

## OIL SPILL STUDIES AT MORMUGAO PORT, GOA

### Background

Oil spill poses a severe and ongoing threat to marine ecosystem and the invertebrate. Over 100 million Metric Tons of oil is transported by sea per day and more than 1.3 million metric tons of petroleum enters the ocean each year. When an oil spill occurs, the damage depends upon its location and prevailing weather condition. The major cause of sea pollution is oil spill due to the oil vessel collision and leakages resulting in heavy loss to living and non-living things in the sea. The accidents may occur due to human error and leakage could be due to mechanical faults in the pipes or containers. Detection and tracking of oil is essential to determine the required mitigation measures. The oil spread does not only depend on the quantity of spill but also on the location and prevailing environmental conditions. Thus, an extensive study is required to simulate oil spill under various environmental conditions at different locations. In recent times, many accidents are reported on west coast of India causing huge loss to environment.

### Studies Conducted

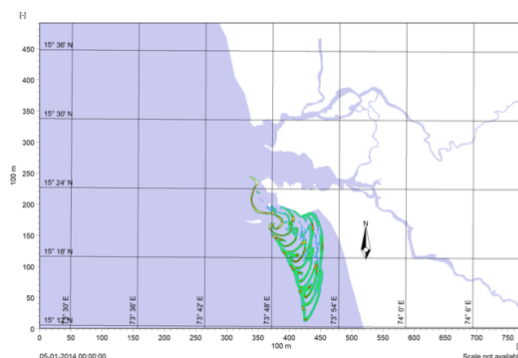
- Oil spill studies were carried out at CWPRS using numerical model MIKE-21 OS to simulate the various scenarios near Mormugao Port under various environmental conditions so that proper measures can be taken up in case of any mishap.



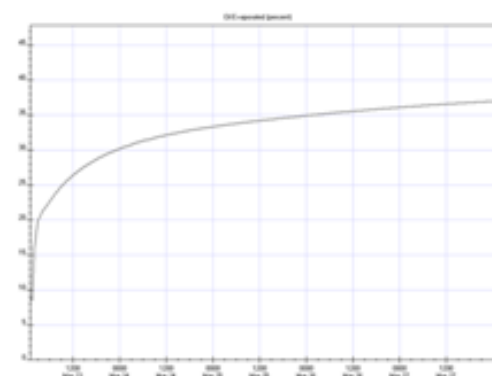
Satellite Image Of Mormugao Port Region

### Outcome and Benefits

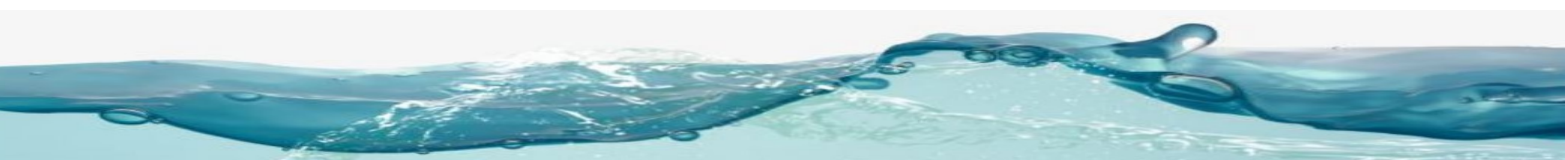
- The currents in the vicinity of Mormugao Port are of the order of 0.3 m/s and flow is unidirectional for most of the period.
- Within 12 hrs of oil spill, about 27% of oil gets evaporated while in next 12 hrs the evaporation would be of the order of 3 %.
- It was also observed that 37% Heavy Fuel Oil (HFO) evaporates during period of 5 days.
- The studies show that about 65% water in oil emulsion takes place in 24 hrs which goes upto 90% in 3 days.
- Oil spill in the harbour region would have minimum environmental impact on the other hand spill in the approach channel would cause server impact on coastline adjacent islands.
- These studies would help in taking appropriate measures to control the spread of oil in case of any mishap.
- This will help in minimising the heavy loss to living and non-living things in the sea.



Track of Volatile Mass after 4 Days of Spill



Oil Evaporation





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