University News

Kelps work together to survive in a stressful world

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Scientists have discovered the key for large marine seaweeds to alleviate environmental stress. The answer to a healthy kelp life is to support one another in dense underwater forests, overcoming stressful surrounding marine environments.

Competition for space and resources has long thought to be the dominant biological process governing the performance and survival of species in the ocean. However, for kelps, going it alone means conditions can become too stressful, threatening the health and future existence of these species. By growing together, kelps can instead thrive in their environments.

A team of international scientists, led by UWA Oceans Institute researchers Scott Bennett and Thomas Wernberg, measured the growth rates and health of kelps with and without neighbours around the world, from cold temperate reefs of Norway, France, South Africa and Australia to tropical reefs of Ningaloo.

The team discovered that, surprisingly, too much light was one of the main mechanisms driving these positive interactions among kelps. High light stress is typically not considered important in the ocean where conditions become increasingly dark with depth, but over time organisms living in these environments have become highly adapted to low light conditions. By growing together in forests, kelps remain in the shade and avoid stressful light conditions.

Lead author Scott Bennett said these positive interactions are critical to the health and survival of kelp forests, especially in these stressful environments where too much light can lead to reduced growth, disease and death of kelps.

“This process is most important on shallow coastal reefs, where the ‘neighbour support’ also has the greatest benefits to us as these habitats are the most widely used by recreational fishers and divers and support rich biodiversity of endemic and commercially important species like rock lobster,” Scott said.

“Growing together in dense underwater forests enables them to live in conditions otherwise too stressful for their survival.”

This study was originally published in prestigious international journal *Ecology Letters*.

Media references

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