

River-bed erosion due to changing boundary conditions: performance of a protective measure

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Abstract Due to the introduction of man-made sediment barriers along a river, the amount of sediment load entering the downstream river reach is different to that leaving the reach, and erosion processes occur downstream of the barrier itself. Designers are often required to take into account the scouring process and to include adequate protective measures against the local scour. This paper addresses the performance of bio-engineering protective measures against the erosion process. In particular, a green carpet, realized with real flexible vegetation, has been used as the protective measure against erosion processes downstream of a rigid bed. Analyses are based on experimental work carried out in a straight channel constructed at the laboratory of the Dipartimento di Ingegneria Civile, Ambientale, Aerospaziale, dei Materiali, Palermo University (Italy).

Key words rivers; local scouring; flow characteristics; protective measure; vegetation