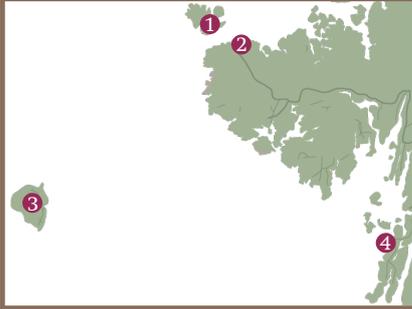


# West Shetland Geology

SHETLAND HERITAGE TRAILS



## Discover West Shetland...



In the West Mainland of Shetland you have access to a diverse range of geological sites formed in different environments over hundreds of millions of years. Step inside an ancient fault line, search for 390 million year old fossil fish, explore the volcanic rocks and spectacular coastal features on the island of Papa Stour or see the highest sheer cliffs in Britain on the remote island of Foula.

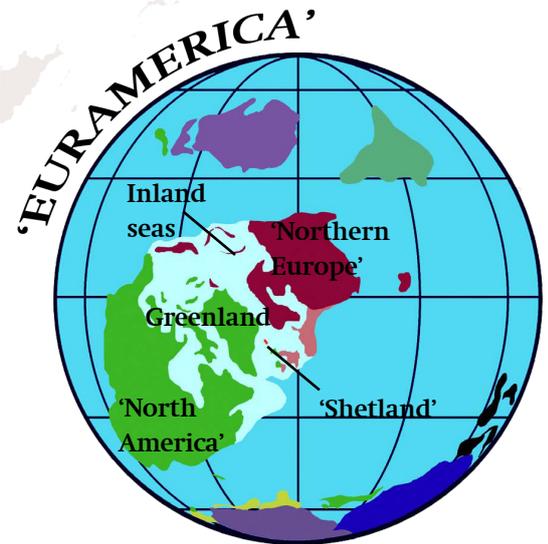
## West Shetland

The hills of the Central Mainland represent all that remains of the almost vanished Caledonian Mountains. They formed about 420 million years ago as 'America' collided with 'Northern Europe' to create the supercontinent 'Euramerica' and sediments laid down off the coast of 'America' were metamorphosed and thrust up to build the mountains.

The sandstones in the west of Shetland were laid down about 390 million years ago as these mountains quickly eroded. This was a volcanically active time as magma forced its way to the surface of the Earth and erupted. We can see these volcanic rocks today on the island of Papa Stour.

### 1 Papa Stour

The island of Papa Stour is made from volcanic rocks comprising two large lava flows, smaller flows and volcanic ash deposits. The storm eroded coastline makes for fantastic coastal geomorphology with stacks, caves and arches to explore. The island's caves and passages are some of the best examples in the UK and include the fourth longest sea cave in the world.



How many fish can you find?



### 2 Melby fish beds

On the West mainland, over looking Papa Stour, is a very different type of geology. Instead of volcanic rocks, Melby is made from sandstone.

The sandstones were laid down in the centre of the Euramerican supercontinent by vast river systems carrying sediments and depositing them large lake systems. Fish populated these lakes. When the fish died their bodies sank to the bottom of the lakes where lack of oxygen meant that there were no scavengers to feed on the remains. They were quickly covered by more sediment and sand, preserving them within the rocks as you can see today.

This area is a 'Site of Special Scientific Interest' and is protected by law. Please leave it as you found it and take only photos away!

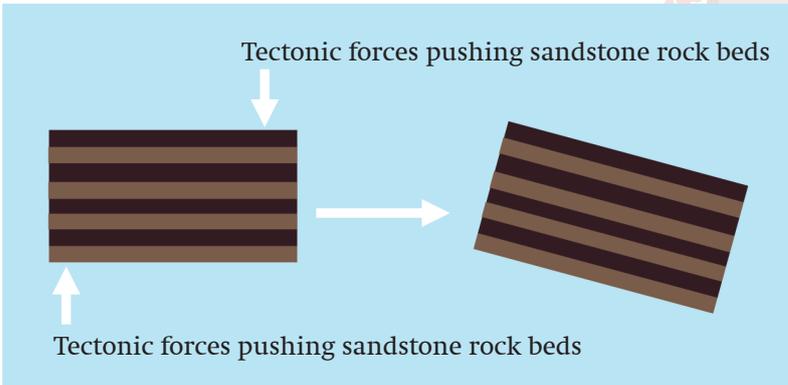
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## 3 Foula

The island of Foula has spectacular coastal geomorphology. Among the multiple stacks, skerries and arches the highest sheer sea cliffs in the UK can be found reaching up to 370m! Foula is comprised almost entirely of sandstone rock. This sandstone is 390 million years old and is the same rock type as is seen at Melby. The sandstone rock was initially deposited in flat horizontal layers. Millions of years of movement within the crust has resulted in these horizontal layers becoming tilted. The "tilt" can be observed within some of the cliff faces around the island.



## 4 Pundsar, Burra

At the headland of Pundsar is a cave. The hidden entrance is tricky to find 200m inland! As you climb down into the cave the passage widens out into a vast, spacious cavern that extends all the way to the sea.

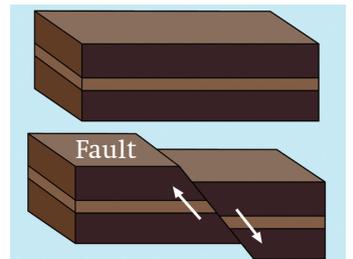
This old 'smugglers cave' formed due to the sea exploiting a weakness within the rock face. This weakness in the rock is actually an ancient fault plane.

A fault is what happens when blocks of rock "slide" past one another due to tectonic forces. The result is a displacement of the rocks on either side of the fault.

Millions of years of storm driven erosion upon the weak fault plane have created this long narrow cave.



Look out for the hidden entrance to the 'smugglers' cave



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SHETLAND HERITAGE TRAILS



## 1) Papa Stour HU 17678 60769 / 60.330602,-1.681681

Papa Stour is accessible via plane from Tingwall Airport or ferry from West Burrafirth West Mainland.

## 2) Melby fish beds HU 16643 56070 / 60.288455,-1.700821

Take the A970/A971 to Sandness and continue to the end of the road at Melby. Park and follow the signed route around the coast to the site. One to two hours is needed to walk out to the site and back. Please note this route contains two-step and ladder stiles.

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## 3) Foula HT 97019 39039 / 60.135864,-2.055473

Foula is accessible via plane from Tingwall Airport or ferry from Walls in the West Mainland.

## 4) Pundsar, Burra HU 36567 35353 / 60.101160 -1.344221

The 'Smugglers Cave' is on the southern tip of Fugla Ness on Burra. Take the A970 to Scalloway and the B9074 to Hamnavoe on Burra. Park by the Marina, walk up the hill and take the road on your right. 100m along the road cut between the houses down to the small shingle beach and make your way across the headland to the inland entrance to the cave (the sea entrance is not accessible).

Alternatively, take the A970 to Scalloway and the B9074 towards Hamnavoe, then turn off to Papil and park at the car park for Mail Beach (public toilets are available). Follow the coast around until you reach the cave entrance.

Caution, the entrance is small and hidden in steep, sometimes slippery rocks so take care. There is no formal access so entering the cave is at own risk. The coastline from Mail Beach is very steep in places. One to two hours is needed to walk to the site and back. Please note this route contains two-step stiles.

**Coordinates are given as a guide only. You may wish to consult OS Explorer Maps 466 and 467 and the British Geological Survey 1:63360 Series sheet 127.**