



# Jurassic Coast World Heritage Site: Scoping Study on Interpretation Facilities

Appendix 1: Site-specific Science Themes and interpretation messages

July 2003

These tables are intended to give a start point for development of site-by-site interpretation. This document is not intended to be conclusive or comprehensive; rather, to provide a starting point for development of local interpretation.

- Each area of the JCWHS is listed below, along with The Natural History Museum’s view on detailed Science Themes and appropriate lay audience messages.
- Audience focuses are listed – these are not the only audiences that should be served, but indicate priority areas.

- For the Science Themes, each section is described based around Gateway towns (indicated by <sup>+</sup>) and access points to the coast.
  - The first table lists priority geological Science Themes – for sites on the Coast only
  - The second shows views on audience and messages leading from these streams
- Note that all hub and gateway venues need to cover the Site-wide messages listed in the main report, section 4.0.

Exmouth<sup>+</sup>

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Triassic Aylesbeare Mudstone Group.	Trace Fossils eg rhizoconcretions.			1. Ancient Deserts.

Audience focus	Interpretation messages
Families with children aged 7–14. Non-specialist. Day visitors and holiday makers. Note: Boat trips are suited to this place and audience.	These cliffs are the remains of ancient deserts. These cliffs are Triassic: laid down 250–210 million years ago. The rocks are red because they contain iron – the colour is created by iron oxide; like rust. This is one end of the JCWHS.

**Budleigh Salterton<sup>+</sup>**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Triassic Sherwood Sandstone Group.	Derived lower Palaeozoic fauna in pebbles from the Budleigh Salterton pebble beds.			<ol style="list-style-type: none"> <li>1. Ancient deserts.</li> <li>2. Ancient river system.</li> <li>3. Lower Palaeozoic fauna in pebbles.</li> </ol>

Audience focus	Interpretation messages
<p>Educational audiences.</p> <p>Specialists and amateur geologists.</p>	<p>This is an ancient pebble bed.</p> <p>The pebbles are called dreikanTERS: three-cornered stones created by wind erosion.</p>

**Sidmouth<sup>+</sup>**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Triassic Sherwood Sandstone Group & Mercia Mudstone Group.	Rich vertebrate fauna in the Otter Sandstone Formation.	Minerals found in the sandstones eg rare radioactive minerals.	Otter Sandstone Formation is the lower reservoir of the Wytch Farm Oil Field.  Geology in the Landscape.	<ol style="list-style-type: none"> <li>1. Ancient deserts.</li> <li>2. Extinct vertebrates of the Otter Sandstones.</li> <li>3. Mineralogy.</li> </ol>

Audience focus	Interpretation messages
<p>Families with children aged 7–14. Non-specialists.</p> <p>Schools.</p> <p>Amateur geologists.</p>	<p>Vertebrates of Otter Sandstone.</p> <p>Strange minerals – radioactive and alabaster.</p> <p>Formation of oil.</p>

**Beer**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Cretaceous Upper Greensand Formation & Chalk Group.	Upper Greensand Formation and Cenomanian fauna found between Beer and Branscombe.  Landslides.	Tectonics of Cretaceous deposition.	Quarrying of Beer Stone.	<ol style="list-style-type: none"> <li>1. Cretaceous stratigraphy.</li> <li>2. Upper Greensand Formation and Cenomanian fauna.</li> <li>3. Beer stone.</li> </ol>

Audience focus	Interpretation messages
<p>Families with children aged 7–14.</p> <p>Families with children aged under 7.</p> <p>Note: Boat trips are suited to this place and audience.</p>	<p>What is chalk?</p> <p>Quarrying – social history.</p> <p>Beer stone is found in buildings across the UK.</p>

**Seaton<sup>+</sup>**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
<p>Triassic Mercia Mudstone Group &amp; Cretaceous Gault Formation.</p> <p>Upper Greensand Formation &amp; Chalk Group.</p>	<p>Triassic bone beds in Penarth Group.</p> <p>Chalk fauna.</p>	<p>Unconformity of Triassic and Cretaceous.</p> <p>Landslips.</p>	<p>Biodiversity of undercliff between Seaton and Lyme.</p> <p>RSPB reserve, etc.</p>	<ol style="list-style-type: none"> <li>1. Changing environments at Triassic-Jurassic boundary.</li> <li>2. Late Triassic stratigraphy.</li> <li>3. Unconformity of Triassic and Cretaceous.</li> </ol>

Audience focus	Interpretation messages
<p>Families with children aged 7–14.</p> <p>Families with children aged under 7.</p>	<p>Here, you can move from one geological era to another.</p> <p>Cretaceous rocks were laid down in a different environment to the Triassic rocks – the sea levels rose.</p> <p>Sea levels change all the time: this affects the rocks.</p> <p>The shape of the landscape has created opportunities for wildlife.</p>

**Lyme Regis<sup>+</sup>**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
<p>Jurassic Lias Group &amp; Cretaceous Gault Formation.</p> <p>Upper Greensand Formation &amp; Chalk Group.</p>	<p>Exceptional fauna and flora of lower Jurassic eg marine reptiles, ammonites, fish, belemnites.</p>	<p>Unconformity of Jurassic and Cretaceous.</p> <p>Landslips.</p>	<p>History of science in the early nineteenth century: birth of Palaeontology and Geology as sciences.</p> <p>Literary history.</p>	<ol style="list-style-type: none"> <li>1. Exceptional palaeontological marine fauna.</li> <li>2. History of science.</li> <li>3. Lower Jurassic stratigraphy.</li> <li>4. Landslips.</li> </ol>

Audience focus	Interpretation messages
<p>Adults without children.</p> <p>Specialists and amateur geologists.</p> <p>Note: Boat trips are suited to this place and audience.</p>	<p>History of Geology – the people who created the science.</p> <p>Marine fossils are found here in abundance.</p> <p>Geology is happening <i>now</i> – you can see the cliff being eroded.</p> <p>Geologists are actively studying fossils from this site.</p> <p>The precession of the Earth – how it spins – led to subtle changes in past environments; you can see these in the stripes in the cliff.</p>

**Charmouth<sup>+</sup>**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
<p>Jurassic Lias Group &amp; Cretaceous Gault Formation.</p> <p>Upper Greensand Formation.</p>	<p>Exceptional fauna &amp; flora of lower Jurassic eg marine reptiles, ammonites, fish, belemnites.</p>	<p>Unconformity of Jurassic and Cretaceous.</p> <p>Landslips.</p>	<p>Role of professional collectors.</p>	<ol style="list-style-type: none"> <li>1. Exceptional palaeontological marine fauna.</li> <li>2. Lower Jurassic stratigraphy.</li> <li>3. Landslips.</li> <li>4. Role of professional collectors.</li> </ol>

Audience focus	Interpretation messages
<p>Families with children aged 7–14.</p> <p>Families with children aged under 7.</p> <p>Schools.</p>	<p>Find a fossil for yourself.</p> <p>This is an active site – erosion makes it change constantly.</p> <p>Professional collectors [private and Museum, etc.] work here too – finding material of world-class scientific importance.</p> <p>Fossils form evidence about past life.</p>

**Seatown**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
<p>Jurassic Lias Group &amp; Cretaceous Gault Formation.</p> <p>Upper Greensand Formation.</p>	<p>Exceptional fauna &amp; flora of lower Jurassic from the Lower to Upper Lias sequence.</p>	<p>Condensed deposits eg Dyrham Formation ('The Junction Bed').</p> <p>Obturation deposits eg Middle Lias 'Starfish bed'.</p>		<ol style="list-style-type: none"> <li>1. Exceptional Palaeontological marine fauna.</li> <li>2. Lower Jurassic stratigraphy.</li> <li>3. Ancient sea-level fluctuations.</li> <li>4. Sedimentology of fossil horizons.</li> </ol>

Audience focus	Interpretation messages
<p>Specialist.</p> <p>Adults.</p> <p><i>Conditions too dangerous for children.</i></p>	<p>Find a fossil for yourself.</p> <p>The amazing view.</p> <p>Golden Cap – how rocks are usually laid down, and why Golden Cap is unusual (an unconformity).</p>

**West Bay (& Bridport)<sup>+</sup>**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic Lias Group. Inferior Oolite Group. Great Oolite Group.	Middle Jurassic marine fauna from the Inferior Oolite Group.  Middle Jurassic Microvertebrates from the Forest Marble.	Start Of Chesil Beach.  Fault at Fault Corner, West Cliff.	Bridport Sand Formation as the middle reservoir of the Wytch Farm Oil Field.	1. Lower – Middle Jurassic stratigraphy.  2. Middle Jurassic marine palaeontology.  3. Oil reservoirs.

Audience focus	Interpretation messages
Families with children aged 7–14.  Adults without children.	Sand and oil fields.  The Earth moves: geomorphology and Fault Corner.  Tiny things fossilize too: microinvertebrate fossils.

**Burton Bradstock**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic Lias Group. Inferior Oolite Group. Great Oolite Group.	Middle Jurassic marine fauna from the Inferior Oolite Group.	Chesil Beach.	Bridport Sand Formation as the middle reservoir of the Wytch Farm Oil Field.	<ol style="list-style-type: none"> <li>1. Lower – Middle Jurassic stratigraphy.</li> <li>2. Middle Jurassic marine palaeontology.</li> <li>3. Oil Reservoirs.</li> </ol>

Audience focus	Interpretation messages
Families with children aged 7–14. Adults without children. Non-specialist.	Start of Chesil Beach. Oil reservoirs and importance of oil. Cliffs are changing all the time – so they are dangerous. Local slate creates characteristic local building style.

**Abbotsbury**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
<p>Jurassic Great Oolite Group and Ancholme Group.</p> <p>Cretaceous Gault Formation.</p> <p>Upper Greensand Formation.</p>	<p>Wide-ranging Middle Jurassic fauna.</p>	<p>Abbotsbury Fault.</p> <p>Chesil Beach and the Fleet Lagoon.</p>	<p>Biodiversity of the Fleet.</p> <p>Hardy monument.</p>	<p>1. Chesil Beach and the Fleet Lagoon.</p> <p>2. Middle – Upper Jurassic stratigraphy.</p>

Audience focus	Interpretation messages
<p>Families with children aged 7–14.</p> <p>Families with children aged under 7.</p> <p>Adults without children.</p>	<p>Chesil beach.</p> <p>The Fleet and biodiversity.</p> <p>Middle Jurassic period fossils.</p>

**Chesil Centre (Ferry Bridge)**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic Corallian Group. Ancholme Group.	Marine fauna especially vertebrates from the Lower Kimmeridge Clay at Smallmouth.	Chesil Beach and the Fleet Lagoon.	Biodiversity of the Fleet.	1. Chesil Beach and the Fleet Lagoon. 2. Lower Kimmeridge Clay palaeontology.

Audience focus	Interpretation messages
Families with children aged 7–14. Families with children aged under 7.	Biodiversity and geology are closely linked – rocks and the shape of the area create a habitat that living things exploit.  Biodiversity of the Fleet.  How Chesil was created – rival theories and scientific debate.

**Portland<sup>+</sup>**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic Ancholme Group. Portland Group. Purbeck Group	Marine fauna of Portland.  Terrestrial and lacustrine fauna and flora of the Purbeck Groups.	Pleistocene raised beaches.	Portland Stone Quarrying.  Unique wildlife.	1. Upper Jurassic stratigraphy.  2. Pleistocene raised beaches.  3. Palaeontology – Dinosaur footprints and trackways, fossil cycads, large ammonites.

Audience focus	Interpretation messages
Families with children aged 7–14.  Families with children aged under 7.  Adults without children.  Specialists.	History of quarrying.  Geomorphology – raised beaches.  Fossils – dinosaur footprints.

**Weymouth<sup>+</sup>**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic Ancholme Group.	Oxford Clay Formation marine invertebrates.			1. Type section for the Weymouth Member of the Oxford Clay Formation.  2. Upper Jurassic Palaeontology.

Audience focus	Interpretation messages
Day visitors and holiday-makers.  Specialists.  Note: Boat trips are suited to this place and audience.	Fossils and the Jurassic.

**Osmington Mills**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic Ancholme Group & Corallian Group.  Cretaceous Chalk Group.	Diverse Upper Jurassic marine invertebrate fauna.			1. Corallian Group stratigraphy.  2. Upper Jurassic marine invertebrates.

Audience focus	Interpretation messages
Families with children 7–14.  Specialists.	Fossils on the beach.  Changing sea levels.

**Ringstead**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic Ancholme Group, Corallian Group, Portland Group, Purbeck Group; Cretaceous Chalk Group.	Exceptional wide-ranging fauna – both invertebrates and vertebrates from the Upper Jurassic through to the Upper Cretaceous. (Though access or collecting is currently difficult.)	Rotational Landslips.	'Burning cliff' and the oil stories.	<ol style="list-style-type: none"> <li>1. Upper Jurassic stratigraphy.</li> <li>2. Cretaceous stratigraphy.</li> <li>3. Upper Jurassic palaeontology.</li> <li>4. Lower Cretaceous palaeontology.</li> </ol>

Audience focus	Interpretation messages
Families with children aged 7–14.	<p>Walk from Upper Jurassic to Cretaceous.</p> <p>Oil industry.</p>

**Lulworth**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic Portland & Purbeck Groups, Cretaceous Wealden Group, Gault Formation, Upper Greensand Formation & Chalk Group.	Fossil Forest in Purbeck Group. Vertebrates & insects in Purbeck Group.	Geomorphology – cove formation, and creation of Durdle Door & Stair Hole.  Structural geology.		<ol style="list-style-type: none"> <li>1. Geomorphology of Coast.</li> <li>2. Fossil Forest.</li> <li>3. Structural geology.</li> </ol>

Audience focus	Interpretation messages
<p>Families with children aged 7–14.</p> <p>Families with children aged under 7.</p>	<p>Shaping of the landscape – geomorphological processes.</p> <p>Fossil forest.</p> <p>Structural geology.</p>

**Kimmeridge**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic Ancholme Group & Portland Group.  'Kimmeridgian'.	Exceptional Marine fauna.		Marine Wildlife.	1. Upper Jurassic Stratigraphy – type section for the Kimmeridge Clay Formation.  2. Exceptional palaeontology of the Kimmeridge Clay Formation.

Audience focus	Interpretation messages
Families with children aged 7–14.  Families with children aged under 7.	Exceptional fossils.  Marine wildlife.  Oil in the shale.

**Durlston Country Park & Swanage<sup>+</sup>**

Stratigraphy	Palaeontology	Other geology	Other subjects	Main Science Themes
Jurassic/Cretaceous Purbeck Group, Cretaceous Wealden Group, Gault formation, Upper Greensand Formation & Chalk Group.	Exceptional vertebrate fauna – especially Mesozoic mammals and rare insect fauna in the Purbeck Group. Dinosaur remains in the Wealden Group.		Natural History.  Purbeck Stone Quarrying.  George Burt and the Victorian approach to nature.	1. Vertebrates of Purbeck Group.  2. Dinosaurs of Wealden Group.

Audience focus	Interpretation messages
Families with children aged 7–14.  Adults without children.  Note: Boat trips are suited to this place and audience.	Purbeck Stone and social history of quarrying, etc.  Biodiversity in the cliffs and sea.  Purbeck fossils – turtles, dinosaurs and so on.  This is one end of the JCWHS.