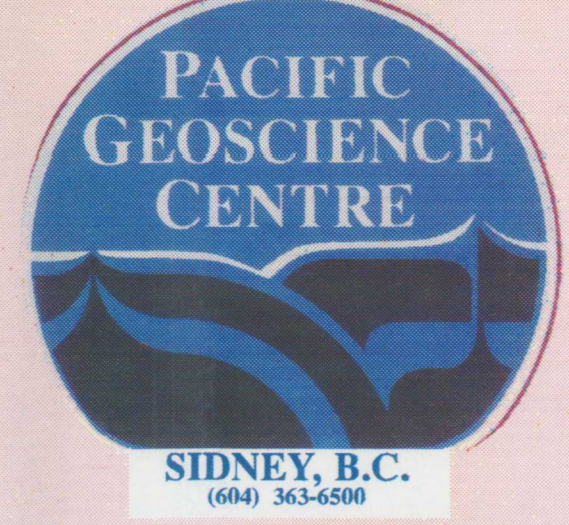




# SURFICIAL GEOLOGY, QUATERNARY STRATIGRAPHY AND PALEOENVIRONMENTS OF QUEEN CHARLOTTE BASIN



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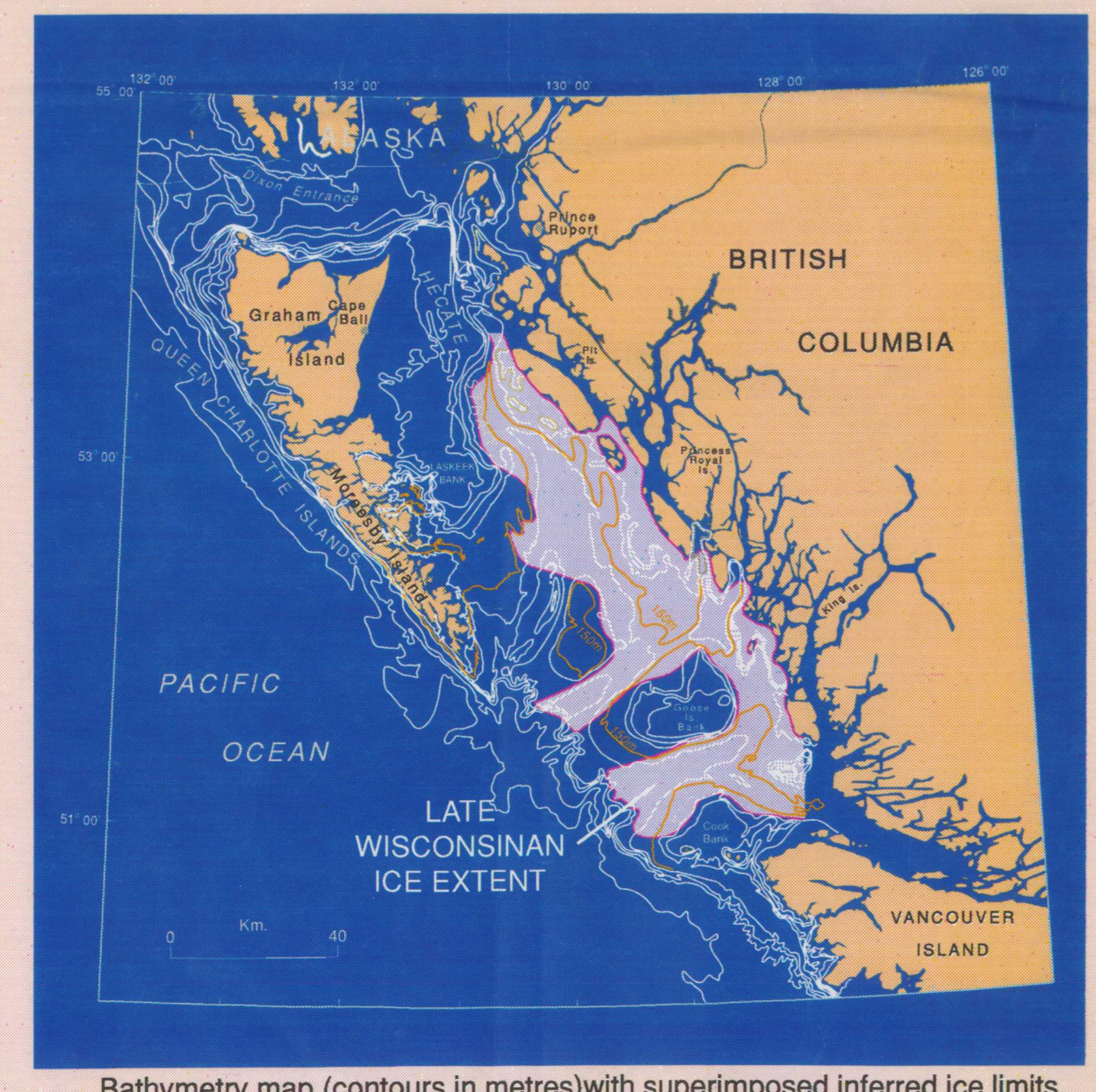
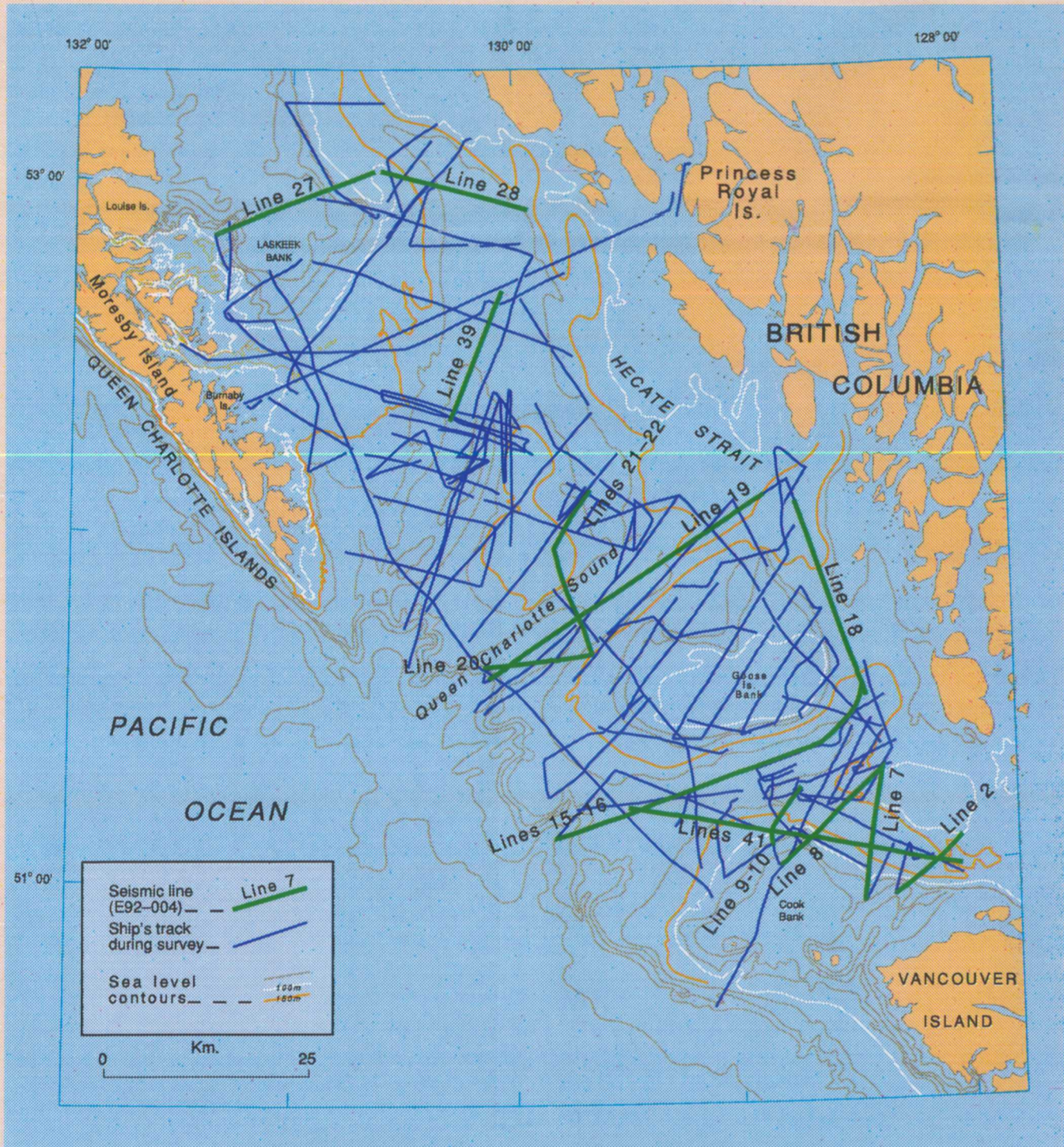
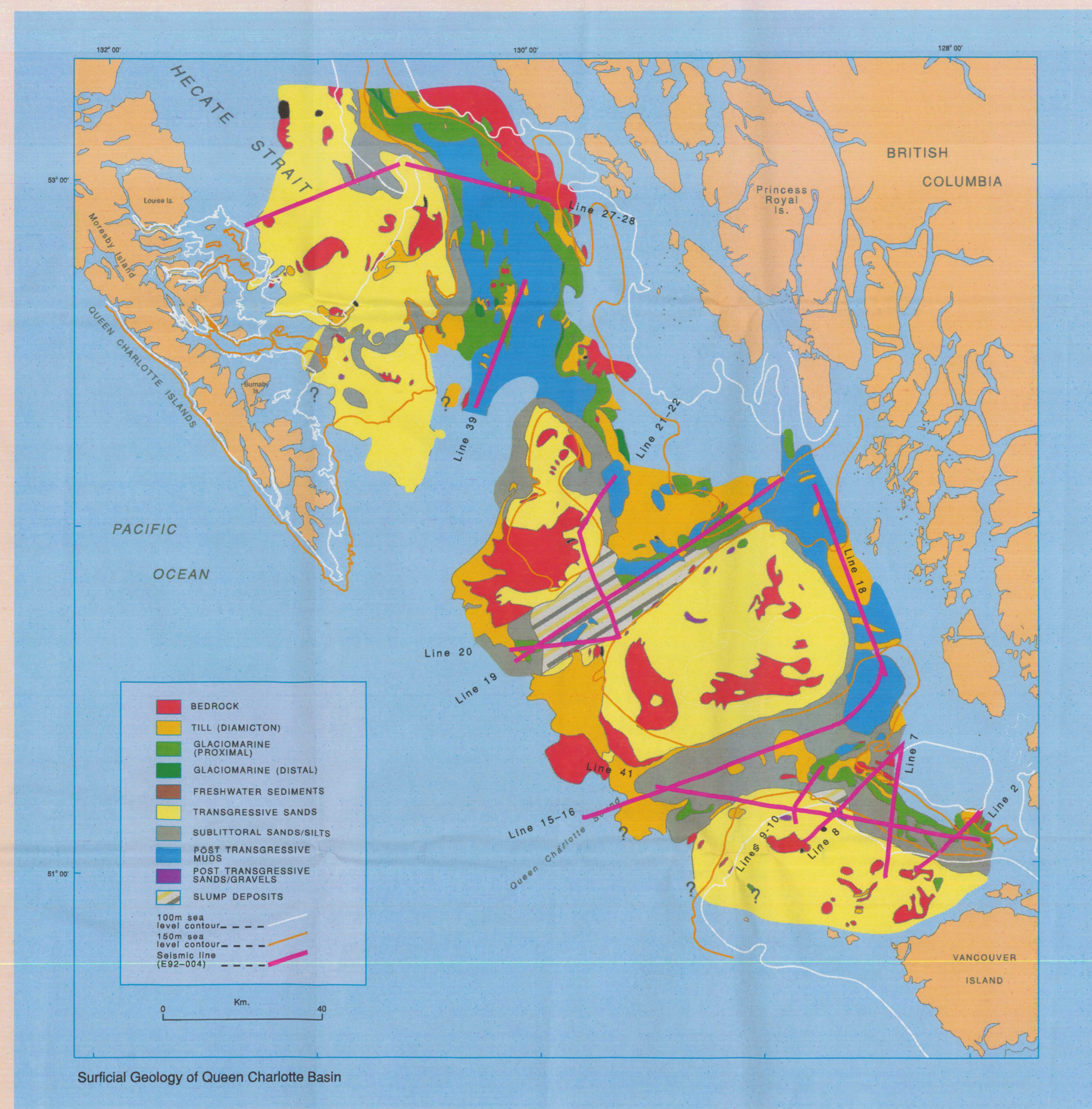
## QUATERNARY STRATIGRAPHY

For location of sections and legend: see surficial geology map

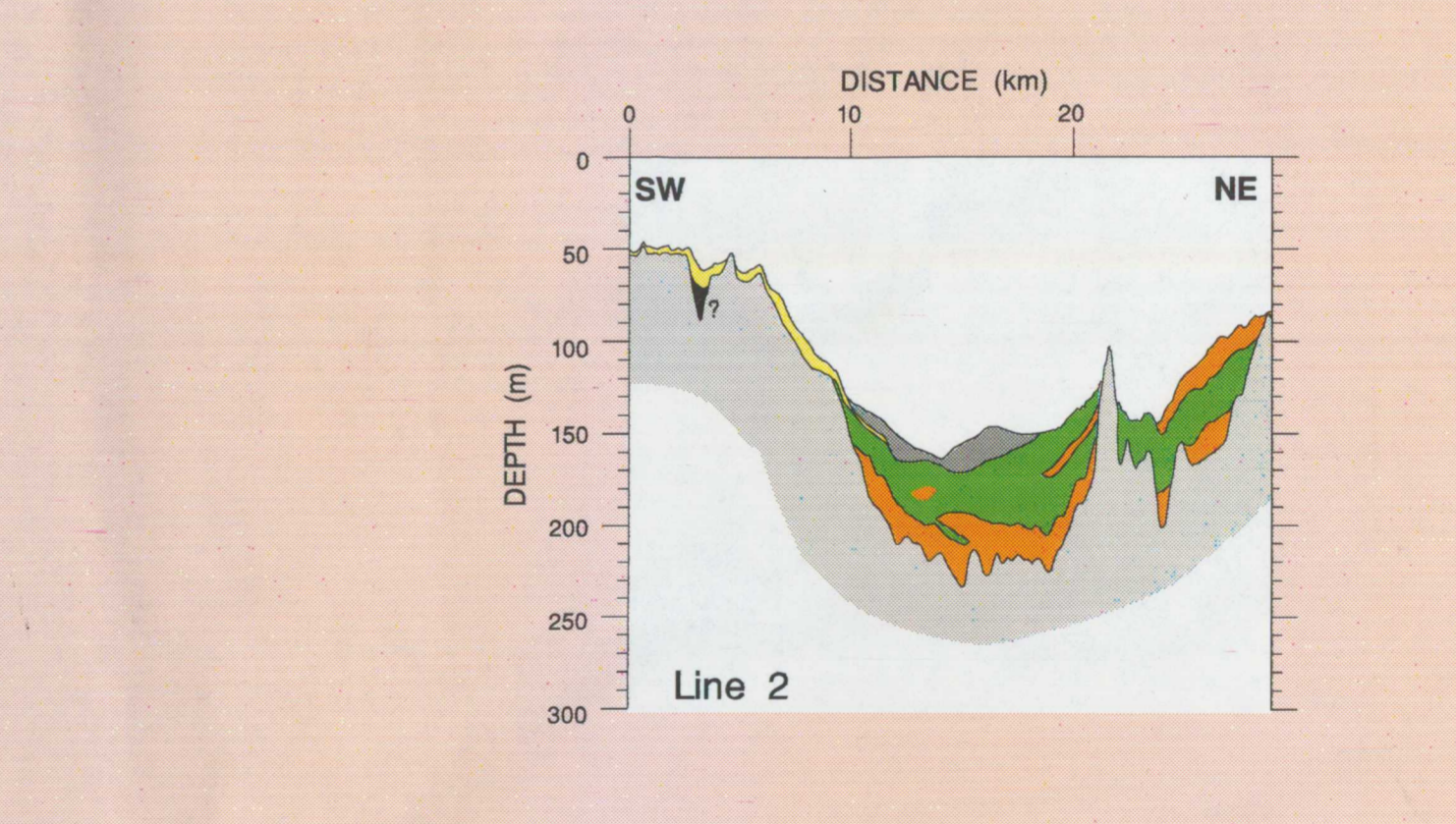
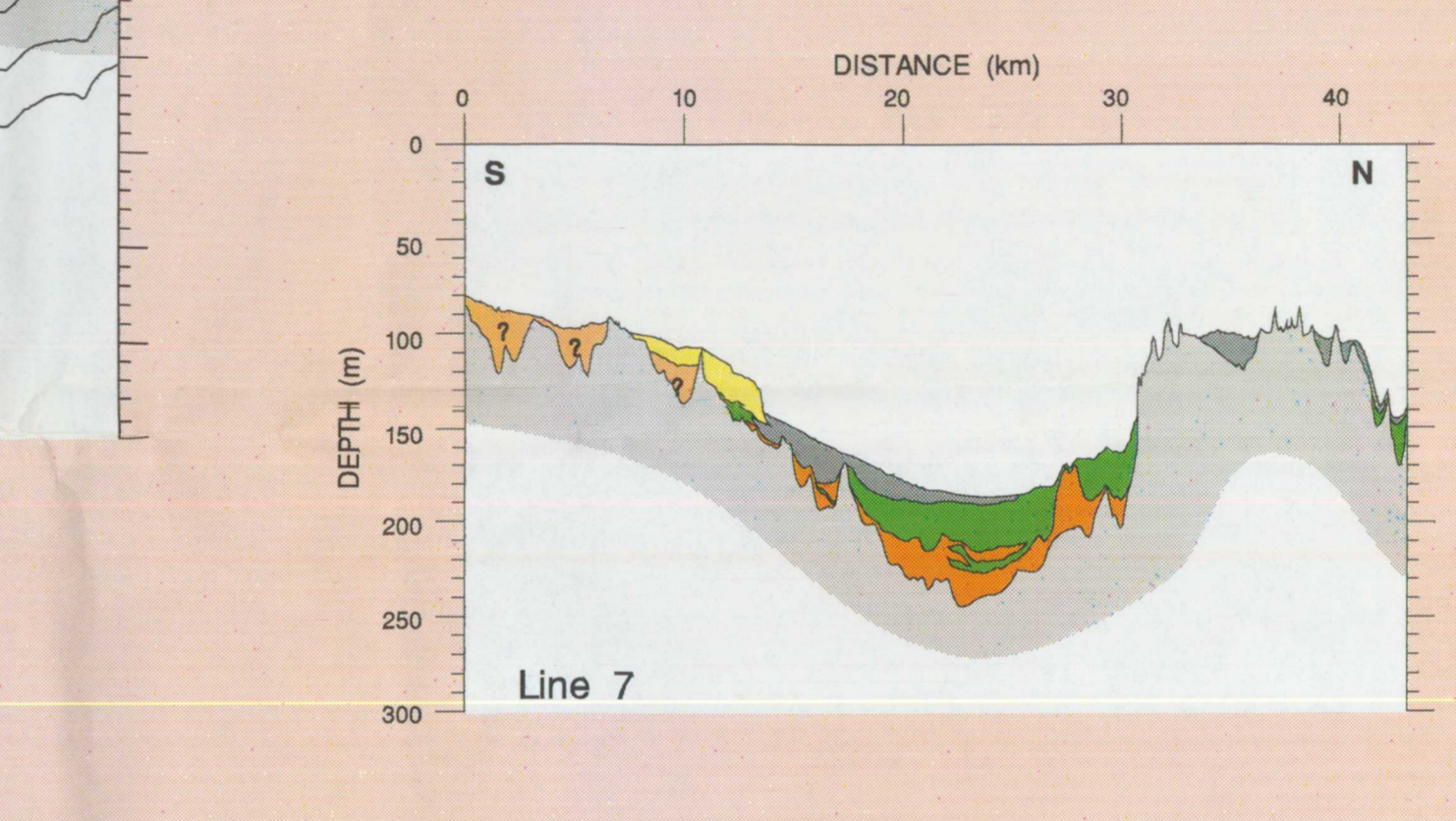
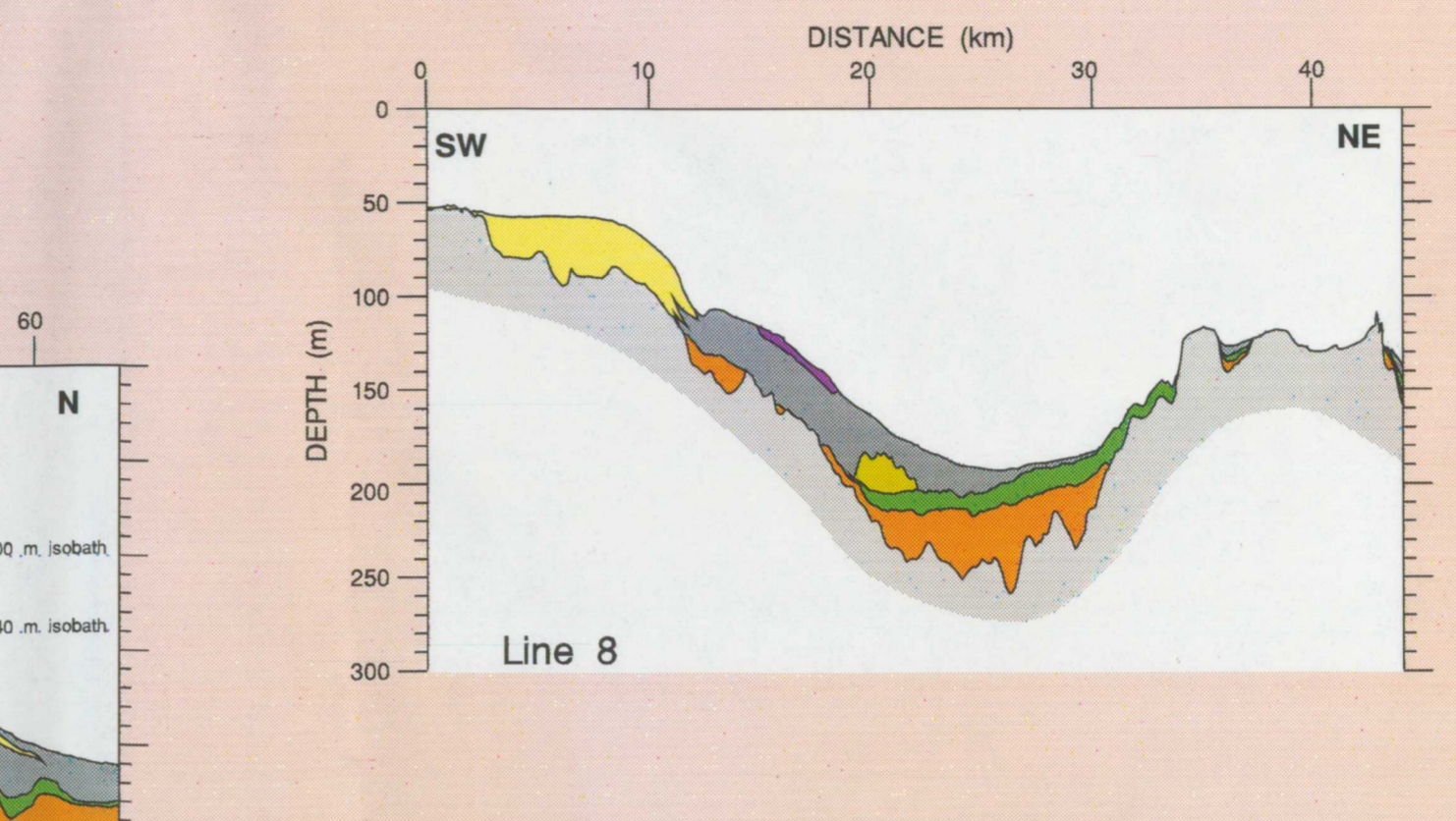
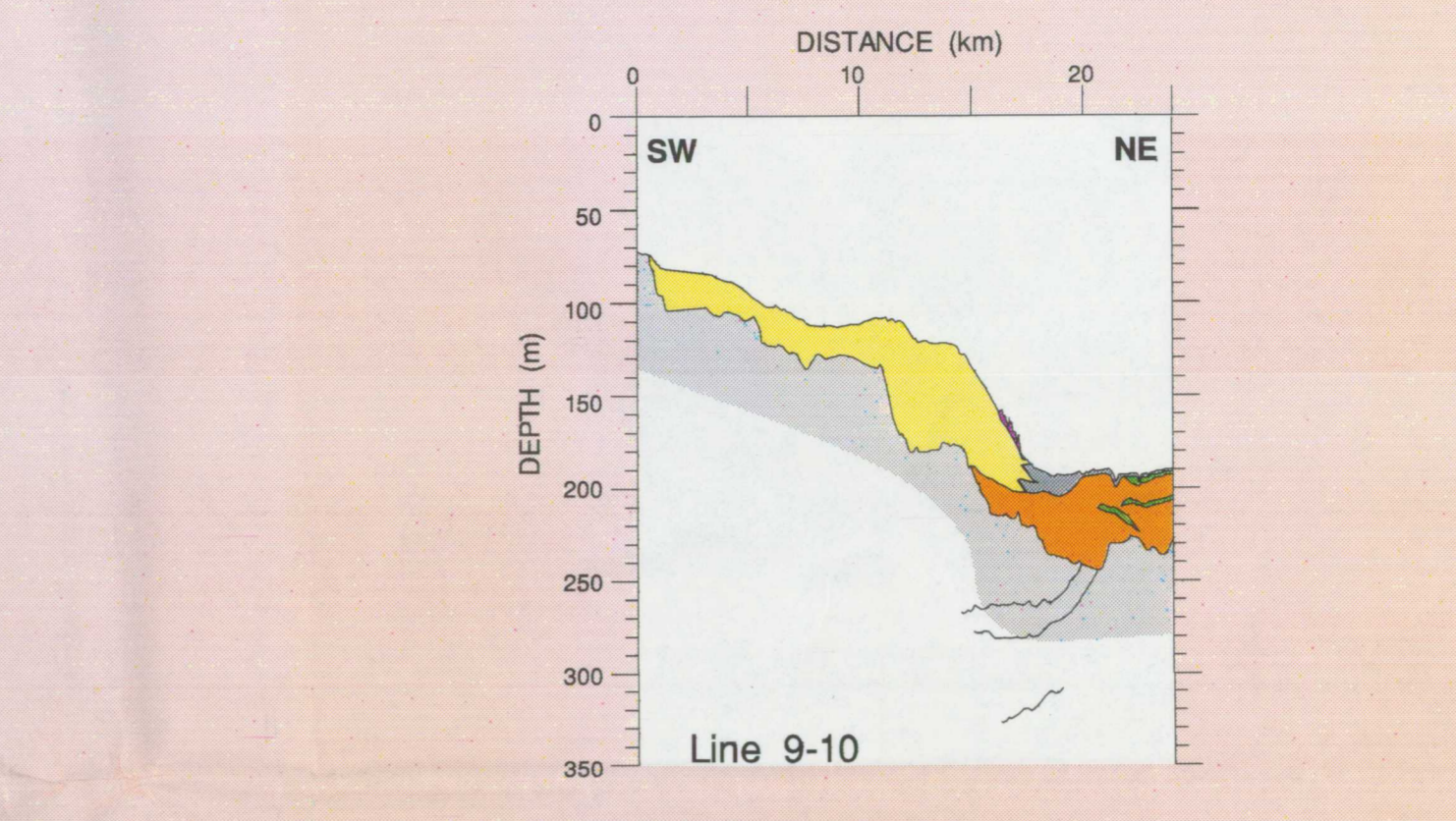
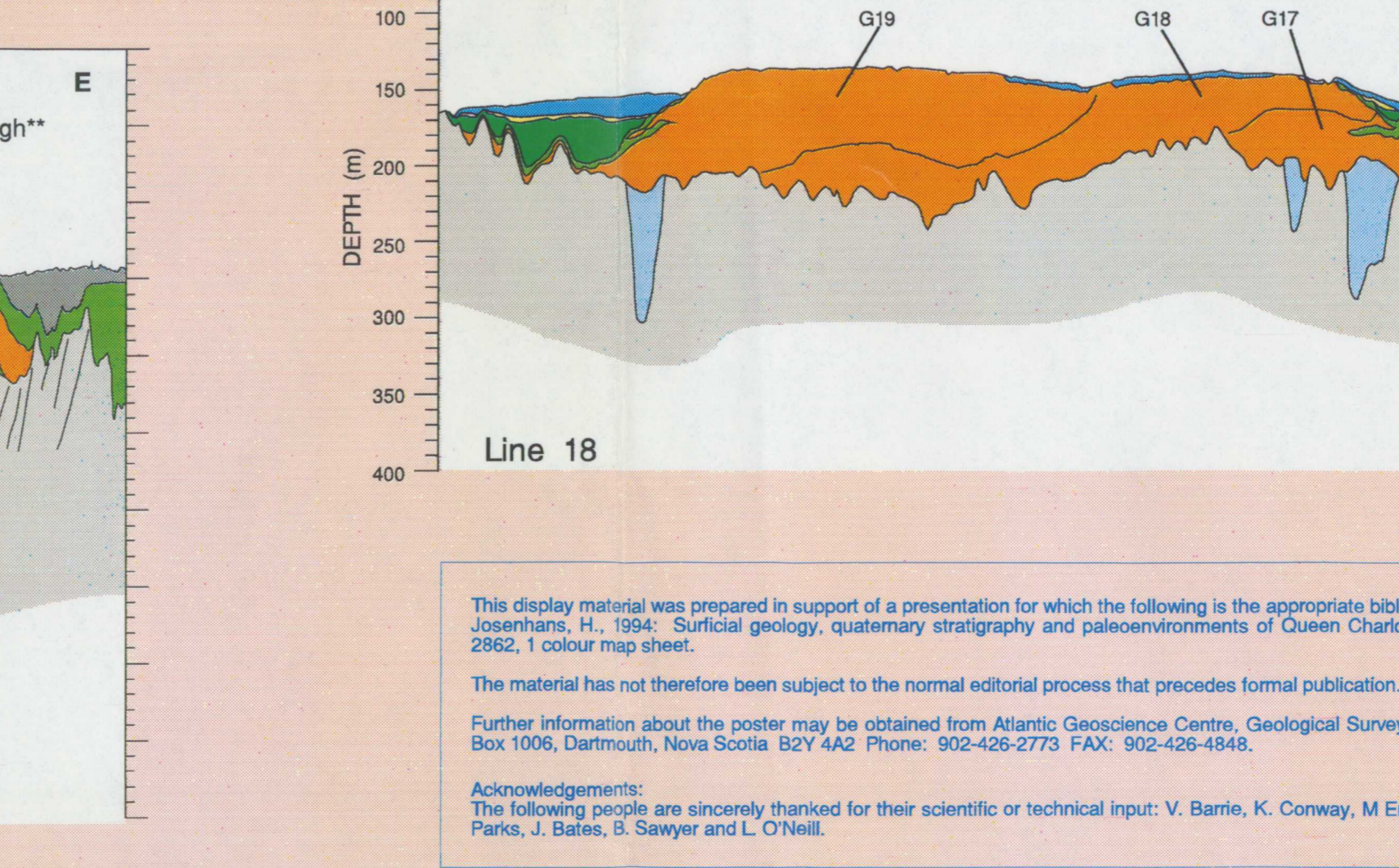
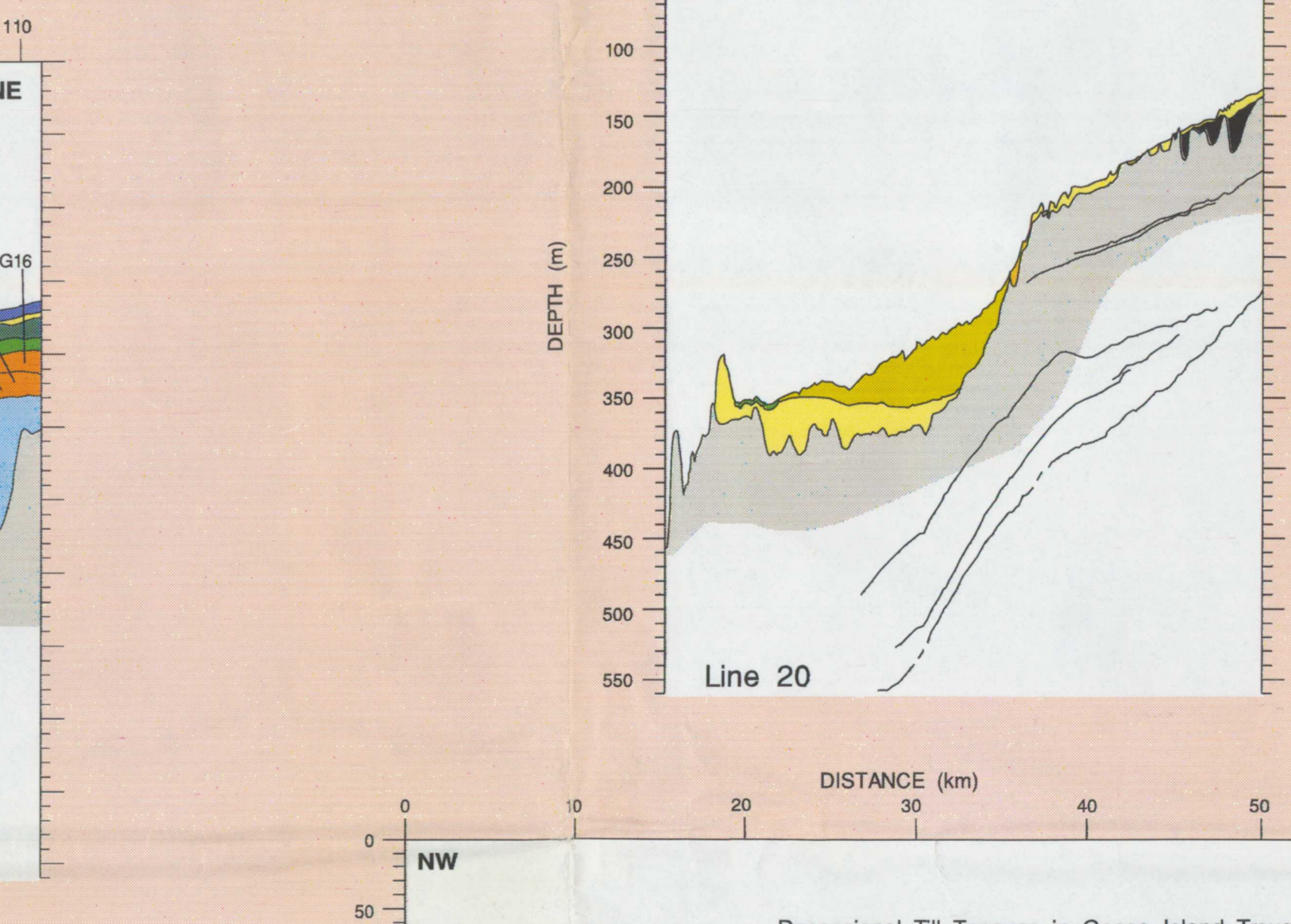
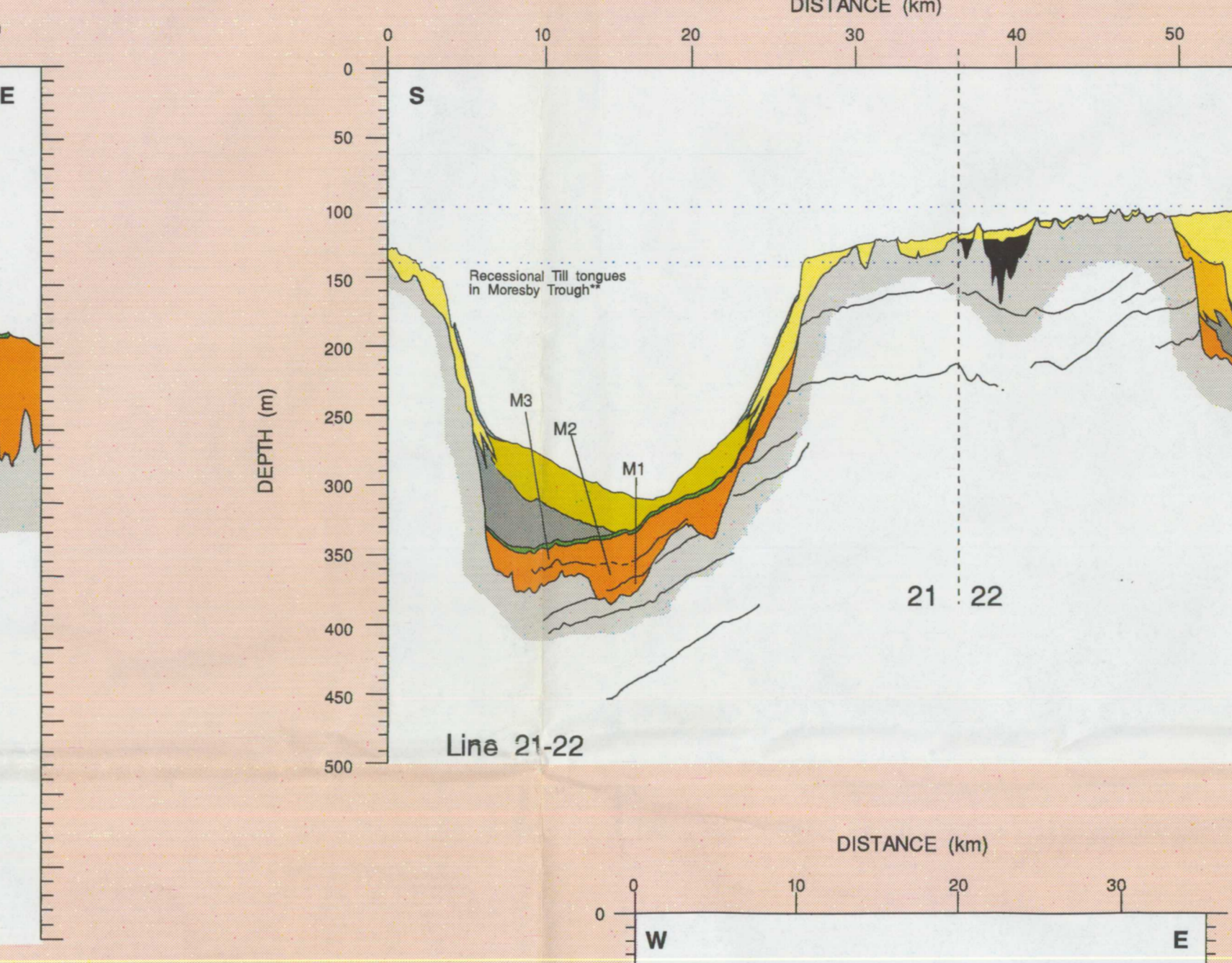
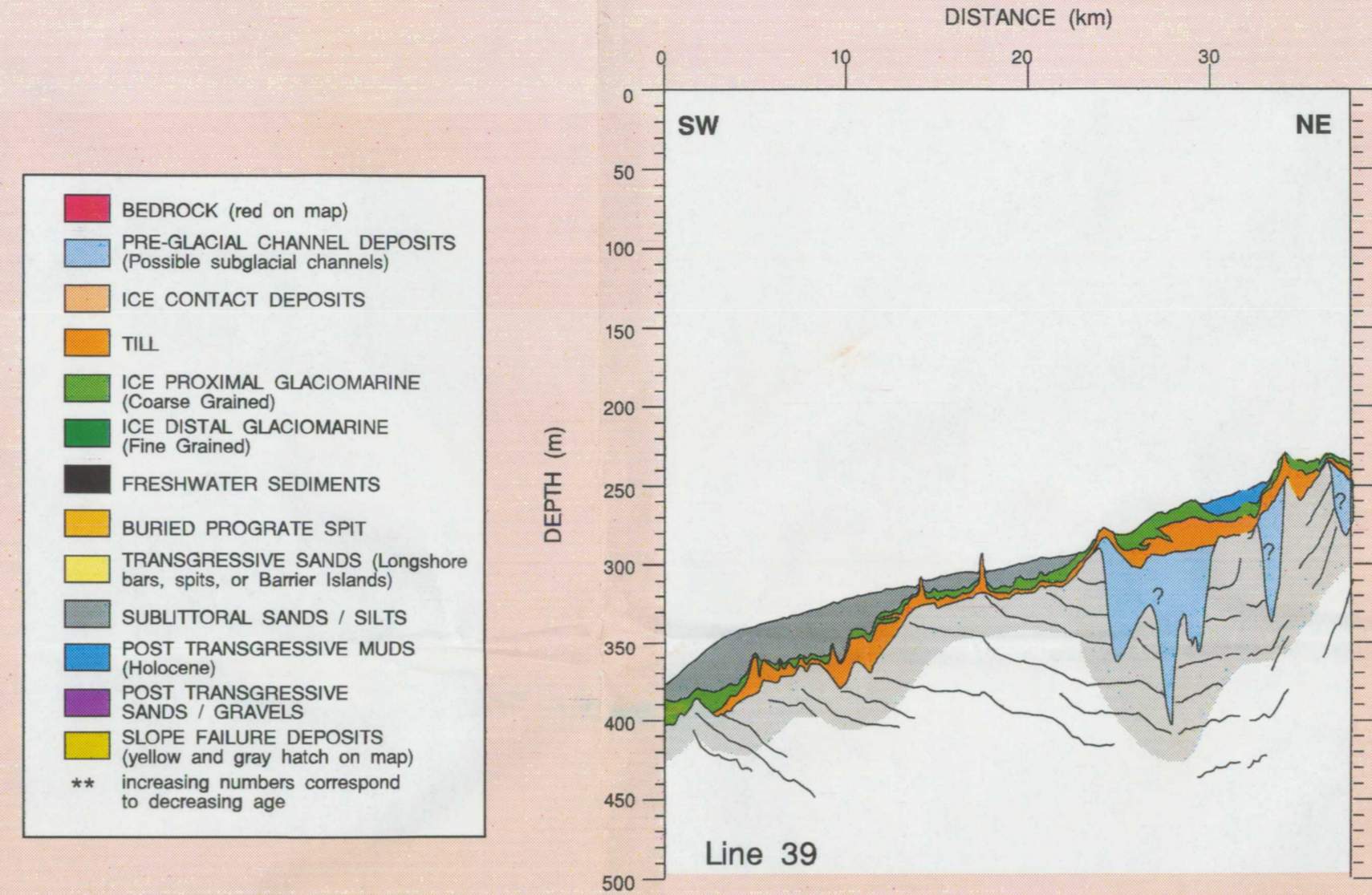
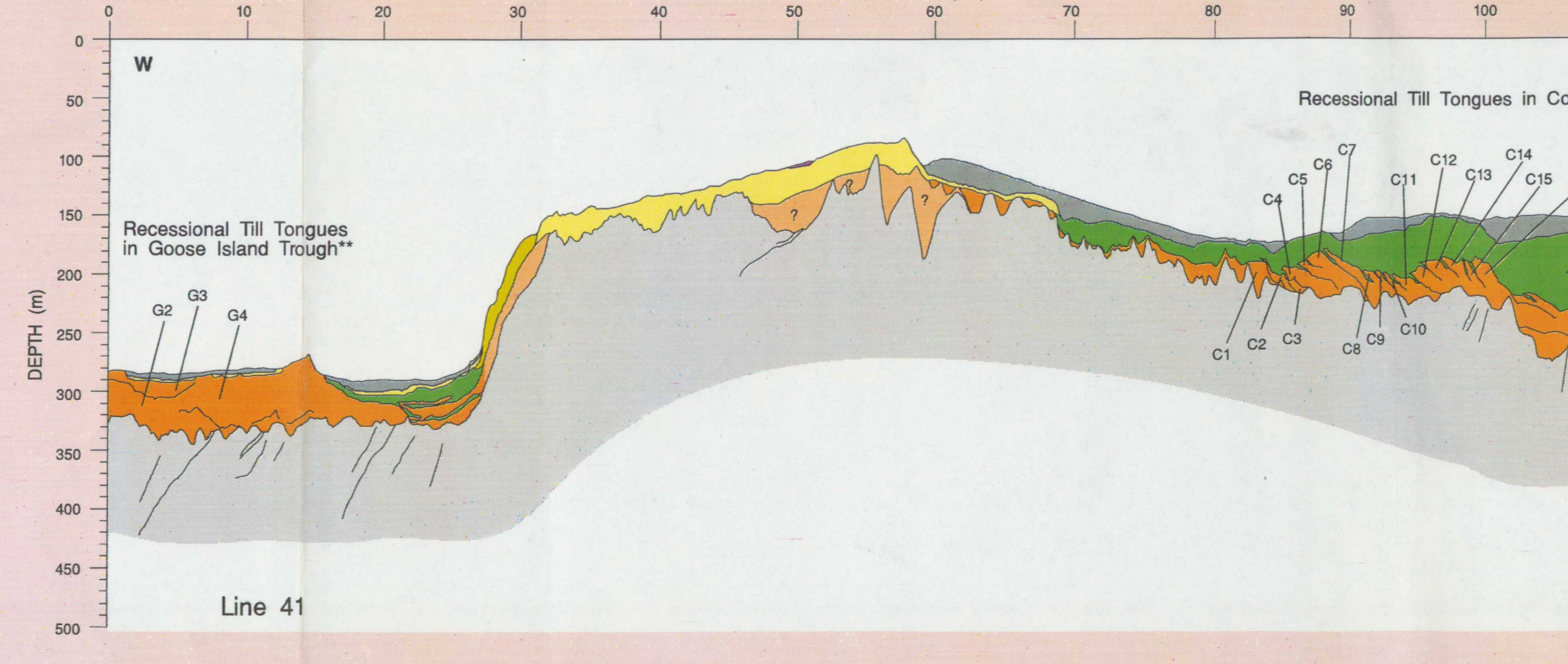
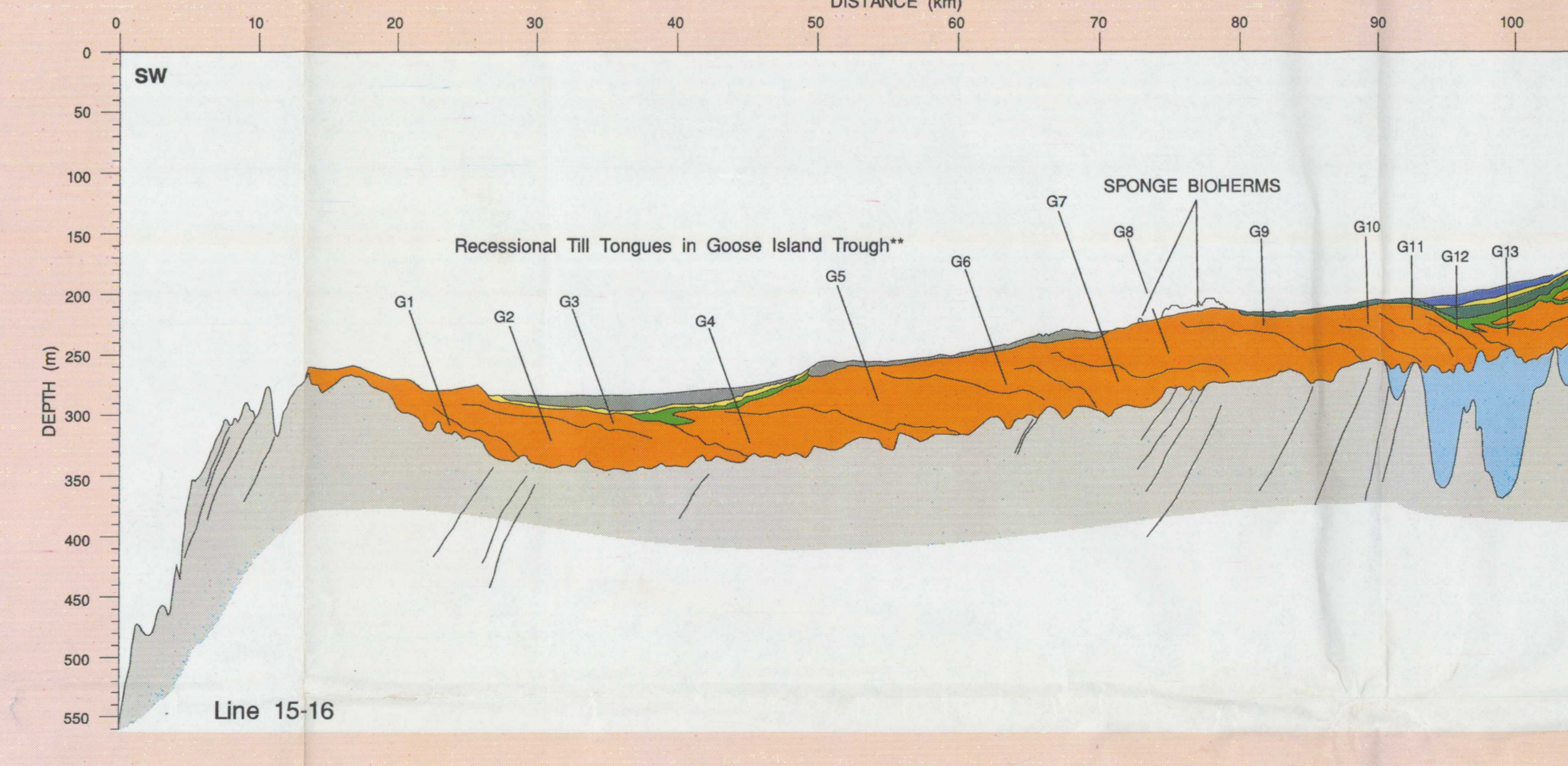
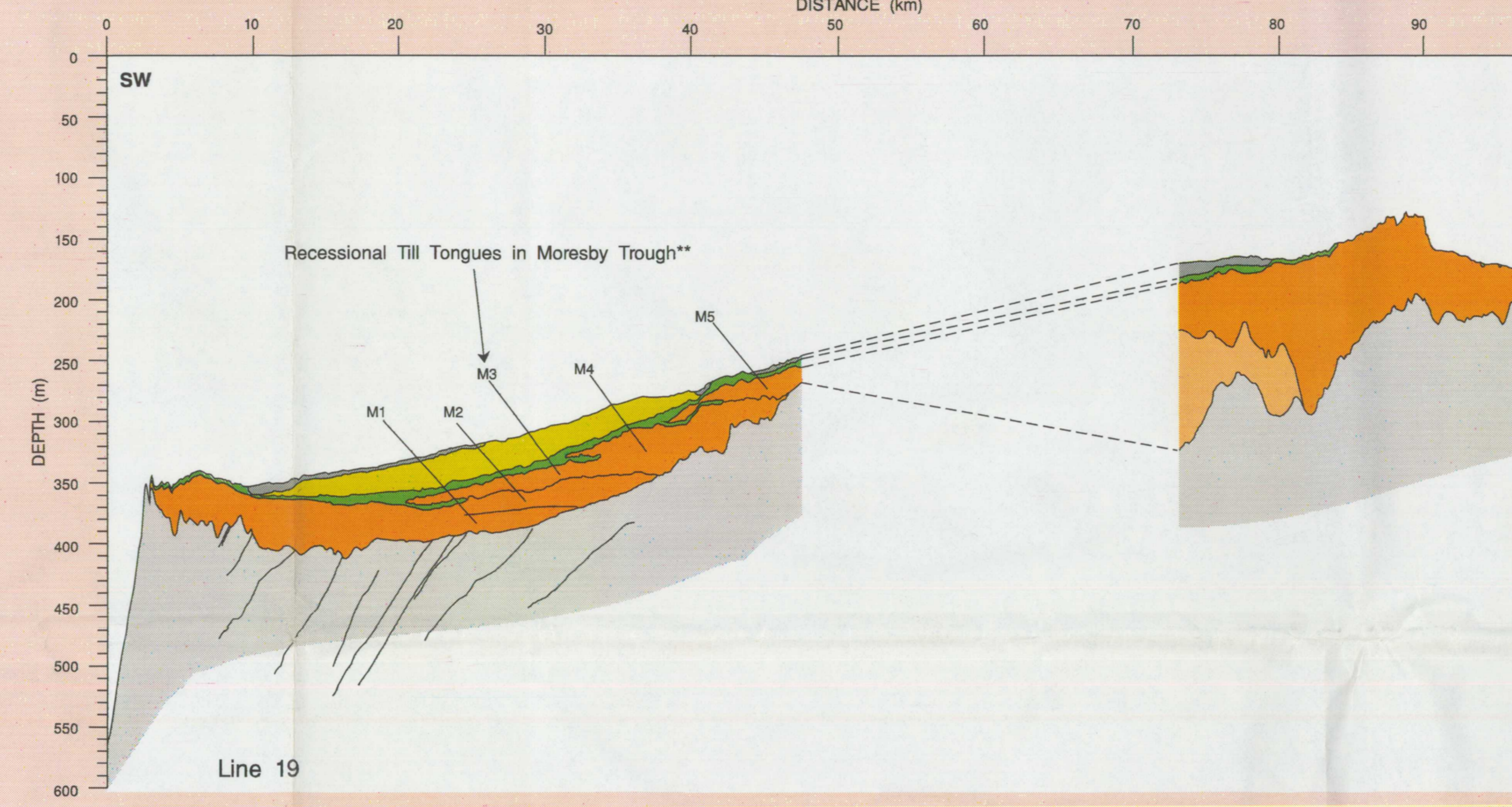
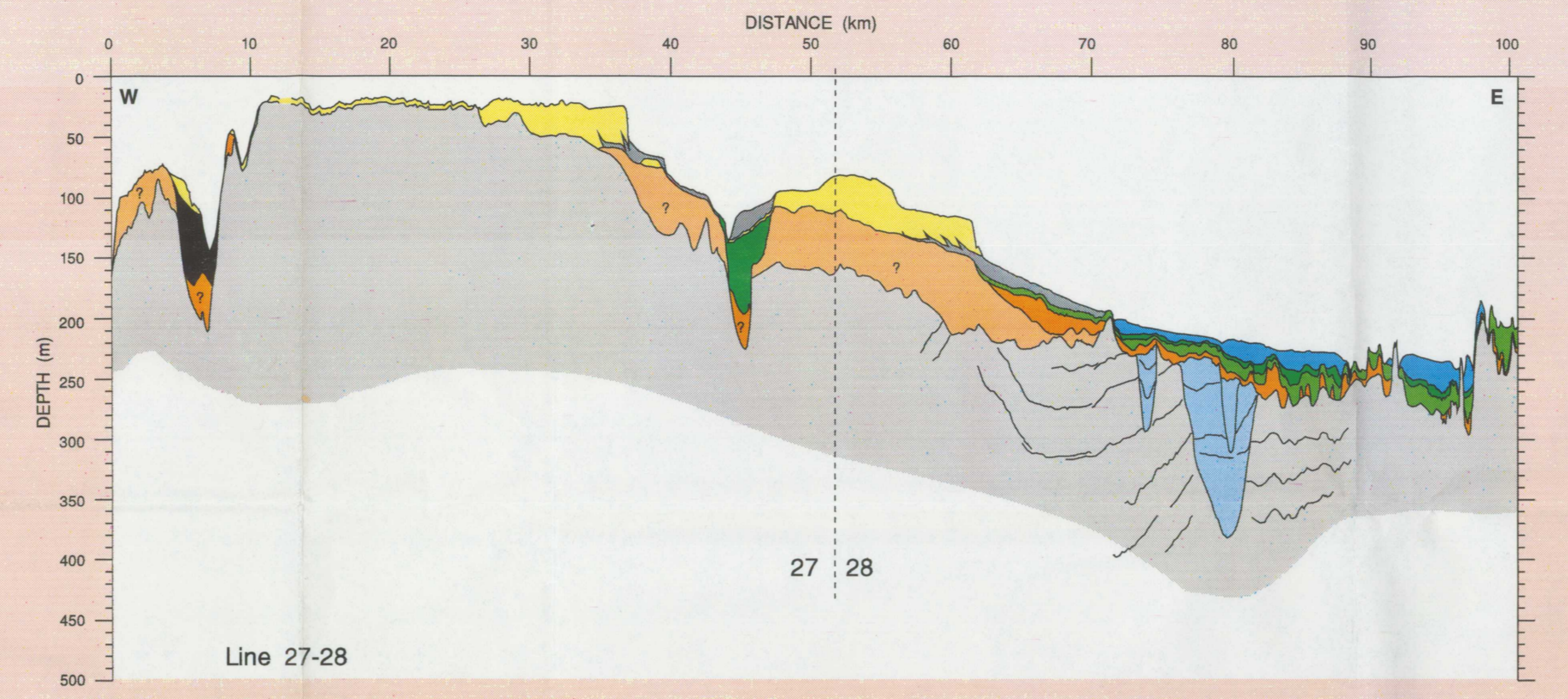
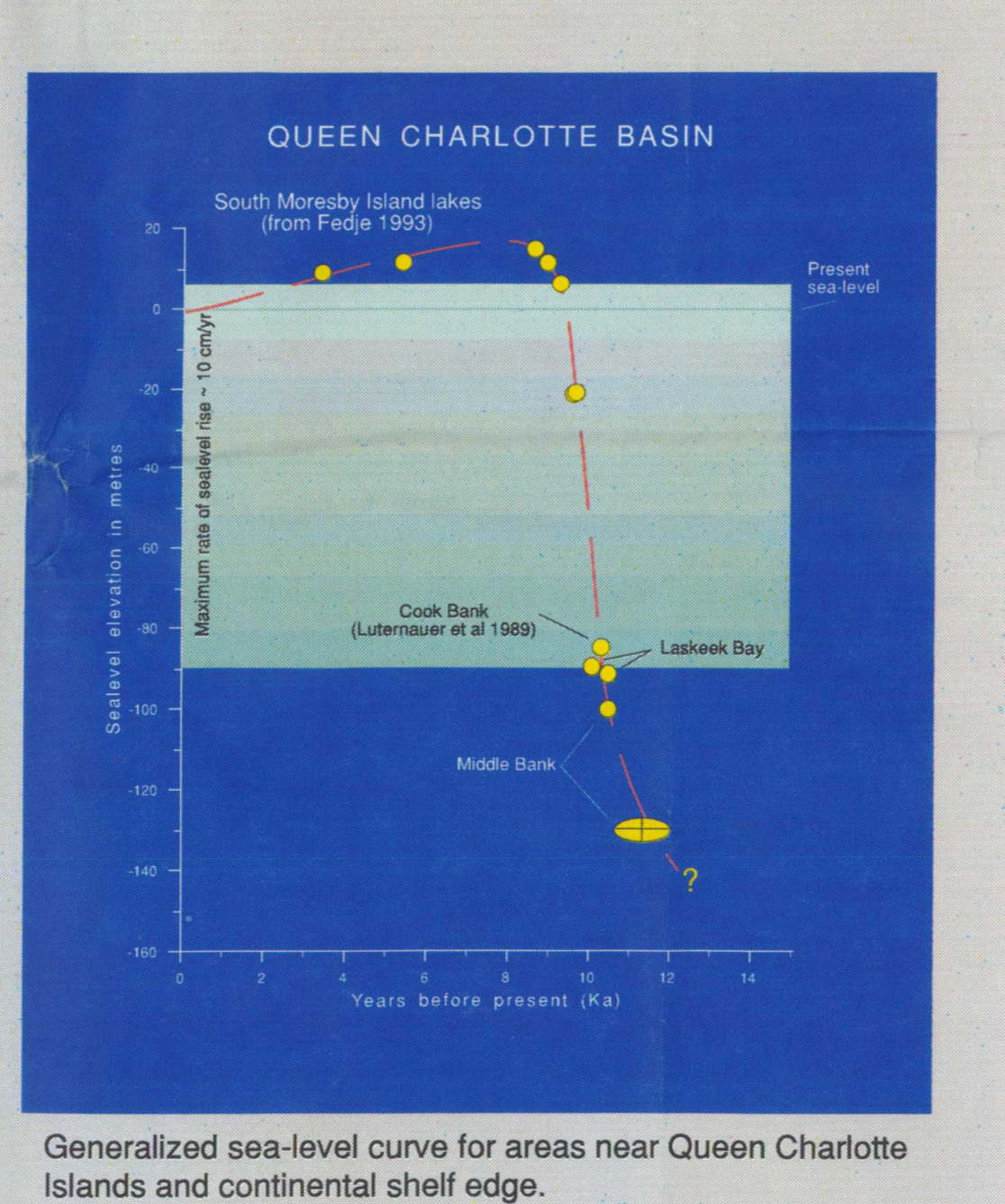
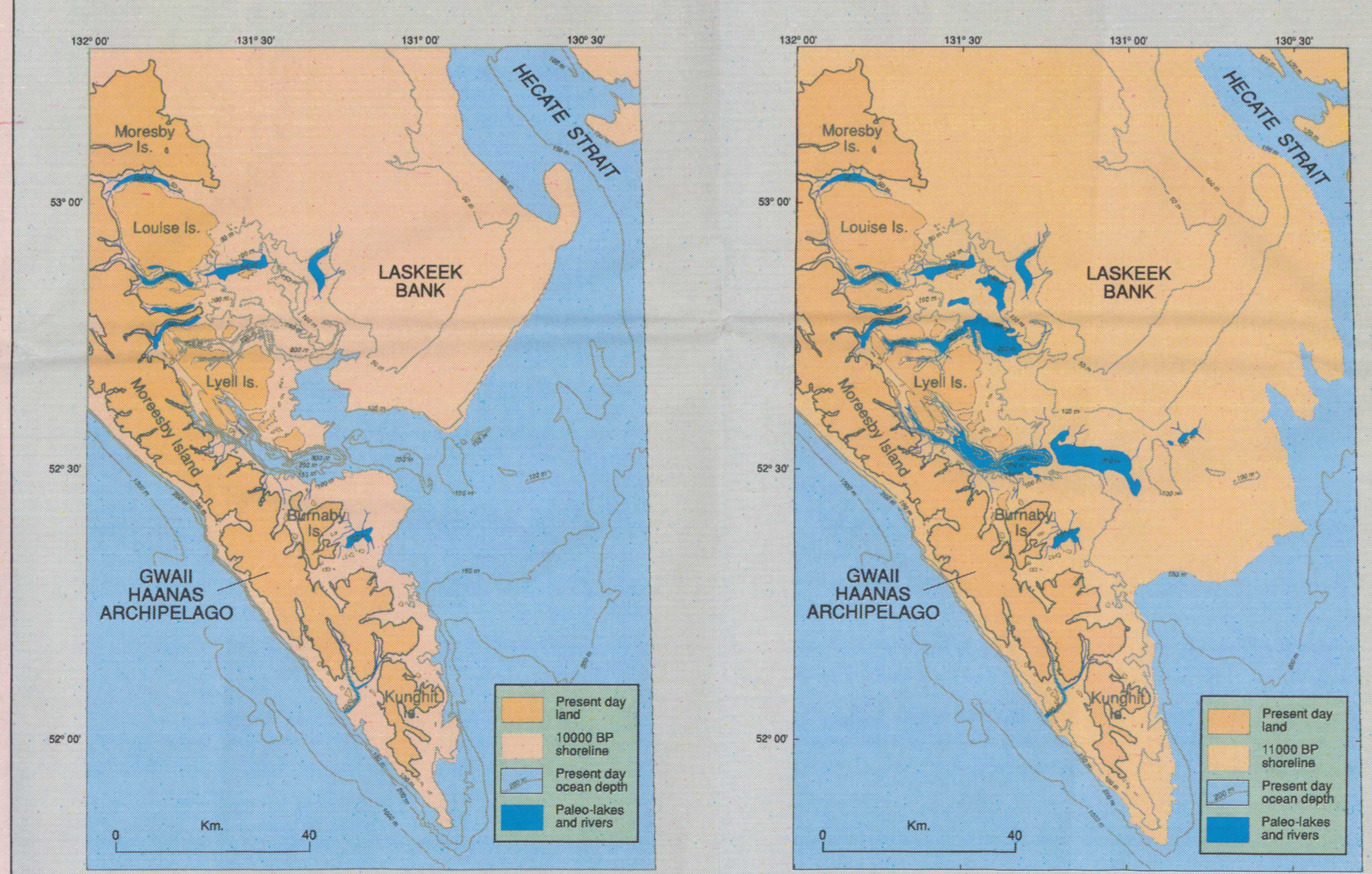
The sections were interpreted and then digitized from a combination of single channel seismic reflection and high resolution Huntex DTS profiles.

## GLACIAL AND POST GLACIAL HISTORY OF QUEEN CHARLOTTE BASIN

The illustrated surficial geology map and Quaternary cross sections are interpreted from 3400 km of high resolution, single channel airgun, Huntex DTS and sidescan sonar data. This regional seismic data base was verified by surface grab samples and subsurface piston core samples. The data indicate that grounded piedmont type glaciers deposited sediments in the deep troughs which indent the continental shelf as far west as the shelf break. Glaciers do not appear to have covered the offshore bank tops. Ice retreated from the shelf at approximately 13,500 y.b.p. and this was rapidly followed by emergence of the crust which caused a relative fall in sea level. By 10,400 y.b.p. relative sea-level had fallen up to 150 m and large areas of the Queen Charlotte Basin were subaerially exposed. Eustatic sea-level rise coupled with subsidence of the glacioisostatic forebulge allowed sea-levels to rise very rapidly, and reached present shoreline positions by about 9000 y.b.p. Dated shoreline deposits and submerged wood remnants suggest sea-level rise of 13 cm per year between 10,700 and 9000 y.b.p. Similar but slightly lower rates of isostatic recovery have also been documented in the Kitimat area (Clague 1984). The winnowing action within the wave zone of the rising sea, effectively reworked the sediment to produce the aerially extensive transgressive sand deposit. The lateral distribution of the transgressive sand, shown as yellow on the surficial map, effectively shows the extent of post glacial subaerial exposure. Sea-level transgression was the dominant post glacial process in determining the morphology and texture of the Western Canadian Shelf. The map also shows the lateral distribution of seafloor slumping which is generally restricted to the post glacial transgressive sand deposits and most prominent on the western margin of the shelf.



## POST GLACIAL PALEOENVIRONMENTAL RECONSTRUCTION



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