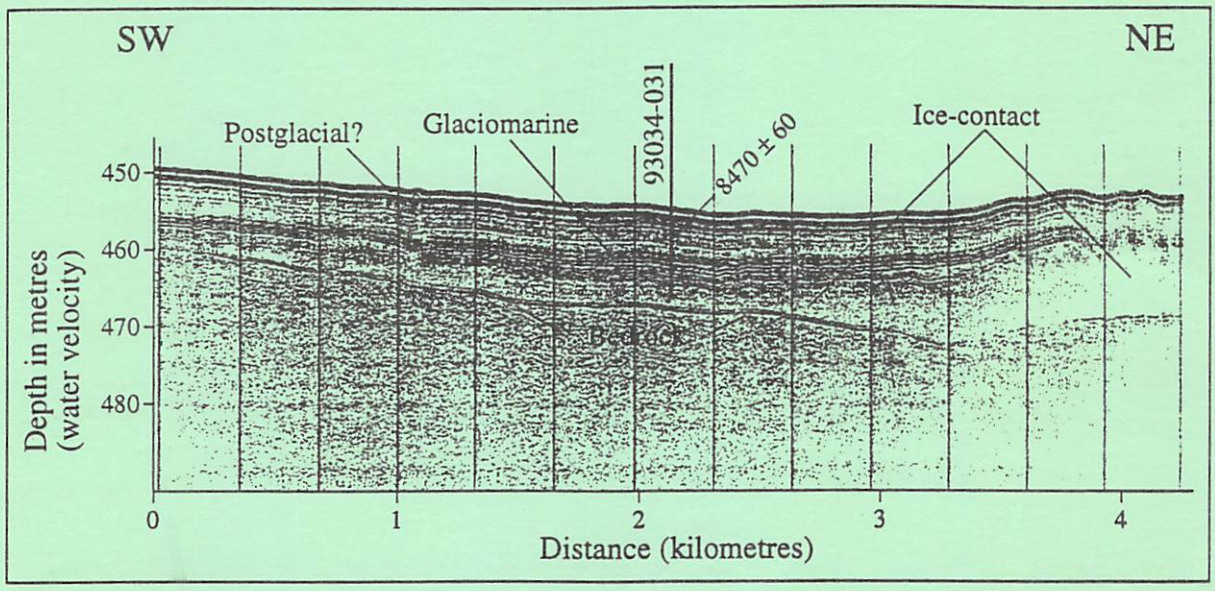
Radiocarbon Date List VIII: Eastern Canadian Arctic, Labrador, Northern Quebec, East Greenland Shelf, Iceland Shelf, and Antarctica

Compiled by W. F. Manley and A. E. Jennings



High-resolution seismic profile of sediments in the Eastern Basin of Hudson Strait.

Contributors:

M. Abbott, J.T. Andrews, D. Barber
T. Cooper, B. Deonarine, M.L. Duvall
W.F. Fitzhugh, J.T. Gray, S. Hagen
F. Hall, G. Helgadottir, A.E. Jennings
D.S. Kaufman, M.W. Kerwin, M. Kirby
D. Laeyendecker, K. Licht, B. MacLean
W.F. Manley, G.H. Miller, H. Nichols
N. Rynes, C. Schafer, S.K. Short
D.R. Stenton, J.A. Stravers, K. Tedesco
G. Vilks, A.P. Wolfe, Xiao J.

Occasional Paper No. 50
1996

Institute of Arctic and Alpine Research • University of Colorado

RADIOCARBON DATE LIST VIII: EASTERN CANADIAN ARCTIC, LABRADOR, NORTHERN QUEBEC, EAST GREENLAND SHELF, ICELAND SHELF, AND ANTARCTICA

Compiled by William F. Manley and Anne E. Jennings

Institute of Arctic and Alpine Research
University of Colorado, Boulder, Colorado 80309

With contributions from: M. Abbott, J.T. Andrews, D. Barber, T. Cooper, B. Deonarine, M.L. Duvall, W. Fitzhugh, J.T. Gray, S. Hagen, F. Hall, G. Helgadottir, A.E. Jennings, D.S. Kaufman, M.W. Kerwin, M. Kirby, D. Laeyendecker, K. Licht, B. MacLean, W.F. Manley, G.H. Miller, R. Miller, H. Nichols, N. Rynes, C. Schafer, S.K. Short, A. Stein, D.R. Stenton, J.A. Stravers, K. Tedesco, G. Vilks, A.P. Wolfe, and Xiao J.

1996

University of Colorado
Institute of Arctic and Alpine Research
Occasional Paper 50

INSTAAR/OP-50
ISSN 0069-6145

TABLE OF CONTENTS

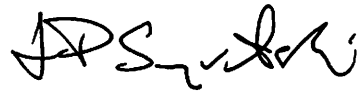
PART 3: DATES FROM LAKE CORES

ABSTRACT

This Date List contains an annotated listing of 420 radiocarbon dates determined on samples from the Eastern Canadian Arctic, Labrador, Northern Quebec, East Greenland, Iceland, and Antarctica. Nearly two-thirds of the dates are on materials recovered from marine cores from northern Hudson Bay, Hudson Strait, the southern and eastern Baffin Island Shelves, the Labrador Shelf and Sea, Baffin Bay, the East Greenland Fjords, Shelf and Slope, the southwestern and northwestern Iceland Shelves, the Ross Sea Shelf, and offshore the Northern Antarctic Peninsula. Much of the remainder of the dates are on materials obtained from terrestrial geologic and archeological sites near Ungava Bay, on northern Ungava Peninsula, and on southern Baffin Island, including the shores of Meta Incognita Peninsula and Frobisher Bay. One-tenth of the dates are on materials obtained from lake cores taken from northern Labrador, northeast Quebec, and southern Baffin Island. The dates have been used to address a variety of research questions. Their stratigraphic and sample contexts are presented here to document the basis for interpretations. Most of the dates constrain the timing, rate, and interaction of late Quaternary paleoenvironmental fluctuations in sea level, glacier extent, sediment input, and ocean circulation. Others bear on investigations into the limitations and applications of geochronologic methods, or on the pace and timing of cultural evolution in high latitudes. Nearly all of the dates (85%) were obtained by the Accelerator Mass Spectrometry (AMS) method. The majority of the dates (61%) were produced by the National Science Foundation - University of Arizona AMS Facility. The prevalent use of AMS dating reflects the ability to analyze small samples to obtain high-resolution chronologies of environmental change.

PREFACE

This is the latest in a series of radiocarbon date lists that have been published through the Institute of Arctic and Alpine Research. William Manley and Anne Jennings are congratulated for bringing together such a comprehensive document. Normally radiocarbon date lists are produced by individual laboratories or for individual research projects. In contrast, the date lists compiled and published by INSTAAR present the results from several laboratories and research projects that relate to one or more arctic and antarctic regions. Date List VIII demonstrates the significant impact that accelerator mass spectrometry (AMS) ^{14}C dating is having on Quaternary and Global Change research. This date list highlights the expanding geographic scope of research conducted by INSTAAR researchers and colleagues, presenting more than four hundred radiocarbon dates from marine, lacustrine, and terrestrial settings in Antarctica, Quebec, the Eastern Canadian Arctic, Greenland, and Iceland.



James P. M. Syvitski

Director, INSTAAR

ACKNOWLEDGEMENTS

Funding for the dates compiled here was provided primarily by various research grants from the National Science Foundation, principally grants: DPP-91-22811, EAR-90-05179, OPP-91-17958, OPP-92-24254, ATM-92-24554, ATM-92-24554, and OPP-93-21135. Other funding was provided by the Natural Sciences and Engineering Research Council of Canada, the Geological Survey of Canada, and the National Oceanic and Atmospheric Administration Consortium on Rapid Climate Change (NOAA NA479PO188). Dr. A. J. T. Jull of the University of Arizona AMS Facility has been instrumental in our dating efforts. We also appreciate the support of Roger McNeely at the G.S.C. Radiocarbon Dating Laboratory. Samples of foraminifera and molluscs from many of the marine cores were graciously provided by the Bedford Institute of Oceanography, Halifax, Nova Scotia. This compilation was supported by NSF Grants OPP-92-24251 and OPP-93-21135.

INTRODUCTION

This Radiocarbon Date List is the eighth in a series that reports radiocarbon analyses obtained by researchers at the University of Colorado, Institute of Arctic and Alpine Research (INSTAAR) and at other institutions with shared interest in the Arctic and Antarctic. This is the largest Date List yet compiled, with 420 dates acquired over the past four years, nearly twice the number of the previous list (Kaufman and Williams, 1992). Of these dates, 267 are on materials recovered from marine cores, 130 are from terrestrial exposures, and 23 are from lake cores. Nearly all of the results (357) are Accelerator Mass Spectrometry (AMS) dates analyzed at the NSF-University of Arizona AMS facility (72%), the IsoTrace Radiocarbon Laboratory at the University of Toronto (13%), the Center for AMS at Lawrence Livermore National Laboratory (12%), and through the services of Beta Analytic Inc. (3%). The remaining 63 dates were determined by conventional radiocarbon methods primarily through Beta Analytic Inc. (47%) and the Geological Survey of Canada Radiocarbon Dating Laboratory (20%).

The AMS method has continued to revolutionize radiocarbon dating. AMS dates are routinely measured on samples of foraminifera as small as 2 mg, and AMS technology has enabled high-resolution time-series of environmental conditions, especially in marine and lacustrine settings. For example, some of the dates reported here provide a chronology for repeated, massive dispersal of icebergs across the Labrador Sea during Heinrich events, which affected hemispheric if not global ocean circulation and climate (e.g., core 87033-009 from the Northern Labrador Sea). AMS dating continues to be a boon for land-based studies as well, allowing us to constrain the age of individual molluscs within potentially mixed-age assemblages of glacially transported shells. The ability to date small samples is also put to good use in archeological contexts, for example dating charcoal incorporated within iron artifacts associated with the first European contact during the sixteenth century with inhabitants of southern Baffin Island.

Over one-third of the dates (36%) fall within 8-11 ka (Fig. 1), a time of rapid and dramatic environmental change in the Eastern Canadian Arctic and Labrador Sea. More than half of these dates (57%) are on molluscs, with foraminifera representing an increasing proportion of older dates (from longer sediment records on the continental shelf and slope). Overall, foraminifera are the most frequently dated material, comprising 163 dated samples and 39% of the total. Molluscs constitute the second most commonly dated materials, with 147 samples reported here for 35% of the total. Unlike the last one, this Date List reports no dates on humic acid extractions or peats. Novel materials include bone, charcoal, wood, iron artifacts, and coral.

The composition of this Date List reflects an expansion in geographic focus of INSTAAR researchers and colleagues. For the first time, dates from Antarctica and Iceland are included in an INSTAAR date list. Also, dates from northern Quebec and Labrador are folded into this

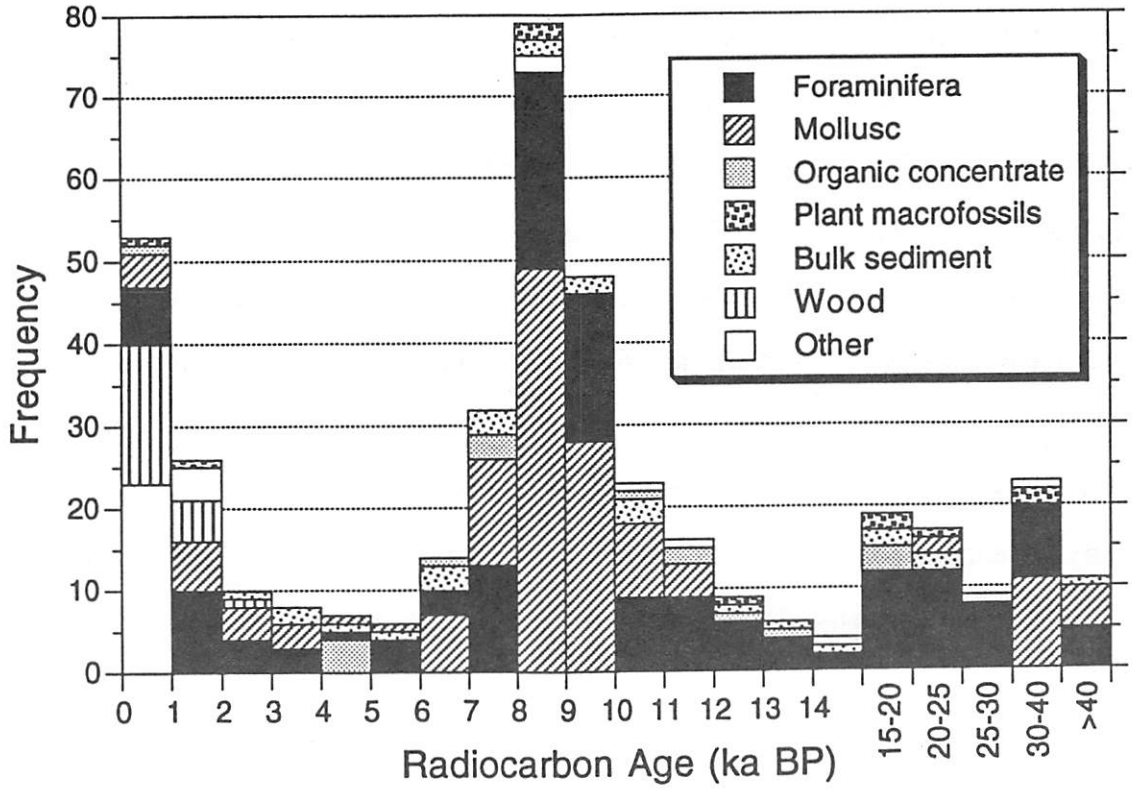


Fig. 1. Frequency distribution of radiocarbon ages and dated material reported in this Date List.

report, rather than constituting separate reports for that region (e.g., Short, 1981; cf. Andrews and Short, 1983; Andrews et al., 1989).

This Date List is also distinguished by temporal scale. The inclusion of dates from archeological sites lends a distinctive, young peak to the age distribution (Fig. 1). The other end of the scale is marked by higher proportions of dates >20 ka, compared to previous date lists, primarily reflecting research into relatively long records of deposition on the shelves and slopes of the Labrador Sea, Antarctica, and Greenland.

As with the previous date list, this document presents two types of radiocarbon ages: "Reported" and "Corrected". Reported ages are those issued by the radiocarbon laboratory. Since the mid-1970's, most labs have followed the approach of Stuiver and Pollach (1977) for reporting "conventional radiocarbon dates". I.e., reported dates should be specifically corrected for $\delta^{13}C$ sample fractionation, normalized to a standard $\delta^{13}C$ of -25‰, without a marine-reservoir correction, and with sample errors of ±1 standard deviation, reflecting a confidence level of 68%. However, a few radiocarbon labs have not adopted this convention (e.g., the GSC). For further details see Appendix 3, "Comparing Apples and Oranges: Understanding How Radiocarbon Laboratories Report Dates Differently."

To recalculate the dates to a common format, and to incorporate the effect of initially "old" marine sources of carbon, we present here "Corrected" dates. In most cases, this is simply the reported age minus the marine reservoir effect. Except where otherwise stated and for dates from the Eastern Canadian Arctic, the Labrador Sea, and Baffin Bay, this effect is assumed to be 450 yr; however, for the eastern Greenland shelf the correction is 550 years, for Iceland it is 440 years, and for Antarctica it is assumed to be 1200 years (cf. Hjort, 1973; Mangerud and Gulliksen, 1975; Gordon and Harkness, 1992; Berkman and Forman, 1996). "Corrected" dates are not listed for non-marine samples, or for those from sites where the effect is poorly resolved (e.g., Antarctica). "Corrected" dates will need to be refined in the future as temporal and spatial patterns in the apparent age of seawater become apparent.

A few dates in the "Reported Date" field have an asterisk preceding them. The asterisk marks dates that had an additional mass correction provided by the NSF-University of Arizona AMS Facility to account for small sample size. In these cases, the date without mass correction is also given in the "sample notes" field. The mass correction for small samples is still being perfected by University of Arizona personnel (G.S. Burr, personal communication, 1996). Dates on small (light weight) samples reported in this, and previous date lists will be mass-corrected when this correction has been perfected, and reported in future publications.

Guide to this Date List

Closely following the format of the previous date list (Kaufman and Williams, 1992), this report is divided into three parts. Part 1 presents radiocarbon dates from marine sediment cores. Part 2 consists of dates from terrestrial exposures, including archeological sites, and Part 3 lists dates from lake sediment cores. Within each Part, dates are arranged by region and area, in generally southwest to northeast order. Within each area, dates are listed by core number (alphabetically), site name (from SW to NE), or lake name (from SW to NE). Location information is presented only once for each core or site, including latitude, longitude, and water depth (for marine cores), site elevation (for terrestrial sites), or lake surface elevation (for lake cores). For terrestrial and lake dates, also listed is the appropriate map sheet and UTMG coordinates (Universe Transverse Mercator Grid, arranged by grid, easting, and northing).

Marine core names contain prefixes and suffixes that describe the core. Many of the marine cores were obtained by the Geological Survey of Canada Atlantic, Bedford Institute of Oceanography, Halifax, Nova Scotia, aboard the *CSS Hudson*. To differentiate these cores from others, we have added the prefix "HU" to their core designations. Suffixes describe the type of core or sampler used: BC, box core; G, gravity core; IKU, grab sample; LCF, large-diameter long coring facility piston core; PC, other types of piston cores; and TWC, trigger-weight core.

For each date, we report the following, if applicable:

- Reported radiocarbon date and analytical uncertainty (in radiocarbon years BP)

- Radiocarbon laboratory number (see Table 1 for explanation of abbreviations)
- Corrected radiocarbon age
- AAL- and GRL- numbers (laboratory numbers for the Amino Acid and Sedimentology Laboratories at INSTAAR)
- Field identification number provided by the Date List contributor
- Whether the radiocarbon date was measured by Accelerator Mass Spectrometry (AMS) or conventional counting methods
- Collection type for terrestrial samples (e.g., surface collection, excavation, or natural exposure)
- The person or persons who obtained the date for their research and contributed it to the date list for reporting
- Sample depth (depth in core for marine or lake cores; depth below ground surface or from top of exposure for terrestrial sites)
- Type of material dated
- Species, including genus (mixed = assortment of taxa; unknown = unidentifiable)
- Sample weight
- Sample notes, including description of sample preservation and preparation (for foraminifera, unless where otherwise noted, samples were prepared by washing sediment over a 63 μm sieve with distilled water; foraminifera were then picked from air-dried sand)
- Sample pre-treatment made before submittal to the radiocarbon laboratory
- Stratigraphic relations (geologic context of the sample)
- Comment (an interpretive discussion of the significance of the date, or group of dates, commonly with reference to published articles or to other dates that bear on the interpretation)

Three appendices conclude the report. Appendix 1 is an index to the dates presented here, listed with abbreviated sample description and arranged by radiocarbon-laboratory number in Appendix 1A, and arranged by increasing radiocarbon age in Appendix 1B. Appendix 2 is a comprehensive list of dates that have appeared in this and previous INSTAAR date lists, arranged by laboratory number in Appendix 2A and by increasing age in Appendix 2B. Appendix 3 clarifies the different reporting formats used by various radiocarbon laboratories, and how dates can be additionally corrected to bring them into a uniform, comparable format.

Preparation of this Date List was facilitated by a Filemaker Pro database originally configured by D. Kaufman. The program is customized so that sample information can be used to generate radiocarbon-laboratory submission forms, or for sorting and analysis. The database

contains all of the dates presented in Appendix 2 and in previous INSTAAR date lists. For further information on the program, or to obtain a copy, contact William Manley (INSTAAR).

Table 1. Abbreviations of radiocarbon dating laboratories included in this and previous INSTAAR Date Lists; those included in this Date List are indicated by an asterisk (*).

AA*	.....	NSF-University of Arizona AMS Facility
AECV*	.....	Alberta Environmental Centre, University of Alberta
Beta*	.....	Beta Analytic Inc.
BGS	.....	Brock University, Canada
Birm	.....	Birmingham University, U.K.
CAMS*	.....	Center for AMS at Lawrence Livermore National Laboratory
DIC	.....	Dicarbon Corp.
GaK	.....	Gakushuin University, Japan
Gif	.....	Gif-sur-Yvette, Centre des Faibles Radioactivities, France
GSC*	.....	Geological Survey of Canada Radiocarbon Dating Laboratory
GX*	.....	Geochron Inc.
I	.....	Isotopes (Teledyne) Inc.
L	.....	Lamont-Dougherty Geological Observatory
QC*	.....	Queens College, New York
QL	.....	Quaternary Isotopes Laboratory, University of Washington
Qu	.....	Quebec Department of Natural Resources, Canada
S	.....	University of Saskatchewan, Canada
SI*	.....	Smithsonian Institution
TO*	.....	IsoTrace Radiocarbon Laboratory, University of Toronto
Y	.....	Yale University

PART 1: DATES FROM MARINE CORES

ANTARCTICA

Ross Sea Shelf

Contributor(s): J.T. Andrews, A.E. Jennings, K.M. Williams, K. Licht and J. Xiao

Core: DF80-057 PC

Location: McMurdo Sound, just West of Ross Island
Lat: 77° 17'S **Long:** 165° 49'E **Water Depth:** 869 m

Date: 3040 ± 70 **Lab. No:** CAMS-7789 **Corrected Age:** 1840 ± 70
Depth: 0-2 cm **GRL-912-O** **Material:** Decalcified Sediment
Weight: 1.07 mg
Sample Notes: NSRL-1402; The organic concentrate from diatom rich sediments.
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Stratigraphic Relations: Late Holocene age for core top.
Comment: See comment for CAMS-4063.

Date: 7830 ± 60 **Lab. No:** AA-11876 **Corrected Age:** 6630 ± 60
Depth: 43 cm **GRL-1036-S** **Material:** Mollusc
Weight: 5.6 mg **Species:** Unknown
Sample Notes: Bivalve of unknown genus and species.
Sample Pre-treatment: Shell washed in distilled water and air dried.
Stratigraphic Relations: Pebbly sandy mud interbedded with mud. May represent a sediment gravity flow.
Comment: Provides a maximum age of deglaciation of this site. The Ross Ice Shelf had retreated from this site by 6.6 ka. See comment for CAMS-4063.

Core: DF80-102 PC

Location: Drygalsky Trough, western Ross Sea
Lat: 75° 12'S **Long:** 163° 43'E **Water Depth:** 1116 m

Date: 4025 ± 55 **Lab. No:** AA-13244 **Corrected Age:** 2825 ± 55
Depth: 0-7 cm **GRL-924-O** **Material:** Organic Concentrate
Weight: 31.3 mg
Sample Notes: 5.944 grams submitted to INSTAAR Sedimentology Laboratory.
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 μm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 μm sieve. > 125 μm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.
Stratigraphic Relations: Core top date.
Comment: Slightly old core top age from the Ross Sea. Many core top ages are ca. 3.5 ka, uncorrected. This correction of 1200 yrs. is the typical correction for calcium carbonate systems and may be somewhat too young for organic dates. See comment for CAMS-4063.

Date: 12,640 ± 80 **Lab. No:** CAMS-12581 **Corrected Age:** 11,440 ± 80
Depth: 90 cm **GRL-925-O** **Material:** Decalcified Sediment
Weight: 7006.5 mg

Sample Notes: 7.007 g sample submitted to Tom Stafford Lab for pretreatment and submission to Laurence Livermore Lab.
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Comment: See comment for CAMS-4063.

Core: DF80-108 PC

Location: Drygalsky Trough, western Ross Sea
Lat: 75° 04'S **Long:** 166° 00'E **Water Depth:** 915 m

Date: 11,545 ± 95 **Lab. No:** AA-13242 **Corrected Age:** 10,345 ± 95
Depth: 22-26 cm **GRL**-922-O **Material:** Organic Concentrate
Weight: 35 mg
Sample Notes: 5.96 grams submitted to INSTAAR Sed Lab, 35 mg concentrated organic matter sent for dating.
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 μm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 μm sieve. > 125 μm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.
Stratigraphic Relations: Sample from diatomaceous mud just above transition from pebbly sandy mud to diatomaceous mud.
Comment: This date gives a maximum age of deglaciation of Drygalski Trough. See comment for CAMS-4063.

Core: DF80-111 PC

Location: Drygalsky Trough, western Ross Sea
Lat: 74° 55'S **Long:** 167° 29'E **Water Depth:** 554 m

Date: 4750 ± 70 **Lab. No:** CAMS-8253 **Corrected Age:** 3550 ± 70
Depth: 10-12 cm **GRL**-915-O **Material:** Decalcified Sediment
Weight: 0.97 mg
Sample Notes: NSRL-1421; 0.97 mg of carbon submitted for dating.
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Stratigraphic Relations: Date closely limiting age of diatom productivity spike in the upper diatomaceous mud.
Comment: Typical age for the deposition of the postglacial diatomaceous mud presently deposited in Ross Sea. See comment for CAMS-4063.

Core: DF80-112 PC

Location: Drygalsky Trough, western Ross Sea
Lat: 74° 55'S **Long:** 166° 49'E **Water Depth:** 713 m

Date: 5390 ± 70 **Lab. No:** CAMS-4061 **Corrected Age:** 4190 ± 70
Depth: 5-6.5 cm **GRL**-937-O **Material:** Decalcified Sediment
Weight: 0.95 mg
Sample Notes: NSRL-934; 0.95 mg of carbon concentrated from 10.5 g of bulk sediment.
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.

Stratigraphic Relations: Date constrains age of diatom productivity spike. Sample taken from the spike.
Comment: See comment for CAMS-4063.

Core: DF80-132 PC

Location: East of Drygalsky Ice Tongue, western Ross Sea
Lat: 75° 33'S **Long:** 166° 08'E **Water Depth:** 668 m

Date: 8390 ± 80 **Lab. No:** CAMS-8251 **Corrected Age:** 7190 ± 80
Depth: 45-47 cm **GRL**-916-O **Material:** Decalcified Sediment
Weight: 0.96 mg
Sample Notes: NSRL-1420; 0.96 mg carbon concentrated from decalcified bulk sample and submitted for dating.
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Comment: See comment for CAMS-4063.

Date: 10,730 ± 80 **Lab. No:** CAMS-11793 **Corrected Age:** 9530 ± 80
Depth: 62-65 cm **GRL**-926-O **Material:** Decalcified Sediment
Weight: 0.82 mg
Sample Notes: NSRL - 1631; 0.82 mg of carbon concentrated from decalcified bulk sample.
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Stratigraphic Relations: Closely limiting to the age of the transition from pebbly sandy mud to diatomaceous mud.
Comment: See comment for CAMS-4063.

Core: DF80-144 PC

Location: Northeast of Coulman Island, western Ross Sea
Lat: 73° 01'S **Long:** 172° 10'E **Water Depth:** 457 m

Date: 895 ± 50 **Lab. No:** AA-11877 **Corrected Age:** modern ±
Depth: 8-11 cm **GRL**-1037-S **Material:** Alcyonarian Coral
Weight: 5.6 mg
Sample Pre-treatment: Sediment washed from coral with distilled water.
Stratigraphic Relations: Just above transition from pebbly sandy mud to diatomaceous mud.
Comment: See comment for CAMS-4063.

Date: 6330 ± 80 **Lab. No:** CAMS-11798 **Corrected Age:** 5130 ± 80
Depth: 8-11 cm **GRL**-927-O **Material:** Decalcified Sediment
Weight: 0.2 mg
Sample Notes: Sample submitted to Tom Stafford's Lab for treatment and submission to Laurence Livermore Lab. NSRL -1632. Bulk sample weighing 232.6 mg total and containing 0.2 mg of carbon.
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Stratigraphic Relations: Age of diatom spike just above transition to pebbly sandy mud.
Comment: See comment for CAMS-4063.

Date: 21,255 ± 200 **Lab. No:** AA-12899 **Corrected Age:** 20,055 ± 200

Depth: 13-14 cm **GRL-1062-S** **Material:** Foraminifera
Weight: 10.0 mg
Sample Notes: benthic foraminifera
Stratigraphic Relations: Just below transition from pebbly sandy mud to diatomaceous mud.
Comment: See comment for CAMS-4063.

Date: 22,360 ± 140 **Lab. No:** CAMS-12582 **Corrected Age:** 21,160 ± 140
Depth: 21-24 cm **GRL-928-O** **Material:** Decalcified Sediment
Weight: 0.83 mg
Sample Notes: Sample submitted to Tom Staffords lab for pretreatment and for submission to Laurence Livermore Lab. NSRL - 1633
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Stratigraphic Relations: Ca. 10 cm below transition from pebbly sandy mud to diatomaceous mud.
Comment: See comment for CAMS-4063.

Core: DF80-177 PC

Location: East of Coulman Island, western Ross Sea
Lat: 73° 41'S **Long:** 171° 49'E **Water Depth:** 529 m

Date: 7470 ± 70 **Lab. No:** CAMS-7790 **Corrected Age:** 6270 ± 70
Depth: 0-3 cm **GRL-913-O** **Material:** Decalcified Sediment
Weight: 0.51 mg
Sample Notes: NSRL-1403; Organic concentrate from diatom rich sediment.
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Stratigraphic Relations: Core top date.
Comment: See comment for CAMS-4063.

Date: 24,835 ± 240 **Lab. No:** AA-15699 **Corrected Age:** 23,635 ± 240
Depth: 30 cm **GRL-1128-S** **Material:** Foraminifera
Weight: 8.4 mg
Sample Notes: 2 benthic foraminiferal species: *Globocassidulina biora, G. subglobosa*
Comment: See comment for CAMS-4063.

Date: 27,255 ± 305 **Lab. No:** AA-11878 **Corrected Age:** 26,055 ± 305
Depth: 230-233 cm **GRL-1038-S** **Material:** Foraminifera
Weight: 7.5 mg
Sample Notes: Mixed Forams
Comment: See comment for CAMS-4063.

Date: 30,170 ± 475 **Lab. No:** AA-13229 **Corrected Age:** 28,970 ± 475
Depth: 270 cm **GRL-1064-S** **Material:** Foraminifera
Weight: 10 mg
Sample Notes: Mixed benthic foraminiferal species: *Cassidulinoides parkerianus, Ehrenbergina glabra, Globocassidulina biora, G. subglobosa*
Stratigraphic Relations: Base of core in a biogenic carbonate-rich unit.
Comment: See comment for CAMS-4063.

Core: DF80-189 PC

Location: North of Ross Island, western Ross Sea
Lat: 77° 12'S **Long:** 167° 53'E **Water Depth:** 907 m

Date: 2660 ± 70 **Lab. No:** CAMS-8252 **Corrected Age:** 1460 ± 70
Depth: 9-10 cm **GRL**-917-O **Material:** Decalcified Sediment
Weight: 1.01 mg
Sample Notes: NSRL-1421; 1.01 mg of carbon combusted from bulk sample and submitted for dating.
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Stratigraphic Relations: Date on diatom spike.
Comment: See comment for CAMS-4063.

Date: 7330 ± 65 **Lab. No:** AA-13243 **Corrected Age:** 6130 ± 65
Depth: 111-115 cm **GRL**-923-O **Material:** Organic Concentrate
Weight: 39.3 mg
Sample Notes: 4.9 gram sediment submitted to INSTAAR Sed. Lab. 39.3 mg organic material concentrated and sent to Arizona Accelerator Facility.
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 μm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 μm sieve. > 125 μm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.
Comment: See comment for CAMS-4063.

Core: DF87-032 PC

Location: East of Coulman Island, western Ross Sea
Lat: 73° 29.1'S **Long:** 170° 23.2'E **Water Depth:** 457 m

Date: 23,390 ± 240 **Lab. No:** CAMS-4062 **Corrected Age:** 22,190 ± 240
Depth: 18-20 cm **GRL**-938-O **Material:** Decalcified Sediment
Weight: 0.43 mg
Sample Notes: NSRL-935; 123.2 mg bulk sediment containing 0.43 mg Carbon
Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Stratigraphic Relations: Base of upper mud unit.
Comment: See comment for CAMS-4063.

Date: 27,720 ± 340 **Lab. No:** AA-9361 **Corrected Age:** 26,520 ± 340
Depth: 80-84.5 cm **GRL**-989-S **Material:** Foraminifera
Weight: 5 mg
Sample Notes: Mixed bivalves, gastropod, 2 scaphopods, foraminifera
Sample Pre-treatment: Biogenic carbonate material washed from sediment over 63 μm sieve using distilled water.
Stratigraphic Relations: Near contact with underlying ash-rich pebbly sandy mud.
Comment: See comment for CAMS-4063.

Date: 19,400 ± 310 **Lab. No:** CAMS-4063 **Corrected Age:** 18,200 ± 310
Depth: 119-121 cm **GRL**-939-O **Material:** Decalcified Sediment
Weight: 0.12 mg
Sample Notes: NSRL-936; 163.7 mg bulk sample combusted. 0.12 mg Carbon dated.

Sample Pre-treatment: 6N HCl and water added to bulk sample. Sample allowed to sit for 1 day. Acid centrifuged off and sample washed with water until pH measured 2.
Stratigraphic Relations: In the middle of a pebbly sandy mud unit. Other dates on this unit are Pleistocene but older. This date is probably erroneously young because of too small a sample.
Comment: (AEJ, KJL) The 22 radiocarbon dates from 10 western Ross Sea cores reported in this date list can be divided into three age groups: 20,000 - 30,000 BP, 7000 - 12,000 BP, and <7000 BP (Licht, 1995; Licht et al., 1996). Dates from 20,000 - 30,000 ka B.P. only occur in glacial-marine diamictons in cores from the outer continental shelf (DF80-144, DF80-177, and DF87-32). These dates have been interpreted to show that the Antarctic Ice Sheet did not ground on the outer shelf during the last glacial maximum. Dates in the second group, 7000 - 12,000 BP occur in cores in and near Drygalski Trough, north of the Drygalski Ice Tongue (DF80-102, DF80-108, DF80-111, and DF80-132). These dates constrain deglaciation in the Terra Nova Bay region of the Victoria Land coast; the oldest date in this group is CAMS 12581, 11,440 ± 90 BP, on decalcified marine sediments in the upper mud unit of DF80-102. The final group, comprising 10 dates of <7000 BP, occurs in seven cores across the western Ross Sea (DF80-144, DF80-177, DF80-112, DF80-111, DF80-102, DF80-189, DF80-57). Several of these dates coincide with diatom abundance spikes thought to represent peaks in diatom productivity during the Holocene (Williams et al., 1993).

Northern Antarctic Peninsula

Core: DF82-182 PC

Location: Antarctic Peninsula, near James Ross Island
Lat: 63° 51.3'S **Long:** 57 ° 42.8'W **Water Depth:** 405 m

Date: Modern ± **Lab. No:** AA-7142 **Corrected Age:**
Depth: 250-256 cm **GRL**-853-O **Material:** Organic Concentrate
Weight: 15.28 mg
Contributor(s): J.T. Andrews
Sample Notes: 33.42 grams material submitted to INSTAAR Sed. Lab. 15.28 mg organic material concentrated and sent for dating.
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 µm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 µm sieve. > 125 µm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.
Stratigraphic Relations: Basal date.
Comment: Fraction modern 1.918 I of 0.0070. See comment AA-7144.

Core: DF82-187 PC

Location: Antarctic Peninsula, near James Ross Island
Lat: 64° 2'S **Long:** 57° 47'W **Water Depth:** 265 m

Date: 17,305 ± 140 **Lab. No:** AA-7144 **Corrected Age:** 16,105 ± 140
Depth: 267-273 cm **GRL**-854-O **Material:** Organic Concentrate
Weight: 18180 mg
Contributor(s): J.T. Andrews
Sample Notes: 44.6 g submitted to Sedimentology lab. 18.18 g of < 125 µm organic concentrate submitted for dating.
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 µm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 µm sieve. < 125 µm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.

Stratigraphic Relations: Basal date for core.
Comment: (JTA) this sample and that from DF82-182 were sampled for determination of rock magnetic parameters and paleomagnetic characteristics. The dates are difficult to interpret! There is no obvious reason why a modern date should have been obtained at the base of DF82-182 except that the sample was contaminated in some way. Until more dates from the region are obtained the interpretation of the late glacial maximum date from DF82-187 must remain tentative, although organic dates from other areas of Antarctica (see this date list) appear "reasonable".

HUDSON BAY

Core: HU90023-091 LCF

Location: Northern Hudson Bay, north of Coats Island
Lat: 63° 02.77'N **Long:** 81° 59.30'W **Water Depth:** 212 m

Date: 8530 ± 60 **Lab. No:** AA-12885 **Corrected Age:** 8080 ± 60
Depth: 40-45 cm **GRL-**1048-S **Material:** Foraminifera
Weight: 14 mg
Contributor(s): J.T. Andrews
Sample Notes: 264 *C. lobatulus*, 63 *N. labradorica*
Comment: (JTA) Date is similar to dates from the southern end of Hudson Bay indicating that the Laurentide Ice Sheet split in Hudson Bay by about 8 ka (Andrews and Falconer, 1969).

HUDSON STRAIT

Western Basin

Core: HU85027-068 PC

Location: Near 90023-101 in the central part of the Western Basin
Lat: 63° 04.5'N **Long:** 74° 18.55'W **Water Depth:** 435 m

Date: 7900 ± 70 **Lab. No:** TO-751 **Corrected Age:** 7860 ± 70
Depth: 989-996 cm **GRL-** **Material:** Mollusc
Weight: 64 mg **Species:** *Portlandia arctica*
Contributor(s): G. Vilks, B. MacLean
Sample Notes: Shell.
Comment: (BM) Seismic data indicate that the section at the core site comprises a very thin section of postglacial sediments that overlie glaciomarine sediments, which lie on glacial drift (ice-contact sediments). The dated interval (Vilks et al., 1989) is from glaciomarine ice proximal sediments approximately 490 cm below the boundary with overlying glaciomarine ice distal sediments.

Core: HU90023-074 IKU

Location: Between Charles Island and Big Island in the west-central part of the strait
Lat: 62° 44.28'N **Long:** 72° 42.26'W **Water Depth:** 358 m

Date: 1300 ± 60 **Lab. No:** TO-3667 **Corrected Age:** 850 ± 60
Depth: **GRL-** **Material:** Foraminifera

Weight: 18 mg **Species:** *Buccella tenerrima*
Contributor(s): B. MacLean, B. Deonarine
Comment: (BM) Sediments at the site comprise 20 m of acoustically unstratified sediments interpreted to consist of three or more ice contact units. Laterally these locally overlie a lense of partly deformed acoustically stratified sediments. In the vicinity of the sample site the unstratified sediments locally are overlain by a +/- 1 m unstratified surface unit. The IKU sample consisted of coarse sediments (mainly pebbles and small boulders at the seabed, underlain by a very cohesive, sticky clayey sediment). The sample submitted for dating was from the lower of these.

Core: HU90023-097 LCF

Location: Western end of the Western Basin
Lat: 63° 14.96'N **Long:** 75° 32.68'W **Water Depth:** 427 m

Date: 7940 ± 920 **Lab. No:** TO-3266 **Corrected Age:** 7490 ± 920
Depth: 340-342 cm **GRL-** **Material:** Foraminifera
Weight: 8.2 mg **Species:** Mixed
Contributor(s): B. MacLean
Sample Notes: Benthic foraminifera.
Comment: (BM) The section at the core site comprises approximately 20m of acoustically stratified glaciomarine sediments that overlie some 10 m of apparent ice-contact sediments (MacLean et al., 1991). There appear to be little or no postglacial sediments. Foraminiferal assemblages in the glaciomarine sediments possibly suggest some fluctuations between ice proximal and ice distal environments (A. Silis, GSC internal report).

Core: HU90023-099 LCF

Location: Central part of the Western Basin, north of Charles Island
Lat: 63° 03.98'N **Long:** 74° 33.96'W **Water Depth:** 386 m

Date: 2180 ± 50 **Lab. No:** AA-12886 **Corrected Age:** 1730 ± 50
Depth: 0-5 cm **GRL-**1049-S **Material:** Foraminifera
Weight: 6 mg **Species:** *Nonionellina labradorica*
Contributor(s): J.T. Andrews, M. Kerwin
Sample Notes: *N. labradorica*, 365 specimens. Sample contained many diatoms and fossilized crinoid stems.

Date: 8550 ± 160 **Lab. No:** TO-2470 **Corrected Age:** 8100 ± 160
Depth: 150 cm **GRL-** **Material:** Mollusc
Weight: 30 mg
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Shell fragments.

Date: 7230 ± 830 **Lab. No:** TO-3269 **Corrected Age:** 6780 ± 830
Depth: 316-320 cm **GRL-** **Material:** Foraminifera
Weight: 4.7 mg **Species:** Mixed
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mixed species of benthic foraminifera.

Date: 8270 ± 70 **Lab. No:** AA-12887 **Corrected Age:** 7820 ± 70
Depth: 320-325 cm **GRL-**1050-S **Material:** Mollusc

Weight: 4.3 mg **Species:** *Yoldiella sp.*
Contributor(s): J.T. Andrews
Sample Notes: paired valves; sandy; low numbers of forams, some pyritized.
Comment: (AEJ, BM) The Quaternary section at this core site comprises postglacial, glacial marine and ice-contact sediments. At the site of 099, seismic profiles show ca. 1 m of postglacial sediments overlying in excess of 20 m of glacial marine sediments (Kerwin, 1994; MacLean et al., 1991; 1992). We report 4 radiocarbon dates from this 479 cm; two are from the Toronto lab and were reported originally with a 410 year reservoir correction. In the present list we apply a 450 year reservoir correction. TO-2470 on shell fragments is out of stratigraphic order based on comparison with the two underlying dates. The core records the final phase of deglaciation to ca. 1730 yr BP.

Core: HU90023-101 LCF

Location: Just east of HU90023-099 in central part of the Western Basin
Lat: 63° 02.99'N **Long:** 74° 18.24'W **Water Depth:** 389 m

Date: 2655 ± 45 **Lab. No:** AA-10655 **Corrected Age:** 2205 ± 45
Depth: 2-5 cm **GRL-995-S** **Material:** Foraminifera
Weight: 7.1 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed foraminifera.

Date: 8380 ± 510 **Lab. No:** TO-3270 **Corrected Age:** 7930 ± 510
Depth: 158-160 cm **GRL-** **Material:** Foraminifera
Weight: 5.8 mg **Species:** Mixed
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mixed species of benthic foraminifera.

Date: 8740 ± 280 **Lab. No:** TO-3271 **Corrected Age:** 8290 ± 280
Depth: 318-322 cm **GRL-** **Material:** Foraminifera
Weight: 4.0 mg **Species:** Mixed
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mixed species of benthic foraminifera.

Date: 8510 ± 110 **Lab. No:** TO-3272 **Corrected Age:** 8060 ± 110
Depth: 360-362 cm **GRL-** **Material:** Foraminifera
Weight: 4.8 mg **Species:** Mixed
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mixed species of benthic foraminifera.

Date: 8260 ± 60 **Lab. No:** AA-12888 **Corrected Age:** 7810 ± 60
Depth: 366 cm **GRL-1051-S** **Material:** Mollusc
Weight: 258 mg **Species:** *Portlandia sp.*
Contributor(s): J.T. Andrews, M. Kerwin
Sample Notes: paired valves

Date: 8490 ± 270 **Lab. No:** TO-3273 **Corrected Age:** 8040 ± 270
Depth: 558-560 cm **GRL-** **Material:** Foraminifera
Weight: 4.0 mg **Species:** Mixed
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mixed species of benthic foraminifera.

Date: 8920 ± 65 **Lab. No:** AA-10656 **Corrected Age:** 8470 ± 65
Depth: 743-745 cm **GRL-996-S** **Material:** Foraminifera
Weight: 1.4 mg
Contributor(s): J.T. Andrews, M. Kerwin
Sample Notes: Mixed foraminifera.
Comment: (AEJ, BM) The Quaternary section at the core site comprises postglacial, glaciomarine, and ice-contact sediments (MacLean et al., 1991). A thin (±1 m) veneer of debris flow sediment may be present on the seafloor. This core recovered 7.76 m from a sequence of > 25 m of ice-contact, glacial marine and postglacial sediments in the Western Basin of Hudson Strait (Kerwin, 1994; MacLean et al., 1992). On the basis of sediment analyses and rock magnetic properties, Kerwin (1994) suggested that the upper 140 cm is postglacial and the lower part of the core from 140 to the base is glacial marine, although foraminiferal assemblages have been interpreted to suggest that the postglacial section extends slightly deeper (A. Silas, GSC internal report). Three of the TO dates (-3270, -3271, -3272) on mixed benthic foraminiferal species are slightly too old compared to the younger shell date deeper in the core (AA-12888). The TO- dates were originally reported with a reservoir correction of 410 years. In this list we recast these dates with a 450 year reservoir correction. The lowermost date of 8470 ± 65 BP indicates that deglaciation of the Western Basin of Hudson Strait was in progress by at least 8.5 ka, though the thick sequence of glacial marine sediments beneath the site suggest that it was underway somewhat earlier. Kerwin (1994) calculated a sedimentation rate for the basal unit of the core of 10.5 m/ka, and ca. 17 m of glacial marine sediments underlie the base of the core.

Core: HU90023-104 LCF

Location: Just southeast of HU90023-101 in east-central part of the Western Basin
Lat: 62° 59.58'N **Long:** 74° 00.04'W **Water Depth:** 410 m

Date: 8170 ± 60 **Lab. No:** AA-12889 **Corrected Age:** 7720 ± 60
Depth: 90-95 cm **GRL-1052-S** **Material:** Mollusc
Weight: 14.8 mg **Species:** *Portlandia sp.*
Contributor(s): J.T. Andrews, M. Kerwin
Sample Notes: 2 + valves

Date: 8465 ± 90 **Lab. No:** AA-12890 **Corrected Age:** 8015 ± 90
Depth: 320-325 cm **GRL-1053-S** **Material:** Foraminifera
Weight: 1.6 mg
Contributor(s): J.T. Andrews, M. Kerwin
Sample Notes: Mixed Forams
Comment: (JTA) These dates and the magnetic susceptibility records have been used to correlate sediment sequences within the western basin of Hudson Strait (Kerwin, 1994; Andrews et al., 1995)(see HU90023-099, 101).

Core: HU92028-150 IKU

Location: 26 km north-northwest of the west end of Charles Island
Lat: 62° 56.04'N **Long:** 74° 56.01'W **Water Depth:** 160 m

Date: 1330 ± 70 **Lab. No:** TO-3669 **Corrected Age:** 880 ± 70
Depth: **GRL-** **Material:** Foraminifera
Weight: 8 mg **Species:** *Cibicides lobatulus*
Contributor(s): B. MacLean, B. Deonarine

Comment: (BM) Sediments at the core site comprise 11 m of acoustically unstratified sediments considered to be ice-contact sediments, locally overlain by ± 1m of younger sediments. The 880 age date obtained suggests that the material sampled must be from the uppermost unit.

Core: HU93034-018 PC

Location: About 41 km west of Big Island, from an isolated basin in the center of the strait
Lat: 62° 37.28'N **Long:** 71° 35.68'W **Water Depth:** 338 m

Date: 9125 ± 65 **Lab. No:** AA-13175 **Corrected Age:** 8675 ± 65
Depth: 108 cm **GRL-**1073-S **Material:** Mollusc
Weight: 11.8 mg **Species:** *Portlandia arctica*
Contributor(s): B. MacLean, W.F. Manley
Sample Notes: One of several, angular, fragile fragments; other fragments archived.
Sample Pre-treatment: Sonicated in distilled water (dw), leached 61% with HCl, and washed in dw.
Comment: (BM) The dated interval is in the uppermost unit.

Date: 8990 ± 80 **Lab. No:** CAMS-22023 **Corrected Age:** 8540 ± 80
Depth: 396-399 cm **GRL-** **Material:** Mixed
Weight: 1.8 mg **Species:** Mixed
Contributor(s): B. MacLean
Sample Notes: Foraminifera and ostracods

Date: 27670 ± 440 **Lab. No:** CAMS-22022 **Corrected Age:** 27220 ± 440
Depth: 848-851 cm **GRL-** **Material:** Mixed
Weight: 2 mg **Species:** Mixed
Contributor(s): B. MacLean
Sample Notes: Foraminifera and mollusc fragment
Comment: (BM) The core locality lies 41 km west of Big Island in an apparently isolated occurrence of acoustically stratified sediments that overlie and, in part, appear laterally to be transitional to glacial drift sequences (ice-contact sediments; MacLean et al., 1994). A surface layer some 130 cm thick overlies the acoustically stratified unit. It is considered likely, given the date obtained, that the lowest sample contained reworked material.

Core: HU93034-022 PC

Location: Western part of the Western Basin
Lat: 63° 04.35'N **Long:** 74° 29.82'W **Water Depth:** 410 m

Date: 4070 ± 50 **Lab. No:** Beta-78138 **Corrected Age:**
Depth: 710 cm **GRL-**N/A **Material:** Mollusc
Weight: **Species:** *Nuculana sp.*
Contributor(s): C. Schafer and B. MacLean
Sample Notes: Paired valves. Also CAMS-17272.
Stratigraphic Relations: From a sequence of postglacial sediments that at the core site are some 19 m in thickness. The sequence displays a basin fill depositional sytle and thins progressively over underlying glaciomarine sediments along the axis of the basin to both the northwest and the southeast.

Comment: (CS) Chronologic data are from "The pre-modern (Little Ice Age) marine environment in Hudson Strait: Characteristics of benthic foraminifera assemblages" by Schafer et al. in prep.

Date: 5090 ± 60 **Lab. No:** CAMS-18687 **Corrected Age:**
Depth: 1238-1240 cm **GRL-** **Material:** Foraminifera
Weight: 3.8 mg **Species:** Mixed
Contributor(s): C. Schafer and B. MacLean
Sample Notes: NSRL-2377; *Nonionellina labradorica, Elphidium excavatum, Cassidulina reniforme*
Stratigraphic Relations: From a sequence of postglacial sediments that at the core site are some 19 m in thickness. The sequence displays a basin fill depositional sytle and thins progressively over underlying glaciomarine sediments along the axis of the basin to both the northwest and the southeast.
Comment: (CS) Chronologic data are from "The pre-modern (Little Ice Age) marine environment in Hudson Strait: Characterristics of benthic foraminifera assemblages" by Schafer et al. in prep.

Southwestern Basin

Core: HU85027-065 PC

Location: Southeastern corner of the Southwestern Basin, about 65 km west of Charles Island
Lat: 62° 35.9'N **Long:** 76° 07.0'W **Water Depth:** 333 m

Date: 6280 ± 50 **Lab. No:** TO-293 **Corrected Age:** 6240 ± 50
Depth: 294-299 cm **GRL-** **Material:** Mollusc
Weight: 610 mg **Species:** *Cliocardium ciliatum*
Contributor(s): G. Vilks, B. MacLean
Sample Notes: Shell.
Comment: (BM) The corer penetrated through postglacial sediments into underlying glaciomarine sediments, which in turn overlie glacial drift (ice-contact sediments). The dated interval (Vilks et al., 1989) is within glaciomarine ice distal sediments, approximately 100 cm below the faunal boundary with overlying postglacial sediments.

Core: HU90023-079 IKU

Location: 13 km north of Deception Bay
Lat: 62° 21.29'N **Long:** 74° 48.19'W **Water Depth:** 115 m

Date: 7840 ± 70 **Lab. No:** AA-10651 **Corrected Age:** 7390 ± 70
Depth: **GRL-** **Material:** Foraminifera
Weight: 7.2 mg **Species:** Mixed
Contributor(s): B. MacLean, W.F. Manley, B. Deonarine
Comment: (BM) Sediments at the site comprise 20 m of acoustically unstratified sediments interpreted to consist of two or more ice-contact units. The IKU sample consisted of an upper layer of coarse sediments that form the immediate seabed, underlain by a very stiff gray clayey sediment (cf., MacLean et al., 1991). The date is from the lower of these sediment units. This and comparable dates from similar sediments elsewhere in the strait suggest that many offshore areas of the strait have received little sediment since retreat of glacial influences from the region.

Core: HU90023-085 LCF

Location: Southern margin of the Southwestern Basin, ca. 70 km west of Charles Island
Lat: 62° 36.95'N **Long:** 76° 22.53'W **Water Depth:** 380 m

Date: 8170 ± 140 **Lab. No:** TO-3265 **Corrected Age:** 7720 ± 140
Depth: 98-100 cm **GRL-** **Material:** Foraminifera
Weight: 13.6 mg **Species:** Mixed
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Benthic foraminifera.
Comment: (BM) The Quaternary section at the core site comprises postglacial, glaciomarine, and the glacial drift (ice-contact) sediments. The glaciomarine sediments laterally intertongue with glacial drift sediments 11 km west of the core site (MacLean et al., 1992). The dated interval is within the postglacial sediment sequence, 120 cm above the boundary with underlying glaciomarine ice distal sediments.

Core: HU90023-096 IKU

Location: 38 km southeast of Nottingham Island
Lat: 62° 57.45'N **Long:** 76° 59.91'W **Water Depth:** 275 m

Date: 7940 ± 90 **Lab. No:** TO-3666 **Corrected Age:** 7490 ± 90
Depth: **GRL-** **Material:** Foraminifera
Weight: 9 mg **Species:** *Elphidium excavatum clavata*
Contributor(s): B. MacLean, B. Deonarine
Comment: (BM) Sediments at the sample locality comprise acoustically unstratified sediments (considered to be ice-contact sediments) that overlie and are transitional laterally to acoustically stratified glaciomarine sediments. The IKU sample consisted of an upper layer of course sediments that form the immediate seabed, underlain by a very stiff gray clayey sediment.. The date is from the lower of these sediment units. This and comparable dates from IKU samples from other Hudson Strait localities indicate that many areas have received little of no sediment since withdrawl of glacial influences from the region.

South-Central Hudson Strait

Core: HU90023-064 LCF

Location: Southern Baie Héricart region, about 10 km northwest of Baie Héricart
Lat: 61° 07.5'N **Long:** 70° 34.6'W **Water Depth:** 196 m
Stratigraphic Relations: The Quaternary section at the locality comprises postglacial, glaciomarine, and glacial drift (ice-contact) sediments (MacLean et al., 1991).

Date: 6760 ± 70 **Lab. No:** TO-2459 **Corrected Age:** 6310 ± 70
Depth: 195 cm **GRL-** **Material:** Mollusc
Weight: 479 mg **Species:** *Macoma calcarea*
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mollusc valves.
Comment: (BM) The dated interval (Manley et al., 1993) is within the postglacial sediments (G. Vilks, A. Silis, GSC internal report; Andrews et al., 1991; MacLean et al., 1991).

Date: 6880 ± 70 **Lab. No:** TO-2460 **Corrected Age:** 6430 ± 70

Depth: 225 cm **GRL-** **Material:** Mollusc
Weight: 297 mg **Species:** *Clinocardium ciliatum*
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mollusc fragments.
Comment: (BM) The dated interval (Manley et al., 1993) is within the postglacial sediments (G. Vilks, A. Silis, GSC internal report; Andrews et al., 1991).

Date: 7060 ± 70 **Lab. No:** TO-2462 **Corrected Age:** 6610 ± 70
Depth: 250 cm **GRL-** **Material:** Mollusc
Weight: 339 mg **Species:** *Macoma calcarea*
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mollusc valves.
Comment: (BM) The dated interval (Manley et al., 1993) is within the postglacial sediments (G. Vilks, A. Silis, GSC internal report; Andrews et al., 1991).

Date: 8160 ± 150 **Lab. No:** TO-3263 **Corrected Age:** 7710 ± 150
Depth: 460-462 cm **GRL-** **Material:** Foraminifera
Weight: 3.7 mg **Species:** Mixed
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Benthic foraminifera.
Comment: (BM) The dated interval (Manley et al., 1993) is within and near the base of the postglacial sediments (G. Vilks, A. Silis, GSC internal report; Andrews et al., 1991).

Core: HU90023-066 LCF

Location: Central Baie Héricart - Wakeham Bay region, about 50 km north-northwest of Baie Héricart
Lat: 61° 27.82'N **Long:** 70° 51.0'W **Water Depth:** 193 m
Stratigraphic Relations: The Quaternary section at the core site comprises a thin postglacial sequence, underlain by glaciomarine and glacial drift (ice-contact) sediments. The glaciomarine sediments laterally are transitional to, and in part, are overlain by glacial drift (MacLean et al., 1992).

Date: 6960 ± 110 **Lab. No:** TO-3264 **Corrected Age:** 6510 ± 110
Depth: 21-23 cm **GRL-** **Material:** Foraminifera
Weight: 7.6 mg **Species:** Mixed
Contributor(s): B. MacLean, B. Deonarine
Sample Notes: Mixed foraminifera.
Comment: (BM) The dated interval is within the postglacial sediments (MacLean et al., 1992; A. Silis, GSC internal report).

Date: 8350 ± 80 **Lab. No:** TO-2461 **Corrected Age:** 7900 ± 80
Depth: 230 cm **GRL-** **Material:** Mollusc
Weight: 93 mg **Species:** *Portlandia arctica*
Contributor(s): B. MacLean, B. Deonarine
Sample Notes: Single mollusc valve
Comment: (BM) The dated interval is within the postglacial sediment sequence. The corrected date has been adjusted for a marine reservoir effect of 450 yr, whereas a reservoir correction of 410 yr was applied in the original publication (MacLean et al., 1992).

Date: 8850 ± 90 **Lab. No:** TO-2463 **Corrected Age:** 8400 ± 90
Depth: 728 cm **GRL-** **Material:** Mollusc
Weight: 224 mg **Species:** *Portlandia arctica*

Contributor(s): B. MacLean, B. Deonarine
Sample Notes: 3 paired valves
Comment: (BM) The dated interval is within the postglacial sediments sequence. The corrected date has been adjusted for a marine reservoir effect of 450 yr, whereas a reservoir correction of 410 yr was applied in the original publication (MacLean et al., 1992).

Date: 8830 ± 80 **Lab. No:** TO-2464 **Corrected Age:** 8380 ± 80
Depth: 743 cm **GRL-** **Material:** Mollusc
Weight: 80 mg **Species:** *Portlandia arctica*
Contributor(s): B. MacLean, B. Deonarine
Sample Notes: Paired mollusc valves.
Comment: (BM) The dated interval is within the glaciomarine sediment sequence. The corrected date has been adjusted for a marine reservoir effect of 450 yr, whereas a reservoir correction of 410 yr was applied in the original publication (MacLean et al., 1992).

Core: HU90023-071 LCF

Location: About 10 km north of Wakeham Bay
Lat: 61° 46.72'N **Long:** 71° 56.65'W **Water Depth:** 110 m
Stratigraphic Relations: The Quaternary section at the core site comprises a thin postglacial sequence, underlain by glaciomarine and glacial drift (ice-contact) sediments (MacLean et al., 1992).

Date: 8570 ± 230 **Lab. No:** TO-2465 **Corrected Age:** 8120 ± 230
Depth: 360-362 cm **GRL-** **Material:** Mollusc
Weight: 14 mg **Species:** *Portlandia arctica*
Contributor(s): B. MacLean, B. Deonarine
Sample Notes: Mollusc valve.
Comment: (BM) The dated interval (MacLean et al., 1992) is within the glaciomarine ice distal sediment sequence (A. Silis, GSC internal report).

Date: 8930 ± 80 **Lab. No:** TO-2466 **Corrected Age:** 8480 ± 80
Depth: 408 cm **GRL-** **Material:** Mollusc
Weight: 448 mg **Species:** *Portlandia arctica*
Contributor(s): B. MacLean, B. Deonarine
Sample Notes: Mollusc valves.
Comment: (BM) The dated interval is within the glaciomarine ice distal sediment sequence (A. Silis, GSC internal report). The corrected date has been adjusted for a marine reservoir effect of 450 yr, whereas a reservoir correction of 410 yr was applied in the original publication (MacLean et al., 1992).

Date: 11,095 ± 110 **Lab. No:** AA-10650 **Corrected Age:** 10,645 ± 110
Depth: 561-565 cm **GRL-** **Material:** Foraminifera
Weight: 3.5 mg **Species:** Mixed
Contributor(s): B. MacLean, W.F. Manley, B. Deonarine
Sample Notes: Benthic foraminifera.
Comment: (BM) The dated interval is within the glaciomarine sediment sequence (A. Silis, GSC internal report; MacLean et al., 1992).

Core: HU90023-107 LCF

Location: About 30 km north of Baie Héricart

Lat: 61° 20.67'N **Long:** 70° 37.77'W **Water Depth:** 182 m
Stratigraphic Relations: The Quaternary section at the core site consists predominantly of glaciomarine sediments (ca. 16 m thick), overlain by approximately 3 m of postglacial sediments (MacLean et al., 1992; Manley et al., 1993; Manley, 1995). The glaciomarine sediments laterally interfinger with, and are overlain and underlain by glacial drift (ice-contact sediments) 2.5 km from the core site. Foraminiferal assemblages in the core mainly reflect an ice proximal setting. That environment, with some apparent fluctuations, extended nearly to the top of the glaciomarine sediment, where more ice distal influences gradually appear.

Date: 12,035 ± 80 **Lab. No:** AA-11440 **Corrected Age:** 11,585 ± 80
Depth: 32-38 cm **GRL-** **Material:** Foraminifera
Weight: 3.4 mg **Species:** Mixed
Contributor(s): W.F. Manley, B. MacLean
Sample Notes: Mixed foraminifera from near the core top, approximately at the boundary between glaciomarine and postglacial sediments.
Sample Pre-treatment: None.
Comment: (BM, WFM) This date creates a significant age inversion relative to dates farther down in the core. Furthermore, the date is inconsistent with paleoenvironmental information from other cores, which indicates that the regional transition from glaciomarine to postglacial conditions occurred at about 8000 yr BP. See also comment for sample AA-10255.

Date: 8450 ± 70 **Lab. No:** TO-2471 **Corrected Age:** 8000 ± 70
Depth: 80-83 cm **GRL-** **Material:** Mollusc
Weight: 66 mg **Species:** *Portlandia arctica*
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Two mollusc valves and fragments from ice distal sediments toward the top of the glaciomarine sequence.
Comment: (BM) The corrected date has been adjusted for a marine reservoir effect of 450 yrs, whereas a reservoir correction of 410 yr was applied to the original publication (MacLean et al., 1992). See also comment for sample AA-10255.

Date: 9515 ± 70 **Lab. No:** AA-11441 **Corrected Age:** 9065 ± 70
Depth: 150-153 cm **GRL-** **Material:** Foraminifera
Weight: 6.5 mg **Species:** Mixed
Contributor(s): W.F. Manley, B. MacLean
Sample Notes: Mixed foraminifera from the upper part of the glaciomarine sequence, tentatively ice distal.
Sample Pre-treatment: None.
Comment: (BM, WFM) The date is "old" relative to dates from underlying intervals. See also comment for sample AA-10255.

Date: 9245 ± 85 **Lab. No:** AA-11442 **Corrected Age:** 8795 ± 85
Depth: 208-212 cm **GRL-** **Material:** Foraminifera
Weight: 6.3 mg **Species:** Mixed
Contributor(s): W.F. Manley, B. MacLean
Sample Notes: Mixed foraminifera from the upper part of the glaciomarine sequence.
Sample Pre-treatment: None.
Comment: (BM, WFM) The date is "old" relative to dates from underlying intervals. See also comment for sample AA-10255.

Date: 8800 ± 70 **Lab. No:** TO-2472 **Corrected Age:** 8350 ± 70
Depth: 236 cm **GRL-** **Material:** Mollusc
Weight: 124 mg **Species:** Unknown
Contributor(s): B. MacLean, G. Vilks

Sample Notes: mollusc fragments from the upper part of the glaciomarine sequence, tentatively ice distal.
Comment: (BM) The corrected date has been adjusted for a marine reservoir effect of 450 yr, whereas a reservoir correction or 410 yr was applied in the original publication (MacLean et al., 1992). See also comment for sample AA-10255.

Date: 9750 ± 70 **Lab. No:** AA-11443 **Corrected Age:** 9300 ± 70
Depth: 261-263 cm **GRL-** **Material:** Foraminifera
Weight: 3.3 mg **Species:** Mixed
Contributor(s): W.F. Manley, B. MacLean
Sample Notes: Mixed foraminifera from the upper part of the glaciomarine sequence.
Sample Pre-treatment: None.
Comment: (BM, WFM) The date is "old" relative to dates from underlying intervals. See also comment for sample AA-10255.

Date: 9410 ± 70 **Lab. No:** AA-11444 **Corrected Age:** 8960 ± 70
Depth: 310-319 cm **GRL-** **Material:** Foraminifera
Weight: 3.3 mg **Species:** Mixed
Contributor(s): W.F. Manley, B. MacLean
Sample Notes: Mixed foraminifera from the glaciomarine sequence.
Sample Pre-treatment: None.
Comment: (BM, WFM) The date is "old" relative to dates from underlying intervals. See also comment for sample AA-10255.

Date: 10,170 ± 70 **Lab. No:** AA-11445 **Corrected Age:** 9720 ± 70
Depth: 406-412 cm **GRL-** **Material:** Foraminifera
Weight: 3.4 mg **Species:** Mixed
Contributor(s): W.F. Manley, B. MacLean
Sample Notes: Mixed foraminifera from the glaciomarine sequence.
Comment: (BM, WFM) The date is "old" relative to dates from underlying intervals. See also comment for sample AA-10255.

Date: 9400 ± 190 **Lab. No:** TO-3274 **Corrected Age:** 8950 ± 190
Depth: 497-499 cm **GRL-** **Material:** Foraminifera
Weight: 5.8 mg **Species:** Mixed
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Benthic foraminifera from approximately one third of the way down the glaciomarine sequence at the site.
Comment: (BM) The corrected date has been adjusted for a marine reservoir effect of 450 yr, whereas a reservoir correction or 410 yr was applied to the original publication (MacLean et al., 1992). See also comment for sample AA-10255.

Date: 10,780 ± 140 **Lab. No:** AA-10255 **Corrected Age:** 10,330 ± 140
Depth: 533-539 cm **GRL-**1027-S **Material:** Foraminifera
Weight: 3.2 mg **Species:** Mixed
Contributor(s): W.F. Manley, B. MacLean
Sample Notes: Mixed foraminifera from approximately one-third of the way down in the glaciomarine sequence at the site.
Comment: (WFM, BM) Three previously published dates (MacLean et al., 1992; Manley et al., 1993) and seven new dates from core 90-107 provide fuel for debate. The dates display five age inversions with depth. The inversions are associated with mixed foraminifera, whereas the two mollusc dates are the youngest of the ten, and are internally consistent. These results are evidence for reworking of foraminifera in ice-proximal glaciomarine environments (Manley, 1995). Apparently, microfossils from older sediment were reworked by ice-contact or ice-proximal

processes into sediment at the core site, and were subsequently sampled for radiocarbon dating. Two questions remain unsettled. First, how old are the reworked forams? The anomalous dates might be on an age assemblage of ca. 60% contemporaneous (ca. 8.5 ka) foraminifera mixed with ca. 40% >30 ka foraminifera. Alternatively, the anomalous dates might be entirely on reworked foraminifera, without any contemporaneous input. The distinction is critical for determining the timing of open-water conditions in Hudson Strait. Second, how old is the base of the core? Taking the bottom two dates at face value, and extrapolating a net deposition rate, the base of the core at 720 cm is estimated at 17 ka. Alternatively, if the bottom date was on entirely reworked foraminifera, the base of the core is estimated at ca. 9.0 ka. Furthermore, with high sedimentation rates and minor reworking of >30 ka foraminifera, the base of the core might be as young as ca. 8.5 ka. Similarly, our estimates for the base of the glaciomarine sediment section at the site, 9 m below the base of the core and apparently undisturbed by glacial advance, range from ca. 9 ka to ca. 50 ka. These issues have prompted a reevaluation of strategies for selecting samples and foraminiferal species for radiocarbon dating (Jennings et al., 1995).

Core: HU92028-152 BC

Location: Within about 0.1 km of HU90023-107
Lat: 61° 20.58'N **Long:** 70° 37.60'W **Water Depth:** 185 m

Date: 540 ± 60 **Lab. No:** TO-3665 **Corrected Age:** 90 ± 60
Depth: 0-5 cm **GRL-** **Material:** Foraminifera
Weight: 16.9 mg **Species:** *Nonionellina labradorica*
Contributor(s): B. MacLean, B. Deonarine
Comment: (BM) A thin (approx. 3 m) section of postglacial sediments overlies a thick sequence of glaciomarine sediments in the area (MacLean et al., 1992; Manley et al., 1993). The date provides an age for the uppermost (0-5 cm interval) of present day seafloor sediments in this area.

Core: HU92028-153 TWC

Location: Within about 0.1 km of HU90023-107
Lat: 61° 20.64'N **Long:** 70° 37.73'W **Water Depth:** 184 m

Date: 970 ± 70 **Lab. No:** TO-3664 **Corrected Age:** 520 ± 70
Depth: 0-5 cm **GRL-** **Material:** Foraminifera
Weight: 13.1 mg **Species:** *Nonionellina labradorica*
Contributor(s): B. MacLean, B. Deonarine
Comment: (BM) A thin (approx. 3m) section of postglacial sediments overlies a thick sequence of glaciomarine sediments in this area (MacLean et al., 1992; Manley et al., 1993). The date is from the top 5 cm interval of the trigger weight core. The uppermost part of the sediment section commonly is lost (blown away) during the coring process, hence the difference between this date and that from the undisturbed box core sample from 92028-152.

Core: HU92028-155 PC

Location: About 4 km north of HU90023-064
Lat: 61° 09.50'N **Long:** 70° 34.20'W **Water Depth:** 196 m

Date: 11,170 ± 100 **Lab. No:** AA-10256 **Corrected Age:** 10,720 ± 100
Depth: 920-925 cm **GRL-**1028-S **Material:** Foraminifera
Weight: 2.9 mg **Species:** Mixed

Contributor(s): B. MacLean, W.F. Manley
Sample Notes: Mixed foraminifera picked by Bahn Deonarine at the Bedford Institute of Oceanography. Submitted by B. MacLean, B. Deonarine, and W.F. Manley.
Comment: (BM) The Quaternary section at the core site comprises postglacial, glaciomarine, and ice-contact sediments (Manley et al., 1993). The dated interval is within the glaciomarine sequence identified from foraminiferal assemblages (A. Silis, GSC internal report).

Core: HU93034-013 PC

Location: Central Baie Héricart-Wakeham Bay region, about 6 km northeast of HU90023-066
Lat: 61° 30.01'N **Long:** 70° 43.41'W **Water Depth:** 201 m

Date: 8915 ± 65 **Lab. No:** AA-13174 **Corrected Age:** 8465 ± 65
Depth: 238 cm **GRL-**1072-S **Material:** Mollusc
Weight: 15.1 mg **Species:** *Portlandia arctica*
Contributor(s): B. MacLean, W.F. Manley
Sample Notes: Single valve from pristine, well preserved, fragile, articulated, paired valve; other valve has been archived; before washing contained periostracum.
Sample Pre-treatment: Sonicated in distilled water (dw), leached 72% with HCl, and washed in dw.
Stratigraphic Relations: The dated interval appears to be from the upper part of the glaciomarine section (B. Deonarine, personal communication, 1994).

Date: 14370 ± 180 **Lab. No:** CAMS-19996 **Corrected Age:** 13920 ± 180
Depth: 456-459 cm **GRL-** **Material:** Mixed
Weight: 1.6 mg **Species:** Mixed
Contributor(s): B. MacLean
Sample Notes: Foraminifera and mollusc shell material
Stratigraphic Relations: From the boundary between glaciomarine proximal and distal sediments.

Date: 33320 ± 1810 **Lab. No:** CAMS-19255 **Corrected Age:** 32870 ± 1810
Depth: 658-669 cm **GRL-** **Material:** Mixed
Weight: 2 mg **Species:** Mixed
Contributor(s): B. MacLean
Sample Notes: Mixed foraminifera and mollusc material
Comment: (BM) The section at the core site comprises approximately 17 m of acoustically stratified sediments, which are wholly or predominantly glaciomarine (MacLean et al., 1994). These beds laterally are transitional to glacial drift (ice-contact sediments) and were partly overridden by a late glacial ice readvance (MacLean et al., 1992). Seismic data indicate that the section at the 93034-013 site is somewhat condensed relative to that previously cored at 90023-066, 5.5 km to the southwest, hence the choice of the 93034-013 core site to sample lower in the section. Given its radiocarbon age, it is considered likely that the lowest sample contained material reworked from sediments deposited during an earlier period when Hudson Strait was open.

Core: HU93034-015 PC

Location: Offshore Burgoyne Bay
Lat: 61° 17.96'N **Long:** 71° 03.80'W **Water Depth:** 200 m

Date: 1180 ± 50 **Lab. No:** Beta-72892 **Corrected Age:**
Depth: 106 cm **GRL-** **Material:** Mollusc

Weight: 281 mg **Species:** *Nucula ternuis*
Contributor(s): C. Schafer et al.
Sample Notes: Paired valves. Also CAMS-13688.

Date: 1700 ± 60 **Lab. No:** Beta-72891 **Corrected Age:**
Depth: 305 cm **GRL-** **Material:** Mollusc
Weight: 750 mg **Species:** *Macoma calcarea*
Contributor(s): C. Schafer et al.
Sample Notes: Paired valves. Also CAMS-13687.

Date: 2060 ± 40 **Lab. No:** Beta-72890 **Corrected Age:**
Depth: 560 cm **GRL-** **Material:** Mollusc
Weight: 2070 mg **Species:** *Macoma calcarea*
Contributor(s): C. Schafer et al.
Sample Notes: Paired valves. Also CAMS-13686.

Date: 3340 ± 60 **Lab. No:** Beta-78140 **Corrected Age:**
Depth: 1300 cm **GRL-** **Material:** Mollusc
Weight: **Species:**
Contributor(s): C. Schafer et al.
Sample Notes: Paired valves. Also CAMS-17274.
Stratigraphic Relations: From a 30-m-thick sequence of postglacial sediments that overlie and laterally onlap glaciomarine and ice-contact sediments in the Burgoyne Bay region of south central Hudson Strait.
Comment: (CS) Chronologic data are from "The pre-modern (Little Ice Age) marine environment in Hudson Strait: Characteristics of benthic foraminifera assemblages" by Schafer et al. in prep.

Eastern Basin

Core: HU85027-057 PC

Location: Northern flank of the central part of the Eastern Basin, about 20 km northwest of HU90023-045
Lat: 61° 04.26'N **Long:** 66° 25.6'W **Water Depth:** 790 m
Stratigraphic Relations: The piston corer penetrated through late and early postglacial sediments, and into underlying glaciomarine ice distal sediments (Vilks et al., 1989; MacLean et al., 1992).

Date: 5930 ± 70 **Lab. No:** TO-1870 **Corrected Age:** 5480 ± 70
Depth: 242-246 cm **GRL-** **Material:** Foraminifera
Weight: 19 mg **Species:** Mixed
Contributor(s): G. Vilks, B. MacLean
Sample Notes: Mixed foraminifera.
Comment: (BM) The dated interval (MacLean et al., 1992) approximately dates the change to the cold, less saline waters of the present day from early postglacial, more saline conditions associated with entry of Labrador Sea waters into eastern Hudson Strait (Vilks et al., 1989).

Date: 8470 ± 90 **Lab. No:** TO-1871 **Corrected Age:** 8020 ± 90
Depth: 742-747 cm **GRL-** **Material:** Foraminifera
Weight: 10 mg **Species:** Mixed
Contributor(s): G. Vilks, B. MacLean
Sample Notes: Mixed foraminifera.

Comment: (BM) The dated interval is from very near the base of early postglacial sediments, approximately 35 cm above the faunal boundary with underlying glaciomarine ice distal sediments at this locality (see Vilks et al., 1989).

Date: 7880 ± 70 **Lab. No:** TO-748 **Corrected Age:** 7840 ± 70
Depth: 782-788 cm **GRL-** **Material:** Mollusc
Weight: 51 mg **Species:** *Portlandia arctica*
Contributor(s): G. Vilks, B. MacLean
Comment: (BM) The dated interval (Vilks et al., 1989) is at the faunal boundary between glaciomarine ice distal sediments and overlying early postglacial sediments.

Date: 7730 ± 70 **Lab. No:** TO-749 **Corrected Age:** 7690 ± 70
Depth: 814-822 cm **GRL-** **Material:** Mollusc
Weight: 260 mg **Species:** *Portlandia arctica*
Contributor(s): G. Vilks, B. MacLean
Sample Notes: Paired shell valves.
Comment: (BM) The dated interval (Vilks et al., 1989) lies approximately 36 cm below the faunal boundary between glaciomarine ice distal and overlying early postglacial sediments.

Date: 8060 ± 70 **Lab. No:** TO-750 **Corrected Age:** 8020 ± 70
Depth: 862-870 cm **GRL-** **Material:** Mollusc
Weight: 41 mg **Species:** *Portlandia arctica*
Contributor(s): G. Vilks, B. MacLean
Sample Notes: Mollusc shells.
Comment: (BM) The dated interval (Vilks et al., 1989) is within the upper part of the glaciomarine ice distal sediments approximately 86 cm below the faunal boundary with overlying early postglacial sediments.

Date: 8360 ± 70 **Lab. No:** TO-1860 **Corrected Age:** 7910 ± 70
Depth: 1072-1078 cm **GRL-** **Material:** Mollusc
Weight: mg **Species:** Unknown
Contributor(s): G. Vilks, B. MacLean
Sample Notes: Mollusc valve.
Comment: (BM) The dated interval is within the glaciomarine ice distal sediments approximately 295 cm below the faunal boundary with overlying early postglacial sediments (see Vilks et al., 1989). This date is slightly younger than the 8060 date from the 862-870 interval, 210 cm higher in the section.

Core: HU87033-012 LCF

Location: Central part of the Eastern Basin, northwest of HU90023-045
Lat: 61° 03.45'N **Long:** 66° 26.04'W **Water Depth:** 772 m

Date: 8460 ± 95 **Lab. No:** AA-11590 **Corrected Age:** 8010 ± 95
Depth: 1454-1456 cm **GRL-**1016-S **Material:** Foraminifera
Weight: 2.0 mg **Species:** *Fursenkoina fusiformis*
Contributor(s): J.T. Andrews
Sample Notes: mainly the above species
Comment: (JTA) The magnetic susceptibility record from this long core has been used to correlate between this site and other sites in Eastern Basin (Andrews et al., 1995) notably HU90023-45.

Core: HU90023-031 LCF

Location: Low on the northern flank of easternmost part of the Eastern Basin, south of Resolution Island
Lat: 60° 57.1'N **Long:** 65° 26.7'W **Water Depth:** 872 m

Date: 8640 ± 105 **Lab. No:** AA-14210 **Corrected Age:** 8190 ± 105
Depth: 5-7 cm **GRL-**1098-S **Material:** Foraminifera
Weight: 4.0 mg **Species:** Mixed
Contributor(s): A.E. Jennings, M.W. Kerwin
Sample Notes: mixed benthic species

Date: 9955 ± 75 **Lab. No:** AA-11448 **Corrected Age:** 9505 ± 75
Depth: 700-725 cm **GRL-**1007-S **Material:** Foraminifera
Weight: 4.0 mg **Species:** Mixed
Contributor(s): J.T. Andrews, M.W. Kerwin
Sample Notes: Mixed foraminiferal species; all specimens picked for date.
Comment: (AEJ, BM) This 7.27 m core from the Eastern Basin of Hudson Strait recovered the uppermost portion of a 35 meter thick section of acoustically stratified sediments interpreted to be glacial marine. The site has less than 0.5 m of postglacial sediments; these were not recovered in the core (Kerwin, 1994).

Core: HU90023-042 LCF

Location: Western part of the Eastern Basin, about 75 km SW of Resolution Island
Lat: 60° 57.01'N **Long:** 66° 36.95'W **Water Depth:** 761 m

Date: 9040 ± 85 **Lab. No:** AA-10253 **Corrected Age:** 8590 ± 85
Depth: 517-525 cm **GRL-**1024-S **Material:** Foraminifera
Weight: 3.8 mg **Species:** *Elphidium excavatum clavatum*
Contributor(s): J.T. Andrews, B. MacLean, W.F. Manley
Sample Notes: Benthic foraminifera picked by Bahn Deonarine at the Bedford Institute of Oceanography.
Comment: (JTA, BM, WFM) From previously undated core 90-42 (total length 881 cm). As apparent from Huntec seismic stratigraphy, the sample is from acoustically well stratified glaciomarine sediments (Unit 3) under a thin veneer of postglacial sediment and over acoustically unstratified drift (till?) and Paleozoic bedrock. The glaciomarine sediments are about 14 m thick at the site. The magnetic susceptibility log also suggests a glaciomarine origin for the sampled horizon. The sample depth lies at the upper limit of large fluctuations in MS values, and at the apparent lower limit of foram abundances sufficient for radiocarbon dating. The dated interval is close in timing to the Noble Inlet glacial event although the site lies upglacier of the "type deposits" on SE Baffin Island. Magnetic susceptibility from this core allows regional correlation into other cores from Eastern basin (Andrews et al.,1995).

Core: HU90023-045 LCF

Location: Central part of the Eastern Basin, about 60 km SW of Resolution Island
Lat: 60° 56.80'N **Long:** 66° 08.28'W **Water Depth:** 845 m

Date: 2215 ± 55 **Lab. No:** AA-8961 **Corrected Age:** 1765 ± 55
Depth: 2-4 cm **GRL-**975-S **Material:** Foraminifera
Weight: 4.0 mg **Species:** *Nonionellina labradorica*
Contributor(s): J.T. Andrews

Comment: See Comment CAMS 17146.

Date: 7835 ± 90 **Lab. No:** AA-13228 **Corrected Age:** 7835 ± 90
Depth: 90 cm **GRL**-1063-S **Material:** Foraminifera
Weight: 5.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): A.E. Jennings
Comment: See Comment CAMS 17146.

Date: 7675 ± 115 **Lab. No:** AA-8962 **Corrected Age:** 7225 ± 115
Depth: 198-200 cm **GRL**-976-S **Material:** Foraminifera
Weight: 7.9 mg **Species:** *Nonionellina labradorica*
Contributor(s): J.T. Andrews
Comment: See Comment CAMS 17146.

Date: 7600 ± 60 **Lab. No:** AA-8963 **Corrected Age:** 7115 ± 60
Depth: 398-399 cm **GRL**-977-S **Material:** Foraminifera
Weight: 5.4 mg **Species:** Mixed
Contributor(s): J.T. Andrews
Comment: See Comment CAMS 17146.

Date: 7785 ± 140 **Lab. No:** AA-17379 **Corrected Age:** 7335 ± 140
Depth: 480-483 cm **GRL**-1156-S **Material:** Foraminifera
Weight: 3.5 mg **Species:** *Elphidium excavatum*
Contributor(s): A.E. Jennings
Sample Notes: 683 *Elphidium excavatum clavata.* * Mass corrected age; reported age was 7,595±70.
Stratigraphic Relations: Two species of foraminifera with different environmental preferences were dated from the same sample to isolate a component of reworked foraminifera. The dated level is within a stratigraphically inverted interval on the basis of previous dates. The sample was chosen because it represents an abundance peak within the previously identified inverted interval.
Comment: See Comment CAMS 17146. The two dates from the same level; compare with AA-17380, overlap at two sigma, suggesting two things. The inverted interval is narrower than shown by earlier dates in the core; and these species with differing environmental preferences did not live at grossly different times in the strait.

Date: 8155 ± 130 **Lab. No:** AA-17380 **Corrected Age:** 7705 ± 130
Depth: 480-483 cm **GRL**-1157-S **Material:** Foraminifera
Weight: 2.1 mg **Species:** *Cassidulina teretis*
Contributor(s): A.E. Jennings
Sample Notes: *Mass corrected age; reported age was 7815 ± 80.
Stratigraphic Relations: Two species of foraminifera with different environmental preferences were dated from the same sample to isolate a component of reworked foraminifera. The dated level is within a stratigraphically inverted interval on the basis of previous dates. The sample was chosen because it represents an abundance peak within the previously identified inverted interval.
Comment: See Comment CAMS 17146. The two dates from the same level; compare with AA-17379, overlap at two sigma, suggesting two things. The inverted interval is narrower than shown by earlier dates in the core; and these species with differing environmental preferences did not live at grossly different times in the strait.

Date: 12,115 ± 260 **Lab. No:** AA-11880 **Corrected Age:** 11,665 ± 260
Depth: 630-633 cm **GRL**-1040-S **Material:** Foraminifera
Weight: 3.0 mg **Species:**

Contributor(s): J.T. Andrews
Sample Notes: Mixed Forams
Stratigraphic Relations: This date on mixed foraminiferal species is more than 3,000 radiocarbon years too old for its stratigraphic position, suggesting that it was obtained from some component of reworked material.
Comment: See Comment CAMS 17146.

Date: 9730 ± 70 **Lab. No:** AA-8964 **Corrected Age:** 9280 ± 70
Depth: 695-705 cm **GRL-978-S** **Material:** Foraminifera
Weight: 4.0 mg **Species:** Mixed
Contributor(s): J.T. Andrews
Sample Notes: Sample included 700 - 705 cm in addition to 695 - 698 interval.
Stratigraphic Relations: This date on mixed foraminiferal species was obtained from a low foraminiferal abundance zone (Jennings et al., 1995). Along with AA-11880, 60 cm below, it contains some component of reworked foraminifera, resulting in a stratigraphic reversal of approximately 1300 radiocarbon years.
Comment: See Comment CAMS 17146.

Date: 8490 ± 200 **Lab. No:** AA-11879 **Corrected Age:** 8040 ± 200
Depth: 777-779 cm **GRL-1039-S** **Material:** Mollusc
Weight: 3.0 mg **Species:** *Portlandia sp.*
Contributor(s): J.T. Andrews
Sample Notes: Paired Bivalve
Comment: See Comment CAMS 17146.

Date: 8805 ± 60 **Lab. No:** AA-12884 **Corrected Age:** 8355 ± 60
Depth: 1165-1175 cm **GRL-1047-S** **Material:** Mollusc
Weight: 34 mg **Species:** *Portlandia sp.*
Contributor(s): A.E. Jennings
Sample Notes: Core Catcher. Paired valves.
Comment: See Comment CAMS 17146.

Date: 8640 ± 500 **Lab. No:** CAMS-17146 **Corrected Age:** 8190 ± 500
Depth: 1165-1175 cm **GRL-1138-S** **Material:** Foraminifera
Weight: ca. 1 mg **Species:** *Fursenkoina fusiformis*
Contributor(s): A.E. Jennings
Sample Notes: 1107 specimens. Paired comparison with shell date at base of core with single species foram date to see if foram date would be older.
Stratigraphic Relations: AA12884, a date on Portlandia from the same level gave an age of 8355±60 corrected. The age difference of 165 years between this date and this date on single foram species suggests that the forams and the shell were coeval and that the foraminifera were not reworked.
Comment: (AEJ & BM) The Quaternary section at the core site comprises 6.6 m of postglacial sediments that overlie thick (55 m) glacial marine sediments that in turn lie on ice-contact sediments. This core spans the interval from the end of the Noble Inlet Advance through the deglaciation. The base of the postglacial section is marked by a low MS interval with two age inversions: AA-8964 and AA-11880, suggesting introduction of older sediments to the site during deposition of the low MS interval. Other dates in the core and seismic and MS correlations to other cores suggest that the low MS interval and the onset of postglacial conditions occurs ca. 8 ka (Kerwin, 1994). Stratigraphy and paleoenvironmental interpretations are provided by Andrews et al., in press; Kerwin (1994); MacLean et al., 1992 and Manley et al., 1993.

Core: HU90023-052 LCF

Location: Northwestern flank of the Eastern Basin, about 80 km south of Bond Inlet
Lat: 61° 19.48'N **Long:** 67° 36.21'W **Water Depth:** 402 m

Date: 9075 ± 75 **Lab. No:** AA-10254 **Corrected Age:** 8625 ± 75
Depth: 175-178 cm **GRL-**1025-S **Material:** Foraminifera
Weight: 5.8 mg **Species:** *Elphidium excavatum clavatum*
Contributor(s): J.T. Andrews, B. MacLean, W.F. Manley
Sample Notes: Benthic foraminifera picked by Bahn Deonarine at Bedford Institute of Oceanography.
Comment: (JTA, BM, WFM) From previously undated core 90-52 (total length 275 cm). As apparent from Huntec seismic stratigraphy, the sample is from acoustically well stratified glaciomarine sediments (Unit 3) under about 1 m of postglacial sediments and overlying acoustically unstratified drift (till?) and Paleozoic bedrock. The glaciomarine sediments and unstratified drift are each about 5 m thick at the site. The sampled depth lies at the apparent lower limit of foram abundances sufficient for radiocarbon dating, within sediments identified as glacial marine ice proximal on the basis of foraminiferal assemblages (A. Silis, GSC internal report). High resolution seismic data indicate that the core site lies 10 km down slope from what is interpreted to be an ice-sheet grounding line at 364 m present water depth. The date is similar to that from HU90023-042 from the northern flank of Eastern basin and is the same, within the ± of the errors, to dates from the Noble Inlet event (Stravers et al., 1992; Manley, 1995).

Core: HU90023-112 IKU

Location: Northern flank of the Eastern Basin
Lat: 61° 32.07'N **Long:** 67° 28.04'W **Water Depth:** 265 m

Date: 8110 ± 360 **Lab. No:** TO-3668 **Corrected Age:** 7660 ± 360
Depth: **GRL-** **Material:** Foraminifera
Weight: 7 mg **Species:** *Elphidium excavatum clavata*
Contributor(s): B. MacLean, B. Deonarine
Comment: (BM) Sediments at the sample locality comprise approximately 5m of acoustically unstratified sediments (considered to be ice-contact sediments) that lie on Paleozoic bedrock. The IKU sample consisted of 3-4 cm of brown muddy, sandy, gravelly sediments that form the immediate seabed , underlain by a very dark brown to black, very cohesive clayey sediment. The date is from the lower of these sediment units. This and comparable dates from IKU samples from other Hudson Strait localities indicate that many areas have received little of no sediment since withdrawl of glacial influences from the region.

Core: HU92028-157 G

Location: Within 500 m of HU90023-045 in central part of the Eastern Basin
Lat: 60° 56.86'N **Long:** 66° 07.86'W **Water Depth:** 860 m

Date: 875 ± 50 **Lab. No:** AA-11449 **Corrected Age:** 425 ± 50
Depth: 0-2 cm **GRL-**1008-S **Material:** Foraminifera
Weight: 5.0 mg **Species:** *Nonionellina labradorica*
Contributor(s): J.T. Andrews

Date: 7785 ± 75 **Lab. No:** AA-10257 **Corrected Age:** 7335 ± 75

Depth: 485-490 cm **GRL-1026-S** **Material:** Foraminifera
Weight: 13.3 mg **Species:** *Cibicides lobatulus*
Contributor(s): J.T. Andrews, B. MacLean, W.F. Manley
Sample Notes: Benthic foraminifera picked by Bahn Deonarine at the Bedford Institute of Oceanography.
Comment: (JTA, BM, WFM) From previously undated core 92-157 (total length 501 cm). The sample is from the thick sediments in the central part of the eastern basin, close to core 90-045. Seismic records suggest that the section comprises 6.6 m of postglacial sediments over ca. 55 m of glaciomarine sediments, over ice-contact sediments. However, magnetic susceptibility records and dates from core 90-45 suggest that the core may have sampled the uppermost section of glaciomarine sediments. Foraminiferal assemblages indicate that the dated interval is from sediments considered to be early postglacial by Vilks et al. (1989). The pattern of low magnetic susceptibility (MS) at the base of the core followed by a very low MS event indicate that these sediments correlate with the low MS interval in HU90023-045 (Andrews et al., 1995). The date confirms this correlation. The young age from the topmost sediments of this core show that relatively little sediment was lost during coring (i.e. date of ca 400 yrs BP).

Core: HU93034-002 PC

Location: Central part of the eastern basin, about 19 km east of HU90023-045
Lat: 60° 56.78'N **Long:** 65° 41.98'W **Water Depth:** 822 m

Date: 3970 ± 60 **Lab. No:** CAMS-25670 **Corrected Age:** 3520 ± 60
Depth: 3-5 cm **GRL-1228-S** **Material:** Foraminifera
Weight: 5.8 mg **Species:**
Contributor(s): A.E. Jennings
Sample Notes: 3 species of benthic foraminifera: 58 *Buccella tererrima*, 239 *Cibicices lobatulus*, and 131 *Melonis zaandamae*.
Stratigraphic Relations: From postglacial sediments very close to core top.
Comment: See Comment CAMS-25758.

Date: 9505 ± 80 **Lab. No:** AA-13172 **Corrected Age:** 9055 ± 80
Depth: 144 cm **GRL-1070-S** **Material:** Mollusc
Weight: 17.9 mg **Species:** *Nuculana pernula*
Contributor(s): A.E. Jennings, W. F. Manley, Brian MacLean
Sample Notes: Single, fragile, well-preserved valve.
Sample Pre-treatment: Sonicated in distilled water (dw), leached 79% with HCl, and washed in dw.
Stratigraphic Relations: From acoustically stratified, glaciomarine sediment (Unit 3 of MacLean et al., 1992).
Comment: See Comment CAMS-25758.

Date: *10,270 ± 285 **Lab. No:** AA-17391 **Corrected Age:** 9820 ± 285
Depth: 135-145 cm **GRL-1170-S** **Material:** Foraminifera
Weight: 1.9 mg **Species:** *Cibicides lobatulus*
Contributor(s): A.E. Jennings
Sample Notes: 80 specimens; * indicates mass-corrected age. Reported age with no mass correction is 9400±100, reservoir corrected = 8950 ± 100.
Stratigraphic Relations: From acoustically stratified, glaciomarine sediment (Unit 3 of MacLean et al., 1992). This date was obtained for comparison with shell date (AA-13172) from same high magnetic susceptibility interval, as a test to determine whether the foram and shell dates from such intervals might converge. The mass-uncorrected age was exactly the same as the shell date, but with the mass-correction, the dates do not quite overlap at 2 sigma.

Comment: See Comment CAMS-25758..

Date: 8640 ± 70 **Lab. No:** CAMS-25758 **Corrected Age:** 8190 ± 70
Depth: 344-360 cm **GRL-**1171-S **Material:** Mixed
Weight: 2.5 mg **Species:**
Contributor(s): A.E. Jennings
Sample Notes: Foraminifera, molluscs, and ostracods from the lowest foraminiferal abundance peak in the core.
Stratigraphic Relations: From acoustically stratified, glaciomarine sediment (Unit 3 of MacLean et al., 1992).
Comment: (AEJ & BM) Sediments at the core site are interpreted from high resolution seismic data to represent the basal part of the glacial marine section in the floor of the Eastern Basin. These sediments are deeply buried in general, but are accessible at this locality. This 7 m core from the northeastern margin of the Eastern Basin penetrated all but ca. 1 m of the glacial-marine sediment overlying till. AA- 17391 on foraminifera and AA-13172 on a mollusc valve come from a magnetic susceptibility peak in the upper high MS interval which appeared to correlate with an MS peak in 92028-158 (Jennings et al., 1995). CAMS-25758, the date from the earliest foraminiferal peak in the core, obtained from two meters deeper in the core, indicated that the MS peak is derived from reworked sediments deposited near the end of the glacial-marine interval, and that the glacial-marine section is actually much younger. However, other dates from Eastern Basin cores suggest that the 8.2 ka date is too young by ca. 0.4 ka. We are testing this idea with additional dating from a slightly deeper sample in 93034-002.

Core: HU93034-004 PC

Location: Northern flank of Eastern Basin, about 30 km north-northwest of HU90023-045
Lat: 61° 13.45'N **Long:** 66° 25.39'W **Water Depth:** 526 m

Date: 820 ± 80 **Lab. No:** CAMS-25759 **Corrected Age:** 370 ± 80
Depth: top **GRL-**1229-S **Material:** Foraminifera
Weight: 2.3 mg **Species:**
Contributor(s): A.E. Jennings
Sample Notes: Two species benthic foraminifera: *Buccella tenerrima* and *Angulogerina angulosa*
Stratigraphic Relations: Dated interval is within postglacial sediments on basis of seismic profiles and foraminiferal data.
Comment: See Comment CAMS-17401.

Date: 8030 ± 60 **Lab. No:** CAMS-25762 **Corrected Age:** 7580 ± 60
Depth: 20 cm **GRL-**1230-S **Material:** Foraminifera
Weight: 6.4 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): A.E. Jennings
Sample Notes: 643 *N. pachyderma.*
Stratigraphic Relations: Dated interval is within postglacial sediments on basis of seismic profiles and foraminiferal data.
Comment: See Comment CAMS-17401.

Date: 8395 ± 70 **Lab. No:** AA-13055 **Corrected Age:** 7945 ± 70
Depth: 79 cm **GRL-**1067-S **Material:** Mollusc
Weight: 27.8 mg **Species:** *Macoma calcarea*
Contributor(s): A.E. Jennings, W. F. Manley
Sample Notes: A large, paired, articulated valve. One valve was archived. The valves are thin, fragile, and well-preserved, with portions of the periostracum preserved.

Sample Pre-treatment: Sonicated in dw, leached 80%, and washed in dw.
Stratigraphic Relations: The section at this core site comprises 9 meters of acoustically stratified glacial marine sediments that are underlain by 3 to 4 meters of ice-contact sediments, and overlain by approximately 1 meter of possible postglacial sediments (MacLean et al., 1994). Upslope, the glacial marine sediments are transitional to ice-contact sediments at about 380 meters present water depth.
Comment: See Comment CAMS-17401.

Date: 9430 ± 50 **Lab. No:** CAMS-25764 **Corrected Age:** 8980 ± 50
Depth: 260-262.5 cm **GRL**-1231-S **Material:** Mollusc
Weight: 7.1 mg **Species:** *Nuculana sp*
Contributor(s): A.E. Jennings
Sample Notes: Paired valves with periostracum. Too small for acid leach.
Sample Pre-treatment: Mollusc found in sample taken for dating foraminifera.
Stratigraphic Relations: Dated mollusc from near the top of the glacial-marine sediments.
Comment: See Comment CAMS-17401.

Date: 9060 ± 60 **Lab. No:** CAMS-25761 **Corrected Age:** 8610 ± 60
Depth: 600-620 cm **GRL**-1232-S **Material:** Foraminifera
Weight: 5.3 mg **Species:**
Contributor(s): A.E. Jennings
Sample Notes: Two species of typical ice-proximal benthic foraminifera picked from earliest peak in benthic foraminiferal abundance. 1431 *Elphidium excavatum clavata* and 630 *Cassidulina reniforme.*
Stratigraphic Relations: Dated sample from glacial marine sediments at the earliest small peak in benthic foraminiferal abundance.
Comment: See Comment CAMS-17401.

Date: 10,500 ± 110 **Lab. No:** CAMS-17401 **Corrected Age:** 10,050 ± 110
Depth: 738-762 cm **GRL**-1143-S **Material:** Mixed
Weight: ca. 1 mg **Species:**
Contributor(s): A.E. Jennings
Sample Notes: "Atlantic" species, *Cassidulina teretis*, and other non ice-proximal species including *Pyrgo williamsoni*, but no *Elphidium excavatum* or *C. reniforme*. Protoconchs of molluscs of various sp., mainly paired valves and a few ostracods. Had to go through 10 samples to get enough material for a date!
Stratigraphic Relations: Base of core is in glacial-marine sediments about 1 m above basal till in the Eastern Basin. This date was submitted to constrain the timing of ice retreat from the shelf.
Comment: (AEJ & BM) The section at this core site comprises 9 meters of acoustically stratified glacial marine sediments that are underlain by 3 to 4 meters of ice-contact sediments, and overlain by approximately 1 meter of postglacial sediments. Upslope, the glacial marine sediments are transitional to ice-contact sediments at about 380 meters present water depth. This ca. 8 m core collected glacial marine and thin postglacial sediments overlying till. The core did not penetrate as close to the till as 93034-002, but sedimentological and foraminiferal analyses suggest that it terminates in ice-proximal sediments. The mollusc that provided the upper mollusc date (AA-13055) in -004 was in growth position, and may have burrowed a short distance into slightly older sediments below the glacial-marine - postglacial boundary; other dates in the core and in Hudson Strait suggest that AA-13055 provides a reasonable timing for the onset of postglacial conditions in the Eastern Basin. The date near the base of the core (CAMS-17401) was derived from a broad interval with a low faunal content. Based on the much younger date on the earliest benthic foraminiferal peak (CAMS-25761) we suggest that the 10,050 BP date is on reworked material.

Core: HU93034-006 PC

Location: North of the Eastern Basin, in an isolated basin about 45 km southeast of Pritzler Harbour
Lat: 61° 46.45'N **Long:** 66° 51.74'W **Water Depth:** 223 m

Date: 9025 ± 90 **Lab. No:** AA-13173 **Corrected Age:** 8575 ± 90
Depth: 380 cm **GRL-**1071-S **Material:** Mollusc
Weight: 7.1 mg **Species:** *Portlandia arctica*
Contributor(s): B. MacLean, W.F. Manley, A.E. Jennings
Sample Notes: Single valve from pristine, well preserved, fragile, articulated, paired valve; other valve has been archived; before washing contained periostracum.
Sample Pre-treatment: Sonicated in distilled water (dw), leached 35% with HCl, and washed in dw.
Comment: (BM) The core locality is in a small submarine valley on the north side of Hudson Strait 25 km offshore Meta Incognita Peninsula. The section at the core site comprises approximately 2 m of acoustically relatively transparent sediments that overlie approximately 3 m of acoustically stratified sediments, which appear to be transitional to ice-contact sediments present on both the north and south sides of the valley. The dated interval is from the acoustically stratified beds, which are inferred to be glaciomarine.

Core: HU93034-029 PC

Location: Northwestern flank of the Eastern Basin
Lat: 61° 15.04'N **Long:** 67° 32.95'W **Water Depth:** 430 m

Date: 11070 ± 60 **Lab. No:** CAMS-18689 **Corrected Age:** 10620 ± 60
Depth: 280-285 cm **GRL-** **Material:** Mixed
Weight: 1.9 mg **Species:** Mixed
Contributor(s): B. MacLean
Sample Notes: Foraminifera and mollusc fragments
Comment: (BM) The dated material is from the upper 1.5 m of a 6 m glaciomarine sediment sequence on the lower part of the northern flank of Eastern Basin in Hudson Strait. Underlying glaciomarine sediments laterally are transitional to ice-contact sediments approximately 1 km upslope. This date appears to be a little old relative to other dates from this sequence.

Core: HU93034-031 PC

Location: The western flank of the Eastern Basin
Lat: 61° 08.25'N **Long:** 68° 01.73'W **Water Depth:** 454 m

Date: 8920 ± 60 **Lab. No:** CAMS-18688 **Corrected Age:** 8470 ± 60
Depth: 397-400 cm **GRL-** **Material:** Foraminifera
Weight: 3.5 mg **Species:** *Elphidium excavatum*
Contributor(s): B. MacLean
Sample Notes: NSRL-2376

Ungava Bay

Core: HU90023-034 LCF

Location: Eastern Ungava Bay, about 115 km east-southeast of Akpatok Island
Lat: 59° 59.41'N **Long:** 65° 44.03'W **Water Depth:** 112 m

Date: 8240 ± 150 **Lab. No:** CAMS-10359 **Corrected Age:** 7790 ± 150
Depth: 70-75 cm **GRL-**1046-S **Material:** Foraminifera
Weight: 1.0 mg **Species:** Mixed
Contributor(s): J.T. Andrews, A.E. Jennings
Sample Notes: Mixed foraminiferal species, mainly benthic. *C. reniforme, E. excavatum clavata, F. fusiformis* and 8 more species.
Comment: (JTA, BM) The section at the core site comprises three acoustic stratigraphic units: glacial drift (ice-contact sediments) at the base, overlain by acoustically weakly stratified sediments (interpreted by G. Vilks and A. Silis from foraminiferal assemblages to represent mainly glacial marine environmental conditions), overlain by a thin postglacial sequence at the top of the section (MacLean et al., 1991). The dated interval is from the upper part of the glacial marine sequence. It indicates that ice had retreated onto the Ungava platform by at least 7.8 ka, however, analysis of the sediments from HU90023-045 in the Eastern Basin (to the north) suggests that Ungava Bay was still supplying glacially derived sediment into Eastern Basin after retreat of ice westward along Hudson Strait (Andrews et al., 1995).

Core: HU90023-036 LCF

Location: Eastern Ungava Bay, about 10 km west of HU90023-034
Lat: 59° 57.8'N **Long:** 65° 53.89'W **Water Depth:** 332 m
Stratigraphic Relations: Prograding postglacial sediments locally overlie glaciomarine sediments adjacent to the central platform in the marginal channel in eastern Ungava Bay (MacLean et al., 1991; G. Vilks, unpub.; Andrews et al., in press).

Date: 6630 ± 70 **Lab. No:** TO-2456 **Corrected Age:** 6180 ± 70
Depth: 241 cm **GRL-** **Material:** Mollusc
Weight: 306 mg **Species:** *Macoma calcarea*
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mollusc valves.

Date: 6850 ± 70 **Lab. No:** TO-2457 **Corrected Age:** 6400 ± 70
Depth: 372 cm **GRL-** **Material:** Mollusc
Weight: 363 mg **Species:** *Macoma calcarea*
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mollusc valves.

Date: 7260 ± 70 **Lab. No:** TO-2458 **Corrected Age:** 6810 ± 70
Depth: 828-829 cm **GRL-** **Material:** Mollusc
Weight: 304 mg **Species:** *Macoma calcarea*
Contributor(s): B. MacLean, G. Vilks
Sample Notes: Mollusc fragments.
Comment: (BM) The three dated interval are from the postglacial prograded sediment sequence (MacLean et al., 1991).

Core: HU93034-036 PC

Location: Southern Ungava Bay
Lat: 59° 32.03'N **Long:** 67° 13.20'W **Water Depth:** 297 m

Date: 890 ± 80 **Lab. No:** Beta-75312 **Corrected Age:**
Depth: 20 cm **GRL-** **Material:** Mollusc
Weight: **Species:** *Macoma sp.*
Contributor(s): C. Schafer et al.
Sample Notes: Single valve indicated on core description. Also CAMS-15664.
Stratigraphic Relations: From a sequence of postglacial sediments twenty or more meters thick that overlies inferred glaciomarine sediments in southern Ungava Bay.
Comment: (CS) Chronologic data are from "The pre-modern (Little Ice Age) marine environment in Hudson Strait: Characterristics of benthic foraminifera assemblages" by Schafer et al. in prep.

Date: 1280 ± 60 **Lab. No:** Beta- **Corrected Age:**
Depth: 167-170 cm **GRL-** **Material:** Mollusc
Weight: **Species:** *Colus sp.*
Contributor(s): C. Schafer et al.
Sample Notes: Paired.
Stratigraphic Relations: From a sequence of postglacial sediments twenty or more meters thick that overlies inferred glaciomarine sediments in southern Ungava Bay.
Comment: (CS) Chronologic data are from "The pre-modern (Little Ice Age) marine environment in Hudson Strait: Characterristics of benthic foraminifera assemblages" by Schafer et al. in prep.

Date: 1380 ± 90 **Lab. No:** Beta-75311 **Corrected Age:**
Depth: 167-170 cm **GRL-** **Material:** Mollusc
Weight: **Species:** *Clinocardium sp.*
Contributor(s): C. Schafer et al.
Sample Notes: Also CAMS-15663.
Stratigraphic Relations: From a sequence of postglacial sediments twenty or more meters thick that overlies inferred glaciomarine sediments in southern Ungava Bay.
Comment: (CS) Chronologic data are from "The pre-modern (Little Ice Age) marine environment in Hudson Strait: Characterristics of benthic foraminifera assemblages" by Schafer et al. in prep.

Date: 2850 ± 60 **Lab. No:** Beta-78141 **Corrected Age:**
Depth: 1164 cm **GRL-** **Material:** Mollusc
Weight: **Species:**
Contributor(s): C. Schafer et al.
Sample Notes: Bivalve fragments (x-ray shows paired valves). Also CAMS-17275.
Stratigraphic Relations: From a sequence of postglacial sediments twenty or more meters thick that overlies inferred glaciomarine sediments in southern Ungava Bay.
Comment: (CS) Chronologic data are from "The pre-modern (Little Ice Age) marine environment in Hudson Strait: Characterristics of benthic foraminifera assemblages" by Schafer et al. in prep.

Date: 3140 ± 60 **Lab. No:** Beta-78139 **Corrected Age:**
Depth: 1378 cm **GRL-** **Material:** Mollusc
Weight: **Species:** *Hydrobia sp.*
Contributor(s): C. Schafer et al.
Sample Notes: Gastropod. Also CAMS-17273.

Stratigraphic Relations: From a sequence of postglacial sediments twenty or more meters thick that overlies inferred glaciomarine sediments in southern Ungava Bay.
Comment: (CS) Chronologic data are from "The pre-modern (Little Ice Age) marine environment in Hudson Strait: Characterristics of benthic foraminifera assemblages" by Schafer et al. in prep.

Core: HU93034-038 PC

Location: Southeast Ungava Bay
Lat: 59° 38.17'N **Long:** 66° 13.07'W **Water Depth:** 376 m

Date: 8670 ± 60 **Lab. No:** CAMS-18690 **Corrected Age:** 8220 ± 60
Depth: 940 cm **GRL-** **Material:** Mollusc
Weight: 19 mg **Species:**
Contributor(s): B. MacLean
Sample Notes: NSRL-2374
Comment: (BM) The dated sample is from approximately 3.5 m below the top of a 9-m-thick glaciomarine sequence.

SOUTHERN BAFFIN ISLAND SHELF

Hatton Basin

Core: HU84035-014 PC

Location: South-central Hatton Basin
Lat: 60° 59.2'N **Long:** 62° 27.3'W **Water Depth:** 605 m

Date: 8785 ± 60 **Lab. No:** AA-10652 **Corrected Age:** 8335 ± 60
Depth: 82 cm **GRL-992-S** **Material:** Mollusc
Weight: 12.6 mg
Contributor(s): J.T. Andrews
Sample Notes: Scaphopod shells identified by N. Weiner.
Sample Pre-treatment: Sonicated in distilled water.

Date: 10,790 ± 70 **Lab. No:** AA-10653 **Corrected Age:** 10,340 ± 70
Depth: 514-517 cm **GRL-993-S** **Material:** Foraminifera
Weight: 3.7 mg **Species:** Mixed
Contributor(s): J.T. Andrews
Comment: (AEJ, JTA) This core was collected from ice-berg scoured glacial marine sediments of acoustic unit 2b in eastern Hatton Basin (Praeg et al., 1986; Evans, 1990). A date of 8905±70 yr BP (AA-4255) at 80 cm was reported in Kaufman and Williams (1992) and Evans (1990). Two additional dates are reported here. The MS record of this core and the distribution of dates are very similar to those of 92028-158 PC, which is also from the Hatton Basin (Jennings et al., 1995). The date of 10.34 ka near the base of the core is on a relatively low foraminiferal abundance zone dominated by *Elphidium excavatum.* Similar dates ca. 10.3 ka from 92028-158 have been shown to be too old by ca. 0.7 ka (see below). Core site and geotechnical properties are outlined in Silva et al. (1985) and Josenhans et al. (1986).

Core: HU84035-016 PC

Location: Western edge of Hatton Basin
Lat: 60° 59.8'N **Long:** 63° 11.4'W **Water Depth:** 603 m

Date: 8450 ± 70 **Lab. No:** AA-11882 **Corrected Age:** 8000 ± 70
Depth: 12-15 cm **GRL-1042-S** **Material:** Mollusc
Weight: 240 mg **Species:** *Dentalium sp.*
Contributor(s): J.T. Andrews
Comment: (AEJ) The acoustic stratigraphy, litho- and biostratigraphy of this core from the westernmost margin of Hatton Basin were described by Evans (1990). This 5.2 m core collected sediments of acoustic facies 1a, which was considered to be till by (Praeg et al., 1986), but which Evans (1990) suggests is ice-loaded but undisturbed glacial-marine sediments at this site. The age of 8 ka at the top of this core is similar to other core top ages from Hatton Basin (Kaufman and Williams, 1992; Andrews et al., 1994).

Core: HU92028-158 PC

Location: Southwestern Hatton Basin, about 26 km west of HU84035-014
Lat: 61° 0.00'N **Long:** 62° 55.57'W **Water Depth:** 622 m

Date: 4110 ± 80 **Lab. No:** CAMS-25763 **Corrected Age:** 3660 ± 80
Depth: top **GRL-1172-S** **Material:** Foraminifera
Weight: 2.2 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): A.E. Jennings
Sample Notes: 305 sinistral specimens.
Stratigraphic Relations: Core top age.
Comment: Foraminiferal data and the date confirm presence of thin (ca. 20 cm) postglacial sediments in the core. See comment AA-15698.

Date: *9145 ± 75 **Lab. No:** AA-17392 **Corrected Age:** 8695 ± 75
Depth: 75-80 cm **GRL-1172-S** **Material:** Foraminifera
Weight: 7.2 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): A.E. Jennings
Sample Notes: 800 Specimens. * Mass-corrected age; mass uncorrected age was 9400 ± 100.
Comment: See comment AA-15698.

Date: 9440 ± 110 **Lab. No:** CAMS-18449 **Corrected Age:** 8990 ± 110
Depth: 175-179 cm **GRL-1150-S** **Material:** Foraminifera
Weight: **Species:** *Cassidulina teretis*
Contributor(s): A.E. Jennings, J.T. Andrews, D. Barber
Comment: See comment AA-15698.

Date: *10,225 ± 100 **Lab. No:** AA-17393 **Corrected Age:** 9775 ± 100
Depth: 425-430 cm **GRL-1173-S** **Material:** Foraminifera
Weight: 3.4 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): A.E. Jennings
Sample Notes: 600 Specimens; * Mass corrected age; mass-uncorrected age was 10,105 ± 100.
Comment: See comment AA-15698.

Date: 10,695 ± 85 **Lab. No:** AA-10258 **Corrected Age:** 10,245 ± 85
Depth: 480 cm **GRL-1029-S** **Material:** Mollusc

Weight: 4.2 mg **Species:** *Portlandia*(?)
Contributor(s): J.T. Andrews, W.F. Manley
Sample Notes: One of several small, angular, apparently not reworked mollusc shell fragments. The fragments might all be from the same individual, but one was selected for dating to eliminate a possibly mixed assemblage of ages. Fragment is of a taxodont mollusc, probably *Portlandia arctica.*
Sample Pre-treatment: Sonicated in distilled water.
Stratigraphic Relations: From undated core 92-158 (total length 1140 cm). The sample is from acoustically well stratified sediment, and correlates to a level 330 cm below a date of 8.9 ka in core 84-14, based on magnetic susceptibility measurements.
Comment: See comment AA-15698.

Date: 10,800 ± 130 **Lab. No:** AA-12029 **Corrected Age:** 10,350 ± 130
Depth: 750-755 cm **GRL-1044-S** **Material:** Foraminifera
Weight: 2.5 mg **Species:** *Elphidium excavatum*
Contributor(s): J.T. Andrews
Comment: See comment AA-15698.

Date: 3085 ± 70 **Lab. No:** AA-11583 **Corrected Age:** 2635 ± 70
Depth: 770-780 cm **GRL-1009-S** **Material:** Foraminifera
Weight: 1.5 mg **Species:**
Contributor(s): J.T. Andrews
Sample Notes: Mixed forams, benthics and planktics
Comment: (AEJ) This date makes absolutely no sense relative to any of the other dates in the core. We think that it is a mistake in reporting from the AMS laboratory and do not consider it to be valid. See comment AA-15698.

Date: 10,070 ± 95 **Lab. No:** AA-15698 **Corrected Age:** 9620 ± 95
Depth: 900-905 cm **GRL-1127-S** **Material:** Foraminifera
Weight: 4.3 mg **Species:** *Nonionellina labradorica*
Contributor(s): A.E. Jennings
Sample Notes: 268 Specimens
Comment: (AEJ) The core sampled 11 m of the ca. 25 m of glacial-marine sediments in the western part of the Hatton Basin. The two more reliable ages from glacial-marine sediments in this core (AA-15698 and CAMS- 18449) are on "Atlantic" foraminiferal species from abundance peaks associated with peaks in whole-core magnetic susceptibility (Jennings et al., 1995). Because AA-15698 is 0.6 to 0.7 ka younger than AA- 10258 and AA-12029 on Portlandia shells and Elphidium excavatum clavata, respectively, it shows either that the older dates are on reworked materials,or that there are significant reservoir-age differences with depth in the core. The"Atlantic" fauna generally occurs in relatively high foraminiferal abundance zones associated with a reduced influx of glacial sediments (i.e. MS peaks). The upper "Atlantic" date, CAMS-18449 (=8990 BP) appeared to correlate with the date of 9055 (AA-13172) on a similar magnetic susceptibility peak in 93034-002 from the Eastern Basin of Hudson Strait. Subsequent dating has shown that in 93034-002 these materials are reworked. However, the presence of similar aged materials in the two basins suggests that the basins were free of glacial ice at this time. The lowermost date (AA-15698) indicates that at least the upper 11 m of the glacial-marine section in western Hatton Basin was deposited after ca. 9.6 ka, which corresponds to the end of the Gold Cove Advance (Kaufman et al., 1993).

Frobisher Bay

Core: HU82034-068 PC

Location: Mouth of Frobisher Bay, about 15 km northeast of Potter Island
Lat: 62° 13.3'N **Long:** 65° 40.2'W **Water Depth:** 311 m

Date: 7830 ± 120 **Lab. No:** AA-4918 **Corrected Age:** 7380 ± 120
Depth: 9-10.5 cm **GRL-**915-S **Material:** Foraminifera
Weight: 12.2 mg **Species:** *Cibicides lobatulus*
Contributor(s): J.T. Andrews
Comment: (JTA) For discussion see Andrews and Stravers (1993) and Kaufman and Williams (1992).

Core: HU90023-001 TWC

Location: Deep central trough of Frobisher Bay, about 15 km southwest of Chase Island
Lat: 62° 52.57'N **Long:** 67° 07.46'W **Water Depth:** 538 m

Date: 1745 ± 160 **Lab. No:** AA-11432 **Corrected Age:** 1295 ± 160
Depth: 102 cm **GRL-** **Material:** Mollusc
Weight: 47.2 mg **Species:** *Nuculana sp.*
Contributor(s): M. Duvall
Sample Notes: Paired valve from well up in the postglacial sediments.
Sample Pre-treatment: Sonicated, mechanical cleaning, 40% acid leach
Comment: (MD) Late Holocene age for the top of the core. See Duvall (1993) and comments below.

Core: HU90023-001 LCF

Location: Deep central trough of Frobisher Bay, about 15 km southwest of Chase Island
Lat: 62° 52.57'N **Long:** 67° 07.46'W **Water Depth:** 538 m

Date: 6220 ± 130 **Lab. No:** AA-11433 **Corrected Age:** 5770 ± 130
Depth: 400-405 cm **GRL-**1021-S **Material:** Foraminifera
Weight: 6.3 mg **Species:** *Nonionellina labradorica*
Contributor(s): M. Duvall
Sample Notes: Forams and diatoms.
Comment: (MD) Provides an age for the onset of postglacial sedimentation in Frobisher Bay. See Duvall (1993).

Date: 7795 ± 165 **Lab. No:** AA-11434 **Corrected Age:** 7345 ± 165
Depth: 640-645 cm **GRL-**1020-S **Material:** Foraminifera
Weight: 4.3 mg **Species:** Mixed
Contributor(s): M. Duvall
Sample Notes: Mixed forams. Also has a lot of diatoms
Comment: (MD) Dates the beginning of a short glacial pulse probably associated with local ice expansion on Meta Incognita Peninsula. See Duvall (1993).

Date: 8305 ± 170 **Lab. No:** AA-11435 **Corrected Age:** 7855 ± 170
Depth: 920-923 cm **GRL-**1019-S **Material:** Foraminifera
Weight: 5.6 mg **Species:** Mixed

Contributor(s): M. Duvall
Sample Notes: Mixed forams. Also has a lot of diatoms
Comment: (MD) Just below a short section of more ice distal sediment seen from preliminary foram study, this date provides a minimum age for end of the Noble Inlet advance in Frobisher Bay. See Duvall (1993).

Date: 8750 ± 165 **Lab. No:** AA-11436 **Corrected Age:** 8300 ± 165
Depth: 1020-1025 cm **GRL-**1018-S **Material:** Foraminifera
Weight: 7.3 mg **Species:** Mixed
Contributor(s): M. Duvall
Sample Notes: Mixed forams. Low foram abundance.
Comment: (MD) Dates the Cockburn advance in Frobisher Bay. See Duvall (1993).

Date: 8715 ± 165 **Lab. No:** AA-11437 **Corrected Age:** 8265 ± 165
Depth: 1200-1205 cm **GRL-**1017-S **Material:** Foraminifera
Weight: 7.9 mg **Species:** Mixed
Contributor(s): M. Duvall
Sample Notes: Mixed forams.
Comment: (MD) Dates the Cockburn Advance in Frobisher Bay. See Duvall (1993).

Date: 8865 ± 165 **Lab. No:** AA-11438 **Corrected Age:** 8415 ± 165
Depth: 1380-1385 cm **GRL-**1023-S **Material:** Mollusc
Weight: 7.2 mg **Species:** *Portlandia sp.*
Contributor(s): M. Duvall
Sample Notes: Well preserved, paired valve. Not found together, but appears to fit.
Sample Pre-treatment: sonicated plus 30% acid leach
Comment: (MD) Just predates the Cockburn advance in Frobisher Bay. Considered a reliable basal date for core 90-023-001. See Duvall (1993).

Date: 9305 ± 85 **Lab. No:** AA-17265 **Corrected Age:** 8855 ± 85
Depth: 1380-1385 cm **GRL-** **Material:** Mollusc
Weight: 13.4 mg **Species:** *Portlandia sp.*
Contributor(s): M. Duvall
Sample Notes: Non-reworked paired valve. Well preserved with teeth and periostracum still intact.
Sample Pre-treatment: 33% HCl leach.
Comment: (MD, WFM) Suggests that base of the core is slightly older than previously believed, i.e., nearly as old as the onset of the Cockburn substage. Given the error on the other date from this interval, this determination is probably more reliable, and correlates more closely with the Noble Inlet advance (Duvall, 1993; Manley, 1995).

NORTHERN LABRADOR SHELF

Karlsefni Trough

Core: HU77021-067 PC

Location: Karlsefni Trough
Lat: 58° 48.9'N **Long:** 61° 57.28'W **Water Depth:** 199 m

Date: 2480 ± 110 **Lab. No:** AA-11870 **Corrected Age:** 2030 ± 110
Depth: 9-13 cm **GRL-**1030-S **Material:** Foraminifera

Weight: 10.3 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed forams. This sample replaces GRL-997-S, same core, depth 5-8 cm. No specifics about species submitted.
Stratigraphic Relations: Core top.
Comment: (JTA) This and HU75-62 (??check?) are described in Veldhuyzen (1981). The age at this depth indicates a slow upper Holocene rate of sediment accumulation although some sediment was probably lost during the coring operation.

Core: HU87033-015 LCF

Location: Labrador shelf off of Saglek Fjord
Lat: 58° 45.83'N **Long:** 62° 15.39'W **Water Depth:** 188 m

Date: 2070 ± 65 **Lab. No:** AA-14205 **Corrected Age:** 1620 ± 65
Depth: 26 cm **GRL-1093-S** **Material:** Mollusc
Weight: 22.6 mg
Contributor(s): J.T. Andrews, A.E. Jennings, F. Hall
Sample Notes: Bivalve fragments of unknown genus and species.

Date: 8940 ± 70 **Lab. No:** AA-13241 **Corrected Age:** 8490 ± 70
Depth: 88 cm **GRL-1085-S** **Material:** Mollusc
Weight: 11.16 mg
Contributor(s): J.T. Andrews, A.E. Jennings, F. Hall
Sample Notes: broken bivalves of unknown genus and species.

Date: 8605 ± 85 **Lab. No:** AA-14206 **Corrected Age:** 8155 ± 85
Depth: 194 cm **GRL-1094-S** **Material:** Mollusc
Weight: 23.9 mg
Contributor(s): J.T. Andrews, A.E. Jennings, F. Hall
Sample Notes: Bivalve fragments of unknown genus and species.
Sample Pre-treatment: Washed with distilled water over 63 μm sieve and air dried. Fragments picked from sand with brush.

Date: 8650 ± 85 **Lab. No:** AA-14207 **Corrected Age:** 8200 ± 85
Depth: 444 cm **GRL-1095-S** **Material:** Mollusc
Weight: 34.6 mg
Contributor(s): J.T. Andrews, A.E. Jennings, F. Hall
Sample Notes: Bivalve fragments of unknown genus and species.
Sample Pre-treatment: Washed with distilled water over 63 μm sieve and air dried. Fragments picked from sand with brush.

Date: 32,820 ± 530 **Lab. No:** AA-15696 **Corrected Age:** 32,370 ± 530
Depth: 600 cm **GRL-1125-S** **Material:** Mollusc
Weight: 47 mg
Contributor(s): J.T. Andrews, A.E. Jennings, F. Hall
Sample Notes: Unidentifiable bivalve fragment

Date: 27,465 ± 360 **Lab. No:** AA-15697 **Corrected Age:** 27,015 ± 360
Depth: 800 cm **GRL-1126-S** **Material:** Foraminifera
Weight: 3.6 mg
Contributor(s): J.T. Andrews, A.E. Jennings, F. Hall

Sample Notes: Mixed benthic species. Mainly *E. excavatum clavata, I. helenae, and C. reniforme.*

Date: >42,000 ± **Lab. No:** AA-11881 **Corrected Age:**
Depth: 1032-1037 cm **GRL**-1041-S **Material:** Foraminifera
Weight: 1.8 mg
Contributor(s): J.T. Andrews, A.E. Jennings, F. Hall
Sample Notes: Mixed Foraminifera
Comment: (JTA) This giant piston core was recovered from a basin on the northern Labrador shelf. Work is in progress on the rock magnetic properties and stratigraphy (F. Hall, Univ. of Delaware). The date at 444 cm (AA-14207; 8.2 ka) marks the transition from high to low magnetic susceptibility (MS) values. The basal date of > 42 ka on mixed species of benthic foraminifera was taken from another low MS interval. Rates of sediment accumulation were rapid between 444 and 88 cm and reworking of sediments is indicated by dating reversals. Additional samples from < 1000 cm and >400 cm are being prepared for radiocarbon dating. The dates of ca. 8 ka are in keeping with other dates obtained from cores in Karlsefni Trough (Veldhuyzen, 1981), on the northern Labrador shelf.

NORTHERN LABRADOR SEA

Core: HU75009-IV-056 TWC

Location: About 330 km east of Hudson Strait
Lat: 61° 26.9'N **Long:** 58° 33.5'W **Water Depth:** 2434 m

Date: 8575 ± 75 **Lab. No:** AA-15689 **Corrected Age:** 8125 ± 75
Depth: 21-23 cm **GRL**-1118-S **Material:** Foraminifera
Weight: 9.0 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1000 individuals
Stratigraphic Relations: At the base of a detrital carbonate layer.
Comment: The location of this date near the base of a carbonate-rich layer and the core top provide sufficient reason to suggest the date is re-worked and hence too old. See AA-9067 for complete write up.

Date: 6615 ± 115 **Lab. No:** AA-13352 **Corrected Age:** 6165 ± 115
Depth: 60 cm **GRL**-1086-S **Material:** Foraminifera
Weight: 8.4 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1120 specimens. Replacement for GRL 1057-S which was lost by TAMS.
Stratigraphic Relations: Within a DC event.
Comment: Sample is within a DC event. If this DC event is correlative to the upper event in the PC then detrital carbonate of this event was being delivered to this site beginning ca 8.6 ka (AA-11586) and was still going on at 7.5 ka (AA-12893) and at 6.1 ka. This DC event must be different than the Pleistocene events in the region since apparently there are foraminifera available for dating throughout the event. See AA-9067 for complete write up.

Core: HU75009-IV-056 PC

Location: About 330 km east of Hudson Strait

Lat: 61° 26.9'N **Long:** 58° 33.5'W **Water Depth:** 2434 m

Date: 7985 ± 85 **Lab. No:** AA-12893 **Corrected Age:** 7535 ± 85
Depth: 15 cm **GRL**-1056-S **Material:** Foraminifera
Weight: 8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1000 specimens.
Stratigraphic Relations: Sample from within a DC event at the core top.
Comment: Holocene core top and delivery of detrital carbonate. Onset of delivery of detrital carbonate at ca 8.6 ka at 30 cm (AA-11586). This date would suggest that the associated carbonate event is different from the other Pleistocene carbonate events because of the presence of foraminifera and the great length of time over which the event occurs. See AA-9067 for complete write up.

Date: 9085 ± 85 **Lab. No:** AA-11586 **Corrected Age:** 8635 ± 85
Depth: 30 cm **GRL**-1012-S **Material:** Foraminifera
Weight: 12.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: Unknown number of specimens
Stratigraphic Relations: Sample from the base of a DC event.
Comment: Suggests a younger DC event than previously anticipated. Additionally, this date is associated with small dolomite % peak. See AA-9067 for a complete write up.

Date: 11,390 ± 100 **Lab. No:** AA-11587 **Corrected Age:** 10,940 ± 100
Depth: 70 cm **GRL**-1013-S **Material:** Foraminifera
Weight: 12.0 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: unknown number of specimens
Stratigraphic Relations: From the base of a significant dolomite rise which is interpreted as DC-0.
Comment: This date helps to define the location and probable existence of DC-0. See AA-9067 for complete write up.

Date: 11,750 ± 105 **Lab. No:** AA-15690 **Corrected Age:** 11,300 ± 105
Depth: 79-81 cm **GRL**-1119-S **Material:** Foraminifera
Weight: 8.2 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1000 individuals
Stratigraphic Relations: 10 cm above the proposed termination of DC-1 and a bottom date for the suggested location of DC-0.
Comment: Date was supposed to bracket the falling limb of DC-1 but the sample depth is too far away from DC-1 termination depth. Instead, the age is a good indicator of DC-0 initiation in the Labrador Sea. See AA-9067 for a complete write up.

Date: 17,670 ± 140 **Lab. No:** AA-11588 **Corrected Age:** 17,220 ± 140
Depth: 140 cm **GRL**-1014-S **Material:** Foraminifera
Weight: 16.2 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: Number of specimens unknown
Stratigraphic Relations: In between DC-2 and DC-1 in hemipelagic sediment.
Comment: Suggests that these DC events are indeed DC-1 and DC-2, the equivalents of H-1 and H-2 in the North Atlantic. Age is probably too young for a good event termination age. See AA-9067 for complete write up.

Date: 18,270 ± 140 **Lab. No:** AA-15691 **Corrected Age:** 17,820 ± 140
Depth: 151-154 cm **GRL-1120-S** **Material:** Foraminifera
Weight: 12.3 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1000 individuals
Stratigraphic Relations: From the top of a carbonate layer.
Comment: Dates the termination of DC-2 deposition in the Labrador Sea. See AA-9067 for complete write up.

Date: 21,970 ± 195 **Lab. No:** AA-15692 **Corrected Age:** 21,520 ± 195
Depth: 196-199 cm **GRL-1121-S** **Material:** Foraminifera
Weight: 15.5 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1200 individuals
Stratigraphic Relations: From the bottom of a carbonate layer.
Comment: This date helps to define the beginning of DC-2 deposition in the Labrador Sea. See AA-9067 for complete write up.

Date: 23,880 ± 240 **Lab. No:** AA-11589 **Corrected Age:** 23,430 ± 240
Depth: 235-238 cm **GRL-1015-S** **Material:** Foraminifera
Weight: 13.4 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: Unknown number of specimens
Stratigraphic Relations: Directly above DC-3.
Comment: Date came out younger than expected; the date at the base of DC-3 (AA-9067) was 33165±600. Whether or not this date represents the real age for the termination of DC-3 is not understood. See AA-9067 for complete write up.

Date: 37,935 ± 1020 **Lab. No:** AA-15693 **Corrected Age:** 37,485 ± 1020
Depth: 350 cm **GRL-1122-S** **Material:** Foraminifera
Weight: 8.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 828 individuals
Stratigraphic Relations: Base of carbonate layer.
Comment: I suggest that this date is too old for the core location. The presence of a thick (@50cm) sand layer is evidence that the date represents a reworked sample. Therefore I do not believe this date is good for bracketing DC-3. See AA-9067 for complete write up.

Date: 33,615 ± 600 **Lab. No:** AA-9067 **Corrected Age:** 33,165 ± 600
Depth: 374-376 cm **GRL-986-S** **Material:** Foraminifera
Weight: 6.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 605 specimens
Stratigraphic Relations: Near the base of a carbonate layer. This date may be from the rising limb of DC-3; but the sample depth is 20-25 cm below the proposed carbonate layer boundary.
Comment: (MEK) Core -056 contains DC-1, DC-2, DC-3 and DC-0 (Andrews and Tedesco, 1992; Andrews et al., 1995). Two additional carbonate layers, which may be detrital carbonate events, occur in the upper part of the section. The lower of these two events dates ca. 8-6 ka, but the age of the upper event is poorly constrained (Kirby, in prep). DC-1 and DC-2 are equivalent to Heinrich Events 1 and 2 (Andrews and Tedesco, 1992) but it remains unclear which of the H-events is correlative to DC-3 (Kirby, in prep., Jennings et al., in press). Jennings et al., (in press) and Kirby (in prep) hypothesized that DC-3 is equivalent to H-4.

Core: HU75009-IV-057 TWC

Location: About 310 km southeast of Cumberland Sound
Lat: 63° 00.09'N **Long:** 58° 10.79'W **Water Depth:** 999 m

Date: 16,800 ± 135 **Lab. No:** AA-14685 **Corrected Age:** 16,350 ± 135
Depth: 55 cm **GRL**-1113-S **Material:** Foraminifera
Weight: 1.66 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 200 specimens
Stratigraphic Relations: near the base of the TWC

Date: 18,865 ± 175 **Lab. No:** AA-14216 **Corrected Age:** 18,415 ± 175
Depth: 55 cm **GRL**-1104-S **Material:** Foraminifera
Weight: 3.95 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 400 foraminifera to test effect on age of sample weight. Sample from the same level as GRL 1105-S.
Stratigraphic Relations: near the base of TWC

Date: 18,475 ± 145 **Lab. No:** AA-14217 **Corrected Age:** 18,025 ± 145
Depth: 55 cm **GRL**-1105-S **Material:** Foraminifera
Weight: 5.77 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 700 foraminifera to test effect on age of sample weight.
Stratigraphic Relations: near the base of the TWC

Date: 19,565 ± 160 **Lab. No:** AA-14204 **Corrected Age:** 19,115 ± 160
Depth: 55 cm **GRL**-1092-S **Material:** Foraminifera
Weight: 8.13 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1400 specimens
Stratigraphic Relations: near the base of the TWC.

Date: 19,215 ± 150 **Lab. No:** AA-15708 **Corrected Age:** 18,765 ± 150
Depth: 55 cm **GRL**-1137-S **Material:** Foraminifera
Weight: 12.44 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, M. Kirby
Sample Notes: 1200 sinistral pachys. Test for age determination vs. sample weight in old samples. See GRL 1092-S, 1104-S, 1105-S, 1113-S.
Stratigraphic Relations: near the base of the TWC
Comment: (MEK) Five samples from the same level (55 cm) in this TWC were submitted to test the effect of sample weight on the 14-C age. The samples are: AA-14685; 1.66 mg; 16350 ± 135; AA-14216; 3.95 mg; 18,415 ± 175; AA-14217; 5.77 mg; 18,025 ± 145; AA-14204; 8.13 mg; 19,115 ± 160; AA-15708; and 12.44 mg; 18,765+/-150. Based on these results, there is a relationship between sample age and the sample weight. For samples around 20 ka, a minimum weight of 4 mg of calcium carbonate should be submitted. A sample that is too light in weight will yield an age which is too young. See Donahue et al. (1990), Kirby (in prep.).

Core: HU75009-IV-057 PC

Location: About 310 km southeast of Cumberland Sound
Lat: 63° 00.09'N **Long:** 58° 10.97'W **Water Depth:** 999 m

Date: 33,170 ± 590 **Lab. No:** AA-9062 **Corrected Age:** 32,720 ± 590
Depth: 6-10 cm **GRL**-981-S **Material:** Foraminifera
Weight: 12.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1400 specimens
Stratigraphic Relations: Top of PC.
Comment: Either sediment in core is mixed up or the upper 30 ka of the Labrador Sea record is missing at this site.

Date: >47,240 ± **Lab. No:** AA-9063 **Corrected Age:**
Depth: 98-100 cm **GRL**-982-S **Material:** Foraminifera
Weight: 13.9 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1400 specimens
Stratigraphic Relations: Located near the middle of the core.
Comment: All of the dates in the PC are either close to or beyond the limit of radiocarbon dating. There are indications from the core photographs that this core is disturbed. See AA-9064 for a complete write up.

Date: 46,700 ± 3000 **Lab. No:** AA-9064 **Corrected Age:** 46,250 ± 3000
Depth: 197-200 cm **GRL**-983-S **Material:** Foraminifera
Weight: 13.3 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1100 specimens
Stratigraphic Relations: Near the base of the PC.
Comment: (MEK) The three dates in this piston core are all near the limit of the radiocarbon dating method. Either the sediments were deposited >30 ka or the top ca. 30 ka of the record is partly missing (see AA-9062, 6-10 cm in PC = ca. 33 ka). A date of @18.9 ka exists at 55 cm in the TWC, suggesting that the TWC sits stratigraphically above the PC. The stratigraphy and sedimentology of this core are discussed in Kirby (in prep).

Core: HU75009-IV-062 PC

Location: About 300 km southeast of Cumberland Sound
Lat: 62° 23.7'N **Long:** 59° 18.1'W **Water Depth:** 1510 m

Date: 20,840 ± 180 **Lab. No:** AA-10568 **Corrected Age:** 20,390 ± 180
Depth: 145 cm **GRL**-1002-S **Material:** Foraminifera
Weight: 6.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: Number of specimens unknown
Comment: (JTA) The two dates are reversed and the weight of the submitted samples is probably not an explanation. However, the core was in poor shape and it is possible that materials were misplaced in storage. See AA-13231 in this date list.

Date: 13,055 ± 120 **Lab. No:** AA-13231 **Corrected Age:** 12,605 ± 120
Depth: 298-300 cm **GRL**-1075-S **Material:** Foraminifera
Weight: 6.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: Number of specimens not documented.
Comment: This date is reversed from the other date in this core, AA-10568; 145 cm; 20.4 ka. Maybe sediment disturbed or core upside down.

Core: HU87033-009 LCF

Location: About 290 km southeast of Cumberland Sound
Lat: 62° 30.99'N **Long:** 59° 26.82'W **Water Depth:** 1437 m

Date: 11,555 ± 130 **Lab. No:** AA-15659 **Corrected Age:** 11,105 ± 130
Depth: 450-452 cm **GRL**-1115-S **Material:** Foraminifera
Weight: 1.5 mg **Species:** *Elphidium excavatum*
Contributor(s): A.E. Jennings
Sample Notes: 162 *E. excavatum clavata* and 9 *E. excavatum excavatum.*
Stratigraphic Relations: Sample from dark gray hemipelagic mud above DC-1. Depth chosen on basis on peak in numbers per gram of shelf dwelling benthic foraminifera.
Comment: See comment AA-10569.

Date: 14,980 ± 90 **Lab. No:** AA-9364 **Corrected Age:** 14,530 ± 90
Depth: 500-501 cm **GRL**-990-S **Material:** Foraminifera
Weight: 3.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): K. Tedesco
Sample Notes: unknown number of sinistral specimens
Comment: This date is from the same level as AA-8034. The two dates are statistically identical. They were taken on the rising limb of DC-1 and therefore provide excellent constraint on the initiation of this DC event which is equivalent to H-1 in the North Atlantic. See also comment for AA-10569.

Date: 21,070 ± 220 **Lab. No:** AA-13230 **Corrected Age:** 20,620 ± 220
Depth: 710-712 cm **GRL**-1074-S **Material:** Foraminifera
Weight: 4.0 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): K. Tedesco
Sample Notes: Unknown number of specimens
Stratigraphic Relations: Base of DC-2. Sample from the rising limb of carbonate peak. Actually within the very onset of the event.
Comment: Sample comes from planktic foram peak associated with the DC event. The age is considered to be very reliable and not reworked. Suggests that DC-2 began very close to 20.6 ka. See also comment for AA-10569.

Date: 34,010 ± 675 **Lab. No:** AA-10569 **Corrected Age:** 33,560 ± 675
Depth: 970-977 cm **GRL**-991-S **Material:** Foraminifera
Weight: 2.1 mg
Contributor(s): J.T. Andrews
Sample Notes: Two samples combined to provide enough material for a date. 154 N. pachyderma, 30 benthic specimens of which 14 were shelf dwellers.
Stratigraphic Relations: Interval above DC-3 to provide date for end of this carbonate event.
Comment: (AEJ) Seven dates from this core were reported previously in Kaufman and Williams (1992). The four new dates in this list have been used by Andrews et al. (1994) and Jennings et al. (in press). AA-15659 is a date on an abundance peak of the shelf dweller *Elphidium excavatum.* The date is interpreted to suggest that Cumberland Sound ice advanced to or near to the shelf edge during the Younger Dryas. The upper 4.5 m of 87033-009 are sediments derived from Cumberland Sound ice advance and continued reworking of that material downslope after ice retreat into the sound. DC-0 in 009 as previously described by Andrews and Tedesco (1992) is a sediment gravity flow of Cumberland Sound derived sediment. AA-9364 is from the same level as AA-8034 (Kaufman and Williams, 1992). The two dates are statistically identical. They were taken on the rising limb of DC-1 and therefore provide excellent constraint on the initiation of this DC event which is equivalent to H-1 in the North Atlantic. AA-13230 comes from planktic foram peak on the rising limb of DC-2. This date suggests that DC-2 began very close to 20.6 ka. AA-10569

comes from a planktic peak on the falling limb of DC-3. The planktic specimens should be reliable for dating however the addition of a few shelf benthics contaminate the date and could make it slightly too old, depending on the age of the reworked material. This date on DC-3 compares pretty well with the date at base of DC-3 in 75009-IV-056 East of Hudson Strait, and it indicates that DC-3 is correlative with either H-3 or H-4 in the North Atlantic.

Core: IMP 77-1-2 PC

Location: About 240 km southeast of Cumberland Sound
Lat: 63° 28.2'N **Long:** 59° 06.5'W **Water Depth:** 880 m

Date: 11,080 ± 95 **Lab. No:** AA-14202 **Corrected Age:** 10,630 ± 95
Depth: 145 cm **GRL-1090-S** **Material:** Foraminifera
Weight: 3.7 mg
Contributor(s): J.T. Andrews, A.E. Jennings
Sample Notes: Mixed planktic and benthic species

Date: 12,970 ± 90 **Lab. No:** AA-13233 **Corrected Age:** 12,520 ± 90
Depth: 247-253 cm **GRL-1077-S** **Material:** Foraminifera
Weight: 11.1 mg **Species:** *Nonionellina labradorica*
Contributor(s): J.T. Andrews, A.E. Jennings
Sample Notes: 312 specimens

Date: 14,280 ± 205 **Lab. No:** AA-9355 **Corrected Age:** 13,830 ± 205
Depth: 350-352 cm **GRL-987-S** **Material:** Foraminifera
Weight: 6.3 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, A.E. Jennings

Date: 16,575 ± 140 **Lab. No:** AA-13234 **Corrected Age:** 16,125 ± 140
Depth: 448-458 cm **GRL-1078-S** **Material:** Foraminifera
Weight: 11.1 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, A.E. Jennings
Sample Notes: 760 specimens

Date: 24,365 ± 355 **Lab. No:** AA-13235 **Corrected Age:** 23,825 ± 355
Depth: 795 cm **GRL-1079-S** **Material:** Foraminifera
Weight: 15.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, A.E. Jennings
Sample Notes: 1300 specimens

Date: 29,055 ± 350 **Lab. No:** AA-10658 **Corrected Age:** 28,605 ± 350
Depth: 826-829 cm **GRL-998-S** **Material:** Foraminifera
Weight: 5.7 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, A.E. Jennings
Sample Notes: 603 sinistral, 6 dextral. Identified by S. Senn and N. Weiner.
Comment: (AEJ, JTA) Dates from this 9.76 m core are in stratigraphic order. Detailed paleoceanographic information and facies analysis of this core were presented by Aksu and Mudie (1985), however the chronology was revised by Andrews et al. (1994) with use of two of the six radiocarbon dates presented in this date list. Facies analysis suggests that detrital carbonate events from the Hudson Strait (e.g. Andrews and Tedesco, 1992) and glacial erosion products from a Cumberland Sound ice stream (Jennings et al., in press) both are present in the core. The dates were obtained to secure a chronology of glacier fluctuations from these two ice streams. Three of the samples of *N. pachyderma* that were dated were originally separated by A.E. Aksu, and had

been given to A.R. Nelson for amino acid analysis. The samples were in storage at INSTAAR and Nelson and Aksu kindly allowed us to use them for dating.

Core: IMP 77-3-2 PC

Location: About 260 km southeast of Cumberland Sound
Lat: 63° 03'N **Long:** 59° 07'W **Water Depth:** 915 m

Date: 36,020 ± 805 **Lab. No:** AA-14218 **Corrected Age:** 35,570 ± 805
Depth: 105 cm **GRL**-1106-S **Material:** Foraminifera
Weight: 5.0 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews

Date: 28,050 ± 335 **Lab. No:** AA-15694 **Corrected Age:** 27,600 ± 335
Depth: 137-140 cm **GRL**-1123-S **Material:** Foraminifera
Weight: 12.8 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1100 sinistral individuals

Date: 41,800 ± 1700 **Lab. No:** AA-14219 **Corrected Age:** 41,350 ± 1700
Depth: 305 cm **GRL**-1107-S **Material:** Foraminifera
Weight: 5.5 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews

Date: 36,370 ± 820 **Lab. No:** AA-15695 **Corrected Age:** 35,920 ± 820
Depth: 787-790 cm **GRL**-1124-S **Material:** Foraminifera
Weight: 4.7 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 578 sinistral individuals

Date: 36,870 ± 970 **Lab. No:** AA-14220 **Corrected Age:** 36,420 ± 970
Depth: 847 cm **GRL**-1108-S **Material:** Foraminifera
Weight: 2.6 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Comment: (AEJ, JTA) The five radiocarbon dates on this 10.67 m core beyond the reliable range of radiocarbon dating. Lithofacies analysis by Aksu and Mudie (1985) shows thick intervals of "Facies A", yellowish brown carbonate rich sediments which we suspect have a Hudson Strait source like similar detrital carbonate events in the NW Labrador Sea (e.g. Andrews and Tedesco, 1992), as well as "Facies C", black, kaolinite and smectite-rich muds which previous work would suggest have a source in Cumberland Sound (Jennings et al., in press). The old dates suggest that this core records much older DC events than have previously been studied in the NW Labrador Sea. Four of the samples of *N. pachyderma* that were dated were originally separated by A.E. Aksu, and had been given to A.R. Nelson for amino acid analysis. The samples were in storage at INSTAAR and Nelson and Aksu kindly allowed us to use them for dating.

Core: IMP 77-5-1 PC

Location: About 210 km southeast of Cumberland Sound
Lat: 62° 44.52'N **Long:** 60° 53.8'W **Water Depth:** 750 m

Date: 23,890 ± 260 **Lab. No:** AA-9356 **Corrected Age:** 23,440 ± 260
Depth: 350-352 cm **GRL**-988-S **Material:** Foraminifera

Weight: 5.4 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 400 sinistral, 3 dextral
Comment: (AEJ, JTA) Multiple paleoceanographic proxies from this 10.62 m piston core were presented by Aksu and Mudie (1985). The chronology of the core was based upon comparison with marine isotope stratigraphy because their research was conducted prior to AMS radiocarbon dating of small carbonate samples. Based on AA-9356, Andrews et al. (1994) revised the chronology of this core, from extension to marine isotope stage 9 to stage 2. Dates from several other cores described by Aksu and Mudie (1985) from the continental slope off of Cumberland Sound also are presented in this date list.

Core: HU75009-IV-054 PC

Location: About 460 km northeast of Cumberland Sound
Lat: 63° 46'N **Long:** 55° 09.78'W **Water Depth:** 1169 m

Date: 21,210 ± 190 **Lab. No:** AA-14203 **Corrected Age:** 20,760 ± 190
Depth: 50-52 cm **GRL-1090-S** **Material:** Foraminifera
Weight: 12.2 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 1200 specimens
Stratigraphic Relations: Within or at top boundary of DC event.
Comment: (JTA) The date constrains the termination of a proposed DC-event, pre-DC-2. See AA-13232 for complete write up.

Date: 22,210 ± 255 **Lab. No:** AA-8965 **Corrected Age:** 21,760 ± 255
Depth: 98-100 cm **GRL-979-S** **Material:** Foraminifera
Weight: 2.5 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed benthic and planktic species: 184 *N. pachyderma*, 30 *I. norcrossi*, 25 *M. zaandamae*, 18 *N. labradorica*, 7 *F. fusiformis*, 4 *B. elegantissima*, 3 *V. loeblichi*, 2 *E. excavata clavata*, 1 *C. teretis.*
Stratigraphic Relations: Base of Detrital Carbonate (DC) event 2. Provides timing of initiation of event.
Comment: (JTA) Since DC-2 occurs so close to the top of this core there is a good probability that this long core will provide a record of the earlier DC events. See AA-13232 for complete write up.

Date: 30,175 ± 405 **Lab. No:** AA-8966 **Corrected Age:** 29,725 ± 405
Depth: 197-200 cm **GRL-980-S** **Material:** Foraminifera
Weight: 11.5 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 999 specimens
Stratigraphic Relations: Close to or at upper boundary of DC-3?
Comment: (JTA) I suggest that this date defines the termination of DC-3. See AA-13232 for complete write up.

Date: >49,230 **Lab. No:** AA-13232
Depth: 400-405 cm **GRL-1076-S** **Material:** Foraminifera
Weight: 24 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 2000 specimens

Stratigraphic Relations: Sample from hemipelagic silty clay between DC-3? and DC-5? based on the core description.
Comment: (MEK) The unique location of core -054, near the mouth of the Davis Strait and south of Baffin Bay, provide an interesting opportunity to study the sedimentary sources, processes, and depositional environments associated with the DC-events north of the Hudson Strait. Core description, carbonate determination, and mass magnetic susceptibility combined show four detrital carbonate events: DC-2, DC-3, and DC-4. DC-2 and DC-3 are correlative with DC-2 and DC-3 in HU87033-009 and HU75009-IV-056 (Kirby, in prep.). However, DC-4 has not been sampled in other cores from the Labrador Sea. The date of >49.2 ka at 402.5 cm falls between DC-3 and DC-4. An estimated average sedimentation rate of 11.5 cm/ka for the whole core provides an extrapolated basal date of ca. 85 ka, making core -054 a promising prospect for complete glacial age coverage in the region.

BAFFIN BAY

Core: HU77029-017 PC

Location: About 130 km east of Cape Dyer
Lat: 66° 54.09'N **Long:** 58° 17.71'W **Water Depth:** 935 m

Date: 17,990 ± 110 **Lab. No:** CAMS-17400 **Corrected Age:** 17,540 ± 110
Depth: 900 cm **GRL-**1142-S **Material:** Foraminifera
Weight: 7.2 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 700 sinistral pachys
Sample Pre-treatment: Sample stored by Alan Nelson. Had been prepared by Aksu and given to Alan for amino acid analysis.
Comment: (JTA) This core is located just north of Davis Strait and is described in detail by Aksu (1985). The date is much younger than expected. Aksu noted an upper carbonate unit in this core--- this would appear to date from about 10-11 ka based on a date in Aksu (1985) and a new date we have obtained.

EASTERN BAFFIN ISLAND FIORDS

Sunneshine Fiord

Core: HU82031-SU5 G

Location: Central Sunneshine Fiord, eastern Cumberland Peninsula
Lat: 66° 33.4'N **Long:** 61° 42.6'W **Water Depth:** 146 m

Date: 2840 ± 60 **Lab. No:** CAMS-13511 **Corrected Age:** 2390 ± 60
Depth: 148-150 cm **GRL-**1088-S **Material:** Mollusc
Weight: 1.5 mg
Contributor(s): J.T. Andrews
Sample Notes: Bivalve fragment
Comment: See comment for AA-13052.

Core: HU82031-SU5 PC

Location: Central Sunneshine Fiord, eastern Cumberland Peninsula
Lat: 66° 33.4'N **Long:** 61° 42.6'W **Water Depth:** 155 m

Date: 6120 ± 80 **Lab. No:** CAMS-11814 **Corrected Age:** 5670 ± 80
Depth: 165 cm **GRL-1068-S** **Material:** Mollusc
Weight: **Species:** *Macoma sp.*
Contributor(s): J.T. Andrews
Sample Notes: NSRL-1661; weight not recorded.

Date: 9710 ± 60 **Lab. No:** CAMS-11815 **Corrected Age:** 9260 ± 60
Depth: 331 cm **GRL-1069-S** **Material:** Mollusc
Weight: **Species:** *Macoma sp.*
Contributor(s): J.T. Andrews
Sample Notes: NSRL-1662; weight not recorded.

Date: 10,430 ± 80 **Lab. No:** AA-13053 **Corrected Age:** 9980 ± 80
Depth: 445 cm **GRL-1065-S** **Material:** Mollusc
Weight: 14.8 mg **Species:** *Portlandia sp.*
Contributor(s): J.T. Andrews
Sample Notes: Fragile, well-preserved, disarticulated but paired valve of Portlandia sp., possibly P. intermedia.
Sample Pre-treatment: Sonicated in distilled water, leached 45% with HCl and washed in dw.
Stratigraphic Relations: From bioturbated silt, below a date of 9,000 +/- 360 (AA-0412) and a above date of 10,050 +/- 450 (AA-0264). 1 m of sediment was bypassed; thus, the depth for this sample relative to the sediment-water interface is 545 cm.

Date: 10,805 ± 80 **Lab. No:** AA-13054 **Corrected Age:** 10,355 ± 80
Depth: 618 cm **GRL-1066-S** **Material:** Mollusc
Weight: 25.9 mg **Species:** *Portlandia arctica*
Contributor(s): J.T. Andrews
Sample Notes: Single, fragile, thin-walled, well-preserved angular fragment of the central to outer portion of a valve, subsampled from a collection of several, angular fragile fragments of *P. arctica*, comprising at least three individuals.
Sample Pre-treatment: Sonicated in dw, leached 53% with HCl, and washed in dw.
Stratigraphic Relations: From silty sand near the base of the 8 m long core. This level is being redated to confirm a previously established C-14 age (10,050+/- 450; AA-0264) and to reduce the uncertainty in the chronology by obtaining a date with a smaller error. The top 1 m of sediment was bypassed by the core; the true depth for this sample is thus 718 cm.

Date: 11,060 ± 70 **Lab. No:** CAMS-17398 **Corrected Age:** 10,610 ± 70
Depth: 635-645 cm **GRL-1139-S** **Material:** Foraminifera
Weight: 7.6 mg
Contributor(s): J.T. Andrews
Sample Notes: Benthic species, mainly *Elphidium excavatum forma clavata* and *Islandiella norcrossi*

Date: 12,125 ± 90 **Lab. No:** AA-13052 **Corrected Age:** 11,675 ± 90
Depth: 752-760 cm **GRL-1045-S** **Material:** Foraminifera
Weight: 5.9 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixture of benthic foraminiferal species.

Comment: (JTA) The sequence of dates from this core extend those which were reported earlier in Andrews et al. (1985). Downcore analysis of pollen, carbonate content, and foraminifera show that relatively "non glacial" conditions were replaced very abruptly at about 11 to 10.6 ka by more "ice proximal" ones (Andrews et al., in press). It is unclear whether this change was related to a local advance of ice or a regional change in paleoceanography. Given the abrupt change in carbonate content it appears more likely that the changes reflect regional paleoenvironmental oscillations.

Maktak Fiord

Core: HU82031-MA2 PC

Location: Inner Maktak Fiord
Lat: 67° 19.7'N **Long:** 64° 33.6'W **Water Depth:** 257 m

Date: 7015 ± 65 **Lab. No:** AA-10117 **Corrected Age:** 5270 ±
Depth: 330-335 cm **GRL-905-O** **Material:** Organic Concentrate
Weight: 140 mg
Contributor(s): J.T. Andrews
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 µm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 µm sieve. < 125 µm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.

Date: 11,235 ± 95 **Lab. No:** AA-10118 **Corrected Age:** 8010 ±
Depth: 472-477 cm **GRL-906-O** **Material:** Organic Concentrate
Weight: 80 mg
Contributor(s): J.T. Andrews
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 µm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 µm sieve. < 125 µm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.

Date: 17,575 ± 185 **Lab. No:** AA-10119 **Corrected Age:** 12,130 ±
Depth: 1050 cm **GRL-907-O** **Material:** Organic Concentrate
Weight: 70 mg
Contributor(s): J.T. Andrews
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 µm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 µm sieve. < 125 µm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.
Comment: (JTA) These samples were processed in order to provide dates on the sediment sequence within Maktak Fiord (see also the comments on HU82031-MA4). Previous work showed that organic dates from marine sediments in this region are frequently too old (Andrews et al., 1985; Andrews, 1990). In order to provide more reliable age estimates these dates should be corrected using the regression established by Andrews et al. (1985) -- these dates are shown above as "corrected ages". Discussion of these dates and those from a companion core (MA4) are detailed in Syvitski and Andrews (1994).

Core: HU82031-MA4 PC

Location: Outer Maktak Fiord
Lat: 67° 18.9'N **Long:** 64° 17.0'W **Water Depth:** 333 m

Date: 7220 ± 65 **Lab. No:** AA-10120 **Corrected Age:** 5400 ±

Depth: 130 cm **GRL-908-O** **Material:** Organic Concentrate
Weight: 140 mg
Contributor(s): J.T. Andrews
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 μm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 μm sieve. < 125 μm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.

Date: 13,470 ± 105 **Lab. No:** AA-10121 **Corrected Age:** 9460 ±
Depth: 260 cm **GRL-909-O** **Material:** Organic Concentrate
Weight: 70 mg
Contributor(s): J.T. Andrews
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 μm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 μm sieve. < 125 μm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.

Date: 17,855 ± 145 **Lab. No:** AA-10122 **Corrected Age:** 12,310 ±
Depth: 970 cm **GRL-910-O** **Material:** Organic Concentrate
Weight: 60 mg
Contributor(s): J.T. Andrews
Sample Pre-treatment: Bulk sample air dried and disaggregated to <2000 μm. Disaggregated sediment dispersed with sodium pyrophosphate and wet-sieved through 125 μm sieve. < 125 μm sediment dried. Clay/humus layer recovered from surface of sediment, weighed, and sent for date.
Comment: (JTA) These samples were processed in order to provide dates on the sediment sequence within Maktak Fiord (see also the comments on HU82031-MA2). Previous work showed that organic dates from marine sediments in this region are frequently too old (Andrews et al., 1985; Andrews, 1990). In order to provide more reliable age estimates these dates should be corrected using the regression established by Andrews et al. (1985) -- these dates are shown above as the "Corrected Ages". Discussion of these dates and those from a companion core (MA4) are detailed in Syvitski and Andrews (1994).

EAST GREENLAND FJORDS, SHELF, AND SLOPE

Kangerdlugssuaq Fjord

Core: BS1191-K6 G

Location: Inner Kangerdlugssuaq Fjord near juncture with Courtauld Fjord
Lat: 68° 24.59'N **Long:** 32° 18.83'W **Water Depth:** 738 m

Date: 4110 ± 65 **Lab. No:** AA-9362 **Corrected Age:** ±
Depth: 2-7 cm **GRL-870-O** **Material:** Organic Concentrate
Weight: 0.9 mg
Contributor(s): J.T. Andrews
Sample Pre-treatment: Air dried sample disaggregated through <2000 μm sieve. Sediment dispersed with sodium pyrophosphate and wet sieved at 125 μm. Dried clay humus layer recovered for dating

Date: 6940 ± 75 **Lab. No:** AA-9363 **Corrected Age:** ±
Depth: 64-69 cm **GRL-871-O** **Material:** Organic Concentrate
Weight: 1.8 mg
Contributor(s): J.T. Andrews, N. Rynes

Sample Pre-treatment: Air dried sample disaggregated through <2000 µm sieve. Sediment dispersed with sodium pyrophosphate and wet sieved at 125 µm. Dried clay humus layer recovered for dating.
Comment: (JTA) K6 was the innermost site cored during the 1991 research cruise into Kangerdlugssuaq Fjord. Few foraminifera were found in the sediments, hence we decided to try to obtain dates from the acid-insoluble organic fraction of the sediment (Kihl, 1975). The core was raised from a part of the fjord within the Precambrian shield rocks of East Greenland (Brooks, 1979). However, the two dates indicate that there is a source of "old" carbon somewhere! This source might be at the fjord head or material may be advected in from the south. If we take the near surface date (4110 ± 65; AA-9362) to be modern and subtract this reported age from the age at 64-69 cm (6940 ± 75; AA-9363) we obtain an age estimate of 2830. This age would indicate a much slower rate of accumulation that measured at K8 on foraminifera. Though this discrepancy may be real, it also may be the result of unequal mixing of old and young organic matter with depth in the core, or it could be the result of sediment disturbance in the natural environment which is evident in this core.

Core: BS1191-K7 G

Location: Central Kangerdlugssuaq Fjord near juncture with Watkins Fjord
Lat: 68° 15.7'N **Long:** 30° 05.83'W **Water Depth:** 862 m

Date: 1310 ± 60 **Lab. No:** AA-10603 **Corrected Age:** 760 ± 60
Depth: 260-265 cm **GRL**-1003-S **Material:** Foraminifera
Weight: 2 mg
Contributor(s): J.T. Andrews, N. Rynes
Sample Notes: mixed forams, mainly benthics
Comment: (JTA) This core is close to the junction with Watkins Fjord. It is farther up fjord than BS1191-K8 (see this date list). The estimated rate of sediment accumulation of 3.4 m/ka is in keeping with its more ice proximal position (Andrews et al., 1994).

Core: BS1191-K8B G

Location: Mouth of Kangerdlugssuaq Fjord inside threshold
Lat: 68° 07.99'N **Long:** 31° 51.71'W **Water Depth:** 872 m

Date: 1155 ± 56 **Lab. No:** AA-11871 **Corrected Age:** 605 ± 55
Depth: 105-110 cm **GRL**-1031-S **Material:** Foraminifera
Weight: 1.0 mg **Species:** Mixed
Contributor(s): J.T. Andrews, N. Rynes

Date: 1390 ± 55 **Lab. No:** AA-11872 **Corrected Age:** 840 ± 55
Depth: 224-228 cm **GRL**-1032-S **Material:** Foraminifera
Weight: 4.6 mg
Contributor(s): J.T. Andrews, N. Rynes
Comment: (JTA) This fjord receives about 15 km^3 of ice discharge per year from a major outlet of the Greenland Ice sheet (Andrews et al., 1994; Dwyer, 1993). The two dates indicate that the rate of sediment accumulation is 3 m/ka, rather less than predicted based on sediment balance considerations.

Kangerdlugssuaq Trough

Core: BS1191-K5 G

Location: Middle Kangerdlugssuaq Trough
Lat: 67° 24.59'N **Long:** 31° 03.98'W **Water Depth:** 622 m

Date: 1000 ± 60 **Lab. No:** AA-9065 **Corrected Age:** 450 ± 60
Depth: 1.5-3.5 cm **GRL-984-S** **Material:** Foraminifera
Weight: 4.8 mg
Contributor(s): J.T. Andrews
Sample Notes: 2 small clams and mixed forams

Date: 5840 ± 120 **Lab. No:** AA-9066 **Corrected Age:** 5290 ± 120
Depth: 68-70 cm **GRL-985-S** **Material:** Foraminifera
Weight: 6.8 mg
Contributor(s): J.T. Andrews
Sample Notes: 572 *N. pachy.*, 362 mixed benthics
Comment: This date list presents two additional dates from this core on the middle East Greenland shelf. A basal date from the core cutter at ≥250 cm of 8825 ± 70 (reservoir corrected) (AA-8333) from this core was reported in the previous date list (Kaufman and Williams, 1992). The two additional dates indicate that the rate of sediment accumulation over the last 5000 years has been around 14 cm/ka.

Core: BS1191-K18B G

Location: Outer Kangerdlugssuaq Trough
Lat: 65° 57.77'N **Long:** 30° 38.00'W **Water Depth:** 470 m

Date: 1680 ± 50 **Lab. No:** AA-12892 **Corrected Age:** 1130 ± 50
Depth: 4-5.5 cm **GRL-1055-S** **Material:** Foraminifera
Weight: 3.4 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed forams
Comment: Replacement for attempted core top sample AA-11873 which did not produce a date. See AA-11875 for comments.

Date: 5215 ± 75 **Lab. No:** AA-14211 **Corrected Age:** 4665 ± 75
Depth: 37 cm **GRL-1099-S** **Material:** Foraminifera
Weight: 4.2 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 700 individuals, many broken and full of silt.
Comment: One of 6 levels dated in this core. See AA-11875 for comments.

Date: 9290 ± 80 **Lab. No:** AA-11874 **Corrected Age:** 8740 ± 80
Depth: 62 cm **GRL-1034-S** **Material:** Foraminifera
Weight: 3 mg **Species:** *Nonionellina labradorica*
Contributor(s): J.T. Andrews
Comment: One of 5 dates in this datelist on this core. See AA-11875 for comments.

Date: 9240 ± 90 **Lab. No:** AA-14212 **Corrected Age:** 8690 ± 90
Depth: 77 cm **GRL-1100-S** **Material:** Foraminifera
Weight: 3.5 mg

Contributor(s): J.T. Andrews
Sample Notes: Mixed benthic species.
Comment: One of five dates from this core in this date list. See AA-11875 for comments.

Date: 12,325 ± 80 **Lab. No:** AA-11875 **Corrected Age:** 11,775 ± 80
Depth: 97-98 cm **GRL**-1035-S **Material:** Foraminifera
Weight: 5.7 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed Forams
Comment: (JTA, TC) Three AMS 14-C dates were reported by Jennings in Kaufman and Williams (1992); all 3 of these samples came from core catcher sediments at ≥150 cm depth. The 5 additional samples (plus one very close to the core top which was not successful; AA-11873) add considerable detail to the chronology of sedimentation in this part of the Kangerdlugssuaq Trough. Sedimentation was relatively rapid between the core bottom and the 11.8 ka date at 98 cm. However, in the next 2 ka only 20 cm of sediment accumulated on the floor of the trough. The date near the core top of 1.2 ka (4-5.5 cm; AA-12892) indicates that this gravity core did not bypass much if any of the surface sediment.

Core: BS88-6-10A G

Location: Outer Kangerdlugssuaq Trough
Lat: 66° 12.5'N **Long:** 30° 39.5'W **Water Depth:** 496 m

Date: 12,210 ± 110 **Lab. No:** AA-14208 **Corrected Age:** 11,660 ± 110
Depth: 49-51 cm **GRL**-1096-S **Material:** Foraminifera
Weight: 5.2 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed benthic and planktic specimens

Date: 13,050 ± 140 **Lab. No:** AA-14209 **Corrected Age:** 12,500 ± 140
Depth: 88-90 cm **GRL**-1097-S **Material:** Foraminifera
Weight: 4.6 mg
Contributor(s): J.T. Andrews
Sample Notes: 2 species of benthic foraminifera: 415 *Elphidium excavatum clavata* and 75 *Nonionellina labradorica*
Comment: (JTA, TC) In a previous radiocarbon date list (Kaufman and Williams, 1992) we reported three AMS 14-C dates from this site. They have been discussed in three publications (Andrews et al., 1994; Williams, 1993; Mienert et al., 1992). The additional two dates (AA-14208 and AA-14209) which we obtained in 1994 were submitted to gain a better understanding of the chronology between 22 and ca. 103 cm core depth. These two new dates, together with the previous dates, indicate that sedimentation was relatively rapid between ca. 13 to 11.6 ka, but sediment accumulation was slow thereafter. Sediments deposited during the Younger Dryas chronozone (10 - 11 ka) must lie in the interval > 22 and < 40 cm.

Core: HU93030-19B BC

Location: Middle Kangerdlugssuaq Trough
Lat: 67° 08.73'N **Long:** 30° 49.34'W **Water Depth:** 713 m

Date: Modern ± **Lab. No:** AA-14214 **Corrected Age:** ±
Depth: 55-56 cm **GRL**-1102-S **Material:** Mollusc
Weight: 3.5 mg **Species:** *Thracia sp.*

Contributor(s): J.T. Andrews, A.E. Jennings
Comment: (JTA, AEJ) This box core was raised from the mid section of the Kangerdlugssuaq Trough. This date is a basal date from subcore B, taken for foraminiferal analysis. The post bomb date (is it a basal date?) is surprisingly young given the average dates from gravity core tops throughout the trough of around 1 ka (Williams et al., subm).

Core: PO175 / 1-5-1 G

Location: Middle Kangerdlugssuaq Trough
Lat: 66° 46'N **Long:** 30° 50'W **Water Depth:** 501 m

Date: 13,100 ± 110 **Lab. No:** AA-15687 **Corrected Age:** 12,550 ± 110
Depth: 29-30 cm **GRL**-1116-S **Material:** Foraminifera
Weight: 4.6 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed benthic and planktic foraminifera. Mainly *N. pachyderma* and *C. teretis*

Date: 11,995 ± 145 **Lab. No:** AA-15688 **Corrected Age:** 11,445 ± 145
Depth: 59-60 cm **GRL**-1117-S **Material:** Foraminifera
Weight: 4.0 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed benthic and planktic foraminifera. Mainly *N. pachyderma* and *C. teretis*
Comment: (AEJ, JTA) Four dates from this core were reported in the previous date list (Kaufman and Williams, 1993). This core has the longest chronology in the Kangerdlugssuaq Trough, extending to 14, 295 ± 190. The core site comprises glacial marine and Holocene sediments overlieing a unit interpreted to be glacial till. The sediments in the core do not appear to be ice proximal, suggesting that glacial ice retreat from the shelf occured well before 14,295 BP (Stein, in prep.). The two new dates reported in this date list introduce an age reversal; they do not overlap at two sigma. Stable istotope analyses on planktic foraminifera are underway.

East Greenland Slope

Core: HU93030-007 TWC

Location: South of Kangerdlugssuaq Trough
Lat: 65° 01.39'N **Long:** 30° 14.81'W **Water Depth:** 1802 m

Date: 15,270 ± 120 **Lab. No:** AA-13238 **Corrected Age:** 14,720 ± 120
Depth: 5-10 cm **GRL**-1082-S **Material:** Foraminifera
Weight: 16 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 802 specimens
Comment: See comment for AA-12898.

Core: HU93030-007 LCF

Location: South of Kangerdlugssuaq Trough
Lat: 65° 01.39'N **Long:** 30° 14.81'W **Water Depth:** 1802 m

Date: 17,165 ± 140 **Lab. No:** AA-15704 **Corrected Age:** 16,615 ± 140
Depth: 90 cm **GRL**-1133-S **Material:** Foraminifera

Weight: 7.0 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, T. Cooper
Sample Notes: 800 sinistral N. *pachyderma.*

Date: 19,635 ± 150 **Lab. No:** AA-13239 **Corrected Age:** 19,085 ± 150
Depth: 149-152 cm **GRL**-1083-S **Material:** Foraminifera
Weight: 6.7 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 749 specimens

Date: 22,110 ± 230 **Lab. No:** AA-15705 **Corrected Age:** 21,560 ± 230
Depth: 215 cm **GRL**-1134-S **Material:** Foraminifera
Weight: 9.1 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, T. Cooper
Sample Notes: 800 sinistral *N. pachyderma.*

Date: 22,225 ± 245 **Lab. No:** AA-15706 **Corrected Age:** 21,675 ± 245
Depth: 284 cm **GRL**-1135-S **Material:** Foraminifera
Weight: 8.3 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, T. Cooper
Sample Notes: 1100 sinistral *N. pachyderma.*

Date: 25,330 ± 310 **Lab. No:** AA-14215 **Corrected Age:** 24,780 ± 310
Depth: 340-342 cm **GRL**-1103-S **Material:** Foraminifera
Weight: mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Comment: Replacement for GRL 1084-S which was lost at ASU.

Date: 27,130 ± 335 **Lab. No:** AA-15707 **Corrected Age:** 26,580 ± 335
Depth: 375 cm **GRL**-1136-S **Material:** Foraminifera
Weight: 8.6 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, T. Cooper
Sample Notes: 800 sinistral *N. pachyderma.*

Date: 28,005 ± 350 **Lab. No:** AA-12898 **Corrected Age:** 27,455 ± 350
Depth: 445-448 cm **GRL**-1061-S **Material:** Foraminifera
Weight: 8.6 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): T. Cooper
Comment: (TC, JTA) The core site lies on the western flank of Denmark Strait, in a position to record changes in sediment provenance and water mass history associated with the history of glaciation on the East Greenland shelf (Funder, 1989). Dates from the top and base of this core indicate that it lies within marine isotope stage 2, extending from 14.7 to 27.5 ka. The core contains several distinct units in terms of color and magnetic susceptibility. Foraminiferal abundances, composition, and isotope stratigraphy were studied (Cooper, 1995). There are 8 radiocarbon dates on the planktic foraminifera *Neogloboquadrina pachyderma* from this core. There is only one dating reversal; AA-15706 at 284 cm dates at 26,680 whereas AA-14215 at 340-342 cm dates at 24,780. These two dates do not overlap at 2 sigma. The core contains two distinct brown layers with an increased coarse fraction relative to the surrounding sediments. These layers correspond in timing to Heinrich layers 2 and 3.

Mikis Fjord

Core: BS1191-K10 G

Location: Inner Mikis Fjord
Lat: 68° 09.51'N **Long:** 31° 23.7'W **Water Depth:** 122 m

Date: 10,530 ± 135 **Lab. No:** AA-8959 **Corrected Age:**
Depth: 0-10 cm **GRL-865-O** **Material:** Organic Concentrate
Weight: 86980 mg
Contributor(s): J.T. Andrews, T. Cooper
Sample Notes: sample weight =86.98 g
Sample Pre-treatment: Air dried sample disaggregated through <2000 µm sieve. Sediment dispersed with sodium pyrophosphate and wet sieved at 125 µm. Dried clay humus layer recovered for dating

Date: 12,220 ± 130 **Lab. No:** AA-8960 **Corrected Age:**
Depth: 194-199 cm **GRL-866-O** **Material:** Organic Concentrate
Weight: 125150 mg
Contributor(s): J.T. Andrews
Sample Notes: sample weight = 125.15 g.
Sample Pre-treatment: Air dried sample disaggregated through <2000 µm sieve. Sediment dispersed with sodium pyrophosphate and wet sieved at 125 µm. Dried clay humus layer recovered for dating
Comment: (JTA, TC) There were very few foraminifera in this core so we resorted to dating acid-insoluble organic matter (Kihl, 1975). However, the two date from this core (AA-8959 and AA-8960) are much older than would be expected and the difference in age between the surface (0-10 cm) and near the base of the core (194-199 cm) was only ca. 1700 yrs (Cooper, 1992). The results may indicate that sedimentation rates are large or that the mixing of old carbon with contemporaneous carbon is variable. The source for the "old" carbon may be the early Tertiary rocks that crop out within the drainage basin of Mikis Fjord (Brooks and Nielson, 1983).

Core: BS1191-K11A G

Location: Outer Mikis Fjord
Lat: 68° 06.94'N **Long:** 31° 25.9'W **Water Depth:** 244 m

Date: 1465 ± 55 **Lab. No:** AA-11585 **Corrected Age:** 915 ± 55
Depth: 14-16 cm **GRL-1011-S** **Material:** Foraminifera
Weight: 4 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed benthic species and *N. pachyderma*

Date: 9975 ± 100 **Lab. No:** AA-11584 **Corrected Age:** 9425 ± 100
Depth: 83-84 cm **GRL-1010-S** **Material:** Foraminifera
Weight: 3.0 mg
Contributor(s): J.T. Andrews, N. Rynes
Sample Notes: Mixed forams, benthics and planktonics
Comment: (JTA) In the previous date list (Kaufman and Williams, 1992) a reservoir corrected date of 8885 ± 50 (AA-8327) was reported from the base (67 cm) of a companion core. The date from the base of K11B is somewhat older, in keeping with its slightly deeper stratigraphic depth. The reservoir corrected date from 14-16 cm of only 915 ± 55 (AA-11585) suggests that recent rates of sediment accumulation have increased but are still significantly slower than those recorded

in the larger fjords to the south and north, i.e. Kangerdlugssuaq and Nansen fjords, respectively (Andrews et al., 1994; Jennings and Weiner, 1996).

Core: BS1191-K12 G

Location: Outermost Mikis Fjord
Lat: 68° 06.69'N **Long:** 31° 25.54'W **Water Depth:** 244 m

Date: 4040 ± 105 **Lab. No:** AA-9022 **Corrected Age:**
Depth: 0.5-5.5 cm **GRL-868-O** **Material:** Organic Concentrate
Weight: 92320 mg
Contributor(s): J.T. Andrews
Sample Notes: sample weight = 92.32 g
Sample Pre-treatment: Air dried sample disaggregated through <2000 µm sieve. Sediment dispersed with sodium pyrophosphate and wet sieved at 125 µm. Dried clay humus layer recovered for dating

Date: 4060 ± 105 **Lab. No:** AA-9024 **Corrected Age:**
Depth: 106.5-111.5 cm **GRL-869-O** **Material:** Organic Concentrate
Weight: 12942 mg
Contributor(s): J.T. Andrews
Sample Notes: sample weight 129.42 g
Sample Pre-treatment: Air dried sample disaggregated through <2000 µm sieve. Sediment dispersed with sodium pyrophosphate and wet sieved at 125 µm. Dried clay humus layer recovered for dating
Comment: (JTA) this core was taken close to cores BS1191-K11A and B (see this date list). There were too few foraminifera to provide any radiocarbon dates (Cooper, 1992). The acid-insoluble organic matter was extracted for dating these two samples at 0.5 to 5.5 cm and 106.5 to 111.5 cm) using the method of (Kihl, 1975). Despite being about 1 m apart in depth the two reported dates are identical. The age of 4040 ± 105 obtained from the surface sample suggests the presence of old carbon (see also BS1191-K6 and K10, this date list). The results from this core and from K6 and K10 indicate the futility of trying to obtain reliable age estimates from the organic fraction of cores in this sector of the east Greenland margin.

Nansen Fjord

Core: BS1191-K13B G

Location: Central Nansen Fjord
Lat: 68° 18.65'N **Long:** 29° 47.19'W **Water Depth:** 307 m

Date: 815 ± 55 **Lab. No:** AA-10566 **Corrected Age:** 265 ± 55
Depth: 157-158 cm **GRL-1000-S** **Material:** Mollusc
Weight: 2.5 mg
Contributor(s): A.E. Jennings
Sample Notes: unidentified Gastropod
Sample Pre-treatment: Sediment washed with distilled water on 63 µm sieve. Sand fraction air dried. Gastropod picked from sand with brush.
Comment: (AEJ) Gastropod younger than foraminifera date at same level; AA-10565. Correlation with BS1191-K14 suggests that this date is too young. Gastropod displaced during coring and/or shipping.

Date: 1450 ± 60 **Lab. No:** AA-10565 **Corrected Age:** 900 ± 60
Depth: 158-162 cm **GRL-999-S** **Material:** Mixed
Weight: 2.5 mg
Contributor(s): A.E. Jennings
Sample Notes: Mixed Benthic forams, mainly *Cassidulina teretis* and ostracod valves.
Stratigraphic Relations: Basal date from stratified diamicton with thin mud layers in high foram abundance zone dominated by *Cassidulina teretis.*
Comment: (AEJ) The basal date on this core substantiates the correlation with BS1191-K14 based on lithofacies and foraminifera (Jennings and Weiner, 1996). These two cores from Nansen Fjord yielded a high-resolution record of climatic change over the last millennium, providing evidence for an interval warmer than present during a Medieval Warm Period, and a climatic decline during a subsequent Little Ice Age.

Core: BS1191-K14 G

Location: Outer Nansen Fjord, at fjord mouth
Lat: 68° 11.49'N **Long:** 29° 35.74'W **Water Depth:** 459 m

Date: 855 ± 60 **Lab. No:** AA-12891 **Corrected Age:** 305 ± 60
Depth: 49-51 cm **GRL-1054-S** **Material:** Foraminifera
Weight: 2.3 mg
Contributor(s): A.E. Jennings
Sample Notes: Mixed benthic species, mainly *C. teretis*
Stratigraphic Relations: Top of stratified diamicton with thin mud layers recording onset of cold conditions.

Date: 1440 ± 70 **Lab. No:** AA-10567 **Corrected Age:** 855 ± 70
Depth: 114-117 cm **GRL-1001-S** **Material:** Foraminifera
Weight: 3.5 mg
Contributor(s): A.E. Jennings
Sample Notes: Benthic foraminifera, mainly *Cassidulina teretis*, and 4 ostracod valves.
Comment: (AEJ) A basal date on this core calibrated to AD 730 was reported in Kaufman and Williams (1992). The two dates reported in this date list are from lithofacies boundaries and are used by Jennings and Weiner (subm) to obtain a chronology of climatic changes in east Greenland associated with a Medieval Warm Period and a so-called Little Ice Age.

East Greenland Shelf, Other

Core: BS1191-K15 G

Location: Inner shelf in a trough off Nansen Fjord
Lat: 68° 06.0'N **Long:** 29° 27.16'W **Water Depth:** 445 m

Date: 85 ± 45 **Lab. No:** AA-11446 **Corrected Age:**
Depth: 6-9 cm **GRL-1005-S** **Material:** Foraminifera
Weight: 4.1 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed benthic species and *N. pachyderma*
Comment: Modern, post bomb. See Comment AA-11447.

Date: 8510 ± 90 **Lab. No:** AA-11684 **Corrected Age:**
Depth: 6-9 cm **GRL-911-O** **Material:** Foraminifera

Weight: 150 mg **Species:** *Rhabdamina sp.*
Contributor(s): J.T. Andrews
Sample Notes: Agglutinated forams as a test to see if these are possible to date.
Comment: Organic matter in agglutinated foraminifera came out much older than surface date on calcareous foraminifera of post bomb age. See Comment AA-11447.

Date: 8580 ± 70 **Lab. No:** AA-11447 **Corrected Age:** 8030 ± 70
Depth: 162-164 cm **GRL**-1006-S **Material:** Foraminifera
Weight: 2.3 mg
Contributor(s): J.T. Andrews
Sample Notes: Mixed benthic species and *N. pachyderma*
Comment: (AEJ) This 165 cm gravity core appears to contain a complete record of the last 8 ka. Calcareous foraminifera were corroded throughout and are rare in the upper pebbly mud lithofacies (0-60.5 cm). Calcareous foraminifera are more abundant in the underlying vaguely stratified mud lithofacies containing only scattered pebbles (60.5 to base). The age of the lithofacies boundary in not yet known.

ICELAND SHELF

Southwestern Iceland Shelf

Core: HU93030-004 G

Location: Jökuldjup, Faxafloí
Lat: 64° 17.99'N **Long:** 24° 14.09'W **Water Depth:** 254 m

Date: 7395 ± 70 **Lab. No:** AA-13236 **Corrected Age:** 6955 ± 70
Depth: 232.5-235 cm **GRL**-1080-S **Material:** Foraminifera
Weight: 12.3 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews, A.E. Jennings
Sample Notes: 800 specimens
Comment: See Comment AA-12896.

Core: HU93030-3I BC

Location: Jökuldjup, Faxafloí
Lat: 64° 18.00'N **Long:** 24° 13.90'W **Water Depth:** 250 m

Date: 880 ± 70 **Lab. No:** AA-14213 **Corrected Age:** 440 ± 70
Depth: 50-51 cm **GRL**-1101-S **Material:** Foraminifera
Weight: 5.0 mg
Contributor(s): J.T. Andrews, A.E. Jennings
Sample Notes: 3 species of benthic foraminifera: 630 *Hyalinea balthica*; 122 *Melonis zaandamae*; 28 *Uvigerina peregrina*
Stratigraphic Relations: Date from base of box core to tie chronology with trigger weight core 93030-006 TWC from the same site.
Comment: This date reveals ca. a 200 year gap between the base of the box core and the top of the TWC. See Comment AA-12896.

Core: HU93030-006 TWC

Location: Jökuldjup, Faxafloí
Lat: 64° 17.06'N **Long:** 24° 12.42'W **Water Depth:** 247 m

Date: 1055 ± 65 **Lab. No:** AA-13353 **Corrected Age:** 615 ± 65
Depth: 0-3 cm **GRL-**1087-S **Material:** Foraminifera
Weight: 5.6 mg
Contributor(s): J.T. Andrews, S. Hagen
Sample Notes: 117 *Anglulogerina*; 168 *Hyalinea balthica*; 20 *Pullenia bulloides*; 41 *Uvigerina peregrina*; 63 *Melonis zandaamae*
Stratigraphic Relations: Date from top of TWC to obtain date of surface sediment.
Comment: Based on age, may need to date top of Lehigh core to get age of very top of section. See Comment AA-12896.

Date: 3740 ± 60 **Lab. No:** CAMS-17399 **Corrected Age:** 3300 ± 60
Depth: 65 cm **GRL-**1140-S **Material:** Foraminifera
Weight: 3.56 mg **Species:** *Neogloboquadrina pachyderma*
Contributor(s): J.T. Andrews
Sample Notes: 800 dextral *N. pachyderma.*
Comment: See Comment AA-12896.

Date: 5300 ± 60 **Lab. No:** AA-13237 **Corrected Age:** 4860 ± 60
Depth: 98 cm **GRL-**1081-S **Material:** Mollusc
Weight: mg **Species:** *Astarte sp.*
Contributor(s): J.T. Andrews, S. Hagen
Sample Notes: 1 valve of a paired shell.
Sample Pre-treatment: Shell washed from enclosing sediment on 63 μm sieve with distilled water and air dried.
Stratigraphic Relations: Dating a possible high productivity zone in mid Holocene based on numbers of planktic foraminifera per gram.
Comment: See Comment AA-12896.

Date: 9565 ± 80 **Lab. No:** AA-15700 **Corrected Age:** 9125 ± 80
Depth: 183 cm **GRL-**1129-S **Material:** Foraminifera
Weight: 8 mg **Species:** *Melonis zaandamae*
Contributor(s): J.T. Andrews, S. Hagen
Sample Notes: 310 individuals from core catcher
Comment: See Comment AA-12896.

Core: HU93030-006 LCF

Location: Jökuldjup, Faxafloí
Lat: 64° 17.06'N **Long:** 24° 12.42'W **Water Depth:** 247 m

Date: 9825 ± 95 **Lab. No:** AA-15701 **Corrected Age:** 9385 ± 95
Depth: 110-112 cm **GRL-**1130-S **Material:** Foraminifera
Weight: mg **Species:** *Melonis zaandamae*
Contributor(s): J.T. Andrews, S. Hagen
Sample Notes: 210 Melonis
Comment: See Comment AA-12896.

Date: 10,310 ± 90 **Lab. No:** AA-15702 **Corrected Age:** 9870 ± 90

Depth: 163-165 cm **GRL-1131-S** **Material:** Foraminifera
Weight: 5.5 mg **Species:** *Melonis zaandamae*
Contributor(s): J.T. Andrews, A.E. Jennings
Sample Notes: 210 Melonis
Comment: See Comment AA-12896.

Date: 10,335 ± 95 **Lab. No:** AA-15703 **Corrected Age:** 9895 ± 95
Depth: 222-223 cm **GRL-1132-S** **Material:** Foraminifera
Weight: 2.9 mg
Contributor(s): J.T. Andrews, S. Hagen
Sample Notes: Benthic foraminifera.
Comment: See Comment AA-12896.

Date: 11,535 ± 85 **Lab. No:** AA-12897 **Corrected Age:** 11,095 ± 85
Depth: 625 cm **GRL-1060-S** **Material:** Foraminifera
Weight: 4.6 mg **Species:** *Elphidium excavatum*
Contributor(s): A.E. Jennings, J.T. Andrews
Sample Notes: 740 specimens
Comment: See Comment AA-12896.

Date: 13,105 ± 85 **Lab. No:** AA-12896 **Corrected Age:** 12,665 ± 85
Depth: core catcher **GRL-1059-S** **Material:** Foraminifera
Weight: 4.23 mg **Species:** *Nonionellina labradorica*
Contributor(s): A.E. Jennings, J.T. Andrews
Sample Notes: LCF, core catcher
Stratigraphic Relations: Basal date.
Comment: (AEJ, SH) This 13.16 m LCF core and associated TWC, Lehigh core and Box core were collected from the Iceland Shelf in 1993 during a CSS Hudson cruise led by James P.M. Syvitski and John T. Andrews (see Asprey et al. 1994, compilers). The lower dates suggest rapid latest Pleistocene to early Holocene sedimentation rates of several meters/ka. The sedimentation rates slow to ca 20 cm/ka after ca. 9 ka. Although several different types of cores were taken from the same site on the Iceland Shelf in order to collect a complete sediment section, careful stratigraphical analysis has shown that there is an estimated gap of 35 cm between the base of the TWC and the beginning of the undisturbed section of the LCF (Hagen, 1995).

Northwestern Iceland Shelf

Core: A9-92-455 G

Location: Shelf trough off of Isafjordjup, northwestern Iceland
Lat: 66° 32.9'N **Long:** 23° 47.27'W **Water Depth:** 182 m

Date: 1280 ± 45 **Lab. No:** AA-14681 **Corrected Age:** 840 ± 45
Depth: 24.5 cm **GRL-1109-S** **Material:** Mollusc
Weight: 12 mg **Species:** *Thysira sp.*
Contributor(s): A.E. Jennings, G. Helgadottir
Sample Notes: Articulated shell.
Sample Pre-treatment: cleaned; 46% leach in 2N HCl
Stratigraphic Relations: Upper unit in Isafjordjup shelf trough sequence: olive black soft, silty sand.
Comment: See Comment AA-14683.

Core: A9-92-456 G

Location: Shelf trough off of Isafjordjup, northwestern Iceland
Lat: 66° 25.1'N **Long:** 23° 37.06'W **Water Depth:** 183 m

Date: 10,510 ± 80 **Lab. No:** AA-14682 **Corrected Age:** 10,070 ± 80
Depth: 41-42 cm **GRL-**1110-S **Material:** Mollusc
Weight: 13.8 mg **Species:** *Yoldiella sp.*
Contributor(s): A.E. Jennings, G. Helgadottir
Sample Notes: Unpaired? bivalve
Sample Pre-treatment: 58% leach in 2N HCl
Stratigraphic Relations: Near top of black silty clay unit that underlies the uppermost olive black soft silty sand. Unit has high MS and terrigenous material.
Comment: See Comment AA-14683.

Date: 10,750 ± 70 **Lab. No:** AA-14683 **Corrected Age:** 10,310 ± 70
Depth: 115-116 cm **GRL-**1111-S **Material:** Mollusc
Weight: 32.9 mg **Species:** *Yoldia sp.*
Contributor(s): A.E. Jennings, G. Helgadottir
Sample Pre-treatment: 71% leach in 2N HCl
Stratigraphic Relations: In black terrigenous rich mud with high MS that underlies upper black sand unit with abundant foraminifera.
Comment: (AEJ) Three gravity cores from the shelf trough off of Isafjord are being jointly studied with Gudrun Helgadottir at the Iceland Marine Institute. The cores show two lithologic units. The upper unit, olive black silty sand, and shell hash is organic rich and bears abundant pteropods, molluscs, and foraminifera. This unit was dated in both A9-92-455 and -457 (AA-14681 and AA-14684, respectively). Both dates are less than 3 ka. The lower unit was recovered only in A9-92-456, a 160 cm core. It is terrigenous, black silty clay with thin sand layers. Two dates ca. 10 ka were obtained from this unit: AA-14682 and AA-14683. These dates suggest that sedimentation was rapid, ca. 3 m/ka, during emplacement of the unit.

Core: A9-92-457 G

Location: Shelf trough off of Isafjordjup, northwestern Iceland
Lat: 66° 25.0'N **Long:** 23° 36.70'W **Water Depth:** 178 m

Date: 3105 ± 50 **Lab. No:** AA-14684 **Corrected Age:** 2665 ± 50
Depth: 25 cm **GRL-**1112-S **Material:** Mollusc
Weight: 19.5 mg **Species:** *Dentalium sp.*
Contributor(s): A.E. Jennings, G. Helgadottir
Sample Notes: Scaphopod
Sample Pre-treatment: 82% leach 2N HCl
Comment: See Comment AA-14683.

PART 2: DATES FROM TERRESTRIAL SITES

UNGAVA PENINSULA AND UNGAVA BAY

Northern Ungava Peninsula

Cap Briard

Location: Between Baie de Déception and Cap de Nouvelle-France
Lat: 62° 18.5'N **Long:** 74° 00.7'W
Elevation: 108 m **Map Sheet:** 35J/8

Date: 9215 ± 80 **Lab No:** AA-7561 **Corrected Age:** 8765 ± 80
Field ID: CB-9 **Type:** Terrestrial Exposure **Depth:** 0 cm
AAL-6601A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 6.8 mg
Contributor(s): J.T. Gray, D.S. Kaufman, G.H. Miller
Sample Notes: Well preserved whole valve with periostracum
Sample Pre-treatment: 55% HCl leach after mechanical grinding
Stratigraphic Relations: Collected from glaciomarine silty clay beds in 2-m-high river-bank exposure, with shells in biocenotic position. Local postglacial marine limit associated with a fluvioglacial outwash delta is situated at 142 m, about 34 m higher than sample site. A previous date of 8.8 ka (TO-1274) is available for the site.
Comment: (JTG) This date from a single valve confirms, rather precisely, a previous date of 8.8 ka (TO-1274), obtained from a multi-valve 283 mg sample from the site. It confirms additional evidence from the Rivière Déception valley and from Cap de Nouvelle-France concerning the opening of the western basin of Hudson Strait to marine waters prior to 8.8 ka. The proximity of the site to a proglacial delta and the unique presence of *Portlandia arctica spp.* indicates, however, the close proximity of the Ungava based ice sheet, whose front lay immediately to the south. This date was reported in Gray et al. (1993).

Rivière Déception valley, Site RD3

Location: Mid-Rivière Déception valley, 15 km east of Baie de Déception, Northern Ungava
Lat: 62° 7.2'N **Long:** 74° 16.5'W
Elevation: 60 m **Map Sheet:** 35 J/1

Date: 8875 ± 110 **Lab No:** AA-8394 **Corrected Age:** 8425 ± 110
Field ID: RD-3-1B **Type:** Terrestrial Exposure **Depth:** 0 cm
AAL-6602C **AMS or Conv:** AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 9.7 mg
Contributor(s): J.T. Gray, D.S. Kaufman, G.H. Miller
Sample Notes: 1 articulated valve, more whitish appearance than others in collection, also larger with torn parisotrocum
Sample Pre-treatment: Acid leached 50% by weight
Stratigraphic Relations: Sample RD-3-1B is from a thin shell bed composed of *Portlandia arctica* and Yoldiella fraterna *spp.* in fine sands, 0.5 m above a transition to an 8-m-thick unit of slightly laminated silty clays of glaciomarine origin, overlying 6 m of till at the base of the section. The sample unit is overlain by 40 m of non-fossiliferous stratified sands, with a final *in situ* marine mollusc layer near the top surface of the deposit, dated at 7.0 ka (Beta-13860).
Comment: See below.

Date: 8995 ± 120 **Lab No:** AA-8395 **Corrected Age:** 8545 ± 120
Field ID: RD-3-1B **Type:** Terrestrial Exposure **Depth:** 0 cm
AAL-6602D **AMS or Conv:** AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 10.8 mg
Contributor(s): J.T. Gray, D.S. Kaufman, G.H. Miller
Sample Notes: 1 articulated valve, more whitish appearance than others in collection, also larger with torn parisotrocum
Sample Pre-treatment: Acid leached 33% by weight
Stratigraphic Relations: See stratigraphic relations for AA-8394.
Comment: See comment for AA-17262.

Date: 9325 ± 100 **Lab No:** AA-8393 **Corrected Age:** 8875 ± 100
Field ID: RD-3-1B **Type:** Terrestrial Exposure **Depth:** 0 cm
AAL-6602B **AMS or Conv:** AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 4.8 mg
Contributor(s): J.T. Gray, D.S. Kaufman, G.H. Miller
Sample Notes: 1 paired, articulated set of attached valves, perfectly preserved. Yellowish and translucent.
Sample Pre-treatment: Acid leached 21% by weight
Stratigraphic Relations: See stratigraphic relations for AA-8394.
Comment: See below.

Date: 11,125 ± 100 **Lab No:** AA-7562 **Corrected Age:** 10,675 ± 100
Field ID: RD-3-1B **Type:** Terrestrial Exposure **Depth:** 0 cm
AAL-6602A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 5.8 mg
Contributor(s): J.T. Gray, D.S. Kaufman, G.H. Miller
Sample Notes: Well preserved whole valve with periostracum
Sample Pre-treatment: 53% HCl leach after mechanical grinding
Stratigraphic Relations: See stratigraphic relations for AA-8394.
Comment: (JTG) This is one of two dates older than 10.7 ka obtained from the site. It suggests a very early opening of the western basin of Hudson Strait to marine influences - as early as 10.7 ka (Gray et al., 1993). This would likely have been prior to the Gold Cove advance in eastern Hudson Strait. See also comment below.

Date: 11,410 ± 130 **Lab No:** AA-17263 **Corrected Age:** 10,960 ± 130
Field ID: RD3-92-2B **Type:** Terrestrial Exposure **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 9.6 mg
Contributor(s): J.T. Gray, G.H. Miller, W.F. Manley
Sample Notes: small (4 mm x 7 mm), very fragile, articulated, paired valve
Sample Pre-treatment: Sonicated in DW; leached 38% with HCl; washed in DW.
Stratigraphic Relations: Sample RD3-92-2B is from a thin shell bed correlative with sample RD-3-1B. See stratigraphic relations for AA-8394.
Comment: (JTG) This is the oldest date obtained from the site. It suggests a very early opening of the western basin of Hudson Strait to marine influences - as early as 11 ka (Gray et al., 1993). This would likely have been prior to the Gold Cove advance in eastern Hudson Strait. See also comment below.

Date: 8715 ± 65 **Lab No:** AA-14686 **Corrected Age:** 8265 ± 65
Field ID: RD3-92-1L **Type:** Terrestrial Exposure **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 4.0 mg
Contributor(s): J.T. Gray, G.H. Miller, W.F. Manley

Sample Notes: small, single, fragile, well-preserved, whole valve; retains fine surface ornamentation
Sample Pre-treatment: Sonicated and washed in distilled water. No HCl leach.
Stratigraphic Relations: Sample RD3-92-1L is from level RD3-92-1L in faintly laminated silts, characterised by frequent but isolated and fragile bivalves of *Portlandia arctica*, situated about 2.5 m below the RD-3-1B shell bed which was in fine sands, which is overlain in turn by about 40 m of non-shell bearing layered sands, with a final marine shell layer near the top of the section dated at 7.0 ka (Beta-13860). Abundant foraminifera are associated with the RD3-92-1L level, which overlies almost 6 m of non-shell bearing clayey silts, barren of forams, and overlying in turn 6 m of till.
Comment: See below.

Date: 8785 ± 80 **Lab No:** AA-17260 **Corrected Age:** 8335 ± 80
Field ID: RD3-92-1LA **Type:** Terrestrial Exposure **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 4.4 mg
Contributor(s): J.T. Gray, G.H. Miller, W.F. Manley
Sample Notes: small (4 mm x 6 mm), intact, single, very fragile, well preserved valve with pearly luster, surface ornamentation (teeth), and periostracum
Sample Pre-treatment: sonicated in DW; leached 15% with HCl; washed in DW.
Stratigraphic Relations: From level RD3-92-1L. See stratigraphic relations for AA-14686.
Comment: See below.

Date: 9045 ± 80 **Lab No:** AA-17261 **Corrected Age:** 8595 ± 80
Field ID: RD3-92-1LB **Type:** Terrestrial Exposure **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 4.4 mg
Contributor(s): J.T. Gray, G.H. Miller, W.F. Manley
Sample Notes: small (4 mm x 7 mm), single, very fragile, well preserved valve with pearly luster, surface ornamentation (teeth), and periostracum; very slightly abraded around edges
Sample Pre-treatment: Sonicated in DW; leached 14% with HCl; washed in DW.
Stratigraphic Relations: From level RD3-92-1L. See stratigraphic relations for AA-14686.
Comment: See below.

Date: 9885 ± 170 **Lab No:** AA-17262 **Corrected Age:** 9435 ± 170
Field ID: RD3-92-1LP **Type:** Terrestrial Exposure **Depth:** 0 cm
AMS or Conv: AMS
Material: periostracum **Species:** *Portlandia arctica* **Weight:** 0.69 mg
Contributor(s): J.T. Gray, G.H. Miller, W.F. Manley
Sample Notes: nearly intact periostracum from large single valve (8 mm x 12 mm); very thin and fragile.
Sample Pre-treatment: Sonicated in DW; leached with 2N HCl; washed in DW.
Stratigraphic Relations: From level RD3-92-1L. See stratigraphic relations for AA-14686.
Comment: (JTG) It is interesting to note that this date of 9.4 ka is significantly older than three carbonate shell dates from the same level (which gave dates of 8.3, 8.3 and 8.6 ka; AA-17260, AA-14686, and AA-17261).

The interpretation of the sequence of events at the site is presently very difficult on account of the range of nine dates recently obtained from the University of Arizona accelerator facility (from 8.3-11.0 ka) for single or paired valves in the shell bed, and in a slightly lower silty clay layer. It is difficult to explain such a wide range of dates, if one assumes that the shells were all in a biocenotic population. One possible explanation is that a group of six younger dates between 8.3 and 8.9 ka (AA-14686, AA-17260, AA-8394, AA-8395, AA-17261, and AA-8393) represent the marine conditions prevailing at the end of a quiet deep water estuarine phase, characterised by the

slow deposition of silty clays, and at the beginning of a rapid phase of proglacial sub-aqueous deposition of sands. Three older dates between 9.4 ka and 11.0 ka (AA-17262, AA-7562, and AA-17263) may be indicative of transport of molluscs in soft muds by turbidity currents and subsequent re-deposition in higher stratigraphic positions. In any case the 8-m-thick layer of faintly laminated silty clays at the base of the sequence, below the shell beds, suggests the existence of a relatively long time interval prior to the deposition of the sub-aqueous sand plume, subsequent to 8.3 ka.

Wales Island

Location: SE Wales Island
Lat: 61° 52'N **Long:** 72° 04'W
Elevation: 208 m **Map Sheet:** 35H/16

Date: 38,700 ± 1200 **Lab No:** AA-10232 **Corrected Age:** 38,250 ± 1200
Field ID: WI-1 **Type:** Surface Collection **Depth:** 0 cm
AAL-6791B **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 23.0 mg
Contributor(s): J.T. Gray, D.S. Kaufman, G.H. Miller
Sample Notes: single shell fragment
Stratigraphic Relations: One of many shells from Wales Island and Maiden Island, screened with aminos (AAL-6790 to AAL-6794). Shell fragments and one whole valve of *Hiatella arctica* were taken from frost boils in a diamicton in a slight col between two low summits on a plateau situated at circa 210 m, about 60 m above the postglacial marine limit. Previous ages of 37 ka (UQ-967) and 31 ka (Beta-19857) from the site, and a date of 25 ka (Beta-19016) from a similar elevation on Maiden Island in the vicinity, suggest that marine conditions may have prevailed during the last interstadial in this sector of Hudson Strait. However, the amino acid D/L ratios obtained suggest the presence of multiple age populations at the site. What is particularly significant at the site is the close relationship of shell fragments to the 200 m elevation; a careful search in 1992 showed a total absence of shell fragments between the postglacial till washing limit at 150 m and the zone of abundant shell fragments around 200 m.
Comment: (JTG) The date of 38.7 ka is finite, but in this range could very well be related to a last interglacial rather than interstadial event. This interpretation is supported both by the majority of amino acid D/L values and by foraminiferal analyses of the enclosing sediments which according to Vilks (pers. comm.) reveal reworked fragments of species similar to Pliocene/Early Pleistocene assemblages reported by Feyling-Hanssen (1985) from Baffin Island.

Ungava Bay

Akpatok Island

Location: Just above the limit of postglacial sequence of raised beaches, within 1 m of postglacial marine limit.
Lat: 60° 34.4'N **Long:** 68° 10.1'W
Elevation: 76 m **Map Sheet:** 25B & C

Date: 8560 ± 70 **Lab No:** AA-14687 **Corrected Age:** 8110 ± 70
Field ID: AKP 92-72C **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Macoma calcarea* **Weight:** 21.5 mg
Contributor(s): J.T. Gray, G.H. Miller, W.F. Manley
Sample Notes: Small, single, slightly chalky, whole valve

Sample Pre-treatment: Mechanical grinding, 73% leach with HCl, then washed in distilled water.
Stratigraphic Relations: From frost boil of silt-rich diamicton at or just below the postglacial marine limit. A sequence of raised beaches lies just below the sample site. A higher sequence of probable older marine terraces extends from 80-100 m in elevation. Thus, the shell sample may be contemporaneous with beach deposition and open water shortly after deglaciation. Other dates from this site are: 11.9 ka (TO-1736) and 8.6 ka (TO-3764), the first on many small unidentified mollusc fragments, the second on two identifiable valves of *Portlandia arctica spp.*
Comment: (JTG) The age of 8.1 ka can be closely tied to final deglaciation of northernmost Akpatok Island. It confirms a previous date of 8.2 ka (TO-1737) obtained from *Macoma spp.* molluscs in a swale between high level postglacial beach ridges on NE Akpatok Island (Gray et al., 1993). The two previously dated *Portlandia spp.* fragments in the vicinity of AA-14687 are from a 1-m-thick calcareous diamicton, thought to be slightly reworked by northward moving ice. Their age of 8.6 ka appears to indicate an interval of overriding of glaciomarine silts just above the postglacial marine limit, between 8.6 and 8.1 ka. However no evidence exists at other dated sites further south on Akpatok Island for withdrawl of the Ungava Bay ice beyond the northern tip of Akpatok Island until final deglaciation subsequent to 8.1 ka.

SOUTHERN BAFFIN ISLAND

Foxe Peninsula

Mallikjuak Island

Location: Occupation floor, Thule House 7
Lat: 64° 14'N **Long:** 76° 35'W **UTMG:** VG 232 238
Elevation: 23 m **Map Sheet:** 36 C,D Foxe Peninsula

Date: 330 ± 50 **Lab No:** AECV-1707C
Field ID: LbFn-7-RC7-1 **Type:** Excavation **Depth:** -1.60 to -1.70 m DBD m
AMS or Conv: Conv
Material: Bone **Species:** *Rangifer tarandus* **Weight:** 181.1 g
Contributor(s): D.R. Stenton
Comment: (DRS) This is the only radiocarbon date obtained thus far for this Thule culture winter site located on Mallikjuak Island. The date is consistent with the artifact types recovered, which indicate an occupation during the late Thule period, betwwen the 15th and 17th centuries AD.

Meta Incognita Peninsula

Canon Inlet

Location: 4.0 km E of eastern tip of Glencoe Island
Lat: 63° 04.5'N **Long:** 71° 21.0'W **UTMG:** CV 810 962
Elevation: 63 m **Map Sheet:** 25M - Markham Bay

Date: 8130 ± 65 **Lab No:** AA-12610 **Corrected Age:** 7680 ± 65
Field ID: WM93-63A **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica*(?) **Weight:** 5.4 mg
Contributor(s): W.F. Manley

Sample Notes: A single, unpaired valve. A paleotaxodont, this specimen might be *Portlandia* lenticula. It is small, very fragile, and retains pearly luster and delicate surface ornamentation.
Sample Pre-treatment: Sonicated in distilled water, with 10% acid leach.
Stratigraphic Relations: From frost boils of gray silty diamicton containing calcareous matrix and limestone clasts. The deposit is interpreted as glaciomarine sediment.
Comment: (WFM) This date is the first radiocarbon date ever reported from 300 km of coastline between Big Island and Foxe Peninsula (Manley, 1995a; Manley, in press). It indicates that this area, close to the eastern limit of Markham Bay, deglaciated fairly early, during or shortly after the period of rapid collapse of the Laurentide Ice Sheet through Hudson Strait into Hudson Bay. It is identical to a date by Laymon (1988) from Foxe Peninsula, substantiating widespread margin retreat at the time, although this date refers to retreat of southwestward-flowing ice from a divide over western Meta Incognita Peninsula. Because it is on *Portlandia arctica*, a species that favors ice-proximal glaciomarine environments, it is probably a closely constraining minimum age on deglaciation.

Big Island

Location: Near the head of Bosanquet Harbour
Lat: 62° 40'N **Long:** 70° 28'W **UTMG:** DV 300 480
Elevation: -3.6 m **Map Sheet:** 25L - Big Island

Date: 6655 ± 65 **Lab No:** AA-7898 **Corrected Age:** 6205 ± 65
Field ID: WM91-58B **Type:** Surface Collection **Depth:** 5-15 cm
AAL-6687A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 56.1 mg
Contributor(s): W.F. Manley, D.S. Kaufman
Sample Notes: well preserved, angular hinge fragment
Sample Pre-treatment: mechanical cleaning and 60% HCl leaching
Stratigraphic Relations: Excavated from very compact, calcareous diamicton containing abundant limestone clasts; interpreted as glaciomarine sediment eroding from tidal flat.
Comment: See below.

Location: At the edge of tidal flat at the head of Bosanquet Harbour
Lat: 62° 41'N **Long:** 70° 27'W **UTMG:** DV 304 493
Elevation: -11 m **Map Sheet:** 25L - Big Island

Date: 7810 ± 70 **Lab No:** AA-7900 **Corrected Age:** 7360 ± 70
Field ID: WM91-60 **Type:** Surface Collection **Depth:** 10 cm
AAL-6689B **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 44.5 mg
Contributor(s): W.F. Manley, D.S. Kaufman
Sample Notes: Well preserved, robust hinge fragment
Sample Pre-treatment: mechanical cleaning and 60% HCl leaching
Stratigraphic Relations: Excavated from very compact, calcareous diamicton containing abundant limestone clasts; interpreted as glaciomarine sediment eroding from tidal flat.
Comment: See below.

Location: 7.0 km WSW of head of Bosanquet Hr, east-central Big Island; 40 km SW of Lake Harbour
Lat: 62° 37.2'N **Long:** 70° 29.3'W **UTMG:** DV 237 439
Elevation: 45 m **Map Sheet:** 25L - Big Island

Date: 7540 ± 130 **Lab No:** GSC-5677 **Corrected Age:** 7500 ± 65
Field ID: WM93-35 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: Conv
Material: Mollusc **Species:** *Mya truncata* **Weight:** 9.15 g
Contributor(s): W.F. Manley
Sample Notes: A single, well preserved, robust valve.
Sample Pre-treatment: Cleaned with distilled water, not leached with HCl.
Stratigraphic Relations: Found on frost boils of gray, silty, calcareous drift, interpreted as glaciomarine sediment, below the marine limit (95 m aht).
Comment: See below.

Location: 2.2 km S of head of Bosanquet Harbour, NE Big Island; 35 km SW of Lake Harbour.
Lat: 62° 37.8'N **Long:** 70° 22.4'W **UTMG:** DV 298 451
Elevation: 49 m **Map Sheet:** 25L - Big Island

Date: 7710 ± 190 **Lab No:** GSC-5699 **Corrected Age:** 7670 ± 95
Field ID: WM93-45 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: Conv
Material: Mollusc **Species:** mixed **Weight:** 5.39 g
Contributor(s): W.F. Manley
Sample Notes: Two robust, well-preserved, single valves: one is a whole *Hiatella arctica* valve; the other is a large fragment of a *Mya truncata* valve
Sample Pre-treatment: Shells cleaned with distilled water; 10% HCl leach at GSC lab
Stratigraphic Relations: Found on frost boils of gray, silty, calcareous drift, interpreted as glaciomarine sediment, below the marine limit (98 m aht).
Comment: See below.

Location: 7.5 km NE of mouth of Ashe Inlet, at confluence of two streams
Lat: 62° 36.0'N **Long:** 70° 30.1'W **UTMG:** DV 229 424
Elevation: 58 m **Map Sheet:** 25L - Big Island

Date: 8175 ± 95 **Lab No:** AA-12607 **Corrected Age:** 7725 ± 95
Field ID: WM93-40B **Type:** Terrestrial Exposure **Depth:** 3.5 m
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica*(?) **Weight:** 9.5 mg
Contributor(s): W.F. Manley
Sample Notes: Paired, articulated valve. A paleotaxodont, this specimen might be *Portlandia* lenticula. It is small, very fragile, and retains pearly luster and delicate surface ornamentation.
Sample Pre-treatment: Sonicated in distilled water, with 13% acid leach.
Stratigraphic Relations: From a massive, clay-rich, calcareous diamicton with few clasts of striated limestone, below the marine limit (98 m aht); interpreted as glaciomarine sediment
Comment: See below.

Location: 2.6 km SSW of head of Bosanquet Hr, northeastern Big Island; 36 km SW of Lake Harbour
Lat: 62° 37.8'N **Long:** 70° 23.7'W **UTMG:** DV 287 452
Elevation: 34 m **Map Sheet:** 25L - Big Island

Date: 8245 ± 75 **Lab No:** AA-13050 **Corrected Age:** 7795 ± 75
Field ID: WM93-21B **Type:** Surface Collection **Depth:** 0 cm

AMS or Conv: AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 49.6 mg
Contributor(s): W.F. Manley
Sample Notes: Portion of a single, robust, well-preserved valve.
Sample Pre-treatment: Mechanically cleaned, leached 74% with HCl, and washed in distilled water.
Stratigraphic Relations: Found on frost boils of gray, silty, calcareous drift, interpreted as glaciomarine sediment, below the marine limit (92 m aht).
Comment: See below.

Location: 5.0 km NE of Reeves Harbour, Big Island.
Lat: 62° 33.5'N **Long:** 70° 16.4'W **UTMG:** DV 344 371
Elevation: 55 m **Map Sheet:** 25L - Big Island

Date: 8555 ± 95 **Lab No:** AA-12609 **Corrected Age:** 8105 ± 95
Field ID: WM93-49A **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica*(?) **Weight:** 5.8 mg
Contributor(s): W.F. Manley
Sample Notes: A single, unpaired valve. A paleotaxodont, this specimen might be *Portlandia* lenticula. It is small, very fragile, and retains pearly luster and delicate surface ornamentation.
Sample Pre-treatment: Sonicated in distilled water, with 21% acid leach.
Stratigraphic Relations: From frost boils of gray silty diamicton containing calcareous matrix and limestone clasts, below the marine limit (115 m aht). The deposit is interpreted as glaciomarine sediment.
Comment: (WFM) Seven new dates from glaciomarine sediment on Big Island provide constraints on the timing of deglaciation and deposition from a nearby marine-based ice margin (Manley, 1995a, in press). The oldest, AA-12609, indicates that the area became free of southward flowing ice by 8.1 ka. The youngest, AA-7898, may have been on a shell that burrowed into older sediment. The others, ranging 7.8-7.4 ka, indicate that a calving marine margin existed nearby, delivering clasts of erratic Paleozoic carbonates, for several centuries after local deglaciation. Two of the dates are on *Portlandia sp.*, a genus that favors ice-proximal conditions. The calving margin may have marked retreat of northward-flowing ice during the Noble Inlet advance or retreat of a southeastward-flowing Hudson Strait ice stream. The dates augment the single radiocarbon date previously obtained from Big Island (7940±110; corrected; GSC-425; Blake, 1966), and generally support a relative sea-level curve constructed for nearby Lake Harbour (Clark, 1985; Manley, 1995). Two of the molluscs, collected from tidal flats, must have lived in water depths of 20-50 m, showing that molluscs without stratigraphic ties to strandlines provide only a minimum estimate for the height of a contemporaneous sea level.

Location: Just inland from the head of Bosanquet Harbour
Lat: 62° 38'N **Long:** 70° 29'W **UTMG:** DV 293 473
Elevation: 14 m **Map Sheet:** 25L - Big Island

Date: 34,790 ± 710 **Lab No:** AA-7899 **Corrected Age:** 34,340 ± 710
Field ID: WM91-59 **Type:** Surface Collection **Depth:** 0 cm
AAL-6688A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella*(?) *arctica* **Weight:** 37.1 mg
Contributor(s): W.F. Manley, D.S. Kaufman
Sample Notes: Angular fragments; good ornamentation; not hinges; probably *Hiatella*
Sample Pre-treatment: mechanical cleaning and 60% HCl leaching

Stratigraphic Relations: From surface of terrace with extensive frost-boils exposing calcareous, silty diamicton with abundant limestone clasts, below the marine limit (101 m aht), interpreted as glaciomarine sediment.
Comment: (WFM) Like many other dates older than 30 ka from the Hudson Strait coast of Baffin Island (Manley, 1995; in press), this date is at the reliable limit of radiocarbon dating for marine bivalves, and the shell might be significantly older than 34 ka. See comment for AA-7901 (Barrier Inlet).

Location: 6.5 km NNE of head of Ashe Inlet
Lat: 62° 36.0'N **Long:** 70° 32.3'W **UTMG:** DV 204 425
Elevation: 114 m **Map Sheet:** 25L - Big Island

Date: 37,760 ± 1050 **Lab No:** AA-12606 **Corrected Age:** 37,310 ± 1050
Field ID: WM93-38B **Type:** Surface Collection **Depth:** 0 cm
AAL-7113A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 24.2 mg
Contributor(s): W.F. Manley
Sample Notes: robust fragment, slightly chalky on outer surface
Sample Pre-treatment: mechanically cleaned; acid leach of 54%; washed in distilled water.
Stratigraphic Relations: From frost boils in gray, silty diamicton in area of thick drift (till) on ridge top, above marine limit (98 m aht), SSW of prominent valley. Nearby striations indicate southward flow into Hudson Strait. Taken ca. 150 west of WM93-38A.
Comment: See below.

Location: 6.5 km NNE of head of Ashe Inlet
Lat: 62° 36.0'N **Long:** 70° 32.2'W **UTMG:** DV 207 425
Elevation: 114 m **Map Sheet:** 25L - Big Island

Date: 43,750 ± 2100 **Lab No:** AA-12605 **Corrected Age:** 43,300 ± 2100
Field ID: WM93-38A **Type:** Surface Collection **Depth:** 0 cm
AAL-7108A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica*(?) **Weight:** 43.2 mg
Contributor(s): W.F. Manley
Sample Notes: Species ID based only on amino acid composition. Thick, well preserved fragment without hinge; fragment retained pearly luster on inner side and surface ornamentation (ridges) on outer side.
Sample Pre-treatment: mechanically cleaned; acid leach of 56%; washed in distilled water.
Stratigraphic Relations: From frost boils in gray, silty diamicton in area of thick drift (till) on ridge top, above marine limit (98 m aht), SSW of prominent valley. Nearby striations indicate southward flow into Hudson Strait. Taken ca. 150 east of WM93-38B.
Comment: (WFM) These two dates, on molluscs reworked into till, provide maximum ages for the southward flow documented nearby from striation measurments (cf., Manley et al., 1994; Manley, 1995; in press). They come from the only known site west of Barrier Inlet along the Hudson Strait coast of Baffin Island with molluscs above the marine limit. They indicate that southward flow began some time after ca. 40 ka. However, these dates are at the reliable limit of radiocarbon dating for marine bivalves, and the shells could be much older. Presumably they were reworked from the valley to the north, which today holds extensive deposits of glaciomarine sediment, including one sample dated >30 ka (AA-7899). Quite possibly the mid-Wisconsin or older shells were picked up and deposited during the Cockburn substage, 9-8 ka.

Anachauqmik

Location: 1.9 km NE of the mouth of Bruce Harbour; 13 km SW of Lake Harbour.
Lat: 62° 46.4'N **Long:** 70° 06.1'W **UTMG:** DV 438 593
Elevation: 39 m **Map Sheet:** 25L - Big Island

Date: 7380 ± 200 **Lab No:** GSC-5688 **Corrected Age:** 7340 ± 100
Field ID: WM93-17 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: Conv
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 4.00 g
Contributor(s): W.F. Manley
Sample Notes: Single, robust, well preserved valve.
Sample Pre-treatment: Shell cleaned with distilled water. Shell has not been leached with HCl.
Stratigraphic Relations: Found on frost boils of gray, silty, calcareous drift, interpreted as glaciomarine sediment, below the marine limit (98 m aht).
Comment: (WFM) Reported age is the AGE (corr.) value from the GSC, 13C corrected, normalized to ∂13C=0‰, with ±2 sigma. Date helps to confirm regional deglaciation by 8.1 ka, with local deglaciation perhaps centuries later, and timing of deposition from a limestone-bearing marine margin along the margins of Hudson Strait (northern Ungava Bay?) from 8 to 7 ka (Manley, 1995a; Manley, in press).

Lake Harbour

Location: 0.9 km east of Lake Harbour
Lat: 62° 47'N **Long:** 69° 50'W **UTMG:** DV 566 687
Elevation: 57 m **Map Sheet:** 25K - Lake Harbour

Date: 7995 ± 65 **Lab No:** AA-7892 **Corrected Age:** 7545 ± 65
Field ID: WM91-07 **Type:** Surface Collection **Depth:** 0 cm
AAL-6681A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 16.8 mg
Contributor(s): W.F. Manley, D.S. Kaufman
Sample Notes: 1 whole valve; well preserved, angular, but chalky.
Sample Pre-treatment: mechanical cleaning and 60% HCl leaching
Stratigraphic Relations: Collected from the surface of a dried pond below the marine limit. Depression contained cryoturbated, carbonate-rich glacial-marine drift.
Comment: See below.

Location: 1.1 km east-southeast of Lake Harbour
Lat: 62° 47'N **Long:** 69° 50'W **UTMG:** DV 566 683
Elevation: 73 m **Map Sheet:** 25K - Lake Harbour

Date: 8360 ± 60 **Lab No:** AA-7893 **Corrected Age:** 7910 ± 60
Field ID: WM91-08B **Type:** Surface Collection **Depth:** 0 cm
AAL-6682A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 25.1 mg
Contributor(s): W.F. Manley, D.S. Kaufman
Sample Notes: Worn hinge fragment
Sample Pre-treatment: mechanical cleaning and 60% HCl leaching
Stratigraphic Relations: Collected from the surface of a dried pond below the marine limit. Depression contained cryoturbated, carbonate-rich glacial-marine drift.

Comment: See below.

Location: In Soper Valley, 14.0 km NNE of Lake Harbour, 1.1 km W of the Soper River, 3.8 km due N of Flemming Hill
Lat: 62° 58.1'N **Long:** 69° 47.3'W **UTMG:** DV 597 820
Elevation: 35 m **Map Sheet:** 25K - Lake Harbour

Date: 8445 ± 55 **Lab No:** AA-10251 **Corrected Age:** 7995 ± 55
Field ID: WM92-23 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 21.3 mg
Contributor(s): W.F. Manley
Sample Notes: A large, thin, fragile valve from the collection; chalky surface with minor borings on surface
Sample Pre-treatment: mechanically cleaned, 60% leach, then washed in distilled water and stored in argon.
Stratigraphic Relations: From frost boils of silty clay with occasional clasts, including one clast of erratic Paleozoic limestone. Deposit, interpreted as glaciomarine sediment emanating mainly from a calving margin in the valley, forms a low-relief irregular surface within small drainage. Collected below local marine limit (102 m aht).
Comment: See below.

Location: 33 km ESE of Lake Harbour on "Lost and Found peninsula".
Lat: 62° 37'N **Long:** 69° 30'W **UTMG:** DV 763 428
Elevation: 0.3 m **Map Sheet:** 25K - Lake Harbour

Date: >43,700 ± **Lab No:** AA-7897
Field ID: WM91-51 **Type:** Surface Collection **Depth:** 0 cm
AAL-6686A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya* (?) *truncata* **Weight:** 15.7 mg
Contributor(s): W.F. Manley, D.S. Kaufman
Sample Notes: Well preserved angular fragments, not from hinge area, possibly *Mya.*
Sample Pre-treatment: mechanical cleaning and 60% HCl leaching
Stratigraphic Relations: From the surface of a small (6x2 m) pod of limey clay at 0.3 m aht.
Comment: (WFM) The Lake Harbour dates expand upon previous studies (Blake, 1966; Clark, 1985) to document the timing of deglaciation and history of relative sea-level change in the region (Manley, 1995a; Manley, in press). The dates confirm a >7.9 ka age for local deglaciation and establishment of the marine limit, and define sustained Holocene emergence. The date of 8.0 ka from the lowermost reaches of the Soper Valley suggests that the mouth of the valley, as a fiord, became deglaciated at about the same time as the nearby open coast. The shell yielding a non-finite date from glaciomarine sediment southeast of Lake Harbour may have been reworked from older deposits. See comment for AA-7901 (Barrier Inlet).

Barrier Inlet

Location: Collected from tidal flat at head of hook-shaped inlet, 9 km W of Barrier Inlet
Lat: 62° 23'N **Long:** 69° 01'W **UTMG:** DV 995 170
Elevation: -4 m **Map Sheet:** 25K - Lake Harbour

Date: >43,900 ± **Lab No:** AA-7901
Field ID: WM91-64A **Type:** Surface Collection **Depth:** 0 cm

AAL-6690A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 28.2 mg
Contributor(s): W.F. Manley, D.S. Kaufman
Sample Notes: well preserved, single, whole valve
Sample Pre-treatment: mechanical cleaning and 60% HCl leaching
Stratigraphic Relations: From the surface of very compact glaciomarine mud, containing abundant Paleozoic carbonate clasts, eroding from tidal flat
Comment: (WFM) Like many other dates older than 30 ka from the Hudson Strait coast of Baffin Island (Manley, 1995; in press), this date is at the reliable limit of radiocarbon dating for marine bivalves, and the shell might be significantly older than 44 ka. As with the other sites, this deposit might be 1) undisturbed mid-Wisconsin or older glaciomarine sediment, 2) late Wisconsin glaciomarine sediment with shells reworked from older sediment and transported to the site via iceberg rafting, or 3) late Wisconsin glaciomarine sediment with shells reworked from older sediment, deposited nearby in till, and reworked below the marine limit by nearshore processes during emergence. The older dates caution that glaciomarine deposits in the region may contain mixed-age assemblages of molluscs. Furthermore, a lack of dates in the 8.3-30 ka range suggests that the last major period of open water in northern Hudson Strait occurred during or before the mid-Wisconsin. A similar date, 30,160±750 (GSC-414; corrected; Blake, 1966), came from a site nearby at 64-72 m aht, apparently below the local marine limit of 72 m aht, and probably also on glaciomarine sediment.

Balcom Inlet

Location: 6.7 km ESE of eastern mouth of Balcom Inlet at head of smaller inlet
Lat: 62° 17.7'N **Long:** 68° 35.5'W **UTMG:** EV 21 07
Elevation: 12 m **Map Sheet:** 25K - Lake Harbour

Date: 7690 ± 90 **Lab No:** GSC-5526 **Corrected Age:** 7650 ± 45
Field ID: WM92-37B **Type:** Surface Collection **Depth:** 0 m
AMS or Conv: Conv
Material: Mollusc **Species:** *Mya truncata* **Weight:** 19.67 g
Contributor(s): W.F. Manley
Sample Notes: whole and fragmented valves; also includes about 20% *Hiatella arctica*; other taxa in collection but not in submitted sample include *Portlandia arctica*, Serripes groenlandicus, Chlamys islandicus, and brachiopods.
Sample Pre-treatment: fragments were washed in warm water, selectively ground with mechanical grinder to remove uncommon surface discolorations (lichen?), and rinsed in distilled water
Stratigraphic Relations: From drift in frost boils, interpreted as glaciomarine sediment. The drift forms a constructional terrace (12 m aht) below the local marine limit (43 m aht). A massive silty clay, the drift has a calcareous matrix but lacks Paleozoic carbonate erratics.
Comment: See below.

Location: 6.7 km ESE of eastern mouth of Balcom Inlet at head of smaller inlet
Lat: 62° 17.7'N **Long:** 68° 35.5'W **UTMG:** EV 21 07
Elevation: 19 m **Map Sheet:** 25K - Lake Harbour

Date: 8760 ± 65 **Lab No:** AA-10645 **Corrected Age:** 8310 ± 65
Field ID: WM92-37A **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 20.3 mg
Contributor(s): W.F. Manley

Sample Notes: Well preserved, fragile valve with "teeth" along hinge and pearly luster on inner side.
Sample Pre-treatment: Sonicated in distilled water; 60% leach.
Stratigraphic Relations: From drift in frost boils, interpreted as glaciomarine sediment. The drift forms a constructional terrace (12 to 19 m aht) below the local marine limit (43 m aht). A massive silty clay, the drift has a calcareous matrix but lacks Paleozoic carbonate erratics.
Comment: (WFM) These two dates come from the same constructional glaciomarine terrace. WM92-37A, from the highest part of the terrace, is the oldest postglacial date now available from Cape Dorset to Nannuk Harbour, and establishes the timing of deglaciation and formation of the marine limit in the Balcom Inlet area at or just before 8.3 ka. Given that this area was apparently scoured by the Noble Inlet advance (cf., Manley, 1993; 1995), the date indicates that the margin of northward flowing ice from the Ungava Bay region had retreated to an offshore position in Hudson Strait by 8.3 ka. WM92-37B, from the lower margin of the terrace, indicates that a marine-based ice-margin existed along the margins of the strait, delivering calcareous sediment to the area, until ca. 7.7 ka or later.

Location: 3.5 km NE of eastern mouth of Balcom Inlet, 8.6 km E of Inuit Islet
Lat: 62° 19.5'N **Long:** 68° 39.5'W **UTMG:** EV 18 11
Elevation: 56 m **Map Sheet:** 25K - Lake Harbour

Date: 30,790 ± 450 **Lab No:** AA-10252 **Corrected Age:** 30,340 ± 450
Field ID: WM92-65 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** unknown **Weight:** 9.8 mg
Contributor(s): W.F. Manley
Sample Notes: one of several very small, very thin, fragile shell fragments; retains fine surface ornamentation (fine ridges) and pearly luster
Sample Pre-treatment: washed & sonicated in dist. water, 50% HCl leach, then washed in dist. water, & stored in argon.
Stratigraphic Relations: From frost boils of silty clay; this deposit, interpreted as glaciomarine sediment, lacks clasts of Paleozoic limestone and forms an irregular valley fill in a small, steep drainage; sample collected below the local marine limit (67 m aht)
Comment: (WFM) Like many other dates older than 30 ka from the Hudson Strait coast of Baffin Island (Manley, 1995; in press), this date is at the reliable limit of radiocarbon dating for marine bivalves, and the shell might be significantly older than 30 ka. See comment for AA-7901 (Barrier Inlet). Note that this shell fragment was thin, displayed pearly luster, and retained fine surface ornamentation, suggesting it had not been reworked from older deposits, and might be *in situ*.

Gray Goose Islands

Location: 11.6 km WNW of mouth of Wight Inlet, at summit of prominent N-S trending ridge.
Lat: 62° 15.5'N **Long:** 68° 23.0'W **UTMG:** EV 31 03
Elevation: 74 m **Map Sheet:** 25K - Lake Harbour

Date: 39,145 ± 1180 **Lab No:** AA-11452 **Corrected Age:** 38,695 ± 1180
Field ID: WM92-57 **Type:** Surface Collection **Depth:** 0 cm
AAL-6954A **AMS or Conv:** AMS
Material: Mollusc **Species:** unknown **Weight:** 76.3 mg
Contributor(s): W.F. Manley
Sample Notes: Single, small fragment.

Sample Pre-treatment: Mechanically cleaned; 60% acid leach; washed in distilled water and stored in argon.
Stratigraphic Relations: From frost boils in gray, silty diamicton (till) above the marine limit (65 m). The diamicton contains clasts of erratic Paleozoic limestone and mollusc shells from the floor of Hudson Strait, both indicative of northward flow of an advance across Hudson Strait. However, striations at the site record only southward flow, which is presumably younger than the northward flow.
Comment: (WFM) Collected above the marine limit in till, this sample must predate the northward flow of the Noble Inlet advance documented in the region (Miller et al., 1988; Manley, 1995). However, as with several other shells from the north coast of Hudson Strait, this date is at the reliable limit of radiocarbon dating. The sampled shell could be mid-Wisconsin or older. Thus, this date cannot constrain a maximum age for the advance.

Wight Inlet

Location: 2.5 km NNW of mouth of Wight Inlet
Lat: 62° 14.0'N **Long:** 68° 14.0'W **UTMG:** EV 40 01
Elevation: 16 m **Map Sheet:** 25K - Lake Harbour

Date: 8045 ± 60 **Lab No:** AA-10649 **Corrected Age:** 7595 ± 60
Field ID: WM92-59B **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 39.3 mg
Contributor(s): W.F. Manley
Sample Notes: Fragment from single large, whole, well-preserved valve of M.t.. The shell retains surface ornamentation.
Sample Pre-treatment: Washed in distilled water; mechanically cleaned; 80% leach.
Stratigraphic Relations: From frost boils in silty glaciomarine sediment on gentle slope in lower part of a small drainage. Slope is prolific with shells, including *Pectin*, barnacles, brachiopods, *Astarte*, *Macoma*, and *Hiatella*. The glaciomarine sediments contain few clasts of erratic Paleozoic limestone.
Comment: (WFM) This date provides a minimum age for deglaciation of 7.6 ka and supports other dates from the region indicating deglaciation at about 8.1 to 8.3 ka (Manley, 1995a). It also provides an age for a relative sea level position at or above 16 m.

Location: 1.5 km NNW of mouth of Wight Inlet; summit of first prominent ridge on west side of inlet.
Lat: 62° 14.0'N **Long:** 68° 13.5'W **UTMG:** EV 41 00
Elevation: 83 m **Map Sheet:** 25K - Lake Harbour

Date: 35,280 ± 760 **Lab No:** AA-11451 **Corrected Age:** 34,830 ± 760
Field ID: WM92-54 **Type:** Surface Collection **Depth:** 0 cm
AAL-6953A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 29.1 mg
Contributor(s): W.F. Manley
Sample Notes: Single valve with slight yellowish discoloration through shell.
Sample Pre-treatment: Mechanically cleaned; 60% acid leach; washed in distilled water and stored in argon.
Stratigraphic Relations: From frost boils in gray, silty diamicton (till) above the marine limit (56 m). The diamicton contains clasts of erratic Paleozoic limestone and glacially transported mollusc shells from the floor of Hudson Strait. Like the striations measured at the site, the erratic

clasts and shells indicate northward flow of an advance across Hudson Strait onto southern Baffin Island.
Comment: See below.

Location: 7.0 km WNW of mouth of Wight Inlet, on hill just north of prominent cliff.
Lat: 62° 14.5'N **Long:** 68° 19.5'W **UTMG:** EV 35 01
Elevation: 65 m **Map Sheet:** 25K - Lake Harbour

Date: 40,760 ± 1450 **Lab No:** AA-11453 **Corrected Age:** 40,310 ± 1450
Field ID: WM92-58 **Type:** Surface Collection **Depth:** 0 cm
AAL-6955E **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 24.2 mg
Contributor(s): W.F. Manley
Sample Notes: Single valve with slight yellowish discoloration through shell.
Sample Pre-treatment: Mechanically cleaned; 60% acid leach; washed in distilled water and stored in argon.
Stratigraphic Relations: From frost boils in gray, silty diamicton (till) above the marine limit (60 m). The diamicton contains clasts of erratic Paleozoic limestone and valves of marine bivalves from the floor of Hudson Strait; the erratic clasts and shells are indicative of northward flow of an advance across Hudson Strait. However, striations at the site record both northward and southward flow, with southward flow presumably younger than the northward flow.
Comment: (WFM) Collected above the marine limit in till, these two samples must predate the northward flow of the Noble Inlet advance documented in the region (Miller et al., 1988; Manley, 1995). However, as with several other shells from the north coast of Hudson Strait, these dates are at the reliable limit of radiocarbon dating. The sampled shells could be mid-Wisconsin or older. Thus, the dates cannot constrain a maximum age for the advance.

Bond Inlet

Location: 3.0 km WNW of mouth of Bond Inlet, ca. 100 m W of boulder barricade damming lagoon.
Lat: 62° 12.3'N **Long:** 67° 50.8'W **UTMG:** EU 61 97
Elevation: 11 m **Map Sheet:** 25J - Grinnell Glacier

Date: 8525 ± 60 **Lab No:** AA-10648 **Corrected Age:** 8075 ± 60
Field ID: WM92-51 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 12.5 mg
Contributor(s): W.F. Manley
Sample Notes: Large, thin, very fragile, well preserved fragment comprising about one half of a single valve. Although the fragment lacks the hinge area, surface ornamentation and shape identify it as P.a..
Sample Pre-treatment: Sonicated in distilled water; 14% leach.
Stratigraphic Relations: From frost boils of gray silty clay on broad constructional glaciomarine terrace, below local marine limit of 46 m aht.
Comment: (WFM) Together with one other date (7315±105; corrected; AA-2625; Kaufman and Williams, 1992), this sample indicates that the Bond Inlet area became deglaciated at or shortly before 8.1 ka (Manley, 1995). On a species that favors ice-proximal environments, this date is probably a closely limiting minimum age for deglaciation and formation of the marine limit. Nearby, striations and limestone erratics indicate the area was last scoured by northward flow across Hudson Strait, probably the Noble Inlet advance (cf., Miller et al., 1988; Manley, 1993).

Thus, the dates indicate that by 8.1 ka the margin of northward-flowing ice had retreated to an offshore position in Hudson Strait.

Location: 4.0 km SE of the mouth of Bond Inlet
Lat: 62° 10.0'N **Long:** 67° 44.4'W **UTMG:** EU 66 93
Elevation: 47 m **Map Sheet:** 25J - Grinnell Glacier

Date: 34,710 ± 690 **Lab No:** AA-10646 **Corrected Age:** 34,260 ± 690
Field ID: WM92-41A **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** unknown **Weight:** 25.5 mg
Contributor(s): W.F. Manley
Sample Notes: Thin, 1.0-cm-wide, fragile fragment with fine surface ornamentation.
Sample Pre-treatment: Mechanically cleaned, 60% acid leach, washed in distilled water and stored in argon.
Stratigraphic Relations: From frost boils of gray silt with common clasts of Paleozoic limestone, interpreted as glaciomarine sediment. Sample taken from uppermost limit of deposit, just below the marine limit, which was measured nearby at 48 m aht.
Comment: (WFM) Like many other dates older than 30 ka from the Hudson Strait coast of Baffin Island (Manley, 1995; in press), this date is at the reliable limit of radiocarbon dating for marine bivalves, and the shell might be significantly older than 34 ka. See comment for AA-7901 (Barrier Inlet). This sample illustrates that fragility and fine surface ornamentation do not guarantee that a shell is Holocene in age. These characteristics, however, suggest that the shell is from an undisturbed mid-Wisconsin or older deposit. Kaufman and Williams (1992) reported a similar date (38,550±1800; corrected; AA-2224) from nearby glaciomarine sediment.

Location: 4.4 km WNW of mouth of Bond Inlet
Lat: 62° 12.5'N **Long:** 67° 52.5'W **UTMG:** EU 59 97
Elevation: 71 m **Map Sheet:** 25J - Grinnell Glacier

Date: 31,065 ± 455 **Lab No:** AA-11450 **Corrected Age:** 30,615 ± 455
Field ID: WM92-53B **Type:** Surface Collection **Depth:** 0 cm
AAL-6952D **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 34.0 mg
Contributor(s): W.F. Manley
Sample Notes: Single valve with slight yellowish discoloration through shell.
Sample Pre-treatment: Mechanically cleaned; 60% acid leach; washed in distilled water and stored in argon.
Stratigraphic Relations: From frost boils in gray, silty diamicton (till) containing Paleozoic carbonate clasts, above the marine limit (44 m).
Comment: See below.

Location: Summit of island 1 km W of Saddleback Island, 9.0 km SW of mouth of Bond Inlet.
Lat: 62° 09.3'N **Long:** 67° 56.8'W **UTMG:** EU 55 92
Elevation: 57 m **Map Sheet:** 25J - Grinnell Glacier

Date: 24,035 ± 240 **Lab No:** AA-10647 **Corrected Age:** 23,585 ± 240
Field ID: WM92-42 **Type:** Surface Collection **Depth:** 0 cm
AAL-6951D **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 37.3 mg

Contributor(s): W.F. Manley
Sample Notes: Portion of a large (ca. 1.5-cm-wide), thick, moderately abraded fragment with patches of fine surface ornamentation; outer surface slightly chalky; from same fragment as AA-12608.
Sample Pre-treatment: Mechanically cleaned, acid leach of 80%, then washed in distilled water.
Stratigraphic Relations: From frost boils of gray, silty diamicton (till) containing clasts of Paleozoic carbonate, above the marine limit (50 m aht).

Date: 34,820 ± 730 **Lab No:** AA-12608 **Corrected Age:** 34,370 ± 730
Field ID: WM92-42 **Type:** Surface Collection **Depth:** 0 cm
AAL-6951D **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 15.8 mg
Contributor(s): W.F. Manley
Sample Notes: Portion of a large (ca. 1.5-cm-wide), thick, moderately abraded fragment with patches of fine surface ornamentation; outer surface slightly chalky; from same fragment as AA-10647.
Sample Pre-treatment: Mechanically cleaned, acid leach of 44%, then washed in distilled water.
Stratigraphic Relations: From frost boils of gray, silty diamicton (till) containing clasts of Paleozoic carbonate, above the marine limit (50 m aht).
Comment: (WFM) Three new dates on molluscs from till in the Bond Inlet area help little to constrain the onset of the last glacial event to scour the area. Collected above the marine limit in till, the shells must predate the last advance across the region. Nearby striations and erratic limestone clasts suggest that this was the Noble Inlet advance (cf., Miller et al., 1988; Manley, 1995). However, the dates are near the reliable limit of radiocarbon dating, and the shells could be mid-Wisconsin or older, and thus do not closely constrain a late Wisconsin or Cockburn-age event. One of the shells (AA-10647) provided the only date on marine shell from Baffin Island within the range of 30-12 ka, seemingly indicating a previously undocumented late Wisconsin period of open water in Hudson Strait. However, because this result was suspect for its uniqueness, another portion of the same mollusc fragment was submitted; the result, AA-12608, implies that AA-10647 was inaccurate.

Pritzler Harbour

Location: NE head of Pritzler Harbour at mouth of outflow of small lake
Lat: 62° 08'N **Long:** 67° 22'W **UTMG:** EU 848 925
Elevation: -3 m **Map Sheet:** 25J - Grinnell Glacier

Date: 8325 ± 60 **Lab No:** AA-17258 **Corrected Age:** 7875 ± 60
Field ID: M86-BS45 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 11.5 mg
Contributor(s): W.F. Manley, G.H. Miller
Sample Notes: hinge fragment of a small single valve; slightly abraded; medium to thick walled
Sample Pre-treatment: Mechanically ground; sonicated in DW; leached 82% with HCl; washed in DW.
Stratigraphic Relations: Excavated from drift 3 m below high tide; *Portlandia arctica* common in sediment. Drift is over consolidated, compact, impermeable. AA-2349, 8,050 ± 90 yr BP collected 0.5 m higher in section; AA-6299, 7915 ± 75 collected 1.5 m higher in section. AA-6301 (9010±95) from same stratigraphic level (Kaufman and Williams, 1992). (All dates corrected). This fragment taken from sediment sample (GRL-4911).

Comment: (WFM, GHM) Anomalously young for chronology previously established for the site by three dates. The shell was taken from an archived sample bag of shells screened from a sediment sample. The sediment sample was taken from the same, lowest horizon previously sampled and dated. Perhaps shells from other sediment samples at the site were mistakenly included also, or perhaps the sediment sample included shell float from higher in the section.

Nannuk Harbour

Location: Ca. 2.5 km N of head of Nannuk Harbour
Lat: 61° 56.5'N **Long:** 66° 18.8'W **UTMG:** FU 41 70
Elevation: 120-140 m **Map Sheet:** 25J - Grinnell Glacier

Date: 100 ± 40 **Lab No:** AA-17256
Field ID: M81-BSh49 **Type:** Surface Collection **Depth:** 0 cm
AAL-7266A **AMS or Conv:** AMS
Material: Mollusc **Species:** unknown **Weight:** 11.1 mg
Contributor(s): W.F. Manley, G.H. Miller
Sample Notes: small, slightly abraded fragment retaining slight pearly luster and surface ornamentation (growth ridges); less abraded than others in collection; portion of fragment archived.
Sample Pre-treatment: Leached 59% in HCl; washed in DW.
Stratigraphic Relations: From calcareous, limestone-rich till well above local marine limit (33 m aht). D/L ratio of 0.021 indicates the fragment is one of the youngest shell fragments reworked into till in the region.
Comment: (WFM, GHM) Anomalously young date that is not consistent with the sample context.

Location: Near the head of Nannuk Harbour.
Lat: 61° 55.3'N **Long:** 66° 19.4'W **UTMG:** FU 377 700
Elevation: 180 m **Map Sheet:** 25J - Grinnell Glacier

Date: >37,000 ± **Lab No:** GX-8942
Field ID: M81-BSh56 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: Conv
Material: Mollusc **Species:** *Hiatella arctica*
Contributor(s): G.H. Miller, W.F. Manley
Sample Notes: Small sample of shell fragments.
Stratigraphic Relations: Large, robust fragments of H.a. from limestone-rich till west of Nannuk Harbour.
Comment: (WFM, GHM) This date was first reported in Miller (1985). From till well above the local marine limit of 33 m aht, these fragments should predate the northward flow of the Noble Inlet advance (Miller et al., 1988; Manley, 1995a). However, the fragments could be mid-Wisconsin or older, and do not constrain the onset of the advance. See also comment for AA-7901 (Barrier Inlet).

East of South Reefs

Location: 6 km ENE of South Reefs, 16 km SSW of mouth of Noble Inlet.
UTMG: FU 507 632
Elevation: 19 m **Map Sheet:** 25J - Grinnell Glacier

Date: 38,620 ± 1110 **Lab No:** AA-14027 **Corrected Age:** 38,170 ± 1110
Field ID: M81-BSh44 **Type:** Terrestrial Exposure **Depth:** 17 m
AAL-7378A **AMS or Conv:** AMS
Material: Mollusc **Species:** unknown **Weight:** 20.4 mg
Contributor(s): G. H. Miller, W.F. Manley
Sample Notes: Small, tabular, slightly abraded, slightly rounded fragment with minor surface ornamentation preserved.
Sample Pre-treatment: Mechanically cleaned, leached 80% with HCl, and washed with distilled water.
Stratigraphic Relations: From pebbly gravel in central portion of upper face of an ice-contact delta; shells seem transported, and probably predate the ice-marginal position at the delta. Geomorphic and stratigraphic relations suggest that ice lay to the south. Total D/L is 0.032.
Comment: (WFM, GHM) This sample provides a maximum age for the ice-contact delta, which seemed to delineate a recessional ice-marginal position, established by ice flowing northward across Hudson Strait, during the closing stages of the Noble Inlet advance (Manley, 1995a). However, the dated shell, like others from the region, records a mid-Wisconsin or older period of open-water in Hudson Strait, and does not constrain the age of the delta. We interpret that it was reworked from older sediment into a Cockburn-age (9-8 ka) feature.

Lower Savage Islands

Location: 12.0 km due south of northern tip of Lower Savage Islands; along channel separating western from central islands in group
Lat: 61° 46.9'N **Long:** 65° 47.6'W **UTMG:** LD 527 528
Elevation: 3.0 m **Map Sheet:** 25H - Resolution Island

Date: 24,780 ± 230 **Lab No:** AA-15132 **Corrected Age:** 24,330 ± 230
Field ID: M81-BSh58 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** unknown **Weight:** 7.3 mg
Contributor(s): G.H. Miller, W.F. Manley
Sample Notes: Small (0.3 x 0.3 cm) shell fragment with surface ornamentation (growth ridges) moderately well preserved.
Sample Pre-treatment: Mechanically ground, leached 42% with HCl, and washed in distilled water.
Stratigraphic Relations: From surface of limestone-bearing till overlying striated bedrock; nearby marine limit is at or below modern mht.
Comment: (WFM) Probably a minimum age, this date does not help to costrain the onset of the Noble Inlet advance, and like many other dates on shells from till deposited by the advance, indicates that mid-Wisconsin or older deposits were reworked by the advance (Manley, 1995a).

Edgell Island

Location: At head of small inlet on SW coast of Edgell Island.
Lat: 61° 46.5'N **Long:** 65° 00'W
Elevation: 20 m **Map Sheet:** Resolution Island

Date: 9480 ± 80 **Lab No:** AA-16405 **Corrected Age:** 9030 ± 80
Field ID: EDG 94-1E **Type:** Surface Collection **Depth:** 0 cm
AAL-7554E **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata*? **Weight:** 19.5 mg
Contributor(s): J.T. Gray, G.H. Miller, W.F. Manley

Sample Notes: thick, slightly chalky fragment of M.t.?
Sample Pre-treatment: Mechanically ground, leached 80% with HCl, and washed in distilled water.

Date: 9600 ± 140 **Lab No:** AA-16404 **Corrected Age:** 9150 ± 140
Field ID: EDG 94-1E **Type:** Surface Collection **Depth:** 0 cm
AAL-7554B **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 22.7 mg
Contributor(s): J.T. Gray, G.H. Miller, W.F. Manley
Sample Notes: well preserved but slightly chalky hinge fragment
Sample Pre-treatment: Mechanically ground, leached 69% with HCl, and washed in distilled water.
Stratigraphic Relations: On the surface of a silty frost boil, at the transition between a former baymouth bar and a thinly till-covered slope. Well defined washing limit representing postglacial marine limit is at 21 m ahwm (only 1 m higher than sample site). As large tidal range is circa 6 m, shells may have been moved up the tidal mudflats by wave and ice-action from an initial position at or below the low tide zone. Other fragments present at the site include *Hiatella arctica* and *Balanus spp.*
Comment: (JTG) Two *Mya* fragments were in fact dated after being subjected to amino acid D/L analyses (AAL-7554B and AAL-7554E). The two dates from Edgell Island -- AA-16404 and AA-16405 -- indicate the establishment of open water marine conditions in northern Hudson Strait near the entrance to Frobisher Bay towards 9.0-9.1 ka. The edge of the Hudson Strait ice sheet had to be situated some distance to the south of Edgell Island, in order to permit the establishment of suitable marine conditions propitious to the variety of shell species (*Mya, Hiatella* and *Balanus*), and foraminifera found at the site. The dates constrain the retreat of Laurentide ice, after the Gold Cove advance onto southern Hall Peninsula. They do not provide evidence for the subsequent Noble Inlet re-advance northwards to the vicinity of Edgell Island and SW Resolution Island.

Noble Inlet

Location: 1.8 km W of Palmer Island, at head of "Finger inlet", east of Noble Inlet.
UTMG: FU 55 86
Elevation: 10 m **Map Sheet:** 25J - Grinnell Glacier

Date: 8780 ± 230 **Lab No:** GX-13022 **Corrected Age:** 8330 ± 230
Field ID: M86-BS5 **Type:** Terrestrial Exposure **Depth:** 4 m
AMS or Conv: Conv
Material: Mollusc **Species:** *Hiatella arctica*
Contributor(s): G.H. Miller, W.F. Manley
Sample Notes: Paired valves.
Stratigraphic Relations: Paired valves of H.a. collected from laminated fine marine sands overlying till in a small inlet off Kendall Strait. Nearby marine limit is ca. 50 m aht.
Comment: (WFM, GHM) This date, first published in Miller et al. (1988) but not in any previous INSTAAR Date List, provides the oldest date on retreat from the Noble Inlet advance, and provides a minimum age for complete deglaciation of Kendall Strait (Manley, 1995a). The date also constrains the timing of a relative sea level at 14 m aht.

Location: "Gravelly Cut & Fill delta" at head of small inlet 7 km south of mouth of Noble Inlet.
UTMG: FU 560 730
Elevation: 19 m **Map Sheet:** 25J - Grinnell Glacier

Date: 8905 ± 65 **Lab No:** AA-14028 **Corrected Age:** 8455 ± 65
Field ID: M81-BSh61 **Type:** Excavation **Depth:** 0-10 m
AAL-7379D **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica*? **Weight:** 15.6 mg
Contributor(s): W.F. Manley, G.H. Miller
Sample Notes: Small, relatively fresh fragment.
Sample Pre-treatment: Mechanically cleaned, leached 64% with HCl, and washed with distilled water.
Stratigraphic Relations: From gravelly sand and cobble gravel (with limestone) of wave-cut face of ice-marginal delta recording sea level at 24 m aht. Delta is inset with a smaller, lower delta that records regression below 0 m aht, then transgression to 9 m, then regression to 0 m. Total D/L of 0.021.
Comment: (WFM, GHM) This delta was formed when ice lay within ca. 2 km to the south or west, diverting meltwater and sediment into a valley close to southeastern tip of Meta Incognita Peninsula (Miller and Stravers, 1987; Miller et al., 1988; Manley, 1995a). We interpret that the dated shell was coeval with deposition of the delta, and that northward-flowing ice of the Noble Inlet advance or a subsequent, residual ice mass remained in this area until this time.

Location: Hill 1.5 km N of Noble Inlet "Cut & Fill delta", on peninsula jutting into upper Noble Inlet.
UTMG: FU 492 885
Elevation: 72 m **Map Sheet:** 25J - Grinnell Glacier

Date: 9065 ± 80 **Lab No:** AA-14024 **Corrected Age:** 8615 ± 80
Field ID: M81-BSh30 **Type:** Surface Collection **Depth:** 0 cm
AAL-7375A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 24.6 mg
Contributor(s): W.F. Manley, G.H. Miller
Sample Notes: Large fragment with surface ornamentation.
Sample Pre-treatment: Mechanically cleaned, leached 87% with HCl, and washed with distilled water.
Stratigraphic Relations: From frost boils of silty till above marine limit (42 m aht) near the ice-contact, "Cut & Fill delta". Total D/L ratio is 0.022.
Comment: (WFM, GHM) Provides maximum age for onset of last advance to cover Noble Inlet (Manley, 1995a). It's age in relation to other dates suggests that the Noble Inlet advance was double pulsed, and that this was a younger and very brief pulse that held its maximum margin in and near Noble Inlet proper, whereas another, earlier pulse made it to the Kendall Strait delta or farther NE. Cf., Miller and Stravers (1987) and Miller et al. (1988).

Location: Eastern side of upper Noble Inlet, opposite "Cut & Fill delta" delta.
UTMG: FU 505 880
Elevation: -2 m **Map Sheet:** 25J - Grinnell Glacier

Date: 9090 ± 95 **Lab No:** AA-14026 **Corrected Age:** 8640 ± 95
Field ID: M81-BSh41 **Type:** Excavation **Depth:** 2 m
AAL-7377D **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 21.0 mg
Contributor(s): W.F. Manley, G.H. Miller
Sample Notes: Whole, well-preserved, single valve.
Sample Pre-treatment: Mechanically cleaned, leached 87% with HCl, and washed with distilled water.

Stratigraphic Relations: From distal glaciomarine sediment (stone-free silty clay) below ice-proximal glaciomarine sediment, exposed in tidal section. Total D/L is 0.025.
Comment: (WFM, GHM) Provides age of onset of second pulse(?) of Noble Inlet advance (Manley, 1995a). From same collection and same age as GSC-3951 (8600±50; corrected), confirming age of deposition. Cf., Miller and Stravers (1987) and Miller et al. (1988).

Location: From wave-cut exposure of "Cut & Fill delta", at SE corner of peninsula jutting into inner Noble Inlet.
Lat: 62° 05.3'N **Long:** 66° 08.4'W **UTMG:** FU 491 886
Elevation: 16 m **Map Sheet:** 25J - Grinnell Glacier

Date: 9130 ± 65 **Lab No:** AA-17255 **Corrected Age:** 8680 ± 65
Field ID: M81-BSh34 **Type:** Terrestrial Exposure **Depth:** 0 cm
AAL-7735A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Macoma calcarea* **Weight:** 13.6 mg
Contributor(s): W.F. Manley, G.H. Miller
Sample Notes: well preserved, fairly fragile, medium-sized (8 mm x 13 mm) hinge fragment from ca. 50% of a single valve; retains surface ornamentation (hinge "teeth") and pearly luster; other portions of fragment archived.
Sample Pre-treatment: Mechanically ground; leached 77% with HCl; washed in DW.
Stratigraphic Relations: From calcareous, limestone-bearing, ice-contact glaciomarine sediment exposed in the Noble Inlet "Cut & Fill" delta; deposit includes paired *Macoma calcarea*. Sediment consists of a silty diamicton with sandy interbeds. Another date from this collection is 8,540 ± 75 (GSC-3469, corrected). Shells from a correlative deposit were dated 8770 ± 45 (GSC-4607, corrected). Although the submitted sample is a single valve, we believe it is coeval with the deposit.
Comment: (WFM) Fits in nicely, and clarifies the timing of Noble Inlet advance at the type locality. Perhaps the 8810 date included one or more older, reworked shells (Manley, 1995a). The new date suggests this, and falls between with the pre-advance date from overridden glaciomarine sediments at the site (8920 ± 80, AA-14025, corrected) and the post-advance date from the inset delta (8200 ± 45, GSC-3404, corrected). Cf., Miller and Stravers (1987) and Miller et al. (1988).

Location: From wave-cut exposure of "Cut & Fill delta", at SE corner of peninsula jutting into inner Noble Inlet.
Lat: 62° 05.3'N **Long:** 66° 08.4'W **UTMG:** FU 491 886
Elevation: -2 m **Map Sheet:** 25J - Grinnell Glacier

Date: 9370 ± 80 **Lab No:** AA-14025 **Corrected Age:** 8920 ± 80
Field ID: M81-BSh35 **Type:** Terrestrial Exposure **Depth:** 0 cm
AAL-7376A **AMS or Conv:** AMS
Material: Mollusc **Species:** unknown **Weight:** 7.2 mg
Contributor(s): G.H. Miller, W.F. Manley
Sample Notes: Small, very thin, very fragile shell fragment.
Sample Pre-treatment: Mechanically cleaned, leached 37% with HCl, and washed with distilled water.
Stratigraphic Relations: From distal glaciomarine, clean silty sand and laminated mud below till on tidal exposure. Total D/L ratio is 0.022.
Comment: (WFM, GHM) This sample provides a date for ice-distal glaciomarine sediment subsequently overridden during the Noble Inlet advance (Miller and Stravers, 1987; Miller et al., 1988; Manley, 1995a). Thus it provides a closely limiting, maximum age for the onset of the

advance, and is in general agreement with the previously estimated chronology of advance and retreat of 8.9 to 8.4 ka.

Palmer Island

Location: 5.5 km NE of mouth of Noble Inlet
Lat: 62° 05.5'N **Long:** 65° 59.1'W **UTMG:** LD 44 88
Elevation: 38 m **Map Sheet:** 25I - Loks Land

Date: 9650 ± 70 **Lab No:** AA-17257 **Corrected Age:** 9200 ± 70
Field ID: M81-BSh68 **Type:** Terrestrial Exposure **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** unknown **Weight:** 11.7 mg
Contributor(s): G.H. Miller, W.F. Manley
Sample Notes: small (5 mm x 4 mm) abraded fragment with surface ornamentation (ridges) and slight pearly luster; less abraded than others in collection
Sample Pre-treatment: Sonicated in DW; leached 61% with HCl; washed in DW.
Stratigraphic Relations: From upper beds of gravelly sand in ice-contact delta just below local marine limit (43 m aht), northwestern part of Palmer Island. The fragment is apparently not *in situ*, and has probably been reworked and redeposited.
Comment: (WFM) This date supports the chronology of the Noble Inlet advance (Manley, 1995a). On a shell fragment apparently reworked into an ice-contact delta, this sample should predate an ice margin in Kendall Strait, when northward flowing ice abutted against Palmer Island.

Potter Island

Location: Central portion of southeastern Potter Island, 12 km NE of mouth of Noble Inlet
UTMG: LD 505 880
Elevation: 65 m **Map Sheet:** 25I - Loks Land

Date: 8950 ± 65 **Lab No:** AA-14029 **Corrected Age:** 8500 ± 65
Field ID: M81-BSh75 **Type:** Surface Collection **Depth:** 0 cm
AAL-7380B **AMS or Conv:** AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 21.5 mg
Contributor(s): G.H. Miller, W.F. Manley
Sample Notes: Small fragment with hinge.
Sample Pre-treatment: Mechanically cleaned, leached 64% with HCl, and washed with distilled water.
Stratigraphic Relations: From frost boils of silty, limestone-rich till above marine limit (43 m aht). Total D/L is 0.029.
Comment: (WFM, GHM) From same collection as AA-2223 (8640±90, corrected), this shell – reworked into till above the marine limit – must predate an advance of grounded ice across the Noble Inlet area. Limestone erratics, a calcareous till matrix, and striations of ca. 030° at this site indicate that this was northeastward flow of the Noble Inlet advance (cf., Miller and Stravers, 1987; Miller et al., 1988; Manley, 1995a). This date is the youngest of the maximum ages on the advance, and is perhaps associated with a second pulse across Potter Island.

Henderson Inlet

Location: South shore of central Henderson Inlet, ca. 2 km W of its mouth
Lat: 62° 14.2'N **Long:** 66° 07.1'W **UTMG:** FV 498 033

Elevation: -2 m **Map Sheet:** 25J - Grinnell Glacier

Date: 9735 ± 295 **Lab No:** GX-8670 **Corrected Age:** 9285 ± 295
Field ID: M81-BSh76 **Type:** Surface Collection **Depth:** 0 cm
AAL-2434 **AMS or Conv:** Conv
Material: Mollusc **Species:** *Hiatella arctica*
Contributor(s): G.H. Miller, W.F. Manley
Sample Pre-treatment: Mostly whole valves.
Stratigraphic Relations: From silty diamicton, interpreted as ice-distal glaciomarine sediment, eroding in tidal flat.
Comment: (WFM, GHM) Provides a close(?) minimum age for local deglaciation. Reported in Stravers (1986), Miller and Stravers (1987), and Miller et al. (1988).

Buerger Point

Location: 6.5 km NE of head of Henderson Inlet, 5.2 km SSE of Buerger Pt., in drowned cirque.
Lat: 62° 18.4'N **Long:** 66° 10.6'W **UTMG:** FV 47 11
Elevation: -3 m **Map Sheet:** 25J - Grinnell Glacier

Date: 9420 ± 135 **Lab No:** GX-13021 **Corrected Age:** 8970 ± 135
Field ID: M86-BS2 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: Conv
Material: Mollusc **Species:** *Hiatella arctica*
Contributor(s): G.H. Miller, W.F. Manley
Sample Notes: whole valves
Stratigraphic Relations: From diamicton exposed on eroding tidal flat. The deposit, interpreted as ice-proximal glaciomarine sediment, contains a matrix of pebbly silty sand with abundant, erratic limestone clasts.
Comment: (WFM, GHM) This date, not previously published, provides a constraint on ice-proximal glaciomarine deposition from a nearby, limestone-bearing, calving marine margin. Most likely this margin, in or near Henderson Inlet, marked the extent of northward flow during the Noble Inlet advance (Miller et al., 1988; Manley, 1995a).

York Delta

Location: From exposure opposite spit, right-lateral, distal margin of York Delta, southern York Sound
UTMG: FV 300 230
Elevation: 4 m **Map Sheet:** 25J - Grinnell Glacier

Date: 8795 ± 95 **Lab No:** AA-14030 **Corrected Age:** 8345 ± 95
Type: Excavation
AAL-7381A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Balanus balanus* **Weight:** 22.5 mg
Contributor(s): W.F. Manley, D. Muller
Sample Notes: Orangish brown barnacle plate with surface ornamentation. Also GRL-775-S.
Sample Pre-treatment: Mechanically cleaned, leached 73% with HCl, and washed with distilled water.
Stratigraphic Relations: From till below proximal glaciomarine silt and sand, which underlies the gravel of the York Delta. Date from the glaciomarine sediment is 8780 ± 110 (SI-4368, corrected). Total D/L is 0.026.

Comment: (WFM, GHM) This shell fragment was taken from the archived samples of Dave Muller to better date the deposition of the York Delta. We had expected that the fragment, sampled from till at the base of the exposure, must have been reworked into the till, and thus would provide a maximum age for the till and the delta. However, this sample creates a stratigraphic inversion and conflicts with several other dates from the York Delta (cf., Miller and Stravers, 1987; Manley, 1995a). It therefore seems anomalous, and perhaps had been collected as float reworked from higher in the section.

Grinnell Glacier Area

Location: 6.5 km SE of Wynne-Edwards Bay, at the head of "Midnight harbour".
UTMG: FV 275 326
Elevation: 6-14 m **Map Sheet:** 25J - Grinnell Glacier

Date: 8735 ± 235 **Lab No:** QC-714 **Corrected Age:** 8695 ± 235
AMS or Conv: Conv
Material: Mollusc
Contributor(s): J.A. Stravers, G.H. Miller, W.F. Manley
Sample Notes: Whole valves
Stratigraphic Relations: From deltaic sands tied to a former sea level at 19 m aht.
Comment: (WFM, GHM) Listed in Stravers (1986), this date indicates that this site was not glaciated during the Cockburn Substage. It also provides an age for relative sea level 19 m aht. To the best of our knowledge, QC dates were not 13C-corrected. Thus, we have corrected the date accordingly above by adding 410 yr, then subtracting 450 yr for the marine reservoir effect.

Location: From or near "Midnight harbour", ca. 7 km SE of Wynne-Edwards Bay.
Lat: ° 'N **Long:** ° 'W
Elevation: 6 m **Map Sheet:** 25J - Grinnell Glacier

Date: 9320 ± 80 **Lab No:** SI-5171 **Corrected Age:** 9280 ± 80
AMS or Conv: Conv
Material: Mollusc **Species:** Mixed
Contributor(s): J.A. Stravers, W.F. Manley
Sample Notes: *In situ* valves and wave abraded fragments of *Hiatella arctica*, *Mya truncata*, and *Balanus*. Sample GRL-809-S.
Stratigraphic Relations: From tidal flat muds.
Comment: (WFM) Reported in Stravers (1986), this date provides a close(?) minimum for deglaciation. Except under unusual circumstances, SI- dates were not 13C-corrected (Stuckenrath, pers. com.). Accordingly, we have added 410 yr for the 13C correction, and have subtracted 450 yr for the marine reservoir effect.

Inner Frobisher Bay

Tungatsivvik

Location: Occupation floor, Thule House 5
Lat: 63° 45.7'N **Long:** 68° 41'W **UTMG:** EA 156 702
Elevation: 6 m **Map Sheet:**

Date: 550 ± 60 **Lab No:** AECV-1348C
Field ID: KkDo-3-RC5-1 **Type:** Excavation **Depth:** 1.10 m DBD m

AMS or Conv: Conv
Material: Bone **Species:** *Rangifer tarandus* **Weight:** 164.6 g
Contributor(s): D.R. Stenton
Comment: See below.

Location: Occupation floor, Thule House 11
Lat: 63° 45.7'N **Long:** 68° 41'W **UTMG:** EA 156 702
Elevation: 16 m **Map Sheet:**

Date: 740 ± 70 **Lab No:** AECV-1349C
Field ID: KkDo-3-RC11-1 **Type:** Excavation
Depth: 1.30 m DBD m
AMS or Conv: Conv
Material: Bone **Species:** *Rangifer tarandus* **Weight:** 170.1 g
Contributor(s): D.R. Stenton
Comment: See below.

Date: 740 ± 80 **Lab No:** AECV-1350C
Field ID: KkDo-3-RC11-2 **Type:** Excavation
Depth: 1.30 m DBD m
AMS or Conv: Conv
Material: Wood **Species:** Unknown **Weight:** 21.6 g
Contributor(s): D.R. Stenton
Comment: See below.

Location: Occupation floor, Thule House 16
Lat: 63° 45.7'N **Long:** 68° 41'W **UTMG:** EA 156 702
Elevation: 8 m **Map Sheet:**

Date: 490 ± 70 **Lab No:** AECV-1351C
Field ID: KkDo-3-RC16-1 **Type:** Excavation
Depth: 1.40 m DBD m
AMS or Conv: Conv
Material: Bone **Species:** *Rangifer tarandus* **Weight:** 184.0 g
Contributor(s): D.R. Stenton
Comment: See below.

Location: Occupation floor, Thule House 6
Lat: 63° 45.7'N **Long:** 68° 41'W **UTMG:** EA 156 702
Elevation: 10 m **Map Sheet:**

Date: 880 ± 50 **Lab No:** AECV-1708C
Field ID: KkDo-3-RC6-1 **Type:** Excavation **Depth:** 1.30-1.40 m DBD m
AMS or Conv: Conv
Material: Bone **Species:** *Rangifer tarandus* **Weight:** 181.7 g
Contributor(s): D.R. Stenton
Comment: (DRS) The series of five radiometric dates from KkDo-3 form the basis of the site's Thule chronology, and confirm that the site was occupied during all phases of the Thule era (circa AD 1000 - 1700). The earliest components produced dates from the Classic Thule period (12th and 13th centuries AD), and yielded diagnostic artifacts similar to those found at the Classic

Crystal II site near Iqaluit. The radiocarbon estimates and artifactual evidence are also in agreement for later occupations (i.e., during the Developed and Late Thule periods). The virtually identical results obtained from wood and bone samples in House 16 is unusual; different types of organic materials from Thule houses often produce significantly different results.

Cape Rammelsberg

Location: 2.5 km SW of tip of Cape Rammelsberg, on isthmus connecting a small peninsula to Meta Incognita Peninsula.
Lat: 63° 24.9'N **Long:** 68° 26.2'W **UTMG:** EA 282 317
Elevation: 4 m **Map Sheet:** 25N - Frobisher

Date: 9100 ± 80 **Lab No:** AA-16403 **Corrected Age:** 8650 ± 80
Field ID: WM94-49B **Type:** Terrestrial Exposure **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia arctica* **Weight:** 17.4 mg
Contributor(s): W.F. Manley
Sample Notes: large (1.4 cm) single, well preserved valve with periostracum, "teeth", and pearly luster.
Sample Pre-treatment: Sonicated in distilled water, leached 82% with HCl, and washed in DW.
Stratigraphic Relations: From the base of an exposure of calcareous, massive mud with uncommon clasts and no Paleozoic erratics. Interpreted as glaciomarine sediment.
Comment: (WFM) Indicates that ice lay northwest of the site at ca. 8.7 ka (Manley, 1995b; Manley and Moore, 1995). Given that the date is on a mollusc that favors ice-proximal conditions, it suggests that ice was less than ca. 20 km northwest of the cape at that time. This date is in agreement with recent dates on paired molluscs from the cape itself (see below).

Location: 1.6 km NW of very tip of Cape Rammelsberg, in short valley above small NE facing cove.
Lat: 63° 26.2'N **Long:** 68° 25.4'W **UTMG:** EA 288 341
Elevation: 28 m **Map Sheet:** 25N - Frobisher

Date: 9335 ± 75 **Lab No:** AA-15131 **Corrected Age:** 8885 ± 75
Field ID: WM94-47A **Type:** Terrestrial Exposure **Depth:** 14 m
AAL-7746A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Macoma calcarea* **Weight:** 21.5 mg
Contributor(s): W.F. Manley
Sample Notes: very delicate, thin valve from medium-sized (1.7 x 1.2 cm) paired valve with periostracum; matching valve archived.
Sample Pre-treatment: Sonicated with distilled water, leached 65% with HCl, and washed in distilled water.
Stratigraphic Relations: Upper section of exposures, from 24 to 42 m aht below a frost-boil covered terrace at 47 m, consists of horizontally bedded and interbedded sand and silt; lower section is of horizontally bedded sand and gravel, from 1 to 38 m aht, at very head of cove; sample found on eroding face of upper section in laminated mud interbedded with horizontally stratified fine sand; entire sequence interpreted as ice-proximal glaciomarine sediment, becoming more distal up section, when ice was at or near Cape Rammelsberg.
Comment: See below.

Date: 9355 ± 75 **Lab No:** AA-17861 **Corrected Age:** 8905 ± 75
Field ID: WM94-47A **Type:** Terrestrial Exposure **Depth:** 14 m

AMS or Conv: AMS
Material: Mollusc **Species:** *Macoma calcarea* **Weight:** 15.1 mg
Contributor(s): W.F. Manley
Sample Notes: very delicate, thin, single, medium-sized (1.7 x 1.2 cm) valve from paired valve with periostracum; matching valve archived. Redate on separate mollusc.
Sample Pre-treatment: Sonicated with distilled water, leached 85% with HCl, and washed in distilled water.
Comment: (WFM) A surprising result, these two dates indicate that the Frobisher Bay moraine system, at least on the south side of the bay, is older than previously envisioned (Manley, 1995b; Manley and Moore, 1995). The fragile paired valves are from ice-proximal sediments deposited when the margin of southeast-flowing ice lay on the northern edge of the cape. These dates indicate that maximum extent of an advance by Foxe/Amadjuak ice down Frobisher Bay during the early Cockburn period was coeval with the northward Labradorean pulse of the Noble Inlet advance, implicating a regional climatic trigger for both. The second sample, on a separate paired mollusc, confirms the age of the deposit as indicated by the first sample.

Cape Caldwell

Location: 2.7 km NNW of Cape Caldwell, near head of inlet formed between the Cape and the mainland.
Lat: 63° 21.7'N **Long:** 68° 22.3'W **UTMG:** EA 315 258
Elevation: 18 m **Map Sheet:** 25N - Frobisher

Date: 8325 ± 75 **Lab No:** AA-15130 **Corrected Age:** 7875 ± 75
Field ID: WM94-40B **Type:** Terrestrial Exposure **Depth:** 3 m
AAL-7745A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Portlandia sp.* **Weight:** 16.0 mg
Contributor(s): W.F. Manley
Sample Notes: fragile, well-preserved valve from large paired valve with periostracum; matching valve archived.
Sample Pre-treatment: Sonicated with distilled water, leached 83% with HCl, and washed in distilled water.
Stratigraphic Relations: From 3-m-high exposure of olive-gray, silty, calcareous, glaciomarine diamicton forming a terrace connecting Cape Caldwell with the mainland; top of terrace is at 21 m, with good exposure 16-19 m, and intermittent exposures and slumps down to 6 m aht. Nearby marine limit is 122 m.
Comment: (WFM) This date indicates that the Cape Caldwell area was deglaciated before 7.9 ka, in itself not very surprising. What is surprising is that the date is on *Portlandia arctica*, and indicates that calcareous glaciomarine sedimentation continued this late even though AA-15310 indicates that Cape Rammelsberg, just up bay, was free of ice a millenium before (Manley, 1995b; Manley and Moore, 1995). Although we found no limestone clasts at this site, the calcareous matrix suggests that the source for the glaciomarine sediment was not MIP ice but the margin of Foxe/Amadjuak ice in innermost Frobisher Bay.

Jaynes Inlet

Location: 3.9 km SW of N head of Jaynes Inlet, in broad, NE-trending, U-shaped valley.
Lat: 63° 15.4'N **Long:** 68° 19.6'W **UTMG:** EA 338 141
Elevation: 30 m **Map Sheet:** 25N - Frobisher

Date: 8055 ± 70 **Lab No:** AA-15129 **Corrected Age:** 7605 ± 70
Field ID: WM94-38B **Type:** Terrestrial Exposure **Depth:** 18 m

AAL-7744A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 19.2 mg
Contributor(s): W.F. Manley
Sample Notes: portion of a large (2.0 x 3.9 cm), robust valve from a paired valve; matching valve archived; slight orange discoloration but not chalky.
Sample Pre-treatment: Mechanically cleaned, leached 76% with HCl, and washed with distilled water.
Stratigraphic Relations: From exposure of moderately dipping planar beds of gravelly sand at eastern tip of delta. Delta surface is at 48 m, with base of stream exposure at 26 m aht. Delta beds dip ca. N40E, toward mouth of valley, at a dip of ca. 12 degrees; several paired valves, held together by fine sand and silica(?) cement, were excavated; orientation of the delta itself, plus the dip of the beds, suggest a source of ice on Meta Incognita Peninsula, not Frobisher Bay, for the meltwater that formed the delta; a steep escarpment on the N side of the delta suggests it was ice-contact, formed as a lobe of ice from the SW terminated in the valley; nearby marine limit is 119 m aht.
Comment: (WFM) This date, on shells from a glaciofluvial/deltaic deposit left by Meta Incognita ice in the "Jayne's valley", is slightly younger than the nearby glaciomarine sediment of AA-15128. The date appears to indicate that residual Meta Incognita ice existed in the area centuries after down-the-bay flow left behind the Eggleston Bay ice-contact delta (Manley, 1995b; Manley and Moore, 1995).

Location: 3.8 km SW of N head of Jaynes Inlet, in broad, NE-trending, U-shaped valley.
Lat: 63° 15.4'N **Long:** 68° 19.5'W **UTMG:** EA 339 142
Elevation: 38 m **Map Sheet:** 25N - Frobisher

Date: 8160 ± 70 **Lab No:** AA-15128 **Corrected Age:** 7710 ± 70
Field ID: WM94-37 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia sp.* **Weight:** 5.1 mg
Contributor(s): W.F. Manley
Sample Notes: single, whole, very fragile, small (0.5 x 0.3 cm), well preserved valve.
Sample Pre-treatment: Sonicated in distilled water, leached 12% with HCl, and washed in distilled water.
Stratigraphic Relations: From frost boils of olive gray, non-calcareous, silty clay glaciomarine sediment lacking Paleozoic erratics, ca. 150 m NE of WM94-38; this glaciomarine sediment is soliflucting down and around scattered remnants of (glaciofluvial or deltaic?) sand and gravel; nearby marine limit is 119 m aht.
Comment: (WFM) This date indicates that local Meta Incognita ice existed in the headwaters of this drainage, producing glaciomarine sediment of local origin, after Foxe/Amadjuak ice had retreated to innermost Frobisher Bay (Manley, 1995b; Manley and Moore, 1995).

Eggleston Bay

Location: 0.7 km N of head of Eggleston Bay
Lat: 63° 13.0'N **Long:** 68° 13.3'W **UTMG:** EA 39 10
Elevation: 64 m **Map Sheet:** 25N - Frobisher

Date: 9030 ± 75 **Lab No:** AA-15126 **Corrected Age:** 8580 ± 75
Field ID: WM94-32 **Type:** Terrestrial Exposure **Depth:** 0 cm
AAL-7743A **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 25.3 mg
Contributor(s): W.F. Manley

Sample Notes: portion of a single, whole, robust valve; inner layers hard and apparently unaltered.
Sample Pre-treatment: Mechanically cleaned, leached 59% with HCl, and washed in distilled water.
Stratigraphic Relations: Collected as float from sandy flat and 1-m-high exposure of horizontally stratified sand, at N end of massive ice-contact delta. The exposure was formed by wave erosion into the top of the ice-contact delta during very high levels of the lake that is now ca. 100 m to N. Uppermost beds of delta at this exposure apparently deposited after retreat of ice from grounding lines, ca. 200 m to the south, along the crest of the main delta. The Eggleston Bay ice-contact delta is beyond the classically defined limits of the Frobisher Bay Moraine System.
Comment: (WFM) This date provides a minimum age for the margin of Foxe/Amadjuak ice responsible for the Eggleston Bay ice-contact delta. It agrees with Lind's (corrected) date, from nearby, of 8.7 ka, and shows that this ice-marginal position occurred early (or before) the beginning of the Cockburn Substage (Manley, 1995b; Manley and Moore, 1995).

Location: 1.2 km NNW of head of Eggleston Bay, ca. 50 m W of large lake.
Lat: 63° 13.2'N **Long:** 68° 13.9'W **UTMG:** EA 39 10
Elevation: 66 m **Map Sheet:** 25N - Frobisher

Date: 8860 ± 110 **Lab No:** GSC-5895 **Corrected Age:** 8820 ± 55
Field ID: WM94-33 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: Conv
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 15.7 g
Contributor(s): W.F. Manley
Sample Notes: Twenty partial or complete, single, well-preserved valves.
Sample Pre-treatment: Washed in distilled water, leached 5% with HCl, and washed in distilled water.
Stratigraphic Relations: From surface of frost boils exposing calcareous, olive gray silty clay with ca. 10% clasts but no Paleozoic limestone. The shells should date a period of glaciomarine sedimentation shortly(?) after retreat from the nearby Eggleston Bay ice-contact delta (ca. 1 km S of site). Local marine limit is 129 m aht.
Comment: (WFM) This date indicates that ice lay at the Eggleston Bay delta prior to 8.8 ka (earlier than previously believed) and that the dated shell from the surface of the delta substantially postdates its formation when sea level subsequently fell. This date also provides a minimum age for deglaciation of this part of Frobisher Bay (Manley, 1995b; Manley and Moore, 1995). Together with the new dates from Cape Rammelsberg and the Channel Islands, this sample indicates that Foxe/Amadjuak ice extended to the Eggleston Bay area during the earliest phase of, or shortly before, the Cockburn Substage.

Newell Sound 4 (KgDl-4)

Location: Northeast of Newell Sound 1, just inside entrance of Newell Sound, south side
Lat: 63° 06'N **Long:** 67° 52'W **UTMG:** 19V 569 980
Elevation: m **Map Sheet:** 25O - Ward Inlet

Date: 800 ± 70 **Lab No:** Beta-61068
Field ID: 1992-18 **Type:** Excavation **Depth:** 10 cm
AMS or Conv: Conv
Material: Wood **Species:** pine **Weight:** 10 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From house floor.
Comment: (DL) House 1, Dorset period (Fitzhugh, 1993).

Date: 1130 ± 50 **Lab No:** Beta-61609 **Corrected Age:** 780 ± 50
Field ID: 1992-21 **Type:** Excavation **Depth:** 10 cm
AMS or Conv:
Material: sea mammal fat
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From hearth stone.
Comment: (DL) House 1, Dorset period (Fitzhugh, 1993). Corrected for a marine reservoir effect of 350 yr.

Pugh Island

Location: 4.0 km ESE of N tip of Pugh Island, in valley leading down to bay on NW side of island.
Lat: 63° 15.4'N **Long:** 68° 10.6'W **UTMG:** EA 413 143
Elevation: 11 m **Map Sheet:** 25N - Frobisher

Date: 9220 ± 75 **Lab No:** AA-15127 **Corrected Age:** 8770 ± 75
Field ID: WM94-35B **Type:** Terrestrial Exposure **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia sp.* **Weight:** 18.0 mg
Contributor(s): W.F. Manley
Sample Notes: Single, whole, fragile, large (1.1x 0.7 cm) valve.
Sample Pre-treatment: Sonicated in distilled water, leached 48% with HCl, and washed in distilled water.
Stratigraphic Relations: From 1.5-m-high stream exposure into soliflucting terrace of gray, calcareous, silty glaciomarine sediment. This is the same collection site dated twice before: 9835±130 (QC-903; corrected; Colvill, 1982) and 8550±50 (GSC-3666; corrected; Lind, 1983; Andrews et al., 1989). This sample submitted to obtain an age on a single individual, avoiding the potential of obtaining an average age for a mixed age assemblage. The nearby marine limit is 114 m aht.
Comment: (WFM) This date is closer to the age of the Eggleston Bay dates than to the dates on southern Pugh and Pike Islands, and therefore seems to represent deposition from Cockburn down-the-bay flow, rather than the pre-Cockburn(?) advance by Foxe and/or MIP ice (Manley, 1995b; Manley and Moore, 1995). From the same site as corrected dates 9.8 ka (assuming the QC dates were not 13C corrected as reported) and 8.6 ka, it corroborates Lind's date but refutes Colvill's date. If Colvill's dated collection contained reworked shells, it would explain the anomaly but would be the only indication thus far of significantly older shells in inner Frobisher Bay. More likely Colvill's date suffers from analytical or other error.

Location: 1.8 km N of S tip of Pugh Island, across broad valley east of prominent ridge.
Lat: 63° 12.4'N **Long:** 68° 03.7'W **UTMG:** EA 475 085
Elevation: 52 m **Map Sheet:** 25N - Frobisher

Date: 9465 ± 100 **Lab No:** AA-15125 **Corrected Age:** 9015 ± 100
Field ID: WM94-28 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia sp.* **Weight:** 3.7 mg
Contributor(s): W.F. Manley
Sample Notes: whole, single, very fragile, well preserved valve with delicate surface ornamentation ("hinge teeth") and pearly luster; small (0.5 x 0.4 cm)
Sample Pre-treatment: Sonicated in distilled water, leached 34% with HCl, and washed in distilled water.

Stratigraphic Relations: From frost-boils of olive-gray, granular, silty glaciomarine sediment lacking Paleozoic erratics; the nearby marine limit is 121 m aht.
Comment: (WFM) This date, as with AA-15124, indicates that the Channel Islands of Frobisher Bay became deglaciated before (shortly before?) 9.0 ka (Manley, 1995b; Manley and Moore, 1995). It suggests that the Foxe Dome and/or ice from Meta Incognita Peninsula advanced very early during, or shortly before, the Cockburn substage.

Pike Island

Location: 5.8 km NW of SE tip of Pike Island, in low valley leading from small lake to the east side of the island.

Lat: 63° 13.4'N	**Long:** 67° 57.2'W	**UTMG:** EA 525 110
Elevation: 17 m	**Map Sheet:** 25O - Ward Inlet	
Date: 9460 ± 75	**Lab No:** AA-15124	**Corrected Age:** 9010 ± 75
Field ID: WM94-22 AAL-7742A	**Type:** Surface Collection **AMS or Conv:** AMS	**Depth:** 0 cm
Material: Mollusc	**Species:** *Macoma calcarea*	**Weight:** 15.3 mg

Contributor(s): W.F. Manley
Sample Notes: portion of a hinge fragment; other parts of fragment archived.
Sample Pre-treatment: Mechanically cleaned, leached 46% with HCl, and washed in distilled water.
Stratigraphic Relations: From frost-boils of olive-gray, vesicular, silty glaciomarine sediment lacking Paleozoic erratics; the nearby marine limit is 123 m aht.
Comment: (WFM) This date, as with AA-15125, indicates that the Channel Islands of Frobisher Bay became deglaciated before (shortly before?) 9.0 ka (Manley, 1995b; Manley and Moore, 1995). It suggests that the Foxe Dome and/or ice from Meta Incognita Peninsula advanced very early during, or shortly before, the Cockburn substage.

Lewis Bay

Location: 0.1 km N of extreme head of Lewis Bay, west bank of river

Lat: 63° 38.5'N	**Long:** 68° 06.5'W	**UTMG:** EA 442 574
Elevation: 16 m	**Map Sheet:** 25N - Frobisher	
Date: 8350 ± 70	**Lab No:** AA-15123	**Corrected Age:** 7900 ± 70
Field ID: WM94-02B AAL-7741A	**Type:** Terrestrial Exposure **AMS or Conv:** AMS	**Depth:** 18 m
Material: Mollusc	**Species:** *Macoma calcarea*	**Weight:** 19.0 mg

Contributor(s): W.F. Manley
Sample Notes: Portion of a valve from a paired valve; matching valve archived; delicate, thin, but large (3.0 x 1.8 cm); slightly chalky but cleaned to hard inner layer.
Sample Pre-treatment: Mechanically cleaned, leached 81% with HCl, and washed in distilled water.
Stratigraphic Relations: Found as float on surface of eroding exposure cut by river into delta 34 m aht; from gray, silty clay, glaciomarine diamicton below horizontally stratified and massive sand; the delta is clearly ice-marginal, formed by meltwater streaming from outermost segment of the Frobisher Bay moraine, 3 km to northwest. Another date, GX-8159 (8000±190, corrected, Squires, 1984), exists from shells collected from a sand unit across the river, at 38 m (just below a delta surface of 42 m aht). This sample submitted to reduce the uncertainty, and to provide an age for onset of deposition.

Comment: (WFM) This date demonstrates that the outermost Frobisher Bay moraine on the northeast side of the bay was being constructed at 7.9 ka, about the same time indicated by Squire's (corrected) date of 8.0 ka (Manley, 1995b; Manley and Moore, 1995). Apparently Foxe/Amadjuak ice maintained a margin near Lewis Bay for a millenium after the outermost Frobisher Bay Moraine was being formed on the opposite side of the bay at Cape Rammelsberg.

Porter Inlet

Location: 1.2 km NW of N tip of Jenvey Island, at head of small, NW bay in Porter Inlet close to large lake.
Lat: 63° 36.6'N **Long:** 68° 10.4'W **UTMG:** EA 410 537
Elevation: 1 m **Map Sheet:** 25N - Frobisher

Date: 7080 ± 120 **Lab No:** GSC-5903 **Corrected Age:** 7040 ± 60
Field ID: WM94-05B **Type:** Terrestrial Exposure **Depth:** 13 m
AMS or Conv: Conv
Material: Mollusc **Species:** *Mya truncata* **Weight:** 9.0 g
Contributor(s): W.F. Manley
Sample Notes: Several fragments, comprising at least six valves, excavated as fragments and single valves from face of exposure.
Sample Pre-treatment: Washed in distilled water. No acid leach at INSTAAR.
Stratigraphic Relations: From interbeds of laminated and massive sandy mud, at base of wave-cut exposure into ice-contact delta; surface of delta, not necessarily tied to a former sea level, grades from 18 m aht at grounding-line moraine to 14 m aht at distal edge overlooking the exposure. The interbeds were found within horizontally bedded sand (0.5-13 m) overlying at least 2 m of laminated and massive sandy mud. Local marine limit is 96 m aht. We interpret the sediments as ice-proximal glaciomarine, deposited when ice lay at the proximal side of the delta.
Comment: (WFM) Provides a surprisingly late age for existence of Foxe/Amadjuak ice close to the outer limits of the Frobisher Bay Moraine System on the northeast side of the bay (Manley, 1995b; Manley and Moore, 1995).

Outer Frobisher Bay Islands

Gabriel Island

Location: Found on Northern Gabriel Island on the second high point south on the island. The sample is take from above ML.
UTMG: FV 259 775
Elevation: 100 m **Map Sheet:** 25J - Grinnell Glacier

Date: 10,750 ± 65 **Lab No:** AA-10245 **Corrected Age:** 10,300 ± 65
Field ID: DK91-23 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 965.9 mg
Contributor(s): M.L. Duvall, D.S. Kaufman
Sample Notes: *Mya* Fragment. Robost and not too crummy looking before it was cleaned up.
Sample Pre-treatment: Mechanical cleaning followed by a 30% acid leach
Stratigraphic Relations: Surface collection found in frost boil.
Comment: (MLD) Provides a maximum age for the onset of the Gold Cove advance on Gabriel Island (Duvall, 1993).

Hall Peninsula

Brewster Peninsula

Location: On a bench above marine limit on Brewster point at the wind camp
UTMG: FV 41 87
Elevation: 94 m **Map Sheet:** 25J - Grinnell Glacier

Date: 11,285 ± 65 **Lab No:** AA-10250 **Corrected Age:** 10,835 ± 65
Field ID: MD91-20 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 398.0 mg
Contributor(s): M.L. Duvall
Sample Notes: Well preserved whole valve found in frost boiled sediments just above marine limit.
Sample Pre-treatment: Mechanical scraping and 60% leach in HCl
Comment: (MLD) Provides a maximum age for the Gold Cove advance on Brewster Peninsula (Duvall, 1993).

Hamlen Bay

Location: E shore of outer Hamlen Bay near mouth; wave-cut bank on N side of isthmus at Hamlen Bay Cove
Lat: 63° 05'N **Long:** 66° 29'W **UTMG:** FV 285 975
Elevation: 7 m **Map Sheet:** 25O - Ward Inlet

Date: 10,180 ± 90 **Lab No:** AA-17264 **Corrected Age:** 9730 ± 90
Field ID: DK90-35B **Type:** Terrestrial Exposure **Depth:** 2 m
AAL-6423C **AMS or Conv:** AMS
Material: Mollusc **Species:** *Hiatella arctica* **Weight:** 19.3 mg
Contributor(s): D.S. Kaufman, W.F. Manley
Sample Notes: Fragment from intact single valve; remaining fragments archived. Total D/L of 0.022.
Sample Pre-treatment: Mechanically cleaned; leached 80% with HCl; washed in DW.
Stratigraphic Relations: From bouldery, compact, diamicton (basal till?) with striated limestone clasts overlying sorted medium and fine sand. Bedding of underlying sand is wavy with relief of 3-5 m over a distance of 30 m. Convolution suggests overriding by glacier ice, supporting basal till diagnosis. Rich molluscan fauna, including pectin, *Macoma*, *Balanus*, and *Mya* found as float at and below this level. Another valve from this collection was dated 9350 ± 75 yr BP (AA-6311, corrected; Kaufman and Williams, 1992).
Comment: (WFM) Given the stratigraphy and sedimentology of the site, the dates suggest that an advance occurred here after 9.3 ka -- centuries after the Gold Cove advance (9.9-9.6 ka). If the dates are accurate, the advance might have been from the west -- relating to the eastward flow, younger than the Gold Cove advance, that Duvall (1993) hypothesized came from or across Meta Incognita Peninsula.

Peter Force Sound

Location: On the point just north of McKay Island in Peter Force Sound. At the base of the cliff there is a shelly deposit of carbonate drift. Below ML.
UTMG: FV 598 873
Elevation: 30 m **Map Sheet:** 25J - Grinnell Glacier

Date: 9605 ± 60 **Lab No:** AA-10249 **Corrected Age:** 9155 ± 60
Field ID: MD92sh-19 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 390.7 mg
Contributor(s): M.L. Duvall
Sample Notes: Shell fragment of a *Mya*. The peice is a well preserved hinge fragment.
Sample Pre-treatment: Mechanical scraping and 60% leach in HCl.
Comment: (MLD) Provides an age for the post Gold Cove deglaciation of Frobisher Bay (Duvall, 1993).

McKay Island

Location: On the North side of McKay Island associated with north flowing striae
UTMG: FV 52 86
Elevation: 140 m **Map Sheet:** 25I - Loks Land

Date: 10,245 ± 70 **Lab No:** AA-10248 **Corrected Age:** 9795 ± 70
Field ID: MD92sh-17 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 326.1 mg
Contributor(s): M.L. Duvall
Sample Notes: Another robust *Mya* hinge fragment. Well preserved.
Sample Pre-treatment: Mechanical scraping and 60% leach in HCl.
Comment: (MLD) Provides a minimum age for the retreat of Gold Cove ice from the Peter Force Sound area (Duvall, 1993).

Kuyait 1 (KfDf-2)

Location: On mainland eight miles north of Countess of Warwick Sound.
Lat: 62° 52'N **Long:** 65° 45'W **UTMG:** 20V493 593 753
Elevation: m **Map Sheet:** 25I - Loks Land

Date: 240 ± 80 **Lab No:** Beta-53642
Field ID: 1991-134 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Wood **Species:** coniferous *sp.* **Weight:** 14 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) House 3, Inuit house of post-Frobisher time period (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 60 ± 80 **Lab No:** Beta-53643
Field ID: 1991-135 **Type:** Excavation **Depth:** 40 cm
AMS or Conv: Conv
Material: Wood **Species:** coniferous *sp.* **Weight:** 13 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From lowest layer of midden.
Comment: (DL) House 3, Inuit house from post-Frobisher period (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 110 ± 50 **Lab No:** Beta-52994
Field ID: 1991-97 **Type:** Excavation **Depth:** 40 cm
AMS or Conv: Conv

Material: wood twigs **Species:** heather **Weight:** 8 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From living floor of house.
Comment: (DL) House 8, Inuit house from post-Frobisher time period (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 240 ± 70 **Lab No:** Beta-71713
Field ID: 1992-199/200/201 **Type:** Excavation
Depth: 30 cm
AMS or Conv: Conv
Material: Wood **Species:** crowberry, willow **Weight:** 8 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From pavement in entrance passage of house.
Comment: (DL) House 5, Inuit house from post-Frobisher time period (Fitzhugh and Olin, 1993; Alsford, 1993).

Kodlunarn Island (KeDe-1)

Location: Countess of Warwick Sound
Lat: 62° 49'N **Long:** 65° 26 'W **UTMG:** 20V 697 376
Elevation: m **Map Sheet:** 25I - Loks Land

Date: 500 ± 35 **Lab No:** SI-5523
Field ID: 81-19A+B **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Charcoal **Species:** oak, beech, and birch **Weight:** 5.1 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Site of Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Structure 3, test pit 1.

Date: 290 ± 85 **Lab No:** SI-5525
Field ID: 81-71 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Wood **Species:** oak **Weight:** 24.5 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Borden designation: KeDe-1, site of Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Ships Trench, test pit 1.

Date: 20 ± 65 **Lab No:** SI-5521
Field ID: 81-61 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Charcoal **Species:** oak and beech **Weight:** 6.4 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Site of Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Structure 1.

Date: 65 ± 60 **Lab No:** SI-5522
Field ID: 81-22 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Charcoal **Species:** beech **Weight:** 5.6 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Site of Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Structure 2.

Date: 355 ± 45 **Lab No:** SI-5527
Field ID: 81-68B **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Charcoal **Species:** oak **Weight:** 10.0 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Site of Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Ships Trench, test pit 1.

Date: 415 ± 50 **Lab No:** SI-5528
Field ID: 81-76 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Wood **Species:** unidentified **Weight:** 51.1 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Site of Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Ships Trench, test pit 2.

Date: 320 ± 90 **Lab No:** Beta-42659
Field ID: 1981-22 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Charcoal **Species:** oak **Weight:** 2.8 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Site of Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Structure 2, test pit 1.

Date: 510 ± 80 **Lab No:** Beta-42660
Field ID: 1981-49 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Charcoal **Species:** oak **Weight:** 3.0 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Site of Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Structure 1, test pit 1.

Date: 550 ± 60 **Lab No:** TO-712-2
Field ID: Frob V2-1 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: AMS
Material: Bloomery Iron
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Sample Notes: From within iron bloom
Comment: (DL) AMS date from within iron bloom. Site is Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Ships Trench, test pit 1, Bloom 2.

Date: 500 ± 60 **Lab No:** TO-712-3a
Field ID: Frob H1-2 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: AMS
Material: Bloomery Iron
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Sample Notes: From within iron bloom
Comment: (DL) AMS date. Site is Martin Frobisher's base camp (Fitzhugh and Olin, 1993). Ships Trench, test pit 1, bloom 2.

Date: 679 ± 133 **Lab No:** Brookhaven
Field ID: Smithsonian Bloom **Type:** Surface Collection
AMS or Conv: Conv
Material: Bloomery Iron

Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Proportional counter method (Fitzhugh and Olin, 1993). This bloom was collected by C.F.Hall in 1861 at Kodlunarn Island and donated to the Smithsonian Institution.

Date: 792 ± 107 **Lab No:** Brookhaven
Field ID: Smithsonian Bloom **Type:** Surface Collection
AMS or Conv: Conv
Material: Bloomery Iron
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Proportional counter method (Fitzhugh and Olin, 1993). This bloom was collected by C.F.Hall in 1861 at Kodlunarn Island, and donated to the Smithsonian Institution.

Date: 628 ± 150 **Lab No:**
Field ID: 1981-83 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Charcoal **Species:** coniferous *sp.* **Weight:** 55 mg
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Sample Notes: Charcoal removed from external surface of bloom.
Comment: (DL) Proportional counter method (Fitzhugh and Olin, 1993). The site is Martin Frobisher's base camp. South of Ships Trench, test pit 1, bloom 1.

Date: 1340 ± 70 **Lab No:** TO-712
Field ID: Frob V2-1b **Type:** Excavation
AMS or Conv: AMS
Material: Bloomery Iron
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Sample Notes: From outer portion of bloom.
Comment: (DL) AMS date (Fitzhugh and Olin, 1993). Site is Martin Frobisher's base camp. Ships Trench, test pit 1, bloom 2.

Date: 970 ± 60 **Lab No:** TO-347
Field ID: Frob V2-2/7 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: AMS
Material: Charcoal **Species:** birch/alder **Weight:** 16.5 mg
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) AMS date (Fitzhugh and Olin, 1993). Charcoal from the interior of bloom 2, Ships Trench, test pit 1. Site is Martin Frobisher's base camp.

Date: 210 ± 60 **Lab No:** TO-2609
Field ID: 1981-24 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: AMS
Material: Charcoal **Species:** oak **Weight:** 200 mg
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) AMS date (Fitzhugh and Olin, 1993). The site is Martin Frobisher's base camp, Structure 7, test pit 1.

Kamaiyuk 1 (KfDe-5)

Location: Southwest entrance to Napoleon Bay, Countess of Warwick Sound
Lat: 62° 50'N **Long:** 65° 22'W **UTMG:** 20V 793 693
Elevation: m **Map Sheet:** 25I - Loks Land

Date: 380 ± 80 **Lab No:** Beta-52276
Field ID: 1991-63 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Charcoal **Species:** spruce **Weight:** 4.6 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From living floor of house.
Comment: (DL) House 1, Inuit house from time period of the Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 600 ± 60 **Lab No:** Beta-71712
Field ID: 1992-44 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Wood **Species:** coniferous *sp.* **Weight:** 17 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From lower level entrance passage of house.
Comment: (DL) House 1, Inuit house from time period of Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 390 ± 70 **Lab No:** Beta-52274
Field ID: 1991-53 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Wood twigs **Species:** crowberry **Weight:** 8 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From house floor.
Comment: (DL) House 2, Inuit house from time period of Frobisher voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 230 ± 60 **Lab No:** Beta-52273
Field ID: 1991-46 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Wood **Species:** spruce **Weight:** 10 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From floor, south lobe of house.
Comment: (DL) House 2, Inuit house of time period of Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 450 ± 60 **Lab No:** Beta-52272
Field ID: 1991-19/20 **Type:** Excavation **Depth:** 10 cm
AMS or Conv: Conv
Material: Wood twigs **Species:** birch **Weight:** 6 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From upper pavement of House platform.
Comment: (DL) House 2, Inuit house of time period of the Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 270 ± 60 **Lab No:** Beta-52275
Field ID: 1991-54 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Wood twigs **Species:** crowberry **Weight:** 7.5 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From floor of test pit 1.
Comment: (DL) House 3, Inuit house of time period of the Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 300 ± 70 **Lab No:** Beta-63444
Field ID: 1992-84 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Wood twigs **Species:** crowberry, willow **Weight:** 22 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From sleeping platform of house.
Comment: (DL) House 3, Inuit house of time period of the Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 70 ± 50 **Lab No:** Beta-63443
Field ID: 1992-59 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Wood **Species:** poplar **Weight:** 80 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From house floor
Comment: (DL) House 3, Inuit house from time period of the Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 170 ± 90 **Lab No:** Beta-63445
Field ID: 1992-102 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Wood **Species:** oak **Weight:** 3.5 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From floor pavement of House.
Comment: (DL) House 3, Inuit house of the time period of the Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 510 ± 50 **Lab No:** Beta-63446
Field ID: 1992-124 **Type:** Excavation **Depth:** 30
AMS or Conv: Conv
Material: Charcoal (soil) **Species:** arctic heather **Weight:** 1000 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From cache box underneath sleeping platform of the house.
Comment: (DL) House 3, Inuit house from the time period of the Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 260 ± 70 **Lab No:** Beta-71831
Field ID: 1992-164 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Wood **Species:** oak **Weight:** 12 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From floor of house.
Comment: (DL) House 4, Inuit house from the time of the Frobisher Voyages (Fitzhugh and Olin, 1993; Alsford, 1993).

Date: 670 ± 150 **Lab No:** Beta-52074
Field ID: 1991-1 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Charcoal **Species:** willow **Weight:** 1 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From top of cultural layer in test pit.
Comment: (DL) Test pit in Dorset Midden area.

Willows Island 4 (KeDe-14)

Location: Countess of Warwick Sound
Lat: 62° 46'N **Long:** 65° 28'W **UTMG:** 20V 740 635
Elevation: m **Map Sheet:** 25I - Loks Land

Date: 2110 ± 90 **Lab No:** Beta-61070
Field ID: 1992-12 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Wood **Species:** spruce **Weight:** 10 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Unit 1, Dorset period, midden (Fitzhugh, 1993).

Date: 1800 ± 70 **Lab No:** Beta-61071
Field ID: 1992-1 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: Wood twigs **Species:** crowberry **Weight:** 8.3 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Test pit 3, Dorset period, midden (Fitzhugh, 1993).

Date: 1490 ± 60 **Lab No:** Beta-61072
Field ID: 1992-7b **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv
Material: moss **Species:** sphagnum **Weight:** 1000 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Comment: (DL) Test pit 16, Dorset period, midden (Fitzhugh, 1993).

Date: 1500 ± 90 **Lab No:** Beta-70916
Field ID: 1993-1 **Type:** Excavation **Depth:** 10 cm
AMS or Conv: Conv
Material: Charcoal **Species:** willow, crowberry **Weight:** 1.8 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Sample Notes: extended counting time
Comment: (DL) Test pit 3 area, upper level. Dorset period, midden (Fitzhugh, 1993).

Date: 1800 ± 60 **Lab No:** Beta-70917
Field ID: 1993-8 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Wood twigs **Species:** crowberry, willow **Weight:** 40 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: Upper lower level.
Comment: (DL) Test pit area 3, Dorset period, Midden (Fitzhugh, 1993).

Date: 1970 ± 70 **Lab No:** Beta-70918
Field ID: 1993-10 **Type:** Excavation **Depth:** 40 cm
AMS or Conv: Conv
Material: Wood twigs **Species:** crowberry, willow **Weight:** 36 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: Lower lower level
Comment: (DL) Test pit 3 area, Dorset period, midden (Fitzhugh, 1993).

Date: 1710 ± 80 **Lab No:** Beta-70919
Field ID: 1993-12 **Type:** Excavation **Depth:** 20 cm
AMS or Conv: Conv

Material: Wood **Species:** willow, crowberry **Weight:** 9 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From upper level.
Comment: (DL) Test pit 16 area trench, Dorset period, midden (Fitzhugh, 1993).

Date: 1470 ± 50 **Lab No:** Beta-70920
Field ID: 1993-15/16/17 **Type:** Excavation **Depth:** 30 cm
AMS or Conv: Conv
Material: Wood twigs **Species:** willow, crowberry, blueberry **Weight:** 37 g
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Stratigraphic Relations: From lower level.
Comment: (DL) Test pit 16 area trench, Dorset period, midden (Fitzhugh, 1993).

Willows Island - Anvil Cove 1 (KeDe-13)

Location: East side of Willows Island, Countess of Warwick Sound
Lat: 62° 46'N **Long:** 65° 28'W **UTMG:** 20V 740 635
Elevation: m **Map Sheet:** 25I - Loks Land

Date: 470 ± 60 **Lab No:** Beta-61073 **Corrected Age:** 120 ± 60
Type: Surface Collection
AMS or Conv: Conv
Material: Bone collagen **Species:** walrus mandible
Contributor(s): W.F. Fitzhugh, D. Laeyendecker
Sample Notes: Infested with fibrous material (moss).
Comment: (DL) 25-m-long nestled alignment of walrus mandibles (Fitzhugh and Olin, 1993, p. 114). Corrected for a marine reservoir effect of 350 yr.

Willows Island

Location: From beach at hill crest, north end of Willows Island
Lat: 62° 48.0'N **Long:** 65° 28.8'W **UTMG:** LE 733 645
Elevation: 59 m **Map Sheet:** 25I - Loks Land

Date: 10,470 ± 120 **Lab No:** AA-13051 **Corrected Age:** 10,020 ± 120
Field ID: WF93-01 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Mya truncata* **Weight:** 95.2 mg
Contributor(s): W.F. Manley, G.H. Miller, W. Fitzhugh
Sample Notes: Large, robust, single valve
Sample Pre-treatment: Mechanically cleaned, leached 90% with HCl, and washed in distilled water.
Stratigraphic Relations: Shell taken from surface of raised beach below marine limit (72 m aht). Beach deposit contained clasts of erratic Paleozoic limestone.
Comment: (WFM, GHM) This date suggests that the shell was reworked from till on the island, rather than being coeval with the raised beach on which it was found. If it had postdated deglaciation, we expect it would have dated <9.6 ka. Instead, the date falls within the range of 10.5 to 9.9 ka that is widely reproduced for shells in till in the region, representing a period of open water in outer Frobisher Bay before the Gold Cove advance (cf., Miller and Kaufman, 1990; Kaufman et al., 1993). Three dates on Willows Island shells above the marine limit lie similarly within this range, 10.2-10.1 ka (AA-5840, AA-5841, and AA-6308; Kaufman and Williams, 1992).

Beare Sound, Loks Land

Location: Small cove on S side of Beare Sound, where the channel projects SE into W Loks Land

Lat: 62° 30'N **Long:** 64° 50'W **UTMG:** ME 725 295
Elevation: 36 m **Map Sheet:** 25I - Loks Land

Date: 11,255 ± 75 **Lab No:** AA-17254 **Corrected Age:** 10,805 ± 75
Field ID: DK91-34 **Type:** Surface Collection **Depth:** 0 cm
AMS or Conv: AMS
Material: Mollusc **Species:** *Portlandia sp.* **Weight:** 10.2 mg
Contributor(s): W.F. Manley, G.H. Miller, D.S. Kaufman
Sample Notes: well preserved, fragile, hinge fragment (4 mm x 7 mm) of about 60% of a single valve retaining surface ornamentation (teeth)
Sample Pre-treatment: sonicated in DW; leached 50% with HCl; washed in DW.
Stratigraphic Relations: From frost boils in silty carbonate-rich drift below marine limit. Other dates from same deposit: 40,500 ± 2100 (AA-7557); >38,900 (AA-7558); 11,235 ± 90 (AA-7559); 11,140 ± 180 (AA-6300); 10,625 ± 85 (AA-8389); 10,110 ± 75 (AA-8388); 9510 ± 160 (GSC-5299; all dates corrected). Same site as M89-BS41.
Comment: (WFM, GHM) This date adds to a collection of radiocarbon ages on ice-proximal(?) glaciomarine sediment on western Loks Land that provides evidence for a pre-Gold Cove advance of northward(?) flowing ice onto southeastern Baffin Island (the Beare Sound advance of Kaufman et al., 1992; see also Kaufman and Williams, 1992). This date confirms that the site contains a mixed-age assemblage of molluscs. We are confident that glaciomarine sediment was delivered to this area ca. 11.2-10.6 ka. However, we cannot at this time relate the dates to an ice-marginal configuration or provenance. Most likely the dates relate to an expansion of ice in Hudson Strait leading to DC-0 (detrital carbonate event 0) as recorded in the nearby Resolution Basin, coeval with the Younger Dryas (Andrews et al., 1995).

PART 3: DATES FROM LAKE CORES

LABRADOR AND QUEBEC

Northern Labrador

Two Ridge Lake

Location: ca. 40 km nw of Hebron Fiord; core in 10 m of water off west shore.
Lat: 58° 16'N **Long:** 63° 57'W
Lake Elevation: 603 m **Map Sheet:** 14L

Date: 7880 ± 90 **Lab No:** AA-9290
Field ID: TB-4A **GRL-**872-O
Depth: 126-128.5 cm **AMS or Conv:** AMS
Material: Bulk Sediment **Weight:** 2.5 mg
Contributor(s): S.K. Short, H. Nichols
Sample Notes: Pretreated in INSTAAR Sedimentology Laboratory (Kihl, 1975); 0.05% organic carbon from <125 micron fraction of sandy clay

Date: 6755 ± 90 **Lab No:** AA-9291
Field ID: TB-4B **GRL-**872-O
Depth: 126-128.5 cm **AMS or Conv:** AMS
Material: Bulk Sediment **Weight:** 1.2 mg
Contributor(s): S.K. Short, H. Nichols
Sample Notes: Pretreated in INSTAAR Sedimentology Laboratory (Kihl, 1975); 0.05% organic carbon from >125 micron fraction of sandy clay
Comment: (SKS) Previously two dates from 3-13 cm and 108-128.5 cm were attempted but both proved too small (i.e. inorganic) to date by conventional methods. The result here on two different size fractions on low-organic, basal sediments confirms problems we have had in the past on the <125 micron fraction, especially in low organic sediments typical of the early deglacial period. The <125 micron fraction consistently dates older than the >125 micron fraction, indicating that it is susceptible to contamination by the older carbon.

Northeast Quebec

Palsa Lake

Location: ca. 50 km southeast of Ungava Bay; drains into R. Barnoin
Lat: 58° 28'N **Long:** 65° 10'W
Lake Elevation: 143 m **Map Sheet:** 24I

Date: 7575 ± 125 **Lab No:** AA-9289&9497
Field ID: PL-7B & PL-8 **GRL-**873-O & 884-O
Depth: 334-338 cm **AMS or Conv:** AMS
Material: Bulk Sediment **Weight:** 2.3 mg
Contributor(s): S.K. Short, H. Nichols
Sample Notes: Pretreated in INSTAAR Sedimentology Laboratory (Kihl, 1975); 0.25% organic carbon from >125 micron fraction of silty clay

Date: 16,380 ± 165 **Lab No:** AA-9288
Field ID: PL-7A **GRL-**873-O

Depth: 336-338 cm **AMS or Conv:** AMS
Material: Bulk Sediment **Weight:** 9.6 mg
Contributor(s): S.K. Short, H. Nichols
Sample Notes: Pretreated in INSTAAR Sedimentology Laboratory (Kihl, 1975); 0.21% organic carbon from <125 micron fraction of silty clay
Comment: (SKS) Original basal date of 16,800 ± 2300 BP (GX-6387) (338-348 cm) was suspect because of problems with the conventional dates on bulk sediments with low organic content. The organic content of that sample was <0.5%. The date on the <125 micron fraction of 16,380 confirms contamination of the basal sediments (<125 micron fraction) with old carbon. We believe the 7575 BP date more accurately dates the basal sediments of this site as that date fits the deglacial history and postglacial emergence data (Gray et al., 1993).

SOUTHERN BAFFIN ISLAND

Brevoort Island

Water Lake

Location: Close to input at northern end of lake in 11 m of water.
Lat: 63° 19'N **Long:** 64° 10'W
Lake Elevation: 162 m **Map Sheet:** 25P - Beekman Pen

Date: 10,435 ± 95 **Lab No:** AA-7009
Field ID: BR1-37.5
Depth: 36-39 cm **AMS or Conv:** AMS
Material: Bulk Sediment
Contributor(s): Mark Abbott, Raoul Miller
Sample Notes: Humic acid
Sample Pre-treatment: Extraction performed by Mark Abbott; see Abbott (1991).

Date: 14,115 ± 110 **Lab No:** AA-7010
Field ID: BR1-53
Depth: 51-55 cm **AMS or Conv:** AMS
Material: Bulk Sediment
Contributor(s): Mark Abbott, Raoul Miller
Sample Notes: Humic acid
Sample Pre-treatment: Extraction performed by Mark Abbott; see Abbott (1991).

Date: 13,195 ± 125 **Lab No:** AA-7011
Field ID: BR1-65
Depth: 63-67 cm **AMS or Conv:** AMS
Material: Bulk Sediment
Contributor(s): Mark Abbott, Raoul Miller
Sample Notes: Humic acid
Sample Pre-treatment: Extraction performed by Mark Abbott; see Abbott (1991).
Comment: Causes problems in age control when analyzed with AA-7010 because there is stratigraphic reversal of dates. However this does show that the lake was in existence by approximately 14,000 years BP and therefore that ice had left the area by this time. There is considerable disturbance in the upper part of the core due to human activities on the island, but the lower section of the core, below 30-35 cm, appears to be intact and pristine. See Miller (1992) for further discussion.

Cumberland Peninsula

Navyak Lake

Location: North shore Pangnirtung Fiord above Duval Moraine; core from central basin (50 m water depth)
Lat: 66° 16'N **Long:** 65° 42'W **UTMG:** LJ 78 52
Lake Elevation: 743 m **Map Sheet:** 26-I Pangnirtung

Date: 9500 ± 150 **Lab No:** BGS-1472
Field ID: NKl-1
Depth: 28-36 cm **AMS or Conv:** Conv
Material: Gyttja **Weight:** 35 g
Contributor(s): A.P. Wolfe
Sample Notes: Highly organic gyttja, macrofossils abundant, well preserved, sample dried at 105 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: Basal gyttja directly overlying inorganic silty sediments.
Comment: See comment for TO-3243.

Tulugak Lake

Location: North shore Pangnirtung Fiord above Duval Moraine; core from central basin (14 m water depth)
Lat: 66° 17'N **Long:** 65° 43'W **UTMG:** LJ 77 53
Lake Elevation: 754 m **Map Sheet:** 26-I Pangnirtung

Date: 8870 ± 100 **Lab No:** GSC-5483
Field ID: TGK-1
Depth: 37.5-45.5 cm **AMS or Conv:** Conv
Material: Gyttja **Weight:** 28.5 g
Contributor(s): A.P. Wolfe
Sample Notes: Highly organic gyttja, with *in situ* horizons of the moss *Warnstorfia exannulata* (Dripanocladus exannulatus sensu lato); well preserved; dried at 105 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: Basal gyttja directly overlying inorganic sediments.
Comment: See comment for TO-3243.

Date: 36120 ± 340 **Lab No:** TO-3242
Field ID: TGK-1
Depth: 90-91 cm **AMS or Conv:** AMS
Material: Plant Macrofossils **Species:** *Warnstorfia exannulata* **Weight:** 250 mg
Contributor(s): A.P. Wolfe
Sample Notes: A clump of moss, possibly an admixture of taxa; well preserved; hand-picked fragments, air-dried not leached. From Gilbert Percussion core.
Stratigraphic Relations: Within the inorganic silts (pre-Holocene), 45 cm beneath the transition between gyttja and silt.
Comment: See comment for TO-3243.

Ukalik Lake

Location: North shore Pangnirtung Fiord above Duval Moraine; core from central basin (12 m water depth)

Lat: 66° 16'N **Long:** 65° 45'W **UTMG:** LJ 76 52
Lake Elevation: 545 m **Map Sheet:** 26-I Pangnirtung

Date: 3220 ± 110 **Lab No:** GSC-5496
Field ID: UKL-1
Depth: 22-28.5 cm **AMS or Conv:** Conv
Material: Gyttja/silt **Weight:** 30 g
Contributor(s): A.P. Wolfe
Sample Notes: Silty gyttja containing infrequent macrofossils, dried at 105 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: Approximately one third of the Holocene sequence (95 cm total) overlies this sample, which was submitted to constrain Holocene sediment accumulation rates.
Comment: See comment for TO-3243.

Date: 6980 ± 110 **Lab No:** GSC-5492
Field ID: UKL-1
Depth: 66-73 cm **AMS or Conv:** Conv
Material: Gyttja **Weight:** 27.5 g
Contributor(s): A.P. Wolfe
Sample Notes: Gyttja containing frequent dispersed bryophyte macrofossils; dried at 105 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: Approximately two thirds of the Holocene sequence overlies this sample, also used to constrain Holocene sediment accumulation rates.
Comment: See comment for TO-3243.

Date: 9370 ± 90 **Lab No:** GSC-5486
Field ID: UKL-1
Depth: 89-95.5 cm **AMS or Conv:** Conv
Material: Gyttja **Weight:** 26 g
Contributor(s): A.P. Wolfe
Sample Notes: Highly organic gyttja containing abundant *in situ* horizons of *Warnstorfia exannulata*. Well preserved, sample dried at 105 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: Basal gyttja directly overlying silty sediments.
Comment: See comment for TO-3243.

Date: 37990 ± 410 **Lab No:** TO-3241
Field ID: UKL-1
Depth: 102-103 cm **AMS or Conv:** AMS
Material: Plant Macrofossils **Species:** *Warnstorfia exannulata*(?) **Weight:** 320 mg
Contributor(s): A.P. Wolfe
Sample Notes: A clump of moss, possibly an admixture of taxa; well preserved; hand-picked fragments, air-dried not leached. From Gilbert Percussion core.
Stratigraphic Relations: 7 cm beneath the transition from inorganic to organic sediments
Comment: See comment for TO-3243.

Amarok Lake

Location: North shore Pangnirtung Fiord above Duval Moraine; core from central basin (14 m water depth)
Lat: 66° 17'N **Long:** 65° 45'W **UTMG:** LJ 76 55
Lake Elevation: 848 m **Map Sheet:** 26-I Pangnirtung

Date: modern ± **Lab No:** CAMS-11335
Field ID: AKL-1
Depth: 11-12 cm **AMS or Conv:** AMS
Material: Plant Macrofossils **Species:** *Warnstorfia exannulata* **Weight:** 3 mg
Contributor(s): A.P. Wolfe
Sample Notes: Sparse samples picked from silty gyttja, dried at 70 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: Within late Holocene silty gyttja
Comment: See comment for TO-3243.

Date: 8380 ± 60 **Lab No:** CAMS-11125
Field ID: AKL-1
Depth: 29.5-30.5 cm **AMS or Conv:** AMS
Material: Plant Macrofossils **Species:** *Warnstorfia exannulata* **Weight:** 6 mg
Contributor(s): A.P. Wolfe
Sample Notes: Hand pitched moss fragments from an *in situ* horizon. Dried at 70 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: From the youngest of three moss horizons occurring in this core.
Comment: See comment for TO-3243.

Date: 8890 ± 70 **Lab No:** CAMS-11122
Field ID: AKL-1
Depth: 37.0-37.5 cm **AMS or Conv:** AMS
Material: Plant Macrofossils **Species:** *Warnstorfia exannulata* **Weight:** 10 mg
Contributor(s): A.P. Wolfe
Sample Notes: Hand picked bryophytes from an *in situ* horizon. Dried at 70 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: Second youngest of three moss horizons in the highly organic gyttja section of this core.
Comment: See comment for TO-3243.

Date: 10500 ± 110 **Lab No:** GSC-5478
Field ID: AKL-1
Depth: 37-45 cm **AMS or Conv:** Conv
Material: Gyttja **Weight:** 26.5 g
Contributor(s): A.P. Wolfe
Sample Notes: Highly organic gyttja containing two horizons of *in situ* moss (*Warnstorfia exannulata*), well preserved; dried at 105 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: Basal gyttja directly overlying inorganic silty sediments.
Comment: See comment for TO-3243.

Date: 12860 ± 90 **Lab No:** CAMS-11121
Field ID: AKL-1
Depth: 43.5-44.5 cm **AMS or Conv:** AMS
Material: Plant Macrofossils **Species:** *Warnstorfia exannulata* **Weight:** 9 mg
Contributor(s): A.P. Wolfe
Sample Notes: Hand picked bryophytes from an *in situ* horizon. Dried at 70 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: Oldest of the three moss horizons in this core. Very close to (i.e. within 1 cm) of the contact between gyttja and underlying silty sediments.
Comment: See comment for TO-3243.

Date: 17330 ± 1200 **Lab No:** CAMS-12256
Field ID: AKL-1

Depth: 68-69 cm **AMS or Conv:** AMS
Material: Plant Macrofossils **Species:** *Warnstorfia exannulata* **Weight:** 4 mg
Contributor(s): A.P. Wolfe
Sample Notes: dispersed moss fragments, well preserved; Dried at 70 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: 24 cm beneath the transition from gyttja to inorganic sediments.
Comment: See comment for TO-3243.

Date: >38000 ± **Lab No:** GSC-5497
Field ID: AKL-1
Depth: 110-117 cm **AMS or Conv:** Conv
Material: Gyttja **Weight:** 32 g
Contributor(s): A.P. Wolfe
Sample Notes: compacted silty gyttja containing admixed macrofossils, dried at 105 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: The basal 7 cm of the core.
Comment: See comment for TO-3243.

Date: 18730 ± 90 **Lab No:** CAMS-11340
Field ID: AKL-1
Depth: 111-113 cm **AMS or Conv:** AMS
Material: Plant Macrofossils **Species:** *Warnstorfia exannulata* **Weight:** 8 mg
Contributor(s): A.P. Wolfe
Sample Notes: from a small clump of moss, unlikely *in situ*, but well preserved; dried at 70 degrees C, not leached. From Gilbert Percussion core.
Stratigraphic Relations: 4 cm from the base of the core.
Comment: See comment for TO-3243.

Date: 20110 ± 340 **Lab No:** TO-3243
Field ID: AKL-1
Depth: 112-113 cm **AMS or Conv:** AMS
Material: Plant Macrofossils **Weight:** 120 mg
Contributor(s): A.P. Wolfe
Sample Notes: Hand picked moss fragments, dispersed in the 112-113 cm interval; Not *in situ*, but well preserved. not leached. From Gilbert Percussion core.
Stratigraphic Relations: 4 cm from the base of the core.
Comment: (APW) These sixteen dates represent the chronological infrastructure for paleolimnological studies of four lakes on the highly weathered pre-Foxe terrain north of Pangnirtung, initiated in 1990 (Wolfe 1994a; 1994b). The recovery of pre-Holocene lake sediments, a major goal of this investigation, has been successful at each of the sites, but only Amarok lake seems to preserve a continuous record. Dates of 36-37 ka BP (TO-3241, TO-3242) from silty sediments in Ukalik and Tulugak lakes are interpreted as indicating either redeposition of older mosses, or depositional hiatuses. The base of Amarok Lake is more securely dated (TO-3243; CAMS 11340), but a bulk date from the same interval is non-finite, indicating supplies of carbon with old 14C signatures related to extremely slow organic matter decomposition rates. Another anomalous date is CAMS-11335, which is modern and is interpreted as a coring artifact from a section of core with no *in situ* macrofossils. Although the accuracy of bulk dates is questionable especially in an environment with very low sediment accumulation rates, the basal gyttja dates (BGS-1472; GSC-5486; GSC-5483; GSC-5478; see also CAMS-11121) suggest that the abrupt transition from inorganic to organic sediments may be asynchronous between lakes, being oldest at the highest site, Amarok Lake. Although the bulk dates from Holocene sediments at Ukalik Lake (GSC-5496; GSC-5492; GSC-5486) indicate a nearly linear depth-age relationship, the AMS results from *in situ* moss horizons in Amarok Lake (CAMS-11121; CAMS-11122;

CAMS-11125) suggest considerably lower sediment accumulation rates for the initial basal gyttja than that deposited after ca. 9 ka BP.

REFERENCES CITED

Aksu, A. E., 1985, Climatic and oceanographic changes over the past 400,000 years: Evidence from deep-sea cores on Baffin Bay and Davis Strait, in Andrews, J. T., eds., Quaternary Environments: Baffin Island, Baffin Bay, and West Greenland: Winchester, MA, Allen & Unwin, p. 181-209.

Aksu, A. E., and Mudie, J., 1985, Late Quaternary stratigraphy and paleoecology of northwest Labrador Sea: Marine Micropaleontology, v. 9, p. 537-557.

Alsford, S., ed., 1993, The Meta Incognita Project: Mercury Series, Directorate Paper No. 6, Canadian Museum of Civilization.

Andrews, J. T., 1975, Radiocarbon date list II from Cumberland Peninsula, Baffin Island, N.W.T., Canada: Arctic and Alpine Research, v. 7, p. 77-91.

Andrews, J. T., 1976, Radiocarbon Date List III: Baffin Island, N.W.T., Canada: Institute of Arctic and Alpine Research Occasional Paper 21, 47 p.

Andrews, J. T., 1990, Fiord to deep-sea sediment transfers along the northeastern Canadian continental margin: Models and data: Géographie Physique et Quaternaire, v. 44, p. 55-70.

Andrews, J. T., and Drapier, L., 1967, Radiocarbon dates obtained through Geographical Branch Field observations: Geographical Bulletin, v. 9, p. 115-162.

Andrews, J. T., and Falconer, G., 1969, Late glacial and post-glacial history and emergence of the Ottawa Islands, Hudson Bay, Northwest Territories: Evidence on the deglaciation of Hudson Bay: Canadian Journal of Earth Sciences, v. 6, p. 1263-1276.

Andrews, J. T., and Miller, G. H., 1972, The Quaternary history of northern Cumberland Peninsula, east Baffin Island, N.W.T., Part X: Radiocarbon date list: Arctic and Alpine Research, v. 4, p. 261-277.

Andrews, J. T., and Short, S. K., 1983, Radiocarbon Date List V: Baffin Island, N.W.T., Canada, and Radiocarbon Date List II: Labrador and Northern Quebec, Canada: Institute of Arctic and Alpine Research Occasional Paper 40, 71 p.

Andrews, J. T., and Stravers, J. A., 1993, Magnetic susceptibility of late Quaternary marine sediments, Frobisher Bay, N.W.T.: An indicator of changes in provenance and processes: Quaternary Science Reviews, v. 12, p. 157-167.

Andrews, J. T., and Tedesco, K., 1992, Detrital carbonate-rich sediments, northwestern Labrador Sea: Implications for ice-sheet dynamics and iceberg rafting (Heinrich) events in the North Atlantic: Geology, v. 20, p. 1087-1090.

Andrews, J. T., Jull, A. J. T., Donahue, D. J., Short, S. K., and Osterman, L. E., 1985, Sedimentation rates in Baffin Island fiord cores from comparative radiocarbon dates: Canadian Journal of Earth Sciences, v. 22, p. 1827-1834.

Andrews, J. T., Laymon, C. A., and Briggs, W. M., 1989, Radiocarbon Date List III: Labrador and Northern Quebec, Canada, and Radiocarbon Date List VI: Baffin Island, N.W.T., Canada: Institute of Arctic and Alpine Research Occasional Paper 46, 85 p.

Andrews, J. T., Briggs, W. M., and Weiner, N., 1991, Rock and paleomagnetic studies of cored sediments during Hudson Cruise HU90-023 in Frobisher Bay, Ungava Bay, and Hudson Strait, Northwest Territories, *in* Current Research, Part E, Geological Survey of Canada Paper 91-1E: p. 317-320.

Andrews, J. T., Erlenkeuser, H., Tedesco, K., Aksu, A. E., and Jull, A. J., 1994, Late Quaternary (Stage 2 and 3) meltwater and Heinrich events, NW Labrador Sea: Quaternary Research, v. 41, p. 26-34.

Andrews, J. T., Milliman, J. D., Jennings, A. E., Rynes, N., and Dwyer, J., 1994, Sediment thicknesses and Holocene glacial marine sedimentation rates in three East Greenland fjords (ca. 68 degrees N): Journal of Geology, v. 102, p. 669-683.

Andrews, J. T., Tedesco, K., Briggs, W. M., and Evans, L. W., 1994, Sediments, sedimentation rates, and environments, southeast Baffin Shelf and northwest Labrador Sea, 8-26 ka: Canadian Journal of Earth Sciences, v. 31, p. 90-103.

Andrews, J. T., Bond, G., Jennings, A. E., Kerwin, M., Kirby, M., MacLean, B., Manley, W., and Miller, G. H., 1995, A Heinrich-like event, H-0 (DC-0): Source(s) for detrital carbonate in the North Atlantic during the Younger Dryas chronozone: Paleoceanography, v. 10, p. 943-952.

Andrews, J. T., MacLean, B., Kerwin, M., Manley, W., Jennings, A. E., and Hall, F., 1995, Final stages in the collapse of the Laurentide Ice Sheet, Hudson Strait, Canada, NWT: 14C AMS dates, seismic stratigraphy, and magnetic susceptibility logs: Quaternary Science Reviews, v. 14, p. 983-1004.

Asprey, K. W., Syvitski, J. P. M., Andrews, J. T., and Dowdeswell, J. A., 1994, CANAM-PONAM Cruise HU93030: West Iceland to East Greenland: Geological Survey of Canada Open File Report No. 2824.

Berkman, P. A., and Forman, S. L., 1996, Pre-bomb radiocarbon and the reservoir correction for calcareous marine species in the Southern Ocean: Geophysical Research Letters, v. 23, p. 363-366.

Blake, W., Jr., 1966, End moraines and deglaciation chronology in northern Canada with special reference to southern Baffin Island: Geological Survey of Canada Paper 66-26, 31 p.

Brooks, C. K., 1979, Geomorphological observations at Kangerdlugssuaq, East Greenland: Meddeleser om Gronland, Geoscience, 21 p.

Brooks, C. K., and Nielsen, T. F. D., 1982, The Phanerozoic development of the Kangerdlugssuaq area, East Greenland: Meddeleser om Gronland, Geoscience, v. 9, p. 1-30.

Clark, P., 1985, A note on the glacial geology and postglacial emergence of the Lake Harbour region, Baffin Island, N.W.T.: Canadian Journal of Earth Sciences, v. 22, p. 1864-1871.

Colvill, A., 1982, Glacial landforms at the head of Frobisher Bay, Baffin Island, Canada [M.S. Thesis]: University of Colorado.

Cooper, T. A., 1992, A Marine Sediment Analysis of Mikis Fjord, East Greenland [B.Sc. Thesis]: University of Colorado, Dept. of Geological Sciences, 67 p.

Cooper, T. A., 1995, Late Quaternary Environments of Western Denmark Strait from Isotopic Records on Planktic and Benthic Foraminifera [M.Sc. Thesis]: University of Colorado.

Donahue, D. J., Linick, T. W., and Jull, A. J. T., 1990, Isotope-ratio and background corrections for accelerator mass spectrometry radiocarbon measurements: Radiocarbon, v. 32, no. 2, p. 135-142.

Duvall, M. L., 1993, Late Foxe glacial geology of the mid-bay area of Frobisher Bay, southeast Baffin Island, Northwest Territories [M.Sc. Thesis]: University of Colorado, 103 p.

Dwyer, J. L., 1993, Monitoring characteristics of glaciation in the Kangerdlugssuaq Fjord region, East Greenland, using Landsat data [M.Sc. Thesis]: University of Colorado, 238 p.

Evans, L., 1990, Late Quaternary stratigraphy of the Hatton and Resolution Basins, Southeast Baffin Island Shelf, N.W.T., Canada [M.S. Thesis]: University of Colorado, 188 p.

Feyling-Hanssen, R. W., 1985, Late Cenozoic marine deposits of east Baffin Island and East Greenland: microbiostratigraphy, correlation, and age, *in* Andrews, J. T., ed., Quaternary

Environments: Baffin Island, Baffin Bay, and West Greenland: Winchester, MA, Allen & Unwin, p. 354-393.

Fitzhugh, W. F., 1993, Archeology of the Frobisher Voyages VI, Field Report for 1993: Arctic Studies Center, National Museum of Natural History, Smithsonian Institution.

Fitzhugh, W. F., and Olin, J. S., eds., 1993, Archeology of the Frobisher Voyage: Washington, D.C., Smithsonian Institution Press.

Funder, S., 1989, The Baffin Bay region during the last interglaciation: Evidence from northwest Greenland: Géographie Physique et Quaternaire, v. 43, p. 255-262.

Gordon, J. E., and Harkness, D. D., 1992, Magnitude and geographic variation of the radiocarbon content in Antarctic marine life: Implications for reservoir corrections in radiocarbon dating: Quaternary Science Reviews, v. 11, p. 697-708.

Gray, J., Lauriol, B., Bruneau, D., and Ricard, J., 1993, Postglacial emergence of Ungava Peninsula, and its relationship to glacial history: Canadian Journal of Earth Sciences, v. 30, p. 1676-1696.

Hagen, S., 1995, Watermass Characteristics and Climate in the Nordic Sea during the Last 10,200 Years [Candidatus Scientiarum]: University of Trømso, 114 p.

Hjort, C., 1973, A sea correction for East Greenland: Goelogiska Föreningens i Stockholm Förhandlingar, v. 95, p. 132-134.

Jennings, A. E., Andrews, J. T., Weiner, N. J., Manley, W. F., MacLean, B., and Barber, D. C., 1995, Strategies and progress in unraveling the chronology of Hudson Strait deglaciation, *in* 25th Arctic Workshop: Universite de Laval, p. 90.

Jennings, A. E., Tedesco, K. A., Andrews, J. T., and Kirby, M. E., in press, Shelf erosion and glacial ice proximity in the Labrador Sea during and after Heinrich events (H-3 or 4 to H-0) as shown by foraminifera, *in* Andrews, J. T., Austin, W., Bergsten, H., and Jennings, H. E., eds., Paleoceanography of North Atlantic Margins: London, Geological Society of London.

Jennings, A. E., and Weiner, N. J., 1996, Environmental change in eastern Greenland during the last 1300 years: evidence from foraminifera and lithofacies in Nansen Fjord, 68 degrees N: The Holocene, v. 6, p. 179-191.

Josenhans, H. W., Zevenhuizen, J., and Klassen, R. A., 1986, The Quaternary geology of the Labrador Shelf: Canadian Journal of Earth Sciences, v. 23, p. 1190-1214.

Kaufman, D. S., and Williams, K. M., 1992, Radiocarbon Date List VII: Baffin Island, N.W.T., Canada: Institute of Arctic and Alpine Research Occasional Paper 48, 82 p.

Kaufman, D. S., Miller, G. H., Gray, J. T., Stravers, J. A., Lauriol, B., Bruneua, D., and Jull, A. J. T., 1992, Chronology and configuration of late-glacial (12-8 ka) fluctuations of the Labrador Dome at the mouth of Hudson Strait, *in* 22nd Arctic Workshop: Boulder, University of Colorado, p. 78-80.

Kaufman, D. S., Miller, G. H., Stravers, J. A., and Andrews, J. T., 1993, An abrupt early Holocene (9.9-9.6 kyr BP) ice stream advance at the mouth of Hudson Strait, Arctic Canada: Geology, v. 21, p. 1063-1066.

Kerwin, M. W., 1994, Final stages in the collapse of the Laurentide ice sheet: A rock magnetic and sedimentological study from Hudson Strait, Canada [M.Sc. Thesis]: University of Colorado, 189 p.

Kihl, R., 1975, Physical preparation of organic matter samples for C-14 dating: Arctic and Alpine Research, v. 7, p. 90-91.

Kirby, M. E., in prep., Mid to Late Wisconsin Ice Sheet/Ocean Interactions in the Northwest Labrador Sea: Sedimentology, Provenance, Process, and Chronology [M.Sc. Thesis]: University of Colorado.

Laymon, C. A., 1988, Glacial geology of western Hudson Strait, Canada, with reference to Laurentide Ice Sheet dynamics [Ph.D. Thesis]: University of Colorado, 345 p.

Licht, K. J., 1995, Marine Sedimentary Record of Ice Extent and Late Wisconsin Deglaciation in the Western Ross Sea, Antarctica [M.Sc. Thesis]: University of Colorado, 144 p.

Licht, K. J., Jennings, A. E., Andrews, J. T., and Williams, K. M., 1996, Chronology of late Wisconsin ice retreat from the western Ross Sea, Antarctica: Geology, v. 24, p. 223-226.

Lind, E. K., 1983, Environmental conditions and history of the Holocene deglaciation for the Cape Rammelsberg area, southern Baffin Island, N.W.T., Canada [M.S. Thesis]: University of Colorado, Boulder, 219 p.

MacLean, B., Vilks, G., Aitken, A., Allen, Briggs, W., Bruneau, D., Doiron, A., Escamilla, M., Hardy, I., Miner, J., Mode, W., Powell, R., Retelle, M., Stravers, J., Taylor, A., and Weiner, N., 1991, Investigations of the Quaternary geology of Hudson Strait and Ungava Bay, Northwest Territories, *in* Current Research, Part E: Geological Survey of Canada Paper 91-1E, p. 305-315.

MacLean, B., Vilks, G., Aitken, A., Boudreau, H., Briggs, W., Bruneau, D., Doiron, A., Durham, D., Hardy, L., Mode, W., Powell, R., Retelle, M., Stravers, J., Taylor, A., and Allen, 1991, Cruise Report, CSS Hudson Cruise 90-023: Marine Geological Investigations in Hudson Strait, Ungava Bay, and Frobisher Bay: Geological Survey of Canada Open File 2372, 116 p.

MacLean, B., Vilks, G., and Deonarine, B., 1992, Depositional environments and history of late Quaternary sediments in Hudson Strait and Ungava Bay: Further evidence from seismic and biostratigraphic data: Géographie Physique et Quaternaire, v. 46, p. 311-329.

MacLean, B., Loncarevic, B. D., Hardy, I., Brown, R. G. B., Daigneault, R. A., Day, M., Kerwin, M. W., and Manley, W. F., 1994, Cruise Report, CSS Hudson Cruise 93034 - Hudson Strait, Ungava Bay, Eastern Canadian Arctic: Geological Survey of Canada Open File Report 2818, 157 p.

Mangerud, J., and Gulliksen, S., 1975, Apparent radiocarbon ages of recent marine shells from Norway, Spitsbergen, and Arctic Canada: Quaternary Research, v. 5, p. 263-273.

Manley, W. F., 1993, Late-glacial ice flow patterns and interactions, Hudson Strait coast of Baffin Island, *in* 23rd Arctic Workshop: Byrd Polar Research Center, Columbus, Ohio, p. 56-57.

Manley, W. F., 1995a, Late-Glacial Record of Ice-Sheet/Ocean Interactions, Hudson Strait and Southern Baffin Island, Eastern Canadian Arctic [Ph.D. Thesis]: University of Colorado, 266 p.

Manley, W. F., 1995b, Early Holocene dynamics and deglaciation of the Laurentide Ice Sheet in inner Frobisher Bay, southern Baffin Island, eastern Canadian Arctic: Geological Society of America Abstracts with Programs, v. 27, no. 6, p. A-60.

Manley, W. F., in press, Late-glacial dynamics, deglaciation, and postglacial emergence of north-central Hudson Strait and south-central Baffin Island, Eastern Canadian Arctic: Canadian Journal of Earth Sciences.

Manley, W. F., and Moore, J. J., 1995, Early Holocene glacial interactions in inner Frobisher Bay, southern Baffin Island, Nunavut, *in* 25th Arctic Workshop: Universite de Laval, p. 123-125.

Manley, W. F., MacLean, B., Kerwin, M. W., and Andrews, J. T., 1993, Magnetic susceptibility as a Quaternary correlation tool: Examples from Hudson Strait sediment cores, eastern Canadian Arctic, *in* Current Research, Part D: Geological Survey of Canada Paper 93-1D, p. 137-145.

Manley, W. F., Moore, J. J., and Miller, G. H., 1994, Late-glacial ice flow from Baffin Island into Hudson Strait: Scant evidence for a Hudson Strait ice stream, *in* 24th Arctic Workshop: Boulder, University of Colorado, p. 56-57, 45.

Mienert, J., Andrews, J. T., and Milliman, J. D., 1992, The East Greenland continental margin (65°N) since the last deglaciation: Changes in seafloor properties and ocean circulation: Marine Geology, v. 106, p. 217-238.

Miller, G. H., 1979, Radiocarbon Date List IV: Baffin Island, N.W.T., Canada: Institute of Arctic and Alpine Research Occasional Paper 29, 61 p.

Miller, G. H., 1985, Aminostratigraphy of Baffin Island shell-bearing deposits, *in* Andrews, J. T., eds., Quaternary Environments: Baffin Island, Baffin Bay, and West Greenland: Winchester, MA, Allen & Unwin, p. 394-427.

Miller, G. H., and Kaufman, D. S., 1990, Rapid fluctuations of the Laurentide ice sheet at the mouth of Hudson Strait: New evidence for ocean/ice-sheet interactions as a control on the Younger Dryas: Paleoceanography, v. 5, p. 907-919.

Miller, G. H., and Stravers, J. A., 1987, Glacial geology and Holocene events, outer Frobisher Bay, *in* J. T. Andrews, R. G., J. D. Jacobs, G. H. Miller, W. N. Mode and J. D. Stravers, eds., Cumberland Sound and Frobisher Bay, southeastern Baffin Island, N.W.T.: XIIth INQUA Congress Field Excursion Guide Book C-2, p. 63-84.

Miller, G. H., Hearty, J., and Stravers, J. A., 1988, Ice-sheet dynamics and glacial history of southeasternmost Baffin Island and outermost Hudson Strait: Quaternary Research, v. 30, p. 116-136.

Praeg, D. B., MacLean, B., Hardy, I. A., and Mudie, J., 1986, Quaternary geology of the southeast Baffin Island Continental Shelf: Geological Survey of Canada Paper 85-14, 38 p.

Schafer, C., and others, in prep., The pre-modern (Little Ice Age) marine environment in Hudson Strait: Characteristics of benthic foraminifera assemblages.

Short, S. K., 1981, Radiocarbon Date List I: Labrador and Northern Quebec, Canada: Institute of Arctic and Alpine Research Occasional Paper 36, 33 p.

Silva, A. J., Dadey, K. A., Josenhans, H. W., and Laine, E. P., 1985, Geotechnical analysis of Labrador Shelf sediments and the influence of ice contact processes: Dartmouth, Nova Scotia, Atlantic Geoscience Centre, Bedford Institute of Oceanography Internal Report, 28 p.

Squires, C., 1984, The Late Foxe deglaciation of the Burton Bay area, southeastern Baffin Island, N.W.T. [M.A. Thesis]: University of Windsor.

Stein, A., in prep., Quaternary Seismic Facies on the East Greenland Margin: Huntec and Air Gun Records [M.Sc. Thesis]: University of Colorado.

Stravers, J. A., 1986, Glacial geology of outer Meta Incognita Peninsula, southern Baffin Island, Arctic Canada [Ph.D. Thesis]: University of Colorado, Boulder, 231 p.

Stravers, J. A., Miller, G. H., and Kaufman, D. S., 1992, Late glacial ice margins and deglacial chronology for southeastern Baffin Island and Hudson Strait, eastern Canadian Arctic: Canadian Journal of Earth Sciences, v. 29, p. 1000-1017.

Stuiver, M., and Polach, H. A., 1977, Reporting of 14C data: Radiocarbon, v. 19, p. 355-363.

Stuiver, M., and Reimer, P. J., 1993, Extended 14C data base and revised Calib 3.0 14C age calibration program: Radiocarbon, v. 35, p. 215-230.

Syvitski, J. P. M., and Andrews, J. T., 1994, Climate Change: Numerical Modelling of Sedimentation and Coastal Processes, Eastern Canadian Arctic: Arctic and Alpine Research, v. 26, no. 3.

Veldhuyzen, H., 1981, Sources and transport of late Quaternary sediments, Karlsefni Trough, Labrador Shelf [MSc Thesis]: Montreal, McGill University, 247 p.

Vilks, G., MacLean, B., Deonarine, B., Currie, C. G., and Moran, K., 1989, Late Quaternary paleoceanography and sedimentary environments in Hudson Strait: Géographie Physique et Quaternaire, v. 43, p. 161-178.

Williams, K. M., 1993, Ice sheet and ocean interactions, margin of the East Greenland ice sheets (14 ka to present): Diatom evidence: Paleoceanography, v. 8, p. 69-83.

Williams, K. M., Licht, K. J., and Jennings, A. E., 1993, Ross Sea Ice Shelf/Ocean Interaction during the Holocene: EOS, v. 74, p. 326.

Appendix 1A. Abbreviated date list, indexed by laboratory number.

Lab No.	Reported	Corrected	Area	Site	Material
AA - 4918	7,830 ± 120	7,380	Frobisher Bay	HU82034-068 PC	Foraminifera
AA - 7009	10,435 ± 95		Brevoort Island	Water Lake	Bulk Sediment
AA - 7010	14,115 ± 110		Brevoort Island	Water Lake	Bulk Sediment
AA - 7011	13,195 ± 125		Brevoort Island	Water Lake	Bulk Sediment
AA - 7142	Modern		Northern Antarctic Pen.	DF82-182	Organic Conc.
AA - 7144	17,305 ± 140	16,105	Northern Antarctic Pen.	DF82-187	Organic Conc.
AA - 7561	9,215 ± 80	8,765	Northern Ungava Pen.	Cap Briard	Mollusc
AA - 7562	11,125 ± 100	10,675	Northern Ungava Pen.	R. Déception valley	Mollusc
AA - 7892	7,995 ± 65	7,545	Meta Incognita Pen.	Lake Harbour	Mollusc
AA - 7893	8,360 ± 60	7,910	Meta Incognita Pen.	Lake Harbour	Mollusc
AA - 7897	>43,700		Meta Incognita Pen.	Lake Harbour	Mollusc
AA - 7898	6,655 ± 65	6,205	Meta Incognita Pen.	Big Island	Mollusc
AA - 7899	34,790 ± 710	34,340	Meta Incognita Pen.	Big Island	Mollusc
AA - 7900	7,810 ± 70	7,360	Meta Incognita Pen.	Big Island	Mollusc
AA - 7901	>43,900		Meta Incognita Pen.	Barrier Inlet	Mollusc
AA - 8393	9,325 ± 100	8,875	Northern Ungava Pen.	R. Déception valley	Mollusc
AA - 8394	8,875 ± 110	8,425	Northern Ungava Pen.	R. Déception valley	Mollusc
AA - 8395	8,995 ± 120	8,545	Northern Ungava Pen.	R. Déception valley	Mollusc
AA - 8959	10,530 ± 135		Mikis Fjord	BS1191-K10	Organic Conc.
AA - 8960	12,220 ± 130		Mikis Fjord	BS1191-K10	Organic Conc.
AA - 8961	2,215 ± 55	1,765	H.S., Eastern Basin	HU90023-045 LCF	Foraminifera
AA - 8962	7,675 ± 115	7,225	H.S., Eastern Basin	HU90023-045 LCF	Foraminifera
AA - 8963	7,600 ± 60	7,115	H.S., Eastern Basin	HU90023-045 LCF	Foraminifera
AA - 8964	9,730 ± 70	9,280	H.S., Eastern Basin	HU90023-045 LCF	Foraminifera
AA - 8965	22,210 ± 255	21,760	N. Labrador Sea Slope	HU75009-IV-054	Foraminifera
AA - 8966	30,175 ± 405	29,725	N. Labrador Sea Slope	HU75009-IV-054	Foraminifera
AA - 9022	4,040 ± 105		Mikis Fjord	BS1191-K12	Organic Conc.
AA - 9024	4,060 ± 105		Mikis Fjord	BS1191-K12	Organic Conc.
AA - 9062	33,170 ± 590	32,720	NW Labrador Sea Slope	HU75009-IV-057	Foraminifera
AA - 9063	>47,240		NW Labrador Sea Slope	HU75009-IV-057	Foraminifera
AA - 9064	46,700 ± 3000	46,250	NW Labrador Sea Slope	HU75009-IV-057	Foraminifera
AA - 9065	1,000 ± 60	450	Kangerdlugssuaq Trough	BS1191-K5	Foraminifera
AA - 9066	5,840 ± 120	5,290	Kangerdlugssuaq Trough	BS1191-K5	Foraminifera
AA - 9067	33,615 ± 600	33,165	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 9288	16,380 ± 165		Northeast Quebec	Palsa Lake	Bulk Sediment
AA - 9289	7,575 ± 125		Northeast Quebec	Palsa Lake	Bulk Sediment
AA - 9290	7,880 ± 90		Northern Labrador	Two Ridge Lake	Bulk Sediment
AA - 9291	6,755 ± 90		Northern Labrador	Two Ridge Lake	Bulk Sediment
AA - 9355	14,280 ± 205	13,830	NW Labrador Sea Slope	IMP 77-1-2	Foraminifera
AA - 9356	23,890 ± 260	23,440	NW Labrador Sea Slope	IMP 77-5-1	Foraminifera
AA - 9361	27,720 ± 340	26,520	Ross Sea Shelf	DF87-032	Foraminifera
AA - 9362	4,110 ± 65		Kangerdlugssuaq Fjord	BS1191-K6	Organic Conc.
AA - 9363	6,940 ± 75		Kangerdlugssuaq Fjord	BS1191-K6	Organic Conc.
AA - 9364	14,980 ± 90	14,530	NW Labrador Sea Slope	HU87033-009	Foraminifera
AA - 10117	7,015 ± 65	5,270	Maktak Fjord	HU82031-MA2	Organic Conc.
AA - 10118	11,235 ± 95	8,010	Maktak Fjord	HU82031-MA2	Organic Conc.
AA - 10119	17,575 ± 185	12,130	Maktak Fjord	HU82031-MA2	Organic Conc.
AA - 10120	7,220 ± 65	5,400	Maktak Fjord	HU82031-MA4	Organic Conc.

Appendix 1A. Continued.

Lab No.	Reported	Corrected	Area	Site	Material
AA - 10121	13,470 ± 105	9,460	Maktak Fjord	HU82031-MA4	Organic Conc.
AA - 10122	17,855 ± 145	12,310	Maktak Fjord	HU82031-MA4	Organic Conc.
AA - 10232	38,700 ± 1200	38,250	Northern Ungava Pen.	Wales Island	Mollusc
AA - 10245	10,750 ± 65	10,300	Outer Frobisher Bay	Gabriel Island	Mollusc
AA - 10248	10,245 ± 70	9,795	Hall Peninsula	McKay Island	Mollusc
AA - 10249	9,605 ± 60	9,155	Hall Peninsula	Peter Force Sound	Mollusc
AA - 10250	11,285 ± 65	10,835	Hall Peninsula	Brewster Peninsula	Mollusc
AA - 10251	8,445 ± 55	7,995	Meta Incognita Pen.	Lake Harbour	Mollusc
AA - 10252	30,790 ± 450	30,340	Meta Incognita Pen.	Balcom Inlet	Mollusc
AA - 10253	9,040 ± 85	8,590	H.S., Eastern Basin	HU90023-042 LCF	Foraminifera
AA - 10254	9,075 ± 75	8,625	H.S., Eastern Basin	HU90023-052 LCF	Foraminifera
AA - 10255	10,780 ± 140	10,330	H.S., South-Central	HU90023-107 LCF	Foraminifera
AA - 10256	11,170 ± 100	10,720	H.S., South-Central	HU92028-155 PC	Foraminifera
AA - 10257	7,785 ± 75	7,335	H.S., Eastern Basin	HU92028-157 G	Foraminifera
AA - 10258	10,695 ± 85	10,245	Hatton Basin	HU92028-158 PC	Mollusc
AA - 10565	1,450 ± 60	900	Nansen Fjord	BS1191-K13B	Mixed
AA - 10566	815 ± 55	265	Nansen Fjord	BS1191-K13B	Mollusc
AA - 10567	1,440 ± 70	855	Nansen Fjord	BS1191-K14	Foraminifera
AA - 10568	20,840 ± 180	20,390	NW Labrador Sea Slope	HU75009-IV-062	Foraminifera
AA - 10569	34,010 ± 675	33,560	NW Labrador Sea Slope	HU87033-009	Foraminifera
AA - 10603	1,310 ± 60	760	Kangerdlugssuaq Fjord	BS1191-K7	Foraminifera
AA - 10645	8,760 ± 65	8,310	Meta Incognita Pen.	Balcom Inlet	Mollusc
AA - 10646	34,710 ± 690	34,260	Meta Incognita Pen.	Bond Inlet	Mollusc
AA - 10647	24,035 ± 240	23,585	Meta Incognita Pen.	Bond Inlet	Mollusc
AA - 10648	8,525 ± 60	8,075	Meta Incognita Pen.	Bond Inlet	Mollusc
AA - 10649	8,045 ± 60	7,595	Meta Incognita Pen.	Wight Inlet	Mollusc
AA - 10650	11,095 ± 110	10,645	H.S., South-Central	HU90023-071 LCF	Foraminifera
AA - 10651	7,840 ± 70	7,390	Hudson Strait	HU90023-079 IKU	Foraminifera
AA - 10652	8,785 ± 60	8,335	Hatton Basin	HU84035-014	Mollusc
AA - 10653	10,790 ± 70	10,340	Hatton Basin	HU84035-014	Foraminifera
AA - 10655	2,655 ± 45	2,205	H.S., Western Basin	HU90023-101 LCF	Foraminifera
AA - 10656	8,920 ± 65	8,470	H.S., Western Basin	HU90023-101 LCF	Foraminifera
AA - 10658	29,055 ± 350	28,605	NW Labrador Sea Slope	IMP 77-1-2	Foraminifera
AA - 11432	1,745 ± 160	1,295	Frobisher Bay	HU90023-001 TWC	Mollusc
AA - 11433	6,220 ± 130	5,770	Frobisher Bay	HU90023-001 LCF	Foraminifera
AA - 11434	7,795 ± 165	7,345	Frobisher Bay	HU90023-001 LCF	Foraminifera
AA - 11435	8,305 ± 170	7,855	Frobisher Bay	HU90023-001 LCF	Foraminifera
AA - 11436	8,750 ± 165	8,300	Frobisher Bay	HU90023-001 LCF	Foraminifera
AA - 11437	8,715 ± 165	8,265	Frobisher Bay	HU90023-001 LCF	Foraminifera
AA - 11438	8,865 ± 165	8,415	Frobisher Bay	HU90023-001 LCF	Mollusc
AA - 11440	12,035 ± 80	11,585	H.S., South-Central	HU90023-107 LCF	Foraminifera
AA - 11441	9,515 ± 70	9,065	H.S., South-Central	HU90023-107 LCF	Foraminifera
AA - 11442	9,245 ± 85	8,795	H.S., South-Central	HU90023-107 LCF	Foraminifera
AA - 11443	9,750 ± 70	9,300	H.S., South-Central	HU90023-107 LCF	Foraminifera
AA - 11444	9,410 ± 70	8,960	H.S., South-Central	HU90023-107 LCF	Foraminifera
AA - 11445	10,170 ± 70	9,720	H.S., South-Central	HU90023-107 LCF	Foraminifera
AA - 11446	85 ± 45		East Greenland Shelf	BS1191-K15	Foraminifera
AA - 11447	8,580 ± 70	8,030	East Greenland Shelf	BS1191-K15	Foraminifera

Appendix 1A. Continued.

Lab No.	Reported	Corrected	Area	Site	Material
AA - 11448	9,955 ± 75	9,505	H.S., Eastern Basin	HU90023-031 LCF	Foraminifera
AA - 11449	875 ± 50	425	H.S., Eastern Basin	HU92028-157 G	Foraminifera
AA - 11450	31,065 ± 455	30,615	Meta Incognita Pen.	Bond Inlet	Mollusc
AA - 11451	35,280 ± 760	34,830	Meta Incognita Pen.	Wight Inlet	Mollusc
AA - 11452	39,145 ± 1180	38,695	Meta Incognita Pen.	Gray Goose Islands	Mollusc
AA - 11453	40,760 ± 1450	40,310	Meta Incognita Pen.	Wight Inlet	Mollusc
AA - 11583	3,085 ± 70	2,635	Hatton Basin	HU92028-158 PC	Foraminifera
AA - 11584	9,975 ± 100	9,425	Mikis Fjord	BS1191-K11A	Foraminifera
AA - 11585	1,465 ± 55	915	Mikis Fjord	BS1191-K11A	Foraminifera
AA - 11586	9,085 ± 85	8,635	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 11587	11,390 ± 100	10,940	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 11588	17,670 ± 140	17,220	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 11589	23,880 ± 240	23,430	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 11590	8,460 ± 95	8,010	H.S., Eastern Basin	HU87033-012	Foraminifera
AA - 11684	8,510 ± 90		East Greenland Shelf	BS1191-K15	Foraminifera
AA - 11870	2,480 ± 110	2,030	Northern Labrador Shelf	HU77021-067	Foraminifera
AA - 11871	1,155 ± 56	605	Kangerdlugssuaq Fjord	BS1191-K8B	Foraminifera
AA - 11872	1,390 ± 55	840	Kangerdlugssuaq Fjord	BS1191-K8B	Foraminifera
AA - 11874	9,290 ± 80	8,740	Kangerdlugssuaq Trough	BS1191-K18B	Foraminifera
AA - 11875	12,325 ± 80	11,775	Kangerdlugssuaq Trough	BS1191-K18B	Foraminifera
AA - 11876	7,830 ± 60	6,630	Ross Sea Shelf	DF80-057	Mollusc
AA - 11877	895 ± 50	Modern	Ross Sea Shelf	DF80-144	Coral
AA - 11878	27,255 ± 305	26,055	Ross Sea Shelf	DF80-177	Foraminifera
AA - 11879	8,490 ± 200	8,040	H.S., Eastern Basin	HU90023-045 LCF	Mollusc
AA - 11880	12,115 ± 260	11,665	H.S., Eastern Basin	HU90023-045 LCF	Foraminifera
AA - 11881	>42,000		Northern Labrador Shelf	HU87033-015	Foraminifera
AA - 11882	8,450 ± 70	8,000	Hatton Basin	HU84035-016	Mollusc
AA - 12029	10,800 ± 130	10,350	Hatton Basin	HU92028-158 PC	Foraminifera
AA - 12605	43,750 ± 2100	43,300	Meta Incognita Pen.	Big Island	Mollusc
AA - 12606	37,760 ± 1050	37,310	Meta Incognita Pen.	Big Island	Mollusc
AA - 12607	8,175 ± 95	7,725	Meta Incognita Pen.	Big Island	Mollusc
AA - 12608	34,820 ± 730	34,370	Meta Incognita Pen.	Bond Inlet	Mollusc
AA - 12609	8,555 ± 95	8,105	Meta Incognita Pen.	Big Island	Mollusc
AA - 12610	8,130 ± 65	7,680	Meta Incognita Pen.	Canon Inlet	Mollusc
AA - 12884	8,805 ± 60	8,355	H.S., Eastern Basin	HU90023-045 LCF	Mollusc
AA - 12885	8,530 ± 60	8,080	Northern Hudson Bay	HU90023-091 LCF	Foraminifera
AA - 12886	2,180 ± 50	1,730	H.S., Western Basin	HU90023-099 LCF	Foraminifera
AA - 12887	8,270 ± 70	7,820	H.S., Western Basin	HU90023-099 LCF	Mollusc
AA - 12888	8,260 ± 60	7,810	H.S., Western Basin	HU90023-101 LCF	Mollusc
AA - 12889	8,170 ± 60	7,720	H.S., Western Basin	HU90023-104 LCF	Mollusc
AA - 12890	8,465 ± 90	8,015	H.S., Western Basin	HU90023-104 LCF	Foraminifera
AA - 12891	855 ± 60	305	Nansen Fjord	BS1191-K14	Foraminifera
AA - 12892	1,680 ± 50	1,130	Kangerdlugssuaq Trough	BS1191-K18B	Foraminifera
AA - 12893	7,985 ± 85	7,535	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 12896	13,105 ± 85	12,665	SW Iceland Shelf	HU93030-006	Foraminifera
AA - 12897	11,535 ± 85	11,095	SW Iceland Shelf	HU93030-006	Foraminifera
AA - 12898	28,005 ± 350	27,455	East Greenland Slope	HU93030-007	Foraminifera
AA - 12899	21,255 ± 200	20,055	Ross Sea Shelf	DF80-144	Foraminifera

Appendix 1A. Continued.

Lab No.	Reported	Corrected	Area	Site	Material
AA - 13050	8,245 ± 75	7,795	Meta Incognita Pen.	Big Island	Mollusc
AA - 13051	10,470 ± 120	10,020	Hall Peninsula	Willows Island	Mollusc
AA - 13052	12,125 ± 90	11,675	Sunneshine Fjord	HU82031-SU5 PC	Foraminifera
AA - 13053	10,430 ± 80	9,980	Sunneshine Fjord	HU82031-SU5 PC	Mollusc
AA - 13054	10,805 ± 80	10,355	Sunneshine Fjord	HU82031-SU5 PC	Mollusc
AA - 13055	8,395 ± 70	7,945	H.S., Eastern Basin	HU93034-004 PC	Mollusc
AA - 13172	9,505 ± 80	9,055	H.S., Eastern Basin	HU93034-002 PC	Mollusc
AA - 13173	9,025 ± 90	8,575	Hudson Strait	HU93034-006 PC	Mollusc
AA - 13174	8,915 ± 65	8,465	H.S., South-Central	HU93034-013 PC	Mollusc
AA - 13175	9,125 ± 65	8,675	Hudson Strait	HU93034-018 PC	Mollusc
AA - 13228	7,835 ± 90	7,835	H.S., Eastern Basin	HU90023-045 LCF	Foraminifera
AA - 13229	30,170 ± 475	28,970	Ross Sea Shelf	DF80-177	Foraminifera
AA - 13230	21,070 ± 220	20,620	NW Labrador Sea Slope	HU87033-009	Foraminifera
AA - 13231	13,055 ± 120	12,605	NW Labrador Sea Slope	HU75009-IV-062	Foraminifera
AA - 13232	>49,230		N. Labrador Sea Slope	HU75009-IV-054	Foraminifera
AA - 13233	12,970 ± 90	12,520	NW Labrador Sea Slope	IMP 77-1-2	Foraminifera
AA - 13234	16,575 ± 140	16,125	NW Labrador Sea Slope	IMP 77-1-2	Foraminifera
AA - 13235	24,365 ± 355	23,825	NW Labrador Sea Slope	IMP 77-1-2	Foraminifera
AA - 13236	7,395 ± 70	6,955	SW Iceland Shelf	HU93030-004	Foraminifera
AA - 13237	5,300 ± 60	4,860	SW Iceland Shelf	HU93030-006 TWC	Mollusc
AA - 13238	15,270 ± 120	14,720	East Greenland Slope	HU93030-007 TWC	Foraminifera
AA - 13239	19,635 ± 150	19,085	East Greenland Slope	HU93030-007	Foraminifera
AA - 13241	8,940 ± 70	8,490	Northern Labrador Shelf	HU87033-015	Mollusc
AA - 13242	11,545 ± 95	10,345	Ross Sea Shelf	DF80-108	Organic Conc.
AA - 13243	7,330 ± 65	6,130	Ross Sea Shelf	DF80-189	Organic Conc.
AA - 13244	4,025 ± 55	2,825	Ross Sea Shelf	DF80-102	Organic Conc.
AA - 13352	6,615 ± 115	6,165	NW Labrador Sea Slope	HU75009-IV-056 TWC	Foraminifera
AA - 13353	1,055 ± 65	615	SW Iceland Shelf	HU93030-006 TWC	Foraminifera
AA - 14024	9,065 ± 80	8,615	Meta Incognita Pen.	Noble Inlet	Mollusc
AA - 14025	9,370 ± 80	8,920	Meta Incognita Pen.	Noble Inlet	Mollusc
AA - 14026	9,090 ± 95	8,640	Meta Incognita Pen.	Noble Inlet	Mollusc
AA - 14027	38,620 ± 1110	38,170	Meta Incognita Pen.	East of South Reefs	Mollusc
AA - 14028	8,905 ± 65	8,455	Meta Incognita Pen.	Noble Inlet	Mollusc
AA - 14029	8,950 ± 65	8,500	Meta Incognita Pen.	Potter Island	Mollusc
AA - 14030	8,795 ± 95	8,345	Meta Incognita Pen.	York Delta	Mollusc
AA - 14202	11,080 ± 95	10,630	NW Labrador Sea Slope	IMP 77-1-2	Foraminifera
AA - 14203	21,210 ± 190	20,760	N. Labrador Sea Slope	HU75009-IV-054	Foraminifera
AA - 14204	19,565 ± 160	19,115	NW Labrador Sea Slope	HU75009-IV-057 TWC	Foraminifera
AA - 14205	2,070 ± 65	1,620	Northern Labrador Shelf	HU87033-015	Mollusc
AA - 14206	8,605 ± 85	8,155	Northern Labrador Shelf	HU87033-015	Mollusc
AA - 14207	8,650 ± 85	8,200	Northern Labrador Shelf	HU87033-015	Mollusc
AA - 14208	12,210 ± 110	11,660	Kangerdlugssuaq Trough	BS88-6-10A	Foraminifera
AA - 14209	13,050 ± 140	12,500	Kangerdlugssuaq Trough	BS88-6-10A	Foraminifera
AA - 14210	8,640 ± 105	8,190	H.S., Eastern Basin	HU90023-031 LCF	Foraminifera
AA - 14211	5,215 ± 75	4,665	Kangerdlugssuaq Trough	BS1191-K18B	Foraminifera
AA - 14212	9,240 ± 90	8,690	Kangerdlugssuaq Trough	BS1191-K18B	Foraminifera
AA - 14213	880 ± 70	440	SW Iceland Shelf	HU93030-3I BC	Foraminifera
AA - 14214	Modern		Kangerdlugssuaq Trough	HU93030-19B	Mollusc

Appendix 1A. Continued.

Lab No.	Reported	Corrected	Area	Site	Material
AA - 14215	25,330 ± 310	24,780	East Greenland Slope	HU93030-007	Foraminifera
AA - 14216	18,865 ± 175	18,415	NW Labrador Sea Slope	HU75009-IV-057 TWC	Foraminifera
AA - 14217	18,475 ± 145	18,025	NW Labrador Sea Slope	HU75009-IV-057 TWC	Foraminifera
AA - 14218	36,020 ± 805	35,570	NW Labrador Sea Slope	IMP 77-3-2	Foraminifera
AA - 14219	41,800 ± 1700	41,350	NW Labrador Sea Slope	IMP 77-3-2	Foraminifera
AA - 14220	36,870 ± 970	36,420	NW Labrador Sea Slope	IMP 77-3-2	Foraminifera
AA - 14681	1,280 ± 45	840	NW Iceland Shelf	A9-92-455	Mollusc
AA - 14682	10,510 ± 80	10,070	NW Iceland Shelf	A9-92-456	Mollusc
AA - 14683	10,750 ± 70	10,310	NW Iceland Shelf	A9-92-456	Mollusc
AA - 14684	3,105 ± 50	2,665	NW Iceland Shelf	A9-92-457	Mollusc
AA - 14685	16,800 ± 135	16,350	NW Labrador Sea Slope	HU75009-IV-057 TWC	Foraminifera
AA - 14686	8,715 ± 65	8,265	Northern Ungava Pen.	R. Déception valley	Mollusc
AA - 14687	8,560 ± 70	8,110	Ungava Bay	Akpatok Island	Mollusc
AA - 15123	8,350 ± 70	7,900	Inner Frobisher Bay	Lewis Bay	Mollusc
AA - 15124	9,460 ± 75	9,010	Inner Frobisher Bay	Pike Island	Mollusc
AA - 15125	9,465 ± 100	9,015	Inner Frobisher Bay	Pugh Island	Mollusc
AA - 15126	9,030 ± 75	8,580	Inner Frobisher Bay	Eggleston Bay	Mollusc
AA - 15127	9,220 ± 75	8,770	Inner Frobisher Bay	Pugh Island	Mollusc
AA - 15128	8,160 ± 70	7,710	Inner Frobisher Bay	Jaynes Inlet	Mollusc
AA - 15129	8,055 ± 70	7,605	Inner Frobisher Bay	Jaynes Inlet	Mollusc
AA - 15130	8,325 ± 75	7,875	Inner Frobisher Bay	Cape Caldwell	Mollusc
AA - 15131	9,335 ± 75	8,885	Inner Frobisher Bay	Cape Rammelsberg	Mollusc
AA - 15132	24,780 ± 230	24,330	Meta Incognita Pen.	Lower Savage Islands	Mollusc
AA - 15659	11,555 ± 130	11,105	NW Labrador Sea Slope	HU87033-009	Foraminifera
AA - 15687	13,100 ± 110	12,550	Kangerdlugssuaq Trough	PO175 / 1-5-1	Foraminifera
AA - 15688	11,995 ± 145	11,445	Kangerdlugssuaq Trough	PO175 / 1-5-1	Foraminifera
AA - 15689	8,575 ± 75	8,125	NW Labrador Sea Slope	HU75009-IV-056 TWC	Foraminifera
AA - 15690	11,750 ± 105	11,300	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 15691	18,270 ± 140	17,820	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 15692	21,970 ± 195	21,520	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 15693	37,935 ± 1020	37,485	NW Labrador Sea Slope	HU75009-IV-056	Foraminifera
AA - 15694	28,050 ± 335	27,600	NW Labrador Sea Slope	IMP 77-3-2	Foraminifera
AA - 15695	36,370 ± 820	35,920	NW Labrador Sea Slope	IMP 77-3-2	Foraminifera
AA - 15696	32,820 ± 530	32,370	Northern Labrador Shelf	HU87033-015	Mollusc
AA - 15697	27,465 ± 360	27,015	Northern Labrador Shelf	HU87033-015	Foraminifera
AA - 15698	10,070 ± 95	9,620	Hatton Basin	HU92028-158 PC	Foraminifera
AA - 15699	24,835 ± 240	23,635	Ross Sea Shelf	DF80-177	Foraminifera
AA - 15700	9,565 ± 80	9,125	SW Iceland Shelf	HU93030-006 TWC	Foraminifera
AA - 15701	9,825 ± 95	9,385	SW Iceland Shelf	HU93030-006	Foraminifera
AA - 15702	10,310 ± 90	9,870	SW Iceland Shelf	HU93030-006	Foraminifera
AA - 15703	10,335 ± 95	9,895	SW Iceland Shelf	HU93030-006	Foraminifera
AA - 15704	17,165 ± 140	16,615	East Greenland Slope	HU93030-007	Foraminifera
AA - 15705	22,110 ± 230	21,560	East Greenland Slope	HU93030-007	Foraminifera
AA - 15706	22,225 ± 245	21,675	East Greenland Slope	HU93030-007	Foraminifera
AA - 15707	27,130 ± 335	26,580	East Greenland Slope	HU93030-007	Foraminifera
AA - 15708	19,215 ± 150	18,765	NW Labrador Sea Slope	HU75009-IV-057 TWC	Foraminifera
AA - 16403	9,100 ± 80	8,650	Inner Frobisher Bay	Cape Rammelsberg	Mollusc
AA - 16404	9,600 ± 140	9,150	Meta Incognita Pen.	Edgell Island	Mollusc

Appendix 1A. Continued.

Lab No.	Reported	Corrected	Area	Site	Material
AA - 16405	9,480 ± 80	9,030	Meta Incognita Pen.	Edgell Island	Mollusc
AA - 17254	11,255 ± 75	10,805	Hall Peninsula	Beare Sound	Mollusc
AA - 17255	9,130 ± 65	8,680	Meta Incognita Pen.	Noble Inlet	Mollusc
AA - 17256	100 ± 40		Meta Incognita Pen.	Nannuk Harbour	Mollusc
AA - 17257	9,650 ± 70	9,200	Meta Incognita Pen.	Palmer Island	Mollusc
AA - 17258	8,325 ± 60	7,875	Meta Incognita Pen.	Pritzler Harbour	Mollusc
AA - 17260	8,785 ± 80	8,335	Northern Ungava Pen.	R. Déception valley	Mollusc
AA - 17261	9,045 ± 80	8,595	Northern Ungava Pen.	R. Déception valley	Mollusc
AA - 17262	9,885 ± 170	9,435	Northern Ungava Pen.	R. Déception valley	Mollusc
AA - 17263	11,410 ± 130	10,960	Northern Ungava Pen.	R. Déception valley	Mollusc
AA - 17264	10,180 ± 90	9,730	Hall Peninsula	Hamlen Bay	Mollusc
AA - 17265	9,305 ± 85	8,855	Frobisher Bay	HU90023-001 LCF	Mollusc
AA - 17379	7,785 ± 140	7,335	H.S., Eastern Basin	HU90023-045 LCF	Foraminifera
AA - 17380	8,155 ± 130	7,705	H.S., Eastern Basin	HU90023-045 LCF	Foraminifera
AA - 17391	10,270 ± 285	9,820	H.S., Eastern Basin	HU93034-002 PC	Foraminifera
AA - 17392	9,145 ± 75	8,695	Hatton Basin	HU92028-158 PC	Foraminifera
AA - 17393	10,225 ± 100	9,775	Hatton Basin	HU92028-158 PC	Foraminifera
AA - 17861	9,355 ± 75	8,905	Inner Frobisher Bay	Cape Rammelsberg	Mollusc
AECV - 1348C	550 ± 60		Inner Frobisher Bay	Tungatsivvik	Bone
AECV - 1349C	740 ± 70		Inner Frobisher Bay	Tungatsivvik	Bone
AECV - 1350C	740 ± 80		Inner Frobisher Bay	Tungatsivvik	Wood
AECV - 1351C	490 ± 70		Inner Frobisher Bay	Tungatsivvik	Bone
AECV - 1707C	330 ± 50		Foxe Peninsula	Mallikjuak Island	Bone
AECV - 1708C	880 ± 50		Inner Frobisher Bay	Tungatsivvik	Bone
Beta - 42659	320 ± 90		Hall Peninsula	Kodlunarn Island	Charcoal
Beta - 42660	510 ± 80		Hall Peninsula	Kodlunarn Island	Charcoal
Beta - 52074	670 ± 150		Hall Peninsula	Kamaiyuk 1	Charcoal
Beta - 52272	450 ± 60		Hall Peninsula	Kamaiyuk 1	Wood
Beta - 52273	230 ± 60		Hall Peninsula	Kamaiyuk 1	Wood
Beta - 52274	390 ± 70		Hall Peninsula	Kamaiyuk 1	Wood
Beta - 52275	270 ± 60		Hall Peninsula	Kamaiyuk 1	Wood
Beta - 52276	380 ± 80		Hall Peninsula	Kamaiyuk 1	Charcoal
Beta - 52994	110 ± 50		Hall Peninsula	Kuyait 1	Wood
Beta - 53642	240 ± 80		Hall Peninsula	Kuyait 1	Wood
Beta - 53643	60 ± 80		Hall Peninsula	Kuyait 1	Wood
Beta - 61068	800 ± 70		Inner Frobisher Bay	Newell Sound 4	Wood
Beta - 61070	2,110 ± 90		Hall Peninsula	Willows Island	Wood
Beta - 61071	1,800 ± 70		Hall Peninsula	Willows Island	Wood
Beta - 61072	1,490 ± 60		Hall Peninsula	Willows Island	Plant Macrofossils
Beta - 61073	470 ± 60	120	Hall Peninsula	Willows Island	Bone
Beta - 61609	1,130 ± 50	780	Inner Frobisher Bay	Newell Sound 4	Sea Mammal Fat
Beta - 63443	70 ± 50		Hall Peninsula	Kamaiyuk 1	Wood
Beta - 63444	300 ± 70		Hall Peninsula	Kamaiyuk 1	Wood
Beta - 63445	170 ± 90		Hall Peninsula	Kamaiyuk 1	Wood
Beta - 63446	510 ± 50		Hall Peninsula	Kamaiyuk 1	Charcoal
Beta - 70916	1,500 ± 90		Hall Peninsula	Willows Island	Charcoal
Beta - 70917	1,800 ± 60		Hall Peninsula	Willows Island	Wood
Beta - 70918	1,970 ± 70		Hall Peninsula	Willows Island	Wood

Appendix 1A. Continued.

Lab No.	Reported	Corrected	Area	Site	Material
Beta - 70919	1,710 ± 80		Hall Peninsula	Willows Island	Wood
Beta - 70920	1,470 ± 50		Hall Peninsula	Willows Island	Wood
Beta - 71712	600 ± 60		Hall Peninsula	Kamaiyuk 1	Wood
Beta - 71713	240 ± 70		Hall Peninsula	Kuyait 1	Wood
Beta - 71831	260 ± 70		Hall Peninsula	Kamaiyuk 1	Wood
Beta - 72890	2,060 ± 40		H.S., South-Central	HU93034-015 PC	Mollusc
Beta - 72891	1,700 ± 60		H.S., South-Central	HU93034-015 PC	Mollusc
Beta - 72892	1,180 ± 50		H.S., South-Central	HU93034-015 PC	Mollusc
Beta - 75310	1,280 ± 60		Ungava Bay	HU93034-036 PC	Mollusc
Beta - 75311	1,380 ± 90		Ungava Bay	HU93034-036 PC	Mollusc
Beta - 75312	890 ± 80		Ungava Bay	HU93034-036 PC	Mollusc
Beta - 78138	4,070 ± 50		H.S., Western Basin	HU93034-022 PC	Mollusc
Beta - 78139	3,140 ± 60		Ungava Bay	HU93034-036 PC	Mollusc
Beta - 78140	3,340 ± 60		H.S., South-Central	HU93034-015 PC	Mollusc
Beta - 78141	2,850 ± 60		Ungava Bay	HU93034-036 PC	Mollusc
BGS - 1472	9,500 ± 150		Cumberland Pen.	Navyak Lake	Gyttja
Brookhaven	679 ± 133		Hall Peninsula	Kodlunarn Island	Bloomery Iron
Brookhaven	792 ± 107		Hall Peninsula	Kodlunarn Island	Bloomery Iron
CAMS - 4061	5,390 ± 70	4,190	Ross Sea Shelf	DF80-112	Decalcified Sed.
CAMS - 4062	23,390 ± 240	22,190	Ross Sea Shelf	DF87-032	Decalcified Sed.
CAMS - 4063	19,400 ± 310	18,200	Ross Sea Shelf	DF87-032	Decalcified Sed.
CAMS - 7789	3,040 ± 70	1,840	Ross Sea Shelf	DF80-057	Decalcified Sed.
CAMS - 7790	7,470 ± 70	6,270	Ross Sea Shelf	DF80-177	Decalcified Sed.
CAMS - 8251	8,390 ± 80	7,190	Ross Sea Shelf	DF80-132	Decalcified Sed.
CAMS - 8252	2,660 ± 70	1,460	Ross Sea Shelf	DF80-189	Decalcified Sed.
CAMS - 8253	4,750 ± 70	3,550	Ross Sea Shelf	DF80-111	Decalcified Sed.
CAMS - 10359	8,240 ± 150	7,790	Ungava Bay	HU90023-034 LCF	Foraminifera
CAMS - 11121	12,860 ± 90		Cumberland Pen.	Amarok Lake	Plant Macrofossils
CAMS - 11122	8,890 ± 70		Cumberland Pen.	Amarok Lake	Plant Macrofossils
CAMS - 11125	8,380 ± 60		Cumberland Pen.	Amarok Lake	Plant Macrofossils
CAMS - 11335	Modern		Cumberland Pen.	Amarok Lake	Plant Macrofossils
CAMS - 11340	18,730 ± 90		Cumberland Pen.	Amarok Lake	Plant Macrofossils
CAMS - 11793	10,730 ± 80	9,530	Ross Sea Shelf	DF80-132	Decalcified Sed.
CAMS - 11798	6,330 ± 80	5,130	Ross Sea Shelf	DF80-144	Decalcified Sed.
CAMS - 11814	6,120 ± 80	5,670	Sunneshine Fjord	HU82031-SU5 PC	Mollusc
CAMS - 11815	9,710 ± 60	9,260	Sunneshine Fjord	HU82031-SU5 PC	Mollusc
CAMS - 12256	17,330 ± 1200		Cumberland Pen.	Amarok Lake	Plant Macrofossils
CAMS - 12581	12,640 ± 80	11,440	Ross Sea Shelf	DF80-102	Decalcified Sed.
CAMS - 12582	22,360 ± 140	21,160	Ross Sea Shelf	DF80-144	Decalcified Sed.
CAMS - 13511	2,840 ± 60	2,390	Sunneshine Fjord	HU82031-SU5 G	Mollusc
CAMS - 17146	8,640 ± 500	8,190	H.S., Eastern Basin	HU90023-045 LCF	Foraminifera
CAMS - 17398	11,060 ± 70	10,610	Sunneshine Fjord	HU82031-SU5 PC	Foraminifera
CAMS - 17399	3,740 ± 60	3,300	SW Iceland Shelf	HU93030-006 TWC	Foraminifera
CAMS - 17400	17,990 ± 110	17,540	Davis Strait	HU77029-017	Foraminifera
CAMS - 17401	10,500 ± 110	10,050	H.S., Eastern Basin	HU93034-004 PC	Mixed
CAMS - 18449	9,440 ± 110	8,990	Hatton Basin	HU92028-158 PC	Foraminifera
CAMS - 18687	5,090 ± 60		H.S., Western Basin	HU93034-022 PC	Foraminifera
CAMS - 18688	8,920 ± 60	8,470	H.S., Eastern Basin	HU93034-031 PC	Foraminifera

Appendix 1A. Continued.

Lab No.	Reported	Corrected	Area	Site	Material
CAMS - 18689	11,070 ± 60	10,620	H.S., Eastern Basin	HU93034-029 PC	Mixed
CAMS - 18690	8,670 ± 60	8,220	Ungava Bay	HU93034-038 PC	Mollusc
CAMS - 19255	33,320 ± 1810	32,870	H.S., South-Central	HU93034-013 PC	Mixed
CAMS - 19996	14,370 ± 180	13,920	H.S., South-Central	HU93034-013 PC	Mixed
CAMS - 22022	27,670 ± 440	27,220	H.S., North-Central	HU93034-018 PC	Mixed
CAMS - 22023	8,990 ± 80	8,540	H.S., North-Central	HU93034-018 PC	Mixed
CAMS - 25670	3,970 ± 60	3,520	H.S., Eastern Basin	HU93034-002 PC	Foraminifera
CAMS - 25758	8,640 ± 70	8,190	H.S., Eastern Basin	HU93034-002 PC	Mixed
CAMS - 25759	820 ± 80	370	H.S., Eastern Basin	HU93034-004 PC	Foraminifera
CAMS - 25761	9,060 ± 60	8,610	H.S., Eastern Basin	HU93034-004 PC	Foraminifera
CAMS - 25762	8,030 ± 60	7,580	H.S., Eastern Basin	HU93034-004 PC	Foraminifera
CAMS - 25763	4,110 ± 80	3,660	Hatton Basin	HU92028-158 PC	Foraminifera
CAMS - 25764	9,430 ± 50	8,980	H.S., Eastern Basin	HU93034-004 PC	Mollusc
GSC - 5478	10,500 ± 110		Cumberland Pen.	Amarok Lake	Gyttja
GSC - 5483	8,870 ± 100		Cumberland Pen.	Tulugak Lake	Gyttja
GSC - 5486	9,370 ± 90		Cumberland Pen.	Ukalik Lake	Gyttja
GSC - 5492	6,980 ± 110		Cumberland Pen.	Ukalik Lake	Gyttja
GSC - 5496	3,220 ± 110		Cumberland Pen.	Ukalik Lake	Gyttja
GSC - 5497	>38,000		Cumberland Pen.	Amarok Lake	Gyttja
GSC - 5526	7,690 ± 90	7,650	Meta Incognita Pen.	Balcom Inlet	Mollusc
GSC - 5677	7,540 ± 130	7,500	Meta Incognita Pen.	Big Island	Mollusc
GSC - 5688	7,380 ± 200	7,340	Meta Incognita Pen.	Anachauqmik	Mollusc
GSC - 5699	7,710 ± 190	7,670	Meta Incognita Pen.	Big Island	Mollusc
GSC - 5895	8,860 ± 110	8,820	Inner Frobisher Bay	Eggleston Bay	Mollusc
GSC - 5903	7,080 ± 120	7,040	Inner Frobisher Bay	Porter Inlet	Mollusc
GX - 8670	9,735 ± 295	9,285	Meta Incognita Pen.	Henderson Inlet	Mollusc
GX - 8942	>37,000		Meta Incognita Pen.	Nannuk Harbour	Mollusc
GX - 13021	9,420 ± 135	8,970	Meta Incognita Pen.	Buerger Point	Mollusc
GX - 13022	8,780 ± 230	8,330	Meta Incognita Pen.	Noble Inlet	Mollusc
QC - 714	8,735 ± 235	8,695	Meta Incognita Pen.	Grinnell Glacier Area	Mollusc
SI - 5171	9,320 ± 80	9,280	Meta Incognita Pen.	Grinnell Glacier Area	Mollusc
SI - 5521	20 ± 65		Hall Peninsula	Kodlunarn Island	Charcoal
SI - 5522	65 ± 60		Hall Peninsula	Kodlunarn Island	Charcoal
SI - 5523	500 ± 35		Hall Peninsula	Kodlunarn Island	Charcoal
SI - 5525	290 ± 85		Hall Peninsula	Kodlunarn Island	Wood
SI - 5527	355 ± 45		Hall Peninsula	Kodlunarn Island	Charcoal
SI - 5528	415 ± 50		Hall Peninsula	Kodlunarn Island	Wood
TO - 293	6,280 ± 50	6,240	H.S., Southwestern Basin	HU85027-065 PC	Mollusc
TO - 347	970 ± 60		Hall Peninsula	Kodlunarn Island	Charcoal
TO - 712	1,340 ± 70		Hall Peninsula	Kodlunarn Island	Bloomery Iron
TO - 748	7,880 ± 70	7,840	H.S., Eastern Basin	HU85027-057 PC	Mollusc
TO - 749	7,730 ± 70	7,690	H.S., Eastern Basin	HU85027-057 PC	Mollusc
TO - 750	8,060 ± 70	8,020	H.S., Eastern Basin	HU85027-057 PC	Mollusc
TO - 751	7,900 ± 70	7,860	H.S., Western Basin	HU85027-068 PC	Mollusc
TO - 1860	8,360 ± 70	7,910	H.S., Eastern Basin	HU85027-057 PC	Mollusc
TO - 1870	5,930 ± 70	5,480	H.S., Eastern Basin	HU85027-057 PC	Foraminifera
TO - 1871	8,470 ± 90	8,020	H.S., Eastern Basin	HU85027-057 PC	Foraminifera
TO - 2456	6,630 ± 70	6,180	Ungava Bay	HU90023-036 LCF	Mollusc

Appendix 1A. Continued.

Lab No.	Reported	Corrected	Area	Site	Material
TO - 2457	6,850 ± 70	6,400	Ungava Bay	HU90023-036 LCF	Mollusc
TO - 2458	7,260 ± 70	6,810	Ungava Bay	HU90023-036 LCF	Mollusc
TO - 2459	6,760 ± 70	6,310	H.S., South-Central	HU90023-064 LCF	Mollusc
TO - 2460	6,880 ± 70	6,430	H.S., South-Central	HU90023-064 LCF	Mollusc
TO - 2461	8,350 ± 80	7,900	H.S., South-Central	HU90023-066 LCF	Mollusc
TO - 2462	7,060 ± 70	6,610	H.S., South-Central	HU90023-064 LCF	Mollusc
TO - 2463	8,850 ± 90	8,400	H.S., South-Central	HU90023-066 LCF	Mollusc
TO - 2464	8,830 ± 80	8,380	H.S., South-Central	HU90023-066 LCF	Mollusc
TO - 2465	8,570 ± 230	8,120	H.S., South-Central	HU90023-071 LCF	Mollusc
TO - 2466	8,930 ± 80	8,480	H.S., South-Central	HU90023-071 LCF	Mollusc
TO - 2470	8,550 ± 160	8,100	H.S., Western Basin	HU90023-099 LCF	Mollusc
TO - 2471	8,450 ± 70	8,000	H.S., South-Central	HU90023-107 LCF	Mollusc
TO - 2472	8,800 ± 70	8,350	H.S., South-Central	HU90023-107 LCF	Mollusc
TO - 2609	210 ± 60		Hall Peninsula	Kodlunarn Island	Charcoal
TO - 3241	37,990 ± 410		Cumberland Pen.	Ukalik Lake	Plant Macrofossils
TO - 3242	36,120 ± 340		Cumberland Pen.	Tulugak Lake	Plant Macrofossils
TO - 3243	20,110 ± 340		Cumberland Pen.	Amarok Lake	Plant Macrofossils
TO - 3263	8,160 ± 150	7,710	H.S., South-Central	HU90023-064 LCF	Foraminifera
TO - 3264	6,960 ± 110	6,510	H.S., South-Central	HU90023-066 LCF	Foraminifera
TO - 3265	8,170 ± 140	7,720	H.S., Southwestern Basin	HU90023-085 LCF	Foraminifera
TO - 3266	7,940 ± 920	7,490	H.S., Western Basin	HU90023-097 LCF	Foraminifera
TO - 3269	7,230 ± 830	6,780	H.S., Western Basin	HU90023-099 LCF	Foraminifera
TO - 3270	8,380 ± 510	7,930	H.S., Western Basin	HU90023-101 LCF	Foraminifera
TO - 3271	8,740 ± 280	8,290	H.S., Western Basin	HU90023-101 LCF	Foraminifera
TO - 3272	8,510 ± 110	8,060	H.S., Western Basin	HU90023-101 LCF	Foraminifera
TO - 3273	8,490 ± 270	8,040	H.S., Western Basin	HU90023-101 LCF	Foraminifera
TO - 3274	9,400 ± 190	8,950	H.S., South-Central	HU90023-107 LCF	Foraminifera
TO - 3664	970 ± 70	520	H.S., South-Central	HU92028-153 TWC	Foraminifera
TO - 3665	540 ± 60	90	H.S., South-Central	HU92028-152 BC	Foraminifera
TO - 3666	7,940 ± 90	7,490	Hudson Strait	HU90023-096 IKU	Foraminifera
TO - 3667	1,300 ± 60	850	Hudson Strait	HU90023-074 IKU	Foraminifera
TO - 3668	8,110 ± 360	7,660	Hudson Strait	HU90023-112 IKU	Foraminifera
TO - 3669	1,330 ± 70	880	Hudson Strait	HU92028-150 IKU	Foraminifera
TO - 712-2	550 ± 60		Hall Peninsula	Kodlunarn Island	Bloomery Iron
TO - 712-3a	500 ± 60		Hall Peninsula	Kodlunarn Island	Bloomery Iron
-	628 ± 150		Hall Peninsula	Kodlunarn Island	Charcoal

Appendix 1B. Index of radiocarbon dates arranged by increasing age.

Date	Lab No.	Date	Lab No.	Date	Lab No.
Modern	AA - 7142	880 ± 70	AA - 14213	3,970 ± 60	CAMS - 25670
Modern	AA - 14214	890 ± 80	Beta - 75312	4,025 ± 55	AA - 13244
Modern	CAMS - 11335	895 ± 50	AA - 11877	4,040 ± 105	AA - 9022
20 ± 65	SI - 5521	970 ± 60	TO - 347	4,060 ± 105	AA - 9024
60 ± 80	Beta - 53643	970 ± 70	TO - 3664	4,070 ± 50	Beta - 78138
65 ± 60	SI - 5522	1,000 ± 60	AA - 9065	4,110 ± 65	AA - 9362
70 ± 50	Beta - 63443	1,055 ± 65	AA - 13353	4,110 ± 80	CAMS - 25763
85 ± 45	AA - 11446	1,130 ± 50	Beta - 61609	4,750 ± 70	CAMS - 8253
100 ± 40	AA - 17256	1,155 ± 56	AA - 11871	5,090 ± 60	CAMS - 18687
110 ± 50	Beta - 52994	1,180 ± 50	Beta - 72892	5,215 ± 75	AA - 14211
170 ± 90	Beta - 63445	1,280 ± 45	AA - 14681	5,300 ± 60	AA - 13237
210 ± 60	TO - 2609	1,280 ± 60	Beta - 75310	5,390 ± 70	CAMS - 4061
230 ± 60	Beta - 52273	1,300 ± 60	TO - 3667	5,840 ± 120	AA - 9066
240 ± 70	Beta - 71713	1,310 ± 60	AA - 10603	5,930 ± 70	TO - 1870
240 ± 80	Beta - 53642	1,330 ± 70	TO - 3669	6,120 ± 80	CAMS - 11814
260 ± 70	Beta - 71831	1,340 ± 70	TO - 712	6,220 ± 130	AA - 11433
270 ± 60	Beta - 52275	1,380 ± 90	Beta - 75311	6,280 ± 50	TO - 293
290 ± 85	SI - 5525	1,390 ± 55	AA - 11872	6,330 ± 80	CAMS - 11798
300 ± 70	Beta - 63444	1,440 ± 70	AA - 10567	6,615 ± 115	AA - 13352
320 ± 90	Beta - 42659	1,450 ± 60	AA - 10565	6,630 ± 70	TO - 2456
330 ± 50	AECV - 1707C	1,465 ± 55	AA - 11585	6,655 ± 65	AA - 7898
355 ± 45	SI - 5527	1,470 ± 50	Beta - 70920	6,755 ± 90	AA - 9291
380 ± 80	Beta - 52276	1,490 ± 60	Beta - 61072	6,760 ± 70	TO - 2459
390 ± 70	Beta - 52274	1,500 ± 90	Beta - 70916	6,850 ± 70	TO - 2457
415 ± 50	SI - 5528	1,680 ± 50	AA - 12892	6,880 ± 70	TO - 2460
450 ± 60	Beta - 52272	1,700 ± 60	Beta - 72891	6,940 ± 75	AA - 9363
470 ± 60	Beta - 61073	1,710 ± 80	Beta - 70919	6,960 ± 110	TO - 3264
490 ± 70	AECV - 1351C	1,745 ± 160	AA - 11432	6,980 ± 110	GSC - 5492
500 ± 35	SI - 5523	1,800 ± 60	Beta - 70917	7,015 ± 65	AA - 10117
500 ± 60	TO - 712-3a	1,800 ± 70	Beta - 61071	7,060 ± 70	TO - 2462
510 ± 50	Beta - 63446	1,970 ± 70	Beta - 70918	7,080 ± 120	GSC - 5903
510 ± 80	Beta - 42660	2,060 ± 40	Beta - 72890	7,220 ± 65	AA - 10120
540 ± 60	TO - 3665	2,070 ± 65	AA - 14205	7,230 ± 830	TO - 3269
550 ± 60	AECV - 1348C	2,110 ± 90	Beta - 61070	7,260 ± 70	TO - 2458
550 ± 60	TO - 712-2	2,180 ± 50	AA - 12886	7,330 ± 65	AA - 13243
600 ± 60	Beta - 71712	2,215 ± 55	AA - 8961	7,380 ± 200	GSC - 5688
628 ± 150	-	2,480 ± 110	AA - 11870	7,395 ± 70	AA - 13236
670 ± 150	Beta - 52074	2,655 ± 45	AA - 10655	7,470 ± 70	CAMS - 7790
679 ± 133	Brookhaven	2,660 ± 70	CAMS - 8252	7,540 ± 130	GSC - 5677
740 ± 70	AECV - 1349C	2,840 ± 60	CAMS - 13511	7,575 ± 125	AA - 9289
740 ± 80	AECV - 1350C	2,850 ± 60	Beta - 78141	7,600 ± 60	AA - 8963
792 ± 107	Brookhaven	3,040 ± 70	CAMS - 7789	7,675 ± 115	AA - 8962
800 ± 70	Beta - 61068	3,085 ± 70	AA - 11583	7,690 ± 90	GSC - 5526
815 ± 55	AA - 10566	3,105 ± 50	AA - 14684	7,710 ± 190	GSC - 5699
820 ± 80	CAMS - 25759	3,140 ± 60	Beta - 78139	7,730 ± 70	TO - 749
855 ± 60	AA - 12891	3,220 ± 110	GSC - 5496	7,785 ± 75	AA - 10257
875 ± 50	AA - 11449	3,340 ± 60	Beta - 78140	7,785 ± 140	AA - 17379
880 ± 50	AECV - 1708C	3,740 ± 60	CAMS - 17399	7,795 ± 165	AA - 11434

Appendix 1B. Continued.

Date	Lab No.	Date	Lab No.	Date	Lab No.
7,810 ± 70	AA - 7900	8,510 ± 110	TO - 3272	9,065 ± 80	AA - 14024
7,830 ± 60	AA - 11876	8,525 ± 60	AA - 10648	9,075 ± 75	AA - 10254
7,830 ± 120	AA - 4918	8,530 ± 60	AA - 12885	9,085 ± 85	AA - 11586
7,835 ± 90	AA - 13228	8,550 ± 160	TO - 2470	9,090 ± 95	AA - 14026
7,840 ± 70	AA - 10651	8,555 ± 95	AA - 12609	9,100 ± 80	AA - 16403
7,880 ± 70	TO - 748	8,560 ± 70	AA - 14687	9,125 ± 65	AA - 13175
7,880 ± 90	AA - 9290	8,570 ± 230	TO - 2465	9,130 ± 65	AA - 17255
7,900 ± 70	TO - 751	8,575 ± 75	AA - 15689	9,145 ± 75	AA - 17392
7,940 ± 90	TO - 3666	8,580 ± 70	AA - 11447	9,215 ± 80	AA - 7561
7,940 ± 920	TO - 3266	8,605 ± 85	AA - 14206	9,220 ± 75	AA - 15127
7,985 ± 85	AA - 12893	8,640 ± 70	CAMS - 25758	9,240 ± 90	AA - 14212
7,995 ± 65	AA - 7892	8,640 ± 105	AA - 14210	9,245 ± 85	AA - 11442
8,030 ± 60	CAMS - 25762	8,640 ± 500	CAMS - 17146	9,290 ± 80	AA - 11874
8,045 ± 60	AA - 10649	8,650 ± 85	AA - 14207	9,305 ± 85	AA - 17265
8,055 ± 70	AA - 15129	8,670 ± 60	CAMS - 18690	9,320 ± 80	SI - 5171
8,060 ± 70	TO - 750	8,715 ± 65	AA - 14686	9,325 ± 100	AA - 8393
8,110 ± 360	TO - 3668	8,715 ± 165	AA - 11437	9,335 ± 75	AA - 15131
8,130 ± 65	AA - 12610	8,735 ± 235	QC - 714	9,355 ± 75	AA - 17861
8,155 ± 130	AA - 17380	8,740 ± 280	TO - 3271	9,370 ± 80	AA - 14025
8,160 ± 70	AA - 15128	8,750 ± 165	AA - 11436	9,370 ± 90	GSC - 5486
8,160 ± 150	TO - 3263	8,760 ± 65	AA - 10645	9,400 ± 190	TO - 3274
8,170 ± 60	AA - 12889	8,780 ± 230	GX - 13022	9,410 ± 70	AA - 11444
8,170 ± 140	TO - 3265	8,785 ± 60	AA - 10652	9,420 ± 135	GX - 13021
8,175 ± 95	AA - 12607	8,785 ± 80	AA - 17260	9,430 ± 50	CAMS - 25764
8,240 ± 150	CAMS - 10359	8,795 ± 95	AA - 14030	9,440 ± 110	CAMS - 18449
8,245 ± 75	AA - 13050	8,800 ± 70	TO - 2472	9,460 ± 75	AA - 15124
8,260 ± 60	AA - 12888	8,805 ± 60	AA - 12884	9,465 ± 100	AA - 15125
8,270 ± 70	AA - 12887	8,830 ± 80	TO - 2464	9,480 ± 80	AA - 16405
8,305 ± 170	AA - 11435	8,850 ± 90	TO - 2463	9,500 ± 150	BGS - 1472
8,325 ± 60	AA - 17258	8,860 ± 110	GSC - 5895	9,505 ± 80	AA - 13172
8,325 ± 75	AA - 15130	8,865 ± 165	AA - 11438	9,515 ± 70	AA - 11441
8,350 ± 70	AA - 15123	8,870 ± 100	GSC - 5483	9,565 ± 80	AA - 15700
8,350 ± 80	TO - 2461	8,875 ± 110	AA - 8394	9,600 ± 140	AA - 16404
8,360 ± 60	AA - 7893	8,890 ± 70	CAMS - 11122	9,605 ± 60	AA - 10249
8,360 ± 70	TO - 1860	8,905 ± 65	AA - 14028	9,650 ± 70	AA - 17257
8,380 ± 60	CAMS - 11125	8,915 ± 65	AA - 13174	9,710 ± 60	CAMS - 11815
8,380 ± 510	TO - 3270	8,920 ± 60	CAMS - 18688	9,730 ± 70	AA - 8964
8,390 ± 80	CAMS - 8251	8,920 ± 65	AA - 10656	9,735 ± 295	GX - 8670
8,395 ± 70	AA - 13055	8,930 ± 80	TO - 2466	9,750 ± 70	AA - 11443
8,445 ± 55	AA - 10251	8,940 ± 70	AA - 13241	9,825 ± 95	AA - 15701
8,450 ± 70	AA - 11882	8,950 ± 65	AA - 14029	9,885 ± 170	AA - 17262
8,450 ± 70	TO - 2471	8,990 ± 80	CAMS - 22023	9,955 ± 75	AA - 11448
8,460 ± 95	AA - 11590	8,995 ± 120	AA - 8395	9,975 ± 100	AA - 11584
8,465 ± 90	AA - 12890	9,025 ± 90	AA - 13173	10,070 ± 95	AA - 15698
8,470 ± 90	TO - 1871	9,030 ± 75	AA - 15126	10,170 ± 70	AA - 11445
8,490 ± 200	AA - 11879	9,040 ± 85	AA - 10253	10,180 ± 90	AA - 17264
8,490 ± 270	TO - 3273	9,045 ± 80	AA - 17261	10,225 ± 100	AA - 17393
8,510 ± 90	AA - 11684	9,060 ± 60	CAMS - 25761	10,245 ± 70	AA - 10248

Appendix 1B. Continued.

Date	Lab No.	Date	Lab No.	Date	Lab No.
10,270 ± 285	AA - 17391	13,470 ± 105	AA - 10121	28,050 ± 335	AA - 15694
10,310 ± 90	AA - 15702	14,115 ± 110	AA - 7010	29,055 ± 350	AA - 10658
10,335 ± 95	AA - 15703	14,280 ± 205	AA - 9355	30,170 ± 475	AA - 13229
10,430 ± 80	AA - 13053	14,370 ± 180	CAMS - 19996	30,175 ± 405	AA - 8966
10,435 ± 95	AA - 7009	14,980 ± 90	AA - 9364	30,790 ± 450	AA - 10252
10,470 ± 120	AA - 13051	15,270 ± 120	AA - 13238	31,065 ± 455	AA - 11450
10,500 ± 110	CAMS - 17401	16,380 ± 165	AA - 9288	32,820 ± 530	AA - 15696
10,500 ± 110	GSC - 5478	16,575 ± 140	AA - 13234	33,170 ± 590	AA - 9062
10,510 ± 80	AA - 14682	16,800 ± 135	AA - 14685	33,320 ± 1810	CAMS - 19255
10,530 ± 135	AA - 8959	17,165 ± 140	AA - 15704	33,615 ± 600	AA - 9067
10,695 ± 85	AA - 10258	17,305 ± 140	AA - 7144	34,010 ± 675	AA - 10569
10,730 ± 80	CAMS - 11793	17,330 ± 1200	CAMS - 12256	34,710 ± 690	AA - 10646
10,750 ± 65	AA - 10245	17,575 ± 185	AA - 10119	34,790 ± 710	AA - 7899
10,750 ± 70	AA - 14683	17,670 ± 140	AA - 11588	34,820 ± 730	AA - 12608
10,780 ± 140	AA - 10255	17,855 ± 145	AA - 10122	35,280 ± 760	AA - 11451
10,790 ± 70	AA - 10653	17,990 ± 110	CAMS - 17400	36,020 ± 805	AA - 14218
10,800 ± 130	AA - 12029	18,270 ± 140	AA - 15691	36,120 ± 340	TO - 3242
10,805 ± 80	AA - 13054	18,475 ± 145	AA - 14217	36,370 ± 820	AA - 15695
11,060 ± 70	CAMS - 17398	18,730 ± 90	CAMS - 11340	36,870 ± 970	AA - 14220
11,070 ± 60	CAMS - 18689	18,865 ± 175	AA - 14216	>37,000	GX - 8942
11,080 ± 95	AA - 14202	19,215 ± 150	AA - 15708	37,760 ± 1050	AA - 12606
11,095 ± 110	AA - 10650	19,400 ± 310	CAMS - 4063	37,935 ± 1020	AA - 15693
11,125 ± 100	AA - 7562	19,565 ± 160	AA - 14204	37,990 ± 410	TO - 3241
11,170 ± 100	AA - 10256	19,635 ± 150	AA - 13239	>38,000	GSC - 5497
11,235 ± 95	AA - 10118	20,110 ± 340	TO - 3243	38,620 ± 1110	AA - 14027
11,255 ± 75	AA - 17254	20,840 ± 180	AA - 10568	38,700 ± 1200	AA - 10232
11,285 ± 65	AA - 10250	21,070 ± 220	AA - 13230	39,145 ± 1180	AA - 11452
11,390 ± 100	AA - 11587	21,210 ± 190	AA - 14203	40,760 ± 1450	AA - 11453
11,410 ± 130	AA - 17263	21,255 ± 200	AA - 12899	41,800 ± 1700	AA - 14219
11,535 ± 85	AA - 12897	21,970 ± 195	AA - 15692	>42,000	AA - 11881
11,545 ± 95	AA - 13242	22,110 ± 230	AA - 15705	>43,700	AA - 7897
11,555 ± 130	AA - 15659	22,210 ± 255	AA - 8965	43,750 ± 2100	AA - 12605
11,750 ± 105	AA - 15690	22,225 ± 245	AA - 15706	>43,900	AA - 7901
11,995 ± 145	AA - 15688	22,360 ± 140	CAMS - 12582	46,700 ± 3000	AA - 9064
12,035 ± 80	AA - 11440	23,390 ± 240	CAMS - 4062	>47,240	AA - 9063
12,115 ± 260	AA - 11880	23,880 ± 240	AA - 11589	>49,230	AA - 13232
12,125 ± 90	AA - 13052	23,890 ± 260	AA - 9356		
12,210 ± 110	AA - 14208	24,035 ± 240	AA - 10647		
12,220 ± 130	AA - 8960	24,365 ± 355	AA - 13235		
12,325 ± 80	AA - 11875	24,780 ± 230	AA - 15132		
12,640 ± 80	CAMS - 12581	24,835 ± 240	AA - 15699		
12,860 ± 90	CAMS - 11121	25,330 ± 310	AA - 14215		
12,970 ± 90	AA - 13233	27,130 ± 335	AA - 15707		
13,050 ± 140	AA - 14209	27,255 ± 305	AA - 11878		
13,055 ± 120	AA - 13231	27,465 ± 360	AA - 15697		
13,100 ± 110	AA - 15687	27,670 ± 440	CAMS - 22022		
13,105 ± 85	AA - 12896	27,720 ± 340	AA - 9361		
13,195 ± 125	AA - 7011	28,005 ± 350	AA - 12898		

Appendix 2A. Comprehensive list of dates included in this and previous INSTAAR Radiocarbon Date Lists, arranged by laboratory number, 1967-1996.

Lab No.	Reported Date	Material	DL	Lab No.	Reported Date	Material	DL
AA-190	12,890 ± 290	<125 µm org	VI	AA-2496	10,360 ± 160	Mollusc	VI
AA-191	8,425 ± 375	Mollusc	VI	AA-2625	7,765 ± 105	Mollusc	VII
AA-244A	9,085 ± 290	Mollusc	VI	AA-2631	5,160 ± 60	Bone	VI
AA-263	>27,000	Foraminifera	VI	AA-2632	>45,000	Mollusc	VI
AA-264	10,490 ± 450	Mollusc	VI	AA-2633	9,450 ± 95	Mollusc	VI
AA-347	Modern	Mollusc	VI	AA-2637	9,200 ± 200	Foraminifera	VI
AA-348	12,190 ± 430	<125 µm org	VI	AA-2641	8,680 ± 140	Mollusc	VI
AA-412	9,450 ± 360	Mollusc	VI	AA-2642	45,000 ± 4000	Mollusc	VI
AA-413	7,790 ± 230	Mollusc	VI	AA-3098	2,210 ± 50	Organic Conc	VII
AA-650	4,540 ± 300	<125 µm org	VI	AA-3099	4,461 ± 50	Organic Conc	VII
AA-651	10,250 ± 390	<125 µm org	VI	AA-3101	4,205 ± 50	Bulk Sed	VII
AA-652	10,410 ± 380	<125 µm org	VI	AA-3101	4,205 ± 50	Organic Conc	VII
AA-653	16,700 ± 900	<125 µm org	VI	AA-3101	4,205 ± 50	Organic Conc	VII
AA-654	19,200 ± 1100	<125 µm org	VI	AA-3102	8,650 ± 75	Organic Conc	VII
AA-655A,B	11,060 ± 300	Mollusc	VI	AA-3103	8,730 ± 80	Mollusc	VI
AA-712	5,600 ± 330	Mollusc	VI	AA-3104	8,660 ± 65	Mollusc	VI
AA-886	10,010 ± 360	Mollusc	VI	AA-3108	3,440 ± 50	Foraminifera	VI
AA-935	13,500 ± 700	<125 µm org	VI	AA-3109	9,385 ± 140	Foraminifera	VI
AA-936	2,145 ± 80	<125 µm org	VI	AA-3254	44,200 ± 2300	Mollusc	VII
AA-1004	7,577 ± 137	<125 µm org	VI	AA-3256	13,720 ± 95	Organic Conc	VII
AA-1005	3,428 ± 70	<125 µm org	VI	AA-3273	3,285 ± 55	Bulk Sed	VII
AA-1011	2,819 ± 103	<125 µm org	VI	AA-3274	3,620 ± 55	Bulk Sed	VII
AA-1012	12,970 ± 225	<125 µm org	VI	AA-3275	6,170 ± 55	Bulk Sed	VII
AA-1181	7,230 ± 90	Mollusc	VI	AA-3277	4,794 ± 70	Organic Conc	VII
AA-1272	Lost	Mollusc	VI	AA-3278	7,805 ± 70	Organic Conc	VII
AA-1273	20,650 ± 260	<125 µm org	VI	AA-3280	8,630 ± 70	Organic Conc	VII
AA-1507	7,020 ± 80	<125 µm org	VI	AA-3286	6,155 ± 155	Organic Conc	VII
AA-1508	4,060 ± 90	<125 µm org	VI	AA-3338	21,500 ± 240	Foraminifera	VI
AA-1523	15,800 ± 400	<2 µm org	VI	AA-3464	9,620 ± 90	Foraminifera	VI
AA-1800	6,990 ± 70	Mollusc	VI	AA-3465	9,870 ± 160	Foraminifera	VI
AA-1801	4,780 ± 80	Mollusc	VI	AA-3473	11,725 ± 125	Foraminifera	VI
AA-1825	7,950 ± 100	<125 µm org	VI	AA-3473	11,725 ± 125	Foraminifera	VII
AA-1915	2,890 ± 115	Mollusc	VI	AA-3481	8,390 ± 80	Foraminifera	VII
AA-1916	9,340 ± 84	Mollusc	VI	AA-3494	8,485 ± 60	Organic Conc	VII
AA-1917	3,920 ± 60	Mollusc	VI	AA-3495	7,410 ± 60	Organic Conc	VII
AA-1918	10,380 ± 120	<125 µm org	VI	AA-3583A	10,600 ± 75	Mollusc	VII
AA-2084	720 ± 220	Mollusc	VI	AA-3583B	10,625 ± 170	Mollusc	VII
AA-2219	1,732 ± 85	<125 µm org	VI	AA-3584	10,930 ± 85	Mollusc	VII
AA-2223	9,090 ± 90	Mollusc	VII	AA-3585,6	10,010 ± 110	Mixed	VII
AA-2224	39,000 ± 1800	Mollusc	VII	AA-3678	9,010 ± 100	Foraminifera	VII
AA-2275	8,390 ± 250	<2 µm org	VI	AA-3746	11,020 ± 120	Foraminifera	VII
AA-2276	5,084 ± 70	<2 µm org	VI	AA-3783	3,600 ± 75	Organic Conc	VII
AA-2348	43,300 ± 3000	Mollusc	VII	AA-3784	11,555 ± 85	Foraminifera	VII
AA-2349	8,500 ± 90	Mollusc	VII	AA-3809	Lost	Mollusc	VII
AA-2350	9,500 ± 90	Mollusc	VII	AA-3810	11,315 ± 75	Foraminifera	VII
AA-2351	Modern	Plant Macros	VII	AA-3814	8,075 ± 145	Plant Macros	VII
AA-2352	Modern	Mollusc	VII	AA-3815	8,320 ± 95	Plant Macros	VII

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL	Lab No.	Reported Date	Material	DL
AA-3818	4,650 ± 60	Organic Conc	VII	AA-5034	19,070 ± 260	Foraminifera	VII
AA-3819	10,980 ± 70	Organic Conc	VII	AA-5063	13,625 ± 150	Foraminifera	VII
AA-3850	7,425 ± 60	Foraminifera	VII	AA-5117	9,000 ± 170	Mollusc	VII
AA-3890	2,370 ± 70	Foraminifera	VII	AA-5290	6,380 ± 90	Foraminifera	VII
AA-3939	10,920 ± 250	Foraminifera	VII	AA-5291	9,425 ± 150	Foraminifera	VII
AA-3940	10,705 ± 70	Foraminifera	VII	AA-5292	11,760 ± 170	Foraminifera	VII
AA-3941	8,720 ± 70	Mollusc	VII	AA-5835	10,555 ± 75	Mollusc	VII
AA-3974	7,790 ± 65	Plant Macros	VII	AA-5836	10,615 ± 75	Mollusc	VII
AA-3975	9,655 ± 90	Foraminifera	VII	AA-5837	10,315 ± 85	Mollusc	VII
AA-3976	8,965 ± 110	Foraminifera	VII	AA-5838	10,505 ± 85	Mollusc	VII
AA-3995	17,020 ± 170	Organic Conc	VII	AA-5839	10,510 ± 90	Mollusc	VII
AA-3997	375 ± 65	Plant Macros	VII	AA-5840	10,680 ± 85	Mollusc	VII
AA-4026	13,585 ± 110	Foraminifera	VII	AA-5841	10,570 ± 85	Mollusc	VII
AA-4027	8,755 ± 80	Foraminifera	VII	AA-5987	9,380 ± 80	Foraminifera	VII
AA-4160	8,300 ± 65	Foraminifera	VII	AA-5988	3,010 ± 50	Foraminifera	VII
AA-4244A	37,090 ± 1100	Mollusc	VII	AA-5989	10,375 ± 75	Foraminifera	VII
AA-4244B	40,630 ± 1400	Mollusc	VII	AA-5990	8,615 ± 75	Foraminifera	VII
AA-4249	9,270 ± 110	Mollusc	VII	AA-5992	14,455 ± 110	Foraminifera	VII
AA-4250A	10,015 ± 120	Mollusc	VII	AA-5994	12,425 ± 125	Foraminifera	VII
AA-4250B	8,320 ± 105	Mollusc	VII	AA-5995	12,675 ± 100	Foraminifera	VII
AA-4255	9,355 ± 70	Foraminifera	VII	AA-5996	10,870 ± 90	Foraminifera	VII
AA-4335	15,025 ± 95	Foraminifera	VII	AA-5997	12,740 ± 100	Foraminifera	VII
AA-4336	2,855 ± 80	Foraminifera	VII	AA-5998	4,440 ± 70	Foraminifera	VII
AA-4338	985 ± 50	Foraminifera	VII	AA-5999	15,010 ± 105	Foraminifera	VII
AA-4529	5,835 ± 60	Foraminifera	VII	AA-6000	11,100 ± 85	Foraminifera	VII
AA-4530	9,270 ± 80	Foraminifera	VII	AA-6001	11,120 ± 90	Foraminifera	VII
AA-4531	13,700 ± 145	Foraminifera	VII	AA-6026	1,045 ± 55	Humic Acids	VII
AA-4574	8,260 ± 80	Bulk Sed	VII	AA-6027	3,015 ± 55	Humic Acids	VII
AA-4575	8,925 ± 105	Bulk Sed	VII	AA-6028	5,675 ± 95	Humic Acids	VII
AA-4665	11,990 ± 100	Foraminifera	VII	AA-6029	6,160 ± 90	Humic Acids	VII
AA-4666	9,375 ± 70	Foraminifera	VII	AA-6298	35,685 ± 805	Mollusc	VII
AA-4667	11,575 ± 135	Foraminifera	VII	AA-6299	8,365 ± 75	Mollusc	VII
AA-4686	34,025 ± 725	Foraminifera	VII	AA-6300	11,590 ± 180	Mollusc	VII
AA-4687	32,150 ± 1200	Foraminifera	VII	AA-6301	9,460 ± 95	Mollusc	VII
AA-4689	11,895 ± 130	Foraminifera	VII	AA-6302	9,350 ± 75	Mollusc	VII
AA-4700	19,855 ± 210	Foraminifera	VII	AA-6303	10,825 ± 80	Mollusc	VII
AA-4702	11,550 ± 75	Foraminifera	VII	AA-6304	43,450 ± 2100	Mollusc	VII
AA-4702	11,550 ± 75	Foraminifera	VII	AA-6305	9,500 ± 105	Mollusc	VII
AA-4703	40,700 ± 1500	Foraminifera	VII	AA-6306	9,630 ± 80	Mollusc	VII
AA-4704	43,200 ± 60	Foraminifera	VII	AA-6307	10,740 ± 85	Mollusc	VII
AA-4706	45,500 ± 55	Foraminifera	VII	AA-6308	10,635 ± 80	Mollusc	VII
AA-4709	12,030 ± 85	Foraminifera	VII	AA-6309	10,435 ± 85	Mollusc	VII
AA-4916	10,375 ± 80	Foraminifera	VII	AA-6310	10,445 ± 75	Mollusc	VII
AA-4916	8,280 ± 120	Foraminifera	VII	AA-6311	9,800 ± 75	Mollusc	VII
AA-4917	13,180 ± 100	Foraminifera	VII	AA-6312	8,580 ± 70	Mollusc	VII
AA-4918	7,830 ± 120	Foraminifera	VIII	AA-6452	10,115 ± 75	Mollusc	VII
AA-5032	10,530 ± 95	Foraminifera	VII	AA-6453	7,800 ± 70	Bulk Sed	VII
AA-5033	10,530 ± 90	Foraminifera	VII	AA-6462	9,890 ± 85	Mollusc	VII

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL	Lab No.	Reported Date	Material	DL
AA-6463	8,195 ± 65	Mollusc	VII	AA-7892	7,995 ± 65	Mollusc	VIII
AA-6464	8,525 ± 80	Mollusc	VII	AA-7893	8,360 ± 60	Mollusc	VIII
AA-6465	9,645 ± 85	Mollusc	VII	AA-7894	9,270 ± 60	Mollusc	VII
AA-6466	5,230 ± 60	Mollusc	VII	AA-7895	9,740 ± 65	Mollusc	VII
AA-6468	10,445 ± 100	Foraminifera	VII	AA-7896	9,980 ± 70	Mollusc	VII
AA-6469	11,065 ± 105	Foraminifera	VII	AA-7897	>43,700	Mollusc	VIII
AA-6470	13,160 ± 115	Foraminifera	VII	AA-7898	6,655 ± 65	Mollusc	VIII
AA-6471	12,925 ± 130	Foraminifera	VII	AA-7899	34,790 ± 710	Mollusc	VIII
AA-6472	10,035 ± 130	Foraminifera	VII	AA-7900	7,810 ± 70	Mollusc	VIII
AA-6473	9,310 ± 100	Foraminifera	VII	AA-7901	>43,900	Mollusc	VIII
AA-6521	10,415 ± 240	Humic Acids	VII	AA-8034	14,850 ± 205	Foraminifera	VII
AA-6522	7,430 ± 230	Humic Acids	VII	AA-8035	13,450 ± 220	Foraminifera	VII
AA-6523	1,010 ± 50	Humic Acids	VII	AA-8324	4,850 ± 55	Organic Conc	VII
AA-6524	970 ± 150	Humic Acids	VII	AA-8325	4,010 ± 50	Organic Conc	VII
AA-6525	3,605 ± 75	Humic Acids	VII	AA-8326	13,285 ± 105	Foraminifera	VII
AA-6526	4,905 ± 100	Humic Acids	VII	AA-8327	9,435 ± 50	Foraminifera	VII
AA-6829	3,210 ± 70	Foraminifera	VII	AA-8328	1,125 ± 50	Foraminifera	VII
AA-6830	1,382 ± 65	Foraminifera	VII	AA-8329	12,865 ± 305	Foraminifera	VII
AA-6846	Too Small	Foraminifera	VII	AA-8330	12,470 ± 205	Foraminifera	VII
AA-6847	1,300 ± 55	Foraminifera	VII	AA-8331	12,085 ± 115	Foraminifera	VII
AA-6848	14,845 ± 190	Foraminifera	VII	AA-8332	1,798 ± 111	Foraminifera	VII
AA-6849	13,300 ± 145	Foraminifera	VII	AA-8333	9,105 ± 142	Foraminifera	VII
AA-6850	10,850 ± 185	Foraminifera	VII	AA-8388	10,560 ± 75	Mollusc	VII
AA-6851	13,635 ± 190	Foraminifera	VII	AA-8389	11,075 ± 85	Mollusc	VII
AA-6852	12,110 ± 185	Foraminifera	VII	AA-8390	9,385 ± 75	Mollusc	VII
AA-6853	12,975 ± 355	Foraminifera	VII	AA-8391	10,090 ± 75	Mollusc	VII
AA-6854	10,080 ± 75	Mollusc	VII	AA-8392	9,000 ± 90	Foraminifera	VII
AA-6866	10,895 ± 95	Foraminifera	VII	AA-8393	9,325 ± 100	Mollusc	VIII
AA-7008	5,660 ± 100	Plant Macros	VII	AA-8394	8,875 ± 110	Mollusc	VIII
AA-7009	10,435 ± 95	Bulk Sed	VIII	AA-8395	8,995 ± 120	Mollusc	VIII
AA-7010	14,115 ± 110	Bulk Sed	VIII	AA-8570	7,960 ± 105	Wood	VII
AA-7011	13,195 ± 125	Bulk Sed	VIII	AA-8777	11,790 ± 275	Foraminifera	VII
AA-7012	2,070 ± 70	Plant Macros	VII	AA-8959	10,530 ± 135	Organic Conc	VIII
AA-7136	10,630 ± 380	Foraminifera	VII	AA-8960	12,220 ± 130	Organic Conc	VIII
AA-7137	26,015 ± 1320	Foraminifera	VII	AA-8961	2,215 ± 55	Foraminifera	VIII
AA-7138	15,365 ± 250	Foraminifera	VII	AA-8962	7,675 ± 115	Foraminifera	VIII
AA-7139	9,670 ± 245	Foraminifera	VII	AA-8963	7,600 ± 60	Foraminifera	VIII
AA-7140	14,465 ± 200	Foraminifera	VII	AA-8964	9,730 ± 70	Foraminifera	VIII
AA-7141	10,355 ± 205	Foraminifera	VII	AA-8965	22,210 ± 255	Foraminifera	VIII
AA-7142	Modern	Organic Conc	VIII	AA-8966	30,175 ± 405	Foraminifera	VIII
AA-7144	17,305 ± 140	Organic Conc	VIII	AA-9022	4,040 ± 105	Organic Conc	VIII
AA-7557	40,950 ± 2100	Mollusc	VII	AA-9024	4,060 ± 105	Organic Conc	VIII
AA-7558	>38,900	Mollusc	VII	AA-9062	33,170 ± 590	Foraminifera	VIII
AA-7559	11,685 ± 90	Mollusc	VII	AA-9063	>47,240	Foraminifera	VIII
AA-7560	10,000 ± 75	Mollusc	VII	AA-9064	46,700 ± 3000	Foraminifera	VIII
AA-7561	9,215 ± 80	Mollusc	VIII	AA-9065	1,000 ± 60	Foraminifera	VIII
AA-7562	11,125 ± 100	Mollusc	VIII	AA-9066	5,840 ± 120	Foraminifera	VIII
AA-7891	10,470 ± 65	Mollusc	VII	AA-9067	33,615 ± 600	Foraminifera	VIII

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL	Lab No.	Reported Date	Material	DL
AA-9288	16,380 ± 165	Bulk Sed	VIII	AA-11433	6,220 ± 130	Foraminifera	VIII
AA-9289	7,575 ± 125	Bulk Sed	VIII	AA-11434	7,795 ± 165	Foraminifera	VIII
AA-9290	7,880 ± 90	Bulk Sed	VIII	AA-11435	8,305 ± 170	Foraminifera	VIII
AA-9291	6,755 ± 90	Bulk Sed	VIII	AA-11436	8,750 ± 165	Foraminifera	VIII
AA-9355	14,280 ± 205	Foraminifera	VIII	AA-11437	8,715 ± 165	Foraminifera	VIII
AA-9356	23,890 ± 260	Foraminifera	VIII	AA-11438	8,865 ± 165	Mollusc	VIII
AA-9361	27,720 ± 340	Foraminifera	VIII	AA-11440	12,035 ± 80	Foraminifera	VIII
AA-9362	4,110 ± 65	Organic Conc	VIII	AA-11441	9,515 ± 70	Foraminifera	VIII
AA-9363	6,940 ± 75	Organic Conc	VIII	AA-11442	9,245 ± 85	Foraminifera	VIII
AA-9364	14,980 ± 90	Foraminifera	VIII	AA-11443	9,750 ± 70	Foraminifera	VIII
AA-10117	7,015 ± 65	Organic Conc	VIII	AA-11444	9,410 ± 70	Foraminifera	VIII
AA-10118	11,235 ± 95	Organic Conc	VIII	AA-11445	10,170 ± 70	Foraminifera	VIII
AA-10119	17,575 ± 185	Organic Conc	VIII	AA-11446	85 ± 45	Foraminifera	VIII
AA-10120	7,220 ± 65	Organic Conc	VIII	AA-11447	8,580 ± 70	Foraminifera	VIII
AA-10121	13,470 ± 105	Organic Conc	VIII	AA-11448	9,955 ± 75	Foraminifera	VIII
AA-10122	17,855 ± 145	Organic Conc	VIII	AA-11449	875 ± 50	Foraminifera	VIII
AA-10232	38,700 ± 1200	Mollusc	VIII	AA-11450	31,065 ± 455	Mollusc	VIII
AA-10245	10,750 ± 65	Mollusc	VIII	AA-11451	35,280 ± 760	Mollusc	VIII
AA-10248	10,245 ± 70	Mollusc	VIII	AA-11452	39,145 ± 1180	Mollusc	VIII
AA-10249	9,605 ± 60	Mollusc	VIII	AA-11453	40,760 ± 1450	Mollusc	VIII
AA-10250	11,285 ± 65	Mollusc	VIII	AA-11583	3,085 ± 70	Foraminifera	VIII
AA-10251	8,445 ± 55	Mollusc	VIII	AA-11584	9,975 ± 100	Foraminifera	VIII
AA-10252	30,790 ± 450	Mollusc	VIII	AA-11585	1,465 ± 55	Foraminifera	VIII
AA-10253	9,040 ± 85	Foraminifera	VIII	AA-11586	9,085 ± 85	Foraminifera	VIII
AA-10254	9,075 ± 75	Foraminifera	VIII	AA-11587	11,390 ± 100	Foraminifera	VIII
AA-10255	10,780 ± 140	Foraminifera	VIII	AA-11588	17,670 ± 140	Foraminifera	VIII
AA-10256	11,170 ± 100	Foraminifera	VIII	AA-11589	23,880 ± 240	Foraminifera	VIII
AA-10257	7,785 ± 75	Foraminifera	VIII	AA-11590	8,460 ± 95	Foraminifera	VIII
AA-10258	10,695 ± 85	Mollusc	VIII	AA-11684	8,510 ± 90	Foraminifera	VIII
AA-10565	1,450 ± 60	Mixed	VIII	AA-11870	2,480 ± 110	Foraminifera	VIII
AA-10566	815 ± 55	Mollusc	VIII	AA-11871	1,155 ± 56	Foraminifera	VIII
AA-10567	1,440 ± 70	Foraminifera	VIII	AA-11872	1,390 ± 55	Foraminifera	VIII
AA-10568	20,840 ± 180	Foraminifera	VIII	AA-11874	9,290 ± 80	Foraminifera	VIII
AA-10569	34,010 ± 675	Foraminifera	VIII	AA-11875	12,325 ± 80	Foraminifera	VIII
AA-10603	1,310 ± 60	Foraminifera	VIII	AA-11876	7,830 ± 60	Mollusc	VIII
AA-10645	8,760 ± 65	Mollusc	VIII	AA-11877	895 ± 50	Coral	VIII
AA-10646	34,710 ± 690	Mollusc	VIII	AA-11878	27,255 ± 305	Foraminifera	VIII
AA-10647	24,035 ± 240	Mollusc	VIII	AA-11879	8,490 ± 200	Mollusc	VIII
AA-10648	8,525 ± 60	Mollusc	VIII	AA-11880	12,115 ± 260	Foraminifera	VIII
AA-10649	8,045 ± 60	Mollusc	VIII	AA-11881	>42,000	Foraminifera	VIII
AA-10650	11,095 ± 110	Foraminifera	VIII	AA-11882	8,450 ± 70	Mollusc	VIII
AA-10651	7,840 ± 70	Foraminifera	VIII	AA-12029	10,800 ± 130	Foraminifera	VIII
AA-10652	8,785 ± 60	Mollusc	VIII	AA-12605	43,750 ± 2100	Mollusc	VIII
AA-10653	10,790 ± 70	Foraminifera	VIII	AA-12606	37,760 ± 1050	Mollusc	VIII
AA-10655	2,655 ± 45	Foraminifera	VIII	AA-12607	8,175 ± 95	Mollusc	VIII
AA-10656	8,920 ± 65	Foraminifera	VIII	AA-12608	34,820 ± 730	Mollusc	VIII
AA-10658	29,055 ± 350	Foraminifera	VIII	AA-12609	8,555 ± 95	Mollusc	VIII
AA-11432	1,745 ± 160	Mollusc	VIII	AA-12610	8,130 ± 65	Mollusc	VIII

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL	Lab No.	Reported Date	Material	DL
AA-12884	8,805 ± 60	Mollusc	VIII	AA-14030	8,795 ± 95	Mollusc	VIII
AA-12885	8,530 ± 60	Foraminifera	VIII	AA-14202	11,080 ± 95	Foraminifera	VIII
AA-12886	2,180 ± 50	Foraminifera	VIII	AA-14203	21,210 ± 190	Foraminifera	VIII
AA-12887	8,270 ± 70	Mollusc	VIII	AA-14204	19,565 ± 160	Foraminifera	VIII
AA-12888	8,260 ± 60	Mollusc	VIII	AA-14205	2,070 ± 65	Mollusc	VIII
AA-12889	8,170 ± 60	Mollusc	VIII	AA-14206	8,605 ± 85	Mollusc	VIII
AA-12890	8,465 ± 90	Foraminifera	VIII	AA-14207	8,650 ± 85	Mollusc	VIII
AA-12891	855 ± 60	Foraminifera	VIII	AA-14208	12,210 ± 110	Foraminifera	VIII
AA-12892	1,680 ± 50	Foraminifera	VIII	AA-14209	13,050 ± 140	Foraminifera	VIII
AA-12893	7,985 ± 85	Foraminifera	VIII	AA-14210	8,640 ± 105	Foraminifera	VIII
AA-12896	13,105 ± 85	Foraminifera	VIII	AA-14211	5,215 ± 75	Foraminifera	VIII
AA-12897	11,535 ± 85	Foraminifera	VIII	AA-14212	9,240 ± 90	Foraminifera	VIII
AA-12898	28,005 ± 350	Foraminifera	VIII	AA-14213	880 ± 70	Foraminifera	VIII
AA-12899	21,255 ± 200	Foraminifera	VIII	AA-14214	Modern	Mollusc	VIII
AA-13050	8,245 ± 75	Mollusc	VIII	AA-14215	25,330 ± 310	Foraminifera	VIII
AA-13051	10,470 ± 120	Mollusc	VIII	AA-14216	18,865 ± 175	Foraminifera	VIII
AA-13052	12,125 ± 90	Foraminifera	VIII	AA-14217	18,475 ± 145	Foraminifera	VIII
AA-13053	10,430 ± 80	Mollusc	VIII	AA-14218	36,020 ± 805	Foraminifera	VIII
AA-13054	10,805 ± 80	Mollusc	VIII	AA-14219	41,800 ± 1700	Foraminifera	VIII
AA-13055	8,395 ± 70	Mollusc	VIII	AA-14220	36,870 ± 970	Foraminifera	VIII
AA-13172	9,505 ± 80	Mollusc	VIII	AA-14681	1,280 ± 45	Mollusc	VIII
AA-13173	9,025 ± 90	Mollusc	VIII	AA-14682	10,510 ± 80	Mollusc	VIII
AA-13174	8,915 ± 65	Mollusc	VIII	AA-14683	10,750 ± 70	Mollusc	VIII
AA-13175	9,125 ± 65	Mollusc	VIII	AA-14684	3,105 ± 50	Mollusc	VIII
AA-13228	7,835 ± 90	Foraminifera	VIII	AA-14685	16,800 ± 135	Foraminifera	VIII
AA-13229	30,170 ± 475	Foraminifera	VIII	AA-14686	8,715 ± 65	Mollusc	VIII
AA-13230	21,070 ± 220	Foraminifera	VIII	AA-14687	8,560 ± 70	Mollusc	VIII
AA-13231	13,055 ± 120	Foraminifera	VIII	AA-15123	8,350 ± 70	Mollusc	VIII
AA-13232	>49,230	Foraminifera	VIII	AA-15124	9,460 ± 75	Mollusc	VIII
AA-13233	12,970 ± 90	Foraminifera	VIII	AA-15125	9,465 ± 100	Mollusc	VIII
AA-13234	16,575 ± 140	Foraminifera	VIII	AA-15126	9,030 ± 75	Mollusc	VIII
AA-13235	24,365 ± 355	Foraminifera	VIII	AA-15127	9,220 ± 75	Mollusc	VIII
AA-13236	7,395 ± 70	Foraminifera	VIII	AA-15128	8,160 ± 70	Mollusc	VIII
AA-13237	5,300 ± 60	Mollusc	VIII	AA-15129	8,055 ± 70	Mollusc	VIII
AA-13238	15,270 ± 120	Foraminifera	VIII	AA-15130	8,325 ± 75	Mollusc	VIII
AA-13239	19,635 ± 150	Foraminifera	VIII	AA-15131	9,335 ± 75	Mollusc	VIII
AA-13241	8,940 ± 70	Mollusc	VIII	AA-15132	24,780 ± 230	Mollusc	VIII
AA-13242	11,545 ± 95	Organic Conc	VIII	AA-15659	11,555 ± 130	Foraminifera	VIII
AA-13243	7,330 ± 65	Organic Conc	VIII	AA-15687	13,100 ± 110	Foraminifera	VIII
AA-13244	4,025 ± 55	Organic Conc	VIII	AA-15688	11,995 ± 145	Foraminifera	VIII
AA-13352	6,615 ± 115	Foraminifera	VIII	AA-15689	8,575 ± 75	Foraminifera	VIII
AA-13353	1,055 ± 65	Foraminifera	VIII	AA-15690	11,750 ± 105	Foraminifera	VIII
AA-14024	9,065 ± 80	Mollusc	VIII	AA-15691	18,270 ± 140	Foraminifera	VIII
AA-14025	9,370 ± 80	Mollusc	VIII	AA-15692	21,970 ± 195	Foraminifera	VIII
AA-14026	9,090 ± 95	Mollusc	VIII	AA-15693	37,935 ± 1020	Foraminifera	VIII
AA-14027	38,620 ± 1110	Mollusc	VIII	AA-15694	28,050 ± 335	Foraminifera	VIII
AA-14028	8,905 ± 65	Mollusc	VIII	AA-15695	36,370 ± 820	Foraminifera	VIII
AA-14029	8,950 ± 65	Mollusc	VIII	AA-15696	32,820 ± 530	Mollusc	VIII

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL	Lab No.	Reported Date	Material	DL
AA-15697	27,465 ± 360	Foraminifera	VIII	Beta-42659	320 ± 90	Charcoal	VIII
AA-15698	10,070 ± 95	Foraminifera	VIII	Beta-42660	510 ± 80		VIII
AA-15699	24,835 ± 240	Foraminifera	VIII	Beta-52074	670 ± 150	Charcoal	VIII
AA-15700	9,565 ± 80	Foraminifera	VIII	Beta-52272	450 ± 60	Wood twigs	VIII
AA-15701	9,825 ± 95	Foraminifera	VIII	Beta-52273	230 ± 60	Wood	VIII
AA-15702	10,310 ± 90	Foraminifera	VIII	Beta-52274	390 ± 70	Wood twigs	VIII
AA-15703	10,335 ± 95	Foraminifera	VIII	Beta-52275	270 ± 60	Wood twigs	VIII
AA-15704	17,165 ± 140	Foraminifera	VIII	Beta-52276	380 ± 80	Charcoal	VIII
AA-15705	22,110 ± 230	Foraminifera	VIII	Beta-52994	110 ± 50	wood twigs	VIII
AA-15706	22,225 ± 245	Foraminifera	VIII	Beta-53642	240 ± 80	Wood	VIII
AA-15707	27,130 ± 335	Foraminifera	VIII	Beta-53643	60 ± 80	Wood	VIII
AA-15708	19,215 ± 150	Foraminifera	VIII	Beta-61068	800 ± 70	Wood	VIII
AA-16403	9,100 ± 80	Mollusc	VIII	Beta-61070	2,110 ± 90	Wood	VIII
AA-16404	9,600 ± 140	Mollusc	VIII	Beta-61071	1,800 ± 70	Wood twigs	VIII
AA-16405	9,480 ± 80	Mollusc	VIII	Beta-61072	1,490 ± 60	Moss	VIII
AA-17254	11,255 ± 75	Mollusc	VIII	Beta-61073	470 ± 60	Bone	VIII
AA-17255	9,130 ± 65	Mollusc	VIII	Beta-61609	1,130 ± 50	Mammal Fat	VIII
AA-17256	100 ± 40	Mollusc	VIII	Beta-63443	70 ± 50	Wood	VIII
AA-17257	9,650 ± 70	Mollusc	VIII	Beta-63444	300 ± 70	Wood twigs	VIII
AA-17258	8,325 ± 60	Mollusc	VIII	Beta-63445	170 ± 90	Wood	VIII
AA-17260	8,785 ± 80	Mollusc	VIII	Beta-63446	510 ± 50	Charcoal	VIII
AA-17261	9,045 ± 80	Mollusc	VIII	Beta-70916	1,500 ± 90	Charcoal	VIII
AA-17262	9,885 ± 170	Mollusc	VIII	Beta-70917	1,800 ± 60	Wood twigs	VIII
AA-17263	11,410 ± 130	Mollusc	VIII	Beta-70918	1,970 ± 70	Wood twigs	VIII
AA-17264	10,180 ± 90	Mollusc	VIII	Beta-70919	1,710 ± 80	Wood	VIII
AA-17265	9,305 ± 85	Mollusc	VIII	Beta-70920	1,470 ± 50	Wood twigs	VIII
AA-17379	7,785 ± 140	Foraminifera	VIII	Beta-71712	600 ± 60	Wood	VIII
AA-17380	8,155 ± 130	Foraminifera	VIII	Beta-71713	240 ± 70	Wood	VIII
AA-17391	10,270 ± 285	Foraminifera	VIII	Beta-71831	260 ± 70	Wood	VIII
AA-17392	9,145 ± 75	Foraminifera	VIII	Beta-72890	2,060 ± 40	Mollusc	VIII
AA-17393	10,225 ± 100	Foraminifera	VIII	Beta-72891	1,700 ± 60	Mollusc	VIII
AA-17861	9,355 ± 75	Mollusc	VIII	Beta-72892	1,180 ± 50	Mollusc	VIII
				Beta-75310	1,280 ± 60	Mollusc	VIII
AECV-1348C	550 ± 60	Bone	VIII	Beta-75311	1,380 ± 90	Mollusc	VIII
AECV-1349C	740 ± 70	Bone	VIII	Beta-75312	890 ± 80	Mollusc	VIII
AECV-1350C	740 ± 80	Wood	VIII	Beta-78138	4,070 ± 50	Mollusc	VIII
AECV-1351C	490 ± 70	Bone	VIII	Beta-78139	3,140 ± 60	Mollusc	VIII
AECV-1707C	330 ± 50	Bone	VIII	Beta-78140	3,340 ± 60	Mollusc	VIII
AECV-1708C	880 ± 50	Bone	VIII	Beta-78141	2,850 ± 60	Mollusc	VIII
Beta-1087	2,035 ± 70	Peat	V	BGS-267	970 ± 80	Soil	III
Beta-1227	>30,000	Foraminifera	VII	BGS-268	1,500 ± 80	Soil	III
Beta-1622	1,460 ± 70	Peat	V	BGS-269	2,450 ± 90	Organic mud	III
Beta-1705	2,940 ± 145	Peaty sand	V	BGS-270	1,810 ± 90	>125 µm org	III
Beta-1806	905 ± 100	Peat	V	BGS-271	3,260 ± 100	Soil	III
Beta-1871	7,140 ± 115	Mollusc	V	BGS-272	890 ± 90	>125 µm org	III
Beta-1872	7,595 ± 130	Mollusc	V	BGS-295	150 ± 100	Bulk Sed	III
Beta-2362	7,640 ± 125	Mollusc	III	BGS-304	33,640 ± 1300	Mollusc	III

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL
BGS-305	38,470 ± 2450	Mollusc	III
BGS-306	40,710 ± 5500	Mollusc	III
BGS-1472	9,500 ± 150	Gyttja	VIII
BIRM-370	1,480 ± 160	Peat	III
BIRM-380	2,500 ± 170	Peat	III
BIRM-535	1,970 ± 200	Peat	III
BIRM-536	2,240 ± 190	Peat	III
Brookhaven	792 ± 107	Iron	VIII
Brookhaven	679 ± 133	Iron	VIII
CAMS-4061	5,390 ± 70	Decalcif Sed	VIII
CAMS-4062	23,390 ± 240	Decalcif Sed	VIII
CAMS-4063	19,400 ± 310	Decalcif Sed	VIII
CAMS-7789	3,040 ± 70	Decalcif Sed	VIII
CAMS-7790	7,470 ± 70	Decalcif Sed	VIII
CAMS-8251	8,390 ± 80	Decalcif Sed	VIII
CAMS-8252	2,660 ± 70	Decalcif Sed	VIII
CAMS-8253	4,750 ± 70	Decalcif Sed	VIII
CAMS-10359	8,240 ± 150	Foraminifera	VIII
CAMS-11121	12,860 ± 90	Plant Macros	VIII
CAMS-11122	8,890 ± 70	Plant Macros	VIII
CAMS-11125	8,380 ± 60	Plant Macros	VIII
CAMS-11335	Modern	Plant Macros	VIII
CAMS-11340	18,730 ± 90	Plant Macros	VIII
CAMS-11793	10,730 ± 80	Decalcif Sed	VIII
CAMS-11798	6,330 ± 80	Decalcif Sed	VIII
CAMS-11814	6,120 ± 80	Mollusc	VIII
CAMS-11815	9,710 ± 60	Mollusc	VIII
CAMS-12256	17,330 ± 1200	Plant Macros	VIII
CAMS-12581	12,640 ± 80	Decalcif Sed	VIII
CAMS-12582	22,360 ± 140	Decalcif Sed	VIII
CAMS-13511	2,840 ± 60	Mollusc	VIII
CAMS-17146	8,640 ± 500	Foraminifera	VIII
CAMS-17398	11,060 ± 70	Foraminifera	VIII
CAMS-17399	3,740 ± 60	Foraminifera	VIII
CAMS-17400	17,990 ± 110	Foraminifera	VIII
CAMS-17401	10,500 ± 110	Mixed	VIII
CAMS-18449	9,440 ± 110	Foraminifera	VIII
CAMS-18687	5,090 ± 60	Foraminifera	VIII
CAMS-18688	8,920 ± 60	Foraminifera	VIII
CAMS-18689	11,070 ± 60	Mixed	VIII
CAMS-18690	8,670 ± 60	Mollusc	VIII
CAMS-19255	33,320 ± 1810	Mixed	VIII
CAMS-19996	14,370 ± 180	Mixed	VIII
CAMS-22022	27,670 ± 440	Mixed	VIII
CAMS-22023	8,990 ± 80	Mixed	VIII
CAMS-25670	3,970 ± 60	Foraminifera	VIII
CAMS-25758	8,640 ± 70	Mixed	VIII
CAMS-25759	820 ± 80	Foraminifera	VIII
CAMS-25761	9,060 ± 60	Foraminifera	VIII
CAMS-25762	8,030 ± 60	Foraminifera	VIII
CAMS-25763	4,110 ± 80	Foraminifera	VIII
CAMS-25764	9,430 ± 50	Mollusc	VIII
DIC-327	850 ± 65	>125 µm org	III
DIC-328	3,840 ± 55	>125 µm org	III
DIC-331	Modern	Bulk Sed	III
DIC-332	8,650 ± 80	Mollusc	III
DIC-333	2,980 ± 190	>125 µm org	III
DIC-334	7,610 ± 65	Mollusc	III
DIC-335	5,710 ± 80	Mollusc	III
DIC-374	9,480 ± 165	Organic lense	III
DIC-375	8,610 ± 185	Moss	III
DIC-378	4,260 ± 475	Peat	III
DIC-390	1,500 ± 85	>125 µm org	III
DIC-401	850 ± 75	Bulk Sed	III
DIC-402	3,070 ± 75	>125 µm org	III
DIC-515	2,470 ± 390	>125 µm org	IV
DIC-597	3,830 ± 75	Soil org	IV
DIC-648	2,830 ± 235	Peat	IV
DIC-649	2,730 + 1290 -1540	Peat	I
GaK-2566	7,950 ± 170	Mollusc	I
GaK-2567	29,000 ± 3500	Mollusc	I
GaK-2568	29,000 + 2000 -2200	Mollusc	I
GaK-2569	>29,000	Mollusc	I
GaK-2570	>29,000	Mollusc	I
GaK-2571	90 ± 320	Mollusc	I
GaK-2572	>20,000	Mollusc	I
GaK-2573	9,850 ± 250	Mollusc	I
GaK-2574	10,000 ± 1000	Mollusc	I
GaK-2575	1,670 ± 90	Peat	I
GaK-2771	2,090 ± 100	Peat	I
GaK-2792	730 ± 70	Peat	I
GaK-2799	28,200 ± 1500	Mollusc	I
GaK-2983	350 ± 100	Peat	I
GaK-3090	8,230 ± 160	Mollusc	I
GaK-3091	4,950 ± 140	Mollusc	I
GaK-3092	8,290 ± 170	Mollusc	I
GaK-3093	7,870 ± 150	Mollusc	I
GaK-3094	850 ± 110	Peat	I
GaK-3096	930 ± 100	Buried soil	I
GaK-3097	160 ± 80	Peat	I
GaK-3098	680 ± 90	Peat	I

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL
GaK-3099	330 ± 90	Moss	I
GaK-3100	Modern ± 90	Lichen	I
GaK-3101	770 ± 70	Bone	I
GaK-3160	1,260 ± 150	Buried soil	I
GaK-3365	7,100 ± 140	Mollusc	I
GaK-3677	7,950 ± 140	Mollusc	I
GaK-3678	7,560 ± 130	Mollusc	I
GaK-3685	1,480 ± 110	Leaves	I
GaK-3686	1,170 ± 330	Soil	I
GaK-3687	1,480 ± 110	>125 µm org	I
GaK-3722	680 ± 80	Bone	I
GaK-3723	5,200 ± 100	Mollusc	I
GaK-3724	4,810 ± 110	Mollusc	I
GaK-3725	1,010 ± 100	Organics	I
GaK-3726	450 ± 130	Organics	II
GaK-3860	840 ± 110	Organics	II
GaK-3861	Modern	Organic mat	II
GaK-3862	8,440 ± 150	Mollusc	II
GaK-4306	6,150 ± 250	Mollusc	II
GaK-4307	1,290 ± 100	Buried soil	II
GaK-4308	1,610 ± 120	Buried soil	II
GaK-4309	1,070 ± 90	Organics	II
GaK-4440	5,750 ± 110	Mollusc	II
GaK-4835	120 ± 70	Moss	II
GaK-4836	5,250 ± 105	Buried peat	II
GaK-4837	7,990 ± 170	Mollusc	II
GaK-4838	Modern	Peat	II
GaK-4839	970 ± 70	Organics	II
GaK-4840	Modern ± 70	Peaty sand	II
GaK-5251	5,550 ± 120	<125 µm org	II
GaK-5282	650 ± 140	>125 µm org	III
GaK-5282	650 ± 230	Peaty sand	III
GaK-5411	2,060 ± 85	>125 µm org	III
GaK-5411	1,990 ± 180	>125 µm org	III
GaK-5449	640 ± 155	>125 µm org	III
GaK-5450	960 ± 200	>125 µm org	III
GaK-5479	8,980 ± 180	Mollusc	III
Gif-3493	1,870 ± 90	Peat	III
Gif-3494	2,660 ± 100	Peat	IV
Gif-3864	980 ± 80	Peat	IV
Gif-3865	2,660 ± 90	Peat	IV
Gif-3866	5,370 ± 130	Organics	IV
Gif-3956	3,170 ± 100	Moss	IV
Gif-4243	2,680 ± 90	Soil org	IV
Gif-4245	880 ± 80	Soil	A
GSC-122	10,940 ± 240	Fine org	A

Lab No.	Reported Date	Material	DL
GSC-209	>39,600	Wood	A
GSC-259	>36,900	Woody peat	A
GSC-328	6,410 ± 150	Mollusc	A
GSC-427	>34,800	Peat	A
GSC-528	30,320 ± 820	Mollusc	A
GSC-556	7,740 ± 140	Mollusc	A
GSC-557	4,000 ± 140	Mollusc	A
GSC-564	3,100 ± 150	Mollusc	A
GSC-583	2,770 ± 140	Mollusc	A
GSC-584	3,450 ± 170	Plant debris	A
GSC-599	7,000 ± 150	Mollusc	A
GSC-630	8,000 ± 150	Mollusc	A
GSC-631	6,220 ± 140	Mollusc	A
GSC-633	6,270 ± 150	Mollusc	A
GSC-654	2,780 ± 140	Mollusc	A
GSC-707	9,180 ± 1140	Mollusc	A
GSC-739	6,930 ± 150	Mollusc	I
GSC-1507	3,570 ± 140	Peat	I
GSC-1638	8,410 ± 340	Mollusc	II
GSC-1845	1,130 ± 80	Plant frags	II
GSC-1969	9,100 ± 140	Marine algae	II
GSC-2001	8,690 ± 90	Mollusc	II
GSC-2008	Modern ± 140	Wood	III
GSC-2083	8,480 ± 270	Mollusc	III
GSC-2084	1,790 ± 80	Soil	III
GSC-2103	5,550 ± 0	Mollusc	III
GSC-2111	7,770 ± 100	Mollusc	III
GSC-2138	5,800 ± 70	Mollusc	III
GSC-2175	6,510 ± 70	Wood frags	III
GSC-2183	8,660 ± 110	Mollusc	IV
GSC-2199	5,340 ± 170	Mollusc	III
GSC-2201	9,880 ± 200	Moss	III
GSC-2211	6,120 ± 90	Mollusc	III
GSC-2215	9,110 ± 160	Mollusc	III
GSC-2258	6,060 ± 170	Mollusc	III
GSC-2283	8,290 ± 90	Mollusc	IV
GSC-2384	8,730 ± 120	Mollusc	IV
GSC-2466	8,660 ± 160	Mollusc	IV
GSC-2474	3,010 ± 80	Mollusc	IV
GSC-2478	8,680 ± 140	Mollusc	IV
GSC-2479	9,280 ± 120	Mollusc	IV
GSC-2506	8,320 ± 140	Mollusc	IV
GSC-2508	8,750 ± 100	Mollusc	IV
GSC-2568	8,890 ± 100	Mollusc	IV
GSC-2582	9,240 ± 80	Mollusc	IV
GSC-2618	9,230 ± 100	Mollusc	IV
GSC-2684	8,580 ± 120	Seaweed	IV
GSC-2716	>38,000	Seaweed	IV

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL	Lab No.	Reported Date	Material	DL
GSC-2725	10,100 ± 110	Mollusc	IV	GSC-5895	8,860 ± 110	Mollusc	VIII
GSC-2731	9,600 ± 100	Peat	IV	GSC-5903	7,080 ± 120	Mollusc	VIII
GSC-2750	9,510 ± 90	Mollusc	IV	GSC-6416	7,720 ± 100	Mollusc	VI
GSC-2752	9,960 ± 230	Mollusc	V				
GSC-2771	7,380 ± 220	Mollusc	V	GX-930	8,435 ± 105	Mollusc	I
GSC-2778	10,200 ± 210	Mollusc	V	GX-1675	>29,000	Mollusc	I
GSC-2797	>39,000	Mollusc	V	GX-1676	5,120 ± 400	Mollusc	I
GSC-2813	10,000 ± 200	Mollusc	V	GX-1677	>28,000	Mollusc	I
GSC-2982	8,950 ± 160	Mollusc	V	GX-1681	Modern	Peat	I
GSC-2991	8,790 ± 380	Mollusc	V	GX-1812	1,205 ± 120	Peat	I
GSC-3015	8,480 ± 280	Mollusc	V	GX-1824	5,330 ± 450	Mollusc	II
GSC-3157	8,690 ± 120	Mollusc	V	GX-3271	2,080 ± 190	Buried soil	II
GSC-3404	8,220 ± 90	Mollusc	A	GX-3272	2,660 ± 230	Organics	IV
GSC-3404	8,240 ± 90	Mollusc	VI	GX-5318	>24,550	>125 µm org	IV
GSC-3468	8,660 ± 110	Mollusc	VI	GX-5319	14,435 ± 450	>125 µm org	IV
GSC-3469	8,580 ± 150	Mollusc	VI	GX-5527	2,290 ± 170	>125 µm org	IV
GSC-3603	8,030 ± 80	Mollusc	VI	GX-5623	8,815 ± 275	>125 µm org	V
GSC-3648	8,600 ± 110	Mollusc	VI	GX-5624	7,220 ± 250	>125 µm org	IV
GSC-3666	8,590 ± 100	Mollusc	VI	GX-5625	4,765 ± 200	>125 µm org	IV
GSC-3951	8,640 ± 100	Mollusc	VI	GX-5777	770 ± 135	>125 µm org	IV
GSC-3991	7,200 ± 80	Wood	VI	GX-5778	1,900 ± 110	>125 µm org	IV
GSC-4038	7,350 ± 90	Mollusc	VI	GX-5779	1,865 ± 115	>125 µm org	IV
GSC-4152	5,780 ± 80	Mollusc	VI	GX-5780	2,215 ± 105	>125 µm org	IV
GSC-4162	6,920 ± 90	Mollusc	VI	GX-5781	3,030 ± 170	>125 µm org	V
GSC-4578	8,210 ± 180	Mollusc	VI	GX-6280	11,770 ± 550	Mollusc	V
GSC-4602	8,680 ± 110	Mollusc	VI	GX-6292	2,565 ± 190	Detrital org	V
GSC-4607	8,810 ± 90	Mollusc	VI	GX-6293	5,700 ± 240	Detrital org	V
GSC-4948	10,200 ± 160	Mollusc	VII	GX-6352	10,685 ± 385	>125 µm org	V
GSC-5036	10,400 ± 90	Mollusc	VII	GX-6371	1,775 ± 210	Organic lense	V
GSC-5037	10,200 ± 100	Mollusc	VII	GX-6603	7,285 ± 200	Mollusc	V
GSC-5122	670 ± 70	Peat	VII	GX-6607	7,105 ± 720	>125 µm org	V
GSC-5149	9,410 ± 100	Mollusc	VII	GX-6608	16,360 ± 650	>125 µm org	V
GSC-5163	8,690 ± 90	Mollusc	VII	GX-6835	3,430 ± 135	Moss	V
GSC-5223	8,600 ± 160	Mollusc	VII	GX-6836	4,190 ± 140	Moss	V
GSC-5299	9,550 ± 320	Mollusc	VII	GX-6837	8,810 ± 205	Moss	V
GSC-5320	9,250 ± 200	Mollusc	VII	GX-6838	3,650 ± 160	>125 µm org	V
GSC-5328	10,400 ± 140	Mollusc	VII	GX-6839	8,070 ± 250	>125 µm org	V
GSC-5340	9,980 ± 210	Mollusc	VII	GX-6840	8,000 ± 320	>125 µm org	V
GSC-5478	10,500 ± 110	Gyttja	VIII	GX-7091	4,560 ± 180	>125 µm org	V
GSC-5483	8,870 ± 100	Gyttja	VIII	GX-7119	11,910 ± 380	>125 µm org	V
GSC-5486	9,370 ± 90	Gyttja	VIII	GX-7458	17,065 ± 665	>125 µm org	V
GSC-5492	6,980 ± 110	Gyttja	VIII	GX-7880	15,080 ± 620	>125 µm org	V
GSC-5496	3,220 ± 110	Gyttja	VIII	GX-7881	2,745 ± 145	>125 µm org	V
GSC-5497	>38,000	Gyttja	VIII	GX-7882	10,025 ± 225	>125 µm org	V
GSC-5526	7,690 ± 90	Mollusc	VIII	GX-7883	27,255 ± 1250	>125 µm org	V
GSC-5677	7,540 ± 130	Mollusc	VIII	GX-8159	8,450 ± 190	Mollusc	V
GSC-5688	7,380 ± 200	Mollusc	VIII	GX-8160	7,060 ± 175	Mollusc	V
GSC-5699	7,710 ± 190	Mollusc	VIII	GX-8194	9,190 ± 195	Mollusc	VI

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL
GX-8240	>34,200	Mollusc	V
GX-8241	>28,200	Mollusc	V
GX-8380	955 ± 130	Peaty sand	V
GX-8381	475 ± 125	Organics	V
GX-8382	420 ± 125	Peaty sands	V
GX-8383	905 ± 130	Peaty sands	V
GX-8384	1,345 ± 135	Peaty sands	V
GX-8385	2,575 ± 140	Peaty sands	V
GX-8504	6,935 ± 220	Colloid mud	V
GX-8591	>32,500	Mollusc	V
GX-8607	3,915 ± 165	Colloid mud	V
GX-8608	6,220 ± 220	Colloid mud	V
GX-8670	9,735 ± 295	Mollusc	VIII
GX-8671	8,845 ± 265	Mollusc	V
GX-8751	9,480 ± 565	>125 µm org	V
GX-8753	9,570 ± 370	>125 µm org	V
GX-8754	10,915 ± 600	>125 µm org	V
GX-8755	8,285 ± 285	>125 µm org	V
GX-8756	12,035 ± 600	>125 µm org	V
GX-8825	2,400 ± 140	Necron mud	V
GX-8826	2,745 ± 160	Fine org	V
GX-8897	3,420 ± 160	Organic mud	V
GX-8898	4,150 ± 170	Colloid mud	V
GX-8899	1,940 ± 150	>125 µm org	V
GX-8939	2,225 ± 155	Silty mud	V
GX-8940	4,240 ± 185	Colloid mud	V
GX-8941	3,650 ± 180	Silty mud	A
GX-8942	>37,000	Mollusc	VIII
GX-8943	9,385 ± 280	Mollusc	VI
GX-9030	16,849 ± 860	peaty sand	VI
GX-9290	8,645 ± 315	Mollusc	VI
GX-9291	9,785 ± 525	Mollusc	VI
GX-9293	9,110 ± 470	Mollusc	VI
GX-9302	8,635 ± 565	peaty sand	VI
GX-9304	14,185 ± 760	peaty sand	VI
GX-9324	15,650 ± 1880	<125 µm org	VI
GX-9328	9,060 ± 330	Mollusc	VI
GX-9430	7,900 ± 225	<125 µm org	VI
GX-9431	12,350 ± 950	<125 µm org	VI
GX-9432	11,365 ± 365	<125 µm org	VI
GX-9433	22,720 + 1420 -1210	<125 µm org	VI
GX-9434	10,430 ± 1250	<125 µm org	VI
GX-9685	Modern	peaty sand	VI
GX-9686	5,075 ± 210	peaty sand	VI
GX-9766	9,310 ± 220	Mollusc	VI
GX-9865	8,010 ± 255	Mollusc	VI
GX-9866	7,250 ± 240	Mollusc	VI
GX-9867	3,295 ± 185	Mollusc	VI
GX-9889	Modern	Mollusc	VI
GX-9890	Modern	Mollusc	VI
GX-9918	Modern	Mollusc	VI
GX-9996	7,850 ± 290	Mollusc	VI
GX-9xxx	4,295 ± 100	<125 µm org	VI
GX-10081	6,885 ± 250	Mollusc	VI
GX-10107	9,380 ± 260	Mollusc	VI
GX-10290	7,830 ± 230	peaty sand	VI
GX-10374	1,230 ± 110	Coarse org	VI
GX-10628	15,810 ± 490	peaty sand	VI
GX-10858	6,000 ± 165	Mollusc	VI
GX-10859	5,330 ± 100	Mollusc	VI
GX-10860	7,230 ± 120	Mollusc	VI
GX-10861	5,865 ± 170	Mollusc	VI
GX-11335	5,185 ± 425	<125 µm org	VI
GX-11548	8,170 ± 245	Mollusc	VI
GX-11549	Modern ± 100	Peat	VI
GX-12035	7,370 ± 95	?	VI
GX-12036	6,220 ± 240	Mollusc	VI
GX-12037	7,725 ± 190	Mollusc	VI
GX-12482	Too Small	<125 µm org	VI
GX-12852	6,720 ± 390	peaty sand	VI
GX-12858	10,130 ± 180	Mollusc	VI
GX-12859	11,680 ± 130	Mollusc	VI
GX-13021	9,420 ± 135	Mollusc	VIII
GX-13022	8,780 ± 230	Mollusc	VIII
GX-13683	4,180 ± 80	Mollusc	VI
GX-13720	45,600 + 4100 -2700	Mollusc	VI
GX-13794	8,770 ± 260	Peat	VII
GX-13795	7,685 ± 260	Peat	VII
GX-13796	9,715 ± 295	Bulk Sed	VII
GX-13797	10,595 ± 380	Bulk Sed	VII
GX-13798	12,720 ± 670	Bulk Sed	VII
GX-13799	6,770 ± 205	Bulk Sed	VII
GX-13800	8,460 ± 245	Bulk Sed	VII
GX-13801	7,730 ± 180	Bulk Sed	VII
GX-13805	5,420 ± 100	Mollusc	VI
GX-15278	10,920 ± 160	Mollusc	VII
GX-15279	10,720 ± 140	Mollusc	VII
GX-16635	30,600 ± 1900	Organic Conc	VII
I-405	6,050 ± 250	Mollusc	A
I-406	6,725 ± 250	Mollusc	A
I-407	4,375 ± 200	Mollusc	A
I-484	4,025 ± 190	Mollusc	A
I-485	4,000 ± 180	Mollusc	A
I-486	5,750 ± 250	Mollusc	A
I-487	4,700 ± 210	Mollusc	A

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL	Lab No.	Reported Date	Material	DL
I-489	2,050 ± 70	Mollusc	A	I-1815	32,300 + 2100 -1600	Mollusc	A
I-724	8,350 ± 300	Mollusc	A	I-1816	>39,000	Mollusc	A
I-725	17,800 ± 500	Mollusc	A	I-1829	>41,000	Mollusc	A
I-731	24,600 ± 500	Woody peat	A	I-1830	1,950 ± 100	Mollusc	A
I-839	30,000 ± 1200	Peat	A	I-1831	5,570 ± 130	Mollusc	A
I-1204	330 ± 75	Moss	A	I-1832	34,900 + 2100 -1700	Mollusc	A
I-1233	14,400 ± 400	Detrital org	A	I-1833	5,270 ± 140	Mollusc	A
I-1234	>35,000	Plant Macros	A	I-1834	785 ± 105	Peat	A
I-1235	>40,000	Leaves	A	I-1835	1,860 ± 110	Peat	A
I-1238	5,070 ± 200	Mollusc	A	I-1931	4,920 ± 180	Mollusc	A
I-1240	>35,000	Plant Macros	A	I-1932	7,940 ± 130	Mollusc	A
I-1241	>30,000	Peat	A	I-1933	8,210 ± 130	Mollusc	A
I-1242	19,000 ± 1000	Mollusc	A	I-1934	6,560 ± 125	Mollusc	A
I-1243	5,560 ± 250	Mollusc	A	I-1983	8,180 ± 130	Mollusc	A
I-1244	5,070 ± 450	Mollusc	A	I-2410	6,270 ± 210	Mollusc	A
I-1245	4,875 ± 350	Mollusc	A	I-2411	5,380 ± 185	Mollusc	A
I-1246	7,930 ± 300	Mollusc	A	I-2412	5,900 ± 130	Mollusc	A
I-1247	3,550 ± 200	Plant Macros	A	I-2413	4,420 ± 110	Mollusc	A
I-1314	18,700 ± 1200	Mollusc	A	I-2414	1,360 ± 105	Peat	A
I-1315	9,360 ± 230	Peat	A	I-2442	4,990 ± 175	Mollusc	A
I-1316	8,250 ± 750	Mollusc	A	I-2546	4,050 ± 130	Mollusc	A
I-1317	3,600 ± 480	Mollusc	A	I-2548	5,580 ± 130	Mollusc	A
I-1318	4,400 ± 490	Mollusc	A	I-2549	5,100 ± 120	Mollusc	A
I-1319	5,710 ± 200	Mollusc	A	I-2581	36,250 + 3600 -2000	Mollusc	A
I-1320	4,010 ± 440	Mollusc	A	I-2582	4,590 ± 115	Mollusc	A
I-1321	5,390 ± 150	Mollusc	A	I-2583	6,130 ± 120	Mollusc	A
I-1553	7,500 ± 200	Mollusc	A	I-2584	4,430 ± 110	Mollusc	A
I-1554	7,030 ± 190	Mollusc	A	I-2585	3,850 ± 105	Mollusc	A
I-1555	2,800 ± 140	Mollusc	A	I-2586	3,890 ± 107	Mollusc	A
I-1556	6,240 ± 140	Mollusc	A	I-2611	8,300 ± 135	Mollusc	A
I-1596	6,150 ± 170	Mollusc	A	I-2669	5,190 ± 120	Mollusc	A
I-1597	4,090 ± 150	Mollusc	A	I-2695	6,560 ± 125	Mollusc	IV
I-1598	7,200 ± 150	Mollusc	A	I-2831	7,750 ± 135	Mollusc	IV
I-1599	2,990 ± 140	Mollusc	A	I-2961	4,830 ± 120	Plant Macros	IV
I-1600	3,520 ± 230	Mollusc	A	I-2962	6,520 ± 150	Plant Macros	IV
I-1601	3,530 ± 130	Mollusc	A	I-3200	32,200 + 1700 -1400	Mollusc	A
I-1602	7,900 ± 210	Mollusc	A				
I-1603	170 ± 105	Plant Macros	A	L-762c	5,400 ± 200	Mollusc	IV
I-1668	3,830 ± 140	Mollusc	A				
I-1669	4,770 ± 140	Mollusc	A	QC-446	>41,900	Mollusc	IV
I-1670	4,770 ± 140	Mollusc	A	QC-447	9,370 ± 140	Mollusc	IV
I-1671	4,270 ± 140	Mollusc	A	QC-448	9,395 ± 100	Mollusc	IV
I-1672	7,080 ± 170	Mollusc	A	QC-449	9,100 ± 100	Mollusc	IV
I-1673	7,970 ± 340	Mollusc	A	QC-450	9,725 ± 120	Mollusc	IV
I-1674	<200	Moss	A	QC-451	9,935 ± 165	Peat	IV
I-1812	>39,000	Mollusc	A	QC-452	8,025 ± 110	Peat	IV
I-1813	>39,000	Mollusc	A	QC-453	9,950 ± 185	Peat	IV
I-1814	>39,000	Mollusc	A	QC-454	9,092 ± 150	Mollusc	V

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL	Lab No.	Reported Date	Material	DL
QC-455	6,215 ± 90	Mollusc	V	QL-976-2	47,000 + 1400 -1200	Bone	IV
QC-456	4,310 ± 95	Mollusc	IV	QL-979	37,200 ± 800	Mollusc	IV
QC-457	8,050 ± 115	Mollusc	IV	QL-1086	48,700 + 1400 -1000	Peat	IV
QC-479	1,510 ± 240	Peat	IV	QL-1087	47,500 + 1000 -1200	Peat	IV
QC-480A	10,720 ± 140	Mollusc	IV	QL-1173	10,790 ± 70	Mollusc	IV
QC-480C	10,760 ± 150	Mollusc	IV	QL-1174	10,510 ± 70	Mollusc	IV
QC-501	6,030 ± 80	Peat	IV	QL-1179	50,700 + 2000 -1600	Organics	IV
QC-513	4,285 ± 90	Mollusc	IV	QL-1180	42,400 ± 800	Fine org	IV
QC-543	12,150 ± 140	Mollusc	IV	QL-1181	47,800 + 1300 -1100	Mollusc	III
QC-544	9,725 ± 130	Mollusc	V				
QC-618	1,450 ± 105	Organics	V	QU-240	1,560 ± 120	Bone	III
QC-619	4,000 ± 110	Peat	V	QU-241	770 ± 80	Bone	III
QC-653	965 ± 145	Peat	V	QU-299	6,800 ± 600	Peat	III
QC-654	3,110 ± 100	Peat	IV	QU-301	1,170 ± 150	Peat	III
QC-661	255 ± 100	Peat	V	QU-302	2,120 ± 80	Peaty sand	III
QC-683B	5,490 ± 180	Buried soil	V	QU-303	1,640 ± 130	Peat	III
QC-714	8,735 ± 235	Mollusc	VIII	QU-304	4,460 ± 210	Peat	III
QC-879	8,400 ± 160	Mollusc	V	QU-305	830 ± 70	Buried soil	III
QC-880	8,160 ± 145	Mollusc	V	QU-307	1,610 ± 230	Peat	III
QC-881	7,075 ± 215	Mollusc	V	QU-308	620 ± 210	Peat	A
QC-882	8,140 ± 250	Mollusc	V				
QC-883	8,135 ± 210	Mollusc	V	S-12	3,670 ± 270	Mollusc	A
QC-901	7,340 ± 135	Mollusc	V	S-13	5,600 ± 300	Mollusc	I
QC-902	7,510 ± 320	Mollusc	V	S-458	>32,000	Mollusc	I
QC-903	9,875 ± 130	Mollusc	V	S-459	24,000 ± 850	Mollusc	II
QC-904	7,985 ± 130	Mollusc	V				
QC-905	7,800 ± 150	Mollusc	V	SI-1335	46,950 ± 2050	Mollusc	II
QC-1052	2,800 ± 95	Peat	V	SI-1336	42,700 ± 2250	Mollusc	II
QC-1137	7,865 ± 250	Mollusc	V	SI-1688	190 ± 90	Bone	II
QC-1138	7,185 ± 120	Mollusc	III	SI-1689	2,160 ± 115	Buried org	II
				SI-1690	7,365 ± 410	Peaty sands	II
QL-60	36,300 ± 300	Mollusc	III	SI-1691	2,355 ± 145	Peaty sands	II
QL-136	33,600 ± 300	Mollusc	III	SI-1692	Modern	Organic sands	II
QL-177	45,200 ± 800	Mollusc	III	SI-1693	660 ± 130	Buried org	II
QL-178	45,500 ± 600	Mollusc	III	SI-1694A	505 ± 155	<125 µm org	II
QL-179	45,400 ± 600	Mollusc	III	SI-1694B	Modern	>125 µm org	II
QL-180	39,600 ± 500	Mollusc	III	SI-1695A	180 ± 105	<125 µm org	II
QL-181	44,800 ± 500	Mollusc	III	SI-1695B	Modern	>125 µm org	II
QL-182	36,000 ± 300	Mollusc	III	SI-1696	745 ± 115	Organics	II
QL-183	47,700 ± 700	Mollusc	III	SI-1697	370 ± 105	Organic sands	II
QL-184	40,000 ± 300	Mollusc	III	SI-1698	Too Small	Peat	II
QL-185	36,600 ± 350	Mollusc	III	SI-1699	4,660 ± 90	Peat	II
QL-186	41,400 ± 500	Mollusc	III	SI-1700	2,015 ± 60	Buried soil	II
QL-187	8,210 ± 50	Organics	III	SI-1702A	2,025 ± 105	Buried soil	II
QL-188	50,400 ± 1000	Sandy peat	IV	SI-1702B	365 ± 270	>125 µm org	II
QL-973	45,800 ± 1000	Mollusc	IV	SI-1703	1,740 ± 70	<125 µm org	III
QL-974	44,400 ± 1000	Mollusc	IV	SI-2548	Modern	Plant Macros	III
QL-976-1	2,360 ± 100	Bone	IV	SI-2549	810 ± 80	Peat	III

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL
SI-2550	1,025 ± 100	Moss	III
SI-2555	2,570 ± 75	Peat	III
SI-2556	3,650 ± 200	>125 μm org	III
SI-2557	2,090 ± 175	>125 μm org	III
SI-2610	9,550 ± 90	Mollusc	III
SI-2611	7,505 ± 100	Organics	III
SI-2612	10,095 ± 95	Mollusc	III
SI-2613	6,110 ± 170	Mollusc	III
SI-2614	11,360 ± 320	Organic lense	III
SI-2617	6,835 ± 100	Mollusc	III
SI-2618	Modern	Macrofossils	III
SI-2620	Modern	Organic sands	III
SI-2621	830 ± 60	Peat	IV
SI-2949	2,825 ± 65	Peat	IV
SI-2950	3,525 ± 60	Peat	IV
SI-2951	Modern	Peat	IV
SI-3455	2,575 ± 75	Peat	IV
SI-3456	3,320 ± 80	Peat	IV
SI-3457	6,320 ± 130	Moss	IV
SI-3678	Modern	Mollusc	V
SI-4180	7,980 ± 175	Mollusc	V
SI-4181	8,820 ± 110	Mollusc	V
SI-4368	3,175 ± 150	Fine org	V
SI-4752	4,840 ± 200	Colloid mud	V
SI-4755	5,825 ± 235	Colloid mud	V
SI-4757	9,595 ± 90	Mollusc	V
SI-5170	9,845 ± 175	Mollusc	V
SI-5171	9,320 ± 80	Mollusc	VIII
SI-5172	8,660 ± 175	Mollusc	V
SI-5173	7,780 ± 115	Mollusc	I
SI-5521	20 ± 65	Charcoal	VIII
SI-5522	65 ± 60	Charcoal	VIII
SI-5523	500 ± 35	Charcoal	VIII
SI-5525	290 ± 85	Wood	VIII
SI-5527	355 ± 45	Charcoal	VIII
SI-5528	415 ± 50	Wood	VIII
SI-5758	10,530 ± 110	Mollusc	VI
SI-5759	10,905 ± 145	Mollusc	VI
ST-3816	8,760 ± 350	Mollusc	I
ST-3829	1,185 ± 120	Bone	A
TO-293	6,280 ± 50	Mollusc	VIII
TO-347	970 ± 60	Charcoal	VIII
TO-712	1,340 ± 70	Iron	VIII
TO-712-2	550 ± 60	Iron	VIII
TO-712-3a	500 ± 60	Iron	VIII
TO-748	7,880 ± 70	Mollusc	VIII
TO-749	7,730 ± 70	Mollusc	VIII
TO-750	8,060 ± 70	Mollusc	VIII
TO-751	7,900 ± 70	Mollusc	VIII
TO-1860	8,360 ± 70	Mollusc	VIII
TO-1870	5,930 ± 70	Foraminifera	VIII
TO-1871	8,470 ± 90	Foraminifera	VIII
TO-2195	Modern	Plant Macros	VII
TO-2196	52,460 ± 1430	Mollusc	VII
TO-2456	6,630 ± 70	Mollusc	VIII
TO-2457	6,850 ± 70	Mollusc	VIII
TO-2458	7,260 ± 70	Mollusc	VIII
TO-2459	6,760 ± 70	Mollusc	VIII
TO-2460	6,880 ± 70	Mollusc	VIII
TO-2461	8,350 ± 80	Mollusc	VIII
TO-2462	7,060 ± 70	Mollusc	VIII
TO-2463	8,850 ± 90	Mollusc	VIII
TO-2464	8,830 ± 80	Mollusc	VIII
TO-2465	8,570 ± 230	Mollusc	VIII
TO-2466	8,930 ± 80	Mollusc	VIII
TO-2470	8,550 ± 160	Mollusc	VIII
TO-2471	8,450 ± 70	Mollusc	VIII
TO-2472	8,800 ± 70	Mollusc	VIII
TO-2609	210 ± 60	Charcoal	VIII
TO-3241	37,990 ± 410	Plant Macros	VIII
TO-3242	36,120 ± 340	Plant Macros	VIII
TO-3243	20,110 ± 340	Plant Macros	VIII
TO-3263	8,160 ± 150	Foraminifera	VIII
TO-3264	6,960 ± 110	Foraminifera	VIII
TO-3265	8,170 ± 140	Foraminifera	VIII
TO-3266	7,940 ± 920	Foraminifera	VIII
TO-3269	7,230 ± 830	Foraminifera	VIII
TO-3270	8,380 ± 510	Foraminifera	VIII
TO-3271	8,740 ± 280	Foraminifera	VIII
TO-3272	8,510 ± 110	Foraminifera	VIII
TO-3273	8,490 ± 270	Foraminifera	VIII
TO-3274	9,400 ± 190	Foraminifera	VIII
TO-3664	970 ± 70	Foraminifera	VIII
TO-3665	540 ± 60	Foraminifera	VIII
TO-3666	7,940 ± 90	Foraminifera	VIII
TO-3667	1,300 ± 60	Foraminifera	VIII
TO-3668	8,110 ± 360	Foraminifera	VIII
TO-3669	1,330 ± 70	Foraminifera	VIII
Y-1702	>50,000	Mollusc	A
Y-1703	>54,000	Mollusc	A
Y-1705	8,190 ± 120	Mollusc	A
Y-1830	8,430 ± 140	Mollusc	A
Y-1831	3,580 ± 120	Mollusc	A

Appendix 2A. Continued.

Lab No.	Reported Date	Material	DL
Y-1832	9,180 ± 180	Mollusc	A
Y-1833	7,960 ± 140	Mollusc	A
Y-1834	7,820 ± 140	Mollusc	A
Y-1835	7,290 ± 120	Mollusc	A
?-?	628 ± 150	Charcoal	VIII

Date Lists: A, Andrews and Drapier (1967); I, Andrews and Miller (1972); II, Andrews (1975); III, Andrews (1976); IV, Miller (1979); V, Andrews and Short (1983); VI, Andrews et al. (1989); VII, Kaufman and Williams (1992); VIII, this date list.

Appendix 2B. Comprehensive Date List, arranged by radiocarbon age, 1967-1996.

Reported Date	Lab No.	Reported Date	Lab No.	Reported Date	Lab No.
Modern ± 70	GaK-4840	370 ± 105	SI-1697	905 ± 100	Beta-1806
Modern ± 90	GaK-3100	375 ± 65	AA-3997	905 ± 130	GX-8383
Modern ± 100	GX-11549	380 ± 80	Beta-52276	930 ± 100	GaK-3096
Modern ± 140	GSC-2008	390 ± 70	Beta-52274	955 ± 130	GX-8380
Modern	AA-347	415 ± 50	SI-5528	960 ± 200	GaK-5450
Modern	AA-2351	420 ± 125	GX-8382	965 ± 145	QC-653
Modern	AA-2352	450 ± 60	Beta-52272	970 ± 60	TO-347
Modern	AA-7142	450 ± 130	GaK-3726	970 ± 70	GaK-4839
Modern	AA-14214	470 ± 60	Beta-61073	970 ± 70	TO-3664
Modern	CAMS-11335	475 ± 125	GX-8381	970 ± 80	BGS-267
Modern	DIC-331	490 ± 70	AECV-1351C	970 ± 150	AA-6524
Modern	GaK-3861	500 ± 35	SI-5523	980 ± 80	Gif-3864
Modern	GaK-4838	500 ± 60	TO-712-3a	985 ± 50	AA-4338
Modern	GX-1681	505 ± 155	SI-1694A	1,000 ± 60	AA-9065
Modern	GX-9685	510 ± 50	Beta-63446	1,010 ± 50	AA-6523
Modern	GX-9889	510 ± 80	Beta-42660	1,010 ± 100	GaK-3725
Modern	GX-9890	540 ± 60	TO-3665	1,025 ± 100	SI-2550
Modern	GX-9918	550 ± 60	AECV-1348C	1,045 ± 55	AA-6026
Modern	SI-1692	550 ± 60	TO-712-2	1,055 ± 65	AA-13353
Modern	SI-1694B	600 ± 60	Beta-71712	1,070 ± 90	GaK-4309
Modern	SI-1695B	620 ± 210	QU-308	1,125 ± 50	AA-8328
Modern	SI-2548	628 ± 150	?-?	1,130 ± 50	Beta-61609
Modern	SI-2618	640 ± 155	GaK-5449	1,130 ± 80	GSC-1845
Modern	SI-2620	650 ± 140	GaK-5282	1,155 ± 56	AA-11871
Modern	SI-2951	650 ± 230	GaK-5282	1,170 ± 150	QU-301
Modern	SI-3678	660 ± 130	SI-1693	1,170 ± 330	GaK-3686
Modern	TO-2195	670 ± 70	GSC-5122	1,180 ± 50	Beta-72892
20 ± 65	SI-5521	670 ± 150	Beta-52074	1,185 ± 120	ST-3829
60 ± 80	Beta-53643	679 ± 133	Brookhaven	1,205 ± 120	GX-1812
65 ± 60	SI-5522	680 ± 80	GaK-3722	1,230 ± 110	GX-10374
70 ± 50	Beta-63443	680 ± 90	GaK-3098	1,260 ± 150	GaK-3160
85 ± 45	AA-11446	720 ± 220	AA-2084	1,280 ± 45	AA-14681
90 ± 320	GaK-2571	730 ± 70	GaK-2792	1,280 ± 60	Beta-75310
100 ± 40	AA-17256	740 ± 70	AECV-1349C	1,290 ± 100	GaK-4307
110 ± 50	Beta-52994	740 ± 80	AECV-1350C	1,300 ± 55	AA-6847
120 ± 70	GaK-4835	745 ± 115	SI-1696	1,300 ± 60	TO-3667
150 ± 100	BGS-295	770 ± 70	GaK-3101	1,310 ± 60	AA-10603
160 ± 80	GaK-3097	770 ± 80	QU-241	1,330 ± 70	TO-3669
170 ± 90	Beta-63445	770 ± 135	GX-5777	1,340 ± 70	TO-712
170 ± 105	I-1603	785 ± 105	I-1834	1,345 ± 135	GX-8384
180 ± 105	SI-1695A	792 ± 107	Brookhaven	1,360 ± 105	I-2414
190 ± 90	SI-1688	800 ± 70	Beta-61068	1,380 ± 90	Beta-75311
<200	I-1674	810 ± 80	SI-2549	1,382 ± 65	AA-6830
210 ± 60	TO-2609	815 ± 55	AA-10566	1,390 ± 55	AA-11872
230 ± 60	Beta-52273	820 ± 80	CAMS-25759	1,440 ± 70	AA-10567
240 ± 70	Beta-71713	830 ± 60	SI-2621	1,450 ± 60	AA-10565
240 ± 80	Beta-53642	830 ± 70	QU-305	1,450 ± 105	QC-618
255 ± 100	QC-661	840 ± 110	GaK-3860	1,460 ± 70	Beta-1622
260 ± 70	Beta-71831	850 ± 65	DIC-327	1,465 ± 55	AA-11585
270 ± 60	Beta-52275	850 ± 75	DIC-401	1,470 ± 50	Beta-70920
290 ± 85	SI-5525	850 ± 110	GaK-3094	1,480 ± 110	GaK-3685
300 ± 70	Beta-63444	855 ± 60	AA-12891	1,480 ± 110	GaK-3687
320 ± 90	Beta-42659	875 ± 50	AA-11449	1,480 ± 160	BIRM-370
330 ± 50	AECV-1707C	880 ± 50	AECV-1708C	1,490 ± 60	Beta-61072
330 ± 75	I-1204	880 ± 70	AA-14213	1,500 ± 80	BGS-268
330 ± 90	GaK-3099	880 ± 80	Gif-4245	1,500 ± 85	DIC-390
350 ± 100	GaK-2983	890 ± 80	Beta-75312	1,500 ± 90	Beta-70916
355 ± 45	SI-5527	890 ± 90	BGS-272	1,510 ± 240	QC-479
365 ± 270	SI-1702B	895 ± 50	AA-11877	1,560 ± 120	QU-240

Appendix 2B. Continued.

Reported Date	Lab No.	Reported Date	Lab No.	Reported Date	Lab No.
1,610 ± 120	GaK-4308	2,655 ± 45	AA-10655	3,650 ± 180	GX-8941
1,610 ± 230	QU-307	2,660 ± 70	CAMS-8252	3,650 ± 200	SI-2556
1,640 ± 130	QU-303	2,660 ± 90	Gif-3865	3,670 ± 270	S-12
1,670 ± 90	GaK-2575	2,660 ± 100	Gif-3494	3,740 ± 60	CAMS-17399
1,680 ± 50	AA-12892	2,660 ± 230	GX-3272	3,830 ± 75	DIC-597
1,700 ± 60	Beta-72891	2,680 ± 90	Gif-4243	3,830 ± 140	I-1668
1,710 ± 80	Beta-70919	2,730 + 1290 -1540	DIC-649	3,840 ± 55	DIC-328
1,732 ± 85	AA-2219	2,745 ± 145	GX-7881	3,850 ± 105	I-2585
1,740 ± 70	SI-1703	2,745 ± 160	GX-8826	3,890 ± 107	I-2586
1,745 ± 160	AA-11432	2,770 ± 140	GSC-583	3,915 ± 165	GX-8607
1,775 ± 210	GX-6371	2,780 ± 140	GSC-654	3,920 ± 60	AA-1917
1,790 ± 80	GSC-2084	2,800 ± 95	QC-1052	3,970 ± 60	CAMS-25670
1,798 ± 111	AA-8332	2,800 ± 140	I-1555	4,000 ± 110	QC-619
1,800 ± 60	Beta-70917	2,819 ± 103	AA-1011	4,000 ± 140	GSC-557
1,800 ± 70	Beta-61071	2,825 ± 65	SI-2949	4,000 ± 180	I-485
1,810 ± 90	BGS-270	2,830 ± 235	DIC-648	4,010 ± 50	AA-8325
1,860 ± 110	I-1835	2,840 ± 60	CAMS-13511	4,010 ± 440	I-1320
1,865 ± 115	GX-5779	2,850 ± 60	Beta-78141	4,025 ± 55	AA-13244
1,870 ± 90	Gif-3493	2,855 ± 80	AA-4336	4,025 ± 190	I-484
1,900 ± 110	GX-5778	2,890 ± 115	AA-1915	4,040 ± 105	AA-9022
1,940 ± 150	GX-8899	2,940 ± 145	Beta-1705	4,050 ± 130	I-2546
1,950 ± 100	I-1830	2,980 ± 190	DIC-333	4,060 ± 90	AA-1508
1,970 ± 70	Beta-70918	2,990 ± 140	I-1599	4,060 ± 105	AA-9024
1,970 ± 200	BIRM-535	3,010 ± 50	AA-5988	4,070 ± 50	Beta-78138
1,990 ± 180	GaK-5411	3,010 ± 80	GSC-2474	4,090 ± 150	I-1597
2,015 ± 60	SI-1700	3,015 ± 55	AA-6027	4,110 ± 65	AA-9362
2,025 ± 105	SI-1702A	3,030 ± 170	GX-5781	4,110 ± 80	CAMS-25763
2,035 ± 70	Beta-1087	3,040 ± 70	CAMS-7789	4,150 ± 170	GX-8898
2,050 ± 70	I-489	3,070 ± 75	DIC-402	4,180 ± 80	GX-13683
2,060 ± 40	Beta-72890	3,085 ± 70	AA-11583	4,190 ± 140	GX-6836
2,060 ± 85	GaK-5411	3,100 ± 150	GSC-564	4,205 ± 50	AA-3101
2,070 ± 65	AA-14205	3,105 ± 50	AA-14684	4,205 ± 50	AA-3101
2,070 ± 70	AA-7012	3,110 ± 100	QC-654	4,205 ± 50	AA-3101
2,080 ± 190	GX-3271	3,140 ± 60	Beta-78139	4,240 ± 185	GX-8940
2,090 ± 100	GaK-2771	3,170 ± 100	Gif-3956	4,260 ± 475	DIC-378
2,090 ± 175	SI-2557	3,175 ± 150	SI-4368	4,270 ± 140	I-1671
2,110 ± 90	Beta-61070	3,210 ± 70	AA-6829	4,285 ± 90	QC-513
2,120 ± 80	QU-302	3,220 ± 110	GSC-5496	4,295 ± 100	GX-9xxx
2,145 ± 80	AA-936	3,260 ± 100	BGS-271	4,310 ± 95	QC-456
2,160 ± 115	SI-1689	3,285 ± 55	AA-3273	4,375 ± 200	I-407
2,180 ± 50	AA-12886	3,295 ± 185	GX-9867	4,400 ± 490	I-1318
2,210 ± 50	AA-3098	3,320 ± 80	SI-3456	4,420 ± 110	I-2413
2,215 ± 55	AA-8961	3,340 ± 60	Beta-78140	4,430 ± 110	I-2584
2,215 ± 105	GX-5780	3,420 ± 160	GX-8897	4,440 ± 70	AA-5998
2,225 ± 155	GX-8939	3,428 ± 70	AA-1005	4,460 ± 210	QU-304
2,240 ± 190	BIRM-536	3,430 ± 135	GX-6835	4,461 ± 50	AA-3099
2,290 ± 170	GX-5527	3,440 ± 50	AA-3108	4,540 ± 300	AA-650
2,355 ± 145	SI-1691	3,450 ± 170	GSC-584	4,560 ± 180	GX-7091
2,360 ± 100	QL-976-1	3,520 ± 230	I-1600	4,590 ± 115	I-2582
2,370 ± 70	AA-3890	3,525 ± 60	SI-2950	4,650 ± 60	AA-3818
2,400 ± 140	GX-8825	3,530 ± 130	I-1601	4,660 ± 90	SI-1699
2,450 ± 90	BGS-269	3,550 ± 200	I-1247	4,700 ± 210	I-487
2,470 ± 390	DIC-515	3,570 ± 140	GSC-1507	4,750 ± 70	CAMS-8253
2,480 ± 110	AA-11870	3,580 ± 120	Y-1831	4,765 ± 200	GX-5625
2,500 ± 170	BIRM-380	3,600 ± 75	AA-3783	4,770 ± 140	I-1669
2,565 ± 190	GX-6292	3,600 ± 480	I-1317	4,770 ± 140	I-1670
2,570 ± 75	SI-2555	3,605 ± 75	AA-6525	4,780 ± 80	AA-1801
2,575 ± 75	SI-3455	3,620 ± 55	AA-3274	4,794 ± 70	AA-3277
2,575 ± 140	GX-8385	3,650 ± 160	GX-6838	4,810 ± 110	GaK-3724

Appendix 2B. Continued.

Reported Date	Lab No.	Reported Date	Lab No.	Reported Date	Lab No.
4,830 ± 120	I-2961	6,060 ± 170	GSC-2258	7,185 ± 120	QC-1138
4,840 ± 200	SI-4752	6,110 ± 170	SI-2613	7,200 ± 80	GSC-3991
4,850 ± 55	AA-8324	6,120 ± 80	CAMS-11814	7,200 ± 150	I-1598
4,875 ± 350	I-1245	6,120 ± 90	GSC-2211	7,220 ± 65	AA-10120
4,905 ± 100	AA-6526	6,130 ± 120	I-2583	7,220 ± 250	GX-5624
4,920 ± 180	I-1931	6,150 ± 170	I-1596	7,230 ± 90	AA-1181
4,950 ± 140	GaK-3091	6,150 ± 250	GaK-4306	7,230 ± 120	GX-10860
4,990 ± 175	I-2442	6,155 ± 155	AA-3286	7,230 ± 830	TO-3269
5,070 ± 200	I-1238	6,160 ± 90	AA-6029	7,250 ± 240	GX-9866
5,070 ± 450	I-1244	6,170 ± 55	AA-3275	7,260 ± 70	TO-2458
5,075 ± 210	GX-9686	6,215 ± 90	QC-455	7,285 ± 200	GX-6603
5,084 ± 70	AA-2276	6,220 ± 130	AA-11433	7,290 ± 120	Y-1835
5,090 ± 60	CAMS-18687	6,220 ± 140	GSC-631	7,330 ± 65	AA-13243
5,100 ± 120	I-2549	6,220 ± 220	GX-8608	7,340 ± 135	QC-901
5,120 ± 400	GX-1676	6,220 ± 240	GX-12036	7,350 ± 90	GSC-4038
5,160 ± 60	AA-2631	6,240 ± 140	I-1556	7,365 ± 410	SI-1690
5,185 ± 425	GX-11335	6,270 ± 150	GSC-633	7,370 ± 95	GX-12035
5,190 ± 120	I-2669	6,270 ± 210	I-2410	7,380 ± 200	GSC-5688
5,200 ± 100	GaK-3723	6,280 ± 50	TO-293	7,380 ± 220	GSC-2771
5,215 ± 75	AA-14211	6,320 ± 130	SI-3457	7,395 ± 70	AA-13236
5,230 ± 60	AA-6466	6,330 ± 80	CAMS-11798	7,410 ± 60	AA-3495
5,250 ± 105	GaK-4836	6,380 ± 90	AA-5290	7,425 ± 60	AA-3850
5,270 ± 140	I-1833	6,410 ± 150	GSC-328	7,430 ± 230	AA-6522
5,300 ± 60	AA-13237	6,510 ± 70	GSC-2175	7,470 ± 70	CAMS-7790
5,330 ± 100	GX-10859	6,520 ± 150	I-2962	7,500 ± 200	I-1553
5,330 ± 450	GX-1824	6,560 ± 125	I-1934	7,505 ± 100	SI-2611
5,340 ± 170	GSC-2199	6,560 ± 125	I-2695	7,510 ± 320	QC-902
5,370 ± 130	Gif-3866	6,615 ± 115	AA-13352	7,540 ± 130	GSC-5677
5,380 ± 185	I-2411	6,630 ± 70	TO-2456	7,560 ± 130	GaK-3678
5,390 ± 70	CAMS-4061	6,655 ± 65	AA-7898	7,575 ± 125	AA-9289
5,390 ± 150	I-1321	6,720 ± 390	GX-12852	7,577 ± 137	AA-1004
5,400 ± 200	L-762c	6,725 ± 250	I-406	7,595 ± 130	Beta-1872
5,420 ± 100	GX-13805	6,755 ± 90	AA-9291	7,600 ± 60	AA-8963
5,490 ± 180	QC-683B	6,760 ± 70	TO-2459	7,610 ± 65	DIC-334
5,550 ± 0	GSC-2103	6,770 ± 205	GX-13799	7,640 ± 125	Beta-2362
5,550 ± 120	GaK-5251	6,800 ± 600	QU-299	7,675 ± 115	AA-8962
5,560 ± 250	I-1243	6,835 ± 100	SI-2617	7,685 ± 260	GX-13795
5,570 ± 130	I-1831	6,850 ± 70	TO-2457	7,690 ± 90	GSC-5526
5,580 ± 130	I-2548	6,880 ± 70	TO-2460	7,710 ± 190	GSC-5699
5,600 ± 300	S-13	6,885 ± 250	GX-10081	7,720 ± 100	GSC-6416
5,600 ± 330	AA-712	6,920 ± 90	GSC-4162	7,725 ± 190	GX-12037
5,660 ± 100	AA-7008	6,930 ± 150	GSC-739	7,730 ± 70	TO-749
5,675 ± 95	AA-6028	6,935 ± 220	GX-8504	7,730 ± 180	GX-13801
5,700 ± 240	GX-6293	6,940 ± 75	AA-9363	7,740 ± 140	GSC-556
5,710 ± 80	DIC-335	6,960 ± 110	TO-3264	7,750 ± 135	I-2831
5,710 ± 200	I-1319	6,980 ± 110	GSC-5492	7,765 ± 105	AA-2625
5,750 ± 110	GaK-4440	6,990 ± 70	AA-1800	7,770 ± 100	GSC-2111
5,750 ± 250	I-486	7,000 ± 150	GSC-599	7,780 ± 115	SI-5173
5,780 ± 80	GSC-4152	7,015 ± 65	AA-10117	7,785 ± 75	AA-10257
5,800 ± 70	GSC-2138	7,020 ± 80	AA-1507	7,785 ± 140	AA-17379
5,825 ± 235	SI-4755	7,030 ± 190	I-1554	7,790 ± 65	AA-3974
5,835 ± 60	AA-4529	7,060 ± 70	TO-2462	7,790 ± 230	AA-413
5,840 ± 120	AA-9066	7,060 ± 175	GX-8160	7,795 ± 165	AA-11434
5,865 ± 170	GX-10861	7,075 ± 215	QC-881	7,800 ± 70	AA-6453
5,900 ± 130	I-2412	7,080 ± 120	GSC-5903	7,800 ± 150	QC-905
5,930 ± 70	TO-1870	7,080 ± 170	I-1672	7,805 ± 70	AA-3278
6,000 ± 165	GX-10858	7,100 ± 140	GaK-3365	7,810 ± 70	AA-7900
6,030 ± 80	QC-501	7,105 ± 720	GX-6607	7,820 ± 140	Y-1834
6,050 ± 250	I-405	7,140 ± 115	Beta-1871	7,830 ± 60	AA-11876

Appendix 2B. Continued.

Reported Date	Lab No.	Reported Date	Lab No.	Reported Date	Lab No.
7,830 ± 120	AA-4918	8,240 ± 90	GSC-3404	8,570 ± 230	TO-2465
7,830 ± 230	GX-10290	8,240 ± 150	CAMS-10359	8,575 ± 75	AA-15689
7,835 ± 90	AA-13228	8,245 ± 75	AA-13050	8,580 ± 70	AA-6312
7,840 ± 70	AA-10651	8,250 ± 750	I-1316	8,580 ± 70	AA-11447
7,850 ± 290	GX-9996	8,260 ± 60	AA-12888	8,580 ± 120	GSC-2684
7,865 ± 250	QC-1137	8,260 ± 80	AA-4574	8,580 ± 150	GSC-3469
7,870 ± 150	GaK-3093	8,270 ± 70	AA-12887	8,590 ± 100	GSC-3666
7,880 ± 70	TO-748	8,280 ± 120	AA-4916	8,600 ± 110	GSC-3648
7,880 ± 90	AA-9290	8,285 ± 285	GX-8755	8,600 ± 160	GSC-5223
7,900 ± 70	TO-751	8,290 ± 90	GSC-2283	8,605 ± 85	AA-14206
7,900 ± 210	I-1602	8,290 ± 170	GaK-3092	8,610 ± 185	DIC-375
7,900 ± 225	GX-9430	8,300 ± 65	AA-4160	8,615 ± 75	AA-5990
7,930 ± 300	I-1246	8,300 ± 135	I-2611	8,630 ± 70	AA-3280
7,940 ± 90	TO-3666	8,305 ± 170	AA-11435	8,635 ± 565	GX-9302
7,940 ± 130	I-1932	8,320 ± 95	AA-3815	8,640 ± 70	CAMS-25758
7,940 ± 920	TO-3266	8,320 ± 105	AA-4250B	8,640 ± 100	GSC-3951
7,950 ± 100	AA-1825	8,320 ± 140	GSC-2506	8,640 ± 105	AA-14210
7,950 ± 140	GaK-3677	8,325 ± 60	AA-17258	8,640 ± 500	CAMS-17146
7,950 ± 170	GaK-2566	8,325 ± 75	AA-15130	8,645 ± 315	GX-9290
7,960 ± 105	AA-8570	8,350 ± 70	AA-15123	8,650 ± 75	AA-3102
7,960 ± 140	Y-1833	8,350 ± 80	TO-2461	8,650 ± 80	DIC-332
7,970 ± 340	I-1673	8,350 ± 300	I-724	8,650 ± 85	AA-14207
7,980 ± 175	SI-4180	8,360 ± 60	AA-7893	8,660 ± 65	AA-3104
7,985 ± 85	AA-12893	8,360 ± 70	TO-1860	8,660 ± 110	GSC-2183
7,985 ± 130	QC-904	8,365 ± 75	AA-6299	8,660 ± 110	GSC-3468
7,990 ± 170	GaK-4837	8,380 ± 60	CAMS-11125	8,660 ± 160	GSC-2466
7,995 ± 65	AA-7892	8,380 ± 510	TO-3270	8,660 ± 175	SI-5172
8,000 ± 150	GSC-630	8,390 ± 80	AA-3481	8,670 ± 60	CAMS-18690
8,000 ± 320	GX-6840	8,390 ± 80	CAMS-8251	8,680 ± 110	GSC-4602
8,010 ± 255	GX-9865	8,390 ± 250	AA-2275	8,680 ± 140	AA-2641
8,025 ± 110	QC-452	8,395 ± 70	AA-13055	8,680 ± 140	GSC-2478
8,030 ± 60	CAMS-25762	8,400 ± 160	QC-879	8,690 ± 90	GSC-2001
8,030 ± 80	GSC-3603	8,410 ± 340	GSC-1638	8,690 ± 90	GSC-5163
8,045 ± 60	AA-10649	8,425 ± 375	AA-191	8,690 ± 120	GSC-3157
8,050 ± 115	QC-457	8,430 ± 140	Y-1830	8,715 ± 65	AA-14686
8,055 ± 70	AA-15129	8,435 ± 105	GX-930	8,715 ± 165	AA-11437
8,060 ± 70	TO-750	8,440 ± 150	GaK-3862	8,720 ± 70	AA-3941
8,070 ± 250	GX-6839	8,445 ± 55	AA-10251	8,730 ± 80	AA-3103
8,075 ± 145	AA-3814	8,450 ± 70	AA-11882	8,730 ± 120	GSC-2384
8,110 ± 360	TO-3668	8,450 ± 70	TO-2471	8,735 ± 235	QC-714
8,130 ± 65	AA-12610	8,450 ± 190	GX-8159	8,740 ± 280	TO-3271
8,135 ± 210	QC-883	8,460 ± 95	AA-11590	8,750 ± 100	GSC-2508
8,140 ± 250	QC-882	8,460 ± 245	GX-13800	8,750 ± 165	AA-11436
8,155 ± 130	AA-17380	8,465 ± 90	AA-12890	8,755 ± 80	AA-4027
8,160 ± 70	AA-15128	8,470 ± 90	TO-1871	8,760 ± 65	AA-10645
8,160 ± 145	QC-880	8,480 ± 270	GSC-2083	8,760 ± 350	ST-3816
8,160 ± 150	TO-3263	8,480 ± 280	GSC-3015	8,770 ± 260	GX-13794
8,170 ± 60	AA-12889	8,485 ± 60	AA-3494	8,780 ± 230	GX-13022
8,170 ± 140	TO-3265	8,490 ± 200	AA-11879	8,785 ± 60	AA-10652
8,170 ± 245	GX-11548	8,490 ± 270	TO-3273	8,785 ± 80	AA-17260
8,175 ± 95	AA-12607	8,500 ± 90	AA-2349	8,790 ± 380	GSC-2991
8,180 ± 130	I-1983	8,510 ± 90	AA-11684	8,795 ± 95	AA-14030
8,190 ± 120	Y-1705	8,510 ± 110	TO-3272	8,800 ± 70	TO-2472
8,195 ± 65	AA-6463	8,525 ± 60	AA-10648	8,805 ± 60	AA-12884
8,210 ± 50	QL-187	8,525 ± 80	AA-6464	8,810 ± 90	GSC-4607
8,210 ± 130	I-1933	8,530 ± 60	AA-12885	8,810 ± 205	GX-6837
8,210 ± 180	GSC-4578	8,550 ± 160	TO-2470	8,815 ± 275	GX-5623
8,220 ± 90	GSC-3404	8,555 ± 95	AA-12609	8,820 ± 110	SI-4181
8,230 ± 160	GaK-3090	8,560 ± 70	AA-14687	8,830 ± 80	TO-2464

Appendix 2B. Continued.

Reported Date	Lab No.	Reported Date	Lab No.	Reported Date	Lab No.
8,845 ± 265	GX-8671	9,270 ± 80	AA-4530	9,655 ± 90	AA-3975
8,850 ± 90	TO-2463	9,270 ± 110	AA-4249	9,670 ± 245	AA-7139
8,860 ± 110	GSC-5895	9,280 ± 120	GSC-2479	9,710 ± 60	CAMS-11815
8,865 ± 165	AA-11438	9,290 ± 80	AA-11874	9,715 ± 295	GX-13796
8,870 ± 100	GSC-5483	9,305 ± 85	AA-17265	9,725 ± 120	QC-450
8,875 ± 110	AA-8394	9,310 ± 100	AA-6473	9,725 ± 130	QC-544
8,890 ± 70	CAMS-11122	9,310 ± 220	GX-9766	9,730 ± 70	AA-8964
8,890 ± 100	GSC-2568	9,320 ± 80	SI-5171	9,735 ± 295	GX-8670
8,905 ± 65	AA-14028	9,325 ± 100	AA-8393	9,740 ± 65	AA-7895
8,915 ± 65	AA-13174	9,335 ± 75	AA-15131	9,750 ± 70	AA-11443
8,920 ± 60	CAMS-18688	9,340 ± 84	AA-1916	9,785 ± 525	GX-9291
8,920 ± 65	AA-10656	9,350 ± 75	AA-6302	9,800 ± 75	AA-6311
8,925 ± 105	AA-4575	9,355 ± 70	AA-4255	9,825 ± 95	AA-15701
8,930 ± 80	TO-2466	9,355 ± 75	AA-17861	9,845 ± 175	SI-5170
8,940 ± 70	AA-13241	9,360 ± 230	I-1315	9,850 ± 250	GaK-2573
8,950 ± 65	AA-14029	9,370 ± 80	AA-14025	9,870 ± 160	AA-3465
8,950 ± 160	GSC-2982	9,370 ± 90	GSC-5486	9,875 ± 130	QC-903
8,965 ± 110	AA-3976	9,370 ± 140	QC-447	9,880 ± 200	GSC-2201
8,980 ± 180	GaK-5479	9,375 ± 70	AA-4666	9,885 ± 170	AA-17262
8,990 ± 80	CAMS-22023	9,380 ± 80	AA-5987	9,890 ± 85	AA-6462
8,995 ± 120	AA-8395	9,380 ± 260	GX-10107	9,935 ± 165	QC-451
9,000 ± 90	AA-8392	9,385 ± 75	AA-8390	9,950 ± 185	QC-453
9,000 ± 170	AA-5117	9,385 ± 140	AA-3109	9,955 ± 75	AA-11448
9,010 ± 100	AA-3678	9,385 ± 280	GX-8943	9,960 ± 230	GSC-2752
9,025 ± 90	AA-13173	9,395 ± 100	QC-448	9,975 ± 100	AA-11584
9,030 ± 75	AA-15126	9,400 ± 190	TO-3274	9,980 ± 70	AA-7896
9,040 ± 85	AA-10253	9,410 ± 70	AA-11444	9,980 ± 210	GSC-5340
9,045 ± 80	AA-17261	9,410 ± 100	GSC-5149	10,000 ± 75	AA-7560
9,060 ± 60	CAMS-25761	9,420 ± 135	GX-13021	10,000 ± 200	GSC-2813
9,060 ± 330	GX-9328	9,425 ± 150	AA-5291	10,000 ± 1000	GaK-2574
9,065 ± 80	AA-14024	9,430 ± 50	CAMS-25764	10,010 ± 110	AA-3585,6
9,075 ± 75	AA-10254	9,435 ± 50	AA-8327	10,010 ± 360	AA-886
9,085 ± 85	AA-11586	9,440 ± 110	CAMS-18449	10,015 ± 120	AA-4250A
9,085 ± 290	AA-244A	9,450 ± 95	AA-2633	10,025 ± 225	GX-7882
9,090 ± 90	AA-2223	9,450 ± 360	AA-412	10,035 ± 130	AA-6472
9,090 ± 95	AA-14026	9,460 ± 75	AA-15124	10,070 ± 95	AA-15698
9,092 ± 150	QC-454	9,460 ± 95	AA-6301	10,080 ± 75	AA-6854
9,100 ± 80	AA-16403	9,465 ± 100	AA-15125	10,090 ± 75	AA-8391
9,100 ± 100	QC-449	9,480 ± 80	AA-16405	10,095 ± 95	SI-2612
9,100 ± 140	GSC-1969	9,480 ± 165	DIC-374	10,100 ± 110	GSC-2725
9,105 ± 142	AA-8333	9,480 ± 565	GX-8751	10,115 ± 75	AA-6452
9,110 ± 160	GSC-2215	9,500 ± 90	AA-2350	10,130 ± 180	GX-12858
9,110 ± 470	GX-9293	9,500 ± 105	AA-6305	10,170 ± 70	AA-11445
9,125 ± 65	AA-13175	9,500 ± 150	BGS-1472	10,180 ± 90	AA-17264
9,130 ± 65	AA-17255	9,505 ± 80	AA-13172	10,200 ± 100	GSC-5037
9,145 ± 75	AA-17392	9,510 ± 90	GSC-2750	10,200 ± 160	GSC-4948
9,180 ± 180	Y-1832	9,515 ± 70	AA-11441	10,200 ± 210	GSC-2778
9,180 ± 1140	GSC-707	9,550 ± 90	SI-2610	10,225 ± 100	AA-17393
9,190 ± 195	GX-8194	9,550 ± 320	GSC-5299	10,245 ± 70	AA-10248
9,190 ± 195	GX-8194	9,565 ± 80	AA-15700	10,250 ± 390	AA-651
9,200 ± 200	AA-2637	9,570 ± 370	GX-8753	10,270 ± 285	AA-17391
9,215 ± 80	AA-7561	9,595 ± 90	SI-4757	10,310 ± 90	AA-15702
9,220 ± 75	AA-15127	9,600 ± 100	GSC-2731	10,315 ± 85	AA-5837
9,230 ± 100	GSC-2618	9,600 ± 140	AA-16404	10,335 ± 95	AA-15703
9,240 ± 80	GSC-2582	9,605 ± 60	AA-10249	10,355 ± 205	AA-7141
9,240 ± 90	AA-14212	9,620 ± 90	AA-3464	10,360 ± 160	AA-2496
9,245 ± 85	AA-11442	9,630 ± 80	AA-6306	10,375 ± 75	AA-5989
9,250 ± 200	GSC-5320	9,645 ± 85	AA-6465	10,375 ± 80	AA-4916
9,270 ± 60	AA-7894	9,650 ± 70	AA-17257	10,380 ± 120	AA-1918

Appendix 2B. Continued.

Reported Date	Lab No.	Reported Date	Lab No.	Reported Date	Lab No.
10,400 ± 90	GSC-5036	11,020 ± 120	AA-3746	12,860 ± 90	CAMS-11121
10,400 ± 140	GSC-5328	11,060 ± 70	CAMS-17398	12,865 ± 305	AA-8329
10,410 ± 380	AA-652	11,060 ± 300	AA-655A,B	12,890 ± 290	AA-190
10,415 ± 240	AA-6521	11,065 ± 105	AA-6469	12,925 ± 130	AA-6471
10,430 ± 80	AA-13053	11,070 ± 60	CAMS-18689	12,970 ± 90	AA-13233
10,430 ± 1250	GX-9434	11,075 ± 85	AA-8389	12,970 ± 225	AA-1012
10,435 ± 85	AA-6309	11,080 ± 95	AA-14202	12,975 ± 355	AA-6853
10,435 ± 95	AA-7009	11,095 ± 110	AA-10650	13,050 ± 140	AA-14209
10,445 ± 75	AA-6310	11,100 ± 85	AA-6000	13,055 ± 120	AA-13231
10,445 ± 100	AA-6468	11,120 ± 90	AA-6001	13,100 ± 110	AA-15687
10,470 ± 65	AA-7891	11,125 ± 100	AA-7562	13,105 ± 85	AA-12896
10,470 ± 120	AA-13051	11,170 ± 100	AA-10256	13,160 ± 115	AA-6470
10,490 ± 450	AA-264	11,235 ± 95	AA-10118	13,180 ± 100	AA-4917
10,500 ± 110	CAMS-17401	11,255 ± 75	AA-17254	13,195 ± 125	AA-7011
10,500 ± 110	GSC-5478	11,285 ± 65	AA-10250	13,285 ± 105	AA-8326
10,505 ± 85	AA-5838	11,315 ± 75	AA-3810	13,300 ± 145	AA-6849
10,510 ± 70	QL-1174	11,360 ± 320	SI-2614	13,450 ± 220	AA-8035
10,510 ± 80	AA-14682	11,365 ± 365	GX-9432	13,470 ± 105	AA-10121
10,510 ± 90	AA-5839	11,390 ± 100	AA-11587	13,500 ± 700	AA-935
10,530 ± 90	AA-5033	11,410 ± 130	AA-17263	13,585 ± 110	AA-4026
10,530 ± 95	AA-5032	11,535 ± 85	AA-12897	13,625 ± 150	AA-5063
10,530 ± 110	SI-5758	11,545 ± 95	AA-13242	13,635 ± 190	AA-6851
10,530 ± 135	AA-8959	11,550 ± 75	AA-4702	13,700 ± 145	AA-4531
10,555 ± 75	AA-5835	11,550 ± 75	AA-4702	13,720 ± 95	AA-3256
10,560 ± 75	AA-8388	11,555 ± 85	AA-3784	14,115 ± 110	AA-7010
10,570 ± 85	AA-5841	11,555 ± 130	AA-15659	14,185 ± 760	GX-9304
10,595 ± 380	GX-13797	11,575 ± 135	AA-4667	14,280 ± 205	AA-9355
10,600 ± 75	AA-3583A	11,590 ± 180	AA-6300	14,370 ± 180	CAMS-19996
10,615 ± 75	AA-5836	11,680 ± 130	GX-12859	14,400 ± 400	I-1233
10,625 ± 170	AA-3583B	11,685 ± 90	AA-7559	14,435 ± 450	GX-5319
10,630 ± 380	AA-7136	11,725 ± 125	AA-3473	14,455 ± 110	AA-5992
10,635 ± 80	AA-6308	11,725 ± 125	AA-3473	14,465 ± 200	AA-7140
10,680 ± 85	AA-5840	11,750 ± 105	AA-15690	14,845 ± 190	AA-6848
10,685 ± 385	GX-6352	11,760 ± 170	AA-5292	14,850 ± 205	AA-8034
10,695 ± 85	AA-10258	11,770 ± 550	GX-6280	14,980 ± 90	AA-9364
10,705 ± 70	AA-3940	11,790 ± 275	AA-8777	15,010 ± 105	AA-5999
10,720 ± 140	GX-15279	11,895 ± 130	AA-4689	15,025 ± 95	AA-4335
10,720 ± 140	QC-480A	11,910 ± 380	GX-7119	15,080 ± 620	GX-7880
10,730 ± 80	CAMS-11793	11,990 ± 100	AA-4665	15,270 ± 120	AA-13238
10,740 ± 85	AA-6307	11,995 ± 145	AA-15688	15,365 ± 250	AA-7138
10,750 ± 65	AA-10245	12,030 ± 85	AA-4709	15,650 ± 1880	GX-9324
10,750 ± 70	AA-14683	12,035 ± 80	AA-11440	15,800 ± 400	AA-1523
10,760 ± 150	QC-480C	12,035 ± 600	GX-8756	15,810 ± 490	GX-10628
10,780 ± 140	AA-10255	12,085 ± 115	AA-8331	16,360 ± 650	GX-6608
10,790 ± 70	AA-10653	12,110 ± 185	AA-6852	16,380 ± 165	AA-9288
10,790 ± 70	QL-1173	12,115 ± 260	AA-11880	16,575 ± 140	AA-13234
10,800 ± 130	AA-12029	12,125 ± 90	AA-13052	16,700 ± 900	AA-653
10,805 ± 80	AA-13054	12,150 ± 140	QC-543	16,800 ± 135	AA-14685
10,825 ± 80	AA-6303	12,190 ± 430	AA-348	16,849 ± 860	GX-9030
10,850 ± 185	AA-6850	12,210 ± 110	AA-14208	17,020 ± 170	AA-3995
10,870 ± 90	AA-5996	12,220 ± 130	AA-8960	17,065 ± 665	GX-7458
10,895 ± 95	AA-6866	12,325 ± 80	AA-11875	17,165 ± 140	AA-15704
10,905 ± 145	SI-5759	12,350 ± 950	GX-9431	17,305 ± 140	AA-7144
10,915 ± 600	GX-8754	12,425 ± 125	AA-5994	17,330 ± 1200	CAMS-12256
10,920 ± 160	GX-15278	12,470 ± 205	AA-8330	17,575 ± 185	AA-10119
10,920 ± 250	AA-3939	12,640 ± 80	CAMS-12581	17,670 ± 140	AA-11588
10,930 ± 85	AA-3584	12,675 ± 100	AA-5995	17,800 ± 500	I-725
10,940 ± 240	GSC-122	12,720 ± 670	GX-13798	17,855 ± 145	AA-10122
10,980 ± 70	AA-3819	12,740 ± 100	AA-5997	17,990 ± 110	CAMS-17400

Appendix 2B. Continued.

Reported Date	Lab No.	Reported Date	Lab No.	Reported Date	Lab No.
18,270 ± 140	AA-15691	32,820 ± 530	AA-15696	47,000 + 1400 -1200	QL-976-2
18,475 ± 145	AA-14217	33,170 ± 590	AA-9062	47,500 + 1000 -1200	QL-1087
18,700 ± 1200	I-1314	33,320 ± 1810	CAMS-19255	47,700 ± 700	QL-183
18,730 ± 90	CAMS-11340	33,600 ± 300	QL-136	47,800 + 1300 -1100	QL-1181
18,865 ± 175	AA-14216	33,615 ± 600	AA-9067	48,700 + 1400 -1000	QL-1086
19,000 ± 1000	I-1242	33,640 ± 1300	BGS-304	50,400 ± 1000	QL-188
19,070 ± 260	AA-5034	34,010 ± 675	AA-10569	50,700 + 2000 -1600	QL-1179
19,200 ± 1100	AA-654	34,025 ± 725	AA-4686	52,460 ± 1430	TO-2196
19,215 ± 150	AA-15708	34,710 ± 690	AA-10646	>20,000	GaK-2572
19,400 ± 310	CAMS-4063	34,790 ± 710	AA-7899	>24,550	GX-5318
19,565 ± 160	AA-14204	34,820 ± 730	AA-12608	>27,000	AA-263
19,635 ± 150	AA-13239	34,900 + 2100 -1700	I-1832	>28,000	GX-1677
19,855 ± 210	AA-4700	35,280 ± 760	AA-11451	>28,200	GX-8241
20,110 ± 340	TO-3243	35,685 ± 805	AA-6298	>29,000	GaK-2569
20,650 ± 260	AA-1273	36,000 ± 300	QL-182	>29,000	GaK-2570
20,840 ± 180	AA-10568	36,020 ± 805	AA-14218	>29,000	GX-1675
21,070 ± 220	AA-13230	36,120 ± 340	TO-3242	>30,000	Beta-1227
21,210 ± 190	AA-14203	36,250 + 3600 -2000	I-2581	>30,000	I-1241
21,255 ± 200	AA-12899	36,300 ± 300	QL-60	>32,000	S-458
21,500 ± 240	AA-3338	36,370 ± 820	AA-15695	>32,500	GX-8591
21,970 ± 195	AA-15692	36,600 ± 350	QL-185	>34,200	GX-8240
22,110 ± 230	AA-15705	36,870 ± 970	AA-14220	>34,800	GSC-427
22,210 ± 255	AA-8965	37,090 ± 1100	AA-4244A	>35,000	I-1234
22,225 ± 245	AA-15706	37,200 ± 800	QL-979	>35,000	I-1240
22,360 ± 140	CAMS-12582	37,760 ± 1050	AA-12606	>36,900	GSC-259
22,720 + 1420 -1210	GX-9433	37,935 ± 1020	AA-15693	>37,000	GX-8942
23,390 ± 240	CAMS-4062	37,990 ± 410	TO-3241	>38,000	GSC-2716
23,880 ± 240	AA-11589	38,470 ± 2450	BGS-305	>38,000	GSC-5497
23,890 ± 260	AA-9356	38,620 ± 1110	AA-14027	>38,900	AA-7558
24,000 ± 850	S-459	38,700 ± 1200	AA-10232	>39,000	GSC-2797
24,035 ± 240	AA-10647	39,000 ± 1800	AA-2224	>39,000	I-1812
24,365 ± 355	AA-13235	39,145 ± 1180	AA-11452	>39,000	I-1813
24,600 ± 500	I-731	39,600 ± 500	QL-180	>39,000	I-1814
24,780 ± 230	AA-15132	40,000 ± 300	QL-184	>39,000	I-1816
24,835 ± 240	AA-15699	40,630 ± 1400	AA-4244B	>39,600	GSC-209
25,330 ± 310	AA-14215	40,700 ± 1500	AA-4703	>40,000	I-1235
26,015 ± 1320	AA-7137	40,710 ± 5500	BGS-306	>41,000	I-1829
27,130 ± 335	AA-15707	40,760 ± 1450	AA-11453	>41,900	QC-446
27,255 ± 305	AA-11878	40,950 ± 2100	AA-7557	>42,000	AA-11881
27,255 ± 1250	GX-7883	41,400 ± 500	QL-186	>43,700	AA-7897
27,465 ± 360	AA-15697	41,800 ± 1700	AA-14219	>43,900	AA-7901
27,670 ± 440	CAMS-22022	42,400 ± 800	QL-1180	>45,000	AA-2632
27,720 ± 340	AA-9361	42,700 ± 2250	SI-1336	>47,240	AA-9063
28,005 ± 350	AA-12898	43,200 ± 60	AA-4704	>49,230	AA-13232
28,050 ± 335	AA-15694	43,300 ± 3000	AA-2348	>50,000	Y-1702
28,200 ± 1500	GaK-2799	43,450 ± 2100	AA-6304	>54,000	Y-1703
29,000 ± 3500	GaK-2567	43,750 ± 2100	AA-12605	Lost	AA-1272
29,000 + 2000 -2200	GaK-2568	44,200 ± 2300	AA-3254	Lost	AA-3809
29,055 ± 350	AA-10658	44,400 ± 1000	QL-974	Too Small	AA-6846
30,000 ± 1200	I-839	44,800 ± 500	QL-181	Too Small	GX-12482
30,170 ± 475	AA-13229	45,000 ± 4000	AA-2642	Too Small	SI-1698
30,175 ± 405	AA-8966	45,200 ± 800	QL-177		
30,320 ± 820	GSC-528	45,400 ± 600	QL-179		
30,600 ± 1900	GX-16635	45,500 ± 55	AA-4706		
30,790 ± 450	AA-10252	45,500 ± 600	QL-178		
31,065 ± 455	AA-11450	45,600 + 4100 -2700	GX-13720		
32,150 ± 1200	AA-4687	45,800 ± 1000	QL-973		
32,200 + 1700 -1400	I-3200	46,700 ± 3000	AA-9064		
32,300 + 2100 -1600	I-1815	46,950 ± 2050	SI-1335		

APPENDIX 3

COMPARING APPLES AND ORANGES: UNDERSTANDING HOW RADIOCARBON LABS REPORT DATES DIFFERENTLY

Over the last decade, as the chronology of rapid glacial events in the Arctic and Antarctic has become more refined, century and decadal resolution of events has become important. At this scale, it becomes necessary to compare radiocarbon dates using the same procedures for calculating and reporting radiocarbon dates -- i.e., to be able to appropriately compare dates from one laboratory (using one reporting procedure) with dates from another laboratory (which might use another procedure). Most important, we should recognize the impact of various approaches for: 1) correcting for sample $\delta^{14}C$ fractionation (relating to the $\delta^{13}C$ of the sample); 2) $\delta^{13}C$ normalization (relating to the $\delta^{13}C$ of the analytical standard); 3) correcting for the marine reservoir effect; and 4) establishing one-sigma or two-sigma error estimates. Understanding how radiocarbon dates are reported differently is most important for dates on marine carbonates, when misinterpretation of reporting procedures can create a bias of 400 yr or more.

Radiocarbon Reporting Conventions

Since the mid-1970's, most radiocarbon labs have accepted the guidelines of Stuiver and Polach (1977) for reporting a "conventional radiocarbon date" (not to be confused with conventional gas or liquid counting methods vs. AMS methods). For "conventional radiocarbon dates", the following approaches are standardized:

1) The Libby half-life for radiocarbon decay (5568 yr) is used. Note that this is shorter than the true-half life (5730 yr), yielding ages that are 3% too young.

2) The ^{14}C date is expressed in yr B.P. or yr BP.

3) The present is defined as AD 1950.

4) The date is not corrected for a marine reservoir effect.

5) The date is reported with an error term of ± 1 sigma (relating to a level of analytical confidence of 68%), rather than ± 2 sigma (relating to a confidence level of 95%).

6) The NBS oxalic acid standard (or an equivalent) is used to define the initial ^{14}C activity of the sample. This standard has the same (or calculated) ^{14}C activity of wood growing in a 1950

atmosphere, corrected for manmade influences on the ^{14}C activity of the 1950 atmosphere (industrial evolution of dead carbon and production of "bomb" radiocarbon).

7) The date is corrected for $^{14}C/^{12}C$ fractionation of the sample (using the measured or assumed $\delta^{13}C$ of the shell). This relates to how the sample fractionated ^{14}C relative to ^{12}C when it incorporated carbon from its environment into its tissues. Some organisms (e.g., trees) selectively exclude the heavier carbon isotopes when incorporating carbon into their bodies. All organisms descriminate against ^{14}C about twice as much as against ^{13}C. Since ^{13}C is stable, we can measure it (or assume it) in a sample, and presume that the initial depletion of ^{14}C in the sample was twice that of ^{13}C. For example, trees have a $\delta^{13}C$ of $-25 \pm 2‰$, which is depleted ("light") relative to a $\delta^{13}C$ of $-9 \pm 2‰$ for carbon dioxide in the atmosphere (Stuiver and Pollach, 1977; Stuiver and Reimer, 1993). This depletion in $\delta^{13}C$ of 18‰ thus equates with a depletion in $\delta^{14}C$ of 36‰, or 3.6 percent. If not accounted for, this would lend a "modern" tree an anomalous, apparent age because it started out with less radiocarbon that it should have if it were in initial equilibration with the atmosphere.

For comparison, marine molluscs and foraminifera have $\delta^{13}C$ values of ca. $0 \pm 2‰$, only slightly enriched from the $\delta^{13}C$ of $1 \pm 2‰$ of HCO_3^{-1} dissolved in marine waters, from which these organisms obtain their carbon for secreting skeletons (cf. Stuiver and Reimer, 1993).

The convention of Stuiver and Pollach (1977) thus states that the samples should be corrected for variable fractionation of carbon by an organism (or abiotic process). This fractionation correction is independent of corrections for the apparent age of marine waters (the marine reservoir effect). The following ^{13}C-correction equation is used as a step in the calculation of a radiocarbon date:

$$A_{sn} = A_s \left(1 - \frac{2\left(25 + \delta^{13}C\right)}{1000} \right) \qquad (1)$$

Where ...
Asn = ^{14}C activity of the sample normalized and corrected for fractionation
As = measured ^{14}C activity of the sample
$\delta^{13}C$ = the $\delta^{13}C$ of the sample (measured or assumed)

25 = in this equation, the value of 25 marks normalization to a base of -25‰. Labs that normalize to a base of 0‰ place a 0 in the equation instead of a 25.

8) Dates are normalized to a base $\delta^{13}C$ value of -25‰. This relates to the $\delta^{13}C$ value of the standard, not the sample. The NBS oxalic standard used as a reference in radiocarbon analysis is founded on the ^{14}C activity of wood. Thus the base for normalization is the normal $\delta^{13}C$ value for wood, -25‰. Nearly all radiocarbon laboratories normalize to a base of $\delta^{13}C = -25‰$. This has also been referred to as fractionation correction to a base of $\delta^{13}C = -25‰$, or calculating radiocarbon ages relative to $\delta^{13}C = -25‰$. However, a few labs have corrected in the past to a base of $\delta^{18}O = 0‰$.

9) Finally, radiocarbon ages are calculated according to the radiocarbon age equation (Stuiver and Pollach, 1977):

$$t = -8033 \ln\left(\frac{Asn}{Aon}\right) \qquad (2)$$

Where ...
t = the age of the sample in years before AD 1950
Aon = ^{14}C activity of the standard, corrected (or "normalized") for its own oxalic acid $\delta^{13}C$ value.

GSC Procedures

Until March, 1993, the Geological Survey of Canada reported two values for each radiocarbon date, as follows. An "AGE (uncorr.)" date is not corrected for sample $\delta^{13}C$ fractionation; this is a "machine age", without consideration of the sample $\delta^{13}C$ or a value chosen as a base for normalization. A machine age on marine shell will be 410 yr younger than a machine age on wood of the same age (assuming no marine reservoir effect). An "AGE (corr.)" date is corrected for sample $\delta^{13}C$ fractionation, using a base of 0‰ for marine shells and a base of -25‰ for terrestrial organics. For calcareous materials other than marine molluscs (e.g., marls and freshwater shells) and for bone or marine organics, an AGE (corr.) value is not given. The AGE (uncorr.) and AGE (corr.) dates are reported with errors of ±2 sigma. Not all labs evaluate errors in the same way. However, for consistency when comparing GSC dates with dates from other labs, we suggest that you divide the error by 2, effectively obtaining errors of ±1 sigma.

Thus, for terrestrial organics, the AGE (corr.) date follows the convention of Stuiver and Pollach (1977) for $\delta^{13}C$ fractionation. To make these types of GSC dates directly comparable with "conventional radiocarbon dates", simply halve the error term. For marine carbonate materials, the AGE (corr.) date does not follow the convention of Stuiver and Pollach (1977) for $\delta^{13}C$ fractionation. To make these types of GSC dates directly comparable with "conventional radiocarbon dates", add 410 yr to the AGE (corr.) value, and halve the error term. For marls and freshwater shells, you may wish to calculate the corresponding offset for ^{13}C fractionation, and add this value to the "AGE (uncorr.)" value.

You might then choose to apply a marine reservoir correction to the date as appropriate for the region and time period of interest. For example, the AGE (corr.) value of GSC- dates in this Date List appear as the "Reported Date" for each listing. We have added 410 yr in consideration of fractionation corrections, then subtracted 450 yr for the marine reservoir effect, listing the resulting value as the corresponding "Corrected Age".

Since March, 1993, the GSC has additionally reported an "AGE (norm.)" value, which is corrected for sample $\delta^{13}C$ fractionation, using a base of -25‰ for all samples. This format more closely follows the convention of Stuiver and Pollach (1977), except for a ±2 sigma error term. Thus, to make these types of GSC dates directly comparable with "conventional radiocarbon dates", simply halve the error term. When reporting GSC dates, be sure to tell the reader which date (uncorr., norm., or corr.) you are reporting as the "laboratory reported" date.

Isotrace Procedures

Radiocarbon dates from IsoTrace (TO- dates) have in some cases in the past deviated from the conventional format of Stuiver and Pollach (1977). Approximately before sample TO-1800, IsoTrace would report their dates according to the older GSC format if the sample submitter was a member of the GSC. However, during this time they would report their dates according to the conventional format if the submitter was not associated with the GSC. Therefore, for TO- dates less than 1800, you will not know from the number alone which procedure they followed, and will

need to go to the original reporting form. Since approximately TO-1800, they have followed the conventional format, regardless of the submitter's affiliation.

Before Consensus

Before the international convention of Stuiver and Pollach (1977) became widely accepted, labs reported dates in various ways, and you might need to go back to the original reporting forms and/or contact the lab itself to discover what type of corrections had been made to dates on shells. Before about 1985, many labs would provide a "machine age" (an age uncorrected in any way for ^{13}C) and a ^{13}C-corrected age, which for some was normalized to a base of -25‰ and for others was normalized to a base of 0‰. "Machine" ages are commonly presented as "^{14}C ages" or "uncorrected ^{14}C" ages. ^{13}C-corrected ages are usually presented as "^{13}C-corrected" ages, "^{13}C-adjusted ages", or simply "corrected" ages. You will have to look carefully at the reporting forms to determine if ^{13}C-corrected dates were normalized to 0‰ or -25‰. If the machine age (on shell) is about 400 yr different than the ^{13}C-corrected date then you can be assured that they corrected for the ^{13}C of the shell normalized to a base of -25‰. If the machine age is only about 40 yr (or less) different than the ^{13}C-corrected age, then you will know that they corrected for the ^{13}C of the shell normalized to a base of 0‰.

As a guide to knowing when labs accepted the convention of Stuiver and Pollach (1977), some of the labs have been contacted for specific information. Geochron (GX-dates) has been reporting according to convention since the early 1970's (since roughly GX-1000 or so) and perhaps earlier. In the 1970's Geochron reported machine ages as well as the "conventional radiocarbon" ages on its forms. Similarly, Beta Analytic (Beta- dates) has reported according to convention if a "^{13}C-adjusted ^{14}C age" is given, although a machine age ("^{14}C age") is always given. In the past they would report a "^{13}C-adjusted ^{14}C age" only if a customer paid to have the $\delta^{13}C$ measured. Recently, they are reporting "^{13}C-adjusted ^{14}C ages" for all samples, using the measured value if analyzed or using an assumed value otherwise. For Beta dates, you might have to go to the original reporting form to know whether a date is a machine age or a conventional radiocarbon date. The Smithsonian Institution (SI-dates) reported dates without ^{13}C correction,

except under unusual circumstances when the submitter requested a ^{13}C analysis (Stuckenrath, pers. com., 1994).

In the last decade, radiocarbon-dated foraminifera and molluscs have provided high-resolution chronologies for records of environmental change. For these materials especially, consideration of radiocarbon reporting procedures is important. "Conventional radiocarbon dates" are readily compared, and a marine reservoir correction can be applied. Other dates that have not been reported according to the convention of Stuiver and Pollach (1977) will need additional correction, commonly for ^{13}C fractionation as well as the marine reservoir effect.

INSTITUTE OF ARCTIC AND ALPINE RESEARCH, UNIVERSITY OF COLORADO
OCCASIONAL PAPERS

Numbers 1 through 5, and 9, 11, 12, 16, 17, 18, 21, 23, 31, and 39 are out of print. A second edition of Number 1 is available from the author. Numbers 2, 3, 4, 5, 9, and 11 are available from the U.S. Department of Commerce. For details, write to INSTAAR.

6. Guide to the Mosses of Colorado. By W.A. Weber, 1973, 48 pp. Order from the author, University of Colorado Museum, Boulder, Colorado 80309. $2.50.
7. *A Climatological Study of Strong Downslope Winds in the Boulder Area.* By W.A.R. Brinkmann. 1973. 228 pp. Order from the author, Institute for Environmental Studies, University of Wisconsin, 1225 West Dayton Street, Madison, Wisconsin 53706.
8. *Environmental Inventory and Land Use Recommendations for Boulder County, Colorado.* Edited by R.F. Madole. 1973. 228 pp. 7 plates. $6.
10. *Simulation of the Atmospheric Circulation Using the NCAR Global Circulation Model with Present Day and Glacial Period Boundary Conditions.* By J.H. Williams. 1974. 328 pp. $4.75.
13. *Development of Methodology for Evaluation and Prediction of Avalanche Hazard in the San Juan Mountains of Southwestern Colorado.* By R.L. Armstrong, E.R. LaChapelle, M.J. Bovis, and J.D. Ives. 1975. 141 pp. $4.75.
14. *Quality Skiing at Aspen, Colorado: A Study in Recreational Carrying Capacity.* By C. Crum London. 1975. 134 pp. 3 plates. $5.50.
15. *Palynological and Paleoclimatic Study of the Late Quaternary Displacement of the Boreal Forest-Tundra Ecotone in Keewatin and Mackenzie, N.W.T., Canada.* By H. Nichols. 1975. 87 pp. $4.
19. *Avalanche Release and Snow Characteristics, San Juan Mountains, Colorado.* Edited by R.L. Armstrong and J.D. Ives. 1976. 256 pp. 7 plates. $7.50.
20. *Landslides Near Aspen, Colorado.* By C.P. Harden. 1976. 61 pp. 5 plates. $3.75.
22. *Physical Mechanisms Responsible for the Major Synoptic Systems in the Eastern Canadian Arctic in the Winter and Summer of 1973.* By E.F. LeDrew. 1976. 205 pp. $4.50.
24. *Avalanche Hazard in Ouray County, Colorado, 1876-1976.* By B.R. Armstrong. 1977. 125 pp. 32 plates. $4.50.
25. *Avalanche Atlas, Ouray County, Colorado.* By B.R. Armstrong and R.L. Armstrong. 1977. 132 pp. 34 plates. $6.
26. *Energy Budget Studies in Relations to Fast-ice Breakup Processes in Davis Strait: Climatological Overview.* R.G. Barry and J.D. Jacobs with others. 1978. 284 pp. $7.
27. *Geoecology of Southern Highland Peru: A Human Adaptation Perspective.* By B.P. Winterhalder and R.B. Thomas. 1978. 91 pp. $6.
28. *Tropical Teleconnection to the Seesaw in Winter Temperatures between Greenland and Northern Europe.* By B.A. Meehl, 1979. 110 pp. $4.
29. *Radiocarbon Date List IV: Baffin Island, N.W.T., Canada.* By G.H. Miller. 1979. 61 pp. $4.
30. *Synoptic Climatology of the Beaufort Sea Coast of Alaska.* By R.E. Moritz. 1979. 176 pp. $6.
32. *Modeling of Air Pollution Potential for Mountain Resorts.* By D.E. Greenland. 1979. 96 pp. $5.
33. *Baffin Island Quaternary Environments: An Annotated Bibliography.* By M. Andrews and J.T. Andrews. 1980. 123 pp. $5.50.
34. *Temperature and Circulation Anomalies in the Eastern Canadian Arctic, Summer 1946-1976.* By R.A. Keen. 1980. 159 pp. $6.
35. *Map of Mixed Prairie Grassland Vegetation, Rocky Flats, Colorado.* By S.V. Clark, P.J. Webber, V. Komarkova, and W.A. Weber. 1980. 66 pp. 2 plates. $8.
36. *Radiocarbon Date List I: Labrador and Northern Quebec, Canada.* By S.K. Short. 1981. 33 pp. $4.
38. *Geoecologia de la Region Montanosa del sur Peru: Una Perspectiva de Adaptacion Humana.* By Bruce P. Winterhalder and R. Brooke Thomas. 1982. 99 pp. $6. (Previously published in English as Occasional Paper No. 27, 1978).
40. *Radiocarbon Date List V: Baffin Island, N.W.T., Canada.* By J.T. Andrews. *Radiocarbon Date List II: Labrador and Northern Quebec, Canada.* By S.K. Short. 1983. 71 pp. $6.
41. *Holocene Paleoclimates: An Annotated Bibliography.* By M. Andrews. 1984. 2 vols. $30.
42. *List of Publications 1968-1985: Institute of Arctic and Alpine Research.* By M. Andrews. 1986. 97 pp. $7.
43. *Bibliography of Alpine and Subalpine Areas of the Front Range, Colorado.* By J.C. Halfpenny, K.P. Ingraham, J. Mattysse, and P.J. Lehr. 1986. 114 pp. $8.
44. *The Climates of the Long-Term Ecological Research Sites.* Edited by David Greenland. 1987. 84 pp. $5.
45. *Photographic Atlas and Key to Windblown Seeds of Alpine Plants from Niwot Ridge, Front Range, Colorado, U.S.A.* By Scott A. Elias and Oren Pollack. 1987. 28 pp. $6.
46. *Radiocarbon Date List III: Labrador and Northern Quebec, Canada* and *Radiocarbon Date List VI: Baffin Island, N.W.T., Canada.* Compiled by J.T. Andrews, C.A. Laymon, and W.M. Briggs. 1989. 85 pp. $5.
47. *Svalbard Radiocarbon Date List I.* Compiled by Steven L. Forman. 1990. 48 pp. $5.
48. *Radiocarbon Date List VII: Baffin Island, N.W.T., Canada.* Compiled by D.S. Kaufman and K.M. Williams. 1992. 82 pp. $10.
49. *Field and Laboratory Studies of Patterned Ground in a Colorado Alpine Region.* By James B. Benedict. 1992. 44 pp. $10.
50. *Radiocarbon Date List VIII: Eastern Canadian Arctic, Labrador, Northern Quebec, East Greenland Shelf, Iceland Shelf, and Antarctica.* Compiled by W.F. Manley and A.E. Jennings. 1996. $15.

Order from INSTAAR, Box 450, Univ. of Colorado, Boulder, CO 80309-0450. Orders by mail add $2 per title, except as noted.

University of Colorado at Boulder