

Effects of ocean acidification and increased temperature on the development and statoliths formation of *Pelagia noctiluca* ephyrae

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In order to assess the impact of ocean acidification and climate change conditions (temperature increase) on the morphology and eco-physiology of the jellyfish *Pelagia noctiluca* a study has been performed based on a 2100 future ocean scenario (IPCC). Additionally, it has been study the effects of the interaction of both mentioned factors on young jellyfish specimens and its statoliths, firstly described in the present study. In order to evaluate these effects, ephyrae of *Pelagia noctiluca* cultured at the ICM (CSIC) were exposed to 4 different pH and Temperature treatments: pH (-0.3 pH); Temperature (+3°C); both pH and Temperature (pH & T°; -0.3 pH and +3 °C) and the Control.

Total diameter, gastric cavity length and rhopalia-rhopalia distance and morphologic (maturation assessment) parameters were estimated in a weekly basis. In addition, Scanning Electronic Microscopy (SEM) analyses were performed on statoliths.

Mortality rate was 50% higher in Temperature treatments at the end of the experiment.

Nevertheless no significant differences on ephyrae size were found between any treatment and the Control. Significant differences were found between Temperature treatments and pH treatment suggesting opposing effects.

Statolith, described as hexagonal elongated prisms, suffer an alteration on its ends in acid treatments, this effect was soften by temperature. Although the whole acidification and temperature increase effect is negative a benefit effect is expected in a future for this species at the expense of its natural competitors, more sensitive affected to physicochemical factors.

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