# RIVERWATCHER
FISH COUNTER

RELIABLE RIVER STOCK MANAGEMENT

VAKI

THE **RIVERWATCHER**

With over 25 years of development and research the Riverwatcher has a proven track record of reliability and accuracy. The Riverwatcher is in operation to monitor fish migration patterns in over 300 rivers world-wide in a wide variety of fish ladders, weirs and passes many in exposed conditions. Several different installations options are available to suit almost any river and location. The Riverwatcher can be custom made to fit special needs.

Find out how the Riverwatcher can help you.
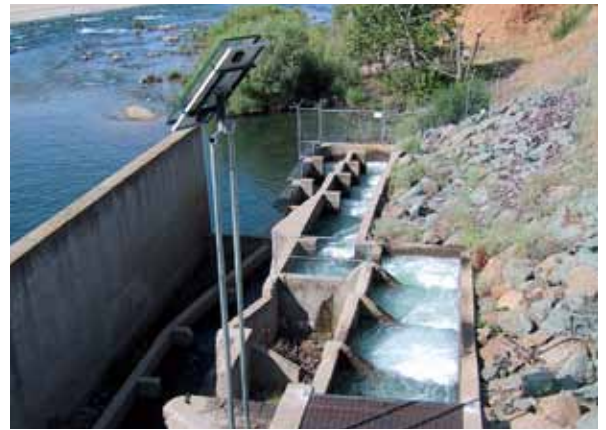
ADVANTAGES

- Comparison of catch figures and movement patterns of the fish to calculate the exploitation rate
- Comparison of movement patterns of fish from one year to another
- Evaluation of results of rearing and smolt releases
- Assessment of the influence of different environmental factors
- Assessment of the efficiency of fish ladders
- Valuable data for better fisheries management
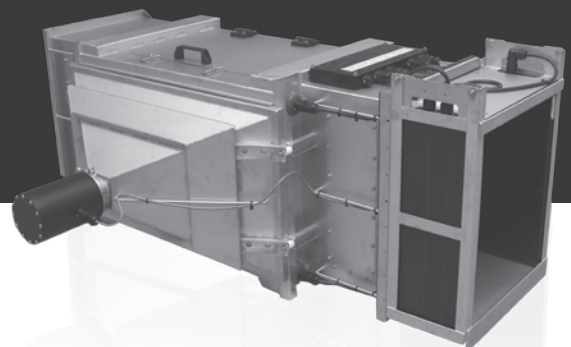
HOW IT WORKS

The 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 10 to 45 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 weight of each fish. Each individual image is memorised in the control unit so that the counting can be verified afterwards.

The Control Unit receives the information from the scanner and stores it. It can be connected to a computer for processing the data as often as required. The temperature of the water is measured and the date and time of day that each fish passes the counter is also recorded. In this way their movement can be correlated with environmental factors. The power supply consists of solar panels and a deep cycle battery.

Power can be supplied from solar panels

SPECIAL
SOLUTIONS

MULTIPLE SCANNERS

It is possible to connect several scanners together and monitor the migration in rivers that do not have fish way or ladder. A PC with a specially designed program is used to gather signals from all the scanners that are connected and store the data. With a modem connection it is possible to download the data at any time.

THE
INSTALLATION

The installation site should be selected to ensure that all migrating fish will pass through the scanner with minimum of changes to the river.

The most common sites are fish ladders, fish-passways, or narrow sections of rivers. The circumstances can differ from one installation site to another but in most cases a metal grid (inscale) must be used to guide the fish through the scanner without blocking the water flow. The bars on the grid must be tight enough to prevent fish from passing through but allow maximum water flow and minimise build up of debris.

REMOTE CONTROL

The Riverwatcher can be accessed remotly. This option makes it possible for users to control and check the status of the counter as well as download data from the Riverwatcher directly to a PC without visiting the site.

This option is strongly recommended to maximise the efficiency and operation of the counter. Regular remote checks can identify the status of power supply and build up of debris or damage to the scanner minimising counter downtime. Increasing the frequency of downloads reduces download time, minimising any risk of problems in transferring data files.

THE
SOFTWARE

The Riverwatcher software is used to analyse and present the data from the fish counter. It is possible to examine the migration pattern of fish over a particular period, by size groupings or for a particular time of the day. You can also examine temperature records for a particular period, and analyse silhouette images of each fish to verify the counting.
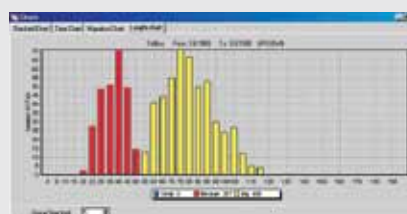

It is possible to analyse silhouette images of each fish, and sort fish in different groups.
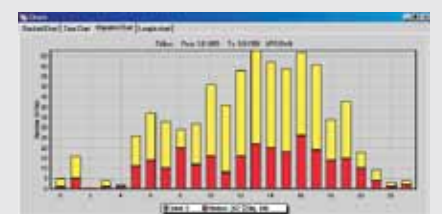

This chart shows the migration patterns over a selected period.
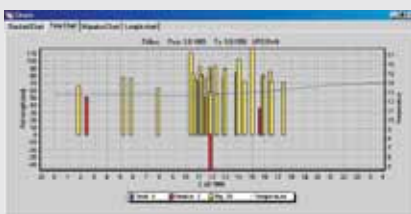
This chart shows the migration pattern over time, with the length and time of fish.

This chart shows the breakdown by size category.

This chart shows the time of the day when the fish were recorded.

CAMERA **CONNECTION**

The Riverwatcher can be supplied with a digital camera system to record video or still images of fish passing through the scanner. The scanner triggers the camera to capture between 1 and 5 digital photos or a short video clip of each fish. The computer then automatically links the digital images to the other information contained in the database for that individual fish such as size, passing hour, speed, silhouette image, temperature etc.

A new Double Height Twin Scanner

The camera, lights and scanner are connected to the PC through the connection box.

Lights and camera are installed in the photo tunnel

REMOTE LOCATIONS

The Riverwatcher with camera system can be used in remote locations with no mains power. Both the scanner unit and digital camera are connected to a 12V computer. The computer greatly increases the data that can be stored and analysed and can be supplied by solar or battery power.

PHOTO TUNNEL

For best images unaffected by sunlight or time of day, the photo tunnel is recommended. The standard tunnel is 160 x 105 x 63 cm (L x W x H) and is fitted with the underwater digital camera, lights and scanner unit. Standard opening between scanner plates is 40 cm. The tunnel ensures that the images are captured under controlled and constant lighting conditions, as well as the optimum position and distance of the fish to the camera.

FISH IDENTIFICATION
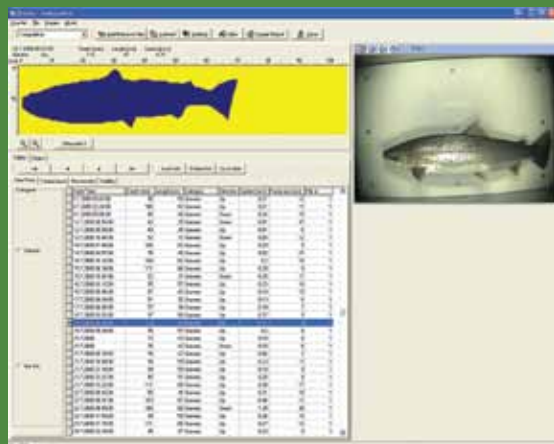
The videos and the digital photos can be used with other data from the Riverwatcher to sort fish in groups according to species, sex and even in farmed or wild fish.

REAL TIME VIDEO
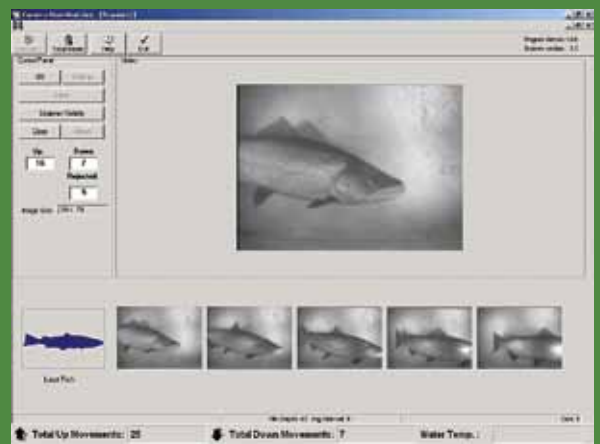
Live video from the camera can be viewed in real time at any time on the Riverwatcher computer screen.

MAIN FEATURES
OF THE **RIVERWATCHER**

1.   The Riverwatcher counts fish with more than 98% accuracy.

2.   The Riverwatcher measures the size of each fish with more than 95% accuracy.

3.   Two silhouette images are linked to every fish and can be used for identification and to verify the count.

4.   The date and time of day that each fish passes the scanner is recorded.

5.   The water temperature is measured at 3 hour intervals.

6.   The 12V power requirement can be supplied from a solar panel kit in remote locations or a mains transformer.

7.   The counter can easily be adjusted for use in all fish ladders, dams, traps and similar places.

8.   The Riverwatcher database software is used to download and present all data and images.

9.   Remote control through telephone or internet.

10. Detailed identification of species, sex, etc. of individual fish from the high quality digital images.

11.   Several counters can be connected together to monitor rivers where there are no fishways.

12. The Photo Tunnel option ensures optimal digital image and video quality.

RIVERWATCHER
F I S H   C O U N T E R