

An aerial photograph of a coastal landscape. The foreground is a wide, sandy beach. In the middle ground, there are several dark, rocky outcrops or reefs. Behind these, the ocean extends to the horizon. The sky is a pale blue. The text "Sediment Veneers" is overlaid in large, black, sans-serif font across the upper portion of the image.

# Sediment Veneers

Southwest Marine Ecosystems

Nick Owen, Freelance Ecologist

# What is a veneer?

## Working definition

*"Sediment Veneer: A deposit of sediment on top of reef which is thin and/or mobile enough that sessile species can colonise and grow on the hard surface of the reef through or under the sediment veneer. Two geological components (reef and overlying sediment) combine their effects towards determining the community."*

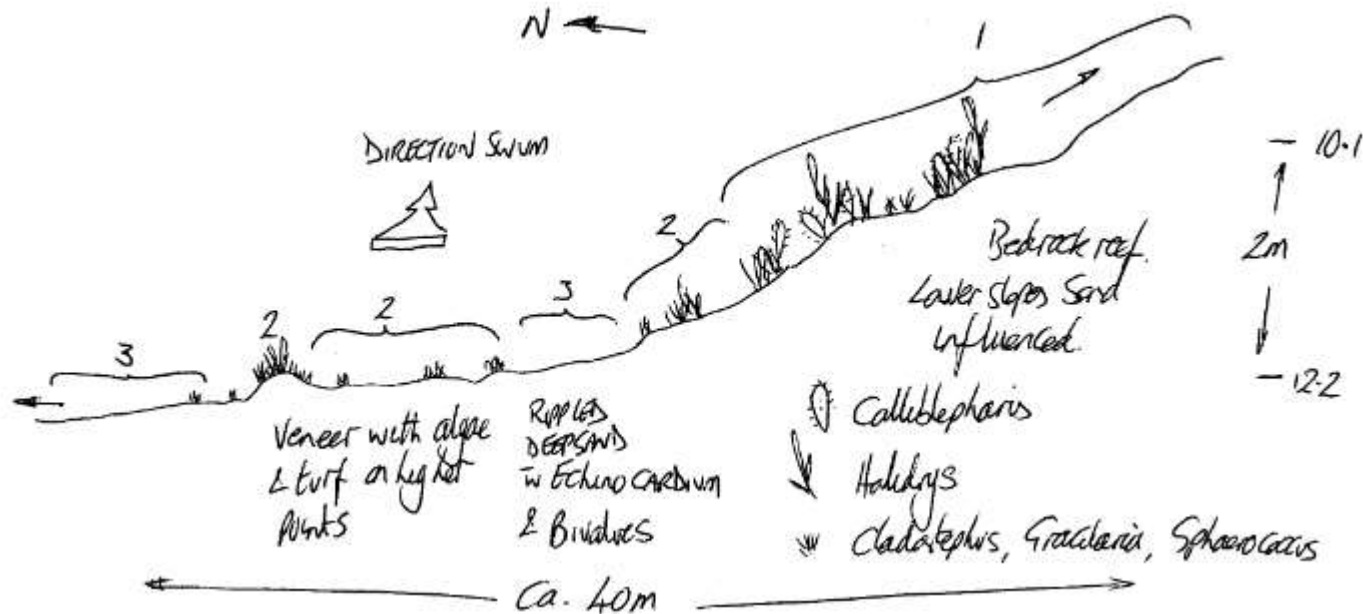
This is an expansion into ecology of a geological definition: **Veneer:** A thin, widespread layer of sediment covering an older surface.

Source: <https://theodora.com/geology/glossaryuv.html>



The diver's finger is touching bedrock through the layer of sand. The alga is growing on rock and is black scour weed (*Ahnfeltia plicata*) a long-lived red alga resistant to scour and to covering by sand. This clump has comb weed (*Plocamium* sp.) growing on it and the bryozoan *Electra pilosa*.

*Halopithys incurva* at Worbarrow Bay where a veneer forms a fringe to gently-sloping sand-influenced reef in second shot. Taken holistically, this site is a mosaic of 3 broad habitats with reef, sediment with life apparent and veneer.







N50 40.677 W02 52.781 The Smarties 20171008

# What we found



Many different (small-scale) habitats: Elevated reef (white), flat reef (yellow)  
Cobble/pebbles and muddy sand (pink), sediment veneer (red)

Interpretation Manual of European Union Habitats, Eur 28. April 2013. European Commission DG Environment. Page 13.

“Such hard substrata that are covered by a thin and mobile veneer of sediment are classed as reefs if the associated biota are dependent on the hard substratum rather than the overlying sediment”.

All the habitats in Slide 6 are ‘reef’ according to this definition.





Reef tops (white)



Boulder tops (pink)



Sediment veneer patches (yellow and red)





*Eunicella*, once established may persist in a quite deep veneer but is vulnerable to scour. After the stormy winter of 2013/14 Dorset Seasearch divers recorded many instances of mature *Eunicella* with living tissue eroded away from the base exposing the hard inner core.



20140607p Peter4 More pics of similar.



Eroded Seafan, Bouldery Ground June 2015

Close examination of macro pictures from 2014 and 2015 appeared to show tissue re-growing over the core





In the NE part of Lyme Bay, sheltered conditions and weak tidal streams as well as input from the River Britton give rise to very silty conditions. Silty Seafans in May and these pics 150628a The Eye show silt with carapace fragments over bedrock with Hydroids (*Hydrallmania*, *Halecium*) tunicates and *Alcyonidium* also Phoronidae indet., Spionids





In Lyme Bay thin silty veneers are often characterised by *Rocellaria dubia* with its hard siphons which can be felt in dense silty turf (non-veneer) but which turn up in macro pics of what looks like boring sediment. These give away the presence of rock underneath. Image 2 (Copyright K Hiscock) shows context for image 1. Image 3 is a gopro snapshot showing sediment depth on the same dive.



# Summary

- \* Sediment veneers are a 'Thing'. Hard surface + sediment act to determine community. Hard surface with no sessile species + sediment overlay = 'sediment on rock'.
- \* 'Hard surface' includes stony reef.
- \* Need to be recorded partly so that the biodiversity of UK seabed habitats can be better understood.
- \* Biotopes need to be written – data on occurrence of each veneer 'type' needed.
- \* Marine Recorder is not well-suited to recording veneers, nor can existing records be readily extracted.
- \* In Lyme Bay we have indications that veneers are accumulating diversity since BTG banned in 2008 and since winter 2013/14.
- \* Veneers should have protection as part of 'reefs'. At present this mainly happens by default where they occur within areas of protected reef.
- \* Divers are uniquely suited to recording veneers as they can interact with the sea bed and can get an idea of context during a dive.
- \* Habitat mosaics are important bases for healthy, biodiverse sea beds. Veneers are part of many rock-founded mosaics but are vulnerable to disturbance.
- \* Healthy, diverse seabed habitats are needed to support commercially exploitable species as well as to provide resilience to environmental changes e.g. global warming.
- \* More data needed!

Look what was lurking in a silt veneer of about finger depth off Beer in August 2018. *Atrina fragilis* is 'supposed' to occur in deep sediment. This shell was about 25mm across the gape. Is this a fluke?



Unfortunately this species is very rare and records of juveniles even rarer, so who can say? Note twinned *Rocellaria* siphons to left – protruding length suggests that this veneer has been deeper.



This is where the presentation ended. Five minutes was too short! A few more examples of veneer species and habitats follow. All Photos copyright Nick Owen unless stated.

*Adreus fascicularis* and some other erect sponges e.g. *Haliclona oculata* can tolerate silt/shell/ carapace fragment veneers. *Adreus fascicularis*, 20180818a Beer Fans 2827

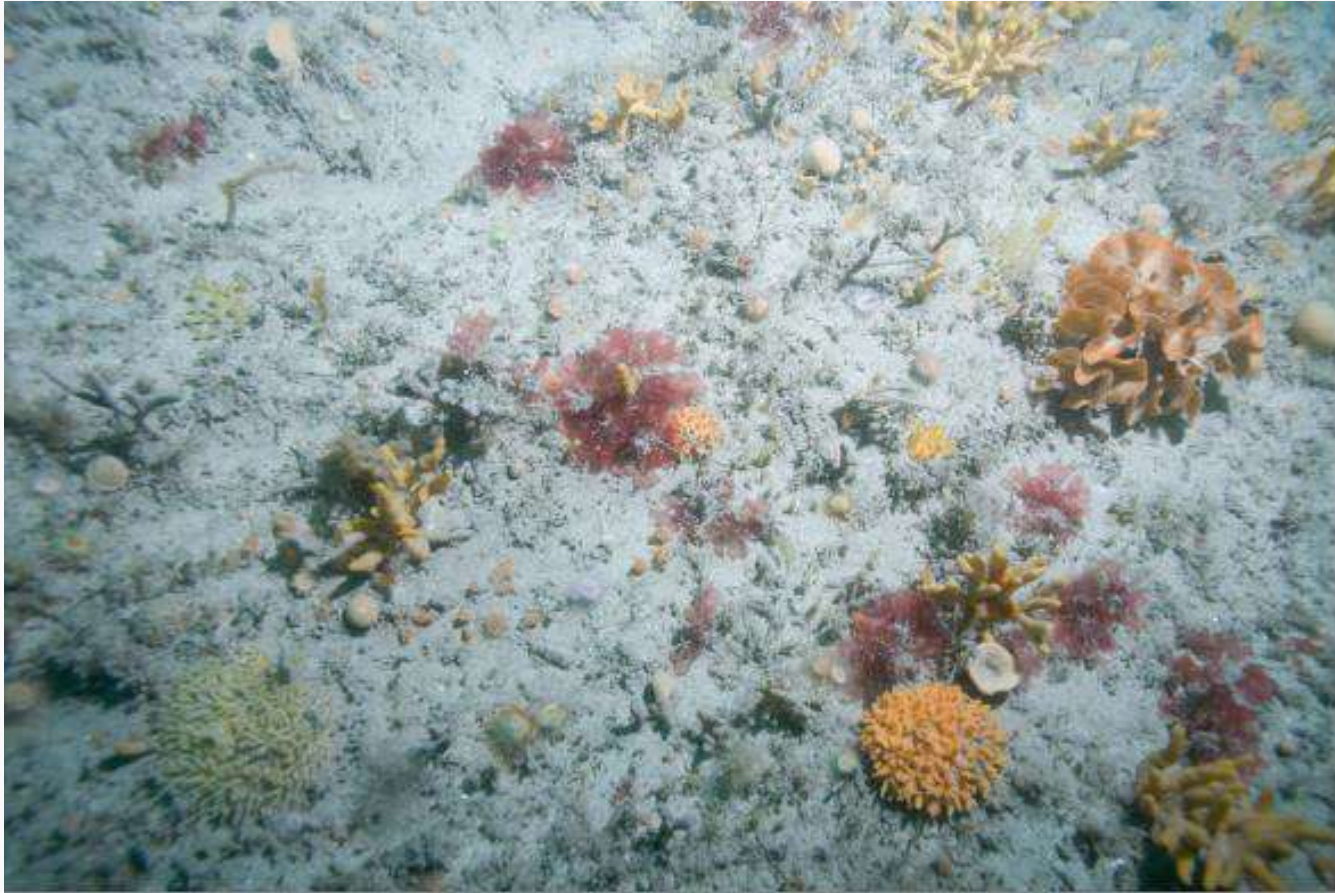


IMG2827 *Polymastia* sp. with *Ciocalypta* and *Rocellaria*  
Before and after wafting IMG2828.

120422a 1 Mile W Sawtooth Ledges 0745 *Polymastia*  
*penicillus* on bedrock with covering of silt and shell fragments – typical Lyme Bay.



This photo is from the Scillies at around 30m BCD and shows a silt veneer with erect sponges and *Rhodophyllis irvineorum*. This view also includes the tiny stalked tunicate *Bolteniopsis prenanti*.





St Austell Bay, 2017, active maerl bed with 25% live mixed with dead maerl, all in waves over bedrock and boulders. Veneer species sparse, limited to cor crusts, *Chaetopterus* tubes and very large *Lanice* tubes overtopping waves or left 'free-standing' in troughs. Live maerl mixed into dead maerl waves. NB differential mobility of live and dead maerl.



East Runton 20110804 7340 fine sand over chalk with algae. Wide view with diver for scale and 7343 in more detail. Community here (in August) consisted of annual and perennial species and although sparse, the community was quite diverse with some uncommon species. Substratum and sediment both affect community.



# Reef

- Bedrock
- Boulders
- Stony (64mm to 256mm)
- Biogenic e.g. *Sabellaria* reef

“Stony reefs may comprise areas of boulders or cobble (cobbles are generally considered as being between 64 and 256mm diameter)” “which arise from the seafloor and provide a suitable substratum for the attachment of benthic communities of algae (where shallow enough) and animal species”. Source: Irving, (2009).