

Interactive comment on “The need for complementary hydraulic analysis in post-restoration monitoring of river restoration projects” by T. A. Endreny and M. M. Soulman

Anonymous Referee #1

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The authors address the topic of performance monitoring of river ‘restoration’ projects. This is indeed an area of active interest for the restoration community and in great need of scientific contributions such as this case study. The paper identifies that monitoring data can be used to inform the reliability of design methods by comparing predicted behavior vs. measured (actual) behavior. In many instances, the design methods are qualitative in nature and no explicit predictions of performance metrics are provided to serve as the basis for post-project monitoring evaluations. In cases where qualitative design methods are employed (such as Natural Channel Design), field data can be used to ‘benchmark’ these design methods.

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Natural Channel Design, for example, does not rely on channel velocity distribution for channel configuration, so the post-project monitoring field data and numerical analyses performed by the authors would need to show the correlation between the monitoring metrics and the design-based metrics. As an example, Rosgen (1996) states that “Natural stream channel stability is achieved by allowing the river to develop a stable dimension, pattern, and profile such that over time, channel features are maintained and the stream system neither aggrades nor degrades.” Did the designers of this restoration project project a timeline (starting from completion of restoration) identifying ‘when’ the restored reach would be stable?

Although the paper focuses on the benefits of hydraulic modeling during post-project monitoring, it implies that the Natural Channel Design is insufficient in predicting ‘actual’ behavior of the stream and additional analyses are required (such as hydraulic modeling) to more reliably configure the restoration project. This implies that establishing performance metrics, as well as performance predictions, at the onset of the project can greatly aid interpretation of monitoring results.

Overall, this is an important contribution to the restoration community.

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/8/C939/2011/hessd-8-C939-2011-supplement.pdf>

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