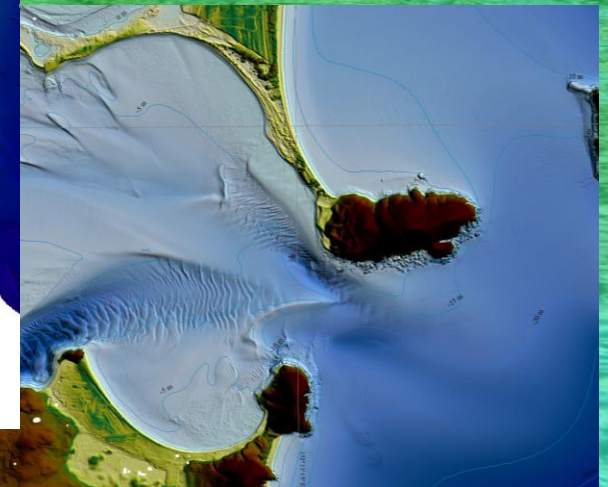
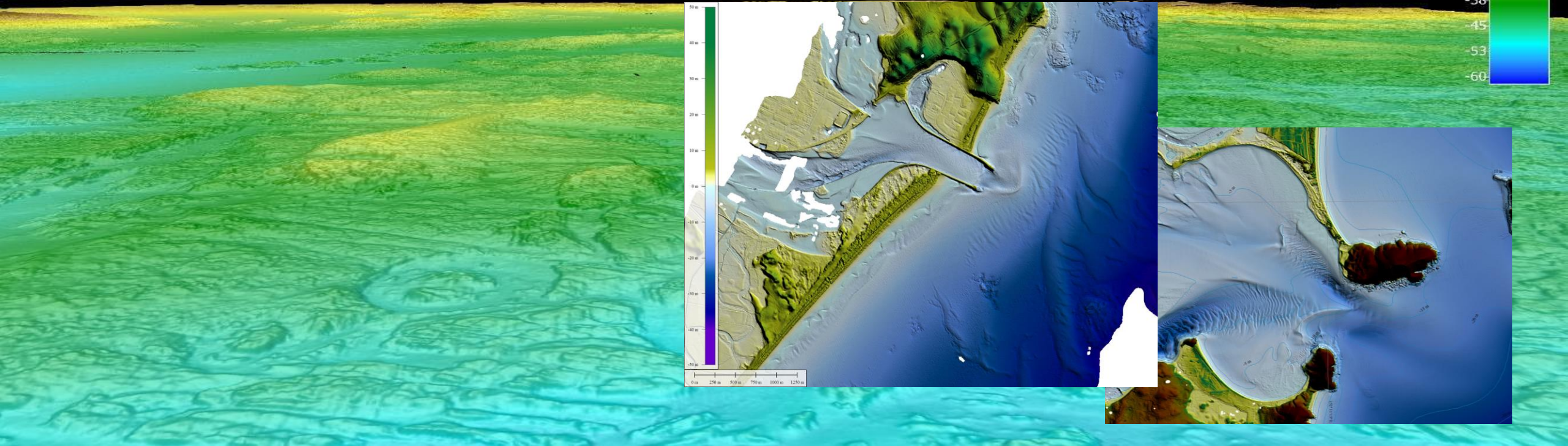
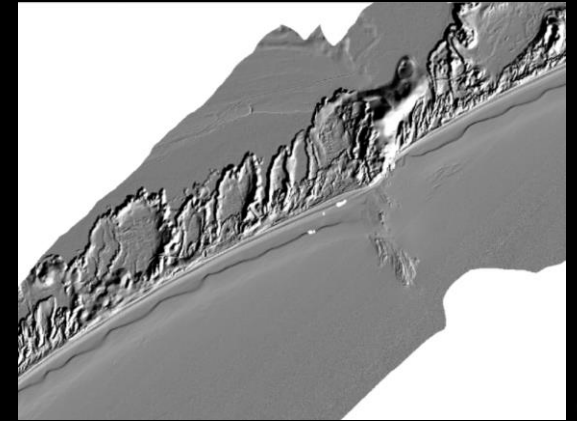


DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT

Mapping for Management in the Anthropocene

# Coastal Management: State-wide Marine LiDAR for New South Wales

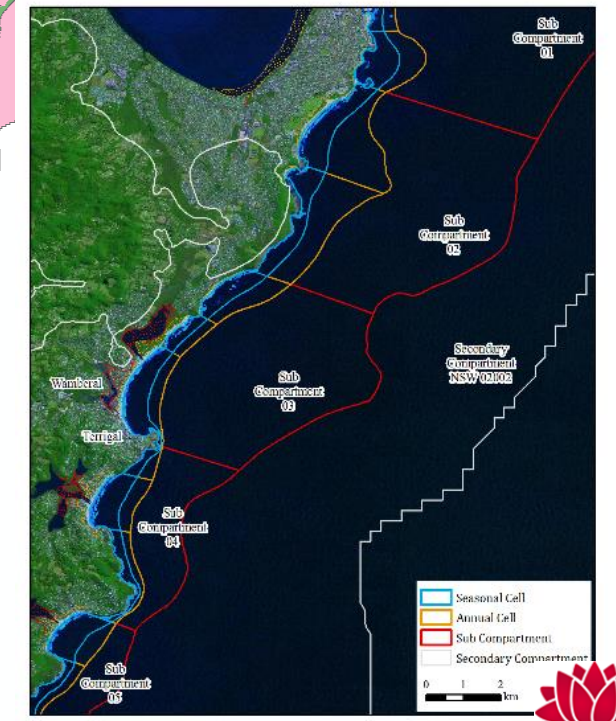
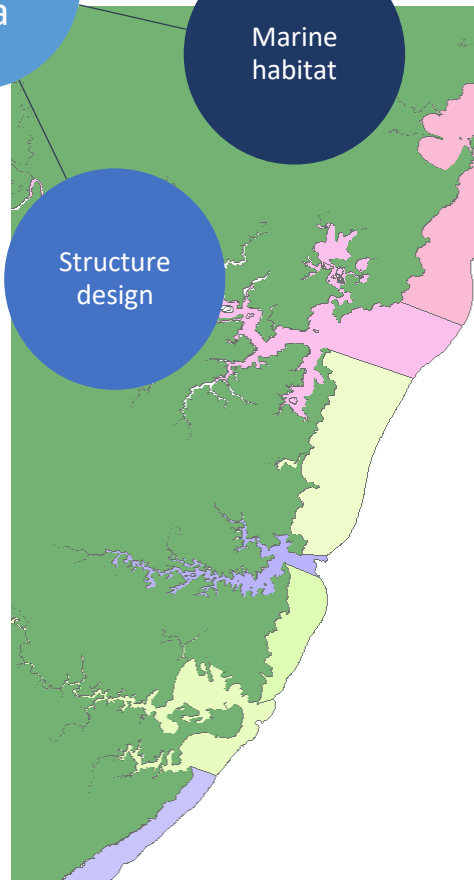
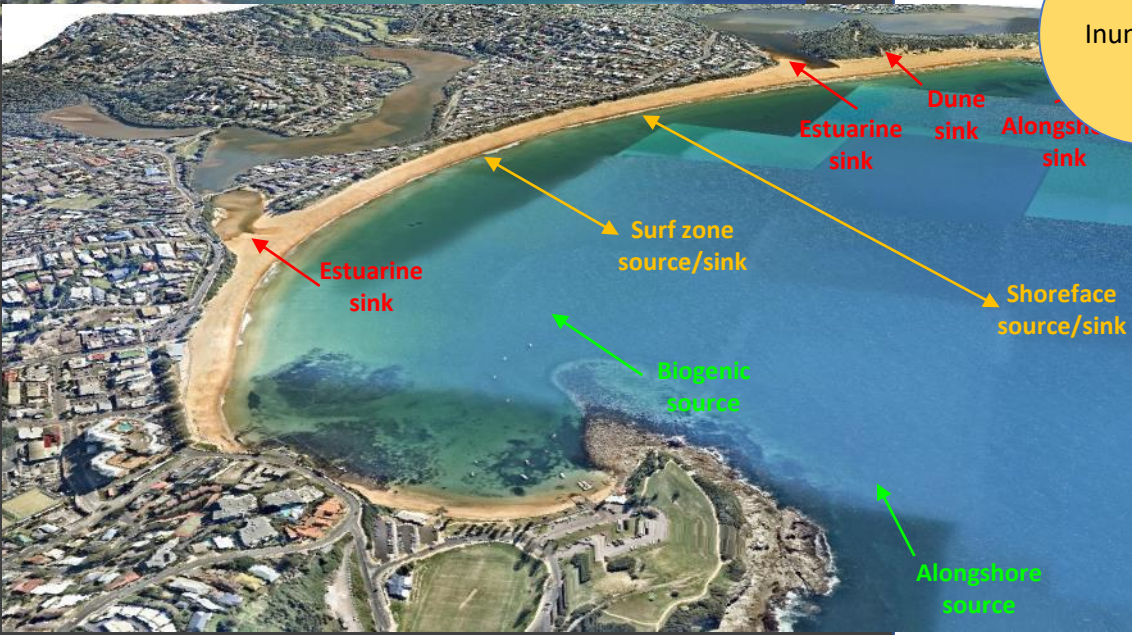
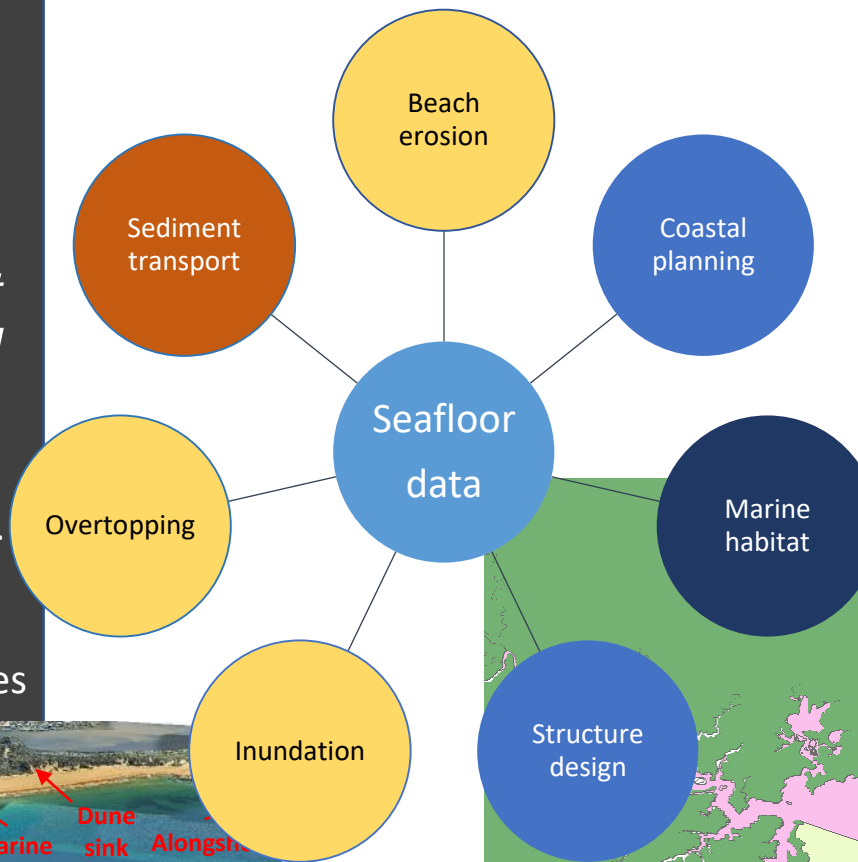
NSWDPIE Coasts and Marine: Hanslow, Ingleton, Kinsela, Linklater, Sutherland, Foulsham Morris, Holtznagel, Davies, Pritchard  
Fugro: Benoit Cajelot





*sea floor data is essential for almost every aspect of coastal management.....*

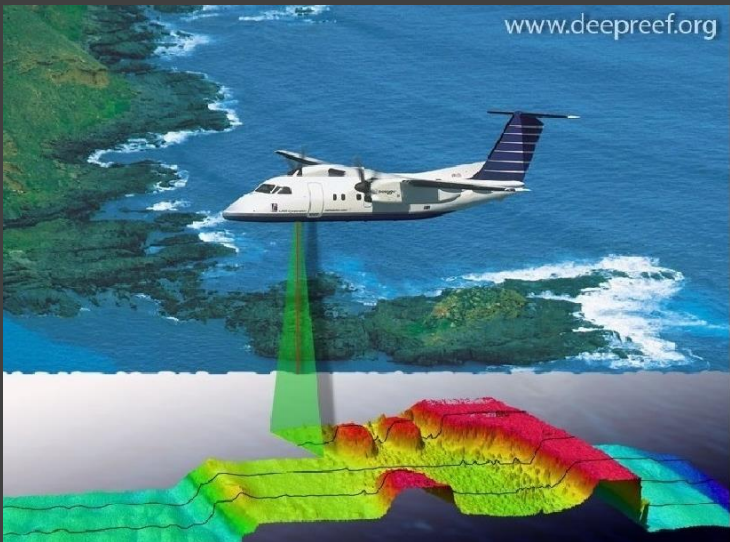
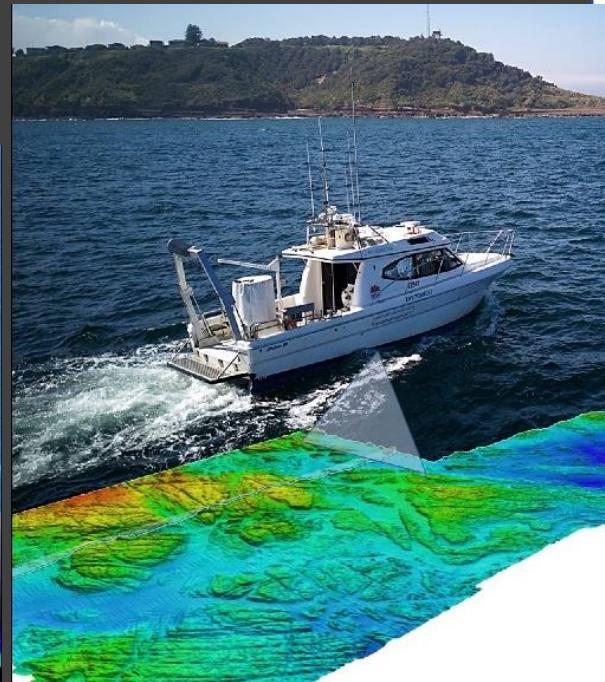
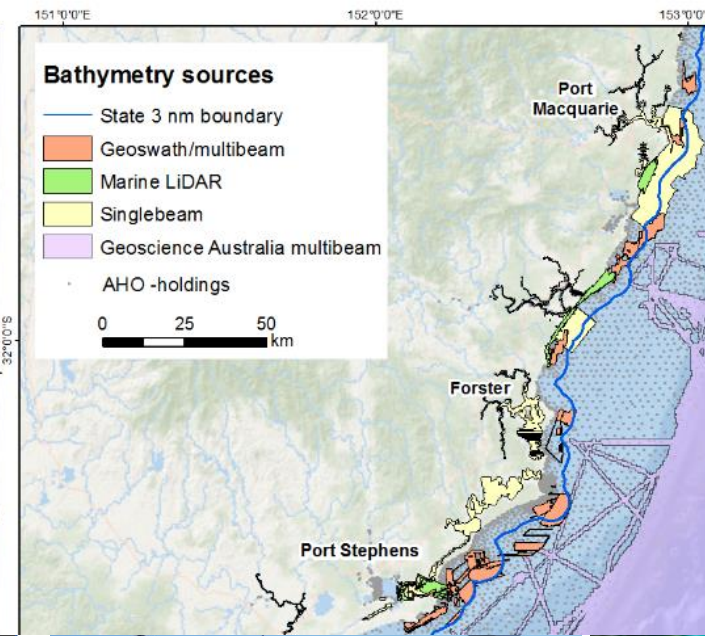
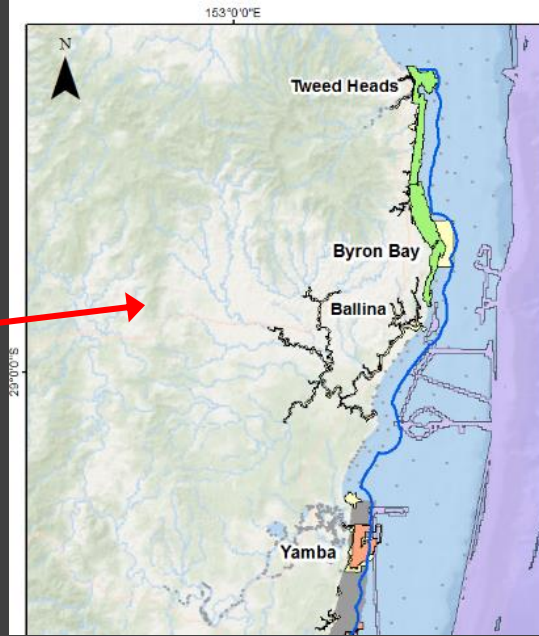
- AusSeabed; Seabed 2030
- Infr. Aust. Nat. Strategy Coastal Inund.
- National Marine Science Plan
- Integrated Marine Observing System
- Forum for Op. Oceanog. Surface Waves





# SeabedNSW

- Pre-2015: ~15% mapped
- NSW Coastal Reforms
- \$7Ma data gaps/science/DEM
- 1) Mar. LiDAR; 2) Multibeam
- Coastal Management Plans
- Marine Estate Management

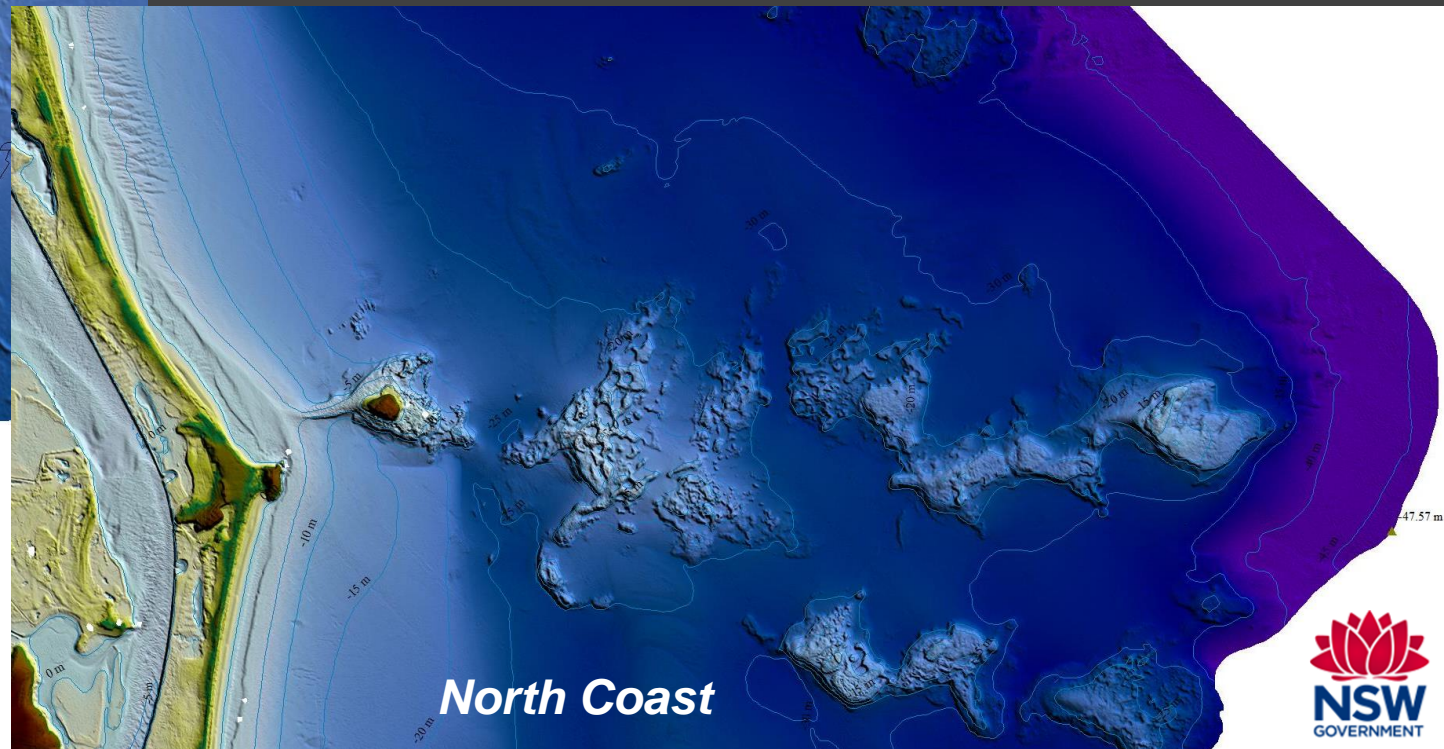
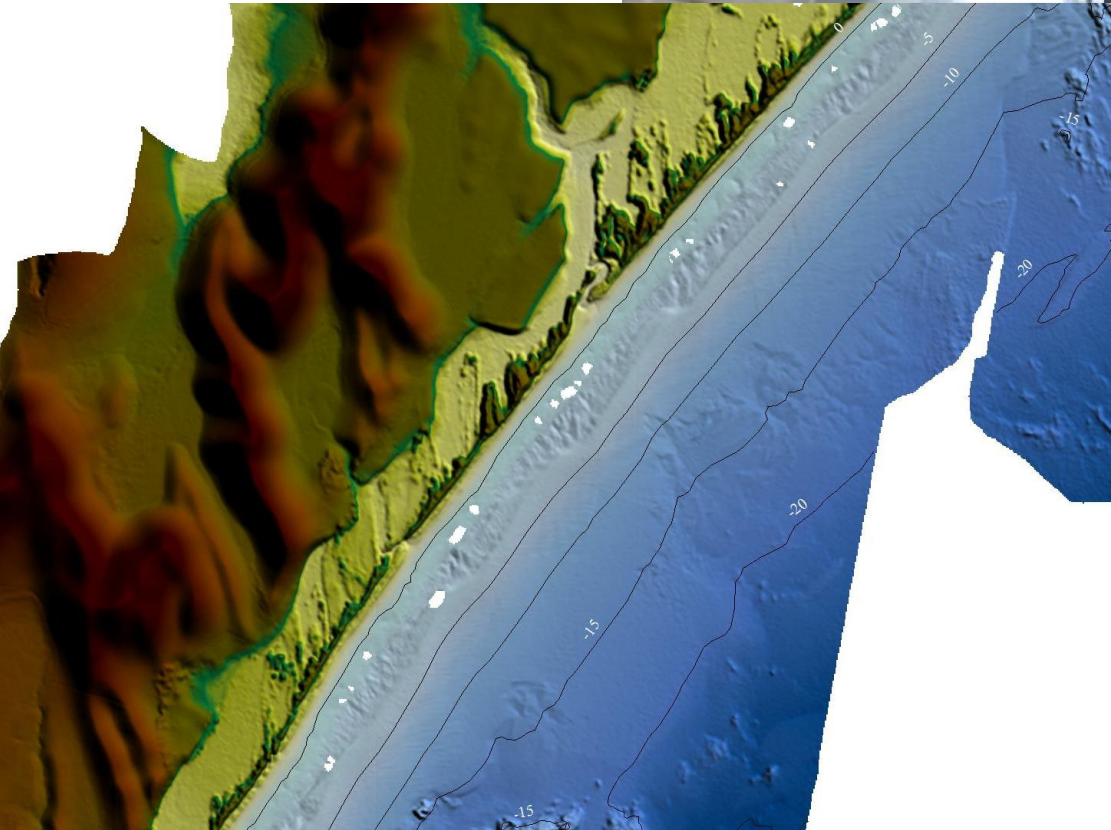






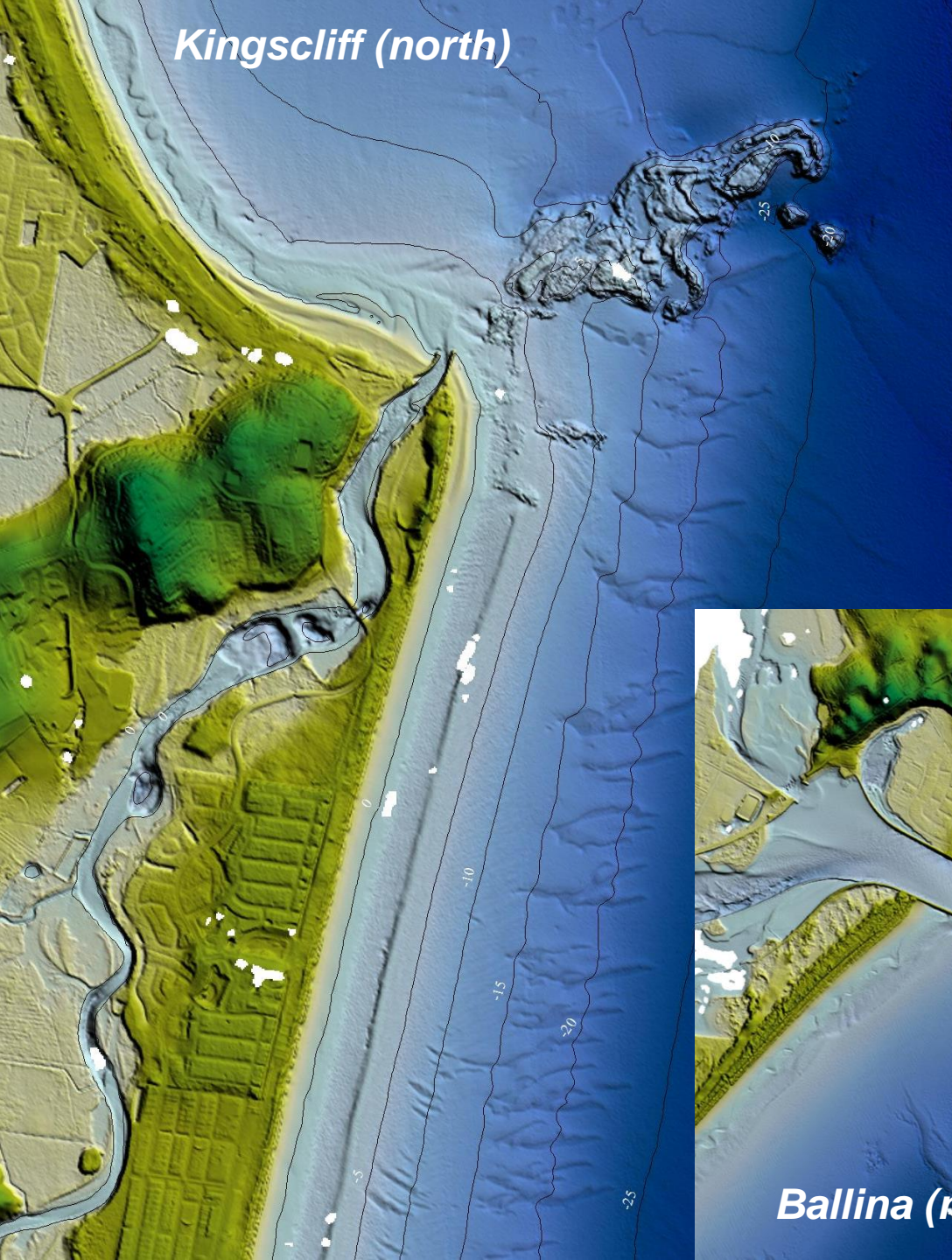
# The Marine LiDAR Survey

- Fugro LADS (ALB): dual sensor terrestrial + bathy
- Jul-Nov 2018; 44 Sec. Sediment Compartments
- 6394km<sup>2</sup> ; ~25 survey days
- bathy-topo (cloud, grid), reflectance, imagery, QA4LiDAR
- Bathymetry <20m to 48m;
- reflectance – dynamic; waveform
- Drought; weather

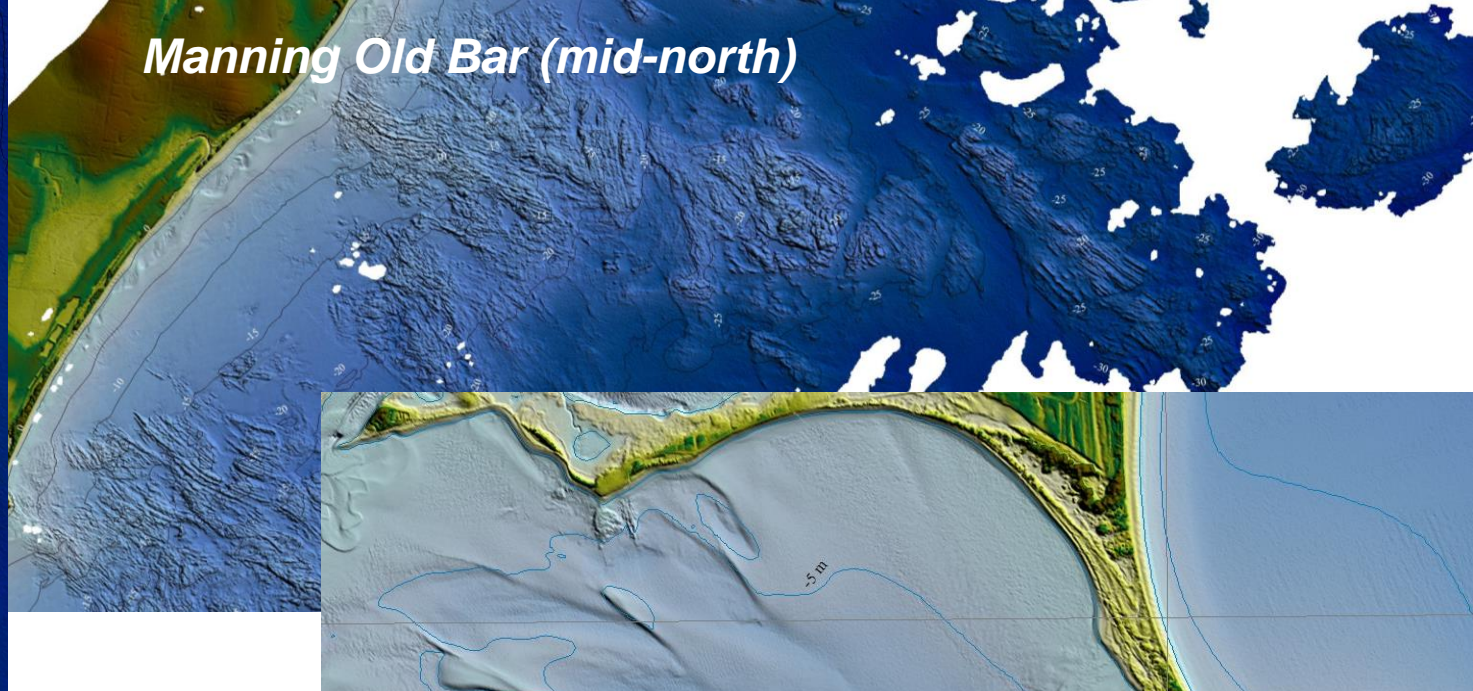




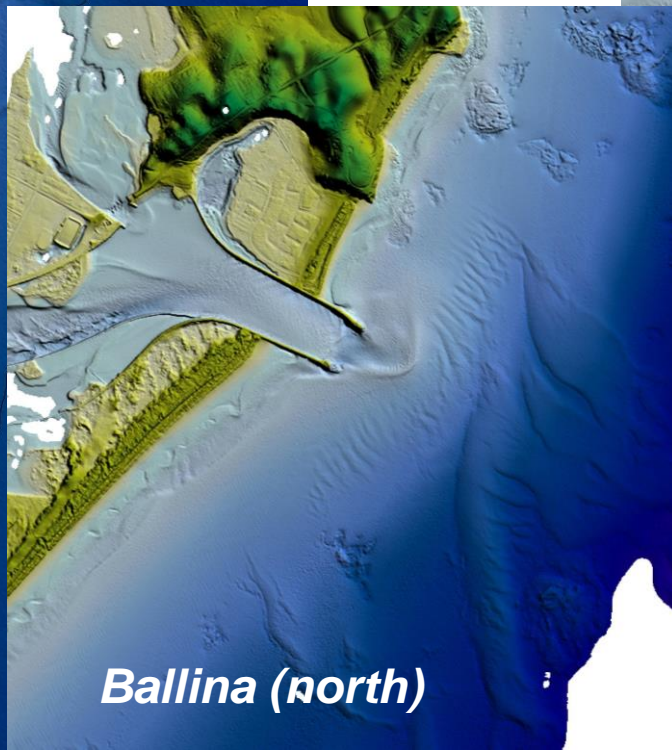
*Kingscliff (north)*



*Manning Old Bar (mid-north)*



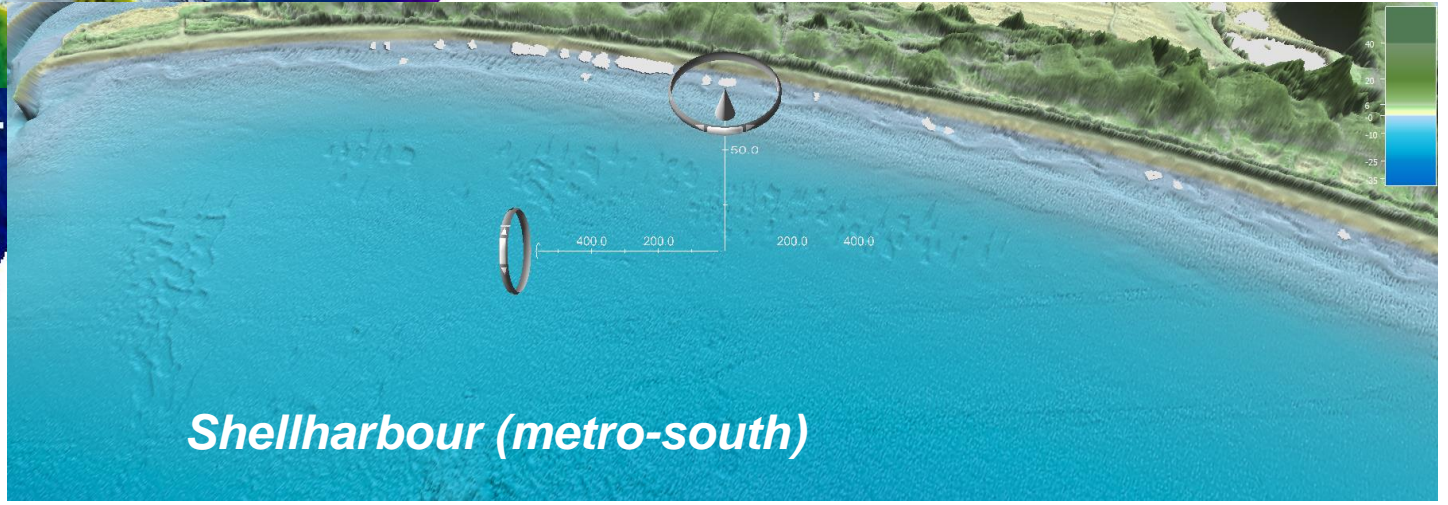
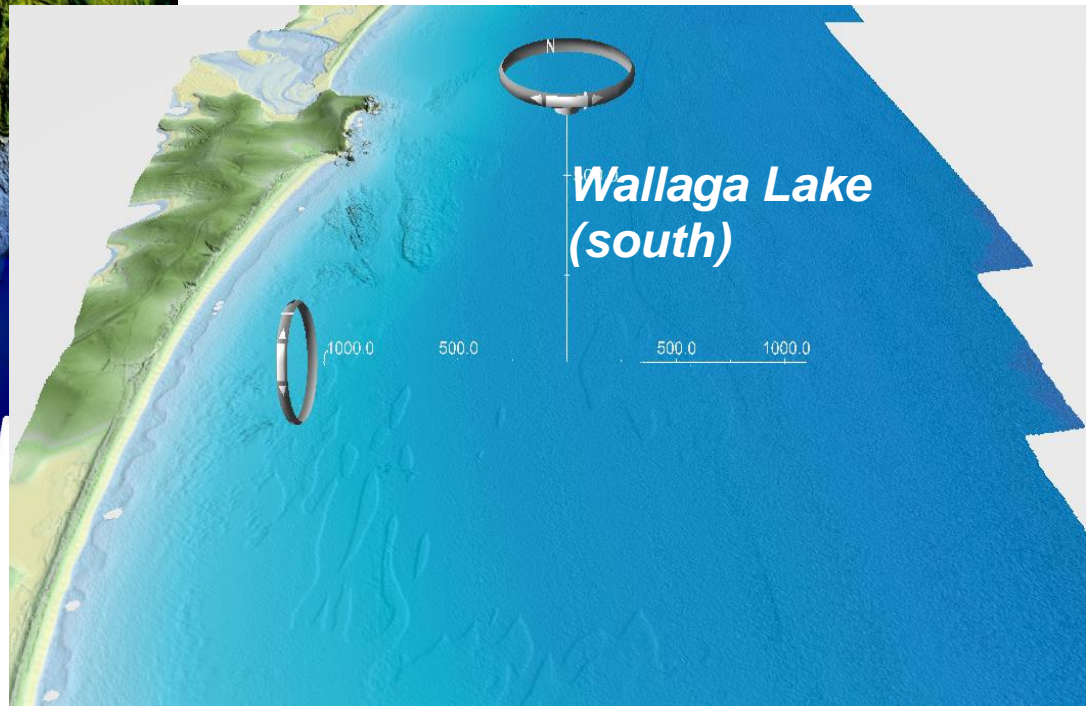
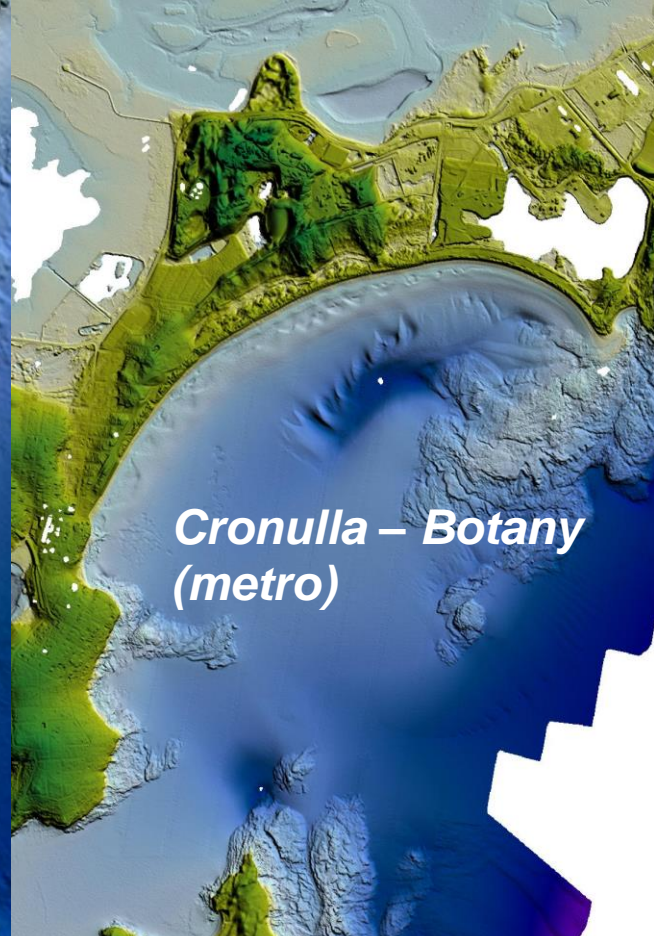
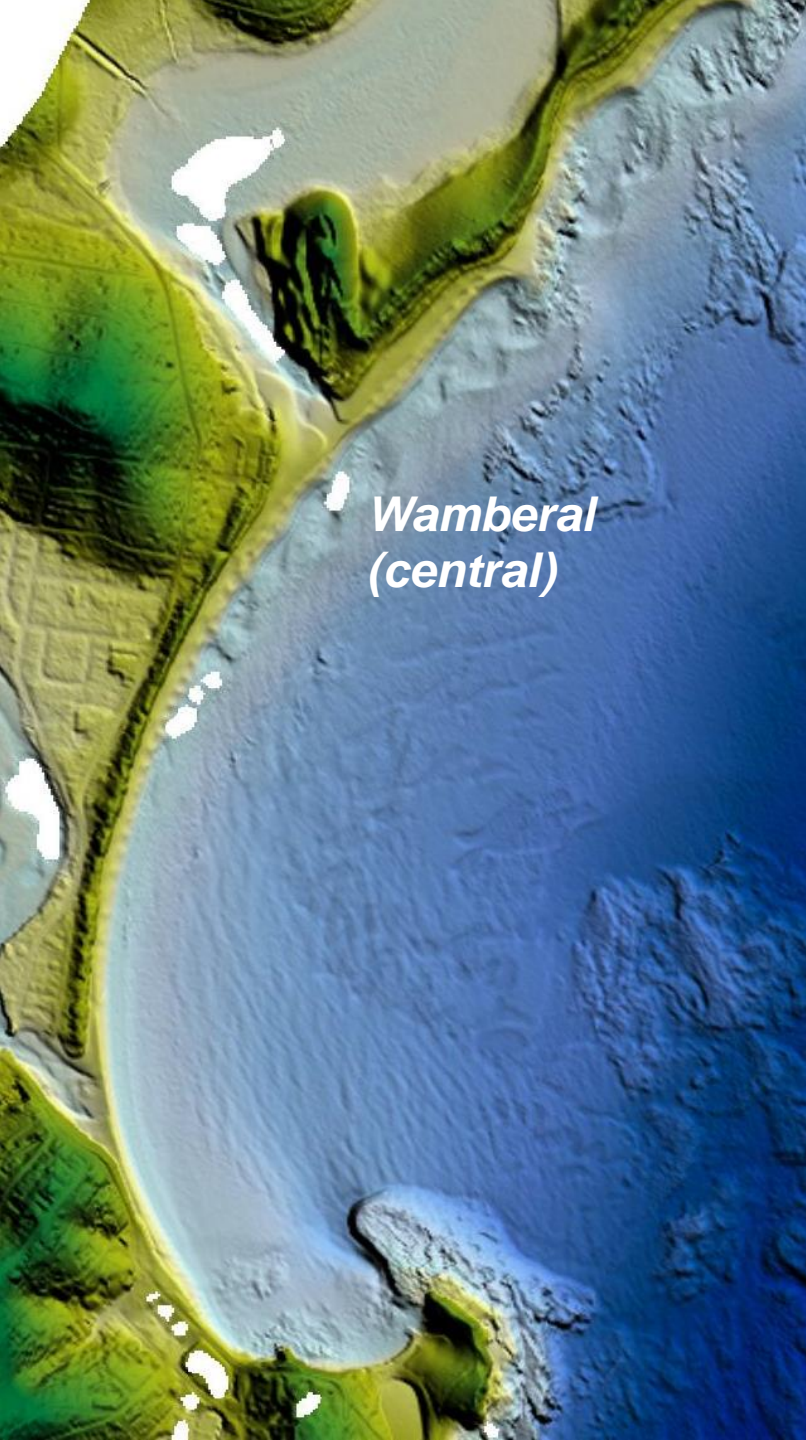
*Ballina (north)*



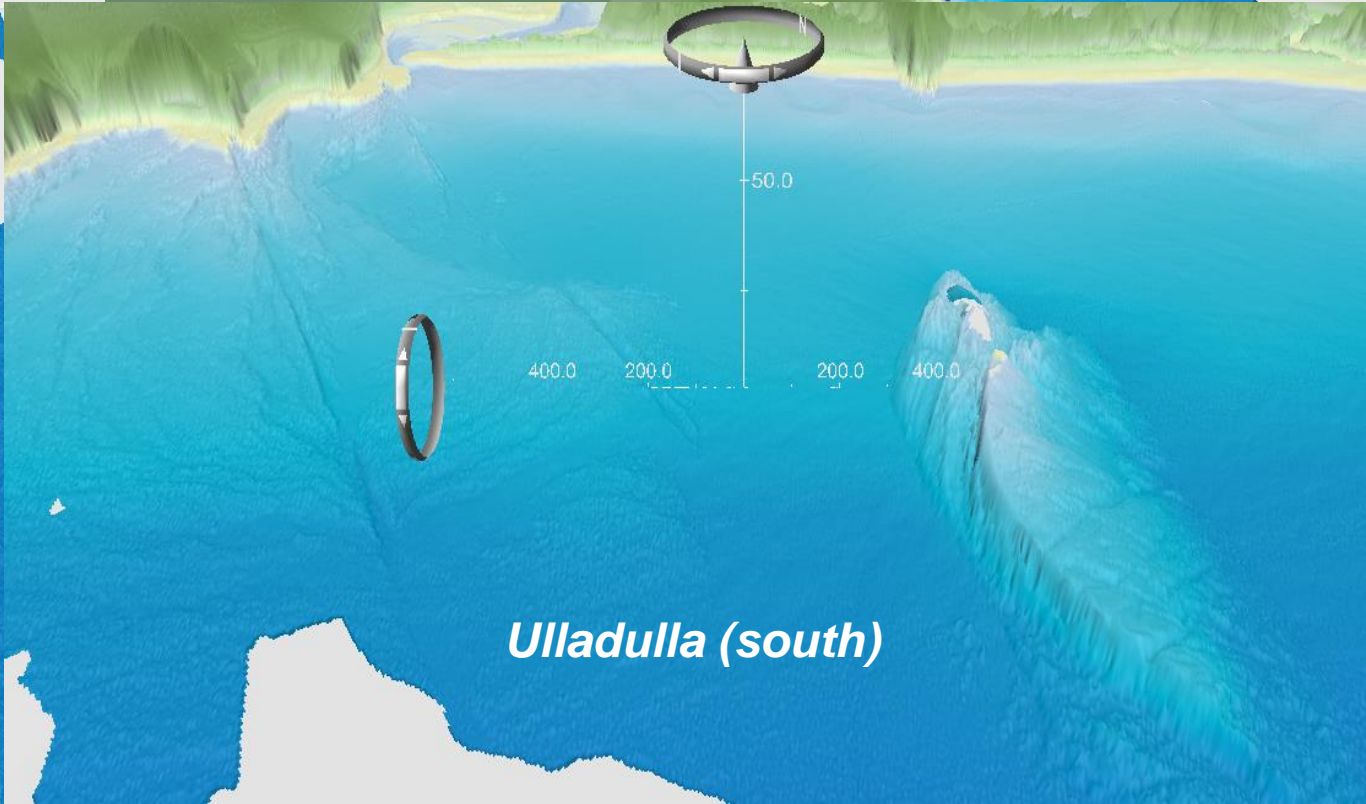
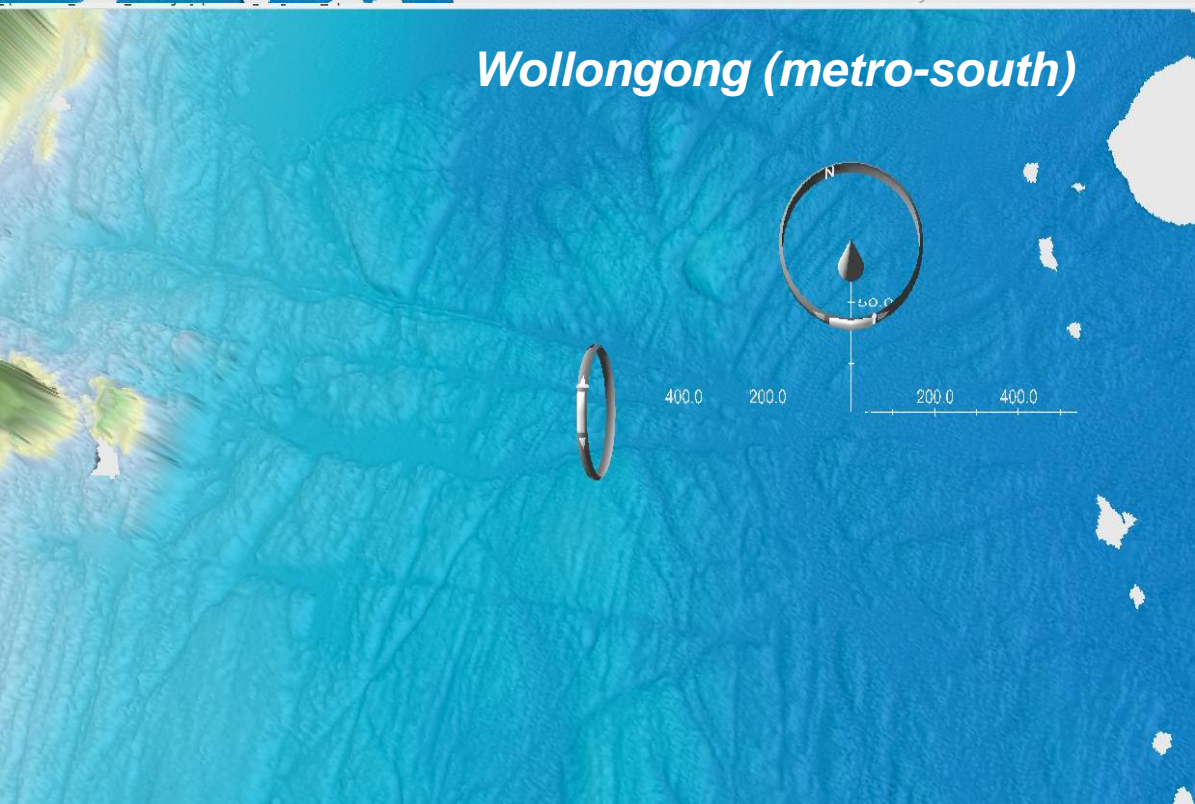
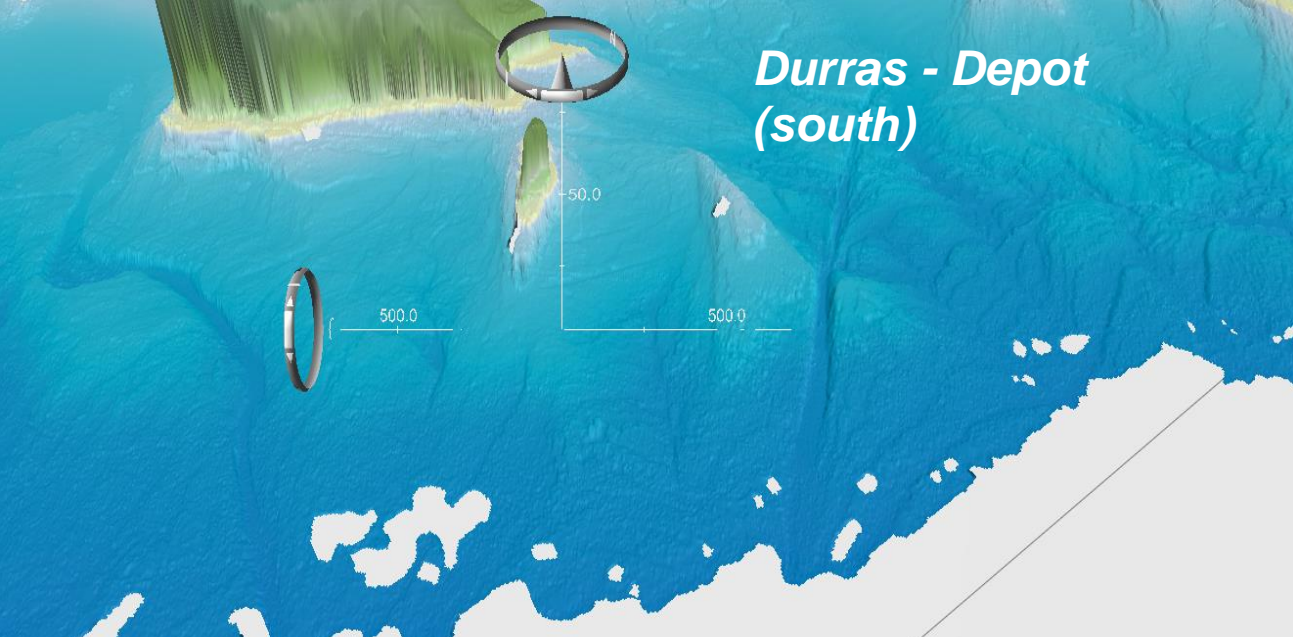
*Port Stephens (mid-north)*







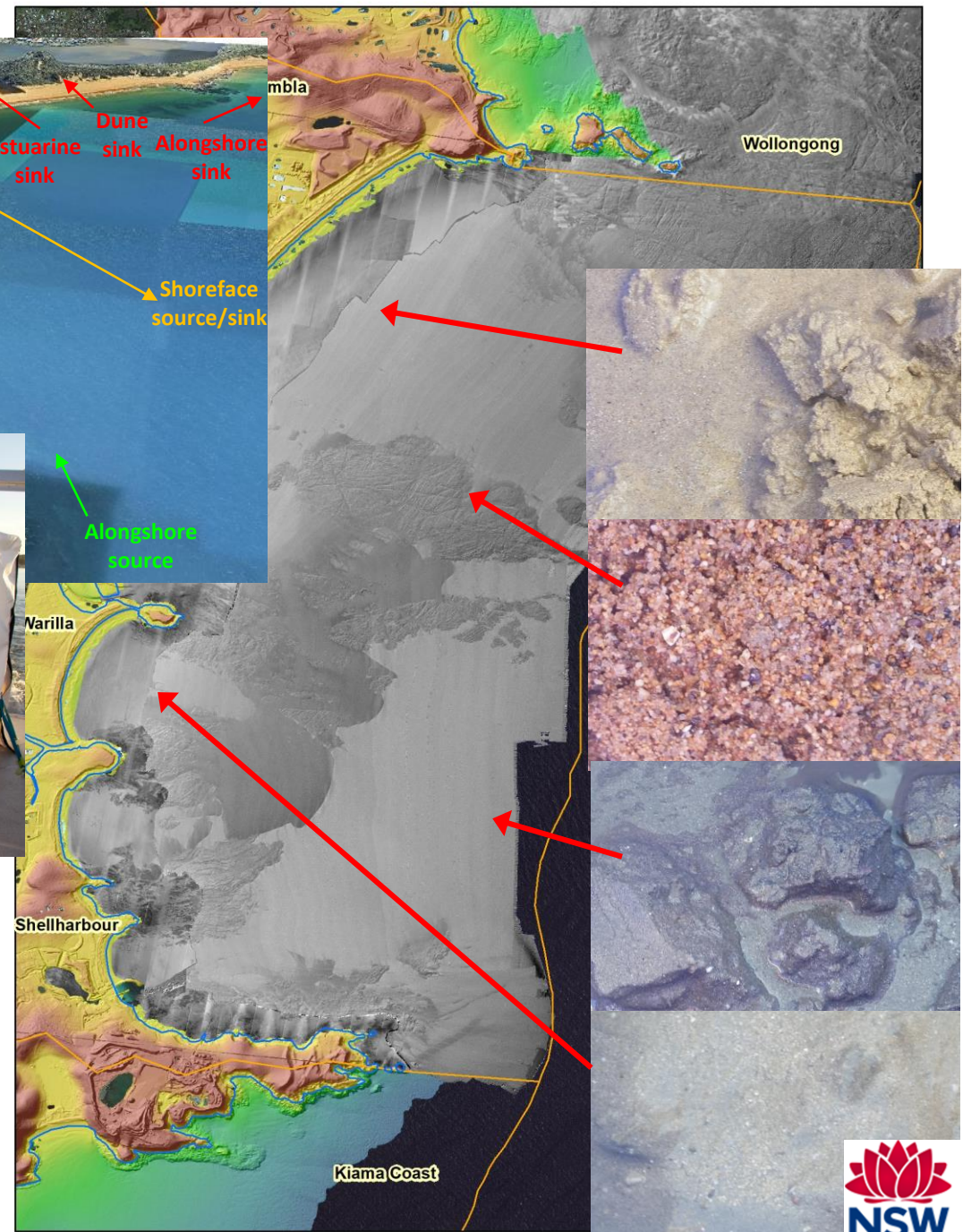
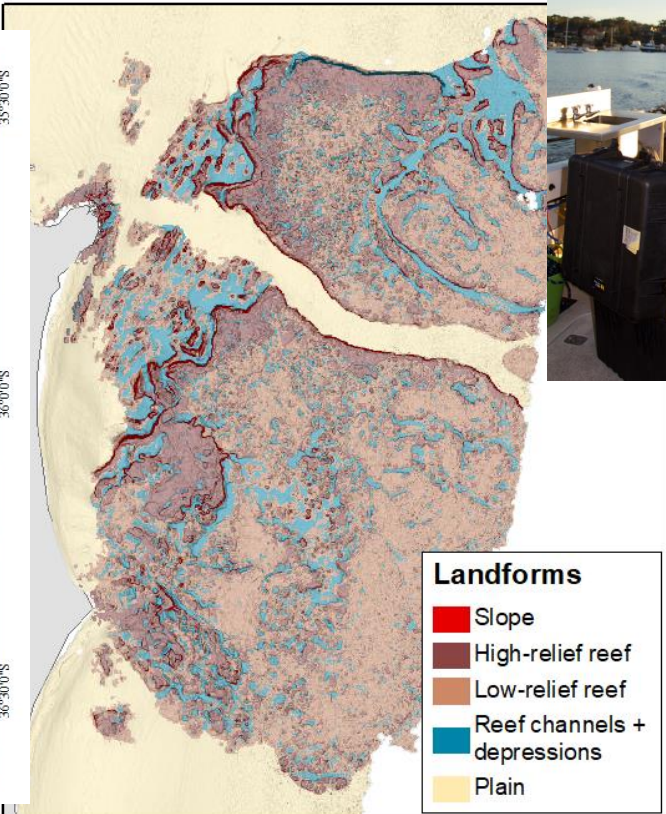
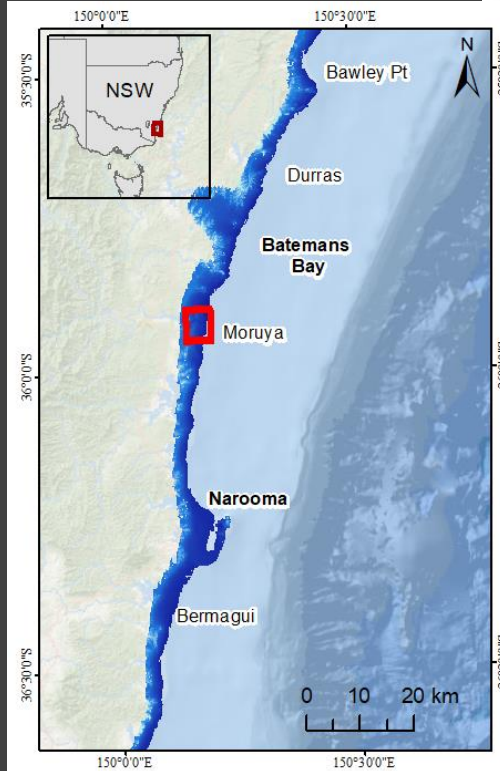
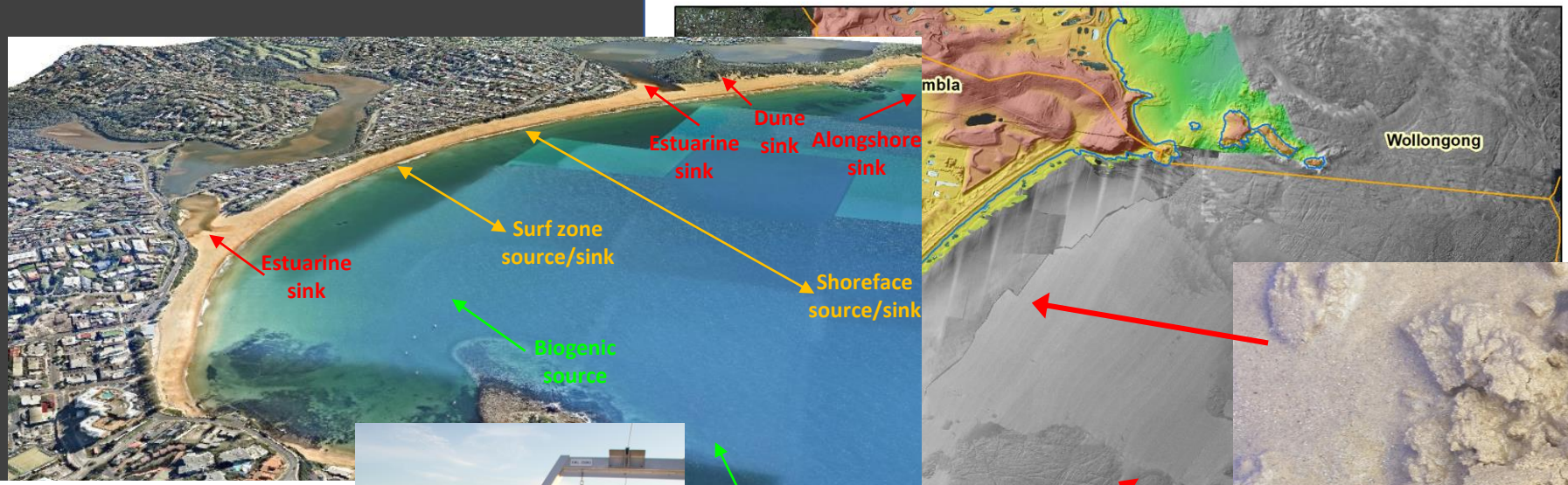






# Benefits to DPIE Research:

- Landform, seabed classification
  - *Linklater et al 2019*
- State-wide maps, hab + sp. modelling
- Reflectivity outputs w CSIRO
- Sediment budgeting/transport UOW
- Shoreline change modelling
  - *Kinsela et al 2020*
- Review: NSW wave prediction tool
  - <https://forecast.waves.nsw.gov.au/>
- Erosion forecasting





# Outcomes for Coastal Communities:

- Coastal Management Plans
- Erosion and inundation modelling
- Prob. Hazard Assessments – *Old Bar*
- Sea level rise adaptation
- Infrastructure planning
- Coastal engineering - *Stockton*
- Marine estate – habitat, MP reviews
- Waves - early warning; hindcast
- Geoscience Australia ELVIS

<https://elevation.fsdf.org.au/>

>150 downloads/month

- Australian Ocean Data Network (SB 3,MB 9)

AODN <https://portal.aodn.org.au>



*Cronulla*



*Jimmys Beach*



*Palm Beach*



*Collaroy*



*Central Coast*