

MARINE MANAGEMENT SUPPORT PROGRAMME

GATHERING OF SPATIAL RECTIFICATION AND GROUND TRUTH DATA FOR HIGH RESOLUTION MAPPING OF THE ROWLEY SHOALS: 9-20 OCTOBER 1997

Field Programme Report: MMSP/K/RS-06/1997

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Direction

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- Allen Grosse - Manager, West Kimberley District.

CALM collaboration

- Ray Lawrie - Project leader, MCB.
- Mike Lapwood - Field Team Leader, MCB.
- Warwick Roe - District Wildlife Officer, Broome.
- Elena Anière - Parks, Policy and Tourism Branch.

External collaboration

- Australian Customs Service, Broome.
- Skipper and crew of the ACV Andrew Fisher.
- Des Pike - Parks Australia.

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SUMMARY

This report presents details of a field survey, proposed for 9-20 October 1997, to ground truth visual details on the atolls of the Rowley Shoals. It is intended to visit various points pre-determined from aerial photographs and record accurate locations of these points using a differential GPS unit. These points will become a benchmark for further GIS mapping to determine the boundaries of various habitat types, which will assist further in the management of the Rowley Shoals Marine Park and the Mermaid Reef Marine National Nature Reserve.

This survey is part of the Department of Conservation and Land Management's (CALM) Marine Management Support Programme and is being coordinated by CALM's Marine Conservation Branch (MCB). It is being conducted in collaboration with CALM's Kimberley Region and West Kimberley District offices, the Australian Customs Service and Parks Australia.

1. INTRODUCTION

1.1 General background

The Rowley Shoals are located approximately 260 km west of Broome lying between 17° 07'S, 119° 36'E and 17° 35'S, 118° 56'E on the edge of one of the widest continental shelves in the world. The shoals (Clerke, Imperieuse and Mermaid Reefs) are 30-40 km apart and are elliptical in shape, measuring 14-18 km long and 7.5-9.5 km wide (Done, *et al.*, 1994). They are situated in water ranging from 230-500 metres deep. These coral reefs have grown directly onto the shelf, and have been described as the most perfect morphological shelf atolls in Australian waters.

The Rowley Shoals Marine Park comprises Clerke and Imperieuse Reefs and was gazetted on 25 May 1990. It is managed as marine conservation reserve by CALM on behalf of the Marine Parks and Reserves Authority. As Mermaid Reef does not contain any land above high water mark it is under Commonwealth jurisdiction. It was gazetted as a Marine National Nature Reserve in March 1991 and is jointly managed by Environment Australia (Parks Australia North), CALM and the Western Australian Fisheries Department under a Memorandum of Understanding.

1.2 Objectives

CALM's primary objectives for the proposed survey are:

- To obtain further detailed spatial rectification data (about 40 sites per atoll) to allow spatially accurate digital maps of each atoll to be produced.
- To record accurate depths (these will be adjusted for tidal variations etc.) at each site to facilitate the construction of a Digital Elevation Model for each shoal.
- To obtain further biological data (30 seconds of underwater video footage) on benthic habitats at each of the above sites to allow biologically accurate habitat maps to be generated
- To video benthic habitat transects across each atoll, in each major biological zone.
- To assess the need for dedicated moorings at each of the commercial dive sites (i.e. is there a coral rubble/sand zone in 3 - 10 metre depth that will allow anchoring without damage to coral communities).
- To opportunistically collect video/still photography of representative marine communities at the Rowley Shoals for educational purposes etc.
- To physically check reports of fuel drums discarded in the lagoons, remove if possible and attempt to trace the origin.

1.3 Personnel

Apart from the normal Australian Customs Service (ACS) personnel on board, the field team will consist of: Ray Lawrie (Team Leader, MCB), Mike Lapwood (Field Team Leader, MCB), Warwick Roe (Dive Supervisor, CALM Broome), Elena Anière (CALM Parks, Policy and Tourism Branch) and Des Pike (Parks Australia).

2. METHODS

Because of the isolation of the Rowley Shoals, any field work preparation must be extremely thorough and safety aspects must be of primary importance.

The ACS vessel, the “Andrew Fisher” is a 20 metre craft with a complement of five customs officers. In addition, the vessel can also accommodate five other passengers, making a total of ten. The ACS has advised that all food and accommodation on the vessel is supplied free of charge to CALM officers and two fully equipped zodiac type inflatables with outboards can be provided. This gives the survey team some flexibility in carrying out the field work. As the inflatables are also equipped with two-way radios the safety aspects of the survey are greatly improved.

The MCB Fugro DGPS demodulation unit, coupled to a Scoutmaster GPS will be used extensively during this field trip. The demodulation unit is powered by a 12 volt rechargeable battery and the Scoutmaster by 4xAA batteries. The entire unit is encased in a purpose-built clear acrylic splash-proof case and has external ports for antennae and external power source.

A spare back-up demodulation unit will be hired for the survey period from Fugro Surveys P/L at a cost of \$35 per day and a spare Scoutmaster unit will be accessed from CALM’s Environmental Protection Branch at no cost.

At Clerke, Imperieuse and Mermaid Reefs, a random selection of sites will be identified from aerial photographs and the field team will take a DGPS ‘fix’ of these sites from the zodiac. As each site is identified and fixed, underwater video footage will be taken of the benthic habitat and habitat and video data sheets will be completed (see Appendices I & II). Operating instructions for the underwater video system are included as Appendix III.

In addition a transect of each lagoon will be undertaken to ground truth habitat types and a DGPS ‘fix’ will be taken at the boundaries of each habitat type. This will further enhance the spatial habitat data and allow for more accurate biological mapping of the major habitat types.

3. FIELD PROGRAMME

3.1 Field itinerary

DATE	TIME	ACTIVITY
Mon 30.9.97		Equipment sent to Broome via road transport (see equipment list).
Wed 8.10.97		Pick up back-up DGPS (Fugro P/L., Ph 93224955 contact Diane Stadman). Pick up back-up Scoutmaster (CALM Env. Prot. Br., Ph 3340365 contact Kevin Crane).
Thurs 9.10.97	0550 hrs	Mike Lapwood and Ray Lawrie depart Perth Airport for Broome on Ansett flight AN392.
	0635 hrs	Elena Anière departs Perth Airport for Broome on Ansett flight AN370.

DATE	TIME	ACTIVITY
Thurs 9.10.97	0830 hrs	Mike Lapwood and Ray Lawrie arrive Broome and met by Warwick Roe.
	0915 hrs	Elena Aniere arrives Broome.
	PM	Equipment sorted, checked and loaded on vessel.
Fri 10.10.97	1400 hrs	Briefing at ACS office (contact Brian Parker Ph 08 91936999).
	1600 hrs	Depart for Rowley Shoals.
Sat 11.10.97	0800 hrs	Arrive at Rowley Shoals.
Sat 11.10.97	All day	Field work; Imperieuse Reef, (lagoon).
Sun 12.10.97	All day	Field work; Imperieuse Reef, (lagoon).
Mon 13.10.97	AM	Field work; Imperieuse Reef, (outside reef).
Mon 13.10.97	1400 hrs	Depart Imperieuse Reef for Clerke Reef.
Tue 14.10.97	All day	Field work; Clerke Reef, (lagoon).
Wed 15.10.97	All day	Field work; Clerke Reef, (lagoon).
Thu 16.10.97	AM	Field work; Clerke Reef, (outside reef).
Fri 17.10.97	1400hrs	Depart Clerke Reef for Mermaid Reef.
Sat 18.10.97	All day	Field work; Mermaid Reef, (lagoon).
Sun 19.10.97	All day	Field work; Mermaid Reef, (lagoon).
Mon 20.10.97	AM	Field work; Mermaid Reef, (outside reef).
Mon 20.10.97	1300 hrs	Depart Rowley Shoals for Broome.
Tues 21.10.97	0600 hrs	Arrive Broome.
Wed 22.10.97	1315 hrs	Mike Lapwood and Ray Lawrie depart Broome for Perth on Ansett flight AN373. Elena Aniere at 1810 hrs on AN375

3.2 Safety

As mentioned, the Rowley Shoals is a very remote area and safety issues will be of paramount importance.

All safety procedures relating to navigation and associated vessel activities, and the personal safety of crew and passengers of the ACV Andrew Fisher during this field survey are the primary responsibility of the skipper of the vessel. Alterations to survey procedures based on safety aspects related to weather conditions and sea-state are the responsibility of the skipper of the vessel. Decisions to modify the methods of the field survey will be made by the Team Leader and Dive Supervisor, in consultation with the vessel's skipper and the rest of the survey team.

The Project Leader has primary responsibility for ensuring that all field work undertaken by members of the survey team is conducted according to CALM's departmental safety procedures and protocols.

The Dive Supervisor has primary responsibility for all personnel participating in diving operations and for ensuring that all diving operations are conducted according to the CALM dive code and to an approved dive plan.

The dive plan for this survey has been approved by the Departmental diving officer. No decompression dives will be undertaken.

The GIS team of Ray Lawrie and Mike Lapwood will operate from an inflatable dinghy with a DGPS unit and relevant charts and aerial photos. The team will be operating up to 10 km from the ACV Andrew Fisher and will be in radio contact via two-way radio.

The second team of Warwick Roe, Elena Anière and Des Pike will be data collecting and diving/photographing from an aluminium dinghy and will also be equipped with a two-way radio.

A fully equipped first aid cabinet is located onboard the ACV Andrew Fisher, and secondary kits will be on each dinghy, comprising vinegar and a flask of hot water (for marine stings and bites), general first aid equipment and sunscreen.

Warwick Roe will be Dive Supervisor for the duration of the field programme and be responsible for all aspects of diving safety.

3.3 Emergency contacts

CALM Broome District Office, Ph. 08 91921036; fax 08 91935027.

Australian Customs Service, Broome, Ph. 08 91936999; fax 08 91936961.

ACV Andrew Fisher, Satphone 0145 110662, Satfax 0145 210662.

Royal Flying Doctor Service: Ph. 08 9414 1200.

Radiophone booking line: 08 9414 1300.

Medical & emergency calls: 1800 625 800.

Broome Medical Centre, Broome

Fremantle Hyperbaric/Diving Services, Ph. 08 9431 2233 or 08 9431 3333

Mangrove Motel, ph 08 91921303, fax 08 91935169 (evenings of Thurs 9 and Tues 21 October 1997).

3.4 Resources

As mentioned previously, all on-board costs will be absorbed by Australian Customs Department and costs incurred by other field team members will be debited to the individuals Department/ Branch.

MCB Budget:

Air fares - Mike Lapwood and Ray Lawrie (Perth/Broome return)	\$1186
Motel accomodation (Broome - 2 people, 2 nights)	\$ 192
Meals in Broome	\$ 160
Transport of equipment to Broome	\$ 230
Hire of back-up demodulator (Fugro P/L)	\$ 490
Processing of film and duplicationof video footage (approx)	\$ 280
Batteries and sundry consumables (approx)	\$ 300

TOTAL \$2838

3.5 Equipment list

A detailed equipment list is included as Appendix IV.

4. REFERENCES

CALM, (1997). Rowley Shoals Marine Park Draft Management Plan. Department of Conservation and Land Management, Perth, July 1997.

Done, T., Done, C. & Thomson, C. (1994). The Rowley Shoals. *Landscape*, Spring 1994: 28-34.

APPENDIX I

Habitat data sheets from spatial rectification survey

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I1	Site Name		Date	11.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1519 hrs	Weather	SUNNY; 5kn S.E. WINDS		
Sea	SMOOTH; INCOMING TIDE	Water depth (m)	2.4m (reef) 6.2m (sand)	Water visibility (m)	20m		
GPS Latitude		GPS Longitude		Differential			
17° 30' 17.6 S		118° 57' 48.7 E		Yes		N	
Site location	NORTH EAST OUTER REEF EDGE, IMPERIOUSE REEF						

Habitat Description

INTERTIDAL CORAL BOMMIES/ SAND GUTTERS

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL GROWTH ON BOMMIES (ACROPORA, MASSIVES, PORITES ETC) 100% COVER
Fish	NUMEROUS PARROT FISH, DAMSELS, BUTTERFLY FISH ETC
Invertebrates	SOME HOLITHURIANS AND SMALL BORROWING CLAMS (<30 cm)

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/11.10.97/ TAPE 1	Aerial reference	5124/WA 3763©/RUN 5/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I3	Site Name	N.E. CHANNEL	Date	12.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0713 hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SMOOTH		Water depth (m)	1.3m (shelf) 1.8m (reef)	Water visibility (m)	~18m	
GPS Latitude		GPS Longitude			Differential		
17° 32' 08.1" S		118° 58' 06.7" ' E			Yes		N
Site location	NORTH EAST CHANNEL, IMPERIOUSE REEF						

Habitat Description

SAND/ HARD SUBSTRATE TIDAL GUTTER, CORAL LEDGES BELOW INTERTIDAL CORAL REEF PLATFORM

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON REEFTOP AND LEDGES (ACROPORA, MASSIVES, PORITES ETC)
Fish	LARGE GREEN PARROT FISH, REEF SHARK AND TREVALLY
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5091/WA 3763©/RUN 6/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I4	Site Name		Date	12.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0744 hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SMOOTH		Water depth (m)	1.0m (bommie) 2.4m (sand)	Water visibility (m)	~18m	
GPS Latitude		GPS Longitude			Differential		
17° 33' 44.1" S		118° 57' 57.7" E			Yes	N	
Site location	SMALL BOMMIE, , IMPERIOUSE REEF						

Habitat Description

SMALL BOMMIE, DGPS FIX TAKEN AT SOUTHERN EXTREMITY

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON REEFTOP (ACROPORA, MASSIVES, PORITES ETC)
Fish	PARROT FISH, DAMSELS, POMFRETS, BUTTERFLYFISH ETC
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5094/WA 3763©/RUN 6/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I5	Site Name		Date	12.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0902 hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SMOOTH		Water depth (m)	0.8m	Water visibility (m)	~18m	
GPS Latitude		GPS Longitude			Differential		
17° 35' 08.5" S		118° 58' 12.2" E			Yes	N	
Site location	LAGOON EDGE, IMPERIOUSE REEF						

Habitat Description

SAND: CORAL ON REEF LIP AND TOP OF REEF

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON REEFTOP (ACROPORA, MASSIVES, PORITES ETC)
Fish	PARROT FISH, DAMSELS, BUTTERFLYFISH ETC
Invertebrates	HOLOTHURIANS ON SAND AGAINST REEF

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5096/WA 3763(c)/RUN 6/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	16	Site Name			Date	12.10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	0922 hrs	Weather	SUNNY; 5kn S.E. WINDS		
Sea	SMOOTH	Water depth (m)	1.1m	Water visibility (m)	~18m		
GPS Latitude		GPS Longitude		Differential			
17° 36' 21.5" S		118° 58' 13.3" E		Yes		N	
Site location	SMALL (<2m) DIAM. BOMMIE; LAGOON EDGE, IMPERIOUSE REEF						

Habitat Description

CORAL BOMMIE SURROUNDED BY SAND

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (ACROPORA, MASSIVES, PORITES ETC)
Fish	PARROT FISH, DAMSELS, BUTTERFLYFISH ETC
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5099/WA 3763©/RUN 6/4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	17	Site Name		Date	14.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0726hrs	Weather	SUNNY; 8kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	1.6m (bommie)	Water visibility (m)	~20m	
GPS Latitude		GPS Longitude		Differential			
17° 38' 13.8" S		118° 57' 12.8" E		Yes		N	
Site location	IMPERIOUSE REEF						

Habitat Description

CORAL BOMMIE IN SAND: FIX TAKEN TO CENTRE OF BOMMIE

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (ACROPORA, MASSIVES, PORITES ETC)
Fish	SMALL PARROT FISH, DAMSELS, BUTTERFLYFISH ETC
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5107/WA3763© /RUN 5/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	18	Site Name		Date	14 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0751hrs	Weather	SUNNY; 8kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	1.4m (bommie)	Water visibility (m)	~20m	
GPS Latitude		GPS Longitude			Differential		
17° 38' 55.7" S		118° 56' 02.1" E			Yes		N
Site location	IMPERIOUSE REEF						

Habitat Description

CORAL BOMMIE IN SAND: FIX TAKEN TO CENTRE OF BOMMIE

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (ACROPORA, MASSIVES, PORITES ETC)
Fish	SMALL PARROT FISH, DAMSELS, BUTTERFLYFISH ETC
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5144/WA 37630/RUN 4/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	19	Site Name	"GREEN BAY"		Date	14 10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0810hrs	Weather	SUNNY; 8kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	2.0m (bommie)	Water visibility (m)	~20m	
GPS Latitude			GPS Longitude			Differential	
17° 38' 46.7" S			118° 55' 46.5" E			Yes	N
Site location	IMPERIOUSE REEF						

Habitat Description

CORAL BOMMIE IN SAND: FIX TAKEN TO CENTRE OF BOMMIE (IN SAND)

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (ACROPORA, MASSIVES, PORITES ETC)
Fish	SMALL PARROT FISH, DAMSELS, BUTTERFLYFISH ETC
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5150/WA3763©/RUN 3/ 4.7.97
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	110	Site Name	"SHARK ALLEY"	Date	14.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0903hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	2.3m reef 5.5m sand	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 36' 13.3" S			118° 54' 01.4" E		Yes	N	
Site location	IMPERIOUSE REEF						

Habitat Description

SAND TIDAL RACE: E.S.E. SIDE OF REEF. CORAL BOMMIES.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON EDGE AND BOMMIES (MOSTLY MASSIVES AND SMALL ACROPORA)
Fish	NUMEROUS (15+) REEF SHARKS, SCHOOL OF TREVELLY (~20)
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5189/WA3763©/RUN 1/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I11	Site Name	"WARWICKS CHANNEL"	Date	14 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0938hrs	Weather	SUNNY; 8kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	1.5m coral 'circle'	Water visibility (m)	~15m	
GPS Latitude		GPS Longitude		Differential			
17° 35' 13.1" S		118° 54' 09.5" E		Yes		N	
Site location	IMPERIOUSE REEF						

Habitat Description

TIDAL CHANNEL WEST SIDE IMPERIOUSE REEF. FIX TAKEN AT CENTRE OF 1.5m DIAM. ACROPORA CORAL HEAD, EAST OF SANDY CHANNEL INLET.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON AND BOMMIES (MOSTLY MASSIVES AND SMALL ACROPORA)
Fish	A FEW SMALL REEF SHARKS.
Invertebrates	

Other Features

Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5175/WA3763©/RUN 2/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997	
Site No.	112	Site Name			Date	14 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0953hrs	Weather	SUNNY; 8kn S.E. WINDS		
Sea	SLIGHT		Water depth (m)	2.2m (sand)	Water visibility (m)	~15m		
GPS Latitude			GPS Longitude			Differential		
17° 34' 36.5" S			118° 54' 24.3" E			Yes		N
Site location	MIDDLE OF EASTERLY 'TONGUE', IMPERIOUSE REEF							

Habitat Description

RETURNED 1035hrs 19.10.97 TO TAKE DGPS FIX

SCATTERED SMALL BOMMIES IN SAND.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON AND BOMMIES (MOSTLY MASSIVES AND SMALL ACROPORA)
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND THE BOMMIES
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference		Aerial reference	5174/WA3763© /RUN 2/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I13	Site Name		Date	14 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1020hrs	Weather	SUNNY; 8kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	1.5m (bommie) 2.0m (sand)	Water visibility (m)	15m	
GPS Latitude			GPS Longitude		Differential		
17° 33' 46.4" S			118° 55' 19.7" E		Yes		N
Site location	NORTH EAST SIDE OF CORAL BOMMIE, IMPERIOUSE REEF						

Habitat Description

RETURNED 1045hrs 19.10.97 TO TAKE DGPS FIX

SCATTERED SMALL BOMMIES IN SAND.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (MOSTLY MASSIVES AND SMALL ACROPORA)
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND AND ON THE BOMMIES
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5160/WA3763©/RUN 3/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I14	Site Name		Date	14 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1034hrs	Weather	SUNNY; 8kn S.E. WINDS		
Sea	SLIGHT	Water depth (m)	2.0m sand	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 33' 03.8" S		118° 55' 49.2" E		Yes		N	
Site location	NORTH EAST SIDE OF CORAL BOMMIE, IMPERIOUSE REEF						

Habitat Description

RETURNED 1054hrs 19.10.97 TO TAKE DGPS FIX

SCATTERED BOMMIES IN SAND.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (MOSTLY MASSIVES AND SMALL ACROPORA) 100% CORAL COVER
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND AND ON THE BOMMIES
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5160/WA3763©/RUN 3/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/KRS-06/1997	
Site No.	I15a	Site Name			Date	14 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1044hrs	Weather	SUNNY; 8kn S.E. WINDS		
Sea	SLIGHT		Water depth (m)	2.0m	Water visibility (m)			
GPS Latitude			GPS Longitude			Differential		
17° 32' 23.7" S			118° 56' 05.8" E			Yes		N
Site location	NORTH EAST SIDE OF CORAL BOMMIE, IMPERIOUSE REEF							

Habitat Description

RETURNED 1107hrs 19.10.97 TO TAKE DGPS FIX: CENTRE OF BOMMIE
SCATTERED BOMMIES IN SAND.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (MOSTLY MASSIVES AND SMALL ACROPORA) 100% CORAL COVER
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND AND ON THE BOMMIES
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference		Aerial reference	5131/WA 3763©/RUN 4/4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I15b	Site Name		Date	14 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1044hrs	Weather	SUNNY; 8kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	2.0m	Water visibility (m)		
GPS Latitude		GPS Longitude			Differential		
17° 32' 24.6" S		118° 56' 06.6" E			Yes		N
Site location	NORTH EAST SIDE OF CORAL BOMMIE, IMPERIOUSE REEF						

Habitat Description

RETURNED 1107hrs 19.10.97 TO TAKE DGPS FIX: CENTRE OF BOMMIE

SCATTERED BOMMIES IN SAND.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (MOSTLY MASSIVES AND SMALL ACROPORA) 100% CORAL COVER
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND AND ON THE BOMMIES
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference		Aerial reference	5131/WA3763©/RUN 4/ 4.7.97
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I18	Site Name			Date	14 10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1123hrs	Weather	SUNNY; 8kn S. WINDS		
Sea	SLIGHT	Water depth (m)	1.7m	Water visibility (m)			
GPS Latitude		GPS Longitude		Differential			
17° 30' 36.9" S		118° 57' 16.8" E		Yes		N	
Site location	FIX TAKEN IN SAND FINGER ON NORTH SIDE OF SAND HOLE, IMPERIOUSE REEF						

Habitat Description

SCATTERED SMALL TO MEDIUM BOMMIES IN SAND
RETURNED 1134hrs 19.10.97 TO TAKE DGPS FIX

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND AND ON THE BOMMIES
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/12-10:97-TAPE 1 ?	Aerial reference	5122/WA3763©/RUN 5/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I19	Site Name		Date	19 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1123hrs	Weather	SUNNY; 8kn S. WINDS		
Sea	SLIGHT	Water depth (m)	1.0m (bommie) 3.0m (sand)	Water visibility (m)			
GPS Latitude		GPS Longitude		Differential			
17° 32' 24.6" S		118° 56' 06.6" E		Yes		N	
Site location	FIX TAKEN IN SMALL 'NOTCH' ON NORTH SIDE OF CORAL BOMMIE, IMPERIOUSE REEF						

Habitat Description

SCATTERED SMALL TO MEDIUM BOMMIES IN SAND

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (MOSTLY MASSIVES AND SMALL ACROPORA) 100% CORAL COVER
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND AND ON THE BOMMIES
Invertebrates	

Other Features

Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/12-10:97/TAPE 1 ?	Aerial reference	5128/WA3763©/RUN 4/ 4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I30	Site Name	"CLAM BAY"	Date	12.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0943 hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SMOOTH		Water depth (m)	1.75m	Water visibility (m)	~15m	
GPS Latitude		GPS Longitude		Differential			
17° 37' 08.3" S		118° 57' 34.0" E		Yes		N	
Site location	SMALL 'BAY' AT EXTREME SOUTHERN LAGOON EDGE, IMPERIOUSE REEF						

Habitat Description

HAD A SNORKEL DIVE IN THE SMALL SANDY "BAY". PROLIFIC CORAL GROWTH, LARGE GIANT CLAM, NUMEROUS HOLITHURIANS (AT LEAST 3 SPECIES). MOLLUSCS SIGHTED INCLUDED 2 TIGER COWRIES (*Cypraea tigris*), SPIDER CONCH (*Lambis chiragra*) AND TROCHUS (*Trochus niloticus*).

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES AND REEF EDGE (ACROPORA, MASSIVES, PORITES ETC)
Fish	PARROT FISH, DAMSELS, BUTTERFLYFISH ETC AND 3 LARGE EMPORERS AND 2 LARGE HUMP HEADED WRASSE
Invertebrates	GIANT CLAM, AT LEAST 3 SPECIES OF HOLITHURIANS, ETC

Other Features

Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5071/WA 37590/ RUN 1/ 3.7.96
Slide reference	RS P12/ # 41 & 42	Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey	MMSP/K/RS-06/1997		
Site No.	I31	Site Name			Date	12.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1430 hrs	Weather	SUNNY; 5kn S.E. WINDS		
Sea	SMOOTH		Water depth (m)	1.0m	Water visibility (m)			
GPS Latitude			GPS Longitude			Differential		
17° 31' 08.3" S			118° 58' 04.6" E			Yes		N
Site location	IMPERIOUSE REEF							

Habitat Description

OUTSIDE REEF, SMALL SAND PATCH

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL REEF EDGE (ACROPORA, MASSIVES, PORITES ETC)
Fish	PARROT FISH, DAMSELS, BUTTERFLYFISH ETC
Invertebrates	A FEW HOLITHURIANS

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5089/WA 37630/RUN 6/4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I32	Site Name		Date	12.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1507hrs	Weather	SUNNY; 5kn S.E. WINDS		
Sea	SMOOTH	Water depth (m)	2.8m	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 30' 45.1" S		118° 57' 57.8" E		Yes		N	
Site location	IMPERIOUSE REEF						

Habitat Description

CORAL BOMMIE IN SAND

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (ACROPORA, MASSIVES, PORITES ETC)
Fish	PARROT FISH, DAMSELS, BUTTERFLYFISH ETC
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5088/WA 3763©/RUN 6/4.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997	
Site No.	I33	Site Name			Date	12.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1640hrs	Weather	SUNNY; 5kn S.E. WINDS		
Sea	SMOOTH		Water depth (m)	1.8m (bommie) 3.0m (sand)	Water visibility (m)	~15m		
GPS Latitude			GPS Longitude		Differential			
17° 32' 50.1" S			118° 57' 01.1" E		Yes		N	
Site location	IMPERIOUSE REEF							

Habitat Description

CORAL BOMMIE IN SAND

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (ACROPORA, MASSIVES, PORITES ETC)
Fish	SMALL PARROT FISH, DAMSELS, BUTTERFLYFISH ETC
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	I34	Site Name		Date	14 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	0833hrs	Weather	SUNNY; 5kn S.E. WINDS		
Sea	SLIGHT	Water depth (m)	3.2m	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 37' 17.4" S		118° 55' 03.6" E		Yes		N	
Site location	IMPERIOUSE REEF						

Habitat Description

CORAL EDGE IN SAND.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON EDGE (ACROPORA, MASSIVES, PORITES ETC)
Fish	SMALL PARROT FISH, DAMSELS, BUTTERFLYFISH ETC
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 12.10.97/ TAPE 1	Aerial reference	5152/WA 3763©/RUN 3/ 4.7.96 ✓
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997	
Site No.	C1	Site Name			Date	15.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1035hrs	Weather	SUNNY; 5kn S.E. WINDS		
Sea	SLIGHT		Water depth (m)	3.6m (sand)	Water visibility (m)			
GPS Latitude			GPS Longitude			Differential		
17° 16' 47.5" S			119° 22' 18.4" E			Yes		N
Site location	FIX TAKEN ON CORAL 'FINGER', SOUTH SIDE OF BOMMIE, IMPERIOUSE REEF							

Habitat Description

SCATTERED SMALL TO MEDIUM BOMMIES IN SAND

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIE (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND AND ON THE BOMMIES
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5154/WA 3759©/RUN 10/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C2	Site Name			Date	15 10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1052hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	3.5m (sand)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude			Differential	
17° 17' 58.9" S			119° 22' 28.7" E			Yes	N
Site location	FIX TAKEN ON SMALL CORAL LUMP, SOUTH SIDE OF BOMMIE, IMPERIOUSE REEF						

Habitat Description

SCATTERED SMALL TO MEDIUM BOMMIES IN SAND

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND AND ON THE BOMMIES
Invertebrates	

Other Features

Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5156/WA37590/RUN 10/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C3	Site Name			Date	15 10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1125hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	1.5m (bommie) 3.0m (sand)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 19' 33.3" S			119° 22' 23.7" E		Yes		N
Site location	FIX TAKEN ON SAND, NORTH SIDE OF 25m DIAM. BOMMIE, IMPERIOUSE REEF						

Habitat Description

SCATTERED SMALL TO MEDIUM BOMMIES IN SAND

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER
Fish	CLUSTERS OF SMALL FISH (DAMSELS, BUTTERFLY FISH ETC) AROUND AND ON THE BOMMIES
Invertebrates	

Other Features

Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5160/WA3759/RUN 10/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey	MMSP/K/RS-06/1997	
Site No.	C4	Site Name		Date	15.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1148hrs	Weather	SUNNY; 5kn S.E. WINDS		
Sea	SLIGHT	Water depth (m)	2.1m (reef) 5.5m (hole)	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 21' 03.8" S		119° 23' 01.8" E		Yes		N	
Site location	FIX TAKEN ON REEF 'FINGER' NORTH EAST SIDE OF DEEP HOLE ON REEF, IMPERIOUSE REEF						

Habitat Description

DEEP HOLE ON REEF TOP, WITHIN 20m OF REEF EDGE. THESE HOLES ARE CONNECTED TO THE OUTSIDE OF THE REEF BY SHORT, DEEP CHANNELS.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON REEF TOP, WITH CORAL GROWTH DECENDING DOWN THE SIDES OF THE HOLES (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER
Fish	PREDOMINATELY WRASSE AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. IN THE DEEPER AREAS.
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5176/WA3759© /RUN 11/ 3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C5	Site Name		Date	15.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1207hrs	Weather	SUNNY; 8kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	4.5m	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 22' 06.2" S			119° 22' 52.5" E		Yes		N
Site location	FIX TAKEN AT SOUTH WEST EXTREMITY OF HOLE ON REEF, IMPERIOUSE REEF						

Habitat Description

DEEP HOLE ON REEF TOP, WITHIN 20m OF REEF EDGE. THESE HOLES ARE CONNECTED TO THE OUTSIDE OF THE REEF BY SHORT, DEEP CHANNELS.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON REEF TOP, WITH CORAL GROWTH DECENDING DOWN THE SIDES OF THE HOLES (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER
Fish	PREDOMINATELY WRASSE AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. IN THE DEEPER AREAS.
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5173/WA3759©/RUN 11/ 3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey	MMSP/K/RS-06/1997		
Site No.	C6	Site Name			Date	15 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1207hrs	Weather	SUNNY; 8kn S.E. WINDS		
Sea	SLIGHT		Water depth (m)	1.2m (reef) 2.8m (hole)	Water visibility (m)	~15m		
GPS Latitude			GPS Longitude			Differential		
17° 22' 32.2" S			119° 22' 38.4" E			Yes		N
Site location	FIX TAKEN SOUTH END OF DOUBLE HOLE SYSTEM ON REEF, IMPERIOUSE REEF							

Habitat Description

DEEP HOLE ON REEF TOP, WITHIN 20m OF REEF EDGE. THESE HOLES ARE CONNECTED TO THE OUTSIDE OF THE REEF BY SHORT, DEEP CHANNELS.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON REEF TOP, WITH CORAL GROWTH DECENDING DOWN THE SIDES OF THE HOLES (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER
Fish	PREDOMINATELY WRASSE AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. IN THE DEEPER AREAS.
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5172/WA3759©/RUN 11/3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C7	Site Name		Date	15 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1207hrs	Weather	SUNNY; 8kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	1.7m (reef)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 23' 17.9" S			119° 22' 14.4" E		Yes	N	
Site location	FIX TAKEN 1m NORTH OF CLEFT IN REEF, SOUTH WEST CORNER OF HOLE ON REEF, IMPERIOUSE REEF						

Habitat Description

DEEP HOLE ON REEF TOP, WITHIN 20m OF REEF EDGE. THESE HOLES ARE CONNECTED TO THE OUTSIDE OF THE REEF BY SHORT, DEEP CHANNELS.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON REEF TOP, WITH CORAL GROWTH DECENDING DOWN THE SIDES OF THE HOLES (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER
Fish	PREDOMINATELY WRASSE AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. IN THE DEEPER AREAS.
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5168/WA3759©/RUN 10/ 3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C8	Site Name		Date	16.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1057hrs	Weather	SUNNY; 8kn S. WINDS		
Sea	SLIGHT	Water depth (m)	2.7m (sand)	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 22' 49.5" S		119° 20' 29.8" E		Yes		N	
Site location	CORAL BOMMIES ON BOUNDARY OF EXTENSIVE SAND AREA						

Habitat Description

CORAL BOMMIES/ LUMPS ON EDGE OF SAND

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES, WITH CLUMPS OF VIVID BLUE ACROPORA SCATTERED BETWEEN BOMMIES (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES
Fish	PREDOMINATELY WRASSE, DAMSELS, AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. AROUND THE BOMMIES.
Invertebrates	

Other Features

Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5126/WA3759©/RUN 8/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C9	Site Name	"BLUE LAGOON"	Date	15 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1315hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	0.5m (ctr bommie)	Water visibility (m)	~15m	
GPS Latitude		GPS Longitude			Differential		
17° 21' 49.1" S		119° 20' 03.8" E			Yes		N
Site location	CORAL BOMMIES ON BOUNDARY OF EXTENSIVE SAND AREA AND DEEPER LAGOON						

Habitat Description

CORAL BOMMIES/ LUMPS ON EDGE OF SAND/ LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES, WITH CLUMPS OF VIVID BLUE ACROPORA SCATTERED BETWEEN BOMMIES (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES
Fish	PREDOMINATELY WRASSE, DAMSELS, AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. AROUND THE BOMMIES.
Invertebrates	

Other Features

Impact or Activity

NONE

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5123/WA3759©/RUN 8/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C10	Site Name	"TWO FISH ROCK"	Date	15.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1338hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	0.35 (top of bommie)	Water visibility (m)	~15m	
GPS Latitude		GPS Longitude			Differential		
17° 20' 42.5" S		119° 19' 42.4" E			Yes		N
Site location	CORAL BOMMIES ON BOUNDARY OF EXTENSIVE SAND AREA AND DEEPER LAGOON						

Habitat Description

CORAL BOMMIES/ LUMPS ON EDGE OF SAND/ LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES, WITH CLUMPS OF VIVID BLUE ACROPORA SCATTERED BETWEEN BOMMIES (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES
Fish	PREDOMINATELY WRASSE, DAMSELS, AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. AROUND THE BOMMIES.
Invertebrates	

Other Features

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Impact or Activity

NONE

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5122/WA37590/RUN 8/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C11	Site Name	"MAGIC CIRCLE"	Date	15.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1358hrs	Weather	SUNNY; 5kn S.E. WINDS	
Sea	SLIGHT		Water depth (m)	0.65m(top of bommie)	Water visibility (m)	~15m	
GPS Latitude		GPS Longitude			Differential		
17° 19' 45.1" S		119° 19' 33.9" E			Yes	N	
Site location	CORAL BOMMIES ON BOUNDARY OF EXTENSIVE SAND AREA AND DEEPER LAGOON						

Habitat Description

CORAL BOMMIES/ LUMPS ON EDGE OF SAND/ LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES, WITH CLUMPS OF VIVID BLUE ACROPORA SCATTERED BETWEEN BOMMIES (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES
Fish	PREDOMINATELY WRASSE, DAMSELS, AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. AROUND THE BOMMIES. SAW 20kg CORAL TROUT, 40kg COD.TWO LARGE EMPEROR (SPANGLED?)
Invertebrates	

Other Features

HAD A SNORKEL DIVE HERE.

Impact or Activity

NONE

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5120/WA37590/RUN 8/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C12	Site Name	"MAGIC CIRCLE"	Date	15 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1451hrs	Weather	SUNNY; NO WIND	
Sea	SMOOTH		Water depth (m)	1.9m(sand)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 18' 35.4" S			119° 19' 35.1" E		Yes	N	
Site location	CORAL BOMMIES ON BOUNDARY OF EXTENSIVE SAND AREA AND DEEPER LAGOON. FIX TAKEN AT WESTERN EXTREMITY OF ~15m DIAM. BOMMIE						

Habitat Description

CORAL BOMMIES/ LUMPS ON EDGE OF SAND/ LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES, WITH CLUMPS OF VIVID BLUE ACROPORA SCATTERED BETWEEN BOMMIES (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES
Fish	PREDOMINATELY WRASSE, DAMSELS, AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. AROUND THE BOMMIES.
Invertebrates	

Other Features

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Impact or Activity

NONE NOTED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5118/WA 37590/RUN 8/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C13	Site Name		Date	15 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1502hrs	Weather	SUNNY; 5kn S.E. WIND	
Sea	SMOOTH		Water depth (m)	1.2m(sand)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 17' 19.5" S			119° 19' 54.0" E		Yes	N	
Site location	CORAL BOMMIES ON BOUNDARY OF EXTENSIVE SAND AREA AND DEEPER LAGOON. FIX TAKEN AT WESTERN EXTREMITY OF "L" SHAPED BOMMIE						

Habitat Description

CORAL BOMMIES/ LUMPS ON EDGE OF SAND/ LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES, WITH CLUMPS OF VIVID BLUE ACROPORA SCATTERED BETWEEN BOMMIES (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES
Fish	PREDOMINATELY WRASSE, DAMSELS, AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. AROUND THE BOMMIES.
Invertebrates	

Other Features

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Impact or Activity

NONE NOTED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5115/WA 3759C/RUN 8/ 3.7.96/
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C14	Site Name		Date	15.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1523hrs	Weather	SUNNY; 5kn S.E. WIND		
Sea	SMOOTH	Water depth (m)	0.4m (bommie)	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 16' 30.3" S		119° 20' 19.2" E		Yes		N	
Site location	CORAL BOMMIES ON BOUNDARY OF EXTENSIVE SAND AREA AND DEEPER LAGOON. FIX TAKEN AT WESTERN EXTREMITY OF SHAPED BOMMIE						

Habitat Description

CORAL BOMMIES/ LUMPS ON EDGE OF SAND/ LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES, WITH CLUMPS OF VIVID BLUE ACROPORA SCATTERED BETWEEN BOMMIES (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES
Fish	PREDOMINATELY WRASSE, DAMSELS, AND PARROT FISH SPECIES, WITH SMALL/MED. COD Sp AND SWEETLIP Sp. AROUND THE BOMMIES.
Invertebrates	

Other Features

Impact or Activity

NONE NOTED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5112/WA3759© /RUN 8/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C15	Site Name	"THE RACE"	Date	15.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1540hrs	Weather	SUNNY; 5kn S.E. WIND	
Sea	SMOOTH		Water depth (m)	0.6m (bommie) 1.4m (sand)	Water visibility (m)	~15m	
GPS Latitude		GPS Longitude			Differential		
17° 16' 30.3" S		119° 20' 19.2" E			Yes		N
Site location	CORAL BOMMIES IN DEEPER TIDAL CHANNEL NORTH WEST CORNER OF MAIN LAGOON, IMPERIOUSE REEF. FIX TAKEN AT CENTRE OF 1m BOMMIE AT S.W. END OF A STRING OF BOMMIES IN CHANNEL						

Habitat Description

CORAL BOMMIES/ LUMPS IN TIDAL CHANNEL.

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON BOMMIES, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES
Fish	NOT MANY FISH SIGHTED. FOLLOWED BY 3 REEF SHARKS..
Invertebrates	

Other Features

A SINGLE LARGE DOLPHIN (BOTTLENOSE?) OBSERVED INSIDE CHANNEL, (IN LAGOON).

Impact or Activity

NONE NOTED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5112/WA3759© /RUN 8/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C17	Site Name		Date	15.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1702hrs	Weather	SUNNY; 5kn S.E. WIND		
Sea	SMOOTH	Water depth (m)	4.9m (sand)	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 14' 50.4" S		119° 21' 13.7" E		Yes		N	
Site location	SAND HOLE NORTHERN END OF IMPERIOUSE REEF. FIX TAKEN AT NARROW SAND CHANNEL BETWEEN LOW PROFILE CORAL.						

Habitat Description

SAND HOLE /CORAL BOMMIES/

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES, VIVID BLUE ARBORESCENT ACROPORA SIGHTED
Fish	NOT MANY FISH SIGHTED. THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

NONE NOTED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5148/WA3759(c) /RUN 89 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C18	Site Name	"TOP END"	Date	15 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1713hrs	Weather	SUNNY; 5kn S.E. WIND	
Sea	SMOOTH		Water depth (m)	1.0m (reef) 3.0m (sand)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 15' 06.9" S			119° 21' 28.4" E		Yes		N
Site location	SAND HOLE EXTREME NORTHERN END OF IMPERIOUSE REEF. FIX TAKEN AT NARROW SAND CHANNEL BETWEEN LOW PROFILE CORAL.						

Habitat Description

SAND HOLE /CORAL BOMMIES/

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES
Fish	NOT MANY FISH SIGHTED. THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

Impact or Activity

NONE NOTED

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	/5151/WA3759©/RUN 10/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C19	Site Name	BEDWELL Is	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1504hrs	Weather	SUNNY; 5kn S.E. WIND		
Sea	SMOOTH	Water depth (m)	0 (waterline)	Water visibility (m)			
GPS Latitude		GPS Longitude		Differential			
17° 16' 05.1" S		119° 21' 36.7" E		Yes		N	
Site location	FIX TAKEN IN BAY AT NORTHERN END OF ROCKY HEADLAND, EAST SIDE OF ISLAND						

Habitat Description

TERRESTRIAL

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

Impact or Activity

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5153 /WA 3759© RUN10 /3.7.96 ✓
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C21	Site Name	BEDWELL Is	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1519hrs	Weather	SUNNY; 5kn S.E. WIND	
Sea	SMOOTH		Water depth (m)	0m (waterline)	Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 15' 57.8" S			119° 21' 27.9" E		Yes		N
Site location	FIX TAKEN AT NORTH END OF PROMINENT ROCK FINGER, NORTH SIDE OF ISLAND						

Habitat Description

TERRESTRIAL

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5153 /WA 3759© RUN10 /3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey	MMSP/K/RS-06/1997	
Site No.	C22	Site Name	"SOUTH END"	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1118hrs		Weather	SUNNY; 5kn S.E. WIND
Sea	SMOOTH		Water depth (m)	2.2m (reef) 3.4m (sand)		Water visibility (m)	~15m
GPS Latitude		GPS Longitude		Differential			
17° 23' 04.1" S		119° 21' 05.3" E		Yes		N	
Site location	SCATTERED LOW PROFILE BOMMIES IN EXTENSIVE SAND AREA. FIX TAKEN OFF NORTH END OF BOMMIE.						

Habitat Description

SAND HOLE /CORAL BOMMIES/

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc. SCHOOL OF SPOTTED SWEETLIP, CORAL TROUT AND A LARGE REEF SHARK UNDER LEDGE..
Invertebrates	HOLITHURIANS, CLAMS.

Other Features

SOME DEAD CORAL SLABS TO THE WEST PRODUCED CYPRAEA HISTRIO AND LAMBIS.

Impact or Activity

TIMBER PLANK ~3m x 100mm x 30mm FOUND IN THE SAND- WELL WEATHERED.

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5130/WA3759 /RUN 9/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey	MMSP/K/RS-06/1997	
Site No.	C23	Site Name	BEDWELL Is	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1430hrs	Weather	SUNNY; 5kn S.E. WIND	
Sea	SMOOTH		Water depth (m)	+2.0m	Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 16' 29.2" S			119° 21' 40.6" E		Yes		N
Site location	FIX TAKEN BETWEEN 2 LOW PROFILE ROCK 'FINGERS, EAST SIDE OF ISLAND						

Habitat Description

TERRESTRIAL

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5153 /WA 3759© RUN10 /3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

DGPS DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C24	Site Name	CLERKE ANCHORAGE	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1652hrs	Weather	SUNNY; 5kn S.E. WIND	
Sea	SMOOTH		Water depth (m)			Water visibility (m)	
GPS Latitude			GPS Longitude		Differential		
17° 16' 46.6" S			119° 29' 53.4" E		Yes		N
Site location	FIX TAKEN IN NOTCH ON NORTHERN SIDE OF BOMMIE, S.E. OF BOAT MOORIND						

Habitat Description

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

Impact or Activity

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5153 /WA 3759© RUN10 /3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

DGPS DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C25	Site Name	CLERKE ANCHORAGE (DINGHY CHANNEL)	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1719hrs	Weather	SUNNY; 5kn S.E. WIND	
Sea	SMOOTH		Water depth (m)			Water visibility (m)	
GPS Latitude			GPS Longitude			Differential	
17° 16' 31.9" S			119° 22' 01.7" E			Yes	N
Site location	FIX TAKEN ON SMALL BOMMIE, WESTERN END OF DINGHY CHANNEL						

Habitat Description

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

Impact or Activity

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5153 /WA 3759© RUN10 /3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

DGPS DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C26	Site Name	CLERKE ANCHORAGE (FLAG POINT)	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1659hrs	Weather	SUNNY; 5kn S.E. WIND	
Sea	SMOOTH		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 16' 53.7" S			119° 22' 06.7" E		Yes		N
Site location	FIX TAKEN ON NORTHERN SIDE OF BOMMIE, AT FLAG 'MOORING'						

Habitat Description

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

Impact or Activity

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5153 /WA 3759© RUN10 /3.7.96 ✓
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

DGPS DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C27	Site Name	CLERKE ANCHORAGE (LITTLE BOMMIE IN CTR)	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1724hrs	Weather	SUNNY; 5kn S.E. WIND	
Sea	SMOOTH		Water depth (m)		Water visibility (m)		
GPS Latitude		GPS Longitude			Differential		
17° 16' 38.1" S		119° 21' 55.7" E			Yes		N
Site location	FIX TAKEN ON NORTHERN END OF SMALL BOMMIE.						

Habitat Description

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

Impact or Activity

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5153 /WA 3759© RUN10 /3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

DGPS DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C28	Site Name	CLERKE ANCHORAGE (HOWSON ANCHORAGE)	Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0806hrs		Weather SUNNY; CALM	
Sea	SMOOTH		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude			Differential	
17° 16' 42.8" S			119° 21' 50.9" E			Yes	N
Site location	FIX TAKEN AT FLOAT.						

Habitat Description

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

Impact or Activity

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5153 /WA 3759© RUN10 /3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

DGPS DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	C29	Site Name	CLERKE ANCHORAGE (OLD MOORING)	Date	17.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0810hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)			Water visibility (m)	
GPS Latitude			GPS Longitude			Differential	
17° 16' 43.8" S			119° 21' 56.9" E			Yes	N
Site location	FIX TAKEN AT FLOAT.						

Habitat Description

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

Impact or Activity

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5153 /WA 3759© RUN10 /3.7.96 ✓
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T1	Site Name	WEST REEF TOP	Date	16.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 17' 24.5" S			119° 19' 19.8" E		Yes		N
Site location							

Habitat Description

REEF TOP- EXPOSED AT LOW TIDE.

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/ 16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/RUN2/ 3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T2	Site Name	ROCK ON REEF	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude		GPS Longitude			Differential		
17° 17' 24.9" S		119° 19' 31.0" E			Yes		N
Site location							

Habitat Description

PROMINENT ROCK EXPOSED ON REEF TOP

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/RUN2/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T3	Site Name	SCATTERED BOMMIES	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 17' 26.7" S			119° 19' 44.8" E		Yes		N
Site location							

Habitat Description

SCATTERED BOMMIES ON SAND

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/RUN2/ 3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T4	Site Name		Date	16.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude		GPS Longitude			Differential		
17° 17' 27.2" S		119° 19' 51.8" E			Yes		N
Site location							

Habitat Description

SCATTERED LUMPS AT EDGE OF LAGOON- SAND DROP OFF INTO WEST LAGOON.

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/RUN2/ 3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T5	Site Name	BIG LUMP	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude		GPS Longitude			Differential		
17° 17' 28.5" S		119° 20' 13.4" E			Yes		N
Site location							

Habitat Description

LARGE BOMMIE IN MIDDLE OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/RUN2/ 3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T5	Site Name	BIG LUMP	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 17' 28.5" S			119° 20' 13.4" E		Yes		N
Site location							

Habitat Description

LARGE BOMMIE IN MIDDLE OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/run2/3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T6	Site Name	SHALLOW SAND EDGE OF LAGOON	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 17' 27.7" S			119° 20' 34.4" E		Yes		N
Site location							

Habitat Description

SHALLOWER SAND EDGE OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/run2/3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T7	Site Name	SLOPE UP	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 17' 27.0" S			119° 20' 51.4" E		Yes		N
Site location							

Habitat Description

SLOPE UP TO SAND, CORAL & ROCK PAVEMENT

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/run2/3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T8	Site Name	SHALLOW SAND EDGE	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude		GPS Longitude		Differential			
17° 17' 26.6" S		119° 20' 54.3" E		Yes		N	
Site location							

Habitat Description

SHALLOW SAND EDGE

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/run2/3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T9	Site Name	DEEP HOLE	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 17' 27.2" S			119° 21' 11.4" E		Yes		N
Site location							

Habitat Description

DEEPER HOLE TO NORTH OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/run2/3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T10	Site Name	SANDY DROP-OFF	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude		GPS Longitude		Differential			
17° 17' 24.9" S		119° 21' 32.3" E		Yes		N	
Site location							

Habitat Description

SAND DROP-OFF IN EAST LAGOON. SHALLOW CORAL ON LIP~30m WIDE

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/RUN2/ 3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T11	Site Name	SAND STRIP	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 17' 19.2" S			119° 22' 16.6" E		Yes		N
Site location							

Habitat Description

SAND STRIP BETWEEN LAGOON AND EASTERN REEF TOP

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/RUN2/ 3.7.96
Slide reference		Print reference	



HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T12	Site Name	REEF TOP	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude		GPS Longitude			Differential		
17° 17' 17.5" S		119° 22' 21.3" E			Yes		N
Site location							

Habitat Description

SAND STRIP TO REEF TOP

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/RUN2/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	T13	Site Name	REEF TOP OUTER EDGE	Date	16 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time		Weather	SUNNY; 10kn S. WINDS	
Sea	SLIGHT		Water depth (m)		Water visibility (m)		
GPS Latitude			GPS Longitude		Differential		
17° 17' 16.0" S			119° 22' 38.1" E		Yes		N
Site location							

Habitat Description

REEF TOP OUTER EDGE, EASTERN.

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

NONE NOTICED

Video reference	MMSP/K/RS.6/16.10.97/ TAPE #2	Aerial reference	5079/WA3759(c)/RUN2/ 3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M0	Site Name	MERMAID ATOLL ANCHORAGE	Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1250hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)		Water visibility (m)		
GPS Latitude		GPS Longitude			Differential		
17° 04 26.5" S		119° 38' 14.4" E			Yes		N
Site location	FIX TAKEN ON BOARD VESSEL, AT ANCHOR						

Habitat Description

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Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

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Video reference		Aerial reference	5085/WA3759(c)/run3/3.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997	
Site No.	M1	Site Name			Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1632hrs	Weather	SUNNY; CALM		
Sea	SMOOTH		Water depth (m)	2.2m (sand)	Water visibility (m)	~15m		
GPS Latitude			GPS Longitude			Differential		
17° 04' 04.9" S			119° 38' 41.3" E			Yes		N
Site location	FIX TAKEN ON FIRST OF 2 SMALL LUMPS S.E. OF LARGE(15m DIAM) BOMMIE							

Habitat Description

SAND HOLE /CORAL BOMMIES/

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5058/WA3763© /RUN 15/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M2	Site Name			Date	17 10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1610hrs		Weather	SUNNY; CALM
Sea	SMOOTH		Water depth (m)	2.2m (sand)		Water visibility (m)	~15m
GPS Latitude			GPS Longitude			Differential	
17° 04' 38.5" S			119° 38' 57.5" E			Yes	N
Site location	FIX TAKEN ON SMALL LUMP S.E. OF LARGE(15m DIAM) BOMMIE						

Habitat Description

CORAL BOMMIES ON SAND, EAST SIDE OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 2	Aerial reference	5061/WA3763© /RUN 15/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M3	Site Name			Date	17 10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1555hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	1.95m (sand)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude			Differential	
17° 05' 49.4" S			119° 39' 08.2" E			Yes	N
Site location	FIX TAKEN S.E. CORNER OF LARGE(15m DIAM) BOMMIE						

Habitat Description

CORAL BOMMIES ON SAND, EAST SIDE OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5062/WA3763© /RUN 15/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M4	Site Name		Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1544hrs	Weather	SUNNY; CALM		
Sea	SMOOTH	Water depth (m)	2.5m (sand)	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 06' 50.5" S		119° 39' 19.6" E		Yes		N	
Site location	FIX TAKEN SOUTH.OF LARGE BOMMIE, ON SOUTHERN MOST OF TWO SMALL BOMMIES TO THE SOUTH						

Habitat Description

CORAL BOMMIES ON SAND, EAST SIDE OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5078/WA3763© /RUN 16/ 4.7.96 ✓
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M5	Site Name		Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1527hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	2.5m (sand)	Water visibility (m)	~15m	
GPS Latitude		GPS Longitude		Differential			
17° 07' 44.1" S		119° 39' 22.2" E		Yes		N	
Site location	FIX TAKEN EASTERN EXTREMITY OF LARGE BOMMIE.						

Habitat Description

CORAL BOMMIES ON SAND, EAST SIDE OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5076/WA3763© /RUN 16/ 4.7.96 ✓
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M6	Site Name			Date	17 10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1515hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	1.3m (bommie)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude			Differential	
17° 08' 49.1" S			119° 38' 51.8" E			Yes	N
Site location	FIX TAKEN NORTHERN EXTREMITY OF LARGE BOMMIE.						

Habitat Description

CORAL BOMMIES ON SAND, EAST SIDE OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5068/WA3763© /RUN 15/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M7	Site Name		Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1503hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	1.5m (bommie)	Water visibility (m)	~15m	
GPS Latitude		GPS Longitude			Differential		
17° 09' 15.8" S		119° 38' 17.6" E			Yes		N
Site location	FIX TAKEN NORTHERN EXTREMITY OF BOMMIE, NORTH OF SAND 'FINGER'.						

Habitat Description

CORAL BOMMIES ON SAND, SOUTH END OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5040/WA3763© /RUN 14/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey	MMSP/K/RS-06/1997		
Site No.	M8	Site Name			Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1447hrs	Weather	SUNNY; CALM		
Sea	SMOOTH		Water depth (m)	1.5m (bommie)	Water visibility (m)	~15m		
GPS Latitude			GPS Longitude			Differential		
17° 09' 03.2" S			119° 37' 32.7" E			Yes		N
Site location	FIX TAKEN NORTHERN EXTREMITY OF BOMMIE, NORTH OF SAND 'FINGER'.							

Habitat Description

CORAL BOMMIES ON SAND, SOUTH EAST END OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5040/WA3763© /RUN 14/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey	MMSP/K/RS-06/1997		
Site No.	M9	Site Name			Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1438hrs	Weather	SUNNY; CALM		
Sea	SMOOTH		Water depth (m)	0.9m (centre of bommie)	Water visibility (m)	~15m		
GPS Latitude			GPS Longitude			Differential		
17° 08' 02.2" S			119° 36' 44.0" E			Yes		N
Site location	FIX TAKEN NORTHERN EXTREMITY OF BOMMIE, NORTH OF SAND 'FINGER'.							

Habitat Description

CORAL BOMMIES ON SAND, SOUTH EAST END OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5033/WA3763© /RUN 13/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997	
Site No.	M10	Site Name			Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1430hrs	Weather	SUNNY; CALM		
Sea	SMOOTH		Water depth (m)	2.0m (sand)	Water visibility (m)	~15m		
GPS Latitude			GPS Longitude			Differential		
17° 08' 02.2" S			119° 36' 44.0" E			Yes		N
Site location	FIX TAKEN WESTERN END OF SMALL BOMMIE, TO THE WEST OF LARGE BOMMIE EXTREMITY OF BOMMIE.							

Habitat Description

CORAL BOMMIES ON SAND, SOUTH EAST END OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5031/WA3763© /RUN 13/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M11	Site Name		Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1413hrs	Weather	SUNNY; CALM		
Sea	SMOOTH	Water depth (m)	3.2m (sand)	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 06' 10.3" S		119° 36' 30.5" E		Yes		N	
Site location	FIX TAKEN NORTHERN END OF LARGEST BOMMIE, (SMALLER LUMPS TO THE EAST AND SOUTH).						

Habitat Description

CORAL BOMMIES ON SAND, SOUTH EAST END OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES. CLUMPS OF VIVID BLUE ARBORESCENT ACROPORA
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

Impact or Activity

Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5029/WA3763© /RUN 13/ 4.7.96 ✓
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M12	Site Name		Date	17.10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1400hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	3.9m (bommie)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 04 48.2" S			119° 36' 44.2" E		Yes		N
Site location	FIX TAKEN CENTRE OF SMALL BOMMIE, IN SAND, EAST OF LARGE BOMMIE.						

Habitat Description

CORAL BOMMIES ON SAND, EAST END OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES.
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5025/WA3763© /RUN 13/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M13	Site Name		Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1350hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	3.8m (bommie)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 03 57.7" S			119° 37' 17.9" E		Yes	N	
Site location	FIX TAKEN CENTRE OF SMALL BOMMIE, IN SANDHOLE.						

Habitat Description

CORAL BOMMIES ON SAND, WEST SIDE OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES.
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5025/WA3763© /RUN 13/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M14	Site Name			Date	17 10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER	Time	1341hrs	Weather	SUNNY; CALM		
Sea	SMOOTH	Water depth (m)	1.6m (bommie)	Water visibility (m)	~15m		
GPS Latitude		GPS Longitude		Differential			
17° 03' 23.3" S		119° 37' 24.2" E		Yes		N	
Site location	FIX TAKEN CENTRE OF SMALL BOMMIE, IN LIGHT PATCH.						

Habitat Description

CORAL BOMMIES ON SAND, NORTH END OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES.
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5023/WA3763© /RUN 13/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M15	Site Name			Date	17 10.97	Recorder MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1334hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	1.7m (reef)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude			Differential	
17° 02' 46.5" S			119° 37' 44.9" E			Yes	N
Site location	FIX TAKEN EAST SIDE OF BOMMIE.						

Habitat Description

CORAL BOMMIES ON SAND, NORTH END OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES, PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES.
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5053/WA3763© /RUN 14/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M16	Site Name		Date	17 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1308hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	3.8m (sand)	Water visibility (m)	~15m	
GPS Latitude			GPS Longitude		Differential		
17° 02' 25.9" S			119° 37' 25.0" E		Yes		N
Site location	FIX TAKEN NORTH END OF BOMMIE.						

Habitat Description

CORAL BOMMIES ON SAND, NORTH END OF LAGOON

Dominant Species

Seagrass	
Macro-algae	
Coral	PROLIFIC CORAL ON LOW PROFILE REEF, (MOSTLY MASSIVES , PORITES AND SMALL ACROPORA) 100% CORAL COVER ON BOMMIES.
Fish	THE USUAL DAMSELS, BUTTERFLYFISH etc..
Invertebrates	

Other Features

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Impact or Activity

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Video reference	MMSP/K/RS.6/ 15.10.97/ TAPE 3	Aerial reference	5053/WA3763© /RUN 14/ 4.7.96
Slide reference		Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M50	Site Name	"APE ROCK"	Date	18 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0746hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	(low tide)	Water visibility (m)		
GPS Latitude			GPS Longitude			Differential	
17° 05 16.1" S			119° 35' 44.9" E			Yes	N
Site location	1.5m HIGH ROCK ON REEF (232° TO REEF TOP ANCHORS, 100m)						

Habitat Description

FLAT REEF TOP

Dominant Species

Seagrass	AREAS OF THALASSIA HEMPRICHII IN SAND FURTHER EAST TOWARDS LAGOON
Macro-algae	
Coral	BUSHY ACROPORA, PORITES ETC
Fish	UNUSUAL EEL
Invertebrates	NUMEROUS TIGER COWRIES (<i>Cypraea tigris</i>) AND SPIDER CONCHS (<i>Lambis chiragra</i>)

Other Features

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Impact or Activity

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Video reference		Aerial reference	5011/ WA3763©/RUN 12/ 4.7.96
Slide reference	RS P12/#48-60:P16#121-137:P17#141-3	Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M51	Site Name	"LIVELY REEF TO ANCHORS"	Date	18 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	0810hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	(low tide)	Water visibility (m)		
GPS Latitude		GPS Longitude			Differential		
17° 05 23.4" S		119° 35' 34.7" E			Yes		N
Site location	"LIVELY" REEF TOP ANCHORS						

Habitat Description

FLAT REEF TOP

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

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Video reference		Aerial reference	5011/ WA37630/RUN 12/ 4.7.96
Slide reference	RS P18/#144-149	Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

HABITAT DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION				Field Survey		MMSP/K/RS-06/1997
Site No.	M52	Site Name	"LIVELY WRECKSITE"	Date	18 10.97	Recorder	MIKE LAPWOOD
Vessel	ACV ANDREW FISHER		Time	1130hrs	Weather	SUNNY; CALM	
Sea	SMOOTH		Water depth (m)	(low tide)	Water visibility (m)		
GPS Latitude		GPS Longitude			Differential		
17° 05 22.9" S		119° 35' 29.4" E			Yes		N
Site location	"LIVELY" ACTUAL WRECKSITE IN GUTTER, WEST OF REEF TOP ANCHORS						

Habitat Description

FLAT REEF TOP

Dominant Species

Seagrass	
Macro-algae	
Coral	
Fish	
Invertebrates	

Other Features

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Impact or Activity

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Video reference		Aerial reference	5011/ WA3763©/RUN 12/ 4.7.96
Slide reference	RS P17/#155-160	Print reference	



Marine Conservation Branch, Department of Conservation and Land Management

APPENDIX II

Video data sheets from spatial rectification survey

VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997
Site No.	11	Site Name		Date	11/10/97	Recorder	MIKE LAPWOOD
Start time	1521 HRS	Finish time	1522 HRS	Depth (m)	2.4m (REEF) 6.2m (SAND)	Visibility (m)	20 m

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	MIKE LAPWOOD	Tape no.	MMSP/K/RS.6/1997/ TAPE 1	Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.00.00.00	To:	00.00.34.18
Tansect time coding	Start		Finish		Total time (mins/secs)
T1					
T2					
T3					

Notes:

FOOTAGE TAKEN FROM DRIFTING DINGHY.



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997
Site No.	12	Site Name		Date	11/10/97	Recorder	MIKE LAPWOOD
Start time	1541HRS	Finish time	15244HRS	Depth (m)	4.2m (REEF) 6.2m (SAND)	Visibility (m)	20 m

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	MIKE LAPWOOD	Tape no.	MMSP/K/RS.6/1997/ TAPE 1	Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.00.34.18	To:	00.01.11.01
Tansect time coding	Start		Finish		Total time (mins/secs)
T1					
T2					
T3					

Notes:

FOOTAGE TAKEN FROM DRIFTING DINGHY.



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997	
Site No.	13	Site Name			Date	12/10/97	Recorder	MIKE LAPWOOD
Start time	0715HRS	Finish time	0718HRS	Depth (m)	1.8m (lump) 1.3 m (shelf)	Visibility (m)	~18 m	

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1		Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.01.10.16		To:	00.02.02.22
Tansect time coding	Start		Finish		Total time (mins/secs)	
T1						
T2						
T3						

Notes:



Marine Conservation Branch, Department of Conservation and Land Management

VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997	
Site No.	14	Site Name			Date	12/10/97	Recorder	MIKE LAPWOOD
Start time	0746HRS	Finish time	0750HRS	Depth (m)	1.0m (lump) 2.4 m (sand)	Visibility (m)	~18 m	

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1		Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.02.02.22		To:	00.02.41.01
Transect time coding	Start		Finish		Total time (mins/secs)	
T1						
T2						
T3						

Notes:



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997
Site No.	15	Site Name		Date	12/10/97	Recorder	MIKE LAPWOOD
Start time	0904HRS	Finish time	0906HRS	Depth (m)	0.8m	Visibility (m)	~18 m

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode			Exposure mode				Program mode			White balance mode					
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system			Filters								Lights				
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1	Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.02.41.01	To:	00.03.38.14
Tansect time coding	Start		Finish		Total time (mins/secs)
T1					
T2					
T3					

Notes:



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997	
Site No.	16	Site Name			Date	12/10/97	Recorder	MIKE LAPWOOD
Start time	0924HRS	Finish time	0928HRS	Depth (m)	1.1m	Visibility (m)	~18 m	

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1		Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.03.38.14		To:	00.04.42.14
Transect time coding	Start		Finish		Total time (mins/secs)	
T1						
T2						
T3						

Notes:



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997	
Site No.	17	Site Name			Date	14/10/97	Recorder	MIKE LAPWOOD
Start time	0728HRS	Finish time	0731HRS	Depth (m)	1.4m bommie	Visibility (m)	~18 m	

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode			Exposure mode				Program mode			White balance mode					
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1		Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.17.48.18		To:	00.18.20.14
Transect time coding	Start		Finish		Total time (mins/secs)	
T1						
T2						
T3						

Notes:



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997	
Site No.	18	Site Name			Date	14/10/97	Recorder	MIKE LAPWOOD
Start time	0754HRS	Finish time	0756HRS	Depth (m)	1.4m bommie	Visibility (m)	~20 m	

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1	Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.18.20.14	To:	00.19.12.24
Tansect time coding	Start		Finish		Total time (mins/secs)
T1					
T2					
T3					

Notes:



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997
Site No.	19	Site Name	"GREEN BAY"	Date	14/10/97	Recorder	MIKE LAPWOOD
Start time	0812HRS	Finish time	0815HRS	Depth (m)	2.0m bommie	Visibility (m)	~20 m

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode			Exposure mode			Program mode			White balance mode						
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system			Filters							Lights					
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1	Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.19.12.24	To:	00.20.00.00
Tansect time coding	Start		Finish		Total time (mins/secs)
T1					
T2					
T3					

Notes:



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997
Site No.	I 10	Site Name	"SHARK ALLEY"	Date	14/10/97	Recorder	MIKE LAPWOOD
Start time	0904HRS	Finish time	0909HRS	Depth (m)	2.3m reef 5.5m sand	Visibility (m)	~15 m

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1	Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.22.40.00	To:	00.25.28.12
Transect time coding	Start		Finish		Total time (mins/secs)
T1					
T2					
T3					

Notes:

SOME GOOD FOOTAGE OF REEF SHARKS, BUT A LITTLE DIRTY.



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997
Site No.	113	Site Name		Date	14/10/97	Recorder	MIKE LAPWOOD
Start time	1022HRS	Finish time	1025HRS	Depth (m)	1.5m bommie 2.0m sand	Visibility (m)	~15 m

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode			Exposure mode			Program mode			White balance mode						
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system			Filters						Lights						
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1	Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.28.20.02	To:	00.29.02.14
Transect time coding	Start		Finish		Total time (mins/secs)
T1					
T2					
T3					

Notes:

SOME GOOD FOOTAGE OF REEF SHARKS, BUT A LITTLE DIRTY.



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997
Site No.	I 14	Site Name		Date	14/10/97	Recorder	MIKE LAPWOOD
Start time	1035HRS	Finish time	1042HRS	Depth (m)	2.0m sand	Visibility (m)	~15 m

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1	Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.29.02.14	To:	00.31.06.08
Tansect time coding	Start		Finish		Total time (mins/secs)
T1					
T2					
T3					

Notes:

INCLUDES FOOTAGE OF "ALGAE" ON SAND FLATS CLOSE BY.



VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997	
Site No.	I 30	Site Name			Date	12/10/97	Recorder	MIKE LAPWOOD
Start time	0943HRS	Finish time	0947HRS	Depth (m)	1.75m (sand)	Visibility (m)	~18 m	

Underwater Video System		Blaupunkt CC894 camcorder in StingRay SR-700 housing													
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 1		Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.09.16.14		To:	00.10.19.03
Transect time coding	Start		Finish		Total time (mins/secs)	
T1						
T2						
T3						

Notes:

WE ALL HAD A SNORKEL DIVE HERE FOR 45 MIN.



Marine Conservation Branch, Department of Conservation and Land Management

VIDEO DATA SHEET

Project	ROWLEY SHOALS SPATIAL RECTIFICATION SURVEY				Field Survey		MMSP/K/RS-06/1997
Site No.	C 50	Site Name		Date	16/10/97	Recorder	MIKE LAPWOOD
Start time	1130HRS	Finish time	1146HRS	Depth (m)	3.0 (reef)	Visibility (m)	-20 m

Underwater Video System				Blaupunkt CC894 camcorder in StingRay SR-700 housing											
Focus mode				Exposure mode				Program mode				White balance mode			
Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Manual	<input type="checkbox"/>	Sports	<input checked="" type="checkbox"/>	High-speed	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>
Lens system				Filters								Lights			
Wide-angle	<input checked="" type="checkbox"/>	Zoom-macro	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Orange	<input type="checkbox"/>	On	<input type="checkbox"/>	Off	<input checked="" type="checkbox"/>

Video operator	WARWICK ROE	Tape no.	MMSP/K/RS.6/1997/ TAPE 2	Height above substrate (cm)	VAR.
Time coding for all video footage at site:		From:	00.21.04	To:	00.25.09
Transect time coding	Start		Finish		Total time (mins/secs)
T1					
T2					
T3					

Notes:

