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Studies on wels catfish (*Silurus glanis*) development during cold season as an auxiliary species in sturgeon recirculated aquaculture systems

[1,2]Radu Muscalu, [1,2]Cristina Muscalu, [2]Mihai Nagy, [2]Marian Bura, and [2]Zoltan-Tibor Szelei

[1]SC Sterlet SRL, Timişoara, Romania;
[2]Banat's University of Agricultural Sciences and Veterinary Medicine, Timişoara, Romania;
Corresponding author: Muscalu Radu, radu_muscalu@yahoo.com

Abstract. The research had the purpose to establish if the wels catfish is suitable for growing in closed recirculated system designed for sturgeon farming, because during the cold season the system does not need to reach high temperatures such as for other fish species. Our studies showed that the wels catfish can survive during the cold season from a recirculated system, and furthermore they accept feeds at temperatures as low as 17°C, and even have a slight body weight increase during this season. The wels catfish entered the spring in our experiment at a mean body weight of 72.5 grams, while the wels catfish from semi-intensive system after wintering in earthern ponds entered the winter at a mean body weigh of 30 grams. Our experiments also studied the effect of stocking density on fish development in these conditions.
Key words: wels catfish, cold season, recirculated aquaculture system, sturgeon, wintering, stocking density.

Rezumat. Cercetările au avut ca scop stabilirea faptului dacă somnul european este potrivit a fi crescut ca specie auxiliară într-un sistem recirculat proiectat pentru cultura sturionilor, în care pe timpul sezonului rece temperatura apei nu este necesar să atingă valorile ridicate cum este uzual la alte specii. Studiile noastre au arătat că somnul european nu doar că supravieţuieşte sezonului rece, dar şi acceptă furajul la temperaturi relativ joase de 17ºC, având chiar şi o uşoară creştere în greutate pe timpul acestui sezon. Somnii au intrat în primăvară în experimentele noastre având o masă corporală medie de 72,5 grame, pe când semenii lor din sisteme semi-intensive după iernarea în bazine de pământ au avut o greutate medie de 30 de grame. Experimentele nostre au studiat de asemenea şi efectul densităţii din bazinele de cultură asupra dezvoltării somnilor în aceste condiţii.
Cuvinte cheie: somn european, sezon rece, sistem recirculat de acvacultură.sturioni, iernare, densitate de populare.

Introduction. The wels catfish or also known as the European catfish or sheatfish, enjoyed during the history a various approach from the aquaculturists (Proteau et al 1996; Carol et al 2009; Muscalu & Muscalu 2008). If in the last ten years it seemed that this species is not very profitable for intensive aquaculture, it seem that today this fish is attracting again the attention of fish farmers (Muscalu et al 2008) especially in monoculture, in intensive or superintensive aquaculture systems (Linhart et al 2002; Muscalu 2008; Talpeş et al 2009).

It is known that the wels catfish is growing well on pellets in closed systems but normally in water with temperatures above 20°C. The water temperature in a sturgeon system during the winter can drop as low as 12°C without major negative effects on sturgeon development, and furthermore sometimes it is even necessary to drop the system temperature regularly in order to stimulate the caviar production or the reproduction activity.

The European catfish is a good candidate in intensive sturgeon farms as an auxiliary species which will bring income much sooner than the sturgeons, sustaining in