

Present-day marine deposits, Quaternary, Cainozoic of north-east Scotland

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Merritt, J W, Auton, C A, Connell, E R, Hall, A M, and Peacock, J D. 2003. Cainozoic geology and landscape evolution of north-east Scotland. Memoir of the British Geological Survey, sheets 66E, 67, 76E, 77, 86E, 87W, 87E, 95, 96W, 96E and 97 (Scotland). Contributors: J F Aitken, D F Ball, D Gould, J D Hansom, R Holmes, R M W Musson and M A Paul.

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Present-day marine deposits

Shoreface and beach deposits

The physical characteristics of beaches vary considerably over short distances and only broad generalisations can be offered here. The following notes are based on a detailed, systematic account of the beaches of north-east Scotland by Ritchie et al. (1978). The composition of beach deposits is intimately associated with the configuration of the coastline and with available sources of material. Broadly speaking, there are three types of coastline in the district.

i Long sandy bays of gentle arc backed by extensive sand dunes Typically, these occur between Aberdeen and Fraserburgh, where the beaches have generally accreted outwards by processes of shoreline 'regularisation' and northerly longshore drift. The beaches are relatively unstable in that there are marked seasonal changes in profile and in the position of the high tide mark. This instability is also manifested in the presence of dynamic bars and troughs in the intertidal beach zone that cause waves to break farther from the coast than is usual and tend to generate strong rip currents.

ii Long bays of gentle arc like those above, but formed mostly of shingle Beaches of this type back Spey Bay and Burghead Bay on Sheet 95 Elgin. Fluvial inputs have been relatively important in the evolution of this type of beach, together with the dominant westerly longshore drift. The beaches are relatively unstable and are associated with rapidly developing spits and offshore bars.

iii Isolated cliff-foot and bayhead beaches along rugged, indented rocky coastlines These predominantly shingly beaches occur along the northern coast between Buckie and Rose-hearty and less commonly along the eastern coast between Boddam and the mouth of the Ythan (with the

exception of the Bay of Cruden) and along the coast south of Aberdeen. The beaches are relatively stable because they occur in sheltered coves and inlets, and because they normally lie on rock platforms. They are rarely backed by sand dunes of any great extent. The size and orientation of the beaches along the northern coast reflect the strike of the rocks and the dominant input of wave energy from the north-east. The largest beaches are superimposed on remnants of raised Flandrian beach deposits.

Saltmarsh deposits

Several small saltmarshes occur within the estuary of the River Ythan downstream of Kirkton of Logie-Buchan on Sheet 87W Ellon. The features are underlain by tenacious silty clay penetrated by decaying rootlets. The only other saltmarsh that has been mapped in the district lies to the west of Kinloss on Sheet 95 Elgin.

Sea-bed sediments

Sea-bed sediments are depicted on three BGS 1:250 000 scale maps of the continental shelf listed in Information sources. The sediments lying off the northern coast of the district are described in the BGS offshore regional report covering the Moray Firth (Andrews et al., 1990), whereas those occurring off the eastern coast are given in another report in the series covering the central North Sea (Gatliff et al., 1994).

References

[Full reference list](#)

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