Creating of a fish migration system with circular metal mesh

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On a portion of a few meters downstream of the overflow threshold (in the immediate vicinity) the riverbed is linearized. After that, a concrete or metal pillar is fixed, which has a metal or concrete arm. An electric winch is fixed to the pole and a metal windlass is fixed on the concrete arm (fig.1). A circular metal mesh is made which has a metal cable on the circumference (fig.2). Four cables are fixed to the main cable, which in turn are fixed to the metal cable located on the circumference of the metal mesh (fig.2).

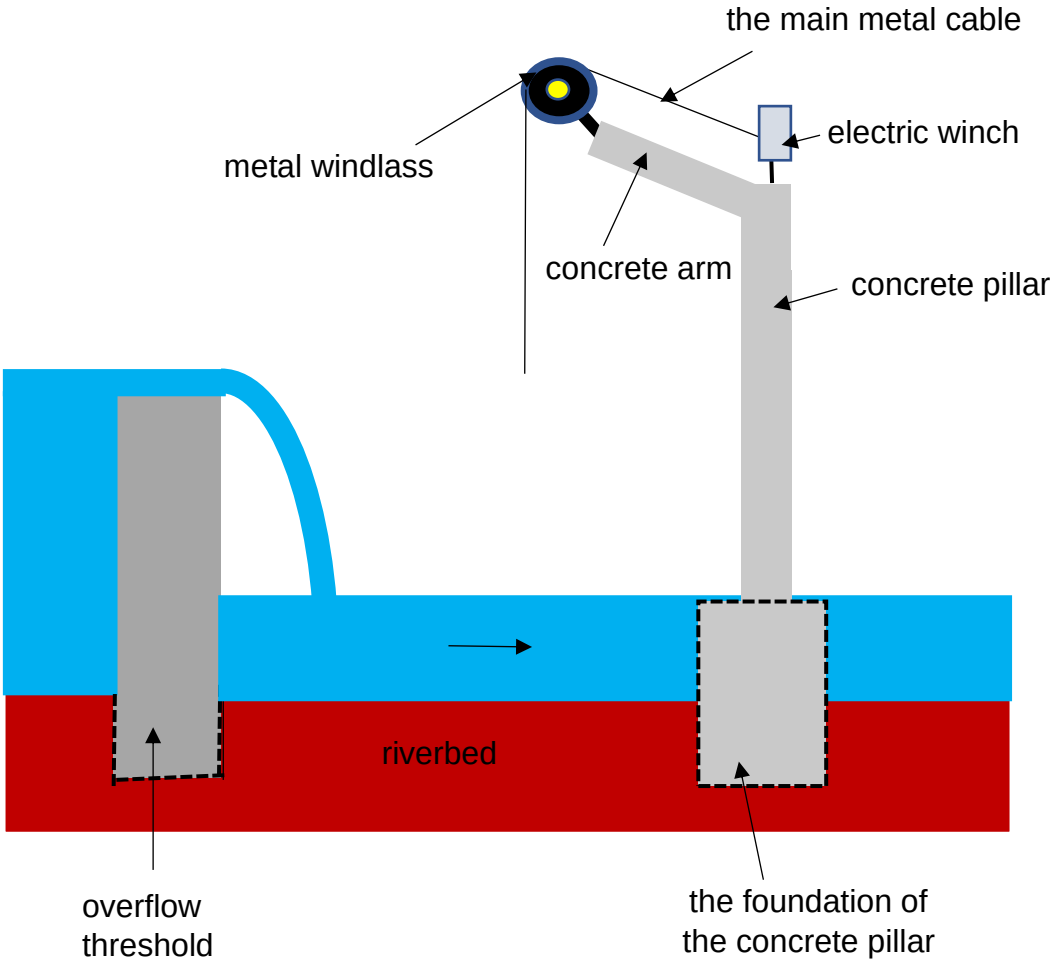

Figure 1 Position of the concrete pillar in the riverbed

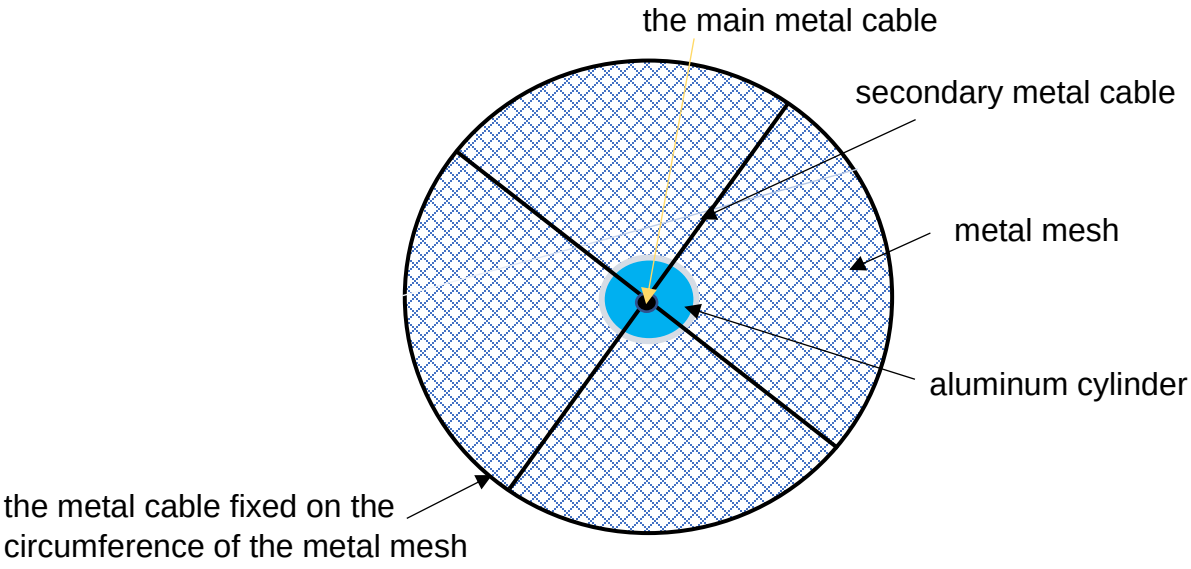

Figure 2 Position the four cables fixed to the circumference of the metal mesh

The center of the wire mesh is cut, fixing an aluminum cylinder (fig.2). The wire mesh in the initial position when resting on the riverbed looks like in Figure 3

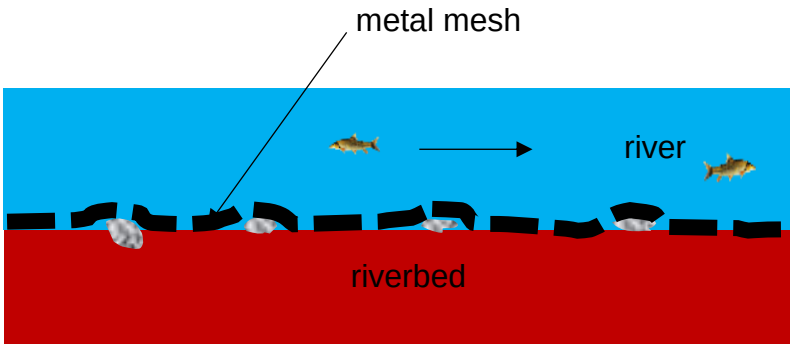

Figure 3 Positioning the wire mesh on the riverbed

An aluminum cylinder will also be screwed to the aluminum cylinder fixed to the wire mesh. A plastic tube that can be stretched or contracted is attached to this inner threaded cylinder. (fig.4).

The other end of the plastic tube is also made of aluminum and is fixed in a battlement or cylinder built in the overflow threshold (fig.4).

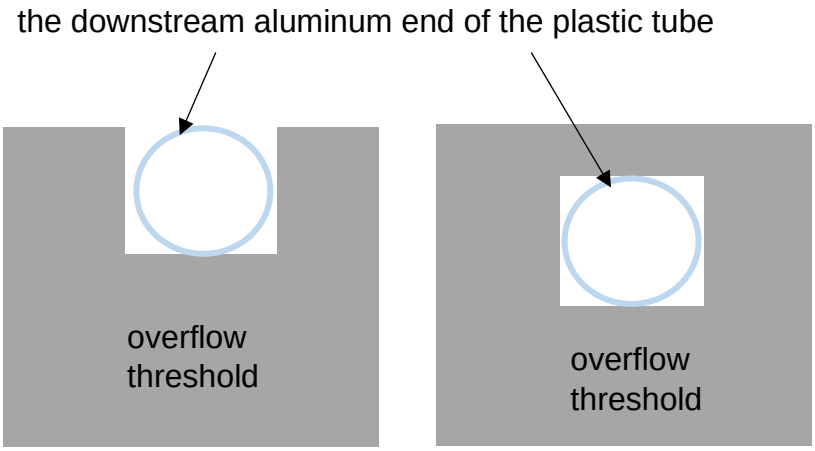

Figure 4 Positioning in two ways the end of the tube in the battlement made in the overflow threshold

The upper end of the tube, which is fixed to the wire mesh has inside a circular metal plate with variable geometry being equipped with a double spring. A thin metal cable is fixed to this metal plate (fig.5). This cable closes and opens the metal plate and is fixed to the plastic tube for migratory fish with the help of a small plastic tube located in the tube for migrating fish (fig.6). The other end of the cable passing through the plastic tube is fixed to the inside of the existing battlement or cylinder in the overflow sill. This tube (channel) that supports the metal cable allows the fish to seep through the plastic tube and not be injured. When the winch starts moving, it lifts the metal mesh in which the fish are caught. In the maximum position, the metal cable inside the tube through which the fish pass keeps the circular sheet pile in the open position and thus the fish can reach upstream of the overflow threshold (fig.7). spill not only in a battlement. The electric winch is set in motion thanks to an ichthyofauna sensor located in the center of the wire mesh. In the maximum position, the mobile wire mesh stays for ten seconds, after which the winch brings the wire mesh on the riverbed. The winch receives electricity from the national grid or from the solar panel.

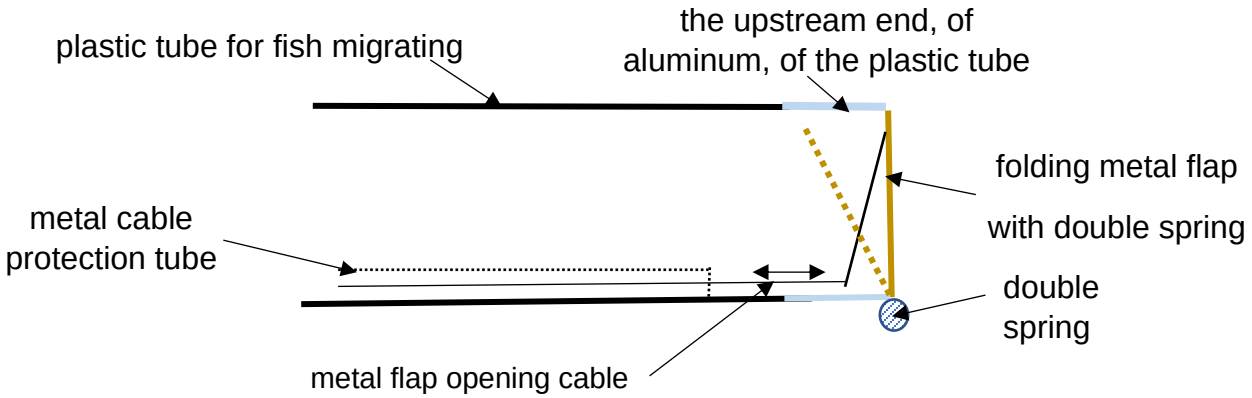

Figure 6 Positioning the flap that has a double spring

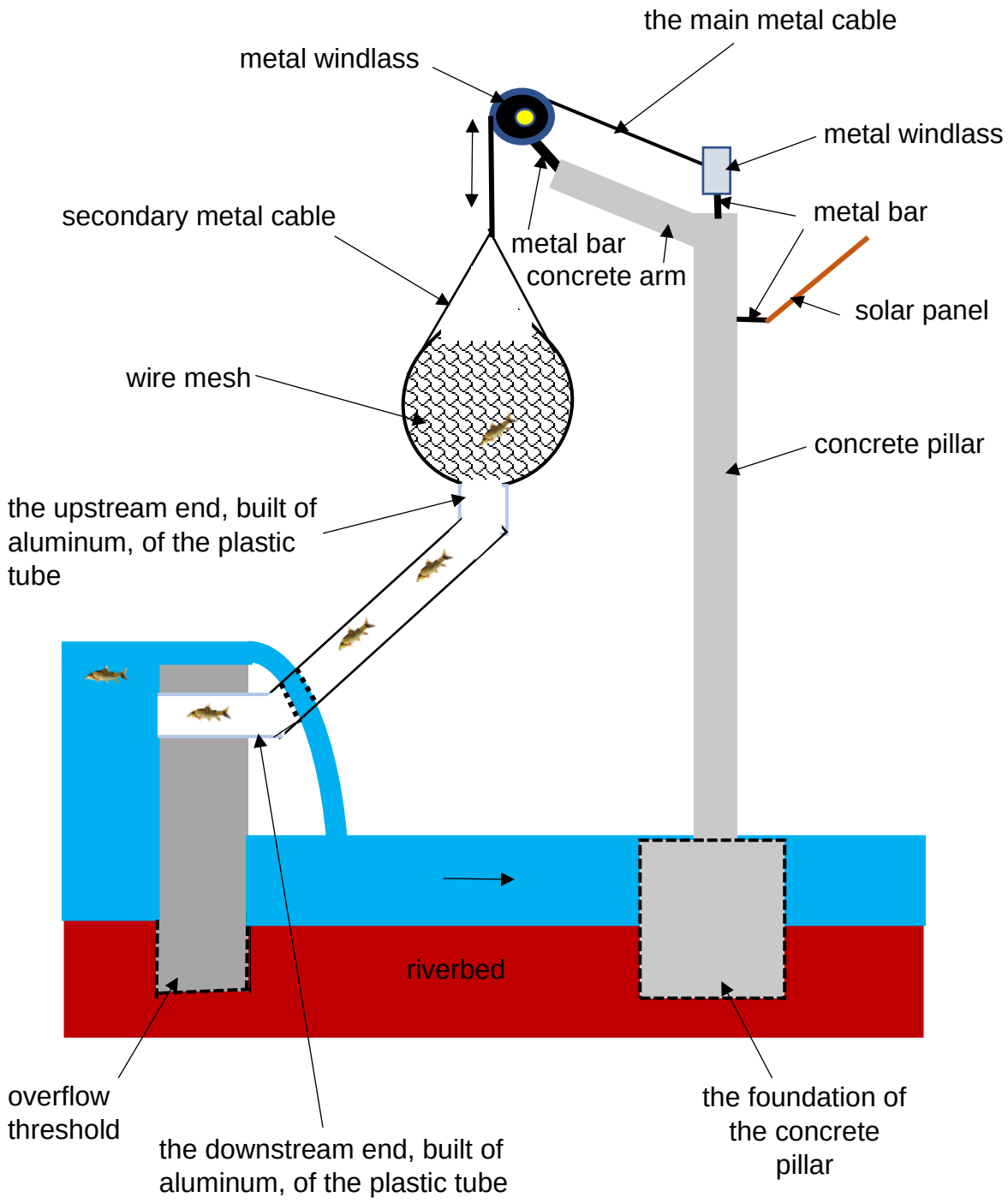

Figure 7 Complete diagram of the fish migration system using the metal net

In order for the system not to enter floats (branches, bottles, etc.) upstream of it, a semicircular metal grid will be fixed (fig.8). The metal bars that are fixed in the overflow threshold offer enough space for the fish to pass upstream of them, through its side and below (fig. 8).

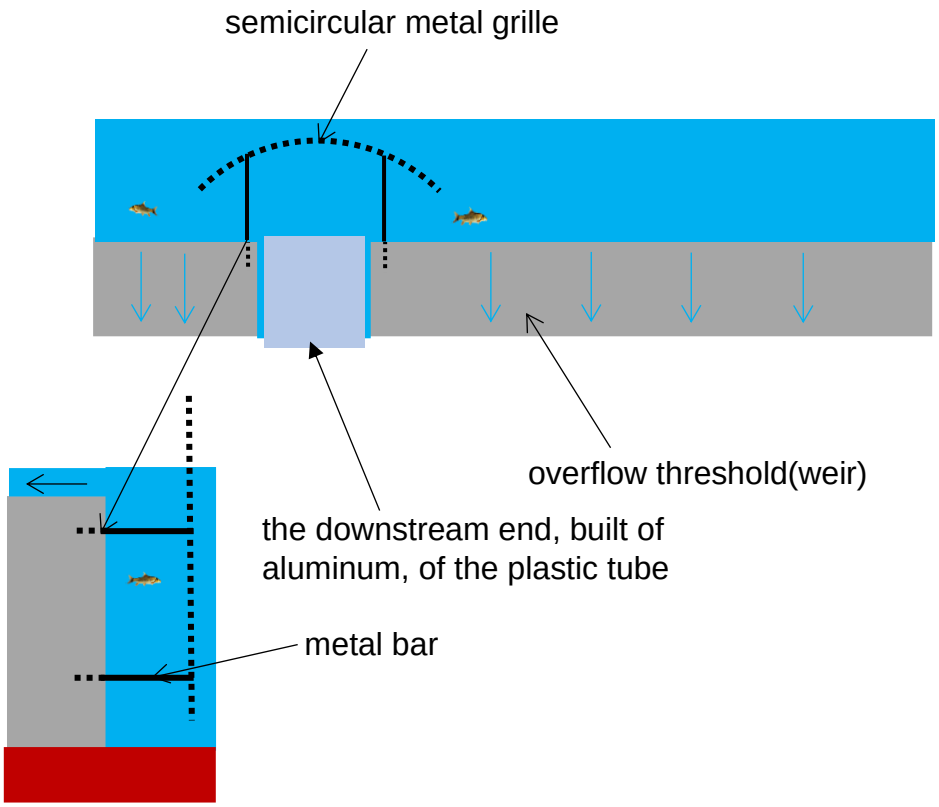

Figure 8 Positioning the metal grille

Conclusions

The net was and still is an efficient system for catching fish. Why not use its principle in fish migration systems as well? At a single lift, the net can catch more than ten fish (salmon) and maybe even many for smaller species. The system only works for one fish. Due to the unsharpened elements, the fish arrive safely upstream of the overflow threshold. This system can be applied in many areas including mountain areas. It is resistant to floods and if the project is respected and if quality components are used it can ensure a proper maintenance. Many of the components can be disassembled and used at another overflow threshold.

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