

DRAFT VOYAGE PLAN
RV SOUTHERN SURVEYOR
SSTransit 01/2008

Itinerary

Depart Hobart 0900hrs, Thursday 10th April, 2007
Arrive Sydney 1100hrs, Monday 14th April, 2007

Chief Scientist

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Scientific Objectives

As part of a national seabed mapping initiative map the upper-slope and mid-slope seabed focusing on the 200 m to 1500 m depth range and regions important for regional marine planning, biodiversity and conservation assessments and fisheries habitat mapping.

Objectives for the transit voyages:

1. Using transit time, map key areas as identified in gap analysis.
2. Develop methods of improving data quality and calibrating the EM300 backscatter data.
3. Develop and test new rapid methods of “ground truthing” acoustic backscatter maps with optical and physical sampling.
4. Process bathymetry and backscatter data and create maps suitable for ecological interpretation.

The objectives to be accomplished on this transit are to complete a swath survey line from Hobart to Sydney, predominately along the 400m contour, map and resample reference sites at 100, 200 and 400 m and deploy XBTs and the CTD in order to provide calibration data for the swath mapper.

Swath Survey

On route to Sydney from Hobart map the upper slope targeting gaps based on existing EM1002 and EM300 multibeam data and resample scientific reference sites created during SS2000_01 with orthogonal cross transects at 100, 200, and 400 m. At selected locations obtain temperature profiles to provide calibration inputs to the multi-beam echo sounder for sound speed and absorption measurements and quantify measurement uncertainty when compared to blue link hind cast and forecast sound velocity and absorption profiles. The most recent sea surface temperature and height anomaly map of the region will be used to target water masses for sampling as well as indications from the multi beam across track bathymetric profile. Detailed swath mapping will also occur in shallow waters (~50 to 100 m) as time is available to assist with collaborative Biodiversity CERF Hub projects.

The estimated swath distance from Hobart to Sydney following the voyage track shown in Figure 1 is 900 n.miles with detailed maps over areas of interest covering 80 n.miles. Experiments will be carried out on route for training and optimisation of the bathymetry and backscatter data quality including minimisation of motion induced artefacts due to high turning rates of the vessel. A separate GPS will be installed on the vessel to investigate removal of tide and motion data for a UTAS project.

Mooring deployments

The National Reference Stations (NRS) are a component of the Integrated Marine Observing System (IMOS). The aim of the NRS is to establish a network of monitoring sites to collect time series data for oceanography, meteorology, hydro-chemistry and biological phenomena in Australian coastal waters. The network will build on an established time-series of water quality data collected from sites located near Maria Island, Port Hacking and Rottnest Island.

The NRS expand monitoring from three to nine sites, eight of which will have moored oceanographic sensors. The Maria Island NRS is the test bed mooring for roll out to other sites and is located at the following co-ordinates:

Site	Code	State	Established	Depth	Long	Lat
Maria Island	F9	TAS	Oct 1944	90 m	42 35 .80S	148 14.00E

The prototype design (Fig. 1) has two moorings, one with a subsurface the other with a surface float separated by 250m. On this voyage only the sub-surface mooring will be deployed.

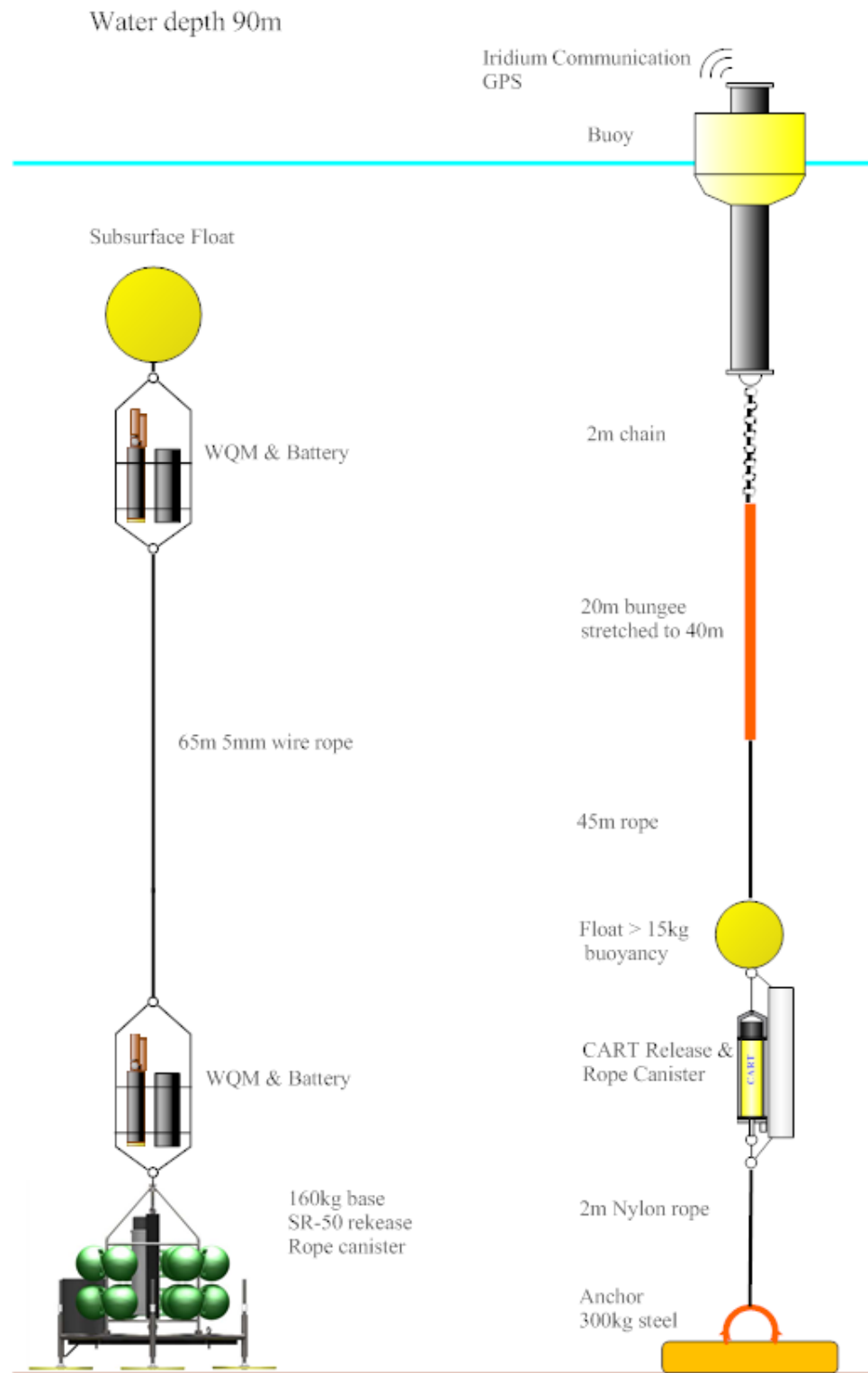
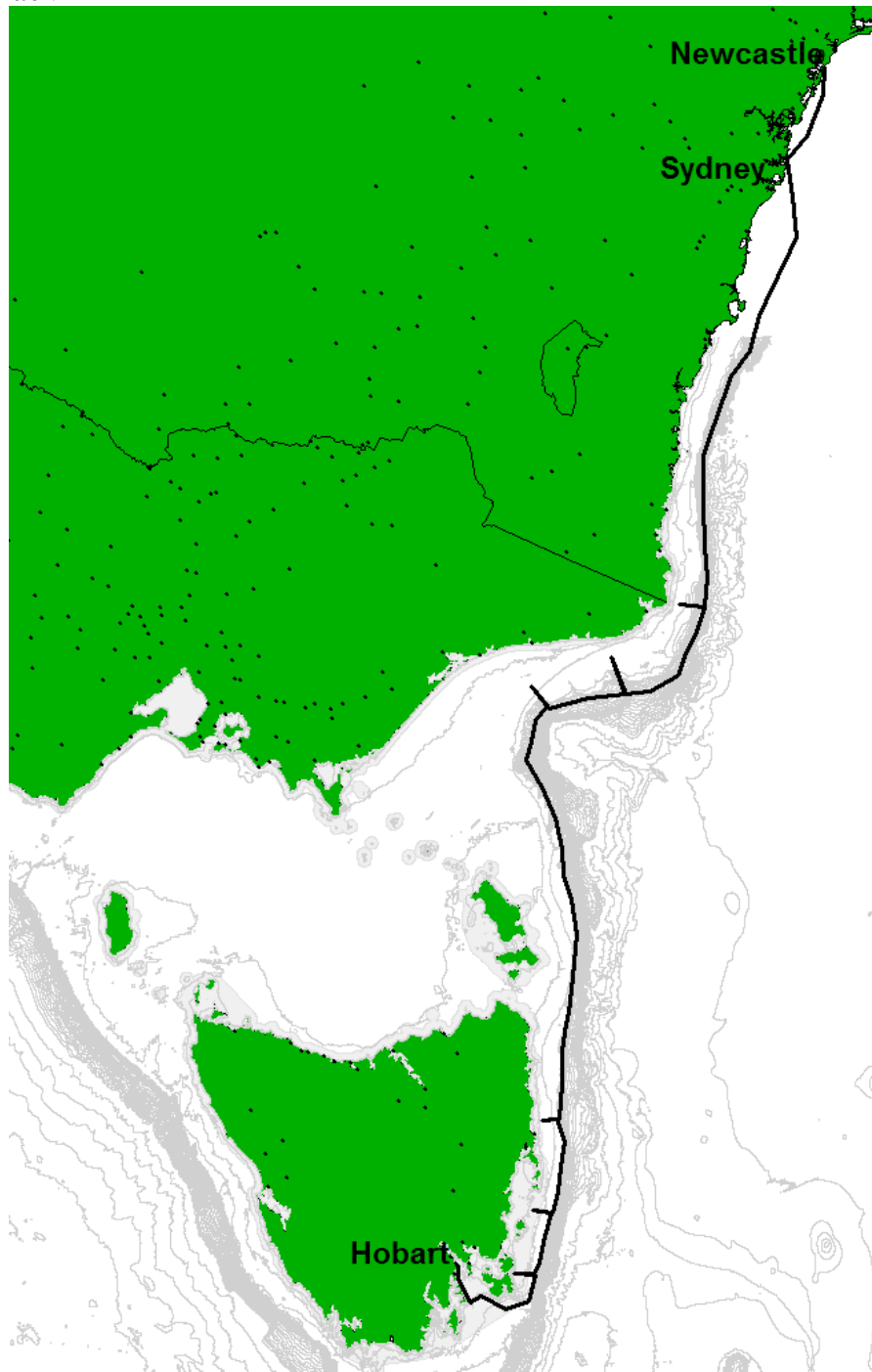


Figure 1 Maria Island National Reference Mooring - Mk I (1/3/2008)

Voyage Track



Voyage track following predominantly the 400 m depth contour

Time Estimates

Swath mapping from Hobart to Sydney @ 400 m, 700 n.miles at 10 knots = 70 hrs.

Detailed swath mapping of high priority region, 100 n.miles at 10 knots = 10 hrs.

Mooring deployments at Maria Island = 2.5 hrs.

Shallow mapping @ 100 m 70 n.miles = 7 hrs

Deploy CTD and sediment grab * 4 sites = 4 hrs.

Total time required = 93.5 hrs.

Specific Southern Surveyor Equipment

Smith-McIntyre sediment Grab

CTD

XBT

Personnel List

Participant	Affiliation	Role
Rudy Kloser	CMAR	Chief Scientist
Rick Smith	CMAR	Swath mapping
Vanessa Lucieer	TAFI/UTAS	Post Doc Biodiversity CERF Hub
Dylan Colson	UTAS	Undergrad Surveying and Spatial Sciences
Simon Torok	CMAR	Observer
Fred Stein	CMAR/MNF	OHS&E Audit
Rohanne Young	CMAR	OHS&E Audit
James Porteous	ECOS magazine	Media representative
Stephen Thomas	CMAR/ MNF	Electronics support /Voyage Manager
Lindsay Pender	CMAR/ MNF	Computing support
Tim Lynch	CMAR	Mooring

Rudy Kloser

Chief Scientist