

Cruise report

R/V Bjarni Sæmundsson
Cruise BS03-2013
14–29 May 2013

Objectives

The BS03-2013 cruise was carried out by the Marine Research Institute (MRI) on the RV Bjarni Sæmundsson with the following aims:

Fixed program:

To carry out long-term hydro-biological investigations on standard sections around Iceland. The work is part of the annual Icelandic spring survey that has been carried out annually around Iceland since the early 70's using standardized methodologies.

EURO-BASIN work:

The more or less fixed program was extended to include also work related to MRI's commitment in EURO-BASIN. The work was part of the following EURO-BASIN tasks:

- T3.2 (Biogeography of key species). Collect distributional data on key species.
- T3.3 (Classification of different regimes by size spectra). Use Video Plankton Recorder to provide data on size spectra as well as species compositions.
- T4.2 (Trophic interactions). Estimate biomass, species composition and life histories of euphausiids around Iceland by targeted sampling with a macroplankton-trawl. Elucidate Carbon sequestration and sedimentation of organic material via sediment traps both on the bank and farther from shore.
- T4.3 (Trophic pathways). Collect samples for stable isotopes of key groups within the pelagic system.

Overview of sampling methodology

The sampling operations involved hydrographic measurements with a CTD, the taking of water samples for the measurement of nutrients and chlorophyll *a*, standardized zooplankton sampling with a WP2 net (200 μ , 0-50m), sampling for euphausiids with a macroplankton trawl (8000 μ , U-tows from 0-200 m) and acoustic mapping of abundance and distribution of euphausiids with four frequencies (18, 38, 120, 200 kHz). Further, at selected sites a Video Plankton Recorder (VPR) was towed in a yo-yo fashion from surface and close to the bottom (or 100-200 m) while the ship cruised at slow speed (~ 4 nm). In addition two sediment trap deployments were put out on-shelf and off-shelf south of Iceland in order to study sedimentation and fate of the biological production from surface and through the water column.

A total of 114 stations were occupied. In addition, 22 VPR tows were made with an Autonomous Digital Video Plankton Recorder (Seascan). In order to complement data from the fixed stations, continuous measurements of surface temperature, salinity and fluorescence were also made along the ship route.

Cruise narrative.

The RV Bjarni Sæmundsson left Reykjavík harbor at 14:00 on Tuesday 14 May 2013 and arrived at the first station (Stn 221, Fig. 1) at 64°20'N-22°20'W on the Faxafloi-section around two hours later (10:13) where sampling operations began. The vessel then sampled stations westwards along the Faxafloi section towards ~28°W, from there to the Látrabjarg and then to the Kögur sections in the Denmark Strait. The vessel then headed eastwards into North Icelandic waters onto Hornbanki, Húnaflói, Siglunes, Langanes NE, Langanes E and Krossanes sections. From there the vessel headed for the Stokksnes, Ingólfhöfði, Háfadjúp and Selvogsbanki sections. After this, transects were taken on both sides of the Reykjanes Ridge and one transect across it (Fig. 1). The last station was taken around 14:00 on 29 May, and we returned to port in Reykjavík at around 21:00 the same day.

All our sampling gear performed flawlessly.

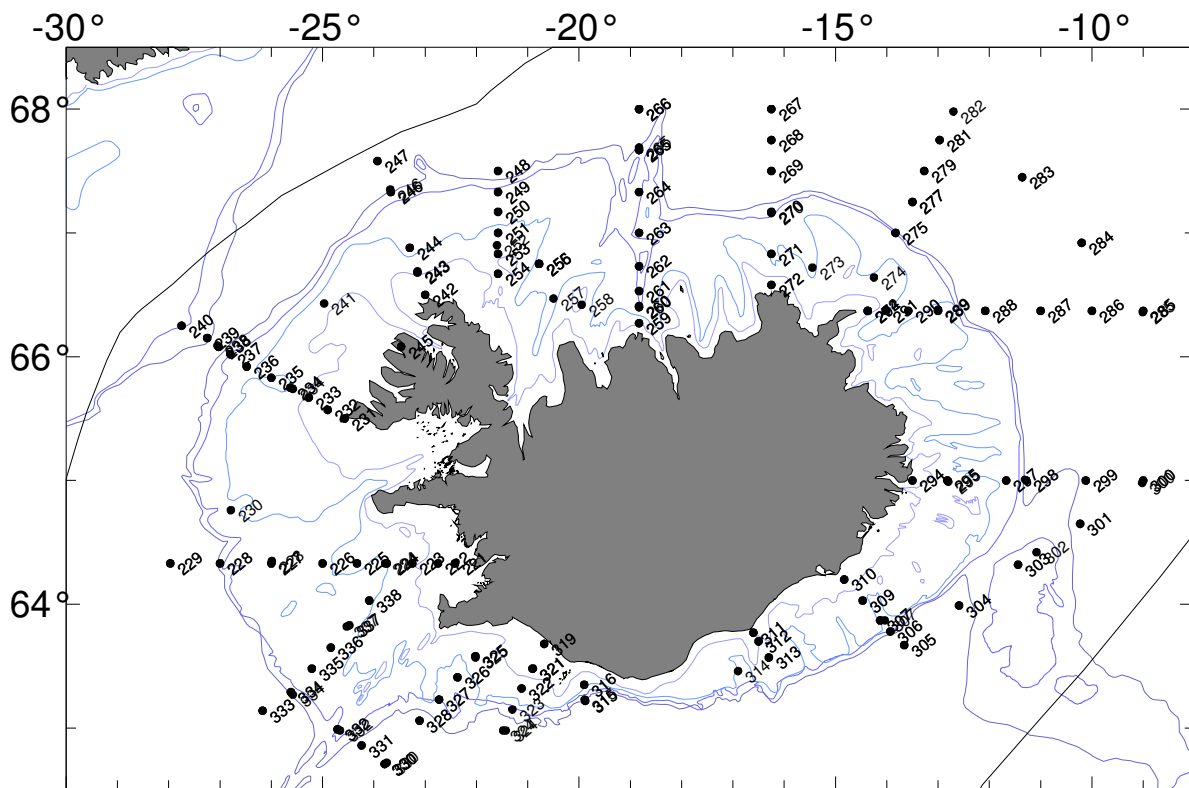


Figure 1. Map showing location of stations occupied in cruise BS03-2013.

Appendix 1. List of participants

Name	Role	Institution
Sólveig Ólafsdóttir	Chief Scientist	MRI
Jón Ingvar Jónsson	Hydrography	MRI
Ástþór Gíslason	Zooplankton	MRI
Kristinn Guðmundsson	Phytoplankton	MRI
Magnús Daníelsen	Hydrography	MRI
Teresa Silva	Zooplankton	MRI
Sólrún Sigurgeirsdóttir	Zooplankton	MRI
Páll Reynisson	Acoustics	MRI
Alice Benoit-Cattin	Nutrient chemistry	MRI
Kristín Valsdóttir	Phytoplankton	MRI

Appendix 2. Table of stations

Abbreviations:

CTD: Seabird CTD with bottle rosette

WP2: WP2 net (200 μ , 0-50m)

KT: Krill trawl (8000 μ , U-tow 0-200 m)

ST: Sediment trap

Time indicates approximate time for arrival at station.

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Stn	Day	Mon	Year	Time	Lat(N)	Long(W)	Depth(m)	Activity
221	14	5	2013	16:15	6420	-2225	63	CTD,WP2
222	14	5	2013	17:45	6420	-2245	38	CTD,WP2
223	14	5	2013	19:10	6420	-2315	90	CTD,WP2
224	14	5	2013	20:50	6420	-2345	200	CTD,WP2, KT
225	14	5	2013	23:10	6420	-2420	212	CTD,WP2
226	15	5	2013	01:10	6420	-2500	221	CTD,WP2
227	15	5	2013	03:50	6420	-2600	315	CTD,WP2
228	15	5	2013	06:30	6420	-2700	420	CTD,WP2, KT
229	15	5	2013	10:20	6420	-2758.18	1020	CTD,WP2
230	15	5	2013	14:43	6445.6	-2647.67	235	KT
231	15	5	2013	22:00	6530	-2434	32	CTD,WP2
232	15	5	2013	23:10	6534	-2454	65	CTD,WP2
233	15	5	2013	00:21	6540	-2516	84	CTD,WP2
234	16	5	2013	01:40	6545	-2538	251	CTD,WP2, KT
235	16	5	2013	04:25	6550	-2600	218	CTD,WP2
236	16	5	2013	06:08	6555	-2629	282	CTD,WP2
237	16	5	2013	07:28	6601	-2648	464	CTD,WP2
238	16	5	2013	08:40	6605	-2702	660	CTD,WP2, KT
239	16	5	2013	10:10	6609	-2715	523	CTD,WP2
240	16	5	2013	12:20	6615	-2745	474	CTD,WP2
241	16	5	2013	19:58	6625.5	-2458.37	155	KT
242	17	5	2013	01:40	6630	-2300	44	CTD,WP2
243	17	5	2013	03:10	6641	-2309	70	CTD,WP2, KT
244	17	5	2013	04:57	6653	-2318	231	CTD,WP2
245	17	5	2013	06:28	6605	-2328	234	CTD,WP2
246	17	5	2013	08:10	6720	-2340	508	CTD,WP2, KT
247	17	5	2013	11:10	6735	-2356	987	CTD,WP2
248	17	5	2013	17:10	6730	-2135	620	CTD,WP2
249	17	5	2013	18:25	6720	-2135	328	CTD,WP2
250	17	5	2013	19:45	6710	-2135	228	CTD,WP2
251	17	5	2013	20:56	6700	-2135	202	CTD,WP2
252	17	5	2013	23:00	6654.06	-2135.98	155	KT
253	18	5	2013	00:17	6650	-2135	124	CTD,WP2
254	18	5	2013	01:42	6640	-2135	103	CTD,WP2
255	18	5	2013	03:51	6645	-2047	314	CTD,WP2
256	18	5	2013	05:40	6645	-2047	193	CTD,WP2
257	18	5	2013	07:01	6628.4	-2030.17	318	KT
258	18	5	2013	15:13	6625.01	-1957	175	KT
259	18	5	2013	18:35	6616	-1850	70	CTD,WP2
260	18	5	2013	19:30	6624	-1850	422	CTD,WP2, KT
261	18	5	2013	21:09	6632	-1850	460	CTD,WP2
262	18	5	2013	22:39	6644	-1850	698	CTD,WP2
263	19	5	2013	00:35	6700	-1850	209	CTD,WP2

Stn	Day	Mon	Year	Time	Lat(N)	Long(W)	Depth(m)	Activity
264	19	5	2013	06:02	6720	-1850	481	CTD,WP2
265	19	5	2013	05:17	6740	-1850	402	CTD,WP2, KT
266	19	5	2013	08:35	6800	-1850	1020	CTD,WP2
267	19	5	2013	14:35	6800	-1615	1268	CTD,WP2
268	19	5	2013	17:00	6745	-1615	961	CTD,WP2
269	19	5	2013	19:43	6730	-1615	804	CTD,WP2
270	19	5	2013	22:10	6710	-1615	377	CTD,WP2, KT
271	20	5	2013	00:55	6650	-1615	225	CTD,WP2
272	20	5	2013	02:30	6635	-1615	52	CTD,WP2
273	20	5	2013	04:53	6642.93	-1526.75	229	KT
274	20	5	2013	11:11	6622	-1422	185	CTD,WP2, KT
275	20	5	2013	14:14	6700	-1350	389	CTD,WP2
276	20	5	2013	15:26	6710	-1340	940	CTD
277	20	5	2013	16:17	6715	-1330	1538	CTD,WP2
278	20	5	2013	17:27	6719.80	-1328.10	1559	Surface drifter
279	20	5	2013	18:35	6730	-1316	1760	CTD,WP2
280	20	5	2013		6740.20	-1303.64	1800	CTD
281	20	5	2013	21:15	6745	-1258	1810	CTD,WP2
282	20	5	2013	23:42	6799	-1240	1890	CTD,WP2, KT
283	21	5	2013	06:07	6727	-1121.4	1530	CTD,WP2
284	21	5	2013	10:26	6655.46	-1012.05	1463	CTD,WP2
285	21	5	2013	14:51	6622	-900	1246	CTD,WP2, KT
286	21	5	2013	18:26	6622	-1000	1264	CTD,WP2
287	21	5	2013	21:23	6622	-1100	1363	CTD,WP2
288	22	5	2013	00:58	6622	-1205	1087	CTD,WP2
289	22	5	2013	04:25	6622	-1300	157	CTD,WP2, KT
290	22	5	2013	06:49	6622	-1335	262	CTD,WP2
291	22	5	2013	08:22	6622	-1401	144	CTD,WP2
292	22	5	2013	09:42	6622	-1422	61	CTD,WP2
293	22	5	2013	14:10	6537	-1324.76	121	CTD
294	22	5	2013	09:44	6500	-1330	52	CTD,WP2
295	22	5	2013	11:40	6500	-1249	110	CTD,WP2, KT
297	23	5	2013	17:44	6500	-1140	227	CTD,WP2
298	23	5	2013	18:51	6500	-1117	538	CTD,WP2
299	23	5	2013	21:47	6500	-1007	587	CTD,WP2
300	24	5	2013	00:55	6500	-900	1400	CTD,WP2, KT
301	24	5	2013	05:45	6439	-1014	591	CTD,WP2
302	24	5	2013	08:36	6424.97	-1104.65	372	KT
303	24	5	2013	12:55	6419.46	-1126.1	375	CTD,WP2
304	24	5	2013	16:36	6359.31	-1235.21	534	CTD,WP2
305	24	5	2013	20:55	6340.04	-1339.41	1164	CTD,WP2
306	24	5	2013	22:33	6347	-1356	442	CTD,WP2
307	25	5	2013	00:25	6352	-1408	209	CTD,WP2, KT
309	25	5	2013	05:00	6402	-1428	134	CTD,WP2
310	25	5	2013	06:35	6412	-1450	72	CTD,WP2
311	25	5	2013	12:46	6346	-1636	69	CTD,WP2
312	25	5	2013	13:30	6342	-1630	87	CTD,WP2
313	25	5	2013	14:41	6334	-1618	108	CTD,WP2
314	25	5	2013	16:38	6327.39	-1654.24	235	KT
315	26	5	2013	04:35	6313	-1953	665	CTD,WP2, KT
316	26	5	2013	06:33	6321	-1954	215	CTD,WP2
318	26	5	2013	12:05	6329.20	2053.37	84	ST

Stn	Day	Mon	Year	Time	Lat(N)	Long(W)	Depth(m)	Activity
319	26	5	2013	13:51	6341	-2041	44	CTD,WP2
321	26	5	2013	17:36	6329	-2054	87	CTD,WP2, KT
322	26	5	2013	23:17	6318.92	-2107.21	142	CTD,WP2
323	27	5	2013	02:40	6309	-2118	510	CTD,WP2
324	27	5	2013	04:05	6259	-2129	1021	CTD,WP2, KT
325	27	5	2013	10:50	6335	-2201	143	CTD,WP2, KT
326	27	5	2013	13:04	6324.7	-2222.15	283	CTD,WP2
327	27	5	2013	14:49	6313.65	-2243.92	285	CTD,WP2
328	27	5	2013	16:30	6303.33	-2306.64	921	CTD,WP2
329	27	5	2013	20:23	6225.88	-2326.36	1141	CTD,WP2
330	28	5	2013	02:05	6242.63	-2347.21	1250	CTD,WP2, KT, ST
331	28	5	2013	12:25	6251.33	-2414.67	711	CTD,WP2
332	28	5	2013	16:40	6259.61	-2442.34	434	CTD,WP2, KT
333	28	5	2013	20:16	6308.4	-2610.1	426	CTD,WP2
334	29	5	2013	00:18	6317.14	-2537.11	604	CTD,WP2, KT
335	29	5	2013	03:58	6329	-2512.8	303	CTD,WP2
336	29	5	2013	07:08	6338.76	-2450.59	462	CTD,WP2
337	29	5	2013	11:07	6349.8	-2429.03	378	CTD,WP2, KT
338	29	5	2013	14:49	6402	-2405.41	285	CTD,WP2

Appendix 2. Table of VPR-tows

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VPR tow nr	Day	Month	Year	Time_start	Lat_start	Long_start
1	17	5	2013	21:57	6651.23	-2134.1
3	18	5	2013	12:22	6621.89	-1934.73
4	20	5	2013	06:14	6640.78	-1540.07
5	23	5	2013	13:47	6459.24	-1240.4
6	24	5	2013	09:43	6427.8	-1054.34
7	25	5	2013	01:12	6349.15	-1356.53
8	25	5	2013	17:30	6326.8	-1659.11
9	26	5	2013	06:52	6320.88	-1954.38
10	26	5	2013	14:14	6341.21	-2041.88
11	26	5	2013	20:05	6328.76	-2055.97
12	26	5	2013	23:25	6318.2	-2107.22
13	27	5	2013	17:07	6303.9	-2306.13
14	27	5	2013	21:17	6253.18	-2325.08
15	28	5	2013	04:40	6442.8	-2348.14
16	28	5	2013	12:46	6231.06	-2414.51
17	28	5	2013	17:04	6259.5	-2441.92
18	28	5	2013	20:40	6308.44	-2510.55
19	29	5	2013	00:43	6317.34	-2536.16
20	29	5	2013	04:15	6329.26	-2512.03
21	29	5	2013	07:28	6335.04	-2449.94
22	29	5	2013	11:28	6350.29	-2428.21