

## **SWELL WAVES**

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## Context:

Recently, Swell waves have inundated coastal areas in central and southern districts of Kerala, causing concern for coastal communities and prompting district-level disaster management authorities to be on high alert.

## **Background**:

These swell waves flooded beaches along the coastal regions in Thiruvananthapuram, Kollam, Alappuzha, and Thrissur districts.

## About Swell waves:

- 1. Swell waves refer to ocean waves that have travelled over long distances from their area of origin, usually generated by distant weather systems or storms.
- 2. These waves typically have a consistent and smooth appearance and can travel thousands of kilometers across the ocean's surface without breaking.
- 3. Swell waves are a significant factor in shaping coastal areas and can cause inundation and erosion when they reach shore.
- 4. They are composed of a series of surface gravity waves.
- 5. They occur not due to the local winds, but rather due to distant storms like hurricanes, or even long periods of fierce gale winds.
- 6. During such storms, a huge energy transfer takes place from the air into the water, leading to the formation of very high waves.
- 7. These waves can propagate in directions that differ from the direction of the wind, in contrast to a wind sea.
- 8. Their wavelengths may rarely exceed more than 150 m.
- 9. In India, early warning systems like the Swell Surge Forecast System launched by the Indian National Centre for Ocean Information Services (INCOIS) in 2020 gives forewarning seven days in advance.