

10th Euro-Global Summit on

Aquaculture & Fisheries

October 08-09, 2018 | London, United Kingdom

Common snook *Centropomus undecimalis* studies for the development of artisanal aquaculture in Colombia

Villamizar Natalia

Universidad del Magdalena, Colombia

Colombia's peace agreement (2017) represents a challenge for the activation of the economy in rural areas, as the country has yet to develop productive and sustainable alternatives such as the culture of marine fish. The common snook *C. undecimalis* is an optimal candidate to focus on due to its high demand on the national market, its commercial price, and the quality of its flesh. It also demonstrates good tolerance, growth, and survival under controlled conditions, for which reasons it is being cultured in the USA, Brazil, México and Cuba. Over the last four years we have been studying the response of this fish under controlled conditions in order to reproduce it in captivity, thus avoiding the capture of fingerlings to be grown in cages. So far, we have learned about the versatility of the species in terms of growth, survival, and sexual maturation under a wide range of parameters and conditions (salinity, oxygen levels, water hardness, diets, co-culture). Furthermore, we have performed studies involving the use of experimental diets, the analysis of sperm quality under different salinities, the feminization of juveniles with 17 β -estradiol for histological and biochemical analyses, and we have set up of a system for daily activity recordings. So far, we have found that common snook shows a crepuscular behavior that favors an active feeding at sunset. The species is able to mature under any salinity level; however, sperm cells show higher activity under seawater conditions. The design of a specific diet is a must, nevertheless it is possible to grow the species in co-culture with tilapia and feminization in 20 g fish shows no differences in respect to lower weights. Further research is needed, but so far husbandry and co-culture protocols are ready to be transferred to the productive sector once reproduction is sufficiently controlled.



Figure1: Findings on common snook under controlled conditions

Recent Publications

1. Cruz-Botto S, Roca -Lanao B, Gaitan-Ibarra S, Chaparro-Muñoz N, Villamizar N (2018) Natural vs laboratory conditions on the reproductive biology of common snook *Centropomus undecimalis* (Bloch, 1792). *Aquaculture* 482:9-16.
2. Polonia-Rivera C, Gaitan S, Chaparro-Muñoz N, Villamizar N (2017) Effect of three diets in the experimental culture of the common snook (*Centropomus undecimalis* Bloch, 1792). *Rev. MVZ Córdoba* 22(3):6287-6295.
3. Villamizar N, Vera L M, Foulkes N S and Sánchez-Vázquez F J (2014) Effect of lighting conditions on zebrafish growth and development. *Zebrafish* 11(2):173-81.
4. Villamizar N, Blanco-Vives B, Oliveira C, Dinis MT, Di Rosa V, Negrini P, Bertolucci C and Sánchez-Vázquez F J (2013) Circadian Rhythms of embryonic development and hatching in fish: a comparative study of Zebrafish (Diurnal), Senegalese Sole (Nocturnal), and Somalian Cavefish (Blind). *Chronobiology International* DOI: 10.3109/07420528.2013.784772.
5. Villamizar N, Ribas L, Vera L, Piferrer F and Sánchez-Vázquez F (2012) Impact of daily thermocycles on hatching rhythms, larval performance and sex differentiation of zebrafish. *PloS One* 7:e52153.

Biography

Villamizar Natalia is a Marine Biologist from Colombia who works as a Lecturer in Developmental Biology at the Universidad del Magdalena, Santa Marta, Colombia. She is a Fish Biology Researcher. She has lived in UK and Spain where she obtained her MSc and PhD degrees (Universidad de Murcia), based on her studies on the effect of environmental conditions such as light spectrum, light intensity, and photoperiod on fish development and survival. She has undertaken experiments in order to elucidate reproductive and behavioral process both in marine fish and their prey, and she has also explored how temperature affects sex determination in fish. At present, she is determined to provide the information and experience needed in order to develop marine aquaculture in her homeland.

nvillamizar@unimagdalena.edu.co