What are other regional councils doing to improve gravel extraction management

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- Many councils have recently reviewed their gravel extraction policy and practice
- An Envirolink project has partly completed an analysis of these reviews and other regional councils practices
- Completed for Ecan, EBOP, MDC, HBRC, GDC. Yet to contact ORC, GWRC, Horizons, SDC

Cross-section surveys

- River cross-section surveys are the primary tool used to assess bed level trends and set gravel extraction limits

- Many councils are now increasing the frequency of surveys where extraction pressure is high

- Aerial photos and site inspections commonly used to supplement the information from cross-sections and provide an indication of river behaviour between the cross sections

Recent reviews

- Most councils acknowledge the river cross section survey networks were established for flood risk management and the design is not considered ideal for gravel management purposes

- Concerns are about cross-section location and spacing, and frequency of measurement

- Many councils have initiated major reviews of their
  - cross section networks
  - reporting of gravel extraction volumes
  - data analysis and interpretation, and
  - approaches to defining gravel yields

Setting sustainable gravel extraction limits
Defining gravel load

- Setting appropriate gravel extraction volumes requires information on the gravel load of rivers

- The cross-section approach adequately characterises bed level trends, but is quite limited for defining the gravel load

- Three approaches have been used to estimate gravel load
  - the morphological method based on conservation of volume
  - as a proportion of suspended sediment yield
  - calculation of load from bedload transport formulae

Monitoring needs

- key criteria to determine the appropriate monitoring regime for a river, or within a river
  - sensitivity of the reach (taking account of trends in riverbed changes shown by existing bed-level monitoring data and/or assessments of sediment supply)
  - extraction pressure
  - flood risk
  - presence of sensitive infrastructure (bridges, water intakes, pylons etc.
  - bed and bank stability
  - ecological sensitivity

Recommendations

- Effective regulation and monitoring of gravel excavation rates requires systematic collection of measurements of the trends in bed levels, gravel transport and excavation rate data over time
- These data can be used to set and adjust extraction levels according to gravel supply
- There is a need to better establish gravel supply rates through short-term investigations involving a combination of field measurement and modelling of gravel transport
- In many rivers there are natural deposition zones that are suitable sites for gravel extraction
- However, in Tasman District there is a need to assess
  - the gravel load of rivers
  - the proportion of gravel supply that can be sustainably harvested without having significant in-stream and downstream effects.