

# History of sand and gravel resource appraisal, 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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## History of resource appraisal

The first systematic descriptions of sand and gravel resources in north-east Scotland were published by the Geological Survey of Great Britain in Wartime Pamphlet 30 (Parts I and II). Part I dealt with deposits in the vicinity of Elgin, Banff and Aberdeen (Anderson, 1943); deposits around Stonehaven were considered in Part II (Anderson, 1945). A later descriptive account of the resources within the whole onshore area was published by the Institute of Geological Sciences (Peacock et al., 1977).



Location of published sand and gravel resource assessment sheets and administrative areas in north-east Scotland.

P915334.

The first detailed assessment of sand and gravel resources, involving the logging and sampling of boreholes and trial pits sunk specifically for assessment purposes, was undertaken around Garmouth (Spey Bay). It is described in Mineral Assessment Report (MAR) 41 (Aitken et al., 1979) ([P915334](#)). This was followed by Mineral Assessment Reports 58 and 76 detailing sand and gravel resources around Peterhead (McMillan and Aitken, 1981) and Ellon (Merritt, 1981), respectively. Preliminary studies were subsequently made of the sand and gravel deposits around Aberdeen (Merritt and Peacock, 1983a), Inverness, Nairn, Forres and Elgin (Merritt and Peacock, 1983b), and Strathmore (Aitken, 1983). Two later reports (MARs 146 and 148) detail resources around Aberdeen (Auton and Crofts, 1986) and around Inverurie, Dunecht, Banchory and Stonehaven (Auton et al., 1988).

The assessment data from MARs 58, 76, 46 and 148 were subsequently re-evaluated and condensed in a 'summary assessment report' covering the eastern part of the district (Merritt et al., 1988). This contains derivative maps, including 'target' resource maps at 1:50 000 scale, which show the thickest and more laterally extensive of the dry deposits of gravel and sand, together with the more extensive water-saturated gravels that could be exploited by dredging. It also presents analyses of the deposits for end-use suitability and illustrates the results as spider diagrams (compare with Laxton, 1992). Eighty four target resources were recognised and 20 'prime targets' identified.

It is emphasised that the suitability criteria presented in the report, and summarised at the end of this account, are generalised and based on computer manipulation of particle size analyses (gradings) mainly from borehole samples. The analyses also including some 'as dug' material from trial pits, workings and exposures. Sampling was undertaken at points within large spreads of inherently heterogeneous material. The results do not imply that aggregate from specific workings, or from within individual resources, could not meet some specific end-use requirements, following suitable onsite screening, washing, crushing and grading.

A further detailed assessment (MAR 149) was completed following the summary assessment report. It describes sand and gravel resources around Strachan, Auchenblae and Catterline (Auton et al., 1990).

The assessment surveys carried out between 1977 and 1990 were commissioned by the Scottish Development Department of the Scottish Office. Those since 1981 were funded by a consortium, which also included the Regional and District councils and representatives of the local aggregates industry. The number of boreholes, trial pits, workings and natural sections examined, and of resistivity soundings taken, during the course of each assessment is shown in the table below.

Sand and gravel resource assessment surveys in north-east Scotland: primary data sources

<b>Mineral Assessment Report name, number and date</b>	<b>Area (km<sup>2</sup>)</b>	<b>1:25 000 resource</b>	<b>Boreholes</b>	<b>Trial pits and natural sections</b>	<b>Resistivity soundings</b>	<b>Sampled workings</b>
Garmouth (41) [1979]	5	1	57	31	0	3
Peterhead(58) [1981]	25	1	67	19	0	11
Ellon (76) [1981]	343	2	61	39	0	15
Aberdeen (146) [1986]	660	3	77	72	0	17
Inverurie, Dunecht, Banchory & Stonehaven (148) [1988]	398	2	54	51	43	38

Strachan, Auchenblae & Catterline (149) [1990]	274	2	38	55	22	35
<b>Total</b>	<b>1987</b>	<b>11</b>	<b>354</b>	<b>297</b>	<b>65</b>	<b>119</b>

## References

[Full reference list](#)

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