

SALINITY AND TEMPERATURE MEASUREMENTS IN SAN FRANCISCO
BAY WATERS, 1980.

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Abstract

Measurements of salinity and temperature in waters of the San Francisco Bay estuarine system are presented. Sampling was conducted at selected locations (stations) and depths over the period between January-December 1980 at approximately two week intervals. Stations were located in deep channels and adjacent shallow water areas from Calaveras Point in South San Francisco Bay to the town of Rio Vista on the Sacramento River and to the Three-Mile Slough on the San Joaquin River. Numerical values of salinity, temperature, and station locations are tabulated. Contour maps of deep-channel salinity and temperature are presented and the analytical methods are briefly described.

Introduction

The U.S. Geological Survey made physical, biological, and geochemical studies in the San Francisco Bay estuarine system during 1980 (CY 80). Results from the CY 80 investigations will be released as a series of data and interpretive reports. This report presents numerical values and contour maps of salinity and temperature. These observations were made at selected locations (figures 1 & 2; tables 2 & 3) during the regularly scheduled CY 80 cruises (Table 1). Calculated densities, as σ_t , are also reported.

Methods

Two research vessels were used simultaneously. The R/V Polaris, the larger vessel, occupied stations in the deep channels, (figure 1; Table 2) while the R/V Estero occupied stations in the adjacent shallow-water areas (figure 2; Table 3). Stations were located by radar and visual sightings of local landmarks and navigational aids. Locations are reported here to the nearest 0.1 km, in the Universal Transverse Mercator system (UTM), which allows direct computations of distances (Richardus and Adler, 1972). The San Francisco Bay is included in the UTM zone number 10. For convenience of entry and manipulation, only the significant digits have been included and the UTM positions have been divided by 1000, so that kilometer is assigned the units place. For example, a UTM position of 4190000 M North appears as 190.0 N in our tables.

Water was sampled and measurements were made with the

equipment and instrumentation described by Schemel and Dedini (1979) and Dedini and Schemel (1980). Near-surface (1 to 2 meter depth) water was pumped from through-hull fittings while the vessels were underway, enabling continuous lateral measurements of salinity and temperature. Salinity and temperature were continuously measured and recorded on analog strip-charts. These surface-profiling measurements are listed at a depth of 1 m in the data tables; however, the actual depth varied at least $\pm 50\%$ depending on the sea state and ship speed. At selected locations in the deep channels (figure 1) water was pumped at depth to within 2 m of the substrate with a submersible pumping system. The pump depth was determined by an attached pressure transducer having an accuracy of ± 1 m. A data table depth of 0 m refers to a pump-intake depth of about 0.2 to 0.5 m.

Temperature was measured with thermistor probes immersed in the pumped-sample stream or attached to the submersible pump. Probes were calibrated before and after each cruise at the ice point (0°C) and a point between 20 and 25°C . The precision of these measurements is $\pm 0.1^{\circ}\text{C}$ and the accuracy is on the order of $\pm 0.2^{\circ}\text{C}$.

Salinity was measured with inductive salinometers with flow-through sample cells. The accuracies of the salinometers were verified each day by collecting samples from the discharges of the sample cells when the readings were stable. Samples were taken at about 3 ‰ increments over the salinity ranges encountered. Salinity samples were precisely determined with a laboratory inductive salinometer (RS-7B, Beckman Instruments, Inc., Fullerton, CA)^{1/}. Shipboard salinity values were corrected when differences of more than 0.05 ‰ were consistently observed; most values agreed to within 0.05 ‰. The difference between the laboratory and the corrected shipboard values are shown in figures 3 and 4. Details of the procedure for salinity determination were discussed by Schemel et al. (1982). Sigma-t (density) was calculated as described by Smith and others (1979) from the equations of Knudson (1901).

1/ The mention of brand names is for identification purpose and does not constitute endorsement by the U.S. Geological Survey.

Results and Discussion

Salinity and temperature distribution have been reported for varying conditions in San Francisco Bay estuarine system; a recent review by Conomos (1979) summarized available data and discussed the important factors that determine the salinity and temperature fields. The salinity field varies primarily in response to the rate of fresh water outflow from the Sacramento-San Joaquin river delta (delta outflow). The temperature field changes seasonally, primarily in response to variations in the atmospheric and delta-outflow temperatures and insolation.

An overview of CY 80 2 m-depth data is presented in figures 5 and 6. These results are reported as they were observed and are not corrected for tidal-phase variations. Delta outflow is estimated as the delta-outflow index plus the flow to the Yolo Bypass (U.S. Bureau of Reclamation). Responses of the Bay salinity field variations to delta outflow have been described by McCulloch and others (1970) and Imberger and others (1977). The 1980 water-year (Oct. 1979-Sept. 1980) was "wet" in comparison to the historical average and the effects of the high delta-outflow rates are shown in our data. Clearly, salinities in both the North Bay (example of San Pablo Bay) and South Bay were lowered following increases in delta-outflow and salinities increased as the outflow decreased. Likewise, near-surface salinities at the Golden Gate (Station 19) responded to the winter delta-outflow variations. During spring through fall, salinities increased, first rapidly then slowly, at the Golden Gate while the

salinities in San Pablo Bay responded similarly, but were lower than those at the Golden Gate due to the greater dilution of seawater by delta-outflow.

Seasonal temperature variations at the 2 m-depth for the three locations discussed above are shown in figure 6. Temperatures are higher during summer than those during other times of the year at all three locations. Waters landward of the Golden Gate are colder during the early winter, but warm to temperatures higher than those at the Golden Gate during spring. A cooling at all three locations was observed during early fall. Lower temperatures at the Golden Gate during early spring are perhaps a result of coastal upwelling.

Numerical values of salinity and temperature are tabulated in Appendix A. Salinity and temperature distributions in the deep channels are depicted by contour plots (figures 7 through 27). The contour plots show the distributions as they were observed and are not corrected for tidal-phase variations.

A most important feature of the salinity fields is stratification, which results from the circulation and mixing of the delta-outflow freshwater with oceanic water. During fall, most of the Bay is vertically well mixed, except for the most-landward reach of the North Bay. Vertical stratification typically appears during winter, when storms cause the seasonal delta-outflow increase. Salinity stratification is coincident with a lateral shift of the salinity field seaward in North Bay and the injection of lower-salinity water into the northern part

of South Bay. Figure 7 shows distributions following a small increase in delta-outflow and preceding a large delta-outflow increase. Figure 8 shows the effects of a large delta-outflow increase; salinities were lowered 10 ‰ or more and steep vertical gradients appeared in North Bay. The lower temperature of the delta-outflow is also shown in the temperature field of the Bay waters. Even more intensive salinity stratification is shown in figure 10, which represents conditions following the period of the highest delta-outflow during 1980. Varying degrees of salinity stratification were observed through spring as the salt field moved landward in North Bay in response to decreasing delta-outflow rates. Bay waters were vertically well mixed during summer and fall, when outflow was low.

Knowledge of the responses of San Francisco Bay waters to natural seasonal events is basic to our understanding of this large complex estuarine system. The CY 80 salinity and temperature data constitute our most complete data set showing how the entire Bay responds to variations in delta-outflow. Further detailed analyses of these and other data will be presented in subsequent reports.

Acknowledgement

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Table 1. Hydrographic cruise dates during 1980.

Julian Date	Calendar Date	Vessel	Julian Date	Calendar Date	Vessel
80008	8 JAN 80	POLARIS	80183	1 JUL 80	POLARIS
80008	8 JAN 80	ESTERO	80183	1 JUL 80	ESTERO
80009	9 JAN 80	POLARIS	80184	2 JUL 80	POLARIS
80009	9 JAN 80	ESTERO	80198	16 JUL 80	POLARIS
80023	23 JAN 80	POLARIS	80198	16 JUL 80	ESTERO
80024	24 JAN 80	POLARIS	80199	17 JUL 80	POLARIS
80036	5 FEB 80	POLARIS	80199	17 JUL 80	ESTERO
80036	5 FEB 80	ESTERO	80217	4 AUG 80	POLARIS
80037	6 FEB 80	POLARIS	80217	4 AUG 80	ESTERO
80037	6 FEB 80	ESTERO	80218	5 AUG 80	POLARIS
80051	20 FEB 80	POLARIS	80218	5 AUG 80	ESTERO
80051	20 FEB 80	ESTERO	80231	18 AUG 80	ESTERO
80058	27 FEB 80	ESTERO	80231	18 AUG 80	POLARIS
80064	4 MAR 80	POLARIS	80232	19 AUG 80	ESTERO
80064	4 MAR 80	ESTERO	80232	19 AUG 80	POLARIS
80065	5 MAR 80	POLARIS	80247	3 SEP 80	POLARIS
80065	5 MAR 80	ESTERO	80247	3 SEP 80	ESTERO
80078	18 MAR 80	POLARIS	80248	4 SEP 80	POLARIS
80078	18 MAR 80	ESTERO	80248	4 SEP 80	ESTERO
80079	19 MAR 80	POLARIS	80260	16 SEP 80	POLARIS
80079	19 MAR 80	ESTERO	80260	16 SEP 80	ESTERO
80099	8 APR 80	POLARIS	80261	17 SEP 80	POLARIS
80099	8 APR 80	ESTERO	80261	17 SEP 80	ESTERO
80100	9 APR 80	POLARIS	80289	15 OCT 80	POLARIS
80100	9 APR 80	ESTERO	80289	15 OCT 80	ESTERO
80113	22 APR 80	POLARIS	80290	16 OCT 80	POLARIS
80113	22 APR 80	ESTERO	80290	16 OCT 80	ESTERO
80114	23 APR 80	POLARIS	80302	28 OCT 80	POLARIS
80114	23 APR 80	ESTERO	80302	28 OCT 80	ESTERO
80128	7 MAY 80	POLARIS	80303	29 OCT 80	POLARIS
80128	7 MAY 80	ESTERO	80303	29 OCT 80	ESTERO
80129	8 MAY 80	POLARIS	80317	12 NOV 80	POLARIS
80129	8 MAY 80	ESTERO	80317	12 NOV 80	ESTERO
80142	21 MAY 80	POLARIS	80318	13 NOV 80	POLARIS
80142	21 MAY 80	ESTERO	80318	13 NOV 80	ESTERO
80143	22 MAY 80	POLARIS	80351	16 DEC 80	POLARIS
80143	22 MAY 80	ESTERO	80351	16 DEC 80	ESTERO
80156	4 JUN 80	POLARIS	80352	17 DEC 80	ESTERO
80156	4 JUN 80	ESTERO	80352	17 DEC 80	POLARIS
80157	5 JUN 80	ESTERO			
80157	5 JUN 80	POLARIS			
80169	17 JUN 80	POLARIS			
80169	17 JUN 80	ESTERO			
80170	18 JUN 80	ESTERO			
80170	18 JUN 80	POLARIS			

Table 2. San Francisco Bay hydrographic station locations - main channel

<u>Station Number</u>	<u>UTM Station</u>		<u>Name</u>	<u>N. Latitude</u>		<u>W. Longitude</u>	
	<u>N.</u>	<u>E.</u>					
RV	225.5	- 616.8	Old Sac. River	38 ⁰	10.7'	121	40.0'
	222.9	- 614.9	Rio Vista	38	8.9'	121	41.3'
	216.4	- 610.6	Toland's Landing	38	5.2'	121	44.8'
1	210.7	- 601.8	Winter Is.	38	2.4'	121	50.4'
2	213.2	- 600.4	Chain Is.	38	3.8'	121	51.3'
3	211.8	- 598.4	Pittsburg	38	3.0'	121	52.7'
4	211.5	- 593.4	Simmons Pt.	38	2.9'	121	56.1'
5	212.8	- 589.5	Middle Ground	38	3.6'	121	58.8'
6	213.3	- 584.7	Roe Is.	38	3.9'	122	2.1'
7	211.3	- 579.3	Avon Pier	38	2.9'	122	5.8'
8	209.3	- 574.5	Martinez	38	1.8'	122	9.1'
9	211.4	- 572.5	Benicia	38	3.0'	122	10.4'
10	212.5	- 569.5	Crockett	38	3.6'	122	12.5'
11	212.7	- 564.6	Mare Is.	38	3.7'	122	15.8'
12	211.6	- 560.4	Hercules	38	3.1'	122	18.7'
13	209.3	- 555.7	N. of Pinole Pt.	38	1.9'	122	21.9'
14	206.7	- 552.5	W. of Pinole Pt.	38	0.5'	122	24.1'
15	202.4	- 549.5	Pt. San Pablo	37	58.2'	122	26.2'
16	196.3	- 548.3	Red Rock	37	54.9'	122	27.0'
17	192.6	- 550.6	Raccoon Str.	37	52.9'	122	25.6'
18	189.3	- 553.1	Berkeley Pier	37	51.1'	122	23.8'
19	185.6	- 546.5	Golden Gate	37	49.1'	122	28.3'
20	185.4	- 552.4	Blossom Rock	37	49.0'	122	24.3'
21	183.6	- 555.5	Bay Bridge	37	48.0'	122	22.2'
22	179.4	- 556.5	Potrero Pt.	37	45.7'	122	21.5'
23	175.5	- 558.5	Hunters Pt.	37	43.6'	122	20.2'
24	172.5	- 558.3	Candlestick Pt.	37	42.0'	122	20.3'
25	169.4	- 559.5	Oyster Pt.	37	40.3'	122	19.5'
26	165.4	- 560.5	San Bruno Shoal	37	38.2'	122	19.0'
27	163.4	- 562.5	SFO	37	37.1'	122	17.5'
28	161.5	- 564.4	N. San Mateo Br.	37	36.0'	122	16.2'
29	159.5	- 566.7	S. San Mateo Br.	37	34.9'	122	14.8'
30	156.5	- 571.4	Redwood Cr.	37	33.3'	122	11.5'
31	153.8	- 574.4	Coyote Hills	37	31.8'	122	9.4'
32	152.5	- 576.5	Ravenswood Pt.	37	31.1'	122	8.1'
33	151.6	- 577.5	Dumbarton Br.	37	30.6'	122	7.4'
34	149.8	- 580.6	Newark Slough	37	29.6'	122	5.3'
35	148.5	- 581.5	Palo Alto	37	28.9'	122	4.7'
36	147.4	- 582.7	Calaveras Pt.	37	28.3'	122	3.8'

Table 2. - Cont'd.

<u>Area</u>	<u>Station Number</u>	<u>UTM Station</u>		<u>N. Latitude</u>		<u>W. Longitude</u>	
		<u>N.</u>	<u>E.</u>				
Sacramento River	649	212.9	- 605.6	38	3.6'	121	47.8'
	651	215.0	- 608.5	38	4.7'	121	45.8'
	653	217.1	- 612.1	38	5.8'	121	42.0'
	655	219.7	- 613.9	38	7.2'	121	42.3'
	657	223.4	- 614.9	38	9.2'	121	41.3'
San Joaquin River	745	210.5	- 598.3	38	2.3'	121	52.8'
	747	209.4	- 601.9	38	1.7'	121	50.3'
	749	208.9	- 605.5	38	1.4'	121	47.9'
	751	209.5	- 609.1	38	1.7'	121	45.4'
	753	210.3	- 612.6	38	2.1'	121	43.0'
	755	212.1	- 615.2	38	3.1'	121	41.2'
	757	215.9	- 616.1	38	5.1'	121	40.6'
	759	216.8	- 616.0	38	5.6'	121	40.6'

Table 3. San Francisco Bay hydrographic station locations - shallow water

<u>Area</u>	<u>Station Number</u>	<u>UTM Station</u>		<u>N. Latitude</u>		<u>W. Longitude</u>	
		<u>N.</u>	<u>E.</u>				
South Bay	102	148.6	- 580.3	37	28.9'	122	5.5'
	104	149.8	- 580.2	37	29.6'	122	5.5'
	106	149.8	- 580.8	37	29.6'	122	5.1'
	108	150.0	- 579.8	37	29.7'	122	5.8'
	110	150.3	- 579.7	37	31.3'	122	5.9'
	112	151.1	- 578.0	37	30.3'	122	7.1'
	114	152.5	- 576.9	37	31.1'	122	7.8'
	116	153.9	- 575.7	37	31.8'	122	8.6'
	118	156.0	- 574.0	37	33.0'	122	9.7'
	120	157.0	- 573.0	37	33.5'	122	10.4'
	122	158.1	- 571.8	37	34.1'	122	11.2'
	124	159.9	- 571.9	37	35.1'	122	11.1'
	126	161.8	- 572.0	37	36.1'	122	11.1'
	128	161.2	- 570.6	37	35.8'	122	12.0'
	130	160.6	- 569.2	37	35.5'	122	13.0'
	132	160.0	- 567.4	37	35.2'	122	14.2'
	134	159.5	- 566.3	37	34.9'	122	14.9'
	136	160.4	- 564.6	37	35.4'	122	16.1'
	138	160.7	- 562.8	37	35.6'	122	17.3'
	140	161.0	- 561.0	37	35.7'	122	18.6'
	142	161.4	- 558.7	37	36.0'	122	20.1'
	144	162.0	- 560.4	37	36.3'	122	18.9'
	146	162.8	- 562.1	37	36.7'	122	17.8'
	148	163.4	- 563.9	37	37.0'	122	16.6'
	150	164.1	- 565.6	37	37.4'	122	15.4'
	152	164.8	- 567.3	37	37.8'	122	14.2'
	154	165.4	- 569.1	37	38.1'	122	13.0'
	156	165.8	- 570.3	37	38.3'	122	12.2'
	158	167.4	- 569.4	37	39.2'	122	12.8'
	160	169.2	- 568.5	37	40.1'	122	13.4'
	162	170.8	- 567.6	37	41.0'	122	14.0'
	164	172.5	- 566.7	37	41.9'	122	14.6'
	166	174.2	- 565.8	37	42.9'	122	15.2'
	168	175.1	- 565.3	37	43.4'	122	15.5'
	170	174.4	- 563.6	37	43.0'	122	16.7'
	172	173.8	- 561.9	37	42.7'	122	17.8'
	174	173.1	- 560.1	37	42.3'	122	19.1'
	176	172.4	- 558.4	37	41.9'	122	20.3'
	178	171.8	- 556.7	37	41.6'	122	21.4'
	180	170.9	- 554.4	37	41.1'	122	23.0'
	182	169.8	- 555.0	37	40.5'	122	22.6'
	184	168.5	- 555.7	37	39.8'	122	22.1'
	186	167.4	- 555.4	37	39.2'	122	22.3'
	188	160.0	- 555.0	37	35.2'	122	22.6'
	190	166.8	- 556.9	37	38.9'	122	21.3'
	192	167.4	- 558.6	37	39.2'	122	20.1'
	194	168.0	- 560.3	37	39.6'	122	19.0'
	196	168.7	- 562.0	37	39.9'	122	17.8'
	198	169.4	- 563.7	37	40.3'	122	16.7'
	200	170.0	- 565.4	37	40.6'	122	15.5'

Table 3. - Cont'd

<u>Area</u>	<u>Station Number</u>	<u>UTM Station</u>		<u>N. Latitude</u>		<u>W. Longitude</u>	
		<u>N.</u>	<u>E.</u>				
Central Bay	252	185.6	- 557.3	37	49.1'	122	20.9'
	254	187.0	- 558.7	37	49.8'	122	20.0'
	256	188.0	- 559.8	37	50.4'	122	19.2'
	258	189.7	- 558.8	37	51.3'	122	19.9'
	260	191.3	- 558.0	37	52.2'	122	20.4'
	262	193.1	- 557.0	37	53.1'	122	21.1'
	264	193.0	- 555.1	37	53.1'	122	22.4'
	266	192.8	- 553.2	37	53.0'	122	23.7'
	268	192.7	- 551.4	37	52.9'	122	24.9'
	270	192.5	- 549.5	37	52.8'	122	26.2'
San Pablo Bay	302	205.2	- 553.5	37	59.7'	122	23.4'
	304	206.9	- 552.3	38	0.6'	122	24.3'
	306	208.8	- 551.1	38	1.6'	122	25.1'
	308	210.7	- 549.8	38	2.7'	122	25.9'
	310	212.2	- 548.8	38	3.5'	122	26.6'
	312	213.5	- 547.9	38	4.2'	122	27.2'
	314	214.7	- 549.8	38	4.8'	122	25.9'
	316	215.2	- 551.5	38	5.1'	122	24.8'
	318	215.7	- 553.3	38	5.4'	122	23.5'
	320	216.3	- 555.1	38	5.7'	122	22.3'
	322	216.7	- 556.9	38	5.9'	122	21.1'
	324	216.9	- 558.6	38	6.0'	122	19.9'
	326	215.3	- 559.3	38	5.1'	122	19.4'
	328	213.5	- 560.0	38	4.1'	122	19.0'
	330	211.8	- 560.7	38	3.2'	122	18.5'
	332	210.1	- 561.4	38	2.3'	122	18.0'
	334	208.4	- 562.1	38	1.4'	122	17.5'
Suisun Bay	402	210.2	- 577.5	38	2.3'	122	7.0'
	404	211.2	- 577.3	38	2.8'	122	7.1'
	406	213.3	- 579.1	38	3.9'	122	5.9'
	408	215.0	- 580.5	38	4.8'	122	4.9'
	410	216.7	- 581.9	38	5.8'	122	4.0'
	412	218.0	- 582.9	38	6.5'	122	3.6'
	414	219.3	- 582.3	38	7.2'	122	3.7'
	416	219.0	- 584.2	38	7.0'	122	2.4'
	418	218.8	- 586.7	38	6.9'	122	0.7'
	420	217.9	- 586.2	38	6.4'	122	1.0'
	422	216.7	- 585.8	38	5.7'	122	1.3'
	424	215.4	- 588.1	38	5.0'	121	59.7'
	426	214.8	- 589.5	38	4.7'	121	58.8'
	428	214.0	- 590.5	38	4.2'	121	58.1'
	430	214.3	- 592.5	38	4.6'	121	56.7'
	432	214.5	- 594.6	38	4.5'	121	55.3'
	434	213.3	- 594.0	38	3.8'	121	55.7'
	436	212.5	- 593.5	38	3.3'	121	56.1'
	438	211.5	- 593.0	38	2.9'	121	56.4'

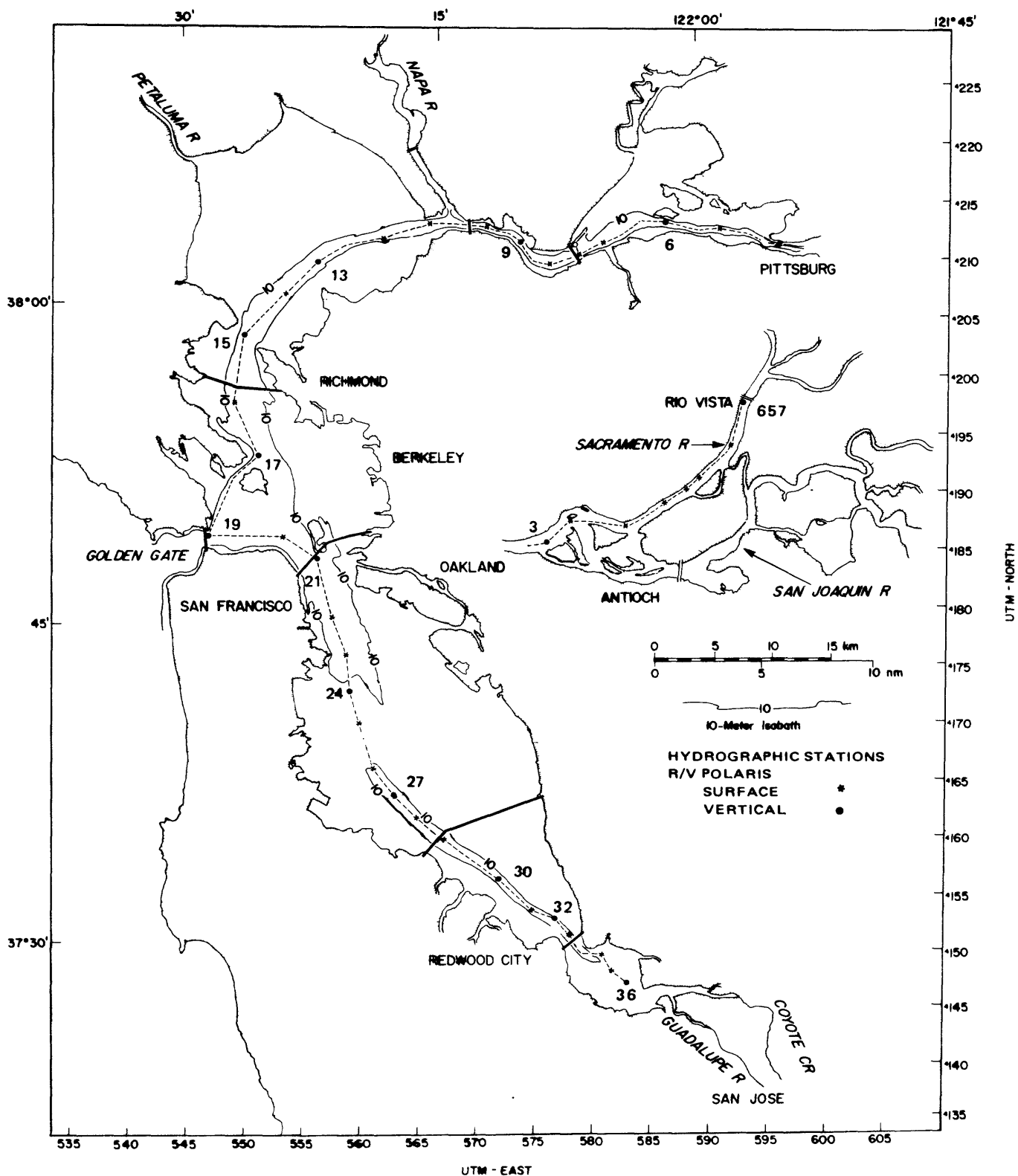


Figure 1. San Francisco Bay hydrographic sampling stations for R/V Polaris.

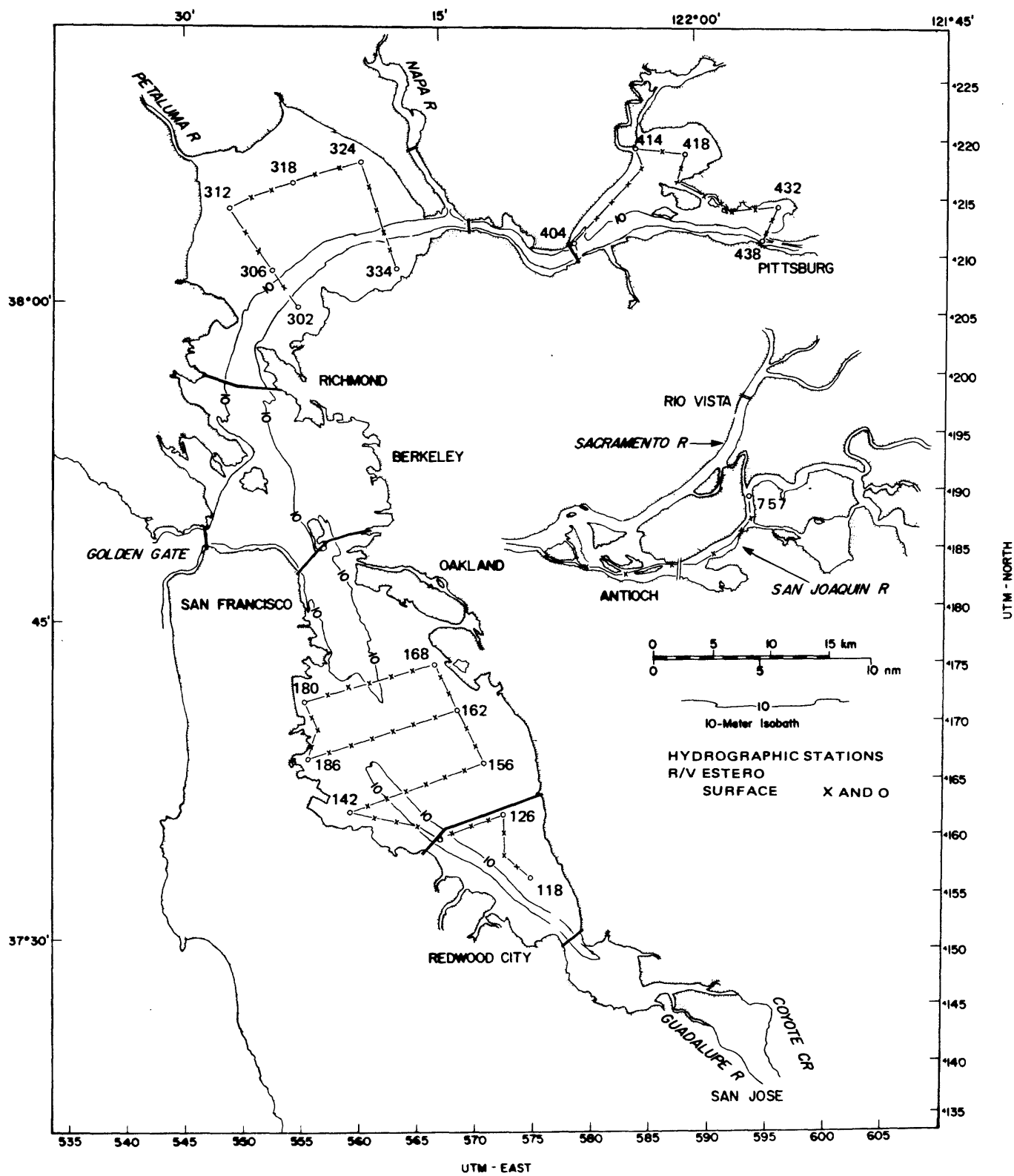


Figure 2. San Francisco Bay hydrographic sampling stations for R/V Estero.

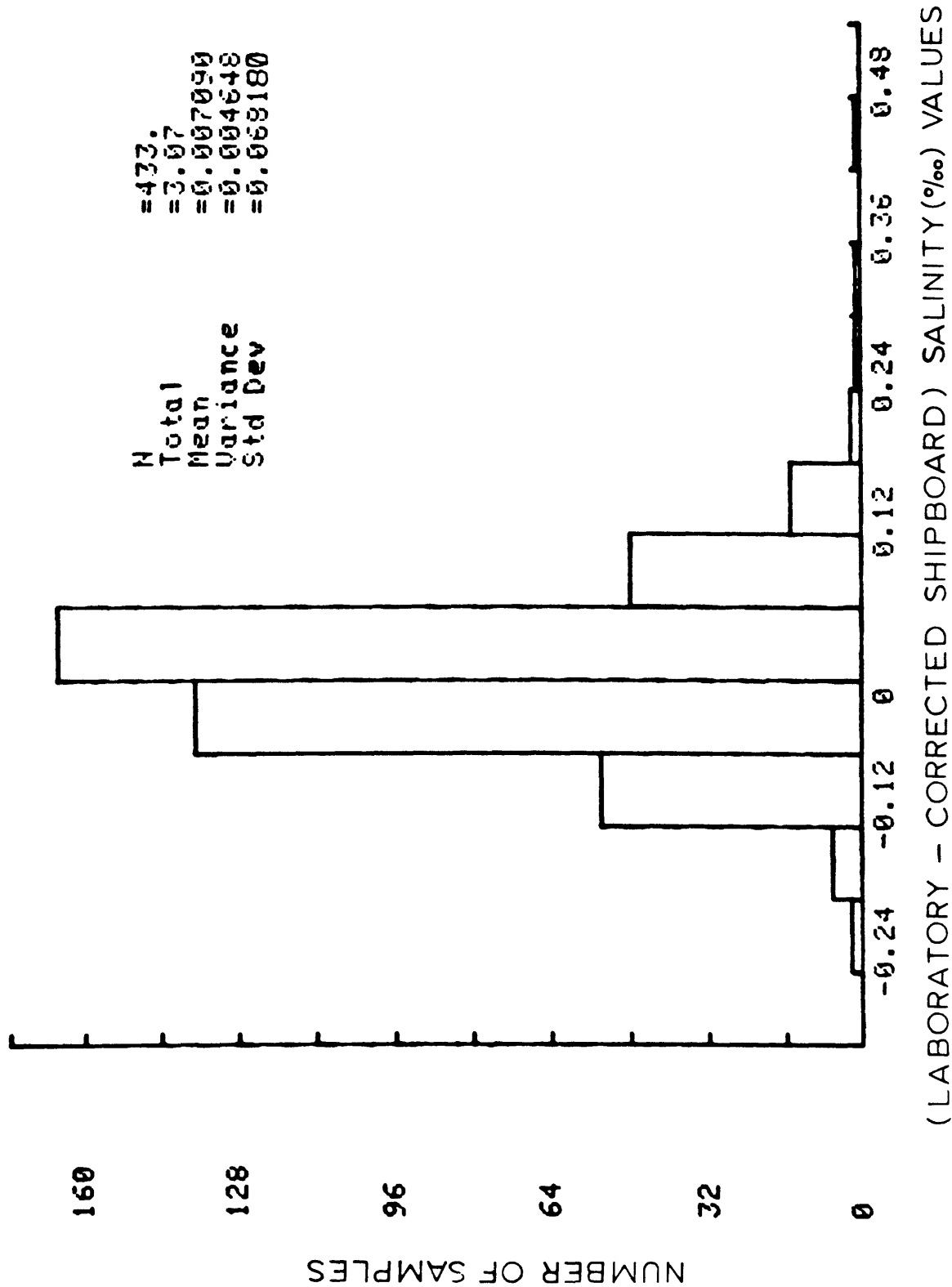


Figure 3. R/V Polaris salinometer error.

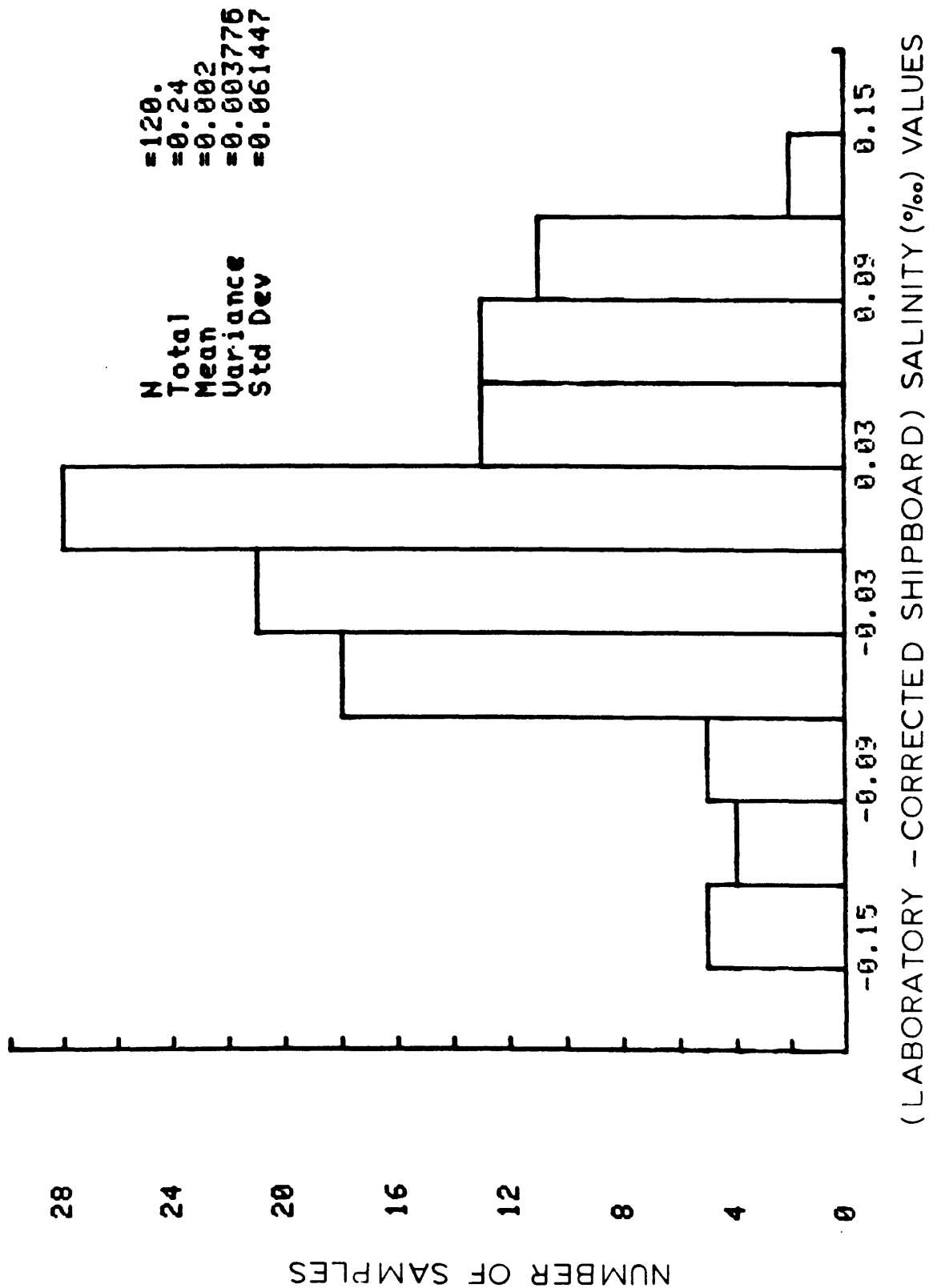


Figure 4. R/V Estero salinometer error.

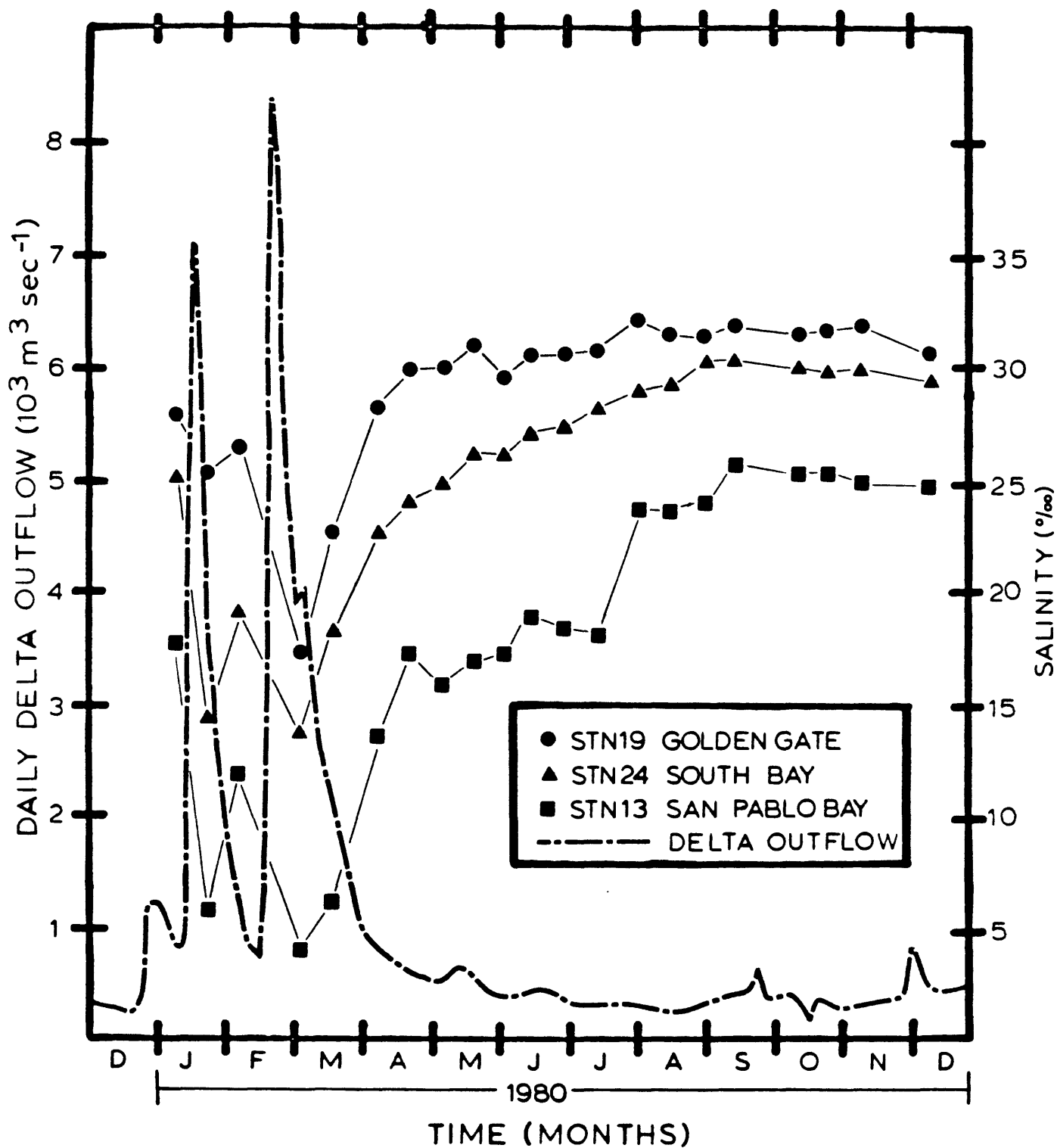


Figure 5. Salinity at stations 13,19,and 24 during 1980, 2m depth.

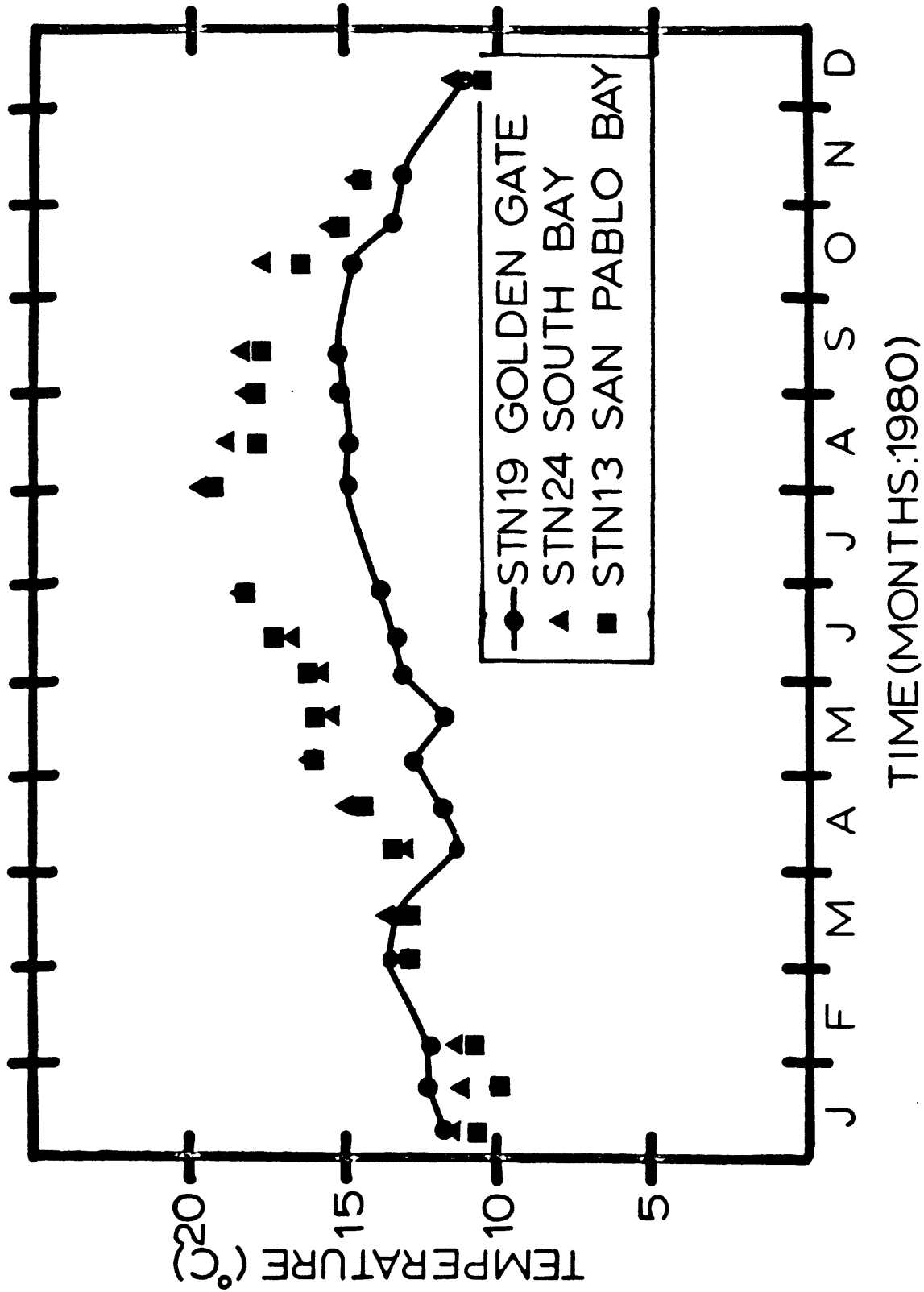


Figure 6. Temperature at stations 13, 19, and 24 during 1980, 2m depth.

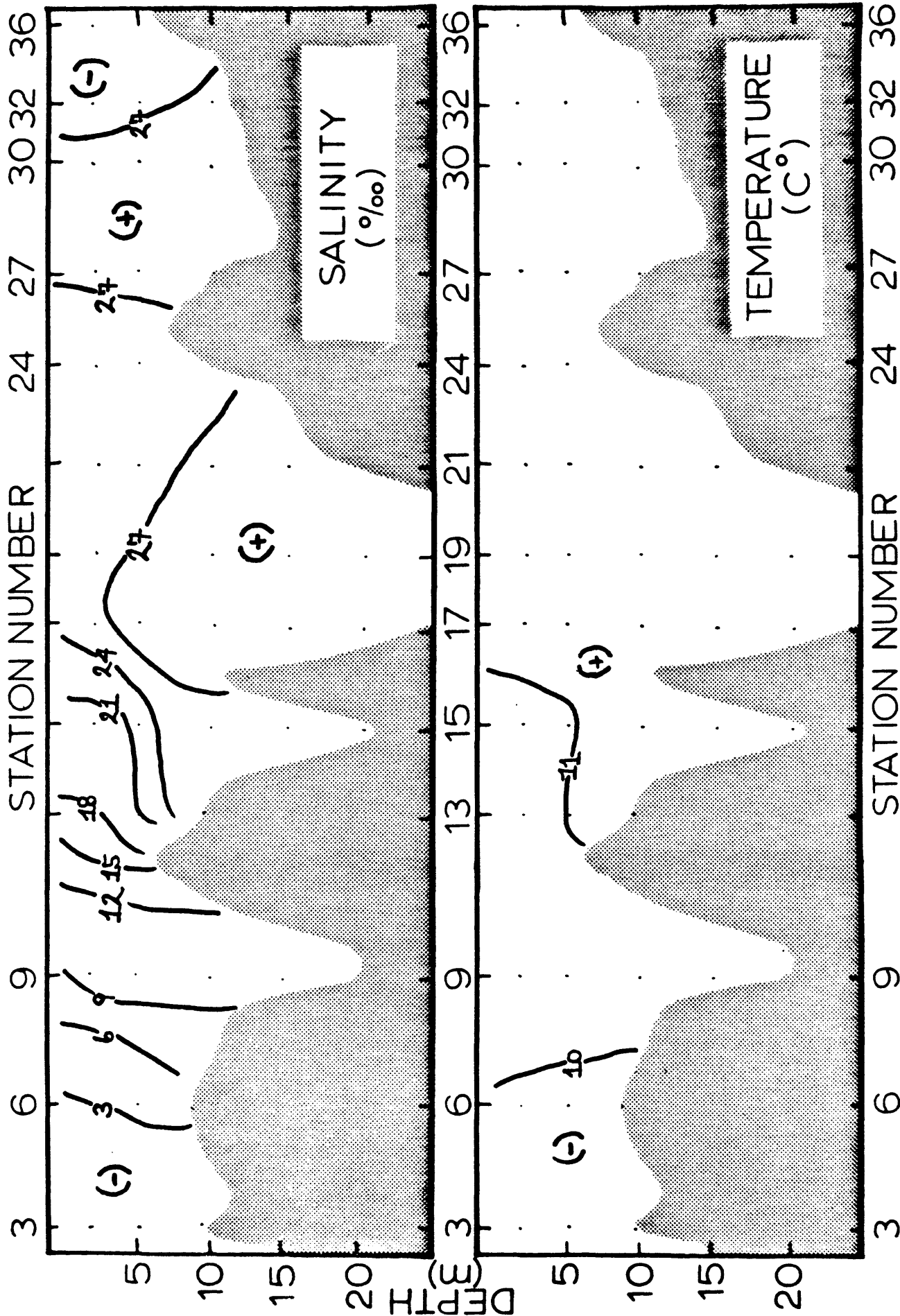


Figure 7. Salinity and temperature contour maps, 8 and 9 January, 1980.

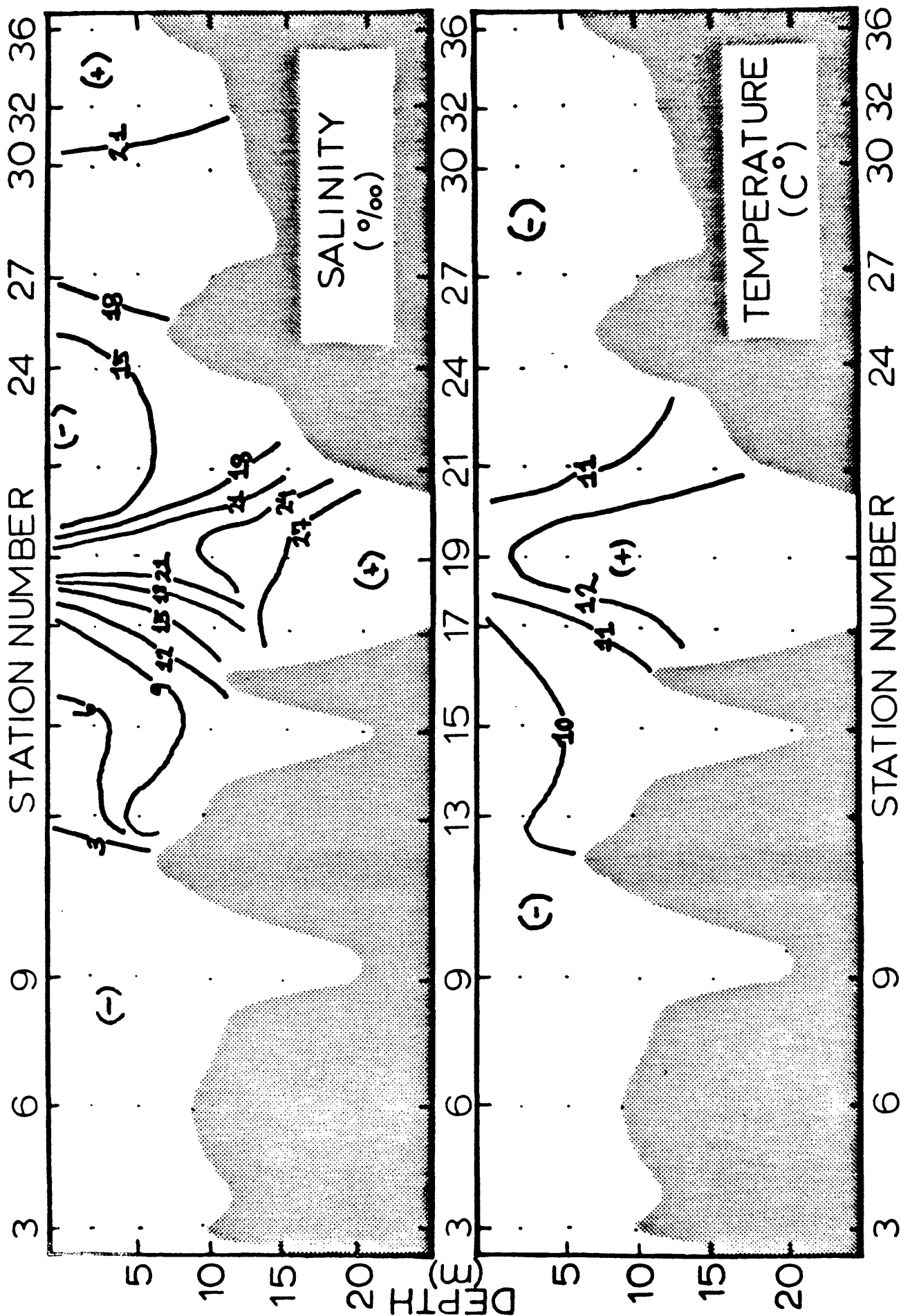


Figure 8. Salinity and temperature contour maps, 23 and 24 January, 1980.

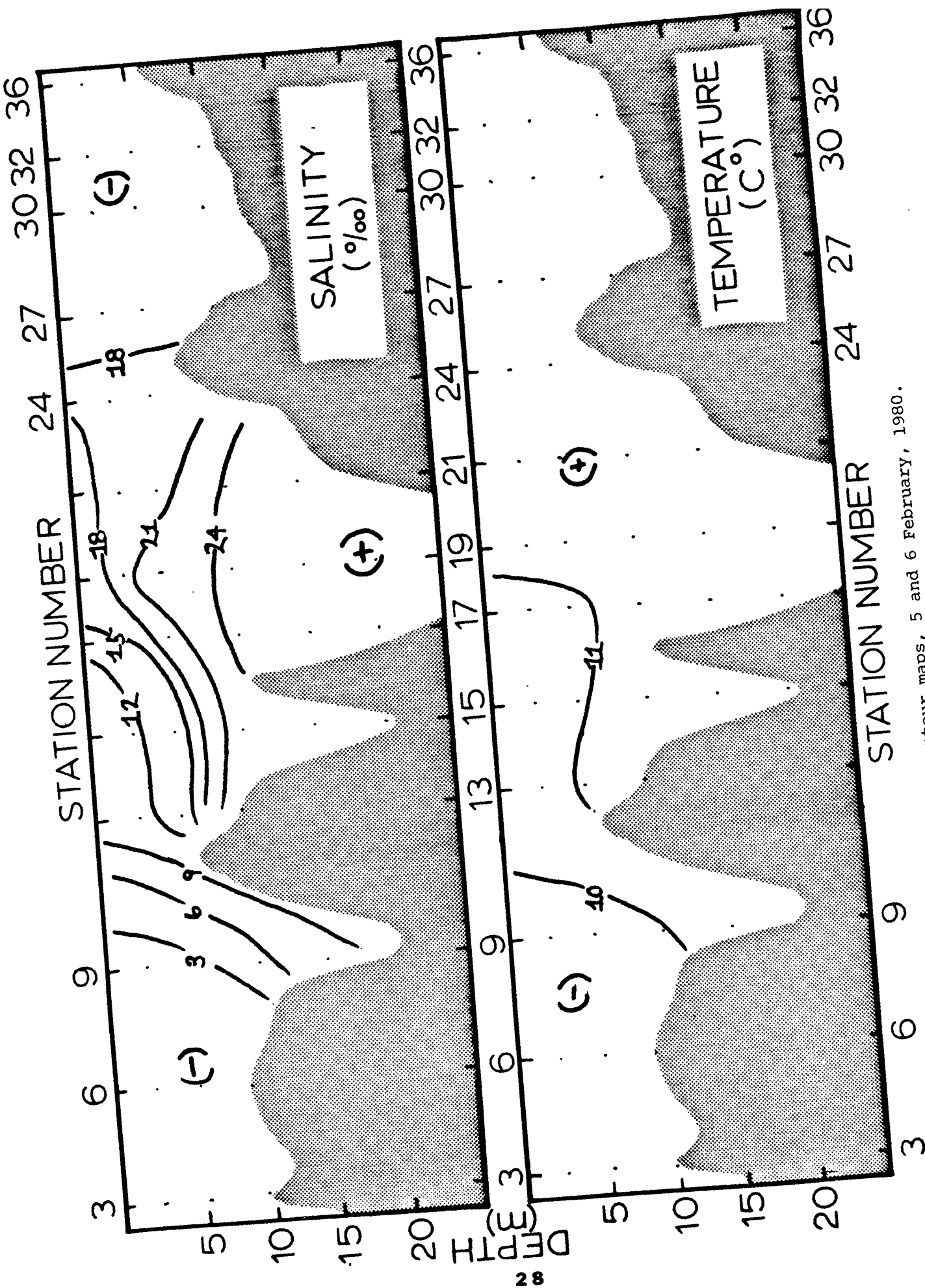


Figure 9. Salinity and temperature contour maps, 5 and 6 February, 1980.

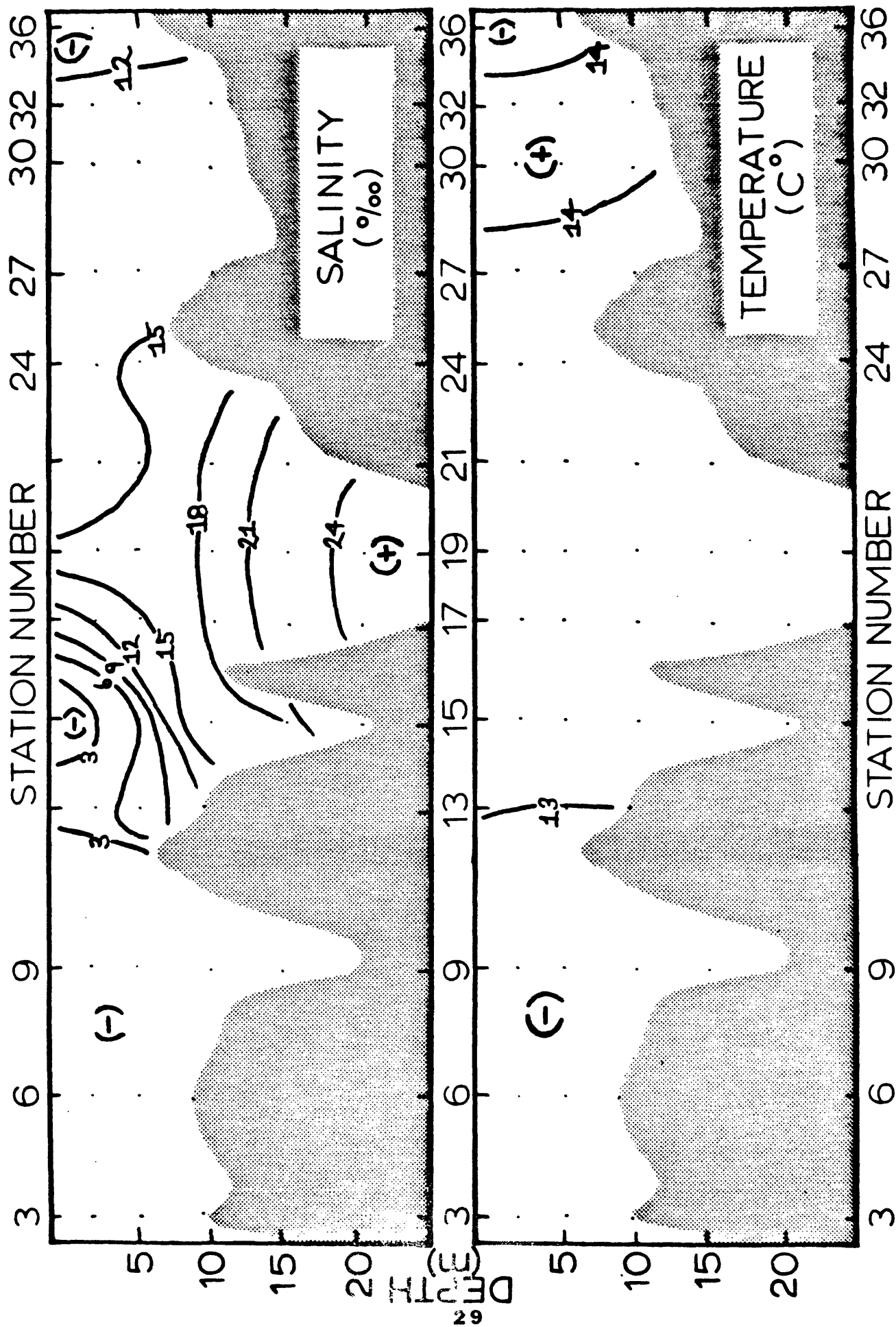


Figure 10. Salinity and temperature contour maps, 4 and 5 March, 1980.

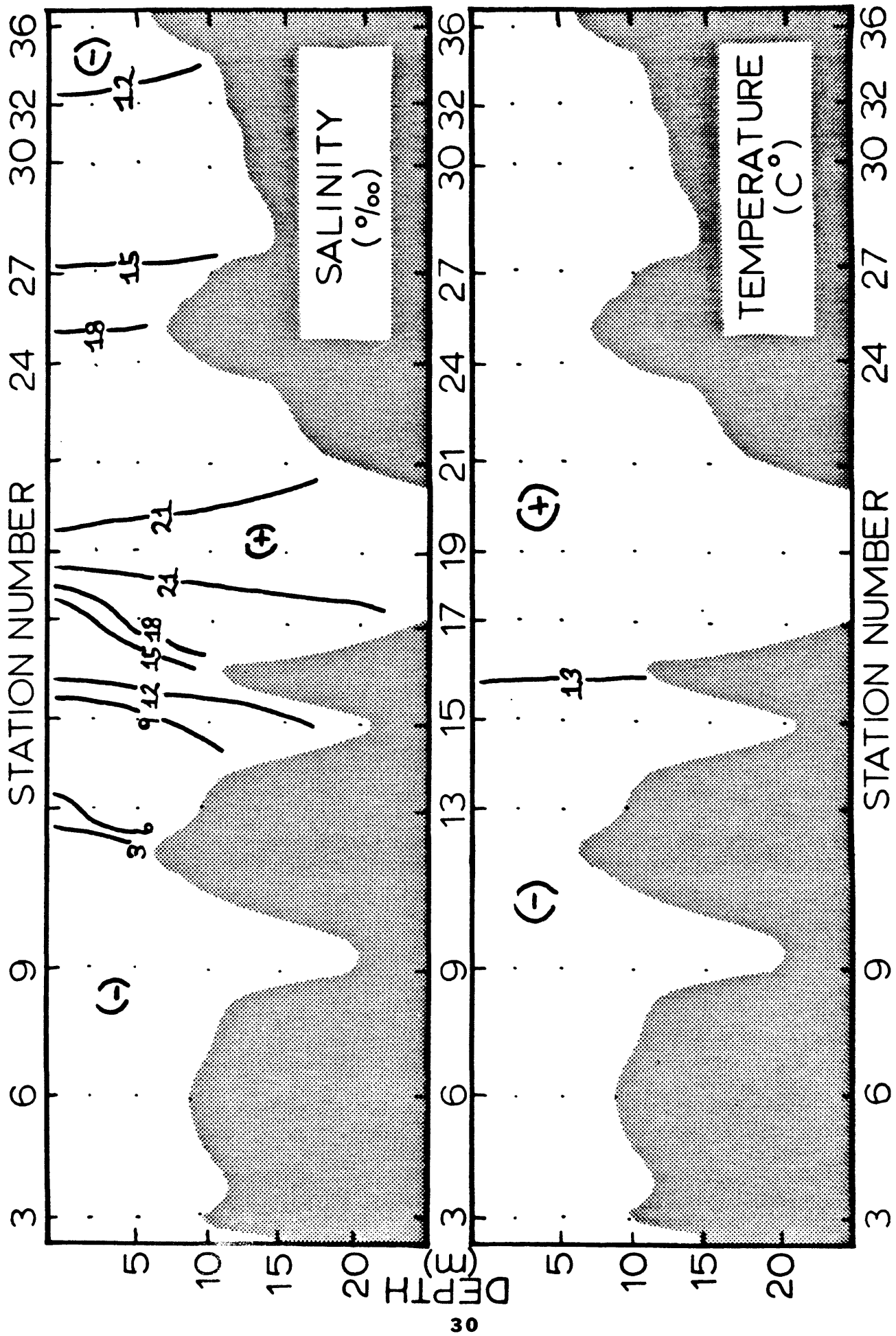


Figure 11. Salinity and temperature contour maps, 18 and 19 March, 1980.

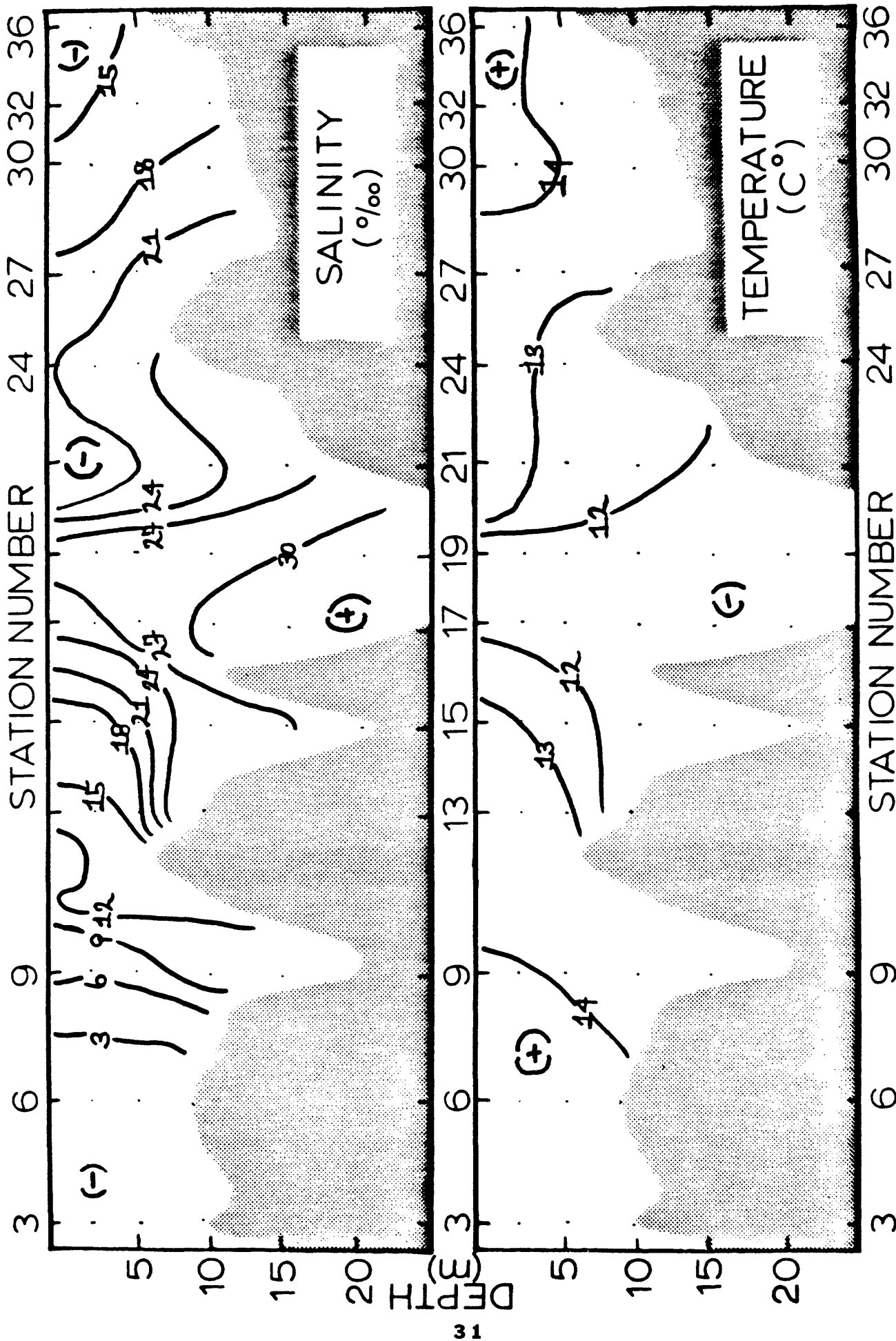


Figure 12. Salinity and temperature contour maps, 8 and 9 April, 1980.

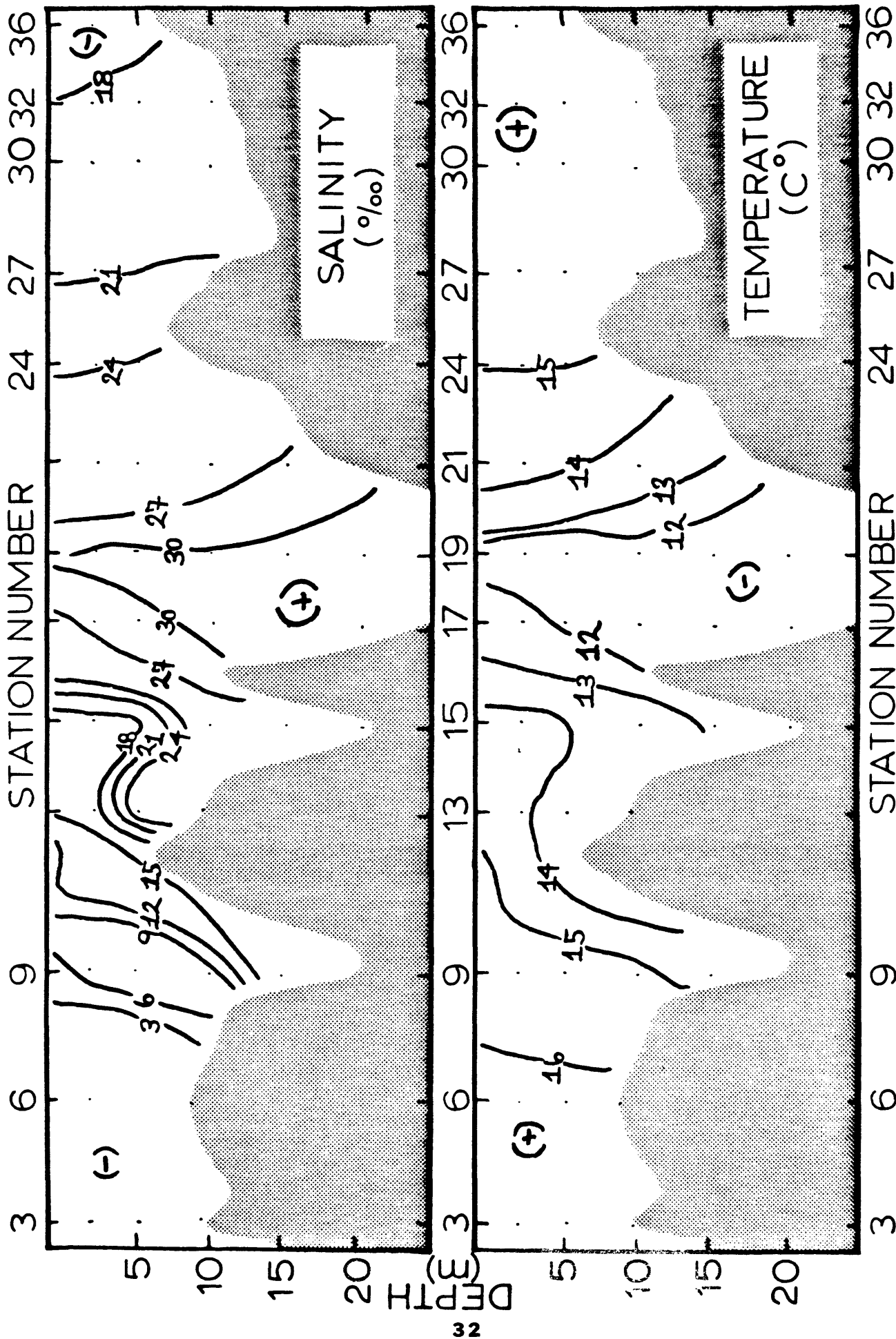


Figure 13. Salinity and temperature contour maps, 22 and 23 April, 1980.

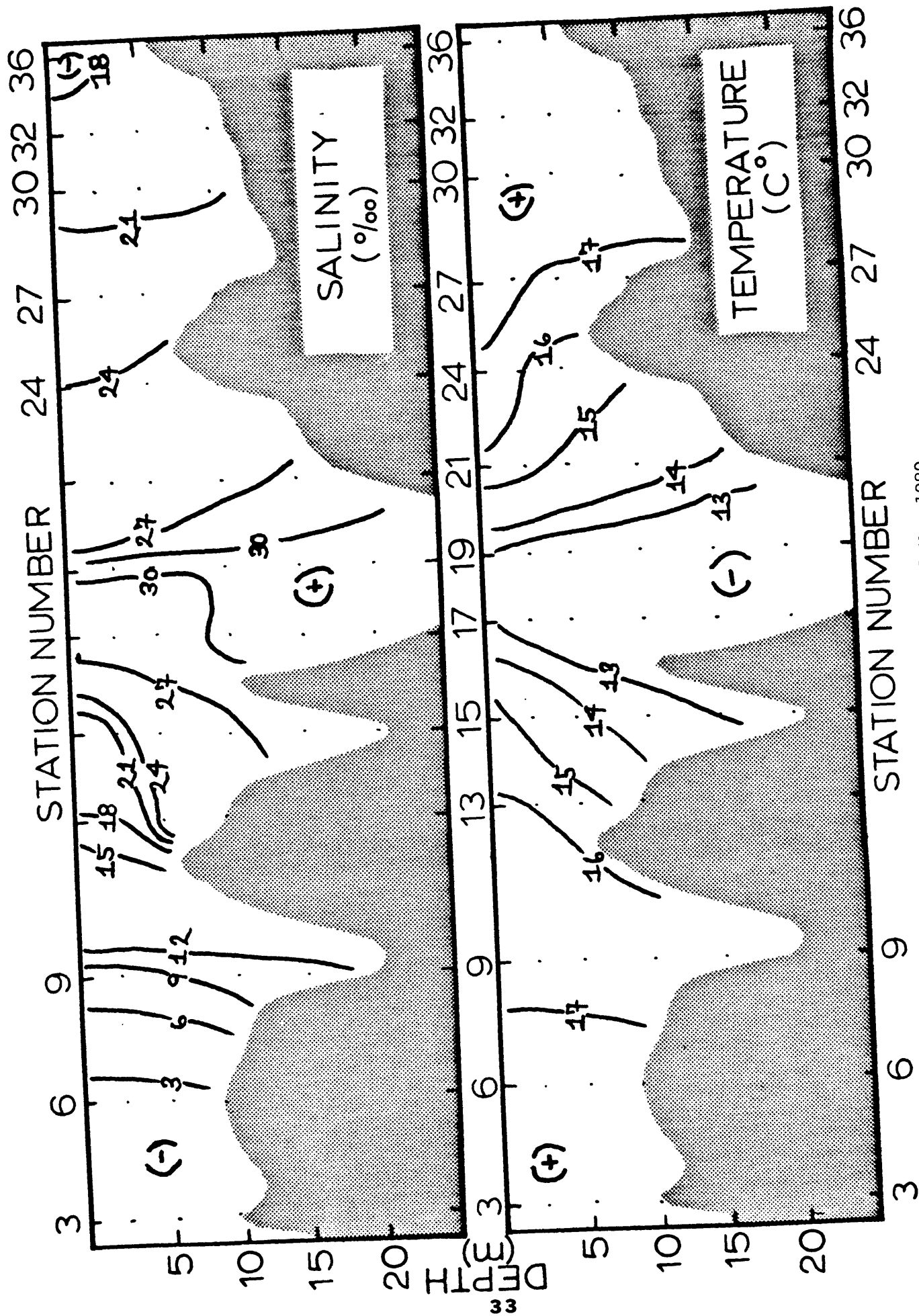


Figure 14. Salinity and temperature contour maps, 7 and 8 May, 1980.

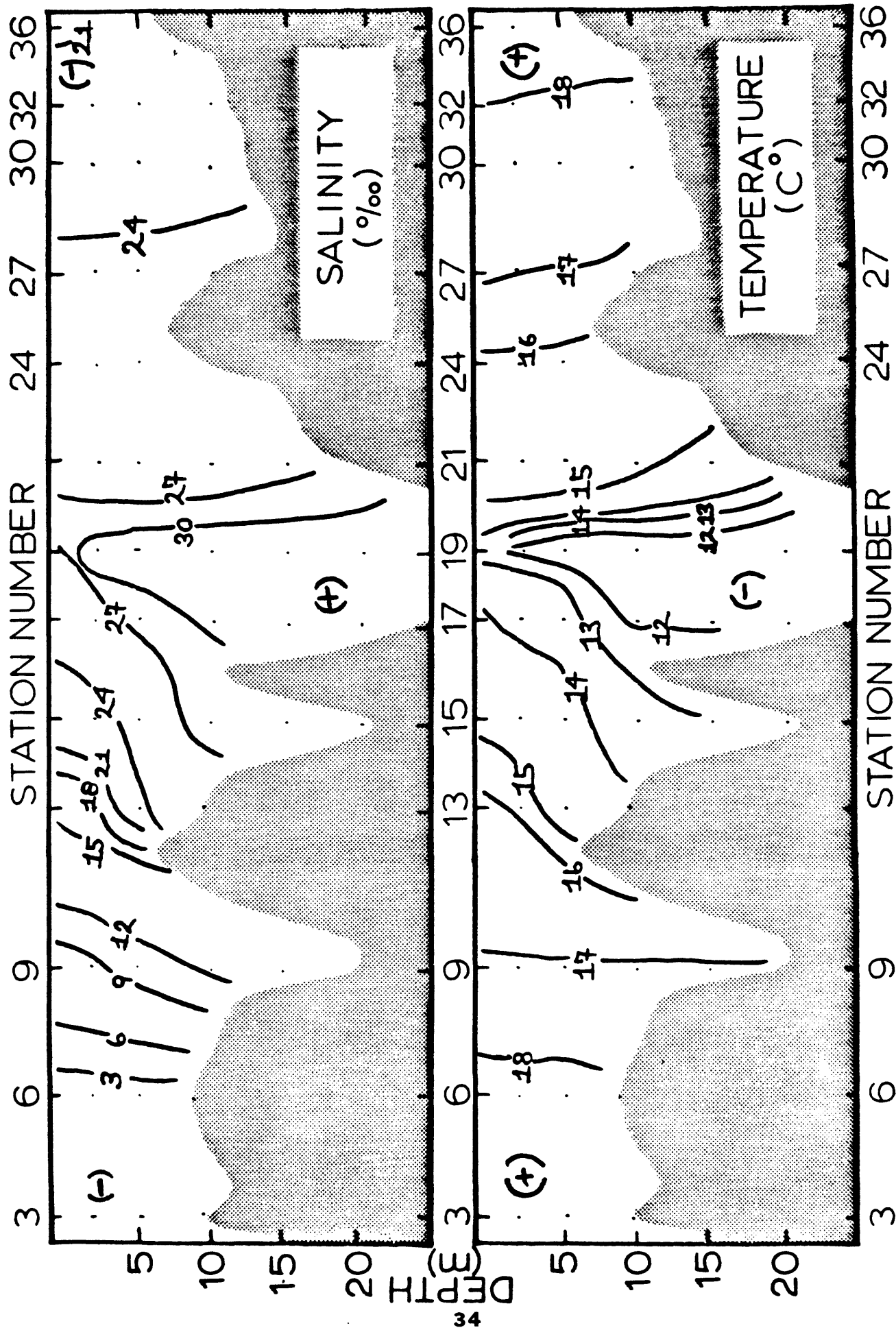


Figure 15. Salinity and temperature contour maps, 21 and 22 May, 1980.

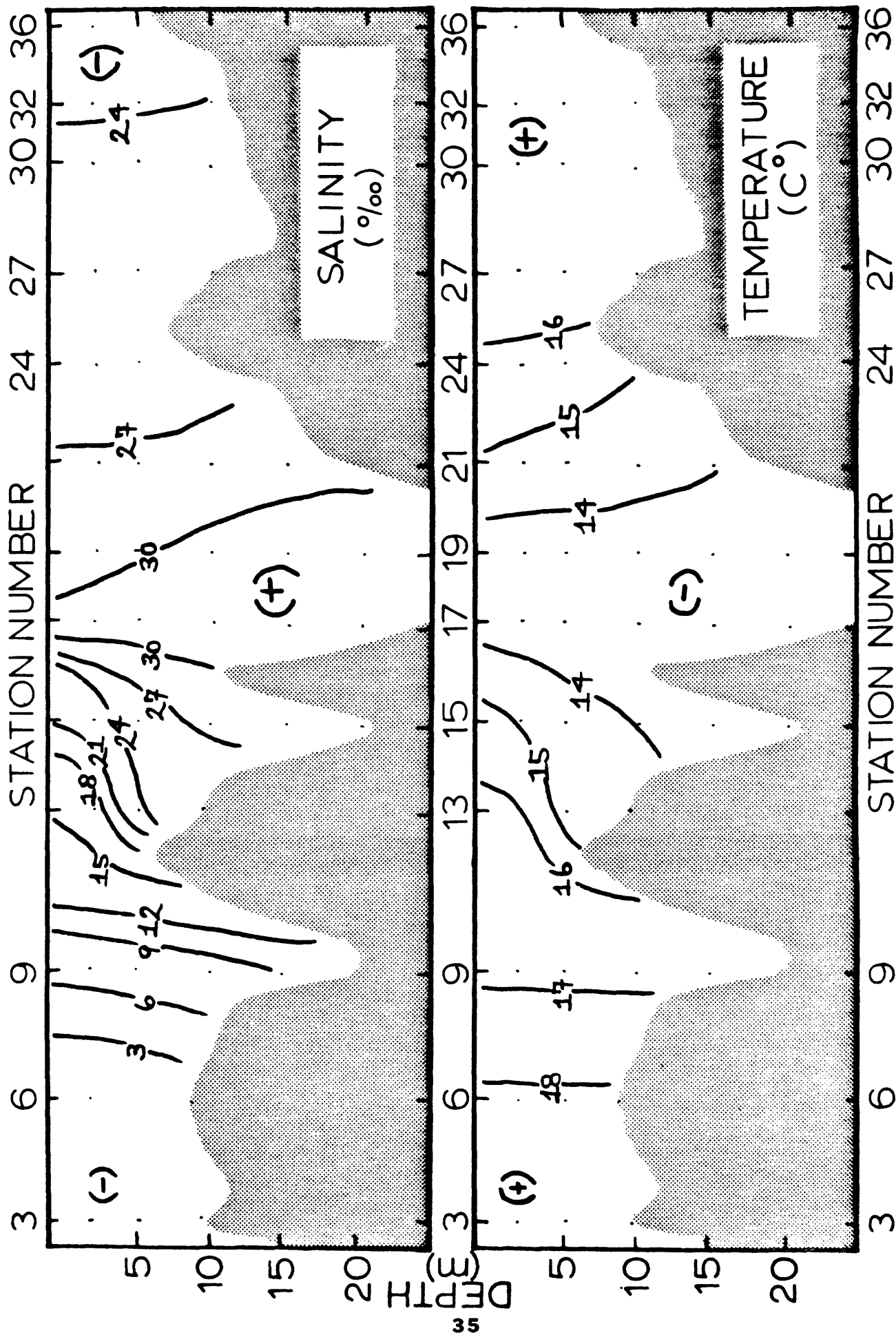


Figure 16. Salinity and temperature contour maps, 4 and 5 June, 1980.

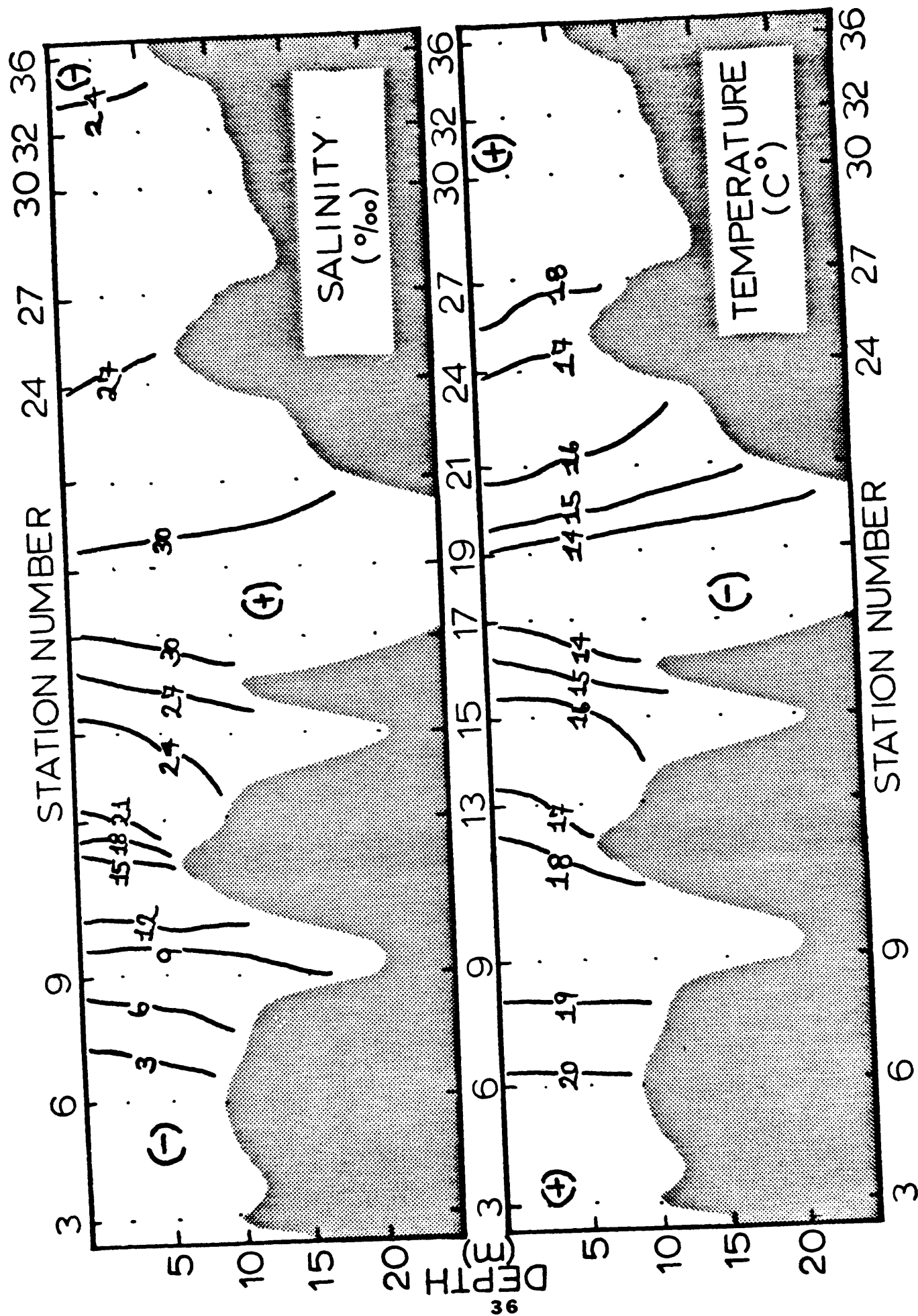


Figure 17. Salinity and temperature contour maps, 17 and 18 June, 1980.

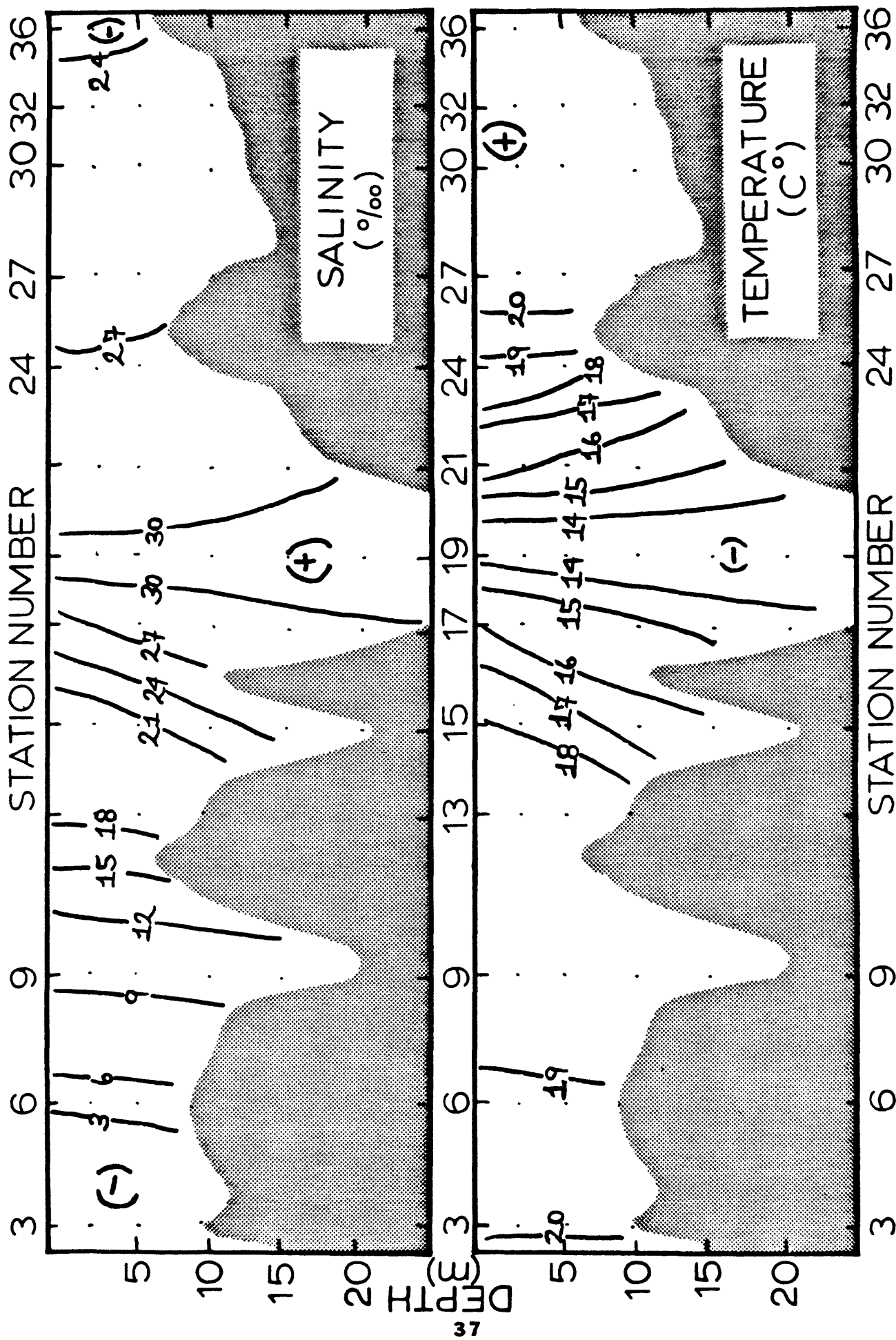


Figure 18. Salinity and temperature contour maps, 1 and 2 July, 1980.

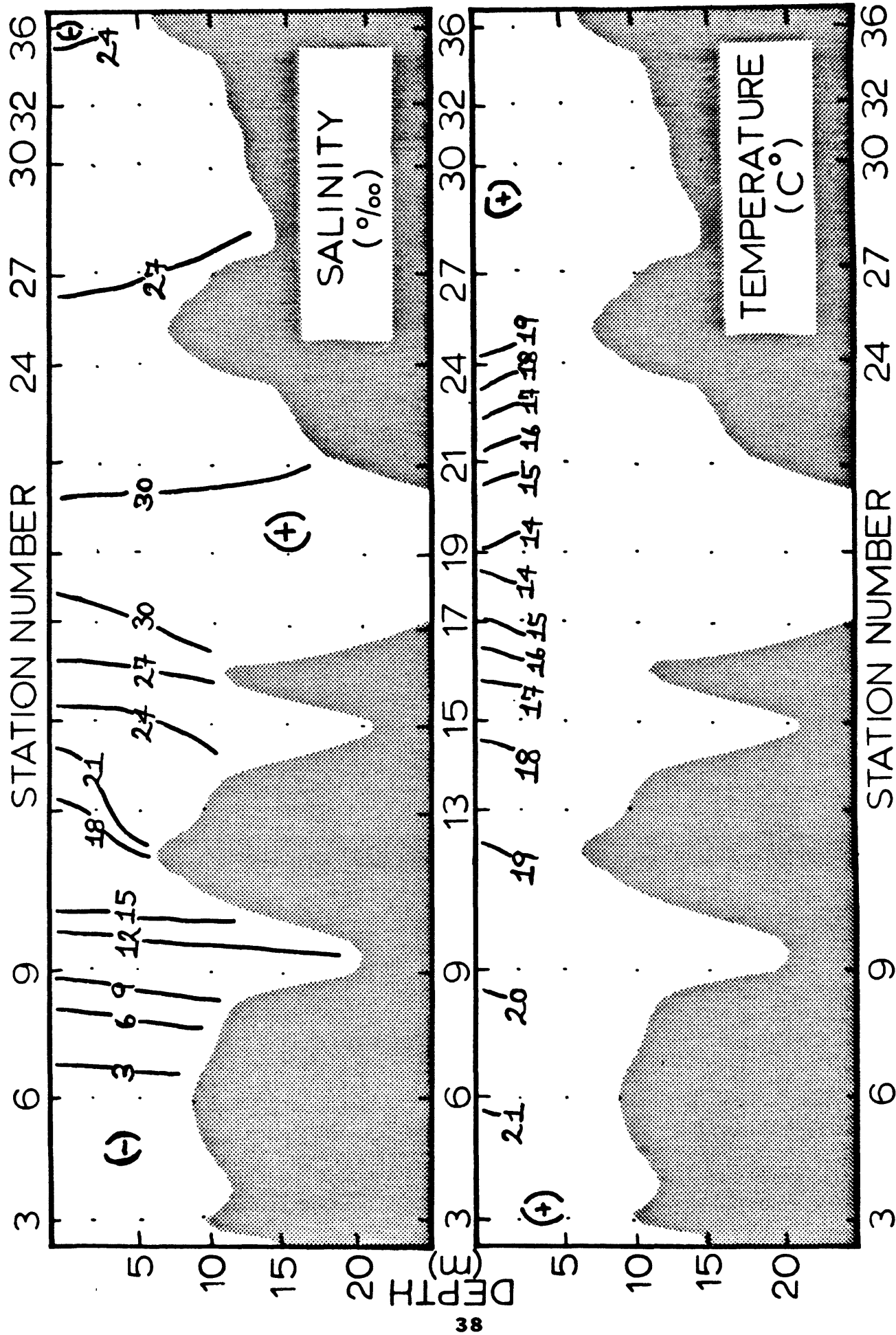


Figure 19. Salinity and temperature contour maps, 16 and 17 July, 1980.

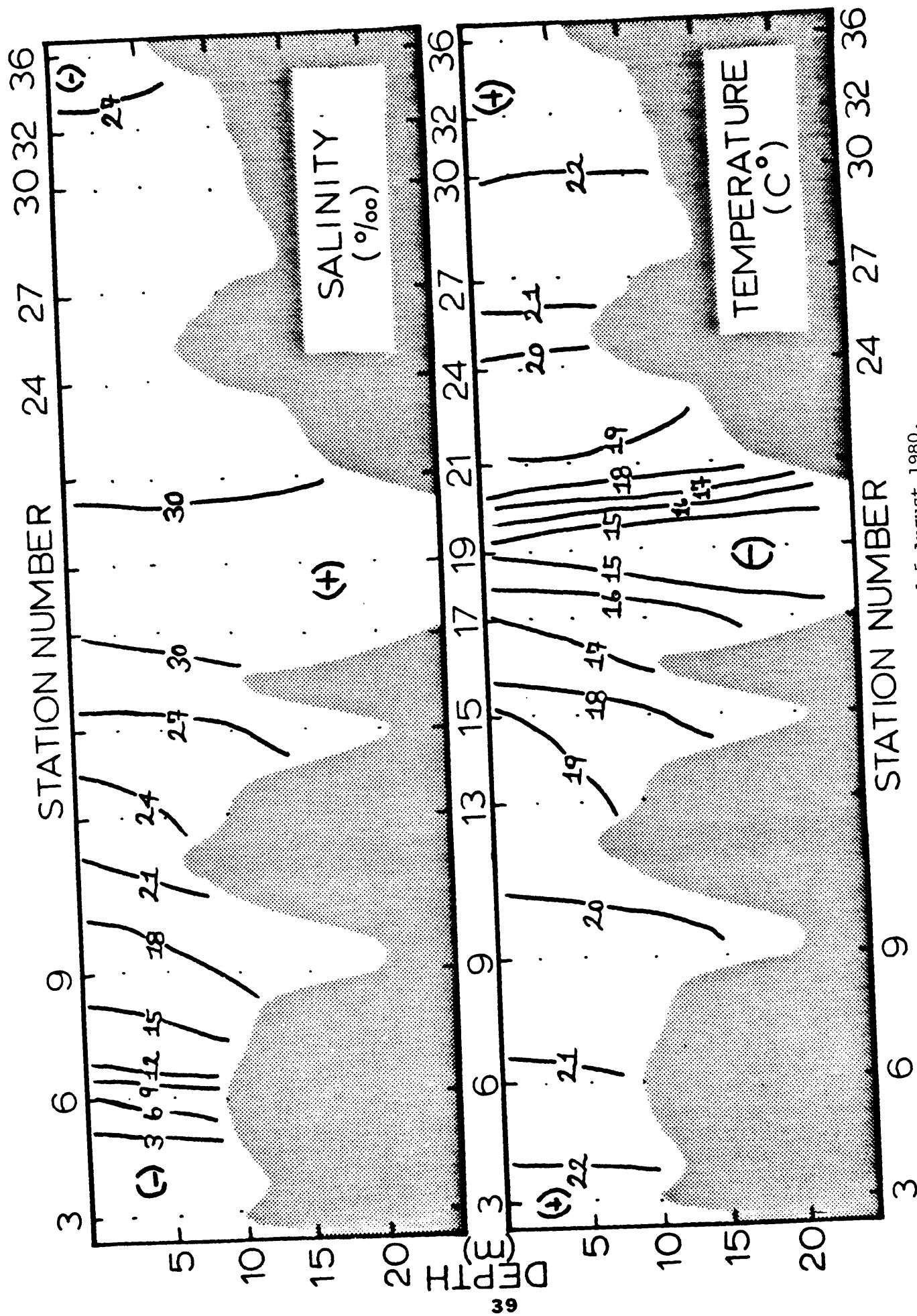


Figure 20. Salinity and temperature contour maps, 4 and 5 August, 1980.

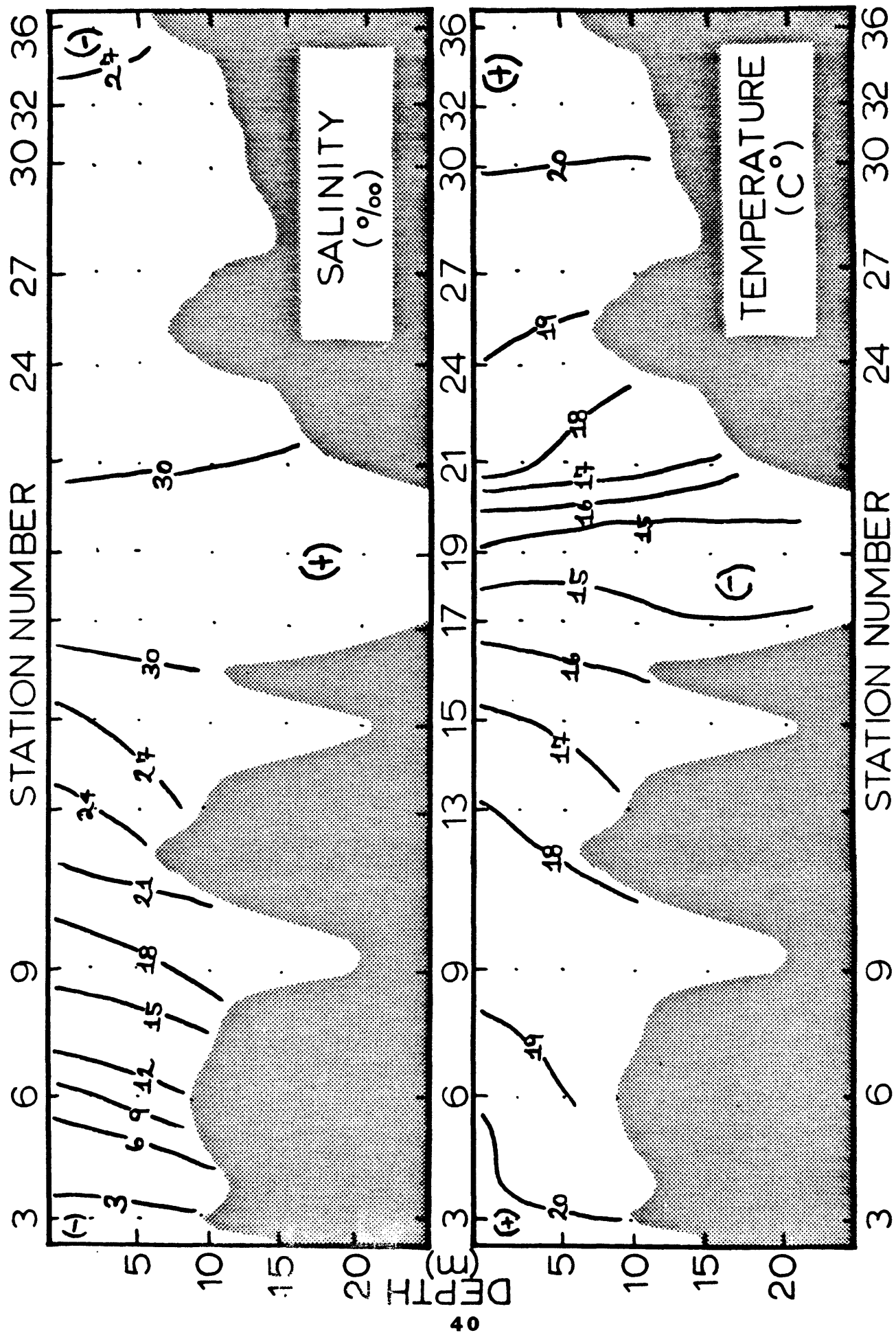


Figure 21. Salinity and temperature contour maps, 18 and 19 August, 1980.

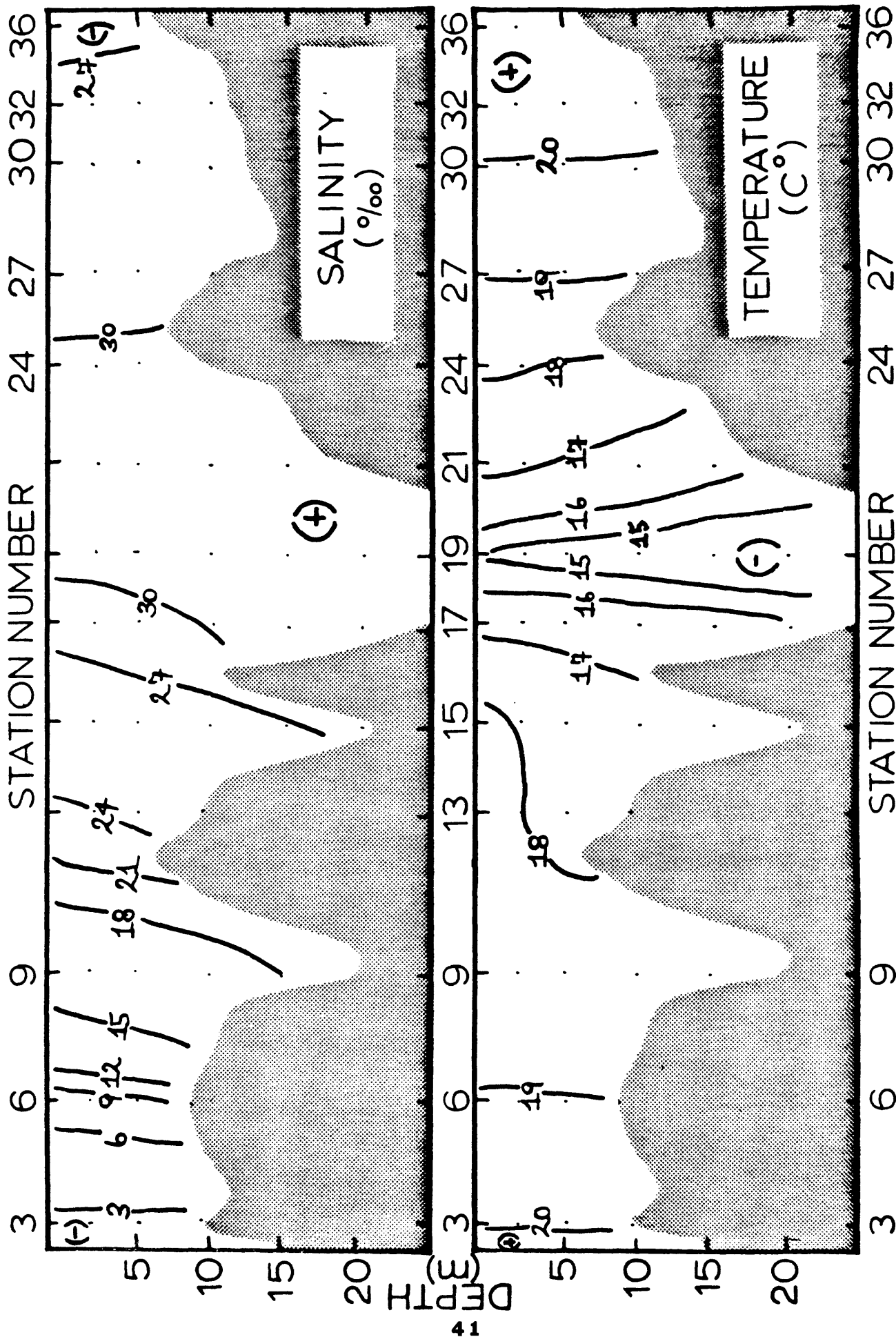


Figure 22. Salinity and temperature contour maps, 3 and 4 September, 1980.

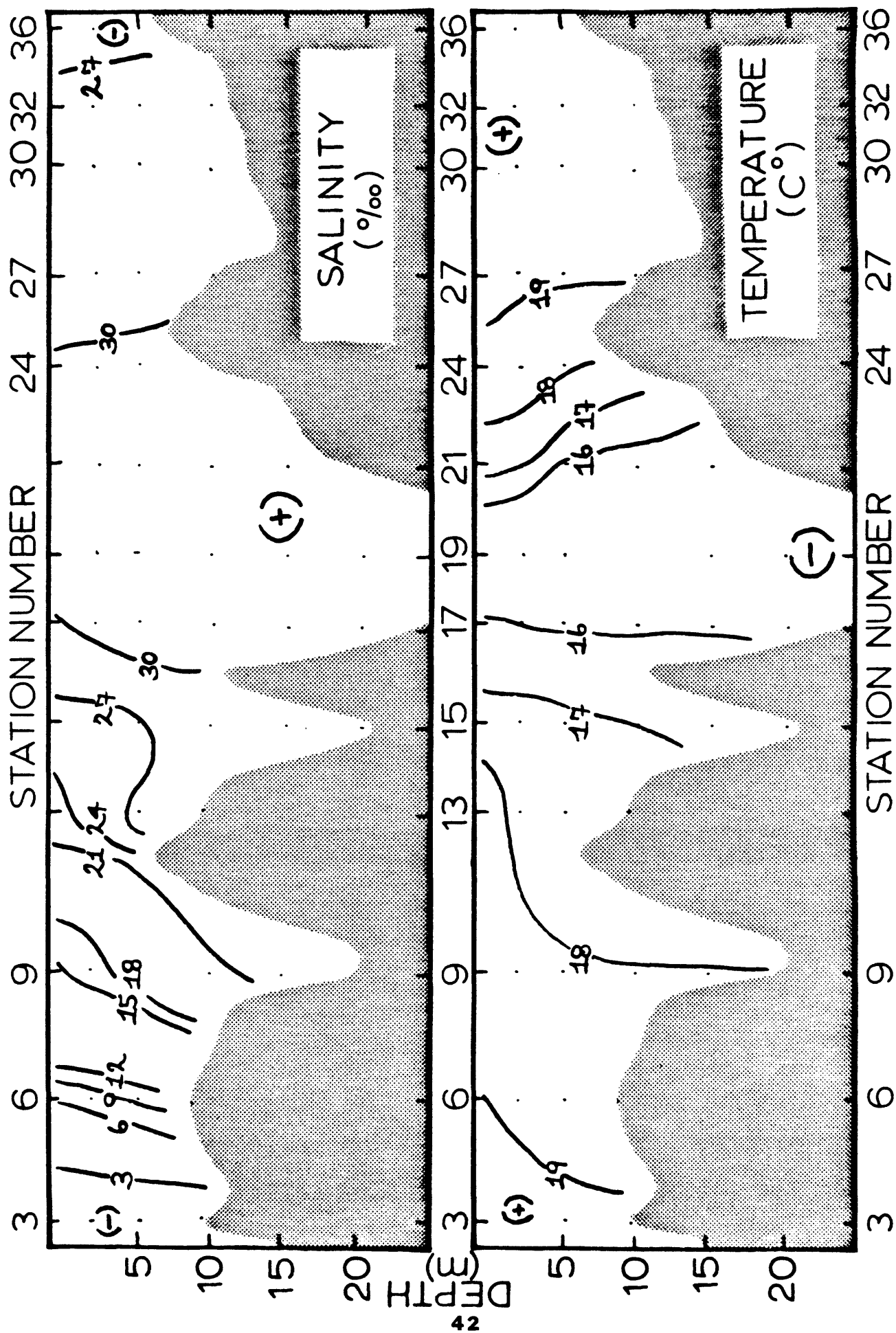


Figure 23. Salinity and temperature contour maps, 16 and 17 September, 1980.

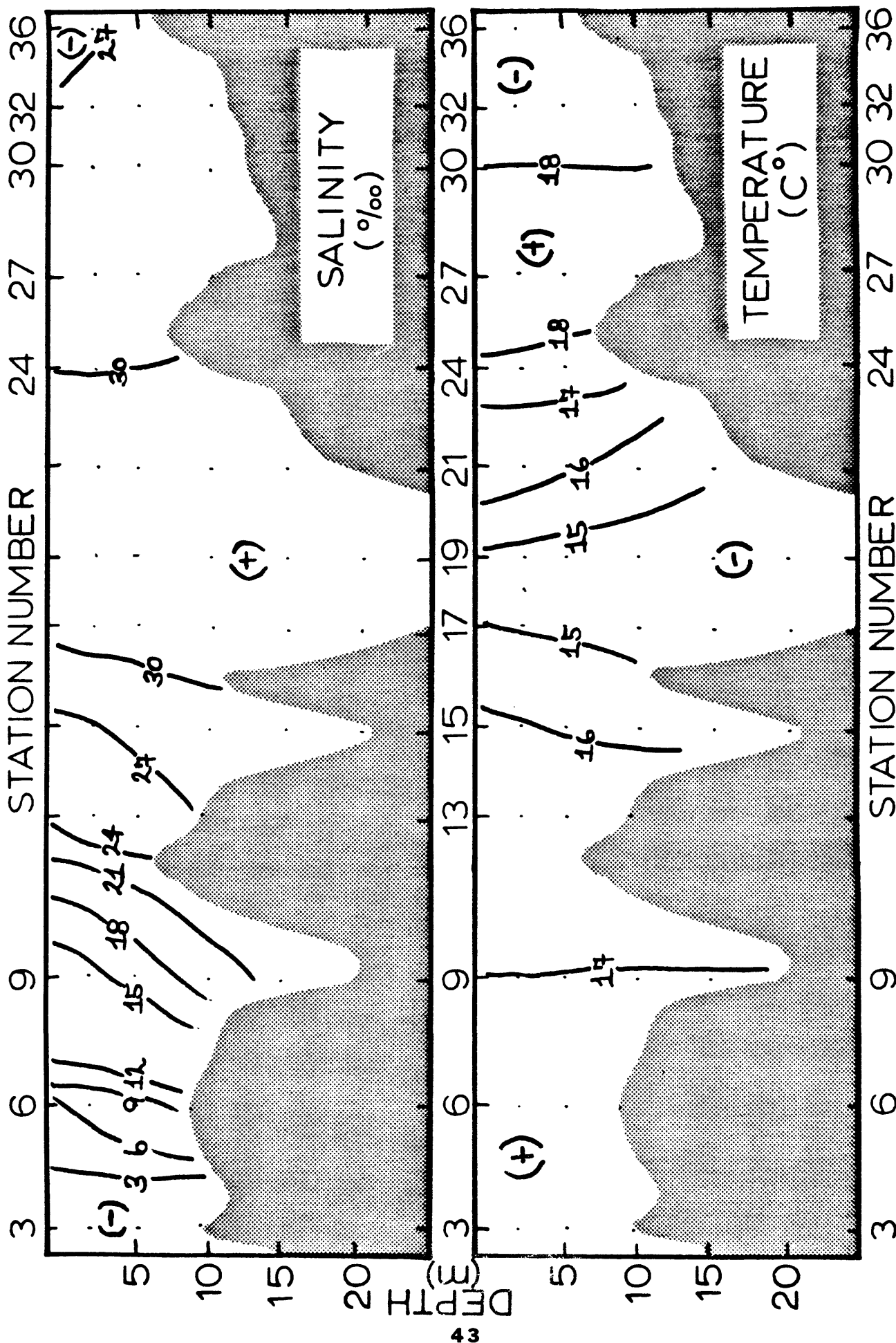


Figure 24. Salinity and temperature contour maps, 15 and 16 October, 1980.

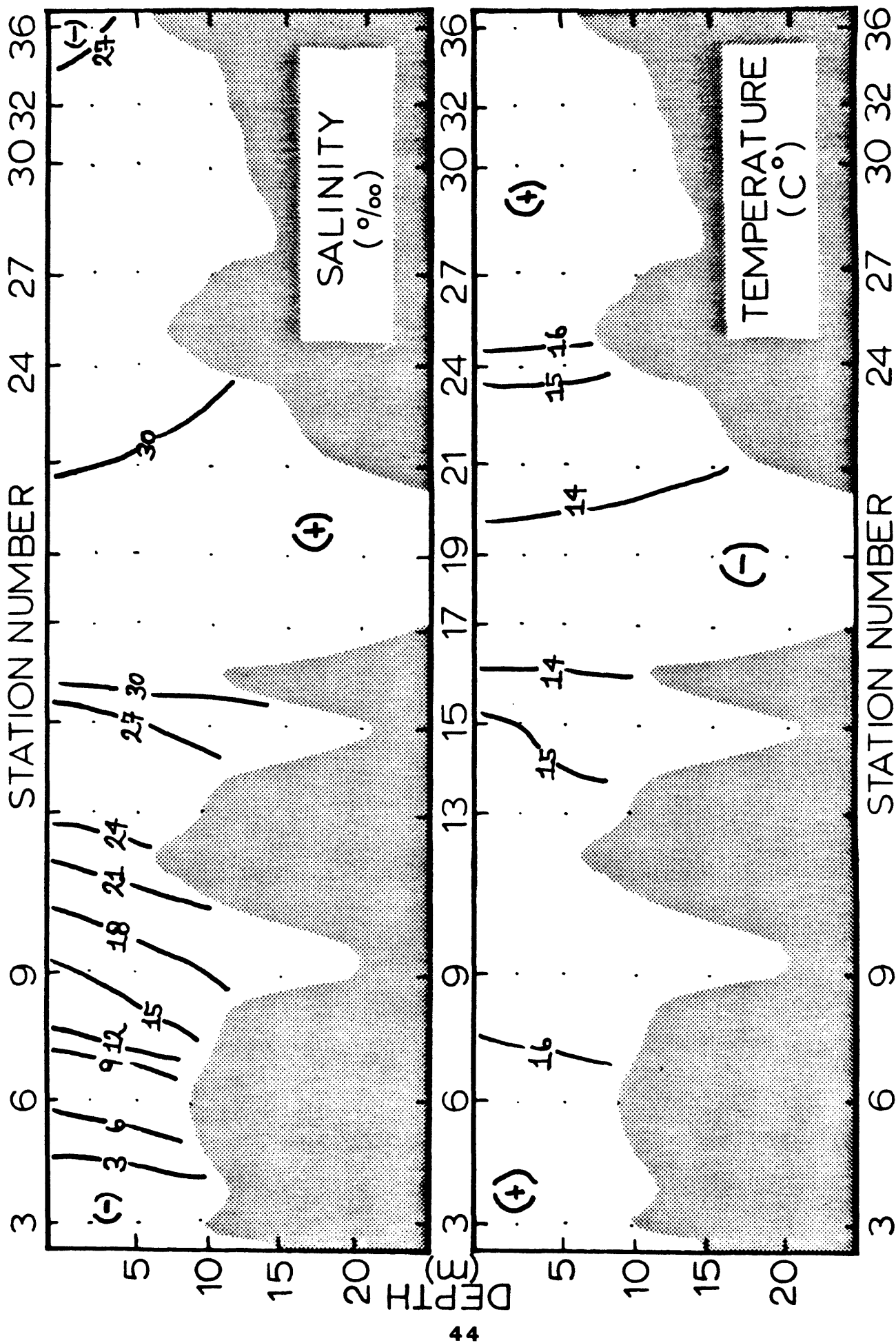


Figure 25. Salinity and temperature contour maps, 28 and 29 October, 1980.

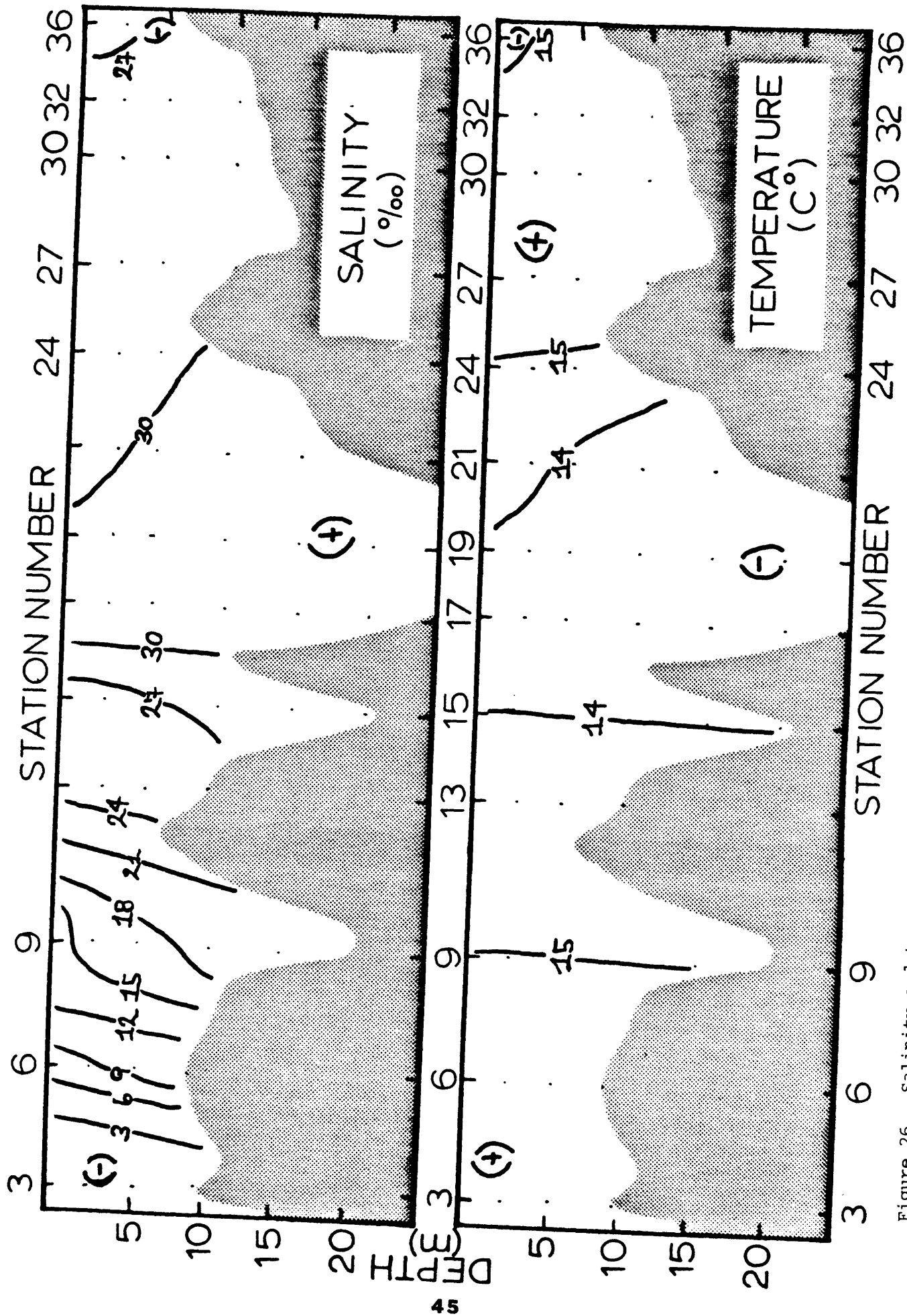


Figure 26. Salinity and temperature contour maps, 12 and 13 November, 1980.

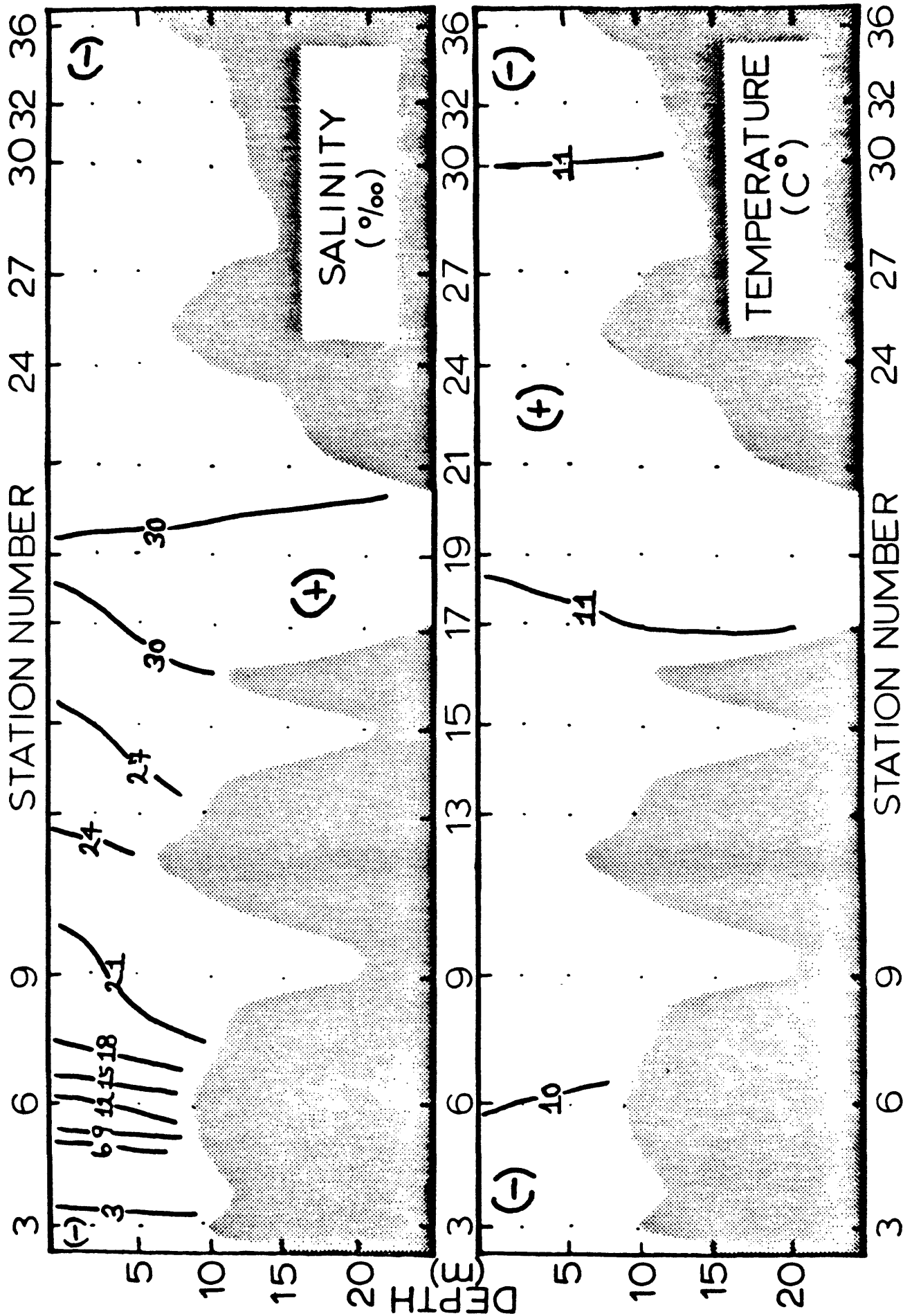


Figure 27. Salinity and temperature contour maps, 16 and 17 December, 1980.

APPENDIX A

DATA TABLES

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
ESTUARINE RESEARCH GROUP

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DATE		JULIAN DATE		CRUISE #		LOCATION		VESSEL	
8 JAN 80		80008		1		S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t		
936	36.0	147.4	582.7	0.0	11.5	25.19	19.1		
943	36.0	147.4	582.7	2.0	11.5	25.29	19.2		
951	36.0	147.4	582.7	5.0	11.5	26.20	19.9		
1011	34.0	149.8	580.6	1.0	11.6	25.49	19.3		
1024	33.0	151.6	577.6	1.0	11.6	26.20	19.9		
1036	32.0	152.5	576.5	0.0	11.4	26.60	20.2		
1042	32.0	152.5	576.5	2.0	11.4	26.71	20.3		
1049	32.0	152.5	576.5	5.0	11.4	27.21	20.7		
1055	32.0	152.5	576.5	10.0	11.4	27.41	20.8		
1116	31.0	153.8	574.5	1.0	11.7	27.31	20.7		
1135	30.0	156.5	571.4	0.0	11.8	27.82	21.1		
1138	30.0	156.5	571.4	2.0	11.4	28.02	21.3		
1144	30.0	156.5	571.4	5.0	11.3	28.12	21.4		
1147	30.0	156.5	571.4	10.0	11.3	28.22	21.5		
1149	30.0	156.5	571.4	14.0	11.3	28.32	21.6		
1218	29.0	159.5	566.7	1.0	11.6	28.32	21.5		
1228	28.0	161.5	564.4	1.0	11.5	27.82	21.1		
1243	27.0	163.4	562.5	0.0	11.4	27.51	20.9		
1248	27.0	163.4	562.5	2.0	11.3	27.31	20.8		
1256	27.0	163.4	562.5	5.0	11.2	28.02	21.3		
1259	27.0	163.4	562.5	12.0	11.2	28.12	21.4		
1319	26.0	165.4	560.5	1.0	11.6	26.81	20.3		
1332	25.0	169.4	559.5	1.0	11.6	24.89	18.9		
1352	24.0	172.5	558.3	0.0	11.6	24.89	18.9		
1355	24.0	172.5	558.3	2.0	11.5	25.09	19.0		
1400	24.0	172.5	558.3	5.0	11.2	25.80	19.6		
1403	24.0	172.5	558.3	9.0	11.2	26.30	20.0		
1429	23.0	175.5	558.5	1.0	11.5	25.29	19.2		
1446	22.0	179.4	556.5	1.0	11.5	24.89	18.9		
1502	21.0	183.6	555.5	0.0	11.2	23.47	17.8		
1506	21.0	183.6	555.5	2.0	11.2	24.18	18.4		
1510	21.0	183.6	555.5	5.0	11.3	26.00	19.8		
1513	21.0	183.6	555.5	10.0	11.5	27.62	21.0		
1516	21.0	183.6	555.5	17.0	11.7	29.13	22.1		
1607	20.0	185.4	552.4	1.0	11.4	23.47	17.8		
1635	19.0	185.6	546.5	20.0	12.0	30.95	23.5		
1640	19.0	185.6	546.5	10.0	11.9	30.04	22.8		
1644	19.0	185.6	546.5	2.0	11.7	27.92	21.2		

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U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE 8 JAN 80		JULIAN DATE 80008	CRUISE # 1	LOCATION S F BAY		VESSEL ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
923	102.0	148.5	580.7	1.0	11.3	25.20	19.2
929	104.0	149.3	580.7	1.0	11.4	25.50	19.4
931	106.0	149.9	580.8	1.0	11.4	25.70	19.5
935	108.0	150.0	579.7	1.0	11.3	25.60	19.5
941	110.0	150.3	578.8	1.0	11.4	25.90	19.7
944	112.0	151.2	578.0	1.0	11.4	26.31	20.0
950	114.0	152.5	576.9	1.0	11.5	26.51	20.1
956	116.0	153.9	575.8	1.0	11.4	27.42	20.9
1003	118.0	155.4	574.6	1.0	11.5	27.82	21.1
1024	120.0	156.8	573.3	1.0	11.6	27.52	20.9
1033	122.0	158.5	571.4	1.0	11.7	27.72	21.0
1036	124.0	156.8	573.3	1.0	11.7	27.82	21.1
1041	126.0	160.0	571.0	1.0	11.7	28.02	21.3
1055	128.0	161.1	570.9	1.0	11.7	28.12	21.3
1105	130.0	160.5	569.2	1.0	11.7	28.23	21.4
1114	132.0	159.9	567.5	1.0	11.7	28.23	21.4
1118	134.0	159.5	566.1	1.0	11.7	28.12	21.3
1124	136.0	160.4	564.6	1.0	11.6	27.42	20.8
1132	138.0	160.7	562.8	1.0	11.7	27.32	20.7
1138	140.0	161.0	561.0	1.0	11.7	27.32	20.7
1233	142.0	161.4	558.8	1.0	11.8	26.71	20.2
1244	144.0	162.1	560.4	1.0	11.7	26.41	20.0
1251	146.0	162.8	562.3	1.0	11.7	27.01	20.5
1257	148.0	163.6	564.1	1.0	11.7	26.71	20.3
1304	150.0	164.2	565.6	1.0	11.8	27.01	20.5
1309	152.0	164.0	567.3	1.0	11.5	28.33	21.5
1315	154.0	165.4	569.1	1.0	11.6	28.33	21.5
1321	156.0	165.7	569.8	1.0	11.7	28.23	21.4
1345	158.0	167.4	569.1	1.0	11.6	28.02	21.3
1353	160.0	169.3	568.5	1.0	11.6	28.02	21.3
1407	162.0	170.9	567.6	1.0	11.6	27.82	21.1
1417	164.0	172.5	566.7	1.0	11.4	27.22	20.7
1429	168.0	175.0	565.2	1.0	11.3	26.81	20.4
1447	170.0	174.4	563.6	1.0	11.4	25.70	19.5
1453	172.0	173.8	561.9	1.0	11.4	24.39	18.5
1500	174.0	173.1	559.4	1.0	11.3	24.18	18.4
1558	252.0	185.5	557.3	1.0	11.2	22.57	17.1
1604	254.0	186.9	558.7	1.0	11.3	21.56	16.3
1610	256.0	188.0	559.8	1.0	11.2	21.56	16.4
1617	258.0	189.8	559.2	1.0	11.2	21.26	16.1
1619	260.0	191.4	558.4	1.0	11.3	21.86	16.6
1633	262.0	193.2	556.7	1.0	11.2	21.86	16.6
1648	264.0	193.0	555.2	1.0	11.1	20.75	15.8
1656	266.0	192.6	553.3	1.0	11.2	19.74	15.0
1702	268.0	192.7	551.3	1.0	11.0	16.41	12.4
1707	270.0	192.5	549.7	1.0	10.7	15.60	11.8

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL	
9 JAN 80		80009		1	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t	
738	17.0	192.6	550.6	0.0	11.2	24.68	18.8	
743	17.0	192.6	550.6	2.0	11.5	26.60	20.2	
750	17.0	192.6	550.6	4.0	11.9	29.94	22.7	
756	17.0	192.6	550.6	1.0	11.5	24.28	18.4	
836	16.0	196.3	548.3	1.0	11.3	22.06	16.7	
904	15.0	202.4	549.5	0.0	10.4	15.38	11.7	
907	15.0	202.4	549.5	2.0	10.6	17.00	12.9	
911	15.0	202.4	549.5	5.0	10.8	20.74	15.8	
916	15.0	202.4	549.5	9.0	11.4	26.40	20.1	
958	14.0	206.7	552.5	1.0	11.1	19.53	14.8	
1023	13.0	209.3	555.7	0.0	10.6	16.09	12.2	
1029	13.0	209.3	555.7	2.0	10.7	17.71	13.5	
1035	13.0	209.3	555.7	5.0	11.2	23.77	18.1	
1038	13.0	209.3	555.7	10.0	11.3	25.29	19.2	
1113	12.0	211.6	560.4	1.0	10.6	12.55	9.5	
1137	11.0	212.7	564.4	1.0	10.5	11.24	8.5	
1207	10.0	212.5	569.5	1.0	10.4	9.22	6.9	
1223	9.0	211.4	572.5	0.0	10.0	8.63	6.5	
1227	9.0	211.4	572.5	2.0	10.0	9.51	7.2	
1232	9.0	211.4	572.5	5.0	10.1	10.33	7.8	
1235	9.0	211.4	572.5	10.0	10.1	10.74	8.1	
1242	9.0	211.4	572.5	12.0	10.2	10.63	8.0	
1316	8.0	209.3	574.5	1.0	10.1	4.06	3.0	
1334	7.0	211.3	579.3	1.0	10.1	4.38	3.2	
1406	6.0	213.3	584.7	0.0	9.8	0.67	0.3	
1409	6.0	213.3	584.7	2.0	9.7	0.77	0.4	
1420	6.0	213.3	584.7	5.0	9.7	3.30	2.4	
1426	6.0	213.3	584.7	7.0	9.7	5.52	4.1	
1454	5.0	212.8	589.5	1.0	10.3	0.06	-0.2	
1508	4.0	211.5	593.4	1.0	10.1	0.03	-0.2	
1534	3.0	211.8	598.4	0.0	9.9	0.04	-0.2	
1538	3.0	211.8	598.4	2.0	9.9	0.05	-0.2	
1542	3.0	211.8	598.4	5.0	9.9	0.05	-0.2	
1545	3.0	211.8	598.4	10.0	9.9	0.05	-0.2	
1649	651.0	215.0	608.6	1.0	10.1	0.05	-0.2	
1732	657.0	223.4	614.9	0.0	9.7	0.05	-0.1	
1738	657.0	223.4	614.9	2.0	9.7	0.02	-0.2	
1744	657.0	223.4	614.9	5.0	9.7	0.02	-0.2	

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U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL
9 JAN 80	80009	1	S F BAY	ESTERO

TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
803	302.0	205.2	553.4	1.0	10.4	15.90	12.1
816	304.0	206.9	552.3	1.0	10.6	18.33	14.0
825	306.0	209.1	551.2	1.0	10.9	11.25	8.4
841	308.0	210.7	549.8	1.0	10.1	10.85	8.2
847	310.0	212.2	548.8	1.0	10.2	11.66	8.8
854	312.0	213.6	547.9	1.0	10.4	11.46	8.7
911	314.0	214.7	549.8	1.0	10.3	11.46	8.7
919	316.0	215.2	551.5	1.0	10.3	11.56	8.8
927	318.0	215.8	553.3	1.0	10.3	11.46	8.7
951	320.0	216.4	555.4	1.0	10.3	11.05	8.4
958	322.0	216.7	557.0	1.0	10.2	11.05	8.4
1006	324.0	217.0	558.7	1.0	10.2	11.66	8.8
1022	326.0	215.3	559.3	1.0	10.3	11.15	8.4
1030	328.0	213.4	559.9	1.0	10.4	13.98	10.6
1037	330.0	211.8	560.9	1.0	10.4	10.85	8.2
1043	332.0	210.0	561.4	1.0	10.3	11.66	8.8
1048	334.0	208.5	562.1	1.0	10.6	14.08	10.7
1324	402.0	210.3	577.5	1.0	10.1	3.78	2.7
1328	404.0	211.3	577.3	1.0	10.0	3.07	2.2
1347	406.0	213.4	579.1	1.0	9.8	1.26	0.8
1355	408.0	215.0	580.4	1.0	9.8	0.22	-0.0
1403	410.0	216.8	581.8	1.0	9.8	0.49	0.2
1410	412.0	218.0	582.9	1.0	9.8	0.20	-0.0
1415	414.0	219.3	582.4	1.0	9.7	0.52	0.2
1431	416.0	219.1	584.4	1.0	10.0	0.06	-0.2
1442	418.0	218.6	586.7	1.0	10.0	0.25	-0.0
1457	420.0	217.7	586.2	1.0	9.9	0.47	0.2
1500	422.0	216.8	585.8	1.0	10.1	0.29	0.0
1511	424.0	215.5	587.9	1.0	9.9	0.14	-0.1
1517	426.0	214.8	589.5	1.0	10.0	0.08	-0.1
1522	428.0	214.1	590.4	1.0	9.8	0.04	-0.2
1618	747.0	209.4	601.9	1.0	10.5	0.05	-0.2
1629	749.0	208.9	605.5	1.0	10.3	0.04	-0.2
1640	751.0	209.5	609.1	1.0	9.9	0.04	-0.2
1651	753.0	210.3	612.6	1.0	9.6	0.05	-0.1
1703	755.0	212.2	615.2	1.0	9.4	0.06	-0.1
1715	757.0	215.9	616.1	1.0	9.3	0.06	-0.1

- DATA NOT AVAILABLE

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL
23 JAN 80	80023 2	2	S F BAY	POLARIS

TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
740	36.0	147.4	582.7	0.0	11.0	20.49	15.6
744	36.0	147.4	582.7	2.0	11.4	20.99	15.9
751	36.0	147.4	582.7	6.0	11.4	21.18	16.0
810	34.0	149.8	580.6	1.0	11.2	21.22	16.1
832	33.0	151.6	577.5	1.0	11.5	21.11	16.0
844	32.0	152.5	576.5	0.0	11.5	21.07	15.9
848	32.0	152.5	576.5	2.0	11.4	21.09	16.0
854	32.0	152.5	576.5	5.0	11.4	21.14	16.0
857	32.0	152.5	576.5	8.0	11.4	21.16	16.0
914	31.0	153.8	574.5	1.0	11.5	20.63	15.6
931	30.0	156.5	571.4	0.0	11.6	19.04	14.4
935	30.0	156.5	571.4	2.0	11.5	19.40	14.7
942	30.0	156.5	571.4	5.0	11.6	20.75	15.7
946	30.0	156.5	571.4	11.5	11.6	20.83	15.7
1008	29.0	159.5	566.7	1.0	11.6	18.62	14.0
1019	28.0	161.5	564.4	1.0	11.5	18.52	14.0
1036	27.0	163.4	562.5	0.0	11.5	18.06	13.6
1040	27.0	163.4	562.5	2.0	11.5	19.02	14.4
1048	27.0	163.4	562.5	5.0	11.6	19.61	14.8
1051	27.0	163.4	562.5	9.0	11.6	19.78	14.9
1122	26.0	165.4	560.5	1.0	11.8	18.75	14.1
1138	25.0	169.4	559.5	1.0	11.5	15.27	11.5
1155	24.0	172.5	558.3	0.0	11.3	13.32	10.0
1201	24.0	172.5	558.3	2.0	11.2	14.44	10.9
1208	24.0	172.5	558.3	5.0	11.4	16.23	12.2
1213	24.0	172.5	558.3	8.0	11.6	17.35	13.1
1257	23.0	175.5	558.5	1.0	11.5	15.02	11.3
1310	22.0	179.4	556.5	1.0	11.0	11.93	8.9
1329	21.0	183.6	555.5	0.0	11.5	12.23	9.1
1333	21.0	183.6	555.5	2.0	11.2	13.89	10.4
1340	21.0	183.6	555.5	5.0	11.3	15.18	11.4
1344	21.0	183.6	555.5	9.5	11.4	16.22	12.2
1348	21.0	183.6	555.5	13.0	11.8	18.73	14.1
1418	20.0	185.4	552.4	1.0	11.1	11.28	8.4
1535	19.0	185.6	546.5	22.0	12.4	30.09	22.7
1542	19.0	185.6	546.5	10.0	12.2	22.93	17.3
1546	19.0	185.6	546.5	5.0	12.5	25.52	19.2
1550	19.0	185.6	546.5	2.0	12.3	25.30	19.1
1651	19.0	185.6	546.5	13.0	12.7	28.79	21.7

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL	
24 JAN 80		80024 2		2	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t	
736	19.0	185.6	546.5	13.0	12.4	25.97	19.6	
741	19.0	185.6	546.5	5.0	11.8	23.25	17.6	
745	19.0	185.6	546.5	2.0	11.6	21.94	16.6	
846	17.0	192.6	550.6	14.0	12.4	27.68	20.9	
852	17.0	192.6	550.6	10.0	11.0	16.30	12.3	
933	17.0	192.6	550.6	6.0	10.4	12.38	9.4	
945	17.0	192.6	550.6	2.0	10.2	9.56	7.2	
953	17.0	192.6	550.6	0.0	9.9	7.55	5.7	
1033	16.0	196.3	548.3	1.0	9.9	6.74	5.1	
1109	15.0	202.4	549.5	0.0	9.9	6.74	5.1	
1114	15.0	202.4	549.5	2.0	9.9	6.74	5.1	
1120	15.0	202.4	549.5	5.0	10.0	6.74	5.0	
1126	15.0	202.6	549.5	7.0	10.3	9.56	7.2	
1200	14.0	206.7	552.5	1.0	9.7	3.82	2.8	
1220	13.0	209.3	555.7	0.0	10.0	5.63	4.2	
1225	13.0	209.3	555.7	2.0	10.0	5.84	4.3	
1232	13.0	209.3	555.7	5.0	10.3	9.36	7.0	
1239	13.0	209.3	555.7	9.0	11.2	15.80	11.9	
1325	12.0	211.6	560.4	1.0	9.6	2.39	1.7	
1345	11.0	212.7	564.6	1.0	9.5	1.36	0.9	
1404	10.0	212.5	569.5	1.0	9.3	0.05	-0.1	
1419	9.0	211.4	572.5	0.0	9.1	0.02	-0.1	
1424	9.0	211.4	572.5	2.0	9.1	0.01	-0.1	
1428	9.0	211.4	572.5	5.0	9.1	0.01	-0.1	
1434	9.0	211.4	572.5	11.0	9.1	0.04	-0.1	
1504	11.0	212.7	564.6	1.0	9.3	0.36	0.1	
1515	12.0	211.6	560.4	1.0	9.5	0.93	0.6	
1532	13.0	209.3	555.7	1.0	9.8	3.27	2.4	
1542	14.0	206.7	552.5	1.0	10.3	7.85	5.9	
1622	16.0	196.3	548.3	1.0	9.9	4.63	3.4	
1715	22.0	179.4	556.5	1.0	10.9	11.27	8.5	
1725	23.0	175.5	558.5	1.0	11.0	12.48	9.4	
1746	25.0	169.4	559.5	1.0	11.4	15.30	11.5	
1812	28.0	161.5	564.4	1.0	11.9	16.51	12.4	
1824	29.0	159.5	566.7	1.0	11.7	15.50	11.6	

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
5 FEB 80		80036		3	S F BAY		POLARIS
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN FPT	SIGMA-t
742	36.0	147.4	582.7	0.0	11.9	17.30	13.0
746	36.0	147.4	582.7	2.0	11.9	17.30	13.0
754	36.0	147.4	582.7	6.0	11.9	17.50	13.1
818	35.0	148.5	581.5	1.0	11.8	17.70	13.3
830	33.0	151.6	577.5	1.0	11.8	18.00	13.5
841	32.0	152.5	576.5	0.0	12.0	18.00	13.5
845	32.0	152.5	576.5	2.0	11.9	19.40	14.6
851	32.0	152.5	576.5	5.0	11.9	18.00	13.5
854	32.0	152.5	576.5	9.0	11.9	18.00	13.5
910	31.0	153.8	574.5	1.0	11.9	18.00	13.5
928	30.0	156.5	571.4	0.0	11.7	17.70	13.3
932	30.0	156.5	571.4	2.0	11.6	17.70	13.3
939	30.0	156.5	571.4	5.0	11.7	17.90	13.5
942	30.0	156.5	571.4	12.0	11.8	17.90	13.4
1020	29.0	159.5	566.7	1.0	11.4	17.40	13.1
1032	28.0	161.5	564.4	1.0	11.3	17.30	13.1
1049	27.0	163.4	562.5	0.0	11.1	17.30	13.1
1052	27.0	163.4	562.5	2.0	11.2	17.30	13.1
1101	27.0	163.4	562.5	5.0	11.1	17.30	13.1
1104	27.0	163.4	562.5	10.0	11.1	17.40	13.2
1130	26.0	165.4	560.5	1.0	11.2	17.50	13.2
1202	24.0	172.5	558.3	0.0	11.6	18.80	14.2
1207	24.0	172.5	558.3	2.0	11.4	19.10	14.4
1215	24.0	172.5	558.3	5.0	11.4	20.20	15.3
1219	24.0	172.5	558.3	9.0	11.5	20.30	15.3
1309	23.0	175.5	558.6	1.0	11.7	18.70	14.1
1322	22.0	179.4	556.5	1.0	11.5	17.90	13.5
1342	21.0	183.6	555.5	0.0	11.3	17.80	13.4
1346	21.0	183.6	555.5	2.0	11.4	19.00	14.4
1353	21.0	183.6	555.5	5.0	11.5	20.30	15.3
1355	21.0	183.6	555.5	10.0	11.7	24.10	18.2
1359	21.0	183.6	555.5	15.0	11.9	25.90	19.6
1427	20.0	185.4	552.4	1.0	11.5	18.40	13.9
1456	19.0	185.6	546.5	20.0	12.3	29.50	22.3
1505	19.0	185.6	546.5	10.0	12.3	29.30	22.1
1510	19.0	185.6	546.5	2.0	12.2	26.40	19.9
- DATA NOT AVAILABLE							

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DATE 5 FEB 80		JULIAN DATE 80036	CRUISE # 3	LOCATION S F BAY		VESSEL ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
804	118.0	156.2	574.0	1.0	11.7	17.86	13.4
828	120.0	157.4	572.7	1.0	11.4	17.86	13.5
833	122.0	158.4	571.7	1.0	11.4	17.76	13.4
839	124.0	159.9	571.8	1.0	11.4	17.76	13.4
847	126.0	161.8	572.0	1.0	11.5	17.76	13.4
905	128.0	161.2	570.5	1.0	11.2	17.56	13.3
911	130.0	160.6	569.1	1.0	11.3	17.36	13.1
917	132.0	160.0	567.3	1.0	11.1	17.36	13.1
921	134.0	159.4	566.3	1.0	11.3	17.36	13.1
929	136.0	160.3	564.6	1.0	11.3	17.15	12.9
936	138.0	160.7	562.8	1.0	11.4	16.45	12.4
944	140.0	161.1	561.0	1.0	11.4	16.04	12.1
953	142.0	161.7	568.8	1.0	11.3	16.35	12.3
1010	144.0	162.1	560.4	1.0	11.4	16.65	12.5
1017	146.0	162.7	562.2	1.0	11.2	17.15	13.0
1024	148.0	163.4	564.0	1.0	11.3	17.36	13.1
1034	150.0	164.1	565.8	1.0	11.6	17.76	13.4
1041	152.0	164.8	567.5	1.0	11.9	17.56	13.2
1047	154.0	165.3	569.1	1.0	11.8	17.76	13.3
1056	156.0	165.8	570.3	1.0	11.8	17.76	13.3
1113	158.0	167.5	569.4	1.0	11.7	18.16	13.7
1123	160.0	169.3	568.5	1.0	11.7	18.67	14.1
1130	162.0	170.9	567.6	1.0	11.8	17.76	13.3
1152	164.0	172.7	566.8	1.0	11.8	17.26	12.9
1159	166.0	174.2	566.2	1.0	11.9	17.56	13.2
1202	168.0	175.0	565.5	1.0	11.8	17.56	13.2
1221	170.0	174.4	563.6	1.0	11.7	18.26	13.7
1227	172.0	173.8	562.0	1.0	11.8	18.16	13.6
1234	174.0	173.1	560.0	1.0	11.8	18.57	14.0
1307	176.0	172.2	558.2	1.0	11.6	18.47	13.9
1311	178.0	171.7	556.7	1.0	11.7	19.27	14.5
1320	180.0	171.0	554.4	1.0	11.9	18.37	13.8
1336	182.0	169.8	555.1	1.0	11.7	18.16	13.7
1341	184.0	168.6	555.7	1.0	11.7	17.96	13.5
1346	186.0	167.4	555.3	1.0	11.9	17.46	13.1
1350	188.0	166.0	555.2	1.0	11.9	16.85	12.6
1409	190.0	166.8	557.0	1.0	11.6	17.86	13.4
1413	192.0	167.1	558.3	1.0	11.5	18.06	13.6
1418	194.0	167.9	560.2	1.0	11.6	18.47	13.9
1427	196.0	168.8	562.0	1.0	11.6	18.37	13.8
1431	198.0	169.3	563.7	1.0	11.6	18.06	13.6
1438	200.0	170.0	565.5	1.0	11.7	17.86	13.4
1445	162.0	170.8	567.6	1.0	12.0	17.05	12.8
1454	164.0	172.7	566.7	1.0	12.0	17.66	13.2
1502	168.0	174.4	565.3	1.0	11.9	17.76	13.3

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
6 FEB 80		80037		3	S F BAY		POLARIS
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
723	19.0	185.6	546.5	20.0	11.9	25.70	19.4
728	19.0	185.6	546.5	10.0	12.0	26.60	20.1
732	19.0	185.6	546.5	2.0	11.8	24.60	18.6
909	17.0	192.6	550.6	0.0	10.7	12.50	9.4
912	17.0	192.6	550.6	2.0	10.8	14.10	10.7
921	17.0	192.6	550.6	5.0	10.3	18.10	13.8
927	17.0	192.6	550.6	9.0	11.7	24.10	18.2
930	17.0	192.6	550.6	16.0	11.9	25.80	19.5
954	16.0	196.3	548.3	1.0	10.6	12.80	9.7
1026	15.0	202.4	549.5	0.0	10.1	7.98	6.0
1030	15.0	202.4	549.5	2.0	10.2	10.00	7.6
1037	15.0	202.4	549.5	5.0	10.7	13.70	10.4
1041	15.0	202.4	549.5	10.0	11.5	21.80	16.5
1045	15.0	202.4	549.5	16.0	11.8	22.90	17.3
1123	14.0	206.7	552.5	1.0	10.4	9.75	7.3
1140	13.0	209.3	555.7	0.0	10.9	10.30	7.7
1144	13.0	209.3	555.7	2.0	10.8	11.80	8.9
1152	13.0	209.3	555.7	5.0	11.1	14.75	11.1
1158	13.0	209.3	555.7	9.0	11.7	21.47	16.2
1230	12.0	211.6	560.4	1.0	10.2	7.00	5.2
1245	11.0	212.7	564.6	1.0	10.1	4.63	3.4
1305	10.0	212.5	569.5	1.0	9.7	2.30	1.6
1323	9.0	211.4	572.5	0.0	9.9	1.38	0.9
1326	9.0	211.4	572.5	2.0	9.8	1.15	0.7
1331	9.0	211.4	572.5	5.0	9.8	1.91	1.3
1334	9.0	211.4	572.5	10.0	9.9	5.12	3.8
1338	9.0	211.4	572.5	20.0	10.5	10.60	8.0
1343	9.0	211.4	572.5	15.0	10.2	7.50	5.6
1359	8.0	209.3	574.5	1.0	9.5	0.92	0.6
1415	7.0	211.3	579.3	0.0	9.3	0.17	-0.0
1443	6.0	213.3	584.7	2.0	9.7	0.10	-0.1
1447	6.0	213.3	584.7	5.0	9.2	0.11	-0.1
1453	6.0	213.3	584.7	9.0	9.2	0.10	-0.1
1456	6.0	213.3	584.7	1.0	9.2	0.11	-0.1
1522	5.0	212.8	589.5	1.0	9.4	0.12	-0.1
1537	4.0	211.5	593.4	1.0	9.5	0.10	-0.1
1544	4.0	211.5	593.4	0.0	10.4	0.11	-0.2
1547	4.0	211.5	593.4	2.0	9.7	0.11	-0.1
1551	4.0	211.5	593.4	5.0	9.2	0.11	-0.1
1554	4.0	211.5	593.4	10.0	9.1	0.11	-0.1
1710	651.0	215.0	608.5	1.0	9.0	0.14	-0.0
1717	653.0	217.1	612.1	1.0	9.1	0.13	-0.0
1728	655.0	219.7	613.9	1.0	9.2	0.14	-0.0
1748	657.0	223.4	614.9	0.0	9.2	0.13	-0.0
1751	657.0	223.4	614.9	2.0	9.2	0.12	-0.1
1758	657.0	223.4	614.9	5.0	9.2	0.08	-0.1

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DATE		JULIAN DATE	CRUISE #	LOCATION	VESSEL		
6 FEB 80		80037	3	S F BAY	ESTERO		
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
808	302.0	205.2	553.4	1.0	11.0	12.73	9.6
827	304.0	206.9	552.2	1.0	11.0	10.01	7.5
835	306.0	208.8	551.0	1.0	10.5	7.29	5.4
843	308.0	210.8	549.8	1.0	10.7	6.88	5.1
851	310.0	212.2	548.7	1.0	11.0	5.97	4.3
858	312.0	213.5	547.8	1.0	10.7	4.46	3.2
920	314.0	214.7	549.7	1.0	10.6	4.26	3.1
928	316.0	215.3	551.4	1.0	10.7	4.36	3.1
938	318.0	215.7	553.2	1.0	10.8	3.96	2.8
1007	320.0	216.2	555.0	1.0	10.8	4.06	2.9
1016	322.0	216.7	556.8	1.0	10.7	4.16	3.0
1026	324.0	217.0	558.5	1.0	11.1	4.06	2.8
1046	326.0	215.3	559.2	1.0	11.0	4.46	3.2
1055	328.0	213.5	559.9	1.0	10.8	5.47	4.0
1102	330.0	211.8	560.6	1.0	10.1	6.48	4.8
1108	332.0	210.1	561.3	1.0	10.7	10.11	7.6
1115	334.0	208.4	562.0	1.0	11.1	9.10	6.8
1419	402.0	210.3	577.6	1.0	10.2	0.11	-0.1
1424	402.0	210.3	577.6	1.0	10.2	0.12	-0.1
1428	404.0	211.1	577.4	1.0	10.3	0.07	-0.2
1446	406.0	213.3	579.2	1.0	10.1	0.02	-0.2
1452	408.0	215.1	580.5	1.0	10.2	0.02	-0.2
1458	410.0	216.8	581.9	1.0	10.3	0.07	-0.2
1503	412.0	217.0	582.8	1.0	10.0	0.03	-0.2
1507	414.0	219.3	582.3	1.0	10.2	0.04	-0.2
1515	416.0	219.1	584.2	1.0	9.5	0.02	-0.2
1525	418.0	218.8	586.6	1.0	9.8	0.03	-0.2
1540	420.0	217.8	586.4	1.0	10.1	0.03	-0.2
1544	422.0	216.7	585.8	1.0	10.0	0.02	-0.2
1551	424.0	215.5	587.9	1.0	9.7	0.00	-0.2
1557	-	214.2	589.3	1.0	9.9	0.00	-0.2
1602	-	213.2	591.0	1.0	9.6	0.00	-0.2
1626	438.0	211.6	592.9	1.0	9.9	0.01	-0.2
1650	745.0	210.3	598.3	1.0	12.0	0.02	-0.4
1658	747.0	209.4	601.9	1.0	10.7	0.03	-0.3
1708	749.0	208.8	605.4	1.0	10.5	0.03	-0.2
1720	751.0	209.5	609.1	1.0	9.8	0.02	-0.2
1729	753.0	210.3	612.6	1.0	10.0	0.00	-0.2
1738	755.0	212.1	615.2	1.0	9.9	0.03	-0.2
1748	757.0	215.9	616.0	1.0	9.5	0.00	-0.2
- DATA NOT AVAILABLE -							

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL	
20 FEB 80		80051 2		4	S F RAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t	
856	36.0	147.4	582.7	0.0	13.3	3.20	1.9	
900	36.0	147.4	582.7	2.0	13.2	5.40	3.6	
909	36.0	147.4	582.7	4.0	13.4	7.60	5.3	
931	34.0	149.8	580.6	1.0	13.1	8.60	6.1	
945	33.0	151.6	577.5	1.0	13.2	11.00	7.9	
955	32.0	152.5	576.5	0.0	13.3	11.80	8.5	
958	32.0	152.5	576.5	2.0	13.3	12.00	8.7	
1003	32.0	152.5	576.5	5.0	13.3	13.40	9.8	
1007	32.0	152.5	576.5	9.0	13.3	18.70	13.8	
- DATA NOT AVAILABLE								

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DATE		JULIAN DATE	CRUISE #	LOCATION	VESSEL		
20 FEB 80		80051 2	4	S F BAY	ESTERO		
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
847	118.0	156.0	574.0	1.0	12.8	16.55	12.2
908	120.0	157.2	573.0	1.0	12.9	15.34	11.3
913	122.0	158.2	571.9	1.0	12.9	14.83	10.9
921	124.0	159.9	571.9	1.0	12.8	14.53	10.7
929	126.0	161.7	571.9	1.0	12.9	12.61	9.2
945	128.0	161.2	570.5	1.0	12.9	16.55	12.2
951	130.0	160.6	569.0	1.0	13.0	18.37	13.6
957	132.0	160.0	567.4	1.0	13.2	17.46	12.9
1001	134.0	159.6	566.3	1.0	13.1	17.76	13.1
1006	136.0	160.3	564.5	1.0	13.0	18.77	13.9
1011	138.0	160.7	562.8	1.0	12.9	21.09	15.7
1018	140.0	161.0	561.0	1.0	13.1	20.69	15.4
1027	142.0	161.5	558.8	1.0	13.1	20.99	15.6
1051	144.0	162.0	560.3	1.0	12.9	20.69	15.4
1100	146.0	163.2	563.2	1.0	13.1	20.28	15.1
1107	28.0	161.1	563.9	1.0	12.9	20.18	15.0
1119	29.0	159.5	566.6	1.0	13.0	18.37	13.6
1135	30.0	156.5	571.3	1.0	12.9	16.45	12.2
- DATA NOT AVAILABLE							

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL			
27 FEB 80	80058 2	5	S F BAY	ESTERD			
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
902	30.0	156.5	571.4	1.0	13.6	12.51	9.0
915	30.0	156.5	571.4	1.0	13.5	12.01	8.7
946	29.0	159.4	566.7	1.0	13.4	10.90	7.8
955	28.0	161.5	564.4	1.0	13.4	10.90	7.8
1004	27.0	163.4	562.5	1.0	13.5	11.10	8.0
1025	26.0	165.4	560.5	1.0	13.3	10.39	7.4
1036	25.0	169.4	559.5	1.0	13.1	10.29	7.4
1043	24.0	172.5	558.3	1.0	13.0	9.59	6.9
1114	180.0	172.4	554.6	1.0	13.2	11.00	7.9
1130	176.0	172.2	558.2	1.0	13.2	10.70	7.7
1136	174.0	173.1	560.2	1.0	13.5	9.79	6.9
1142	172.0	173.8	561.8	1.0	13.4	11.71	8.4
1150	170.0	174.4	563.6	1.0	13.7	12.31	8.9
1158	168.0	175.5	565.3	1.0	13.9	12.41	8.9
1216	166.0	174.2	565.8	1.0	14.1	12.51	8.9
1223	164.0	172.6	566.7	1.0	14.3	12.82	9.1
1231	162.0	170.8	567.4	1.0	14.2	12.51	8.9
1237	160.0	169.3	568.5	1.0	14.4	13.12	9.4
1246	158.0	167.5	569.3	1.0	14.7	14.43	10.3
1255	156.0	165.7	570.0	1.0	14.7	14.93	10.7
1310	154.0	165.5	569.1	1.0	14.8	14.93	10.7
1316	152.0	164.7	567.4	1.0	14.5	14.03	10.0
1322	150.0	164.1	565.6	1.0	14.0	12.41	8.9
1329	148.0	163.2	564.0	1.0	13.6	11.60	8.3
1334	146.0	162.8	562.0	1.0	13.7	11.50	8.2
1340	144.0	162.0	564.0	1.0	13.6	10.60	7.5
1345	142.0	161.3	559.2	1.0	13.8	10.09	7.1
1354	140.0	161.0	560.9	1.0	14.1	10.29	7.2
1402	138.0	160.7	562.8	1.0	14.0	10.90	7.7
1409	136.0	160.3	564.6	1.0	14.1	12.92	9.2
1415	134.0	159.5	566.3	1.0	14.3	13.32	9.5
1420	132.0	159.9	567.4	1.0	14.1	12.92	9.2
1428	130.0	160.6	569.2	1.0	14.0	13.72	9.9
1433	128.0	161.2	570.6	1.0	14.0	13.12	9.4
1440	126.0	161.7	572.0	1.0	14.5	12.71	9.0
1448	124.0	159.9	571.9	1.0	14.7	12.61	8.9
1457	122.0	158.0	571.9	1.0	14.5	13.42	9.6
1501	120.0	157.0	573.0	1.0	14.6	13.32	9.5
1510	118.0	156.4	570.4	1.0	14.5	13.93	10.0

- DATA NOT AVAILABLE

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
4 MAR 80		80064	6	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
937	36.0	147.4	582.7	0.0	13.6	9.64	6.8
943	36.0	147.4	582.7	2.0	13.4	9.59	6.8
950	36.0	147.4	582.7	5.0	13.8	11.16	8.0
1003	35.0	148.5	581.5	1.0	13.9	11.35	8.1
1010	34.0	149.8	580.6	1.0	13.7	11.54	8.3
1024	33.0	151.6	577.5	1.0	14.2	12.49	8.9
1039	32.0	152.5	576.6	0.0	14.2	13.03	9.3
1044	32.0	152.5	576.5	2.0	14.2	13.04	9.3
1050	32.0	152.5	576.5	5.0	14.1	13.24	9.5
1053	32.0	152.5	576.5	8.0	14.1	13.28	9.5
1110	31.0	153.8	574.5	1.0	14.4	13.34	9.5
1135	30.0	156.5	571.4	0.0	14.2	13.64	9.8
1138	30.0	156.5	571.4	2.0	14.2	13.64	9.8
1144	30.0	156.5	571.4	5.0	14.2	13.65	9.8
1150	30.0	156.5	571.4	10.0	14.1	13.65	9.8
1220	29.0	159.5	566.7	1.0	14.0	13.27	9.5
1229	-	-	-	1.0	14.0	13.28	9.5
1237	28.0	161.5	564.4	1.0	13.9	13.33	9.6
1254	27.0	163.4	562.5	0.0	13.7	13.06	9.4
1259	27.0	163.4	562.5	2.0	13.6	13.06	9.4
1305	27.0	163.4	562.5	5.0	13.5	13.09	9.5
1309	27.0	163.4	562.5	9.0	13.5	13.13	9.5
1334	26.0	165.4	560.5	1.0	13.8	13.34	9.6
1357	25.0	169.4	559.5	1.0	13.9	13.65	9.8
1418	24.0	172.5	558.3	0.0	13.3	12.56	9.1
1429	24.0	172.5	558.3	2.0	13.2	13.79	10.1
1437	24.0	172.5	558.3	5.0	13.3	15.70	11.5
1440	24.0	172.5	558.3	8.0	13.3	16.22	11.9
1505	23.0	175.5	558.5	1.0	13.8	13.35	9.6
1517	22.0	179.4	556.5	1.0	14.0	11.02	7.8
1533	21.0	183.6	555.5	0.0	13.2	12.74	9.3
1537	21.0	183.6	555.5	2.0	13.1	13.52	9.9
1551	21.0	183.6	555.5	5.0	13.2	14.31	10.5
1554	21.0	183.6	555.5	10.0	13.3	20.55	15.2
1608	21.0	183.6	555.5	17.0	13.4	23.79	17.7
1632	20.0	185.4	552.4	1.0	13.4	13.23	9.6
1705	19.0	185.6	546.5	1.0	13.6	17.28	12.7

- DATA NOT AVAILABLE

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE 4 MAR 80		JULIAN DATE 80064	CRUISE # 6	LOCATION S F BAY		VESSEL ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
836	118.0	156.1	574.1	1.0	13.2	13.24	9.6
900	120.0	157.2	572.9	1.0	13.1	13.23	9.6
907	122.0	158.3	571.8	1.0	13.4	13.56	9.9
913	124.0	159.9	571.9	1.0	13.4	13.61	9.9
920	126.0	161.9	571.9	1.0	13.4	13.44	9.8
937	128.0	161.2	570.5	1.0	13.6	13.60	9.9
943	130.0	160.6	569.2	1.0	13.7	13.55	9.8
949	132.0	160.0	567.4	1.0	13.8	13.52	9.8
954	134.0	159.6	566.3	1.0	14.0	13.39	9.6
1001	136.0	160.3	564.5	1.0	13.7	12.82	9.2
1008	138.0	160.7	562.8	1.0	13.8	12.21	8.8
1015	140.0	161.1	561.0	1.0	13.4	12.12	8.8
1023	142.0	161.4	558.8	1.0	13.5	12.13	8.8
1039	144.0	162.1	560.3	1.0	13.5	12.45	9.0
1045	146.0	162.9	562.0	1.0	13.9	13.29	9.6
1051	148.0	163.4	563.9	1.0	13.7	13.13	9.5
1057	150.0	164.1	565.6	1.0	13.7	13.22	9.6
1105	152.0	164.8	567.7	1.0	14.1	14.00	10.1
1111	154.0	165.5	569.1	1.0	14.0	13.51	9.7
1116	156.0	166.0	570.2	1.0	13.8	13.29	9.6
1136	158.0	167.6	569.3	1.0	14.0	13.75	9.9
1143	160.0	169.3	568.5	1.0	14.1	13.87	10.0
1150	162.0	170.9	567.6	1.0	14.4	13.11	9.3
1208	164.0	172.8	566.8	1.0	14.4	13.08	9.3
1214	166.0	174.3	565.8	1.0	14.6	12.65	9.0
1217	168.0	175.1	565.3	1.0	14.4	12.78	9.1
1231	170.0	174.4	563.7	1.0	14.1	13.04	9.3
1236	172.0	173.9	561.8	1.0	14.0	13.09	9.4
1243	174.0	173.3	560.5	1.0	13.9	11.35	8.1
1251	176.0	172.3	558.2	1.0	13.9	10.54	7.5
1256	178.0	172.0	556.7	1.0	13.7	11.13	7.9
1303	180.0	171.0	554.4	1.0	14.0	13.37	9.6
1320	182.0	168.6	555.0	1.0	13.9	13.16	9.5
1325	184.0	166.8	555.8	1.0	14.1	13.44	9.7
1332	190.0	166.8	556.8	1.0	13.9	13.76	9.9
1338	192.0	167.3	558.7	1.0	14.1	13.37	9.6
1354	194.0	168.1	560.3	1.0	14.0	13.69	9.9
1400	196.0	168.7	562.0	1.0	13.7	13.59	9.8
1406	198.0	169.4	563.8	1.0	13.9	13.34	9.6
1412	200.0	170.1	565.4	1.0	13.9	13.15	9.5
1421	162.0	170.9	567.2	1.0	14.9	13.04	9.2
1428	164.0	172.4	566.3	1.0	14.9	12.53	8.8
1434	166.0	173.9	565.5	1.0	14.8	12.80	9.0
1436	168.0	174.7	565.1	1.0	14.6	12.80	9.1

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DATE		JULIAN DATE		CRUISE #		LOCATION		VESSEL	
5 MAR 80		80065		6		S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t		
720	19.0	185.6	546.5	1.0	13.3	16.13	11.8		
826	17.0	192.6	550.6	25.0	13.4	25.64	19.1		
839	17.0	192.6	550.6	20.0	13.3	24.77	18.5		
844	17.0	192.6	550.6	15.0	13.3	22.29	16.6		
850	17.0	192.6	550.6	10.0	13.2	18.01	13.3		
857	17.0	192.6	550.6	5.0	13.0	14.48	10.6		
903	17.0	192.6	550.6	2.0	13.0	11.97	8.7		
915	17.0	192.6	550.6	0.0	13.0	10.27	7.4		
950	16.0	196.3	548.3	1.0	12.6	3.01	1.8		
1015	15.0	202.4	549.5	0.0	12.6	1.90	1.0		
1019	15.0	202.4	549.5	2.0	12.7	1.80	0.9		
1031	15.0	202.4	549.5	5.0	12.6	4.55	3.0		
1040	15.0	202.4	549.5	10.0	13.2	15.88	11.7		
1054	15.0	202.4	549.5	18.0	13.3	22.79	17.0		
1101	15.0	202.4	549.5	14.0	13.2	17.48	12.9		
1130	14.0	206.7	552.5	1.0	12.8	3.46	2.2		
1155	13.0	209.3	555.7	0.0	13.1	4.10	2.6		
1200	13.0	209.3	555.7	2.0	13.1	3.97	2.5		
1211	13.0	209.3	555.7	5.0	12.9	8.14	5.8		
1216	13.0	209.3	555.7	8.0	13.0	9.38	6.7		
1251	12.0	211.6	560.4	1.0	12.7	0.52	-0.1		
1304	11.0	212.7	564.6	1.0	12.7	0.14	-0.4		
1316	10.0	212.5	569.5	1.0	12.6	0.07	-0.4		
1335	9.0	211.4	572.5	0.0	12.5	0.07	-0.4		
1342	9.0	211.4	572.5	2.0	12.5	0.07	-0.4		
1352	9.0	211.4	572.5	5.0	12.5	0.07	-0.4		
1356	9.0	211.4	572.5	10.0	12.5	0.07	-0.4		
1359	9.0	211.4	572.5	15.0	12.5	0.07	-0.4		
1403	9.0	211.4	572.5	25.0	12.5	0.07	-0.4		
1433	8.0	209.3	574.3	1.0	12.6	0.06	-0.4		
1447	7.0	211.3	579.3	1.0	12.5	0.06	-0.4		
1516	6.0	213.3	584.7	0.0	12.3	0.03	-0.4		
1524	6.0	213.3	584.7	2.0	12.3	0.03	-0.4		
1534	6.0	213.3	584.7	9.0	12.3	0.03	-0.4		
1616	5.0	212.8	589.5	1.0	12.4	0.05	-0.4		
1625	4.0	211.5	593.4	1.0	12.6	0.05	-0.4		
1647	3.0	211.8	598.4	0.0	12.6	0.03	-0.5		
1650	3.0	211.8	598.4	2.0	12.6	0.03	-0.5		
1703	3.0	211.8	598.4	8.0	12.4	0.03	-0.4		

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
5 MAR 80		80065		6	S F BAY		ESTERO
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
813	302.0	205.2	553.6	1.0	13.1	7.04	4.9
828	304.0	206.9	552.3	1.0	12.6	1.68	0.8
836	306.0	208.8	551.1	1.0	12.7	1.86	0.9
847	308.0	210.7	549.9	1.0	12.9	2.47	1.4
854	310.0	212.2	548.8	1.0	13.0	2.47	1.4
901	312.0	213.5	547.9	1.0	13.2	1.97	1.0
920	314.0	214.7	549.8	1.0	13.1	2.05	1.0
927	316.0	215.2	551.5	1.0	13.2	2.00	1.0
936	318.0	215.7	553.3	1.0	13.3	1.88	0.9
953	320.0	216.2	555.1	1.0	13.3	1.62	0.7
1002	322.0	216.7	556.9	1.0	13.1	1.31	0.5
1011	324.0	217.0	558.6	1.0	12.9	1.16	0.4
1030	326.0	215.3	559.2	1.0	13.6	1.75	0.7
1037	328.0	213.5	560.0	1.0	13.6	1.74	0.7
1044	330.0	211.8	560.7	1.0	12.7	0.76	0.1
1054	332.0	210.2	561.4	1.0	13.0	3.47	2.2
1100	334.0	208.5	562.1	1.0	13.1	3.66	2.3
1401	402.0	210.2	577.5	1.0	12.7	0.02	-0.5
1409	404.0	211.2	577.3	1.0	12.6	0.01	-0.5
1429	406.0	213.4	579.2	1.0	12.5	0.00	-0.5
1435	408.0	215.0	580.5	1.0	12.6	0.00	-0.5
1442	410.0	216.8	581.9	1.0	12.7	0.01	-0.5
1447	412.0	218.0	582.9	1.0	12.5	0.00	-0.5
1452	414.0	219.3	582.4	1.0	12.7	0.01	-0.5
1500	416.0	219.0	584.3	1.0	12.5	0.00	-0.5
1511	418.0	218.8	586.7	1.0	12.9	0.03	-0.5
- DATA NOT AVAILABLE							

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
18 MAR 80		80078 1	7	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
1121	36.0	147.4	582.7	0.0	13.4	10.43	7.5
1126	36.0	147.4	582.7	2.0	13.4	10.45	7.5
1133	36.0	147.4	582.7	7.0	13.4	10.47	7.5
1145	35.0	148.5	581.5	1.0	13.3	11.32	8.2
1152	34.0	149.8	580.6	1.0	13.5	11.54	8.3
1207	33.0	151.6	577.5	1.0	13.7	12.28	8.8
1223	32.0	152.5	576.5	0.0	13.8	12.43	8.9
1228	32.0	152.5	576.5	2.0	13.8	12.43	8.9
1233	32.0	152.5	576.5	5.0	13.8	12.47	9.0
1236	32.0	152.5	576.5	9.0	13.8	12.47	9.0
1253	31.0	153.8	574.5	1.0	13.8	12.98	9.3
1315	30.0	156.5	571.4	0.0	13.8	13.43	9.7
1320	30.0	156.5	571.4	2.0	13.8	13.44	9.7
1326	30.0	156.5	571.4	5.0	13.7	13.50	9.8
1330	30.0	156.5	571.4	12.0	13.7	13.50	9.8
1357	29.0	159.5	566.7	1.0	13.8	13.92	10.1
1412	28.0	161.5	564.4	1.0	14.0	14.65	10.6
1427	27.0	163.4	562.5	0.0	13.7	16.25	11.9
1434	27.0	163.4	562.5	2.0	13.6	16.25	11.9
1439	27.0	163.4	562.5	5.0	13.7	16.21	11.8
1443	27.0	163.4	562.5	10.0	13.6	16.33	11.9
1500	26.0	165.4	560.5	1.0	13.9	16.70	12.2
1510	25.0	169.4	559.5	1.0	13.7	18.11	13.3
1529	24.0	172.5	558.3	0.0	13.5	18.18	13.4
1532	24.0	172.5	558.3	2.0	13.5	18.14	13.4
1540	24.0	172.5	558.3	5.0	13.5	18.22	13.4
1544	24.0	172.5	558.3	10.0	13.5	18.35	13.5
1600	23.0	175.5	558.3	1.0	13.6	18.03	13.2
1613	22.0	179.4	558.5	1.0	13.6	18.21	13.4
1635	21.0	183.6	556.5	0.0	13.5	18.38	13.5
1639	21.0	183.6	555.5	2.0	13.5	18.36	13.5
1645	21.0	183.6	555.5	5.0	13.5	18.35	13.5
1652	21.0	183.6	555.5	10.0	13.4	19.55	14.5
1718	20.0	185.4	552.4	1.0	13.5	18.65	13.7
1744	19.0	185.6	546.5	2.0	13.3	22.62	16.8
1825	19.0	185.6	546.5	20.0	13.6	21.62	16.0
- DATA NOT AVAILABLE							

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
18 MAR 80		80078 1	7	S F RAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
1156	118.0	156.1	574.0	1.0	13.7	12.25	8.8
1204	-	156.8	572.5	1.0	13.7	12.68	9.1
1212	-	157.4	570.9	1.0	13.7	13.06	9.4
1220	-	158.0	569.5	1.0	13.8	13.38	9.7
1228	-	158.7	568.1	1.0	13.9	13.46	9.7
1238	134.0	159.4	566.2	1.0	13.7	13.83	10.0
1246	136.0	160.4	564.5	1.0	13.9	13.99	10.1
1253	138.0	160.7	562.7	1.0	13.8	14.97	10.9
1300	140.0	161.0	560.9	1.0	13.7	15.10	11.0
1308	142.0	161.5	558.7	1.0	13.7	15.30	11.1
1316	-	163.2	558.2	1.0	13.8	15.89	11.6
1323	-	164.7	557.1	1.0	13.9	16.63	12.1
1330	188.0	166.2	555.5	1.0	14.0	17.01	12.4
1337	186.0	168.0	555.7	1.0	13.7	17.17	12.6
1340	184.0	168.5	555.8	1.0	13.8	17.45	12.8
1346	182.0	170.1	555.9	1.0	13.9	17.39	12.7
1350	180.0	170.9	554.7	1.0	13.9	17.48	12.8
1354	-	171.7	554.7	1.0	14.1	17.73	12.9
1358	178.0	171.9	556.5	1.0	13.6	17.83	13.1
1406	176.0	172.5	558.4	1.0	13.6	17.42	12.8
1412	174.0	173.1	560.2	1.0	13.7	18.67	13.7
1419	172.0	173.8	561.9	1.0	13.9	18.09	13.3
1422	-	174.2	562.8	1.0	13.8	17.78	13.0
1444	-	175.9	559.0	1.0	13.6	19.19	14.1
1510	21.0	182.6	554.4	1.0	13.7	18.96	13.9

- DATA NOT AVAILABLE

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
19 MAR 80		80079 1	7	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
719	19.0	185.6	546.5	2.0	12.9	20.72	15.4
726	19.0	185.6	546.5	40.0	13.0	24.92	18.6
820	17.0	192.6	550.6	0.0	13.0	14.37	10.5
826	17.0	192.6	550.6	2.0	13.0	14.79	10.9
833	17.0	192.6	550.6	5.0	13.0	18.85	14.0
840	17.0	192.6	550.6	10.0	13.0	19.42	14.4
847	17.0	192.6	550.6	15.0	13.0	20.08	14.9
850	17.0	192.6	550.6	20.0	13.0	20.63	15.3
914	16.0	196.3	548.3	1.0	13.0	13.15	9.6
943	15.0	202.4	549.5	0.0	12.9	4.74	3.1
948	15.0	202.4	549.5	2.0	12.9	5.46	3.7
953	15.0	202.4	549.5	5.0	12.9	7.46	5.2
959	15.0	202.4	549.5	10.0	12.9	10.07	7.3
1025	14.0	206.7	552.5	1.0	12.9	6.41	4.4
1044	13.0	209.3	555.7	0.0	13.2	5.47	3.7
1048	13.0	209.3	555.7	2.0	13.1	6.16	4.2
1054	13.0	209.3	555.7	5.0	13.1	8.19	5.8
1209	12.0	211.6	560.4	5.0	-	3.73	-
1223	12.0	211.6	560.4	1.0	13.1	0.44	-0.2
1256	11.0	212.7	564.6	1.0	12.5	0.21	-0.3
1309	10.0	212.5	569.5	1.0	12.6	0.08	-0.4
1327	9.0	211.4	572.5	0.0	13.1	0.08	-0.5
1332	9.0	211.4	572.5	2.0	12.8	0.10	-0.4
1339	9.0	211.4	572.5	5.0	12.8	0.09	-0.4
1345	9.0	211.4	572.5	15.0	12.5	0.09	-0.4
1408	8.0	209.3	574.5	1.0	12.5	0.07	-0.4
1425	7.0	211.3	579.3	1.0	12.6	0.04	-0.5
1451	6.0	213.3	584.7	0.0	12.9	0.01	-0.5
1456	6.0	213.3	584.7	2.0	12.8	0.01	-0.5
1501	6.0	213.3	584.7	5.0	12.7	0.02	-0.5
1533	5.0	212.8	589.5	1.0	12.5	0.03	-0.4
1545	4.0	211.5	593.4	1.0	12.5	0.02	-0.5
1603	3.0	211.8	598.4	0.0	12.5	0.02	-0.5
1609	3.0	211.8	598.4	2.0	12.4	0.00	-0.5
1615	3.0	211.8	598.4	5.0	12.1	0.01	-0.4
1618	3.0	211.8	598.4	10.0	12.1	0.01	-0.4
1705	651.0	215.0	608.5	1.0	11.4	0.04	-0.3
1746	657.0	223.4	614.9	0.0	11.7	0.02	-0.4
1750	657.0	223.4	614.9	2.0	11.4	0.02	-0.3

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
19 MAR 80		80079 1		7	S F BAY		ESTERO
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
817	302.0	204.3	552.7	1.0	12.3	8.85	6.4
842	304.0	206.9	552.3	1.0	12.7	3.93	2.5
850	306.0	208.8	551.1	1.0	12.6	5.85	4.0
910	308.0	210.7	549.8	1.0	12.5	5.39	3.7
918	310.0	212.4	548.9	1.0	12.2	5.11	3.5
928	312.0	213.5	547.9	1.0	12.2	4.90	3.4
950	314.0	214.7	549.7	1.0	12.4	4.90	3.3
955	-	213.7	550.3	1.0	12.1	4.68	3.2
1003	316.0	214.3	552.1	1.0	12.6	4.92	3.3
1012	318.0	214.9	553.9	1.0	12.6	4.76	3.2
1030	320.0	215.5	555.4	1.0	12.8	4.79	3.2
1040	322.0	216.3	556.9	1.0	12.8	4.69	3.1
1050	324.0	216.7	558.6	1.0	12.7	4.40	2.9
1112	326.0	215.3	559.3	1.0	13.1	4.51	2.9
1119	328.0	213.5	560.0	1.0	13.4	2.15	1.1
1128	330.0	211.8	560.7	1.0	13.3	0.40	-0.3
1134	332.0	210.0	561.2	1.0	14.3	4.22	2.5
1140	334.0	208.5	562.0	1.0	13.6	3.99	2.5
1432	-	183.1	554.7	1.0	14.1	18.84	13.8
1524	168.0	174.9	565.7	1.0	14.4	14.82	10.7
1526	166.0	174.2	564.2	1.0	14.5	14.66	10.5
1532	164.0	172.9	556.8	1.0	14.6	15.43	11.1
1541	162.0	170.8	567.7	1.0	14.5	14.21	10.2
1547	160.0	169.5	568.7	1.0	14.7	13.52	9.6
1636	160.0	169.2	568.6	1.0	14.7	13.08	9.3
1645	158.0	167.5	569.4	1.0	15.9	13.08	9.1
1654	154.0	165.6	568.6	1.0	14.5	13.31	9.5
1700	152.0	163.9	568.0	1.0	14.4	13.36	9.5
1715	-	160.1	566.5	1.0	14.3	13.44	9.6
- DATA NOT AVAILABLE							

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE 8 APR 80		JULIAN DATE 80099	CRUISE # 8	LOCATION S F BAY		VESSEL POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
933	36.0	147.4	582.7	0.0	14.6	11.31	7.9
938	36.0	147.4	582.7	2.0	14.1	12.40	8.9
945	36.0	147.4	582.7	5.0	13.9	15.42	11.2
1000	35.0	148.5	581.5	1.0	14.3	13.41	9.6
1006	34.0	149.8	580.6	1.0	14.2	13.60	9.8
1018	33.0	151.6	577.5	1.0	14.1	14.35	10.3
1031	32.0	152.5	576.5	0.0	14.3	14.54	10.5
1035	32.0	152.5	576.5	2.0	14.1	14.91	10.8
1042	32.0	152.5	576.5	5.0	13.9	15.80	11.5
1046	32.0	152.5	576.5	8.0	13.9	17.18	12.5
1102	31.0	153.8	574.5	1.0	13.9	14.99	10.9
1117	30.0	156.5	571.4	0.0	13.9	15.63	11.4
1121	30.0	156.5	571.4	2.0	14.0	16.00	11.6
1127	30.0	156.5	571.4	5.0	14.0	17.54	12.8
1131	30.0	156.5	571.4	10.0	13.6	19.75	14.6
1206	29.0	159.5	566.7	1.0	14.1	16.93	12.3
1216	28.0	161.5	564.4	1.0	13.9	17.87	13.1
1232	27.0	163.4	562.5	0.0	14.0	18.30	13.4
1236	27.0	163.4	562.5	2.0	13.9	18.62	13.7
1245	27.0	163.4	562.5	5.0	13.4	21.10	15.6
1249	27.0	163.4	562.5	9.0	13.2	22.12	16.5
1305	26.0	165.4	560.5	1.0	14.0	19.30	14.2
1316	25.0	169.4	559.5	1.0	14.1	20.40	15.0
1336	24.0	172.5	558.3	0.0	13.7	21.32	15.8
1341	24.0	172.5	558.3	2.0	13.1	22.55	16.8
1346	24.0	172.5	558.3	7.0	12.3	24.15	18.2
1445	23.0	175.5	558.5	1.0	13.1	22.48	16.8
1502	22.0	179.4	556.5	1.0	13.1	17.60	13.0
1521	21.0	183.6	555.5	0.0	14.0	19.95	14.7
1525	21.0	183.6	555.5	2.0	13.7	19.00	14.0
1532	21.0	183.6	555.5	5.0	12.8	20.95	15.6
1538	21.0	183.6	555.5	9.0	12.6	22.75	17.0
1543	21.0	183.6	555.5	16.0	11.8	26.64	20.2
1613	20.0	185.4	552.4	1.0	13.0	22.00	16.4
1650	19.0	185.6	546.5	39.0	10.7	31.70	24.3
1657	19.0	185.6	546.5	20.0	11.0	30.60	23.4
1701	19.0	185.6	546.5	10.0	11.1	29.11	22.2
1705	19.0	185.6	546.5	2.0	11.3	28.20	21.5

- DATA NOT AVAILABLE

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE 8 APR 80		JULIAN DATE 80099	CRUISE # 8	LOCATION S F BAY		VESSEL ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
907	118.0	156.0	573.8	1.0	13.8	16.31	11.9
919	120.0	156.9	572.9	1.0	13.8	16.80	12.3
925	122.0	158.3	571.6	1.0	13.6	17.17	12.6
932	124.0	159.8	571.5	1.0	13.9	17.24	12.6
939	126.0	161.8	572.0	1.0	14.2	16.72	12.1
957	128.0	161.1	570.6	1.0	14.3	17.61	12.8
1005	130.0	160.8	569.0	1.0	13.9	18.37	13.5
1010	132.0	159.9	567.3	1.0	14.0	17.54	12.8
1014	134.0	159.5	566.3	1.0	14.0	17.62	12.9
1020	136.0	160.4	564.6	1.0	13.8	18.97	13.9
1028	138.0	160.7	562.8	1.0	14.4	19.96	14.6
1035	140.0	161.0	560.9	1.0	14.6	20.55	15.0
1044	142.0	161.5	558.9	1.0	14.3	21.00	15.4
1102	144.0	162.1	560.5	1.0	14.4	20.24	14.8
1108	146.0	162.9	562.1	1.0	14.2	18.70	13.7
1115	148.0	163.3	563.9	1.0	14.0	19.27	14.1
1124	150.0	164.2	565.6	1.0	14.7	17.88	12.9
1129	152.0	164.7	567.4	1.0	14.9	17.09	12.3
1136	154.0	165.4	569.1	1.0	15.4	15.57	11.1
1141	156.0	165.8	570.2	1.0	15.6	14.86	10.5
1203	158.0	167.7	569.3	1.0	15.6	14.40	10.2
1212	160.0	169.3	568.5	1.0	15.6	14.14	9.9
1221	162.0	170.8	567.5	1.0	16.1	14.52	10.1
1245	164.0	172.5	566.5	1.0	15.3	15.08	10.7
1254	166.0	174.0	565.7	1.0	16.0	15.71	11.0
1300	168.0	175.2	565.4	1.0	15.4	16.41	11.7
1317	170.0	174.4	563.6	1.0	14.6	18.66	13.6
1324	172.0	173.8	561.9	1.0	14.5	20.05	14.6
1332	174.0	173.1	560.1	1.0	14.8	20.49	14.9
1338	176.0	172.5	558.5	1.0	14.0	20.62	15.2
1344	178.0	171.8	556.6	1.0	13.5	21.00	15.6
1351	180.0	170.8	554.7	1.0	14.4	21.20	15.5
1445	180.0	170.8	554.7	1.0	14.6	21.27	15.5
1450	182.0	169.8	555.5	1.0	14.7	20.75	15.1
1456	184.0	168.6	555.8	1.0	14.6	21.05	15.4
1500	186.0	167.4	555.6	1.0	14.4	20.23	14.8
1506	188.0	165.8	555.0	1.0	14.6	20.32	14.8
1526	190.0	166.5	557.6	1.0	14.3	20.56	15.1
1531	192.0	166.8	558.8	1.0	15.1	19.85	14.4
1537	194.0	168.0	560.3	1.0	16.0	18.53	13.2
1544	196.0	168.7	562.1	1.0	15.3	19.61	14.2
1549	198.0	169.2	563.8	1.0	15.5	20.35	14.7
1556	200.0	170.2	565.5	1.0	14.4	19.95	14.6
1604	162.0	170.6	567.5	1.0	15.1	17.53	12.6
1613	164.0	172.8	566.8	1.0	15.1	17.96	12.9
1620	166.0	174.0	565.9	1.0	15.6	17.94	12.8
1624	168.0	175.3	565.4	1.0	15.5	17.80	12.7

- DATA NOT AVAILABLE

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
9 APR 80		80100		8	S F BAY		POLARIS
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
715	19.0	185.6	546.5	1.0	11.1	30.00	22.9
756	17.0	192.6	550.6	0.0	11.9	25.70	19.4
800	17.0	192.6	550.6	2.0	11.9	25.47	19.3
807	17.0	192.6	550.6	5.0	11.5	28.50	21.7
812	17.0	192.6	550.6	10.0	10.8	30.77	23.5
817	17.0	192.6	550.6	15.0	10.8	31.18	23.9
820	17.0	192.6	550.6	26.0	10.7	31.34	24.0
833	16.0	196.3	548.3	1.0	12.6	20.10	15.0
921	15.0	202.4	549.5	0.0	13.3	16.30	12.0
926	15.0	202.4	549.5	2.0	13.0	16.90	12.5
931	15.0	202.4	549.5	5.0	12.6	18.50	13.8
934	15.0	202.4	549.5	10.0	11.8	25.35	19.2
939	15.0	202.4	549.5	15.0	11.6	26.90	20.4
1014	14.0	206.7	552.5	1.0	13.4	15.50	11.3
1033	13.0	209.3	555.7	0.0	13.6	12.60	9.1
1038	13.0	209.3	555.7	2.0	13.5	13.60	9.9
1045	13.0	209.3	555.7	5.0	13.4	15.42	11.3
1049	13.0	209.3	555.7	8.0	11.7	25.71	19.5
1120	12.0	211.6	560.4	1.0	13.6	11.25	8.1
1140	11.0	212.7	564.6	1.0	13.5	12.34	8.9
1159	10.0	212.5	569.5	1.0	13.8	8.80	6.1
1221	9.0	211.4	572.5	0.0	14.3	6.20	4.1
1227	9.0	211.4	572.5	2.0	14.5	6.00	3.9
1234	9.0	211.4	572.5	5.0	13.8	7.20	4.9
1242	9.0	211.4	572.5	10.0	13.6	10.30	7.3
1253	9.0	211.4	572.7	15.0	13.4	10.50	7.5
1317	8.0	209.3	574.3	1.0	14.4	3.30	1.8
1340	7.0	211.3	579.3	1.0	14.4	2.50	1.2
1417	6.0	213.3	584.7	0.0	14.2	0.20	-0.5
1422	6.0	213.3	584.7	2.0	14.2	0.16	-0.6
1429	6.0	213.3	584.7	5.0	14.3	0.11	-0.6
1455	5.0	212.8	589.5	1.0	14.4	0.09	-0.7
1512	4.0	211.5	593.4	1.0	14.1	0.09	-0.6
1536	3.0	211.8	598.4	0.0	14.3	0.10	-0.6
1540	3.0	211.8	598.4	2.0	14.5	0.10	-0.7
1545	3.0	211.8	598.4	5.0	14.4	0.10	-0.6
1548	3.0	211.8	598.4	9.0	14.4	0.10	-0.6
1711	652.0	216.4	610.6	1.0	13.3	0.10	-0.5
1723	653.0	217.1	612.1	1.0	13.2	0.10	-0.5
1733	655.0	219.7	613.9	1.0	13.2	0.09	-0.5
1754	657.0	223.4	614.9	0.0	13.5	0.10	-0.5
1757	657.0	223.4	614.9	2.0	13.4	0.10	-0.5
1801	657.0	223.4	614.9	5.0	13.4	0.10	-0.5
- DATA NOT AVAILABLE							

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
9 APR 80		80100	B	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
748	302.0	205.0	553.4	1.0	13.4	17.86	13.2
805	304.0	206.9	552.4	1.0	12.7	18.86	14.0
813	306.0	209.1	551.3	1.0	12.9	18.68	13.9
831	308.0	210.7	549.8	1.0	13.5	11.97	8.6
838	310.0	212.2	548.8	1.0	13.6	10.59	7.5
845	312.0	213.5	547.9	1.0	13.7	11.42	8.2
903	314.0	214.7	549.7	1.0	13.8	11.34	8.1
911	316.0	215.3	551.5	1.0	13.7	11.56	8.3
919	318.0	215.7	553.3	1.0	14.4	11.32	8.0
936	320.0	216.3	555.3	1.0	14.2	10.61	7.5
943	322.0	216.7	557.0	1.0	14.4	10.91	7.7
950	324.0	216.9	558.5	1.0	14.9	11.63	8.1
1008	326.0	215.3	559.3	1.0	14.9	11.21	7.8
1017	328.0	213.2	560.1	1.0	14.1	10.58	7.5
1023	330.0	211.1	560.6	1.0	14.3	10.28	7.2
1029	332.0	210.1	561.3	1.0	14.3	10.53	7.4
1035	334.0	208.5	561.9	1.0	14.0	11.66	8.3
1258	402.0	210.2	577.6	1.0	15.0	2.47	1.1
1303	404.0	211.2	577.4	1.0	14.8	2.30	1.0
1324	406.0	213.3	579.2	1.0	14.7	1.27	0.2
1333	408.0	215.0	580.5	1.0	15.1	0.82	-0.2
1343	410.0	216.8	581.9	1.0	14.9	0.07	-0.8
1350	412.0	218.0	582.9	1.0	15.2	0.28	-0.6
1356	414.0	219.3	582.3	1.0	16.2	0.32	-0.8
1419	416.0	218.8	584.2	1.0	15.0	0.05	-0.8
1432	418.0	218.3	586.4	1.0	15.6	0.07	-0.8
1449	-	217.5	585.1	1.0	15.4	0.16	-0.7
1454	-	216.5	583.8	1.0	15.2	0.70	-0.3
1508	-	214.4	585.6	1.0	14.5	0.03	-0.7
1626	745.0	210.2	598.4	1.0	15.0	0.03	-0.8
1642	747.0	209.3	601.8	1.0	14.7	0.03	-0.7
1656	749.0	208.9	605.5	1.0	13.9	0.02	-0.6
1711	751.0	209.5	609.1	1.0	13.8	0.02	-0.6
1726	753.0	210.3	612.6	1.0	14.0	0.02	-0.6
1740	755.0	212.1	615.2	1.0	14.4	0.03	-0.7
1756	757.0	215.9	616.0	1.0	13.6	0.01	-0.6
- DATA NOT AVAILABLE							

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
22 APR 80		80113 2	9	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
1002	36.0	147.4	582.7	0.0	15.5	16.19	11.5
1007	36.0	147.4	582.7	2.0	15.6	16.53	11.7
1013	36.0	147.4	582.7	5.0	15.8	17.82	12.7
1030	35.0	148.5	581.5	1.0	15.7	17.35	12.3
1033	34.0	149.8	580.6	1.0	15.5	17.51	12.5
1045	33.0	151.6	577.5	1.0	15.7	18.16	13.0
1057	32.0	152.5	576.5	0.0	15.7	18.14	13.0
1101	32.0	152.5	576.5	2.0	15.8	18.35	13.1
1108	32.0	152.5	576.5	5.0	15.8	18.78	13.4
1148	30.0	156.5	571.4	0.0	15.8	19.24	13.8
1152	30.0	156.5	571.4	2.0	15.8	19.28	13.8
1159	30.0	156.5	571.4	5.0	15.9	19.67	14.1
1203	30.0	156.5	571.4	10.0	16.0	20.10	14.4
1225	29.0	159.5	566.7	1.0	16.0	20.10	14.4
1237	28.0	161.5	564.4	1.0	15.9	20.46	14.7
1253	27.0	163.4	562.5	0.0	15.8	20.90	15.0
1257	27.0	163.4	562.5	2.0	15.8	20.85	15.0
1304	27.0	163.4	562.5	5.0	15.8	20.98	15.1
1307	27.0	163.4	562.5	9.0	15.9	21.65	15.6
1329	26.0	165.4	560.5	1.0	15.9	21.41	15.4
1340	25.0	169.4	559.5	1.0	15.8	22.17	16.0
1358	24.0	172.5	558.3	0.0	15.0	24.00	17.6
1404	24.0	172.5	558.3	2.0	14.9	24.03	17.6
1410	24.0	172.5	558.3	5.0	15.0	24.07	17.6
1432	23.0	179.4	558.5	1.0	14.7	24.45	18.0
1452	22.0	179.4	556.5	1.0	14.0	22.00	16.2
1506	21.0	183.6	555.5	0.0	13.9	23.20	17.2
1512	21.0	183.6	555.5	2.0	14.0	24.70	18.3
1518	21.0	183.6	555.5	5.0	14.0	25.54	18.9
1522	21.0	183.6	555.5	10.0	13.5	26.10	19.5
1552	20.0	185.4	552.4	1.0	13.7	24.40	18.1
1627	19.0	185.6	546.5	2.0	11.8	29.90	22.7
1633	19.0	185.6	546.5	35.0	11.4	31.00	23.6
1640	19.0	185.6	546.5	20.0	11.4	32.00	24.4
1645	19.0	185.6	546.5	10.0	11.7	30.22	23.0

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
22 APR 80		80113 2		9	S F BAY		ESTERO
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
1130	118.0	155.1	574.0	1.0	18.0	19.97	13.9
1144	120.0	157.1	573.0	1.0	15.7	19.49	14.0
1150	122.0	158.0	571.7	1.0	15.9	19.47	13.9
1159	124.0	159.9	571.9	1.0	15.8	19.96	14.3
1210	126.0	161.3	571.6	1.0	15.8	19.78	14.2
1224	128.0	161.1	570.6	1.0	15.8	19.95	14.3
1230	130.0	160.6	569.2	1.0	15.7	20.60	14.8
1238	132.0	159.9	567.4	1.0	16.0	20.08	14.4
1243	134.0	159.5	566.3	1.0	16.0	20.00	14.3
1250	136.0	160.4	564.6	1.0	15.8	21.35	15.4
1302	138.0	161.0	562.9	1.0	15.5	22.21	16.1
1309	140.0	161.0	561.0	1.0	15.2	23.73	17.3
1322	142.0	161.4	558.8	1.0	14.9	24.02	17.6
1339	144.0	162.1	560.5	1.0	15.1	22.98	16.8
1345	146.0	162.8	562.2	1.0	16.0	21.26	15.3
1352	148.0	163.4	563.9	1.0	15.8	21.70	15.6
1403	150.0	164.1	565.5	1.0	15.8	20.79	15.0
1410	152.0	164.8	567.4	1.0	15.9	20.05	14.4
1417	154.0	165.4	569.1	1.0	16.0	19.09	13.6
1423	156.0	165.9	570.3	1.0	16.1	18.03	12.8
1442	158.0	167.7	569.6	1.0	16.0	18.19	12.9
1453	160.0	169.2	568.5	1.0	16.1	18.68	13.3
1502	162.0	170.9	567.6	1.0	16.2	19.06	13.6
1520	164.0	172.5	566.8	1.0	15.7	19.26	13.8
1528	166.0	174.2	565.8	1.0	15.5	21.78	15.8
1534	168.0	175.2	565.2	1.0	15.6	21.40	15.4
1549	170.0	174.4	563.6	1.0	15.5	23.19	16.8
1555	172.0	173.8	561.9	1.0	15.2	23.70	17.3
1603	174.0	173.2	560.1	1.0	15.2	23.89	17.4
1610	176.0	172.5	558.3	1.0	15.1	24.08	17.6
1617	178.0	171.9	556.6	1.0	14.9	24.41	17.9
1625	180.0	171.2	554.3	1.0	14.7	24.78	18.2
1640	178.0	171.7	556.7	1.0	15.0	24.22	17.7
1646	176.0	172.3	558.3	1.0	14.9	24.12	17.7
1701	23.0	175.5	558.5	1.0	15.3	22.36	16.2
1723	22.0	179.4	556.5	1.0	14.4	21.36	15.7
1747	21.0	183.6	555.5	1.0	14.0	24.64	18.2

- DATA NOT AVAILABLE

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL			
23 APR 80	80114 2	9	S F BAY	POLARIS			
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
714	19.0	185.6	546.5	2.0	11.3	31.40	23.9
721	19.0	185.6	546.5	40.0	10.4	32.50	25.0
727	19.0	185.6	546.5	20.0	10.5	32.20	24.7
806	17.0	192.6	550.6	0.0	12.7	26.75	20.1
812	17.0	192.6	550.6	2.0	13.2	24.80	18.5
821	17.0	192.6	550.6	5.0	11.9	29.35	22.3
825	17.0	192.6	550.6	10.0	11.2	31.07	23.7
830	17.0	192.6	550.6	20.0	11.1	31.36	24.0
834	17.0	192.6	550.6	30.0	11.0	31.52	24.1
913	16.0	196.3	548.3	1.0	13.2	24.53	18.3
944	15.0	202.4	549.5	0.0	14.2	16.20	11.7
950	15.0	202.4	549.5	2.0	14.2	16.60	12.1
954	15.0	202.4	549.5	5.0	14.2	17.30	12.6
958	15.0	202.4	549.5	10.0	13.2	24.60	18.4
1002	15.0	202.4	549.5	15.0	13.0	26.03	19.5
1029	14.0	206.7	552.5	1.0	14.3	17.10	12.4
1050	13.0	209.3	555.7	0.0	14.8	15.00	10.7
1056	13.0	209.3	555.7	2.0	14.5	17.30	12.5
1110	13.0	209.3	555.7	5.0	13.4	24.30	18.1
1104	13.0	211.6	555.7	8.0	13.1	25.67	19.2
1135	12.0	212.7	560.4	1.0	15.1	11.80	8.2
1205	11.0	212.5	564.6	1.0	14.9	13.20	9.3
1233	10.0	211.4	569.5	1.0	15.4	6.20	3.9
1256	9.0	211.4	572.5	0.0	15.5	5.30	3.2
1300	9.0	211.4	572.5	2.0	15.5	6.50	4.1
1306	9.0	211.4	572.5	5.0	15.4	7.60	5.0
1314	9.0	211.4	572.5	10.0	15.3	8.40	5.6
1320	9.0	211.4	572.5	14.0	14.8	15.20	10.9
1343	8.0	209.3	574.3	1.0	15.8	2.60	1.1
1410	7.0	211.3	579.3	1.0	16.1	1.95	0.5
1448	6.0	213.3	584.7	0.0	16.2	0.29	-0.8
1454	6.0	213.3	584.7	2.0	16.2	0.21	-0.8
1459	6.0	213.3	584.7	5.0	16.3	0.19	-0.9
1526	5.0	212.8	589.5	1.0	16.5	0.08	-1.0
1544	4.0	211.5	593.4	1.0	16.1	0.07	-0.9
1610	3.0	211.8	598.4	0.0	16.4	0.09	-1.0
1613	3.0	211.8	598.4	2.0	16.3	0.09	-1.0
1618	3.0	211.8	598.4	5.0	16.2	0.09	-0.9
1717	651.0	215.0	608.5	1.0	15.1	0.07	-0.8
1726	653.0	217.1	612.1	1.0	14.9	0.07	-0.7
1737	655.0	219.7	613.9	1.0	14.5	0.07	-0.7
1756	657.0	223.4	614.9	0.0	14.2	0.07	-0.6
1801	657.0	223.4	614.9	2.0	14.2	0.07	-0.6

--- DATA NOT AVAILABLE ---

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL
23 APR 80	80114 2	9	S F BAY	ESTERO

TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
758	302.0	205.2	553.5	1.0	14.4	15.30	11.0
810	304.0	206.9	552.3	1.0	14.2	14.47	10.4
818	306.0	208.8	551.1	1.0	14.4	14.09	10.1
837	308.0	210.7	549.9	1.0	14.7	12.17	8.6
844	310.0	212.2	548.7	1.0	14.9	11.93	8.4
851	312.0	213.5	547.9	1.0	14.8	11.26	7.9
907	314.0	214.7	550.7	1.0	14.9	11.07	7.7
915	316.0	215.2	551.5	1.0	14.9	11.50	8.0
922	318.0	215.6	553.3	1.0	14.9	11.51	8.0
939	320.0	216.2	555.1	1.0	14.9	11.25	7.8
946	322.0	216.6	556.9	1.0	14.7	11.35	7.9
954	324.0	217.0	558.6	1.0	14.6	13.13	9.3
1016	326.0	215.3	559.4	1.0	14.9	12.75	9.0
1024	328.0	213.6	560.1	1.0	14.9	13.02	9.2
1031	330.0	211.8	560.7	1.0	15.3	8.31	5.5
1038	332.0	210.1	561.4	1.0	16.1	11.15	7.5
1045	334.0	208.4	562.0	1.0	15.0	14.11	10.0

- DATA NOT AVAILABLE

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL			
7 MAY 80	80128	10	S F BAY	POLARIS			
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
940	36.0	147.4	582.7	0.0	17.4	17.70	12.3
947	36.0	147.4	582.7	2.0	17.5	17.64	12.2
955	36.0	147.4	582.7	5.0	17.2	18.64	13.0
1009	35.0	148.5	581.6	1.0	17.6	18.00	12.5
1013	34.0	149.8	580.6	1.0	17.4	18.74	13.1
1028	33.0	151.6	577.6	1.0	17.4	19.40	13.6
1039	32.0	152.5	576.5	0.0	17.4	19.50	13.6
1044	32.0	152.5	576.5	2.0	17.4	19.50	13.6
1050	32.0	152.5	576.5	5.0	17.3	19.77	13.9
1056	32.0	152.5	576.5	9.0	17.3	19.77	13.9
1112	31.0	153.8	574.5	1.0	17.5	19.90	13.9
1148	30.0	156.5	571.4	0.0	17.7	20.50	14.3
1154	30.0	156.5	571.4	2.0	17.6	20.50	14.4
1200	30.0	156.5	571.4	5.0	17.3	20.80	14.6
1204	30.0	156.5	571.4	9.0	17.4	20.89	14.7
1232	29.0	159.5	566.7	1.0	17.7	21.19	14.9
1243	28.0	161.5	564.4	1.0	17.5	21.42	15.1
1257	27.0	163.4	562.5	0.0	17.4	21.67	15.3
1313	27.0	163.4	562.5	2.0	17.2	21.94	15.5
1309	27.0	163.4	562.5	5.0	16.8	22.89	16.3
1315	27.0	163.4	562.5	9.0	16.7	23.48	16.8
1332	26.0	165.4	560.5	1.0	17.4	22.23	15.7
1346	25.0	169.4	559.5	1.0	17.0	23.72	16.9
1403	24.0	172.5	558.3	0.0	16.1	24.79	17.9
1408	24.0	172.5	558.3	2.0	16.1	24.83	18.0
1415	24.0	172.5	558.3	6.0	15.7	24.97	18.2
1450	23.0	175.5	558.3	1.0	16.3	24.96	18.0
1505	22.0	179.4	556.5	1.0	16.1	25.14	18.2
1523	21.0	183.6	555.5	0.0	15.3	24.63	18.0
1529	21.0	183.6	555.5	2.0	15.2	24.61	18.0
1537	21.0	183.6	555.5	5.0	14.9	26.12	19.2
1543	21.0	183.6	555.5	10.0	14.5	26.75	19.8
1616	20.0	185.4	552.4	1.0	14.5	26.42	19.5
1654	19.0	185.6	546.5	40.0	12.1	31.05	23.5
1706	19.0	185.6	546.5	10.0	12.2	30.55	23.1
1713	19.0	185.6	546.5	2.0	12.8	29.96	22.6

--- DATA NOT AVAILABLE ---

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE		CRUISE #		LOCATION		VESSEL	
7 MAY 80		80128		10		S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t		
917	118.0	155.1	574.0	1.0	17.2	21.32	15.1		
930	120.0	157.0	573.0	1.0	17.1	21.45	15.2		
933	122.0	158.1	571.9	1.0	17.0	21.58	15.3		
940	124.0	159.9	571.9	1.0	16.9	21.56	15.3		
948	126.0	161.8	572.0	1.0	17.1	21.45	15.2		
1006	128.0	161.2	570.6	1.0	17.0	22.18	15.8		
1012	130.0	160.5	562.1	1.0	17.2	22.12	15.7		
1018	132.0	160.0	567.4	1.0	17.4	21.48	15.1		
1023	134.0	159.5	566.3	1.0	17.3	22.13	15.7		
1028	136.0	160.4	564.6	1.0	17.2	22.49	16.0		
1035	138.0	160.8	562.9	1.0	17.2	22.95	16.3		
1043	140.0	161.0	561.0	1.0	16.3	25.72	18.6		
1053	142.0	161.7	558.7	1.0	16.2	25.58	18.5		
1109	144.0	162.0	560.4	1.0	16.7	24.31	17.5		
1115	146.0	162.8	562.1	1.0	17.4	22.11	15.6		
1122	148.0	163.8	563.9	1.0	17.2	22.88	16.3		
1131	150.0	164.1	565.6	1.0	17.2	22.74	16.1		
1137	152.0	164.8	567.4	1.0	17.1	23.21	16.5		
1143	154.0	165.4	569.1	1.0	17.2	23.44	16.7		
1150	156.0	165.8	570.2	1.0	17.8	23.24	16.4		
1209	158.0	167.5	569.4	1.0	18.1	22.44	15.7		
1219	160.0	169.2	568.5	1.0	18.6	21.40	14.8		
1228	162.0	170.8	567.6	1.0	20.0	18.69	12.4		
1252	164.0	172.5	566.7	1.0	19.4	19.10	12.9		
1301	166.0	174.1	565.7	1.0	19.5	18.97	12.8		
1307	168.0	175.0	565.1	1.0	19.1	19.27	13.1		
1325	170.0	174.4	563.6	1.0	18.7	21.88	15.2		
1332	172.0	173.8	561.9	1.0	17.2	23.76	16.9		
1338	174.0	173.1	560.1	1.0	17.0	24.35	17.4		
1346	176.0	172.4	558.4	1.0	16.4	24.99	18.0		
1353	178.0	171.8	556.7	1.0	15.7	25.72	18.7		
1401	180.0	171.1	554.8	1.0	17.4	25.85	18.5		
1454	182.0	169.9	555.1	1.0	17.2	25.83	18.5		
1505	186.0	167.4	555.6	1.0	16.1	25.73	18.6		
1510	188.0	165.8	555.6	1.0	16.5	25.76	18.6		
1527	190.0	165.9	557.2	1.0	16.0	25.71	18.7		
1535	192.0	167.2	559.1	1.0	16.4	24.84	17.9		
1539	194.0	167.8	560.4	1.0	17.0	24.12	17.2		
1546	196.0	168.7	562.0	1.0	17.2	23.86	17.0		
1554	198.0	169.5	563.9	1.0	17.2	23.60	16.8		
1600	200.0	170.0	565.5	1.0	17.6	23.55	16.7		
1608	162.0	170.8	567.3	1.0	19.0	21.27	14.6		
1625	166.0	174.1	565.7	1.0	18.6	22.28	15.5		
1629	168.0	175.0	565.1	1.0	19.6	21.37	14.6		
1730	21.0	183.1	554.7	1.0	14.6	27.56	20.4		

- DATA NOT AVAILABLE

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DATE 8 MAY 80		JULIAN DATE 80129	CRUISE # 10	LOCATION S F BAY		VESSEL POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
709	19.0	185.6	546.5	1.0	12.1	30.80	23.3
746	17.0	192.6	550.6	0.0	13.0	28.74	21.6
752	17.0	192.6	550.6	2.0	12.7	29.44	22.2
758	17.0	192.6	550.6	5.0	12.5	29.81	22.5
805	17.0	192.6	550.6	10.0	11.7	31.29	23.8
810	17.0	192.6	550.6	20.0	11.7	31.41	23.9
818	17.0	192.6	550.6	30.0	11.5	31.71	24.2
853	16.0	196.3	548.3	1.0	14.8	23.88	17.5
927	15.0	202.4	549.5	0.0	15.7	20.40	14.7
933	15.0	202.4	549.5	2.0	14.9	20.25	14.7
940	15.0	202.4	549.5	5.0	14.5	24.36	17.9
947	15.0	202.4	549.5	10.0	13.7	27.10	20.2
954	15.0	202.4	549.5	20.0	13.6	27.71	20.7
1023	14.0	206.7	552.5	1.0	15.4	21.15	15.3
1046	13.0	209.3	555.7	0.0	16.2	15.50	10.8
1053	13.0	209.3	555.7	2.0	16.1	15.82	11.1
1100	13.0	209.3	555.7	6.0	14.6	24.18	17.8
1107	13.0	209.3	555.7	3.0	15.7	17.65	12.6
1133	12.0	211.6	560.4	1.0	16.9	13.77	9.4
1149	11.0	212.7	564.6	1.0	16.7	12.34	8.3
1213	10.0	212.5	569.5	1.0	16.5	12.00	8.1
1234	9.0	211.4	572.5	0.0	16.8	7.80	4.9
1241	9.0	211.4	572.5	2.0	16.8	8.25	5.2
1247	9.0	211.4	572.5	5.0	16.8	8.66	5.5
1257	9.0	211.4	572.5	10.0	16.7	9.25	6.0
1325	8.0	209.3	574.5	1.0	17.0	4.50	2.3
1348	7.0	211.3	579.3	1.0	17.2	4.00	1.9
1424	6.0	213.3	584.3	0.0	17.5	0.51	-0.8
1430	6.0	213.3	584.3	2.0	17.3	0.36	-0.9
1438	6.0	213.3	584.3	5.0	17.4	0.32	-1.0
1504	5.0	212.8	589.5	1.0	17.8	0.09	-1.2
1521	4.0	211.5	593.4	1.0	17.7	0.06	-1.2
1547	3.0	211.8	598.4	0.0	17.8	0.08	-1.2
1554	3.0	211.8	598.4	2.0	17.9	0.09	-1.2
1559	3.0	211.8	598.4	5.0	17.9	0.08	-1.2
1739	2.0	213.2	600.4	1.0	18.3	0.07	-1.3
1806	651.0	215.0	608.4	1.0	17.5	0.04	-1.2
1819	653.0	217.1	612.1	1.0	17.5	0.05	-1.2
1831	655.0	219.7	613.9	1.0	17.6	0.05	-1.2
1855	657.0	223.4	614.9	0.0	17.3	0.02	-1.2
1900	657.0	223.4	614.9	2.0	17.4	0.01	-1.2
- DATA NOT AVAILABLE							

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DATE 8 MAY 80		JULIAN DATE 80129	CRUISE # 10	LOCATION S F BAY		VESSEL ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
809	302.0	205.3	553.4	1.0	15.4	20.85	15.1
823	304.0	206.9	552.3	1.0	15.2	21.53	15.6
830	306.0	208.9	551.1	1.0	15.4	20.74	15.0
848	308.0	210.7	549.9	1.0	15.8	15.30	10.8
855	310.0	212.2	548.8	1.0	16.1	14.72	10.3
902	312.0	213.5	547.9	1.0	16.4	14.51	10.0
1010	314.0	214.7	550.0	1.0	16.9	15.31	10.6
1017	316.0	215.2	551.5	1.0	17.0	16.13	11.2
1026	318.0	215.7	553.3	1.0	17.1	16.10	11.1
1042	320.0	216.3	555.1	1.0	17.1	16.40	11.3
1051	322.0	216.7	556.9	1.0	17.3	16.47	11.4
1100	324.0	216.9	558.6	1.0	17.7	16.97	11.6
1117	326.0	215.3	559.8	1.0	17.2	15.20	10.4
1125	328.0	213.5	560.0	1.0	17.3	14.42	9.8
1133	330.0	211.8	560.7	1.0	17.1	13.85	9.4
1140	332.0	210.1	561.4	1.0	17.2	13.52	9.1
1147	334.0	208.4	562.4	1.0	17.4	15.69	10.8
1343	402.0	210.2	577.5	1.0	17.5	3.92	1.8
1349	404.0	211.2	577.3	1.0	17.6	1.53	-0.1
1411	406.0	213.3	579.1	1.0	17.2	2.06	0.4
1420	408.0	215.0	580.5	1.0	17.2	1.39	-0.1
1430	410.0	216.7	581.9	1.0	17.5	0.73	-0.7
1437	412.0	218.0	582.9	1.0	17.9	0.43	-1.0
1443	414.0	219.3	582.3	1.0	18.9	0.59	-1.0
1507	416.0	218.5	584.1	1.0	17.6	0.26	-1.0
1520	420.0	217.2	586.2	1.0	17.5	0.64	-0.7
1539	422.0	216.7	585.8	1.0	17.7	0.25	-1.1
1551	424.0	215.4	588.1	1.0	17.7	0.11	-1.2
1558	426.0	214.8	589.5	1.0	17.7	0.10	-1.2
1603	428.0	214.0	590.5	1.0	17.4	0.16	-1.1
1607	430.0	214.3	592.5	1.0	17.4	0.15	-1.1
1624	434.0	213.3	594.0	1.0	17.1	0.07	-1.1
1629	436.0	212.3	593.5	1.0	17.5	0.05	-1.2
1634	438.0	211.5	593.0	1.0	18.2	0.06	-1.3
1757	745.0	210.2	598.2	1.0	18.9	0.06	-1.4
1811	747.0	209.2	601.9	1.0	19.0	0.06	-1.5
1824	749.0	208.9	605.5	1.0	18.5	0.05	-1.4
1840	751.0	209.5	609.1	1.0	18.1	0.04	-1.3
1853	753.0	210.3	612.6	1.0	18.5	0.05	-1.4
1907	755.0	212.1	615.2	1.0	18.7	0.06	-1.4
1922	757.0	215.9	616.0	1.0	18.2	0.05	-1.3
- DATA NOT AVAILABLE							

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
21 MAY 80		80142 2	11	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
709	36.0	147.4	582.7	0.0	18.2	20.71	14.4
715	36.0	147.4	582.7	2.0	18.3	20.91	14.5
722	36.0	147.4	582.7	4.0	18.3	21.27	14.8
737	35.0	148.5	581.5	1.0	18.6	21.42	14.8
743	34.0	149.8	580.6	1.0	18.5	21.93	15.2
757	33.0	151.6	577.5	1.0	18.2	22.27	15.6
807	32.0	152.5	576.5	0.0	18.0	22.20	15.6
814	32.0	152.5	576.5	2.0	17.8	22.25	15.6
819	32.0	152.5	576.5	5.0	17.8	22.44	15.8
824	32.0	152.5	576.5	8.0	17.7	22.52	15.9
840	31.0	153.8	574.5	1.0	17.8	22.57	15.9
901	30.0	156.5	571.4	0.0	17.4	22.77	16.1
905	30.0	156.5	571.4	2.0	17.4	22.73	16.1
913	30.0	156.5	571.4	5.0	17.4	22.81	16.2
920	30.0	156.5	571.4	10.0	17.2	23.46	16.7
948	29.0	159.5	566.7	1.0	17.2	23.70	16.9
955	28.0	161.5	564.4	1.0	17.1	24.37	17.4
1011	27.0	163.4	562.5	0.0	16.9	24.60	17.6
1018	27.0	163.4	562.5	2.0	17.0	24.47	17.5
1024	27.0	163.4	562.5	5.0	16.9	24.57	17.6
1030	27.0	163.4	562.5	10.0	16.7	25.12	18.1
1048	26.0	165.4	560.5	1.0	17.0	24.88	17.8
1057	25.0	169.4	559.5	1.0	17.0	25.01	17.9
1115	24.0	172.5	558.3	0.0	15.3	26.35	19.3
1123	24.0	172.5	558.3	2.0	15.4	26.15	19.1
1128	24.0	172.5	558.3	5.0	15.4	26.24	19.2
1133	24.0	172.5	558.3	7.0	15.4	26.23	19.2
1158	23.0	175.5	558.5	1.0	15.3	26.18	19.2
1209	22.0	179.4	556.5	1.0	15.0	26.13	19.2
1225	21.0	183.6	555.5	0.0	15.6	25.97	18.9
1231	21.0	183.6	555.5	2.0	15.6	25.91	18.9
1237	21.0	183.6	555.5	5.0	15.4	26.02	19.0
1242	21.0	183.6	555.5	10.0	15.3	26.16	19.2
1247	21.0	183.6	555.5	14.0	14.8	26.53	19.5
1310	20.0	185.4	552.4	1.0	14.8	26.64	19.6
1331	19.0	185.6	546.5	1.0	14.4	26.91	19.9
- DATA NOT AVAILABLE							

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
21 MAY 80		80142 2	11	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
633	118.0	155.1	574.0	1.0	17.4	22.91	16.2
650	120.0	157.3	572.7	1.0	17.4	23.35	16.6
655	122.0	158.2	571.8	1.0	17.4	23.46	16.6
701	124.0	159.9	571.9	1.0	17.4	23.65	16.8
707	126.0	161.8	572.8	1.0	17.9	24.23	17.1
725	128.0	161.2	570.6	1.0	17.3	23.83	16.9
730	130.0	160.6	569.2	1.0	17.1	23.94	17.1
736	132.0	160.0	567.6	1.0	17.2	24.25	17.3
741	134.0	159.5	566.3	1.0	17.0	24.51	17.5
747	136.0	160.4	564.6	1.0	16.7	24.90	17.9
754	138.0	160.7	562.8	1.0	16.8	25.28	18.2
800	140.0	161.2	561.0	1.0	16.7	26.04	18.8
809	142.0	161.5	558.7	1.0	17.3	26.37	18.9
829	144.0	162.2	560.4	1.0	16.4	25.60	18.5
835	146.0	162.9	561.2	1.0	17.0	24.80	17.8
841	148.0	163.4	563.9	1.0	17.0	24.86	17.8
849	150.0	164.1	565.6	1.0	16.9	25.00	17.9
856	152.0	164.8	567.2	1.0	17.0	25.06	18.0
902	154.0	165.6	569.0	1.0	17.1	25.03	17.9
908	156.0	166.0	570.2	1.0	17.4	24.91	17.7
924	158.0	167.5	569.4	1.0	17.3	24.77	17.7
931	160.0	169.2	568.5	1.0	17.8	24.49	17.3
939	162.0	170.8	567.6	1.0	18.0	23.98	16.9
948	164.0	172.7	566.7	1.0	18.9	23.41	16.3
955	166.0	174.2	565.8	1.0	19.1	23.51	16.3
959	168.0	175.1	565.3	1.0	18.9	23.57	16.4
1015	170.0	174.4	563.6	1.0	16.7	24.85	17.9
1022	172.0	173.8	561.9	1.0	16.3	25.37	18.3
1032	174.0	173.3	560.0	1.0	15.4	26.13	19.1
1038	176.0	172.4	558.4	1.0	15.2	26.34	19.3
1046	178.0	171.8	556.7	1.0	15.2	26.40	19.4
1055	180.0	170.9	554.4	1.0	16.2	26.45	19.2
- DATA NOT AVAILABLE							

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
22 MAY 80		80143 2		11	S F BAY		POLARIS
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
617	19.0	185.6	546.5	40.0	11.6	31.47	23.9
623	19.0	185.6	546.5	12.0	11.8	31.21	23.7
628	19.0	185.6	546.5	2.0	11.8	31.05	23.6
709	17.0	192.6	550.6	0.0	14.1	24.40	18.0
714	17.0	192.6	550.6	2.0	13.7	26.80	20.0
720	17.0	192.6	550.6	5.0	13.6	27.20	20.3
725	17.0	192.6	550.6	10.0	12.3	30.25	22.9
731	17.0	192.6	550.6	15.0	12.1	30.68	23.2
737	17.0	192.6	550.6	25.0	12.1	30.76	23.3
804	16.0	196.3	548.3	1.0	14.7	23.25	17.0
832	15.0	202.4	549.5	0.0	14.8	23.04	16.9
837	15.0	202.4	549.5	2.0	14.7	23.10	16.9
842	15.0	202.4	549.5	5.0	14.5	24.78	18.3
847	15.0	202.4	549.5	10.0	13.5	27.64	20.6
852	15.0	202.4	549.5	20.0	13.2	28.45	21.3
917	14.0	206.7	552.5	1.0	15.7	18.19	13.0
936	13.0	209.3	555.7	0.0	16.5	15.15	10.5
942	13.0	209.3	555.7	2.0	16.0	16.90	11.9
948	13.0	209.3	555.7	5.0	14.8	23.50	17.2
952	13.0	209.3	555.7	9.0	14.5	25.20	18.6
1022	12.0	211.6	560.4	1.0	16.6	12.54	8.5
1035	11.0	212.7	564.6	1.0	16.9	13.27	9.0
1051	10.0	212.5	569.5	1.0	17.2	10.20	6.6
1110	9.0	211.4	572.5	0.0	17.1	8.30	5.2
1117	9.0	211.4	572.5	2.0	17.1	7.76	4.8
1123	9.0	211.4	572.5	5.0	17.1	10.25	6.7
1129	9.0	211.4	572.5	10.0	17.1	11.95	8.0
1135	9.0	211.4	572.5	20.0	16.9	14.22	9.7
1156	8.0	209.3	574.3	1.0	17.6	6.19	3.5
1216	7.0	211.3	579.3	1.0	18.0	3.66	1.5
1246	6.0	213.3	584.7	0.0	18.7	0.52	-1.1
1252	6.0	213.3	584.7	2.0	18.7	0.48	-1.1
1258	6.0	213.3	584.7	5.0	18.5	0.68	-0.9
1325	5.0	212.8	589.5	1.0	18.9	0.12	-1.4
1341	4.0	211.5	593.4	1.0	19.2	0.08	-1.5
1407	3.0	211.8	598.4	0.0	18.9	0.08	-1.4
1416	3.0	211.8	598.4	2.0	18.9	0.08	-1.4
1423	3.0	211.8	598.4	5.0	18.8	0.08	-1.4
1429	3.0	211.8	598.4	8.0	18.8	0.08	-1.4
1543	2.0	213.2	600.4	1.0	19.2	0.07	-1.5
1612	651.0	215.0	608.5	1.0	19.1	0.06	-1.5
1625	653.0	217.1	612.1	1.0	19.2	0.06	-1.5
1637	655.0	219.7	613.9	1.0	19.1	0.06	-1.5
1658	657.0	223.4	614.9	0.0	19.2	0.07	-1.5
1703	657.0	223.4	614.9	2.0	19.2	0.04	-1.5
1709	657.0	223.4	614.9	5.0	19.2	0.04	-1.5

--- DATA NOT AVAILABLE ---

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL	
22 MAY 80		80143 2		11	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t	
646	302.0	205.2	553.6	1.0	15.6	17.07	12.2	
705	304.0	206.9	552.3	1.0	15.5	17.58	12.6	
713	306.0	208.8	551.2	1.0	15.5	19.00	13.6	
730	308.0	210.6	549.8	1.0	15.0	20.24	14.7	
737	310.0	212.3	548.7	1.0	15.7	18.65	13.3	
744	312.0	213.5	547.9	1.0	16.0	18.50	13.2	
803	314.0	214.8	550.0	1.0	16.0	16.51	11.7	
810	316.0	215.2	551.5	1.0	16.2	15.18	10.6	
817	318.0	215.7	553.3	1.0	16.4	14.09	9.7	
832	320.0	216.2	555.0	1.0	17.2	14.01	9.5	
840	322.0	216.7	556.9	1.0	16.6	12.61	8.6	
848	324.0	216.9	558.6	1.0	16.9	13.00	8.8	
905	326.0	215.2	559.3	1.0	16.3	12.08	8.2	
911	328.0	213.5	560.2	1.0	16.5	13.45	9.2	
918	330.0	211.8	560.7	1.0	17.0	13.64	9.3	
925	332.0	210.1	561.4	1.0	16.5	13.70	9.4	
931	334.0	208.4	562.1	1.0	16.3	16.41	11.5	
1202	402.0	210.2	577.5	1.0	18.0	4.44	2.1	
1206	404.0	211.1	577.4	1.0	17.8	4.58	2.2	
1228	406.0	213.3	579.1	1.0	18.2	2.15	0.3	
1232	408.0	215.1	580.5	1.0	18.2	1.64	-0.1	
1241	410.0	216.7	581.9	1.0	18.5	0.96	-0.7	
1247	412.0	218.0	582.8	1.0	18.6	0.55	-1.0	
1252	414.0	219.2	582.3	1.0	18.7	0.38	-1.2	
1310	416.0	219.0	584.2	1.0	18.3	0.52	-1.0	
1321	418.0	218.8	586.7	1.0	17.8	0.38	-1.0	
1404	420.0	217.8	586.2	1.0	18.5	0.18	-1.3	
1409	422.0	216.9	585.8	1.0	18.7	0.30	-1.2	
1420	424.0	215.3	588.1	1.0	18.9	0.23	-1.3	
1432	428.0	214.0	590.5	1.0	19.3	0.10	-1.5	
1442	430.0	214.2	592.6	1.0	18.9	0.12	-1.4	
1452	432.0	214.5	594.6	1.0	18.0	0.10	-1.2	
1501	-	214.2	595.5	1.0	19.1	0.08	-1.5	
- DATA NOT AVAILABLE								

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
4 JUN 80		80156		12	S F BAY		POLARIS
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
748	36.0	147.4	582.7	0.0	17.0	22.76	16.2
755	36.0	147.4	582.7	2.0	17.0	22.57	16.1
819	35.0	148.5	581.5	1.0	17.0	23.16	16.5
823	34.0	149.8	580.6	1.0	16.8	23.10	16.5
835	33.0	151.6	577.5	1.0	16.9	23.85	17.1
847	32.0	152.5	576.5	0.0	16.9	23.97	17.1
851	32.0	152.5	576.5	2.0	16.9	23.92	17.1
858	32.0	152.5	576.5	5.0	16.9	24.05	17.2
917	31.0	153.8	574.4	1.0	16.8	24.24	17.4
935	30.0	156.5	571.4	0.0	16.8	24.43	17.5
939	30.0	156.5	571.4	2.0	16.8	24.23	17.4
947	30.0	156.5	571.4	5.0	16.8	24.31	17.4
950	30.0	156.5	571.4	10.0	16.8	24.30	17.4
1022	29.0	159.5	566.7	1.0	16.6	24.76	17.8
1030	28.0	161.5	564.4	1.0	16.6	24.84	17.9
1046	28.0	161.5	564.4	10.0	16.5	24.85	17.9
1107	27.0	163.4	562.5	0.0	16.7	24.85	17.9
1112	27.0	163.4	562.5	2.0	16.6	24.87	17.9
1118	27.0	163.4	562.5	5.0	16.6	24.88	17.9
1122	27.0	163.4	562.5	9.0	16.6	24.92	17.9
1145	26.0	165.4	560.5	1.0	16.6	25.29	18.2
1158	25.0	169.4	559.5	1.0	16.2	25.83	18.7
1216	24.0	172.5	558.3	0.0	16.8	26.13	18.8
1220	24.0	172.5	558.3	2.0	15.8	26.13	19.0
1228	24.0	172.5	558.3	5.0	15.7	26.24	19.1
1253	23.0	175.5	558.5	1.0	15.6	26.50	19.3
1309	22.0	179.4	556.5	1.0	15.3	26.79	19.6
1327	21.0	183.6	555.5	0.0	14.9	27.44	20.2
1331	21.0	183.6	555.5	2.0	14.9	27.55	20.3
1338	21.0	183.6	555.5	5.0	14.7	27.23	20.1
1344	21.0	183.6	555.5	10.0	14.4	27.80	20.6
1417	20.0	185.4	552.4	1.0	14.2	27.55	20.4
1456	19.0	185.6	546.5	40.0	11.9	31.12	23.6
1509	19.0	185.6	546.5	20.0	12.7	30.26	22.8
1515	19.0	185.6	546.5	10.0	12.4	30.50	23.1
1520	19.0	185.6	546.5	2.0	13.2	29.56	22.2
- DATA NOT AVAILABLE							

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
4 JUN 80		80156	12	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
637	118.0	156.0	573.9	1.0	16.5	24.57	17.7
651	120.0	157.0	573.0	1.0	16.3	24.75	17.9
656	122.0	158.1	571.8	1.0	16.1	24.85	18.0
703	124.0	159.9	571.9	1.0	16.6	24.70	17.8
710	126.0	161.8	572.0	1.0	16.4	25.12	18.1
728	128.0	162.2	570.6	1.0	16.6	24.64	17.7
733	130.0	160.6	569.2	1.0	16.4	24.82	17.9
740	132.0	160.0	567.4	1.0	16.5	24.87	17.9
744	134.0	159.5	566.3	1.0	16.5	24.93	18.0
749	136.0	160.4	564.6	1.0	16.3	25.18	18.2
757	138.0	160.7	562.8	1.0	16.2	25.26	18.3
803	140.0	161.0	561.0	1.0	16.1	26.71	19.4
817	142.0	161.5	558.8	1.0	15.6	26.78	19.6
834	144.0	162.2	560.2	1.0	15.9	26.01	18.9
848	148.0	164.6	562.9	1.0	16.3	25.25	18.2
902	150.0	164.1	565.6	1.0	16.2	25.37	18.4
917	152.0	164.8	567.3	1.0	16.5	25.15	18.1
923	154.0	165.4	569.1	1.0	17.0	24.85	17.8
930	156.0	165.8	570.3	1.0	17.2	24.91	17.8
951	158.0	167.5	569.4	1.0	16.8	24.89	17.9
959	160.0	169.2	568.5	1.0	16.9	24.93	17.9
1007	162.0	170.8	567.6	1.0	16.8	24.80	17.8
1029	164.0	172.5	566.7	1.0	16.7	24.89	17.9
1037	166.0	174.2	565.8	1.0	16.9	24.86	17.8
1042	168.0	175.1	565.3	1.0	17.0	25.27	18.1
1056	170.0	174.4	563.6	1.0	16.3	24.84	17.9
1103	172.0	173.8	561.9	1.0	15.6	25.58	18.6
1111	174.0	173.1	560.1	1.0	15.8	25.90	18.8
1117	176.0	172.4	558.4	1.0	15.6	26.13	19.1
1123	178.0	171.5	555.4	1.0	15.2	26.60	19.7
1131	180.0	171.5	555.4	1.0	15.9	26.87	19.6
1148	182.0	170.0	555.5	1.0	15.9	26.81	19.5
1153	184.0	168.5	555.7	1.0	16.0	26.77	19.5
1200	186.0	167.4	555.4	1.0	16.1	26.77	19.4
1204	188.0	166.2	555.8	1.0	16.3	26.79	19.4

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DATE 5 JUN 80		JULIAN DATE 80157	CRUISE # 12	LOCATION S F BAY	VESSEL ESTERO		
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
654	302.0	205.2	550.0	1.0	15.0	17.16	12.3
715	304.0	206.9	552.3	1.0	14.6	18.34	13.3
723	306.0	208.8	551.1	1.0	15.2	17.69	12.7
743	308.0	210.7	549.8	1.0	15.5	18.89	13.6
749	310.0	212.3	548.9	1.0	15.4	17.54	12.6
757	312.0	213.5	547.9	1.0	16.0	17.96	12.8
814	314.0	214.7	550.0	1.0	15.9	17.32	12.3
823	316.0	215.2	551.5	1.0	16.3	16.87	11.9
830	318.0	215.7	553.3	1.0	16.5	16.38	11.5
855	320.0	216.3	555.1	1.0	16.8	15.78	10.9
903	322.0	216.7	556.9	1.0	17.0	16.42	11.4
913	324.0	216.9	558.6	1.0	17.3	17.81	12.4
933	326.0	215.3	559.3	1.0	17.0	16.30	11.3
942	328.0	213.5	560.0	1.0	17.2	15.80	10.9
945	329.0	212.9	560.4	1.0	16.7	16.70	11.7
952	330.0	211.8	560.7	1.0	16.8	12.07	8.1
958	332.0	210.1	561.4	1.0	16.3	14.78	10.3
1005	334.0	208.4	562.1	1.0	16.2	15.47	10.8
1215	402.0	210.3	577.6	1.0	17.7	3.70	1.6
1219	404.0	211.1	577.3	1.0	17.6	2.25	0.5
1234	406.0	213.3	579.3	1.0	17.4	2.55	0.7
1242	408.0	215.0	580.5	1.0	17.4	1.95	0.3
1251	410.0	216.8	581.9	1.0	17.6	0.58	-0.8
1258	412.0	218.0	582.9	1.0	18.3	0.89	-0.7
1304	414.0	219.3	582.3	1.0	19.2	0.91	-0.9
1328	416.0	218.1	584.0	1.0	18.4	1.09	-0.6
1336	420.0	218.1	586.0	1.0	18.4	0.75	-0.8
1354	422.0	216.8	585.8	1.0	18.4	0.72	-0.8
1403	424.0	215.4	588.0	1.0	18.3	0.42	-1.1
1412	426.0	214.7	589.6	1.0	18.2	0.26	-1.2
1416	428.0	214.0	590.5	1.0	18.4	0.32	-1.1
1426	430.0	214.3	592.5	1.0	18.2	0.18	-1.2
1431	432.0	214.4	593.5	1.0	18.4	0.22	-1.2
1455	434.0	213.3	594.0	1.0	18.5	0.16	-1.3
1501	436.0	212.4	593.5	1.0	18.4	0.19	-1.2
1505	438.0	211.5	593.1	1.0	18.7	0.13	-1.4
1543	745.0	210.3	598.3	1.0	18.8	0.08	-1.4
1557	747.0	209.3	602.0	1.0	19.0	0.07	-1.5
1612	749.0	208.9	605.5	1.0	18.7	0.06	-1.4
1627	751.0	209.5	609.1	1.0	18.6	0.06	-1.4
1640	753.0	210.3	612.6	1.0	18.7	0.06	-1.4
1655	757.0	212.1	615.2	1.0	19.0	0.06	-1.5
1710	757.0	215.9	616.0	1.0	18.6	0.05	-1.4
- DATA NOT AVAILABLE -							

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
5 JUN 80		80157	12	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
623	17.0	192.6	550.6	0.0	13.6	30.12	22.5
629	17.0	192.6	550.6	2.0	13.0	30.89	23.2
637	17.0	192.6	550.6	5.0	12.5	30.94	23.4
645	17.0	192.6	550.6	10.0	12.3	31.27	23.7
650	17.0	192.6	550.6	20.0	12.3	31.27	23.7
656	17.0	192.6	550.6	30.0	12.2	31.41	23.8
731	16.0	196.3	548.1	1.0	14.6	23.77	17.5
803	15.0	202.4	549.5	0.0	15.2	21.74	15.8
809	15.0	202.4	549.5	2.0	15.0	22.37	16.3
815	15.0	202.4	549.5	5.0	14.8	24.36	17.9
820	15.0	202.4	549.5	10.0	14.0	27.28	20.3
826	15.0	202.4	549.5	15.0	13.8	27.80	20.7
900	14.0	206.7	552.5	1.0	15.7	16.22	11.5
929	13.0	209.3	555.7	0.0	16.2	15.08	10.5
935	13.0	209.3	555.7	2.0	16.2	17.20	12.1
944	13.0	209.3	555.7	5.0	14.9	23.80	17.4
1022	12.0	211.6	560.4	1.0	16.4	14.74	10.2
1108	11.0	212.7	564.6	1.0	16.4	12.92	8.8
1132	10.0	212.5	569.5	1.0	16.7	9.08	5.9
1206	9.0	211.4	572.5	0.0	16.9	7.04	4.3
1211	9.0	211.4	572.5	2.0	16.9	7.71	4.8
1219	9.0	211.4	572.5	5.0	16.9	8.27	5.2
1225	9.0	211.4	572.5	10.0	16.9	8.67	5.5
1256	8.0	209.3	574.5	1.0	17.2	3.72	1.7
1318	7.0	211.3	579.3	1.0	17.7	2.68	0.8
1358	6.0	213.3	584.7	0.0	18.2	0.36	-1.1
1406	6.0	213.3	584.7	2.0	18.2	0.31	-1.1
1414	6.0	213.3	584.7	5.0	18.2	0.30	-1.1
1449	5.0	212.8	589.5	1.0	18.2	0.10	-1.3
1504	4.0	211.5	593.4	1.0	18.4	0.07	-1.3
1532	3.0	211.8	598.4	0.0	18.4	0.07	-1.3
1539	3.0	211.8	598.4	2.0	18.4	0.06	-1.3
1545	3.0	211.8	598.4	5.0	18.4	0.06	-1.3
1604	2.0	213.2	600.4	1.0	18.6	0.07	-1.4
1632	651.0	215.0	608.5	1.0	19.1	0.05	-1.5
1716	657.0	223.4	614.9	0.0	19.2	0.07	-1.5
1721	657.0	223.4	614.9	2.0	19.2	0.07	-1.5
1726	657.0	223.4	614.9	5.0	19.2	0.06	-1.5

- DATA NOT AVAILABLE

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL			
17 JUN 80	80169 1	13	S F BAY	POLARIS			
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
721	36.0	147.4	582.7	0.0	19.2	23.41	16.2
726	36.0	147.4	582.7	2.0	19.2	23.42	16.2
731	36.0	147.4	582.7	4.0	19.2	23.58	16.3
749	35.0	148.5	581.5	1.0	19.1	23.64	16.4
754	34.0	149.8	580.6	1.0	18.8	24.05	16.8
807	33.0	151.6	577.5	1.0	19.1	24.33	16.9
822	32.0	152.5	576.5	0.0	19.1	24.63	17.1
828	32.0	152.5	576.5	2.0	19.1	24.64	17.1
835	32.0	152.5	576.5	5.0	19.2	24.67	17.1
850	31.0	153.8	574.5	1.0	19.1	24.75	17.2
909	30.0	156.5	571.4	0.0	18.8	24.85	17.4
914	30.0	156.5	571.4	2.0	18.8	24.84	17.4
921	30.0	156.5	571.4	5.0	18.8	24.83	17.4
926	30.0	156.5	571.4	10.0	18.8	24.84	17.4
953	29.0	159.5	566.7	1.0	18.4	25.18	17.7
1004	28.0	161.5	564.4	1.0	18.3	25.33	17.9
1022	27.0	163.4	562.5	0.0	18.2	25.54	18.0
1027	27.0	163.4	562.5	2.0	18.3	25.54	18.0
1032	27.0	163.4	562.5	5.0	18.1	25.56	18.1
1037	27.0	163.4	562.5	9.0	18.1	25.56	18.1
1052	26.0	165.4	560.5	1.0	18.2	25.71	18.2
1104	25.0	169.4	559.5	1.0	17.9	26.28	18.7
1137	24.0	172.5	558.3	0.0	17.2	27.01	19.4
1144	24.0	172.5	558.3	2.0	16.8	27.06	19.5
1150	24.0	172.5	558.3	5.0	16.5	27.36	19.8
1216	23.0	175.5	558.5	1.0	17.0	27.24	19.6
1230	22.0	179.4	556.5	1.0	17.2	27.02	19.4
1247	21.0	183.6	555.5	0.0	16.9	27.73	20.0
1252	21.0	183.6	555.5	2.0	16.4	27.88	20.2
1301	21.0	183.6	555.5	5.0	16.0	28.34	20.7
1306	21.0	183.6	555.5	10.0	15.5	28.43	20.8
1335	20.0	185.4	552.4	1.0	15.4	28.52	20.9
1416	19.0	185.6	546.5	38.5	12.1	31.89	24.2
1427	19.0	185.6	546.5	20.0	13.0	30.68	23.1
1432	19.0	185.6	546.5	10.0	13.3	30.29	22.7
1443	19.0	185.6	546.5	2.0	13.4	30.58	22.9

- DATA NOT AVAILABLE

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
17 JUN 80		80169 1		13	S F BAY		ESTERO
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
629	118.0	156.0	574.0	1.0	18.7	25.45	17.9
636	120.0	157.2	572.8	1.0	18.3	25.14	17.7
640	122.0	158.1	571.9	1.0	18.3	25.26	17.8
646	124.0	159.9	571.9	1.0	18.4	25.86	18.2
654	126.0	161.8	572.0	1.0	18.3	25.91	18.3
710	128.0	161.2	570.6	1.0	18.1	25.94	18.4
716	130.0	160.6	569.2	1.0	18.2	25.82	18.3
723	132.0	160.0	567.4	1.0	18.0	25.73	18.2
726	134.0	159.6	566.3	1.0	18.2	25.68	18.1
732	136.0	160.4	564.6	1.0	18.1	25.76	18.2
739	138.0	160.7	562.7	1.0	17.9	26.13	18.6
746	140.0	161.2	561.0	1.0	18.2	27.40	19.5
754	142.0	161.4	558.8	1.0	17.9	27.39	19.5
811	144.0	161.9	560.6	1.0	17.8	26.87	19.1
817	146.0	162.7	562.1	1.0	18.2	25.77	18.2
826	148.0	163.4	563.9	1.0	18.0	25.92	18.4
834	150.0	164.1	565.6	1.0	17.9	26.04	18.5
841	152.0	164.8	567.4	1.0	17.8	26.25	18.7
849	154.0	165.7	568.9	1.0	17.8	26.22	18.7
856	156.0	166.0	571.1	1.0	18.1	26.16	18.5
917	158.0	167.5	569.4	1.0	18.1	26.06	18.5
927	160.0	168.9	568.2	1.0	18.0	26.23	18.6
936	162.0	170.7	567.4	1.0	18.3	26.03	18.4
953	164.0	172.5	566.5	1.0	19.1	26.16	18.3
1000	166.0	174.0	565.5	1.0	19.7	26.12	18.1
1006	168.0	175.0	565.1	1.0	20.7	25.55	17.4
1022	170.0	173.4	563.6	1.0	19.3	26.08	18.2
1028	172.0	173.7	561.9	1.0	18.2	26.46	18.8
1039	174.0	172.8	559.6	1.0	17.8	26.82	19.1
1045	176.0	172.2	558.2	1.0	17.6	26.99	19.3
1051	178.0	171.8	556.6	1.0	17.1	27.55	19.8
1055	180.0	171.2	554.9	1.0	17.2	27.71	19.9
1206	164.0	172.7	566.4	1.0	20.0	26.08	18.0
1216	166.0	174.3	566.0	1.0	20.9	25.68	17.5
1221	168.0	175.3	565.7	1.0	20.7	25.14	17.1
1229	-	175.5	564.6	1.0	20.3	25.43	17.4
1237	-	176.7	564.4	1.0	21.0	25.18	17.1
1243	-	177.7	563.8	1.0	19.9	25.79	17.8
1330	-	183.9	555.3	1.0	16.6	26.95	19.5

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL			
18 JUN 80	80170 1	13	S F BAY	ESTERO			
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
705	302.0	205.4	553.4	1.0	16.6	23.30	16.7
720	304.0	206.9	552.3	1.0	16.5	24.42	17.6
731	306.0	208.8	551.1	1.0	16.8	22.89	16.3
741	308.0	210.7	549.8	1.0	17.6	18.08	12.5
749	310.0	212.2	548.8	1.0	18.8	18.23	12.4
756	312.0	213.5	547.9	1.0	19.2	18.69	12.6
816	314.0	214.7	550.0	1.0	18.7	18.05	12.2
825	316.0	215.6	551.3	1.0	18.5	17.07	11.6
834	318.0	215.8	553.2	1.0	18.4	16.39	11.1
850	-	215.0	555.1	1.0	19.0	19.13	13.0
857	-	214.5	557.2	1.0	18.7	17.88	12.1
906	-	214.4	558.4	1.0	18.0	16.10	10.9
915	-	213.9	560.0	1.0	17.8	15.97	10.9
1057	402.0	210.3	577.7	1.0	19.6	4.80	2.0
1101	404.0	211.2	577.4	1.0	19.3	4.57	1.9
1124	406.0	213.4	579.1	1.0	19.7	3.29	0.9
1134	408.0	215.0	580.5	1.0	19.9	2.87	0.5
1144	410.0	216.8	581.9	1.0	19.9	1.58	-0.5
1151	412.0	218.0	582.9	1.0	20.6	1.50	-0.7
1157	414.0	219.3	582.3	1.0	21.0	1.58	-0.7
1218	416.0	219.0	584.2	1.0	19.7	1.90	-0.2
1230	418.0	218.8	586.7	1.0	21.2	1.22	-1.0
1247	420.0	217.8	586.3	1.0	21.1	1.01	-1.2
1252	422.0	216.8	585.9	1.0	20.4	1.42	-0.7
1304	424.0	215.3	588.1	1.0	20.2	0.85	-1.1
1314	426.0	214.8	589.6	1.0	20.4	0.61	-1.3
1318	428.0	214.0	590.5	1.0	20.4	0.72	-1.2
1327	430.0	214.3	592.5	1.0	20.5	0.70	-1.3
1339	432.0	214.4	594.6	1.0	20.9	0.37	-1.6
1355	434.0	213.0	593.9	1.0	20.6	0.35	-1.6
1402	436.0	212.2	593.4	1.0	20.5	0.25	-1.6
1408	438.0	211.4	593.1	1.0	20.9	0.24	-1.7
1546	748.0	209.1	603.1	1.0	21.6	0.09	-2.0
1555	749.0	208.8	605.4	1.0	21.3	0.07	-1.9
1610	751.0	209.5	609.1	1.0	21.2	0.07	-1.9
1626	753.0	210.3	612.6	1.0	21.3	0.07	-1.9
1642	755.0	212.1	615.2	1.0	21.8	0.08	-2.0
1658	757.0	215.9	616.0	1.0	21.4	0.06	-2.0

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DATE 18 JUN 80		JULIAN DATE 80170 1	CRUISE # 13	LOCATION S F BAY		VESSEL POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
620	17.0	192.6	550.6	0.0	13.9	29.69	22.1
630	17.0	192.6	550.6	2.0	13.6	30.15	22.6
640	17.0	192.6	550.6	5.0	13.3	30.59	22.9
646	17.0	192.6	550.6	10.0	13.3	30.55	22.9
653	17.0	192.6	550.6	20.0	13.3	31.16	23.4
725	16.0	196.3	548.3	1.0	15.6	26.01	19.0
807	15.0	202.4	549.5	0.0	16.6	23.10	16.5
815	15.0	202.4	549.5	2.0	16.4	23.60	17.0
821	15.0	202.4	549.5	5.0	16.2	24.04	17.3
827	15.0	202.4	549.5	10.0	15.9	25.20	18.3
909	14.0	206.7	552.5	1.0	16.4	23.30	16.7
952	13.0	209.3	555.7	0.0	17.2	18.96	13.3
959	13.0	209.3	555.7	2.0	17.3	18.84	13.2
1006	13.0	209.3	555.7	5.0	16.6	21.98	15.7
1050	12.0	211.6	560.4	1.0	18.2	13.09	8.6
1111	11.0	212.7	564.6	1.0	18.4	12.40	8.0
1131	10.0	212.5	569.5	1.0	18.5	9.60	5.9
1200	9.0	211.4	572.5	0.0	18.9	7.30	4.1
1209	9.0	211.4	572.5	2.0	18.7	7.46	4.2
1216	9.0	211.4	572.5	5.0	18.7	7.61	4.3
1222	9.0	211.4	572.5	10.0	18.7	8.26	4.8
1231	9.0	211.4	572.5	15.0	18.8	8.80	5.2
1300	8.0	209.3	574.5	1.0	19.0	5.10	2.4
1323	7.0	211.3	579.3	1.0	19.6	2.68	0.4
1354	6.0	213.3	584.7	0.0	20.4	0.45	-1.5
1400	6.0	213.3	584.7	2.0	20.3	0.45	-1.4
1407	6.0	213.3	584.7	5.0	20.3	0.44	-1.4
1436	5.0	212.8	589.5	1.0	20.2	0.17	-1.6
1452	4.0	211.5	593.4	1.0	20.1	0.09	-1.7
1536	3.0	211.8	598.4	0.0	20.8	0.12	-1.8
1540	3.0	211.8	598.4	2.0	20.7	0.12	-1.8
1546	3.0	211.8	598.4	5.0	20.7	0.11	-1.8
1551	3.0	211.8	598.4	10.0	20.7	0.11	-1.8
1642	651.0	215.0	608.5	1.0	20.6	0.03	-1.8
1720	657.0	223.4	614.9	0.0	20.7	0.00	-1.9
1727	657.0	223.4	614.9	2.0	20.7	0.00	-1.9

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DATE		JULIAN DATE	CRUISE #	LOCATION	VESSEL		
1 JUL 80		80183	14	S F BAY	POLARIS		
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
706	36.0	147.4	582.7	0.0	20.6	23.63	16.0
712	36.0	147.4	582.7	2.0	20.6	23.37	15.8
718	36.0	147.4	582.7	4.0	20.6	23.61	16.0
734	35.0	148.5	581.5	1.0	20.7	24.02	16.3
738	34.0	149.8	580.6	1.0	20.5	24.70	16.9
750	33.0	151.6	577.6	1.0	20.6	25.18	17.2
802	32.0	152.5	576.5	0.0	20.7	25.24	17.2
808	32.0	152.5	576.5	2.0	20.6	25.30	17.3
814	32.0	152.5	576.5	5.0	20.7	25.40	17.3
819	32.0	152.5	576.5	9.0	20.7	25.39	17.3
837	31.0	153.8	574.5	1.0	20.6	25.53	17.5
854	30.0	156.5	571.4	0.0	20.6	25.90	17.7
858	30.0	156.5	571.4	2.0	20.6	25.76	17.6
904	30.0	156.5	571.4	5.0	20.6	25.85	17.7
908	30.0	156.5	571.4	10.0	20.6	25.87	17.7
932	29.0	159.5	566.7	1.0	20.4	26.07	17.9
956	28.0	161.5	564.4	1.0	20.3	26.30	18.1
1010	27.0	163.4	562.5	0.0	20.2	26.40	18.2
1015	27.0	163.4	562.5	2.0	20.2	26.33	18.2
1024	27.0	163.4	562.5	5.0	20.1	26.41	18.2
1031	27.0	163.4	562.5	10.0	20.1	26.42	18.2
1056	26.0	165.4	560.5	1.0	20.0	26.57	18.4
1110	25.0	169.4	559.5	1.0	19.8	27.16	18.9
1133	24.0	172.5	558.3	0.0	18.5	27.33	19.3
1145	24.0	172.5	558.3	2.0	18.3	27.35	19.4
1153	24.0	172.5	558.3	5.0	18.2	27.89	19.8
1219	23.0	175.5	558.5	1.0	18.8	27.51	19.4
1236	22.0	179.4	556.5	1.0	16.2	28.31	20.6
1256	21.0	183.6	555.5	0.0	16.3	28.06	20.4
1300	21.0	183.6	555.5	2.0	16.1	28.06	20.4
1306	21.0	183.6	555.5	5.0	15.5	28.66	21.0
1314	21.0	183.6	555.5	12.0	15.3	29.00	21.3
1345	20.0	185.4	552.4	1.0	13.9	30.73	22.9
1358	18.0	189.3	553.1	1.0	14.9	29.42	21.7
1410	17.0	192.6	550.6	1.0	16.0	27.61	20.1
1421	16.0	196.3	548.3	1.0	16.0	28.38	20.7
1440	15.0	202.4	549.5	1.0	18.0	22.84	16.0
1453	14.0	206.7	552.5	1.0	17.8	22.36	15.7
1502	13.0	209.3	555.7	1.0	18.2	21.25	14.8
1518	12.0	211.6	560.4	1.0	18.9	17.58	11.8
1529	11.0	212.7	564.6	1.0	19.2	12.53	8.0
1540	10.0	212.5	569.5	1.0	19.2	10.65	6.5
1549	9.0	211.4	572.5	1.0	19.3	7.78	4.3
1556	8.0	209.3	574.5	1.0	19.2	7.58	4.2
- DATA NOT AVAILABLE							

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
1 JUL 80		80183	14	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
625	118.0	156.1	574.1	1.0	20.4	25.99	17.9
641	120.0	157.0	573.0	1.0	20.4	26.08	17.9
648	122.0	158.1	571.9	1.0	20.2	26.12	18.0
655	124.0	159.9	571.9	1.0	20.3	26.27	18.1
705	126.0	161.9	572.2	1.0	20.3	26.31	18.1
731	128.0	161.1	570.6	1.0	20.2	26.30	18.1
737	130.0	160.7	569.1	1.0	20.2	26.26	18.1
744	132.0	160.0	567.5	1.0	19.7	26.56	18.5
748	134.0	159.5	566.2	1.0	20.2	26.39	18.2
753	136.0	160.4	564.6	1.0	20.0	26.61	18.4
802	138.0	161.0	563.2	1.0	19.8	27.48	19.1
810	140.0	161.1	561.0	1.0	20.4	28.23	19.5
820	142.0	161.5	558.8	1.0	20.2	28.38	19.7
847	144.0	162.1	560.4	1.0	20.0	28.17	19.6
854	146.0	162.8	562.1	1.0	20.0	26.69	18.5
901	148.0	165.8	563.9	1.0	19.9	26.87	18.6

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
2 JUL 80		80184		14	S F BAY		POLARIS
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
551	657.0	223.4	614.9	0.0	20.2	0.01	-1.7
558	657.0	223.4	614.9	2.0	20.1	0.01	-1.7
604	657.0	223.4	614.9	5.0	20.2	0.01	-1.7
622	655.0	219.7	613.9	1.0	20.0	0.01	-1.7
633	653.0	217.1	612.1	1.0	19.9	0.01	-1.7
644	651.0	215.0	608.5	1.0	20.0	0.03	-1.7
700	2.0	213.2	600.4	1.0	20.0	0.07	-1.7
736	3.0	211.8	598.4	2.0	20.3	0.57	-1.3
741	3.0	211.8	598.4	5.0	20.3	0.60	-1.3
745	3.0	211.8	598.4	10.0	20.3	0.68	-1.3
749	3.0	211.8	598.4	0.0	20.3	0.59	-1.3
812	4.0	211.5	593.4	1.0	19.8	1.28	-0.7
824	5.0	212.8	598.5	1.0	19.5	2.12	0.0
844	6.0	213.3	584.7	0.0	19.2	3.29	1.0
849	6.0	213.3	584.7	2.0	19.3	3.21	0.9
857	6.0	213.3	584.7	5.0	19.3	4.38	1.8
925	7.0	211.3	579.3	1.0	18.9	6.59	3.5
940	8.0	209.3	574.5	1.0	18.8	6.99	3.8
958	9.0	211.4	572.5	0.0	18.7	9.41	5.7
1004	9.0	211.4	572.5	2.0	18.8	9.55	5.8
1009	9.0	211.4	572.5	5.0	18.8	9.75	5.9
1014	9.0	211.4	572.5	11.0	18.8	9.63	5.9
1046	10.0	212.5	569.5	1.0	18.8	9.38	5.7
1058	11.0	212.7	564.6	1.0	18.7	12.66	8.2
1110	12.0	211.6	560.4	1.0	18.6	15.07	10.0
1134	13.0	209.3	555.7	0.0	18.2	18.53	12.7
1141	13.0	209.3	555.7	2.0	18.3	18.38	12.6
1149	13.0	209.3	555.7	5.0	18.2	18.34	12.6
1209	14.0	206.7	552.5	1.0	18.2	18.99	13.1
1231	15.0	202.4	549.5	0.0	18.1	19.09	13.2
1235	15.0	202.4	549.5	2.0	18.0	19.16	13.3
1241	15.0	202.4	549.5	5.0	17.6	20.49	14.3
1247	15.0	202.4	549.5	10.0	16.9	23.70	16.9
1325	16.0	196.3	548.3	1.0	17.5	21.59	15.2
1348	17.0	192.6	550.6	0.0	16.0	26.54	19.3
1354	17.0	192.6	550.6	2.0	15.5	27.11	19.8
1401	17.0	192.6	550.6	5.0	15.3	28.01	20.6
1406	17.0	192.6	550.6	10.0	15.2	28.46	20.9
1413	17.0	192.6	550.6	20.0	14.6	29.18	21.6
1503	19.0	185.6	546.5	40.0	12.7	31.45	23.7
1511	19.0	185.6	546.5	20.0	13.5	31.29	23.5
1515	19.0	185.6	546.5	10.0	13.9	30.81	23.0
1521	19.0	185.6	546.5	2.0	13.9	30.61	22.8
- DATA NOT AVAILABLE							

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
16 JUL 80		80198 1	15	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
748	36.0	147.2	582.7	0.0	-	23.57	-
754	36.0	147.2	582.7	2.0	-	23.86	-
800	36.0	147.2	582.7	4.0	-	24.06	-
814	35.0	148.5	581.5	1.0	21.2	24.15	16.3
818	34.0	149.8	580.6	1.0	20.8	24.89	16.9
829	33.0	151.6	577.5	1.0	20.9	25.71	17.5
844	32.0	152.5	576.5	0.0	-	25.86	-
848	32.0	152.5	576.5	2.0	-	25.76	-
855	32.0	152.5	576.5	5.0	-	25.96	-
1009	30.0	156.5	571.4	0.0	-	26.15	-
1014	30.0	156.5	571.4	2.0	-	26.08	-
1020	30.0	156.5	571.4	5.0	-	26.29	-
1026	30.0	156.5	571.4	10.0	-	26.33	-
1051	29.0	159.5	566.7	1.0	20.4	26.58	18.3
1101	28.0	161.5	564.4	1.0	20.2	26.78	18.5
1117	27.0	163.4	562.5	0.0	-	26.81	-
1123	27.0	163.4	562.5	2.0	-	26.67	-
1131	27.0	163.4	562.5	5.0	-	26.99	-
1136	27.0	163.4	562.5	10.0	-	27.27	-
1154	26.0	165.4	560.5	1.0	20.1	27.17	18.8
1212	25.0	169.4	559.5	1.0	19.5	27.59	19.3
1257	24.0	172.5	558.3	0.0	-	28.21	-
1302	24.0	172.5	558.3	2.0	-	28.19	-
1308	24.0	172.5	558.3	5.0	-	28.44	-
1334	23.0	175.5	558.5	1.0	17.6	28.55	20.5
1350	22.0	179.4	556.5	1.0	16.6	28.35	20.5
1414	21.0	183.6	555.5	0.0	-	28.33	-
1434	21.0	183.6	555.5	2.0	-	28.21	-
1439	21.0	183.6	555.5	5.0	-	28.91	-
1445	21.0	183.6	555.5	10.0	-	29.13	-
1515	20.0	185.4	552.4	1.0	14.3	30.63	22.8
1558	19.0	185.6	546.5	40.0	-	31.69	-
1608	19.0	185.6	546.5	20.0	-	31.41	-
1614	19.0	185.6	546.5	10.0	-	31.44	-
1618	19.0	185.6	546.5	2.0	-	30.89	-

- DATA NOT AVAILABLE

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL			
16 JUL 80	80198 1	15	S F RAY	ESTERO			
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
628	118.0	156.0	574.0	1.0	20.7	26.47	18.1
645	120.0	157.0	573.0	1.0	20.4	26.64	18.3
650	122.0	158.1	571.8	1.0	20.2	26.78	18.5
657	124.0	159.9	571.9	1.0	20.7	26.77	18.4
703	126.0	161.7	571.9	1.0	20.6	26.92	18.5
720	128.0	161.2	570.6	1.0	20.6	26.77	18.4
727	130.0	160.7	568.9	1.0	19.8	27.03	18.8
732	132.0	160.0	567.4	1.0	19.9	27.16	18.9
736	134.0	159.7	566.3	1.0	20.0	27.08	18.8
742	136.0	160.4	564.6	1.0	20.3	27.32	18.9
749	138.0	160.7	562.8	1.0	19.6	27.47	19.2
756	140.0	161.0	561.2	1.0	20.0	28.45	19.8
806	142.0	161.7	558.9	1.0	19.6	28.54	20.0
824	144.0	162.1	560.4	1.0	19.5	28.17	19.7
830	146.0	162.9	562.0	1.0	19.9	27.25	18.9
837	148.0	163.4	563.6	1.0	20.0	27.53	19.1
846	150.0	164.1	565.6	1.0	20.6	27.05	18.6
852	152.0	164.9	567.2	1.0	20.4	27.41	18.9
900	154.0	165.4	569.1	1.0	20.4	27.44	18.9
906	156.0	165.8	570.0	1.0	20.4	27.40	18.9
930	158.0	167.5	569.1	1.0	20.5	27.39	18.9
942	160.0	169.0	568.3	1.0	20.7	27.46	18.9
951	162.0	170.9	567.4	1.0	20.8	27.45	18.9
1014	164.0	172.5	566.5	1.0	20.8	27.54	18.9
1024	166.0	174.4	565.8	1.0	20.9	27.46	18.8
1027	168.0	175.1	565.3	1.0	20.8	27.19	18.7
1053	170.0	174.4	563.6	1.0	20.3	27.55	19.1
1100	172.0	173.8	561.9	1.0	19.8	27.54	19.2
1106	174.0	173.1	560.1	1.0	19.3	27.82	19.5
1113	176.0	172.4	558.4	1.0	19.0	28.05	19.8
1119	178.0	171.8	556.7	1.0	18.1	28.10	20.0
1128	180.0	171.1	554.6	1.0	19.3	28.51	20.0
1143	182.0	169.4	555.4	1.0	18.9	28.52	20.1
1147	184.0	168.5	555.7	1.0	18.8	28.42	20.1
1151	186.0	167.4	555.4	1.0	18.8	28.51	20.2
1156	188.0	166.2	555.2	1.0	19.1	28.59	20.1
1204	190.0	166.9	557.1	1.0	20.3	27.75	19.2
1210	192.0	167.5	558.4	1.0	19.9	27.61	19.2
1216	194.0	168.7	559.5	1.0	20.4	27.68	19.1
1250	196.0	168.8	562.4	1.0	19.5	27.72	19.4
1254	198.0	169.4	563.7	1.0	19.6	27.54	19.2
1301	200.0	170.0	565.4	1.0	20.2	27.61	19.1
1311	162.0	170.9	567.3	1.0	21.1	27.65	18.9
1321	164.0	172.5	566.5	1.0	21.0	27.67	19.0
1328	166.0	174.1	566.2	1.0	20.5	27.65	19.1
1332	168.0	175.1	565.3	1.0	20.9	27.56	18.9
1350	-	177.8	561.9	1.0	18.6	28.41	20.1
1410	-	180.7	557.8	1.0	16.8	28.94	20.9
1429	-	184.1	555.5	1.0	16.2	29.01	21.1

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
17 JUL 80		80199 1	15	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
624	17.0	192.6	550.6	0.0	-	29.42	-
630	17.0	192.6	550.6	2.0	-	29.47	-
636	17.0	192.6	550.6	5.0	-	30.42	-
641	17.0	192.6	550.6	10.0	-	30.50	-
647	17.0	192.6	550.6	20.0	-	30.66	-
720	16.0	196.3	548.3	1.0	16.9	26.65	19.2
754	15.0	202.4	549.5	0.0	-	23.00	-
800	15.0	202.4	549.5	2.0	-	23.02	-
810	15.0	202.4	549.5	5.0	-	23.38	-
815	15.0	202.4	549.5	10.0	-	24.30	-
820	15.0	202.4	549.5	20.0	-	24.82	-
851	14.0	206.7	552.5	1.0	18.3	19.80	13.7
920	13.0	209.3	555.7	0.0	-	17.62	-
927	13.0	209.3	555.7	2.0	-	17.90	-
937	13.0	209.3	555.7	5.0	-	23.16	-
943	13.0	209.3	555.7	10.0	-	23.60	-
1019	12.0	211.6	560.4	1.0	19.0	16.66	11.1
1038	11.0	212.7	564.6	1.0	19.2	15.60	10.3
1104	10.0	212.5	569.5	1.0	19.5	12.26	7.7
1124	9.0	211.4	572.5	0.0	-	9.71	-
1131	9.0	211.4	572.5	2.0	-	9.48	-
1139	9.0	211.4	572.5	5.0	-	10.39	-
1144	9.0	211.4	572.5	10.0	-	10.77	-
1150	9.0	211.4	572.5	20.0	-	10.43	-
1214	8.0	209.3	574.3	1.0	-	5.72	-
1240	7.0	211.3	579.3	1.0	20.5	3.51	0.8
1311	6.0	213.3	584.7	0.0	-	1.34	-
1316	6.0	213.3	584.7	2.0	-	1.28	-
1327	6.0	213.3	584.7	5.0	-	1.46	-
1352	5.0	212.8	589.5	1.0	21.3	0.43	-1.7
1408	4.0	211.5	593.4	1.0	21.1	0.18	-1.8
1435	3.0	211.8	598.4	0.0	-	0.17	-
1442	3.0	211.8	598.4	2.0	-	0.16	-
1449	3.0	211.8	598.4	5.0	-	0.16	-
1621	2.0	213.2	600.4	1.0	22.0	0.11	-2.1
1658	653.0	217.1	612.1	1.0	21.7	0.01	-2.1
1708	655.0	219.7	613.9	1.0	22.0	0.01	-2.1
1728	657.0	223.4	614.9	0.0	-	0.00	-
1736	657.0	223.4	614.9	2.0	-	0.00	-
1742	657.0	223.4	614.9	4.0	-	0.00	-

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL	
17 JUL 80		80199 1		15	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t	
714	302.0	205.4	553.3	1.0	17.5	23.94	17.0	
731	304.0	207.0	552.4	1.0	17.9	24.27	17.2	
741	306.0	209.0	551.0	1.0	18.6	21.32	14.7	
759	308.0	210.7	549.8	1.0	19.2	19.49	13.2	
806	310.0	212.2	548.8	1.0	20.0	18.34	12.2	
814	312.0	213.5	547.9	1.0	20.8	18.65	12.2	
840	314.0	214.7	550.0	1.0	20.0	18.35	12.2	
848	316.0	215.2	551.5	1.0	20.0	18.42	12.2	
858	318.0	215.5	553.3	1.0	20.0	17.67	11.7	
919	320.0	216.1	555.2	1.0	20.0	17.46	11.5	
928	322.0	216.4	226.9	1.0	19.8	17.44	11.5	
934	324.0	216.1	558.0	1.0	20.0	16.54	10.8	
957	326.0	215.4	559.2	1.0	20.1	16.65	10.9	
1009	328.0	213.4	560.0	1.0	19.0	17.78	12.0	
1017	330.0	212.2	560.6	1.0	19.2	16.24	10.8	
1031	-	211.3	563.0	1.0	19.0	17.31	11.6	
1036	-	210.4	563.6	1.0	18.9	19.31	13.2	
1220	402.0	210.0	578.5	1.0	20.4	4.99	2.0	
1225	404.0	211.0	577.2	1.0	20.0	4.53	1.7	
1241	406.0	213.0	579.3	1.0	20.2	3.82	1.2	
1250	408.0	215.0	580.5	1.0	20.3	3.81	1.1	
1259	401.0	216.7	581.8	1.0	20.5	3.11	0.5	
1306	412.0	217.9	582.8	1.0	21.5	2.24	-0.3	
1312	414.0	219.0	582.3	1.0	22.7	2.10	-0.7	
1331	416.0	218.8	584.1	1.0	20.7	2.75	0.2	
1353	420.0	217.9	586.4	1.0	20.8	3.02	0.4	
1401	422.0	216.7	585.8	1.0	21.1	1.49	-0.8	
1411	424.0	215.3	588.0	1.0	21.2	0.93	-1.3	
1419	423.0	214.7	589.5	1.0	21.5	0.74	-1.5	
1423	428.0	214.1	590.4	1.0	21.5	0.54	-1.6	
1431	430.0	214.2	592.5	1.0	21.6	1.34	-1.0	
1442	432.0	214.5	594.7	1.0	22.1	0.77	-1.6	
1621	747.0	209.3	602.0	1.0	23.0	0.13	-2.3	
1646	751.0	209.5	609.1	1.0	22.2	0.06	-2.1	
1659	753.0	210.3	612.6	1.0	22.4	0.07	-2.2	
1712	755.0	212.1	615.2	1.0	22.6	0.06	-2.2	
1726	757.0	215.9	616.0	1.0	22.3	0.06	-2.2	
- DATA NOT AVAILABLE								

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
4 AUG 80		80217	16	S F RAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
736	36.0	147.4	582.7	0.0	22.8	25.89	17.1
743	36.0	147.4	582.7	2.0	22.8	25.77	17.1
751	36.0	147.4	582.7	5.0	22.9	26.44	17.5
803	35.0	148.5	581.5	1.0	22.6	26.58	17.7
809	34.0	149.8	580.6	1.0	22.5	26.87	18.0
823	33.0	151.6	577.5	1.0	22.3	27.34	18.4
834	32.0	152.5	576.5	0.0	22.3	27.45	18.5
840	32.0	152.5	576.5	2.0	22.4	27.30	18.3
847	32.0	152.5	576.5	5.0	22.4	27.46	18.4
853	32.0	152.5	576.5	10.0	22.4	27.46	18.4
908	31.0	153.8	574.4	1.0	22.3	27.45	18.5
928	30.0	156.5	571.4	0.0	22.0	27.75	18.8
936	30.0	156.5	571.4	2.0	22.2	27.66	18.6
944	30.0	156.5	571.4	5.0	22.0	27.83	18.8
949	30.0	156.5	571.4	10.0	22.0	27.86	18.8
1013	29.0	159.5	566.7	1.0	21.8	27.90	18.9
1023	28.0	161.5	564.4	1.0	21.6	28.09	19.1
1039	27.0	163.4	562.5	0.0	21.5	28.11	19.2
1045	27.0	163.4	562.5	2.0	21.6	28.10	19.1
1052	27.0	163.4	562.5	5.0	21.6	28.19	19.2
1057	27.0	163.4	562.5	10.0	21.4	28.29	19.3
1114	26.0	165.4	560.5	1.0	20.9	28.46	19.6
1126	25.0	169.4	559.5	1.0	20.4	28.72	19.9
1143	24.0	172.5	558.3	0.0	19.7	29.09	20.4
1150	24.0	172.5	558.3	2.0	19.7	28.96	20.3
1159	24.0	172.5	558.3	5.0	19.5	29.09	20.4
1217	23.0	175.5	558.5	1.0	19.4	29.21	20.5
1229	22.0	179.4	556.5	1.0	19.1	29.30	20.7
1244	21.0	183.6	555.5	0.0	19.4	29.27	20.6
1250	21.0	183.6	555.5	2.0	19.4	29.17	20.5
1300	21.0	183.6	555.5	5.0	19.1	29.32	20.7
1308	21.0	183.6	555.5	10.0	18.6	29.46	20.9
1315	21.0	183.6	555.5	15.0	18.3	29.51	21.0
1417	16.0	196.3	548.3	1.0	18.3	27.17	19.3
1439	15.0	202.4	549.5	1.0	19.9	23.74	16.3
1452	14.0	206.7	552.5	1.0	19.1	24.94	17.4
1506	13.0	209.3	555.7	1.0	19.6	22.74	15.6
1525	12.0	211.6	560.4	1.0	20.5	18.21	12.0
1539	11.0	212.7	564.6	1.0	20.9	16.01	10.2
1557	10.0	212.5	569.5	1.0	21.3	13.78	8.4
1609	9.0	211.4	572.5	1.0	21.6	11.66	6.8
1619	8.0	209.3	574.5	1.0	21.7	9.80	5.3
1655	7.0	211.3	579.3	1.0	21.9	7.56	3.6
1714	6.0	213.3	584.7	1.0	22.3	3.51	0.4
1729	5.0	212.8	589.5	1.0	22.7	1.93	-0.8

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
4 AUG 80		80217		16	S F BAY		ESTERO
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
629	118.0	156.0	574.0	1.0	22.2	27.46	18.5
637	120.0	157.0	573.0	1.0	21.8	27.67	18.8
642	122.0	158.1	572.1	1.0	21.6	27.77	18.9
649	124.0	159.9	571.9	1.0	21.5	27.90	19.0
655	126.0	161.8	572.0	1.0	21.7	28.35	19.3
711	128.0	161.3	570.5	1.0	21.8	28.09	19.1
716	130.0	160.7	568.9	1.0	21.6	27.90	19.0
723	132.0	160.0	567.3	1.0	21.6	28.14	19.2
727	134.0	159.7	566.3	1.0	21.9	28.01	19.0
734	136.0	160.4	564.6	1.0	21.3	28.20	19.3
740	138.0	160.7	562.8	1.0	20.9	28.57	19.7
747	140.0	161.0	561.0	1.0	20.6	28.88	20.0
753	142.0	161.4	558.7	1.0	20.2	28.95	20.1
811	-	162.3	561.2	1.0	21.5	28.32	19.3
813	146.0	162.8	562.1	1.0	21.5	28.39	19.4
819	148.0	163.4	563.9	1.0	21.3	28.30	19.4
826	150.0	164.1	565.6	1.0	21.2	28.43	19.5
833	152.0	164.9	567.6	1.0	21.3	28.32	19.4
839	154.0	165.4	569.1	1.0	21.4	28.18	19.2
844	156.0	165.8	570.3	1.0	21.6	28.28	19.3
910	158.0	167.7	569.5	1.0	21.7	28.33	19.3
918	160.0	169.2	568.5	1.0	21.7	28.28	19.2
924	162.0	170.8	567.6	1.0	21.9	28.32	19.2
945	164.0	172.5	566.9	1.0	22.0	28.50	19.3
950	166.0	174.2	565.9	1.0	21.7	28.90	19.7
954	168.0	175.1	565.3	1.0	21.9	28.92	19.7
1009	170.0	174.4	563.6	1.0	22.0	28.59	19.4
1016	172.0	173.8	561.9	1.0	20.7	28.85	19.9
1023	174.0	173.2	560.0	1.0	19.2	29.27	20.6
1029	176.0	172.4	558.4	1.0	19.5	29.32	20.6
1036	178.0	171.8	556.7	1.0	19.1	29.48	20.8
1044	180.0	171.1	554.4	1.0	19.6	29.38	20.6
1107	-	174.0	556.9	1.0	19.0	29.51	20.9
1123	-	179.0	557.4	1.0	19.5	29.38	20.6
1136	-	183.4	558.8	1.0	20.6	29.15	20.2
1142	-	182.8	560.9	1.0	21.0	29.12	20.0
1149	-	182.7	562.6	1.0	21.6	29.04	19.8
1157	-	182.2	564.5	1.0	21.5	29.03	19.9
1205	-	181.2	566.1	1.0	22.0	29.03	19.7
1212	-	180.5	567.2	1.0	21.5	29.02	19.9

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DATE		JULIAN DATE		CRUISE #		LOCATION		VESSEL	
5 AUG 80		80218		16		S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t		
800	657.0	223.4	614.9	0.0	22.2	0.01	-2.2		
808	657.0	223.4	614.9	2.0	22.2	0.01	-2.2		
821	655.0	219.7	613.9	1.0	22.3	0.00	-2.2		
839	653.0	217.1	612.1	1.0	22.2	0.00	-2.2		
846	651.0	215.0	608.5	1.0	22.1	0.00	-2.2		
904	649.0	212.9	605.6	1.0	21.8	0.02	-2.1		
938	3.0	211.8	598.4	0.0	22.4	0.34	-2.0		
944	3.0	211.8	598.4	2.0	22.4	0.35	-2.0		
952	3.0	211.8	598.4	5.0	22.4	0.38	-1.9		
957	3.0	211.8	598.4	10.0	22.4	0.51	-1.9		
1043	4.0	211.5	593.4	1.0	22.1	1.11	-1.3		
1058	5.0	212.8	589.5	1.0	22.4	2.05	-0.7		
1122	6.0	213.3	584.7	0.0	21.3	5.69	2.3		
1130	6.0	213.3	584.7	2.0	21.3	6.79	3.1		
1137	6.0	213.3	584.7	5.0	21.2	7.25	3.5		
1145	6.0	213.3	584.7	10.0	21.1	7.46	3.7		
1215	7.0	211.3	579.3	1.0	20.9	12.01	7.2		
1231	8.0	209.3	574.5	1.0	20.8	14.54	9.1		
1254	9.0	211.4	572.5	0.0	20.7	15.66	10.0		
1304	9.0	211.4	572.5	2.0	20.4	15.72	10.1		
1311	9.0	211.4	572.5	5.0	20.2	17.64	11.6		
1316	9.0	211.4	572.5	10.0	20.1	18.28	12.1		
1322	9.0	211.4	572.5	15.0	20.1	18.41	12.2		
1434	10.0	212.5	569.5	1.0	20.5	15.95	10.2		
1450	11.0	212.7	564.6	1.0	19.9	18.80	12.5		
1500	12.0	211.6	560.4	1.0	19.6	20.82	14.1		
1525	13.0	209.3	555.7	0.0	19.4	23.81	16.4		
1532	13.0	209.3	555.7	2.0	19.4	23.62	16.3		
1540	13.0	209.3	555.7	5.0	19.4	23.81	16.4		
1546	13.0	209.3	555.7	10.0	18.8	25.24	17.7		
1607	14.0	206.7	552.5	1.0	19.5	23.98	16.6		
1632	15.0	202.4	549.5	0.0	19.1	25.11	17.5		
1640	15.0	202.4	549.5	2.0	19.1	25.07	17.5		
1647	15.0	202.4	549.5	5.0	18.5	26.06	18.4		
1654	15.0	202.4	549.5	10.0	18.3	26.51	18.8		
1659	15.0	202.4	549.5	15.0	17.4	28.80	20.7		
1800	16.0	196.3	548.3	1.0	17.7	28.53	20.4		
1826	17.0	192.6	550.6	0.0	17.0	30.04	21.7		
1832	17.0	192.6	550.6	2.0	16.6	30.34	22.1		
1840	17.0	192.6	550.6	5.0	16.6	30.90	22.5		
1845	17.0	192.6	550.6	15.0	16.1	31.06	22.7		
1853	17.0	192.6	550.6	30.0	16.0	31.16	22.8		
1931	19.0	185.6	546.5	1.0	14.9	32.17	23.8		
1944	20.0	185.4	552.4	1.0	15.2	31.99	23.6		
1956	21.0	183.6	555.5	1.0	17.9	30.87	22.2		
2005	22.0	179.4	556.5	1.0	17.3	30.38	21.9		
2017	23.0	175.5	558.5	1.0	17.8	29.90	21.5		

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DATE		JULIAN DATE	CRUISE #	LOCATION	VESSEL		
5 AUG 80		80218	16	S F BAY	ESTERO		
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
816	757.0	215.9	616.0	1.0	23.2	0.06	-2.4
838	755.0	212.1	615.2	1.0	23.1	0.07	-2.3
849	753.0	210.3	612.6	1.0	23.1	0.08	-2.3
858	751.0	209.5	609.1	1.0	23.2	0.09	-2.4
928	749.0	208.9	605.5	1.0	23.7	0.20	-2.4
941	747.0	209.4	601.9	1.0	23.5	0.39	-2.2
955	-	210.1	598.3	1.0	24.2	0.77	-2.1
1045	-	214.2	595.5	1.0	20.8	2.59	0.1
1050	432.0	214.5	594.6	1.0	20.6	2.45	0.0
1107	430.0	214.2	594.5	1.0	21.7	2.62	-0.1
1116	428.0	214.0	590.3	1.0	21.9	2.50	-0.2
1120	426.0	214.8	589.6	1.0	21.7	3.12	0.3
1126	424.0	215.5	588.1	1.0	20.9	4.10	1.2
1136	422.0	216.6	585.8	1.0	20.9	5.70	2.4
1143	420.0	217.9	586.2	1.0	21.3	3.68	0.8
1147	418.0	219.0	586.8	1.0	19.8	3.80	1.2
1210	416.0	219.0	584.3	1.0	21.1	5.90	2.5
1218	414.0	219.3	582.5	1.0	21.0	5.52	2.3
1234	410.0	216.8	581.9	1.0	21.0	8.47	4.5
1242	408.0	215.0	580.5	1.0	21.1	10.34	5.9
1249	406.0	213.2	579.2	1.0	21.2	11.93	7.1
1300	404.0	211.2	579.2	1.0	21.2	12.78	7.7
1307	402.0	210.2	577.5	1.0	21.5	11.09	6.3
1456	334.0	208.5	562.0	1.0	19.8	22.78	15.6
1515	330.0	211.8	560.8	1.0	20.5	18.75	12.4
1522	328.0	213.4	560.1	1.0	20.3	19.88	13.3
1530	326.0	215.4	559.6	1.0	20.0	21.55	14.6
1538	324.0	216.8	558.8	1.0	20.0	20.85	14.1
1557	322.0	216.7	556.9	1.0	20.1	20.01	13.4
1605	320.0	216.2	555.1	1.0	20.2	19.79	13.2
1615	318.0	215.8	553.2	1.0	20.3	19.71	13.1
1637	-	213.5	550.8	1.0	20.4	19.67	13.1
1649	308.0	210.8	549.9	1.0	20.4	20.70	13.9
1657	-	208.7	549.6	1.0	20.6	21.71	14.6
1705	-	206.8	549.7	1.0	19.4	24.69	17.1
- DATA NOT AVAILABLE							

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL
18 AUG 80	80231 1	17	S F BAY	ESTERO

TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
628	118.0	155.1	574.0	1.0	20.0	27.97	19.4
639	120.0	157.0	573.0	1.0	19.9	28.13	19.6
645	122.0	158.1	571.9	1.0	19.9	28.22	19.7
652	124.0	159.9	571.9	1.0	19.8	28.42	19.8
659	126.0	161.8	572.0	1.0	19.8	28.68	20.0
731	128.0	161.2	570.6	1.0	19.8	28.43	19.9
736	130.0	160.6	569.2	1.0	19.7	28.48	19.9
744	132.0	160.0	567.4	1.0	19.5	28.68	20.1
747	134.0	159.5	566.3	1.0	19.6	28.77	20.2
754	136.0	160.4	564.6	1.0	19.5	28.85	20.2
801	138.0	160.7	562.8	1.0	19.0	29.68	21.0
808	140.0	161.0	561.0	1.0	19.1	29.79	21.1
817	142.0	161.4	558.8	1.0	19.0	29.67	21.0
837	144.0	162.0	560.4	1.0	19.2	29.33	20.7
843	146.0	162.8	562.1	1.0	19.4	29.12	20.5
849	148.0	163.4	563.9	1.0	19.5	28.93	20.3
858	150.0	164.1	565.6	1.0	19.6	28.83	20.2
905	152.0	164.8	567.4	1.0	19.7	29.00	20.3
913	154.0	165.4	569.1	1.0	20.0	28.82	20.1
920	156.0	165.8	570.3	1.0	20.0	28.68	20.0
936	158.0	167.5	569.4	1.0	19.8	28.80	20.1
944	160.0	169.2	568.5	1.0	19.8	28.91	20.2
952	162.0	170.8	567.6	1.0	19.8	28.79	20.1
1012	164.0	172.5	566.7	1.0	19.9	28.93	20.2
1018	166.0	174.2	565.8	1.0	19.8	29.08	20.3
1024	168.0	175.1	565.3	1.0	19.8	29.02	20.3
1049	170.0	174.4	563.6	1.0	19.7	29.23	20.5
1057	172.0	173.8	561.8	1.0	19.7	29.12	20.4
1106	174.0	173.1	560.1	1.0	19.3	29.53	20.8
1112	176.0	172.4	558.4	1.0	19.2	29.47	20.8
1118	178.0	171.8	556.7	1.0	19.0	29.94	21.2
1128	180.0	170.9	554.4	1.0	19.1	30.02	21.2

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
18 AUG 80		80231 1		17	S F BAY		POLARIS
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
704	36.0	147.4	582.7	0.0	20.2	26.08	18.0
712	36.0	147.4	582.7	2.0	20.4	26.16	18.0
720	36.0	147.4	582.7	5.0	20.5	26.73	18.4
730	35.0	148.5	581.5	1.0	20.4	26.73	18.4
737	34.0	149.8	580.6	1.0	20.4	27.13	18.7
748	33.0	151.6	577.6	1.0	20.3	27.43	19.0
800	32.0	152.5	576.5	0.0	20.3	27.73	19.2
806	32.0	152.5	576.5	2.0	20.4	27.61	19.1
814	32.0	152.5	576.5	5.0	20.4	27.70	19.1
819	32.0	152.5	576.5	10.0	20.4	27.72	19.2
833	31.0	153.8	574.5	1.0	20.3	27.80	19.2
851	30.0	156.5	571.4	0.0	20.1	28.01	19.5
858	30.0	156.5	571.4	2.0	20.0	27.81	19.3
905	30.0	156.5	571.4	5.0	19.9	28.12	19.6
911	30.0	156.5	571.4	10.0	19.9	28.17	19.6
938	29.0	159.5	566.7	1.0	19.7	28.39	19.8
946	28.0	161.5	564.4	1.0	19.6	28.63	20.0
1002	27.0	163.4	562.5	0.0	19.3	28.77	20.2
1008	27.0	163.4	562.5	2.0	19.4	28.68	20.1
1014	27.0	163.4	562.5	5.0	19.4	28.74	20.2
1020	27.0	163.4	562.5	10.0	19.4	28.74	20.2
1038	26.0	165.4	560.5	1.0	19.2	29.01	20.4
1050	25.0	169.4	559.5	1.0	19.1	29.10	20.5
1108	24.0	172.5	558.3	0.0	19.0	29.28	20.7
1115	24.0	172.5	558.3	2.0	18.8	29.18	20.7
1122	24.0	172.5	558.3	5.0	18.5	29.48	21.0
1127	24.0	172.5	558.3	8.0	18.3	29.62	21.1
1219	23.0	175.5	558.5	1.0	19.0	29.31	20.7
1234	22.0	179.4	556.5	1.0	18.5	29.54	21.0
1252	21.0	183.6	555.5	0.0	18.3	29.80	21.3
1300	21.0	183.6	555.5	2.0	18.2	29.74	21.2
1307	21.0	183.6	555.5	5.0	17.6	29.97	21.6
1312	21.0	183.6	555.5	10.0	17.4	29.98	21.6
1316	21.0	183.6	555.5	15.0	17.2	30.06	21.7
1341	20.0	185.4	552.4	1.0	15.8	30.96	22.7
1419	19.0	185.6	546.5	40.0	13.8	32.54	24.4
1426	19.0	185.6	546.5	20.0	13.8	32.46	24.3
1430	19.0	185.6	546.5	10.0	14.3	32.35	24.1
1437	19.0	185.6	556.5	2.0	14.9	31.56	23.4

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL			
19 AUG 80	80232 1	17	S F BAY	ESTERO			
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
718	302.0	205.2	553.5	1.0	17.7	23.62	16.7
737	304.0	206.9	552.3	1.0	17.6	23.79	16.8
746	306.0	208.8	551.1	1.0	17.6	23.36	16.5
804	308.0	210.7	549.8	1.0	18.0	22.83	16.0
811	310.0	212.2	548.8	1.0	18.3	22.07	15.4
817	312.0	213.5	547.9	1.0	18.4	21.66	15.0
832	314.0	214.7	550.0	1.0	18.5	21.69	15.1
839	316.0	215.2	551.5	1.0	18.4	21.83	15.2
847	318.0	215.7	553.3	1.0	18.2	22.07	15.4
907	320.0	216.3	555.1	1.0	18.3	21.85	15.2
915	322.0	216.7	556.9	1.0	18.2	22.18	15.5
923	324.0	216.9	558.6	1.0	18.2	21.50	15.0
940	326.0	215.3	559.3	1.0	18.3	21.99	15.3
948	328.0	213.5	560.0	1.0	18.4	21.37	14.8
956	330.0	211.8	560.7	1.0	18.7	20.25	13.9
1002	332.0	210.1	561.4	1.0	19.0	20.10	13.7
1010	334.0	208.4	562.1	1.0	18.7	20.93	14.4
1144	402.0	210.2	577.5	1.0	19.8	9.99	5.9
1148	404.0	211.2	577.3	1.0	19.5	11.98	7.5
1203	406.0	213.3	579.1	1.0	19.8	10.58	6.4
1211	408.0	215.0	580.5	1.0	19.8	9.26	5.4
1220	410.0	216.7	581.9	1.0	19.8	8.24	4.6
1226	412.0	218.0	582.9	1.0	19.6	6.87	3.6
1232	414.0	219.3	582.3	1.0	19.8	6.78	3.5
1251	416.0	219.0	584.2	1.0	19.9	6.56	3.3
1301	418.0	218.8	586.7	1.0	19.6	7.09	3.8
1314	420.0	217.9	586.2	1.0	19.9	6.77	3.5
1319	422.0	216.7	585.8	1.0	19.8	6.46	3.2
1329	424.0	215.4	588.1	1.0	20.0	5.07	2.1
1337	426.0	214.8	589.5	1.0	19.9	4.73	1.9
1341	428.0	214.0	590.5	1.0	20.5	4.32	1.5
1348	430.0	214.3	592.5	1.0	20.7	3.69	0.9
1359	432.0	214.5	594.6	1.0	20.0	4.30	1.6
1426	-	212.0	597.2	1.0	20.5	2.36	-0.0
1533	747.0	209.8	599.5	1.0	22.1	1.00	-1.4
1547	749.0	208.8	605.3	1.0	22.2	0.70	-1.7
1603	751.0	209.5	609.1	1.0	22.5	0.49	-1.9
1619	753.0	210.3	612.6	1.0	22.0	0.27	-1.9
1634	755.0	212.1	615.2	1.0	22.0	0.16	-2.0
1652	757.0	215.9	616.0	1.0	21.9	0.12	-2.0

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DATE		JULIAN DATE	CRUISE #	LOCATION	VESSEL		
19 AUG 80		80232 1	17	S F BAY	POLARIS		
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
642	17.0	192.6	550.6	0.0	15.5	30.60	22.5
650	17.0	192.6	550.6	2.0	15.2	30.93	22.8
657	17.0	192.6	550.6	5.0	15.2	31.28	23.1
702	17.0	192.6	550.6	10.0	15.1	31.21	23.1
708	17.0	192.6	550.6	30.0	14.9	31.58	23.4
734	16.0	196.3	548.3	1.0	16.5	28.58	20.7
804	15.0	202.4	549.5	0.0	17.1	26.26	18.8
809	15.0	202.4	549.5	2.0	17.1	26.69	19.2
817	15.0	202.4	549.5	5.0	17.0	27.21	19.6
823	15.0	202.4	549.5	15.0	16.5	28.53	20.7
853	14.0	206.7	552.5	1.0	17.5	25.11	17.9
912	13.0	209.3	555.7	0.0	18.1	22.04	15.4
917	13.0	209.3	555.7	2.0	17.9	23.56	16.6
924	13.0	209.3	555.7	5.0	17.2	26.76	19.2
948	12.0	211.6	560.4	1.0	18.3	21.04	14.6
1009	11.0	212.7	564.6	1.0	18.5	19.53	13.4
1024	10.0	212.5	569.5	1.0	18.7	16.60	11.2
1038	9.0	211.4	572.5	0.0	18.9	15.47	10.3
1043	9.0	211.4	572.5	2.0	18.9	15.37	10.2
1050	9.0	211.4	572.5	5.0	18.7	16.77	11.3
1055	9.0	211.4	572.5	10.0	18.6	18.32	12.5
1100	9.0	211.4	572.5	15.0	18.5	19.36	13.3
1137	8.0	209.3	574.3	1.0	19.0	13.85	9.0
1153	7.0	211.3	579.3	1.0	18.9	11.65	7.4
1221	6.0	213.3	584.7	0.0	19.7	6.26	3.1
1226	6.0	213.3	584.7	2.0	19.3	7.10	3.8
1233	6.0	213.3	584.7	5.0	19.1	9.45	5.7
1305	5.0	212.8	589.5	1.0	19.8	4.98	2.1
1321	4.0	211.5	593.4	1.0	20.2	3.29	0.7
1344	3.0	211.8	598.4	0.0	20.6	2.20	-0.2
1350	3.0	211.8	598.4	2.0	20.5	2.17	-0.2
1357	3.0	211.8	598.4	5.0	20.4	2.23	-0.1
1403	3.0	211.8	598.4	10.0	20.1	2.59	0.2
1448	2.0	213.2	600.4	1.0	20.8	1.17	-1.0
1506	649.0	212.9	605.6	1.0	20.5	0.42	-1.5
1517	651.0	215.0	608.5	1.0	20.7	0.07	-1.8
1523	652.0	216.4	610.6	1.0	20.8	0.07	-1.8
1533	653.0	217.1	612.1	1.0	21.2	0.07	-1.9
1544	655.0	219.7	613.9	1.0	21.2	0.05	-1.9
1604	657.0	223.4	614.9	0.0	21.4	0.04	-2.0
1610	657.0	223.4	614.9	2.0	21.3	0.04	-2.0
1616	657.0	223.4	614.9	5.0	21.3	0.04	-2.0
- DATA NOT AVAILABLE							

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
3 SEP 80		80247	18	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
700	36.0	147.4	582.7	0.0	20.8	26.00	17.8
706	36.0	147.4	582.7	2.0	20.8	26.10	17.8
712	36.0	147.4	582.7	5.0	20.8	26.35	18.0
726	35.0	148.5	581.5	1.0	20.6	26.83	18.4
732	34.0	149.8	580.6	1.0	20.5	27.33	18.8
746	33.0	151.6	577.5	1.0	20.3	28.08	19.5
756	32.0	152.5	576.5	0.0	20.3	28.15	19.5
805	32.0	152.5	576.5	2.0	20.3	28.18	19.5
810	32.0	152.5	576.5	5.0	20.3	28.24	19.6
814	32.0	152.5	576.5	10.0	20.3	28.25	19.6
833	31.0	153.8	574.4	1.0	20.2	28.38	19.7
852	30.0	156.5	571.4	0.0	19.8	28.72	20.1
857	30.0	156.5	571.4	2.0	19.8	28.73	20.1
903	30.0	156.5	571.4	5.0	19.8	28.73	20.1
907	30.0	156.5	571.4	10.0	19.8	28.73	20.1
945	29.0	159.5	566.7	1.0	19.7	29.00	20.3
955	28.0	161.5	564.4	1.0	19.4	29.21	20.5
1010	27.0	163.4	562.5	0.0	19.0	29.55	20.9
1015	27.0	163.4	562.5	2.0	19.0	29.47	20.8
1021	27.0	163.4	562.5	5.0	19.0	29.55	20.9
1025	27.0	163.4	562.5	10.0	19.0	29.56	20.9
1043	26.0	165.4	560.5	1.0	18.8	29.83	21.2
1057	25.0	169.4	559.5	1.0	18.5	30.09	21.4
1151	24.0	172.5	558.3	0.0	18.2	30.25	21.6
1158	24.0	172.5	558.3	2.0	18.2	30.22	21.6
1204	24.0	172.5	558.3	5.0	17.9	30.26	21.7
1208	24.0	172.5	558.3	8.0	17.9	30.25	21.7
1230	23.0	175.5	558.5	1.0	18.1	30.41	21.8
1242	22.0	179.4	556.5	1.0	17.5	30.55	22.0
1256	21.0	183.6	555.5	0.0	17.2	30.39	22.0
1300	21.0	183.6	555.5	2.0	17.2	30.37	21.9
1307	21.0	183.6	555.5	5.0	16.8	30.40	22.1
1312	21.0	183.6	555.5	10.0	16.6	30.58	22.2
1317	21.0	183.6	555.5	14.0	16.3	30.78	22.5
1342	20.0	185.4	552.4	1.0	16.4	30.88	22.5
1410	19.0	185.6	546.5	40.0	15.3	31.62	23.3
1416	19.0	185.6	546.5	20.0	15.3	31.69	23.4
1424	19.0	185.6	546.5	2.0	15.3	31.53	23.3

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DATE		JULIAN DATE		CRUISE #		LOCATION		VESSEL	
3 SEP 80		80247		18		S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t		
614	118.0	155.1	574.0	1.0	20.3	28.20	19.5		
633	120.0	157.0	573.0	1.0	20.2	28.45	19.8		
639	122.0	158.1	571.9	1.0	20.1	28.49	19.8		
645	124.0	159.9	571.9	1.0	19.9	28.71	20.0		
652	126.0	161.8	572.0	1.0	19.8	29.16	20.4		
707	128.0	161.3	570.5	1.0	19.8	28.77	20.1		
713	130.0	160.7	569.1	1.0	19.8	28.71	20.1		
719	132.0	159.9	567.3	1.0	19.7	29.01	20.3		
723	134.0	159.6	566.1	1.0	19.7	28.94	20.2		
730	136.0	160.4	564.6	1.0	19.5	29.38	20.6		
737	138.0	160.7	562.8	1.0	19.3	30.09	21.2		
744	140.0	160.9	560.9	1.0	19.2	30.31	21.4		
753	142.0	161.5	558.7	1.0	18.8	30.16	21.4		
807	144.0	162.1	560.4	1.0	19.0	29.85	21.1		
813	146.0	162.7	562.4	1.0	19.5	29.39	20.7		
819	148.0	163.4	563.9	1.0	19.3	29.35	20.7		
825	150.0	164.1	565.6	1.0	19.3	29.43	20.7		
832	152.0	164.8	567.4	1.0	19.2	29.51	20.8		
840	154.0	165.7	569.0	1.0	19.5	29.46	20.7		
844	156.0	165.1	570.2	1.0	19.7	29.31	20.5		
858	158.0	167.5	569.3	1.0	19.8	29.28	20.5		
905	160.0	169.2	568.4	1.0	19.8	29.30	20.5		
912	162.0	171.0	567.9	1.0	19.7	29.55	20.7		
928	164.0	172.7	566.9	1.0	19.5	29.72	20.9		
935	166.0	174.5	565.9	1.0	19.6	29.72	20.9		
938	168.0	175.1	565.3	1.0	19.7	29.68	20.8		
955	170.0	174.3	563.2	1.0	19.1	29.87	21.1		
1000	172.0	173.8	561.8	1.0	18.4	30.28	21.6		
1007	174.0	173.2	560.0	1.0	17.3	30.65	22.1		
1012	176.0	172.7	558.3	1.0	17.7	30.59	22.0		
1019	178.0	171.8	556.4	1.0	17.6	30.61	22.0		
1027	180.0	171.0	554.4	1.0	18.1	30.54	21.9		
1041	182.0	169.8	555.0	1.0	18.4	30.49	21.8		
1047	184.0	169.6	555.7	1.0	18.3	30.41	21.7		
1053	-	168.8	558.0	1.0	18.3	30.43	21.7		
1119	194.0	168.3	560.3	1.0	19.2	30.01	21.2		
1126	196.0	168.9	562.3	1.0	19.5	29.76	20.9		
1131	198.0	169.4	563.7	1.0	19.5	29.56	20.8		
1137	200.0	170.4	565.4	1.0	19.8	29.43	20.6		
1146	162.0	171.0	566.4	1.0	20.0	29.32	20.5		
1153	164.0	172.7	566.9	1.0	19.8	29.58	20.7		
1200	166.0	174.4	565.5	1.0	19.6	29.74	20.9		
1203	168.0	175.3	565.0	1.0	19.6	29.73	20.9		
1208	-	176.2	564.5	1.0	19.6	29.73	20.9		
1216	-	177.4	565.1	1.0	19.5	29.71	20.9		

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DATE 4 SEP 80		JULIAN DATE 80248	CRUISE # 18	LOCATION S F BAY		VESSEL POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
621	17.0	192.6	550.6	0.0	17.2	27.60	19.8
628	17.0	192.6	550.6	2.0	16.9	28.70	20.7
634	17.0	192.6	550.6	5.0	16.6	29.51	21.4
638	17.0	192.6	550.6	10.0	16.3	30.12	22.0
643	17.0	192.6	550.6	20.0	16.1	30.44	22.3
648	17.0	192.6	550.6	40.0	16.1	30.56	22.3
722	16.0	196.3	548.3	1.0	17.6	26.40	18.8
747	15.0	202.4	549.5	0.0	17.9	24.50	17.3
752	15.0	202.4	549.5	2.0	18.0	24.58	17.4
758	15.0	202.4	549.5	5.0	17.7	25.97	18.5
803	15.0	202.4	549.5	10.0	17.5	26.53	19.0
808	15.0	202.4	549.5	15.0	17.4	27.10	19.4
832	14.0	206.7	552.5	1.0	17.9	24.90	17.6
850	13.0	209.3	555.7	0.0	17.8	23.01	16.2
855	13.0	209.3	555.7	2.0	18.0	24.01	16.9
905	13.0	209.3	555.7	7.0	17.7	25.57	18.2
935	12.0	211.6	560.4	1.0	18.3	21.10	14.7
950	11.0	212.7	564.6	1.0	18.3	18.40	12.6
1006	10.0	212.5	569.5	1.0	18.5	15.50	10.4
1021	9.0	211.4	572.5	0.0	18.5	15.87	10.6
1027	9.0	211.4	572.5	2.0	18.5	16.01	10.8
1035	9.0	211.4	572.5	5.0	18.5	17.10	11.6
1041	9.0	211.4	572.5	10.0	18.5	17.80	12.1
1048	9.0	211.4	572.5	16.0	18.5	18.01	12.3
1111	8.0	209.3	574.3	1.0	18.7	14.90	9.9
1128	7.0	211.3	579.3	1.0	18.7	12.60	8.1
1157	6.0	213.3	584.7	0.0	19.2	8.34	4.8
1202	6.0	213.3	584.7	2.0	19.2	8.42	4.9
1210	6.0	213.3	584.7	7.0	19.1	8.91	5.2
1233	5.0	212.8	589.5	1.0	19.6	5.50	2.6
1250	4.0	211.5	593.4	1.0	19.8	4.01	1.4
1313	3.0	211.8	598.4	0.0	19.9	2.60	0.3
1319	3.0	211.8	598.4	2.0	19.9	2.60	0.3
1324	3.0	211.8	598.4	5.0	19.9	2.58	0.3
1329	3.0	211.8	598.4	10.0	19.9	2.59	0.3
1404	2.0	213.2	600.4	1.0	20.2	2.50	0.1
1420	649.0	212.9	605.6	1.0	20.3	1.30	-0.8
1431	651.0	215.0	608.5	1.0	20.1	0.66	-1.2
1435	652.0	216.4	610.6	1.0	20.3	0.43	-1.4
1443	653.0	217.1	612.1	1.0	20.6	0.16	-1.7
1455	655.0	219.7	613.9	1.0	21.1	0.12	-1.9
1513	657.0	223.4	614.9	0.0	21.8	0.09	-2.0
1519	657.0	223.4	614.9	2.0	21.7	0.10	-2.0
1647	757.0	215.9	616.0	0.0	21.7	0.14	-2.0
1652	757.0	215.9	616.0	2.0	21.6	0.15	-1.9
1657	757.0	215.9	616.0	5.0	21.2	0.17	-1.8
1702	757.0	215.9	616.0	10.0	21.3	0.23	-1.8
1722	755.0	212.1	615.2	1.0	21.4	0.28	-1.8
1734	753.0	210.3	612.6	1.0	22.0	0.50	-1.8
1746	751.0	209.5	609.1	1.0	22.1	0.70	-1.6

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
4 SEP 80		80248		18	S F BAY		ESTERO
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
658	302.0	202.3	553.7	1.0	18.2	25.01	17.7
721	304.0	207.0	552.3	1.0	18.2	23.08	16.2
728	306.0	209.0	551.3	1.0	18.1	23.82	16.8
746	308.0	210.7	549.8	1.0	18.6	22.92	16.0
752	310.0	212.2	548.8	1.0	18.6	22.88	15.9
758	312.0	213.5	547.9	1.0	18.6	22.81	15.9
816	314.0	214.8	549.7	1.0	18.6	22.76	15.8
823	316.0	213.3	551.5	1.0	18.4	22.88	16.0
830	318.0	215.8	553.3	1.0	18.1	22.74	15.9
846	320.0	216.3	555.3	1.0	18.0	23.02	16.2
853	322.0	216.8	556.9	1.0	17.9	23.08	16.3
900	324.0	217.0	558.6	1.0	17.7	23.70	16.8
915	326.0	215.3	559.4	1.0	18.1	21.46	15.0
922	328.0	213.5	560.1	1.0	18.3	20.39	14.1
929	330.0	211.8	560.7	1.0	18.4	19.85	13.7
935	332.0	210.0	561.5	1.0	18.3	21.54	15.0
942	334.0	208.4	562.1	1.0	17.8	25.45	18.1
1005	-	212.1	564.4	1.0	18.4	20.13	13.9
1015	-	212.5	568.0	1.0	18.5	16.47	11.1
1110	402.0	210.2	577.5	1.0	19.0	12.46	8.0
1114	404.0	211.2	577.3	1.0	19.0	12.01	7.6
1127	406.0	213.3	579.1	1.0	19.1	11.72	7.4
1133	408.0	215.0	580.5	1.0	19.1	10.65	6.6
1140	410.0	216.7	581.9	1.0	19.2	9.06	5.3
1145	412.0	218.0	582.9	1.0	19.3	8.63	5.0
1150	414.0	219.2	582.3	1.0	19.4	7.82	4.3
1207	416.0	219.0	584.3	1.0	19.2	7.56	4.2
1216	418.0	218.8	586.7	1.0	19.7	5.42	2.5
1235	420.0	217.5	586.2	1.0	19.4	6.75	3.5
1237	422.0	216.8	585.8	1.0	19.4	7.62	4.2
1244	424.0	215.4	588.0	1.0	19.2	6.58	3.5
1251	426.0	214.8	589.6	1.0	19.4	5.89	2.9
1254	428.0	214.1	590.5	1.0	19.6	4.83	2.0
1301	430.0	214.3	592.5	1.0	19.5	4.45	1.8
1309	432.0	214.5	594.7	1.0	20.2	2.97	0.5
1358	745.0	210.3	598.3	1.0	20.8	2.19	-0.2
1410	747.0	209.3	601.9	1.0	21.2	1.58	-0.8
1423	749.0	208.8	605.3	1.0	21.6	1.10	-1.2
1437	751.0	209.5	609.1	1.0	22.0	0.87	-1.5

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
16 SEP 80		80260 1	19	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
932	36.0	147.4	582.7	0.0	19.3	26.30	18.4
938	36.0	147.4	582.7	2.0	19.6	26.50	18.4
943	36.0	147.4	582.7	5.0	19.6	26.90	18.7
955	35.0	148.5	581.5	1.0	19.4	26.50	18.5
1001	34.0	149.8	580.6	1.0	19.1	26.29	18.4
1012	33.0	151.6	577.5	1.0	19.5	27.44	19.2
1024	32.0	152.5	576.5	0.0	19.6	27.70	19.3
1028	32.0	152.5	576.5	2.0	19.6	27.65	19.3
1032	32.0	152.5	576.5	5.0	19.6	27.76	19.4
1035	32.0	152.5	576.5	10.0	19.6	27.90	19.5
1052	31.0	153.8	574.4	1.0	19.6	27.95	19.5
1109	30.0	156.5	571.4	0.0	19.6	28.50	19.9
1113	30.0	156.5	571.4	2.0	19.6	28.48	19.9
1118	30.0	156.5	571.4	5.0	19.5	28.61	20.1
1122	30.0	156.5	571.4	10.0	19.5	28.74	20.2
1148	29.0	159.5	566.7	1.0	19.4	29.00	20.4
1158	28.0	161.5	564.4	1.0	19.4	29.17	20.5
1214	27.0	163.4	562.5	0.0	19.5	29.17	20.5
1218	27.0	163.4	562.5	2.0	19.4	29.17	20.5
1224	27.0	163.4	562.5	5.0	19.1	29.28	20.7
1228	27.0	163.4	562.5	10.0	19.0	29.52	20.9
1245	26.0	165.4	560.5	1.0	19.3	29.41	20.7
1259	25.0	169.4	559.5	1.0	18.8	29.75	21.1
1316	24.0	172.5	558.3	0.0	18.5	30.16	21.5
1321	24.0	172.5	558.3	2.0	18.4	30.34	21.6
1327	24.0	172.5	558.3	5.0	18.1	30.43	21.8
1407	23.0	175.5	558.5	1.0	18.5	30.22	21.5
1424	22.0	179.4	556.5	1.0	17.8	30.16	21.6
1442	21.0	183.6	555.5	0.0	17.4	29.90	21.5
1448	21.0	183.6	555.5	2.0	17.1	30.05	21.7
1455	21.0	183.6	555.5	5.0	15.9	31.17	22.9
1459	21.0	183.6	555.5	10.0	15.8	31.32	23.0
1528	20.0	185.4	552.4	1.0	16.3	30.90	22.6
1607	19.0	185.6	546.5	40.0	14.7	32.28	24.0
1614	19.0	185.6	546.5	20.0	14.8	32.28	23.9
1618	19.0	185.6	546.5	10.0	15.1	32.10	23.7
1622	19.0	185.6	546.5	5.0	15.1	31.98	23.6
1626	19.0	185.6	546.5	2.0	15.3	31.98	23.6

- DATA NOT AVAILABLE

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
16 SEP 80		80260 1	19	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
907	118.0	155.1	574.0	1.0	18.5	28.88	20.5
916	120.0	157.0	573.0	1.0	19.2	28.66	20.2
921	122.0	158.1	571.9	1.0	19.4	28.77	20.2
929	124.0	159.9	571.9	1.0	19.1	28.90	20.4
935	126.0	161.8	572.0	1.0	18.8	29.23	20.7
951	128.0	161.2	570.6	1.0	19.4	28.89	20.3
957	130.0	160.6	569.2	1.0	19.4	28.93	20.3
1004	132.0	160.0	567.4	1.0	19.3	29.24	20.6
1007	134.0	159.5	566.3	1.0	19.5	29.08	20.4
1013	136.0	160.4	546.6	1.0	19.4	29.27	20.6
1021	138.0	161.0	562.8	1.0	19.3	29.54	20.8
1027	140.0	161.0	561.0	1.0	18.9	30.51	21.6
1036	142.0	161.4	558.8	1.0	18.7	30.39	21.6
1054	144.0	162.0	560.4	1.0	19.2	29.73	21.0
1058	146.0	162.8	562.1	1.0	19.4	29.35	20.6
1104	148.0	163.4	563.9	1.0	19.2	29.35	20.7
1111	150.0	164.1	565.6	1.0	19.2	29.49	20.8
1118	152.0	164.8	567.4	1.0	19.2	29.70	21.0
1125	154.0	165.4	569.1	1.0	19.4	29.71	20.9
1130	156.0	165.8	570.3	1.0	19.0	29.57	20.9
1149	158.0	167.5	569.4	1.0	19.3	29.70	20.9
1157	160.0	169.2	568.5	1.0	19.4	29.88	21.0
1205	162.0	170.8	567.6	1.0	19.2	29.70	21.0
1224	164.0	172.5	566.7	1.0	19.6	29.94	21.0
1231	166.0	174.2	565.8	1.0	19.3	29.92	21.1
1235	168.0	175.1	565.3	1.0	19.3	29.96	21.1
1246	170.0	174.4	563.6	1.0	19.8	29.81	20.9
1253	172.0	173.8	561.9	1.0	20.0	29.91	20.9
1259	174.0	173.1	560.1	1.0	19.6	29.74	20.9
1305	176.0	172.4	558.4	1.0	19.5	30.14	21.2
1315	178.0	171.8	556.7	1.0	18.5	30.50	21.7
1320	180.0	170.9	554.4	1.0	19.0	30.56	21.7
- DATA NOT AVAILABLE							

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL			
17 SEP 80	80261 1	19	S F BAY	POLARIS			
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
620	17.0	192.6	550.6	0.0	16.5	29.81	21.7
625	17.0	192.6	550.6	2.0	16.0	30.50	22.3
631	17.0	192.6	550.6	5.0	15.9	31.04	22.8
635	17.0	192.6	550.6	10.0	15.9	31.10	22.8
639	17.0	192.6	550.6	20.0	15.8	31.17	22.9
642	17.0	192.6	550.6	30.0	15.8	31.19	22.9
711	16.0	196.3	548.3	1.0	16.7	29.01	21.0
739	15.0	202.4	549.5	0.0	17.6	25.07	17.8
743	15.0	202.4	549.5	2.0	17.6	26.09	18.6
748	15.0	202.4	549.5	5.0	17.5	26.30	18.8
753	15.0	202.4	549.5	10.0	17.0	28.20	20.3
757	15.0	202.4	549.5	15.0	16.8	28.71	20.8
821	14.0	206.7	552.5	1.0	18.0	24.85	17.6
842	13.0	209.3	555.7	0.0	18.1	22.71	15.9
848	13.0	209.3	555.7	2.0	17.8	25.66	18.2
853	13.0	209.3	555.7	5.0	17.3	27.30	19.6
923	12.0	211.6	560.4	1.0	18.1	20.51	14.3
938	11.0	212.7	564.6	1.0	19.7	20.48	13.9
956	10.0	212.5	569.5	1.0	18.1	16.25	11.0
1010	9.0	211.4	572.5	0.0	18.2	14.20	9.4
1014	9.0	211.4	572.5	2.0	18.2	15.60	10.5
1021	9.0	211.4	572.5	5.0	18.2	19.50	13.5
1024	9.0	211.4	572.5	10.0	18.1	20.40	14.2
1028	9.0	211.4	572.5	20.0	18.1	20.70	14.4
1153	8.0	209.3	574.5	1.0	18.3	14.80	9.9
1210	7.0	211.3	579.3	1.0	18.7	12.50	8.0
1238	6.0	213.3	584.7	0.0	19.2	6.11	3.1
1242	6.0	213.3	584.7	2.0	18.7	7.10	4.0
1248	6.0	213.3	584.7	5.0	18.5	9.07	5.5
1309	5.0	212.8	589.5	1.0	18.9	5.55	2.7
1327	4.0	211.5	593.4	1.0	19.0	2.20	0.2
1354	3.0	211.8	598.4	0.0	19.6	1.20	-0.7
1358	3.0	211.8	598.4	2.0	19.5	1.20	-0.7
1403	3.0	211.8	598.4	5.0	19.5	1.20	-0.7
1408	3.0	211.8	598.4	10.0	19.1	1.40	-0.5
1426	2.0	213.2	600.4	1.0	19.7	0.70	-1.1
1442	649.0	212.9	605.6	1.0	19.6	0.28	-1.4
1456	651.0	215.0	608.5	1.0	19.7	0.10	-1.6
1503	652.0	216.4	610.6	1.0	19.9	0.08	-1.6
1510	653.0	217.1	612.1	1.0	20.0	0.08	-1.7
1521	655.0	219.7	613.9	1.0	20.1	0.08	-1.7
1547	657.0	223.4	614.9	0.0	20.6	0.07	-1.8
1552	657.0	223.4	914.9	2.0	20.4	0.06	-1.7
1647	757.0	215.9	616.0	1.0	20.1	0.11	-1.6
1715	755.0	212.1	615.2	1.0	20.2	0.09	-1.7
1727	753.0	210.3	612.6	1.0	20.2	0.13	-1.7

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DATE	JULIAN DATE	CRUISE #	LOCATION	VESSEL			
17 SEP 80	80261 1	19	S F RAY	ESTERO			
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
652	302.0	205.4	553.8	1.0	18.1	22.05	15.4
730	304.0	206.9	552.3	1.0	17.9	22.72	16.0
738	306.0	208.8	551.1	1.0	17.9	24.79	17.5
756	308.0	210.7	549.8	1.0	18.0	22.04	15.4
802	310.0	212.8	548.8	1.0	18.2	21.05	14.6
808	312.0	213.5	547.9	1.0	18.6	22.27	15.5
825	314.0	214.7	550.9	1.0	18.6	22.24	15.4
832	316.0	215.4	551.5	1.0	18.3	21.47	14.9
840	318.0	215.7	553.3	1.0	18.4	21.78	15.1
857	320.0	216.6	555.7	1.0	18.2	21.41	14.9
902	322.0	216.7	556.9	1.0	18.2	21.53	15.0
909	324.0	216.9	558.6	1.0	18.1	21.67	15.1
928	326.0	213.7	560.1	1.0	18.3	20.60	14.3
935	328.0	213.5	560.0	1.0	18.3	19.63	13.5
942	330.0	211.8	560.7	1.0	18.0	20.21	14.0
948	332.0	210.2	561.6	1.0	18.1	21.96	15.4
954	334.0	208.4	562.1	1.0	18.0	20.86	14.5
1120	402.0	210.2	577.5	1.0	18.4	11.63	7.5
1124	404.0	211.2	577.3	1.0	18.6	12.44	8.0
1138	406.0	213.3	579.1	1.0	18.9	10.38	6.4
1146	408.0	215.0	580.5	1.0	18.8	9.77	6.0
1153	410.0	216.7	581.9	1.0	18.8	6.37	3.4
1159	412.0	218.0	582.9	1.0	19.0	4.69	2.1
1204	414.0	219.3	582.3	1.0	19.0	4.49	1.9
1221	416.0	219.0	584.5	1.0	18.9	4.13	1.7
1231	418.0	218.8	586.7	1.0	18.8	3.74	1.4
1244	420.0	217.9	586.2	1.0	18.9	4.93	2.3
1248	422.0	216.2	585.8	1.0	19.0	5.29	2.5
1257	424.0	215.4	588.1	1.0	18.6	4.99	2.4
1304	426.0	214.8	589.5	1.0	19.0	3.60	1.2
1308	428.0	214.0	590.5	1.0	19.3	2.80	0.6
1318	430.0	214.4	592.7	1.0	19.3	2.56	0.4
1326	432.0	214.5	594.6	1.0	19.1	2.19	0.1
1411	745.0	210.3	598.3	1.0	20.1	0.91	-1.0
1427	747.0	209.3	601.8	1.0	19.8	0.59	-1.2
1441	749.0	208.8	605.3	1.0	19.8	0.36	-1.4
1455	751.0	209.5	609.1	1.0	20.5	0.37	-1.5

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
15 OCT 80		80289 1	20	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
1002	36.0	147.4	582.7	0.0	17.0	26.22	18.8
1007	36.0	147.4	582.7	2.0	17.1	26.60	19.1
1013	36.0	147.4	582.7	5.0	17.3	27.40	19.7
1038	35.0	148.5	581.5	1.0	16.9	26.60	19.1
1044	34.0	149.6	580.6	1.0	16.7	26.45	19.1
1055	33.0	151.6	577.5	1.0	17.1	27.65	19.9
1105	32.0	152.5	576.5	0.0	17.3	28.25	20.3
1111	32.0	152.5	576.5	2.0	17.5	28.40	20.4
1117	32.0	152.5	576.5	5.0	17.6	28.48	20.4
1121	32.0	152.5	576.5	10.0	17.8	28.62	20.5
1137	31.0	153.8	574.4	1.0	17.6	28.52	20.4
1202	30.0	156.5	571.4	0.0	18.1	29.13	20.8
1209	30.0	156.5	571.4	2.0	18.0	29.13	20.8
1214	30.0	156.5	571.4	5.0	18.0	29.17	20.8
1218	30.0	156.5	571.4	10.0	18.0	29.20	20.9
1246	29.0	159.5	566.7	1.0	18.2	29.40	21.0
1257	28.0	161.5	564.4	1.0	18.6	29.52	21.0
1313	27.0	163.4	562.5	0.0	18.6	29.52	21.0
1317	27.0	163.4	562.5	2.0	18.4	29.55	21.0
1324	27.0	163.4	562.5	5.0	18.3	29.67	21.2
1329	27.0	163.4	562.5	9.0	18.3	29.70	21.2
1346	26.0	165.4	560.5	1.0	18.3	29.80	21.3
1411	25.0	169.4	559.5	1.0	18.5	29.98	21.3
1430	24.0	172.5	558.3	0.0	17.8	29.97	21.5
1435	24.0	172.5	558.3	2.0	17.7	29.97	21.5
1440	24.0	172.5	558.3	5.0	17.7	29.96	21.5
1523	23.0	175.5	558.5	1.0	17.1	29.67	21.4
1536	22.0	179.4	556.5	1.0	16.4	29.75	21.7
1708	21.0	183.6	555.5	1.0	16.3	29.72	21.7
1723	20.0	185.4	552.4	1.0	15.9	30.40	22.3
1753	19.0	185.6	546.5	40.0	13.0	32.64	24.6
1759	19.0	185.6	546.5	20.0	13.7	32.34	24.2
1805	19.0	185.6	546.5	10.0	14.7	31.65	23.5
1809	19.0	185.6	546.5	2.0	14.8	31.47	23.3
1812	19.0	185.6	546.5	2.0	14.8	31.56	23.4

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DATE		JULIAN DATE		CRUISE #	LOCATION	VESSEL	
15 OCT 80		80289 1		20	S F BAY	ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
857	118.0	156.1	574.0	1.0	16.8	29.13	21.1
913	120.0	157.0	573.0	1.0	17.5	28.95	20.8
918	122.0	158.1	571.9	1.0	17.7	29.18	20.9
925	124.0	159.9	571.9	1.0	17.3	29.31	21.1
932	126.0	161.7	571.8	1.0	16.3	29.45	21.5
947	128.0	161.2	570.6	1.0	17.2	29.44	21.2
952	130.0	160.8	569.0	1.0	17.8	29.32	21.0
958	132.0	160.0	567.3	1.0	18.0	29.69	21.2
1002	134.0	159.6	566.3	1.0	17.9	29.43	21.1
1008	136.0	160.4	564.6	1.0	18.3	29.68	21.2
1016	138.0	160.8	561.7	1.0	17.7	29.82	21.4
1022	140.0	161.0	561.0	1.0	16.3	30.08	21.9
1031	142.0	161.4	558.8	1.0	16.9	30.17	21.9
1046	144.0	162.0	560.4	1.0	17.4	30.24	21.8
1053	146.0	162.8	562.1	1.0	18.5	29.79	21.2
1101	148.0	163.6	564.2	1.0	17.9	29.78	21.3
1107	150.0	164.1	565.6	1.0	17.8	29.96	21.5
1114	152.0	164.8	567.5	1.0	17.4	29.91	21.6
1120	154.0	165.4	569.1	1.0	17.4	29.65	21.4
1125	156.0	165.8	570.3	1.0	17.2	29.46	21.3
1142	158.0	167.5	569.4	1.0	17.1	29.50	21.3
1151	160.0	169.2	568.5	1.0	17.4	29.63	21.3
1159	162.0	170.8	567.6	1.0	17.4	29.62	21.3
1216	164.0	172.8	567.0	1.0	17.1	30.06	21.7
1223	166.0	174.2	565.8	1.0	17.5	29.95	21.6
1228	168.0	175.1	565.3	1.0	17.7	29.97	21.5
1242	170.0	174.4	563.6	1.0	18.1	30.05	21.5
1249	172.0	173.8	561.9	1.0	19.4	29.93	21.1
1256	174.0	173.1	560.1	1.0	19.0	30.07	21.3
1303	176.0	172.4	558.4	1.0	18.6	30.08	21.4
1310	178.0	171.8	556.7	1.0	18.2	30.19	21.6
1316	180.0	170.9	554.4	1.0	17.8	30.18	21.7
1330	182.0	169.8	555.0	1.0	17.8	30.13	21.6
1336	184.0	168.4	555.8	1.0	17.9	30.23	21.7
1339	186.0	167.6	556.2	1.0	17.6	30.13	21.7
1341	190.0	166.7	556.4	1.0	18.0	30.16	21.6
1348	192.0	167.4	558.6	1.0	18.2	30.15	21.5
1407	-	168.1	560.4	1.0	18.4	30.12	21.5
1417	-	170.5	560.0	1.0	18.4	30.14	21.5
1429	-	173.2	560.4	1.0	17.6	30.15	21.7
1436	-	174.2	558.1	1.0	17.5	30.10	21.7
1452	-	178.2	556.2	1.0	16.6	29.79	21.6
1513	-	183.1	554.7	1.0	16.2	29.89	21.8

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
16 OCT 80		80290 1	20	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
619	17.0	192.6	550.6	0.0	15.2	30.22	22.3
624	17.0	192.6	550.6	2.0	15.0	30.35	22.4
630	17.0	192.6	550.6	5.0	14.8	31.15	23.1
634	17.0	192.6	550.6	10.0	14.7	31.16	23.1
638	17.0	192.6	550.6	20.0	14.6	31.41	23.3
644	17.0	192.6	550.6	30.0	14.5	31.50	23.4
718	16.0	196.3	548.3	1.0	15.6	29.52	21.7
745	15.0	202.4	549.5	0.0	16.4	24.00	17.3
750	15.0	202.4	549.5	2.0	16.2	26.75	19.4
755	15.0	202.4	549.5	5.0	15.9	27.87	20.3
800	15.0	202.4	549.5	10.0	15.9	28.50	20.8
829	14.0	206.7	552.5	1.0	16.4	25.50	18.4
845	13.0	209.3	555.7	0.0	16.5	24.45	17.6
850	13.0	209.3	555.7	2.0	16.5	25.25	18.2
857	13.0	209.3	555.7	5.0	16.5	26.46	19.1
901	13.0	209.3	555.7	8.0	16.4	26.71	19.3
928	12.0	211.6	560.4	1.0	16.6	21.62	15.4
943	11.0	212.7	564.6	1.0	16.8	18.70	13.2
1003	10.0	212.5	569.5	1.0	16.9	15.60	10.8
1013	9.0	211.4	572.5	0.0	17.1	12.48	8.4
1019	9.0	211.4	572.5	2.0	17.2	12.80	8.6
1024	9.0	211.4	572.5	5.0	17.2	15.80	10.9
1030	9.0	211.4	572.5	10.0	17.2	18.95	13.3
1034	9.0	211.4	572.5	20.0	17.2	19.49	13.7
1104	8.0	209.3	574.3	1.0	17.2	13.10	8.8
1121	7.0	211.3	579.3	1.0	17.5	11.83	7.8
1151	6.0	213.3	584.7	0.0	17.5	5.23	2.8
1155	6.0	213.3	584.7	2.0	17.5	7.15	4.2
1204	6.0	213.3	584.7	5.0	17.4	8.50	5.3
1230	5.0	212.8	589.5	1.0	17.0	5.00	2.7
1248	4.0	211.5	593.4	1.0	17.6	1.90	0.2
1311	3.0	211.8	598.4	0.0	17.9	0.90	-0.6
1315	3.0	211.8	598.4	2.0	17.7	1.00	-0.5
1320	3.0	211.8	598.4	5.0	17.9	1.25	-0.3
1324	3.0	211.8	598.4	10.0	17.9	1.49	-0.2
1418	2.0	213.2	600.4	1.0	18.2	0.35	-1.1
1433	649.0	212.9	605.6	1.0	18.1	0.21	-1.2
1446	651.0	215.0	608.5	1.0	17.4	0.08	-1.1
1452	652.0	216.4	610.6	1.0	17.4	0.06	-1.2
1500	653.0	217.1	612.1	1.0	17.3	0.06	-1.1
1511	655.0	219.7	613.9	1.0	17.1	0.06	-1.1
1532	657.0	223.4	614.9	0.0	17.0	0.06	-1.1
1537	657.0	223.4	614.9	2.0	16.9	0.06	-1.1
1634	757.0	215.9	616.0	0.0	17.9	0.07	-1.2
1638	757.0	215.9	616.0	2.0	17.9	0.07	-1.2
1642	757.0	215.9	616.0	5.0	17.8	0.07	-1.2
1646	757.0	215.9	616.0	10.0	17.8	0.07	-1.2
1706	755.0	212.1	615.2	1.0	17.9	0.05	-1.3
1718	753.0	210.3	612.6	1.0	18.2	0.06	-1.3

- DATA NOT AVAILABLE

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE		CRUISE #		LOCATION		VESSEL	
16 OCT 80		80290 1		20		S F RAY		ESTERO	
TIME	STATION	UTH NORTH	UTH EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t		
656	302.0	205.2	553.5	1.0	16.7	23.39	16.7		
711	304.0	206.9	552.3	1.0	16.8	23.53	16.8		
719	306.0	209.1	551.1	1.0	16.6	25.11	18.1		
738	308.0	210.7	549.8	1.0	16.6	22.29	15.9		
745	310.0	212.2	548.8	1.0	16.6	21.30	15.2		
753	312.0	213.5	547.9	1.0	16.3	22.44	16.1		
813	314.0	214.7	550.0	1.0	16.1	21.77	15.6		
820	316.0	215.4	551.4	1.0	15.9	21.77	15.7		
828	318.0	215.7	553.3	1.0	15.8	20.96	15.1		
844	320.0	216.3	555.1	1.0	15.5	21.01	15.2		
852	322.0	216.7	556.9	1.0	15.5	20.77	15.0		
859	324.0	216.9	558.6	1.0	15.1	21.76	15.8		
915	326.0	215.2	559.3	1.0	16.6	19.14	13.5		
922	328.0	213.5	560.0	1.0	16.9	18.95	13.3		
929	330.0	211.8	560.7	1.0	16.9	19.56	13.8		
936	332.0	210.1	561.4	1.0	17.0	19.97	14.1		
942	334.0	208.4	562.1	1.0	15.3	19.02	13.7		
1007	-	212.0	564.2	1.0	16.7	18.07	12.7		
1019	-	212.5	568.0	1.0	17.1	15.44	10.6		
1111	402.0	210.2	577.5	1.0	17.8	11.32	7.3		
1114	404.0	211.2	577.3	1.0	17.6	11.72	7.7		
1129	406.0	213.3	579.1	1.0	17.6	10.54	6.8		
1136	408.0	215.0	580.5	1.0	17.6	8.68	5.4		
1144	410.0	216.7	581.9	1.0	17.2	4.55	2.3		
1150	412.0	218.0	582.9	1.0	17.1	4.29	2.1		
1156	414.0	219.3	582.4	1.0	17.1	3.66	1.6		
1212	416.0	219.0	584.2	1.0	17.5	3.64	1.6		
1222	418.0	218.8	586.7	1.0	17.4	2.59	0.8		
1235	420.0	217.9	586.1	1.0	17.6	2.88	1.0		
1239	422.0	216.8	585.8	1.0	17.2	3.29	1.3		
1248	424.0	215.5	588.0	1.0	17.8	3.75	1.6		
1256	426.0	214.8	589.5	1.0	17.6	2.94	1.0		
1300	428.0	214.0	590.5	1.0	17.6	2.17	0.4		
1309	430.0	214.3	592.6	1.0	18.8	1.71	-0.2		
1318	432.0	214.5	594.9	1.0	18.2	0.97	-0.6		
1500	745.0	210.3	598.4	1.0	18.7	0.48	-1.1		
1513	747.0	209.4	601.9	1.0	18.9	0.41	-1.2		
1527	749.0	208.8	605.2	1.0	19.2	0.21	-1.4		
1542	751.0	209.5	609.1	1.0	19.4	0.15	-1.5		

--- DATA NOT AVAILABLE ---

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
28 OCT 80		80302 2	21	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
931	33.0	151.6	577.5	1.0	16.2	27.70	20.1
943	32.0	152.5	576.5	0.0	16.5	28.07	20.4
948	32.0	152.5	576.5	2.0	16.5	28.12	20.4
955	32.0	152.5	576.5	5.0	16.5	28.40	20.6
1023	31.0	153.8	574.4	1.0	16.5	28.50	20.7
1051	30.0	156.5	571.4	0.0	17.1	28.75	20.7
1056	30.0	156.5	571.4	2.0	16.8	29.15	21.1
1102	30.0	156.5	571.4	5.0	16.7	29.26	21.2
1105	30.0	156.5	571.4	9.0	16.6	29.27	21.2
1143	29.0	159.5	566.7	1.0	16.6	29.50	21.4
1154	28.0	161.5	564.4	1.0	16.5	29.66	21.6
1215	27.0	163.4	562.5	0.0	17.3	29.82	21.5
1221	27.0	163.4	562.5	2.0	16.8	29.78	21.6
1226	27.0	163.4	562.5	5.0	16.8	29.90	21.7
1231	27.0	163.4	562.5	10.0	16.8	30.00	21.8
1304	26.0	165.4	560.5	1.0	16.9	29.97	21.7
1315	25.0	169.4	559.5	1.0	16.5	29.95	21.8
1336	24.0	172.5	558.3	0.0	15.4	29.85	22.0
1342	24.0	172.5	558.3	2.0	15.3	29.81	21.9
1347	24.0	172.5	558.3	6.0	15.3	29.81	21.9
1423	23.0	175.5	558.5	1.0	14.8	30.10	22.3
1439	22.0	179.4	556.5	1.0	14.5	30.41	22.6
1456	21.0	183.6	555.5	0.0	14.9	30.31	22.4
1502	21.0	183.6	555.5	2.0	14.9	30.14	22.3
1507	21.0	183.6	555.5	5.0	14.4	30.48	22.6
1512	21.0	183.6	555.5	14.0	13.9	31.08	23.2
1538	20.0	185.4	552.4	1.0	14.2	31.00	23.1
1607	19.0	185.6	546.5	2.0	13.5	31.70	23.8
1613	19.0	185.6	546.5	10.0	13.4	31.82	23.9
1617	19.0	185.6	546.5	20.0	13.2	32.00	24.1
1623	19.0	185.6	546.5	40.0	13.0	32.19	24.2
- DATA NOT AVAILABLE							

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
28 OCT 80		80302 2		21	S F BAY		ESTERO
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
846	118.0	156.0	574.0	1.0	16.2	28.27	20.6
900	120.0	157.0	573.0	1.0	16.3	28.64	20.8
906	122.0	158.1	571.8	1.0	16.6	29.01	21.0
913	124.0	159.9	571.9	1.0	16.4	28.97	21.1
924	126.0	161.8	572.0	1.0	16.4	29.10	21.2
936	128.0	161.2	570.6	1.0	16.7	29.17	21.1
941	130.0	160.6	569.2	1.0	16.7	29.47	21.4
948	132.0	160.0	567.4	1.0	16.8	29.67	21.5
952	134.0	159.5	566.3	1.0	16.7	29.46	21.4
958	136.0	160.4	564.6	1.0	16.6	29.63	21.5
1006	138.0	160.7	562.8	1.0	16.7	30.01	21.8
1014	140.0	161.0	561.0	1.0	16.7	30.14	21.9
1021	142.0	161.4	558.7	1.0	16.2	30.12	22.0
1042	144.0	162.0	560.4	1.0	16.5	30.07	21.9
1049	146.0	162.8	562.1	1.0	16.8	29.79	21.6
1055	148.0	163.4	563.9	1.0	16.6	29.88	21.7
1105	150.0	164.2	565.9	1.0	16.5	29.43	21.4
1110	152.0	164.8	567.3	1.0	16.3	29.39	21.4
1115	154.0	165.4	569.1	1.0	16.1	29.41	21.5
1121	156.0	165.8	570.3	1.0	16.0	29.28	21.4
1139	158.0	167.3	569.4	1.0	16.2	29.35	21.4
1148	160.0	169.2	568.5	1.0	16.1	29.45	21.5
1156	162.0	170.8	567.6	1.0	15.9	29.46	21.5
1216	164.0	172.5	566.7	1.0	16.0	29.20	21.3
1223	166.0	174.2	565.8	1.0	16.4	29.41	21.4
1227	168.0	175.1	565.3	1.0	16.5	29.32	21.3
1243	170.0	174.4	563.6	1.0	16.7	29.77	21.6
1249	172.0	173.8	561.9	1.0	16.3	29.95	21.8
1257	174.0	173.1	560.1	1.0	15.7	29.89	21.9
1302	176.0	172.5	558.6	1.0	15.5	29.91	22.0
1309	178.0	171.8	556.7	1.0	15.6	30.00	22.0
1317	180.0	170.9	554.4	1.0	16.7	30.09	21.8
1412	-	176.2	557.8	1.0	15.2	30.13	22.2
1432	-	181.5	555.5	1.0	15.1	30.30	22.4
1441	-	183.0	554.5	1.0	14.9	30.42	22.5

- DATA NOT AVAILABLE

U S GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL	
29 OCT 80		80303 2		21	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t	
616	17.0	192.6	550.6	0.0	13.8	-	-	
621	17.0	192.6	550.6	2.0	13.6	31.25	23.4	
626	17.0	192.6	550.6	5.0	13.6	31.28	23.4	
630	17.0	192.6	550.6	10.0	13.6	31.31	23.4	
634	17.0	192.6	550.6	20.0	13.6	31.39	23.5	
638	17.0	192.6	550.6	40.0	13.5	31.54	23.6	
712	16.0	196.3	548.3	1.0	14.1	30.46	22.7	
744	15.0	202.4	549.5	0.0	15.0	25.72	18.9	
748	15.0	202.4	549.5	2.0	15.0	25.84	19.0	
754	15.0	202.4	549.5	10.0	14.6	29.08	21.5	
758	15.0	202.4	549.5	20.0	14.5	29.42	21.8	
831	14.0	206.7	552.5	1.0	15.1	25.30	18.5	
852	13.0	209.3	555.7	0.0	15.4	24.45	17.8	
857	13.0	209.3	555.7	2.0	15.3	25.25	18.5	
904	13.0	209.3	555.7	7.0	15.2	25.57	18.7	
942	12.0	211.6	560.4	1.0	15.4	22.70	16.5	
1000	11.0	212.7	564.6	1.0	15.7	18.30	13.1	
1025	10.0	212.5	569.5	1.0	15.7	17.23	12.3	
1040	9.0	211.4	572.5	0.0	16.0	14.30	10.0	
1055	9.0	211.4	572.5	2.0	15.9	15.05	10.6	
1100	9.0	211.4	572.5	5.0	15.8	17.75	12.6	
1104	9.0	211.4	572.5	10.0	15.8	18.01	12.8	
1109	9.0	211.4	572.5	20.0	15.8	20.50	14.7	
1133	8.0	209.3	574.1	1.0	15.9	14.55	10.2	
1200	7.0	211.3	579.3	1.0	16.1	8.50	5.5	
1233	6.0	213.3	584.7	0.0	16.3	6.60	4.0	
1237	6.0	213.3	584.7	2.0	16.1	7.07	4.4	
1244	6.0	213.3	584.7	5.0	16.1	7.48	4.7	
1312	5.0	212.8	589.5	1.0	16.3	3.50	1.7	
1331	4.0	211.5	593.4	1.0	16.8	1.69	0.2	
1357	3.0	211.8	598.4	0.0	17.0	1.00	-0.4	
1405	3.0	211.8	598.4	2.0	16.6	0.97	-0.3	
1411	3.0	211.8	598.4	8.0	16.6	1.22	-0.1	
1510	2.0	213.3	600.4	1.0	16.6	0.83	-0.4	
1524	649.0	212.9	605.6	1.0	16.0	0.23	-0.8	
1536	651.0	215.0	608.5	1.0	15.8	0.08	-0.9	
1541	652.0	216.4	610.6	1.0	15.8	0.07	-0.9	
1548	653.0	217.1	612.1	1.0	15.8	0.07	-0.9	
1600	655.0	219.1	613.9	1.0	15.5	0.08	-0.8	
1615	657.0	223.4	614.9	0.0	15.7	0.04	-0.9	
1620	657.0	223.4	614.9	2.0	15.5	0.04	-0.9	
1711	757.0	215.9	616.0	1.0	15.9	0.05	-0.9	
1742	755.0	212.1	615.2	1.0	16.0	0.06	-0.9	
1754	753.0	210.3	612.6	1.0	16.3	0.08	-1.0	

- DATA NOT AVAILABLE

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DATE		JULIAN DATE	CRUISE #	LOCATION	VESSEL		
29 OCT 80		80303 2	21	S F BAY	ESTERO		
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
653	302.0	205.2	553.5	1.0	15.2	24.70	18.1
711	304.0	206.9	552.3	1.0	15.1	26.02	19.1
720	306.0	208.8	551.1	1.0	15.3	25.99	19.0
739	308.0	210.7	549.8	1.0	15.3	24.65	18.0
745	310.0	212.2	548.8	1.0	15.3	21.92	15.9
753	312.0	213.5	547.9	1.0	14.7	21.34	15.6
817	314.0	214.7	550.0	1.0	14.9	21.92	16.0
825	316.0	215.2	551.5	1.0	15.2	22.22	16.2
833	318.0	215.7	553.3	1.0	15.4	21.83	15.8
854	320.0	216.3	555.1	1.0	15.4	21.72	15.7
902	322.0	216.7	556.9	1.0	15.5	20.42	14.7
910	324.0	217.0	558.4	1.0	15.2	20.55	14.9
929	326.0	215.3	559.3	1.0	15.5	20.48	14.8
938	328.0	213.5	560.0	1.0	15.6	19.07	13.7
945	330.0	211.8	560.7	1.0	15.8	21.13	15.2
953	332.0	210.1	561.4	1.0	15.7	20.11	14.4
1000	334.0	208.4	562.1	1.0	15.0	22.61	16.5
1045	-	212.4	568.0	1.0	16.0	16.42	11.6
1153	402.0	210.2	577.5	1.0	16.8	10.52	6.9
1200	404.0	211.2	577.3	1.0	16.8	9.72	6.3
1219	406.0	213.3	579.1	1.0	16.7	7.42	4.6
1227	408.0	215.0	580.5	1.0	16.3	6.61	4.0
1236	410.0	216.7	581.9	1.0	16.2	4.97	2.8
1243	412.0	218.0	582.9	1.0	16.4	4.94	2.7
1248	414.0	219.3	582.3	1.0	16.0	5.15	3.0
1309	416.0	219.0	584.2	1.0	17.3	4.16	2.0
1319	418.0	218.8	586.7	1.0	16.3	5.00	2.8
1331	420.0	217.9	586.2	1.0	16.4	4.17	2.2
1337	422.0	216.7	585.8	1.0	16.5	5.28	3.0
1348	424.0	215.4	588.1	1.0	17.0	3.98	1.9
1355	426.0	214.8	589.5	1.0	16.8	3.40	1.5
1358	428.0	214.0	590.5	1.0	17.3	2.91	1.0
1406	430.0	214.3	592.5	1.0	17.0	2.15	0.5
1416	432.0	214.5	594.6	1.0	17.7	1.87	0.2
1429	-	214.0	595.5	1.0	16.9	2.17	0.5
1434	-	212.8	596.1	1.0	17.0	1.87	0.3
1559	745.0	210.3	598.3	1.0	18.8	1.39	-0.4
1611	747.0	209.3	601.9	1.0	17.2	0.63	-0.7
1622	749.0	208.9	605.5	1.0	17.9	0.28	-1.1
1629	750.0	209.3	607.2	1.0	17.0	0.18	-1.0
1634	751.0	209.5	609.1	1.0	17.0	0.14	-1.0
- DATA NOT AVAILABLE							

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PAGE 123

DATE		JULIAN DATE		CRUISE #		LOCATION		VESSEL	
12 NOV 80		80317 1		22		S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t		
1013	36.0	147.4	582.7	0.0	14.7	25.62	18.9		
1019	36.0	147.4	582.7	2.0	15.0	26.40	19.4		
1025	36.0	147.4	582.7	5.0	15.6	27.75	20.3		
1036	35.0	148.5	581.5	1.0	14.8	26.40	19.4		
1045	34.0	149.8	580.6	1.0	14.9	27.20	20.0		
1055	33.0	151.6	577.5	1.0	15.6	28.40	20.8		
1108	32.0	152.5	576.5	0.0	15.8	28.48	20.8		
1114	32.0	152.5	576.5	2.0	15.7	28.70	21.0		
1121	32.0	152.5	576.5	9.0	15.9	29.14	21.3		
1151	31.0	153.8	574.4	1.0	15.9	29.03	21.2		
1211	30.0	156.5	571.4	0.0	16.1	29.57	21.6		
1217	30.0	156.5	571.4	2.0	15.9	29.58	21.6		
1223	30.0	156.5	571.4	5.0	15.9	29.60	21.7		
1226	30.0	156.5	571.4	12.0	15.9	29.61	21.7		
1303	29.0	159.5	566.7	1.0	15.7	29.94	22.0		
1314	28.0	161.5	564.4	1.0	16.0	29.98	21.9		
1332	27.0	163.4	562.5	0.0	16.1	29.97	21.9		
1339	27.0	163.4	562.5	2.0	16.0	29.90	21.9		
1345	27.0	163.4	562.5	5.0	15.9	29.95	21.9		
1349	27.0	163.4	562.5	12.0	15.9	29.95	21.9		
1405	26.0	165.4	560.5	1.0	16.3	29.85	21.8		
1427	25.0	169.4	559.5	1.0	15.6	29.93	22.0		
1443	24.0	172.5	558.3	0.0	14.9	29.92	22.1		
1448	24.0	172.5	558.3	2.0	14.7	29.91	22.1		
1454	24.0	172.5	558.3	8.0	14.6	29.90	22.2		
1515	23.0	175.5	558.5	1.0	14.9	29.98	22.2		
1527	22.0	179.4	556.5	1.0	14.7	29.94	22.2		
1543	21.0	183.6	555.5	0.0	14.7	29.70	22.0		
1547	21.0	183.6	555.5	2.0	14.4	29.84	22.2		
1553	21.0	183.6	555.5	5.0	13.8	31.00	23.2		
1557	21.0	183.6	555.5	15.0	13.7	31.22	23.4		
1626	20.0	185.4	552.4	1.0	14.6	29.88	22.1		
1658	19.0	185.6	546.5	30.0	12.8	32.36	24.4		
1705	19.0	185.6	546.5	2.0	13.2	31.92	24.0		

- DATA NOT AVAILABLE

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL	
12 NOV 80		80317 1		22	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t	
852	118.0	156.0	574.0	1.0	14.2	28.24	21.0	
908	120.0	157.1	572.8	1.0	15.4	28.90	21.2	
913	122.0	158.1	571.8	1.0	15.6	29.00	21.3	
921	124.0	159.9	571.9	1.0	14.9	29.18	21.5	
928	126.0	161.8	572.0	1.0	14.4	29.34	21.8	
950	128.0	161.2	570.2	1.0	15.6	29.29	21.5	
956	130.0	160.8	568.9	1.0	15.5	29.53	21.7	
1002	132.0	160.0	567.3	1.0	15.9	29.80	21.8	
1006	134.0	159.5	566.2	1.0	15.8	29.58	21.7	
1012	136.0	160.5	562.3	1.0	15.5	29.85	21.9	
1019	138.0	160.7	562.8	1.0	14.9	29.78	22.0	
1026	140.0	161.0	561.0	1.0	14.6	30.09	22.3	
1035	142.0	161.3	558.8	1.0	15.1	30.01	22.1	
1054	144.0	162.0	560.8	1.0	15.5	29.94	22.0	
1058	146.0	162.8	562.1	1.0	15.9	29.91	21.9	
1104	148.0	163.4	563.9	1.0	15.9	29.93	21.9	
1111	150.0	164.1	565.6	1.0	15.4	29.84	21.9	
1119	152.0	164.6	567.4	1.0	15.3	29.76	21.9	
1126	154.0	165.3	569.3	1.0	15.0	29.57	21.8	
1131	156.0	165.8	570.3	1.0	14.7	29.42	21.8	
1148	158.0	167.4	569.4	1.0	15.0	29.48	21.8	
1156	160.0	169.2	568.5	1.0	15.3	29.46	21.7	
1203	162.0	170.8	567.6	1.0	15.4	29.27	21.5	
1222	164.0	172.5	566.7	1.0	15.4	29.20	21.5	
1229	166.0	174.2	565.7	1.0	15.7	29.15	21.3	
1232	168.0	175.1	565.3	1.0	15.7	28.94	21.2	
1254	170.0	174.4	563.6	1.0	15.6	29.41	21.6	
1301	172.0	173.8	561.9	1.0	15.4	29.70	21.8	
1306	174.0	173.1	560.1	1.0	15.5	29.63	21.8	
1312	176.0	172.4	558.4	1.0	14.6	29.75	22.0	
1320	178.0	172.0	556.4	1.0	14.9	29.85	22.1	
1328	180.0	170.9	554.4	1.0	15.7	29.97	22.0	
1344	182.0	169.8	555.0	1.0	15.7	30.01	22.0	
1348	184.0	168.5	555.7	1.0	15.6	29.97	22.0	
1354	-	168.0	557.3	1.0	15.6	29.97	22.0	
1359	192.0	167.7	558.7	1.0	15.9	29.96	21.9	
1405	194.0	168.0	560.3	1.0	16.2	29.84	21.8	
1410	-	168.5	561.5	1.0	16.3	29.83	21.7	
1432	-	170.5	559.8	1.0	15.2	29.89	22.0	
1447	-	174.8	558.2	1.0	15.6	29.88	21.9	
1501	-	179.1	556.4	1.0	15.0	29.76	22.0	
1515	-	182.8	554.4	1.0	14.4	29.93	22.2	
1523	-	184.8	552.7	1.0	14.3	30.28	22.5	
1530	-	186.4	550.4	1.0	13.6	30.97	23.2	
1540	-	188.3	548.0	1.0	13.0	31.70	23.9	
1546	-	189.6	546.7	1.0	13.8	31.60	23.6	

- DATA NOT AVAILABLE

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
13 NOV 80		80318 1	22	S F BAY		POLARIS	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
618	17.0	192.6	550.6	0.0	13.7	30.80	23.0
623	17.0	192.6	550.6	2.0	13.5	29.70	22.2
630	17.0	192.6	550.6	5.0	13.3	31.40	23.6
636	17.0	192.6	550.6	10.0	13.3	31.44	23.6
640	17.0	192.6	550.6	20.0	13.2	31.57	23.7
644	17.0	192.6	550.6	30.0	13.2	31.62	23.8
714	16.0	196.3	548.3	1.0	13.7	29.73	22.2
744	15.0	202.4	549.5	0.0	14.0	25.57	19.0
749	15.0	202.4	549.5	2.0	14.0	25.59	19.0
754	15.0	202.4	549.5	5.0	14.1	25.51	18.9
758	15.0	202.4	549.5	10.0	14.1	28.85	21.5
802	15.0	202.4	549.5	20.0	14.0	29.35	21.9
834	14.0	206.7	552.5	1.0	14.3	25.54	18.9
855	13.0	209.3	555.7	0.0	14.5	24.67	18.2
900	13.0	209.3	555.7	2.0	14.5	24.90	18.3
906	13.0	209.3	555.7	8.0	14.6	26.08	19.2
912	13.0	209.3	555.7	2.0	14.5	24.82	18.3
937	12.0	211.6	560.4	1.0	14.5	22.60	16.6
955	11.0	212.7	564.6	1.0	14.5	18.50	13.5
1020	10.0	212.5	569.5	1.0	14.7	15.10	10.8
1035	9.0	211.4	572.5	0.0	15.0	14.60	10.4
1040	9.0	211.4	572.5	2.0	15.0	16.20	11.6
1046	9.0	211.4	572.5	5.0	15.0	17.15	12.3
1051	9.0	211.4	572.5	10.0	15.0	18.40	13.3
1056	9.0	211.4	572.5	20.0	15.0	20.12	14.6
1136	8.0	209.3	574.3	1.0	14.9	13.20	9.3
1158	7.0	211.3	579.3	1.0	15.0	10.70	7.4
1226	6.0	213.3	584.7	0.0	15.1	6.50	4.2
1233	6.0	213.3	584.7	2.0	15.0	6.95	4.5
1241	6.0	213.3	584.7	5.0	15.0	9.34	6.4
1318	5.0	212.8	589.5	1.0	15.2	3.50	1.8
1334	4.0	211.5	593.4	1.0	15.6	2.10	0.7
1403	3.0	211.8	598.4	0.0	15.9	1.41	0.1
1408	3.0	211.8	598.4	2.0	15.8	1.35	0.1
1414	3.0	211.8	598.4	5.0	15.7	1.81	0.5
1439	2.0	213.2	600.4	1.0	15.7	1.10	-0.1
1453	649.0	212.9	605.6	1.0	15.0	0.40	-0.5
1505	651.0	215.0	608.5	1.0	14.7	0.16	-0.6
1510	652.0	216.4	610.6	1.0	14.4	0.09	-0.7
1517	653.0	217.1	612.1	1.0	14.3	0.08	-0.6
1527	655.0	219.7	613.9	1.0	14.3	0.08	-0.6
1544	657.0	223.4	614.9	0.0	14.2	0.04	-0.7
1549	657.0	223.4	614.9	2.0	14.2	0.04	-0.7
1641	757.0	215.9	616.0	0.0	15.0	0.09	-0.7
1710	755.0	212.1	615.2	1.0	15.2	0.12	-0.8
1725	753.0	210.3	612.6	1.0	16.4	0.35	-0.8
1737	751.0	209.5	609.1	0.0	15.9	0.44	-0.6

- DATA NOT AVAILABLE

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
13 NOV 80		80318 1	22	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
728	302.0	205.2	553.5	1.0	14.5	23.82	17.5
737	304.0	206.9	552.3	1.0	14.2	25.71	19.0
745	306.0	209.0	551.0	1.0	14.3	25.28	18.7
803	308.0	210.7	549.8	1.0	14.2	22.07	16.2
812	310.0	212.3	548.7	1.0	13.6	21.87	16.2
819	312.0	213.8	547.7	1.0	12.8	22.03	16.5
837	314.0	214.7	550.0	1.0	13.1	21.22	15.8
847	316.0	215.3	551.8	1.0	13.2	21.64	16.1
855	318.0	215.7	553.3	1.0	13.4	21.60	16.0
911	320.0	216.5	555.3	1.0	13.9	21.50	15.9
917	322.0	216.7	556.9	1.0	13.9	21.32	15.7
926	324.0	216.9	558.6	1.0	13.4	21.50	15.9
944	326.0	215.3	559.3	1.0	14.1	20.87	15.3
952	328.0	213.4	560.0	1.0	14.6	20.26	14.8
959	330.0	211.8	560.7	1.0	14.9	18.92	13.7
1006	332.0	210.1	561.4	1.0	14.7	18.90	13.7
1013	334.0	208.4	562.1	1.0	13.7	21.92	16.2
1038	-	212.0	564.4	1.0	14.8	19.18	13.9
1053	-	212.4	568.0	1.0	14.8	16.08	11.5
1144	402.0	210.2	577.5	1.0	15.2	9.82	6.7
1147	404.0	211.2	577.3	1.0	15.1	10.23	7.0
1202	406.0	213.3	579.1	1.0	15.0	8.54	5.7
1210	408.0	215.0	580.5	1.0	14.6	6.33	4.1
1218	410.0	216.7	581.9	1.0	14.7	6.12	3.9
1224	412.0	218.0	582.9	1.0	14.9	5.48	3.4
1229	414.0	219.3	582.4	1.0	14.3	5.59	3.6
1244	416.0	219.0	584.2	1.0	15.1	5.09	3.1
1254	418.0	218.8	586.7	1.0	15.2	4.59	2.7
1306	420.0	217.9	586.2	1.0	14.9	6.91	4.5
1311	422.0	216.7	585.8	1.0	15.1	6.13	3.9
1325	424.0	215.4	588.1	1.0	15.5	3.58	1.9
1332	426.0	214.8	589.5	1.0	15.3	4.13	2.3
1336	428.0	214.0	590.6	1.0	15.5	3.44	1.8
1344	430.0	214.4	592.8	1.0	15.7	3.04	1.4
1352	432.0	214.3	594.7	1.0	15.1	2.41	1.0
1432	745.0	210.3	598.3	1.0	15.8	0.93	-0.2
1443	747.0	209.3	601.9	1.0	15.9	0.76	-0.4
1455	749.0	208.8	605.5	1.0	16.2	0.43	-0.7
1509	751.0	209.5	609.1	1.0	16.0	0.28	-0.8

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DATE		JULIAN DATE	CRUISE #	LOCATION		VESSEL	
16 DEC 80		80351 1	23	S F BAY		POLARIS	
TIME	STATION	UTH NORTH	UTH EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
937	36.0	147.4	582.7	0.0	10.2	27.29	20.9
942	36.0	147.4	582.7	2.0	10.3	27.84	21.4
947	36.0	147.4	582.7	6.0	10.5	28.21	21.6
1001	35.0	148.5	581.5	1.0	10.3	27.74	21.3
1007	34.0	149.8	580.6	1.0	10.5	27.94	21.4
1018	33.0	151.6	577.5	1.0	10.7	28.65	21.9
1029	32.0	152.5	576.5	0.0	10.6	28.45	21.8
1035	32.0	152.5	576.5	2.0	10.6	28.57	21.9
1041	32.0	152.5	576.5	5.0	10.7	28.80	22.0
1045	32.0	152.5	576.5	10.0	10.8	28.83	22.0
1100	31.0	153.8	574.4	1.0	10.9	28.95	22.1
1121	30.0	156.5	571.4	0.0	11.1	29.12	22.2
1126	30.0	156.5	571.4	2.0	11.0	29.15	22.3
1132	30.0	156.5	571.4	5.0	11.0	29.29	22.4
1136	30.0	156.5	571.4	10.0	11.0	29.30	22.4
1214	29.0	159.5	566.7	1.0	11.1	29.51	22.5
1223	28.0	161.5	564.4	1.0	11.0	29.61	22.6
1237	27.0	163.4	562.5	0.0	11.3	29.70	22.6
1244	27.0	163.4	562.5	2.0	11.2	29.68	22.6
1252	27.0	163.4	562.5	5.0	11.2	29.66	22.6
1256	27.0	163.4	562.5	10.0	11.2	29.66	22.6
1313	26.0	165.4	560.5	1.0	11.3	29.71	22.6
1326	25.0	169.4	559.5	1.0	11.4	29.65	22.6
1349	24.0	172.5	558.3	0.0	11.5	29.36	22.3
1353	24.0	172.5	558.3	2.0	11.5	29.35	22.3
1359	24.0	172.5	558.3	7.0	11.4	29.41	22.4
1432	23.0	175.5	558.5	1.0	11.7	29.21	22.2
1447	22.0	179.4	556.5	1.0	11.3	28.87	22.0
1503	21.0	183.6	555.5	0.0	11.2	28.61	21.8
1508	21.0	183.6	555.5	2.0	11.1	28.59	21.8
1513	21.0	183.6	555.5	5.0	11.0	28.68	21.9
1517	21.0	183.6	555.5	12.0	11.0	28.70	21.9
1548	20.0	185.4	552.4	1.0	11.2	28.14	21.4
1630	19.0	185.6	546.5	40.0	11.3	30.99	23.6
1636	19.0	185.6	546.5	20.0	11.3	30.85	23.5
1641	19.0	185.6	546.5	10.0	11.3	30.92	23.6
1647	19.0	185.6	546.5	2.0	11.2	30.65	23.4

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL	
16 DEC 80		80351 1		23	S F BAY		ESTERO	
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t	
850	118.0	156.0	574.0	1.0	10.8	28.95	22.1	
909	120.0	157.0	573.0	1.0	11.0	29.36	22.4	
914	122.0	158.1	571.8	1.0	11.1	29.50	22.5	
920	124.0	159.9	571.9	1.0	11.1	29.33	22.4	
925	126.0	161.7	572.8	1.0	11.0	29.20	22.3	
945	128.0	161.1	570.0	1.0	11.2	29.52	22.5	
949	130.0	160.8	569.1	1.0	11.2	29.49	22.5	
956	132.0	159.9	567.3	1.0	11.1	29.57	22.6	
959	134.0	159.5	566.3	1.0	11.4	29.67	22.6	
1005	136.0	160.4	564.6	1.0	10.9	29.54	22.6	
1011	138.0	160.7	562.8	1.0	11.0	29.70	22.7	
1018	140.0	161.0	561.0	1.0	10.6	29.79	22.8	
1026	142.0	161.4	558.7	1.0	11.0	29.82	22.8	
1045	144.0	162.0	560.4	1.0	11.3	29.71	22.6	
1051	146.0	163.0	562.0	1.0	11.6	29.68	22.6	
1058	148.0	163.6	564.0	1.0	11.1	29.60	22.6	
1105	150.0	164.1	565.6	1.0	11.1	29.65	22.6	
1111	152.0	164.8	567.3	1.0	10.9	29.29	22.4	
1117	154.0	165.4	569.1	1.0	11.0	29.23	22.3	
1124	156.0	166.0	570.0	1.0	10.8	28.99	22.2	
1140	158.0	167.5	569.4	1.0	10.5	28.93	22.2	
1147	160.0	169.3	568.4	1.0	9.9	28.63	22.0	
1154	162.0	170.8	567.6	1.0	9.1	27.91	21.6	
1209	164.0	172.5	566.7	1.0	9.0	27.62	21.4	
1215	166.0	174.1	565.5	1.0	9.0	27.54	21.3	
1220	168.0	175.1	565.3	1.0	8.7	26.86	20.8	
1242	170.0	174.4	563.6	1.0	10.2	28.91	22.2	
1249	172.0	173.8	561.9	1.0	10.6	29.33	22.5	
1256	174.0	173.1	560.1	1.0	11.3	29.25	22.3	
1304	176.0	172.4	558.4	1.0	11.5	29.22	22.2	
1310	178.0	171.8	556.7	1.0	11.5	29.08	22.1	
1318	180.0	171.0	554.6	1.0	11.2	29.17	22.2	
1333	182.0	170.0	555.3	1.0	10.6	29.20	22.4	
1338	184.0	168.5	555.7	1.0	11.2	29.36	22.4	
1351	-	169.2	559.4	1.0	11.7	29.46	22.4	
1357	-	169.5	561.0	1.0	11.5	29.53	22.5	
1431	-	174.8	557.8	1.0	11.8	28.97	22.0	
1445	-	179.1	556.4	1.0	11.3	28.52	21.7	
1456	-	181.7	555.4	1.0	11.1	28.10	21.4	
1501	-	182.7	554.3	1.0	11.1	28.12	21.4	
- DATA NOT AVAILABLE								

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DATE		JULIAN DATE		CRUISE #	LOCATION		VESSEL
17 DEC 80		80352 1		23	S F BAY		ESTERO
TIME	STATION	UTH NORTH	UTH EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
707	302.0	205.1	553.7	1.0	10.2	22.72	17.4
724	304.0	206.9	552.3	1.0	10.3	23.04	17.6
732	306.0	208.8	551.1	1.0	10.7	25.50	19.5
748	308.0	210.7	549.8	1.0	10.6	26.20	20.0
754	310.0	212.2	548.8	1.0	10.2	20.94	16.0
802	312.0	213.8	547.6	1.0	10.1	20.47	15.7
820	314.0	214.7	550.0	1.0	10.1	20.06	15.4
827	316.0	215.4	551.6	1.0	10.0	19.61	15.0
833	318.0	215.7	553.3	1.0	9.8	19.26	14.8
850	320.0	216.5	555.4	1.0	9.3	19.87	15.3
855	322.0	216.7	556.9	1.0	9.0	20.31	15.7
902	324.0	216.9	558.6	1.0	9.2	19.25	14.9
917	326.0	215.3	559.3	1.0	9.7	19.52	15.0
924	328.0	213.5	559.6	1.0	10.1	18.63	14.3
930	330.0	211.9	560.9	1.0	10.6	24.37	18.6
937	332.0	210.0	561.4	1.0	10.4	27.27	20.9
943	334.0	208.4	562.2	1.0	10.3	21.81	16.7
1125	402.0	210.2	577.5	1.0	10.4	16.88	12.9
1129	404.0	211.2	577.3	1.0	10.3	17.08	13.0
1144	406.0	213.3	579.2	1.0	10.4	14.18	10.8
1151	408.0	215.0	580.5	1.0	10.3	14.27	10.9
1200	410.0	216.7	581.9	1.0	9.9	7.36	5.5
1206	412.0	218.0	582.9	1.0	10.4	6.72	5.0
1211	414.0	219.2	582.6	1.0	10.2	5.19	3.8
1227	416.0	219.0	584.2	1.0	10.2	4.51	3.3
1237	418.0	218.8	586.7	1.0	9.2	3.37	2.5
1250	420.0	217.8	586.7	1.0	9.9	4.00	2.9
1254	422.0	216.7	585.8	1.0	10.0	5.50	4.1
1303	424.0	215.4	588.0	1.0	9.7	6.37	4.8
1311	426.0	218.4	589.5	1.0	9.7	5.12	3.8
1314	428.0	214.0	590.5	1.0	10.1	3.16	2.2
1324	430.0	214.3	592.5	1.0	10.2	2.50	1.7
1334	432.0	214.5	594.8	1.0	10.2	1.31	0.8
1449	745.0	210.4	598.3	1.0	10.0	0.84	0.5
1506	747.0	209.4	601.9	1.0	9.9	0.47	0.2
1520	749.0	208.9	605.5	1.0	9.9	0.24	-0.0
1537	751.0	209.5	609.1	1.0	10.4	0.19	-0.1

- DATA NOT AVAILABLE

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ESTUARINE RESEARCH GROUP

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DATE		JULIAN DATE	CRUISE #	LOCATION	VESSEL		
17 DEC 80		80352 1	23	S F BAY	POLARIS		
TIME	STATION	UTM NORTH	UTM EAST	DEPTH M	TEMP DEG C	SALIN PPT	SIGMA-t
651	17.0	192.6	550.6	0.0	10.5	27.32	20.9
656	17.0	192.6	550.6	2.0	10.7	28.55	21.8
703	17.0	192.6	550.6	5.0	10.9	30.48	23.3
707	17.0	192.6	550.6	10.0	11.0	30.69	23.5
712	17.0	192.6	550.6	20.0	11.0	31.00	23.7
745	16.0	196.3	548.3	1.0	11.1	29.88	22.8
813	15.0	202.4	549.5	0.0	10.4	25.94	19.9
820	15.0	202.4	549.5	2.0	10.7	26.74	20.4
826	15.0	202.4	549.5	5.0	10.8	28.08	21.5
830	15.0	202.4	549.5	10.0	10.8	28.28	21.6
834	15.0	202.4	549.5	20.0	10.9	28.65	21.9
858	14.0	206.7	552.5	1.0	10.7	26.79	20.5
918	13.0	209.3	555.7	0.0	10.7	24.21	18.5
923	13.0	209.3	555.7	2.0	10.5	24.76	18.9
936	13.0	209.3	555.7	5.0	10.6	25.78	19.7
1000	12.0	211.6	560.4	1.0	10.6	25.19	19.3
1018	11.0	212.7	564.6	1.0	10.3	21.62	16.5
1033	10.0	212.5	569.5	1.0	10.2	20.12	15.4
1046	9.0	211.4	572.5	0.0	10.3	19.62	15.0
1054	9.0	211.4	572.5	2.0	10.2	19.98	15.3
1101	9.0	211.4	572.5	5.0	10.3	21.16	16.2
1106	9.0	211.4	572.5	10.0	10.3	21.70	16.6
1110	9.0	211.4	572.5	20.0	10.3	21.98	16.8
1137	8.0	209.3	574.3	1.0	10.3	19.21	14.7
1156	7.0	211.3	579.3	1.0	10.2	15.50	11.8
1230	6.0	213.3	584.7	0.0	10.0	11.82	9.0
1235	6.0	213.3	584.7	2.0	10.0	11.67	8.9
1244	6.0	213.3	584.7	5.0	9.9	13.23	10.1
1312	5.0	212.8	589.5	1.0	9.5	5.82	4.4
1330	4.0	211.5	593.4	1.0	9.6	4.46	3.3
1359	3.0	211.8	598.4	0.0	9.9	1.93	1.3
1405	3.0	211.8	598.4	2.0	9.7	2.10	1.5
1416	3.0	211.8	598.4	6.0	9.6	2.55	1.8
1434	2.0	213.2	600.4	1.0	9.5	0.89	0.5
1454	649.0	212.9	605.6	1.0	9.3	0.20	0.0
1508	651.0	215.0	608.5	1.0	8.4	0.09	-0.0
1514	652.0	216.4	610.6	1.0	8.2	0.07	-0.0
1522	653.0	217.1	612.1	1.0	8.1	0.07	-0.0
1535	655.0	219.7	613.9	1.0	8.2	0.07	-0.0
1556	657.0	223.4	614.9	0.0	8.2	0.08	-0.0
1602	657.0	223.4	614.9	2.0	8.2	0.08	-0.0
1628	757.0	215.9	616.0	0.0	8.6	0.07	-0.0
1734	757.0	215.9	616.0	2.0	8.6	0.06	-0.1
1739	757.0	215.9	616.0	7.0	8.6	0.08	-0.0
1801	755.0	212.1	615.2	1.0	8.8	0.03	-0.1
1811	753.0	210.3	612.6	1.0	9.0	0.05	-0.1

--- DATA NOT AVAILABLE ---