

MARINE
NATIONAL FACILITY

2006 *RV Southern Surveyor*
program



CSIRO

voyagesummarySS10/2006

SS10/2006

NSW Continental Slope Survey

Itinerary

Departed Sydney 0830 hrs, Friday 13 October, 2006

Arrived Sydney 0800 hrs, Thursday 26 October, 2006

Principal Investigator

Dr Kriton C Glenn. (Chief Scientist) – Marine and Coastal Environment Group,
Geoscience Australia, GPO Box 378, Canberra ACT 2601, Australia

Phone: +61 (2) 6249 9379 **Facsimile:** +61 (2) 6249 9980 **Email:** Kriton.Glenn@ga.gov.au

Scientific Objectives

This survey is to:

- assess the physical nature of the NSW continental slope
- improve our understanding of the surficial and sub surface structure of the continental slope
- investigate the history of sediment movement along and down the continental slope.

Voyage Objectives

To ascertain the rate and nature of sediment movement across and along the NSW continental slope. The area was imaged utilising the swath and sub bottom profiles and revealed the spatial extent of sediment movement. This was bolstered with a targeted seismic program.

Subsequently, a range of potential sampling sites was selected from this data including sites targeted for gravity cores. The C14 dating of samples from these sites are anticipated to reveal the timing and extent of sediment movement.

Results

Swath coverage of the mid-slope (300 – 1700m water depth) from Jervis Bay in the south, to Port Stephens in the north was comprehensive. TOPAS data was of varying quality subject to water depth and vessel speed. Seismic of specific areas was completed and processing is underway. Over 54m of sediment core was acquired logged and sampled and digital video images were obtained at one shelf edge location. The side scan was not deployed due to time needed to take it to the desired water depths.

The successful outcomes of this chartered survey were realised due to the flexibility and adaptability of the staff, both scientific participants and importantly, the Marine Crew who assisted with winch repairs during the voyage.

Voyage Track

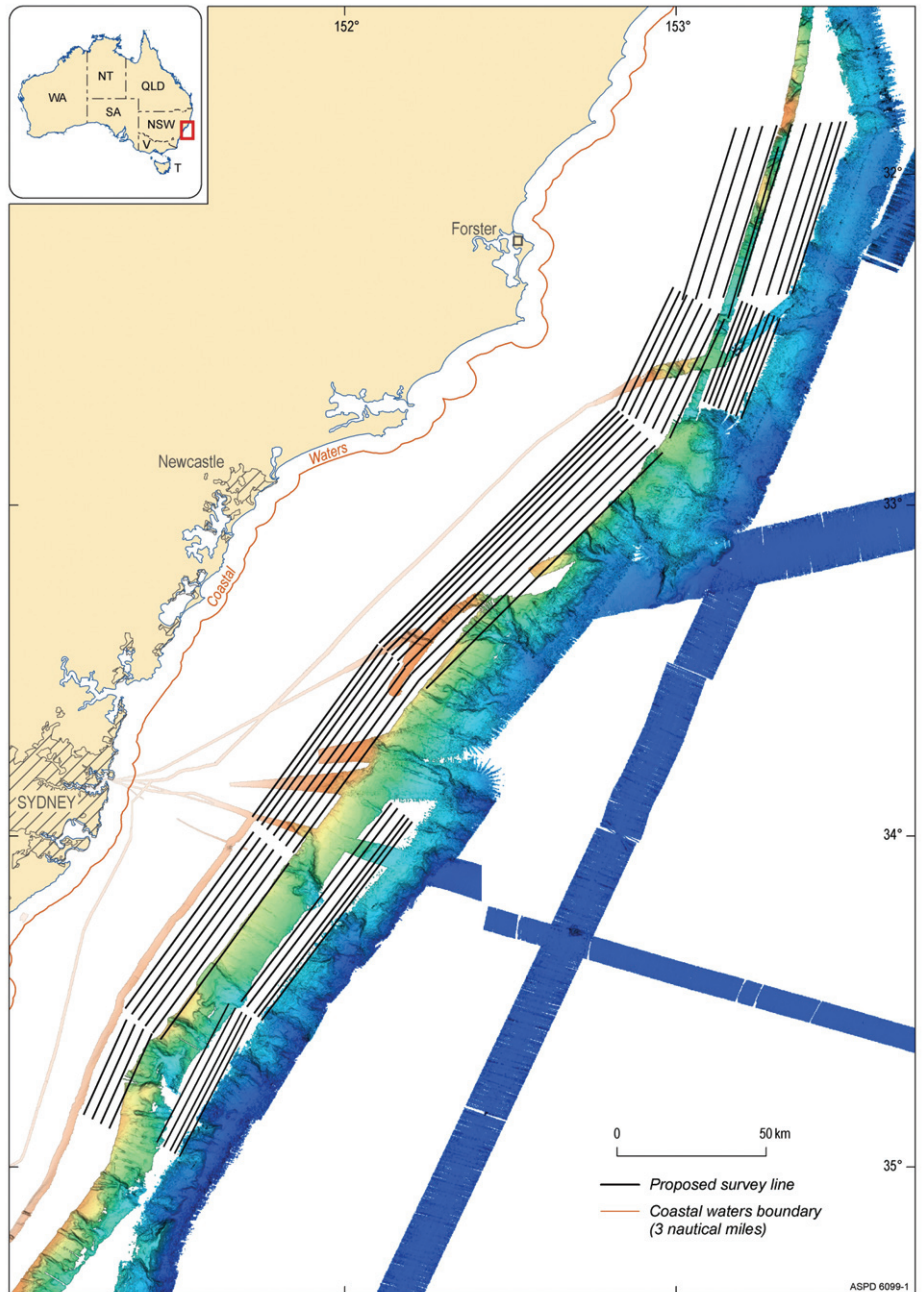


Figure 1: Diagram shows the initial ship tracks for the swath acquisition (the locations of the cores and seismic were determined from the swath data).

Voyage Narrative

The survey was initially undertaken in medium seas and it was approached in a three phase program (A, B and C). The planned phased approach allowed time for the participants to acclimatise to the marine environment and be more productive throughout the survey.

At the completion of each phase of swathing and Topas collection, a physical acquisition program was commenced as weather windows presented themselves. This program included gravity cores and an attempted dredge. More dredges would have been undertaken at the first dredge site but after loss of the dredge it was calculated by the bridge that the set up time for a second dredge would be up to 1.5 days, consequently this part of the program was abandoned.

The XBT's (purchased via CSIRO Marine) were time efficient means of obtaining water velocity data throughout the survey. There were some issues with the software and these were resolved by the Voyage Manager. The use of the XBTs proved most valuable as when winch problems prevented the use of the CTD.

Some apprehension was experienced with winch problems, coupled with the challenging seas. This constrained the timing flow of the survey objectives and gave us the opportunity to employ several of our backup plans. Subsequently the expanded Swath and Topas program was both extensive and successful.

The ADCP and echo sounders were utilized and we keenly await the data. The wind Met data set is unavailable due to equipment failure.

Summary

Data wise, the survey was very successful. The Swath and Topas data sets were both extensive and revealing. They allowed the scientists to pin point the seismic program and coring sites with confidence. Processing of the seismic and sediment samples are underway at Geoscience Australia.

The pragmatic professionalism of the marine crew and the scientific participants was greatly appreciated and due to their efforts, the acquisition phase of the program allows further development in our understanding of the mid continental slope processes. The data and cores are now undergoing further processing.

Special thank you to the Field and Engineering support staff of Geoscience Australia in the preparation of the seismic and coring equipment and their efforts in mobilisation and de-mobilisation of the vessel.

Personnel

Scientific Participants

Kriton Glenn	GA	Chief Scientist
Alix Post	GA	Watch leader
Jock Keene	Uni Sydney	Scientist
Ron Boyd	Uni Newcastle	Scientist
Leharne Fountain	GA	Scientist
Michele Spinoccia	GA	Swath technician
Andrea Cortese	GA	Swath technician
Monica Osuchowski	GA	Scientist
Anna Potter	GA	Scientist
Craig Wintle	GA	Mechanical technician
Andrew Hislop	GA	Mechanical technician
Franz Villagran	GA	Electronic technician
Ian Atkinson	GA	Systems administrator
Bob Beattie	CSIRO MNF	Voyage Manager, Computing
Karl Forcey	CSIRO MNF	Electronics

Marine Crew

Ian Taylor	Master
Samantha Durnian	First Mate
Brent Middleton	Second Mate
John Morton	Chief Engineer
Charmayne Aylett	Chief Steward
Bob Cumming	Chief Cook
Jason Phillips	Second Cook
Dave Jonker	1st Engineer
Seamus Elder	2nd Engineer
Graham McDougall	Bosun
John Howard	IR
Vincent Wesley	IR
Phil French	IR
Ken Dietz	IR

Kriton Glenn

Chief Scientist