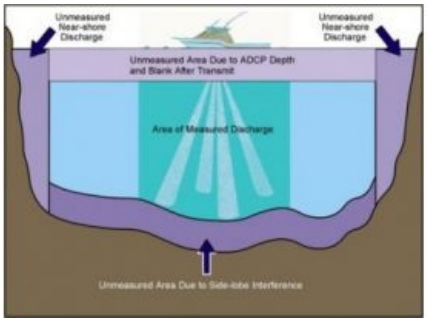
Automating Edge Discharge Calculation in ADCP Software



A key new feature in the discharge measurement software ViSea DAS allows the user to add a bottom profile. By doing so, side extrapolation from the start and end points of the survey track to the shore is calculated automatically using dGPS positioning. This removes the error inherent in estimating the track-to-shore distance for each individual track, which is the current method used in comparable software packages. Read on for details of research that validates this new approach.

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Discharge measurements are important for the characterisation of rivers and are the basis of many models. There are many methods to measure discharge, all of which are limited to the measurement area (Valentin, Kölling 1995). This excludes the top, bottom and nearshore areas of the profile (Figure 1). The top of the water column is extrapolated in the software by specifying the ADCP depth and calculating the blanking zone. The bottom of the water column, approximately 6%, though measured, is excluded due to interference from side-lobes, is also extrapolated by the software. The nearshore areas, being too shallow to survey, are unmeasured, leaving the surveyor to estimate the distance from the vessel to the shore. This distance is entered to calculate the total river width and the nearshore discharge. As the true bottom profile is unknown, the software contains various extrapolation options to calculate the nearshore discharge. The estimation of both the bottom profile type and the distance to shore introduces errors into the discharge measurement. (continue)