



Disinfection

Aquaculture,
Hatcheries

Japan

Disinfection at Suma Production Facility, Japan

The Challenge

The Uwa Sea in Ehime Prefecture, with its serene bays along the Rias coast, is one of Japan's most productive areas in terms of fish, pearl, and mother-of-pearl cultivation.

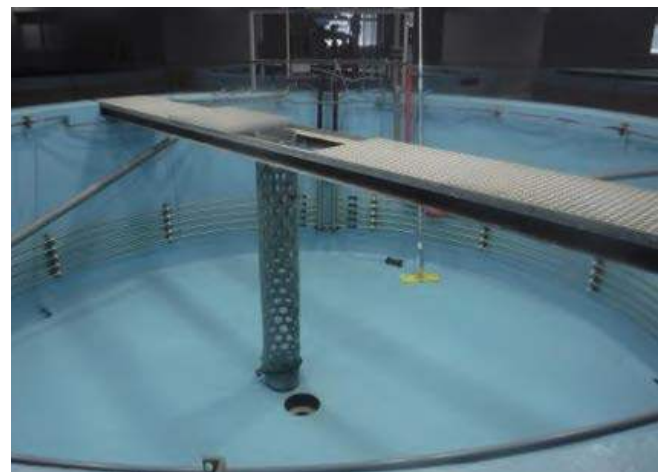
The regional authority has focused its attention on cultivating a new species, Suma, and has been engaged in seedling production and aquaculture experiments in cooperation with Ehime University since 2013.

The seedling production building has six tanks, each 6.5 m in diameter by 2.2 m deep so that selected smelt fry can be divided into up to six tanks according to size. In addition, the water tank is dug down 1.3 m, making it easy to work from the top of the tank. To improve initial survival, special lighting was used to better control feeding and prevent cannibalism. An oxygen gas generator was installed to ensure a constant supply of sufficient oxygen.



Seedling production building

During seedling production, cannibalism proved to be a major issue. To reduce fish loss, when the fish grew to around 25 mm in length they were split and divided into multiple tanks according to size. However, existing facilities lacked sufficient tanks and breeding water, making mass seedling production challenging. To address the issue, the Ehime Prefecture established a Suma production facility with six 70kL tanks to enable mass production.



70 kL concrete water tank

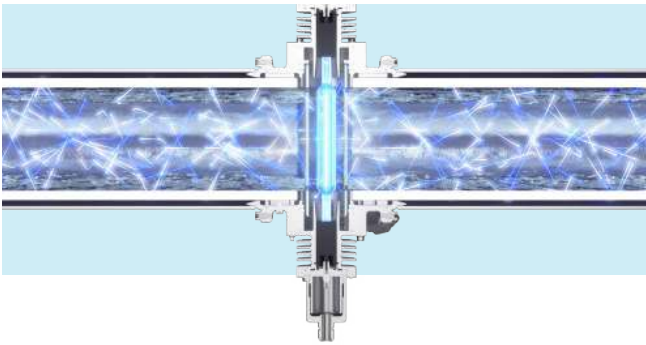
The Solution

The elevated tank building is equipped with four filtration units (50 kL/hr) and two Atlantium HOD™ (Hydro-Optic Disinfection) UV units (100 kL/hr) to provide pathogen-free breeding water. The HOD UV systems use medium-pressure UV lamps which emit a wide wavelength with high sterilization performance and maintain an irradiation dose of 120 mJ/cm² or higher.

Recent scientific research has shown that effective control of complex organisms, EPS, and viruses and prevention of the repair mechanism following treatment rely on a wider UV wavelength span.

Our high-performing, medium-pressure UV lamps emit a wide wavelength that causes greater damage and yields more effective disinfection than low-pressure UV lamps, and even more effective and economical than any other medium pressure lamps.

The HOD UV system features the unique Total Internal Reflection (TIR) technology that recycles UV light energy, ensures homogenous UV dose distribution, provides superior power (kW) efficiency compared to traditional UV, and achieves unprecedented micro-organism inactivation.



Results

Compared to other fish species, smelt grow remarkably fast, reaching 100 mm in length in about one month of rearing. During 2020, the Fisheries Research Center was able to produce 28,500 fish for distribution to aquaculture companies, far exceeding their target (20,000 fish) by 42.5%.



HOD MP UV systems

Source: Development of the Suma Production Facility at the Ehime Fisheries Research Center Akio Watanabe, Director, Research Planning Office, Fisheries Research Center, Ehime Prefectural Institute of Agriculture, Forestry and Fisheries

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About us

For more than two decades, Atlantium Technologies has helped to ensure water safety with its innovative HOD™ (Hydro-Optic Disinfection) UV technology and novel approach to performance, monitoring, and control. Atlantium's superior, environmentally friendly water treatment solutions ensure stable, efficient, and dependable production.

With thousands of full-scale installations for leading brands in various industries globally, we're committed to consistently meeting our customers' water quality needs, ensuring pure results.

