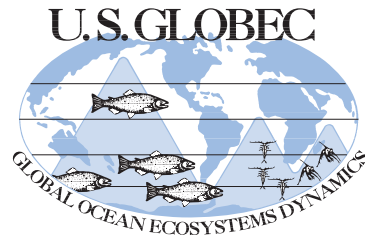


# GLOBEC Northeast Pacific, Coastal Gulf of Alaska

Cruise Report, R/V *Miller Freeman* (MF0111)

21 – 29 September, 2001



**GLOBEC Northeast Pacific, Gulf of Alaska  
Cruise Report, R/V *Miller Freeman* (MF0111)  
September 21 - 29, 2001**

**Chief Scientist:**

Nancy Kachel  
NOAA/PMEL  
(206) 526-6798  
[nkachel@pmel.noaa.gov](mailto:nkachel@pmel.noaa.gov)

**Port of Departure:** Kodiak, Alaska  
**Port of Return:** Kodiak, Alaska

**Cruise Objectives**

1. Recover and deploy moorings in support of the Steller Sea Lion Initiative, PMEL/FOCI and NOAA/COP's Northeast Pacific GLOBEC/GOA program.
2. Conduct CTD calibration casts at moorings and surveys on the Gulf of Alaska shelf as time permits.

Summaries of each of the GLOBEC projects may be found at the web site: <http://globec.coas.oregonstate.edu/groups/nep/projs.html>.

**Table 1. GLOBEC Cruise Participants**

Jon Bumgardner	NOAA/PMEL
Carol DeWitt	NOAA/PMEL
Bill Floering	NOAA/PMEL
Nancy Kachel	NOAA/PMEL
Allen Macklin	NOAA/PMEL
Pat McLain	NOAA/PMEL
Rick Miller	NOAA/PMEL
Calvin Mordy	University of Alaska Fairbanks
David Wisegarver	NOAA/PMEL

**Summary of Cruise**

See Appendix 1 (Event Log).

**Daily Cruise Summary (Narrative)**

**21 September.** The cruise departed Kodiak AK at 10:15 on September 21 at the beginning of a storm with gale-force winds. Shortly thereafter, we recovered two of the three moorings near Chiniak Bay, which were part of the Sea Lion Studies.

**21 - 23 September.** The ship proceeded to the FATE moorings, arriving mid-morning September 22. The FATE subsurface mooring was retrieved first, which enabled the ship's crew to repair the crane needed to lower a small boat for the surface mooring recovery. That recovery was further delayed by mechanical problems with the small boat itself. Recovery of the FATE-M1B mooring was accomplished that evening. In spite of deteriorating weather, with sustained winds over 40 knots and waves 16-20 feet high, the next day, September 23, the crew managed to

deploy the FATE-M1B mooring. Deployment of the FATE-P1B subsurface (profiler) mooring was stopped when the ship's captain deemed it too dangerous to continue, due to waves lifting the grate platform on the fantail more than once. With a weather forecast predicting continuing stormy conditions, the ship left the FATE site to attempt working near shore.

**24 September.** Operations were suspended for the morning of September 24, due to continuing gale-force winds and high seas. During that time, we proceeded to the historic GAK1 CTD site and did a CTD cast. In the afternoon and evening, we recovered and re-deployed the mooring at GB1, then deployed another mooring and a satellite-tracked drifter at GB-7. That night, calibration CTDs and 3 more drifters were deployed at sites GB- 4, 5, and 6.

**25 September.** On September 25 it was possible to recover and redeploy both the surface and subsurface moorings at GB3. During the night a line of 5 CTDs was occupied from mooring GB3 (near GAK6) to GAK8 . This is the shelf-break portion of the GAK line.

**26 - 27 September.** The next day, moorings at GB-4, 5, and 6 were picked up and redeployed. GB-10, a short mooring, was also deployed. The night of September 26-27, the CTD line named Amatouli Trough B-line was ended after 4 of 7 stations due to a serious problem with the CTD winch. The following day, September 27, we finished deployment of the last two short moorings that bracket the Seward line, GB-8 and GB-9. In addition, we completed the last recovery and redeployment on the Seward line at station GB2. Repairs to the winch permitted calibration casts at GB-9 and GB-2.

**28 - 29 September.** The CTD stopped working again when we arrived at the Gore Point line before dawn on the 28<sup>th</sup>. The electronics technician spent several hours repairing and replacing components of the system, as well as moving operations to the starboard winch, before CTD casts could again be made. During that time, recovery and redeployment of the 3 moorings on the line proceeded smoothly. By the second recovery (GP34), the CTD was again operational. The cruise ended with the occupation of a CTD line from there ( a.k.a. GP-3) to GP-10 on Portlock Bank.

## Summary of Sampling Operations

### Samples Collected:

Chlorophyll samples	132
Nutrient samples	324

### Operations:

#### Statistical Data on Number of operations:

CTD casts	38
Mooring deployment	15
Mooring recoveries	14
Satellite tracked buoy deployments	10

## Acknowledgements

We feel most fortunate to have accomplished all of the mooring deployments and recoveries that we did during this cruise, especially considering the adverse weather during the first half, and the reduced number of staff among both officers and crew. The generosity of the captain and crew in permitting us to extend the cruise an extra day is greatly appreciated. We want to recognize the personal sacrifices this entailed, as well as the extra work involved for both the ship's crew and at PMC in delaying and reorganizing the ship's schedule. The tireless efforts and skill of the ship's complement allowed us to complete most the scheduled work under severe weather conditions. Our thanks go out to the capable men and women of the NOAA Ship *Miller Freeman* under the leadership of Captain Dean Smehil. We especially recognize the effort expended by Chief Boatswain Rick Pietrusiak and the entire deck department who spent many long hours on mooring deployments and recoveries. We thank Chief Survey Technician Greg Kaufmann, Electronics Technician Scott Burnish, and all of the bridge watchstanders for their assistance in trying to meet the ambitious scientific objectives of this cruise.

**Table 2: Mooring Recoveries**

Event#	Instr	Cast	Sta	Sta std	S/E Flag	Lat	Long	Water Depth	Day	Mos	Time	Comments
MF26501.02	Mooring recover	1	1	CB-2A	S	57.4601	-151.5792	112.5	22	9	0120	Release CB-2A mooring; u, v, t, cond.
MF26501.04	Mooring recover	2	2	CB-3A	S	57.5146	-151.4433	143.6	22	9	0254	Release mooring CB-3A
MF26501.05	Mooring recover	2	2	CB-3A	E	57.5161	-151.4402	137.7	22	9	0306	Mooring surface CB-3A; u, v, ADP, t, cond, FL, NO3, chl
MF26501.07	Mooring recover	3	3	FATE-M1A	S	58.2586	-147.6796	266.0	22	9	2045	FATE-M1A mooring release tripped
MF26601.01	Mooring recover	3	3	FATE-M1A	E	58.2255	-147.6740	21.6	23	9	0009	Recovery of FATE M1A complete; met data, t, cond
MF26601.03	Mooring recover	4	4	FATE-P1A	S	58.2772	-147.6854	0.0	23	9	0346	Release FATE-P1A mooring
MF26601.04	Mooring recover	4	4	FATE-P1A	E	58.2492	-147.6638	0.0	23	9	0733	Recovery of FATE-P1A complete; u, v, ADCP, t, cond
MF26701.03	Mooring recover	5	11	GB-1A/GAK2	S	59.6914	-149.3762	217.6	24	9	2148	GB-1A release tripped
MF26701.04	Mooring recover	5	11	GB-1A/GAK2	E	59.7044	-149.3874	216.3	24	9	2307	GB-1A Aboard; u, v, t, cond, fluorescence
MF26801.11	Mooring recover	6	15	GBM-3A/GAK5	S	59.2730	-148.9696	186.3	25	9	1707	Mooring GBM-3A release tripped
MF26801.12	Mooring recover	6	16	GBM-3A/GAK5	E	59.2981	-148.9330	175.6	25	9	1911	Mooring GBM-3A aboard; met data, t, cond, FL, chl, NO3
MF26801.13	Mooring recover	7	16	GBP-3A/GAK5	S	59.2767	-148.9627	186.8	25	9	2044	Mooring GBP-3A release tripped
MF26801.14	Mooring recover	7	16	GBP-3A/GAK5	E	59.2832	-148.9311	175.5	25	9	2125	GBP-3A recovered; u, v, ADCP
MF26901.15	Mooring recover	8	22	GB-6A/GAK7-7i	S	58.9246	-148.5682	247.3	26	9	1605	Mooring GB-6A release tripped
MF26901.16	Mooring recover	8	22	GB-6A/GAK7-7i	E	58.9279	-148.5776	245.1	26	9	1637	Mooring GB-6A recovered; ADCP; t, cond.
MF26901.19	Mooring recover	9	18	GB-5A/GAK6i	S	59.0435	-148.6973	192.7	26	9	1839	GB-5A release tripped
MF26901.20	Mooring recover	9	18	GB-5A/GAK6i	E	59.0438	-148.6891	194.1	26	9	1906	Mooring GBG-5A recovered; u, v, t, cond, NO3
MF26901.21	Mooring recover	10	17	GB-4A/GAK6	S	59.1274	-148.7834	146.5	26	9	2015	Mooring GB-4A release tripped
MF26901.22	Mooring recover	10	17	GB-4A/GAK6	E	59.1306	-148.7521	148.0	26	9	2132	Mooring GB-4A recovered; u, v, t, cond, FL, chl
MF27101.02	Mooring recover	11	30	GB-2A/GAK3	S	59.5692	-149.1974	210.5	28	9	0057	Mooring GB-2A release tripped
MF27101.03	Mooring recover	11	30	GB-2A/GAK3	E	59.5694	-149.1798	206.6	28	9	0212	Mooring GB-2A recovered; u, v, t, cond, FL
MF27101.08	Mooring recover	12	31	GP-32A/GP1	S	59.1052	-150.9978	149.3	28	9	1559	Mooring GP-32A release tripped
MF27101.09	Mooring recover	12	31	GP-32A/GP1	E	59.1099	-151.0290	143.4	28	9	1652	Mooring GP-32A recovered; u, v, t, cond, FL, chl
MF27101.13	Mooring recover	13	33	GP-34A/GP3	S	58.9623	-150.9387	143.5	28	9	2046	Mooring GP-34A release tripped
MF27101.14	Mooring recover	13	33	GP-34A/GP3	E	58.9624	-150.9417	145.7	28	9	2130	Mooring GP-34A recovered; u, v, t, cond, FL, chl
MF27201.03	Mooring recover	14	36	GP-36A/GP6	S	58.7474	-150.8681	183.3	29	9	0202	Mooring GP-36A release tripped
MF27201.04	Mooring recover	14	36	GP-36A/GP6	E	58.7501	-150.8682	181.7	29	9	0221	Mooring GP-36A recovered; u, v, ADCP, t, cond

**Table 3: Mooring Deployments**

Event#	Instr	Cast	Sta	Sta std	S/E Flag	Lat	Long	Water Depth	Day	Mos	Time	Comments
MF26601.09	Mooring deploy	1	9	FATE-MIB	S	58.3207	-147.7152	2119.4	23	9	2207	Commence deployment of surf mooring FATE MIB
MF26701.01	Mooring deploy	1	9	FATE-MIB	E	58.2745	-147.6719	2403.0	24	9	0110	Deployment FATE-MIB OSCAR
MF26801.01	Mooring deploy	2	11	GB-1B/GAK2	S	59.7069	-149.4050	190.7	25	9	0138	Commence deployment of GB-1B mooring
MF26801.02	Mooring deploy	2	11	GB-1B/GAK2	E	59.6919	-149.3673	231.6	25	9	0443	GB-1B deployed; u,v,t,cond,fluorescence
MF26801.03	Mooring deploy	3	12	GB-7A	S	59.7657	-148.9777	192.1	25	9	0644	Subsurface mooring GB-7A deployed; u, v, t, cond.
MF26901.01	Mooring deploy	4	16	GBM-3B/GAK5	S	59.2371	-149.0066	169.6	26	9	0138	Commence deployment of GBM-3B surface mooring
MF26901.02	Mooring deploy	4	16	GBM-3B/GAK5	nd	59.2673	-148.9755	184.0	26	9	0354	GBM-3B surface mooring in water
MF26901.03	Mooring deploy	4	16	GBM-3B/GAK5	E	59.2744	-148.9687	185.7	26	9	0435	GBM-3B deployed; met. data, t, cond, FL, chl
MF26901.04	Mooring deploy	5	16	GBP-3B/GAK5	S	59.2789	-148.9816	188.8	26	9	0558	Commence deploying GBP-3B
MF26901.05	Mooring deploy	5	16	GBP-3B/GAK5	E	59.2788	-148.9618	184.8	26	9	0646	Mooring GBP-3B deployed; u, v, ADCP, t, cond, NO3
MF26901.17	Mooring deploy	6	22	GB-6B/GAK7-7i	S	58.9248	-148.5823	247.9	26	9	1711	Commence deployment mooring GB-6B
MF26901.18	Mooring deploy	6	22	GB-6B/GAK7-7i	E	58.9247	-148.5686	247.6	26	9	1749	Mooring GB-6B deployed; ADCP, t, cond.
MF26901.23	Mooring deploy	7	23	GB-10A	S	59.1599	-149.1407	169.7	26	9	2304	Commence deployment mooring GB-10A
MF26901.24	Mooring deploy	7	23	GB-10A	E	59.1601	-149.1298	169.2	26	9	2327	GB-10A deployed; u, v, t, cond.
MF27001.01	Mooring deploy	8	17	GB-4B/GAK6	S	59.1235	-148.8235	140.3	27	9	0121	Commence deployment mooring GB-4B
MF27001.02	Mooring deploy	8	17	GB-4B/GAK6	E	59.1281	-148.7858	145.4	27	9	0228	Mooring GB-4B deployed; u, v, t, cond, FL, chl
MF27001.04	Mooring deploy	9	18	GB-5B/GAK6i	S	59.0432	-148.7149	188.0	27	9	0344	Commence deployment mooring GB-5B
MF27001.05	Mooring deploy	9	18	GB-5B/GAK6i	E	59.0427	-148.6934	196.5	27	9	0423	Mooring GB-5B deployed; u, v, t, cond, NO3
MF27001.11	Mooring deploy	10	28	GB-9A	S	59.3618	-148.2476	172.4	27	9	1639	Commence deploying mooring GB-9A
MF27001.12	Mooring deploy	10	28	GB-9A	E	59.3663	-148.2437	173.0	27	9	1659	Mooring GB-9A deployed; u, v, t, cond.
MF27001.14	Mooring deploy	11	29	GB-8A	S	59.6446	-148.6560	171.4	27	9	2135	Commence deploying mooring GB-8A; u,v,t,cond,NO3
MF27001.15	Mooring deploy	11	29	GB-8A	E	59.6500	-148.6420	179.3	27	9	2206	Mooring GB-8A deployed
MF27101.04	Mooring deploy	12	30	GB-2B/GAK3	S	59.5731	-149.2653	228.7	28	9	0351	Commence deploying mooring GB-2B
MF27101.06	Mooring deploy	12	30	GB-2B/GAK3	E	59.5699	-149.2046	213.1	28	9	0523	Mooring GB-2B deployed; u, v, t, cond, FL, chl
MF27101.10	Mooring deploy	13	31	GP-32B/GP1	S	59.1066	-150.9630	164.1	28	9	1816	Commence deploying mooring GP-32B
MF27101.11	Mooring deploy	13	31	GP-32B/GP1	E	59.1052	-150.9883	154.4	28	9	1902	Mooring GP-32B deployed; u, v, t, cond, FL, chl
MF27101.15	Mooring deploy	14	33	GP-34B/GP3	S	58.9548	-150.9546	142.4	28	9	2235	Commence deployment GP 34A
MF27101.16	Mooring deploy	14	33	GP-34B/GP3	E	58.9630	-150.9333	142.5	28	9	2325	Mooring GP-34B deployed; u, v, t, cond, FL, chl
MF27201.06	Mooring deploy	15	36	GP-36B/GP6	S	58.7476	-150.8692	182.3	29	9	0322	Commence deploying GP- 36B mooring
MF27201.07	Mooring deploy	15	36	GP-36B/GP6	E	58.7502	-150.8666	181.7	29	9	0336	Mooring GP-36A deployed; u, v, ADCP, t, cond

**Table 4: CTD Locations**

Event#	Instr	Cast	Sta	Sta std	S/E Flag	Lat	Long	Water Depth	Day	Mos	Time	Comments
MF26501.01	CTD	1	1	CB-2A	S	57.4620	-151.5720	124.4	22	9	0057	CTD001; CTD, FI, PAR, Chl, nuts
MF26501.03	CTD	2	2	CB-3A	S	57.5172	-151.4464	141.8	22	9	0230	CTD002 at depth; CTD, FI, PAR, Chl, nuts
MF26501.06	CTD	3	3	FATE	S	58.2836	-147.6872	247.9	22	9	1854	CTD003 at depth; CTD, Chl, nuts
MF26601.02	CTD	4	3	FATE	S	58.2565	-147.6763	254.6	23	9	0129	CTD004 at depth; CTD, Chl, nuts
MF26601.05	CTD	5	5	FATE-WNW	S	58.3060	-147.8347	1944.3	23	9	0923	CTD005 at depth; CTD, Chl, nuts
MF26601.06	CTD	6	6	FATE-NNE	S	58.3423	-147.6595	2083.3	23	9	1134	CTD006 at depth; CTD, Chl, nuts
MF26601.07	CTD	7	7	FATE-ESE	S	58.2650	-147.5362	2084.7	23	9	1342	CTD007 at depth; CTD, Chl, nuts
MF26601.08	CTD	8	8	FATE-SSW	S	58.2182	-147.7397	2336.6	23	9	1540	CTD008 at depth; CTD, Chl, nuts
MF26701.02	CTD	9	10	GAK1	S	59.8430	-149.4719	270.7	24	9	2025	CTD009 at depth; CTD, FI, PAR, Chl, nuts
MF26801.05	CTD	10	13	GB-5A/GAK6i	S	59.0412	-148.6972	193.9	25	9	1116	CTD010 at depth; CTD, FI, PAR, Chl, nuts
MF26801.07	CTD	11	14	GB-4A/GAK6	S	59.1248	-148.7773	144.5	25	9	1236	CTD011 at depth; CTD, FI, PAR, Chl, nuts
MF26801.09	CTD	12	15	GB-3A/GAK5	S	59.2748	-148.9625	185.6	25	9	1423	CTD012 at depth; CTD, FI, PAR, Chl, nuts
MF26901.06	CTD	13	16	GBP-3B/GAK5	S	59.2788	-148.9478	181.1	26	9	0710	CTD013; CTD, FI, PAR, Chl, nuts
MF26901.07	CTD	14	17	GAK6	S	59.1194	-148.7728	171.2	26	9	0842	CTD014 at depth; CTD, FI, PAR, Chl, nuts
MF26901.08	CTD	15	18	GAK6i	S	59.0425	-148.7059	191.2	26	9	0936	CTD015 at depth; CTD, FI, PAR, Chl, nuts
MF26901.10	CTD	16	19	GAK7	S	58.9721	-148.6326	239.8	26	9	1037	CTD016 at depth; CTD, FI, PAR, Chl, nuts
MF26901.11	CTD	17	20	GAK7i	S	58.8832	-148.5669	293.9	26	9	1146	CTD017 at depth; CTD, FI, PAR, Chl, nuts
MF26901.13	CTD	18	21	GAK8	S	58.7910	-148.4915	284.8	26	9	1259	CTD018 at depth; CTD, FI, PAR, Chl, nuts
MF26901.14	CTD	19	22	GB-6A/GAK7-7i	S	58.9229	-148.5641	248.3	26	9	1417	CTD019 at depth; CTD, FI, PAR, Chl, nuts
MF26901.25	CTD	20	23	GB-10A	S	59.1613	-149.1209	169.4	26	9	2348	CTD020 at depth; CTD, FI, PAR
MF27001.03	CTD	21	17	GB-4B/GAK6	S	59.1288	-148.7795	144.6	27	9	0246	CTD021 at depth ; CTD, FI, PAR
MF27001.06	CTD	22	18	GB-5B/GAK6i	S	59.0439	-148.6843	194.3	27	9	0444	CTD022 at depth; CTD, FI, PAR, nuts
MF27001.07	CTD	23	24	ATB7	S	58.6367	-148.8171	125.6	27	9	0807	CTD023 at depth; CTD, FI, PAR, nuts
MF27001.08	CTD	24	25	ATB6	S	58.7202	-148.7622	234.7	27	9	0907	CTD024 at depth; CTD, FI, PAR, nuts
MF27001.09	CTD	25	26	ATB5	S	58.8069	-148.7181	260.1	27	9	1007	CTD025 at depth; CTD, FI, PAR, nuts
MF27001.10	CTD	26	27	ATB4	S	58.8937	-148.6663	265.4	27	9	1107	CTD026 at depth; CTD, FI, PAR, nuts
MF27001.16	CTD	27	29	GB-8A	S	59.6533	-148.6379	181.1	27	9	2228	CTD027 at depth; CTD, FI, PAR, Chl, nuts
MF27101.01	CTD	28	30	GB-2A/GAK3	S	59.5717	-149.2117	212.7	28	9	0042	CTD028 at depth; CTD, FI, PAR
MF27101.07	CTD	29	30	GB-2B/GAK3	s	59.5684	-149.1904	210.9	28	9	0548	CTD029 at depth; CTD, FI, PAR
MF27101.17	CTD	30	34	GP3	S	58.9721	-150.9372	150.3	28	9	2347	CTD031 at depth; etd, FL, nuts
MF27201.02	CTD	31	35	GP4	S	58.8733	-150.9034	164.2	29	9	0103	CTD032 at depth; etd, fluorescence, nuts
MF27201.05	CTD	32	36	GP-36A/GP6	S	58.7564	-150.8703	175.6	29	9	0245	CTD033 at depth; etd, fluorescence, nuts
MF27201.08	CTD	33	37	GP6	S	58.7567	-150.8761	180.3	29	9	0358	CTD034 at depth; etd, fluorescence, nuts
MF27201.09	CTD	34	38	GP7	S	58.5886	-150.8091	179.7	29	9	0522	CTD035 at depth; etd, fluorescence, nuts
MF27201.10	CTD	35	39	GP8	S	58.4312	-150.7331	78.7	29	9	0641	CTD036 at depth; etd, fluorescence, nuts
MF27201.11	CTD	36	40	GP9	S	58.2473	-150.6504	71.3	29	9	0813	CTD037 at depth; etd, fluorescence, nuts
MF27201.12	CTD	37	41	GP10	S	58.1033	-150.5905	148.7	29	9	0919	CTD038 at depth; etd, fluorescence, nuts

**Table 5: Drifter Deployment Sites**

Event#	Instr	Cast	Sta	Sta std	S/E Flag	Lat	Long	Water Depth	Day	Mos	Time	Comments
MF26801.04	SatBuoy	1	12	GB-7A	S	59.7662	-148.9723	191.2	25	9	0650	Drifter 001 SN 13154 deployed
MF26801.06	SatBuoy	2	13	GB-5A/GAK6i	S	59.0427	-148.6928	196.0	25	9	1142	Drifter 002 SN 13153 deployed
MF26801.08	SatBuoy	3	14	GB-4A/GAK6	S	59.1259	-148.7740	144.7	25	9	1301	Drifter 003 SN 13169 deployed
MF26801.10	SatBuoy	4	15	GB-3A/GAK5	S	59.2765	-148.9618	186.5	25	9	1449	Drifter 004 SN 13158 deployed
MF26901.09	SatBuoy	5	18	GAK6i	S	59.0417	-148.7017	194.3	26	9	0955	Drifter 005 SN 13157 deployed
MF26901.12	SatBuoy	6	20	GAK7i	S	58.8807	-148.5703	292.6	26	9	1207	Drifter 006 SN 13164 deployed
MF27001.13	SatBuoy	7	28	GB-9A	S	59.3697	-148.2361	174.7	27	9	1715	Drifter 007 deployed S/N #22469
MF27101.05	SatBuoy	8	30	GB-2B/GAK3	S	59.5708	-149.2203	216.2	28	9	0458	Drifter released SN 22666
MF27101.12	SatBuoy	9	32	GP2	S	59.0124	-150.9589	161.9	28	9	1939	Deploy drifter 009 SN 23828
MF27201.01	SatBuoy	10	35	GP4	S	58.8776	-150.8996	162.0	29	9	0037	Deploy drifter SN 22366

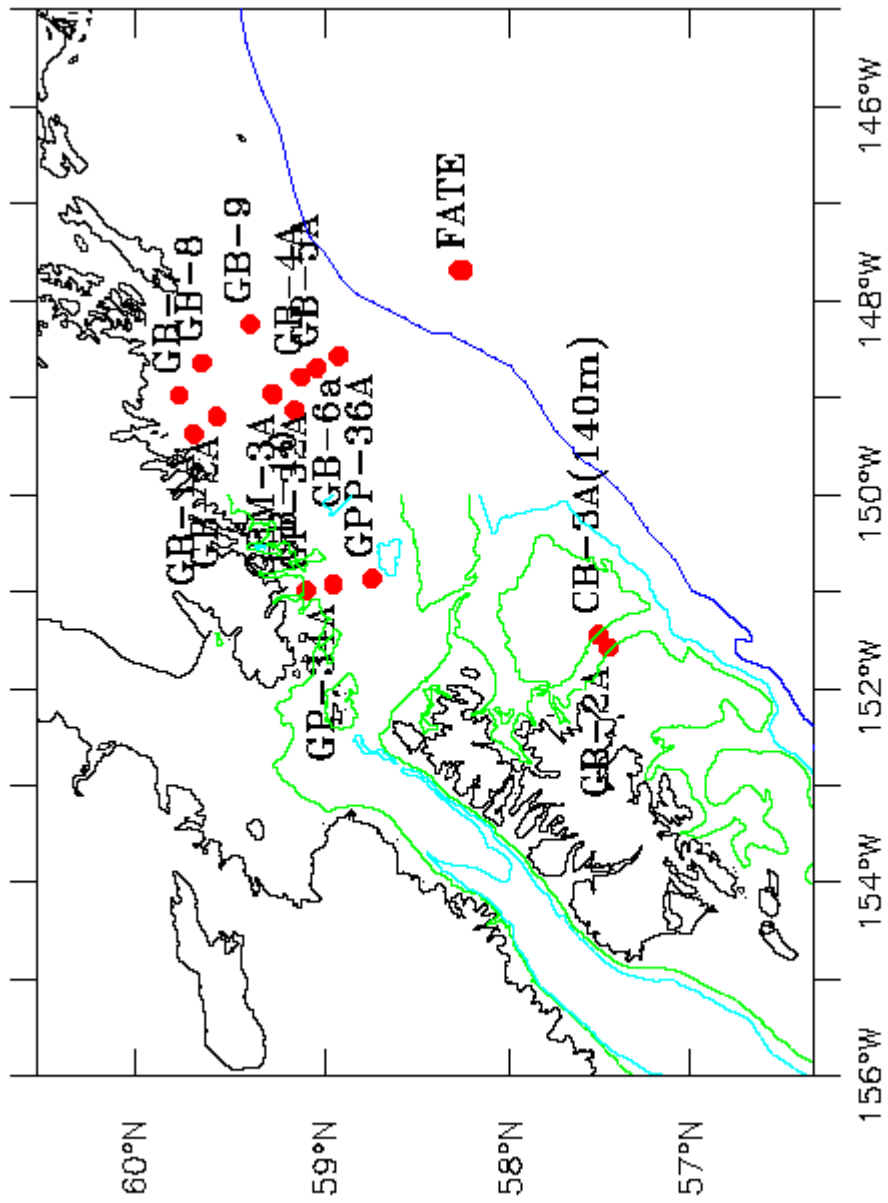


Fig 1. PMEL Moorings(2001)



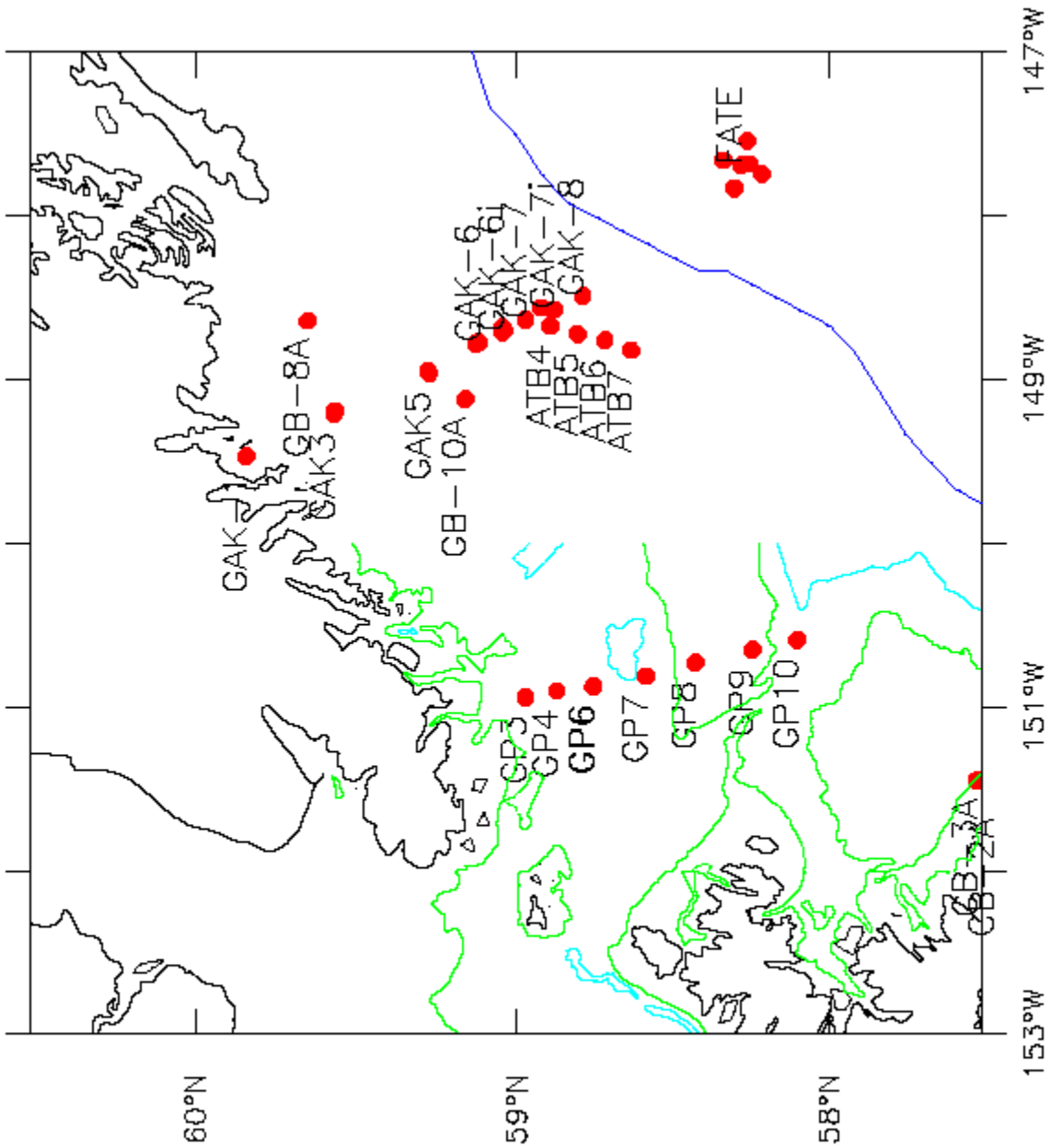


Fig 2. MF01-11 ctd sites

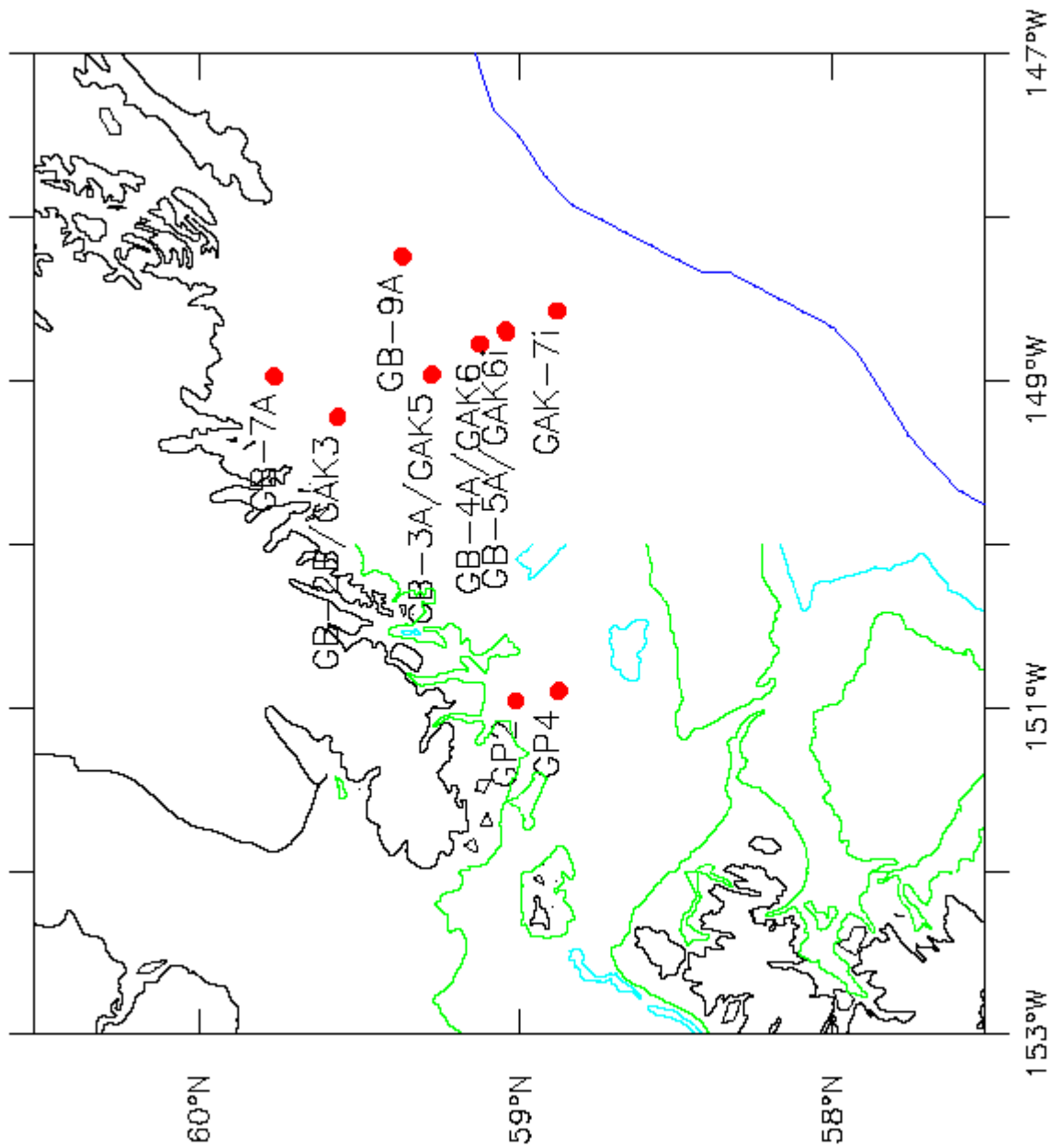


Fig 3. MF01 – 11 Drifter deployments

## **APPENDIX I**

### **MF0111 EVENT LOG**

## EVENT LOG CONTENTS

### Column Label

Event#  
Instrument (Instr)

Cast  
Station (Sta)  
Station Standard (Sta std)  
S/E Flag  
Latitude (Lat)  
Longitude (Long)  
Water Depth  
Day  
Month (Mos)  
Time  
Comments

### Description

Unique identifier for each line of event log  
CTD: Conductivity Temperature Depth profile collected with Seabird SBE with bottles for chlorophyll and nutrients;  
SatBuoy: Deployment of satellite-tracked drifter;  
Mooring Recover: Recovery of in-place mooring and instruments;  
Mooring Deploy: Deployment of mooring and instruments.  
Sequence # for a particular instrument

Start/End flag  
Decimal degrees; north is positive  
Decimal degrees; east is positive  
Depth of bottom  
GMT time basis  
GMT time basis  
GMT time basis

### Appendix I: Event Log

Event#	Instr	Cast	Sta	Sta std	S/E Flag	Lat	Long	Water Depth	Day	Mos	Time	Comments
MF26401.01	Depart	nd	nd	nd	S	57.7238	-152.5255	22.6	21	9	1813	Depart Kodiak, AK
MF26501.01	CTD	1	1	CB-2A	S	57.4620	-151.5720	124.4	22	9	0057	CTD 001; CTD, FI, PAR, Chl, nuts
MF26501.02	Mooring recover	1	1	CB-2A	S	57.4601	-151.5792	112.5	22	9	0120	Release CB-2A mooring; u, v, t, cond.
MF26501.03	CTD	2	2	CB-3A	S	57.5172	-151.4464	141.8	22	9	0230	CTD002 at depth; CTD, FI, PAR, Chl, nuts
MF26501.04	Mooring recover	2	2	CB-3A	S	57.5146	-151.4433	143.6	22	9	0254	Release mooring CB-3A
MF26501.05	Mooring recover	2	2	CB-3A	E	57.5161	-151.4402	137.7	22	9	0306	Mooring surface CB-3A; u, v, ADP, t, cond, FL, NO3, chl
MF26501.06	CTD	3	3	FATE	S	58.2836	-147.6872	247.9	22	9	1854	CTD003 at depth; CTD, Chl, nuts
MF26501.07	Mooring recover	3	3	FATE-M1A	S	58.2586	-147.6796	266.0	22	9	2045	FATE-M1A mooring release tripped
MF26601.01	Mooring recover	3	3	FATE-M1A	E	58.2255	-147.6740	21.6	23	9	0009	Recovery of FATE M1A complete; met data, t, cond
MF26601.02	CTD	4	3	FATE	S	58.2565	-147.6763	254.6	23	9	0129	CTD004 at depth; CTD, Chl, nuts
MF26601.03	Mooring recover	4	4	FATE-P1A	S	58.2772	-147.6854	0.0	23	9	0346	Release FATE-P1A mooring
MF26601.04	Mooring recover	4	4	FATE-P1A	E	58.2492	-147.6638	0.0	23	9	0733	Recovery of FATE-P1A complete; u, v, ADCP, t, cond
MF26601.05	CTD	5	5	FATE-WNW	S	58.3060	-147.8347	194.3	23	9	0923	CTD005 at depth; CTD, Chl, nuts
MF26601.06	CTD	6	6	FATE-NNE	S	58.3423	-147.6595	2083.3	23	9	1134	CTD006 at depth; CTD, Chl, nuts
MF26601.07	CTD	7	7	FATE-ESE	S	58.2650	-147.5362	2084.7	23	9	1342	CTD007 at depth; CTD, Chl, nuts
MF26601.08	CTD	8	8	FATE-SSW	S	58.2182	-147.7397	2336.6	23	9	1540	CTD008 at depth; CTD, Chl, nuts
MF26601.09	Mooring deploy	1	9	FATE-M1B	S	58.3207	-147.7152	2119.4	23	9	2207	Commence deployment of surf mooring FATE M1B
MF26701.01	Mooring deploy	1	9	FATE-M1B	E	58.2745	-147.6719	2403.0	24	9	0110	Deployment FATE-M1B OSCAR
MF26701.02	CTD	9	10	GAK1	S	59.8430	-149.4719	270.7	24	9	2025	CTD009 at depth; CTD, FI, PAR, Chl, nuts
MF26701.03	Mooring recover	5	11	GB-1A/GAK2	S	59.6914	-149.3762	217.6	24	9	2148	GB-1A release tripped
MF26701.04	Mooring recover	5	11	GB-1A/GAK2	E	59.7044	-149.3874	216.3	24	9	2307	GB-1A aboard; u, v, t, cond, fluorescence
MF26801.01	Mooring deploy	2	11	GB-1B/GAK2	S	59.7069	-149.4050	190.7	25	9	0138	Commence deployment of GB-1B mooring
MF26801.02	Mooring deploy	2	11	GB-1B/GAK2	E	59.6919	-149.3673	231.6	25	9	0443	GB-1B deployed; u, v, t, cond, fluorescence
MF26801.03	Mooring deploy	3	12	GB-7A	S	59.7657	-148.9777	192.1	25	9	0644	Subsurface mooring GB-7A deployed; u, v, t, cond.
MF26801.04	SatBuoy	1	12	GB-7A	S	59.7662	-148.9723	191.2	25	9	0650	Drifter 001 SN 13154 deployed
MF26801.05	CTD	10	13	GB-5A/GAK6i	S	59.0412	-148.6972	196.0	25	9	1142	CTD010 at depth; CTD, FI, PAR, Chl, nuts
MF26801.06	SatBuoy	2	13	GB-5A/GAK6i	S	59.0427	-148.6928	196.0	25	9	1142	Drifter 002 SN 13153 deployed
MF26801.07	CTD	11	14	GB-4A/GAK6	S	59.1248	-148.7773	144.5	25	9	1236	CTD011 at depth; CTD, FI, PAR, Chl, nuts
MF26801.08	SatBuoy	3	14	GB-4A/GAK6	S	59.1259	-148.7740	144.7	25	9	1301	Drifter 003 SN 13169 deployed
MF26801.09	CTD	12	15	GB-3A/GAK5	S	59.2748	-148.9625	185.6	25	9	1423	CTD012 at depth; CTD, FI, PAR, Chl, nuts
MF26801.10	SatBuoy	4	15	GB-3A/GAK5	S	59.2765	-148.9618	186.5	25	9	1449	Deploy drifter 004 SN 13158 deployed
MF26801.11	Mooring recover	6	15	GBM-3A/GAK5	S	59.2730	-148.9696	186.3	25	9	1707	Mooring GBM-3A release tripped
MF26801.12	Mooring recover	6	16	GBM-3A/GAK5	E	59.2981	-148.9330	175.6	25	9	1911	Mooring GBM-3A aboard; met data, t, cond, FL, chl, NO3
MF26801.13	Mooring recover	7	16	GBP-3A/GAK5	S	59.2767	-148.9627	186.8	25	9	2044	Mooring GBP-3A release tripped
MF26801.14	Mooring recover	7	16	GBP-3A/GAK5	E	59.2832	-148.9311	175.5	25	9	2125	GBP-3A recovered; u, v, ADCP
MF26901.01	Mooring deploy	4	16	GBM-3B/GAK5	S	59.2371	-149.0066	169.6	26	9	0138	Commence deployment of GBM-3B surface mooring
MF26901.02	Mooring deploy	4	16	GBM-3B/GAK5	nd	59.2673	-148.9755	184.0	26	9	0354	GBM-3B surface mooring in water
MF26901.03	Mooring deploy	4	16	GBM-3B/GAK5	E	59.2744	-148.9687	185.7	26	9	0435	GBM-3B deployed; met. data, t, cond, FL, chl
MF26901.04	Mooring deploy	5	16	GBP-3B/GAK5	S	59.2789	-148.9816	188.8	26	9	0558	Commence deploying GBP-3B
MF26901.05	Mooring deploy	5	16	GBP-3B/GAK5	E	59.2788	-148.9618	184.8	26	9	0646	Mooring GBP-3B deployed; u, v, ADCP, t, cond, NO3
MF26901.06	CTD	13	16	GBP-3B/GAK5	S	59.2788	-148.9478	181.1	26	9	0710	CTD013; CTD, FI, PAR, Chl, nuts

### Appendix I: Event Log (cont'd)

Event#	Instr	Cast	Sta	Sta std	S/E Flag	Lat	Long	Water Depth	Day	Mos	Time	Comments
MF26901.07	CTD	14	17	GAK6	S	59.1194	-148.7728	147.2	26	9	0842	CTD014 at depth; CTD, FI, PAR, Chl, nuts
MF26901.08	CTD	15	18	GAK6i	S	59.0425	-148.7059	191.2	26	9	0936	CTD015 at depth; CTD, FI, PAR, Chl, nuts
MF26901.09	SatBuoy	5	18	GAK6i	S	59.0417	-148.7017	194.3	26	9	0955	Drifter 005 SN 13157 deployed
MF26901.10	CTD	16	19	GAK7	S	58.9721	-148.6326	239.8	26	9	1037	CTD016 at depth; CTD, FI, PAR, Chl, nuts
MF26901.11	CTD	17	20	GAK7i	S	58.8832	-148.5669	293.9	26	9	1146	CTD017 at depth; CTD, FI, PAR, Chl, nuts
MF26901.12	SatBuoy	6	20	GAK7i	S	58.8807	-148.5703	292.6	26	9	1207	Drifter 006 SN 13164 deployed
MF26901.13	CTD	18	21	GAK8	S	58.7910	-148.4915	284.8	26	9	1259	CTD018 at depth; CTD, FI, PAR, Chl, nuts
MF26901.14	CTD	19	22	GB-6A/GAK7-7i	S	58.9229	-148.5641	248.3	26	9	1417	CTD019 at depth; CTD, FI, PAR, Chl, nuts
MF26901.15	Mooring recover	8	22	GB-6A/GAK7-7i	S	58.9246	-148.5682	247.3	26	9	1605	Mooring GB-6A release tripped
MF26901.16	Mooring recover	8	22	GB-6A/GAK7-7i	E	58.9279	-148.5776	245.1	26	9	1637	Mooring GB-6A recovered; ADCP, t, cond.
MF26901.17	Mooring deploy	6	22	GB-6B/GAK7-7i	S	58.9248	-148.5823	247.9	26	9	1711	Commence deployment mooring GB-6B
MF26901.18	Mooring deploy	6	22	GB-6B/GAK7-7i	E	58.9247	-148.5686	247.6	26	9	1749	Mooring GB-6B deployed; ADCP, t, cond.
MF26901.19	Mooring recover	9	18	GB-5A/GAK6i	S	59.0435	-148.6973	192.7	26	9	1839	GB-5A release tripped
MF26901.20	Mooring recover	9	18	GB-5A/GAK6i	E	59.0438	-148.6891	194.1	26	9	1906	Mooring GBG-5A recovered; u, v, t, cond, NO3
MF26901.21	Mooring recover	10	17	GB-4A/GAK6	S	59.1274	-148.7834	146.5	26	9	2015	Mooring GB-4A release tripped
MF26901.22	Mooring recover	10	17	GB-4A/GAK6	E	59.1306	-148.7521	148.0	26	9	2132	Mooring GB-4A recovered; u, v, t, cond, FL, chl
MF26901.23	Mooring deploy	7	23	GB-10A	S	59.1599	-149.1407	169.7	26	9	2304	Commence deployment mooring GB-10A
MF26901.24	Mooring deploy	7	23	GB-10A	E	59.1601	-149.1298	169.2	26	9	2327	GB-10A deployed; u, v, t, cond.
MF26901.25	CTD	20	23	GB-10A	S	59.1613	-149.1209	169.4	26	9	2348	CTD020 at depth; CTD, FI, PAR
MF27001.01	Mooring deploy	8	17	GB-4B/GAK6	S	59.1235	-148.8235	140.3	27	9	0121	Commence deployment mooring GB-4B
MF27001.02	Mooring deploy	8	17	GB-4B/GAK6	E	59.1281	-148.7858	145.4	27	9	0228	Mooring GB-4B deployed; u, v, t, cond, FL, chl
MF27001.03	CTD	21	17	GB-4B/GAK6	S	59.1288	-148.7795	144.6	27	9	0246	CTD021 at depth; CTD, FI, PAR
MF27001.04	Mooring deploy	9	18	GB-5B/GAK6i	S	59.0432	-148.7149	188.0	27	9	0344	Commence deployment mooring GB-5B
MF27001.05	Mooring deploy	9	18	GB-5B/GAK6i	E	59.0427	-148.6934	196.5	27	9	0423	Mooring GB-5B deployed; u, v, t, cond, NO3
MF27001.06	CTD	22	18	GB-5B/GAK6i	S	59.0439	-148.6843	194.3	27	9	0444	CTD022 at depth; CTD, FI, PAR, nuts
MF27001.07	CTD	23	24	ATB7	S	58.6367	-148.8171	125.6	27	9	0807	CTD023 at depth; CTD, FI, PAR, nuts
MF27001.08	CTD	24	25	ATB6	S	58.7202	-148.7622	234.7	27	9	0907	CTD024 at depth; CTD, FI, PAR, nuts
MF27001.09	CTD	25	26	ATB5	S	58.8069	-148.7181	260.1	27	9	1007	CTD025 at depth; CTD, FI, PAR, nuts
MF27001.10	CTD	26	27	ATB4	S	58.8937	-148.6663	265.4	27	9	1107	CTD026 at depth; CTD, FI, PAR, nuts
MF27001.11	Mooring deploy	10	28	GB-9A	S	59.3618	-148.2476	172.4	27	9	1639	Commence deploying mooring GB-9A
MF27001.12	Mooring deploy	10	28	GB-9A	E	59.3663	-148.2437	173.0	27	9	1659	Mooring GB-9A deployed; u, v, t, cond.
MF27001.13	SatBuoy	7	28	GB-9A	S	59.3697	-148.2361	174.7	27	9	1715	Drifter 007 deployed S/N #22469
MF27001.14	Mooring deploy	11	29	GB-8A	S	59.6446	-148.6560	171.4	27	9	2135	Commence deploying mooring GB-8A; u, v, t, cond, NO3
MF27001.15	Mooring deploy	11	29	GB-8A	E	59.6500	-148.6420	179.3	27	9	2206	Mooring GB-8A deployed
MF27001.16	CTD	27	29	GB-8A	S	59.6533	-148.6379	181.1	27	9	2228	CTD027 at depth; CTD, FI, PAR, Chl, nuts
MF27101.01	CTD	28	30	GB-2A/GAK3	S	59.5717	-149.2117	212.7	28	9	0042	CTD028 at depth; CTD, FI, PAR
MF27101.02	Mooring recover	11	30	GB-2A/GAK3	S	59.5692	-149.1974	210.5	28	9	0057	Mooring GB-2A release tripped
MF27101.03	Mooring recover	11	30	GB-2A/GAK3	E	59.5694	-149.1798	206.6	28	9	0212	Mooring GB-2A recovered; u, v, t, cond, FL
MF27101.04	Mooring deploy	12	30	GB-2B/GAK3	S	59.5731	-149.2653	228.7	28	9	0351	Commence deploying mooring GB-2B
MF27101.05	SatBuoy	8	30	GB-2B/GAK3	S	59.5708	-149.2203	216.2	28	9	0458	Drifter released SN 22666
MF27101.06	Mooring deploy	12	30	GB-2B/GAK3	E	59.5699	-149.2046	213.1	28	9	0523	Mooring GB-2B deployed; u, v, t, cond, FL, chl
MF27101.07	CTD	29	30	GB-2B/GAK3	S	59.5684	-149.1904	210.9	28	9	0548	CTD029 at depth; CTD, FI, PAR
MF27101.08	Mooring recover	12	31	GP-32A/GPI	S	59.1052	-150.9978	149.3	28	9	1559	Mooring GP-32A release tripped
MF27101.09	Mooring recover	12	31	GP-32A/GPI	E	59.1099	-151.0290	143.4	28	9	1652	Mooring GP-32A recovered; u, v, t, cond, FL, chl
MF27101.10	Mooring deploy	13	31	GP-32B/GPI	S	59.1066	-150.9630	164.1	28	9	1816	Commence deploying mooring GP-32B
MF27101.11	Mooring deploy	13	31	GP-32B/GPI	E	59.1052	-150.9883	154.4	28	9	1902	Mooring GP-32B deployed; u, v, t, cond, FL, chl

### Appendix I: Event Log (cont'd)

Event#	Instr	Cast	Sta	Sta std	S/E Flag	Lat	Long	Water Depth	Day	Mos	Time	Comments
MF27101.12	SatBuoy	9	32	GP2	S	59.0124	-150.9589	161.9	28	9	1939	Deploy drifter 009 SN 23828
MF27101.13	Mooring recover	13	33	GP-34A/GP3	S	58.9623	-150.9387	143.5	28	9	2046	Mooring GP-34A release tripped
MF27101.14	Mooring recover	13	33	GP-34A/GP3	E	58.9624	-150.9417	145.7	28	9	2130	Mooring GP-34A recovered; u, v, t, cond, FL, chl
MF27101.15	Mooring deploy	14	33	GP-34B/GP3	S	58.9548	-150.9546	142.4	28	9	2235	Commence deployment GP-34A
MF27101.16	Mooring deploy	14	33	GP-34B/GP3	E	58.9630	-150.9333	142.5	28	9	2325	Mooring GP-34B deployed; u, v, t, cond, FL, chl
MF27101.17	CTD	30	34	GP3	S	58.9721	-150.9372	150.3	28	9	2347	CTD031 at depth; ctd, FL, nuts
MF27201.01	SatBuoy	10	35	GP4	S	58.8776	-150.8996	162.0	29	9	0037	Deploy drifter SN 22366
MF27201.02	CTD	31	35	GP4	S	58.8733	-150.9034	164.2	29	9	0103	CTD032 at depth; ctd, fluorescence, nuts
MF27201.03	Mooring recover	14	36	GP-36A/GP6	S	58.7474	-150.8681	183.3	29	9	0202	Mooring GP-36A release tripped
MF27201.04	Mooring recover	14	36	GP-36A/GP6	E	58.7501	-150.8682	181.7	29	9	0221	Mooring GP-36A recovered; u, v, ADCP, t, cond
MF27201.05	CTD	32	36	GP-36A/GP6	S	58.7564	-150.8703	175.6	29	9	0245	CTD033 at depth; ctd, fluorescence, nuts
MF27201.06	Mooring deploy	15	36	GP-36B/GP6	S	58.7476	-150.8692	182.3	29	9	0322	Commence deploying GP-36B mooring
MF27201.07	Mooring deploy	15	36	GP-36B/GP6	E	58.7502	-150.8666	181.7	29	9	0336	Mooring GP-36A deployed; u, v, ADCP, t, cond
MF27201.08	CTD	33	37	GP6	S	58.7567	-150.8761	180.3	29	9	0358	CTD034 at depth; ctd, fluorescence, nuts
MF27201.09	CTD	34	38	GP7	S	58.5886	-150.8091	179.7	29	9	0522	CTD035 at depth; ctd, fluorescence, nuts
MF27201.10	CTD	35	39	GP8	S	58.4312	-150.7331	78.7	29	9	0641	CTD036 at depth; ctd, fluorescence, nuts
MF27201.11	CTD	36	40	GP9	S	58.2473	-150.6504	71.3	29	9	0813	CTD037 at depth; ctd, fluorescence, nuts
MF27201.12	CTD	37	41	GP10	S	58.1033	-150.5905	148.7	29	9	0919	CTD038 at depth; ctd, fluorescence, nuts