

Strath 5: Strathaird



The west coast of Strathaird provides a stratigraphic traverse through the shallow marine Middle Jurassic Bearerraig Sandstone Formation, a variety of estuarine sedimentary rocks of the Great Estuarine Group, and Upper Jurassic marine sandstones and shales of the Staffin Bay Formation and the Staffin Shale Formation. The sedimentary sequence is overlain, with a slight angular discordance, by Paleocene basaltic lavas. Anywhere along this coast provides spectacular views of the Cuillin Hills and the Red Hills, along with a view west to Soay, and SW to Rum and Canna.

Aspects covered: Middle and Upper Jurassic sedimentary rocks; Paleocene plateau lavas; Paleocene basic and xenolithic ultrabasic dykes; late glacial (Pleistocene) to post-glacial (Holocene) landslips.

Route: [Elgol Pier](#) - [Port na Cullaidh](#) - [Suidhe nan Eun](#) - [Càrn Mòr](#) - [Cladach a' Ghlinne](#) - [Glen Scaladal](#) - [Ben Cleat](#) - [Cnoc Breac](#) (- return [Elgol Pier](#)).

Distance: 11 kilometres.

Time: Up to 9 hours.

General comments: Coastal exposures are involved and, therefore, low (preferably Spring) tide conditions are essential, especially beyond Locality 5. To access material at Locality 7, a small amount of scrambling is involved and should not be attempted if considered to be beyond your ability.

[Elgol](#) is located on the west side of Strathaird, 24km (15 miles) SW of [Broadford](#) on the B8083 road. The coastal section to be examined in this excursion runs from south of [Elgol](#), at [Suidhe nan Eun](#), to [Glen Scaladal](#) halfway up the west coast of the peninsula. From there, the return to [Elgol](#) is via [Ben Cleat](#) and [Cnoc Breac](#). The road through [Elgol](#), down to the [Elgol Pier](#), is steep and twisty, in places with a gradient of 25%! Coaches should not proceed down this steep part of the road without making an assessment as to the feasibility to turn at the bottom of the hill and to be able to return up the hill. There is

parking at [Elgol Pier](#) and at the [Glasnakille road junction](#), which throughout the Spring, Summer and Autumn months is very busy.

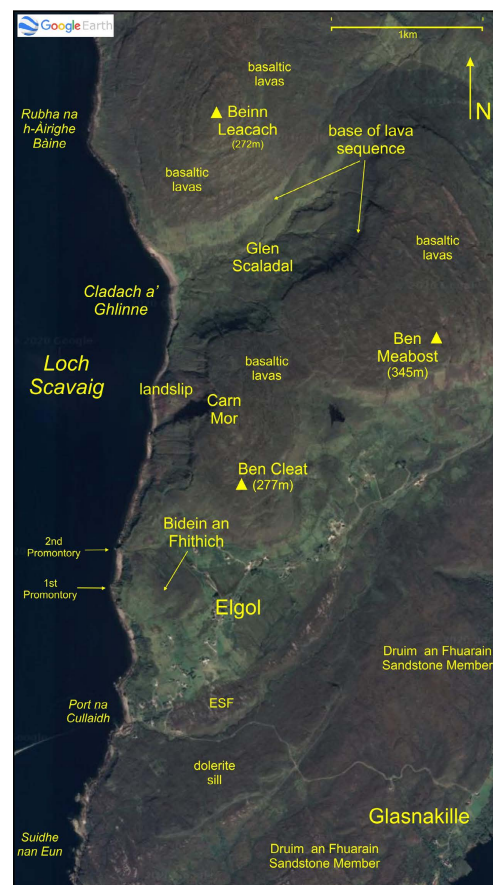
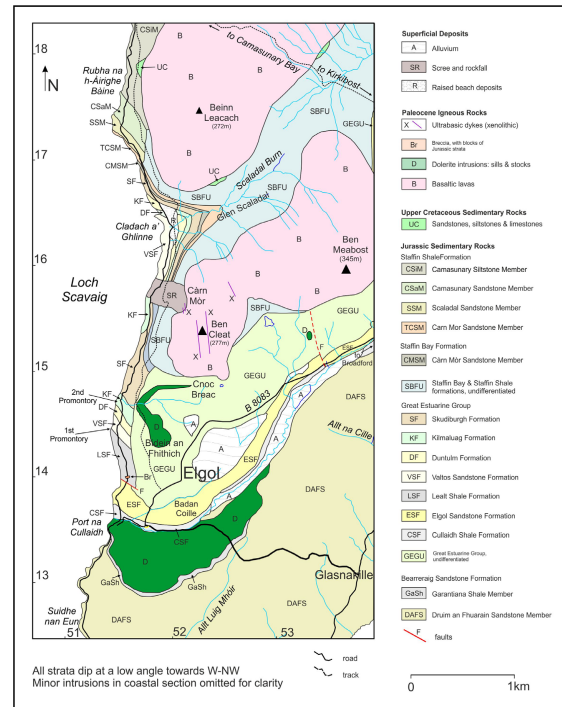


Figure Strath 5.1: Summary map and annotated Google Earth® image of the west coast of Strathaird. EFS, Elgol Sandstone Formation.

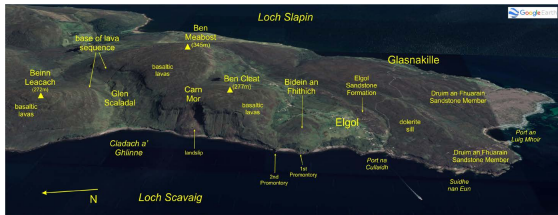


Figure Strath 5.2: Annotated oblique Google Earth® image of Strathaird.

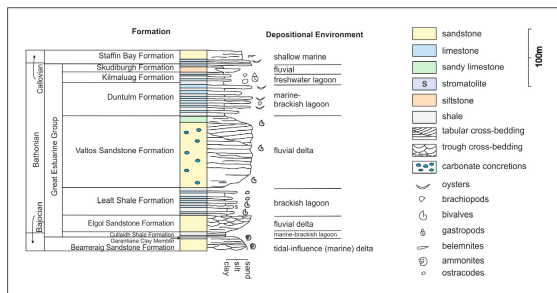


Figure Strath 5.3: Stratigraphy and environment of deposition of the Great Estuarine Group, Inner Hebrides.

Type-section locations	Member	Formation
Rubha na h'Àirigh Baine (NG 516 172) & in tributaries of the Abhainn Cille Mhàire ca. (NG 547 193)	Camasunary Siltstone	Staffin Shale
Rubha na h'Àirigh Baine (NG 516 172)	Camasunary Sandstone	
Rubha na h'Àirigh Baine (NG 516 172)	Scaladal Sandstone	
Tobar Ceann (NG 565 198)	Tobar Ceann Siltstone	
Rubha na h'Àirigh Baine (NG 516 172)	Càrn Mòr Sandstone	Staffin Bay
Bioturbation of marine sandstones & siltstones		Skudiburgh

Figure Strath 5.4: Stratigraphy of the marine Staffin Bay and Staffin Shale formations on Strathaird.

Locality 1 [\[NG 5158 1361\]](#):

General features of the geology of the surrounding area may be noted from the spectacular viewpoint of the [Elgol Pier](#), south of [Port na Cullaidh](#). Strathaird is built predominantly of Middle to Upper Jurassic sedimentary rocks overlain with a slight angular discordance by Paleocene plateau lavas, all of which have been very gently folded and dip to towards W-NW at a shallow angle. The lavas form a resistant cap to the sedimentary units, for example, on [Ben Cleat](#) and [Ben Meabost](#). Dykes of the Paleocene NW-SE -trending Skye Regional Swarm cut all the rock-types exposed on the peninsula and form minor NW-SE –trending linear features along the coast.

Excursion Strath 5: Strathaird

To the north, the main ridge of the Cuillin Hills runs from [Gars-bheinn](#) in the south to [Sgùrr nan Gilleann](#) in the north and marks out the western portion of the Palaeocene Cuillin Intrusive Centre. Remnants of the eastern sector of the centre are preserved on [Blà-bheinn](#) ('Blaven'), north of [Camasunary Bay](#) (Camas Fhionnairigh). Beyond are the granites of the Paleocene Srath na Crèitheach and Western Red Hills intrusive centres, with the peaks of [Ruadh Stac](#) and [Marsco](#) being particularly obvious. Due west is the flat-lying island of [Soay](#), composed of Late Proterozoic ('Torridonian') Applecross Formation (Torridon Group) strata. Also visible from the west coast of Strathaird is the Paleocene igneous complex on the island of Rum, some 20km south of Skye.

Most of the sedimentary rocks to be examined during this excursion have been thermally altered, to some extent, as a consequence of the Paleocene igneous activity. Fossils are typically recrystallised to coarse-grained calcite or have been dissolved. Shales are typically less fissile and sandstones are much harder. Arcuate warps within the strata around the intrusive centres cause their positions, relative to a sea-level datum, to vary quite markedly. Parts of the Jurassic sequence are therefore encountered more than once along this coastal section.

The Middle to Upper Jurassic sequence, as exposed on Strathaird, consists of:

Staffin Shale Formation (Middle Callovian–Kimmeridgian)

Camasunary Siltstone Member (7.5m+)
Camasunary Sandstone Member (91.4m)
Scaladal Sandstone Member (32.6m)
Tobar Ceann Siltstone Member (19m)

Staffin Bay Formation (Upper Bathonian–Lower Callovian)

Càrn Mòr Sandstone Member (9m)

Great Estuarine Group (Bathonian)

Skudiburgh Formation (18m)
Kilmaluag Formation (23m)
Duntulm Formation (8m)
Valtos Sandstone Formation (24m)
Lealt Shale Formation (30m)
 Lonfearn Member (21m)
 Kildonnan Member (9m)
Elgol Sandstone Formation (15m)
Cullaidh Shale Formation (6m)

[DOLERITE SILL] (Paleocene)

Berreraig Sandstone Formation (Bajocian)

Garantiana Shale Member (12m)
Druim an Fhuarain Sandstone Member (470m+)

For most of this excursion these strata are examined going up-succession.

From the car park adjacent to the [Elgol Pier](#) at [Port na Cullaidh](#), walk south, keeping above the beach, over a

thin but extensive dolerite sill to a point north of [Suidhe nan Eun](#) at [\[NG 5129 1254\]](#), to access spectacular coastal exposures of the Drui an Fhuarain Sandstone Member of the Bearreraig Sandstone Formation. This is the thickest Jurassic sandstone in the British Isles and here it displays impressive, large-scale cross-stratification.

Locality 2 [\[NG 5129 1254\]](#):

North and south of [Suidhe nan Eun](#), the Drui an Fhuarain Sandstone Member of the (Late Toarcian-Bajocian) Bearreraig Sandstone Formation crops out on the coastal platform below the cliffs. These medium- to coarse-grained, tidally-generated, cross-bedded marine sandstones exhibit dramatic trough cross-stratification of sub-aqueous dunes, with amplitudes of up to 0.5m, separated by finer-grained (mudstone or siltstone) more laterally continuous drapes. The environment of deposition of the Drui an Fhuarain Sandstone Member ranges between a delta and a tidally-influenced estuary, involving significant changes in sea-level. During periods of relatively low sea-level, deltaic conditions dominated, with the development of: pro-delta shale-siltstone sequences containing bioturbated sandstones; tidally-influenced delta-front sub-aqueous dune fields of large-scale, planar cross-bedded, medium- to coarse-grained sandstones; and, delta-plain fine-grained sandstones with roots and channel geometries. During transgressive periods with relatively high sea-level, sedimentation occurred in an estuarine environment, with the development of tidal-fill channel sandstones in the form of large-scale, trough and tabular cross-stratified sandstones, some of which are bioturbated, with common slump and water-escape structures. Channel depths were commonly up to 10m, uncommonly greater. Tabular bioturbated sandstones were most likely deposited in a shelfal environment. Sediment transport direction, on a large scale, varied considerably with time, with both southerly and northerly sources, implying transport parallel to the Camasunary-Skerryvore Fault, a major structure active in the Mesozoic.

In returning north along the coast, the obviously trough cross-stratified sandstones at [Suidhe nan Eun](#) grade upwards into planar-bedded units containing ferruginous concretions. The numerous basalt and dolerite dykes of the Paleocene NW-SE -trending regional swarm that intrude these sandstones are typically 1–2m wide. Approximately 125m south of [Elgol Pier](#), at the base of a Paleocene dolerite sill that forms a minor promontory, the upper part of the Bearreraig Sandstone Formation is represented by dark grey laminated shales of the marine Garantiana Shale Member. Here, it is flat-lying, thinly-bedded and pyritiferous, the last due to the thermal effects of the overlying sill. The sill is a non-porphyrific dolerite and inter-fingers the shale, having caused much contortion of the bedding. Veins of calcite are common within the shale. The dip slope of the sill may be traced inland south of the [Ailt Port na Cullaidh](#).



Figure Strath 5.5: Cross-stratified Drui an Fhuarain Sandstone Member at Suidhe nan Eun, south of Elgol. View is towards the north, with the Cuillin Hills in the distance.

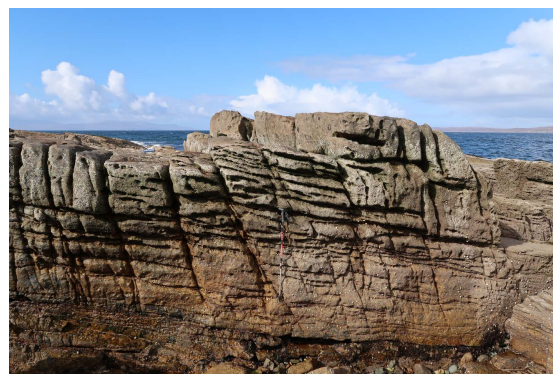


Figure Strath 5.6: Parallel-bedded Drui an Fhuarain Sandstone Member at Suidhe nan Eun, south of Elgol. Pole c. 1m long.



Figure Strath 5.7: Deformed, parallel-laminated strata of the Garantiana Shale Member, below the dolerite sill, south of Elgol. Pole c. 1m long.

Return north to the car park at the [Elgol Pier](#) and proceed to the boulder-covered beach in front (west) of the [school](#) at [Port na Cullaidh](#).

Locality 3 [\[NG 5161 1371\]](#):

On the beach at [Port na Cullaidh](#), discontinuous exposures of the brackish lagoonal to marine Cullaidh Shale Formation of the Great Estuarine Group may be examined. It is a hard, black shale, containing fish scales and gastropods and is rich in carbonaceous material. Struck or scraped by a hammer, it can give off a petroliferous odour. These strata are cut by resistant-to-erosion dykes and sills. Levels of exposure are highly

variable depending upon the state of the beach; exceptionally, exposure is near-continuous, up-sequence, into the Elgol Sandstone Formation. In the cliff face directly behind (east of) the [school](#), the Elgol Sandstone Formation crops out. At the base of the [cliff](#), a gradation from the Cullaidh Shale Formation, through thin-bedded, bioturbated, dark micaceous siltstones and sandstones with the (burrow) trace-fossil *Planolites*, into the Elgol Sandstone Formation is particularly clear.

Approximately 130m north of the school, forming a small cliff, the beds within the Elgol Sandstone Formation have a peculiar and distinctive careous ('honeycomb') weathering characteristic, which has been attributed to the effects of repeated exposure to (present day) sea-water spray. The gradation from shale into sandstone represents a change in depositional environment from relatively deep, sediment-starved water to shallow water, with well-sorted relatively clean sands deposited in a fluvial-dominated lagoonal deltaic environment. The overall coarsening-upward motif of the formation indicates a shoreline progradation into the lagoon.

The exposures behind (east of) the school comprise (tilted) large-scale (up to 5m amplitude) bar (delta)-front cross-beds dipping at a low angle towards the SE. *Monocraterion* burrows occur but are uncommon. The development of trough and tabular cross-bedded, coarse-grained sandstone lenses, some containing pebbles and granules, within the upper part of the formation implies strong traction currents capable of producing scoured (erosional) surfaces. Much of the Elgol Sandstone Formation is silica-cemented.



Figure Strath 5.8: Cullaidh Shale Formation, Port na Cullaidh, Elgol. View towards the north. Pole c. 1m long.



Figure Strath 5.9: Thin basaltic sill within the Cullaidh Shale Formation, Port na Cullaidh, Elgol. Pole c. 1m long.



Figure Strath 5.10: Main outcrop of the Elgol Sandstone Formation, Port na Cullaidh, Elgol. View towards the east.

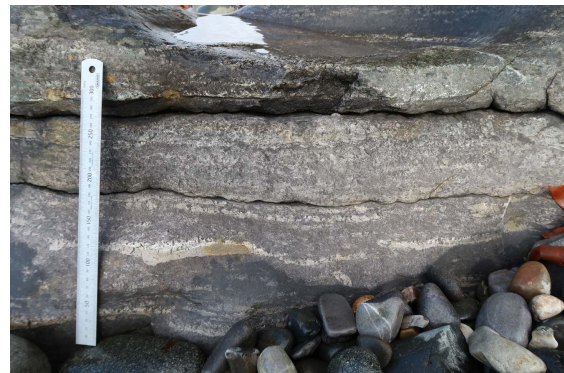


Figure Strath 5.11: Bioturbated sandstone in the lower part of the Elgol Sandstone Formation, Port na Cullaidh, Elgol. Ruler 30cm long.



Figure Strath 5.12: Honeycomb-textured interval in the Elgol Sandstone Formation, Port na Cullaidh, Elgol. Pole c. 1m long.



Figure Strath 5.13: Large-scale bar (delta)-front cross-beds within the Elgol Sandstone Formation, dipping at a low angle towards the SE, Port na Cullaidh, Elgol.



Figure Strath 5.14: Cross-bedding within the Elgol Sandstone Formation, Port na Cullaidh, Elgol. Pole c. 1m long.

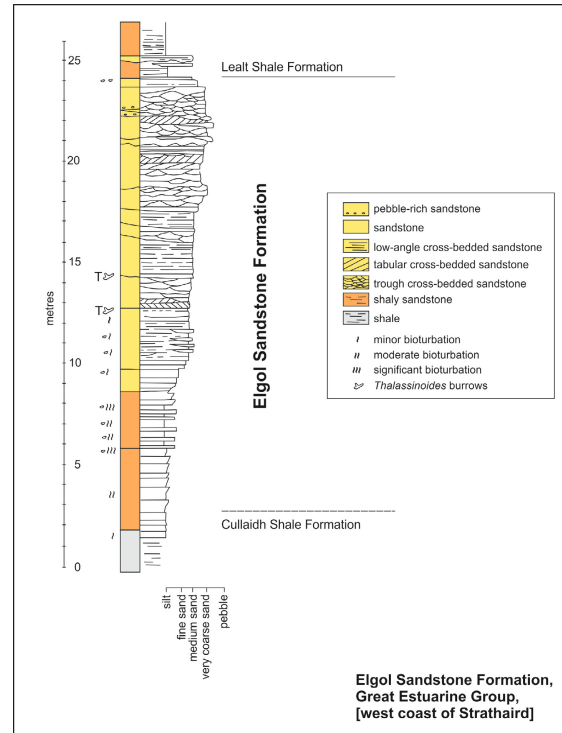


Figure Strath 5.15: Stratigraphic log for the type-section of the Elgol Sandstone Formation, Port na Cullaidh, Elgol.

Proceed c. 300m north into the next small bay. The best access to this bay is via a faint footpath above the boulder-covered beach.

Locality 4 [\[NG 5170 1410\]](#):

On entering the south side of the bay, the Elgol Sandstone Formation gives way, abruptly, to the overlying Lealt Shale Formation, comprising the (lower) Kildonnan Member and the (upper) Lonfearn Member. Brackish-water (variable salinity) fossiliferous shales and thin limestones (biosparites and oolites) are dominant, with bivalves, gastropods, ostracodes and conchostracans (clams/shrimps). At the base of the cliff in the middle of the bay is a small outcrop of Paleocene breccia, containing fragments of Jurassic sandstone, shale and limestone, together with dolerite and porphyritic basalt. A few metres south of this outcrop, the sequence of limestones and shales contains a distinctive unit, a stromatolite/algal bed, at the top of the Kildonnan Member, which helps to locate position in the sequence.

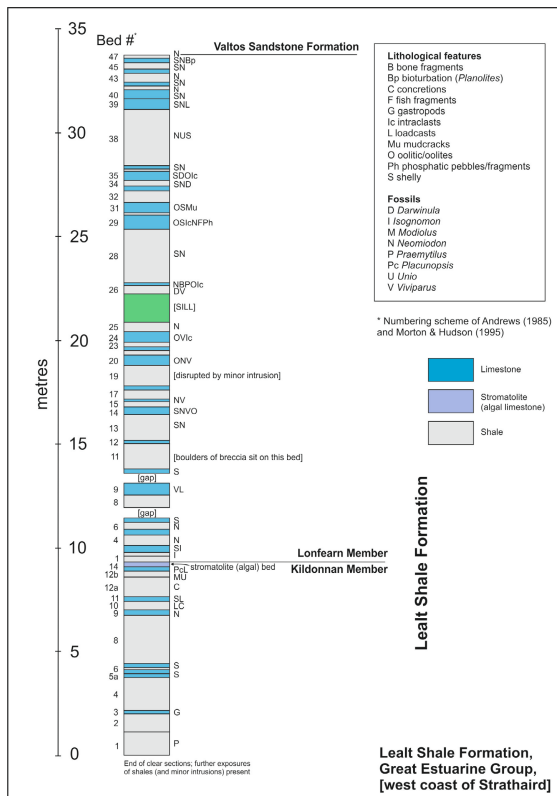


Figure Strath 5.16: Stratigraphic log for the Lealt Shale Formation, north of Port na Cullaidh, Elgol.



Figure Strath 5.17: Paleocene breccia with blocks of Jurassic strata, basalt and dolerite, on coast north of Port na Cullaidh, Elgol. Pole c. 1m long.



Figure Strath 5.18: Stromatolite (algal bed) at top of Kildonnann Member, Lealt Shale Formation, north of Port na Cullaidh, Elgol. Coin c. 24mm across.



Figure Strath 5.19: Bedding surface of stromatolite at top of Kildonnann Member, Lealt Shale Formation, north of Port na Cullaidh, Elgol. Pole c. 1m long.



Figure Strath 5.20: Limestone in Lonfearn Member of Lealt Shale Formation, south of first promontory, north of Port na Cullaidh, Elgol. Ruler 30cm long.



Figure Strath 5.21: Limestone in Lonfearn Member of Lealt Shale Formation, south of first promontory, north of Port na Cullaidh, Elgol. Ruler 30cm long.



Figure Strath 5.22: Paleocene dolerite intrusion in Lonfearn Member of Lealt Shale Formation, south of first promontory, north of Port na Cullaidh, Elgol. Pole c. 1m long.

Continue along the beach and out of this small bay (for c. 300m). The Lealt Shale Formation grades upwards, with a somewhat arbitrary boundary, into the Valtos Sandstone Formation.

Passing the headland ('First Promontory') to the north is tide-dependant, and is dominated by Paleocene dykes of the NW-SE –trending regional swarm.

Locality 5 [\[NG 5170 1477\]](#):

The Valtos Sandstone Formation on Strathaird is dominated by sandy limestones. The distinctive concretions of the Formation, common in north Skye and elsewhere, are absent. The thickness of the formation is poorly defined, most likely <25m. Mud cracks are commonly preserved on upper surfaces of individual beds, whereas load casts may be identified on basal surfaces, with good *in situ* examples just north of the dyke-intruded promontory, together with various (fallen?) slabs. Bioturbation is relatively common, as are poorly developed/preserved cross-bedding and careous weathering surfaces. The small sea stack at the promontory [\[NG 5164 1470\]](#) is composed of a thick, sandy limestone, close to the top of the formation.

Approximately 100m beyond (north of) the stack, a NW-SE -trending composite dyke crops out on the beach. The marginal non-porphyrific basalt units are approximately 1m wide and flank a central portion of basalt containing megacrysts (up to 3cm) of plagioclase. Sulphides are disseminated throughout the central portion of the dyke. A few metres north of this dyke are excellent exposures of the Duntulm Formation.



Figure Strath 5.23: Valtos Sandstone Formation forming the first promontory north of Port na Cullaidh, Elgol. View is towards the east.

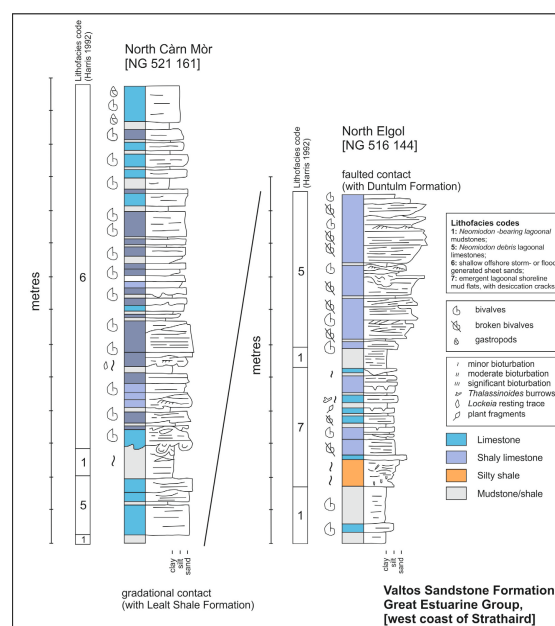


Figure Strath 5.24: Stratigraphic log for the Valtos Sandstone Formation at the First Promontory north of Port na Cullaidh, Elgol, and north of Càrn Mòr.



Figure 5.25: Valtos Sandstone Formation intruded by Paleocene NW-SE -trending dolerite dykes of the regional swarm, forming the First Promontory north of Port na Cullaidh, Elgol. View towards the north.



Figure Strath 5.26: Moulds of desiccation cracks in Valtos Sandstone Member, at First Promontory north of Port na Cullaidh, Elgol. Pole c. 1m long.



Figure Strath 5.27: Casts of desiccation cracks in Valtos Sandstone Formation at First Promontory north of Port na Cullaidh, Elgol. Pole c. 1m long.



Figure Strath 5.28: *Neomiodon* in bioclastic limestone in Valtos Sandstone Formation, north of First Promontory, north of Port na Cullaidh, Elgol. Ruler 30cm long.



Figure Strath 5.29: Detail of *Neomiodon* in bioclastic limestone in Valtos Sandstone Formation, north of First Promontory, north of, Port na Cullaidh, Elgol. Ruler 30cm long.

Continue north to another westward protrusion of the coastline, the Second Promontory, dominated by multiple dykes immediately south of the waterfall at [\[NG 5165 1467\]](#), and which forms a barrier at high tide.

If judged to be impassable, it may be possible to access the clifftop path via the steep grassy bank between the two promontories. If judged not to be possible, return to Elgol and follow the path on the west side of [Bidein an Fhithich](#) at [\[NG 5183 1434\]](#) (1km return to Elgol, 2km walk north along path).

Regain the beach north of the Second Promontory.

Locality 6 [\[NG 5170 1477\]](#):

The Bathonian Duntulm Formation consists of an alternating sequence of marine-brackish shales and marine limestones comprising monotypic shell accumulations/banks of the distinctive small oyster, *Praeexogyra hebridica*, which developed on the drowned deltaic sequence of the Valtos Sandstone Formation. The shales may have been deposited as calcareous muds on the lee (protected) side of the lagoonal oyster banks. Within this sequence there are thin stromatolitic algal limestones, interpreted to have formed in a supra-littoral shore fringed by an algal marsh. The boundary with the overlying Kilmaluag Formation is somewhat transitional and is located above the uppermost oyster shell-dominated limestone.

The Bathonian Kilmaluag Formation consists of a highly variable sequence of climatically-controlled, sublittoral lagoonal-mudflat-channel calcareous shales and mudstones, muddy limestones and dolostones.

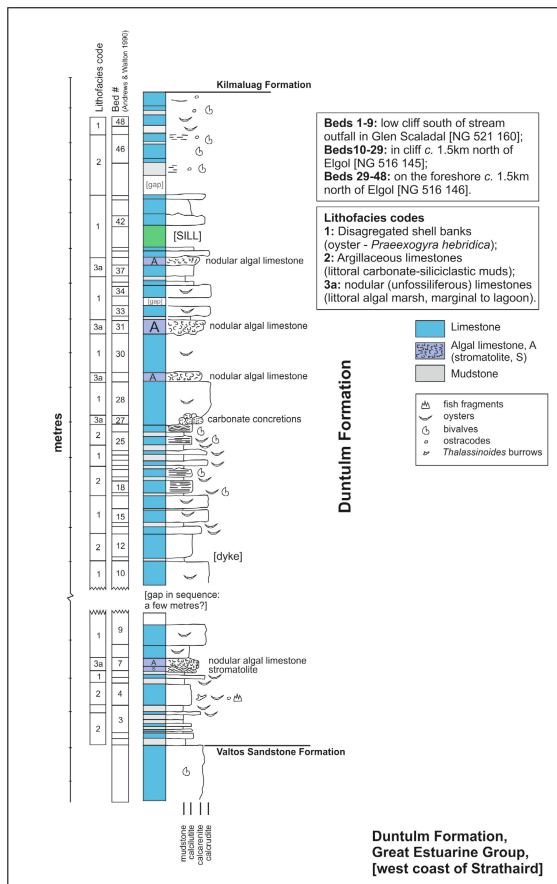


Figure Strath 5.30: Stratigraphic log for the Duntulm Formation from various exposures north of Elgol.



Figure Strath 5.31: Coastal panorama north of Second Promontory, north of Port na Cullaidh, Elgol, composed of Duntulm Formation strata.

Locality 7 [\[NG 5172 1483\]](#):

The overlying Bathonian Skudiburgh Formation crops out extensively north of the waterfall, north of the Second Promontory, and consists of mottled silty mudstones, siltstones and sandstones deposited in various alluvial environments: channel, overbank and floodplain. These strata have been thermally altered by the myriad of dykes that intrude the sequence, together with the substantially larger intrusions of the central complex, further north. These strata have a purplish-red or green coloration, are non-fossiliferous, and constitute the highest formation of the Great Estuarine Group.

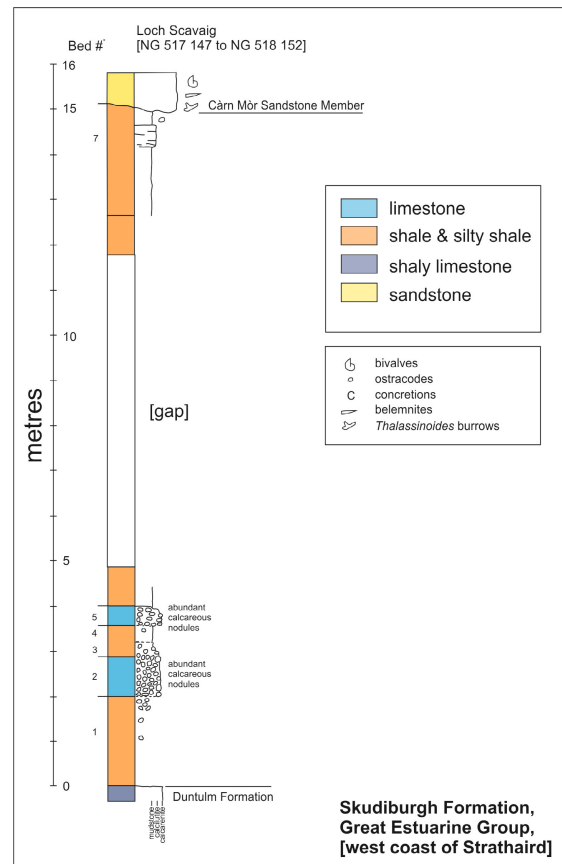


Figure Strath 5.32: Stratigraphic log for the Skudiburgh Formation from various exposures south of the Càrn Mòr Landslip.

Above, and further to the north, is a coarse marine sandstone, the Càrn Mòr Sandstone of the Staffin Bay Formation. Fallen blocks of this sandstone may be examined on the beach and contain brachiopods of the rhynchonella type.

Gain the cliff-top path, if safe to do so, by scrambling up the grassy slope behind the beach, keeping well away from rock faces. This should not be attempted if considered to be beyond your ability.

Proceed along the path to the southern end of the [Càrn Mòr Landslip](#) at [\[NG 5204 1548\]](#). Here, the sequence, exposed from the beach below to the crags above, consists of: Kilmaluag Formation (at sea-level); the Skudiburgh Formation; the Càrn Mòr Sandstone Member of the Staffin Bay Formation; and, the Tobar Ceann Siltstone Member of the Staffin Shale Formation. The path is at the level of the Skudiburgh Formation-Càrn Mòr Sandstone Member boundary. The boundary between the Càrn Mòr Sandstone Member and the Tobar Ceann Siltstone Member can be examined at the level of an upper path, c. 50m further up the slope.

The sandstones, siltstones and shales of the Tobar Ceann Siltstone Member contain abundant belemnites at this locality, and these can be seen in blocks within the screes adjacent to the path. The main *in situ* material occurs above the Càrn Mòr Rockfall, a rock slope failure similar

to those on Trotternish in north Skye. The failure is a significant post-glacial feature, involving the seaward collapse of the overlying plateau lavas and is, today, still unstable, with the development of a scree cone of lava debris. Do not go near any unstable landslipped material.

Follow the upper path north to [Glen Scaladal](#).

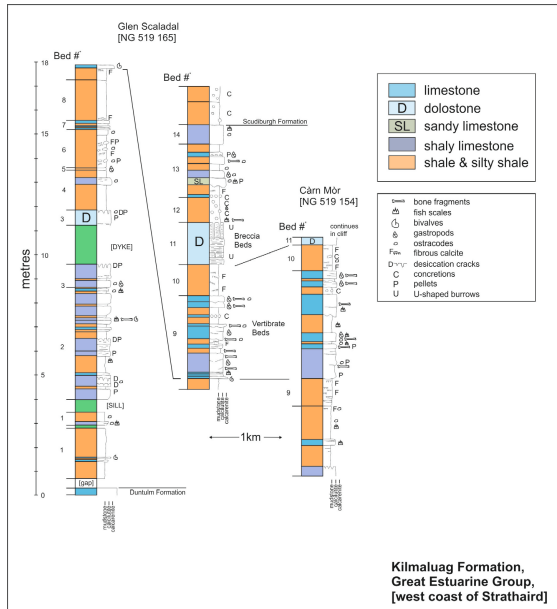


Figure Strath 5.33: Stratigraphic log for the Kilmaluag Formation from exposures at Càrn Mòr and the coast at Glen Scaladal.



Figure Strath 5.34: The Càrn Mòr Landslip, south of Glen Scaladal. View towards the east.



Figure Strath 5.35: The Càrn Mòr Landslip, between Elgol and Glen Scaladal. View towards the north.



Figure Strath 5.36: Back face of the Càrn Mòr Landslip, composed of basaltic lavas intruded by basic and ultrabasic dykes, the latter weathering with a red coloration.



Figure Strath 5.37: Tobar Ceann Siltstone Member of the Staffin Shale Member, at southern end of Càrn Mòr cliffs, between Elgol and Glen Scaladal.



Figure Strath 5.38: Detail of Tobar Ceann Siltstone Member of the Staffin Shale Member, at southern end of Càrn Mòr cliffs, between Elgol and Glen Scaladal. Pole is c. 1m long.



Figure Strath 5.39: Detail of Tobar Ceann Siltstone Member of the Staffin Shale Member, at southern end of Càrn Mòr cliffs, between Elgol and Glen Scaladal. Ruler scale at bottom.

Locality 8 [\[NG 5206 1618\]](#):

The coastal cliffs and the shore platform on the south side of [Glen Scaladal](#), at [Cladach a' Ghlinne](#), are composed of rocks of the Valtos Sandstone Formation. At this locality they are dominated by alternating beds of (dark) shale and fine-grained calcareous sandstone intruded by regularly spaced Paleocene dykes of the NW-SE -trending regional swarm. Load-cast structures are common at the bases of the sandstones. Within the shales are *Planolites* burrows and layers rich in the shells of the bivalve, *Neomiodon*. Fibrous calcite lenses are common within the shales and are a diagenetic product. South of the mouth of the Scaladal Burn, a light grey, shelly limestone (biosparite) (c. 1m thick), containing the gastropod *Viviparus (scoticus)* - a brackish to fresh-water snail, forms a prominent feature running out to sea.



Figure Strath 5.40: Glen Scaladal, with a conspicuous raised platform inland from the present-day pebble and cobble beach, and the north side of Ben Cleat. View towards the SE.



Figure Strath 5.41: Glen Scaladal and the north side of Ben Cleat, with coastal crags composed of Kilmaluag and Skudiburgh formations strata. View towards the NE.

Cross over the raised marine deposits, east of the present-day beach, to the base of the coastal cliffs north of [Glen Scaladal](#).

Locality 9 [\[NG 5193 1655\]](#):

On the beach and in the cliff, the freshwater to lagoonal Kilmaluag and fluvial Skudiburgh formations are again exposed.



Figure Strath 5.42: North side of Glen Scaladal at Cladach a' Ghlinne and Beinn Leacach. The summit of Blà-bheinn ('Blaven'), on the eastern side of the Cuillin Intrusive

Centre, is located to the north (left-hand side of view). View towards the NE.

Skull bone fragments of mammal and mammal-like reptiles have been identified from the limestones within this sequence of the Kilmaluag Formation (see Figure Strath 5.33), the so-called Vertebrate Beds, along with shells of the brackish to freshwater snail, *Viviparus*. These limestones commonly have irregular bases, attributed to a combination of water-induced scouring and the growth of diagenetic concretions. The Breccia Beds weather to a distinctive brown-yellow and their clastic texture may be due to desiccation of original mud. The pipe-like structures may be burrows.

From here, either return along the cliff-top path to [Elgol Pier](#), or, proceed to Locality 10 by walking SE up the grass-covered southern side of [Glen Scaladal](#) to the saddle/valley between [Ben Cleat](#) and [Ben Meabost](#). From here, note the plateau lava sequence on [Beinn Leacach](#), on the north side of [Glen Scaladal](#). Several units can be identified from the step-like (trap) topography that has developed. Typically, the hard centres of these lavas stand proud, whereas the softer bases and tops are inweathered.

Follow the rough track on the SW side of the valley between [Ben Cleat](#) and [Ben Meabost](#) over poorly exposed lavas to a point a few metres NW of the highest point of the saddle.

Locality 10 [\[NG 5279 1576\]](#):

Forming a distinctly rounded, or *whaleback*, ridge, approximately 15m long and 4m wide, a xenolithic ultrabasic dyke constitutes the only significant exposure in the low ground between [Ben Cleat](#) and [Ben Meabost](#). It is a member of the Ben Cleat group of ultrabasic dykes and is characterised by numerous cognate xenoliths of feldspathic peridotite and troctolite ('allivalite') up to 30cm across. Continue c. 450m SSW over plateau lavas to the summit of [Ben Cleat](#).

Locality 11 [\[NG 5239 1533\]](#):

Close to the summit of [Ben Cleat](#), other members of the Ben Cleat group of ultrabasic dykes crop out. The one c. 80m east of the summit trends N-S, is up to 5m wide, and is exposed for at least 200m along its length. The second dyke, c. 60m west of the summit, is also 5m wide, has a similar trend, and can be traced for over 300m south towards [Cnoc Breac](#). This dyke is less-obviously xenolithic than the others. These dykes are readily distinguished from the more common basalt (*s.l.*) and dolerite dykes of the Skye Regional Dyke Swarm by their rounded, bulbous forms and brownish-orange coloration.



Figure Strath 5.43: Xenolithic ultrabasic dyke east of the summit of Ben Cleat. Iain Allison for scale.



Figure Strath 5.44: Detail of xenolithic ultrabasic dyke east of the summit of Ben Cleat. Ruler 30cm long.

Continue south, via [Cnoc Breac](#), down the grassy slopes over poorly exposed Jurassic strata in the lower ground, to the road close to the corrugated building (formerly a Free Presbyterian Church).

From here, it is c. 1.5km (1 mile) to the car park at the [Elgol Pier](#).

End of excursion.

Log figures partly based on summary logs in:

Morton, N. & Hudson, J. D., 1995. Field guide to the Jurassic of the Isles of Raasay and Skye, Inner Hebrides, Scotland. In: P. D. Taylor, ed. *Field geology of the British Jurassic*. The Geological Society of London: s.n., pp. 209-280.