

## SITE

**Name:** Westward Ho! Cliffs

**Parish:** Northam

**Local Authority:** Torridge

**National Grid Ref:** SS 420 291 - 434 296

**OS Sheets:** 1:50k, 180, 1:10K, SS42 NW

**Locality Description:** Coastal section at Westward Ho! near Bideford.

**Nature and Status of Site:** Coastal exposure of foreshore and low cliffs. The site is a designated [Site of Special Scientific Interest](#) (SSSI).

**Summary of Geological / Geomorphological Interest:** Westward Ho! provides important stratigraphic and sedimentary evidence for interpreting the Pleistocene of the region. The presence of a submerged forest also provides detailed evidence of Holocene evolution. The Pleistocene sediments are recorded as wave cut platforms or terraces. The submerged forest is located amongst peat deposits, which overlie a horizon of beach cobbles embedded in sterile blue clay and an underlying head. The bedrock geology is Upper Carboniferous, Bideford Formation (see *Mermaids Pool to Rowden's Gut* site in this register for details). This site directly adjoins Northam Burrows - see separate entry in the register.

**Safety Considerations:** Tide tables must be consulted before accessing the western section of this site, which should only be visited on a falling or low tide.

**Educational Age Groups:** Primary, Secondary, College/6<sup>th</sup> Form, University.

**Parking and Access:** Access to the site is via the seafront promenade where plenty of parking is available if travelling by car. Alternatively there is a regular bus service from Barnstaple (which also has a main line rail station) and the site is within walking distance of the stop at Golf Links Road. For timetable details, visit the [traveline](#) website. Additionally, the [South West Coast Path](#) includes a short (2km) walk on which excellent views of Westward Ho! can be seen.

Can be linked with a visit to the adjacent Northam Burrows (see separate entry in Register).

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## References

Campbell, S, Hunt, C O, Scourse, J D, Keen, D H & Stephens, N (1998). *Quaternary of South-West England. Geological Conservation Review Series 14* (Joint Nature Conservation Committee, Peterborough, and Chapman and Hall)

Edmonds, E.A., Williams, B.J. and Taylor, R.T. (1979). *Geology of Bideford and Lundy Island. Memoirs of the Geological Survey of Great Britain.*

Keene P. and Keene J. (1997). *Westward Ho!: against the sea. Thematic Trails, School of Social Sciences, Oxford Brookes University.*

May, V J & Hansom, J D (2003). Coastal Geomorphology of Great Britain. *Geological Conservation Review Series 28* (Joint Nature Conservation Committee, Peterborough)

Rogers E. H. (1946) The Raised Beach, Submerged Forest and Kitchen Midden of Westward Ho! and the Submerged Stonebarrow of Yelland. *Proc. Dev. Archaeo. Explor. Soc.*, 3, 109-135.

Stephens N. (1970) The West Country and Southern Ireland. In; Lewis C. A. (ed.) *The Glaciations of Wales and Adjoining Regions*. Longman, London, 267-314.

Stephens, N. (1974). Some aspects of the Quaternary of South-West England; Westward Ho!; The Fremington area. In: STRAW, A. (ed.), *Exeter Field meeting, Quat. Res. Assoc. Field Handbook*, Exeter, pp5-7, 25-27.

For further sources on the Quaternary features see Campbell et al. (1998) (site report also available via: [www.jncc.gov.uk](http://www.jncc.gov.uk)).

**Detailed Geology:** The raised beach deposits of the Pleistocene overlie cliffs and elevated rock shore platforms cut in near vertically bedded Carboniferous sediments. The sequence (compiled by Stephens, 1970) contained soil, sandy clay with stones, flint and granite erratics, angular head with a sandy matrix, frost-shattered boulders and cobbles, massive boulder/cobble beach, head and shattered bedrock and the rock platform. These sediments average 6-7 m thickness and form a terrace that slopes gently seawards. The head deposits are highly variable and include beds of fine shale head, blocky head, head with some rounded clasts and erratics, layers of sand and gravel and silt and clay lenses. The sequence is capped by sandy silt. The interpretation of the classic raised beach and head sequence at Westward Ho! has proved controversial, with claims being made for both Ipswichian and Hoxnian stage ages for the raised beach deposits. This site forms a reference area for the Pleistocene as it shows unequivocal evidence for glacier ice having reached the southwest peninsula. This site also provides one of the finest examples of a compound shore platform in western Britain.

The submerged forest at Westward Ho! has been known for some 300 years, being best exposed at SS 432 296. Evidence of root penetration 1.2m into the deposits established that the forest had grown in situ. A detailed stratigraphy for this sequence was provided by Rogers (1946) and revised by Stephens (1970). Peat and clays overlie a definite horizon of beach cobbles, the majority of which are erected on end, probably through cryoturbation. Some are embedded in sterile blue clay but most are embedded in an underlying head. An expanse of peat, containing wood fragments and roots, provided a radiocarbon date of  $4995 \pm 105$  years BP. The difference in height of the modern beach deposits and those of the raised beach suggests that they are of different age. The raised beach gravels may be of Ipswichian age, indicating that the underlying shore platform is older than Ipswichian (possibly Hoxnian) and the head in which the beach cobbles are embedded is of Wolstonian age.

This site reveals an important record of changing terrestrial and coastal conditions in the Holocene. It demonstrates clear evidence for the transition from the very low sea level conditions of the Late Devensian, through the initially rapid rise of Holocene sea levels. The coastal forest was swamped by about 6000 years BP, and then sea level rise slowed and the present day coastal configuration including the landward migration of the cobble ridge was established.

Additional information about this site is contained in a booklet available from the [Thematic trails](#) website.

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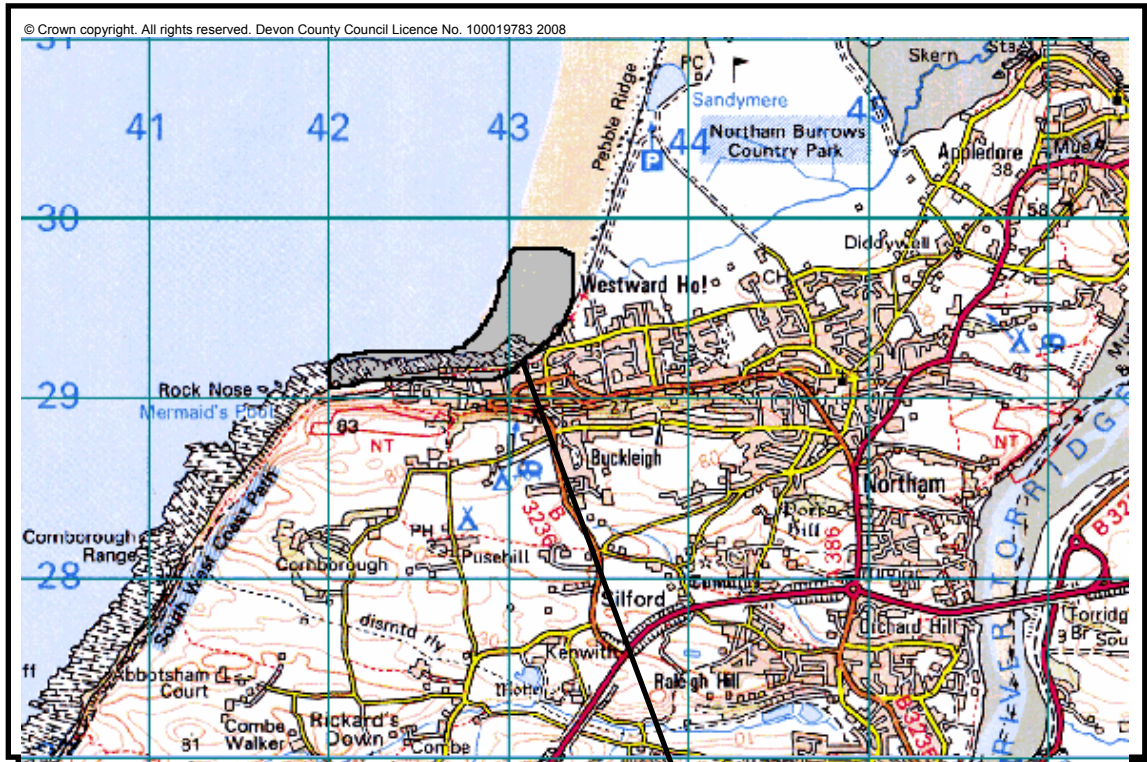
### **Suggested Questions**

1. What processes have been involved in the development of the pebble ridge?
2. Describe and contrast the pebbles that make up the ridge with the wave cut platforms further along the beach. Are they the same?
3. Noting the size and weight of the pebbles on the ridge, what type of conditions would be required to move out to sea or further down the coast?
4. Explain how the various deposits at Westward Ho! formed and what they tell us about the recent geological history of Southern England.

## LOCATION PLAN

# WESTWARD HO! CLIFFS, SSSI NORTHAM, TORRIDGE

National Grid Ref: SS 420 291 - 434 296



Scale 1: 40,000



Site  
Locality

Site comprises of a  
1.5km stretch of  
foreshore and cliffs.

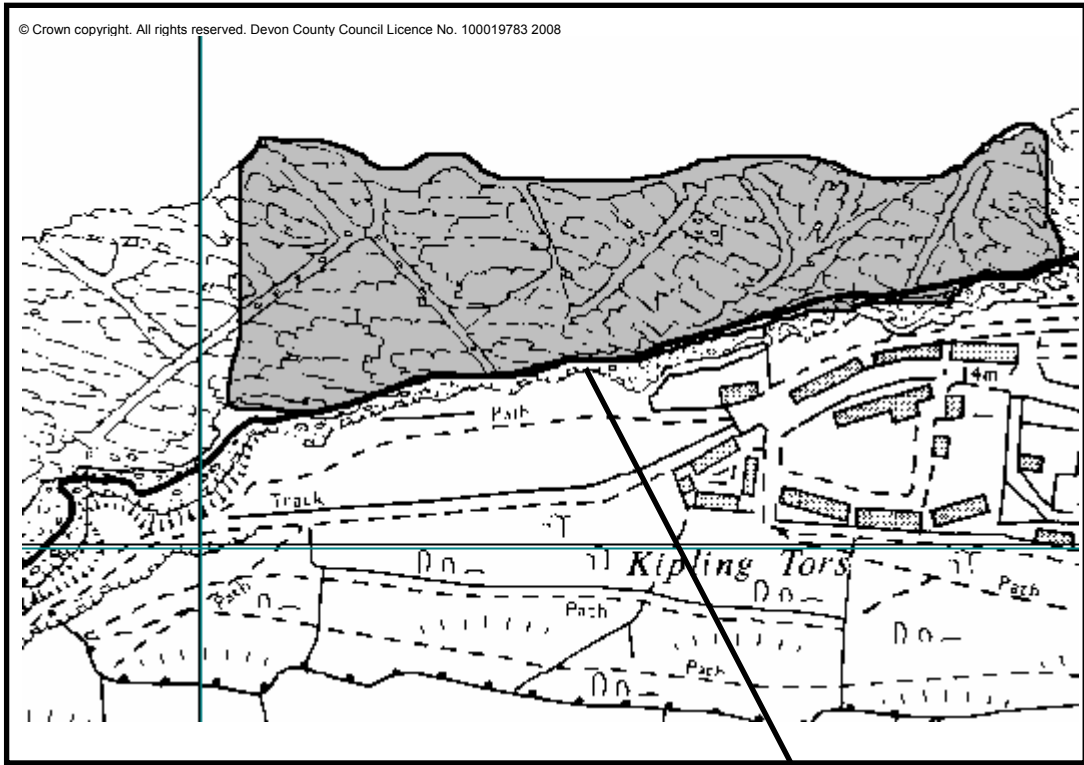
### Parking and Access

- A regular bus service from Barnstaple (which also has a main line rail station) runs to Westward Ho! and the site is within walking distance of the stop at Golf Links Road. For timetable details, visit the [traveline](http://www.traveline.co.uk) website.
- The entire site is easily accessible from the main seafront promenade with plenty of car parking available nearby.

## SITE PLAN

# WESTWARD HO! CLIFFS NORTHAM, TORRIDGE

National Grid Ref: SS 420 291 - 434 296



Key Focal Point

Scale 1: 5000

At the western most  
extremity of the site

### Main Points of Interest:

- A well developed Pleistocene raised beach.
- One of the first examples of a compound shore platform in western Britain.
- The site shows unequivocal evidence for glacier ice having reached the south west peninsula.
- "Submerged Forest" - best seen around low water mark at the eastern end of this site.

## WESTWARD HO! CLIFFS

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General views of the foreshore west of Westward Ho! showing wave-cut platform of Crackington Formation (Upper Carboniferous) bedrock and low cliff with Quaternary deposits landward

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Crackington Formation (Upper Carboniferous) turbidite sandstones and associated mudrocks in the cliff and foreshore west of Westward Ho!

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Interglacial beach deposits with cobbles resting on a raised rock platform in the cliffs west of Westward Ho! The raised beach is overlain by periglacial head deposits.