



The 11th ALO LARVAL FISH AND CONFERENCE

CONFERENCE PROGRAM AND ABSTRACTS



Evaluation of different taurine levels on the weaning of the greater amberjack (*Seriola dumerili*)

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Taurine is an essential nutrient for larval development and growth, mainly in carnivorous marine fish such as the greater amberjack (*Seriola dumerili*). However, there are no available data on dietary taurine supplementation during the weaning period of this species. For those reasons, four granulated microdiets containing 0.24 to 4.24 % of taurine levels were evaluated in 30 days post-hatching (dph) greater amberjack larvae until 44 dph. Growth parameters, survival, histology, and skeletal anomalies were determined. The larvae fed Tau 1.24 had the greatest total length, weight gain and daily weight gain. Additionally, larvae fed Tau 0.24, Tau 1.24 and Tau 2.24 presented a healthy liver appearance, while the valorization of the intestine along the different regions was similar between treatments. However, total skeletal severe anomalies were high for the groups fed taurine at 0.24 and 4.24%. Therefore, the present results suggest the importance of adequate taurine supplementation in the weaning of the greater amberjack, as it impacts the growth and the incidence of skeletal anomalies in the fish.

Non-uniform metamorphosis underlies different development trajectories in hatchery-reared flathead grey mullet (*Mugil cephalus*)

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The flathead grey mullet (*Mugil cephalus*) is an important food fish and is at the focus of an intense domestication effort. To date, mullet aquaculture depends upon capture of wild fry in coastal waters and estuaries. To allow domestication of this species, much effort was invested to close mullet's life cycle in captivity. Today, the main bottleneck faced by mullet hatcheries is the non-uniform development of the larvae within the spawning batch.

We therefore aimed to identify the underlying causes for this phenomenon. As a first step, we generated a detailed staging system of mullet larval development in captivity, based upon morphological features. Using this developmental atlas to study development dynamics, we found that mullet larvae exhibit a biphasic growth profile with a 17-fold increase in growth rates at the onset of metamorphosis. Moreover, we found that within rearing batches, size variation almost doubles at metamorphosis, suggesting that the onset of metamorphosis is a critical step that increases variation by dictating different growth trajectories to early and late-metamorphosing larvae. We describe how qualitative morphometric traits develop as a function of quantitative parameters of age, length, eye diameter and weight.

This work is an important milestone in the domestication efforts of the grey mullet and will be used as a foundation to understand the genetic and hormonal landscape of larval development.



Theme sessions

S1. Global change effects on early life stages.

Convenors: Ana Faria, Filipe Ribeiro and Hannes Baumann

Early life stages are expected to be most vulnerable to changes occurring in aquatic environments, but the effects are likely to differ across species, developmental stages (embryos, larvae, juvenile) and habitats (freshwaters, estuaries and ocean waters). In this session we invite presentations that examine direct or indirect effects of key environmental factors that are changing as a consequence of climate change and have been defined as determining factors for the maintenance of physiological functions in fish. These include temperature (both gradual warming and extreme events, such as marine heatwaves), ocean acidification and hypoxia. We also encourage contributions about research on emerging contaminants, microplastics, noise, light pollution, habitat alteration and parasites. We particularly value submissions that focus on the combined effects of these stressors and on the ability of individuals to acclimatize to changing conditions.

S2. Recent trends in marine larviculture.

Convenors: Núria Baylina and Raquel Quirós-Pozo

Knowledge of larval biology of marine teleost is still on early stages for many species, particular for those targeted by the marine ornamental trade and for commercial aquaculture diversification. Also, there is a limited number of species that have successfully bred, both for biological research and/or commercial aquaculture purposes. On this regard larval ontogeny and zootecnics are still poorly studied for the majority of marine teleost species. This lack of basic knowledge is a big challenge not only for larval commercial production (food and aquarium trade), but also for fisheries stock management. More recently, overfishing, climate change and the increase in threats to natural hatcheries such as mangroves, estuaries or coral reefs habitats destruction, marine fishes breeding has gained increased interest and importance not only for aquaculture species diversification but as a powerful tool for marine species conservation purposes. The aim of this session is to include studies that focus on larval development description and identification, including studies addressing ontogeny, prey selectivity, feeding behaviour, nutrition, but also zootechnical description and optimisation of the larval rearing systems, amongst others.