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Ocean acidification as a potential threat to shark population

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Sharks are a group of cartilaginous fishes that originated over 450 million years ago on the earth’s surface. To date, over 500 species of sharks have been discovered that have adapted to different living conditions. At present, extreme climate change events have pushed earth’s biodiversity towards imminent danger. Biodiversity refers to the total variety of flora and fauna on earth. This biodiversity has become vulnerable to changing climatic conditions. The main factor behind climate change is considered to be various anthropogenic activities, such as urban and industrial development. The combustion of fossil fuels contributes to air pollution by releasing carbon dioxide into the atmosphere which is the leading cause of global warming. A major portion of CO2 is absorbed by the oceans which in turn causes negative impacts on the marine ecosystem. Elevated CO2 level warms the ocean and reduces its pH value. The phenomenon is termed ocean acidification which leads to damage to marine life. Studies show that oceans have become 30% more acidic today and this has a profound impact on the shark population. Sharks are the apex predators of the ecosystem and it is important to maintain their stable population as they play a major role in marine food web regulation.

Sharks help to maintain species diversity by preventing a prey population from dominating and exploiting a particular resource completely. Research reveals that acidification of water corrodes the denticles on shark’s skin which makes them more susceptible to injury. Since the denticles and teeth have similar mineral compositions, their feeding habit is likely to get adversely impacted due to similar reactions. Acidic water inhibits their embryonic growth and other physiological functions like increased energy demand, reduced metabolic rate, impairment of odour tracking and prey tracking abilities that can alter their hunting pattern. Sharks are more susceptible to climate change due to their lower intrinsic growth rate and rate of evolution, as a result of which their global population is declining at an alarming rate. Threats such as habitat degradation, overfishing, along ocean acidification make them extremely vulnerable to extinction in the near future. Although attempts have been made to regulate the consumption of natural resources and emission of harmful gases, their influence over aquatic and terrestrial systems still remains high. In a world where all species are interdependent for their survival and growth, there is an immediate need to ensure the protection of the entire ecosystem from further deterioration through the implementation of more stringent laws and policies.

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