DIGITAL APPENDIX 1

Mean estimated density and biomass of fishes for rocky reefs and sandy areas in the study site

|  |  |  |  |
| --- | --- | --- | --- |
| Family | Species | Mean density (org m-2) | Mean biomass (t ha-1) |
| SA | RF | SA | RF |
| Acanthuridae | *Prionurus laticlavius* (H) | - | 0.006 | - | 0.001 |
| Apogonidae | *Apogon dovii* (C)  | - | 0.028 | - | 0.001 |
| *Apogon retrosella* (PL) | - | 0.016 | - | 0.0003 |
| Balistidae | *Pseudobalistes naufragium* (C)  | 0.012 | 0.007 | 0.015 | 0.027 |
| *Sufflamen verres* (C) | 0.004 | 0.059 | 0.001 | 0.035 |
| Belonidae | *Platybelone argalus pterura* (P) | - | 0.200 | - | 0.008 |
| *Tylosurus pacificus* (P) | 0.014 | 0.016 | 0.098 | 0.007 |
| Blenniidae | *Entomacrodus chiostictus* (H) | - | 0.004 | - | 0.00004 |
| *Ophioblennius steindachneri* (H) | - | 0.060 | - | 0.005 |
| *Plagiotremus azaleus* (P) | 0.044 | 0.050 | 0.000 | 0.001 |
| Carangidae | *Caranx caballus* (P) | 0.418 | 0.956 | 0.291 | 0.485 |
| *Caranx caninus* (P) | 0.006 | - | 0.117 | - |
| *Decapterus macarellus* (PL) | 0.200 | - | 0.014 | - |
| *Selene brevoortii* (P) | 0.008 | - | 0.002 | - |
| *Trachinotus rhodopus* (P) | 0.031 | - | 0.031 | - |
| Chaenopsidae | *Acanthemblemaria exilispinus* (C) | - | 0.004 | - | 2.60E-05 |
| *Acanthemblemaria hancocki* (C) | - | 0.019 | - | 9.30E-05 |
| *Coralliozetus boehlkei* (C) | - | 0.004 | - | 2.60E-05 |
| Chaetodontidae | *Chaetodon humeralis* (C) | 0.024 | 0.017 | 0.001 | 0.004 |
| *Johnrandallia nigrirostris* (C) | - | 0.024 | - | 0.016 |
| Cirrhitidae | *Cirrhitus rivulatus* (P) | - | 0.018 | - | 0.015 |
| Clupeidae | *Opisthonema medirastre* (PL) | 4.000 | 4.000 | 0.051 | 0.051 |
| Congridae | *Heteroconger klausewitzi* (PL) | 1.396 | - | 3.931 | - |
| Dasyatidae | *Himantura pacifica* (P) | 0.004 | - | 1.503 | - |
| *Hypanus dipterurus* (C) | 0.008 | - | 1.179 | - |
| Hypanus longus (P) | 0.016 | 0.007 | 4.655 | 4.147 |
| Diodontidae | *Diodon holocanthus* (C) | 0.064 | 0.051 | 0.037 | 0.032 |
| *Diodon hystrix* (C) | 0.016 | 0.014 | 0.013 | 0.052 |
| Elopidae | *Elops affinis* (P) | 0.202 | 0.160 | 0.176 | 0.462 |
| Engraulidae | *Anchoa argentivittata* (PL) | 4.000 | - | 0.031 | - |
| *Anchoviella balboae* (PL) | 4.000 | 2.000 | 0.032 | 0.016 |
| Fistulariidae | *Fistularia commersonii* (P) | - | 0.046 | - | 0.029 |
| Gerreidae | *Gerres simillimus* (C) | 0.312 | 0.176 | 0.127 | 0.044 |
| Gobiidae | *Coryphopterus urospilus* (C) | - | 0.034 | - | 0.000 |
| *Elacatinus puncticulatus* (C) | - | 0.080 | - | 0.001 |
| Gymnuridae | *Gymnura mormorata* (P) | - | 0.004 | - | 0.097 |
| Haemulidae | *Anisotremus taeniatus* (C) | - | 0.004 | - | 0.002 |
| *Genyatremus dovii* (C) | - | 0.012 | - | 0.004 |
| *Haemulon flaviguttatum* (C) | - | 0.040 | - | 0.005 |
| *Haemulon maculicauda* (C) | - | 0.641 | - | 0.095 |
| *Haemulon scudderii* (P) | - | 0.080 | - | 0.013 |
| *Haemulon sexfasciatum* (P) | - | 0.614 | - | 0.031 |
| *Haemulon steindachneri* (C) | - | 0.178 | - | 0.036 |
| *Microlepidotus brevipinnis* (C) | - | 0.060 | - | 0.010 |
| Holocentridae | *Sargocentron suborbitale* (C) | - | 0.016 | - | 0.007 |
| Kyphosidae | *Kyphosus elegans* (H) | - | 0.007 | - | 0.004 |
| Labridae | *Bodianus diplotaenia* (C) | - | 0.055 | - | 0.026 |
| *Halichoeres chierchiae* (C) | 2.000 | 0.117 | 0.028 | 0.012 |
| *Halichoeres dispilus* (C) | 0.080 | 0.281 | 0.001 | 0.009 |
| *Halichoeres nicholsi* (C) | - | 0.201 | - | 0.017 |
| *Halichoeres notospilus* (C) | - | 0.250 | - | 0.036 |
| *Iniistius pavo* (C) | 0.004 | - | 0.004 | - |
| *Thalassoma lucasanum* (C) | - | 0.188 | - | 0.009 |
| Labrisomidae | *Malacoctenus tetranemus* (C) | - | 0.095 | - | 0.003 |
| Lutjanidae | *Lutjanus guttatus* (P) | 0.302 | 0.094 | 0.011 | 0.007 |
| Mugilidae | *Mugil cephalus* (PL) | 0.037 | - | 0.066 | - |
| Mullidae | *Mulloidichthys dentatus* (C) | - | 0.004 | - | 0.002 |
| Muraenidae | *Echidna nocturna* (P) | - | 0.005 | - | 0.001 |
| *Muraena lentiginosa* (P) | - | 0.009 | - | 0.003 |
| Myliobatidae | *Aetobatus laticeps* (C) | 0.010 | 0.004 | 0.504 | 2.107 |
| Narcinidae | *Narcine entemedor* (C) | 0.008 | - | 0.053 | - |
| Nematistiidae | *Nematistius pectoralis* (P) | 0.023 | - | 0.111 | - |
| Ophicthydae | *Myrichthys tigrinus* (P) | 0.004 | 0.004 | 0.003 | 0.005 |
| *Ophichthus triserialis* (P) | 0.004 | - | 0.024 | - |
| Pomacanthidae | *Holacanthus passer* (C) | - | 0.006 | - | 0.005 |
| *Pomacanthus zonipectus* (C) | - | 0.006 | - | 0.006 |
| Pomacentridae | *Abudefduf concolor* (H) | - | 0.033 | - | 0.021 |
| *Abudefduf declivifrons* (H) | - | 0.220 | - | 0.115 |
| *Abudefduf troschelii* (H) | - | 0.403 | - | 0.090 |
| *Chromis alta* (PL) | - | 0.030 | - | 0.010 |
| *Chromis atrilobata* (PL) | - | 0.107 | - | 0.015 |
| *Microspathodon bairdii* (H) | - | 0.062 | - | 0.050 |
| *Microspathodon dorsalis* (H) | - | 0.039 | - | 0.033 |
| *Stegastes acapulcoensis* (H) | - | 0.327 | - | 0.102 |
| *Stegastes flavilatus* (H) | 0.004 | 0.194 | 0.001 | 0.040 |
| Pristigasteridae | Pliosteostoma lutipinnis (PL) | 6.000 | - | 0.180 | - |
| Rhinopteridae | *Rhinoptera steindachneri* (C) | - | 0.016 | - | 0.859 |
| Scaridae | *Scarus ghobban* (H) | - | 0.045 | - | 0.032 |
| *Scarus perrico* (H) | - | 0.024 | - | 0.009 |
| Sciaenidae | *Corvula macrops* (P) | - | 0.200 | - | 0.033 |
| Scorpaenidae | *Scorpaena mystes* (P) | - | 0.006 | - | 0.009 |
| Serranidae | *Alphestes immaculatus* (P) | - | 0.024 | - | 0.003 |
| *Cephalopholis panamensis* (P) | - | 0.010 | - | 0.005 |
| *Epinephelus labriformis* (P) | 0.004 | 0.039 | 0.001 | 0.010 |
| *Mycteroperca xenarcha* (P) | - | 0.004 | - | 0.005 |
| *Rypticus bicolor* (P) | 0.008 | 0.004 | 0.005 | 0.002 |
| *Serranus psittacinus* (P) | - | 0.035 | - | 0.007 |
| Synodontidae | *Synodus lacertinus* (P) | - | 0.004 | - | 0.001 |
| Tetraodontidae | *Arothron hispidus* (C) | - | 0.006 | - | 0.006 |
| *Arothron meleagris* (C) | - | 0.007 | - | 0.008 |
| *Canthigaster punctatissima* (C) | - | 0.014 | - | 0.001 |
| *Sphoeroides annulatus* (C) | - | 0.004 | - | 0.006 |
| *Sphoeroides lobatus* (C) | 0.008 | 0.010 | 0.005 | 0.002 |
| Tripterygiidae | *Lepidonectes clarkhubbsi* (C) | - | 0.022 | - | 0.000 |
| Urotrygonidae | *Urolophus halleri*(C) | 0.004 | 0.004 | 0.022 | 0.014 |
| *Urotrygon chilensis* (C) | 0.008 | - | 0.054 | - |
| *Urotrygon rogersi* (C) | 0.011 | - | 0.059 | - |

\* SA represents sandy areas and RF rocky reefs. P correspond to piscivores, C to carnivores, H to herbivores and PL to planktivorous fishes. The dash-line represents areas where we did not register densities or biomass for the species.

DIGITAL APPENDIX 2

Mean estimated density for rocky reef marine invertebrates in the study area

| Phylum | Class | Subclass | Order | Family | Species | Mean density (org m-2) |
| --- | --- | --- | --- | --- | --- | --- |
| Annelida | Polychaeta | /// | /// | /// | No id | 0.205 |
| Errantia | Amphinomida | Amphinomidae | *Eurythoe complanata*  | 0.021 |
| Sedentaria | Sabellida | Sabellidae | *Parasabella rugosa*  | 0.060 |
| Arthropoda | Malacostraca | Eumalacostraca | Decapoda | Inachoididae | *Stenorhynchus debilis*  | 0.292 |
| Palinuridae | *Palinurus gracilis*  | 0.083 |
| Calappidae | *Calappa convexa*  | 0.020 |
| Diogenidae | *Aniculus elegans*  | 0.053 |
| *Trizopagurus magnificus*  | 0.127 |
| Mithracidae | *Teleophrys cristulipes*  | 0.020 |
| Chordata | Ascidiacea | /// | Aplousobranchia | Diazonidae | *Rhopalaea birkelandi*  | 1.565 |
| Cnidaria | Anthozoa | Hexacorallia | Actiniaria | /// | Not Id 1 | 0.020 |
| Not Id 2 | 0.030 |
| Not Id 3 | 0.020 |
| Not Id 4 | 0.060 |
| Not Id 5 | 0.020 |
| Hormathiidae | *Calliactis polypus*  | 0.040 |
| Scleractinia | /// | Not id  | 0.080 |
| Octocorallia | Alcyonacea | Gorgoniidae | *Leptogorgia alba*  | 1.510 |
| *Leptogorgia rigida*  | 0.047 |
| *Pacifigorgia eximia*  | 0.020 |
| Hydrozoa | Hydroidolina | Leptothecata | Aglaopheniidae | *Macrorhynchia nuttingi*  | 0.360 |
| *Macrorhynchia philippina*  | 0.600 |
| Echinodermata | Asteroidea | /// | Valvatida | Ophidiasteridae | *Pharia pyramidata*  | 0.030 |
| *Phataria unifascialis*  | 0.020 |
| Oreasteridae | *Nidorellia armata*  | 0.020 |
| Echinoidea | Cidaroidea | Cidaroida | Cidaridae | *Eucidaris thouarsii* | 0.767 |
| Euechinoidea | Camarodonta | Echinometridae | *Echinometra vanbrunti*  | 1.100 |
| Toxopneustidae | *Toxopneustes roseus*  | 0.097 |
| *Tripneustes depressus*  | 0.037 |
| Diadematoida | Diadematidae | *Diadema mexicanum*  | 3.211 |
| *Astropyga pulvinata*  | 0.620 |
| *Centrostephanus coronatus*  | 0.302 |
| Spatangoida | Brissidae | *Brissopsis pacifica*  | 0.040 |
| Holothuroidea | /// | Dendrochirotida | Cucumariidae | *Cucumaria flamma*  | 0.020 |
| *Pseudocnus californicus*  | 0.154 |
| Phyllophoridae | *Pentamera chierchiae*  | 0.060 |
| Holothuriida | Holothuriidae | *Holothuria (Halodeima) atra*  | 0.800 |
| *Holothuria (Mertensiothuria) hilla*  | 0.040 |
| *Holothuria (Semperothuria) imitans*  | 0.115 |
| *Holothuria (Thymiosycia) arenicola*  | 0.020 |
| *Holothuria (Thymiosycia) impatiens*  | 0.080 |
| Synallactida | Stichopodidae | *Isostichopus fuscus*  | 0.054 |
| Ophiuroidea | Myophiuroidea | Amphilepidida | Ophiotrichidae | *Ophiothrix (Ophiothrix) spiculata*  | 0.053 |
| Ophiacanthida | Ophiodermatidae | *Ophioderma panamense*  | 0.250 |
| Ophiocomidae | *Ophiocoma aethiops* | 1.183 |
| *Ophiocoma alexandri*  | 0.925 |
| *Ophiocomella sexradia*  | 0.409 |
| Mollusca | Bivalvia | Heterodonta | /// | Chamidae | *Chama buddiana*  | 0.022 |
| Pteriomorphia | Ostreida | Ostreidae | *Alectryonella plicatula*  | 0.020 |
| *Striostrea prismatica*  | 0.052 |
| Pinnidae | *Pinna rugosa*  | 0.114 |
| Pteriidae | *Pinctada mazatlanica*  | 0.091 |
| Cephalopoda | Coleoidea | Octopoda | Octopodidae | *Octopus vulgaris*  | 0.035 |
| Gastropoda | Caenogastropoda | Littorinimorpha | Cypraeidae | *Pseudozonaria arabicula*  | 0.020 |
| Tonnidae | *Malea ringens*  | 0.067 |
| Neogastropoda | Conidae | *Conus dalli*  | 0.030 |
| Fasciolariidae | *Latirus ceratus*  | 0.081 |
| *Opeatostoma pseudodon*  | 0.173 |
| Melongenidae | *Melongena patula*  | 0.020 |
| Muricidae | *Hexaplex ambiguus* | 0.230 |
| *Hexaplex brassica* | 0.180 |
| *Hexaplex princeps* | 0.090 |
| *Muricopsis zeteki* | 0.060 |
| *Vasula melones* | 0.133 |
| Pisanidae | *Gemophos sanguinolentus*  | 0.020 |
| Turbinellidae | *Vasum caestus* | 0.340 |
| Heterobranchia | (Superorden) Sacoglossa | Plakobranchidae | *Elysia diomedea*  | 0.033 |
| Nudibranchia | Chromodorididae | *Felimare agassizii*  | 0.030 |
| Flabellinidae | *Kynaria cynara*  | 0.020 |
| Pleurobranchomorpha | Pleurobranchidae | *Berthellina ilisima*  | 0.074 |
| Porifera | Desmospongia | /// | /// | /// | Not Id | 0.060 |