

Impact of mangrove age on sediment retention and wave dissipation and its links to ecosystem services in the Red River Delta, Vietnam



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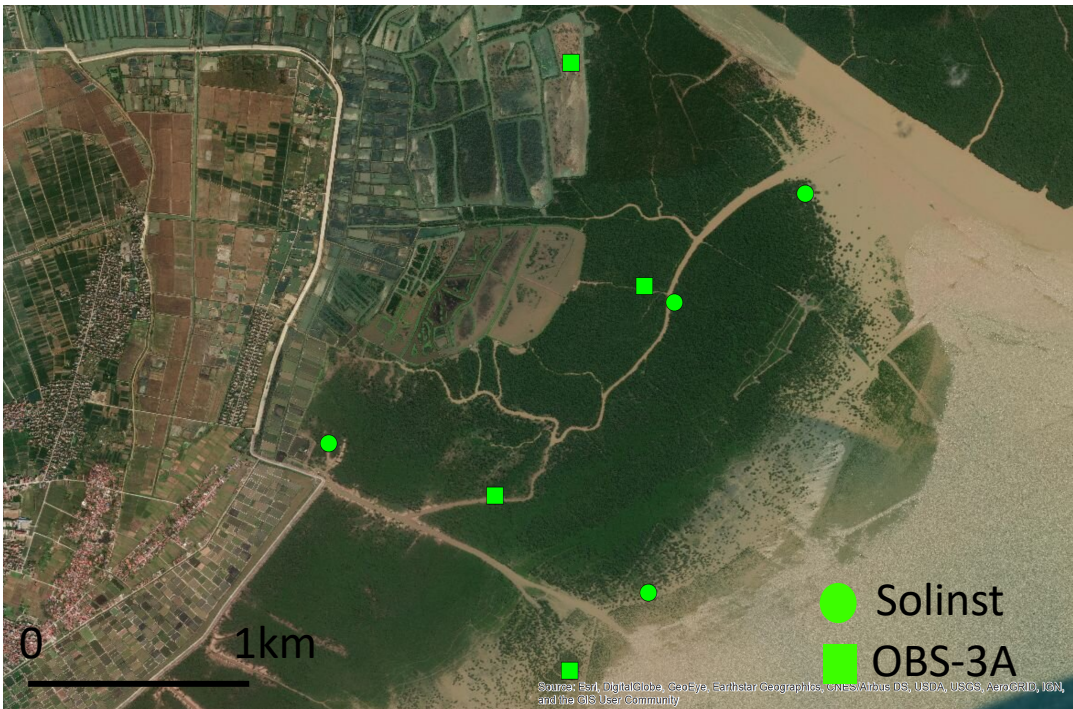
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Rationale/Aims

Mangroves support livelihoods and communities at the coastal margin (Orchard et al., 2015; Sannigrahi et al., 2020) and are key natural flood defences to tropical cyclone driven storm surges (Dasgupta et al., 2019; Pelayo et al. 2020)

Sequential planting of mangroves leads to differences in age, state and development within single forests, yet little is known about how these differences impact the benefits mangroves provide to local communities. This is what we address here.



Methods

Eight sensors installed throughout mangrove and left for four months

Campbell OBS-3A

- Water level
- Turbidity
- Temp
- Salinity
- Conductivity

Every 30 mins

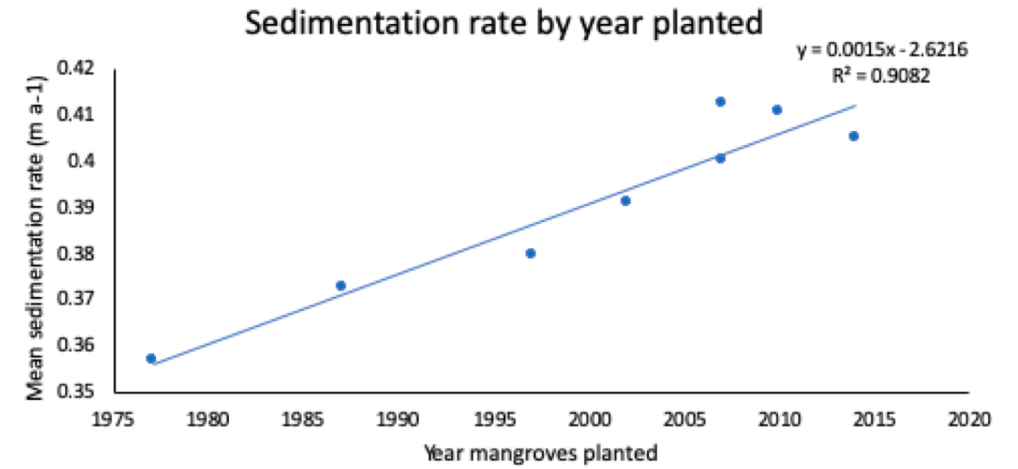
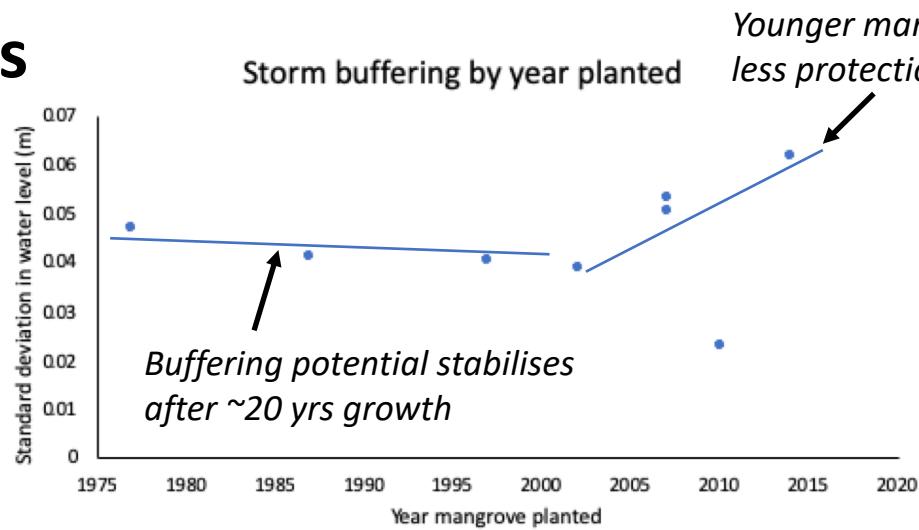


Solinst LevelLogger Edge

- Water level
- Temp
- Conductivity

Every 30 mins

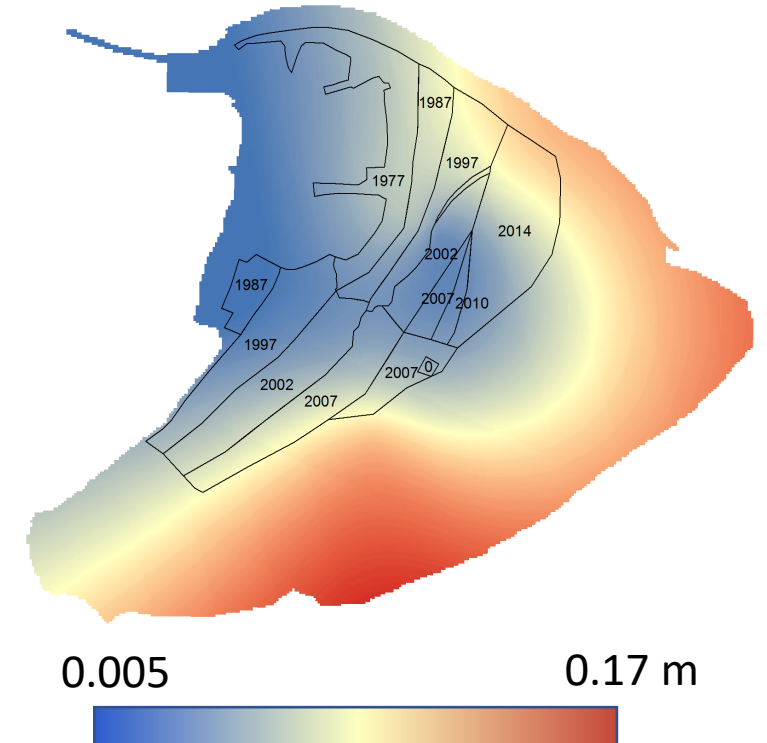
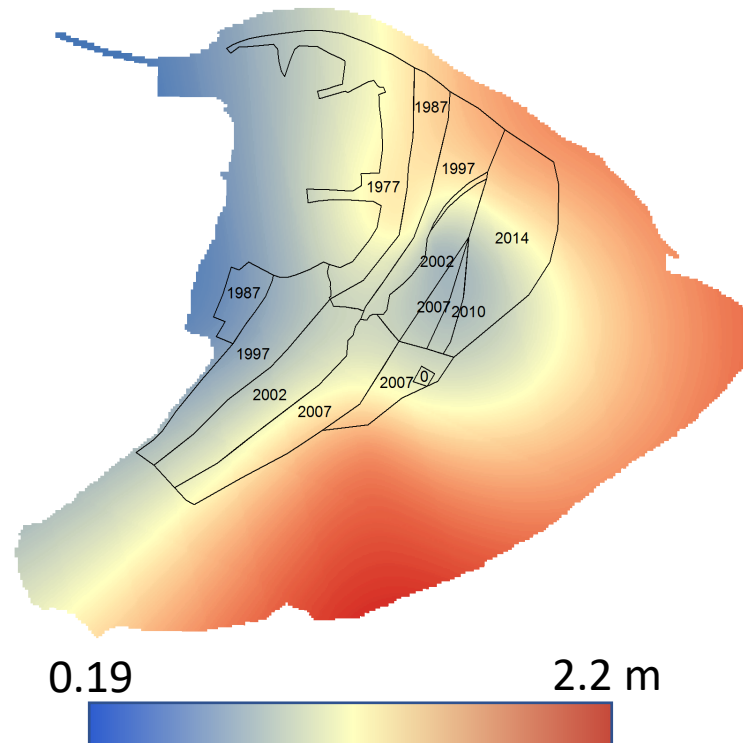
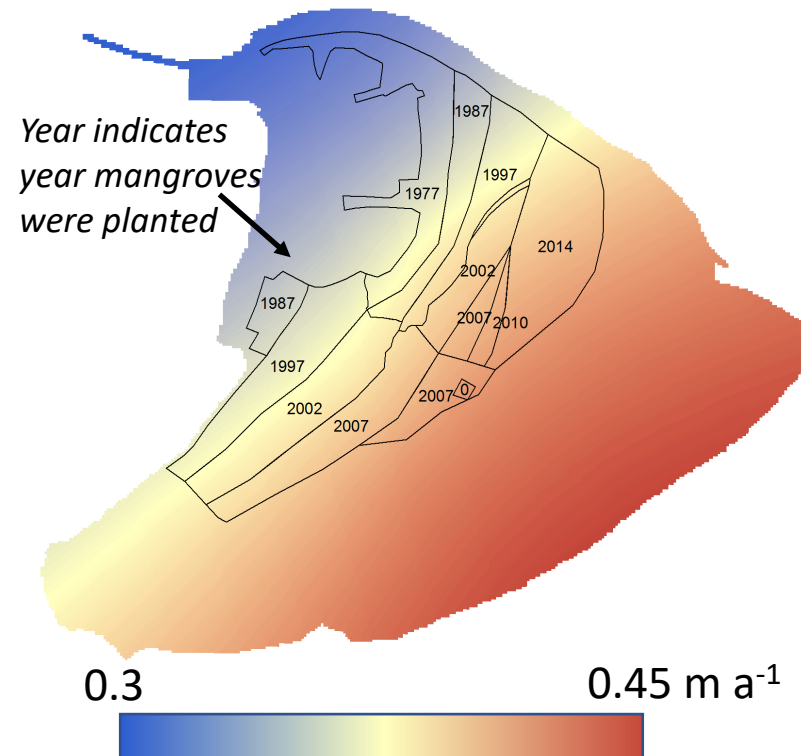
Initial Results



Sedimentation rate

Tidal range

Standard deviation in water level
(Lower values indicate greater buffering)



Initial Results

- Younger mangrove plantations encourage greater rates of sedimentation
- Younger mangrove plantations afford less protection to storms through wave and water level buffering
- Storm buffering potential seems to stabilize (and potentially decrease) after 15 – 20 years of growth
- *Link to ecosystems services still to do*