Enhancing Traceability in Land-based Aquaculture

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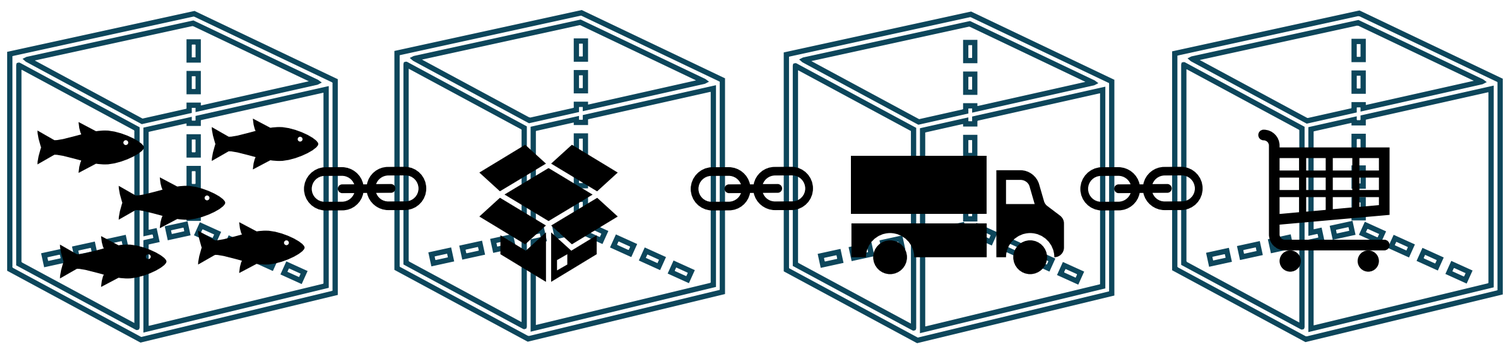
Introduction

To ensure sustainable aquaculture practices and keep end consumers well informed, effective traceability tools are essential. As part of the SEA2SEE project (https://sea2see.eu/), an innovative end-to-end blockchain model has been developed to capture data across the entire seafood value chain. The aquaculture value chain involves multiple stakeholders, including enginnering companies that support farming operations. In this context, Landing Aquaculture, together with SEAentia, has been demonstrating how IoT technology can be applied in indoor recirculating aquaculture systems (RAS) to provide real-time traceability of both the farming environment and the fish production process.



Materials & Methods

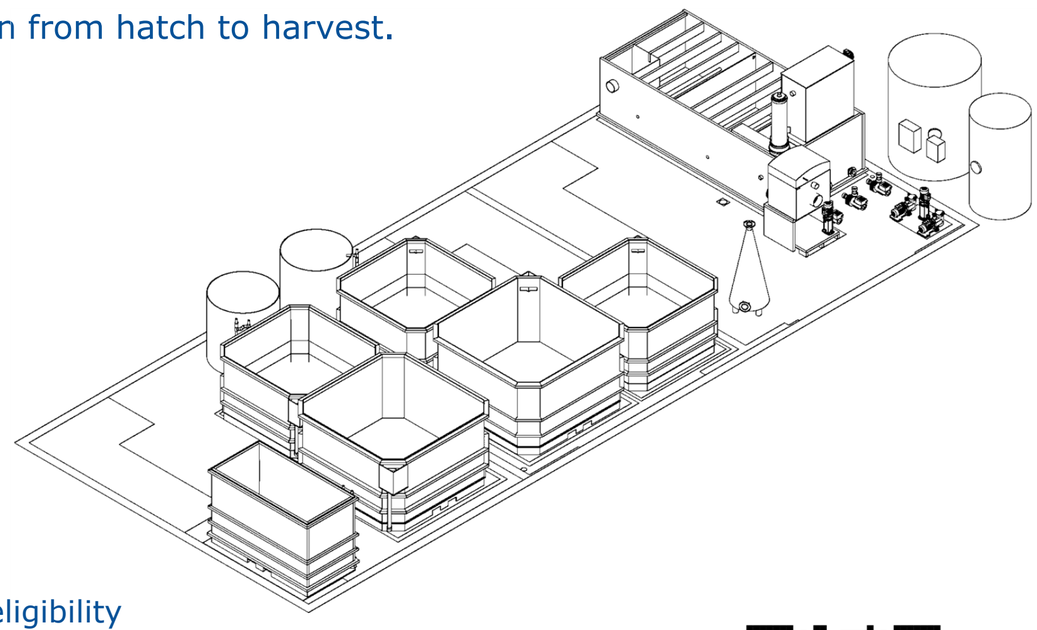
State-of-the-art RAS by Landing Aquaculture with a ~20 kg/day feed load and 95% water recirculation

Simulation of commercial production of meagre (*Argyrosomus regius*) at SEAentia

OxyGuard monitoring system for real-time water quality monitoring and alerts

SmartWater Cloud management software for bi-weekly water quality data analysis & blockchain integration

QR code per fish batch for transparent information from hatch to harvest.



Results & Discussion

- ✓ Stable annual production of 5-7 metric tonnes
- ✓ Consistently optimal water quality
- ✓ Efficient farm management with full environmental control
- ✓ Proven operational record supporting SEAentia's certification eligibility
- ✓ Transparent, verifiable production data accessible to all value chain stakeholders
- ✓ Blueprint for future large-scale operations for increased transparency & trust

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Acknowledgments

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SEAentia Science Based Aquaculture