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

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

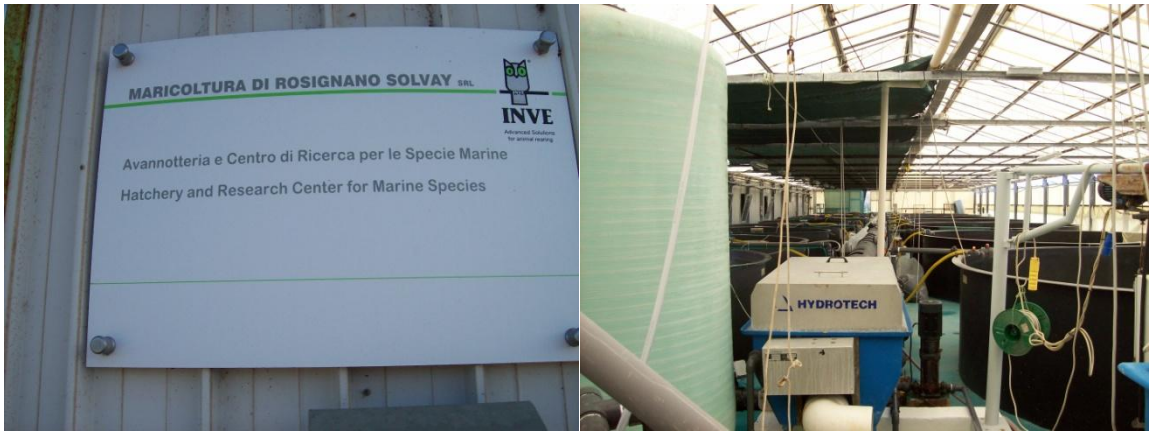

Figure 1: The Hatchery and Research Centre at Rosignano Solvay. The right hand picture shows the rows of fish tanks.

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. There were various UV systems present, consuming a large amount of electricity, 24 hours a day.

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Installation

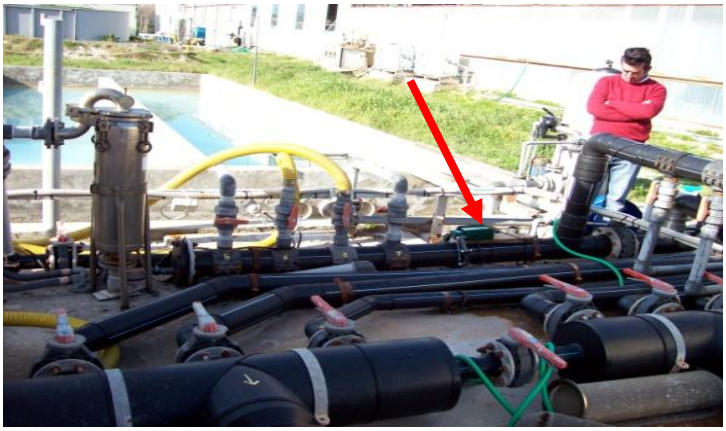

Figure 2: An Agriflow unit installed on the incoming water to the whole plant.

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

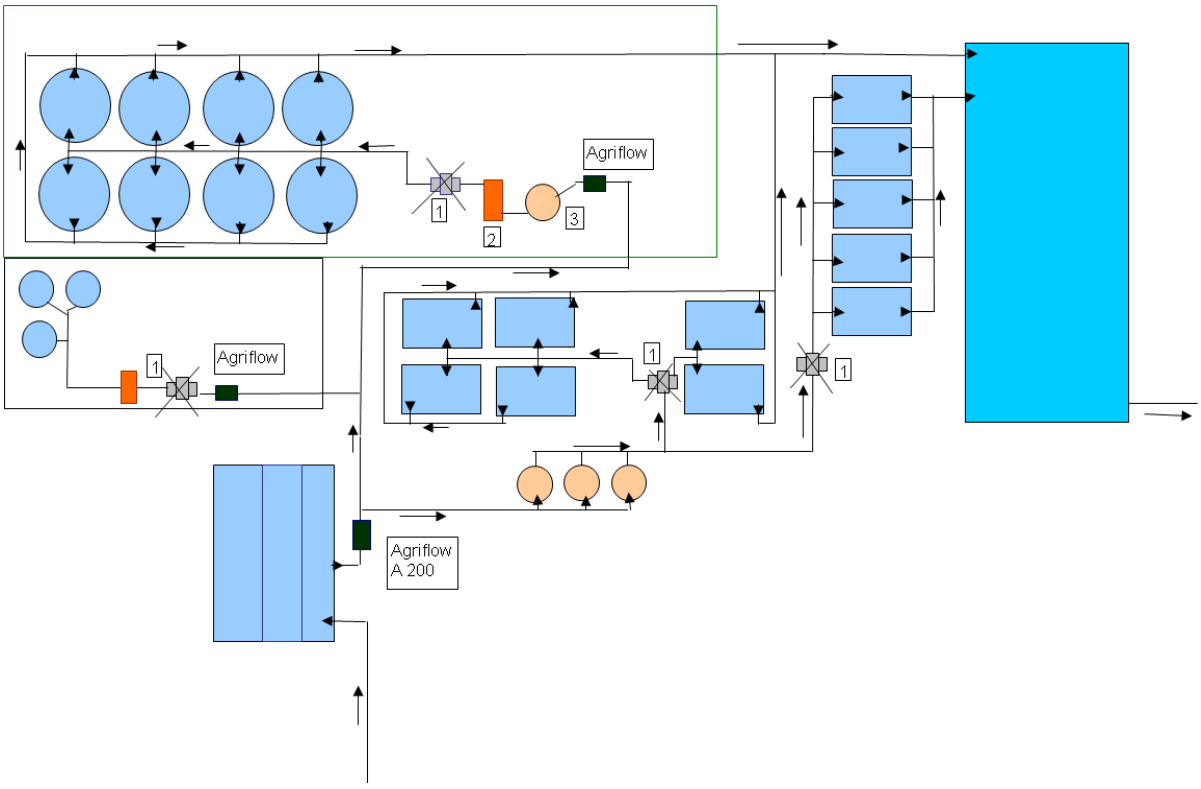

Figure 3: Diagram showing partial piping layout and some of the installation locations

Figure 4: Some of the installed units

As well as protecting the main fish breeding tanks, the Agriflow 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.

Results

Figure 4 shows one particular UV System that consumed (by itself) 10 KW/hour of electricity, 24 hours a day, adding up to running cost of around € 1.100,00 per month.

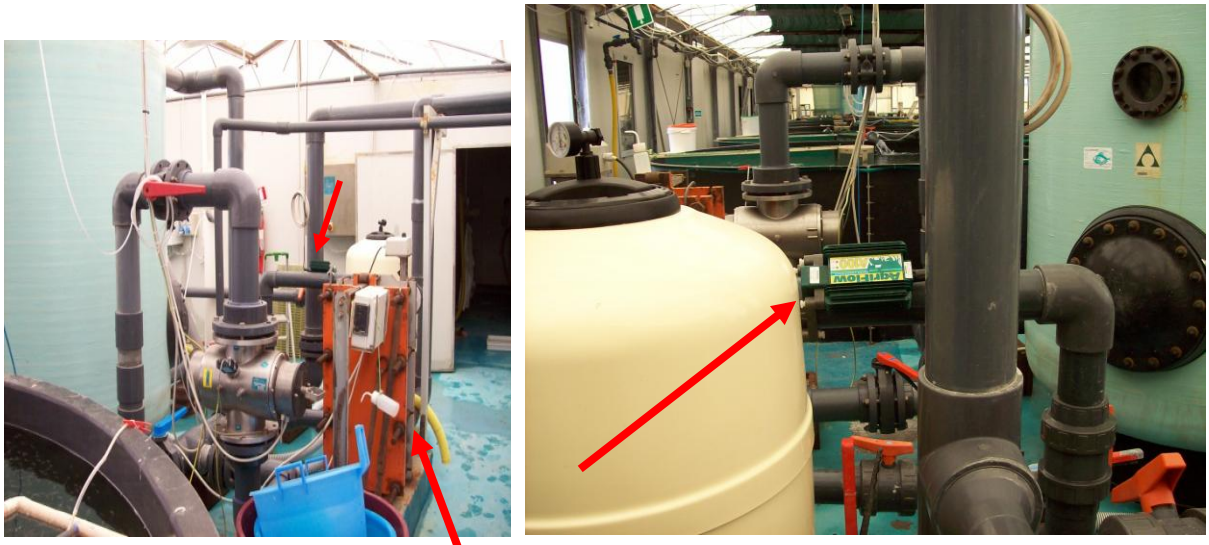

Figure 5: An Agriflow A100 unit installed before the water is transferred to the main fish tanks.

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 Agriflow, it is only opened once a year and washed with a jet of water as part of routine maintenance.

Figure 6: A heat exchanger protected against limescale by Agriflow. Instead of twice-yearly acid washes, the exchanger is hosed down once a year as part of routine maintenance.

Figure 7: The Research Laboratories

Figure 8: In these tanks (Right), new-born fish are placed to begin their growth. The Agriflow unit (right) protects the fish against bacteria, and also protects the heat exchanger against limescale.

Figure 9: External water storage tanks also had their UV protection replaced with Agriflow.

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Treatment of bacteria and viruses

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

A further advantage of Agriflow 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 Agriflow can offer full time protection when the water path is swapped.

In these five years of Agriflow use, the plant has worked well and obtainined very good results.

Hydrocoffee has treated fish farms in Civitavecchia (Rome) and Rosignano Solvay (Livorno).