

# Coastal structures

- **shore-parallel structures**

- ▶ seawalls
- ▶ seadikes
- ▶ revetments
- ▶ artificial headlands
- ▶ detached breakwaters
- ▶ artificial reefs
- ▶ sea bottom protections (armouring)
- ▶ artificial islands

- **shore-normal structures**

- ▶ short and long groynes
- ▶ jetties
- ▶ harbour breakwaters

**The most basic function of hard structures is:**

- ▶ **intercept and dissipate the energy** of waves and currents and associated sand transport
- ▶ to protect the **shore against erosion**
- ▶ to protect the **shore against sliding** (bluffs, cliffs, dunes).

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**Hard structures should not excessively lead to:**

- ▶ increased wave reflection
- ▶ increased current velocities, set-up currents, turbulence intensities
- ▶ increased longshore transport capacities
- ▶ profile steepening and offshore transport
- ▶ delayed or reduced beach and dune recovery
- ▶ intensified shoreface scour, toe scour, lee-side erosion
- ▶ destruction of natural bar/trough system