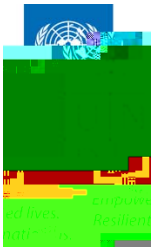

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Summary

As a consequence of continued additions of large volumes of carbon dioxide to the earth's atmosphere via the combustion of fossil fuels, and the dissolution of 25-30% of this CO_2 in the oceans, the pH of surface ocean waters has increased about 30% as reflected in an overall decrease in ocean pH of about 0.1 unit. This is driving ocean acidification at the fastest rate in at least the last 25 million years with associated risks to the long-term sustainability of many marine ecosystems dependent on organisms that fix calcium carbonate in their shells and skeletons, and the sectors and livelihoods that depend on healthy ocean ecosystems.

The ocean-using sector that contributes the most to global greenhouse gas emissions and therefore climate change is international shipping at about 2.7% of global emissions. Under 'business as usual' GHG emissions scenarios, this proportion is projected to grow substantially, to 5% or more of global emissions. Through the IMO, the international community has recently adopted aggressive ship energy efficiency standards (design, operation) which, once implemented, could substantially reduce shipping's global carbon footprint. Estimates of the public costs of an international effort to accelerate implelowshipping on

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terrestrial carbon sinks such as
ue carbon'

sinks could sequester
0.4 – 3.0% of present day global CO_2 emissions and make a substantial contribution to climate mitigation while delivering sizeable additional environmental and socioeconomic benefits in areas such as fisheries, storm surge protection, and tourism. Estimates of the public costs, benefits/avoided costs, and catalysed