

Human Impact on Coral Reefs

Coral reefs are three-dimensional structures (Bellwood, Hughes, & Nyström, 2004) that cover approximately 0,1-0,5% of the ocean floor (Moberg & Folke, 1999). Due to their complexity, they provide habitats for a third of all marine fish species (Moberg & Folke, 1999). Therefore, coral reefs are the oceans most biodiverse ecosystems (Veron, et al., 2009). Furthermore, they protect the coastline from wave erosion (Veron, et al., 2009) and provide humans with goods and services (Bellwood, Hughes, & Nyström, 2004). This includes seafood as well as tourism, aesthetic and cultural values (Moberg & Folke, 1999).

The foundation of reef ecosystems are corals which form habitats for reef dwelling animals (Cole, Pratchett, & Jones, 2008). Corals host the microalgae zooxanthellae which provide them with oxygen, sugars and lipids among others (Moberg & Folke, 1999). They are dependent on this symbiosis which even gives corals their distinct colours (Moberg & Folke, 1999). An increase in water temperature weakens this relationship and can cause bleaching (Veron, et al., 2009). The wider reef health depends furthermore on the health of fish communities (Veron, et al., 2009). Whereas herbivorous fish graze down algae (Moberg & Folke, 1999), predators like sharks stabilise the numbers of herbivorous fish (Veron, et al., 2009). This relationship prevents algae to overgrow (Veron, et al., 2009) and decreases the distribution of invasive fish species (Moberg & Folke, 1999). Humans disrupt the natural balance of coral reef ecosystems and thus cause bleaching and mortality by over-harvesting and uncontrolled tourism, causing global warming and emitting CO₂. (Hoegh-Guldberg & Bruno, 2010; Bellwood, Hughes, & Nyström, 2004; Moberg & Folke, 1999).

Sources

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