Contents

Ex	ecu	tive summary	V	
Ac	Acknowledgments			
1	Intr	1		
	1.1	Aims and objectives	1	
	1.2	Background	1	
	1.3	The Alligator Rivers Region	4	
	1.4	Rationale	6	
2	Арр	9		
	2.1	The assessment framework	9	
	2.2	Scoping the issues	10	
	2.3	Delineation of affected areas and resources	15	
	2.4	Assessing the significance of change	25	
	2.5	Determining responses and implementing actions	26	
3	Enν	27		
	3.1	Vulnerability	28	
	3.2	Climate change	29	
	3.3	Sea level rise	31	
	3.4	Environmental responses	34	
4	Pro	34		
	4.1	Physical processes	35	
	4.2	Biological processes	42	
	4.3	Cultural processes	57	
	4.4	Social and economic factors	63	
5	Issues			
	5.1	Perceptions and values	68	
	5.2	Hazard and risk	69	
	5.3	Governance	71	
	5.4	Strategic management	72	

	5.5	Acquisition and custodianship of information	73		
	5.6	Environmental research and monitoring	75		
6	Mai	nagement responses	76		
O			76 77		
		Assessment of the significance of changes Integrated environmental management	80		
	0.2	miegrated environmental management	00		
Bi	bliog	graphy	84		
Αŗ	pen	dix 1 Additional information	101		
	1.1	Magela Creek floodplain: Summary of the data contained in ARRGIS	102		
	1.2	List of satellite imagery held by Parks Australia	109		
	1.3	Kakadu National Park aerial photography index	115		
Appendix 2 Committees and meetings 116					
	2.1	Membership of Joint Steering Committee for the Northern Territory vulnerability to climate change studies	116		
	2.2	Summary of technical workshops on vulnerability to climate change projects for Darwin and the Alligator Rivers Region, Darwin 7/6/95	116		
	2.3	Report on public workshop on climate change projects, Darwin 10/8/95	118		
	2.4	Attendance at Meetings and Workshops	122		
Αŗ	-	dix 3 Maps showing zones of possible vulnerability nin the study area	124		
Αŗ	-	dix 4 Monitoring potential effects of climate change in Alligator Rivers Region	131		
Ma	aps				
	1	The biophysical region	5		
	2	The Alligator Rivers Region including Kakadu National Park	7		
	3	The biophysical regional catchments	16		
	4	Magela Creek catchment	17		
	5	Confluence of Magela Creek and the East Alligator River (contours 5 m, 4 m, 3 m, 2 m and less)	18		
	6	Contour maps of the Magela Creek floodplain derived from the eriss digital terrain model	19		
	7	Land tenure and use map	64		

	8	Land use (and access) in Kakadu National Park	66
	9	Kakadu National Park: Road network	67
Fig	jure	s	
	1	Framework for the assessment of coastal vulnerability in the Alligator Rivers Region of the Northern Territory	11
	2	Plots of annual mean sea levels from the two Darwin (conventional) gauge sites	33
	3	Cusum plot of Darwin rainfall	36
	4	Changes to the coastline where the Mary River enters Van Diemen Gulf via Sampan and Tommycut Creeks	38
	5	Expansion of Sampan and Tommycut Creeks, 1943–1989	40
Pla	ates		
	1a	Aerial photography of the confluence of Magela Creek and the East Alligator River in June 1975	20
	1b	Aerial photography of the confluence of Magela Creek and the East Alligator River in May 1991	21
	2a	Aerial photography of the confluence of an unnamed creek, to the north of Magela Creek, with the East Alligator River in June 1975	22
	2b	Aerial photography of the confluence of an unnamed creek, to the north of Magela Creek, with the East Alligator River in May 1991	23
	3	Satellite imagery of Van Diemen Gulf, Landsat 5 MSS 11-Jun-1994	37
Tal	bles		
	1	Native animal and plant species in the Binninj diet	59