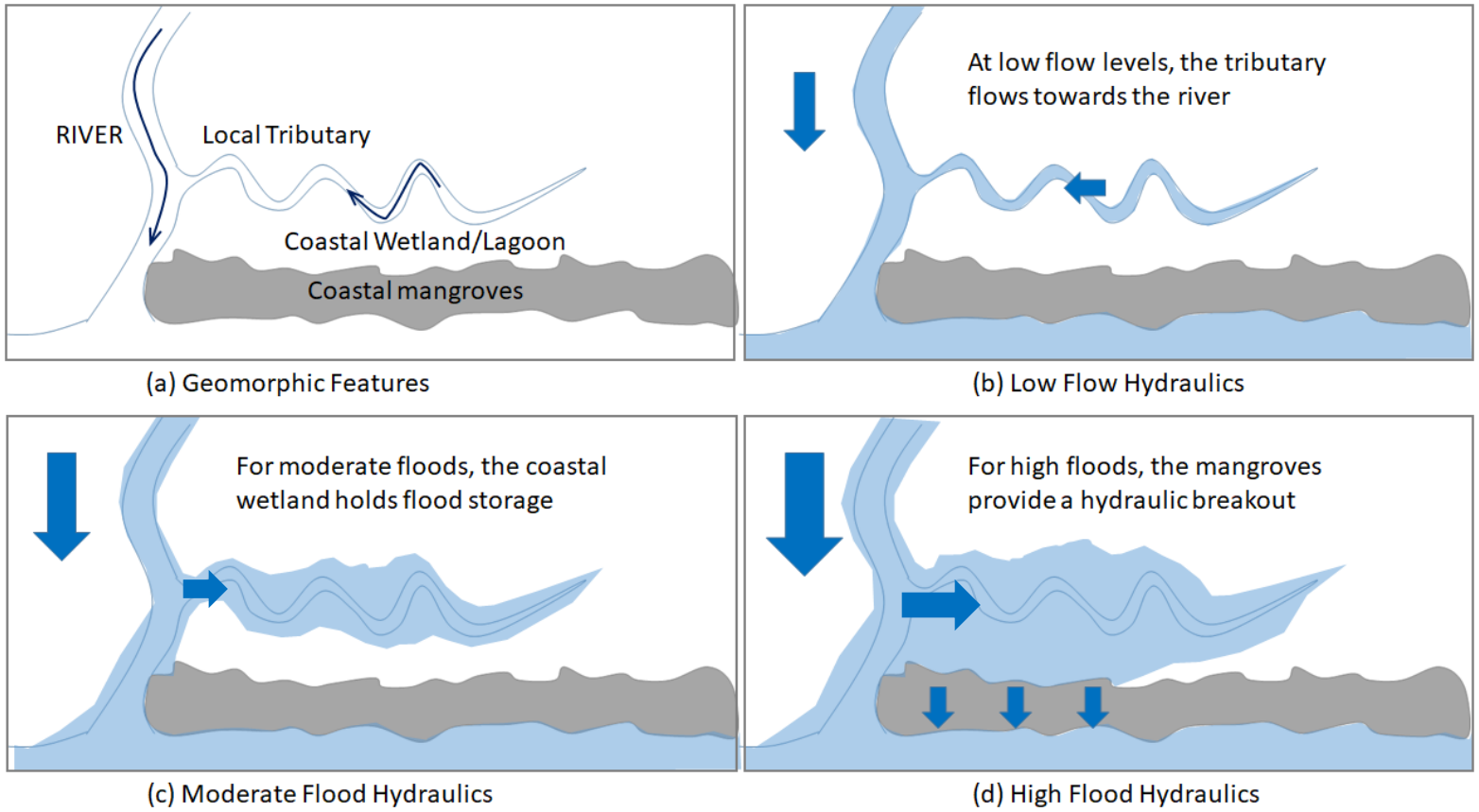
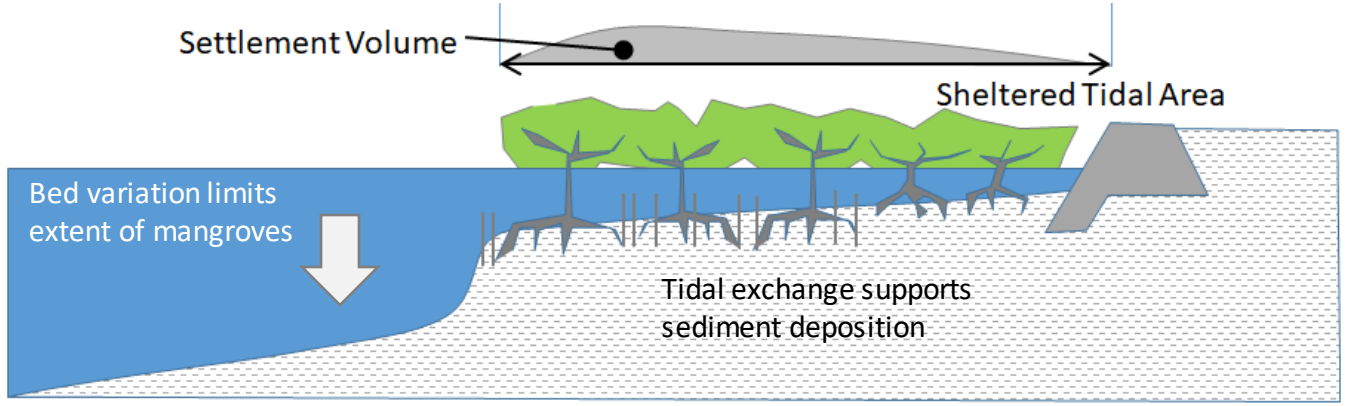
Geomorphology and Mangrove-based NBS

Coastal mangroves can substantially mitigate flooding and erosion hazard through flow and wave baffling by the canopy, and soil retention by the mangrove root mass. However, the viability of successfully establishing a mangrove community for NBS is determined by a range of ecologic, hydrologic and geomorphic conditions (Lewis *et al*. 2006, Winterwerp *et al*. 2013).

Characterisation of morphology and morphodynamics is a first step in the evaluation of mangrove-based NBS. Key features to identify are those indicating sediment migration in the riparian zone, as these directly affect mangrove disturbance-recovery cycles.

Tidal creek networks are also key geomorphic features, through their influence on hydrology, as well as capacity to act as conduits for sediment exchange.





Further landward, the morphology of coastal wetlands, including relict mangrove-fringed basins, influence tidal and fluvial hydraulic networks. These areas may act as flood storage basins or breakout pathways, and often provide a seasonal freshwater phase crucial for faunal and mangrove productivity.

Understanding of mangrove morphology and morphodynamics provides an important context when identifying opportunities to enhance mangroves or reinforce landforms as part of NBS.