

RESEARCH ARTICLE | MARCH 15 2023

The planned size of the constrained flow of cross dams on rivers with floodplains steel

M. Bakiev; U. Kahharov; A. Jakhonov ; N. Maalem; U. Khusankhudzaev[+ Author & Article Information](#)*AIP Conference Proceedings* 2612, 020005 (2023)<https://doi.org/10.1063/5.0124213>

Improving methods and technologies for calculating and designing transverse floodplain dams, taking into account the interaction of floodplain and riverbed flows to protect the banks from erosion and regulate riverbeds, is one of the most important tasks. At the same time, the priority remains the transverse blind dams made of local soil with the attachment of their head. Their construction on rivers with two-sided asymmetric floodplains has its characteristics, which consist of the need to consider the morphology, the different roughness of the floodplain and the channel, the interaction of floodplain and channel flows, the asymmetry of the constraint. The physical pattern of the flow spreading is established based on experimental studies conducted on a model with a length of 11 m with a channel and asymmetric floodplains. It is established that there are two zones of core and sla interaction, two zones of intense turbulent mixing, satellite flows, compression regions, upper and lower whirlpool regions, and asymmetric flow spreading behind the compressed cross-section of different lengths. In this case, the distribution of velocities in the interaction zones and zones of intense turbulent displacement also follows the theoretical Schlichting –Abramovich dependences. The planned dimensions in the spreading area are established theoretically by applying an integral relation that characterizes the law of conservation of momentum in the flow recorded separately for the left and right

floodplains. A comparison of the calculated and experimental data shows their satisfactory matches.

Topics

[Newtonian mechanics](#), [Space instruments](#)

© 2023 Author(s).

You do not currently have access to this content.

Sign in

Don't already have an account? [Register](#)

Sign In

Username

Password



I'm not a robot

reCAPTCHA
[Privacy](#) - [Terms](#)

[Reset password](#)

[Register](#)

Sign in via your Institution

[Sign in via your Institution](#)

Pay-Per-View Access \$40.00

 BUY THIS ARTICLE