



Voyage Transit SS02-2007

The record of ancient Lake Baudin located on the Lacedpede Shelf offshore South Australia.

Professor Patrick DeDecker, Australian National University (Chief Scientist)

This voyage completed the sampling program commenced during *Southern Surveyor* voyage SS02-2006. Hard lacustrine sediments encountered on the Lacedpede Shelf during that voyage could not be penetrated by the gravity coring equipment available at the time. The research team, with the support of the Marine National Facility and Geoscience Australia, took advantage of the opportunity presented by a transit from Port Lincoln to Hobart to fit vibro-coring equipment needed to sample the sediments of the large fossil lake discovered off the mouth of the Murray River in March of 2006.

In addition to the voyage's research objectives two undergraduate and two post-graduate students from the ANU were offered the opportunity to enrich their studies by sailing on the voyage in order to gain an appreciation of the challenges facing marine scientists during research activities at sea. This training experience, integrated with an ambitious sampling program, proved very rewarding for all.

As a result of this voyage:

We now have a better understanding of the nature of the deep-sea canyons offshore Kangaroo Island. These extraordinary geomorphic features are likely to be visited by large sea mammals such as cetaceans and deserve documenting and monitoring. Thus, our program addresses Goal 5 "Sustainable use of Australia's biodiversity" under

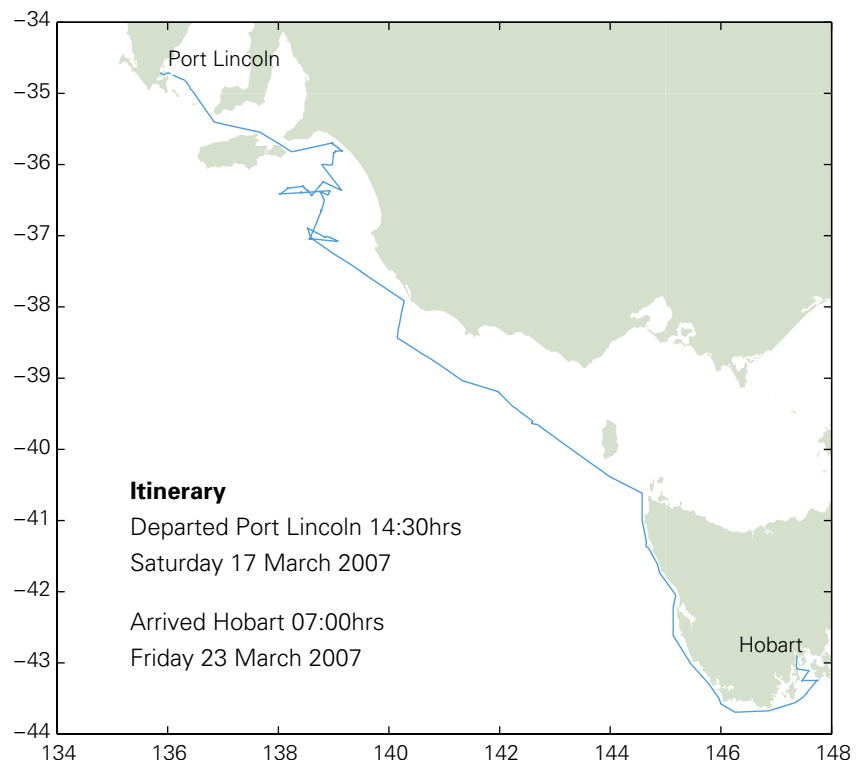
the Government's priority "An Environmentally Sustainable Australia".

We have found an ancient huge [$>100\text{km}$ long], buried lake/estuary on the floor of the Lacedpede Shelf which was formed during periods of low sea levels and connected to the palaeo-Murray River. Past climatic signals are likely to be available in the sedimentary archives of these deposits. Thus, our program addresses Goal 7 "Responding to climate change and variability" under the Government's priority "An Environmentally Sustainable Australia".

We have completed the mapping of the deep-sea canyons and also other

canyons offshore the Glenelg River and discovered evidence of undersea slides near Portland that could have triggered tsunamis. Thus, we have addressed Goal 2 "Understanding our region and the world" under the Government's priority Safeguarding Australia.

We are currently preparing a scientific article that will document the nature of the sea floor on the Lacedpede Shelf and its ancient sedimentary deposits. We are also preparing an animation that will document in 3-D the nature of the deep-sea canyons, especially the largest; "Sprigg Canyon"; named after its discoverer.



> Transit SS02-2007 voyage track