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Osmoregulatory tolerances and preferences of early life history stages of European eel

Knowledge of specific environmental regimes which European eels experience in nature during gametogenesis, as well as how environmental factors impact their early life is limited. Thus, in this study, we investigated different salinity regimes for optimal development during early life history of European eels in culture. This STSM grant enabled the collaboration with the French Research Institute for Exploitation of the Sea (IFREMER) and the laboratory and team of Dr. J.L. Zambonino Infante. In particular, profiting from their long experience and excellence in molecular biology, we identified and targeted key regulatory genes and designed primers for group of genes involved in osmoregulatory and energy budget processes. Moreover, the STSM grant enabled collaborations with the Helmholtz Centre for Ocean Research, in Germany (GEOMAR). With the valuable support and supervision of Dr. J.J. Miest, we follow osmoregulation induced gene expression and link it to the induced phenotypic variability and survival during early life development. Both institutes and supervisors (as well as their teams) combined expertise and applied knowledge of functional genetic tools. Their support by providing the necessary equipment and supervision for this type of molecular analysis was of key importance to conduct this cutting edge science. The knowledge generated will support the understanding of fundamental aspects in developmental fish biology. In conclusion, understanding the relationship between osmoregulation and early ontogenesis will help estimating the still unknown preferences and limits of this species but also identify optimal conditions for early life rearing in aquaculture.



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