AOG 2017

Monitoring operational discharges using autonomous underwater glider technology

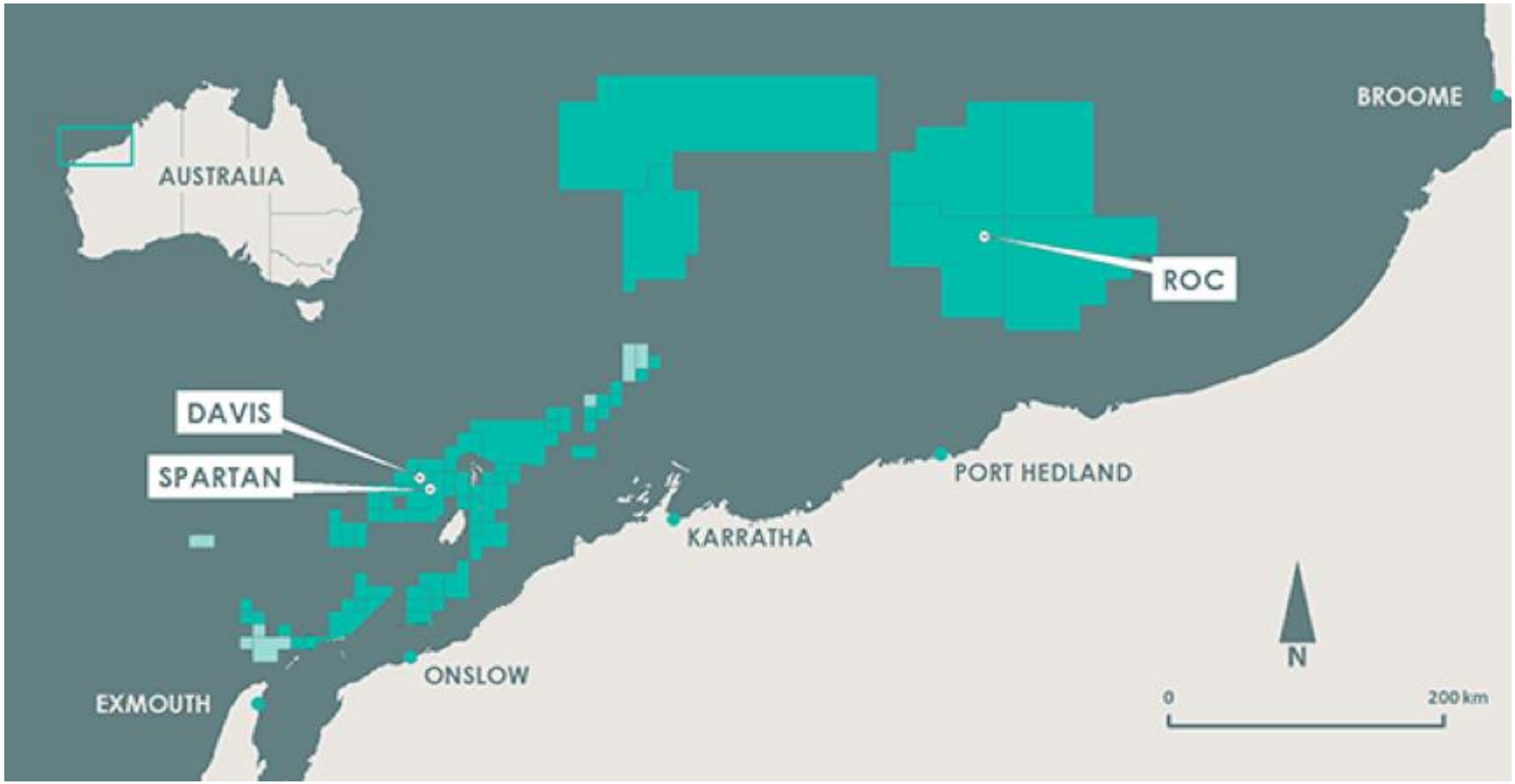
www.blueoceanmonitoring.com

About us

Blue Ocean Monitoring is a leader in providing operational and environmental ocean data solutions.

- **Established to offer real-time ocean data solutions to Oil and Gas & Environmental sectors**
- **Largest commercial operator of Slocum Gliders globally**
- **Based in Perth, Western Australia with subsidiaries in the UK, USA and Singapore**
- **> 10 years AUV & operational oceanography experience**
- **Data as a service – supply and operation of data collection platforms & provision of near real-time data streams**
- **Strategic Partnership with Teledyne Webb Research – exclusive 3rd party service provider for Australia and SE Asia**
- **24/7 international piloting operational centers**

Project Overview

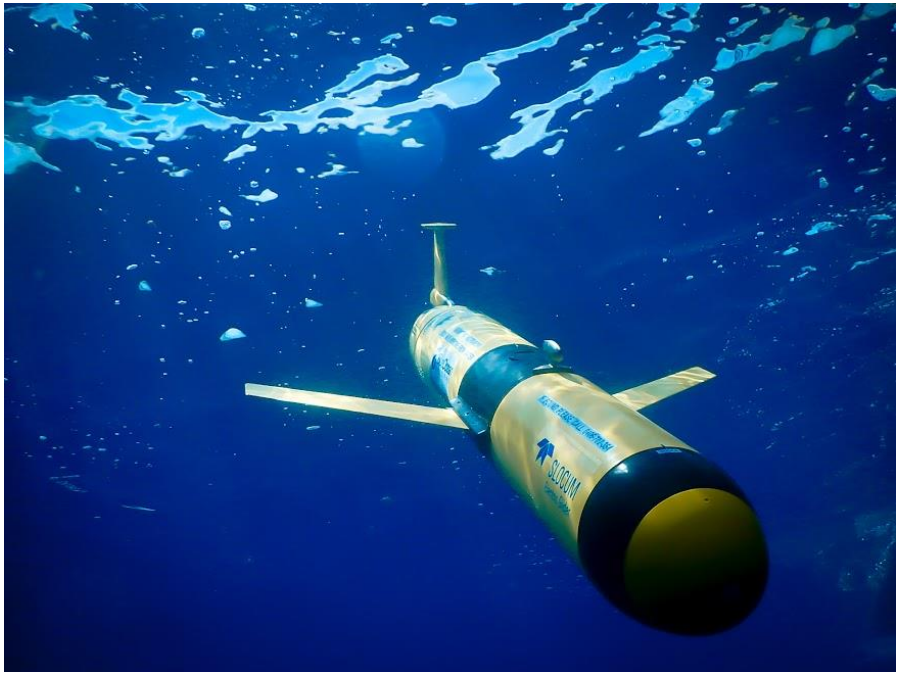


Map: Courtesy of Quadrant Energy

Why was a glider used?

Our glider provided in-situ, full water column measurements cost effectively.

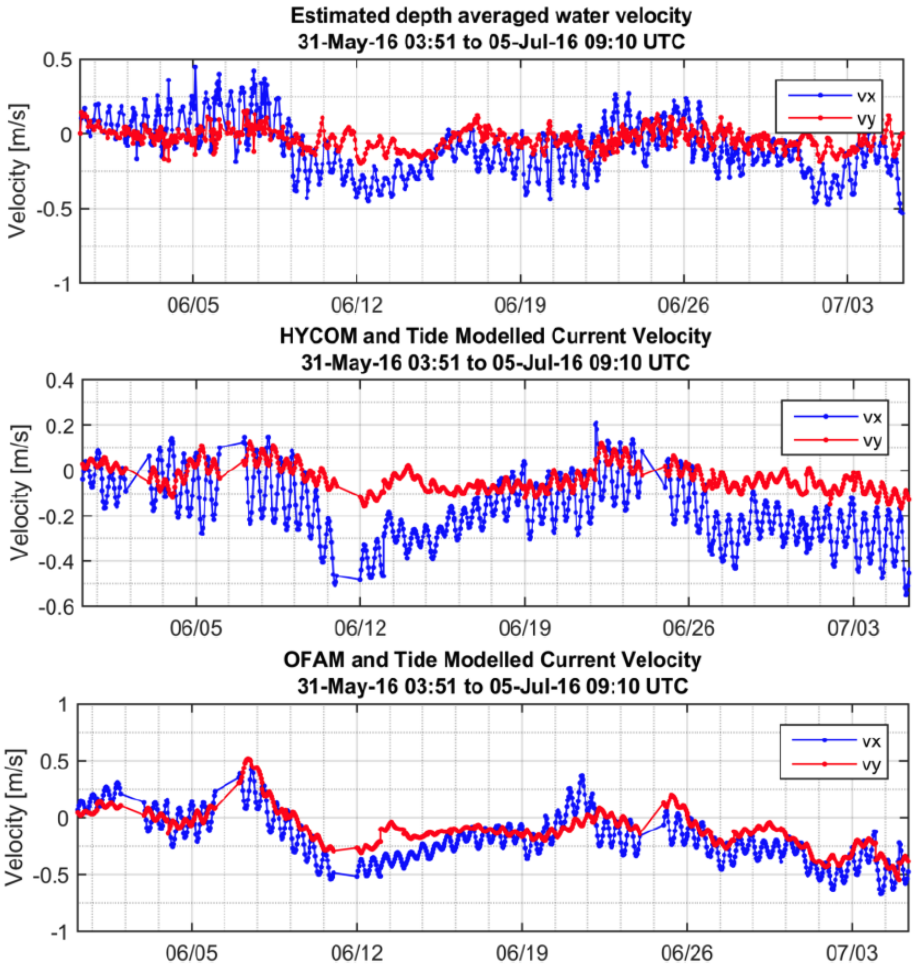
- **Profile downstream of changing currents**
- **Cost effective**
- **Full water column measurements**
- **Persistent monitoring**
- **Weather resilience**



Purpose

To validate the numerical model developed to describe the sediment transport.

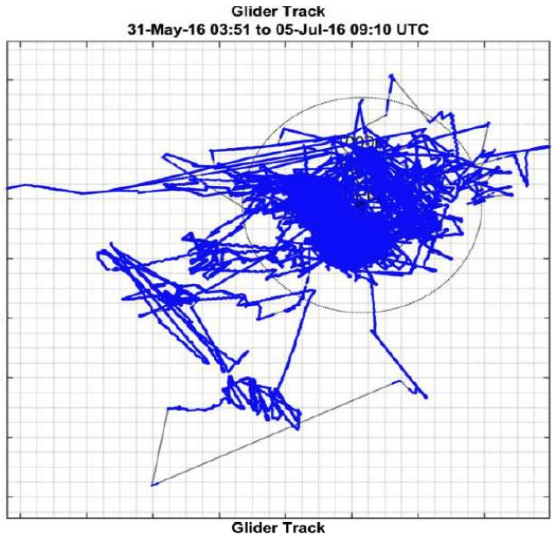
- **Model scale vs. measurement scale**
- **Beyond the surface layer**

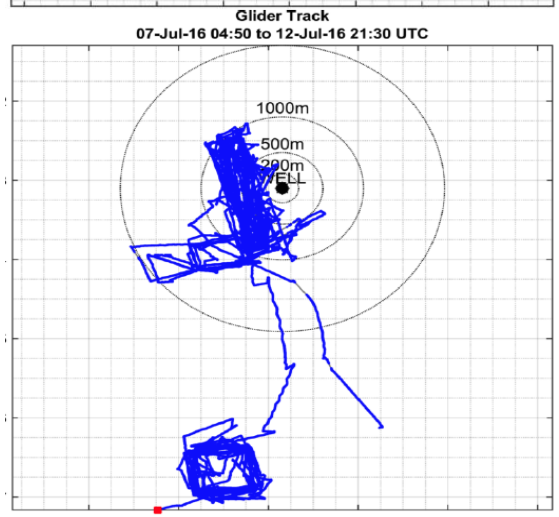


How it was achieved?

Effective planning, communication and co-ordination was required for successful execution.

- Phased deployment
- Exclusion zones
- Daily co-ordination
- Forecasts and in-situ measurements informed the survey plan
- 24/7 piloting
- Use of the thruster
- Laboratory calibrations

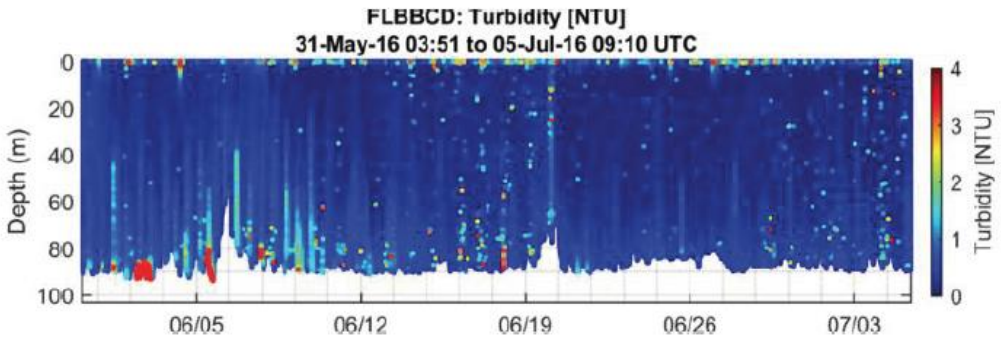


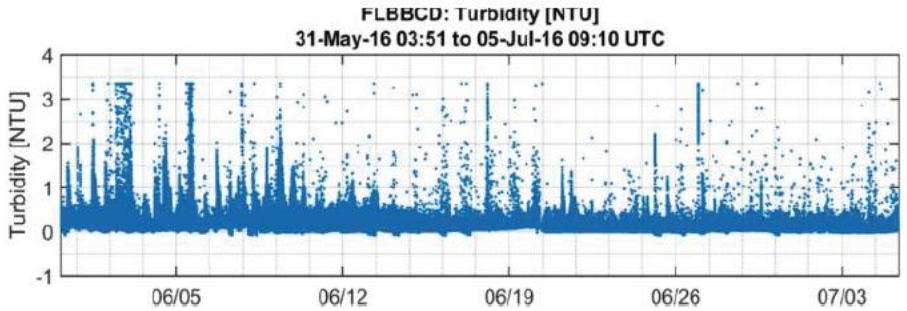


Outcomes

Natural ocean processes accounted for a majority of the variability in the oceanographic data measured.

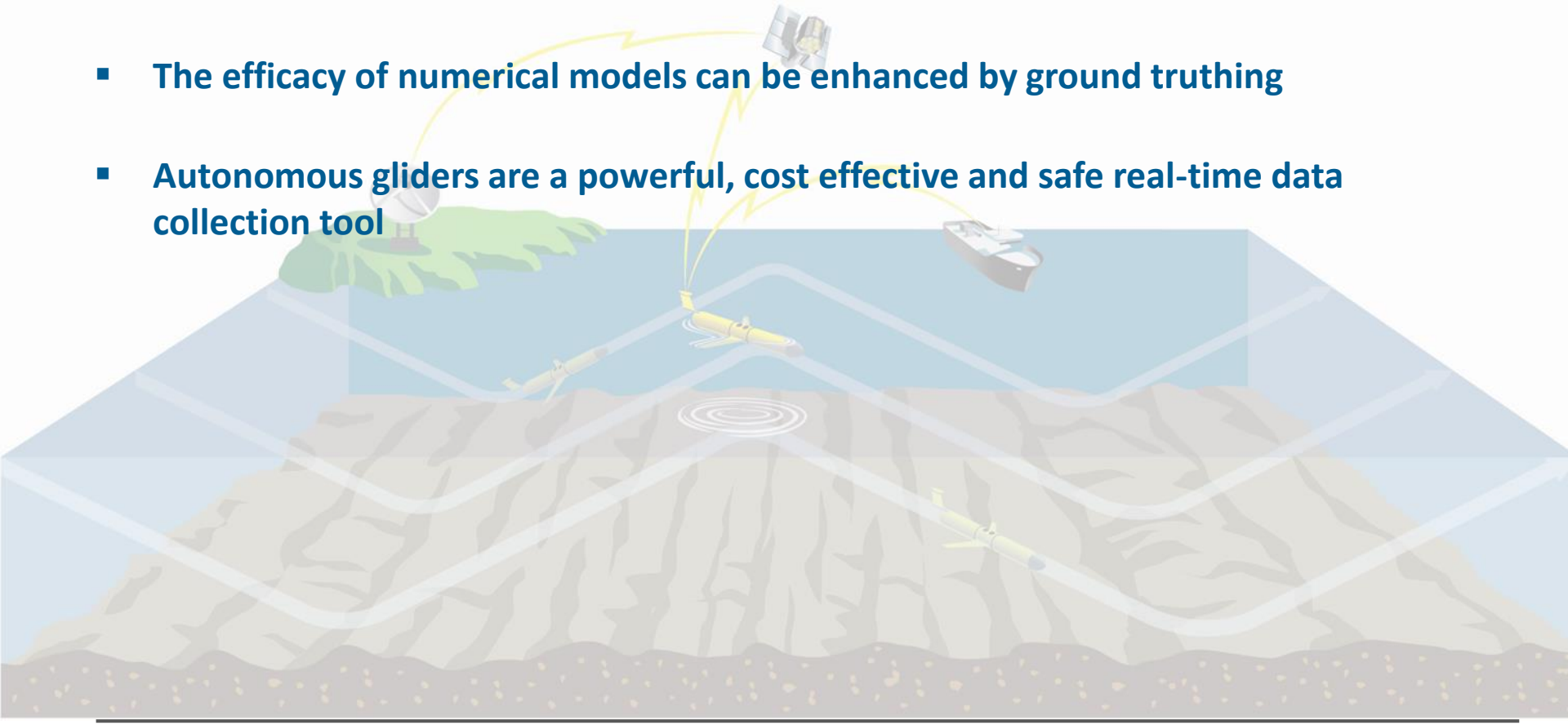
- **Lower discharge volumes**
- **Generally good agreement with numerical model**
- **Natural turbidity events were significant**





Conclusions

- Collection of baseline data, at least over a full tidal cycle, is important for accurate assessment of impact
- The efficacy of numerical models can be enhanced by ground truthing
- Autonomous gliders are a powerful, cost effective and safe real-time data collection tool



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