

# Coastal Processes

Southsea has a constantly changing mixed sand and shingle beaches, backed by hard seawalls and revetments. The beach is a great place to relax, but the shingle also provides the first line of defence against the strong waves that hit our seafront.

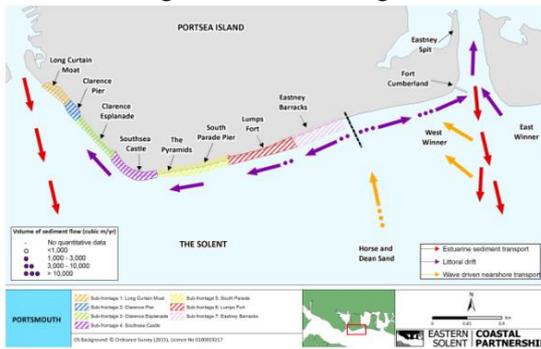
**This means that a healthy beach is an important part of our proposals as we combine both soft and hard engineering solutions to protect the seafront.**

The natural beach sediment in Southsea is predominantly shingle. It would not be possible to maintain a sandy beach along this frontage as the sand would be quickly washed away.

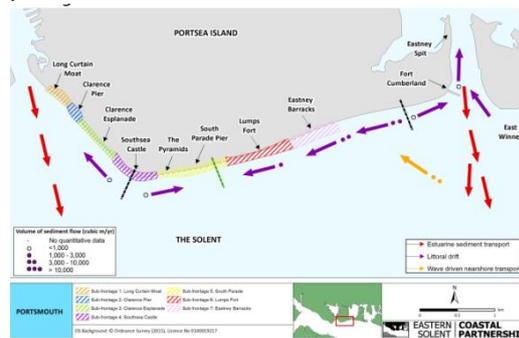
## Monitoring Coastal Processes

Our team of coastal scientists are constantly monitoring the beach to understand how the shingle moves around the frontage.

The research has shown that Southsea beach is regularly changing and will help us make sure our design will work alongside and natural processes.



Sediment Transport Pathways Along the Portsmouth Frontage: SCOPAC 2004



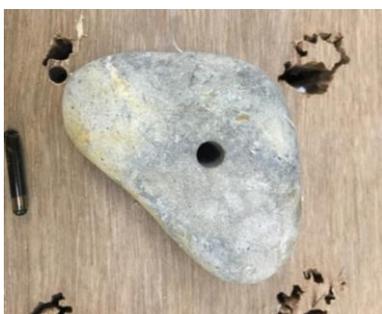
Sediment Transport Pathways Along the Portsmouth Frontage: SCOPAC 2016

## Tracking Longshore Drift

Understanding the movement of shingle along the beach underpins all coastal management decisions. The ESCP has developed the tracer pebble method to assist with this. By securing Radio Frequency Identification Tags inside pebbles naturally found on the beach, we are able to track the movement of beach material.

Each pebble is weighed, measured and given its own individual identification number. These are deployed and then monitored at set intervals through surveys that use hand held scanners and GPS. This data then informs efficient beach management practices.

Sacha Neill, a Coastal Engineer with ESCP said “Sediment is constantly moving around our coastline leading to erosion hotspots. By establishing where this material is going and how fast it’s moving, we can better anticipate these areas and work with nature to bring this sediment back”.



The method has been successfully used along the Fareham, Gosport, Portsmouth and Havant beaches to confirm the location of drift divides, convergence zones and net sediment drift. This information has proven to be extremely useful, particularly for dynamic or highly managed beaches where level surveys or aerial photography alone are not sufficient to identify net sediment movement following replenishment or recycling activities.

### **So, what's next?**

The coastal team are developing a Beach Management Plan to implement alongside the new flood defences, as well as continuing to survey and monitor the beach before and after storm events. The tracer pebbles deployed in Southsea in 2012 are also still being found in ongoing tracer pebble surveys.

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