

## Scientific note

## A safe place to grow up for two endangered species in the Mediterranean: *Epinephelus marginatus* (Lowe, 1834) and *Corallium rubrum* (Linnaeus, 1758)

(Anthozoa, Octocorallia, Scleralcyonacea)

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The technically sophisticated fishery gained enormous catch yields, but also quickly led to overfishing in numerous marine areas, which caused the populations of some fish species to shrink to the point of extinction. This phenomenon was quickly covered by media and politics and is present in the minds of many people. Other processes of exploitation of the sea as the locally critical decimation of individual species often run under the radar of public attention for a long time, such as the harpooning and consumption of the large and slow-growing groupers and the collecting and selling of the highly sought-after and even slower-growing precious (red) corals in diveable depths of the Mediterranean.

The dusky grouper *Epinephelus marginatus* (Fig. 1A) is a serranid teleost living in rocky habitats from shallow water down to ca. 300 m. It reaches up to 1.5 m length (50 kg, 50 years) and maturity at 12+ years of age. This species is valued for its firm and tasty meat and easy to catch with bait or harpoon. The precious coral *Corallium rubrum* (Fig. 1B) is an anthozoan species (Octocorallia, Scleralcyonacea) with whitish polyps and a solid, ramified skeleton made of fused calcium carbonate sclerites with reddish carotenoid pigments. Since ancient times it has provided a highly sought-after material for jewelry production.

In both cases, slow growth, late reproductive maturity and easy access by humans are problematic for the regeneration of heavily fished or collected stocks. As a result, groupers and precious corals – once a common sight – can no longer be found in many places. Larger individuals of *E. marginatus* are only rarely found in shallow water. The *C. rubrum* populations were thinned out or exhausted in many places in the Mediterranean through commercial harvest (approx. 1880–1915) and later illegal collection by individuals. These species are integral parts

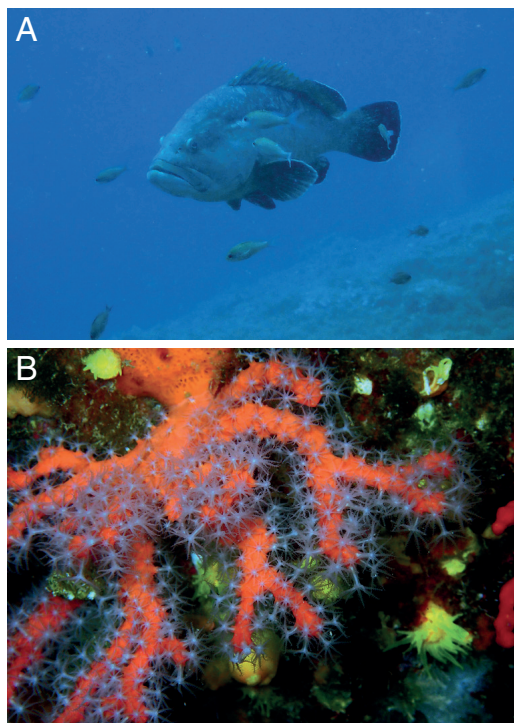


Fig. 1. A. The dusky grouper *Epinephelus marginatus* (Lowe, 1834) floating over rocks at the western end of the Portofino Marine Protected Area. The depth is a good 20 m, recognizable by the transition area between *Chromis chromis* and *Anthias anthias* (populating the surrounding water column). B. The red coral *Corallium rubrum* (Linnaeus, 1758) forms long bands of impressive, branched colonies (frequently over 20 cm in height) on a shady rock face at a depth of approx. 30 m next to solitary hard corals (*Leptopsammia pruvoti* Lacaze-Duthiers, 1897) and sponges, also in the west of the Portofino marine protected area. Photos: Martin Heß.

of a Mediterranean organism community that has evolved over many millennia and, apart from their uniqueness, are also important components of a system of ecological relationships.

In recognition of the threat, *E. marginatus* has been listed in the IUCN red list of endangered species since 2016 as globally vulnerable and in the Mediterranean as endangered and decreasing. *C. rubrum* has the status endangered and decreasing since 2014 (<https://www.iucnredlist.org/>). The general fisheries commission for the Mediterranean (GFCM) has established binding rules for commercial fishing of *C. rubrum* in the Official Journal of the EU (Council of the European Union 2021): maximum catch and minimum size, authorization and reporting requirements, maximum collection depth 50 m. There is also reference to the obligation to establish national bans on collecting for leisure purposes – corresponding rules have been ratified in some riparian states (Italy, France, Spain 100 %, Greece, Morocco, Tunisia), but not all. *E. marginatus*, however, is neither listed in the CEX document nor in the CITES trade restrictions from May 21<sup>st</sup> 2023 (<https://cites.org/eng/app/appendices.php>). After all, national moratoriums or regulations on spearfishing have been issued, which restrict (e. g. min. size 45 cm) or prohibit fishing or spearfishing (with or without diving equipment) for groupers.

Against the background of the measures that are not really effective from a marine ecological perspective, the establishment and control of marine protected areas is of particular value (and of course the focus on deep-water habitats that are difficult

to reach). It is correspondingly gratifying if one can find the above-mentioned species, for example in the marine protected area along the Portofino Peninsula in the Gulf of Genoa (“Istituzione dell’area naturale marina protetta denominata Portofino” established April 26<sup>th</sup> 1999, <https://www.portofinoamp.it/chi/statuto-e-regolamenti>) today without having to look for them for a long time search (Fig. 1). This example once again shows how important the designation and control of marine protected areas as refuges and possible distribution hotspots is (see e. g. Linares et al. 2010), as well as informing the local population and tourists, for the conservation of potentially or actually endangered life forms.

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### References

- Council of the European Union 2021. CELEX 32021R0090 EN TXT.pdf from Jan 28<sup>th</sup> 2021. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0090>
- Linares, C., Bianchimani, O., Torrents, O., Marschal, C., Drap, P. & Garrabou, J. 2010. Marine protected areas and the conservation of long-lived marine invertebrates: the Mediterranean red coral. Marine Ecology Progress Series 402: 69–79.