

THE BLUE ECONOMY AND CLIMATE CHANGE

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The global economy benefits considerably from the \$1.5 trillion annually estimated contribution of coastal communities, which is expected to increase to \$3 trillion by 2030. Targeted support for important industries, such as fisheries and aquaculture, tourism, energy, shipping and port activities, seabed mining, as well as cutting-edge fields like renewable energy and marine biotechnology, is necessary to ensure ocean ecosystem health, support livelihoods, and promote economic growth.

The World Bank describes the blue economy as "the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while protecting the health of the ocean ecosystem," despite the fact that there is no one, widely agreed-upon definition of the word. The three pillars of sustainability—environmental, economic, and social—are given equal weight in a blue economy. Understanding the distinction between an ocean economy and a blue economy is crucial when discussing sustainable development.

Coral reefs, mangroves, seagrass meadows, and wetlands all provide essential ecosystem services like coastal protection and carbon sequestration in addition to tangible products and services.

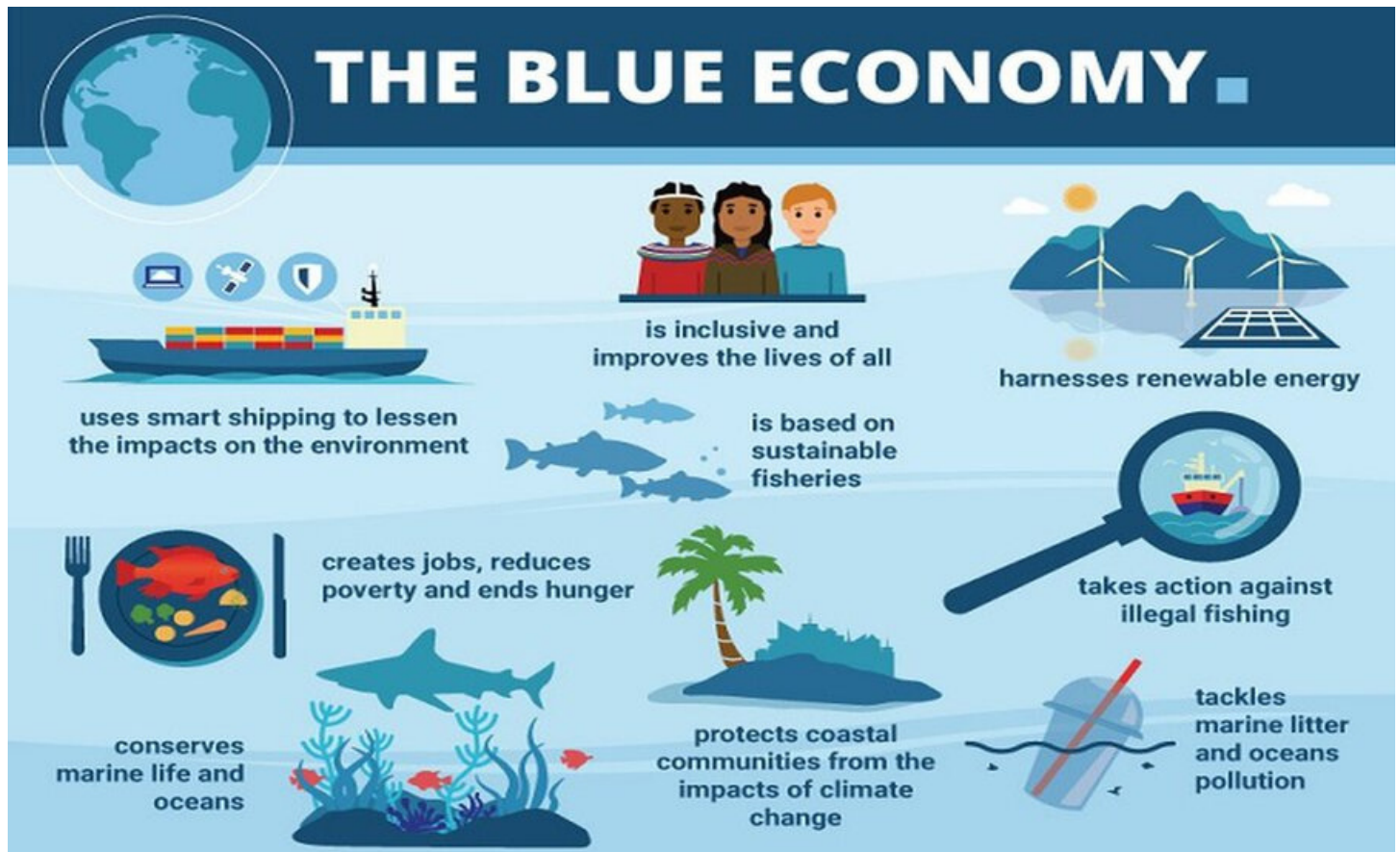
Even as we continue to lose land-based trees, the blue economy is playing a bigger and bigger role in the effort to mitigate climate change. Mangroves, tidal marshes, and sea grass beds are examples of shallow coastal water habitats that are increasingly recognised as being crucial components of our strategy for managing vital natural carbon sinks.

It has been discovered that these important coastal habitats are more efficient than terrestrial forest systems at long-term carbon sequestration and fix carbon at a rate that is substantially higher per unit area than land-based systems. These various ecosystems are ecologically interconnected; the sum of their contributions offers higher resilience than the sum of their individual contributions.



Over 90% of the excess heat produced by human-generated greenhouse gases and about 23% of the carbon dioxide emissions caused by humans are absorbed by the oceans, which are essential to mitigating climate change.

By enabling marine sectors that contribute to climate change mitigation, marine spatial planning can assist nations in making the transition to low-carbon solutions. Examples include the use of offshore renewable energy, the bunkering of low-carbon fuels, the decarbonization of port infrastructure and maritime transportation, the sequestration of carbon by marine and coastal ecosystems (also referred to as blue carbon), and the regulation of greenhouse gas emissions in oceanic sectors.



By preserving and restoring the biodiversity and ecosystems necessary to shield populations from the consequences of climate change, maritime spatial planning can help identify nature-based solutions and hybrid infrastructure (mixed natural and artificial solutions). For instance, 50% of the carbon deposited in marine sediments comes from marine environments like sea grass and mangroves. Healthy coral reefs reduce wave intensity by an average of 97%, providing protection from climate risks. The extensions of marine protected areas to incorporate carbon-storing habitats and the preservation or restoration of native species that sequester carbon are two examples of how marine spatial planning might support more common solutions.

The food security of coastal communities that depend on fish is directly at risk due to climate change's disruption of ocean patterns, which affect fish distribution and migration patterns. To improve adaptability to these effects, marine spatial planning can promote the creation of protected zones and fish management strategies.

Climate-informed marine spatial planning is more crucial than ever to create transformative and implementable solutions as the momentum surrounding ocean and climate action keeps growing. As a result, these solutions will enhance marine and coastal governance and support nations in achieving resilient and sustainable growth.

