

Seaweed experts launch global group to restore kelp forests with new technique

Lisbon, June 8, 2021 – An international team of seaweed experts launched on Tuesday a group to globally coordinate and develop the novel ‘green gravel’ technique to restore kelp forests, in an effort to scale up and accelerate projects to recover these vital ecosystems worldwide.

Restoring kelp is becoming increasingly urgent as water warming, pollution and other factors destroy kelp forests around the world. Kelp forests play an important role in mitigating climate change through their role as substantial carbon sinks, as well as being home to exceptional biodiversity and serving as breeding and feeding grounds for many fish species.

The green gravel technique involves seeding small rocks with kelp spores in the laboratory and then scattering them in the ocean from a boat once they have grown into seedlings. The method is raising excitement because it is much simpler and cheaper than traditional seaweed restoration techniques that rely on scuba diving, highly trained workers or engineered structures. It also has strong synergies with seaweed farming technology, which means green gravel can be produced at commercial scales using existing cultivation infrastructure to restore larger areas.

The Green Gravel Action Group (www.greengravel.org) of international researchers will trial green gravel restoration in 15 different regions spread across 8 countries. The group will jointly develop solutions and general protocols for different kelp species around the world and communicate research findings together, with the aim of fast-tracking the research and development phase of this technique. It includes projects in Norway, Australia, Portugal, United Kingdom, United States and Canada.

This will be the first time that any kelp restoration tool will be tested and developed worldwide, with a consistent method and goal to scale up to a global solution.

“The loss of kelp forests around the world needs urgent action if we are going to avoid this huge environmental damage to the health of our ocean,” said Professor Thomas Wernberg of the University of Western Australia and Institute of Marine Research, Norway. “We cannot afford that loss and need to think seriously about restoring kelp forests at a larger scale. The green gravel method is by far the most promising way to do that.”

Marine forests of large brown seaweeds - kelp - cover an area roughly the size of Mexico, or 150 million hectares, globally. The most recent estimates indicate a 1.8 percent loss per year over the past few decades, implying that 3 million hectares of marine forests would need to be restored in 2021 to keep pace with the decline. This is a great challenge for the UN Decade of Restoration, which was launched this week.

Underwater heatwaves, which are increasing in frequency due to climate change, have had some of the biggest effects on kelp forests. In 2011, the Ningaloo Nina Marine Heatwave destroyed 97,438 hectares of forest in Western Australia and in 2014 the Blob Heatwave destroyed 4,800 hectares in Northern California. Southern Norway lost an estimated 780,000 hectares of kelp forest in the 2000s.

Scientists have estimated that globally kelp forests provide between US\$130-177 per hectare in fisheries, nutrient filtration which improves water quality, and carbon storage. They are

biodiversity-rich coastal habitats that feed, shelter and protect ecologically and economically important species. Restoring kelp forests presents a unique – but underappreciated and underutilized – way to protect biodiversity and enhance CO₂ drawdown.

Green gravel was initially proposed and tested in Norway by researchers at the Institute of Marine Research (IMR – Flødevigen) in 2020. The technique is now being developed and shared with other researchers around the world in collaboration with UWA Australia, IMR, SeaForester (www.seaforester.org) and DPI New South Wales, Australia, who are leading the group.

Wernberg, who is on Reuters' list of top global climate scientists, is coordinating the green gravel group together with Dr. Karen Filbee-Dexter (UWA, IMR) and Dr. Melinda Coleman (DPI NSW).

For more information, please contact Axel Bugge, Co-founder at SeaForester (bugge@seaforester.org), or Thomas Wernberg on Thomas.wernberg@uwa.edu.au.



Figure 1 - Growing green gravel in the laboratory



Figure 1 - Green gravel deployed on degraded reef