Marine protected areas conserve Mediterranean red coral

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This is red coral. Credit: Joaquim Garrabou

A team of Spanish and French researchers has undertaken a pioneer analysis of red coral populations in the oldest Marine Protected Areas (MPA) in the Mediterranean and the impact that fishing activity has had. Results show that MPAs are a guarantee for conserving this species.

Mediterranean red coral (*Corallium rubrum*) has been highly valued for jewellery since ancient times. But intensive fishing, particularly in shallow waters, has transformed populations and hindered the recovery of this species along the Mediterranean coastline, where the colonies of coral at depths of less than 50 metres are now very small. Fishing and now climate change threaten the persistence of this slowing growing species which also boasts slow population dynamics.

A team of scientists has analysed the three oldest Marine Protected Areas in the Mediterranean - Banyuls, Carry-le-Rouet and Scandola, off the island of Corsica - to quantify the impact of human activity and ascertain how efficient MPAs are in conserving red coral, as the latter are "a vital tool" when it comes to observing the evolution of populations in the absence of fishing.

"The problem with studying a species that grows so slowly is that populations need to be monitored over long periods of time to guarantee sufficient data are obtained to estimate how populations have evolved," Cristina Linares, the author of the article and a researcher from the Department of Ecology at the University of Barcelona told SINC.

The study, which was published recently in the journal *Marine Ecology Progress Series*, shows that MPAs are "a slow but effective tool for conserving Mediterranean red coral populations," Joaquim Garrabou, co-author of the article and a researcher at the Institute of Marine Sciences (CSIC) declared.

According to the scientists, Mediterranean red coral cannot be considered an endangered species. This opinion is justified by the extensive distribution of dense populations all over the Mediterranean Basin and the fact that some colonies with basal diameters of less than two millimetres are now sexually fertile.

Three Decades of Protection

The researchers chose these three Marine Protected Areas because they are 30 years old. They forecast the structure of red coral populations when they were created, and three decades later, they have returned to repeat the process.

According to Linares, "these MPAs are home to extraordinarily large

colonies, at depths of less than 50 metres and also deep-dwelling populations, in comparison to the populations studied previously". This confirms that MPAs are effective as measures to conserve this species, "providing, as is the case in these three MPAs, that they are well managed and that constant surveillance guarantees the protection of this species," the authors state.

"But the forecast for the future of populations reveals that 30 years of protection are not enough to allow colonies to reach the size of those observed in the 1960s (with diameters of around 45 mm)", Garrabou underlines.

Linares warns that if the colonies continue to diminish, the resilience of this species (its ability to absorb disturbances without suffering changes) will be affected. "The lack of large colonies has significant implications for future of populations, because it is these colonies that contribute to reproduction and, therefore, the persistence of these populations," the researcher says.

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