Table S1 List of fish species over the northern slope in the South China Sea during 2015 and 2017–2018. (The number in the year column indicates the number of occurrences of fish species)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Numbers | Family | species | 2015 | 2017 | 2018 |
| 1 | Acropomatidae | *Acropoma hanedai* | 1 |  |  |
| 2 |  | *Doederleinia berycoides* |  | 1 | 2 |
| 3 |  | *Malakichthys elegans* | 1 |  |  |
| 4 |  | *Malakichthys griseus* |  | 1 |  |
| 5 |  | *Malakichthys wakiyae* | 2 |  |  |
| 6 |  | *Synagrops japonicus* | 3 | 2 | 3 |
| 7 | Anacanthobatidae | *Anacanthobatis borneensis* | 1 |  |  |
| 8 | Aploactinidae | *Erisphex simplex* |  |  | 1 |
| 9 |  | *Snyderina yamanokami* |  | 2 |  |
| 10 | Apogonidae | *Apogon ellioti* |  |  | 1 |
| 11 |  | *Apogon semilineatus* |  |  | 1 |
| 12 | Argentinidae | *Argentina kagoshimae* | 1 |  |  |
| 13 | Ariommatidae | *Ariomma brevimanum* |  | 1 |  |
| 14 |  | *Ariomma indica* |  |  | 1 |
| 15 | Astronesthidae | *Astronesthes chrysophekadion* |  |  | 2 |
| 16 |  | *Astronesthes splendidus* | 1 |  |  |
| 17 |  | *Astronesthes lucifer* | 1 |  |  |
| 18 | Ateleopodidae | *Ateleopus purpureus* | 1 | 2 | 2 |
| 19 | Aulopodidae | *Aulopus japonicus* |  | 1 |  |
| 20 | Bathyclupeidae | *Bathyclupea argentea* | 1 | 1 | 3 |
| 21 | Bembridae | *Bembras japonicus* |  | 1 | 2 |
| 22 | Berycidae | *Beryx splendens* | 1 |  |  |
| 23 |  | *Centroberyx lineatus* |  | 1 |  |
| 24 | Bothidae | *Arnoglossus polyspilus* |  | 1 | 1 |
| 25 |  | *Chascanopsetta lugubris* |  | 2 | 2 |
| 26 |  | *Parabothus chlorospilus* |  |  | 1 |
| 27 |  | *Psettina iijimae* |  | 1 |  |
| 28 |  | *Psettina tosana* |  | 1 |  |
| 29 | Bramidae | *Brama japonica* | 2 |  |  |
| 30 | Callionymidae | *Bathycallionymus sokonumeri* |  |  | 1 |
| 31 |  | *Synchiropus lateralis* |  |  | 1 |
| 32 | Caproidae | *Antigonia capros* | 1 | 1 | 1 |
| 33 |  | *Antigonia rubescens* |  | 1 |  |
| 34 | Carangidae | *Decapterus russelli* |  | 1 | 1 |
| 35 |  | *Kaiwarinus equula* |  |  | 1 |
| 36 |  | *Trachurus japonicus* |  | 1 | 2 |
| 37 | Carcharhinidae | *Carcharhinus menisorrah* | 1 |  |  |
| 38 | Centrolophidae | *Psenopsis anomala* | 1 |  |  |
| 39 | Champsodontidae | *Champsodon atridorsalis* |  |  | 2 |
| 40 | Chauliodontidae | *Chauliodus sloani* | 1 |  | 2 |
| 41 | Chaunacidae | *Chaunax abei* |  |  | 3 |
| 42 |  | *Chaunax fimbriatus* | 1 | 1 | 2 |
| 43 | Chimaeridae | *Chimaera phantasma* | 1 |  |  |
| 44 |  | *Hydrolagus mitsukurii* | 2 |  | 3 |
| 45 | Chlorophthalmidae | *Chlorophthalmus acutifrons* | 1 | 2 | 1 |
| 46 |  | *Chlorophthalmus agassizi* |  | 1 |  |
| 47 |  | *Chlorophthalmus albatrossis* | 2 | 2 |  |
| 48 |  | *Chlorophthalmus borealis* |  |  | 1 |
| 49 |  | *Chlorophthalmus japonicus* | 1 | 1 | 5 |
| 50 |  | *Chlorophthalmus nigromarginatus* | 1 |  |  |
| 51 |  | *Chlorophthalmus oblongus* |  | 1 |  |
| 52 | Cirrhoscylliidae | *Cirrhoscyllium formocanum* | 1 |  |  |
| 53 | Citharidae | *Citharoides macrolepidotus* |  |  | 1 |
| 54 |  | *Lepidoblepharon ophthalmolepis* |  | 1 |  |
| 55 | Congridae | *Acromycter nezumi* |  | 1 |  |
| 56 |  | *Bathyuroconger vicinus* | 1 |  |  |
| 57 |  | *Gnathophis nystromi* |  | 1 | 1 |
| 58 |  | *Uroconger lepturus* |  | 1 |  |
| 59 | Dalatiidae | *Isistius brasiliensis* | 1 |  |  |
| 60 |  | *Squaliolus alii* | 1 |  |  |
| 61 | Dasyatidae | *Dasyatis zugei* |  |  | 2 |
| 62 | Diretmidae | *Diretmus argenteus* | 1 |  | 1 |
| 63 | Dysommidae | *Dysomma anguillaris* |  |  | 1 |
| 64 | Emmelichthyidae | *Emmelichthys struhsakeri* |  |  | 1 |
| 65 | Engraulidae | *Stolephorus commersoni* |  |  | 1 |
| 66 | Etmopteridae | *Etmopterus lucifer* | 2 | 1 | 1 |
| 67 | Fistulariidae | *Fistularia petimba* |  | 1 | 2 |
| 68 |  | *Fistularia villosa* |  |  | 1 |
| 69 | Gempylidae | *Gempylus serpens* | 1 | 1 |  |
| 70 |  | *Promethichthys prometheus* |  |  | 2 |
| 71 |  | *Rexea prometheoides* |  | 2 | 2 |
| 72 |  | *Ruvettus pretiosus* |  |  | 1 |
| 73 |  | *Thyrsitoides marleyi* | 3 |  | 1 |
| 74 | Halosauridae | *Aldrovandia affinis* | 1 |  |  |
| 75 | Hemiscylliidae | *Chiloscyllium plagiosum* |  |  | 1 |
| 76 | Hexanchidae | *Heptranchias perlo* | 1 |  |  |
| 77 | Hexatrygonidae | *Hexatrygon brevirostra* |  |  | 1 |
| 78 | Holocentridae | *Ostichthys shensi* |  | 1 |  |
| 79 | Hoplichthyidae | *Hoplichthys gilberti* |  | 2 |  |
| 80 |  | *Hoplichthys langsdorfii* |  |  | 2 |
| 81 | Istiophoridae | *Istiophorus albicans* |  | 1 |  |
| 82 | Kyphosidae | *Microcanthus strigatus* |  | 1 |  |
| 83 | Lophiidae | *Lophiodes naresi* |  | 1 |  |
| 84 |  | *Lophiomus setigerus* |  |  | 1 |
| 85 | Lutjanidae | *Etelis radiosus* |  |  | 1 |
| 86 |  | *Lutjanus sanguineus* | 1 |  |  |
| 87 | Macrouridae | *Bathygadus garretti* |  | 1 |  |
| 88 |  | *Coelorinchus cingulatus* | 1 |  | 2 |
| 89 |  | *Coelorinchus hexafasciatus* |  | 2 |  |
| 90 |  | *Coelorinchus hubbsi* |  | 1 |  |
| 91 |  | *Coelorinchus longicephalus* | 1 |  |  |
| 92 |  | *Coelorinchus longissimus* | 1 |  |  |
| 93 |  | *Coelorinchus melanobranchus* |  |  | 1 |
| 94 |  | *Coelorinchus multispinulosus* |  |  | 4 |
| 95 |  | *Coelorinchus parallelus* | 1 |  |  |
| 96 |  | *Coelorinchus smithi* |  |  | 1 |
| 97 |  | *Coryphaenoides marginatus* |  | 1 |  |
| 98 |  | *Hymenocephalus longiceps* |  | 1 |  |
| 99 |  | *Hymenocephalus striatissimus* | 2 |  | 1 |
| 100 |  | *Maclacocephalus laevis* |  | 2 |  |
| 101 |  | *Maclacocephalus nipponensis* | 2 |  | 3 |
| 102 |  | *Nezumia proxima* |  | 1 |  |
| 103 |  | *Ventrifossa fusca* |  |  | 3 |
| 104 |  | *Ventrifossa garmani* |  |  | 1 |
| 105 |  | *Ventrifossa longibarbata* | 1 |  |  |
| 106 |  | *Ventrifossa macroptera* |  |  | 1 |
| 107 |  | *Ventrifossa nigrodorsalis* |  | 1 | 2 |
| 108 |  | *Ventrifossa nigromarginata* |  |  | 1 |
| 109 |  | *Ventrifossa rhipidodoralis* |  | 1 |  |
| 110 | Melanostomiatidae | *Bathophilus nigerrimus* | 1 |  |  |
| 111 |  | *Photonectes albipennis* | 1 |  |  |
| 112 | Monacanthidae | *Thamnaconus hypargyreus* |  |  | 1 |
| 113 |  | *Thamnaconus tessellatus* |  | 1 |  |
| 114 | Monocentridae | *Monocentris japonicus* |  | 1 | 1 |
| 115 | Moridae | *Physiculus inbarbatus* |  |  | 1 |
| 116 |  | *Physiculus nigrescens* | 1 |  |  |
| 117 |  | *Physiculus roseus* |  | 2 |  |
| 118 | Mullidae | *Upeneus bensasi* |  |  | 1 |
| 119 | Muraenesocidae | *Muraenesox cinereus* |  |  | 1 |
| 120 | Muraenidae | *Gymnothorax richardsonii* |  | 1 |  |
| 121 |  | *Gymnothorax fimbriatus* | 1 |  |  |
| 122 | Myctophidae | *Bolinichthys longipes* | 1 |  |  |
| 123 |  | *Diaphus fragilis* | 1 | 1 |  |
| 124 |  | *Diaphus malayanus* | 1 |  |  |
| 125 |  | *Diaphus phillipsi* | 1 |  | 1 |
| 126 |  | *Diaphus signatus* | 1 |  |  |
| 127 |  | *Diaphus sp* | 1 |  |  |
| 128 |  | *Diaphus suborbitalis* |  | 1 |  |
| 129 |  | *Diaphus watasei* | 4 | 2 | 4 |
| 130 |  | *Hygophum proximum* | 1 |  |  |
| 131 |  | *Hygophum reinhardtii* | 1 |  |  |
| 132 |  | *Myctophum asperum* | 1 |  |  |
| 133 |  | *Myctophum brachygnathum* | 1 |  |  |
| 134 |  | *Myctophum selenops* | 1 |  |  |
| 135 | Narkidae | *Narke japonica* |  |  | 1 |
| 136 | Nemichthyidae | *Plotosus lineatus* | 1 |  |  |
| 137 | Nemipteridae | *Nemipterus bathybius* |  | 1 | 2 |
| 138 | Neoscopelidae | *Neoscopelus microchir* | 1 | 1 | 3 |
| 139 |  | *Neoscopelus porosus* |  | 1 |  |
| 140 | Nettastomatidae | *Saurenchelys fierasfer* |  | 1 | 1 |
| 141 | Nomeidae | *Cubiceps pauciradiatus* | 1 |  |  |
| 142 |  | *Cubiceps squamicephaloides* |  |  | 4 |
| 143 |  | *Cubiceps squamiceps* | 1 | 1 |  |
| 144 |  | *Psenes arafurensis* | 1 |  |  |
| 145 | Ogcocephaidae | *Halicmetus reticulatus* |  | 1 | 1 |
| 146 |  | *Halieutaea fitzsmonsi* |  | 1 |  |
| 147 |  | *Halieutaea stellate* |  |  | 1 |
| 148 |  | *Malthopsis annulifera* |  |  | 2 |
| 149 |  | *Malthopsis luteus* |  | 1 |  |
| 150 | Opbididae | *Dicrolene tristis* |  |  | 2 |
| 151 |  | *Homostolus acer* | 1 |  | 2 |
| 152 |  | *Hoplobrotula armata* | 2 |  | 1 |
| 153 |  | *Neobythites stigmosus* |  | 1 |  |
| 154 |  | *Neobythites unimaculatus* |  | 2 |  |
| 155 |  | *Sirembo imberbis* | 1 |  |  |
| 156 | Ophichthyidae | *Pisoodonophis boro* |  | 1 |  |
| 157 | Paralepidae | *Lestrolepis intermedia* | 1 |  |  |
| 158 |  | *Lestrolepis japonica* |  |  | 3 |
| 159 |  | *Notolepis rissoi* |  |  | 1 |
| 160 | Parazenidae | *Cyttopsis cypho* | 1 |  | 1 |
| 161 |  | *Cyttopsis rosea* | 1 |  |  |
| 162 |  | *Parazen pacificus* |  | 1 | 1 |
| 163 | Pentacerotidae | *Pentaceros japonicus* | 1 |  |  |
| 164 | Peristediidae | *Gargariscus prionocephalus* |  |  | 1 |
| 165 |  | *Paraheminodus laticephalus* | 1 |  |  |
| 166 |  | *Peristedion nierstraszi* |  | 3 |  |
| 167 |  | *Satyrichthys amiscus* |  |  | 1 |
| 168 |  | *Satyrichthys piercei* | 1 |  |  |
| 169 |  | *Satyrichthys rieffeli* | 2 | 2 |  |
| 170 |  | *Satyrichthys welchi* |  | 1 |  |
| 171 | Phosichthyidae | *Woodsia nonsuchae* |  | 1 |  |
| 172 |  | *Polymetme corythaeola* | 3 |  |  |
| 173 |  | *Polymetme elongata* |  | 1 | 2 |
| 174 |  | *Vinciguerria nimbara* | 1 |  |  |
| 175 | Platycephalidae | *Onigocia macrolepis* |  |  | 1 |
| 176 |  | *Ratabulus megacephalus* |  | 1 |  |
| 177 |  | *Rogadius asper* |  |  | 1 |
| 178 | Poecilopsettidae | *Poecilopsetta natalensis* |  |  | 1 |
| 179 |  | *Poecilopsetta plinthus* |  | 1 | 1 |
| 180 |  | *Poecilopsetta praelonga* | 1 |  |  |
| 181 | Polymixiidae | *Polymixia berndti* |  |  | 1 |
| 182 |  | *Polymixia japonicus* | 1 | 1 | 1 |
| 183 | Priacanthidae | *Priacanthus blochii* |  | 1 |  |
| 184 |  | *Priacanthus macracanthus* | 1 | 1 | 1 |
| 185 | Pristiophoridae | *Pristiophorus japonicus* | 1 |  |  |
| 186 | Proscyllidae | *Eridacnis radcliffei* |  | 1 | 2 |
| 187 | Rajidae | *Bathyraja trachouros* |  |  | 1 |
| 188 |  | *Raja boesemani* |  |  | 1 |
| 189 |  | *Raja hollandi* |  | 1 | 2 |
| 190 |  | *Raja kanojei* |  |  | 1 |
| 191 |  | *Raja kwangtungensis* |  | 1 |  |
| 192 |  | *Raja macrocauda* |  | 1 |  |
| 193 |  | *Raja porosa* |  | 1 |  |
| 194 |  | *Raja tengu* |  |  | 3 |
| 195 | Rhinidae | *Rhina ancylostoma* |  |  | 1 |
| 196 | Samaridae | *Samariscus japonicus* |  |  | 1 |
| 197 | Scombridae | *Pneumatophorus japonicus* |  | 1 | 1 |
| 198 | Scorpaenidae | *Pontinus tentacularis* | 1 |  |  |
| 199 |  | *Pterois lunulata* |  | 1 |  |
| 200 |  | *Pterois russelli* |  |  | 1 |
| 201 |  | *Scorpaena neglecta* |  | 1 | 2 |
| 202 |  | *Setarches fidjiensis* | 2 | 1 | 2 |
| 203 |  | *Setarches longimanus* | 2 | 2 | 1 |
| 204 | Scyliorhinidae | *Apristurus pinguis* | 1 |  |  |
| 205 |  | *Cephaloscyllium isabellum* |  |  | 2 |
| 206 |  | *Galeus eastmani* |  | 1 |  |
| 207 |  | *Galeus nipponensis* |  | 2 |  |
| 208 | Serranidae | *Chelidoperca hirundinacea* |  |  | 2 |
| 209 |  | *Chelidoperca pleurospilus* |  | 1 |  |
| 210 |  | *Epinephelus stictus* |  |  | 1 |
| 211 |  | *Plectranthias kelloggi* |  | 1 |  |
| 212 | Sillaginidae | *Branchiostegus auratus* |  |  | 1 |
| 213 | Sparidae | *Dentex abei* |  | 1 |  |
| 214 |  | *Dentex tumifrons* |  | 1 |  |
| 215 |  | *Pagrosomus major* |  |  | 1 |
| 216 | Squatinidae | *Squatina japonica* | 1 |  |  |
| 217 | Squatlidae | *Squalus brevirostris* |  | 1 | 1 |
| 218 |  | *Squalus mitsukuril* |  | 1 |  |
| 219 | Sternoptychidae | *Argyropelecus hemigymnus* |  |  | 1 |
| 220 |  | *Argyropelecus sladeni* |  |  | 2 |
| 221 |  | *Polyipnus spinifer* | 2 |  |  |
| 222 |  | *Polyipnus spinosos* | 1 | 2 |  |
| 223 | Synanceiidae | *Minous trachycephalus* |  |  | 2 |
| 224 | Synodontidae | *Saurida tumbil* |  |  | 1 |
| 225 |  | *Saurida undosquamis* |  | 1 | 1 |
| 226 |  | *Synodus macrops* |  |  | 2 |
| 227 | Tetraodontidae | *Amblyrhynchotus honckenii* |  | 1 |  |
| 228 |  | *Arothron immaculatus* |  |  | 1 |
| 229 |  | *Lagocephalus gloveri* | 1 | 1 |  |
| 230 |  | *Lagocephalus wheeleri* |  |  | 1 |
| 231 | Trachipteridae | *Trachipterus iijimae* | 1 |  |  |
| 232 | Triacanthodidae | *Halimochirurgus alcocki* | 1 |  | 2 |
| 233 |  | *Macrorhamphosodes uradoi* | 1 | 1 |  |
| 234 |  | *Triacanthodes anomalus* |  | 3 | 3 |
| 235 |  | *Tydemania navigatoris* | 3 |  |  |
| 236 | Trichiuridae | *Benthodesmns tenuis* | 1 | 1 | 3 |
| 237 |  | *Eupleurogrammus muticus* | 1 |  |  |
| 238 |  | *Tentoriceps cristatus* | 1 |  |  |
| 239 |  | *Trichiurus haumela* | 1 |  | 1 |
| 240 | Triglidae | *Lepidotrigla guentheri* |  | 2 | 2 |
| 241 |  | *Lepidotrigla hime* |  | 1 |  |
| 242 |  | *Lepidotrigla kishinouyi* |  | 1 |  |
| 243 |  | *Parapterygotrigla hoplites* |  | 1 |  |
| 244 |  | *Parapterygotrigla multicellata* |  | 1 |  |
| 245 |  | *Pterygotrigla hemisticta* |  | 1 | 1 |
| 246 |  | *Pterygotrigla ryukyuensis* | 1 |  |  |
| 247 | Uranoscopidae | *Uranoscopus japonicus* | 1 |  |  |
| 248 | Urolophidae | *Urotrygon daviesi* |  |  | 1 |
| 249 | Zeidae | *Zenopsis nebulosa* | 1 | 2 | 1 |
| 250 |  | *Zenus faber* |  |  | 1 |
| 251 | Zeniontidae | *Zenion hololepis* |  | 2 |  |
| 252 |  | *Zenion japonicum* |  |  | 1 |