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## 3 Smoo Cave

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The archaeological investigation in Smoo Cave involved the cutting back, sampling and recording of an eroding section around 17.5m long prior to the construction of a protective wall along it, and was carried out over four days in March 1992. The construction of a causeway ([Illus 1](#)) to allow visitors to walk from the main cave to the smaller, adjoining chamber had inadvertently diverted the course of the Allt Smoo. At times of heavy rain or snow melt, the obstruction created by the causeway caused the river to flow directly alongside archaeological deposits lying near the cave's mouth at its eastern side. The erosive action of the river exposed these deposits and, over several years, washed away a considerable quantity of material. In an attempt to curtail the erosion, a revetting wall was to be constructed against the face of the archaeological deposits. In order to ensure that the wall sat flush against the deposits, they were to be cut back along several planes, a process which provided the opportunity to examine their nature and remove samples for further analysis.

### 3.1 Background and methodology

The first aim of the work was to carry out a theodolite survey of the main cave, recording the location and visible extent of the archaeological deposits on the plan produced ([Illus 1](#)). In order to understand the nature and extent of the deposits, the eroding face was first cleaned and drawn. This initial section drawing is not reproduced here, as in many respects it closely resembles the final drawing. However, several ephemeral features present in the initial section did not survive a further trowelling. These included a cut pit (015), which may have been a post-hole, and the remnants of a possible hearth (012).

After recording the eroding section, the process of cutting back the face began. In order to accommodate the revetting wall, while at the same time removing as little material as possible, the section face was cut back on three planes, shown on [Illus 1](#).

The Highland Region Sites and Monuments Record gave the dimensions of the midden as 3m in diameter by 0.2m high. cursory examination of the site soon established that this was a considerable underestimate of the scale of the deposits. The exposed midden face was found to extend southwards into the cave for some 17m, with deposits possibly several metres in depth stretching back for at least 8m towards the eastern wall of the cave.

The area around a natural pillar in the north-eastern part of the cave and a small recess in the

northern curve of the cave wall ([Illus 1](#)) were occupied by a flat-topped mound which rose for well over a metre above the top of the eroding section. Marine shells were observed eroding from the humic soil which covered this mound, and a sondage rapidly excavated on its top and western slope established that archaeological deposits, consisting of shells and concentrations of charcoal, lay about 0.30m below the surface. It also became apparent, after initial cleaning back of the section, that the shell midden was not the only evidence for archaeological activity inside the cave; deposits below the shell midden provided convincing evidence for several occupation horizons.

Time constraints did not permit an assessment of the deposits' full extent as this would have involved extensive trial trenching. The presence of marine shells eroding onto the cave floor seemed at first to suggest that the deposits roughly corresponded with the extent of the mound. However, limited excavation later revealed that earlier archaeological deposits are stratified beneath the present floor of the cave, and these may extend beyond the edges of the mound.

It was immediately apparent that the threatened section was in a seriously denuded state. Recently collapsed portions of the exposed face covered the narrow pebble beach, which at the time separated the midden from the river. However, during the course of the work, with several days of only moderate rain, the water level rose dramatically. At its highest point the river was observed flowing along the base of the section, totally submerging the pebble beach.

### 3.2 The Smoo Cave section

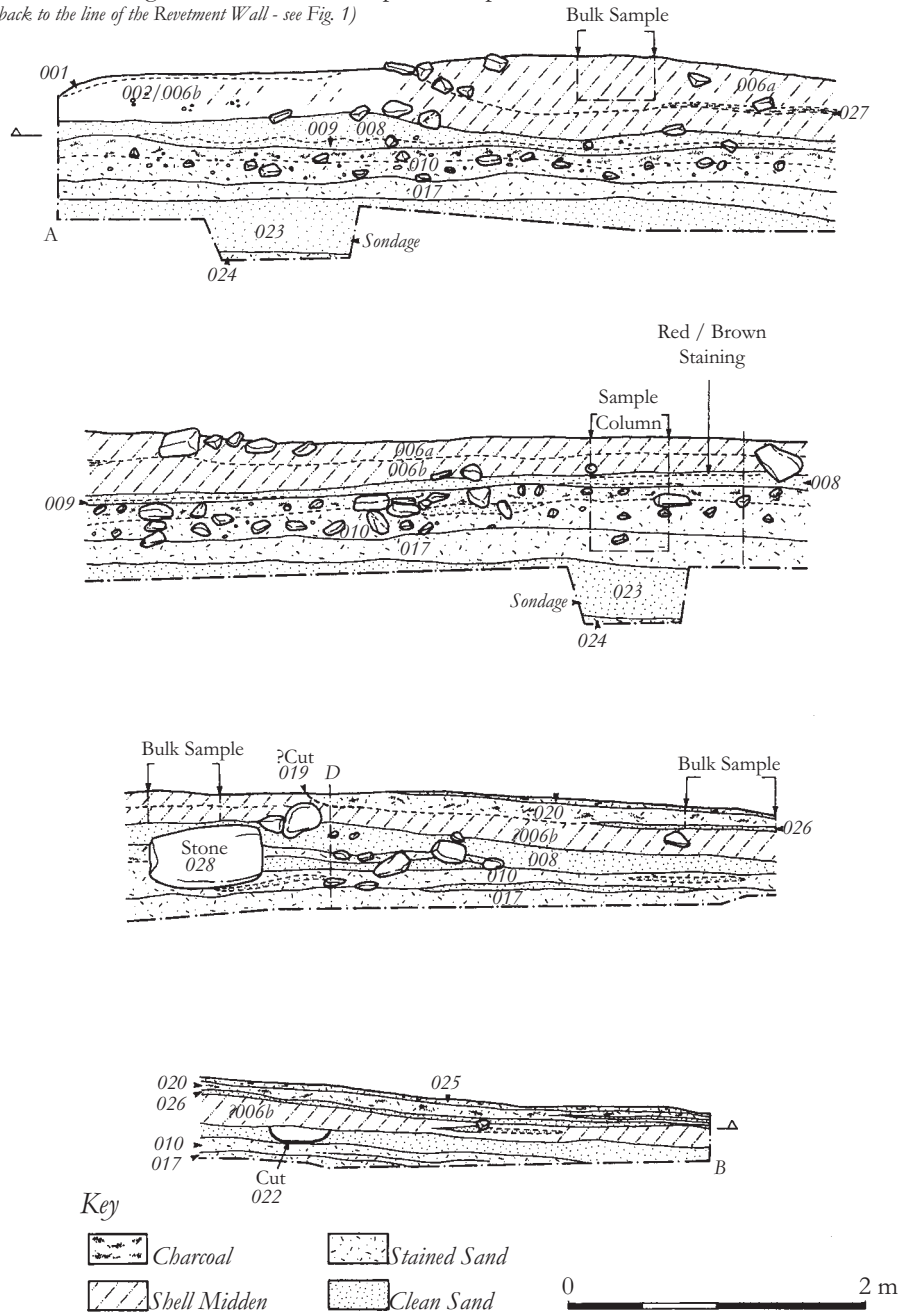
The following discussion of the section investigated in Smoo Cave moves from the latest deposits to the earliest; [Illus 3](#) illustrates the section.

The upper layers in the section (contexts 006a and 006b) consisted of large numbers of shells in a matrix of dark, organic-rich sandy soil. The uppermost layer (006a) comprised shells (mostly limpets and winkles) in a dark brown sandy matrix and was c 0.2–0.3m deep for most of its length. However, towards the northern end of the section ([Illus 3](#), point A), this deposit was considerably deeper, and in the initial section there was some suggestion of a cut pit which had been filled with shells. Again, this feature did not survive more than the initial clean, but after the section had been cut back the northern side of this cut was still evident and can be seen in [Illus 3](#), where the upper deposit (006a) rises to the surface.

# SMOO CAVE

## Section through the Midden & Occupation Deposits

(cleaned back to the line of the Revetment Wall - see Fig. 1)



Illus 3 Smoo Cave: section through the midden and occupation deposits

Underlying the deposit (006a) was another shell midden layer (006b), which on initial cleaning appeared to be the same as context 006a but proved to contain more charcoal and represented an earlier phase of deposition. A thin, charcoal-rich layer (027), devoid of shells, lay between the two midden deposits.

The upper shell midden layer (006a) terminated towards the southern end of the section, giving way to a deposit of dark greasy soil (020), containing butchered animal bone, which lay in a shallow cut (019). This was overlain by a thin spread of a similar soil with a higher charcoal content (025).

Beneath the lower shell midden layer (006b) was a deposit of reasonably clean yellow sand (008) which may have been deposited by wave action during marine inundation of the cave some time in the past. Such inundations are still a regular occurrence, with northerly winds and spring tides carrying waves into the back of the cave. It is difficult to establish when this inundation took place or how long it lasted. Immediately below the marine sand (008), though not visible throughout the entire section, was a thin band of grey sand (009), which may have been stained as a result of human activity.

A hearth or firepit (021), extremely rich in charcoal, lay towards the southern end of the section. Birch and hazel charcoal from this feature provided a radiocarbon date which falls within the range cal AD 780–1020 (GU-4545) at the 2-sigma level of confidence. The charcoal sat in a cut (022) in the marine sand (008). It thus appears to represent activity on the waterborne sandy surface (008) just before the shell midden (006b) began to accumulate. The thin bands of washed sand – including context 026, sandwiched between the lower shell midden layer (006b) and the charcoal-rich layer (020) – are perhaps more likely to represent riverine deposition (by the Allt Smoo) than marine inundation.

Lying beneath the marine sand (008) and the grey sand (009) was a deposit of water-rolled and fractured stones with some gravel and pebbles (context 010). Most of these stones probably represent a natural beach surface, with the stones smoothed and rounded by the action of the waves. However, this beach surface had seen intensive human activity, as evidenced by bands of dark humic sandy soil and frequent charcoal. Discolouration caused by human occupation was most obvious in the upper part of the beach deposit (010), but there were also clear archaeological horizons in its lower levels. Artefactual material, including butchered bone and possibly struck stones, was found throughout it. Marine shells were also present, but in nowhere near the numbers present in the shell midden (006).

Some of the larger stones in the beach deposit (010), including Boulder 028, may represent structural features, but it was not possible to substantiate this from the section alone. However, it is interesting to note that the possible post-hole (context 016), which was visible only in the initial section and is not illustrated, actually sat next to Boulder 028, which only became visible once the section was cut back. Their proximity strengthens the argument that the boulder represented a structural element, perhaps part of a wall, and helped to brace the post that stood in Post-hole 016.

The lower levels of beach deposit (010) merged with a substantial deposit of laminated sands (017), again representing successive episodes of marine inundation. The upper levels of these sands were heavily stained and contained both charcoal and butchered animal bone, once more providing evidence for human activity.

In order to establish the full depth of deposits, two small sondages were dug along the base of the section (see [Illus 3](#)). These revealed a layer of clean, washed sand (context 023) 0.65–0.8m deep, lying below stained sand (context 017) and representing a period when this part of the cave saw no human activity. Excavation of these sondages stopped where a surface was encountered that provided evidence for an earlier phase of human activity on the site; time did not permit excavation below this level. On the surface of a layer of heavily stained

sand (024) lay pieces of quartz, possibly chipped by human action, butchered animal bones and flecks of charcoal.

### 3.3 Summary and interpretation

The cleaning back and recording of the eroding section revealed considerable evidence for sequential phases of human activity.

The charcoal-stained, artefact-littered surface (024) encountered in the sondages provides evidence for the earliest known human activity in the cave (Phase 1), at a time when the cave floor was substantially lower than today. Unless the sea level was considerably lower than at present, marine inundation would then have been a more common occurrence than it is today. The thick layer of washed sand (023) sealing the surface was deposited over an unknown period of time by these incursions of the sea. Without dates or diagnostic artefactual material it is not possible to say when or over how long a period this sand accumulated. The absence of lamination within this deposit and the lack of identifiable soil horizons may suggest a single event such as the ‘tsunami’ type episode thought to be responsible for sand deposits investigated at Wick ([Dawson & Smith 1997](#)).

Following the inundation that deposited the sand, the cave saw another phase of human activity (Phase 2), evidenced by the charcoal and animal bone in a heavily stained sandy matrix (017). Subsequently, a stony beach deposit (010) formed during further human activity (Phase 3), which left behind abundant charcoal, animal bone and possible stone structural elements. After a further phase of inundation (context 008), a hearth was constructed (Phase 4). This was sealed by the charcoal-rich shell midden (006b) which was then overlain by another shell midden (006a). For the purposes of this report both phases of shell midden have been grouped together as Phase 5. The radiocarbon date from the hearth immediately below the lower shell midden deposit provides a *terminus post quem* of cal AD 780–1020 for its formation. Activity related to the shell midden may have continued into the medieval period. The final phase of activity was marked by the upper horizon (025), which consisted of dark greasy soil with a high charcoal content.

The presence of six main archaeological horizons is certainly a simplified breakdown of the stratigraphy. As became obvious with the later phase of work in the other caves, the real picture is likely to be a great deal more complicated, with various layers separated by thin lenses of both clean and stained sands, the discolouration of the latter probably the result of human activity. With only the section recorded, it is very difficult to offer a more complex interpretation of these deposits.