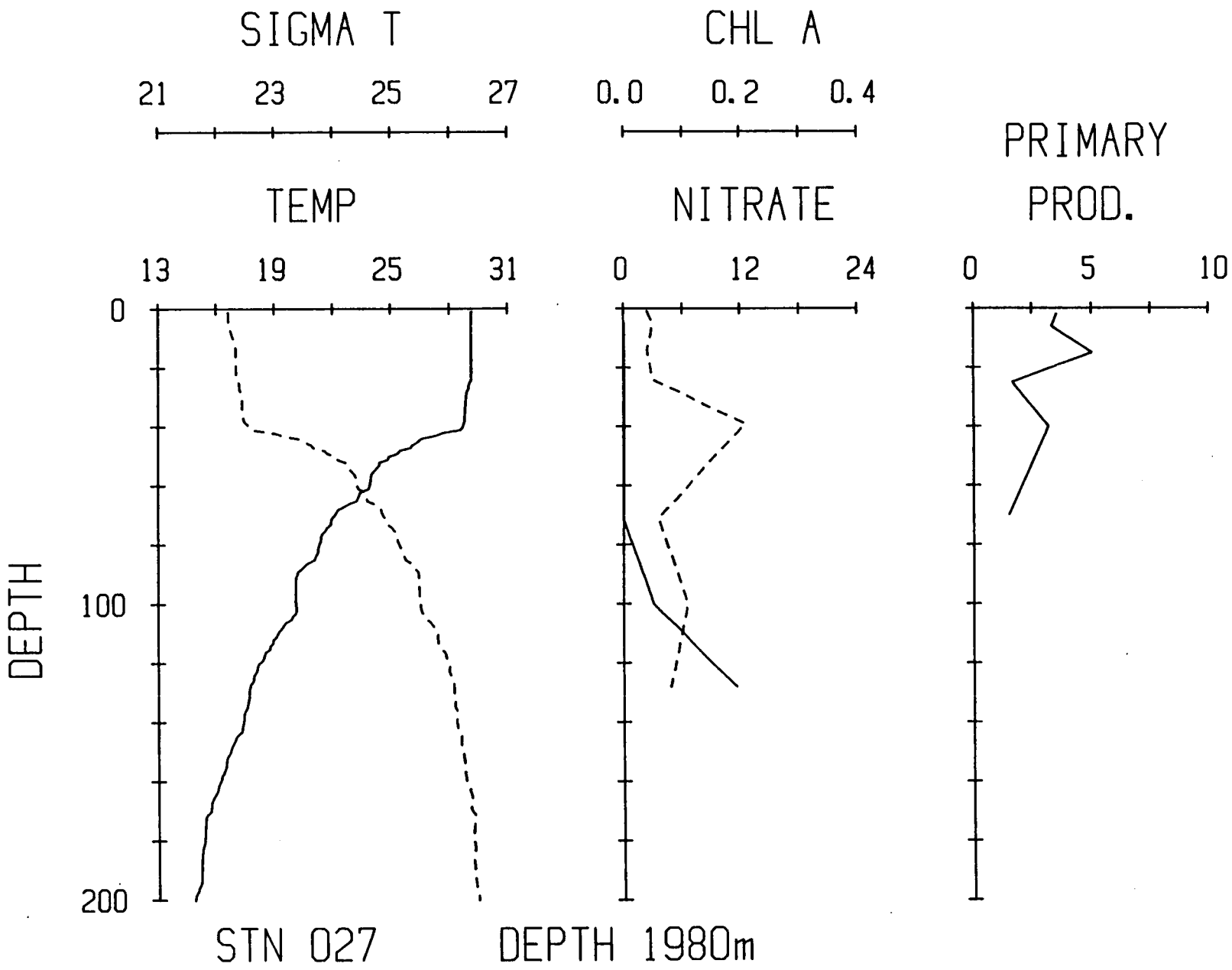

Figure A-37. Summer cruise, station 27 vertical productivity profiles.

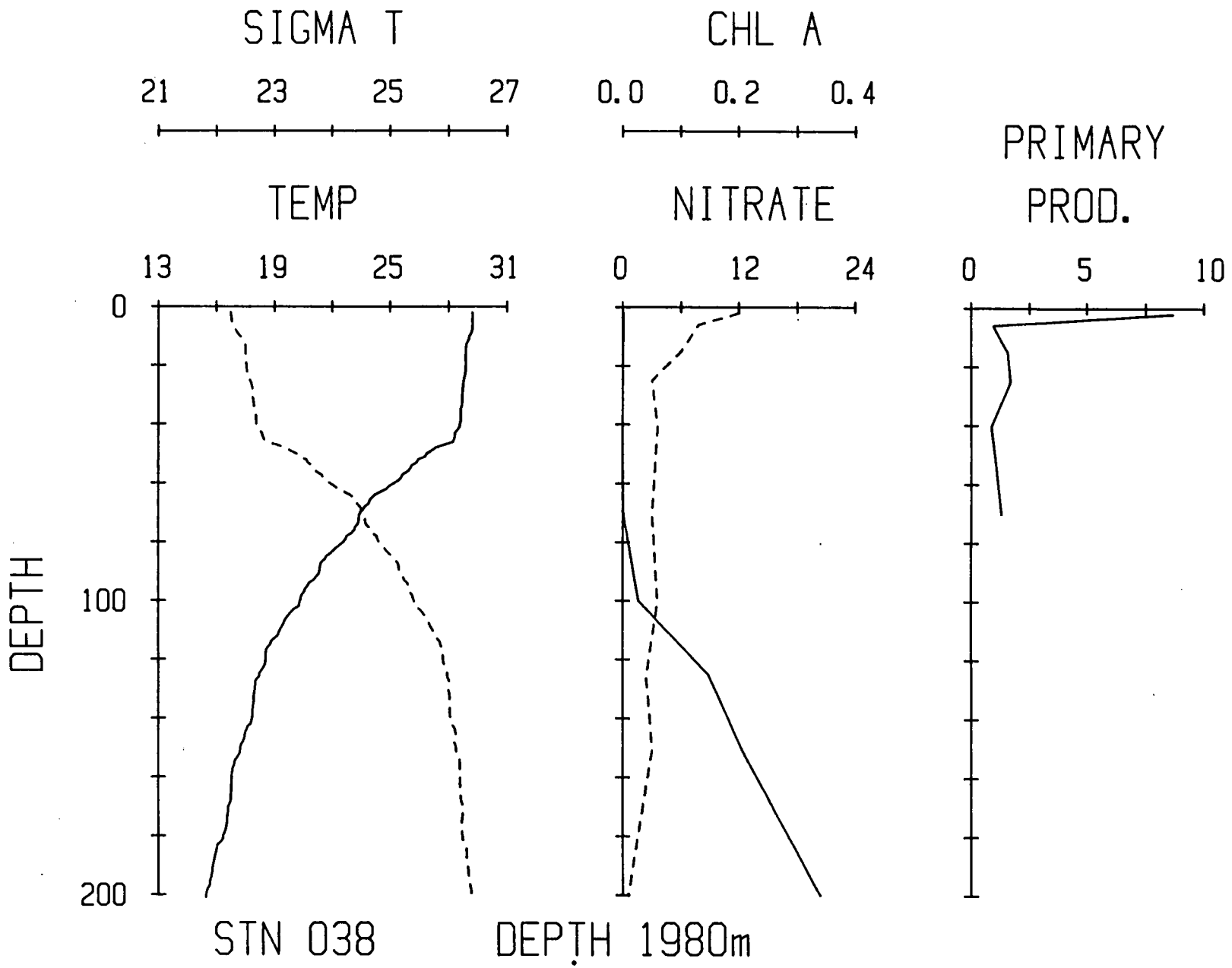

Figure A-38. Summer cruise, station 38 vertical productivity profiles.

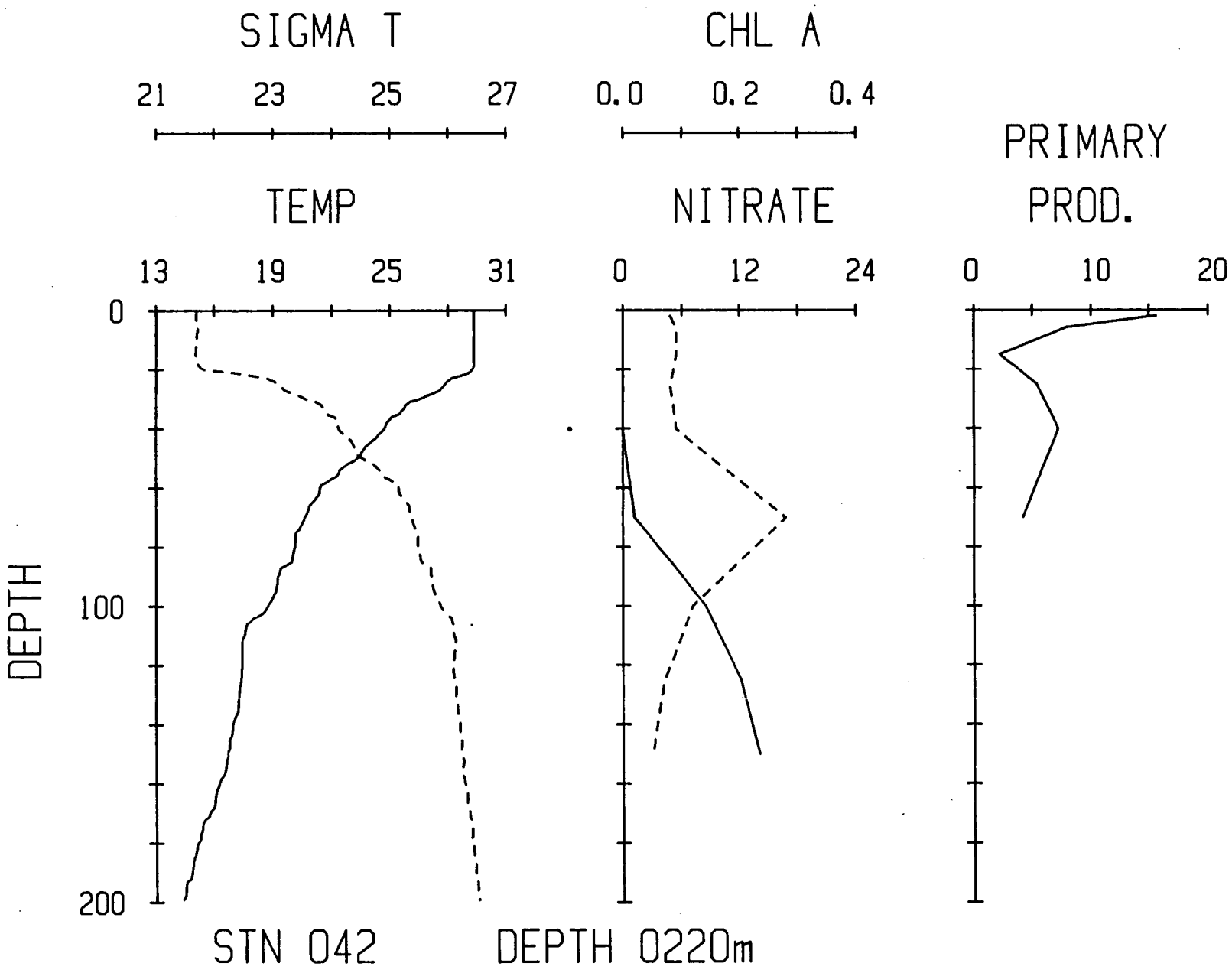

Figure A-39. Summer cruise, station 42 vertical productivity profiles.

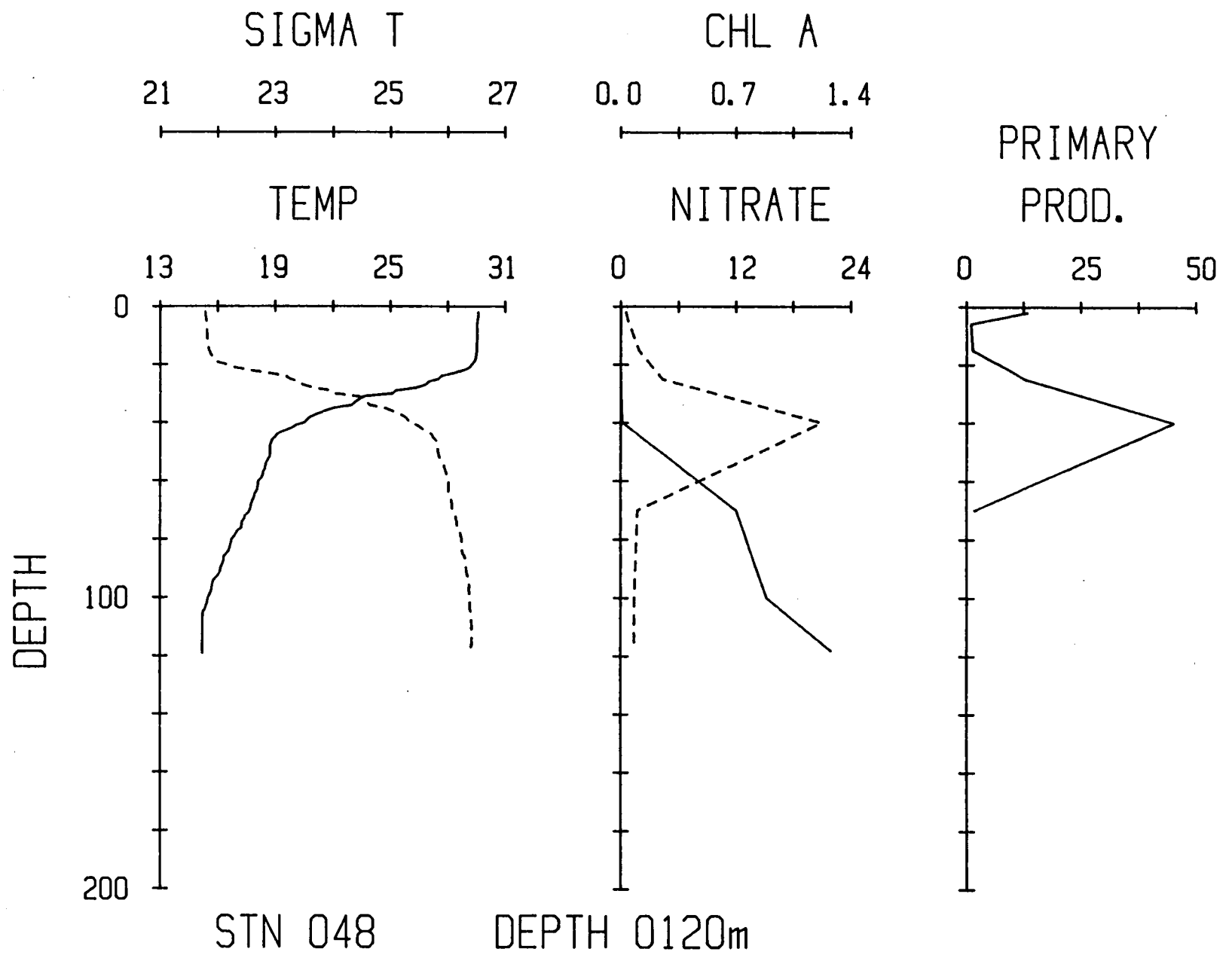

Figure A-40. Summer cruise, station 48 vertical productivity profiles.

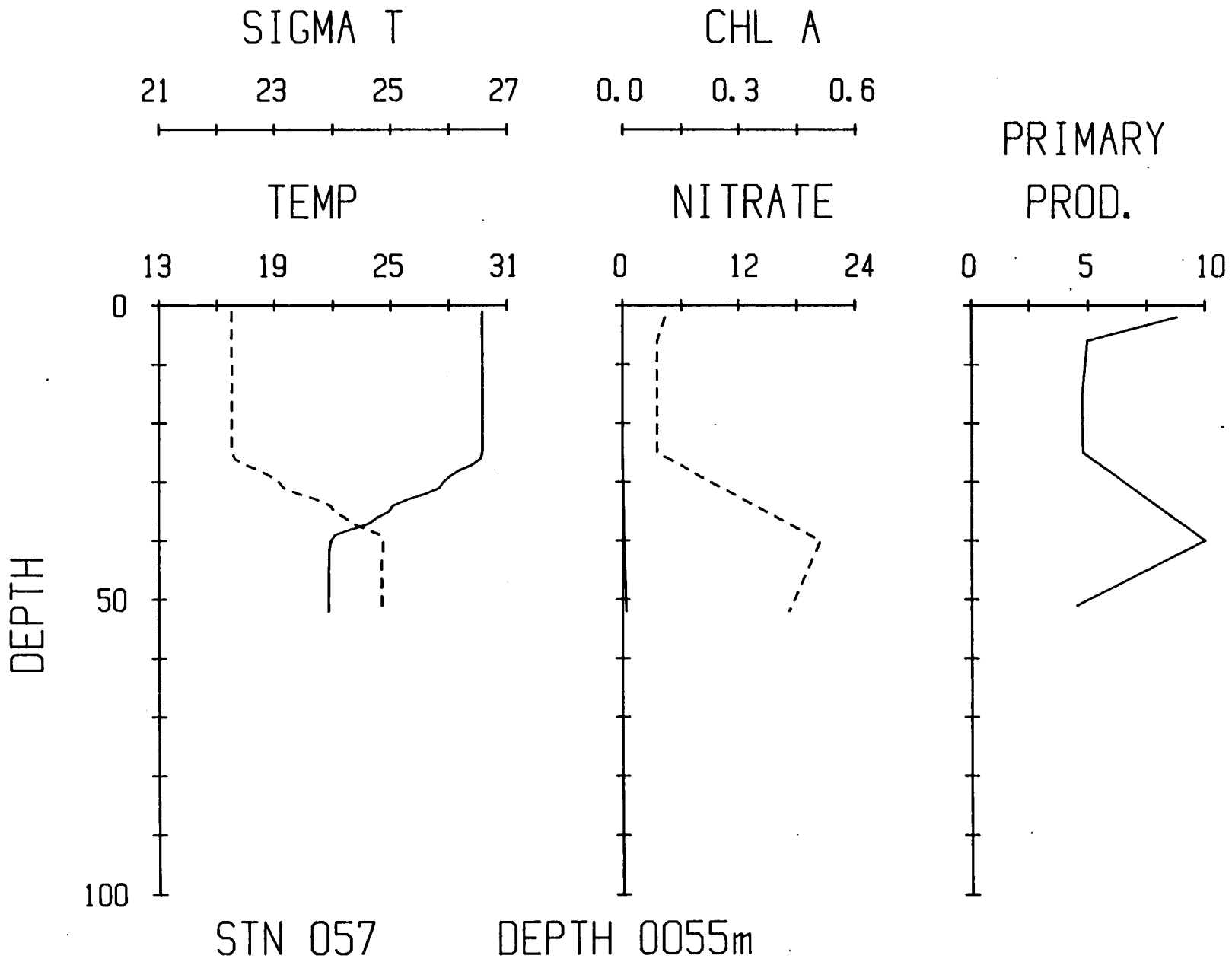

Figure A-41. Summer cruise, station 57 vertical productivity profiles.

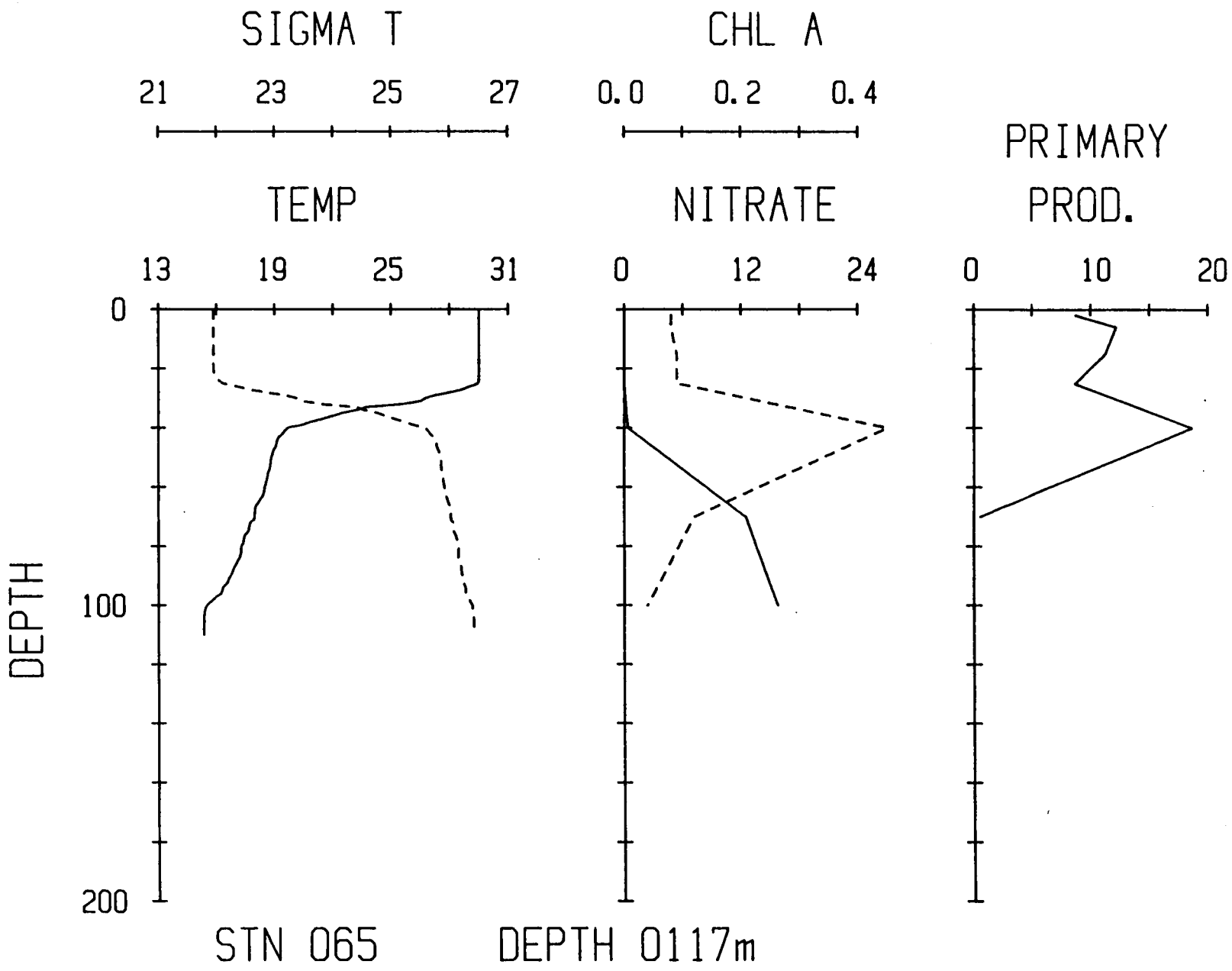

Figure A-42. Summer cruise, station 65 vertical productivity profiles.

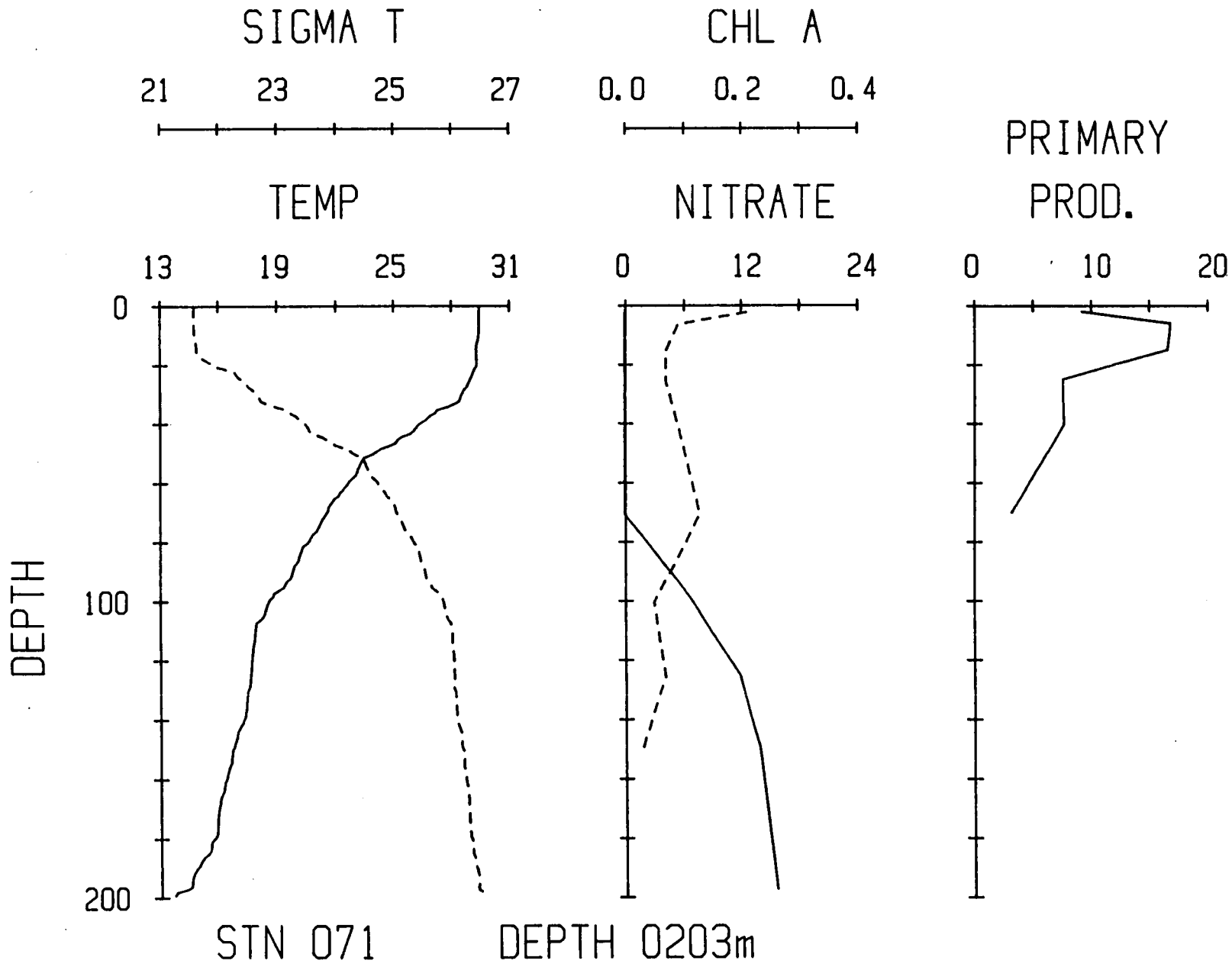

Figure A-43. Summer cruise, station 71 vertical productivity profiles.

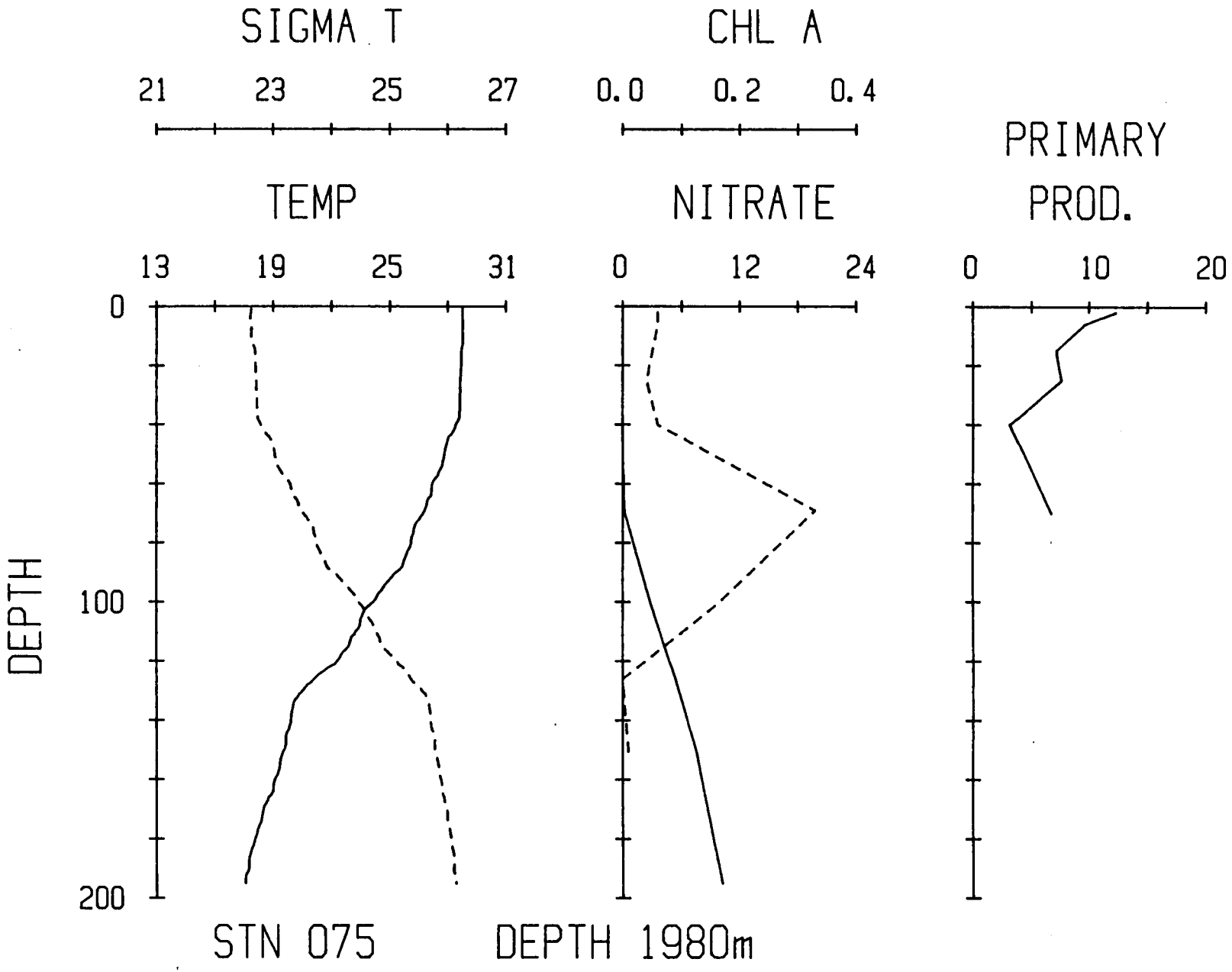

Figure A-44. Summer cruise, station 75 vertical productivity profiles.

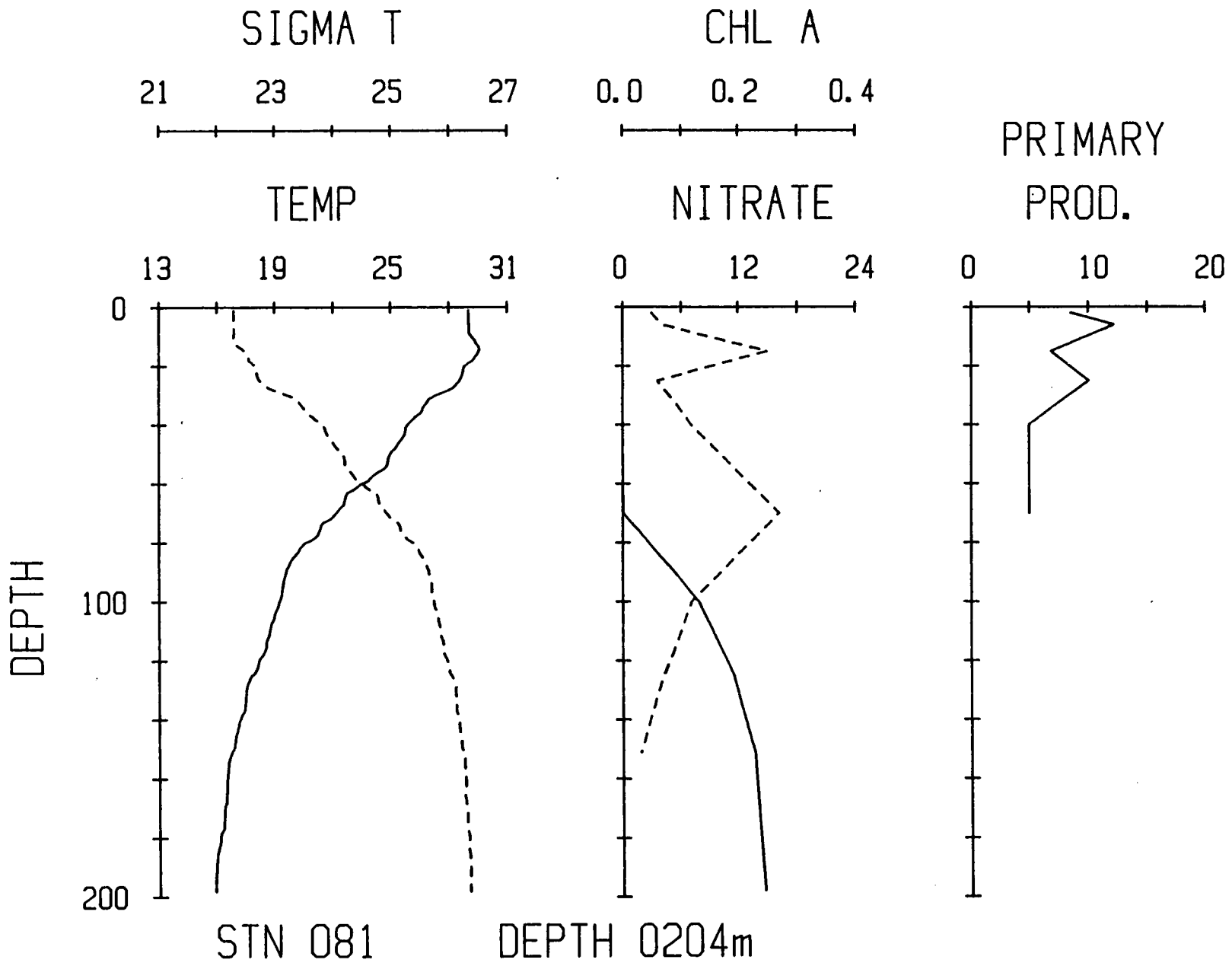

Figure A-45. Summer cruise, station 81 vertical productivity profiles.

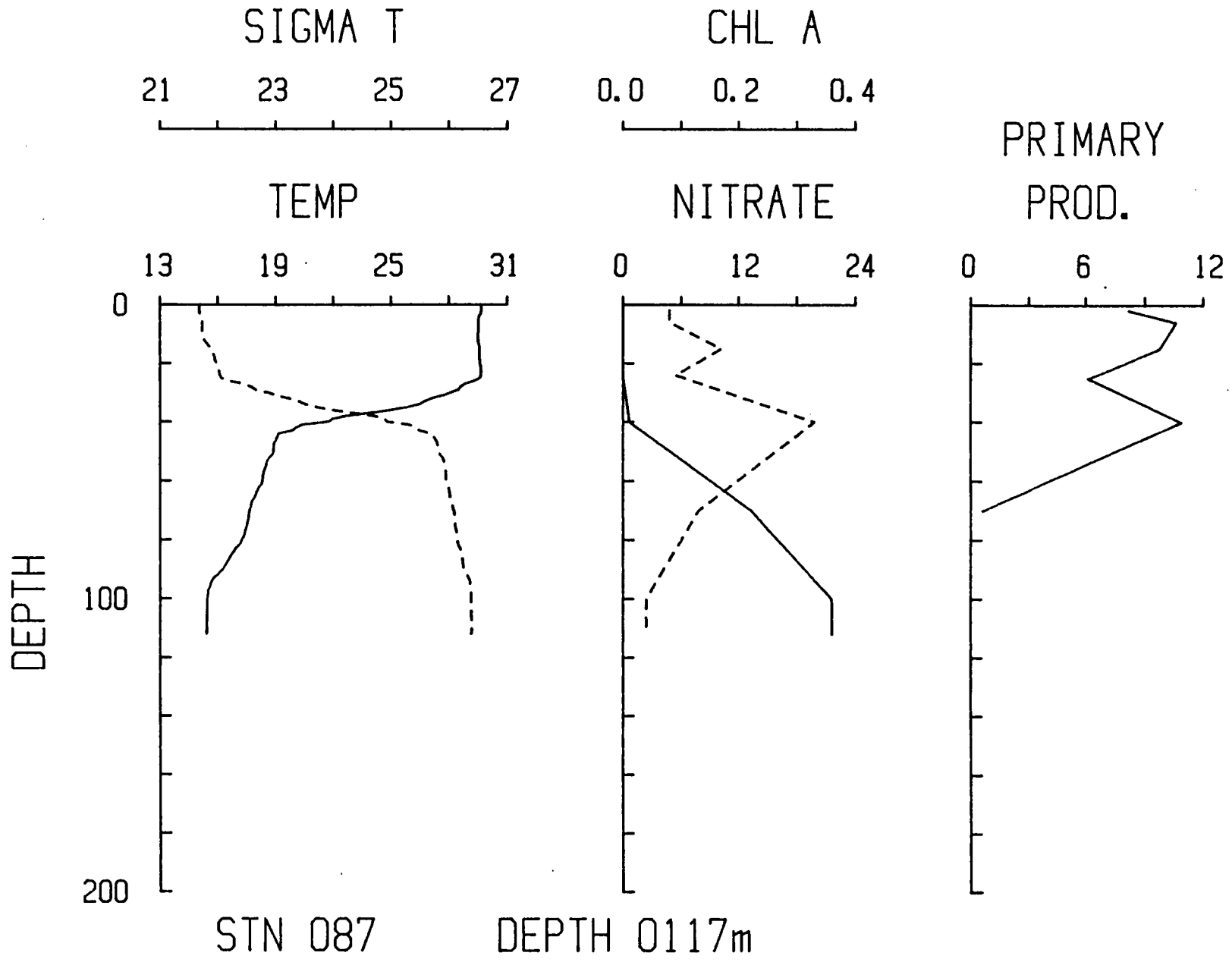

Figure A-46. Summer cruise, station 87 vertical productivity profiles.

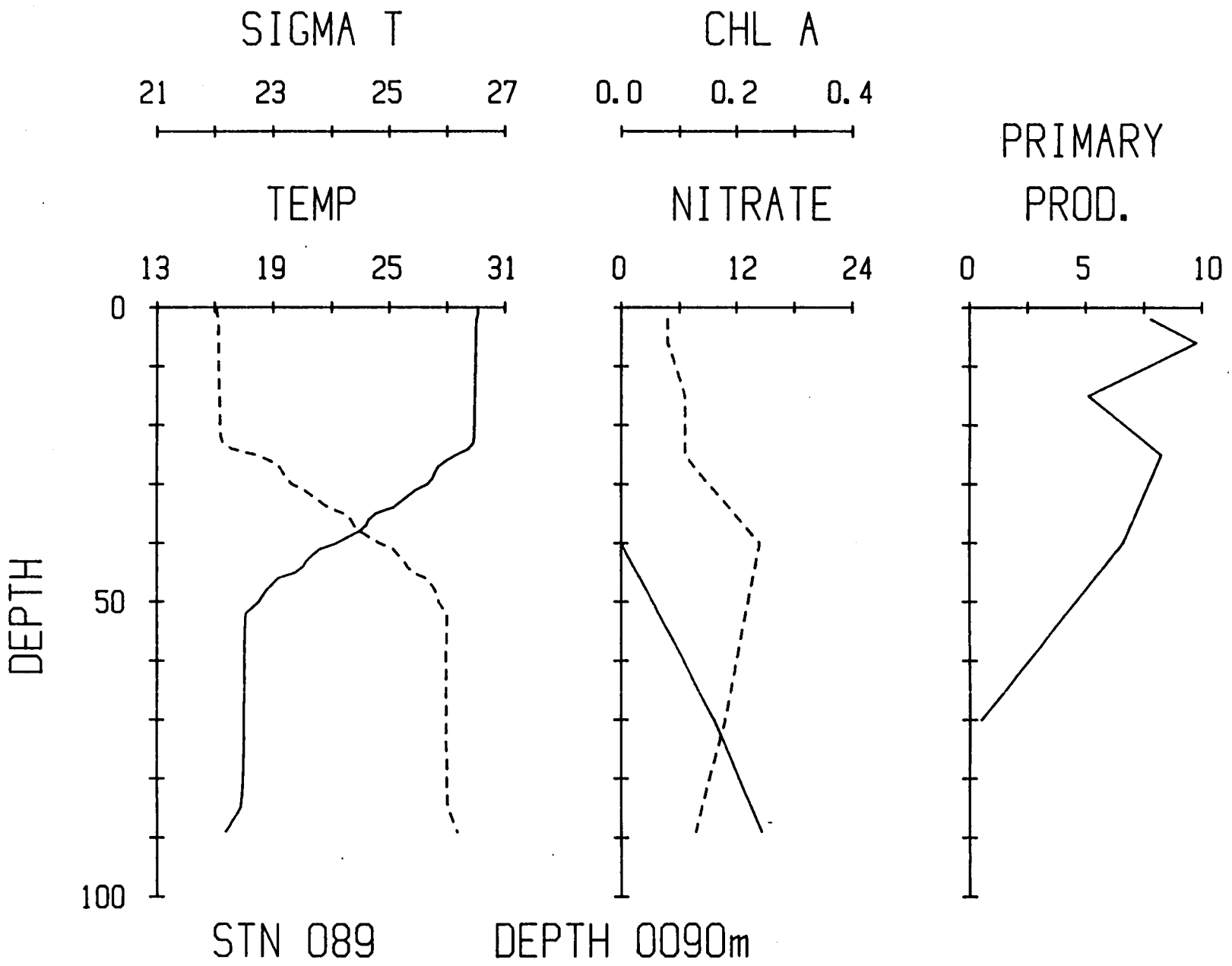

Figure A-47. Summer cruise, station 89 vertical productivity profiles.

Appendix
Section A.8

Summer Cruise
Attenuation Coefficients

Summer Cruise

Attenuation Coefficients

Stn. No.	$C(m^{-1})$	Depth Interval (m)
10	0.07	0-30
30	0.05	0-35
65	0.06	0-30
67	0.06	0-30
89	0.06	0-30

Average C = 0.06 (standard deviation = 0.01) m^{-1}

Appendix
Section A.9

Summer Cruise
Phytoplankton Enumeration Results

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 10	Bottle Number	1	2	3	4
	Depth (m)	2	6	15	25
Species				Cells/Liter	
Diatoms					
Achnanthes Sp.		730	880	1,600	
A. longipes Ag.		730			
Asterionella Sp.			880		
Chaetoceros laciniosum Schütt		730			
Hemiaulus hauckii Grunow			1,800		1,790
Mastigloia rostrata (Wallich) Hustedt			4,400	1,700	
Navicula Sp.		5,800	2,600	810	1,790
N. platyventric Meister			880		
Nitzschia Sp.		4,400	3,500	6,500	7,200
N. bicapitata Cl.			4,400		3,600
N. delicatissima Cl.			7,900		
Pleurosigma Sp.		730			
Rhizosolenia alata Brightw.		77,700	83,000	64,400	49,300
R. Calcar avis M. Schultze		2,900		6,500	4,500
R. styliformis Brightw.		2,200		810	
Thalassiothrix frauenfeldii Grunow			1,800		
T. mediterranea v. pacifica Cupp			1,800		
Dinoflagellates					
Ceratium buceros f. tenue (Ost. & Sch.) Jorg.					890
Dinophysis Sp.			880		
D. robustus Gran Braarude			880		
Gymnodinium Sp.		26,000	35,300	43,800	57,900
Ceratium furca v. eugrammum (Ehr) Jorg.		1,500	1,800		
Oxytoxum compressum Kofoid			880		
O. scolopax Schiller		4,400	11,400	4,100	5,400
O. viride Schiller		1,500	3,500	10,500	1,790
Peridinium Sp.			880		
P. tuba Schiller					1,790
Podolampas bipes Stein		730	1,800		2,690
Procentrum Sp.		1,500			
P. balticum				1,600	890
P. ovum			880		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 10	Bottle Number	1	2	3	4
	Depth (m)	2	6	15	25
Species				Cells/Liter	
Coccolithophorids					
Acanthoica aculeata Kamptner		2,200	880		
Alisphaera ordinata		730	880		
Anthosphaera robusta (Lohman) Kamptner		1,500	5,300	810	890
Ceratolithus cristatus		4,400	3,500	5,700	6,300
Coccolithophorid Sp.		4,400			1,700
C. huxleyi (Lomen) Kamptner		9,500	8,800	15,400	14,400
Coronosphaera mediterranea (Lohman) Gaard.		730			
Discosphaera tubifera (Murray & Blackman)		19,000	18,500	13,300	21,200
Gephyrocapsa oceanica Kamptner		26,300	11,400	37,300	36,800
Pontosphaera syracusana Lohman					890
Scyphosphaera apsteinii Lohman					890
Syracosphaera histrica Kamptner		9,500	1,800	9,700	1,790
Thoracosphaera heimii			11,500	810	2,690
Umbellosphaera irregularis		1,200	13,200	43,100	22,400
Misc.					
Unidentified		2,200			16,200
Oscillatoria Sp.		730			
Richelia intracellularis		1,500			
Dictyocha fibula		730			
D. speculum v. polyactis		1,500			

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 27	Bottle Number	5	6	7	8	9
	Depth (m)	2	6	15	25	70
Species					Cells/Liter	
Diatoms						
Achnanthes Sp.			720			
Cyclotella Sp.				1,500		
Hemiaulus hauckii Grunow			2,200	1,500	790	400
H. membranaceus Cl.			360			
Mastigloia rostrata (Wallich) Hustedt		470				400
Navicula Sp.			1,800	990	790	400
N. platyventric Meister				490		
Nitzschia Sp.		470	360	2,000		
N. bicapitata Cl.			360	3,000		
N. delicatissima Cl.						400
Rhizosolenia Sp.			360	990		
R. alata Brightw.		3,700	4,700	9,900	2,400	400
R. calcar avis M. Schultz				990		
Thalassiothrix frauenfeldii Grunow					390	
Dinoflagellates						
Ceratium buceros f. tenue (Ost. & Sch.) Jorg.						400
C. fusus v. seta (Ehr.) Jorg.			360	490		
C. teres Kofoid				490	390	400
Dinophysis Sp.		470		490		
D. rotundatum		470				
Gonyaulax Sp.			360			
Gymnodinium Sp.		3,700	5,400	14,300	2,400	1,600
Gyrodinium Sp.				490		
Histoneis Sp.				490		
Oxytoxum scolopax Stein				3,000	390	
O. viride Schiller		470	5,100	990	2,000	2,400
Peridinium Sp.		930				
Podolampas bipes Stein					390	
Procentrum balticum				490		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 27	Bottle Number	5	6	7	8	9
	Depth (m)	2	6	15	25	70
Species					Cells/Liter	
Coccolithophorids						
Acanthoica aculeata Kamptner			360			
Anoplosolenia brasiliensis(Lohman) Deflandre				490	390	3,200
Anthosphaera robusta (Lohman) Kamptner		470	6,100	4,900	3,900	400
Calciosolina murrayi Gran						3,600
Ceratolithus cristatus		2,800	1,800	1,500	1,200	
Calyptrosphaera oblongata Lohman		470	360			
Coccolithophorid Sp.			1,100	990		
C. huxleyi (Lohman) Kamptner		31,600		72,700	7,900	30,000
Discosphaera tubifera (Murray & Blackman) Ost.		6,500	5,800	6,400		
Gephyrocapsa oceanica Kamptner		3,700		1,500	390	800
Halopappas adriaticus Schiller						1,200
Pontosphaera syracusana Lohman		930			390	400
Rhabdosphaera claviger Murray & Blackman		470	360	1,500		400
Syracosphaera histrica Kamptner		2,800	3,300	7,900	1,200	2,400
S. prolongata Gran		470	360	490		
Thoracosphaera heimii		470		490		
Umbellosphaera irregularis		4,200	21,700	8,400		1,200
U. tenus (Kamptner) Paasche						400
Zygosphaera debilis				490		
Silicoflagellates						
Dictychoca fibula					390	400
Misc.						
Flagellate		470	723			
Unidentified		1,400	720	990	390	800
Pyrocystis cf						
Oscillatoria Sp.			2,900	4,900		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 42	Bottle Number	10	11	12	13	14
	Depth (m)	2	6	15	40	70
Species					Cells/Liter	
Diatoms						
Chaetoceros peruvianum Brightw.						2,300
Cyclotella Sp.						1,500
Hemiaulua hauckii Grunow			500			
Leptocylindricus danicus Cl.				800	520	
Navicula Sp.						2,300
Nitzschia Sp.		4,300	500	800		
N. bicapitata Cl.				4,800		2,300
N. delicatissima Cl.			500	3,200		
Planktonella sol (Wallich) Schütt						770
Rhizosolenia alata Brightw.		114,000	86,000	140,000		
R. calcar avis M. Scjultz				6,400		
R. cylindrum Cl.						770
R. stolterfothii H. Per.						2,300
Thalassionema nitzschioides Grunow		610				
Thalassiosira Sp.						1,500
Thalassiothrix frauenfeldii Grunow		610	8,000	2,400	520	
T. mediterranea v. pacifica Cupp		610	4,500	1,600		
Unidentified diatom						770
Dinoflagellates						
Ceratium teres Kofoid			500			
Dinophysis Sp.			800			
D. rotundatum			500			
Orinthocercus quadratus Schütt cf			1,000			
Gonyaulax Sp.					4,200	
Gymnodinium Sp.		4,300	9,000	18,400	3,600	5,400
Gyrodinium Sp.		610				
Histoneis Sp.				800		
Oxytoxum scolopax Stein		3,700	1,500	800	520	2,300
O. viride Schiller			2,500	800	520	
Peridinium bispinum Schiller						770
P. tuba Schiller				800		
Podolampas bipes Stein		610	1,000			
P. palmipes Stein			500			
Procentrum balticum				800	520	

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 42	Bottle Number	10	11	12	13	14
	Depth (m)	2	6	15	40	70
Species					Cells/Liter	
Coccolithophorids						
Acanthoica aculeata Kamptner			1,000	800		
Anthosphaera robusta (Lohman) Kamptner		13,100	4,000	3,200	520	4,600
Calciosolina murrayi Gran				800	520	1,500
Ceratolithus cristatus		4,300	1,000	5,600		
Coccolithophorid Sp.		610		1,600		2,300
Coccolithus huxleyi (Lohman) Kamptner		13,500	14,500	22,400	129,000	165,000
Discosphaera tubifera (Murr. & Blackm.) Ostn.		3,100	3,500	2,400	520	
Gephyrocapsa oceanica Kamptner		3,100	1,500	11,200	6,200	1,500
Halopappas adriaticus Schiller				800	1,600	
Helladosphaera cornifera						770
Periphyllophora mirabillis (Schiller) Kamptner			1,500			
Pontosphaera syracusana Lohman					520	
Rhabdosphaera claviger Murray & Blackman				800		2,300
Scyphosphaera apsteinii Lohman						10,700
Syracosphaera histrica Kamptner		5,500	10,000	14,400	4,700	770
S. prolongata Gran						770
Thoracosphaera heimii		1,200				
Umbellosphaera irregularis		2,500	30,000	12,000	2,600	
Silicoflagellates						
Dictyocha fibula					1,600	3,100
D. speculum v. polyactis						3,800
Misc.						
Unidentified		610	500			15,300
Synedra Sp.						1,770
Oscillatoria Sp.		3,700	500	1,600		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 48	Bottle Number	15	16	17	18	19
	Depth (m)	6	15	25	40	70
Species					Cells/Liter	
Diatoms						
Asteromphalus Sp.		1,500				390
Chaetoceros gracilis Schütt		1,500				
Coscinodiscus Sp.					3,000	
Dactyliosolen antarcticus Castr.					35,000	
Hemiaulus hauckii Grunow		1,500		2,000		
Leptocylindricus danicus Cl.				1,000		1,500
Mastigloia rostrata (Wallich) Hustedt		1,500	1,500	1,000		
Navicula Sp.					8,900	
Nitzschia Sp.		4,500		2,000	56,000	1,500
N. bicapitata Cl.		4,500	4,400	2,000	8,900	960
N. closterium (Ehr.) W. Sm.		1,500				
N. delicatissima Cl.		7,400	5,900		20,700	
Rhizosolenia alata Brightw.		201,000	240,000	10,000		
R. calcar avis M. Schultze		4,500	10,300	2,000		
R. stolterfothii H. Per.					5,900	
R. styliformia Brightw.		11,900	1,500			
Thalassionema nitzschioides Grunow			3,000			
Thalassiosira Sp.					11,800	
Thalassiothrix frauenfeldii Grunow				2,000	11,800	
T. mediterranea v. pacifica Cupp		1,500	1,500		20,700	
Thalassiosira (linear- 10 areola/10um)					14,800	
Dinoflagellates						
Ceratium arietinum Cleve						190
C. teres Kofoid			1,500			
Dinophysis Sp.						190
Gonyaulax Sp.		4,500	1,500			
Gymnodinium Sp.		32,800	3,000	28,700	23,600	960
Oxytoxum scolopax Stein		8,900	4,400	3,000	20,700	2,900
O. viride Schiller		7,400	1,500	3,000	2,950	
Peridinium Sp.			1,500			
P. bispinum Schiller			1,500			

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 48	Bottle Number	15	16	17	18	19
	Depth (m)	6	15	25	40	70
Species					Cells/Liter	
P. globulus v. quarnense Br. Schroder					2,950	
P. tuba Schiller			1,500			
Podolampas bipes Stein		1,500	3,000		2,950	
Coccolithophorids						
Anoplosolenia brasiliensis (Lohman) Deflandre					20,700	
Anthosphaera robusta (Lohman) Kamptner		3,000	7,400	5,900	29,500	1,500
Calciosolina murrayi Gran		26,800	153,000	5,900	5,900	
Calyptrosphaera oblongata Lohman			1,500		2,950	
Ceratolithus cristatus				6,900		
Coccolithophorid Sp.		1,500	1,500			960
Coccolithus huxleyi (Lohman) Kamptner		40,000	22,000	87,000		
Discosphaera tubifera (Murr. & Blackm.) Osten.		5,000	30,000	1,000		
Gephyrocapsa oceanica Kamptner		1,500	4,400	21,700	23,600	190
Halopappas adriaticus Schiller				10,800	5,900	190
Helicosphaera carteri (Wallich) Kamptner		1,500				
Pontosphaera syracusana Lohman		6,000	1,500	20,800	2,950	190
Scyphosphaera apsteinii Lohman				2,000	38,400	8,500
Sphaerocalyptra gracillima Kamptner			13,000	3,000	2,950	
Syracosphaera histrica Kamptner		3,000	20,700	10,000	56,000	1,300
Umbellosphaera irregularis		25,300	28,000	29,500	5,900	
Silicoflagellates						
Dictychoa figula			1,500	4,000	14,800	
D. speculum v. polyactis					2,950	
Unidentified diatom						190
Unidentified green		*11,900	3,000	7,900	2,950	390
Solenicola setigera						
Oscillatoria Sp.						13,700

*small flagellate

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 65	Bottle Number	20	21	22	23	24
	Depth (m)	6	15	25	40	70
Species					Cells/Liter	
Diatoms						
Asteromphalus Sp.				1,000		
Detonula pumila (Castr.) Schütt					3,800	
Mastigloia rostrata (Wallich) Hustedt		1,300	3,100	5,000		
Nitzschia Sp.		650		1,000		
N. bicapitata Cl.			770			380
N. closterium (Ehr.) W. Sm.				1,000		
N. delicatissima Cl.		2,000	6,900	23,000		380
Pleurosigma Sp.						380
Rhizosolenia alata Brightw.		101,000	137,000	155,000	3,800	1,200
R. calcar avis M. Schultze		2,000	9,200	4,000		
Synedra Sp.					1,300	2,300
Thalassionema nitzschioides Grunow		650				
Thalassiosira Sp.				1,000	1,300	
T. symmetrica Fryxell & Hasle						380
Thalassiothrix frauenfeldii Grunow		650	770			380
Dinoflagellates						
Amphidinium Sp.			770			
Ceratium buceros f. tenue (Osten & Schmidt) Jorg.			770			
C. teres Kofoid		650				
Dinophysis Sp.				1,000	1,300	
D rotundatum						1,380
Gonyaulax Sp.		650		2,000		
Gymnodinium Sp.		6,500	15,400	17,000	8,800	1,200
Oxytoxum laticeps Schiller			3,100			
O. scolopax Stein		3,300		4,000		380
O. viride Schiller		3,900	4,600	4,000		
Peridinium Sp.						380
P. bispinum Schiller				1,000		380
P. tuba Schiller				1,000		
Podolampas bipes Stein		650	770	1,000	1,300	
P. palmipes Stein					2,500	

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 65	Bottle Number	20	21	22	23	24
	Depth (m)	6	15	25	40	70
Species					Cells/Liter	
Dinoflagellates						
Procentrum lunes					1,300	
Coccolithophorids						
Anoplosolenia brasiliensis (Lohman) Deflandre					1,300	
Anthosphaera robusta (Lohman) Kamptner		650			6,300	1,900
Calciosolina murrayi Gran					1,300	
Ceratolithus cristatus		18,200	26,900	18,000		
Coccolithophorid Sp.		1,300			3,800	380
Coccolithus huxleyi (Lohman) Kamptner		4,600	18,500	18,000	359,000	2,300
Coronosphaera mediterranea (Lohman) Gaarder			1,000	2,500		
Discosphaera tubifera (Murr. & Blackm.) Ostenf.		5,200	3,800	7,000		
Gephrocapsa oceanica Kamptner		650	5,400	5,000	3,800	
Pontosphaera syracusana Lohman		1,300			7,600	
Scyphosphaera apsteinii Lohman					1,300	1,900
Syracosphaera histrica Kamptner		5,900	5,400	7,000	6,300	1,200
S. prolongata				1,000	1,300	
Umbellosphaera irregularis		650	4,600	5,000		
Silicoflagellates						
Dictyocha fibula				2,000		380
Unknown diatom					7,600	770
Unidentified green					2,500	3,800
Oscillatoria Sp.				15,000		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 71	Bottle Number	25	26	27	28	29
	Depth (m)	6	15	25	40	70
Species					Cells/Liter	
Diatoms						
Asteromphalus Sp.		410				
Bacteriastrum delicatulum Cl.		410				
Chaetoceros peruvianum Brightw.				720		
Hemiaulus hauckii Grunow			820			
Leptocylindricus danicus Cl.			1,600	480		
Mastigloia rostrata (Wallich) Hustedt			820			
Nitzschia Sp.		5,000	3,300			420
N. bicapitata Cl.			4,100	240	1,700	
Rhizosolenia alata Brightw.		50,000	83,300	6,900		
R. calcar avis M. Schultze		2,500				
R. styliformis Brightw.		410				
Thalassiosira Sp.			820			
Thalassiothrix frauenfeldii Grunow				480	430	
T. mediterranea v. pacifica Cupp			1,600		430	
Dinoflagellates						
Amphidinium Sp.		830				
Ceratium kofoidii Jorg.		830				
Dinophysis Sp.			1,600			
Gonyaulax Sp.			4,100		4,300	
G. scrippsae Kofoid			12,200	3,400	9,400	
Gymnodinium Sp.		12,000			2,100	2,500
Oxytoxum compressum Kofoid		410				
O. scolopax Stein		410		1,900	3,400	2,100
O. viride Schiller		6,200	5,700	2,400	3,400	
Peridinium Sp.		410	3,300	480		
P. tuba Schiller		410				
Procentrum compressum					430	
P. micans				240		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 71	Bottle Number	25	26	27	28	29
	Depth (m)	6	15	25	40	70
Species					Cells/Liter	
Coccolithophorids						
Anoplosolenia brasiliensis (Lohman) Deflandre					850	1,300
Anthosphaera robusta (Lohman) Kamptner		1,200	8,200		850	
Calciosolina murrayi Gran					1,300	
Ceratolithus cristatus		5,000	4,900	1,200		
Coccolithophorid Sp.		2,100	2,500		430	
Coccolithus huxleyi (Lohman) Kamptner		3,700		16,500	40,400	16,400
C. pelagicus (Wallich) Schiller		410				
Discosphaera tubifera (Murr. & Blackm.) Ostenf.		8,700	11,400	720	430	
Gephyrocapsa oceanica Kamptner		1,200	2,500		430	
Pontosphaera syracusana Lohman		2,900	820	480	430	
Scyphosphaera apsteinii Lohman				240		
Sphaerocalypira gracillima Kamptner			4,100			
Syracospharea histrica Kamptner		15,700	43,300	1,200	2,600	
S. prolongata Gran			1,600			
Umbellosphaera irregularis		5,000	1,600	2,200	7,700	420
Silicoflagellates						
Dictyocha fibula		4,100				
Unidentified green		2,500	2,400		430	1,300
Synedra Sp.					850	
Oscillatoria Sp.		830	8,200			

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 81	Bottle Number	30	31	32	33	34
	Depth (m)	6	15	25	40	70
Species					Cells/Liter	
Diatoms						
Cerataulina bergonii H. Per.						13,100
Chaetoceros decipiens Cl.					1,800	
Detonula pumila (Castr.) Schütt						2,900
Hemiaulus hauckii Grunow		820				
Leptocylindricus danicus Cl.		1,200				
Mastigloia rostrata (Wallich) Hustedt			260	4,200		1,500
Navicula Sp.		410				
N. platyventric Meister						1,500
Nitzschia Sp.		2,900	1,300	2,800	1,200	
N. bicapitata Cl.		1,200	1,000	4,200	600	2,900
N. closterium (Ehr.) W. Smith						1,500
N. delicatissima Cl.		410		2,800		27,700
Rhizosolenia alata Brightw.		7,800		1,400		
R. stolterfothii H. Per.				4,900		
R. styliformis Brightw.				2,100		1,500
Skeletonema costatum (Grev.) Grunow						2,900
Thalassionema nitzschioides Grunow		410	260			2,900
Thalassiosira Sp.		410			600	
Thalassiothrix frauenfeldii Grunow		2,500	500	27,900	10,800	2,600
T. mediterranea v. pacifica Cupp				4,200		5,800
Dinoflagellates						
Amphidinium Sp.		820				
Ceratium kofoidii Jorg.		410				
C. teres Kofoid		410				
Dinophysis schutti			260			
Gonyaulax Sp.		2,900		700		
Gymnodinium Sp.		9,800	2,100	7,000	8,400	13,100
Oxytoxum scolopax Stein		1,200	1,000	700	4,200	5,800
O. viride Schiller		2,400	770	1,400	660	2,900
Peridinium Sp.				700		
P. globulus			500			2,900

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 81	Bottle Number	30	31	32	33	34
	Depth (m)	6	15	25	40	70
Species					Cells/Liter	
Dinoflagellates						
P. globulus v. quarnense Br. Schroder		1,200				
Posolampas bipes Stein					600	
Procentrum compressum				700	600	
Coccolithophorids						
Anoplosolenia brasiliensis (Lohman) Deflandre				700	1,800	4,400
Anthosphaera robusta (Lohman) Kamptner		820	1,500	700	600	2,900
Ceratolithus cristatus		5,300	1,800			
Calciosolina murrayi Gran					1,800	1,500
Coccolithophorid Sp.		2,000	770	2,100	1,200	1,500
Coccolithus huxleyi (Lohman) Kamptner		27,900	24,900	145,100	134,000	316,500
Corisphaera carteri			1,000			
Discosphaera tubifera (Murr. & Blackm.) Ostenf.		5,300	2,300			
Gephyrocapsa oceanica Kamptner				700	600	1,500
Halopappas adriaticus Schiller					1,200	2,900
Pontosphaera syracusana Lohman					600	1,500
Scyphosphaera apsteinii Lohman			500		600	
Syracosphaera histrica Kamptner		3,900	770	4,200	600	2,900
Umbellosphaera irregularis		6,100		2,800	1,200	
Silicoflagellates						
Dictychoa fibula						2,900
D. speculum v. polyactis					600	
Unidentified green		410		1,200	7,300	
Unidentified diatom					6,000	
Oscillatroia Sp.		35,600	500	10,500		

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 87	Bottle Number	35	36	37	38	39
	Depth (m)	6	15	24	40	70
Species					Cells/Liter	
Diatoms						
Dactyliosolen antarcticus Castr.					49,600	
Guinardia flaccido (Castr.) H. Per.					8,900	
Hemiaulus hauckii Grunow		1,000			5,300	
Leptocylindricus danicus Cl.			1,600			
Mastigloia rostrata (Wallich) Hustedt			2,400			
Navicula Sp.						510
Nitzschia Sp.			2,400	2,800	5,300	510
N. bicapitata Cl.					5,300	780
N. closterium (Ehr.) W. Smith					1,800	
N. delicatissima Cl.		26,700	6,500			1,300
Planktonella sol (Wallich) Schütt						260
Rhizosolenia alata Brightw.		244,500	173,000	303,000	5,300	4,100
R. calcar avis M. Schultze		1,000	1,600	1,400		
R. cylindrum Cl.					3,500	
R. styliformis Brightw.		1,000	3,300	4,100	3,500	260
Thalassionema nitzschioides Grunow					5,300	
Thalassiosira Sp.			800		1,800	260
T. symmetrica Fryxell & Hasle						260
Thalassiothrix frauenfeldii Grunow		3,100			5,300	2,300
T. mediterranea v. pacifica Cupp		2,100				260
Dinoflagellates						
Amphidinium Sp.					1,800	
Ceratium fusus v. seta (Ehr.) Jorg.				1,400		
C. teres Kofoid		1,000	800			
Gonyaulax Sp.			800		5,300	
Gymnodinium Sp.		10,300	7,300	16,500	46,600	
Oxytoxum scolopax Stein		1,000	3,300	4,100	14,200	3,800
O. viride Schiller		5,100	3,300	4,100	1,800	
Peridinium Sp.			800			
P. bispinum Schiller			800			

SOUTHWEST FLORIDA SHELF ECOSYSTEMS STUDY
SUMMER CRUISE - PHYTOPLANKTON ENUMERATION

Station Number 87	Bottle Number	35	36	37	38	39
	Depth (m)	6	15	24	40	70
Species					Cells/Liter	
Dinoflagellates						
P. globulus v. quarnense Br. Schroder			800		3,500	
Podolampas bipes Stein				1,400		
P. palmipes Stein			800			
Coccolithophorids						
Anthosphaera robusta (Lohman) Kamptner		2,100	3,300	1,400	5,300	260
Ceratolithus cristatus		10,300	18,700	59,300		
Calciosolina murrai Gran					8,900	
Coccolithophorid Sp.		1,000	4,900	2,800	10,600	2,600
Coccolithus huxleyi (Lohman) Kamptner		9,200	18,900	23,400	336,700	2,600
Discosphaera tubifera (Murr. & Blackm.) Osten.		3,100	10,600	9,700		
Gephyrocapsa oceanica Kamptner		1,000	800		26,600	
Halopappas adriaticus Schiller				1,400	3,500	260
Pontosphaera syracusana Lohman				1,400	14,200	
Rhabdosphaera claviger (Murray & Blackman)			800			
Scyphosphaera apsteinii Lohman						260
Syracosphaera histrica Kamptner		2,100	4,900	5,500	5,300	
S. prolongata					3,500	
Umbellosphaera irregularis		7,200	3,300	16,500		
Silicoflagellates						
Dictychoa figula					14,200	
D. speculum v. polyactis						500
Unidentified green		3,100	3,300	2,800	5,300	2,600
Oscillatoria Sp.				150,000	1,800	
Solenicola setegera					127,600	

The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Minerals Revenue Management** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.