

UNESCO environmental DNA (eDNA) Expeditions in marine World Heritage sites

Biodiversity survey for Archipiélago de Revillagigedo

Interim Results
Not for public distribution



About eDNA Expeditions

UNESCO's eDNA Expeditions is a global, citizen science initiative that is conducted with the intention to measure marine biodiversity and predict the impact climate change on marine community composition across UNESCO World Heritage marine sites.

eDNA is a cost effective and minimally invasive method to measure biodiversity in any given area. Marine species continuously shed DNA into the water around them in the form of waste, mucus, or cells. By extracting this DNA from water samples, and subsequently multiplying and sequencing specific regions within these DNA strands, a wide variety of species can be detected without removing any organisms from their environment. The regions in the DNA targeted for sequencing are selected depending on the scope of the study: while some markers are suitable to obtain a broad overview of biodiversity across many groups of species, other markers are particularly suited to get high resolution insight for a more specific taxonomic group such as fish. The UNESCO eDNA Expeditions initiative combines a number of markers tailored for marine vertebrates (fish, mammals, and turtles). A general marker was added to also allow detection of species from other groups such as invertebrates, which can give a broader insight in the marine species diversity in a given area.

Between September 2022 and May 2023, UNESCO organized eDNA sampling campaigns in 21 marine World Heritage sites across 17 countries around the world. At every World Heritage site, about 20 samples were collected from different habitats. Over 250 young people participated in the local sampling expeditions. They were guided by local experts and park management staff, using protocols and eDNA sampling equipment provided by UNESCO.

Biodiversity inventories generated from the samples are being combined with existing species distribution data from public biodiversity databases such as the Ocean Biodiversity Information System (OBIS) in view of obtaining a comprehensive overview of marine life across marine World Heritage sites. Through the use of climate scenarios and species distribution models, an estimate will be made of the impact of climate change, in particular rising temperatures, on local biodiversity and its potential future distribution patterns.

More information about the initiative and a press kit are available on the UNESCO website: <https://www.unesco.org/en/edna-expeditions>.

Results

Sampling and sample processing

eDNA sampling was conducted in Archipiélago de Revillagigedo in April 2023. A total of 20 samples were collected at 4 locations in the park covering different habitats: isla_clarion, punta_tosca, roca_partida, and san_benedicto (Figure 1). Up to 1,800 mL of seawater was filtered through filter cartridges containing a filter with a 0.8 µm pore size. After sampling, the filter cartridges were flushed with preservation liquid and shipped to UNESCO. DNA from the samples was extracted and amplified, and subsequently sent to the sequencing facility at KU Leuven in Belgium, a specialized university eDNA lab contracted by UNESCO for this work. PCR amplification was done using five primer pairs selected to capture as much biodiversity as possible in the target groups of the study: fish, mammals, and turtles.



Figure 1: Map of the sampling locations.

DNA sequencing

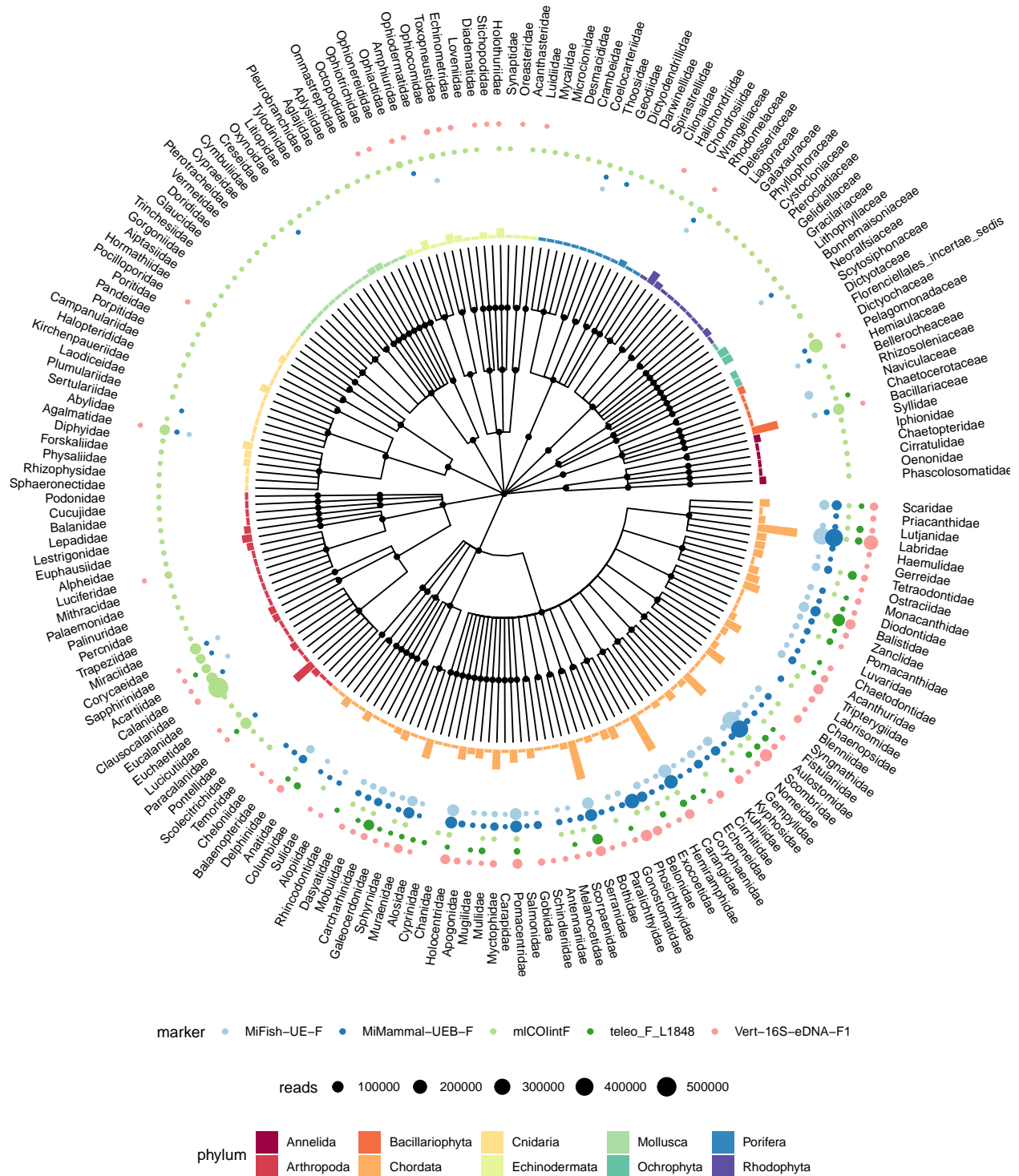
Sequencing of the DNA from 20 samples resulted in over 26 million sequence reads, from which we collected 31,643 unique sequences or ASVs (Tables 1 and 2).

| reads | asvs |
|----------|-------|
| 26039209 | 31643 |

Table 1: Reads, ASVs, and species across all samples.

Species identification

The marker sequences obtained from sequencing were matched with sequence reference databases built using public data available from the National Center for Biotechnology Information (NCBI). This resulted in the identification of 383 species, including 169 fish species, 4 mammalian species, and 1 turtle species (Table 3). Species from other groups, such as algae, cnidarians, echinoderms, copepods, and molluscs, were also detected (Figures 2 and 3). This number of species detected represents about 32% of the 1,592 species known from Archipiélago de Revillagigedo in the OBIS database. Of the 383 species detected, 207 are not among the species previously reported from Archipiélago de Revillagigedo to the UNESCO OBIS database. 16 of the detected species are listed as threatened on the IUCN Red List (Table 4). A full list of species is added at the end of this report.



| locality | materialSampleID | sampleSize | reads | asvs | species |
|----------------------------------|------------------|------------|---------|-------|---------|
| "San Benedicto ""Las Cuevitas""" | EE0065 | 1740 | 876866 | 7798 | 159 |
| "San Benedicto ""Las Cuevitas""" | EE0134 | 1740 | 1701168 | 10103 | 190 |
| "San Benedicto ""Las Cuevitas""" | EE0136 | 1800 | 2455885 | 12662 | 229 |
| "San Benedicto ""Las Cuevitas""" | EE0229 | 1560 | 1460846 | 9798 | 178 |
| Isla Clarion | EE0098 | 1260 | 971563 | 7719 | 102 |
| Isla Clarion | EE0100 | 1620 | 975021 | 9099 | 92 |
| Isla Clarion | EE0106 | 1800 | 1597412 | 9739 | 157 |
| Isla Clarion | EE0129 | 1800 | 1130165 | 9468 | 147 |
| Isla Clarion | EE0131 | 1500 | 911843 | 8265 | 107 |
| Isla Clarion | EE0137 | 1800 | 2121546 | 12003 | 133 |
| Isla Clarion | EE0139 | 1800 | 1416794 | 10918 | 170 |
| Isla Clarion | EE0215 | 1800 | 1785179 | 10864 | 155 |
| Punta Tosca | EE0060 | 1800 | 958908 | 8662 | 95 |
| Punta Tosca | EE0064 | 1500 | 855753 | 6252 | 95 |
| Punta Tosca | EE0111 | 1800 | 1745149 | 9559 | 106 |
| Punta Tosca | EE0135 | 1800 | 1154416 | 8066 | 83 |
| Roca Partida | EE0101 | 1800 | 965406 | 7634 | 46 |
| Roca Partida | EE0128 | 1800 | 611298 | 6672 | 53 |
| Roca Partida | EE0142 | 1800 | 1191654 | 7946 | 78 |
| Roca Partida | EE0230 | 1800 | 1152337 | 7114 | 58 |

Table 2: Reads, ASVs, and species by sample.

| group | eDNA species | total species | fraction |
|---------|--------------|---------------|----------|
| fish | 169 | 519 | 0.33 |
| mammals | 4 | 16 | 0.25 |
| turtles | 1 | 4 | 0.25 |

Table 3: Number of species in the three target groups, from the OBIS database and from eDNA sampling.

| category | eDNA species | total species | fraction |
|----------|--------------|---------------|----------|
| CR | 1 | 6 | 0.17 |
| EN | 6 | 15 | 0.40 |
| VU | 9 | 55 | 0.16 |

Table 4: Number of species by IUCN Red List category, from the OBIS database and from eDNA sampling.

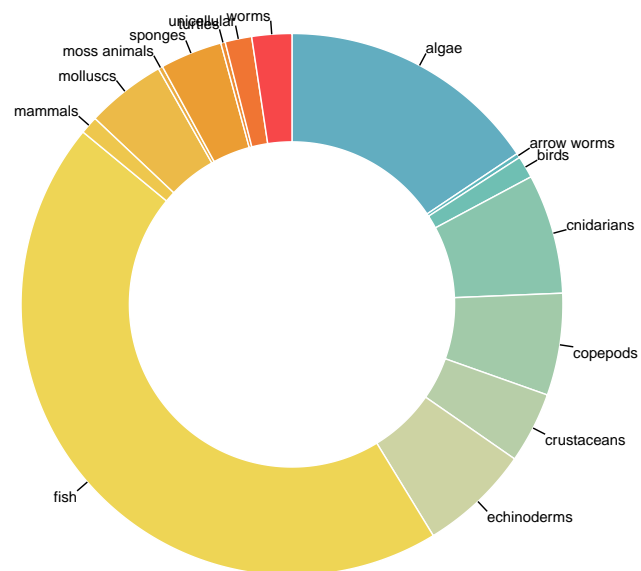


Figure 3: Distribution of detected species across groups.

| phylum | class | species | group | category | new | vernacular |
|------------|--------------|--|-------------|----------|-----|---|
| Amoebozoa | Discosea | Neoparamoeba aestuarina | unicellular | | yes | |
| Amoebozoa | Discosea | Neoparamoeba pemaquidensis | unicellular | | yes | |
| Annelida | Polychaeta | Eusyllis kupfferi | worms | | yes | |
| Annelida | Polychaeta | Iphone henshawi | worms | | yes | |
| Annelida | Polychaeta | Odontosyllis phosphorea | worms | | yes | |
| Annelida | Polychaeta | Oenone fulgida | worms | | yes | |
| Annelida | Polychaeta | Phyllochaetopterus verrilli | worms | | yes | |
| Annelida | Polychaeta | Timarete punctata | worms | | yes | |
| Annelida | | Phascolosoma (Phascolosoma) nigrescens | worms | | yes | |
| Annelida | | Phascolosoma (Phascolosoma) perlucens | worms | | yes | |
| Arthropoda | Branchiopoda | Pseudevadne tergestina | crustaceans | | yes | |
| Arthropoda | Copepoda | Acartia (Acartia) negligens | copepods | | yes | |
| Arthropoda | Copepoda | Acrocalanus gracilis | copepods | | yes | |
| Arthropoda | Copepoda | Calocalanus pavo | copepods | | yes | |
| Arthropoda | Copepoda | Calocalanus plumulosus | copepods | | yes | |
| Arthropoda | Copepoda | Calocalanus styliremis | copepods | | yes | |
| Arthropoda | Copepoda | Clausocalanus furcatus | copepods | | yes | |
| Arthropoda | Copepoda | Copilia mirabilis | copepods | | yes | |
| Arthropoda | Copepoda | Ditrichocorycaeus andrewsi | copepods | | yes | |
| Arthropoda | Copepoda | Euchaeta indica | copepods | | yes | |
| Arthropoda | Copepoda | Farranula gibbula | copepods | | yes | |
| Arthropoda | Copepoda | Labidocera detruncata | copepods | | yes | |
| Arthropoda | Copepoda | Lucicutia flavicornis | copepods | | yes | |
| Arthropoda | Copepoda | Macrosetella gracilis | copepods | | yes | |
| Arthropoda | Copepoda | Mecynocera clausi | copepods | | yes | |
| Arthropoda | Copepoda | Paracalanus denudatus | copepods | | yes | |
| Arthropoda | Copepoda | Paracalanus indicus | copepods | | yes | |
| Arthropoda | Copepoda | Pontellina plumata | copepods | | yes | |
| Arthropoda | Copepoda | Sapphirina stellata | copepods | | yes | |
| Arthropoda | Copepoda | Scolecithrix danae | copepods | | yes | |
| Arthropoda | Copepoda | Subeucalanus subcrassus | copepods | | yes | |
| Arthropoda | Copepoda | Subeucalanus subtenuis | copepods | | yes | |
| Arthropoda | Copepoda | Temora discaudata | copepods | | yes | |
| Arthropoda | Copepoda | Undinula vulgaris | copepods | | yes | |
| Arthropoda | Hexapoda | Oryzaeophilus surinamensis | | | yes | |
| Arthropoda | Malacostraca | Alpheus paracrinitus | crustaceans | | | smoothclaw snapping shrimp |
| Arthropoda | Malacostraca | Brachycarpus biunguiculatus | crustaceans | | | twoclaw shrimp |
| Arthropoda | Malacostraca | Euphausia distinguenda | crustaceans | | yes | |
| Arthropoda | Malacostraca | Euphausia tenera | crustaceans | | yes | |
| Arthropoda | Malacostraca | Hansarsia gracilis | crustaceans | | yes | |
| Arthropoda | Malacostraca | Hyperietta vosseleri | crustaceans | | yes | |
| Arthropoda | Malacostraca | Hyperioides sibaginis | crustaceans | | yes | |
| Arthropoda | Malacostraca | Lucifer typus | crustaceans | | yes | standard lucifer prawn, gamba des monts sous-marins |
| Arthropoda | Malacostraca | Microphrys platysoma | crustaceans | | | |
| Arthropoda | Malacostraca | Panulirus penicillatus | crustaceans | LC | | pronghorn spiny lobster, grosses têtes |
| Arthropoda | Malacostraca | Percnon abbreviatum | crustaceans | | | |
| Arthropoda | Malacostraca | Synalpheus sanlucasi | crustaceans | | yes | |
| Arthropoda | Malacostraca | Trapezia bidentata | crustaceans | | | |
| Arthropoda | Thecostraca | Balanus trigonus | crustaceans | | yes | |
| Arthropoda | Thecostraca | Conchoderma virgatum | crustaceans | | yes | |

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| phylum | class | species | group | category | new | vernacular |
|-----------------|---------------------|--------------------------------------|--------------|----------|-----|---|
| Bacillariophyta | Bacillariophyceae | Bellerochea polymorpha | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Chaetoceros curvisetus | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Cylindrotheca closterium | algae | | | |
| Bacillariophyta | Bacillariophyceae | Eucampia striata | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Eucampia zodiacus | algae | | | |
| Bacillariophyta | Bacillariophyceae | Navicula minima | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Pseudo-nitzschia abrensis | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Pseudo-nitzschia caciaantha | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Pseudo-nitzschia decipiens | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Pseudo-nitzschia lundholmiae | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Pseudo-nitzschia pseudodelicatissima | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Pseudo-nitzschia sabit | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Pseudo-nitzschia subpifica | algae | | yes | |
| Bacillariophyta | Bacillariophyceae | Sundstroemia setigera | algae | | yes | |
| Bigyra | Bicoecea | Cafeteria roenbergensis | | | yes | |
| Bryozoa | Gymnolaemata | Bugula neritina | moss animals | | yes | Common bugula, Brown bryozoan, bugule brune |
| Cercozoa | Chlorarachnea | Bigelowiella natans | unicellular | | yes | |
| Cercozoa | Chlorarachnea | Chlorarachnion reptans | unicellular | | yes | |
| Chaetognatha | Sagittoidea | Flaccisagitta enflata | arrow worms | | yes | |
| Chlorophyta | Mamiellophyceae | Bathycoccus prasinos | algae | | yes | |
| Chlorophyta | Mamiellophyceae | Dolichomastix tenuilepis | algae | | yes | |
| Chlorophyta | Mamiellophyceae | Micromonas commoda | algae | | yes | |
| Chlorophyta | Mamiellophyceae | Micromonas pusilla | algae | | yes | |
| Chlorophyta | Pyramimonadophyceae | Prasinoderma coloniale | algae | | yes | |
| Chlorophyta | Pyramimonadophyceae | Pseudoscurfieldia marina | algae | | yes | |
| Chlorophyta | Trebouxiophyceae | Prototheca ciferrii | algae | | yes | |
| Chlorophyta | | Chloroparvula pacifica | algae | | yes | |
| Chlorophyta | | Chloropicon laureae | algae | | yes | |
| Chlorophyta | | Chloropicon mariensis | algae | | yes | |
| Chlorophyta | | Chloropicon primus | algae | | yes | |
| Chlorophyta | | Chloropicon roscoffensis | algae | | yes | |
| Chlorophyta | | Chloropicon sieburthii | algae | | yes | |
| Chordata | Aves | Cairina moschata | birds | LC | yes | |
| Chordata | Aves | Columba livia | birds | LC | yes | |
| Chordata | Aves | Sula dactylatra | birds | LC | | blue-faced booby, Fou masqué |
| Chordata | Aves | Sula leucogaster | birds | LC | | brown booby, fou brun |
| Chordata | Aves | Sula sula | birds | LC | | red-footed booby, fou à pieds rouges |
| Chordata | Elasmobranchii | Alopias pelagicus | fish | EN | | thresher shark, renard pélagique |
| Chordata | Elasmobranchii | Carcharhinus albimarginatus | fish | VU | | silvertip shark |
| Chordata | Elasmobranchii | Carcharhinus falciformis | fish | VU | | silky shark |
| Chordata | Elasmobranchii | Galeocerdo cuvier | fish | NT | yes | tiger shark |
| Chordata | Elasmobranchii | Hypanus longus | fish | VU | | |
| Chordata | Elasmobranchii | Mobula birostris | fish | EN | yes | |
| Chordata | Elasmobranchii | Mobula thurstoni | fish | EN | yes | smoothtail mobula |
| Chordata | Elasmobranchii | Rhincodon typus | fish | EN | | whale shark, requin baleine |
| Chordata | Elasmobranchii | Sphyrna lewini | fish | CR | | scalloped hammerhead |
| Chordata | Elasmobranchii | Triaenodon obesus | fish | VU | | whitetip reef shark |
| Chordata | Mammalia | Megaptera novaeangliae | mammals | LC | | humpback whale, rorqual keporakak |
| Chordata | Mammalia | Pseudorca crassidens | mammals | NT | | false killer whale, faux-orque |
| Chordata | Mammalia | Stenella coeruleoalba | mammals | LC | | striped dolphin, dauphin bleu et blanc |

Continued on next page

| phylum | class | species | group | category | new | vernacular |
|----------|-----------|----------------------------|---------|----------|-----|-----------------------------------|
| Chordata | Mammalia | Tursiops truncatus | mammals | LC | | bottlenose dolphin, grand dauphin |
| Chordata | Teleostei | Abantennarius sanguineus | fish | | | |
| Chordata | Teleostei | Ablennes hians | fish | LC | | flat needlefish |
| Chordata | Teleostei | Abudefduf abdominalis | fish | LC | yes | |
| Chordata | Teleostei | Acanthemblemaria aspera | fish | LC | yes | roughhead blenny |
| Chordata | Teleostei | Acanthemblemaria crockeri | fish | LC | | browncheek blenny |
| Chordata | Teleostei | Acanthocybium solandri | fish | LC | | wahoo |
| Chordata | Teleostei | Acanthurus nigricans | fish | LC | | backsurgeonfish |
| Chordata | Teleostei | Acanthurus triostegus | fish | LC | | convict surgeonfish |
| Chordata | Teleostei | Acanthurus xanthopterus | fish | LC | | yellowfin surgeonfish |
| Chordata | Teleostei | Alphestes immaculatus | fish | LC | | Pacific mutton hamlet |
| Chordata | Teleostei | Aluterus monoceros | fish | LC | | unicorn leatherjacket |
| Chordata | Teleostei | Aluterus scriptus | fish | LC | | scrawled filefish |
| Chordata | Teleostei | Anisotremus interruptus | fish | LC | | burrito grunt |
| Chordata | Teleostei | Anisotremus scapularis | fish | LC | yes | |
| Chordata | Teleostei | Anisotremus surinamensis | fish | DD | yes | black margate |
| Chordata | Teleostei | Apogon binotatus | fish | LC | yes | barred cardinalfish |
| Chordata | Teleostei | Apogon guadalupensis | fish | LC | | Guadalupe cardinalfish |
| Chordata | Teleostei | Arothron meleagris | fish | LC | | Guineafowl puffer |
| Chordata | Teleostei | Aulostomus chinensis | fish | LC | | Chinese trumpetfish |
| Chordata | Teleostei | Auxis thazard | fish | LC | | frigate tuna, auxide |
| Chordata | Teleostei | Axoclinus multicinctus | fish | VU | | multibarrred triplefin |
| Chordata | Teleostei | Axoclinus storeyae | fish | LC | yes | |
| Chordata | Teleostei | Azurina hirundo | fish | NT | | swallow damselfish |
| Chordata | Teleostei | Bodianus diplotaenia | fish | LC | | Mexican hogfish |
| Chordata | Teleostei | Bolinichthys longipes | fish | LC | | |
| Chordata | Teleostei | Bothus mancus | fish | LC | | tropical flounder |
| Chordata | Teleostei | Calotomus carolinus | fish | LC | | Carolines parrotfish |
| Chordata | Teleostei | Cantherhines dumerilii | fish | LC | | barred filefish |
| Chordata | Teleostei | Canthigaster janthinoptera | fish | LC | yes | spotted puffer |
| Chordata | Teleostei | Caranx caballus | fish | LC | | green jack |
| Chordata | Teleostei | Caranx lugubris | fish | LC | | black jack |
| Chordata | Teleostei | Caranx melampygus | fish | LC | | bluefin trevally |
| Chordata | Teleostei | Caranx sexfasciatus | fish | LC | | bigeye trevally |
| Chordata | Teleostei | Carapus dubius | fish | DD | yes | |
| Chordata | Teleostei | Cephalopholis cruentata | fish | LC | | graysby |
| Chordata | Teleostei | Cephalopholis panamensis | fish | LC | | Panama graysby |
| Chordata | Teleostei | Cephalopholis sexmaculata | fish | LC | yes | sixspot grouper |
| Chordata | Teleostei | Cephalopholis sonnerati | fish | LC | yes | tomato hind |
| Chordata | Teleostei | Chaenomugil proboscideus | fish | LC | | snouted mullet |
| Chordata | Teleostei | Chanos chanos | fish | LC | yes | milkfish, chano |
| Chordata | Teleostei | Chilomycterus reticulatus | fish | LC | | spotfin burrfish |
| Chordata | Teleostei | Chlorurus sordidus | fish | LC | yes | |
| Chordata | Teleostei | Cirrhitichthys oxycephalus | fish | LC | | pixy hawkfish |
| Chordata | Teleostei | Cirrhitus rivulatus | fish | LC | | giant hawkfish |
| Chordata | Teleostei | Coryphaena equiselis | fish | LC | | pompano dolphin |
| Chordata | Teleostei | Coryphopterus urospilus | fish | LC | | redlight goby |
| Chordata | Teleostei | Cubiceps pauciradiatus | fish | LC | | bigeye cigarfish |
| Chordata | Teleostei | Cubiceps whiteleggii | fish | | yes | |
| Chordata | Teleostei | Cyprinus carpio | fish | VU | yes | carp, carpe |

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| phylum | class | species | group | category | new | vernacular |
|----------|-----------|------------------------------|-------|----------|-----|-------------------------------------|
| Chordata | Teleostei | Decapterus macarellus | fish | LC | | mackerel scad |
| Chordata | Teleostei | Decapterus macrosoma | fish | LC | yes | shortfin scad |
| Chordata | Teleostei | Diaphus splendidus | fish | LC | yes | |
| Chordata | Teleostei | Diodon holocanthus | fish | LC | | balloonfish |
| Chordata | Teleostei | Diodon hystrix | fish | LC | | spot-fin porcupinefish |
| Chordata | Teleostei | Diodon liturosus | fish | | yes | black-blotched porcupinefish |
| Chordata | Teleostei | Diogenichthys laternatus | fish | LC | | Diogenes lanternfish |
| Chordata | Teleostei | Diplophos taenia | fish | LC | | Pacific portholefish |
| Chordata | Teleostei | Doryrhamphus excisus | fish | LC | | bluestripe pipefish |
| Chordata | Teleostei | Elagatis bipinnulata | fish | LC | | rainbow runner |
| Chordata | Teleostei | Entomacrodus caudofasciatus | fish | LC | yes | |
| Chordata | Teleostei | Entomacrodus chiostictus | fish | LC | | notchfin blenny |
| Chordata | Teleostei | Entomacrodus sealei | fish | LC | yes | |
| Chordata | Teleostei | Epinephelus clippertonensis | fish | LC | | |
| Chordata | Teleostei | Eucinostomus dowii | fish | LC | yes | Pacific spotfin mojarra |
| Chordata | Teleostei | Eucinostomus melanopterus | fish | LC | yes | flagfin mojarra |
| Chordata | Teleostei | Euthynnus affinis | fish | LC | | kawakawa, thonine orientale |
| Chordata | Teleostei | Euthynnus lineatus | fish | LC | | black skipjack, thonine noire |
| Chordata | Teleostei | Exocoetus volitans | fish | LC | | flying fish, poisson volant |
| Chordata | Teleostei | Fistularia commersonii | fish | LC | | cornetfish |
| Chordata | Teleostei | Forcipiger flavissimus | fish | LC | | forcepsfish |
| Chordata | Teleostei | Gempylus serpens | fish | LC | | snake mackerel |
| Chordata | Teleostei | Gerres cinereus | fish | LC | yes | yellowfin mojarra |
| Chordata | Teleostei | Gymnomuraena zebra | fish | LC | | zebra moray |
| Chordata | Teleostei | Gymnothorax buroensis | fish | LC | yes | vagrant moray |
| Chordata | Teleostei | Gymnothorax castaneus | fish | LC | | Panamic green moray |
| Chordata | Teleostei | Gymnothorax flavimarginatus | fish | LC | | yellowmargin moray |
| Chordata | Teleostei | Halichoeres insularis | fish | VU | | Socorro wrasse |
| Chordata | Teleostei | Halichoeres melanotis | fish | LC | | golden wrasse |
| Chordata | Teleostei | Halichoeres nicholsi | fish | LC | | spinster wrasse |
| Chordata | Teleostei | Halichoeres notospilus | fish | LC | | banded wrasse |
| Chordata | Teleostei | Heteropriacanthus cruentatus | fish | LC | | glasseye snapper |
| Chordata | Teleostei | Holacanthus passer | fish | LC | | king angelfish |
| Chordata | Teleostei | Hygophum reinhardtii | fish | LC | | Reinhardt's lantern fish |
| Chordata | Teleostei | Hyporthodus cifuentesii | fish | LC | | |
| Chordata | Teleostei | Hypsoblennius brevipinnis | fish | LC | yes | barnaclebill blenny |
| Chordata | Teleostei | Iniistius pavo | fish | LC | | peacock razorfish |
| Chordata | Teleostei | Johnrandallia nigrirostris | fish | LC | | barberfish |
| Chordata | Teleostei | Katsuwonus pelamis | fish | LC | | skipjack tuna, bonite à ventre rayé |
| Chordata | Teleostei | Kuhlia mugil | fish | LC | | barred flagtail |
| Chordata | Teleostei | Kyphosus elegans | fish | LC | | Cortez sea chub |
| Chordata | Teleostei | Kyphosus pacificus | fish | | | |
| Chordata | Teleostei | Kyphosus vaigiensis | fish | LC | | brassy chub |
| Chordata | Teleostei | Labrisomus multiporosus | fish | LC | | porehead blenny |
| Chordata | Teleostei | Lagocephalus lagocephalus | fish | LC | | oceanic puffer |
| Chordata | Teleostei | Lampanyctus parvicauda | fish | LC | | |
| Chordata | Teleostei | Lutjanus argentimaculatus | fish | LC | yes | river snapper |
| Chordata | Teleostei | Lutjanus kasmira | fish | LC | yes | common bluestripe snapper |
| Chordata | Teleostei | Luvarus imperialis | fish | LC | | luvar, louvureau |
| Chordata | Teleostei | Lythrypnus dalli | fish | LC | yes | bluebanded goby |

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| phylum | class | species | group | category | new | vernacular |
|----------|-----------|-------------------------------|-------|----------|-----|--|
| Chordata | Teleostei | Lythrypnus rhizophora | fish | DD | | spottedcheek goby |
| Chordata | Teleostei | Melanocetus johnsonii | fish | LC | yes | Humpback anglerfish |
| Chordata | Teleostei | Melichthys niger | fish | LC | | black durgon |
| Chordata | Teleostei | Melichthys vidua | fish | LC | | pinktail triggerfish |
| Chordata | Teleostei | Microspathodon dorsalis | fish | LC | | giant damselfish |
| Chordata | Teleostei | Mugil cephalus | fish | LC | yes | grey mullet, muge |
| Chordata | Teleostei | Mugil curema | fish | LC | | silverside mullet |
| Chordata | Teleostei | Mulloidichthys vanicolensis | fish | LC | yes | yellowfin goatfish |
| Chordata | Teleostei | Myctophum aulolaternatum | fish | LC | | |
| Chordata | Teleostei | Myripristis berndti | fish | LC | | blotcheye soldierfish |
| Chordata | Teleostei | Myripristis leiognathus | fish | LC | | Panamic soldierfish |
| Chordata | Teleostei | Novaculichthys taeniourus | fish | LC | | rockmover wrasse |
| Chordata | Teleostei | Oncorhynchus kisutch | fish | | yes | Coho salmon, saumon coho |
| Chordata | Teleostei | Ophioblennius atlanticus | fish | LC | | |
| Chordata | Teleostei | Ophioblennius steindachneri | fish | LC | | Panamic fanged blenny |
| Chordata | Teleostei | Ostracion meleagris | fish | | | whitespotted boxfish |
| Chordata | Teleostei | Oxyporhamphus micropterus | fish | | | smallwing flyingfish |
| Chordata | Teleostei | Paralichthys californicus | fish | LC | yes | California halibut |
| Chordata | Teleostei | Paranthias colonus | fish | | | Pacific creolefish |
| Chordata | Teleostei | Platybelone argalus | fish | LC | | keeltail needlefish |
| Chordata | Teleostei | Plectrypops lima | fish | LC | | |
| Chordata | Teleostei | Prionurus laticlavus | fish | LC | | razor surgeonfish |
| Chordata | Teleostei | Prionurus punctatus | fish | LC | | yellowtail surgeonfish |
| Chordata | Teleostei | Pronotogrammus multifasciatus | fish | LC | | threadfin bass |
| Chordata | Teleostei | Pseudogramma thaumasia | fish | | | |
| Chordata | Teleostei | Remora remora | fish | LC | | remora |
| Chordata | Teleostei | Rypticus saponaceus | fish | LC | yes | greater soapfish |
| Chordata | Teleostei | Sardinops sagax | fish | LC | | California pilchard, pilchard sudaméricain |
| Chordata | Teleostei | Sargocentron suborbitale | fish | | | |
| Chordata | Teleostei | Scarus rubroviolaceus | fish | LC | | ember parrotfish |
| Chordata | Teleostei | Schindleria praematura | fish | LC | | |
| Chordata | Teleostei | Scomber australasicus | fish | LC | | spotted chub mackerel |
| Chordata | Teleostei | Scomber japonicus | fish | LC | | Atlantic chub mackerel, maquereaux blanc |
| Chordata | Teleostei | Scorpaenodes evides | fish | LC | yes | |
| Chordata | Teleostei | Scorpaenodes xyris | fish | LC | | rainbow scorpionfish |
| Chordata | Teleostei | Scuticaria tigrina | fish | LC | | tiger reef eel |
| Chordata | Teleostei | Selar crumenophthalmus | fish | LC | | bigeye scad |
| Chordata | Teleostei | Seriola lalandi | fish | LC | | yellowtail, sériele chicard |
| Chordata | Teleostei | Seriola rivoliana | fish | LC | | Almaco jack, sériele limon |
| Chordata | Teleostei | Serranus aequidens | fish | LC | | deepwater serrano |
| Chordata | Teleostei | Stegastes beebei | fish | VU | yes | |
| Chordata | Teleostei | Stethojulis bandanensis | fish | LC | | |
| Chordata | Teleostei | Sufflamen verres | fish | LC | | orangeside triggerfish |
| Chordata | Teleostei | Syacium maculiferum | fish | DD | yes | |
| Chordata | Teleostei | Thalassoma lucasanum | fish | LC | | Cortez rainbow wrasse |
| Chordata | Teleostei | Thalassoma lutescens | fish | LC | | |
| Chordata | Teleostei | Thalassoma purpureum | fish | LC | yes | surge wrasse |
| Chordata | Teleostei | Thalassoma robertsoni | fish | VU | yes | |
| Chordata | Teleostei | Thunnus alalunga | fish | LC | | albacore, thon blanc |
| Chordata | Teleostei | Tylosurus acus | fish | LC | | agujon needlefish |

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|---------------|---------------|------------------------------------|-------------|----------|-----|--|
| Chordata | Teleostei | Tylosurus crocodilus | fish | LC | yes | houndfish |
| Chordata | Teleostei | Uraspis helvola | fish | LC | | whitemouth jack |
| Chordata | Teleostei | Uraspis secunda | fish | LC | | cottonmouth jack |
| Chordata | Teleostei | Uropterygius macrocephalus | fish | LC | | largehead moray |
| Chordata | Teleostei | Vinciguerria lucetia | fish | LC | | |
| Chordata | Teleostei | Vinciguerria nimbaria | fish | LC | yes | oceanic lightfish |
| Chordata | Teleostei | Woodsia nonsuchae | fish | LC | yes | bigeye lightfish |
| Chordata | Teleostei | Xanthichthys mento | fish | LC | | redtail triggerfish |
| Chordata | Teleostei | Xanthichthys ringens | fish | LC | | Sargassum triggerfish |
| Chordata | Teleostei | Zanclus cornutus | fish | LC | | Moorish idol |
| Chordata | | Chelonia mydas | turtles | EN | | green turtle, tortue verte |
| Cnidaria | Anthozoa | Calliactis polypus | cnidarians | | yes | |
| Cnidaria | Anthozoa | Exaiptasia diaphana | cnidarians | | yes | |
| Cnidaria | Anthozoa | Pacificorgia irene | cnidarians | | yes | |
| Cnidaria | Anthozoa | Pocillopora damicornis | cnidarians | LC | | cauliflower coral |
| Cnidaria | Anthozoa | Pocillopora verrucosa | cnidarians | LC | | cauliflower coral |
| Cnidaria | Anthozoa | Porites lutea | cnidarians | LC | | hump coral |
| Cnidaria | Hydrozoa | Abylopsis eschscholtzii | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Agalma elegans | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Athorybia rosacea | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Clytia gracilis | cnidarians | | | |
| Cnidaria | Hydrozoa | Clytia linearis | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Diphyes bojani | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Diphyes dispar | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Forskalia edwardsii | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Forskalia tholoides | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Halopteris alternata | cnidarians | | | |
| Cnidaria | Hydrozoa | Kirchenpaueria halecioides | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Laodicea undulata | cnidarians | | | |
| Cnidaria | Hydrozoa | Larsonia pterophylla | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Nanomia bijuga | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Obelia dichotoma | cnidarians | | | sea thread hydroid |
| Cnidaria | Hydrozoa | Physalia physalis | cnidarians | | yes | Portuguese man-of-war, galère portugaise |
| Cnidaria | Hydrozoa | Plumularia setacea | cnidarians | | | little seabristle |
| Cnidaria | Hydrozoa | Porpita porpita | cnidarians | | yes | blue button |
| Cnidaria | Hydrozoa | Rhizophysa filiformis | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Sphaeronectes koellikeri | cnidarians | | yes | |
| Cnidaria | Hydrozoa | Tridentata turbinata | cnidarians | | yes | |
| Cryptophyta | Cryptophyceae | Hemiarma marina | | | yes | |
| Echinodermata | Asteroidea | Acanthaster planci | echinoderms | | | crown-of-thorns |
| Echinodermata | Asteroidea | Luidia magnifica | echinoderms | | yes | |
| Echinodermata | Asteroidea | Pentacerastraster cumingi | echinoderms | | | |
| Echinodermata | Echinoidea | Diadema mexicanum | echinoderms | | | |
| Echinodermata | Echinoidea | Echinometra oblonga | echinoderms | | | |
| Echinodermata | Echinoidea | Echinothrix calamaris | echinoderms | | yes | banded sea urchin |
| Echinodermata | Echinoidea | Lovenia cordiformis | echinoderms | | | |
| Echinodermata | Echinoidea | Toxopneustes roseus | echinoderms | | | |
| Echinodermata | Echinoidea | Triptopneustes gratilla | echinoderms | | yes | collector urchin |
| Echinodermata | Holothuroidea | Euapta lappa | echinoderms | | yes | |
| Echinodermata | Holothuroidea | Holothuria (Mertensiothuria) hilla | echinoderms | | | |

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|---------------|-------------------|-------------------------------------|-------------|----------|-----|-------------------------|
| Echinodermata | Holothuroidea | Holothuria (Platyperona) difficilis | echinoderms | | | |
| Echinodermata | Holothuroidea | Holothuria (Stauropora) pervicax | echinoderms | | yes | |
| Echinodermata | Holothuroidea | Isostichopus fuscus | echinoderms | EN | | |
| Echinodermata | Ophiuroidea | Amphipholis squamata | echinoderms | | yes | dwarf brittle star |
| Echinodermata | Ophiuroidea | Ophiactis picteti | echinoderms | | yes | |
| Echinodermata | Ophiuroidea | Ophiactis savignyi | echinoderms | | | |
| Echinodermata | Ophiuroidea | Ophiactis simplex | echinoderms | | yes | |
| Echinodermata | Ophiuroidea | Ophiocoma erinaceus | echinoderms | | yes | |
| Echinodermata | Ophiuroidea | Ophiocomella alexandri | echinoderms | | | |
| Echinodermata | Ophiuroidea | Ophiocomella sexradia | echinoderms | | | |
| Echinodermata | Ophiuroidea | Ophioderma panamense | echinoderms | | | |
| Echinodermata | Ophiuroidea | Ophionereis annulata | echinoderms | | | |
| Echinodermata | Ophiuroidea | Ophiothela mirabilis | echinoderms | | yes | |
| Echinodermata | Ophiuroidea | Ophiothrix (Ophiothrix) spiculata | echinoderms | | yes | |
| Haptophyta | Coccolithophyceae | Chrysochromulina tobinii | algae | | yes | |
| Haptophyta | Coccolithophyceae | Emiliana huxleyi | algae | | yes | |
| Haptophyta | Coccolithophyceae | Phaeocystis globosa | algae | | yes | |
| Hemichordata | Enteropneusta | Ptychodera flava | | | yes | Hawaiian acorn worm |
| Mollusca | Cephalopoda | Octopus hubbsorum | molluscs | LC | | |
| Mollusca | Cephalopoda | Sthenoteuthis oualaniensis | molluscs | LC | | purpleback flying squid |
| Mollusca | Gastropoda | Corolla spectabilis | molluscs | | yes | |
| Mollusca | Gastropoda | Creseis virgula | molluscs | | yes | |
| Mollusca | Gastropoda | Cupolaconcha meroclista | molluscs | | yes | |
| Mollusca | Gastropoda | Doriopsis pecten | molluscs | | yes | |
| Mollusca | Gastropoda | Firoloida desmarestia | molluscs | | yes | |
| Mollusca | Gastropoda | Glaucus atlanticus | molluscs | | yes | sea swallow |
| Mollusca | Gastropoda | Litiopa melanostoma | molluscs | | yes | |
| Mollusca | Gastropoda | Naria albuginosa | molluscs | | | aubergine cowry |
| Mollusca | Gastropoda | Navanax aenigmaticus | molluscs | | | |
| Mollusca | Gastropoda | Niparaya regiscorona | molluscs | | yes | |
| Mollusca | Gastropoda | Oxynoe viridis | molluscs | | yes | |
| Mollusca | Gastropoda | Phestilla lugubris | molluscs | | yes | |
| Mollusca | Gastropoda | Pleurobranchus digueti | molluscs | | yes | |
| Mollusca | Gastropoda | Pleurobranchus peronii | molluscs | | yes | |
| Mollusca | Gastropoda | Stylocheilus rickettsi | molluscs | | yes | |
| Mollusca | Gastropoda | Tylodina fungina | molluscs | | yes | |
| Myzozoa | Dinophyceae | Karenia brevis | unicellular | | yes | |
| Myzozoa | Dinophyceae | Protoceratium reticulatum | unicellular | | yes | |
| Nemertea | Hoplonemertea | Diplomma serpentina | worms | | yes | |
| Ochrophyta | Dictyochophyceae | Octactis octonaria | algae | | | |
| Ochrophyta | Dictyochophyceae | Pseudochattonella farcimen | algae | | yes | |
| Ochrophyta | Dictyochophyceae | Vicicitus globosus | algae | | yes | |
| Ochrophyta | Pelagophyceae | Aureococcus anophagefferens | algae | | yes | |
| Ochrophyta | Pelagophyceae | Pelagomonas calceolata | algae | | yes | |
| Ochrophyta | Phaeophyceae | Colpomenia sinuosa | algae | | yes | |
| Ochrophyta | Phaeophyceae | Dictyota flabellata | algae | | yes | |
| Ochrophyta | Phaeophyceae | Dictyota humifusa | algae | | yes | |
| Ochrophyta | Phaeophyceae | Diplura simplex | algae | | yes | |
| Ochrophyta | Phaeophyceae | Hydroclathrus tilesii | algae | | yes | |
| Ochrophyta | Phaeophyceae | Lobophora obscura | algae | | yes | |

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|------------|-----------------|--|---------|----------|-----|---|
| Ochrophyta | Phaeophyceae | Neoralgsia expansa | algae | | yes | |
| Porifera | Demospongiae | Chelonaplysilla erecta | sponges | | yes | |
| Porifera | Demospongiae | Chondrosia collectrix | sponges | | yes | |
| Porifera | Demospongiae | Clathria (Clathria) unica | sponges | | yes | |
| Porifera | Demospongiae | Cliona vermifera | sponges | | | orange boring sponge |
| Porifera | Demospongiae | Coelocarteria bartschi | sponges | | yes | |
| Porifera | Demospongiae | Crambe crambe | sponges | | yes | orange-red encrusting sponge, éponge encroûtante orange-rouge |
| Porifera | Demospongiae | Desmapsamma anchorata | sponges | | yes | |
| Porifera | Demospongiae | Dictyodendrilla cavernosa | sponges | | yes | |
| Porifera | Demospongiae | Geodia californica | sponges | | yes | |
| Porifera | Demospongiae | Halichondria (Halichondria) bowerbanki | sponges | | yes | Bowerbank's halichondria |
| Porifera | Demospongiae | Mycale (Carmia) cecilia | sponges | | yes | |
| Porifera | Demospongiae | Pione vastifica | sponges | | yes | boring sponge, clione rouge |
| Porifera | Demospongiae | Spirastrella cunctatrix | sponges | | yes | encrusting orange sponge, éponge encroûtante orange |
| Porifera | Demospongiae | Thoosa purpurea | sponges | | | |
| Rhodophyta | Florideophyceae | Amphiroa foliacea | algae | | yes | |
| Rhodophyta | Florideophyceae | Amphiroa valonioides | algae | | | |
| Rhodophyta | Florideophyceae | Asparagopsis taxiformis | algae | | | |
| Rhodophyta | Florideophyceae | Dasya caribica | algae | | yes | |
| Rhodophyta | Florideophyceae | Digenea rafaellii | algae | | yes | |
| Rhodophyta | Florideophyceae | Galaxaura filamentosa | algae | | | |
| Rhodophyta | Florideophyceae | Ganonema farinosum | algae | | yes | |
| Rhodophyta | Florideophyceae | Gelidiella acerosa | algae | | | |
| Rhodophyta | Florideophyceae | Gracilariopsis lemaneiformis | algae | | yes | |
| Rhodophyta | Florideophyceae | Gymnogongrus guadalupensis | algae | | yes | |
| Rhodophyta | Florideophyceae | Herposiphonia insidiosa | algae | | yes | |
| Rhodophyta | Florideophyceae | Hypnea pannosa | algae | | | |
| Rhodophyta | Florideophyceae | Janczewskia hawaiiiana | algae | | yes | |
| Rhodophyta | Florideophyceae | Melanothamnus ramireziae | algae | | yes | |
| Rhodophyta | Florideophyceae | Monosporus indicus | algae | | yes | |
| Rhodophyta | Florideophyceae | Pterocladia capillacea | algae | | | |
| Rhodophyta | Florideophyceae | Rhodoptilum plumosum | algae | | yes | |
| | | Amastigomonas debrynei | | | yes | |