

## CRUISE REPORT

Cruise Number: FA-05-01  
FOCI Number: FOCI 1FA05  
Ship: NOAA Ship *Fairweather*

### Area of Operations: East Kodiak, Alaska

#### Itinerary:

Departed Kodiak, Alaska, at 1000 hours on Tuesday, July 19, 2005.  
Arrived Dutch Harbor, Alaska, at 0900 hours on Thursday, July 28, 2005.

#### Participating Organizations:

NOAA – Alaska Fisheries Science Center (AFSC)  
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#### Objectives of Cruise:

The cruise was a joint line-office effort (NOAA Fisheries/NOAA Research) to examine how nutrients, phytoplankton, zooplankton, and ichthyoplankton over the continental shelf are advected to nearshore juvenile fish nursery areas. Climate variability can affect this transfer of production by modifying the paths of the Alaska Coastal Current and the Alaska Stream, potentially affecting the fish that utilize the nearshore areas as nursery grounds in the late spring and summer. Biological sampling included Bongo and Tucker trawls to provide new information on the distribution of larval and juvenile fish and zooplankton. Oceanographic observations included deployment of satellite-tracked drifters to study eddy formation and current trajectories, and CTD samples to provide summer-collected information on phytoplankton biomass and distribution, and on nutrients that feed the continental shelf trophic web. Oceanographic and

biological observations from this research cruise will be integrated to provide a clearer picture of how the GOA ecosystem may respond to climate forcing during summer.

### Summary of Operations:

Gears Used	Tows
60cm bongo (60Bon)	47
Seabird SeaCAT CTD (CAT)	50
CTD with bottle samples (CTDB)	54
10" inner diameter modified Clarke-Bumpus (LG-CB)	16
Deployment of satellite buoy (SatBuoy)	6
1m <sup>2</sup> Tucker trawl (Tuck1)	20

### Summary of Cruise:

#### Grid survey:

Departure from Kodiak, AK occurred at 1000 hrs on July 19, 2005. At Stations 1-21, a Tucker tow (333 $\mu$ m mesh) with a Seacat profiler mounted in-line with the trawl frame was conducted first, with the nets tripped between 10 off bottom to 40 m depth, and then from 40m depth to the surface. A 153  $\mu$ m mesh, Clarke Bumpus net was strung inside the mouth of the drogue (Net 0) to collect small zooplankters on the downcast. Problems with the Tucker gear precluded sampling with the Tucker trawl after Station 21, so a 60 cm Bongo sampling array was used for Stations 22-81. Bongo tows were conducted without a Seacat profiler mounted on the towing wire for Stations 23-54. At these stations, net depth was estimated from scope tables using wire angle and wire out estimates (see FOCI Field Manual). The Seacat profiler belonging to NOAA Ship *Fairweather* was deployed after Bongo net tows at these stations to provide temperature and salinity profiles. At station 55, the Seacat profiler was remounted on the towing wire (in-line with the wire) and all subsequent bongo tows were made with the profiler on. CTD casts were conducted at stations 2, 6-12, 34-81, and nutrients and chlorophyll data were collected in addition to physical data. Methot trawls were not conducted due to problems with the electronics equipment.

#### Satellite-Tracked Drifters:

Satellite-tracked drifters (40m drogues) were deployed at Station 16 (drifter #57887), Station 20 (drifter #57889), Station 26 (drifter #57874), Station 31 (drifter # 57879), Station 36 (drifter #57872), and Station 42 (drifter # 57870). Drifters were deployed to study currents and eddies on the GOA shelf.

#### Sampling for Northern Rock Sole:

Additional net towing for ichthyoplankton (in particular, northern rock sole) occurred at selected stations. At stations 1- 5, 32-36, 39, 44, 55, and 56 additional oblique Tucker

tows, or bongo net 2, was sorted for ichthyoplankton. Larvae were removed and preserved in 95% EtOH.

Sampling in Barnabus Canyon:

A line of CTD casts were conducted in Barnabus Canyon for a special study project. Stations 60-65 were plotted along Barnabus Canyon from one end to the other and CTD casts were taken at each point. In addition to temperature and salinity profiles at each station, chlorophyll and nutrient samples were collected. Data will be used to characterize a front that occurs in the canyon in summer.

Time lost: 19 hrs due to delayed departure from Kodiak, AK  
10 hrs due to inoperable weather conditions

**Acknowledgments:** The Eco-FOCI Program extends its thanks to the officers and crew of NOAA Ship *Fairweather*. All officers and crew performed their duties professionally, and the success of the cruise was dependent on their efforts. Special thanks to Mark Wexler, for assisting with coordination of field sampling operations, Richard Charter for his efforts troubleshooting communication difficulties with Seacat and CTD arrays, and to the Deck and Survey Departments for their hard work helping us collect the samples we needed. We appreciate the efforts of everyone to help us achieve our goals.

### Cruise Summary:

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbrv	SampAbrv	HaulComments
19-Jul-05	11:14	1	1	71	57.638	152.4	CAT	CAT	
19-Jul-05	11:14	1	1	71	57.638	152.4	LG-CB	QTowF	
19-Jul-05	11:14	1	1	71	57.638	152.4	Tuck1	QTowF	Tucker Net 1: Four medium sized jelly fish removed from sample
19-Jul-05	11:14	1	1	71	57.638	152.4	Tuck1	QTowF	
20-Jul-05	0:57	2	1	35	57.701	152.417	CAT	CAT	
20-Jul-05	0:57	2	1	35	57.701	152.417	Lg-CB	QTowF	1 LARGE JELLY REMOVED FROM NET 2
20-Jul-05	0:57	2	1	35	57.701	152.417	Tuck1	QTowF	
20-Jul-05	0:57	2	1	35	57.701	152.417	Tuck1	QTowF	1 large jelly removed from net 2.
20-Jul-05	1:27	2	2	32	57.699	152.421	CAT	CAT	
20-Jul-05	1:27	2	2	32	57.699	152.421	Tuck1	THTUCK	ONLY 1 NET FISHED OBLIQUE
20-Jul-05	1:55	2	3	32	57.696	152.432	CTDB	Chlor	
20-Jul-05	1:55	2	3	32	57.696	152.432	CTDB	CMNuts	
20-Jul-05	1:55	2	3	32	57.696	152.432	CTDB	CTD	
20-Jul-05	1:55	2	3	32	57.696	152.432	CTDB	PAR	
20-Jul-05	3:20	3	1	106	57.78	152.05	CTDB	Chlor	
20-Jul-05	3:20	3	1	106	57.78	152.05	CTDB	CMNuts	
20-Jul-05	3:20	3	1	106	57.78	152.05	CTDB	CTD	
20-Jul-05	3:20	3	1	106	57.78	152.05	CTDB	PAR	
20-Jul-05	3:40	3	2	100	57.777	152.054	CAT	CAT	
20-Jul-05	3:40	3	2	100	57.777	152.054	LG-CB	QTowF	
20-Jul-05	3:40	3	2	100	57.777	152.054	Tuck1	QTowF	
20-Jul-05	3:40	3	2	100	57.777	152.054	Tuck1	QTowF	
20-Jul-05	4:10	3	3	89	57.777	152.055	CAT	CAT	
20-Jul-05	4:10	3	3	89	57.777	152.055	Tuck1	THTUCK	
20-Jul-05	5:38	4	1	79	57.831	152.405	CAT	CAT	
20-Jul-05	5:38	4	1	79	57.831	152.405	LG-CB	QTowF	In drogue.
20-Jul-05	5:38	4	1	79	57.831	152.405	Tuck1	QTowF	
20-Jul-05	5:38	4	1	79	57.831	152.405	Tuck1	QTowF	
20-Jul-05	6:07	4	2	78	57.83	152.408	CAT	CAT	

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbrv	SampAbrv	HaulComments
20-Jul-05	6:07	4	2	78	57.83	152.408	Tuck1	THTUCK	Sample not kept; only fish larvae.
20-Jul-05	7:37	5	1	210	58.039	152.369	CAT	CAT	
20-Jul-05	7:37	5	1	210	58.039	152.369	LG-CB	QTowF	In drogue.
20-Jul-05	7:37	5	1	210	58.039	152.369	Tuck1	QTowF	
20-Jul-05	7:37	5	1	210	58.039	152.369	Tuck1	QTowF	
20-Jul-05	9:39	5	2	225	58.039	152.372	CAT	CAT	Seacat not working.
20-Jul-05	9:39	5	2	225	58.039	152.372	Tuck1	THTUCK	Seacat not working; depth unknown so entered as 0. Aprox 150m wire out.
20-Jul-05	18:08	6	1	63	59.158	151.017	CTDB	Chlor	
20-Jul-05	18:08	6	1	63	59.158	151.017	CTDB	CMNuts	
20-Jul-05	18:08	6	1	63	59.158	151.017	CTDB	CTD	
20-Jul-05	18:08	6	1	63	59.158	151.017	CTDB	PAR	
20-Jul-05	18:43	7	1	169	59.095	150.997	CTDB	Chlor	
20-Jul-05	18:43	7	1	169	59.095	150.997	CTDB	CMNuts	
20-Jul-05	18:43	7	1	169	59.095	150.997	CTDB	CTD	
20-Jul-05	18:43	7	1	169	59.095	150.997	CTDB	PAR	
20-Jul-05	19:43	8	1	163	59.01	150.964	CTDB	Chlor	Some water spilled from 75m sample during filtration.
20-Jul-05	19:43	8	1	163	59.01	150.964	CTDB	CMNuts	Some water spilled from 75m sample during filtration.
20-Jul-05	19:43	8	1	163	59.01	150.964	CTDB	CTD	Some water spilled from 75m sample during filtration.
20-Jul-05	19:43	8	1	163	59.01	150.964	CTDB	PAR	Some water spilled from 75m sample during filtration.
20-Jul-05	20:30	9	1	168	58.948	150.935	CTDB	Chlor	
20-Jul-05	20:30	9	1	168	58.948	150.935	CTDB	CMNuts	
20-Jul-05	20:30	9	1	168	58.948	150.935	CTDB	CTD	
20-Jul-05	20:30	9	1	168	58.948	150.935	CTDB	PAR	
20-Jul-05	21:20	10	1	161	58.88	150.904	CTDB	Chlor	
20-Jul-05	21:20	10	1	161	58.88	150.904	CTDB	CTD	
20-Jul-05	21:20	10	1	161	58.88	150.904	CTDB	PAR	
20-Jul-05	22:00	11	1	192	58.818	150.885	CTDB	Chlor	
20-Jul-05	22:00	11	1	192	58.818	150.885	CTDB	CTD	
20-Jul-05	22:00	11	1	192	58.818	150.885	CTDB	PAR	
20-Jul-05	22:39	12	1	180	58.75	150.865	CTDB	Chlor	Bottles 0;10 and 20 did not trip.
20-Jul-05	22:39	12	1	180	58.75	150.865	CTDB	CTD	Bottles 0;10 and 20 did not trip.

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbrv	SampAbrv	HaulComments
20-Jul-05	22:39	12	1	180	58.75	150.865	CTDB	PAR	Bottles 0;10 and 20 did not trip.
21-Jul-05	1:44	13	1	210	58.651	150.729	CAT	CAT	Tucke Net 1 2 small jellies removed. Net 2 one large jelly removed
21-Jul-05	1:44	13	1	210	58.651	150.729	LG-CB	QTowF	Tucke Net 1 2 small jellies removed. Net 2 one large jelly removed
21-Jul-05	1:44	13	1	210	58.651	150.729	Tuck1	QTowF	Tucke Net 1 2 small jellies removed. Net 2 one large jelly removed
21-Jul-05	1:44	13	1	210	58.651	150.729	Tuck1	QTowF	Tucke Net 1 2 small jellies removed. Net 2 one large jelly removed
21-Jul-05	3:30	14	1	81	58.471	150.457	CAT	CAT	
21-Jul-05	3:30	14	1	81	58.471	150.457	LG-CB	QTowF	
21-Jul-05	3:30	14	1	81	58.471	150.457	Tuck1	QTowF	
21-Jul-05	3:30	14	1	81	58.471	150.457	Tuck1	QTowF	
21-Jul-05	4:49	15	1	51	58.302	150.188	CAT	CAT	only fished 1 net (net1).
21-Jul-05	4:49	15	1	51	58.302	150.188	LG-CB	QTowF	In drogue. Slight spill from CB net
21-Jul-05	4:49	15	1	51	58.302	150.188	Tuck1	QTowF	only fished 1 net (net1). Slight spill from CB net
21-Jul-05	6:08	16	1	184	58.142	149.951	CAT	CAT	
21-Jul-05	6:08	16	1	184	58.142	149.951	LG-CB	QTowF	
21-Jul-05	6:08	16	1	184	58.142	149.951	Tuck1	QTowF	
21-Jul-05	6:08	16	1	184	58.142	149.951	Tuck1	QTowF	
21-Jul-05	6:15	16	2	180	58.137	149.949	SatBuoy	DRIFT	Drifter #57887 40 m drogue
21-Jul-05	7:35	17	1	124	57.978	149.682	CAT	CAT	
21-Jul-05	7:35	17	1	124	57.978	149.682	LG-CB	QTowF	in drogue
21-Jul-05	7:35	17	1	124	57.978	149.682	Tuck1	QTowF	
21-Jul-05	7:35	17	1	124	57.978	149.682	Tuck1	QTowF	
21-Jul-05	9:35	18	1	211	57.778	150.073	CAT	CAT	
21-Jul-05	9:35	18	1	211	57.778	150.073	LG-CB	QTowF	
21-Jul-05	9:35	18	1	211	57.778	150.073	Tuck1	QTowF	
21-Jul-05	9:35	18	1	211	57.778	150.073	Tuck1	QTowF	
21-Jul-05	11:48	19	1	190	57.995	150.265	CAT	CAT	
21-Jul-05	11:48	19	1	190	57.995	150.265	LG-CB	QTowF	in drogue
21-Jul-05	11:48	19	1	190	57.995	150.265	Tuck1	QTowF	
21-Jul-05	11:48	19	1	190	57.995	150.265	Tuck1	QTowF	
21-Jul-05	12:50	20	1	159	58.068	150.56	CAT	CAT	Seacat transmission stopped during tow; brought back on board; no samples taken. Header info estimated after tow.

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbvr	SampAbvr	HaulComments
21-Jul-05	12:50	20	1	159	58.068	150.56	LG-CB	Discard	Seacat transmission stopped during tow; brought back on board; no samples taken. Header info estimated after tow.
21-Jul-05	12:50	20	1	159	58.068	150.56	Tuck1	Discard	Seacat transmission stopped during tow; brought back on board; no samples taken. Header info estimated after tow.
21-Jul-05	12:50	20	1	159	58.068	150.56	Tuck1	Discard	Seacat transmission stopped during tow; brought back on board; no samples taken. Header info estimated after tow.
21-Jul-05	16:17	20	2	150	58.058	150.56	SatBuoy	DRIFT	Drifter #57889.
21-Jul-05	18:51	20	3	141	58.058	150.575	CAT	CAT	Sand on cod end #1, sand in Clarke Bumpus. Nets hung up, no samples tucker.
21-Jul-05	18:51	20	3	141	58.058	150.575	LG-CB	Discard	Sand on cod end #1, sand in Clarke Bumpus. Nets hung up, no samples tucker.
21-Jul-05	18:51	20	3	141	58.058	150.575	Tuck1	Discard	Sand on cod end #1, sand in Clarke Bumpus. Nets hung up, no samples tucker.
21-Jul-05	18:51	20	3	141	58.058	150.575	Tuck1	Discard	Sand on cod end #1, sand in Clarke Bumpus. Nets hung up, no samples tucker.
21-Jul-05	19:25	20	4	143	58.06	150.577	CAT	CAT	Clarke Bumpus failed b/c clip holding it in broke.
21-Jul-05	19:25	20	4	143	58.06	150.577	LG-CB	Discard	Clarke Bumpus failed b/c clip holding it in broke.
21-Jul-05	19:25	20	4	143	58.06	150.577	Tuck1	QTowF	Clarke Bumpus failed b/c clip holding it in broke.
21-Jul-05	19:25	20	4	143	58.06	150.577	Tuck1	QTowF	Clarke Bumpus failed b/c clip holding it in broke.
21-Jul-05	21:15	21	1	65	58.335	150.773	CAT	CAT	Couldn't detect when messenger triggered nets open. Wire angle shallow. Tow times estimated.
21-Jul-05	21:15	21	1	65	58.335	150.773	LG-CB	QTowF	Couldn't detect when messenger triggered nets open. Wire angle shallow. Tow times estimated.
21-Jul-05	21:15	21	1	65	58.335	150.773	Tuck1	QTowF	Couldn't detect when messenger triggered nets open. Wire angle shallow. Tow times estimated.
21-Jul-05	21:15	21	1	65	58.335	150.773	Tuck1	QTowF	Couldn't detect when messenger triggered nets open. Wire angle shallow. Tow times estimated.
21-Jul-05	23:05	22	1	89	58.321	151.001	60Bon	QTowF	Bongo out at 32m/min. Nets fishes to 30 m off bottom. Wire out derived from winch rate. All subsequent bon nets the same.
21-Jul-05	23:05	22	1	89	58.321	151.001	60Bon	Discard	Bongo out at 32m/min. Nets fishes to 30 m off bottom. Wire out derived from winch rate. All subsequent bon nets the same.
22-Jul-05	0:04	23	1	69	58.484	151.04	60Bon	QTowF	depth estimated by wire out rate
22-Jul-05	0:04	23	1	69	58.484	151.04	60Bon	Discard	depth estimated by wire out rate

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbvr	SampAbvr	HaulComments
22-Jul-05	1:19	24	1	188	58.667	151.295	60Bon	Discard	gear depth estimates by wire out rate. Flowmeter not working.
22-Jul-05	1:19	24	1	188	58.667	151.295	60Bon	QTowF	gear depth estimates by wire out rate. Net 1 Flowmeter not working.
22-Jul-05	1:48	24	2	189	58.673	151.294	CAT	CAT	seacat deployed after bon tow
22-Jul-05	3:25	25	1	142	58.807	150.991	60Bon	QTowF	gear depth estimated by wire out
22-Jul-05	3:25	25	1	142	58.807	150.991	60Bon	Discard	gear depth estimated by wire out
22-Jul-05	3:46	25	2	162	58.815	151	CAT	CAT	
22-Jul-05	5:06	26	1	151	58.971	151.26	60Bon	QTowF	151m - 30m = 121 m gear depth. 170 m wire out estimated
22-Jul-05	5:06	26	1	151	58.971	151.26	60Bon	Discard	151m - 30m = 121 m gear depth. 170 m wire out estimated
22-Jul-05	5:30	26	2	148	58.974	151.251	CAT	CAT	used ships seacat
22-Jul-05	5:53	26	4	158	58.971	151.236	60Bon	QTowF	gear depth estimated. 158-30 = 128.
22-Jul-05	5:53	26	4	158	58.971	151.236	60Bon	Discard	gear depth estimated. 158-30 = 128.
22-Jul-05	5:35	26	3	150	58.974	151.249	SatBuoy	DRIFT	drifter #57874. 40m drogue
22-Jul-05	7:22	27	1	110	58.844	151.569	60Bon	QTowF	110-30m = 80 m gear depth
22-Jul-05	7:22	27	1	110	58.844	151.569	60Bon	Discard	110-30m = 80 m gear depth
22-Jul-05	7:53	27	2	123	58.84	151.575	CAT	CAT	
22-Jul-05	9:07	28	1	115	58.726	151.897	60Bon	QTowF	Bot depth(BD)- 25m (safety). Wire out estimated from desired gear depth(DGD) and approx winch speed 32 m/min. 115BD-25=90DGD from scope tables wire out = 127 * 1min/32m = 3min 58 sec exp deploy time.
22-Jul-05	9:07	28	1	115	58.726	151.897	60Bon	Discard	Bot depth(BD)- 25m (safety). Wire out estimated from desired gear depth(DGD) and approx winch speed 32 m/min. 115BD-25=90DGD from scope tables wire out = 127 * 1min/32m = 3min 58 sec exp deploy time.
22-Jul-05	9:31	28	2	100	58.726	151.911	CAT	CAT	Ships seacat depolyed after bongo.
22-Jul-05	12:25	29	1	36	58.355	151.822	60Bon	QTowF	Bot depth(BD)- 10m (safety). Wire out estimated from desired gear depth(DGD) and approx winch speed 32 m/min. 36BD-10=26DGD from scope tables wire out = 35* 1min/32m = 1min 5 sec exp deploy time.
22-Jul-05	12:25	29	1	36	58.355	151.822	60Bon	Discard	Bot depth(BD)- 10m (safety). Wire out estimated from desired gear depth(DGD) and approx winch speed 32 m/min. 36BD-10=26DGD from scope tables wire out = 35* 1min/32m = 1min 5 sec exp deploy time.
22-Jul-05	12:38	29	2	43	58.357	151.813	CAT	CAT	
22-Jul-05	14:09	30	1	131	58.367	151.386	60Bon	QTowF	Bot depth(BD)- 25m (safety). Wire out est from desired gear depth(DGD) and approx winch speed 32 m/min. 131BD-25=106DGD from scope tables wire out = 148 * 1min/32m = 4min 38 sec exp deploy time.



GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbrv	SampAbrv	HaulComments
22-Jul-05	14:09	30	1	131	58.367	151.386	60Bon	Discard	Bot depth(BD)- 25m (safety). Wire out est from desired gear depth(DGD) and approx winch speed 32 m/min. 131BD-25=106DGD from scope tables wire out = 148 * 1min/32m = 4min 38 sec exp deploy time.
22-Jul-05	14:26	30	2	126	58.365	151.375	CAT	CAT	
22-Jul-05	15:51	31	1	124	58.122	151.37	60Bon	QTowF	Bot depth(BD)- 25m (safety). Wire out estimated from desired gear depth(DGD) and approx winch speed 32 m/min. 124BD-25=99DGD from scope tables wire out = 141 * 1min/32m = 4min 24 sec exp deploy time.
22-Jul-05	15:51	31	1	124	58.122	151.37	60Bon	Discard	Bot depth(BD)- 25m (safety). Wout est from desired gear depth(DGD) and approx winch speed 32 m/min. 124BD-25=99DGD frm scope table wo = 141 * 1min/32m = 4min 24 sec exp deploy time. THTUCK=0 fish.
22-Jul-05	16:15	31	2	135	58.124	151.357	CAT	CAT	ships seacat deployed afer bongo
22-Jul-05	16:22	31	3	136	58.122	151.354	SatBuoy	DRIFT	drifter number 57879
22-Jul-05	18:20	32	1	57	58.122	152.094	60Bon	QTowF	Bot depth(BD)- 10m (safety). Wire out est from desired gear depth(DGD) and approx winch speed 32 m/min. 57BD-10=47DGD from scope tables wire out 71. Est deploy time 2min13 sec. No fish for THTuck.
22-Jul-05	18:20	32	1	57	58.122	152.094	60Bon	THTUCK	Bot depth(BD)- 10m (safety). Wire out est from desired gear depth(DGD) and approx winch speed 32 m/min. 57BD-10=47DGD from scope tables wire out 71. Est deploy time 2min13 sec. No fish for THTuck.
22-Jul-05	18:36	32	2	58	58.123	152.091	CAT	CAT	Ships seacat deployed after bongo.
22-Jul-05	20:32	33	1	65	57.931	152.565	60Bon	QTowF	65-30 = 35m so 49 m wire out
22-Jul-05	20:32	33	1	65	57.931	152.565	60Bon	Other	65-30 = 35m so 49 m wire out. Sample for T Hurst
22-Jul-05	20:51	33	2	52	57.93	152.569	CAT	CAT	
23-Jul-05	0:45	34	1	108	57.965	151.714	60Bon	QTowF	108-30 = 78
23-Jul-05	0:45	34	1	108	57.965	151.714	60Bon	Other	108-30 = 78
23-Jul-05	1:13	34	2	105	57.965	151.693	CTDB	Chlor	
23-Jul-05	1:13	34	2	105	57.965	151.693	CTDB	CMNuts	
23-Jul-05	1:13	34	2	105	57.965	151.693	CTDB	CTD	
23-Jul-05	1:13	34	2	105	57.965	151.693	CTDB	PAR	
23-Jul-05	3:25	35	1	130	58.028	150.859	CTDB	Chlor	
23-Jul-05	3:25	35	1	130	58.028	150.859	CTDB	CMNuts	
23-Jul-05	3:25	35	1	130	58.028	150.859	CTDB	CTD	
23-Jul-05	3:25	35	1	130	58.028	150.859	CTDB	PAR	

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbrv	SampAbrv	HaulComments
23-Jul-05	3:52	35	2	136	58.027	150.856	60Bon	QTowF	gear depth estimated. 140-30 = 110 m
23-Jul-05	3:52	35	2	136	58.027	150.856	60Bon	Other	gear depth estimated. 140-30 = 110 m
23-Jul-05	4:52	36	1	79	57.879	150.889	60Bon	QTowF	gear depth estimated. 80-30 off bottom = 50m
23-Jul-05	4:52	36	1	79	57.879	150.889	60Bon	Discard	gear depth estimated. 80-30 off bottom = 50m
23-Jul-05	5:22	36	2	79	57.875	150.885	CTDB	Chlor	some of the 40m sample spilled.
23-Jul-05	5:22	36	2	79	57.875	150.885	CTDB	CMNuts	some of the 40m sample spilled.
23-Jul-05	5:22	36	2	79	57.875	150.885	CTDB	CTD	some of the 40m sample spilled.
23-Jul-05	5:22	36	2	79	57.875	150.885	CTDB	PAR	some of the 40m sample spilled.
23-Jul-05	5:25	36	3	79	57.872	150.878	SatBuoy	DRIFT	40 m drogue. Drifter #57872
23-Jul-05	6:17	37	1	89	57.862	50.6087	CTDB	Chlor	
23-Jul-05	6:17	37	1	89	57.862	50.6087	CTDB	CMNuts	
23-Jul-05	6:17	37	1	89	57.862	50.6087	CTDB	CTD	
23-Jul-05	6:17	37	1	89	57.862	50.6087	CTDB	PAR	
23-Jul-05	6:36	37	2	89	57.855	150.6	60Bon	QTowF	90-30=60m estimated gear depth
23-Jul-05	6:36	37	2	89	57.855	150.6	60Bon	Discard	90-30=60m estimated gear depth
23-Jul-05	7:59	38	1	106	57.639	150.43	60Bon	QTowF	BD106-31=75 DGD WO106/32=3min 18 sec
23-Jul-05	7:59	38	1	106	57.639	150.43	60Bon	Discard	BD106-31=75 DGD WO106/32=3min 18 sec
23-Jul-05	8:21	38	2	109	57.639	150.419	CTDB	Chlor	Quest volume for 30m chlor sample leaked b/c filter was mis-seated.
23-Jul-05	8:21	38	2	109	57.639	150.419	CTDB	CMNuts	Quest volume for 30m chlor sample leaked b/c filter was mis-seated.
23-Jul-05	8:21	38	2	109	57.639	150.419	CTDB	CTD	Quest volume for 30m chlor sample leaked b/c filter was mis-seated.
23-Jul-05	8:21	38	2	109	57.639	150.419	CTDB	PAR	Quest volume for 30m chlor sample leaked b/c filter was mis-seated.
23-Jul-05	10:07	39	1	99	57.463	150.807	60Bon	QTowF	bd99-24=75 106wo/32=3min 19 sec. Low (<35 deg) wire angle for last 30s of tow
23-Jul-05	10:07	39	1	99	57.463	150.807	60Bon	Discard	bd99-24=75 106wo/32=3min 19 sec. Low (<35 deg) wire angle for last 30s of tow
23-Jul-05	10:27	39	2	100	57.459	150.804	CTDB	Chlor	
23-Jul-05	10:27	39	2	100	57.459	150.804	CTDB	CMNuts	
23-Jul-05	10:27	39	2	100	57.459	150.804	CTDB	CTD	
23-Jul-05	10:27	39	2	100	57.459	150.804	CTDB	PAR	
23-Jul-05	12:40	40	1	71	57.734	151.208	60Bon	QTowF	dear depth 71-20=50; wo 71->2min 13 s
23-Jul-05	12:40	40	1	71	57.734	151.208	60Bon	Discard	gear depth 71-20=50; wo 71/32=2min 13 s

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbrv	SampAbrv	HaulComments
23-Jul-05	12:40	40	1	71	57.734	151.208	60Bon	THTUCK	gear depth 71-20=50; wo 71/32=2min 13 s
23-Jul-05	12:55	40	2	72	57.73	151.206	CTDB	Chlor	
23-Jul-05	12:55	40	2	72	57.73	151.206	CTDB	CMNuts	
23-Jul-05	12:55	40	2	72	57.73	151.206	CTDB	CTD	
23-Jul-05	12:55	40	2	72	57.73	151.206	CTDB	PAR	
23-Jul-05	14:41	41	1	160	57.52	151.572	60Bon	QTowF	BD160-20=145 DGD WO205/32=6min 24 sec.
23-Jul-05	14:41	41	1	160	57.52	151.572	60Bon	Discard	BD160-20=145 DGD WO205/32=6min 24 sec.
23-Jul-05	15:10	41	2	158	57.519	151.565	CTDB	Chlor	
23-Jul-05	15:10	41	2	158	57.519	151.565	CTDB	CMNuts	
23-Jul-05	15:10	41	2	158	57.519	151.565	CTDB	CTD	
23-Jul-05	15:10	41	2	158	57.519	151.565	CTDB	PAR	
23-Jul-05	16:50	42	1	92	57.28	151.175	60Bon	QTowF	bottom depth 92 - 22 = 70 desired gear depth; wire out 99 / 32m/min = 3min 6sec
23-Jul-05	16:50	42	1	92	57.28	151.175	60Bon	Discard	bottom depth 92 - 22 = 70 desired gear depth; wire out 99 / 32m/min = 3min 6sec
23-Jul-05	17:17	42	2	93	57.276	151.173	CTDB	Chlor	
23-Jul-05	17:17	42	2	93	57.276	151.173	CTDB	CMNuts	
23-Jul-05	17:17	42	2	93	57.276	151.173	CTDB	CTD	
23-Jul-05	17:17	42	2	93	57.276	151.173	CTDB	PAR	
23-Jul-05	17:32	42	3	97	57.268	151.182	SatBuoy	DRIFT	drifter number 57870. 40m drogue
23-Jul-05	18:41	43	1	143	57.111	151.5	60Bon	QTowF	BD143-18=125 177WO/32= 5min 32 sec exp deploy time
23-Jul-05	18:41	43	1	143	57.111	151.5	60Bon	Discard	BD143-18=125 177WO/32= 5min 32 sec exp deploy time
23-Jul-05	19:10	43	2	149	57.101	151.51	CTDB	Chlor	
23-Jul-05	19:10	43	2	149	57.101	151.51	CTDB	CMNuts	
23-Jul-05	19:10	43	2	149	57.101	151.51	CTDB	CTD	
23-Jul-05	19:10	43	2	149	57.101	151.51	CTDB	PAR	
23-Jul-05	21:01	44	1	70	57.355	151.91	60Bon	QTowF	40-10=30. Depth underestimated.
23-Jul-05	21:01	44	1	70	57.355	151.91	60Bon	Other	40-10=30. Depth underestimated.
23-Jul-05	21:20	44	2	71	57.351	151.905	CTDB	Chlor	
23-Jul-05	21:20	44	2	71	57.351	151.905	CTDB	CMNuts	
23-Jul-05	21:20	44	2	71	57.351	151.905	CTDB	CTD	

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbvr	SampAbvr	HaulComments
23-Jul-05	21:20	44	2	71	57.351	151.905	CTDB	PAR	
23-Jul-05	21:36	44	3	71	57.348	151.907	60Bon	QTowF	repeat tow to correct depth
23-Jul-05	21:36	44	3	71	57.348	151.907	60Bon	Other	repeat tow to correct depth
23-Jul-05	23:26	45	1	70	57.387	152.486	60Bon	QTowF	70-30=40m est net depth
23-Jul-05	23:26	45	1	70	57.387	152.486	60Bon	Discard	70-30=40m est net depth
23-Jul-05	23:48	45	2	66	57.394	152.493	CTDB	Chlor	
23-Jul-05	23:48	45	2	66	57.394	152.493	CTDB	CMNuts	
23-Jul-05	23:48	45	2	66	57.394	152.493	CTDB	CTD	
23-Jul-05	23:48	45	2	66	57.394	152.493	CTDB	PAR	
24-Jul-05	0:22	46	1	62	57.339	152.41	CTDB	Chlor	
24-Jul-05	0:22	46	1	62	57.339	152.41	CTDB	CMNuts	
24-Jul-05	0:22	46	1	62	57.339	152.41	CTDB	CTD	
24-Jul-05	0:22	46	1	62	57.339	152.41	CTDB	PAR	
24-Jul-05	0:58	47	1	72	57.289	152.317	CTDB	Chlor	
24-Jul-05	0:58	47	1	72	57.289	152.317	CTDB	CMNuts	
24-Jul-05	0:58	47	1	72	57.289	152.317	CTDB	CTD	
24-Jul-05	0:58	47	1	72	57.289	152.317	CTDB	PAR	
24-Jul-05	1:33	48	1	83	57.234	152.239	CTDB	Chlor	small spill from 20m sample
24-Jul-05	1:33	48	1	83	57.234	152.239	CTDB	CMNuts	small spill from 20m sample
24-Jul-05	1:33	48	1	83	57.234	152.239	CTDB	CTD	small spill from 20m sample
24-Jul-05	1:33	48	1	83	57.234	152.239	CTDB	PAR	small spill from 20m sample
24-Jul-05	2:06	49	1	86	57.181	152.151	CTDB	Chlor	
24-Jul-05	2:06	49	1	86	57.181	152.151	CTDB	CMNuts	
24-Jul-05	2:06	49	1	86	57.181	152.151	CTDB	CTD	
24-Jul-05	2:06	49	1	86	57.181	152.151	CTDB	PAR	
24-Jul-05	2:40	50	1	85	57.13	152.069	CTDB	Chlor	
24-Jul-05	2:40	50	1	85	57.13	152.069	CTDB	CMNuts	
24-Jul-05	2:40	50	1	85	57.13	152.069	CTDB	CTD	
24-Jul-05	2:40	50	1	85	57.13	152.069	CTDB	PAR	
24-Jul-05	3:17	51	1	77	57.08	151.977	CTDB	Chlor	
24-Jul-05	3:17	51	1	77	57.08	151.977	CTDB	CMNuts	

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbvr	SampAbvr	HaulComments
24-Jul-05	3:17	51	1	77	57.08	151.977	CTDB	CTD	
24-Jul-05	3:17	51	1	77	57.08	151.977	CTDB	PAR	
24-Jul-05	3:55	52	1	87	57.016	151.892	CTDB	Chlor	
24-Jul-05	3:55	52	1	87	57.016	151.892	CTDB	CMNuts	
24-Jul-05	3:55	52	1	87	57.016	151.892	CTDB	CTD	
24-Jul-05	3:55	52	1	87	57.016	151.892	CTDB	PAR	
24-Jul-05	4:27	53	1	67	56.968	151.812	CTDB	Chlor	
24-Jul-05	4:27	53	1	67	56.968	151.812	CTDB	CMNuts	
24-Jul-05	4:27	53	1	67	56.968	151.812	CTDB	CTD	
24-Jul-05	4:27	53	1	67	56.968	151.812	CTDB	PAR	
24-Jul-05	5:00	54	1	91	56.92	151.726	CTDB	Chlor	
24-Jul-05	5:00	54	1	91	56.92	151.726	CTDB	CMNuts	
24-Jul-05	5:00	54	1	91	56.92	151.726	CTDB	CTD	
24-Jul-05	5:00	54	1	91	56.92	151.726	CTDB	PAR	
24-Jul-05	5:41	55	2	66	56.968	151.808	60Bon	QTowF	
24-Jul-05	5:41	55	2	66	56.968	151.808	60Bon	Discard	
24-Jul-05	5:41	55	2	66	56.968	151.808	60Bon	THTUCK	
24-Jul-05	5:41	55	2	66	56.968	151.808	CAT	CAT	
24-Jul-05	7:33	56	1	80	57.19	152.193	60Bon	QTowF	position info frm ctd cast; moaa data cannot be found
24-Jul-05	7:33	56	1	80	57.19	152.193	60Bon	Discard	position info frm ctd cast; moaa data cannot be found
24-Jul-05	7:33	56	1	80	57.19	152.193	60Bon	THTUCK	position info frm ctd cast; moaa data cannot be found
24-Jul-05	7:33	56	1	80	57.19	152.193	CAT	CAT	position info frm ctd cast; moaa data cannot be found
24-Jul-05	7:56	56	2	84	57.19	152.193	CTDB	Chlor	
24-Jul-05	7:56	56	2	84	57.19	152.193	CTDB	CMNuts	
24-Jul-05	7:56	56	2	84	57.19	152.193	CTDB	CTD	
24-Jul-05	7:56	56	2	84	57.19	152.193	CTDB	PAR	
24-Jul-05	9:52	57	1	124	57.201	152.82	CTDB	Chlor	
24-Jul-05	9:52	57	1	124	57.201	152.82	CTDB	CMNuts	
24-Jul-05	9:52	57	1	124	57.201	152.82	CTDB	CTD	
24-Jul-05	9:52	57	1	124	57.201	152.82	CTDB	PAR	
24-Jul-05	10:09	57	2	132	57.201	152.813	60Bon	QTowF	

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbrv	SampAbrv	HaulComments
24-Jul-05	10:09	57	2	132	57.201	152.813	60Bon	Discard	
24-Jul-05	10:09	57	2	132	57.201	152.813	CAT	CAT	
24-Jul-05	11:37	58	1	148	57.04	152.507	60Bon	QTowF	
24-Jul-05	11:37	58	1	148	57.04	152.507	60Bon	Discard	
24-Jul-05	11:37	58	1	148	57.04	152.507	CAT	CAT	
24-Jul-05	12:09	58	2	143	57.04	152.519	CTDB	Chlor	
24-Jul-05	12:09	58	2	143	57.04	152.519	CTDB	CMNuts	
24-Jul-05	12:09	58	2	143	57.04	152.519	CTDB	CTD	
24-Jul-05	12:09	58	2	143	57.04	152.519	CTDB	PAR	
24-Jul-05	14:03	59	1	105	56.809	152.115	CTDB	Chlor	
24-Jul-05	14:03	59	1	105	56.809	152.115	CTDB	CMNuts	
24-Jul-05	14:03	59	1	105	56.809	152.115	CTDB	CTD	
24-Jul-05	14:03	59	1	105	56.809	152.115	CTDB	PAR	
24-Jul-05	14:30	59	2	105	56.81	152.118	60Bon	QTowF	
24-Jul-05	14:30	59	2	105	56.81	152.118	60Bon	Discard	
24-Jul-05	14:30	59	2	105	56.81	152.118	CAT	CAT	
24-Jul-05	15:34	60	1	115	56.755	152.326	CTDB	Chlor	
24-Jul-05	15:34	60	1	115	56.755	152.326	CTDB	CTD	
24-Jul-05	15:34	60	1	115	56.755	152.326	CTDB	Nut	
24-Jul-05	15:34	60	1	115	56.755	152.326	CTDB	PAR	
24-Jul-05	16:28	61	1	177	56.826	152.436	CTDB	Chlor	
24-Jul-05	16:28	61	1	177	56.826	152.436	CTDB	CTD	
24-Jul-05	16:28	61	1	177	56.826	152.436	CTDB	Nut	
24-Jul-05	16:28	61	1	177	56.826	152.436	CTDB	PAR	
24-Jul-05	17:21	62	1	159	56.886	152.558	CTDB	Chlor	
24-Jul-05	17:21	62	1	159	56.886	152.558	CTDB	CTD	
24-Jul-05	17:21	62	1	159	56.886	152.558	CTDB	Nut	
24-Jul-05	17:21	62	1	159	56.886	152.558	CTDB	PAR	
24-Jul-05	18:07	63	1	150	56.943	152.664	CTDB	Chlor	
24-Jul-05	18:07	63	1	150	56.943	152.664	CTDB	CTD	
24-Jul-05	18:07	63	1	150	56.943	152.664	CTDB	Nut	

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbvr	SampAbvr	HaulComments
24-Jul-05	18:07	63	1	150	56.943	152.664	CTDB	PAR	
24-Jul-05	19:16	64	1	151	56.996	152.755	CTDB	Chlor	
24-Jul-05	19:16	64	1	151	56.996	152.755	CTDB	CTD	
24-Jul-05	19:16	64	1	151	56.996	152.755	CTDB	Nut	
24-Jul-05	19:16	64	1	151	56.996	152.755	CTDB	PAR	
24-Jul-05	20:32	65	1	99	57.05	152.861	CTDB	Chlor	
24-Jul-05	20:32	65	1	99	57.05	152.861	CTDB	CTD	
24-Jul-05	20:32	65	1	99	57.05	152.861	CTDB	Nut	
24-Jul-05	20:32	65	1	99	57.05	152.861	CTDB	PAR	
24-Jul-05	21:00	66	1	48	57.043	153.095	CTDB	Chlor	
24-Jul-05	21:00	66	1	48	57.043	153.095	CTDB	CTD	
24-Jul-05	21:00	66	1	48	57.043	153.095	CTDB	Nut	
24-Jul-05	21:00	66	1	48	57.043	153.095	CTDB	PAR	
24-Jul-05	21:13	66	2	50	57.045	153.093	60Bon	QTowF	
24-Jul-05	21:13	66	2	50	57.045	153.093	60Bon	Discard	
24-Jul-05	21:13	66	2	50	57.045	153.093	CAT	CAT	
24-Jul-05	22:32	67	1	103	56.909	152.827	60Bon	QTowF	
24-Jul-05	22:32	67	1	103	56.909	152.827	60Bon	Discard	
24-Jul-05	22:32	67	1	103	56.909	152.827	CAT	CAT	
24-Jul-05	23:02	67	2	95	56.901	152.829	CTDB	Chlor	
24-Jul-05	23:02	67	2	95	56.901	152.829	CTDB	CTD	
24-Jul-05	23:02	67	2	95	56.901	152.829	CTDB	Nut	
25-Jul-05	0:55	68	1	166	56.66	152.442	CTDB	Chlor	
25-Jul-05	0:55	68	1	166	56.66	152.442	CTDB	CTD	
25-Jul-05	0:55	68	1	166	56.66	152.442	CTDB	Nut	
25-Jul-05	0:55	68	1	166	56.66	152.442	CTDB	PAR	
25-Jul-05	1:22	68	2	152	56.607	152.417	60Bon	QTowF	
25-Jul-05	1:22	68	2	152	56.607	152.417	60Bon	Discard	
25-Jul-05	1:22	68	2	152	56.607	152.417	CAT	CAT	
25-Jul-05	13:18	69	1	54	56.469	152.751	60Bon	QTowF	No CTD at this station. Too rough.
25-Jul-05	13:18	69	1	54	56.469	152.751	60Bon	Discard	No CTD at this station. Too rough.

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbv	SampAbv	HaulComments
25-Jul-05	13:18	69	1	54	56.469	152.751	CAT	CAT	No CTD at this station. Too rough.
25-Jul-05	15:05	70	1	130	56.961	153.433	CTDB	Chlor	
25-Jul-05	15:05	70	1	130	56.961	153.433	CTDB	CMNuts	
25-Jul-05	15:05	70	1	130	56.961	153.433	CTDB	CTD	
25-Jul-05	15:05	70	1	130	56.961	153.433	CTDB	PAR	
25-Jul-05	15:35	70	2	131	56.96	153.432	60Bon	QTowF	net may have hit bottom but no hard material (rock/shell) just black, sulphur-smelling (anoxic) silt
25-Jul-05	15:35	70	2	131	56.96	153.432	60Bon	Discard	net may have hit bottom but no hard material (rock/shell) just black, sulphur-smelling (anoxic) silt
25-Jul-05	15:35	70	2	131	56.96	153.432	CAT	CAT	net may have hit bottom but no hard material (rock/shell) just black, sulphur-smelling (anoxic) silt
25-Jul-05	17:28	71	1	153	56.742	153.193	CTDB	Chlor	
25-Jul-05	17:28	71	1	153	56.742	153.193	CTDB	CMNuts	
25-Jul-05	17:28	71	1	153	56.742	153.193	CTDB	CTD	
25-Jul-05	17:28	71	1	153	56.742	153.193	CTDB	PAR	
25-Jul-05	17:59	71	2	153	56.744	153.192	60Bon	Discard	Used net 2 b/c bottom of net 1 cod end fell out. Black silt like material in cod end; but did not hit bottom.
25-Jul-05	17:59	71	2	153	56.744	153.192	60Bon	QTowF	Used net 2 b/c bottom of net 1 cod end fell out. Black silt like material in cod end; but did not hit bottom.
25-Jul-05	17:59	71	2	153	56.744	153.192	CAT	CAT	
25-Jul-05	19:51	72	1	113	56.581	153.509	CTDB	Chlor	
25-Jul-05	19:51	72	1	113	56.581	153.509	CTDB	CMNuts	
25-Jul-05	19:51	72	1	113	56.581	153.509	CTDB	CTD	
25-Jul-05	19:51	72	1	113	56.581	153.509	CTDB	PAR	
25-Jul-05	20:10	72	2	120	56.587	153.511	60Bon	QTowF	
25-Jul-05	20:10	72	2	120	56.587	153.511	60Bon	Discard	
25-Jul-05	20:10	72	2	120	56.587	153.511	CAT	CAT	
25-Jul-05	21:28	73	1	60	56.729	153.787	60Bon	QTowF	
25-Jul-05	21:28	73	1	60	56.729	153.787	60Bon	Discard	
25-Jul-05	21:28	73	1	60	56.729	153.787	CAT	CAT	
25-Jul-05	21:50	73	2	40	56.73	153.8	CTDB	Chlor	
25-Jul-05	21:50	73	2	40	56.73	153.8	CTDB	CMNuts	



GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbrv	SampAbrv	HaulComments
25-Jul-05	21:50	73	2	40	56.73	153.8	CTDB	CTD	
25-Jul-05	21:50	73	2	40	56.73	153.8	CTDB	PAR	
25-Jul-05	22:34	74	1	70	56.639	153.896	CTDB	Chlor	
25-Jul-05	22:34	74	1	70	56.639	153.896	CTDB	CTD	
25-Jul-05	22:34	74	1	70	56.639	153.896	CTDB	PAR	
25-Jul-05	22:48	74	2	68	56.637	153.897	60Bon	QTowF	
25-Jul-05	22:48	74	2	68	56.637	153.897	60Bon	Discard	
25-Jul-05	22:48	74	2	68	56.637	153.897	CAT	CAT	
26-Jul-05	0:05	75	1	92	56.479	153.762	60Bon	QTowF	
26-Jul-05	0:05	75	1	92	56.479	153.762	60Bon	Discard	
26-Jul-05	0:05	75	1	92	56.479	153.762	CAT	CAT	
26-Jul-05	2:43	75	2	93	56.478	153.759	CTDB	Chlor	
26-Jul-05	2:43	75	2	93	56.478	153.759	CTDB	CMNuts	
26-Jul-05	2:43	75	2	93	56.478	153.759	CTDB	CTD	
26-Jul-05	2:43	75	2	93	56.478	153.759	CTDB	PAR	
26-Jul-05	1:48	76	1	72	56.313	153.502	CTDB	Chlor	20M chlor sample volume in quest; some of it leaked when filtering.
26-Jul-05	1:48	76	1	72	56.313	153.502	CTDB	CMNuts	20M chlor sample volume in quest; some of it leaked when filtering.
26-Jul-05	1:48	76	1	72	56.313	153.502	CTDB	CTD	20M chlor sample volume in quest; some of it leaked when filtering.
26-Jul-05	1:48	76	1	72	56.313	153.502	CTDB	PAR	20M chlor sample volume in quest; some of it leaked when filtering.
26-Jul-05	2:02	76	2	71	56.311	153.5	60Bon	QTowF	1 large; 2 med jellies removed from net 1.
26-Jul-05	2:02	76	2	71	56.311	153.5	60Bon	Discard	
26-Jul-05	2:02	76	2	71	56.311	153.5	CAT	CAT	
26-Jul-05	3:32	77	1	1300	56.158	153.252	60Bon	QTowF	2 large jellies removed from net 1. Bottom depth written as 12-1400 on sheet; entered as 1300.
26-Jul-05	3:32	77	1	1300	56.158	153.252	60Bon	Discard	Bottom depth written as 12-1400 on sheet; entered as 1300.
26-Jul-05	3:32	77	1	1300	56.158	153.252	CAT	CAT	Bottom depth written as 12-1400 on sheet; entered as 1300.
26-Jul-05	17:15	78	1	184	56	153.54	60Bon	QTowF	
26-Jul-05	17:15	78	1	184	56	153.54	60Bon	Discard	
26-Jul-05	17:15	78	1	184	56	153.54	CAT	CAT	
26-Jul-05	17:48	78	2	135	56.006	153.543	CTDB	Chlor	
26-Jul-05	17:48	78	2	135	56.006	153.543	CTDB	CMNuts	

GMTDate	GMTTime	Station	Haul	Depth (m)	Latitude	Longitude	GearAbrv	SampAbrv	HaulComments
26-Jul-05	17:48	78	2	135	56.006	153.543	CTDB	CTD	
26-Jul-05	17:48	78	2	135	56.006	153.543	CTDB	PAR	
26-Jul-05	19:18	79	1	235	56.172	153.817	CTDB	Chlor	
26-Jul-05	19:18	79	1	235	56.172	153.817	CTDB	CMNuts	
26-Jul-05	19:18	79	1	235	56.172	153.817	CTDB	CTD	
26-Jul-05	19:18	79	1	235	56.172	153.817	CTDB	PAR	
26-Jul-05	19:54	79	2	240	56.174	153.814	60Bon	QTowF	
26-Jul-05	19:54	79	2	240	56.174	153.814	CAT	CAT	
26-Jul-05	22:06	80	1	532	55.881	153.857	60Bon	QTowF	
26-Jul-05	22:06	80	1	532	55.881	153.857	60Bon	Discard	
26-Jul-05	22:06	80	1	532	55.881	153.857	CAT	CAT	
26-Jul-05	22:41	80	2	700	55.882	153.863	CTDB	Chlor	
26-Jul-05	22:41	80	2	700	55.882	153.863	CTDB	CMNuts	
26-Jul-05	22:41	80	2	700	55.882	153.863	CTDB	CTD	
26-Jul-05	22:41	80	2	700	55.882	153.863	CTDB	PAR	
27-Jul-05	0:06	81	1	181	56.03	154.141	CTDB	Chlor	
27-Jul-05	0:06	81	1	181	56.03	154.141	CTDB	CMNuts	
27-Jul-05	0:06	81	1	181	56.03	154.141	CTDB	CTD	
27-Jul-05	0:06	81	1	181	56.03	154.141	CTDB	PAR	
27-Jul-05	0:32	81	2	167	56.033	154.14	60Bon	QTowF	
27-Jul-05	0:32	81	2	167	56.033	154.14	60Bon	Discard	
27-Jul-05	0:32	81	2	167	56.033	154.14	CAT	CAT	

**Cruise Summary: Map of Grid Survey Area:**

