

Warm and cold water corals as engineers of reef ecosystems

Reef-building (hermatypic) scleractinian warm water corals are generating complex marine ecosystems, which are located in extremely oligotrophic tropical and subtropical shallow waters. Nevertheless, they are characterised by very high gross primary productivity and an outstanding biodiversity. Cold water coral reefs generated by other scleractinian coral species are typically found in deeper waters with lower temperatures and higher nutrient concentrations. Although only less than 10 reef-building corals are known from cold water coral reefs (in contrast to several hundred coral species in warm water reefs), a similar diversity of associated habitats with stimulating effects on biodiversity occurs. Knowledge about the role of scleractinian corals for ecosystem functioning is still limited (in particular for cold water reefs), but it becomes more and more evident that they act as both autogenic and allogenic engineers of reef ecosystems by fulfilling several important functions including influence on erosion, sedimentation and coastal protection, effects on biogeochemical process rates and facilitation of habitat and species diversity. This talk discusses these aspects and presents related findings of Coral Reef Ecology (CORE) Group in München, Germany, with a focus on warm water corals, but wherever possible also cold water corals are included.