

Oceans and Atmospheric Interactions

Key Terms

Coastal margins: all areas from the deep oceans to inland areas that are affected by coastal processes and that affect the coastline

ENSO: (El Niño Southern Oscillation) a reversal of normal atmospheric circulation in the southern Pacific Ocean, occurs every 2-10 years

La Niña: an intensification of normal atmospheric processes in the Southern Pacific Ocean

Eustatic changes: worldwide sea-level changes caused by the growth and decay of ice caps

Isostatic changes: localised sea-level changes caused by depression of the Earth's crust

Advancing coastlines: coastlines that are growing/getting larger due to deposition or a fall in sea-level

Retreating coastlines: coastlines that are getting smaller/disappearing either due to erosion or a rise in sea-level

Global commons: resources that are outside the reach of any one nation, may be exploited by all so needs to be managed carefully

Case Studies

El Niño:

Australian Droughts (2015) - mangroves died due to lower sea-levels, increased frequency and severity of bushfires, poor growing season (real farm GDP declined between 0.7% to 25.4%) -> impacted global cost of wheat, less weather disruptions for mines and non farm industries

La Niña:

Australian Flooding (2022) - national \$10 increase for iceberg lettuce due to flooded Brisbane (QLD) farms, Lismore (NSW) had \$350 billion worth of damages to council infrastructure

Cyclone:

Typhoon Haiyan (2019) - about 70-80% of the buildings in the path of Haiyan were destroyed, many left without power or telecommunications, a total of at least 10,000 fatalities, a storm surge of 6m. World Food Programme: mobilised \$2 million in aid. HICs helped the Philippines recover through financial aid

Mangroves:

exist on tropical coastlines, important to nurse fish and birds, natural filter of pollutants, reduces cyclone effects. **Toondah Harbour** - mangrove protection local pressure (Redlands 2030)/international agreements (Ramsar Convention)

Coral Reefs:

exist in tropics, nurses and protects fish, protect coast from erosion and storms, there are four types of reefs. **Great Barrier Reef** - example of a barrier reef, the WWF and Australian Government are trying to reverse the decline of marine species. Tourism and fishing of the reef reels in \$6 billion annually

Coastal Management Stakeholders:

Toondah Harbour (2018) - (QLD) Walker Corporation: wanting to build houses on mangroves, Local Residents: want to keep their ocean view, Environmentalists: protect and preserve mangrove areas, Council and Government: shouldn't permit Walker corp. due to international agreement

Oceans and Atmospheric Interactions (cont)

Coastal Management Decision Making:

Collaroy (2016) - (NSW) coastal residents are under threat due to erosion, the 2016 storm wiped out 50m of beach in front of beach houses, residents: urge for action, government: doesn't want to fund private land protection, others: land is now inhabitable

Contested Area:

South China Sea (2022) - China is abusing the EEZ laws by claiming coral reef islands as theirs to increase their fishing waters, less wealthy countries (Phillipines) have minimal power but attempted to get China to stop, China argue historical claims

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