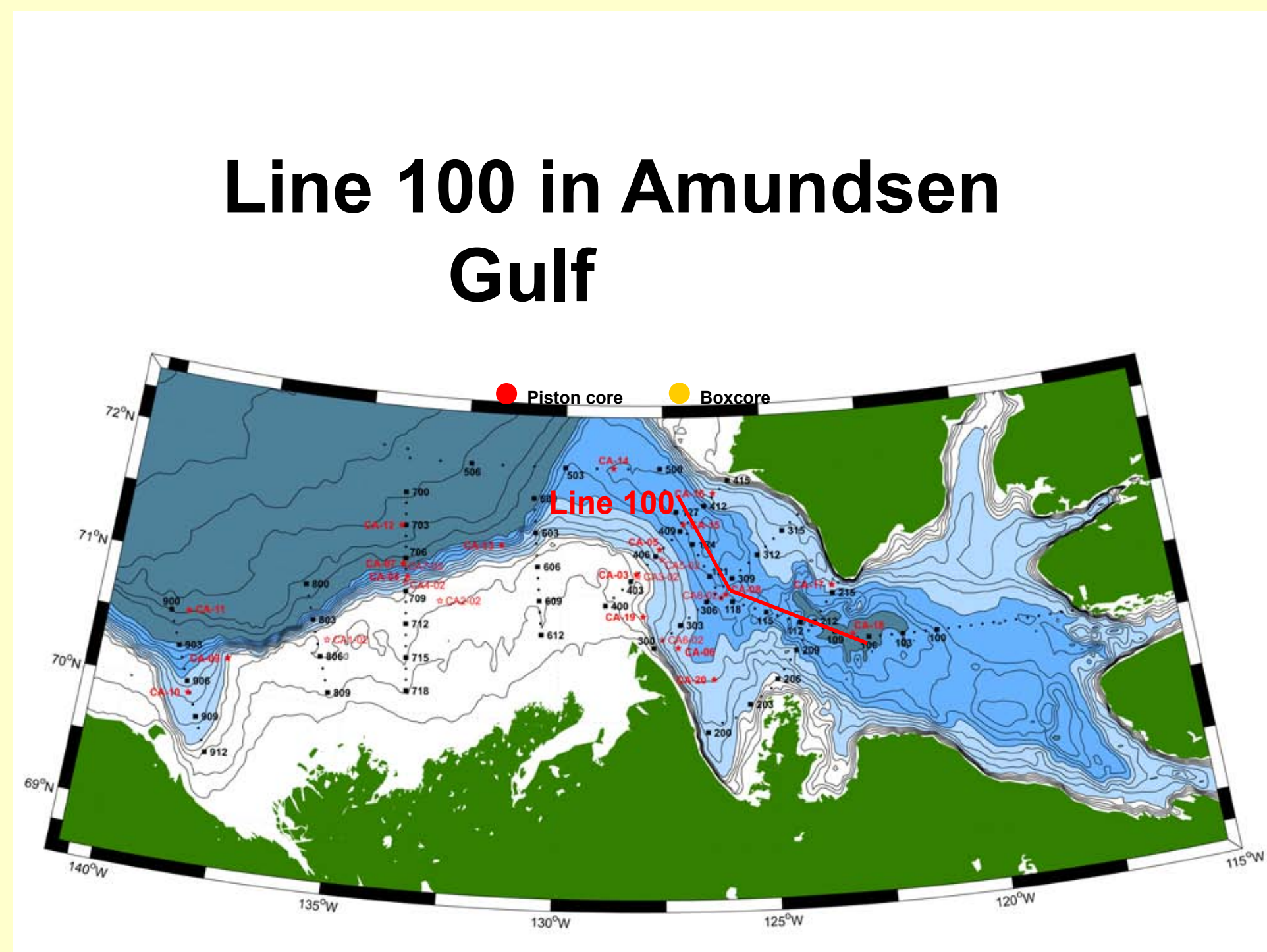


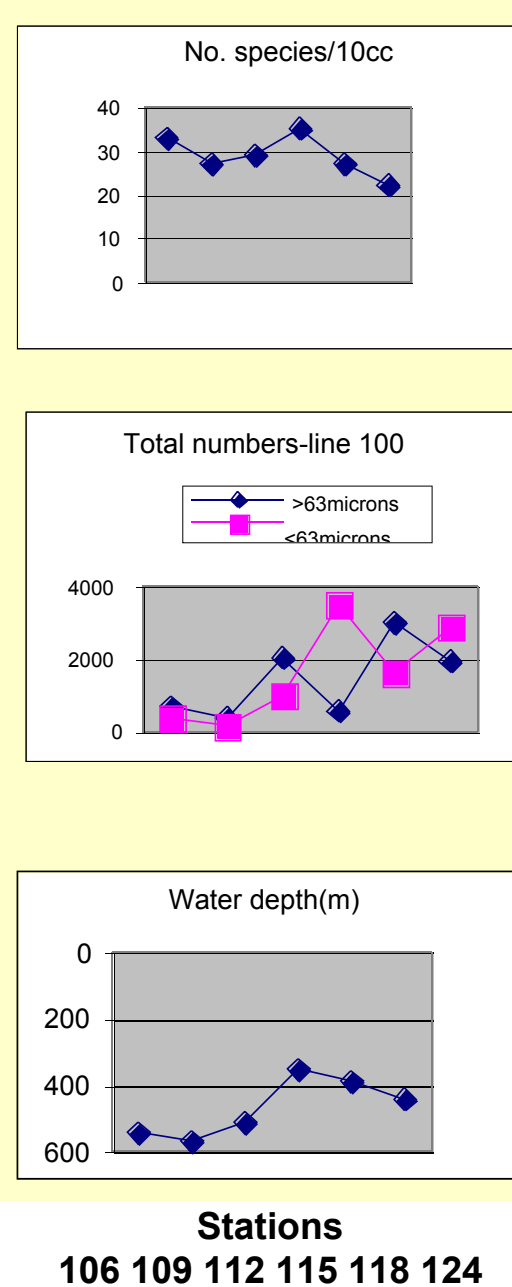
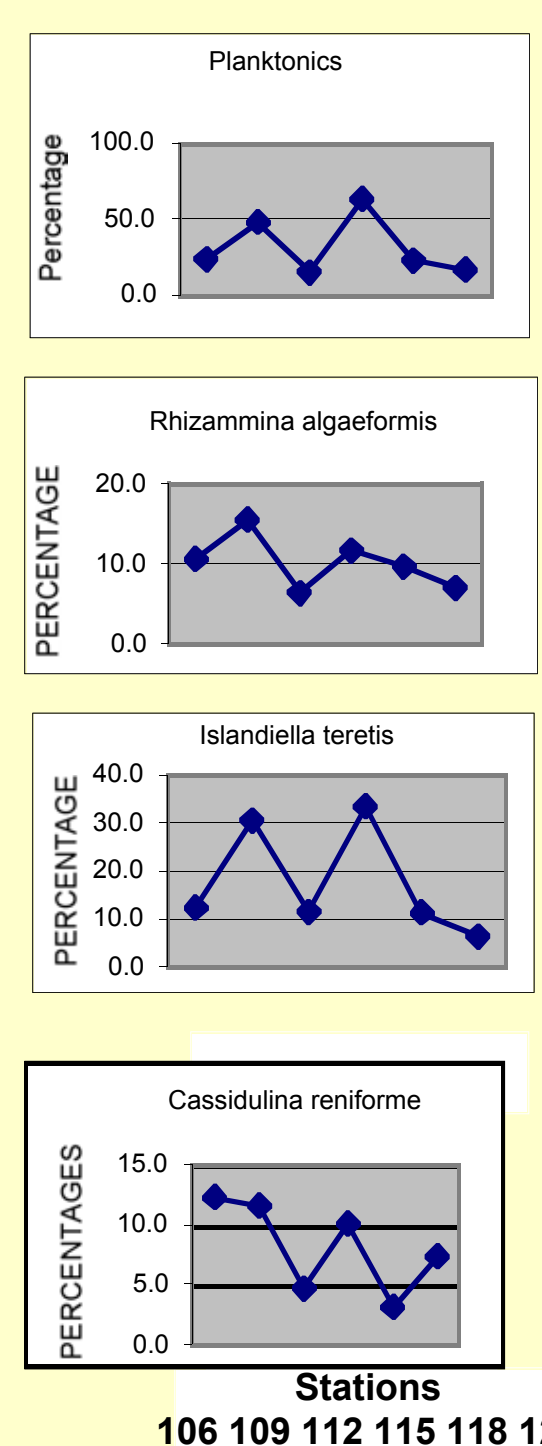
# CASES ground truth for events in the NW Passage using benthic foraminifera-do we see deep water connections?

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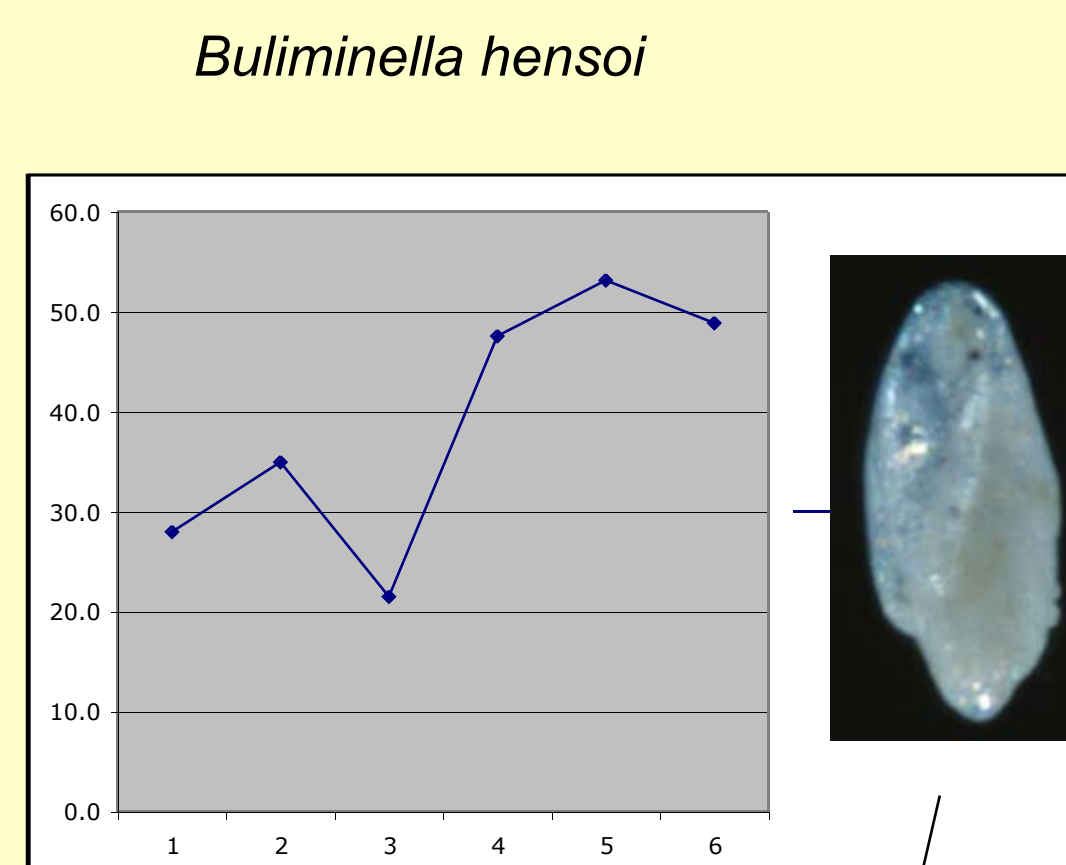
Cores and surface samples from the Mckenzie/Amundsen Gulf area contain deepwater benthic foraminifera that appear in the early to mid-Holocene of Jones Sound core 6 but diminish in the late Holocene-the question is are these early remnants coming from the Beaufort Sea to Jones Sound or through Nares Strait-if from Amundsen Gulf why do they disappear in the late Holocene in Jones Sound. We hope to find these answers when we examine cores from the NW Passage collected in 2005



## Modern foraminifera in the Amundsen Gulf



Line 100-up middle the of Amundsen Gulf  
**Dominant species >63μ**  
*Rhizammina*  
*Islandiella*  
*Cassidulina*  
**Dominant species <63μ**  
*Buliminella*  
*Stetsonia*  
*Textularia*



This species has been overlooked in the past because it is less than 63 microns which is the standard size fraction used but recent work has shown that these deep sea Arctic forams are often in the 45-63 micron fraction only

*Buliminella hensoi* is deepwater endemic Arctic Ocean species that is largely less than 63microns in size and hence has often been overlooked-it was first observed in large numbers looking at the Jones Sound core 6 and since is found to be common in most of the non-shelf areas of the Beaufort Sea.



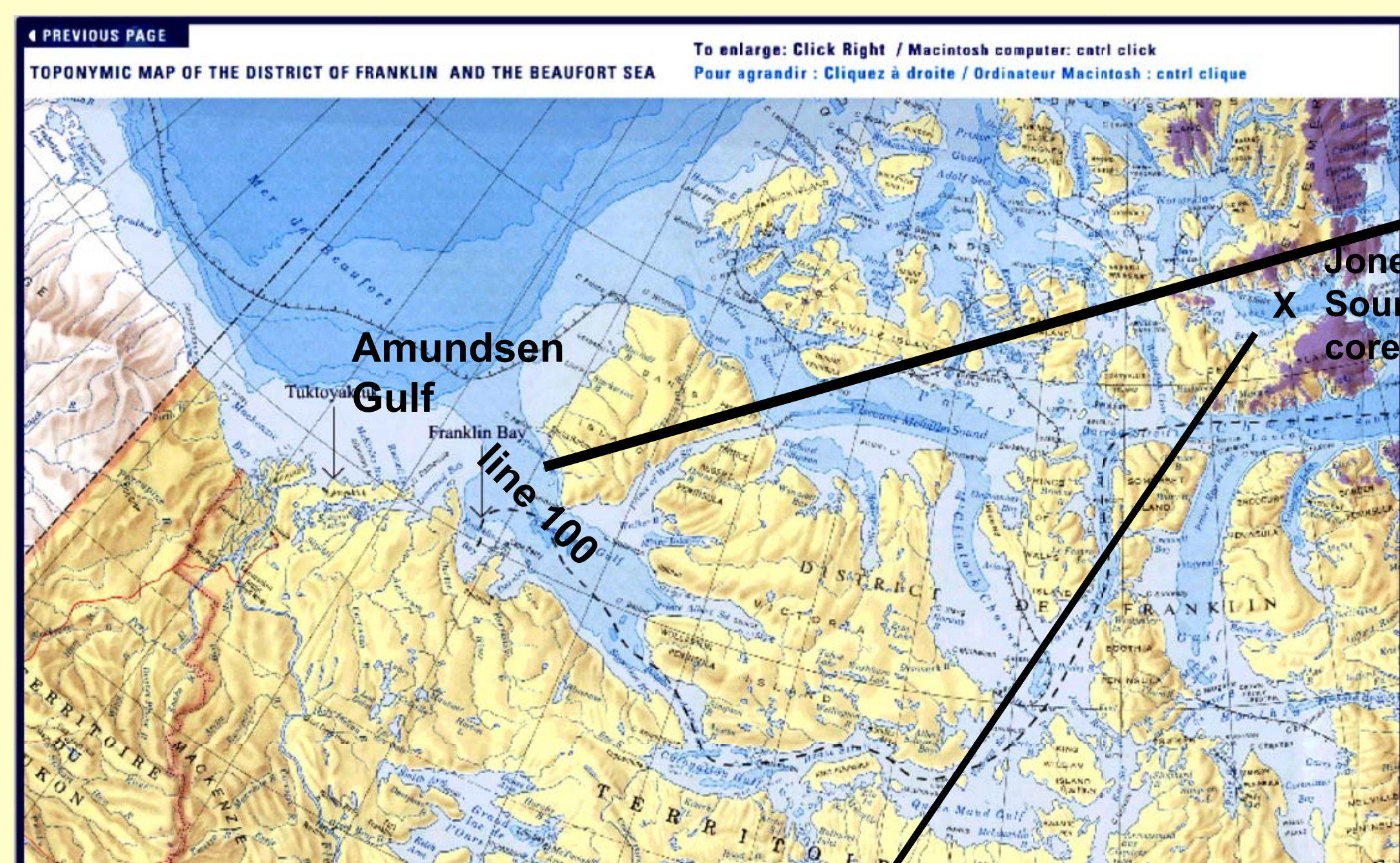
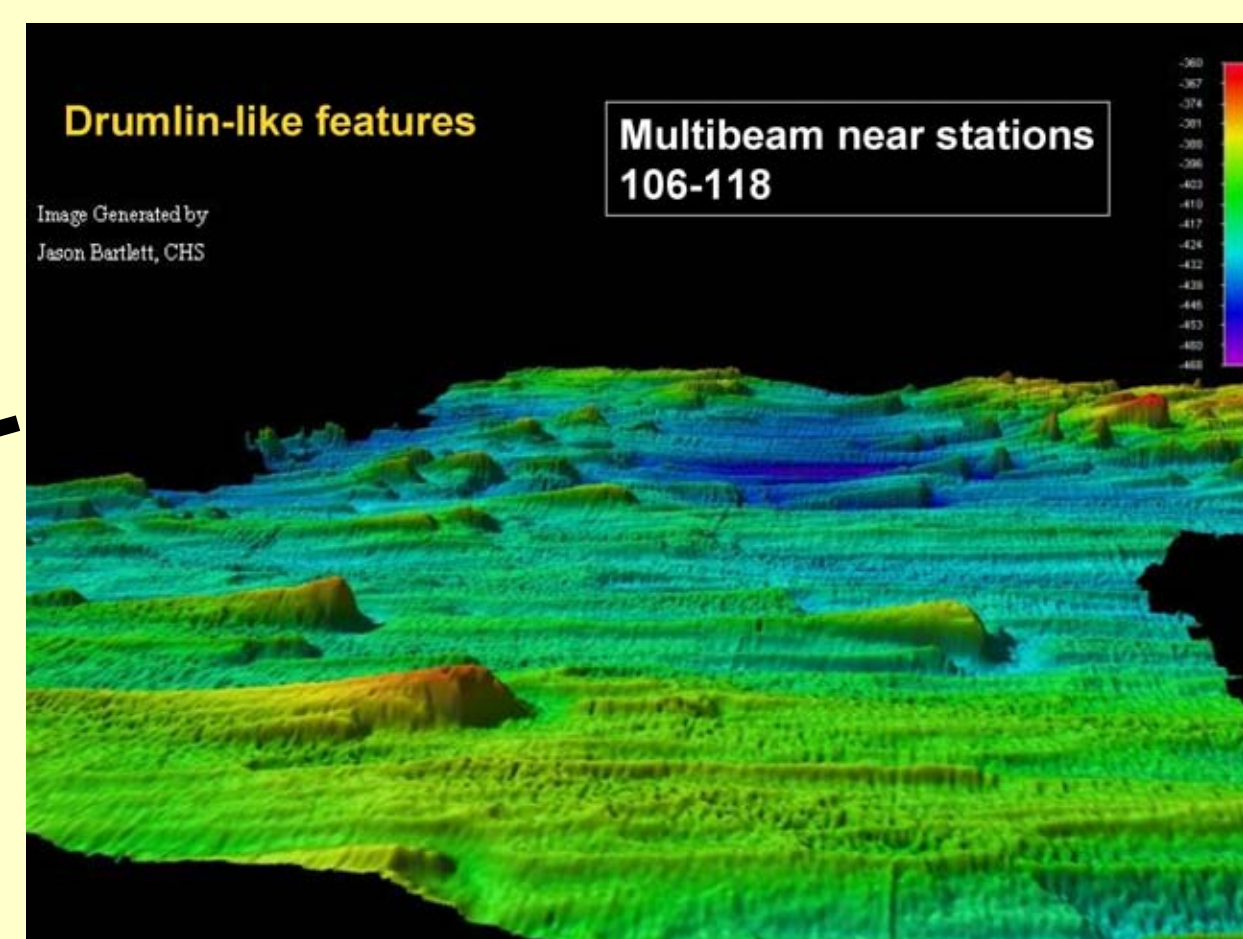
Piston coring aboard the Amundsen

Typical large agglutinated foraminifera from Amundsen Gulf-*Astrorhiza arenaria*-this specimen is about 4mm across

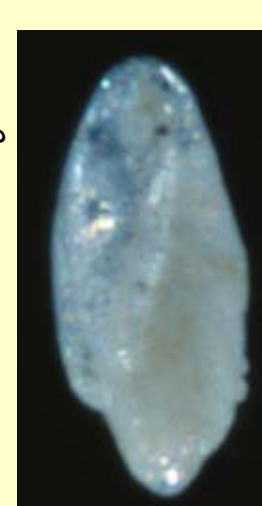
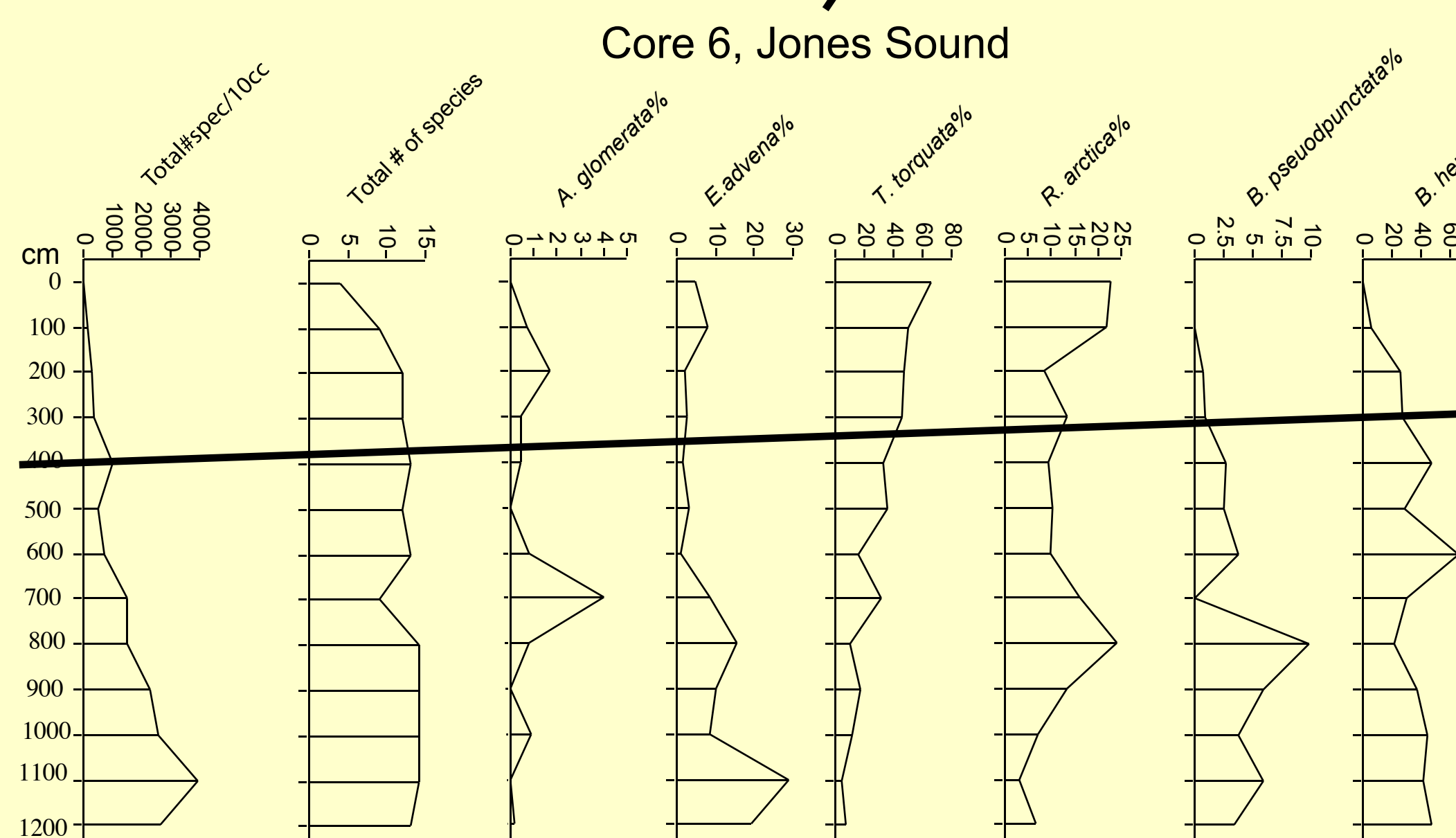


This *Astrorhiza arenaria* was also very large-these forams are no longer microfossils at this point -although they occur in low numbers per cc they account for much of the biomass

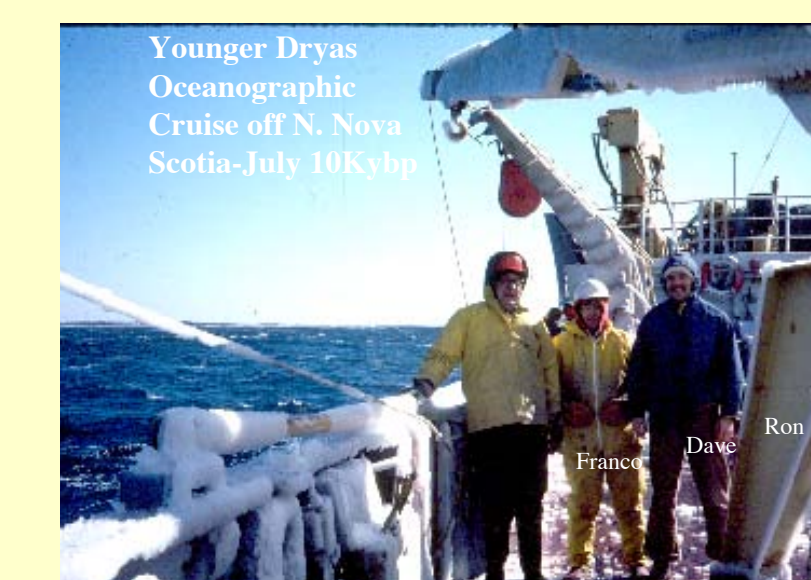
Drumlins in the Amundsen Gulf No Holocene sedimentation



Inner Labrador Current starts on the East Coast from Jones Sound to Nova Scotia at ~4000ybp as indicated by increased presence of non-calcareous foraminifera

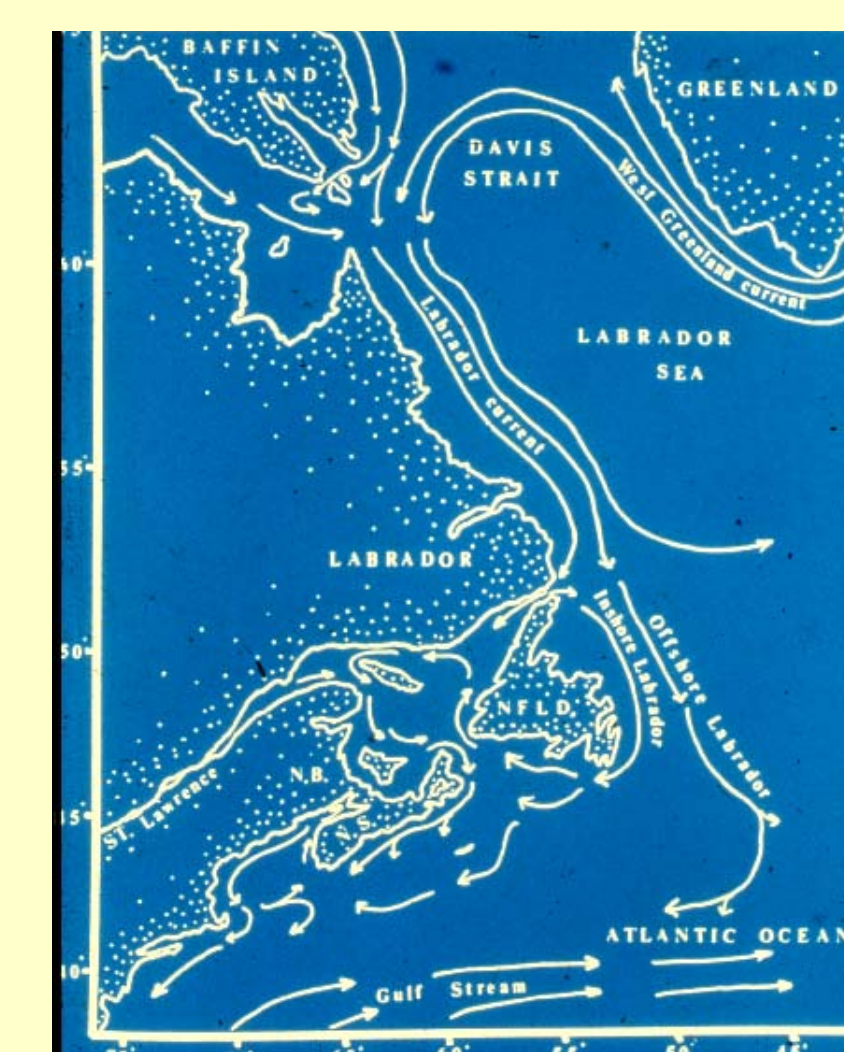


*B. hensoi* common Early to mid-Holocene-in late Holocene mostly non-calcareous foraminifera in Jones Sound  
3800ybp at 5.2m  
6300ybp at 10.8m



Younger Dryas Oceanographic Cruise off N. Nova Scotia, July 1993

Late Holocene effect off Nova Scotia



Inner Labrador Current intensifies almost instantaneously all along east coast with low temperature (0-2oC) and lower salinity water (32o/oo)-is this the Arctic Channels opening up? Hudson Strait also opens up but that does not account for events north of that.