APÉNDICE DIGITAL 1

1. Ubicación regional del área de estudio en Colombia **B.** con detalle departamental **C.** y local.

DIGITAL APPENDIX 1

1. Regional location of the study area in Colombia **B.** with departmental detail **C.** and local.



APÉNDICE DIGITAL 2

ANOVA para variación del crecimiento (cm2/día) de los individuos respecto a la competencia, la presencia o no de herbívoros y las épocas climáticas

DIGITAL APPENDIX 2

ANOVA for variation of the growth (cm2/day) of the individuals with respect to the competition, the presence or not of herbivores and the climatic seasons

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fuente | Gl | Suma de Cuadrados | Cuadrado Medio | Razón-F | Valor-P |
| ***Three Way Experimento Completo*** |  |  |  |  |  |
| A: Herbivoría | 1 | 1.29E-05 | 1.293E-05 | 7.8910 | 0.0066\* |
| B: Época | 1 | 7.82E-06 | 7.816E-06 | 4.7707 | 0.0326\* |
| C: Competencia | 7 | 1.82E-05 | 2.598E-06 | 1.5855 | 0.1558 |
| Herbivoría\*Época | 1 | 7.69E-07 | 7.691E-07 | 0.4694 | 0.4957 |
| Herbivoría\*Competencia | 7 | 7.36E-06 | 1.051E-06 | 0.6416 | 0.7198 |
| Época\*Competencia | 7 | 7.11E-06 | 1.016E-06 | 0.6200 | 0.7375 |
| Herbivoría\*Época\*Competencia | 7 | 6.23E-06 | 8.906E-07 | 0.5436 | 0.7982 |
| ***Two Way – Época Húmeda*** |  |  |  |  |
| Treatment | 7 | 9.28E-06 | 1.33E-06 | 0.7701 | 0.6163 |
| Herbivory | 1 | 3.70E-06 | 3.70E-06 | 2.1457 | 0.1527 |
| Treatment\*Herbivory | 7 | 3.15E-06 | 4.50E-07 | 0.2612 | 0.9644 |
| Treatment | 7 | 9.28E-06 | 1.33E-06 | 0.7701 | 0.6163 |
| ***Two Way – Época Seca*** |  |  |  |  |  |
| Treatment | 7 | 1.60E-05 | 2.29E-06 | 1.4712 | 0.2127 |
| Herbivory | 1 | 1.00E-05 | 1.00E-05 | 6.4341 | 0.0162 |
| Treatment\*Herbivory | 7 | 1.04E-05 | 1.49E-06 | 0.9596 | 0.4764 |
| Treatment | 7 | 1.60E-05 | 2.29E-06 | 1.4712 | 0.2127 |

APÉNDICE DIGITAL 3

Resultados de la prueba DMS para la variación del área de los juveniles. Cada celda contiene el valor P para las diferencias entre los tratamientos de sus respectivas filas y columnas

DIGITAL APPENDIX 3

Results of the DMS test for the variation of the juvenile area. Each cell contains the P-value for the differences between the treatments of their respective rows and columns

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Control | H | R | H + R | M | H + M | R + M | H+R+M |
| Control |  | 0.3482\* | 0.8150 | 0.2250 | 0.1020 | 0.3455\* | 0.2570\* | 0.2025 |
| H | 0.3482\* |  | 0.2667\* | 0.1232 | 0.2462\* | 0.0027 | 0.0912 | 0.1457 |
| R | 0.8150 | 0.2667\* |  | 0.1435 | 0.0205 | 0.2640\* | 0.1755 | 0.1210 |
| H+R | 0.2250 | 0.1232 | 0.1435 |  | 0.1230 | 0.1205 | 0.0320 | 0.0225 |
| M | 0.1020 | 0.2462\* | 0.0205 | 0.1230 |  | 0.2435\* | 0.1550 | 0.1005 |
| H+M | 0.3455\* | 0.0027 | 0.2640\* | 0.1205 | 0.2435\* |  | 0.0885 | 0.1430 |
| R+M | 0.2570\* | 0.0912 | 0.1755 | 0.0320 | 0.1550 | 0.9885 |  | 0.0545 |
| H+R+M | 0.2025 | 0.1457 | 0.1210 | 0.0225 | 0.1005 | 0.1430 | 0.0545 |  |

H = Coral Herido, R = Remoción algal, M = Alga artificial, H+R = Remoción+Herida del coral, H+M = Herida del coral+Alga artificial, R+M = Remoción algal + Alga artificial, H+R+M = todos los tratamientos combinados, \* = diferencia de medias es significativa en el nivel 0.

H = Coral damage - wounded, R = Algae removal, M = Artificial Algae, H+R = Coral damage + Algae removal, H+M = Coral damage + Artificial algae, R+M = Algal removal + Artificial algae, H+R+M = all treatments combined, \* = mean difference is significant at level 0.

APÉNDICE DIGITAL 4

Listado de especies de algas arrecifales encontradas durante el estudio (antes y después experimento)

DIGITAL APPENDIX 4

List of species of reef algae found during the study (before and after experiment)

|  |  |  |
| --- | --- | --- |
|  |  | Experimento |
|  | **Taxa** | **Control** | **Remoc.** | **C. Her.** | **A. Art** |
|  | **ALGAS FILAMENTOSAS DE TAPETE** |  |  |  |  |
| 1 | *Aglaothamnion* sp. Feldmann-Mazoyer  |  | X | X |  |
| 2 | *Aglaothamnion cordatum* (Børgesen) Feldmann-Mazoyer |  | X |  |  |
| 3 | *Antithamnion antillanum* Børgesen |  | X | X | X |
| 4 | *Boodleopsis* sp. A. Gepp & ES Gepp |  |  |  | X |
| 5 | *Bryopsis* sp*.* J.V. Lamouroux | X | X |  |  |
| 6 | *Bryopsis hypnoides* J. V. Lamouroux |  | X |  | X |
| 7 | *Bryopsis plumosa* (Hudson) C. Agardh |  | X |  |  |
| 8 | *Bryopsis ramulosa* Montagne |  | X |  |  |
| 9 | *Ceramium brevizonatum* H. E. Petersen | X | X |  |  |
| 10 | *Ceramium cimbricum* H. E. Petersen | X | X | X | X |
| 11 | *Ceramium cruciatum* Collins & Hervey | X | X | X | X |
| 12 | *Ceramium flaccidum* (Harvey ex Kützing) Ardissone |  |  | X |  |
| 13 | *Chaetomorpha* sp. Kützing |  | X | X | X |
| 14 | *Chondria baileyana* (Montagne) Harvey  |  | X |  |  |
| 15 | *Chondria capillaris* (Hudson) M. J. Wynne |  |  | X |  |
| 16 | *Chondria floridana* (Collins) M. Howe |  |  | X | X |
| 17 | *Cladophora albida* (Nees) Kutzing  |  | X | X |  |
| 18 | *Cladophora laetevirens* (Dillwyn) Kützing  |  | X | X | X |
| 19 | *Cladophora vagabunda* (Linnaeus) Hoek  |  | X | X |  |
| 20 | Cyanobacteriasp1. Stanier ex Cavalier-Smith  | X | X | X | X |
| 21 | Cyanobacteriasp2. Stanier ex Cavalier-Smith  |  | X |  |  |
| 22 | Cyanobacteriasp3. Stanier ex Cavalier-Smith  |  |  | X |  |
| 23 | Cyanobacteriasp4. Stanier ex Cavalier-Smith  | X |  |  |  |
| 24 | Cyanobacteriasp5. Stanier ex Cavalier-Smith  |  | X |  |  |
| 25 | Cyanobacteriasp6. Stanier ex Cavalier-Smith  |  | X |  |  |
| 26 | Cyanobacteriasp7. Stanier ex Cavalier-Smith  |  |  | X |  |
| 27 | Cyanobacteriasp8. Stanier ex Cavalier-Smith  |  |  |  | X |
| 28 | *Dasya* sp. C. Agardh |  | X | X |  |
| 29 | *Hincksia* sp. J. E. Gray | X | X |  |  |
| 30 | *Hincksia michelliae* (Harvey) P. C. Silva  |  | X |  |  |
| 31 | *Hypnea valentiae* (Turner) Montagne |  |  |  | X |
| 32 | *Lophosiphonia* sp*.* Falkenberg |  |  | X |  |
| 33 | *Lyngbya* sp. C. Agardh ex Gomont |  | X |  | X |
| 34 | *Lyngbya confervoides* C.Agardh ex Gomont |  | X |  |  |
| 35 | *Neosiphonia sertularioides* (Grateloup) K. W. Nam & P. J. Kang |  | X | X | X |
| 36 | *Melanothamnus gorgoniae* (Harvey) Díaz-Tapia & Maggs |  | X | X |  |
| 37 | *Polysiphonia* sp. Greville  | X | X | X |  |
| 38 | *Polysiphonia atlantica* Kapraun & J. N. Norris | X | X | X |  |
| 39 | *Polysiphonia denudata* (Dillwyn) Greville ex Harvey |  | X | X | X |
| 40 | *Polysiphonia havanensis* Montagne | X | X | X | X |
| 41 | *Trichogleopsis pedicellata* J. Schwede  | X | X |  |  |
|  | **TOTAL: 41** |  |  |  |  |
|  | **Porcentaje: 54.66 %** | 13.8 % | 42.1 % | 25.3 % | 18.6 % |
|  | **ALGAS CARNOSAS** |  |  |  |  |
| 42 | *Acanthophora* sp. J. V. Lamouroux |  |  | X |  |
| 43 | *Acanthophora spicifera* (M.Vahl) Børgesen | X | X |  | X |
| 44 | *Apoglossum* sp. J. Agardh |  | X |  |  |
| 45 | *Champia* sp. Desvaux |  |  | X | X |
| 46 | *Champia salicornioides* Harvey |  | X | X | X |
| 47 | *Dictyopteris delicatula* J. V. Lamouroux | X | X |  | X |
| 48 | *Dictyopteris jamaicensis* W. R Taylor |  |  | X |  |
| 49 | *Dictyota bartayresiana* J. V. Lamouroux | X | X | X |  |
| 50 | *Dictyota caribaea* Hörnig & Schnetter  | X | X |  |  |
| 51 | *Dictyota humifusa* Hörnig, Schnetter & Coppejans  | X | X | X | X |
| 52 | *Dictyota menstrualis* (Hoyt) Schnetter, Hörning & Weber-Peukert  |  | X | X | X |
| 53 | *Gelidiopsis* sp. F. Schmitz | X | X | X |  |
| 54 | *Ceratodictyon variabile* (J.Agardh) R. E. Norris |  | X | X |  |
| 55 | *Griffithsia* sp. C. Agardh |  | X | X | X |
| 56 | *Griffithsia schousboei* Montagne |  | X |  |  |
| 57 | *Halymenia* sp. C. Agardh | X | X |  |  |
| 58 | *Halymenia echinophysa* Collins & M. Howe |  | X |  |  |
| 59 | *Laurencia* sp. J. V. Lamouroux | X | X | X | X |
| 60 | *Laurencia poiteaui* J. V. Lamouroux | X | X | X | X |
| 61 | *Yuzurua poiteaui* (J. V. Lamouroux) Martin-Lescanne |  | X |  |  |
| 62 | *Lobophora variegata* (J. V. Lamouroux) Womersley ex E. C. Oliveira | X | X | X |  |
| 63 | *Nitophyllum punctatum* (Stackhouse) Greville |  | X |  |  |
| 64 | *Padina* sp. Adanson |  |  |  | X |
| 65 | *Padina gymnospora* (Kützing) Sonder | X | X | X | X |
| 66 | *Turbinaria tricostata* E. S. Barton | X | X |  | X |
|  | **TOTAL: 25** |  |  |  |  |
|  | **Porcentaje: 33.33 %** | 19.6 % | 35.2 % | 24.5 % | 20.5 % |
|  | **ALGAS CORALINAS** |  |  |  |  |
| 67 | *Amphiroa* sp.J. V. Lamouroux | X | X | X | X |
| 68 | *Amphiroa beauvoisii.* J. V. Lamouroux |  | X |  |  |
| 69 | *Amphiroa rigida* J. V. Lamouroux |  |  | X | X |
| 70 | *Galaxaura* sp*.* J. V. Lamouroux |  |  | X | X |
| 71 | *Galaxaura rugosa* (J. Ellis & Solander) J. V. Lamouroux |  | X |  |  |
| 72 | *Jania* sp. J. V. Lamouroux | X | X | X | X |
| 73 | *Jania adhaerens* J. V. Lamouroux |  |  | X | X |
| 74 | *Jania pumila* J. V. Lamouroux |  | X |  |  |
| 75 | *Mesophyllum mesomorphum* (Foslie) W. H. Adey |  |  | X |  |
|  | **TOTAL: 9** |  |  |  |  |
|  | **Porcentaje: 12 %** | 16.1 % | 32.2 % | 29.0 % | 22.5 % |

Remoc = Remoción, C. Her.= Coral Herido, A. Art. = Algas artificiales de latex. Las especies señaladas con \* hacen referencia a las más abundantes en cada grupo representado en el experimento.

Remoc = Removal, C. Her. = Wounded Coral, A. Art. = Artificial latex algae. The species marked with \* refer to the most abundant in each group represented in the experiment.

APÉNDICE DIGITAL 5

Listado de especies de peces encontrados a través de censo visual durante el estudio

DIGITAL APPENDIX 5

List of fish species found through visual census during the study

|  |  |  |  |
| --- | --- | --- | --- |
| **Familia** | **Especie** | **Nivel trófico** | **Presencia** |
| Pomacentridae | *Abudefduf saxatilis* Linnaeus | Omnívoro | A |
| Acanthuridae | *Acanthurus bahianus* Castelnau | Herbívoro | C |
| Acanthuridae | *Acanthurus chirurgus* Bloch | Herbívoro | R |
| Acanthuridae | *Acanthurus coeruleus* Bloch & Schneider | Herbívoro | C |
| Haemulidae | *Anisotremus virginicus* Linneo | Herbívoro | C |
| Labridae | *Bodianus rufus* Linneo | Carnívoro | C |
| Tetraodontidae | *Canthigaster figueiredoi* Moura & Castro | Omnívoro | R  |
| Tetraodontidae | *Canthigaster rostrata* Bloch | Omnívoro | C |
| Carangidae | *Caranx ruber* Bloch | Carnívoro | C |
| Chaetodontidae | *Chaetodon capistratus* Linneo | Carnívoro | C  |
| Chaetodontidae | *Chaetodon ocellatus* Bloch | Carnívoro | C |
| Pomacentridae | *Chromis chromis* Cuvier | Filtrador | R |
| Pomacentridae | *Chromis multilineata* Guichenot | Filtrador | R |
| Haemulidae | *Haemulon carbonarium* Poey | Carnívoro | C |
| Haemulidae | *Haemulon flavolineatum* Desmarest | Carnívoro | R |
| Haemulidae | *Haemulon macrostomum* Cuvier | Carnívoro | C |
| Labridae | *Halichoeres bivittatus* Bloch | Carnívoro | A |
| Labridae | *Halichoeres maculipinna* Müller & Troschel | Carnívoro | C |
| Labridae | *Halichoeres radiatus* Linneo | Carnívoro | C |
| Kyphosidae | *Kyphosus* sp. Lacépède | Omniívoro | C |
| Pomacentridae | *Microspathodon chrysurus* Cuvier | Omnívoro | C |
| Serranidae  | *Mycteroperca bonaci* Poey | Carnívoro | R |
| Scorpaenidae | *Pterois Volitans* Linneo | Omnívoro | C |
| Scaridae | *Scarus croicensis* Bloch | Herbívoro | C |
| Scaridae | *Scarus taeniopterus* Desmarest | Herbívoro | C |
| Scaridae | *Sparisoma aurofrenatum* Valenciennes | Herbívoro | C |
| Scaridae | *Sparisoma rubripinne* Valenciennes | Herbívoro | C |
| Scaridae | *Sparisoma viride* Bonnaterre | Herbívoro | C |
| Pomacentridae | *Stegastes adustus* Castelnau | Omnívoro | C |
| Pomacentridae | *Stegastes planifrons* Cuvier | Herbívoro | A |
| Pomacentridae | *Stegastes partitus* Poey | Herbívoro | C |
| Sphyraenidae  | *Sphyraena barracuda* Edwards | Carnívoro | R |
| Labridae | *Thalassoma bifasciatum* Bloch | Carnívoro | C |
| Carangidae | *Trachinotus goodai* Jordan & Evermann | Carnívoro | R |
| Carnívoros: 39.4 % Herbívoros: 36.5 % Omnívoros: 18.2 % Filtradores 6 %. |

A = Abundante (> 30 individuos/m2), C = Común (entre 10 y 30 individuos/m2), R = Raro (< 5 individuos/m2).

A = Abundant (> 30 individuals/m2), C = Common (between 10 and 30 individuals/m2), R = Rare (< 5 individuals/m2).

APÉNDICE DIGITAL 6

Abundancia de peces en el experimento, medida como el porcentaje de aparición.

DIGITAL APPENDIX 6

Fish abundance in the experiment, measured as the percentage of occurrence.

