



### **Renato Nunes Rosa (MARE- Nova)**

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**LOCAL: Anfiteatro FCiências.ID – Faculdade de Ciências da Universidade de Lisboa  
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### **Integrating economics and critical depensation in the design of fisheries' policies. An application to the Ibero-Atlantic Sardine stock.**

Several world fish stocks have reached critical biomass levels and face increasing probabilities of collapse. The need to improve the design of management plans is thus subject of an increasing interest from academics and policy makers. Defining a management plans is, however, an intricate task that requires integrating knowledge on fish ecology and socio-economics. In fact, while this is already embodied in fishery policies, these are still mainly built in light of biological principles. In addition, unexpectedly long recovery periods for fisheries subject to severe reductions in fishing mortality have reopened the debate on the existence of depensatory dynamics. Using the Ibero-Atlantic sardine stock as a case study, this paper proposes a new methodology for the definition of Harvest Control Rules using an age class structured bio-economic model that allows for the existence of Allee effects in the population. In contrast to current practices used in the definition of HCRs, our management rule endogenously captures both socio-economic aspects and depensatory dynamics.