

**NEW OPPORTUNITIES FOR A MORE
COMPETITIVE AND SUSTAINABLE BLUE
GROWTH IN THE ATLANTIC AREA**

ABOUT ACCESS2SEA

Aquaculture has the potential to boost economic development and job creation especially in the seafood sector by the sustainable exploitation of the Atlantic Area natural assets. Creating new sustainable farms is a key element for the blue economy in the region.

ACCESS2SEA improves the attractiveness of the Atlantic shore for aquaculture SMEs by enabling new business opportunities and providing sustainable and easier access to it.

WHO IS CARRYING OUT THIS ACTION?

The Centre for Sustainable Aquatic Research (CSAR) is Wales' only Centre of Excellence on Sustainable Aquaculture. CSAR is based at Swansea University and has one of the most comprehensive university based aquatic research facilities in Europe. Our facilities include a state-of-the-art suite of living labs specifically designed to optimally raise a range of aquatic species for use in research and/or teaching (£3.5 million). We also have a CRISPR lab, for gene editing work, a comprehensive genetics laboratory and large scale algal biotech infrastructure.



PILOT 4 LUMPFISH WELFARE

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WHAT IS THE MAIN OBJECTIVE OF THIS PILOT ACTION?

To develop innovative and complementary solutions to improve lumpfish welfare aquaculture practices.

Fish welfare is a controversial topic which is impacting the social acceptability of salmon farming. Every year 50 million lumpfish are deployed in salmon cages to eat sea lice - a parasite that feeds on the skin of Atlantic salmon. Consumers and retailers generally support the use of cleaner fish to control sea lice but only if the welfare of lumpfish is not compromised.

The tool being developed in this pilot will allow fish farmers to monitor and record the welfare of lumpfish and take remedial actions.

HOW WILL IT BE CARRIED OUT?

CSAR researchers have recently developed and validated a rapid Lumpfish Operational Welfare Score Index (LOWSI) in collaboration with salmon and lumpfish farmers. Our aim is to make this index accessible to farms by developing

The Lumpfish Welfare Watcher a web-based application that will calculate the BMI (relative weight) of lumpfish, determine the proportion of fish that are emaciated, underweight, and normal, along with recommendations for action. The application will also calculate the Lumpfish Operational Welfare Score Index (LOWSI) based on four visual indicators (skin damage, eye condition, caudal fin damage and suction disc deformities) and the BMI. It will also calculate the probability of escape from salmon net pens with nets of various mesh sizes. The Lumpfish Welfare Watcher application will be accompanied by a user manual and a e-training course that will be disseminated via webinars and training sessions in the Autumn of 2021.

EXPECTED RESULTS

The lumpfish welfare watcher will allow the farms to record lumpfish welfare and implement actions plans to improve lumpfish welfare. It is expected that by implementing this tool farmers will be more aware of lumpfish welfare, the productivity may increase, and delousing may be more efficient, due to improvements in welfare. The tool will also support an application to a certification scheme.

LOWSI SCORE
OF
8-10

Good Welfare

Class A ACTION PLAN

- No action required
- Continue monitoring



LOWSI SCORE
OF
5-7

Moderately compromised

Class B ACTION PLAN

- Increase frequency of monitoring and check:
- Mortality
- Diet and food delivery
- Use of shelters
- Diseases & parasites
- Sources of stress
- Environmental parameter



LOWSI SCORE
OF
0-4

Severely compromised

Class C ACTION PLAN

- Consider immediate corrective actions
- Consult with Veterinary Services
- Consider culling (under veterinary advice)
- Continue monitoring & reassess

