KNOW
SAVE

OUR OCEAN

CISSA-University of Kerala Poster Exhibition on Oceans and Marine Debris

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University of Kerala, India

The Origin

The origin of the oceans goes back to the time of the earth's formation 4. 6 billion years ago, when our planet was forming through the accumulation of smaller objects, called planetesimals.

Most scientists agree that the atmosphere and the oceans accumulated gradually over millions and millions of years with the continual 'degassing' of the Earth's interior.

According to this theory, the ocean formed from the escape of water vapour and other gases from the molten rocks of the Earth to the atmosphere surrounding the cooling planet.

After the Earth's surface had cooled to a temperature below the boiling point of water, rain began to fall—and continued to fall for centuries.

As the water drained into the great hollows in the Earth's surface, the primeval ocean came into existence. The forces of gravity prevented the water from leaving the planet.

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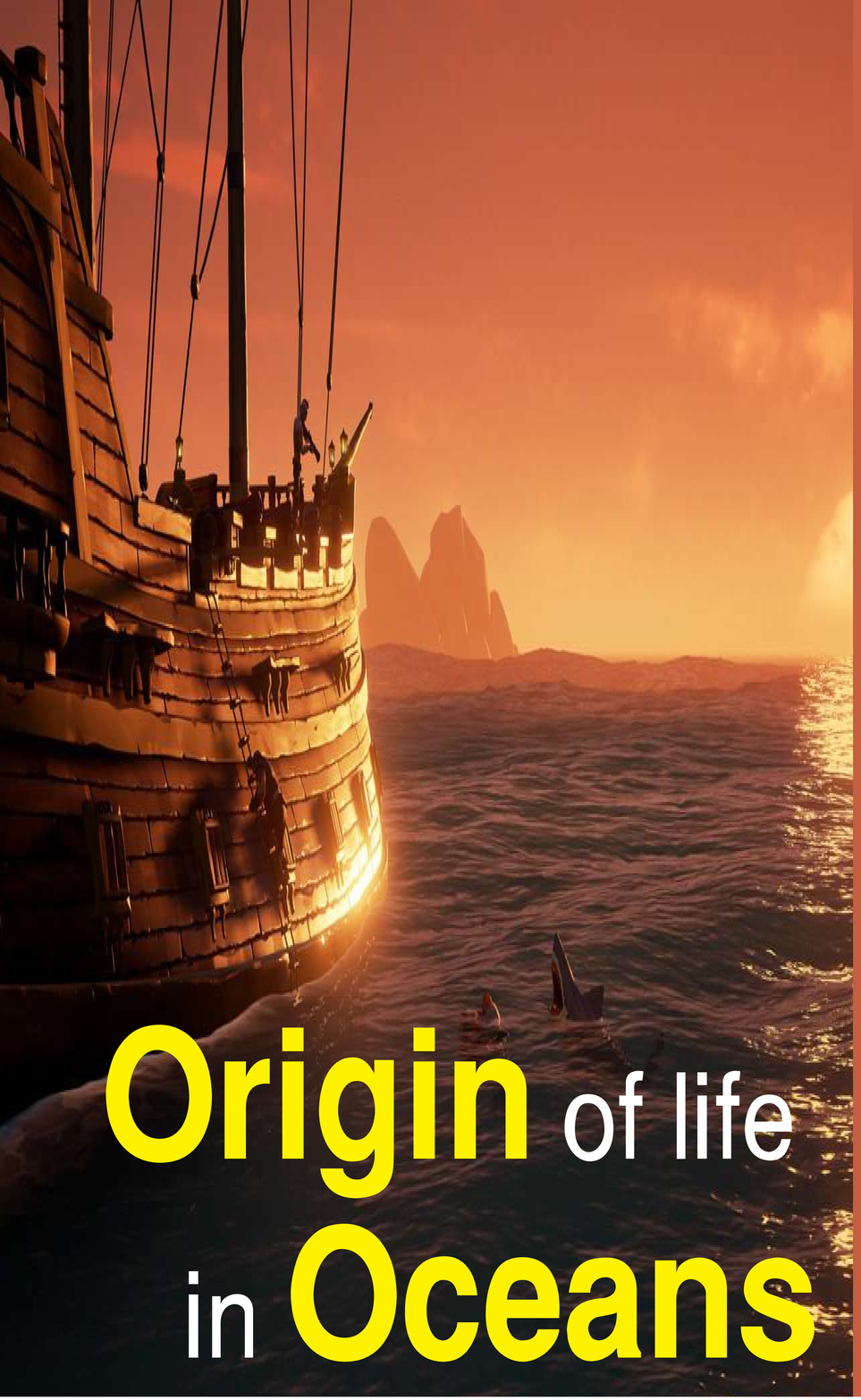

Origin of life in Oceans

Life began oceans at least 3.5 billion years ago, during the Eoarchean Era.

Scientists are exploring several possible locations for the origin of life, including tide pools and hot springs.

Recent hypothesis is that life originated near a deep sea hydrothermal vent (a fissure on the seafloor from which geothermally heated water issues; usually near volcanically active places, where the water temperature may go up to 400°C).

The chemicals found in these vents and the energy they provide could have fuelled many of the chemical reactions necessary for the evolution of life.

Furthermore, using the DNA sequences of modern organisms, biologists have tentatively traced the most recent common ancestor of all life to an aquatic microorganism that lived in extremely high temperatures — a likely candidate for a hydrothermal vent inhabitant!

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Marine Life

Marine life or marine biodiversity represents the plants, animals and other organisms that live in the ocean, or the brackish water of coastal estuaries.

A total of 230,000 documented marine species exist, including about 20,000 species of marine fish, with some two million marine species yet to be documented.

Marine species range in size from the microscopic, including plankton and phytoplankton which can be as small as 0.02 micrometres, to huge cetaceans (whales, dolphins and porpoises), including the blue whale – the largest known animal reaching up to 33 metres (108 ft) in length.

Marine microorganisms, including bacteria and viruses, constitute about 70% of the total marine biomass.

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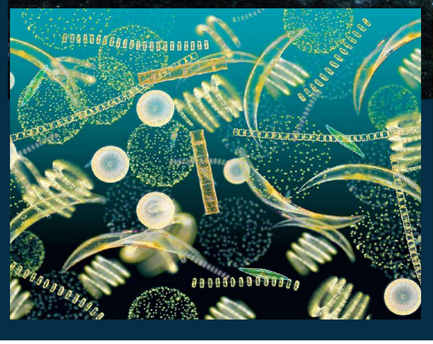
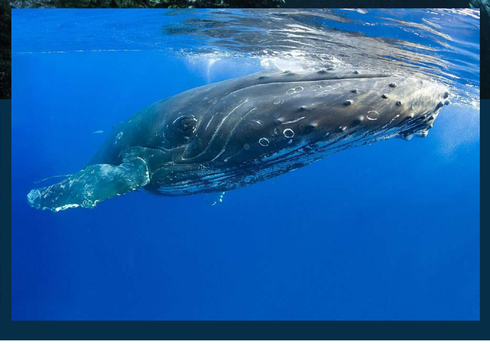
From OCEANS to land and back to oceans!





By volume, oceans provide about 90 percent of the living space on the planet.

The earliest vertebrates appeared in the form of fish, which live exclusively in water.

Some of these evolved into amphibians which spend portions of their lives in water and portions on land.

Other fish evolved into land mammals aand subsequently returned to the ocean as seals, dolphins or whales.

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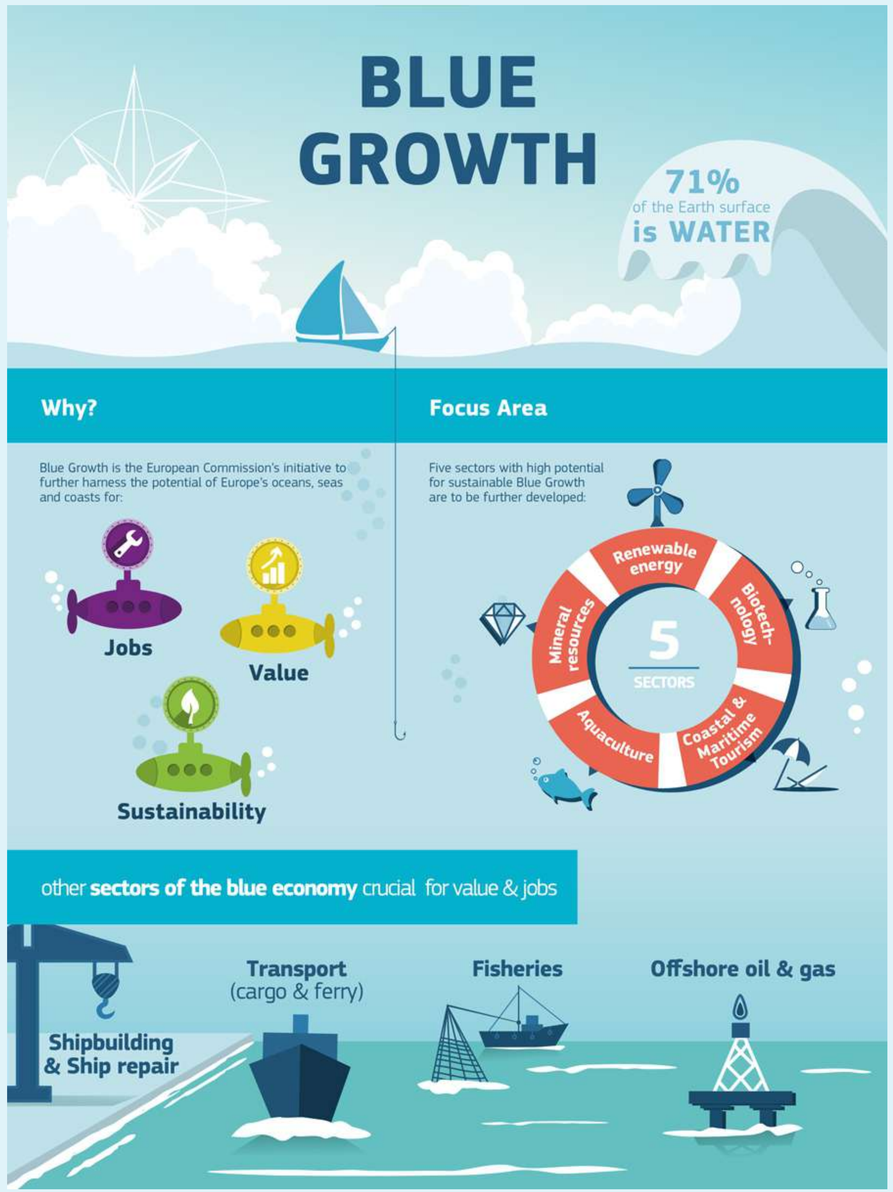
Oceans for Future

The Blue Economy and Blue Growth



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The Blue Economy refers to the use of seas and coasts for economic activities.

Governments around the world consider ocean as the ecosystem to trigger economy, as it generates millions of jobs and income worth billions to the government, through promotion of aquaculture, coastal tourism, marine biotechnology, ocean energy and seabed mining.

Blue Growth refers to the expansion of such marine and coastal activities in a planned way.

Blue Growth strategies include the premise that healthy ocean ecosystems are more productive (and therefore more supportive of ocean-based economies) than unhealthy ones.

Facts on Blue Economy

The ‘Blue Economy’ is an emerging concept which encourages better stewardship of our ocean or ‘blue’ resources.

It supports all of the United Nations’ Sustainable Development Goals (SDGs), especially SDG14 ‘life below water’, and recognises that this will require ambitious, co-ordinated actions to sustainably manage, protect and preserve our ocean now, for the sake of present and future generations.

The blue economy is not just about market opportunities; it also provides for the protection and development of more intangible ‘blue’ resources such as traditional ways of life, carbon sequestration, and coastal resilience to help vulnerable states mitigate the often devastating effects of climate change.

Similar to the ‘Green Economy’, the blue economy model aims for improvement of human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities

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Fast Facts on

Blue Economy

The worldwide ocean economy is valued at around valued at around US$1.5 trillion per year.

Eighty per-cent of global trade by volume is carried by sea.

350 million jobs world-wide are linked to fisheries.

By 2025 it is estimated that 34% of crude oil production will come from offshore fields.

Aquaculture is the fastest growing food sector and provides about 50% of fish for human consumption

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