AUTONOMOUS AQUACULTURE FISH FEEDING SYSTEM

Background

In aquaculture, fish growth and feed intake are influenced by environmental temperature and salinity, causing extreme variations in daily consumption.
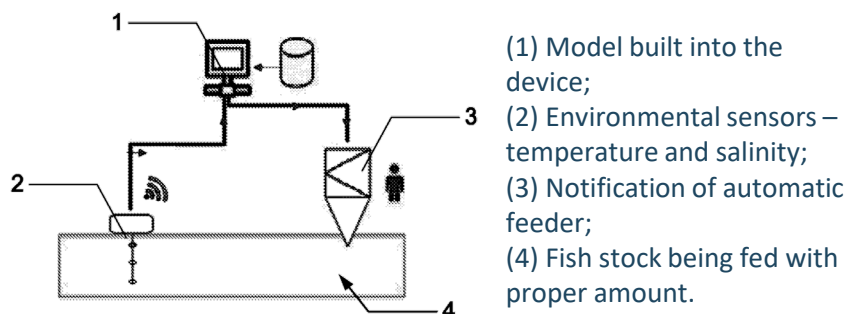
Overfeeding represents 15-25% of waste production in fish-feeding – associated with high nitrogen discharges in coastal areas. There is a need for more efficient and sustainable aquaculture feeding systems.

Technology

The use of predictive models in aquaculture can be an excellent tool to combine increased production yields with reduced environmental impacts.

This technology relates to an autonomous aquaculture fish feeding system that comprises an autonomous vessel with temperature and salinity sensors. The system is equipped with an electronic data processor configured for calculating a fish weight prediction model from the collected temperature and salinity data. The system can then adjust the feeding schedule, reducing waste and improving efficiency of the aquaculture production.

The system is designed for marine fish, preferably for inland aquaculture facilities. The technology was tested with the European seabass and can be adapted to other types of aquaculture facilities and fish species.

(1) Model built into the device;
(2) Environmental sensors – temperature and salinity;
(3) Notification of automatic feeder;
(4) Fish stock being fed with proper amount.

Advantages

- Continuous fish feeding system with automated supply system with user-friendly interface;
- Feed waste reduction and improved efficiency;
- Improvement of fish growth performance and health;
- Reduced operational costs.

PATENT STATUS

International Patent Application via PCT WO2018189724
Priority date: 13.04.2017
Granted in Europe

DEVELOPMENT STAGE

TRL4 – Technology validated in lab
Further development for validation in large scale setups required.

APPLICATIONS

Aquaculture feeding system;
Scientific research.

COOPERATION

Licensing agreement;
Product development and marketability;
Collaboration for validation in large-scale aquaculture setups and multi-parameter experiments.

KEYWORDS

Aquaculture
Predictive feeding
Precision nutrition
Modeling and simulation

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