**CYNGOR CEFN GWLAD CYMRU**
**COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

**PEMBROKESHIRE** **ARFORDIR ABEREIDDI**

**Date of Notification:** 1954, 1987, 2002

**National Grid Reference:** SM 804324 – SM 772298

**O.S. Maps:** 1:50,000 Sheet number: 157
1:10,000 Sheet number: SM72NE, SM73SE
SM83SW

**Site Area:** 63.5 ha (approx)

**Description:**

The site is of special interest for its littoral zone including sea caves, its grey seals *Halichoerus grypus*, which breed and haul out along the foreshore, and for two important geological sites. The site is located approximately 5 km northwest of the city of St David's. The rocks, which are exposed on the cliffs and within the disused quarries at Abereiddi, are composed of volcanic and calcareous shales and sandstones rich in fossils. This exposed coastal stretch faces west and north-west, with both steep and gentle cliff slopes, which are soft and crumbling in places, reaching up to 45 metres in height.

## GEOLOGY

Arenig Llanvirn: This internationally important site is the historical type-locality for the Ordovician Llanvirn Series. Extensive exposures in the shales and volcanics of the Llanvirn, and the limestones and shales of the overlying Llandeilo are excellently displayed in the cliffs and quarries of the bay and in the adjacent valley extending southwards to Llanvirn. The site is famous for its upper Llanvirn 'tuning fork' graptolites from the *Didymograptus bifidus* Shales. This site provides a vital international reference section for the Lower Ordovician. The historical Llanvirn is now taken to be a constituent part of the global Darriwilian Stage of the Middle Ordovician (whose base falls within the Arenig Series of the traditional British chronostratigraphy).

Ordovician Igneous: To the north and south of Abereiddi Bay important Llanvirn volcaniclastic deposits are exposed: the Llanrian Volcanics and *Didymograptus murchisoni* Ash respectively. These deposits are subaqueous ash-flow tuffs and tuffites, and represent distal deposits, derived from volcanic centres such as Strumble Head and Ramsey Island. As such, they enable a clear elucidation of the palaeovolcanic environment in this part of Wales during Ordovician times.

## BIOLOGY

The intertidal zone is dominated by exposed rock with a subtidal fringe characterised either by dabberlocks *Alaria esculenta* and kelp *Laminaria digitata* over encrusting coralline algae, or a mixture of kelp including *Laminaria hyperborea*, *L.saccharina*, dabberlocks and furbelows *Saccorhiza polyschides*. The lower shore tends to be dominated by encrusting coralline algae

including *Corallina officinalis* with red algae such as carragheen moss *Mastocarpus stellatus*, pepper dulse *Osmundea pinnatifida* and thongweed *Himanthalia elongata*. The mid to upper shores support encrustations of barnacles and limpets *Patella sp.*, with patchy bands of pygmy lichen *Lichina pygmaea* above. Wider, more gently sloping areas of bedrock also support a sparse covering of bladder wrack *Fucus vesiculosus* over the barnacles. The uppermost parts of the shore are dominated by a zone of black tar lichen *Verrucaria maura*, above which yellow and grey lichens occur, sometimes rather sparsely where the bedrock is crumbling. Where exposure is increased, laver seaweed *Porphyra sp.* occurs in patches with black tar lichen, and grass kelp *Enteromorpha sp*. can be found where freshwater trickles onto the foreshore.

Areas of wide, gently sloping bedrock support rockpools including sediment-floored pools, coralline encrusted pools sometimes with the brown alga *Bifurcaria bifurcata* and deeper kelp or green algae-dominated pools. Sea caves occur at regular intervals along this stretch of coast with vertical walls dominated by sea squirts such as *Dendrodoa grossularia* and sponges including the breadcrumb sponge *Halichondria panicea* and *Dysidea fragilis*. The two beaches at Abereiddi and Traeth Llyfn consist of coarse sand with occasional small crustaceans. Of particular interest is the tidal lagoon in a disused quarry basin at Abereiddi, known as the Blue Lagoon, which forms an exceptionally rare and possibly unique marine environment. The narrow seaward entrance is at the height of mid-tide level, thereby isolating the lagoon from the sea for about half of every tidal cycle. The entrance channel is very tidally scoured and contains a variety of kelp species dominated by furbelows. The lagoon itself, by contrast, supports species characteristic of ultra sheltered conditions, dominated by active suspension feeders such as the fan worm *Bispira volutacornis* and the sea squirt *Ascidia mentula*. Other fauna include sponges such as *Hymedesmia basispinosa*, and *Timea stellata*, the sea fir *Melicertum octocostatum* and the tubeworm *Josephella marenzelleri*. Filamentous red algae are abundant, particularly *Halopteris filicina* and *Bryopsis plumosa*. The lagoon develops a seasonal thermocline and oxycline during summer months which together creates and maintains an exceptionally rare faunal depth zonation.

Grey seals breed within the sea caves, and occasionally haul out on the foreshore. Approximately 5% of West Wales' grey seal pups are born along this stretch of coast annually. Otters occasionally use the foreshore.

**Remarks:**

1. The site lies entirely within Pembrokeshire Coast National Park.

2. The site is a component part of Pembrokeshire Marine/Sir Benfro Fôrol Special Area of Conservation

3. Much of the site is owned by the National Trust.

4. Otters are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and on Annex IIa of the EC Habitats Directive (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.) Grey seals are also listed on Annex IIa of the Directive.