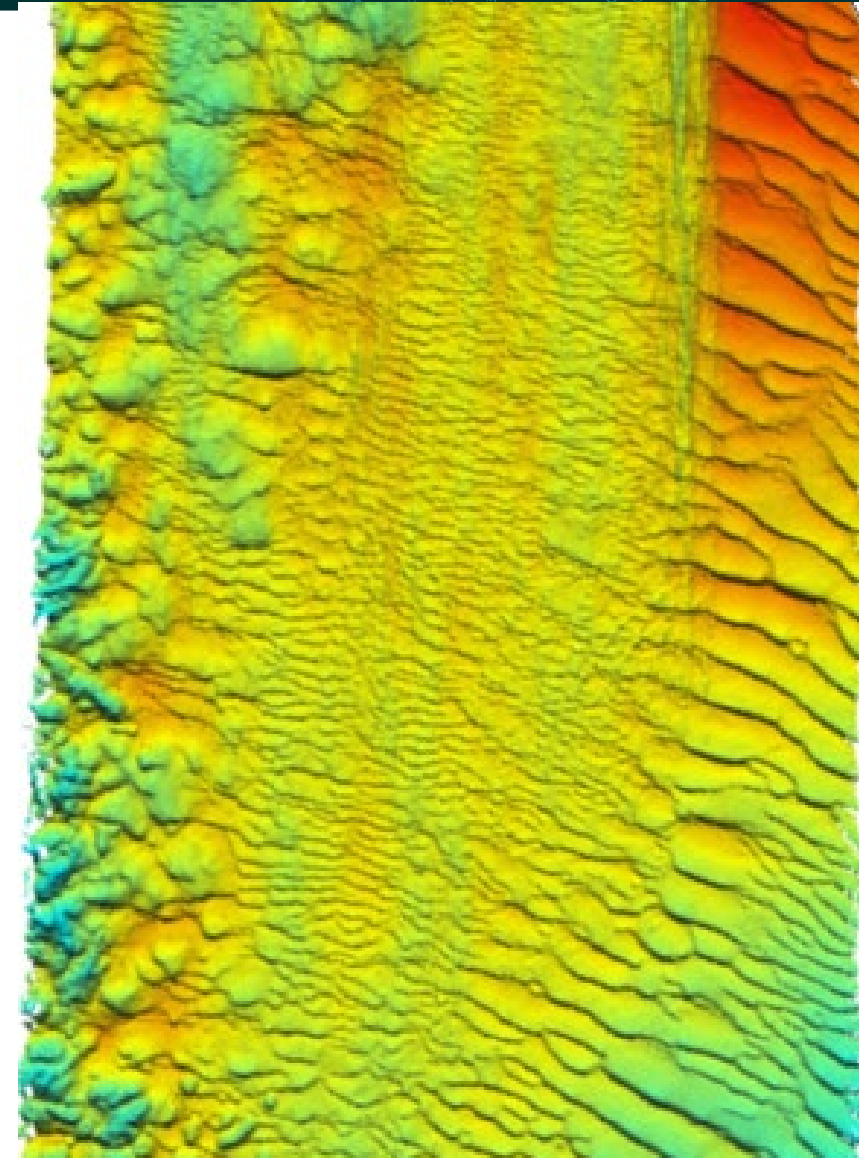


State-wide Nearshore Bathymetry Survey for Improved Coastal Hazard Assessment

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Project background

- Grant funding through the \$50 million Coastal and Estuarine Risk Mitigation Program (CERMP), which is delivered through the National Emergency Management Agency
- This program supports projects that reduce the impact of disasters on coastal communities and build resilience.
- 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.
- CERMP purpose aligns with the QCoast2100 Coastal Hazard Adaptation Strategies.

Approved projects

- 10 projects were funded with an \$8.4 million CERMP contribution for \$12.4 million total project value.
- 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 and to understand coastal processes.

What is bathymetry and why do we need it?

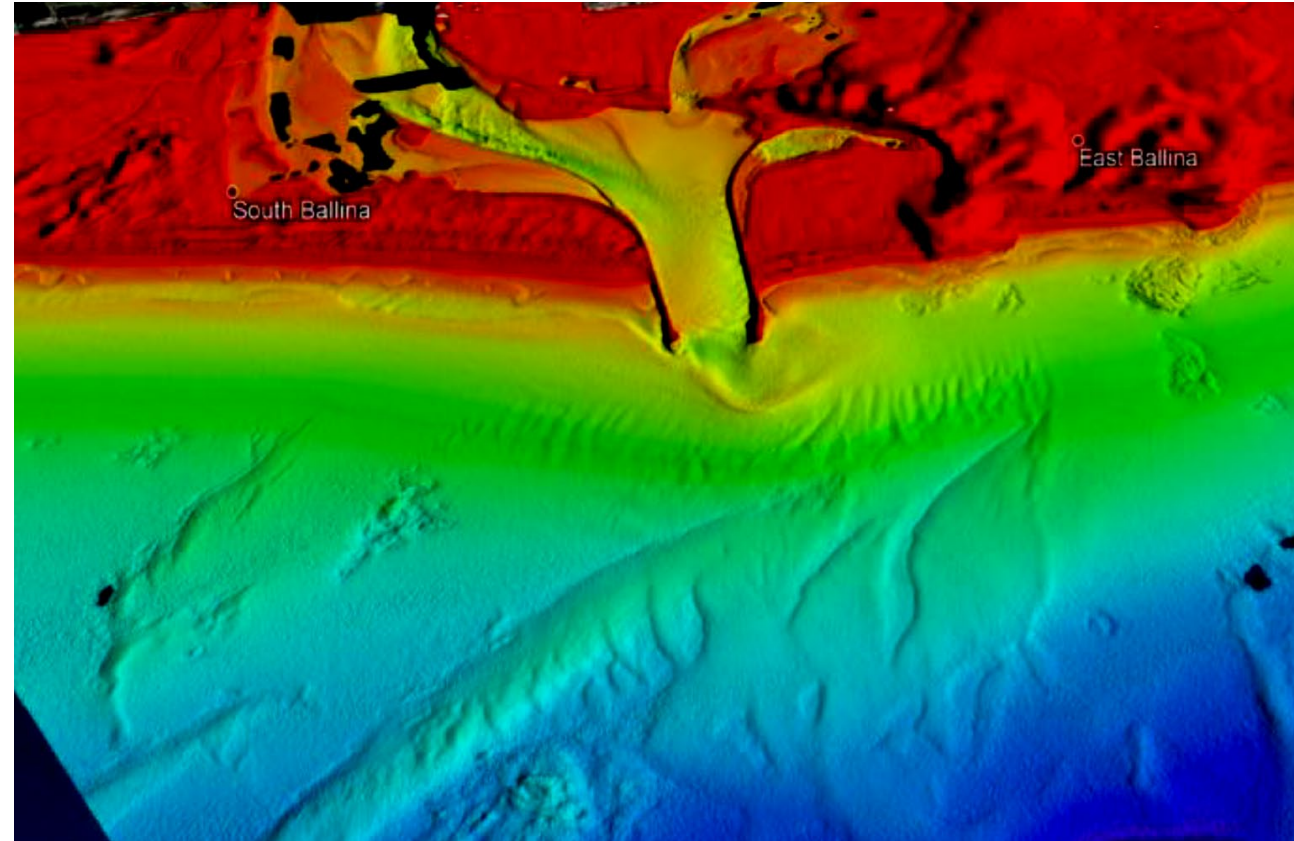
Bathymetry is a measure of the depth of water over the seabed - relative to AHD for this project.

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

- coastal hazard assessment
- coastal process study
- baseline assessment including sand volume

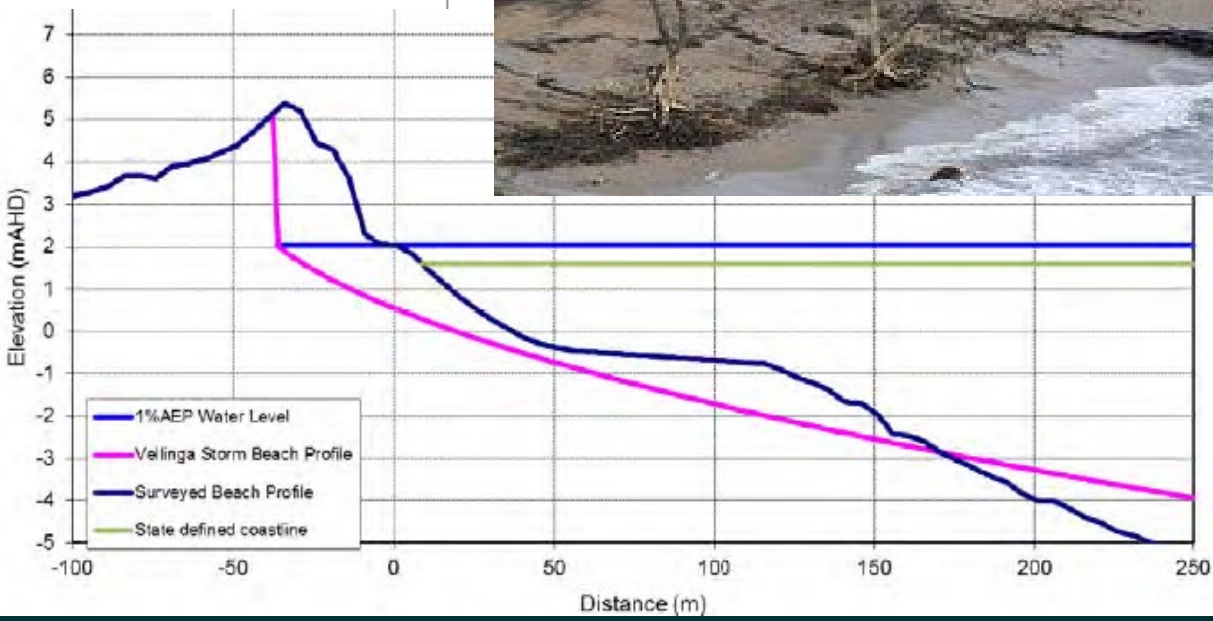
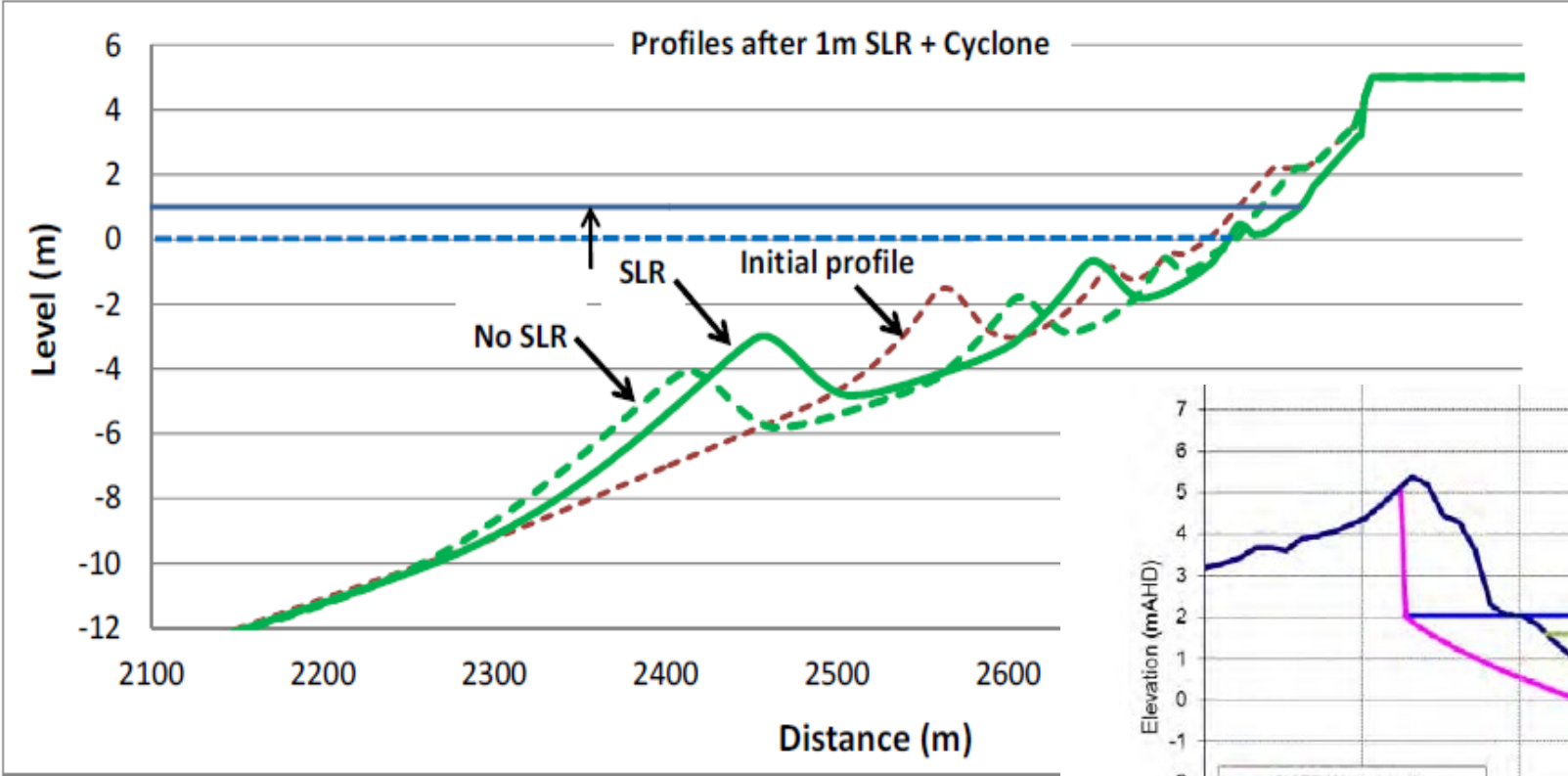
Also useful for

- Navigational mapping and charting
- Infrastructure planning and change monitoring
- Underwater obstacle and structure detection
- Benthic habitat mapping

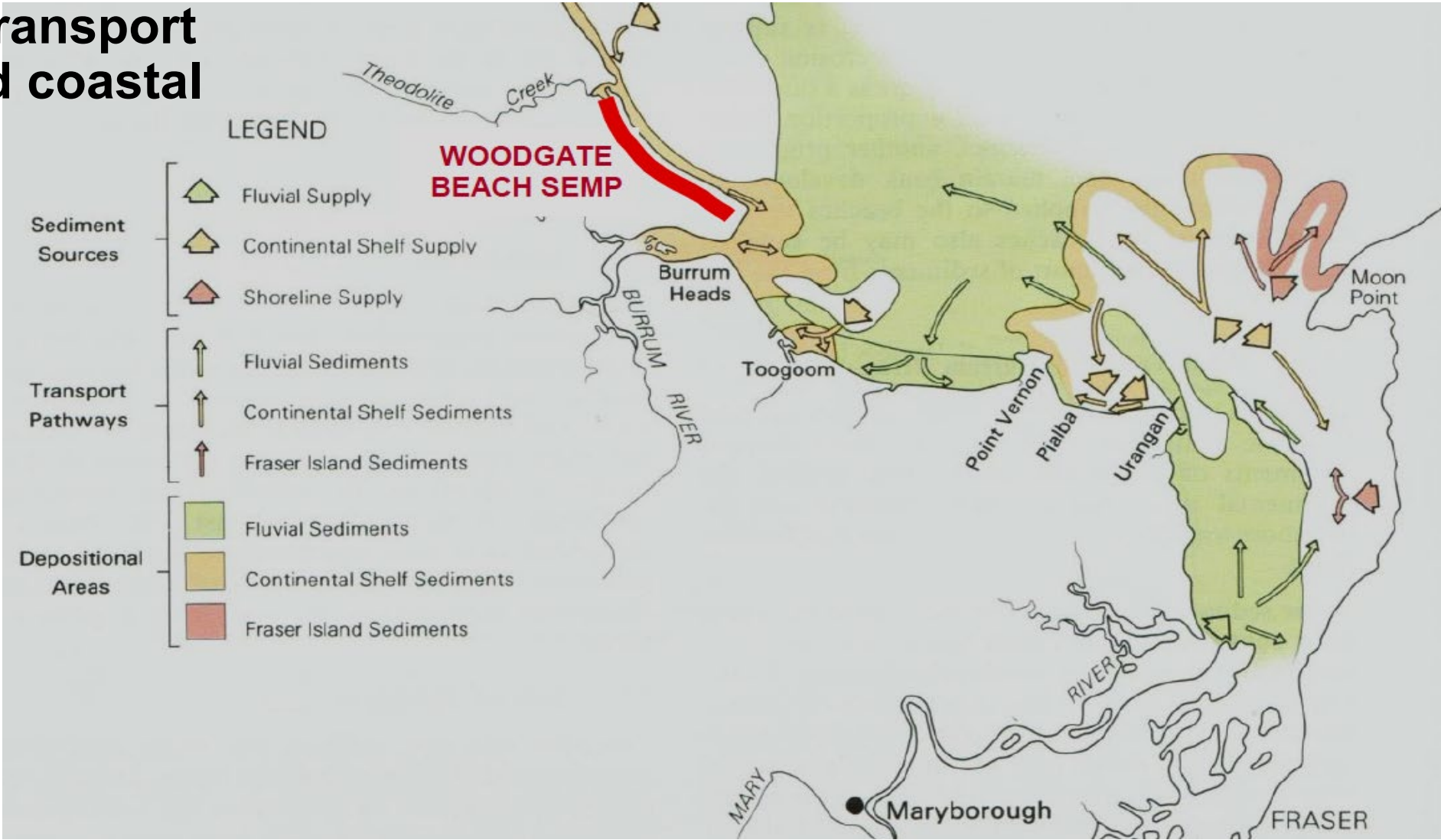




Coastal hazards - process based modelling for erosion from sea level rise and storms

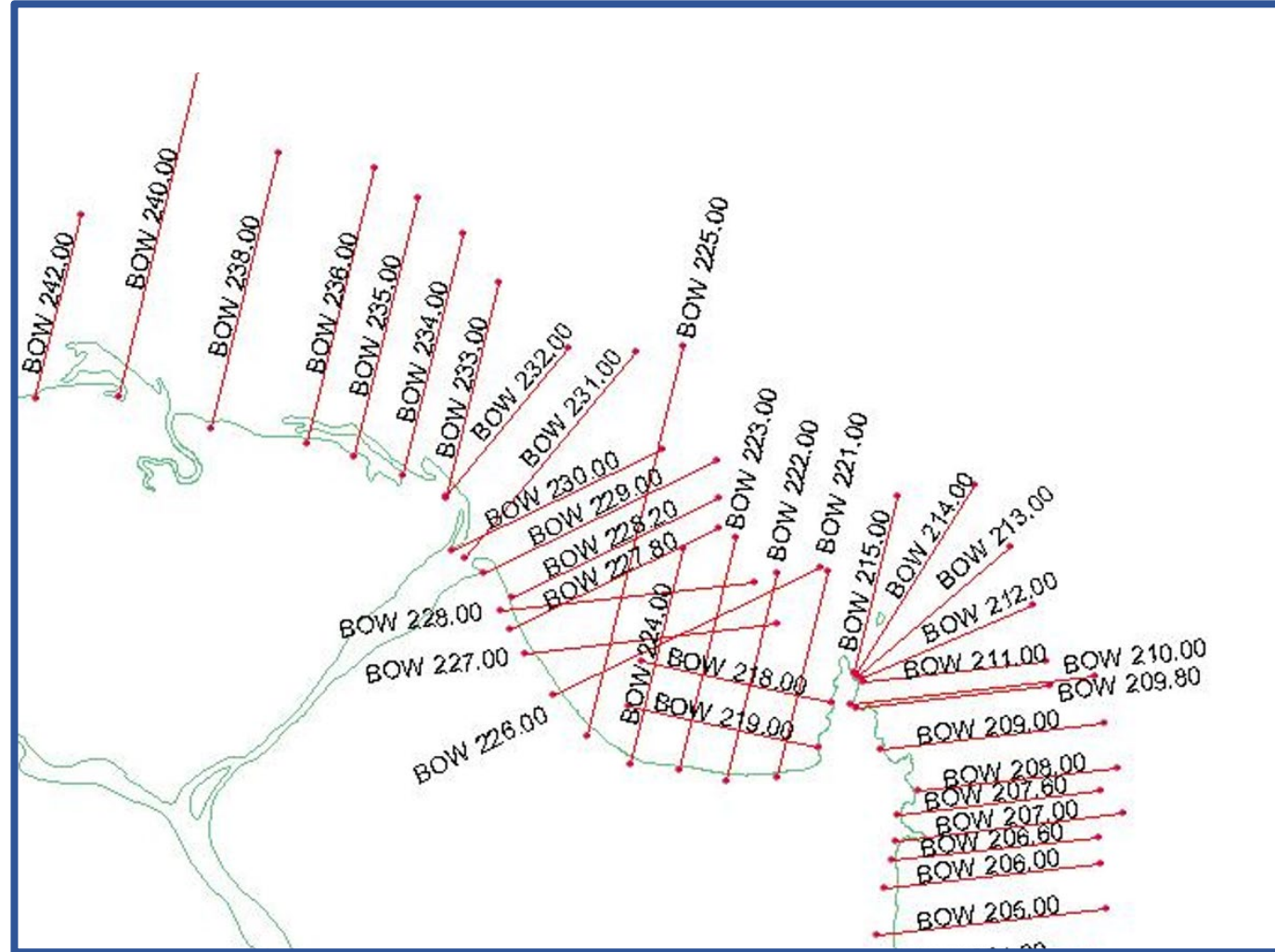


Sediment transport models and coastal baseline



Current bathymetric data for Queensland

- Onshore surveys and cross shore sonar surveys by boat of selected open coast areas.
- Up to 40 years old by the then Beach Protection Authority
- Uncertain accuracy given age and technology and poor quality in the shallow nearshore zone
- Complete replacement of this dataset intended.



What are the deliverables

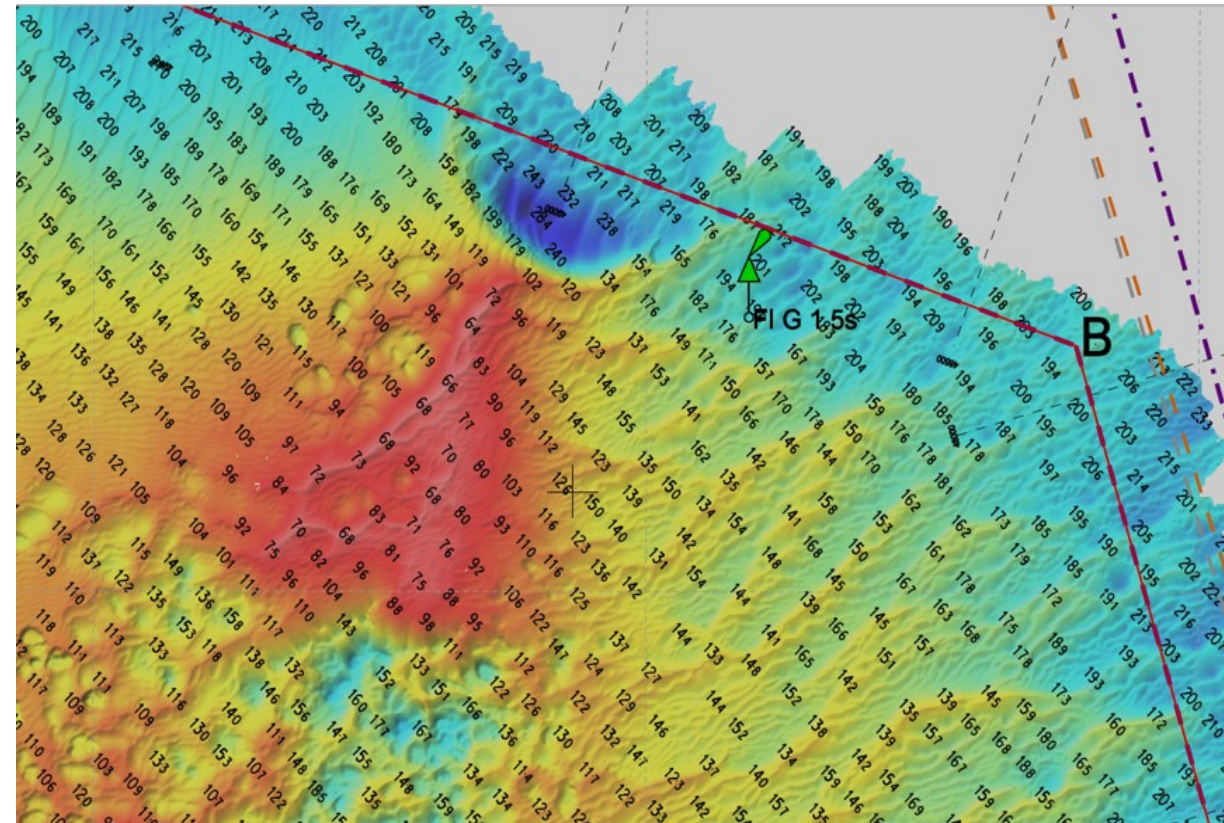
Key products

- Survey over 3351 square kilometres
- 1m grid seamless digital elevation model (DEM) from 200m onshore to up to 6km off-shore, practical limit up to -40m
- Coincident, georeferenced aerial photography (10cm or better)

Secondary products

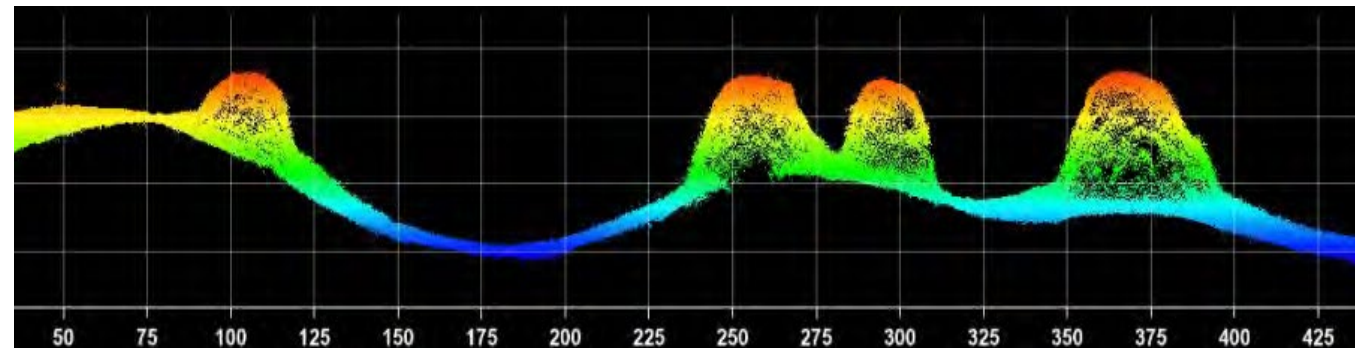
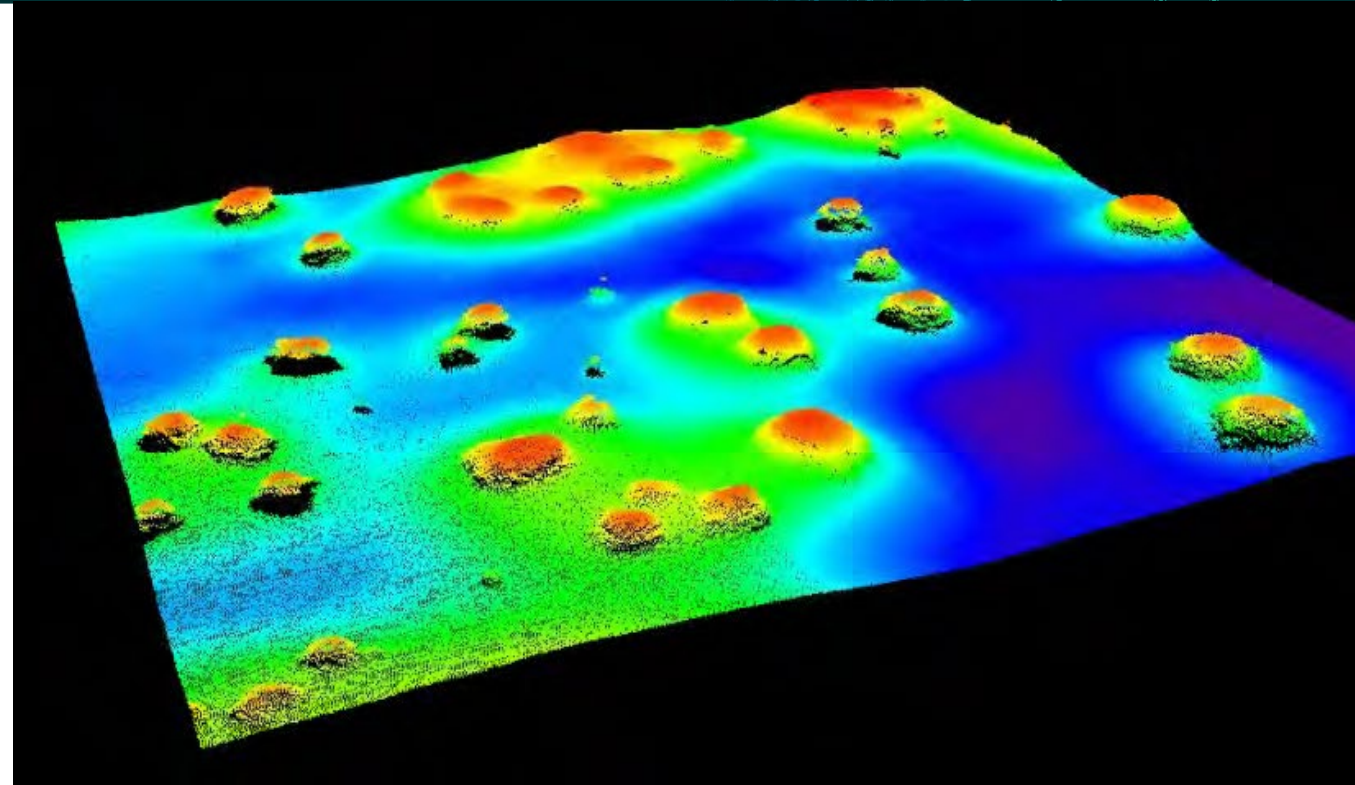
- Classified Lidar points – 18 classes including soft or hard sediment, rock/reef/sand, structures
- Lidar back scatter (intensity) and waveform
- Contours

Comparison of data quality from historical soundings to that from high resolution survey at the Spitfire Banks sand extraction area, Moreton Bay

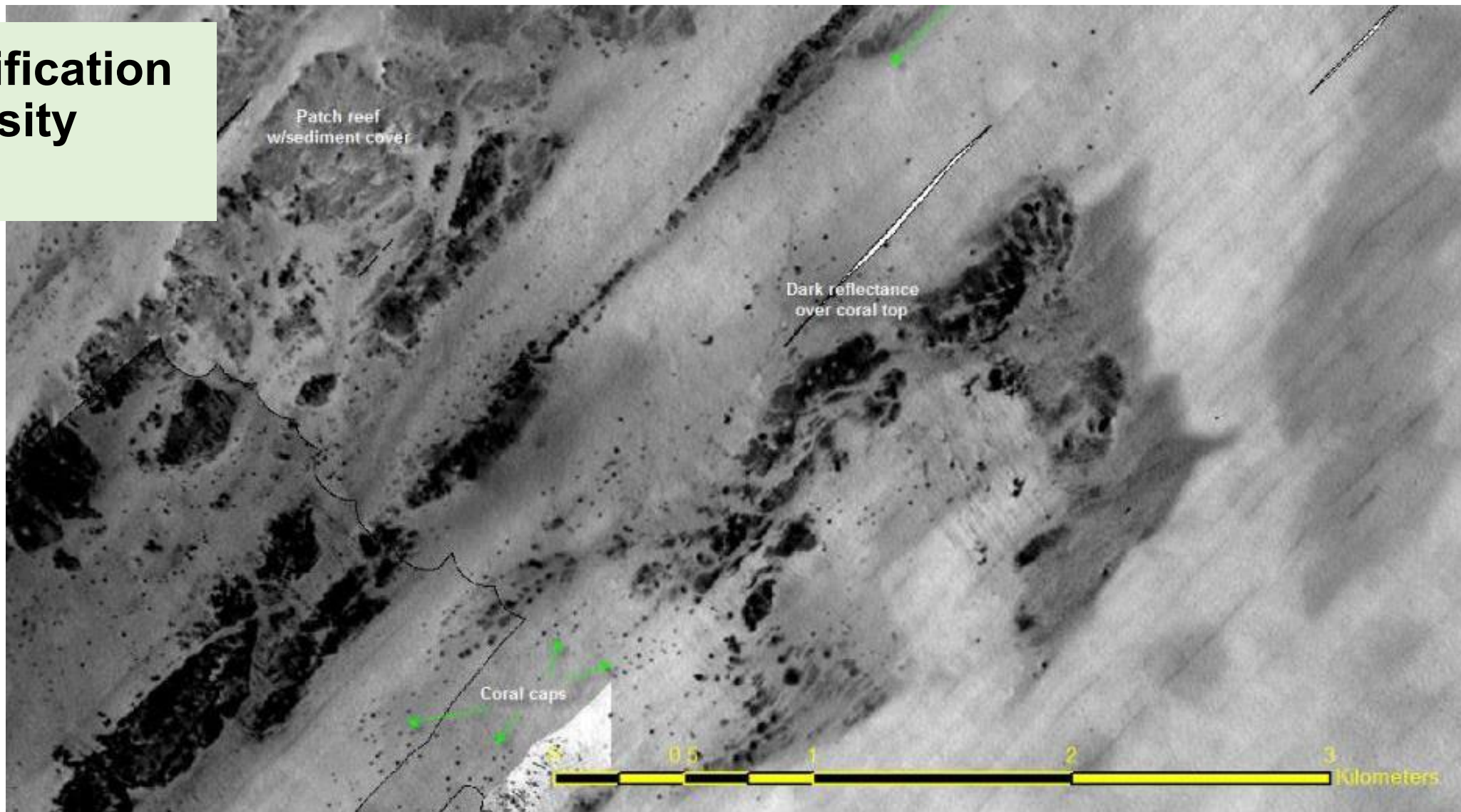


Possible derived products

- Full cross-shore profiles onshore to offshore to depth of closure
- Sand volume calculations for coastal sectors.
- Seabed bed category mapping – sand/mud/rock/coral
- Bedform classification
- Habitat type mapping – reef/coral/seagrass



Seabed classification base on intensity

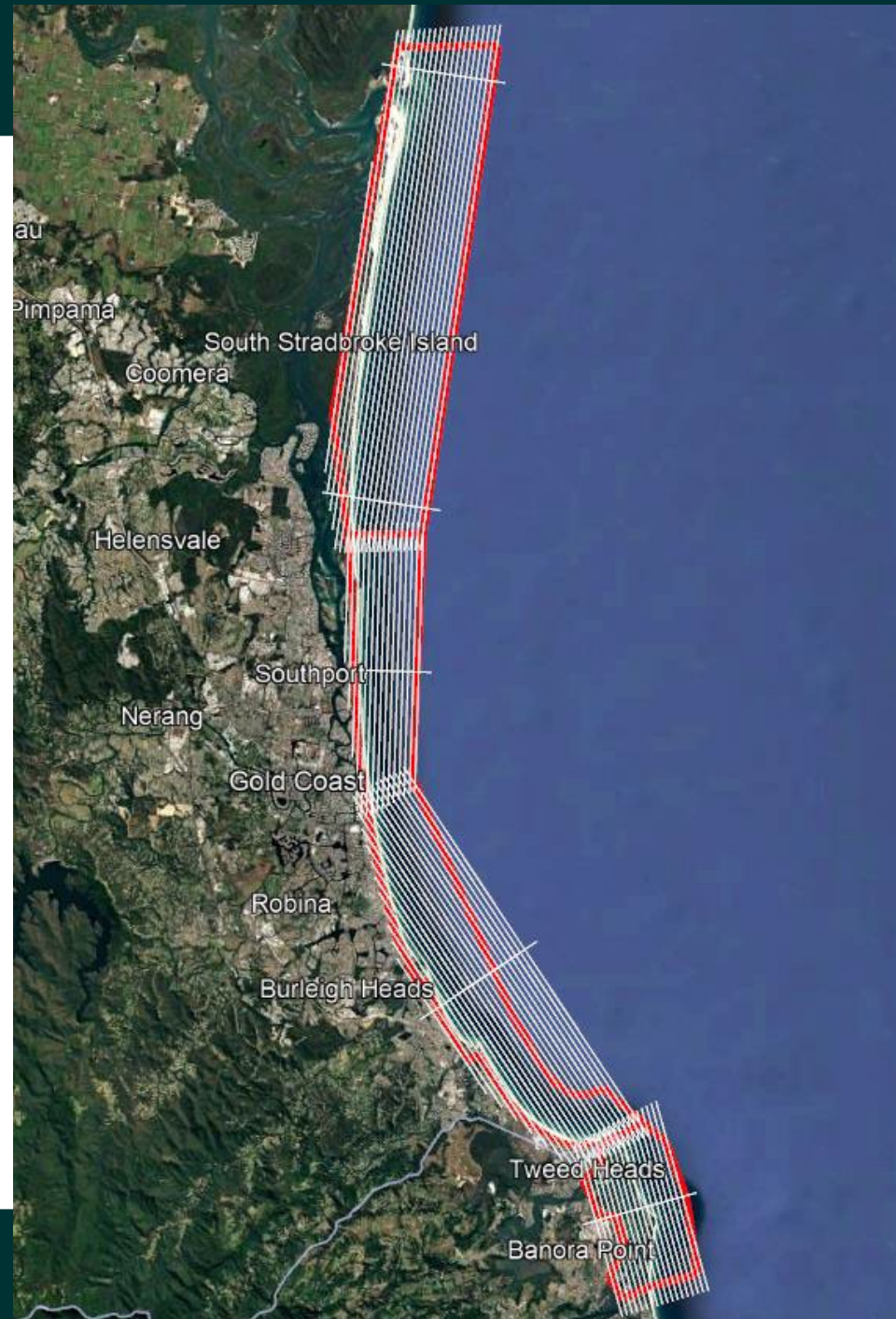


Proposed survey locations for the Queensland coast.

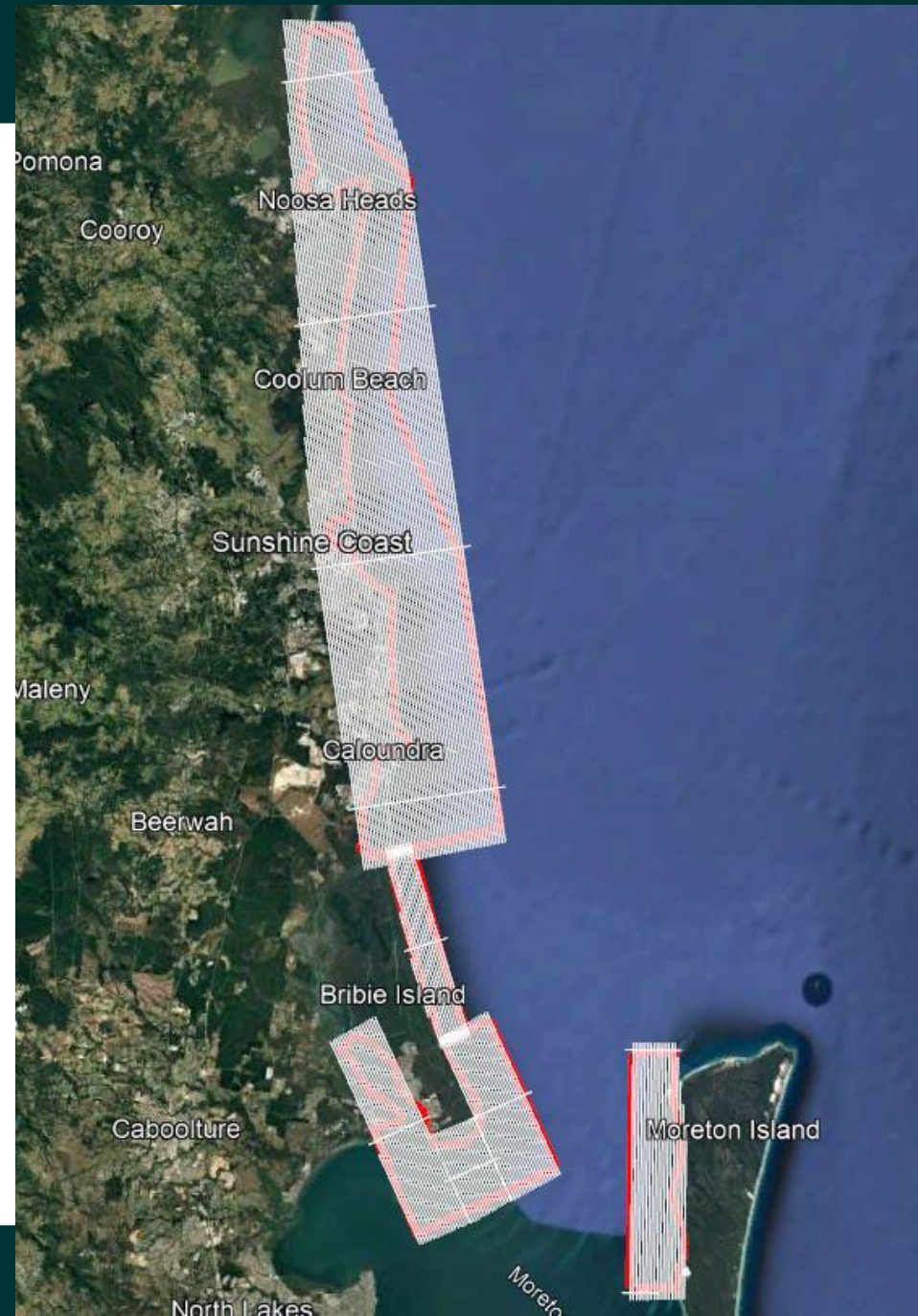
- Adjacent to developed areas of the coast
- Small settlements may not be included.



Gold Coast



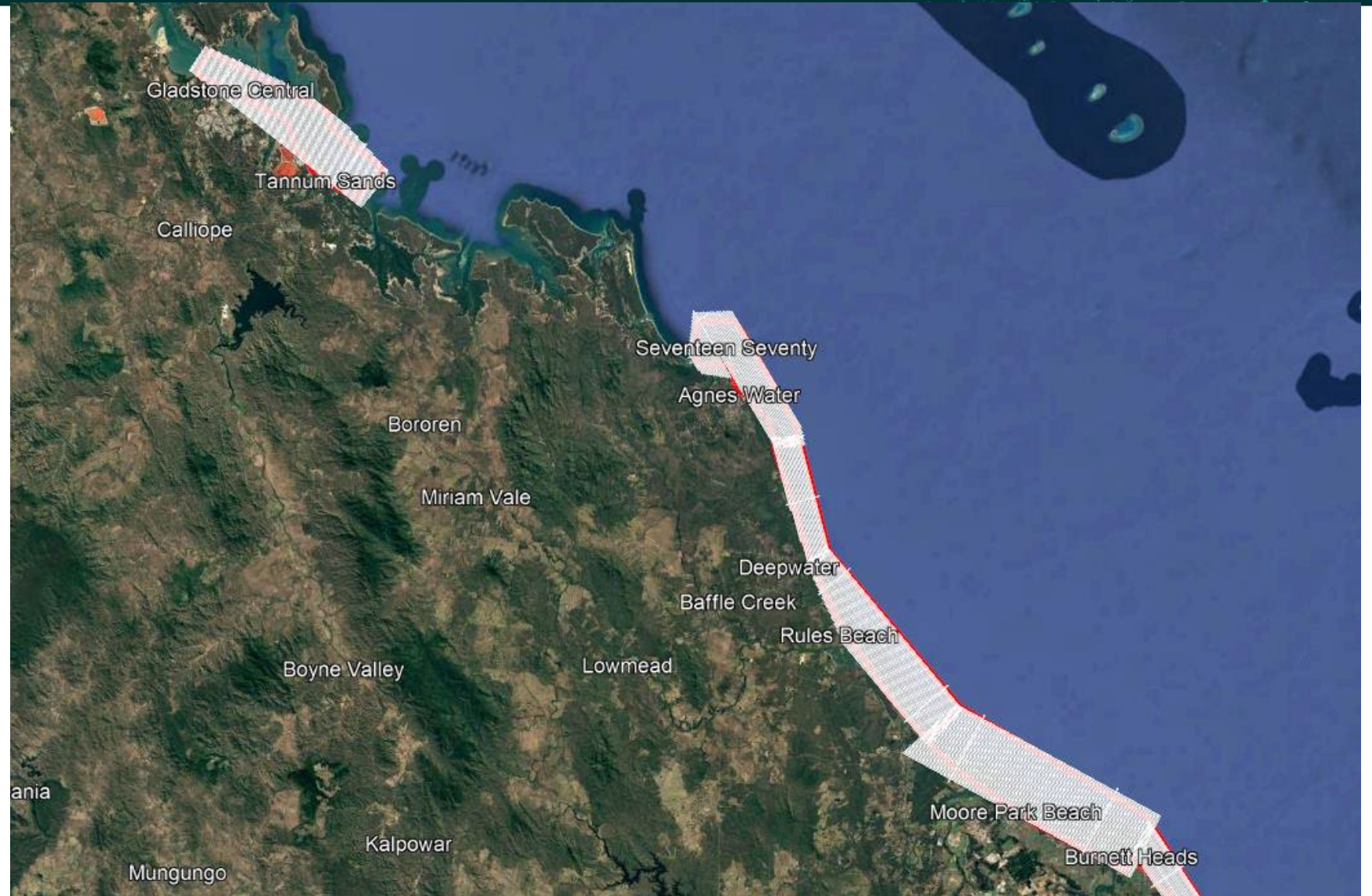
Moreton Bay to Noosa Shire



Rainbow Beach to Bundaberg



Bundaberg to Gladstone



Yeppoon – Capricorn Coast



Project status

- Project plan developed
- Technical Working Group formed for advice
- Survey specification developed
- Stage one survey for Gold Coast to Yeppoon commenced
- Actual survey expected to commence mid July - high quality capture is heavily dependent on water clarity
- Central and north Queensland survey procurement will commence July 2025 and survey completion expected in 2026

Dataset availability

- Processed digital elevation models and underlying data (.las files) will be available to councils as they become available and free of charge.
- No decision on public availability.