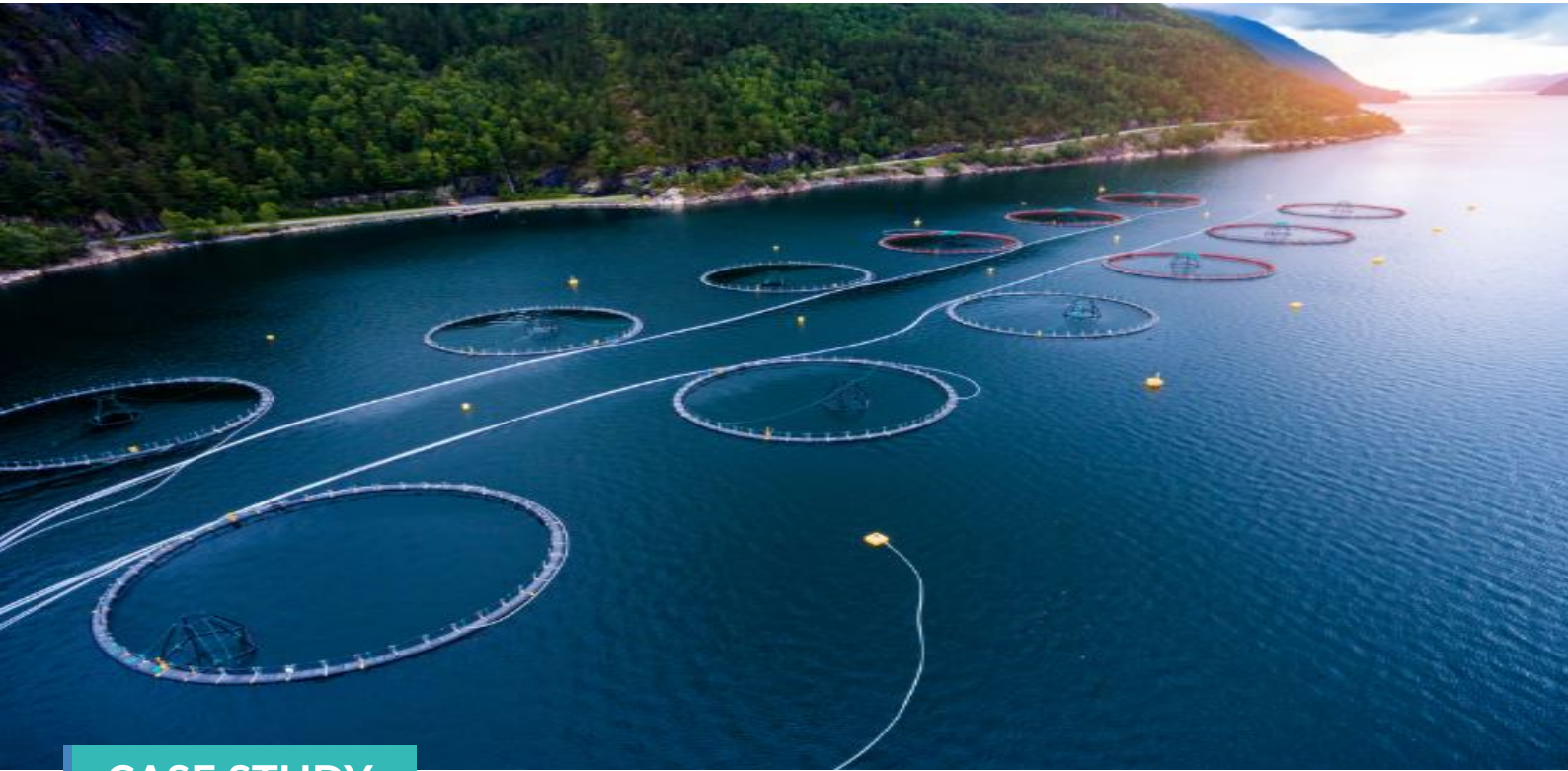




Power & Water

Purification through Innovation



CASE STUDY

Aquaculture Wastewater Treatment



Creating 'Value from Waste' in sustainable aquaculture



Introduction

Our taste for fish is increasing, but demand is outstripping supply, with over-fishing causing a massive depletion of wild fish in our oceans and rivers. Alternative sustainable sources are needed.

Aquaculture (fish farming) has been lauded as the answer. What's more, forecasts are suggesting a global aquaculture market value of \$209Bn by 2021.

The Issue

Unfortunately, Aquaculture has become associated with pollution, not revolution.

Not only do farms produce unsafe levels of waste, but they also nurture nutrients that cause algal blooms. These blooms starve their surrounding water of oxygen, harming the nature within.

Clearly, farms require water treatment. Most treatments are chemical-based, but these processes retain residual phosphates and ammonia that prevents its re-use, leading to further expensive water costs.

As a result, the Welsh Government have said that implementing recirculatory systems and reducing or outright removing chemical dosing is vital to reducing clean-water intake.



The Soneco® plant



Erko Settefish



The Solution

P&W has a solution - the Soneco® system. Our electrolysis system is not only energy efficient, but is also passivation-proof, thanks to its ultrasound technology. These factors, combined with its ability to provide circular economy solutions, mean that Soneco® can cut costs whilst saving the environment.

Our innovative process removes clay particles, phosphates, organics and ammonia, producing water ideal for recycling and re-use. Crucially, the process is liquid chemical-free, keeping fish stocks healthy and meeting increasingly stringent environmental laws.

Testing

The Soneco® system has been successfully installed at a Norwegian Recirculation Aquaculture System (RAS) fishery where it is producing clean, recyclable water.

Here they are collecting the bi-product of this process - contaminant-free sludge. Significantly, once dried, the sludge becomes a usable fertiliser, turning an expensive waste product into a valuable commodity.

The system is monitored using P&W's online remote-operation function. This minimises the need for engineers to visit the site, making it ideal for remote locations.



The Soneco® DB-1, pictured with pre and post treatment water

Conclusion

Soneco®, P&W's sustainable solution for waste water and sludge processing, offers fish farmers a cost effective and eco-friendly answer to water treatment. With Soneco®, waste is reduced, saving money on disposal. Treated water can be re-used, eliminating the need to buy more. Finally, the sludge collected can be used as a fertiliser, cutting further expenses. Ultimately, Soneco® solves your waste problems whilst saving you money.

However, our work is not done. We are actively pursuing RAS compatibility to provide a controlled environment for fish farms. We are confident that with our technology, expertise and proven pedigree, we are poised to make major breakthroughs and revolutionise aquacultural water treatment.

Our partners, Bioretur AS took part in, and won the UK Aquaculture Sustainability Award and have already signed contracts with the top 3 salmon producers in the world: - Mowi, Grieg Seafood and Lerøy.

Results

The results from the installation at Erko Settefisk have surpassed the company's expectations, with over 95% reduction in COD, TDS and Phosphates, and 81% reduction in ammonia; their CEO stated that:-

"We are absolutely pleased... I have been working in the aquaculture industry since 1995 and have tried several cleaning solutions...this is the first facility I have had that achieves the results we were promised".

Their published results show the effectiveness of the Soneco system, enhancing the treatment potential to a level where the resultant sludge can be reused as a fertiliser: -

"This is a resource which cannot normally be used as fertiliser in food production due to heavy metals and chemical polymers for sludge purification and is regarded as a waste. We turn it into approved fertilisers without the use of chemicals and without creating hazardous by-products."



Photo showing installation of the award-winning FRS® Fish Sludge Recovery System operating at Erko Settefisk



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“Power & Water is a UK water technology company specialising in sono-electro chemistry. We aim to deliver Circular Economy solutions allowing recovery of waste products, and to produce treated water for re-use or discharge back into the environment.”



The company knowledge and expertise are founded on more than 35 years' experience in the Water and Environmental industries. Our in-house expertise includes engineering, power electronics, software and MEICA.

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