Welcome to the re-circulation system for fish stabulation at the DBSV.

Department of Biotechnology an Life Science, DBSV.

University of Insubria, Varese, Italy.

At the DBSV a re-circulation system for fish stabulation under strictly controlled experimental conditions is available, managed by the team of the Aquaculture and Ichthyology Unit.

The system is controlled by a video cam that permits remote software for remote detection of principal parameters, and composed below.

1. Skimmer aqua-eco

Outflow water from tanks is conveyed in a skimmer, in which mechanical filtration is performed. The water column is vigorously mixed with air, and protein easily removed after formation of a foam layer on the surface.

2. Biofilters

Biological filtration follows mechanical one: it is the name given to biodegradation of unwanted and even toxic substances accumulated in water mainly from fish metabolic processes. The combination of both procedures minimizes the discard of particulate substances from the structure. Biological filtration is performed by micro-organisms immobilized on a solid substrate, spongious beds, that can be partly regenerated. Two species of bacteria are involved in the process: Nitrosomonas, responsible ammonia oxidation, and Nitrobacter, able to convert nitrites to nitrates.

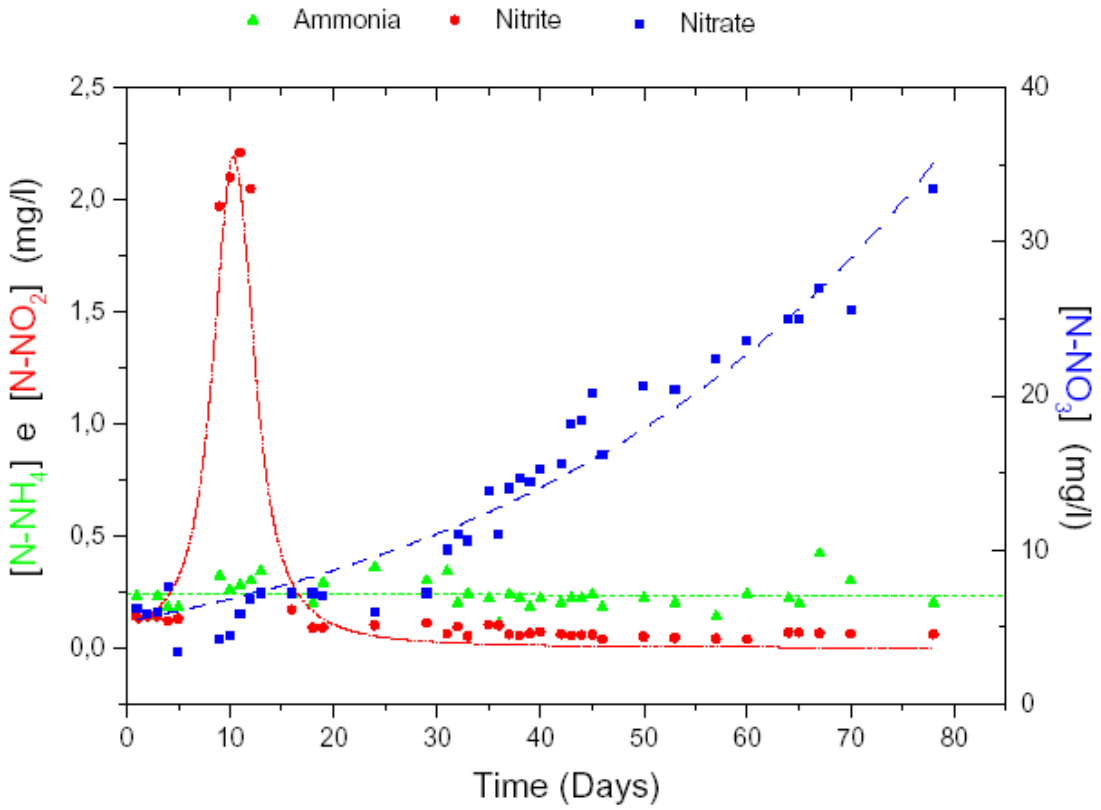
The kinetics of ammonia, nitrites and nitrates content in effluent activation is reported below, in the diagram shown at pag.5.

3. Stabulation tanks

Water from biofilters is pumped into a two-way effluent system, to refill stabulation tanks. The pumped liquid is enriched with oxygen, and eventually heated desired temperature. Before flowing into tanks, water is sterilized by irradiation UV light. Tanks for stabulation with different capacity (four containing 3 m^2 ca of water, and six smalle, 1 m^2 ca) collect filtered, warm and sterile water.

5. Parameter controls

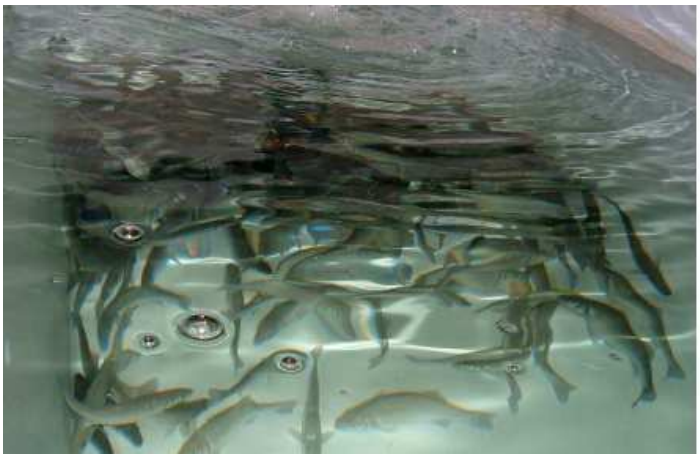
In this highly stable environment, frequently and carefully controlled, animals can grow or adapt to different experimental conditions. A number of water parameters (mainly pH, temperature, pO2, pCO2, total gases, and nitrates, ammonia, and bacterial are frequently measured at the lab. The diagram shows the kinetics of ammonia, nitrites, nitrates as final product, following the activation of biofilters.



Photogallery

Sea bass juveniles in tanks.

Operations in stabulation tanks.



Adult sea bass in tanks.

Captured adult sea bass.