

Economic costs of the loss of ecological services from marine ecosystems

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The world's oceans are in trouble. Water temperatures go up, the carbon-balance is disturbed, pollution still continues and most fish-stocks are over-fished. As a result, numerous populations of marine animals have collapsed, and life communities and habitats have been extensively damaged or destroyed.

With the loss, and disturbance, of marine biodiversity also the associated goods and services are impaired: the primary food source and livelihood of millions of people is at stake and many so-called regulating services (eg. the influence of marine ecosystems on biological and climate control, waste-treatment and storm-protection) are disturbed with grave consequences for human wellbeing and the economy.

It has been calculated that the loss of these ecosystem services is costing us between 3-5% of GDP annually and with unchanged policies this will go up to 7% or 14 trillion US\$/year.

This presentation will briefly present some preliminary results of an ongoing global assessment of the economic benefits of ecosystems, and the economic costs of their loss (the so-called TEEB-study (see www.teebweb.org)) and discuss some of the underlying causes for the continued un-sustainable use of marine ecosystems and possible solutions.

One option is the creation of Marine Protected Areas (MPA's). Evidence is mounting that MPAs, where fishing and other human activities are restricted or prohibited, not only protect marine biodiversity but also sustain or increase yield of nearby fisheries and enhance the provision of many other ecosystem services.

It is calculated that effective protection of 20-30% of the world's seas and coastal systems would cost between 5 and 19 billion US\$/year but will generate benefits many times that amount. Current global expenditures on supporting (non-sustainable) marine fisheries are estimated between 15 and 30 billion US\$/year. This sum would clearly be better invested in creating and maintaining a global network of Marine Protected Areas which would not only maintain marine biodiversity for future generations but also create over 1 million jobs in managing the protected areas and the economic activities associated with the restored and enhanced ecosystem services.