

## Vulnerability and Resilience: Assessing Climate Change's Impacts on Coastal Aquaculture Sustainability

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### Abstract

Increasing anthropogenic activities resulting to grow greenhouse gas emission into the atmosphere and it will continue to grow even in the next few decades and so. Ironically, climate change adversely affects across the ecosystems, stress on livelihoods, food stock, including fisheries and aquaculture sector. Therefore, the issue of climate change is currently high on the global political agenda. This paper addresses the climate change impact on coastal regions of Thoothukudi and Ramanathapuram (Gulf of Manner) in Tamil Nadu where the unusual threats faced due to natural disturbances such as cyclonic storms, temperature, and water and soil pollution causing damage to aqua farms. Therefore, in order to reiterate the concept of creating the Gulf of Manner Biosphere Reserve with a marine National Park to encourage and protect the marine resources so as to utilize endangered coastal species in a sustainable way to promote socio-economic benefits of indigenous people of those regions. Expected changes in climate, extreme weather conditions and climatic events, sea level rise, ocean acidification and rise in temperature are expected to create significant impacts on coastal ecosystems and aquaculture in coastal areas. Adaptations for likely impacts of climate change are reachable through better management practices in site selection, pond construction and preparation, selection of post larvae for stocking, pond management, bottom sediment management and disease management together. Furthermore, Indian metrological department plays a major role in bringing about disaster reduction through media then and there about weather forecasts, early warnings on hazardous weather, outreach activities to enhance public awareness to minimize loss of life and property and fish stock, especially in the coastal areas.

**Keywords:** Climate Change, Aquaculture, extreme weather, sea level rise and economic loss.