



SISTEM TEHNOLOGIC DE CREȘTERE INTENSIVĂ A PEȘTELOR ÎN REGIM DE POLICULTURĂ

TECHNOLOGICAL SYSTEM FOR INTENSIVE FISH BREEDING IN POLYCULTURE REGIME



Authors:

Iulian VOICEA, Mihai MATACHE, Remus OPRESCU, Valentin VLĂDUȚ



NATIONAL INSTITUTE FOR RESEARCH - DEVELOPMENT OF MACHINES AND INSTALLATIONS
DESIGNED FOR AGRICULTURE AND FOOD INDUSTRY - INMA

6, Ion Ionescu de la Brad Blv., Bucharest, ROMANIA, 013813, P.O. Box 18
Tel.: +40-21-269.32.49 / 269.32.55, Fax: +40-21-269.32.73, E-mail: icsit@inma.ro, www.inma.ro

DESCRIPTION:

The system consists of the following main elements: **-ICP Pool, Feeding System**, with automated distribution control of pelletized feed, **Aeration System** - oxygenation of the fish tank.

The fish pond (ICP1) (fig.1) is a construction made of reinforced concrete with a thickness of 300 mm, 14.4m width, 57m length, and 4.6m depth.



The feeding system, composed of 3 feeders provided with auger and pelletized feed disperser with a diameter between 2-10 mm. electric motor (low voltage) is used to drive the dispersing disc and ensures the dispersion of the feed within a radius between 2 and 10 m.



The Aeration system – ensures the oxygenation of the water. Was built with two Aerators Osaga ORV. In order to supplement the oxygen supply from the water of the fish basin, an aerator with submersible motor and directional jet type AERATOR AQUA JET 0.75KW was integrated.



MATERIAL and METHOD

All the 3 component subsystems of the experimental model are monitored and controlled via a PLC (programmable logic controller).



The multiparameter probe is equipped with a water conductivity sensor, turbidity sensor, nitrite sensor, dissolved oxygen sensor, ammonium sensor, nitrate sensor, the data being collected by a data logger.



For the experimentation of the system of intensive fish breeding in polyculture regime, between October-November 2020 the pool was populated with fish material from the DEVELOPMENT RESEARCH STATION FOR FISHING NUCET - SCDP NUCET. Thus, at the end of October, a quantity of 50kg of fish of the species Family Cyprinidae was introduced (35% *Cyprinus carpio* Linnaeus, 7.5% *Hypophthalmichthys molitrix* Val. (Blood) and 7.5% *Aristichthys nobilis* Rich (novac). For 14 days, their adaptation was monitored and the fish tank with another 250 kg of fine picnic material, species of cyprinids from SCDP Nucet Dâmbovița, was repopulated after November 15, 2021. The distribution of the introduced fish material was as follows: 40% *Cyprinus carpio* L. (carp), 20% *Hypophthalmichthys molitrix* Val. (Blood), 20% *Aristichthys nobilis* Rich. (Novac), 15 *Ctenopharyngodon idella* Val. (Cosas) and the remaining 5% was *Carassius auratus gibelio*. the fish material introduced in the first series was 350 grams, while for the November 2020 tranche the average weight was 150 grams.

CONCLUSIONS

Pool water quality monitoring with polyculture fish farming system is done through specific temperature + pH sensors - Sensorex 8000 series, compact and stationary monitoring system for oxygen determination and control - Aqua Control one with Dryden probe plus mobile probe multiparameter HANNA - HI9829.

