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Hatchery and Research Centre for Marine Species, Rosignano Solvay, Livorno, Italy.

This case study describes a fish hatchery which also doubles as a research centre. The hatchery takes in sea water which is distributed to various tanks containing the fish.



Figure 1: The Hatchery and Research Centre at Rosignano Solvay. The right hand picture shows the rows of fish tanks.

As with all fish hatcheries, they had significant problems with bacteria and viruses affecting the fish. In order to treat this problem, a UV system was put in place to kill the bacteria. Although this was working, it was not treating the problem fully.

A particular problem was the turbidity of the water. The water became cloudy due to organic and other matter in suspension. This of course had a major effect on how well the UV system worked – if the water is not clear, the UV light cannot pass through the water and becomes less effective. In addition the UV system was expensive – it required constant maintenance, needed replacement spare parts and consumed a large amount of electricity. The UV system consumed 10 kW/ hour of electricity, 24 hours a day, adding up to a running cost of around €1100 per month.

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Installation



Figure 2: An HydroFLOW unit installed on the incoming water to the whole plant.

In 2007 Hydrocoffee installed HydroFLOW units to protect the plant, one on the main incoming water, and several installed at various locations around the plant.

As well as protecting the main fish breeding tanks, the HydroFLOW units were also installed to protect the culturing tanks used for the new-born fish (which was mostly closed-circuit) and for protecting the external water storage tanks.



Figure 3: An HydroFLOW A100 unit installed before the water is transferred to the main fish tanks.

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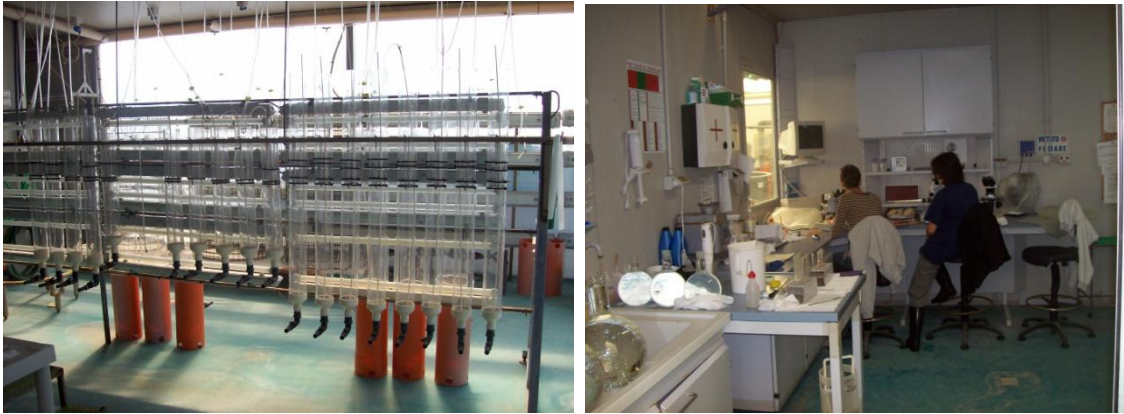


Figure 4: The Research Laboratories



Figure 5: In these tanks (Right), new-born fish are placed to begin their growth. The HydroFLOW unit (right) protects the fish against bacteria, and also protects the heat exchanger against limescale.



Figure 6: External water storage tanks also had their UV protection replaced with HydroFLOW.

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Results

Protection of Heat Exchangers

The heat exchanger shown had problems of scale every six months and had to be completely disassembled and washed with acid. Now, with the installation of HydroFLOW, it is only opened once a year and washed with a jet of water as part of routine maintenance.



Figure 7: A heat exchanger protected against limescale by HydroFLOW. Instead of twice-yearly acid washes, the exchanger is hosed down once a year as part of routine maintenance.

Treatment of bacteria and viruses

The UV treatment was discontinued and the HydroFLOW units prevented any problems with bacteria and viruses in the fish.

A further advantage of HydroFLOW is that the unit's easy-fit design means that it can be moved from one line to another without any plumbing. This is important as the farm will often switch the water flow to a bypass circuit in order to perform maintenance on the tanks. The ease of use of the unit means that HydroFLOW can offer full time protection when the water path is swapped.

In electricity charges alone, switching from UV treatment to HydroFLOW has reduced their running costs by **over €1000 per month**.

Hydrocoffee has treated fish farms in Civitavecchi Rome, Rosignano Solvay Livorno, Valdastico Venezia and Isola Pelestrina Venezia, in both sea water and fresh (spring) water.