

TABLE OF CONTENTS

PREFACE	v
ABBREVIATIONS	vi
BACKGROUND	1
Review of the COTSAC Program.....	1
The Crown-of-thorns Starfish Research Committee (COTSREC)	1
The Availability of Funds and the Start of Research	3
Review of the COTSREC Program.....	3
The Australian Institute of Marine Science (AIMS)	4
Structure of the Research Program.....	4
PROJECT OUTLINES AND MAJOR RESULTS	6
Coral and Starfish Dynamics; Ecological Effects	7
Larval and Adult Starfish Biology	16
Geological Perspectives	22
Controls	24
Hydrodynamics, Recruitment and Terrestrial Inputs	25
Predation	32
Public Information.....	38
OVERVIEW OF PROGRAM AREAS	40
Coral and Starfish Dynamics; Ecological Effects	40
Broad-scale (Reef-wide) Patterns of Outbreaks	40
Fine-scale Distribution and Abundance of COTS in the Cairns Section.....	41
Impact on Corals and Recovery	42
Techniques	43
Impact on Fish.....	43
Larval and Adult Starfish Biology	44
Geological Perspectives	45
Controls	46
Hydrodynamics, Recruitment and Terrestrial Inputs	47
Predation	49
Public Information.....	51
The COTSWATCH Reef-user survey scheme.....	51
Educational Materials	52
Printed and Electronic Media.....	52
Displays at Aquaria and Zoos	53
The Possible Causes of Outbreaks	53
FUTURE PROGRAM DIRECTIONS	55
Monitoring COTS and their effects on the Great Barrier Reef.....	55
The Origins and Causes of Outbreaks	57
Water Quality	58
Predation	60
Management Responses: Controls and Planning	61
Public Information.....	62
The Reef-user survey scheme (COTSWATCH)	62
Media Component	62

Educational Materials	62
Displays at Aquaria and Zoos	62
Other Areas	63
ADMINISTRATION AND FINANCE	64
REFERENCES	69
REPORTS AND PUBLICATIONS	70
APPENDIX 1 Compilation of the major findings and recommendations of Professor D.T. Anderson's review of the crown-of-thorns starfish research Program.....	81
APPENDIX 2 Members of the Crown-of-thorns Starfish Research Committee (COTSREC).....	83
APPENDIX 3 Terms of Reference for the Crown-of-thorns Starfish Research Committee (COTSREC).....	84
APPENDIX 4 Summary of conclusions and recommendations of "A Review of the Crown-of-thorns Starfish Research Program: 1989-1991" by Dr R.E. Johannes.....	86
APPENDIX 5 GBRMPA policy on COTS controls	88
APPENDIX 6 'A Management Approach to the COTS Question' by Professor Graeme Kelleher.....	89

TABLES

1. Funds allocated to projects under the Authority's COTSREC Program between the 1989-90 and 1994-95 fiscal periods	65
2. Funds and in-kind contributions allocated to tasks within the AIMS Crown-of- thorns Study between the 1989-90 and 1994-95 fiscal periods	66
3. AIMS Task numbers, titles and investigators.....	67

FIGURES

1. Review and program development processes used by COTS advisory committees.....	2
2. Number of projects within the COTSREC Program from 1989-90 to 1994-95	6
3. Responses of scientists and managers to the survey question " <i>Do you think that there is likely to be a single cause of COTS outbreaks or a number of factors contributing to primary outbreaks?</i> "	54
4. Responses of scientists and managers to the survey question " <i>Based on existing evidence what do you think are the most likely causes of primary COTS outbreaks?</i> "	54
5. Total (research and monitoring) and research (only) funding for the GBRMPA COTS Program from the 1985-86 to 1995-96 financial years.....	64
6. Average project cost over the duration of the COTSREC Program.....	67
7. Allocation of funds to Program areas over the period July 1989 to June 1995	68