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HUMAN IMPACT ON THE DORSET COASTLINE – A DME

Geologically, Dorset is constructed of a series of sedimentary rocks. Not only have these been uplifted to form land, but tilting and folding have also occurred. Such movements occurred primarily as the result of the African plate moving into the Eurasian plate, the principal effect of which was the formation of the Pyrenees and Alps. Energy affecting the Dorset structure as a result of this movement can be likened to ripples, far from the main centres of activity.

The consequence of these events is successive lines of different rock types stretching roughly east to west across the county (Figure 1). This pattern has had a key impact on both the coastal and inland landscapes. Harder bands of rock, such as chalk, stand out in the landscape, forming ridges like Nine Barrow Down and headlands like the Foreland at Old Harry Rocks. Softer rocks e.g. the Wealden sands and clays or Bagshot sands, form lower-lying land, as around Poole Harbour.

This geological structure is responsible for Dorset having a discordant coastline in the east of the county (Poole Harbour to south of Swanage) and a concordant south coast (from the county boundary with Devon to east of St. Alban's Head near Swanage). Dorset's coastal features are not only dramatic but also immensely varied. It could be argued that it is these characteristics which attract tourists in such large numbers, with the resultant massive human impact on this stretch of the UK's coastline. This unit concentrates on the coastal area of central and east Dorset, a particularly varied and busy location. Human impact is most concentrated here. Some uses are more controlled than others.

Poole Harbour

Poole Harbour is one of the most diverse areas along the Dorset coastline (Figure 2). Poole itself is the fifth busiest port in the UK today, though the majority of the British population has barely even heard of it. Drilling for oil takes place on Brownsea Island in the middle of the harbour. Watersports enthusiasts prize it as a key site, yet it also contains wildlife sanctuaries which enable several species of waterfowl to persist in reasonable numbers. The contrast between human use and conservation along this coast is remarkable.

The port of Poole has thrived as a result of containerisation. This method of carrying freight expanded particularly in the 1970s. Containers can be loaded directly into and onto ships, trains or lorries; it is a particularly flexible system. At the same time Poole was expanding its port facilities, and so its system and equipment were developed with container transport in mind. Older, previously thriving ports, declined. Poole is also a roll-on roll-off ferry port, with links to mainland Europe. Freight traffic dominates, with Truckline Ferries carrying over1.5 million tonnes per year. Total imports into Poole exceed 2 million tonnes annually. The harbour entrance has to be dredged regularly, to maintain access for ships.

The harbour itself acts as a barrier to local transport networks. Motorists and public transport therefore have a choice. Roads around the harbour, bypassing the main built-up area of Poole, are often of dual carriageway standard. They are fast, but the route around is relatively long. Alternatively the Sandbanks chain ferry operates across the harbour mouth, carrying foot passengers, cars, lorries up to a

Figure 1: Geology of central and east Dorset, and locations of sites mentioned in this unit

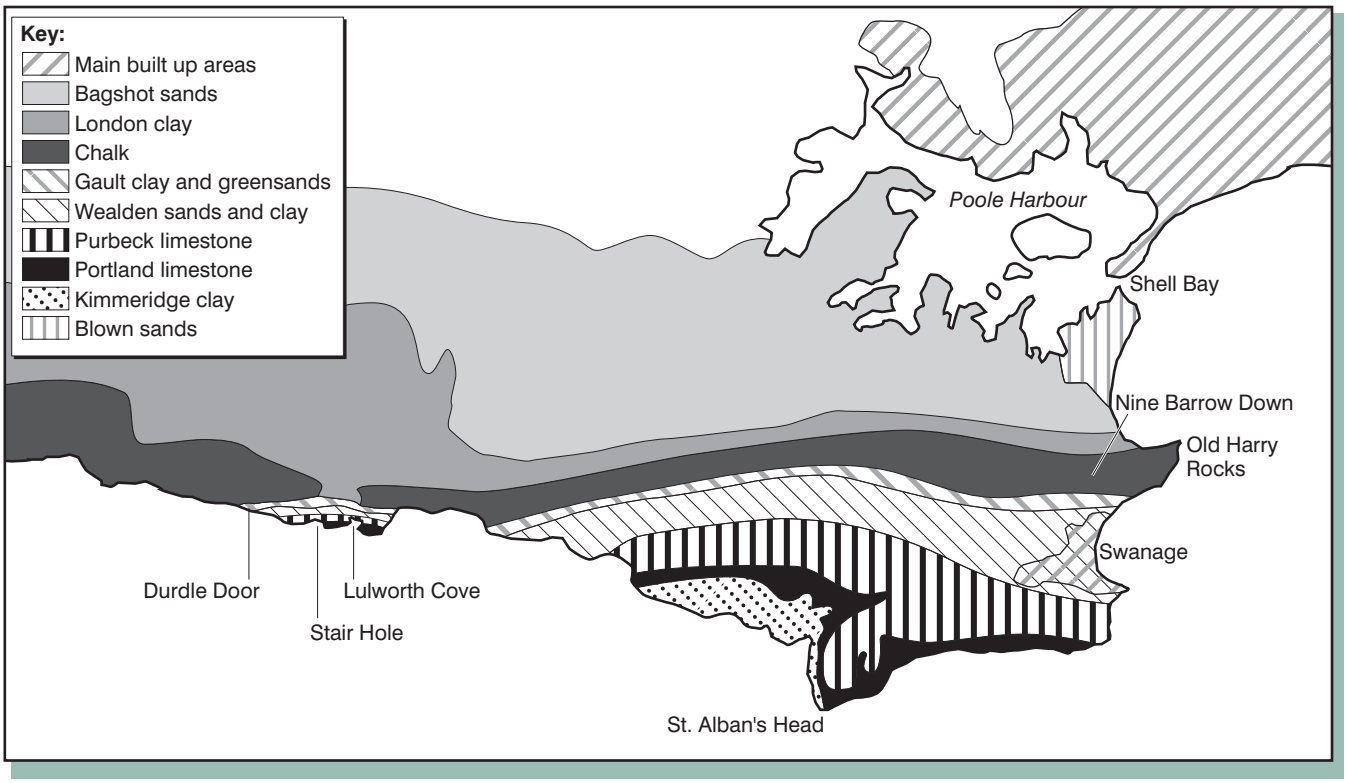

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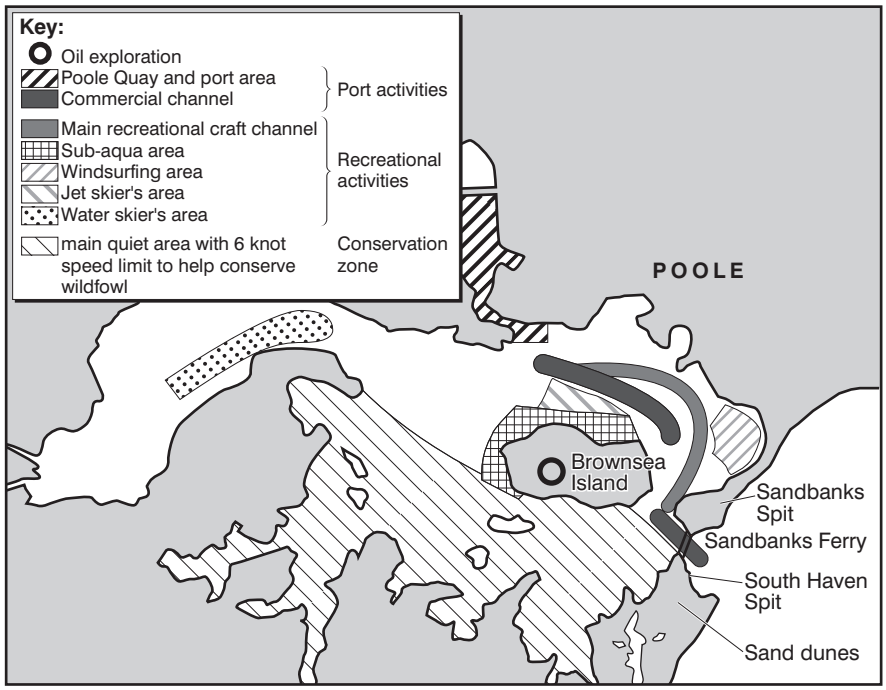
Figure 2: Human impact in and around Poole Harbour, Dorset



limited size, coaches and the local bus service.

One of the objectives of the Poole Local Plan is 'to protect and conserve the unique landscape qualities and wildlife value of Poole Harbour and the coastal zone' (Poole Local Plan 1994, p.44). This involves protection of both habitats and the species themselves. The south side of the harbour is an SSSI (Site of Special Scientific Interest) with Ramsar status (recognition of ecological value from the EU). Several migratory species overwinter here, while others are permanent residents. The tidal mudflats in the south of the harbour provide their major food source, including insects, vertebrates and vegetation.

The heathlands of south east Dorset are among the most valued lowland heath areas in Britain. Part of the heath abuts onto Poole Harbour. Uniquely, all six UK reptile species are found here. The southern part of South Haven Peninsula, comprising 172 ha, was established as a nature reserve in September 1962. Expansion of this area would be a possible tool to continued greater protection.

The incongruity remains that alongside such valuable landscape and habitats is a highly developed recreational area for watersports.

Sand dunes at Shell Bay

Shell Bay is part of South Haven spit at the entrance to Poole Harbour. Figure 3 shows the location of these dunes. An area that is heavily populated by both residents and tourists is likely to experience severe pressure on its habitats, and indeed this is the case at Shell Bay.

The whole of South Haven spit is only a few hundred years old, having been formed completely by processes of longshore drift and deposition. Human impact has caused damage over a considerable period of time. During World War 2 South Haven Peninsula was taken over by the War Department and used as a training ground in preparation for the invasion of Normandy (1944). Tracked vehicles and the use of live shells were responsible for much dune erosion. The activities of hundreds of soldiers were an added factor. Defensive ditches were dug and anti-invasion barbed wire erected, as well as machine-gun emplacements and concrete pillboxes. 1946–1947 saw the removal of these defences, leading to even greater dune damage.

Since the post-war period Shell Bay and Studland Bay beaches have been very popular leisure locations, with their wide sandy beaches backed by dunes. Each enlargement of one of the car parks has led to an increase in the number of visitors and in consequent erosion. Today a series of up to six lines of dunes can be identified, including embryo dunes currently forming. This first stage of dune formation occurs when sand is trapped against any obstacle. Almost anything will suffice – driftwood, or even litter. Sea lyme, a variety of grass resembling a finer form of marram, may take root, and if it does so it assists sand accumulation, allowing the dune to develop further. Eventually a new line of dunes might form.

However, embryo dunes are very delicate, and easily damaged or destroyed. Walkers, dogs and their owners, horses and their riders, and picnickers use Shell Bay beach, and so there are plenty of destructive feet. The local authority has, in recent years, aimed to combat this destruction and allow new dunes to grow. Embryonic dunes have, therefore, in places, been fenced off (Figure 4). In the short term the fencing may detract from the beachscape, but in the long run it will hopefully allow the natural processes to survive the human impact.

Human and canine feet also damage larger, more established, dunes, cutting paths through them, allowing the wind to take advantage and causing blowouts and other erosion. Burrowing rabbits, and the destruction of dune vegetation by fire, are also contributing factors here. Dunes and their vegetation, particularly marram grass, are in a symbiotic relationship – each relies on the other for its existence. Marram roots hold the sand in place, while stems encourage more sand to accumulate, replacing what may have

Figure 3: The dune system on South Haven spit

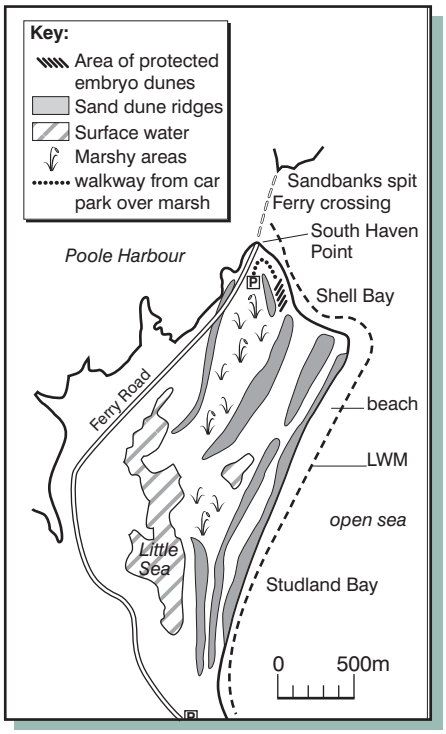
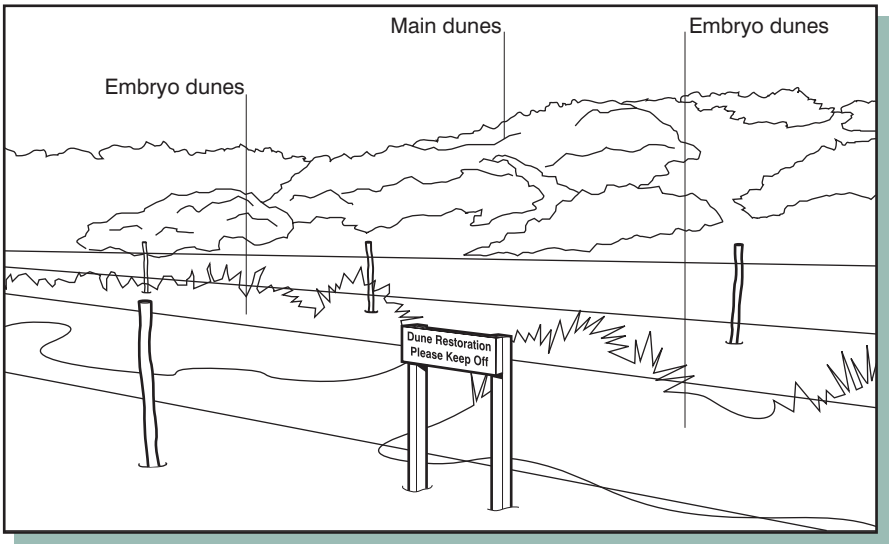


Figure 4: Protection of Enbryo dunes at Shell Bay



been blown away by the wind and thus maintaining the dune. It was therefore decided to try to focus these feet onto restricted pathways.

Wooden walkways have been constructed. These look reasonably natural, and, being much easier to walk on than sand, attract people to them. Moreover, between the main car park and the dunes at Shell Bay there is a waterlogged area, and the walkway helps people over this. This is an example of how human impact on the Dorset coast has caused environmental degradation, but also how subsequent human intervention can help to reverse such damage.

Footpath erosion and cliff collapse between Lulworth Cove and Durdle Door

Many visitors to coastal Dorset like to walk. The Dorset Coast Path is of interest both to serious long distance walkers and to those preferring short distances. Lulworth Cove, with its village of West Lulworth, and Durdle Door, further along the coast, are both 'honeypot' sites; the cliff top path between them is one of the most heavily used in the county. This stretch, though only 3 km long, does have quite a steep gradient at the Lulworth end.

The popularity of this walk puts heavy pressure on both footpath and cliff top. The cliff endures the weathering of human feet at the top as well as wave-cut notch development and overhang collapse at the base. This section of the Dorset Coast Path has been moved inland twice already because of the insecurity of the cliff and the risk of collapse. Fencing has had to be erected in places to keep people away from the potentially crumbling cliff top.

Two strategies are currently underway. First, an alternative path has been mapped out, going further inland than the cliff top. It is longer, but gradients are gentler on average. Unfortunately the new route further inland has less sea view. The cliff top path is still an option and has only been moved inland a few metres. Secondly, the path on the uphill climb from Lulworth has been reinforced to help it take the pressure of feet. Chalk rubble has been laid and steps with timber supports on the steepest sections make the path more secure and less likely to cause landslip. However, the whiteness of the path across the grassy downland is regarded by some as an unacceptable scar on the landscape.

Problems at Lulworth Cove

The road leading down to the coast at Lulworth Cove is effectively a country lane, yet in the summer season it carries an inordinate amount of traffic. Passing larger vehicles, particularly coaches, can be difficult. The village of West Lulworth at the Cove has to accommodate all these vehicles. It is a dead end; for all, the destination is the Cove. In the mid-1990s the car and coach park was effectively doubled in size, and the entrance, previously a very tight turn, was made easier by the addition of a mini-roundabout. The floor of the car park has had chalk rubble placed on it for durability, but, as in the case of the path to Durdle Door, this stands out against the green downland. In the opinion of many the landscape is far from enhanced.

Nevertheless, despite such pressures, there are elements of the 'honeypot' site which retain their traditional human character. This is still a fisherman's coastline, though on a smaller scale than in the past, and boats find a haven in the Cove. Newer watersports such as diving find a base here, but are not so dominating as to detract from the landscape or atmosphere.

Protected land

There is one aspect of human activity along this stretch of coastline which protects the area from the pressure of visitor activity. Just to the east of Lulworth Cove is a considerable stretch of army land, used for practice manoeuvres and as firing ranges. At times, therefore, the public is kept off this land. Even when they are allowed onto it, fewer tend to go than to other sites. The Fossil Forest is the main attraction on that stretch of coast, which locals use to experience a little open space away from the visitors. This army zone is maintained as downland and heathland with small areas of woodland. The high incidence of wildlife, especially of seabirds, adds to the environmental value.

One of the most densely populated areas in terms of seabirds is between Peveril Point and Durlston Head, just south and west of Swanage. In terms of visitors this is a relatively quiet location. There are no 'honeypot' type attractions, and most visitors are more serious walkers or local residents. Impact of feet on footpaths is therefore much less of an issue. Indeed at some points on the footpath around the coast on the way to Worth Matravers and St Alban's Head, the path is virtually overgrown and can be difficult to negotiate. This example serves as a useful control by which to assess impact at busier sites.

Footpath erosion at Old Harry Rocks

Another example of footpath erosion exists between Studland village and Old Harry Rocks. Old Harry, a particularly spectacular set of stacks, is one of the most visited sites in Dorset, and is neither a very long nor difficult walk from a National Trust car park.

Over the last 10 years a number of land use changes have occurred along this route. The public footpath used to ply the boundary between a large cereal field and a smaller potato

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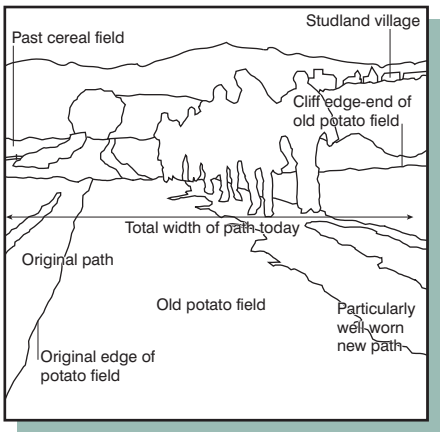
Figure 5: Widening of the Studland to Old Harry Rocks path



growing area, the latter adjoining the cliff edge. The fact that the cereal field was protected by a hedge, and the public at large tend not to tread on crops, i.e. the potatoes which were more open to the path, kept the path narrow and restricted. However, recent land use changes have encouraged the public to range more widely. The cereal field has given way to Set Aside, becoming a more natural meadow area. People perceive this as less of a barrier to their wanderings. After all, it is 'only grass'. The hedge barrier has consequently been breached in places, as short cuts have been taken. Moreover, the potato field has reverted to grass, and this could be seen as a positive encouragement to walkers to extend the width of the path. In an attempt to limit this extension a small post and wire fence was constructed, but this proved insufficiently bulky to discourage people. Now they simply walk on both sides of the fence! The path's width increases annually, and to the detriment of the landscape.

Decision making exercise: Development versus Protection

1. Old Harry Rocks area
This area attracts both serious walkers, travelling along a significant stretch of coastline, as well as those people who prefer a shorter walk to see a spectacular feature. Both categories of people need to be catered for. It is the sheer volume of both types walking along the short walk from Studland village to Old Harry Rocks which puts the pressure on the environment. Suggest ways of coping with the pressure on the limited length of path to Old Harry Rocks. Consider methods of restricting path width, and of keeping people on the path itself.

2. Lulworth Cove/Durdle Door area
This is a major 'honeypot' site. It attracts all types of visitor, those who simply want a day or half day out to one location, as well as the serious Coast Path walkers. It seems only fair to cater for both types of visitor.

The attractions in the Lulworth Cove/Durdle Door area include:-

- outstanding scenery
- the Cove itself
- Stair Hole (adjacent to the Cove)
- the views from the cliff path
- Durdle Door (probably the most dramatic natural arch in the UK)
- cafes, hotels, ice cream kiosks
- the Heritage Centre, which explains the physical development of the area
- various shops, including gifts, home made wines etc.

The village of West Lulworth is divided into two main parts, one rather set back from the coast, and the other running linearly between the car park and the Cove. This latter is the section which attracts the bulk of visitors. Visitor density in the season is high, and the area they occupy, small. Village businesses obviously thrive, but congestion causes problems. High densities of vehicles and people together are not conducive to enjoyment. The path to Durdle Door, short but steep, provides little tranquillity; people pass each other every few seconds. The sheer volume of people takes a huge toll on the environment, as described earlier in this unit.

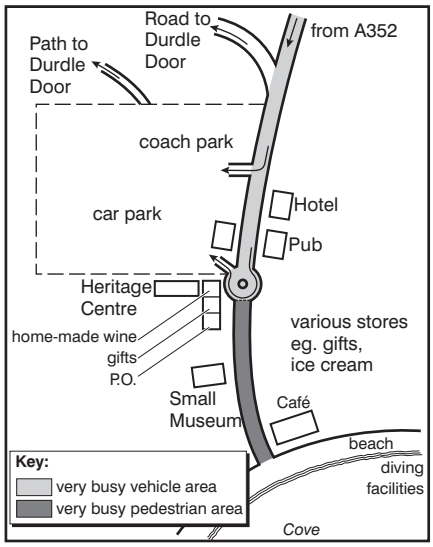
- Identify the problems faced by West Lulworth as a honeypot site.
- Make a value assessment of the different features marked in Figure 6.
- How would you conserve the valuable features?
- How would you improve the problem zones?

These decisions should be made as a result of small group discussion or whole class debate. You should be able to justify your decisions.

Suggested coursework ideas

This DME has focussed on a coastal area. A similar study could be undertaken at any honey pot site known to you, whether coastal or not. Identifying problems and assets, and completing a value assessment of key features there would involve a similar set of processes as you have just completed. Many A2 courses demand a fieldwork-based essay, which could be fulfilled by this type of work.

Figure 6: Decision making at West Lulworth



Focus Questions

1. Tourism can be seen as a resource-based industry. Its resources can be classified as natural, cultural and heritage. Using as examples areas you have studied, identify these different resources and explain how they can be utilised and managed.

2. Tourism and recreation are often an important aspect of regional development. For any region you have studied, in either an LEDC or an MEDC, show how tourism-based activities have contributed to development.

3. Explain the term 'sustainable tourism'. Using examples from both LEDCs and MEDCs, discuss attempts at running tourism in this way. (You could include the Dorset sites in this unit, as your DME work will already have taken your thoughts in the direction of sustainability there.)

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