

INFLUENCE OF AN ENVIRONMENTAL PARAMETER IN SEABASS (*DICENTRARCHUS LABRAX L.*) VOLUNTARY FEED INTAKE IN INTENSIVE PRODUCTION SYSTEM.

GENERAL EXPERIMENTAL DESIGN ILLUSTRATED BY THE EXAMPLE OF WATER AMMONIA NITROGEN LEVEL ACTION.

Denis Coves, Eric gasset, Gilles Lemarié, et Gilbert Dutto

Station expérimentale d'aquaculture IFREMER, 35250 Palavas les Flots, France.

In intensive fish farming animal biological performances can be affected by their own catabolites acting as pollutants. Among them the total ammonia nitrogen level (TA-N) may increase relatively to the water residence time in the rearing tanks and to the production system which may be or a flow-through or a semi-closed one. Consequently the unionized ammonia nitrogen (UIA-N) fraction represented by NH_3 ions may begin limitant depending mainly on pH and temperature.

In each case it is of prime importance to know the fish acceptance thresholds towards a such environment parameter to improve the water ressource management and eventually the recycling device definition.

The voluntary feed intake pattern has been choosen as indicator of fish reaction towards the UIA-N concentration in the rearing medium.

Twelve groups of fish (140 g) preadapted to the flow-through experimental environment have been submitted by pair during 64 days to UIA-N levels ranging between $1.6 \cdot 10^{-2}$ mg/l (control) to $45.3 \cdot 10^{-2}$ mg/l. The other parameters were maintained stable in each tank with 16h-D/8h-L photoperiod, 22 °C temperature, 7.8 pH and 37 ‰ salinity. Inlet oxygen level was around 120-150 % saturation while the minimum outlet level was 80 %.

Daily feed intake was determined by difference between the delivered feed amount and the uningested pellets trapped in a particle separator.

Daily feeding activity profile was described by the fish actions on the feeder trigger recorded on a computer.

Fish biological performances were also estimated by the survival rate, the specific growth rate the feed conversion index, the weight dispersion and the condition index.

Other analyses allow to consider histological, physiological and immunological aspects. The general aim of these investigations is to describe additional effects of the studied factor and to find possible explanations for the biological performances modifications including feeding activity.

Difficulties encountered :

We think self feeding systems are very suitable to estimate the voluntary feed intake in fish and adapted to our research field but we have to solve or to improve several points such as :

-Obligation to prevent unintentional contacts on the self feeder trigger by using a special screen which may reduce the access to the row during the night and by consequences limitation of feeding opportunity during this period.

-In case of uningested feed, obligation to collect pellets before they break up when they are not stable in the water and by consequences decreasing of this data accuracy for pellet losses eventually occuring during the night.

-Limited Feed dose ajustement linked to the type of feeder we use.