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Commentary

Significance of Seaweeds in Improving the Aquatic and Terrestrial Environment

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DESCRIPTION

Seaweed, or macro algae, refers to lot of species of macroscopic, multicellular, marine algae. The term consists of a few varieties of Rhodophyta (red), Phaeophyta (brown) and Chlorophyta (green) macro algae. Seaweed species together with kelps offer critical nursery habitat for fisheries and different marine species and accordingly defend food sources; different species, together with planktonic algae, play an important function in binding carbon, generating at least 50% of Earth`s oxygen.

Natural seaweed ecosystems are in risk for sometimes from human activities. For example, mechanical dredging of kelp destroys the resources and established fisheries. Other forces additionally threaten a few seaweed ecosystems; an ailment in predators of purple urchins has brought about an urchin population surge which destroyed massive kelp forest area off the coast of California.

Humans have an extended record of cultivating seaweeds for his or her use. In current years, seaweed farming has become an international agricultural practice, providing food, source for diverse chemical uses (together with Carrageenan), farm animal's feeds and fertilizers. Because in their significance in marine ecologies and for grabbing carbon dioxide, current interest has been on cultivating seaweeds as a potential climate change mitigation approach for bio sequestration, along different advantages like nutrient pollutants reduction, expanded habitat for coastal aquatic species, and lowering nearby ocean acidification.

Seaweed" lacks a proper definition, however seaweed typically lives within the ocean and is seen with our bare eye. The term refers to each flowering plants submerged within the ocean, like eelgrass, in addition to large marine algae. Normally it is far certainly considered one among numerous agencies of multicellular algae: red, green and brown. They lack a usual multicellular ancestor, forming a polyphyletic group. In addition, blue green algae are sometimes taken into consideration in seaweed literature.

Ecology

Two environmental necessities dominate seaweed ecology. These are seawater (or at the least brackish water) and enough light to guide photosynthesis. Another usual requirement is an attachment point, and consequently seaweed usually inhabits the littoral zone (nearshore waters) and within that zone, on rocky beaches more than on sand or shingle. In addition, there are few genera which do now no longer stay connected to the ocean floor, however drift freely.

Seaweed occupies diverse ecological niches. At the surface, they are wetted through the tops of sea spray, while a few species can also additionally connect to a substrate at numerous meters deep. In a few areas, littoral seaweed colonies can increase miles out to sea. The inner most dwelling seaweeds are a few species of red algae. Others have tailored to stay in tidal rock pools. In this habitat, seaweed should resist unexpectedly converting temperature and salinity and occasional drying.

Macro algae and debris of macro algae have also been shown to be important food sources for benthic organisms, as macro algae shed old leaves. The leaves of these macro algae are usually utilized by benthic organisms in the coastal intertidal zone. Alternatively, pneumocytes (gas-filled "bubbles") can keep the thallus of macro algae floating. The fronds are carried from the coast to the deep sea by wind and ocean currents. Benthos has also been shown that tend to utilize these macro algae residues at depths of hundreds of meters.

Macro algae absorb carbon dioxide and release oxygen during photosynthesis, so the leaves of large algae drift from the coast to the deep sea basin and sink to the seafloor without being re-mineralized by organisms, resulting in marine carbon. It can also contribute to sequestration.

Production

Seaweed farming or kelp farming is the practice of cultivating and harvesting seaweed. In its simplest form, it consists of the management of naturally found batches. In its most advanced form, it consists of fully controlling the life cycle of the algae.

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The largest algae producing countries are China, Indonesia and the Philippines. Other notable producers include South Korea, North Korea, Japan, Malaysia and Zanzibar (Tanzania). Algae farming have been developed as an alternative to improving economic conditions and reducing fishing pressure and overfishing. Global production of aquatic plants, dominated by seaweeds, increased from 13.5 million tons (13,300,000 tons, 14.9 million short tons) in 1995 to 30 million tons (30 million long tons, 33 million short tons) in 2016.

As of 2014, seaweed was 27% of all marine aquaculture. Seaweed farming is a carbon negative crop, with a high potential for climate change mitigation and giving an idea to use these as a mitigation tactic to control climate change.