

Frontal system for fish migration - through the interior of the overflow threshold

PhD - stream restoration - fish passage engineer

Răzvan Voicu

Before making a ridge (migration channel) on approximately the entire length of the overflow threshold, it will be increased in width by adding a layer of concrete both upstream and downstream of approximately 10 cm (fig.1).

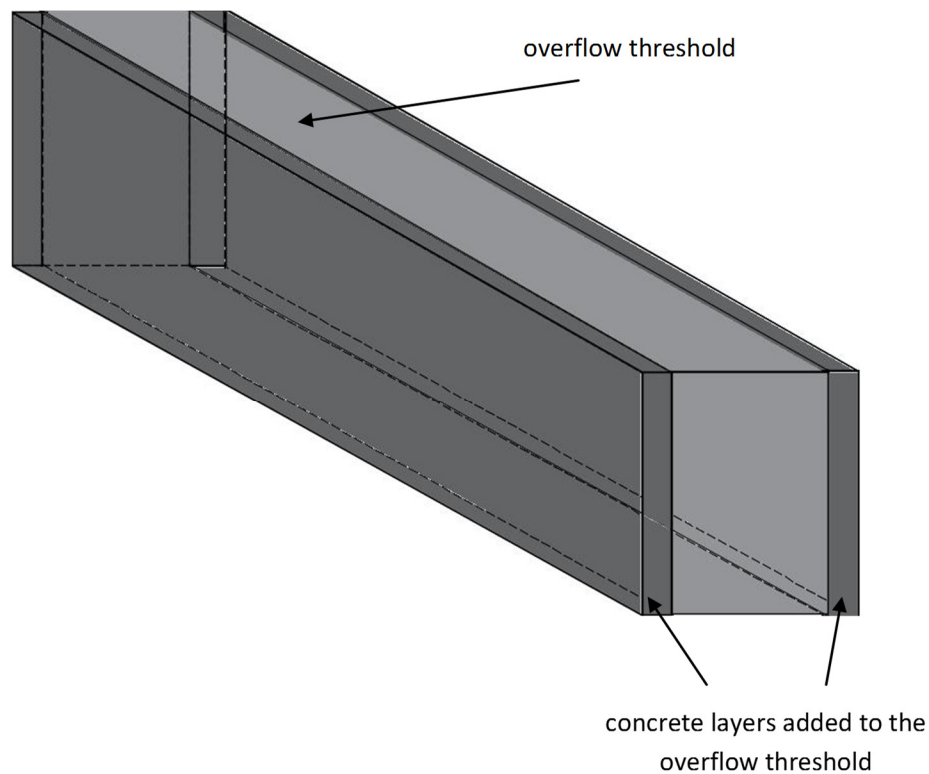


Figure 1 Positioning the concrete layers on the overflow threshold

After the overflow threshold has been lined with concrete on either side (fig. 1), a crenel is drilled perpendicular to it. Before approximately 10 cm to pierce the spillway threshold, the battlement(crenel) will bend to the left or right depending on how the end of the crenel is positioned. In this case, the battlement(crenel) turns to the right (fig.2).

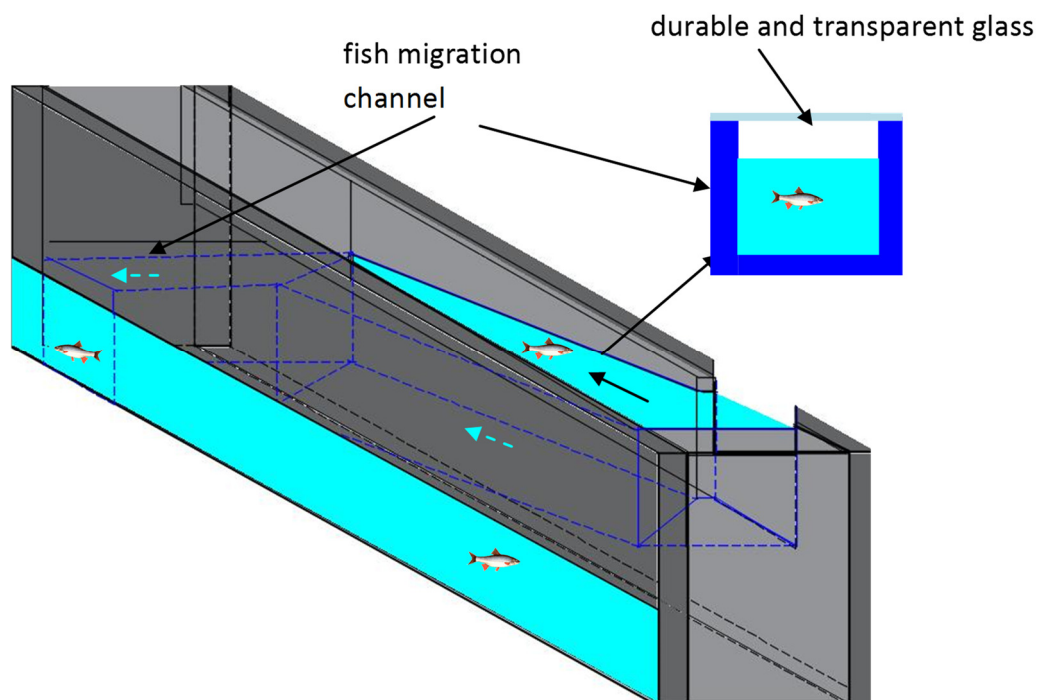


Figure 2 Positioning the battlement inside the overflow sill

After the battlement turns to the left or right, its slope will be chosen according to the migratory species in the river. This whole fish migration channel is covered by a resistant and transparent glass sheet (fig.2). Over this glass sheet, the stream will pass or not. But it will still protect the fish's migration channel so that water does not enter it. Being transparent glass, the fish will have enough light to be able to migrate. After the channel for migrating the fish has passed a portion of the overflow threshold (through it) it will turn left or right (fig.2). If the downstream end of the migration channel is below the water level by about two thirds then the end of the channel will not be extended (fig.2). If the downstream end of the fish migration channel is above the river water level, the channel will extend with the same slope outside the overflow threshold so as to reach the watercourse (fig.3).

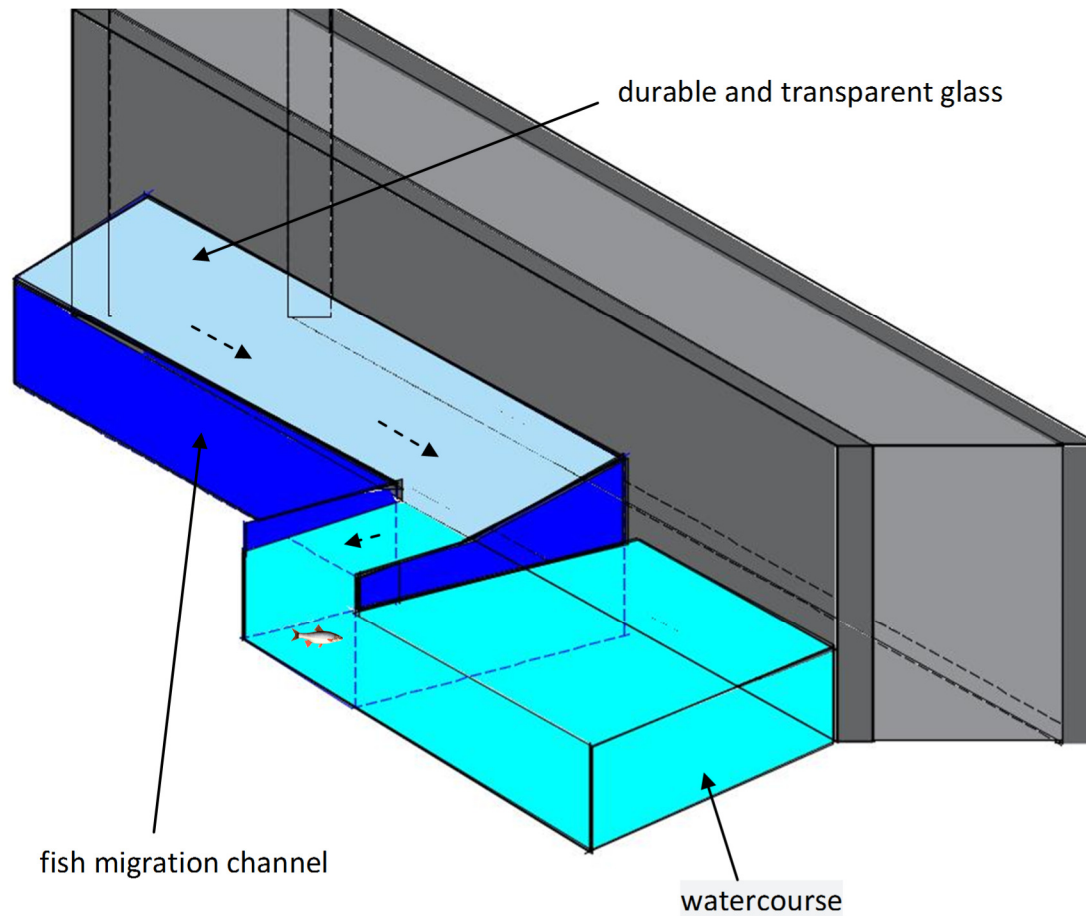


Figure 3 Extension of the canal to the watercourse

The shape of the channel fixed to the overflow threshold will have the trapezoidal shape closing in the upper part with a resistant and transparent glass ceiling (fig.3). If the downstream end of the fish migration channel even in these conditions will not reach the watercourse then the downstream end will be connected to a basin, to two basins, three connection basins that have a direct connection with the river (fig.4). The system is functional at overflow thresholds of heights less than or equal to 2.5 m. The advantage of this system is that during floods it can hardly be damaged. A semicircular metal bar fixed at the top will protect the channel from floats (fig.5).

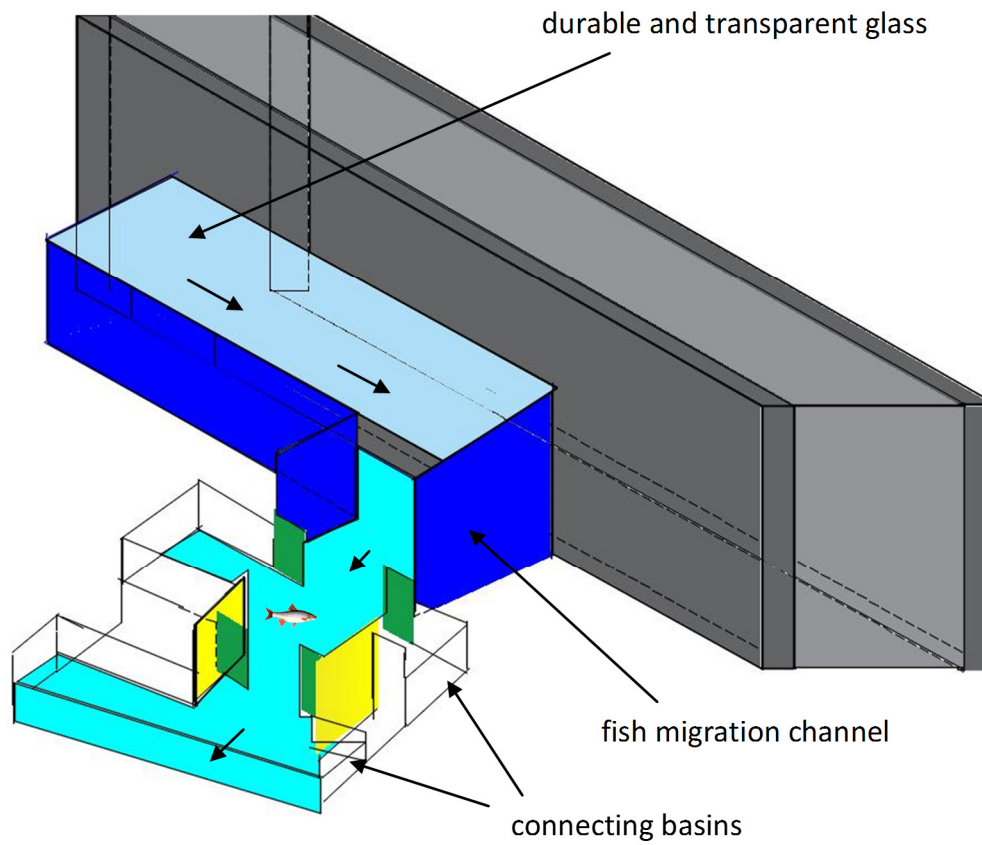


Figure 4 Positioning of connecting basins

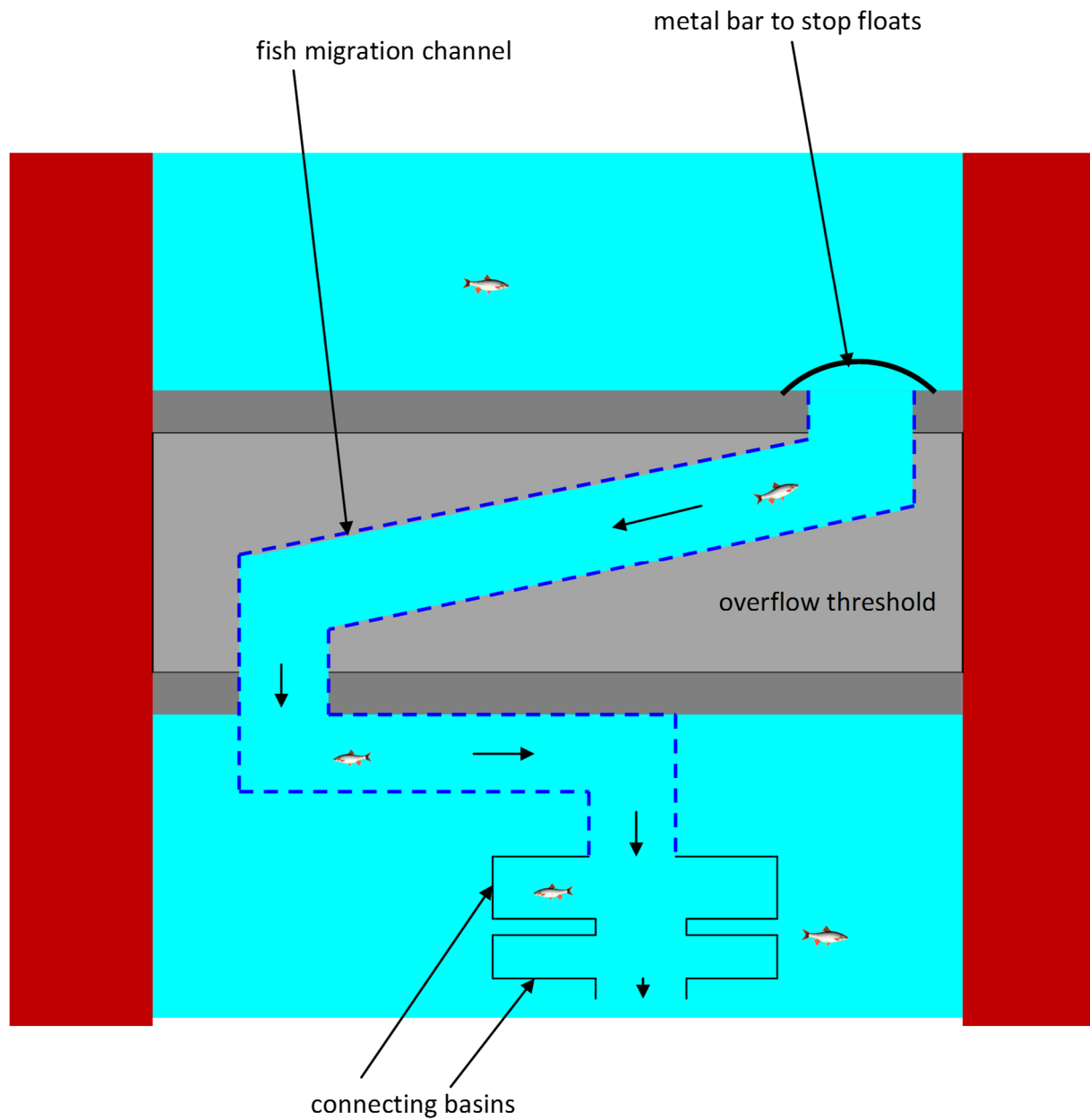


Figure 5 General scheme of the system for fish migration

**All rights reserved
August 2020
Bucharest**