

# Meeting Challenges in a Protected Landscape Jurassic Coast World Heritage Site, southern England

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## Abstract

The Dorset and East Devon Coast World Heritage Site is England's first natural World Heritage Site. It is popularly known as The Jurassic Coast. The Site is located on the south coast of England and covers 95 miles (155 kilometers) of exceptional coastline from East Devon to Dorset, with rocks recording 185 million years of the Earth's history. UNESCO declared the Site a World Heritage Site in 2001, as “an outstanding example representing major stages of the Earth's history, including the record of life, significant ongoing geological processes in the development of landforms, and significant geomorphic or physiographic features.” World Heritage status was achieved because of the Site's unique insight into the Earth Sciences: it clearly depicts a geological “walk through time” spanning the Triassic, Jurassic and Cretaceous periods that make up the Mesozoic Era of geological time, between 250 and 65 million years ago.

The Jurassic Coast has high visitor numbers and the careful management of the Site, including sustainable tourism and access, is of paramount importance. Conserving the integrity of the Site involves allowing the natural erosion processes, which formed the basis for World Heritage Site designation, to continue. This can create conflict and therefore a new national project called Coastal Change Pathfinder has sought to help communities, including tourism businesses, adapt and become more resilient to change, based on sound science and local knowledge of climate change and its consequential impact on coastal change.

## 1. Our Global Connections

The Dorset and East Devon Coast World Heritage Site (also known as the Jurassic Coast), stretches for 95 miles (155 km) along the southern English coastline, encompassing one of the most spectacular geological sequences in the world. The internationally renowned coastal exposures of the Jurassic Coast were awarded World Heritage Site status in 2001 based on a near complete sequence of Mesozoic rocks, which record evidence and development of early reptiles through to the age of the dinosaurs.

For a site to obtain World Heritage Site status, it must exhibit cultural or natural features that are of “outstanding universal value” and must be protected for present and future generations for all humanity. Protecting the integrity (or condition) of the site is essential for maintaining the qualities that led to inscription.

The World Heritage Committee, on behalf of UNESCO, designates world Heritage Sites. Around the world, there are 936 World Heritage Sites in total; 725 of these are cultural sites, 183 natural and 28 are mixed sites (2011 figures). The Jurassic Coast is a natural site, designated under Criterion (viii) “to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features.” Put simply, the rocks and fossils along the Jurassic Coast represent 185 million years of the Earth’s history (a third of the record of life) in just 95 miles of coastline. This is the basis for the Site’s Outstanding Universal Value.



Durdle Door © Jurassic Coast Team

In the United Kingdom there are 28 World Heritage Sites (2011), of which just four are natural sites. The Jurassic Coast’s is England’s only natural World Heritage Site and this is likely to remain the case into the future.

## **2. Management and Coastal Change Along the Jurassic Coast**

The Jurassic Coast World Heritage Site Management Plan 2009- 2014 (Jurassic Coast Team, 2009) is structured around eight long-term aims that are supported by a number of targets and indicators against which progress is measured.

The Management Plan guides the work of the Jurassic Coast Steering Group and partners in managing the Site now and into the future. The Steering Group consists of broad stakeholder involvement and is the main body responsible for the delivery of the World Heritage Site Management Plan. The Jurassic Coast team and associated partners deliver the work program. It is, however, the duty of all stakeholders involved to help manage and protect the integrity of World Heritage Sites.

An important management policy for the Jurassic Coast is ensuring the natural erosion processes that form the basis for its designation are allowed to continue. Erosion is what gives the Site its value; without it, the Jurassic Coast would not have received World Heritage Site status. Articulating this to local and global audiences and stakeholders, and changing the common perception that natural processes (including erosion) must be stopped, is an important part of the management of the Jurassic Coast.

This has also recently included a national project called Coastal Change Pathfinder, funded by DEFRA (Department for Environment, Food and Rural Affairs) that seeks to ensure that coastal communities are well-equipped to understand, debate and take part in decisions about coastal change, through meaningful engagement and participation. The aim of the project has been to help communities, including tourism businesses, adapt and become more resilient to change, based on sound science and local knowledge of climate change and its consequential impact on coastal change.

Along the Jurassic Coast, the project focused on six case study sites, using scenario planning to engage with communities to identify risks and opportunities that might arise from coastal change in the future, and consider options for adaptation.

The outputs of the project to date have included a research project into how spatial planning can best support sustainable adaptation to coastal change, as well as an education project to embed coastal change into the geographical curriculum locally in Dorset and Devon and equip future generations with the knowledge and skills to address coastal change issues.

The project, and the communities it has engaged with, has recognized that there are potentially opportunities in coastal change as well as threats and these can be best drawn out through a well-designed and facilitated process of discussion. Approaches must be inclusive and engage all key stakeholders, including statutory bodies. Particularly strenuous efforts should be made to engage those with most to lose from coastal change (i.e. those with properties or businesses at risk), but all coastal communities and businesses should be involved in risk management and discussions on the need to adapt to change.

The project used computer-generated visualizations to illustrate how the coast in the six case study communities could evolve in future and to demonstrate change. This was found to be a powerful means of communicating coastal change impacts to communities and businesses, as well as statutory agencies, local authorities and government. Involvement in the project of public bodies has highlighted that they are equally in need of adapting their policy and regulatory frameworks to take account of the issues raised by coastal change and support communities in the process of adapting to change.

*The key findings and outcomes from the Pathfinder project are available on [www.jurassiccoast.com/pathfinder](http://www.jurassiccoast.com/pathfinder).*

### **3. Sustainable Tourism and Access**

#### **3.1 Engaging the Audience**

Two of the aims of the Jurassic Coast Management Plan relate specifically to sustainable tourism.

The coastline has always been a popular holiday destination. The responsibility of the Jurassic Coast team is not so much to encourage more visitors to the coast, but to

promote the interests in respect to the Site's geological credentials. In other words, rather than marketing the location, the team markets the geological and associated elements of the product offer. This approach poses numerous challenges mainly because geology and the earth sciences can often be an inaccessible and abstract subject area for non-specialists.

A first step is to examine ways in which the geological stories can be interpreted to engage the audience on a variety of levels. In 2003, the Jurassic Coast World Heritage Steering Group commissioned the Natural History Museum in London to investigate how this could be done. The scoping study revealed that written interpretation should be targeted to an audience aged between seven to 14 years and that there were a variety of geological stories that could be told with Site-specific elements (Natural History Museum, 2003).

Bearing this in mind, the interpretation provided by the Jurassic Coast team is designed to be accessible to a broad audience, often without specialist scientific knowledge. Examples include The Jurassic Coast World Heritage Site "Miniguide" (Jurassic Coast Team, 2011) that gives an overview of the whole Site, while encouraging people to explore the area by public transport, walking or cycling and incorporates information on responsible fossil collecting and other activities.

In addition, a series of publications for sale include an official guide to the Jurassic Coast (Brunsdon D et al, 2005) and a series of more detailed Site-specific guides. Income generated from these sales is managed by the Jurassic Coast World Heritage Site Trust and goes towards reprints, distribution and supporting conservation and education projects.

As a World Heritage Site, the Jurassic Coast attracts interest on a global scale. This has the potential to increase significantly when the Jurassic Coast becomes the backdrop for the London 2012 Olympic and Paralympic Games sailing events that will be held in Weymouth and Portland. The Jurassic Coast website ([www.jurassiccoast.com](http://www.jurassiccoast.com), Jurassic Coast Team, 2006) contains a wealth of information to inspire, inform and engage potential audiences of all ages and nationalities (key pages are translated and podcasts are available in a variety of languages). As new technology continues to emerge, the scope for providing visitors with current, up-to-date and personalized information is constantly evolving. It is important to recognize that not all visitors will have access to these new and emerging technologies so high-quality, physical on-site interpretation will always be needed.

Along the coast, outdoor interpretation panels have been located in appropriate locations (such as car parks) but care has been taken to avoid imposing on the tranquility of the natural environment. In many cases, natural, local materials (e.g. setting a panel in a local stone plinth) have been used to complement the surrounding environment.

Recently there has been a move towards using more creative means for conveying messages about the Jurassic Coast to the general public. The Jurassic Coast Arts Program

has been specially created to deliver this objective. Recently commissioned work includes a site-specific arts project called “Universal Value,” which explored the inter-relationship between people and the environment they live in. The artist recorded interviews with local residents along the Jurassic Coast and then projected the edited film with no sound and in slow motion onto a rugged cliff face. The result was a stunning visual portrayal of people’s reaction to their natural heritage, played out on the very environment that stimulated their reactions in the first place.

Arguably the best way to truly engage with any audience is through first-person interpretation. Experiencing a guided walk and learning how to find fossils with an expert is much more evocative and memorable than reading about it in a book or online. The Visitor Center and museums showcase some of the key interests of the World Heritage Site and most of them offer visitors the chance to experience guided walks, evening talks and seminars.

### **3.2 Visitor Management**

The movement and geographical spread of visitors across the area and throughout the year is greatly significant to the condition of the Site’s setting. Efforts are made to alleviate the pressure of large numbers of visitors at “honey pot” sites i.e. those locations that are so popular they are potentially close to or at their capacity. Usually, locations along the coast are under most visitor pressure in the summer months – July through the end of August. However, there is now a growing trend towards taking short trips during half-term school holidays (particularly October, when the weather on the south coast of the United Kingdom can still be very favorable) and during Easter.

Capacity is notoriously difficult to measure. Perception often interferes with real issues of capacity; for example, what to one person might constitute unacceptable levels of congestion, may well seem perfectly acceptable to another. The question can arise as to whether one is monitoring capacity or managing the perception of capacity. Both are important, but neither is easily resolved.

What is clear is that some parts of the Jurassic Coast are much busier than others. Often this is due to the accessibility of a site and the provision of facilities (car park, toilets and cafes), but it can also be down to historical factors (e.g. Lulworth Cove has been a popular holiday destination for centuries), media coverage and a destination’s marketing strategy. For example, if every brochure, website and newspaper article on the Jurassic Coast uses Durdle Door as the accompanying image, that location will (and has!) become a heavily visited site.

Sometimes, extreme action is required; for example, Avebury World Heritage Site, also in the south west of the United Kingdom, has a non-marketing policy, as the site managers, together with the community, took the decision that the sensitive landscape setting was nearing capacity. To further complicate matters, while some parts of the Jurassic Coast may well have the capacity to receive more visitors, it must be remembered that tranquil zones along the coast are an integral part of its appeal and

indeed, integrity. But should tranquil zones remain as they are so that visitors are encouraged to descend on the traditionally busy parts of the coast?

Careful marketing clearly has a role to play and for the Jurassic Coast team, this means influencing and providing advice for other marketers who wish to use the Jurassic Coast in promotional material, be they accommodation providers, local authority tourism officers or businesses seeking involvement with the brand.



Landram Bay, East Devon © Jurassic Coast Team

A Jurassic Coast Quality Business Scheme has been set up, which encourages business involvement with the coast and aims to support businesses to be in part responsible for the management of what is, essentially, “their” World Heritage Site.

Many of the businesses involved are accommodation providers, recognizing that they are often the first point of contact with a visitor to the area. Nearly 100 businesses have been accredited and have thereby gained a number of benefits including use of a logo closely associated with the Jurassic Coast. Of those businesses accredited, 69% felt the Jurassic Coast was “very important” to their business and 30% felt it was “quite important.” It is hoped the numbers involved will continue to increase and create Jurassic Coast ambassadors who will be advocates for the World Heritage Site and all that it stands for.

Engagement with the wider community has always been at the core of the principles of the Jurassic Coast. The team endeavors to work with local communities to generate a sense of pride and ownership about their environment. Local communities are increasingly gaining confidence with their role in the management of the Site, including adaptation to coastal change.

### **3.3 Managing Access**

Access to the Jurassic Coast is complex due to various factors, including erosion, climate change, the physical geomorphology and the fact the coast has multiple landowners. To preserve the integrity of the Site, it is important that access is given due regard within the remit of visitor management.

Eighty percent (80%) of visitors to the Jurassic Coast come by car and the coastal roads have seen a significant increase in traffic. For example, in Dorset as a whole, traffic grew by 5.5% between 1999 to 2004; whereas, on roads servicing the Jurassic Coast, it grew by 8.6% in the same time frame. Traffic growth is undoubtedly part of a national trend in the United Kingdom, but that does not make it any less concerning. Changing attitude and behavior towards travel is a huge challenge but one that those individuals involved in the management of the Jurassic Coast are attempting to tackle.

A starting point has been to try to get people to leave their cars behind once they are on holiday in the area. This can be marketed as an appealing option (avoid traffic jams, no need to pay for parking, more relaxing, etc.) and has been especially successful where the alternative to the car is seen as an “experience” or “attraction” in its own right.

In 2002, an existing bus service was the beneficiary of a successful three-year Rural Bus Challenge grant submitted by Dorset and Devon County Councils and First Bus company. First Bus increased the frequency to a two hourly service between Exeter and Poole and six new, low floor, double-decker buses were purchased and branded in an engaging and distinctive “Jurassic” livery. Local people, through a competition, have named the buses and the drivers have taken part in training courses that aim to raise their awareness and understanding of the Jurassic Coast. Passenger usage has increased four fold.

The potential for waterborne transport along the Jurassic Coast has only recently begun to be explored. While boat trips do operate out of several harbors, they are currently seen more as an excursion rather than a means of traveling from one place to another. They have an important role to play in demonstrating the coastline to visitors – probably the best way of seeing the Jurassic Coast’s unique geology is from the sea – and local operators have benefited from Jurassic Coast training. Work is currently under way to investigate the potential for waterborne transport as a means of transport along the coast, as opposed to purely recreational boat trips. This is attracting significant interest from potential investors and the Jurassic Coast hopes to be successful in attracting European Union funding to develop services and infrastructure, working together with a number of European partners.

Other than from the sea, the second best way to see the World Heritage Site is to walk along it. The South West Coast Path National Trail runs along the entire length of the Site. Recreational counters to monitor path use are in place at key locations along the route and provide valuable information for monitoring and managing the trail. A challenge is the expense associated with the on-going erosion of the coast path and the necessity to create diversions to maintain the accessibility of the route. Management of coastal defenses is directed by Shoreline Management Plans prepared for South Devon and Dorset Coastal Authorities Group (Halcrow Group, 2008) and for the Poole and Christchurch Bays Coastal Group (Royal Haskoning, 2008) that encourage a policy of “no active intervention” along the majority of the Jurassic Coast. Since erosion is a key process that maintains the natural beauty and integrity of the World Heritage Site, conflicts can arise with the need to maintain and promote the coastal footpaths.

#### **4. Conservation and Conflicts**

The geological sequences along the Jurassic Coast chart monumental changes encompassing hot deserts, deep oceans, shallow warm seas, dense forests, swamps, lagoons and salt lakes. The fossils revealed along the Site are crucial to our understanding not only of past environments but also how life adapted and evolved over time.

Coastal erosion is an ongoing, natural process and once fossils are released onto the beach, they are at the mercy of the ocean that inevitably damages them and washes them out to sea. Once this happens, potentially scientifically valuable specimens could be lost forever. For this reason, responsible fossil collecting is acceptable along certain parts of the Jurassic Coast. While it may seem surprising that people are allowed to take away a part of our natural heritage, the history of fossil collecting along this coast has always followed the premise that collectors are only collecting that which would otherwise disappear forever. Fossil collecting has been an important part of the culture of the Jurassic Coast for more than 200 years. Collectors have rescued numerous specimens that are important to science with open access to the Site.

In fact, some of the specimens found by renowned fossil hunter Mary Anning from Lyme Regis, 200 years ago, still help to answer key scientific questions today. Precisely when scientifically significant fossils emerge along the Jurassic Coast is impossible to predict. We do not know which cliffs or geological sections will yield a specimen that will be new to science. For visitors, ammonite and belemnite fossils are easily found on the beaches, particularly in winter and early spring. Having an activity that is appealing to visitors in the off-peak seasons is a gift in terms of sustainable tourism. The Jurassic Coast is lucky that one of its key interests is far more readily accessible in winter than in the already extremely busy summer months and gives us a golden opportunity to promote the coast out of season.



Ichthyosaur Fossil © Jurassic Coast Team

Along the West Dorset coast there is a Fossil Collecting Code of Conduct (Appendix 4 World Heritage Site Management Plan (Jurassic Coast Team, 2009, 2nd rev)) by which landowners agree to transfer ownership of fossils to the finder provided they are collected according to the terms of the code. Collectors who do not abide by the code may be regarded as stealing the fossils. The terms of the code state that “scientifically important finds” should be registered. The fossil is photographed, a record is taken and then the specimen is handed back to the collector. Collectors and visitors alike should not collect fossils in situ (stable cliff exposures) and advice is given on safe and sustainable methods of collecting.

Throughout the last 12 years, fossil collectors have helped to discover several new species of Ichthyosaur that have contributed to our understanding of the Jurassic Period (Fossil Database, [www.charmouth.org](http://www.charmouth.org), Charmouth Heritage Coast Centre, 2006). Another collector has saved possibly one of the largest and best-preserved skulls of a Pliosaur (not in code area) that could be a species new to science, over a five-year period, as it eroded out of the cliffs. This particular find attracted significant international media coverage both when it was initially uncovered and two years later in 2011 when the

preparatory work was complete and the fossil went on display at the Dorset County Museum in Dorchester for all to see.

Fossil collecting is one of the major aspects of the World Heritage Site that really bring it to life for visitors, communities, site managers and perhaps especially, young people. It is vital that this engaging and historically important activity continues. Rather than damaging the Site in any way, if carefully managed, fossil collecting can only enhance the Site's integrity as new specimens come to light and as more people recognize the value of heritage, in all its forms, whether cultural or natural.

Through stimulating this shared sense of pride and ownership about the environment, and continuing to open up dialogue with communities and stakeholders about adaptation to climate change in all its forms, it is hoped that the Jurassic Coast World Heritage Site will continue to be available and valued for generations of people who come to enjoy its beauty and its amazing geology, fossils and geomorphology.

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