



CURRENT AFFAIRS



Argasia Education PVT. Ltd. (GST NO.-09AAPCAI478E1ZH)
Address: Basement C59 Noida, opposite to Priyagold Building gate, Sector 02,
Pocket I, Noida, Uttar Pradesh, 201301, CONTACT NO:-8448440231

Date – 1 February 2023

The Decline of Kelp Forests

This article covers "Daily current events "and the topic is about 'the decline of the kelp forests' which is in news, it covers the "Environment and ecology" In GS-3, and the following content has relevance for UPSC.

For Prelims: About kelp forests

For Mains: GS-3, significance of kelp forest

Why in news:

- According to a recent study, climate change is contributing to the decline of kelp forests.

What are the Study's Highlights:

- The major kelp species in the southern hemisphere, *Ecklonia radiata*, is particularly susceptible to climate change in areas close to the equator.
- The species is experiencing reductions along the eastern Australian coastline, and it is predicted that these declines will continue internationally in the coming years.
- Even if in situ protection might not be practical, its distinctive genetic diversity can be conserved by ex-situ storage in culture banks for use in any restoration, hybridization, or adaptation plans in the future.

ABOUT THE KELP FORESTS

- Underwater habitats known as kelp forests are created in shallow water by the dense growth of several species.

- Large brown algae known as kelp are found in shallow, chilly seas close to the beach.
- These forests are always coastal and require shallow, reasonably clear water. They cling to the seafloor and eventually grow to the surface and rely on sunshine to produce food and energy.
- They have considerable ecological and commercial value and serve as the underwater habitat for hundreds of species of invertebrates, fish, and other algae.
- It is significant because it provides a range of marine animals with essential nourishment. Up to 60% of the carbon present in coastal invertebrates is produced by kelps.
- They provide a habitat for birds to forage since they are a diverse invertebrate and fish ecosystem.
- It increases the productivity of the coastal environment by releasing carbon into it. The primary production of kelp results in the generation of fresh biomass, detritus, and other elements.



Kelp Forests

MAJOR KELP FORESTS DISTRIBUTION AROUND THE WORLD

- Inuit, scientists, and arctic explorers have all documented kelp forests in the Arctic. 10% of all coasts in the world are concentrated in the Canadian Arctic.
- To the harsh environment, kelps have evolved. These cool-water species have unique adaptations that allow them to endure subfreezing temperatures, protracted periods of darkness, and even the growth of sea ice.

- They are capable of some of the highest rates of primary production of any natural ecosystem on Earth when located in areas with cold, nutrient-rich water.
- Between Ellesmere Island and Labrador, along the shores of Lancaster Sound, Ungava Bay, Hudson Bay, Baffin Bay, and Resolute Bay, These forests have been scientifically observed in Hudson Bay and eastern Canada.

FUNCTION

- The way kelps work underwater is similar to how trees work on the land. By blocking light and calming waves, they alter the physical environment to produce habitat.
- Numerous kinds of crustaceans, fish and other algae call these forests home, and they also provide crucial three-dimensional underwater habitats.
- One of the ocean's most diversified ecosystems is made up of these forests. Seabirds and marine animals like sea lions, sea otters, and even grey whales use kelp forests as protection from predators and storms, and many fish species use them as nurseries for their young.

THREAT

- Alarming rates of sediment discharge into coastal waterways are being caused by thawing permafrost and collapsing Arctic beaches, which could impede plant development by obstructing sunlight.
- Young kelp is impacted by the turbidity and salinity changes brought on by glacier runoff.
- It is well recognized that destructive fishing methods, coastal pollution, and unintentional harm from boat entanglement have a deleterious impact on kelp forests.
- By traveling in herds, sea urchins can destroy these forests at a rate of 30 feet (9 m) each month. For forests to flourish, sea otters are essential for maintaining sea urchin numbers.

SIGNIFICANCE

- Kelp forests support a wide range of economic, leisure, and tourism activities, and they are crucial to coastal economies all around the world.
- North Americans eat kelp, and during the past 20 years, the kelp aquaculture business has expanded at a global pace of 7% annually (kelp is a coveted food source in many countries, full of potassium, iron, calcium, fiber, and iodine).

- Inuit traditionally use kelp as sustenance in the Arctic and gather a wide variety of wild animals.

Piyush Singh

