Salt marshes

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In news– According to a new research, more than 90 per cent of these biologically productive ecosystems may soon succumb to sea level rise by the turn of the century.

What are salt marshes?

- Salt marshes are coastal wetlands that are flooded and drained by salt water brought in by the tides.
- Salt marshes are coastal wetlands that are flooded and drained by salt water brought in by the tides.
- They are marshy because the soil may be composed of deep mud and peat. Peat is made of decomposing plant matter that is often several feet thick.
- Peat is waterlogged, root-filled, and very spongy. Because salt marshes are frequently submerged by the tides and contain a lot of decomposing plant material, oxygen levels in the peat can be extremely low—a condition called hypoxia.
- Hypoxia is caused by the growth of bacteria which produce the sulfurous rotten-egg smell that is often associated with marshes and mud flats.
- Salt marshes occur worldwide, particularly in middle to high latitudes.
- Salt marshes also protect shorelines from erosion by buffering wave action and trapping sediments.
- They reduce flooding by slowing and absorbing rainwater and protect water quality by filtering runoff, and by metabolizing excess nutrients.

Key findings-

- Scientists from the Marine Biological Laboratory (MBL) have been tracking vegetative cover in Great Sippewissett Marsh in Falmouth, Massachusetts, for the last 50 years to analyse the implications of higher

nitrogen levels on marsh grass species.

- The study noted that **increased nitrogen favoured higher levels of vegetation and accretion of the marsh surface.**
- However, these ecosystems won't be able to outpace submergence from global sea level rise.
- Even under conservative sea level estimates…**more than 90 per cent of the salt marshes of the world will likely be submerged and disappear or be diminished by the end of the century.**
- At some point, **if the sea level continues to increase at the rates that they anticipate, there will even be no more room for the low marsh plants**.
- **The only choice for salt marshes then would be to migrate landward**. But even this choice can be impacted by anthropogenic activities and other factors.
- **Marshes all over the globe experience 'coastal squeeze**,' where their movement is obstructed by sea level rise, anthropogenic activities and geographical factors.
- For instance, a seawall that protects a home from inundation will prevent a wetland from naturally migrating to higher ground.
- These barriers, whether they be geographic like a hill or a cliff, or people building along the edges of the ecosystem, constrain the potential for landward marsh migration.
- **In a sea level rise scenario, the only solution left with plants will be to colonise new areas or to go uphill**. But that migration may be impossible in some places.