

# RIVERWATCHER

## FISH COUNTER



**Biomark**

### RIVERWATCHER

The VAKI **Riverwatcher** provides reliable river stock management in over 500 rivers around the world. It monitors fish migration patterns in a variety of fish ladders, weirs and passes, including in exposed conditions.

The VAKI Riverwatcher can be customized for different installations to suit almost any river and location, and be custom made to fit special needs.

**CUSTOMIZABLE** (*Pictured as double stacked*)

#### MAIN FEATURES

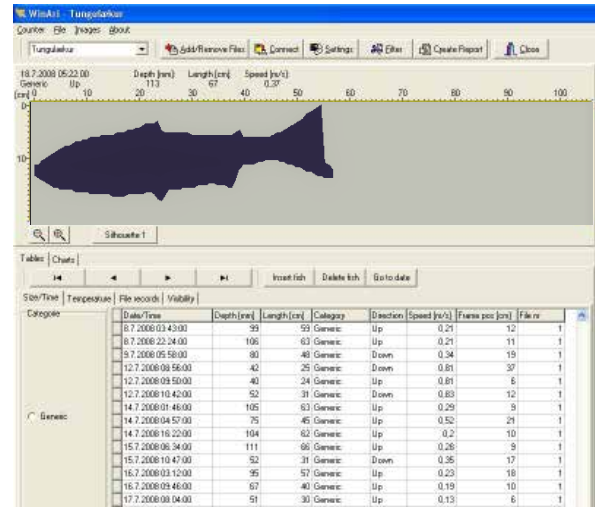
- Counts fish with +98% accuracy
- Measures size of fish with +95% accuracy
- Captures two silhouette images of every fish for identification and count verification
- Records date and time of day that each fish passes the scanner
- Measures water temperature at selected intervals
- Runs on 12V power that can be supplied from a solar panel kit in remote locations or a main transformer
- Supports remote control via telephone or internet
- Pairs with Riverwatcher software and database for quick data download and to present all data and images
- Captures optimal digital image and video quality when Photo Tunnel feature is added

### RIVERWATCHER PIT TAG

# RIVERWATCHER

## RIVERWATCHER S

- Riverwatcher “S” or Scanner is installed in fish ladders, pools, traps or similar places where all the fish in the river have to pass
- It consists of two scanner plates (20 x 60 cm) inside a frame, the distance between them being from 45 to 100 cm
- Inside the scanner, light diodes send infra-red light beams to receivers on the other side
- When a fish swims through the net of light beams, the resulting silhouette image is used to count and estimate the size of each fish
- Each individual image is recorded in the control unit so that the counting can be verified afterwards



The screenshot shows the Riverwatcher S software interface. At the top, there's a menu bar with options like 'Counter', 'File', 'Images', and 'About'. Below the menu, there's a status bar showing '10.7.2008 05:22:00' and 'Genre: Up'. The main area displays a fish silhouette with a depth of 113 cm and a length of 47 cm. Below the silhouette, there's a table with columns for Date/Time, Depth [cm], Length [cm], Category, Direction, Speed [m/s], Frame pos [cm], and File no. The table contains 15 rows of data.

Date/Time	Depth [cm]	Length [cm]	Category	Direction	Speed [m/s]	Frame pos [cm]	File no.
8.7.2008 03:43:00	99	59	Genetic	Up	0.21	12	1
8.7.2008 02:24:00	106	63	Genetic	Up	0.21	11	1
9.7.2008 05:58:00	90	48	Genetic	Down	0.34	19	1
12.7.2008 09:56:00	42	25	Genetic	Down	0.81	37	1
12.7.2008 09:50:00	40	24	Genetic	Up	0.81	6	1
12.7.2008 10:42:00	52	31	Genetic	Down	0.83	12	1
14.7.2008 01:46:00	105	63	Genetic	Up	0.25	9	1
14.7.2008 04:57:00	75	45	Genetic	Up	0.52	21	1
14.7.2008 16:22:00	104	62	Genetic	Up	0.2	10	1
15.7.2008 06:34:00	111	66	Genetic	Up	0.26	9	1
15.7.2008 10:47:00	52	31	Genetic	Down	0.35	17	1
16.7.2008 03:12:00	95	57	Genetic	Up	0.23	18	1
16.7.2008 09:46:00	67	40	Genetic	Up	0.19	10	1
17.7.2008 08 04:00	51	30	Genetic	Up	0.13	6	1

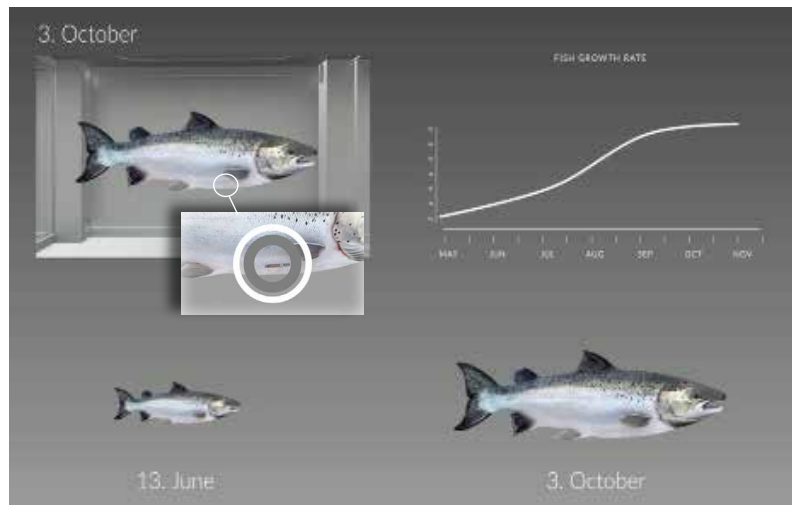


## RIVERWATCHER C

- Riverwatcher “C” or Camera is the newest, most cost effective model
- IP underwater stereo video camera with infrared vision
- Underwater infrared and white LED lights
- Stainless steel camera tunnel
- High performance computer operating Riverwatcher software to count and monitor the fish
- Photo tunnel ensures optimal image and video quality (*pictured to the left*)
- Lights can be time controlled to switch to IR light during nighttime

## RIVERWATCHER PIT TAG

- PIT-tags are used in many studies to uniquely identify fish
- Riverwatcher PIT Tag is equipped with a Biomark antenna system to scan PIT tag IDs
- Researchers can view data, identify a tagged fish, and connect this information with other critical data captured by the Riverwatcher



## RIVERWATCHER SMOLT



- Easy to install, setup, and customize design
- Accurate counting
- High capacity
- Gentle on fish
- Images saved for verification
- Counting report

## RIVERWATCHER ELVER



- Counts juvenile eels from 0.003 oz (0.1 g)
- Real time video images
- Pairs with Riverwatcher software for easy monitoring
- Graphical representation of position and quantity of elvers

## RIVERWATCHER SMOLT PIPE COUNTER



VAKI has several pipe counters with high-speed, line scanning computer vision technology for pipes ranging from 6 to 90 cm diameter for counting juvenile eels and shrimp up to smolt and adult fish.

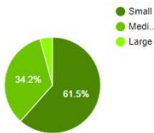
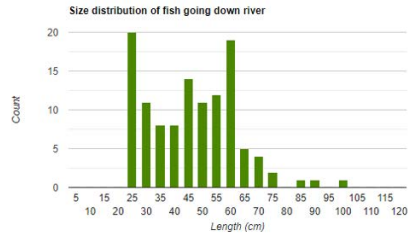
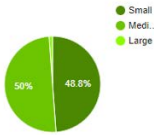
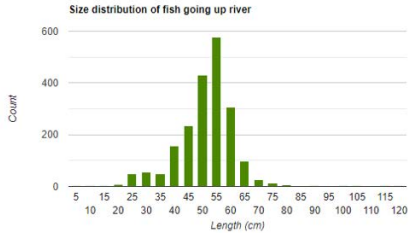
As the fish goes through the scanner it generates an image of every fish which is used for counting and size estimation. These counters are very gentle on the fish and there is no need to dewater.

The Riverwatcher Smolt Pipe Counter is based on accurate and proven technology used in aquaculture around the world and was developed to monitor bypass tubes at a hydro power station for down migrating smolts.

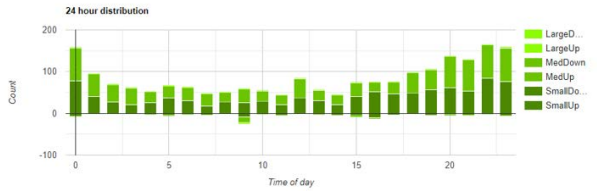
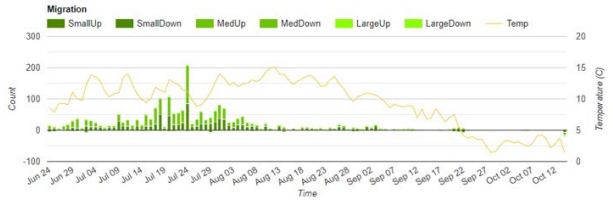
## RIVERWATCHER DAILY

Counting Report for Norðurá - Glanni. Specie: -  
Jun 24, 2021 to Oct 14, 2021

Size	Up	Down	Up-Down
Small	985	72	913
Medium	1,008	40	968
Large	24	5	19
Total	2,017	117	1,900



Small < 50cm Medium < 70cm Large: L>H:5.0



### Features

- Examine migration patterns of fish by size groupings or time of day
- Analyze silhouette images of each fish to verify counts
- Access temperature records for a particular period and see its impact on migration patterns
- Get count of fish that have gone up or down stream
- Watch video of the last or the largest fish that swam through the Riverwatcher
- Share access with coworkers or other interested parties and decide how much information they can access



The **RIVERWATCHER** is manufactured by VAKI, a leading brand of Biomark.  
For additional information you can visit [riverwatcher.is](http://riverwatcher.is)



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