

SEAWEED: AN OCEAN OF OPPORTUNITIES FOR CLIMATE CHANGE

1%

Seaweeds account for 1% of the total primary productivity of the planet, and could be much more

11%

Seaweeds lock away carbon, storing 173 million metric tons annually, which is equivalent to 11% of global production

20%

Seaweeds are responsible for producing 20% of the oxygen in the atmosphere

- Seaweed is a diverse group of marine organisms present all over the world with the ability of photosynthesis.

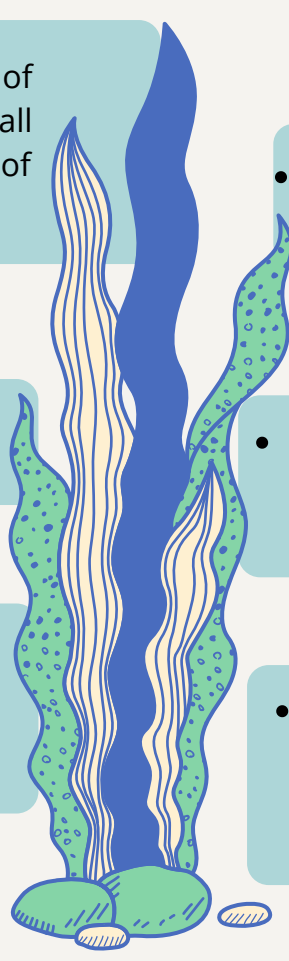
- Kelp protects the coast from the impacts of extreme weather events.

- Coastal ecosystems sequester up to 20 times more carbon per acre than land forests.

- Kelp forests are rich habitat for marine life, including commercially important fish and invertebrates.

- However this natural solution to the climate crisis is having its own problems with a warming planet.

- Kelp naturally captures carbon in large volumes in seaweed tissue, and some gets trapped in the ocean floor for centuries.



KELP FORESTS AT RISK



Giant kelp forests need to be bathed in cool, nutrient-rich currents to thrive. Warmer waters can reduce growth rates or remove seaweed, giving invasive species the opportunity to grow.



In New Zealand, kelp forests may slowly shift southwards, but they are also at risk of sudden declines: after a strong marine heatwave in early 2018, bull kelp became locally extinct in and around Lyttelton Harbour; its place was taken by an invasive Asian kelp.



Overfishing can mean that herbivores take over, and young kelps get mowed down. In the last 5 decades Tasmania's once expansive kelp forests have declined by 90% or more due to warmer waters and higher populations of predatory urchins.



Our activities on land also seriously threaten kelp forests. Fertilisers, pesticides, herbicides and sediments all run off into the sea. Actively cleaning up our rivers and streams will help our coastal marine ecosystems recover as well.

Seaweed Solutions to the climate crisis:

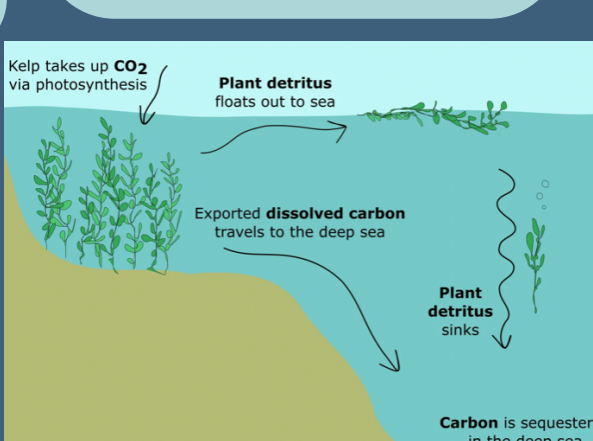
(If you want to access more information, copy in your browser the links of each bubble and go to them.)

BLUE CARBON

A big opportunity for both NZ and Chile to create a blue carbon credit system. Voluntary certification markets are emerging globally, and may provide revenue opportunities both domestically and internationally. The Sustainable Seas National Science Challenge in New Zealand is researching this for the Emissions Trading Scheme. Also, the Climate Change Commission has developed and published information suggesting that blue carbon must be included in international targets, as well as provide advice to Aotearoa's government on its emissions reduction plan. More info: <https://n9.cl/wpyoe>

CLIMATE ADAPTION

Some kelp species are more resilient against the effects of warming seas, and can help seed new kelp forests. University of Tasmania researchers are harvesting spores from wild kelp survivors and embedding them in twine to be wound around the remaining kelp ropes that are rooted into the sea floor. A non-profit called Sustainable Surf enables people to invest in the kelp restoration project to offset their own carbon footprint through kelp seeding projects. More info: <https://n9.cl/blj64>



MARINE RESERVES

Marine reserves can act as underwater national parks. In New Zealand there are area management tools such as Taiāpure, mātaītai to allow Tangata Whenua to sustainably manage and protect important marine resources like kelp. DOC and Fisheries NZ have proposed a kelp protection area in Otago to prevent commercial harvesting. More info: <https://n9.cl/x0a0p>

Did you know that adding seaweed to cattle feed can reduce cow methane emissions by up to 95 per cent? It has been discovered that *Asparagopsis* seaweed has the ability to reduce methane emissions from livestock when used as a feed supplement. More research is needed but this has huge potential for NZ and Chile to reach their emission goals as both countries have a large agricultural sector. More info: <https://n9.cl/gvsct>

Did you know that giant kelp can grow up to 60cm a day?

In Chile, a law seeks to protect seaweeds in coastal areas. "Law establishing environmental considerations and adaptations to climate change for the algae industry". The main measure of this project is to regulate the extraction of algae, and to end the "sweep" technique - a destructive method of extraction in all the coastal areas and under forest forests of the country. More info: <https://n9.cl/at6hh>

PROTECTION POLICY



Granting territorial user rights to fishers (TURFs), for specific areas, means that fishers have the incentive to capture responsibly and for long-term sustainability. When paired with no-take reserves, TURFs become TURF reserves where populations are able to recuperate, benefiting fishers and marine ecosystems. More info: <https://n9.cl/j9q2w>



FISHERY MANAGEMENT

In Chile, sustainable management recommendations have been proposed in areas of intense harvesting. These would regulate the size and number of plants harvested, and encourage rotation of harvesting areas. A National Program of Kelp Management, informed by government, scientists, fishers, and industry, is needed to implement this effectively. More info: <https://n9.cl/4qnx>

SUSTAINABLE HARVEST

