

SEDIMENT TRACKING: A COMPLEMENTARY METHOD FOR MEASUREMENT OF SEDIMENT TRANSPORT IN RIVERS

**Kevin Black, Sam Athey, Peter Wilson, Partrac Ltd., Glasgow, Scotland,
info@partrac.com**

Abstract: A range of techniques and methods are routinely used to provide insights into, and to quantify, the transport dynamics of sediments in rivers. These include high resolution flow speed or stage records, proxy-measurement of suspended solids concentration (e.g. using optical or acoustic sensors) and a variety of sediment traps. This presentation aims to introduce a complementary technique known as 'sediment tracking' to fluvial sediment studies. The sediment tracking method is a Lagrangian technique which utilizes uniquely labeled sediment analogs to determine the transport in time and across space. Historically, sediment tracking has encountered greater use in gravel-bed mountain streams but recent developments in the technique now permit useful data to be obtained for both sand and silt transport. Sediment tracking has several distinct advantages over conventional measurement approaches. It provides a direct indication of sediment transport rate, and is of particular use in defining specific source regions (e.g. stream bed, adjacent fields) and in-stream depo-centers. Moreover, it is a relatively cheap technique which is simple to use. This paper presents the central factors involved in conducting a tracking study. We also describe a new, time-series suspended sediment sampler, which has been used in sediment tracking studies but which also forms a stand-alone sediment/contaminant flux monitoring instrument