

**Deciphering preferences of shelter volume and distribution by coral reef fishes, using
systematic and functional grouping**

Supplementary data

Table 1: The depth of each balcony is determined by the column number counted from the shoreline. If there was more than one balcony on a column, this is indicated by the “Balcony Depth”; “Experiment” with the experiment type: “Dispersed vs. clumped” refers to the dispersed versus clumped distributions; and “Different sized RAS” represents the observation of three different sized shelters.

Pole Number	Balconies Depths (Meters)	Experiment
Pole 8	9.5	Dispersed vs. clumped
Pole 9	10 11.4	Dispersed vs. clumped Dispersed vs. clumped
Pole A	8.7 1.10 11.3	Different size RAS Different size RAS Control
Pole B	8 10.6 12.5	Different sized RAS Different sized RAS Dispersed vs. clumped

Table 2: Latin names of each species and family recorded during the surveys. Total of 92 species from 30 different families.

Acanthuridae
1. <i>Acanthurus nigrofusus/ Ctenochaetus striatus</i>
2. <i>Zebrasoma desjardini</i>
3. <i>Zebrasoma xanthurum</i>
Antennariidae
4. <i>Antennatus coccineus</i>
Apogonidae
5. <i>Apogon erythrosoma</i>
6. <i>Cheilodipterus novemstriatus</i>
7. <i>Ostorhinchus cyanosoma</i>
Balistidae
8. <i>Sufflamen albicaudatus</i>
Blenniidae
9. <i>family / (Unknown) Blenniidae</i>
10. <i>Ecsenius dentex</i>
11. <i>Ecsenius frontalis</i>
12. <i>Ecsenius gravieri</i>
13. <i>Ecsenius midas</i>
14. <i>Mimoblennius cirrosus</i>
15. <i>Plagiotremus tapeinosoma</i>
Caesionidae (Fusiliers)
16. <i>Caesio lunaris / Caesio suevica</i>
Chaetodontidae (Butterflyfishes)
17. <i>Chaetodon auriga</i>
18. <i>Chaetodon austriacus</i>
19. <i>Chaetodon fasciatus</i>
20. <i>Heniochus intermedius</i>
21. <i>Chaetodon paucifasciatus</i>
22. <i>Chaetodon trifascialis</i>
Congridae
23. <i>Conger cinereus</i>
Gobiidae
24. <i>Eviota guttata</i>
25. (Unknown) Gobiidae family
26. <i>Pleurosicya micheli</i>
Holocentridae
27. <i>Myripristis murdjan</i>
28. <i>Neoniphon sammara</i>
29. <i>Sargocentron diadema</i>
30. <i>Sargocentron rubrum</i>

Kyphosidae

31. *Kyphosus cinerascens* / *Kyphosus vaigiensis*

Labridae (Wrasses)

32. *Bodianus anthioides*
33. *Bodianus diana*
34. *Cheilinus abudjubbe*
35. *Cheilinus lunulatus*
36. *Coris aygula*
37. *Labroides dimidiatus*
38. *Larabicus quadrilineatus*
39. *Oxycheilinus mentalis*
40. *Pseudocheilinus hexataenia*
41. *Thalassoma lunare*
42. *Thalassoma rueppellii*

Lethrinidae

43. *Monotaxis grandoculis*

Monacanthidae

44. *Aluterus scriptus*
45. *Cantherhines pardalis*

Mullidae

46. *Parupeneus cyclostomus*
47. *Parupeneus forsskali* / *Parupeneus macronema*

Muraenidae

48. Muraenidae family
49. *Gymnothorax flavimarginatus*
50. *Gymnothorax griseus*
51. *Gymnothorax pharaoensis*

Ostraciidae

52. *Ostracion cubicus*

Pempheridae

53. *Pempheris vanicolensis*

Pomacanthidae (Angelfishes)

54. *Apolemichthys xanthurus*
55. *Pomacanthus imperator*

Pomacentridae (Damsel-fishes)

56. *Abudefduf vaigiensis*
57. *Amblyglyphidodon flavilatus*
58. *Amblyglyphidodon indicus*
59. *Chromis viridis*
60. *Chromis weberi*
61. *Dascyllus trimaculatus*
62. *Marginate dascyllus*
63. *Neopomacentrus miryae*
64. *Pomacentrus trichrourus*

Pseudochromidae (Dottybacks)

65. *Pseudochromis fridmani*

66. *Pseudochromis olivaceus*

67. *Pseudochromis springeri*

Scaridae (Parrotfishes)

68. *Calotomus viridescens*

69. *Chlorurus gibbus*

70. *Chlorurus sordidus*

71. *Scarus ferrugineus*

72. *Scarus niger*

Scorpaenidae

73. *Pterois miles*

74. *Scorpaenodes corallinus*

75. *Scorpaenopsis oxycephala*

Serranidae

76. *Aethaloperca rogaa*

77. *Cephalopholis argus*

78. *Cephalopholis hemistiktos*

79. *Cephalopholis miniata*

80. *Epinephelus fasciatus*

81. *Pseudanthias squamipinnis*

82. *Pseudanthias taeniatus*

Siganidae

83. *Siganus argenteus*

84. *Siganus rivulatus*

85. *Siganus stellatus*

Sparidae

86. *Diplodus noct*

Syngnathidae

87. *Corythoichthys flavofasciatus* *Corythoichthys schultzi* /

Synodontidae

88. *Synodus variegatus*

Tetraodontidae

89. *Arothron diadematus*

90. *Arothron hispidus*

91. *Canthigaster margaritata*

Tripterygiidae

92. *Norfolkia brachylepis*

Table 3: The five most abundant families and the species recorded for each family.

Pomacentridae (N=9)	Serranidae (N=7)	Labridae (N=11)	Acanthuridae (N=3)	Scaridae (N=5)
1. <i>Abudefduf vaigiensis</i> 2. <i>Dascyllus trimaculatus</i> 3. <i>Marginate dascyllus</i> 4. <i>Chromis weberi</i> 5. <i>Neopomacentrus miryae</i> 6. <i>Amblyglyphidodon indicus</i> 7. <i>Amblyglyphidodon flavilatus</i> 8. <i>Pomacentrus trichrourus</i> 9. <i>Chromis viridis</i>	1. <i>Pseudanthias squamipinnis</i> 2. <i>Cephalopholis miniata</i> 3. <i>Cephalopholis argus</i> 4. <i>Pseudanthias taeniatus</i> 5. <i>Aethaloperca rogaa</i> 6. <i>Epinephelus fasciatus</i> 7. <i>Cephalopholis hemistiktos</i>	1. <i>Bodianus anthioides</i> 2. <i>Bodianus diana</i> 3. <i>Cheilinus abudjubbe</i> 4. <i>Cheilinus lunulatus</i> 5. <i>Coris aygula</i> 6. <i>Labroides dimidiatus</i> 7. <i>Larabicus quadrilineatus</i> 8. <i>Oxycheilinus mentalis</i> 9. <i>Pseudocheilinus hexataenia</i> 10. <i>Thalassoma lunare</i> 11. <i>Thalassoma rueppellii</i>	1. <i>Acanthurus nigrofuscus/Ctenochaetus striatus</i> 2. <i>Zebrasoma desjardinii</i> 3. <i>Zebrasoma xanthurum</i>	1. <i>Calotomus viridescens</i> 2. <i>Chlorurus gibbus</i> 3. <i>Chlorurus sordidus</i> 4. <i>Scarus ferrugineus</i> 5. <i>Scarus niger</i>

Table 4: The five dietary groups and the species recorded and considered for each group.

Planktivore (N=8)	Corallivore (N = 2)	Herbivore (N = 9)	Benthivore (N = 14)	Piscivore (N = 8)
1. <i>Pseudanthias squamipinnis</i> 2. <i>Abudefduf vaigiensis</i> 3. <i>Caesio lunaris</i> / <i>Caesio suevica</i> 4. <i>Dascyllus trimaculatus</i> 5. <i>Chromis weberi</i> 6. <i>Neopomacentrus miryae</i> 7. <i>Amblyglyphidodon indicus</i> 8. <i>Pomacentrus trichrourus</i>	1. <i>Chaetodon paucifasciatus</i> 2. <i>Larabicus quadrilineatus</i> 3. <i>Labridae</i>	1. <i>Acanthurus nigrofasciatus/</i> <i>Ctenochaetus striatus</i> 2. <i>Scarus ferrugineus</i> 3. <i>Ostracion cubicus</i> 4. <i>Zebrasoma xanthurum</i> 5. <i>Scarus niger</i> 6. <i>Ecsenius dentex</i> 7. <i>Ecsenius gravieri</i> 8. <i>Calotomus viridescens</i> 9. <i>Ecsenius frontalis</i>	1. <i>Thalassoma rueppellii</i> 2. <i>Thalassoma lunare</i> 3. <i>Bodianus anthioides</i> 4. <i>Parupeneus forsskali</i> / <i>Parupeneus macronema</i> 5. <i>Pseudochromis fridmani</i> 6. <i>Corythoichthys flavofasciatus</i> / <i>Corythoichthys schultzi</i> 7. <i>Pleurosicya micheli</i> 8. <i>Eviota guttata</i> 9. <i>Bodianus diana</i> 10. <i>Pseudochromis olivaceus</i> 11. <i>Neoniphon sammara</i> 12. <i>Pseudochromis springeri</i> 13. <i>Pseudocheilinus hexataenia</i> 14. <i>Gymnothorax pharaoensis</i>	1. <i>Oxycheilinus mentalis</i> 2. <i>Pterois miles</i> 3. <i>Cephalopholis miniata</i> 4. <i>Synodus variegatus</i> 5. <i>Cheilodipterus novemstriatus</i> 6. <i>Aethaloperca rogaa</i> 7. <i>Plagiotremus tapeinosoma</i> 8. <i>Scorpaenodes corallinus</i>