British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

THE CROWN ESTATE

# Welsh Waters and the Irish Sea

# Marine Sand and Gravel Resources
# Scale 1:500 000

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Published: 2013.

This map has been commissioned by The Crown Estate. This map is to be used with the accompanying guide 'The Mineral Resources of Welsh Waters and the Irish Sea'. British Geological Survey Open Report, OR/12/097.

BGS map reference:
Marine sand and gravel resources of Welsh Waters and the Irish Sea
Bide, T.P., Balson, P.S. and Campbell, E.

**Aims and Limitations**

The purpose of the maps in this series is to show the broad distribution of those 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 sterilisation. 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 principally held by the British Geological Survey. As such the mineral resource data presented are based on the best available information, but are not comprehensive and their quality is variable. The inferred boundaries shown are, therefore, approximate. Mineral resources defined on the map delineate the areas within which potentially workable minerals may occur. These areas are not of uniform potential and also take no account of planning constraints that may limit their working. The economic potential of specific sites can only be proved by a detailed evaluation programme. Such an investigation is an essential precursor to submission of a planning application for mineral working. Extensive areas are shown as having no mineral resource potential, but some isolated mineral extraction may occur in these areas. The presence of these operations generally reflect very local or specific situations that are not resolved by the resolution of data that is available for compilation of this regional-scale map and require site-specific investigation to identify. This can result in marine mineral licences covering areas where no resource is shown. It is possible that local variations in geology that are too subtle to be resolved by this regional-scale survey can contain substantial volumes of resource and could prove to be significant future resources. For example, areas around Liverpool Bay 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 spacing used on the maps), 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.

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 sets a specific proposal within context.

Not to be used for navigation.

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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The Regional Habitat Study for the Outer Bristol Channel has been supported by the Marine Aggregate Levy Sustainability Fund (MALSF) and the National Museum of Wales.

Mackie, A.S.Y., James, J.W.C., Rees E.I.S., Darbyshire, T., Philpott, S.L., Mortimer, K., Jenkins, G.O. and Morando, A. 2006. The outer Bristol Channel Marine Habitat Study. The National Museum of Wales, Biomor 4.

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## 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%
- Area prospective for coarse sand and gravel

## AGGREGATE LICENCE AREAS

- Licence and application areas as of March 2013

## REGIONAL HABITAT STUDIES

- Outer Bristol Channel

## PLANNING AREAS

- Marine Management Organisation Marine Plan Areas - 1: North West. 2: South West offshore. 3: South West inshore.
- Scottish adjacent waters boundary
- Median line
- Limit of Isle of Man terratorial waters

0 50 100 Km

1

2

3

**Depositional settings used to define areas prospective for coarse sand and gravel**

- Western limit of glacial deposits with potential for sand and gravel
- Western limit of muddy sediments in the east Irish Sea
- Approximate extent of glacial deposits with potential for sand and gravel in the north eastern Irish Sea

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 information please refer to the accompanying report 'The mineral resources of Welsh Waters and the Irish Sea'.

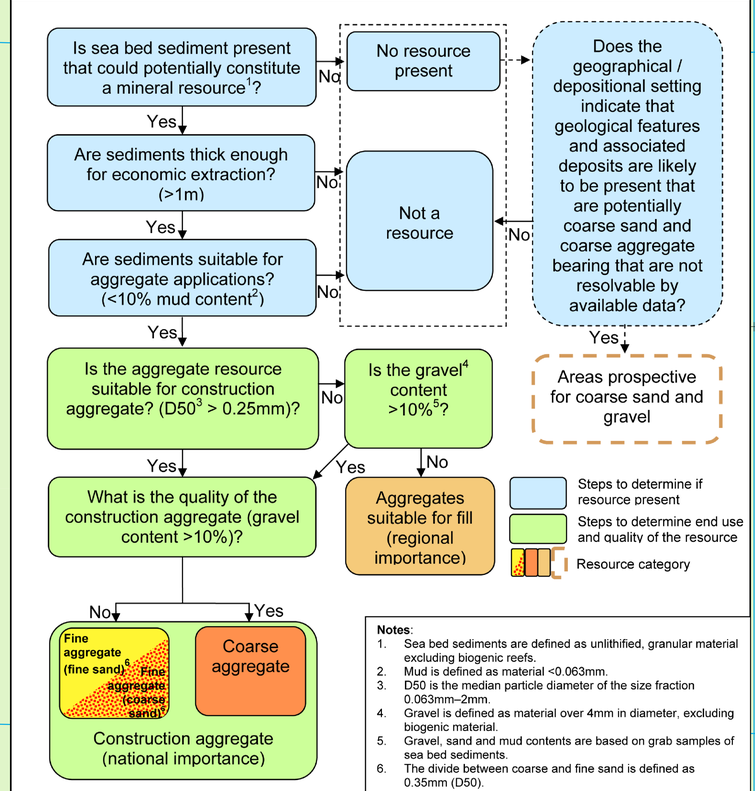
**Areas containing important sand and gravel resources**

- 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

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 information please refer to the accompanying report 'The mineral resources of Welsh Waters and the Irish Sea'.

0 50 100 Km

## Aggregate resource categorisation flow sheet




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