Southsea Beach West Tracer Study 2018 - 2019

A small Tracer Pebble study was undertaken on behalf of Portsmouth City Council by Coastal Partners, (formerly Eastern Solent Coastal Partnership), to monitor the movement of recharge material placed at Southsea Beach West in Portsmouth during emergency works in spring 2018. The study was carried out as research for the Southsea Coastal Scheme, the UK's largest local authority-led coastal defence project.

In May 2018, 80 tracer pebbles were deployed at 2 different sites at Southsea Beach West (Figure 1). The tracer pebbles used were native to the site and had a unique Radio Frequency Identification (RFID) tag sealed inside (Figure 2).

Figure 1: Deployment locations at Southsea Beach west

Figure 2: RFID tags sealed into local pebbles

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.

Eleven retrieval surveys were carried out over the following 14 month period to track the location of the pebbles using GPS (Global Positioning System). Results from this study, in combination with data collected as part of the Regional Monitoring Programme were used to track the movement of the emergency recharge material, to understand whether transport was primarily alongshore or cross shore. Results can also be used to support future shoreline modelling work.

Results

Coastal Partners
Tracer Pebbles

The study showed the predominant sediment transport direction from south-east to north-west between Southsea Castle and Clarence Pier, with material tending to accumulate within the Hovercraft Terminal directly updrift of Clarence Pier. Material was also shown to bypass The Beach Club, formerly known as Mozzarella Joes, from the south-east to the north-west, although no tracer pebbles were retrieved west of Clarence Pier during the study. The predominant transport direction was shown to be alongshore, however short periods of cross shore transport were observed after the initial deployment.

The study was a success and has provided some valuable information to inform the Southsea Coastal Scheme modelling and development.