GLOBEC Northeast Pacific, Coastal Gulf of Alaska

Cruise Report, R/V *Pandalus* (G02-1)
(Alternate Cruise ID: PA0201)

19 - 27 July, 2002

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(Alternative Cruise ID: PA0201)

July 19 - 27, 2002

Chief Scientist:

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Port of Departure: Seward, Alaska
Port of Return: Seward, Alaska

Cruise Objectives

1. Determine distribution and abundance of fish along the Seward hydrographic transect and in southwest PWS and preserve samples for laboratory analysis (surface trawl (Trawl)).
2. Determine the distribution and species composition of net zooplankton in surface waters along the Seward hydrographic transect and in southwest PWS (Tucker).
3. Determine the temperature, salinity, density, and fluorescence of the water column along the Seward hydrographic transect and in southwest PWS (CTD).

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

Lew Haldorson	Juneau Center School of Fishery Ocean Sciences
Jennifer Boldt	Juneau Center School of Fishery Ocean Sciences

Summary of Gear Deployments

See Appendix 1 (Event Log).

Daily Cruise Summary (Narrative)

17 July. Scientists arrived in Seward.

18 July. Sorted gear and prepared for cruise.

19 July. Loaded gear on R/V *Pandalus* at Seward Marine Station.

19 - 26 July. Sampled fish, surface plankton, and measured temperature during the day along the Seward transect and in PWS using the surface trawl, the NIO net, and a CTD.

26 July. Offloaded gear at the Seward Marine Station.

27 July. Scientists left Seward.

Summary of Sampling Operations

A surface trawl (Trawl) was used to sample fish at GAK stations 1 - 5. Three stations in PWS were also sampled with a surface trawl. Fish caught included juvenile pink, chum, and sockeye salmon, immature chinook, as well as some adult salmon of each species. The catches of pink salmon were much higher in PWS (especially at PWS 1) than along the Seward transect. Fish were identified, sorted to species, and counted. Fish were measured and frozen in seawater. Large catches were subsampled.

Surface plankton was sampled at each station, using an NIO net (Tucker) ($1m^2$ mouth, 0.505 mm mesh) equipped with a flowmeter. The NIO net was towed for 5 minutes parallel to the surface trawl track. Three replicate samples were collected at each station. Plankton samples were preserved in 5% buffered formalin.

Surface zooplankton was also sampled with a Bongo net (Bongo) (60 cm diameter, 0.505 mm and 0.333 mm mesh) at two stations (GAK 2 and 3). Where fish were captured with the surface trawl, 3 replicates of a horizontally-towed Bongo net were completed, followed by 3 replicates of a vertically-towed Bongo net from 10 m depth. Finally three replicates of the NIO net and a CTD cast were also conducted. All zooplankton samples were preserved in 5% buffered formalin.

A Seabird Seacat SBE-19 CTD (CTD) was used to measure temperature, salinity, and fluorescence to 100 m depth at each station where surface trawls, NIO trawls, and Bongo tows were conducted. Water samples were collected for turbidity measurements at most stations.

APPENDIX I

PA0201 EVENT LOG

EVENT LOG CONTENTS

Column Label	**Description**
Event#	Unique identifier for each line of event log.
Instrument (Instr)	Trawl: Surface Rope Trawl; 198-m long; 25-m wide; 35-m deep, 1.2 cm mesh liner in cod end; usually towed 30 minutes at surface. Tucker: NIO/Tucker Trawl; 1-m2 mouth opening; 0.505-mm mesh; equipped with flowmeter; towed 5 minutes at surface. Bongo: 60 cm diameter, 0.505 mm and 0.333 mm mesh. CTD: Seabird Seacat SBE-19, with pump and Wetlabs fluorometer; lowered to 100-m depth at all fish stations.
Cast	Sequence # for gear deployed at current station
Station (Sta)	Sequence # for station occupied
Station Standard (Sta std)	
Day	Local time basis
Month (Mos)	Local time basis
Time	Local time
Start/End (S/E) flag	S=Start of event; E=End of event
Latitude (Lat)	Decimal degrees; north is positive
Longitude (Long)	Decimal degrees; east is positive
Water Depth	Depth of bottom
Cast Depth	Maximum depth of deployment
Haul	Cruise sequence number for a particular gear deployment
Comments	

Appendix I: Event Log

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	S/E flag	Lat	Long	Water Depth	Cast Depth	Haul	Comments
PA02201.01	Trawl	1	1	GAK1i	20	7	1039	S	59.7788	-149.4342	274	0	1	125 Fathoms of wire out.
PA02201.02	Trawl	1	1	GAK1i	20	7	1049	E	59.7856	-149.4421	nd	nd	1	
PA02201.03	Tucker	2	1	GAK1i	20	7	1212	S	59.7807	-149.4385	274	0	1	0.28 nmi
PA02201.04	Tucker	2	1	GAK1i	20	7	1217	E	59.7712	-149.4362	nd	nd	1	
PA02201.05	Tucker	3	1	GAK1i	20	7	1219	S	59.7693	-149.4348	272	0	2	0.31 nmi
PA02201.06	Tucker	3	1	GAK1i	20	7	1224	E	59.7645	-149.4322	nd	nd	2	
PA02201.07	Tucker	4	1	GAK1i	20	7	1233	S	59.7562	-149.4275	266	0	3	0.27 nmi
PA02201.08	Tucker	4	1	GAK1i	20	7	1238	E	59.7518	-149.4252	nd	nd	3	
PA02201.09	CTD	5	1	GAK1i	20	7	1247	S	59.7468	-149.4225	261	100	1	cast 00
PA02201.10	Trawl	1	2	GAK2	20	7	1358	S	59.6842	-149.3346	230	0	2	125 Fathoms of wire out.
PA02201.11	Trawl	1	2	GAK2	20	7	1418	E	59.6942	-149.3553	nd	nd	2	
PA02201.12	Tucker	2	2	GAK2	20	7	1458	S	59.6887	-149.3528	239	0	4	0.15 nmi
PA02201.13	Tucker	2	2	GAK2	20	7	1502	E	59.8190	-149.3503	nd	nd	4	
PA02201.14	Tucker	3	2	GAK2	20	7	1504	S	59.6847	-149.3493	235	0	5	0.25 nmi
PA02201.15	Tucker	3	2	GAK2	20	7	1509	E	59.6805	-149.3457	nd	nd	5	
PA02201.16	Tucker	4	2	GAK2	20	7	1511	S	59.6792	-149.3442	231	0	6	0.26 nmi; too rough to do a CTD cast.
PA02201.17	Tucker	4	2	GAK2	20	7	1516	E	59.6752	-149.3405	nd	nd	6	
PA02202.01	Trawl	1	3	PWS2	21	7	1526	S	60.1070	-147.8277	280	0	3	125 Fathoms of wire out.
PA02202.02	Trawl	1	3	PWS2	21	7	1541	E	60.1151	-147.8431	nd	nd	3	
PA02202.03	Tucker	2	3	PWS2	21	7	1648	S	60.1213	-147.8500	282	0	7	0.24 nmi
PA02202.04	Tucker	2	3	PWS2	21	7	1653	E	60.1182	-147.8447	nd	nd	7	
PA02202.05	Tucker	3	3	PWS2	21	7	1655	S	60.1170	-147.8423	281	0	8	0.25 nmi
PA02202.06	Tucker	3	3	PWS2	21	7	1700	E	60.1138	-147.8373	nd	nd	8	
PA02202.07	Tucker	4	3	PWS2	21	7	1701	S	60.1127	-147.8350	285	0	9	0.26 nmi
PA02202.08	Tucker	4	3	PWS2	21	7	1706	E	60.1092	-147.8300	nd	nd	9	
PA02202.09	CTD	5	3	PWS2	21	7	1716	S	60.1058	-147.8298	276	100	2	Cast 01
PA02203.01	Trawl	1	4	PWS1	22	7	0809	S	60.1929	-147.9598	431	0	4	125 Fathoms of wire out; towing into current.
PA02203.02	Trawl	1	4	PWS1	22	7	0824	E	60.2017	-147.9706	nd	nd	4	
PA02203.03	Tucker	2	4	PWS1	22	7	0952	S	60.2022	-147.9747	450	0	10	Heading=145deg
PA02203.04	Tucker	2	4	PWS1	22	7	0957	E	60.1982	-147.9692	nd	nd	10	
PA02203.05	Tucker	3	4	PWS1	22	7	0959	S	60.1963	-147.9663	445	0	11	Heading=148deg
PA02203.06	Tucker	3	4	PWS1	22	7	1004	E	60.1923	-147.9613	nd	nd	11	
PA02203.07	Tucker	4	4	PWS1	22	7	1005	S	60.1907	-147.9590	417	0	12	Heading=151deg
PA02203.08	Tucker	4	4	PWS1	22	7	1010	E	60.1865	-147.9543	nd	nd	12	
PA02203.09	CTD	5	4	PWS1	22	7	1018	S	60.1855	-147.9527	401	100	3	Cast 00
PA02203.10	Trawl	1	5	PWS3	22	7	1208	S	60.0491	-147.6399	146	0	5	125 Fathoms of wire out.
PA02203.11	Trawl	1	5	PWS3	22	7	1223	E	60.0419	-147.6551	nd	nd	5	
PA02203.12	Trawl	2	5	PWS3	22	7	1257	S	60.0390	-147.6522	152	0	6	125 Fathoms of wire out.
PA02203.13	Trawl	2	5	PWS3	22	7	1317	E	60.0308	-147.6740	nd	nd	6	
PA02203.14	Tucker	3	5	PWS3	22	7	1341	S	60.0392	-147.6682	178	0	13	0.26 nmi; heading = 055 deg.
PA02203.15	Tucker	3	5	PWS3	22	7	1346	E	60.0417	-147.6610	nd	nd	13	
PA02203.16	Tucker	4	5	PWS3	22	7	1348	S	60.0428	-147.6578	162	0	14	0.28 nmi; heading = 057 deg.
PA02203.17	Tucker	4	5	PWS3	22	7	1353	E	60.0455	-147.6500	nd	nd	14	
PA02203.18	Tucker	5	5	PWS3	22	7	1355	S	60.0467	-147.6475	148	0	15	0.29 nmi; heading = 055 deg.
PA02203.19	Tucker	5	5	PWS3	22	7	1400	E	60.0495	-147.6397	nd	nd	15	
PA02203.20	CTD	6	5	PWS3	22	7	1406	S	60.0507	-147.6375	145	100	4	Cast 01
PA02204.01	Trawl	1	6	GAK3	23	7	0839	S	59.5466	-149.1828	211	0	7	125 Fa wire out; trawled area where we saw a signal of a school of fish at 30 Fa depth.

Appendix I: Event Log

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	S/E flag	Lat	Long	Water Depth	Cast Depth	Haul	Comments
PA02204.02	Trawl	1	6	GAK3	23	7	0859	E	59.5441	-149.2163	nd	nd	7	
PA02204.03	Tucker	2	6	GAK3	23	7	0926	S	59.5405	-149.2545	226	0	16	0.33 nmi; Heading= 252 deg; chaetognaths.
PA02204.04	Tucker	2	6	GAK3	23	7	0931	E	59.5388	-149.2648	nd	nd	16	
PA02204.05	Tucker	3	6	GAK3	23	7	0933	S	59.5385	-149.2687	230	0	17	0.34 nmi; Heading= 254 deg; chaetognaths.
PA02204.06	Tucker	3	6	GAK3	23	7	0938	E	59.5368	-149.2793	nd	nd	17	
PA02204.07	Tucker	4	6	GAK3	23	7	0940	S	59.5363	-149.2828	243	0	18	0.34 nmi; Heading= 254 deg; chaetognaths.
PA02204.08	Tucker	4	6	GAK3	23	7	0945	E	59.5347	-149.2937	nd	nd	18	
PA02205.01	Trawl	1	7	GAK4	24	7	1000	S	59.3975	-149.0681	202	0	8	Lost floats, so aborted trawl; fog; 6 dogfish.
PA02205.02	Trawl	2	7	GAK4	24	7	1041	S	59.3960	-149.0897	206	0	9	125 Fa wire out.
PA02205.03	Trawl	2	7	GAK4	24	7	1101	E	59.3938	-149.1253	nd	nd	9	
PA02205.04	Tucker	3	7	GAK4	24	7	1130	S	59.3953	-149.1202	212	0	19	0.19 nmi; Heading = 086 deg.
PA02205.05	Tucker	3	7	GAK4	24	7	1135	E	59.4288	-149.1138	nd	nd	19	
PA02205.06	Tucker	4	7	GAK4	24	7	1145	S	59.3965	-149.1015	208	0	20	0.19 nmi
PA02205.07	Tucker	4	7	GAK4	24	7	1150	E	59.3953	-149.0975	nd	nd	20	
PA02205.08	Tucker	5	7	GAK4	24	7	1151	S	59.3953	-149.0950	207	0	21	0.19 nmi; Heading= 089 deg.
PA02205.09	Tucker	5	7	GAK4	24	7	1156	E	59.3955	-149.0888	nd	nd	21	
PA02205.10	CTD	6	7	GAK4	24	7	1206	S	59.3953	-149.0865	205	100	5	Cast 00
PA02205.11	Trawl	1	8	GAK5	24	7	1338	S	59.2649	-148.9178	170	0	10	125 Fa wire out.
PA02205.12	Trawl	1	8	GAK5	24	7	1358	E	59.2666	-148.9483	nd	nd	10	
PA02205.13	Tucker	2	8	GAK5	24	7	1427	S	59.2653	-148.9430	183	0	22	0.31 nmi; Heading = 050 deg.
PA02205.14	Tucker	2	8	GAK5	24	7	1432	E	59.2687	-148.9352	nd	nd	22	
PA02205.15	Tucker	3	8	GAK5	24	7	1434	S	59.2700	-148.9322	176	0	23	0.31 nmi.
PA02205.16	Tucker	3	8	GAK5	24	7	1439	E	59.2732	-148.9243	nd	nd	23	
PA02205.17	Tucker	4	8	GAK5	24	7	1441	S	59.2748	-148.9207	172	0	24	0.3 nmi.
PA02205.18	Tucker	4	8	GAK5	24	7	1446	E	59.2782	-148.9132	nd	nd	24	
PA02205.19	CTD	5	8	GAK5	24	7	1457	S	59.2777	-148.9135	170	100	6	Cast 01
PA02205.20	Trawl	1	9	GAK6	24	7	1642	S	59.1316	-148.7181	148	0	11	150 Fa wire out; too rough; starboard buoys are not up; so hauled the net back.
PA02205.21	Trawl	1	9	GAK6	24	7	1647	E	59.1336	-148.7094	nd	nd	11	
PA02206.01	Trawl	1	10	GAK2	25	7	1004	S	59.6868	-149.3332	227	0	12	125 Fa wire out.
PA02206.02	Trawl	1	10	GAK2	25	7	1024	E	59.6969	-149.3256	nd	nd	12	
PA02206.03	Bongo	2	10	GAK2	25	7	1102	S	59.6838	-149.3332	237	0	1	0.18 nmi; horizontal tow; heading 026 deg; 505 and 333 u mesh.
PA02206.04	Bongo	2	10	GAK2	25	7	1107	E	59.6867	-149.3308	nd	nd	1	
PA02206.05	Bongo	3	10	GAK2	25	7	1110	S	59.6888	-149.3287	227	0	2	0.19 nmi; horizontal tow; heading 032 deg; 505 and 333 u mesh.
PA02206.06	Bongo	3	10	GAK2	25	7	1115	E	59.6915	-149.3255	nd	nd	2	
PA02206.07	Bongo	4	10	GAK2	25	7	1120	S	59.6945	-149.3225	224	0	3	0.19 nmi; horizontal tow; heading 034 deg; 505 and 333 u mesh.
PA02206.08	Bongo	4	10	GAK2	25	7	1125	E	59.6972	-149.3192	nd	nd	3	
PA02206.09	Bongo	5	10	GAK2	25	7	1136	S	59.6897	-149.3257	225	10	4	Vertical tow from 10m.
PA02206.10	Bongo	6	10	GAK2	25	7	1141	S	59.6873	-149.3272	225	10	5	Vertical tow from 10m.
PA02206.11	Bongo	7	10	GAK2	25	7	1145	S	59.6860	-149.3267	227	10	6	Vertical tow from 10m.
PA02206.12	Tucker	8	10	GAK2	25	7	1150	S	59.6848	-149.3268	225	0	25	0.15 nmi.
PA02206.13	Tucker	8	10	GAK2	25	7	1155	E	59.6868	-149.3240	nd	nd	25	
PA02206.14	Tucker	9	10	GAK2	25	7	1157	S	59.6877	-149.3235	224	0	26	0.17 nmi.
PA02206.15	Tucker	9	10	GAK2	25	7	1202	E	59.6898	-149.3203	nd	nd	26	
PA02206.16	Tucker	10	10	GAK2	25	7	1203	S	59.6910	-149.3192	223	0	27	0.17 nmi.

Appendix I: Event Log

Event#	Instr	Cast	Sta	Sta std	Day	Mos	Time	S/E flag	Lat	Long	Water Depth	Cast Depth	Haul	Comments
PA02206.17	Tucker	10	10	GAK2	25	7	1208	E	59.6933	-149.3162	nd	nd	27	
PA02206.18	CTD	11	10	GAK2	25	7	1216	S	59.6925	-149.3160	221	100	7	Cast 02
PA02206.19	Trawl	1	11	GAK3	25	7	1359	S	59.5535	-149.1861	214	0	13	125 Fa wire out; sunny/partly cloudy.
PA02206.20	Trawl	1	11	GAK3	25	7	1419	E	59.5668	-149.1749	nd	nd	13	
PA02206.21	Bongo	2	11	GAK3	25	7	1459	S	59.5607	-149.1767	210	0	7	0.28 nmi; horizontal tow; heading 028 deg.
PA02206.22	Bongo	2	11	GAK3	25	7	1504	E	59.5648	-149.1723	nd	nd	7	
PA02206.23	Bongo	3	11	GAK3	25	7	1507	S	59.5672	-149.1698	207	0	8	0.27nmi; horizontal tow.
PA02206.24	Bongo	3	11	GAK3	25	7	1512	E	59.5712	-149.1657	nd	nd	8	
PA02206.25	Bongo	4	11	GAK3	25	7	1515	S	59.5745	-149.1620	204	0	9	0.28 nmi; horizontal tow.
PA02206.26	Bongo	4	11	GAK3	25	7	1520	E	59.5783	-149.1570	nd	nd	9	
PA02206.27	Bongo	5	11	GAK3	25	7	1529	S	59.5745	-149.1632	206	10	10	vertical tow from 10m.
PA02206.28	Bongo	6	11	GAK3	25	7	1533	S	59.5737	-149.1670	209	10	11	vertical tow from 10m.
PA02206.29	Bongo	7	11	GAK3	25	7	1539	S	59.5715	-149.1688	208	10	12	vertical tow from 10m.
PA02206.30	Tucker	8	11	GAK3	25	7	1545	S	59.5672	-149.1690	208	0	28	0.27 nmi
PA02206.31	Tucker	8	11	GAK3	25	7	1550	E	59.5708	-149.1640	nd	nd	28	
PA02206.32	Tucker	9	11	GAK3	25	7	1552	S	59.5708	-149.1640	205	0	29	0.28 nmi
PA02206.33	Tucker	9	11	GAK3	25	7	1557	E	59.5760	-149.1562	nd	nd	29	
PA02206.34	Tucker	10	11	GAK3	25	7	1558	S	59.5773	-149.1542	202	0	30	0.24 nmi
PA02206.35	Tucker	10	11	GAK3	25	7	1603	E	59.5805	-149.1493	nd	nd	30	
PA02206.36	CTD	11	11	GAK3	25	7	1610	S	59.5790	-149.1490	202	100	8	Cast 03
PA02207.01	Trawl	1	12	GAK1i	26	7	0752	S	59.7644	-149.3947	257	0	14	Fog and rain; 125 Fa wire out.
PA02207.02	Trawl	1	12	GAK1i	26	7	0812	E	59.7764	-149.4116	nd	nd	14	
PA02207.03	Trawl	2	12	GAK1i	26	7	0900	S	59.7676	-149.3961	258	0	15	125 Fa wire out.
PA02207.04	Trawl	2	12	GAK1i	26	7	0920	E	59.7801	-149.4128	nd	nd	15	
PA02207.05	Trawl	3	12	GAK1i	26	7	1006	S	59.7664	-149.3882	255	0	16	125 Fa wire out; approaching low tide.
PA02207.06	Trawl	3	12	GAK1i	26	7	1026	E	59.7787	-149.4062	nd	nd	16	
PA02207.07	Trawl	4	12	GAK1i	26	7	1107	S	59.7806	-149.4037	267	0	17	125 Fa wire out; towed in opposite direction of the other 3 tows.
PA02207.08	Trawl	4	12	GAK1i	26	7	1127	E	59.7686	-149.3871	nd	nd	17	
PA02207.09	Tucker	5	12	GAK1i	26	7	1201	S	59.7708	-149.3877	259	0	31	Heading = 325 deg.
PA02207.10	Tucker	5	12	GAK1i	26	7	1206	E	59.7748	-149.3928	nd	nd	31	
PA02207.11	Tucker	6	12	GAK1i	26	7	1208	S	59.7763	-149.3952	263	0	32	Heading = 328 deg.
PA02207.12	Tucker	6	12	GAK1i	26	7	1213	E	59.7807	-149.4003	nd	nd	32	
PA02207.13	Tucker	7	12	GAK1i	26	7	1214	S	59.7822	-149.4027	267	0	33	Heading = 330 deg.
PA02207.14	Tucker	7	12	GAK1i	26	7	1219	E	59.7867	-149.4078	nd	nd	33	
PA02207.15	CTD	8	12	GAK1i	26	7	1228	S	59.7852	-149.4093	272	100	9	Cast 00