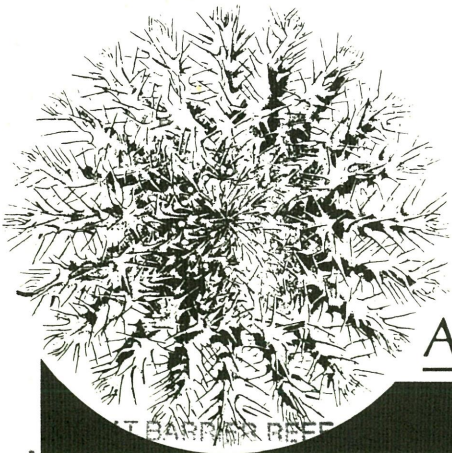


Administrative Report

P. Moran, Study Leader & C. Maguire, Administrator



Australian Institute of Marine Science

The Crown-of-thorns Study

MARINE PARK AUTHORITY

Crown-of-thorns Study Report 4

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INTRODUCTION

Towards the end of 1985 the Federal Government allocated \$971,000 to the Great Barrier Reef Marine Park Authority (GBRMPA) for research on the crown-of-thorns starfish during the 1985/86 fiscal period. This was in accordance with the recommendations of the Crown-of-Thorns Starfish Advisory Committee (COTSAC) and represented funds for the first year of a proposed 4 year program. Just over half of this amount was assigned to the Australian Institute of Marine Science (AIMS) under an agreement reached between the two institutions. According to this Record of Understanding AIMS would be responsible for coordinating the "mainly ecological" component of the research identified by COTSAC. This area of research is referred to as the Crown-of-thorns Study.

In order to develop a fully integrated and multidisciplinary research effort AIMS sought expressions of interest and research proposals, by advertisement, from scientists throughout Australia to undertake ecological research on the Acanthaster phenomenon. An Assessment Panel was established to review all submissions including the program proposed by AIMS. As a result of its deliberations the Panel recommended support of a study comprising a modified AIMS program (incorporating 26 projects) and 9 other projects (undertaken through an additional 5 organisations). These recommendations subsequently were ratified by COTSARC (Crown-of-Thorns Starfish Advisory Review Committee).

This document describes the status of the Crown-of-thorns Study with respect to the following areas:

1. Overall budget
 - 1.1 Original budgets
 - 1.2 Budget variations
 - 1.3 Estimates: 1986/87
2. AIMS program
 - 2.1 Expenditure: June 6, 1986
 - 2.2 Commitments pending: June 6, 1986
 - 2.3 Budget plan
 - 2.4 Staff employed
 - 2.5 Research projects

I. OVERALL BUDGET

I.1 Original budgets

The original budgets for the AIMS program and the other 9 research projects recommended by the Assessment Panel are given in Table I. It should be stressed that funds for the 9 external projects were adjusted on a calendar year basis. Because of its size (particularly the salaries component) there were insufficient funds available to do this in the case of the AIMS program.

Table I. Budgets recommended by Assessment Panel.

PROJECT	BUDGET HEADINGS	AMOUNT \$
1. AIMS program	Salaries	116,647
	Allowances	2,424
	Superannuation	8,600
	Other salaries	17,975
	On-costs	15,309
	Capital works	20,000
	Vessel charter	26,000
	Capital equipment	89,506
	Vehicles	11,400
	Consumables	24,850
	Travel	19,865
	Incidentals	42,500
		TOTAL
2. Dr J. Parslow Dr A. Gabric	Personnel	-
	Equipment	-
	Travel	1,000
	Vessel	-
	Maintenance	3,000
	TOTAL	4,000
3. Dr P. Doherty	Personnel	20,209
	Equipment	5,600
	Travel	4,983
	Vessel	16,600
	Maintenance	2,405
	TOTAL	49,797
4. Dr P. Hanna Dr V. Lee Dr B. Richardson	Personnel	10,078
	Equipment	-
	Travel	-
	Vessel	-
	Maintenance	6,000
	TOTAL	16,078

Table I (cont'd)

5.	Prof. R. Endean Dr A. Cameron	Personnel	15,000
		Equipment	3,000
		Travel	4,000
		Vessel	-
		Maintenance	-
		TOTAL	22,000
6.	Dr R. Hartwick	Personnel	4,000
		Equipment	-
		Travel	1,000
		Vessel	-
		Maintenance	-
		TOTAL	5,000
7.	Prof. D. Hopley	Personnel	-
		Equipment	-
		Travel	1,200
		Vessel	-
		Maintenance	800
		TOTAL	2,000
8.	Dr M. James Dr L. Bode Prof. K. Stark Dr L. Marsh	Personnel	24,197
		Equipment	7,000
		Travel	-
		Vessel	-
		Maintenance	1,500
		TOTAL	32,697
9.	Dr J. Lucas	Personnel	11,277
		Equipment	8,075
		Travel	-
		Vessel	-
		Maintenance	-
		TOTAL	19,352

Table 1 (cont'd)

10. Dr V. Harriott Mr D. Fisk	Personnel	10,000
	Equipment	-
	Travel	-
	Vessel	-
	Maintenance	2,000
	TOTAL	12,000
BUDGET TOTAL		558,000

1.2 Budget variations

To date, variations of expenditure from original budget estimates have occurred in the AIMS program and the project being undertaken by Dr P. Doherty (Dynamics of recruitment and densities of juvenile crown-of-thorns starfish between 15° S and 20° S on the Great Barrier Reef). Changes in the budgetary structure of Dr Doherty's project were implemented with the approval of the Director of AIMS, Dr Joe Baker. Under this arrangement funds for personnel were transferred to vessel charter to enable the Dr Doherty's survey to be extended to include more sites and improve the reliability of his data. The original and altered budgets for his project are given in Table 2.

Table 2. Variations of expenditure: Dr P. Doherty's project.

HEADING	ORIGINAL BUDGET Amount \$	REVISED BUDGET Amount \$
Personnel	20,209	13,809
Equipment	5,600	5,600
Travel	4,983	4,983
Vessel	16,600	23,000
Maintenance	2,405	2,405
TOTAL	49,797	49,797

A number of changes have been made to the original budget of the AIMS program. In general, these have been implemented for two reasons. Firstly, the structure of the budget was changed to bring expenditure headings in line with those adopted by AIMS for administration of its core research programs. Table 3 gives the

breakdown of funds for the AIMS program in terms of this revised structure. This procedure was carried out in consultation and under the direction of the Finance Officer of AIMS. Once this had been undertaken adjustments were made to funds within a number of budget headings. This was implemented because of: delays in employment of personnel; increases in the costs of certain equipment (e.g. computing equipment); changes in the priorities for expenditure within several projects (e.g. using funds originally allocated for capital equipment to pay for a part-time salary in Project 2 (a)). These adjustments and the final amount of funds allocated within each budget heading are listed in Table 3. By the beginning of May 1986 all funds for external projects had been paid out to those institutions nominated by the chief investigators.

Table 3. AIMS program: revised budget structure

Expenditure Headings	Account code	Revised Estimates	Adjustments	Final Allocations
		\$	\$	\$
SALARIES & ALLOWANCES	1000	136174	-18174	118000
TRAVELLING & SUBSISTANCE				
Field Travel	1110	804	196	1000
Domestic Travel	1120	7865	135	8000
Overseas Travel	1140	3000	3000	
Interview & appt expenses	1150	10000		10000
STORES	1500	24201	308	24509
FREIGHT & CARTAGE	2000	5000		5000
COMPUTER SERVICES				
Consumables	2240	2000		2000
Software	2250	2000		2000
OPERATING COSTS OF VEHICLES	2400	11400	5600	17000
CHARTER OF SHIPS	3000	26000		26000
INCIDENTALS				
Medicals & Advertising	3500	4000	8000	12000
COLLABORATIONS				
Fares & travel costs	3971	9000		9000
Accommodation	3972	1000		1000
Salaries & on-costs - external	3973	15168	13332	28500
On-costs AIMS	3974	15309	691	16000

Table 3 (cont'd)

Non-consumable equipment:				
Buildings	3976	20000		20000
Vessels	3977	6240	-1740	4500
Scientific	3978	22400	-13000	9400
Computer	3979	54000	2000	56000
Field & Other	3980	3015	2231	5246
Other collaboration costs	3981	16500	421	16921
EXTERNAL GRANTS	3990	162924		162924
		\$558,000	0000	\$558,000

1.3 Estimates: 1986/87

Towards the end of May 1986 projected estimates for the Crown-of-thorns Study were determined and sent to GBRMPA at their request. As this exercise had to be undertaken urgently the figures given represent only a general guide to the level of funding which will be required to continue the Study over the ensuing fiscal year. The final amount of funds requested is the same as that outlined in the Record of Understanding developed between AIMS and GBRMPA. A more detailed projection of costs may be derived for the Study once it is known whether further funds will become available in the next fiscal year. The figures which were given to GBRMPA are shown in Table 4.

Table 4. AIMS program; Projected Estimates for 1986/87

IA	Geographic Patterns in genetic variation of <u>Acanthaster planci</u> populations - Stoddart	\$35,723
IB	Inheritance patterns of isoenzymes in <u>Acanthaster planci</u> - Stoddart/Olson	-
IC	A field test of the larval starvation hypothesis for <u>Acanthaster planci</u> - Olson/Dixon	\$66,768
ID	Fertilization rates of <u>Acanthaster planci</u> in the field - Olson/Dixon	\$18,500
IE	Substrate Selection by Larvae of <u>Acanthaster planci</u> - Olson/Dixon	\$ 5,000
IF	Development of Techniques for the production of large numbers of larvae & juveniles of <u>A. planci</u> - Olson/Dixon	\$20,500
IG	Feeding rate of <u>A.planci</u> in the field - Moran/Keesing	\$11,000
IH	Feeding preferences of <u>A.planci</u> in the field - Moran	\$ 4,250

Table 4 (cont'd)

1I	Rate of decomposition of adults in the field - Moran	-
1J	Ephemeral patches of phytoplankton in the central GBR as potential food source for larvae of <u>A. planci</u> - Furnas/Liston	\$17,500
2A	Recolonisation & recovery of coral communities - Done/Moran/Osbourne	\$ 7,706
2B	Interpretation of history of disturbance to coral communities through analysis of morphology & population structure in massive <u>Porites</u> - Done/P.Sale	\$ 2,200
2C	Genetics of population fluctuations of corals - Stoddart	\$ 4,500
2D	Growth & survivorship of coral remnants following outbreaks of <u>A. planci</u> - Done/Navin	\$ 0000
2E	Effects of outbreaks of <u>A. planci</u> on fish communities - Williams	\$ 1,361
2F	Effects of outbreaks of <u>A. planci</u> on the interaction between corals/algae: Trophodynamic implications - Klump	\$31,742
2G	Effects of outbreaks of <u>A. planci</u> on the interaction between scleractinian & alcyonacean corals - Done	\$39,732
3A	Macro-scale studies of the distribution & abundance of <u>A. planci</u> and corals of the GBR - Moran	\$71,399
3B	Meso-scale studies of distribution & abundance of <u>A. planci</u> & corals on selected reefs - Moran	\$ 2,000
4A	Enhancement of substrate reflectance in landsat imagery with special attention to reef damage by <u>A. planci</u> - Reichelt/Bainbridge	\$23,933
4B	Evaluating procedures for verification of with reference to effects of <u>A. planci</u> on reefs - Reichelt	\$ 5,000
4C	Numerical models of the hydrodynamic regime around schematized & actual reefs - Black/S.Gay (VIMS)	\$ 1,000
4D	Numerical models of the hydrodynamic regime at John Brewer Reef.- Andrews/McAllister/Kelly/S.Gay	\$31,633
4E	Dispersal of <u>A. planci</u> outbreaks over the whole GBR: A simulation study - Reichelt/Green(ANU)	\$ 1,000
4F	Analyses and models of existing data - Bradbury/Reichelt/Moran/Bainbridge	\$26,633

Table 4 (cont'd)

4G	Tagging of <u>A. planci</u> using micro-injectable transponders - Moran/Bass	\$20,120	
			\$443,450
5A	Administration/Miscellaneous Costs		
	Salaries	\$21,979	
	Field Extras	\$10,000	
	Allowances	\$24,630	
	Superannuation	\$12,120	
	Travel	\$10,000	
	On-costs - AIMS	\$45,821	
	Collaborations	\$ 5,000	
	Freight	\$ 5,000	
	Stores	\$ 5,000	
	Vehicles	\$17,000	
	Incidentals	\$10,000	
			\$166,550
6A	External Grants	\$58,000	
			\$ 58,000
	TOTAL:		\$658,000

2. AIMS PROGRAM

2.1 Expenditure: June 6, 1986

Table 5 gives the funds which have been spent in the AIMS program up to June 6, 1986. It can be seen from the Table that funds within some budget headings are already over committed. The effects of this will be balanced out since underspending has occurred within several other headings. Although the amount allocated for salaries is shown as fully committed, in reality there is a small amount of funds (equivalent to 6 months of a Research Scientist's annual wage) which are available for use. This amount is available since 3 Research Scientist positions within the program have not been filled (see section: Staff employed). It is possible that these funds could be used to fill one of these positions for a 6 month period.

Table 5. AIMS Program Expenditure.

Code	Heading	Description	Allocation	Committed
			\$	\$
1000	Salaries & Allowances		118000.00	118000.00
1100	Travelling & Subsistance	Field Allowances	0.00	1972.35
1100	Travelling & Subsistance	Field Trip Allowances	6000.00	590.65
1110	Travelling & Subsistance	Field Allowances	0.00	35.15
1120	Travelling & Subsistance	Domestic Travel	14700.00	2653.00
1140	Travelling & Subsistance	Overseas Travel	3000.00	1813.20
1150	Travelling & Subsistance	Interview & Appt Expenses	50000.00	1073.25
1500	Stores		110014.00	10508.30
2000	Freight & Cartage		10000.00	448.00
2200	Computer Services		0.00	499.00
2400	Operational Costs Vehicles		34000.00	16195.37
3000	Hire of Aircraft & Ships	Vessel Charter	500.00	500.00
3510	Incidentals	Advertising	6000.00	1336.15
3550	Incidentals	Diving Ops & Medicals	1000.00	25.00
3610	Incidentals	Equipment Hire & Other	16000.00	432.08
3971	Collaborations	Fares & Travel Costs	7000.00	4482.85
3973	Collaborations	Salaries & On-Costs - External	18500.00	18894.20
3974	On Costs (AIMS)		16000.00	16000.00
3977	Non-Consumable Equipment	Vessels	4500.00	4062.00
3978	Non-Consumable Equipment	Scientific	12900.00	8021.60
3979	Non-Consumable Equipment	Computer	124500.00	53295.00
3980	Non-Consumable Equipment	Field & Other	5246.00	5102.74
3981	Collaborations	Other Collaboration Costs	1500.00	1500.00
TOTAL			\$558,000.00	\$441,566.02
BALANCE (as at June, 6, 1986)				\$116,434

2.2 Commitments pending: June 6, 1986.

Table 6 lists the major expenditures which are expected for the remainder of the 1985/86 fiscal year.

Table 6. Anticipated expenditure for June 1986.

ITEM	AMOUNT \$
1. Travel allowance: Experimental Scientists	600.00
2. LANDSAT tapes	1500.00
3. Part-time field assistants salaries	795.50
4. Collaboration: Dr M. Dale (CSIRO)	396.50

Table 6 (cont'd)

5.	Travel: Dr J Stoddart	416.70
6.	Travel Allowance: Dr R. Olson	300.00
7.	Field equipment (underwater tapes, hammers)	510.00
8.	Ph.D Scholarship (Mr P. Liston)	10000.00
9.	Relocation expenses (Mr P. Liston)	392.50
10.	Computer consumables	755.00
11.	Video camera (for Project I(f))	700.00
12.	Capital works (aquarium)	20000.00
13.	Vessel charter	7200.00
TOTAL		43566.20
ANTICIPATED BALANCE JULY 1, 1986		72867.80

2.3 Budget plan.

Should the Federal Government decide not to continue to fund research on the Crown-of-thorns starfish it is suggested that funds scheduled for capital works within the 1985/86 fiscal period (\$20,000) be used for salaries. This would leave a balance of approximately \$93,000 in the budget of the AIMS program. Of this figure, \$30,000 needs to be set aside to pay for the 2 Ph.D scholarships over the next 3 years. The remaining funds (about \$63,000) could be used to extend the life of projects which have already started by keeping on personnel for a further 3 months. Projects which were funded and are being conducted at other Institutions will end in January 1987 as their funding was adjusted on a calendar year basis.

2.4 Staff employed.

To date, 11 personnel have been employed within the AIMS program (this includes 10 full-time positions and 1 part-time position). Because of the uncertainty of future funding 3 Research Scientist positions have not been filled. However, suitable candidates have been determined for each of these positions, two of which are likely to come from overseas. Table 7 gives the annual salaries costs for the program.

Table 7. Annual salaries.

NAME	SALARY	ALLOWANCES	TOTAL
	\$	\$	\$
Dr. Olson (RS)	28,080.00	3,533.90	31,613.90
C. Maguire (Admin)	21,042.00	5,975.77	27,017.77
D. Bass (TA)	17,587.00	4,919.90	22,506.90
S. Bainbridge (ES)	20,691.00	2,755.43	23,446.43
C. Mundy (ES)	20,895.00	2,977.05	23,872.05
P. Speare (ES)	20,895.00	2,331.49	23,226.49
P. Dixon (ES)	30,266.00	4,319.12	34,585.12
K. Osbourne (6 months part-time TA)	6,028.92	1,027.78	7,056.70
D. Johnson (ES)	22,217.00	2,759.47	24,976.47
D. Brunkhorst (ES)	20,895.00	2,900.62	23,795.62
F. Jones (TA graphics Dec 86)	8,281.00	1,522.63	9,803.63
TOTAL			251,901.08

2.5 Research Projects.

Three of the 26 projects which were allocated funds within the AIMS program by the Assessment Panel have not begun. The start of these projects has been delayed until the 3 Research Scientist positions can be filled. This will be done once it is known whether funds for the program will be continued into the next fiscal year. The 3 projects which have not been started are Projects 1 (a), 2 (f) and 2 (g) (see AIMS research proposal).

