Groynes

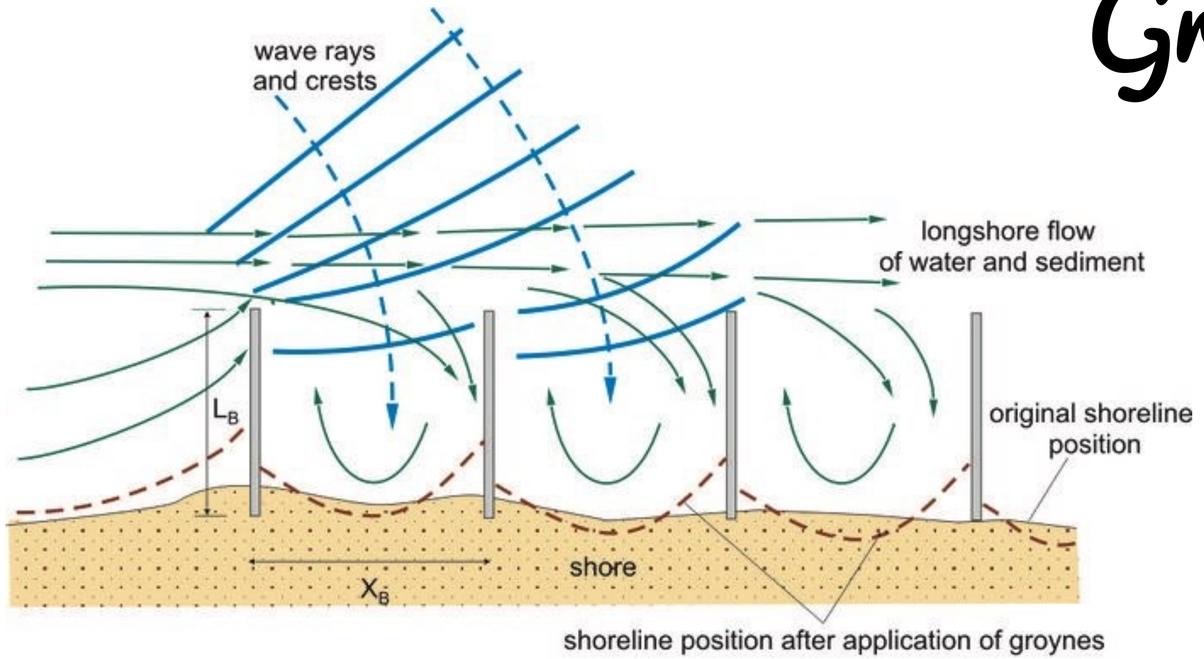
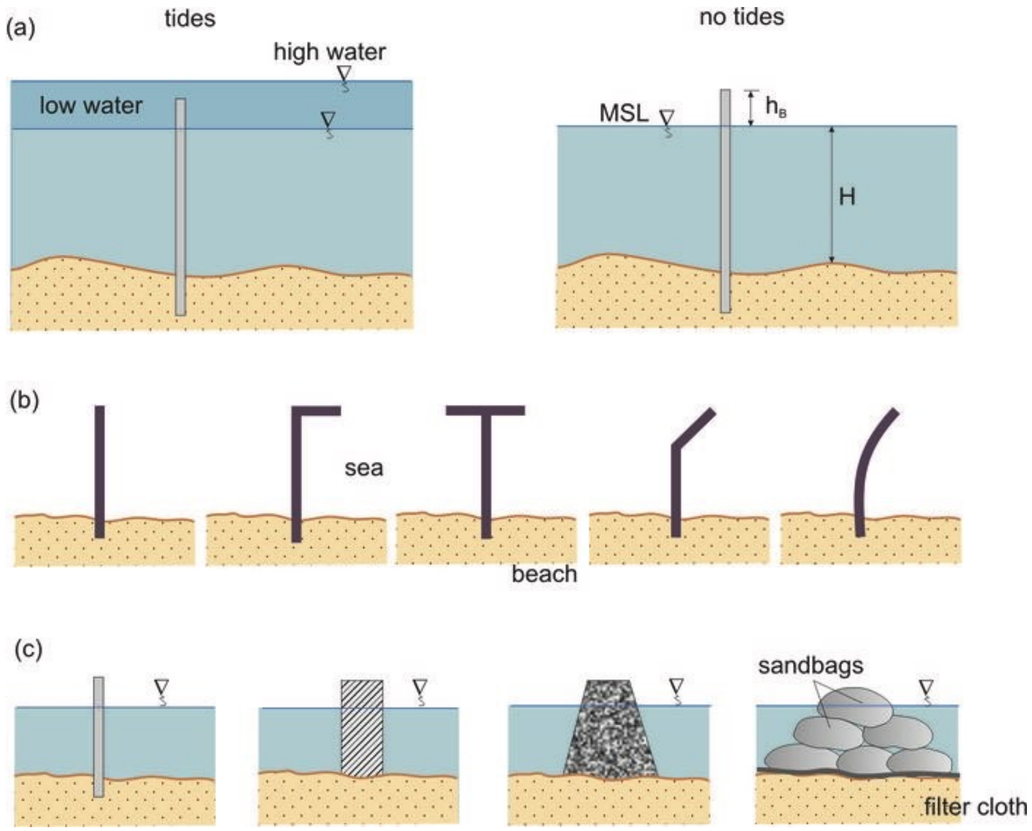


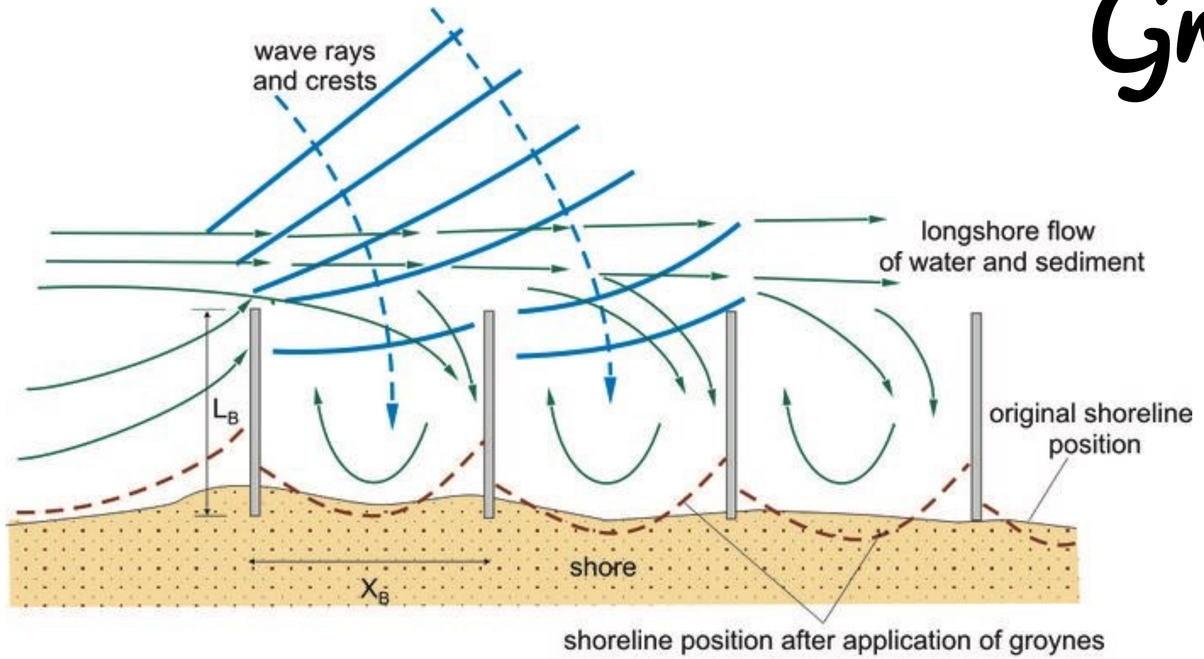
Fig. 1. Scheme of interaction of groynes, waves, currents and shore



Design: Groyne length from shoreline (L) and spacing (X)

- the tip should be within the surf zone to allow sand to pass around it
- the spacing should be 2 to 4 times the groyne length to prevent the generation of rip currents and associated excessive erosion between the groynes
- the spacing should decrease with increasing wave angle
- maximum groyne length is roughly determined by the mean low water spring line in tidal environments
- the groyne root should run into the dune over some length or properly attached to a revetment (if present) to prevent outflanking or damage by local erosion

Groynes



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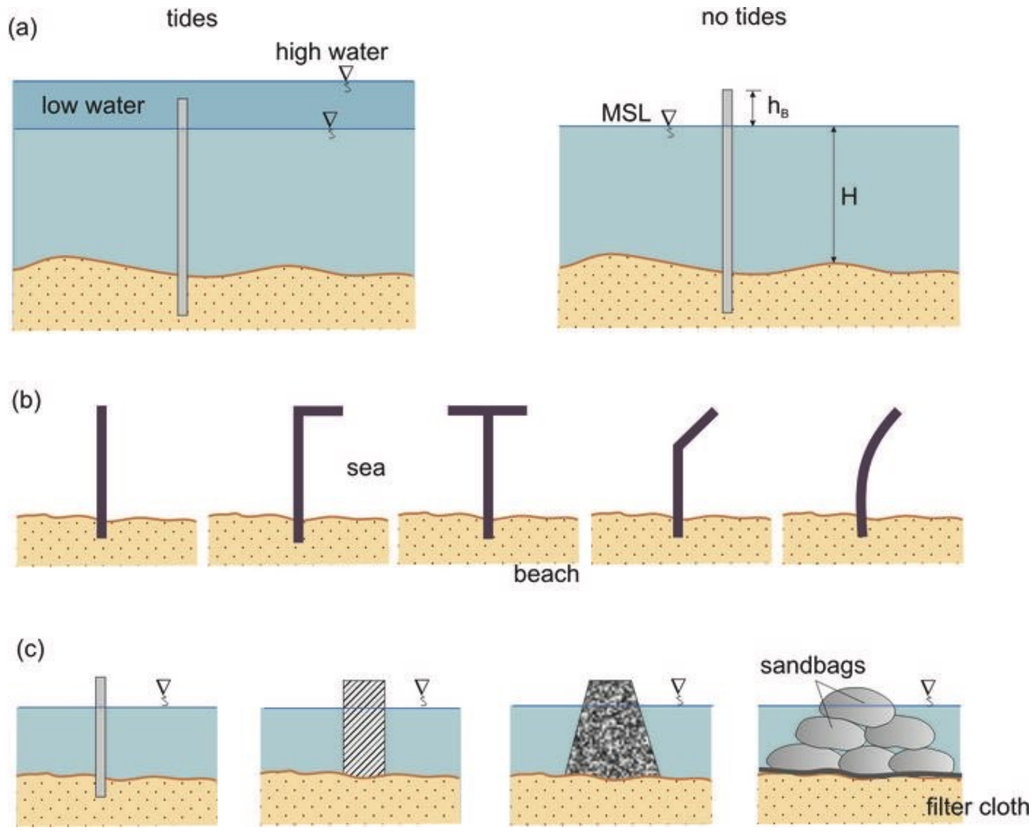

Practical values for L and X

- **U.K.:**
  - L and X are about 60 m for shingle beaches, X/L between 0.5 and 1.5
  - L is about 100 m and X is about 130 m for sand beaches; X/L between 0.8 to 3
- **Holland**: L between 100 to 200 m and X is between 200 to 400 m, X/L between 2 and 4.