MARINE MANAGEMENT SUPPORT:
NINGALOO

FIELD SURVEY OF THE MACROALGAL DISTRIBUTIONS IN NINGALOO MARINE PARK (17 – 23 February 2001)

Field Program Report: MMS/NIN/NIN-36/2001

Prepared by
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February 2001

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ACKNOWLEDGEMENTS

Direction

- Kieran McNamara - Director, Nature Conservation Division.
- Dr Chris Simpson - Manager, Marine Conservation Branch (MCB), Nature Conservation Division.

CALM Collaboration

- Kevin Bancroft - Marine Ecologist, Marine Conservation Branch.
- Judith Davidson - Marine Conservation Officer, Marine Conservation Branch.
- Doug Myers - Manager, Exmouth District.
- Adam Meyer - Reserves Officer (Marine), Exmouth District

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Copies of this report may be obtained from:

Marine Conservation Branch
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47 Henry St., Fremantle, Western Australia, 6160
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SUMMARY

This report presents the details of a macroalgae survey to be undertaken from 17 to 23 February 2001, in Ningaloo Marine Park within the lagoonal areas from Point Maud to Jurabi Point. The survey is being carried out to investigate the spatial distributions of macroalgae in this sub region of the Ningaloo marine Park.

The primary objective of this survey is to detail the location and spatial extent of seasonal macroalgal beds in selected lagoonal areas of Ningaloo Marine Park, with the objective of being able to verify the prediction model for the distribution of macroalgae in Ningaloo Marine Park. The secondary objective is to opportunistically collect video footage and stills of the marine and coastal habitats of Ningaloo Marine Park for educational purposes.

The data acquired during this survey will contribute to the information needed in the mapping of macroalgal beds in Ningaloo Marine Park and more importantly, will provide data that will help ascertain the level of confidence that can be applied to the modelling of macroalgal beds for the habitat map. It will also contribute to the information base required for the long-term management of the marine park.

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1 INTRODUCTION

1.1 GENERAL BACKGROUND

This report presents the details of a macroalgae survey to be undertaken from 17 to 23 February 2001, in Ningaloo Marine Park within the lagoonal areas from Point Maud to Jurabi Point. The survey is being carried out to investigate the spatial distributions of macroalgae in this sub region of the Ningaloo Marine Park.

The Marine Conservation Branch (MCB) of the Department of Conservation and Land Management (CALM) has developed a broadscale habitat map for Ningaloo Marine Park. The information collected during this survey will contribute to the information needed in the mapping of macroalgal beds in Ningaloo Marine Park and more importantly, will provide data that will help ascertain the level of confidence that can be applied to the modelling of macroalgal beds for the habitat map. The data acquired during this survey will also contribute to the information base required for the long-term management of the marine park.

1.2 OBJECTIVES

1.2.1 Primary objective

The primary objective of this field survey is:

- to detail the location and spatial extent of seasonal macroalgal beds in selected lagoonal areas of Ningaloo Marine Park, with the objective of being able to verify the prediction model for the distribution of macroalgae in Ningaloo Marine Park.

1.2.2 Secondary objective

The secondary objective of this field survey is:

- to opportunistically collect video footage and stills of the marine and coastal habitats of Ningaloo Marine Park for educational purposes.

2 METHODS

2.1 SURVEY AREA

The study area for this field survey lies within the Ningaloo Marine Park and extends from Point Maud to Jurabi Point.

2.2 SITE SELECTION

The sites selected for this field survey lie within the lagoonal areas of Ningaloo Marine Park, where seasonal macroalgal beds occur. These areas have been chosen in an attempt to ascertain the level of confidence that can be applied to the modelling of the macroalgal habitat, as identified in the Ningaloo Marine Park habitat map developed by MCB. The macroalgal meadows already identified on MCB's habitat map are therefore the targeted areas for this survey and sites have been selected accordingly.

These sites are located in the lagoonal areas near:

(i) Tandabiddi;

(ii) Yardi Creek;

(iii) Dugong Sanctuary Zone, and;

(iv) Bateman Bay.

2.3 SAMPLING METHODS

At each site a visual observation of the seabed will be made using a glass bottom bucket placed over the side of the field survey vessel. Where visibility is poor due to water depth or murky water a drop-down camera will be lowered over the side of the vessel and 30 seconds of video footage of the seabed will be recorded. Operating instructions for the digital drop-down camera and video system are included as Appendix I. Opportunistic collection of video footage for educational purposes will be taken using the hand-held video camera whilst snorkelling. Operating instructions for the Canon MV1 hand held video camera are included as Appendix II. Site number, date, time, water depth, GPS coordinates and habitat description will be recorded on proforma habitat data sheets (Appendix III) for each site.

3 PROJECT MANAGEMENT

3.1 SURVEY TEAM

The survey team will be comprised of 3 CALM personnel (two from the Marine Conservation Branch and one from the Exmouth District).

3.1.1 CALM Marine Conservation Branch personnel

Kevin Bancroft	Project Leader	Ph (w):	(08) 9432 5102
	Marine Ecologist	Mob:	0417 401 200
		Fax:	(08) 9430 5408
		Ph (h):	(08) 9448 8192
Judith Davidson	Team member	Ph (w):	(08) 9432 5117
	Marine Conservation Officer	Fax:	(08) 9430 5408
		Ph (h):	(08) 9354 3567

3.1.2 Other CALM personnel

Adam Meyer	Vessel Master	Ph (w):	(08) 9949 1676
	Reserves Officer (Marine)	Fax:	(08) 9949 1580
	CALM Exmouth	Ph (h):	(08) 9949 2847

3.2 FLIGHT ITINERARY

Flight details are as follows:

Name: Kevin Bancroft

Booking reference: QMG7BO
Name: Judith Davidson
Booking reference: QMGGLW
Airline: ANSETT AIRLINES

Perth to Learmonth
Departure flight: AN6571
Departure date and time: Saturday, 17 February at 1035
Arrival time: 1355

Learmonth to Perth
Departure flight: AN6564
Departure date and time Friday, 23 February at 1130
Arrival time: 1445

3.3 FIELD ITINERARY

Table 1: Field itinerary for the survey of macroalgal distributions in the Ningaloo Marine Park.

Date	Activity	Accommodation
Saturday 17/02/01	Fly to Exmouth (depart @ 1035hrs Arrive 1355hrs)	Potshot Hotel
Sunday 18/02/01	Prepare gear and drive to Coral Bay via Sth Point Cloates.	Coral Bay
Monday 19/02/01	Survey north of Bruboodjoo Point	Coral Bay
Tuesday 20/02/01	Survey Bateman Bay	Coral Bay
Wednesday 21/02/01	Drive back to Exmouth and survey Tandabiddi	Potshot Hotel
Thursday 22/02/01	Survey Yardie Creek	Potshot Hotel
Friday 23/02/01	Unpack gear, arrange cartage and depart for Perth (depart @ 1130hrs Arrive 1445hrs)	

3.4 SAFETY

3.4.1 General

Field operations shall be carried out in accordance with departmental procedures and protocols. Overall responsibility for field procedures during this field trip and the personal safety of all team members rests with the Project Leader.

3.4.2 Boating

All boating operations shall be carried out in accordance with Department of Transport regulations and also conform to CALM's draft procedure for safe marine operations, titled: *Safe marine operations in CALM* (CALM in prep.).

Alterations to the itinerary based on safety aspects related to weather conditions and sea-state are the responsibility of the Vessel Master in consultation with the Project Leader.

3.5 COMMUNICATIONS AND EMERGENCY CONTACTS

3.5.1 General

- The survey team will contact CALM Exmouth District office at 1200 hrs everyday to collect any messages
- A hand-held CALM VHF radio will be carried on board the field vessel.
- The vehicle is equipped with a CALM VHF radio.
- The survey team will also have mobile phones but coverage may be intermittent in places (Kevin Bancroft 0417 401 200).

The method of communication with the survey team is as follows:

- Before 0700 hrs ring the accommodation or mobile (0417 401 200).
- Between 0700 hrs and 1200 hrs contact CALM Exmouth District office and leave a message (the survey team will contact the Exmouth District office at approximately 1200 hrs everyday).
- After 1200 hrs leave a message at the accommodation or mobile.

3.5.2 CALM offices

Marine Conservation Branch, Fremantle:	Ph: (08) 9432 5100 Fax: (08) 9430 5408.
CALM Exmouth:	Ph: (08) 9949 1676. Fax: (08) 9949 1580. CALM VHF channel 17.

3.5.3 Volunteer sea rescue groups

Coral Bay:	Ph: (08) 9942 5810 or (08) 9942 5988. 27 Mhz channels 90 & 88
Exmouth:	Ph: (08) 9949 2426 27 Mhz channel 88

3.6 ACCOMMODATION

Exmouth:	Potshot Hotel Murat Road, Exmouth Ph: (08) 9949 1200 Fax: (08) 9949 1486
Coral Bay:	Coral Bay Hotel Maud Landing Ph: (08) 9942 5934 Fax: (08) 9942 5953

3.7 BUDGET

The budget breakdown is given in Table 2.

Table 2: Budget breakdown for the survey of macroalgal distributions in the Ningaloo Marine Park.

Budget Item			**CALM ($ in kind)**	**MCB costs ($)**	**Total costs ($)**
Travel					
Airfares				1480	
Vehicle	District 4WD – 2000 km		1000	0	
Accommodation	Exmouth – 3days @ $137			411	
	Coral Bay – 3days @ $180			540	
Provisions	3 days @ $175			526	
	4 days @ 117			468	
		Sub-total	1000	3425	2945
Staff					
KBA	9 days @ 264		2376		
JDA	9 days @ 168		1512		
AME	7 days @ 229		1603		
		Sub-total	5491		5491
Vessel & other equipment					
Exmouth district inflatable & 15 hp o/b	7 days @ $100		700		
Fuel & oil	100 L			100	
GPS unit	7 days @ $35		245		
Hand-held CALM VHF radio	12 days @ $10			120	
Drop-down camera equipment (plus spares)	7 days @ $150		1050		
Hand-held video camera and u/water housing	7 days @ $100		700		
Satellite phone	Lease: 12 days @ $10 & Calls: $1.68/min			200	
Cartage of equipment				450	
		Sub-total	2695	850	3795
Consumables					
Stationary and sundries				250	
Video tapes	10 x DVM, 3 x VHS			250	
Slide film	2 x Fuji Sensia 200 & processing @ $35			70	
Other consumables	pencils/chalk/erasers/batteries…etc			200	
		Sub-total		770	770
		TOTAL	**9186**	**5045**	**14231**

3.8 EQUIPMENT

3.8.1 Marine Conservation Branch

Video camera
- Canon MV1 digital video camcorder, with batteries (6), battery charger (4 x 12 Volt), remote control and accessories
- Amphibico Explorer MV1 housing
- 10 x 60 min digital video tapes
- 3 x VHS tapes
- Drop down digital camera
- Drop down camera analogue (spare)
- 12 Volt TV TEAC
- 12 Volt VDUContec
- Sanyo MDV Recorder

Still photography
- Canon EOS land camera and lens
- 3 x rolls of 36 exposure slide film - Fuji Sensia
- Kit of camera spares

Safety/communications
- Hand held VHF radio
- Satellite phone (0404 820 731)
- Sunscreen

Information
- Marine Charts
- Field identification guides for tropical water fishes, macro-algae, seagrass, benthic invertebrates
- CALM GIS habitat maps
- Aerial photographs of coastline
- Laptop computer and accessories
- High density discs

Position fixing
- 1 x Garmin hand held GPS
- Batteries

Data recording
- Habitat data sheets
- Pencils
- Chalk
- Clapper board

Snorkelling
- Personal snorkeling equipment
- Clip boards
- Torch

3.8.2 CALM Exmouth

Vehicle
- 4WD vehicle (fitted with CALM VHF)
- Off road safety gear

Boating
- inflatable
- Trailer
- 15 horsepower outboard motor
- Fuel tanks
- Boating safety gear
- Repair kit
- Two-stroke outboard oil
- Dive flag

Safety
- Comprehensive first aid kit
- Emergency response flow-sheet
- Emergency contact flow chart
- Patient information log
- Log sheets for accidents

Miscellaneous
- Esky
- Water bottle
- Shade (tarp & poles)

4 DATA MANAGEMENT

4.1 FIELD PROGRAMME REPORT

Hard copies of this Field Programme Report will be held at three locations:

1. Marine Conservation Branch, Department of Conservation and Land Management, 47 Henry St., Fremantle, Western Australia, 6160. Ph (08) 9432 5100 Fax (08) 9430 5408.

2. Woodvale Library, Science and Information Division, Ocean Reef Rd., Department of Conservation and Land Management, Woodvale, Western Australia, 6026. Ph (08) 9405 5100 Fax (08) 9306 1641.

3. Archived with CD ROM, Woodvale Library, Science and Information Division, Ocean Reef Rd., Department of Conservation and Land Management, Woodvale, Western Australia, 6026. Ph (08) 9405 5100 Fax (08) 9306 1641.

The Marine Conservation Branch will hold digital copies of the Field Programme Report:

1. On CD-ROM [mms_3601] held onsite at the Marine Conservation Branch

2. On the MCB homepage located within the framework of the Department of Conservation and Land Management Intranet (i.e. CALMweb): http://calmweb.calm.wa.gov.au/drb/ncd/mcb/rep_mms.htm#2001

4.2 DATA

Collected raw data will be:

1. entered into the habitats database 'Streettalk\userdata@FREM.MCB@CALM' T:\databases\habitats.mdb.

2. written into a Marine Management Support Data Report and copies will be held at the same locations as for the Field Programme Report.

4.3 VIDEO RECORDS

Collected mini digital video (MDV) footage will be held at two locations:

1. Video masters (MDV) to be archived at the Information Management Branch (File: 1999F000508, Box: HOLD 08), Department of Conservation and Land Management, 50 Hayman Road, Como, Western Australia.

2. MDV copies to be stored at the Marine Conservation Branch, Department of Conservation and Land Management, 47 Henry Street, Fremantle, Western Australia.

4.4 SLIDE RECORDS

All photographic slides to be stored at the Marine Conservation Branch, Department of Conservation and Land Management, 47 Henry Street, Fremantle, Western Australia..

5 REPORT DISTRIBUTION LIST

Copies of this report will be distributed to:

- Chris Simpson, Manger, Marine Conservation Branch.
- Doug Myers, Manager, Exmouth District.
- All survey team members (3)

6 PUBLICITY/EDUCATION

6.1 PUBLIC RELATIONS OPPORTUNITIES

An article will be presented in the MCB newsletter, *Marine Conservation Matters*.

A media statement will be released prior the field trip (Appendix IV).

6.2 EDUCATION OPPORTUNITIES

No education opportunities have been identified.

7 REFERENCES

CALM, (in prep.). Safe marine operations in CALM. Marine Conservation Branch, Department of Conservation and Land Management. Perth, Western Australia. (Unpublished report).

APPENDENCIES

APPENDIX I: DROPDOWN CAMERA ANDVIDEO INSTRUCTIONS

Setup

1. Connect sheathed coax cable to splitter box and camera.
2. Ensure the sheath is tied to the camera in a way that prevents any load on the coax itself.
3. Connect splitter box to TV/video unit via a short lead (aerial in socket).
4. Connect TV/video unit to 12 volt power supply.
5. Tune TV to channel 0.
6. Connect camera power leads to 12 volt battery.
7. Ensure that the polarity of the battery leads are correct or the 1 amp splitter box fuse will rupture.

Operation

1. Write site number, date and location on the clapper board.
2. Place clapper board in front of camera and record for about 30 seconds then press pause.
3. Lower the camera to the bottom and press paused to recommence recording.
4. Record 30 seconds of benthic habitat footage.
5. Fill out habitat data sheet.
6. Switch video and camera power off.
7. Retrieve camera.
8. Check footage regularly to ensure correct operation.

Equipment Care

1. Don't allow twists or knots in the cable. Figure eight the cable on the deck or in a nally bin.
2. Don't step on the cable.
3. Clean and silicon grease camera connection plug daily.
4. Do not use CRC, WD40 or similar on electrical connections.
5. Don't attach weighted or other objects to camera or cable.
6. Beware of propeller.
7. Don't allow camera to hit the side of the coat when deploying or retrieving.
8. Don't allow camera to hit or drag along the bottom.
9. Always keep remote control in a sealed plastic bag (one from a wet hand will destroy it).
10. 240 volt power s not to be used on boats. Use only 12 volt power supply
11. Keep splitter box and batteries in a dry place.
12. Disconnect power to camera when not in use.

APPENDIX II: CANON MV1 DIGITAL VIDEO CAMERA AND UNDERWATER HOUSING INSTRUCTIONS

PREPARATION OF UNDERWATER HOUSING AND VIDEO CAMCORDER

Where possible, store and prepare the equipment at room temperature to prevent condensation on the lenses of the camcorder and housing. Carry out these preparations in a dry, dust and spray-free environment.

The following is to be used as a general guide only. Users should refer to the relevant instruction manual for full details on settings, care and use.

Housing

Check the inside of the housing for any dust or other particulate matter, and clean out using a lens cloth and blower brush if necessary. Check the inside of the lens and clean using blower brush, lens tissues and lens cleaning fluid if necessary.

Remove the O-ring from the housing, clean it with lens tissues and check for any cracks or scratches. If there is any damage to the O-ring, discard and replace with a new one. Apply a small amount of silicone grease (2-3 mm) between thumb and index finger and run the O-ring through several times to spread this evenly. **Ensure that you do not use too much grease as this could cause the seal to leak!** Remember that the grease is there to keep the O-ring supple and not to actually form a seal.

Clean out the O-ring groove with a cotton bud, and carefully replace the clean and greased O-ring back into the groove without twisting it. Ensure that there is no particulate matter sticking to the O-ring. The housing is now ready for the camcorder to be inserted.

Camera setup

Set the OPERATE switch to CAMERA
Set the STANDBY LEVER (front right) to MOVIE
Press MENU button
Use the small joy stick controller, on the left hand side of the camera, to move around the menu
Set movie mode to PRO SCAN
Set the PROGRAM SELECT switch to AUTO ("A" inside a square)

POST-DIVE PROCEDURE

After every dive immerse the housing in fresh water for about 10-15 minutes. Occasionally operate the external controls to ensure they are well rinsed.

Wipe the housing with a clean, dry towel and leave in a clean, dry, airy and salt-free environment to dry completely.

Wipe carefully around the rear seal of the housing before opening so that no water gets onto the camcorder. Open the housing and remove the camera. **Do not open the housing where salt spray is present.**

Rewind the tape using the either the controls on the back of the camcorder or the remote commander. Connect the camcorder to the TV monitor (refer to camcorder instruction manual) and view the footage. Transcribe the system settings and time code information onto the main Video Transect Data Sheet. Label the tape clearly (using a permanent marker pen) with the designated tape number, the site number and the date of recording as described below.

APPENDIX III: HABITAT DATA SHEETS

HABITAT TYPE			
SITE N^{O}.		**LOCATION NAME**	
LAT	……..…..°……..’S	**LONG**	……..……°……..…..’E
DGPS/GPS		**DATUM**	
DEPTH (M)		**TIDAL RANGE**	
DATE		**TIME**	
RECORDER		**OBSERVAT ^{n}METHOD**	
MPRSWG		**IMCRA BIOREGION**	
SUBSTRATE TYPE		**RELIEF**	
VIDEO TAPE N^{O}	**M…….. / …… / …… / …… # ……-……../……..** (MCB function) (IMCRA region) (MPRSWG) (DD or HH camera) (number) (MM/YYYY)		
VISUALLY DOMINANT ORGANISM			

DESCRIPTION……

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…… …… ……	
HABITAT TYPE	

APPENDIX IV: MEDIA RELEASE

Media Release

DEPARTMENT OF Conservation AND LAND MANAGEMENT
Conserving the nature of WA

Ningaloo seaweed bed survey

16 February 2001

A survey on the size of Ningaloo Marine Park's lagoon seaweed beds will start on Sunday.

Department of Conservation and Land Management Marine Conservation Branch ecologist Kevin Bancroft said the data would contribute to information needed for the long-term management of the park.

The survey will be carried out between Point Maud and Jurabi Point by three CALM staff.

"An aim is to get details of the location and extent of seasonal seaweed beds in selected lagoons," Mr Bancroft said. This data will be used to verify CALM's marine habitat classification model used for the Ningaloo Marine Park habitat map.

"Another aim is to collect video footage and still photographs of the marine and coastal habitats for educational purposes."

The seaweed – or macroalgal meadows – are on the limestone 'pavement' of the lagoons. This 'pavement', which occurs between the outer reef and the shore, and the seaweed will be surveyed using underwater video cameras hung from the side of an inflatable dinghy and by visual observations.

"The data will also be important in determining the conservation value of the seaweed beds compared to the other marine habitats of Ningaloo Marine Park," Mr Bancroft said.

The survey is taking place at the end of summer because the presence of seaweed drops during cooler months.

All information will be incorporated into CALM's marine habitat map for the area.

He said the wider lagoons would be extensively surveyed because they featured protected wildlife such as dugongs.

Media contact: Kevin Bancroft 9432 5117 or 0417 401 200