

### **1. SUMMARY**

The sand in the upper reaches of the beach at Ganavan Sands was affected by a number of storm events between early December 2011 and January 2012.

The outcome of these storm events was that the sand from the upper reaches of the beach was removed by extreme wave action exposing the shingle and cobble foundation.

A number of site visits to ascertain the effects of the storms were carried out commencing on 19<sup>th</sup> January 2012 to photograph and assess what we needed to survey and to determine the right time in terms of the tides. A second visit to carry out a field survey at low tide took place on 26<sup>th</sup> January 2012.

We contacted Stewart Angus, Coastal Ecologist for SNH and Mark Williams, Inshore Hydrographer for SEPA for expert advice, they said that *'removal and deposition of sand on beaches is a natural process and it is possible that the beach will eventually recover'* and *'to interfere with the natural process is considered a waste of resources and could do more damage to the integrity of the beach in the long term'*.

A third visit was made to the Ganavan Sands on 8<sup>th</sup> March 2012 to photograph any changes.

The images in **Appendix 1** show that at least 2/3's of the sand has returned.

### **2. RECOMMENDATION**

It is recommended that Members:

- (i) Note the content of the report; and
- (ii) Agree to this report

### **3. BACKGROUND**

Ganavan Beach is a popular destination with locals and visitors. It is well used all year round for walking, recreation and swimming.

Recent storm events exposed the underlying shingle/cobble habitat on the upper shore, this attracted front page press in the Oban Times followed by numerous offers of assistance to return the sand.

Shingle and cobble are characteristic of this type of beach as these elements act as an extremely important foundation. They support the upper sandy layer and assist with withdrawing wave energy, therefore protecting the beach and limiting erosion of coastal protection. The map **Appendix 2** is taken from a Nature Conservancy Council report in 1972 which shows the distribution of sand, cobble and shingle in an almost identical layout following the winter storms

#### 4. Options

##### Should anything be done to try and restore Ganavan beach?

The table below summarises the potential implications that should be considered in deciding whether any action is necessary or to try and help restore Ganavan beach or whether the beach should be left to recover naturally.

Action	Implications	Consents required	Recommendation
Remove sand from the lower shore and place on upper shore	Removing sand from the lower shore will increase overall wave energy on the lower and upper shore and therefore increase the risk of removal of sand from the beach.	Marine Licence Crown Estate Consent	Not a viable option as would increase the risk of erosion of sand on the upper shore of bay.
Remove cobble/shingle from upper shore	This habitat absorbs wave energy and stabilises the whole beach system. Removal would lead to instability of the shore, greater removal of sand and increased risk of erosion to coastal defences.	Marine Licence Crown Estate Consent	Not a viable option as likely to result in deterioration of beach and coastal defences.
Remove seaweed from upper shore	Seaweed is a natural part of the beach system and actively traps sand on the upper shore, promoting a natural accumulation of sand. Eventually seaweed can become covered in sand which traps nutrients and moisture under the sand and promotes the growth of coastal plants which in turn stabilises the sand.	Might need Marine Licence Crown Estate Consent	Not recommended as removal has potential to reduce the ability of the upper shore to retain and accumulate sand.
Bring in sand from elsewhere	Risk of bringing in other species that are not wanted or not native. Most supplies of quarried sand would be granite which is likely to be much coarser and more angular which would have implications for animals living in the sand. Granite sand would be more acidic than Ganavan sand which would increase risk of weed problems on upper shore. Potentially less damaging to beach dynamics than moving sand or removing cobble/shingle but still not considered an appropriate option..	Marine Licence Crown Estate Consent	Not recommended as an expensive option and not environmentally friendly in terms of biodiversity.
Leave the beach to recover naturally	Risk of recovery taking a long time or not happening at all.	No consents needed.	Best option. No environmental impacts or financial costs.

**5. CONCLUSION-**

Given time as has been clearly demonstrated by the images in Appendix 1, the sand at Ganavan Sands is returning, how long it will take to cover the remaining Cobbles and Shingle remains with the natural processes that this stretch of coastline is subject to.

**6. IMPLICATIONS-**

The implications of interfering in the natural process will come with a cost in terms of time, licensing, suitable sand, machinery and labour. This is not recommended as the council could set a precedent to react without investigating whether any action would interfere with the natural recovery, is required or sustainable.

**Legal:** None.

**Policy:** *None*

**Personnel:** None.

**Financial:** None

**Equal Opportunities:** None.

**For further information contact:**

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**Appendix 1. Photographs showing that the sand is returning.**

Ganavan Sands 26 January 2012 and 08 March 2012



Image take 26 January 2012



08 March 2012



26 January 2012



08 March 2012



26 January 2012



08 March 2012



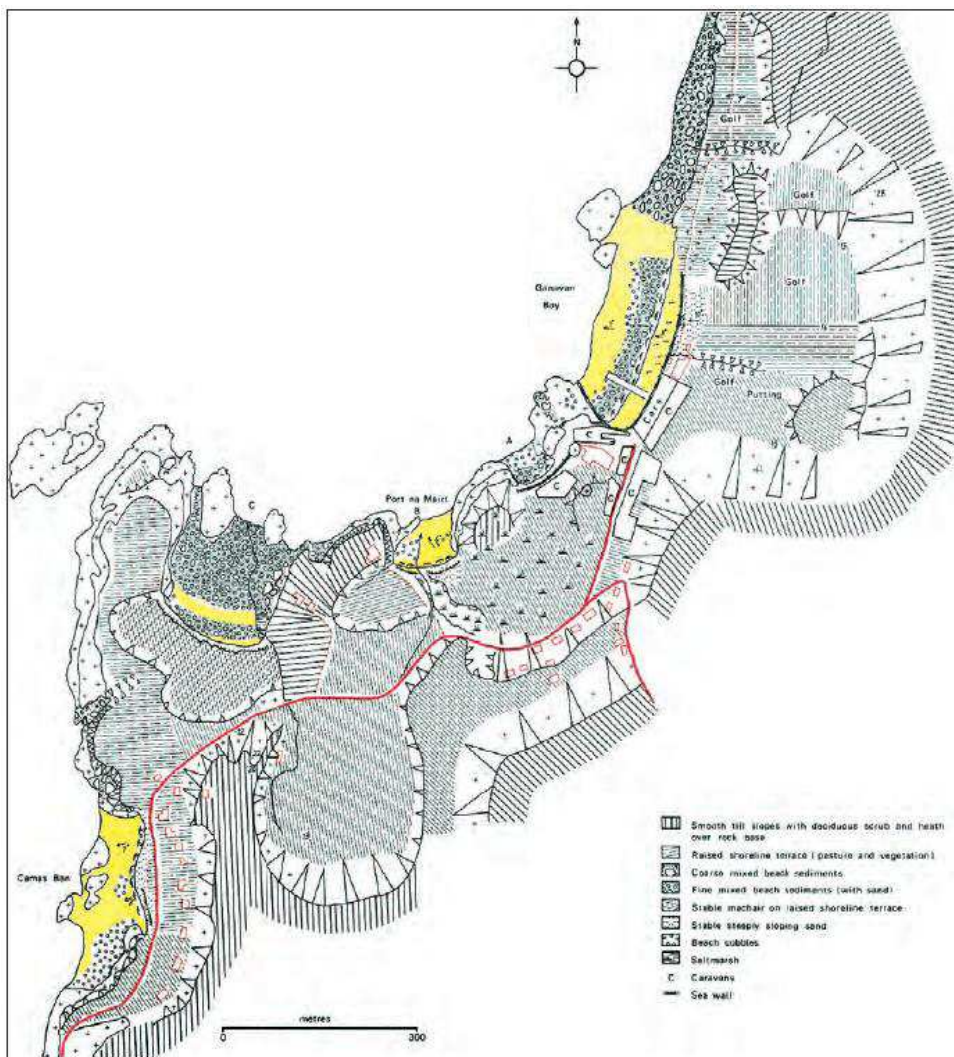
26 January 2012



08 March 2012.

Images by:  
Marina Curran-Colthart Local Biodiversity Officer.

## Appendix 2.



Swells generated in the open water to the south of Mull are readily channelled to the coast through the Firth of Lorne. Considerable wave energy, therefore, reaches these beaches and enables the movement of sandy sediments between beach and offshore. There appears to be sufficient sand in the offshore reservoir, derived largely from the earlier marine erosion of rock cliffs and raised shoreline deposits, to fulfil the present requirements of the beaches.

None of the five pockets is formed entirely of sand; it either occurs as an admixture with coarser sediments or in distinct bands paralleling the shoreline. At Ganavan, sand is the predominant material occurring on a wide low angle beach in the form of surface ripples with a great deal of standing water at low-tide and on the upper beach over a width of 20m. In the former sector the sand is extremely stable. It is separated from the upper beach/backshore sand by two further sectors – the lower one a highly stable low angle beach of lag cobbles and blocks with large masses of seaweed and an upper sector of mobile gravels and small cobbles with a much steeper slope and a width of 32m. These coarser sediments are largely derived from the conglomerate bedrock and the raised shoreline deposits and act as a barrier to wave attack of the upper sandy sector. There is a marked contrast in the characteristics of the two sand sectors. Although both have a light brownish grey colour, the lower one is considerably finer (averaging 0.2mm), whilst the upper one is coarser (0.3mm) and less well sorted. The latter reaches a depth of >0.5m over the coarser sediments which form the beach base, has a low gradient and in parts has been colonised by anthropic vegetation which has enabled small embryo dunes to form. This sector is, therefore, the least stable and subject to the greatest anthropic pressure, but because it is protected by the coarser sediments down-beach has remained relatively stable.