HOKKAIDO UNIVERSITY

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6

THE " USHIO MARU "

CRUISE 394
CRUISE 395
CRUISE 396

IN AUGUST 2017
IN SEPTEMBER 2017

1. Cruise Itinerary

Cruise 394

Departure from Hakodate	Aug.	22, 2017
Start hydrographic research (US17324)		22
Arrival at Hakodate		23
Departure from Hakodate		24
Retrieval ADCP mooring system		24
Arrival at Usujiri		24
Departure from Usujiri		25
Setting ADCP mooring system		25
Arrival at Usujiri		25
Departure from Usujiri		26
Sampling by bottom trawl net		26
Arrival at Mori		26
Departure from Mori		27
Sampling by bottom trawl net		27
Arrival at Muroran		27
Departure from Muroran		28
Sampling by bottom trawl net		28
Arrival at Muroran		28
Departure from Muroran		29
Sampling by bottom trawl net		29
Arrival at Usujiri		29
Departure from Usujiri		30
Sampling by bottom trawl net		30
Finish hydrographic research (US17363)		30
Return to Hakodate		31

Total coverage 578.8 miles

Cruise 395

Departure from Hakodate	Sep.	4, 2017
Scuba diving research around Kojima Is.		5
Scuba diving research around Kojima Is.		6
Return to Hakodate		7

Total coverage 171.4 miles

Cruise 396

Departure from Hakodate	Sep.	11, 2017
Start whales and dolphines watching research		11
Arrival at Tokachi		12
Departure from Tokachi		14
Arrival at Kushiro		15
Departure from Kushiro		16
Finish whales and dolphines watching research		16
Return to Hakodate		17

Total coverage 496.1 miles

2. Data on Temperature, Salinity and Pressure

Hydrographic work on deck and the data processing were made by the deck officers, crews, research staff and cadets of the “Ushio Maru”. Temperature, salinity and pressure were measured by CTD (Seabird SBE-19Plus and SBE-19).

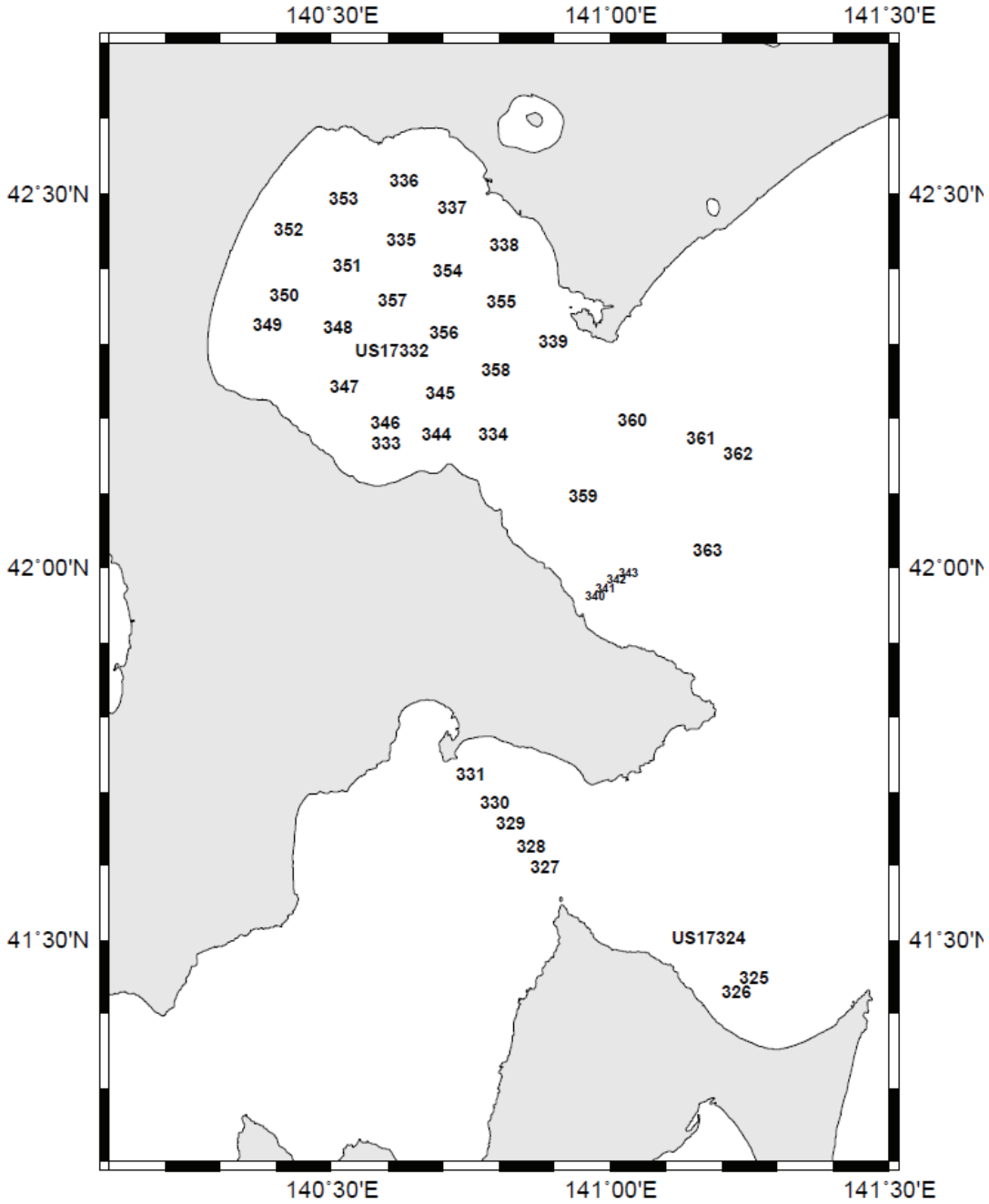

Figure 1. Oceanographic stations (Cruise 394)

able 1. List of Oceanographic Station

Crs394

station	Lat. (N)°	Long. (E)°	Date	Hour (JST)	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar (hPa)
US17324	41-29.6	141-10.5	8/22	1116-1133	248	SSE-2	ENE-1	SSE-4	20.6	18.5	r	1009.6
US17325	41-26.4	141-15.4	8/22	1306-1314	82	South-2	ENE-1	South-5	21.4	18.2	r	1008.2
US17326	41-25.2	141-13.5	8/23	0405-0410	59	WSW-2	NW-1	WSW-3	23.9	18.7	c	1009.1
US17327	41-35.4	140-52.9	8/23	0620-0625	46	WNW-2	NW-1	WNW-4	24.1	22.2	bc	1010.2
US17328	41-37.0	140-51.4	8/23	0641-0651	99	WNW-2	NW-1	WNW-4	23.3	22.4	bc	1010.2
US17329	41-38.9	140-49.2	8/23	0709-0737	347	WNW-2	NW-1	WNW-4	23.5	21.3	bc	1010.3
US17330	41-40.6	140-47.5	8/23	0811-0832	239	West-2	NW-1	West-4	24.2	23.1	bc	1010.7
US17331	41-42.8	140-44.9	8/23	0854-0903	85	West-2	NW-1	West-4	23.6	21.6	c	1011.3
US17332	42-16.9	140-36.4	8/24	1304-1317	90	SSW-2	East-1	SSW-2	24.8	21.1	o	1002.6
US17333	42-09.5	140-35.8	8/24	1511-1520	72	Calm	East-1	Calm	25.4	21.1	r	1001.4
US17334	42-10.2	140-47.3	8/25	0730-0737	96	NW-3	WNW-1	NW-5	23.3	20.5	bc	999.6
US17335	42-25.8	140-37.4	8/25	0949-0956	84	North-2	West-1	North-4	23	20.7	bc	1001.6
US17336	42-30.5	140-37.7	8/25	1038-1046	65	NW-2	West-1	NW-4	23.8	21.2	bc	1002.1
US17337	42-28.4	140-42.9	8/25	1122-1229	61	WSW-2	West-1	WSW-3	24.4	21.5	bc	1002.8
US17338	42-25.4	140-48.5	8/25	1158-1204	45	West-2	West-1	West-4	23.7	21.4	bc	1003
US17339	42-17.6	140-53.8	8/25	1250-1255	57	West-2	West-1	West-4	22.9	21.2	bc	1003.4
US17340	41-57.4	140-58.3	8/26	0635-0643	80	NNW-2	West-1	NNW-3	22.8	20.2	c	1006
US17341	41-58.0	140-59.4	8/26	0651-0657	87	NNW-2	West-1	NNW-2	23.9	20.1	c	1006.1
US17342	41-58.7	141-00.6	8/26	0706-0713	94	West-2	West-1	West-2	23.4	20	c	1006.2
US17343	41-59.3	141-01.9	8/26	0721-0729	102	SW-2	West-1	SW-3	24.1	20	c	1006.3
US17344	42-10.2	140-41.2	8/26	0919-0926	86	NE-1	West-1	NE-2	22.8	20.9	bc	1006.1
US17345	42-13.5	140-41.6	8/26	0953-1001	89	East-2	ESE-1	East-3	23.3	20.9	bc	1005.8
US17346	42-11.2	140-35.7	8/26	1117-1124	81	SSW-1	East-1	SSW-2	26.4	21.5	bc	1005.1
US17347	42-14.0	140-31.3	8/26	1248-1255	85	WSW-2	West-1	WSW-4	23.5	20.9	bc	1005.5
US17348	42-18.8	140-30.6	8/27	0746-0752	95	West-2	West-1	West-3	22.8	20.3	bc	1016
US17349	42-19.0	140-23.0	8/27	0921-0926	55	West-2	West-1	West-4	23.5	20.5	bc	1016.8
US17350	42-21.4	140-24.8	8/27	1015-1020	69	WNW-2	West-1	WNW-4	24.4	20.6	bc	1016.8
US17351	42-23.7	140-31.6	8/27	1059-1106	97	West-2	West-1	West-4	25.3	20.7	bc	1016.8
US17352	42-22.6	140-25.3	8/27	1220-1224	63	West-2	West-1	West-4	23.7	20.6	bc	1016.5
US17353	42-29.1	140-31.2	8/27	1255-1301	75	WSW-3	WSW-1	WSW-4	26.4	20.9	bc	1016.5
US17354	42-23.3	140-42.4	8/27	1356-1404	63	West-3	WSW-1	West-4	23.1	20.9	bc	1016.4
US17355	42-20.8	140-48.2	8/27	1431-1436	53	West-3	WSW-1	West-4	23.2	20.9	b	1016.4
US17356	42-18.4	140-42.0	8/28	0811-0816	68	ESE-2	ESE-1	ESE-3	21.1	20.6	c	1017.1
US17357	42-20.9	140-36.5	8/28	0920-0925	88	ESE-2	ESE-1	ESE-3	20.5	20.6	o	1017
US17358	42-15.4	140-47.6	8/28	1148-1152	71	ESE-2	ESE-1	ESE-3	21.2	20.5	o	1016.2
US17359	42-05.3	140-57.0	8/30	0724-0729	84	WNW-2	NW-1	WNW-3	19.1	19.9	bc	1013.5
US17360	42-11.4	141-02.3	8/30	0819-0824	82	NW-2	WSW-1	NW-2	18.2	17.1	c	1013.5
US17361	42-09.9	141-09.7	8/30	0945-0953	122	West-2	WSW-1	West-2	20.9	19.8	c	1013.7
US17362	42-08.7	141-13.7	8/30	1102-1111	176	SW-2	WNW-1	SW-2	21.9	19.6	c	1013
US17363	42-00.9	141-10.4	8/30	1206-1213	136	South-2	SSE-1	South-3	19.9	19.9	c	1012.5

Crs395

station	Lat. (N)°	Long. (E)°	Date	Hour (JST)	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar (hPa)
NO CTD obs												

Crs396

station	Lat. (N)°	Long. (E)°	Date	Hour (JST)	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar (hPa)
NO CTD obs												

Table 2. Oceanographic data

STATION US17324
LATITUDE 41-29.6 N
LONGITUI 141-10.5 E
DEPTH (m) 248

Press.	Temp.	Salinity	Sigma-T
5	18.5989	34.0264	24.3782
10	18.4687	34.0107	24.3987
20	17.9613	33.986	24.5051
30	17.9063	34.0286	24.551
40	16.2643	34.0589	24.9632
50	14.923	34.142	25.3272
75	12.7467	34.1699	25.8
100	12.6035	34.1683	25.8268
125	11.8693	34.1425	25.9478
150	10.6748	34.1373	26.1616
175	10.4855	34.1367	26.1944
200	9.3263	33.9837	26.27
236	8.3874	33.8668	26.3258

STATION US17325
LATITUDE 41-26.4 N
LONGITUI 141-15.4 E
DEPTH (m) 82

Press.	Temp.	Salinity	Sigma-T
5	18.3748	34.088	24.4812
10	18.3394	34.0947	24.4951
20	18.3097	34.0964	24.5038
30	18.18	34.0869	24.5286
40	18.1269	34.0871	24.5418
50	16.6845	34.0662	24.8716
70	12.3457	34.1698	25.8781

STATION US17326
LATITUDE 41-25.2 N
LONGITUI 141-13.5 E
DEPTH (m) 59

Press.	Temp.	Salinity	Sigma-T
5	18.9322	34.0034	24.2768
10	18.8184	33.9974	24.3009
20	17.2707	34.0319	24.707
30	15.0547	34.06	25.2352
40	13.6251	34.1347	25.596
50	12.7373	34.0847	25.7358
55	12.3475	34.1705	25.8783

STATION US17327
LATITUDE 41-35.0 N
LONGITUI 140-52.9 E
DEPTH (m) 46

Press.	Temp.	Salinity	Sigma-T
5	21.2852	34.0257	23.6749
10	20.6886	34.0887	23.8842
20	19.2227	34.1622	24.3242
30	19.0555	34.1707	24.3733

STATION US17328
LATITUDE 41-37.0 N
LONGITUI 140-51.4 E
DEPTH (m) 99

Press.	Temp.	Salinity	Sigma-T
5	22.2455	33.9808	23.3749
10	21.3249	34.0085	23.6508
20	20.0555	34.1124	24.0703
30	19.5489	34.1194	24.2076
40	17.9014	34.1984	24.6823
50	17.2207	34.1986	24.8468
75	16.4288	34.2125	25.0435
87	14.586	34.286	25.511

STATION US17329
LATITUDE 41-38.9 N
LONGITUI 140-49.2 E
DEPTH (m) 347

Press.	Temp.	Salinity	Sigma-T
5	21.5072	34.0053	23.5985
10	21.3174	34.0141	23.6572
20	20.5009	34.0711	23.9209
30	15.7438	34.1908	25.1832
40	14.9277	34.2517	25.4108
50	14.5437	34.2673	25.5058
75	13.4774	34.2619	25.7247
100	12.682	34.239	25.866
125	11.783	34.207	26.014
150	11.534	34.199	26.055
175	10.801	34.165	26.161
200	10.563	34.155	26.195
250	10.409	34.144	26.214
300	10.330	34.143	26.226
310	10.283	34.141	26.233

STATION US17330
LATITUDE 41-40.6 N
LONGITUI 140-47.5 E
DEPTH (m) 239

Press.	Temp.	Salinity	Sigma-T
5	22.3433	33.9062	23.2908
10	21.2716	33.9973	23.6569
20	19.4528	34.1854	24.2828
30	16.215	34.195	25.0793
40	15.7028	34.238	25.2287
50	14.9524	34.277	25.4249
75	13.3031	34.18	25.6967
100	11.821	34.211	26.010
125	11.341	34.191	26.084
150	10.523	34.150	26.198
175	10.283	34.136	26.229
200	10.104	34.132	26.256
211	10.057	34.131	26.264

STATION US17331
LATITUDE 41-42.8 N
LONGITUI 140-44.9 E
DEPTH (m) 85

Press.	Temp.	Salinity	Sigma-T
5	21.6542	33.8374	23.4305
10	20.1684	34.0216	23.9713
20	18.6419	34.1296	24.4463
30	17.6274	34.1727	24.7293
40	15.7552	34.1885	25.1788
50	13.8563	34.1697	25.5753
70	11.905	34.160	25.955

STATION US17332
LATITUDE 42-16.9 N
LONGITUI 140-36.4 E
DEPTH (m) 90

Press.	Temp.	Salinity	Sigma-T
5	20.809	32.158	22.383
10	20.7058	32.1697	22.4192
20	19.0499	32.4464	23.058
30	17.1872	32.5561	23.5953
40	10.8946	32.5723	24.9041
50	8.7675	32.8491	25.4689
75	5.1924	33.0661	26.1205
85	4.7255	33.2563	26.3233

STATION US17333
LATITUDE 42-09.5 N
LONGITUI 140-35.8 E
DEPTH (m) 72

Press.	Temp.	Salinity	Sigma-T
5	20.8385	32.0583	22.2992
10	20.2131	32.1642	22.5447
20	18.2385	32.5252	23.3195
30	13.1206	32.5372	24.4618
40	8.7971	32.4024	25.1159
50	6.4002	32.5568	25.5726
66	4.2295	32.7835	26.0002

STATION US17334
LATITUDE 42-10.2 N
LONGITUI 140-47.3 E
DEPTH (m) 96

Press.	Temp.	Salinity	Sigma-T
5	20.464	32.1959	22.503
10	19.5435	32.6287	23.0718
20	19.5828	33.1771	23.4799
30	18.6291	33.5054	23.9724
40	13.9591	33.4233	24.9772
50	11.0001	33.2025	25.3757
75	7.5568	33.5528	26.2014
92	6.8592	33.2553	26.0632

STATION US17335
LATITUDE 42-25.8 N
LONGITUI 140-37.4 E
DEPTH (m) 84

Press.	Temp.	Salinity	Sigma-T
5	20.9759	32.1066	22.2993
10	20.4945	32.141	22.4533
20	19.4486	32.3317	22.8695
30	17.0273	32.4027	23.515
40	10.7423	32.4102	24.804
50	7.1016	32.5466	25.4728
75	5.554	33.2023	26.1863
80	5.6273	33.2263	26.1965

STATION US17336
LATITUDE 42-30.5 N
LONGITUI 140-37.7 E
DEPTH (m) 65

Press.	Temp.	Salinity	Sigma-T
5	21.3722	31.4463	21.6912
10	19.9092	32.2731	22.7066
20	16.2993	32.5521	23.7978
30	11.2963	32.5157	24.7888
40	7.8946	32.7538	25.5253
50	6.4792	32.8079	25.7606
61	4.8993	32.8686	25.9968

STATION US17337
LATITUDE 42-28.4 N
LONGITUI 140-42.9 E
DEPTH (m) 61

Press.	Temp.	Salinity	Sigma-T
5	21.0416	31.7192	21.9872
10	19.7048	32.2441	22.7372
20	16.5672	32.5243	23.7151
30	13.2352	32.6342	24.5141
40	7.0224	32.4016	25.3694
50	5.0969	32.5977	25.7602
57	7.6596	33.2622	25.9584

STATION US17338
LATITUDE 42-25.4 N
LONGITUI 140-48.5 E
DEPTH (m) 45

Press.	Temp.	Salinity	Sigma-T
5	20.0544	32.2319	22.6376
10	19.2009	32.3755	22.9658
20	15.752	32.3934	23.7983
30	10.2769	33.1515	25.4616
40	8.6013	33.0183	25.6281
42	8.8106	33.0742	25.6398

STATION US17339
LATITUDE 42-17.6 N
LONGITUI 140-53.8 E
DEPTH (m) 57

Press.	Temp.	Salinity	Sigma-T
5	21.2498	31.8157	22.0047
10	18.1492	32.5838	23.3861
20	13.2442	32.4668	24.3827
30	9.6917	32.6147	25.1405
40	7.7269	32.8603	25.633
50	8.4037	33.4984	26.0344
53	8.4097	33.4894	26.0265

STATION US17340
LATITUDE 41-57.4 N
LONGITUI 140-58.3 E
DEPTH (m) 80

Press.	Temp.	Salinity	Sigma-T
5	20.38	32.3988	22.6796
10	20.3857	32.4138	22.6895
20	19.7488	32.6308	23.0206
30	16.7756	32.8571	23.9224
40	11.4456	33.5442	25.5613
50	9.393	33.8326	26.141
75	7.9705	33.7742	26.3155
75	7.971	33.774	26.316

STATION US17341
LATITUDE 41-58.0 N
LONGITUI 140-59.4 E
DEPTH (m) 87

Press.	Temp.	Salinity	Sigma-T
5	20.2251	32.4169	22.734
10	20.1985	32.4261	22.7479
20	19.2692	32.7738	23.2524
30	17.3948	33.1796	24.0241
40	12.024	33.8959	25.727
50	10.7124	33.8981	25.9686
75	8.3867	33.7206	26.2113
82	8.203	33.7928	26.2956

STATION US17342
LATITUDE 41-58.7 N
LONGITUI 141-00.6 E
DEPTH (m) 94

Press.	Temp.	Salinity	Sigma-T
5	20.1386	32.5078	22.8258
10	20.0822	32.5002	22.8347
20	19.222	32.8481	23.3212
30	15.1684	33.2661	24.5981
40	12.0714	33.7259	25.5857
50	11.6177	34.1245	25.9809
75	9.4576	33.8843	26.1708
89	8.255	33.7978	26.2917

STATION US17343
LATITUDE 41-59.3 N
LONGITUI 141-01.9 E
DEPTH (m) 102

Press.	Temp.	Salinity	Sigma-T
5	20.3066	32.4622	22.7471
10	20.154	32.4766	22.798
20	19.087	32.8449	23.3529
30	15.2003	33.3743	24.6751
40	12.7579	33.9707	25.6434
50	12.038	34.074	25.8627
75	9.8803	33.9247	26.1325
94	8.336	33.813	26.292

STATION US17344
LATITUDE 42-10.2 N
LONGITUI 140-41.2 E
DEPTH (m) 86

Press.	Temp.	Salinity	Sigma-T
5	21.0124	32.0186	22.2226
10	20.9069	32.0524	22.2765
20	19.6315	33.0217	23.3489
30	16.7017	33.5929	24.5043
40	12.411	33.2764	25.1725
50	9.9915	33.344	25.6603
75	4.8226	33.2389	26.2989
83	4.8075	33.273	26.3276

STATION US17345
LATITUDE 42-13.5 N
LONGITUI 140-41.6 E
DEPTH (m) 89

Press.	Temp.	Salinity	Sigma-T
5	20.7908	32.0889	22.3352
10	20.3674	32.1956	22.5283
20	18.5116	32.4497	23.1947
30	16.2932	32.5608	23.8058
40	10.1071	32.5191	24.9974
50	11.1747	33.2639	25.3919
75	8.0181	33.564	26.1434
87	8.04	33.5727	26.1471

STATION US17346
LATITUDE 42-11.2 N
LONGITUI 140-35.7 E
DEPTH (m) 81

Press.	Temp.	Salinity	Sigma-T
5	20.8926	32.1049	22.3203
10	20.5745	32.1593	22.4461
20	18.9201	32.8466	23.3961
30	17.629	33.5744	24.2705
40	9.9616	32.9567	25.363
50	5.3561	32.5044	25.657
75	4.76	33.2085	26.2816
79	4.6943	33.2313	26.3069

STATION US17347
LATITUDE 42-14.0 N
LONGITUI 140-31.3 E
DEPTH (m) 85

Press.	Temp.	Salinity	Sigma-T
5	21.0406	32.0943	22.2727
10	20.6109	32.1804	22.4525
20	18.9109	32.9046	23.4428
30	12.1932	32.3578	24.5011
40	7.6031	32.3177	25.224
50	5.3708	32.5787	25.7142
75	4.7174	33.1224	26.218
82	4.5722	33.2182	26.3095

STATION US17348
LATITUDE 42-18.8 N
LONGITUI 140-30.6 E
DEPTH (m) 95

Press.	Temp.	Salinity	Sigma-T
5	20.4605	32.1809	22.4926
10	20.4475	32.183	22.4976
20	18.3278	32.4746	23.259
30	13.6621	32.8994	24.6332
40	8.4198	32.2353	25.0416
50	6.5727	32.822	25.7597
75	4.9751	33.0556	26.1367
91	4.6831	33.295	26.3586

STATION US17349
LATITUDE 42-19.0 N
LONGITUI 140-23.0 E
DEPTH (m) 55

Press.	Temp.	Salinity	Sigma-T
5	20.8336	32.1597	22.3777
10	20.7439	32.181	22.4177
20	14.8406	32.3854	23.991
30	8.6285	32.2413	25.015
40	5.937	32.5065	25.5903
50	4.5062	32.6002	25.8261
53	4.4643	32.6228	25.8484

STATION US17350
LATITUDE 42-21.4 N
LONGITUI 140-24.8 E
DEPTH (m) 69

Press.	Temp.	Salinity	Sigma-T
5	20.7639	32.1841	22.4148
10	20.6857	32.1957	22.4444
20	16.505	32.4332	23.6596
30	9.2824	32.338	24.99
40	5.9363	32.5311	25.6099
50	4.696	32.5893	25.7974
66	4.3433	32.8623	26.0512

STATION US17351
LATITUDE 42-23.7 N
LONGITUI 140-31.6 E
DEPTH (m) 97

Press.	Temp.	Salinity	Sigma-T
5	20.9326	32.1967	22.3793
10	20.8437	32.166	22.3797
20	18.3706	32.5929	23.3389
30	13.2263	32.1772	24.1613
40	8.103	32.1812	25.0442
50	6.5818	32.7552	25.7058
75	4.6454	33.2351	26.3151
94	4.762	33.302	26.355

STATION US17352
LATITUDE 42-22.6 N
LONGITUI 140-25.3 E
DEPTH (m) 63

Press.	Temp.	Salinity	Sigma-T
5	20.5559	32.2269	22.5024
10	19.6098	32.2246	22.7465
20	13.7744	32.4224	24.2419
30	10.6197	32.8015	25.1304
40	5.8996	32.534	25.6166
50	4.8513	32.5948	25.7851
61	4.1995	32.7381	25.9671

STATION US17353
LATITUDE 42-29.1 N
LONGITUI 140-31.2 E
DEPTH (m) 75

Press.	Temp.	Salinity	Sigma-T
5	21.0051	32.159	22.3313
10	19.2319	32.4524	23.0167
20	14.6353	32.4498	24.0844
30	8.731	32.1501	24.9277
40	6.278	32.564	25.5937
50	5.2461	32.7773	25.8857
72	5.5712	33.2302	26.2063

STATION US17354
LATITUDE 42-23.3 N
LONGITUI 140-42.4 E
DEPTH (m) 63

Press.	Temp.	Salinity	Sigma-T
5	21.0093	32.1892	22.3531
10	20.8051	32.1652	22.3895
20	18.0989	32.5598	23.38
30	12.7225	32.3724	24.4118
40	6.8335	32.5849	25.5388
50	6.4506	33.1017	25.9959
60	7.0306	33.1918	25.9904

STATION US17355
LATITUDE 42-20.8 N
LONGITUI 140-48.2 E
DEPTH (m) 53

Press.	Temp.	Salinity	Sigma-T
5	21.0307	32.179	22.3397
10	19.6615	32.2656	22.7647
20	18.0064	32.5714	23.4114
30	11.1119	32.4303	24.7551
40	9.2178	32.9403	25.4712
50	8.2005	33.3661	25.9611
52	8.2291	33.4111	25.9922

STATION US17356
LATITUDE 42-18.4 N
LONGITUI 140-42.0 E
DEPTH (m) 68

Press.	Temp.	Salinity	Sigma-T
5	20.8202	32.1814	22.3977
10	20.8	32.183	22.4043
20	19.4021	32.2767	22.8394
30	14.8966	32.3125	23.9226
40	8.7769	32.8837	25.4958
50	11.2096	33.9654	25.9321
66	10.1884	33.9195	26.0762

STATION US17357
LATITUDE 42-20.9 N
LONGITUI 140-36.5 E
DEPTH (m) 88

Press.	Temp.	Salinity	Sigma-T
5	20.8839	32.1756	22.3763
10	20.8812	32.1746	22.3763
20	19.9752	32.1486	22.5945
30	13.4952	32.2868	24.193
40	9.0392	32.3649	25.0489
50	8.1573	33.0702	25.7354
75	7.9748	33.5394	26.1305
85	7.8419	33.5453	26.1545

STATION US17358
LATITUDE 42-15.4 N
LONGITUI 140-47.6 E
DEPTH (m) 71

Press.	Temp.	Salinity	Sigma-T
5	20.8014	32.1777	22.3999
10	20.7295	32.1732	22.4156
20	18.8859	32.4292	23.086
30	15.1062	32.2547	23.8326
40	13.2428	33.9388	25.5221
50	11.1193	33.8659	25.8709
69	9.7156	33.8149	26.0742

STATION US17359
LATITUDE 42-05.3 N
LONGITUI 140-57.0 E
DEPTH (m) 84

Press.	Temp.	Salinity	Sigma-T
5	20.1435	32.2975	22.6643
10	20.1431	32.3115	22.6751
20	19.8501	32.5797	22.9555
30	15.9641	32.9529	24.1812
40	9.727	33.682	25.9685
50	9.4067	33.8217	26.1301
75	8.3855	33.7739	26.2533
81	8.3143	33.7751	26.265

STATION US17360
LATITUDE 42-11.4 N
LONGITUI 141-02.3 E
DEPTH (m) 82

Press.	Temp.	Salinity	Sigma-T
5	16.7649	32.4211	23.5905
10	14.8969	32.1816	23.8212
20	11.8113	33.3246	25.3233
30	12.29	33.8134	25.6123
40	11.0864	33.7298	25.771
50	10.2327	33.7194	25.9125
75	7.3572	33.5481	26.2258
78	7.332	33.577	26.252

STATION US17361
LATITUDE 42-09.9 N
LONGITUI 141-09.7 E
DEPTH (m) 122

Press.	Temp.	Salinity	Sigma-T
5	19.9652	32.3048	22.7163
10	19.5917	32.4858	22.9504
20	15.4223	33.9739	25.0881
30	13.4273	33.884	25.4425
40	12.3684	34.0027	25.7441
50	12.0286	34.0018	25.8083
75	8.1794	33.5711	26.1252
100	8.1527	33.7379	26.26
116	8.0427	33.7564	26.2909

STATION US17362
LATITUDE 42-08.7 N
LONGITUI 141-13.7 E
DEPTH (m) 176

Press.	Temp.	Salinity	Sigma-T
5	19.8595	32.3611	22.7866
10	19.7235	32.3895	22.8432
20	16.0218	33.5437	24.6227
30	14.0809	33.8716	25.2982
40	12.2274	33.9236	25.7098
50	12.3957	34.1009	25.815
75	10.9727	34.0695	26.0558
100	9.9908	33.9544	26.137
125	9.6761	34.0008	26.226
150	9.0497	33.9139	26.2597
169	8.4692	33.8492	26.2996

STATION US17363
LATITUDE 42-00.9 N
LONGITUI 141-10.4 E
DEPTH (m) 136

Press.	Temp.	Salinity	Sigma-T
5	20.0087	32.3801	22.7624
10	19.8586	32.4717	22.871
20	18.2495	32.9587	23.6483
30	16.8686	33.5334	24.4196
40	13.9829	33.7164	25.1988
50	12.8877	34.0884	25.7089
75	11.2352	33.9436	25.9104
100	9.6025	33.9378	26.1889
125	8.292	33.7519	26.2501
130	7.7574	33.7045	26.2918