

عنوان مقاله:

Determination of the best sediment trap geometry in water and wastewater conduits by physical model

محل انتشار:

دهمین سمینار بین المللی مهندسی رودخانه (سال: 1394)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

Invert traps are one of the most effective methods for separating and collecting sediments or waste materials in water and wastewater systems. In present study, experiments have been performed in 25 cm wide and 4 m long channel for 13 different trap configurations with different input and output angles. Four types of plastic beads were chosen as a laboratory sediments and experiments were tested in three times of 2, 5 and 10 minutes and four different discharges included: 2, 2.5, 4 and 5 lit/sec. 624 experiments were done and results showed that the input and output angles, has a considerable impact on the amount of deposited sediments. As, in the case of vertical walls of the entrance, whatever outlet wall has milder angle, trapping rate will be higher. In contrast, when the incoming angle has been smooth and the outlet wall is vertical, although sediments are easily sink in, but because of the strong vortices formed downstream of the trap, sediments re-suspension and directed away from the trap. Quantitative analysis of the results, showed that from the 13 tested geometries, trap with inlet angle of 90° and 34° as an outlet angle, has the highest efficiency on trapping the sediments.

کلمات کلیدی:

physical model, sediment traps, trap efficiency

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