



British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

THE CROWN ESTATE

United Kingdom Continental Shelf

Marine Sand and Gravel Resources

Scale 1:1 500 000

This map has been commissioned by the Crown Estate and is based on four regional maps: East Coast Inshore and East Coast Offshore, English Channel and Thames Estuary, Scottish waters and the Central North Sea and Welsh waters and the Irish Sea

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Marine sand and gravel resources of The United Kingdom Continental Shelf
Bide, T.P., Balson, P.S., Campbell, E. and Green, S.

Full study area extent
Scale 1:10 000 000

Regional maps

- East Coast Inshore and East Coast Offshore
- English Channel and Thames Estuary
- Scottish waters and the Central North Sea
- Welsh waters and the Irish Sea

0 100 300 500 Km

AGGREGATE RESOURCES

- Coarse aggregate
- Fine aggregate (fine sand)
- Fine aggregate (coarse sand)
- Aggregate suitable for fill
- No resource inferred from available data
- Carbonate content of sand exceeds 50%

AGGREGATE LICENCE AREAS

- Licence and application areas as of March 2013

PLANNING AREAS

- Marine Management Organisation Marine Plan Areas
- Median line
- Limit of Isle of Man territorial waters
- National boundary
- Shelf break defined by 200m bathymetry contour

0 100 200 300 Km

Areas containing important sand and gravel resources

- Area of glacial derived coarse sand and gravel deposits
- Area of coarse sand and gravel contained in sand banks and sea-bed deposits
- Area of sand contained in intertidal sand banks
- Area of coarse sand and gravel related to infilled palaeo-river channels

These areas represent geological environments that host the highest quality currently most economically important areas of sand and gravel resources. Higher levels of confidence can be attributed to the location and properties of resources in these areas. For further detail please refer to the relevant regional map.

Prospective areas

- Area prospective for coarse sand and gravel

Here the geological and depositional setting indicate that sediments suitable for coarse sand and gravel are likely to be present but are not resolvable by the data available for this study. For further detail please refer to the relevant regional map.

Areas of muddy sand suitable for fill or land reclamation (Scotland only)

- Areas of sand suitable for fill or land reclamation where mud content is >10%

0 100 200 Km

Aggregate resource categorisation flow sheet

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    graph TD
      Q1{Is sea bed sediment present that could potentially constitute a mineral resource?}
      Q2{Are sediments thick enough for economic extraction? >1m}
      Q3{Are sediments suitable for aggregate applications? <10% mud content?}
      Q4{Is the aggregate resource suitable for construction aggregate? D50 > 0.25mm?}
      Q5{What is the quality of the construction aggregate? gravel content >10%?}
      Q6{Is the gravel content >10%?}
      Q7{Does the geographical / depositional setting indicate that geological features and associated deposits are likely to be present that are potentially coarse sand and coarse aggregate bearing that are not resolvable by available data?}

      Q1 -- No --> R1[No resource present]
      Q1 -- Yes --> Q2
      Q2 -- No --> R2[Not a resource]
      Q2 -- Yes --> Q3
      Q3 -- No --> R2
      Q3 -- Yes --> Q4
      Q4 -- No --> R2
      Q4 -- Yes --> Q5
      Q5 -- No --> R2
      Q5 -- Yes --> R3[Coarse aggregate]
      Q6 -- No --> R4[Aggregate suitable for fill regional importance]
      Q6 -- Yes --> R3
      Q7 -- No --> R2
      Q7 -- Yes --> R5[Areas prospective for coarse sand and gravel]
  
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Notes:

- Sea bed sediments are defined as un lithified, granular material excluding biogenic reefs.
- Mud is defined as material <0.063mm.
- D50 is the median particle diameter of the size fraction 0.063mm-2mm.
- Gravel is defined as material over 4mm in diameter, excluding biogenic material.
- Gravel, sand and mud contents are based on grab samples of sea bed sediments.
- The divide between coarse and fine sand is defined as 0.35mm (D50).

Legend:

- Steps to determine if resource present
- Steps to determine end use and quality of the resource
- Resource category

Aims and Limitations

This map provides a summarised overview of four regional maps which cover the East Coast Inshore and East Coast Offshore, the English Channel and Thames Estuary, Scottish waters and the Central North Sea and Welsh waters and the Irish Sea. For further detail please consult these maps and the accompanying regional reports.

The purpose of the maps in this series is to show the broad distribution of these mineral resources which may be of current or potential economic interest. The maps are intended to assist strategic decision-making in respect of mineral extraction and the protection of important mineral resources against depletion. They bring together a wide range of information, much of which is disparate and not always available in a convenient form.

The maps have been produced by the collation and interpretation of mineral resource data provided by the British Geological Survey. As with the mineral resource data presented are based on the best available information, but are not comprehensive and their quality is variable. The mineral resource data are therefore, approximate. Mineral resources defined on the maps delineate the areas within which potentially extractable minerals may occur. These areas are not of uniform potential and also take no account of planning constraints that may be in place. The boundaries of the areas are therefore, approximate. The maps do not show the locations of mineral resources or the distribution of mineral resources. Estimates are given of the mineral resource potential, but some isolated mineral extraction may occur in these areas. The presence of these conditions generally reflect very local or specific situations that are not resolved by the resolution of data that is available for completion of this regional-scale map and require site-specific investigation to identify. This can result in some mineral resource areas where no resource is shown. It is possible that local variations in geology that are not resolved by the regional-scale survey can contain substantial volumes of resource and could prove to be significant future resources. For example, areas around the Thames Estuary have been identified by the aggregate industry as localised sand and gravel deposits. These deposits can cover small areas, less than 1km (the smallest grid squares used on the map), but nevertheless can contain several million cubic metres of sand and gravel.

The locations of application and licence areas for aggregate extraction are shown. These have been supplied by The Crown Estate, March 2013.

Not to be used for navigation.

The maps are intended for general consideration of mineral issues and not as a source of detailed information on specific localities. The maps should not be used to determine individual planning applications or to take decisions on the acquisition or use of a particular area, although they may give useful background information which can be specific project within context.

The area covered by this map includes several major embayments. For the majority of these data, coverage is poor and sediments are highly variable, as such they have not been included in the study. Bay closing lines, which delineate the boundary of internal waters defined by the UKHO as of August 2012 have, where appropriate, been used to determine the extent of these embayments.

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