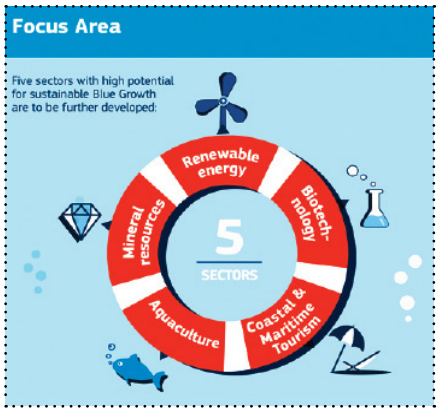
"If the highest aim of a captain were to preserve his ship, he would keep it in port forever" - St. Thomas Aquinas

Blue Economy – Wave 71

(Series on ''Blue Economy'' By Capt. Gajanan Karanjikar)



Capt. Gajanan Karanjikar, Blue Economy Social Activist & Multi Modal Logistics Expert

Blue Economy and Ocean Energy .... (cont..)

Current Energy:

Ocean current energy can be harnessed using underwater turbines, also known as tidal turbines, to generate power. This technology has potential in many regions around the world. However, projects are still in the experimental stages. Ocean current energy is steady and inexhaustible. Once the turbines have been installed, no direct greenhouse gas (ghg) emissions are generated.

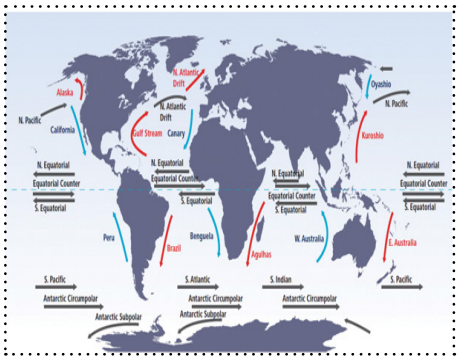
Ocean currents flow in complex patterns and pathways and are affected by several elements such as wind, temperature, topography of the ocean floor, the earth's rotation and water salinity. Most ocean currents are driven by wind and solar heating of surface waters, while some currents result from density and salinity variations of the water column

Highlights:

- Marine current is ocean water moving in one direction. This ocean current is known as the Gulf Stream.
- Tides also create currents that flow in two directions.
- Kinetic energy can be captured from the Gulf Stream and other tidal currents with submerged turbines that are very similar in appearance to miniature wind turbines.
- Similar to wind turbines, the movement of the marine current moves the rotor blades to generate electric power.

Thermohaline circulation is part of the global ocean circulation that is driven by density gradients created by surface heat and freshwater fluxes. The term thermohaline is derived from thermo- having to do with temperature and -haline referring to salt content, factors that collectively define the density of ocean water. Wind-driven surface currents such as the Gulf Stream travel polewards from the equatorial Atlantic Ocean, cooling along the way, and eventually sinking at high latitudes forming North Atlantic Deep Water.

Experiments are currently focusing on the use of underwater turbines, large propellers or turbines tethered in arrays to the seabed or floating mid-water. A direct



current cable carries the electricity to an onshore transformer station connected to the power grid.

For ocean current energy to be used successfully at a commercial scale, a number of engineering and technical challenges need to be addressed, including:

- Avoidance of cavitations (bubble formation)
- Prevention of marine growth buildup
- High maintenance costs
- Corrosion resistance
- Generation of electromagnetic fields (EMF)
- Toxicity of paints, lubricants, and antifouling coatings
- Interference with animal movements and migrations, including entanglement and strike by rotor blades or other moving parts

Despite the pandemic, Alang beached 187 ships for recycling

NEW DELHI
Sagar Sandesh News Service

Alang-Sosiya in Gujarat's Bhavnagar district – home to the world's largest stretch of ship-breaking facilities – beached 187 ships for recycling in FY21 compared to 202 ships in the previous year, as the ship dismantling activity was hit by the pandemic-induced lockdown

Alang managed to get steady business despite the pandemic

"Alang managed to get steady business despite the pandemic," said Anand Hiremath, Head, Research and Development and Lead Coordinator, Responsible Ship Recycling at Global Marketing Systems, Inc, (GMS), the world's biggest cash buyer of ships for demolition.

In the wake of the pandemic, Alang was hit by an exodus of migrants from Uttar Pradesh, Bihar, Jharkhand and Odisha, who make up for some 80 per cent of the 20,000 workers directly employed in the ship-breaking plots.

Ship recycling yards ground to a halt in the first five months of FY21, only to pick up pace between October 2020 and January 2021.

While only four ships were beached in April 2020 and five in May, 15 were beached in October, 19 in November, 28 in December, 26 in January, 12 in February and 10 in March.

The container ships were sold for scrapping in the beginning of the year due to low freight rates

Ironically, of the 187 ships beached in FY21, 41 were container ships, accounting for 22 per cent of the ships beached. The container ships were sold for scrapping in the beginning of the year due to low freight rates. But, since June 2021, rates for container shipping have soared on the back of an acute shortage of containers.

General cargo ships accounted for

Alang shipbreaking yard

7 per cent of the total ships beached in FY21, followed by chemical tankers and vehicle carriers at 6 per cent each, while tugs made up for 5 per cent.