MEDIA STATEMENT **Tuesday 22nd December 2015**

MARINE FORESTS HIGHLY SPECIALISED AND SENSITIVE TO WARMING

Scientists have discovered that seaweed forests display remarkably localised temperature tolerances along the coastline of Australia's Great Southern Reef.

Seaweed populations on reefs less than 200 km apart differed by more than 1ºC in temperature tolerances, reflecting local marine climatic conditions.

The University of Western Australia's Dr Scott Bennett and Associate Professor Thomas Wernberg, Marine Biologists at UWA's Oceans Institute and School of Plant Biology, explains that "It has long been assumed that populations of the same species living only a few hundred kilometres apart would have similar temperature tolerances, making the populations living in warmer climates more sensitive to climate change".

"These remarkably localised temperature tolerances reveal that the important factor is not how hot it is where you live, it is how fast your local environment is changing" Dr Bennett said.

In 2011, reefs in south-western Australia experienced an extreme marine heatwave which resulted in localised extinction of seaweed forests in some areas but not others.

"Temperature anomalies of just 2.5 degrees above long term local maximums during the heatwave, resulted in death and localised extinction of seaweed populations" Associate Professor Wernberg added.

Following these observations, scientists translocated seaweed populations from cooler reefs to warmer reefs, alongside local populations of the same species.

"To our surprise, the populations living on cooler reefs, a few hundred kilometres away, had much lower temperature thresholds than the warmer populations" Associate Professor Wernberg said.

"Interestingly all populations were limited to a maximum of 2.5 degrees of warming above their local conditions, irrespective where they came from".

"This information is really vital as it changes the way we think about the sensitivity of species to warming" continues Dr Bennett.

On the one hand it is good news as it demonstrates that these species have adapted to warmer conditions in the past. Warm adapted populations can potentially be used to rehabilitate cool adapted populations under stress from climate change".

On the other hand, this research also highlights the vulnerability of populations to climate change and particularly heatwaves which can have strong, localised and devastating impacts.

These findings were revealed by new research published today in the leading international journal Nature Communications.

MEDIA REFERENCES

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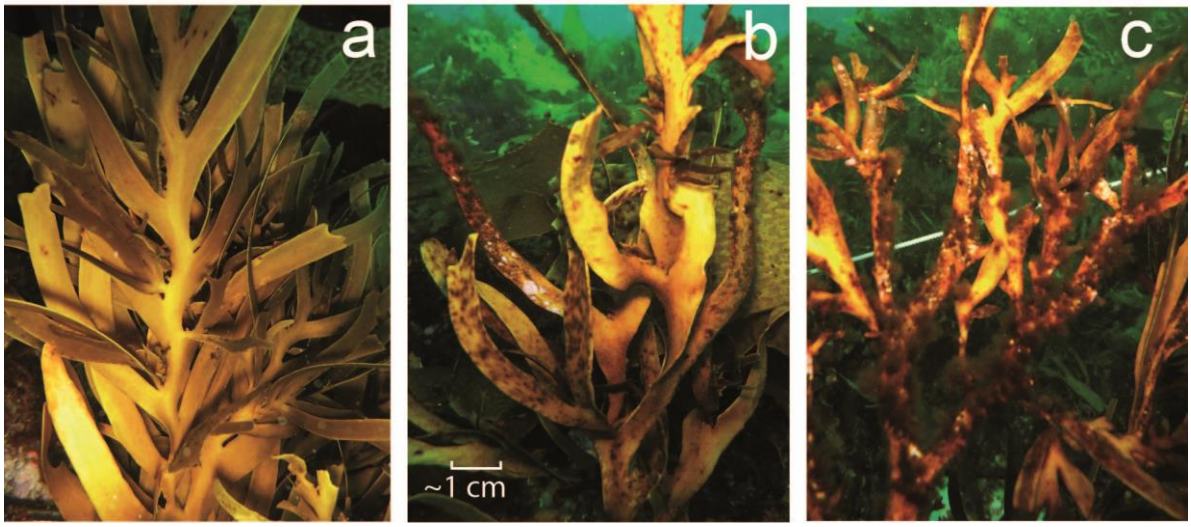

Impact of temperature stress on ‘western cray-weed’ transplants experiencing temperature anomalies (a) less than 2.5ºC and (b, c) more than 2.5ºC above long term summer maximums. Tissue deterioration began with brown spotting and other putative disease symptoms (that is, b) before developing into heavy fouling and death (c).