**Table S3.** Species/OTU sampling location and number of sequence reads, assembled contigs, and UCE loci per sample.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species/OTU** | **Location** | **UCE ID** | **Specimen ID** | **Reads**  | **Contigs** | **UCE loci** |
| *Cirrhilabrus aurantidorsalis*a | Sulawesi, Indonesia | F586 | F586 | 176 | 34 | 11 |
| *Cirrhilabrus balteatus* | Majuro, Marshall Islands | F5 | Z868 | 748969 | 14475 | 1046 |
| *Cirrhilabrus bathyphilus* | Holmes Reef, Coral Sea | F6 | L2075 | 821468 | 18815 | 1047 |
| *Cirrhilabrus brunneus* | Raja Ampat, Indonesia | F606 | KB10a | 515395 | 2764 | 1058 |
| *Cirrhilabrus cenderawasih* | Dili, Timor-Leste | F393 | AMS I. 46121-071 | 766595 | 181552 | 676 |
| *Cirrhilabrus claire* | Moorea, French Polynesia | F632 | KCG3 | 337818 | 3154 | 1062 |
| *Cirrhilabrus cyanogularis* | Sulu Archipelago, Philippines | F592 | KC17 | 617052 | 105706 | 1025 |
| *Cirrhilabrus cyanopleura* | Luzon, Philippines | F613 | KB16A | 665675 | 115699 | 1016 |
| *Cirrhilabrus exquisitus* (Ky) | Kenya | F593 | KC18 | 677810 | 110439 | 1021 |
| *Cirrhilabrus exquisitus* (Md) | Maldives | F8 | L2208 | 1660125 | 274462 | 692 |
| *Cirrhilabrus exquisitus* (CS) | Coral Sea | F611 | KB14B | 681490 | 113652 | 1028 |
| *Cirrhilabrus exquisitus* (GBR) | Yonge Reef, Great Barrier Reef | F145 | LG876–8 | 950773 | 32536 | 930 |
| *Cirrhilabrus exquisitus* (ET) | East Timor | F610 | KB14A | 542298 | 93201 | 1042 |
| *Cirrhilabrus filamentosus* | Bali, Indonesia | F9 | L1213 | 747765 | 15764 | 1045 |
| *Cirrhilabrus greeni* | Timor Sea | F615 | KB17A | 524705 | 92165 | 1051 |
| *Cirrhilabrus hygroxerus* | Timor Sea | F631 | KC23 | 300548 | 3150 | 1055 |
| *Cirrhilabrus isosceles* | Cagayan, Philippines | F595 | KC19B | 363852 | 41569 | 942 |
| *Cirrhilabrus joanallenae* | Sumatra, Indonesia | F10 | M1092 | 676031 | 16808 | 1057 |
| *Cirrhilabrus jordani* | Hawaiian Islands | F11 | L794 | 1031074 | 28216 | 1050 |
| *Cirrhilabrus katoi* | Cagayan, Philippines | F625 | KB6 | 550253 | 52724 | 680 |
| *Cirrhilabrus laboutei* | Yonge Reef, Great Barrier Reef | F146 | LG882-3 | 1290803 | 47667 | 1032 |
| *Cirrhilabrus lineatus* | Holmes Reef, Coral Sea | F16 | M1227 | 841453 | 29298 | 1029 |
| *Cirrhilabrus lubbocki* | Bali, Indonesia | F17 | M1343 | 831714 | 29382 | 1043 |
| *Cirrhilabrus lunatus* | Cagayan, Philippines | F624 | KB5 | 460785 | 59961 | 672 |
| *Cirrhilabrus luteovittatus* | Pohnpei, Micronesia | F170 | L1782 | 845668 | 27194 | 1032 |
| *Cirrhilabrus melanomarginatus* | Palawan, Philippines | F588 | KC8 | 384518 | 44765 | 806 |
| *Cirrhilabrus nahackyi* | Tonga | F583 | KC4 | 440882 | 59672 | 760 |
| *Cirrhilabrus naokoae* | Medan, Indonesia | F596 | KC20 | 391435 | 50525 | 839 |
| *Cirrihilabrus punctatus* | Holmes Reef, Coral Sea | F609 | KB13 | 420343 | 2468 | 1022 |
| *Cirrhilabrus pylei* | Vanuatu | F19 | M1484 | 692238 | 23228 | 1049 |
| *Cirrhilabrus randalli*a | Scott Reef, Timor Sea | F264 | M1069 | 3993185 | 792809 | 151 |
| *Cirrhilabrus rhomboidalis* | Majuro, Marshall Islands | F578 | KC15 | 522306 | 2322 | 1029 |
| *Cirrhilabrus rubeus* | Maldives | F574 | KC13 | 346088 | 2450 | 1028 |
| *Cirrhilabrus rubrimarginatus* | Luzon, Philippines | F571 | KC10 | 469336 | 2313 | 1043 |
| *Cirrhilabrus roseafascia* | Luzon, Philippines | F580 | KC16B | 427344 | 2291 | 1026 |
| *Cirrhilabrus rubripinnis* | Luzon, Philippines | F629 | KC21C | 420695 | 2745 | 1031 |
| *Cirrhilabrus rubrisquamis* | Maldives | F582 | KC3 | 493468 | 2683 | 1039 |
| *Cirrhilabrus rubriventralis* | Oman | F20 | RS4214 | 866158 | 31412 | 996 |
| *Cirrhilabrus ryukyuensis* | Cagayan, Philippines | F589 | KC9 | 507708 | 2731 | 1036 |
| *Cirrhilabrus sanguineus* | Mauritius | F633 | ZRC 60668 | 470512 | 2925 | 1044 |
| *Cirrhilabrus scottorum* | Moorea | F21 | L1236 | 716644 | 23224 | 1038 |
| *Cirrhilabrus shutmani* | Babuyan Islands, Philippines | F627 | KB8 | 474801 | 2899 | 1047 |
| *Cirrhilabrus* aff *solorensis* | Sulawesi, Indonesia | F572 | KC11 | 665215 | 2847 | 1044 |
| *Cirrhilabrus squirei* | Holmes Reef, Coral Sea | F612 | KB15 | 437360 | 2475 | 1053 |
| *Cirrhilabrus temminckii* | Bali, Indonesia | F608 | KB11B | 361491 | 2439 | 1045 |
| *Cirrhilabrus* cf. *solorensis* | Timor Sea | F581 | KC2 | 222986 | 2057 | 1054 |
| *Cirrhilabrus* “red head” | Bali, Indonesia | F620 | KB20 | 216566 | 2148 | 1056 |
| *Conniella apterygia* | Rowley Shoals, Timor Sea | F601 | NMV Z15114 | 294338 | 2097 | 1056 |
| *Paracheilinus attenuatus* | Kenya | F591 | KP1 | 732119 | 2885 | 1033 |
| *Paracheilinus hemitaeniatus* | Madagascar | F590 | KP2 | 825606 | 2817 | 1043 |
| *Pseudocheilinus evanidus* | Moorea | F26 | M141 | 664523 | 22629 | 1034 |
| *Pseudocheilinus hexataenia* | Moorea | F27 | M111 | 791985 | 34492 | 962 |
| *Pseudocheilinus ocellatus* | Majuro, Marshall Islands | F28 | M2007 | 771794 | 27266 | 915 |
| *Pseudocheilinus octotaenia*  | Scott Reef, Western Australia | F29 | M1066 | 772251 | 37172 | 1037 |
| *Pseudocheilinus tetrataenia* | Moorea | F30 | M128 | 723766 | 29601 | 1018 |
| *Pseudocheilinops ataenia* | Papua New Guinea | F265 | M529 | 3735132 | 566385 | 160 |
| *Pteragogus amboinensis* | Tonga | F338 | AMS I. 46739 | 1723507 | 196362 | 612 |
| *Pteragogus cryptus*  | Orpheus Island, Australia | F32 | M14 | 766747 | 24868 | 1048 |

a Sample removed from data set due to low number of UCEs