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## **Raising the Profile on Stream Bed Lowering**

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## Raising the Profile on Stream Bed Lowering



Photo: Nathan Penny

- Stream beds can be dynamic environments.
- Stream bed erosion or bed lowering processes have accelerated throughout Australia with the development of catchments for primary production.
- **Impacts include:**
- **Reduced geodiversity (loss of pool/ riffle sequences)**
- **Reduced long term water holding capacity and low flow attenuation**
- **Erosion, sedimentation and reduced water quality**
- **Lost habitat values and reduced biodiversity**

## Raising the Profile on Stream Bed Lowering

Namoi CMA is the lead natural resource management (NRM) agency managing stream rehabilitation in the Namoi Catchment. To invest limited public funding for the greatest environmental benefit requires targeting rehabilitation funds to those locations where it is needed most.

Namoi CMA produced the first catchment wide River Styles Report in the Murray Darling Basin of NSW. This report identifies the sub catchments and reaches which will produce the greatest environmental benefit from rehabilitation works.

The challenge now is to efficiently map at the individual site scale the priority locations (such as bed lowering) for investment.

Namoi CMA partnered with the Murray Darling Basin Authority, Sustainable Rivers Audit program trialing Light Detection and Ranging (LIDAR) a remote sensing system for collecting topographic data to map those locations.



## Raising the Profile on Stream Bed Lowering

### Perry's Chain of Ponds – Application of LiDAR generated mapping.

Spot 5 Imagery overlaid with contour map  
– 25cm interval.  
Flow is right to left.

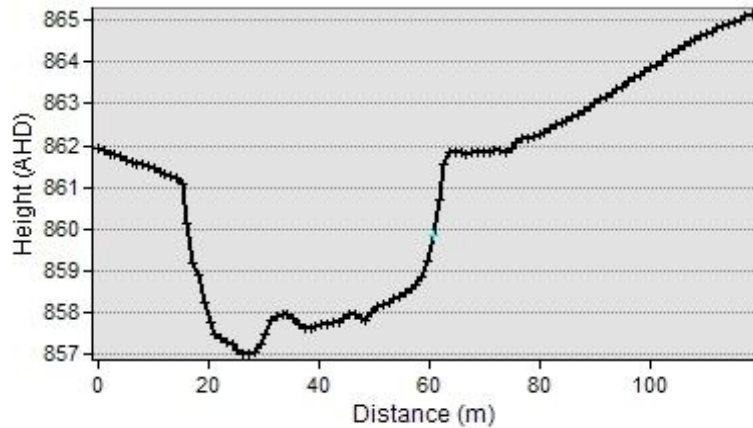


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Image Date: 6/2/2005. (Special thanks to W. Dorrington, DECCWE GIS specialist and ARGB).

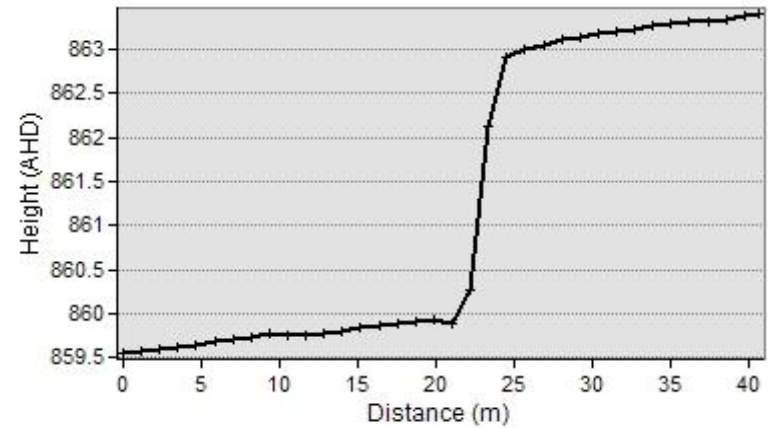


## Raising the Profile on Stream Bed Lowering

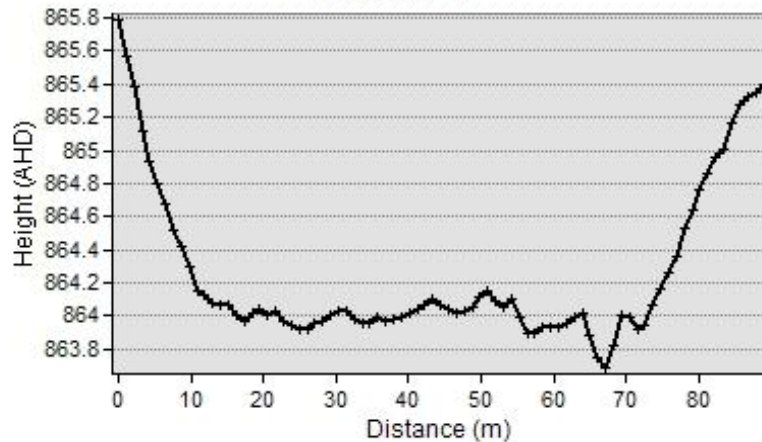
Profile A - B



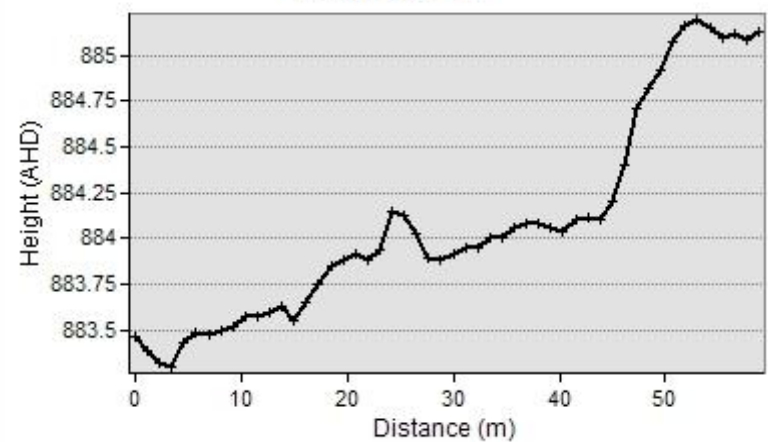
Profile C - D



Profile E - F



Profile M - N



## Raising the Profile on Stream Bed Lowering

LiDAR generated contour mapping enabled the detection and quantification of bed lowering making it possible to prioritise between sites.

Decision making can take into account the severity of bed lowering as well as the relative catchment position and potential to degrade riparian assets.

The interpretation of the Perry's Chain of Ponds DEM was relatively simple. Other River Styles where the assemblage of geomorphic units is more complex would require a more sophisticated level of interpretation.

For example, bed lowering indicators may be more subtle such as zones of relatively steeper bed gradients and/or small remnants of previous higher bed levels.