MARINE RESERVE IMPLEMENTATION PROGRAMME: JURIEN BAY AND ADJACENT WATERS

CALM MARINE CONSERVATION BRANCH

Model simulations and field data (28 January - 6 February 1997) of wind-driven circulation and salinity-temperature fields in the proposed Jurien marine reserve region

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SUMMARY

This report presents oceanographic data and preliminary interpretations of the hydrodynamics from a field survey of Jurien Bay and adjacent waters (Sandy Point to Cervantes) during 28 January to 6 February 1997 as part of the Jurien marine reserve implementation program. Measurements comprised currents which were tracked using drifter drogues, salinity and temperature of the water using profiling meters and loggers, and meteorological data obtained from the Bureau of Meteorology. A GPS (with differential capability) was used for position fixing. The study was coordinated by the Marine Conservation Branch (MCB) of the Department of Conservation and Land Management (CALM).

The primary aims of the survey were to obtain direct measurements of currents in Jurien Bay and adjacent waters in order to provide validation data for the assessment of current predictions from the HAMSOM numerical hydrodynamic model. This model has been applied to the study region to simulate circulation during typical summer meteorological conditions by the Department of Environmental Engineering, University of Western Australia. A secondary aim of the exercise was to measure the characteristics of vertical and horizontal salinity, temperature and density stratification during typical summer conditions in order to assess the potential for density gradients to influence transport and mixing.

The study region has been recommended as worthy of marine reservation in the "Wilson Report" (*A Representative Marine Reserve System for Western Australia - Report of the Marine Parks and Reserves Selection Working Group, June 1994).* The Jurien area is part of Australia's longest continuous temperate limestone reef system, which extends for 300 km from Dongara to Hillarys, and is ecologically notable for its rich biological overlap of tropical and temperate marine life.

The results indicate that for typical sea-breeze conditions the model described the directional characteristics of broad-scale current patterns with reasonable accuracy. However, the model was shown to over-predict speeds by up to approximately 100 percent in general and by up to 10 times in specific locations such as at the bottom of the deep basins. The drogue tracking revealed that under sea-breeze conditions near-bottom flows in the deep basins were relatively weak and at times in opposite direction to the wind. Weak recirculating gyres were tracked near the bottom of the deep basin south of Island Point. The model predicted topographic gyres in the upper half of the water column in the northern and southern basin areas of Jurien Bay and in the basin area south of Island Point.

The salinity-temperature measurements in Jurien Bay and adjacent waters revealed significantly higher salinities and temperatures in the nearshore zone compared to the shelf zone. This characteristic is common for southwest Australian lagoonal systems during summer-autumn. Such differences are due to the differential effects of solar radiation and evaporation facilitated by the poorer flushing and shallower depths of the nearshore zone compared to offshore waters.

A simple mixing analysis indicated that during typical summer synoptic cycles normal strength afternoon sea-breezes ($\geq$ 20 knots) will fully mix the water column within the lagoon thereby eliminating any vertical salinity, temperature and density gradients that may have formed prior to the mixing event. However, it is common to have short periods (1-3 days) of weaker winds ($\leq$ 15 knots) during each cycle and it was found that at these times relatively strong vertical stratification forms within the lagoon and persists until afternoon sea-breezes return to normal strength and re-mix the water column. During these brief periods of persistent stratification near-bottom waters are relatively stagnant.

The results suggest that during summer there is the potential for periodic trapping of deep waters within the lagoon (particularly the deep basins). An extension of this result to autumn conditions, when the nearshore zone is more saline and relatively dense compared to the shelf zone and 20 knot wind events are relatively infrequent suggests that during autumn the area may be susceptible to poor flushing and weak movement or mixing of bottom waters within the deep basins. If the cross-shelf dynamics is also considered for the winter regime then it is plausible that due to differential cooling the nearshore zone could attain relatively low temperatures (and hence higher densities) than the adjacent shelf which, as for autumn, could facilitate buoyant inflows into the nearshore zone from the adjacent shelf zone. Vertical mixing of the stratification that would result from layered exchange during these periods (autumn-winter) will rely on penetrative convection and intermittent storm mixing, the influence of which are yet to be determined for this region.

The circulation and stratification data and associated mixing analyses point to the importance of considering the influence of re-circulating flows and vertical stratification on the mixing and flushing capacity of lagoonal waters as part of impact assessments of proposed activities that could potentially add contaminants (e.g., nutrients) to the water column. Future assessments of such activities may require a more detailed understanding of the hydrodynamics as could be attainable through modelling and field studies.

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Direction

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N D'Adamo	Summary, Chapters 1-5

1 INTRODUCTION

1.1 Aim

The primary aims of the study were to (i) develop a better understanding of the wind-driven hydrodynamics of the coastal waters off Jurien Bay between Sandy Point and Cervantes (Figure 1) and (ii) to provide validation data from which to assess the performance of a barotropic numerical hydrodynamic model (HAMSOM) which was applied to the Jurien coastal region for typical summer meteorological conditions.

A secondary aim of the exercise was to measure the vertical and horizontal salinity, temperature and density stratification under typical summer meteorological conditions in order to assess the potential for density gradients to influence the transport and mixing characteristics of these waters.

Oceanographic information is required to provide details of currents and mixing patterns for use in the implementation phase of the proposed Jurien marine reserve. Zoning will utilise the information on the hydrodynamics to assist in matters concerning the assessment of areas for multiple usage such as sanctuary zones, recreational zones, commercial zones (e.g., aquaculture), and the siting of coastal structures and wastewater outlets. Studies of biological processes will also require details of mixing and circulation patterns to ascertain the fate and dispersion of substances transported by currents.

1.2 Background

1.2.1 Conservation values

The study region was recommended in the *Report of The Marine Parks And Reserves Selection Working Group* titled *A Representative Marine Reserve System for Western Australia* (CALM, 1994; commonly known as the "Wilson Report") as worthy of consideration for marine reservation (Figure 1). As highlighted in that report the Jurien area is part of Australia's longest continuous limestone reef system, which extends for approximately 300 km from Dongara to Hillarys and has complex bathymetry, emergent rocks and islands, extensive sand banks with large areas of biologically important dense seagrass meadows, rocky shores with wide rock platforms, several deep semi-enclosed basins, and is also ecologically notable for its rich biological overlap of tropical and temperate marine life. For example, both temperate and tropical molluscan species are found in the area and a number of endemic southwest molluscs are at or close to their northern end of range in this area. Individual coral colonies of 14 species belonging to 14 genera have been recorded in the area, including 2 species of Acropora, which apart from a few colonies at Rottnest, represents the southernmost recorded occurrence of living Acropora.

The offshore islands and rocks are important habitats for seabirds (e.g., the Crested Tern and Pied Cormorant), marsupials (e.g., the Dibbler) and sea lions (e.g., the Australian Sea Lion).

Recent biological studies for the Jurien marine reserve implementation process include the biological and spatial validation of the major benthic habitats in January 1997 (Burt, 1996; Burt *et al.*, 1997) and a detailed biological survey of these habitats conducted during April/May 1997 (Burt, 1997).

1.2.2 Usage

The Jurien region is an important area for the commercial fishing industry, supporting a substantial Western Rock Lobster fishery, line fishery and is also under increasing interest for major aquaculture developments. An extensive marina has recently been constructed to service commercial and recreational fishing. Recreational fishing is a popular activity in the area, linking with the growth of marine based tourism.

1.2.3 Marine reserve process

The CALM Act 1984 allows for the establishment of multiple-use marine reserves for the purposes of conservation of marine flora and fauna and public recreation. Commercial activities, such as fishing, aquaculture and petroleum exploration and production, are also acceptable within specific zones of multiple-use marine reserves. Commercial and recreational fisheries in marine reserves are managed by the Fisheries Department.

The CALM Act 1984 specifies the statutory process for the reservation of marine reserves, including a public planning process for the development of management zoning schemes that allow for the spatial separation of incompatible activities in a marine park. In anticipation of this process the broadscale hydrodynamics of the area is being investigated to provide information on the transport and mixing of water. This information can then be used to predict the transport and mixing of substances of biological interest that may be contained in the water (eg nutrients, larvae, contaminants).

The inter-connectivity within the area and the throughflow (flushing) of water are important factors to be considered in assessing the likely impacts of various activities, particularly in view of the multiple-uses that are allowed for in marine reserves. The selection of appropriate locations for sanctuary zones, the transport of biological material and the adequate assessment of concentration fields from introduced contaminants are issues that require an adequate understanding and predictability of the hydrodynamics.

1.2.4 Bathymetry

A detailed bathymetric map of the study region is presented in Figure 2. As shown, there are a series of major reef lines aligned approximately shore parallel, with spits and tombolas that connect the shore with some of the reef structures. These bathymetric features result in a number of relatively deep partially enclosed lagoonal sub-regions, such as the northern and southeast basins of Jurien Bay and the deep basin south of Island Point. The high recreational and commercial (e.g., aquaculture and fishing) importance of some of these areas suggests that an appropriate level of understanding of the flushing and internal mixing characteristics is required in order to adequately assess potential environmental threats and to effectively manage such regions for multiple usage. Hence, the field sites were chosen not only to provide calibration data for the broad-scale modelling but to also place particular emphasis in areas most susceptible to poor flushing, as indicated by earlier model results.

1.2.5 Hydrodynamics

Historically, there has been little work conducted on the hydrodynamics of Jurien Bay and adjacent waters.

Recently, a PhD thesis on the coastal geomorphology of the area was completed by Dr Peta Sanderson at the University of Western Australia (Sanderson, 1997). In that doctoral study the effects of waves and wind-driven currents were monitored to investigate sediment re-suspension and horizontal transport leading to information on the hydrodynamics. Under prevailing summer and winter conditions near-bottom flow was monitored 3.5 km SSW of Island Point using an S4 current logger and at about 7 nearshore sites between 2 km north and 2 km south of the Point with a Marsh McBirney meter. In addition, drogues were used to measure summer currents in the same area. The continuous current meter data were interrogated to ascertain the spectral properties of currents from a 30 day summer time series and 12 day winter time series. Sanderson's (1997) drogue tracking and Marsh McBirney current data indicated that currents during prevailing summer SW to SE winds were approximately northwards in the general vicinity of Island Point at speeds of order 0.1-0.15 m s^{-1} but increasing to greater than 0.25 m s^{-1} in the constriction between the Point and Boullanger Island. The spectral analysis of the S4 meter indicated the dominance of the diurnal summer wind patterns in driving currents during typical summer conditions. In addition, the spectral analysis revealed long period oscillations in the current signal during the winter and summer deployments and Sanderson (1997) postulated that this may have reflected the effects of anticyclonic high pressure systems and shelf waves. Higher frequency oscillations in the signal were thought to be possibly due to seiching within the lagoon. Although only a relatively weak tidal signal was evident in the spectra Sanderson's (1997) analysis of daily residual current flows indicated that the long term effect of the tide was important because of its sustained nature. Overall, Sanderson (1997) concluded that wind-driven flows dominated current patterns in the Island Point area.

A Master of Engineering Science research study on the hydrodynamics of the region is currently underway at the University of Western Australia, Department of Environmental Engineering (student: Mr Donald Pang; supervisor: Dr Charitha Pattiaratchi). This study has resulted in time series data of currents in the area between Island Point and Essex Rocks, limited salinity-temperature data, meteorological data and barotropic numerical model simulations of the flow fields south of Jurien under constant winds. The HAMSOM numerical hydrodynamic model (Pattiaratchi and Knock, 1995) was applied in barotropic mode for that study.

As part of the oceanographic investigations for the proposed Jurien marine reserve the HAMSOM model domain was extended to produce flow fields (at a 250 m grid) for the region between Sandy Point and Cervantes under constant winds from the SW, SE, NE and NW. The model was forced by wind-stress and Coriolis force but did not include the effects of tide and density gradients. This modelling was carried out by Mr Pang under funding from the Marine Conservation Branch, CALM, and the results for the 1 m, 5 m and 15 m depth levels are presented in Figure 3. Modelled currents are compared to field measurements in Chapter 4. The HAMSOM model has previously been applied to lagoonal regions near Perth under similar wind forcings (Pattiaratchi and Knock, 1995) and shown to reproduce measured currents with reasonable similarity under moderate to strong wind forcings.

2 METHODS

2.1 Field log

The field log for the survey is presented in Table 1 and provides an overview of all activities conducted between 28 January and 6 February 1997.

2.2 Meteorology and water level

Meteorological data collected at Jurien were obtained from the Bureau of Meteorology and water level data collected in the Jurien Boat Harbour were obtained from the Department of Transport.

2.3 Drogue tracking

Cross-vane drifter drogues (constructed of 2 x 2 m^2 vanes) were deployed at various locations (Figure 4) and tracked for up to 6 hours at a time. Table 1 contains general details of the drogue deployments.

The cross-vanes were fixed to an aluminium cross constructed of two aluminium tubes pinned together at their centres and kept square to each other by end to end strings. Weights were fixed to the bottom of the vanes to ensure they remained vertical when suspended. The cross was tethered to a thin line (2-3 mm in diameter) tied to the centre pin of the aluminium cross and to a float/mast arrangement. The float was a hemi-spherical 300 mm diameter buoy having the flat side up. The bulk of the float was submerged by the weight of the drogue therefore minimising surface wind drag on the float. Radio aerials approximately 1.5-2 m long were used as masts (5-8 mm in diameter) with a numbered orange triangular flag (approximately 30 cm x 15 cm in dimension) to assist in sighting. The drogues were of standard design for coastal oceanographic applications and it can be shown that for typical wind and current conditions errors in speeds measured by the drogues due to wind drag are generally less than about 10-20 percent.

Tracking was performed with the research vessel *Bidthangara* which was equipped with a Differential GPS (DGPS). Re-visitation of each drogue was achieved approximately hourly. The DGPS consisted of a SCOUTMASTER GPS attached to an OMNISTAR de-modulator which resulted in Differential GPS readings. Drogue positions were achieved to better than 15 m of true drogue positions (the DGPS has an intrinsic error of better than +/- 5 m and the vessel is approximately 10 m in length). Drogue tracking sites were chosen to give a broad data coverage for the purposes of model validation and calibration and also to yield direct current data in key locations (e.g., within the lagoonal basins and in areas of flow constriction).

2.4 Salinity-temperature profiling

Opportunistic vertical salinity-temperature (ST) profiles were performed using a YEOKAL HAMON MODEL 602 SALINITY-TEMPERATURE BRIDGE at selected locations (Figure 5) within the study region. Table 1 contains details of the ST profiling sequence and associated field comments. A consolidated chronological list of ST profile sites, locations and the electronic filenames (Word documents) created to store each individual profile data set are presented in Table 3. Generally, ST profiles were taken at each drogue deployment and retrieval position. In addition, when the program permitted ST profiles were collected along transect lines to provide basin-wide details of the stratification. For example, the opportunity was taken on a number of occasions to collect a series of profiles along a transect path incorporating the Jurien Boat Harbour and adjacent lagoon region. This was done to provide information on ST structure and variability as might be relevant to future flushing investigations for the harbour which is known to have suffered a major fish kill (presumably due to de-oxygenation) in the recent past.

For calibration, bottled seawater samples were collected throughout the survey at selected profiling sites by skimming the water surface with a bucket and filling clean airtight bottles with seawater from the bucket sample. The salinity of the bucket sample was measured with the ST meter and the bottled sample was later analysed for accurate salinity at CSIRO, Marmion (Table 4). The salinity and temperature calibration details, including the adjustments that were required for the ST data set, are presented in Table 5. The ST meter has a specified accuracy of 0.03 pss in salinity and 0.1 °C in temperature. However, the calibration data in Table 5 indicate that the salinity data can be accepted as accurate to approximately 0.1 pss. The scientific thermometer used to calibrate the ST meter data is accurate to +/- 0.05 °C and hence the ST meter temperature data can be accepted as accurate to approximately +/- 0.15 °C.

2.5 Temperature logging

Temperature was logged at four sites within and adjacent to Jurien Bay for the entire duration of the survey using DATAFLOW loggers (+/- 0.1 °C). The field log in Table 1 summarises the deployment and retrieval details of the loggers including associated field comments. Figure 5 and Table 6 present the location details of the logger sites (sites TL1, TL2, TL3 and TL4). A total of five loggers were deployed, with two at site TL2 (near-surface and near-bottom in the northern basin of Jurien Bay). This twin logger site was chosen to provide an indication of the ability of the water column to stratify in temperature during typical summer meteorological conditions. The loggers were periodically checked throughout the survey against temperature data collected adjacent to the loggers during salinity-temperature profiles. The ST profile data records that were used were themselves the result of calibrations performed during the survey using a scientific thermometer (see Table 5). Hence, the temperature logger data can be accepted as accurate to +/- 0.25 °C or better, calculated on the basis of the following accumulated errors: DATAFLOW logger specified

accuracy of +/- 0.1 °C; ST meter specified accuracy of 0.1 °C; scientific thermometer specified accuracy of 0.05 °C. The calibration data and adjustments made to the raw logger data are presented in Table 7.

3 RESULTS

3.1 Currents

Current data were obtained by tracking drogues, according to the program described in Chapter 2 (Figure 4 and Table 1). The drogue data were transferred from raw hand-written data sheets to electronic data files. Table 8 presents the drogue data in the sequence that it was collected during the survey. Table 9 presents processed drogue data grouped to show the sequence of position fixes for each individual drogue run, the speed of travel for each of the segments within a drogue run and also the mean speed between deployment and retrieval for each drogue run. Table 10 presents a summary of mean speeds for each drogue run. The drogue data have also been processed for GIS plotting using a package developed by Mr Rod Nowrojee (GIS Officer, Information Management Branch, CALM) and Mr Ray Lawrie (Marine Information Officer, Marine Conservation Branch, CALM) and the GIS input files are reproduced in Table 11 (continuous file containing all drogue data in chronological sequence) and Table 12 (segmented file containing drogue data in daily sets). A users manual for the drogue data processing package has been prepared by Mr Nowrojee (see Nowrojee, 1997). All drogue data have been plotted in Figure 6.

The key features of the drogue results under the main wind regime experienced during the survey (moderate to strong south-southwesterly sea-breeze winds) are as follows:

- Currents were primarily wind-driven during the field survey.

- Near-bottom drogues moved at relatively slow speeds compared to near-surface drogues. Near-bottom speeds were up to an order of magnitude less than near-surface speeds

- Within the protected zone (east of the major reef lines) between Sandy Point and Cervantes current speeds during typical sea-breezes (15-25 knots) ranged from about 0.02-0.1 m s^{-1} near the bottom in the deep basins (9-11 m depth) to 0.1-0.2 m s^{-1} near the surface (1-2 m depth). Generally, the near-surface drogues were advected at speeds about 1-2 % of the wind speed and the near-bottom drogues at less than about 0.5 % of the wind speed. The ratio of near-surface speed/near-bottom speed at a site was generally between about 2 and 5.

- Accelerating flows through constrictions such as the Boullanger Island - Island Point gap resulted in the highest recorded flows. For example, near-surface drogue speeds through this region reached a maximum of about 0.5 m s^{-1} during a 20 knot sea-breeze event.

- At the 30 m contour, west of the main reef line off Boullanger Island, the current speed varied from about 0.3 m s^{-1} near the surface to about 0.15 m s^{-1} near the bottom, representing advection speeds of about 3 and 1.5 % of the wind speed, respectively. The ratio of near-surface speed/near-bottom speed was about 2.

- Wind-driven advection dominated current patterns with all near-surface to mid-depth drogues essentially moving approximately downwind, except for deviations of up to 90 degrees due to bathymetric steering as currents approached major topographic features such as the shore, major reef lines or promontories.

- Within the deep basins the near-bottom drogues moved relatively slowly with some moving upwind and in a circulatory pattern. For example, near-bottom drogues deployed during south-southwesterly winds in the northwest and northeast areas of the deep basin immediately south of Island Point began to move upwind and then displayed clockwise rotation and one near-bottom drogue deployed in the northern basin of Jurien Bay moved directly upwind.

- Bathymetric steering around topographic features was observed as expected, as exemplified by the shore-parallel tracks exhibited by drogues drifting northward and following the shoreline around Island Point.

Speeds measured by drogue tracking will be compared with model results in Chapter 4.

3.2 Salinity-temperature

3.2.1 Basin-wide ST profiling

Salinity-temperature (ST) profiling was performed whenever time permitted as part of the drogue tracking exercises. A substantial set of ST profiles were collected throughout the study region from Sandy Point to Cervantes (see Figure 5

and Tables 1 and 3). The ST data were written to field data sheets in the field and subsequently transferred to electronic files (Table 3) at CALM, Fremantle. The data for each ST profile was written to individual 'Word' files and a printout of the entire set of ST profile data files is presented in Appendix 1.

The ST data were collected to provide information on the potential for vertical salinity, temperature and therefore density stratification to form and influence the hydrodynamics of the water. The presence of vertical stratification can alter the vertical flow structure and depending on the strength of the stratification and it can isolate deeper water from surface wind-driven currents and mixing. Temperature logs around a basin can provide insight into broad-scale water movements as revealed by correlated changes in temperature between sites.

Table 13 presents the vertical salinity and vertical temperature differences (surface minus bottom for temperature and bottom minus surface for salinity) recorded by the ST profiling. This simple listing provides an indication of the broad-scale formation and breakdown of vertical stratification under various wind regimes.

Wind cycles off this coast during summer typically respond to 7-10 day synoptic weather patterns (Breckling, 1989). Winds will generally be moderate ($\leq$ 10 m s^{-1}) in the evenings, nights and early mornings and blow from the SE quadrant. Moderate to strong sea-breezes (S-SW @ $\geq$ 10 m s^{-1}) will then occur from about late morning to late evening on most days. For most of the cycle sea-breezes will begin to blow by about late morning and strengthen to about 10 m s^{-1} or more by early afternoon, however on about 1-3 days of each cycle the sea-breeze will begin later than normal (about midday) and be weaker than normal ($\leq$ 7.5 m s^{-1}). This is fairly typical of summer wind patterns for this section of the Western Australian coastline. The wind records for Jurien during the survey period are presented in Table 14 and Figure 7. A comparison of the vertical stratification data with the wind records results in the following general observations.

- Throughout the survey period vertical (surface to bottom) salinity, temperature and density differences (ΔS, ΔT and $\Delta\rho$) ranged from 0 for all three parameters to approximately 0.3 pss, 1.5 °C and 0.5 kg m^{-3}, respectively.

- During the moderate wind phase of the survey period (winds $\leq$ 7.5 m s^{-1}) vertical stratification formed and persisted until it was eliminated by mixing due to strong afternoon sea-breezes ($\geq$ 10 m s^{-1}). Typically, during these moderate wind periods ΔS, ΔT and $\Delta\rho$ were in the ranges of 0.1-0.3 pss, 0.5-1.5 °C and 0.2-0.5 kg m^{-3}, respectively.

- During the strong sea-breeze phase of the survey weak vertical stratification formed in the mornings, with vertical differences typically less than about 0.1 pss, 0.5 °C and 0.2 kg m^{-3} for ΔS, ΔT and $\Delta\rho$, respectively, and this vertical structure was then eliminated soon after the onset of the afternoon sea-breeze.

- In summary, during the 10 day survey prolonged periods of vertical stratification occurred during 28 and 29 January and then again on 1 and 3 February (no ST profiles were collected on 2 February). At other times the vertical mixing due to strong sea-breeze winds eliminated any stratification that may have formed by thermal heating during the mornings.

3.2.2 Temperature logging

The temperature logger data from the near-surface and near-bottom temperature loggers (Figure 8) at site TL2 reinforce the above results. As shown, the surface temperature was significantly greater than bottom temperature during 28 and 29 January and then again during 2 and 3 February. The meteorology of both these periods was characterised by relatively weak afternoon sea-breezes ($\leq$ 7.5 m s^{-1}). For the remainder of the survey period, when afternoon sea-breezes were relatively strong ($\geq$ 10 m s^{-1}), the vertical temperature difference was negligible suggesting full-depth mixing of the water column.

The logger data suggest that in the absence of strong sea-breezes vertical stratification can form in Jurien Bay.

The temperature signals (Figure 8) all contain a diurnal periodicity, with the greatest diurnal variation evident at site TL3. This was most probably due to the diurnal heating and cooling of the water column by day-time solar radiation and night time heat losses, with accompanying penetrative convection via the water surface. Diurnal tidal movements (Figure 9) may also have contributed to the diurnal temperature variation. A further analysis of the factors responsible for the diurnal variation in temperature is not possible with the data available.

The other interesting features of the temperature logger time series data (Figure 8) are the sustained increases in the temperatures recorded by the inner basin loggers on 29 January and on 2/3 February (sites TL2, TL3 and TL4) compared to the temperature signal recorded by the outside logger over the shelf (site TL1). As shown in Figure 8, the signal at site TL1 indicated concomitant but less pronounced increases in temperature. Spring tides (Figure 9), wind-driven advection of water from the south under SSW breezes and the shoreward incursion of warm shelf water from

regional currents may have contributed to the observed changes in temperature. A satellite image of sea-surface temperature measured by the NOAA-AVHRR was obtained from the Department of Land Administration and is presented in Figure 10. The image shows the presence of the Leeuwin Current (Cresswell and Golding, 1980; Cresswell, 1991; Pearce, 1991) well offshore of the study region. Hence, while this image indicates a potential source of warmer water, its distant location suggests the Leeuwin Current was not the likely source of the observed higher temperatures in the Jurien region at that time. Local heating may have been responsible as might be inferred by the relatively high air temperatures which occurred during 27-29 January and 1-2 February (see Figure 7). A more detailed investigation of this issue is not possible with the data available. However, the logger signals do indicate that there can be sudden sharp changes in temperature within Jurien Bay and adjacent waters and therefore that broad-scale advection into the region of large water masses of variable temperature may be occurring. The further investigation of this aspect of the hydrodynamics is recommended in any future studies aimed at providing a more detailed appraisal of circulation and mixing in the area.

3.2.3 Stratification and vertical mixing

A salinity-temperature profiling transect was established on 29 January to capture the vertical structure of the southern Jurien Bay basin and the adjacent shelf. Figure 11 presents contour plots of the vertical salinity and temperature stratification along a transect path that began just offshore of the marina and progressed to the 30 m contour west of Boullanger Island. As shown, there was a frontal zone in salinity between the shelf and basin, with the basin water approximately 0.5 pss more saline than the shelf water. The influence of thermal stratification is noticeable in the water column along the entire transect. A strong vertical temperature gradient zone of about 2-4 m thickness was centred at approximately 4-5 m depth and, overall, the basin was warmer than the adjacent shelf water by about 0.25 °C. As previously stated, winds had been relatively weak leading up to this transect and obviously facilitated the formation of such strong vertical gradients. Measurements of the salinity-temperature structure at various locations around the basin (Table 13 and Appendix 1) during the proceeding days when sea-breezes increased in strengths to about 10 m s^{-1} or greater indicate that any vertical structure set up by solar radiation was eliminated by the sea-breezes.

A simple mixing analysis (Imberger and Patterson, 1990; Imberger, 1994) can be performed to predict the ability of wind stress and penetrative convection (during night-time cooling of the water surface) to mix through vertical density gradients set up by temperature or salinity stratification. The predictive methodology is obtained from a one-dimensional model of mixing which is based on a vertical integration of the turbulent kinetic energy (TKE) equations. Extensive analyses of vertical mixing for summer conditions in Cockburn Sound, a semi-enclosed basin off Perth, have been performed by D'Adamo and Mills (1995a) and their results can be extended to Jurien Bay in order to obtain quick estimates of mixing. A vertical temperature difference of about 1 °C equates to a density difference of about 0.3 kg m^{-3}. Following D'Adamo and Mills (1995a), a vertical temperature gradient such as recorded in Jurien Bay on 29 January (Figure 11), would require a 7.5 m s^{-1} wind to blow for about 12 hours to fully mix the water column to the bottom. If typical night-time penetrative convection is added as a mixing agent then a combination of 8 hours wind (at 7.5 m s^{-1}) followed by a night of penetrative convection would be required to fully mix the water column. The afternoon sea-breezes during 27, 28 and morning of 29 January lasted less than 8 hours (Table 14) and hence it is predicted that a vertical stratification of the strength recorded on 29 January would not have been completely eroded by available mixing agents. However, during the more common sea-breeze conditions (such as occurred on the afternoons of 29 and 30 January when winds reached 10 m s^{-1}) it is predicted that an afternoon sea-breeze of less than 5 hours duration would have been needed (when considered in conjunction with complementary penetrative convection during the proceeding night) to fully mix the water column. The ST profiling around the basin during the evenings of 29 and 30 January indicated a fully mixed water column thereby supporting the predictions.

On the basis of the above analysis it is possible to hypothesise on the vertical dynamics likely to be encountered during autumn. It is typical for coastal salinities in southwest Australian semi-enclosed nearshore basins to steadily increase through summer and autumn. Furthermore, the water column may continue to stratify as a result of solar radiation and layered exchange between relatively buoyant shelf water and relatively dense (more saline) basin water. The important point to make here, in terms of vertical mixing potential, is the reduced frequency of strong wind events (i.e., winds $\geq$ 10 m s^{-1}) during autumn (D'Adamo and Mills, 1995b). Hence, vertical stratification may persist for extended periods in autumn, as was deduced by D'Adamo and Mills (1995c) for Cockburn Sound on the basis of field, analytical and modelling studies. For Cockburn Sound, D'Adamo and Mills (1995c) believed that there could be up to three weeks during which winds are too weak to vertically mix typical vertical density gradients. Masini (1995a, b) recorded oxygen levels in bottom water during autumn in Cockburn Sound and concluded that approximately 10 days of static conditions in that basin could result in severe oxygen depletion (to less than 3 mg l^{-1}). Jurien Bay is likely to have similar physical characteristics to Cockburn Sound due to its relatively well protected configuration, however the nutrient and oxygen dynamics of the water column in Jurien Bay have not yet been studied making comparisons with Cockburn Sound speculative. The strong basin versus shelf salinity difference measured on 29 January 1997 (Figure 11) suggests that evaporative effects are prominent in raising the salinity of the Bay throughout summer and, by inference, throughout autumn.

As the system progresses from autumn to winter conditions evaporation diminishes in importance and it can be expected that as a result of exchange processes the salinity of the nearshore zone will eventually equalise with that of the shelf zone. Differential cooling will ensue and it can be expected that the nearshore zone will become colder and therefore denser than the shelf zone. Hence, the cross-shelf density differences will be characterised by relatively dense inner waters adjacent to relatively buoyant offshore outer waters. This would suggest that exchange flows should again (as for autumn) be characterised by buoyant introductions of shelf water into the nearshore zone thereby potentially suppressing vertical mixing for extended periods. Hence, full-depth vertical mixing will rely on the strength of penetrative convection during night-time heat losses at the water surface and intermittent storm mixing.

It is likely that throughout a typical annual cycle there will be times when currents are strong, full-depth vertical mixing is regular and flushing is relatively efficient, such as during storm periods throughout the year and during spring-summer when relatively strong sea-breezes occur on most days. However, there will also be periods when vertical stratification forms and persists without vertical overturn for extended periods (possibly up to three weeks), such as during autumn. If these periods of poor flushing are accompanied by excessive contaminant loadings then water quality problems, such as has occurred in other poorly flushed coastal embayments in Western Australia (e.g., Cockburn Sound), may occur. The hydrodynamics of Jurien Bay and adjacent nearshore waters during periods of strong vertical stratification and weak vertical mixing requires further investigation.

4 COMPARISON BETWEEN MODELLED AND MEASURED CURRENTS

4.1 Broad-scale circulation features predicted by the model

The model was implemented for winds from the southwest (10 m s^{-1}), southeast (7.5 m s^{-1}), northeast (7.5 m s^{-1}) and northwest (10 m s^{-1}). A wind speed of 10 m s^{-1} equates to approximately 20 knots which is a typical strength for summer south-southwesterly sea-breezes and winter northwesterly-southwesterly storms. The forcing functions in the model included the Coriolis force but did not include baroclinic (density-related) or tidal effects. Vector current fields at 1 m, 5 m and 15 m depth levels from these four simulations were presented in Chapter 2 (Figure 3).

A number of general circulation features were predicted by the model, as follows:

- The wind-driven currents were generally approximately downwind with the exception of reversals at depth and/or gyres in certain bathymetrically restricted areas.

- Currents tended to be deviated and steered around major topographic features such as reefs and promontories (e.g., Island Point).

- Currents accelerated through constrictions, such as through channels between reef lines and gaps between Boullanger Island and Island Point and off Cervantes.

- Within the lagoonal basins, such as the northern and southern deep basins of Jurien Bay and the deep basin south of Island Point, currents near the bottom tended to flow upwind.

- Gyres in the current fields were predicted at the 1 m and 5 m depth levels within the deep basins (northern and southern Jurien Bay and south of Island Point).

- Current speeds ranged from approximately 0.7 m s^{-1} through the major gaps (off Island Point and Cervantes) and west of the main reef lines (over the shelf) to less than approximately 0.1 m s^{-1} within the re-circulating gyres in the deep lagoonal basins (northern and southern Jurien Bay and south of Island Point).

Quantitative comparisons between modelled and measured currents are made in the following sections.

4.2 Comparison between modelled and measured currents

Moderate to strong south-southwesterly afternoon sea-breezes occurred throughout all but one brief morning period (1 February 1997, see Table 1) of the drogue tracking and hence comparisons between modelled and measured drogues are confined to south-southwesterly wind conditions. Wind speeds peaked at approximately 12 m s^{-1} during some of the sea-breeze events (Figure 7 and Table 14). It is to be noted that the model was driven by 10 m s^{-1} southwesterly winds (225 degrees) but the drogues were generally driven by south-southwesterly winds (180-225 degrees) hence although the model did not simulate the real winds exactly the differences between modelled and simulated winds are not considered to be major.

A comparison of currents predicted by the 10 m s^{-1} southwesterly wind simulation (Figure 3) and those measured during south-southwesterly winds (approximately 8-12 m s^{-1}) during the survey (Figure 6, Table 9) has been performed graphically in Figure 12.

A number of features are evident from this comparison:

- Generally, the simulated and measured currents agree reasonably well in direction, with currents generally driven downwind except in the deep basin areas and through channels between reefs and major topographic features.
- In general, the model over-predicts speeds by up to about 100 percent.
- Both the simulations and measurements indicate that currents near the bottom of the deep basins do not generally flow downwind. Currents were predicted and also tracked to sometimes flow directly upwind.
- At the bottom of the deep basins the model over-predicts the reverse flow speeds by 5-10 times.
- With respect to the deep basin immediately south of Island Point the model has over-predicted bottom flow speeds (by up to 10 times) and has not reproduced the slow-flowing bottom clockwise gyres that were observed.

4.3 Evaluation of differences between modelled and measured currents

Discussions with Mr Donald Pang in relation to improving the model's ability to simulate mean speeds more accurately and to reproduce the gyres measured in the deep basins indicate that a re-specification of the frictional coefficient should be attempted in order to take account of varying bottom roughness around the model domain. Furthermore, the model was run at a grid size of 250 m and it is possible that a smaller grid size will be required to improve model simulations in areas of complex bathymetry and topography, such as within reef gaps and deep basins.

The model did not incorporate the effects of density gradients. However, field data revealed significant vertical and horizontal gradients, particularly during weak to moderate wind periods ($\leq$ 7.5 m s^{-1}). It is unclear whether the presence of stratification affected mean wind-driven flow fields. Densimetric velocities (see Simpson, 1982), based on recorded vertical and horizontal density differences, are calculated to be of order 0.05-0.10 m s^{-1} which are of similar magnitude to flows recorded by near-bottom drogues, particularly in the deep basins. It may therefore be worthwhile running some exploratory simulations with a baroclinic model, based on the real winds, stratification and water level variation recorded during the survey.

5 FUTURE WORK

5.1 Improvement of model performance

The comparisons between modelled and measured currents indicated that the model may need to be improved in the specification of frictional coefficients and bathymetric representation. In addition, the real wind fields recorded during the survey should be used to force the model and consideration should also be given to including the observed salinity-temperature stratification to investigate the possible influence of stratification on circulation and mixing.

Recommendations

- Re-run the HAMSOM model with real winds recorded during the field survey.
- Improve the specification of the friction coefficient to incorporate the spatial heterogeneity in the sea-bed roughness (e.g., sand, sea-grass, limestone reef).
- Consider a smaller grid cell to better resolve complex bathymetric and topographic regions.
- Consider a baroclinic model simulation forced by real winds and water level variation and incorporating the stratification observed during the field survey.

5.2 Assessment of future activities

The vertical stratification data (from the surface/bottom loggers at TL2 and from basin-wide ST profiling) and the simple mixing estimates performed above suggest that during weak to moderate wind periods the potential exists for extended periods of stable vertical stratification, poor vertical mixing and poor flushing of lagoonal waters. Late summer to autumn may be a period of particular concern because winds weaken and water temperatures are relatively high.

Hence, biological degradation due to excessive loadings of biostimulants during vertically stable conditions is a potentially threatening process to both conservation and economic values. This result has important implications for the environmental assessment of activities that have the potential to add significant amounts of contaminants, such as nutrients from wastewater outfalls or aquaculture, in poorly flushed areas shoreward of the major reef lines in this coastal area.

The evaluation of activities likely to add significant amounts of contaminants to the lagoonal waters will require more detailed hydrodynamic information than currently exists. Consideration should be given to the implementation of a model that incorporates the effects of density gradients to investigate their influence on mixing, transport and flushing during weak to moderate wind regimes, such as late summer to autumn conditions. The modelling will require a more detailed field data set for calibration and validation. Consideration may also need to be given to simulating transport of tracers to predict dispersion of undesirable substances. In the event that a substance of interest is non-conservative then algorithms to simulate internal cycling may be required in the transport model.

Recommendations

- Obtain oceanographic data to resolve the seasonal characteristics of vertical stratification during typical meteorological conditions. Such measurements could include long-term deployments of fixed temperature logger strings and regular salinity-temperature profiling.

- Consider the implementation of a model that includes density effects to investigate the influence of density gradients on circulation, mixing and flushing of conservative and non-conservative substances during stratified conditions.

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Table 1 Log of field activities.

Jurien Bay Oceanography

Date	Time	Description of activities	Comments
28/01/07	1200		Crew (Tim Daly, Nick D'Adamo and Gilles Monty) arrive at Jurien Bay Chalets from Perth.
		Crew unload 4WD and trailer Discussion re: deployment of temperature loggers.	
		Checked the temperature loggers	
	1400	Get all equipment ready on-board the vessel Bidthangara.	
	1618	Deployed temperature logger at Site TL3.	DGPS coordinates recorded. (30° 17.682'S, 115° 01.366'E)
	1640	Deployed temperature logger at Site TL2.	DGPS coordinates recorded. (30° 15.007'S, 115° 00.047'E)
	1650	ST profile recorded at Sites TL2. Sample bottle no. 198 taken for calibration at the CSIRO Marine Laboratory in Perth.	
	1724	Deployed temperature logger at Site TL1. Salinity and temperature profile.	Significantly less saline. DGPS coordinates recorded. (30° 15.221'S, 114° 57.202'E)
	1824	Deployed temperature logger at Site TL4. Salinity and temperature profile.	DGPS coordinates recorded. (30° 22.593'S, 115° 00.735'E)
	1900	Salinity and temperature profile at Site TL3.	
29/01/97	0700	Departure from Jurien Bay Marina.	0705 hrs, Gilles spotted two dolphins at the Marina's entrance.
	0745	ST profile recorded at Site JB10. Sample bottle no. 138 taken for calibration at the CSIRO Marine Laboratory in Perth.	DGPS coordinates recorded. (30° 17.250'S, 115° 01.820'E)
	0800	ST profile recorded at Site JB20.	DGPS coordinates recorded. (30° 17.500'S, 115° 01.500'E)
	0820	ST profile recorded at Site TL3 (temperature logger site).	DGPS coordinates recorded. (30° 17.682'S, 115° 01.355'E)
	0825	ST profile recorded at Site JB30.	DGPS coordinates recorded. (30° 18.000'S, 115° 00.000'E)
	0835	Boiler Reef starboard marker. Checked boat GPS against Differential GPS.	Boat GPS = 30° 18.050'S, 114° 59.740'E. DGPS = 30° 18.121'S, 114° 59.609'E. Difference = -0.116 S and 0.131 E. Tim will allow for this error in position of site.

Table 1 Log of field activities.

Date	Time	Description of activities	Comments
	0840	ST profile recorded at Site JB40.	Passed through slick near Boiler Reef starboard marker en route to Site JB50.
	0850	ST profile recorded at Site JB50.	
	0900	ST profile recorded at Site JB60.	
	0915	ST profile recorded at Site JB70.	
		Start drogue tracking at Sites JB100 and JB110.	At each site, length of drogues at 2 m and 9 m (2x2 m2 drogue)
	1130	Deploying additional drogue (no. 6) at current position of drogue no. 3.	Call this Site JB110 N.
Approx.	1500-1600	Retrieval of all the drogues.	Some damaged, need repairs (top cross over point. PVC bent). At approximately 1545, Aluminium dingy slipped from its ties and slid/fell onto Gilles Monty..... Slight bruising to right shoulder.
30/01/97	0800-1500	ST profile and drogue tracking done by Gilles and Tim in Nth basin of Jurien Bay.	Nick stayed back to fix damaged drogues at Jurien Marine Services.
	0845	ST profile recorded at Sites JB10. Sample bottle no. 008 taken for calibration at the CSIRO Marine Laboratory in Perth.	Thermometer reading higher than ST meter by 0.7°C. DGPS coordinates recorded. (30° 17.250'S, 115° 01.820'E).
	0905	ST profile recorded at Sites TL3.	
	0927	ST profile recorded at Sites JB130.	DGPS coordinates recorded. (30° 17.150'S, 115° 00.850'E). Max depth = 40 m.
	0940	ST profile recorded at Sites JB150.	DGPS coordinates recorded. (30° 15.850'S, 115° 00.600'E).
		Deployed drogues no. 7 @ 2 m and no. 12 @ 9 m.	DGPS coordinates recorded. (30° 15.929'S, 115° 00.543'E). Wind SW @ 12 knots.
	1015	ST profile recorded at Site JB160.	DGPS coordinates recorded. (30° 15.050'S, 115° 00.400'E).
		Deployed drogues no. 6 @ 2 m and no. 15 @ 9.5 m.	DGPS coordinates recorded. (30° 15.151'S, 115° 00.296'E). Wind SW @ 20 knots.
	1055	ST profile recorded at Sites JB170.	DGPS coordinates recorded. (30° 15.050'S, 114° 59.279'E).
	1115	ST profile recorded at Sites JB180.	Normal GPS coordinates recorded. (30° 15.000'S, 114° 58.300'E). Wind SW @ 25 knots. Swell @ 1.2 m.
	1343	ST profile recorded at Site TL2.	
	1545	Nick, Tim and Gilles headed back out to do some ST profiles and droguing in Sth basin of Jurien Bay.	
	1605	ST profile recorded at Site TL3. Sample bottle no. 162 taken for calibration at the CSIRO Marine Laboratory in Perth.	
	1610	Deployed drogues no. 6 @ 2 m and no. 12 @ 11 m.	
	1630	ST profile recorded at Site JB30.	
	1645	ST profile recorded at Site JB20.	

Table 1 Log of field activities.

Date	Time	Description of activities	Comments
	1649	ST profile recorded at Site JB10.	
	1700	ST profile recorded at Site JB200.	DGPS coordinates recorded. (30° 17.314'S, 115° 02.040'E).
	1708	ST profile recorded at Site JB210.	Mouth of Jurien Bay Boat Harbour. DGPS coordinates recorded (30° 17.380'S, 115° 02.350'E).
	1709	ST profile recorded at Site JB220.	Inside Jurien Bay Boat Harbour. DGPS coordinates recorded (30° 17.375'S, 115° 02.500'E).
	1712	ST profile recorded at Site JB230.	Inside Jurien Bay Boat Harbour. DGPS coordinates recorded (30° 17.430'S, 115° 02.560'E).
	1715	ST profile recorded at Site JB240.	Inside Jurien Bay Boat Harbour. DGPS coordinates recorded (30° 17.490'S, 115° 02.670'E). Wind SSW @ 25 knots.
		Note: salinity and temperature readings inside harbour are higher as compared to Jurien Bay.	
31/01/97	0800	Leaving the marina with the usual crew and two new passengers (Natasha Baczocha and Mark Moore (Stirling Range National Park) from Albany (CALM). Natasha and Mark taken to Boulanger Is. for retrieval of trapping gear left on the island as part of Natasha's Research project on the native marsupial, the Dibbler. Natasha and Mark will be picked up at approx. 1200 hrs. Safety gear provided and Jim (Jurien Sea Search and Rescue) informed of today's program.	
	0811	ST profile recorded at Site JB10. Sample bottle no. 071 taken for calibration at the CSIRO Marine Laboratory in Perth.	Wind SSE at 7 knots.
	0830	ST profile recorded at Site TL3.	
	0837	ST profile recorded at Site JB30.	
	1012	ST profile recorded at Site JB250. Deployed drogues no. 6 @ 9 m, no. 7 @ 2 m and no. 12 @ 19 m.	Offshore of Boulanger Is. Wind Sw at 10 knots. Swell at 1.5 m, clear and sunny.
	1031	ST profile recorded at Site JB300.	DGPS coordinates recorded. (30° 20.422'S, 114° 55.098'E).
	1104		Wind stronger, Sw at 18 knots.
	1109	Deployed drogue no. 15 @ 30 m.	Depth = 32.5 m.
	1133	Retrieved drogue no. 15 and redeployed.	Suspected to be bouncing at the bottom. Redeployed at 27 m.
	1150	ST profile recorded at Site JB310.	Well mixed.
	1300	Picking up Mark and Natasha from Boulanger Island. Trapping gear loaded on board.	Info. from Natasha - 1 dead Sealion on Whitlock Is on the 31/01/96. No evidence of cause of death (carcass very decomposed). Heading back to the marina to drop Natasha and Mark and then Nick, Tim and Gilles will do some work in the bay.
	1400	ST profile recorded at Site JB20.	Well mixed.
	1410	ST profile recorded at Site JB200.	Well mixed.

Table 1 Log of field activities.

Date	Time	Description of activities	Comments
	1412	ST profile recorded at Site JB210.	
	1413	ST profile recorded at Site JB220.	
	1416	ST profile recorded at Site JB230.	
	1420	ST profile recorded at Site JB240.	
	1431	Dropped Natasha and Mark at the marina.	Wind SW at 25-28 knots.
	1445-1600	Refuelled, shopping for drogue material, made up strings, etc.	All tired. Finished early.
1/02/97	0727	ST profile recorded at Site TL3. Sample bottle no. 025 taken for calibration at the CSIRO Marine Laboratory in Perth.	Nth basin. Droguing to look at the effect of SE wind. Wind was SE during the night at 10-15 knots to SW at 8 knots at 0730 this morning. The wind direction changed at 0715 am.
	0752	Deployed drogue no. 12 @ 2 m and no. 15 @ 9 m at Site JB360.	DGPS coordinates recorded. No. 12, (30° 15.625'S, 115° 00.024'E) and No. 15, (30° 15.595', 115° 00.018').
	0835	ST profile recorded at Site JB350. Deployed drogue no. 6 @ 2 m and no. 7 @ 10.5 m.	DGPS coordinates recorded. (30° 15.330'S, 115° 00.315'E). In slick 20 m east of drogue no. 15.
		Note: Now allowed GPS to go flat (keep batteries good.). DGPS - error connecting satellite always in NW... Point vessel to NW direction if have trouble getting DGPS (small receiver up against window of Biddy (behind echo sounder).	
	0902	ST profile recorded at Site JB370. Deployed drogue no. 3 @ 2 m and no. 14 @ 9 m.	DGPS coordinates recorded (30° 16.853'S, 114° 59.256'E).
	0920	Drogue tracking.	Drogue no. 12 moving NNE. Wind NE at 5 knots.
	0930	Drogue tracking.	Drogue no. 15 on interface between SW and NE winds. SW @ 10 knots and NE @ 5-10 knots.
	1013	ST profile recorded at Site JB370.	
	1024	ST profile recorded at Site JB380.	DGPS coordinates recorded, (30° 17.462'S, 114° 58.665'E). Wind SSW @ 10-12 knots.
	1040	ST profile recorded at Site JB390.	DGPS coordinates recorded, (30° 16.222'S, 114° 59.409'E). Wind SSW @ 10-15 knots.
	1106	ST profile recorded at Site JB420.	DGPS coordinates recorded, (30° 15.088'S, 115° 00.401'E). Wind SSW @ 10 knots. In slick line.
	1115	ST profile recorded at Site JB350.	
	1126	ST profile recorded at Site JB360.	Wind building SSW @ 15 knots. ST meter - Salinity needle wavering.
	1137	ST profile recorded at Site JB380.	Wind SSW at 15 knots.

Table 1 Log of field activities.

Date	Time	Description of activities	Comments
	1158	ST profile recorded at Site TL1.	Checked DGPS. Wind SSW at 18 knots. Vessel approximately 10 m east of float.
	1218	Retrieved drogue no. 15.	Appeared to be stuck on reef.
	1304	ST profile recorded at Site JB460.	DGPS coordinates recorded, (30° 15.874'S, 114° 59.295'E).
	1313	Retrieved drogue no. 12.	
	1315	ST profile recorded at Site JB470.	DGPS coordinates recorded, (30° 14.356'S, 114° 59.784'E).
	1324	Retrieved drogue no. 6.	
	1325	ST profile recorded at Site JB480.	DGPS coordinates recorded, (30° 14.619'S, 115° 00.491'E).
	1342	ST profile recorded at Site JB490.	DGPS coordinates recorded, (30° 15.425'S, 115° 00.164'E). Two salinity layers.
	1356	Retrieved drogue no. 14.	Had kelp stuck to it.
	1359	ST profile recorded at Site JB500.	DGPS coordinates recorded, (30° 16.451'S, 114° 59.433'E).
	1411	Retrieved drogue no. 3.	
	1414	ST profile recorded at Site JB510.	DGPS coordinates recorded, (30° 15.542'S, 114° 59.186'E).
	1424	Retrieved drogue no. 7.	
		ST profile recorded at Site JB520.	DGPS coordinates recorded, (30° 15.493'S, 115° 00.133'E).
	1449	ST profile recorded at Site TL3.	
	1500	ST profile recorded at Site JB10.	
	1507	ST profile recorded at Site JB210.	
	1511	ST profile recorded at Site JB220.	
	1515	ST profile recorded at Site JB230.	
	1519	ST profile recorded at Site JB240. Sample bottle no. 148 taken for calibration at the CSIRO Marine Laboratory in Perth.	
	1700	Crew depart for Perth.	
3/02/97			New crew members - Heidi Oswald (volunteer), Mike Lapwood (skipper) and Nick D'Adamo (Field Team Leader) arrive at Jurien Bay Chalets.
		Briefing at jetty.	
	1120	GPS check at Site JB235.	Vessel GPS coordinates = (30° 17.380'S, 115° 02.730'E). Scoutmaster GPS coordinates = (30° 17.444'S, 115° 02.640'E). DGPS coordinates = (30° 17.443'S, 115° 02.646'E).
	1145	ST profile recorded at Site JB240. Sample bottle no. 143 taken for calibration at the CSIRO Marine Laboratory in Perth.	Wind SSW at 12-15 knots. Salinity needle wavering a bit but still able to get stable reading after a few seconds. Check battery at the end of the day.
	1200	ST profile recorded at Site JB230.	
	1204	ST profile recorded at Site JB220.	Wind SSW at 15 knots.

Table 1 Log of field activities.

Date	Time	Description of activities	Comments
	1210	ST profile recorded at Site JB220.	
	1215	ST profile recorded at Site JB200.	
	1235	ST profile recorded at Site TL3.	Wind SSW at 18 knots.
	1245	ST profile recorded at Site JB550.	DGPS coordinates recorded, (30° 16.085'S, 115° 01.378'E).
	1305	ST profile recorded at Site JB360.	
	1335	ST profile recorded at Site JB380.	
	1345	ST profile recorded at Site JB370.	
	1350	ST profile recorded at Site JB390.	
	1443	Site JB560, deployed drogue no. 6 @ 1.5 m.	Wind SSW at 15 knots. DGPS coordinates recorded (30° 20.399, 115° 00.899).
	1507	Site JB570, deployed drogue no. 7 @ 1.5 m.	DGPS coordinates recorded, (30° 20.806'S, 115° 01.857'E).
	1508	Site JB570, deployed drogue no. 12 @ 5 m.	DGPS coordinates recorded, (30° 20.842'S, 115° 01.854'E).
	1515	ST profile recorded at Site JB570.	
	1528	ST profile recorded at Site JB560.	
	1600	Site JB260, deployed drogue no. 3 @ 1.5 m.	Normal GPS coordinates recorded, (30° 19.806'S, 115° 01.862'E). DGPS not working.
	1652	Retrieved drogue no. 7.	Wind southerly at 10 knots.
	1656	Retrieved drogue no. 12.	Wind southerly at 10 knots.
	1707	Retrieved drogue no. 6.	Wind southerly at 10 knots.
	1715	Retrieved drogue no. 3.	
	1720	ST profile recorded at Site JB600.	DGPS coordinates recorded, (30° 18.416'S, 115° 00.890'E).
	1730	ST profile recorded at Site TL3.	Wind south at 10-12 knots.
4/02/97	0825	GPS check at the jetty.	Vessel GPS coordinates = (30° 17.409'S, 115° 02.721'E). Scoutmaster GPS coordinates = (30° 17.448'S, 115° 02.648'E). DGPS coordinates = (30° 17.447'S, 115° 02.646'E).
	0830		Scoutmaster GPS coordinates = (30° 17.450'S, 115° 02.654'E).
	0835	ST profile recorded at Site JB240.	Wind SSW at 20-22 knots.
	0845	ST profile recorded at Site JB230.	
	0850	ST profile recorded at Site JB220.	
	0908	ST profile recorded at Site JB210.	Salinity needle wavering.
	0920	ST profile recorded at Site JB210.	
	0930	ST profile recorded at Site TL3.	
	0947	ST profile recorded at Site JB260.	
	1004	Site JB620, deployed drogue no. 3 @ 1.5 m.	DGPS coordinates recorded, (30° 20.600'S, 115° 00.900'E).

Table 1 Log of field activities.

Date	Time	Description of activities	Comments
	1012	Site JB630, deployed drogue no. 12 @ 5 m.	DGPS coordinates recorded, (30° 20.600'S, 115° 01.500'E).
	1024	Site JB630, deployed drogue no. 14 @ 1.5 m.	
	1026	Site JB640, deployed drogue no. 6 @ 1.5 m.	DGPS coordinates recorded, (30° 20.600'S, 115° 01.740'E).
	1030	Site JB640, deployed drogue no. 7 @ 5 m.	DGPS coordinates recorded, (30° 20.600'S, 115° 01.740'E).
	1032	Site JB650, deployed drogue no. 15 @ 1.5 m.	DGPS coordinates recorded, (30° 20.600'S, 115° 02.000'E).
	1040	Site JB650, deployed drogue no. 2 @ 5 m.	DGPS coordinates recorded, (30° 20.600'S, 115° 02.000'E).
	1055	Site JB650, deployed drogue no. 3 @ 5 m.	DGPS coordinates recorded, (30° 20.275'S, 115° 00.829'E).
	1100	ST profile recorded at Site JB620.	Wind SSW at 20-25 knots.
	1115	ST profile recorded at Site JB630.	
	1125	ST profile recorded at Site JB640.	
	1134	ST profile recorded at Site JB650.	
	1500	Retrieved drogue no 12.	Probably stuck. DGPS = (30° 20.227'S, 115° 01.411'E)
	1507	Retrieved drogue no. 7.	Was possibly bouncing along bottom. DGPS = (30° 20.084'S, 115° 01.532'E).
	1514	Retrieved drogue no. 15.	DGPS coordinates recorded, (30° 20.123'S, 115° 01.808'E).
	1522	Retrieved drogue no. 2.	DGPS coordinates recorded, (30° 20.351'S, 115° 01.898'E).
	1615	Retrieved drogue no. 6.	DGPS coordinates recorded, (30° 18.445'S, 115° 01.034'E).
	1624	Retrieved drogue no. 3.	DGPS coordinates recorded, (30° 17.429'S, 115° 00.965'E).
	1637	ST profile recorded at Site TL3. Sample bottle no. 123 taken for calibration at the CSIRO Marine Laboratory in Perth.	
	1642	Retrieved drogue no. 14.	DGPS coordinates recorded, (30° 17.227'S, 115° 01.292'E).
5/02/97	0723	GPS check at the jetty.	Vessel GPS coordinates = (30° 17.383'S, 115° 02.740'E). Scoutmaster GPS coordinates = (30° 17.474'S, 115° 02.637'E). DGPS coordinates = (30° 17.443'S, 115° 02.647'E).
	0742	ST profile recorded at Site JB240.	Wind SSE at 5-8 knots. Sunny, warm. Changed batteries and CRC connector.
	0745	ST profile recorded at Site JB230.	
	0753	ST profile recorded at Site JB220. Sample bottle no. 122 taken for calibration at the CSIRO Marine Laboratory in Perth.	
	0757	ST profile recorded at Site JB210.	
	0803	ST profile recorded at Site JB10.	
	0808	ST profile recorded at Site TL3.	

Table 1 Log of field activities.

Date	Time	Description of activities	Comments
	0820	ST profile recorded at Site JB260.	
	0840	ST profile recorded at Site JB700.	DGPS coordinates recorded, (30° 20.962'S, 115° 01.081'E). Off Boiler Reef. Wind SE at 8 knots.
	0903	ST profile recorded at Site JB710.	DGPS coordinates recorded, (30° 25.326'S, 115° 00.942'E).
	0914	ST profile recorded at Site JB720.	DGPS coordinates recorded, (30° 26.664'S, 115° 00.430'E).
	0927	ST profile recorded at Site JB730.	DGPS coordinates recorded, (30° 20.723'S, 115° 02.006'E).
	0945	ST profile recorded at Site JB740.	DGPS coordinates recorded, (30° 28.218'S, 115° 02.818'E).
	0955	Site JB750, deployed drogue no. 12 @ 5 m.	DGPS coordinates recorded, (30° 29.338'S, 115° 02.283'E).
	0955	Site JB750, deployed drogue no. 6 @ 1.5 m.	DGPS coordinates recorded, (30° 29.338'S, 115° 02.283'E).
	1003	ST profile recorded at Site JB750.	Wind south at 5 knots.
	1015	Site JB760, deployed drogue no. 15 @ 7 m.	DGPS coordinates recorded, (30° 30.132'S, 115° 01.214'E).
	1017	Site JB760, deployed drogue no. 3 @ 1.5 m.	
	1020	Site JB760, deployed drogue no. 7 @ 5 m.	
	1028	Site JB770, deployed drogue no. 14 @ 1.5 m.	DGPS coordinates recorded, (30° 30.719'S, 115° 01.850'E).
	1030	Site JB770, deployed drogue no. 1 @ 5 m.	
	1032	ST profile recorded at Site JB770.	Wind SSW at 12-15 knots.
	1237	Retrieved drogue no. 15.	DGPS coordinates recorded, (30° 29.764'S, 115° 01.069'E).
	1256	Retrieved drogue no 6., corner fixed and redeployed at 1305 at the same site.	
	1344	Retrieved drogue no. 12.	DGPS coordinates recorded, (30° 28.858'S, 115° 02.378'E).
	1410	Retrieved drogue no. 7.	DGPS coordinates recorded, (30° 29.369'S, 115° 00.997'E).
	1423	Retrieved drogue no. 3.	DGPS coordinates recorded, (30° 29.023'S, 115° 00.839'E).
	1432	Retrieved drogue no. 14.	DGPS coordinates recorded, (30° 29.511'S, 115° 01.733'E).
	1436	Retrieved drogue no. 1.	DGPS coordinates recorded, (30° 29.785'S, 115° 01.797'E).
	1550	Retrieved drogue no. 6.	DGPS coordinates recorded, (30° 27.861'S, 115° 02.467'E).
6/02/97	0718	GPS check at the jetty.	Vessel GPS coordinates = (30° 17.353'S, 115° 02.734'E). Scoutmaster GPS coordinates = (30° 17.450'S, 115° 02.619'E).
	0731	ST profile recorded at Site JB240. Sample bottle no. 004 taken for calibration at the CSIRO Marine Laboratory in Perth.	Wind SE at 5-10 knots.
	0735	ST profile recorded at Site JB230.	
	0740	ST profile recorded at Site JB220.	
	0745	ST profile recorded at Site JB210.	
	0750	ST profile recorded at Site JB10.	Salinity needle still wavering. Making Salinity readings difficult but possible.

Table 1 Log of field activities.

Date	Time	Description of activities	Comments
	0802	ST profile recorded at Site TL3.	Wind in the Bay ESE at 10 knots.
	0830	ST profile recorded at Site JB550.	Southerly wind at 10-12 knots.
	0845	ST profile recorded at Site JB800.	DGPS coordinates recorded, (30° 15.613'S, 115° 59.886'E). ST meter... C all looks "worn". Probably needs re-platinising. 100-200 west of slick line. Slick running SW to NE (some small patches of algae still around). Wind South at 12 knots.
	0855	ST profile recorded at Site JB810. Sample bottle no. 176 taken for calibration at the CSIRO Marine Laboratory in Perth.	DGPS coordinates recorded, (30° 15.625'S, 115° 00.200'E). Decided to go back to east of slick and do a ST profile.
	0910	ST profile recorded at Site JB820.	DGPS coordinates recorded, (30° 15.099'S, 114° 58.910'E).
	0925	ST profile recorded at Site TL1.	
	0930	Retrieved T logger @ TL1.	Logger/sensor no. = 41597B/905179.
	1114	GPS check at Site JB235.	Vessel GPS coordinates = (30° 17.373'S, 115° 02.747'E). Omnistar DGPS = (30° 17.443'S, 115° 02.646'E).
	1320	ST profile recorded at Site TL4.	Wind SSW at 18 knots.
	1330	Retrieved T logger at Site TL4.	Logger/sensor no. = 41598B/905180.
	1404	ST profile recorded at Site TL3.	Wind SSW at 18 knots.
	1405	Retrieved T logger at Site TL3.	Logger/sensor no. = 39003/39003.
	1430	ST profile recorded at Site TL2. Sample bottle no. 141 taken for calibration at the CSIRO Marine Laboratory in Perth.	
	1437	Retrieved T loggers at site TL2.	Logger/sensor no. = 41599B/905181 at 3 m. Logger/sensor no. = 41610B/905182 at 12 m.
	1500-1700	Back to the jetty. Unload vessel of oceanography equipment. Load up the trailer. Crew depart for Perth.	

Table 2 Salinity-temperature profiling site and file details.

Date d/m/yr	Time (hrs)	Site No.	Latitude-S (deg and mins)	Longitude-E (deg and mins)	File name
			DAY ONE		
28/01/97	1650	TL2	30° 15.007'	115° 00.047'	STJBTL2.doc
28/01/97	1727	TL1	30° 15.221'	114° 57.202'	STJBTL1.doc
28/01/97	1825	TL4	30° 22.553'	115° 00.735'	STJBTL4.doc
28/01/97	1900	TL3	30° 17.682'	115° 01.366'	STJBTL3.doc
			DAY TWO		
29/01/97	0745	JB10	30° 17.250'	115° 01.820'	STJB10.doc
29/01/97	0800	JB20	30° 17.500'	115° 01.500'	STJB20.doc
29/01/97	0820	TL3	30° 17.682'	115° 01.366'	STJB2TL3.doc
29/01/97	0825	JB30	30° 18.000'	115° 00.500'	STJB30.doc
29/01/97	0840	JB40	30° 18.000'	115° 59.770'	STJB40.doc
29/01/97	0850	JB50	30° 18.620'	115° 59.050'	STJB50.doc
29/01/97	0903	JB60	30° 19.380'	114° 58.180'	STJB60.doc
29/01/97	0927	JB70	30° 20.620'	115° 58.000'	STJB70.doc
29/01/97	1020	JB110	30° 22.076'	115° 01.466'	STJB110.doc
29/01/97	1045	JB100	30° 22.090'	115° 00.557'	STJB100.doc
29/01/97	1305	TL4	30° 22.553'	115° 00.735'	STJB2TL4.doc
29/01/97	1345	JB100	30° 22.090'	115° 00.557'	ST2JB100.doc
29/01/97	1415	JB110	30° 22.076'	115° 01.466'	ST2JB110.doc
29/01/97	1635	TL3	30° 17.682'	115° 01.366'	STJB3TL3.doc
29/01/97	1640	JB10	30° 17.250'	115° 01.820'	ST2JB10.doc
			DAY THREE		
30/01/97	0845	JB10	30° 17.250'	115° 01.820'	ST3JB10.doc
30/01/97	0905	TL3	30° 17.682'	115° 01.366'	STJB4TL3.doc
30/01/97	0927	JB130	30° 17.150'	115° 00.850'	STJB130.doc
30/01/97	0940	JB150	30° 15.850'	115° 00.600'	STJB150.doc
30/01/97	1015	JB160	30° 15.050'	115° 00.400'	STJB160.doc
30/01/97	1055	JB170	30° 15.050'	114° 59.279'	STJB170.doc
30/01/97	1115	JB180	30° 15.000'	114° 58.300'	STJB180.doc
30/01/97	1343	TL2a	30° 15.010'	115° 00.023'	STJB2TL2.doc
30/01/97	1605	TL3	30° 17.682'	115° 01.366'	STJB5TL3.doc
30/01/97	1630	JB30	30° 18.000'	115° 00.500'	ST2JB30.doc
30/01/97	1645	JB20	30° 17.500'	115° 01.500'	ST2JB20.doc
30/01/97	1649	JB10	30° 17.250'	115° 01.820'	ST4JB10.doc
30/01/97	1700	JB200	30° 17.344'	115° 02.040'	STJB200.doc
30/01/97	1708	JB210	30° 17.380'	115° 02.350'	STJB210.doc
30/01/97	1709	JB220	30° 17.375'	115° 02.500'	STJB220.doc
30/01/97	1712	JB230	30° 17.430'	115° 02.560'	STJB230.doc
30/01/97	1715	JB240	30° 17.490'	115° 02.670'	STJB240.doc
			DAY FOUR		
31/01/97	0811	JB10	30° 17.250'	115° 01.820'	ST5JB10.doc
31/01/97	0830	TL3	30° 17.682'	115° 01.366'	STJB6TL3.doc
31/01/97	0837	JB30	30° 18.077'	115° 00.377'	ST3JB30.doc
31/01/97	1012	JB250	30° 19.857'	114° 57.291'	STJB250.doc
31/01/97	1031	JB300	30° 20.422'	114° 55.098'	STJB300.doc
31/01/97	1150	JB310	30° 19.262'	114° 57.162'	STJB310.doc

Table 2 Salinity-temperature profiling site and file details.

Date d/m/yr	Time (hrs)	Site No.	Latitude-S (deg and mins)	Longitude-E (deg and mins)	File name
31/01/97	1400	JB20	30° 17.500'	115° 01.500'	ST3JB20.doc
31/01/97	1410	JB200	30° 17.344'	115° 02.040'	ST2JB200.doc
31/01/97	1412	JB210	30° 17.380'	115° 02.350'	ST2JB210.doc
31/01/97	1413	JB220	30° 17.375'	115° 02.500'	ST2JB220.doc
31/01/97	1416	JB230	30° 17.430'	115° 02.560'	ST2JB230.doc
31/01/97	1420	JB240	30° 17.490'	115° 02.670'	ST2JB240.doc
			DAY FIVE		
1/02/97	0727	TL3	30° 17.682'	115° 01.366'	STJB7TL3.doc
1/02/97	0835	JB350	30° 15.330'	115° 00.315'	STJB350.doc
1/02/97	0902	JB370	30° 16.853'	114° 59.256'	STJB370.doc
1/02/97	1013	JB370	30° 16.853'	114° 59.256'	ST2JB370.doc
1/02/97	1024	JB380	30° 17.462'	114° 58.665'	STJB380.doc
1/02/97	1040	JB390	30° 16.222'	114° 59.409'	STJB390.doc
1/02/97	1106	JB420	30° 15.088'	115° 00.401'	STJB420.doc
1/02/97	1115	JB350	30° 15.330'	115° 00.315'	ST2JB350.doc
1/02/97	1126	JB360	30° 15.625'	115° 00.024'	STJB360.doc
1/02/97	1137	JB380	30° 15.434'	114° 58.916'	ST2JB380.doc
1/02/97	1158	TL1	30° 15.210'	114° 57.183'	STJB2TL1.doc
1/02/97	1304	JB460	30° 15.874'	114° 59.295'	STJB460.doc
1/02/97	1315	JB470	30° 14.356'	114° 59.784'	STJB470.doc
1/02/97	1325	JB480	30° 14.619'	115° 00.491'	STJB480.doc
1/02/97	1342	JB490	30° 15.425'	115° 00.164'	STJB490.doc
1/02/97	1359	JB500	30° 16.451'	114° 59.433'	STJB500.doc
1/02/97	1414	JB510	30° 15.542'	114° 59.186'	STJB510.doc
1/02/97	1424	JB520	30° 15.493'	115° 00.133'	STJB520.doc
1/02/97	1449	TL3	30° 17.682'	115° 01.366'	STJB8TL3.doc
1/02/97	1500	JB10	30° 17.250'	115° 01.820'	ST6JB10.doc
1/02/97	1507	JB210	30° 17.380'	115° 02.350'	ST3JB210.doc
1/02/97	1511	JB220	30° 17.375'	115° 02.500'	ST3JB220.doc
1/02/97	1515	JB230	30° 17.430'	115° 02.560'	ST3JB230.doc
1/02/97	1519	JB240	30° 17.490'	115° 02.670'	ST3JB240.doc
			DAY SIX		
3/02/97	1145	JB240	30° 17.490'	115° 02.670'	ST4JB240.doc
3/02/97	1200	JB230	30° 17.430'	115° 02.560'	ST4JB230.doc
3/02/97	1204	JB220	30° 17.375'	115° 02.500'	ST4JB220.doc
3/02/97	1210	JB200	30° 17.375'	115° 02.500'	ST3JB200.doc
3/02/97	1215	JB20	30° 17.344'	115° 02.040'	ST4JB20.doc
3/02/97	1235	TL3	30° 17.682'	115° 01.366'	STJB9TL3.doc
3/02/97	1245	JB550	30° 16.085'	115° 01.378'	STJB550.doc
3/02/97	1305	JB360	30° 15.625'	115° 00.024'	ST2JB360.doc
3/02/97	1335	JB380	30° 15.434'	114° 58.916'	ST3JB380.doc
3/02/97	1345	JB370	30° 16.853'	114° 59.256'	ST3JB370.doc
3/02/97	1350	JB390	30° 16.222'	114° 59.409'	ST2JB390.doc
3/02/97	1515	JB570	30° 20.842'	115° 01.854'	STJB570.doc
3/02/97	1528	JB560	30° 20.172'	115° 00.889'	STJB560.doc
3/02/97	1720	JB600	30° 18.416	115° 00.890'	STJB600.doc
3/02/97	1730	TL3	30° 17.682'	115° 01.366'	STJ10TL3.doc

Table 2 Salinity-temperature profiling site and file details.

Date d/m/yr	Time (hrs)	Site No.	Latitude-S (deg and mins)	Longitude-E (deg and mins)	File name
			DAY SEVEN		
4/02/97	0835	JB240	30° 17.490'	115° 02.670'	ST5JB240.doc
4/02/97	0845	JB230	30° 17.430'	115° 02.560'	ST5JB230.doc
4/02/97	0850	JB220	30° 17.375'	115° 02.500'	ST5JB220.doc
4/02/97	0908	JB210	30° 17.380'	115° 02.350'	ST4JB210.doc
4/02/97	0920	JB10	30° 17.409'	115° 02.330'	ST7JB10.doc
4/02/97	0930	TL3	30° 17.682'	115° 01.366'	STJ11TL3.doc
4/02/97	0947	JB260	30° 19.274'	115° 00.862'	STJB260.doc
4/02/97	1100	JB620	30° 20.600'	115° 00.900'	STJB620.doc
4/02/97	1115	JB630	30° 20.600'	115° 01.500'	STJB630.doc
4/02/97	1125	JB640	30° 20.600'	115° 01.740'	STJB640.doc
4/02/97	1134	JB650	30° 20.600'	115° 02.000'	STJB650.doc
4/02/97	1637	TL3	30° 17.682'	115° 01.366'	STJ12TL3.doc
			DAY EIGHT		
5/02/97	0742	JB240	30° 17.490'	115° 02.670'	ST6JB240.doc
5/02/97	0745	JB230	30° 17.430'	115° 02.560'	ST6JB230.doc
5/02/97	0753	JB220	30° 17.375'	115° 02.500'	ST7JB220.doc
5/02/97	0757	JB210	30° 17.380'	115° 02.350'	ST6JB210.doc
5/02/97	0803	JB10	30° 17.250'	115° 01.820'	ST8JB10.doc
5/02/97	0808	TL3	30° 17.682'	115° 01.366'	STJ13TL3.doc
5/02/97	0820	JB260	30° 19.274'	115° 00.862'	ST2JB260.doc
5/02/97	0840	JB700	30° 22.962'	115° 01.081'	STJB700.doc
5/02/97	0903	JB710	30° 25.326'	115° 00.942'	STJB710.doc
5/02/97	0914	JB720	30° 26.664'	115° 00.430'	STJB720.doc
5/02/97	0927	JB730	30° 26.723'	115° 02.006'	STJB730.doc
5/02/97	0945	JB740	30° 28.218'	115° 02.818'	STJB740.doc
5/02/97	1003	JB750	30° 29.338'	115° 02.283'	STJB750.doc
5/02/97	1032	JB770	30° 30.719'	115° 01.850'	STJB770.doc
			DAY NINE		
6/02/97	0731	JB240	30° 17.490'	115° 02.670'	ST7JB240.doc
6/02/97	0735	JB230	30° 17.430'	115° 02.560'	ST7JB230.doc
6/02/97	0740	JB220	30° 17.375'	115° 02.500'	ST8JB220.doc
6/02/97	0745	JB210	30° 17.380'	115° 02.350'	ST7JB210.doc
6/02/97	0750	JB10	30° 17.250'	115° 01.820'	ST9JB10.doc
6/02/97	0802	TL3	30° 17.682'	115° 01.366'	STJ14TL3.doc
6/02/97	0830	JB550	30° 16.085'	115° 01.378'	ST2JB550.doc
6/02/97	0845	JB800	30° 15.613'	114° 59.886'	STJB800.doc
6/02/97	0855	JB810	30° 15.625'	115° 00.200'	STJB810.doc
6/02/97	0910	JB820	30° 15.099'	114° 58.910	STJB820.doc
6/02/97	0925	TL1	30° 15.210'	114° 57.183'	STJB3TL1.doc
6/02/97	1320	TL4	30° 22.553'	115° 00.735'	STJB3TL4.doc
6/02/97	1404	TL3	30° 17.682'	115° 01.366'	STJ15TL3.doc
6/02/97	1430	TL2a	30° 15.010'	115° 00.023'	STJB3TL2.doc

Table 3 GIS salinity-temperature profile location file.

Day	Date	Time	Site	Longitude-E	Longitude-E	Longitude (°)	Latitude-S	Latitude-S	Latitude (°)	File name
ONE	28/01/97	1650	TL2	115	00.047	115.00078	30	15.007	-30.25012	STJBTL2.doc
	28/01/97	1727	TL1	114	57.202	114.95337	30	15.221	-30.25368	STJBTL1.doc
	28/01/97	1825	TL4	115	00.735	115.01225	30	22.553	-30.37588	STJBTL4.doc
	28/01/97	1900	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJBTL3.doc
TWO	29/01/97	0745	JB10	115	01.820	115.03033	30	17.250	-30.28750	STJB10.doc
	29/01/97	0800	JB20	115	01.500	115.02500	30	17.500	-30.29167	STJB20.doc
	29/01/97	0820	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJB2TL3.doc
	29/01/97	0825	JB30	115	00.500	115.00833	30	18.000	-30.30000	STJB30.doc
	29/01/97	0840	JB40	114	59.770	114.99617	30	18.000	-30.30000	STJB40.doc
	29/01/97	0850	JB50	114	59.050	114.98417	30	18.620	-30.31033	STJB50.doc
	29/01/97	0903	JB60	114	58.180	114.96967	30	19.380	-30.32300	STJB60.doc
	29/01/97	0927	JB70	114	58.000	114.96667	30	20.620	-30.34367	STJB70.doc
	29/01/97	1020	JB110	115	01.466	115.02443	30	22.076	-30.36793	STJB110.doc
	29/01/97	1045	JB100	115	00.557	115.00928	30	22.090	-30.36817	STJB100.doc
	29/01/97	1305	TL4	115	00.735	115.01225	30	22.553	-30.37588	STJB2TL4.doc
	29/01/97	1345	JB100	115	00.557	115.00928	30	22.090	-30.36817	ST2JB100.doc
	29/01/97	1415	JB110	115	01.466	115.02443	30	22.076	-30.36793	ST2JB110.doc
	29/01/97	1635	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJB3TL3.doc
	29/01/97	1640	JB10	115	01.820	115.03033	30	17.250	-30.28750	ST2JB10.doc
THREE	30/01/97	0845	JB10	115	01.820	115.03033	30	17.250	-30.28750	ST3JB10.doc
	30/01/97	0905	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJB4TL3.doc
	30/01/97	0927	JB130	115	00.850	115.01417	30	17.150	-30.28583	STJB130.doc
	30/01/97	0940	JB150	115	00.600	115.01000	30	15.850	-30.26417	STJB150.doc
	30/01/97	1015	JB160	115	00.400	115.00667	30	15.050	-30.25083	STJB160.doc
	30/01/97	1055	JB170	114	59.279	114.98798	30	15.050	-30.25083	STJB170.doc
	30/01/97	1115	JB180	114	58.300	114.97167	30	15.000	-30.25000	STJB180.doc
	30/01/97	1343	TL2	115	00.023	115.00038	30	15.010	-30.25017	STJB2TL2.doc
	30/01/97	1605	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJB5TL3.doc
	30/01/97	1630	JB30	115	00.500	115.00833	30	18.000	-30.30000	ST2JB30.doc
	30/01/97	1645	JB20	115	01.500	115.02500	30	17.500	-30.29167	ST2JB20.doc
	30/01/97	1649	JB10	115	01.820	115.03033	30	17.250	-30.28750	ST4JB10.doc
	30/01/97	1700	JB200	115	02.040	115.03400	30	17.344	-30.28907	STJB200.doc
	30/01/97	1708	JB210	115	02.350	115.03917	30	17.380	-30.28967	STJB210.doc
	30/01/97	1709	JB220	115	02.500	115.04167	30	17.375	-30.28958	STJB220.doc
	30/01/97	1712	JB230	115	02.560	115.04267	30	17.430	-30.29050	STJB230.doc
	30/01/97	1715	JB240	115	02.670	115.04450	30	17.490	-30.29150	STJB240.doc
FOUR	31/01/97	0811	JB10	115	01.820	115.03033	30	17.250	-30.28750	ST5JB10.doc
	31/01/97	0830	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJB6TL3.doc
	31/01/97	0837	JB30	115	00.377	115.00628	30	18.077	-30.30128	ST3JB30.doc
	31/01/97	1012	JB250	114	57.291	114.95485	30	19.857	-30.33095	STJB250.doc
	31/01/97	1031	JB300	114	55.098	114.91830	30	20.422	-30.34037	STJB300.doc

Table 3 GIS salinity-temperature profile location file.

	31/01/97	1150	JB310	114	57.162	114.95270	30	19.262	-30.32103	STJB310.doc
	31/01/97	1400	JB20	115	01.500	115.02500	30	17.500	-30.29167	ST3JB20.doc
	31/01/97	1410	JB200	115	02.040	115.03400	30	17.344	-30.28907	ST2JB200.doc
	31/01/97	1412	JB210	115	02.350	115.03917	30	17.380	-30.28967	ST2JB210.doc
	31/01/97	1413	JB220	115	02.500	115.04167	30	17.375	-30.28958	ST2JB220.doc
	31/01/97	1416	JB230	115	02.560	115.04267	30	17.430	-30.29050	ST2JB230.doc
	31/01/97	1420	JB240	115	02.670	115.04450	30	17.490	-30.29150	ST2JB240.doc
FIVE	1/02/97	0727	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJB7TL3.doc
	1/02/97	0835	JB350	115	00.315	115.00525	30	15.330	-30.25550	STJB350.doc
	1/02/97	0902	JB370	114	59.256	114.98760	30	16.853	-30.28088	STJB370.doc
	1/02/97	1013	JB370	114	59.256	114.98760	30	16.853	-30.28088	ST2JB370.doc
	1/02/97	1024	JB380	114	58.665	114.97775	30	17.462	-30.29103	STJB380.doc
	1/02/97	1040	JB390	114	59.409	114.99015	30	16.222	-30.27037	STJB390.doc
	1/02/97	1106	JB420	115	00.401	115.00668	30	15.088	-30.25147	STJB420.doc
	1/02/97	1115	JB350	115	00.315	115.00525	30	15.330	-30.25550	ST2JB350.doc
	1/02/97	1126	JB360	115	00.024	115.00040	30	15.625	-30.26042	STJB360.doc
	1/02/97	1137	JB380	114	58.916	114.98193	30	15.434	-30.25723	ST2JB380.doc
	1/02/97	1158	TL1	114	57.183	114.95305	30	15.210	-30.25350	STJB2TL1.doc
	1/02/97	1304	JB460	114	59.295	114.98825	30	15.874	-30.26457	STJB460.doc
	1/02/97	1315	JB470	114	59.784	114.99640	30	14.356	-30.23927	STJB470.doc
	1/02/97	1325	JB480	115	00.491	115.00818	30	14.619	-30.24365	STJB480.doc
	1/02/97	1342	JB490	115	00.164	115.00273	30	15.425	-30.25708	STJB490.doc
	1/02/97	1359	JB500	114	59.433	114.99055	30	16.451	-30.27418	STJB500.doc
	1/02/97	1414	JB510	114	59.186	114.98643	30	15.542	-30.25903	STJB510.doc
	1/02/97	1424	JB520	115	00.133	115.00222	30	15.493	-30.25822	STJB520.doc
	1/02/97	1449	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJB8TL3.doc
	1/02/97	1500	JB10	115	01.820	115.03033	30	17.250	-30.28750	ST6JB10.doc
	1/02/97	1507	JB210	115	02.350	115.03917	30	17.380	-30.28967	ST3JB210.doc
	1/02/97	1511	JB220	115	02.500	115.04167	30	17.375	-30.28958	ST3JB220.doc
	1/02/97	1515	JB230	115	02.560	115.04267	30	17.430	-30.29050	ST3JB230.doc
	1/02/97	1519	JB240	115	02.670	115.04450	30	17.490	-30.29150	ST3JB240.doc
SIX	3/02/97	1145	JB240	115	02.670	115.04450	30	17.490	-30.29150	ST4JB240.doc
	3/02/97	1200	JB230	115	02.560	115.04267	30	17.430	-30.29050	ST4JB230.doc
	3/02/97	1204	JB220	115	02.500	115.04167	30	17.375	-30.28958	ST4JB220.doc
	3/02/97	1210	JB200	115	02.500	115.04167	30	17.375	-30.28958	STJB200.doc
	3/02/97	1215	JB20	115	02.040	115.03400	30	17.344	-30.28907	ST4JB20.doc
	3/02/97	1235	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJB9TL3.doc
	3/02/97	1245	JB550	115	01.378	115.02297	30	16.085	-30.26808	STJB550.doc
	3/02/97	1305	JB360	115	00.024	115.00040	30	15.625	-30.26042	ST2JB360.doc
	3/02/97	1335	JB380	114	58.916	114.98193	30	15.434	-30.25723	ST3JB380.doc
	3/02/97	1345	JB370	114	59.256	114.98760	30	16.853	-30.28088	ST3JB370.doc
	3/02/97	1350	JB390	114	59.409	114.99015	30	16.222	-30.27037	ST2JB390.doc
	3/02/97	1515	JB570	115	01.854	115.03090	30	20.842	-30.34737	STJB570.doc

Table 3 GIS salinity-temperature profile location file.

	3/02/97	1528	JB560	115	00.889	115.01482	30	20.172	-30.33620	STJB560.doc
	3/02/97	1720	JB600	115	00.890	115.01483	30	18.416	-30.30693	STJB600.doc
	3/02/97	1730	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJ10TL3.doc
SEVEN	4/02/97	0835	JB240	115	02.670	115.04450	30	17.490	-30.29150	ST5JB240.doc
	4/02/97	0845	JB230	115	02.560	115.04267	30	17.430	-30.29050	ST5JB230.doc
	4/02/97	0850	JB220	115	02.500	115.04167	30	17.375	-30.28958	ST5JB220.doc
	4/02/97	0908	JB210	115	02.350	115.03917	30	17.380	-30.28967	ST4JB210.doc
	4/02/97	0920	JB10	115	02.330	115.03883	30	17.409	-30.29015	ST7JB10.doc
	4/02/97	0930	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJ11TL3.doc
	4/02/97	0947	JB260	115	00.862	115.01437	30	19.274	-30.32123	STJB260.doc
	4/02/97	1100	JB620	115	00.900	115.01500	30	20.600	-30.34333	STJB620.doc
	4/02/97	1115	JB630	115	01.500	115.02500	30	20.600	-30.34333	STJB630.doc
	4/02/97	1125	JB640	115	01.740	115.02900	30	20.600	-30.34333	STJB640.doc
	4/02/97	1134	JB650	115	02.000	115.03333	30	20.600	-30.34333	STJB650.doc
	4/02/97	1637	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJ12TL3.doc
EIGHT	5/02/97	0742	JB240	115	02.670	115.04450	30	17.490	-30.29150	ST6JB240.doc
	5/02/97	0745	JB230	115	02.560	115.04267	30	17.430	-30.29050	ST6JB230.doc
	5/02/97	0753	JB220	115	02.500	115.04167	30	17.375	-30.28958	ST6JB220.doc
	5/02/97	0757	JB210	115	02.350	115.03917	30	17.380	-30.28967	ST6JB210.doc
	5/02/97	0803	JB10	115	01.820	115.03033	30	17.250	-30.28750	ST8JB10.doc
	5/02/97	0808	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJ13TL3.doc
	5/02/97	0820	JB260	115	00.862	115.01437	30	19.274	-30.32123	ST2JB260.doc
	5/02/97	0840	JB700	115	01.081	115.01802	30	22.962	-30.38270	STJB700.doc
	5/02/97	0903	JB710	115	00.942	115.01570	30	25.326	-30.42210	STJB710.doc
	5/02/97	0914	JB720	115	00.430	115.00717	30	26.664	-30.44440	STJB720.doc
	5/02/97	0927	JB730	115	02.006	115.03343	30	26.723	-30.44538	STJB730.doc
	5/02/97	0945	JB740	115	02.818	115.04697	30	28.218	-30.47030	STJB740.doc
	5/02/97	1003	JB750	115	02.283	115.03805	30	29.338	-30.48897	STJB750.doc
	5/02/97	1032	JB770	115	01.850	115.03083	30	30.719	-30.51198	STJB770.doc
NINE	6/02/97	0731	JB240	115	02.670	115.04450	30	17.490	-30.29150	ST7JB240.doc
	6/02/97	0735	JB230	115	02.560	115.04267	30	17.430	-30.29050	ST7JB230.doc
	6/02/97	0740	JB220	115	02.500	115.04167	30	17.375	-30.28958	ST7JB220.doc
	6/02/97	0745	JB210	115	02.350	115.03917	30	17.380	-30.28967	ST7JB210.doc
	6/02/97	0750	JB10	115	01.820	115.03033	30	17.250	-30.28750	ST9JB10.doc
	6/02/97	0802	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJ14TL3.doc
	6/02/97	0830	JB550	115	01.378	115.02297	30	16.085	-30.26808	ST2JB550.doc
	6/02/97	0845	JB800	114	59.886	114.99810	30	15.613	-30.26022	STJB800.doc
	6/02/97	0855	JB810	115	00.200	115.00333	30	15.625	-30.26042	STJB810.doc
	6/02/97	0910	JB820	114	58.910	114.98183	30	15.099	-30.25165	STJB820.doc
	6/02/97	0925	TL1	114	57.183	114.95305	30	15.210	-30.25350	STJB3TL1.doc
	6/02/97	1320	TL4	115	00.735	115.01225	30	22.553	-30.37588	STJB3TL4.doc
	6/02/97	1404	TL3	115	01.366	115.02277	30	17.682	-30.29470	STJ15TL3.doc
	6/02/97	1430	TL2	115	00.023	115.00038	30	15.010	-30.25017	STJB3TL2.doc

Table 4 Seawater calibration details from CSIRO inductive salinometer tests.

Salinity analysis

Instrument No: 601-313 Analyst: Bob Griffiths Data measured: 25-Feb-1997

CSIRO quality control information

Standard	Temp	T Comp	ST'D'ZE	Cond	Salinity
International	26.5	47	5019	0.99982	34.993
Sub Standard	26.0	47	5019	1.01636	35.646

Site number	Date (d/m/yr)	Time (hrs)	Coordinates Latitude (S) (deg & mins)	Coordinates Longitude (E) (deg & mins)	Bottle	Salinity CSIRO	Salinity Meter sal
TL2	28/01/97	1650	30° 15.007'	115° 00.047'	198	36.19	35.35
TL3	28/01/97	1900	30° 17.682'	115° 01.366'	037	36.53	35.40
JB10	29/01/97	0745	30° 17.250'	115° 01.820'	138	36.54	35.70
JB10	29/01/97	1640	30° 17.250'	115° 01.820'	062	36.57	35.35
JB10	30/01/97	0845	30° 17.250'	115° 01.820'	008	36.56	35.49
TL3	30/01/97	1605	30° 17.682'	115° 01.366'	162	36.41	35.22
JB10	31/01/97	0811	30° 17.250'	115° 01.820'	071	36.60	35.31
TL3	1/02/97	0727	30° 17.682'	115° 01.366'	025	36.62	35.30
JB240	1/02/97	1519	30° 17.480'	115° 02.560'	148	36.79	35.51
JB240	3/02/97	1145	30° 17.480'	115° 02.560'	143	36.72	35.41
JB240	4/02/97	0835	30° 17.480'	115° 02.560'	049	36.72	35.30
TL3	4/02/97	1637	30° 17.682'	115° 01.366'	123	36.58	35.20
JB220	5/02/97	0753	30° 17.380'	115° 02.500'	122	36.78	35.53
JB240	6/02/97	0731	30° 17.480'	115° 02.560'	004	36.93	35.59
JB810	6/02/97	0855	30° 15.625'	115° 00.200'	176	36.60	35.35
TL2	6/02/97	1430	30° 15.007'	115° 00.047'	141	36.60	35.30

Bottle - bottle number of salinity sample collected during the survey.

Salinity (CSIRO) - salinity of sample as analysed using the CSIRO inductive salinometer by Mr Bob Griffiths at the CSIRO, Marmion, WA.

Meter salinity - salinity of sample as recorded in the field by the ST meter.

Table 5 Salinity-temperature meter calibration data.

Date (d/m/yr)	Time (hrs)	Bottle No.	True sal.(1) (pss)	Meter sal.(2) (pss)	Adjustment (3) (pss)	Thermometer (4) (°C)	Meter temp.(5) (°C)	Adjustment(6) (°C)
28/01/97	1650	198	36.19	35.35	0.84	23.95	23.80	0.15
28/01/97	1900	037	36.53	35.40	1.13 *	23.95	23.75	0.20
Average					**0.84**			**0.18**
29/01/97	0745	138	36.54	35.70	0.84	23.55	23.40	0.15
29/01/97	1640	062	36.57	35.35	1.22	23.50	22.75	0.75
30/01/97	0845	008	36.56	35.49	1.07	23.70	23.00	0.70
30/01/97	1605	162	36.41	35.22	1.19	23.70	23.00	0.70
Average					**1.13**			**0.70**
31/01/97	0811	071	36.60	35.31	1.29	23.20	22.50	0.70
1/02/97	0727	025	36.62	35.30	1.32	23.30	22.50	0.80
1/02/97	1519	148	36.79	35.51	1.28	24.90	24.15	0.75
Average					**1.30**			**0.78**
3/02/97	1145	143	36.72	35.41	1.31	25.60	24.85	0.75
4/02/97	0835	049	36.72	35.30	1.42	24.60	23.80	0.80
4/02/97	1637	123	36.58	35.20	1.38	24.30	23.55	0.75
Average					**1.40**			**0.78**
5/02/97	0753	122	36.78	35.53	**1.25**	23.90	23.10	**0.80**
6/02/97	0731	004	36.93	35.59	1.34	23.75	22.95	0.80
6/02/97	0855	176	36.60	35.35	1.25			
6/02/97	1430	141	36.60	35.30	1.30	23.90	23.35	0.55 **
Average					**1.30**			**0.80**

Legend for Table 5

(1) True salinity refers to the accurate measurement made at the CSIRO Marine Laboratory by Mr Bob Griffiths using the sample bottles taken from a bucket of sea-surface water during the ST profiling.

(4) Thermometer is the true temperature of the sea-surface bucket sample measured with the scientific thermometer (which is accurate to +/- 0.05°C).

(2) Meter salinity and **(5)** meter temperature refer to measurements taken in the field using the CALM's Yeokal Hamon ST Bridge (serial no. ST384).

(3) and **(6)** Adjustments are obtained by calculating the difference between true S and T and ST meter readings. Positive adjustment value means that this amount must be added to the raw data.

* Rejected as spurious.

** Rejected because of difference noted between bucket temperature of sea-surface water and ST meter reading of sea-surface water as part of ST profiling. (See ST data sheet for Site TL2 at 1430 on the 06/02/97).

Note: Salinity/temperature data sheet before 1345 hrs on the 29/01/97 were adjusted by adding 0.15°C to each temperature reading and 0.84 pss to each salin reading. Salinity/temperature data sheet after 1415 hrs on the 29/01/97 were adjusted respectively by adding 0.75°C to each temperature reading and 1.22 pss salinity reading.

Table 6 Temperature logger site details.

Temperature loggers deployed on 28/01/97 and retrieved on 06/02/97

Site	Max. depth (m)	Distance above bottom (m)	Logger#/Serial#	DGPS-Latitude (deg and mins)	DGPS-Longitude (deg and mins)	Deployment		Retrieval	
						Normal time (hrs:mins)	Julian time (days)	Normal time (hrs:mins)	Julian time (days)
TL1	20.0	10.0	41597B/905179	30° 15.221'	114° 57.202'	17:24	28.725	9:30	37.395
TL2	15.5	3.0	41599B/905181	30° 15.007'	115° 00.047'	16:40	28.694	14:37	37.609
TL2	15.5	12.0	41610B/905182	30° 15.007'	115° 00.047'	16:40	28.694	14:37	37.609
TL3	12.5	6.0	39003/39003	30° 17.682'	115° 01.366'	16:18	28.679	14:05	37.587
TL4	14.5	7.0	41598B/905180	30° 22.553'	115° 00.735'	18:24	28.767	13:30	37.562

Table 7 Temperature logger calibration details.

Site no.	Water depth at time of sample (m)	Depth of logger below surface at time of sample (m)	Recording time (Julian days) Temperature loggers	ST drop	Temperature readings (deg. C) Logger (1)	ST meter calibrated (2)	Delta T (deg. C) (1) - (2)	Mean Delta T(°C)
TL1	22.0	12.0	28.736	28.727	23.00	22.78	0.22	
	20.0	10.0	32.500	32.499	23.21	23.05	0.16	
	20.0	10.0	37.389	37.392	23.34	23.30	0.04	**0.14**
TL2	15.5	12.5	28.715	28.701	22.63	22.78	-0.15	
	16.0	13.0	30.569	30.572	23.51	23.45	0.06	
	14.5	11.5	37.604	37.604	23.72	23.90	-0.18	**-0.09**
	15.5	3.5	28.715	28.701	23.08	22.75	0.33	
	16.0	4.0	30.569	30.572	24.01	23.45	0.56	
	14.5	2.5	37.604	37.604	24.28	23.90	0.38	**0.42**
TL3	13.0	7.0	28.792	28.792	23.03	22.73	0.30	
	12.5	6.5	29.347	29.347	23.09	22.78	0.31	
	13.0	7.0	30.375	30.378	23.28	23.00	0.28	
	12.0	6.0	30.667	30.670	23.93	23.65	0.28	
	12.0	6.0	31.354	31.354	23.44	23.20	0.24	
	12.5	6.5	32.313	32.310	23.58	23.29	0.29	
	13.5	7.5	32.618	32.617	23.95	23.75	0.20	
	12.7	6.7	34.521	34.524	25.00	24.67	0.33	
	13.4	7.4	34.729	34.729	25.08	24.75	0.33	
	12.5	6.5	35.396	35.396	24.45	24.22	0.23	
	13.0	7.0	35.694	35.692	24.90	24.68	0.22	
	12.5	6.5	36.340	36.339	24.23	23.90	0.33	**0.28**
	*12.5	6.5	37.333	37.335	23.93	23.82	0.11	
	*12.5	6.4	37.590	37.586	24.19	24.20	-0.01	

* **NOTE:** Data recorded at 37.333 and 37.590 (Julian days) are rejected as spurious.

TL4	15.5	8.5	28.767	28.767	22.52	22.34	0.18	
	15.0	8.0	29.542	29.545	23.11	22.78	0.33	
	14.5	7.5	37.556	37.556	23.37	23.45	-0.08	**0.14**

Table 8 Drogue tracking field data sheet.

DAILY RECORD OF DROGUE POSITION FIXING
Coordinates were taken from DGPS unless otherwise specified

DAY TWO

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
3	29/01/97	10:17	30° 22.076'	115° 01.466'	At 9m, Site JB110
7	29/01/97	10:17	30° 22.076'	115° 01.466'	At 2m, Site JB110
12	29/01/97	10:36	30° 22.090'	115° 00.557'	At 9m, Site JB100
15	29/01/97	10:36	30° 22.090'	115° 00.557'	At 2m, Site JB100
3	29/01/97	10:55	30° 22.091'	115° 01.439'	Checked drogue. OK.
7	29/01/97	10:57	30° 21.874'	115° 01.464'	
12	29/01/97	11:06	30° 22.066'	115° 00.546'	
15	29/01/97	11:08	30° 21.893'	115° 00.558'	
3	29/01/97	11:15	30° 22.141'	115° 01.409'	
7	29/01/97	11:16	30° 21.791'	115° 01.436'	
6	29/01/97	11:34	30° 22.136'	115° 01.318'	At 11m, Site JB110, N.
12	29/01/97	11:40	30° 22.081'	115° 00.554'	
15	29/01/97	11.45	30° 21.726'	115° 00.560'	
7	29/01/97	11:53	30° 21.614'	115° 01.391'	
3	29/01/97	12:00	30° 22.224'	115° 01.388'	
6	29/01/97	12:01	30° 22.162'	115° 01.378'	
15	29/01/97	12:15	30° 21.609'	115° 00.560'	
12	29/01/97	12:20	30° 22.122'	115° 00.565'	
3	29/01/97	12:27	30° 22.277'	115° 01.372'	
6	29/01/97	12:28	30° 22.195'	115° 01.367'	
7	29/01/97	12:36	30° 21.438'	115° 01.323'	
15	29/01/97	12:41	30° 21.524'	115° 00.569'	
15	29/01/97	12:54	30° 21.524'	115° 00.569'	Drogue redeployed.
12	29/01/97	13:01	30° 22.147'	115° 00.577'	

Table 8 Drogue tracking field data sheet.

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
3	29/01/97	13:17	30° 22.313'	115° 01.347'	
6	29/01/97	13:19	30° 22.238'	115° 01.364'	
7	29/01/97	13:24	30° 21.233'	115° 01.259'	
15	29/01/97	13:34	30° 21.339'	115° 00.577'	
12	29/01/97	13:39	30° 22.139'	115° 00.559'	
3	29/01/97	13:53	30° 22.293'	115° 01.312'	
6	29/01/97	13:53	30° 22.249'	115° 01.350'	
7	29/01/97	13:59	30° 21.122'	115° 01.212'	
12	29/01/97	14:22	30° 22.121'	115° 00.511'	Retrieved at 14:22, repaired and redeployed at 14:35 at same location.
15	29/01/97	14:43	30° 21.043'	115° 00.566'	
6	29/01/97	15:00	30° 22.245'	115° 01.286'	
3	29/01/97	15:02	30° 22.227'	115° 01.216'	
3	29/01/97	15:06			Retrieved. Damaged, buckled upper cross.
6	29/01/97	15:12			Retrieved.
7	29/01/97	15:22	30° 20.779'	115° 01.125'	
12	29/01/97	15:40	30° 22.100'	115° 00.417'	Retrieved.
15	29/01/97	15:54	30° 20.706'	115° 00.487'	
7	29/01/97	16:05	30° 20.577'	115° 00.999'	

DROGUE FIXING - DAY THREE

NORTHERN BAY

7	30/01/97	10:00	30° 15.929'	115° 00.543'	At 2m. Wind SW at 12 knots.
12	30/01/97	10:00	30° 15.929'	115° 00.543'	At 9m.
6	30/01/97	10:35	30° 15.151'	115° 00.296'	At 2m.
15	30/01/97	10:35	30° 15.151'	115° 00.296'	At 9.5m.
12	30/01/97	10:43	30° 15.894'	115° 00.535'	

Table 8 Drogue tracking field data sheet.

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
7	30/01/97	10:43	30° 15.871'	115° 00.556'	
6	30/01/97	11:25	30° 14.953'	115° 00.246'	
15	30/01/97	11:30	30° 15.174'	115° 00.240'	
12	30/01/97	11:44	30° 15.916'	115° 00.548'	
7	30/01/97	11:45	30° 15.715'	115° 00.589'	
15	30/01/97	11:53	30° 15.173'	115° 00.213'	
6	30/01/97	12:10	30° 14.842'	115° 00.148'	Wind SW at 25 knots.
12	30/01/97	12:30	30° 15.904'	115° 00.535'	
7	30/01/97	12:34	30° 15.587'	115° 00.565'	
6	30/01/97	12:53	30° 14.749'	115° 00.069'	
15	30/01/97	13:02	30° 15.149'	115° 00.094'	
12	30/01/97	13:18	30° 15.839'	115° 00.504'	
7	30/01/97	13:24	30° 15.455'	115° 00.512'	
15	30/01/97	13:32	30° 15.130'	115° 00.021'	Trapped in a slick line.
6	30/01/97	13:49	30° 14.646'	114° 59.942'	
12	30/01/97	14:12	30° 15.783'	115° 00.461'	Drogue retrieved.
7	30/01/97	14:27	30° 15.324'	115° 00.454'	Drogue retrieved.
15	30/01/97	14:35	30° 15.097'	114° 59.869'	Drogue retrieved.
6	30/01/97	14:46	30° 14.522'	114° 59.640'	Drogue retrieved.
			SOUTHERN BAY		
6	30/01/97	16:10	30° 17.635'	115° 01.385'	At 2m.
12	30/01/97	16:10	30° 17.635'	115° 01.385'	At 11m.
12	30/01 97	16:35	30° 17.632'	115° 01.385'	
6	30/01/97	16:36	30° 17.565'	115° 01.439'	

Table 8 Drogue tracking field data sheet.

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
				DAY FIVE	
12	1/02/97	7:52	30° 15.625'	115° 00.024'	Site JB360. Drogue at 2m.
15	1/02/97	7:54	30° 15.595'	115° 00.018'	Site JB360. Drogue at 9m.
6	1/02/97	8:24	30° 15.330'	115° 00.315'	Site JB350. Drogue at 2m.
7	1/02/97	8:25	30° 15.330'	115° 00.315'	Site JB350. Drogue at 10.5 m.
15	1/02/97	8:42	30° 15.547'	114° 59.966'	
12	1/02/97	8:43	30° 15.427'	114° 59.994'	
3	1/02/97	8:57	30° 16.885'	114° 59.265'	Site JB370. Drogue at 2m.
14	1/02/97	9:01	30° 16.853'	114° 59.256'	Site JB370. Drogue at 9m.
12	1/02/97	9:20	30° 15.293'	114° 59.990'	Wind NE at 5 knots.
6	1/02/97	9:25	30° 15.198'	115° 00.360'	
7	1/02/97	9:27	30° 15.288'	115° 00.327'	
15	1/02/97	9:30	30° 15.507'	114° 59.915'	Within shear zone between SW and NE wind fields (SW wind at 10 knots and NE wind at 5 - 10 knots).
3	1/02/97	9:39	30° 16.719'	114° 59.278'	Wind S/SW at 8-12 knots.
14	1/02/97	9:41	30° 16.783'	114° 59.278'	Wind S/SW at 8-12 knots.
7	1/02/97	9:52	30° 15.297'	115° 00.319'	Wind S/SW at < 5 knots.
6	1/02/97	9:53	30° 15.166'	115° 00.370'	Wind S/SW at < 5 knots.
12	1/02/97	9:57	30° 15.190'	114° 59.981'	Wind S/SW at < 5 knots.
15	1/02/97	10:00	30° 15.470'	114° 59.886'	Wind S/SW at 5-10 knots.
3	1/02/97	10:08	30° 16.610'	114° 59.315'	Wind S/SW at 5-15 knots.
14	1/02/97	10:10	30° 16.733'	114° 59.310'	Wind S/SW at 5-15 knots.
14	1/02/97	10:35	30° 16.719'	114° 59.334'	Wind S/SW at 10-15 knots.
3	1/02/97	10:37	30° 16.509'	114° 59.320'	Wind S/SW at 10-15 knots.
15	1/02/97	10:51	30° 15.439'	114° 59.884'	Wind S/SW at 10-15 knots.
12	1/02/97	10:54	30° 14 982'	114° 59.990'	Wind S/SW at 10-15 knots.
7	1/02/97	10:58	30° 15.313'	115° 00.304'	Wind S/SW at 10-15 knots.
6	1/02/97	10:59	30° 15.088'	115° 00.401'	Wind S/SW at 10-15 knots.

Table 8 Drogue tracking field data sheet.

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
15	1/02/97	12:18	30° 15.434'	114° 59.899'	Drogue appears to be stuck on reef. Retrieved.
12	1/02/97	12:29	30° 14.516'	114° 59.905'	
6	1/02/97	12:35	30° 14.803'	115° 00.489'	
7	1/02/97	12:42	30° 15.335'	115° 00.209'	Bottom depth = 15m.
14	1/02/97	12:51	30° 16.542'	114° 59.407'	Note: bottom depth here = 10.5m and bottom of drogue at 10 m. Hence, drogue is just above bottom. It is approaching a shallow region (<10 m)... we will let it drift until it gets stuck.
3	1/02/97	13:01	30° 15.874'	114° 59.295'	
12	1/02/97	13:13	30° 14.356'	114° 59.784'	Drogue retrieved.
6	1/02/97	13:24	30° 14.619'	115° 00.491'	Drogue retrieved.
7	1/02/97	13:41	30° 15.425'	115° 00.164'	
14	1/02/97	13:56	30° 16.451'	114° 59.433'	Drogue retrieved.
3	1/02/97	14:11	30° 15.542'	114° 59.185'	Drogue retrieved.
7	1/02/97	14:24	30° 15.493'	115° 00.133'	Drogue retrieved.
			DAY SIX		
6	3/02/97	14:43	30° 20.399'	115° 00.899'	Deployed drogue at 1.5 m. Wind S/SW at 15 knots. Site JB560. Bottom depth = 4 m.
7	3/02/97	15:07	30° 20.806'	115° 01.857'	Drogue at 1.5 m. Site JB570. Bottom depth = 8.5 m.
12	3/02/97	15:08	30° 20.842'	115° 01.854'	Drogue at 5 m. Site JB570. Bottom depth = 8.5 m.
6	3/02/97	15:30	30° 20.172'	115° 00.889'	Drogue at 1.5 m.
12	3/02/97	15:36	30° 20.846'	115° 01.864'	
7	3/02/97	15:38	30° 20.794'	115° 01.857'	

Table 8 Drogue tracking field data sheet.

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
6	3/02/97	15:40	30° 20.097'	115° 00.883'	
3	3/02/97	16:00	30° 19.274'	115° 00.862'	Drogue at 1.5 m. Site JB260. Bottom depth = 3.5 m. Normal GPS taken. DGPS not working.

NOTE: 1603 hrs - Re-established DGPS... appears to have been a problem with the Omnistar to Scoutmaster connection (was probably loose) - when pushed back together, DGPS was re-established (as noted by re-appearance of RECV. on the Omnistar front screen).

6	3/02/97	16:10	30° 19.972'	115° 00.877'	
7	3/02/97	16:20	30° 20.742'	115° 01.849'	
12	3/02/97	16:21	30° 20.788'	115° 01.867'	Bottom depth = 8.1 m.
3	3/02/97	16:30	30° 19.014'	115° 00.854'	
3	3/02/97	16:32	30° 18.952'	115° 00.867'	Bottom depth = 4.2m. Normal GPS (DGPS not working).
6	3/02/97	16:24	30° 19.799'	115° 00.845'	Bottom depth = 3.3 m. Wind S at 10 knots.
7	3/02/97	16:52	30° 20.704'	115° 01.833'	Bottom depth = 8 m. Wind S at 10 knots.
12	3/02/97	16:56	30° 20.791'	115° 01.853'	Bottom depth = 8 m. Wind S at 10 knots.
6	3/02/97	17:07	30° 19.648'	115° 00.808'	Bottom depth = 3 m.
3	3/02/97	17:15	30° 18.509'	115° 00.875'	Bottom depth = 4 m.
			DAY SEVEN		
3	4/02/97	10:04	30° 20.600'	115° 00.900'	Drogue at 1.5 m. Site JB620. Bottom depth = 4.0 m.
12	4/02/97	10:12	30° 20.600'	115° 01.500'	Drogue at 5.0 m. Site JB630. Bottom depth = 6.0 m.
14	4/02/97	10:24	30° 20.600'	115° 01.500'	Drogue at 1.5 m. Site JB630.
6	4/02/97	10:26	30° 20.600'	115° 00.740'	Drogue at 1.5 m. Site JB640.
7	4/02/97	10:30	30° 20.600'	115° 00.740'	Drogue at 5.0 m. Site JB640. Bottom depth = 7.8 m.
15	4/02/97	10:32	30° 20.600'	115° 02.000'	Drogue at 1.5 m. Site JB650. Bottom depth = 8.0 m.

Table 8 Drogue tracking field data sheet.

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
2	4/02/97	10:40	30° 20.600'	115° 02.000'	Drogue at 5.0 m. Site JB650.
3	4/02/97	10:55	30° 20.275'	115° 00.829'	
14	4/02/97	11:07	30° 20.388'	115° 01.459'	
12	4/02/97	11:13	30° 20.412'	115° 01.471'	
6	4/02/97	11:22	30° 20.429'	115° 01.711'	
7	4/02/97	11:23	30° 20.508'	115° 01.719'	Bottom depth = 8.2 m.
15	4/02/97	11:29	30° 20.525'	115° 01.972'	Bottom depth = 8.0 m.
2	4/02/97	11:30	30° 20.550'	115° 01.983'	Bottom depth = 8.0 m.
3	4/02/97	11:41	30° 19.967'	115° 00.714'	Bottom depth = 3.0 m.
14	4/02/97	11:48	30° 20.196'	115° 01.394'	Bottom depth = 7.0 m.
12	4/02/97	11:49	30° 20.326'	115° 01.452'	
6	4/02/97	11:55	30° 20.353'	115° 01.702'	Bottom depth = 7.2 m.
7	4/02/97	12:02	30° 20.475'	115° 01.731'	Normal GPS. DGPS not working.
15	4/02/97	12:05	30° 20.489'	115° 01.908'	Bottom depth = 8.0 m. Normal GPS. DGPS not working.
2	4/02/97	12:08	30° 20.496'	115° 01.964'	Bottom depth = 8.5 m.
15	4/02/97	12:10	30° 20.463'	115° 01.944'	
7	4/02/97	12:13	30° 20.447'	115° 01.690'	
3	4/02/97	12:19	30° 19.696'	115° 00.620'	Bottom depth = 3.0 m.
14	4/02/97	12:25	30° 19.969'	115° 01.301'	Bottom depth = 4.2 m.
12	4/02/97	12:29	30° 20.221'	115° 01.417'	Bottom depth = 5.0 m. Drogue touching bottom (probably stuck). Retrieved and re-deployed at original position i.e., Site JB360.
12	4/02/97	12:50	30° 20.582'	115° 01.493'	Re-deployed. Drogue at 5.0 m. Bottom depth = 6.0 m.
7	4/02/97	12:56	30° 20.367'	115° 01.658'	Bottom depth = 7.3 m.
6	4/02/97	12:59	30° 20.141'	115° 01.634'	Bottom depth = 6.1 m.
15	4/02/97	13:04	30° 20.382'	115° 01.913'	Bottom depth = 7.0 m.
2	4/02/97	13:06	30° 20.455'	115° 01.969'	Bottom depth = 8.5 m.

Table 8 Drogue tracking field data sheet.

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
3	4/02/97	13:21	30° 19.094'	115° 00.620'	Bottom depth = 2.5 m.
6	4/02/97	13:36	30° 20.004'	115° 01.566'	Bottom depth = 5.0 m.
14	4/02/97	13:45	30° 19.266'	115° 00.964'	Bottom depth = 4.0 m.
12	4/02/97	14:06	30° 20.348'	115° 01.439'	Bottom depth = 6.0 m.
7	4/02/97	14:08	30° 20.213'	115° 01.588'	Bottom depth = 7.0 m.
15	4/02/97	14:11	30° 20.244'	115° 01.870'	Bottom depth = 6.8 m.
2	4/02/97	14:15	30° 20.400'	115° 01.928'	Bottom depth = 7.5 m.
6	4/02/97	14:19	30° 19.753'	115° 01.396'	Bottom depth = 4.0 m.
14	4/02/97	14:30	30° 18.525'	115° 00.890'	Bottom depth = 3.0 m.
3	4/02/97	14:35	30° 18.145'	115° 00.669'	Bottom depth = 7.5 m.
12	4/02/97	15:00	30° 20.227'	115° 01.411'	Bottom depth = 5.2 m. Probably stuck. Retrieved.
7	4/02/97	15:07	30° 20.084'	115° 01.532'	Bottom depth = 5.8-6.0 m, possibly bouncing along bottom. Retrieved.
15	4/02/97	15:14	30° 20.123'	115° 01.808'	Bottom depth = 5.2 m.
2	4/02/97	15:22	30° 20.351'	115° 01.898'	Bottom depth = 7.3 m.
6	4/02/97	15:45	30° 18.826'	115° 00.999'	Bottom depth = 3.2 m.
14	4/02/97	15:54	30° 17.647'	115° 01.182'	Bottom depth = 12.5 m.
3	4/02/97	16:04	30° 17.523'	115° 00.943'	Bottom depth = 4.2 m.
6	4/02/97	16:15	30° 18.455'	115° 01.034'	Bottom depth = 3.0 m.
3	4/02/97	16:24	30° 17.429'	115° 00.965'	Bottom depth = 3.5 m.
14	4/02/97	16:42	30° 17.227'	115° 01.292'	Bottom depth = 6.5 m.
			DAY EIGHT		
12	5/02/97	9:55	30° 29.338'	115° 02.283'	Drogue at 5.0 m. Site JB750. Bottom depth = 10 m.
6	5/02/97	9:55	30° 29.338	115° 02.283'	Drogue at 1.5 m. Site JB750. Bottom depth = 10 m.
15	5/02/97	10:15	30° 30.132'	115° 01.214'	Drogue at 7.0 m. Bottom depth = 10 m. Site JB760.

Table 8 Drogue tracking field data sheet.

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
3	5/02/97	10:17	30° 30.132'	115° 01.214'	Drogue at 1.5 m. Site JB760. Bottom depth = 10 m.
7	5/02/97	10:20	30° 30.132'	115° 01.214'	Drogue at 5.0 m. Site JB760. Bottom depth = 10 m.
14	5/02/97	10:28	30° 30.719'	115° 01.850'	Drogue at 1.5 m. Site JB770. Bottom depth = 10 m.
1	5/02/97	10:30	30° 30.719'	115° 01.850'	Drogue at 5.0 m. Site JB770. Bottom depth = 10 m.
6	5/02/97	10:42	30° 29.229'	115° 02.291'	
12	5/02/97	10:44	30° 29.250'	115° 02.322'	
3	5/02/97	10:52	30° 29.926'	115° 01.094'	
7	5/02/97	10:53	30° 29.979'	115° 01.135'	
15	5/02/97	10:54	30° 30.024'	115° 01.141'	
14	5/02/97	10:59	30° 30.619'	115° 01.845'	
1	5/02/97	11:00	30° 30.634'	115° 01.848'	"The MCB teatowl".
6	5/02/97	11:10	30° 29.139'	115° 02.235'	
12	5/02/97	11:12	30° 29.199'	115° 02.328'	
3	5/02/97	11:21	30° 29.798	115° 01.046'	
7	5/02/97	11:22	30° 29.890'	115° 01.101'	
15	5/02/97	11:24	30° 29.935'	115° 01.117'	
14	5/02/97	11:29	30° 30.505'	115° 01.841'	Bottom depth = 8.0 m. Wind SW at 15 knots.
1	5/02/97	11:30	30° 30.548'	115° 01.856'	Bottom depth = 8.0 m. Wind SW at 15 knots.
6	5/02/97	11:39	30° 29.059'	115° 02.303'	Bottom depth = 10 m. Wind SW at 15 knots.
12	5/02/97	11:41	30° 29.143'	115° 02.343'	Bottom depth = 10 m. Wind SW at 15 knots.
3	5/02/97	11:50	30° 29.690'	115o 01.017'	
7	5/02/97	11:51	30° 29.814'	115o 01.074'	
15	5/02/97	11:52	30° 29.870'	115o 01.091'	Wind S/SW at 15-18 knots.
14	5/02/97	11:58	30° 30.370'	115o 01.846'	
1	5/02/97	11:59	30° 30.450'	115o 01.867'	Bottom depth = 9 m.

Table 8 Drogue tracking field data sheet.

Drogue number	Date	Time (hrs:mins)	DGPS Latitude (°) (deg and mins)	DGPS Longitude (°) (deg and mins)	Comment from field log notes
12	5/02/97	12:22	30° 29.047'	115° 02.346'	Bottom depth = 10 m.
6	5/02/97	12:24	30° 28.901'	115° 02.320'	
3	5/02/97	12:34	30° 29.530'	115° 00.993'	Bottom depth = 8.0 m. Wind S/SW at 20-25 knots.
7	5/02/97	12:36	30° 29.694'	115° 01.069'	Bottom depth = 8.0 m.
15	5/02/97	12:37	30° 29.764'	115° 01.093'	Bottom depth = 5.0 m. Stuck on bottom. Retrieved - big wave.
14	5/02/97	12:41	30° 30.104'	115° 01.784'	
1	5/02/97	12:43	30° 30.255'	115° 01.811'	Bottom depth = 7.0 m.
6	5/02/97	12:56	30° 28.793'	115° 02.327'	Bottom depth = 7.5 m.
6	5/02/97	13:05	30° 28.793'	115° 02.327'	Retrieved and corner fixed. Redeployed at same site.
12	5/02/97	13:09	30° 28.964'	115° 02.363'	Bottom depth = 9.0 m.
3	5/02/97	13:20	30° 29.347'	115° 00.921'	Bottom depth = 10-12 m.
7	5/02/97	13:22	30° 29.549'	115° 01.047'	Wind SW at 20-25 knots.
14	5/02/97	13:28	30° 29.859'	115° 01.747'	Bottom depth = 5.5 m.
1	5/02/97	13:31	30° 30.069'	115° 01.793'	Bottom depth = 7.0 m.
12	5/02/97	13:44	30° 28.858'	115° 02.378'	Bottom depth = 7.0 m.
6	5/02/97	13:51	30° 28.613'	115° 02.375'	Bottom depth = 6.0 m.
7	5/02/97	14:10	30° 29.369'	115° 00.997'	Bottom depth = 9.0 m.
3	5/02/97	14:23	30° 29.023'	115° 00.839'	Bottom depth = 6-9 m.
14	5/02/97	14:32	30° 29.511'	115° 01.733'	Bottom depth = 9.0 m.
1	5/02/97	14:36	30° 29.785'	115° 01.797'	Bottom depth = 6.0 m.
6	5/02/97	15:50	30° 27.861'	115° 02.467'	Bottom depth = 5.0 m.

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
				DROGUE POSITION FIXING						
				DAY TWO						
3	29/01/97	10	17	30° 22.076'	115° 01.466'	310150	6638777			
3	29/01/97	10	55	30° 22.091'	115° 01.439'	310106	6638748	52.70	2280	0.023
3	29/01/97	11	15	30° 22.141'	115° 01.409'	310061	6638655	103.32	1200	0.086
3	29/01/97	12	0	30° 22.224'	115° 01.388'	310028	6638501	157.50	2700	0.058
3	29/01/97	12	27	30° 22.277'	115° 01.372'	310004	6638403	100.90	1620	0.062
3	29/01/97	13	17	30° 22.313'	115° 01.347'	309967	6638336	76.54	3000	0.026
3	29/01/97	13	53	30° 22.293'	115° 01.312'	309908	6638372	69.12	2160	0.032
3	29/01/97	15	2	30° 22.227'	115° 01.216'	309753	6638491	195.41	4140	0.047
TOTAL								**755.47**	**17100**	
Mean of the individual speeds of each drogue track segment (ms^{-1}) = total of ind. speeds/no. of drogue track segments.										**0.048**
Mean speed from deployment time to retrieval time (ms^{-1}) = Total length of drogue track/deployment period.										**0.044**
6	29/01/97	11	34	30° 22.136'	115° 01.318'	309914	6638662			
6	29/01/97	12	1	30° 22.162'	115° 01.378'	310009	6638615	105.99	1620	0.065
6	29/01/97	12	28	30° 22.195'	115° 01.367'	309992	6638554	63.32	1620	0.039
6	29/01/97	13	19	30° 22.238'	115° 01.364'	309991	6638475	79.01	3060	0.026
6	29/01/97	13	53	30° 22.249'	115° 01.350'	309968	6638454	31.14	2040	0.015
6	29/01/97	15	00	30° 22.245'	115° 01.286'	309865	6638460	103.17	4020	0.026
TOTAL								**382.64**	**12360**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.034**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.031**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
7	29/01/97	10	17	30° 22.076'	115° 01.466'	310150	6638777			
7	29/01/97	10	57	30° 21.874'	115° 01.464'	310140	6639150	373.13	2400	0.155
7	29/01/97	11	16	30° 21.791'	115° 01.436'	310091	6639302	159.70	1140	0.140
7	29/01/97	11	53	30° 21.614'	115° 01.391'	310015	6639628	334.74	2220	0.151
7	29/01/97	12	36	30° 21.438'	115° 01.323'	309898	6639952	344.48	2580	0.134
7	29/01/97	13	24	30° 21.233'	115° 01.259'	309791	6640328	390.93	2880	0.136
7	29/01/97	13	59	30° 21.122'	115° 01.212'	309711	6640532	219.13	2100	0.104
7	29/01/97	15	22	30° 20.779'	115° 01.125'	309559	6641164	650.02	4980	0.131
7	29/01/97	16	5	30° 20.577'	115° 00.999'	309353	6641533	422.61	2580	0.164
TOTAL								**2894.74**	**20880**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.139**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.139**
12	29/01/97	10	36	30° 22.090'	115° 00.557'	308692	6638726			
12	29/01/97	11	6	30° 22.066'	115° 00.546'	308674	6638770	47.54	1800	0.026
12	29/01/97	11	40	30° 22.081'	115° 00.554'	308686	6638742	30.46	2040	0.015
12	29/01/97	12	20	30° 22.122'	115° 00.565'	308705	6638666	78.34	2400	0.033
12	29/01/97	13	1	30° 22.147'	115° 00.577'	308727	6638621	50.09	2460	0.020
12	29/01/97	13	39	30° 22.139'	115° 00.559'	308697	6638635	33.11	2280	0.015
12	29/01/97	14	22	30° 22.121'	115° 00.511'	308620	6638667	83.38	2580	0.032
TOTAL								**322.92**	**13560**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.024**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.024**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
12	29/01/97	14	35	30° 22.121'	115° 00.511'	308.62	6638667			
12	29/01/97	15	40	30° 22.100'	115° 00.417'	308470	6638703	154.26	3900	
TOTAL								**154.26**	**3900**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.040**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.040**
15	29/01/97	10	36	30° 22.090'	115° 00.557'	308692	6638726			
15	29/01/97	11	8	30° 21.893'	115° 00.558'	308689	6639090	364.01	1920	0.190
15	29/01/97	11	45	30° 21.726'	115° 00.560'	308686	6639398	308.01	2220	0.139
15	29/01/97	12	15	30° 21.609'	115° 00.560'	308683	6639614	216.02	1800	0.120
15	29/01/97	12	41	30° 21.524'	115° 00.569'	308695	6639772	158.46	1560	0.102
15	29/01/97	12	54	30° 21.524'	115° 00.569'	308695	6639772	0.00	780	0.000
15	29/01/97	13	34	30° 21.339'	115° 00.577'	308700	6640114	342.04	2400	0.143
15	29/01/97	14	43	30° 21.043'	115° 00.566'	308673	6640660	546.67	4140	0.132
15	29/01/97	15	54	30° 20.706'	115° 00.487'	308536	6641280	634.96	4260	0.149
TOTAL								**2570.16**	**19080**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.122**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.135**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
				DAY THREE						
				NORTHERN BAY						
6	30/01/97	10	35	30° 15.151'	115° 00.296'	308051	6651538			
6	30/01/97	11	25	30° 14.953'	115° 00.246'	307962	6651902	374.72	3000	0.125
6	30/01/97	12	10	30° 14.842'	115° 00.148'	307803	6652104	257.07	2700	0.095
6	30/01/97	12	53	30° 14.749'	115° 00.069'	307673	6652274	214.01	2580	0.083
6	30/01/97	13	49	30° 14.646'	114° 59.942'	307464	6652460	279.78	3360	0.083
6	30/01/97	14	46	30° 14.522'	114° 59.640'	306979	6652681	532.98	3420	0.156
TOTAL								**1658.56**	**15060**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.108**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.110**
7	30/01/97	10	0	30° 15.929'	115° 00.543'	308469	6650107			
7	30/01/97	10	43	30° 15.871'	115° 00.556'	308491	6650214	109.24	2580	0.042
7	30/01/97	11	45	30° 15.715'	115° 00.589'	308539	6650504	293.95	3720	0.079
7	30/01/97	12	34	30° 15.587'	115° 00.565'	308493	6650740	240.44	2940	0.082
7	30/01/97	13	24	30° 15.455'	115° 00.512'	308407	6650982	256.83	3000	0.086
7	30/01/97	14	27	30° 15.324'	115° 00.454'	308309	6651222	259.24	3780	0.069
TOTAL								**1159.69**	**16020**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.071**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.072**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
12	30/01/97	10	0	30° 15.929'	115° 00.543'	308469	6650107			
12	30/01/97	10	43	30° 15.894'	115° 00.535'	308456	6650172	66.29	2580	0.026
12	30/01/97	11	44	30° 15.916'	115° 00.548'	308478	6650131	46.53	3660	0.013
12	30/01/97	12	30	30° 15.904'	115° 00.535'	308457	6650153	30.41	2760	0.011
12	30/01/97	13	18	30° 15.839'	115° 00.504'	308405	6650272	129.87	2880	0.045
12	30/01/97	14	12	30° 15.783'	115° 00.461'	308335	6650375	124.54	3240	0.038
TOTAL								**397.63**	**15120**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.027**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.026**
15	30/01/97	10	35	30° 15.151'	115° 00.296'	308051	6651538			
15	30/01/97	11	30	30° 15.174'	115° 00.240'	307960	6651494	101.08	3300	0.031
15	30/01/97	11	53	30° 15.173'	115° 00.213'	307916	6651494	44.00	1380	0.032
15	30/01/97	13	2	30° 15.149'	115° 00.094'	307724	6651536	196.54	4140	0.047
15	30/01/97	13	32	30° 15.130'	115° 00.021'	307609	6651569	119.64	1800	0.066
15	30/01/97	14	35	30° 15.097'	114° 59.869'	307362	6651625	253.27	3780	0.067
TOTAL								**714.53**	**14400**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.049**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.050**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
				SOUTHERN BAY						
6	30/01/97	16	10	30° 17.635'	115° 01.385'	309875	6646979			
6	30/01/97	16	36	30° 17.565'	115° 01.439'	309961	6647110	156.71	1560	0.100
6	30/01/97	17	34	30° 17.367'	115° 01.572'	310166	6647480	423.00	3480	0.122
TOTAL								**579.70**	**5040**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.111**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.115**
12	30/01/97	16	10	30° 17.635'	115° 01.385'	309875	6646979			
12	30/01 97	16	35	30° 17.632'	115° 01.385'	309875	6646985	6.00	1500	0.004
12	30/01/97	17	28	30° 17.616'	115° 01.444'	309968	6647016	98.03	3180	0.031
TOTAL								**104.03**	**4680**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.017**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.022**
				DAY FOUR						
6	31/01/97	10	10	30° 19.857'	114° 57.297'	303397	6642758			
6	31/01/97	10	50	30° 19.538'	114° 57.213'	303251	6643345	604.88	2400	0.252
6	31/01/97	11	24	30° 19.268'	114° 57.145'	303133	6643842	510.82	2040	0.250
6	31/01/97	11	42	30° 19.121'	114° 57.111'	303073	6644112	276.59	1080	0.256
6	31/01/97	11	54	30° 19.010'	114° 57.084'	303028	6644316	208.90	720	0.290
6	31/01/97	12	7	30° 18.863'	114° 57.057'	302979	6644587	275.39	780	0.353
TOTAL								**1876.59**	**7020**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.280**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.267**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
7	31/01/97	10	10	30^{o} 19.857'	114^{o} 57.291'	303385	6642758			
7	31/01/97	10	51	30^{o} 19.490'	114^{o} 57.180'	303197	6643433	700.69	2460	0.285
7	31/01/97	11	25	30^{o} 19.146'	114^{o} 57.101'	303059	6644066	647.87	2040	0.318
7	31/01/97	11	44	30^{o} 18.950'	114^{o} 57.055'	302979	6644426	368.78	1140	0.323
7	31/01/97	11	57	30^{o} 18.811'	114^{o} 57.018'	302916	6644682	263.64	780	0.338
TOTAL								**1980.98**	**6420**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.316**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.309**
12	31/01/97	10	9	30^{o} 19.857'	114^{o} 57.279'	303367	6642758			
12	31/01/97	10	49	30^{o} 19.620'	114^{o} 57.236'	303289	6643194	442.92	2400	0.185
12	31/01/97	11	22	30^{o} 19.412'	114^{o} 57.202'	303229	6643577	387.67	1980	0.196
12	31/01/97	11	41	30^{o} 19.228'	114^{o} 57.157'	303150	6643916	348.08	1140	0.305
12	31/01/97	11	51	30^{o} 19.081'	114^{o} 57.123'	303092	6644186	276.16	600	0.460
12	31/01/97	12	13	30^{o} 19.303'	114^{o} 57.166'	303167	6643778	414.84	1320	0.314
TOTAL								**1869.67**	**7440**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.292**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.251**
15	31/01/97	11	9	30^{o} 19.463'	114^{o} 57.189'	303210	6643483			
15	31/01/97	11	22	30^{o} 19.412'	114^{o} 57.202'	303229	6643577	95.90	780	0.123
15	31/01/97	11	33	30^{o} 19.367'	114^{o} 57.182'	303195	6643660	89.69	660	0.136
TOTAL								**185.59**	**1440**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.129**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.129**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
15	31/01/97	11	50	30° 19.262'	114° 57.162'	303160	6643853			
15	31/01/97	12	19	30° 19.148'	114° 57.137'	303115	6644063	214.77	1740	
TOTAL								**214.77**	**1740**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.123**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.123**
					DAY FIVE					
3	1/2/97	8	57	30° 16.885'	114° 59.265'	306451	6648305			
3	1/2/97	9	39	30° 16.719'	114° 59.278'	306469	6648612	307.53	2520	0.122
3	1/2/97	10	8	30° 16.610'	114° 59.315'	306524	6648815	210.32	1740	0.121
3	1/2/97	10	37	30° 16.509'	114° 59.320'	306530	6649001	186.10	1740	0.107
3	1/2/97	13	1	30° 15.874'	114° 59.295'	306468	6650174	1174.64	8640	0.136
3	1/2/97	14	11	30° 15.542'	114° 59.185'	306281	6650784	638.02	4200	0.152
TOTAL								**2516.60**	**18840**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.128**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.134**
6	1/2/97	8	24	30° 15.330'	115° 00.315'	308086	6651208			
6	1/2/97	9	25	30° 15.198'	115° 00.360'	308152	6651452	252.77	3660	0.069
6	1/2/97	9	53	30° 15.166'	115° 00.370'	308168	6651512	62.10	1680	0.037
6	1/2/97	10	59	30° 15.088'	115° 00.401'	308216	6651657	152.74	3960	0.039
6	1/2/97	12	35	30° 14.803'	115° 00.489'	308248	6652186	529.97	5760	0.092
6	1/2/97	13	24	30° 14.619'	115° 00.491'	308345	6652526	353.57	2940	0.120
TOTAL								**1351.14**	**18000**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.071**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.075**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
7	1/2/97	8	25	30° 15.330'	115° 00.315'	308086	6651208			
7	1/2/97	9	27	30° 15.288'	115° 00.327'	308102	6651285	78.64	3720	0.021
7	1/2/97	9	52	30° 15.297'	115° 00.319'	308090	6651268	20.81	1500	0.014
7	1/2/97	10	58	30° 15.313'	115° 00.304'	308068	6651239	36.40	3960	0.009
7	1/2/97	12	42	30° 15.335'	115° 00.209'	307916	6651195	158.24	6240	0.025
7	1/2/97	13	41	30° 15.425'	115° 00.164'	307848	6651028	180.31	3540	0.051
7	1/2/97	14	24	30° 15.493'	115° 00.133'	307800	6650901	135.77	2580	0.053
TOTAL								**610.18**	**21540**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.029**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.028**
12	1/2/97	7	52	30° 15.625'	115° 00.024'	307628	6650654			
12	1/2/97	8	43	30° 15.427'	114° 59.994'	307575	6651019	368.83	3060	0.121
12	1/2/97	9	20	30° 15.293'	114° 59.990'	307562	6651266	247.34	2220	0.111
12	1/2/97	9	57	30° 15.190'	114° 59.981'	307547	6651456	190.59	2220	0.086
12	1/2/97	10	54	30° 14 982'	114° 59.990'	307552	6651841	385.03	3420	0.113
12	1/2/97	12	29	30° 14.516'	114° 59.905'	307401	6652700	872.17	5700	0.153
12	1/2/97	13	13	30° 14.356'	114° 59.784'	307202	6652992	353.36	2640	0.134
TOTAL								**2417.33**	**19260**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.120**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.126**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
14	1/2/97	9	1	30^{o} 16.853'	114^{o} 59.256'	306438	6648364			
14	1/2/97	9	41	30^{o} 16.783'	114^{o} 59.278'	306471	6648494	134.12	2400	0.056
14	1/2/97	10	10	30^{o} 16.733'	114^{o} 59.310'	306519	6648587	104.66	1740	0.060
14	1/2/97	10	35	30^{o} 16.719'	114^{o} 59.334'	306557	6648614	46.62	1500	0.031
14	1/2/97	12	51	30^{o} 16.542'	114^{o} 59.407'	306669	6648943	347.54	8160	0.043
14	1/2/97	13	56	30^{o} 16.451'	114^{o} 59.433'	306707	6649112	173.22	3900	0.044
TOTAL								**806.16**	**17700**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.047**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.046**
15	1/2/97	7	54	30^{o} 15.595'	115^{o} 00.018'	307619	6650710			
15	1/2/97	8	42	30^{o} 15.547'	114^{o} 59.966'	307535	6650796	120.22	2880	0.042
15	1/2/97	9	30	30^{o} 15.507'	114^{o} 59.915'	307451	6650869	111.29	2880	0.039
15	1/2/97	10	0	30^{o} 15.470'	114^{o} 59.886'	307403	6650937	83.23	1800	0.046
15	1/2/97	10	51	30^{o} 15.439'	114^{o} 59.884'	307399	6650994	57.14	3060	0.019
15	1/2/97	12	18	30^{o} 15.434'	114^{o} 59.899'	307422	6651004	25.08	5220	0.005
TOTAL								**396.96**	**15840**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.030**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.025**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
					DAY SIX					
3	3/2/97	16	00	30^{o} 19.274'	115^{o} 00.862'	309091	6643836			
3	3/2/97	16	30	30^{o} 19.014'	115^{o} 00.854'	309068	6644416	580.46	1800	0.322
3	3/2/97	16	32	30^{o} 18.952'	115^{o} 00.867'	309090	6644532	118.07	120	0.984
3	3/2/97	17	15	30^{o} 18.509'	115^{o} 00.875'	309087	6645350	818.01	2580	0.317
TOTAL								**1516.53**	**4500**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.541**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.337**
6	3/2/97	14	43	30^{o} 20.399'	115^{o} 00.899'	309186	6641859			
6	3/2/97	15	30	30^{o} 20.172'	115^{o} 00.889'	309164	6642278	419.58	2820	0.149
6	3/2/97	15	40	30^{o} 20.097'	115^{o} 00.883'	309150	6642416	138.71	600	0.231
6	3/2/97	16	10	30^{o} 19.972'	115^{o} 00.877'	309137	6642648	232.36	1800	0.129
6	3/2/97	16	24	30^{o} 19.799'	115^{o} 00.845'	309082	6642966	322.72	840	0.384
6	3/2/97	17	7	30^{o} 19.648'	115^{o} 00.808'	309015	6643244	285.96	2580	0.111
TOTAL								**1399.33**	**8640**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.201**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.162**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
7	3/2/97	15	7	30^{o} 20.806'	115^{o} 01.857'	310734	6641134			
7	3/2/97	15	38	30^{o} 20.794'	115^{o} 01.857'	310733	6641156	22.02	1860	0.012
7	3/2/97	16	20	30^{o} 20.742'	115^{o} 01.849'	310720	6641252	96.88	2520	0.038
7	3/2/97	16	52	30^{o} 20.704'	115^{o} 01.833'	310692	6641322	75.39	1920	0.039
TOTAL								**194.29**	**6300**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.030**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.031**
12	3/2/97	15	8	30^{o} 20.842'	115^{o} 01.854'	310729	6641068			
12	3/2/97	15	36	30^{o} 20.846'	115^{o} 01.864'	310747	6641060	19.70	1680	0.012
12	3/2/97	16	21	30^{o} 20.788'	115^{o} 01.867'	310751	6641168	108.07	2700	0.040
12	3/2/97	16	56	30^{o} 20.791'	115^{o} 01.853'	310728	6641161	24.04	2100	0.011
TOTAL								**151.81**	**6480**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.021**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.023**
					DAY SEVEN					
2	4/2/97	10	40	30^{o} 20.600'	115^{o} 02.000'	310956	6641518			
2	4/2/97	11	30	30^{o} 20.550'	115^{o} 01.983'	310928	6641610	96.17	3000	0.032
2	4/2/97	12	8	30^{o} 20.496'	115^{o} 01.964'	310894	6641710	105.62	2280	0.046
2	4/2/97	13	6	30^{o} 20.455'	115^{o} 01.969'	310902	6641786	76.42	3480	0.022
2	4/2/97	14	15	30^{o} 20.400'	115^{o} 01.928'	310835	6641886	120.37	4140	0.029
2	4/2/97	15	22	30^{o} 20.351'	115^{o} 01.898'	310784	6641976	103.45	4020	0.026
TOTAL								**502.02**	**16920**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.031**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.030**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
3	4/2/97	10	4	30° 20.600'	115° 00.900'	309196	6641488			
3	4/2/97	10	55	30° 20.275'	115° 00.829'	309071	6642086	610.92	3060	0.200
3	4/2/97	11	41	30° 19.967'	115° 00.714'	308876	6642652	598.65	2760	0.217
3	4/2/97	12	19	30° 19.696'	115° 00.620'	308715	6643150	523.38	2280	0.230
3	4/2/97	13	21	30° 19.094'	115° 00.620'	308698	6644262	1112.13	3720	0.299
3	4/2/97	14	35	30° 18.145'	115° 00.669'	308744	6646017	1755.60	4440	0.395
3	4/2/97	16	4	30° 17.523'	115° 00.943'	309164	6647174	1230.87	5340	0.231
3	4/2/97	16	24	30° 17.429'	115° 00.965'	309196	6647348	176.92	1200	0.147
TOTAL								**6008.48**	**22800**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.245**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.264**
6	4/2/97	10	26	30° 20.600'	115° 00.740'	308937	6641483			
6	4/2/97	11	22	30° 20.429'	115° 01.711'	310487	6641826	1587.50	3360	0.472
6	4/2/97	11	55	30° 20.353'	115° 01.702'	310473	6641966	140.70	1980	0.071
6	4/2/97	12	59	30° 20.141'	115° 01.634'	310355	6642356	407.46	3840	0.106
6	4/2/97	13	36	30° 20.004'	115° 01.566'	310242	6642608	276.18	2220	0.124
6	4/2/97	14	19	30° 19.753'	115° 01.396'	309961	6643066	537.33	2580	0.208
6	4/2/97	15	45	30° 18.826'	115° 00.999'	309297	6644768	1826.94	5160	0.354
6	4/2/97	16	15	30° 18.455'	115° 01.034'	309341	6645454	687.41	1800	0.382
TOTAL								**5463.51**	**20940**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.245**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.261**

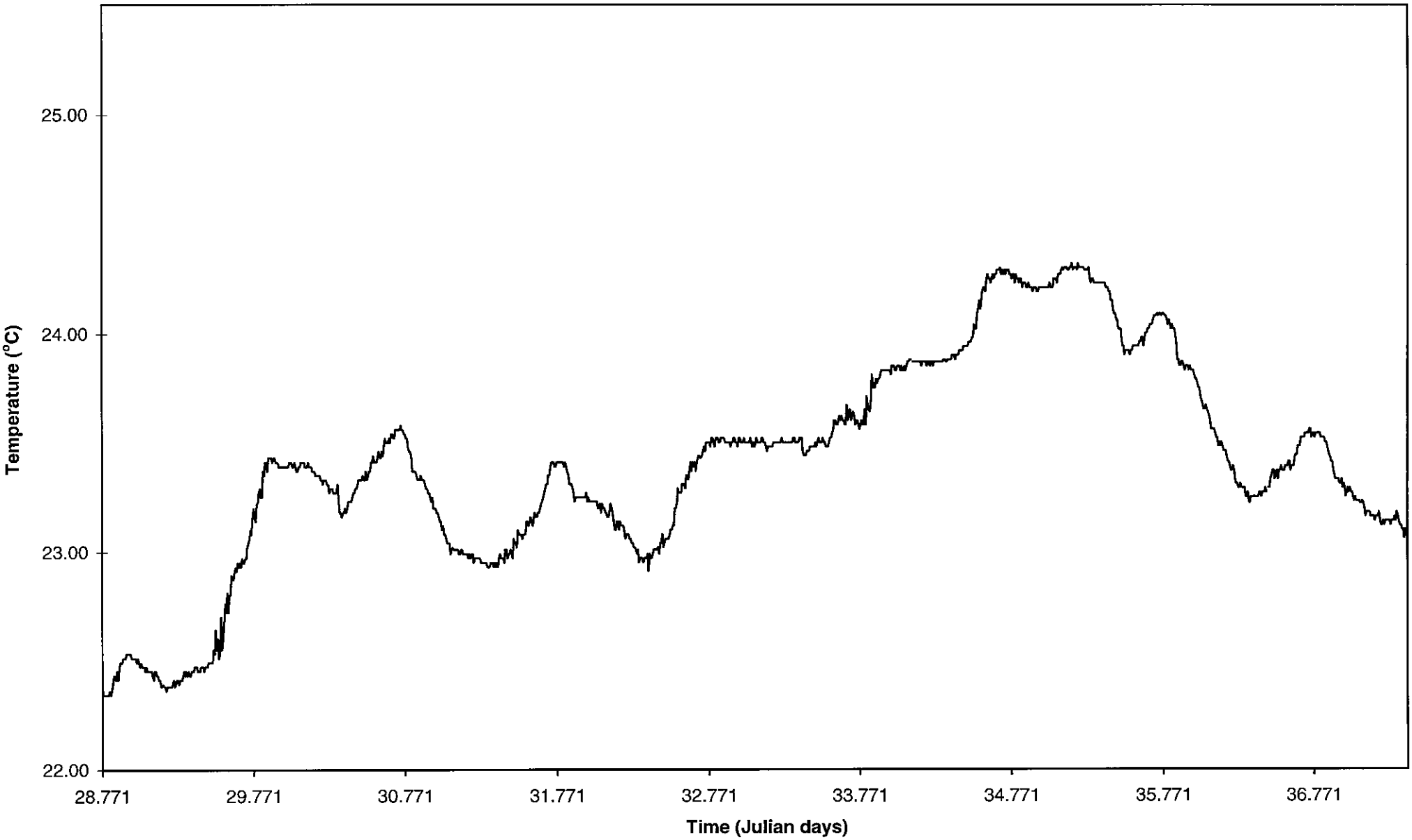


Figure 8 (continued) Temperature logger data from Site TL4.

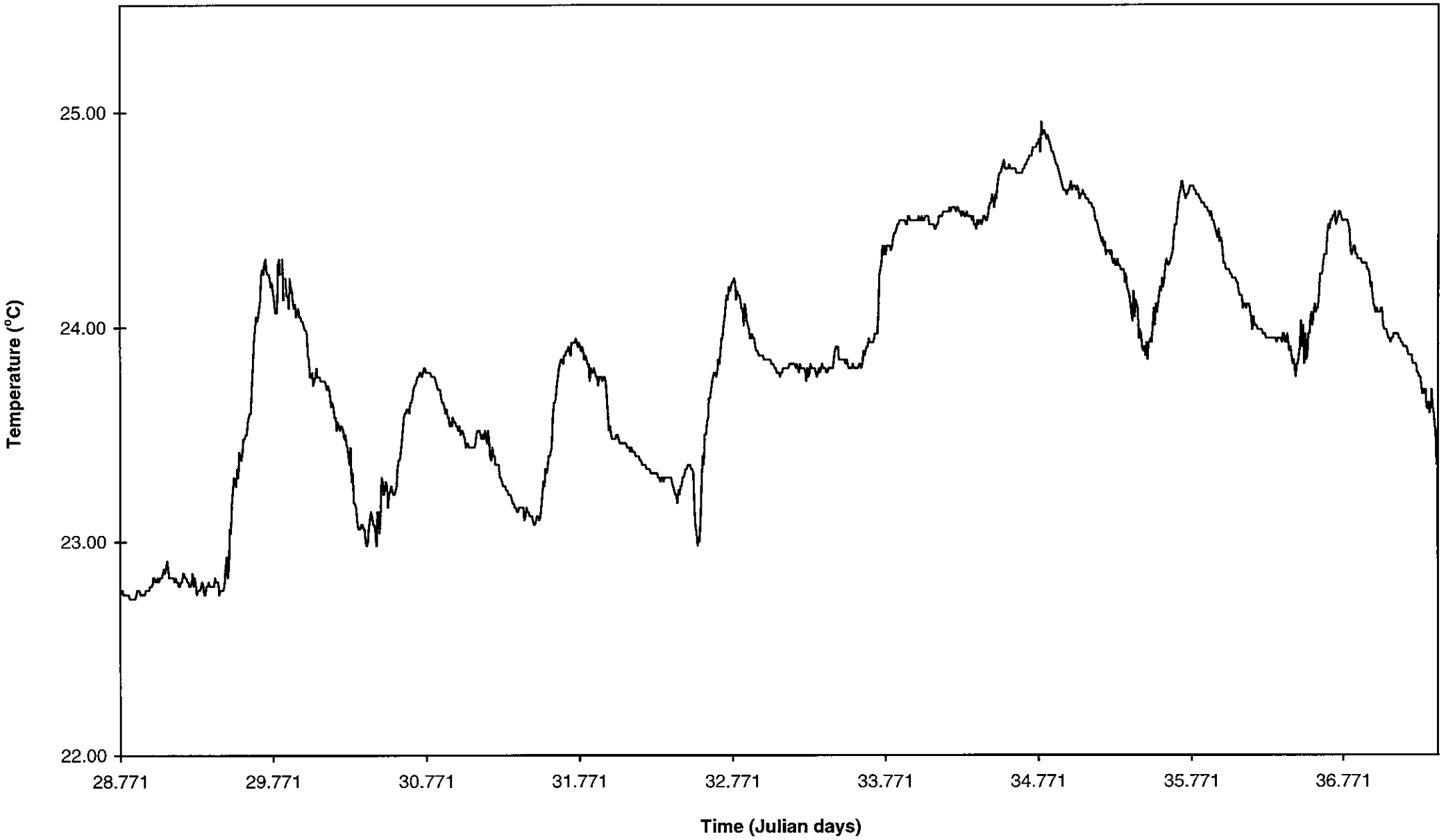


Figure 8 (continued) Temperature logger data from Site TL3.

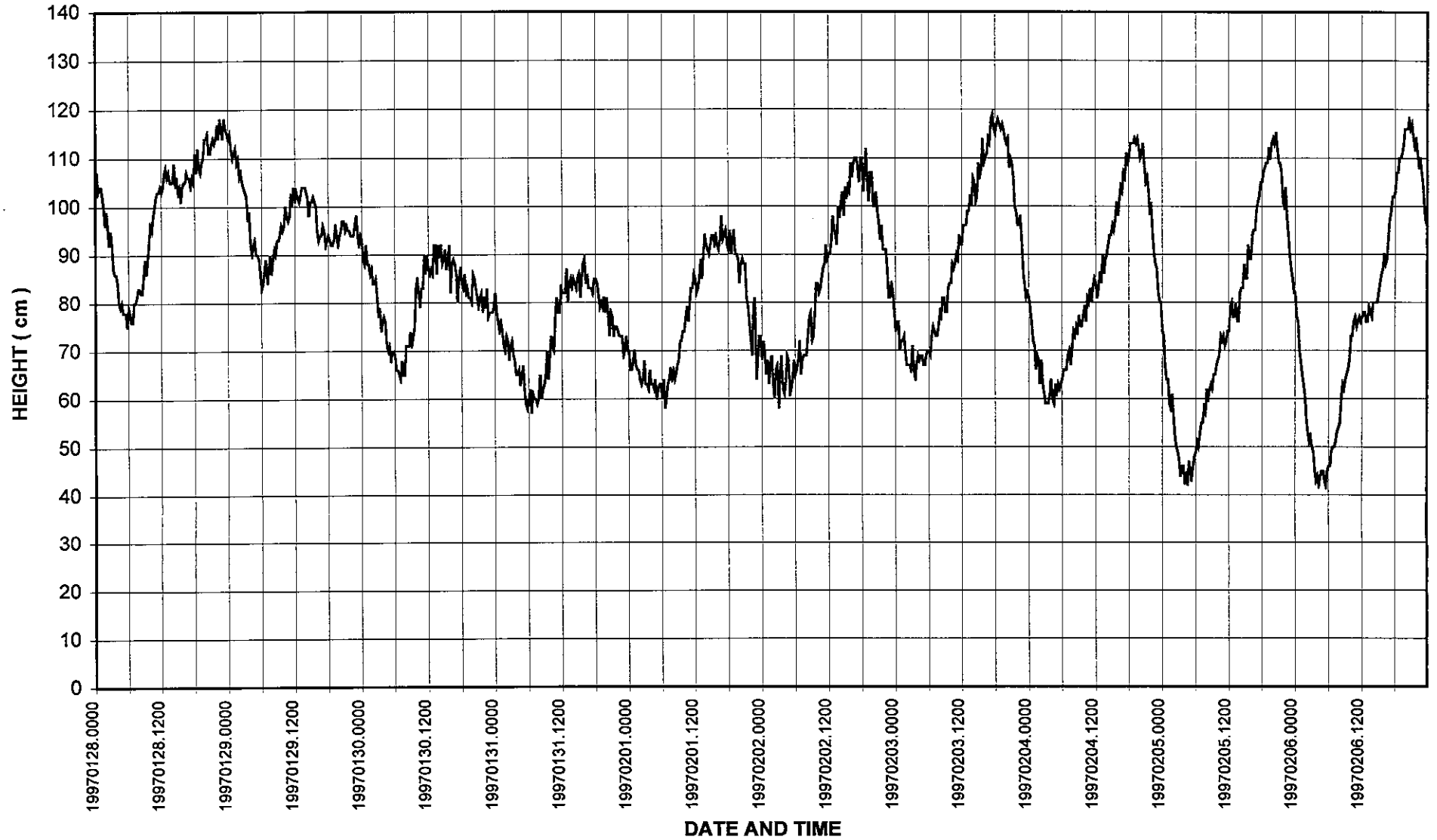


Figure 9 Water level data (from Department of Transport).

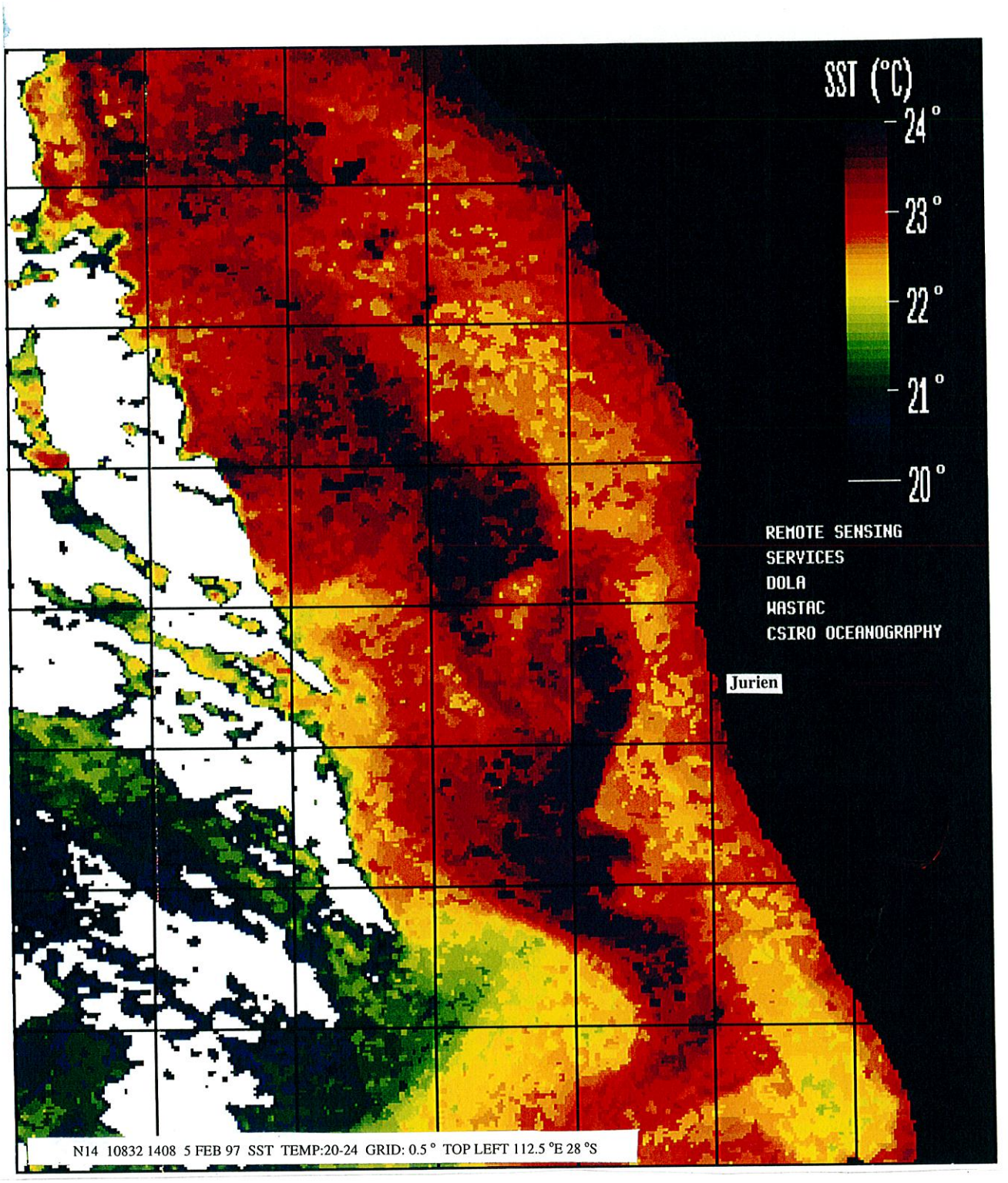


Figure 10 NOAA-AVHRR (N14 10832, 1408 hours, 5 February 1997) sea-surface temperature image off southwest Australia (from Department of Land Administration)

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
7	4/2/97	10	30	30° 20.600'	115° 00.740'	308937	6641483			
7	4/2/97	11	23	30° 20.508'	115° 01.719'	310504	6641681	1579.46	3180	0.497
7	4/2/97	12	2	30° 20.475'	115° 01.731'	310521	6641742	63.32	2340	0.027
7	4/2/97	12	13	30° 20.447'	115° 01.690'	310455	6641792	82.80	660	0.125
7	4/2/97	12	56	30° 20.367'	115° 01.658'	310403	6641939	155.93	2580	0.060
7	4/2/97	14	8	30° 20.213'	115° 01.588'	310284	6642222	307.00	4320	0.071
7	4/2/97	15	7	30° 20.084'	115° 01.532'	310191	6642458	253.66	3540	0.072
TOTAL								**2442.18**	**16620**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.130**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.147**
12	4/2/97	10	12	30° 20.600'	115° 01.500'	310155	6641504			
12	4/2/97	11	13	30° 20.412'	115° 01.471'	310102	6641851	351.02	3660	0.096
12	4/2/97	11	49	30° 20.326'	115° 01.452'	310070	6642010	162.19	2160	0.075
12	4/2/97	12	29	30° 20.221'	115° 01.417'	310011	6642202	200.86	2400	0.084
TOTAL								**714.07**	**8220**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.085**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.087**
12	4/2/97	12	50	30° 20.582'	115° 01.493'	310146	6641538			
12	4/2/97	14	6	30° 20.348'	115° 01.439'	310050	6641968	440.59	4560	0.097
12	4/2/97	15	0	30° 20.227'	115° 01.411'	309999	6642191	228.76	3240	0.071
TOTAL								**669.34**	**7800**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.084**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.086**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
14	4/2/97	10	24	30° 20.600'	115° 01.500'	310155	6641504			
14	4/2/97	11	7	30° 20.388'	115° 01.459'	310084	6641895	397.39	2580	0.154
14	4/2/97	11	48	30° 20.196'	115° 01.394'	309972	6642248	370.34	2460	0.151
14	4/2/97	12	25	30° 19.969'	115° 01.301'	309815	6642665	445.58	2220	0.201
14	4/2/97	13	45	30° 19.266'	115° 00.964'	309252	6643954	1406.59	4800	0.293
14	4/2/97	14	30	30° 18.525'	115° 00.890'	309111	6645321	1374.25	2700	0.509
14	4/2/97	15	54	30° 17.647'	115° 01.182'	309552	6646951	1688.60	5040	0.335
14	4/2/97	16	42	30° 17.227'	115° 01.292'	309715	6647730	795.87	2880	0.276
TOTAL								**6478.63**	**22680**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.274**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.286**
15	4/2/97	10	32	30° 20.600'	115° 02.000'	310956	6641518			
15	4/2/97	11	29	30° 20.525'	115° 01.972'	310910	6641656	145.46	3420	0.043
15	4/2/97	12	5	30° 20.489'	115° 01.908'	310806	6641721	122.64	2160	0.057
15	4/2/97	12	10	30° 20.463'	115° 01.944'	310864	6641770	75.93	300	0.253
15	4/2/97	13	4	30° 20.382'	115° 01.913'	310811	6641919	158.15	3240	0.049
15	4/2/97	14	11	30° 20.244'	115° 01.870'	310736	6642172	263.88	4020	0.066
15	4/2/97	15	14	30° 20.123'	115° 01.808'	310636	6642395	244.40	3780	0.065
TOTAL								**1010.46**	**16920**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.089**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.060**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
						DAY EIGHT				
1	5/2/97	10	30	30^{o} 30.719'	115^{o} 01.850'	311041	6622820			
1	5/2/97	11	0	30^{o} 30.634'	115^{o} 01.848'	311035	6622977	157.11	1800	0.087
1	5/2/97	11	30	30^{o} 30.548'	115^{o} 01.856'	311047	6623136	159.45	1800	0.089
1	5/2/97	11	59	30^{o} 30.450'	115^{o} 01.867'	311062	6623318	182.62	1740	0.105
1	5/2/97	12	43	30^{o} 30.255'	115^{o} 01.811'	310965	6623676	370.91	2640	0.140
1	5/2/97	13	31	30^{o} 30.069'	115^{o} 01.793'	310929	6624019	344.88	2880	0.120
1	5/2/97	14	36	30^{o} 29.785'	115^{o} 01.797'	310929	6624544	525.00	3900	0.135
TOTAL								**1739.98**	**14760**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.113**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.118**
3	5/2/97	10	17	30^{o} 30.132'	115^{o} 01.214'	310006	6623886			
3	5/2/97	10	52	30^{o} 29.926'	115^{o} 01.094'	309809	6624264	426.25	2100	0.203
3	5/2/97	11	21	30^{o} 29.798'	115^{o} 01.046'	309725	6624499	249.56	1740	0.143
3	5/2/97	11	50	30^{o} 29.690'	115^{o} 01.017'	309678	6624698	204.47	1740	0.118
3	5/2/97	12	34	30^{o} 29.530'	115^{o} 00.993'	309632	6624992	297.58	2640	0.113
3	5/2/97	13	20	30^{o} 29.347'	115^{o} 00.921'	309511	6625328	357.12	2760	0.129
3	5/2/97	14	23	30^{o} 29.023'	115^{o} 00.839'	309369	6625925	613.66	3780	0.162
TOTAL								**2148.65**	**14760**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.145**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.146**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
6	5/2/97	9	55	30° 29.338	115° 02.283'	311691	6625384			
6	5/2/97	10	42	30° 29.229'	115° 02.291'	311699	6625585	201.16	2820	0.071
6	5/2/97	11	10	30° 29.139'	115° 02.235'	311605	6625750	189.90	1680	0.113
6	5/2/97	11	39	30° 29.059'	115° 02.303'	311714	6625899	184.61	1740	0.106
6	5/2/97	12	24	30° 28.901'	115° 02.320'	311735	6626192	293.75	2700	0.109
6	5/2/97	12	56	30° 28.793'	115° 02.327'	311744	6626392	200.20	1920	0.104
TOTAL								**1069.62**	**10860**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.101**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.098**
6	5/2/97	13	5	30° 28.793'	115° 02.327'	311744	6626392			
6	5/2/97	13	51	30° 28.613'	115° 02.375'	311814	6626725	340.28	2760	0.123
6	5/2/97	15	50	30° 27.861'	115° 02.467'	311936	6628117	1397.34	7140	0.196
TOTAL								**1737.61**	**9900**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.159**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.176**
7	5/2/97	10	20	30° 30.132'	115° 01.214'	310006	6623886			
7	5/2/97	10	53	30° 29.979'	115° 01.135'	309875	6624167	310.04	1980	0.157
7	5/2/97	11	22	30° 29.890'	115° 01.101'	309816	6624330	173.35	1740	0.100
7	5/2/97	11	51	30° 29.814'	115° 01.074'	309770	6624470	147.36	1740	0.085
7	5/2/97	12	36	30° 29.694'	115° 01.069'	309760	6624692	222.23	2700	0.082
7	5/2/97	13	22	30° 29.549'	115° 01.047'	309720	6624959	269.98	2760	0.098
7	5/2/97	14	10	30° 29.369'	115° 00.997'	309632	6625290	342.50	2880	0.119
TOTAL								**1465.45**	**13800**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.107**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.106**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
12	5/2/97	9	55	30^{o} 29.338'	115^{o} 02.283'	311691	6625384			
12	5/2/97	10	44	30^{o} 29.250'	115^{o} 02.322'	311750	6625547	173.35	2940	0.059
12	5/2/97	11	12	30^{o} 29.199'	115^{o} 02.328'	311760	6625641	94.53	1680	0.056
12	5/2/97	11	41	30^{o} 29.143'	115^{o} 02.343'	311714	6625745	113.72	1740	0.065
12	5/2/97	12	22	30^{o} 29.047'	115^{o} 02.346'	311781	6625922	189.26	2460	0.077
12	5/2/97	13	9	30^{o} 28.964'	115^{o} 02.363'	311805	6626077	156.85	2820	0.056
12	5/2/97	13	44	30^{o} 28.858'	115^{o} 02.378'	311828	6626273	197.34	2100	0.094
TOTAL								**925.05**	**13740**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.068**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.067**
14	5/2/97	10	28	30^{o} 30.719'	115^{o} 01.850'	311041	6622820			
14	5/2/97	10	59	30^{o} 30.619'	115^{o} 01.845'	311032	6623004	184.22	1860	0.099
14	5/2/97	11	29	30^{o} 30.505'	115^{o} 01.841'	311022	6623215	211.24	1800	0.117
14	5/2/97	11	58	30^{o} 30.370'	115^{o} 01.846'	311024	6623464	249.01	1740	0.143
14	5/2/97	12	41	30^{o} 30.104'	115^{o} 01.784'	310916	6623954	501.76	2580	0.194
14	5/2/97	13	28	30^{o} 29.859'	115^{o} 01.747'	310849	6624406	456.94	2820	0.162
14	5/2/97	14	32	30^{o} 29.511'	115^{o} 01.733'	310815	6625048	642.90	3840	0.167
TOTAL								**2246.06**	**14640**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.147**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.153**

Table 9 Processed drogue track data including drogue segment and mean run speeds.

Drogue Number	Date	Time (hours)	Time (mins.)	DGPS Latitude (deg and mins)	DGPS Longitude (deg and mins)	Easting (m) (longitude)	Northing (m) (latitude)	Length of a drogue track segment (m)	Time taken for a drogue to traverse a segment (secs.)	Individual speed for each drogue track segment (ms^{-1})
15	5/2/97	10	15	30^{o} 30.132'	115^{o} 01.214'	310006	6623886			
15	5/2/97	10	54	30^{o} 30.024'	115^{o} 01.141'	309885	6624084	232.05	2340	0.099
15	5/2/97	11	24	30^{o} 29.935'	115^{o} 01.117'	309844	6624248	169.05	1800	0.094
15	5/2/97	11	52	30^{o} 29.870'	115^{o} 01.091'	309801	6624367	126.53	1680	0.075
15	5/2/97	12	37	30^{o} 29.764'	115^{o} 01.093'	309800	6624563	196.00	2700	0.073
TOTAL								**723.63**	**8520**	
Mean of the individual speeds of each drogue track segment (ms^{-1})										**0.085**
Mean speed from deployment time to retrieval time (ms^{-1})										**0.085**

Table 10 Summary of mean speeds from drogue runs.

Site No.	Drogue No.	Deployed at depth (m)	DGPS	Deployment time (DP)	Retrieval time (RT)	Mean Drogue speed (ms^{-1})	Comments in reference to the drogue plotting
				DAY 2 - 29/01/97			
JB110	3	9	yes	10:17	15:02	0.044	
JB110	7	2	yes	10:17	16:05	0.139	
JB100	12	9	yes	10:36	14:22	0.024	
JB100	12	9	yes	14:35	15:40	0.040	
JB100	15	2	yes	10:36	15:54	0.135	
JB110	6	11	yes	11:34	15:00	0.031	
				DAY 3 - 30/01/97			
				NORTHERN BAY			
JB150	12	9	yes	10:00	14:12	0.026	
JB150	7	2	yes	10:00	14:27	0.072	
JB160	15	9.5	yes	10:35	14:35	0.050	
JB160	6	2	yes	10:35	14:46	0.110	
				SOUTHERN BAY			
TL3	12	11	yes	16:10	17:28	0.022	
TL3	6	2	yes	16:10	17:34	0.115	
				DAY 4 - 31/01/97			
JB250	12	19	yes	10:09	12:13	0.196	
JB250	7	2	yes	10:10	11:57	0.309	
JB250	6	9	yes	10:10	12:07	0.267	
JB300	15	30	yes	11:09	11:22	0.123	Data ignored for 1109 as drogue was bouncing at bottom.
JB300	15	27	yes	11:33	12:19	0.149	

Table 10 Summary of mean speeds from drogue runs.

Site No.	Drogue No.	Deployed at depth (m)	DGPS	Deployment time (DP)	Retrieval time (RT)	Mean Drogue speed (ms^{-1})	Comments in reference to the drogue plotting
				DAY 5 - 01/02/97			
JB360	12	2	yes	7:52	13:13	0.126	
JB360	15	9	yes	7:54	12:18	0.025	
JB350	6	2	yes	8:24	13:24	0.075	
JB350	7	10.5	yes	8:25	14:24	0.028	
JB370	3	2	yes	8:57	14:11	0.134	
JB370	14	9	yes	9:01	13:56	0.046	
				DAY 6 - 03/02/97			
JB560	6	1.5	yes	14:43	17:07	0.162	
JB570	7	1.5	yes	15:07	16:52	0.031	
JB570	12	5	yes	15:08	16:56	0.023	
JB260	3	1.5	*	16:00	17:15	0.346	* Deployment time = Normal GPS. Retrieval time = DGPS.
				DAY 7 - 04/02/97			
JB620	3	1.5	yes	10:04	16:24	0.264	
JB630	12	5	yes	10:12	12:29	0.087	
JB630	12	5	yes	12:50	15:00	0.086	
JB630	14	1.5	yes	10:24	16:42	0.286	
JB640	6	1.5	yes	10:26	16:15	0.200	
JB630	7	5	no	10:30	15:07	0.062	Coordinates recorded at 1202 pm were rejected as DGPS was not working. Normal GPS taken.
JB650	15	1.5	no	10:32	15:14	0.055	Coordinates recorded at 1205 pm were rejected as DGPS was not working. Normal GPS taken.
JB650	2	5	yes	10:40	15:22	0.030	

Table 10 Summary of mean speeds from drogue runs.

Site No.	Drogue No.	Deployed at depth (m)	DGPS	Deployment time (DP)	Retrieval time (RT)	Mean Drogue speed (ms^{-1})	Comments in reference to the drogue plotting
				DAY 8 - 05/02/97			
JB750	6	1.5	yes	9:55	12:56	0.110	
JB750	6	1.5	yes	13:05	15:50	0.176	
JB750	12	5	yes	9:55	13:44	0.067	
JB760	15	7	yes	10:15	12:37	0.085	
JB760	3	1.5	yes	10:17	14:23	0.146	
JB760	7	5	yes	10:20	14:10	0.106	
JB770	14	1.5	yes	10:28	14:32	0.153	
JB770	1	5	yes	10:30	14:36	0.118	

Table 11 GIS drogue data file listing all data in chronological sequence.

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
2	3a	29/01/97	1017	115.0244333	-30.36793	310150	6638777	0.00	0	0.000	115° 01.466'	30° 22.076'
2	3a	29/01/97	1055	115.0239833	-30.36818	310106	6638748	52.70	2280	0.023	115° 01.439'	30° 22.091'
2	3a	29/01/97	1115	115.0234833	-30.36902	310061	6638655	103.32	1200	0.086	115° 01.409'	30° 22.141'
2	3a	29/01/97	1200	115.0231333	-30.37040	310028	6638501	157.50	2700	0.058	115° 01.388'	30° 22.224'
2	3a	29/01/97	1227	115.0228667	-30.37128	310004	6638403	100.90	1620	0.062	115° 01.372'	30° 22.277'
2	3a	29/01/97	1317	115.02245	-30.37188	309967	6638336	76.54	3000	0.026	115° 01.347'	30° 22.313'
2	3a	29/01/97	1353	115.0218667	-30.37155	309908	6638372	69.12	2160	0.032	115° 01.312'	30° 22.293'
2	3a	29/01/97	1502	115.0202667	-30.37045	309753	6638491	195.41	4140	0.047	115° 01.216'	30° 22.227'
2	6a	29/01/97	1134	115.0219667	-30.36893	309914	6638662	0.00	0	0.000	115° 01.318'	30° 22.136'
2	6a	29/01/97	1201	115.0229667	-30.36937	310009	6638615	105.99	1620	0.065	115° 01.378'	30° 22.162'
2	6a	29/01/97	1228	115.0227833	-30.36992	309992	6638554	63.32	1620	0.039	115° 01.367'	30° 22.195'
2	6a	29/01/97	1319	115.0227333	-30.37063	309991	6638475	79.01	3060	0.026	115° 01.364'	30° 22.238'
2	6a	29/01/97	1353	115.02250	-30.37082	309968	6638454	31.14	2040	0.015	115° 01.350'	30° 22.249'
2	6a	29/01/97	1500	115.0214333	-30.37075	309865	6638460	103.17	4020	0.026	115° 01.286'	30° 22.245'
2	7a	29/01/97	1017	115.0244333	-30.36793	310150	6638777	0.00	0	0.000	115° 01.466'	30° 22.076'
2	7a	29/01/97	1057	115.02440	-30.36457	310140	6639150	373.13	2400	0.155	115° 01.464'	30° 21.874'
2	7a	29/01/97	1116	115.0239333	-30.36318	310091	6639302	159.70	1140	0.140	115° 01.436'	30° 21.791'
2	7a	29/01/97	1153	115.0231833	-30.36023	310015	6639628	334.74	2220	0.151	115° 01.391'	30° 21.614'
2	7a	29/01/97	1236	115.02205	-30.35730	309898	6639952	344.48	2580	0.134	115° 01.323'	30° 21.438'
2	7a	29/01/97	1324	115.0209833	-30.35388	309791	6640328	390.93	2880	0.136	115° 01.259'	30° 21.233'
2	7a	29/01/97	1359	115.02020	-30.35203	309711	6640532	219.13	2100	0.104	115° 01.212'	30° 21.122'
2	7a	29/01/97	1522	115.01875	-30.34632	309559	6641164	650.02	4980	0.131	115° 01.125'	30° 20.779'
2	7a	29/01/97	1605	115.01665	-30.34295	309353	6641533	422.61	2580	0.164	115° 00.999'	30° 20.577'
2	12a	29/01/97	1036	115.0092833	-30.36817	308692	6638726	0.00	0	0.000	115° 00.557'	30° 22.090'
2	12a	29/01/97	1106	115.00910	-30.36777	308674	6638770	47.54	1800	0.026	115° 00.546'	30° 22.066'
2	12a	29/01/97	1140	115.0092333	-30.36802	308686	6638742	30.46	2040	0.015	115° 00.554'	30° 22.081'
2	12a	29/01/97	1220	115.0094167	-30.36870	308705	6638666	78.34	2400	0.033	115° 00.565'	30° 22.122'
2	12a	29/01/97	1301	115.0096167	-30.36912	308727	6638621	50.09	2460	0.020	115° 00.577'	30° 22.147'
2	12a	29/01/97	1339	115.0093167	-30.36898	308697	6638635	33.11	2280	0.015	115° 00.559'	30° 22.139'
2	12a	29/01/97	1422	115.0085167	-30.36868	308620	6638667	83.38	2580	0.032	115° 00.511'	30° 22.121'
2	12b	29/01/97	1435	115.0085167	-30.36868	308620	6638667	0.00	0	0.000	115° 00.511'	30° 22.121'
2	12b	29/01/97	1540	115.00695	-30.36833	308470	6638703	154.26	3900	0.040	115° 00.417'	30° 22.100'
2	15a	29/01/97	1036	115.0092833	-30.36817	308692	6638726	0.00	0	0.000	115° 00.557'	30° 22.090'
2	15a	29/01/97	1108	115.00930	-30.36488	308689	6639090	364.01	1920	0.190	115° 00.558'	30° 21.893'
2	15a	29/01/97	1145	115.0093333	-30.36210	308686	6639398	308.01	2220	0.139	115° 00.560'	30° 21.726'
2	15a	29/01/97	1215	115.0094833	-30.36015	308683	6639614	216.02	1800	0.120	115° 00.560'	30° 21.609'
2	15a	29/01/97	1241	115.0094833	-30.35873	308695	6639772	158.46	1560	0.102	115° 00.569'	30° 21.524'
2	15b	29/01/97	1254	115.0094833	-30.35873	308695	6639772	0.00	780	0.000	115° 00.569'	30° 21.524'

Table 11 GIS drogue data file listing all data in chronological sequence.

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
2	15b	29/01/97	1334	115.00962	-30.35565	308700	6640114	342.04	2400	0.143	115° 00.577'	30° 21.339'
2	15b	29/01/97	1443	115.00943	-30.35072	308673	6640660	546.67	4140	0.132	115° 00.566'	30° 21.043'
2	15b	29/01/97	1554	115.00812	-30.34510	308536	6641280	634.96	4260	0.149	115° 00.487'	30° 20.706'
N-bay	6b	30/01/97	1035	115.0049333	-30.25252	308051	6651538	0.00	0	0.000	115° 00.296'	30° 15.151'
3	6b	30/01/97	1125	115.0041	-30.24922	307962	6651902	374.72	3000	0.125	115° 00.246'	30° 14.953'
3	6b	30/01/97	1210	115.0024667	-30.24737	307803	6652104	257.07	2700	0.095	115° 00.148'	30° 14.842'
3	6b	30/01/97	1253	115.00115	-30.24582	307673	6652274	214.01	2580	0.083	115° 00.069'	30° 14.749'
3	6b	30/01/97	1349	114.9990333	-30.24410	307464	6652460	279.78	3360	0.083	114° 59.942'	30° 14.646'
3	6b	30/01/97	1446	114.994	-30.24203	306979	6652681	532.98	3420	0.156	114° 59.640'	30° 14.522'
3	7b	30/01/97	1000	115.00905	-30.26548	308469	6650107	0.00	0	0.000	115° 00.543'	30° 15.929'
3	7b	30/01/97	1043	115.0092667	-30.26452	308491	6650214	109.24	2580	0.042	115° 00.556'	30° 15.871'
3	7b	30/01/97	1145	115.0098167	-30.26192	308539	6650504	293.95	3720	0.079	115° 00.589'	30° 15.715'
3	7b	30/01/97	1234	115.0094167	-30.25978	308493	6650740	240.44	2940	0.082	115° 00.565'	30° 15.587'
3	7b	30/01/97	1324	115.0085333	-30.25758	308407	6650982	256.83	3000	0.086	115° 00.512'	30° 15.455'
3	7b	30/01/97	1427	115.0075667	-30.25540	308309	6651222	259.24	3780	0.069	115° 00.454'	30° 15.324'
3	12c	30/01/97	1000	115.00905	-30.26548	308469	6650107	0.00	0	0.000	115° 00.543'	30° 15.929'
3	12c	30/01/97	1043	115.0089167	-30.26490	308456	6650172	66.29	2580	0.026	115° 00.535'	30° 15.894'
3	12c	30/01/97	1144	115.0091333	-30.26527	308478	6650131	46.53	3660	0.013	115° 00.548'	30° 15.916'
3	12c	30/01/97	1230	115.0089167	-30.26507	308457	6650153	30.41	2760	0.011	115° 00.535'	30° 15.904'
3	12c	30/01/97	1318	115.0084	-30.26398	308405	6650272	129.87	2880	0.045	115° 00.504'	30° 15.839'
3	12c	30/01/97	1412	115.0076833	-30.26305	308335	6650375	124.54	3240	0.038	115° 00.461'	30° 15.783'
3	15c	30/01/97	1035	115.0049333	-30.25252	308051	6651538	0.00	0	0.000	115° 00.296'	30° 15.151'
3	15c	30/01/97	1130	115.004	-30.25290	307960	6651494	101.08	3300	0.031	115° 00.240'	30° 15.174'
3	15c	30/01/97	1153	115.00355	-30.25288	307916	6651494	44.00	1380	0.032	115° 00.213'	30° 15.173'
3	15c	30/01/97	1302	115.0015667	-30.25248	307724	6651536	196.54	4140	0.047	115° 00.094'	30° 15.149'
3	15c	30/01/97	1332	115.00035	-30.25217	307609	6651569	119.64	1800	0.066	115° 00.021'	30° 15.130'
3	15c	30/01/97	1435	114.9978167	-30.25162	307362	6651625	253.27	3780	0.067	114° 59.869'	30° 15.097'
S-bay	6c	30/01/97	1610	115.0230833	-30.29392	309875	6646979	0.00	0	0.000	115° 01.385'	30° 17.635'
3	6c	30/01/97	1636	115.0239833	-30.29275	309961	6647110	156.71	1560	0.100	115° 01.439'	30° 17.565'
3	6c	30/01/97	1734	115.0262	-30.28945	310166	6647480	423.00	3480	0.122	115° 01.572'	30° 17.367'
3	12d	30/01/97	1610	115.0230833	-30.29392	309875	6646979	0.00	0	0.000	115° 01.385'	30° 17.635'
3	12d	30/01/97	1635	115.0230833	-30.29387	309875	6646985	6.00	1500	0.004	115° 01.385'	30° 17.632'
3	12d	30/01/97	1728	115.0240667	-30.29360	309968	6647016	98.03	3180	0.031	115° 01.444'	30° 17.616'
4	6d	31/01/97	1010	114.95495	-30.33095	303397	6642758	0.00	0	0.000	114° 57.297'	30° 19.857'
4	6d	31/01/97	1050	114.95355	-30.32563	303251	6643345	604.88	2400	0.252	114° 57.213'	30° 19.538'
4	6d	31/01/97	1124	114.9524167	-30.32113	303133	6643842	510.82	2040	0.250	114° 57.145'	30° 19.268'
4	6d	31/01/97	1142	114.95185	-30.31868	303073	6644112	276.59	1080	0.256	114° 57.111'	30° 19.121'
4	6d	31/01/97	1154	114.9514	-30.31683	303028	6644316	208.90	720	0.290	114° 57.084'	30° 19.010'

Table 11 GIS drogue data file listing all data in chronological sequence.

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
4	6d	31/01/97	1207	114.95095	-30.31438	302979	6644587	275.39	780	0.353	114° 57.057'	30° 18.863'
4	7c	31/01/97	1010	114.95485	-30.33095	303385	6642758	0.00	0	0.000	114° 57.291'	30° 19.857'
4	7c	31/01/97	1051	114.953	-30.32483	303197	6643433	700.69	2460	0.285	114° 57.180'	30° 19.490'
4	7c	31/01/97	1125	114.9516833	-30.31910	303059	6644066	647.87	2040	0.318	114° 57.101'	30° 19.146'
4	7c	31/01/97	1144	114.9509167	-30.31583	302979	6644426	368.78	1140	0.323	114° 57.055'	30° 18.950'
4	7c	31/01/97	1157	114.9503	-30.31352	302916	6644682	263.64	780	0.338	114° 57.018'	30° 18.811'
4	12e	31/01/97	1009	114.95465	-30.33095	303367	6642758	0.00	0	0.000	114° 57.279'	30° 19.857'
4	12e	31/01/97	1049	114.9539333	-30.32700	303289	6643194	442.92	2400	0.185	114° 57.236'	30° 19.620'
4	12e	31/01/97	1122	114.9533667	-30.32353	303229	6643577	387.67	1980	0.196	114° 57.202'	30° 19.412'
4	12e	31/01/97	1141	114.95277	-30.32172	303167	6643778	210.34	1140	0.185	114° 57.166'	30° 19.303'
4	12e	31/01/97	1151	114.9526167	-30.32047	303150	6643916	139.04	600	0.232	114° 57.157'	30° 19.228'
4	12e	31/01/97	1213	114.95205	-30.31802	303092	6644186	276.16	1320	0.209	114° 57.123'	30° 19.081'
4	15d	31/01/97	1109	114.9530333	-30.32278	303210	6643483	0.00	0	0.000	114° 57.189'	30° 19.463'
4	15d	31/01/97	1122	114.9527	-30.32103	303229	6643577	95.90	780	0.123	114° 57.202'	30° 19.412'
4	15e	31/01/97	1133	114.9522833	-30.31913	303195	6643660	0.00	0.00	0.00	114° 57.182'	30° 19.367'
4	15e	31/01/97	1150	114.95270	-30.32103	303160	6643853	196.15	1026	0.191	114° 57.162'	30° 19.262'
4	15e	31/01/97	1219	114.95228	-30.31913	303115	6644063	214.77	1740	0.123	114° 57.137'	30° 19.148'
5	3b	1/02/97	0857	114.98775	-30.28142	306451	6648305	0.00	0	0.000	114° 59.265'	30° 16.885'
5	3b	1/02/97	0939	114.9879667	-30.27865	306469	6648612	307.53	2520	0.122	114° 59.278'	30° 16.719'
5	3b	1/02/97	1008	114.9885833	-30.27683	306524	6648815	210.32	1740	0.121	114° 59.315'	30° 16.610'
5	3b	1/02/97	1037	114.9886667	-30.27515	306530	6649001	186.10	1740	0.107	114° 59.320'	30° 16.509'
5	3b	1/02/97	1301	114.98825	-30.26457	306468	6650174	1174.64	8640	0.136	114° 59.295'	30° 15.874'
5	3b	1/02/97	1411	114.9864167	-30.25903	306281	6650784	638.02	4200	0.152	114° 59.185'	30° 15.542'
5	6e	1/02/97	0824	115.00525	-30.25550	308086	6651208	0.00	0	0.000	115° 00.315'	30° 15.330'
5	6e	1/02/97	0925	115.006	-30.25330	308152	6651452	252.77	3660	0.069	115° 00.360'	30° 15.198'
5	6e	1/02/97	0953	115.0061667	-30.25277	308168	6651512	62.10	1680	0.037	115° 00.370'	30° 15.166'
5	6e	1/02/97	1059	115.0066833	-30.25147	308216	6651657	152.74	3960	0.039	115° 00.401'	30° 15.088'
5	6e	1/02/97	1235	115.00815	-30.24672	308248	6652186	529.97	5760	0.092	115° 00.489'	30° 14.803'
5	6e	1/02/97	1324	115.0081833	-30.24365	308345	6652526	353.57	2940	0.120	115° 00.491'	30° 14.619'
5	7d	1/02/97	0825	115.00525	-30.25550	308086	6651208	0.00	0	0.000	115° 00.315'	30° 15.330'
5	7d	1/02/97	0927	115.00545	-30.25480	308102	6651285	78.64	3720	0.021	115° 00.327'	30° 15.288'
5	7d	1/02/97	0952	115.0053167	-30.25495	308090	6651268	20.81	1500	0.014	115° 00.319'	30° 15.297'
5	7d	1/02/97	1058	115.0050667	-30.25522	308068	6651239	36.40	3960	0.009	115° 00.304'	30° 15.313'
5	7d	1/02/97	1242	115.0034833	-30.25558	307916	6651195	158.24	6240	0.025	115° 00.209'	30° 15.335'
5	7d	1/02/97	1341	115.0027333	-30.25708	307848	6651028	180.31	3540	0.051	115° 00.164'	30° 15.425'
5	7d	1/02/97	1424	115.0022167	-30.25822	307800	6650901	135.77	2580	0.053	115° 00.133'	30° 15.493'
5	12f	1/02/97	0752	115.0004	-30.26042	307628	6650654	0.00	0	0.000	115° 00.024'	30° 15.625'
5	12f	1/02/97	0843	114.9999	-30.25712	307575	6651019	368.83	3060	0.121	114° 59.994'	30° 15.427'

Table 11 GIS drogue data file listing all data in chronological sequence.

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
5	12f	1/02/97	0920	114.9998333	-30.25488	307562	6651266	247.34	2220	0.111	114° 59.990'	30° 15.293'
5	12f	1/02/97	0957	114.9996833	-30.25317	307547	6651456	190.59	2220	0.086	114° 59.981'	30° 15.190'
5	12f	1/02/97	1054	114.9998333	-30.24970	307552	6651841	385.03	3420	0.113	114° 59.990'	30° 14 982'
5	12f	1/02/97	1229	114.9984167	-30.24193	307401	6652700	872.17	5700	0.153	114° 59.905'	30° 14.516'
5	12f	1/02/97	1313	114.9964	-30.23927	307202	6652992	353.36	2640	0.134	114° 59.784'	30° 14.356'
5	14a	1/02/97	0901	114.9876	-30.28088	306438	6648364	0.00	0	0.000	114° 59.256'	30° 16.853'
5	14a	1/02/97	0941	114.9879667	-30.27972	306471	6648494	134.12	2400	0.056	114° 59.278'	30° 16.783'
5	14a	1/02/97	1010	114.9885	-30.27888	306519	6648587	104.66	1740	0.060	114° 59.310'	30° 16.733'
5	14a	1/02/97	1035	114.9889	-30.27865	306557	6648614	46.62	1500	0.031	114° 59.334'	30° 16.719'
5	14a	1/02/97	1251	114.9901167	-30.27570	306669	6648943	347.54	8160	0.043	114° 59.407'	30° 16.542'
5	14a	1/02/97	1356	114.99055	-30.27418	306707	6649112	173.22	3900	0.044	114° 59.433'	30° 16.451'
5	15f	1/02/97	0754	115.0003	-30.25992	307619	6650710	0.00	0	0.000	115° 00.018'	30° 15.595'
5	15f	1/02/97	0842	114.9994333	-30.25912	307535	6650796	120.22	2880	0.042	114° 59.966'	30° 15.547'
5	15f	1/02/97	0930	114.9985833	-30.25845	307451	6650869	111.29	2880	0.039	114° 59.915'	30° 15.507'
5	15f	1/02/97	1000	114.9981	-30.25783	307403	6650937	83.23	1800	0.046	114° 59.886'	30° 15.470'
5	15f	1/02/97	1051	114.9980667	-30.25732	307399	6650994	57.14	3060	0.019	114° 59.884'	30° 15.439'
5	15f	1/02/97	1218	114.9983167	-30.25723	307422	6651004	25.08	5220	0.005	114° 59.899'	30° 15.434'
6	3c	3/02/97	1600	115.0143667	-30.32123	309091	6643836	0.00	0	0.000	115° 00.862'	30° 19.274'
6	3c	3/02/97	1630	115.0142333	-30.31690	309068	6644416	580.46	1800	0.322	115° 00.854'	30° 19.014'
6	3c	3/02/97	1715	115.0145833	-30.30848	309087	6645350	818.01	2580	0.317	115° 00.875'	30° 18.509'
6	6f	3/02/97	1443	115.0149833	-30.33998	309186	6641859	0.00	0	0.000	115° 00.899'	30° 20.399'
6	6f	3/02/97	1530	115.0148167	-30.33620	309164	6642278	419.58	2820	0.149	115° 00.889'	30° 20.172'
6	6f	3/02/97	1540	115.0147167	-30.33495	309150	6642416	138.71	600	0.231	115° 00.883'	30° 20.097'
6	6f	3/02/97	1610	115.0146167	-30.33287	309137	6642648	232.36	1800	0.129	115° 00.877'	30° 19.972'
6	6f	3/02/97	1624	115.0140833	-30.32998	309082	6642966	322.72	840	0.384	115° 00.845'	30° 19.799'
6	6f	3/02/97	1707	115.0134667	-30.32747	309015	6643244	285.96	2580	0.111	115° 00.808'	30° 19.648'
6	7e	3/02/97	1507	115.03095	-30.34677	310734	6641134	0.00	0	0.000	115° 01.857'	30° 20.806'
6	7e	3/02/97	1538	115.03095	-30.34657	310733	6641156	22.02	1860	0.012	115° 01.857'	30° 20.794'
6	7e	3/02/97	1620	115.0308167	-30.34570	310720	6641252	96.88	2520	0.038	115° 01.849'	30° 20.742'
6	7e	3/02/97	1652	115.03055	-30.34507	310692	6641322	75.39	1920	0.039	115° 01.833'	30° 20.704'
6	12g	3/02/97	1508	115.0309	-30.34737	310729	6641068	0.00	0	0.000	115° 01.854'	30° 20.842'
6	12g	3/02/97	1536	115.0310667	-30.34743	310747	6641060	19.70	1680	0.012	115° 01.864'	30° 20.846'
6	12g	3/02/97	1621	115.0311167	-30.34647	310751	6641168	108.07	2700	0.040	115° 01.867'	30° 20.788'
6	12g	3/02/97	1656	115.0308833	-30.34652	310728	6641161	24.04	2100	0.011	115° 01.853'	30° 20.791'
7	2a	4/02/97	1040	115.0333333	-30.34333	310956	6641518	0.00	0	0.000	115° 02.000'	30° 20.600'
7	2a	4/02/97	1130	115.03305	-30.34250	310928	6641610	96.17	3000	0.032	115° 01.983'	30° 20.550'
7	2a	4/02/97	1208	115.0327333	-30.34160	310894	6641710	105.62	2280	0.046	115° 01.964'	30° 20.496'
7	2a	4/02/97	1306	115.0328167	-30.34092	310902	6641786	76.42	3480	0.022	115° 01.969'	30° 20.455'

Table 11 GIS drogue data file listing all data in chronological sequence.

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
7	2a	4/02/97	1415	115.0321333	-30.34000	310835	6641886	120.37	4140	0.029	115° 01.928'	30° 20.400'
7	2a	4/02/97	1522	115.0316333	-30.33918	310784	6641976	103.45	4020	0.026	115° 01.898'	30° 20.351'
7	3d	4/02/97	1004	115.015	-30.34333	309196	6641488	0.00	0	0.000	115° 00.900'	30° 20.600'
7	3d	4/02/97	1055	115.0138167	-30.33792	309071	6642086	610.92	3060	0.200	115° 00.829'	30° 20.275'
7	3d	4/02/97	1141	115.0119	-30.33278	308876	6642652	598.65	2760	0.217	115° 00.714'	30° 19.967'
7	3d	4/02/97	1219	115.0103333	-30.32827	308715	6643150	523.38	2280	0.230	115° 00.620'	30° 19.696'
7	3d	4/02/97	1321	115.0103333	-30.31823	308698	6644262	1112.13	3720	0.299	115° 00.620'	30° 19.094'
7	3d	4/02/97	1435	115.01115	-30.30242	308744	6646017	1755.60	4440	0.395	115° 00.669'	30° 18.145'
7	3d	4/02/97	1604	115.0157167	-30.29205	309164	6647174	1230.87	5340	0.231	115° 00.943'	30° 17.523'
7	3d	4/02/97	1624	115.0160833	-30.29048	309196	6647348	176.92	1200	0.147	115° 00.965'	30° 17.429'
7	6g	4/02/97	1026	115.02723	-30.34333	310540	6641511	0.00	0	0.000	115° 01.740'	30° 20.600'
7	6g	4/02/97	1122	115.0285167	-30.34048	310487	6641826	319.43	3360	0.095	115° 01.711'	30° 20.429'
7	6g	4/02/97	1155	115.0283667	-30.33922	310473	6641966	140.70	1980	0.071	115° 01.702'	30° 20.353'
7	6g	4/02/97	1259	115.0272333	-30.33568	310355	6642356	407.46	3840	0.106	115° 01.634'	30° 20.141'
7	6g	4/02/97	1336	115.0261	-30.33340	310242	6642608	276.18	2220	0.124	115° 01.566'	30° 20.004'
7	6g	4/02/97	1419	115.0232667	-30.32922	309961	6643066	537.33	2580	0.208	115° 01.396'	30° 19.753'
7	6g	4/02/97	1545	115.01665	-30.31377	309297	6644768	1826.94	5160	0.354	115° 00.999'	30° 18.826'
7	6g	4/02/97	1615	115.0172333	-30.30758	309341	6645454	687.41	1800	0.382	115° 01.034'	30° 18.455'
7	7f	4/02/97	1030	115.02723	-30.34333	310540	6641511	0.00	0	0.000	115° 01.740'	30° 20.600'
7	7f	4/02/97	1123	115.02865	-30.34180	310504	6641681	173.77	3180	0.055	115° 01.719'	30° 20.508'
7	7f	4/02/97	1202	115.02885	-30.34125	310521	6641742	63.32	2340	0.027	115° 01.731'	30° 20.475'
7	7f	4/02/97	1213	115.0281667	-30.34078	310455	6641792	82.80	660	0.125	115° 01.690'	30° 20.447'
7	7f	4/02/97	1256	115.0276333	-30.33945	310403	6641939	155.93	2580	0.060	115° 01.658'	30° 20.367'
7	7f	4/02/97	1408	115.0264667	-30.33688	310284	6642222	307.00	4320	0.071	115° 01.588'	30° 20.213'
7	7f	4/02/97	1507	115.0255333	-30.33473	310191	6642458	253.66	3540	0.072	115° 01.532'	30° 20.084'
7	12h	4/02/97	1012	115.025	-30.34333	310155	6641504	0.00	0	0.000	115° 01.500'	30° 20.600'
7	12h	4/02/97	1113	115.0245167	-30.34020	310102	6641851	351.02	3660	0.096	115° 01.471'	30° 20.412'
7	12h	4/02/97	1149	115.0242	-30.33877	310070	6642010	162.19	2160	0.075	115° 01.452'	30° 20.326'
7	12h	4/02/97	1229	115.0236167	-30.33702	310011	6642202	200.86	2400	0.084	115° 01.417'	30° 20.221'
7	12i	4/02/97	1250	115.0248833	-30.34303	310146	6641538	0.00	0	0.000	115° 01.493'	30° 20.582'
7	12i	4/02/97	1406	115.0239833	-30.33913	310050	6641968	440.59	4560	0.097	115° 01.439'	30° 20.348'
7	12i	4/02/97	1500	115.0235167	-30.33712	309999	6642191	228.76	3240	0.071	115° 01.411'	30° 20.227'
7	14b	4/02/97	1024	115.025	-30.34333	310155	6641504	0.00	0	0.000	115° 01.500'	30° 20.600'
7	14b	4/02/97	1107	115.0243167	-30.33980	310084	6641895	397.39	2580	0.154	115° 01.459'	30° 20.388'
7	14b	4/02/97	1148	115.0232333	-30.33660	309972	6642248	370.34	2460	0.151	115° 01.394'	30° 20.196'
7	14b	4/02/97	1225	115.0216833	-30.33282	309815	6642665	445.58	2220	0.201	115° 01.301'	30° 19.969'
7	14b	4/02/97	1345	115.0160667	-30.32110	309252	6643954	1406.59	4800	0.293	115° 00.964'	30° 19.266'
7	14b	4/02/97	1430	115.0148333	-30.30875	309111	6645321	1374.25	2700	0.509	115° 00.890'	30° 18.525'

Table 11 GIS drogue tracking file listing all data in chronological sequence.

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
7	14b	04/02/97	1554	115.0197	-30.29412	309552	6646951	1688.60	5040	0.335	115° 01.182'	30° 17.647'
7	14b	04/02/97	1642	115.0215333	-30.28712	309715	6647730	795.87	2880	0.276	115° 01.292'	30° 17.227'
7	15g	04/02/97	1032	115.03333	-30.34333	310956	6641518	0.00	0	0.000	115° 02.000'	30° 20.600'
7	15g	04/02/97	1129	115.0328667	-30.34208	310910	6641656	145.46	3420	0.043	115° 01.972'	30° 20.525'
7	15g	04/02/97	1210	115.0324	-30.34105	310864	6641770	122.93	300	0.410	115° 01.944'	30° 20.463'
7	15g	04/02/97	1304	115.0318833	-30.33970	310811	6641919	158.15	3240	0.049	115° 01.913'	30° 20.382'
7	15g	04/02/97	1411	115.0311667	-30.33740	310736	6642172	263.88	4020	0.066	115° 01.870'	30° 20.244'
7	15g	04/02/97	1514	115.0301333	-30.33538	310636	6642395	244.40	3780	0.065	115° 01.808'	30° 20.123'
8	1a	05/02/97	1030	115.0308333	-30.511983	311041	6622820	0.00	0	0.000	115° 01.850'	30° 30.719'
8	1a	05/02/97	1100	115.0308	-30.510567	311035	6622977	157.11	1800	0.087	115° 01.848'	30° 30.634'
8	1a	05/02/97	1130	115.0309333	-30.509133	311047	6623136	159.45	1800	0.089	115° 01.856'	30° 30.548'
8	1a	05/02/97	1159	115.0311167	-30.5075	311062	6623318	182.62	1740	0.105	115° 01.867'	30° 30.450'
8	1a	05/02/97	1243	115.0301833	-30.50425	310965	6623676	370.91	2640	0.140	115° 01.811'	30° 30.255'
8	1a	05/02/97	1331	115.0298833	-30.50115	310929	6624019	344.88	2880	0.120	115° 01.793'	30° 30.069'
8	1a	05/02/97	1436	115.02995	-30.496417	310929	6624544	525.00	3900	0.135	115° 01.797'	30° 29.785'
8	3e	05/02/97	1017	115.0202333	-30.5022	310006	6623886	0.00	0	0.000	115° 01.214'	30° 30.132'
8	3e	05/02/97	1052	115.0182333	-30.498767	309809	6624264	426.25	2100	0.203	115° 01.094'	30° 29.926'
8	3e	05/02/97	1121	115.0174333	-30.496633	309725	6624499	249.56	1740	0.143	115° 01.046'	30° 29.798'
8	3e	05/02/97	1150	115.01695	-30.494833	309678	6624698	204.47	1740	0.118	115° 01.017'	30° 29.690'
8	3e	05/02/97	1234	115.01655	-30.492167	309632	6624992	297.58	2640	0.113	115° 00.993'	30° 29.530'
8	3e	05/02/97	1320	115.01535	-30.489117	309511	6625328	357.12	2760	0.129	115° 00.921'	30° 29.347'
8	3e	05/02/97	1423	115.0139833	-30.483717	309369	6625925	613.66	3780	0.162	115° 00.839'	30° 29.023'
8	6h	05/02/97	0955	115.03805	-30.48897	311691	6625384	0.00	0	0.000	115° 02.283'	30° 29.338
8	6h	05/02/97	1042	115.0381833	-30.48715	311699	6625585	201.16	2820	0.071	115° 02.291'	30° 29.229'
8	6h	05/02/97	1139	115.0383833	-30.48432	311714	6625899	314.36	1740	0.181	115° 02.303'	30° 29.059'
8	6h	05/02/97	1224	115.0386667	-30.48168	311735	6626192	293.75	2700	0.109	115° 02.320'	30° 28.901'
8	6h	05/02/97	1256	115.0387833	-30.47988	311744	6626392	200.20	1920	0.104	115° 02.327'	30° 28.793'
8	6i	05/02/97	1305	115.0387833	-30.47988	311744	6626392	0.00	0	0.000	115° 02.327'	30° 28.793'
8	6i	05/02/97	1351	115.0395833	-30.47688	311814	6626725	340.28	2760	0.123	115° 02.375'	30° 28.613'
8	6i	05/02/97	1550	115.0411167	-30.46435	311936	6628117	1397.34	7140	0.196	115° 02.467'	30° 27.861'
8	7g	05/02/97	1020	115.0202333	-30.50220	310006	6623886	0.00	0	0.000	115° 01.214'	30° 30.132'
8	7g	05/02/97	1053	115.0189167	-30.49965	309875	6624167	310.04	1980	0.157	115° 01.135'	30° 29.979'
8	7g	05/02/97	1122	115.01835	-30.49817	309816	6624330	173.35	1740	0.100	115° 01.101'	30° 29.890'
8	7g	05/02/97	1151	115.0179	-30.49690	309770	6624470	147.36	1740	0.085	115° 01.074'	30° 29.814'
8	7g	05/02/97	1236	115.0178167	-30.49490	309760	6624692	222.23	2700	0.082	115° 01.069'	30° 29.694'
8	7g	05/02/97	1322	115.01745	-30.49248	309720	6624959	269.98	2760	0.098	115° 01.047'	30° 29.549'
8	7g	05/02/97	1410	115.0166167	-30.48948	309632	6625290	342.50	2880	0.119	115° 00.997'	30° 29.369'
8	12j	05/02/97	0955	115.03805	-30.48897	311691	6625384	0.00	0	0.000	115° 02.283'	30° 29.338'

Table 11 GIS drogue tracking file listing all data in chronological sequence.

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
8	12j	05/02/97	1044	115.0387	-30.48750	311750	6625547	173.35	2940	0.059	115^{O} 02.322'	30^{O} 29.250'
8	12j	05/02/97	1112	115.0388	-30.48665	311760	6625641	94.53	1680	0.056	115^{O} 02.328'	30^{O} 29.199'
8	12j	05/02/97	1141	115.03905	-30.48572	311714	6625745	113.72	1740	0.065	115^{O} 02.343'	30^{O} 29.143'
8	12j	05/02/97	1222	115.0391	-30.48412	311781	6625922	189.26	2460	0.077	115^{O} 02.346'	30^{O} 29.047'
8	12j	05/02/97	1309	115.0393833	-30.48273	311805	6626077	156.85	2820	0.056	115^{O} 02.363'	30^{O} 28.964'
8	12j	05/02/97	1344	115.0396333	-30.48097	311828	6626273	197.34	2100	0.094	115^{O} 02.378'	30^{O} 28.858'
8	14c	05/02/97	1028	115.0308333	-30.51198	311041	6622820	0.00	0	0.000	115^{O} 01.850'	30^{O} 30.719'
8	14c	05/02/97	1059	115.03075	-30.51032	311032	6623004	184.22	1860	0.099	115^{O} 01.845'	30^{O} 30.619'
8	14c	05/02/97	1129	115.0306833	-30.50842	311022	6623215	211.24	1800	0.117	115^{O} 01.841'	30^{O} 30.505'
8	14c	05/02/97	1158	115.0307667	-30.50617	311024	6623464	249.01	1740	0.143	115^{O} 01.846'	30^{O} 30.370'
8	14c	05/02/97	1241	115.0297333	-30.50173	310916	6623954	501.76	2580	0.194	115^{O} 01.784'	30^{O} 30.104'
8	14c	05/02/97	1328	115.0291167	-30.49765	310849	6624406	456.94	2820	0.162	115^{O} 01.747'	30^{O} 29.859'
8	14c	05/02/97	1432	115.0288833	-30.49185	310815	6625048	642.90	3840	0.167	115^{O} 01.733'	30^{O} 29.511'
8	15h	05/02/97	1015	115.0202333	-30.50220	310006	6623886	0.00	0	0.000	115^{O} 01.214'	30^{O} 30.132'
8	15h	05/02/97	1054	115.0190167	-30.50040	309885	6624084	232.05	2340	0.099	115^{O} 01.141'	30^{O} 30.024'
8	15h	05/02/97	1124	115.0186167	-30.49892	309844	6624248	169.05	1800	0.094	115^{O} 01.117'	30^{O} 29.935'
8	15h	05/02/97	1152	115.0181833	-30.49783	309801	6624367	126.53	1680	0.075	115^{O} 01.091'	30^{O} 29.870'
8	15h	05/02/97	1237	115.0182167	-30.49607	309800	6624563	196.00	2700	0.073	115^{O} 01.093'	30^{O} 29.764'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
2	3a	29/01/97	1017	115.0244333	-30.36793	310150	6638777	0.00	0	0.000	115° 01.466'	30° 22.076'
2	3a	29/01/97	1055	115.0239833	-30.36818	310106	6638748	52.70	2280	0.023	115° 01.439'	30° 22.091'
2	3a	29/01/97	1115	115.0234833	-30.36902	310061	6638655	103.32	1200	0.086	115° 01.409'	30° 22.141'
2	3a	29/01/97	1200	115.0231333	-30.37040	310028	6638501	157.50	2700	0.058	115° 01.388'	30° 22.224'
2	3a	29/01/97	1227	115.0228667	-30.37128	310004	6638403	100.90	1620	0.062	115° 01.372'	30° 22.277'
2	3a	29/01/97	1317	115.02245	-30.37188	309967	6638336	76.54	3000	0.026	115° 01.347'	30° 22.313'
2	3a	29/01/97	1353	115.0218667	-30.37155	309908	6638372	69.12	2160	0.032	115° 01.312'	30° 22.293'
2	3a	29/01/97	1502	115.0202667	-30.37045	309753	6638491	195.41	4140	0.047	115° 01.216'	30° 22.227'
2	6a	29/01/97	1134	115.0219667	-30.36893	309914	6638662	0.00	0	0.000	115° 01.318'	30° 22.136'
2	6a	29/01/97	1201	115.0229667	-30.36937	310009	6638615	105.99	1620	0.065	115° 01.378'	30° 22.162'
2	6a	29/01/97	1228	115.0227833	-30.36992	309992	6638554	63.32	1620	0.039	115° 01.367'	30° 22.195'
2	6a	29/01/97	1319	115.0227333	-30.37063	309991	6638475	79.01	3060	0.026	115° 01.364'	30° 22.238'
2	6a	29/01/97	1353	115.02250	-30.37082	309968	6638454	31.14	2040	0.015	115° 01.350'	30° 22.249'
2	6a	29/01/97	1500	115.0214333	-30.37075	309865	6638460	103.17	4020	0.026	115° 01.286'	30° 22.245'
2	7a	29/01/97	1017	115.0244333	-30.36793	310150	6638777	0.00	0	0.000	115° 01.466'	30° 22.076'
2	7a	29/01/97	1057	115.02440	-30.36457	310140	6639150	373.13	2400	0.155	115° 01.464'	30° 21.874'
2	7a	29/01/97	1116	115.0239333	-30.36318	310091	6639302	159.70	1140	0.140	115° 01.436'	30° 21.791'
2	7a	29/01/97	1153	115.0231833	-30.36023	310015	6639628	334.74	2220	0.151	115° 01.391'	30° 21.614'
2	7a	29/01/97	1236	115.02205	-30.35730	309898	6639952	344.48	2580	0.134	115° 01.323'	30° 21.438'
2	7a	29/01/97	1324	115.0209833	-30.35388	309791	6640328	390.93	2880	0.136	115° 01.259'	30° 21.233'
2	7a	29/01/97	1359	115.02020	-30.35203	309711	6640532	219.13	2100	0.104	115° 01.212'	30° 21.122'
2	7a	29/01/97	1522	115.01875	-30.34632	309559	6641164	650.02	4980	0.131	115° 01.125'	30° 20.779'
2	7a	29/01/97	1605	115.01665	-30.34295	309353	6641533	422.61	2580	0.164	115° 00.999'	30° 20.577'
2	12a	29/01/97	1036	115.0092833	-30.36817	308692	6638726	0.00	0	0.000	115° 00.557'	30° 22.090'
2	12a	29/01/97	1106	115.00910	-30.36777	308674	6638770	47.54	1800	0.026	115° 00.546'	30° 22.066'
2	12a	29/01/97	1140	115.0092333	-30.36802	308686	6638742	30.46	2040	0.015	115° 00.554'	30° 22.081'
2	12a	29/01/97	1220	115.0094167	-30.36870	308705	6638666	78.34	2400	0.033	115° 00.565'	30° 22.122'
2	12a	29/01/97	1301	115.0096167	-30.36912	308727	6638621	50.09	2460	0.020	115° 00.577'	30° 22.147'
2	12a	29/01/97	1339	115.0093167	-30.36898	308697	6638635	33.11	2280	0.015	115° 00.559'	30° 22.139'
2	12a	29/01/97	1422	115.0085167	-30.36868	308620	6638667	83.38	2580	0.032	115° 00.511'	30° 22.121'
2	12b	29/01/97	1435	115.0085167	-30.36868	308620	6638667	0.00	0	0.000	115° 00.511'	30° 22.121'
2	12b	29/01/97	1540	115.00695	-30.36833	308470	6638703	154.26	3900	0.040	115° 00.417'	30° 22.100'
2	15a	29/01/97	1036	115.0092833	-30.36817	308692	6638726	0.00	0	0.000	115° 00.557'	30° 22.090'
2	15a	29/01/97	1108	115.00930	-30.36488	308689	6639090	364.01	1920	0.190	115° 00.558'	30° 21.893'
2	15a	29/01/97	1145	115.0093333	-30.36210	308686	6639398	308.01	2220	0.139	115° 00.560'	30° 21.726'
2	15a	29/01/97	1215	115.0094833	-30.36015	308683	6639614	216.02	1800	0.120	115° 00.560'	30° 21.609'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
2	15a	29/01/97	1241	115.0094833	-30.35873	308695	6639772	158.46	1560	0.102	115° 00.569'	30° 21.524'
2	15b	29/01/97	1254	115.0094833	-30.35873	308695	6639772	0.00	780	0.000	115° 00.569'	30° 21.524'
2	15b	29/01/97	1334	115.00962	-30.35565	308700	6640114	342.04	2400	0.143	115° 00.577'	30° 21.339'
2	15b	29/01/97	1443	115.00943	-30.35072	308673	6640660	546.67	4140	0.132	115° 00.566'	30° 21.043'
2	15b	29/01/97	1554	115.00812	-30.34510	308536	6641280	634.96	4260	0.149	115° 00.487'	30° 20.706'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
N-bay	6b	30/01/97	1035	115.0049333	-30.25252	308051	6651538	0.00	0	0.000	115° 00.296'	30° 15.151'
3	6b	30/01/97	1125	115.0041	-30.24922	307962	6651902	374.72	3000	0.125	115° 00.246'	30° 14.953'
3	6b	30/01/97	1210	115.0024667	-30.24737	307803	6652104	257.07	2700	0.095	115° 00.148'	30° 14.842'
3	6b	30/01/97	1253	115.00115	-30.24582	307673	6652274	214.01	2580	0.083	115° 00.069'	30° 14.749'
3	6b	30/01/97	1349	114.9990333	-30.24410	307464	6652460	279.78	3360	0.083	114° 59.942'	30° 14.646'
3	6b	30/01/97	1446	114.994	-30.24203	306979	6652681	532.98	3420	0.156	114° 59.640'	30° 14.522'
3	7b	30/01/97	1000	115.00905	-30.26548	308469	6650107	0.00	0	0.000	115° 00.543'	30° 15.929'
3	7b	30/01/97	1043	115.0092667	-30.26452	308491	6650214	109.24	2580	0.042	115° 00.556'	30° 15.871'
3	7b	30/01/97	1145	115.0098167	-30.26192	308539	6650504	293.95	3720	0.079	115° 00.589'	30° 15.715'
3	7b	30/01/97	1234	115.0094167	-30.25978	308493	6650740	240.44	2940	0.082	115° 00.565'	30° 15.587'
3	7b	30/01/97	1324	115.0085333	-30.25758	308407	6650982	256.83	3000	0.086	115° 00.512'	30° 15.455'
3	7b	30/01/97	1427	115.0075667	-30.25540	308309	6651222	259.24	3780	0.069	115° 00.454'	30° 15.324'
3	12c	30/01/97	1000	115.00905	-30.26548	308469	6650107	0.00	0	0.000	115° 00.543'	30° 15.929'
3	12c	30/01/97	1043	115.0089167	-30.26490	308456	6650172	66.29	2580	0.026	115° 00.535'	30° 15.894'
3	12c	30/01/97	1144	115.0091333	-30.26527	308478	6650131	46.53	3660	0.013	115° 00.548'	30° 15.916'
3	12c	30/01/97	1230	115.0089167	-30.26507	308457	6650153	30.41	2760	0.011	115° 00.535'	30° 15.904'
3	12c	30/01/97	1318	115.0084	-30.26398	308405	6650272	129.87	2880	0.045	115° 00.504'	30° 15.839'
3	12c	30/01/97	1412	115.0076833	-30.26305	308335	6650375	124.54	3240	0.038	115° 00.461'	30° 15.783'
3	15c	30/01/97	1035	115.0049333	-30.25252	308051	6651538	0.00	0	0.000	115° 00.296'	30° 15.151'
3	15c	30/01/97	1130	115.004	-30.25290	307960	6651494	101.08	3300	0.031	115° 00.240'	30° 15.174'
3	15c	30/01/97	1153	115.00355	-30.25288	307916	6651494	44.00	1380	0.032	115° 00.213'	30° 15.173'
3	15c	30/01/97	1302	115.0015667	-30.25248	307724	6651536	196.54	4140	0.047	115° 00.094'	30° 15.149'
3	15c	30/01/97	1332	115.00035	-30.25217	307609	6651569	119.64	1800	0.066	115° 00.021'	30° 15.130'
3	15c	30/01/97	1435	114.9978167	-30.25162	307362	6651625	253.27	3780	0.067	114° 59.869'	30° 15.097'
S-bay	6c	30/01/97	1610	115.0230833	-30.29392	309875	6646979	0.00	0	0.000	115° 01.385'	30° 17.635'
3	6c	30/01/97	1636	115.0239833	-30.29275	309961	6647110	156.71	1560	0.100	115° 01.439'	30° 17.565'
3	6c	30/01/97	1734	115.0262	-30.28945	310166	6647480	423.00	3480	0.122	115° 01.572'	30° 17.367'
3	12d	30/01/97	1610	115.0230833	-30.29392	309875	6646979	0.00	0	0.000	115° 01.385'	30° 17.635'
3	12d	30/01/97	1635	115.0230833	-30.29387	309875	6646985	6.00	1500	0.004	115° 01.385'	30° 17.632'
3	12d	30/01/97	1728	115.0240667	-30.29360	309968	6647016	98.03	3180	0.031	115° 01.444'	30° 17.616'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
4	6d	31/01/97	1010	114.95495	-30.33095	303397	6642758	0.00	0	0.000	114° 57.297'	30° 19.857'
4	6d	31/01/97	1050	114.95355	-30.32563	303251	6643345	604.88	2400	0.252	114° 57.213'	30° 19.538'
4	6d	31/01/97	1124	114.9524167	-30.32113	303133	6643842	510.82	2040	0.250	114° 57.145'	30° 19.268'
4	6d	31/01/97	1142	114.95185	-30.31868	303073	6644112	276.59	1080	0.256	114° 57.111'	30° 19.121'
4	6d	31/01/97	1154	114.9514	-30.31683	303028	6644316	208.90	720	0.290	114° 57.084'	30° 19.010'
4	6d	31/01/97	1207	114.95095	-30.31438	302979	6644587	275.39	780	0.353	114° 57.057'	30° 18.863'
4	7c	31/01/97	1010	114.95485	-30.33095	303385	6642758	0.00	0	0.000	114° 57.291'	30° 19.857'
4	7c	31/01/97	1051	114.953	-30.32483	303197	6643433	700.69	2460	0.285	114° 57.180'	30° 19.490'
4	7c	31/01/97	1125	114.9516833	-30.31910	303059	6644066	647.87	2040	0.318	114° 57.101'	30° 19.146'
4	7c	31/01/97	1144	114.9509167	-30.31583	302979	6644426	368.78	1140	0.323	114° 57.055'	30° 18.950'
4	7c	31/01/97	1157	114.9503	-30.31352	302916	6644682	263.64	780	0.338	114° 57.018'	30° 18.811'
4	12e	31/01/97	1009	114.95465	-30.33095	303367	6642758	0.00	0	0.000	114° 57.279'	30° 19.857'
4	12e	31/01/97	1049	114.9539333	-30.32700	303289	6643194	442.92	2400	0.185	114° 57.236'	30° 19.620'
4	12e	31/01/97	1122	114.9533667	-30.32353	303229	6643577	387.67	1980	0.196	114° 57.202'	30° 19.412'
4	12e	31/01/97	1141	114.95277	-30.32172	303167	6643778	210.34	1140	0.185	114° 57.166'	30° 19.303'
4	12e	31/01/97	1151	114.9526167	-30.32047	303150	6643916	139.04	600	0.232	114° 57.157'	30° 19.228'
4	12e	31/01/97	1213	114.95205	-30.31802	303092	6644186	276.16	1320	0.209	114° 57.123'	30° 19.081'
4	15d	31/01/97	1109	114.9530333	-30.32278	303210	6643483	0.00	0	0.000	114° 57.189'	30° 19.463'
4	15d	31/01/97	1122	114.9527	-30.32103	303229	6643577	95.90	780	0.123	114° 57.202'	30° 19.412'
4	15e	31/01/97	1133	114.9522833	-30.31913	303195	6643660	0.00	0.00	0.00	114° 57.182'	30° 19.367'
4	15e	31/01/97	1150	114.95270	-30.32103	303160	6643853	196.15	1026	0.191	114° 57.162'	30° 19.262'
4	15e	31/01/97	1219	114.95228	-30.31913	303115	6644063	214.77	1740	0.123	114° 57.137'	30° 19.148'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
5	3b	1/02/97	0857	114.98775	-30.28142	306451	6648305	0.00	0	0.000	114° 59.265'	30° 16.885'
5	3b	1/02/97	0939	114.9879667	-30.27865	306469	6648612	307.53	2520	0.122	114° 59.278'	30° 16.719'
5	3b	1/02/97	1008	114.9885833	-30.27683	306524	6648815	210.32	1740	0.121	114° 59.315'	30° 16.610'
5	3b	1/02/97	1037	114.9886667	-30.27515	306530	6649001	186.10	1740	0.107	114° 59.320'	30° 16.509'
5	3b	1/02/97	1301	114.98825	-30.26457	306468	6650174	1174.64	8640	0.136	114° 59.295'	30° 15.874'
5	3b	1/02/97	1411	114.9864167	-30.25903	306281	6650784	638.02	4200	0.152	114° 59.185'	30° 15.542'
5	6e	1/02/97	0824	115.00525	-30.25550	308086	6651208	0.00	0	0.000	115° 00.315'	30° 15.330'
5	6e	1/02/97	0925	115.006	-30.25330	308152	6651452	252.77	3660	0.069	115° 00.360'	30° 15.198'
5	6e	1/02/97	0953	115.0061667	-30.25277	308168	6651512	62.10	1680	0.037	115° 00.370'	30° 15.166'
5	6e	1/02/97	1059	115.0066833	-30.25147	308216	6651657	152.74	3960	0.039	115° 00.401'	30° 15.088'
5	6e	1/02/97	1235	115.00815	-30.24672	308248	6652186	529.97	5760	0.092	115° 00.489'	30° 14.803'
5	6e	1/02/97	1324	115.0081833	-30.24365	308345	6652526	353.57	2940	0.120	115° 00.491'	30° 14.619'
5	7d	1/02/97	0825	115.00525	-30.25550	308086	6651208	0.00	0	0.000	115° 00.315'	30° 15.330'
5	7d	1/02/97	0927	115.00545	-30.25480	308102	6651285	78.64	3720	0.021	115° 00.327'	30° 15.288'
5	7d	1/02/97	0952	115.0053167	-30.25495	308090	6651268	20.81	1500	0.014	115° 00.319'	30° 15.297'
5	7d	1/02/97	1058	115.0050667	-30.25522	308068	6651239	36.40	3960	0.009	115° 00.304'	30° 15.313'
5	7d	1/02/97	1242	115.0034833	-30.25558	307916	6651195	158.24	6240	0.025	115° 00.209'	30° 15.335'
5	7d	1/02/97	1341	115.0027333	-30.25708	307848	6651028	180.31	3540	0.051	115° 00.164'	30° 15.425'
5	7d	1/02/97	1424	115.0022167	-30.25822	307800	6650901	135.77	2580	0.053	115° 00.133'	30° 15.493'
5	12f	1/02/97	0752	115.0004	-30.26042	307628	6650654	0.00	0	0.000	115° 00.024'	30° 15.625'
5	12f	1/02/97	0843	114.9999	-30.25712	307575	6651019	368.83	3060	0.121	114° 59.994'	30° 15.427'
5	12f	1/02/97	0920	114.9998333	-30.25488	307562	6651266	247.34	2220	0.111	114° 59.990'	30° 15.293'
5	12f	1/02/97	0957	114.9996833	-30.25317	307547	6651456	190.59	2220	0.086	114° 59.981'	30° 15.190'
5	12f	1/02/97	1054	114.9998333	-30.24970	307552	6651841	385.03	3420	0.113	114° 59.990'	30° 14 982'
5	12f	1/02/97	1229	114.9984167	-30.24193	307401	6652700	872.17	5700	0.153	114° 59.905'	30° 14.516'
5	12f	1/02/97	1313	114.9964	-30.23927	307202	6652992	353.36	2640	0.134	114° 59.784'	30° 14.356'
5	14a	1/02/97	0901	114.9876	-30.28088	306438	6648364	0.00	0	0.000	114° 59.256'	30° 16.853'
5	14a	1/02/97	0941	114.9879667	-30.27972	306471	6648494	134.12	2400	0.056	114° 59.278'	30° 16.783'
5	14a	1/02/97	1010	114.9885	-30.27888	306519	6648587	104.66	1740	0.060	114° 59.310'	30° 16.733'
5	14a	1/02/97	1035	114.9889	-30.27865	306557	6648614	46.62	1500	0.031	114° 59.334'	30° 16.719'
5	14a	1/02/97	1251	114.9901167	-30.27570	306669	6648943	347.54	8160	0.043	114° 59.407'	30° 16.542'
5	14a	1/02/97	1356	114.99055	-30.27418	306707	6649112	173.22	3900	0.044	114° 59.433'	30° 16.451'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
5	15f	1/02/97	0754	115.0003	-30.25992	307619	6650710	0.00	0	0.000	115^{O} 00.018'	30^{O} 15.595'
5	15f	1/02/97	0842	114.9994333	-30.25912	307535	6650796	120.22	2880	0.042	114^{O} 59.966'	30^{O} 15.547'
5	15f	1/02/97	0930	114.9985833	-30.25845	307451	6650869	111.29	2880	0.039	114^{O} 59.915'	30^{O} 15.507'
5	15f	1/02/97	1000	114.9981	-30.25783	307403	6650937	83.23	1800	0.046	114^{O} 59.886'	30^{O} 15.470'
5	15f	1/02/97	1051	114.9980667	-30.25732	307399	6650994	57.14	3060	0.019	114^{O} 59.884'	30^{O} 15.439'
5	15f	1/02/97	1218	114.9983167	-30.25723	307422	6651004	25.08	5220	0.005	114^{O} 59.899'	30^{O} 15.434'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
6	3c	3/02/97	1600	115.0143667	-30.32123	309091	6643836	0.00	0	0.000	115° 00.862'	30° 19.274'
6	3c	3/02/97	1630	115.0142333	-30.31690	309068	6644416	580.46	1800	0.322	115° 00.854'	30° 19.014'
6	3c	3/02/97	1715	115.0145833	-30.30848	309087	6645350	818.01	2580	0.317	115° 00.875'	30° 18.509'
6	6f	3/02/97	1443	115.0149833	-30.33998	309186	6641859	0.00	0	0.000	115° 00.899'	30° 20.399'
6	6f	3/02/97	1530	115.0148167	-30.33620	309164	6642278	419.58	2820	0.149	115° 00.889'	30° 20.172'
6	6f	3/02/97	1540	115.0147167	-30.33495	309150	6642416	138.71	600	0.231	115° 00.883'	30° 20.097'
6	6f	3/02/97	1610	115.0146167	-30.33287	309137	6642648	232.36	1800	0.129	115° 00.877'	30° 19.972'
6	6f	3/02/97	1624	115.0140833	-30.32998	309082	6642966	322.72	840	0.384	115° 00.845'	30° 19.799'
6	6f	3/02/97	1707	115.0134667	-30.32747	309015	6643244	285.96	2580	0.111	115° 00.808'	30° 19.648'
6	7e	3/02/97	1507	115.03095	-30.34677	310734	6641134	0.00	0	0.000	115° 01.857'	30° 20.806'
6	7e	3/02/97	1538	115.03095	-30.34657	310733	6641156	22.02	1860	0.012	115° 01.857'	30° 20.794'
6	7e	3/02/97	1620	115.0308167	-30.34570	310720	6641252	96.88	2520	0.038	115° 01.849'	30° 20.742'
6	7e	3/02/97	1652	115.03055	-30.34507	310692	6641322	75.39	1920	0.039	115° 01.833'	30° 20.704'
6	12g	3/02/97	1508	115.0309	-30.34737	310729	6641068	0.00	0	0.000	115° 01.854'	30° 20.842'
6	12g	3/02/97	1536	115.0310667	-30.34743	310747	6641060	19.70	1680	0.012	115° 01.864'	30° 20.846'
6	12g	3/02/97	1621	115.0311167	-30.34647	310751	6641168	108.07	2700	0.040	115° 01.867'	30° 20.788'
6	12g	3/02/97	1656	115.0308833	-30.34652	310728	6641161	24.04	2100	0.011	115° 01.853'	30° 20.791'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
7	2a	4/02/97	1040	115.0333333	-30.34333	310956	6641518	0.00	0	0.000	115° 02.000'	30° 20.600'
7	2a	4/02/97	1130	115.03305	-30.34250	310928	6641610	96.17	3000	0.032	115° 01.983'	30° 20.550'
7	2a	4/02/97	1208	115.0327333	-30.34160	310894	6641710	105.62	2280	0.046	115° 01.964'	30° 20.496'
7	2a	4/02/97	1306	115.0328167	-30.34092	310902	6641786	76.42	3480	0.022	115° 01.969'	30° 20.455'
7	2a	4/02/97	1415	115.0321333	-30.34000	310835	6641886	120.37	4140	0.029	115° 01.928'	30° 20.400'
7	2a	4/02/97	1522	115.0316333	-30.33918	310784	6641976	103.45	4020	0.026	115° 01.898'	30° 20.351'
7	3d	4/02/97	1004	115.015	-30.34333	309196	6641488	0.00	0	0.000	115° 00.900'	30° 20.600'
7	3d	4/02/97	1055	115.0138167	-30.33792	309071	6642086	610.92	3060	0.200	115° 00.829'	30° 20.275'
7	3d	4/02/97	1141	115.0119	-30.33278	308876	6642652	598.65	2760	0.217	115° 00.714'	30° 19.967'
7	3d	4/02/97	1219	115.0103333	-30.32827	308715	6643150	523.38	2280	0.230	115° 00.620'	30° 19.696'
7	3d	4/02/97	1321	115.0103333	-30.31823	308698	6644262	1112.13	3720	0.299	115° 00.620'	30° 19.094'
7	3d	4/02/97	1435	115.01115	-30.30242	308744	6646017	1755.60	4440	0.395	115° 00.669'	30° 18.145'
7	3d	4/02/97	1604	115.0157167	-30.29205	309164	6647174	1230.87	5340	0.231	115° 00.943'	30° 17.523'
7	3d	4/02/97	1624	115.0160833	-30.29048	309196	6647348	176.92	1200	0.147	115° 00.965'	30° 17.429'
7	6g	4/02/97	1026	115.02723	-30.34333	310540	6641511	0.00	0	0.000	115° 01.740'	30° 20.600'
7	6g	4/02/97	1122	115.0285167	-30.34048	310487	6641826	319.43	3360	0.095	115° 01.711'	30° 20.429'
7	6g	4/02/97	1155	115.0283667	-30.33922	310473	6641966	140.70	1980	0.071	115° 01.702'	30° 20.353'
7	6g	4/02/97	1259	115.0272333	-30.33568	310355	6642356	407.46	3840	0.106	115° 01.634'	30° 20.141'
7	6g	4/02/97	1336	115.0261	-30.33340	310242	6642608	276.18	2220	0.124	115° 01.566'	30° 20.004'
7	6g	4/02/97	1419	115.0232667	-30.32922	309961	6643066	537.33	2580	0.208	115° 01.396'	30° 19.753'
7	6g	4/02/97	1545	115.01665	-30.31377	309297	6644768	1826.94	5160	0.354	115° 00.999'	30° 18.826'
7	6g	4/02/97	1615	115.0172333	-30.30758	309341	6645454	687.41	1800	0.382	115° 01.034'	30° 18.455'
7	7f	4/02/97	1030	115.02723	-30.34333	310540	6641511	0.00	0	0.000	115° 01.740'	30° 20.600'
7	7f	4/02/97	1123	115.02865	-30.34180	310504	6641681	173.77	3180	0.055	115° 01.719'	30° 20.508'
7	7f	4/02/97	1202	115.02885	-30.34125	310521	6641742	63.32	2340	0.027	115° 01.731'	30° 20.475'
7	7f	4/02/97	1213	115.0281667	-30.34078	310455	6641792	82.80	660	0.125	115° 01.690'	30° 20.447'
7	7f	4/02/97	1256	115.0276333	-30.33945	310403	6641939	155.93	2580	0.060	115° 01.658'	30° 20.367'
7	7f	4/02/97	1408	115.0264667	-30.33688	310284	6642222	307.00	4320	0.071	115° 01.588'	30° 20.213'
7	7f	4/02/97	1507	115.0255333	-30.33473	310191	6642458	253.66	3540	0.072	115° 01.532'	30° 20.084'
7	12h	4/02/97	1012	115.025	-30.34333	310155	6641504	0.00	0	0.000	115° 01.500'	30° 20.600'
7	12h	4/02/97	1113	115.0245167	-30.34020	310102	6641851	351.02	3660	0.096	115° 01.471'	30° 20.412'
7	12h	4/02/97	1149	115.0242	-30.33877	310070	6642010	162.19	2160	0.075	115° 01.452'	30° 20.326'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
7	12h	4/02/97	1229	115.0236167	-30.33702	310011	6642202	200.86	2400	0.084	115° 01.417'	30° 20.221'
7	12i	4/02/97	1250	115.0248833	-30.34303	310146	6641538	0.00	0	0.000	115° 01.493'	30° 20.582'
7	12i	4/02/97	1406	115.0239833	-30.33913	310050	6641968	440.59	4560	0.097	115° 01.439'	30° 20.348'
7	12i	4/02/97	1500	115.0235167	-30.33712	309999	6642191	228.76	3240	0.071	115° 01.411'	30° 20.227'
7	14b	4/02/97	1024	115.025	-30.34333	310155	6641504	0.00	0	0.000	115° 01.500'	30° 20.600'
7	14b	4/02/97	1107	115.0243167	-30.33980	310084	6641895	397.39	2580	0.154	115° 01.459'	30° 20.388'
7	14b	4/02/97	1148	115.0232333	-30.33660	309972	6642248	370.34	2460	0.151	115° 01.394'	30° 20.196'
7	14b	4/02/97	1225	115.0216833	-30.33282	309815	6642665	445.58	2220	0.201	115° 01.301'	30° 19.969'
7	14b	4/02/97	1345	115.0160667	-30.32110	309252	6643954	1406.59	4800	0.293	115° 00.964'	30° 19.266'
7	14b	4/02/97	1430	115.0148333	-30.30875	309111	6645321	1374.25	2700	0.509	115° 00.890'	30° 18.525'
7	14b	4/02/97	1554	115.0197	-30.29412	309552	6646951	1688.60	5040	0.335	115° 01.182'	30° 17.647'
7	14b	4/02/97	1642	115.0215333	-30.28712	309715	6647730	795.87	2880	0.276	115° 01.292'	30° 17.227'
7	15g	4/02/97	1032	115.03333	-30.34333	310956	6641518	0.00	0	0.000	115° 02.000'	30° 20.600'
7	15g	4/02/97	1129	115.0328667	-30.34208	310910	6641656	145.46	3420	0.043	115° 01.972'	30° 20.525'
7	15g	4/02/97	1210	115.0324	-30.34105	310864	6641770	122.93	300	0.410	115° 01.944'	30° 20.463'
7	15g	4/02/97	1304	115.0318833	-30.33970	310811	6641919	158.15	3240	0.049	115° 01.913'	30° 20.382'
7	15g	4/02/97	1411	115.0311667	-30.33740	310736	6642172	263.88	4020	0.066	115° 01.870'	30° 20.244'
7	15g	4/02/97	1514	115.0301333	-30.33538	310636	6642395	244.40	3780	0.065	115° 01.808'	30° 20.123'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
8	1a	5/02/97	1030	115.0308333	-30.51198333	311041	6622820	0.00	0	0.000	115° 01.850'	30° 30.719'
8	1a	5/02/97	1100	115.0308	-30.51056667	311035	6622977	157.11	1800	0.087	115° 01.848'	30° 30.634'
8	1a	5/02/97	1130	115.0309333	-30.50913333	311047	6623136	159.45	1800	0.089	115° 01.856'	30° 30.548'
8	1a	5/02/97	1159	115.0311167	-30.5075	311062	6623318	182.62	1740	0.105	115° 01.867'	30° 30.450'
8	1a	5/02/97	1243	115.0301833	-30.50425	310965	6623676	370.91	2640	0.140	115° 01.811'	30° 30.255'
8	1a	5/02/97	1331	115.0298833	-30.50115	310929	6624019	344.88	2880	0.120	115° 01.793'	30° 30.069'
8	1a	5/02/97	1436	115.02995	-30.49641667	310929	6624544	525.00	3900	0.135	115° 01.797'	30° 29.785'
8	3e	5/02/97	1017	115.0202333	-30.5022	310006	6623886	0.00	0	0.000	115° 01.214'	30° 30.132'
8	3e	5/02/97	1052	115.0182333	-30.49876667	309809	6624264	426.25	2100	0.203	115° 01.094'	30° 29.926'
8	3e	5/02/97	1121	115.0174333	-30.49663333	309725	6624499	249.56	1740	0.143	115° 01.046'	30° 29.798'
8	3e	5/02/97	1150	115.01695	-30.49483333	309678	6624698	204.47	1740	0.118	115° 01.017'	30° 29.690'
8	3e	5/02/97	1234	115.01655	-30.49216667	309632	6624992	297.58	2640	0.113	115° 00.993'	30° 29.530'
8	3e	5/02/97	1320	115.01535	-30.48911667	309511	6625328	357.12	2760	0.129	115° 00.921'	30° 29.347'
8	3e	5/02/97	1423	115.0139833	-30.48371667	309369	6625925	613.66	3780	0.162	115° 00.839'	30° 29.023'
8	6h	5/02/97	0955	115.03805	-30.48897	311691	6625384	0.00	0	0.000	115° 02.283'	30° 29.338
8	6h	5/02/97	1042	115.0381833	-30.48715	311699	6625585	201.16	2820	0.071	115° 02.291'	30° 29.229'
8	6h	5/02/97	1139	115.0383833	-30.48432	311714	6625899	314.36	1740	0.181	115° 02.303'	30° 29.059'
8	6h	5/02/97	1224	115.0386667	-30.48168	311735	6626192	293.75	2700	0.109	115° 02.320'	30° 28.901'
8	6h	5/02/97	1256	115.0387833	-30.47988	311744	6626392	200.20	1920	0.104	115° 02.327'	30° 28.793'
8	6i	5/02/97	1305	115.0387833	-30.47988	311744	6626392	0.00	0	0.000	115° 02.327'	30° 28.793'
8	6i	5/02/97	1351	115.0395833	-30.47688	311814	6626725	340.28	2760	0.123	115° 02.375'	30° 28.613'
8	6i	5/02/97	1550	115.0411167	-30.46435	311936	6628117	1397.34	7140	0.196	115° 02.467'	30° 27.861'
8	7g	5/02/97	1020	115.0202333	-30.50220	310006	6623886	0.00	0	0.000	115° 01.214'	30° 30.132'
8	7g	5/02/97	1053	115.0189167	-30.49965	309875	6624167	310.04	1980	0.157	115° 01.135'	30° 29.979'
8	7g	5/02/97	1122	115.01835	-30.49817	309816	6624330	173.35	1740	0.100	115° 01.101'	30° 29.890'
8	7g	5/02/97	1151	115.0179	-30.49690	309770	6624470	147.36	1740	0.085	115° 01.074'	30° 29.814'
8	7g	5/02/97	1236	115.0178167	-30.49490	309760	6624692	222.23	2700	0.082	115° 01.069'	30° 29.694'
8	7g	5/02/97	1322	115.01745	-30.49248	309720	6624959	269.98	2760	0.098	115° 01.047'	30° 29.549'
8	7g	5/02/97	1410	115.0166167	-30.48948	309632	6625290	342.50	2880	0.119	115° 00.997'	30° 29.369'
8	12j	5/02/97	0955	115.03805	-30.48897	311691	6625384	0.00	0	0.000	115° 02.283'	30° 29.338'
8	12j	5/02/97	1044	115.0387	-30.48750	311750	6625547	173.35	2940	0.059	115° 02.322'	30° 29.250'

Table 12 GIS drogue data file as prepared for the GIS-based plotting package (Nowrojee, 1997).

Day	Drogue	Date	Time	Longitude	Latitude	Easting (m)	Northing (m)	Segm (m)	Segm (secs)	Segm (ms^{-1})	DGPS Long	DGPS Lat
8	12j	5/02/97	1112	115.0388	-30.48665	311760	6625641	94.53	1680	0.056	115° 02.328'	30° 29.199'
8	12j	5/02/97	1141	115.03905	-30.48572	311714	6625745	113.72	1740	0.065	115° 02.343'	30° 29.143'
8	12j	5/02/97	1222	115.0391	-30.48412	311781	6625922	189.26	2460	0.077	115° 02.346'	30° 29.047'
8	12j	5/02/97	1309	115.0393833	-30.48273	311805	6626077	156.85	2820	0.056	115° 02.363'	30° 28.964'
8	12j	5/02/97	1344	115.0396333	-30.48097	311828	6626273	197.34	2100	0.094	115° 02.378'	30° 28.858'
8	14c	5/02/97	1028	115.0308333	-30.51198	311041	6622820	0.00	0	0.000	115° 01.850'	30° 30.719'
8	14c	5/02/97	1059	115.03075	-30.51032	311032	6623004	184.22	1860	0.099	115° 01.845'	30° 30.619'
8	14c	5/02/97	1129	115.0306833	-30.50842	311022	6623215	211.24	1800	0.117	115° 01.841'	30° 30.505'
8	14c	5/02/97	1158	115.0307667	-30.50617	311024	6623464	249.01	1740	0.143	115° 01.846'	30° 30.370'
8	14c	5/02/97	1241	115.0297333	-30.50173	310916	6623954	501.76	2580	0.194	115° 01.784'	30° 30.104'
8	14c	5/02/97	1328	115.0291167	-30.49765	310849	6624406	456.94	2820	0.162	115° 01.747'	30° 29.859'
8	14c	5/02/97	1432	115.0288833	-30.49185	310815	6625048	642.90	3840	0.167	115° 01.733'	30° 29.511'
8	15h	5/02/97	1015	115.0202333	-30.50220	310006	6623886	0.00	0	0.000	115° 01.214'	30° 30.132'
8	15h	5/02/97	1054	115.0190167	-30.50040	309885	6624084	232.05	2340	0.099	115° 01.141'	30° 30.024'
8	15h	5/02/97	1124	115.0186167	-30.49892	309844	6624248	169.05	1800	0.094	115° 01.117'	30° 29.935'
8	15h	5/02/97	1152	115.0181833	-30.49783	309801	6624367	126.53	1680	0.075	115° 01.091'	30° 29.870'
8	15h	5/02/97	1237	115.0182167	-30.49607	309800	6624563	196.00	2700	0.073	115° 01.093'	30° 29.764'

Table 13 Vertical salinity and temperature differences (surface to bottom) from all profiles collected during the field survey.

Date d/m/yr	Time (hrs)	Site No.	Sb-Ss (pss)	Ts-Tb (°C)	File name
			DAY ONE		
28/01/97	1650	TL2	0.31	1.20	STJBTL2.doc
28/01/97	1727	TL1	0.15	1.40	STJBTL1.doc
28/01/97	1825	TL4	0.30	1.75	STJBTL4.doc
28/01/97	1900	TL3	0.05	1.35	STJBTL3.doc
			DAY TWO		
29/01/97	0745	JB10	0	0.95	STJB10.doc
29/01/97	0800	JB20	0.05	0.80	STJB20.doc
29/01/97	0820	TL3	0.03	0.75	STJB2TL3.doc
29/01/97	0825	JB30	0	0.50	STJB30.doc
29/01/97	0840	JB40	0.05	0.40	STJB40.doc
29/01/97	0850	JB50	0.22	0.70	STJB50.doc
29/01/97	0903	JB60	0.20	0.50	STJB60.doc
29/01/97	0927	JB70	0.04	0.60	STJB70.doc
29/01/97	1020	JB110	0.10	0.55	STJB110.doc
29/01/97	1045	JB100	0.12	1.10	STJB100.doc
29/01/97	1305	TL4	0.10	0.90	STJB2TL4.doc
29/01/97	1345	JB100	No data	No data	ST2JB100.doc
29/01/97	1415	JB110	No data	No data	ST2JB110.doc
29/01/97	1635	TL3	0.05	0.55	STJB3TL3.doc
29/01/97	1640	JB10	0	0	ST2JB10.doc
			DAY THREE		
30/01/97	0845	JB10	0.01	0.10	ST3JB10.doc
30/01/97	0905	TL3	0	0.40	STJB4TL3.doc
30/01/97	0927	JB130	0	0	STJB130.doc
30/01/97	0940	JB150	0	0.30	STJB150.doc
30/01/97	1015	JB160	0.02	0.25	STJB160.doc
30/01/97	1055	JB170	0	0	STJB170.doc
30/01/97	1115	JB180	0	0	STJB180.doc
30/01/97	1343	TL2	0	0.05	STJB2TL2.doc
30/01/97	1605	TL3	0	0.10	STJB5TL3.doc
30/01/97	1630	JB30	0	0	ST2JB30.doc
30/01/97	1645	JB20	0	0	ST2JB20.doc
30/01/97	1649	JB10	0	0.20	ST4JB10.doc
30/01/97	1700	JB200	0	0	STJB200.doc
30/01/97	1708	JB210	0	0.10	STJB210.doc
30/01/97	1709	JB220	0.01	0	STJB220.doc
30/01/97	1712	JB230	-0.03	0	STJB230.doc
30/01/97	1715	JB240	0.03	0	STJB240.doc
			DAY FOUR		
31/01/97	0811	JB10	-0.01	0	ST5JB10.doc
31/01/97	0830	TL3	0.03	0.10	STJB6TL3.doc
31/01/97	0837	JB30	0.08	0.10	ST3JB30.doc
31/01/97	1012	JB250	0.03	0.10	STJB250.doc
31/01/97	1031	JB300	0.09	0	STJB300.doc
31/01/97	1150	JB310	0	0	STJB310.doc
31/01/97	1400	JB20	0	0	ST3JB20.doc

S_S = Surface salinity, S_b = Bottom salinity, T_S = Surface temperature, T_b = Bottom temperature

Table 13 Vertical salinity and temperature differences (surface to bottom) from all profiles collected during the field survey.

Date d/m/yr	Time (hrs)	Site No.	Sb-Ss (pss)	Ts-Tb (°C)	File name
31/01/97	1410	JB200	0	0	ST2JB200.doc
31/01/97	1412	JB210	0.04	0	ST2JB210.doc
31/01/97	1413	JB220	0	0	ST2JB220.doc
31/01/97	1416	JB230	0	0	ST2JB230.doc
31/01/97	1420	JB240	0.07	0	ST2JB240.doc
			DAY FIVE		
1/02/97	0727	TL3	-0.01	0.11	STJB7TL3.doc
1/02/97	0835	JB350	0.10	0	STJB350.doc
1/02/97	0902	JB370	0	0.15	STJB370.doc
1/02/97	1013	JB370	0.02	0.30	ST2JB370.doc
1/02/97	1024	JB380	0.10	0.10	STJB380.doc
1/02/97	1040	JB390	0	0.20	STJB390.doc
1/02/97	1106	JB420	0.09	0.40	STJB420.doc
1/02/97	1115	JB350	0.11	0.35	ST2JB350.doc
1/02/97	1126	JB360	0.10	-0.10	STJB360.doc
1/02/97	1137	JB380	-0.02	0.30	ST2JB380.doc
1/02/97	1158	TL1	0	0.15	STJB2TL1.doc
1/02/97	1304	JB460	0.12	0.05	STJB460.doc
1/02/97	1315	JB470	0.08	0	STJB470.doc
1/02/97	1325	JB480	0.01	0.25	STJB480.doc
1/02/97	1342	JB490	0.12	0.15	STJB490.doc
1/02/97	1359	JB500	0	0	STJB500.doc
1/02/97	1414	JB510	0.05	0.10	STJB510.doc
1/02/97	1424	JB520	0.09	0.15	STJB520.doc
1/02/97	1449	TL3	0	0.50	STJB8TL3.doc
1/02/97	1500	JB10	0	0.10	ST6JB10.doc
1/02/97	1507	JB210	0	0.20	ST3JB210.doc
1/02/97	1511	JB220	0.08	0.20	ST3JB220.doc
1/02/97	1515	JB230	0.02	0.05	ST3JB230.doc
1/02/97	1519	JB240	0.04	0.05	ST3JB240.doc
			DAY SIX		
3/02/97	1145	JB240	0	0.31	ST4JB240.doc
3/02/97	1200	JB230	0.05	0.35	ST4JB230.doc
3/02/97	1204	JB220	0.02	0.10	ST4JB220.doc
3/02/97	1210	JB200	0	0.10	ST3JB200.doc
3/02/97	1215	JB20	0.05	0.30	ST4JB20.doc
3/02/97	1235	TL3	0.05	1.00	STJB9TL3.doc
3/02/97	1245	JB550	0	0.10	STJB550.doc
3/02/97	1305	JB360	0.10	0.60	ST2JB360.doc
3/02/97	1335	JB380	0.02	0.30	ST3JB380.doc
3/02/97	1345	JB370	0.10	0.20	ST3JB370.doc
3/02/97	1350	JB390	0.20	0.10	ST2JB390.doc
3/02/97	1515	JB570	0.01	0.20	STJB570.doc
3/02/97	1528	JB560	0	0	STJB560.doc
3/02/97	1720	JB600	0	0	STJB600.doc
3/02/97	1730	TL3	0.10	0.10	STJ10TL3.doc

S_S = Surface salinity, S_b = Bottom salinity, T_s = Surface temperature, T_b = Bottom temperature

Table 13 Vertical salinity and temperature differences (surface to bottom) from all profiles collected during the field survey.

Date d/m/yr	Time (hrs)	Site No.	Sb-Ss (pss)	Ts-Tb (°C)	File name
			DAY SEVEN		
4/02/97	0835	JB240	0.02	0	ST5JB240.doc
4/02/97	0845	JB230	0	0.15	ST5JB230.doc
4/02/97	0850	JB220	0.04	0.40	ST5JB220.doc
4/02/97	0908	JB210	0.03	0.04	ST4JB210.doc
4/02/97	0920	JB10	0	0	ST7JB10.doc
4/02/97	0930	TL3	0	0	STJ11TL3.doc
4/02/97	0947	JB260	0	0	STJB260.doc
4/02/97	1100	JB620	0	0	STJB620.doc
4/02/97	1115	JB630	0.04	0	STJB630.doc
4/02/97	1125	JB640	0	0	STJB640.doc
4/02/97	1134	JB650	0.02	0	STJB650.doc
4/02/97	1637	TL3	0.05	0.15	STJ12TL3.doc
			DAY EIGHT		
5/02/97	0742	JB240	0.06	0.10	ST6JB240.doc
5/02/97	0745	JB230	0	0.05	ST6JB230.doc
5/02/97	0753	JB220	0	0.10	ST7JB220.doc
5/02/97	0757	JB210	0.13	0	ST6JB210.doc
5/02/97	0803	JB10	0	0	ST8JB10.doc
5/02/97	0808	TL3	0	0	STJ13TL3.doc
5/02/97	0820	JB260	0	0	ST2JB260.doc
5/02/97	0840	JB700	0.05	0	STJB700.doc
5/02/97	0903	JB710	0	0	STJB710.doc
5/02/97	0914	JB720	0	0	STJB720.doc
5/02/97	0927	JB730	0	0.01	STJB730.doc
5/02/97	0945	JB740	0.06	0.10	STJB740.doc
5/02/97	1003	JB750	0	0.02	STJB750.doc
5/02/97	1032	JB770	-0.01	0.10	STJB770.doc
			DAY NINE		
6/02/97	0731	JB240	0	0.10	ST7JB240.doc
6/02/97	0735	JB230	0	0	ST7JB230.doc
6/02/97	0740	JB220	0	0.05	ST8JB220.doc
6/02/97	0745	JB210	0.15	0.20	ST7JB210.doc
6/02/97	0750	JB10	0	0.05	ST9JB10.doc
6/02/97	0802	TL3	0	0.25	STJ14TL3.doc
6/02/97	0830	JB550	0	0.10	ST2JB550.doc
6/02/97	0845	JB800	0.05	0	STJB800.doc
6/02/97	0855	JB810	0	0.10	STJB810.doc
6/02/97	0910	JB820	0.02	0.05	STJB820.doc
6/02/97	0925	TL1	0	0	STJB3TL1.doc
6/02/97	1320	TL4	0	0.10	STJB3TL4.doc
6/02/97	1404	TL3	0	0.50	STJ15TL3.doc
6/02/97	1430	TL2	0.05	0	STJB3TL2.doc

S_S = Surface salinity, S_b = Bottom salinity, T_S = Surface temperature, T_b = Bottom temperature

Table 14 Meteorological data listing (from Bureau of Meteorology).

Station number	Date			Time	Time	Air Temp.	Relative	Wind	Wind speed
	Year	Month	Day	(hours)	(Julian days)	(°C)	humidity (%)	direction(°)	(km h^{-1})
9131	1997	01	27	0000	27.000	16.00	87	140	8
9131	1997	01	27	0300	27.125	12.80	71	90	9
9131	1997	01	27	0600	27.250	15.10	63	140	11
9131	1997	01	27	0900	27.375	23.00	34	90	35
9131	1997	01	27	1200	27.500	30.50	21	160	18
9131	1997	01	27	1500	27.625	31.20	30	230	22
9131	1997	01	27	1800	27.750	24.50	62	200	33
9131	1997	01	28	0000	28.000	18.20	76	140	11
9131	1997	01	28	0600	28.250	23.80	33	70	18
9131	1997	01	28	0900	28.375	32.50	15	20	31
9131	1997	01	28	1200	28.500	36.70	26	360	31
9131	1997	01	28	1500	28.625	30.60	47	270	15
9131	1997	01	28	1800	28.750	31.00	49	270	8
9131	1997	01	29	0000	29.000	24.10	59	140	4
9131	1997	01	29	0600	29.250	21.80	93	90	4
9131	1997	01	29	0900	29.375	24.90	76	230	26
9131	1997	01	29	1200	29.500	26.50	67	200	31
9131	1997	01	29	1500	29.625	25.00	65	180	44
9131	1997	01	29	1800	29.750	23.70	66	200	28
9131	1997	01	30	0000	30.000	21.50	78	180	26
9131	1997	01	30	0300	30.125	20.10	75	110	21
9131	1997	01	30	0600	30.250	19.50	83	140	15
9131	1997	01	30	0900	30.375	24.30	55	180	17
9131	1997	01	30	1200	30.500	24.60	60	180	28
9131	1997	01	30	1500	30.625	24.60	61	180	33
9131	1997	01	30	1800	30.750	23.60	60	180	37
9131	1997	01	31	0000	31.000	21.10	80	180	22
9131	1997	01	31	0300	31.125	18.70	83	140	8
9131	1997	01	31	0600	31.250	17.50	82	160	15
9131	1997	01	31	0900	31.375	26.20	36	160	28
9131	1997	01	31	1200	31.500	27.60	44	200	41
9131	1997	01	31	1500	31.625	24.90	61	180	44
9131	1997	01	31	1800	31.750	24.60	63	200	37
9131	1997	02	01	0000	32.000	20.90	76	180	11
9131	1997	02	01	0300	32.125	18.90	76	140	11
9131	1997	02	01	0600	32.250	20.60	66	180	11
9131	1997	02	01	0900	32.375	34.50	25	200	4
9131	1997	02	01	1200	32.500	33.10	42	200	26
9131	1997	02	01	1500	32.625	27.20	63	180	41
9131	1997	02	01	1800	32.750	30.00	62	180	22
9131	1997	02	02	0000	33.000	26.80	72	200	4
9131	1997	02	02	0300	33.125	26.20	71	360	5
9131	1997	02	02	0600	33.250	23.00	83	140	4
9131	1997	02	02	0900	33.375	32.90	48	90	11
9131	1997	02	02	1200	33.500	29.80	63	200	18
9131	1997	02	02	1500	33.625	29.40	63	200	28
9131	1997	02	02	1800	33.750	25.60	82	180	22
9131	1997	02	03	0000	34.000	24.90	70	180	11
9131	1997	02	03	0300	34.125	22.90	92	160	15
9131	1997	02	03	0600	34.250	23.80	88	180	8
9131	1997	02	03	0900	34.375	24.80	86	200	21
9131	1997	02	03	1200	34.500	27.00	77	200	28
9131	1997	02	03	1500	34.625	25.50	63	230	24
9131	1997	02	03	1800	34.750	23.60	85	230	18
9131	1997	02	04	0000	35.000	21.60	88	230	18

Table 14 Meteorological data listing (from Bureau of Meteorology).

Station number	Date			Time (hours)	Time (Julian days)	Air Temp. (°C)	Relative humidity (%)	Wind direction(°)	Wind speed (km h^{-1})
	Year	Month	Day						
9131	1997	02	04	0300	35.125	21.40	81	180	22
9131	1997	02	04	0900	35.375	22.20	64	200	21
9131	1997	02	04	1200	35.500	24.70	52	180	24
9131	1997	02	04	1500	35.625	24.40	52	180	35
9131	1997	02	04	1800	35.750	23.00	59	180	28
9131	1997	02	05	0000	36.000	21.00	68	180	31
9131	1997	02	05	0300	36.125	19.80	74	140	15
9131	1997	02	05	0600	36.250	15.50	79	140	9
9131	1997	02	05	0900	36.375	23.60	46	180	11
9131	1997	02	05	1200	36.500	25.00	52	180	30
9131	1997	02	05	1500	36.625	24.80	56	200	42
9131	1997	02	05	1800	36.750	23.40	64	180	28
9131	1997	02	06	0000	37.000	17.70	77	140	8
9131	1997	02	06	0300	37.125	16.10	85	140	4
9131	1997	02	06	0600	37.250	15.80	86	180	4
9131	1997	02	06	0900	37.375	23.60	56	180	17
9131	1997	02	06	1200	37.500	26.40	58	230	26
9131	1997	02	06	1500	37.625	25.40	66	200	35
9131	1997	02	06	1800	37.750	25.30	66	200	33
9131	1997	02	07	0000	38.000	22.80	74	160	18
9131	1997	02	07	0300	38.125	22.20	76	160	18
9131	1997	02	07	0600	38.250	23.00	74	180	26
9131	1997	02	07	0900	38.375	24.40	71	180	28
9131	1997	02	07	1200	38.500	25.70	63	230	33
9131	1997	02	07	1500	38.625	25.30	59	200	41
9131	1997	02	07	1800	38.750	23.00	68	200	37
9131	1997	02	08	0000	39.000	21.90	51	180	22
9131	1997	02	08	0300	39.125	21.20	78	140	18
9131	1997	02	08	0600	39.250	19.20	67	160	18
9131	1997	02	08	0900	39.375	24.60	50	200	26
9131	1997	02	08	1200	39.500	26.90	57	180	15
9131	1997	02	08	1500	39.625	25.50	58	230	39
9131	1997	02	08	1800	39.750	24.50	64	180	37

Legend

Air Temp. = Air Temperature in °C

Wind Direction (°) = Wind direction in degrees, clockwise from North

Wind speed in km h^{-1}, where 1km h^{-1} = 0.555 knot

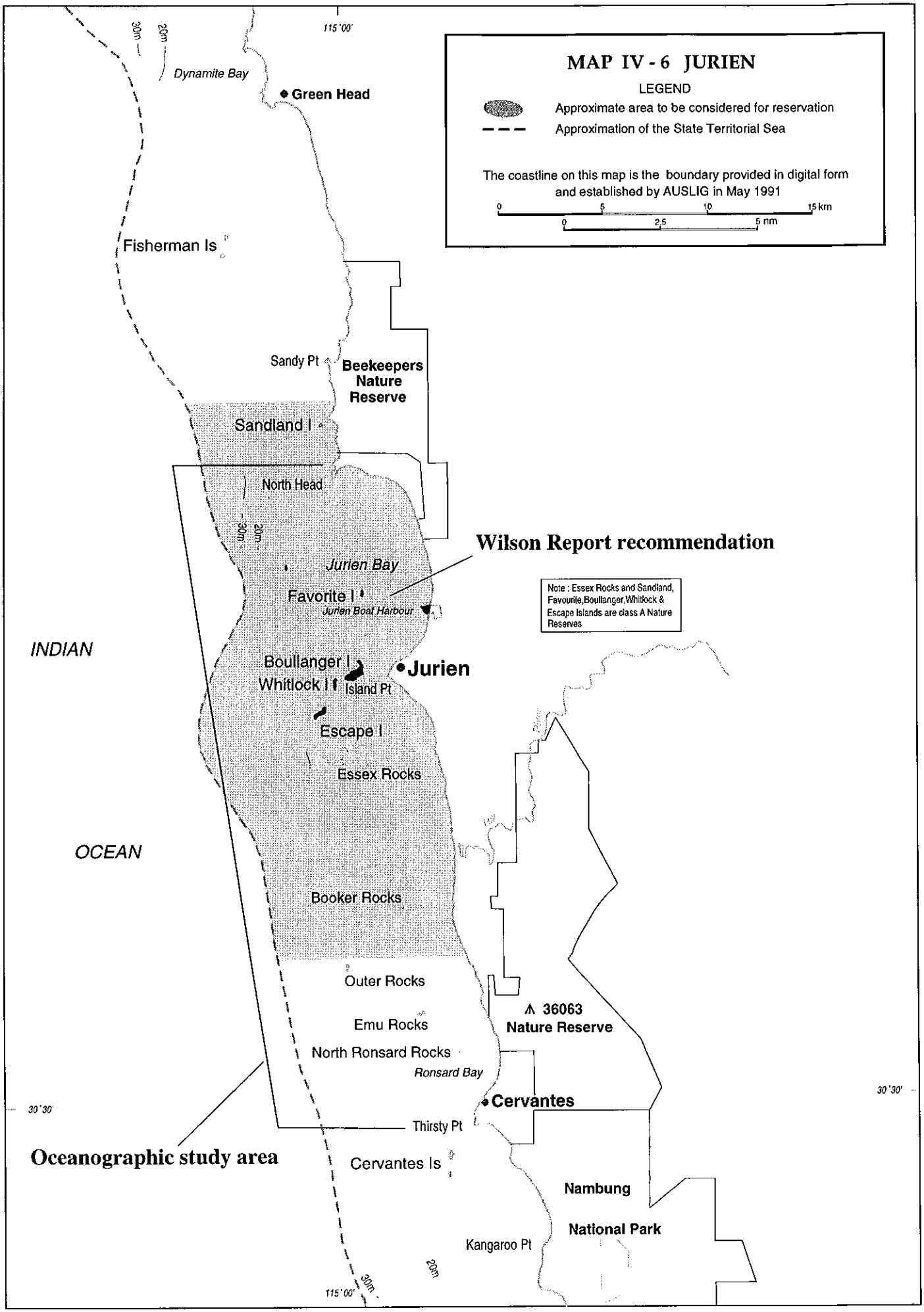


Figure 1 The oceanographic study region between Sandy Point and Cervantes including the Wilson Report marine reserve recommendation area (shaded, from CALM, 1994).

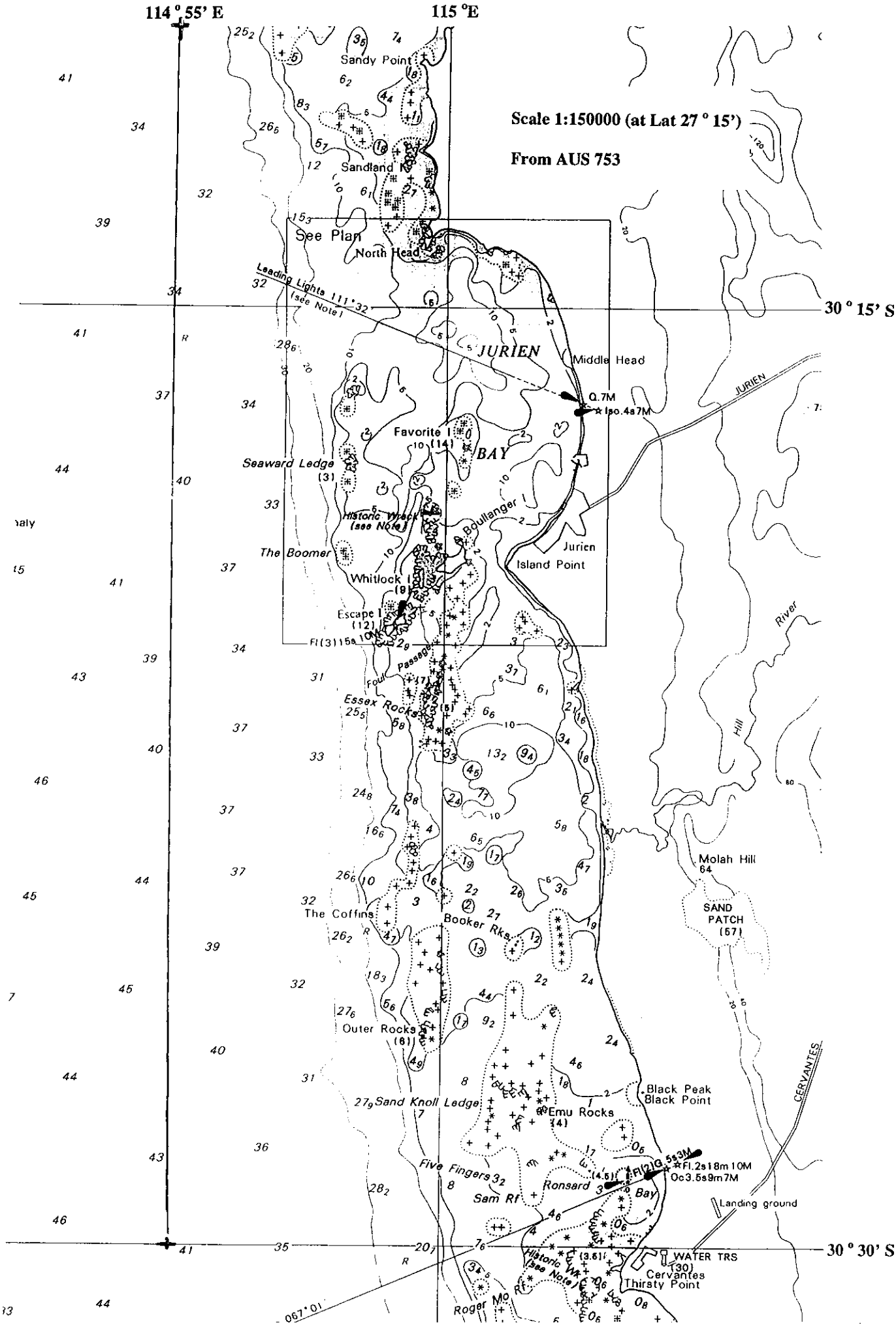


Figure 2 Bathymetry of the study region from Sandy Point to Cervantes.

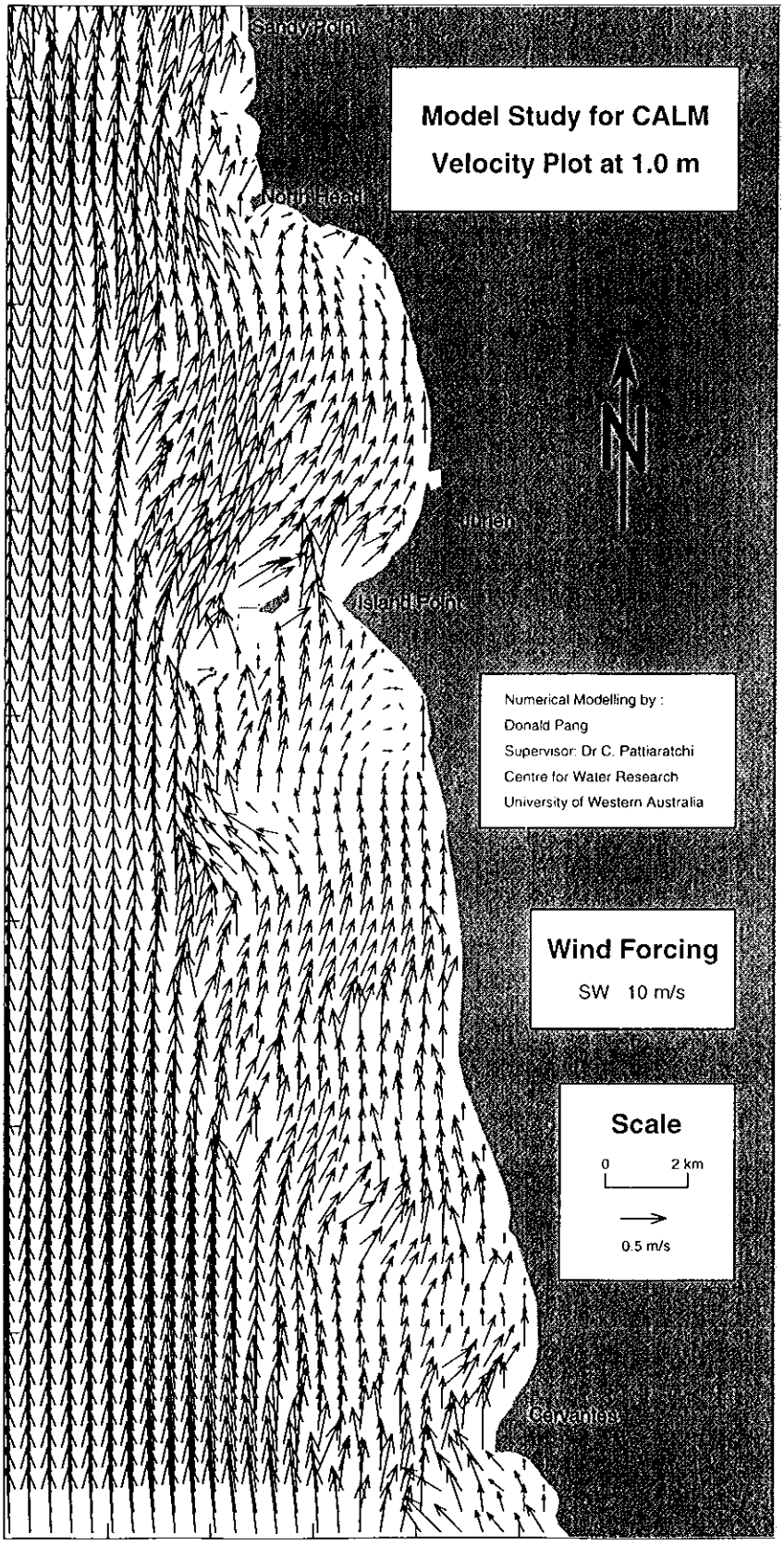
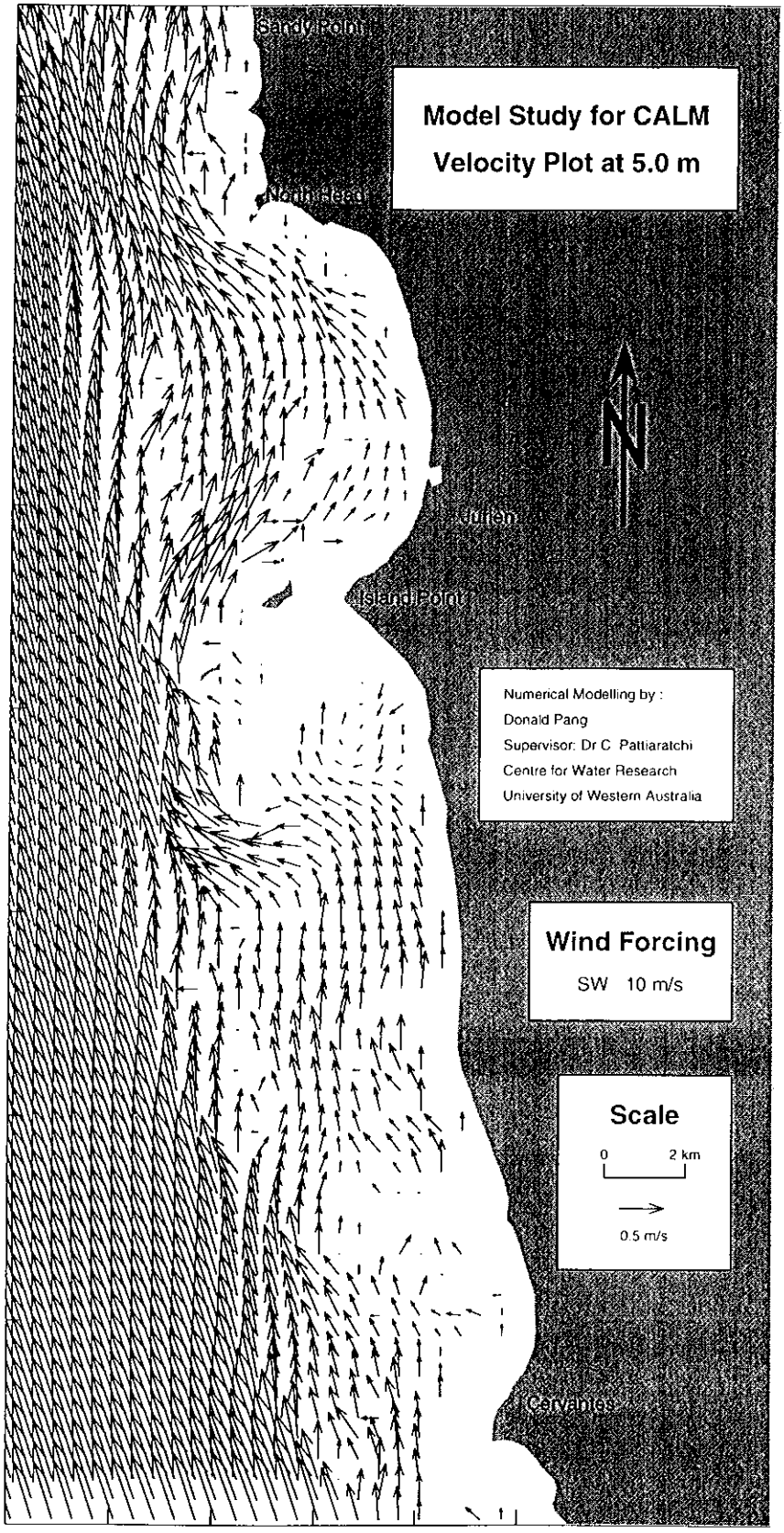
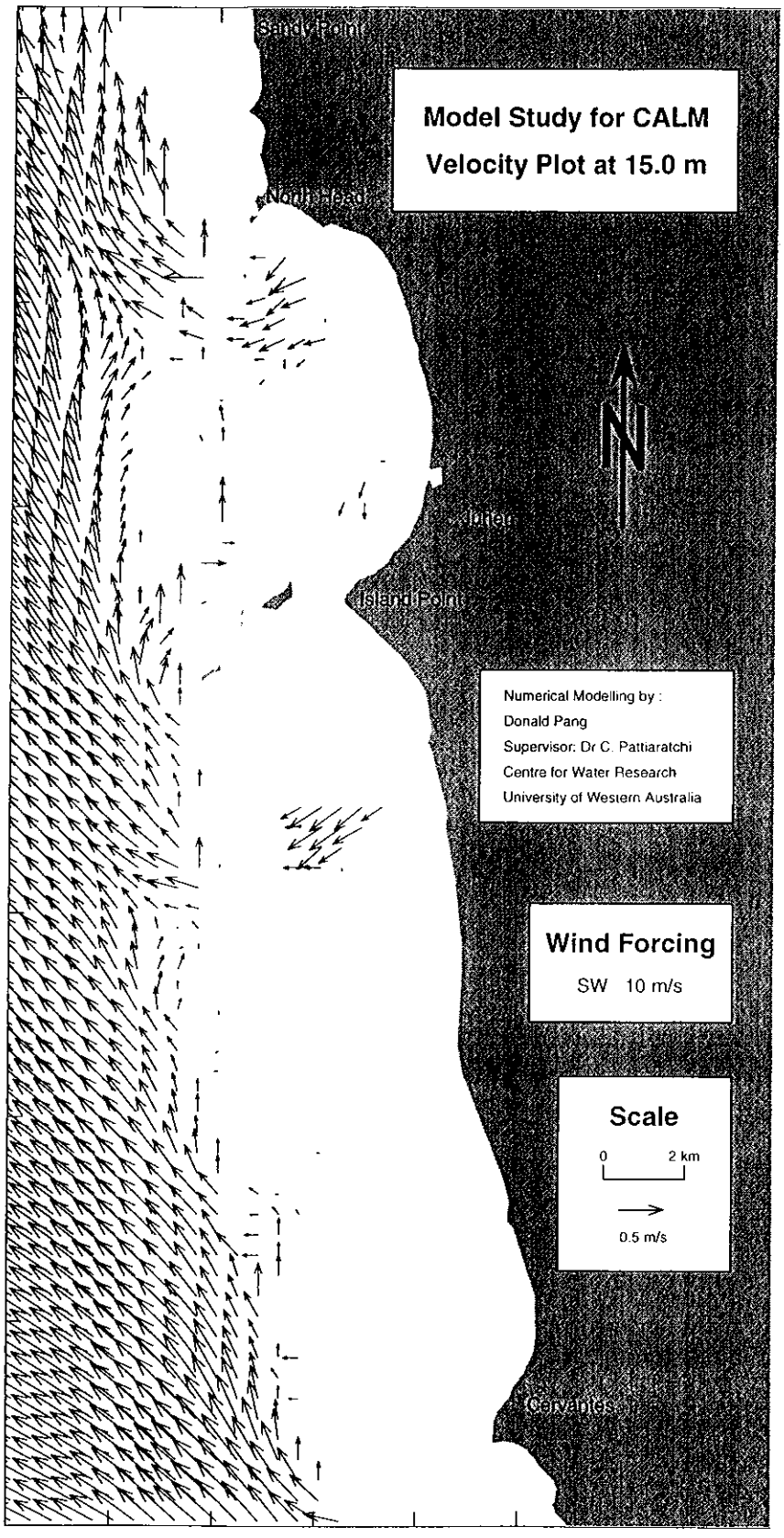
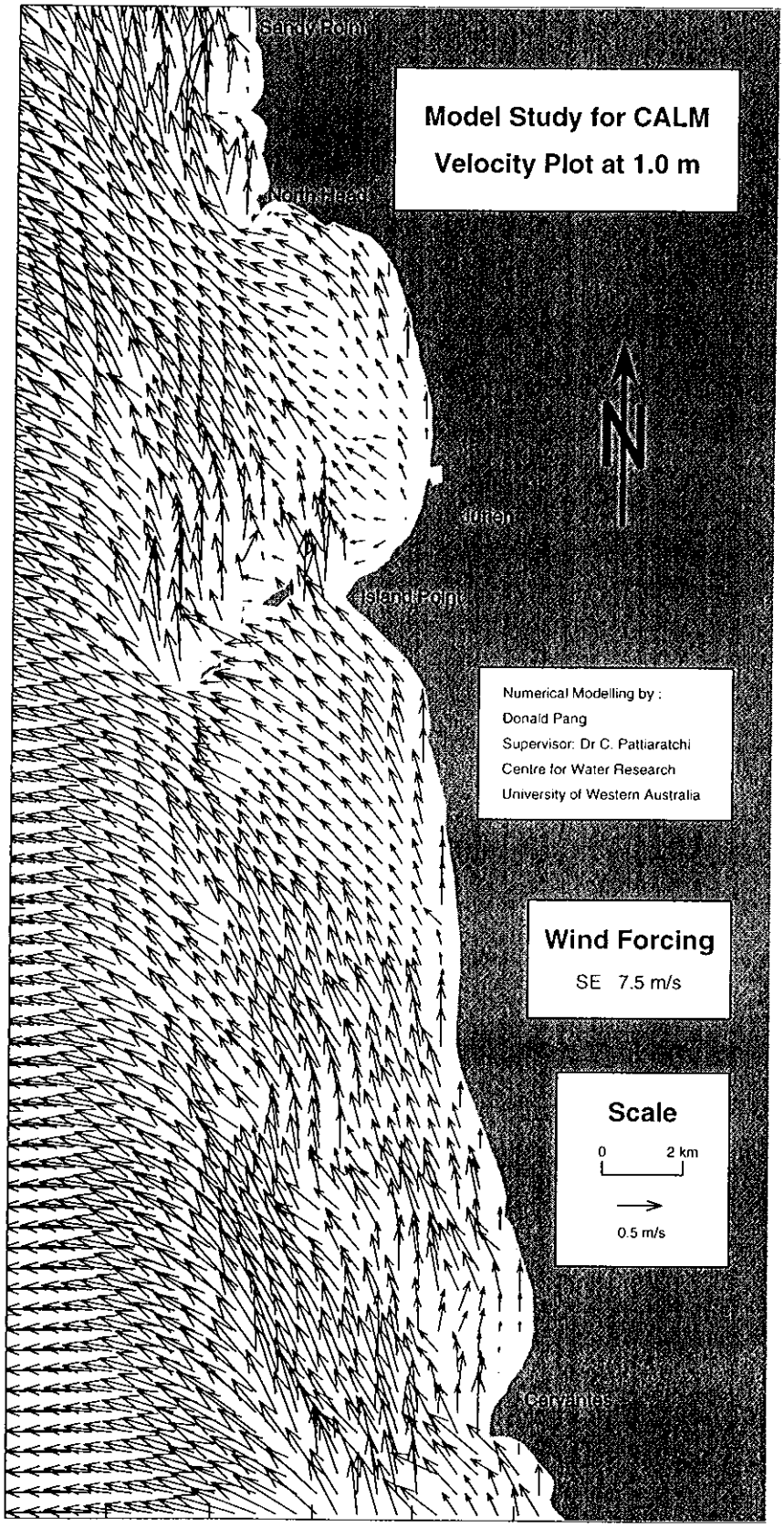
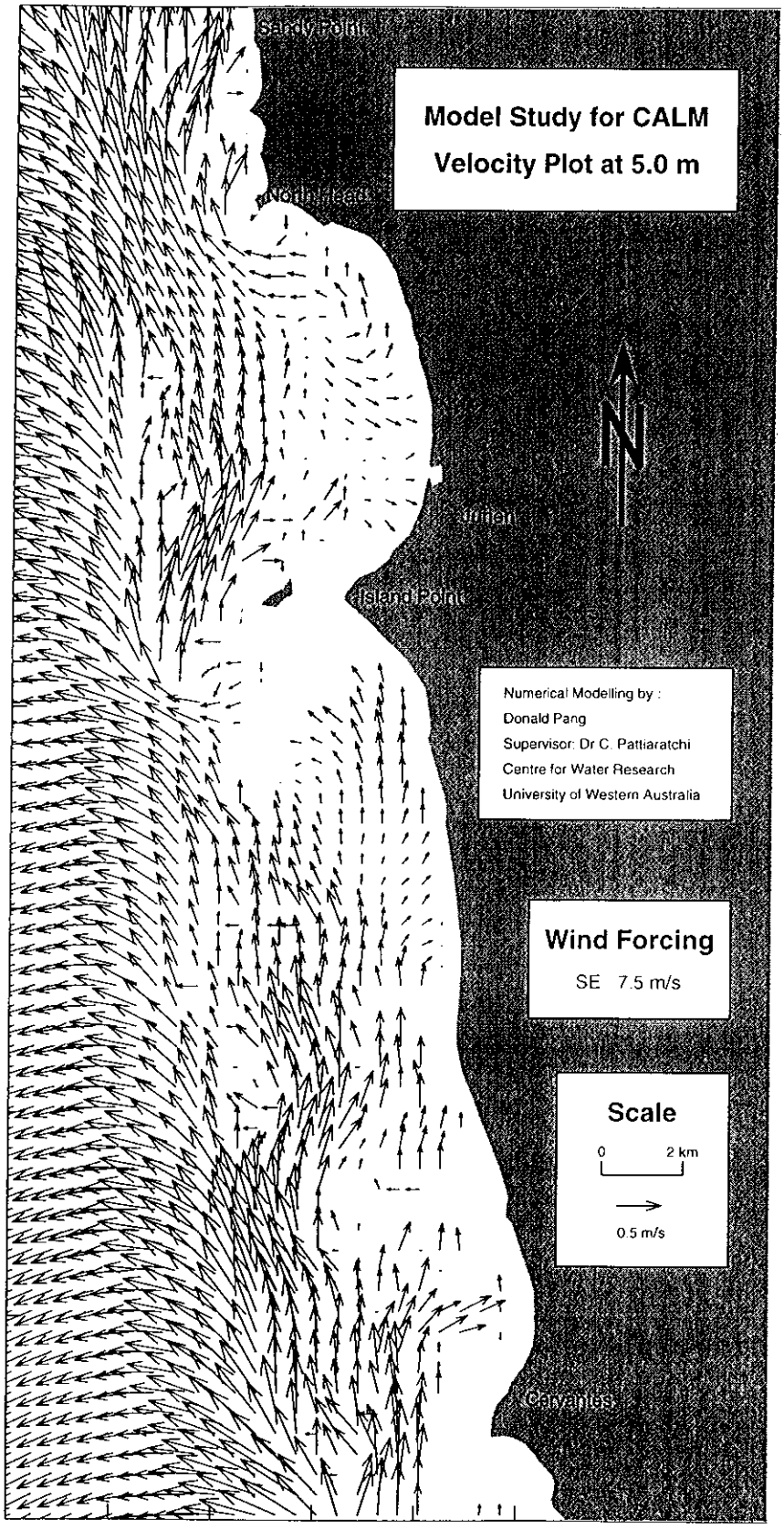


Figure 3 Hydrodynamic numerical model results of barotropic wind-driven circulation at 1m, 5 m and 15 m depths in the region from Sandy Point to Cervantes under (a) SW wind at 10 m s^{-1}, (b) SE wind at 7.5 m s^{-1}, (c) NE wind at 10 m s^{-1} and (d) NW wind at 10 m s^{1}. Simulations were performed with the HAMSOM model (Pattiaratchi and Knock, 1995) by Mr Donald Pang and Dr Charitha Pattiaratchi of the Department of Environmental Engineering, University of Western Australia.


Sandy Point
North Head
Model Study for CALM
Velocity Plot at 5.0 m
N
Island Point
Numerical Modelling by :
Donald Pang
Supervisor: Dr C Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
SW 10 m/s
Scale
0 2 km
0.5 m/s
Cervantes


Sandy Point
Model Study for CALM
Velocity Plot at 15.0 m
North Head
N
Albion
Island Point
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
SW 10 m/s
Scale
0
2 km
0.5 m/s
Cervantes


Sandy Point
North Head
Model Study for CALM
Velocity Plot at 1.0 m
N
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
SE 7.5 m/s
Scale
0
2 km
0.5 m/s


Sandy Point
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Island Point
Cervantes
Model Study for CALM
Velocity Plot at 5.0 m
N
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
SE 7.5 m/s
Scale
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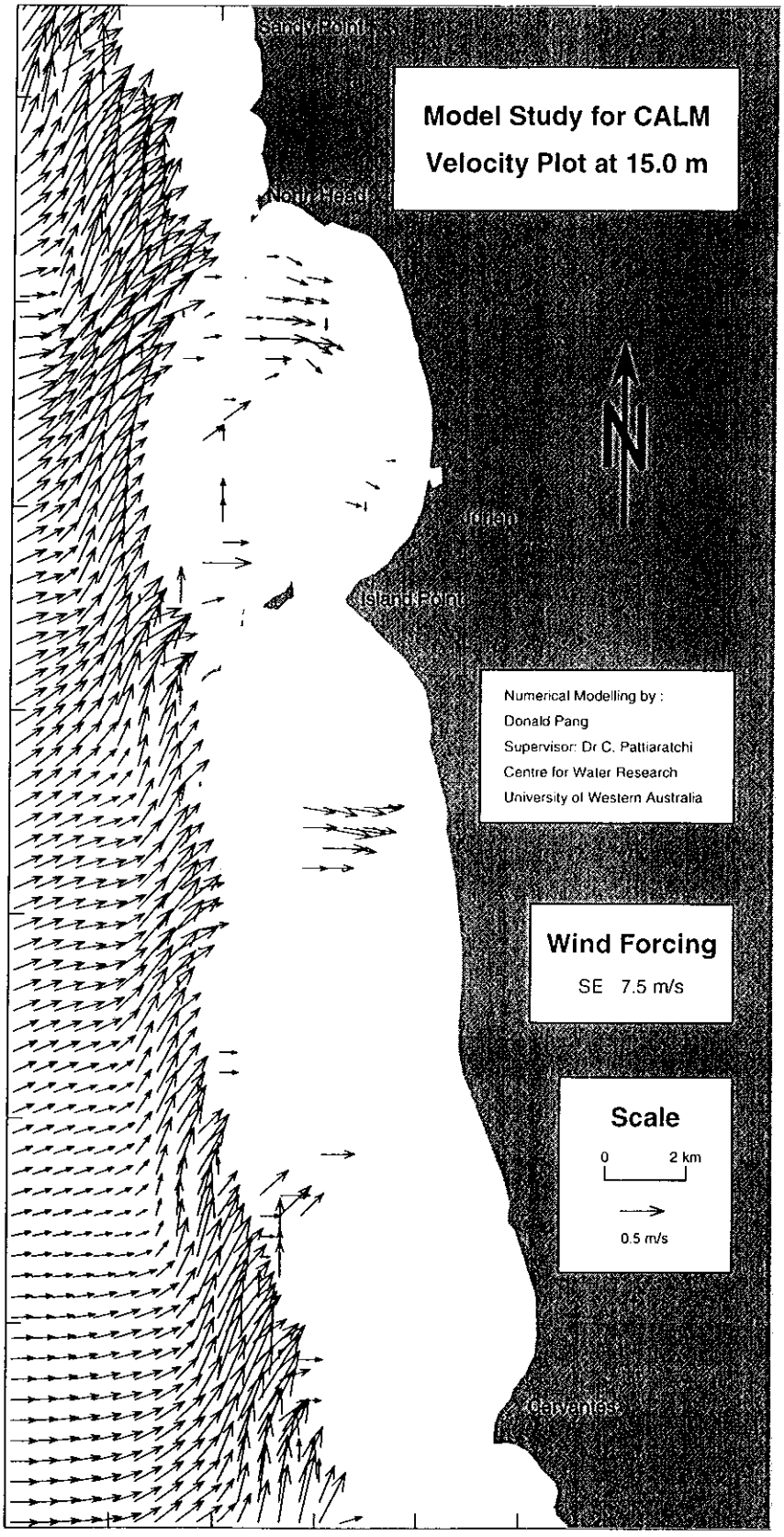
2 km
0.5 m/s


Sandy Point
Model Study for CALM
Velocity Plot at 15.0 m
Nour Head
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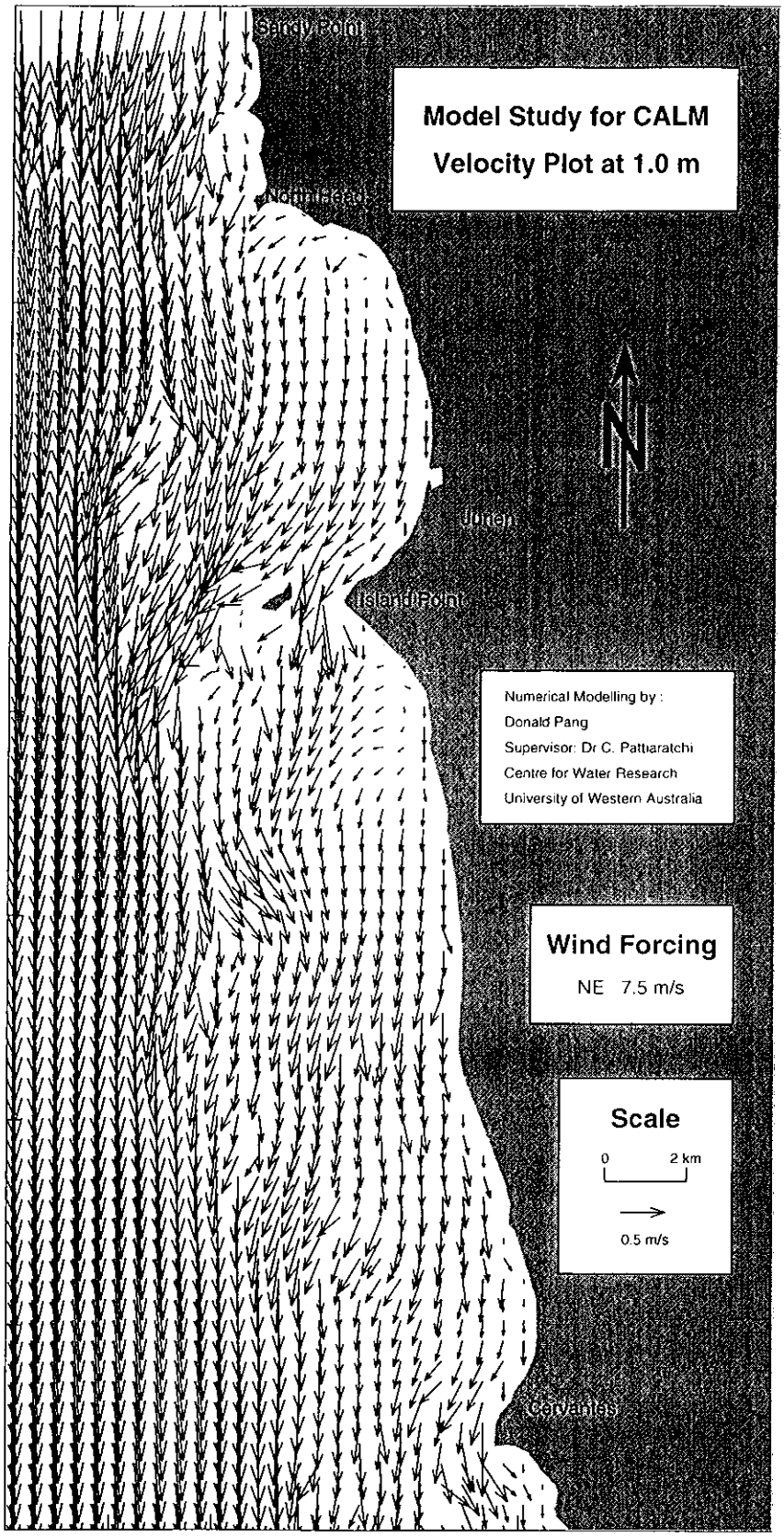
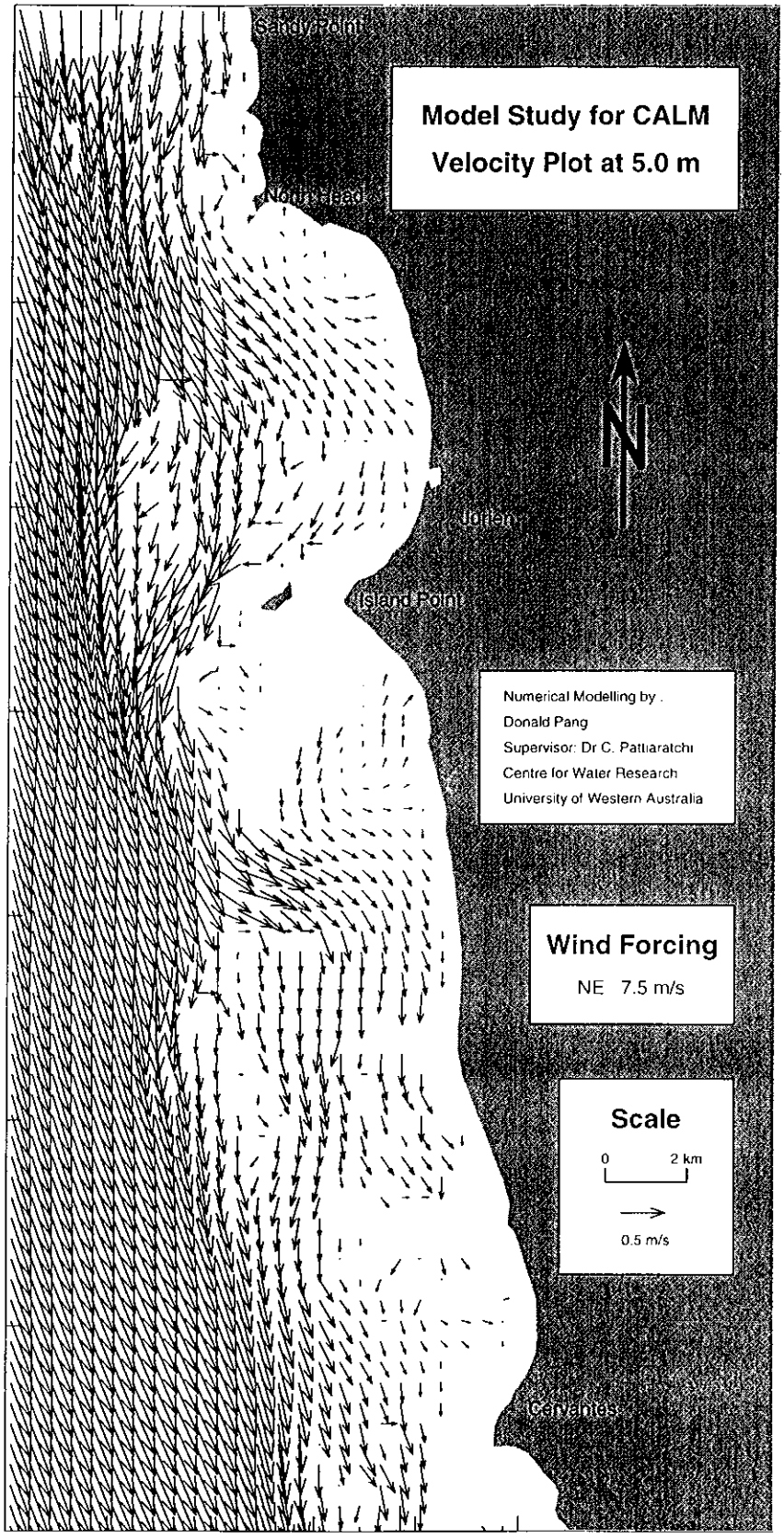
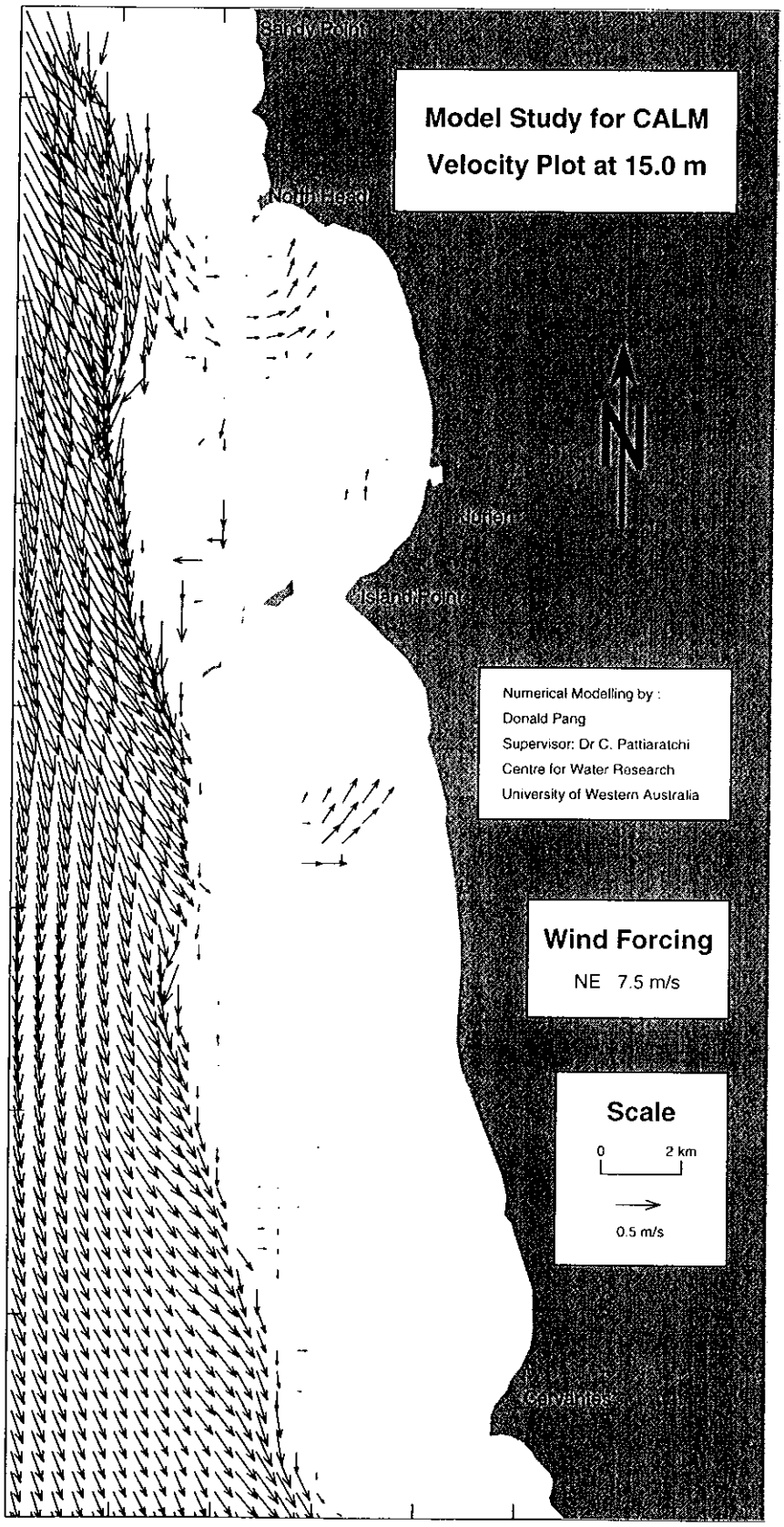
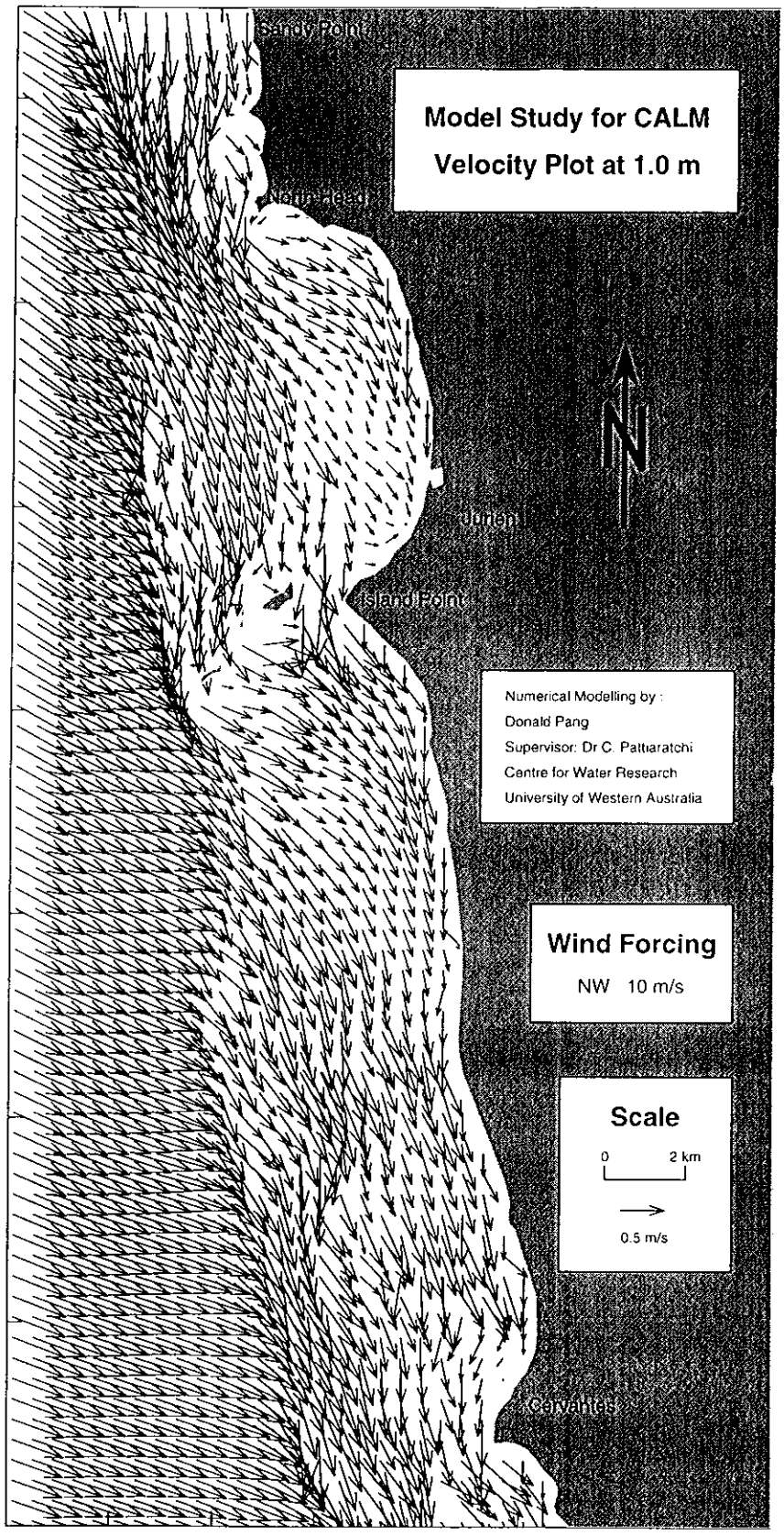
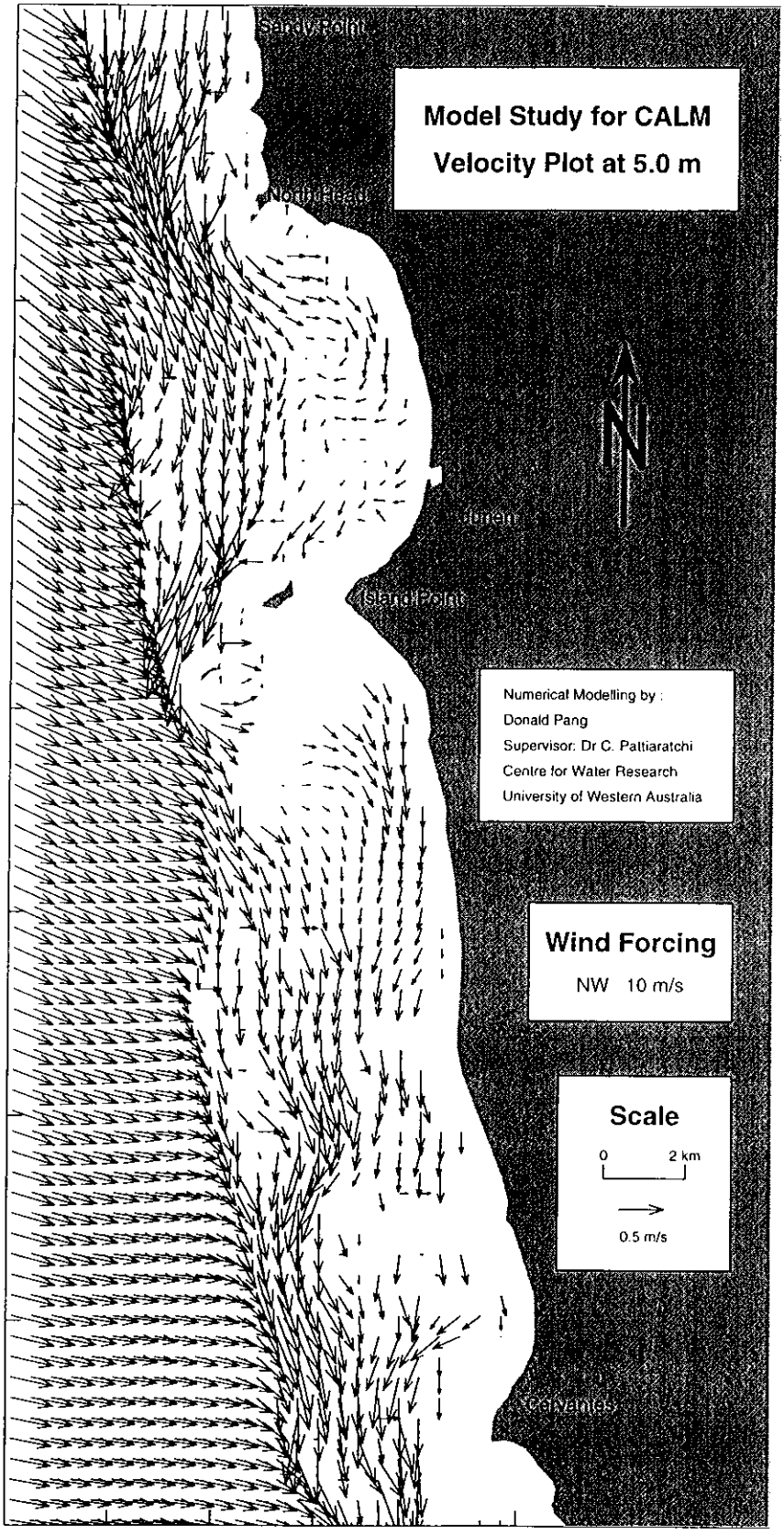
Island Point
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
SE 7.5 m/s
Scale
0 2 km
0.5 m/s
Geographe

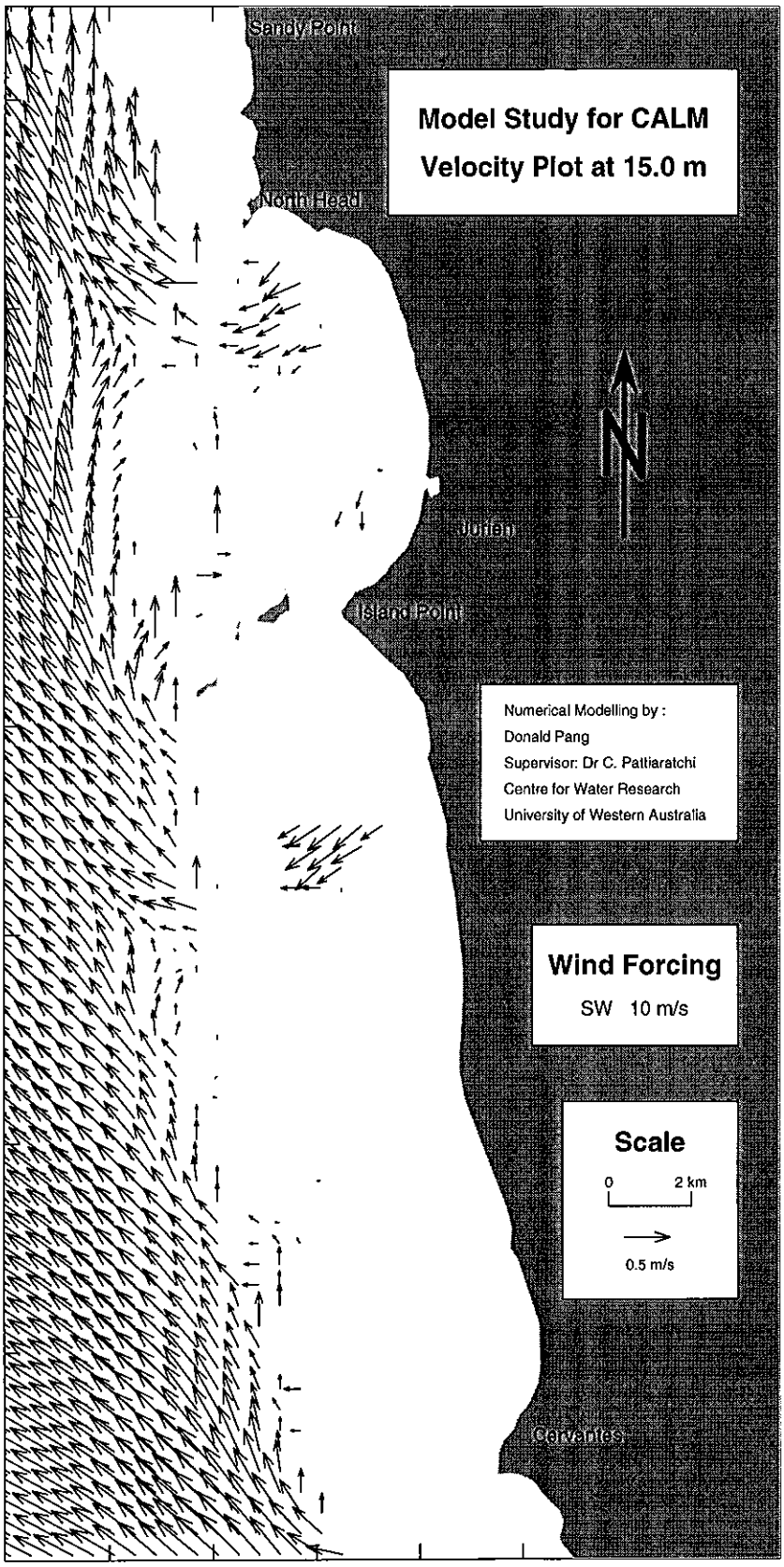

Sandy Point
North Beach
Jurien
Island Point
Cervantes
Model Study for CALM
Velocity Plot at 1.0 m
N
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
NE 7.5 m/s
Scale
0
2 km
0.5 m/s


Sandy Point
Model Study for CALM
Velocity Plot at 5.0 m
North Head
N
Norlen
Island Point
Numerical Modelling by .
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
NE 7.5 m/s
Scale
0
2 km
0.5 m/s
Cervantes


Sandy Point
North Head
Model Study for CALM
Velocity Plot at 15.0 m
N
Jetty
Island Point
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
NE 7.5 m/s
Scale
0
2 km
0.5 m/s
Cervantes


Sandy Point
North Head
Junion
Island Point
Carvanics
Model Study for CALM
Velocity Plot at 1.0 m
N
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
NW 10 m/s
Scale
0
2 km
0.5 m/s


Sandy Point
North Head
Model Study for CALM
Velocity Plot at 5.0 m
N
Island Point
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
NW 10 m/s
Scale
0 2 km
0.5 m/s
Cervantes


Sandy Point
Model Study for CALM
Velocity Plot at 15.0 m
North Head
N
Julian
Island Point
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
SW 10 m/s
Scale
0
2 km
0.5 m/s
Cervantes

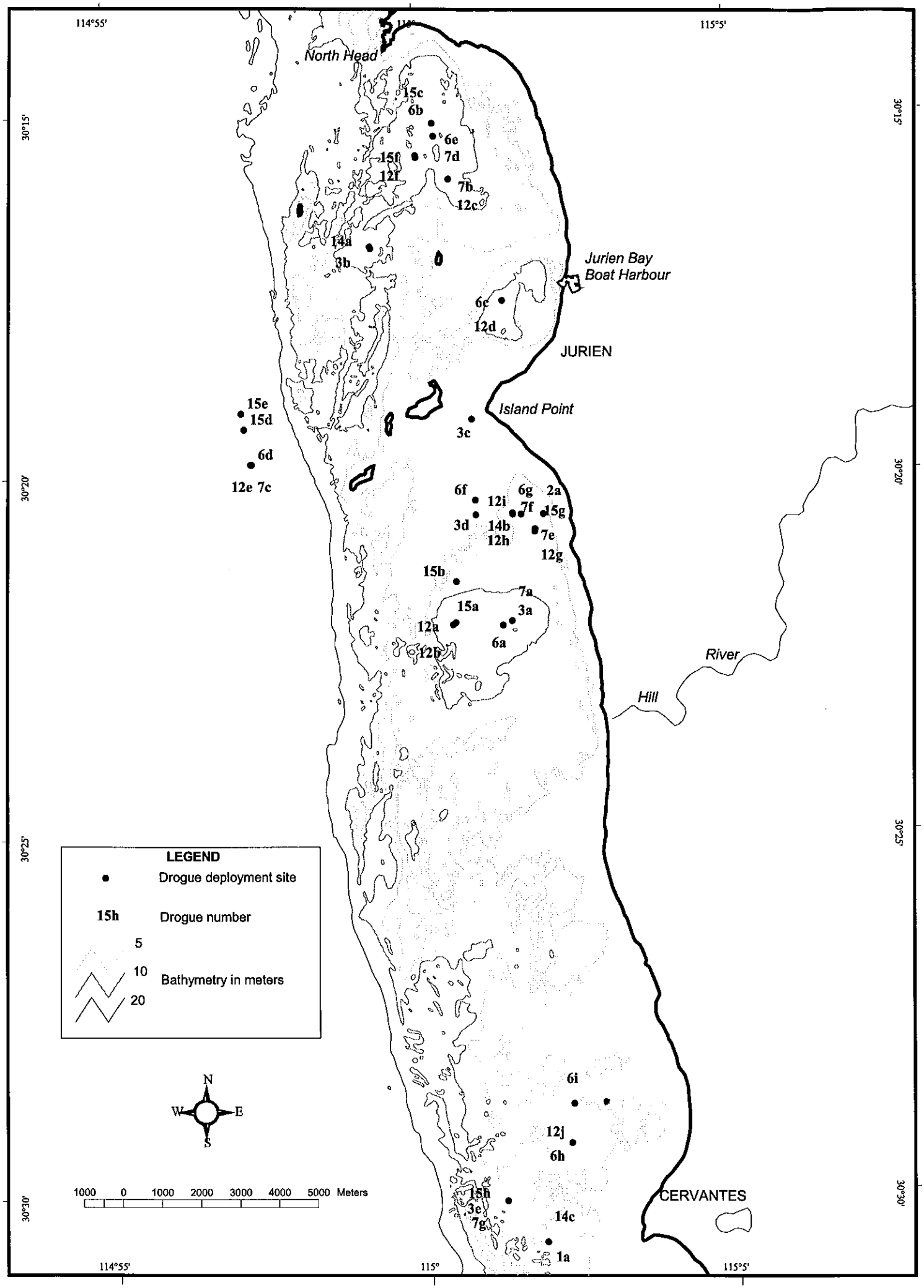


Figure 4 Drogue deployment sites

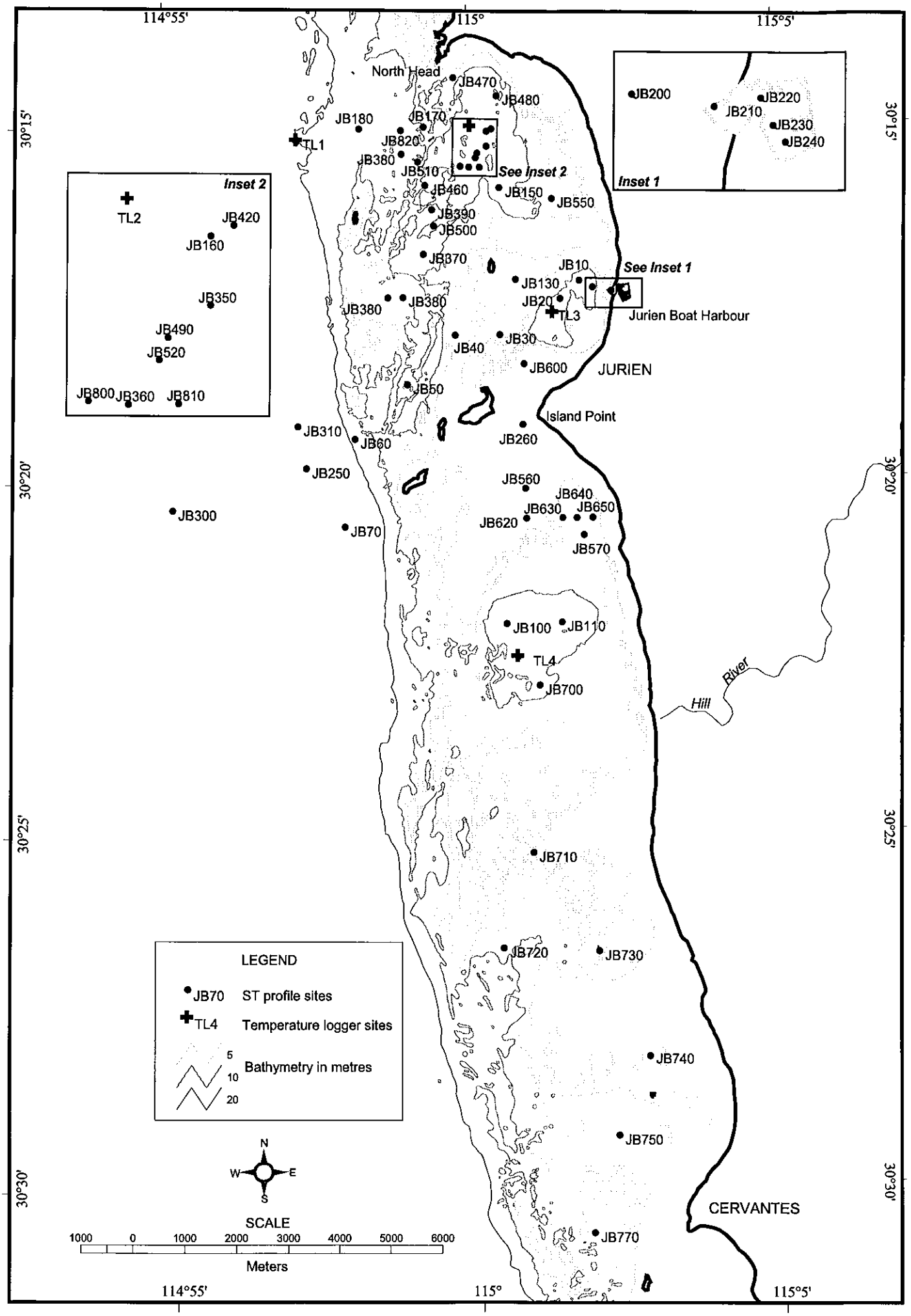


Figure 5 Salinity-temperature profiling and temperature logging

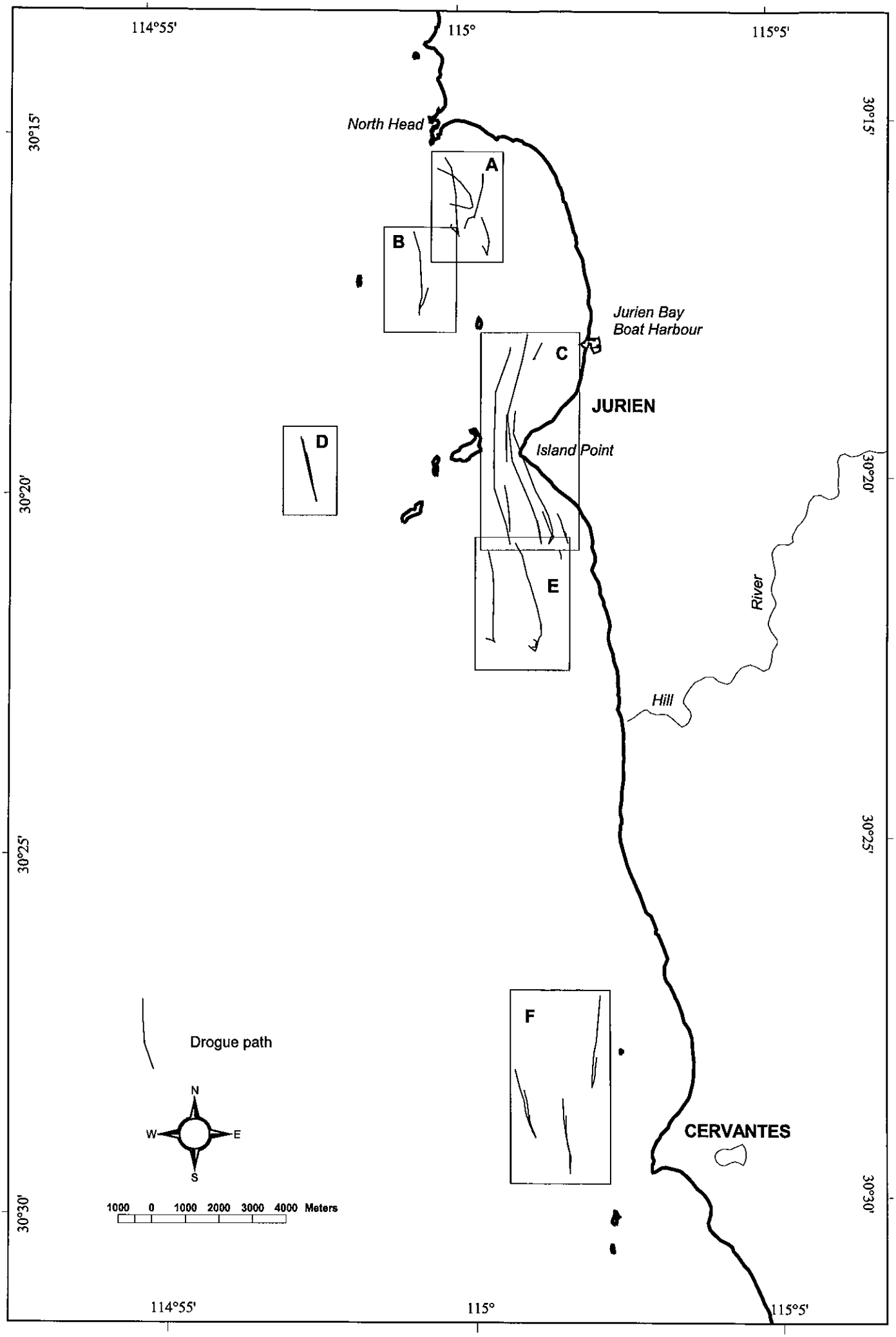


Figure 6 Drogue tracks

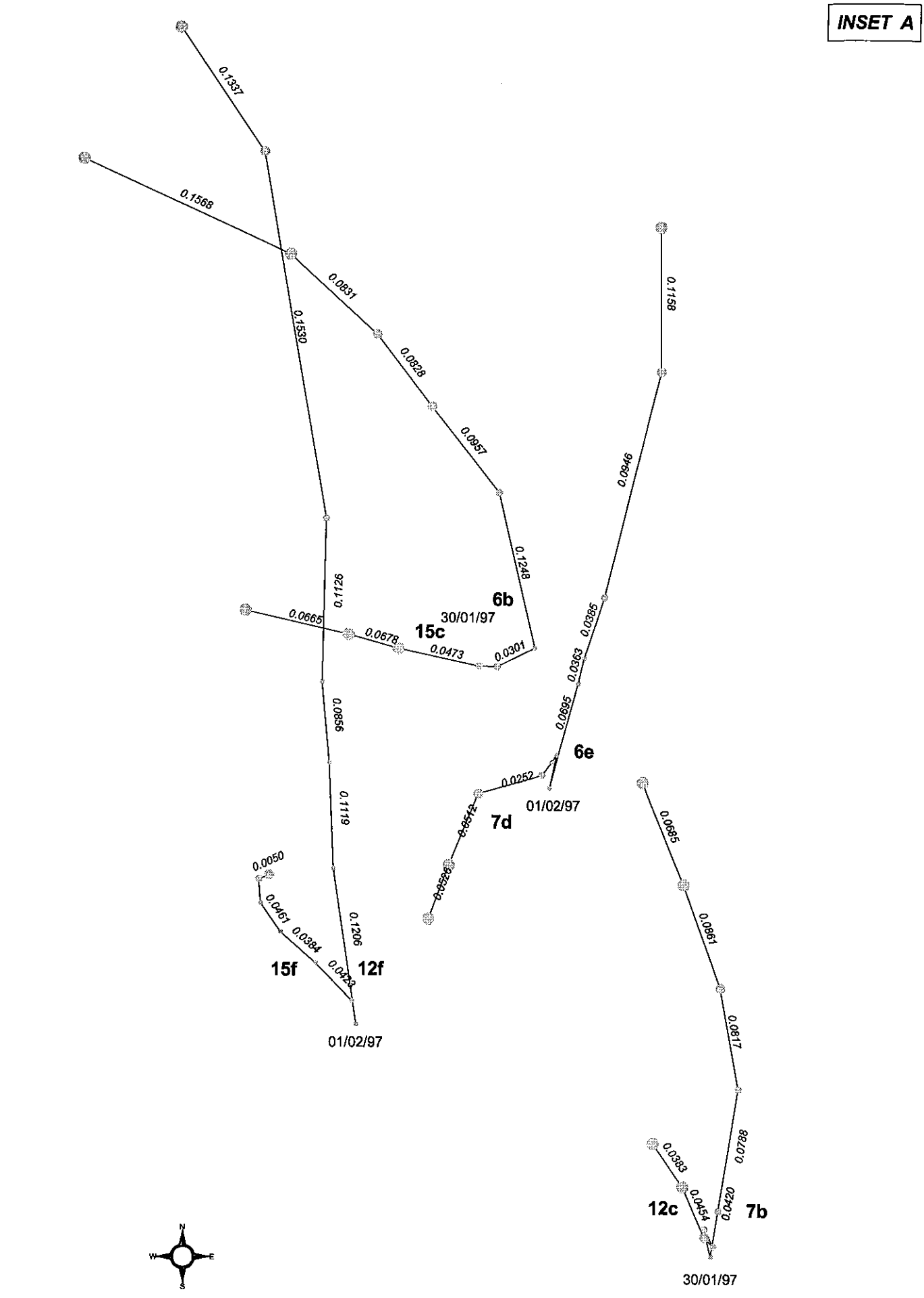


Figure 6 (cont.) Drogue tracks: Inset A

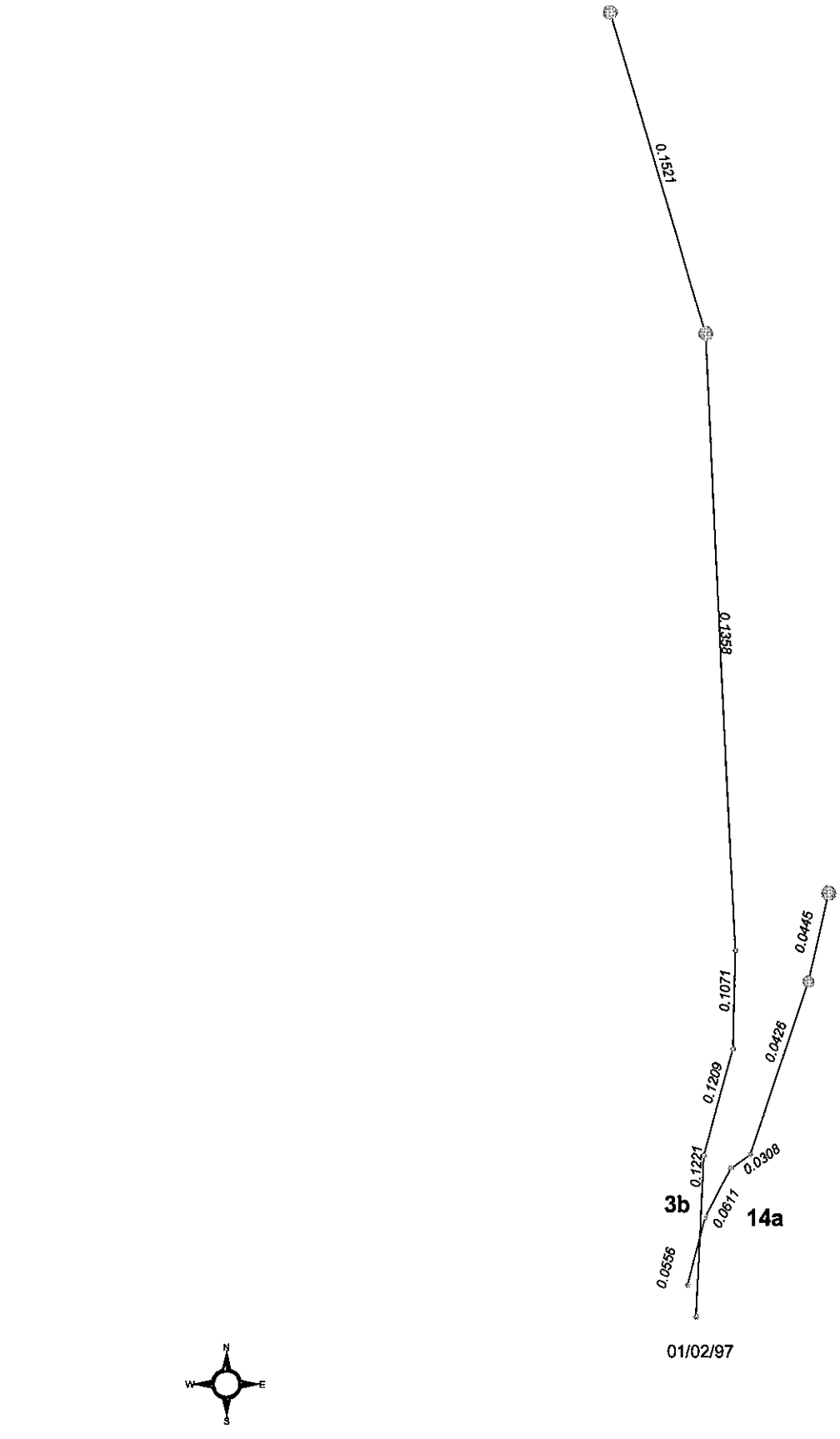
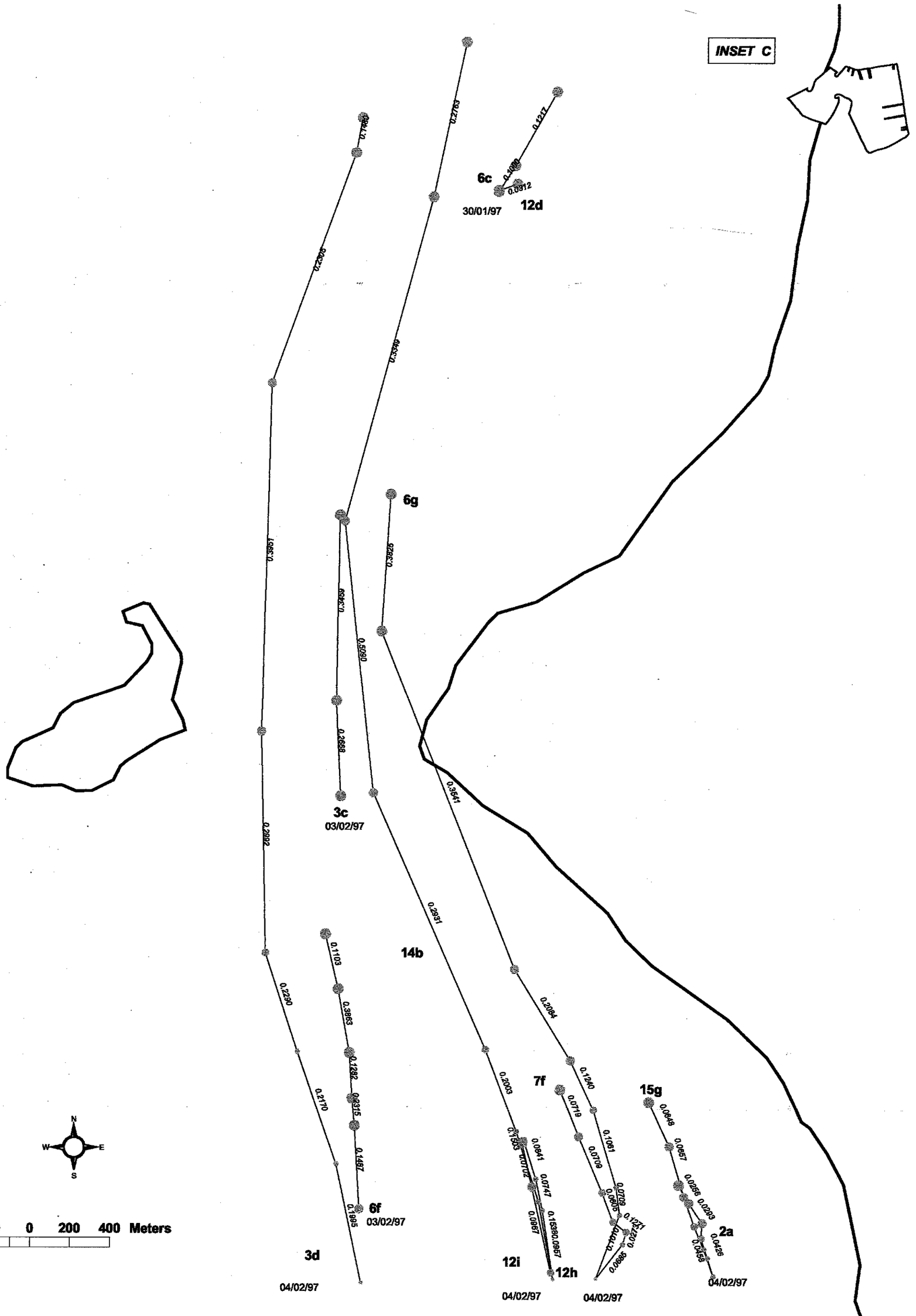


Figure 6 (cont.) Drogue tracks: Inset B


INSET C
6c
12d
30/01/97
6g
3c
03/02/97
14b
6f
03/02/97
3d
04/02/97
7f
12i
12h
04/02/97
04/02/97
15g
2a
04/02/97
N
W
E
S
200 0 200 400 Meters

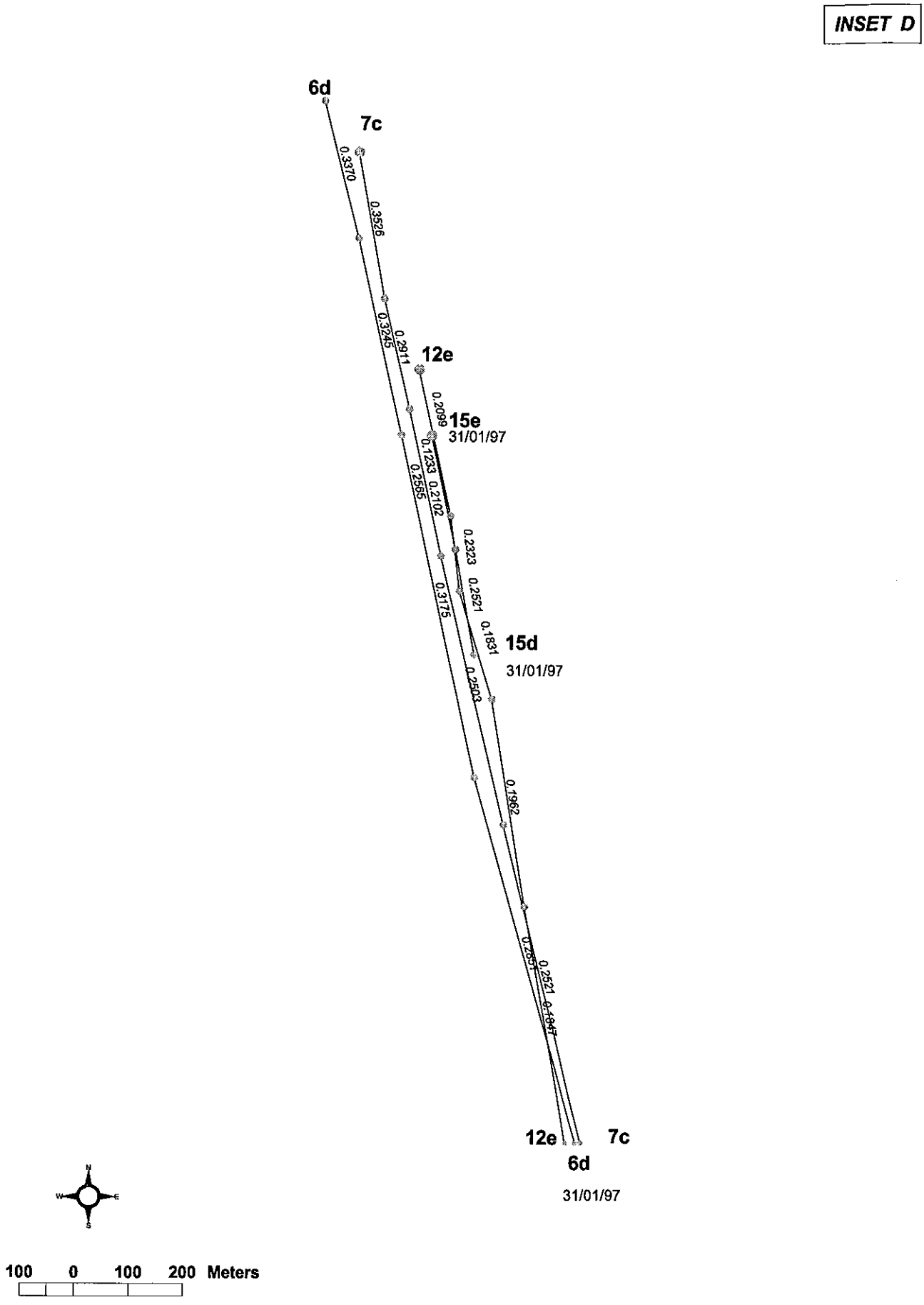


Figure 6 (cont.) Drogue tracks: Inset D

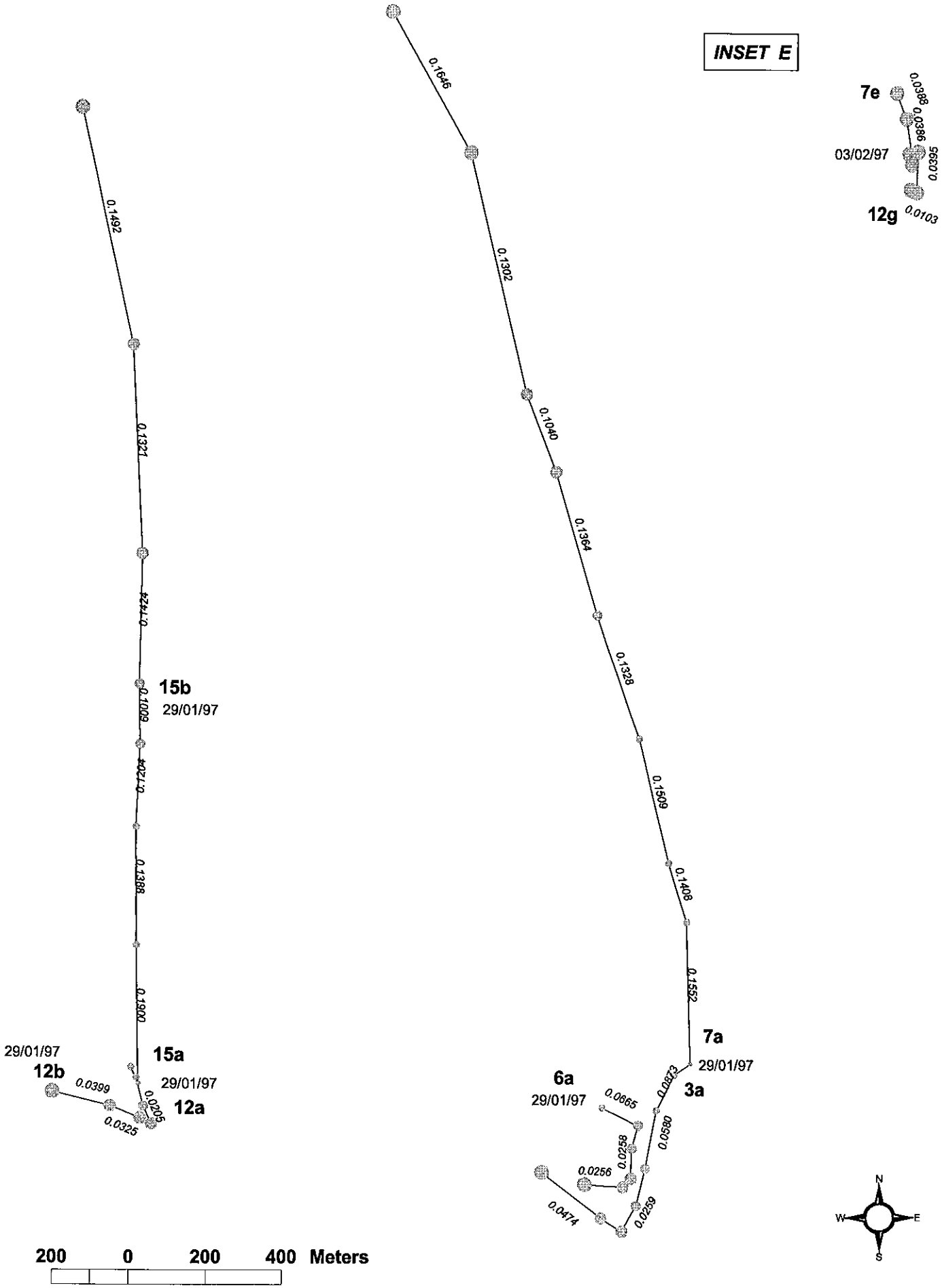


Figure 6 (cont.) Drogue tracks: Inset E

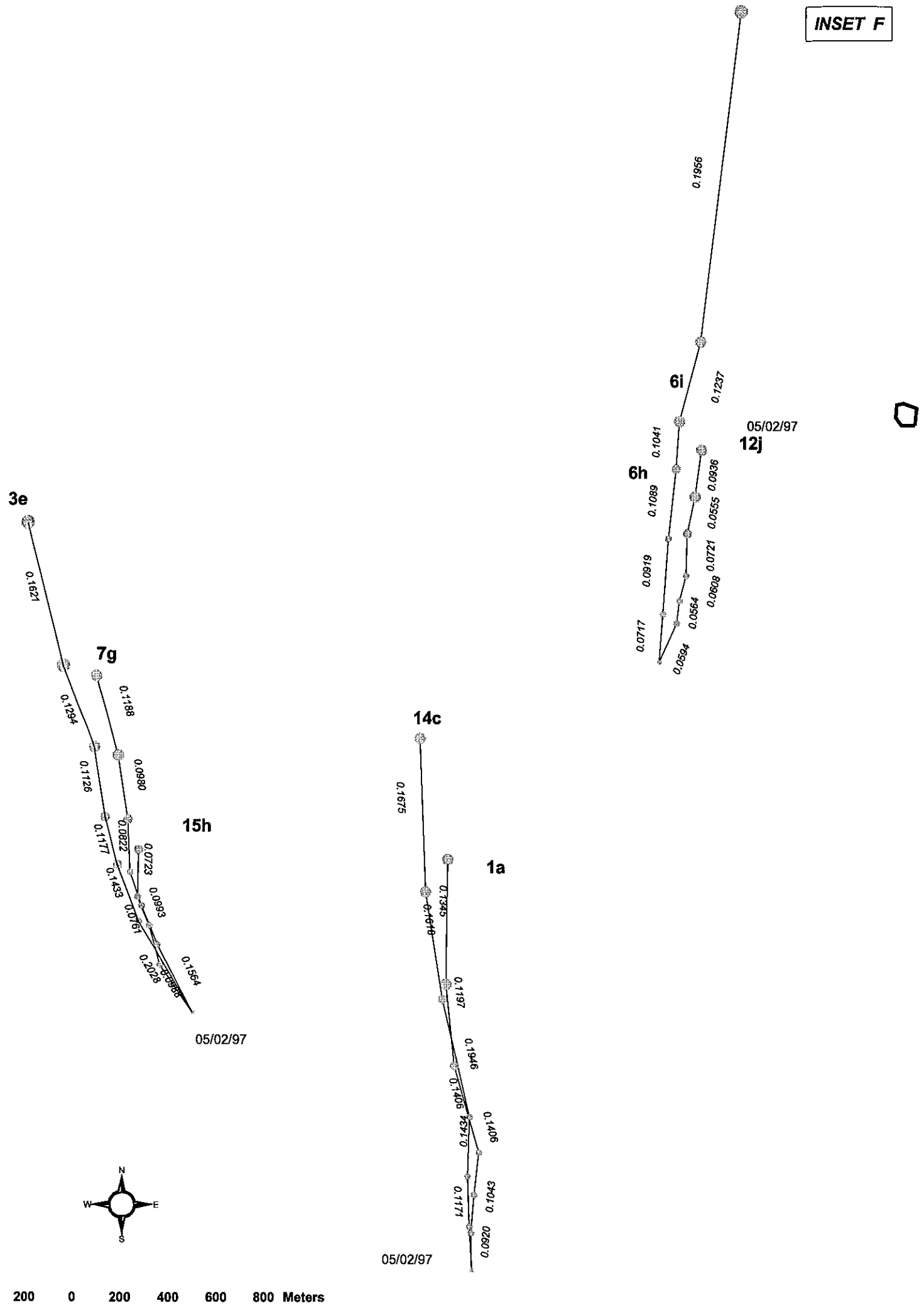
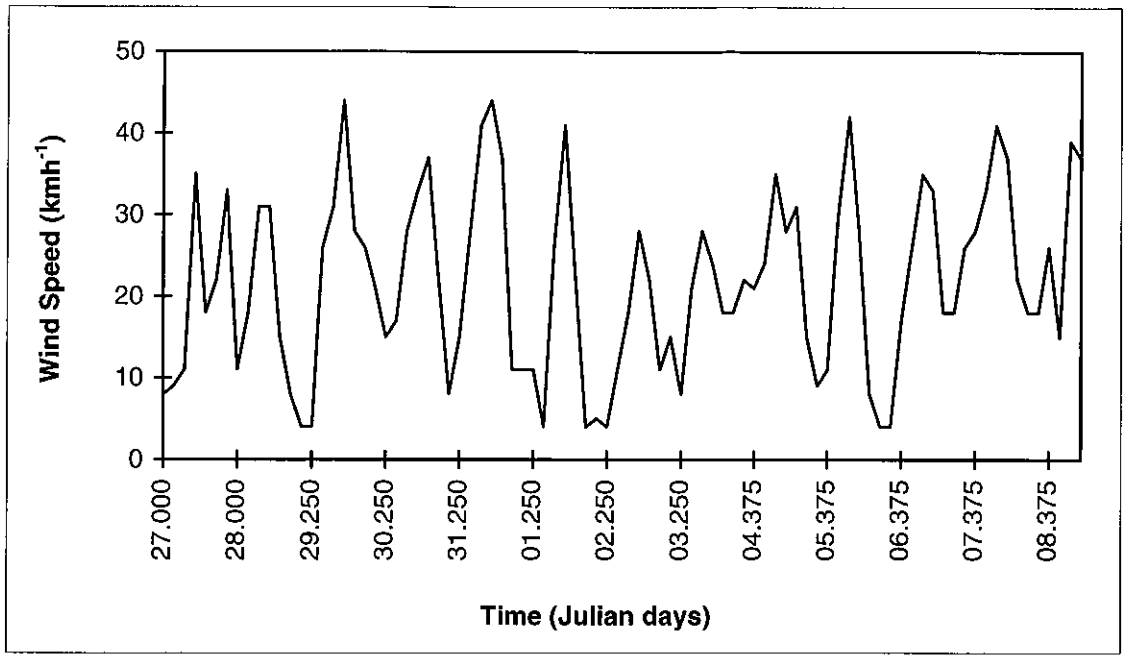


Figure 6 (cont.) Drogue tracks: Inset F



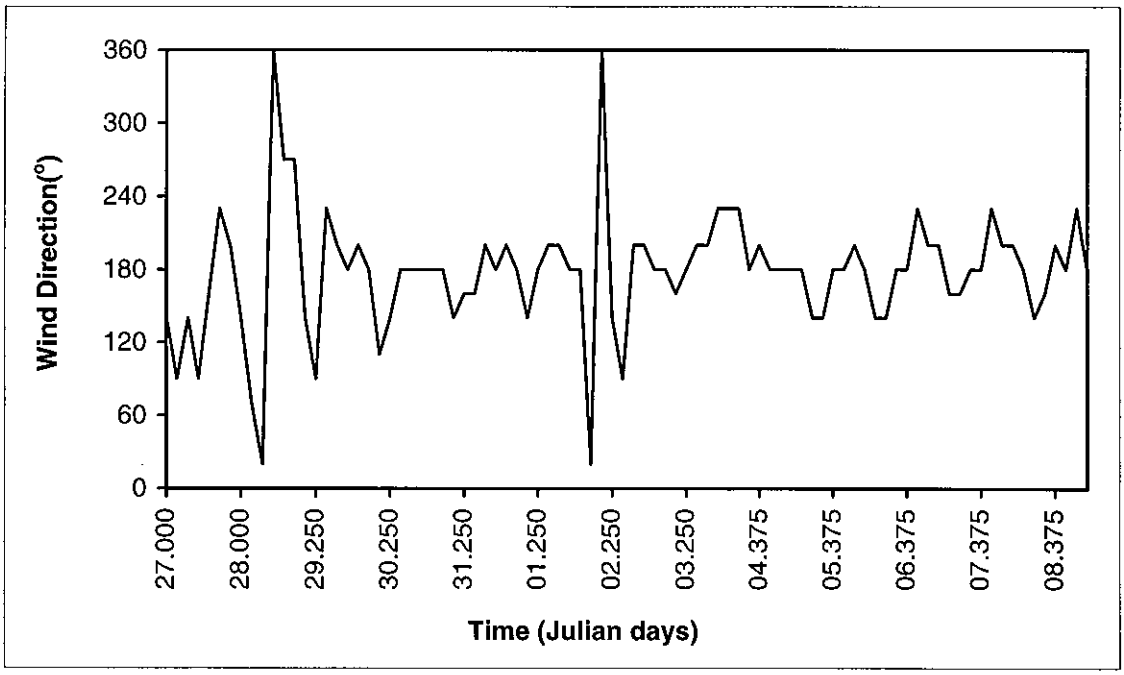
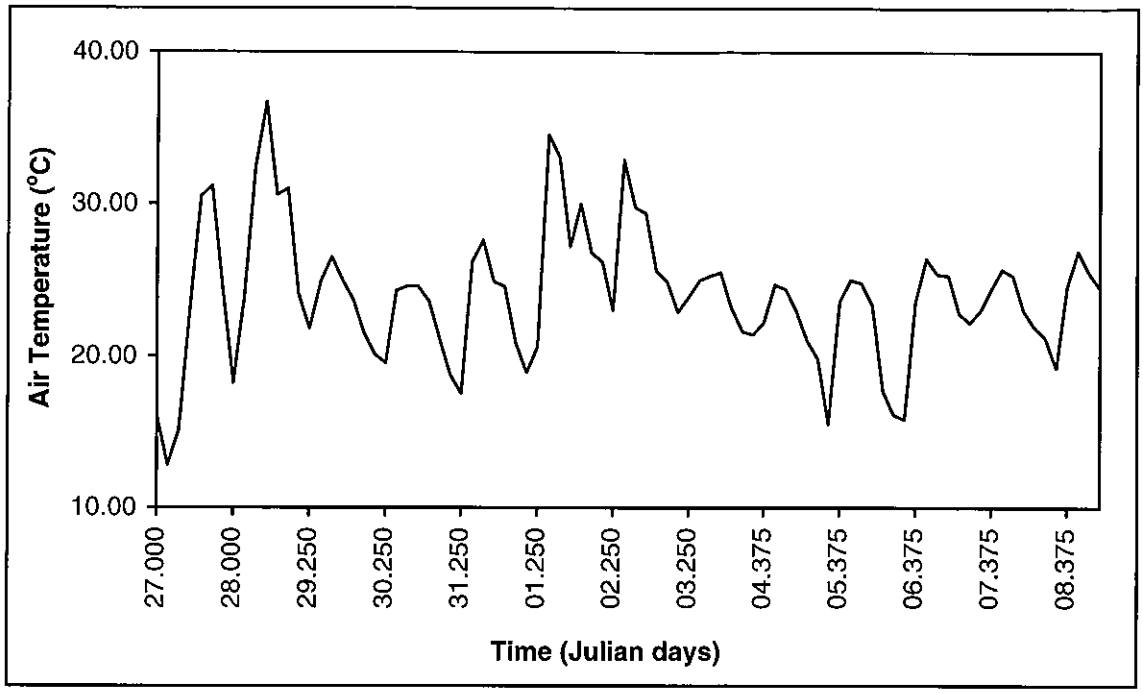


Figure 7 Meteorological data (from Bureau of Meteorology).



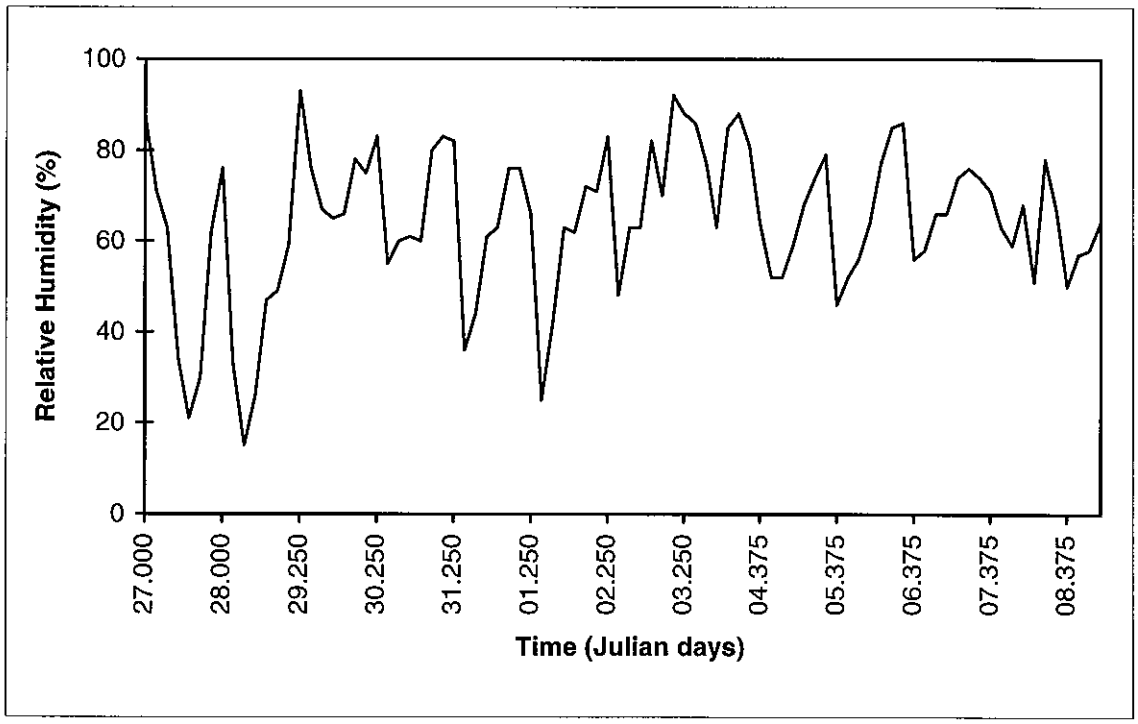


Figure 7 Meteorological data (from Bureau of Meteorology).

Series 1 (site TL1), Series 2 (site TL2, 3 m above bottom), Series 3 (site TL2, 12 m above bottom), Series 4 (site TL3) and Series 5 (site TL4).

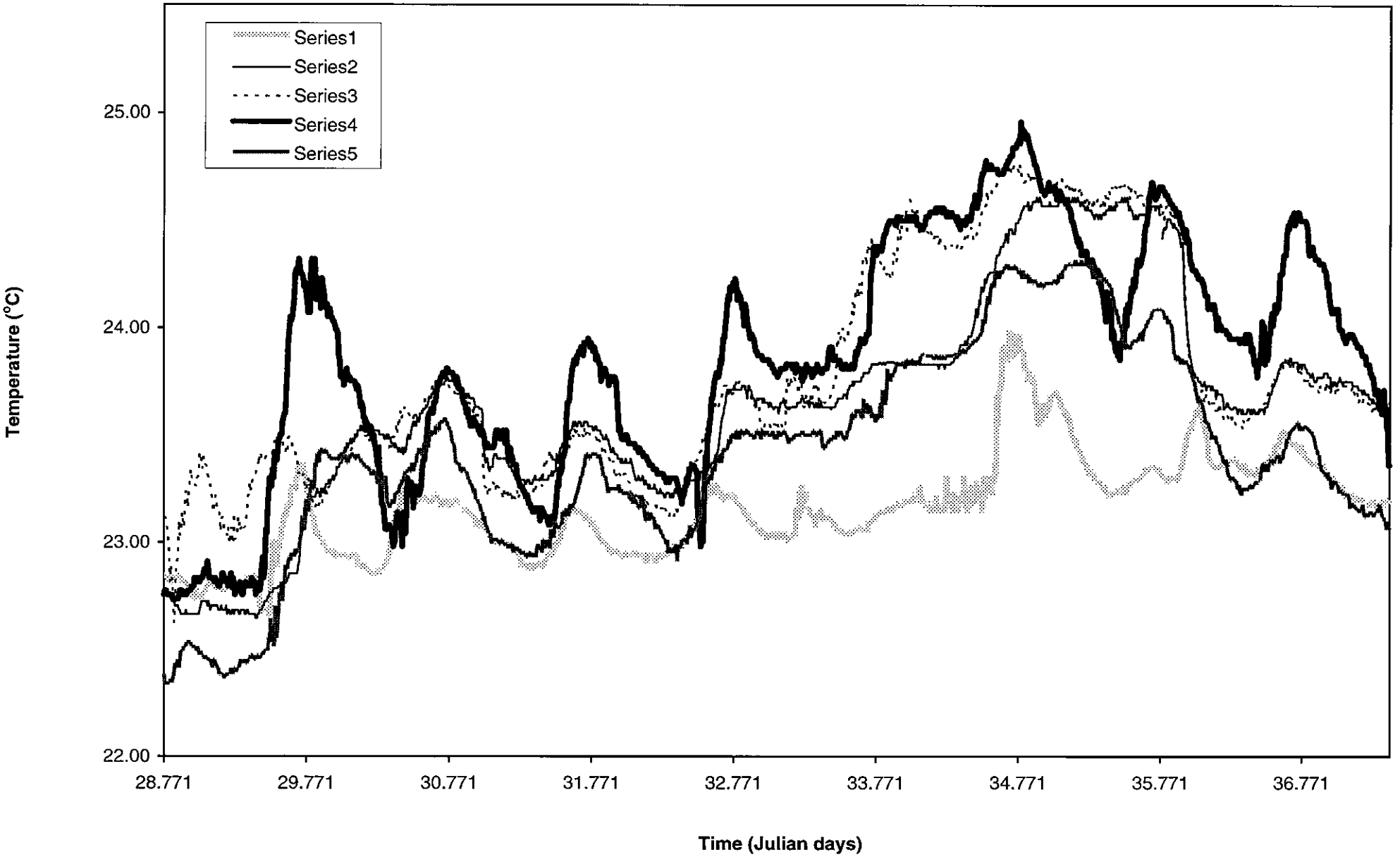


Figure 8 Temperature logger data from Sites TL1, TL2, TL3 and TL4.

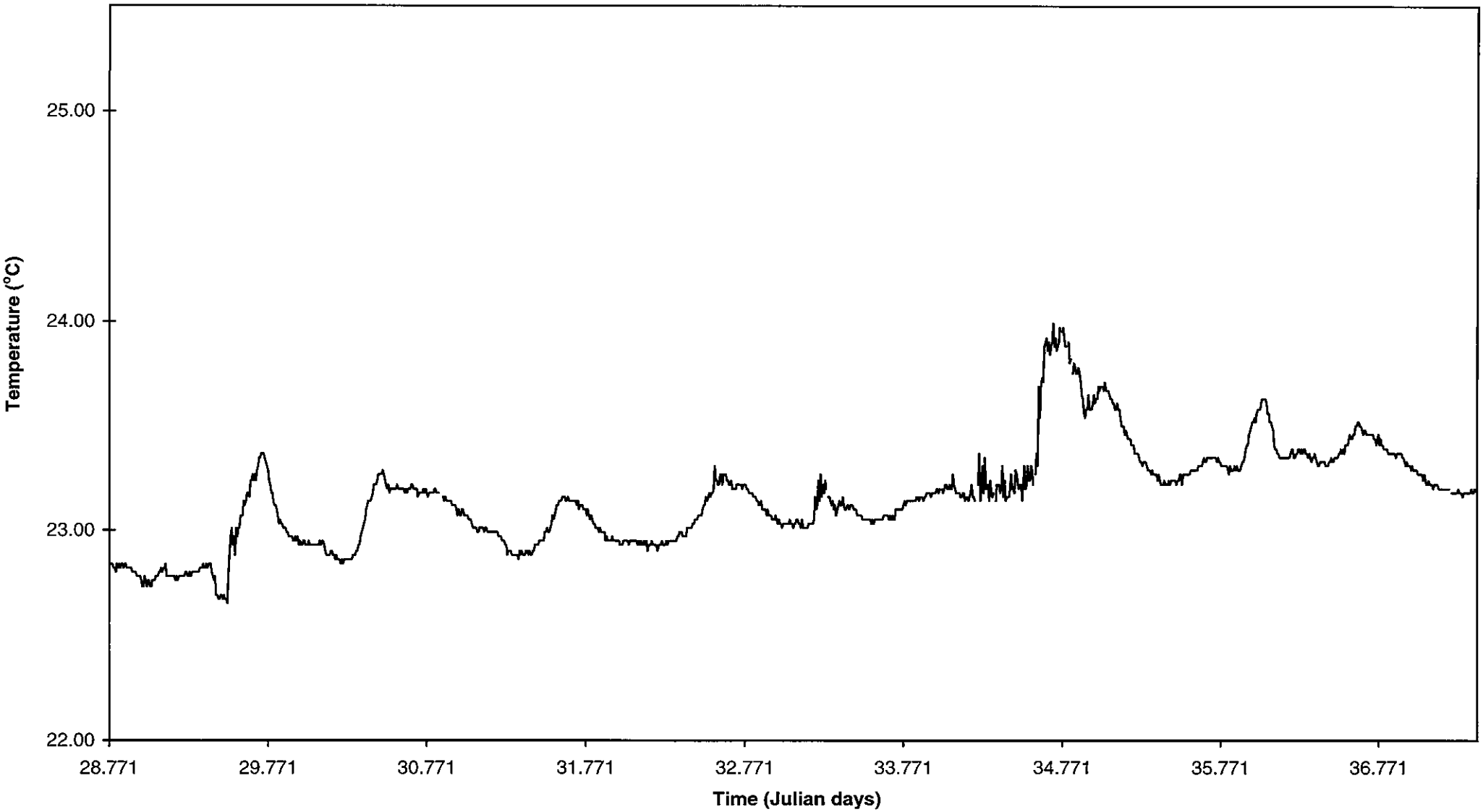


Figure 8 (continued) Temperature logger data from Site TL1.

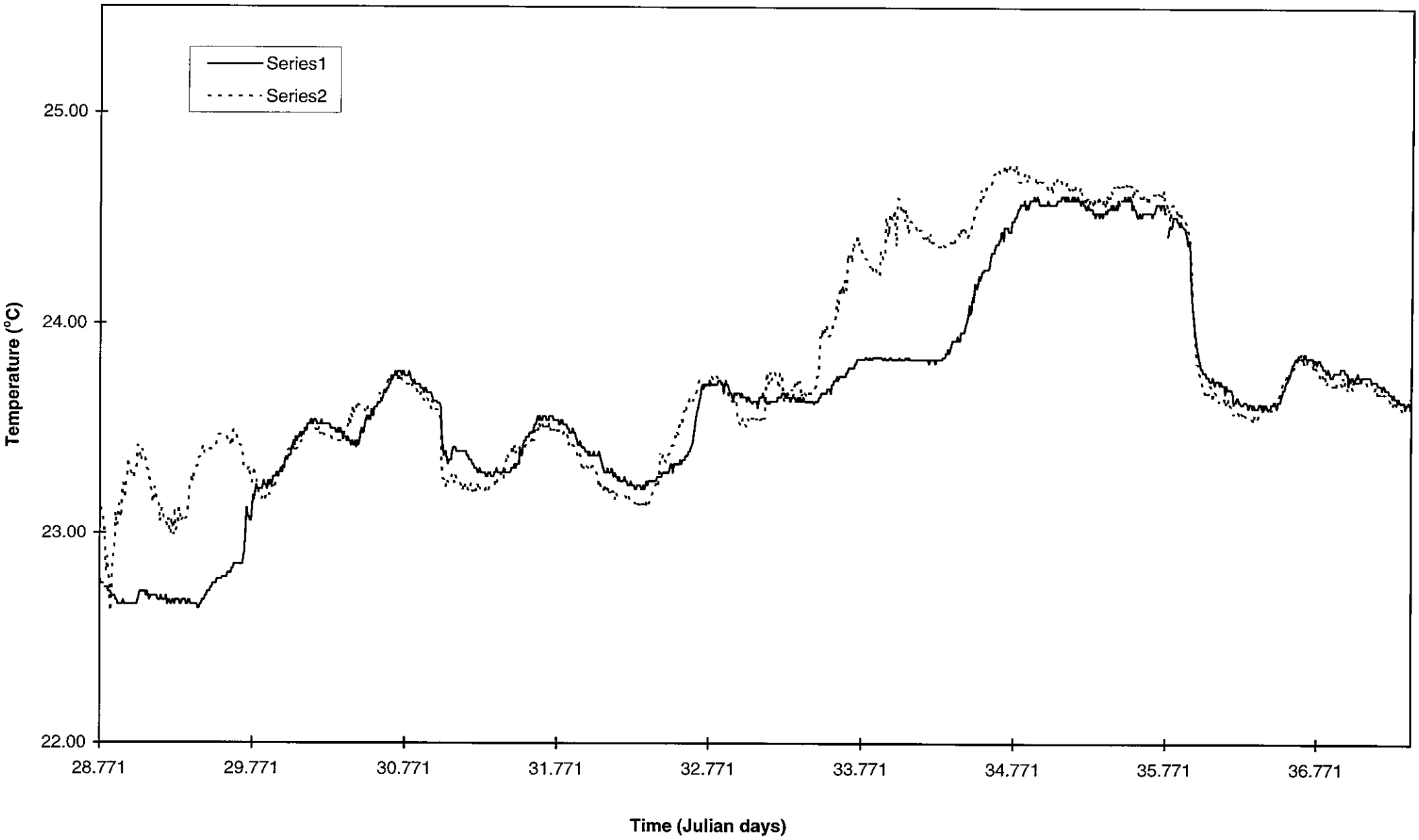


Figure 8 (continued) Temperature logger data from Site TL2.

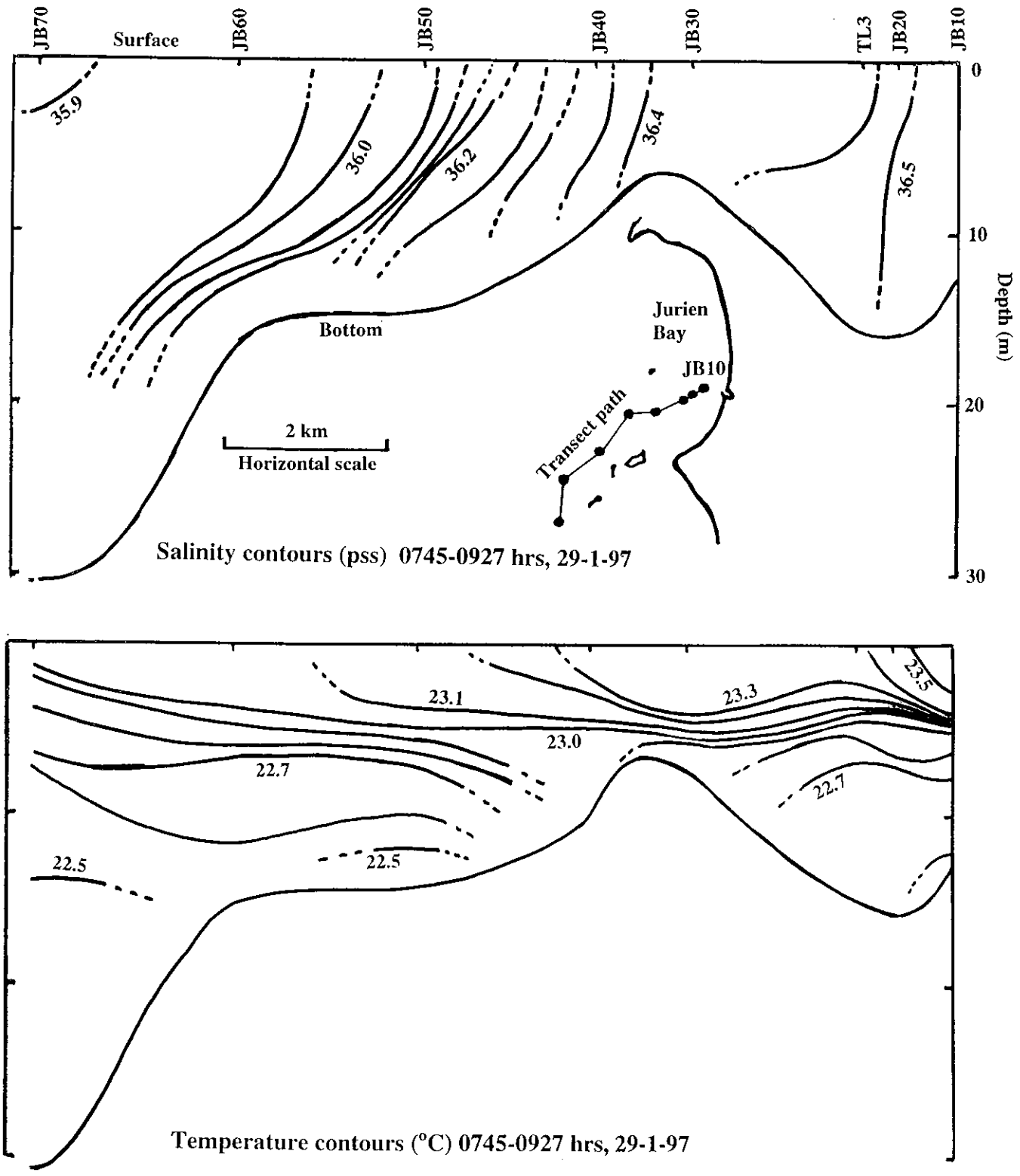


Figure 11 Contour plots of vertical salinity and temperature stratification along a cross-shore transect between southern Jurien Bay and the adjacent shelf.

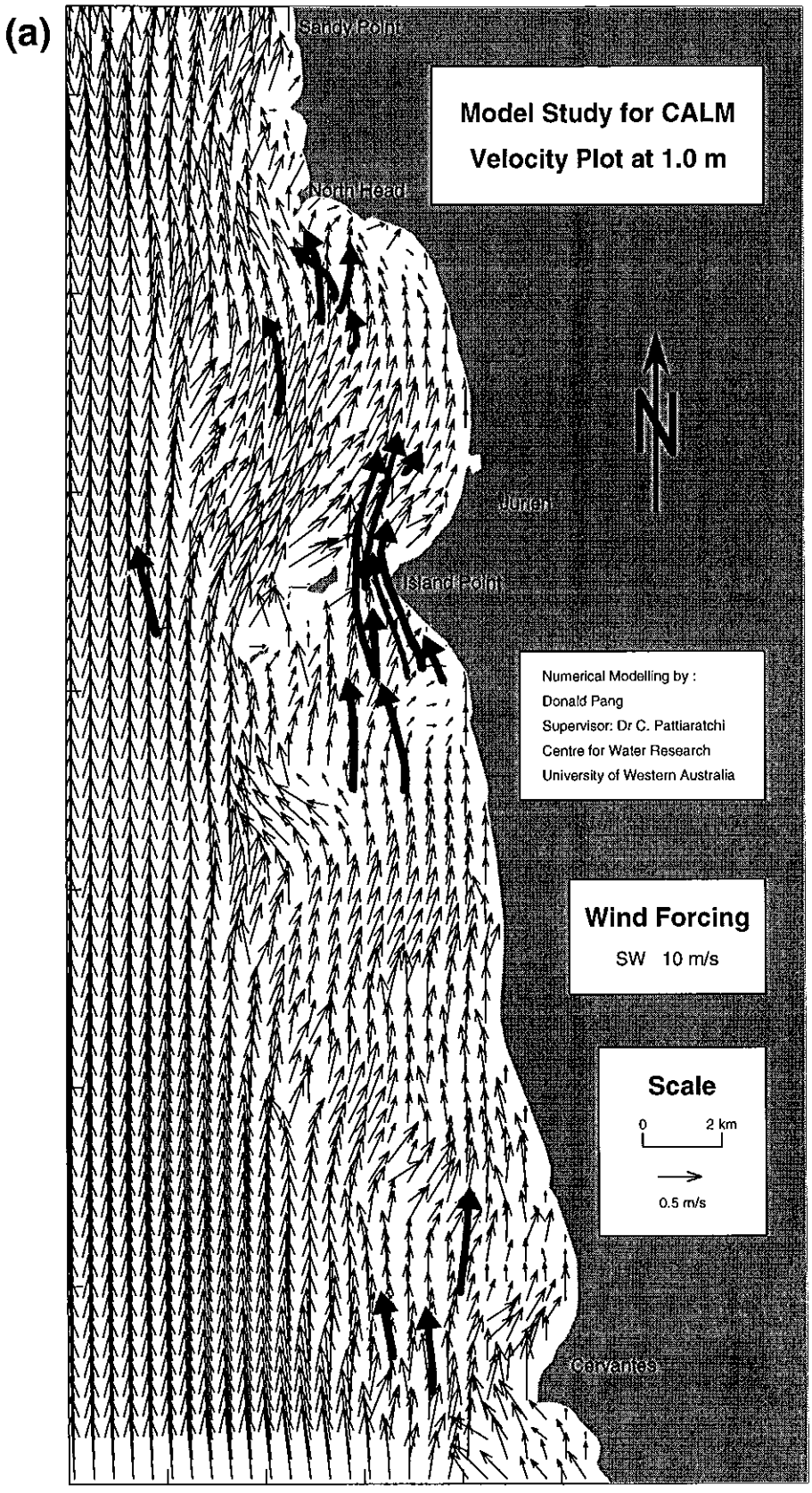
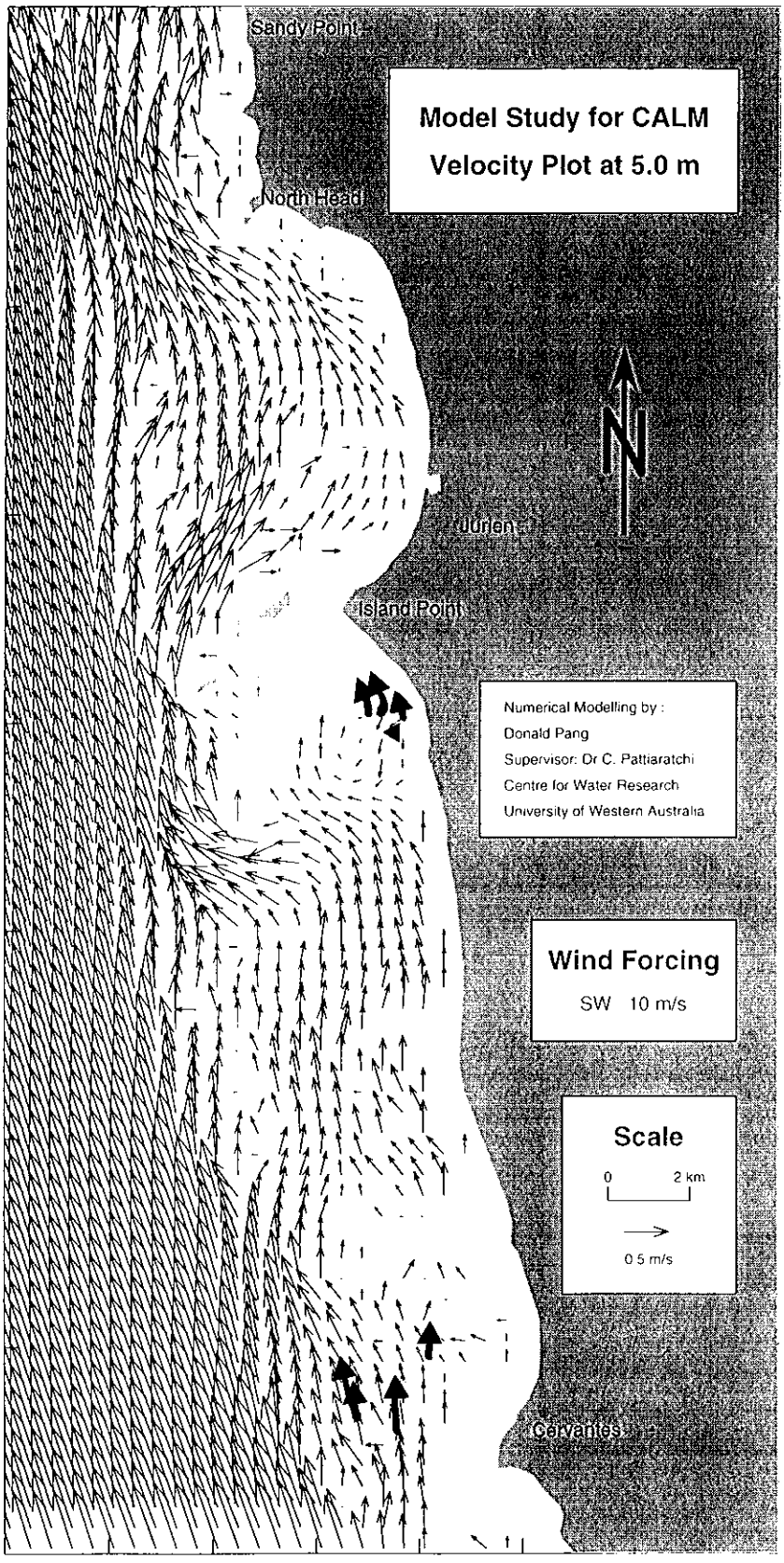
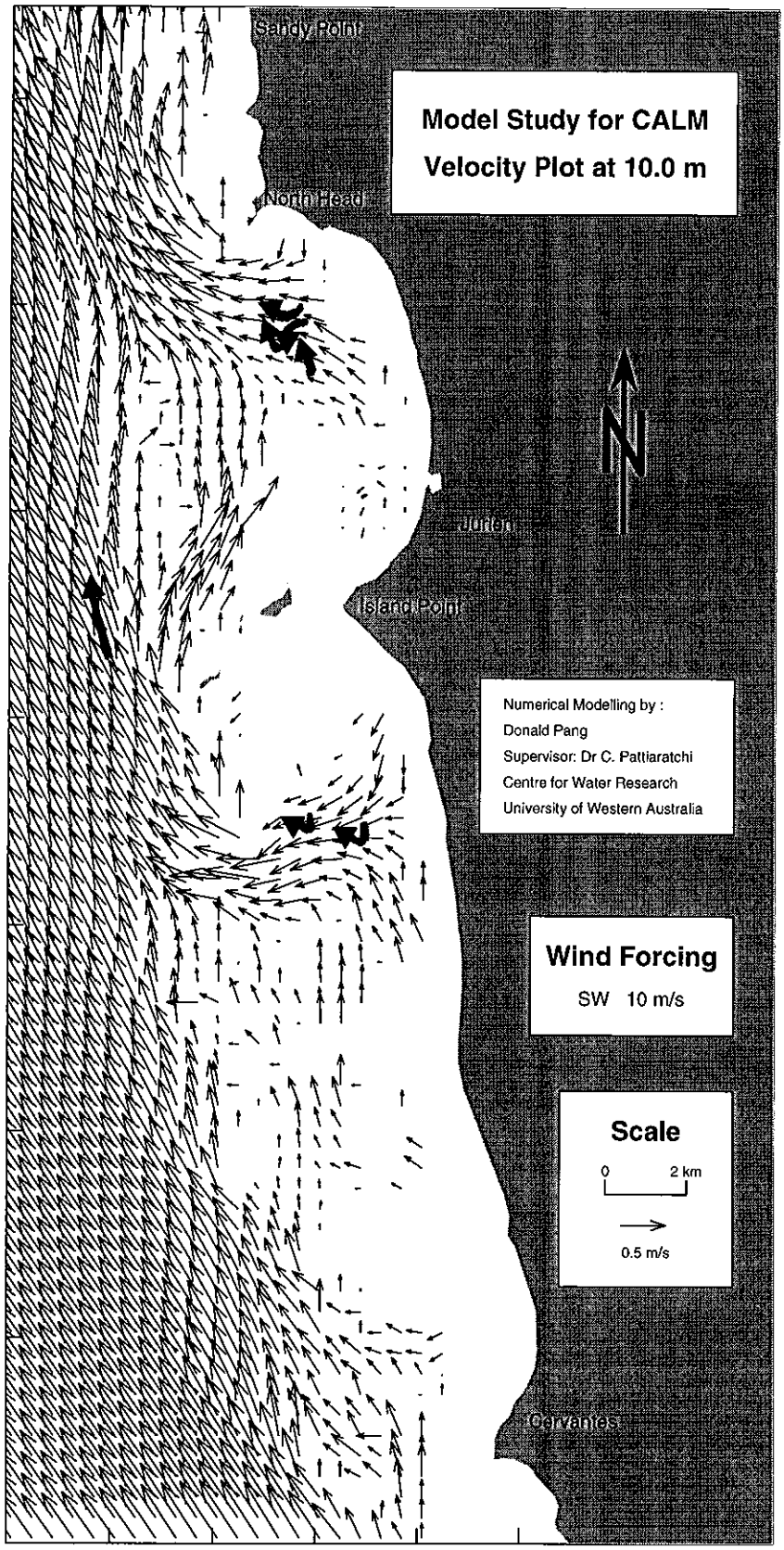


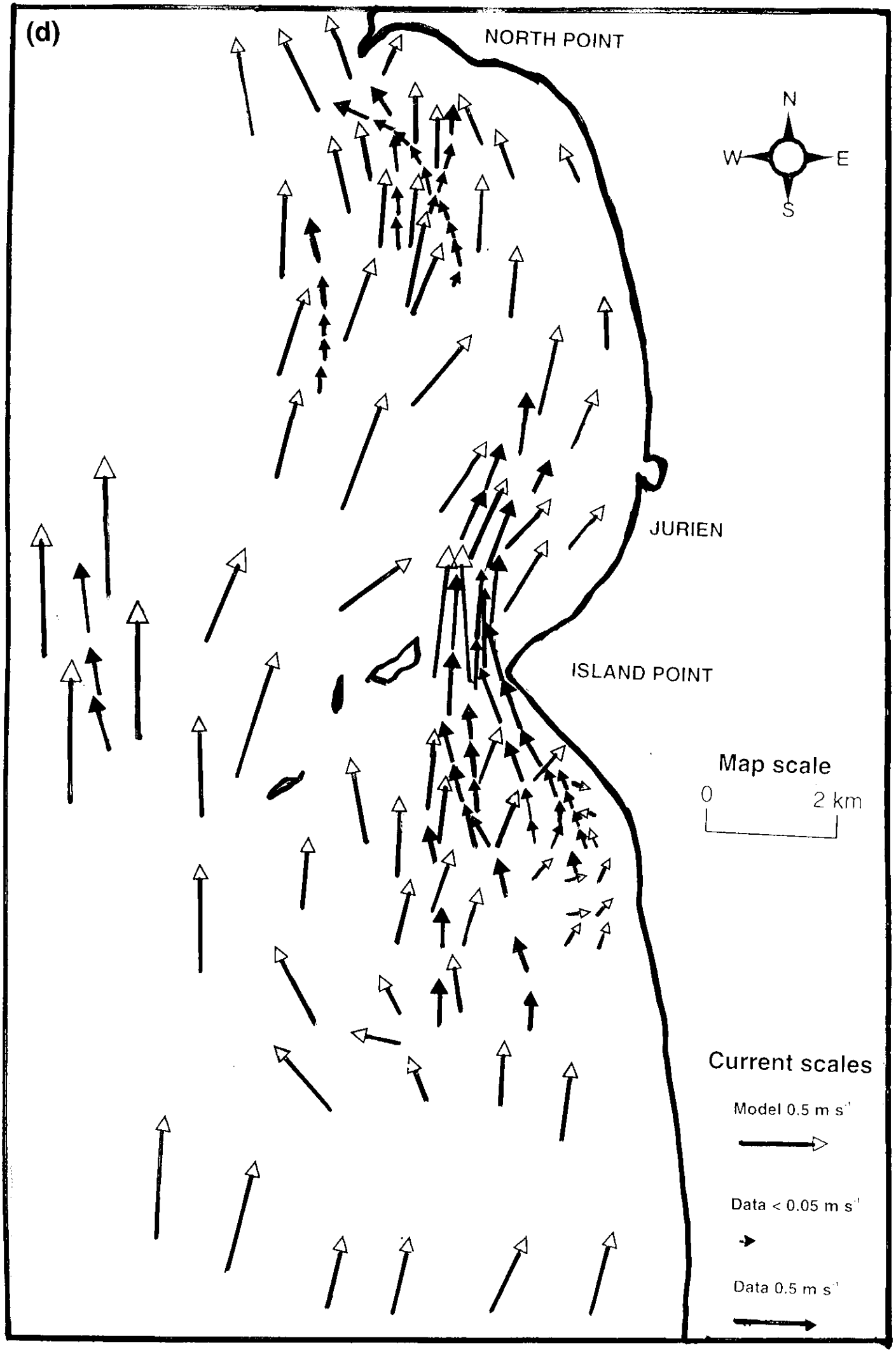
Figure 12 Currents predicted by model simulations forced with southwesterly winds at 8-12 m s^{-1} and currents measured by drogue tracking during south-southwesterly winds at 8-12 m s^{-1}: (a), (b) and (c) present the simulated currents (thin arrows) and the measured drogue tracks (thick lines) at the 1 m, 5 m and 10 m depth levels, respectively; (d), (e) and (f) present the simulated currents (open arrows) and measured currents (solid arrows) from selected drogue tracking sites at the 1 m, 5 m and 10 m depth levels, respectively.

(b)

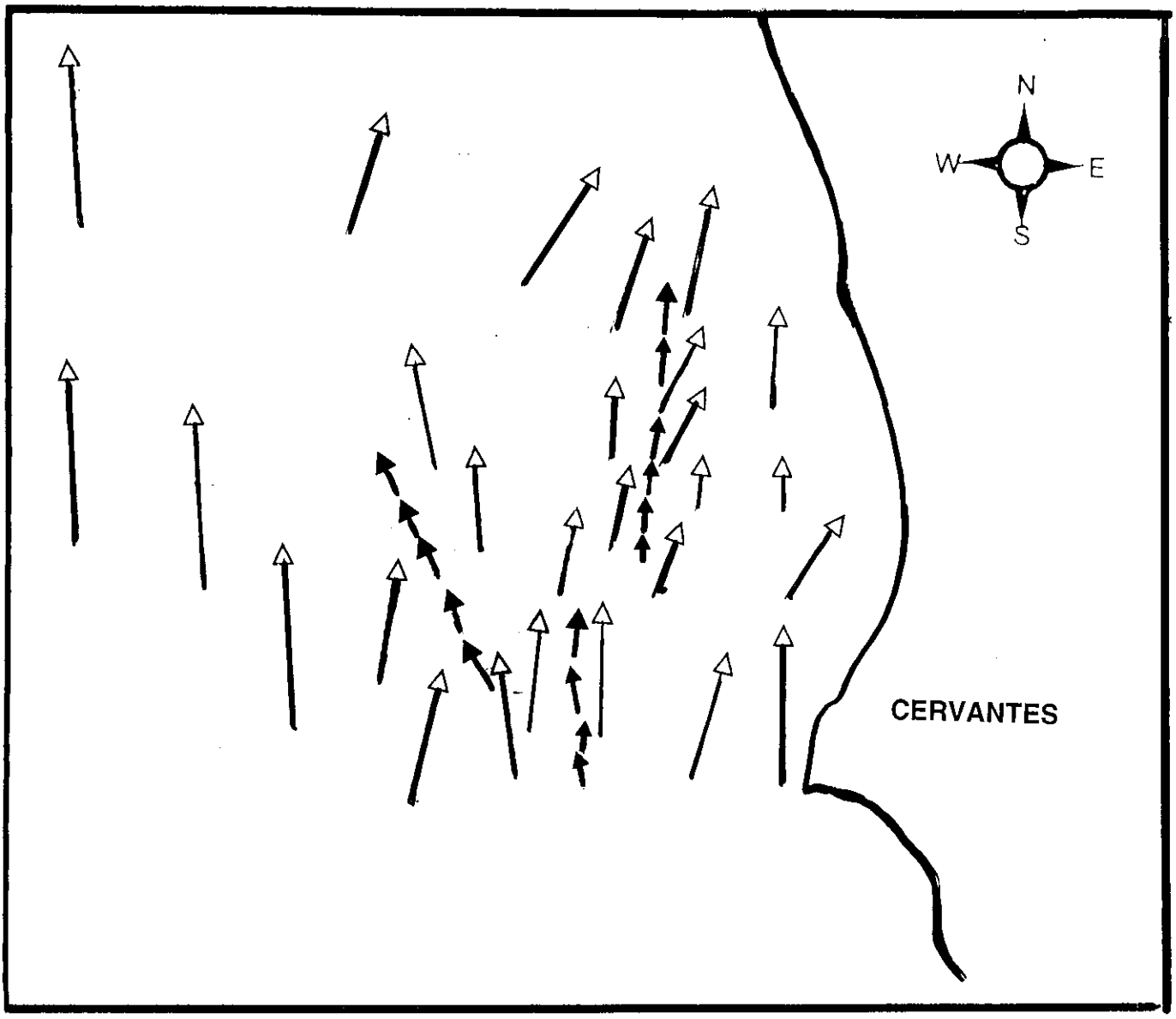

Sandy Point
North Head
Model Study for CALM
Velocity Plot at 5.0 m
N
Island Point
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
SW 10 m/s
Scale
0 2 km
0.5 m/s
Cervantes

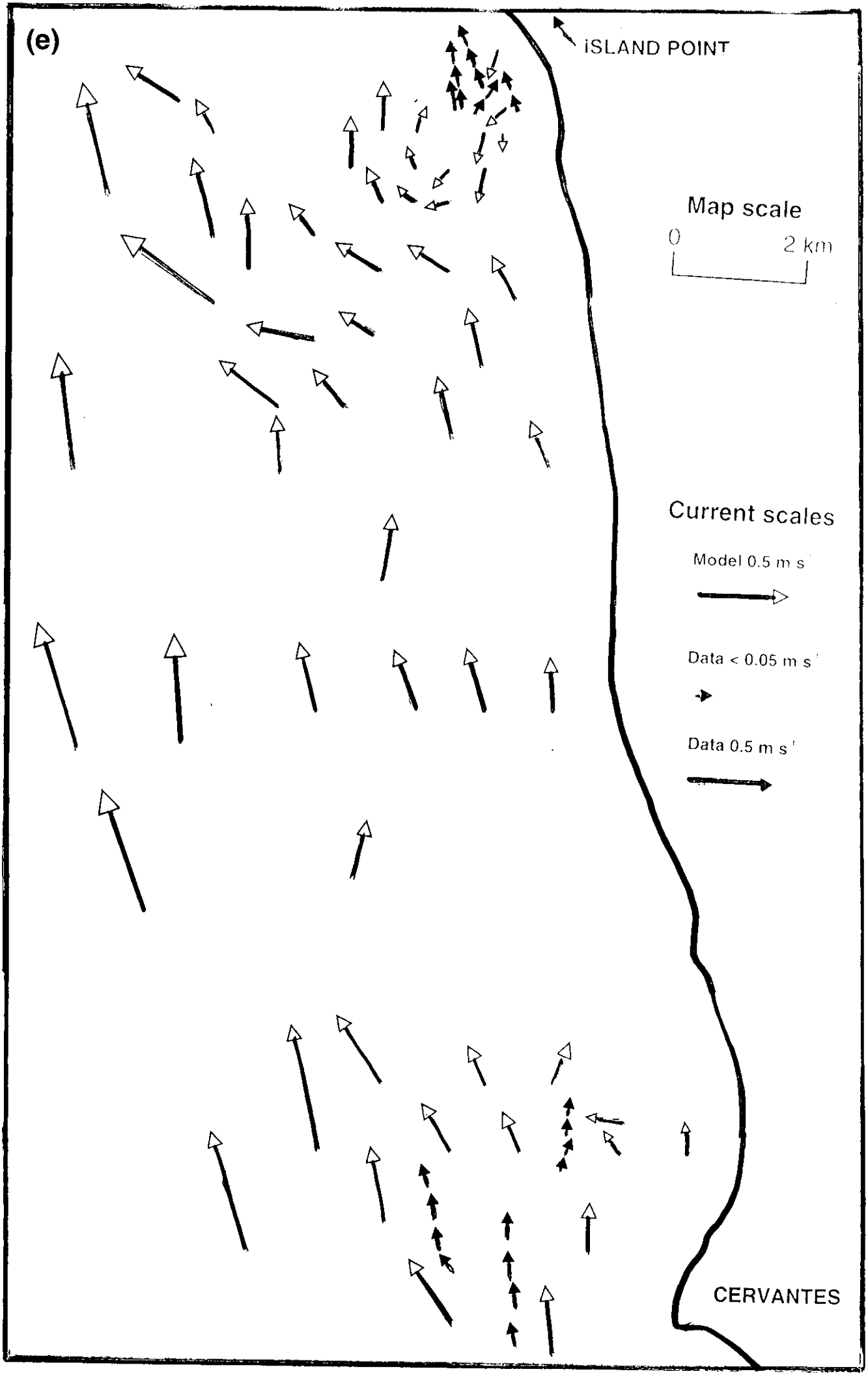
(c)

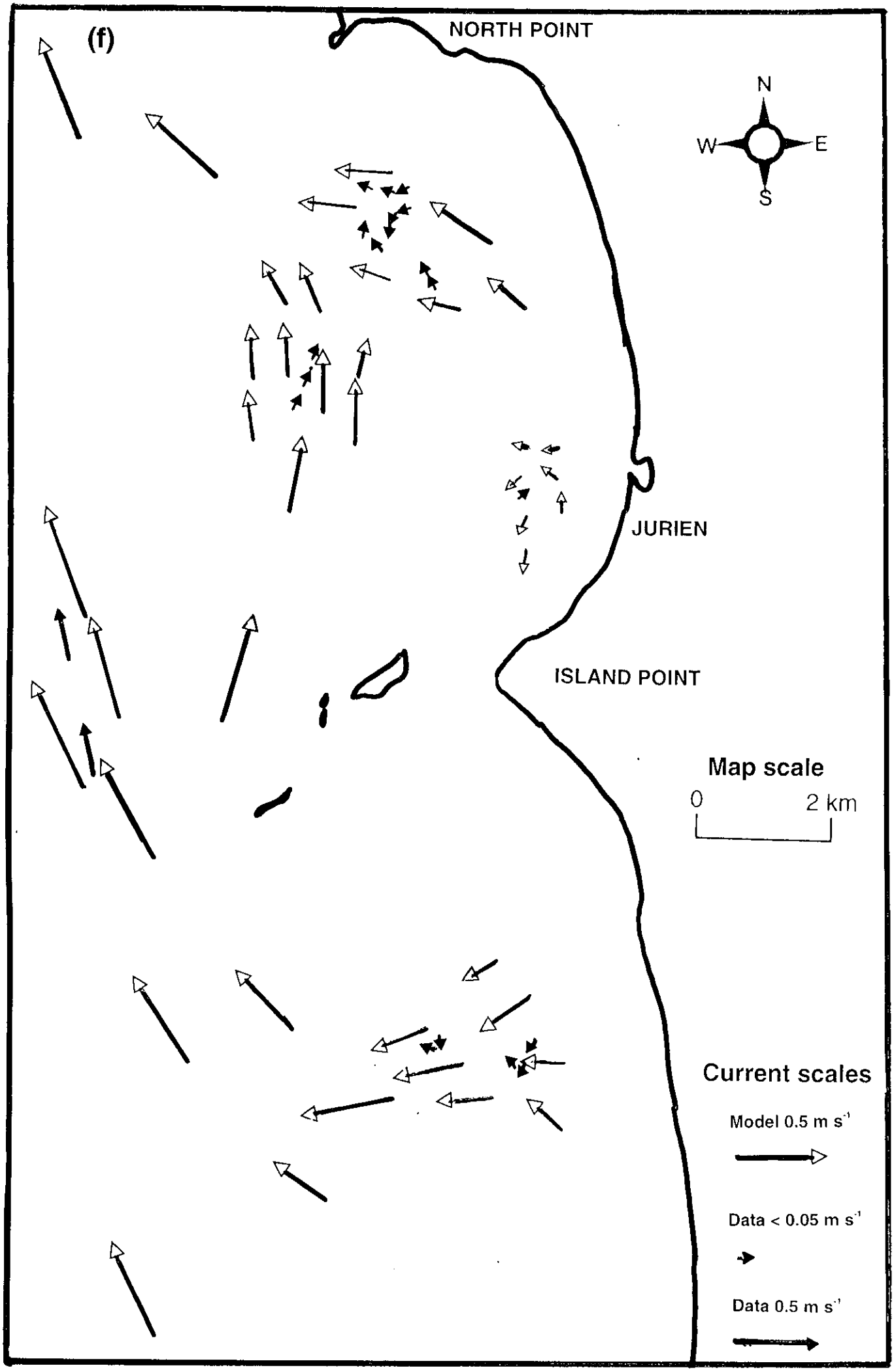

Sandy Point
North Head
Model Study for CALM
Velocity Plot at 10.0 m
Island Point
Numerical Modelling by :
Donald Pang
Supervisor: Dr C. Pattiaratchi
Centre for Water Research
University of Western Australia
Wind Forcing
SW 10 m/s
Scale
0 2 km
0.5 m/s
Cervantes


(d)
NORTH POINT
N
W
E
S
JURIEN
ISLAND POINT
Map scale
0
2 km
Current scales
Model 0.5 m s⁻¹
Data < 0.05 m s⁻¹
Data 0.5 m s⁻¹

(d, cont.)




(e)
ISLAND POINT
Map scale
0
2 km
Current scales
Model 0.5 m s⁻¹
Data < 0.05 m s⁻¹
Data 0.5 m s⁻¹
CERVANTES


(f)
NORTH POINT
N
W
E
S
JURIEN
ISLAND POINT
Map scale
0
2 km
Current scales
Model 0.5 m s-1
Data < 0.05 m s-1
Data 0.5 m s-1

APPENDIX 1 Salinity-temperature profile data sheets

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	TL2	File Name	STJBTL2.doc	Date	28/01/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1650	30° 15.007' S		115° 00.047' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	198	Meter salinity reading of calibration sample	35.35
Thermometer details	TOT 1MM E-Mil Gold Line	Thermometer reading of calibration sample	23.95°C	Meter temperature reading of calibration sample	23.80°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.24	23.98
0.5	-	-
1.0	36.24	23.98
2.0	36.24	23.38
3.0	36.44	22.83
4.0	36.44	22.68
5.0	36.44	22.68
6.0	36.49	22.78
7.0	36.52	22.88
8.0	36.55	22.88
9.0	36.55	22.78
10.0	36.55	22.78
11.0	-	-
12.0	36.55	22.78
13.0	-	-
14.0	36.55	22.78
15.0	-	-

Depth (m)	Salinity (pss)	Temperature (°C)
15.5	36.55	22.78
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
We were approximately 100-150 m east of site.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	TL1	File Name	STJBTL1.doc	Date	28/01/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1727	30° 15.221' S		114° 57.202' E		Yes	X	No ☐

ST meter details	ST 384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	35.94	24.15
0.5	35.94	24.15
1.0	35.99	24.05
2.0	36.04	23.25
3.0	36.04	23.05
4.0	36.04	22.90
5.0	36.04	22.90
6.0	36.04	22.85
7.0	36.04	22.85
8.0	36.04	22.75
9.0	36.04	22.75
10.0	36.04	22.75
11.0	-	_
12.0	36.04	22.75
13.0	_	_
14.0	36.09	22.75
15.0	_	_

Depth (m)	Salinity (pss)	Temperature (°C)
16.0	36.15	22.65
17.0	_	_
18.0	36.15	22.60
19.0	_	_
20.0	36.15	22.60
21.0	_	_
22.0	36.15	22.60
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	TL4	File Name	STJBTL4.doc	Date	28/01/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1825	30° 22.553' S		115° 00.735' E		Yes	X	No ☐

ST meter details	ST 384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.04	23.98
0.5	"	"
1.0	36.04	23.68
2.0	36.24	23.08
3.0	36.24	22.48
4.0	36.24	22.48
5.0	36.24	22.43
6.0	"	"
7.0	36.24	22.38
8.0	"	"
9.0	36.24	22.33
10.0	"	"
11.0	36.24	22.23
12.0	"	"
13.0	36.29	22.23
14.0	"	"
15.0	36.34	22.23

Depth (m)	Salinity (pss)	Temperature (°C)
15.5	36.34	22.18
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography		
Site No.	TL3	File Name	STJBTL3.doc	Date	28/01/97	Recorder	Nick D'Adamo		
Time	GPS Latitude		GPS Longitude			Differential			
1900	30° 17.682' S		115° 01.366' E			Yes	X	No	☐

ST meter details	ST 384	Salinity calibration sample bottle no.	037	Meter salinity reading of calibration sample	35.40
Thermometer details	TOT 1MM E-MIL Gold Line	Thermometer reading of calibration sample	23.95°C	Meter temperature reading of calibration sample	23.75°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.39	23.98
0.5	_	_
1.0	36.39	23.98
2.0	36.42	23.08
3.0	36.43	22.98
4.0	36.43	22.83
5.0	36.43	22.78
6.0	36.43	22.73
7.0	36.43	22.73
8.0	_	_
9.0	36.43	22.69
10.0	36.43	22.68
11.0	36.43	22.63
12.0	36.43	22.63
13.0	36.44	22.63
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Calm, hot and sunny. Air T approx. 37.40°C. Winds: E-NE during morning @ approx. 15-20 knots. Then @ 15:00 swang through N, W and calmed off (< 5 kn). @ 18 00 S-SE (< 5 kn).
See original data sheet for diagrams.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey			Oceanography
Site No.	JB10	File Name	STJB10.doc	Date	29/01/97	Recorder		Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential			
0745	30° 17.25' S		115° 01.82' E		Yes		No	X

ST meter details	ST 384	Salinity calibration sample bottle no.	138	Meter salinity reading of calibration sample	35.70°C
Thermometer details	TOT 1MM E-MIL Gold Line	Thermometer reading of calibration sample	23.55°C	Meter temperature reading of calibration sample	23.40°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.54	23.55
0.5	–	–
1.0	36.54	23.55
2.0	36.54	23.55
3.0	–	–
4.0	36.54	23.45
5.0	36.54	22.90
6.0	36.54	22.80
7.0	36.54	22.80
8.0	--	–
9.0	36.54	22.65
10.0	36.54	22.65
11.0	–	–
12.0	36.54	22.60
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Air Temperature: approx. 20-25°C.
Winds: < 10 knots, sunny (approx. 15% cloud).
Sea: < 0.5 m.
Swell: approx. 1m.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB20	File Name	STJB20.doc	Date	29/01/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0800	30° 17.500' S		115° 01.500' E		Yes	☐	No X

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.49	23.45
0.5	-	-
1.0	36.49	23.45
2.0	-	-
3.0	36.49	23.45
4.0	36.54	23.00
5.0	36.54	22.85
6.0	36.54	22.85
7.0	36.54	22.75
8.0	-	-
9.0	36.54	22.75
10.0	-	-
11.0	36.54	22.70
12.0	36.54	22.70
13.0	36.54	22.65
14.0	-	-
15.0	36.54	22.65

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind - S/SW at 12 knots. Wind picked up at 0745.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME			Field Survey		Oceanography
Site No.	TL3	STJB2TL3	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude	Differential		
0820	30° 17.682' S		115° 1.366' E	Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.44	23.35
0.5	-	-
1.0	36.44	23.35
2.0	-	-
3.0	36.44	23.00
4.0	-	-
5.0	36.47	22.85
6.0	36.47	22.85
7.0	36.47	22.70
8.0	-	-
9.0	36.47	22.65
10.0	-	-
11.0	36.47	22.65
12.0	-	-
12.5	36.47	22.65
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Temp. logger site - TL3.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB30	File Name	STJB30.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0825	30° 18.00' S		115° 00.5' E		Yes	☐	No X

ST meter details	ST 384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.44	23.35
0.5	36.44	23.25
1.0	36.44	23.35
2.0	36.44	23.35
3.0	36.44	23.25
4.0	36.44	23.25
5.0	36.44	23.10
6.0	36.44	22.85
6.5	36.44	22.85
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB40	File Name	STJB40.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0840	30° 18.00' S		115° 59.77' E		Yes ☐		No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)	Depth (m)	Salinity (pss)	Temperature (°C)
0	36.34	23.35	16.0		
0.5	-	-	17.0		
1.0	36.34	23.35	18.0		
2.0	36.34	23.30	19.0		
3.0	36.34	23.20	20.0		
4.0	36.34	23.15	21.0		
5.0	36.34	22.95	22.0		
6.0	36.39	22.95	23.0		
7.0	36.39	22.95	24.0		
8.0	36.39	22.95	25.0		
8.5	36.39	22.95			
10.0					
11.0					
12.0					
13.0					
14.0					
15.0					

Notes:
GPS Vs DGPS - to check in log book. Error approx. 250m.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME			Field Survey		Oceanography
Site No.	JB50	File Name	STJB50.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0850	30° 18.62' S		115° 59.05' E		Yes ☐	No	X

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.04	23.15
0.5	-	-
1.0	36.04	23.15
2.0	-	-
3.0	36.04	23.15
4.0	-	-
5.0	36.09	23.00
6.0	-	-
7.0	36.21	22.65
8.0	-	-
9.0	36.24	22.65
10.0	-	-
11.0	36.26	22.55
12.0	-	-
13.5	36.26	22.45
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB60	File Name	STJB60.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0903	30° 19.38' S		114° 58.18' E		Yes	☐	No X

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	35.91	23.05
0.5	-	-
1.0	35.91	23.05
2.0	-	-
3.0	35.91	23.05
4.0	-	-
5.0	35.91	22.95
6.0	-	-
7.0	35.94	22.65
8.0	-	-
9.0	35.94	22.65
10.0	-	-
11.0	35.99	22.65
12.0	-	-
13.0	36.11	22.55
13.5	36.11	22.55
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB70	File Name	STJB70.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0927	30° 20.62' S		115° 58.00' E		Yes ☐	No	X

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	35.90	23.05
0.5	-	-
1.0	35.90	23.05
2.0	-	-
3.0	35.90	22.85
4.0	35.89	22.85
5.0	35.89	22.75
6.0	35.89	22.75
7.0	35.89	22.65
8.0	35.92	22.55
9.0	35.94	22.55
10.0	-	-
11.0	35.94	22.55
12.0	-	-
13.0	35.94	22.55
14.0	-	-
15.0	35.94	22.45

Depth (m)	Salinity (pss)	Temperature (°C)
16.0	-	-
17.0	35.94	22.45
18.0	-	-
19.0	35.94	22.45
20.0	-	-
21.0	35.94	22.45
22.0	-	-
23.0	35.94	22.45
24.0	-	-
25.0	35.94	22.45
26.0	-	-
27.0	35.94	22.45
28.0	-	-
29.0	35.94	22.45
30.0	35.94	22.45

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB110	File Name	STJB110.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1020	30° 22.076' S		115° 01.486' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.04	22.85
0.5	-	-
1.0	36.04	22.85
2.0	-	-
3.0	36.04	22.85
4.0	-	-
5.0	36.09	22.80
6.0	-	-
7.0	36.14	22.55
8.0	-	-
9.0	26.14	22.30
10.0	-	-
11.0	36.14	22.30
12.0	-	-
13.0	36.14	22.30
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Drogues deployed here. One @ 2m and the second @ 9m.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB100	File Name	STJB100.doc	Date	29/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1045	30° 22.090' S		115° 00.557' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.02	22.95
0.5	36.02	22.95
1.0	-	-
2.0	35.98	22.75
3.0	-	-
4.0	35.98	22.70
5.0	-	-
6.0	36.03	22.65
7.0	-	-
8.0	36.24	22.25
9.0	-	-
10.0	36.22	22.10
11.0	-	-
12.0	36.14	21.85
13.0	-	-
14.0	36.14	21.85
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME			Field Survey		Oceanography
Site No.	TL4	File Name	STJB2TL4.doc	Date	29/01/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1305	30° 22.553' S		115° 00.735' E		Yes ☐		No ☐	

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.04	22.65
0.5	-	-
1.0	36.04	22.65
2.0	-	-
3.0	36.04	22.65
4.0	-	-
5.0	36.04	22.60
6.0	-	-
7.0	36.04	22.35
8.0	-	-
9.0	36.14	22.20
10.0	-	-
11.0	36.14	22.00
12.0	-	-
13.0	36.14	21.85
14.0	36.14	21.85
15.0	36.14	21.75

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Next to logger. (Therefore use this to check temperature error on ST meter.
Note: comments at JB10, 16.40 hrs).
Note: Temp. stratification.
Salinity Stratification.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB100	File Name	ST2JB100.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1345	30° 22.090' S		115° 00.557' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	no data	no data
0.5	-	-
1.0	no data	no data
2.0	-	-
3.0	no data	no data
4.0	-	-
5.0	no data	no data
6.0	-	-
7.0	no data	no data
8.0	-	-
9.0	no data	no data
10.0	-	-
11.0	no data	no data
12.0	no data	no data
13.0	no data	no data
14.0	no data	no data
15.0	no data	no data

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Temperature and salinity calibration are unknown. A technical problem occured from this particular time with the ST meter and therefore the investigators decided not to calibrate the raw data. Before this time the raw temperature data was compared to the Temperature logger data @ the respective times. Again, we agreed that the temperature readings were close enough in order to make the adjustments prior to the time 1345, using the calibrated data for the ST (i.e., add 0.84 to S data & 0.15 to T data).

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB110	File Name	ST2JB110.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1415	30° 22.076' S		115° 01.466' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	no data	no data
0.5	-	-
1.0	-	-
2.0	no data	no data
3.0	-	-
4.0	no data	no data
5.0	-	-
6.0	no data	no data
7.0	-	-
8.0	no data	no data
9.0	-	-
10.0	no data	no data
11.0	-	-
12.0	no data	no data
13.0	-	-
13.5	no data	no data
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Temperature and salinity calibration are unknown. A technical problem occurred from this particular time with the ST meter and therefore the investigators decided not to calibrate the raw data. Before this time the raw temperature data was compared to the temperature logger data @ the respective times. Again, we agreed that the temperature readings were close enough in order to make the adjustments prior to the time 1345, using the calibrated data for the ST (i.e., add 0.84 to S data & 0.15 to T data).

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	TL3	File Name	STJB3TL3.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1635	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.47	24.25
0.5	-	-
1.0	-	-
2.0	36.47	24.25
3.0	-	-
4.0	36.47	24.25
5.0	36.47	24.25
6.0	36.47	24.25
7.0	-	-
8.0	36.47	24.25
9.0	36.47	24.05
10.0	36.47	24.00
11.0	36.50	23.90
12.0	36.52	23.85
13.0	36.52	23.70
13.5	36.52	23.70
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind - S/SW @ 18-23 Knots.
Sunny (20% cloud).

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB10	File Name	ST2JB10.doc	Date	29/01/97	Recorder	N. D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1640	30° 17.250' S		115° 01.820' E		Yes	X	No ☐

ST meter details	St 384	Salinity calibration sample bottle no.	062	Meter salinity reading of calibration sample	35.35
Thermometer details	TOT 1MM E-MIL Gold Line	Thermometer reading of calibration sample	23.50°C	Meter temperature reading of calibration sample	22.75°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.57	23.45
0.5	"	"
1.0	"	"
2.0	36.57	23.45
3.0	"	"
4.0	36.57	23.45
5.0	"	"
6.0	36.57	23.45
7.0	"	"
8.0	36.57	23.45
9.0	"	"
10.0	36.57	23.45
11.0	"	"
12.0	36.57	23.45
13.0	36.57	23.45
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Sudden increase in thermometer Vs Meter temp. (Compare this morning's check)
CANNOT EXPLAIN. Comparison - @ 0745 true sal. Reading = 36.54, true temp. reading = 23.55°C.
@ 1640, true sal. reading = 36.57, true temp. reading = 23.45°C. AT 0745, thermometer reading = 23.55°C, meter temp. reading = 23.4°C. At 1640, ther. reading = 23.50°C, meter temp. = 22.75°C.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB10	File Name	ST3JB10.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0845	30° 17.250' S		115° 01.820' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	008	Meter salinity reading of calibration sample	35.49
Thermometer details	TOT 1MM E-MIL Gold Line	Thermometer reading of calibration sample	23.70°C	Meter temperature reading of calibration sample	23.00°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.53	23.55
0.5	–	–
1.0	36.54	23.50
2.0	36.54	23.50
3.0	–	–
4.0	36.54	23.50
5.0	36.54	23.50
6.0	36.54	23.50
7.0	36.54	23.50
8.0	36.54	23.50
9.0	36.54	23.50
10.0	36.54	23.45
11.0	36.54	23.45
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind - SE @ 8 Knots.
Thermometer reading higher than ST meter reading by 0.7°C.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	TL3	Site Name	STJB4TL3.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0905	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.52	23.40
0.5	36.52	23.40
1.0	36.52	23.40
2.0	36.52	23.40
3.0	36.52	23.40
4.0	36.52	23.20
5.0	36.52	23.20
6.0	36.52	23.20
7.0	36.52	23.00
8.0	36.52	23.00
9.0	36.52	23.00
10.0	36.52	23.00
11.0	36.52	23.00
12.0	36.52	23.00
13.0	36.52	23.00
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB130	File Name	STJB130.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0927	30° 17.15' S		115° 00.85' E		Yes	☐	No X

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.42	22.85
0.5	-	_
1.0	36.42	22.85
2.0	36.42	22.85
3.0	36.42	22.85
4.0	36.42	22.85
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB150	File Name	STJB150.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0940	30° 15.85' S		115° 00.60' E		Yes	☐	No X

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.43	23.55
0.5	36.43	23.55
1.0	36.43	23.55
2.0	36.43	23.55
3.0	36.43	23.55
4.0	36.43	23.55
5.0	36.43	23.55
6.0	36.43	23.50
7.0	36.43	23.50
8.0	36.43	23.40
9.0	36.43	23.40
10.0	36.43	23.35
11.0	36.43	23.25
12.0	36.43	23.25
13.0	36.43	23.25
14.0	36.43	23.25
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Deployed drogues nos.: 7 @ 2m. Pos: 30° 15.929' S , 115° 00.543' E.
12 @ 9m. Pos: 30° 15.929' S , 115° 00.543' E.
Wind SW @ 12 Knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography	
Site No.	JB160	File Name	STJB160.doc	Date	30/01/97	Recorder	Gilles Monty	
Time	GPS Latitude		GPS Longitude		Differential			
1015	30 15.05' S		115 00.40'.E		Yes	☐	No	X

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.41	23.45
0.5	36.41	23.45
1.0	36.41	23.45
2.0	36.41	23.45
3.0	36.41	23.45
4.0	36.41	23.45
5.0	36.41	23.45
6.0	36.41	23.45
7.0	36.43	23.40
8.0	36.43	23.30
9.0	36.43	23.30
10.0	36.43	23.30
11.0	36.43	23.30
12.0	36.43	23.30
13.0	36.43	23.25
14.0	36.43	23.20
15.0	36.43	23.20

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Drogues deployed: No. 6 @ 2m. Coordinates: 30° 15.151' S , 115° 00.296' E
No. 15 @ 9.5m. Coordinates: 30° 15.151' S , 115° 00.296' E
Wind SW @ 20 Knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB170	File Name	STJB170.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1055	30 ° 15.050' S		114 ° 59.279' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.16	23.20
0.5	36.16	23.20
1.0	36.16	23.20
2.0	36.16	23.20
3.0	36.16	23.20
4.0	36.16	23.20
5.0	36.16	23.20
6.0	36.16	23.20
7.0	36.16	23.20
8.0	36.16	23.20
9.0	36.16	23.20
10.0	36.16	23.20
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME				Field Survey		Oceanography
Site No.	JB180	File Name	STJB180.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1115	30° 15.00' S		114° 58.30' E		Yes	☐	No X

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.11	22.80
0.5	36.11	22.80
1.0	36.11	22.80
2.0	36.11	22.80
3.0	36.11	22.80
4.0	36.11	22.80
5.0	36.11	22.80
6.0	36.11	22.80
7.0	36.11	22.80
8.0	36.11	22.80
9.0	36.11	22.80
10.0	36.11	22.80
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
1.2 m swell.
Wind SW @ 25 Knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL2	File Name	STJB2TL2.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1343	30° 00.010' S		115° 00.023' E		Yes	X	No ☐

ST meter details	ST384	Salinitycalibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	37.49	23.45
0.5	37.49	23.45
1.0	37.49	23.45
2.0	37.49	23.45
3.0	37.49	23.45
4.0	37.49	23.45
5.0	37.49	23.45
6.0	37.49	23.45
7.0	37.49	23.45
8.0	37.49	23.45
9.0	37.49	23.45
10.0	37.49	23.45
11.0	37.49	23.45
12.0	37.49	23.45
13.0	37.49	23.45
14.0	37.49	23.40
15.0	37.49	23.40

Depth (m)	Salinity (pss)	Temperature (°C)
16.0	37.49	23.40
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Logger's site - must check site no.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	File Name	STJB5TL3.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1605	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	162	Meter salinity reading of calibration sample	35.22
Thermometer details		Thermometer reading of calibration sample	23.7°C	Meter temperature reading of calibration sample	23.0°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.32	23.60
0.5	-	-
1.0	-	-
2.0	36.32	23.60
3.0	-	-
4.0	-	-
5.0	36.30	23.65
6.0	36.30	23.65
7.0	36.30	23.65
8.0	36.30	23.65
9.0	36.30	23.65
10.0	36.30	23.65
11.0	-	-
12.0	36.32	23.50
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB30	File Name	ST2JB30.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1630	° ' S		° ' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.33	23.40
0.5	-	-
1.0	-	-
2.0	36.33	23.40
3.0	36.33	23.40
4.0	36.33	23.40
5.0	36.33	23.40
6.0	36.33	23.40
7.0	36.33	23.40
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB20	File Name	ST2JB20.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1645	30° 17.500' S		115° 01.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.33	23.70
0.5	36.33	23.70
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.33	23.70
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.33	23.70
11.0	36.33	23.70
12.5	36.33	23.70
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB10	File Name	ST4JB10.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1649	30° 17.250' S		115° 01.820' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.33	23.50
0.5	-	-
1.0	-	-
2.0	36.33	23.40
3.0	-	-
4.0	-	-
5.0	36.33	23.35
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.33	23.30
11.5	36.33	23.30
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB200	File Name	STJB200.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1700	30° 17.344' S		115° 02.040' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.43	23.65
0.5	-	-
1.0	-	-
2.0	36.43	23.65
3.0	-	-
4.0	-	-
5.0	36.43	23.65
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.43	23.65
11.0	36.43	23.65
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB210	File Name	STJB210.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1708	30° 17.409' S		115° 01.330' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.43	24.0
0.5	-	-
1.0	-	-
2.0	36.43	24.0
3.0	-	-
4.0	36.43	23.90
5.0	36.43	23.90
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Mouth of Jurien Bay Boat Harbour.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB220	File Name	STJB220.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1709	30° 17.375' S		115° 02.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.52	24.21
0.5	-	-
1.0	-	-
2.0	36.52	24.20
3.0	-	-
4.0	36.51	24.20
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Inside Harbour.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB230	File Name	STJB230.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1712	30° 17.430' S		115° 02.560' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.54	24.40
0.5	-	-
1.0	-	-
2.0	36.54	24.40
3.0	-	-
4.5	36.57	24.40
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Inside Harbour.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB240	File Name	STJB240.doc	Date	30/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1715	30° 17.490' S		115° 02.670' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.61	24.45
0.5	-	-
1.0	-	-
2.0	36.58	24.45
3.0	36.58	24.45
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Inside Harbour.
Wind S/SW at approx. 25 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB10	File Name	ST5JB10.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0811	30° 17.250' S		115° 01.820' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	071	Meter salinity reading of calibration sample	35.31
Thermometer details	TOT IMM E-MIL Gold Line	Thermometer reading of calibration sample	23.20	Meter temperature reading of calibration sample	22.50

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.70	23.20
0.5	-	-
1.0	36.68	23.20
2.0	36.69	23.20
3.0	-	-
4.0	-	-
5.0	36.69	23.20
6.0	-	-
7.0	36.69	23.20
8.0	-	-
9.0	-	-
10.0	36.69	23.20
11.5	36.69	23.20
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SE at 7 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	TL3	File Name	STJB6TL3.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0830	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.67	23.20
0.5	-	-
1.0	-	-
2.0	36.67	23.20
3.0	-	-
4.0	-	-
5.0	36.68	23.20
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.70	23.10
11.0	-	-
12.0	36.70	23.10
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB30	File Name	ST3JB30.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0837	30° 18.077' S		115° 00.377' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.60	22.65
0.5	-	-
1.0	-	-
2.0	36.60	22.65
3.0	-	-
4.0	-	-
5.0	36.68	22.55
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB250	File Name	STJB250.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1012	30° 19.857' S		114° 57.291' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.21	22.80
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.21	22.80
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.19	22.75
11.0	-	-
12.0	-	-
13.0	-	-
14.0	-	-
15.0	36.19	22.75

Depth (m)	Salinity (pss)	Temperature (°C)
16.0	-	-
17.0	-	-
18.0	-	-
19.0	-	-
20.0	36.19	22.70
21.0	-	-
22.0	-	-
23.0	-	-
24.0	-	-
25.0	36.19	22.70
30.0	36.24	22.70
35.0	36.24	22.70

Notes:
Drogues No. 6,7 and 12 deployed.
Wind SW at 8 knots. 1.5 m swell. Nice and sunny.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB300	Site Name	STJB300.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1031	30° 20.422' S		114° 55.098' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.09	22.60
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.09	22.60
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.09	22.60
11.0	-	-
12.0	-	-
13.0	-	-
14.0	-	-
15.0	-	-

Depth (m)	Salinity (pss)	Temperature (°C)
16.0	-	-
17.0	-	-
18.0	-	-
19.0	-	-
20.0	36.12	22.60
21.0	-	-
22.0	-	-
23.0	-	-
24.0	-	-
25.0	-	-
30.0	36.12	22.60
39.0	36.18	22.60

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB310	File Name	STJB310.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1150	30° 19.262' S		114° 57.162' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0		22.80
0.5		
1.0		
2.0		
3.0		
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Well mixed.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB20	File Name	ST3JB20.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1400	30° 17.500' S		115° 01.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.59	23.35
0.5		
1.0		
2.0		
3.0		
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Well mixed.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB200	File Name	ST2JB200.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1410	30° 17.344' S		115° 02.040' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.58	23.40
0.5		
1.0		
2.0		
3.0		
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Well mixed.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB210	File Name	ST2JB210.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1412	30° 17.409' S		115° 02.330' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.54	23.70
0.5	-	-
1.0	-	-
2.0	36.54	23.70
3.0	-	-
4.0	36.58	23.70
5.0	-	-
6.0	36.58	23.70
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB220	File Name	ST2JB220.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1413	30° 17.375' S		115° 02.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.67	24.05
0.5	-	-
1.0	-	-
2.0	36.67	24.05
3.0	-	-
4.0	36.67	24.05
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Ocenographer
Site No.	JB230	Site Name	ST2JB230.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1416	30° 17.430' S		115° 02.560' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.72	24.20
0.5	-	-
1.0	-	
2.0	36.72	24.20
3.5	36.72	24.20
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB240	File Name	ST2JB240.doc	Date	31/01/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1420	30° 17.490' S		115° 02.670' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.71	24.19
0.5	-	-
1.0	-	-
2.0	36.78	24.19
3.25	36.78	24.19
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	Site Name	STJB7TL3.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0727	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	025	Meter salinity reading of calibration sample	35.30
Thermometer details	TOT IMM E-MIL Gold Line	Thermometer reading of calibration sample	23.30°C	Meter temperature reading of calibration sample	22.50°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.80	23.29
0.5	-	-
1.0	36.80	23.29
2.0	36.79	23.29
3.0	-	-
4.0	36.79	23.29
5.0	-	-
6.0	36.80	23.29
7.0	-	-
8.0	36.80	23.28
9.0	-	-
10.0	36.79	23.18
11.0	-	-
12.5	36.79	23.18
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind SE during the night at 10 - 15 knots to SW at 8 knots at 0730. Wind changed at 0715.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB350	File Name	STJB350.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0835	30° 15.330' S		115° 00.315' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.49	23.18
0.5	-	-
1.0	-	-
2.0	36.49	23.13
3.0	-	-
4.0	36.50	23.13
5.0	-	-
6.0	36.50	23.13
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.52	23.08
11.0	-	-
12.0	-	-
13.0	36.59	23.18
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
In slick (seagrass wreck), 20 m east of drogue No. 15.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB370	File Name	STJB370.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
0902	30° 16.853' S		114° 59.256' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.30	22.93
0.5	-	-
1.0	-	-
2.0	36.30	22.88
3.0	-	-
4.0	36.30	22.83
5.0	-	-
6.0	36.30	22.83
7.0	-	-
8.0	36.30	22.83
9.0	-	-
10.0	36.30	22.83
11.5	36.30	22.78
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB370	File Name	ST2JB370.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1013	30° 16.853' S		114° 59.256' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.28	23.13
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.28	23.08
4.0	-	-
5.0	-	-
6.0	36.30	22.88
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.30	22.88
11.0	-	-
11.7	36.30	22.83
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB380	File Name	STJB380.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1024	30° 17.462' S		114° 58.665' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.20	22.88
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.28	22.88
4.0	-	-
5.0	-	-
6.0	36.40	22.78
7.0	-	-
8.0	36.30	22.78
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW at 10 - 12 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB390	File Name	STJB390.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1040	30° 16.222' S		114° 59.409' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.30	23.13
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.28	23.03
4.0	-	-
5.0	-	-
6.0	36.30	22.98
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.30	22.98
11.0	-	-
11.5	36.30	22.93
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW at 12 - 15 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB420	Site Name	STJB420.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1106	30° 15.088' S		115° 00.401' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.51	23.63
0.5	-	-
1.0	-	-
2.0	36.51	23.63
3.0	36.59	23.38
4.0	36.59	23.38
5.0	36.59	23.28
6.0	-	-
7.0	36.59	23.28
8.0	-	-
9.0	-	-
10.0	36.59	23.28
11.0	-	-
12.0	-	-
13.0	-	-
14.5	36.60	23.23
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
In slick line.
Wind S/SW at approximately 10 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB350	File Name	ST2JB350.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1115	30° 15.330' S		115° 00.315' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.49	23.53
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.51	23.53
4.0	36.60	23.43
5.0	-	-
6.0	36.59	23.28
7.0	-	-
8.0	36.59	23.28
9.0	-	-
10.0	36.59	23.28
11.0	-	-
12.0	-	-
13.5	36.60	23.18
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB360	Site Name	STJB360.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1126	30° 15.625' S		115° 00.024' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.30	23.18
0.5	-	-
1.0	-	-
2.0	36.30	23.33
3.0	-	-
4.0	36.40	23.28
5.0	-	-
6.0	36.40	23.28
7.0	-	-
8.0	36.40	23.28
8.5	36.40	23.28
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind building, S/SW at 15 knots.
ST meter - Sal. wavering needle.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB380	File Name	ST2JB380.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1137	30° 15.434' S		114° 58.916' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.30	23.18
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.30	23.13
4.0	-	-
5.0	-	-
6.0	36.30	23.08
7.0	36.30	23.03
8.0	36.40	22.93
9.0	-	-
10.0	36.40	22.88
11.0	-	-
12.0	-	-
13.0	-	-
14.5	36.28	22.88
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ 15 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Ocenography
Site No.	TL1	File Name	STJB2TL1.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1158	30° 15.210' S		114° 57.183' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.28	23.13
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.28	23.13
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	-	-
11.0	-	-
12.0	-	-
13.0	-	-
14.0	-	-
15.0	36.28	22.98

Depth (m)	Salinity (pss)	Temperature (°C)
16.0	-	-
17.0	-	-
18.0	-	-
19.0	-	-
20.0	36.28	22.98
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ 18 knots. DGPS checked.
Vessel Approximately 10m east of float.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB460	Site Name	STJB460.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1304	30° 15.874' S		114° 59.295' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.28	23.18
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.30	23.18
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.5	36.40	23.13
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB470	File Name	STJB470.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1315	30° 14.356' S		114° 59.784' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.50	23.58
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.58	23.58
6.0	-	-
7.0	-	-
8.0	-	-
9.0	36.58	23.58
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Drogue #12 retrieved.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB480	Site Name	STJB480.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1325	30° 14.619' S		115° 00.491' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.50	23.78
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.50	23.68
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	-	-
11.0	36.51	23.53
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Retrieved drogue # 6.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB490	File Name	STJB490.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1342	30° 15.425' S		115° 00.164' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.48	23.43
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.48	23.38
6.0	-	-
7.0	-	-
8.0	36.51	23.33
9.0	36.50	23.28
10.0	36.59	23.28
11.0	-	-
12.0	-	-
13.0	-	-
14.5	36.60	23.28
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Two salinity layers.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB500	Site Name	STJB500.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1359	30° 16.451' S		114° 59.433' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.30	23.23
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.30	23.23
6.0	-	-
7.0	-	-
8.0	-	-
9.5	36.30	23.23
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Drogue #14 had kelp stuck to it. Drogue retrieved.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB510	Site Name	STJB510.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1414	30° 15.542' S		114° 59.186' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.25	23.28
0.5	-	-
1.0	--	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.25	23.28
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	-	-
11.0	-	-
12.0	-	-
13.0	-	-
14.0	36.30	23.18
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Retrieved drogue #3.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB520	Site Name	STJB520.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1424	30° 15.493' S		115° 00.133' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.50	23.43
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.50	23.43
6.0	-	-
7.0	36.50	23.38
8.0	36.50	23.38
9.0	36.50	23.33
10.0	36.59	23.28
11.0	36.59	23.28
12.0	-	-
13.0	-	-
14.5	36.59	23.28
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Retrieved drogue #7.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	File Name	STJB8TL3.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1449	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.60	23.78
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.59	23.78
6.0	36.59	23.78
7.0	36.59	23.78
8.0	36.59	23.73
9.0	-	-
10.0	36.60	23.68
11.0	-	-
12.0	36.60	23.48
13.5	36.60	23.28
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB10	File Name	ST6JB10.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1500	30° 17.250' S		115° 01.820' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.60	23.78
0.5	-	-
1.0	-	-
2.0	36.60	23.68
3.0	-	-
4.0	-	-
5.0	36.60	23.68
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.60	23.68
11.0	-	-
12.5	36.60	23.68
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB210	File Name	ST3JB210.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1507	30° 17.409' S		115° 02.330' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.60	23.98
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.60	23.88
4.0	-	-
5.0	-	-
6.0	36.60	23.78
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oeanography
Site No.	JB220	File Name	ST3JB220.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1511	30° 17.375' S		115° 02.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.60	24.68
0.5	-	-
1.0	-	-
2.0	36.60	24.68
3.0	36.60	24.48
4.5	36.68	24.48
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB230	File Name	ST3JB230.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1515	30° 17.430' S		115° 02.560' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.68	24.68
0.5	-	-
1.0	-	-
2.0	36.70	24.68
3.0	-	-
4.0	36.70	24.63
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB240	File Name	ST3JB240.doc	Date	01/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1519	30° 17.490' S		115° 02.670' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	148	Meter salinity reading of calibration sample	35.51
Thermometer details	TOT IMM E-MIL GOLD LINE	Thermometer reading of calibration sample	24.9°C	Meter temperature reading of calibration sample	24.15°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.71	24.78
0.5	-	-
1.0	-	-
2.0	36.75	24.73
3.5	36.75	24.73
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB230	File Name	ST4JB230.doc	Date	03/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1200	30° 17.430' S		115° 02.560' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.71	25.60
0.5	-	-
1.0	36.71	25.45
2.0	36.71	25.45
3.0	36.71	25.45
4.0	36.76	25.35
4.8	36.76	25.25
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB220	File Name	ST4JB220.doc	Date	03/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1204	30° 17.375' S		115° 02.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.69	25.25
0.5	-	-
1.0	36.69	25.20
2.0	36.71	25.15
3.0	36.71	25.15
3.9	36.71	25.15
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ approximately 15 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB200	Site Name	ST5JB220.doc	Date	03/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1210	30° 17.375' S		115° 02.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.61	24.75
0.5	-	-
1.0	36.61	24.70
2.0	36.61	24.70
3.0	36.61	24.65
4.0	36.61	24.65
5.0	36.61	24.65
5.8	36.61	24.65
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB240	File Name	ST4JB240.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1145	30° 17.490' S		115° 02.670' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	143	Meter salinity reading of calibration sample	35.41
Thermometer details	TOT IMM E - MIL GOLD LINE	Thermometer reading of calibration sample	25.6°C	Meter temperature reading of calibration sample	24.85°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.80	25.45
0.5		
1.0	36.80	25.30
2.0	36.80	25.30
3.0	36.80	25.24
3.5	36.80	25.24
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ 12 to 15 knots. S needle wavering a bit but still able to get stable reading after a few seconds. Check battery at the end of the day.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB20	Site Name	ST3JB200.doc	Date	03/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1215	30° 17.344' S		115° 02.040' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.61	24.65
0.5	-	-
1.0	36.61	24.65
2.0	36.63	24.65
3.0	36.63	24.65
4.0	36.63	24.65
5.0	36.63	24.45
6.0	36.63	24.45
7.0	36.63	24.45
8.0	36.63	24.45
9.0	36.63	24.45
10.0	36.63	24.35
11.0	36.66	24.35
12.0	36.66	24.35
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	File Name	STJB9TI3.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1235	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.61	24.75
0.5	-	-
1.0	-	-
2.0	36.61	24.75
3.0	-	-
4.0	36.61	24.75
5.0	-	-
6.0	-	-
7.0	36.61	24.65
8.0	-	-
9.0	-	-
10.0	-	-
11.0	-	-
12.7	36.66	23.75
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ 18 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	JANUARY 1997
Site No.	JB550	File Name	STJB550.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1245	30° 16.085' S		115° 01.378' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.52	24.75
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.52	24.65
6.0	-	-
7.0	-	-
8.5	36.52	24.65
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB360	File Name	ST2JB360.doc	Date	03/02/97	Recorder	Gilles Monty
Time	GPS Latitude		GPS Longitude		Differential		
1305	30° 15.625' S		115° 00.024' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.51	24.35
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.51	24.35
4.0	-	-
5.0	36.51	24.81
6.0	-	-
7.0	-	-
8.0	36.56	24.81
9.0	-	-
10.0	36.56	24.15
11.0	-	-
12.0	-	-
13.5	36.61	23.85
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB380	File Name	ST3JB380.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1335	30° 15.434' S		114° 58.916' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.29	23.95
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.29	23.95
4.0	-	-
5.0	-	-
6.0	36.31	23.85
6.5	36.31	23.65
8.0	-	-
9.0	36.31	23.65
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB370	File Name	ST3JB370.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1345	30° 16.853' S		114° 59.256' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.21	23.95
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.21	23.85
4.0	-	-
5.0	-	-
6.0	36.21	23.85
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.31	23.75
11.0	-	-
12.0	36.31	23.75
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB390	File Name	ST2JB390.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1350	30° 16.222' S		114° 59.409' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.21	23.95
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.31	23.95
4.0	-	-
5.0	-	-
6.0	36.31	23.95
7.0	-	-
8.0	-	
9.0	36.39	23.85
10.0	-	-
11.0	-	-
12.0	36.41	23.85
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB570	File Name	STJB570.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1515	30° 20.842' S		115° 01.854' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.51	24.75
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.52	24.75
6.0	36.52	24.75
7.0	36.52	24.65
8.25	36.52	24.55
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB560	File Name	STJB560.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1528	30° 20.172' S		115° 00.889' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.41	24.75
0.5	-	-
1.0	36.41	24.75
2.0	36.41	24.75
3.0	36.41	24.75
3.5	36.41	24.75
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Water very clear.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanographer
Site No.	JB600	File Name	STJB600.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1720	30° 18.416'		115° 00.890'		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.41	24.85
0.5	-	-
1.0	-	-
2.0	36.41	24.85
3.0	36.41	24.85
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	File Name	STJ10TL3.doc	Date	03/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1730	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.41	24.75
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.41	24.75
4.0	36.44	24.75
5.0	36.44	24.75
6.0	36.44	24.75
7.0	36.51	24.75
8.0	36.51	24.75
9.0	36.51	24.75
10.0	36.51	24.75
11.0	36.51	24.75
12.0	36.51	24.65
13.4	36.51	24.65
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Southerly wind @ 10 - 12 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB240	Site Name	ST5JB240.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0835	30° 17.490' S		115° 02.670' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	049	Meter salinity reading of calibration sample	35.3
Thermometer details	TOT IMM E- MIL GOLD LINE	Thermometer reading of calibration sample	24.6°C	Meter temperature reading of calibration sample	23.80°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.88	24.98
0.5	-	-
1.0	-	-
2.0	36.90	24.98
3.0	36.90	24.98
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ 20 - 22 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB230	File Name	ST5JB230.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0845	30° 17.430' S		115° 02.560' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.88	24.83
0.5	-	-
1.0	-	-
2.0	36.88	24.83
3.0	-	-
4.0	36.88	24.78
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB220	Site Name	ST6JB220.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0850	30° 17.375' S		115° 02.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.85	24.68
0.5	-	-
1.0	-	-
2.0	36.88	24.63
3.0	36.89	24.28
3.7	36.89	24.28
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB210	Site Name	ST4JB210.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0908	30° 17.409' S		115° 02.330' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.78	24.27
0.5	-	-
1.0	36.79	24.27
2.0	36.79	24.27
3.0	36.79	24.27
4.5	36.81	24.23
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
S wavering needle.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB10	Site Name	ST5JB210.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0920	30° 17.409' S		115° 02.330' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.70	24.28
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.70	24.28
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.70	24.28
11.0	-	-
12.0	36.70	24.28
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ 20 - 25 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	File Name	STJ11TL3.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0930	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.70	24.27
0.5	-	-
1.0	-	-
2.0	36.70	24.27
3.0	-	-
4.0	36.70	24.27
5.0	-	-
6.0	36.70	24.27
7.0	-	-
8.0	36.70	24.08
9.0	-	-
10.0	36.70	23.88
11.0	-	-
12.5	36.70	23.88
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB260	File Name	ST2JB260.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0820	30° 19.274' S		115° 00.862' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.64	23.90
0.5	-	-
1.0	-	-
2.0	-	-
3.25	36.64	23.90
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB700	File Name	STJB700.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0840	30° 22.962' S		115° 01.081' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.39	23.30
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.40	23.30
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.44	23.30
11.0	-	-
12.0	36.44	23.30
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind SE @ 8 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB710	File Name	STJB710.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0903	30° 25.326' S		115° 00.942' E		Yes	X	No ☐

ST meter details		Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.34	24.00
0.5	-	-
1.0	-	-
2.0	36.34	24.00
3.0	-	-
4.0	36.34	24.00
5.5	36.34	24.00
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB720	File Name	STJB720.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0914	30° 26.664' S		115° 00.430' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.35	23.31
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.35	23.31
6.0	-	-
7.0	-	-
8.0	-	-
9.5	36.35	23.31
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB730	File Name	STJB730.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0927	30° 26.723' S		115° 02.006' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.45	23.32
0.5	-	-
1.0	-	-
2.0	36.45	23.32
3.0	-	-
4.0	36.45	23.32
5.0	-	-
6.0	36.45	23.32
7.0	-	-
8.0	36.45	23.32
9.0	-	-
10.0	36.45	23.31
11.5	36.45	23.31
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB740	File Name	STJB740.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0945	30° 28.218' S		115° 28.818' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.46	23.80
0.5	-	-
1.0	-	-
2.0	36.50	23.80
3.0	-	-
4.0	36.50	23.70
5.0	-	-
6.0	36.52	23.70
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB750	Site Name	STJB750.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1003	30° 29.338' S		115° 02.283' E		Yes	X	No ☐

ST meter details		Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.36	23.34
0.5	-	-
1.0	-	-
2.0	36.36	23.34
3.0	-	-
4.0	36.36	23.34
5.0	-	-
6.0	36.36	23.34
7.0	-	-
8.0	36.36	23.33
9.0	-	-
10.25	36.36	23.32
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind South @ 5 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB770	File Name	STJB770.doc	Date	05/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
1032	30° 30.719' S		115° 01.850' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.38	23.40
0.5	-	-
1.0	-	-
2.0	36.38	23.40
3.0	-	-
4.0	36.38	23.40
5.0	-	-
6.0	36.38	23.40
7.0	-	-
8.0	36.37	23.40
9.0	-	-
10.0	36.37	23.30
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ 12 - 15 knots.
Drogues deployed - #1 at 5m and #14 at 1.5m.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB240	File Name	ST7JB240.doc	Date	06/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0731	30° 17.490' S		115° 02.670' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	004	Meter salinity reading of calibration sample	35.59
Thermometer details	TOT IMM E- MIL GOLD LINE	Thermometer reading of calibration sample	23.75°C	Meter temperature reading of calibration sample	22.95°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.89	24.00
0.5	-	-
1.0	36.89	23.90
2.0	36.89	23.90
3.25	36.89	23.90
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind SE @ 5 -10 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB230	File Name	ST7JB230.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0735	30° 17.430' S		115° 02.560' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.90	24.05
0.5	-	-
1.0	36.90	24.05
2.0	36.90	24.05
3.0	36.90	24.05
4.5	36.90	24.05
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB220	File Name	ST8JB220.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0740	30° 17.375' S		115° 02.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.88	23.95
0.5	-	-
1.0	36.88	23.95
2.0	36.88	23.95
3.0	36.88	23.90
3.8	36.88	23.90
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB210	File Name	ST7JB210.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0745	30° 17.409' S		115° 02.330' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.70	23.95
0.5	-	-
1.0	36.70	23.95
2.0	36.70	23.95
3.0	36.80	23.90
4.0	36.85	23.75
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Refer to diagram on raw data sheet.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB10	File Name	ST7JB10.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0750	30° 17.250' S		115° 01.820' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.70	24.10
0.5	-	-
1.0	36.70	24.05
2.0	36.70	24.05
3.0	36.70	24.05
4.0	36.70	24.05
5.0	36.70	24.05
6.0	36.70	24.05
7.0	36.70	24.05
8.0	36.70	24.05
9.0	36.70	24.05
10.0	36.70	24.05
11.0	36.70	24.05
12.0	36.70	24.05
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
S needle still wavering, making readings difficult but possible.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	File Name	STJ14TL3.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0802	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.72	23.90
0.5	-	-
1.0	-	-
2.0	36.72	23.90
3.0	-	-
4.0	36.72	23.90
5.0	36.72	23.90
6.0	36.72	23.85
7.0	36.72	23.80
8.0	36.72	23.70
9.0	36.72	23.70
10.0	36.72	23.70
11.0	36.72	23.65
12.0	36.72	23.65
12.5	36.72	23.65
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind E/SE @ approximately 10 knots, in the Bay.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB550	File Name	ST2JB550.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0830	30° 16.085' S		115° 01.378' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.70	24.00
0.5	-	-
1.0	36.70	24.00
2.0	-	-
3.0	36.70	24.00
4.0	36.70	23.95
5.0	-	-
6.0	36.70	23.90
7.0	-	-
8.0	36.70	23.90
9.0	-	-
10.0	36.70	23.90
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind south @ 10 - 12 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB800	File Name	STJB800.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0845	30° 15.613' S		114° 59.886' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.55	23.70
0.5	-	-
1.0	-	-
2.0	36.55	23.70
3.0	-	-
4.0	-	-
5.0	36.55	-
6.0	36.55	23.70
7.0	-	-
8.0	-	-
9.0	36.55	23.70
10.0	-	-
11.0	36.60	23.70
12.0	-	-
13.0	36.60	23.70
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
ST meter... Conductivity all looks "worn". Probably needs replatenising. 100-200m west of slick line. Lower salinity to lower temp. on this side. Slick running SW to NE. (Some small patches of algae still around).
Wind South @ aproximately 12 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB810	File Name	STJB810.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0855	30° 15.625' S		115° 00.200' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	176	Meter salinity reading of calibration sample	35.35
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.65	23.80
0.5	-	-
1.0	36.65	23.80
2.0	-	-
3.0	36.65	23.80
4.0	-	-
5.0	36.65	23.80
6.0	-	-
7.0	36.65	23.75
8.0	-	-
9.0	36.65	23.75
10.0	-	-
11.0	36.65	23.70
12.0	-	-
13.0	36.65	23.70
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Decided to go back to east of slick and do a ST drop.
Slick approximately N-S now. (Chris' comment)

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB820	File Name	STJB820.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0910	30° 15.099' S		114° 58.910' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.40	23.55
0.5	-	-
1.0	36.40	23.55
2.0	-	-
3.0	36.42	23.55
4.0	-	-
5.0	36.42	23.55
6.0	-	-
7.0	36.42	23.55
8.0	-	-
9.0	36.42	23.50
10.0	-	--
11.0	36.42	23.50
12.0	-	-
12.5	36.42	23.50
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL1	File Name	STJB3TL1.doc	Date	06/02/97	Recorder	Nick D'Adamo
Time	GPS Latitude		GPS Longitude		Differential		
0925	30° 15.210' S		114° 57.183' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.30	23.30
0.5	-	-
1.0	-	-
2.0	36.30	23.30
3.0	-	-
4.0	-	-
5.0	36.30	23.30
6.0	-	-
7.0	36.30	23.30
8.0	-	-
9.0	36.30	23.30
10.0	-	-
11.0	36.30	23.30
12.0	-	-
13.0	36.30	23.30
14.0	-	-
15.0	36.30	23.30

Depth (m)	Salinity (pss)	Temperature (°C)
16.0	-	-
17.0	36.30	23.30
18.0	-	-
19.0	36.30	23.30
20.0	36.30	23.30
21.0	36.30	23.30
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL4	File Name	STJB3TL4.doc	Date	06/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1320	30° 22.553' S		115° 00.735' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.40	23.50
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.40	23.50
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.40	23.40
11.0	-	-
12.0	-	-
13.0	-	-
14.5	36.40	23.40
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ 18 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	File Name	STJ15TL3.doc	Date	06/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1404	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.19	24.20
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.19	24.20
6.0	36.19	24.20
7.0	36.19	24.20
8.0	36.19	24.15
9.0	36.19	24.10
10.0	36.19	24.00
11.0	36.19	23.90
12.0	36.19	23.70
12.5	36.19	23.70
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW at 18 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL2	File Name	STJB3TL2.doc	Date	06/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1430	30° 15.010' S		115° 00.023' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	141	Meter salinity reading of calibration sample	35.30
Thermometer details	TOT IMM E - MIL GOLD LINE	Thermometer reading of calibration sample	23.9°C	Meter temperature reading of calibration sample	23.35°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.60	23.90
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.60	23.90
6.0	36.60	23.90
7.0	36.61	23.90
8.0	-	-
9.0	-	-
10.0	36.61	23.90
11.0	-	-
12.0	-	-
13.0	-	-
14.5	36.65	23.90
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB260	File Name	STJB260.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0947	30° 19.274' S		115° 00.862' E		Yes	X	No

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.70	23.88
0.5	-	-
1.0	-	-
2.0	-	-
3.5	36.70	23.88
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB620	File Name	STJB620.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1100	30° 20.6' S		115° 00.9' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.60	24.08
0.5	-	-
1.0	-	-
2.0	-	-
3.0	36.60	24.08
4.5	36.60	24.08
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SW @ 20 - 25 knots.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB630	File Name	STJB630.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1115	30° 20.6' S		115° 01.5' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.61	24.58
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.65	24.58
6.3	36.65	24.58
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB640	File Name	STJB640.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1125	30° 20.6' S		115° 01.74' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.61	24.68
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.61	24.68
6.0	-	-
7.0	-	-
8.0	36.61	24.68
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB650	File Name	STJB650.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1134	30° 20.6' S		115° 20.00' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.68	24.28
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.68	24.28
6.0	-	-
7.0	-	-
8.8	36.70	24.28
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	File Name	STJ12TL3.doc	Date	04/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
1637	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	123	Meter salinity reading of calibration sample	35.2
Thermometer details	TOT IMM E - MIL GOLD LINE	Thermometer reading of calibration sample	24.3°C	Meter temperature reading of calibration sample	23.55°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.60	24.68
0.5	-	-
1.0	-	-
2.0	36.60	24.68
3.0	-	-
4.0	36.60	24.68
5.0	36.60	24.68
6.0	-	-
7.0	36.60	24.68
8.0	-	-
9.0	-	-
10.0	36.60	24.58
11.0	-	-
12.0	-	-
13.0	36.65	24.53
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB240	File Name	ST6JB240.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0742	30° 17.490' S		115° 02.670' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.80	24.20
0.5	-	-
1.0	36.85	24.20
2.0	36.85	24.10
3.0	36.86	24.10
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:
Wind S/SE @ 5 - 8 knots. Sunny, warm.
Changed batteries and CRC connector.

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB230	File Name	ST6JB230.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0745	30° 17.430' S		115° 02.560' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.85	24.10
0.5	-	-
1.0	36.85	24.10
2.0	36.85	24.10
3.0	36.85	24.10
4.0	36.85	24.05
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB220	File Name	ST7JB220.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0753	30° 17.375' S		115° 02.500' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.	122	Meter salinity reading of calibration sample	35.53
Thermometer details	TOT IMM E- MIL GOLD LINE	Thermometer reading of calibration sample	23.90°C	Meter temperature reading of calibration sample	23.10°C

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.85	24.00
0.5	-	-
1.0	36.85	24.00
2.0	36.85	24.00
3.0	-	-
4.0	36.85	23.90
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB210	File Name	ST6JB210.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0757	30° 17.409' S		115° 02.330' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.66	23.95
0.5	-	-
1.0	36.66	23.95
2.0	36.70	23.95
3.0	36.72	23.95
4.0	36.77	23.95
4.5	36.77	23.95
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	JB10	File Name	ST7JB10.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0803	30° 17.250' S		115° 01.820' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.66	23.90
0.5	-	-
1.0	-	-
2.0	36.66	23.90
3.0	-	-
4.0	36.66	23.90
5.0	-	-
6.0	-	-
7.0	36.66	23.90
8.0	-	-
9.0	-	-
10.5	36.66	23.90
11.0		
12.0		
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes:

SALINITY-TEMPERATURE DATA SHEET

Project	JURIEN BAY MARINE RESERVE IMPLEMENTATION PROGRAMME					Field Survey	Oceanography
Site No.	TL3	File Name	STJ13TL3.doc	Date	05/02/97	Recorder	Heidi Oswald
Time	GPS Latitude		GPS Longitude		Differential		
0808	30° 17.682' S		115° 01.366' E		Yes	X	No ☐

ST meter details	ST384	Salinity calibration sample bottle no.		Meter salinity reading of calibration sample	
Thermometer details		Thermometer reading of calibration sample		Meter temperature reading of calibration sample	

Depth (m)	Salinity (pss)	Temperature (°C)
0	36.60	23.90
0.5	-	-
1.0	-	-
2.0	-	-
3.0	-	-
4.0	-	-
5.0	36.60	23.90
6.0	-	-
7.0	-	-
8.0	-	-
9.0	-	-
10.0	36.60	23.90
11.0	36.60	23.90
12.5	36.60	23.90
13.0		
14.0		
15.0		

Depth (m)	Salinity (pss)	Temperature (°C)
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		

Notes: