Drastic effects of Climate Change on Mediterranean marine forests

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Macroalgal forests have gone missing from most temperate rocky shores during the last decades, triggering an important biodiversity loss. Cystoseira species are some of the main marine habitat-forming species on shallow water Mediterranean rocky bottoms and follow the same tendency, mainly related to habitat destruction and pollution. However, here we suggest that anormal positive thermal events may contribute to this widespread Cystoseira decline. Monitoring thorough natural populations showed a drastic decline on a natural and relict C. crinita population in terms of density and structure coinciding with anormal high temperatures experienced during a summer period. Additionally, we experimentally test in the laboratory the cause-effect of those temperatures and UV radiation conditions experienced in the field on C. crinita populations. Although, C. crinita is able to resist high temperature picks, usually reached in Mediterranean summers, exceptional and maintained periods as those experienced during extreme events (28ºC) lead to the death of all individuals, compromising the viability and conservation of these forest-forming populations. We show how climate change may seriously compromise algal populations and synergically act with historical drivers of macroalgal decline (pollution, habitat destruction and herbivorism).
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