***Regenerative Foods: Factsheet***

**Seaweeds and bivalves combat human induced climate changes in the ocean :**

Studies have shown that seaweed has the potential to combat adverse impacts of ocean acidification and remove some of the carbon dioxide that’s already in the atmosphere and ocean. The growth of seaweed beds and bivalve beds also protects coasts from storm surges by absorbing wave energy. This protects both fragile coastal ecosystems, and remote coastal settlements.

* Rebecca R. Gentry and others, ‘Exploring the Potential for Marine Aquaculture to Contribute to Ecosystem Services’, *Reviews in Aquaculture*, 12.2 (2020), 499–512 (outlines current body of research)
* Xi Xiao and others, ‘[Seaweed Farms Provide Refugia from Ocean Acidification](https://www.sciencedirect.com/science/article/pii/S0048969721002588)’, *Science of The Total Environment*, 776 (2021), 145192.
* Carlos M. Duarte and others, ‘[Can Seaweed Farming Play a Role in Climate Change Mitigation and Adaptation?’](https://doi.org/10.3389/fmars.2017.00100), *Frontiers in Marine Science*, 0 (2017)
* ‘Wild Seaweed Harvesting: Strategic Environmental Assessment - Environmental Report’ (Outlines a number of articles and reports on seaweed coastal protection from storms and erosion)
* Robert Jones [‘How Restorative Aquaculture Helps Nature and Communities Thrive’](https://www.nature.org/en-us/what-we-do/our-insights/perspectives/restorative-aquaculture-for-nature-and-communities/), *The Nature Conservancy*. 2019.
* Heidi K Alleway and others, ‘The Ecosystem Services of Marine Aquaculture: Valuing Benefits to People and Nature’, *BioScience*, 69.1 (2019), 59–68 <<https://doi.org/10.1093/biosci/biy137>>.

**Bivalves filter water of chemicals and pollutants in tidal regions.**

Bivalves such as oysters, mussels and clams are filter-feeders. As they feed, they filter the water for particulates, and in doing so, they remove chemicals, pollutants, microplastics, diseases, and reduce land-based nitrogen loading. Their 'filter' is self-cleaning and they often filter water for 12 or more hours per day.

* Anthony Dvarskas, Suzanne B. Bricker, Gary H. Wikfors, John J. Bohorquez, Mark S. Dixon, and Julie M. Rose. ‘[Quantification and Valuation of Nitrogen Removal Services Provided by Commercial Shellfish Aquaculture at the Subwatershed Scale](https://pubs.acs.org/doi/10.1021/acs.est.0c03066) | Environmental Science & Technology. 2020
* Amélie Bottollier-Depois, [‘Mussels, “super-Filters” That Can Help Beat Water Pollution](https://phys.org/news/2019-08-mussels-super-filters-pollution.html)’ , Phys.Org, Science X. 2019

**Seaweeds and Bivalves do not require pesticides, fertilisers, or other harmful chemicals:**

* Jennifer Jacquet and others ‘[Seafood in the Future: Bivalves Are Better](https://thesolutionsjournal.com/2017/01/11/seafood-future-bivalves-better/)’, *The Solutions Journal*, 2017
* Clare Finnay. [‘Eat This to Save the World! The Most Sustainable Foods – from Seaweed to Venison’](https://www.theguardian.com/lifeandstyle/2021/jun/29/eat-this-to-save-the-world-the-most-sustainable-foods-from-seaweed-to-venison), *The Guardian*, 2021

**Bivalves act as biogenic reefs, providing habitat for other species.**

Biogenic reefs are made up of hard matter created by living organisms. Above a certain density, bivalves provide a distinct, three-dimensional hard structure and aggregate, which form anchorage and a base for many other species to grow and live amongst. Bivalve beds, therefore, often have, in comparison with the surrounding areas, a high biodiversity value and can be seen as hotspots for biodiversity.

* J. A. Craeymeersch and H. M. Jansen, [‘Bivalve Assemblages as Hotspots for Biodiversity’](https://doi.org/10.1007/978-3-319-96776-9_14), in *Goods and Services of Marine Bivalves*, ed. by Aad C. Smaal and others (Cham: Springer International Publishing, 2019), pp. 275–94.

**Seaweeds in intertidal zones act as a nursery habitat for marine species**

Seaweed species such as kelps provide essential nursery habitat for fisheries and other marine species and thus protect food sources

* Jonathan S. Lefcheck and others, ‘[Are Coastal Habitats Important Nurseries? A Meta-Analysis’](https://doi.org/10.1111/conl.12645), Conservation Letters, 12.4 (2019), e12645.

**Seaweeds act as carbon capturers.**

Seaweeds play a vital role in capturing carbon, whilst producing 50% of the world’s oxygen.

* Halley E. Froehlich and others, ‘[Blue Growth Potential to Mitigate Climate Change through Seaweed Offsetting](https://doi.org/10.1016/j.cub.2019.07.041)’, *Current Biology*, 29.18 (2019), 3087-3093.e3.
* Carlos M. Duarte and others, ‘[Can Seaweed Farming Play a Role in Climate Change Mitigation and Adaptation?](https://doi.org/10.3389/fmars.2017.00100)’, *Frontiers in Marine Science*, 0 (2017)