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IX. OCEANOGRAPHIC AND ENVIRONMENTAL ASPECTS OFF TOKAI REGION

Ken Ikehara, Hajime Katayama, Yoshiki Saito, Osamu Ishizuka, Masatoshi Komiya, Izuru Kogame and Toru Nakasone***

Introduction

Bottom sediments have recorded the long-term, averaged history of deposition and erosion, and of dispersal pattern of materials. Those are difficult to detect by usual oceanographic measurements, because sediments are final state of transported materials (Hoshino, 1958; Ikehara, 1993). As materials derived from rivers have been transported depending on water circulation, it is possible to infer the water circulation pattern of an area from sedimentological data. Therefore, sediment analysis is an important tool to clarify transport of materials and water circulation pattern, in particular, in an area where current measurement data are very limited (Ikehara, 1992). To clarify more precise relationship between sedimentation and oceanographic conditions, basic information on both sediments and oceanographic data are needed.

To understand the oceanographic background of sedimentation off Tokai region, several kinds of measurements were carried out (Table IX-1). Here, we would like to show some results of these measurements.

Methods

Temperature and electric conductivity of surface and bottom (1.5 m above the sea bottom) water was measured by using a thermometer and digital conductivity meter (Central Kagaku UC-36) at the same time of sediment sampling by a grab sampler. To understand the relationship between salinity and conductivity, salinity was measured by digital salinometer (Tsurumiseiki E-202). Temperature profiling by bathythermograph was carried out for the station of water depth shallower than 2000 m. Temperature, pH and oxidation-reduction potential (ORP) of surface sediments have also been measured at all stations of sediment sampling by a thermometer and digital pH/ORP meter (Shibata POT-200M) with a pH/ORP electrode. Dissolved oxygen concentration (DO) was measured by a digital DO meter (Toa Kagaku DO-14P).

Bottom water turbidity was estimated from sea bottom photography. Judging from degree of recognition of sea floor, we classified turbidity into 4 degrees. That is, Turbidity 0: no suspended particle or very clear bottom photograph, Turbidity 1: a few suspended particles but recognizable sea bottom, Turbidity 2: many suspended particles and sea bottom hard to recognize, and Turbidity 3: many suspended particles and unrecognizable sea bottom. Also from sea bottom photography, distribution of

* Hokkaido University

** Kawasaki Geological Engineering Co., Ltd.

Keywords: coastal water, oxidation-reduction potential, turbidity, off Tokai

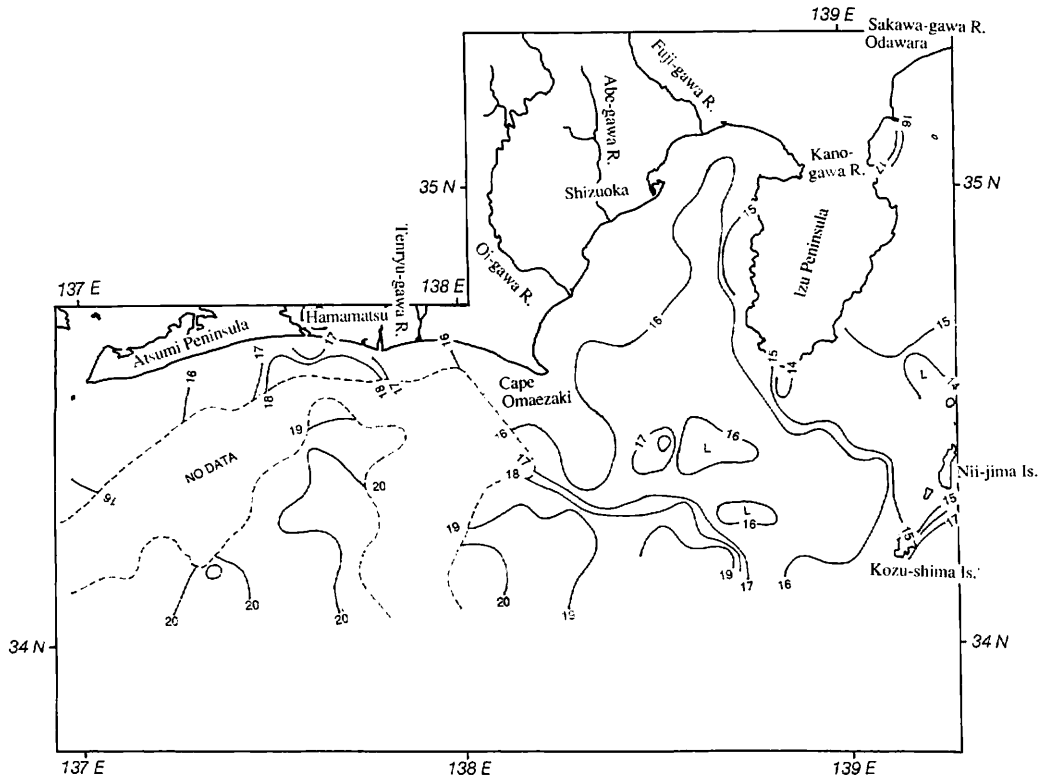

Fig. IX-1 Spatial distribution of surface water temperature (°C).

benthic organisms was described.

Temperature and conductivity of surface water

Temperature of surface water is 14-20 °C, and lower at the coastal area than offshore area (Fig. IX-1). Electric conductivity is 48.5-51.0 mS/cm, and lower at the coastal water (Fig. IX-2). Because of clear positive relation between electric conductivity and salinity (Fig. IX-3), lower electric conductivity indicates fresh water input from large rivers such as Abe-gawa, Oi-gawa, Tenryu-gawa Rivers. Electric conductivity of surface water at the coastal water corresponds to salinity of 32-33 per mil (Fig. IX-3).

In the Suruga Bay, electric conductivity of surface water in the western and northern area is lower than that in the eastern area (Fig. IX-2). Large rivers, Abe-gawa, Oi-gawa, Fuji-gawa and Kano-gawa Rivers exit in the western and northern side, but no large rivers in the eastern side. Spatial difference in fresh water input to the Bay makes the difference of coastal water development between the western-northern area and the eastern area. The coastal water development might have a role in influencing to water circulation in the Bay, and further to dispersal patterns of terrigenous fine-grained materials (Ikehara *et al.*, 1996). Further studies coupled with bottom sediment analysis is necessary, however.

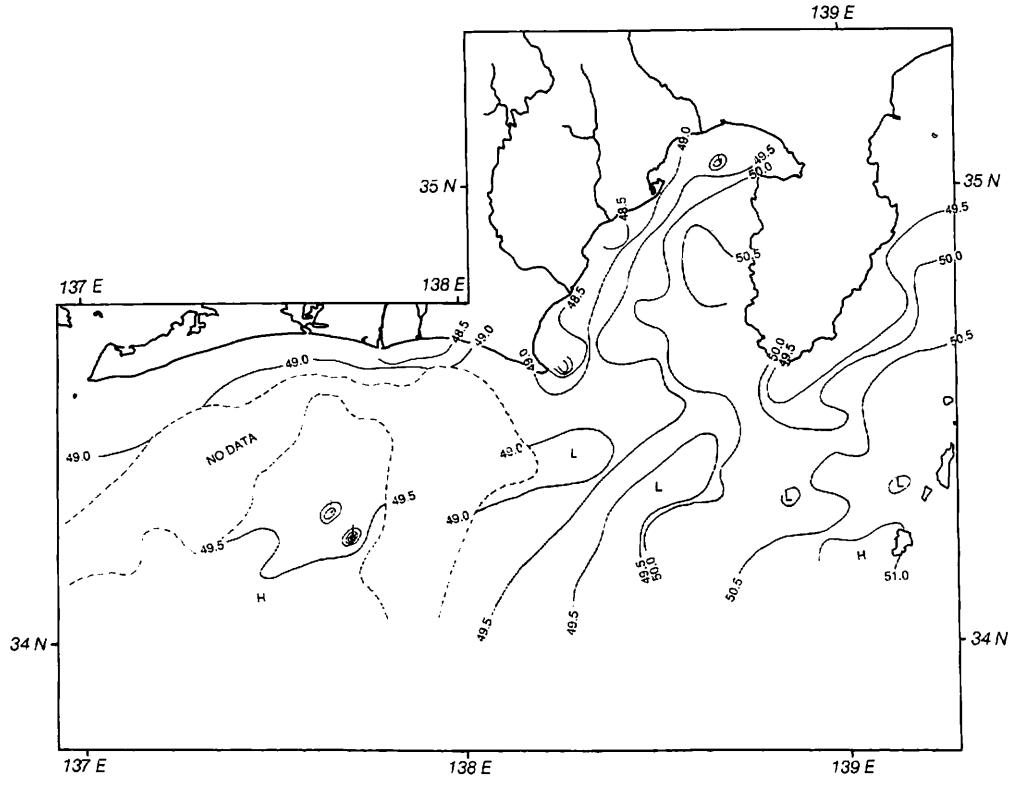

Fig. IX-2 Spatial distribution of surface water electric conductivity (mS/cm).

Temperature and ORP of surface sediments

Surface sediment temperature ranges from 3 °C to 15 °C, and decreases with increasing water depth (Fig. IX-4). ORP shows positive value, which indicates oxidized bottom condition, except in the Suruga Bay and the northwestern part of Sagami Bay (Fig. IX-5). In general, the values are lower at the muddy bottom than sandy bottom, but they show higher values where semiconsolidated mud or basement rocks occur below thin surface sediment cover. Negative values were found in the Suruga Bay, the northwestern part of Sagami Bay and the Tenryu Submarine Canyon. Especially in the northern part of Suruga Bay, Suruga Trough and Senoumi Basin, the values were lower than -100 mV indicating reductional bottom environments. These low values might be resulted from higher supply of terrigenous organic materials and of marine organic materials produced in the surface water. Occurrence of diatomaceous ooze in sediment samples of the Suruga Trough suggests high primary productivity related to spring bloom which might be origin of the reductional bottom environments.

Bottom water turbidity

Sea bottom photographs suggested the occurrence of large amount of suspended

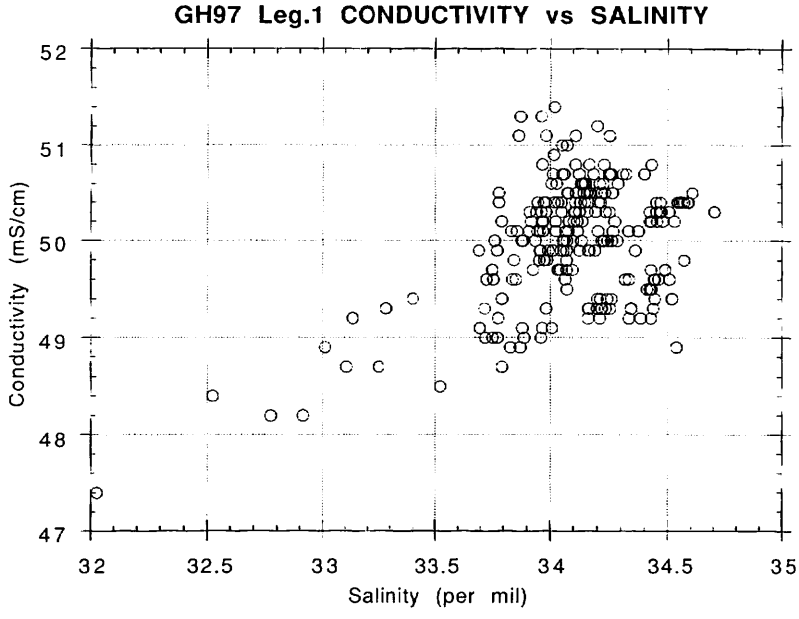

Fig. IX-3 Relationship between electric conductivity and salinity.

materials in the bottom water at the northern Sagami Bay, W-NW of Kozu-shima Island, outer shelf off Atsumi Peninsula, and Suruga Bay (Fig. IX-6). Particulate matters are large in the Sagami and Suruga Bay and W-NW of Kozushima Island. High primary productivity in surface water (spring bloom) produced much detritus in April and May. Diatomaceous ooze, products of the spring bloom, was found in the surface sediments. Therefore, most probable origin of high turbidity is thought to be high primary productivity of the surface water. On the other hand, high turbidity on the outer shelf off Atsumi Peninsula might be another reason, because the high turbidity was found in summer (August), when primary productivity was not high. Large waves, generated by southern tropical low, occurred at the summer survey. Therefore, there is a possibility that waves or wave-induced bottom currents agitated the bottom.

Benthic organisms

Some benthos were found in sea bottom photographs (Fig. IX-7). Most popular benthos is brittle stars, a detrital feeder. They occurred in the slopes and basins. Sea urchin was found at the northern Sagami Bay, the northern Suruga Bay and off Atsumi Peninsula.

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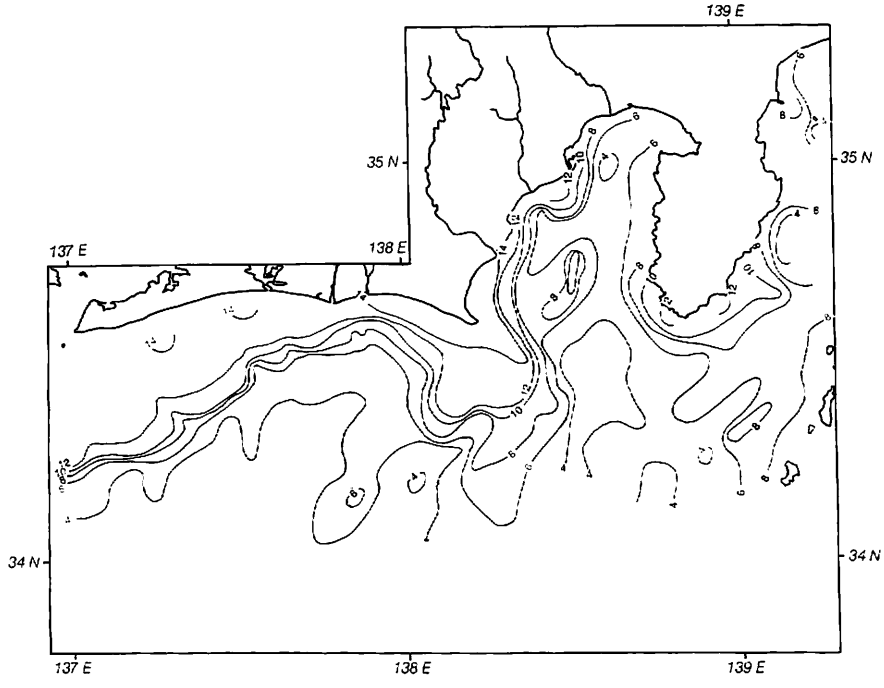

Fig. IX-4 Spatial distribution of sediment temperature (‰).

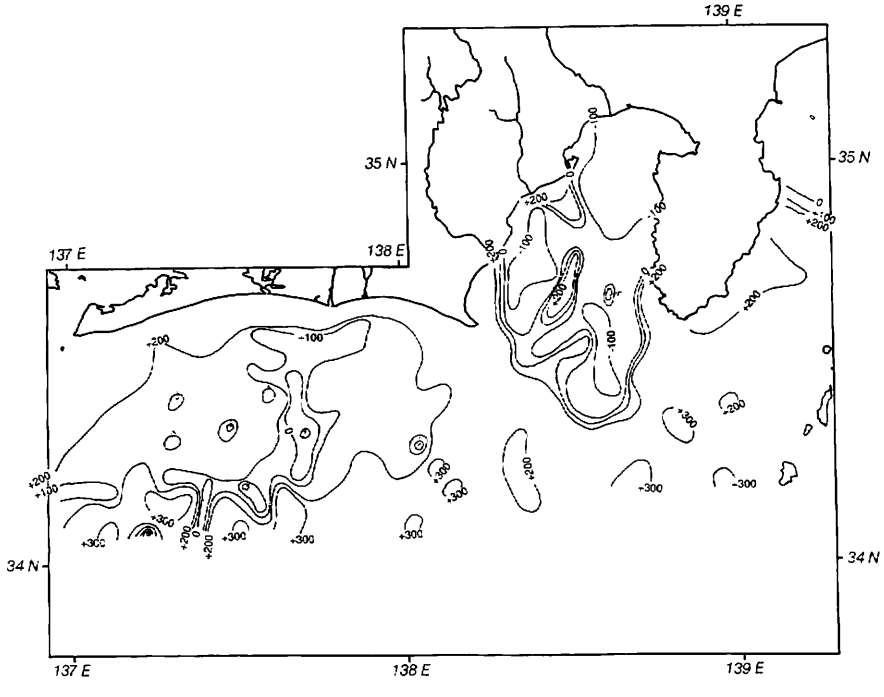

Fig. IX-5 Spatial distribution of ORP.

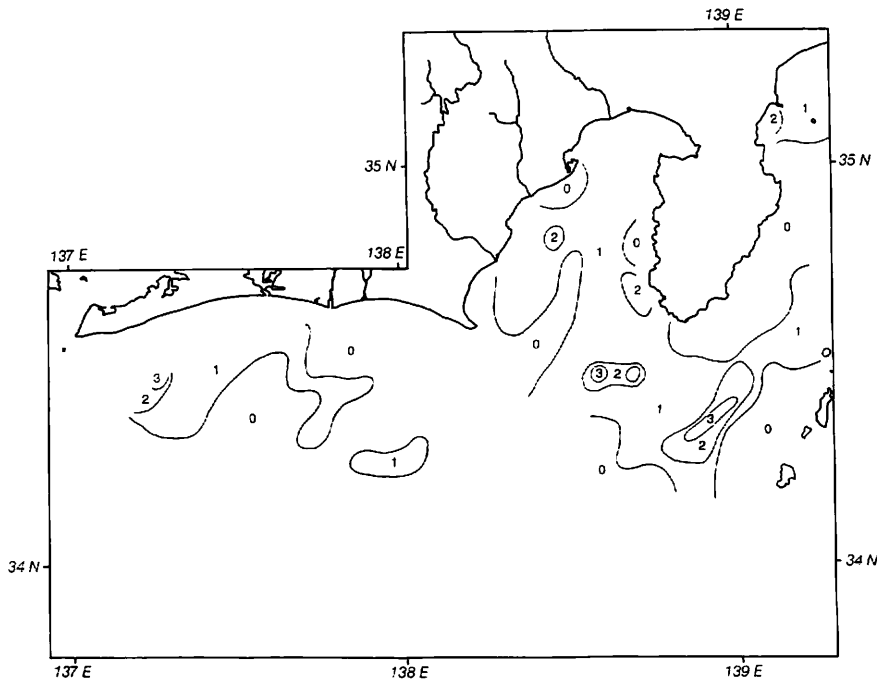

Fig. IX-6 Spatial distribution of bottom water turbidity.

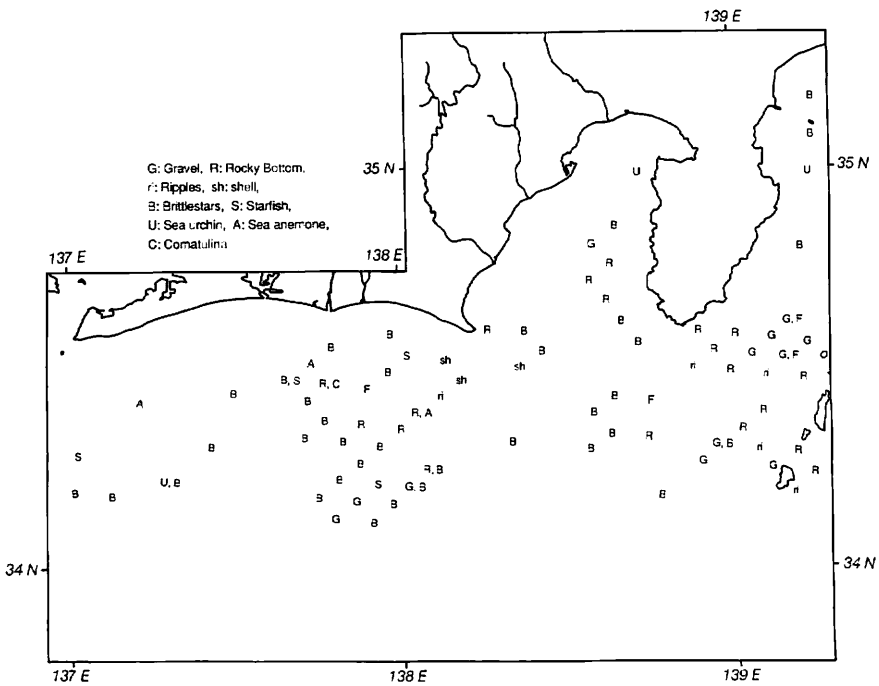

Fig. IX-7 Spatial distribution of benthic organisms and bottom features.

Table IX 1 Results of temperature (°C), conductivity (mS/cm), salinity (‰), pH, ORP (mV) and DO (ml/l) measurements

Station No.	Water Depth	Temp(SW)	Temp(BW)	Temp(BT)	Temp(Sed)	pH	ORP	Cond(SW)	Cond(BW)	Sal(SW)	Sal(BW)	DO
55	146	13.4	11.8	11.419	11.8		206	49.3	49.3	34.2	34.163	
40	59	14.5	13.7	13.488				49.3	49.3	34.253	34.217	
30	90	14.6	13.3	13.146	13.5	7.9	194	49.3	49.4	34.234	34.201	
21	109	15.0	11.9	12.553	11.6	7.51	161	49.2	49.3	34.21	34.219	
14	400	15.3	8.8	6.973	9	7.39	194	49.3	49.1	34.343	33.966	
11	570	15.2	7.4	5.497	3.1	7.14	195	49.2	49	34.333	33.96	
9	830	15.8	5.6	3.535	3.7	7.23	215	49.6	49.5	33.725	34.072	
8	690	15.9	5.4	4.237	6.9	7.23	21	49.7	50.4	33.752	34.033	
1	640	15.3	6.2	4.741	4.9	7.37	-53	49	49.3	33.721	33.983	
2	740	15.7	5.7	4.165	4.2	7.4	-113	49.3	49.7	33.718	34.031	
3	375	15.7	9.0	7.675	8.5	7.27	-79	49.4	49.8	33.794	33.976	
5	431	17.5	8.5		7.2	7.38	-71	49.2	49.8	33.777	33.953	
4	840	15.9	6.4		3.9	7.35	-96	49.1	50	33.881	34.096	
6	422	15.4	8.3		7.5	7.19	-74	49	50.1	33.753	33.944	
7	655	15.6	6.3					49	50.8	33.774	33.966	
56	700	14.3	5.8	4.525	4.7	7.47	213	49.9	49.6	34.161	34.064	
41	125	14.3	12.5	11.851				50	49.9	34.167	34.226	
31	290	14.4	9.7					50.1	49.8	34.265	33.973	
22	424	14.7	13.5		8.6	5.55	288	50	50	34.259	34.242	
15	439	15.3	7.7		10.3	7.39	229	49.9	49.7	34.189	33.926	
12	558	15.3	7.1		5.5	7.35	194	50	50.1	34.218	33.97	
10	594	15.4	7.4					50.2	50.1	34.102	33.954	
13	465	14.5	7.5	6.631	7.1	7	220	50.3	50.3	34.251	33.961	
16	505	13.8	7.2	6.289	7.7	7.36	223	50.7	50.4	34.254	33.971	
23	493	14.5	10.0	6.595	7.2	7.42	279	50.6	50.7	34.287	34.06	
24	425	14.1	7.8	6.613	7.7	7.36	234	50.7	51.1	34.323	33.982	
17	530	13.7		7.927	8.7	7.33	245	50.7		34.259		
42	600	14.3	6.6	5.389				49.9	50.1	34.126	33.97	
32	465	14.4	7.4	6.001	7.4	7.33	225	50.5	50.2	34.171	33.97	
33	535	14.3	7.5	6.253	6.6	7.54	254	50.5	50.3	34.168	33.982	
34	340	14.4	9.3	8.665				50.5	50.3	34.219	34.049	
25	155	14.1	13.0	12.679				50.5	50.5	34.262	34.231	
35	282	14.1	11.5	10.861	10.4	7.53	235	50.5	50.4	34.264	34.161	
45	453	14.4		6.307	9.5	7.79	231	50.4		34.205		
46	116	14.3	13.2	12.751				50.7	50.6	34.248	34.21	
47	157	17.4	12.4	12.265	15	7.05	240	50.8	50.7	34.431	34.184	
62	87	17.1		13.902	16.1	7.31	248	50.7		34.4		
63	610	15.3	6.5	5.263	5.5	7.26	-134	48.2	49.9	32.913	34.01	
48	66	15.2	13.6	13.452	13.3	7.25	231	48.9	50.3	33.01	34.234	
36	275	15.7	9.4	8.917	9	7.24	-129	49.2	49.9	33.132	33.991	
27	983	15.5	6.0	3.571	3.7	7.61	-144	49.9	50.3	34.046	34.156	
26	695	15.7	6.5	4.417	7.2	7.18	-82	50	50.5	33.761	34.077	
26 -2			6.9	4.525					50.5		34.073	
18	610	15.9	6.7	5.119	5.7	7.23	-123	49.4	50.2	33.4	34.023	
13.5	772	15.6	6.4	4.471	4.6	7.27	-115	49.3	50.7	33.283	34.061	
20	622	15.1	7.0	5.299	7.1	7.26	-133	50.1	50.4	34.023	34.047	
29	515	14.9	7.4	5.875	6.1	7.33	-109	50.3	50.7	34.103	34.012	

Table IX-1 (continued)

Station No.	Water Depth	Temp(SW)	Temp(BW)	Temp(BT)	Temp(Sed)	pH	ORP	Cond(SW)	Cond(BW)	Sal(SW)	Sal(BW)	DO
39	459	14.7	7.7	6.631	6.9	7.18	-80	50.7	50.9	34.124	34.014	
77	735	15.4	6.2	4.525	4.8	7.34	-132	49.1	49.7	33.697	34.071	
89	295	15.5	10.3	9.655	10.3	7.28	-131	48.7	49.7	33.25	34.036	
101	37	15.6	14.5	14.136	14.4	7.38	249	48.7	50	33.103	34.133	
112	30	15.9	14.4	13.794				47.4	49.9	32.027	34.071	
102	252	16.1	10.6	9.853	10.4	7.31	-127	48.2	49.8	32.772	33.986	
90	510	15.7	7.7	6.397	6.7	7.26	-85	49.6	49.9	33.756	33.958	
78	467	15.2	7.8	6.649	7.2	7.38	-118	50	49.9	34.053	33.953	
65	223	15.2	11.1	10.321	10.8	7.27	261	49.9	50	34.057	34.06	
64	936	15.1	5.4	3.643	4.3	7.25	-25	49.6	50.1	33.838	34.077	
49	616	15.2		4.975	5.5	7.14	166	50		33.883		
111	1460	16.1	4.5	2.689	2.9	7.27	274	50.7	50.4	34.307	34.214	
110	1945	16.6	4.2		2.5	7.52	302	50.2	50.6	34.273	34.224	
98	1690	15.7	5.3	2.563	5.4	7.51	242	50.3	50.6	34.171	34.151	
99	1294	16.2	5.5	3.013	4.6	7.35	276	50.6	51	34.141	34.051	
100	1025	15.7	5.5	3.301	4.7	7.3	299	50.5	50.7	34.157	34.052	
88	835	17.0	5.8	3.841	4.3	7.21	308	51.1	51.3	34.252	33.962	
75	660	16.4	6.2	4.237	6.5	7.17	279	50.8	51.3	34.228	33.872	
76	88	15.9	14.7	14.766				51.2	51.1	34.2	34.109	
61	70	15.8	14.4	14.244	14.3	6.76	249	51	50.6	34.072	34.005	
60	530	16.1	6.9	5.731	6.3	7.66	254	50.8	50.4	34.109	33.779	
59	139	16.2	12.7	12.085				50.5	50.4	34.11	33.979	
44	180	16.1	11.7	11.005				50.6	50.3	34.131	33.911	
43	753	14.9	6.1	2.959	5.7	7.42	219	50.1	50.1	34.023	33.858	
87	1330	17.4	5.5	6.019	3.3	7.61	237	50.2	50.2	34.135	33.965	
74	495	16.6	7.5	2.869	8.2	7.08	202	50.2	49.9	34.115	33.772	
73	1200	16.5	6.8	3.013				50.5	50.2	34.143	33.792	
73 -2			4.7						50.4		33.945	
58	905	17.0	5.7	3.823	4.5	7.28	157	50.6	51.1	34.148	33.865	
57	860	17.0	6.2	4.237	7.8	7.37	293	50.4	49.6	34.147	33.853	
86	1470	16.3	4.6	2.761	4.4	7.46	303	49.8	49.9	34.071	33.991	
85	1390	16.3	4.6	2.743	6.5	7.45	315	50	49.9	34.071	34.012	
72	1112	16.4	4.7	3.049	7.1	7.45	254	50.1	49.9	34.117	33.957	
71	720	16.4	5.9	4.309	5.3	6.8	290	50.2	49.8	34.117	33.845	
70	505	16.6	8.1	6.667				50.3	49.9	34.125	33.692	
69	807	16.3	5.5	4.093	4.2	7.42	-59	50.4	50	34.13	33.878	
54	145	15.5	12.4	12.247	12.7	7.27	270	50.1	50.1	33.968	33.968	
53	200	15.7	14.6	11.149	11.8	7.41	291	50.2	50	33.918	33.935	
68	1340	16.2	6.8	2.977	4.2	7.28	-112	50.4	50.1	34.107	33.833	
81	2557	16.5	4.6		3.5	7.25	-124	50.3	50.2	34.108	34.081	
19	1125	16.5						48.4		32.524		
28	1343	17.8	5.4		4.4	7.64	-159	50.1	50.4	34.066	34.017	
37	865	17.0	5.7		4.5	7.94	-128	50.6	50.3	34.136	33.94	
38	1324	16.6	5.1		5.3	7.6	-145	50.8	50.6	34.166	34.028	
50	1280	15.6	5.1					50.5	50.9	33.779	34.016	
50 -2			4.8						51.4		34.017	
51	1310	16.2	5.6		4.5	7.29	-35	50.5	49.7	34.194	34.044	

Table IX-1 (continued)

Station No.	Water Depth	Temp(SW)	Temp(BW)	Temp(BT)	Temp(Sed)	pH	ORP	Cond(SW)	Cond(BW)	Sal(SW)	Sal(BW)	DO
120	2100	19.4	4.8		7.3	8.03	323	50.3	50.2			
97	990	16.6	4.5	3.193				50.2	50.1			
96	990	16.2	4.6	3.463	3.8	7.27	162	50.2	50.1			
84	605	15.7	6.6	4.975				50.2	50			
109	1550	15.3	4.4		5.9	7.34	247	50.3	50.3			
119	2440	18.0	4.0					50.4	50.4			
127	3455	19.0	3.9					50.5	50.5			
118	1537	18.4	4.8		4.5	7.28	297	50.4	50.3			
66	1265	17.8	4.5					50.4	50.4			
52	386	16.1	9.3		8.5	7.5	-75	50.3	50.1			
67	1140	16.9	5.1		4.2	7.48	195	50.4	50.3			
80	1573	16.6	4.5		4.5	7.82	-134	50.4	50.4			
79	293	16.4	10.3		10.4	7.31	266	49.9	50			
91	95	16.0	13.1		8.2	7.5	241	49.7	50.2			
108	1256	16.7	5.0		5	7.83	282	48.9	49.2			
107	1924	15.9	4.3		2.9	7.85	-55	49.2	49.4			
95	1520	15.7	4.6		3.1	8.95	-136	49.3	49.4			
84	608	15.7	6.7		6.5	7.92	260	49.5	49.3			
83	945	16.1	10.4		5.3	7.35	208	49.6	49.5			
82	1640	16.2	4.5		3.8	7.32	-48	49.6	49.6			
94	2765	15.9	4.1		2.7	7.46	-171	49.6	49.8			
135	445	16.4	8.5		12.7	7.2	185	49.6	49.3			
134	335	15.7			10.5	7.47	256	48.7				
124	110	15.5	13.0					48.5	49.5			
123	82	15.7						48.9				
133	105	16.0	13.7		13.5	7.82	255	48.9	49.7			
132	58	16.3						49.4				
122	75	15.6			3.9	7.58	285	49.1				
121	40	15.8	14.7		14.5	7.7	220	49	49.6			
131	87	15.8	13.6		13.1	7.35	270	49.4	49.6			
130	72	15.8	14.5		14.1	7.31	278	49.2	49.7			
129	30	15.4	14.6		14.6	7.55	263	49.4				
92	1100	16.5	8.8		4.5	6.91	-94	48.6	49.2			
104	970	16.4	6.0		3.8	7.21	-6	49.1	49.5			3.69
103	368	16.5			8.8	6.8	-73	49.2				
113	57	16.0	12.7		14	7.44	202	49.4	49.7			6.1
114	67	16.0	12.3		14	7.07	20	49.4	49.8			7.45
115	950	16.0	5.3					49.3	49.7			4.34
93	2072	16.8			2.3	6.84	230	49.3				
105	2035	16.0			2.4	6.76	10	49.2				
106	2715	18.6	4.8		2.8	7.4	-19.4	49.6	49.8			5.3
116	2431	17.8	5.6		8	6.76	271	49.8	50.1			6.54
116-2									50.1			
125	926	16.5	5.6		7.5	7.15	266	49.5	49.8			3.8
117	2770	16.6	4.7		1.9	7.1	218	49.1	49			5.4
126	2345	17.5	6.6		5.5	7.08	254	49	49.1			6.26
136	2175	18.3	6.1					49.1	49.3			5.53

Table IX-1 (continued)

Station No.	Water Depth	Temp(SW)	Temp(BW)	Temp(BT)	Temp(Sed)	pH	ORP	Cond(SW)	Cond(BW)	Sal(SW)	Sal(BW)	DO
137	3339	18.3	5.0					49.2	49.5			6.1
158	2325	18.8			7	7.89	241	49.3				
147	3006	18.6	4.5		5	9.8	141	49.3	49.4			6.11
146	1370	19.5	7.5					49.5	49.4			4.76
157	933	19.8	5.6					49.5	49.3			2.9
156	1473	19.9	7.6		8	7.44	251	49.4	49.4			4.34
145	295	19.6	11.6					49.5	49.2			5.54
144	618	18.3	7.2		6.1	6.76	260	49.5	49.2			3.85
169	2140	19.5	5.6		4.5	7.38	234	49.5	49.6			6.32
168	1752	19.5	5.4		4.9	6.36	298	49.6	49.5			5.97
167	1596	19.2	6.5		5.1	6.65	337	49.4	49.4			5.28
138	51	16.5	14.5		14	7.63	215	48.1	49.2			8.1
149	285	16.6	9.3		9.8	7.11	-109	48.6	49			
148	102	16.6	13.4		13.1	6.89	205	48.3	49.3			
159	87	18.4			13	7.13	239	49				
171	77	18.9	18.6		13.2	7.15	270	49.1	49.1			
170	43	16.8			13.8	6.19	340	48.5				
182	50	18.8			14.2	6.97	293	49				
193	64	16.6			13.1	7.18	206	49.3				
204	75	16.3			12.6	7.08	278	49.3				
203	40	16.1			13.9	7.2	210	48.8				
213	42	16.0			14.5	6.2	190	48.8				
223	56	15.8	13.3		13	7.36	271	48.8	49.3			6.93
232	48	15.6	13.5		13.6	6.86	255	48.9	49.3			6.11
240	51	15.5	13.5		13.6	7.31	260	49	49.4			6.5
247	61	15.4			13.5	7.1	285	49.5				
253	73	16.7	13.7		13.7	7.06	236	49.4	49.5			5.28
262	1410	19.6	4.8		3	6.94	263	49.6	49.5			4.92
260		19.4	4.7		4.5	6.51	255	49.5	49.4			4.98
261	1625	19.3	4.5		2.8	5.33	387	49.5	49.5			5.39
257	1517	19.2	4.6		2.6	6.75	270	49.6	49.6			5.34
258	1765	19.1	4.9		2.8	7.32	-110	49.6	49.7			5.35
250	1050	18.6	5.1		3.3	7.35	294	49.6	49.5			
251	1400	19.3	4.7		4.5	6.83	301	49.6	49.5			
252	1385	20.2	4.7		3	6.77	353	49.6	49.5			
245	1252	21.4	9.9		3.2	7.06	310	49.6	49.5			
246	1406	20.3	4.4		2.9	6.36	-50	49.6	49.5			
238	1377	19.8	4.3		2.9	7.23	215	49.4	49.5			
239	1344	19.7			2.9	6.74	302	49.5				
237	1208	19.6	4.4		3	7.19	-20	49.5	49.5			
228	1211	19.4	4.6		3	6.73	309	49.5	49.4			
229	1321	19.5	4.5		3	7.21	-104	49.5	49.4			
230	1730	19.8			3.7	7.33	-30	49.5				
231	1225	19.8	9.7		3.2	7.13	320	49.6	49.3			
222	732	20.2	13.8		4.8	6.85	254	49.6	49.3			
221	1030	20.1	4.8		3.2	5.74	307	49.6	49.4			
220	1291	19.5	4.6		4.5	5.53	314	49.5	49.5			

Table IX-1 (continued)

Station No.	Water Depth	Temp(SW)	Temp(BW)	Temp(BT)	Temp(Sed)	pH	ORP	Cond(SW)	Cond(BW)	Sal(SW)	Sal(BW)	DO
219	1589	19.6	4.2			6.24	70	49.4	49.6			
199	930	20.2	5.3		3.7	7.33	107	46.6	49.4			3.21
210	1100	20.1	6.8		3.5	7.02	-40	46.6	49.4			4.3
209	1475	20.2	6.3					48.1	49.5			4.16
208	1065	20.0	6.3		3.9	6.88	180	49.3	49.4			3.82
218	1163	20.4	5.3		4.7	6.8	265	49.4	49.4			3.89
217	1077	19.8	7.1		3.4	6.85	-40	49.3	49.4			3.79
207	735	19.9	6.0		4.7	6.87	170	49.4	49.4			3.59
196	685	20.0	7.6		5.6	6.81	265	49.1	49.4			3.51
197	1170	20.5	5.2			6.35	-20	49.3	49.4			3.35
180	1385	20.3	6.6		3	7.42	285	49.3	49.1			4.14
192	1260	20.4	4.5		3.9	6.88	340	49.4	49.3			5
191	887	20.6	6.0		3.9	7.19	290	49.4	49.2			3.14
179	902	20.6	5.4		4.1	7.16	328	49.2	49.1			3.33
166	1141	19.8	7.2		3.7	7.07	322	49.3	49.3			3.63
198	1317	20.4	4.7		8.8	7.34	-135	49.3	49.2			4.01
184	291	18.7	8.6		8.7	7.22	316	48.9	48.9			6.3
185	666	19.4	6.2		5.2	7.4	-15	49.2	49			3.47
186	725	19.6	6.3		4.2	7.02	306	49.1	48.8			3.32
174	656	19.5	7.3					49.3	49			3.71
165	1080	18.3			3.3	7.43	-62	49				
154	400	18.5	8.3		8.9	7.63	210	48.6	48.9			4.76
155	1255	19.5	4.6		3.5	8.14	280	49	48.9			3.71
143	153				13.5	7.3	231					
142	97				16.7	8.23	171					
141	360				8	7.41	221					
140	324				11	7.33	78					
172	171				12	7.54	13					
183	116				13.8	7.68	46					
194	155											
205	161				12.6	7.91	152					
215-2	164				12.8	8.05	125					
214	90				14	8.05	184					
224	96				14.6	8.12	185					
225-2	168				11.8	7.85	18					
234	158				11	8.06	176					
233-3	98				16.6	7.99	196					
254	153				14.2	7.47	191					
259	680				4.2	7.58	62					
255	394											
249	283											
248	111				14	7.87	139					
241	102				13.6	7.77	182					
242	198				11	7.61	164					
243-2	465				6.1	7.75	152					
235-2	360				8	7.95	218					

Table IX-1 (continued)

Station No.	Water Depth	Temp(SW)	Temp(BW)	Temp(BT)	Temp(Sed)	pH	ORP	Cond(SW)	Cond(BW)	Sal(SW)	Sal(BW)	DO
236	818											
212-4	487											
211-4	897											
256	1187				3.2	7.72	68					
244	961				3.3	8.1	81					
227	1114				4	8.46	130					
226	755				6.5	7.9	135					
216	267				12.7	8.02	129					
206	274				11.2	7.83	138					
196	465				5.2	8.01	15					
173	567				5.3	8.28	98					
160	273				9.5	7.72	34					
161-2	713				5.2	8.29	193					
150	460				6	8.15	136					
139	195				10.5	7.89	122					
151	621				5.3	8.02	115					
162	807				4.1	7.88	185					
175	916				3.6	7.61	113					
187	1000				3.6	8	30					
188	771				4.3	7.89	145					
176	480											
152	442				6	8.18	170					
163	516				5.6	8.03	167					
164	551				5.6	8.22	179					
177	632				5.2	8.24	129					
178	869				3.5	8.27	187					
190	838				3.5	8.28	239					
189	771				4	7.54	208					
200	842				3.5	7.71	168					
201	512				7.6	7.93	213					
202	921				3.5	7.76	219					