SITTING on a beach can be a wonderful experience – the rolling and roaring waves splashing on the shores, the sunset and the magnificent colours of the sky – the sights and sounds mesmerise us. And innumerable questions pop up in our minds.

To inspire awe for the vast, diverse, and unexplored ocean, and to provide a unique and engaging experience that demonstrates how the ocean works and how it is interconnected with other global systems, the Regional Science Centre & Planetarium at Kozhikode, a unit of the ‘National Council of Science Museums (NCSM)’, under the Ministry of Culture, Government of India has designed the ‘Hall of Ocean’ Gallery spreading over an area of 4800 square feet. The hall was developed within a period of one year.

The gallery was developed after literature surveys, visits to regional and national scientific research centres on ocean or related sciences and making public surveys regarding their ignorance on the subject. The gallery was dedicated to the nation on 5 May 2018 at a glittering function by Shri Pinarayi Vijayan, Hon’ble Chief Minister of Kerala in presence of Shri Pradeepkumar, Hon’ble MLA of Kozhikode.

Whenever we speak about these vast water bodies, we speak in terms of Sea and Ocean interchangeably. However, an ocean is an interconnected mass of saltwater (covering 71% of the surface of the earth) where boundaries are established by continental land masses and ridges in the ocean floor.
A sea, on the other hand, is usually smaller than an ocean (a division of an ocean) and is a body of salt water that is surrounded on all or most sides (partially enclosed) by land and/or part of one of the oceans.

The gallery starts with a three dimensional dynamic projection of the pale blue planet in the wilderness of space. There is a panel dedicated to mythology related to oceans.

 Broadly, the geological structure of planet Earth can be classified into Crust, Mantle and Core. Throughout geologic history, oceans have been created and destroyed. The Indian Ocean came into being about 180 million years ago, when the ancient landmass of Gondwanaland began to split into three parts, shrinking the Tethys Sea as South America, Africa and India began moving north. India collided with Asia giving rise to the Himalaya Mountains and the world’s highest peak. All these aspects are shown in the interactive exhibits titled – ‘Plate tectonics’, ‘Earth, Core & Mantle’ and ‘Continental drift’.

The winds blowing above the ocean surface are responsible for waves. The direction of wind flow depends on the rates at which these bodies get heated up during daytime and cool down at night. The Beaufort scale is an empirical measure that relates wind speed to observed conditions at sea or on land. One of the transits of this gallery explains this scale using colourful graphics and light animation.

The exhibits ‘Ocean Floor’ and ‘Scuba Diving’ showcase the ocean floor about eight meters below the ocean surface and the pleasures of scuba diving. The high water pressure, the diving suit and air cylinders make scuba diving an exciting activity.

There is an exhibit on tsunami. The 2004 tsunami played havoc in the Andaman-Nicobar Island and Chennai-Sri Lanka regions. Tsunamis are caused by offshore earthquakes, and travel at about 800 kilometres per hour. In this gallery, in the exhibit titled ‘Tsunami’ visitors can play and create a physical tsunami event and observe how the wave hits the coast and washes out the neighbourhood.

If all the water on our Earth vanished, how would our planet look? This aspect is shown in the exhibit ‘Earth without waters’.

The life within the ocean is a world of its own. The diversity of life forms is large and extreme. Corals form a colony of tiny animals that have porous limestone skeletons which can be used for bone repairs in humans. More such
uses of corals are depicted in the exhibit on coral reefs.

Just recall the scenes from the 1975 American thriller film *Jaws* directed by Steven Spielberg. Can we forget those deadly teeth attacking beach goers? The whale shark is the largest living fish, while the blue whale is the largest living animal. The gallery has a gigantic (but scaled down) working model of a blue whale.

By the side of the Giant Blue whale exhibit, a cylindrical section of the ocean depth stands erect towering above all the exhibits in the gallery. It comprises a variety of the bizarre creatures at different levels of the ocean.

Salt is an important ingredient in our diet and food preparation. It is also essential in maintaining the body’s overall fluid balance. The process of production of salt is showcased in an exhibit titled ‘Salt from Sea’.

Tides are important events in oceans affecting the activities of fishermen. Fishermen are warned not to undertake fishing activities during high tides. Tides happen because of the gravitational pull of the Moon and Sun on ocean water. The Moon has a much greater impact on tides than the Sun because it is much closer. The exhibit ‘Sun, Moon & Tides’ explains these phenomena in a lucid manner.

In his 1870 classic ‘Twenty Thousand Leagues Under the Sea’, Jules Verne described the terrors of the vast maelstrom whirlpool charted by chroniclers since at least the 16th century. Verne writes ‘There, not only vessels, but whales are sacrificed, as well as white bears from the Polar Regions.’

Oceanic whirlpool is volume of swirling waters. Ocean currents are not smooth and constant in their courses. Due to continental contours and seabed features, they twist and turn back upon themselves. When an ocean current kinks up, it often creates a whirlpool. The exhibit ‘Whirlpool’ makes the visitor experience this aspect of nature by creating an Oceanic Whirlpool.

Mud banks (called ‘Chakara’ in colloquial Malayalam) are regions of calm and highly turbid waters that occur along certain parts of Kerala’s coastal seas driven by the monsoon during which resident mud particles located close to the coast is churned up by energetic waves forming a thick colloid suspension. Mud banks (quiet
shores) appear in a semi-circular shape with average distances of 4-5 km along the shore and 5-6 km offshore.

The fluid mud absorbs the wild waves and provides a calm environment for fishing whereas the high monsoon waves restrict fishing elsewhere. Pelagic fish varieties such as anchovies, sardines, and mackerel swarm the mud banks because they are rich in organic content, with phytoplankton, preferred food of pelagic fish, blooming in the turbid waters. The mud bank phenomenon has been studied extensively and is explained in an exhibit.

A pearl is a hard object produced within the soft tissue (specifically the mantle) of a living shelled mollusk. Pearls are composed of calcium carbonate in minute crystalline form, which get deposited in concentric layers. The making of pearls is depicted in the exhibit ‘Pearls’.

Marine energy or marine power refers to the energy carried by ocean waves, tides, salinity, and ocean temperature differences. The movement of water in the world’s oceans creates a vast store of kinetic energy, or energy in motion. This energy can be harnessed to generate electricity to power homes, transport and industries. The exhibit ‘Power from Ocean’ illustrates this aspect.

The gallery also depicts the significance of Estuaries in maintaining ecological balance, the phenomenon of El-Nino & La-Nina, the migration of Marine Birds, Marine archaeology, Ocean transport and so on. There is also a not to miss opportunity to pilot the ship at the Ship Simulator!

Geological activities, volcanic eruptions, exotic creatures, deep terrains, ocean currents, high mountains and valleys… all these form a vast world veiled and hidden from the common people. The surface of the Calicut beach, where we enjoy the splashing waves do not provide us the slightest hint regarding what lies underneath. A visit to this ‘Hall of Ocean’ changes our perception and excites us to pounder more on the secrets of the water world.

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