

Rating changes

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Causes

Aggradation or scour

- Floods and freshes
- Gravel bar/braid migration at medium and low flow
- Changes in catchment sediment supply
- Local supply of sediment, e.g. landslip
- Change in local base level of river channel

Bank slumping, landslip, erosion downstream

Vegetation growth

- On banks, e.g. willows
- In channel, e.g. weed, periphyton, gorse, broom etc.
- Algae or weed on controls/weirs

Bed or channel modification – man-made

- River protection works
- Abstraction intake, etc.
- Children building dams
- Building/maintaining fords
- Stock damaging banks, etc

Flood debris

- Lodging on bridge piers, culvert entrances, control

Weirs

- Crest damage, modification
- Leakage

Rating changes

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Clues

Visual - on-site

- Bed levels
- Bar/braid patterns, locations
- Banks
- Control
- Sediment size, sediment load

Measured bed levels

- Levelling recorder cross-section

Gaugings

- Plot off rating – curve, bed plots
- Shape change and/or bed level change
- Areas or velocities differ

Hydrograph

- Recessions plot at different levels – can also be flow regime
- Floods/freshes at rating change “trigger levels”

Comparison / correlation with other stations

- Relationships derived (e.g., for ADR comparisons)

Future?

- Remote sensing of bed level – airborne laser or web camera
- Telemetered index velocity