






Welcome to the Isle of Wight Coastal Trail for Geography at KS5!

The resources cover six different locations around the island, and allow students to study a variety of different human and physical geography topics. All of the resources are closely linked to the different specifications for Geography at A level. The following notes give an overview of each location and guidance to accompany the resource for that location.

Location	Curriculum Content / Skills	Number
VENTNOR / BONCHURCH 	<ul style="list-style-type: none"> A case study of a multi-engineered coastline The need for coastal protection in this location, what an SMP is, and the SMP strategy in place here Investigating a wide range of hard engineering strategies 	107 591
	<ul style="list-style-type: none"> The geology of the Undercliff The human and physical factors that influence slope stability on the Undercliff Types of mass movements on the Undercliff The impact of mass movements on the Undercliff 	107 592
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ALUM BAY/ THE NEEDLES 	<ul style="list-style-type: none"> The tectonic and climatic processes that have led to the structure/planform of this stretch of coastline The evidence for processes of erosion and mass movement taking place today, including erosional landforms (the Needles) 	107 593
HURST SPIT 	<ul style="list-style-type: none"> The physical processes responsible for the development of Hurst Spit The key characteristics of the spit The development of Salt Marsh ecosystems and the importance of Keyhaven Marshes Current threats and management on the spit 	107 594
RYDE / SEAVIEW 	<p>A combined resource, covering both locations, to study:</p> <ul style="list-style-type: none"> The causes of coastal flooding The need for coastal protection; the socio-economic and environmental importance of each location The SMP/management strategies in place to protect the coastline 	107 595
ST HELENS DUVER / BEMBRIDGE HARBOUR 	<ul style="list-style-type: none"> Sand dunes as an example of a coastal ecosystem; their development and their key characteristics The human geography of St Helen's Duver – the human activities that are taking place here, and how they threaten the sand dune ecosystem The management of The Duver/Bembridge harbour-now and in the future 	107 596

Ventnor & Bonchurch

The SMP policy between Bonchurch and Ventnor, on the south coast of the Isle of Wight, is to 'hold the line'. This involves a multi-engineered approach using a variety of hard engineering strategies to retain the existing coastline. The resource is focused on Ventnor as a case study of coastal protection/management. There are many reasons for this strategy in this location and students start by considering the 'need' for coastal protection here. There is some background information which students should read through carefully. Then, the main aim of the resource is to walk along the seafront from Monk's Bay at Bonchurch to Ventnor Beach, and to observe the variety of coastal defence strategies in place. A range of photographs have been provided so that students know what to look out for, and a map has been provided for them to label and annotate as they go. Additional research can be carried out post-visit using the following website:



<http://www.coastalwight.gov.uk/coastaldefenceschemes.htm> and the full SMP document can be viewed here:

<http://www.edudest.com/education-destination/education-destination-final.pdf>. This could now be studied with an excellent opportunity of a hard-to-find resource which would also be

possible to use it as a comparison with another location where the strategy is to 'hold the line' or 'managed retreat', so

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that students can consider the reasons for the different strategies and how the 'need' for coastal protection varies in different locations.

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The Undercliff



The Undercliff is a narrow tract of land which extends for about 12km along the southern coast of the Isle of Wight, from the village of Bonchurch in the east, to Blackgang in the west. It is the largest urban landslide complex in north-western Europe. The resource is intentionally not focused on one location along The Undercliff in particular to allow teachers to adapt the resource to the location(s) they choose to visit.

Access along The Undercliff is restricted and, at the time of writing, the 'Undercliff Drive' coastal road remains closed following a land slide in February 2014. The following locations are suggested as points of access:

1. Bonchurch/The landslip – the coastal path from Bonchurch Shore runs along the lower slopes of the landslip. There is also a car park at the top of the landslip, alongside the Smuggler's Haven tea rooms. It would be possible to combine the Bonchurch/Ventnor study and the Undercliff study together.
2. Niton Undercliff. Past the Buddle Inn in Niton, the road reaches a dead-end but you can continue to walk down towards St Catherine's Lighthouse and view the Undercliff here.
3. Viewpoint above Blackgang Chine – just above Blackgang Chine there is a large car park and a short walk takes you to a small area on the cliff top, where you can look down towards the amusement park and the far western end of the Undercliff. This is a small area with steep cliffs so would not be suitable for larger groups, and great care should be taken.

continued overleaf...

The resource begins with an introduction to the Undercliff which describes the geology of the area and explains the reasons behind its historical and present day instability. Students should study this carefully, and also the accompanying diagrams, and their understanding can be enhanced through observations of the cliffs at one of the suggested locations. Mass movement is then introduced and the concepts of shear strength and shear stress are explained. Several human and physical factors have decreased the shear strength of the undercliff and/or increased the shear stress upon it, and have made it highly vulnerable to mass movement, and an activity helps students to identify these factors. They are then able to take this a step further by considering which of the reasons for the instability of the Undercliff can be regarded as 'Preparatory factors' and which can be seen to be 'Triggering factors'. They should complete the table with their ideas. Types of mass



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The following website was used to provide background information for much of the resource, and would provide a wealth of more detailed information for further study if desired: <http://www.coastalwight.gov.uk/PDFs/TheUndercliffoftheIsleWight.pdf>.



Alum Bay & The Needles

The multi-coloured cliffs of Alum Bay are well-known and are one of the most-visited places on the Island. The theme park above provides extensive parking and other facilities and attractions if desired. One can access the beach either by walking, or by taking the cable-car, and students will be able to explore the cliffs and carry out the activities here. The resource provides students with information about the geology in this part of the island, and students should be encouraged to identify the different types of geology and also the different coloured sandstones discussed. At this point,

there is the potential for a discussion about the economic importance of the cliffs/bay and the possible impacts of human activities in this location. The next section then looks more closely at the structure of the cliffs and their strata, and explains how earth movements have folded the rocks here into near-vertical strata. There is a frame for students to draw a field sketch of the cliffs, and they should label and annotate this to demonstrate what they have learnt so far. The discordant planform of this stretch of coastline is explained, and students will be able to identify this from the beach. There are also a variety of landforms and evidence of mass movements that students are provided images of and should also be able to observe for themselves. It is expected that students will know how these landforms, e.g. stacks, are created and some discussion/questioning and answering should take place to prompt students to explain the processes fully. There is evidence, within a small area, of different types of weathering and mass movement, and teachers can explain these/encourage students to make observations and explain them.

Hurst Spit

At Hurst, a sudden change in the direction of the coast to the south-east of Milford-on-Sea has allowed long-shore drift to build up a 2km long shingle spit, with a recurved end and Keyhaven saltmarshes has developed in the sheltered water behind. It makes an excellent location to study spit development and saltmarsh ecosystems.

There are ferries from Yarmouth, which leave from beside the Wightlink slipway. Further information about times and fares can be found at <http://www.hurstcastle.co.uk/ferries/>.

The resource starts by going over the physical processes which have led to the formation and development of the spit. Longshore drift is discussed and A level students should be capable of explaining how this process operates at the coast, and how it has led to the development of a spit here. Also, the role of sea level rise in the formation



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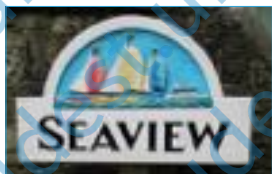
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The next section provides information about the formation of a saltmarsh, going through the successional stages and describing the changes in the environmental conditions and the vegetation that take place. Some discussion/clarification should take place to ensure that students understand the key terms and processes described. There is specific information related to Keyhaven Marshes, which could then be used as a case study. Exploring the edges of the saltmarsh on the leeward side of the spit will allow students to observe some of the key characteristics of the marsh, and they should take photographs. An identification guide could be used, such as those produced by the FSC (<http://www.field-studies-council.org/publications/fold-out-charts.aspx>) to allow students to identify some of the species present and this will enrich the experience. Some of the main threats to the marshes and/or spit are then given, and students are required to investigate how these are being managed.

It is possible to develop this further into a detailed case study post-visit, and there is a great deal of very useful information about the marshes in this document: <http://www.newforest.gov.uk/CHttpHandler.ashx?id=23565&p=0>.

Ryde & Seaview



Ryde is the largest town on the Isle of Wight and, due to its accessibility from the mainland, it is popular with tourists and day-trippers, making it a thriving resort.

The much smaller Edwardian resort of Seaview lies to the east. Both Ryde and Seaview have suffered from extensive coastal flooding and this resource focuses on the causes and consequences of this, as well as examining the need for coastal protection and the SMP policy and implementation in this location.

The overall aim of the study is to be able to 'explain how coastal management in this location is meeting socio-economic and environmental needs', in line with the requirements of exam syllabuses.

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There is some background information on the causes of flooding in both locations, and students should read and discuss this before moving on to the main activity. The resource then focuses on the need for coastal protection, and the SMP policy in place here. Students should read and understand the background information, and look at the photos of various management strategies provided in the resource. It is advised that students walk along the seafront from the transport interchange at Ryde, to the Duver at Seaview. Using a combination of their own observations as they walk, as well as some secondary information provided on the side of the pumping station building in Ryde, and the information boards along Seaview Duver, students should be able to complete the table in the resource. They should ensure that they write detailed comments in each section of the table, and back up their points with specific named examples of features that they observe along the way. A final section in the table encourages them to consider how the



management that they have observed is helping to meet the socio-economic and environmental needs that they identify.

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Pronounced to rhyme with 'cover', a Duver is the local area of sand dunes. St Helen's Duver, on the edge of Bembridge Harbour is the island's most extensive and best example of sand dunes and will give students another coastal ecosystem to study, in addition to salt marshes.

Sand dunes, dune development and the structure and key characteristics of sand dunes are described and explained; students should read through this information carefully before some discussion and questioning to clarify their understanding. Students should conduct

a transect, making observations of changes, and could even conduct some more formal fieldwork by sampling the soil and vegetation as they go. The FSC fold-out charts are particularly good for students to use and can be purchased from the FSC website at <http://www.field-studies-council.org/publications/fold-out-charts.aspx>.

The importance of the dune ecosystem and some of the key species found here is then discussed, before students examine the human geography of the Duver, and the positive and negative impacts of human activities here. Coastal management of the Duver and the harbour is then the focus for the remainder of the resource, and the SMP policies for this part of the coast can be found here:

http://www.coastalwight.gov.uk/smp/DRAFT%20SMP%20FOR%20WEB/Display%20Boards/Area%20boards/SMP2_PDZ3_E.Yar.pdf

and also at:

http://www.coastalwight.gov.uk/smp/FINAL_SMP_for_web/pdf_MainDoc/Chapter4/Chapter4_PDZ3_Dec10_Final.pdf

Students could either have studied the SMP before their visit, or could make observations of current management strategies and then research the SMP post-visit. The resource prompts students to consider the some of the key aspects of the policy, both now and in the future.

