



FishFlow
INNOVATIONS

Siphon fish ladder





The FishFlow siphon fish ladder is an innovative fishway, which can be applied to facilitate fish passage at weirs, dams and other waterworks. The fishway is compact, cost-effective and can be applied in places where little space is available.

Fishway under vacuum

The siphon fish ladder is set in a tube that connects the head and tail waters of a waterwork. A series of baffles inside the tube divides the head difference over the waterwork in small steps. A vacuum pump pumps air from the fishway and thus raises the waterlevel in the tube. Once the headwater spills over the top baffle the fishway starts siphoning and the vacuum pump is switched off.

Vacuum offers advantages

Inside the fish ladder an air bubble is maintained. The volume of this bubble defines the flow rate over the fish ladder. The vacuum pump can be used to regulate the flow rate. The water consumption of the fish ladder can thus be adjusted to suit the water availability.

Flexibility in design

The fishway is built in a composite material. This enables a flexible design to suit the clients preferences. The fishway can for example be placed underground for optimal integration in the landscape. It can also be placed in a building or on top of a waterwork.

species	total catch	percentage of catch	length (cm)
bleak	8	1 %	4-14
european perch	163	27 %	6-17
bream	48	8 %	9-42
roach	153	25 %	5-15
spined loach	35	6 %	4-10
river gudgeon	168	28 %	4-16
pikeperch	1	0 %	32
pike	1	0 %	12
white bream	1	0 %	5
tench	1	0 %	5
european eel	33	5 %	20-67
total	612		4-67

Suitable for wide array of fishes

Monitoring of fish passage through the first siphon fish ladder that was installed revealed that:

- the fishway is successfully passed by a wide array of species
- fish species with lower swimming abilities (spined loach and gudgeon) and even crayfish and tadpoles passed successfully
- species composition in the monitoring fykenet closely corresponded to the species composition that is found in the waterway
- migration movements outside typical migration seasons illustrated the ease of passage.





Summary of product characteristics

- provides upstream and downstream passage opportunities
- passes a wide array of fish species including bottom dwelling species
- widely applicable
- suitable for placement underground
- low energy requirement and low water consumption
- adjustable flow rate
- minimal maintenance requirement
- orifices in the baffles enable flushing to prevent siltation
- entrance and exit chambers provide dark and quiet shelter to fish.

Technical specifications

- build in a composite material
- standard dimensions of 800, 1000, 1200 and 1500 mm available. For special applications diameters up to 2400 mm are possible
- length of fish ladder depends on the number of baffles needed to cover the head difference. Typically one baffle is used for each 100 mm of head difference
- subsequent baffles are set at a distance of 800 to 1500 mm
- water consumption chosen according to site specific specifications. Consumption can be set as low as 10 L/s
- equipment with solar panels for power supply is optional
- design is site specific.



FishFlow Innovations

FishFlow Innovations develops and produces innovative products to facilitate fish passage and fish deflection.

In addition to the siphon fish ladder, FishFlow Innovations produces bypass-systems, strobe lights for fish deflection, fish-friendly axial pumps, fish-friendly screw pumps, hydropower turbines, and fish-safe rotary drum screens.

For more information on the siphon fish ladder or our other products, please contact us via info@fishflowinnovations.nl or visit our website www.fishflowinnovations.nl/en.

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