JURASSIC COAST Partnership Plan 2020-2025

Management Framework for the Dorset and East Devon Coast World Heritage Site

JURASSICCOAST
DORSET AND EAST DEVON
WORLD HERITAGE SITE

United Nations
Educational, Scientific and
Cultural Organization

Dorset and East Devon Coast
inscribed on the World
Heritage List in 2001

Accessibility

If you require a copy of this document in a different format, please contact us and we will do our best to provide it in a way that meets your needs.

Your Views

Everyone who values the Jurassic Coast, for whatever reason, has a stake in its future. Please get in touch with us if you would like to share your aspirations for the Site or your thoughts about how it is managed.

JURASSIC COAST TRUST

Contact Details

Email: info@jurassiccoast.org
Tel: 01308 807000

www.jurassiccoast.org

The Jurassic Coast Trust
Mountfield, Rax Lane, Bridport DT6 3JP

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Cover and this page by Steve Belasco

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FOREWORD

Strength in Partnership

In Dorset and East Devon we are extraordinarily lucky to be home to England's only natural World Heritage Site. A stretch of coastline of Outstanding Universal Value (OUV), globally recognised for its scientific importance as well as beloved by its residents and visitors for its beauty and the cultural and economic opportunities and advantages it provides. The Jurassic Coast is an exceptional place, unique and complex, existing as both a window into deep time and the history of our planet and as an important vantage point into contemporary issues such as climate change and environmental sustainability.

Spread over 95 miles, our World Heritage Site thrives upon partnership and collaboration between all of us who have a role or interest in its protection and care. This Partnership Plan is the way in which we coordinate and galvanise our individual and collective efforts, covering the day to day essential steps we must take to look after the Site through to shared ambitions for how we can enhance access, engagement, learning and lasting benefit to all from this place.

Previously this document was called a Management Plan but the change in title to Partnership Plan is more than just a change in wording. It represents the increased emphasis upon the contributions which all the partners can make and is the culmination of enormous effort to build relationships, understanding, consensus and shared objectives. Partners include Government departments and agencies, Local Authorities, landowners, conservation organisations, local Trusts, museums and visitor centres, fossil collectors and businesses. Indeed, everyone who lives here, or visits, has a stake in ensuring that we care for the Jurassic Coast and ensure it is left in good condition for future generations, and as such we have consulted widely to develop this document, as well as reviewing and learning from the work that has been happening here since we received World Heritage inscription in 2001.

The Jurassic Coast Trust (JCT) has guided and facilitated this work and, as the only organisation set up exclusively focused upon the World Heritage Site and the protection of its OUV (Outstanding Universal Value), we have been overwhelmed by the engagement and spirit of partnership that has been brought to bear in creating this new plan. The understanding and cooperation we have forged in getting to this point means we are filled

with excitement and optimism at how we and our partners will now move forwards, turning this document and its aspiration into tangible activity and positive outcomes that are owned and committed to by everyone involved.

Here at the JCT our passion for the World Heritage Site means that we seek to underpin the work of our partners with expertise, research, support, and innovation and we are incredibly excited about the opportunities that this new Partnership Plan is presenting for us all. There are so many ways in which we can strengthen and promote the OUV of the Jurassic Coast and there are many projects and activities that we can now start to develop with our partners including looking at inclusion and access, climate change, sustainability and learning. While there continue to be challenges facing our Site and to all of us as organisations, many of us as not-for-profit and charitable establishments, we are undoubtedly stronger through working together and collaborating around the shared aims, policies and objectives contained within this plan.

Thank you to everyone who has contributed to this Plan which we believe is a powerful foundation for the next five years of work on the Jurassic Coast World Heritage Site. This is an extraordinary stretch of coast and we have a partnership of extraordinary talent, commitment, knowledge and insight to look after it. The World Heritage story here in Dorset and East Devon can only grow stronger from here.

Alexandra O'Dwyer
Chair of The Jurassic Coast Trust

John Wokersien
Chair of the Jurassic Coast Partnership Advisory Committee

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1. INTRODUCTION

"What makes the concept of World Heritage exceptional is its universal application. World Heritage Sites belong to all the peoples of the world, irrespective of the territory on which they are located." [1]

1.1 World Heritage

In 2001, the Dorset and East Devon Coast, more commonly known as the Jurassic Coast, became a World Heritage Site (WHS), joining a global family of unique and exceptional places that illuminate humanity's collective history, identity and relationship with nature.

The purpose of the World Heritage List is to identify properties that have "*Outstanding Universal Value*"; a "*cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity*"[2]

Those responsible for managing World Heritage properties have a "*common obligation*" to ensure that they are protected for present and future generations, not just through legal means, but through responsible, inclusive and sustainable management practices. This is the primary reason why a World Heritage Site must have an appropriate, agreed management framework in place.

The Convention concerning the Protection of the World Cultural and Natural Heritage, commonly referred to as the World Heritage Convention, defines the mandate for managing World Heritage Sites. This document was agreed in 1972 and ratified by the UK Government in 1984. It is a political commitment supporting the mission of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) to promote peace "*built upon the intellectual and moral solidarity of humanity*".

A wide partnership of stakeholders works collectively to manage the Dorset and East Devon Coast World Heritage Site. This Plan sets out how that partnership aspires to safeguard its future and deliver the vision of UNESCO, taking particular inspiration from articles 4, 5 and 27 of the World Heritage Convention, paraphrased below:

Recognise the duty of ensuring the protection, conservation, presentation and transmission to future generations of the natural heritage of this World Heritage Site.

Endeavour to give World Heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes.

Endeavour by all appropriate means, and in particular by educational and information programmes, to strengthen the appreciation and respect people have towards the natural heritage of this World Heritage Site.

United Nations Educational, Scientific and Cultural Organization

Dorset and East Devon Coast inscribed on the World Heritage List in 2001

[1] whc.unesco.org

[2] Operational Guidelines for the World Heritage Convention 2013, Para 49

1.2 The Jurassic Coast Partnership

Effective management of this landscape-scale World Heritage Site has always been achieved through a partnership approach, and this continues to be the case.

The Jurassic Coast Trust is the body with the delegated authority for the co-ordination and facilitation of Site management. Its duties are undertaken with advice from the Partnership Advisory Committee (PAC), which is a designated committee of the Jurassic Coast Trust. The PAC is comprised of representatives from key stakeholders, as well as advisors from specialist areas. Details of the PAC are accessible online at **www.jurassiccoast.org.**

All Jurassic Coast stakeholders are invited to embrace the following values in our collective effort to protect, conserve, present, and transmit the Dorset and East Devon Coast World Heritage Site to future generations.

Advocate the global significance of the Jurassic Coast, England's only natural World Heritage Site (WHS) and most important geological site.

Protect and promote the unique geology, landscapes, and flora and fauna associated with the Jurassic Coast World Heritage Site, and do our best to ensure that any development or changes to the WHS support net environmental gain.

Collaborate in the development and delivery of projects and programmes to support the policies in the Partnership Plan.

Develop and share research into issues about or affecting the Jurassic Coast, in particular, the earth sciences.

Deliver specific actions relating to Aims and Policies in the Partnership Plan, either individually or in collaboration.

Communicate with other stakeholders to keep all parties abreast of relevant work areas and priorities in order to seek collaborative opportunities.

Celebrate and share the achievements and successes of the Jurassic Coast partners in delivering our shared goals for the WHS.

The String of Pearls

The 'String of Pearls' metaphor is referred to several times within this Plan. It has, for many years, been used to describe the informal group of autonomous visitors' centres and museums that work together to help people to explore and learn about the Jurassic Coast. They each explain the global value of the Site, but due to the way geology changes along the WHS, these locally focused facilities emphasise their own particular or unique aspect of the overall story and offer distinctive experiences to the public.

The 'String of Pearls' is a valuable strategic concept, helping museums, visitors' centres and communities to understand the nature of the World Heritage Site, the opportunities it provides and the potential for collaboration and mutual support. For this reason, it is integral to the Interpretation Framework for the World Heritage Site; the Jurassic Coast Story Book.

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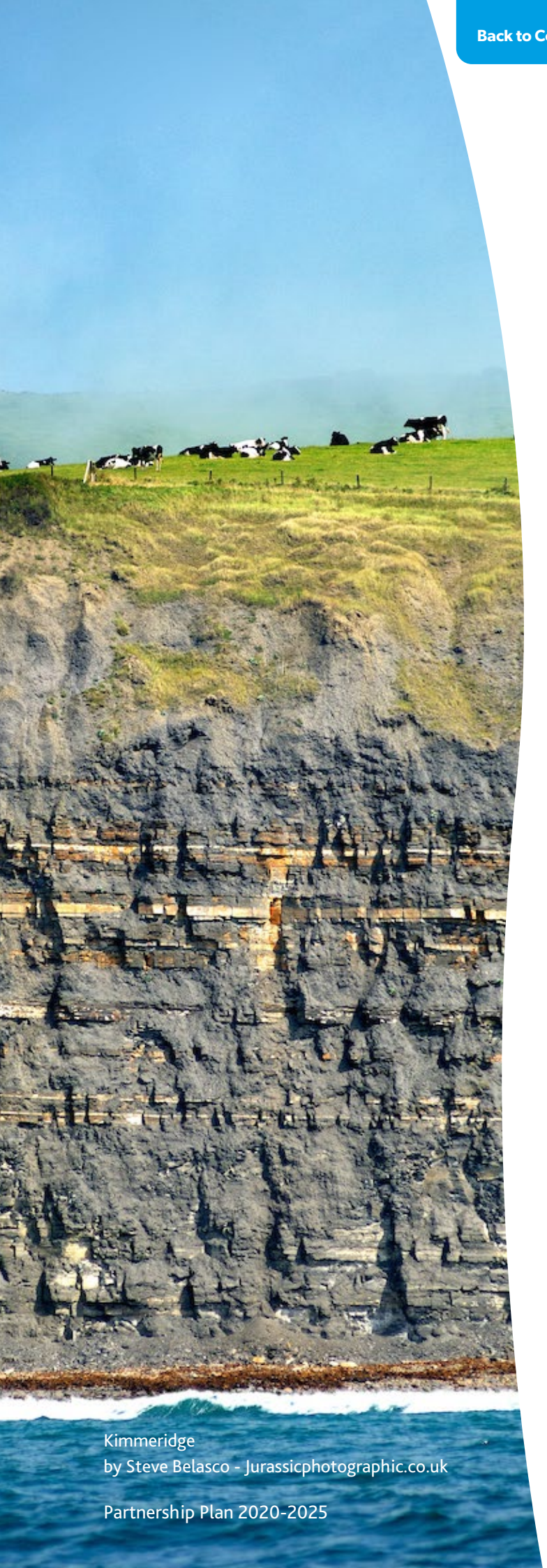

Kimmeridge
by Steve Belasco - Jurassicphotographic.co.uk

Our Vision for the Jurassic Coast World Heritage Site

World Heritage Status in Dorset and East Devon will inspire people to understand, celebrate and safeguard the Jurassic Coast for future generations.

Our Strategic Aims

Aim 1	Protect the Site's Outstanding Universal Value and World Heritage Status.
Aim 2	Conserve and enhance the Site, its attributes, presentation and setting.
Aim 3	Inspire and engage people with the Site and deepen their understanding of its values.
Aim 4	Maintain and improve access to and experience of the Site.
Aim 5	Enable the Site's World Heritage Status to be of benefit to people and communities.

1.3 The Purpose of this Plan

What is this Plan for?

This plan is a formal requirement of both UNESCO and the UK Government for managing the World Heritage Site. It is a public document which outlines the aims, policies and priority objectives for managing the Site over the coming years. It also explains the reasons for the Site's World Heritage designation and how it is protected and managed. This Plan is the central tool of the partnership that looks after the Jurassic Coast as it helps to facilitate collaboration and provides a strategic context for investment and action.

Who is it for?

As a framework to help guide activities that might affect the Outstanding Universal Value of the World Heritage Site, this Plan has relevance to local communities, businesses, landowners, authorities, utilities and other organisations and groups operating within or with an interest in the area. In the context of the World Heritage Convention, this plan is also created on behalf of the all the peoples of the world.

Worbarrow
by Steve Belasco - Jurassicphotographic.co.uk

What have previous Plans helped to achieve?

Previous plans for the Jurassic Coast have underpinned many of the partnership's achievements. World Heritage Status itself is thought to influence around £100 million a year of economic activity in the local area, evidencing the value of ongoing Site protection and management. Policy frameworks have helped draw in funding for strategic projects, catalysed a range of outreach and engagement programmes and inspired action from national partners. More details on what has been achieved will be available on **www.jurassiccoast.org.**

The Partnership Plan and the Jurassic Coast Trust

Whilst the Jurassic Coast Trust has delegated authority for the co-ordination and facilitation of Site management, there are many areas of delivery for which it is not directly responsible. The Jurassic Coast Trust itself is a charity without statutory funding and may change or be vulnerable over time. It is therefore desirable that this Management Framework for the Site exists independently. It is hoped that the internal business and activity plans of partners will reflect or be guided by the policies and priorities in this Partnership Plan. For the Jurassic Coast Trust this will be a necessity. These relationships will be clarified further through the creation of a delivery plan for the World Heritage Site where roles will be indicated against specific actions (see chapter 5 for further information).

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2. OUR WORLD HERITAGE

On the 13th of December 2001, the undeveloped cliffs and beaches between Orcombe Point near Exmouth in East Devon and Studland Bay near Poole in Dorset were inscribed on the World Heritage List[3] by the UNESCO World Heritage Committee. The Site was granted World Heritage Status under UNESCO's criteria viii - Earth's history and geological features - which indicated that its geology, palaeontology and geomorphology are of Outstanding Universal Value.

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Chalk cliffs near to Studland Bay
by Steve Belasco - Jurassicphotographic.co.uk

The value of the Site's geology has been summarised in the concept of the 'Walk through Time', derived from the way the geology is exposed. A gentle eastward tilt in the rocks has created a progressive exposure of younger and younger layers working west to east (see Figure 1). The walk along the cliffs from Exmouth to Studland becomes a walk forward through roughly 185 million years of Earth's history, recorded in Triassic, Jurassic and Cretaceous geology. Imprinted and inscribed into the 'Walk Through Time' are more recent geological features, including Eocene gravels, Alpine tectonic structures and interglacial raised beaches. The environmental and biological changes through time can clearly be seen in the exposed rocks of the cliffs and in the outstanding fossil record found along the length of the Site. The varied geology is further expressed through the tremendous diversity of the coastal landscape and a series of iconic coastal landforms and ongoing coastal processes.

The technical evaluation by the International Union for Conservation of Nature (IUCN) on the nature of the values for which the Site was inscribed can be found at the end of appendix 1.

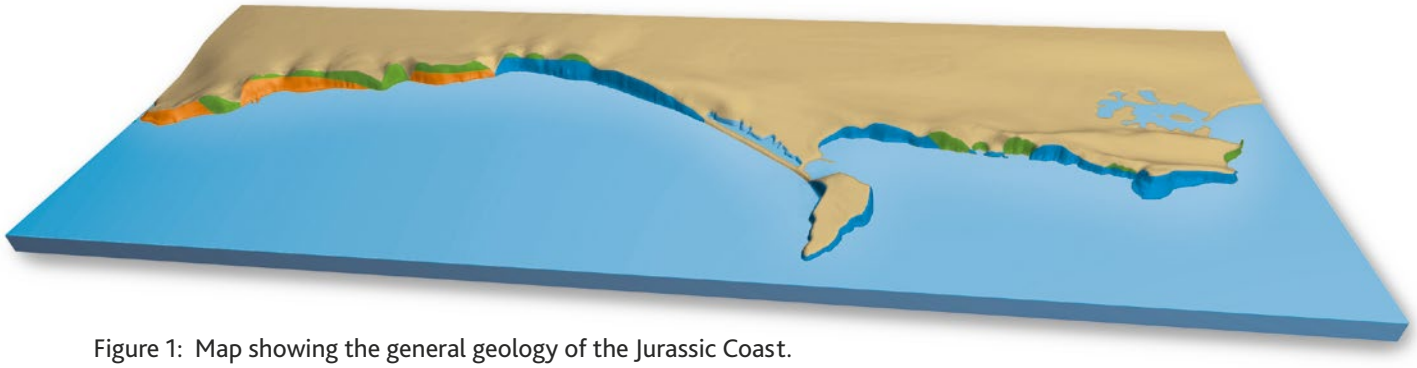
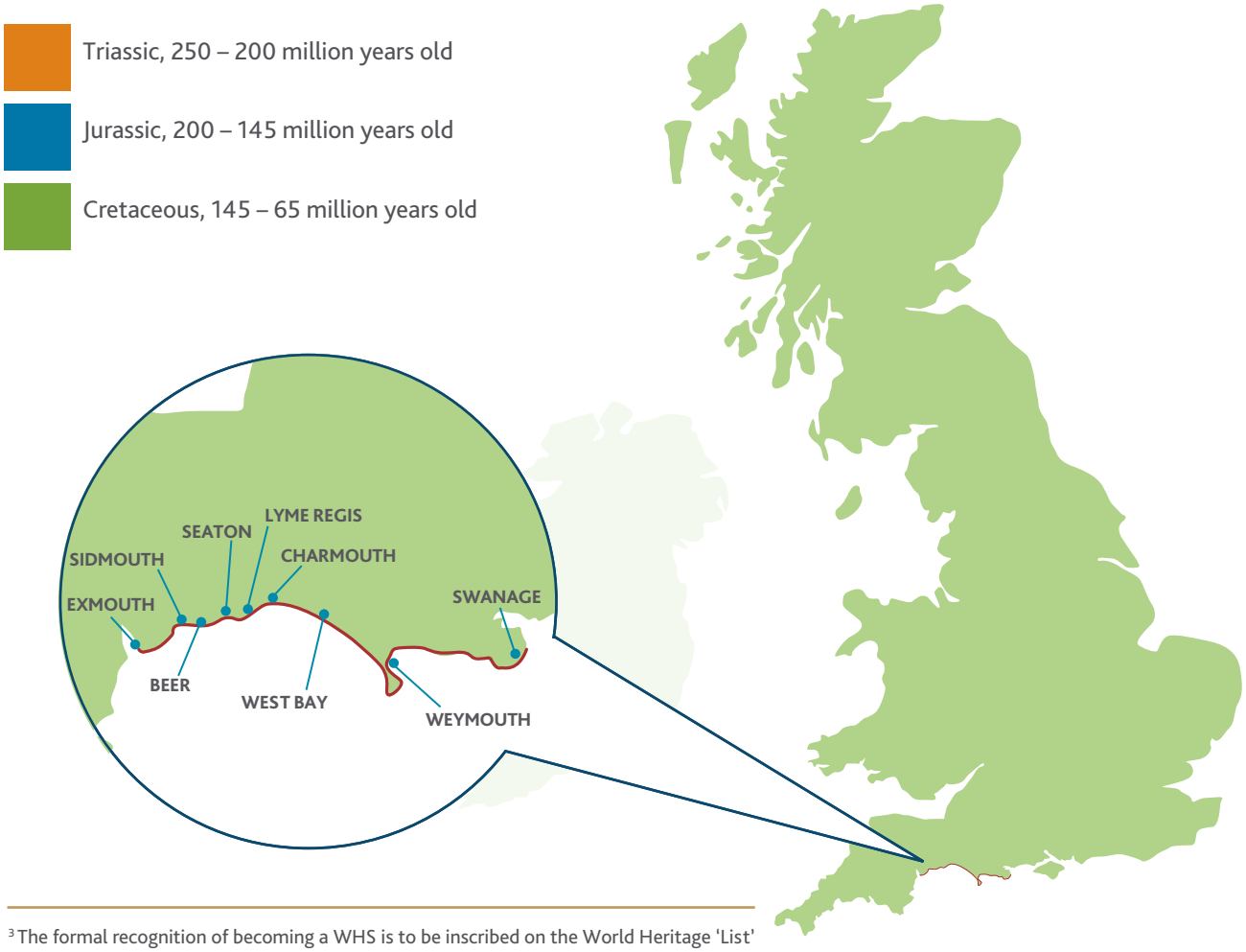


Figure 1: Map showing the general geology of the Jurassic Coast.



[3] The formal recognition of becoming a WHS is to be inscribed on the World Heritage 'List'

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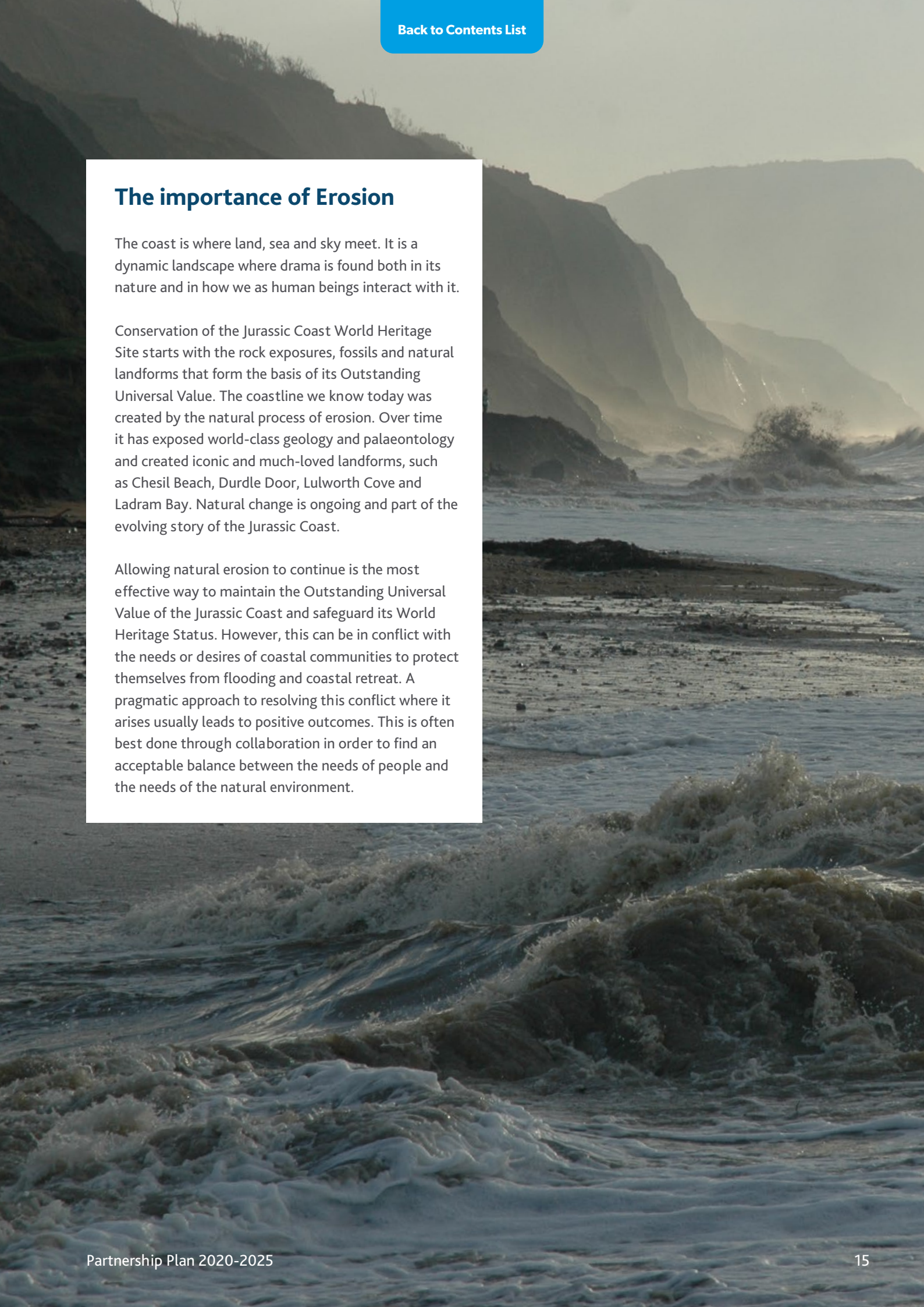


The importance of Erosion

The coast is where land, sea and sky meet. It is a dynamic landscape where drama is found both in its nature and in how we as human beings interact with it.

Conservation of the Jurassic Coast World Heritage Site starts with the rock exposures, fossils and natural landforms that form the basis of its Outstanding Universal Value. The coastline we know today was created by the natural process of erosion. Over time it has exposed world-class geology and palaeontology and created iconic and much-loved landforms, such as Chesil Beach, Durdle Door, Lulworth Cove and Ladram Bay. Natural change is ongoing and part of the evolving story of the Jurassic Coast.

Allowing natural erosion to continue is the most effective way to maintain the Outstanding Universal Value of the Jurassic Coast and safeguard its World Heritage Status. However, this can be in conflict with the needs or desires of coastal communities to protect themselves from flooding and coastal retreat. A pragmatic approach to resolving this conflict where it arises usually leads to positive outcomes. This is often best done through collaboration in order to find an acceptable balance between the needs of people and the needs of the natural environment.

2.1 The Outstanding Universal Value of the Dorset and East Devon Coast

UNESCO requires that the reasons for inscription onto the World Heritage List are presented in the form of a Statement of Outstanding Universal Value (SOUV) which "…*will be the key reference for the future effective protection and management of the property*"[4].

The SOUV for this Site was finalised in June 2010 and agreed at the World Heritage Committee Meeting of the same year. It is key to the Management of the Site and reflects the operating basis at the time of inscription.

Further to the SOUV, a set of Attributes are defined for the Site that help in understanding its integrity and management requirements. Attributes are aspects of a property which are associated with or express the Outstanding Universal Value (OUV) and can be tangible or intangible.

Statement of Outstanding Universal Value (SOUV)[5]

Dorset and East Devon Coast United Kingdom of Great Britain and Northern Ireland

Id. N° 1029 Date of inscription 2001[6]

Brief synthesis

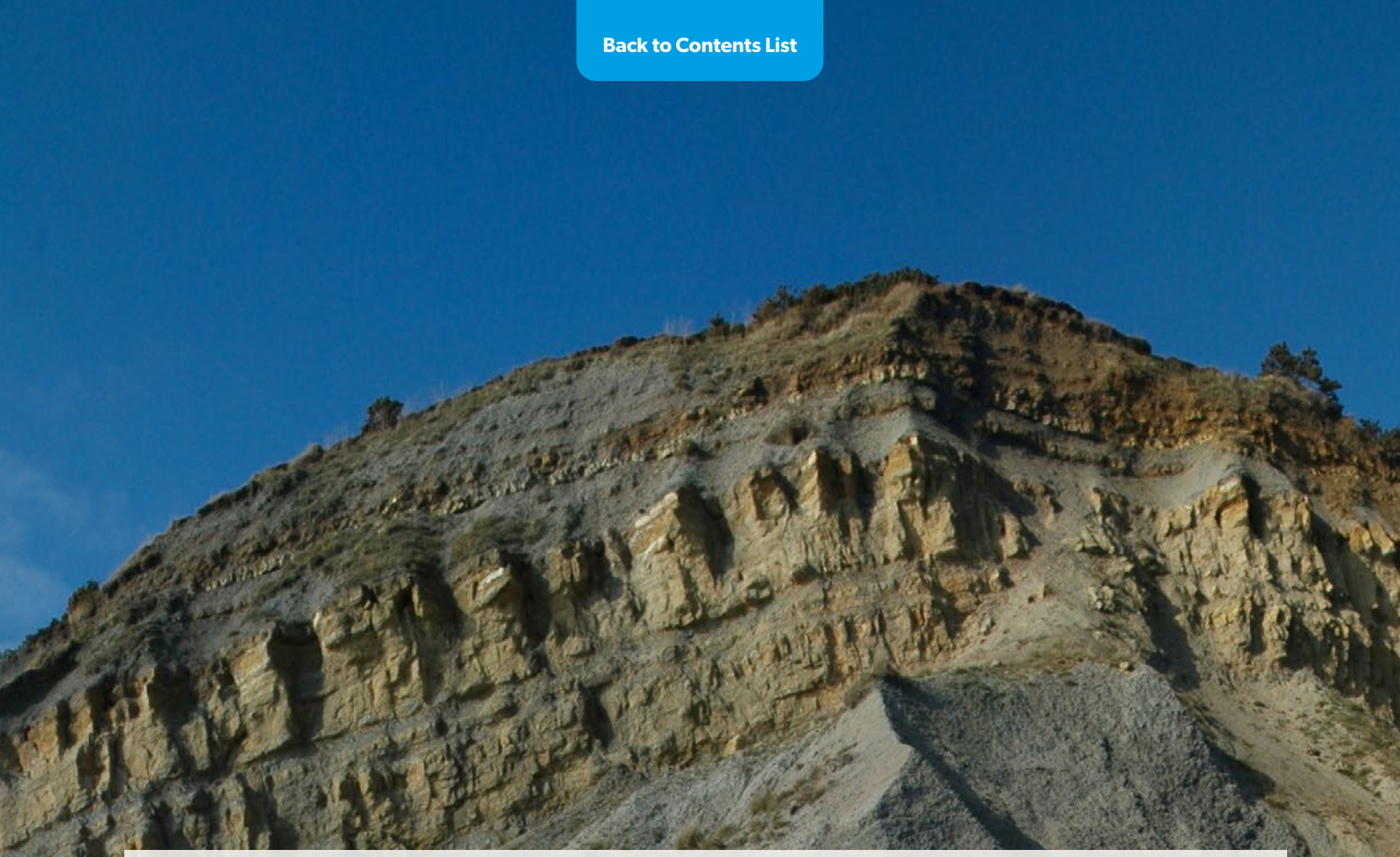
The Dorset and East Devon Coast has an outstanding combination of globally significant geological and geomorphological features. The property comprises eight sections along 155 km of largely undeveloped coast. The property's geology displays approximately 185 million years of the Earth's history, including a number of internationally important fossil localities. The property also contains a range of outstanding examples of coastal geomorphological features, landforms and processes, and is renowned for its contribution to earth science investigations for over 300 years, helping to foster major contributions to many aspects of geology, palaeontology and geomorphology. This coast is considered by geologists and geomorphologists to be one of the most significant teaching and research sites in the world.

Criterion (viii): The coastal exposures along the Dorset and East Devon coast provide an almost continuous sequence of Triassic, Jurassic and Cretaceous rock formations spanning the Mesozoic Era and document approximately 185 million years of Earth's history. The property includes a range of globally significant fossil localities – both vertebrate and invertebrate, marine and terrestrial – which have produced well preserved and diverse evidence of life during Mesozoic times. It also contains textbook exemplars of coastal geomorphological features, landforms and processes. Renowned for its contribution to Earth science investigations for over 300 years, the Dorset and East Devon coast has helped foster major contributions to many aspects of geology, palaeontology and geomorphology and has continuing significance as a high quality teaching, training and research resource for the Earth sciences.

[4] Operational Guidelines for the Implementation of the World Heritage Convention

[5] A full description of the significance of the Site can be found in appendix 1. Details of the protection and management arrangements for the Site can be found in Chapter 2.2

[6] SOUV agreed by UNESCO WH Committee meeting 2010



Integrity: The property contains all the key, interdependent elements of geological succession exposed on the coastline. It includes a series of coastal landforms whose processes and evolutionary conditions are little impacted by human activity, and the high rate of erosion and mass movement in the area creates a very dynamic coastline which maintains both rock exposures and geomorphological features, and also the productivity of the coastline for fossil discoveries. The property comprises eight sections in a near-continuous 155 km of coastline with its boundaries defined by natural phenomena: on the seaward side the property extends to the mean low water mark and on the landward side to the cliff top or back of the beach. This is also in general consistent with the boundaries of the nationally and internationally designated areas that protect the property and much of its setting. Due to the high rate of erosion and mass movement, it is important to periodically monitor the boundaries of the properties to ensure that significant changes to the shoreline are registered.

Protection and management requirements: The property has strong legal protection, a clear management framework and the strong involvement of all stakeholders with responsibilities for the property and its setting. A single management plan has been prepared and is coordinated by the Dorset and Devon County Councils. There is no defined buffer zone as the wider setting of the property is well protected through the existing designations and national and local planning policies. In addition to its geological, paleontological and geomorphological significance, the property includes areas of European importance for their habitats and species which are an additional priority for protection and management. The main management issues with respect to the property include: coastal protection schemes and inappropriate management of visitors to an area that has a long history of tourism; and the management of ongoing fossil collection, research, acquisition and conservation. The key requirement for the management of this property lies in continued strong and adequately resourced coordination and partnership arrangements focused on the World Heritage property.

Attributes for the Dorset and East Devon Coast World Heritage Site

The Earth science interests of the Dorset and East Devon Coast World Heritage Site are recognised within the Geological Conservation Review (GCR): a UK-wide audit of the best sites of their type in Great Britain. The GCR supports the Sites of Special Scientific Interest (SSSI) that provide the legal framework to protect the coast. The Site is currently monitored through the SSSI's but by looking at the GCR sites within them uses a set of **very detailed attributes** for the Site. Furthermore, the GCR sites on this coast lie within four categories; **stratigraphy**, **palaeontology**, **geomorphology** and **structure**, and are available on request.

Attributes

1. Stratigraphy (the rock record) and structure

The property includes a near-continuous sequence of Triassic, Jurassic and Cretaceous rock exposures, representing almost the entire Mesozoic Era (between 251 and 66 million years ago), or approximately 185 million years of Earth history. Because the overall tilt or 'dip' of the rocks is gently to the east, each section of coast contains its own unique part of the story that add up to the whole; a globally significant site.

2. Palaeontological record

The property contains a diverse range of internationally important Mesozoic fossil localities, including key areas for Triassic reptiles, and for Jurassic and Cretaceous mammals, reptiles, fish and insects. These chart virtually one third of the entire evolution of complex life forms. The ammonite zonation is also important as these animals changed rapidly through time and can therefore be used to date the relative ages of the rocks and place them in a time context with other sites.

3. Geomorphological features and processes

A wide range of significant geomorphological features and processes are also represented within the property. It is renowned for its demonstration of landsliding, and of beach formation and evolution in relation to changing sea level, including raised beaches and offshore peat deposits. The coast demonstrates spectacularly how geological structure controls the evolution of bays and headlands and how erosion on a discordant and concordant coastline creates these features. There are also superb examples of the formation of caves, arches and sea stacks.

4. Ongoing scientific investigation and educational use, and role in the history of science

The coast played a key role in the development of the Earth sciences over the last two centuries and continues to provide an outdoor classroom for teaching, and an unparalleled resource for ongoing research. The continuous rock sequence contained in the naturally eroding cliffs allows scientists to test existing theories and generate new ones. Fossils new to science continue to be found through responsible collecting efforts, and thus contribute to maintaining the OUV of this Site. The ability to study erosional processes is also important, and is also now benefiting from the application of new monitoring techniques.

5. Underlying geomorphological processes in the setting of the Site

The reasons for the form, diversity and quality of the coastal landscape are found in the underlying geology and the geomorphological processes acting on it. Much of the landscape is dominated by relic features and dates back to a time of active processes under very different climatic conditions from today. The long-term preservation of the Site's OUV depends on the maintenance of dynamic natural processes in the setting, and the awareness that processes acting in the land or sea setting may impact on the Site itself.

2.2 Protecting the World Heritage Site

Pillars of Outstanding Universal Value

All Site protection and management efforts should be seen through the lens of Outstanding Universal Value (OUV). The World Heritage Committee describe OUV as having three supporting pillars (see figure 2 below). This simple visual aid helps to explain how criteria, integrity and protection and management are integral components that collectively comprise OUV.

Criteria: 'Why is this place important?'

To be included on the World Heritage List, sites must be of Outstanding Universal Value and meet at least one out of ten selection criteria. The Dorset and East Devon Coast World Heritage Site is inscribed under criteria viii.

Integrity: 'Does it tell the whole story? Is it truthful?'

Integrity is about ensuring a Site has the complete representation of the features and processes which convey the property's significance. It is "*a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes.*" and a question of whether a Site "*contains all or most of the key interrelated and interdependent elements in their natural relationships*"[7].

Protection and Management: 'What is needed to assure its future?'

UNESCO state that "*outstanding universal value, the conditions of integrity and/or authenticity at the time of inscription are sustained or enhanced over time.*" [8] and that "*properties must be protected from all threats or inconsistent uses. These developments can often take place beyond the boundaries of a property.*"[9]

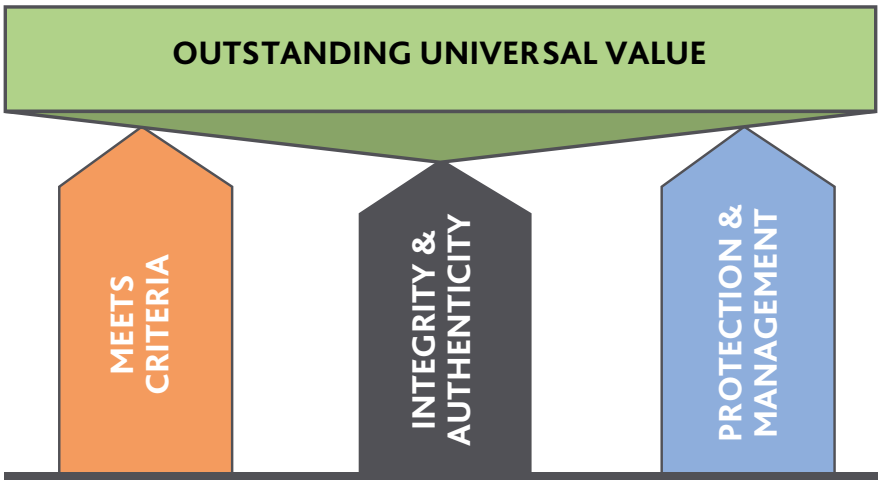


Figure 2: Illustration of the three pillars of Outstanding Universal Value. All three must be in place for a property to meet the requirements of the World Heritage List. Note: Authenticity is not applicable to natural World Heritage Sites.

[7] Para 93, Operational Guidelines for the Implementation of the World Heritage Convention

[8] Para 96, Operational Guidelines for the Implementation of the World Heritage Convention

[9] UNESCO Guidelines on nominations of cultural or natural properties on the WH List

Boundaries of the Site

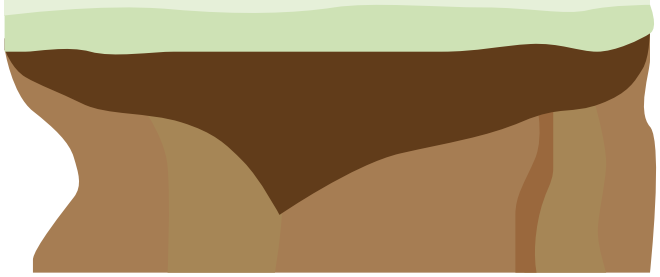
The boundaries of the Site were drawn and agreed at the time of nomination to ensure the "*full expression of the outstanding universal value and the integrity and/or authenticity of the property*"[10] and remain unchanged. They are based on 66 Geological Conservation Review (GCR) sites and exclude the commercial port area at Portland and the man-made frontages of Sidmouth, Seaton, Lyme Regis, West Bay, Weymouth and Swanage.

In recognition of ongoing natural change along this dynamic World Heritage Site, UNESCO recognise a moving boundary that keeps pace with erosion. Therefore, a written definition for its boundary is used, rather than a line on the map. There are some exceptions however and detailed descriptions and reference maps of the Site boundaries can be found in appendix 2.

General written description for the boundary of the Dorset and East Devon Coast World Heritage Site

Landward

- On cliff coastline, the boundary is taken at the break in slope at the top of the most landward cliff-scarp
- On coastline with no cliffs, the boundary is taken at the back of the beach
- The Site includes The Fleet lagoon and the boundary will be taken at the top of the low cliffs that lie on its northern shore



Seaward

- Mean Low Water Mark, as defined by the UK Ordnance Survey

[10] Para 99, Operational Guidelines for the Implementation of the World Heritage Convention

The Setting of the Site

Guidance from UNESCO describes the need to protect an area around the World Heritage Site, generally referred to as its setting. In an applied sense, the setting of the Jurassic Coast provides the functional and experiential context for the Site's attributes and should therefore be sensitively managed as part of the protection of OUV.

The partnership has agreed the definitions for setting below.

Experiential setting

The setting should be regarded as the surrounding landscape and seascape, and concerns the quality of the cultural and sensory experience surrounding the exposed coasts and beaches. Although the Coast was not inscribed on the World Heritage list for its natural beauty, UNESCO recognised its value with respect to this criterion as 'nationally important'[11], justified further by the UK Government's decades-long designation of the East Devon and Dorset Areas of Outstanding Natural Beauty (AONB), which cover more than 80% of the WHS area. An assessment of landscape[12] and seascape[13] character provides a starting point for evaluation of the impact of change in the setting. The special qualities of the AONBs, such as tranquillity and undeveloped character of coast and seascapes, are important for helping to determine how people experience and enjoy the setting of the WHS.

Photo by Sam Rose

Functional setting

In the context of a moving boundary that keeps pace with erosion, the setting is important because development and activity within it may sooner or later impact on the World Heritage Site itself. The development of housing, for instance, may lead to a need for future coastal defences. In order to maintain OUV, the cliffs need to be allowed to erode into a natural setting. Secondly, the Site, most notably the coastal landforms and processes, are defined and explained by past and present geomorphological and hydrological systems that extend landward and seaward. Developments that impact on these systems may well have a resulting impact within the Site itself.

Photo by Alan Holiday

[11] See IUCN Technical evaluation in appendix 1

[12] Developed by the Devon Landscape Policy Group, and the Dorset AONB Team and Dorset CC

[13] Seascape assessment is led by the Marine Management Organisation (MMO), with evidence in Dorset from the CScope project

In addition to the experiential and functional setting of the WHS there is an important contextual role played by geodiversity outside of the Site boundaries. For example, recent surveys of the bathymetry adjacent to the Jurassic Coast have revealed a spectacular seabedscape that contains a wealth of information that supports and expands our understanding of the Site's OUV. Landwards of the WHS a host of rock exposures in quarries, cuttings and stream banks offer similar insights, sometimes providing unique opportunities to experience details of the 'Walk Through Time' that are present but inaccessible on the coast itself. These inland features are also often connected to cultural or historic practices and help to demonstrate the intimate links between geodiversity, distinctive communities and landscape character.

It is becoming increasingly straightforward to identify submarine and terrestrial aspects of wider geodiversity and describe their particular contribution in support of the WHS, but more work is required to understand and define them as part of the Site's setting. In particular, it will be desirable to understand the potential contribution of historic environment assets such as Scheduled Monuments, Listed Buildings, Registered Parks and Gardens and conservation areas.

Buffer zone

A buffer zone is an area that surrounds a World Heritage Site that has complementary legal restrictions placed on its use and development to give an added layer of protection to the property. The nomination document and first Management Plan for the Dorset and East Devon Coast WHS established that the existing conservation protection and planning policies relating to the Site and its surrounds were sufficiently robust as to make a buffer zone unnecessary. This opinion has not changed and the partnership's position is stated in appendix 2.

Legal framework for the Protection of the Site and Setting

Although the World Heritage Convention has been ratified by the UK Government, the designation is not recognised in statute. The Site, as with all others in the UK, is protected by existing UK planning and conservation laws and by specific planning guidance on World Heritage Sites.

This section outlines the extent of this protection for the Dorset and East Devon Coast, through international and national statute, and through non-statutory plans, policies and designations.

National planning

The National Planning Policy Framework (NPPF), updated in February 2019, and the supporting National Planning Practice Guidance (NPPG), provide the key protection for the WHS within the planning system. NPPF defines World Heritage Sites as designated heritage assets and relevant detail in respect of their protection can be found in NPPF paragraphs 11, 184, 185, 189, 190, 193, 194, 200, 201 and 205. Paragraph 184 is key in that it identifies World Heritage Sites as being of the highest significance and therefore the designated heritage assets of the greatest importance.

Of additional particular note are paragraph 11, 185, 193 and 194. Paragraph 11 emphasises that the presumption in favour of sustainable development should apply unless policies within the framework '*that protect areas or assets of particular importance*' provide strong reasons for restricting or refusing a development proposal. NPPF defines a number of designations as '*areas or assets of particular importance*', among them designated heritage assets. Paragraph 185 concerns the need for plans to set out a positive strategy for the conservation and enjoyment of the heritage assets. Paragraph 193 states that '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be)*' and paragraph 194 states '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of… World Heritage Sites, should be wholly exceptional*'.

In support of the NPPF, the National Planning Practice Guidance (NPPG) includes several paragraphs that specifically relate to World Heritage Sites, found under the section on 'Conserving and enhancing the historic environment' and 'Designated heritage assets'. These cover a range of issues including setting, local plans and what consultation is required for proposals that may affect a WHS.

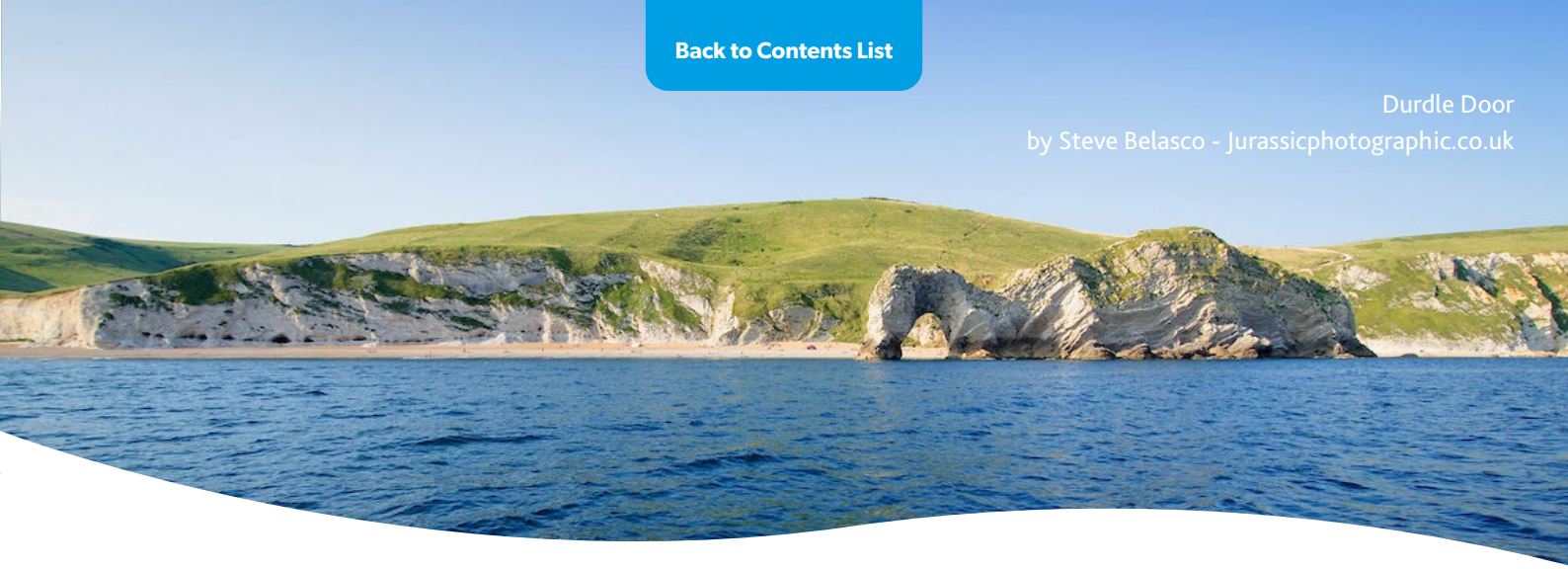
It is also important to note that, in general, the various heritage and natural environment policies within NPPF serve to protect a range of designated and undesignated sites and landscapes, a number of which are important to the conservation, understanding and enjoyment of the WHS and its setting.

In addition to the NPPF the following planning circular remains relevant:

- *Circular 06/05: Biodiversity and Geological Conservation* provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England.

Finally, the UK Government's coastal concordat for England sets out a simplified process for consenting to coastal developments in England where several bodies have a regulatory function[14]. This is relevant to regulatory processes rather than legislation, particularly for coastal defences.

[14] https://www.gov.uk/government/publications/a-coastal-concordat-for-england



Durdle Door
by Steve Belasco - Jurassicphotographic.co.uk

Sub-national planning

The Localism Act 2011 introduced the Duty to Cooperate to deliver regional outcomes. This requires local councils to work together when preparing their local policies and plans, to ensure that 'bigger than local' issues which cross local boundaries are dealt with properly. Therefore, Local Plans should address WHS issues consistently the length of the Site.

Responsibility under marine planning runs to the mean high water mark with land-use planning to the mean low water mark, meaning a shared responsibility for the Marine Management Organisation (MMO) and public authorities planning in the intertidal zone[15]. The Marine and Coastal Access Act 2009 ensures that the MMO must take all reasonable steps to secure that marine plans are compatible with development plans in the land-use planning system[16]. In addition, there is also a requirement when preparing a marine plan to have regard to other plans connected with the management or use of the sea or coast adjoining or adjacent to the marine plan area[17].

Local planning

Close integration within Local Plans is fundamental to the success of Site management. Local Plans, along with any Neighbourhood Plans (introduced under the Localism Act 2011), provide the basis for determining all non-minerals or waste planning applications and future development within the Site and its setting. Separate policy is provided in Minerals and Waste Local Plans. To ensure the WHS's long term protection, Local Plans must be consistent with the NPPF regarding World Heritage and in line with the polices of this Partnership Plan. This process is supported by paragraph 24 in the NPPF, which states that '*Local planning authorities and county councils (in two-tier areas) are under a duty to cooperate with each other, and with other prescribed bodies, on strategic matters that cross administrative boundaries*'. Prescribed bodies include Natural England, Historic England and the Environment Agency. Helpfully, the evidence base that supports statutory development plans can also support WHS plan policies e.g. national and local landscape and seascape character assessments.

At the time of writing this plan, Dorset Council was in the process of creating a new Local Plan for the Dorset area. The East Devon Local Plan (2013 – 2031) includes various strategies and policies throughout that give appropriate regard for the WHS.

[15] https://www.gov.uk/guidance/do-i-need-a-marine-licence
[16] Paragraph 3 of Schedule 6 to the Marine and Coastal Access Act 2009
[17] Paragraph 9(h) of Schedule 6 to the Marine and Coastal Access Act 2009

AONB Management Plans

Of particular significance to this Plan, and the conservation of the Site and setting, are the statutory Management Plans for the Dorset and East Devon Areas of Outstanding Natural Beauty (AONB). Not only are the special qualities of each AONB important in understanding the setting of the WHS, the policies in their respective management plans provide some of the protection that negates the need for a buffer zone for the WHS. In addition, there is a great deal of synergy between those plans and this Plan in terms of sustainable landscape management.

Non-statutory plans

Statutory planning policies at local and national level are supplemented by a great many other non-statutory plans and policy documents. Shoreline Management Plans (SMPs) are the most significant strategic plans for the World Heritage Site. Any updates or revisions to relevant SMPs need to take account of the policies in this plan and accurately reflect the values and interests of the WHS. Other non-statutory plans that have a significant bearing on the management of the Site include the Dorset Coast Strategy and local site management plans e.g. for the National Trust properties, Local Nature Reserves and so on.

Call-in regulation

The NPPG states "*Planning authorities are required to consult the Secretary of State for Communities and Local Government before approving any planning application to which Historic England maintains an objection and which would have an adverse impact on the Outstanding Universal Value, integrity, authenticity and significance of a World Heritage Site or its setting, including any buffer zone or its equivalent. The Secretary of State then has the discretion as to whether to call-in the application for his/her own determination*."[18]

The Jurassic Coast is currently in a unique position as the only natural World Heritage Site in England. Historic England does not have the remit or expertise to advise on impacts on a natural World Heritage Site, but can advise on UNESCO processes in relation to notification to the Department for Digital, Culture, Media and Sport (DCMS) and the World Heritage Committee. NPPG indicates that Natural England should be consulted on proposals that might affect natural WHS, and in the context of call-in regulation their views should be taken into account in combination with those of Historic England.

[18] National Planning Practice Guidance

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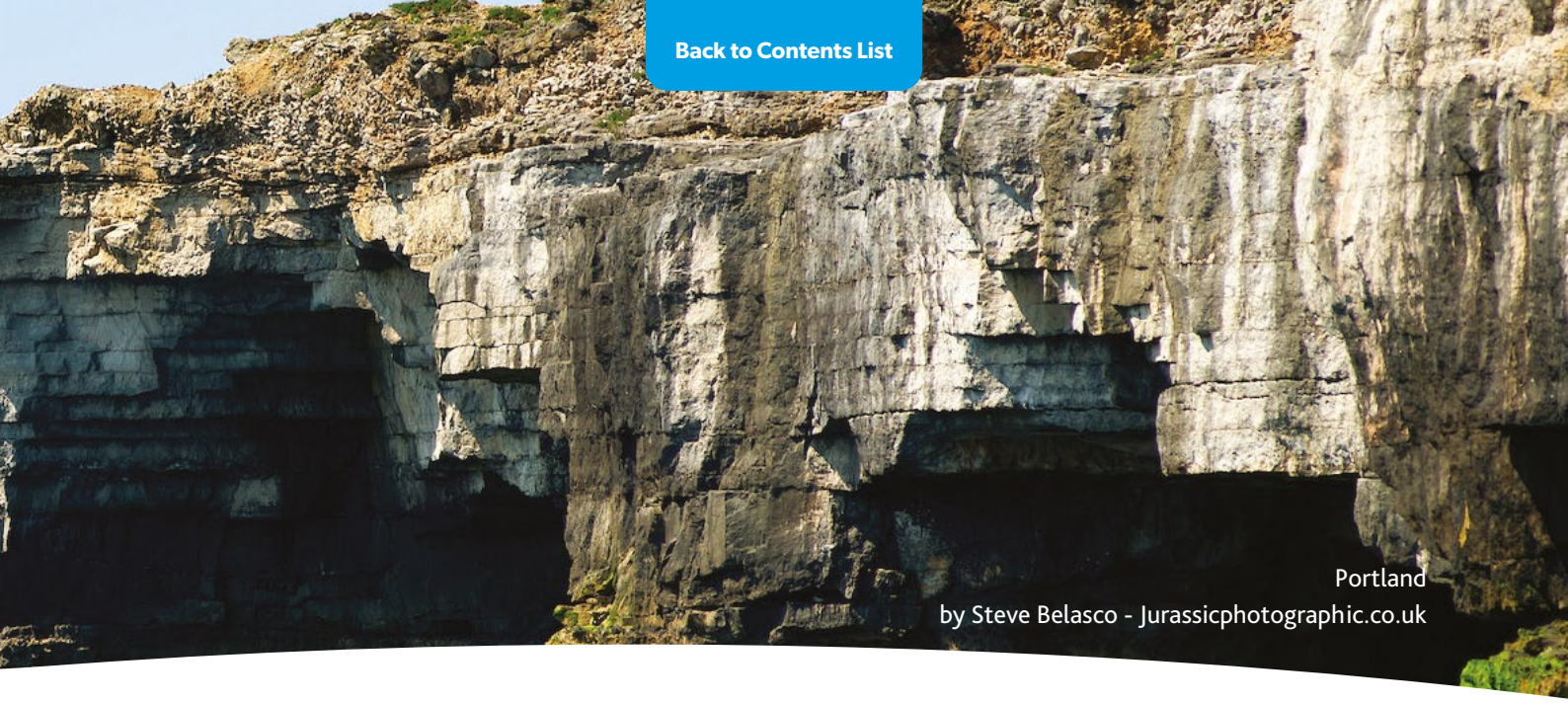

Portland
by Steve Belasco - Jurassicphotographic.co.uk

Protection from threats from the marine environment

The principal threat to the Site from the marine environment is posed by heavy crude or fuel oil from the many cargo vessels that use the English Channel. In terms of the OUV of the Site, this oil would significantly change the behaviour of shingle beaches, particularly Chesil Bank. This could have enormous implications for shingle landforms and their associated areas such as The Fleet lagoon, also part of the Site. Provisions for reducing risks of this type are put in place by the Government through the powers of the Maritime and Coastguard Agency (MCA) and the Department of Transport and through the identification of Marine Environmental High Risk Areas.

From a response point of view, the MCA will activate the National Contingency Plan in any major pollution incident. Local plans developed in conjunction with the Local Resilience Forums (LRF) also play a major role in response to coastal pollution incidents. For example, a Dorset Coastal Pollution Plan has been produced by Dorset Council's Emergency Planning Service, which integrates with the National Contingency Plan and details the shoreline clean-up procedures to be followed in the event of a Tier 2 or 3 pollution incident. The plan covers the entire coastline of Dorset from Lyme Regis to Christchurch.

Individual Harbours (such as Weymouth, Portland, Poole) have developed specific oil spills contingency plans, which are regularly exercised in conjunction with the MCA, contractors, and local emergency responders. Other industrial sites that may pose a pollution risk due to the nature of their business have developed specific response plans, to include pollution response elements. Control of Major Accident Hazards Regulations 2015 applies to two sites in Dorset (Perenco UK based on the Isle of Purbeck, and Portland Bunkers UK, based in Portland Port) and both have such plans in place that are regularly updated and exercised under statutory requirements.

Conservation designations

The Site is covered in its entirety by at least one or more conservation designations, made either for geological, wildlife or landscape value. There are designations set out under international and UK law as well as others that have no legal status, but carry varying degrees of weight in the planning system. These are summarised in Table 1 and in the accompanying maps (appendix 2M). Even though some of these designations are not protected for their geology, they depend upon a naturally eroding coastline and so are consistent with the needs of the WHS.

This complex blend of designations affords a high level of protection which, combined with planning policy, should provide long term security for the natural values of the World Heritage Site. However, gaps in coverage remain.

The Landscape Review by Julian Glover, published in 2019, makes several recommendations to strengthen AONB designations and suggests that a National Park for Dorset and East Devon could be considered. The resulting implications for the conservation of the WHS are unclear, but will need careful consideration.

Finally, the marine environment adjacent to the World Heritage Site has recently been afforded better protection through the designation of the Studland to Portland, and Lyme Bay to Torbay marine Special Areas of Conservation (SACs)[19]. The provisions in the Marine and Coastal Access Act 2009, and the marine spatial planning and Marine Conservation Zones (MCZ) processes established therein may well also provide stronger statutory protection for the future. In addition, the International Maritime Organisation (IMO) have a series of measures available, including through the International Convention for the Prevention of Pollution from Ships (MARPOL), and Particularly Sensitive Sea Areas (PSSAs).

[19] Currently still candidate SACs, but all provisions in place

Seaton
by Steve Belasco - Jurassicphotographic.co.uk

Table 1: Conservation designations. For more information about these designations go to the following websites: A – I: **www.naturalengland.org.uk**, C, E, F & J: **www.jncc.gov.uk** K: **www.devon.gov.uk**

Designation	Purpose	Number and list	Legal status
A. Site of Special Scientific Interest (SSSI)	Geology and biodiversity	13: covering all of the Site except for c. 10.5km in East Devon. Full list available in appendix 2	Statutory UK
B. Area of Outstanding Natural Beauty (AONB)	Landscape	2: East Devon, Dorset, covering all of the Site and setting except East Devon inter-tidal areas, small areas around Sidmouth, Seaton, Beer, Weymouth and all of Portland	Statutory UK
C. European Special Area of Conservation (SAC)	Wildlife	4: Sidmouth-West Bay, Chesil and The Fleet, Isle of Portland to Studland Cliffs, St Alban's Head to Durlston Head: approx 75% of the Site	Statutory European Habitats Directive
D. National Nature Reserve (NNR)	Nature conservation	2: Axmouth to Lyme Regis Undercliffs and Durlston Country Park	Statutory UK
E. Special Protection Area (SPA)	Bird	2: Chesil Beach and The Fleet lagoon, Exe Estuary	Statutory European Birds Directive
F. RAMSAR Site for wetlands conservation	Wetlands	2: Chesil Beach and The Fleet lagoon, Exe Estuary	Statutory International convention
G. Local Geological Sites	Regionally important geology	Many, including much of Portland	Non-statutory
H. Site of Nature Conservation Importance (SNCI) / County Wildlife Sites	County level site of biodiversity value	Some within the setting of the Site	Non-statutory Planning system embedded
I. Heritage Coast (HC)	Landscape	3: East Devon, West Dorset and Purbeck. Covers most of the WHS and setting except Portland	Non-statutory planning designation
J. Geological Conservation Review (GCR) sites	Nationally important geology	66: full list available in appendix 2	Non-statutory
K. Coastal Preservation Area (CPA)	Protective planning policy	1: East Devon coastal area	Planning designation
L. European Marine Sites	To protect seabed properties and specific species	Lyme Bay and Torbay cSAC, Studland to Portland cSAC Chesil beach and Stennis ledge MCZ, South Dorset MCZ	Statutory European Habitats Directive, Marine Act 2009

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3. ISSUES AND OPPORTUNITIES

This chapter looks at some of the key issues and opportunities in managing the World Heritage Site, meeting the Convention and working towards international Sustainable Development Goals. They inform the policies and actions within this plan, support future priorities and identify aspirations which may take longer to achieve but are nevertheless important. The items are not included in any priority order.

Lulworth Cove

The Jurassic Coast Trust supports the Sustainable Development Goals.

3.1 Political

Brexit

The development of this Plan was carried out while the UK's withdrawal from the European Union was still being negotiated. Whilst the European Union (Withdrawal) Act 2018 has retained EU derived laws in domestic legislation, including those relating to nature conservation, future changes to environmental legislation, trade and international cooperation remain a possibility. Additionally, changes to migration legislation could impact staff recruitment in the local tourism industry. However, the partnership is in a strong position to be able to respond constructively to these and other changes as they become clear.

Austerity

Since 2010 there have been consistent funding reductions to large parts of the public sector. Investment in heritage is, in general, much reduced, leading to increased competition for charitable grants and other funding sources. Diminishing investment presents a considerable risk for the management of the WHS and its supporting infrastructure of coastal amenities, landscape conservation, visitor centres and museums. There is risk too in providing the day-to-day management and partnership coordination for the Site through an independent charity – the Jurassic Coast Trust. However, the partnership itself is a crucial means to respond to these issues, providing a platform for strategic planning, joint funding bids and co-ordinated heritage and conservation initiatives.

Environmental Policy

National Environmental Policy direction is being framed within the Government's 25-year environment plan "A Green Future: Our 25 Year Plan to Improve the Environment", published in 2018. The general trend within the plan towards landscape scale environmental conservation is a huge opportunity for the WHS, particularly in areas such as enhancing beauty, heritage and engagement with the natural environment, and adapting to climate change. A specific issue for this WHS arises from the fact that, at the highest level, World Heritage is covered by DCMS and Historic England. This is further expressed in the National Planning Policy Framework for England where World Heritage is included as a part of the historic environment. This has resulted in some procedural uncertainty and confusion when responding to developments along this natural WHS. Continued collaboration between Natural England, Historic England and DCMS is helping to resolve the issue.

Other opportunities include:

- The proposal to create a Dorset and East Devon National Park, although the position of the WHS and its management in this proposal remains unclear at this time and must be carefully considered
- The Government's Landscapes Review, led by Julian Glover
- The implications for Site access and management from the implementation of the England Coast Path
- The potential for the WHS to contribute to nature recovery networks

Coastal Communities

A report from the House of Lords' Regenerating Seaside Towns and Communities Select Committee[20] identified the key issues facing seaside towns and made a series of recommendations for their regeneration. Significantly for the WHS, the recommendations emphasised that investment in heritage assets is of paramount importance in supporting the wider economy of seaside towns. Growth in affordable housing in seaside towns is also recommended by the report, an ambition already supported nationally by Government. The WHS has the potential to be a key driver in the regeneration of seaside towns, but in order to provide that benefit the Site's OUV must be protected by a sustainable approach to development. In particular, this will require coastal communities to adapt to sea level rise and climate change.

[20] www.parliament.uk/regenerating-seaside-towns

Photo by Steve Belasco

3.2 Socio-economic

Inspiration and wellbeing

The ideas behind World Heritage are profound and inspirational. The OUV of the Jurassic Coast provides astonishing insight into the history of our planet and its geodiversity underpins the biodiversity and cultural life of the area. It is a powerful, place-making story that continues to seep into the identity of Dorset and East Devon. The health benefits of spending time in natural environments and near 'blue spaces' (lakes, rivers and the sea) are becoming increasingly clear. Encouraging people to explore the beauty and diversity of the Jurassic Coast offers tremendous opportunities to promote active and healthy lifestyles. People's outdoor experiences are bolstered by a rich provision of learning and interpretation materials that create emotional and intellectual access routes into the landscape. The partnership is committed to helping people connect with the WHS and improve access to the countryside for all. Volunteers are a fundamental part of that endeavour, providing essential support to heritage and conservation organisations and freely sharing their passion for this special place with others.

Participation and inclusion

The Government 2019 Landscape Review recommends that more work is needed across the environmental and heritage sectors to consider audiences carefully and develop approaches that are sensitive to the needs of Black, Asian and Minority Ethnic (BAME) groups, LGBTQ people, religious groups, socially and economically disadvantaged people, people with visible or hidden disabilities or other underserved parts of our communities. There is a great opportunity for the partnership to try and improve the ways in which the needs of these groups are met along the Jurassic Coast (for example gender neutral toilets at visitor centres) and also to engage communities that are underrepresented or underserved more proactively. A more detailed discussion on this topic is included in Chapter 5.

Life on a World Heritage Site

The World Heritage programme supports UNESCO's global ambition to promote peace through 'the intellectual and moral solidarity of humanity'. The challenge for the partnership is to develop working practices that strive for that ideal. On the Jurassic Coast, the 'String of Pearls' is a concept that encapsulates the principles of co-operation, mutual benefit, accessibility, inclusion and sustainability, enabling every part of the Site to make an important contribution to the whole. It is central to the process of creating experiences for visitors and residents that are distinctive, complementary and responsive to the Jurassic Coast's overarching identity as a WHS. The 'pearls' have traditionally included the visitors' centres and museums, but in reality, could extend to cover the additional facilities and amenities that together inform the way people experience the Site.

Particular issues and opportunities for the String of Pearls group and the wider partnership include:

- Data collection and sharing to help with visitor management, targeted marketing, and easing pressure points along the coast
- Understanding changing tourism demands, such as cruise ship visits and the benefits they might bring to the local economy
- The need to deal with influxes of visitor numbers and over-tourism in certain areas
- Promotion of sustainable transport options and collaboration around signposting and connectivity
- Promoting the use of local service providers by visitors and by the partnership – e.g. expert guides, unique activities such as coasteering, specialist skills such as fossil preparation
- Collaboration to help improve diversity and social inclusion, following the recommendations in the Government's 2019 Landscape Review.

Understanding the value of OUV

Through the concept of OUV, the geodiversity of the Jurassic Coast is identified as having a global natural capital value. Research is key to understanding the economic, social and environmental benefits it offers to local communities and people around the world. Research across multiple disciplines, and in particular collaborative research, can create new ways to communicate the benefits of World Heritage status and engage people with the Site. At the time of writing in 2020, the Proceedings of the Geologists Association has published a special volume titled 'Jurassic Coast: geoscience and education'. It contains a series of papers covering earth science, interpretation and learning and represents an important moment of reflection on the value of this WHS. Research also has an intrinsic value for the Jurassic Coast because the early career scientists that come here to train and develop their skills will be the next generation of experts that will be called on to help understand and defend the OUV of the Site. The importance of engaging with them positively in order to develop their relationship with the WHS should not be underestimated.

Photo by Sam Rose

Fossil collecting, acquisition and display

Collectors have been finding and rescuing the great majority of important fossils from the cliffs and beaches of Dorset and East Devon for over 200 years, and continue to play this essential role in the management of the WHS. Without their intervention, most fossils, once exposed by the effects of weathering in the cliffs and erosion by the sea, would inevitably be damaged or destroyed sooner or later by those same processes.

The Jurassic Coast partnership supports the continued management of collecting within the Site in ways that, in general, follow Natural England's principles on responsible collecting, in combination with certain landowners' additional requirements along specific parts of the coast. It is also important that the fossil collecting codes for West Dorset, and the Axmouth to Lyme Regis Undercliffs National Nature Reserve, continue to operate.

An aim within the Jurassic Coast partnership is that scientifically important and display quality fossils from the WHS should be acquired by local accredited museums for research and display and thus remain close to the Site. It is considered that keeping their specimens local to the Jurassic Coast would be preferred by collectors and so help with acquisition. It would also ultimately lead to local employment opportunities, economic benefits and significant social and cultural benefits through associated learning and engagement programmes.

Towards this aim, during the past 5 years there have been several developments and projects that have expanded or otherwise improved the storage, research possibilities and display of important fossils, most notably the Etches Collection at Kimmeridge, that houses an internationally important collection

of fossils from the Kimmeridge Clay. However, there remains a considerable backlog of fossils from the WHS that would be suitable candidates for acquisition, but for which there is little or no display space (and uncertain storage space), and the backlog continues to grow. The major re-build and refit of the Dorset County Museum will provide an opportunity for them to make new acquisitions but further possibilities to expand other existing local museums appear to be very limited, although there is great potential to improve support for the curation, conservation, documentation and display of their existing collections.

There is a distinct opportunity here for major project work that seeks to improve the conservation of the palaeontological collections that support the Site's OUV. For a number of years, there has been a view held by some, particularly among the fossil collecting community, that a new high quality museum featuring a magnificent display of Jurassic Coast fossils to complement existing local museums, perhaps incorporating a centre for study and research, should be central to these ambitions, and would help to illustrate the scientific importance, quality of preservation, variety and in many cases the aesthetic appeal of fossils to be found along the WHS. A capital project of that kind would need a secure business case and evidence to demonstrate need. A vehicle for delivery would be required with the capacity to take on the work of designing, promoting, fund raising and delivering such a scheme. For it to be achieved, a strong case will need to be made for it and with widespread support. Work such as the Jurassic Coast Collection project being developed by the Jurassic Coast Trust should be a useful source of evidence, with the potential to catalyse major projects such as a new museum and future investment in fossils in general along the length of the World Heritage Site.

International connections

There is an important opportunity to build better connections with the international community of UNESCO sites and other protected landscapes. There would be particular value in developing relationships with other geological WHSs in order that the Sites' communities might learn from one another but also to improve our own understanding of the Jurassic Coast's place amongst the assets that protect global geodiversity. World Heritage status provides a platform to reach out to a global audience, which could be achieved with considerable success by utilising new technologies. UNESCO also expect all WHSs to respond to the UN Sustainable Development Goals. The Jurassic Coast's contribution towards these is set out in appendix 4. More generally there is an opportunity to promote understanding of the role of UNESCO itself and the various international programmes it supports.

© Dorset County Museum and Moonfleet Photography

3.3 Environmental

Climate change and sea level rise

The International Panel on Climate Change (IPCC) Global Climate Projections[21] and the most recent UK Climate Projections[22] indicate worrying trends that will undoubtedly have significant consequences for the Jurassic Coast.

According to the UK Climate Projections, within the next 100 years sea levels along the Jurassic Coast could rise by around one metre, causing the seaward boundary of the WHS to move higher up the foreshore. As a result, access to parts of the foreshore and any features that exist there may be reduced or lost altogether. Higher sea levels will also mean an increase of erosion rates, causing the landward boundary of the WHS to retreat. This will inevitably lead to additional issues such as the loss of cliff-top paths and, in some places, the migration of the WHS out of mapped SSSI units and the statutory protection they provide. These issues will be exacerbated by the predicted increases in annual rainfall and the frequency of extreme weather events such as major storms, both of which will serve to drive coastal processes at an accelerated rate.

These general trends provide important context, but the specific impacts they may have will vary along the WHS. In part this will be down to the particular geology and geomorphology of a given location, but it will also depend on natural weather variations that have long been understood to drive geomorphological processes and cycles along the coast (e.g. the North Atlantic Oscillation). If these existing patterns change, the wave systems that we regard today as typical could be altered. This kind of detail is not covered by the current climate projections, but could have profound implications for the future of the WHS, with the potential to permanently transform the behaviour of beach systems and other coastal features. The WHS may not evolve in the way it was expected to at the time of designation.

As climate change progresses there is likely to be an increase in pressure to build new coastal defences. This is the single biggest threat to OUV and it is imperative that the partnership works towards a collective response that safeguards the Site. Coastal zone management will be an important tool, including Shoreline Management Plans and the emerging Coastal Change Management Areas. In order to effectively protect the Site's OUV, the partnership needs to emphasise the benefits of sustainable coastal management, adaptation and working with natural processes. When it comes to taking practical action, the differences between general trends and localised impacts are of tremendous importance because, in essence, the changes caused by the global climate crisis will not necessarily cause a local crisis everywhere along the WHS. Identification of the locations that are most vulnerable should be prioritised in order to help take preparatory action. This applies not only to decisions around coastal management, but for research, site conservation, and investment in visitor infrastructure and sustainable tourism.

In terms of engaging people with these issues, the Jurassic Coast is an excellent teaching tool to help people understand the patterns and consequences of past climate change and mass extinction. It can be used to illustrate actual impacts through the evidence of extinction events and environmental change, adding context and substance to the implications of the current climate and biodiversity crisis. Perhaps more importantly, it can also help catalyse discussion and action. The various potential impacts discussed above are ultimately driven by C02 emissions, with low or high emission scenarios making a huge difference to the rate of sea level rise (see figure 3). It is sensible then to aspire to engage people with the need to reduce their environmental impact and for each stakeholder within the Jurassic Coast partnership to make their own appropriate commitments in this regard.

[21] https://www.ipcc.ch/report/ar4/wg1/global-climate-projections/

[22] https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index

More widely, as part of measures to combat climate change, the pressure to create more green energy developments such as wind farms may increase. Such developments would contribute to the mitigation of climate change impacts and would be in line with certain UN Sustainable Development Goals i.e. 7. Affordable and Clean Energy and 13. Climate Action. Previous green energy development has been resisted along the WHS due to potential negative impacts on OUV and setting, so it is important that the partnership seeks to balance the need to protect the Site with our commitment to the UN Sustainability Goals.

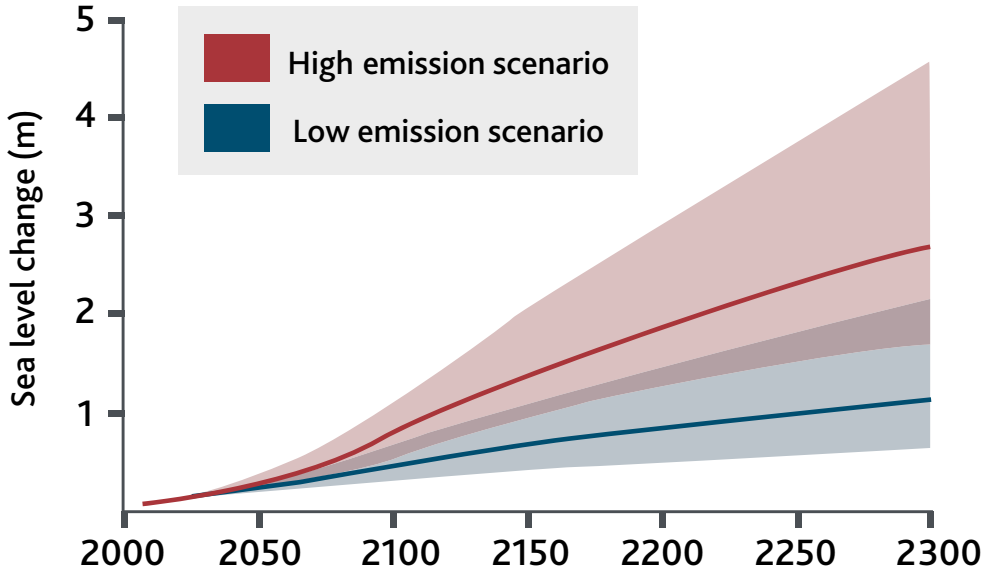

Figure 3: Sea Levels beyond 2100 (MET Office) Sea levels will continue to rise beyond 2100, however the uncertainty also increases further into the future.

Figure 3a: Ammonite pavement 2011

Figure 3b: Ammonite pavement 2019

Natural break-up of the ledges on Monmouth beach since 2011 has seen a huge part of the iconic ammonite pavement near Lyme Regis lost to the sea.

Promoting geodiversity

There is a significant opportunity to use the WHS to promote the role of geodiversity within our landscapes. The concept of OUV challenges us to carefully consider the tangible and intangible benefits provided by geodiversity. In doing so it highlights the importance of the resources directed in support of geoheritage and becomes a driver for further investment. There is tremendous value in the collective experience of the partnership in managing this Site since 2001, and the lessons we have learned could help others nationally and internationally who are working to parallel objectives. Similarly, there are likely to be valuable lessons that we could learn from others. Perhaps the best opportunity lies in building closer relationships between the Jurassic Coast and other UNESCO sites in the UK, particularly Geoparks. Closer involvement with the network of protected landscapes would also be of value as they too are working to make the most of their geodiversity and geoheritage assets. Organisations such as the National Trust, Geologist's Association and Association of Heritage Interpretation are often sources of best practice and innovation in engaging people with geodiversity. The Jurassic Coast partnership certainly has an important contribution to make to this wider community and may be able to draw considerable benefit from growing our connections to it.


Photo by Steve Belasco

Links between geology, culture and social history

UNESCO is placing increasing emphasis on the fact that nature and culture are closely related, and is encouraging all World Heritage Sites to incorporate this approach as part of their management practices.

There are deep connections between the globally important geodiversity of the Jurassic Coast and the cultural stories of Dorset and East Devon. The intimate relationship between people and geodiversity has developed over thousands of years, as geology has influenced the origins, historic fabric, traditional industries and heritage collections of distinctive local communities. For example, high quality flint from Beer in East Devon was used throughout the South West in the Stone Age and then actively quarried during the English civil war for use in muskets. In a sense, the World Heritage designation itself is a part of a continuing story of human interaction with the coast, reflecting a modern appreciation for this special landscape and a desire to protect it for future generations. Crucially, this pattern of interconnectivity helps to develop the 'String of Pearls' concept by providing further impetus for telling truly rich and distinctive local stories.

One key area of interaction between the World Heritage Site and culture has come through the arts. There is a long history of artists drawing inspiration from the Dorset and East Devon coast and targeted projects, such as the Jurassic Coast arts programme, have highlighted how collaborations with the arts sector can contribute to Site management and help to develop professional practice for all involved. A recent report by the Heritage Alliance[23] reveals how often heritage and arts depend on each other, and calls for more work to be done to strengthen this connection.

Exploring the relationships between geology, culture and social history can help people to better understand their communities and, in turn, nurture an appreciation of the World Heritage Site and geodiversity in general.

[23] Inspiring Creativity, Heritage and the Creative Industries – a Heritage Alliance report, 2019

3.4 Technological

Data

A huge variety of data relates to the WHS, from statistics about visitor behaviour to the boundary co-ordinates for SSSIs. This offers an opportunity to work towards better data sharing, where appropriate, especially in support of conservation, research, marketing, communications and visitor management. There could be great benefit in creating a standardised format for certain data sets and perhaps even in creating a dedicated and publicly accessible GIS platform for the WHS.

Social media

The increasing importance of social media is a significant issue and one certainly not to be neglected. There is already evidence to suggest that information shared via social media is driving an increase of interest in the WHS. For example, in the last five years several informal fossil hunting or fossil-related face book pages have been set up for Dorset and different parts of the Jurassic Coast. These have proved to be very popular and their appearance has been accompanied by a marked rise in the number of people engaged in fossil collecting, although the connection is unproved. This has caused concern in some cases, where parts of the coast not normally promoted as suitable for fossil collecting are receiving increased attention. Another example is that social media may possibly be encouraging people to put themselves in danger on cliff edges or accessing restricted parts of the coast in order to take 'selfies' and other photographs. This has been prevalent around Lulworth and also West Bay. However, there is an important opportunity, especially for the 'String of Pearls' group, to create a strong social media presence that carries an authentic voice on behalf of the WHS and its needs. Platforms such as Instagram and YouTube in particular can be powerful tools to showcase the Jurassic Coast whilst promoting responsible behaviour.

New technologies

Technologies such as detailed bathymetric surveys, photogrammetry and LIDAR are creating ever richer sources of material that can be used to engage people with the WHS. Outputs from these kinds of investigations can be varied and far wider than was originally intended. For example, the Dorset Integrated Seabed Study (DORIS) was intended to identify important seabed habitats but has led to a new geological map for Weymouth Bay to Durlston Bay, a fresh interpretation of the quaternary history of Dorset and a major increase in the understanding of the geology of the WHS. The potential for these technologies for conservation and engagement is huge as they provide brand new ways to record, research, visualise and present the geoheritage value of the Site.

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4. POLICIES AND PRIORITY OBJECTIVES

This framework sets out the principles, aims, policies and priority actions for the management of the World Heritage Site. As a partnership we recognise that the aims and policies are, to some extent, cross-cutting but in general are laid out here to reflect the World Heritage Convention, aligning this plan to the aspirations of UNESCO. Critical success factors provide the basis for a top-line measure of the success of the Plan overall whilst the principles are ways of working that should be considered at every level of delivery.

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Principles

Working from Evidence

One of UNESCO's strategic aims is that World Heritage Sites should be credible. Therefore, Site management will be based on evidence, sound science and our best knowledge and understanding of the coastline.

Aspiring to World Heritage Values

The Jurassic Coast is the name of an authentic and unique heritage asset. It brings many benefits to the area, binds our community together and connects us to wider, global values. As the custodians of this World Heritage Site we are challenged to encourage inclusivity, sustainability and a celebration of Outstanding Universal Value in ways that help our community to thrive.

Collaboration and cooperation

The protection and presentation of this World Heritage Site requires people to come together in support of a common cause. In order to safeguard the quality of this landscape and create inspiring experiences for visitors and residents that embody the Site's OUV, collaboration and cooperation are essential.

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Theme 1

Protecting Outstanding Universal Value

The World Heritage Convention states that each State Party recognises the duty of ensuring the identification and protection of natural heritage that possesses Outstanding Universal Value (OUV) and to integrate the protection of that heritage into comprehensive planning programmes.

Strategic Aim 1:

Protect the Site's Outstanding Universal Value and World Heritage Status

Policies within this section set out the parameters for clear, unambiguous long-term protection for the World Heritage Site (WHS) and setting through integration in the planning system and based on rigorous scientific evidence. The emphasis is on the prevention of activities that might negatively affect the OUV of the Site, or on the mitigation of the negative impact of activities that are unavoidable. There is a focus on allowing the natural processes of erosion to continue; thus maintaining the coastal processes, landforms and exposures that underpin the Site's OUV.

Critical Success factors

- Developments do not cause negative impact on Site's OUV
- Responsible fossil collecting continues to be widely adopted as a management approach across the World Heritage Site
- The community of the Jurassic Coast WHS acts in a sustainable way that maintains and enhances the Site's OUV

West Bay
by Paul Williams

Regulation

Policies

R1
The OUV of the WHS is protected by preventing developments that might impede natural processes, or obscure the exposed geology, as set out in the GCR / SSSI details, now and in the future.

R2
Any development resulting in a negative impact to the OUV of the WHS will only be acceptable if it is both essential and unavoidable. In these circumstances mitigation measures will be undertaken.

R3
New developments in the WHS's setting that may warrant a future need for coastal defences are opposed.

R4
Those elements of landscape character, seascape, seabedscape, natural beauty, biodiversity and cultural heritage that constitute the WHS's functional or experiential setting are protected from inappropriate development.

R5
Emergency plans will be maintained in order to respond effectively to major incidents* that might have significant consequences for the condition and presentation of the Site. Emergency plans will also ensure that the response actions themselves do not cause further damage

* Such as landslide or rockfalls, disease or oil spills

R6
The regulatory protection of the WHS will continue to be improved in places where there is vulnerability.

Priority Objectives 2020 - 2025

- Strengthen the available Landscape Character Assessment evidence base by developing a more detailed coastal character assessment that emphasises the attributes of the WHS.
- Support the development and adoption of Supplementary Planning Guidance that improves the shared understanding of how impacts on OUV should be assessed.
- Seek to ensure OUV and Site protection policies are accurately reflected and taken into account in Local Plans, Shoreline Management Plans, Marine Plans, the Management Plans for the Dorset AONB and East Devon AONB as well as any revisions to relevant Landscape or Seascape Character assessments.
- Create a comprehensive, standardised and publicly accessible data package for WHS boundaries and regulatory information to assist impact assessments and in understanding the Site's sensitivities.
- Undertake an audit of and develop an action plan for parts of the Site that would benefit from increased protection, including areas no longer within the SSSI boundaries due to natural erosion, areas of GCRs that are not included within SSSIs and areas that are not within an AONB or Heritage Coast.
- Explore the potential for extending the geographical parameters of the Site offshore, to include geomorphological features that form part of the OUV story, but are not within the Site boundary.

Industry and Military

Policies

IM1
Port or harbour managers minimise the risk of potential negative impacts on the WHS and setting from shipping activity through sensitive management.

IM2
Aggregate or mineral extraction, oil or gas exploration and exploitation, and renewable energy developments within the inscribed area of the WHS will be opposed.

IM3
Proposals for aggregate or mineral extraction, oil or gas exploration and exploitation, and renewable energy developments outside of the inscribed area of the WHS, but which could have an impact on it, should consider potential harm to the OUV and/or setting of the Site during the earliest stages of planning and take measures to ensure that harm is avoided.

IM4
Military activity avoids adverse impacts on the WHS or setting.

Priority Objectives 2020 - 2025

- Agree a stand-alone policy to make provision for recycling of sediment within a sediment cell in relation to necessary flood and coastal risk management activities.
- Continue to support the implementation of the statutory Reviews of Old Mineral Permissions (ROMPs) on Portland and elsewhere in a manner that will avoid any adverse impacts on the interests of the Site and its setting.
- Continue presumption in favour of replacing existing minerals permissions for surface quarrying on Portland with permissions for underground mining, where this would not result in any other unacceptable impacts on the Site.


Photo by Jon Evans

Codes of Conduct and Site Management Provisions

Policies

CC1
Rock and fossil collecting within the WHS will follow, in general, Natural England's national approach based on the principles of responsible collecting (see appendix 3).

CC2
The West Dorset Fossil Collecting Code for Lyme Regis to Burton Bradstock and the Undercliffs Fossil Collecting Code for the Axmouth to Lyme Regis National Nature Reserve sets the collecting guidance for these two areas and will continue to be implemented by all involved parties. (see appendix 3).

CC3
Fieldwork within the WHS will be undertaken following the Geologists' Association Code of Conduct for Geological Fieldwork.

CC4
Cliff climbing in sensitive areas will continue to be managed by landowners in order to avoid negative impacts on the quality of the geological exposures of the WHS or its wildlife.

Priority Objectives 2020 - 2025

- Continue to support and seek to expand the Fossil Warden service for West Dorset.
- Charmouth Heritage Coast Centre and Natural England, with strategic support, successfully administer the West Dorset and Undercliffs Fossil Codes and fossil recording scheme.
- Review the Undercliffs code within the lifetime of this plan and ensure that, as in the case of the West Dorset Fossil Collecting Code, any changes are made only with the agreement of all collaborating parties.
- Explore ways to invest in and otherwise improve the operation and delivery of the West Dorset and Undercliffs Fossil Codes.
- A campaign to promote responsible fossil collecting (and the two Fossil Codes) will be developed and delivered collaboratively by all relevant partners, using a variety of channels including online.

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Theme 2

Conserving Natural Heritage

The Convention recognises the duty of ensuring that natural heritage is conserved and transmitted to future generations.

Strategic Aim 2:

Conserve and enhance the Site, its attributes, presentation and setting

This aim relates to positive and forward-thinking actions for improvements to the Site's OUV and condition. Policies within this aim will cover a range of areas relating to conserving the geo-heritage assets, broader landscape and nature conservation and enhancements within the setting. Conservation actions need to be supported through appropriate scientific research, which is also highlighted here. Fossils and other geological specimens have a set of dedicated policies that indicate the resources needed to support their conservation, from being collected from the Site to becoming part of a public collection.

Critical Success factors

- All SSSIs and GCR sites are in the same or better condition than at the start of this Plan period
- Diverse research continues to be carried out along the WHS
- An increase in the number of scientifically important fossils found along the Site that are acquired by, or loaned back to, local accredited museums

Iron Pyrite ammonites collected at Charmouth

Conservation of Site and Setting Policies

Policies

CSS1
The conditions of GCR sites and SSSIs will be maintained and / or improved, when appropriate and possible, in ways that are consistent with or build on natural processes, taking account of other conservation objectives.

CSS2
The ongoing condition of the Jurassic Coast will be monitored with a particular focus on identifying the potential impacts of climate change on the attributes of the WHS).

CSS3
Initiatives that seek to address the causes and consequences of marine and land-sourced litter will be supported in order to reduce negative impacts on the WHS's condition and presentation.

CSS4
Features and sites inland and seawards from the coast that help to illustrate the OUV* will be highlighted or improved, especially aspects of the WHS story that are hard to access onthe coast itself.

**e.g. submerged river channels near Portland and the Keates Quarry dinosaur tracks.*

CSS5
The conservation and enhancement of biodiversity, the historic environment and landscape character in the WHS and setting will be supported in ways that are complementary with its OUV.

CSS6
Along parts of the WHS where a new, bespoke approach for managing fossil collecting is needed, collaborative arrangements will be made*

**Partners will include Natural England, landowners, accredited museums, the academic community and collectors (amateur and professional)*

CSS7
Opportunities to make gains for geological conservation should be responded to positively.

Priority Objectives 2020 - 2025

- The GCR sites and SSSIs that make up the WHS will be monitored in line with Natural England methodology and timescales in terms of their defined geological and geomorphological value.
- Targeted monitoring of specific features under threat will be undertaken and substantive events that affect the site will also be recorded where possible and practicable.
- Collaborate to identify inland sites and seabed features that are priorities for incorporation into the story of the WHS, and plan for their conservation.
- Review needs and desirability for new bespoke fossil codes along the Site and, if any, prepare a prioritised development plan.
- Collaborate in order to thoroughly consider the implications to the WHS of the Government's Landscapes Review, particularly in relation to the proposal for a National Park for Dorset and East Devon and any opportunities to make gains for geological conservation.

Research

Policies

Re1
Research under a wide range of disciplines will be encouraged and facilitated in order to expand our understanding of the WHS and the benefits of World Heritage Status.

Re2
Research on the WHS will adhere to relevant codes of conduct, site management provisions, conservation designations and legal requirements.

Re3
Geological material collected from the WHS for research, especially specimens described or figured in published research, should be deposited in a publicly accessible collection.

Re4
Partners will share data (e.g. scientific, economic demographic) relating to the Jurassic Coast and World Heritage Status wherever possible, and work together to identify key research needs.

Priority Objectives 2020 - 2025

- Establish a set of shared values and a set of guidelines that can encourage responsible research and guide science, arts, geography, economic and social researchers and practitioners to engage with the Jurassic Coast and its partnership of stakeholders
- Establish an information sharing platform for researchers and the Jurassic Coast partnership with the aim of facilitating access, fostering co-ordination, collaboration and new research opportunities
- Draw on UK Climate Projections 2.2km climate modelling in combination with other coastal monitoring and research data to help identify areas or features of the WHS that are most vulnerable to sea level rise and climate change. Highlight locations where new or expanded coastal defences may be needed
- Develop research partnerships and programmes to help identify and deliver research in relation to parts of the Site that are vulnerable to sea level rise and climate change
- Collaborate to create opportunities for 'citizen science' projects and the dissemination of research through public engagement programmes

An exquisitely preserved *Dapedium* fossil fish from Lyme Regis Museum

Fossils and Other Geological Specimens

Policies

F1
The partnership will continue to support the discovery, rescue and preparation of significant fossils by responsible collectors, which it recognises as an essential contribution to Site management.

F2
Building and maintaining strong relationships between collectors, academics and museums is encouraged and supported in order to help facilitate research and the acquisition of important specimens by public institutions.

F3
Where possible, important fossils and geological specimens from the Jurassic Coast are acquired and/or displayed by local accredited museums for the direct benefit of Jurassic Coast communities.

F4
Museums will continue to support ethical collecting practices that are responsive to relevant codes of conduct, Site management provisions, conservation designations and legal requirements when acquiring geological specimens from the World Heritage Site.

F5
Support is given to developments that improve the acquisition, curation, research, and exhibition of Jurassic Coast fossils where there is a recognised gap in provision and evidence to demonstrate need.

F6
Information and record keeping regarding geological collections and specimens from the Jurassic Coast should be maintained to a high standard.

F7
Accredited museums local to the Jurassic Coast are supported to enable them to maintain important geological collections and public engagement programmes.

Priority Objectives 2020 - 2025

- Through collaboration and partnership working, create a database of significant Jurassic Coast fossils, both publicly and privately held, in order to:
    - demonstrate the OUV of the WHS
    - identify privately owned specimens and collections that are suitable for acquisition if/when available
    - identify stored museum specimens that could be given a wider role for community benefit and public engagement
    - better understand the opportunities along the WHS in respect of acquisition, research, curation, storage and display of important fossils from the Site
    - support the case for investment that improves the acquisition, curation, research, and exhibition of Jurassic Coast fossils
- Use the database of significant Jurassic Coast fossils to help address the needs and opportunities surrounding the development of a new facility dedicated to Jurassic Coast fossils and establish its true potential in consultation with all stakeholder groups
- Explore ways of helping museums improve their documentation practices, existing records and other skills development e.g. fossil curation
- Continue to maintain and seek to expand the Fossil Finder Database

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Theme 3

Presenting the World Heritage Site

The Convention states that effective and active measures are taken for the presentation of natural heritage and that appreciation and respect of that heritage should be strengthened through educational programmes.

Strategic Aims:

3. Inspire and engage people with the Site and deepen their understanding of its values

4. Maintain and improve access to and experience of the Site

Welcome, access, understanding and enjoyment are intrinsically linked on the World Heritage Site. Policies within these aims are focused on making appropriate, realistic and sustainable improvements that enable people to enjoy the coast responsibly and encourage them to become invested in its ongoing protection. These emphasise the way that the destination is promoted, visitor safety and the maintenance or improvement of those facilities that are crucial for visitors, including interpretation provision that celebrates the unique and global heritage value of the Site.

Critical Success factors

- Sustainable and appropriate access to the Site is maintained or enhanced in line with capacity
- Tranquillity and sense of place are maintained or enhanced
- Promotion and use of sustainable transport increases
- Walking and cycling routes accessing the Site continue to be improved and managed to a high standard
- Visitors' enjoyment of the Jurassic Coast is maintained or enhanced

Photo by Steve Belasco

Destination Marketing

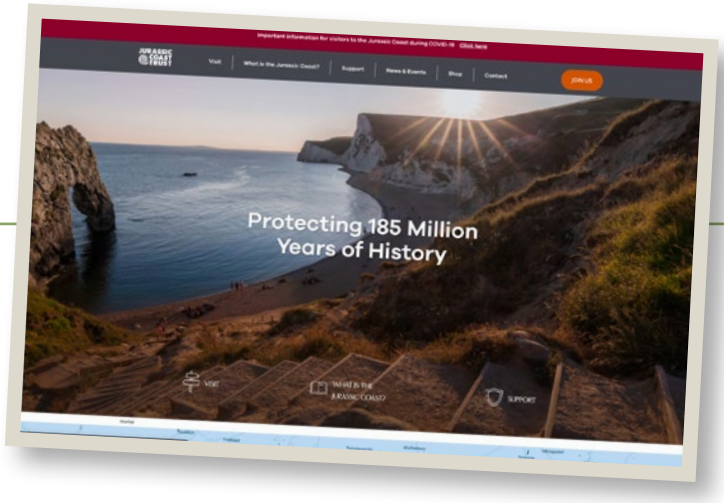
Policies

DM1
Promotion of the Jurassic Coast is sensitive to the needs of, and issues faced by, local communities and the WHS.

DM2
Information about events, promotions and campaigns relating to the Jurassic Coast is shared between Partners and destination marketing agencies.

Priority Objectives 2020 - 2025

- Partners will be encouraged to collaborate to make appropriate information available to visitors in advance of arrival that is intended to help manage congestion at popular sites and promote responsible tourism and behaviour.



Visitor Management

Policies

VM1
Partners with a responsibility for Jurassic Coast visitor infrastructure* are encouraged to maintain and improve it taking account of demand, quality guidelines, and site sensitivity.

* *e.g. paths, interpretation and signage, toilets, car parks, viewpoints, piers, seafronts, amenity beaches, Tourist Information Centres and other visitor facilities*

VM2
Public access to beaches within the WHS is maintained, but with sensitivity to wildlife, behaviour and safety considerations.

VM3
Signage at access points to the coast is coordinated, consistent and sensitive to the location and visitor needs. Permanent installations along undeveloped parts of the coast are kept to a minimum.

VM4
Collaborative working is actively encouraged in order to provide consistent messages and promote public behaviour change in the following areas: Safety and selfies; Littering and other fouling; Fossil collecting; Sporting or similar events; Marine behaviour (e.g. tranquillity or landing in sensitive areas) and preventing suicide in public places.

VM5
Safety messaging is effective, following best practice in both design and placement.

VM6
Sustainable travel, including rail, bus, walking, cycling or by sea, is encouraged and promoted.

VM7
When implementing emergency plans, partners are encouraged to carefully manage any impacts on public access to and perception of the Jurassic Coast.

Priority Objectives 2020 - 2025

- The South West Coast Path National Trail (and England Coast Path, where applicable) is the most significant access route for the Jurassic Coast and relevant partners will continue to work collaboratively to monitor, maintain and improve its condition
- Work collaboratively to:
    - Review WHS access points to identify priorities for place-based projects that seek to make improvements and reduce clutter in the landscape
    - Work in partnership to improve signposting at railway stations and other key sustainable transport hubs
    - Identify funding streams to support infrastructure and signage improvements
    - Review best practice of safety messaging development and delivery and seek to implement along the Jurassic Coast
- Raise awareness of the Dorset Local Resilience Forum Rockfall and Landslide Response Plan and seek to replicate it in East Devon
- Consult with local communities in order to gather information about issues and opportunities surrounding recreation and tourism along the Jurassic Coast
- Create clearer guidance on responsible fossil collecting for tourists on the WHS, emphasising those areas of the coast where fossil hunting is appropriate and permitted, and those where it is discouraged or restricted and why. This will be done in consultation with collectors and in response to actual visitor behaviours and pressures to avoid needlessly highlighting sensitive areas
- Develop guidance aimed at businesses and other organisations for promoting responsible recreation and tourism on the WHS, e.g. the nature of the coast as a natural site, safety, responsible fossil hunting, events planning, sensitive areas, access restrictions, visitor congestion, and year-round tourism
- The partnership, String of Pearls group and other key stakeholders are encouraged to work collaboratively to:
    - Explore the role of the String of Pearls group
    - Find co-ordinated and proactive ways to promote responsible tourism and behaviour
    - help manage congestion at popular sites along the Jurassic Coast
    - Find feasible ways to encourage visitors to explore the wider rural landscape inland
    - explore joint branding and promotion
    - explore how social media can be used as a tool to help deliver shared aims
    - Explore the idea of a 'distributed museum' along the coast, including an inventory of assets and expertise, and the development of a Jurassic Coast 'Gallery Plan'
    - Explore the value of creating a single 'guide book' for the WHS
    - Consider / explore relevant links between the Site and its setting and associated cultural and historic heritage
    - Develop coordinated promotion of connected sustainable travel in the area
    - Explore joint messaging relating to climate action
- Collaborate in order to develop approaches that help improve access, diversity and social inclusion following the recommendations of the government's Landscapes Review

Engagement and Learning

Policies

EL1
Development of Jurassic Coast interpretation, learning and outreach is embedded in existing engagement programmes whenever possible.

EL2
Interpretation content about the Jurassic Coast is high quality, guided by the Jurassic Coast Story Book and emphasises locally distinctive stories that link to the 'Walk Through Time'.

EL3
Interpretation about the Jurassic Coast is developed in collaboration with local communities and other stakeholders whenever possible.

EL4
Collaboration with artists and creative organisations is actively encouraged in order to support innovation and cultural links.

EL5
Efforts to highlight the connections between local geodiversity, culture and social history are encouraged and supported.

EL6
Jurassic Coast content aimed at primary or secondary schools should respond to relevant elements of the National Curriculum.

EL7
Jurassic Coast content aimed at further or higher education should be accurate and aspire to be based on current research and technologies.

Priority Objectives 2020 - 2025

- Dorset AONB team and Jurassic Coast Trust to work collaboratively with stakeholders and communities along the length of the Site in order to improve the consistency and quality of outdoor interpretation signage about the WHS
- Evaluate the use and impact of the Jurassic Coast Story Book
- Devise methods and resources that use the earth science stories of the Jurassic Coast to help people in local communities, schools and other educational settings to understand and engage with the climate variability and the potential impacts of climate change along the WHS
- The String of Pearls group and other key stakeholders will be encouraged to collaborate in order to:
    - Share information with partners about upcoming interpretation projects
    - Share and discuss interpretation and engagement aspirations and opportunities for collaboration amongst partners and with the arts sector
    - Explore ways of highlighting the relationship between nature, culture and social history
    - Identify opportunities for improving digital/ online interpretation and learning aimed at a global audience
    - Explore ways of developing interpretation and learning best practice along the WHS (e.g. accessibility and inclusivity, joint training, sharing data and findings from the evaluation)
    - Explore ways to disseminate current scientific research about the WHS amongst the String of Pearls group and other partners


hobby, so your ch
should reflect this
The best place to
amongst pebbles and boulders
on the beach.
Hammers and chisels are not
essential, plenty of fossils can
be found without them.
If you are in an area where
hammering is permitted, always
wear eye protection and keep
hammering to a minimum.
Do not hammer or dig in the cliffs.
Check the weather and tides
before setting out. It is best to
collect on a falling tide.
Beware of large waves, especially
during rough weather.
Stay away from the cliffs, as
rock-falls can happen at any time.
Mudflows are dangerous, stay well away.
Always tell someone where you
are going and how long you will be.
Register special or rare fossil finds at
the Charmouth Heritage Coast Centre
712
VOLUNTEER
JURASSIC COAST
Liz Watkinson
Volunteer
DORSET COUNTY MUSEUM

Theme 4

Involving Communities

The Convention states that World Heritage should become a function in the life of the community, and ultimately, if communities value it, their members will seek to protect and conserve it.

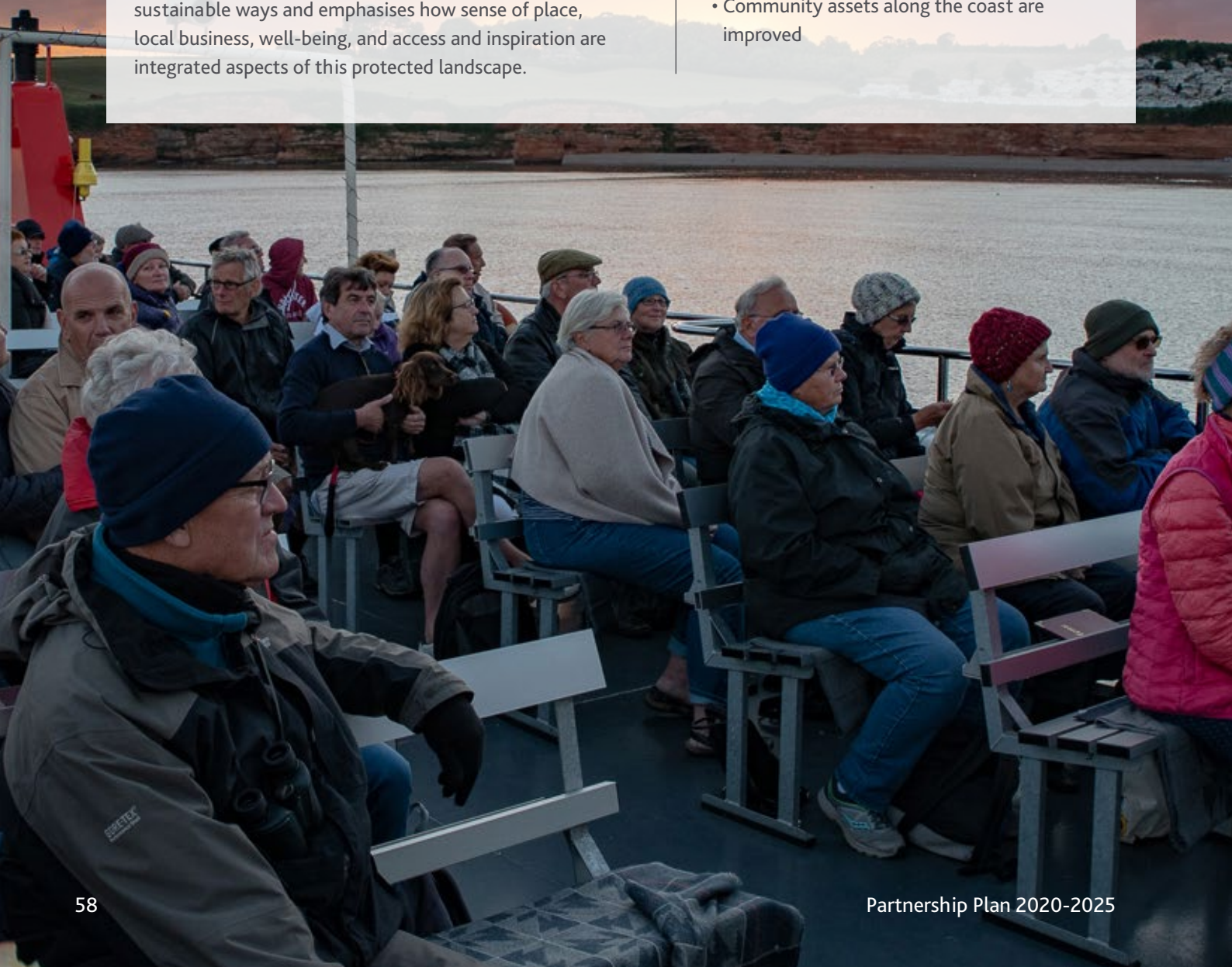
Strategic Aim 5:

Enable the Site's World Heritage Status to be of benefit to people and communities

It has been shown that the Jurassic Coast's designation as a World Heritage Site has brought a strong sense of identity to the area. This has stimulated the local economy and been a catalyst for civic pride and social enterprise. Policies within this section will look to build on this progress in sustainable ways and emphasises how sense of place, local business, well-being, and access and inspiration are integrated aspects of this protected landscape.

Critical Success factors

- The Jurassic Coast continues to be seen as a positive asset for the local communities
- The Jurassic Coast is seen as an inclusive and accessible place for all
- Economic benefit of Status grows past level assessed in 2015 study
- Community assets along the coast are improved



Well-being

Policies

W1
Initiatives to promote the Jurassic Coast as an area supportive to well-being and / or health are strongly encouraged, as long as they are within agreed environmental tolerances.

W2
Volunteering programmes contributing to management and sustainability of the WHS are encouraged and supported.

W3
Accessibility and inclusivity are strongly supported as a means to build a cohesive community, locally and internationally, that is invested in the future of the WHS.

Priority Objectives 2020 - 2025

- Undertake an accessibility audit of the Jurassic Coast and use the evidence to improve access to the coast for those with specific needs
- Grow, and join-up appropriate volunteering programmes as a means of skills and confidence development, well-being and as a support to management of the WHS
- Collaborate in order to grow the ways in which the WHS can contribute to health and wellbeing programmes
- The partnership will collaborate in order to develop approaches that will help increase access, diversity and social inclusion throughout their operations and outputs

Economy

Policies

E1
The economic value of the designation is evaluated, promoted and demonstrated, particularly to encourage sensitive business growth and encourage a greater year-round economy.

E2
Visitor Centres and Museums are a key asset for tourism and the communities of the WHS and their long-term sustainability will continue to be supported.

E3
Growth in the sustainable use of the coast and wider inland landscape is encouraged and supported, in line with the environmental values of the WHS.

E4
Local producers and service providers are used and advocated for where possible in respect of activity relating to the management of the WHS.

E5
Employment and enterprise opportunities inspired by the STEM areas of science, geology, research, conservation and the marine environment, within the WHS and its adjoining areas are to be supported and encouraged.

Priority Objectives 2020 - 2025

- Demonstrate the continued and growing economic value of the World Heritage designation through a repeat of the 2015 study. If possible, include a focus on STEM opportunities and develop a case study of the combined economic value of the String of Pearls
- Develop and roll out an agreed and joint responsible use policy or Code of Conduct for group or commercial users of the Coast Path (or linked paths) along the Jurassic Coast
- Advocate for the continued support of visitor centres and museums that provide social and economic benefits to their communities and the World Heritage Site
- Develop joined up itineraries for visitors in partnership with local businesses, the String of Pearls group and other attractions, prioritising those that use sustainable transport
- Explore ways of raising awareness of local services and skills, such as fossil preparation, that are linked to the WHS and its economic impact

Civic Pride

Policies

CP1
The profile of the Jurassic Coast, World Heritage Status and its significance is increased within towns and parishes close to the WHS.

CP2
Appropriate use of the Jurassic Coast and UNESCO brands is nurtured in order to strengthen the integrity of the designation.

Priority Objectives 2020 - 2025

- Produce new guidelines for use of the name 'Jurassic Coast', WHS logos, and other branding tools amongst all stakeholders, particularly businesses and the String of Pearls group

JURASSICCOAST
DORSET AND EAST DEVON
WORLD HERITAGE SITE

- Establish an effective mechanism for the partnership to communicate with towns and parishes along the World Heritage Site in order to:
  - Facilitate their involvement with Site management
  - Help increase an understanding of the Site within their communities


Photo by David Fisher

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5. DELIVERY

Delivering the policies and objectives of this Plan will require the combined effort and resources of a wide range of partners. The Jurassic Coast partnership acknowledge that it is not the central remit of many of these partners, but assert that investment in delivery will benefit the environment, communities and a sustainable local economy.

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By Tom Chamberlain

5.1 A Delivery Plan

The Partnership Advisory Committee (PAC) will agree an annual delivery plan that will seek to identify the collaborations and resources needed in order to commit to the opportunities identified by the Partnership Plan. The delivery plan will align to the 2020-2025 period and will be made available online via **www.jurassiccoast.org.**

Roles and Responsibilities

A variety of working relationships and collaborations will be needed in order to achieve particular objectives. These will be agreed by PAC and identified within the delivery plan, along with lead roles for specific tasks and more detailed time frames and deadlines.

Resources

This Partnership Plan plays a central role in all resourcing efforts by providing the context and framework that demonstrates how obligations to the World Heritage Convention are being met, and the importance and benefit of investment to the WHS itself and to the wider community. However, there is no central government funding available to World Heritage Sites.

Where possible and applicable, resources available from the Jurassic Coast Trust, partners, grant opportunities and other funding sources will be identified within the delivery plan and allocated to specific objectives or tasks.

Reporting

Progress delivery updates will be published on an annual basis by the Jurassic Coast Trust with co-ordinated input from the members of PAC. These reports will be made available via **www.jurassiccoast.org**. The delivery plan will also be designed so that progress can, in principle, be updated and publicised at any time.

The Jurassic Coast Trust (JCT) will continue to liaise directly with DCMS on behalf of the partnership in order to respond to issues affecting the WHS. It will also submit State of Conservation reports about the Site to UNESCO as and when required.

5.2 Participation and Inclusion

Implementation of policies and actions as contained in the Partnership Plan, or related research initiatives and consultations should consider audiences carefully. Key considerations should include and be sensitive to the needs of Black, Asian and Minority Ethnic (BAME) groups, LGBTQ people, religious groups, socially and economically disadvantaged people, people with visible or hidden disabilities or other underserved groups. This not only refers to meeting standards that incorporate the needs of these groups (for example gender neutral toilets at visitor centres) but also through proactive and positive engagement in communities that are underrepresented and under-served in the heritage sector.

In practice, this means that actions and approaches undertaken as part of the new Partnership Plan will take into consideration the matters described above. This approach will set standards for the management of World Heritage Sites and other natural designated areas.

Race/ethnicity (including Gypsies and Travellers)

Dorset is less ethnically diverse than England. In 2011 Census 4.5% of Dorset's, and 3.8% of East Devon's population classed themselves as being from a Black, Asian and Minority Ethnic (BAME) group other than "White British". This is lower than the proportion for England (13.0%). There are significant opportunities to link to nearby urban populations, which tend to have much more diverse BAME populations. Provision of outreach and educational activities should be inclusive in design and delivery, following good practice, and where appropriate and possible, include measures to reach specific BAME groups, particularly in relation to local urban populations and the local populations of travellers and gypsies. Partner organisations are encouraged to follow good practice guidelines regarding the promotion of equality and diversity in recruitment and training of staff, trustees and volunteers.

Visible and hidden disabilities

Dorset tends to reflect national patterns with regard to levels of disability. Hidden disabilities refer to conditions that have no physical signs to the outside world but are still disabilities under the Equality Act. They include, but are not limited to, dyslexia, dyspraxia, dyscalculia and mental health. East Devon also reflects national averages, and in likelihood has a similarly ageing population. The percentages of people who say they have a limiting long-term health issue or disability are 8.6% for Dorset and 8.9% for East Devon. All visitors to the coast should be welcomed equally, and this should include, as a general principle, inclusive design principles at all stages of planning and delivery, with a particular emphasis on the need for disabled parking and public transport.

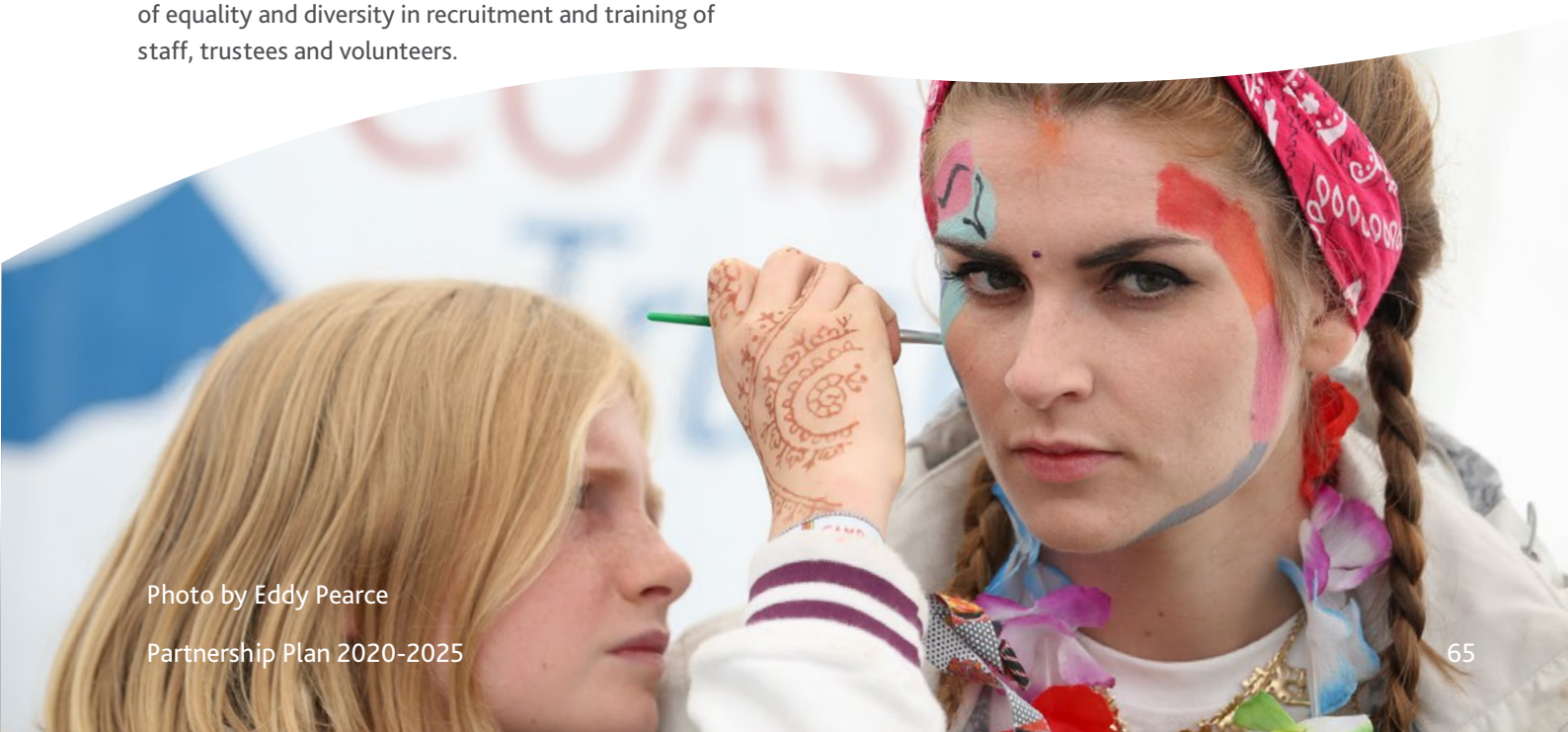

Photo by Eddy Pearce

Religion and/or belief

When considering religious beliefs, 65.3% of the residents of Dorset and 65.6 % of the residents of East Devon tend to define themselves as Christian. This is largely in line with the national average. It is hard to identify any obvious ways in which this should have any consequences regarding this management plan in terms of welcoming people of other faiths.

Age

Dorset and East Devon generally have an ageing population, with significantly higher numbers of people over 65 than nationally (Dorset 25.2% of the population, East Devon 28.2%). Many of the issues which relate to this plan are reflected in the notes on disability set out above. Work could be done with partners and through learning and education programmes to develop specific activities to target the full age spectrum of young through to older people, particularly the socially isolated. Many visitors to the coast are likely to be visiting older relatives (e.g. grandparents), and this could be taken into account in providing more inter-generational activities. In addition, specific work such as the Jurassic Coast Volunteer Network project is now underway to target young people and engage them with volunteering programmes along the Jurassic Coast.

Sexual Orientation and Gender

The Jurassic Coast is a World Heritage Site and therefore everyone, regardless of their sexual orientation or gender should feel welcome to explore and enjoy what it has to offer. Partner organisations should actively and positively use images for literature and marketing materials that reflect a diverse community and non-traditional family groupings.

Rural isolation/exclusion/ deprivation/other issues

Rural isolation and pockets of significant social deprivation are significant issues along the Jurassic Coast, with many small and relatively isolated communities, and generally poor and limited access to public transport. In particular, aim 5 'Enable the World Heritage Status to be of benefit to people and communities' should be considered in the context of these communities and care should be taken to engage with the smaller communities, as well as with the more significant 'gateway towns'. Provision of outreach and educational activities should be inclusive in design and delivery, following good practice, and where appropriate and possible, include measures to reach isolated and socially deprived communities, to inspire and develop aspirations, working with grassroots organisations in cross cutting sectors.

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5.3 The role of the Jurassic Coast Trust

The JCT can play a unique, strategic role on behalf of the partnership by focusing on the needs of the WHS in ways other partners are not free to. In summary, the JCT will aim to add strategic value in the following ways:

- Providing leadership on what is best for the WHS by understanding its OUV and promoting its identity, heritage values and the need to protect it.

- Fostering the partnership that collectively protects the site by understanding the environmental, economic and social/cultural benefits of World Heritage status and working to make sure partners and communities have a share of those benefits.

Whilst the JCT will have its own business plan, the work programming that it undertakes will be in response to the strategic opportunities within the Partnership Plan and priorities within the delivery plan agreed by the PAC.

Dorset Council and Devon County Council provide a grant to the JCT in support of its strategic role, but this only covers around 30% of operating costs. As an independent charity, fundraising will be a central concern for the JCT in order to sustain its operation and strategic value.

JURASSIC COAST TRUST

Glossary of Terms

Fossil Finder Database	https://jurassiccoast.org/what-is-the-jurassic-coast/all-about-fossils/fossil-finder/fossil-finder-database/
Outstanding Universal Value	See chapter 2
String of Pearls	See page 8 of this Plan

Appendices

Available on request or for download via www.jurassiccoast.org

Appendix 1	Significance and description of the Site and Setting
Appendix 2	Statement on the boundaries of the Site, and the World Heritage interests within them
Appendix 2M	Maps
Appendix 3	Fossil Collecting
Appendix 4	Integration with UN Sustainable Development Goals

Acronyms

AONB	Area of Outstanding Natural Beauty
CPA	Coastal Preservation Area
GCR	Geological Conservation Review
HC	Heritage Coast
IMO	International Maritime Organisation
IUCN	International Union for Conservation of Nature
JCT	Jurassic Coast Trust
LRF	Local Resilience Forum
MARPOL	International Convention for the Prevention of Pollution from Ships
MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zones
MMO	Marine Management Organisation
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
OUV	Outstanding Universal Value
PAC	Partnership Advisory Committee
PSSA	Particularly Sensitive Sea Area
RAMSAR	Referring to sites designated under the Ramsar Convention on Wetlands
SAC	Special Area of Conservation
SMP	Shoreline Management Plan
SNCI	Site of Nature Conservation Importance
SOUV	Statement of Outstanding Universal Value
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
STEM	Science, Technology, Engineering and Mathematics
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHS	World Heritage Site

United Nations
Educational, Scientific and
Cultural Organization

Dorset and East Devon Coast
inscribed on the World
Heritage List in 2001

Email: info@jurassiccoast.org
Tel: 01308 807000
www.jurassiccoast.org

#JurassicCoast

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Jurassic Coast

Partnership Plan

2020-2025

Management Framework for the Dorset and East Devon Coast World Heritage Site

APPENDIX 1:

Significance and description of the Site and Setting

JURASSICCOAST
DORSET AND EAST DEVON
WORLD HERITAGE SITE

United Nations
Educational, Scientific and
Cultural Organization

Dorset and East Devon Coast
inscribed on the World
Heritage List in 2001

ACCESSIBILITY

If you require a copy of this document in a different format, please contact us and we will do our best to provide it in a way that meets your needs

YOUR VIEWS

The most important people for the future protection, conservation and use of the Dorset and East Devon Coast are those who live or work on or near it, and visit and enjoy it. Please let us know your views on the Site and its management through the contact details below.

CONTACT DETAILS

Website: www.jurassiccoast.org

Email: info@jurassiccoast.org

Mail: The Jurassic Coast Trust,
Mountfield,
Rax Lane,
Bridport,
DT6 3JP

Tel: 01308 807000

A1-1 Significance

A1-1.1 Geological values

The coastal exposures within the Site provide a near-continuous, accessible sequence of rocks that documents almost 190 million years of the history of the Earth, spanning the Mesozoic Era.

The rock strata exposed within the Site provide a near-continuous geological record of earth history between 251 and 66 million years ago, in relatively undeformed sediments, representing a remarkable range of past environments. Together, the succession reveals a complete, classic and well-studied section through the Wessex Basin, one of the best known Mesozoic-Tertiary intra-plate sedimentary basins in Europe. A simplified stratigraphic column for the Site is shown in Figure 4. The structure of the coast displays its geological interest superbly. In general, the strata dip gently to the east. The oldest rocks are therefore found in the west of the Site with progressively younger strata outcropping to the east. As a direct result, most parts of the succession are readily accessible in sequential order within the cliffs and foreshore, while the continuous processes of coastal erosion mean that exposures are constantly refreshed and new material is brought to light.

The Triassic succession is a virtually continuous exposure of c. 1,100m of sediments representing most of the Triassic Period (c. 251-199 million years ago) in continental, terrestrial red-bed and, near the top of the sequence, shallow marine facies. These exposures record evidence of the gradual destruction and denudation of mountains formed in the Variscan orogeny of 330-280 million years ago, and the establishment of a widespread marine environment within a Jurassic basin, formed during the opening of the Atlantic Ocean (Warrington, 1999; Barton, 1999 contributions to nomination).

The Jurassic rocks within the Site have been known since the early days of geology as providing one of the finest marine sequences of this age anywhere in the World (Callomon and Cope, 1995). Every stage of the Jurassic is represented; of the seventy-four ammonite zones, which have been recognised within the Jurassic (Cope et al., 1980a, 1980b), only three are definitely absent. The succession provides excellent evidence of the history of the Earth between c. 199-146 million years ago, recording six major cycles of sea level change, represented by repeated rhythms passing from clay to sandstone and then limestone. Historically, these sections have played a key role in the establishment of modern stratigraphy and biostratigraphic studies. They are internationally renowned, 'classic' sections on which comparative studies continue to be based.

The boundary between the Jurassic and Cretaceous has still to be internationally defined, but, in Dorset, is expected to lie within the lowest beds of the Purbeck Formation. The succession within the Site includes rocks of all stages of the Cretaceous Period, with the exception of the uppermost stage. The Purbeck Formation in Dorset is one of the finest late Jurassic-early Cretaceous terrestrial sequences in the world and offers a unique insight into environments and life at that time. The overlying Wealden Group is the most complete sequence of this age available at a single site in north-west Europe. Much of the Site displays a spectacular example of a geological unconformity. This is an exceptionally well exposed and documented record of a world-wide Lower Cretaceous marine transgression. Uplift and erosion towards the end of the Wealden led to the erosion of the underlying Cretaceous, Jurassic, and Triassic along the length of the coast, prior to deposition of the transgressive Lower Greensand, Gault and Upper Greensand. In East Devon these strata rest directly on Triassic rocks. The unconformity becomes progressively smaller to the east, until, in the Swanage area, the Gault and Upper Greensand overlie the Wealden Formation with little angular discordance. Complex lateral changes in sedimentary environments are also recorded, allowing interpretation of the changes that took place during this important phase of sea level change. The extensive coastal exposures provided by the Dorset and East Devon coast are complemented by modern and detailed geological maps, exceptionally well documented stratigraphy and sedimentology and an extensive subsurface database. As this knowledge has been gained, the significance of the structural geology of the Site has become particularly important. Today this is one of the best understood sedimentary basins in the world, and concepts developed here have a global application.

Dorset localities have provided the names for internationally recognised stages for the Mesozoic. The Kimmeridge Clay unit gave its name to the international Kimmeridgian Stage as proposed by D'Orbigny (1846-1849). Owing to a miscorrelation at that time, only the Lower Kimmeridge Clay is now included in the modern Kimmeridgian Stage, the remainder lying within the lower Tithonian of current international use. Portland gives its name to the Portlandian Stage, named by Brongniart (1829), which is still in use in Northern Europe, though now included within the upper Tithonian. The Purbeckian, named after Purbeck, was, until recently, in international use for the lowermost stage of the Cretaceous.

A1-1.2 Palaeontological values

The Site includes a remarkable range of internationally important fossil localities, which have produced superbly preserved and diverse evidence of life during Mesozoic times

The rocks within the Site are, for the most part, highly fossiliferous and contain the evidence of major changes in the pattern of life on Earth during the Mesozoic Era, between two mass extinctions which took place at the ends of the Permian and Cretaceous periods. The variety of environmental conditions represented within the succession, and particularly the overall predominance of shallow marine sediments, has resulted in an exceptionally diverse range of species being represented, including plants, insects, benthic and pelagic marine invertebrates, fish, marine and terrestrial reptiles and mammals. Furthermore, exceptional preservation of material is found within a number of the fine-grained sediments including articulated skeletal remains, and rare features such as soft-tissue preservation.

FOSSIL VERTEBRATES
The Site contains nine vertebrate fossil localities of international importance, ranging in age from Mid-Triassic to Lower Cretaceous.

Triassic: The Mid-Triassic Otter Sandstone Formation at High Peak and Otterton Point has yielded ten species of reptiles, fish and amphibians. It is the richest productive Mid-Triassic reptile site in Britain and has been assessed as representing one of the most promising terrestrial reptile sites of its age known (Benton and Spencer, 1995).

Jurassic: Seven sites are of international status for vertebrate remains within the Jurassic. The Liassic (Hettangian – Pliensbachian) vertebrates of Lyme Regis (Pinhay Bay to Seatown) are world famous. This fauna is the most diverse and abundant known from the early Jurassic anywhere. The latest faunal review (Benton and Spencer, 1995) reported that this locality has yielded type specimens of fourteen species of reptile, nine of which occur only here. Discoveries of species new to science are still being made on a regular basis as the cliffs erode. In recent years these include a new species of ichthyosaur from the Pliensbachian (McGowan & Milner 1999), and a second discovery from 1999 which is awaiting description. The quality of specimens is frequently exceptional, with well-articulated skeletons and soft-part preservation of features such as skin and stomach contents. This locality is the source of the geologically earliest well-preserved plesiosaurs and the earliest crown-group ichthyosaurs. The first complete skeletons were collected from these localities in the early nineteenth century (Taylor, 1997), and include holotype specimens of taxa that are still crucial to modern studies of marine reptiles (Storrs, 1997). Material from Lyme Regis has formed the basis of recent revisions of ichthyosaur relationships and evolution (McGowan, 1973-1989). The importance of Lyme Regis is further highlighted through the remains of terrestrial vertebrates. It is the only locality of *Scelidosaurus harrisoni* Owen, the oldest known thyreophoran (armoured) dinosaur (Norman, 1985).

The Lias has also produced unique records of one of the earliest flying reptiles, *Dimorphodon macronyx* which is of great importance to the study of pterosaurs (Unwin, 1988). The fish fauna is also very diverse with a broad representation of both cartilaginous and bony fishes (Gardiner, 1960), and its significance has recently been assessed (Dineley and Metcalf, 1999). About forty-six species are currently recognised of which thirty-five are unique to this locality. It is the source of some of the finest preserved Lower Jurassic fish known, some of which are preserved uncompressed in three dimensions (Dineley and Metcalf, 1999). The Middle Jurassic vertebrate fauna of the Forest Marble at West Cliff, West Bay is a unique and diverse mix of marine, freshwater and terrestrial elements (Evans, 1999). The fauna includes bony fish, sharks, amphibians, frogs, salamanders, small turtles, lizards, crocodiles, dinosaurs,pterosaurs and early mammals, and much material awaits description. It is important as one of few well-known vertebrate faunas of this age (Evans, 1999 contribution to nomination).

Furzy Cliff near Weymouth is Britain's best Oxfordian reptile site, and in view of the limited number of sites of this age elsewhere, is considered one of the best in the world (Benton and Spencer, 1995). It is the source of the unique specimen of the carnivorous dinosaur *Metriacanthosaurus parkeri* (Huene, 1923), together with ichthyosaur and plesiosaur remains.

The Kimmeridgian vertebrate fauna, from three significant localities within the Site, is world-renowned. Smallmouth Sands has produced one of the most diverse assemblages of Kimmeridge Clay reptiles known. Its fauna of four species of turtles and three of pterosaurs is unique; six of its vertebrate species are known only from this locality (Benton and Spencer, 1995). Within Kimmeridge Bay nearly twenty species of crocodilians, pterosaurs, dinosaurs, plesiosaurs, pliosaurs and ichthyosaurs have been found. Although many of the taxa are represented at other localities in the world, the quality of preservation of much of the material from the Site is exceptional. Kimmeridge Bay has yielded more type specimens of

reptiles than any equivalent site (Benton and Spencer, 1995), and its fossils have figured prominently in recent reviews of marine reptiles (Tarlo, 1960; McGowan, 1976; Brown, 1981). Encombe Bay has produced species of turtles, pterosaurs, dinosaurs, plesiosaurs and ichthyosaurs. The Kimmeridge Clay has yielded a fauna of at least fifteen published species of reptile, of which 20 per cent are unique to Dorset, but recent collections include considerable further unpublished material (Etches and Clarke, 1999). The fish fauna includes eighteen species; the material is very well preserved and new finds are made each year (Dineley, 2000 contribution to nomination).

The Isle of Portland has yielded the best faunas of marine Portlandian (Upper Tithonian) reptiles in the world (Benton and Spencer, 1995). Finds have been made in coastal sections and in adjacent quarries, which lie outside the Site. Eight reptile species have been identified, of which four are represented by type specimens. The fossil turtles are particularly important and include some of the earliest known well-preserved specimens (Benton and Spencer, 1995).

Cretaceous: The Purbeck Formation on the Isle of Purbeck (including those rocks that straddle the Jurassic – Cretaceous boundary) contains an exceptional assemblage of vertebrate fossils. Fish remains are common and locally are exceptionally well preserved. About thirty species have been identified, and the formation is regarded as one of the most important late Jurassic fish localities in the world (Dineley and Metcalf, 1999). It also contains one of the richest mid-Mesozoic tetrapod assemblages known (Howse and Milner 1995). The fauna includes amphibians, mammals and over forty species of reptiles; turtles, crocodiles, lizards and dinosaurs, complete with associated trackways. Durlston Bay is by far the richest known reptile site of this age, and has many claims to pre-eminence for specific aspects of reptile palaeontology (Benton and Spencer, 1995). The mammal fauna is also outstanding; it was first recognised in the 1850s by Samuel Beckles, and monographed by Sir Richard Owen (1871). Many new species have since been recovered. In totality, the Purbeck of Dorset is unique in providing over 100 valid named species of vertebrate within a limited geographical and stratigraphic setting, indicating that they were living in close proximity at the same time. The associated range of trace fossils, egg-shells and coprolites, together with the level of sedimentological detail, provide a record of unparalleled richness inreconstructing a complete picture of the environment of the time. There is a high potential for further discoveries: recent work, for example, at a coastal locality and a nearby inland locality has revealed Britain's only reptile eggshell of this age and an additional important microvertebrate horizon (Ensom, 1997, in press, and contribution to nomination).

FOSSIL INVERTEBRATES

The invertebrate fauna of the Site is extremely rich, and the remains are found throughout the Jurassic and Cretaceous. Fossils belonging to most phyla have been described, although corals are largely missing. Many aspects have been studied in detail, including the bivalves and several different groups of microfossils. Insects are known from the Triassic, Jurassic and Cretaceous rocks within the Site. The particularly significant remains are the rich and diverse faunas from the Lias and the Purbeck Formation, and new discoveries indicate significant potential in the late Triassic strata near Axmouth, East Devon (Swift and Martill, 1999).

The Black Ven Marls near Charmouth are the best known source of Lower Lias insects in the World. The diverse fauna includes representatives of ten different groups. The insects have been the subject of modern scholarly works which have recognized over twenty new genera and species known only from the Site, including the oldest known moth *Archaeolepis mane* (Whalley, 1985) (Jarzembowski, 2000 contribution to nomination).

Insects from the Purbeck Beds have been found at Durlston Bay, Upwey, Osmington and on the Isle of Portland. The most important locality is Durlston, where over 3,000 specimens have been collected. This is one of a small number of rich Cretaceous insect sites world-wide, and it is distinct from the other sites known. Around 150 species, mostly unique to Dorset, have been named belonging to fifteen orders, and many more species await description (Ross, 1999 contribution to nomination).

The Dorset and East Devon Coast has long been famous as a rich source of ammonites, which are often well preserved, and are abundant at most levels within the marine strata. Some specimens display exceptional preservation of jaw structures and other features, and the remarkably complete succession of faunas at certain levels provides excellent material for evolutionary and taxonomic studies. Ammonites have been collected and described extensively from the Site: many type specimens of well-known species have been found here, including a significant number of importantearly discoveries of type specimens used in the standard ammonite zonation of the Jurassic.

The Lower Lias sequence has been described in great detail. The detailed descriptions of ammonite faunas from Dorset by Spath, based partly on the Site, form the basis of the modern zonal scheme (Callomon and Cope, 1995). The Weymouth area provides the type section for ammonite faunas of three Oxfordian subzones of the North West European province. The Kimmeridge Clay provides the reference section for the Boreal Upper Kimmeridge (Bolonian/Upper Tithonian) zones (Cope 1967, 1975). The cliffs and quarries of Portland have been fundamentally important in defining ammonite zonation

through the Upper Tithonian (Portlandian) Stage (Wimbledon and Cope, 1978; Callomon and Cope, 1995). Several important species of Cenomanian and Turonian ammonites have their type localities within the Site, including *Watinoceras devonense* (Wright and Kennedy), the standard international index for the base of the Turonian Stage.

The Lower Jurassic exposures within the Site are also noted for their echinoderm fauna. Extraordinarily preserved specimens of the crinoid *Pentacrinites fossilis* from the Black Ven Marls have provided crucial evidence for the pseudoplanktonic mode of life of this and related species. Higher in the succession the well known Starfish Bed has yielded many exceptionally-preserved ophiuroid, and rare asteroid starfish (Goldring and Stephenson, 1972). Tangled groups of the crinoid *Balanocrinus gracilis* also occur in exceptional preservation at a similar level in the succession. Intact echinoids occur locally at several levels, notably low in the Blue Lias, with several species described on the basis of material from here (Wright,1855-80).

Because of the exceptionally continuous exposure on both foreshore and cliff the Jurassic succession has provided a great deal of material used in taxonomic studies of a wide range of other invertebrate groups. Notable among these are publications dealing with some of the more neglected groups, such as Lower Jurassic belemnites (Lang, 1928) and gastropods (Cox, 1926-1944), for which few detailed studies have been published. There are a range of other important monographs such as those on Corallian lamellibranch bivalves (Arkell, 1929-1937), Sponges (Sollas, 1883; Hinde, 1887-1912) and brachiopods (Muir-Wood, 1926-1936).

FOSSIL PLANTS

There are exceptional remains of Late Jurassic fossil forests exposed on the Isle of Portland and the coast of Purbeck. These forests once grew on the margins of a large hypersaline lagoon that, 140 million years ago, covered much of southern England. It is a uniquely complete record of a forest of this age and contains large trees, sometimes in situ with associated algal burrs which formed around the bases of the trees, and fossilised soils and pollen. The wood is exceptionally well preserved in silica, displaying microscopic details of the structure, including preserved growth rings which allow a detailed assessment of the climate of the time (Francis, 1983, 1984, 1986).

A1-1.3 Geomorphological values

The Site represents an exceptional range of text-book exemplars of coastal geomorphological features, landforms and processes

The East Devon and Dorset coast is a spectacular natural geomorphological laboratory. It is famous for its demonstration of a wide range of different mass-movement systems, the development of a unique barrier beach and lagoon, and classic examples of coastal cliff evolution in both time and space and in relation to the underlying rock structure. The Site provides a superb varied assemblage of related landforms and processes, which demonstrates numerous classic and universal features of coastal geomorphology. The importance of these features is heightened by their extensive study and long history of use as examples in text-books.

Five distinct and important aspects can be identified: landslides, beaches, the Fleet lagoon, cliffs and raised beaches. Due to the lithological variation in the Jurassic strata and the presence of the Lower Cretaceous unconformity, the coast contains a near-comprehensive range of slope failures from rotational landslides to mudslides, topple and slab failures. Some are prehistoric while others have eyewitness accounts or provide the subject of ongoing research. Possibly the most significant is the Bindon Landslip between Axmouth and Lyme Regis. The massive landslide, which took place here in 1839, created the 6.5 ha 'Goat Island' isolated by a 30 m deep 'Chasm'. Black Ven is another classic and complex site demonstrating rotational landslides, and the largest recorded coastal mudslide in Europe.

Portland shows fine examples of topple and slab failure, and rockfalls. The slides include East Weares, the second largest historical slide in the UK, and King's Pier, the first known landslide to have been caused by human activity (Brunsden, 1999 contribution to nomination). Studies on this coast provide one of the bestdocumented analyses of beach formation and evolution on a retreating coastline (May, 1999 contribution to nomination). There are numerous small beaches, and two larger classic sites: Budleigh Salterton and Chesil Beach.

At Budleigh Salterton, the beach is formed from pebbles eroded from the Triassic pebble beds. These pebbles are found in beaches stretching all along the south coast of England and are a diagnostic marker which provide important evidence of beach evolution in the English Channel during the Holocene. The largest and best-researched beach is Chesil Beach, which faces the full fetch of the Atlantic Ocean. It is 28 km long and ranges in height from 5 m to 15 m between West Bay and

Portland. Chesil Beach is a worldrenowned feature, famous for the volume, type and size-grading of its pebbles. The origin of the beach and the nature of the ongoing processes have been extensively studied and are the subject of continuing research (Brunsden, 1999; May, 1999 contributions to nomination).

Chesil Beach encloses the Fleet, one of the most important lagoon areas in Europe. The sediments preserved in its sheltered waters provide information on the late Holocene evolution of the beach, and evidence for changes to sea levels, climate and vegetation. Chesil and the Fleet represent an exceptional example of a barrier beach and lagoon system, and they are recognised by a range of national and European protective designations. Over eighty per cent of the Site is cliff coastline, developed in many different combinations of mudstones, sandstones and limestones. There is a particularly superb development of beautiful coastal landforms on the Isle of Purbeck. This part of the coast is the best known example of adjacent concordant and discordant coasts, displaying the differing coastal landforms which result from the action of the sea both with and across the geological 'grain' of the coast. It is a classic location for demonstrating the evolution of caves into bays (the cave-bay sequence) and shows the full range of responses to variations in the resistance of strata, and differential coastal erosion at a range of scales. It includes text-book examples of bays, stacks and a rock arch at internationally well-known localities such as Lulworth Cove, Durdle Door and Old Harry Rocks (Brunsden, 1999;May, 1999 contributions to nomination).

Two Pleistocene raised beach deposits, of different ages, are present at Portland Bill. They provide an important association of terrestrial and marine sediments up to perhaps 200,000 years BP in age. The fossil fauna of the East Beach is the most diverse found in any British raised beach, and this is the best example of a raised beach sequence along the English Channel coast (Keen, 1999 contribution to nomination).

A1-1.4 History of Science values

The Site has been a crucible of earth science investigations for over three hundred years. It has helped foster major contributions to many aspects of geology and geomorphology

The importance of the Dorset and East Devon Coast to the earth sciences is demonstrated by its critical contributions to many of the major, formative debates in the early days of geology and geomorphology. The fossil wealth of Lyme Regis was first pointed out in 1673 by John Ray. In 1770 the fame of the area drew a visit to Weymouth from James Hutton (1726-1797) of Edinburgh, often cited as 'the father of modern geology'. The Site has since inspired a large number of other significant geologists, who were either born, worked or lived here. They include William Smith (1769-1839), who made the first geological maps of England, Dr. William Buckland (1784-1856) of Oxford University, later Dean of Westminster, Adam Sedgwick (1785-1873), Professor of Geology at Cambridge, William Conybeare (1787-1857), incumbent at Axmouth and later Dean of Llandaff, Gideon Mantell (1790-1852) the discoverer of the Iguanadon, Sir Roderick Impey Murchison (1792-1871), President of both the Geological and Royal Geographical Societies, Sir Henry De la Beche (1796-1855), founder of the British Geological Survey, Professor John Stevens Henslow (1796-1861), Darwin's Tutor at Cambridge, Sir Charles Lyell (1797-1875), the pioneer of uniformitarianism, Professor Richard Owen (1804-1892), superintendent of the Natural History Museum, London and Louis Agassiz (1807-1873), the Swiss founder of modern glacial geomorphology.

The Site rose to pre-eminence during the early part of the nineteenth century, at a time when, as observed by Sir Crispin Tickell (1995), geology was the 'queen of sciences': *'occupying the kind of place in people's minds as evolution and natural selection did in the second half of the century, physics in the first half of the twentieth, and information technology with molecular genetics in our own times'. 'What that world had been, and how it should be understood, was the central conundrum of this time'.* At this critical period, the discoveries made by the Anning family, who ran a fossil hunting and selling business at Lyme Regis, advanced science in a way without parallel in Europe (Tickell, 1995; Torrens, 1995). They found the first ichthyosaur to come to scientific attention in around 1811-12, the World's first complete plesiosaur followed in 1823, the first British pterodactyl in 1828, to say nothing of other equally important finds in invertebrate palaeontology, coprology and taphonomy. Their activities stimulated the activities of many,now famous collectors, including the three Philpot sisters, William Willoughby Cole, third Earl of Eniskillen (1807- 1886), Sir Philip Egerton (1806-1881), Lt. Col. Thomas James Birch (1768-1829), and Thomas Hawkins (1810-1889), a maniacal collector of giant fossil reptiles. Their collections of fossils from the Site, and those of later collectors such as Sir A.S. Woodward (1864-1944) and James Frederick Jackson (1894-1966) now form the basis of major museum collections including those at the Natural History Museum, London, the Sedgwick Museum in Cambridge, the Bristol City Museum and the National Museum of Wales, Cardiff. A second specimen of plesiosaur discovered by Mary Anning (1799-1847) is now displayed in the Musée Nationale d'Histoire Naturelle in Paris. This and other material from Dorset was used by the great French vertebrate palaeontologist Georges Cuvier (1769-1832) in his epoch-making *Récherches sur les Ossements Fossiles* (1821-1824).

Mary Anning's life story is extraordinary, and has been retold (often inaccurately) in several biographies and children's books. Not only was she collecting at a time when discussion of transmutation or the evolution of species was regarded as subversive, she was also a poor woman, a dissenter, uneducated and working class, in a field dominated by wealthy male amateur collectors. Yet she became the friend and associate of some of the most eminent scientists of the day, such as Agassiz, De la Beche, Buckland and Murchison, and was visited by the King of Saxony. The list of her original discoveries places her in the highest rank of the pioneers of geological science. Mary Anning was also the inspiration for the World's first published palaeoecological reconstruction, *Duria antiquior* (A more ancient Dorset), produced in c. 1830 by De la Beche in her honour and for the financial benefit of her and her family. This imaginative scene was the first successful attempt to recreate a picture of the environment and animals of a geological period and became very famous throughout geological and natural history circles. It provides the clearest illustration of the leaps in scientific imagination which resulted from the finds on the coast, and the interaction of the leading scientists of the day (Rudwick, 1992).

Although the fossil-bearing strata of Lyme Regis were the early hub of scientific inquiry within the Site, other features were prominent in these early debates. One of the main controversies of the time was between the catastrophists, who believed in the reality of occasional violent events in the geological past, and uniformitarians, who claimed that geological processes had never been more intense than those observed at the present day. The topography of the Dorset and East Devon coast was used by Buckland and De la Beche to argue that the valleys must have been excavated by a violent flood in the geologically recent past, while others thought that only the slow action of rivers had been involved. Their contemporary, William Conybeare (1787-1857), was one of the first to see the results of the most dramatic historical landslide ever to occur in Great Britain, the famous event of Christmas Eve 1839 at Bindon, near Axmouth in East Devon. His illustrated account, assisted by William and Mary Buckland, is one of the two earliest scientific monographs on the mechanism of a landslide. The important vertebrate faunas of Purbeck were another early discovery. Samuel Beckles, encouraged by Sir Richard Owen, searched for mammal remains from the cliffs of Durlston Bay with such success that he collected many unique species later described by Owen (1866).

The fame of the coast as a source of fine fossil material was also helped by the activities of the then world's largest natural history agency, built up by the Weymouth hosier and glover Robert Damon (1814-1889) and his son Robert Ferris Damon (1845-1929). Between the 1840s and 1914 they supplied museums throughout North and South America, Australia and Europe with much Dorset geological material. Other specialised advances in geology and geomorphology drew on the Site. Osmond Fisher (1817-1914), born at Osmington, was inspired by his observations on the Purbeck coast to write the first ever textbook on theoretical geophysics *The Physics of the Earth's Crust* (1881 and 1889). He was the first to conclude that the crust beneath the oceans must be younger than that beneath the continents, anticipating ideas which became the basis of modern plate tectonics (Wilding, 1988).

The German palaeontologist Albert Oppel (1831-1865) used the ammonite succession of the Dorset coast within his pioneering studies of biostratigraphic zonation (Hallam, 1989), and a number of significant contributions to ammonite zonation have been made through studies of the Jurassic and Cretaceous faunas from the Site. Stratigraphic investigations at Burton Bradstock and West Bay by Sydney Savory Buckman (1860-1929), helped lead him to the first proper demonstration of diachroneity in rocks of the same lithology. E. St. J. Burton's studies of the Purbeck Coast led him to the idea of substituting space for time in explanations of landscape evolution – a forerunner of the so-called 'ergodic hypothesis' of geomorphology. Since the earliest days of study, the Site has provided inspiration for new generations of earth scientists, representing many hundreds of scientists including those who have contributed to this nomination.

The work of Joscelyn Arkell (1904-1958) is particularly notable. His *magnum opus*, *Jurassic Geology of the World* (1956) was the first example of a world-wide study of a system of rocks by a single person. Arkell began his work with a description of the Jurassic rocks of Dorset and East Devon, which he then took as the standard of reference. His statement at the beginning of this nomination (page 4), based on his understanding of the geology of the globe, is a passionate recognition of the international geological importance, and the beauty, of this coastline.

A1-1.5 Research and educational values

The Site is exceptionally well studied and documented, with a continuing importance for many aspects of earth science research, and is a teaching and training resource for the earth sciences of the highest quality

The Dorset and East Devon Coast is one of the best documented geological sites in the World. From the earliest days of geology to the present day the coast has generated an enormous volume of high quality scientific study. A provisional bibliography for the Site (Appendix G), based on *Bibliography and Index of Dorset Geology* (Thomas and Ensom, 1989) contains over 5,000 references, although some areas of the literature are certainly under-represented within it. The earliest geological mapping of the coast dates from the 1820s. The area has been thoroughly re-mapped since 1995 by the British Geological Survey. A full series of modern maps at 1:50,000 scale will be published during 2000 and 2001, and more detailed mapping at 1:10,000 is also publicly available from the Survey.

There is also an exceptional sub-surface database as a result of onshore and offshore oil exploration since the 1930s (Underhill, 1998). This level of information, together with the quality and accessibility of the exposures and the range of established visitor facilities, provides an exceptional teaching and training resource for all levels of study. The coast is visited by hundreds of geologists and geomorphologists each year including international groups, oil company geologists, student field trips and amateur groups. The Upper Jurassic sections are probably the most frequently visited geological sections in Europe, both by geological parties and by professional geologists, mostly from Britain, Europe and North America. Most geological undergraduate courses in the UK include field visits to this coastline, and at least 200,000 residential educational visitors come to the coast every year (Dorset County Council, 1994).

There are notable geological collections in the local museums in East Devon and Dorset, which also provide various displays and advice to the public. Their locations are shown in Figure 8 on page 116. The East Devon and Dorset Coast has a particular importance as a training ground for petroleum geologists, attracting international attention. The rock succession presents a complete section through an oil basin allowing source, reservoir and cap rocks, and its structural geology, to be studied at outcrop. The Kimmeridge Clay provides one of the World's best examples of an immature hydrocarbon source rock, and is of particular importance as the main oil source rock within the North Sea. Data from the nearby Wytch Farm oilfield, Europe's largest onshore field, together with the results of other oil exploration data, add to the importance of the area for the study of petroleum geology.

The Site has provided material for numerous post-graduate (M.Sc. and doctoral) studies, in addition to post-doctoral research. There are many active researchers on the coast, with a number of areas where leading edge science is being carried out. The geology of the coast is described in Geological Survey Memoirs (Wilson et al, 1958; Arkell, 1947) and a coastal guide has been prepared for Dorset (House, 1993). An account of the modern mapping is in preparation. There are classic reviews of the Jurassic succession by Arkell (1933, 1956), Callomon and Cope (1995) and Hesselbo and Jenkyns (1995). The geological results of the immense expenditure in the region during the search for hydrocarbons has been summarised by Underhill (1998). The geomorphology of the Dorset Coast is summarised in two recent guides (Brunsden and Goudie, 1997; Goudie and Brunsden, 1997), and there is an extensive detailed literature, including a range of technical reports on coastal processes and sediment transport.

A1-2 Description of the Site

The Site comprises eight stretches, which are described below in terms of their values in relation to its natural values.

Orcombe Rocks to Chit Rocks, Sidmouth:
The oldest rocks within the World Heritage Site are seen at Orcombe Point and record the earliest part of the Triassic period, some 250 million years ago. Hard bands of sandstone, some quite possibly ancient wind blown sand dunes, form the headlands of Orcombe Point and Straight Point while softer red clays have been eroded into the bays. The famous Budleigh Salterton Pebble Beds dip through the cliffs west of the town and mark the bed of an ancient river that once flowed from mountains in the area of Brittany today, northward across England, rather like the Nile flowing through North Africa today. The Otter sandstone first appears at the mouth of the River Otter and forms vertical cliffs of cross bedded sandstone. These rocks were laid down in braided rivers that once flowed through the deserts. Vertical pipes are evidence of plant roots known as rhyzocretions. The Otter Sandstone also yields the remains of ancient Mid Triassic mammal like reptiles, most notably Rhynchosaurs which are rare throughout the World. The sea stacks around Ladram Bay are the product of weathering on the joints within the rocks.

River Sid, Sidmouth to Seaton Hole:
The red cliffs between Sidmouth and Branscombe are formed from soft red marls known as the Mercia Mudstone that are about 220 to 200 million years old. They are capped by much younger rocks, the Upper Greensand (110 million years) and Chalk (100 to about 80 million years) from the Cretaceous period. The mudstones formed in vast lakes that flooded the Triassic desert. Evaporation led to the formation of minerals such as gypsum that were once worked for plaster near Branscombe. The combination of porous Cretaceous rocks overlying impermeable Triassic clays has lead to spectacular landslides, notable at Hooken near Beer Head in DATE 17?? A large cliff fall took place at Weston Cliffs in January 2006 and has been followed by further smaller events.

River Axe, Axmouth to The Cobb, Lyme Regis
The coast between Axmouth and Lyme Regis is dominated by landslides and has been designated as the Undercliff National Nature Reserve for both geology and wildlife. The earliest Jurassic rocks (200 million years old) appear along the coast towards Lyme Regis as the youngest Triassic Mercia Mudstone dip below the beach. The transition between the two is striking as the Triassic desert gave way to the Jurassic sea. The cliff top is capped by the Upper Greensand (110 million years) and Chalk (100 to about 80 million years) from the Cretaceous period and this sequence of rocks has created huge landslides such as The Plateau (a pre-historic event) and Goat Island which took place on Christmas Eve 1839. The result is a landscape of broken and fractured ground with huge blocks of slipped cliff top material, now largely overgrown by a trees.

Lyme Regis to Burton Bradstock
The Lower Jurassic rocks around Charmouth and Lyme Regis are the richest source of marine reptiles, fish and insects of that age anywhere in the World. The rocks are dark, muddy clays that formed quickly in a murky sea, packed with marine life. Further east the rocks become progressively younger and were deposited in shallow seas that led to the formation of siltstones, sandstones and eventually limestone. This section of the coast is rapidly eroding and subject to massive landslides.

Chesil, the Fleet and Portland Coast
Chesil Beach is one of the finest barrier beaches in the World. It has protected the landscape behind from erosion and so the slopes dip gently into the Fleet Lagoon which is trapped behind the beach. The pebbles came from the landslides further west at the end of the last Ice Age, less than 10,000 years ago. The Isle of Portland is formed from a wedge of hard limestone that dips gently below sea level at Portland Bill. The famous Portland Limestone and Fossil Forest directly above it are of very late Jurassic age (145 million years). The Limestone formed in shallow seas while the Forest grew on low lying surrounded by swamps and lagoons. The rocks are criss-crossed by huge fractures known as gullies and these have controlled the evolution of the cliffs. The Great Southwell landslide of 17?? is the largest historical landslide event ever recorded. The Portland Bill raised beaches provide important evidence of sea level change during the last Ice age, some 125 and 240,000 years ago. Most of the World Heritage Site on the island is completely inaccessible but the story of Portland stone contained in the landslides and the old and working quarries, is the story for Portland.

Portland Harbour Shore
The foreshore and low cliffs contain rocks from the start of the Upper Jurassic period, between about 150 and 160 million years ago but a considerable proportion are now poorly exposed due to the construction of the Portland Harbour breakwaters that have slowed erosion rates. Kimmeridge Clay forms low, slumped cliffs below Wyke Regis and these change to sandy grits and limestones through to the Nothe Fort at the mouth of Weymouth Harbour.

Jordan Cliff to Peveril Point

Upper Jurassic and Cretaceous rocks form this complicated section of the Site. Oxford Clay, Corallian Limestone and Kimmeridge Clay (165 to 150 million years) form the coast from Jordan Cliff through to Ringstead. The mass of White Nothe is formed from the Chalk (100 to 80 million years) that lies on the eroded surface of the older Jurassic rocks. Along the Lulworth coast the rocks have been heaved into a near vertical orientation and this is a classic place to study the evolution of bays and headlands as the soft and hard rock layers are eroded at different rates. East of Lulworth, the Fossil Forest sits on a bench within the cliffs. Through the Army Ranges the Portland Limestone, Purbeck Beds, Wealden Beds, Upper Greensand and Chalk form a spectacular series of cliffs and bays. From Gad Cliff through to Kimmeridge and Chapman's Pool, the Kimmeridge Clay gives rise to dark clay cliffs famous for fossils, notably reptiles and fish. From St Aldhelm's Head to Durlston Head the rocks lie at a near horizontal orientation with the Portland Limestone forming towering cliffs punctuated by dry valleys and cliff top quarries. Durlston Bay contains the thickest development of the Purbeck Beds and this is the richest source of Lower Cretaceous (135 million years) fossil reptiles, fish, insects and mammals anywhere in the world. These rocks are quarried inland and yield dinosaur footprints.

New Swanage to Studland Bay

Peveril Point juts out into the sea as a hard band of Purbeck Beds, the Broken Shell Limestone and Purbeck Marble form a resistant barrier to the sea. The large expanse of Swanage Bay has been carved from soft Wealden Beds. Punfield Cove provides the only exposure of the Lower Greensand but this is largely obscured by vegetation. Ballard Down is part of the great Chalk ridge that runs through Purbeck from Lulworth Cove through Corfe Castle and to the coast here. At one time it extended across to The Needles on the Isle of Wight. From the sea the vertical chalk layers and Ballard Fault are spectacularly exposed in the vertical cliffs. Old Harry Rocks at Foreland Point demonstrate each step in the formation of sea stacks from caves to arches and eventually stacks of rock. The end of the World Heritage Site is marked at the southern point of Studland Bay by a deep erosion surface in the Chalk. The great Cretaceous/Tertiary extinction event of 65 million years ago that killed off the dinosaurs has been removed at this point.

Therefore, from the oldest rocks at Orcombe Point at 250 million years in age, to the erosion surface on top of the Chalk at Studland Bay at 65 million years, the coast records 185 million years of the earth's history in just 155 kilometres of spectacular cliffs and foreshore.

A1-3 Description of the Setting

The landscape behind the Site is varied beautiful and rich in wildlife, reflecting the geodiversity underlying it.

East Devon: The geology of East Devon is composed of two basic elements; gently, easterly dipping Triassic sands and clays overlain by much younger Cretaceous aged Upper Greensand and Chalk that lie across the eroded surface of the Triassic rocks. The countryside can be divided into several distinct characters:

- The *Pebble Bed Heaths* are formed from a thick layer of the Budleigh Salterton Pebble Beds, a conglomerate composed from quartzite pebbles originally derived from Brittany. The pebbles mark the course of an ancient river that once flowed through the Triassic desert about 240 million years ago.
- The *Axe and Otter Vales* are the product of river erosion taking advantage of soft layers within the Triassic rocks.
- The *Greensand Ridges* are striking hills formed from the relatively hard Upper Greensand which has also been quarried as Salcombe Stone, most famously for Exeter Cathedral. The Greensand also contains a blocky form of flint known as chert which is an important building stone in villages such as Uplyme, and Beer. The flat topped nature of these hills is the remnant of an ancient land surface. After all the rock layers were deposited the sea planed away the layers to form a flat surface. Uplift elevated the rock pile and the rivers have dissected it, leaving the last remnants on the highest hills, that are similar heights and flat topped.
- The *Coastal Chalk Plateau* is formed from the youngest rocks. Chalk is a soft but massive rock layers and weathers into rolling downland and flat plateaus for the same reason as the Greensand Ridges.

Dorset: Dorset's coastal landscape is composed from rocks of Jurassic, Cretaceous and tertiary age. The Dorset Landscape Character Assessment draft Countryside Types includes some of the following;

- *Marshwood Vale and Greensand Hills*. The vale has been formed by the erosion of a thick layer of soft Lower Jurassic Clays, surrounded by hills capped with Upper Greensand. As with East Devon, the hills are flat toped and are the remnants of a vast, flat erosion surface that has been dissected by rivers to form the landscape that we see and enjoy today.
- *Tabular Hills and V-Shaped Valleys*. Running inland from Bridport and Symondsbury, through Beaminster, Mapperton and Mosterton, the relatively soft Bridport Sands, capped by a thin but hard limestone, the Inferior Oolite, gives rise to tabular hills and steep, V shaped valleys. The Inferior Oolite is an important local building stone that dominates the character of the build environment.
- *Ridge and Vale* – The Weymouth area is dominated by a landscape composed from hard limestone ridges and soft clay vales. The structure of the rocks in this area is a huge dome shaped fold or anticline and the rocks are arranged in concentric patterns, a little like the layers of an onion when sliced through. The hard rocks, the Portland Stone and older Corallian Limestones, have been used as building stones around Portesham and Abbotsbury respectively.
- *Limestone Peninsula – Portland***.** The Isle of Portland lies on the south side of the Weymouth Anticline, the huge fold described above. The hard Portland Limestone dips gently into the sea at Portland Bill and represents the last remnant of this vast structure. The Island lies on the axis of the fold or the lowest point. To the east and west the rocks rise up, exposing softer Kimmeridge Clay which has been eroded away by the sea. The Portland Limestone is one of the most important building stones in the World.
- *Limestone Plateau – Purbeck***.** The Portland Limestone and Purbeck Beds form a plateau that extends from Swanage through to St Aldhelm's Head. The thin soils support a diversity of limestone loving plants and associated wildlife.
- *Chalk Valley and Downland and Open Chalk Downland***.** As with East Devon, the Chalk is a relatively soft but massive deposit that gives rise to high, open landscapes. The dry valleys date back to the last Ice Age when the ground was frozen. Spring thaws generated run off that could erode into the porous chalk. The valley of the Boulders near Portesham is a spectacular example where younger but strongly cemented Tertiary sands and gravels have been 'heaved' down the slopes by freezing and thawing action.
- *Chalk Ridge/Escarpment***.** The ridge that runs through Purbeck from Bats Head near Lulworth, to Ballard Down north of Swanage (and on The Needles on the isle of Wight) is formed from a spectacular fold or 'kink' in the rocks caused about 15 million years ago when the Alps formed in Southern Europe. This is in fact the most northerly crumple from that event and the near vertically folded Chalk forms a great ridge across the countryside.

A1-4 The 'Jurassic Coast', Coastal Corridor and role of Coastal Towns

Jurassic Coast

The Jurassic Coast is a term often used to refer to the Dorset and East Devon Coast World Heritage Site. In fact, the Jurassic Coast World Heritage Site, refers to the Site itself, whereas the 'Jurassic Coast' on its own, refers to the Site and its broader hinterland. As with the setting of a WHS there is no line on the map that delineates the Jurassic Coast.

The name was first use in the "Jurassic Coast Project" a forerunner initiative to the World Heritage Site nomination, and of course Jurassic refers to the geological era most represented by the exposed geology of the Site.

Coastal Corridor

Of high importance for Visitor Management for the Site is an area referred to as the Dorset and East Devon Coastal Corridor. This area is defined by the main access roads to the Site an is the area likely to have the most pressure resulting from visits to coast. The bounding roads are the A351, A352 and A353 in Purbeck and Weymouth, the B3157 between Weymouth and Bridport, the A35 between Bridport and Charmouth / Lyme Regis, and the A3052 (and minor roads) to Exmouth in East Devon.

Gateway and anchor towns, and macro socio-economic picture

As described above, the Site is split into eight undeveloped stretches of coastline. The towns or communities that have built-up sea frontages, or provide the infrastructure and services to support the economy of the area, are referred to as **Gateway Towns**[1]. These are: Exmouth; Budleigh Salterton; Sidmouth; Beer; Seaton; Lyme Regis; Charmouth; West Bay and Bridport; Portland; Weymouth (including Preston and Bowleaze Cove); Swanage; and Wareham. The inland towns that have a gateway role for the World Heritage Site are Dorchester, Axminster and Honiton, with Exeter, and Poole and Bournemouth being referred to as **Anchor Towns**[2].

The Gateway Towns are of particular importance in visitor management terms as they provide the basic services and accommodation for residents and visitors alike[3]. Because of the undeveloped nature of the Site and its Setting, and the imperative for it to remain in a very high quality condition, the concentration of large numbers of people in towns that have the infrastructure to cope is preferable to a more even spread along the coast putting significant pressures on smaller communities that do not have the infrastructure to cope. Gateway Towns are also likely to be the areas that could derive most economic benefit from new tourism related to the Site, or new businesses that have developed as a result of the designation.

The Gateway Towns are all very different in terms of character, socio economic profile, size and demographics. Weymouth is the largest, with c. 50,000 people, whereas Lyme Regis, a town with a very big name, only has c. 3,000 people. All these communities suffer from some common issues, including: a high dependency on a short, intense tourist season, a comparative lack well-paid employment, an aging population, relative isolation and the lack of affordable housing. If the World Heritage Site is to have an impact beyond conservation, protection and presentation for in own sake, then it must be able to influence some of these issues.

There are a range of other, smaller communities and parishes along the coast who depend on the Towns for services, but themselves are access points for the World Heritage Site. They face a different set of issues, mostly relating to impacts from tourism and traffic, which are explored more in the issues sections of this plan. Referred to as Coastal Communities, these are: Ladram Bay and Otterton; Salcombe Regis and Weston; Branscombe; Axmouth; Seatown and Chideock; Eype; Burton Bradstock; West Bexington; Abbotsbury; Langton Herring; Chickerell; Ringstead; Osmington; West Lulworth and Durdle Door; Kimmeridge; Worth Matravers and Studland.

The role of *all* of these communities, whether Anchor Towns, Gateway Towns or Coastal Communities is vital for the ongoing protection, conservation and presentation of the Site. The area receives over 15m tourist visits a year so the potential for a great deal of pressure is enormous. Moreover, these communities and their people can be the advocates for the Site, its values and importance, and can inform and raise awareness about it to visitors, encouraging sense of pride and ownership.

[1] Locum Study 2002
[2] The Terms Gateway Towns, Market Towns and Anchor Towns are from Locum report 2002
[3] With the notable exception of Holiday Parks in the tourism sector.

A1-5 IUCN Technical Evaluation

(The following four pages are direct text from IUCN's technical evaluation of the Dorset and East Devon Coast WHS Bid)

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION
DORSET AND EAST DEVON COAST (UNITED KINGDOM)

1. DOCUMENTATION

i) **WCMC Data sheet:** (19 references)

ii) **Additional literature consulted:** Goudie, A. and Brunsden, D. 1997. **Classic Landforms of the East Dorset Coast**. The Geographical Association, Sheffield; and Ellis, N.V et al. (Eds.). 1996. **An Introduction to the Geological Conservation Review**. Joint Nature Conservation Committee, Peterborough.

iii) **Consultations:** 2 external reviewers contacted; relevant officials from government, protected area agencies, and public institutions; private estate owners; geological associations; tourist operators; and other interest groups.

iv) **Field visit:** February-March, 2001. Paul Dingwall,

2. SUMMARY OF NATURAL VALUES

Located on the south coast of Britain, the nominated property comprises eight sections along 155km of largely undeveloped coast and countryside between Orcombe Rocks, near Exmouth in east Devon in the west, and Studland Bay, Dorset, in the east. The total area of the site is 2,550ha, 80% of which is cliffed coastline. The property has a combination of internationally renowned geological features considered by both palaeontologists and geomorphologists to be one of the most significant research sites for their respective fields of study in the world. The nominated site includes a near-continuous sequence of Triassic, Jurassic and Cretaceous rock exposures, representing almost the entire Mesozoic Era (between 251 and 66 million years ago), or approximately 185 million years of Earth history. The Triassic succession of mudstones and sandstones is over 1,100m thick, representing 50 million years of deposition. The sequence of Jurassic strata exposed between Lyme Regis and Swanage is among the best sections of marine Jurassic-age rocks to be found anywhere in the world. All stages of the Cretaceous are represented with the exception of the very youngest.

The nominated site contains a range of internationally important Mesozoic fossil localities, including Lyme Regis, Kimmeridge Bay, the Isles of Portland and Purbeck, Durlston Bay, High Peak, Otter Point, Furzy Cliff (Weymouth), Charmouth and Axmouth. Great numbers of vertebrate, invertebrate and plant fossils have been discovered, along with fossil dinosaur footprints in quarries near Swanage. Examples of significant palaeontological discoveries not known from elsewhere include *Dimorphodon macronyx,* one of the earliest flying reptiles, and *Scelidosaurus harrisoni,* the "Charmouth dinosaur". Important among the marine reptiles are *Temnodontosaurus,* ichthyosaurs, *and Metriacanthosaurus parkeri*. The area has yielded a rich source of ammonites such as *Asteroceras obtusum, Parkinsonia parkinsoni* and *Titanites anguiformis,* which have been used to zone the Jurassic. Well preserved remains of a late Jurassic fossil forest, estimated to be more than 140 million years old, are exposed on the Isle of Portland and the Purbeck coast: many trees are preserved *in situ* with their associated soils and pollen, a boon for palaeoecologists.

In terms of the site's geomorphological significance, a great variety of landslides have formed, some of which, such as those at Bindon, Black Ven, Hooken, East Weares and Kings Pier, are scientifically important throughout Europe. The long history of scientific study of these mass-movement systems is such that these formations have become, literally and figuratively, 'textbook' examples. The site is also renowned for the study of beach formation and evolution on a retreating coastline. Chesil Beach, stretching from West Bay to Portland, is one of the best-studied beaches in the world. The beach is famous for the volume, type and grading of pebbles. The 480ha Fleet Lagoon, enclosed by Chesil Beach, is one of the most important saline lagoons in Europe, its sediments providing evidence of late Holocene beach evolution, and changes in sea level, climate and vegetation. Chesil Beach and the Fleet is an outstanding example of a barrier beach and lagoon system, protected by several national and European designations. The Isle of Purbeck is notable for its well developed coastal landforms, including cave-bay sequences and textbook examples of bays, stacks, and rock arches at Lulworth Cove, Durdle Door and Old Harry Rocks.

In addition to the site's palaeontological and geomorphological significance, important coastal vegetation habitats occur in the nominated area, such as the landslipped cliffs and cliff-top grasslands of W. Dorset, that support several rare plant species of national and European importance and parts of the nominated coast are protected under international designation. The Exe Estuary Special Protection Area (SPA), a Ramsar wetland, supports over 20,000 migratory wildfowl, including internationally important populations of avocet, dark-bellied brent goose and slavonian grebe. The Sidmouth to Beer Coast SSSI (Site of Special Scientific Interest) protects the westernmost example of species-rich grassland in England, with a very diverse invertebrate fauna. The Lyme Bay reefs provide one of the most easterly locations for several Mediterranean-Atlantic plants species, such as the pink seafan *Eunicella verrucos,* and has rich epifauna, especially sponges.

3. COMPARISON WITH OTHER GEOLOGICAL SITES

The site is significant in terms of geological history, palaeontology, geomorphology and the history of geological and related sciences.

In terms of geology, the Dorset and East Devon Coast is one of Britain's most significant areas, and one of two mainland sites nominated for its geology on the U.K. World Heritage tentative list. The area includes 67 nationally and internationally recognised localities in the statutory Geological Conservation Review. While sites representing the same geological time period are found throughout the world, there is no better example anywhere of a complete succession through the Mesozoic Era, a period of 185 million years. Among prominent geological World Heritage sites, Istchigualasto-Talampaya in Argentina and Canada's Dinosaur Provincial Park represent the Triassic and late Cretaceous respectively, but no site currently on the World Heritage list contains the complete Mesozoic succession. The nominated site also represents an exceptionally well-documented sedimentary basin, now one of the best-known and oft-studied of its type in the world. Only Australia's Sydney and Gippsland Basins, and the western flank of the Basin and Range Province in North America, are similar, but none is extensively protected.

In terms of palaeontology, the nomination document includes a comprehensive comparative analysis in which 12 selected fossil sites or interests are rated against the IUCN criteria for establishing the outstanding universal value of fossil sites (pp. 36-37). The results clearly demonstrate the global significance of the Dorset and East Devon sites in all rated categories, particularly in terms of the long geological time period represented; the diversity of fossil assemblages; the international significance of sites (all 12 are assessed as internationally important); and the quality of preservation of specimens, with some complete and well-articulated skeletons, three-dimensional and soft-part preservation and the presence of finely detailed plants and wood structures. The Lyme Regis (Lower Jurassic) and Purbeck Group formations (Lower Cretaceous) are the most significant fossil sites; specimens from them are found throughout the world's museums.

In terms of geomorphology, the landslides here are internationally recognized, comparable with those of the Black Sea Coast and New Zealand, which are also internationally renowned. The Bindon landslide complex, protected in the Lyme Regis to Axmouth Undercliffs National Nature Reserve, was the first to be fully described in a scientific memoir. Black Ven is the largest mudslide complex in Europe. No beach in the world is known to have been as intensively studied as Chesil Beach, and there are few that exhibit the exceptional degree of grading of the size of its sediments along the shore. The juxtaposition of concordant and discordant coastlines (i.e. those aligned with and against the grain of the geological structure) within the same geological strata, as found on this coast, is rare on a global scale. The nominated area also has an internationally unique status in the history of geological science. Regarded for more than 200 years as among the best available research sites anywhere for geological inquiry, the resulting prodigious output of research, published in thousands of scientific papers, has fundamentally shaped the development of geological thinking. Its role in this respect continues today.

4. INTEGRITY

4.1. Site integrity

The nominated site contains all the key, interdependent elements of geological succession exposed on the coastline. It has an almost complete representation of Triassic, Jurassic and Cretaceous rocks, all within a single sedimentary basin. Regional tilting of the structures to the east means that a walk from west to east along the coast is an almost unbroken "journey" through 185 million years of geological time. The stratigraphy represents a wide range of both marine and terrestrial depositional environments and a full range of sedimentary rock types. The array of fossil faunas and floras show interrelated elements of the prehistoric record of life and environments. The site includes a series of

coastal landforms whose processes and evolutionary conditions are little impacted by human activity. The boundary of the site is defined by natural phenomena: on the seaward side the site extends to the mean low water mark and on the landward side to the cliff top or back of the beach. This is also in general consistent with the boundaries of the nationally designated areas that protect the site. The high rate of erosion and mass movement in the area creates a very dynamic coastline; the boundaries of the site, therefore, may need periodic monitoring to ensure that significant changes to the shoreline are reflected in revised boundaries.

4.2. Management integrity

The nominated site lies almost entirely within two areas designated under national conservation legislation as Areas of Outstanding Natural Beauty (IUCN Category V Protected Landscape/Seascape). Also protected under national law are thirteen SSSIs, and a large National Nature Reserve (IUCN Category IV). The site also contains areas designated as being of international importance for wildlife, either as a Special Conservation Area or SPA under European Community Directories. Chesil Beach/the Fleet and Exe Estuary are designated as a Ramsar Wetland of International Importance.

An estimated 95km of the 155km of coastline in the nominated site are owned by public bodies, conservation agencies or large private estates. While most of the site is in private ownership, mainly within four large estates, the National Trust, a major U.K. conservation charity, owns about 35km of coastline. Smaller areas are owned by County and District Councils and by the Ministry of Defence, which uses 5km of coast as the Lulworth Gunnery Ranges: the Ministry's management of this area is subject to conservation policies set out in a Management Plan. Privately owned SSSIs have management oversight from the Natural England agency. The bed of the Fleet lagoon and part of Chesil Beach are owned by the Ilchester Estates and managed as a local nature reserve. There are two commercially owned landholdings on the Isle of Portland.

The nominated property is currently extensively protected by a variety of designations and a range of land use and protected area Management Plans. A single Management Plan has been prepared for the nominated site, coordinated by the Dorset and Devon County Councils. The plan, which has undergone public consultation, has six prime objectives relating to the protection of the geology and landforms, conservation and enhancement of landscapes and seascapes, and visitor management and education. Significantly, emphasis is given to integrating World Heritage management with wider sustainable development objectives in the counties. Management plans for existing areas inside the nominated property: they include county development plans, local district plans, mineral and waste Management Plans, Shoreline Management Plans and Environment Agency river catchment plans. The National Trust maintains plans for management of wildlife, landscape, and visitor use of its properties; all its sites are inalienably conserved for the benefit of the public. Wildlife Trust reserves, National Nature Reserve, and military lands all have management plans.

Many people are employed by landowners and agencies to undertake management operations in sites within the nominated area. More than 40 wardens and rangers are employed by the two county councils, the E. Devon and Purbeck District Councils, Natural England, the National Trust, Ilchester and Lulworth Estates and the Dorset Wildlife Trust. Two new positions - geological coordinator and tourism officer - are envisaged if World Heritage status is achieved. Management of the area is well funded on a partnership basis with more that £500,000 provided annually for staff budgets of current employees, excluding professional staff such as local government planners and tourism officers. There are many well developed and professionally managed information centres, museums, accommodation and transport facilities, and other services available to visitors. Public access to the beaches and cliff tops is available via public rights of way and permissive paths. The South- West Coastal path, one of 13 nationally designated trails, extends through part of the site. Excellent marine search and rescue facilities are located at several sites in the area. The research capacity underpinning protected area management, provided from regional and national scientific institutions, is substantial.

Only about ten people live permanently in the nominated site, though there are some seasonally occupied beach huts and holiday chalets. The population in gateway towns is estimated at less than 200,000. The area has been a popular tourist destination since the 18th Century, and about 14 million people, mostly day-trippers, visit the nominated site and adjacent coastal areas annually. There are currently few significant threats to the site. A vigilant regime of active management will address important issues such as path erosion, and vegetation and wildlife disturbance. A voluntary code of conduct has been developed to help manage the collection of fossils by amateur and professional collectors. Two sites lie within areas where there are permissions for mineral extraction, but the local authorities believe neither will be reactivated. Coastal defence works are required in places but they are not overly intrusive on site values.

In summary, IUCN believes this nominated site has strong legal protection and is managed effectively for long term preservation of its natural geological values. It thus meets the conditions of management integrity.

5. ADDITIONAL COMMENTS None.

6. APPLICATION OF CRITERIA/STATEMENT OF SIGNIFICANCE

Dorset and East Devon Coast is nominated in accordance with World Heritage natural criteria (i) and (iii).

Criterion (i): Earth's history and geological features

In relation to this criterion, the site's claim to outstanding universal value is based on the following significant values:

- The coastal exposures within the site provide an almost continuous sequence of Triassic, Jurassic and Cretaceous rock formations spanning the Mesozoic Era and document approximately 185 million years of Earth history;
- The site includes a range of internationally important fossil localities – both vertebrate and invertebrate, marine and terrestrial - which have produced well preserved and diverse evidence of life during Mesozoic times;
- The site contains a range of textbook exemplars of coastal geomorphological features, landforms and processes;
- The site is renowned for its contribution to earth science investigations for over 300 years, and has helped foster major contributions to many aspects of geology, palaeontology and geomorphology; and
- The site has continuing significance for many aspects of earth science research and is a high quality teaching and training resource for the earth sciences.

Critical examination of these elements, complemented by field inspection, discussions with protected area managers and scientists, and consideration of the views of independent reviewers and prominent scientists who have written in support of the nomination, lead to the conclusion that these claims can be fully substantiated. The site is also unlike any other geological site currently accorded World Heritage status, and it has both a scientific and conservation significance ranking it among these existing sites. IUCN considers that the nominated site meets this criterion**.**

Criterion (iii): Superlative natural phenomena or natural beauty and aesthetic importance

The nominated property is a substantially natural coastline in a setting of attractive rural landscapes and associated seascapes. Most of the site is designated as nationally significant in terms of its scenic qualities (e.g., as Areas of Outstanding Natural Beauty and Heritage Coasts). The attractiveness of the site derives in particular from the classically developed landforms, whose scenic qualities are enhanced by the close association of a great diversity of landforms in a relatively confined area. Component materials of the landforms also have aesthetic appeal: stone quarried from Purbeck, Portland and Beer has been used in the construction of many great buildings in Britain, some of which (e.g., the Tower of London) are themselves World Heritage cultural sites. Moreover, the landscapes have inspired a number of authors, poets and artists of international renown, adding to the rich legacy of cultural associations with the site. However, when compared to existing World Heritage sites fulfilling the criterion, IUCN considers that Dorset and East Devon Coast is of national importance rather than of outstanding universal value. IUCN considers that the nominated site does not meet this criterion.

Jurassic Coast

Partnership Plan

2020-2025

Management Framework for the Dorset and East Devon Coast World Heritage Site

APPENDIX 2:

Statement on the boundaries of the Site, and the World Heritage interests within them

JURASSIC COAST
DORSET AND EAST DEVON
WORLD HERITAGE SITE

United Nations
Educational, Scientific and
Cultural Organization

Dorset and East Devon Coast
inscribed on the World
Heritage List in 2001

ACCESSIBILITY

If you require a copy of this document in a different format, please contact us and we will do our best to provide it in a way that meets your needs

YOUR VIEWS

The most important people for the future protection, conservation and use of the Dorset and East Devon Coast are those who live or work on or near it, and visit and enjoy it. Please let us know your views on the Site and its management through the contact details below.

CONTACT DETAILS

Website: www.jurassiccoast.org

Email: info@jurassiccoast.org

Mail: The Jurassic Coast Trust,
Mountfield,
Rax Lane,
Bridport,
DT6 3JP

Tel: 01308 807000

A2-1 OVERVIEW

A2-1.1 The Dorset and East Devon Coast has been awarded World Heritage Site status on the basis of its global importance for the earth sciences. A detailed description of the boundaries of the Site, and the interests that lie within them is set out below.

A2-1.2 The boundaries of the Site have been defined to closely follow the earth science features that are of World Heritage interest. The landward boundaries are as follows:

- On cliff coastline, the boundary is taken at the break in slope at the top of the most landward cliff-scarp
- On coastline with no cliffs, the boundary is taken at the back of the beach
- The Site includes the Fleet lagoon and the boundary will be taken at the top of the low cliffs that lie on its northern shore.

The seaward boundary of the Site is taken as Low Water Mark.

A2-1.3 The Site excludes the frontages of some of the larger coastal towns: Sidmouth, Seaton, Lyme Regis, West Bay, Weymouth, Swanage, and also excludes the commercial port area at Portland. The resulting Site comprises eight stretches, as follows:

- Orcombe Rocks to Chit Rocks, Sidmouth
- River Sid, Sidmouth to Seaton Hole
- River Axe, Axmouth to The Cobb, Lyme Regis
- Lyme Regis to West Bay
- Chesil, the Fleet and Portland Coast
- Portland Harbour Shore
- Bowleaze Cove to Peveril Point
- New Swanage to Studland Bay

A2-1.4 Reference is made to three forms of designation that provide protection to the Site:

Sites of Special Scientific Interest (SSSI): areas identified under the Wildlife and Countryside Act, 1981, which receive statutory protection because of their importance for wildlife and/or earth science. The SSSI's that cover the Site are: Exe Estuary; Budleigh Salterton Cliffs; Otter Estuary; Ladram to Sidmouth; Sidmouth to Beer Coast; Axmouth to Lyme Regis Undercliffs; West Dorset Coast; Chesil and the Fleet; Isle of Portland; Portland Harbour Shore; South Dorset Coast; Purbeck Ridge (East) and Studland Cliffs. More details about SSSIs and these can be found at: http://www.naturalengland.org.uk/ourwork/conservation/designatedareas/sssi/default.aspx and viewed at https://magic.defra.gov.uk/MagicMap.aspx

- Areas of Outstanding Natural Beauty (AONB): areas identified under National Parks and Access to the Countryside Act, 1949, which receive statutory protection because of their landscape quality. The AONBs that provide the protection for the Site are the Dorset AONB and the East Devon AONB. More information can be found at http://www.eastdevonaonb.org.uk/ and http://www.dorsetaonb.org.uk/

- Geological Conservation Review sites (GCR): sites identified following a national programme, carried out between 1977-1990, which identified the Earth Science sites of national and international importance in Britain. GCR sites therefore represent the series of the most significant geological and geomorphological sites within the UK, and generally receive specific protection through the Sites of Special Scientific Interest. The GCRs within the Site are numbers: 51, 87, 204, 206, 208, 252, 253, 432, 546, 547, 632, 634, 635, 636, 724, 725, 726, 793, 794, 800, 813, 814, 828, 910, 914, 915, 916, 996, 997, 998, 1000, 1001, 1006, 1060, 1063, 1198, 1263, 1264, 1285, 1297, 1298, 1298, 1300, 1321, 1330, 1506, 1507, 1603, 1628, 1643, 1800, 1837, 1839, 1843, 1863, 2109, 2288, 2289, 2380, 2625, 2626, 2627, 2629, 2900, 2901, 2952, 9991, 9992, 9993. For more information about each of these sites go to: http://archive.jncc.gov.uk/default.aspx?page=2947

A2-1.5 Owing to the requirement to ensure the protection of the Site, a further general criterion for boundary setting is that only areas designated as AONB or SSSI are included within it. The description notes a few localities where this condition has been slightly modified to reflect particular circumstances.

A2-1.6 Under UK law, the low water boundary is also the legal limit of the extent of statutory planning responsibilities of local authorities under United Kingdom Planning Law. However, jurisdiction of the Marine Management Organisation (MMO) extends to mean high water springs, therefore there is an overlap in jurisdiction between LPAs and the MMO.

A2-1.7 Before nomination, a lengthy process of notification and discussion of the boundaries of the Site with owners and managers was carried out, with broad support of the proposed cliff-top to low water boundary. The continued engagement and support of those who own the Site is essential to its effective stewardship.

A2-1.8 The criteria used to establish the initial boundaries of the Site will remain the basis for review of the boundaries in the future. It is implicit within these criteria that the precise location of the boundaries of the Site will change in the future as the physical form of the coast evolves, or if new evidence of the scientific importance of additional areas of the coast comes to light.

A2-1.9 There will be the need to define the precise location of the Site boundary from time to time. It is therefore considered that there should be a regular revision of the formally established boundaries of the Site, primarily to reflect changes to the coastline and the movement of the clifflines and beaches that define the extent of the Site. A small number of localities should be considered for inclusion in the future, depending on their notification for earth science reasons within the SSSI network. These localities are listed in the text below where relevant.

A2-1.10 The formal process of revision of the boundaries will be driven primarily by the survey timetables of the Ordnance Survey and the review and renotification of SSSIs by Natural England in relation to earth science interests.

A2-1.11 Modification to the Site's boundary can only be made by the UNESCO World Heritage Committee on the proposal of the national government. Small changes are possible by letter with some supporting information, whereas a significant alteration (i.e. one affecting the definition of the Outstanding Universal Value of the site) would need a re-nomination.

A2-1.12 The nomination document and first Management Plan for the Dorset and East Devon Coast WHS established that the existing conservation protection and planning policies were sufficiently robust to negate the need to add another layer of planning control in the form of a buffer zone. This opinion has not changed and the Partnership's position is stated below:

- ***Dorset and East Devon Coast WHS Buffer Zone arrangements***
  Pre-World Heritage Site designation, the UK Government had already put in place appropriate conservation measures for the Site and its setting, through systems of protective designation. In particular, with regard to the setting are the Areas of Outstanding Natural Beauty (AONB). These areas are afforded strong protection, particularly through the UK's statutory planning system, and the powers and duties of Defra and Natural England, the Government's statutory adviser on nature conservation, geodiversity and landscape. Further protection is also provided through established statutory planning policies in relation to defined Heritage Coasts, the undeveloped coastline of Portland, and the East Devon Coastal Preservation Area. The Site also lies almost wholly within sites separately identified and protected under European Law (the Habitats Directive and the Birds Directive) for their wildlife value. This range of conservation designations ensures statutory protection for a greater area than any possible additional buffer zone for the Site, and protects its setting adequately. The identification of a separate buffer zone for the Site is therefore considered unnecessary.

A2-2 SECTION 1: ORCOMBE ROCKS TO CHIT ROCKS, SIDMOUTH

AONB: Complete coverage, except for intertidal areas and Chit Rocks
SSSI: partial coverage
GCR sites: partial coverage, 6 sites

A2-2.1 The western boundary of this section of the Site, and of the Site as a whole is taken as grid reference 3018 0797 (SY018797), which is the western extent of GCR site 1506 (Orcombe Rocks, Permian - Triassic). This GCR site also lies within the Exe Estuary SSSI, and is cited as an earth science feature within it. From this point east, the Site includes continuous cliff face exposures of rock and coastal geomorphological features, and the boundaries of the Site are drawn as described in paragraph A2-1.2. Particular points to note with regard to the features included, and detailed boundaries of Section 1 are as follows:

a) This section of the Site lies within designated AONB, the boundary of which has been drawn at high tide;
b) Budleigh Salterton Cliffs is an SSSI notified only for its geological interests, and is covered by two GCR sites (1507 Budleigh Salterton, Permian - Triassic and 1837 Budleigh Salterton, Coastal Geomorphology of England). The boundary of the Site at Budleigh Salterton is taken as coinciding with the boundary of the SSSI that covers the cliffs fronting the town.
c) Otterton Point is a GCR site (813 Otterton Point, Permian - Triassic Reptilia) and this interest is also cited in the SSSI citation.
d) Ladram Bay-Sidmouth SSSI (3 separate sections) is listed as having importance for coastal geomorphology at Ladram Bay (also listed as GCR site 1839 Ladram Bay, Coastal Geomorphology of England), and for geology at High Peak and Chit Rocks (also listed as GCR site 814 High Peak, Permian - Triassic Reptilia).
e) The eastern boundary of this section coincides with the extent of the notified SSSI at Chit Rocks.

A2-2.2 This section contains a unique situation within the Site where an AONB has been drawn at high water mark, and only parts of the intertidal area are covered by SSSI. These intertidal areas are included within the Site because they are protected by designation as Coastal Preservation Area (CPA). The CPA is a well established Devon-specific designation, which provides the main lead for protective planning policy for the coastal sections of the AONB and the adjoining intertidal land.

A2-3 SECTION 2: RIVER SID, SIDMOUTH TO SEATON HOLE

AONB: Complete coverage, except intertidal area
SSSI: Complete coverage
GCR sites: Partial coverage, 2 sites

A2-3.1 This section of the Site covers cliff exposures and coastal geomorphological features that lie entirely within the Sidmouth-Beer Coast SSSI, and the East Devon AONB (boundary drawn at high water mark). It is partly covered by two overlapping GCR sites at its eastern end (632 East Cliff to White Cliff, Aptian – Albian and 204 Hooken Cliff, Cenomanian - Maastrichtian), the interests of both being described in the SSSI citation. The boundary is drawn within the SSSI to exclude areas of cliff top grassland and woodland.

A2-4 SECTION 3: RIVER AXE, AXMOUTH TO MONMOUTH BEACH, LYME REGIS

AONB: Complete coverage, except for intertidal area in Devon
SSSI: Complete coverage
GCR sites: Complete coverage, 6 sites (some in part)

A2-4.1 This section of the Site covers the Axmouth to Lyme Regis Undercliffs and important cliff exposures of geology. The entire site (with the exception of the intertidal area in Devon) is AONB. It also lies entirely within SSSIs that are cited for their earth science interest. The boundary of the Site can be regarded for practical purposes as coincident with the SSSI, although should strictly exclude a small area of clifftop grassland that lies within the SSSI above Lyme Regis and is owned by the National Trust. The Site is entirely within GCR Site 800 (Axmouth to Lyme Regis, Mass Movement) and parts lie within the following sites:

- 1263 Culverhole Point, Rhaetian
- 1264 Pinhay Bay, Rhaetian
- 87 Pinhay Bay Fault Corner, Hettangian - Pliensbachian

- 916 Lyme Regis, Jurassic - Cretaceous Reptilia
- 2952 Lyme Regis, Mesozoic - Tertiary Fish/Amphibia

A2-5 SECTION 4: LYME REGIS TO WEST BAY

AONB: Complete coverage
SSSI: Complete coverage
GCR sites: Almost completely covered, 10 sites (some in part).

A2-5.1 This section of the Site includes coastal geological exposures, landslips and other geomorphological features. The entire area lies within AONB, and all but a small landslipped field at the Spittles lies within SSSIs notified for their earth science interest. Virtually all of the Site lies within GCR sites, with overlapping sites in several locations. The entire area to within 400m of its eastern boundary at West Bay lies within GCR site 87 (Pinhay Bay Fault Corner, Hettangian - Pliensbachian). Other GCR sites covering part of this section are as follows:

- 252 Seatown - Watton Cliff, Toarcian
- 546 Watton Cliff, Mesozoic Mammalia
- 794 Charmouth, Palaeoentomology
- 916 Lyme Regis, Jurassic - Cretaceous Reptilia
- 1321 Black Ven, Mass Movement
- 1330 Watton Cliff, Bathonian
- 2109 Golden Cap - Lyme Regis, Coastal Geomorphology of England
- 2901 Watton Cliff, Mesozoic - Tertiary Fish/Amphibia
- 2952 Lyme Regis, Mesozoic - Tertiary Fish/Amphibia

A2-5.2 Within this section, the boundary generally is coincident with the Site of Special Scientific Interest, with the following exceptions:

- the landward boundary is drawn at the base of the existing sea-wall to the east of Lyme Regis
- it excludes two fields within the Spittles that lie above the break of slope of the cliffs. This whole area is subject to active landslipping and the flexible approach to boundaries of the Site is particularly relevant for the future.
- It is drawn to exclude cliff-top grassland that is included in the SSSI but is unaffected by slippage.

A2-5.3 The eastern boundary of the Site at West Bay is taken as coincident with the SSSI boundary.

A2-6 SECTION 5: CHESIL, THE FLEET AND PORTLAND COAST

AONB: Partial coverage. Elsewhere, local Coastal Landscape protection policy is embodied within structure and local development plans
SSSI: Complete coverage, but on the Isle of Portland the boundary of the SSSI has been drawn at high water mark
GCR sites: Almost complete coverage, 14 sites

A2-6.1 This section of the Site covers the whole of Chesil Beach and the Fleet. It includes important cliff exposures of geology to the east of West Bay, within the low cliffs fronting the Fleet and on the Isle of Portland. It also includes landslides and other geomorphological features on the Isle of Portland. This section lies entirely within SSSIs notified for their geological and/or geomorphological interest. The central and northern part of Chesil lies within AONB, but the remainder and the whole of the island of Portland, and Portland Harbour do not. Parts of this site are adjacent to Portland and Weymouth Harbours. Chesil and the Fleet is a candidate Special Area of Conservation, under the EC Habitats Directive.

A2-6.2 The whole of Chesil Beach is a GCR Site (1800 Chesil Beach, Coastal Geomorphology of England) and the following GCR sites are also wholly or in part within this section:

- 51 Burton Cliff & Cliff Hill Road Section, Aalenian - Bajocian
- 432 Lynch Cove (East Fleet Exposure), Oxfordian
- 794 Charmouth, Palaeoentomology
- 996 Freshwater Bay, Portlandian - Berriasian
- 997 Tar Rocks, Portlandian - Berriasian
- 1000 West Cliff, Portlandian - Berriasian
- 1002 Yeolands - Grove Cliff, Portlandian - Berriasian
- 1198 West Cliff - Kingbarrow - Yeolands & Grove Cliff, Portland, Jurassic - Cretaceous Reptilia
- 1285 Blacknor, Mass Movement
- 1298 East Fleet - Small Mouth, Kimmeridgian
- 1603 Shipmoor Point - Butterstreet Cove, Bathonian
- 1643 Portland Bill, Portlandian - Berriasian
- 2380 Tidmoor Point - East Fleet Coast, Callovian

A2-6.3 On Portland the SSSIs are too extensive to provide appropriate boundaries to the Site in a consistent manner to elsewhere. The formal boundary of the Site is taken as follows:

a) The intertidal area is not included on Portland as it is not included within the SSSI
b) The boundary follows the brow of West Cliff, excluding Tout and Bowers Quarries
c) South of Blacknor to Pulpit Rock, the boundary follows the brow of the cliff and includes the raised beaches that lie within the SSSI
d) The raised beach between Pulpit Rock and Portland Bill is not included as it is excluded from the SSSI
e) On the east coast, north of Portland Bill it includes the raised beaches within the SSSI and follows the brow of the cliff to a point at grid reference 36870693
f) From this point north there are a number of disused quarries that emerge onto the cliffs and have been quarried out through the natural brow of the cliff. These are geologically important and are enclosed by a narrow coastal strip of SSSI. Since they expose rocks which can be presumed to have been those formerly exposed in the cliffs, the boundary of the Site is taken as coincident with the SSSI boundary from this point north to grid reference 36910702.
g) From this point north the boundary follows the landward break in slope of cliffs, generally following the SSSI boundary but excluding some adjoining cliff top land and quarries such as Broadcroft.
h) Finally, the boundary in the East Weares follows the SSSI boundary, as far as the route of the incline railway, excluding quarry exposures inland of that point. The Site excludes the former Kings Pier Hollow Rifle Range, which although designated as SSSI does not contain features of earth science interest..

A2-6.4 Most of this section raises no difficult issues in boundary setting. The inclusion of the cliff quarries on the south-east coast of Portland addresses a unique situation where the natural profile of the cliff has been lost, but excellent exposures exist within cliff-top quarries. The incline railway forms a convenient boundary in an area of former landslipping where a clear geomorphological limit to the Site is not easy to define.

A2-6.5 The drawing of the boundary to include the Quaternary raised beaches reflects the unique occurrence of these features within the Site, and their international earth science importance as set out in the SSSI citation.

A2-6.6 There are two boundary issues on Portland which derive from the present boundaries on the SSSI citation which were last notified in 1977. The first is that the SSSI currently excludes the natural coastal rock outcrops between Pulpit Rock and Portland Bill. The other anomaly is that the SSSI appears only to run to High Water Mark, contrary to normal practice in drawing SSSI boundaries elsewhere. These factors prevent these areas from being included in the Site currently and should be considered by Natural England as issues for resolution at the first revision of the World Heritage Site boundary.

A2-6.7 Portland Stone has an international status as a building stone, and this represents a strong associated interest with the earth science interests proposed for inclusion in the Site. The quarry landscape on Portland, including disused quarries within the Site, provides important evidence of the industrial archaeology of the stone industry.

A2-7 SECTION 6: PORTLAND HARBOUR SHORE

AONB: Not covered. Local Coastal Landscape protection policy is embodied within statutory land-use plans
SSSI: Complete coverage. The SSSI to the north of Ferrybridge is currently notified for its earth science importance, whilst the part to the south is notified on the basis of its biological interest
GCR sites: North of Ferrybridge the rock exposures are completely covered by three GCR sites. There is no GCR coverage to the south of Ferrybridge.

A2-7.1 The boundary of the Site within this section includes only the land within the SSSI to the north of Ferrybridge, it follows the SSSI boundary in its entirety from that point north. The Site includes the following GCR sites:

- 828 (Sandsfoot, Oxfordian)
- 1064 (Small Mouth Sands, Jurassic-Cretaceous Reptiles)
- 1298 (East Fleet - Small Mouth, Kimmeridgian)

A2-7.2 This is a clear example where the lateral extent of the notified earth science importance within an SSSI citation creates a grey area with regard to the definition of the boundary of the Site, because the SSSI lies outside of an AONB. Whilst there are earth science interests on Hamm Beach, and a geomorphological link to Chesil has been demonstrated, these interests are not reflected within the current SSSI citation. The criteria set for selection of the Site boundaries therefore require that the Hamm Beach is excluded from the Site at the present time. The Hamm Beach is an area which should be considered for inclusion within the Site at the time of the first revision of the boundaries of the Site, when the position in relation to its earth science importance within the SSSI network and the Geological Conservation Review has been looked at in more detail.

A2-8 SECTION 7: BOWLEAZE COVE TO PEVERIL POINT

AONB: Complete coverage, except to the west of Redcliff Point
SSSI: Complete coverage
GCR sites: Complete coverage for geomorphology and very extensively covered for geology, 26 sites in total.

A2-8.1 Section 7 includes exposed coastal geology and geomorphology between Furzy Cliff, near Bowleaze Cove and Peveril Point. The boundary follows a readily traceable cliff line throughout, and lies entirely within the South Dorset SSSI which is notified for its geological and geomorphological interest. The boundary does not include the full extent of the SSSI and excludes a number of substantial areas of cliff-top vegetation. The area to the west of Redcliff Point lies outside the South Dorset AONB but lies within an earth science SSSI, and is completely covered by two GCR sites (910 Osmington, Oxfordian and 1863 Furzy Cliff - Peveril Point, Coastal Geomorphology of England), with Furzy Cliff covered by a third site (163 Furzy Cliff, Overcombe, Jurassic - Cretaceous Reptilia) The area as a whole is covered by GCR site 1863 (Furzy Cliff - Peveril Point, Coastal Geomorphology of England) and extensively covered by a series of sometimes overlapping GCR sites as follows:

- 163 Furzy Cliff, Overcombe, Jurassic - Cretaceous Reptilia
- 208 White Nothe, Cenomanian - Maastrichtian
- 547 Durlston Bay, Mesozoic Mammalia
- 634 Worbarrow Bay, Aptian - Albian
- 635 White Nothe, Aptian - Albian

- 724 Durlston Bay, Portlandian - Berriasian
- 725 Cliff House, Portlandian - Berriasian
- 726 Houns Tout, Portlandian - Berriasian
- 793 Durlston Bay, Palaeoentomology
- 910 Osmington, Oxfordian
- 914 Durlston Bay, Jurassic - Cretaceous Reptilia
- 915 Broad Bench Cuddle (Gaulter Gap - Broad Bench), Jurassic - Cretaceous Reptilia
- 998 Tyneham Cap - Houns Tout, Kimmeridgian
- 1001 Winspit - Seacombe, Portlandian - Berriasian
- 1006 Dungy Head - Mupe, Portlandian - Berriasian
- 1060 Swyre Head - Chapman's Pool, Jurassic - Cretaceous Reptilia
- 1297 Ringstead, Kimmeridgian
- 1300 Black Head, Kimmeridgian
- 1628 Gad Cliff, Portlandian - Berriasian
- 1863 Furzy Cliff - Peveril Point, Coastal Geomorphology of England
- 2289 White Nothe - Bacon House, Alpine Structures of Southern England
- 2625 Lulworth Cove, Wealden
- 2626 Mupe Bay - Worbarrow Bay, Wealden
- 2627 Durdle Door, Wealden
- 2900 Durlston Bay, Mesozoic - Tertiary Fish/Amphibia

A2-9 SECTION 8: NEW SWANAGE TO STUDLAND BAY

AONB: Complete coverage
SSSI: Complete coverage
GCR sites: Complete coverage, 4 sites

A2-9.1 Section 8 includes exposed coastal geology and geomorphology between Swanage and the Cretaceous/Tertiary unconformity west of Old Harry Rocks. The boundary follows a readily traceable cliff line throughout the Site, and lies entirely within the Purbeck Ridge SSSI and Studland Cliffs SSSI which are both notified for geological and geomorphological interests. The boundary does not include the full extent of the SSSIs and excludes a number of areas of important cliff top vegetation. This section is entirely covered by four, partly overlapping GCR sites as follows:

- 206 Hand Fast Point - Ballard Point, Cenomanian - Maastrichtian
- 632 East Cliff to White Cliff, Aptian - Albian
- 1843 Ballard Down, Coastal Geomorphology of England
- 2288 Ballard Point - Studland Bay, Alpine Structures of Southern England

A2-9.2 The eastern boundary of the Site is drawn at the Cretaceous/Tertiary unconformity at the far south of Studland Bay. This lies within the SSSI below Warren Wood, approximately 1 km west of Old Harry Rocks.

A2-2 MAPS

Maps showing the boundaries of the Site, and those of the various designations that protect it, are shown on an additional document entitled Appendix 2M. WHS boundary GIS data is also available from Historic England. All maps are only correct as of a stated point in time, and UNESCO recognise a moving boundary that keeps pace with erosion, and which needs periodic monitoring to ensure changes are registered[1].

[1] As described in the SOUV

Jurassic Coast

Partnership Plan

2020-2025

Management Framework for the
Dorset and East Devon Coast World Heritage Site

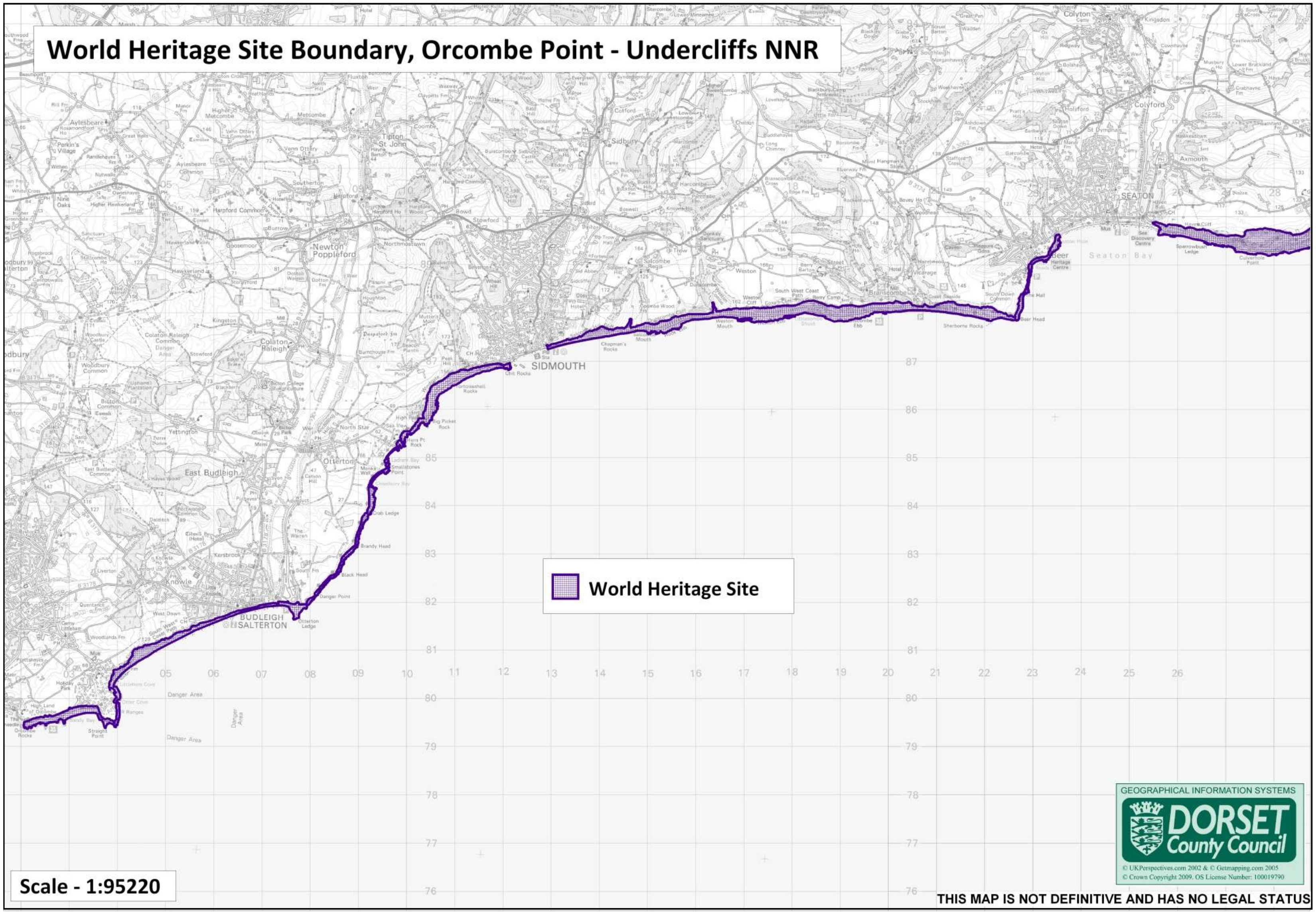
APPENDIX 2M: Maps

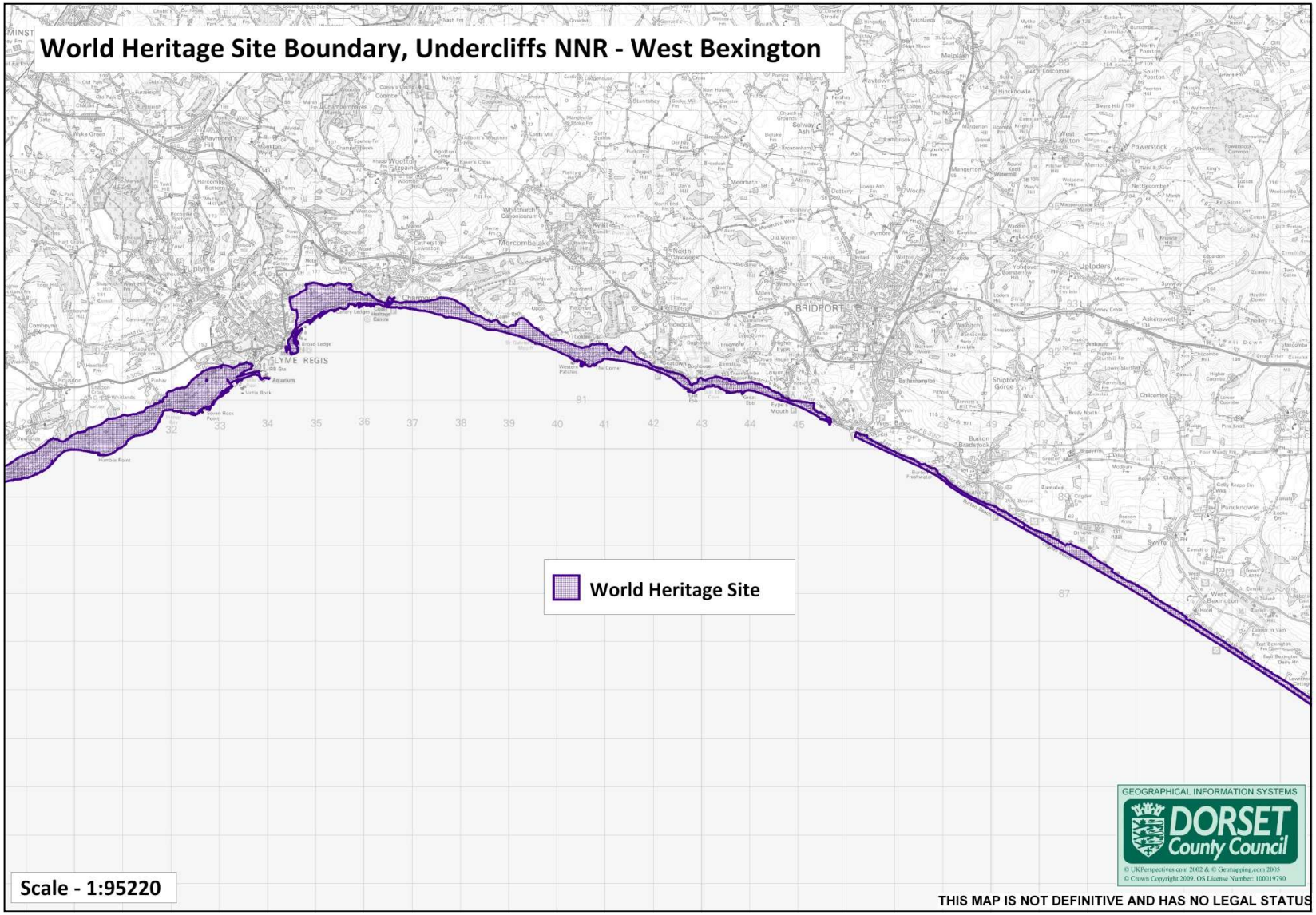
JURASSICCOAST
DORSET AND EAST DEVON
WORLD HERITAGE SITE

United Nations
Educational, Scientific and
Cultural Organization

Dorset and East Devon Coast
inscribed on the World
Heritage List in 2001

World Heritage Site Boundary, Orcombe Point - Undercliffs NNR




World Heritage Site Boundary, Undercliffs NNR - West Bexington
LYME REGIS
BRIDPORT
World Heritage Site
Scale - 1:95220
GEOGRAPHICAL INFORMATION SYSTEMS
DORSET County Council
© UKPerspectives.com 2002 & © Getmapping.com 2005
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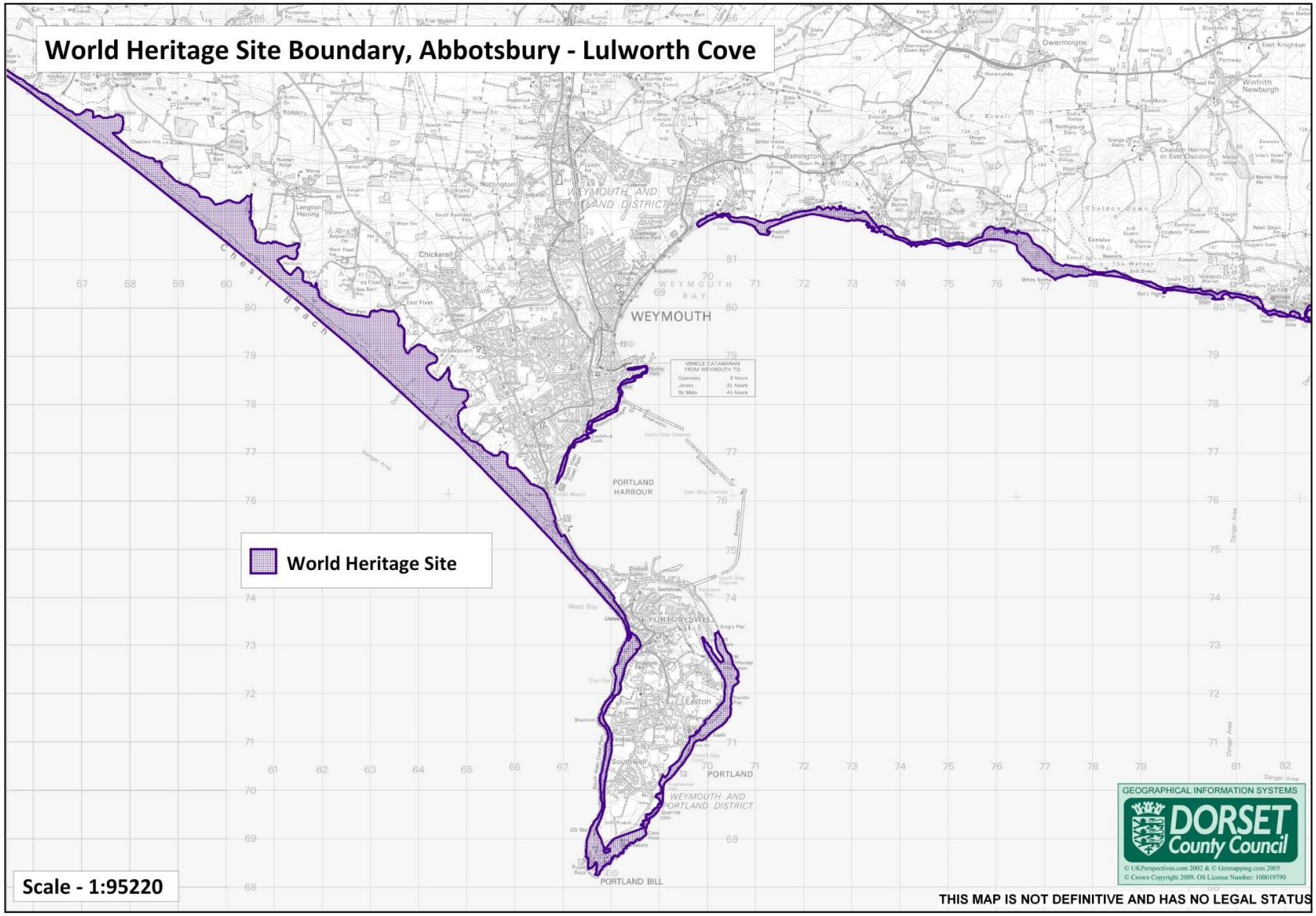
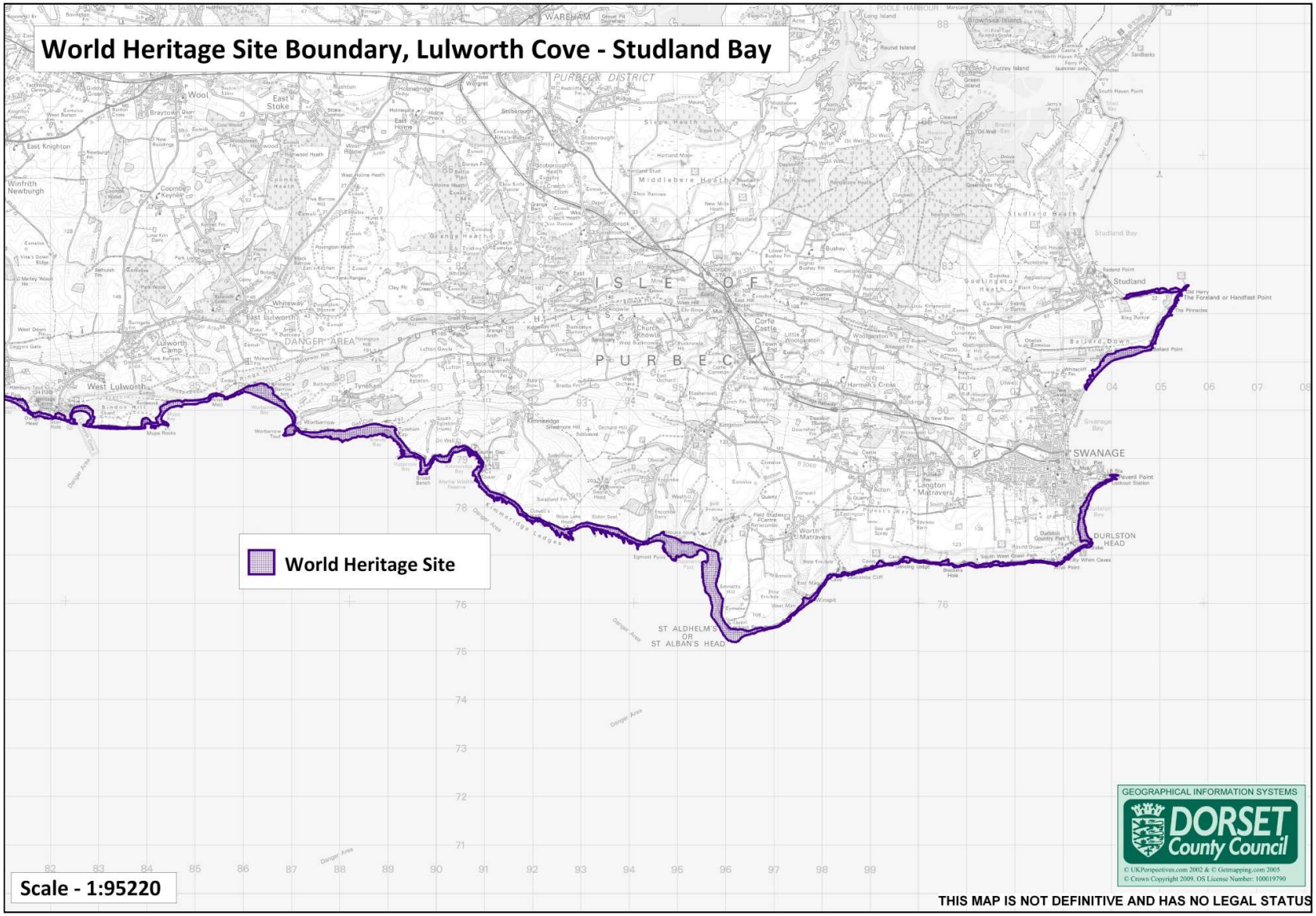
THIS MAP IS NOT DEFINITIVE AND HAS NO LEGAL STATUS


World Heritage Site Boundary, Abbotsbury - Lulworth Cove
World Heritage Site
Scale - 1:95220
WEYMOUTH
PORTLAND HARBOUR
PORTLAND
PORTLAND BILL
Chesil Beach
GEOGRAPHICAL INFORMATION SYSTEMS
DORSET County Council
THIS MAP IS NOT DEFINITIVE AND HAS NO LEGAL STATUS


World Heritage Site Boundary, Lulworth Cove - Studland Bay
World Heritage Site
Scale - 1:95220
GEOGRAPHICAL INFORMATION SYSTEMS
DORSET County Council
© UKPerspectives.com 2002 & © Getmapping.com 2005
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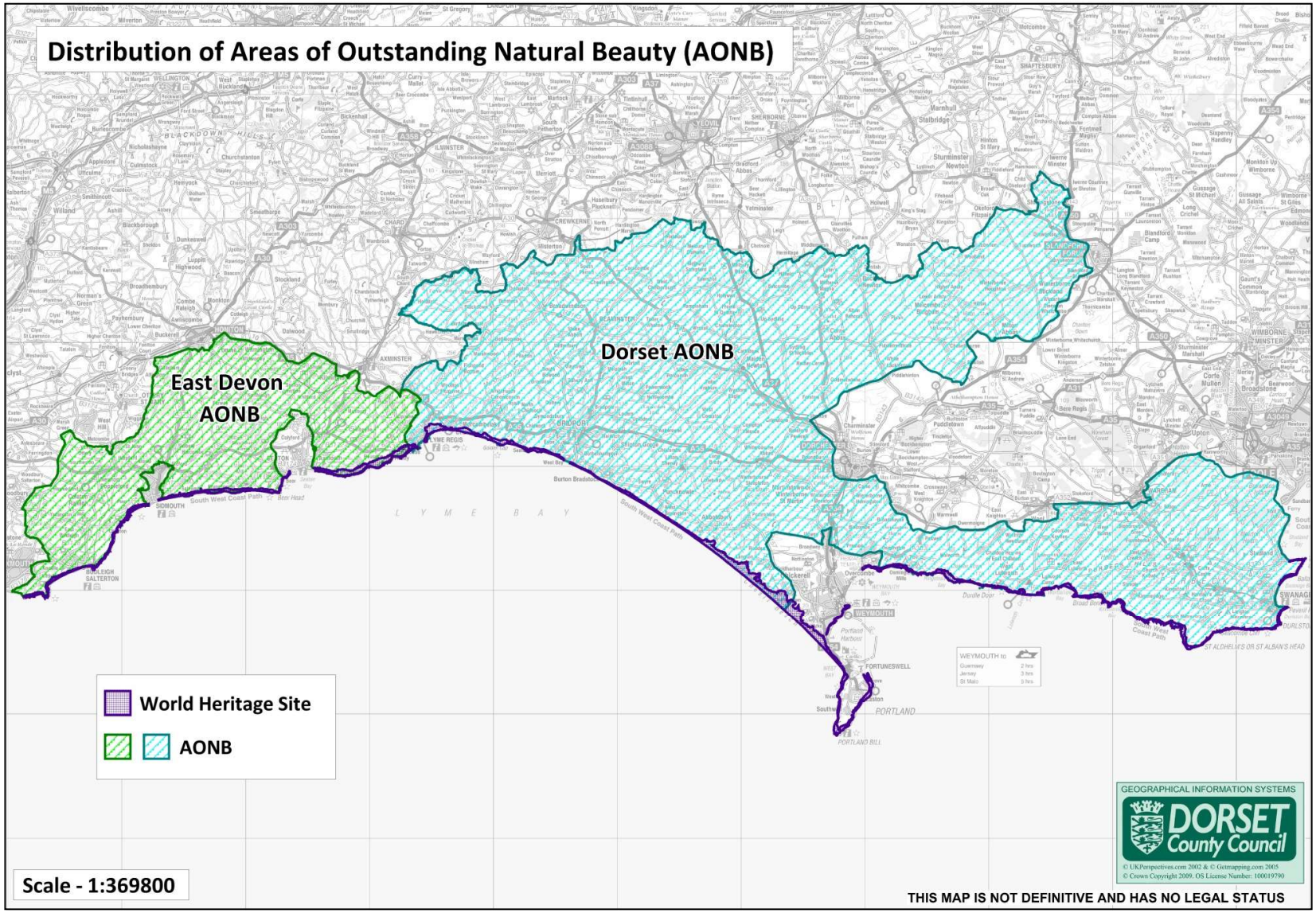
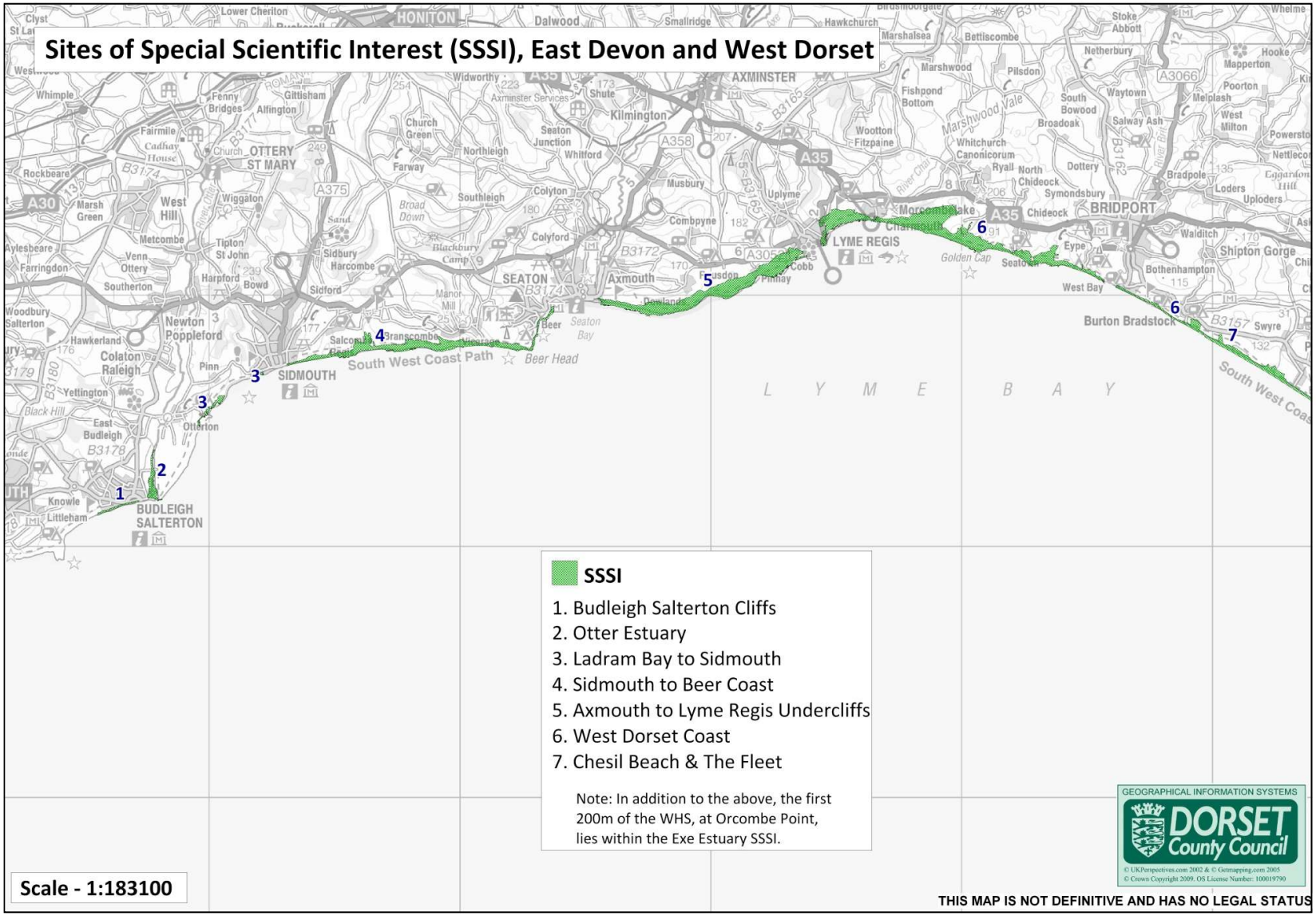
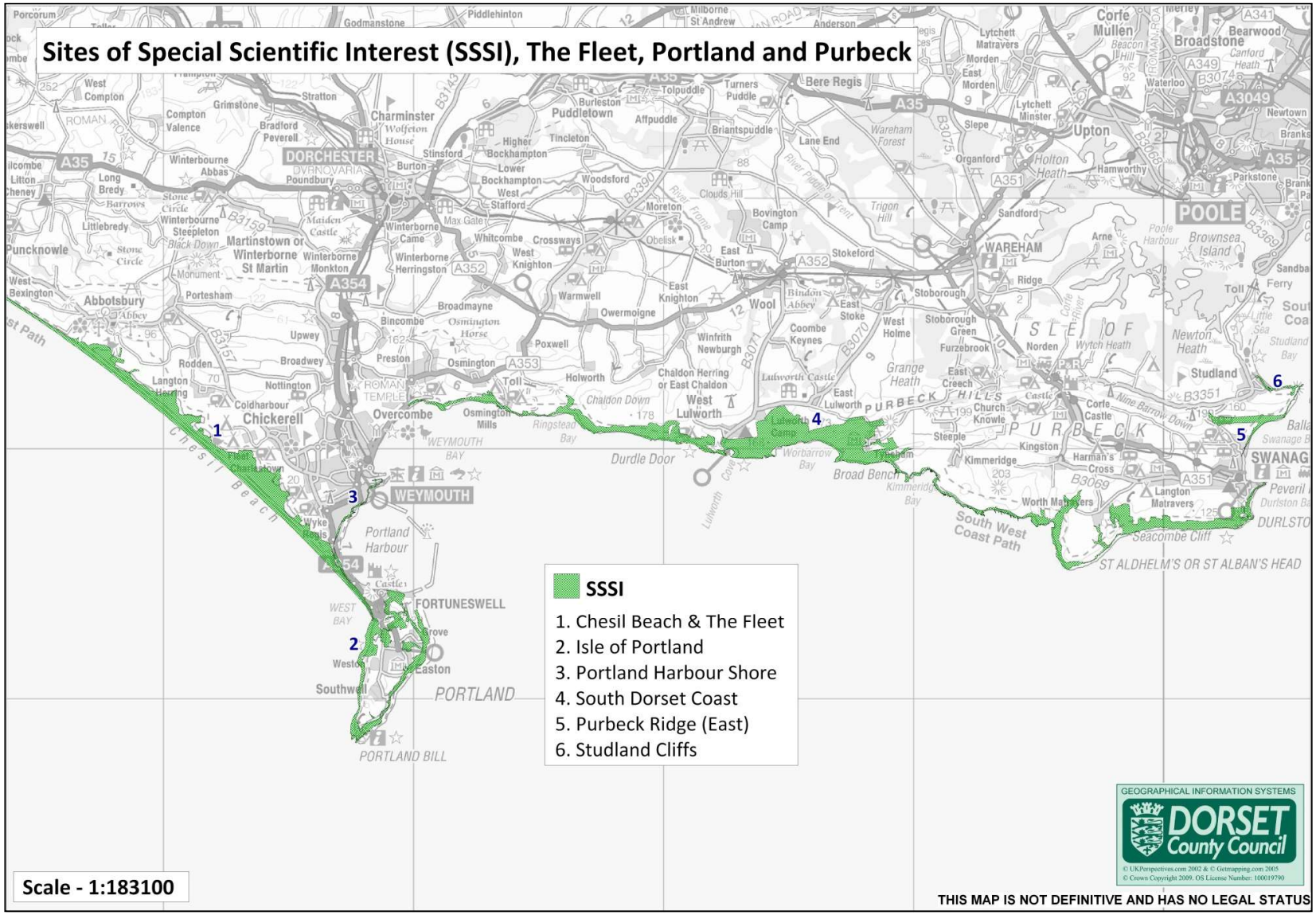
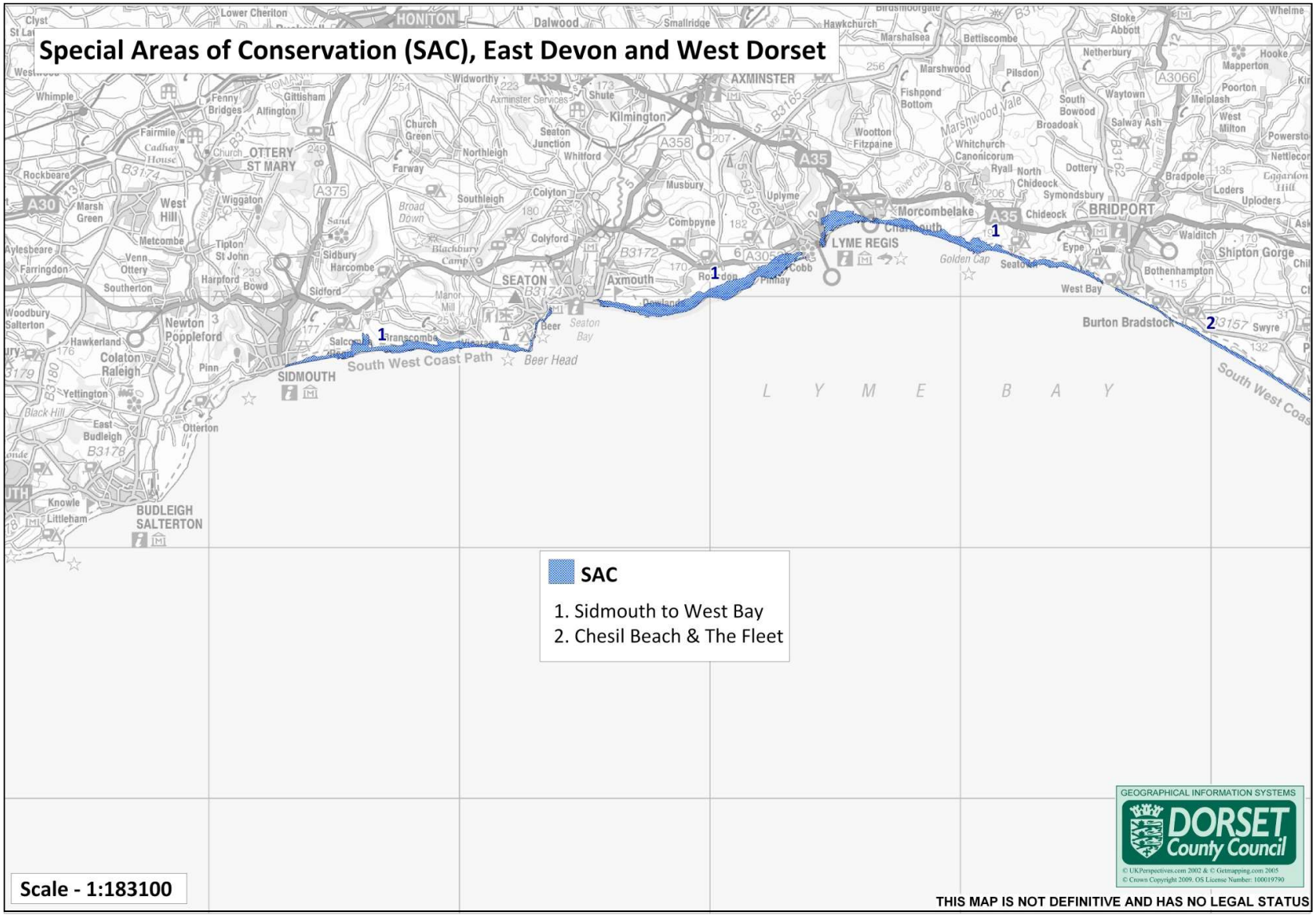

Distribution of Areas of Outstanding Natural Beauty (AONB)
East Devon AONB
Dorset AONB
World Heritage Site
AONB
Scale - 1:369800
GEOGRAPHICAL INFORMATION SYSTEMS
DORSET County Council
THIS MAP IS NOT DEFINITIVE AND HAS NO LEGAL STATUS


Sites of Special Scientific Interest (SSSI), East Devon and West Dorset
SSSI
1. Budleigh Salterton Cliffs
2. Otter Estuary
3. Ladram Bay to Sidmouth
4. Sidmouth to Beer Coast
5. Axmouth to Lyme Regis Undercliffs
6. West Dorset Coast
7. Chesil Beach & The Fleet
Note: In addition to the above, the first 200m of the WHS, at Orcombe Point, lies within the Exe Estuary SSSI.
Scale - 1:183100
GEOGRAPHICAL INFORMATION SYSTEMS
DORSET County Council
THIS MAP IS NOT DEFINITIVE AND HAS NO LEGAL STATUS
HONITON
AXMINSTER
LYME REGIS
SEATON
SIDMOUTH
BUDLEIGH SALTERTON
BRIDPORT
L Y M E B A Y
South West Coast Path


Sites of Special Scientific Interest (SSSI), The Fleet, Portland and Purbeck
SSSI
1. Chesil Beach & The Fleet
2. Isle of Portland
3. Portland Harbour Shore
4. South Dorset Coast
5. Purbeck Ridge (East)
6. Studland Cliffs
Scale - 1:183100
GEOGRAPHICAL INFORMATION SYSTEMS
DORSET County Council
THIS MAP IS NOT DEFINITIVE AND HAS NO LEGAL STATUS


Special Areas of Conservation (SAC), East Devon and West Dorset
SAC
1. Sidmouth to West Bay
2. Chesil Beach & The Fleet
Scale - 1:183100
THIS MAP IS NOT DEFINITIVE AND HAS NO LEGAL STATUS
GEOGRAPHICAL INFORMATION SYSTEMS
DORSET County Council
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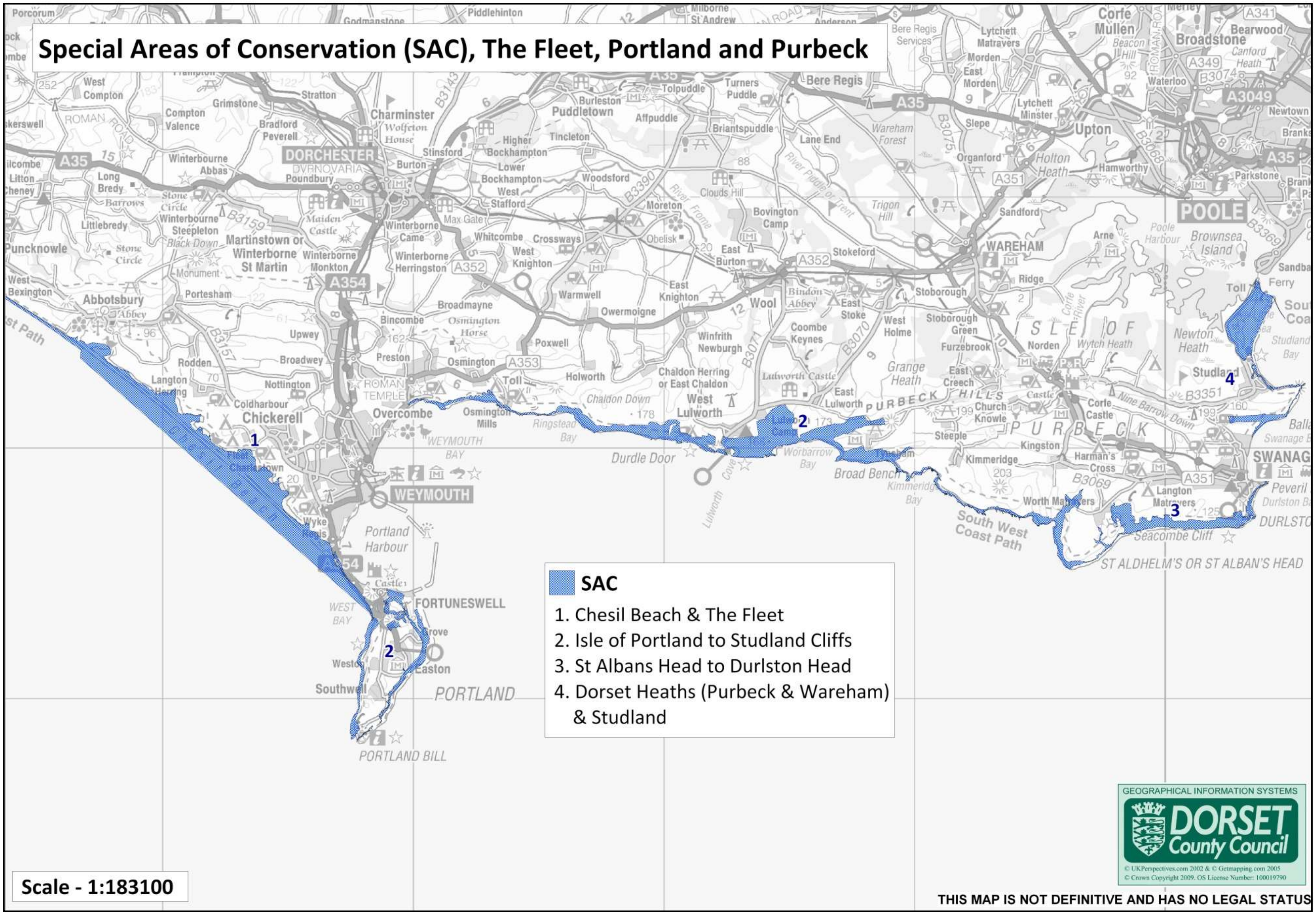
L Y M E B A Y
SIDMOUTH
SEATON
LYME REGIS
BRIDPORT
AXMINSTER
BUDLEIGH SALTERTON
OTTERY ST MARY
HONITON
South West Coast Path
Beer Head
Golden Cap
West Bay
Burton Bradstock


Special Areas of Conservation (SAC), The Fleet, Portland and Purbeck
SAC
1. Chesil Beach & The Fleet
2. Isle of Portland to Studland Cliffs
3. St Albans Head to Durlston Head
4. Dorset Heaths (Purbeck & Wareham) & Studland
Scale - 1:183100
GEOGRAPHICAL INFORMATION SYSTEMS
DORSET County Council
THIS MAP IS NOT DEFINITIVE AND HAS NO LEGAL STATUS
DORCHESTER
WEYMOUTH
POOLE
WAREHAM
SWANAGE
PORTLAND
PORTLAND BILL
FORTUNESWELL
Chickerell
West Lulworth
Wool
Bere Regis
Upton
Durdle Door
ST ALDHELM'S OR ST ALBAN'S HEAD
South West Coast Path

Jurassic Coast

Partnership Plan

2020-2025

Management Framework for the Dorset and East Devon Coast World Heritage Site

APPENDIX 3:

Fossil Collecting

JURASSIC COAST
DORSET AND EAST DEVON
WORLD HERITAGE SITE

United Nations
Educational, Scientific and
Cultural Organization

Dorset and East Devon Coast
inscribed on the World
Heritage List in 2001

ACCESSIBILITY

If you require a copy of this document in a different format, please contact us and we will do our best to provide it in a way that meets your needs

YOUR VIEWS

The most important people for the future protection, conservation and use of the Dorset and East Devon Coast are those who live or work on or near it, and visit and enjoy it. Please let us know your views on the Site and its management through the contact details below.

CONTACT DETAILS

Website: www.jurassiccoast.org

Email: info@jurassiccoast.org

Mail: The Jurassic Coast Trust,
Mountfield,
Rax Lane,
Bridport,
DT6 3JP

Tel: 01308 807000

A3-1 Natural England Technical Information Note TIN112: Managing geological specimen collecting: responsible collecting

Authors and acknowledgements
Authors: Hannah Townley and Jonathan
Larwood (Natural England).

Natural England Technical Information Notes are available to download from the Natural England website: **www.naturalengland.org.uk**.

This note sets out the principles for responsible geological specimen collecting. It has been written for collectors and is also relevant to managers of geological sites. It accompanies the guidance on managing geological specimen collecting in TIN111 and the case studies in TINs113 to 119 and TIN127. These provide information on how to manage geological specimen collecting in different situations, reflecting the available resource, its importance and different collecting pressures.

Background
Rocks, fossils and minerals are part of our natural heritage and form an important scientific and educational resource. The ability to record field observations and collect specimens is essential to geology, which is a field-based science that allows us to understand the processes that influence our natural environment. Today collecting rocks, fossils and minerals is enjoyed by many and can provide an inspiring experience of the natural world. The available collecting resource is, however, finite and only through adopting a responsible approach to collecting will it remain available for future generations to experience, study and enjoy. The need for collecting should be carefully considered on a site by site basis. In some situations collecting can threaten a site, but in most cases, if undertaken responsibly, it is a tool for positive management.

Responsible collecting

Access and collecting
Permission to enter private land and collect geological specimens must always be gained. Elsewhere permission to collect may be required. If in doubt seek further advice over whether permission is required to collect. In all cases any legal requirements and local by-laws or management guidance should be followed.

Ownership and collecting
A clear agreement should be made with the landowner over the future of any specimens collected. In some cases, both the landowner and the owner of the mineral rights (often, but not always, the same person) may need to be approached. If in doubt seek further advice over who to talk to and ownership.

How to collect
In general collect only a few representative specimens from fallen or loose material. Scientific study may require collection of *in situ* specimens; any such collecting should be carefully planned and focus on scientific needs. Always make a precise record of the locality at which specimens are found and, if collected *in situ*, record relevant horizon and associated details, including linking specimens to information such as site name, grid reference and, if possible, photographs. In most cases, collecting by hand from loose material is sufficient. Hand tools, where allowed, should only be used when essential and power tools only used in exceptional circumstances. Any form of excavation is likely to require permission before it is undertaken.

Site management and collecting
Always avoid disturbance to wildlife, be aware of other people and ensure that the site is left in a tidy and safe condition for those who follow.

Looking after your collection
Ensure that all records can be directly linked to any specimens collected. Where necessary seek further advice on specimen identification and care. Scientifically important specimens should be eventually placed in a suitably managed collection, such as a museum, where there are adequate curatorial and storage facilities to ensure they remain available for further study.

Further information

Geological Curators' Group. *Rocks, fossils and minerals - how to make the most of your collection*. **www.geocurator.org/pubs/A4Thumbs_upleaflet.pdf**

Geologists' Association. *A Code for Geological Fieldwork*. (A leaflet available from the Geologists' Association, Burlington House, Piccadilly, London W1V 9AG).

Prosser, C.D., Murphy, M. & Larwood, J.G. 2006. *Geological conservation: a guide to good practice*. Peterborough: English Nature. **http://publications.naturalengland.org.uk/publication/83048?category=30050**

Scottish Natural Heritage. 2008. *The Scottish Fossil Code*. https://www.nature.scot/landforms-and-geology/protecting-our-geodiversity/codes-researchers-and-collectors/scottish-fossil-code

Natural England Technical Information Notes are available to download from the Natural England website: **www.naturalengland.org.uk**.

In particular see:

- TIN111: *Managing geological specimen collecting* TIN113: *Managing geological specimen collecting: caves*
- TIN114: *Managing geological specimen collecting: Charmouth case study*
- TIN115: *Managing geological specimen collecting: Fowlmead Country Park case study*
- TIN116: *Managing geological specimen collecting: rock coring*
- TIN117: *Managing geological specimen collecting: Whittlesey Brick Pits and King's Dyke Nature Reserve case study*
- TIN118: *Managing geological specimen collecting: Wren's Nest case study*
- TIN119: *Managing geological specimen collecting: Writhlington case study*
- TIN127: *Managing geological specimen collecting:Caldbeck Fells case study*

For further information contact the Natural England Enquiry Service on 0300 060 3900 or email **enquiries@naturalengland.org.uk**

A3-2 The West Dorset Fossil Collecting Code of Conduct

The West Dorset Fossil Collecting Code of Conduct was developed in the late 1990's and reviewed in 2011/13. The revised 2013 Code is the product of that review, details of which can be found under the management section of the Jurassic Coast web site at www.jurassiccoast.org.

This Code, though specifically aimed at professional and dedicated amateur collectors, also applies to all those who come here to collect fossils, whether for study or recreation. The safest and best advice, particularly for inexperienced collectors and educational groups, is that they should restrict their activities to the beaches alone. Advice to this effect is provided by interpretation signs, leaflets and the services of the Charmouth Heritage Coast Centre and Lyme Regis Museum.

The Geology and Fossils of the West Dorset coast

The West Dorset coast contains one of the finest exposures of rocks from the Lower and Middle Jurassic Period to be found anywhere in the world. High erosion rates, particularly in the winter, ensure a plentiful supply of fossils onto the beaches. This coast is one of the best sources of marine Jurassic aged fossils in the world and numerous important finds have been and continue to be made here. Geological Conservation Review (GCR) sites include: GCR number 916 for fossil reptiles, 2952 for fish, 794 for fossil insects and 87 for Lower Jurassic Stratigraphy. Geomorphological GCR sites are 1321 for Mass Movement in Black Ven and 2109 for the coast between Lyme Regis and Golden Cap. Not surprisingly this coast has been designated by Natural England as a Site of Special Scientific Interest (SSSI) for its geology, fossils and landslides. It also forms part of the Jurassic Coast World Heritage Site and this Code sits within the Management Plan for the Site (Policies 2.6 and 2.7).

Fossil Collecting

On the rapidly eroding West Dorset coast, fossil collecting is essential if specimens, some of which may be of great scientific value, are to be saved from damage or destruction by the sea. Collecting also offers an opportunity for people to learn about the ancient past and to contribute to our understanding through the discovery of new finds or the development of scientific study. However, it is important that fossils are collected both responsibly and safely.

Fossil Collectors want to be able to collect fossils freely. For many it is both a great learning experience and recreational activity. Most collectors, both amateur and professional, have a deep-seated interest in palaeontology and a wish to contribute to the development of the science. Professional collectors have most time, are able to react quickly to the events particularly storms and landslides, that uncover the fossils, and have a great deal of local knowledge, but they need to sell their finds in order to earn a living.

As a general rule, **Landowners** own the fossils on or under their land. The National Trust is the principal landowner along the West Dorset coast. The Trust is a registered charity charged with preserving places of Historic Interest or Natural Beauty for the Nation to enjoy. All along the West Dorset coast it seeks to preserve the landscape and nature conservation interests and to provide public access over its property so far as that is consistent with its preservation.

Natural England is the Government's statutory advisor on conservation including the Earth sciences. It designates National Nature Reserves, Sites of Special Scientific Interest and Special Areas of Conservation and played a key role in achieving World Heritage Site designation. It promotes sustainable management of these sites.

Museum curators and Researchers are keen to secure key scientifically important specimens for recognised collections as part of the nation's heritage and to provide a collection upon which scientific research can be based. Curators and researchers seek to ensure that the maximum associated scientific data is gathered when specimens are collected. Some researchers require access to strata and specimens *in situ* in order to undertake their work.

Aims and Objectives of the Code

The interests of all those involved with fossil collecting on the Dorset Coast need not be mutually exclusive. Indeed many interest groups can assist each other so long as each party is aware of, and accepts the interest of the other. The Fossil Collecting Code of Conduct is an attempt to balance those interests.

The aim of the Code is:

To encourage successful recovery of fossils so as to avoid their destruction by the sea

The objectives of the Code are to:

- ***promote responsible and safe fossil collecting***
- ***restrict the excessive digging or 'prospecting' in situ for fossils along fossil rich strata***
- ***clarify ownership of the fossils***
- ***promote better communication between all those with an interest in fossils from the West Dorset coast***
- ***promote the acquisition of key scientifically important fossils by recognised museum collections.***

Area covered by the Code

The area covered by the Code is land in National Trust and Charmouth Parish Council ownership between Lyme Regis and Hive Beach at Burton Bradstock. Discussions remain ongoing with the Crown Estate regarding their interest in fossils found in the foreshore and also with Natural England regarding proposals to extend the principles of the code into the Lyme Regis to Axmouth Undercliffs National Nature Reserve.

Health and Safety

The following is a general list of practical advice aimed at all types of collector including professionals and amateurs, educational/academic visitors and the general public including holiday makers and local people.

- Always consult tide tables before collecting. It is advisable that you go collecting on a falling tide.
- Always advise someone of where you are going and at what time you can be expected to return.
- Be vigilant and exercise common sense in the vicinity of any cliffs. Cliff falls tend to occur suddenly and without warning. Avoid cliff bases.
- Avoid walking on, and keep clear of, visibly moving rock falls and mudflows. Note particularly that the seaward edges of mudflows may be covered by shingle and can be particularly treacherous.
- If you are using a hammer or other tools, it is advisable to wear safety goggles.
- Exercise common sense when considering what clothes and safety items to wear and take with you.
- Collectors should not descend the cliffs using ropes to get to a particular level under any circumstances.

For professional and experienced amateurs collecting from cliffs, landslides, undercliffs and the foreshore, the Code provides as follows:

1. There should be no digging *in situ* in the cliffs without permission (except in special circumstances - see 4 below).

2. Collectors should adopt a common sense approach to their activities and not expose themselves to excessive risks. They should cease immediately on becoming aware that their activities present a risk to a third party.

3. Collectors should take particular care with the following hazards:

    - Unstable cliffs, especially in areas where recent cliff falls have occurred or are ongoing
    - Mudflows and landslides
    - Tides, rough seas and poor weather conditions

4. Cliff excavations: Collectors wishing to extract fossils from *in situ* within the cliffs should use the following procedure:

i. Obtain the landowner's permission before taking any action to excavate any part of the find [subject to iv. below].

ii. Prepare a Risk Assessment (RA) for the excavation to identify the hazards that may arise in the course of the excavation, and the precautions that should be adopted, to protect the collector and others in the vicinity. This should then be discussed with the landowner.

Items that the RA is likely to cover are as follows:

- To cordon off the area of working.
- To ensure, as far as practicable, the stability of the surrounding area during the excavation.
- Effective communication among all parties involved in the excavation (including the landowner), and a procedure for dealing with accidents or problems arising from the work.
- To ensure as far as practicable that the site is safe when left unattended, and that appropriate signing etc. is in place.

  This list is by no means exhaustive and collectors should satisfy themselves that all risks have been assessed.

iii. Keep the landowner informed of progress with the excavation, and advise when completed. As a matter of courtesy it is recommended that EN is informed.

iv. In the event of a fossil being located which is at immediate risk of being lost or damaged, the collector may proceed with the excavation provided that he gives full consideration to the risks and takes appropriate action to alleviate them, and is satisfied that the work will present no risk to any third parties. The collector should notify the landowner at the next available opportunity.

If a specimen is found close to a coastal defence or other structure, West Dorset District Council engineers should be consulted before undertaking any excavation.

Scientifically Important Fossils Recording Scheme

There are two categories of fossils recognised within the Recording Scheme; **Category I, Key Scientifically Important Fossils,** and **Category II** for fossils of **some (but not key) importance**.

Category I fossils include new species or those specimens which may represent new species, fossils which are extremely rare such as the Charmouth dinosaur *Scelidosaurus* and fossils that exhibit exceptional preservation.

Category II fossils include vertebrates such as reptiles and fish, partial or complete, especially where the horizon of origin can be identified. Nautiloids and certain ammonites together with unusual assemblages of fossils are also included.

A full list of both categories can be found at the end of this document and on a new database that can be accessed at www.palaeodata.dorset.org. or www.dorset.fossilcode.org

To comply with the Code, all Category 1 fossils are to be recorded at the Charmouth Heritage Coast Centre or recorded on line, in the database. Specimens taken to the centre for recording will be handed back to collectors. Certain restrictions apply if the collector wishes to sell or otherwise dispose of them (see 5 below). To comply with the code it is not obligatory to record Category 2 fossils although it is strongly recommended. As with Category 1 fossils, all Category 2 fossils are handed back to the collector after being recorded. (With regard to transfer of ownership, see under Fossil ownership below).

1. All Category I records should include an identification of the specimen (if known), a photograph, the exact location of the find together with the scientific horizon (if known), the date of the find and any other relevant observations. The name of the collector will be kept with the record but may not be available directly within public records depending upon the wishes of the individual.

2. The Charmouth Heritage Coast Centre will photograph the specimen and the record will be kept in paper form and on the online database. It is now also possible to record specimens on line and a scale bar has been produced, free for collectors, to use when taking photographs. The Centre will, as and where necessary, act as an intermediary between collectors and other interested parties.

3. Where a specimen is being recovered over a protracted period there is now provision in the database to record the multiple finds as one while still retaining details of the finders of each piece.

4. The preparation of Category I specimens should only proceed after consultation with appropriate academics or museum curators unless preparation is clearly straightforward or work needs to be carried out urgently.

5. Under the Code, collectors who intend to sell or otherwise dispose of their Category I specimens must first offer them to UK registered museums for a period of six months. If no purchase has been agreed by this time, the collector will be free to offer the specimen elsewhere. The recording scheme should be updated accordingly. Where an important specimen has been found by a number of collectors, it is permissible for one of those collectors to take a lead and acquire the other parts in order to reunite the specimen. Each finder's name should still be recorded in recognition of their contribution. The priority here is to offer the best chance of that specimen being reunited.

6. Those individuals with private collections that contain Category I specimens are encouraged to make provision for the ultimate placement of such specimens within UK registered museums.

7. The scheme offers a channel of communication for curators and researchers to convey their interests to collectors. The Charmouth Heritage Coast Centre staff will convey this information to collectors and generally promote communication between all parties.

Fossil ownership

At present the Code as outlined above applies to National Trust and Charmouth Parish Council land only. Both landowners wish to make clear their ownership of these fossils but they are willing to see ownership transferred to those collectors who follow the Fossil Collecting Code of Conduct and record their key scientifically important fossils.

The Crown Estate own most, but not all of the foreshore and agree with the Fossil Collecting Code with one exception; they may require a proportion of the value of the specimens under the conditions of their Royal Charter which include an obligation to recover money from operations generating income on their land.

Some areas of the foreshore are attributed to owners whose modern-day relatives are unknown. The collector and/or purchaser are advised to satisfy themselves that everything reasonable has been done to track down the present owner prior to collection and any subsequent sale/purchase.

Maps of land ownership are available at the Charmouth Heritage Coast Centre and the Code will be promoted to other landowners along the West Dorset coast.

Contact information

Charmouth Heritage Coast Centre, Lower Sea Lane, Charmouth, Dorset DT6 6LL Tel 01297 560772.
www.charmouth.org

Permission to undertake excavations should be sought from:

The National Trust, North and West Dorset:
National Trust, West Dorset Office, Filcombe Farmhouse, Muddyford Lane, Morcombelake, Bridport, Dorset, DT6 6EP. Tel: 01297 480022.
General Manager: Hannah Jefferson, hannah.Jefferson@nationaltrust.org.uk, 07483 929536.
Countryside Manager: Natalie Holt, Natalie.Holt@nationaltrust.org.uk, 07747 756549

Charmouth Parish Council:
The Elms, The Street, Charmouth, Dorset DT6 6LN. Tel: 01297 560826

The **Crown Estate** (Dorset and Devon) Michael Bapty, 15 The Boatyard, Swanwick Marina, Southampton, SO31 1ZL. michael.bapty@knightfrank.com, 01489 667 840

Natural England: enquiries@naturalengland.org.uk, Tel: 0300 060 3900

In relation to foreshore excavations and the Marine Management Organisation; this is their current view:

Under the Marine and Coastal Access Act 2009, the removal of items from the UK marine area (below mean high water springs) is only licensable if using a vehicle, vessel, aircraft, marine structure or floating container. From the information you provided, removals by hand would not require a licence however larger removals requiring vehicles would qualify for a marine licence.

Please note:

Those collectors who do not follow this voluntary code, particularly by digging or prospecting *in situ* in the cliffs, or failing to record Category I fossils, may be regarded as stealing the fossils, and appropriate legal action may be taken against them.

Key Scientifically Important Fossils

The Jurassic rocks exposed on the West Dorset coast contain abundant and extremely diverse fossils. Therefore, the following lists aim to provide general guidance only and are not to be regarded as fully comprehensive. Wherever there is doubt about the scientific importance of any fossil finds, collectors are recommended to contact the relevant fossil group specialist(s) for assistance.

Category I fossils

a) Fossils which certainly represent new species. These can belong to any taxonomic group – vertebrate, invertebrate or plant.

b) Fossils that are thought to represent new species. Again these can belong to any group - vertebrate, invertebrate or plant. (Subsequent work may indicate that some of these are not in fact new species and provided that they do not fall within c or d below, they may be 'downgraded' to Category 2 fossils).

c) Fossils that are extremely rare. Although not necessarily new species, they are nevertheless clearly of great scientific importance. Examples include: dinosaurs, pterosaurs, sharks and rays, complete or near complete insects and arthropods (crustaceans, crabs), recognisable leaf fronds and plant cones etc. This subcategory includes forms which are very rare in certain stratigraphic levels if found *in situ*, which would particularly relate to ammonites, or where the stratigraphic horizon can be identified satisfactorily; for example, fossil echinoids or gastropods are rarely found within the clay dominated Lower Lias strata.

d) Fossils which exhibit exceptional preservation. For example, ichthyosaurs (or other vertebrates) showing skin texture, uncrushed skulls which could provide data on brain size or other physiological aspects etc. Among invertebrates, fossil cephalopods (cuttlefish, squids, ammonites or belemnites) showing traces of gill structures, arms and hooks etc. are of key scientific importance.

Note: Some fossils from the Lias, such as ichthyosaurs, are not uncommonly found with traces of soft tissues preserved. These would not be regarded as Category I unless there are soft part features preserved which are particularly rare or exceptional. The same may be true for certain invertebrate groups, such as belemnite 'ink sacs', which are not that uncommon in the Black Ven and Belemnite Marls.

Category II Fossils

Reptiles: ichthyosaurs and plesiosaurs etc. Fish: including sharks, rays, coelacanths, bony fish etc.

Fossil remains, especially fragmentary, isolated, bones or scales etc., may be relatively common in some beds. The stratigraphical range of many forms is poorly known and any data may be important to relevant specialists. It is recommended therefore that collectors do record significant, recognisable finds if found *in situ* or where the stratigraphic horizon can be identified satisfactorily.

Arthropods: insects

Relatively scarce fossils, mainly recorded from the woodstone/flatstone horizons. Many insect remains are indistinctly preserved, but given their scarcity, any recognisable forms are worthy of recording.

Molluscs: belemnites

Extremely common fossils in the form of isolated belemnite guards. It is not anticipated that these would be recorded, unless a particular bedding-plane concentration ('belemnite battlefield') or similar fauna was collected.

Molluscs: ammonites

One of the most common and characteristic fossils from the Dorset coast occurring throughout the section. It is not anticipated that these would be recorded, although any unusual species or particularly large/mature shells showing apertural details etc are worthy of inclusion in the database. The use of these fossils to demonstrate the zonation of the strata is protected through the requirement not to dig *in situ*

Molluscs: nautiloids

A neglected group of fossils, occurring throughout much of the succession. It is not expected that these would be recorded, though exceptional specimens (e.g. bedding plane assemblages or others yielding palaeoecological data) are worth considering for inclusion on the database.

Molluscs: bivalves

An abundant group of fossils, occurring through much of the succession and rarely collected commercially. It is not expected that these would be recorded, although exceptional specimens (e.g. bedding plane assemblages or other preservations yielding palaeoecological data) are worth considering within the database.

Brachiopods

As bivalves above

Echinoderms: crinoids, starfish and sea urchins

A group of considerable interest to collectors, especially specimens from the 'Pentacrinite' and 'Eype Starfish' beds. There are many of these in public collections and it is not anticipated that specimens would normally be recorded. However, exceptional accumulations of crinoids attached to drift wood etc, or of brittle stars, are worthy of recording on the database.

NOTE: It is our intention to produce 'fossil fact sheets' providing more detailed information on each of these groups as and when we can obtain expert advice on what may be interesting, the direction of new research etc.

Background to the development of a Code of Conduct

A Working Group of landowners, conservation organisations, museum curators and local fossil collectors developed this Fossil Collecting Code. The Group was established in order to address growing conflicts of interest with regard to fossil collecting along the West Dorset coast. The Group recognises the essential need for fossil collecting to continue. However, it also recognises that collecting must be carried out in such a way as to satisfy all those with an interest in our fossil heritage.

The Code was developed by:

Jurassic Coast project (Dorset County Council)
English Nature (now Natural England)
The National Trust
West Dorset Heritage Coast Project
Charmouth Parish Council
Charmouth Heritage Coast Centre

Dorset and Somerset Museum Services
Local fossil collectors

The Code was reviewed through a wide consultation process in 2011/12 particularly with the scientific community. The Review was overseen by the Science and Conservation Advisory Group on behalf of the World Heritage Site Steering Group. The review involved a consultation document which went out to a broad range of individuals and organisations with an invitation to comment and from the responses a number of changes were identified by which the operation of the code would and should be improved, as reflected in this 2013 revision.

A3-3 A Fossil Code and Recording Scheme for the Undercliffs National Nature Reserve

A new fossil code has been prepared by Natural England and the Jurassic Coast Trust. It has been subject to consultation and has the agreement of landowners within the National Nature Reserve. The code advocates responsible and safe fossil collecting within the Axmouth to Lyme Regis Undercliffs National Nature Reserve (NNR). It encourages the recording and reporting of important fossil finds and the acquisition of scientifically valuable fossils by recognised museums. The code strengthens collaboration and communication between those with an interest in fossils from this spectacular NNR and supports the management of the NNR and wider Jurassic Coast World Heritage Site (WHS).

The National Nature Reserve
The Axmouth to Lyme Regis Undercliffs National Nature Reserve (NNR) and Site of Special Scientific Interest (SSSI) encompasses approximately 6 miles of landslipped undercliffs between Axmouth in Devon and Lyme Regis in Dorset. Inland the Reserve is largely covered in dense woodland vegetation, with sea cliffs and rocky shores extending down to the low water mark. It forms part of the WHS and contains a number of biological, geological, palaeontological and geomorphological features, some of which are unique to the Undercliffs NNR.

The Reserve contains rocks of Triassic, Jurassic and Cretaceous age although fossils are only found in significant numbers in the latter two Periods. The main fossil bearing strata are the Blue Lias Formation and the Shales with Beef Member of the Charmouth Mudstone Formation, both lower Jurassic. Originally made famous by the 19th century collector Mary Anning, collectors have been and remain critical to recovering fossil material that contributes to our understanding of this coastline and on-going palaeontological research. They are a source of exceptional fossils including fish, and superbly preserved reptiles such as ichthyosaurs, plesiosaurs and very rare pterosaurs. The Upper Greensand and Chalk sequences also contain a diverse fossil fauna that includes the source of several type ammonite species. More detailed descriptions are available in the relevant Geological Conservation Review (GCR) volumes which underpin the SSSI notification (see further reading).

New discoveries can happen at any time, so maintaining up to date information through liaison with the scientific community and collectors is essential for a complete understanding of the site as a scientific resource. The site is also important geomorphologically for the erosion and coastal landslides that create the unique character of the Reserve and provide the basis for its biological diversity. Fossil collecting at this site has greatly contributed to scientific research since the early 1800s. Collecting activity is facilitated by the dynamic nature of the coastline, as natural processes continuously erode the rock layers exposing more fossils. The very accessible eastern end of the foreshore, at Monmouth Beach, is particularly well visited by a variety of users including researchers, educational groups, collectors and tourists, who may participate in fossil collecting for a variety of reasons. This code is primarily aimed at experienced collectors (including both amateurs and professionals) though the principles of the code will be of relevance to all other visitors and collectors. Experienced collectors often have a more detailed knowledge of the fossil interest within

the NNR and collect on a regular basis, and so potentially have the best chance of recovering interesting or scientifically important specimens.

The need for a Fossil Collecting Code

Responsible collecting and recording of fossils is a critical part of how the Undercliffs NNR is managed in terms of the geology and palaeontology and also how the scientific value is maintained and enhanced. It is recognised that collectors have a valuable role in recovering fossils that would otherwise be damaged and destroyed by natural erosion and in encouraging and supporting responsible collecting and recording. A fossil code needs to strike the right balance between the collectors, landowners, the scientific value of the site and its practical management. Currently, collecting is managed through the local promotion of responsible and safe collecting practice through signage on-site, leaflets and web-based information, wardening of the NNR (by Natural England and WHS summer fossil warden), and the establishment of good working relationships with collectors and geologists. In order to help manage the potential collecting pressure, a fossil collecting code is proposed that sets out some simple principles for responsible collecting, both *in situ* and *ex situ*, clarifies the relationship between land owner, land manager (Natural England) and collector (including ownership of fossils) and establishes a mechanism for recording important fossil finds.

To the east of Lyme Regis the West Dorset Collecting Code and Recording Scheme has been established since 1998 and reviewed in 2011/12. It is widely accepted as a practical and effective way of managing collecting and recording of scientifically important fossils (through the Charmouth Heritage Coast Centre). The Undercliffs NNR collecting code is based on the West Dorset Code but has been adapted to reflect local differences in geology, ownership and legal SSSI designation.

SSSI legislation

Under the Wildlife and Countryside Act 1981 (as amended) (WCA), owners and occupiers of SSSI land are required to seek consent from Natural England for any operation they wish to undertake themselves or permit others to undertake that is on the Operations Requiring Natural England's Consent list (the ORNEC list was previously known as the OLD list). This requirement does not extend to third-parties. However, in order to protect SSSI interests from damaging third-party activities, the WCA includes the following offence:

*'**any person** who without reasonable excuse intentionally or recklessly destroys or damages any of the flora, fauna, or geological or physiographical features by reason of which a Site of Special Scientific Interest is of special interest, or intentionally or recklessly disturbs any of those fauna, is guilty of an offence'*

To avoid causing an offence, collectors need to ensure their activities do not damage or disturb the SSSI's special interests. The information set out in the Undercliffs Collecting Code acts as guidance to help secure that outcome. Collectors who choose to ignore the advice in this code may be damaging or disturbing the SSSI's special interests and, if found guilty of an offence will be '*liable on summary conviction to a fine not exceeding £20,000 or on conviction on indictment to a fine*.'

Land and fossil ownership[1]

Within the Undercliffs NNR fossil collecting takes place on land that is privately owned, though often managed by Natural England. Legally *in situ* fossils within the Undercliffs NNR belong to the relevant landowner. Ownership of *ex situ* fossils is more complex as they may fall from the land of one owner onto that of another.

Current interpretation of the law suggests that *ex situ* fossils on a beach with open access have been abandoned and can legally be collected in good faith unless the landowner explicitly states their intention to retain ownership of all fossils on their land. All landowners within the NNR have agreed to adopt this code, thereby *ex situ* fossils can be legally collected in good faith. Ownership of any *in situ* fossils that are extracted and treated in accordance with the code will also transfer to the collector. Certain conditions are

[1] Please note the Rousdon Estate is private land. At present there is no public access to the Undercliffs NNR through the Rousdon Estate from the A3052 coast road, nor is there any public access to Charton Bay from the South West Coast Path.

placed on the sale or donation of key scientifically important specimens (see Fossil Recording Scheme) and specified within a SSSI consent.

Roles and Responsibilities
On the Undercliffs NNR Natural England acts as the landowner and/or legal occupier for the majority of the Reserve, overseeing day-to-day management of the NNR. In addition Natural England is responsible as a regulator concerning SSSI legislation under the Wildlife and Countryside Act 1989.

Natural England should be the first point of contact for any collecting that might require a SSSI consent or extraction of any *in situ* fossils, as set out in the following collecting code. Natural England will normally inform the landowner although a collector may also wish to approach the landowner directly. Natural England will also inform and seek advice if necessary from the Jurassic Coast Trust. In the event that a collector is unable to contact Natural England in the first instance, the Jurassic Coast Trust should be contacted for permissions or advice.

Further reading

- Benton, M.J., Cook, E., and Turner, P., 2002. Pinhay Bay, Devon. In: Permian and Triassic Red Beds and the Penarth Group of Great Britain. Geological Conservation Review Series, No. 24, Joint Nature Conservation Committee, Peterborough, 269- 274.
- Benton, M.J., and Spencer, P.S., 1995. Lyme Regis (Pinhay Bay – Charmouth). In *Fossil reptiles of Great Britain*, Geological Conservation review Series No. 10, 105- 111.
- Cooper, R.G., 2007. Axmouth-Lyme Regis, Devon-Dorset. In *Mass movements in Great Britain*. Geological Conservation Review Series, No. 33, Joint Nature Conservation Committee, Peterborough, 209-223.
- Dineley, D.L., and Metcalf, S.J., 1999. Lyme Regis Coast (Pinhay Bay – Charmouth) In *Fossil fishes of Great Britain*, Geological Conservation Review Series No 16, 360- 369.
- Simms, M.J., Chidlaw, N., Morton, N. and Page, K.N., 2004. Pinhay Bay to Fault Corner and East Cliff, Dorset. In *British Lower Jurassic Stratigraphy*, Geological Conservation review Series No. 30, 61-82

Undercliffs NNR Fossil Collecting Code
This fossil collecting code is aimed primarily at experienced collectors though the principles are relevant to all. Through following the code collectors are contributing to the successful management of the Undercliffs NNR, with the possibility of making, and sharing, new and exciting discoveries.

Objectives of this code

- *Encourage responsible and safe fossil collecting (in line with SSSI legislation) and help manage public perception of collecting*
- *Set out circumstances for ex situ and in situ collecting*
- *Encourage recording and reporting of fossil finds*
- *Encourage the acquisition of scientifically important fossils by recognised museums*
- *Support the management and monitoring of the NNR and Jurassic Coast WHS, maintain the scientific value of the NNR and a fossil resource that continues to inspire and excite visitors to the NNR*
- *Promote better communication between all those with an interest in fossils from this coast*
- *Clarify ownership*
- *Cover H&S issues*

Fossil Ownership

Transfer of fossil ownership from the landowner to the collector is one of the key outcomes of this code. By following the code collectors will add to the scientific understanding of the site and, crucially, be able to establish legal ownership (' good title') to specimens they collect.
This is made possible by:

- Adhering to the code, particularly the requirements for collecting *in situ* fossils
- Recording relevant specimens in the Fossil Recording Scheme

There are two categories of fossils recognised within the Fossil Recording Scheme; Category 1, for Key Scientifically Important Fossils, and Category 2 for fossils of some (but not key) importance. See section on 'Fossil recording scheme to the Undercliffs NNR'.

Fossil collecting within the Undercliffs NNR

Type of exposure	Can I collect?
***In situ* rock (excluding shale)**	**No *in situ* excavation or digging in any rock layer without prior permission from NE or Jurassic Coast Trust.** Within the terms of this Code, fossils identified within *in situ* rocks (except for shale under certain circumstances – see below) will not be considered to be at immediate risk and are not considered to require emergency excavations. NE will liaise with the landowner as necessary and take advice from the Jurassic Coast Trust concerning applications to collect *in situ* fossils.
***In situ* shale**	**No *in situ* excavation or digging in shale without prior permission from NE or Jurassic Coast Trust, unless there is an immediate risk of damage or destruction by natural processes and an emergency excavation is necessary**. In these instances excavation is permitted entirely at the risk and responsibility of the collector and the following conditions must be adhered to. ***Before you start*** • Notify NE and/or the Jurassic Coast Trust prior to any excavation work taking place or as soon as it is possible to do so (see contact details at the end of this document). • Make a note of the circumstances that justify the emergency excavation and take photographs before any work is carried out. ***During the excavation*** • Follow best practice including Health and Safety advice and undertake a Risk Assessment (see below). • Keep the extent of any excavations to an absolute minimum and only recover material that is immediately threatened or vulnerable • **Use hand tools only** unless otherwise agreed with Natural or the Jurassic Coast Trust • Ensure the following information is captured during any excavation; a 10 figure location grid reference, orientation of the specimen, stratigraphic information, sequential photographs, size of the specimen and area excavated, a record of associated fossils including additional specimens collected. ***After the excavation*** • A report to NE and the Jurassic Coast Trust should be submitted after the excavation that includes the information detailed above. • Category 1 finds must be entered on the Recording Scheme. Though not

	required, we strongly encourage the recording of Category 2 fossil finds. • **Emergency excavations** - if further work is needed to recover the fossil NE or the Jurassic Coast Trust must be consulted before work continues. **Note: if you do have concerns about a specimen 'at risk' please contact Natural England or the Jurassic Coast Trust.**
Ex situ	**You may collect loose material found on the beaches, foreshore and inland.** ***Collecting*** • Collect responsibly. If hand tools are needed wherever possible, moderate their use • Please avoid breaking up larger blocks/boulders (particularly when the beach is busy) unless clearly justifiable in the context of recovering category 1 or 2 fossils • Disturbance to foreshore habitats and wildlife must be kept to a minimum. Carefully replace any disturbed blocks • Be aware of and respect other beach users, act safely and ensure the foreshore is not left in a dangerous condition for those who follow • Vehicle access to the foreshore is not allowed. Wheelbarrows may be used with prior permission ***Recording*** • Category 1 - fossils must be recorded • Category 2 fossils or other finds of interest such as larger ammonites (eg *Arietites*) – recording is strongly encouraged **See Fossil recording Scheme for the Undercliffs NNR** **Visible water-worn ammonites must be left.** These are a renowned feature within the NNR, particularly on Monmouth Beach. They contribute hugely to how people experience and come to appreciate the palaeontological interest of the NNR and are a very significant educational asset. They should not be collected or damaged. **The *in situ* 'Ammonite pavement' is of particular importance in this respect and must not be damaged.**
Scientific collecting and sampling	Researchers should liaise with NE regarding any *in situ* collecting requirements (as set out above)

Use of tools
Unless agreed with Natural England, any excavation should be undertaken with hand tools only.

Risk Assessment
Collectors are responsible for their own safety as well as that of other beach users who may be affected by their actions (see also 7. Liability below).

For planned in situ excavations, with permission from NE, it is essential that the collector undertakes a thorough Risk Assessment which should be agreed with NE or the Jurassic Coast Trust prior to any work

beginning on site. For emergency (unconsented) excavations the collector is also strongly encouraged to undertake an on-going/dynamic Risk Assessment bearing in mind the principles below:

- To cordon off the area of working to ensure the safety of other beach users.
- To ensure, as far as practicable, the stability of the surrounding area during the excavation.
- Effective communication among all parties involved in the excavation (including the landowner), and a procedure for dealing with accidents or problems that may arise.
- To ensure as far as practicable that the site is safe when left unattended and that appropriate signing etc. is in place.
- Keep NE and/or Jurassic Coast Trust and the landowner informed of progress with the excavation, and advise when completed.

The above list is by no means exhaustive and collectors should satisfy themselves that all risks have properly been assessed and that all reasonable steps have been taken to reduce risk.

Fossil Recording Scheme for the Undercliffs National Nature Reserve
There are two categories of fossils recognised within the Fossil Recording Scheme;

> ***Category 1: Key Scientifically Important Fossils***
> Includes new species or those specimens which may represent new species, fossils which are extremely rare such as the Charmouth dinosaur *Scelidosaurus*, pterosaurs (including single bones), and fossils that exhibit exceptional preservation.
>
> ***Category 2: fossils of some (but not key) importance***
> Includes vertebrates such as reptiles and fish, partial or complete, especially where the horizon of origin can be identified. Nautiloids and certain ammonites together with unusual assemblages of fossils are also included.

For more details on Category 1 & 2 fossils please refer to the West Dorset Collecting Code http://www.charmouth.org/chcc/images/pdf/WestDorsetFossilCode.PDF, or contact Natural England or the Jurassic Coast Trust for further information (contact details at the end of this document).

To comply with the Undercliffs NNR Fossil Code, all Category 1 fossils are to be recorded at the Charmouth Heritage Coast Centre. To record a specimen please complete a recording form https://charmouth.org/chcc/wp- content/uploads/2017/10/RecordingForm.pdf and email it with several images of the specimen to info@charmouth.org. Alternatively, you can bring the specimen to the Charmouth Heritage Coast Centre to record it with a Warden, but please email or phone 01297 560772 to arrange your visit beforehand.

The recording of Category 2 fossils is strongly encouraged.

Specimens taken to the centre for recording will be handed back to collectors. Certain restrictions apply if the collector wishes to sell or otherwise dispose of those in category 1 (see 5 below). By adhering to the code and correctly recording the fossils as required, ownership is transferred to the collector.

Retrospective recording of fossils (collected prior to the establishment of the Undercliffs Collecting Code) would be welcomed.

1. All Category 1 and 2 records should include an identification of the specimen (if known), a photograph, the exact location of the find together with the scientific horizon (if known), the date of the find and any other relevant observations. The name of the collector will be kept with the record but may not be available directly within public records depending upon the wishes of the individual.

2. The Charmouth Heritage Coast Centre will photograph the specimen and the record will be kept in paper form and in the online database. The Centre will, as and when necessary, act as an intermediary between collectors and other interested parties.

3. Where a specimen is being recovered in pieces over a protracted period, there is provision in the database to record the multiple finds as one, while still retaining details of the finders of each piece.

4. The preparation of Category 1 specimens should only proceed after consultation with appropriate academics or museum curators unless preparation is clearly straightforward, work needs to be carried out urgently or that consultation might detrimentally delay the preparation/conservation of the fossil.

5. Under the Code, collectors who intend to sell or otherwise dispose of their Category 1 specimens must first offer them to UK registered museums for a period of six months and then for a further 6 months to relevant worldwide museums (further advice available from NE and the Jurassic Coast Trust). If no purchase has been agreed after 12 months, the collector will be free to offer the specimen elsewhere. The recording scheme should be updated as necessary. Where an important specimen has been found by a number of collectors, it is permissible for one of those collectors to take a lead and acquire the other parts in order to reunite the specimen. Each finder's name should still be recorded in recognition of their contribution. The priority here is to offer the best chance of that specimen being reunited.

6. Those individuals with private collections that contain Category 1 specimens are encouraged to make provision for the ultimate placement of such specimens within UK registered museums.

7. The scheme offers a channel of communication for curators and researchers to convey their interests to collectors. The Charmouth Heritage Coast Centre staff will convey this information to collectors and generally promote communication between all parties.

Health and Safety

The following is a general list of practical advice aimed at all types of collector including professionals and amateurs, educational/academic visitors and the general public including holiday makers and local people.

Site awareness

- Cliff falls tend to occur suddenly and without warning. Be vigilant, avoid cliff bases and exercise common sense in the vicinity of any cliffs.
- Avoid walking on, and keep clear of, visibly moving or active rock falls and mudflows. Note particularly that the seaward edges of mudflows may be covered by shingle and can be particularly treacherous.
- The foreshore is largely covered in rocks of varying sizes. These can be unstable and it is easy to turn an ankle so tread carefully.
- The middle and lower shores are often covered with slippery green or brown sea weed; take care.
- Tides andweather. Incoming tides and stormy conditions can force beach users too close to dangerous and unstable cliff bases, and also make return along the beach impossible. Always consult tide tables before setting out. It is advisable that you go collecting on a falling tide and return well before high tide.

Behaviour

- Always advise someone of where you are going and at what time you can be expected to return. Parts of the undercliffs are remote and very rough in places. Mobile phones cannot be relied upon.
- Take a personal First Aid kit with you.
- Exercise common sense when considering what clothes and safety items to wear and take with you.
- Have regard for the safety and welfare of other beach users at all times.
- If you are using a hammer or other tools, it is advisable to wear safety goggles.
- No-one should descend or climb the cliffs using ropes to get to a particular level under any circumstances.

- Obtain permission and undertake a thorough risk assessment if you are carrying out any excavation of *in situ* material

Review of the Undercliffs NNR Fossil Code

Natural England and the Jurassic Coast Trust propose to undertake an initial review of this code after a period of 1-2 years to assess how successful the code has been and identify any issues or problems that may have occurred. The review may consider matters such as:

- Number of scientifically important finds reported to the Charmouth Heritage Coast Centre.
- Any transgressions or reports of activities that undermine or fall outside the Code.
- Number of emergency *in situ* excavations that have been reported or carried out.
- Number of retrospective records of fossils collected from the NNR prior to implementation of the Code.

Liability

Collectors remain responsible for their own safety, as well as that of other beach users who may be affected by their actions. Natural England and the landowners take no responsibility or liability for anyone undertaking fossil collecting within the Undercliffs NNR.

Contact details

Natural England	Tom Sunderland tom.sunderland@naturalengland.org.uk 07899 731404 Jonathan Larwood jonathan.larwood@naturalengland.org.uk 07867 660886
Jurassic Coast Trust	Sam Scriven sam.scriven@jurassiccoast.org 01308 807000
Charmouth Heritage Coast Centre	Phil Davidson info@charmouth.org 01297 560772

Jurassic Coast

Partnership Plan

2020-2025

Management Framework for the Dorset and East Devon Coast World Heritage Site

APPENDIX 4:

Integration with UN sustainable Development Goals

JURASSIC COAST
DORSET AND EAST DEVON
WORLD HERITAGE SITE

United Nations
Educational, Scientific and
Cultural Organization

Dorset and East Devon Coast
inscribed on the World
Heritage List in 2001

ACCESSIBILITY

If you require a copy of this document in a different format, please contact us and we will do our best to provide it in a way that meets your needs

YOUR VIEWS

The most important people for the future protection, conservation and use of the Dorset and East Devon Coast are those who live or work on or near it, and visit and enjoy it. Please let us know your views on the Site and its management through the contact details below.

CONTACT DETAILS

Website: www.jurassiccoast.org

Email: info@jurassiccoast.org

Mail: The Jurassic Coast Trust,
Mountfield,
Rax Lane,
Bridport,
DT6 3JP

Tel: 01308 807000

Sustainable Development

In 2015, the General Assembly of States Parties to the World Heritage Convention adopted a Policy Document for the Integration of a Sustainable Development Perspective into the Processes of the World Heritage Convention.

This is a ground breaking piece of work which gives Sites a framework for considering how the work that they do in respect of the WH Convention translates into globally accepted and measured principles of Sustainable Development.

Sustainable Development dimensions	Partnership response to the Sustainable Development dimensions
1. Environmental Sustainability	
The World Heritage Convention promotes sustainable development, and in particular environmental sustainability, by valuing and conserving places of outstanding natural heritage value, containing exceptional biodiversity, geodiversity or other exceptional natural features, which are essential for human well-being.	
1.1 Protecting biological and cultural diversity and ecosystem services and benefits	
States Parties should ensure that biological and cultural diversity, as well as ecosystem services and benefits for people that contribute to environmental sustainability, are protected and enhanced within World Heritage properties, their buffer zones and their wider settings.	The policies in the Partnership plan have a significant positive benefit to the Geodiversity, and, although to a lesser degree, the biodiversity of the property area and some of its setting.
1.2 Strengthening resilience to natural hazards and climate change	
In the face of increasing disaster risks and the impact of climate change, States Parties should recognise that World Heritage represents both an asset to be protected and a resource to strengthen the ability of communities and their properties to resist, absorb, and recover from the effects of a hazard.	This is a complex Site in this regard, as natural processes are what underpin the Status. The Partnership is committed to using the example demonstrated in the Site to demonstrate climate change, albeit over much longer periods. Specific partners will also have in place plans for ensuring Infrastructure (e.g. Coast Path) is not impacted by climate change and the Site is still accessible.
2. Inclusive Social Development	
The World Heritage Convention in Article 5 calls upon States Parties to "adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community". States Parties should recognise that inclusive social development is at the heart of the implementation of this provision of the Convention. States Parties should further recognise that full inclusion, respect and equity of all stakeholders, including local and concerned communities and indigenous peoples, together with a commitment to gender equality, are a fundamental premise for inclusive social development. Enhancing quality of life and well-being in and around World Heritage properties is essential, taking into account communities who might not visit or reside in or near properties but are still stakeholders. Inclusive social development must be underpinned by inclusive governance.	
2.2 Contributing to inclusion and equity	
States Parties should ensure that the conservation and management of World Heritage properties is based on recognition of cultural diversity, inclusion and equity.	Partners are committed to upholding UK, European and International law in respect of cultural diversity, inclusion and equity. In areas where there is marked sectoral inequality relevant to the management of the Site, (e.g. female Earth Scientists, BAME representation) the Partnership will consider how it can best help address this.
2.3 Enhancing quality of life and well-being	
World Heritage properties have the potential to enhance quality of life and wellbeing of all stakeholders, and in particular local communities. Therefore, in implementing the Convention, and whilst fully respecting OUV, States Parties should:	Policies in this plan impact on quality of life and well-being, and Partners for whom it is their role or responsibility are committed to supporting communities' basic infrastructure and quality of life.
2.4 Respecting, protecting and promoting human rights	
The obligation to promote and protect human rights and fundamental freedoms is addressed in Article 1 of the UNESCO Constitution. UNESCO has also committed to the mainstreaming of human rights in its work and has agreed to	Partners are committed to upholding UK, European and International law in respect of human rights in all aspects of World Heritage Site management. The Partnership undertakes an approach to

adopt a human rights-based approach to programming. To ensure policy coherence in conserving and managing World Heritage properties, States Parties should commit to uphold, respect and contribute to the implementation of the full range of international human rights standards as a pre-requisite for effectively achieving sustainable development.	management that is consistent with a key rights-based principles of (i) participation and inclusion, (ii) non-discrimination and equality, and (iii) accountability.
2.5 Respecting, consulting and involving indigenous peoples and local communities	
The World Heritage Convention includes, as one of its strategic objectives (the fifth 'C') "to enhance the role of communities in (its) implementation" (Decision 31 COM 13B). The World Heritage Committee specifically encourages the effective and equitable involvement and participation of indigenous peoples and local communities in decision-making, monitoring and evaluation of World Heritage properties and the respect of indigenous peoples' rights in nominating, managing and reporting on World Heritage properties in their own territories (Decision 35 COM 12E). Recognising rights and fully involving indigenous peoples and local communities, in line with international standards is at the heart of sustainable development.	Local communities are involved in multiple ways in the management of the Site. This is not just through the democratic processes of local government, but through hundreds of local people being directly involved through employment or volunteering. It is although through regular public consultation that Local community involvement in management underpins everything in this Plan.
2.6 Achieving gender equality	
23. Gender equality is one of UNESCO's two global priorities. The UNESCO *Priority Gender Equality Action Plan* (2014-2021), moreover, requires Member States and the governing bodies of UNESCO regulatory instruments "to establish gender-sensitive, gender-responsive and gender-transformative policies and practices in the field of heritage". In addition, achieving gender equality and empowering all women and girls is essential for achieving sustainable development, and is one of the post-2015 sustainable development goals.	The UNESCO requirements are a State Party responsibility, but Partners in this Plan are committed to upholding UK, European and International law in respect of gender equality, and in areas where there is marked sectoral inequality relevant to the management of the Site (e.g. female Earth Scientists) the Partnership will consider how it can best help address this.
3. Inclusive Economic Development	
World Heritage properties, as cultural and natural heritage in general, offer great potential to alleviate poverty and enhance sustainable livelihoods of local communities, including those of marginalized population. Recognising that poverty eradication is one of the greatest challenges facing the world today and an indispensable requirement for sustainable development and the well-being of present and future generations, the Convention should therefore contribute to promoting sustainable forms of inclusive and equitable economic development, productive and decent employment and income-generating activities for all, while fully respecting the OUV of World Heritage properties.	
3.1 Ensuring growth, employment, income and livelihoods	
The management and conservation of World Heritage properties should contribute to fostering inclusive local economic development and enhancing livelihoods, compatibly with the protection of their OUV.	The policies of the Plan impact on economic development and enhanced livelihoods through use of the designation and identity to promote sustainable economic growth and upskilling through volunteering.
3.2 Promoting economic investment and quality tourism	
World Heritage properties are important travel destinations that, if managed properly, have great potential for inclusive local economic development, sustainability and strengthening social resilience. Sustainable forms of tourism development, including community-based initiatives, should be accompanied by inclusive and equitable economic investment to ensure benefit sharing in and around World Heritage properties.	The policies of the Plan relate to responsible tourism and mechanisms for helping this to happen for the benefit of the local community, but without damaging the OUV.
3.3 Strengthening capacity-building, innovation and local entrepreneurship	
States Parties should recognise that inclusive economic development is a long-term commitment based on a holistic approach to World Heritage properties and their associated cultural and creative industries and intangible heritage.	The policies of the Plan impact on economic development and enhanced livelihoods through use of the designation and identity to promote sustainable economic growth and upskilling through volunteering.

4. Fostering Peace and Security	
Sustainable development and the conservation of the world's cultural and natural heritage are undermined by war, civil conflict and all forms of violence. The World Heritage Convention is an integral part of UNESCO's established mandate to build bridges towards peace and security. It is therefore incumbent upon States Parties, in conformity also with provisions of the 1954 Hague *Convention for the Protection of Cultural Property in the Event of Armed Conflict* (The 1954 Hague Convention) and its two (1954 and 1999) Protocols, for the States that have ratified them, as well as in accordance with the UNESCO Declaration concerning the Intentional Destruction of Cultural Heritage (2003) and international customary law protecting cultural property in the event of armed conflict, to ensure that the implementation of the World Heritage Convention is used to promote the achievement and maintenance of peace and security between and within States Parties;	
4.1 Ensuring conflict prevention	
States Parties have a critically important role to play in ensuring that the implementation of the World Heritage Convention, including the establishment of the World Heritage List and management of inscribed properties, are used to prevent conflicts between and within States Parties and to promote respect for cultural diversity within and around World Heritage properties.	This is a State Party issue
4.2 Protecting heritage during conflict	
During armed conflict, States Parties must refrain from any use of World Heritage properties and their immediate surroundings for purposes	This is a State Party issue
4.3 Promoting conflict resolution	
The inherent potential of World Heritage properties and of their conservation to contribute favourably to conflict resolution and the re-establishment of peace and security should be acknowledged and harnessed	This is a State Party issue
4.4 Contributing to post-conflict recovery	
During a conflict and in the post-conflict transition phase, World Heritage properties and their wider settings can make a significant contribution to recovery and socio-economic reconstruction.	This is a State Party issue, although relevant documentation for this WH is kept in a secure archive by Dorset Council