

# OCEANOGRAPHICAL STATION LIST

VOLUME 69

TEMPERATURE AND SALINITY OBSERVATIONS FROM  
AUSTRALIAN TUNA FISHING VESSELS IN 1964

DIVISION OF FISHERIES AND OCEANOGRAPHY  
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL  
RESEARCH ORGANIZATION, AUSTRALIA 1968

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MELBOURNE, 1968

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When citing this station list, abbreviate as follows:  
CSIRO Aust. Oceanogr. Stn List 69.

# OCEANOGRAPHICAL STATION LIST

## VOLUME 69

### Temperature and Salinity Observations from Australian Tuna Fishing Vessels in 1964

#### I. INTRODUCTION

In 1961, a programme for the systematic measurement of sea-water temperatures from fishing vessels was begun by CSIRO (CSIRO Aust. 1961; Vaux 1961). The data presented in this volume are the result of such measurements made from fishing vessels during the course of their normal fishing operations on the South Australian and Eastern Australian tuna fishing grounds during 1964.

#### II. METHODS

**Temperature.**—Fishermen were issued with surface thermometers and instructions for their use (Vaux 1961). Thermometers were graduated in whole degrees over the range 30–120 degF with an accuracy of  $\pm 0.5$  degF. Temperatures were taken in degF and converted to degC (nearest tenth) before listing. Temperatures listed in this volume are considered accurate to about  $\pm 0.5$  degC although on some vessels a higher accuracy was probably achieved.

**Salinity.**—Water samples for subsequent salinity analysis were taken by several vessels. The samples were analysed at either Cronulla or Port Lincoln using a chlorinity-temperature meter of the conductivity type (Hamon 1956) and converting from chlorinity to salinity by the relation –

$$\text{Salinity} = 0.03 + 1.805 \times \text{Chlorinity}$$

Salinities are considered accurate to about  $\pm 0.05\%$ .

**Accuracy of Positions.**—For reporting the position of sampling, fishermen used a grid reference system (Kesteven and Williams 1962) consisting of rectangles of approximately 6 x 5 nautical miles (actually 6 x 6 minutes of latitude and longitude). A fisherman's position wrong by one grid rectangle could be in error, therefore, by up to 6 miles. South Australian positions may be in error by twice this amount as vessels operate for longer periods out of sight of land. Errors greater than this are considered to be infrequent. Grid references were converted to latitude and longitude by computer before listing.

## REFERENCES

- CSIRO AUST. (1961).—Tuna search programme. Southern Pelagic Project Special Report No. 1 (Mimeogr.) (CSIRO : Cronulla.)
- HAMON, B.V. (1956).—A portable temperature-chlorinity bridge for estuarine investigations and seawater analysis. J. scient. Instrum. 33, 329-33.
- KESTEVEN, G.L., and WILLIAMS, G.R. (1962).—Fishermen and scientists work together. Aust. Fish. Newsl. 21(5), 21-4.
- VAUX, D. (1961).—Measurement of sea water temperatures by fishermen. Aust. Fish. Newsl. 20(11), 19.

## III. ACKNOWLEDGEMENTS

Thanks are due to the skippers, owners, and crew of the vessels from which the observations listed in this volume were made.

## IV. DATA

The data were subjected to various quality control checks before listing by C.D.C. 3600 Computer. Speeds between successive positions were calculated, and finding of impossible values led to the amendment or rejection of the suspect data. An explanation of the headings used is given at the beginning of the listing.

A.D. Crooks wrote the computer programmes, and D. Vaux had the overall responsibility for the collection, processing, and compilation of the observations.

**DATA**

**TEMPERATURES AND SALINITIES**

## EXPLANATION OF HEADINGS

VESSEL	A code number is given for each vessel:	
T1	<u>Favorite</u>	W2 <u>Eden Star</u>
T2	<u>Degei</u>	W3 <u>Marconi's Cross</u>
T3	<u>Huon</u>	W4 <u>Imlay</u>
T5	<u>Hermay</u>	W6 <u>Lismore Star</u>
T7	<u>Tacoma</u>	W7 <u>Cape Baron</u>
T9	<u>Cape Byron</u>	W8 <u>Mary Anne Simms</u>
U1	<u>Mameena</u>	W9 <u>Challenge</u>
U5	<u>Mirrabooka</u>	X1 <u>Enfield</u>
U7	<u>Pelamis</u>	X2 <u>Richard Allen</u>
U8	<u>St Michelle</u>	X3 <u>Agnes James</u>
CRUISE STATION NUMBER	Generally assigned only when a member of CSIRO staff accompanied the cruise	
TIME	For longitude west of $142^{\circ}30'E.$ , times are given in Central Australian Standard Time, GMT $+9\frac{1}{2}$ hr; east of $142^{\circ}30'E.$ , times are given in Eastern Australian Standard Time, GMT +10 hr	
LATITUDE LONGITUDE	Given in degrees and minutes	
TEMP.	Sea surface temperatures recorded in $^{\circ}\text{C}$	
SALINITY	Given in parts per thousand	
	A blank indicates no data available	

VESSEL - CRUISE STATION YR, MIH, DAY TIME & LATITUDE LONGITUDE TEMP, SALINITY WIND SWELL WEA. VIS, BAROM, SAMPLING NUMBER DN. AMT, DN. AMT, DN. AMT, DN. AMT, METHOD

VESSEL-CRUISE NUMBER	STATION NUMBER	YR. MIN.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN. AMT.	SEA DN. AMT.	SWELL DN. AMT.	VIS.	BAROM.	SAMPLING METHOD
17	2	64	3	22	1930	35	135	45	E	18.3	35.84			1
17	2	64	4	21	2030	35	135	51	E	18.6	35.86			1
17	27	64	4	21	0815	36	135	51	E	18.1	35.79			1
17	27	64	4	21	1200	36	135	51	E	17.7	35.68			1
17	27	64	4	21	1500	36	135	51	E	17.7	35.64			1
17	27	64	4	21	1800	36	135	51	E	18.1	35.79			1
17	27	64	4	22	0700	36	135	45	E	17.9	35.77			1
17	27	64	4	22	0900	36	135	45	E	17.9	35.71			1
17	27	64	4	22	1200	36	135	45	E	18.3	35.82			1
17	27	64	4	22	1500	36	135	45	E	18.4	35.84			1
17	27	64	4	22	1800	35	135	51	E	18.2	35.82			1
17	27	64	4	22	1900	35	135	57	E	18.3	35.77			1
17	27	64	4	22	2000	35	136	3	E	18.2	35.82			1
17	27	64	4	22	2100	35	136	9	E	17.9	35.79			1
17	31	64	4	27	0900	35	135	45	E	18.2	35.90			1
17	31	64	4	27	1200	35	135	45	E	18.3	35.97			1
17	31	64	4	27	1500	35	135	51	E	18.2	35.87			1
17	31	64	4	27	1800	35	135	51	E	17.7	35.77			1
17	31	64	4	27	1900	35	135	57	E	17.9	35.93			1
17	31	64	4	28	0900	35	135	33	E	17.9	35.95			1
17	31	64	4	28	1200	35	135	27	E	18.1	35.95			1
17	31	64	4	28	1500	35	135	15	E	18.3	35.91			1
17	31	64	4	28	1800	35	135	45	E	18.2	35.91			1
17	31	64	4	28	1900	35	135	57	E	18.1	35.91			1
17	31	64	4	29	0900	35	135	27	E	18.1	35.91			1
17	31	64	4	29	1200	35	135	51	E	18.1	35.95			1
17	31	64	4	29	1500	35	135	27	E	17.8	35.93			1
17	34	64	5	0700	36	135	45	E	18.1	35.91			1	
17	34	64	5	0900	36	135	39	E	17.6	35.73			1	
17	34	64	5	1255	35	135	39	E	17.7	35.71			1	
17	34	64	5	1500	35	135	39	E	17.8	35.79			1	
17	34	64	5	1800	35	135	39	E	17.3	35.59			1	
17	34	64	5	2100	35	135	39	E	17.8	35.93			1	
17	34	64	5	2400	35	135	57	E	17.8	35.90			1	
17	38	64	5	10	0700	35	135	45	E	17.9	35.99			1
17	38	64	5	10	0900	35	135	33	E	17.7	35.77			1
17	38	64	5	10	1200	36	135	33	E	17.2	35.62			1
17	38	64	5	10	1500	35	135	39	E	17.2	35.57			1
17	38	64	5	10	1800	35	135	39	E	17.7	35.77			1
17	38	64	5	10	2100	35	135	57	E	17.9	36.00			1

VESSELS - CRUISE STATION YR. MH. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL DN. AMT. DN. AMT. DN. AMT. DN. AMT. DN. AMT. SAMPLING METHOD

17	1	2	64	5	31	2359	34	52	S	135	48	E	16.8	36.09
17	1	3	64	6	1	0300	34	41	S	134	33	E	16.4	36.06
17	1	4	64	6	1	0600	34	20	S	134	30	E	16.8	36.15
17	1	5	64	6	1	0900	33	54	S	134	15	E	17.0	36.18
17	1	6	64	6	1	1200	33	32	S	134	01	E	17.2	36.15
17	1	7	64	6	1	1500	33	06	S	133	44	E	17.1	36.17
17	1	8	64	6	1	1800	32	44	S	133	30	E	17.2	36.24
17	1	9	64	6	1	2100	32	28	S	133	13	E	16.7	36.08
17	1	10	64	6	1	2359	32	23	S	132	46	E	17.1	36.11
17	1	11	64	6	2	0300	32	16	S	132	15	E	17.0	36.18
17	1	12	64	6	2	0600	32	11	S	131	46	E	17.3	36.31
17	1	13	64	6	2	0900	31	58	S	131	18	E	17.6	36.35
17	1	14	64	6	2	1200	31	48	S	130	57	E	17.4	36.44
17	1	15	64	6	2	1500	31	51	S	130	19	E	17.4	36.60
17	1	16	64	6	2	1800	31	56	S	129	49	E	17.4	36.60
17	1	17	64	6	2	2100	32	02	S	129	18	E	17.3	36.91
17	1	18	64	6	2	2359	32	09	S	128	46	E	17.3	37.09
17	1	19	64	6	3	0400	32	13	S	128	16	E	17.1	37.03
17	1	20	64	6	3	0600	32	32	S	127	43	E	16.6	37.09
17	1	21	64	6	3	0900	32	20	S	127	17	E	16.6	36.89
17	1	22	64	6	3	1200	32	22	S	126	47	E	16.5	37.05
17	1	23	64	6	3	1500	32	18	S	126	16	E	16.6	36.96
17	1	24	64	6	3	1630	32	36	S	125	50	E	17.1	36.82
17	1	25	64	6	3	1800	32	44	S	125	40	E	17.1	36.55
17	1	26	64	6	3	2100	33	04	S	125	16	E	16.9	36.31
17	1	27	64	6	3	2359	33	22	S	124	29	E	16.9	36.17
17	1	28	64	6	4	0300	33	41	S	124	29	E	16.8	36.24
17	1	29	64	6	4	0600	33	54	S	124	06	E	17.0	36.22
17	1	30	64	6	4	0900	33	58	S	123	38	E	16.3	36.29
17	1	31	64	6	4	1230	34	01	S	123	04	E	17.0	36.27
17	1	32	64	6	4	1500	33	59	S	122	37	E	17.0	36.26
17	1	33	64	6	4	1800	34	02	S	122	07	E	16.5	36.40
17	1	34	64	6	4	2100	34	04	S	121	36	E	18.3	36.31
17	1	35	64	6	4	2359	34	09	S	121	05	E	18.3	36.15
17	1	36	64	6	5	0300	34	14	S	120	33	E	18.3	36.13
17	1	37	64	6	5	0600	34	19	S	120	01	E	18.7	36.09
17	1	38	64	6	5	0900	34	30	S	119	30	E	18.6	36.15
17	1	39	64	6	5	1200	34	39	S	119	00	E	18.9	36.15
17	1	40	64	6	5	1500	34	51	S	118	31	E	18.7	36.06

VESSEL-CRUISE NUMBER	STATION NR.	MIN.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN. AMT.	SEA DN. AMT.	SWELL DN. AMT.	WEA.	VIS.	BAROM.	SAMPLING METHOD
															UN.
17	1	41	64	6	26	1800	H	35	02	S	118	10	E	19.2	35.80
17	1	42	64	6	27	0300	H	34	20	S	118	42	S	18.8	35.63
17	1	43	64	6	27	0600	H	34	14	S	119	59	E	18.6	35.72
17	1	44	64	6	27	0900	H	34	08	S	120	33	E	18.6	35.76
17	1	45	64	6	27	1200	H	34	03	S	121	06	E	18.7	35.74
17	1	46	64	6	27	1500	H	34	02	S	122	38	E	18.3	35.79
17	1	47	64	6	27	1800	H	34	03	S	123	08	E	17.9	35.71
17	1	48	64	6	28	2100	H	34	03	S	123	28	E	18.3	35.81
17	1	49	64	6	28	0001	H	34	03	S	123	35	E	18.3	35.88
17	1	50	64	6	29	0300	H	34	09	S	124	33	E	18.3	35.82
17	1	51	64	6	29	0600	H	34	14	S	125	38	E	15.9	35.58
17	1	52	64	6	29	0900	H	34	12	S	126	46	E	15.1	35.49
17	1	53	64	7	29	1200	H	34	12	S	127	47	E	15.6	35.62
17	1	54	64	7	01	0001	H	34	45	S	133	15	E	15.0	35.22
17	64	11	24	0600	K	36		57	5	S	150	3	E	17.4	
17	64	11	24	0700	K	36		57	5	S	150	9	E	17.8	
17	64	11	24	0800	K	36		57	5	S	150	21	E	18.3	
17	64	11	24	0815	K	36		57	5	S	150	24	E	18.3	
17	64	11	24	0845	K	36		51	5	S	150	15	E	18.4	
17	64	11	24	1000	K	36		51	5	S	150	15	E	18.4	
17	64	11	24	1100	K	36		45	5	S	150	21	E	18.6	
17	64	11	24	1200	K	36		51	5	S	150	15	E	18.3	
17	64	11	24	1300	K	36		57	5	S	150	9	E	18.0	
17	64	11	24	0700	K	37		3	5	S	149	57	E	17.7	
17	64	11	28	0800	K	37		9	5	S	150	9	E	17.1	
17	64	11	28	0900	K	37		9	5	S	150	21	E	16.3	
17	64	11	28	1000	K	37		15	5	S	150	21	E	17.3	
17	64	11	28	1100	K	37		9	5	S	150	21	E	16.8	
17	64	11	28	1200	K	37		9	5	S	150	9	E	17.0	

VESSEL - CRUISE STATION	YR.	MIN.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SEA SWELL	WEA.	VIS.	BAROM.	SAMPLING	
														METHOD	
11	12	64	3	21	1000	35	45	S 135	21	E 18.4	35.86				1
11	12	64	3	21	1200	35	45	S 135	21	E 18.5	35.86				1
11	12	64	3	21	1620	35	51	S 135	27	E 18.6	35.84				1
11	12	64	3	22	1035	35	51	S 135	27	E 18.6	35.82				1
11	12	64	3	22	1200	35	51	S 135	27	E 18.6	35.82				1
11	12	64	3	27	1200	35	57	S 135	33	E 18.2	35.86				1
11	14	64	3	28	0900	35	57	S 135	27	E 18.1	35.82				1
11	14	64	3	28	1200	36	9	S 135	51	E 18.3	35.84				1
11	14	64	3	28	1600	36	9	S 135	45	E 18.4	35.86				1
11	14	64	3	29	0900	36	9	S 135	45	E 18.3	35.82				1
11	14	64	3	29	1200	36	9	S 135	45	E 18.3	35.82				1
11	14	64	3	29	1500	36	9	S 135	45	E 18.3	35.86				1
11	14	64	3	30	0900	36	9	S 135	45	E 18.2	35.86				1
11	14	64	3	30	1100	35	39	S 135	51	E 18.3	35.91				1
11	14	64	3	30	1200	35	33	S 135	51	E 18.3	35.82				1
11	14	64	3	30	1300	35	27	S 135	57	E 18.2	35.84				1
11	14	64	3	30	1400	35	21	S 135	57	E 17.8	35.79				1
11	14	64	3	30	1600	35	9	S 135	57	E 17.9	35.84				1
11	15	64	4	1	0900	36	9	S 135	45	E	35.86				1
11	15	64	4	1	1200	36	9	S 135	45	E	35.86				1
11	15	64	4	1	1500	36	9	S 135	45	E	35.86				1
11	15	64	4	2	0900	36	9	S 135	45	E	35.86				1
11	15	64	4	2	1200	36	3	S 135	45	E	35.84				1
11	15	64	4	2	1500	36	3	S 135	45	E	35.85				1
11	15	64	4	3	0900	35	57	S 135	39	E	35.88				1
11	15	64	4	3	1200	36	31	S 135	39	E	35.84				1
11	15	64	4	3	1500	35	51	S 135	33	E	35.86				1
11	15	64	4	3	1800	35	51	S 135	33	E	35.86				1
11	15	64	4	4	11	0900	35	51	S 135	33	E	35.84			1
11	15	64	4	4	1200	35	45	S 135	33	E	35.80				1
11	15	64	4	4	1520	35	45	S 135	33	E	35.88				1
11	15	64	4	4	1800	35	45	S 135	33	E	35.82				1
11	15	64	4	4	1800	35	57	S 135	33	E	35.64				1
11	15	64	4	4	1800	35	45	S 135	33	E	35.93				1
11	15	64	4	4	1800	35	15	S 135	51	E	35.88				1
11	15	64	4	4	1800	35	15	S 136	33	E	35.88				1
11	15	64	4	4	1800	35	51	S 135	33	E	36.04				1
11	15	64	4	4	1800	35	57	S 135	33	E	35.73				1
11	15	64	4	4	1800	36	21	S 135	33	E	35.77				1
11	15	64	4	4	1800	36	21	S 135	33	E	35.64				1

VESSEL-CRUISE STATION YR. MIN. DAY TIME & LATITUDE	NUMBER	WIND DN. AMT.	SEA DN. AMT.	SWELL DN. AMT.	WATER VIS.	BAROM.	SAMPLING
							METHOD
11 23	64	16	0900	36	15 S 135	33 E 17.4	35.64
11 23	64	4	16 1200	35	21 S 135	33 E 17.7	35.77
11 23	64	4	16 1500	36	21 S 135	21 E 17.5	35.64
11 23	64	4	16 1800	36	21 S 135	27 E 17.5	1
11 23	64	4	17 0900	36	21 S 135	27 E 17.7	1
11 23	64	4	17 1200	36	21 S 135	27 E 17.8	1
11 23	64	4	17 1500	36	21 S 135	27 E 17.9	1
11 23	64	4	17 1800	36	21 S 135	27 E 18.1	1
11 23	64	4	18 0900	36	19 S 135	33 E 17.4	35.66
11 23	64	4	18 1100	36	19 S 135	33 E 17.6	35.70
11 23	64	4	18 1200	36	3 S 135	39 E 17.9	36.00
11 23	64	4	18 1300	35	57 S 135	39 E 17.8	35.90
11 23	64	4	18 1400	35	45 S 135	45 E 17.8	35.82
11 23	64	4	18 1500	35	33 S 135	45 E 17.7	35.77
11 23	64	4	18 1600	35	27 S 135	57 E 17.7	35.77
11 23	64	4	18 1700	35	21 S 135	57 E 17.7	35.77
11 23	64	4	18 1800	35	15 S 136	3 E 17.8	35.79
11 23	64	4	18 1900	35	9 S 135	57 E 17.7	35.77
11 24	64	4	21 0900	35	27 S 136	3 E 17.7	35.86
11 24	64	4	21 1200	35	51 S 135	51 E 18.0	35.84
11 24	64	4	21 1500	35	57 S 135	45 E 18.1	35.81
11 24	64	4	21 1800	35	57 S 135	45 E 18.1	35.81
11 24	64	4	22 0900	35	57 S 135	45 E 18.0	35.79
11 24	64	4	22 1200	35	51 S 135	39 E 17.9	35.79
11 24	64	4	22 1500	35	51 S 135	45 E 18.3	35.95
11 24	64	4	22 1800	35	51 S 135	45 E 18.3	35.91
11 24	64	4	22 0900	35	51 S 135	39 E 18.2	35.88
11 24	64	4	23 1200	35	57 S 135	45 E 18.1	35.84
11 24	64	4	23 1500	35	51 S 135	39 E 18.3	35.93
11 24	64	4	23 1730	35	51 S 135	39 E 18.1	35.88
11 24	64	4	23 1800	35	45 S 135	39 E 18.0	35.79
11 24	64	4	27 0900	35	45 S 135	33 E 18.2	1
11 24	64	4	27 1200	35	39 S 135	39 E 18.1	35.91
11 24	64	4	27 1500	35	39 S 135	39 E 18.0	36.64
11 24	64	4	27 1800	35	33 S 135	57 E 18.0	1
11 24	64	4	27 1900	35	27 S 136	3 E 17.9	35.93
11 24	64	4	28 0900	35	21 S 136	3 E 17.8	35.95
11 24	64	4	28 1200	35	39 S 135	39 E 18.0	36.33
11 24	64	4	28 1500	35	39 S 135	39 E 18.1	35.97
11 24	64	4	28	35	39 S 135	39 E 18.1	35.93

VESSEL	CRUISE NUMBER	STATION YR.	MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN.	SWELL AMT.	WEA. DN.	VIS. AMT.	BAROM.	SAMPLED		
															1	1	
1	29	64	4	29	1200	35	51	135	39	E 18.2						35.95	35.93
1	29	64	4	29	1500	35	51	135	39	E 18.0						35.88	35.88
1	29	64	4	29	1730	35	57	135	45	E 18.0						35.90	35.90
1	33	64	5	6	0900	35	51	135	39	E 17.4						35.71	35.71
1	33	64	5	6	1200	35	57	135	33	E 17.8						35.97	35.97
1	33	64	5	6	1500	35	57	135	33	E 17.9						35.86	35.86
1	33	64	5	7	0900	35	57	135	33	E 17.8						35.90	35.90
1	33	64	5	7	1200	35	57	135	33	E 17.8						35.79	35.79
1	33	64	5	7	1500	35	51	135	39	E 17.4						35.66	35.66
1	33	64	5	7	1600	35	45	135	45	E 17.9						35.90	35.90
1	33	64	5	7	1700	35	39	135	57	E 18.2						35.75	35.75
1	33	64	5	7	1800	35	33	135	57	E 18.2						35.99	35.99
1	35	64	5	7	1900	35	27	135	57	E 18.2						36.18	36.18
1	33	64	5	7	2000	35	21	135	57	E 18.0						35.95	35.95
1	33	64	5	7	2100	35	9	135	57	E 17.8						35.91	35.91
1	38	64	5	10	0900	35	51	135	39	E 17.9						35.82	35.82
1	38	64	5	10	1200	35	51	135	39	E 17.7						35.75	35.75
1	38	64	5	10	1500	36	3	135	33	E 17.2						35.62	35.62
1	38	64	5	10	1800	35	57	135	27	E 16.9						35.55	35.55
1	43	64	5	17	0900	35	51	135	39	E 17.7						35.86	35.86
1	43	64	5	17	1200	35	57	135	27	E 16.9						35.61	35.61
1	43	64	5	17	1500	35	51	135	45	E 17.6						35.86	35.86
1	43	64	5	17	1800	35	27	135	33	E 17.6						35.95	35.95
1	9	64	10	24	0600	36	57	150	33	E 18.6						35.59	35.59
1	9	64	10	24	0700	36	57	150	9	E 19.1						35.59	35.59
1	9	64	10	24	0800	36	51	150	21	E 19.1						35.59	35.59
1	9	64	10	24	0900	36	45	150	21	E 19.1						35.59	35.59
1	9	64	10	24	1000	36	45	150	15	E 18.8						35.61	35.61
1	9	64	10	24	1100	36	51	150	9	E 19.0						35.59	35.59
1	9	64	10	24	1200	36	57	149	57	E 17.8						35.59	35.59
1	12	64	10	25	0700	36	57	150	33	E 18.7						35.62	35.62
1	12	64	10	25	0800	36	51	150	15	E 18.6						35.59	35.59
1	12	64	10	25	0900	36	36	150	27	E 18.6						35.59	35.59
1	12	64	10	25	1000	36	36	150	27	E 19.2						35.59	35.59
1	12	64	10	25	1100	36	33	150	21	E 19.3						35.59	35.59
1	12	64	10	25	1200	36	33	150	21	E 19.3						35.59	35.59
1	12	64	10	25	1500	36	36	150	27	E 19.3						35.62	35.62
1	12	64	10	25	1600	36	36	150	27	E 19.2						35.61	35.61
1	12	64	10	25	1700	36	39	150	33	E 18.6						35.62	35.62

VESSEL	STATION	YR.	MTH.	DAY	TIME	L	LATITUDE	LONGITUDE	TEMP.	SALINITY	DN.	AMT.	SEA.	SWELL.	WEA.	VIS.	BAROM.	SAMPLING METHOD
1	12	64	10	25	1800	36	45	S 150	3 E 18.4	35.61	1	1						
1	12	64	10	26	0600	36	39	S 150	9 E 18.8	35.61	1	1						
1	12	64	10	26	0700	36	39	S 150	21 E 19.0	35.61	1	1						
1	12	64	10	26	0800	36	39	S 150	27 E 19.0	35.59	1	1						
1	12	64	10	26	0900	36	33	S 150	27 E 18.3	35.61	1	1						
1	12	64	10	26	1200	36	27	S 150	27 E 19.5	35.62	1	1						
1	12	64	10	26	1500	36	15	S 150	39 E 19.2	35.64	1	1						
1	12	64	10	26	1800	36	15	S 150	15 E 18.7	35.61	1	1						
1	12	64	10	27	0600	36	15	S 150	15 E 17.9	35.59	1	1						
1	12	64	10	27	0900	36	15	S 150	27 E 19.1	35.59	1	1						
1	12	64	10	27	1200	36	15	S 150	21 E 18.8	35.61	1	1						
1	12	64	10	27	1400	36	33	S 150	21 E 18.8	35.59	1	1						
1	12	64	10	27	1500	36	45	S 150	15 E 18.4	35.61	1	1						
1	12	64	10	27	1600	36	51	S 150	9 E 19.0	35.61	1	1						
1	12	64	10	27	1700	37	3	S 149	57 E 18.7	35.61	1	1						
1	12	64	10	28	0600	37	3	S 150	3 E 17.7	35.64	1	1						
1	12	64	11	2	0700	36	57	S 150	9 E 16.7	35.59	1	1						
1	12	64	11	2	0800	36	51	S 150	15 E 16.9	35.59	1	1						
1	12	64	11	2	0900	36	51	S 150	21 E 16.4	35.50	1	1						
1	12	64	11	2	1000	36	45	S 150	27 E 16.2	35.50	1	1						
1	12	64	11	2	1100	36	33	S 150	33 E 16.4	35.57	1	1						
1	12	64	11	2	1200	36	33	S 150	21 E 16.1	35.59	1	1						
1	12	64	11	2	1300	36	33	S 150	21 E 18.2	35.59	1	1						
1	12	64	11	2	1400	36	33	S 150	15 E 17.4	35.53	1	1						
1	12	64	11	2	1500	36	45	S 150	9 E 16.3	35.46	1	1						
1	12	64	11	2	1600	36	51	S 150	9 E 17.3	35.53	1	1						
1	12	64	11	2	1700	37	3	S 149	57 E 16.3	35.52	1	1						
1	12	64	11	3	0700	37	3	S 150	3 E 16.0	35.52	1	1						
1	12	64	11	3	0800	36	57	S 150	9 E 17.1	35.55	1	1						
1	12	64	11	3	0900	36	51	S 150	21 E 17.0	35.53	1	1						
1	12	64	11	3	1000	36	33	S 150	21 E 18.2	35.53	1	1						
1	12	64	11	3	1100	36	39	S 150	21 E 18.4	35.55	1	1						
1	12	64	11	3	1200	36	45	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1300	36	57	S 150	3 E 16.8	35.53	1	1						
1	12	64	11	3	0600	36	57	S 149	57 E 16.3	35.52	1	1						
1	12	64	11	3	0700	36	51	S 150	3 E 17.0	35.57	1	1						
1	12	64	11	3	0800	36	36	S 150	21 E 18.6	35.57	1	1						
1	12	64	11	3	0900	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1000	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1100	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1200	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1300	36	36	S 150	9 E 16.9	35.52	1	1						
1	12	64	11	3	0600	36	36	S 149	57 E 16.3	35.57	1	1						
1	12	64	11	3	0700	36	36	S 150	3 E 17.0	35.57	1	1						
1	12	64	11	3	0800	36	36	S 150	21 E 18.6	35.57	1	1						
1	12	64	11	3	0900	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1000	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1100	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1200	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1300	36	36	S 150	9 E 16.9	35.52	1	1						
1	12	64	11	3	0600	36	36	S 149	57 E 16.3	35.57	1	1						
1	12	64	11	3	0700	36	36	S 150	3 E 17.0	35.57	1	1						
1	12	64	11	3	0800	36	36	S 150	21 E 18.6	35.57	1	1						
1	12	64	11	3	0900	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1000	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1100	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1200	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1300	36	36	S 150	9 E 16.9	35.52	1	1						
1	12	64	11	3	0600	36	36	S 149	57 E 16.3	35.57	1	1						
1	12	64	11	3	0700	36	36	S 150	3 E 17.0	35.57	1	1						
1	12	64	11	3	0800	36	36	S 150	21 E 18.6	35.57	1	1						
1	12	64	11	3	0900	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1000	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1100	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1200	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1300	36	36	S 150	9 E 16.9	35.52	1	1						
1	12	64	11	3	0600	36	36	S 149	57 E 16.3	35.57	1	1						
1	12	64	11	3	0700	36	36	S 150	3 E 17.0	35.57	1	1						
1	12	64	11	3	0800	36	36	S 150	21 E 18.6	35.57	1	1						
1	12	64	11	3	0900	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1000	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1100	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1200	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1300	36	36	S 150	9 E 16.9	35.52	1	1						
1	12	64	11	3	0600	36	36	S 149	57 E 16.3	35.57	1	1						
1	12	64	11	3	0700	36	36	S 150	3 E 17.0	35.57	1	1						
1	12	64	11	3	0800	36	36	S 150	21 E 18.6	35.57	1	1						
1	12	64	11	3	0900	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1000	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1100	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1200	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1300	36	36	S 150	9 E 16.9	35.52	1	1						
1	12	64	11	3	0600	36	36	S 149	57 E 16.3	35.57	1	1						
1	12	64	11	3	0700	36	36	S 150	3 E 17.0	35.57	1	1						
1	12	64	11	3	0800	36	36	S 150	21 E 18.6	35.57	1	1						
1	12	64	11	3	0900	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1000	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1100	36	36	S 150	9 E 16.9	35.53	1	1						
1	12	64	11	3	1200	36	36	S 150	21 E 18.2	35.52	1	1						
1	12	64	11	3	1300	36	36	S 150	9 E 16.9	35.52	1	1						
1	12	64	11	3	0600	36	36	S 149	57 E 16.3	35.57	1	1						
1	12	64	11	3	0700	36	36	S 150	3 E 17.0	35.57	1	1						
1	12	64	11	3	0800	36	36	S 150	21 E 18.6	35.57	1	1						

Cruise Number	Station YR.	Min. Day Time	Latitude	Longitude	Temp.	Salinity	Wind DN.	A.M.T.	DN. A.M.T.	Swell Hs.	Vis.	Barom.	SAMPLING METHOD	
													SWELL	
1	22	22	64	11	6 1300	36 21	S 150	21	E 18.9	27	E 17.9	35.59	35.59	
1	22	22	64	11	6 1500	36 21	S 150	21	E 18.9	27	E 17.9	35.59	35.59	
1	22	22	64	11	6 1600	36 15	S 150	15	E 18.7	27	E 17.9	35.59	35.59	
1	22	22	64	11	7 0900	36 15	S 150	21	E 18.6	27	E 17.7	35.55	35.55	
1	22	22	64	11	7 1200	36 33	S 150	24	E 18.7	27	E 17.7	35.53	35.53	
1	22	22	64	11	7 1500	36 31	S 150	3	E 17.2	27	E 17.2	35.53	35.53	
1	25	25	64	11	9 0600	37 3	S 150	3	E 15.9	27	E 17.9	35.52	35.52	
1	25	25	64	11	9 0700	37 3	S 150	9	E 16.4	27	E 17.9	35.55	35.55	
1	25	25	64	11	9 0805	37 3	S 150	21	E 17.0	27	E 17.0	35.53	35.53	
1	25	25	64	11	9 0905	36 57	S 150	27	E 18.4	27	E 18.4	35.53	35.53	
1	25	25	64	11	9 1000	36 27	S 150	21	E 18.4	27	E 18.4	35.53	35.53	
1	25	25	64	11	9 1100	36 39	S 150	21	E 18.5	27	E 18.5	35.55	35.55	
1	25	25	64	11	9 1200	36 33	S 150	21	E 17.7	27	E 17.7	35.53	35.53	
1	25	25	64	11	9 1300	36 39	S 150	22	E 18.3	27	E 17.5	35.57	35.57	
1	25	25	64	11	9 1400	36 45	S 150	15	E 17.4	27	E 17.4	35.61	35.61	
1	25	25	64	11	9 1500	36 51	S 150	13	E 17.2	27	E 17.2	35.53	35.53	
1	25	25	64	11	9 1700	36 57	S 149	57	E 17.2	27	E 17.2	35.53	35.53	
1	27	27	64	11	11 0600	36 57	S 150	3	E 17.0	27	E 17.0	35.53	35.53	
1	27	27	64	11	11 0700	36 45	S 150	9	E 17.2	27	E 17.2	35.55	35.55	
1	27	27	64	11	11 0800	36 33	S 150	21	E 17.5	27	E 17.5	35.55	35.55	
1	27	27	64	11	11 0900	36 33	S 150	21	E 18.5	27	E 18.5	35.55	35.55	
1	27	27	64	11	11 1000	36 33	S 150	21	E 18.4	27	E 18.4	35.57	35.57	
1	27	27	64	11	11 1200	36 33	S 150	21	E 18.7	27	E 18.7	35.55	35.55	
1	27	27	64	11	11 1300	36 39	S 150	21	E 19.1	27	E 19.1	35.53	35.53	
1	27	27	64	11	11 1500	36 33	S 150	21	E 18.5	27	E 18.5	35.55	35.55	
1	27	27	64	11	11 1600	36 45	S 150	9	E 17.6	27	E 17.6	35.55	35.55	
1	27	27	64	11	11 1700	36 51	S 150	3	E 17.5	27	E 17.5	35.57	35.57	
1	26	26	64	11	14 0600	36 57	S 150	3	E 16.9	27	E 16.9	35.52	35.52	
1	26	26	64	11	14 0700	36 51	S 150	9	E 17.5	27	E 17.5	35.50	35.50	
1	26	26	64	11	14 0800	36 45	S 150	15	E 18.4	27	E 19.4	35.48	35.48	
1	26	26	64	11	14 0930	36 45	S 150	15	E 18.4	27	E 19.1	35.53	35.53	
1	26	26	64	11	14 1200	36 51	S 150	21	E 18.7	27	E 18.7	35.53	35.53	
1	31	31	64	11	15 0600	36 36	45	S 150	3	E 17.8	27	E 17.8	35.52	35.52
1	31	31	64	11	15 0900	36 36	45	S 150	15	E 19.1	27	E 19.1	35.53	35.53
1	31	31	64	11	15 1200	36 51	S 150	21	E 19.4	27	E 19.4	35.53	35.53	
1	32	32	64	11	15 1500	36 51	S 150	21	E 19.1	27	E 19.1	35.52	35.52	
1	32	32	64	11	16 1200	37 9	S 150	21	E 19.3	27	E 19.3	35.52	35.52	
1	32	32	64	11	16 1500	37 15	S 150	21	E 19.2	27	E 19.2	35.53	35.53	



VESSEL- CRUISE STATION YR. MTH. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND DIRECTION DN. AMT. DN. AMT. DN. AMT. SAMPLING METHOD

1	55	64	12	3	1100	36	51	S 150	33 E 18.8	35.59
1	55	64	12	3	1200	36	51	S 150	33 E 19.4	35.59
1	55	64	12	3	1300	36	51	S 150	33 E 19.4	35.59
1	55	64	12	3	1400	36	51	S 150	27 E 19.0	35.57
1	55	64	12	3	1500	36	51	S 150	21 E 17.7	35.48
1	55	64	12	3	1600	36	57	S 150	9 E 17.6	35.43
1	55	64	12	3	1700	37	3	S 150	3 E 17.4	35.46
1	56	64	12	14	0800	37	3	S 150	3 E 16.1	35.55
1	56	64	12	14	0900	36	57	S 150	15 E 16.4	35.53
1	56	64	12	14	1000	36	51	S 150	27 E 16.5	35.52
1	56	64	12	14	1100	36	45	S 150	33 E 18.3	35.59
1	56	64	12	14	1200	36	45	S 150	27 E 18.7	35.59
1	56	64	12	14	1300	36	45	S 150	27 E 18.7	35.53
1	56	64	12	14	1400	36	51	S 150	21 E 17.2	35.50
1	56	64	12	14	1500	36	57	S 150	15 E 16.9	35.53
1	56	64	12	14	1600	36	57	S 150	3 E 17.1	35.55
1	56	64	12	15	0600	36	57	S 149	57 E 16.2	35.55
1	67	64	12	15	0700	36	51	S 150	3 E 16.3	35.53
1	67	64	12	15	0800	36	45	S 150	9 E 16.4	35.53
1	67	64	12	15	0900	36	39	S 150	15 E 16.6	35.52
1	67	64	12	15	1000	36	51	S 150	15 E 16.4	35.48
1	67	64	12	15	1100	36	57	S 150	13 E 16.4	35.50
1	67	64	12	16	0756	36	57	S 150	9 E 16.3	35.53
1	68	64	12	16	0900	36	45	S 150	9 E 16.5	35.52
1	68	64	12	16	1000	36	39	S 150	15 E 16.7	35.52
1	68	64	12	16	1100	36	39	S 150	15 E 17.2	35.53
1	68	64	12	16	1200	36	21	S 150	15 E 18.4	35.59
1	68	64	12	16	1300	36	15	S 150	21 E 18.5	35.59
1	68	64	12	16	1400	36	15	S 150	27 E 18.3	35.62
1	68	64	12	17	0600	36	21	S 150	27 E 18.4	35.59
1	68	64	12	17	0700	36	21	S 150	33 E 19.6	35.62
1	68	64	12	17	0900	36	21	S 150	33 E 19.4	35.62
1	68	64	12	17	1000	36	21	S 150	33 E 19.4	35.62
1	68	64	12	17	1100	36	21	S 150	33 E 19.4	35.62
1	68	64	12	17	1200	36	15	S 150	33 E 20.6	35.62
1	68	64	12	17	1300	36	15	S 150	39 E 19.1	35.66
1	68	64	12	17	1400	36	15	S 150	39 E 19.1	35.66

ESSE - CRUISE STATION YR, MIN, DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SEA SWELL WEA. VIS. BAROM. SAMPLING NUMBER DN. AMT. DN. AMT. DN. AMT. METHOD

VESSEL CRUISE STATION YR. MIN. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL WEA. VIS. BARDM. SAMPLING METHOD  
NUMBER

1	75	64	12	24	1600	36	39	S 150	15	E 19.9	35.53
1	75	64	12	24	1700	36	33	S 150	15	E 20.2	35.53
1	75	64	12	24	1800	36	39	S 150	15	E 20.7	35.59
1	75	64	12	24	1900	36	45	S 150	15	E 19.1	35.53
1	75	64	12	24	2000	36	57	S 150	3	E 18.7	35.52
1	75	64	12	25	0700	36	57	S 150	3	E 17.9	1
1	77	64	12	25	0800	36	57	S 150	9	E 18.6	35.53
1	77	64	12	25	0900	36	51	S 150	21	E 19.2	1
1	77	64	12	25	1200	36	51	S 150	21	E 19.0	35.55
1	77	64	12	25	1500	37	3	S 150	9	E 19.4	35.52
1	77	64	12	25	1635	37	3	S 150	15	E 19.0	35.55
1	77	64	12	25	1800	37	3	S 150	15	E 19.6	35.55
1	77	64	12	25	2000	37	3	S 150	21	E 19.4	1
1	78	64	12	26	0800	37	3	S 150	9	E 18.7	1
1	78	64	12	26	0900	36	57	S 150	21	E 19.6	35.53
1	78	64	12	26	1000	36	51	S 150	21	E 19.6	35.53
1	78	64	12	26	1100	36	51	S 150	15	E 19.4	35.53
1	78	64	12	26	1200	36	57	S 150	15	E 19.3	35.50
1	78	64	12	26	1300	37	3	S 150	21	E 19.4	1
1	78	64	12	26	1400	36	57	S 150	15	E 19.3	35.52
1	78	64	12	26	1500	36	57	S 150	9	E 19.4	35.57
1	78	64	12	26	1600	37	3	S 150	15	E 19.6	1
1	78	64	12	27	0800	37	3	S 150	3	E 17.4	1
1	79	64	12	27	0900	37	3	S 150	9	E 18.5	35.53
1	79	64	12	27	1000	36	57	S 150	21	E 18.7	35.53
1	79	64	12	27	1100	36	57	S 150	15	E 18.8	1
1	79	64	12	27	1200	36	57	S 150	15	E 19.1	1
1	79	64	12	27	1500	36	51	S 150	9	E 19.4	1
1	79	64	12	27	1600	36	57	S 150	9	E 18.8	1
1	79	64	12	27	1700	37	3	S 150	3	E 18.2	35.55

VESSEL-CRUISE STATION NUMBER	YR., MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	SEA DN.	WIND DN.	AMT.	DN.	ANT.	WEA.	VIS.	BAROM.	SAMPLING METHOD
12 15	64	3	27	0600	35	45	135	39	S	135	15	E	18.3	35.86	1	1
12 15	64	3	27	0900	35	45	135	36	S	135	27	E	18.3	35.79	1	1
12 15	64	3	27	1200	35	45	135	36	S	136	33	E	18.2	35.84	1	1
12 15	64	3	27	1500	36	21	S 135	37	E	18.3	35.77					
12 15	64	3	28	0600	36	15	S 135	37	E	18.5	35.93					
12 15	64	3	28	0900	36	15	S 135	37	E	18.1	35.86					
12 15	64	3	28	1200	36	9	S 135	51	E	18.3	35.82					
12 15	64	3	28	1500	36	21	S 136	36	E	18.4	35.82					
12 15	64	3	28	1800	36	27	S 136	21	E	18.4	35.82					
12 15	64	3	28	2100	35	45	S 136	21	E	18.3	35.81					
12 15	64	3	29	0600	36	15	S 135	57	E	18.3	35.90					
12 15	64	3	29	0900	36	15	S 135	57	E	18.3	35.90					
12 15	64	3	29	1200	36	15	S 135	57	E	18.3	35.86					
12 15	64	3	29	1500	36	15	S 135	57	E	18.3	35.84					
12 15	64	4	1	0900	36	9	S 135	57	E	18.3	35.88					
12 15	64	4	1	1200	36	21	S 136	3	E	18.5	35.86					
12 15	64	4	1	1500	36	3	S 135	45	E	18.6	35.81					
12 15	64	4	1	1800	35	51	S 135	39	E	18.2	35.84					
12 15	64	4	2	0900	36	27	S 135	3	E	18.3	35.86					
12 15	64	4	2	1200	36	3	S 135	45	E	18.4	35.86					
12 15	64	4	2	1500	36	3	S 135	45	E	18.4	35.86					
12 15	64	4	2	1800	36	9	S 135	45	E	18.7	35.84					
12 15	64	4	2	2100	35	39	S 136	3	E	18.6	35.90					
12 15	64	4	3	0900	36	15	S 135	57	E	18.3	35.86					
12 15	64	4	3	1200	36	9	S 135	51	E	18.6	35.86					
12 15	64	4	3	1500	36	9	S 135	51	E	18.6	35.88					
12 15	64	4	3	1800	35	57	S 135	51	E	18.6	35.88					
12 15	64	4	4	0900	35	45	S 136	3	E	18.6	35.86					
12 15	64	4	4	1200	36	15	S 135	57	E	18.6	35.95					
12 15	64	4	4	1500	36	15	S 135	57	E	18.9	35.86					
12 15	64	4	4	1800	36	15	S 135	57	E	18.8	35.82					
12 15	64	4	4	2100	36	3	S 135	51	E	18.2	35.86					
12 15	64	4	4	0600	36	3	S 135	51	E	18.2	35.86					
12 15	64	4	4	0900	36	3	S 135	45	E	18.2	35.86					
12 15	64	4	4	1200	35	57	S 135	39	E	18.1	35.93					
12 15	64	4	4	1500	36	3	S 135	45	E	18.3	35.79					
12 15	64	4	4	1800	35	57	S 135	39	E	18.3	35.77					
12 15	64	4	4	2100	35	39	S 135	39	E	18.3	35.82					
12 15	64	4	4	0600	35	51	S 135	51	E	18.3	35.82					
12 15	64	4	4	0900	35	51	S 135	39	E	18.3	35.86					
12 15	64	4	4	1200	35	51	S 135	39	E	18.1	35.81					
12 15	64	4	4	1500	35	51	S 135	21	E	17.8	35.75					
12 15	64	4	4	1800	36	3	S 135	21	E	17.7						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8						
12 15	64	4	4	1800	36	3	S 135	21	E	17.8						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8						
12 15	64	4	4	1800	36	3	S 135	21	E	17.8						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8						
12 15	64	4	4	1800	36	3	S 135	21	E	17.8						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8						
12 15	64	4	4	1800	36	3	S 135	21	E	17.8						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8						
12 15	64	4	4	1800	36	3	S 135	21	E	17.8						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8						
12 15	64	4	4	1800	36	3	S 135	21	E	17.8						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8						
12 15	64	4	4	1800	36	3	S 135	21	E	17.8						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8						
12 15	64	4	4	1800	36	3	S 135	21	E	17.8						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8						
12 15	64	4	4	1800	36	3	S 135	21	E	17.8						
12 15	64	4	4	2100	36	3	S 135	21	E	17.8						
12 15	64	4	4	0600	36	3	S 135	21	E	17.8						
12 15	64	4	4	0900	36	3	S 135	21	E	17.8						
12 15	64	4	4	1200	36	3	S 135	21	E	17.8						
12 15	64	4	4	1500	36	3	S 135	21	E	17.8				</td		

ESSE- CRUISE STATION YR, MIN. DAY TIME & LATITUDE LONGITUDE TEMP., SALINITY WIND SEA SWELL WEA. VIS. BAROM. SAMPLING NUMBER METHOD

VESSEL-CRUISE NUMBER	STATION YR.	MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN.	SEA AMT.	SHELL DN.	VIS.	BAROM.	SAMPLING METHOD
														1
12 41	64	5 13	0900	35	45 S	135 E	45	5	135 E	45 S	135 E	45	E	17.9
12 41	64	5 13	0950	35	45 S	135 E	45	5	135 E	45 S	135 E	45	E	17.8
12	64	5 13	1200	35	33 S	135 E	57	E	17.8					
12	64	5 13	1430	35	21 S	136 E	9	E	18.1					
12	64	5 13	1730	35	21 S	136 E	9	E	18.1					
12	64	5 14	0500	35	21 S	136 E	9	E	17.8					
12	64	5 14	0900	35	21 S	136 E	9	E	17.8					
12	64	5 14	1100	34	57 S	136 E	3	E	17.2					
12	64	5 14	1430	34	39 S	135 E	57	E	18.3					
12	64	5 17	1920	34	39 S	135 E	57	E	19.6					
12	64	5 17	1940	34	45 S	135 E	57	E	16.1					
12	64	5 17	2230	34	45 S	135 E	57	E	16.7					
12	64	5 18	0930	34	45 S	136 E	3	E	16.1					
12	64	5 18	1000	34	45 S	136 E	3	E	16.1					
12	64	5 18	1030	34	39 S	135 E	57	E	16.1					
12	64	5 19	0710	34	39 S	135 E	57	E	15.6					
12	64	5 19	1400	34	39 S	135 E	51	E	15.6					
12	64	5 20	0703	34	39 S	135 E	57	E	15.6					
12	64	5 20	0730	34	45 S	135 E	57	E	16.1					
12	64	5 20	0830	34	45 S	135 E	57	E	16.1					
12	64	5 20	0940	34	45 S	135 E	57	E	16.1					
12	64	5 20	1020	34	39 S	135 E	57	E	15.6					
12	64	5 21	0700	34	39 S	135 E	57	E	15.6					
12	64	5 21	0745	34	45 S	135 E	57	E	16.1					
12	64	5 21	0940	34	45 S	135 E	57	E	16.1					
12	64	5 21	1000	34	39 S	135 E	57	E	16.1					
12	64	5 26	0600	37	9 S	150 E	3	E	18.2					
12	64	10 26	0900	36	45 S	150 E	27	E	17.6					
12	64	10 26	1200	36	21 S	150 E	33	E	19.4					
12	64	10 26	1500	35	57 S	150 E	39	E	18.7					
12	64	10 26	1800	36	15 S	150 E	15	E	16.6					
12	64	10 27	0900	36	9 S	150 E	33	E	18.9					
12	64	10 27	1200	36	27 S	150 E	39	E	19.1					
12	64	10 27	1500	36	45 S	150 E	15	E	18.9					
12	64	10 27	1800	36	21 S	150 E	33	E	19.1					
12	64	10 28	0900	37	3 S	150 E	57	E	17.7					
12	64	10 28	1200	36	15 S	150 E	15	E	17.5					
12	64	11 1	0900	36	15 S	150 E	27	E	18.3					
12	64	11 1	1200	35	51 S	150 E	33	E	18.9					
12	64	11 1	1500	35	21 S	150 E	51	E	16.4					
12	64	11 1	2100	35	9 S	150 E	51	E	17.8					
12	64	11 2	0900	35	33 S	150 E	57	E	18.5					
12	64	11 2	1500	35	21 S	150 E	51	E	16.4					
12	64	11 2	1800	35	9 S	150 E	57	E	18.5					
12	64	11 2	2100	35	33 S	150 E	57	E	18.5					
12	64	11 2	2400	35	9 S	150 E	57	E	18.5					
12	64	11 2	2700	35	33 S	150 E	57	E	18.5					
12	64	11 2	3000	35	9 S	150 E	57	E	18.5					
12	64	11 2	3300	35	33 S	150 E	57	E	18.5					
12	64	11 2	3600	35	9 S	150 E	57	E	18.5					
12	64	11 2	3900	35	33 S	150 E	57	E	18.5					
12	64	11 2	4200	35	9 S	150 E	57	E	18.5					
12	64	11 2	4500	35	33 S	150 E	57	E	18.5					
12	64	11 2	4800	35	9 S	150 E	57	E	18.5					
12	64	11 2	5100	35	33 S	150 E	57	E	18.5					
12	64	11 2	5400	35	9 S	150 E	57	E	18.5					
12	64	11 2	5700	35	33 S	150 E	57	E	18.5					
12	64	11 2	6000	35	9 S	150 E	57	E	18.5					
12	64	11 2	6300	35	33 S	150 E	57	E	18.5					
12	64	11 2	6600	35	9 S	150 E	57	E	18.5					
12	64	11 2	6900	35	33 S	150 E	57	E	18.5					
12	64	11 2	7200	35	9 S	150 E	57	E	18.5					
12	64	11 2	7500	35	33 S	150 E	57	E	18.5					
12	64	11 2	7800	35	9 S	150 E	57	E	18.5					
12	64	11 2	8100	35	33 S	150 E	57	E	18.5					
12	64	11 2	8400	35	9 S	150 E	57	E	18.5					
12	64	11 2	8700	35	33 S	150 E	57	E	18.5					
12	64	11 2	9000	35	9 S	150 E	57	E	18.5					
12	64	11 2	9300	35	33 S	150 E	57	E	18.5					
12	64	11 2	9600	35	9 S	150 E	57	E	18.5					
12	64	11 2	9900	35	33 S	150 E	57	E	18.5					
12	64	11 2	10200	35	9 S	150 E	57	E	18.5					
12	64	11 2	10500	35	33 S	150 E	57	E	18.5					
12	64	11 2	10800	35	9 S	150 E	57	E	18.5					
12	64	11 2	11100	35	33 S	150 E	57	E	18.5					
12	64	11 2	11400	35	9 S	150 E	57	E	18.5					
12	64	11 2	11700	35	33 S	150 E	57	E	18.5					
12	64	11 2	12000	35	9 S	150 E	57	E	18.5					
12	64	11 2	12300	35	33 S	150 E	57	E	18.5					
12	64	11 2	12600	35	9 S	150 E	57	E	18.5					
12	64	11 2	12900	35	33 S	150 E	57	E	18.5					
12	64	11 2	13200	35	9 S	150 E	57	E	18.5					
12	64	11 2	13500	35	33 S	150 E	57	E	18.5					
12	64	11 2	13800	35	9 S	150 E	57	E	18.5					
12	64	11 2	14100	35	33 S	150 E	57	E	18.5					
12	64	11 2	14400	35	9 S	150 E	57	E	18.5					
12	64	11 2	14700	35	33 S	150 E	57	E	18.5					
12	64	11 2	15000	35	9 S	150 E	57	E	18.5					
12	64	11 2	15300	35	33 S	150 E	57	E	18.5					
12	64	11 2	15600	35	9 S	150 E	57	E	18.5					
12	64	11 2	15900	35	33 S	150 E	57	E	18.5					
12	64	11 2	16200	35	9 S	150 E	57	E	18.5					
12	64	11 2	16500	35	33 S	150 E	57	E	18.5					
12	64	11 2	16800	35	9 S	150 E	57	E	18.5					
12	64	11 2	17100	35	33 S	150 E	57	E	18.5					
12	64	11 2	17400	35	9 S	150 E	57	E	18.5					
12	64	11 2	17700	35	33 S	150 E	57	E	18.5					
12	64	11 2	18000	35	9 S	150 E	57	E	18.5					
12	64	11 2	18300	35	33 S	150 E	57	E	18.5					
12	64	11 2	18600	35	9 S	150 E	57	E	18.5					
12	64	11 2	18900	35	33 S	150 E	57	E	18.5					
12	64	11 2	19200	35	9 S	150 E	57	E	18.5					
12	64	11 2	19500	35	33 S	150 E	57	E	18.5					
12	64	11 2	19800	35	9 S	150 E	57	E	18.5					
12	64	11 2	20100	35	33 S	150 E	57	E	18.5					
12	64	11 2	20400	35	9 S	150 E	57	E	18.5					
12	64	11 2	20700	35	33 S	150 E	57	E	18.5					
12	64	11 2	21000	35	9 S	150 E	57	E	18.5					
12	64	11 2	21300	35	33 S	150 E	57	E	18.5					
12	64	11 2	21600	35	9 S	150 E	57	E	18.5					
12	64	11 2	21900	35	33 S	150 E	57	E	18.5					
12	64	11 2	22200	35	9 S	150 E	57	E	18.5					
12	64	11 2	22500	35	33 S	150 E	57	E	18.5					
12</td														



VESSEL-CRUISE STATION NUMBER	MIN. DAY TIME / LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN. AMT.	SEA DN. AMT.	SWELL DN. AMT.	WEA. VIS. BAROM.	SAMPLING METHOD
					1	1	1	1	1
12 57	64 12 6	0735	36 57 S 150	9 E 16.1					
12 57	64 12 6	0800	37 3 S 150	3 E 16.7					
12 58	64 12 7	0600	37 3 S 150	3 E 16.4					
12 58	64 12 7	0700	36 57 S 150	9 E 16.1					
12 58	64 12 7	0740	36 51 S 150	15 E 16.1					
12 58	64 12 7	0800	36 45 S 150	15 E 16.1					
12 58	64 12 7	0900	36 39 S 150	21 E 18.0					
12 58	64 12 7	1000	36 27 S 150	33 E 17.9					
12 58	64 12 7	1100	36 39 S 150	27 E 18.3					
12 58	64 12 7	1200	36 45 S 150	21 E 18.3					
12 58	64 12 7	1240	36 51 S 150	21 E 16.4					
12 58	64 12 7	1300	36 45 S 150	21 E 16.4					
12 58	64 12 7	1440	36 39 S 150	21 E 18.3					
12 58	64 12 7	1500	36 45 S 150	15 E 16.7					
12 58	64 12 7	1600	36 57 S 150	9 E 16.7					
12 58	64 12 7	1700	37 3 S 150	3 E 16.9					
12 59	64 12 8	0600	37 3 S 1440	57 E 16.4					
12 59	64 12 8	0700	36 51 S 150	9 E 16.7					
12 59	64 12 8	0800	37 3 S 1440	57 E 17.2					
12 59	64 12 8	0900	37 3 S 1440	57 E 16.0					
12 70	64 12 14	0600	37 3 S 1440	57 E 16.0					
12 70	64 12 14	0700	36 57 S 150	3 E 16.1					
12 70	64 12 14	0800	36 57 S 150	15 E 16.2					
12 70	64 12 14	0900	36 51 S 150	21 E 16.6					
12 70	64 12 14	1000	36 39 S 150	21 E 17.1					
12 70	64 12 14	1100	36 33 S 150	27 E 18.4					
12 70	64 12 14	1200	36 27 S 150	27 E 19.6					
12 70	64 12 14	1300	36 15 S 150	21 E 18.8					
12 70	64 12 14	1400	36 3 S 150	21 E 18.7					
12 70	64 12 14	1500	35 57 S 150	27 E 19.1					
12 70	64 12 14	1600	35 57 S 150	27 E 18.7					
12 70	64 12 14	1700	35 57 S 150	27 E 18.7					
12 70	64 12 14	1800	35 51 S 150	27 E 18.8					
12 70	64 12 14	1900	35 51 S 150	15 E 17.9					
12 70	64 12 15	0500	35 51 S 150	9 E 17.6					
12 70	64 12 15	0600	35 51 S 150	21 E 17.3					
12 70	64 12 15	0700	35 45 S 150	33 E 18.4					
12 73	64 12 15	0800	35 39 S 150	45 E 18.4					
12 73	64 12 15	0900	35 35 S 150	39 E 18.3					
12 73	64 12 15	1000	35 45 S 150	39 E 18.2					
12 73	64 12 15	1100	35 51 S 150	33 E 18.4					

VESSEL	CRUISE	STATION	YR.	MTH.	DAY	TIME	Z	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SEA.	WEA.	VIS.	BAROM.	SAMPLING
																	METHOD
12	73	64	12	15	1200	35	57	5	150	27	E 18.3						35.64
12	73	64	12	15	1300	36	3	150	21	E 18.4							
12	73	64	12	15	1317	36	9	150	21	E 18.4							
12	73	64	12	15	1405	36	9	150	21	E 18.4							
12	73	64	12	15	1500	35	57	5	150	21	E 18.4						35.77
12	73	64	12	15	1600	35	51	5	150	15	E 17.3						
12	73	64	12	16	0751	35	51	5	150	9	E 17.3						
12	73	64	12	16	0900	35	51	5	150	21	E 18.3						35.75
12	73	64	12	16	0917	35	51	5	150	27	E 18.4						
12	73	64	12	16	1000	35	51	5	150	33	E 18.7						
12	73	64	12	16	1044	38	57	5	150	27	E 18.7						35.62
12	73	64	12	16	1110	35	51	5	150	33	E 18.6						
12	73	64	12	16	1200	35	45	5	150	33	E 18.6						35.66
12	73	64	12	16	1300	35	45	5	150	33	E 18.6						
12	73	64	12	16	1400	35	57	5	150	27	E 18.9						
12	73	64	12	16	1423	35	57	5	150	33	E 20.6						
12	73	64	12	16	1500	35	57	5	150	33	E 19.6						35.88
12	73	64	12	16	1600	35	51	5	150	27	E 18.9						
12	73	64	12	16	1700	35	39	5	150	33	E 18.7						
12	73	64	12	16	1800	35	33	5	150	27	E 18.3						35.70
12	73	64	12	16	1840	35	33	5	150	27	E 18.7						
12	73	64	12	17	0500	35	33	5	150	27	E 17.5						
12	73	64	12	17	0600	35	39	5	150	39	E 17.9						
12	73	64	12	17	0700	35	45	5	150	33	E 18.3						
12	73	64	12	17	0800	35	57	5	150	27	E 18.3						
12	73	64	12	17	0900	36	9	150	33	E 18.3							35.66
12	73	64	12	17	1000	36	21	5	150	39	E 19.7						
12	73	64	12	17	1014	36	21	5	150	39	E 20.1						
12	73	64	12	17	1100	36	9	150	45	E 18.7							
12	73	64	12	17	1120	36	9	150	45	E 18.9							
12	73	64	12	17	1140	36	9	150	39	E 19.9							
12	73	64	12	17	1200	36	9	150	39	E 19.2							35.59
12	73	64	12	17	1300	36	3	150	51	E 18.4							
12	73	64	12	17	1335	35	57	5	150	57	E 18.9						
12	73	64	12	17	1340	35	57	5	150	57	E 18.9						36.20
12	73	64	12	17	1409	35	51	5	150	57	E 18.8						
12	73	64	12	17	1422	35	51	5	150	57	E 18.8						
12	73	64	12	17	1500	35	57	5	150	57	E 18.9						35.66
12	73	64	12	17	1510	35	57	5	150	57	E 18.9						
12	73	64	12	17	1600	35	57	5	150	57	E 18.9						

VESSEL	CRUISE	STATION	YR.	MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SEA	SWELL	WEA.	VIS.	BAROM.	SAMPLING	METHOD
																	DN.	AMT.
12	73	64	12	17	1700		57	E 19.0										1
12	73	64	12	17	1751		57	S 150										1
12	73	64	12	17	1820		56	S 150										1
12	73	64	12	17	1900		56	S 150										1
12	73	64	12	17	2000		56	S 150										1
12	73	64	12	17	2100		56	S 150										1
12	73	64	12	17	2200		56	S 150										1
12	73	64	12	18	0500		56	S 150										1
12	73	64	12	18	0600		56	S 150										1
12	73	64	12	18	0700		56	S 150										1
12	73	64	12	18	0705		56	S 150										1
12	73	64	12	18	0744		56	S 150										1
12	73	64	12	18	0800		56	S 150										1
12	73	64	12	18	0900		56	S 150										1
12	73	64	12	18	1000		56	S 150										1
12	73	64	12	18	1100		56	S 150										1
12	73	64	12	18	1143		56	S 150										1
12	73	64	12	18	1200		56	S 150										1
12	73	64	12	18	1230		56	S 150										1
12	73	64	12	18	1300		56	S 150										1
12	73	64	12	18	1400		56	S 150										1
12	73	64	12	18	1416		56	S 150										1
12	73	64	12	18	1446		56	S 150										1
12	73	64	12	18	1500		56	S 150										1
12	73	64	12	18	1600		56	S 150										1
12	73	64	12	18	1700		56	S 150										1
12	73	64	12	18	1800		56	S 150										1
12	73	64	12	18	1900		56	S 150										1
12	73	64	12	18	2000		56	S 150										1
12	73	64	12	18	2100		56	S 150										1
12	73	64	12	18	2200		56	S 150										1
12	73	64	12	18	2300		56	S 150										1
12	73	64	12	19	0800		56	S 150										1
12	73	64	12	19	0900		56	S 150										1
12	73	64	12	19	1000		56	S 150										1
12	73	64	12	19	1100		56	S 150										1
12	73	64	12	19	1200		56	S 150										1
12	73	64	12	19	1300		56	S 150										1
12	73	64	12	19	1400		56	S 150										1
12	73	64	12	19	1500		56	S 150										1
12	73	64	12	19	1600		56	S 150										1
12	73	64	12	19	1700		56	S 150										1
12	73	64	12	19	1800		56	S 150										1
12	73	64	12	19	1900		56	S 150										1
12	73	64	12	19	2000		56	S 150										1
12	73	64	12	20	0700		56	S 150										1
12	73	64	12	20	0800		56	S 150										1
12	73	64	12	20	0842		56	S 150										1
12	73	64	12	20	0900		56	S 150										1



CRUISE NUMBER	STATION NUMBER	YR.	MIN.	HR.	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN. AMT.	SEA DN. AMT.	SWELL DN. AMT.	WHA. VIS.	BARDH.	SAMPLING	
															1	
12	76	64	12	27	0900	37	3	5	150	9	5	18.4	-	-	-	1
12	76	64	12	27	0945	37	3	5	150	21	E	17.8	-	-	-	1
12	76	64	12	27	1000	37	3	5	150	21	E	19.2	-	-	-	1
12	76	64	12	27	1100	37	3	5	150	27	E	19.2	-	-	-	1
12	76	64	12	27	1200	36	57	5	150	21	E	19.2	-	-	-	1
12	76	64	12	27	1300	36	45	5	150	15	E	19.3	-	-	-	1
12	76	64	12	27	1400	36	45	5	150	21	E	19.1	-	-	-	1
12	76	64	12	27	1500	36	45	5	150	15	E	19.2	35.53	-	-	1
12	76	64	12	27	1525	36	45	5	150	15	E	19.4	-	-	-	1
12	76	64	12	27	1600	36	51	5	150	15	E	19.5	-	-	-	1
12	76	64	12	27	1609	36	51	5	150	15	E	19.5	35.66	-	-	1
12	76	64	12	27	1700	36	57	5	150	19	E	19.0	-	-	-	1
12	76	64	12	27	1800	37	3	5	149	57	E	18.7	-	-	-	1
12	82	64	12	30	0700	37	3	5	149	57	E	18.4	-	-	-	1
12	82	64	12	30	0800	37	3	5	150	9	E	16.3	-	-	-	1
12	82	64	12	30	0900	36	57	5	150	15	E	16.4	35.57	-	-	1
12	82	64	12	30	1000	36	36	5	150	15	E	17.6	-	-	-	1
12	82	64	12	30	1030	36	39	5	150	15	E	17.8	-	-	-	1
12	82	64	12	30	1100	36	39	5	150	15	E	18.0	35.55	-	-	1
12	82	64	12	30	1200	36	39	5	150	15	E	18.1	-	-	-	1
12	82	64	12	30	1300	36	51	5	150	19	E	17.8	-	-	-	1
12	82	64	12	30	1400	37	3	5	150	3	E	17.8	-	-	-	1

ESSESE - CRUISE STATION YR. MTH. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL WEA. VIS. BARTH. SAMPLING NUMBER DN. AMT. DN. AMT. DN. AMT. DN. AMT. METHOD

VESSEL-CRUISE STATION NO.	NAME	DAY TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND SWELL	SEA SWELL	VIS.	BAROM.	DN. AMT.	DN. AMT.	DN. AMT.	SAMPLING
														METHOD
14	14	10 25	0700	36	15	150	9	E 18.7	35.52					
14	14	10 25	0800	36	15	150	15	E 18.5	35.52					
14	14	10 25	0900	36	15	150	27	E 18.3	35.59					
14	14	10 25	1000	36	15	150	21	E 18.6	35.53					
14	14	10 25	1100	36	15	150	21	E 19.1	35.55					
14	14	10 25	1200	36	15	150	21	E 19.1	35.57					
14	14	10 25	1300	36	15	150	21	E 19.1	35.53					
14	14	10 25	1400	36	15	150	27	E 19.3	35.55					
14	14	10 25	1500	36	15	150	33	E 19.2	35.55					
14	14	10 26	0700	36	15	150	9	E 18.6	35.59					
14	14	10 26	0900	36	15	150	27	E 18.2	35.53					
14	14	10 26	1000	36	15	150	39	E 17.4	35.53					
14	14	10 26	1300	36	15	150	27	E 19.4	35.53					
14	14	10 26	1400	36	15	150	39	E 19.1	35.66					
14	14	10 26	1500	36	15	150	21	E 18.8	35.57					
14	14	10 27	0705	36	15	150	21	E 18.2	35.59					
14	14	10 27	0800	36	15	150	27	E 18.4	35.57					
14	14	10 27	0900	36	15	150	21	E 18.8	35.57					
14	14	10 27	1200	36	15	150	15	E 18.9	35.55					
14	14	10 27	1300	36	15	150	9	E 19.0	35.57					
14	14	10 27	1400	37	15	149	57	E 18.3	35.57					
14	14	10 27	1500	36	15	150	33	E 16.3	35.55					
14	14	11 02	0900	36	15	150	39	E 18.4	35.57					
14	14	11 02	1200	36	15	150	37	E 14.9	35.61					
14	14	11 02	1800	36	15	150	57	E 16.7	35.55					
14	14	11 06	0600	36	15	150	9	E 16.6	35.55					
14	14	11 06	1200	36	15	150	21	E 18.7	35.64					
14	14	11 06	1500	36	15	150	15	E 18.6	35.66					
14	14	11 07	0600	36	15	150	15	E 16.5	35.52					
14	14	11 07	0745	36	15	150	21	E 18.4	35.64					
14	14	11 07	0900	36	15	150	27	E 18.4	35.73					
14	14	11 07	1300	36	15	150	15	E 16.9	35.61					
14	14	11 14	0900	36	15	150	9	E 18.2	35.55					
14	14	11 14	1015	36	15	150	27	E	35.59					
14	14	11 14	1310	36	15	150	27	E	35.55					
14	14	11 14	1500	36	15	150	27	E	35.59					
14	14	11 14	1515	36	15	150	27	E	35.59					
14	14	12 04	1200	36	15	150	27	E	35.53					
14	14	12 04	1500	36	15	150	27	E	35.53					
14	14	12 06	0600	36	15	150	27	E	35.59					
14	14	12 06	1200	36	15	150	9	E	35.59					
14	14	12 12	04	1200	36	15	150	27	E	35.53				
14	14	12 12	04	1500	36	15	150	27	E	35.53				
14	14	12 12	0600	36	15	150	27	E	35.59					
14	14	12 12	0600	36	15	150	9	E	35.59					

VESSEL-CRUISE NUMBER	STATION YR.	MIN.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN., AMT.	SEA DN., AMT.	WEA. VIS.	BAROM.	SAMPLING METHOD
14	61	64	12	5	1200	36 15 S	150	21 E				35.61	
14	61	64	12	5	1500	36 9 S	150	21 E				35.59	
14	62	64	12	7	0900	36 9 S	150	21 E				35.66	
14	62	64	12	7	1200	36 21 S	150	21 E				35.55	
14	64	64	12	13	0900	36 27 S	150	15 E	17.3			35.62	
14	64	64	12	13	1200	36 21 S	150	15 E	18.6			35.59	
14	64	64	12	13	1500	36 27 S	150	15 E	18.6			35.59	
14	64	64	12	14	0900	36 27 S	150	15 E	16.8			35.59	
14	65	64	12	14	1200	36 45 S	150	33 E	18.8			35.62	
14	65	64	12	14	1500	37 3 S	150	27 E				35.57	
14	65	64	12	15	0900	36 39 S	150	21 E				35.55	
14	66	64	12	15	1200	36 15 S	150	21 E				35.62	
14	66	64	12	15	1500	36 15 S	150	21 E				35.62	
14	70	64	12	16	0900	36 9 S	150	21 E	16.9			35.53	
14	70	64	12	16	1200	35 45 S	150	33 E	18.9			35.57	
14	71	64	12	17	0600	36 27 S	150	9 E	20.0			35.59	
14	71	64	12	17	0900	36 21 S	150	45 E	20.0			35.62	
14	71	64	12	17	1200	36 21 S	150	33 E	18.9			35.62	
14	71	64	12	17	1500	36 33 S	150	33 E	19.4			35.66	
14	72	64	12	18	0900	36 45 S	150	33 E	19.4			35.66	
14	72	64	12	18	1200	36 27 S	150	57 E				35.66	
14	72	64	12	18	1500	36 33 S	151	9 E	19.4			35.66	
14	72	64	12	18	2100	36 27 S	150	9 E	19.4			35.66	
14	72	64	12	20	0900	36 27 S	150	21 E	20.6			35.59	
14	74	64	12	20	1200	36 27 S	150	57 E	21.1			35.62	
14	74	64	12	20	1500	36 27 S	151	3 E	20.6			35.62	

VESSEL	CRUISE	STATION	YR.	MIH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SEA SWELL	WEA. VISC.	
													DN.	AMT.
15	15	64	2	2	18	1100	34	51	51	51	S 134	39 E 18.9	1	1
15	15	64	1	19	0900	34	51	51	51	51	S 134	39 E 17.8	1	1
15	15	64	1	20	0745	34	51	51	51	51	S 134	39 E 18.6	1	1
15	15	64	1	26	0600	34	51	51	51	51	S 134	39 E 18.9	1	1
15	15	64	1	26	0800	34	51	51	51	51	S 134	39 E 18.9	1	1
15	15	64	1	26	1900	34	51	51	51	51	S 134	39 E 18.9	1	1
15	15	64	2	2	0800	34	51	51	51	51	S 134	39 E 18.9	1	1
15	15	64	1	27	1800	34	51	51	51	51	S 134	39 E 18.9	1	1
15	15	64	2	5	1930	34	51	51	51	51	S 134	39 E 18.6	1	1
15	15	64	2	12	1045	34	51	51	51	51	S 134	45 E 18.5	1	1
15	15	64	2	12	1100	34	51	51	51	51	S 134	45 E 18.6	1	1
15	15	64	2	12	1200	34	45	45	45	45	S 134	33 E 18.9	1	1
15	15	64	2	12	1205	34	45	45	45	45	S 134	33 E 18.9	1	1
15	15	64	2	12	1300	34	45	45	45	45	S 134	39 E 18.9	1	1
15	15	64	2	12	1400	34	45	45	45	45	S 134	45 E 18.9	1	1
15	15	64	2	12	1500	34	45	45	45	45	S 134	33 E 19.4	1	1
15	15	64	2	12	1515	34	45	45	45	45	S 134	33 E 19.4	1	1
15	15	64	2	12	1600	34	45	45	45	45	S 134	33 E 20.1	1	1
15	15	64	2	12	1700	34	45	45	45	45	S 134	33 E 20.4	1	1
15	15	64	2	12	1730	34	51	51	51	51	S 134	33 E 20.4	1	1
15	15	64	2	12	1740	34	51	51	51	51	S 134	39 E 19.7	1	1
15	15	64	2	12	1800	34	45	45	45	45	S 134	39 E 19.8	1	1
15	15	64	2	12	1900	34	45	45	45	45	S 134	39 E 19.7	1	1
15	15	64	2	12	2000	34	45	45	45	45	S 134	39 E 19.6	1	1
15	15	64	2	12	2005	34	51	51	51	51	S 134	39 E 19.6	1	1
15	15	64	2	17	0600	34	51	51	51	51	S 135	45 E 17.9	1	1
15	15	64	2	17	0915	34	51	51	51	51	S 135	15 E 17.8	1	1
15	15	64	2	17	0945	34	51	51	51	51	S 135	9 E 17.8	1	1
15	15	64	2	17	0950	34	51	51	51	51	S 135	9 E 17.8	1	1
15	15	64	2	17	1130	34	51	51	51	51	S 134	57 E 18.3	1	1
15	15	64	2	17	1130	34	51	51	51	51	S 134	57 E 17.9	1	1
15	15	64	2	17	1200	34	51	51	51	51	S 134	57 E 17.9	1	1
15	15	64	2	17	1210	34	51	51	51	51	S 134	57 E 17.8	1	1
15	15	64	2	17	1315	34	51	51	51	51	S 134	57 E 18.1	1	1
15	15	64	2	17	1330	34	51	51	51	51	S 134	57 E 17.8	1	1
15	15	64	2	17	1400	34	51	51	51	51	S 135	3 E 17.8	1	1
15	15	64	2	17	1445	34	51	51	51	51	S 135	3 E 17.9	1	1
15	15	64	2	17	1500	34	51	51	51	51	S 135	3 E 18.3	1	1
15	15	64	2	17	1550	34	51	51	51	51	S 135	3 E 18.3	1	1
15	15	64	2	17	1715	34	45	45	45	45	S 134	57 E 18.3	1	1
15	15	64	2	17	1720	34	45	45	45	45	S 134	57 E 18.3	1	1
15	15	64	2	17	1735	34	45	45	45	45	S 134	57 E 18.3	1	1

VESSEL	CRUISE	STATION	YR.	MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SWELL	WEA.	VIS.	BARDM.	DN.	AMT.	DN.	AMT.
15	15	4	64	2	17	1745	34	45	51	134	57	E	18.2	35.93					
15	15	4	64	2	17	1800	34	45	51	134	57	E	18.1	35.93					
15	15	4	64	2	18	0900	34	39	51	135	57	E	17.9	35.93					
15	15	4	64	2	18	1000	34	45	51	135	3	E	17.2	35.88					
15	15	4	64	2	18	1020	34	45	51	135	3	E	17.2	35.86					
15	15	4	64	2	18	1135	34	51	51	135	3	E	17.4	35.88					
15	15	4	64	2	18	1145	34	51	51	135	3	E	17.8	35.95					
15	15	4	64	2	18	1200	34	51	51	135	3	E	17.8	35.97					
15	15	4	64	2	18	1225	34	51	51	135	9	E	17.9	35.97					
15	15	4	64	2	18	1345	34	51	51	135	3	E	18.1	35.97					
15	15	4	64	2	18	1400	34	51	51	135	3	E	18.1	35.97					
15	15	4	64	2	18	1410	34	51	51	135	3	E	18.1	35.93					
15	15	4	64	2	18	1445	34	51	51	135	3	E	18.1	35.95					
15	15	4	64	2	18	1500	34	51	51	135	9	E	17.2	35.86					
15	15	4	64	2	18	1632	34	51	51	135	15	E	18.3	35.95					
15	15	4	64	2	18	1645	34	51	51	135	15	E	18.3	35.95					
15	15	4	64	2	20	1500	34	45	51	135	3	E	18.3	35.95					
15	15	4	64	2	20	1800	34	51	51	134	3	E	17.8	35.93					
15	15	4	64	2	21	0530	35	9	51	133	57	E	19.4						
15	15	4	64	2	21	1100	35	9	51	133	51	E	19.4						
15	15	4	64	2	21	1400	35	9	51	133	51	E	19.4						
15	15	4	64	2	26	0900	35	33	51	135	15	E	18.3	35.82					
15	15	4	64	2	26	1200	35	33	51	135	9	E	18.3	35.91					
15	15	4	64	2	26	1500	35	33	51	135	9	E	18.3	35.91					
15	15	4	64	2	26	1800	35	39	51	135	15	E	18.3	35.77					
15	15	4	64	2	27	0900	35	33	51	135	15	E	18.3						
15	15	4	64	2	27	1000	35	33	51	135	9	E	18.4	35.82					
15	15	4	64	2	27	1200	35	33	51	135	9	E	18.6	35.82					
15	15	4	64	2	27	1500	35	27	51	135	15	E	18.6	35.79					
15	15	4	64	2	27	1800	35	21	51	135	21	E	18.4	36.44					
15	15	4	64	3	4	0600	34	57	51	135	39	E	16.9	36.08					
15	15	4	64	3	4	0900	34	51	51	135	9	E	17.7	36.06					
15	15	4	64	3	4	1200	34	51	51	134	45	E	17.8	35.91					
15	15	4	64	3	4	1500	34	34	51	134	45	E	18.1	35.93					
15	15	4	64	3	4	1800	34	51	51	134	39	E	17.7	35.90					
15	15	4	64	3	8	1200	34	21	51	135	15	E	16.8	35.79					
15	15	4	64	3	8	1500	34	34	51	135	15	E	16.7	35.82					
15	15	4	64	3	9	0900	34	33	51	134	57	E	16.9	35.91					
15	15	4	64	3	9	0900	34	51	51	134	39	E	17.6	35.99					

MESSSE - CRUISE STATION YN, MTH, DAY TIME & LATITUDE LONGITUDE TEMP, SALINITY WIND SEA SWELL WEA, VIS, BAROM, SAMPLING NUMBER DN, AMT, DN, AMT, DN, AMT, DN, AMT, METHOD

VESSEL	CRUISE	STATION	YR.	MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SEA	SWELL	WEA.	VIS.	BAROM.	SAMPLING
																	METHOD
16	85	64	1	5	0600	36	39	S 149	57	E 17.9	35.48						
16	85	64	1	5	0900	36	39	S 150	55	E 18.4	35.55						
16	85	64	1	5	1200	36	33	S 150	55	E 18.5	35.53						
16	85	64	1	5	1500	36	51	S 150	55	E 17.3	35.53						
16	86	64	1	6	0600	36	57	S 150	55	E 17.0	35.50						
16	90	64	1	8	0900	37	3	S 150	55	E 18.4	35.61						
16	90	64	1	8	1200	36	45	S 150	55	E 20.4	35.66						
16	90	64	1	8	1500	37	3	S 149	57	E 17.9	35.52						
16	90	64	1	9	0900	36	51	S 150	55	E 20.3	35.57						
16	90	64	1	9	1200	36	57	S 150	55	E 19.3	35.57						
16	90	64	1	16	0900	35	3	S 135	51	E 17.5							
16	90	64	1	16	1200	34	57	S 135	51	E 18.9							
16	90	64	1	16	1300	34	57	S 135	53	E 18.9							
16	90	64	1	16	1400	34	57	S 135	53	E 18.9							
16	90	64	1	16	1500	34	57	S 135	53	E 18.9							
16	90	64	1	16	1505	34	57	S 135	53	E 18.9							
16	90	64	1	16	1700	34	57	S 135	53	E 18.9							
16	90	64	1	16	1800	34	57	S 135	53	E 18.9							
16	90	64	1	16	1830	34	57	S 135	53	E 18.9							
16	90	64	1	16	2000	34	57	S 135	53	E 18.9							
16	90	64	1	19	0800	35	3	S 135	51	E 18.3							
16	90	64	1	19	0900	35	9	S 135	51	E 18.4							
16	90	64	1	19	1000	35	9	S 135	45	E 18.3							
16	90	64	1	19	1100	35	15	S 135	39	E 18.3							
16	90	64	1	19	1200	35	15	S 135	39	E 18.4							
16	90	64	1	19	1230	35	15	S 135	39	E 18.4							
16	90	64	1	19	1700	35	15	S 135	39	E 18.3							
16	90	64	1	21	0900	35	19	S 135	45	E 18.6							
16	90	64	1	21	0930	35	9	S 135	45	E 18.6							
16	90	64	1	21	1000	35	15	S 135	39	E 18.6							
16	90	64	1	21	1100	35	15	S 135	39	E 18.6							
16	90	64	1	21	1300	35	15	S 135	39	E 18.8							
16	90	64	1	21	1400	35	15	S 135	39	E 18.8							
16	90	64	1	21	1900	35	15	S 135	39	E 18.8							
16	90	64	1	30	0800	35	3	S 135	39	E 19.2							
16	90	64	1	30	1000	35	15	S 135	39	E 19.4							
16	90	64	1	30	1400	34	45	S 135	33	E 20.3							
16	90	64	1	30	1630	34	51	S 134	45	E 19.7							
16	90	64	1	30	1700	34	51	S 134	45	E 19.7							
16	90	64	1	30	1930	34	51	S 134	45	E 19.7							

Cruise Number	Station YR.	Min.	Day	Time	Latitue	Longitude	Temp.	Salinity	Wind	Swell	W.E.A. VIS. BAROM.	
											DN.	AMT.
16	64	2	4	0905	34	57	51	E 18.3	51	E 18.3		
16	64	2	5	0930	34	21	51	E 16.7	51	E 16.7		
16	64	2	5	1100	34	15	51	E 17.2	51	E 17.2		
16	64	2	5	1200	34	21	51	E 17.2	51	E 17.2		
16	64	2	5	1300	34	27	51	E 17.8	51	E 17.8		
16	64	2	5	1500	34	39	51	E 17.8	51	E 17.8		
16	64	2	5	1600	34	45	51	E 17.8	51	E 17.8		
16	64	2	11	1000	34	51	51	E 16.1	51	E 16.1		
16	64	2	11	1200	34	51	51	E 18.1	51	E 18.1		
16	64	2	11	1215	34	51	51	E 18.1	51	E 18.1		
16	64	2	11	1300	34	51	51	E 18.1	51	E 18.1		
16	64	2	11	1500	34	45	51	E 17.5	51	E 17.5		
16	64	2	11	1700	34	45	51	E 17.5	51	E 17.5		
16	64	2	11	1800	34	45	51	E 17.5	51	E 17.5		
16	64	2	12	1000	34	51	51	E 18.4	51	E 18.4		
16	64	2	12	1030	34	51	51	E 18.4	51	E 18.4		
16	64	2	12	1500	34	51	51	E 18.4	51	E 18.4		
16	64	2	12	1800	34	57	51	E 18.3	51	E 18.3		
16	64	2	14	0900	34	57	51	E 17.3	51	E 17.3		
16	64	2	14	1000	34	51	51	E 16.1	51	E 16.1		
16	64	2	14	1100	34	45	51	E 18.3	51	E 18.3		
16	64	2	14	1230	34	45	51	E 18.0	51	E 18.0		
16	64	2	14	1245	34	51	51	E 18.1	51	E 18.1		
16	64	2	14	1430	34	51	51	E 18.1	51	E 18.1		
16	64	2	14	1600	34	51	51	E 18.4	51	E 18.4		
16	64	2	14	1700	34	51	51	E 18.6	51	E 18.6		
16	64	2	14	1630	34	51	51	E 18.6	51	E 18.6		
16	64	2	14	1930	34	51	51	E 18.6	51	E 18.6		
16	64	2	13	0830	35	51	51	E 18.6	51	E 18.6		
16	64	3	13	0900	35	51	51	E 18.6	51	E 18.6		
16	64	3	13	1100	35	57	51	E 18.6	51	E 18.6		
16	64	3	13	1200	36	3	51	E 18.6	51	E 18.6		
16	64	3	13	1400	36	3	51	E 18.6	51	E 18.6		
16	64	3	13	1500	36	3	51	E 18.6	51	E 18.6		
16	64	3	13	1600	35	57	51	E 18.6	51	E 18.6		
16	64	3	13	1605	35	57	51	E 18.6	51	E 18.6		
16	64	3	13	1630	35	57	51	E 18.6	51	E 18.6		
16	64	3	15	0800	35	53	51	E 17.9	51	E 17.9		

VESSEL- CRUISE STATION YR. MTH. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL WEA. VIS. BARDM. SAMPLING  
NUMBER

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16	64	3	15	0900	35	45	S	135	27	E	18.1
16	64	3	15	1010	35	57	S	135	27	E	18.6
16	64	3	15	1100	36	57	S	135	33	E	18.6
16	64	3	15	1200	36	57	S	135	39	E	18.6
16	64	3	15	1300	36	45	S	135	45	E	18.6
16	64	3	15	1400	36	45	S	135	45	E	18.6
16	64	3	15	1500	36	45	S	135	39	E	18.6
16	64	3	15	1600	36	33	S	135	39	E	18.6
16	64	3	15	1700	36	33	S	135	39	E	18.6
16	64	3	15	1800	36	33	S	135	33	E	18.6
16	64	3	19	1400	35	51	S	135	33	E	18.6
16	64	3	19	1500	35	51	S	135	33	E	18.6
16	64	3	19	1520	35	57	S	135	27	E	18.6
16	64	3	19	1600	36	33	S	135	33	E	18.6
16	64	3	19	1700	35	57	S	135	27	E	18.6
16	64	3	19	1800	35	57	S	135	21	E	18.6
16	64	3	19	1900	35	51	S	135	33	E	18.6
16	64	3	20	0930	35	57	S	135	27	E	18.6
16	64	3	20	0945	35	57	S	135	27	E	18.6
16	64	3	20	1200	35	51	S	135	33	E	18.6
16	64	3	28	1000	35	57	S	135	39	E	18.6
16	64	3	28	1030	35	57	S	135	33	E	18.6
16	64	3	28	1230	35	57	S	135	39	E	18.6
16	64	3	28	1300	35	45	S	135	51	E	18.4
16	64	4	1	1100	35	57	S	135	51	E	18.4
16	64	4	1	1200	35	57	S	135	51	E	18.4
16	64	4	1	1300	36	33	S	135	51	E	18.4
16	64	4	1	1400	36	9	S	135	51	E	18.4
16	64	4	1	1500	36	15	S	135	57	E	18.6
16	64	4	1	1530	36	21	S	135	57	E	18.6
16	64	4	1	1600	36	21	S	135	57	E	18.6
16	64	4	1	1700	36	15	S	136	3	E	18.6
16	64	4	2	0800	36	21	S	135	57	E	18.6
16	64	4	2	0900	36	21	S	136	3	E	18.6
16	64	4	2	1100	36	27	S	136	9	E	18.6
16	64	4	2	1200	36	21	S	136	3	E	18.6
16	64	4	2	1230	36	15	S	136	3	E	18.6
16	64	4	2	1700	36	9	S	135	57	E	18.6
16	64	5	5	1300	35	45	S	135	45	E	18.6
16	64	5	5	1345	35	51	S	135	39	E	18.6
16	64	5	5	1630	35	51	S	135	39	E	18.6

VESSEL-CRUISE STATION YRH. MTH. DAY TIME Z	LATITUDE	LONGITUDE	TEMP.	SALINITY	MIND.	SEA SWELL	WEA.	VIS.	BAROM.	SAMPLING METHOD
NUMBER	DN. AMT.	DN. AMT.	DN. AMT.	DN. AMT.	DN. AMT.	DN. AMT.	DN. AMT.	DN. AMT.	DN. AMT.	
16	64	4	5	2900	35	51	135	27	E 18.9	1
16	64	4	6	0800	35	51	135	27	E 19.0	1
16	64	4	6	0900	35	51	135	39	E 19.0	1
16	64	4	6	0930	35	51	135	45	E 19.0	1
16	64	4	6	1100	36	9	135	45	E 19.1	1
16	64	4	6	1145	36	9	135	45	E 19.1	1
16	64	4	6	1430	36	9	135	45	E 19.1	1
16	64	4	6	1600	35	57	135	39	E 19.1	1
16	64	4	15	1300	36	3	135	45	E 18.2	1
16	64	4	15	1330	36	3	135	45	E 18.2	1
16	64	4	15	1700	36	3	135	45	E 18.2	1
16	64	4	15	2000	36	15	135	45	E 17.2	1
16	64	4	16	0700	36	15	135	45	E 17.6	1
16	64	4	16	1000	36	21	135	51	E 17.8	1
16	64	4	16	1500	36	15	135	57	E 18.2	1
16	64	4	16	1700	36	9	135	45	E 18.2	1
16	64	4	17	0900	36	3	135	57	E 18.2	1
16	64	4	17	0915	36	3	135	57	E 18.2	1
16	64	4	17	0930	36	3	135	57	E 18.2	1
16	64	4	17	1100	36	9	135	51	E 18.2	1
16	64	4	17	1200	36	9	135	57	E 18.2	1
16	64	4	17	1400	36	15	136	3	E 18.2	1
16	64	4	17	1500	36	15	136	3	E 18.2	1
16	64	4	17	1530	36	15	136	3	E 18.2	1
16	64	4	17	1700	36	15	135	51	E 18.2	1
16	64	4	20	0730	36	15	136	3	E 17.9	1
16	64	4	20	0800	36	15	136	3	E 17.9	1
16	64	4	20	0900	36	27	136	3	E 17.8	1
16	64	4	20	1000	36	33	136	3	E 17.8	1
16	64	4	20	1100	36	33	135	57	E 17.7	1
16	64	4	20	1200	36	27	135	51	E 17.7	1
16	64	4	20	1330	36	33	136	9	E 17.7	1
16	64	4	20	1445	36	33	136	9	E 17.7	1
16	64	4	20	1630	36	33	136	9	E 17.7	1
16	64	4	20	1700	36	33	136	9	E 17.7	1
16	64	4	25	0800	35	57	135	51	E 18.2	1
16	64	4	25	0900	36	9	135	51	E 18.2	1
16	64	4	25	1000	36	15	135	51	E 18.2	1
16	64	4	25	1100	36	21	135	45	E 18.2	1
16	64	4	25	1130	36	21	135	45	E 18.2	1



VESSEL - CRUISE NUMBER	STATION YR.	MIN. DAY TIME & LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN. AMT.	SEA DN. AMT.	SWELL DN. AMT.	WEA. VIS. BAROM.	SAMPLED	METHOD
17	64	2 9 0900	34	45 S 135	27 E 16.1	35.99					
17	64	2 9 1025	34	45 S 135	9 E 18.2	36.04					
17	64	2 9 1200	34	45 S 135	9 E 17.7	36.00					
17	64	2 9 1310	34	45 S 134	9 E 17.9	35.97					
17	64	2 9 1310	34	45 S 134	57 E 17.6	35.93					
17	64	2 9 1345	34	45 S 134	57 E 18.3	36.04					
17	64	2 9 1500	34	45 S 134	57 E 17.6	35.91					
17	64	2 11 0900	34	45 S 134	57 E 18.3	36.04					
17	64	2 11 0945	34	45 S 134	45 E 17.9	35.90					
17	64	2 11 1155	34	45 S 134	39 E 17.8	35.84					
17	64	2 11 1300	34	45 S 134	39 E 18.1	35.88					
17	64	2 11 1515	34	45 S 134	39 E 17.9	35.81					
17	64	2 11 1625	34	45 S 134	45 E 17.8	35.82					
17	64	2 12 0930	34	45 S 134	45 E 18.3	35.86					
17	64	2 12 1345	34	45 S 134	39 E 18.1	35.77					
17	64	2 12 1500	34	39 S 134	45 E 18.5	35.84					
17	64	2 12 1515	34	39 S 134	45 E 18.4	35.99					
17	64	2 12 1620	34	39 S 134	45 E 18.3	36.00					
17	64	2 12 1715	34	39 S 134	45 E 18.3	35.97					
17	64	2 12 1750	34	39 S 134	45 E 19.2	35.99					
17	64	2 17 0800	34	51 S 135	3 E 17.6	35.97					
17	64	2 17 0915	34	45 S 135	3 E 17.7	35.93					
17	64	2 17 0925	34	45 S 135	3 E 18.1	35.97					
17	64	2 17 1200	34	45 S 134	51 E 18.2	35.84					
17	64	2 17 1230	34	45 S 134	39 E 18.2	35.84					
17	64	2 17 1250	34	45 S 134	39 E 18.2	35.82					
17	64	2 17 1410	34	39 S 134	45 E 18.3	35.84					
17	64	2 17 1425	34	39 S 134	45 E 18.2	35.84					
17	64	2 18 0745	34	39 S 134	45 E 17.9	35.82					
17	64	2 18 0900	34	39 S 134	45 E 18.1	35.81					
17	64	2 18 1005	34	39 S 134	45 E 18.1	35.84					
17	64	2 18 1015	34	39 S 134	45 E 18.1	35.84					
17	64	2 19 0930	34	45 S 134	51 E 18.1	35.93					
17	64	2 19 1100	34	45 S 135	3 E 18.1	35.97					
17	64	2 19 1125	34	45 S 135	3 E 17.9	36.00					
17	64	2 19 1200	34	45 S 135	3 E 17.8	35.99					
17	64	2 19 1500	34	57 S 135	15 E 18.3	36.06					
17	64	2 19 1600	34	57 S 135	27 E 18.3	36.04					
17	64	2 19 1700	34	57 S 135	39 E 17.9	36.04					

VESSEL- CRUISE STATION YR. MIN. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL WEA. VIS. BAXOM. SAMPLING METHOD

17	3	64	2	19	1800	34	57	5	135	51	E	17.5	35.95
17	3	64	2	19	2000	35	57	5	135	57	E	17.6	36.15
17	6	64	2	21	0700	35	57	5	136	53	E	17.4	36.18
17	6	64	2	21	0800	35	57	5	136	53	E	18.3	36.18
17	6	64	2	21	0900	35	57	5	136	53	E	19.3	36.55
17	6	64	2	21	1000	35	57	5	136	53	E	18.8	36.18
17	6	64	2	21	1100	35	57	5	135	51	E	18.6	36.06
17	6	64	2	21	1200	35	57	5	135	45	E	18.6	36.00
17	6	64	2	21	1500	35	51	S	135	39	E	20.3	35.82
17	7	64	2	21	0900	35	45	S	135	27	E	35.75	
17	7	64	2	21	1200	35	39	S	135	21	E	18.6	35.86
17	7	64	2	27	1515	35	39	S	135	15	E	18.6	35.86
17	7	64	2	28	0900	35	33	S	135	21	E	18.2	35.81
17	7	64	2	28	1230	35	39	S	135	15	E	18.6	35.82
17	7	64	3	8	0900	34	57	S	135	39	E	16.6	35.97
17	7	64	3	8	1000	34	57	S	135	33	E	16.5	35.90
17	7	64	3	8	1200	34	51	S	135	15	E	16.4	35.86
17	7	64	3	8	1300	34	45	S	135	15	E	17.4	35.95
17	7	64	3	8	1500	34	45	S	135	3	E	16.6	35.82
17	7	64	3	8	1615	34	33	S	135	3	E	16.5	35.73
17	7	64	3	8	1705	34	33	S	135	3	E	16.3	35.77
17	7	64	3	9	0800	34	9	S	135	9	E	16.5	35.86
17	7	64	3	9	0900	34	15	S	135	3	E	16.6	35.77
17	7	64	3	10	1100	34	15	S	135	3	E	16.4	35.66
17	7	64	3	10	1200	34	39	S	135	3	E	16.4	35.71
17	7	64	3	10	1500	34	51	S	134	51	E	17.5	36.08
17	7	64	3	11	0800	34	21	S	135	9	E	16.5	35.79
17	7	64	3	11	0900	34	15	S	135	3	E	16.6	35.81
17	7	64	3	11	1000	34	15	S	135	3	E	16.5	35.75
17	7	64	3	11	1100	34	9	S	134	57	E	16.7	35.81
17	7	64	3	11	1200	34	9	S	134	45	E	17.4	35.88
17	7	64	3	11	1300	34	3	S	134	39	E	18.6	35.77
17	7	64	3	11	1400	34	3	S	134	27	E	18.6	35.88
17	7	64	3	11	1500	34	3	S	134	21	E	17.9	
17	7	64	3	11	1600	33	57	S	134	15	E	18.2	35.95
17	7	64	3	12	1200	33	57	S	133	57	E	18.3	36.00
17	7	64	3	12	1500	33	45	S	134	9	E	17.3	
17	7	64	3	12	1700	33	45	S	134	21	E	17.2	35.84



VESSEL - CRUISE NUMBER	STATION YR. MTH.	DAY TIME Z	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN. AMT.	SEA DN. AMT.	SWELL DN. AMT.	WEA. VIS.	BAROM.	SAMPLING
												METHOD
18	64	1 0200	37	57	E 18.3							
18	64	1 0400	37	21	S 150	3	E 19.4					
18	64	1 0600	37	39	S 149	57	E 19.4					
18	64	1 0800	37	57	S 149	33	E 19.2					
18	64	1 1000	38	3	S 149	27	E 19.3					
18	64	1 1100	38	3	S 149	15	E 19.7					
18	64	1 1200	38	3	S 149	19	E 20.0					
18	64	1 1300	37	57	S 149	15	E 20.0					
18	64	1 1400	37	51	S 149	33	E 20.3					
18	64	1 1500	37	51	S 149	39	E 20.3					
18	64	1 1600	37	45	S 149	33	E 17.8					
18	64	1 1700	38	9	S 149	19	E 19.9					
18	64	1 1800	38	9	S 149	9	E 20.1					
18	64	1 1900	38	15	S 149	9	E 20.3					
18	64	1 1930	38	3	S 149	15	E 18.3					
18	64	1 1950	38	3	S 149	3	E 20.3					
18	64	1 2000	38	3	S 149	15	E 19.4					
18	64	1 2000	38	3	S 149	3	E 20.4					
18	64	1 2100	38	9	S 148	51	E 20.4					
18	64	1 2100	38	9	S 148	51	E 20.4					
18	64	1 2100	38	3	S 148	45	E 20.0					
18	64	1 2100	38	3	S 148	39	E 20.0					
18	64	1 2100	38	3	S 148	27	E 20.6					
18	64	1 2100	38	57	S 149	39	E 20.3					
18	64	1 2100	37	15	S 150	3	E 21.4					
18	64	1 2100	38	3	S 149	57	E 21.4					
18	64	1 2100	38	3	S 149	33	E 19.3					
18	64	1 2100	38	9	S 149	21	E 19.4					
18	64	1 2100	38	9	S 149	21	E 19.4					
18	64	1 2100	38	3	S 149	21	E 19.3					
18	64	1 2100	37	45	S 149	45	E 19.2					
18	64	1 2100	34	5	S 135	57	E 21.1					
18	64	2 0300	34	51	S 136	3	E 20.0					

VESSEL	STATION	YR.	MTH.	DAY	TIME	Z	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SEA	SWELL	WEA.	VIS.	BAROM.	SAMPLING	
																	METHOD	
T8	T8	64	2	8	0500	35	9	5	135	45	E	17.8						1
	T9	64	2	8	0700	35	27	5	135	33	E	18.2						1
	T8	64	2	8	0900	35	33	5	135	21	E	18.2						1
	T9	64	2	8	1000	35	39	5	135	9	E	18.5						1
	T9	64	2	8	1100	35	39	5	135	3	E	18.6						1
	T9	64	2	8	1200	35	39	5	134	57	E	18.6						1
	T8	64	2	8	1300	35	33	5	134	51	E	18.9						1
	T9	64	2	8	1500	35	33	5	134	39	E	19.2						1
	T8	64	2	8	1700	35	21	5	134	39	E	19.2						1
	T9	64	2	8	1800	35	21	5	134	33	E	19.2						1
	T9	64	2	8	1900	35	15	5	134	33	E	19.2						1
	T8	64	2	8	2300	34	45	5	134	45	E	18.3						1
	T9	64	2	9	0000	34	39	5	134	45	E	18.2						1
	T8	64	2	9	0800	34	45	5	134	39	E	18.5						1
	T9	64	2	9	0900	34	51	5	134	39	E	18.5						1
	T8	64	2	9	1000	34	51	5	134	39	E	18.5						1
	T9	64	2	9	1100	34	51	5	134	39	E	18.6						1
	T8	64	2	9	1200	34	51	5	134	51	E	18.6						1
	T9	64	2	9	1300	34	51	5	134	51	E	18.6						1
	T8	64	2	9	1400	34	45	5	134	39	E	18.4						1
	T9	64	2	9	1500	34	51	5	134	57	E	18.4						1
	T8	64	2	9	1515	34	51	5	134	57	E	18.4						1
	T9	64	2	9	1600	34	51	5	135	9	E	18.9						1
	T8	64	2	9	1700	35	3	5	135	27	E	18.2						1
	T9	64	2	9	2000	35	9	5	135	45	E	18.2						1
	T8	64	2	9	2000	35	9	5	135	57	E	18.9						1
	T9	64	2	12	0600	35	9	5	135	57	E	18.9						1
	T8	64	2	12	0900	35	9	5	136	15	E	18.7						1
	T9	64	2	12	1000	35	9	5	136	15	E	18.9						1
	T8	64	2	12	1100	35	15	5	136	15	E	18.5						1
	T9	64	2	12	1200	35	15	5	136	15	E	18.5						1
	T8	64	2	12	1800	35	21	5	136	9	E	18.3						1
	T9	64	2	12	1900	35	21	5	136	9	E	18.2						1
	T8	64	2	13	0001	35	21	5	136	3	E	17.8						1
	T9	64	2	13	0800	35	15	5	135	51	E	18.1						1
	T8	64	2	13	1000	35	15	5	135	39	E	17.9						1
	T9	64	2	13	1100	35	15	5	135	39	E	17.9						1
	T8	64	2	13	1300	35	33	5	135	27	E	18.2						1
	T9	64	2	13	1400	35	45	5	135	21	E	18.7						1
	T8	64	2	13	1400	35	45	5	135	21	E	18.7						1
	T9	64	2	13	1800	35	45	5	135	33	E	17.9						1
	T8	64	2	13	1900	35	39	5	135	33	E	17.9						1

VESSEL - CRUISE STATION YR.	STATION NUMBER	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DIRECTION	SEA STATE	WEA. VIS.	BAROM.	SAMPLING
											METHOD
18	64	2 13	2345	35	21 S 136	9 E 17.7					1
18	64	2 14	0800	35	21 S 136	9 E 18.2					1
18	64	2 14	1000	35	21 S 136	15 E 18.2					1
18	64	2 14	1100	35	21 S 136	15 E 18.2					1
18	64	2 14	1300	35	21 S 136	9 E 17.9					1
18	64	2 14	1800	35	21 S 136	9 E 17.9					1
18	64	2 15	0500	35	21 S 136	9 E 17.9					1
18	64	2 15	0600	35	9 S 136	3 E 17.9					1
18	64	2 15	0700	34	57 S 136	3 E 16.7					1
18	64	2 17	1800	34	45 S 135	51 E 21.1					1
18	64	2 17	2000	34	57 S 136	3 E 17.2					1
18	64	2 17	2200	35	3 S 135	51 E 18.1					1
18	64	2 17	2400	34	57 S 135	39 E 17.5					1
18	64	2 18	0200	34	15 S 135	3 E 18.1					1
18	64	2 18	0400	34	27 S 134	45 E 18.2					1
18	64	2 18	0600	34	15 S 134	33 E 18.2					1
18	64	2 18	0800	34	3 S 134	21 E 18.3					1
18	64	2 18	1000	34	3 S 134	21 E 18.3					1
18	64	2 18	1200	33	57 S 134	15 E 18.3					1
18	64	2 18	1400	33	57 S 134	3 E 18.3					1
18	64	2 18	1600	34	3 S 134	21 E 18.3					1
18	64	2 18	1700	34	3 S 134	21 E 18.3					1
18	64	2 18	1800	34	15 S 134	15 E 18.3					1
18	64	2 18	2000	34	21 S 134	3 E 18.3					1
18	64	2 19	0200	34	57 S 133	45 E 18.8					1
18	64	2 19	0400	34	57 S 133	39 E 19.1					1
18	64	2 19	0600	34	57 S 133	39 E 19.1					1
18	64	2 19	0700	34	57 S 133	39 E 18.9					1
18	64	2 19	0800	34	57 S 133	51 E 18.9					1
18	64	2 19	0900	35	9 S 133	51 E 18.9					1
18	64	2 19	1000	35	15 S 133	57 E 19.2					1
18	64	2 19	1100	35	21 S 134	9 E 19.3					1
18	64	2 19	1200	35	15 S 134	3 E 19.3					1
18	64	2 19	1300	35	15 S 133	51 E 19.3					1
18	64	2 19	1400	35	21 S 133	51 E 18.8					1
18	64	2 19	1430	35	15 S 133	51 E 19.3					1
18	64	2 19	1700	35	15 S 133	51 E 19.3					1
18	64	2 19	1800	35	21 S 133	57 E 18.9					1
18	64	2 20	0700	35	15 S 133	51 E 18.9					1
18	64	2 20	0800	35	15 S 133	45 E 19.0					1

ESSSE. CRUISE STATION YR. MTH. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL HGT. VIS. BAROM. SAMPLING NUMBER DN. AMT. DN. AMT. DN. AMT.

VESSEL - CRUISE STATION YR. MIN. DAY TIME LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL WEA. VIS. BAROM. D.N. AMT. DN. AMT. DN. AMT.

SAMPLING  
METHOD

18	64	3	1700	36	9	5	135	51	E	18.9
18	64	3	1800	36	9	5	135	51	E	18.9
18	64	3	0800	36	15	S	135	45	E	18.3
18	64	3	0900	36	21	S	135	51	E	18.4
18	64	3	1000	36	21	S	135	51	E	18.4
18	64	3	1100	36	15	S	135	45	E	18.4
18	64	3	1200	36	15	S	135	45	E	18.4
18	64	3	1500	36	15	S	135	45	E	18.5
18	64	3	1400	36	3	S	135	39	E	18.4
18	64	3	1500	35	57	S	135	39	E	18.9
18	64	3	2100	35	21	S	136	9	E	18.1
18	64	3	0600	35	21	S	136	9	E	17.8
18	64	3	0200	35	23	S	135	3	E	18.6
18	64	3	0400	35	9	S	134	39	E	18.6
18	64	3	0600	35	9	S	134	27	E	18.5
18	64	3	0800	35	9	S	134	9	E	18.3
18	64	3	1000	35	9	S	134	3	E	18.6
18	64	3	1100	35	9	S	134	3	E	18.6
18	64	3	1200	35	9	S	133	51	E	18.8
18	64	3	1300	35	3	S	133	51	E	19.0
18	64	3	1400	35	9	S	133	57	E	19.0
18	64	3	1500	35	9	S	134	3	E	19.0
18	64	3	1600	35	3	S	134	15	E	18.6
18	64	3	1800	34	51	S	134	21	E	18.6
18	64	3	2100	34	39	S	134	51	E	18.3
18	64	3	2300	34	39	S	134	51	E	17.7
18	64	3	0930	34	39	S	134	39	E	17.2
18	64	3	1100	34	45	S	134	45	E	17.5
18	64	3	1200	34	51	S	134	45	E	17.5
18	64	3	1500	35	21	S	134	51	E	18.6
18	64	3	1600	35	33	S	134	57	E	18.6
18	64	3	1700	35	45	S	135	9	E	18.3
18	64	3	1830	35	45	S	135	15	E	18.3
18	64	3	0600	35	45	S	135	3	E	17.8
18	64	3	0800	35	51	S	135	9	E	17.8
18	64	3	0900	35	57	S	135	21	E	17.8
18	64	3	1000	36	3	S	135	27	E	18.3
18	64	3	1200	36	3	S	135	33	E	18.3
18	64	3	1300	36	3	S	135	33	E	18.3
18	64	3	1400	36	3	S	135	33	E	18.3



VESSEL - CRUISE STATION YR. MTH. DAY TIME Z LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL WEA. VIS. BAROM. DN. AMT. DN. AMT. DN. AMT. SAMPLING METHOD

18	64	3	18	1100	35	33	5	135	9	E	18.9
18	64	3	18	1200	35	39	5	135	21	E	18.9
18	64	3	18	1300	35	39	5	135	21	E	18.9
18	64	3	18	1400	35	45	5	135	21	E	18.9
18	64	3	21	0930	35	45	5	135	21	E	18.2
18	64	3	21	1100	35	45	5	135	15	E	18.3
18	64	3	21	1200	35	45	5	135	15	E	18.3
18	64	3	21	1500	35	45	5	135	15	E	18.8
18	64	3	21	1600	35	51	5	135	27	E	18.9
18	64	3	21	1700	35	51	5	135	27	E	18.4
18	64	3	21	1630	35	51	5	135	27	E	18.4
18	64	3	22	0600	35	51	5	135	27	E	17.6
18	64	3	22	0715	35	51	5	135	27	E	18.1
18	64	3	22	0800	35	51	5	135	27	E	18.1
18	64	3	22	1000	35	45	5	135	15	E	18.3
18	64	3	22	1200	35	51	5	135	15	E	18.3
18	64	3	22	1500	35	45	5	135	15	E	18.7
18	64	3	22	1730	35	45	5	135	15	E	18.3
18	64	3	22	1800	35	51	5	135	21	E	18.3
18	64	3	22	2030	36	3	5	135	39	E	18.3
18	64	3	23	0300	36	3	5	135	39	E	17.8
18	64	3	23	0400	36	3	5	135	39	E	17.8
18	64	3	23	0500	36	3	5	135	39	E	17.8
18	64	3	23	0900	35	33	5	135	51	E	17.2
18	64	3	23	1200	35	3	5	135	57	E	17.2
18	64	4	11	0900	35	45	5	135	39	E	17.6
18	64	4	11	1030	35	57	5	135	21	E	18.2
18	64	4	11	1100	35	57	5	135	21	E	18.2
18	64	4	11	1130	35	57	5	135	21	E	18.2
18	64	4	11	1200	35	57	5	135	21	E	18.3
18	64	4	11	1400	36	3	5	135	9	E	17.2
18	64	4	11	1500	35	57	5	135	21	E	17.5
18	64	4	11	1700	35	57	5	135	21	E	18.6
18	64	4	12	0230	35	51	5	135	27	E	17.2
18	64	4	12	0630	35	45	5	135	33	E	18.3
18	64	4	12	1000	35	57	5	135	21	E	18.1
18	64	4	12	1100	35	45	5	135	21	E	18.3
18	64	4	12	1400	27	5	5	135	39	E	17.8
18	64	4	12	1600	35	15	5	135	45	E	18.1
18	64	4	12	1800	35	21	5	136	9	E	17.2

VESSELS - CRUISE NUMBER	STATION	YR.	MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN. AMT.	SEA DN. AMT.	SWELL DN. AMT.	WEA, VIS.	BAROM,	SAMPLING METHOD
18	64	4	12	2200		21	S 136	9	E 17.2						1
18	64	4	15	0600		35	S 135	45	E 17.5						1
18	64	4	15	0830		35	S 135	33	E 17.6						1
18	64	4	15	1000		35	S 135	27	E 16.3						1
18	64	4	15	1100		35	S 135	15	E 18.3						1
18	64	4	15	1200		35	S 135	9	E 18.6						1
18	64	4	15	1300		35	S 134	51	E 18.7						1
18	64	4	15	1400		35	S 134	51	E 18.7						1
18	64	4	15	1500		35	S 134	45	E 18.3						1
18	64	4	15	1600		35	S 134	51	E 18.3						1
18	64	4	15	1700		35	S 134	57	E 18.9						1
18	64	4	15	1800		35	S 135	9	E 18.6						1
18	64	4	15	2030		35	S 135	39	E 18.4						1
18	64	4	16	0600		36	S 135	39	E 17.2						1
18	64	4	16	0800		36	S 135	33	E 17.5						1
18	64	4	16	1000		36	S 135	39	E 17.5						1
18	64	4	16	1100		36	S 135	39	E 18.3						1
18	64	4	16	1200		36	S 135	33	E 17.8						1
18	64	4	16	1300		36	S 135	33	E 17.8						1
18	64	4	16	1400		36	S 135	39	E 17.8						1
18	64	4	16	1600		36	S 135	51	E 17.8						1
18	64	4	16	1800		36	S 135	27	E 17.6						1
18	64	4	17	0600		36	S 135	27	E 17.6						1
18	64	4	17	0800		36	S 135	21	E 17.5						1
18	64	4	17	0900		36	S 135	21	E 17.2						1
18	64	4	17	1000		36	S 135	39	E 17.3						1
18	64	4	17	1100		36	S 135	51	E 17.8						1
18	64	4	17	1200		36	S 135	33	E 17.8						1
18	64	4	17	1300		36	S 135	33	E 18.3						1
18	64	4	17	1400		36	S 135	33	E 17.8						1
18	64	4	17	1600		36	S 135	33	E 17.8						1
18	64	4	17	1700		36	S 135	33	E 17.8						1
18	64	4	17	1800		36	S 135	39	E 17.2						1
18	64	4	17	2400		35	S 135	57	E 17.8						1
18	64	4	20	0400		34	S 135	57	E 17.8						1
18	64	4	20	0600		34	S 135	57	E 17.8						1
18	64	4	20	0700		34	S 135	57	E 17.8						1
18	64	4	20	0800		34	S 136	33	E 17.8						1
18	64	4	20	0900		34	S 135	51	E 17.8						1
18	64	4	20	1830		34	S 136	33	E 17.8						1

VESSEL- CRUISE STATION YR. MIN. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SEA SHELL WT.A. VIS. BAROM. DN. AMT. DN. AMT. SAMPLING METHOD

STATION NUMBER	YR.	MIN.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SEA	SHELL	WT.A.	VIS.	BAROM.	DN.	AMT.	DN.	AMT.	SAMPLING	METHOD
18	64	4	21	0400	34	33 S	136	3 E	17.8										1	1
18	64	4	21	0600	34	33 S	136	3 E	17.8										1	1
18	64	4	21	1200	35	21 S	135	57 E	17.8										1	1
18	64	4	21	1500	35	45 S	135	57 E	18.1										1	1
18	64	4	21	1600	35	57 S	135	45 E	17.8										1	1
18	64	4	21	1700	36	3 S	135	45 E	17.8										1	1
18	64	4	21	1730	36	15 S	135	51 E	17.5										1	1
18	64	4	22	0600	36	15 S	135	51 E	17.2										1	1
18	64	4	22	0800	36	15 S	135	51 E	17.2										1	1
18	64	4	22	1200	36	21 S	135	57 E	17.8										1	1
18	64	4	22	1300	36	27 S	135	51 E	17.8										1	1
18	64	4	22	1400	36	33 S	135	45 E	18.1										1	1
18	64	4	22	1500	36	33 S	135	45 E	17.8										1	1
18	64	4	22	1600	36	39 S	135	39 E	18.3										1	1
18	64	4	22	1700	36	45 S	135	33 E	17.8										1	1
18	64	4	22	1730	36	45 S	135	33 E	17.5										1	1

VESSEL - CRUISE STATION	NUMBER	YR.	MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SWELL	WAA.	VIS.	BAROM.	SAMPLING METHOD	
U5	64	1	3	1	4	0615	K 36	39	S 150	09	E 19.4	14	1	2	1	
U5	64	1	3	1	4	0745	K 36	39	S 150	09	E 19.4	14	1	2	1	
U5	64	1	3	1	4	0915	K 36	39	S 150	09	E 19.4	14	1	2	1	
U5	64	1	3	1	4	1030	K 36	39	S 150	09	E 19.4	14	1	2	1	
U5	64	1	3	1	4	0845	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1030	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1200	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1330	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1445	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1600	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1045	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1200	K 37	51	S 149	57	E 19.4	23	1	2	1	
U5	64	1	3	1	4	0445	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	0630	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	0800	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	0930	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1045	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1200	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	0445	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	12	0645	K 37	51	S 149	57	E 19.4	36	1	2	1
U5	64	1	3	1	4	12	0815	K 37	51	S 149	57	E 19.4	36	1	2	1
U5	64	1	3	1	4	0545	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	0900	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1300	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	1645	K 37	51	S 149	57	E 19.4	36	1	2	1	
U5	64	1	3	1	4	15	0600	K 36	57	S 150	09	E 19.2	23	1	2	1
U5	64	1	3	1	4	15	0830	K 36	57	S 150	09	E 19.2	23	1	2	1
U5	64	1	3	1	4	15	1000	K 36	57	S 150	03	E 19.2	23	1	2	1
U5	64	1	3	1	4	15	1300	K 36	57	S 150	03	E 19.2	23	1	2	1
U5	64	1	3	1	4	17	0600	K 36	57	S 149	57	E 17.2	32	1	0	1
U5	64	1	3	1	4	17	0800	K 36	57	S 149	57	E 19.2	00	0	0	0
U5	64	1	3	1	4	17	0945	K 36	57	S 150	03	E 19.2	05	0	0	0
U5	64	1	3	1	4	17	1130	K 36	57	S 150	09	E 19.2	05	0	0	0

VESSEL - CRUISE STATION YR. MTH. DAY TIME & LATITUDE	NUMBER	LONGITUDE	TEMP.	SALINITY	WIND UN. AMT.	SEA SWELL DN. AMT.	WEA. DN. AMT.	VIS. DN. AMT.	BAROM. DN. AMT.	SAMPLED METHOD
U5	64	1 20	0700 K	38 03 S	149 57 E	18.3	18	1		
U5	64	1 20	0815 K	38 03 S	149 57 E	18.3	18	1		
U5	64	1 20	0930 K	38 03 S	149 57 E	18.3	18	1		
U5	64	1 20	1115 K	38 03 S	149 57 E	18.3	18	1		
U5	64	1 22	0745 K	37 51 S	149 57 E	17.8	32	1		
U5	64	1 22	0915 K	37 51 S	149 57 E	17.8	32	1		
U5	64	1 23	0445 K	38 15 S	149 09 E	17.8	18	1		
U5	64	1 23	0615 K	38 15 S	149 09 E	17.8	18	1		
U5	64	1 23	0730 K	38 15 S	149 09 E	17.8	18	1		
U5	64	1 23	1245 K	38 21 S	148 33 E	17.8	18	1		
U5	64	1 23	1400 K	38 21 S	148 33 E	17.8	18	1		
U5	64	1 23	1530 K	38 15 S	148 51 E	17.8	18	1		
U5	64	1 23	1715 K	38 15 S	148 51 E	17.8	18	1		
U5	64	1 23	1845 K	38 15 S	148 51 E	17.8	18	1		
U5	64	1 23	2000 K	38 15 S	148 51 E	17.8	18	1		
U5	64	1 23	2145 K	38 15 S	148 51 E	17.8	18	1		
U5	64	1 23	2315 K	38 15 S	148 51 E	17.8	18	1		
U5	64	1 24	0500 K	38 15 S	148 51 E	17.8	05	1		
U5	64	1 24	0630 K	38 15 S	148 51 E	17.8	05	1		
U5	64	1 24	0800 K	38 15 S	148 51 E	17.8	05	1		
U5	64	2 12	0615 K	36 45 S	150 03 E	19.4	36	1		
U5	64	2 12	0745 K	36 45 S	150 03 E	19.4	05	1		
U5	64	2 12	0930 K	36 45 S	150 03 E	19.4	05	1		
U5	64	2 12	1100 K	36 45 S	150 03 E	19.4	05	1		
U5	64	2 17	0645 K	36 51 S	150 03 E	21.4	32	1		
U5	64	2 17	0800 K	36 51 S	150 03 E	21.4	32	1		

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NUMBER	STATION YR.	MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND	SEA SWELL	WEA.	VIS.	BAROM.	SAMPLING	
														DN.	AMT.
U6	9	64	10	19	0900		36	21	S 150	21	E	19.4		35.59	
U6	9	64	10	19	1200		36	15	S 150	15	E	19.3			
U6	9	64	10	19	1500		36	15	S 150	15	E	18.9		35.59	
U6	11	64	10	20	0900		36	15	S 150	15	E	18.6		35.57	
U6	11	64	10	20	1200		36	15	S 150	15	E	18.9		35.59	
U6	11	64	10	20	1500		36	15	S 150	9	E	18.6		35.77	

VESSEL CRUISE STATION YR. MIN. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY SWELL DN. AMT. SEA DN. AMT. SWELL DN. AMT. WEA. VIS. BAROM. SAMPLING METHOD

NUMBER	U7	64	1	6	0910	38	15	S	148	39	E	20.0	1	
	U7	64	1	6	1125	38	15	S	148	39	E	21.7	1	
	U7	64	1	6	2020	37	33	S	149	57	E	19.4	1	
	U7	64	1	6	2312	37	15	S	150	3	E	19.4	1	
	U7	64	1	17	0800	37	57	S	149	15	E	18.3	1	
	U7	64	1	17	0900	37	57	S	149	15	E	18.7	1	
	U7	64	1	2	117	1000	38	9	S	149	9	E	18.4	1
	U7	64	1	17	1100	38	15	S	149	9	E	18.4	1	
	U7	64	1	17	2230	37	33	S	149	57	E	18.3	1	
	U7	64	1	18	0100	37	15	S	150	3	E	18.9	1	
	U7	64	1	18	0230	37	3	S	149	51	E	19.7	1	
	U7	64	1	24	0800	37	45	S	149	57	E	18.3	1	
	U7	64	1	24	1000	38	3	S	149	21	E	18.4	1	
	U7	64	1	24	1200	38	9	S	149	27	E	18.3	1	

PESSO-CRUISE STATION YR. MTH. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL WEA. VIS. BAHOM. SAMPLING NUMBER DN. AMT. DN. AMT. DN. AMT. METHOD

VESSEL - CRUISE STATION YR. MTH. DAY TIME & LATITUDE LONGITUDE TEMP. SALINITY WIND SWELL WEA. VIS. BAROM. DNE. AMT. DN. AMT. SAMPLING METHOD

WB	64	2	18	1500	34	51	S 135	15	E 16.9
WB	64	2	20	1800	35	51	S 135	15	E 16.9
WB	64	2	20	1100	35	51	S 135	45	E 17.2
WB	64	2	20	1600	35	39	S 135	9	E 18.3
WB	64	2	21	0700	35	33	S 134	45	E 19.2
WB	64	2	21	0800	35	27	S 134	33	E 19.2
WB	64	2	21	1000	35	39	S 134	57	E 19.2
WB	64	2	21	1400	35	27	S 134	27	E 19.2
WB	64	2	21	1700	35	21	S 134	15	E 19.2
WB	64	2	25	0800	35	51	S 135	33	E 19.2
WB	64	2	25	1000	35	51	S 135	33	E 19.2
WB	64	2	25	1300	35	51	S 135	33	E 19.2
WB	64	3	1	0800	35	39	S 135	9	E 17.5
WB	64	3	1	1000	35	39	S 135	9	E 17.5
WB	64	3	12	0900	35	39	S 135	9	E 18.9
WB	64	3	12	1400	35	57	S 135	21	E 19.2
WB	64	3	12	1800	35	57	S 135	21	E 19.2
WB	64	3	15	0900	35	39	S 134	51	E 18.3
WB	64	3	15	1000	35	39	S 134	51	E 18.3
WB	64	3	15	1500	35	39	S 134	39	E 18.1
WB	64	3	15	1700	35	39	S 134	39	E 18.1
WB	64	3	26	1600	35	39	S 135	9	E 18.9
WB	64	3	26	1800	35	39	S 135	9	E 18.9
WB	64	3	27	0800	35	39	S 135	9	E 18.3
WB	64	3	27	1000	35	39	S 135	3	E 18.3
WB	64	4	1	0800	35	33	S 134	45	E 16.7
WB	64	4	1	1000	35	33	S 134	45	E 16.7
WB	64	4	1	1200	35	33	S 134	45	E 16.7
WB	64	4	7	0900	35	39	S 135	9	E 17.2
WB	64	4	7	1000	35	39	S 135	3	E 17.5
WB	64	4	7	1100	35	39	S 135	3	E 17.2
WB	64	4	12	0700	35	27	S 134	27	E 18.3
WB	64	4	12	0800	35	27	S 134	27	E 18.3
WB	64	4	12	0900	35	45	S 134	21	E 17.2
WB	64	4	12	1200	35	45	S 134	35	E 16.7
WB	64	4	12	1400	35	51	S 134	27	E 16.7
WB	64	4	12	1700	35	51	S 134	33	E 16.9
WB	64	4	12	1730	35	51	S 134	33	E 16.9
WB	64	4	20	0800	35	15	S 135	45	E 17.2
WB	64	4	21	0600	35	51	S 134	57	E 18.1

VESSEL - CRUISE	STATION	HR.	MIN.	DAY	TIME & LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN. AMT.	SEA DN. AMT.	SWELL DN. AMT.	WHA.	VIS.	BAROM.	SAMPLING METHOD	
W6		64	4	21	0615	35	51	S 134	57 E 18.1							
W8		64	4	21	0800	35	51	S 134	57 E 18.1						1	
W8		64	4	21	1500	35	57	S 134	45 E 17.2						1	
W8		64	4	21	1600	35	57	S 134	45 E 17.2						1	

VESSEL	CRUISE NUMBER	STATION	YR.	MTH.	DAY	TIME	LATITUDE	LONGITUDE	TEMP.	SALINITY	WIND DN.	SEA AMT.	SWELL DN.	SEA AMT.	WHA. WHA.	VIS. VIS.	BARDM.	SAMPLING METHOD
W9		64	1	3	0930	34	57 S	135	57 E	17.8								1
W9		64	1	3	1200	34	39 S	134	45 E	17.8								1
W9		64	1	22	1400	35	27 S	134	45 E	18.9								1
W9		64	1	22	1730	35	27 S	134	57 E	18.3								1

## OCEANOGRAPHICAL STATION LISTS

1. Hydrological and planktological observations by F.R.V. *Warreen* in south-eastern Australian waters, 1938-39
2. Hydrological and planktological observations by F.R.V. *Warreen* in south-eastern Australian waters, 1940-42
3. Hydrological and plantological observations by F.R.V. *Warreen* in south-western Australian waters, 1947-50
4. Onshore hydrological investigations in eastern Australia, 1942-50
5. Estuarine hydrological investigations in eastern Australia, 1940-50. Queensland: Nerang and Coomera Rivers, Moreton Bay and Brisbane River, Logan River, Dunwich Oyster Lease; New South Wales: Richmond River, Clarence River, Macleay River, Hastings River, Manning River, Port Stephens, Tilligerry Creek, Hawkesbury River
6. Estuarine hydrological investigations in eastern Australia, 1940-50. New South Wales: Middle Harbour and Port Jackson, Georges River-Botany Bay
7. Estuarine hydrological investigations in eastern Australia, 1940-50. New South Wales: Port Hacking, Lake Illawarra, Shoalhaven River, Jervis Bay, Clyde River, Moruya River, Tuross River, Wagonga Inlet; Victoria: Port Phillip; Tasmania: Tamar River, Derwent River, Huon River, D'Entrecasteaux Channel, Pittwater, Lake Dobson (freshwater), Penna Dam (freshwater)
8. Hydrological investigations in south-western Australia, 1944-50
9. Records of twenty-four hourly hydrological observations at selected stations in eastern Australian estuarine systems, 1942-50. Queensland: Logan River; New South Wales: Richmond River, Clarence River, Macleay River, Hastings River, Manning River, Port Stephens, Hawkesbury River, Georges River, Port Hacking, Clyde River, Tuross River; Tasmania: Tamar River, Derwent River
10. Records of twenty-four hourly hydrological observations at Shell Point, Georges River, New South Wales, 1942-50
11. Analyses of bottom deposits in eastern Australia, 1946-50
12. Estuarine hydrological investigations in eastern and south-western Australia, 1951
13. Analysis of bottom deposits in eastern and south-western Australia, 1951 and records of twenty-four hourly hydrological observations at selected stations in eastern Australian estuarine systems, 1951
14. Onshore hydrological investigations in eastern and south-western Australia, 1951
15. Estuarine hydrological investigations in eastern and south-western Australia, 1952
16. Analysis of bottom deposits in eastern and south-western Australia, 1952 and records of twenty-four hourly hydrological observations at selected stations in eastern Australian estuarine systems, 1952
17. Onshore hydrological investigations in eastern and south-western Australia, 1952
18. Onshore hydrological investigations in eastern and south-western Australia, 1953
19. Onshore planktological investigations in eastern Australia, 1945-54
20. Surface sampling in the Tasman Sea, 1953
21. Estuarine hydrological investigations in eastern and south-western Australia, 1953
22. Further onshore planktological investigations in eastern Australia, 1945-54
23. Planktological investigations made by F.R.V. *Derwent Hunter* in eastern Australian waters, 1952-54
24. Onshore hydrological investigations in eastern and south-western Australia, 1954
25. Surface sampling in the Tasman Sea, 1954
26. Estuarine hydrological investigations in eastern and south-western Australia, 1954
27. Onshore and oceanic hydrological investigations in eastern and south-western Australia, 1955
28. Surface sampling in the Tasman and Coral Seas, 1955
29. Estuarine hydrological investigations in eastern and south-western Australia, 1955
30. Onshore and oceanic hydrological investigations in eastern and south-western Australia, 1956
31. Surface sampling in the Tasman and Coral Seas and the south-eastern Indian Ocean, 1956
32. Estuarine hydrological investigations in eastern and south-western Australia, 1956
33. Coastal hydrological investigations in eastern and south-western Australia, 1957
34. Coastal hydrological investigations at Port Hacking, New South Wales, 1957
35. Coastal hydrological investigations at Eden, New South Wales, 1957

## OCEANOGRAPHICAL STATION LISTS

(Continued)

36. Surface sampling in the Tasman and Coral Seas, 1957
37. Hydrological investigations from F.R.V. *Derwent Hunter*, 1957
38. Coastal hydrological investigations in the New South Wales tuna fishing area, 1958
39. Surface sampling in the Coral and Tasman Seas, 1958
40. Coastal hydrological investigations in south-eastern Australia, 1958
41. Oceanic investigations in eastern Australian waters, F.R.V. *Derwent Hunter*, 1958
42. Coastal investigations at Port Hacking, New South Wales, 1958
43. Oceanic investigations in eastern Australia, H.M.A. Ships *Queenborough*, *Quickmatch*, and *Warrego*, 1958
44. Oceanic observations in Antarctic waters, M.V. *Magga Dan*, 1959
45. Coastal hydrological investigations in eastern Australia, 1959
46. Coastal hydrological investigations in the New South Wales tuna fishing area, 1959
47. Coastal investigations at Port Hacking, New South Wales, 1959
48. Oceanic investigations in eastern Australian waters, F.R.V. *Derwent Hunter*, 1959
49. Coastal hydrological sampling Rottnest Island, W.A., and Port Moresby, Papua, during the I.G.Y. (1957-58), and surface sampling in the Tasman and Coral Seas, 1959
50. Surface sampling in the Coral and Tasman Seas, 1960
51. Coastal hydrological investigations in eastern Australia, 1960
52. Coastal investigations at Port Hacking, New South Wales, 1960
53. Coastal hydrological investigations in the New South Wales tuna fishing area, 1960
54. Investigations by F.R.V. *Derwent Hunter* on the eastern Australian tuna grounds in 1961
55. Investigations by F.R.V. *Weerutta* on the South Australian tuna grounds in 1961
56. Investigations by F.R.V. *Marelda* on the eastern Australian tuna grounds in 1961
57. Investigations by F.V. *Estelle Star* in Western Australian waters in 1961
58. Temperature observations from Australian tuna fishing vessels in 1961
59. Investigations by F.R.V. *Derwent Hunter* on the eastern Australian tuna grounds in 1962
60. Investigations by F.R.V. *Investigator* on the South Australian tuna grounds in 1962
61. Investigations by F.R.V. *Marelda* on the eastern Australian tuna grounds in 1962
62. Investigations by F.V. *Estelle Star* in Western Australian waters in 1962
63. Temperature and salinity observations from Australian tuna fishing vessels in 1962
64. Investigations by F.R.V. *Investigator* on the South Australian tuna grounds in 1963
65. Investigations by F.R.V. *Marelda* on the eastern Australian tuna grounds in 1963
66. Temperature and salinity observations from Australian tuna fishing vessels in 1963
67. Investigations by F.R.V. *Investigator* on the South Australian tuna grounds in 1964
68. Investigations by F.R.V. *Marelda* on the eastern Australian tuna grounds in 1964
69. Temperature and salinity observations from Australian tuna fishing vessels in 1964