

APPENDICES

Appendix A. Anthozoan genera recorded as part of the REA benthic surveys conducted on foreereef habitats in the Mariana Archipelago during MARAMP 2003, 2005, and 2007.

Anthozoan Genera	Island																Island Total	
	Farallon de Pajaros	Maug	Asuncion	Agrihan	Pagan	Alamagan	Guguan	Sarigan	Anatahan	Saipan	Tinian	Aguijan	Rota	Guam	Santa Rosa	Patfinder		Arakane
<i>Acanthastrea</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	13
<i>Acropora</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	15
<i>Alveopora</i>									●				●					2
<i>Astreopora</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
<i>Cladiella</i>														●				1
<i>Coralimorphia</i>									●									1
<i>Coscinaraea</i>									●	●	●							3
<i>Cycloseris</i>						●			●	●		●	●					5
<i>Cyphastrea</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
<i>Diploastrea</i>													●					1
<i>Echinophyllia</i>		●			●				●	●	●							5
<i>Echinopora</i>		●		●	●	●	●		●	●	●	●						10
<i>Euphyllia</i>			●		●				●									3
<i>Favia</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
<i>Favites</i>	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	14
<i>Fungia</i>		●	●	●	●				●	●	●	●	●	●		●		10
<i>Galaxea</i>		●	●	●	●	●	●	●	●	●	●	●	●	●				13
<i>Gardineroseris</i>				●	●			●	●		●							5
<i>Goniastrea</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●				14
<i>Goniopora</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●			12
<i>Heliopora</i>		●	●	●	●	●	●			●	●	●	●	●		●	●	13
<i>Hydnophora</i>		●	●	●	●	●	●	●	●		●	●	●	●				12
<i>Leptastrea</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
<i>Leptoria</i>	●	●	●	●			●	●		●	●		●					10
<i>Leptoseris</i>			●		●	●	●		●	●	●				●			8
<i>Lobophyllia</i>		●	●	●						●			●					5
<i>Lobophytum</i>									●	●	●	●	●					5
<i>Merulina</i>			●					●										2
<i>Millepora</i>		●	●	●	●	●	●	●	●	●	●		●			●	●	14
<i>Montastrea</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
<i>Montipora</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
<i>Octocoral</i>													●					1
Other Soft Corals													●	●				2
<i>Oulophyllia</i>					●				●	●		●	●					5
<i>Palythoa</i>									●		●	●						3
<i>Pavona</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
<i>Platygyra</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
<i>Plesiastrea</i>									●	●								2
<i>Pocillopora</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
<i>Porites</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
<i>Psammocora</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
<i>Sarcophyton</i>									●			●	●					3
<i>Scapophyllia</i>		●	●	●	●			●			●		●					7
<i>Scolymia</i>					●						●							2
<i>Sinularia</i>									●	●	●	●	●					5
<i>Sterionephthya</i>													●					1
<i>Stylocoeniella</i>		●	●	●	●		●		●	●	●	●	●					11
<i>Stylophora</i>	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	13
<i>Turbinaria</i>		●		●	●	●		●	●	●	●	●						10
<i>Zoanthus</i>										●								1
Total Genera	17	29	29	29	32	25	23	25	20	39	36	32	31	36	17	16	11	

Appendix B. Green and brown algal genera and algal functional groups recorded as part of the REA benthic surveys conducted on forereef habitats in the Mariana Archipelago during MARAMP 2003, 2005, and 2007. The number of genera reported for each REA site may increase as detailed taxonomic laboratory analyses of voucher specimens become available (lab-based taxonomic identification of all algal species collected at REA sites in the northern islands, Sarigan to Farallon de Pajaros, is about 90% complete with hundreds of species identified so far).

		Island		Survey Year		Red Macroalgal Genera																																		
		03	05	07	03	05	07	03	05	07	03	05	07	03	05	07	03	05	07	03	05	07	03	05	07	03	05	07	03	05	07	03	05	07						
	Acanthophora																																							
	Acrosymplyton																																							
	Actinotrichia																																							
	Amansia																																							
	Amphiroa																																							
	Asparagopsis																																							
	Botryocladia																																							
	Ceramium																																							
	Cheilosporum																																							
	Chondria																																							
	Chondrophycus																																							
	Coelarthrum																																							
	Crouania																																							
	Dasya																																							
	Dichotomaria																																							
	Galaxaura																																							
	gelid																																							
	Geldiella																																							
	Geldiopsis																																							
	Gibsmithia																																							
	Gracilaria																																							
	Halichrysis																																							
	Haloplegma																																							
	Halymenia																																							
	Hypnea																																							
	Hypoglossum																																							
	Jania																																							
	Laurencia																																							
	Liagora																																							
	Lomentaria																																							
	Martensia																																							
	Mastophora																																							
	Melanomansia																																							
	Mesophyllum																																							
	Peyssonnelia																																							
	Platoma																																							
	Portieria																																							
	Predeba																																							
	Schizymenia																																							
	Tolyptoclada																																							
	Tricleocarpa																																							
	Wrangella																																							
	Yamadella																																							

Appendix C. Green and brown algal genera and algal functional groups recorded as part of the REA benthic surveys conducted on forereef habitats in the Mariana Archipelago during MARAMP 2003, 2005, and 2007. The number of genera reported for each REA site may increase as detailed taxonomic laboratory analyses of voucher specimens become available (lab-based taxonomic identification of all algal species collected at REA sites in the northern islands, Sarigan to Farallon de Pajaros, is about 90% complete with hundreds of species identified so far).

Table with columns for Island Survey Year, Green Macroalgal Genera, Brown Macroalgal Genera, and Algal Functional Group. Rows list 24 islands (ARA to ZEA) across three survey years (03, 05, 07) and their respective functional groups (e.g., FDP, SUP, MAU, etc.). Presence of a genus is indicated by a black dot.

Appendix D. Ranks of each biological component for each geographic region and overall ranks for 2005 and 2007, based on towed-diver surveys conducted on forereef habitats during MARAMP 2005 and 2007 and used in the Archipelagic Coral Reef Condition Index, Archipelagic Benthic Condition Index, and Archipelagic Fish Condition Index. These index ranks reflect the status of a biological component for each geographic region, *relative to other regions across the Mariana Archipelago.*

Island	Geographic Region	Reef Index		Benthic					Fish	
		2005	2007	Cover of Live Hard Corals	Cover of Crustose Coralline Red Algae	Cover of Stressed Corals	Cover of Macroalgae	Density of Crown-of-thorns Seastars	Density of Large Fishes (> 50 cm TL)	Biomass of Large Fishes (>50 cm TL)
Agrihan	Northeast	35	38	43 (-10)	43 (12)	32.5 (-1)	48.5 (9)	47 (18)	26 (2)	22 (-18)
	Northwest	6	3	15.5 (5)	16 (-2)	16 (18)	17.5 (-33)	16 (-10)	8 (12)	9.5 (15)
	Southeast	4	28	13 (-16)	38 (16)	8.5 (-13)	14 (-26)	29 (28)	25 (-32)	17 (-24)
	Southwest	17	23	26 (-2)	28.5 (-5)	11.5 (19)	34.5 (-9)	24 (-6)	24.5 (-5)	23 (0)
Aguujan	North	34	36	20 (-12)	4 (0)	21 (10)	42.5 (13)	43.5 (-15)	40 (4)	37.5 (-9)
	South	41	43	30 (-8)	37 (6)	44 (-2)	32.5 (-1)	37 (-26)	38 (-10)	41 (8)
Alamagan	Northeast	9	9	7.5 (1)	27.5 (9)	28 (-2)	1 (0)	28.5 (-7)	11 (0)	15.5 (-3)
	Northwest	12	2	9.5 (13)	15.5 (-7)	21.5 (15)	1 (0)	13.5 (7)	15.5 (7)	14.5 (11)
	Southeast	13	15	21 (14)	41.5 (13)	11.5 (-11)	1 (0)	24.5 (9)	19.5 (1)	17 (-18)
	Southwest	20	12	25.5 (11)	43 (-4)	31.5 (9)	1 (0)	17.5 (19)	21.5 (13)	15 (2)
Asuncion	Northeast	11	13	22.5 (-1)	43.5 (-1)	19 (-32)	12 (22)	6.5 (11)	15 (2)	13.5 (-5)
	Northwest	10	21	6 (-10)	22.5 (-9)	22 (-36)	48.5 (3)	40 (8)	11 (-10)	12 (0)
	Southeast	2	6	43 (14)	45.5 (-7)	6.5 (1)	1 (0)	1.5 (1)	5.5 (-1)	4 (-6)
	Southwest	7	20	24 (16)	4.5 (-7)	20.5 (-9)	40 (-18)	36 (-8)	15 (-6)	11 (-16)
Farallon de Pajaros	Northeast	19	14	53 (4)	37.5 (-33)	2.5 (-3)	1 (0)	26.5 (-39)	20.5 (21)	16.5 (31)
	South	29	10	50 (2)	25 (-22)	9 (2)	1 (0)	21.5 (-5)	25.5 (25)	24.5 (37)
	Southeast	30	8	48 (8)	32 (-42)	4.5 (7)	1 (0)	7.5 (3)	24.5 (33)	28 (36)
	West	31	7	41.5 (-11)	31.5 (-19)	5 (0)	1 (0)	42 (18)	19 (32)	21.5 (37)
Guam	East	46	52	16 (-24)	22.5 (-7)	43 (-8)	53 (-4)	53.5 (-1)	51 (2)	51.5 (-1)
	North	53	49	6 (-8)	42 (20)	44 (-4)	49 (-4)	39 (18)	54 (2)	55 (0)
	Northwest	50	47	20 (-22)	37 (-4)	44.5 (1)	46.5 (3)	34 (16)	53 (2)	50.5 (5)
	South	51	53	24.5 (-25)	50.5 (1)	50 (4)	27.5 (-53)	53.5 (1)	52 (8)	53.5 (5)
	West	49	51	50 (-6)	37 (16)	54.5 (-1)	41.5 (-1)	36.5 (-5)	48 (4)	44.5 (-11)
Guguan	Northwest	16	21	17 (26)	5 (-4)	16 (-10)	19 (36)	16 (6)	25.5 (-9)	35 (-18)
	Southwest	23	27	28 (26)	30 (-6)	21.5 (-25)	19.5 (37)	18 (22)	37.5 (5)	24 (-30)
Maug	East	1	1	14.5 (5)	11 (-4)	20.5 (15)	1 (0)	10.5 (-9)	8.5 (3)	6 (2)
	East Caldera	26	18	6 (-6)	30.5 (17)	17 (14)	28.5 (-7)	13.5 (-11)	28.5 (11)	34 (14)
	North	3	11	9.5 (3)	27 (14)	27.5 (15)	1 (0)	18 (0)	12 (18)	13 (-14)
	North Caldera	27	35	6 (2)	52.5 (1)	14 (6)	41 (-10)	37.5 (-13)	30 (-2)	32.5 (-7)
	West	13	5	11.5 (19)	10 (-4)	21.5 (25)	24.5 (3)	20 (6)	11 (4)	14 (2)
	West Caldera	22	25	6 (0)	38 (-26)	8.5 (11)	43 (0)	42 (-6)	20 (-4)	30 (10)
Pagan	East	21	28	22 (-14)	4 (-4)	20 (4)	54.5 (3)	48.5 (13)	21.5 (-9)	26 (-4)
	North	24	17	29.5 (-11)	22.5 (3)	35.5 (-5)	52 (0)	42 (14)	8 (14)	16.5 (11)
	South	38	34	29 (10)	21.5 (-33)	27.5 (-19)	52.5 (5)	37.5 (19)	34 (4)	30.5 (13)
	West	25	31	38.5 (13)	9.5 (1)	12.5 (1)	46 (-4)	25 (6)	31.5 (-11)	31 (-2)
Rota	North	48	41	55 (2)	55 (0)	54.5 (3)	1 (0)	1 (0)	49 (8)	49.5 (9)
	Northwest	32	48	46 (-8)	41.5 (-9)	47.5 (-7)	32.5 (5)	37.5 (17)	36 (-26)	31 (-24)
	South	36	37	42.5 (1)	20 (20)	39 (18)	38.5 (3)	13.5 (-19)	35.5 (-7)	37 (-6)
	Southeast	52	50	50 (-4)	43 (-10)	52 (-4)	17 (32)	42 (16)	48 (-6)	50.5 (-5)
	West	8	31	44 (-22)	8.5 (15)	32.5 (27)	42 (8)	4 (-2)	17 (-32)	20 (-36)
Saipan	East	39	16	47 (12)	14 (6)	30.5 (-23)	32.5 (13)	32.5 (-33)	22 (34)	26 (36)
	North	44	33	47 (14)	49.5 (13)	50.5 (-3)	27.5 (-1)	38.5 (-33)	30 (26)	26.5 (9)
	Northwest	43	45	26.5 (-7)	10 (-8)	40.5 (-5)	37 (-6)	46 (-2)	48 (2)	47.5 (3)
	South	47	44	41 (-8)	17.5 (5)	22 (-20)	42.5 (23)	52 (0)	52.5 (-3)	43.5 (17)
	Southeast	28	40	42.5 (7)	26.5 (47)	39 (-4)	38.5 (7)	39.5 (-3)	23 (-38)	37.5 (-19)
	West	5	46	16 (-6)	15.5 (-17)	19.5 (-9)	15 (-28)	40 (-6)	28.5 (-53)	39.5 (-29)
Sarigan	East	18	19	18.5 (1)	44.5 (5)	22.5 (1)	1 (0)	33 (16)	26.5 (-3)	18 (0)
	Northwest	33	30	26 (2)	34.5 (-11)	29.5 (3)	1 (0)	18 (14)	42 (4)	34.5 (3)
	Southwest	15	4	28.5 (13)	36 (16)	21.5 (-3)	12.5 (23)	22 (26)	5.5 (3)	7 (6)
Tinian	Northeast	45	39	47.5 (3)	29 (8)	50.5 (1)	34.5 (21)	35.5 (9)	41 (14)	34 (-14)
	Northwest	39	26	26.5 (-13)	16.5 (29)	38.5 (5)	11.5 (21)	21 (-32)	37.5 (17)	40.5 (13)
	Southeast	37	24	38.5 (1)	22 (10)	48 (-2)	35 (-12)	23.5 (19)	24 (0)	28.5 (27)
	Southwest	42	42	43.5 (1)	14 (18)	46 (14)	26.5 (3)	30.5 (-35)	40.5 (-7)	49.5 (1)
MEDIAN				26.5	28.5	22.5	27.5	30.5	25.5	28