

1 Appendix 1. Temperature, salinity, total  $^{234}\text{Th}$  and  $^{238}\text{U}$  activities on the expedition  
 2 BGH.

Depth m	Cast	T °C	Salinity	$^{234}\text{Th}_{\text{total}}$ dpm L <sup>-1</sup>	$^{238}\text{U}$ dpm L <sup>-1</sup>	$^{234}\text{Th}/^{238}\text{U}$
Station BGH/Super1 36.5°S, 13.10°E						
3	22	21.2	35.55	1.84 ± 0.15	2.50 ± 0.04	0.74 ± 0.06
19	22	20.8	35.54	2.03 ± 0.10	2.50 ± 0.04	0.81 ± 0.04
29	22	20.3	35.57	1.90 ± 0.08	2.50 ± 0.04	0.76 ± 0.03
60	22	18.6	35.51	2.57 ± 0.09	2.50 ± 0.04	1.03 ± 0.04
80	22	15.6	34.95	2.19 ± 0.12	2.46 ± 0.04	0.89 ± 0.05
100	22	14.2	34.88	2.18 ± 0.12	2.46 ± 0.04	0.89 ± 0.05
124	22	15.3	35.33	2.69 ± 0.14	2.49 ± 0.04	1.08 ± 0.06
150	22	14.7	35.34	2.53 ± 0.12	2.49 ± 0.04	1.01 ± 0.05
175	22	13.9	35.22	2.51 ± 0.12	2.48 ± 0.04	1.01 ± 0.05
199	22	13.2	35.12	2.41 ± 0.12	2.47 ± 0.04	0.98 ± 0.05
249	22	12.6	35.09	2.59 ± 0.17	2.47 ± 0.04	1.05 ± 0.07
300	22	11.9	35.01	2.45 ± 0.11	2.47 ± 0.04	1.00 ± 0.05
349	22	11.4	34.94	2.56 ± 0.09	2.46 ± 0.04	1.04 ± 0.04
400	22	10.6	34.85	2.46 ± 0.19	2.45 ± 0.04	1.00 ± 0.08
450	22	10.0	34.80	2.48 ± 0.12	2.45 ± 0.04	1.01 ± 0.05
500	22	9.1	34.69	2.45 ± 0.15	2.44 ± 0.04	1.00 ± 0.06
600	22	7.7	34.55	2.48 ± 0.10	2.43 ± 0.04	1.02 ± 0.04
700	22	5.9	34.37	2.48 ± 0.08	2.42 ± 0.04	1.02 ± 0.04
850	22	5.0	34.40	2.38 ± 0.18	2.45 ± 0.04	0.97 ± 0.08
1000	22	3.9	34.42	2.48 ± 0.10	2.45 ± 0.04	1.01 ± 0.04
Station BGH/Large2 41.18°S, 9.92°E						
8	38	15.3	34.73	1.94 ± 0.08	2.48 ± 0.04	0.78 ± 0.04
50	38	12.8	34.89	2.46 ± 0.13	2.49 ± 0.04	0.99 ± 0.05
100	38	10.7	34.67	2.35 ± 0.11	2.47 ± 0.04	0.95 ± 0.05
150	38	10.0	34.64	2.50 ± 0.10	2.47 ± 0.04	1.01 ± 0.04
300	38	7.7	34.42	2.42 ± 0.10	2.45 ± 0.04	0.99 ± 0.04
2600	37	2.4	34.82	2.49 ± 0.08	2.48 ± 0.04	1.00 ± 0.04
4401	37	1.1	34.72	2.37 ± 0.09	2.48 ± 0.04	0.96 ± 0.04
4570	37	1.1	34.72	2.25 ± 0.08	2.48 ± 0.04	0.91 ± 0.04
Station BGH Super2 42.28°S, 8.56°E						
10	43	12.0	34.21	1.89 ± 0.08	2.44 ± 0.04	0.78 ± 0.03
40	43	13.3	34.65	1.90 ± 0.08	2.47 ± 0.04	0.77 ± 0.04
75	43	12.3	34.86	2.44 ± 0.08	2.49 ± 0.04	0.98 ± 0.04
100	43	10.6	34.68	2.43 ± 0.11	2.47 ± 0.04	0.98 ± 0.05
125	43	10.0	34.59	2.71 ± 0.11	2.47 ± 0.04	1.10 ± 0.05
175	43	9.3	34.56	2.65 ± 0.09	2.46 ± 0.04	1.08 ± 0.04
200	43	8.6	34.48	2.55 ± 0.08	2.46 ± 0.04	1.04 ± 0.04
225	43	8.1	34.44	2.61 ± 0.08	2.46 ± 0.04	1.06 ± 0.04
250	43	7.6	34.38	2.58 ± 0.10	2.45 ± 0.04	1.05 ± 0.04
275	43	7.0	34.28	2.54 ± 0.09	2.44 ± 0.04	1.04 ± 0.04
300	43	6.7	34.26	2.68 ± 0.11	2.44 ± 0.04	1.10 ± 0.05
330	43	6.6	34.27	2.55 ± 0.12	2.44 ± 0.04	1.04 ± 0.05
360	43	6.4	34.29	2.54 ± 0.08	2.44 ± 0.04	1.04 ± 0.04
400	43	6.0	34.28	2.73 ± 0.09	2.44 ± 0.04	1.12 ± 0.04
450	43	5.4	34.23	2.43 ± 0.12	2.44 ± 0.04	0.99 ± 0.05
500	43	4.9	34.20	2.36 ± 0.07	2.44 ± 0.04	0.97 ± 0.03
600	43	4.3	34.17	2.47 ± 0.12	2.44 ± 0.04	1.02 ± 0.05
700	43	3.8	34.18	2.31 ± 0.07	2.44 ± 0.04	0.95 ± 0.03
850	43	3.3	34.24	2.43 ± 0.10	2.44 ± 0.04	1.00 ± 0.04
1000	43	3.1	34.33	2.48 ± 0.08	2.45 ± 0.04	1.01 ± 0.04
1500	44	2.7	34.60	2.40 ± 0.09	2.47 ± 0.04	0.97 ± 0.04
1500	44	2.7	34.60	2.40 ± 0.13	2.47 ± 0.04	0.97 ± 0.05

1 Appendix 1. continued

Depth m	Cast	T °C	Salinity	$^{234}\text{Th}_{\text{total}}$ dpm L <sup>-1</sup>	$^{238}\text{U}$ dpm L <sup>-1</sup>	$^{234}\text{Th}/^{238}\text{U}$
Station BGH/Large3 44.90°S, 6.88°E						
0	53	9.2	33.89	1.90 ± 0.06	2.42 ± 0.04	0.79 ± 0.03
20	52	9.4	33.91	1.84 ± 0.08	2.42 ± 0.04	0.76 ± 0.04
40	52	9.4	33.91	1.83 ± 0.09	2.42 ± 0.04	0.76 ± 0.04
41	53	9.2	33.90	1.89 ± 0.07	2.42 ± 0.04	0.78 ± 0.03
60	52	9.4	33.91	1.86 ± 0.08	2.42 ± 0.04	0.77 ± 0.04
80	52	7.8	34.30	2.53 ± 0.08	2.45 ± 0.04	1.03 ± 0.04
99	53	7.3	34.27	2.72 ± 0.11	2.44 ± 0.04	1.11 ± 0.05
140	52	6.9	34.29	2.80 ± 0.09	2.44 ± 0.04	1.15 ± 0.04
148	53	6.9	34.32	2.85 ± 0.09	2.45 ± 0.04	1.16 ± 0.04
180	52	6.1	34.21	2.64 ± 0.09	2.44 ± 0.04	1.08 ± 0.04
200	53	5.8	34.23	2.61 ± 0.14	2.44 ± 0.04	1.07 ± 0.06
300	52	4.9	34.17	2.64 ± 0.11	2.44 ± 0.04	1.08 ± 0.05
400	53	4.2	34.14	2.40 ± 0.08	2.43 ± 0.04	0.99 ± 0.04
500	53	3.8	34.17	2.54 ± 0.11	2.44 ± 0.04	1.04 ± 0.05
1000	53	2.8	34.41	2.34 ± 0.11	2.45 ± 0.04	0.95 ± 0.05
2000	53	2.5	34.76	2.42 ± 0.07	2.48 ± 0.04	0.97 ± 0.03
4100	53	0.9	34.70	2.52 ± 0.12	2.47 ± 0.04	1.02 ± 0.05
Station BGH/Large4 46.02°S, 5.87°E						
10	58	7.8	33.74	1.96 ± 0.09	2.41 ± 0.04	0.82 ± 0.04
20	58	7.8	33.74	2.00 ± 0.08	2.41 ± 0.04	0.83 ± 0.03
50	58	7.8	33.74	2.09 ± 0.08	2.41 ± 0.04	0.87 ± 0.04
70	58	7.7	33.75	2.05 ± 0.08	2.41 ± 0.04	0.85 ± 0.04
80	58	6.9	33.85	2.16 ± 0.10	2.41 ± 0.04	0.90 ± 0.04
100	58	5.5	33.97	2.56 ± 0.11	2.42 ± 0.04	1.06 ± 0.05
130	58	5.2	34.01	2.69 ± 0.11	2.43 ± 0.04	1.11 ± 0.05
160	58	5.0	34.06	2.57 ± 0.11	2.43 ± 0.04	1.06 ± 0.05
200	58	4.5	34.06	2.51 ± 0.10	2.43 ± 0.04	1.03 ± 0.05
Station BGH/Super3 47.55°S, 4.37°E						
4	65	6.6	33.70	1.94 ± 0.10	2.40 ± 0.04	0.81 ± 0.04
10	65	6.6	33.70	2.01 ± 0.08	2.40 ± 0.04	0.84 ± 0.04
20	65	6.6	33.70	2.03 ± 0.09	2.40 ± 0.04	0.84 ± 0.04
30	65	6.6	33.71	1.95 ± 0.07	2.40 ± 0.04	0.81 ± 0.03
40	65	6.6	33.71	2.05 ± 0.10	2.40 ± 0.04	0.85 ± 0.04
60	65	6.5	33.71	1.97 ± 0.11	2.40 ± 0.04	0.82 ± 0.05
80	65	6.5	33.71	2.12 ± 0.09	2.40 ± 0.04	0.88 ± 0.04
100	65	6.2	33.73	2.04 ± 0.07	2.40 ± 0.04	0.85 ± 0.03
120	65	4.2	33.83	2.41 ± 0.08	2.41 ± 0.04	1.00 ± 0.04
140	65	4.0	33.87	2.70 ± 0.10	2.42 ± 0.04	1.12 ± 0.04
160	65	4.0	33.93	2.63 ± 0.09	2.42 ± 0.04	1.09 ± 0.04
180	65	3.8	33.94	2.92 ± 0.11	2.42 ± 0.04	1.21 ± 0.05
200	65	3.7	33.98	2.72 ± 0.12	2.42 ± 0.04	1.12 ± 0.05
240	65	3.7	34.06	2.91 ± 0.10	2.43 ± 0.04	1.20 ± 0.04
280	65	3.6	34.10	2.76 ± 0.09	2.43 ± 0.04	1.13 ± 0.04
320	65	3.4	34.12	2.89 ± 0.12	2.43 ± 0.04	1.19 ± 0.05
400	65	3.0	34.14	2.53 ± 0.19	2.43 ± 0.04	1.04 ± 0.08
600	65	2.8	34.26	2.77 ± 0.10	2.44 ± 0.04	1.13 ± 0.05
800	65	2.7	34.39	2.75 ± 0.09	2.45 ± 0.04	1.12 ± 0.04
1000	65	2.6	34.52	2.63 ± 0.09	2.46 ± 0.04	1.07 ± 0.04

2

3

1 Appendix 1. continued

Depth m	Cast	T °C	Salinity	$^{234}\text{Th}_{\text{total}}$ dpm L <sup>-1</sup>	$^{238}\text{U}$ dpm L <sup>-1</sup>	$^{234}\text{Th}/^{238}\text{U}$
Station BGH/Large5 49.03°S, 2.83°E						
5	70	6.0	33.73	1.98 ± 0.06	2.41 ± 0.04	0.82 ± 0.03
5	71	5.9	33.73	1.92 ± 0.06	2.41 ± 0.04	0.80 ± 0.03
10	71	6.0	33.73	1.98 ± 0.13	2.41 ± 0.04	0.82 ± 0.06
35	71	5.9	33.73	2.01 ± 0.09	2.41 ± 0.04	0.84 ± 0.04
50	70	5.9	33.73	2.00 ± 0.07	2.41 ± 0.04	0.83 ± 0.03
60	71	5.9	33.73	2.04 ± 0.08	2.41 ± 0.04	0.85 ± 0.04
80	71	5.9	33.73	2.02 ± 0.07	2.41 ± 0.04	0.84 ± 0.03
90	70	5.8	33.74	1.94 ± 0.06	2.41 ± 0.04	0.81 ± 0.03
100	71	5.8	33.74	2.05 ± 0.09	2.41 ± 0.04	0.85 ± 0.04
120	70	3.9	33.80	2.05 ± 0.07	2.41 ± 0.04	0.85 ± 0.03
150	71	3.7	33.82	2.52 ± 0.07	2.41 ± 0.04	1.05 ± 0.03
250	70	3.3	34.07	2.60 ± 0.08	2.43 ± 0.04	1.07 ± 0.04
600	70	2.7	34.34	2.50 ± 0.08	2.45 ± 0.04	1.02 ± 0.04
800	70	2.6	34.46	2.59 ± 0.07	2.46 ± 0.04	1.05 ± 0.03
1000	70	2.5	34.56	2.47 ± 0.10	2.46 ± 0.04	1.00 ± 0.05
Station BGH/Large6 50.38°S, 1.32°E						
6	78	4.5	33.77	1.93 ± 0.20	2.41 ± 0.04	0.80 ± 0.08
10	78	4.5	33.77	1.92 ± 0.10	2.41 ± 0.04	0.80 ± 0.04
29	78	4.5	33.77	1.88 ± 0.09	2.41 ± 0.04	0.78 ± 0.04
60	78	4.5	33.77	1.98 ± 0.10	2.41 ± 0.04	0.82 ± 0.05
100	78	2.2	33.85	2.24 ± 0.10	2.41 ± 0.04	0.93 ± 0.04
120	78	1.8	33.91	2.63 ± 0.11	2.42 ± 0.04	1.09 ± 0.05
160	78	1.8	34.04	2.56 ± 0.08	2.43 ± 0.04	1.05 ± 0.04
252	78	2.2	34.22	2.61 ± 0.11	2.44 ± 0.04	1.07 ± 0.05
Station BGH/Super4 51.87°S, 0.00°E						
5	86	2.5	33.69	1.85 ± 0.10	2.40 ± 0.04	0.77 ± 0.05
10	86	2.5	33.69	1.96 ± 0.11	2.40 ± 0.04	0.81 ± 0.05
20	86	2.5	33.69	1.96 ± 0.10	2.40 ± 0.04	0.82 ± 0.04
40	86	2.5	33.69	1.95 ± 0.10	2.40 ± 0.04	0.81 ± 0.04
40	86	2.5	33.69	2.00 ± 0.11	2.40 ± 0.04	0.83 ± 0.05
60	86	2.5	33.69	2.18 ± 0.11	2.40 ± 0.04	0.91 ± 0.05
80	86	2.5	33.69	2.11 ± 0.12	2.40 ± 0.04	0.88 ± 0.05
100	86	2.5	33.70	1.97 ± 0.09	2.40 ± 0.04	0.82 ± 0.04
120	86	1.8	33.76	2.06 ± 0.10	2.41 ± 0.04	0.85 ± 0.04
120	86	1.9	33.75	1.97 ± 0.08	2.41 ± 0.04	0.82 ± 0.04
140	86	0.9	33.91	2.56 ± 0.10	2.42 ± 0.04	1.06 ± 0.05
160	86	0.8	34.05	2.40 ± 0.16	2.43 ± 0.04	0.99 ± 0.07
180	86	0.9	34.14	2.50 ± 0.10	2.43 ± 0.04	1.03 ± 0.04
200	86	1.2	34.27	2.55 ± 0.10	2.44 ± 0.04	1.04 ± 0.04
250	86	1.6	34.44	2.41 ± 0.10	2.46 ± 0.04	0.98 ± 0.04
300	86	1.8	34.50	2.58 ± 0.13	2.46 ± 0.04	1.05 ± 0.05
350	86	1.8	34.55	2.55 ± 0.12	2.46 ± 0.04	1.04 ± 0.05
400	86	1.9	34.59	2.59 ± 0.12	2.47 ± 0.04	1.05 ± 0.05
600	86	1.8	34.67	2.48 ± 0.13	2.47 ± 0.04	1.00 ± 0.06
800	86	1.7	34.70	2.39 ± 0.11	2.47 ± 0.04	0.96 ± 0.05
1000	86	1.6	34.72	2.56 ± 0.11	2.48 ± 0.04	1.03 ± 0.05

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3

1 Appendix 1. continued

Depth m	Cast	T °C	Salinity	$^{234}\text{Th}_{\text{total}}$ dpm L <sup>-1</sup>	$^{238}\text{U}$ dpm L <sup>-1</sup>	$^{234}\text{Th}/^{238}\text{U}$
Station BGH/Large7 55.57°S, 0.00°E						
5	100	0.5	33.86	1.97 ± 0.12	2.41 ± 0.04	0.82 ± 0.05
5	101	0.5	33.84	1.95 ± 0.10	2.41 ± 0.04	0.81 ± 0.04
8	100	0.5	33.86	1.99 ± 0.12	2.41 ± 0.04	0.82 ± 0.05
15	100	0.5	33.86	1.93 ± 0.11	2.41 ± 0.04	0.80 ± 0.05
50	101	0.5	33.85	1.94 ± 0.13	2.41 ± 0.04	0.80 ± 0.05
74	100	0.4	33.88	2.15 ± 0.11	2.42 ± 0.04	0.89 ± 0.05
110	100	0.3	33.99	2.40 ± 0.13	2.42 ± 0.04	0.99 ± 0.06
119	100	0.2	34.00	2.34 ± 0.13	2.42 ± 0.04	0.97 ± 0.06
150	100	0.9	34.41	2.56 ± 0.10	2.45 ± 0.04	1.04 ± 0.04
150	101	1.2	34.33	2.52 ± 0.12	2.45 ± 0.04	1.03 ± 0.05
169	100	1.2	34.42	2.56 ± 0.13	2.45 ± 0.04	1.04 ± 0.06
250	100	1.6	34.57	2.58 ± 0.14	2.46 ± 0.04	1.05 ± 0.06
400	101	1.6	34.64	2.59 ± 0.11	2.47 ± 0.04	1.05 ± 0.05
600	101	1.5	34.68	2.38 ± 0.11	2.47 ± 0.04	0.96 ± 0.05
796	101	1.2	34.69	2.39 ± 0.15	2.47 ± 0.04	0.97 ± 0.06
1000	101	1.0	34.69	2.50 ± 0.13	2.47 ± 0.04	1.01 ± 0.06
Station BGH/Super5 57.55°S, 0.04°E						
3	109	0.4	34.05	2.08 ± 0.10	2.43 ± 0.04	0.86 ± 0.04
10	109	0.4	34.06	2.09 ± 0.10	2.43 ± 0.04	0.86 ± 0.04
20	109	0.4	34.06	2.02 ± 0.09	2.43 ± 0.04	0.83 ± 0.04
29	109	0.4	34.06	1.99 ± 0.10	2.43 ± 0.04	0.82 ± 0.04
40	109	0.4	34.08	1.95 ± 0.10	2.43 ± 0.04	0.80 ± 0.04
60	109	0.4	34.12	2.19 ± 0.12	2.43 ± 0.04	0.90 ± 0.05
80	109	0.3	34.13	2.17 ± 0.10	2.43 ± 0.04	0.89 ± 0.04
99	109	-0.3	34.23	2.73 ± 0.16	2.44 ± 0.04	1.12 ± 0.07
120	109	-0.7	34.33	2.73 ± 0.14	2.45 ± 0.04	1.11 ± 0.06
139	109	-0.6	34.40	2.50 ± 0.12	2.45 ± 0.04	1.02 ± 0.05
159	109	-0.4	34.46	2.43 ± 0.13	2.46 ± 0.04	0.99 ± 0.05
180	109	0.0	34.54	2.57 ± 0.14	2.46 ± 0.04	1.04 ± 0.06
200	109	0.1	34.57	2.42 ± 0.12	2.46 ± 0.04	0.98 ± 0.05
250	109	0.4	34.63	2.80 ± 0.17	2.47 ± 0.04	1.13 ± 0.07
300	109	0.5	34.65	2.44 ± 0.13	2.47 ± 0.04	0.99 ± 0.05
350	109	0.5	34.66	2.44 ± 0.15	2.47 ± 0.04	0.99 ± 0.06
400	109	0.6	34.66	2.44 ± 0.12	2.47 ± 0.04	0.99 ± 0.05
600	109	0.5	34.67	2.60 ± 0.14	2.47 ± 0.04	1.05 ± 0.06
1003	109	0.3	34.67	2.47 ± 0.12	2.47 ± 0.04	1.00 ± 0.05

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3