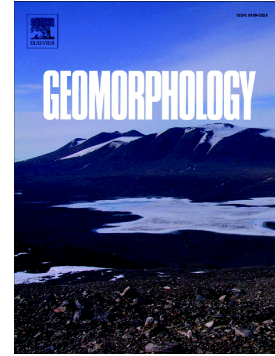


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# Management responses to pulses of bedload sediment in rivers

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## Keyword

River, sediment pulse, sediment wave, sediment slug, sediment management, recovery, restoration

## Abstract

Rivers can experience sudden pulses of sediment, from human and natural erosion processes, that can accumulate in the bed. Abundant studies have examined the sources and dynamics of sediment pulses, and problems caused by these pulses, particularly flooding, avulsions, and habitat simplification. Much less has been written about what managers can do about sediment pulses, and that is the purpose of this review. The first option for managers is to do nothing, and this decision can be informed by many case studies and by theory on the propagation and character of sediment pulses (their diffusion, translation, and celerity).

Doing nothing should be informed by the secondary effects of sediment pulses on channels including; widening, avulsions, and tributary interactions. If managers decide that something needs to be done about the sediment, they have four options: (1) reducing the sediment supply at source, (2) trapping sediment in the channel (3) accelerating sediment transport through a reach, and, (4) directly extracting sediment. The most common of these actions is undoubtedly to reduce the supply at source, but there are few examples of the consequences of this for sediment pulses. There are even fewer examples of trapping, accelerating and

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