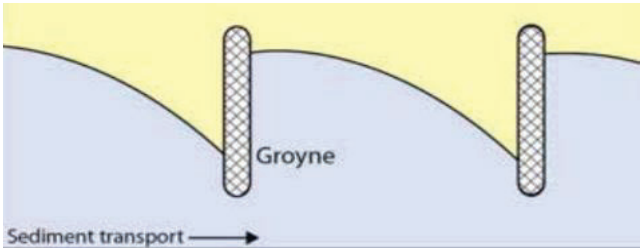
SHEET 6 TO 11 – ADAPTATION ACTIONS – COASTAL MANAGEMENT AND ENGINERRING

SHEET 8 – STRUCTURES TO ASSIST WITH SAND RETENTION

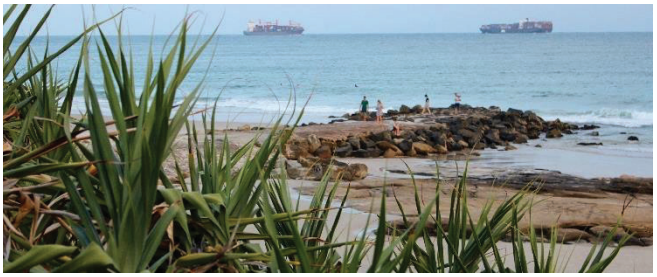
Structures can be installed to assist with retaining sand in a specific area of the shoreline. Groynes are the most common structure used for this purpose, extending perpendicular to beach. Groynes are typically combined with beach nourishment to provide the most enduring benefit to the beach.



Groynes intercept the longshore movement of sand, and assist to retain sand on the beach between structures. Sand will accumulate to the side of the structure where sediment is moving towards. Some localised erosion can occur on the lee-side. Permeable groynes allow water to flow through at reduced velocities, while impermeable groynes block or deflect the current.

Groynes can be constructed from a range of materials including rock, geotextile bags (geo-bags), wood and other materials (sheet piles, gabions, concrete). The design of rock or geo-bag groynes are most common in Australian marine environments, linked to the durability and availability of materials, suitability for design standards, and aesthetics.

Rock groynes
Groynes constructed of rock become relatively permanent features of the landscape. Rock groynes are typically used to assist with retaining large volumes of sand in a localised area on an on-going basis.



Geo-bag or wood groynes
Geo-bag groynes are becoming increasingly more favourable in coastal management. Groynes are constructed of large geo-textile containers (bags) filled with sand. These groynes will be periodically covered and exposed. Geo-bags have a shorter design life than rock, however they are more suited to adaptive management (can be removed or changed if the management approach changes). Groynes from wood are also feasible, depending on site specific circumstances.

Sand fencing
Sand fencing or brush matting can also be strategically located to encourage sand accumulation in a desired place, generally along the seaward side of existing or newly constructed dunes to promote dune growth.

Relevant and priority areas
Sand fencing is a relevant action at all locations where rapid dune growth is desired. Site specific circumstances (cost, aesthetics etc.) will determine the feasibility of sand fencing at each site.

Groynes are a relevant action for beaches across all sandy beach localities with a dominant long-shore drift direction. The feasibility of groynes is assessed on a site by site basis. Feasibility may change with changing coastal hazard risk and adaptation objectives.

Structures to assist with sand retention			
	Rock groynes	Geo-bag or wood groynes	Sand fencing
Cooloola (Estuarine frontage)			
Cooloola (Ocean frontage)			
Cooloola Cove			
Inskip Point South			
Inskip Point Spit			
Rainbow Beach (Estuarine frontage)			
Rainbow Beach (Ocean frontage)			
Tin Can Bay			

Relevant / feasible
Priority
Not applicable