

## OCEANOGRAPHIC DATA AT THE S. M. B. L., 1972

Measurements of the surface sea water temperature were made every day at 9:00 in the morning at the fixed site on the south coast of the laboratory ground near the water intake of the laboratory by

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The salinity was measured by salinometer (Tsurumi Co., Ltd., Type E2).

Meteorological observations were made similarly in the laboratory yard by Miss Junko Kondô.

The necessary correction after formal manuals of oceanographical and meteorological observations, as well as the typewriting of tables, were made by Dr. Shin-ichirô Fuse.

Weather is shown in Beaufort notation, and wind force in Beaufort scale. The codes used are:

b Blue sky	0 Calm, less than 0.3 m/sec
bc Partly clouded	1 Light air, 0.3~1.5 m/sec
c Cloudy	2 Light breeze, 1.6~3.3 m/sec
o Overcast	3 Gentle breeze, 3.4~5.4 m/sec
d Drizzling rain	4 Moderate breeze, 5.5~7.9 m/sec
r Rain	5 Fresh breeze, 8.0~10.7 m/sec
s Snow	
p Passing showers	
q Squalls	

Summarizing the data, the following annual values are obtained for 1972:

	Lowest	Highest	Mean
Air temperature (°C)	5.4 (Jan. 18)	31.0 (Sept. 6)	18.0
Water temperature (°C)	12.50 (Feb. 8)	29.20 (Aug. 5)	18.50
Salinity (‰)	27.005 (June 16)	35.101 (Jan. 14)	33.642
Total precipitation (mm)	2702.9		

JANUARY							FEBRUARY						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰	date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	r	11.3	8.4	E 1	17.24	34.587	1	d	15.4	44.5	N 1	17.25	34.181
2	o	8.8	6.8	NW 2	16.68	34.732	2	o	11.9	—	N 1	16.72	34.601
3	b	6.8	—	N 1	14.70	34.310	3	o	11.6	—	NW 2	15.80	34.577
4	bc	10.2	—	E 1	15.45	34.746	4	d	9.2	35.5	— 0	15.40	34.419
5	r	14.8	22.0	W 1	17.23	34.521	5	c	9.4	5.4	N 1	16.00	34.574
6	bc	9.8	2.5	NW 2	15.55	34.604	6	o	8.4	—	N 1	15.20	34.523
7	o	9.4	—	E 1	17.25	34.756	7	o	8.3	16.6	W 1	15.10	34.239
8	b	9.2	0.7	— 0	18.50	34.958	8	bc	6.7	—	N 2	14.10	34.513
9	b	8.3	—	NE 1	16.62	34.828	9	o	6.3	—	— 0	14.50	34.505
10	o	11.7	—	— 0	17.30	34.984	10	d	6.3	7.4	W 2	14.60	34.425
11	d	13.3	2.7	E 1	17.70	34.532	11	b	9.9	0.3	NW 2	16.48	34.735
12	o	13.4	2.7	N 2	16.80	34.975	12	b	8.8	—	— 0	15.20	34.716
13	b	11.1	—	N 2	16.50	34.886	13	r	11.7	3.1	SE 0	16.30	34.634
14	b	9.6	—	— 0	16.70	35.101	14	bc	8.4	30.0	W 2	15.40	34.542
15	o	9.7	6.6	NW 1	16.70	34.919	15	bc	9.6	—	W 2	14.60	34.512
16	bc	9.4	—	NW 2	15.52	34.773	16	r	7.3	0.2	— 0	—	—
17	bc	8.2	—	N 2	15.20	34.962	17	c	10.9	5.2	N 2	15.60	34.112
18	b	5.4	—	— 0	16.60	34.975	18	c	12.9	—	SW 1	15.32	34.336
19	o	8.8	—	— 0	17.10	34.964	19	r	8.6	0.8	N 1	16.00	34.525
20	o	13.4	3.9	— 0	17.70	34.869	20	bc	7.4	0.1	N 2	14.60	34.651
21	bc	11.7	—	— 0	17.20	34.927	21	bc	7.0	—	NW 2	14.80	34.838
22	bc	10.1	—	N 2	16.30	35.003	22	o	9.4	—	NW 1	16.00	34.771
23	b	8.9	—	— 0	17.02	34.982	23	o	8.6	—	— 0	16.10	34.712
24	o	14.3	—	W 1	16.30	34.886	24	bc	9.4	—	N 1	15.30	34.736
25	o	17.8	18.9	— 0	18.25	34.768	25	b	7.7	—	W 2	14.90	34.716
26	b	10.9	0.7	NW 2	16.70	34.924	26	o	9.4	58.0	E 1	15.50	34.629
27	c	9.1	—	W 1	15.95	34.564	27	o	10.3	—	NW 2	16.65	34.552
28	b	9.0	—	NW 2	15.50	34.484	28	bc	7.4	—	N 2	13.80	34.467
29	b	6.9	7.6	— 0	15.30	34.503	29	o	6.1	—	— 0	14.70	34.446
30	c	10.5	—	WNW 2	15.26	34.426							
31	o	9.2	—	W 1	15.70	34.684							
mean		10.4			16.53	34.778	mean		9.1			15.43	34.543

MARCH							APRIL						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰	date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	bc	6.6	—	NW 3	14.47	34.683	1	c	6.8	—	NW 2	15.80	34.149
2	b	7.6	—	NNW 3	14.60	34.698	2	bc	8.7	0.4	N 1	15.10	34.106
3	c	6.8	—	NNW 3	14.12	34.719	3	o	10.8	—	— 0	15.54	33.928
4	b	9.2	—	NW 3	14.42	34.733	4	o	7.3	4.5	W 2	16.75	33.987
5	b	7.4	—	NW 2	15.07	34.669	5	bc	15.8	—	E 1	17.21	34.114
6	b	9.8	—	N 3	14.12	34.665	6	r	17.1	20.9	SSW 1	17.49	34.096
7	b	10.6	—	WNW 3	14.73	34.675	7	o	17.4	22.8	— 0	17.70	33.862
8	b	10.1	—	N 1	14.52	34.634	8	r	13.6	12.0	— 0	17.75	33.889
9	o	10.7	9.9	N 2	14.52	34.178	9	o	10.5	17.0	NW 2	15.95	34.244
10	o	9.4	—	NW 4	14.32	34.601	10	b	11.6	44.0	NW 1	15.89	34.263
11	bc	10.3	—	N 2	14.35	34.612	11	o	12.6	—	NE 2	15.00	34.166
12	o	10.8	—	NW 1	14.66	34.714	12	b	11.7	—	NW 3	14.50	33.647
13	c	7.4	—	N 2	14.10	34.565	13	b	15.2	—	NNW 2	14.83	33.978
14	bc	9.8	—	NW 1	14.10	34.487	14	b	16.2	—	NW 1	15.52	33.824
15	bc	9.1	—	NW 2	13.70	34.484	15	r	13.5	0.8	WSW 2	16.42	33.694
16	b	9.3	—	NNE 1	14.39	34.401	16	b	18.1	27.6	— 0	16.62	33.667
17	r	13.4	26.7	WSW 1	15.02	33.400	17	bc	19.8	0.1	— 0	16.72	33.657
18	b	14.9	6.7	— 0	14.98	34.058	18	bc	20.4	—	— 0	17.27	33.506
19	o	15.8	—	— 0	15.70	34.040	19	bc	21.5	—	W 1	18.00	33.722
20	o	19.0	12.6	W 2	16.05	33.670	20	r	19.0	21.0	S 2	18.72	32.658
21	bc	12.3	3.2	NW 2	15.30	33.675	21	o	18.4	2.2	NNW 3	17.02	33.153
22	bc	16.3	—	— 0	14.70	34.450	22	bc	19.2	76.0	E 2	17.31	33.144
23	r	16.1	17.0	ENE 1	15.39	33.544	23	c	18.2	—	E 1	18.40	34.051
24	r	15.4	25.0	NW 2	16.21	33.080	24	b	19.9	—	NNW 3	19.39	33.876
25	c	13.9	4.4	— 0	16.10	33.729	25	o	18.3	—	— 0	19.12	33.640
26	r	11.3	22.0	NW 2	15.94	33.907	26	o	19.9	0.6	— 0	20.01	33.664
27	b	13.0	4.4	NW 1	14.32	33.563	27	o	18.9	26.1	— 0	21.00	33.858
28	b	13.4	—	— 0	15.85	33.886	28	b	20.2	—	NW 1	20.70	33.955
29	bc	16.9	9.8	NE 1	17.03	34.187	29	c	19.8	—	— 0	20.90	34.179
30	r	18.3	17.5	S 3	18.49	34.138	30	o	19.4	—	SE 1	21.20	34.173
31	bc	16.6	—	NW 3	18.33	34.031							
mean		12.0			15.15	34.222	mean		16.0			17.43	33.828

MAY						JUNE							
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰	date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	o	22.2	68.3	S 2	21.28	33.822	1	b	23.0	—	— 0	21.22	34.401
2	b	19.1	—	NW 4	19.99	34.065	2	bc	22.6	—	NE 1	21.50	34.321
3	b	18.4	—	— 0	20.92	33.900	3	o	22.4	0.1	— 0	21.28	34.377
4	o	19.9	—	SE 1	19.11	34.437	4	o	17.8	24.6	NW 1	21.10	33.593
5	o	21.6	29.6	— 0	20.10	33.622	5	bc	20.0	19.5	— 0	21.21	34.085
6	b	20.1	—	WNW 3	19.24	33.579	6	b	22.4	—	— 0	22.15	33.908
7	bc	21.7	—	— 0	19.86	33.657	7	r	19.8	1.3	E 1	21.71	34.004
8	o	21.4	—	— 0	20.99	33.692	8	o	23.4	58.3	SE 2	22.18	33.492
9	o	23.2	4.0	SW 4	21.45	33.947	9	o	22.5	3.2	— 0	22.31	33.600
10	o	19.3	—	— 0	20.80	34.022	10	b	24.0	—	S 1	22.49	33.444
11	o	22.7	—	— 0	21.42	34.041	11	o	27.0	—	— 0	22.80	33.893
12	bc	23.1	—	— 0	21.01	34.054	12	r	20.8	114.5	ENE 1	22.12	27.205
13	r	18.2	13.7	— 0	21.00	33.386	13	o	23.7	75.5	S 1	22.52	32.663
14	r	19.9	15.5	— 0	20.50	33.056	14	bc	23.9	—	— 0	22.68	33.477
15	d	21.6	17.6	— 0	21.60	33.662	15	o	24.2	—	— 0	22.70	33.477
16	bc	22.9	0.7	SW 2	22.35	33.531	16	bc	24.5	—	— 0	22.69	33.423
17	b	18.3	—	E 2	20.90	33.958	17	c	24.3	—	— 0	23.39	33.441
18	bc	19.1	—	— 0	19.96	32.998	18	r	22.0	60.5	— 0	23.84	31.437
19	c	21.6	—	S 2	21.10	33.874	19	r	21.5	5.7	NW 1	22.95	32.809
20	o	21.1	12.7	SSW 1	20.49	33.820	20	o	23.8	16.3	— 0	23.15	32.249
21	b	20.5	6.1	NW 2	20.65	33.817	21	c	23.6	—	NW 1	23.22	32.195
22	b	20.7	—	NW 2	20.32	34.384	22	r	21.0	—	NE 1	22.34	33.098
23	b	20.6	—	S 1	20.19	34.375	23	o	19.7	25.2	E 1	22.00	32.538
24	b	22.6	—	S 1	21.59	34.483	24	bc	24.5	—	E 1	22.50	32.195
25	bc	21.6	—	— 0	21.60	34.541	25	b	23.8	—	— 0	23.10	30.877
26	o	20.4	—	— 0	21.29	34.032	26	bc	23.6	—	— 0	22.83	33.025
27	o	22.7	23.0	SW 2	21.55	33.590	27	r	19.8	9.2	NE 2	22.17	33.242
28	b	22.4	—	SW 1	23.84	34.258	28	o	23.9	64.5	S 1	23.60	33.116
29	b	23.2	—	NE 2	21.30	34.406	29	d	23.6	0.5	— 0	23.91	32.809
30	o	21.5	5.0	— 0	21.36	33.539	30	b	26.4	0.9	SW 3	24.70	33.459
31	b	20.5	9.5	NW 3	21.55	34.357							
mean		21.0			20.95	33.900	mean		22.8			22.55	32.995

JULY							AUGUST						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰	date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	o	26.5	—	— 0	24.69	32.971	1	b	27.7	—	S 2	27.70	32.628
2	b	27.2	—	S 1	25.29	33.025	2	b	28.2	—	S 1	27.31	32.502
3	o	27.5	—	NE 1	25.61	32.628	3	o	28.9	—	— 0	28.09	33.368
4	o	27.2	2.5	SSW 2	25.59	32.935	4	b	28.7	—	— 0	28.13	33.122
5	o	27.6	1.8	SW 1	25.74	32.983	5	b	29.2	—	S 1	29.20	33.359
6	r	25.7	20.2	S 1	26.80	33.062	6	bc	28.9	—	— 0	28.82	33.369
7	o	26.4	14.6	ESE 1	25.41	32.701	7	o	28.6	—	NNE 1	28.38	33.398
8	bc	26.6	0.1	S 2	25.91	31.816	8	bc	29.1	—	— 0	28.82	33.276
9	bc	26.7	—	S 2	25.80	31.581	9	b	29.0	—	SW 1	28.97	33.492
10	o	26.1	—	SW 1	25.35	31.924	10	o	27.5	38.0	S 2	28.01	32.779
11	bc	26.4	—	S 2	26.20	32.069	11	r	23.8	3.7	— 0	27.35	31.778
12	o	26.9	—	SE 2	25.82	31.997	12	r	24.6	61.0	SE 1	27.72	30.325
13	r	24.5	157.0	SW 2	24.90	29.632	13	bc	27.3	14.7	E 1	27.80	31.854
14	b	26.4	72.0	S 1	24.72	29.181	14	b	27.9	1.9	S 1	27.72	32.346
15	bc	23.6	—	NW 2	24.55	31.888	15	b	27.8	—	S 1	27.61	32.294
16	o	22.8	12.0	— 0	23.80	32.953	16	bc	28.2	—		27.60	33.195
17	o	24.9	0.1	— 0	24.75	30.769	17	b	28.7	—		27.37	33.694
18	b	27.7	2.0	S 1	25.55	33.080	18	b	28.4	—	S 1	27.83	33.696
19	c	28.9	—	ENE 2	26.07	33.296	19	bc	28.3	5.5	S 1	28.07	33.772
20	o	28.3	—	— 0	26.00	33.296	20	b	29.1	—	SW 2	28.42	32.358
21	bc	29.5	—	SW 2	26.12	33.080	21	o	27.8	2.0	SE 2	28.01	32.521
22	bc	29.9	—	— 0		32.863	22	r	23.6	61.0	— 0	27.10	31.437
23	o	29.0	0.6	NE 1	26.30	33.043	23	b	22.9	27.2	— 0	26.30	29.693
24	bc	27.5	14.6	NE 1	26.29	32.610	24	o	25.6	—	— 0	26.02	32.250
25	b	29.1	—	SW 1	26.62	33.260	25	o	24.0	11.0	— 0	26.60	33.050
26	bc	29.8	—	WE 1	26.95	33.513	26	o	26.8	21.8	S 2	26.70	32.656
27	o	25.6	0.5	— 0	26.80	33.766	27	b	26.6	6.4	NW 2	26.80	33.417
28	bc	25.3	6.2	— 0	27.05	33.603	28	bc	27.8	—	— 0	27.30	33.136
29	b	26.2	—	— 0	26.91	32.827	29	bc	27.8	—	SW 1	27.32	33.163
30	bc	28.4	—	— 0	27.40	33.513	30	bc	27.5	—	S 1	27.56	32.722
31	bc	27.8	—	— 0	27.33	32.484	31	b	29.0	—	S 1	28.10	32.895
mean		27.0			25.88	32.527	mean		27.4			27.70	32.695

SEPTEMBER							OCTOBER						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰	date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	bc	29.1	—	NW 1	28.65	33.099	1	bc	20.6	—	— 0	23.48	33.094
2	bc	27.3	—	— 0	27.20	33.449	2	b	22.4	—	NW 2	23.12	32.657
3	b	27.2	—	— 0	27.30	33.510	3	b	23.3	—	NE 1	23.32	33.003
4	bc	28.4	—	NNE 2	27.50	33.236	4	c	25.8	—	SW 1	23.90	32.460
5	b	27.9	—	S 1	27.39	33.227	5	bc	20.7	5.5	NW 2	22.67	32.062
6	bc	31.0	—	— 0	27.75	33.336	6	bc	22.6	—	NW 3	22.25	33.041
7	o	24.5	85.0	NE 1	27.01	32.792	7	b	21.2	—	— 0	22.95	33.850
8	bc	29.4	3.1	S 1	27.22	33.093	8	b	21.6	—	— 0	22.88	33.867
9	o	26.0	50.5	SE 2	26.77	32.617	9	c	23.3	—	— 0	23.65	33.883
10	b	25.1	—	NW 1	26.92	32.240	10	bc	21.9	—	— 0	22.66	32.333
11	b	26.0	70.3	— 0	26.31	32.867	11	bc	21.9	9.5	NW 1	23.22	32.735
12	bc	25.7	—	— 0	26.56	32.829	12	b	21.8	—	NNW 3	22.35	33.103
13	bc	24.9	—	NE 1	25.90	32.617	13	b	19.9	—	NW 1	21.63	33.342
14	p	24.6	1.7	NE 2	25.70	32.932	14	b	20.3	—	NW 1	21.46	33.062
15	r	22.5	40.5	— 0	25.30	31.159	15	b	21.2	—	— 0	21.76	33.140
16	r	22.4	14.0	NW 2	27.00	32.949	16	b	21.8	11.8	NW 2	22.45	33.214
17	bc	25.9	97.0	NW 2	26.56	32.829	17	c	16.6	—	— 0	21.72	33.395
18	b	25.1	0.2	NW 1	25.41	32.535	18	c	19.6	—	— 0	21.88	33.619
19	bc	23.1	7.3	— 0	25.41	32.202	19	r	19.1	3.8	NE 2	22.24	33.330
20	bc	23.2	—	NW 1	25.41	32.202	20	o	21.6	13.5	NE 2	22.64	33.459
21	bc	24.1	—	— 0	25.50	32.940	21	bc	23.0	—	— 0	22.64	33.823
22	b	25.9	—	— 0	25.09	32.399	22	o	19.9	19.1	NW 2	22.16	33.540
23	bc	26.2	—	E 1	26.00	33.122	23	bc	18.5	—	NW 2	22.60	33.940
24	o	24.6	—	— 0	25.43	32.919	24	b	17.5	—	— 0	20.64	33.916
25	o	21.6	—	N 1	24.46	32.622	25	b	19.1	—	— 0	21.04	33.919
26	b	21.2	—	— 0	24.10	32.828	26	o	19.1	—	— 0	21.07	33.792
27	b	21.6	—	— 0	23.30	32.294	27	o	19.6	20.2	NW 1	21.62	33.473
28	o	22.9	—	— 0	23.59	32.792	28	b	16.4	—	— 0	20.77	33.572
29	bc	23.9	7.1	NW 2	23.80	32.245	29	bc	18.6	—	— 0	21.22	33.636
30	bc	21.5	—	NW 2	23.31	32.874	30	bc	18.1	—	— 0	21.27	33.827
							31	bc	17.1	9.2	NW 2	20.71	33.782
mean		25.1			25.92	32.776	mean		20.5			22.13	33.351

NOVEMBER							DECEMBER						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰	date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	c	14.2	—	N 1	20.14	33.809	1	bc	6.8	—	WNW 4	14.26	34.093
2	c	15.5	—	N 1	19.81	33.722	2	o	9.3	—	WNW 4	12.99	34.140
3	r	12.1	0.3	NE 1	21.30	33.609	3	b	8.6	—	NE 1	15.10	34.016
4	c	18.0	22.5	— 0	21.00	33.650	4	b	8.7	—	— 0	15.46	33.667
5	b	19.6	—	NW 1	20.75	33.915	5	b	9.5	—	— 0	16.22	33.899
6	o	20.7	—	S 1	20.95	33.909	6	b	14.5	—	— 0	16.79	33.796
7	bc	18.3	1.0	NW 2	20.13	33.784	7	c	15.4	—	— 0	17.60	33.837
8	o	14.3	—	N 1	19.60	33.769	8	bc	13.0	56.5	NW 3	17.36	33.796
9	c	14.0	—	N 1	19.60	33.787	9	b	8.6	—	— 0	16.64	34.337
10	r	16.8	3.2	NW 1	20.10	33.964	10	b	10.8	—	— 0	18.12	34.359
11	b	16.5	18.1	NW 2	19.07	33.402	11	b	10.0	—	— 0	18.59	34.350
12	b	14.4	—	— 0	19.18	33.428	12	r	17.5	4.1	SSE 4	17.64	34.193
13	b	14.1	—	— 0	19.26	33.392	13	o	6.5	26.8	WNW 4	14.65	34.349
14	bc	16.2	—	NW 1	19.78	33.763	14	bc	6.5	—	WNW 4	13.72	34.340
15	r	18.6	45.0	E 1	19.91	32.720	15	b	7.9	—	N 1	15.79	34.542
16		18.2	48.2				16	bc	7.8	—	NW 1	16.87	34.432
17	bc	17.5	—	NW 2	20.61	34.436	17	o	7.9	—	NW 1	17.70	
18	c	15.7	—	NW 3	17.82	33.417	18	o	14.2	1.2	NW 2	17.62	34.226
19	b	11.4	—	— 0	16.97	32.750	19	o	7.9	—	NW 2	14.94	34.441
20	o	15.0	—	NE 2	18.54	33.652	20	bc	7.5	—	NW 2	14.30	34.533
21	bc	12.1	1.0	WNW 4	18.40	34.044	21	bc	8.6	—	NE 2	14.74	34.222
22	o	10.3	—	N 3	16.79	34.055	22	c	7.6	—	NE 1	15.80	34.489
23	o	10.2	—	NW 1	17.26	33.912	23	r	12.3	1.8	NE 1	16.85	34.370
24	bc	10.1	3.8	WNW 3	17.74	33.938	24	c	14.4	33.9	N 1	18.82	34.352
25	bc	9.7	—	2	16.12	34.864	25	o	11.3	—	NW 3	16.84	34.522
26	b	10.7	—	NW 2	16.73	34.534	26	b	10.3	—	NW 1	16.95	34.521
27	b	14.4	0.2	SW 2	16.60	34.391	27	b	9.1	—	— 0	16.56	34.513
28	o	9.6	—	NW 2	15.61	34.294	28	o	13.8	—	NE 1	17.32	34.570
29	o	13.8	—	NE 1	15.07	34.292	29	r	10.8	10.1	— 0	17.47	34.522
30	c	12.1	—	— 0	15.76	33.743	30	bc	6.9	1.9	NW 3	14.90	34.523
							31	o	6.9	—	NW 1	16.60	34.578
mean		14.5			18.64	33.826	mean		10.0			16.30	34.284