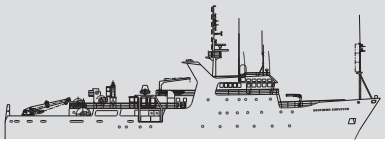

MARINE
NATIONAL FACILITY

2008 program

RV *Southern Surveyor*

voyageplan

SS03-2008 transit

Next Wave
tomorrow's marine scientists

Transit voyage: Gladstone to Sydney

Supported by CMAR, MNF, ARCNESS and NSW DPI

Itinerary

Depart Gladstone 1000hrs, Tuesday 12 August, 2008
Arrive Sydney 1500hrs, Saturday 16 August, 2008 and demobilise

Principal Investigators

Ross Hill (Chief Scientist) – University of Technology Sydney
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Dr Jason Everett – University of New South Wales
email: Jason.Everett@unsw.edu.au **email:** 0411 162 701

Associate Professor Peter Ralph – University of Technology Sydney and Sydney Institute of Marine Science **phone:** 0412 323 358

CSIRO

Scientific Objectives

"Next Wave" is a new programme of the National Research Vessel Southern Surveyor to encourage young scientists to try research at sea, inspired by the great success of the 2006 voyage led by Dr Moninya Roughan and supported by ARCNESS. Next Wave provides the additional crew as well as a full MNF support staff (electronics, hydro, computing etc) on their transit voyages between ports. The 7 students and 2 leaders work on shifts to operate the swath mapper, the underway fluorometer etc, bird/whale counts, as well as CTD casts and plankton tows etc.

Our scientific aims on the voyage are:

a) To expose students to the challenges of research voyages, by using the basic equipment of the vessel and occasional tutorials by the scientific crew, support crew and the officers; to appreciate the importance of communication, mutual respect, lines of authority and safety "toolboxes" for each operation;

b) To operate and interpret the EM300 swath mapper, as well as the CTD rosette, plankton nets, ADCP and underway data; to take nutrient samples and chlorophyll calibration samples;

c) To investigate oceanographic features such as fronts and eddies identified from MODIS images and BlueLink on the voyage south;

d) To trial new gear with seawater collected from the underway flow.

Voyage Objectives

Our voyage objectives are :

i) To make targeted swath mapping around the 400 m isobath from Gladstone to Sydney;

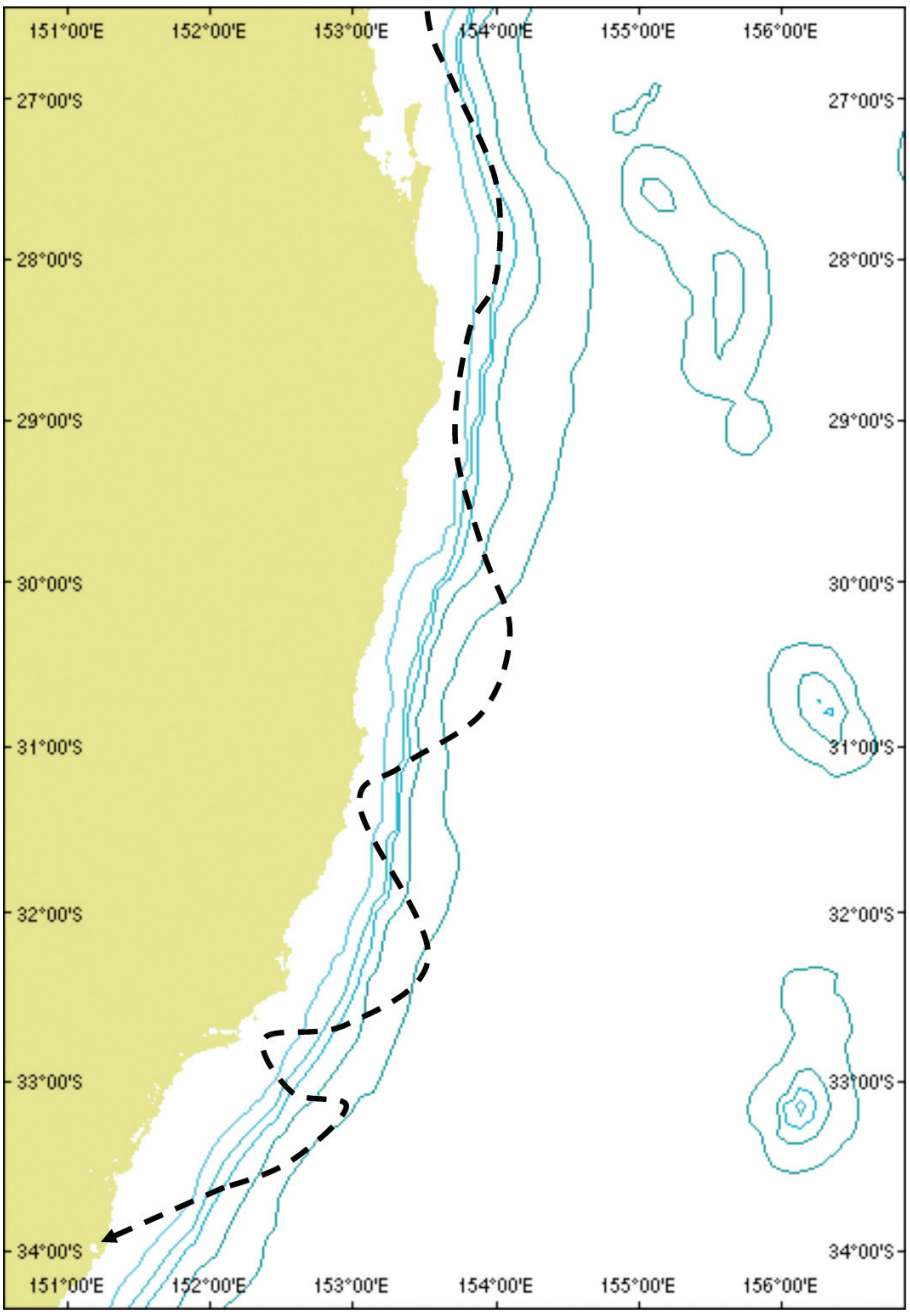
ii) To make CTD casts for nutrients and take Rectangular Midwater Trawls (RMT) and surface neuston net hauls inside and outside eddies that are encountered on the voyage south (to be guided by MODIS images and BlueLink forecasts during the week before departure); most plankton samples will be preserved in formalin;

iii) To make standard 1 hour counts of seabirds and any marine mammals at dawn, midday and dusk from the bridge, and separate, particular counts in areas leading up to and within any particular oceanographic feature (e.g. an eddy or front);

iv) To monitor the ADCP and underway data (T, S and fluorescence at 4 m intake) as the vessel crosses eddies and other oceanographic features;

v) To collect seawater samples and trial new instrumentation in the Fish Lab.

Voyage Track



Time Estimates

1000hrs 12 August to 1500hrs 16 August = 103 hours total voyage.

Steaming (including underway, ADCP and swath mapping) from Gladstone (24 degr S) to Sydney (34 degr S) @ 10 knots = 60 hours, plus 6 hours in port traffic and muster drills etc., leaving approximately 37 hours for science and diversions:

- Steaming to oceanographic features at 10 knots = 15 hours
- CTD toolbox 1.5 hours (in daylight, early in voyage)
- RMT + Neuston toolbox 1.5 hours (in daylight, early in voyage)
- 12 * Scientific stations, 1.5 hour each (sometime between 07:00 and 23:00)
  - 3 replicate RMT trawls @ 2-3 knots, stepped oblique tow to 60 m depth, 10 min each (first sample is for general exhibition fresh in a bucket and then discarded; the next two are to be preserved immediately in formalin for scientific purposes)
  - 2 replicate neuston tows of 8 min each from the hydro-winch during the RMT tows
  - Bring vessel to halt and make a CTD cast to 200 m depth (or near bottom) totalling 90 min station time);

Piggy-back Projects

As part of a national seabed mapping initiative (Kloser 2007) map the outer shelf, 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. Of significant importance to the national mapping program is the consistent collection of the acoustic backscatter from the EM300 swath mapper for seabed classification as well as minimising swath mapping data collection errors due to interference (other acoustic instruments), vessel movement and oceanographic conditions. This transit voyage would enable the vessel to abut on the deeper side of the voyage track collected on ST200706 (Kloser 2007). Where possible new geomorphic features identified should be mapped to include in the geomorphic register or to confirm the existence or non-existence of historic features. A suggested track line with system settings will be supplied to assist in maintaining data quality between surveys so the data may be used for ecological analyses. It is recommended that XBT profiles be carried out at regular intervals to calibrate the sound velocity and absorption profiles for the instrument.

Kloser, R. J. (2007). Voyage summary transit ST2006-07 National Mapping Program. http://www.marine.csiro.au/nationalfacility/voyagedocs/2007/summarySST06-2007.pdf

Southern Surveyor Equipment

Swath mapper
XBT's
ADCP
underway sensors
CTD and rosette, nutrient analyses, with 6 bottles, fluorometer, PAR sensor
Sonardyne

User Equipment

- Rectangular Midwater Trawl Net to be supplied by Iain Suthers, as per SS09/06, using conducting wire winch (i.e. SeaSoar's) with Marine National Facility's Sonardyne.
- Neuston net from forward boom.
- Vacuum pump, filters for chlorophyll, isotopes
- Formalin, alcohol, jars, consumables

Personnel List

Ross Hill	UTS	Chief Scientist
Jason Everett	UNSW	Alternative Chief Scientist
Ben Harris	UNSW	Student
Halley Durrant	UNSW	Student
Adrienne Gatt	UNSW	Student
Jennifer Clarke	UTS	Student
Sam Avery	UTS	Student
Hayden Quinn	UTS	Student
Madeleine D'Arcy	U.Syd	Student
Kristina Paterson	CMAR *	Analytical Chemist
Kate Berry	CMAR *	Analytical Chemist
Bob Beattie	CMAR	MNF Computing, Voyage Manager
Dave Terhell	CMAR	MNF Hydrochemistry Support
TBA	CMAR	MNF Swath Mapping Support
Drew Mills	CMAR	MNF Electronics Support

* two University of Sydney students were accommodated on Bronte Tilbrook's earlier voyage for their own research.

As per AMSA requirements for additional berths on Southern Surveyor, the following personnel are designated as System Support Technicians and are required to carry their original AMSA medical and AMSA Certificate of Safety Training on the voyage:

Name	**AMSA Certificate of Safety Training No.**
Bob Beattie	AS02396
Dave Terhell	AS02843
Drew Mills	AS02348

This voyage plan is in accordance with the directions of the Marine National Facility Steering Committee for the Research Vessel Southern Surveyor.

Ross Hill
Chief Scientist