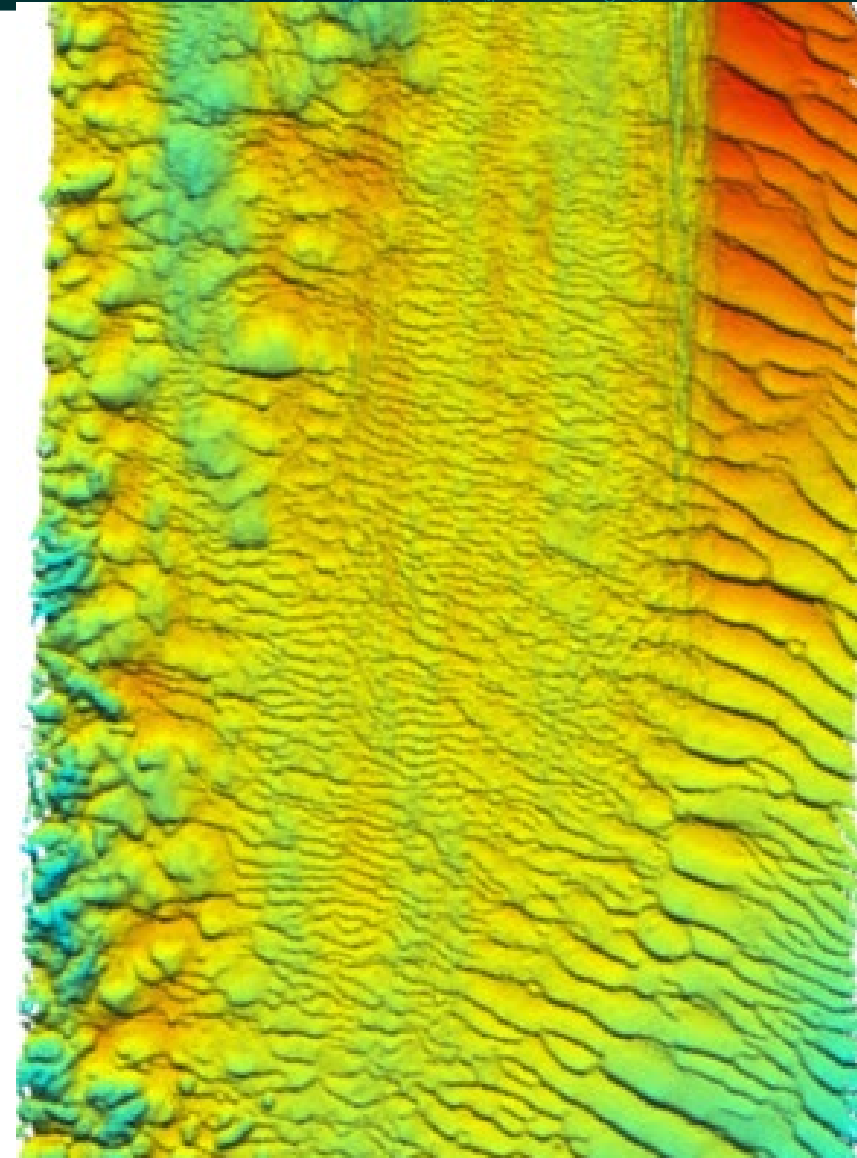# State-wide Nearshore Bathymetry Survey for Improved Coastal Hazard Assessment

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Government

Coastal and Estuarine Risk Mitigation Program

- In 2022 the Australian Government announced the $50 million Coastal and Estuarine Risk Mitigation Program (CERMP), which is funded through the National Emergency Management Agency

- This program supports projects that reduce the impact of disasters on coastal communities.

- Coastal hazards, such as inundation, storm tides and erosion threaten a diverse set of social, natural and cultural assets, including public and private property and valued recreation

- The Coastal and Estuarine Risk Mitigation Program will help drive long term resilience and sustainability by delivering priority projects that mitigate the impact of disasters on communities and economies.al and tourist areas, with flow-on social and economic impacts.

- Program purpose aligns with the QCoast2100 Coastal Hazard Adaptation Strategies.

Approved projects

- Funding was only available to State governments, but Queensland government invited local governments to submit projects as well.

- 10 projects were funded with an $8.4 million CERMP contribution for $12.4 million in projects total.

- 7 local government and 3 State government projects approved

- The keystone project was the $4.3 million State-wide Nearshore Bathymetry Survey for Improved Coastal Hazard Assessment.

- This project will capture high-resolution nearshore bathymetry and near coast land levels along developed sections of the Queensland coast, significantly improving State and Council ability to assess coastal hazards risk.

# What is bathymetry and why do we need it?

Bathymetry is a measure of the depth of water over the seabed.

In the context of coastal management and coastal hazard assessment, bathymetry is an important input to:
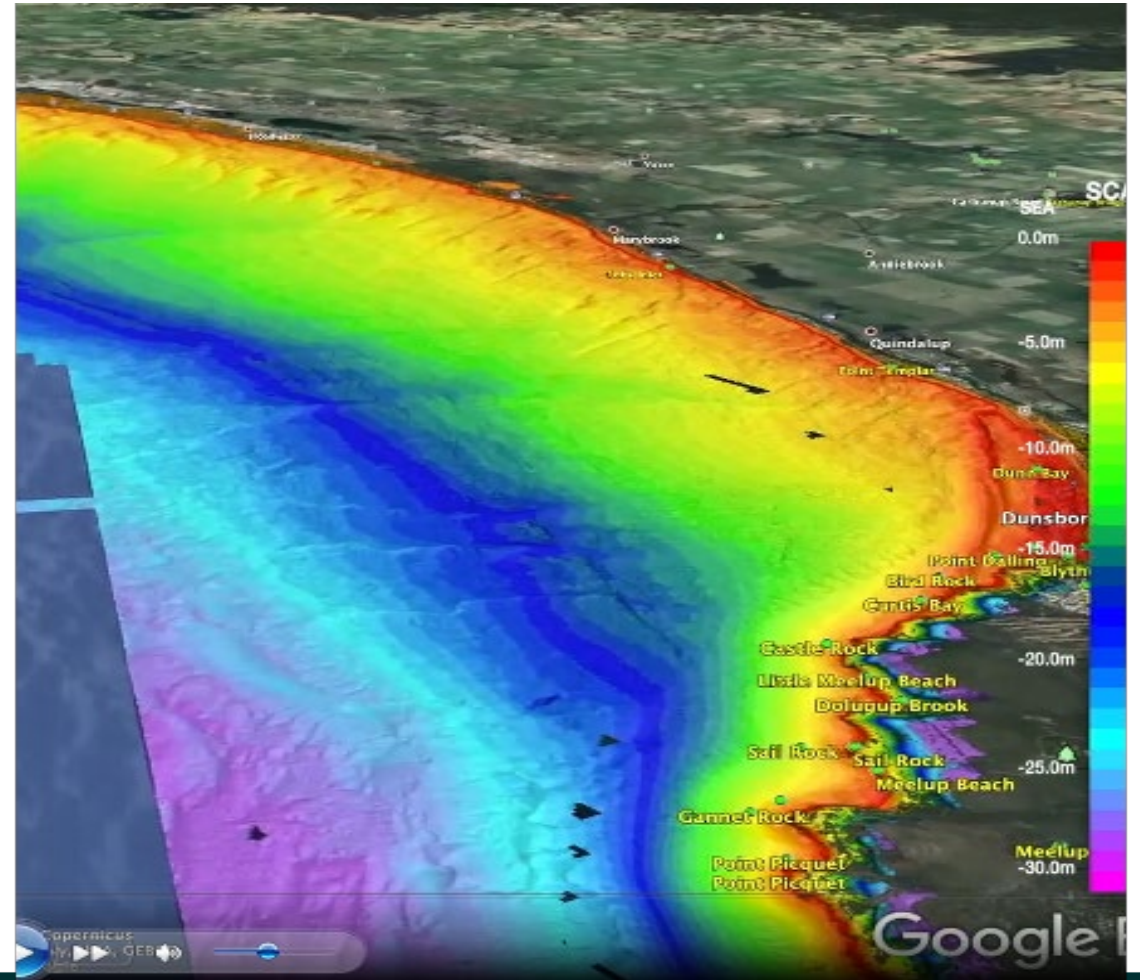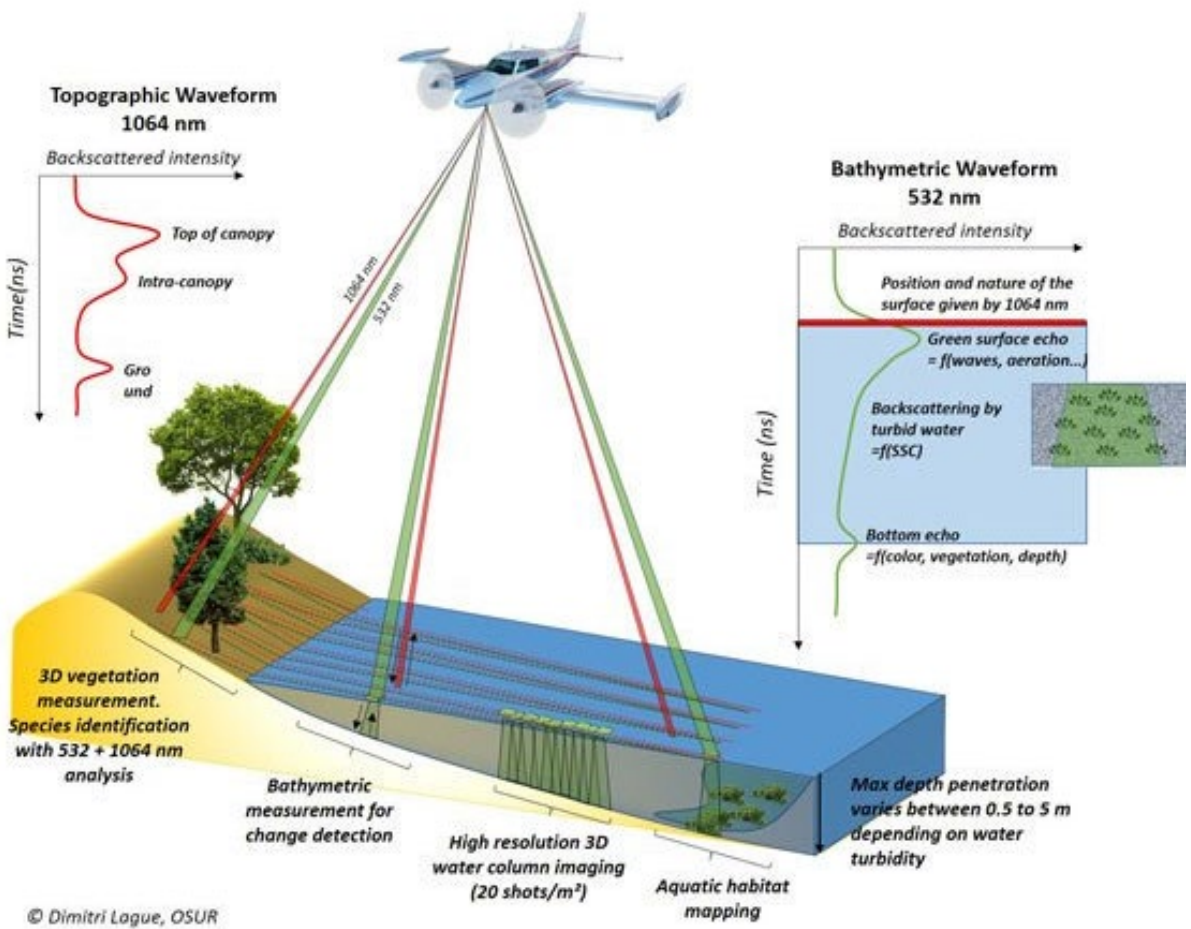
- coastal hazard assessment
- coastal process study
- baseline assessment

Also useful for

- Navigational mapping and charting
- Infrastructure planning and change monitoring
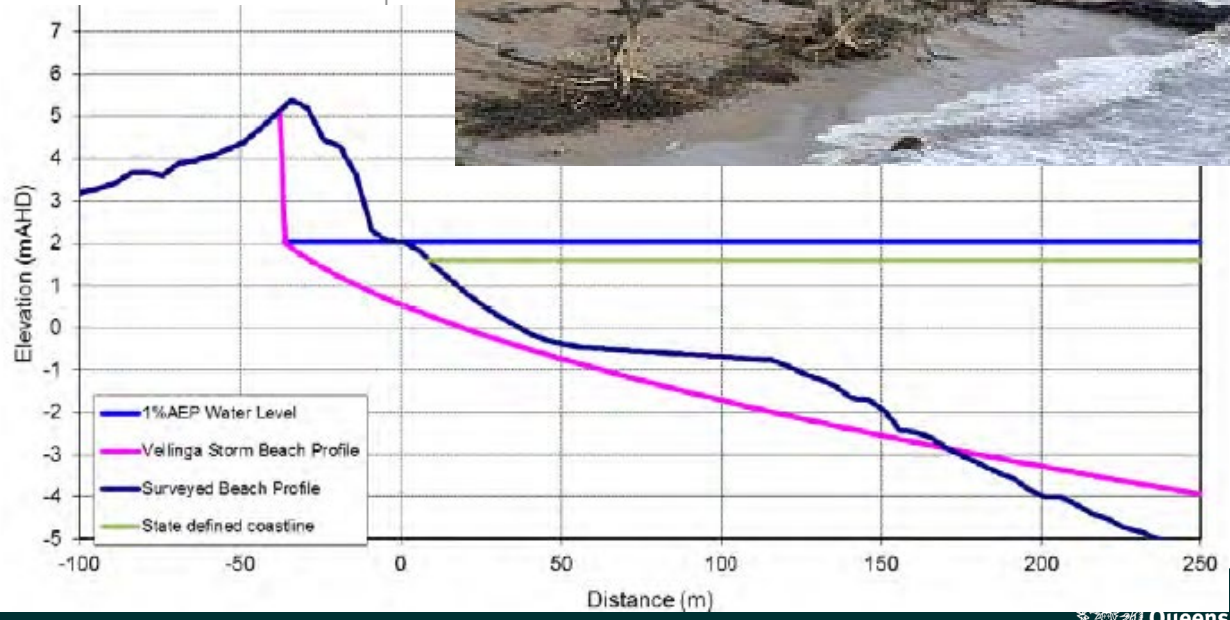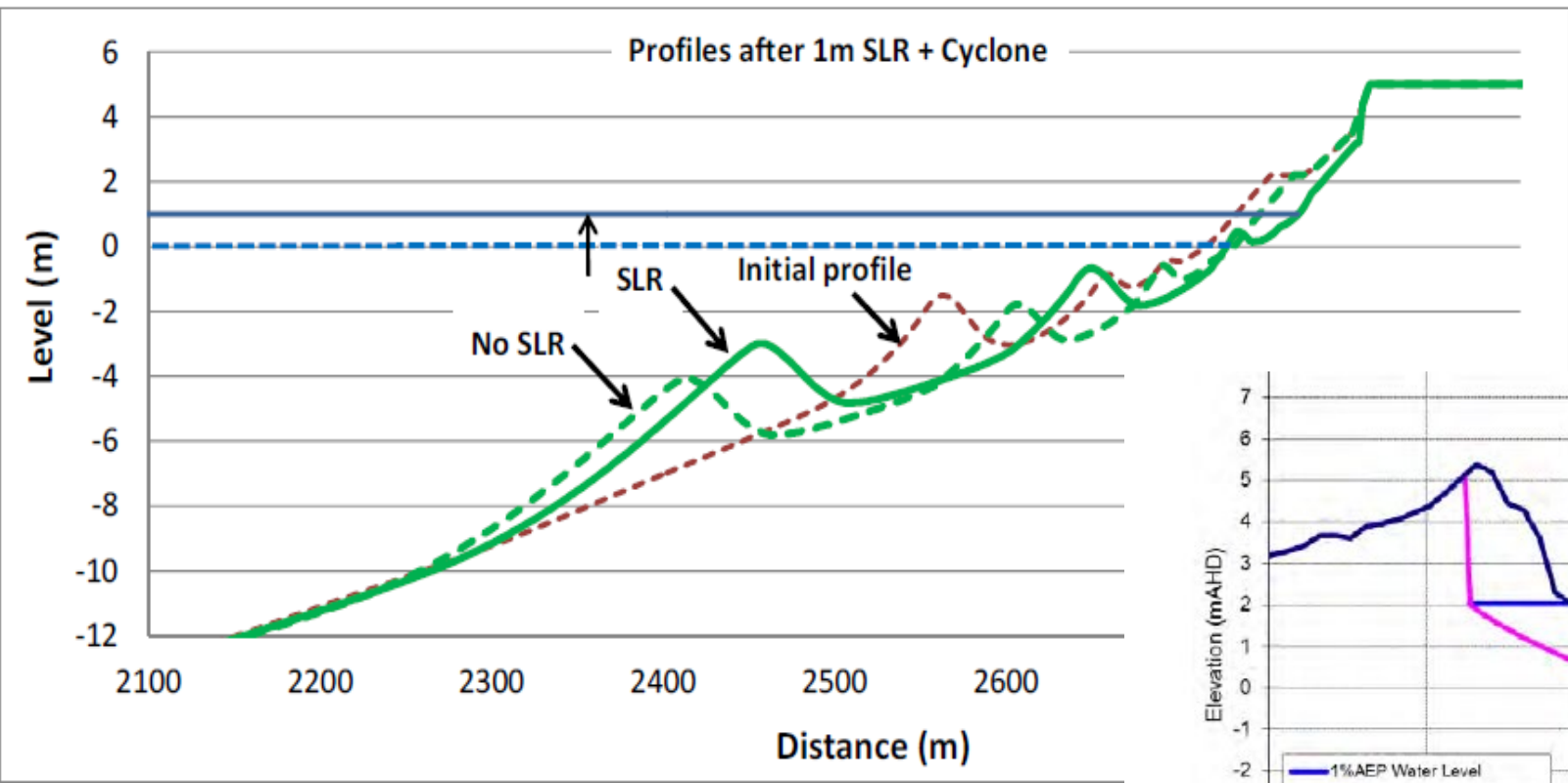- Underwater obstacle and structure detection
- Benthic habitat mapping
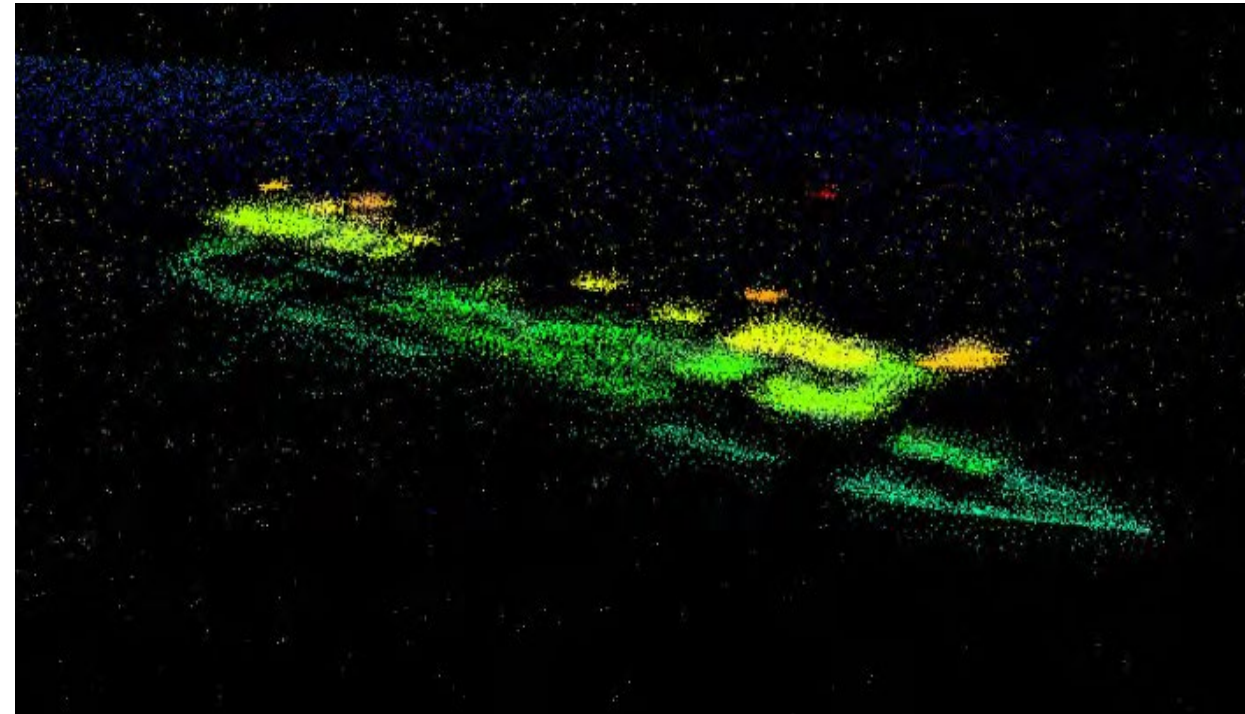
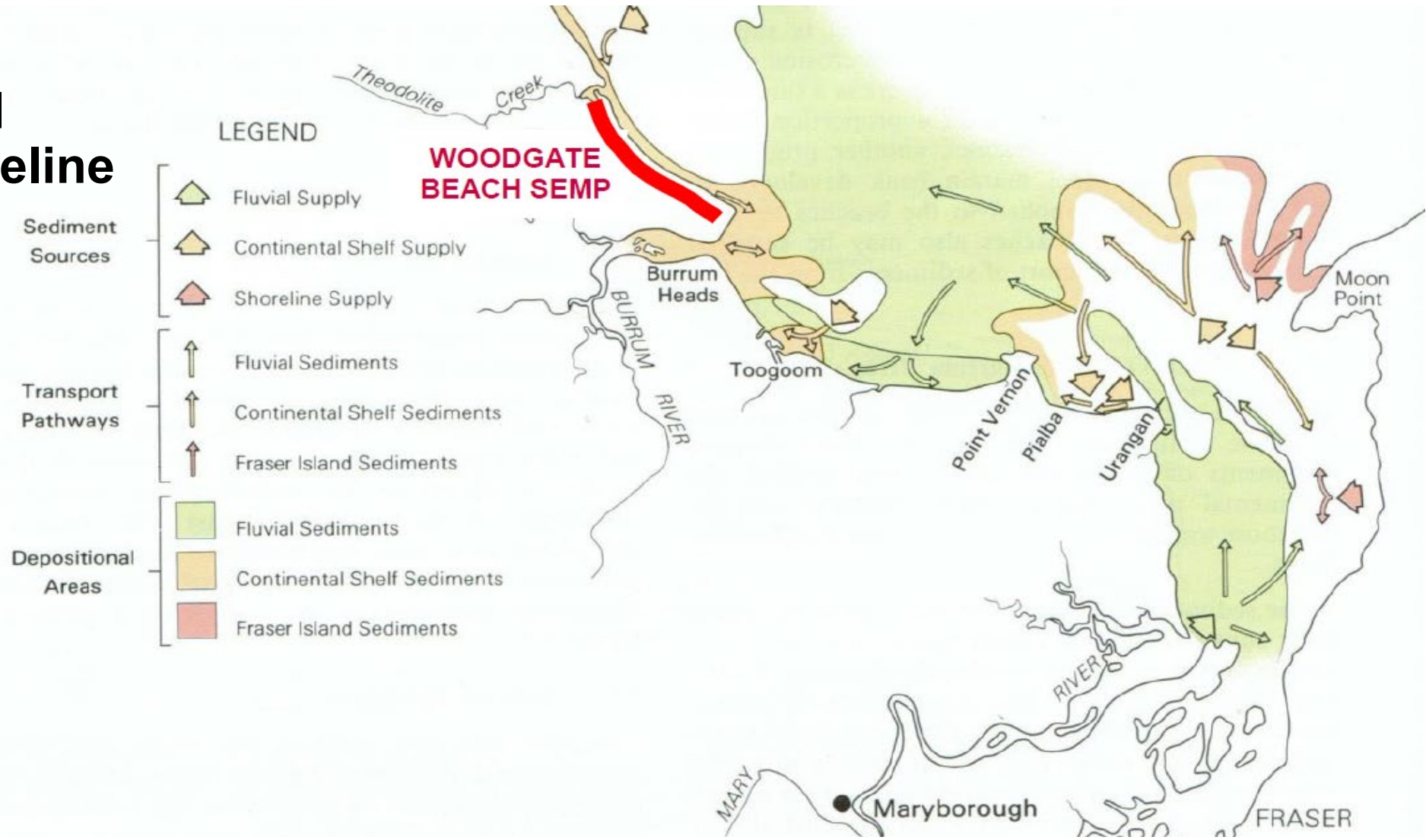# Capturing bathmetric data - LiDAR

Coastal hazards - process based modelling for erosion from sea level rise and storms
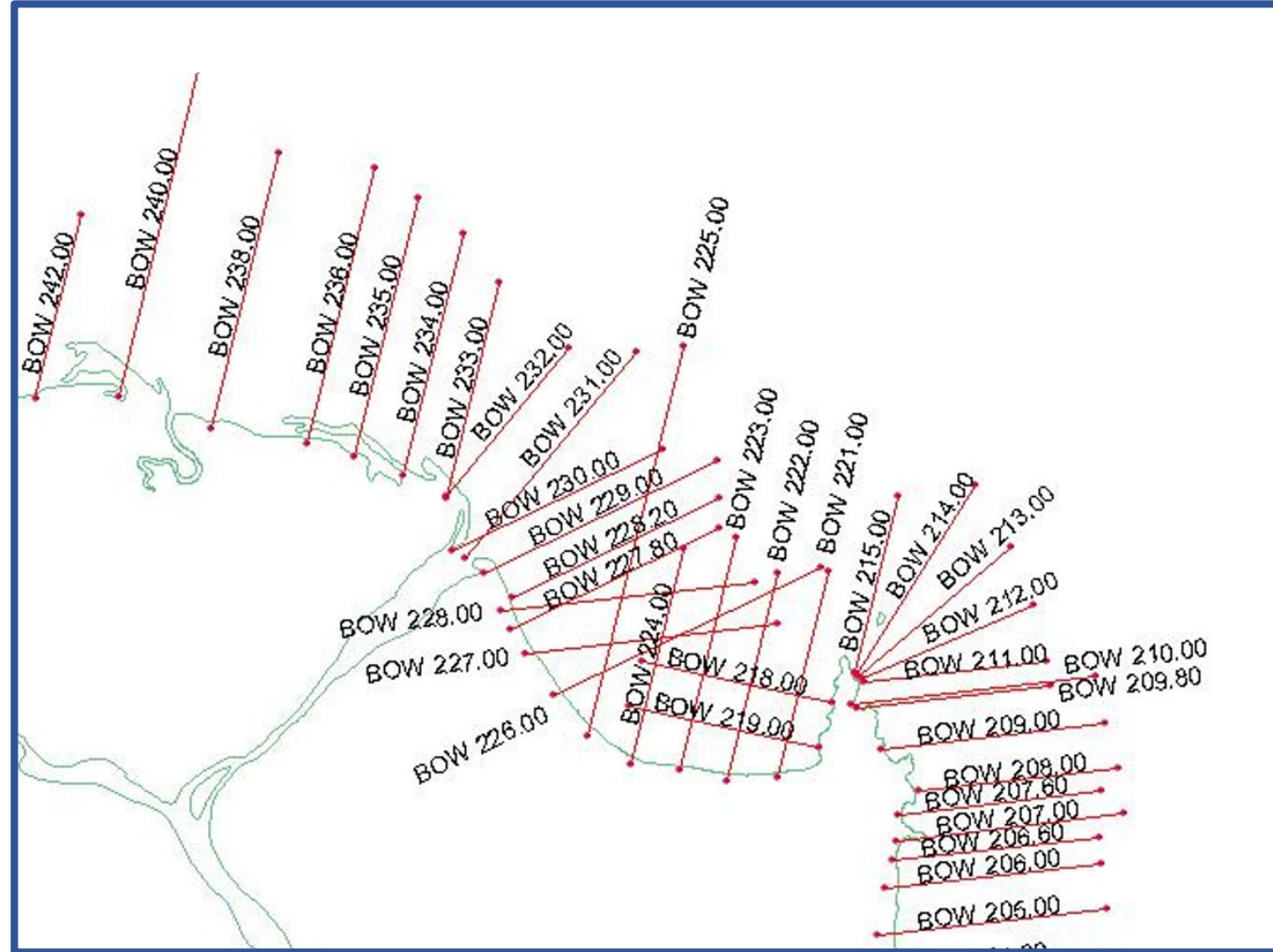
# Sediment transport models and coastal baseline

Current bathymetric data for Queensland

- Cross shore sonar surveys by boat of selected open coast areas.

- About 40 years old by the then Beach Protection Authority

- Uncertain accuracy given age and technology

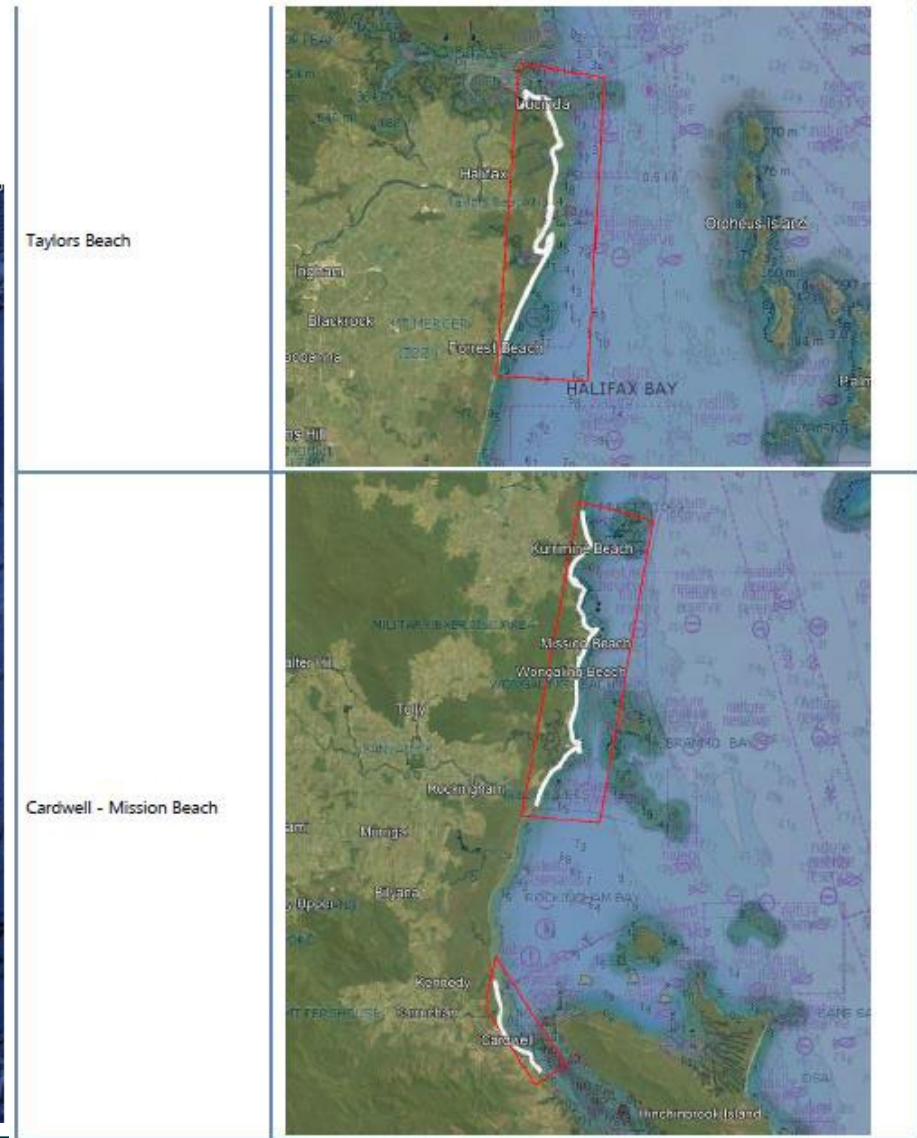- Complete replacement of this dataset intended.

Data quality improvement - Mudjimba Island, Sunshine Coast example
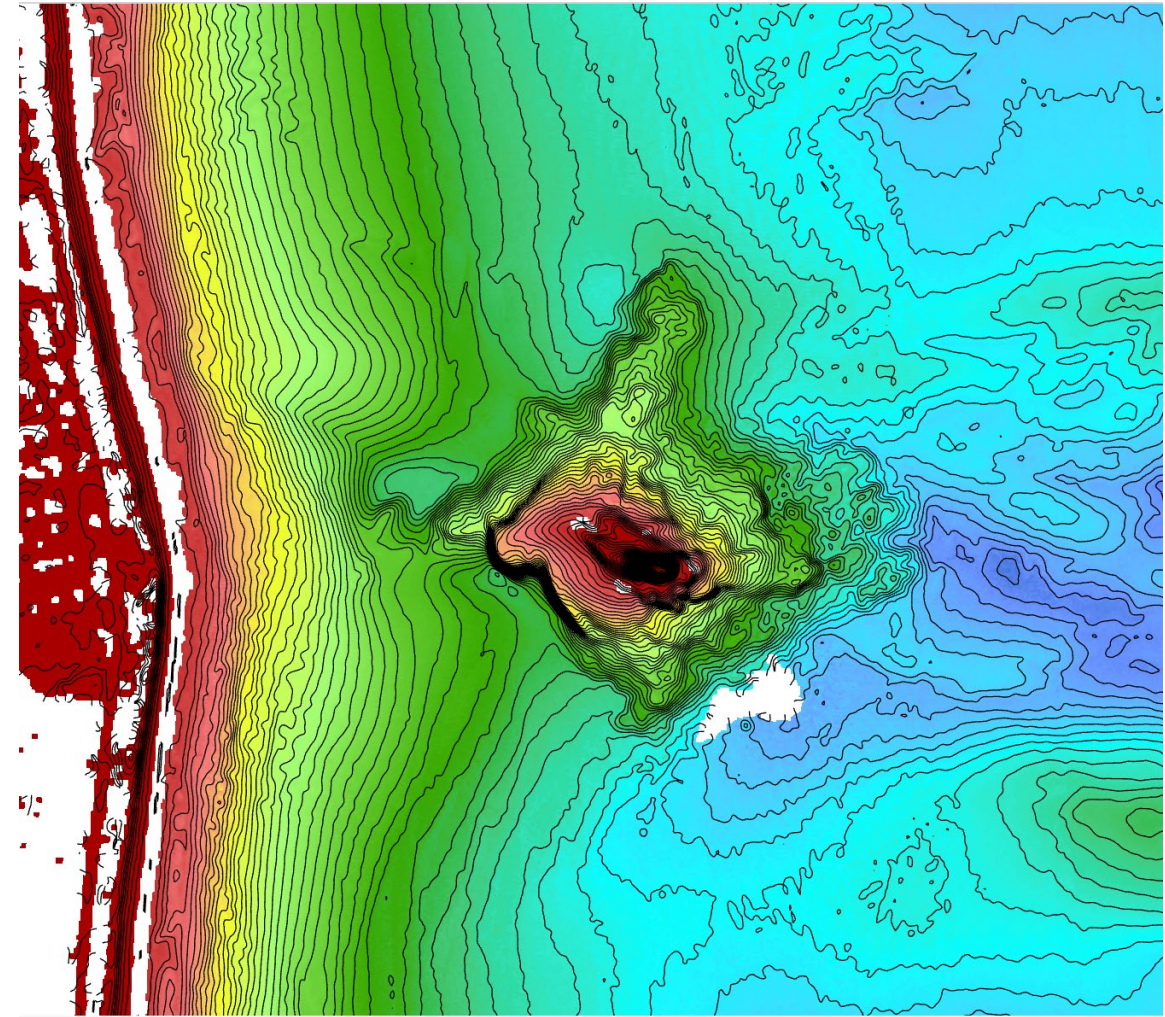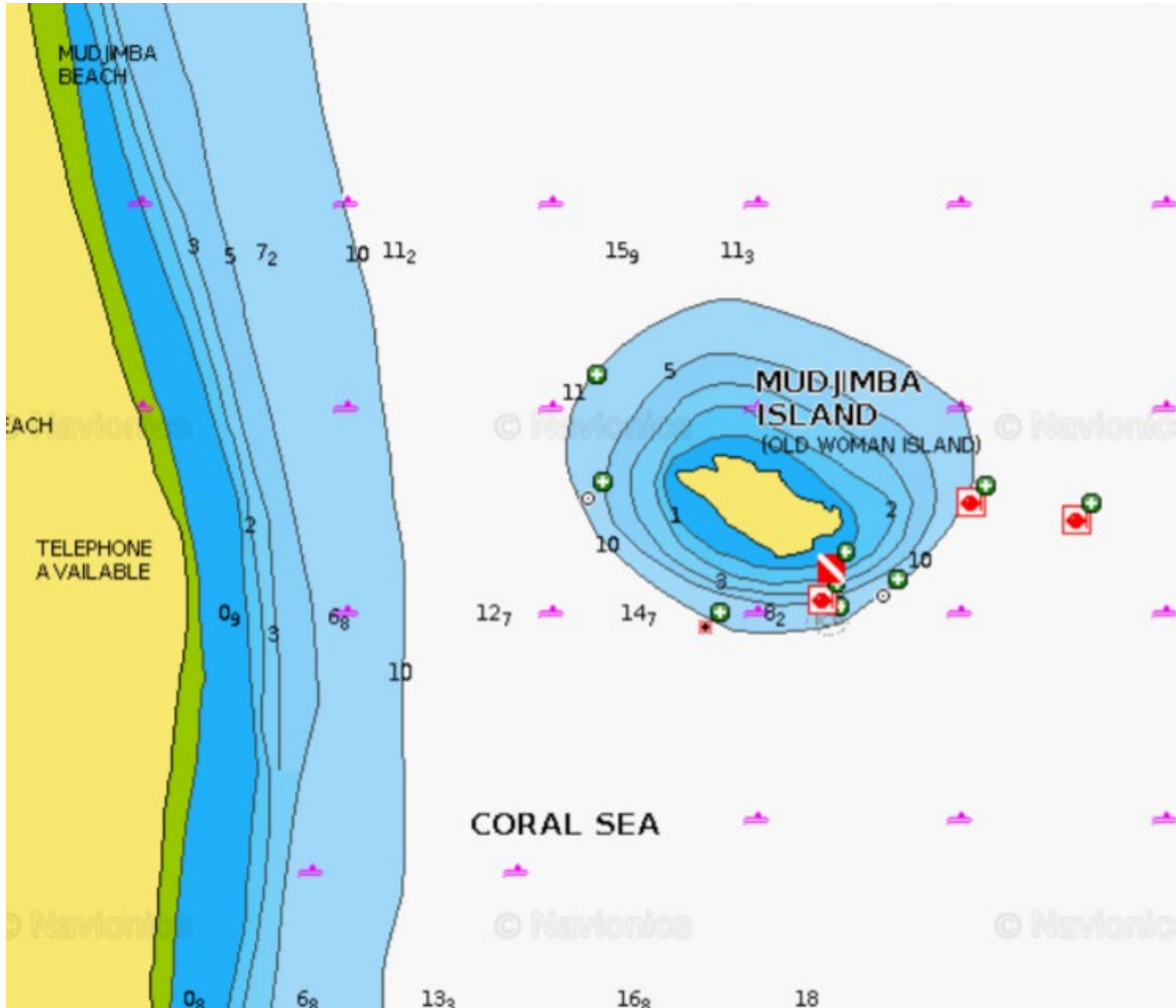
Proposed survey locations for the Queensland coast.

- Adjacent to developed areas of the coast

- Small settlements may not be included.

Taylors Beach

Cardwell - Mission Beach

Products

Dataset collected at a single point in time

- Coastal zone digital aerial imagery

- Digital elevation model onshore minimum 200m inland, high-definition ground levels

- Digital elevation model nearshore to 2-3km/-15mAHD minimum;

- Raw LiDAR datasets and LiDAR waveform products

Possibly derived products such:

- as bed category mapping – sand/mud/rock/coral

- bedform

- habitat type – coral/seagrass

Queensland Government
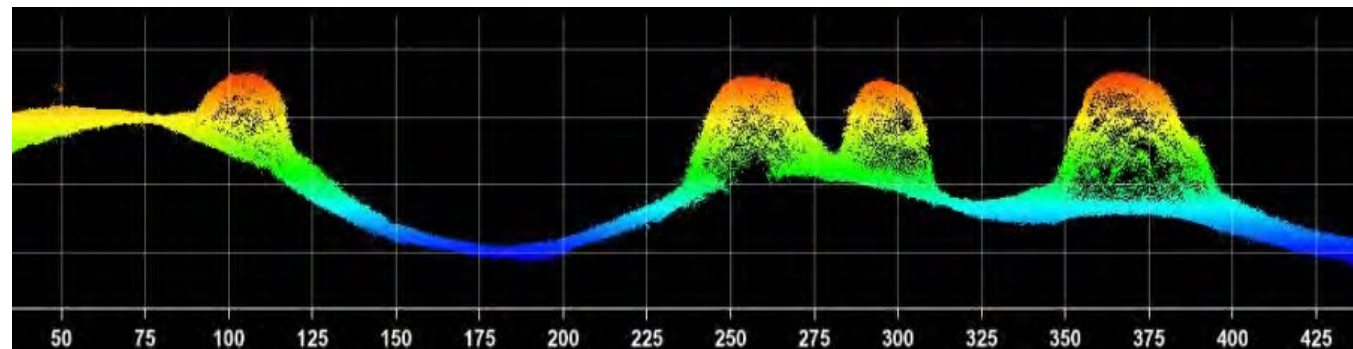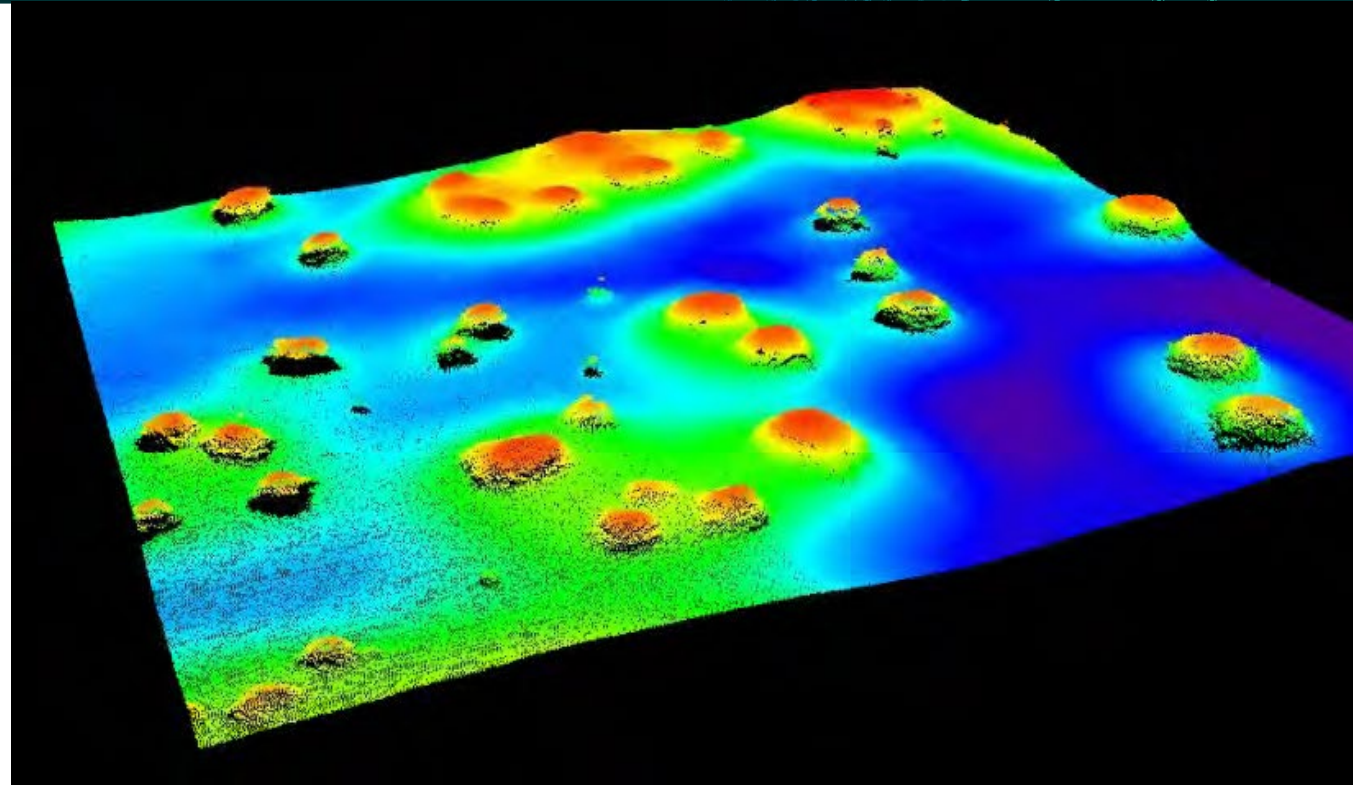
Project status

- Project plan developed

- Technical Working Group formed for advice

- Survey specification commissioned

- High quality capture is heavily dependent on water clarity – studies on seasonal and long-term turbidity conditions are proposed.

- Specification for an initial survey from Bribie Island to Gladstone to evaluate specification and turbidity impact

- Full capture expected in 2026

Dataset availability

- Processed digital elevation models and underlying data (.las files) will be available to councils free of charge.