

## **Research in European Cuttlefish Aquaculture and Welfare at CCMAR: An Overview**

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### **Abstract**

Since 1999, CCMAR has been researching technology for the development of the European cuttlefish, *Sepia officinalis*, aquaculture and considering the best welfare practice. This species is seen as a very interesting animal model, with application in neuroscience, behavior, evolution, or even climate change. It is also an aquaculture diversification species candidate, with the potential of full application of the animal for different industries. This presentation will summarize the most important developments and accomplishments of our work since 1999 until present and the current projects. Present research include topics, such as: cuttlefish metabolism and development of pelleted diets; to understand the influence of several factors on the reproduction in captivity through a multi-disciplinary approach (including zootechnology, population genetics, behavior and chemical communication), seeking to increase egg fecundity and fertility, minimize inbreeding and compensate semelparity by increasing intermittent spawning; determining stress-responsiveness of anaesthesia and euthanasia agents through refined animal welfare methodologies of a Welfare Assessment Platform (WAP) based on 3R's; and optimization of cuttlefish eggs, hatchlings and juveniles transportation protocols, considering aspects such as type of boxes, oxygen, metabolism and physiology.