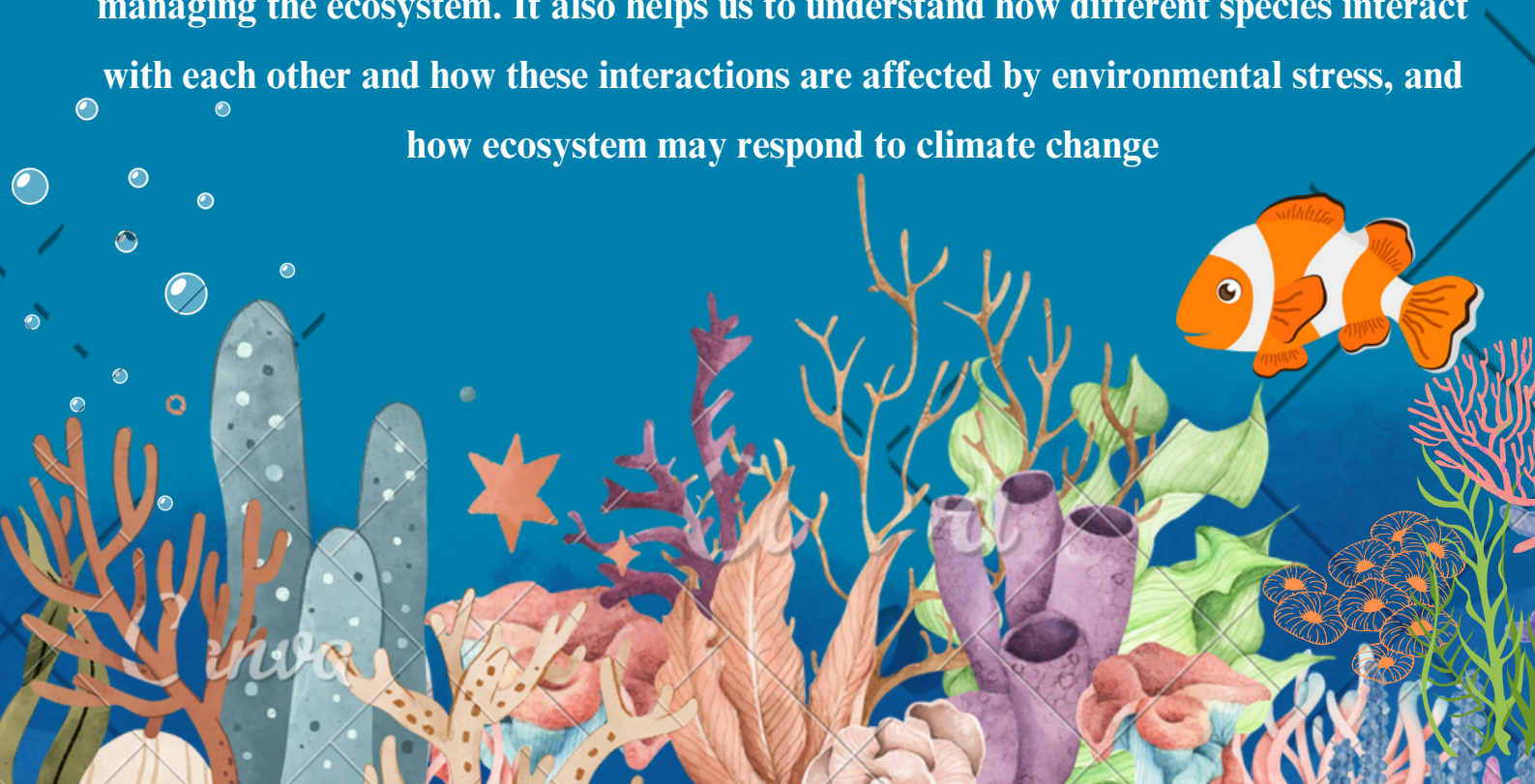
STRESS GRADIENT HYPOTHESIS

-HARSHIN MEERA A
-2023MSCES05

Stress Gradient Hypothesis is an ecological interaction between organisms shift positively as environment stress increases i.e., when the stress levels in the ecosystem increases due to various environmental disturbances or resources limitation, the importance of facilitation and positive interaction among species also increases.

The stress gradient hypothesis is based on the idea that stressful environments make it more difficult for individual species to survive and reproduce. As a result, species in the stressful environment are more likely to benefit from the presence of other species that can help them to tolerate the stress.

The Stress Gradient Hypothesis has a significant implication for understanding and managing the ecosystem. It also helps us to understand how different species interact with each other and how these interactions are affected by environmental stress, and how ecosystem may respond to climate change



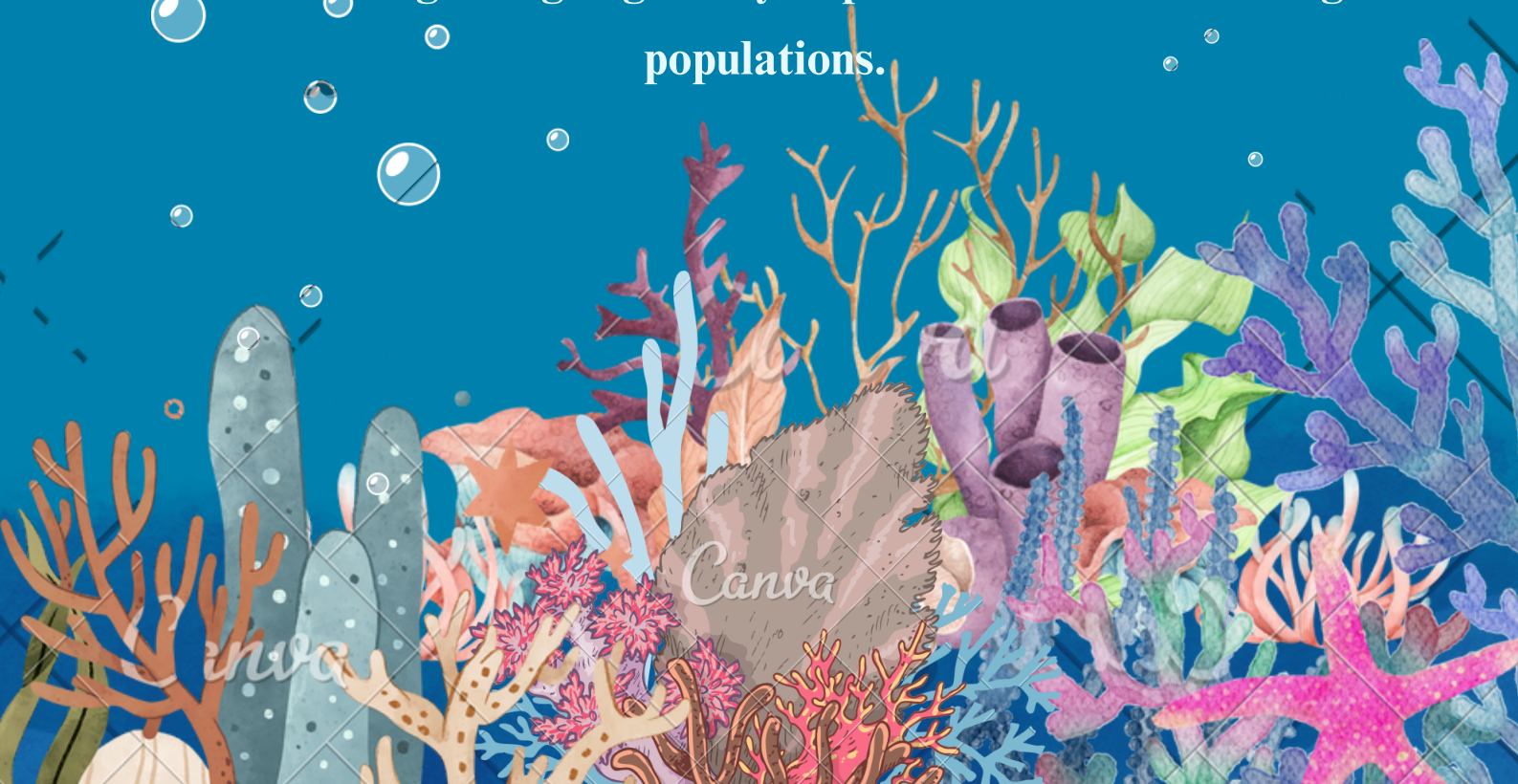
CASE STUDY

A STUDY IN THE INDIAN OCEAN

Renée et al. (2012)

A study of coral communities on the islands found that under moderate temperature stress, there was increased symbiosis between corals and protective algal symbionts (zooxanthellae). This facilitated improved coral growth and resilience compared to reefs in higher stress zones.

This study observed that fish grazing on algae was beneficial for coral survival at intermediate grazing intensities. Moderate grazing controlled algal overgrowth, creating space for coral recruitment, while intense grazing negatively impacted both coral and algal populations.



The Resilient Reef: A Tale of Unity and Strength

Once upon a time, in the big blue ocean there was a magical world beneath, a vibrant coral reef kingdom. The corals, fishes, turtles, sharks and many marine animals lived together in harmony like an underwater city filled with colourful buildings and creatures of all shapes and sizes. But they faced a great challenge due to increased oceanic temperature and high wave energy etc.

One day a powerful storm hit the coral reef which caused damage and stress. The colourful houses of the fishes were collapsed. As the storm descended the corals have realized that they all should work together to rebuild their homes. They understood that environmental stress is happening in the ocean, and also the fact that Unity is the only key.

All marine animals and corals have started to get unite and lend a hand in sharing the limited resources and also supporting each other. Some of the fishes have provided shelter for smaller fishes and while some others have shared their food. Together they formed a faithful network of interconnected relationship among the coral kingdom.

As the days went by, the corals began to flourish. They grew stronger and more resilient, thanks to their collaborative efforts. The stress gradient Hypothesis had proven true once again, showing that Unity and co-operation can lead to remarkable outcomes.

The coral reef kingdom became a symbol of resilience and teamwork, inspiring other marine species in the ocean. They have learned by working together they could overcome any challenge that came their way.

Unity and cooperation can create a world of wonders beneath the waves.