

CRUISE REPORT

Cruise Number: MF96-10 (FOCI 8MF96)

NOAA Ship: MILLER FREEMAN

Area of operations: Western Gulf of Alaska

Itinerary: May 23, 1996 Depart Dutch Harbor
June 1, 1996 Arrive Kodiak

Participating organizations: NOAA - Alaska Fisheries Science Center (AFSC)
NOAA - Pacific Marine Environmental Laboratory (PMEL)

Chief Scientist: Mike Canino

Personnel:

<u>Name</u>	<u>Gender/Citizenship</u>	<u>Affiliation</u>
Mike Canino	M/USA	NOAA/AFSC
Steve Porter	M/USA	NOAA/AFSC
Annette Brown	F/USA	NOAA/AFSC
Bill Rugen	M/USA	NOAA/AFSC
Lisa Reid	F/USA	NOAA Teacher at sea
Leslie Lawrence	F/USA	NOAA/PMEL
Dan Dougherty	M/USA	NOAA/PMEL
Destry Wion	M/USA	WWU*

* Western Washinton University

Cruise Objectives:

The objectives of this cruise were to:

- (1) to continue acquisition of long-term biological and physical time series data;
- (2) to conduct a ichthyoplankton survey of pollock larvae for use in estimating distribution, drift, and mortality rates.
- (3) to examine the biotic and abiotic conditions in the eventual nursery areas of pollock larvae.

Summary of operations:

Operations:

ADCP Lines	0
ADCP backtrack "L"	0
CTD casts	12
Plankton tows	130
Bongos, 60 cm	130
Bongos, 20 cm	10
Fishing trawls	0
Tucker trawls	0
MOCNESS tows	0
Live tows	0
Methot trawls	0

Methot trawls	0
Mooring deployments	0
Mooring recoveries	0
Satellite tracked buoy deployment	0
Loran-C drifters deployed	0
Loran-C drifters recovered	0

Samples Collected:

Chlorophyll samples	187
Nutrient samples	102
Microzooplankton samples	48
Plankton samples	150
Predator samples	0
Stomach samples	0
Pollock samples	119

Summary of cruise:

Bongo tow station operations began just outside of Unimak Pass at approximately 22:25 ADT on 24 May. Nine more bongo stations, widely spaced, were occupied en route to the main study area east of the Shumagin Islands. FOCI grid lines 135, 137, 141, and 145-175 were occupied during the cruise and sampled for distribution and abundance of pollock larvae. Estimates of larval abundance, derived from rough counts of bongo tow samples, were moderately high throughout the study area. Highest concentrations of larvae were generally found near the satellite-tracked drifters that were deployed during cruises MF96-07 and MF96-08.

FOCI Line 8 stations and 3 mooring locations (96-01, 96-02, and 96-03) were occupied at the end of the cruise. 20 and 60 cm bongo tows and one CTD cast to the bottom were conducted at each Line 8 station for larval abundance, macrozooplankton abundance, microzooplankton abundance, nutrients, and chlorophyll content. A final line of bongo stations (Line 3) was occupied en route to Kodik for comparison with abundance estimates of pollock larvae made during an earlier cruise (MF96-08).

Sampling operations went quite well during this cruise. No days were lost to weather or mechanical difficulties. The scientific party extends their thanks to the officers and crew of the R/V Miller Freeman. Field Operations Officer (FOO) ENS Dawn Welcher provided excellent service as liaison between scientific operations and the ship's command. We are grateful for the navigational and logistical support given by LT Dan Cheng and CDR John Clary. Survey Technicians Bill Floering and Jonathan Shannahoff and the winch operators did a fine job on deck. We also thank all of the Miller Freeman crew for their hospitality and good company during the cruise.

Specifics of operations: see attached operations summary report (attachment 1), map of 60 cm bongo stations, and contour diagram of estimated larval pollock density.

Attachment 1. MF96-10 Specifics of operations

GM DATE	GMTIME	DLAT	MLAT	DLON	MLONG	STA	HAUL	focigrd	altsta	gearabrv	DEPTH(m)
5/24/96	6:25	54	3.04	164	39.72	1	1	gf101	None	60Bon	94
5/24/96	10:12	54	10.83	163	35.11	2	1	gj107	None	60Bon	91
5/24/96	13:59	54	4.54	162	28.12	3	1	gp111	None	60Bon	777
5/24/96	17:20	54	19.35	161	38.86	4	1	gr117	None	60Bon	145
5/24/96	21:03	54	27.36	160	35.42	5	1	gv123	None	60Bon	128
5/25/96	0:03	54	21.25	159	55.72	6	1	gz125	None	60Bon	240
5/25/96	3:08	54	21.58	159	4.26	7	1	hd129	None	60Bon	1401
5/25/96	5:33	54	43.21	158	54	8	1	hb133	None	60Bon	90
5/25/96	7:54	55	4.12	159	9.45	9	1	gx135	None	60Bon	76
5/25/96	10:21	55	17.7	159	37.38	10	1	gt135	None	60Bon	131
5/25/96	11:42	55	24.78	159	50.88	11	1	gr135	None	60Bon	115
5/25/96	13:05	55	31.58	160	5.1	12	1	gp135	None	60Bon	127
5/25/96	15:35	55	25.13	159	25.37	13	1	gt137	None	60Bon	136
5/25/96	17:44	55	11.27	158	57.19	14	1	gx137	None	60Bon	173
5/25/96	18:57	55	4.47	158	43.8	15	1	gz137	None	60Bon	189
5/25/96	20:12	54	57.38	158	29.9	16	1	hb137	None	60Bon	165
5/25/96	22:28	55	5.23	157	52.21	17	1	hd141	None	60Bon	74
5/25/96	23:37	55	12.1	158	5.81	18	1	hb141	None	60Bon	98
5/26/96	0:51	55	18.93	158	19.53	19	1	gz141	None	60Bon	127
5/26/96	2:04	55	25.84	158	33.11	20	1	gx141	None	60Bon	148
5/26/96	3:20	55	32.73	158	40.84	21	1	gv141	None	60Bon	150
5/26/96	4:35	55	39.73	159	0.64	22	1	gt141	None	60Bon	147
5/26/96	5:46	55	46.45	159	14.29	23	1	gr141	None	60Bon	98
5/26/96	9:31	55	54	158	36.17	24	1	gt145	None	60Bon	111
5/26/96	10:45	55	47.27	158	22.72	25	1	gv145	None	60Bon	118
5/26/96	11:59	55	40.36	158	9	26	1	gx145	None	60Bon	128
5/26/96	13:12	55	33.45	157	55.32	27	1	gz145	None	60Bon	132
5/26/96	14:27	55	26.61	157	41.93	28	1	hb145	None	60Bon	92
5/26/96	15:38	55	19.78	157	28.33	29	1	hd145	None	60Bon	89
5/26/96	16:49	55	12.86	157	15.01	30	1	hf145	None	60Bon	104
5/26/96	18:06	55	5.9	157	1.58	31	1	hh145	None	60Bon	244
5/26/96	19:24	55	13.09	156	49.2	32	1	hh147	None	60Bon	122
5/26/96	20:40	55	20.12	157	2.85	33	1	hf147	None	60Bon	92
5/26/96	21:57	55	27.99	157	16.33	34	1	hd147	None	60Bon	84
5/26/96	23:09	55	33.96	157	29.59	35	1	hb147	None	60Bon	95
5/27/96	0:13	55	40.76	157	42.81	36	1	gz147	None	60Bon	132
5/27/96	1:32	55	47.61	157	56.73	37	1	gx147	None	60Bon	114
5/27/96	2:45	55	54.56	158	10.25	38	1	gv147	None	60Bon	184
5/27/96	3:55	56	1.85	157	57.81	39	1	gv149	None	60Bon	127
5/27/96	5:07	55	54.93	157	44.34	40	1	gx149	None	60Bon	79
5/27/96	6:16	55	48.15	157	30.91	41	1	gz149	None	60Bon	105
5/27/96	7:27	55	41.21	157	17.37	42	1	hb149	None	60Bon	90
5/27/96	8:37	55	34.04	157	3.98	43	1	hd149	None	60Bon	87
5/27/96	9:45	55	27.35	156	50.28	44	1	hf149	None	60Bon	98
5/27/96	10:53	55	20.39	156	37.42	45	1	hh149	None	60Bon	132
5/27/96	12:07	55	27.71	156	25.37	46	1	hh151	None	60Bon	198
5/27/96	13:25	55	34.44	156	38.36	47	1	hf151	None	60Bon	224
5/27/96	14:43	55	41.6	156	51.99	48	1	hd151	None	60Bon	96

Attachment 1. MF96-10 Specifics of operations

GM DATE	GMTIME	DLAT	MLAT	DLON	MLONG	STA	HAUL	focigrd	altsta	gearabrv	DEPTH(m)
5/27/96	15:57	55	48.29	157	5.21	49	1	hb151	None	60Bon	95
5/27/96	17:11	55	55.15	157	18.66	50	1	gz151	None	60Bon	104
5/27/96	18:27	56	2.15	157	32.43	51	1	gx151	None	60Bon	102
5/27/96	19:37	56	9	157	45.61	52	1	gv151	None	60Bon	149
5/27/96	20:54	56	15.93	157	59.32	53	1	gt151	None	60Bon	142
5/27/96	23:10	56	23.07	157	46.08	54	1	gt153	None	60Bon	278
5/28/96	0:18	56	16.2	157	32.97	55	1	gv153	None	60Bon	133
5/28/96	1:24	56	9.46	157	19.41	56	1	gx153	None	60Bon	146
5/28/96	2:34	56	2.4	157	2.14	57	1	gz153	None	60Bon	100
5/28/96	3:42	55	55.57	156	52.83	58	1	hb153	None	60Bon	150
5/28/96	4:49	55	48.85	156	39.63	59	1	hd153	None	60Bon	221
5/28/96	6:00	55	41.98	156	26.31	60	1	hf153	None	60Bon	236
5/28/96	7:11	55	35.13	156	13.12	61	1	hh153	None	60Bon	252
5/28/96	8:16	55	42.25	156	0.56	62	1	hh155	None	60Bon	216
5/28/96	9:31	55	49.07	156	13.71	63	1	hf155	None	60Bon	228
5/28/96	10:47	55	55.96	156	27.3	64	1	hd155	None	60Bon	210
5/28/96	11:54	56	0.08	156	38.73	65	1	hb155	None	60Bon	113
5/28/96	14:11	56	9.7	156	53.74	66	1	gz155	None	60Bon	80
5/28/96	15:22	56	16.69	157	7.23	67	1	gx155	None	60Bon	121
5/28/96	16:35	56	23.59	157	20.63	68	1	gv155	None	60Bon	58
5/28/96	18:04	56	23.9	156	54.78	69	1	gx157	None	60Bon	126
5/28/96	19:15	56	17.09	156	41.51	70	1	gz157	None	60Bon	109
5/28/96	20:26	56	10.22	156	28.21	71	1	hb157	None	60Bon	227
5/28/96	21:38	56	3.31	156	14.73	72	1	hd157	None	60Bon	209
5/28/96	22:46	55	56.42	156	1.7	73	1	hf157	None	60Bon	87
5/28/96	23:55	56	3.57	155	49.18	74	1	hf159	None	60Bon	61
5/29/96	1:05	56	10.48	156	2.53	75	1	hd159	None	60Bon	224
5/29/96	2:16	56	17.39	156	15.62	76	1	hb159	None	60Bon	226
5/29/96	3:25	56	24.28	156	28.77	77	1	gz159	None	60Bon	213
5/29/96	4:36	56	31.83	156	42.52	78	1	gx159	None	60Bon	148
5/29/96	5:43	56	38.16	156	55.83	79	1	gv159	None	60Bon	100
5/29/96	7:02	56	45.36	156	42.87	80	1	gv161	None	60Bon	143
5/29/96	8:06	56	38.68	156	29.82	81	1	gx161	None	60Bon	188
5/29/96	9:22	56	31.61	156	16.51	82	1	gz161	None	60Bon	234
5/29/96	10:40	55	24.72	156	3.3	83	1	hb161	None	60Bon	246
5/29/96	11:55	56	17.85	155	50.26	84	1	hd161	None	60Bon	103
5/29/96	13:09	56	11	155	37.14	85	1	hf161	None	60Bon	59
5/29/96	14:20	56	18.18	155	24.88	86	1	hf163	None	60Bon	53
5/29/96	15:22	56	25.06	155	37.58	87	1	hd163	None	60Bon	76
5/29/96	16:31	56	32.19	155	50.72	88	1	hb163	None	60Bon	232
5/29/96	17:45	56	39.02	156	3.97	89	1	gz163	None	60Bon	295
5/29/96	18:57	56	45.91	156	17.16	90	1	gx163	None	60Bon	186
5/29/96	20:06	56	52.81	156	30.56	91	1	gv163	None	60Bon	87
5/29/96	21:17	57	0.1	156	17.89	92	1	gv165	None	60Bon	84
5/29/96	22:31	56	53.02	156	4.85	93	1	gx165	None	60Bon	204
5/29/96	23:46	56	46.1	155	51.57	94	1	gz165	None	60Bon	291
5/30/96	1:01	56	39.33	155	38.51	95	1	hb165	None	60Bon	231
5/30/96	2:22	56	32.4	155	25.39	96	1	hd165	None	60Bon	63

Attachment 1. MF96-10 Specifics of operations

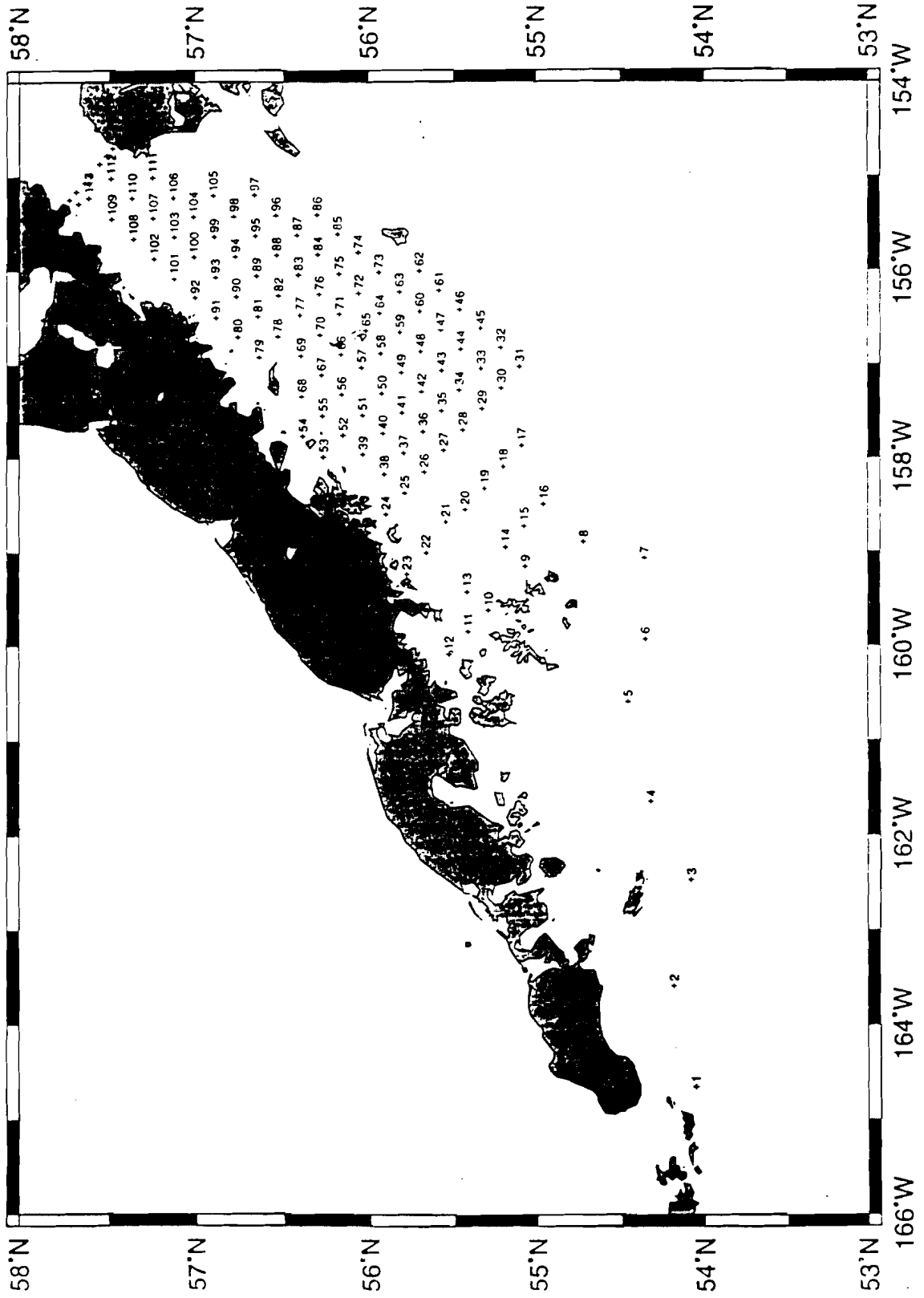
GM DATE	GMTIME	DLAT	MLAT	DLON	MLONG	STA	HAUL	focigrd	altsta	gearabrv	DEPTH(m)
5/30/96	3:32	56	39.66	155	12.74	97	1	hd167	None	60Bon	66
5/30/96	4:37	56	46.57	155	26.05	98	1	hb167	None	60Bon	232
5/30/96	5:45	56	53.4	155	39.09	99	1	gz167	None	60Bon	278
5/30/96	6:52	57	0.39	155	52.02	100	1	gx167	None	60Bon	304
5/30/96	8:02	57	7.44	156	5.33	101	1	gv167	None	60Bon	90
5/30/96	9:09	57	14.53	155	25.75	102	1	gv169	None	60Bon	250
5/30/96	10:18	57	7.44	155	39.1	103	1	gx169	None	60Bon	277
5/30/96	11:20	57	0.57	155	26.09	104	1	gz169	None	60Bon	266
5/30/96	12:26	56	53.67	155	12.85	105	1	hb169	None	60Bon	214
5/30/96	13:58	57	7.79	155	13.91	106	1	gz171	None	60Bon	241
5/30/96	15:08	57	14.9	155	26.79	107	1	gx171	None	60Bon	260
5/30/96	16:15	57	21.75	155	40.08	108	1	gv171	None	60Bon	279
5/30/96	17:23	57	29	157	27.38	109	1	gv173	None	60Bon	294
5/30/96	18:38	57	22.16	155	14.16	110	1	gx173	None	60Bon	244
5/30/96	19:50	57	15.19	155	0.83	111	1	gz173	None	60Bon	208
5/30/96	21:13	57	29.3	155	1.69	112	1	gx175	None	60Bon	229
5/30/96	22:31	57	36.72	155	13.79	113	1	gv175	None	60Bon	277
5/30/96	23:12	57	40.58	155	16.85	114	1	None	td00	CTDB	296
5/30/96	23:41	57	40.48	155	18.05	114	2	None	td00	CTDB	298
5/30/96	23:50	57	40.46	155	17.12	114	3	None	None	CalVet	298
5/31/96	0:07	57	40.1	155	17.63	114	4	None	None	60Bon	303
5/31/96	1:03	57	43.29	155	15.44	115	1	fox061	td00	CTDB	156
5/31/96	1:24	57	43.18	155	15.14	115	2	fox061	None	60Bon	259
5/31/96	2:17	57	40.9	155	9.7	116	1	fox060	td00	CTDB	281
5/31/96	2:47	57	40.96	155	9.66	116	2	fox060	None	60Bon	281
5/31/96	3:40	57	38.44	155	4.21	117	1	fox059	td00	CTDB	247
5/31/96	4:07	57	38.13	155	4.17	117	2	fox059	None	60Bon	246
5/31/96	4:52	57	36.81	155	5.21	118	1	None	td00	CTDB	245
5/31/96	5:21	57	36.82	155	5.17	118	2	None	td00	CTDB	245
5/31/96	5:34	57	36.64	155	4.94	118	3	None	None	CalVet	244
5/31/96	5:53	57	36.55	155	5.03	118	4	None	None	60Bon	243
5/31/96	7:35	57	36.28	155	0.5	119	1	fox058	td00	CTDB	236
5/31/96	8:13	57	36.13	154	59.71	119	2	fox058	None	60Bon	236
5/31/96	9:13	57	33.18	154	52.46	120	1	fox057	td00	CTDB	232
5/31/96	9:40	57	33.06	154	52.4	120	2	fox057	None	60Bon	232
5/31/96	10:31	57	30.84	154	47.13	121	1	fox056	td01	CTDB	214
5/31/96	10:56	57	30.84	154	47.13	121	2	fox056	None	60Bon	214
5/31/96	11:39	57	29.98	154	40.04	122	1	None	td01	CTDB	212
5/31/96	12:09	57	29.85	154	47.81	122	2	None	None	CalVet	207
5/31/96	12:30	57	29.98	154	47.6	122	3	None	None	60Bon	207
5/31/96	13:15	57	28.5	154	42.3	123	1	fox055	td01	CTDB	68
5/31/96	13:31	57	28.67	154	42.27	123	2	fox055	None	60Bon	69
5/31/96	21:59	58	50.89	153	13.2	124	1	fox025	None	60Bon	102
5/31/96	22:33	58	48.36	153	7.89	125	1	fox024	None	60Bon	187
5/31/96	23:05	58	46.4	153	1.94	126	1	fox023	None	60Bon	146
5/31/96	23:39	58	44.49	153	55.51	127	1	fox022	None	60Bon	144
6/1/96	0:15	58	42.58	152	49.54	128	1	fox021	None	60Bon	156
6/1/96	0:53	58	40.47	152	43.54	129	1	fox020	None	60Bon	195

Attachment 1. MF96-10 Specifics of operations

GM DATE	GMTIME	DLAT	MLAT	DLON	MLONG	STA	HAUL	focigrd	altsta	gearabrv	DEPTH(m)
6/1/96	2:46	58	39.22	152	39.07	130	1	fox019	None	60Bon	56

60cm Bongo Stations

Cruise MF96-10 (FOCI 8MF96)



Pollock Larvae Density

May 24-31, 1996

