



Digital Terrain Image and Interpreted Landforms of Submerged Paleo-Rivers & Paleo-Shorelines

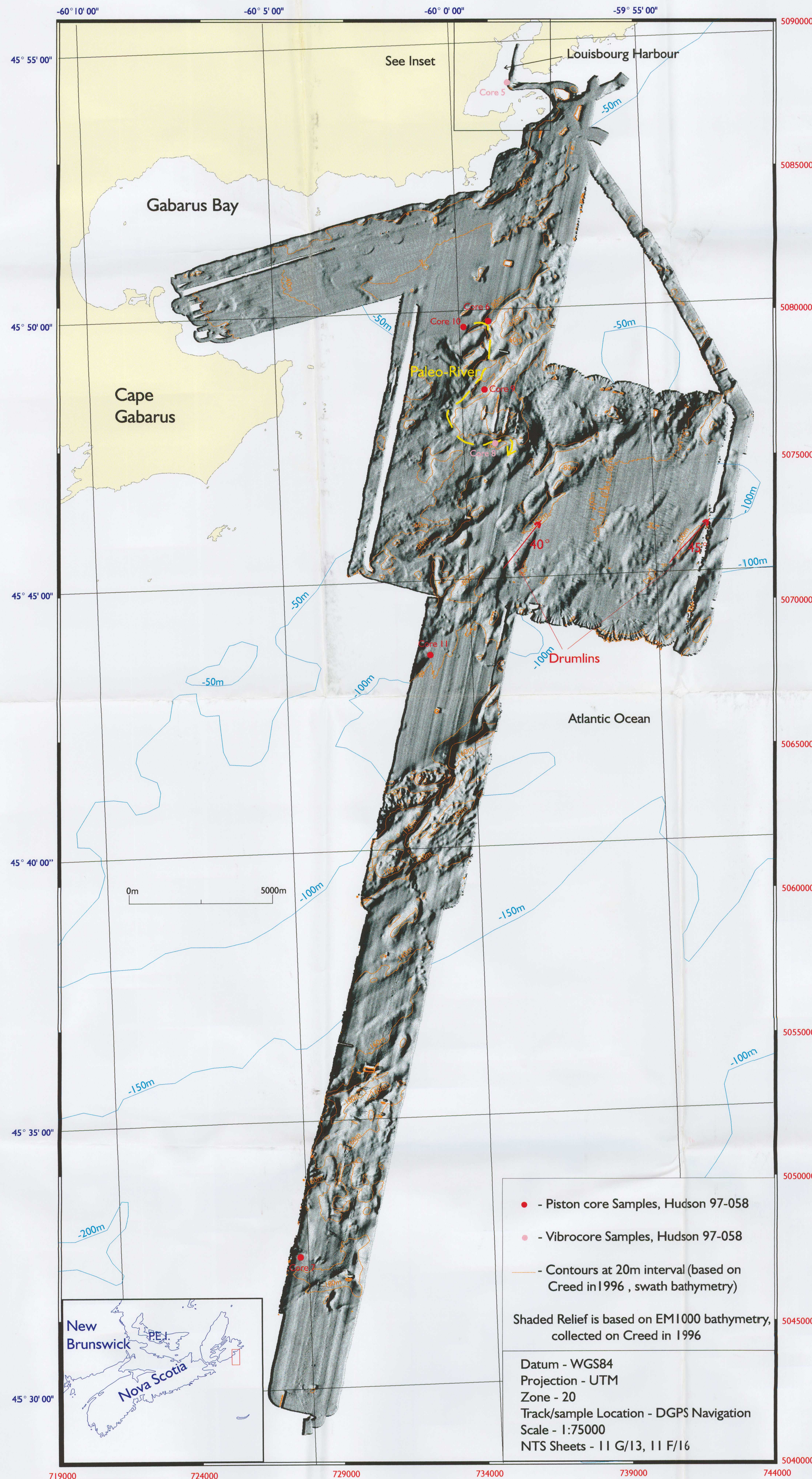
Panel 3 of 3

Geological compilation by H. Josenhans
Digital compilation by J. Harding / R. Covill

The digital terrain image reveals streamlined landforms interpreted as glacial drumlins. Land based glacial studies on striated bedrock from coastal bluff exposure adjacent to the study area (Grant 1994, McClenaghan and Dilabio 1996) indicate northeasterly glacial flow. The northeasterly orientation of the drumlins offshore suggests a similar ice flow direction originating from an ice centre (Grant 1994) which was seaward (southwest) of the study area.

Diatom and sedimentological analysis of cores 5 and 8 (Campeau and Pienitz 1998) indicate fresh water depositional settings at the base of both cores. The base of the marine deposits in core 5 has been C14 dated to 5,300 kya and indicates that Louisbourg Harbour was a lake previous to that time. The former shoreline at this time must have been seaward of the present harbour sill which is now 22m deep. The diagram of Louisbourg Harbour illustrates the paleoshoreline at 30m below present.

Analysis of core 8 which is located in 82m water depth also indicates a river once occupied that area and sea-level must have been below this elevation. The fluvial sediments at the base of this core contain only sparse (fresh water) diatoms and no dateable organics. The first interval of dateable material was collected from marine sediments between 75 and 85cm down core and about 70cm above the fresh water deposits. The C14 age of marine shell fragments from this interval is 7580 +/- 60. The data indicate that sea level had risen above the fluvial deposits by this time. The inferred location of the former shoreline at 90m is illustrated by this panel.



- - Piston core Samples, Hudson 97-058
 - - Vibrocore Samples, Hudson 97-058
 - Contours at 20m interval (based on Creed in 1996, swath bathymetry)
- Shaded Relief is based on EM1000 bathymetry, collected on Creed in 1996
- Datum - WGS84
Projection - UTM
Zone - 20
Track/sample Location - DGPS Navigation
Scale - 1:75000
NTS Sheets - 11 G/13, 11 F/16

