

Review of the principal diseases affecting cultured meagre (*Argyrosomus regius*)

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Funding information

DIVERSIFY Project, Grant/Award Number: DIVERSIFY (KBBE-2013-07 single stage, GA 603121); DIVERSIAQUA Project, Grant/Award Number: DIVERSIAQUA (16-02-01-FMP-0066); AQUACOR, Grant/Award Number: (31-03-05-FEP-03)

Abstract

Argyrosomus regius was recently introduced in European aquaculture as a promising species for diversification and with high potential for expansion in the coming years. The reports on pathologies affecting this species are still scarce in the bibliography, however, they can severely affect production and result in major economic losses. Some few reports were made on outbreaks and mortalities associated with the presence of bacteria such as *Vibrio anguillarum* and *Photobacterium damsela* subsp. *piscicida*. Although no viral diseases have been recognized as affecting meagre, it is known that meagre can be an asymptomatic carrier of two genotypes of nodavirus, the striped jack nervous necrosis virus and red-spotted grouper nervous necrosis virus. Up-to-date, parasites affecting meagre are included in the genera Monogenea, Nematoda and Dinoflagellate, but without major mortality outbreaks associated to this type of infections. Osteological deformities have been observed in all life stages particularly affecting the axial system in larval and early juvenile specimens, with a higher incidence in the vertebral column, being affected by vertebral fusions, lordosis and kyphosis. With this review the authors provide an overview of all the pathological and non-pathological diseases affecting aquaculture produced meagre and provide a comprehensive overview of possible problems for the industry.

KEYWORDS

aquaculture, bacteria, bone deformities, parasites, pathology

1 | INTRODUCTION

In the last decade, there was an increase in the importance of meagre (*Argyrosomus regius*, Asso 1801) to Mediterranean aquaculture (Kružić, Mustač, Župan, & Čolak, 2016) with the production in Europe reaching 14,000 tons in 2014 (FAO). Several biological features make meagre an interesting species for aquaculture, including its fast growth in captivity, good feed conversion ratios, the capacity to withstand diverse environmental conditions, controlled spawning in captivity and no maturation during ongrowth (Duncan, Estevez, Fernández-Palacios, & Vallés, 2013). Nevertheless, the information regarding the pathologies affecting the species and the optimal conditions for its production are disperse. This fact justifies the need for a review about the pathologies that can affect this species similar to what happened to other marine species with the intensification of their

production. Therefore, it an integrated approach is required to collect data and provide fish farmers with a tool for managing and monitoring fish under different stages of production in order to ensure the quality of the produced fish, allowing for higher survival rates by preventing the incidence of diseases and skeletal deformities.

It has been stated that the major diseases affecting farmed fishes vary in prevalence according to the geographic latitude of countries around the Mediterranean basin, while the methods and the culture conditions used greatly influence the types and severity of diseases (Colorni, 2004). "Old" pathogens (Lymphocystis and encephalitis viruses, "Pasteurella" *piscicida*, *Vibrio* spp., *Amyloodinium ocellatum*) still cause serious economic losses in fish production, and diseases once considered sporadic are now emerging, like the ones caused by *Mycobacterium marinum*, *Streptococcus iniae*, *Lactococcus garvieae*, *Enteromyxum* [formerly *Myxidium*] *leei* and *Kudoa* sp.