

Whooshh Elver Collection Solutions: Spec Sheets

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Elverator™

Elver Floating Collector: Specification Sheet

Physical

Dimensions of Assembled Collector:
12 ft long, 10.5 ft wide, 5 ft high

Dimensions of Dis-Assembled Collector -
Transport Mode
(divides into two sections of similar size)
12 ft long, 5 ft wide, 5 ft tall

Covered area producing shade
138 sq ft

Two Identical Ramps
~30° angle, 10.5 ft wide, 3 ft long
(composed of 32 EF:16 plates per ramp)

Portion of Ramp below water level
~1/3 or 1 ft

Portion of Ramp above water level
~2/3 or 2 ft

Typical elver climb time from out of water
to ramp crest < 30 seconds

Water flow

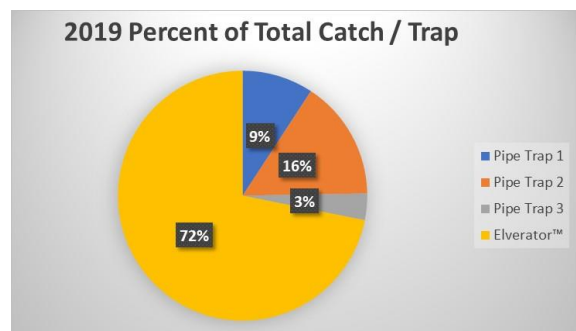
Water Pump
~124 gal/min (7.8 liters/sec)
Flow rate across each EF-16 plate
1.1-1.6 gal/min (0.07-0.1 l/s)

Power requirements

Water Pump
Single phase, 110V, 13A, ~28 lb

Example of Effectiveness of the Elverator™
Compared to three Pipe Collectors, 2018 Study
River Göta älv, Sweden

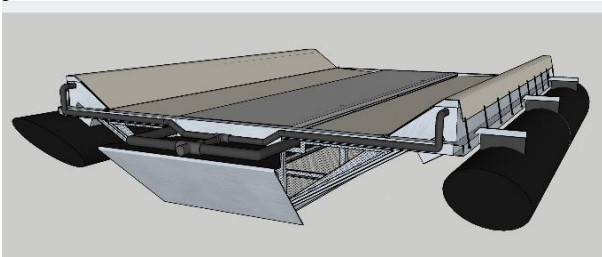
<https://www.whoosh.com/elver-collection>



Revolutionary Elver Upstream Floating Collector Design Components

Floating – Two pontoon floating structure allows versatility of placement in the waterway where elver congregate. In addition, the floating design enables standardization of attraction flow and climbing distance regardless of river fluctuations. Easily removed from waterway for winter storage, extending product life.

Nose – Redirects river flow creating a central channel through the collector that facilitates elver ramp approach via creating slow-moving backwater over which supplemental directed attraction flow is provided.



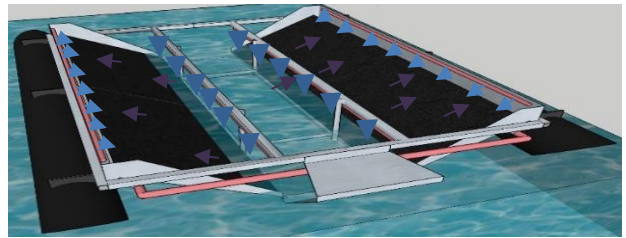
Ramps – Positioned perpendicular to river flow, the elver do not need to overcome the river flow rate to begin climbing up the ramp. The ramp length is standardized to a short distance of ~3 feet, reducing climb time, stress and energy reserve use required to climb and pass over the ramp crest. Two ramps, one on each side of the collector, with a width of 10 feet, extends the opportunity for the elver to locate the ramp ~16 times, increasing use efficiency.



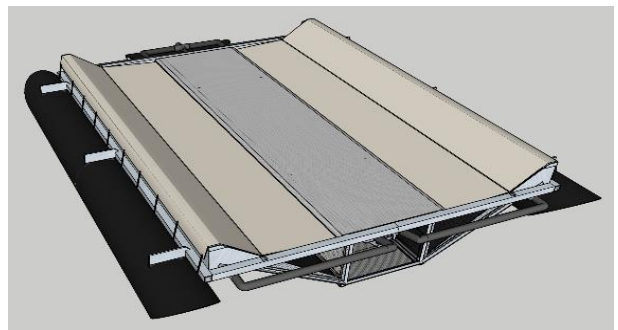
Climbing Substrate – EF:16 is a proprietary climbing substrate designed for increased ease for elver navigating a climb, providing features that

facilitate rest during the climb and variation of flow stream.

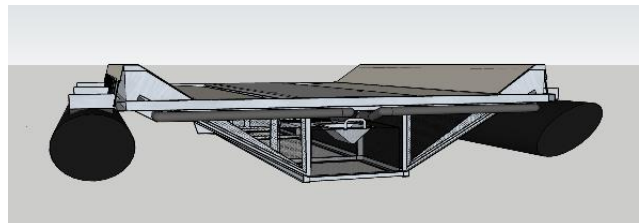
Attraction and Water Flow – Multiple flow dispersal points (blue arrows). Total attraction flow of ~66 gal/min directed down into the central channel. Water flow positioned at the top of each climbing substrate ramps at 25 gal/min facilitating migration attraction of elver up the ramp.



Collection container – Elver pass over the ramp crest into an enclosed collection channel. The elver flow with the small stream through the channel and into the collection trap positioned underwater. The trap is perforated to allow continual fresh river water flow through the trap. The collection container is subsequently manually emptied and elver transported to release locations.



Cover – The collector is fully covered from pontoon to pontoon creating a large, 138 square foot shadowed area. Elver are attracted to the dark environment. Successful elver collection in both day and night time hours have been documented. The cover also minimizes predation.



Switchback™ Elver Trap Specification Sheet

Physical

Dimensions of the Switchback™:
830 x 980 mm x height*

Height is the required vertical distance to accommodate climb from water surface (incl. river fluctuations) to external collection box or *Elver Chamber™*

Dimensions of Ramps:

Angle: 30°
Width: 400 mm
Length: 920 mm

Height options offered:

Sequential switchback increments of 925 mm

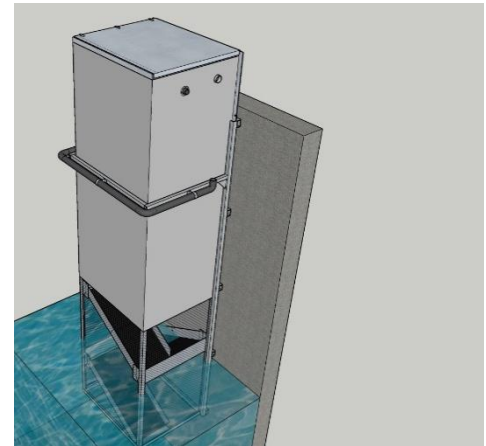
Proprietary Climbing Substrate: *EF-16*

Studded substratum facilitates a “3D” climbing structure for more efficient capture over a range of elver sizes.

Interlocking tiles of 490 x 200 x 40 mm



Installation of Switchback™ in Sweden.



The Switchback™, including predation shielding

Switchback™ Design Features

Requires minimal land use footprint

Lifts above water surface via guide rails during off season

Addresses elver entry access over a range of water surface elevations

Series of short ramp climbs with rest options vs. a continuous extended ramp

Additional Features

Predation Screens: Upper portion shielded by perforated aluminum sheet; lower portion has stainless steel netting (20 x 20 mm mesh)

Retrieval and Transport: Adaptable to retrieval of caught elver in collection box or the optional *Elver Chamber™* which is capable of pumping collected elver over a barrier or to a more convenient retrieval site

Water flow and Power Requirements

Water Pump ~500 l/min

Flow rate down EF-16 tiles ~ 9-10 l/min (on 400 mm width EF-16) via single phase, 230V, 10A (depending on manufacturer)

<https://www.whooshh.com/elver-collection>

EF-16™ Climbing Substrate: Specification Sheet

EF-16™ Climbing Substrate Features

- Vacuum molded plastic tiles
- Corrosion resistant and durable
- Overlapping, interlocking feature
 - Tapered, stud structures facilitate a variable depth stream flow path, velocity adjustment obstacles, and rest structures for climbing elvers
- Design optimized to accommodate large range of elver sizes
- Secured to elver trap ramps via rivets or screws

Physical

- Definition *original tile & end tile*
- *Original tiles* are used throughout the entire ramp except for the uppermost part of the ramp where the *end tile* is used together with a PVC half pipe (3-4" diameter) to create a curved descent to the collecting box (sold separately).
- Dimensions of EF-16™ tiles:
 - 490 x 200 x 40 mm

Working with EF-16™

- Typical rivet placement, maximum rivet/screw head size: 6.5 mm, five rivets/screws per tile
- EF-16™ tiles comes with a standard width of 200 mm, a common ramp width of 400 mm needs four EF-16™ tiles per meter of ramp.

*Specialized tile sizes can be produced at additional cost, under a signed contract commitment.

