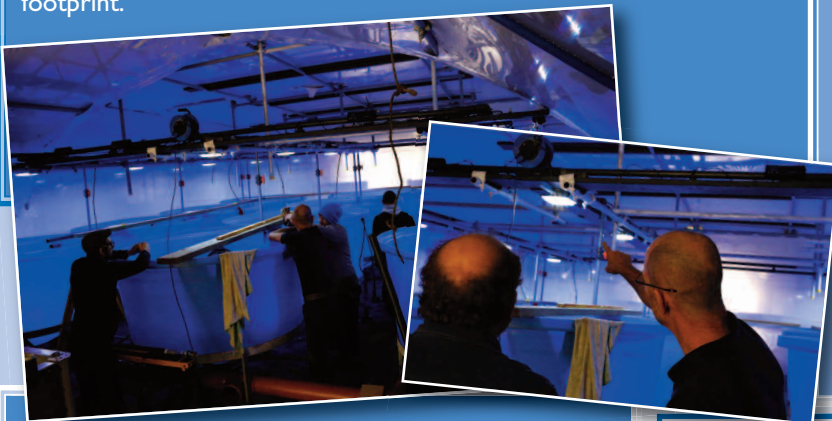


AQUARAY CASE STUDY: Native Marine Centre Ltd, Weymouth, UK

The Client

NMC offers a specialist service in the ethical harvesting and supply of native species for the public aquarium sector, with a strong emphasis on welfare and sustainability in its operations. Aligned with this, the company has a deep commitment to minimizing the impact of its activities, including taking active steps to reduce its energy and carbon footprint.



The Brief

The urgent need for a new solution to the problem of sea lice infestation in cage-reared salmon prompted the company to set up a hatchery facility to rear Lumpfish (*Cyclopterus lumpus*) for deployment as a bio-control.

The facility included 12 x 2000 litre grow-out tanks for the newly-hatched fry and the company wanted to ensure that the energy footprint and overheads for the system were reduced as far as possible. At the same time it was recognised that full photoperiod and intensity control would provide a welfare and productivity benefit by reducing light shock and associated stress.

The Solution

Aside from the proven low-energy/low-carbon/low-maintenance benefits delivered by the AquaRay LED system, the company proposed trialling the potential biological benefits of spectrally-optimised lighting on the developing fry. The new patented "Nature Perfect" platform, specially developed to match the photic conditions of the marine aquatic environment was selected, with a single 28 watt unit over each tank. These were arranged in banks of four units, each bank connected to AquaRay MultiControl units. These were programmed on site to deliver the required photoperiod protocol, including sunrise and sunset settings for even transition between L/D phases.

“ We were surprised at how quickly the system was installed and ready to use, and delighted to see an immediate benefit in terms of energy savings. In addition, the units generate almost no heat, so we’ve found we’re using less energy to cool the system water - effectively an additional energy reduction at no extra cost.

Another surprise was how much light these 28 watt units produce! We actually found that with the newly-hatched fry, we could reduce maximum output during the daytime phase – having this functionality available on the MultiControl units was an unexpected but very welcome bonus! ”

Richard Prickett - Project Consultant, Native Marine Centre Ltd

Comparison of Savings in Electricity and CO₂ Emissions

Savings per year (energy)	£504.58
Savings over projected minimum lifespan	£2522.88
Percentage saving	74%
Reduced CO ₂ emissions over projected minimum lifespan	7.35 tons
Total reduction in CO ₂ emissions	42%

ROI

AquaRay unit price	£72.00
Total investment in AquaRay lighting	£864.00
Total savings per year	£740.10
Total savings over specified period	£3700.48
Payback period on initial investment	1.17 years