

Creating a fish migration system using car tires

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One of the big problems with fish ladders is that they are fixed (https://commons.wikimedia.org/wiki/File:Fish_pass.jpg), which leads to rapid deterioration (within a year, due to the phenomenon of freezing - thaw, floods, partial coverage, with alluvium, etc. loses its characteristics). Thus I designed a new system. From a new tire of average quality, a horizontal surface is completely cut out. The other surface remains intact (fig.1). From the rolling surface, two rectangular surfaces are cut out that are perpendicular to the horizontal surface (the tire standing in the horizontal plane) (fig.1).

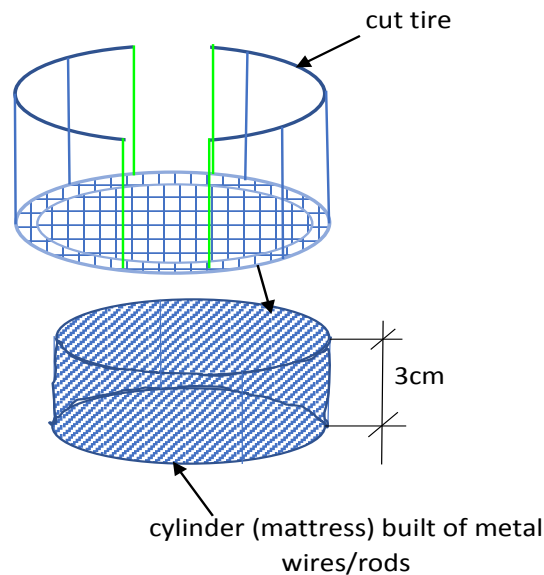


Figure 1 Cutting the tire and inserting in the horizontal plane a cylinder built of metal rods/wires

A cylinder built of metal rods/wires will be inserted through the top (where a part of the tire was cut out) (fig.1). The tire will be placed on a wooden disc and then concrete will be inserted inside the cylinder over the cylinder made of metal rods/wires (fig.2). After a while, the concrete will harden and the tire will have a fixed and resistant surface that can withstand a certain amount of water inside it (fig.3).

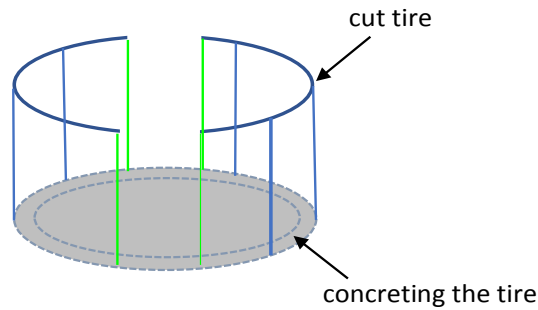


Figure 2 The uncut horizontal part of the tire is concreted

In the middle part of the circular concrete surface there is a metal bar (fig3). The end with the smallest diameter of a telescopic bar is inserted into this metal bar (fig. 3). The telescopic bar makes it easier for the tire with a horizontal concrete surface to move on the vertical (fig. 3). Each telescopic bar will be fixed by sliding into a concrete post that is fixed in the river bed (fig. 3). The water level in the river is variable (fig. 3) but will not affect the functioning of the telescopic bars and the system in particular. The telescopic bar can be fixed in the opposite position thanks to a metal bar/stopper with a handle (fig.3).

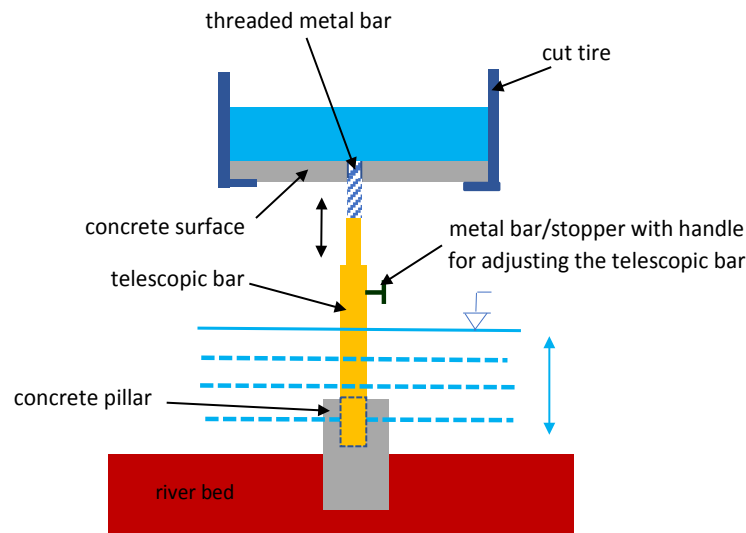


Figure 3 Positioning of the telescopic bar

The tire at the highest height is fixed to the spillway with the help of metal screws (fig. 4). In order for the water to be sufficient in the system, two metal piles can be fixed downstream of the spillway. The water will flow through the entire system until it reaches the river (fig. 4). Having variable geometry, the system can be attached to weirs of different height, but up to approximately 2.5m. In case of damage, all components can be replaced. In winter, given that the telescopic bars slide into the concrete posts, they can detach. And the poles can be removed from the river bed if necessary. Depending on the size of the fish, tire sizes will also be chosen. There are no high costs to maintain the system.

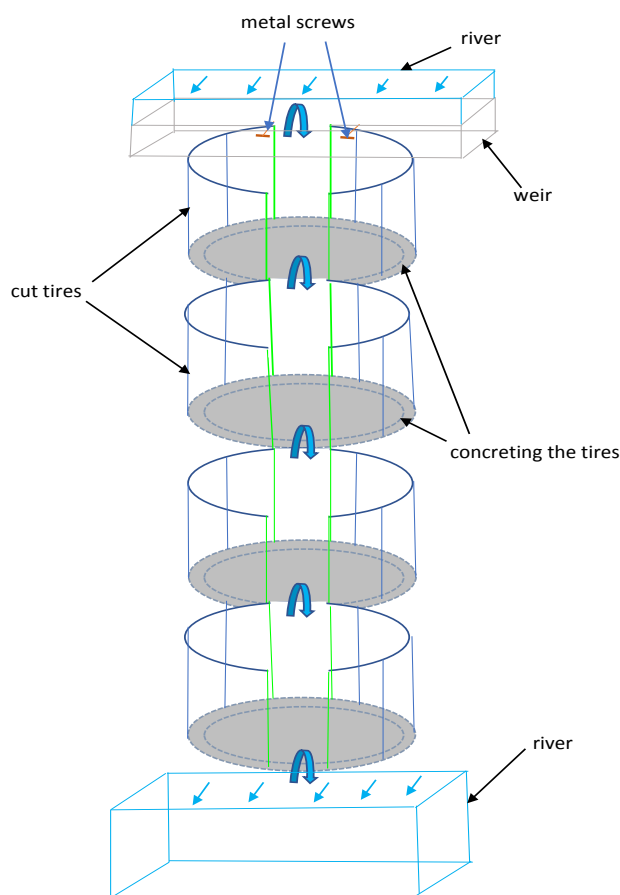


Figure 4 Positioning of the connecting tires