

SITE

Name: Ladram Bay to Sidmouth

Parish: Sidmouth

Local Authority: East Devon

National Grid Ref: SY 096 847 - 106 860 and SY 122 868

OS Sheets: 1:50K, 192, 1:10K, SY08 SE, NE, SY18 NW

Locality Description: Two distinct locations on the East Devon Coast to the west of Sidmouth.

Nature and Status of Site: Coastal cliff exposure. It forms part of a [Site of Special Scientific Interest](#) (SSSI) and lies within the [Jurassic Coast World Heritage Site](#).

Summary of Geological / Geomorphological Interest: Ladram Bay has a series of well-developed cliffs, stacks and shore platforms cut in the red sandstones of the Triassic. Their preservation is largely due to the relatively low energy regime in which they occur. The cliffs below High Peak and Chit Rocks at Sidmouth, have yielded very rare remains of Middle Triassic fossils fish, amphibians and reptiles. Bones of the labyrinthodont *Mastodonsaurus* and a rhynchosaur have also been found, allowing correlation with similarly aged faunas found in rocks in the Midlands.

Safety Considerations: Tide timetables must be consulted and hard hats worn when approaching cliffs.

Educational Age Groups: Primary, Secondary, College/6th Form, University.

Parking and Access: Access is via the beach at Sidmouth, where there is ample parking. Chit Rocks is viewable at low tide. Access to Ladram Bay can be gained from a campsite and caravan park at SY 095 855 where car parking is available. One of the best ways to get to the bay is by following the [South West Coast Path](#) from either Budleigh Salterton or Sidmouth. There are also regular bus services between Budleigh Salterton and Sidmouth. For timetable details, visit www.traveline.org.uk. All sites are excellently exposed.

References

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Online References:

The Jurassic Coast, Dorset and East Devon World Heritage Site www.jurassiccoast.com

Detailed Geology: The cliffs to the west of Sidmouth, expose rocks belonging to the Otter Sandstone Formation. This is a 118m thick Triassic sequence of largely fluvial sandstones including breccias and thin mudstones layers. Dating evidence comes from the very rare fossil vertebrate material found within it. Amphibians, reptiles and fish remains have been found in the upper part of the Otter Sandstone, being a 20m or so width of fossiliferous sediments. Most specimens have been recovered from fallen blocks, but a few have been found in situ. The fauna is dominated by skeletal material of a group of medium sized herbivorous reptiles known as rhycolosaurs. Jaw components of this reptile are modified anteriorly into a tusk-like feature showing wear facets. These animals belonged to a group of reptiles known as Archosaurs, a branch of which gave rise to the Dinosaurs. Other fossils from the sandstone include teeth belonging to a thecodont (the group of reptiles that gave rise to crocodiles, pterosaurs and dinosaurs) and skull fragments of an early dinosaur, possibly *Ornithosuchus*. The most complete amphibian collected from the Otter Sandstone is a partial skull of the small capitosaurid temnospondyl (probably fully terrestrial amphibians) *Eocyclotosaurus*. The temnospondyl amphibians are represented by skull material of *Mastodonsaurus lavisi*, which forms the type material for the animal. Comparison of the fauna indicates an Anisian age for the Otter Sandstone Formation. The formation appears to have been laid down on a flood plain covered with small ephemeral braided streams and lakes, with a semi-arid climate, that allowed long dry periods punctuated by seasonal rains and flash-floods.

Geomorphology: The coastal section at Ladram Bay comprises a series of cliffs, stacks and platforms. The southern part of the site has cliffs of about 25m in height, whereas

they rise to over 150m at High Peak. The lower cliffs are steep, with angles generally in excess of 80° . Stacks occur at Ladram Bay and off High Peak, known as Little and Big Picket. The shore platforms occur at Smallstones Point, Ladram Bay and below High Peak. Their slope reflects the dip of the beds forming them (about 4°). Erosion along near-vertical joints appears to have been important for the separation of the stacks from each other. At Ladram Bay the stacks appear to result from a combination of a number of factors, including the local structural weaknesses. Wave energy appears to be sufficient to act upon these weaknesses but not strong enough to destroy them. The base of the stacks are formed from a harder band within the Otter Sandstone succession, thus stacks do not form further north of south, where the layer is higher in the cliff or below sea-level, respectively.

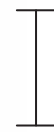
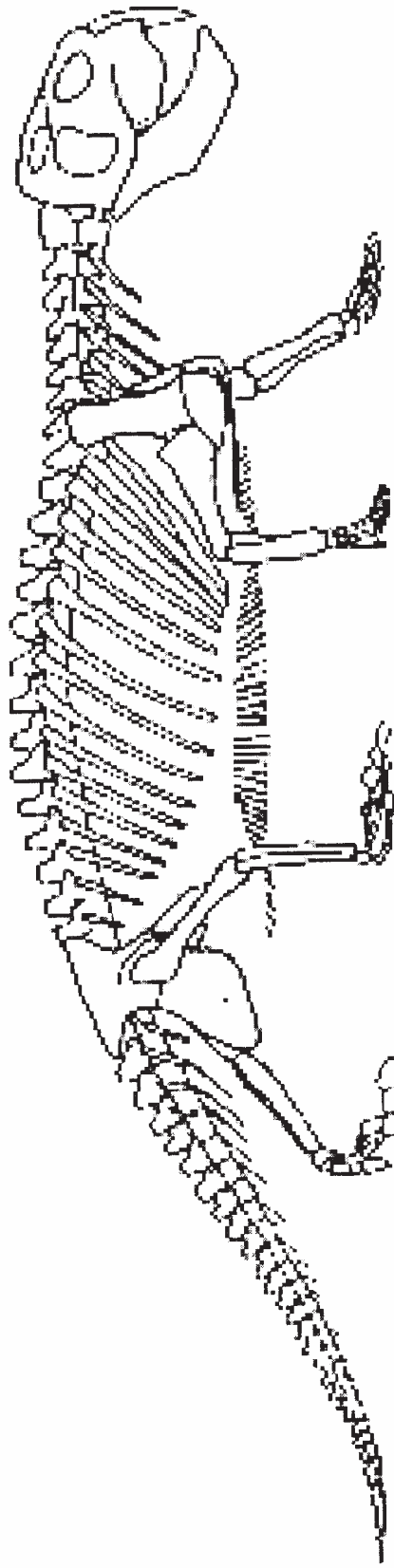
Suggested Questions

1. What geological factors affect the development of the coastal morphology?
2. The beds exposed in the cliffs have yielded fossil remains. What use are these in determining the palaeoenvironment?

Ladram Bay to Sidmouth SSSI

Diagram showing a reconstructed skeleton of a rhynocaur similar to those known from the Triassic Otter Sandstone Formation.

Large Eye Orbit



100 mm

Large Digging Claws

LOCATION PLAN

LADRAM BAY TO SIDMOUTH, SSSI SIDMOUTH, EAST DEVON

National Grid Ref: SY 096 847 - 106 860 and SY 122 868



Scale 1:45,000



Site
Localities

2. Coastal stretch of land from Smallstones Point (south) to Green Point (north), Landram Bay

1. Chit Rocks exposed at low tide east of Jacob's Ladder, Sidmouth

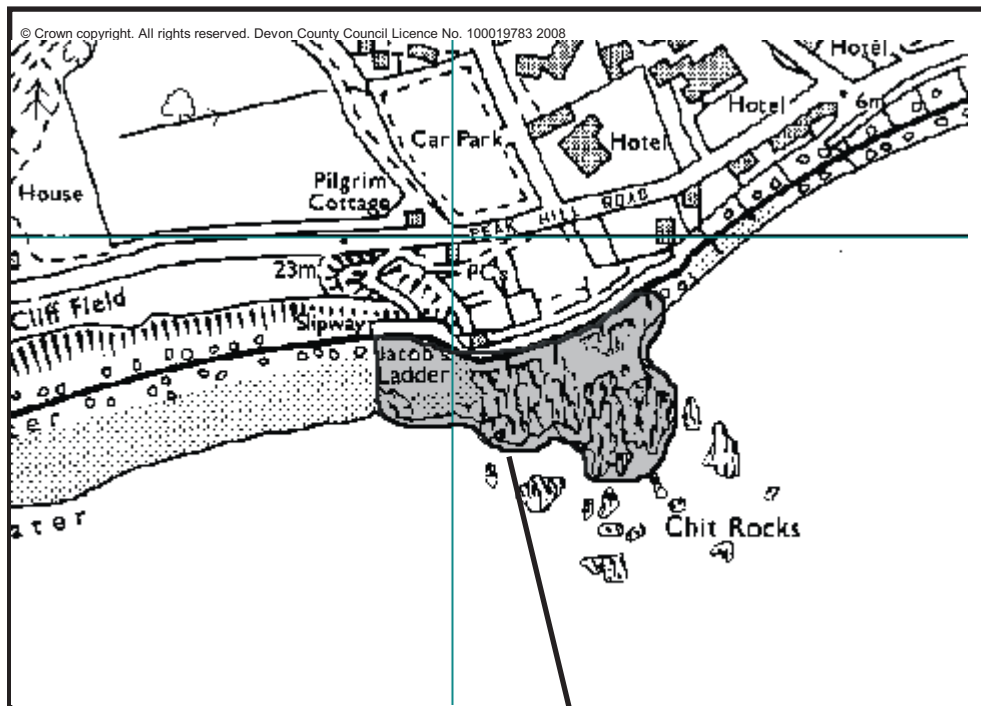
Parking and Access

- Car parking directly opposite Chit Rocks along Peak Hill
- Road and in nearby car parks. Access to the site at low water tide via coastal path.
- There is also car parking at the campsite/caravan park at Ladram Bay, from where there is direct access down to the beach or out to the coastal path.
- Good access along the South West Coast Path from either Budleigh Salterton or Sidmouth.

SITE PLAN

LADRAM BAY TO SIDMOUTH Location 1 SIDMOUTH, EAST DEVON

National Grid Ref: SY 122 868



Key Focal Point

Scale 1: 5,625

Chit Rocks, Sidmouth

Main Points of Interest:

- Exposure of Otter Sandstone on shore platform

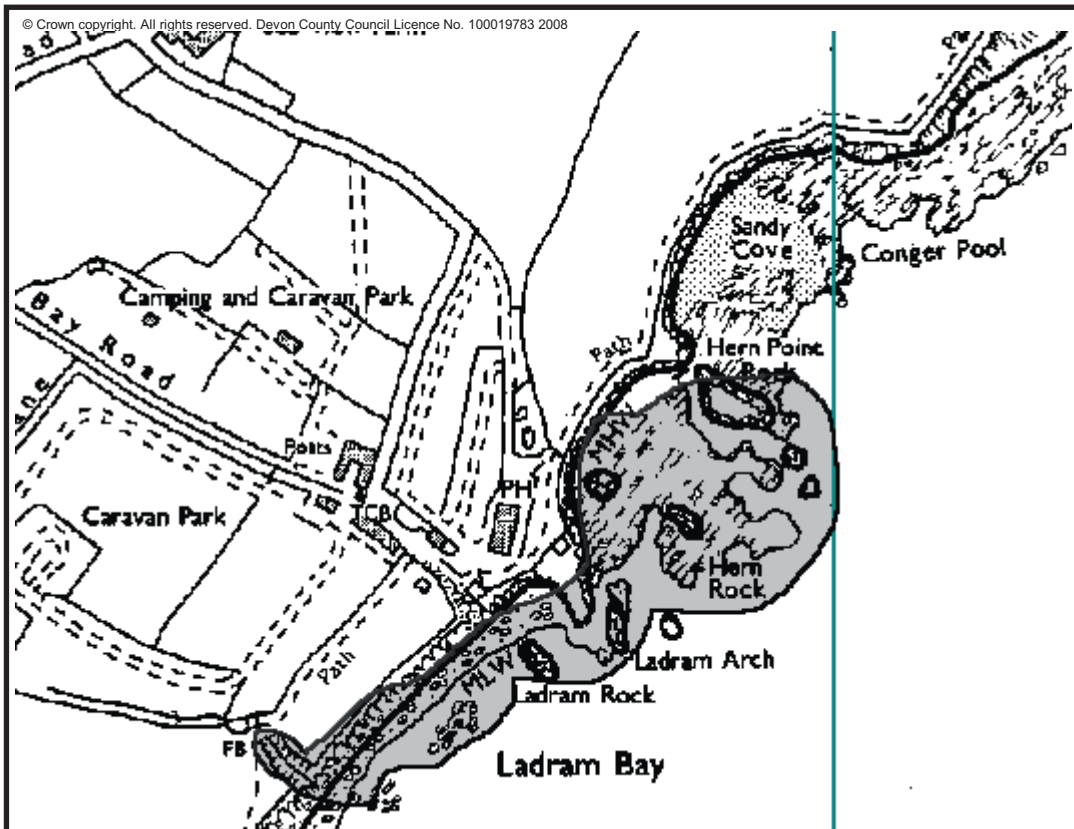
SITE PLAN

LADRAM BAY TO SIDMOUTH

Location 2

SIDMOUTH, EAST DEVON

National Grid Ref: SY 096 847 - 106 860



Key Focal Point

Scale 1: 6,000

Main Points of Interest:

- Important site for coastal geomorphology with a series of well-developed cliffs, stacks and shore platforms, formed in the relatively easily eroded otter sandstone.

LADRAM BAY



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Spectacular stacks of Triassic Otter Sandstone Formation in Ladram Bay
(Viewed from the sea)