

DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

**Modern benthic foraminifer census data
from box-cores collected on Northwind Ridge,
Arctic Ocean during the PI-92-AR cruise of the
U.S.C.G.C. *Polar Star***

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Benthic foraminifer census data from box-cores collected on Northwind Ridge, Arctic Ocean during the PI-92-AR cruise of the U.S.C.G.C. *Polar Star*

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INTRODUCTION

The data presented here are part of an interdisciplinary research effort to investigate the late Cenozoic climatic history of the Arctic Ocean. The study includes the integration of geophysical data with geochemical, sedimentologic, paleontologic and paleomagnetic data from marine cores in order to obtain a high resolution, comprehensive paleoclimatic and paleoceanographic record for the Arctic over the past ≈ 4.0 My. Studies of the cores recovered in 1988 by the U.S. Coast Guard Cutter *Polar Star* showed that the Northwind Ridge contains an expanded sedimentary record that extends back into the early Pliocene (?). Additional geophysical data and marine sediment cores were obtained from the Northwind Ridge during the summer of 1992 (PI-92-AR) from the U.S. Coast Guard Cutter *Polar Star*. These cores included both piston and box cores. The foraminifer census data provided in this report represents the modern distribution of benthic foraminifers on the Northwind Ridge in 12 sediment surface samples taken from the PI-92-AR box cores (Figures 1, 2; Table 1).

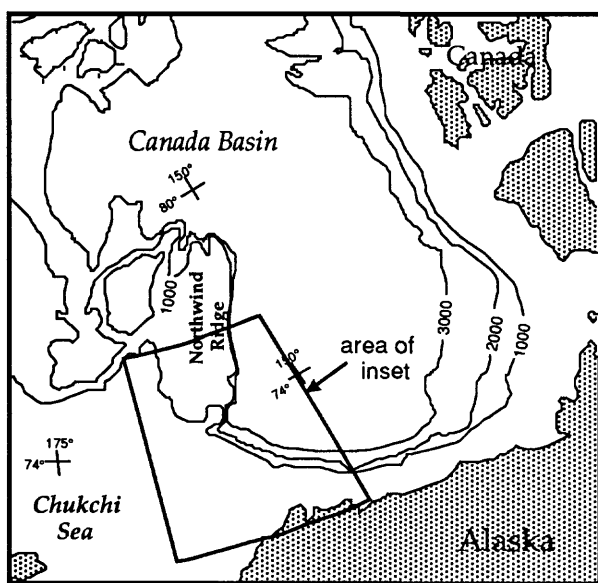


Figure 1 Map of central Arctic Ocean showing location of figure 1. (adapted from Gilbert and Clark, 1983)

Core	Latitude	Longitude	Water Depth
1	72°24.2'N	164°18.2'W	49 m
2	72°23.8'N	164°16.2'W	48 m
3	73°41.6'N	162°39.8'W	201 m
4	74°00.0'N	161°23.7'W	447 m
5	74°30.6'N	159°58.6'W	585 m
7	74°49.2'N	157°33.5'W	1,055 m
8	74°49.4'N	157°25.5'W	1,402 m
9	74°49.5'N	157°12.3'W	2,120 m
12	74°49.5'N	156°52.4'W	3,811 m
15	75°44.1'N	160°51.6'W	2,135 m
16	75°43.7'N	160°05.5'W	1,388 m
17	76°05.2'N	164°50.1'W	402 m

Table 1 Latitude, longitude, and water depth for PI-92-AR box-cores shown in Figure 1.

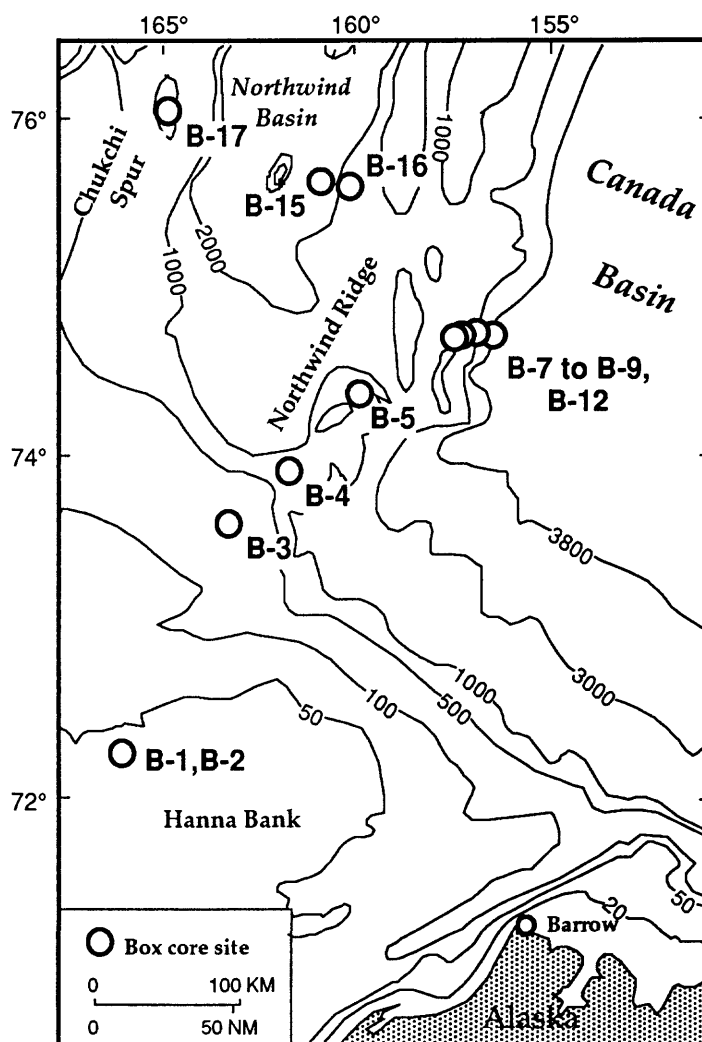


Figure 2 Map of Northwind Ridge showing the location of cores PI-92-AR box-cores. (adapted from Mullen and Grantz, 1991)

METHODS

Sampling

Samples of approximately 50 cc's were taken from the top 2 centimeters of sediment within 24 hours of the collection of the core.

Processing

The samples used in this study were processed at the U.S. Geological Survey, Reston. Sediment samples were dried at $\leq 50^{\circ}\text{C}$, weighed, and re-suspended in 200 ml of dilute calgon solution. The samples were agitated for a period of one hour to assist in disaggregation, then wet sieved at $63\mu\text{m}$. The $\geq 63\mu\text{m}$ residue was dried at $\leq 50^{\circ}\text{C}$.

Counting

All benthic foraminifers were tabulated in samples from cores B1, B2, B3, B5 and B12. Benthic foraminifers from cores B4, B7, B8, B9, B15, B16 and B17 were tabulated from representative subsamples obtained with a microsplitter. The sample or split to be examined was dry-sieved to the following size fractions; $\geq 63\mu\text{m}$ to $106\mu\text{m}$, $\geq 106\mu\text{m}$ to $125\mu\text{m}$, $\geq 125\mu\text{m}$ to $150\mu\text{m}$, and $\geq 150\mu\text{m}$. All benthic foraminifers were picked from each size fraction, sorted by species and glued to a standard 60-square micropaleontological slide. Data for each sample were tallied by species and size fraction.

BACKGROUND

Analyses of core-top samples and other surface sediment samples from the Arctic Ocean (Green, 1960; Lagoe, 1977, 1979; Polyak, 1990; and Scott and Vilks, 1991) provide information on the distribution of benthic foraminifers in parts of the Arctic Ocean. These data, in addition to the data presented in this report will add to our knowledge of benthic foraminifers in the Arctic Ocean. Associations made between intermediate and deep water masses and benthic foraminifer distributions provide the basis for paleoceanographic interpretations.

BENTHIC FORAMINIFER TAXONOMY

Benthic foraminifers from the PI-92-AR box cores were classified in accordance with Loeblich and Tappan, 1988. Where possible, the identifications are based on comparisons made with previously published Arctic taxa. A number of taxa could not be identified to species level and are referred herein as "sp." or "spp.". The benthic foraminifer taxa and their abundance in the PI-92-AR box core top samples are listed in Table 2.

ACKNOWLEDGMENTS

We would like to thank Suzy Greene and Anne Rogers for technical assistance.

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Table 2 Occurrences of benthic foraminifers are tabulated by species and by size fraction from which specimens were extracted. **Species total** = the sum of the number of each taxon in all size fractions. **Size fraction total** = the sum of the number of all taxa in one size fraction. **Percent of total count** = (number of benthic foraminifers found in size fraction) / (number of benthic foraminifers found in sample) X 100. **S-W index** is the Shannon - Wiener index of species diversity (see Buzas, 1972).

CORE TAXA	size (µm)	PI-92-AR-B2, water depth 48 M entire sample examined					PI-92-AR-B1, water depth 49 M entire sample examined				
		63-106	106-125	125-150	>150	Species total	63-106	106-125	125-150	>150	Species total
<i>Adercotryma glomerata</i>		0	0	0	0	0	0	0	0	0	0
<i>Alveophragmium crassimargo</i>		0	0	0	0	0	0	0	0	0	0
<i>Ammodiscus catinus</i>		0	0	0	0	0	0	0	0	0	0
<i>Ammotium cassis</i>		0	0	7	16	23	3	3	0	5	11
<i>Astrononion gallowayi</i>		0	0	0	1	1	0	0	0	0	0
<i>Bolivina arctica</i>		0	0	0	0	0	1	0	0	0	1
<i>Bolivina pseudopunctata</i>		0	0	0	0	0	0	0	0	0	0
<i>Buccella frigida</i>		8	10	16	0	34	0	0	1	0	1
<i>Bulimina aculeata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cassidulina norcrossi</i>		0	0	0	0	0	0	0	0	0	0
<i>Cassidulina teretis</i>		0	0	0	0	0	0	0	0	0	0
<i>Chilostomella elongata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cibicides lobatulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Criboelphidium clavatum</i>		0	0	0	0	0	0	0	0	0	0
<i>Criboelphidium excavatum</i>		26	22	75	33	156	10	13	31	27	81
<i>Cribr stomoides sp.</i>		0	0	0	1	1	0	0	0	0	0
<i>Cystamina argentea</i>		0	0	0	0	0	0	0	0	0	0
<i>Dentalina pauperata</i>		0	0	0	0	0	0	0	0	0	0
<i>Discorbis squamata</i>		0	0	0	0	0	0	0	0	0	0
<i>Eggerella advena</i>		1	3	5	15	24	2	1	9	0	12
<i>Eponides tumidulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Fontbotia wuellerstorfi</i>		0	0	0	0	0	0	0	0	0	0
<i>Fursenkoina fusiformis</i>		87	13	38	0	138	11	4	1	0	16
<i>Glandulina laevigata</i>		0	0	1	0	1	0	0	0	2	2
<i>Globocassidulina subglobosa</i>		2	4	3	1	10	0	0	0	1	1
<i>Glomospira gordialis</i>		0	0	0	0	0	0	0	0	0	0
<i>Islandiella helenae</i>		0	0	0	0	0	0	0	0	0	0
<i>Melonis barleeanum</i>		0	0	0	0	0	0	0	0	0	0
<i>Nodosariids</i>		0	0	0	0	0	0	1	0	0	1
<i>Nonionellina labradorica</i>		0	1	2	0	3	0	0	0	1	1
<i>Oridorsalis tener</i>		0	0	0	0	0	0	0	0	0	0
<i>Oridorsalis umbonatus</i>		0	0	0	0	0	0	0	0	0	0
<i>Portatrochammina bipolaris</i>		10	3	3	0	16	13	2	0	0	15
<i>Pullenia quinqueloba</i>		0	0	0	0	0	0	0	0	0	0
<i>Quinqueloculina akneriana</i>		0	0	0	0	0	0	0	0	1	1
<i>Quinqueloculina arctica</i>		0	0	0	0	0	0	0	0	0	0
<i>Recurvoides scitulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Reophax scorpiurus</i>		0	0	0	0	0	0	0	0	2	2
<i>Reophax spp.</i>		0	0	0	0	0	0	0	0	0	0
<i>Robertinoides charlottensis</i>		0	0	0	0	0	0	0	0	0	0
<i>Rosalina globularis</i>		0	0	0	0	0	0	0	0	0	0
<i>Saccamina difflugiformis</i>		0	0	0	1	1	0	0	0	0	0
<i>Spiroplectammina biformis</i>		425	335	58	5	823	47	104	7	0	158
<i>Stainforthia concava</i>		0	0	0	0	0	0	0	0	0	0
<i>Stetsonia horvathi</i>		1	3	0	0	4	7	11	2	2	22
<i>Textularia kattagatensis</i>		284	1	2	0	287	28	0	0	0	28
<i>Textularia torquata</i>		368	34	3	0	405	87	4	1	0	92
<i>Triloculina frigida</i>		0	0	0	0	0	0	0	0	0	0
<i>Trochammina pseudoinflata</i>		0	0	0	0	0	0	0	0	0	0
<i>Trochammina subglobigeriniformis</i>		0	0	0	0	0	0	0	0	0	0
<i>Valvulineria arctica</i>		1	1	0	0	2	0	0	0	0	0
<i>Verneuilina minuta</i>		0	0	0	0	0	0	0	0	0	0
Size fraction total		1213	430	213	73	1929	209	143	52	41	445
Percent of Total Count		62.88	22.29	11.04	3.78	100.0	46.97	32.13	11.69	9.21	100.0
S-W Index		0.67	0.44	0.69	0.54	0.86	0.73	0.46	0.54	0.54	0.83

CORE TAXA	size (µm)	PI-92-AR-B3, water depth 201 M entire sample examined					PI-92-AR-B17, water depth 402 M 1/128 sample examined				
		63-106	106-125	125-150	>150	Species Total	63-106	106-125	125-150	>150	Species total
<i>Adercotryma glomerata</i>		0	23	17	16	56	0	0	0	0	0
<i>Alveophragmium crassimargo</i>		0	0	0	0	0	0	0	0	0	0
<i>Ammodiscus catinus</i>		0	0	0	0	0	0	0	0	0	0
<i>Ammotium cassis</i>		0	0	0	0	0	0	0	0	0	0
<i>Astrononion gallowayi</i>		0	0	1	1	2	0	0	0	0	0
<i>Bolivina arctica</i>		0	0	0	0	0	0	0	0	0	0
<i>Bolivina pseudopunctata</i>		0	0	0	0	0	0	0	0	0	0
<i>Buccella frigida</i>		21	10	6	1	38	0	0	0	0	0
<i>Bulimina aculeata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cassidulina norcrossi</i>		0	8	83	127	218	0	0	0	5	5
<i>Cassidulina teretis</i>		0	0	0	5	5	224	86	143	111	564
<i>Chilostomella elongata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cibicides lobatulus</i>		0	0	0	0	0	9	3	1	9	22
<i>Criboelphidium clavatum</i>		14	0	4	0	18	0	0	0	0	0
<i>Criboelphidium excavatum</i>		33	28	33	23	117	0	0	0	0	0
<i>Cribrostomoides sp.</i>		0	0	0	0	0	0	0	0	0	0
<i>Cystamina argentea</i>		0	0	0	0	0	0	0	0	0	0
<i>Dentalina pauperata</i>		0	0	0	0	0	0	0	0	0	0
<i>Discorbis squamata</i>		6	0	0	0	6	0	0	0	0	0
<i>Eggerella advena</i>		0	0	1	0	1	0	0	0	0	0
<i>Eponides tumidulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Fontbotia wuellerstorfi</i>		0	0	0	0	0	0	0	0	0	0
<i>Fursenkoina fusiformis</i>		29	13	5	1	48	0	0	0	0	0
<i>Glandulina laevigata</i>		4	3	0	0	7	0	0	0	0	0
<i>Globocassidulina subglobosa</i>		113	28	27	6	174	72	34	27	0	133
<i>Glomospira gordialis</i>		0	0	0	0	0	0	0	0	0	0
<i>Islandiella helenae</i>		52	48	0	0	100	0	0	0	0	0
<i>Melonis barleeianum</i>		0	0	5	27	32	0	0	0	0	0
<i>Nodosariids</i>		1	0	1	5	7	0	0	7	3	10
<i>Nonionellina labradorica</i>		1	3	1	6	11	0	0	0	0	0
<i>Oridorsalis tener</i>		0	0	0	0	0	0	1	1	1	3
<i>Oridorsalis umbonatus</i>		0	0	0	0	0	0	0	0	0	0
<i>Portatrochammina bipolaris</i>		0	4	0	0	4	0	1	0	0	1
<i>Pullenia quinqueloba</i>		0	0	0	0	0	0	0	0	0	0
<i>Quinqueloculina akneriana</i>		0	0	0	4	4	0	0	1	2	3
<i>Quinqueloculina arctica</i>		0	0	0	0	0	0	0	0	0	0
<i>Recurvoides scitulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Reophax scorpiurus</i>		0	0	0	0	0	0	0	0	0	0
<i>Reophax spp.</i>		0	0	0	0	0	0	0	0	0	0
<i>Robertinoides charlottensis</i>		0	0	1	0	1	1	0	0	0	1
<i>Rosalina globularis</i>		0	0	0	0	0	0	0	0	0	0
<i>Saccamina difflugiformis</i>		0	0	0	4	4	0	0	0	0	0
<i>Spiroplectammina bifurcata</i>		4	0	0	0	4	0	0	0	0	0
<i>Stainforthia concava</i>		1	3	0	1	5	15	4	1	0	20
<i>Stetsonia horvathi</i>		148	2	0	0	150	66	0	0	0	66
<i>Textularia kattagatensis</i>		0	1	0	0	1	0	0	0	0	0
<i>Textularia torquata</i>		7	0	0	0	7	0	0	0	0	0
<i>Triloculina frigida</i>		1	0	0	0	1	8	3	0	0	11
<i>Trochammina pseudoinflata</i>		0	0	0	0	0	0	0	0	0	0
<i>Trochammina subglobigeriniformis</i>		4	0	0	0	4	7	0	0	0	7
<i>Valvulineria arctica</i>		0	1	0	0	1	1	2	0	0	3
<i>Verneuilina minuta</i>		0	0	0	0	0	0	0	0	0	0
Size fraction total		439	175	185	227	1026	403	134	181	131	849
Percent of Total Count		42.79	17.06	18.03	22.12	100.0	47.47	15.78	21.32	15.43	100.0
S-W Index		0.85	0.79	0.70	0.54	1.01	0.51	0.42	0.31	0.28	0.48

CORE TAXA	size (µm)	PI-92-AR-B4, water depth 447 M					PI-92-AR-B5, water depth 558 M				
		1/8 sample examined				Species	entire sample examined				Species
		63-106	106-125	125-150	>150	total	63-106	106-125	125-150	>150	total
<i>Adercotryma glomerata</i>		3	0	1	1	5	13	3	1	0	17
<i>Alveophragmium crassimargo</i>		0	0	0	0	0	6	3	13	9	31
<i>Ammodiscus catinus</i>		0	0	0	0	0	0	0	0	0	0
<i>Ammotium cassis</i>		0	0	0	0	0	0	0	0	0	0
<i>Astrononion gallowayi</i>		0	0	0	0	0	0	0	0	0	0
<i>Bolivina arctica</i>		0	0	0	0	0	11	0	1	0	12
<i>Bolivina pseudopunctata</i>		0	0	0	0	0	0	0	0	0	0
<i>Buccella frigida</i>		0	0	0	0	0	2	0	0	0	2
<i>Bulimina aculeata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cassidulina norcrossi</i>		0	0	0	0	0	21	0	0	1	22
<i>Cassidulina teretis</i>		0	0	0	0	0	242	180	258	138	818
<i>Chilostomella elongata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cibicides lobatulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Criboelphidium clavatum</i>		0	0	0	0	0	0	1	0	0	1
<i>Criboelphidium excavatum</i>		0	0	0	0	0	0	3	0	1	4
<i>Cribratomoides sp.</i>		0	0	0	0	0	0	0	0	0	0
<i>Cystamina argentea</i>		0	0	0	0	0	0	0	0	0	0
<i>Dentalina pauperata</i>		0	0	0	0	0	0	0	0	1	1
<i>Discorbis squamata</i>		0	0	0	0	0	1	0	0	0	1
<i>Eggerella advena</i>		4	6	4	0	14	10	6	5	0	21
<i>Eponides tumidulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Fontbotia wuellerstorfi</i>		0	0	0	0	0	0	0	0	0	0
<i>Fursenkoina fusiformis</i>		0	0	0	0	0	0	1	0	0	1
<i>Glandulina laevigata</i>		0	0	0	0	0	0	0	0	0	0
<i>Globocassidulina subglobosa</i>		0	0	0	0	0	13	1	5	1	20
<i>Glomospira gordialis</i>		1	0	0	0	1	37	7	6	1	51
<i>Islandiella helenae</i>		0	0	0	0	0	0	0	0	3	3
<i>Melonis barleeianum</i>		0	0	0	0	0	0	0	1	3	4
<i>Nodosariids</i>		0	0	0	0	0	14	7	7	4	32
<i>Nonionellina labradorica</i>		0	0	0	0	0	0	0	0	1	1
<i>Oridorsalis tener</i>		0	0	0	0	0	0	0	3	12	15
<i>Oridorsalis umbonatus</i>		0	0	0	0	0	0	0	0	0	0
<i>Portatrochammina bipolaris</i>		33	13	16	0	62	29	20	15	2	66
<i>Pullenia quinqueloba</i>		0	0	0	0	0	0	0	0	0	0
<i>Quinqueloculina akneriana</i>		0	0	0	0	0	0	0	0	0	0
<i>Quinqueloculina arctica</i>		0	0	0	0	0	0	0	3	5	8
<i>Recurvoides scitulus</i>		0	0	0	1	1	0	0	0	166	166
<i>Reophax scorpiurus</i>		0	0	0	0	0	0	0	3	0	3
<i>Reophax spp.</i>		257	34	18	23	332	1198	117	39	78	1432
<i>Robertinoides charlottensis</i>		0	0	0	0	0	0	0	0	0	0
<i>Rosalina globularis</i>		0	0	0	0	0	0	0	0	0	0
<i>Saccamina difflugiformis</i>		0	5	6	0	11	0	8	6	3	17
<i>Spiroplectammina bifurcata</i>		5	1	0	0	6	0	5	4	0	9
<i>Stainforthia concava</i>		0	0	0	0	0	10	3	0	0	13
<i>Stetsonia horvathi</i>		0	0	0	0	0	22	0	0	0	22
<i>Textularia kattagatensis</i>		0	0	0	0	0	4	0	0	0	4
<i>Textularia torquata</i>		8	0	0	0	8	21	0	0	0	21
<i>Triloculina frigida</i>		0	0	0	0	0	0	0	0	0	0
<i>Trochammina pseudoinflata</i>		0	0	0	0	0	3	4	5	5	17
<i>Trochammina subglobigeriniformis</i>		38	25	17	1	81	176	38	28	10	252
<i>Valvulinaria arctica</i>		0	0	0	0	0	7	2	0	0	9
<i>Verneuilina minuta</i>		1	0	0	0	1	0	0	0	0	0
Size fraction total		350	84	62	26	522	1840	409	403	444	3096
Percent of Total Count		66.99	16.12	11.90	4.99	100.0	59.43	13.21	13.02	14.34	100.0
S-W Index		0.29	0.46	0.48	0.10	0.37	0.70	0.57	0.40	0.58	0.70

CORE TAXA	size (µm)	PI-92-AR-B7, water depth 1,055 M					PI-92-AR-B16, water depth 1,388 M				
		1/8 sample examined				Species	1/16 sample examined				Species
		63-106	106-125	125-150	>150	total	63-106	106-125	125-150	>150	total
<i>Adercotryma glomerata</i>		0	0	0	0	0	0	0	0	0	0
<i>Alveophragmium crassimargo</i>		0	0	0	0	0	0	0	0	0	0
<i>Ammodiscus catinus</i>		0	0	0	0	0	0	0	0	0	0
<i>Ammotium cassis</i>		0	0	0	0	0	0	0	0	0	0
<i>Astrononion gallowayi</i>		0	0	0	0	0	0	0	0	0	0
<i>Bolivina arctica</i>		1	0	0	0	1	6	0	0	0	6
<i>Bolivina pseudopunctata</i>		1	0	0	0	1	0	0	0	0	0
<i>Buccella frigida</i>		0	0	0	0	0	0	0	0	0	0
<i>Bulimina aculeata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cassidulina norcrossi</i>		0	0	0	0	0	1	0	0	1	2
<i>Cassidulina teretis</i>		43	39	54	53	189	19	6	2	13	40
<i>Chilostomella elongata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cibicides lobatulus</i>		0	0	0	2	2	2	0	1	0	3
<i>Criboelphidium clavatum</i>		0	0	0	0	0	0	0	0	0	0
<i>Criboelphidium excavatum</i>		0	1	0	0	1	0	1	0	0	1
<i>Cribrostomoides sp.</i>		0	0	0	4	4	0	0	0	0	0
<i>Cystamina argentea</i>		0	0	0	0	0	0	0	0	0	0
<i>Dentalina pauperata</i>		0	0	0	1	1	0	0	0	0	0
<i>Discorbis squamata</i>		0	0	0	0	0	0	0	0	0	0
<i>Eggerella advena</i>		0	0	0	0	0	0	0	0	0	0
<i>Eponides tumidulus</i>		129	78	12	0	219	259	53	6	0	318
<i>Fontbotia wuellerstorfi</i>		0	0	0	15	15	1	0	0	17	18
<i>Fursenkoina fusiformis</i>		0	0	0	0	0	6	0	0	0	6
<i>Glandulina laevigata</i>		0	0	0	0	0	0	0	0	0	0
<i>Globocassidulina subglobosa</i>		0	0	0	0	0	0	0	0	0	0
<i>Glomospira gordialis</i>		0	0	0	0	0	7	0	2	0	9
<i>Islandiella helenae</i>		0	0	0	0	0	0	0	0	0	0
<i>Melonis barleeanum</i>		0	0	0	0	0	0	0	0	0	0
<i>Nodosariids</i>		8	2	3	1	14	9	0	5	0	14
<i>Nonionellina labradorica</i>		0	0	0	0	0	0	0	0	0	0
<i>Oridorsalis tener</i>		16	25	50	69	160	89	30	83	61	263
<i>Oridorsalis umboatus</i>		0	0	0	0	0	0	0	0	0	0
<i>Portatrochammina bipolaris</i>		0	0	0	0	0	0	0	0	0	0
<i>Pullenia quinqueloba</i>		0	0	0	0	0	0	0	0	0	0
<i>Quinqueloculina akneriana</i>		0	0	0	0	0	1	0	9	24	34
<i>Quinqueloculina arctica</i>		0	0	0	72	72	0	0	0	0	0
<i>Recurvoides scitulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Reophax scorpiurus</i>		0	0	0	0	0	0	0	0	0	0
<i>Reophax spp.</i>		0	0	0	0	0	4	0	0	0	4
<i>Robertinoides charlottensis</i>		1	0	0	0	1	1	3	2	0	6
<i>Rosalina globularis</i>		0	0	0	0	0	0	0	0	0	0
<i>Saccamina difflugiformis</i>		0	0	0	0	0	0	0	0	0	0
<i>Spiroplectammina bifurmis</i>		0	0	0	0	0	0	0	0	0	0
<i>Stainforthia concava</i>		10	0	0	0	10	0	0	0	0	0
<i>Stetsonia horvathi</i>		96	0	0	0	96	163	1	0	0	164
<i>Textularia kattagatensis</i>		0	0	0	0	0	0	0	0	0	0
<i>Textularia torquata</i>		0	0	0	0	0	0	0	0	0	0
<i>Triloculina frigida</i>		18	15	16	4	53	12	1	15	0	28
<i>Trochammina pseudoinflata</i>		0	0	0	0	0	1	3	0	0	4
<i>Trochammina subglobigeriniformis</i>		0	0	0	0	0	0	0	0	0	0
<i>Valvulineria arctica</i>		67	9	7	0	83	24	17	6	1	48
<i>Verneullina minuta</i>		0	0	0	0	0	1	0	0	0	1
Size fraction total		390	169	142	221	922	606	115	131	117	969
Percent of Total Count		42.30	18.33	15.40	23.97	100.0	62.50	11.88	13.53	12.09	100.0
S-W Index		0.76	0.62	0.62	0.65	0.89	0.67	0.57	0.48	0.55	0.76

TAXA	CORE size (µm)	PI-92-AR-B8, water depth 1,402 M					PI-92-AR-B9, water depth 2,120 M				
		1/128 sample examined				Species	1/32 sample examined				Species
		63-106	106-125	125-150	>150	total	63-106	106-125	125-150	>150	total
<i>Adercotryma glomerata</i>		0	0	0	0	0	1	0	0	0	1
<i>Alveophragmium crassimargo</i>		0	0	0	0	0	0	1	0	0	1
<i>Ammodiscus catinus</i>		0	0	0	0	0	0	0	0	0	0
<i>Ammotium cassis</i>		0	0	0	0	0	0	0	0	0	0
<i>Astrononion gallowayi</i>		0	0	0	0	0	0	0	0	0	0
<i>Bolivina arctica</i>		3	0	0	0	3	11	0	0	0	11
<i>Bolivina pseudopunctata</i>		0	0	0	0	0	0	0	0	0	0
<i>Buccella frigida</i>		0	1	2	2	5	0	0	0	0	0
<i>Bulimina aculeata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cassidulina norcrossi</i>		0	0	0	0	0	0	0	0	0	0
<i>Cassidulina teretis</i>		17	17	10	13	57	0	0	0	0	0
<i>Chilostomella elongata</i>		1	0	0	0	1	0	0	0	0	0
<i>Cibicides lobatulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Criboelphidium clavatum</i>		0	0	0	0	0	0	0	0	0	0
<i>Criboelphidium excavatum</i>		0	0	0	0	0	0	0	0	0	0
<i>Cribr stomoides sp.</i>		0	0	0	0	0	0	0	0	0	0
<i>Cystamina argentea</i>		0	0	0	0	0	4	0	0	0	4
<i>Dentalina pauperata</i>		0	0	0	0	0	0	0	0	0	0
<i>Discorbis squamata</i>		0	0	0	0	0	0	0	0	0	0
<i>Eggerella advena</i>		0	0	0	0	0	0	0	0	0	0
<i>Eponides tumidulus</i>		265	57	12	0	334	11	34	6	0	51
<i>Fontbotia wuellerstorfi</i>		14	0	3	19	36	0	4	4	28	36
<i>Fursenkoina fusiformis</i>		1	0	0	0	1	0	0	0	0	0
<i>Glandulina laevigata</i>		0	0	0	0	0	0	0	0	0	0
<i>Globocassidulina subglobosa</i>		2	0	0	0	2	0	0	1	0	1
<i>Glomospira gordialis</i>		3	0	0	0	3	1	1	1	0	3
<i>Islandiella helenae</i>		0	0	0	0	0	0	0	0	0	0
<i>Melonis barleeianum</i>		0	3	0	0	3	0	0	0	0	0
<i>Nodosariids</i>		7	7	2	0	16	24	3	1	1	29
<i>Nonionellina labradorica</i>		0	0	0	0	0	0	0	0	0	0
<i>Oridorsalis tener</i>		92	50	124	116	382	207	102	203	174	686
<i>Oridorsalis umbonatus</i>		0	0	0	1	1	0	0	0	0	0
<i>Portatrochammina bipolaris</i>		0	0	0	0	0	0	0	0	0	0
<i>Pullenia quinqueloba</i>		0	1	0	0	1	0	0	0	0	0
<i>Quinqueloculina akneriana</i>		0	0	0	8	8	0	5	3	2	10
<i>Quinqueloculina arctica</i>		0	0	0	0	0	0	0	0	10	10
<i>Recurvoides scitulus</i>		0	0	0	0	0	0	0	0	1	1
<i>Reophax scorpiurus</i>		0	0	0	0	0	0	0	0	0	0
<i>Reophax spp.</i>		0	0	2	0	2	2	1	0	0	3
<i>Robertinoides charlottensis</i>		0	0	1	1	2	3	1	0	1	5
<i>Rosalina globularis</i>		0	0	0	0	0	0	0	0	0	0
<i>Saccamina difflugiformis</i>		0	0	0	0	0	0	0	0	0	0
<i>Spiroplectammina biformis</i>		0	0	0	0	0	0	0	0	0	0
<i>Stainforthia concava</i>		6	0	0	0	6	4	0	0	0	4
<i>Stetsonia horvathi</i>		475	0	1	0	476	1544	5	0	0	1549
<i>Textularia kattagatensis</i>		0	0	0	0	0	0	0	0	0	0
<i>Textularia torquata</i>		0	0	0	0	0	0	0	0	0	0
<i>Triloculina frigida</i>		45	19	11	1	76	129	25	27	9	190
<i>Trochammina pseudoinflata</i>		0	0	0	0	0	0	0	0	0	0
<i>Trochammina subglobigeriniformis</i>		0	0	0	0	0	6	1	0	0	7
<i>Valvulinaria arctica</i>		40	4	5	0	49	75	0	0	0	75
<i>Verneuilina minuta</i>		0	0	0	0	0	0	0	0	0	0
Size fraction total		971	159	173	161	1464	2022	183	246	226	2677
Percent of Total Count		66.33	10.86	11.82	11.00	100.0	75.53	6.84	9.19	8.44	100.0
S-W Index		0.60	0.69	0.48	0.43	0.75	0.50	0.60	0.31	0.36	0.62

TAXA	CORE size (µm)	PI-92-AR-B15, water depth 2,135 M					PI-92-AR-B12, water depth 3,811 M				
		1/8 sample examined				Species	entire sample examined				Species
		63-106	106-125	125-150	>150	total	63-106	106-125	125-150	>150	total
<i>Adercotryma glomerata</i>		7	1	0	0	8	2	0	0	0	2
<i>Alveophragmium crassimargo</i>		0	0	0	0	0	3	0	0	0	3
<i>Ammodiscus catinus</i>		0	0	1	0	1	1	0	0	0	1
<i>Ammotium cassis</i>		0	0	0	0	0	0	0	0	0	0
<i>Astrononion gallowayi</i>		0	0	0	0	0	0	0	0	0	0
<i>Bolivina arctica</i>		0	0	0	0	0	2	0	0	0	2
<i>Bolivina pseudopunctata</i>		0	0	0	0	0	0	0	0	0	0
<i>Buccella frigida</i>		0	0	0	0	0	0	0	1	0	1
<i>Bulimina aculeata</i>		0	0	0	0	0	0	0	0	0	0
<i>Cassidulina norcrossi</i>		0	0	0	0	0	0	0	0	0	0
<i>Cassidulina teretis</i>		0	0	0	0	0	0	0	0	0	0
<i>Chilostomella elongata</i>		1	0	0	0	1	0	0	0	0	0
<i>Cibicides lobatulus</i>		54	7	0	0	61	1	1	0	0	2
<i>Criboelphidium clavatum</i>		0	0	0	0	0	2	0	0	1	3
<i>Criboelphidium excavatum</i>		0	0	0	0	0	2	0	0	0	2
<i>Cribrorostomoides sp.</i>		0	0	0	0	0	0	0	0	0	0
<i>Cystamina argentea</i>		0	0	0	0	0	0	0	0	0	0
<i>Dentalina pauperata</i>		0	0	0	0	0	0	0	0	0	0
<i>Discorbis squamata</i>		0	0	0	0	0	1	0	0	0	1
<i>Eggerella advena</i>		1	0	0	0	1	0	1	0	0	1
<i>Eponides tumidulus</i>		225	20	9	0	254	38	16	7	1	62
<i>Fontbotia wuellerstorfi</i>		0	0	20	115	135	0	0	0	0	0
<i>Fursenkoina fusiformis</i>		2	0	0	0	2	0	0	0	0	0
<i>Glandulina laevigata</i>		0	0	0	0	0	0	0	0	0	0
<i>Globocassidulina subglobosa</i>		0	0	0	0	0	1	0	0	0	1
<i>Glomospira gordialis</i>		12	2	0	0	14	2	0	0	0	2
<i>Islandiella helenae</i>		0	0	0	0	0	0	0	0	0	0
<i>Melonis barleeianum</i>		0	0	0	0	0	0	0	0	0	0
<i>Nodosariids</i>		13	3	4	3	23	0	0	3	5	8
<i>Nonionellina labradorica</i>		0	0	0	0	0	0	0	0	0	0
<i>Oridorsalis tener</i>		73	40	80	71	264	14	18	35	20	87
<i>Oridorsalis umbratus</i>		0	0	0	0	0	0	0	0	0	0
<i>Portatrochammina bipolaris</i>		13	0	0	0	13	1	0	0	0	1
<i>Pullenia quinqueloba</i>		0	0	0	0	0	0	0	0	0	0
<i>Quinqueloculina akneriana</i>		14	5	6	23	48	0	0	0	0	0
<i>Quinqueloculina arctica</i>		0	0	0	0	0	0	0	0	0	0
<i>Recurviroides scitulus</i>		0	0	0	0	0	0	0	0	0	0
<i>Reophax scorpiurus</i>		0	0	0	0	0	0	0	0	0	0
<i>Reophax spp.</i>		33	0	0	0	33	0	0	0	0	0
<i>Robertinoides charlottensis</i>		0	0	4	0	4	0	0	0	0	0
<i>Rosalina globularis</i>		0	0	0	0	0	0	0	0	0	0
<i>Saccamina difflugiformis</i>		2	0	0	0	2	0	0	0	0	0
<i>Spiroplectammina bifurcata</i>		0	0	0	0	0	0	0	1	0	1
<i>Stainforthia concava</i>		4	0	0	0	4	0	0	0	0	0
<i>Stetsonia horvathi</i>		131	0	0	0	131	74	0	0	0	74
<i>Textularia kattagatensis</i>		0	0	0	0	0	0	0	0	0	0
<i>Textularia torquata</i>		0	0	0	0	0	0	0	0	0	0
<i>Triloculina frigida</i>		40	4	6	0	50	0	1	0	1	2
<i>Trochammina pseudoinflata</i>		1	1	0	0	2	0	0	0	0	0
<i>Trochammina subglobigeriniformis</i>		2	0	0	0	2	5	0	0	0	5
<i>Valvulineria arctica</i>		118	0	0	0	118	0	0	0	0	0
<i>Verneuilina minuta</i>		6	0	0	0	6	0	0	0	0	0
Size fraction total		752	83	130	212	1177	149	37	47	28	261
Percent of Total Count		63.68	7.09	11.11	18.12	100.00	57.09	14.18	18.01	10.73	100.0
S-W Index		0.81	0.56	0.51	0.43	0.88	0.57	0.35	0.21	0.06	0.66