

# Kimmeridge clay

Cliff at Kimmeridge Bay, [Dorset](#), England. The regular changes in the rocks ([rhythmite](#)) are caused by changes in the [sea level](#) at the time. In turn, this changes the sedimentation.

Jurassic [shale](#) cliffs of the Kimmeridge Clay formation

The **Kimmeridge clay formation** is a [sedimentary](#) deposit of [fossiliferous marine clay](#) and [mudstones](#). It is of [Upper Jurassic](#) age, and occurs in [Europe](#). It gives its name to a stage in the [Upper Jurassic](#) called the **Kimmeridgian**, lasting from 157.3–152.1 million years ago.

Kimmeridge clay is perhaps the most economically important unit of rocks in the whole of Europe, because it is the major source for [oil](#) fields in the [North Sea](#).

The clay is named after the village of Kimmeridge on the [Dorset](#) coast of England, where it is well exposed and forms part of the [Jurassic Coast World Heritage Site](#). It exists across England, in a band stretching from Dorset in the south-west, north-east to [East Anglia](#) and [Hull](#). The [River Humber](#) Bridge's foundations are in the Kimmeridge Clay deposits under the Humber estuary.

The fossil fauna of the Kimmeridge Clay includes a reptile fauna of [turtles](#), [crocodiles](#), [dinosaurs](#), [plesiosaurs](#), [pliosaurs](#) and [ichthyosaurs](#), as well as many [invertebrate](#) species such as [Gryphaea](#).

## Climate

[[change](#) | [change source](#)]

The Kimmeridge Clay was laid down in an environment which is not present on the Earth today.<sup>[1]</sup> Much of Western Europe was covered by a high sea-level: this may be related to the opening of the [Atlantic](#). As a consequence, the UK was covered by a shallow and largely [anoxic](#) sea, perhaps less than 100m deep, with occasional landmasses.<sup>[2]</sup>

This was shallower water than the [Blue Lias](#) of the [Lower Jurassic](#). It was often low in oxygen, which led to its organic material being only partially [decomposed](#). The mudstones are organic-rich, and gave rise to most of the [North Sea oil](#).<sup>[1]</sup>

## References

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1. ↑ [1.0 1.1](#) Chambers, Martin 2000. *The Upper Jurassic Kimmeridge Clay*. Hull Geological Society [\[1\] Archived](#) 2008-09-25 at the [Wayback Machine](#)
2. ↑ Wignall, Paul B. 1990. Benthic palaeoecology of the late Jurassic Kimmeridge Clay of England. Special Papers in Palaeontology, *The Palaeontological Association*, London. **43**. [ISBN 978-0-901702-42-5](#) [\[2\] Archived](#) 2011-08-26 at the [Wayback Machine](#)

		<div>Geological history of Earth</div> <div><ul style="list-style-type: none"><li>y</li><li>t</li><li>e</li></ul></div>
		<div></div> <div>Quaternary (the last 2.588 million years)</div> <div></div>
		<div></div> <div>Cenozoic era (the last 66 million years)Neogene (2.588 million years ago-23.03 mya)</div> <div></div>
		<div></div> <div>Palaеogene (23.03 million years ago-66 mya)</div> <div></div>

<p><b>Mesozoic era</b> (66 million years ago-251.902 mya)</p>	<p><b>Cretaceous (66 million years ago-145.0 mya)</b></p>	<ul style="list-style-type: none"> <li>• L</li> <li>• 1</li> <li>• E</li> <li>• (</li> <li>• 1</li> </ul>
	<p><b>Jurassic (145 million years ago-201.3 mya)</b></p>	<ul style="list-style-type: none"> <li>• L</li> <li>• (</li> <li>• 1</li> <li>• M</li> <li>• (</li> <li>• 1</li> <li>• E</li> <li>• (</li> <li>• 2</li> </ul>
	<p><b>Triassic (201.3-251.902 mya)</b></p>	<ul style="list-style-type: none"> <li>• L</li> <li>• (</li> <li>• n</li> <li>• M</li> <li>• (</li> <li>• n</li> <li>• E</li> <li>• (</li> <li>• 2</li> <li>• n</li> </ul>
<p><b>Palaeozoic era</b> (251.902-541.0 mya)</p>	<p><b>Permian (251.902-298.9 mya)</b></p>	<ul style="list-style-type: none"> <li>• Lopingian (259.8 mya)</li> <li>• Guadalupian (272.3 mya)</li> <li>• Cisuralian (298.9 mya)</li> </ul>
	<p><b>Carboniferous (298.9-358.9 mya)</b></p>	<ul style="list-style-type: none"> <li>• Pennsylvanian (298.9-323.2 mya)</li> <li>• Mississippian (323.2-358.9 mya)</li> </ul>
	<p><b>Devonian (358.9-419.2 mya)</b></p>	<ul style="list-style-type: none"> <li>• Late (358.9 mya)</li> </ul>

		<ul style="list-style-type: none"> <li>• <a href="#">Middle (386.4-419.2 mya)</a></li> <li>• <a href="#">Early (393.3-419.2 mya)</a></li> </ul>
	<b><a href="#">Silurian (419.2-443.8 Mya)</a></b>	<ul style="list-style-type: none"> <li>• <a href="#">Pridoli (419.2-427.4 mya)</a></li> <li>• <a href="#">Ludlow (427.4-433.4 mya)</a></li> <li>• <a href="#">Wenlock (433.4-443.8 mya)</a></li> <li>• <a href="#">Llandovery (443.8-443.8 mya)</a></li> </ul>
	<b><a href="#">Ordovician (443.8-485.4 mya)</a></b>	<ul style="list-style-type: none"> <li>• <a href="#">Late (443.8-454.1 mya)</a></li> <li>• <a href="#">Middle (454.1-470.1 mya)</a></li> <li>• <a href="#">Early (470.1-485.4 mya)</a></li> </ul>
	<b><a href="#">Cambrian (485.4-541.0 mya)</a></b>	<ul style="list-style-type: none"> <li>• <a href="#">Furongian (497-541.0 mya)</a></li> <li>• <a href="#">Miaolingian (509-541.0 mya)</a></li> <li>• <a href="#">Series 2 (541.0-541.0 mya)</a></li> <li>• <a href="#">Terreneuvian (541.0-541.0 mya)</a></li> </ul>
<b><a href="#">Proterozoic eon (541.0 mya-2.5 Gya)</a></b>	<b><a href="#">Neoproterozoic era (541.0 mya-1 Gya)</a></b>	<ul style="list-style-type: none"> <li>• <a href="#">Ediacaran (~635 mya)</a></li> <li>• <a href="#">Cryogenian (~635-~720 mya)</a></li> <li>• <a href="#">Tonian (720 mya-1 Gya)</a></li> </ul>
	<b><a href="#">Mesoproterozoic era (1-1.6 Gya)</a></b>	<ul style="list-style-type: none"> <li>• <a href="#">Stenian (1.6-1.8 Gya)</a></li> <li>• <a href="#">Ectasian (1.8-2.0 Gya)</a></li> </ul>

		<ul style="list-style-type: none"> <li>• <a href="#">Calymmian (1.6 Gya)</a></li> </ul>
	<b><a href="#">Palaeoproterozoic era (1.6-2.5 Gya)</a></b>	<ul style="list-style-type: none"> <li>• <a href="#">Statherian (1.8 Gya)</a></li> <li>• <a href="#">Orosirian (2.05 Gya)</a></li> <li>• <a href="#">Rhyacian (2.3 Gya)</a></li> <li>• <a href="#">Siderian (2.5 Gya)</a></li> </ul>
<b><a href="#">Archean eon (2.5-4 Gya)</a></b>		<b>Eras</b> <ul style="list-style-type: none"> <li>• <a href="#">Neoarchean (2.5-2.8 Gya)</a></li> <li>• <a href="#">Mesoarchean (3.2 Gya)</a></li> <li>• <a href="#">Palaeoarchean (3.6 Gya)</a></li> <li>• <a href="#">Eoarchean (4 Gya)</a></li> </ul>
<b><a href="#">Hadean eon (4-4.6 Gya)</a></b>		
<p><a href="#">kya</a> = thousands years ago. <a href="#">mya</a> = millions years ago. <a href="#">Gya</a> = billions years ago.</p> <p>See also: <a href="#">Geologic time scale</a>,</p>		

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