

Restoration actions in marine ecosystems: a global analysis

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A review of 573 studies on active restoration actions in the marine environment, published in the last 25 years, was carried out at global scale. We assessed how, where, at which spatial and temporal scales and under which socio-ecological settings restoration studies have been carried out, from very shallow to deep sea habitats. Results show that restoration efforts across habitats are increasing, especially in seagrasses and coral reefs, but never approached at ecosystem level. Targets, methods, response variables and standards are still very heterogeneous. Of the factors considered in the review, habitat, human impact intensity, realm and methods of restoration were found to be good determinant of restoration success. Short project duration (one-two years), small restoration areas (< 1 ha), lack of controls and knowledge of baselines are still a limit for deriving generalities. Finally, restorations rarely consider future challenges linked to global change this impairing long-term success stories. Restoration science needs more robust

approaches leading to the development of best practices (e.g. protocols, monitoring of the effects, reasons for failure) to be applied at spatial and temporal scales so as to answer to present and future disturbance regimes.

Marine restoration is a promising approach to limit habitat loss. More science is needed to increase the number of success stories