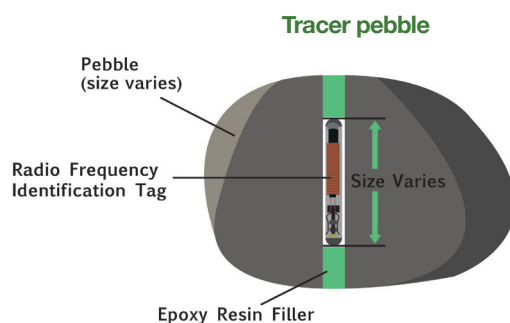


Hayling Island Beach Sediment Tracer Study 2018 - 2019

A Tracer Pebble study was undertaken by Coastal Partners between 2018 and 2019 to help further understand sediment transport pathways along the 7 km stretch of open coastline on Hayling Island between Gunner Point in the west and Eastoke Point in the east. The results from the study will be used to inform future beach management activities along the frontage.

In July 2019, we deployed 1,300 tracer pebbles across 9 different sites along the frontage (Figure 1). The tracer pebbles used, were native to the site with a unique Radio Frequency Identification (RFID) tag sealed inside.



The RFID tag broadcasts a unique ID number assigned to the pebble, which is detected using specialised Global Positioning System (GPS) equipment to track the pebble's precise location at a point in time. This is a novel technique developed in-house at Coastal Partners.



Figure 1 - Deployment locations between Gunner Point and Eastoke Point

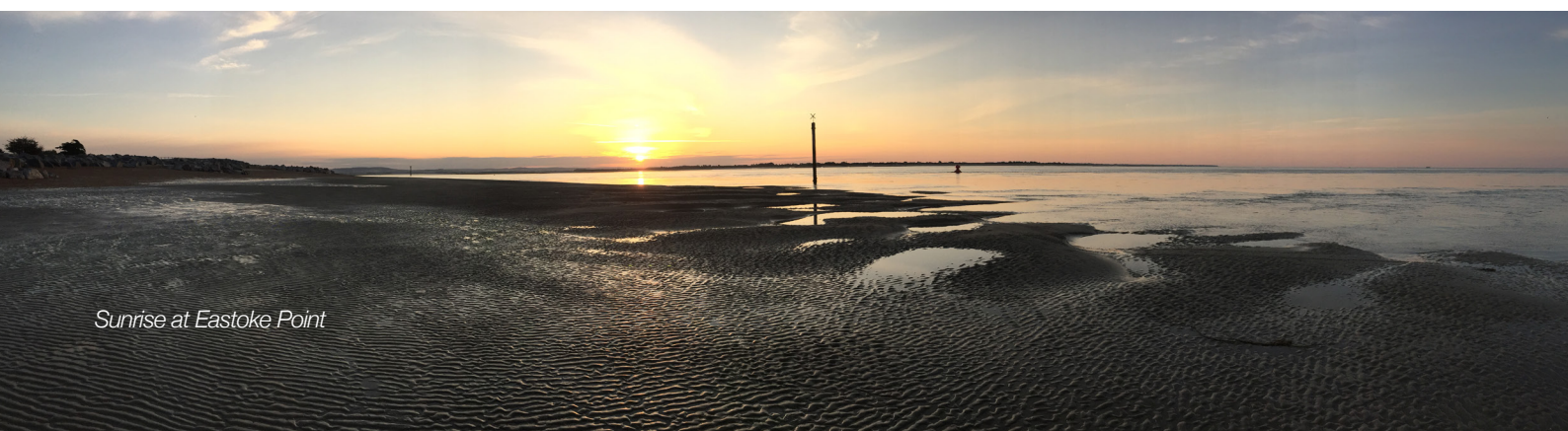
Seven retrieval surveys were carried out over the following 13 month period to track the location of the pebbles using GPS (Global Positioning System). Results from the study, in combination with data collected as part of the Regional Monitoring Programme were used to provide estimates of sediment transport rates and directions along the frontage. Importantly, these results supported findings presented as part of the SCOPAC Sediment Transport Study which can be viewed at: www.scopac.org.uk/sts/



Retrieval surveyors Alex and Emma using GPS scanners

The study provided evidence to support the idea that the littoral drift divide located near Creek Road car park in Eastoke was still active. Here, results suggested that a large proportion of material moves westwards along the frontage, with a smaller proportion of material moving eastwards towards Eastoke Point. Tracer pebbles were also shown to be able to bypass beach control structures at Eastoke (wooden groynes) and Inn-on-the-Beach.

The highest rates of transport were generally seen around West Beach and Inn-on-the-Beach, with one tracer pebble moving approximately 1.4 km over the 13 month period equating to an average transport rate of 1,321 m/yr.

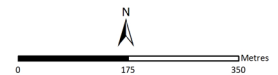


Sunrise at Eastoke Point



Figure 2 showing the pebble positions between 2018 and 2019 at Gunner Point

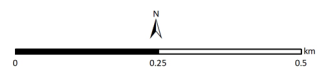
- ★ Deployment (16/04/2018)
- Survey 1 (18/04/2018)
- Survey 2 (25/04/2018)
- Survey 3 (17/05/2018)
- Survey 4 (11/06/2018)
- Survey 5 (15/08/2018)
- Survey 6 (25/02/2019)
- Survey 7 (22/05/2019)



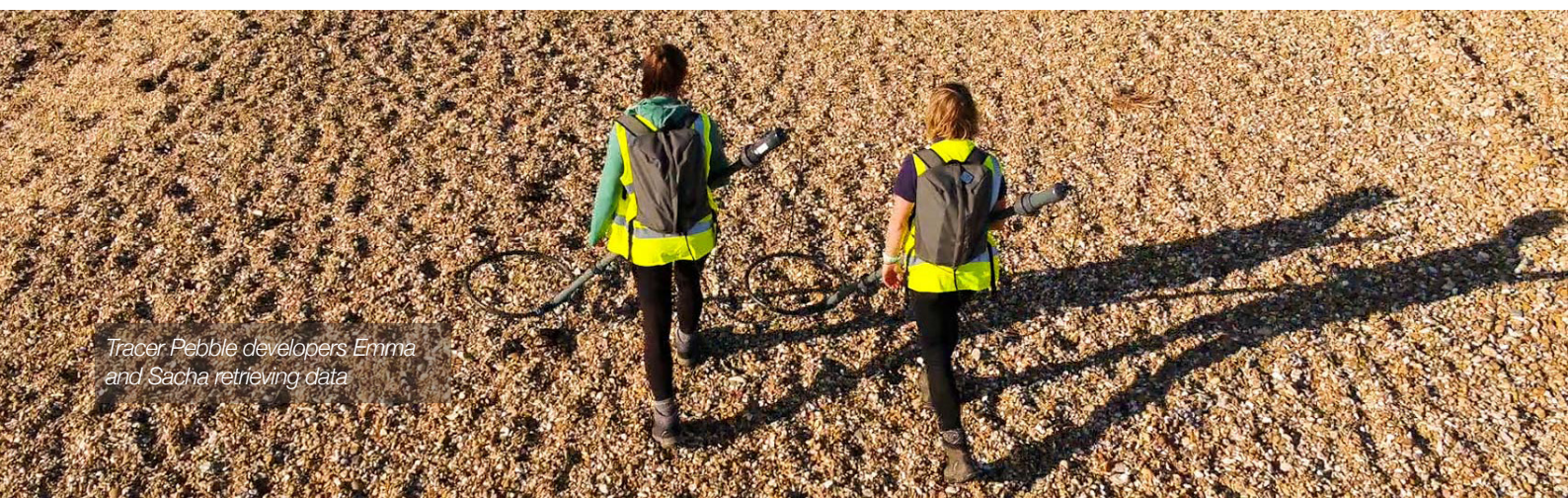
Results from an additional survey carried out at Eastoke in July 2020 showed that tracer pebbles were starting to bypass the rock groyne structures at Eastoke Point. This suggests that whilst the beach control structures are successfully slowing the movement of material around Eastoke Point, material is still able to bypass the rock groynes to replenish the downdrift frontage.



- Deployment (16/04/2018)
- Survey 1 (17/04/2018)
- Survey 2 (23/04/2018)
- Survey 3 (09/05/2018)
- Survey 4 (15/06/2018)
- Survey 5 (13/08/2018)
- Survey 6 (18/02/2019)
- Survey 7 (20/05/2019)
- Survey 8 (24/07/2020)



Overall, the study was successful in highlighting sediment movement patterns along the frontage for the period between 2018 and 2020. Furthermore, this information can be used to support future beach management activities at South Hayling Island.



Tracer Pebble developers Emma and Sacha retrieving data