Bedrock Geology Governs Benthic Habitat in the Central English Channel

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Habitats Directive

• Aim: Conservation of natural habitats and of wild fauna and flora

• Coherent network of protected areas

• Annexes to the Habitats Directive list various habitat types and species for whose conservation special efforts need to be undertaken EU-wide
Annex I habitats

In UK offshore waters (12 – 200 nautical miles):

• Sandbanks which are slightly covered by sea water all the time

• Reefs

• Submarine structures made by leaking gases
Reefs

• “Reefs can be either biogenic concretions or of geogenic origin. They are hard compact substrata on solid and soft bottoms, which arise from the sea floor in the sublittoral and littoral zone.”

• Reef sub-types:
  ➢ Biogenic reef (cold-water corals, worm reefs and mussel beds)
  ➢ Stony reef (cobble and boulder reefs)
  ➢ Bedrock
Areas of Search

Potential reef habitats derived from BGS 1:250,000 seabed sediment maps
Bedrock geology

## Seabed character and biotopes

<table>
<thead>
<tr>
<th>Bedrock ridges</th>
<th>Flat, smooth seabed</th>
<th>Palaeovalley</th>
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<tbody>
<tr>
<td>Very tide-swept faunal communities</td>
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<td>Deep sponge communities</td>
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<tr>
<td>Mixed faunal turf communities</td>
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<td>Echinoderms and crustose communities</td>
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<td><strong>Circalittoral coarse sediment</strong></td>
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<td>Deep circalittoral coarse sediment</td>
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<tr>
<td>Deep circalittoral sand</td>
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<td><strong>Circalittoral mixed sediments</strong></td>
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Fine-scale habitat variations

Alternating pattern of bedrock ridges with bands of coarse sediment lying in the troughs

1. Mixed faunal turf comm.
2. Circalittoral coarse sed.
Summary

• Lithology of the bedrock strongly influences the seabed character
• Link between seabed character and biotopes
• Works at different scales
• Importance of strong currents in keeping bedrock sediment-free
• Seabed character maps can be used as proxies to predict the distribution and extent of habitats at scales relevant to management and planning