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New and recent records of fishes from the Mariana Islands, western Pacific Ocean

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Abstract

The most recent checklist of fishes of the Mariana Islands lists 1,106 species including 1,020 that are inshore or epipelagic, the vast majority of which inhabit coral reefs. Included in the list are 97 species indicated as new records without further comment other than to identify the basis of the record as an examined or collected specimen (21), photograph (57), or reliable sighting (16), as well as at least 16 additional species identified only to genus, 13 of which have since been described as new. In light of a growing body of research that extends the occurrences of many shore fishes to depths below 300 m, as well as other species of shore fish lineages that may occur exclusively below the mesophotic zone, we expand our use of the terms reef fishes, inshore fishes, or shore fishes to include the

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rariphotic zone as well as even deeper-dwelling species that inhabit these zones at higher latitudes. Based on this, we include at least 117 additional species that have recently been discovered in the Mariana Islands that occur, or are likely to occur, at depths of approximately 500 m or less. The vast majority of these records, including 72 of those previously listed and 108 of those more recently identified here, are based only on photographs. Some of these have been posted online, with or without comment on their significance, on the website guamreeflife.com or by National Oceanic and Atmospheric Administration (NOAA) Ocean Exploration, but many have not. Here, we consolidate into a single publication, photographs and other information that represent new records of inshore and epipelagic fishes, or that validate previously documented occurrences within the Mariana Islands and associated banks and seamounts.

Introduction

The Mariana Islands consist of an approximately 800-km long, island-arc system on the eastern edge of the Philippine plate (Fig. 1). The archipelago consists of 15 high islands in two arcs, an older (to 43 Ma) volcanically inactive, geologically complex frontal arc in the south, and a young (to 1.3 Ma) volcanically active inner arc to the north (Siegrist & Randall 1992, Paulay 2003). Satellite seamounts and banks extend to the north and south of both arcs. A parallel series of seamounts and reefs that rise from the West Mariana Ridge lie between 100 and 200 km to the west. Six of them have summits of 6 to 64 meters in depth. The island arc system continues north into Japanese waters as the Kazan (Volcano), Ogasawara (Bonin), and Izu Islands, and, in the distant past was once continuous with the Yap and Palau islands which have since rifted away. During periods of glacial maxima of the Pleistocene, sea levels were up to 120 m lower. This not only reduced available insular reef habitat area by as much as 92%, but would have facilitated contemporary deeper seamounts to serve as potential habitat for reef and shore fishes (Ludt & Rocha 2014). Myers & Donaldson (1996) presented the last detailed accounting of new and recent records of fishes from the Mariana Islands, and Myers (1999) subsequently included limited information on 4 additional ones. Myers & Donaldson (2003) updated the taxonomy of all previous records of inshore and epipelagic fishes for the islands and listed several additional species as new records based on specimens, photographs, or reliable sightings without further comment. Since then, many additional species of inshore fish have been discovered in the region, most of which are based only on photographs. Also, a number of taxa inadequately known in 2003 have since been better documented, with photographs supporting reliable sightings or specimens. Others, including old as well as new discoveries, remain either inadequately documented, unidentified to species, or represent undescribed taxa. Furthermore, recent advances in molecular genetics have shown that many well accepted taxa consist of complexes of two or more cryptic species, requiring a reassessment of the identity of the Marianas population. As adequate genetic information cannot be obtained from specimens fixed in formalin, and others have been improperly preserved, fresh material and tissue samples of some species are required to assist in determining their true identities.

Between 1999 and 2003, there was a noticeable increase in the rate of discovery of species new to the Marianas that has since slowed. Reasons for the initial jump in discoveries are twofold and seem to be due to a combination of factors, primarily the dedicated efforts of self-taught fish photographers and unusually favorable climatological and environmental conditions. Using recent well illustrated books as guides, particularly Micronesian Reef Fishes (Myers 1989, 1999), several local photographers compiled large collections of well documented photographs and brought to the authors' attention anything they perceived as unusual or were unable to identify. Some of these photographers targeted habitats that were generally overlooked, difficult to access, or at depths of 40 to 60 m. This effort also coincided with the record-setting ENSO event of 1997–98 followed by three years of relatively calm seas. The ENSO event brought with it several species not normally seen in the Marianas. A similar phenomenon accompanied the major 1982 event and may also have happened from 2015 to 2016. A three-year period relatively free of destructive storm-generated swells following the 1997–98 event allowed unconsolidated bottoms of mud, sand, and rubble at depths of less than 30 m to remain stable for an extended period. This may have permitted many small sand and rubble-dwelling species to recruit to or migrate upslope and persist in these relatively shallow exposed habitats. Toguan Bay on the southwest coast of Guam, was a particularly productive site monitored periodically to a depth of 30 m by photographer and dive guide Tim Allen. This period of relative

Figure 1. Map of the Mariana Arc system showing islands, submerged banks and seamounts, and submarine topography. Pale blue indicates approximate extent of submerged ocean bottom of 500 m or less in depth, numbers indicate minimum known depths of selected features. Basemap created by combining the World Imagery (Esri) and Ocean basemap (Esri) layers of the NOAA Bathymetric Data Viewer. https://maps.ngdc.noaa.gov/viewers/bathymetry/

calm abruptly ended in August 2001, when large swells prevented diving at the site for a period of at least two weeks. When Allen returned to this site, he reported that the unconsolidated bottom had been 'turned over' and virtually all of the species representing new records that he had been observing had disappeared. Subsequent visits to the site failed to reveal their presence up to the time of his death in December 2002.

Many of the new records reported here are based on photographs taken by dive-industry professionals or biologists dedicated to documenting new discoveries. From 1999 through 2002, most of the new records of fishes were discovered and documented by Tim Allen of Guam and Hiroyuki Kimura of Saipan, Commonwealth of the Northern Mariana Islands (CNMI). In addition to the normal tourist sites they frequented, they also visited habitats and depths of lesser interest to most divers. From mid-2000 to 2002, when the senior author (RFM) was in the process of relocating to Florida, most of the photographs of significance taken by Allen and Kimura were scanned and made available to him. They also provided information on species not previously known from the Marianas that they observed but were unable to photograph. Six months after RFM left Guam permanently, Allen passed away following a typhoon that rendered his residence uninhabitable. The bulk of his transparencies, as well as scans that were stored primarily on compact discs (CDs), were not recovered. Soon thereafter, Kimura left Saipan. While most of the images representing new records are of sufficient quality to reproduce in books and other popular media, others of lesser quality reveal enough detail to provide positive identification to a trained observer. In a few cases, the only surviving images of Allen's new records are low-resolution thumbnails that had been emailed to RFM prior to transferring the full-resolution scans to a CD. At that time, the cross-platform technology and software did not permit the use of long file names or the inclusion of user-generated metadata, so detailed information on location, time, and other parameters had to be saved in the form of labels on slide mounts or CDs and written or printed notes. Any information that was not communicated prior to Allen's death was lost.

During this time, the University of Guam (UGM) fish collection was being downsized because of a lack of financial support, and an effort was made to identify and transfer important specimens to more permanently funded institutions. The historic lack of adequate space and funding resulted in some new acquisitions being stored in freezers or inadequate containers for extended periods prior to curation. Many specimens, particularly of small-sized species, were lost. During 2009, the collection was moved to another building for storage and curation of specimens of newly collected species and maintenance of those surviving specimens collected previously. In 2020, the collection was moved again because of damage to the building in which it was housed. Prior to being stored in a new temporary facility, the remaining collection was digitized and imaged (see www.guamepscor.uog.edu/) with support from the U.S. National Science Foundation's Established Program to Stimulate Competitive Research (EPSCoR). Tissues, voucher specimens, and images from newly collected fish stored in freezers were also obtained and the data catalogued and digitized. The current disposition and state of a few of the specimens collected prior to these recent efforts, but included here, are therefore unknown.

The advent of digital photography has resulted in a vast increase in the number of underwater photographers, the number and quality of images taken, and the ease with which images can be distributed and published. From 2002 to 2006, Noriko and Jimmy Boggs, both closely associated with the dive-tourist industry on Guam, and Chad Ordelheid, a Guam physician, amassed large collections of images that they kindly made available to the authors. A number of those that represent new records are included here. Since then, one of us (DRB) has produced a website, www.guamreeflife.com, that features galleries of fish images obtained in Guam waters since 2004 that are identified to species. These include several that represent either new records or confirmations of earlier sight records and are reproduced here.

In 2010, a study of upper mesophotic fish communities of island terraces and satellite banks from Galvez Bank to Saipan, undertaken by the University of Guam Marine Laboratory using baited remote underwater stereo-video (BRUV) systems, revealed additional new records of species at depths of 30 to 98 m (Lindfield et al. 2016).

During 2016, the National Oceanic and Atmospheric Administration (NOAA) Ocean Exploration program conducted a survey of Marianas Arc island slopes and seamounts below 250 m using high-definition video taken by remotely operated vehicles (ROVs) tethered to the NOAA ship *Okeanos Explorer* (Amon et al. 2017, Kennedy et al. 2019). These missions documented numerous species known from, or that may be expected to range into, depths shallower than 200 m in some portion of their known geographic ranges. Many other closely related species of shorefish lineages were documented from below 200 m to perhaps 500 m. Other taxa that are not

shorefishes were seen to a depth of 5388 m, but these are not included in this report (Selig et al. 2023).

In the most detailed study of its kind, Baldwin et al. (2018) analyzed over 4,000 observations of 71 species of reef fishes off Curacao made from a submersible between depths of 40 and 309 m. A cluster analysis of the data revealed several distinct faunal communities with a major break at 130 m, often cited as the lower end of the mesophotic zone. The authors proposed the term "rariphotic" for those communities below 130 to at least 309 m, and "altiphotic" for all reef zones above the mesophotic. Similar breaks have been documented for other regions, including the Marshall Islands (Thresher & Colin 1986). While further research is needed to determine the effective lower limit of the rariphotic zone in different regions, it is clear that designating 200 m as the cutoff point for species to be considered shorefishes is arbitrary and not particularly useful. For this reason, we expand our use of the term 'shorefishes' to not only include the rariphotic zone but also to include species of clear shorefish lineages that may occur deeper. Numerous such fishes, including at least 58 that represent new records included herein, were documented by the NOAA ship *Okeanos Explorer*'s ROV.

During the northern leg of the NOAA NMFS Pacific Islands Fisheries Science Center Coral Reef Program's Mariana Islands Reef Assessment and Monitoring Program (MARAMP) expedition in 2017, additional images of species representing new records were taken by DRB and Andrew Gray, a biologist with the NOAA-University of Hawai'i Joint Institute for Marine and Atmospheric Research.

Concurrent with the digital revolution, the molecular revolution continues to reveal cryptic species at a staggering rate. Many species long considered to be widespread are now known to consist of more than one allopatric, and in some cases sympatric, species. Subtle differences in color as well as morphology often reveal cryptic genetic diversity. Once these are linked and verified, photographs can be used to reliably identify them. While we consider the photographic records included here to be sufficient to adequately identify most taxa to species, a few identifications remain provisional.

Twenty species listed by Myers & Donaldson (2003) on the basis of visual sightings by knowledgeable observers or photographs or video that were examined, but are no longer available, remain otherwise undocumented but are provisionally accepted and not treated further (Table 1). We urge anyone who is aware of the occurrence of these species in the Marianas to attempt to photograph or collect them and contact us.

TABLE 1

Species listed in Myers & Donaldson (2003) that require further documentation by photograph, video, or collection (family and location in parentheses)

Pastinachus ater (Dasyatidae, as *P. sephen* in Myers & Donaldson (2003); Saipan)
Photoblepharon palpebratus (Anomalopidae; Guam)
Pseudanthias hutomoi (Anthiadidae; Saipan)
Liopropoma multilineatum (Liopromatidae; Tinian: 15 m, Grotto)
Hoplolatilus purpureus (Malacanthidae; Guam)
Decapterus tabl (Carangidae; Saipan)
Plectorhinchus lessonii (Haemulidae; Saipan: 10–16 m, Laulau Beach)
Plectorhinchus lineatus (Haemulidae; Guam)
Centropyge multicolor (Pomacanthidae; photograph seen; Guam)
Genicanthus melanospilos (Pomacanthidae; Rota)
Iniistius pentadactylus (Labridae; Guam)
Coris batuensis (Labridae; Saipan)
Halichoeres prosopeion (Labridae; Guam)
Pseudojuloides severnsi (Labridae; photograph seen; Saipan)
Thalassoma lunare (Labridae; Guam)
Parapercis cylindrica (Pinguipedidae; Guam)
Cirripectes stigmaticus (Blenniidae; Guam, Saipan)
Ecsenius midas (Blenniidae; Guam)
Ostracion solorensis (Ostraciidae; Saipan)
Chilomycterus reticulatus (Diodontidae; Guam, Saipan)

Wetmorella albofasciata (Labridae) was listed in Myers & Donaldson (2003) on the basis of a collected specimen identified by RFM, but was not photographed. The specimen was housed in the UGM collection awaiting further processing and detailed examination before being moved at least once, but could not be located after the initial move and may be lost. Specimens of other species stored in the same barrel that represent new records that were photographed are reported here.

In 2005, the venomous catfish *Plotosus lineatus* (Plotosidae) was reported in the lagoon along the west coast of Saipan and has been closely monitored ever since by local authorities. Clusters of juveniles have been continuously present, mainly around seagrasses or submerged structures, and more recently, cryptic adults have been observed sheltering beneath structures. The means of introduction has not been determined but is presumed to be anthropogenic.

Bemis et al. (2019) recorded the upward-mouth spikefish, *Atrophacanthus japonicus* (Triacanthodidae), from Guam waters based on material obtained from tuna-stomach contents. The depth of capture of the tuna was not given, but the species is known elsewhere from depths of 121–491 m.

Fifteen taxa, either not identified to species or listed as undescribed in Myers & Donaldson (2003), have since been identified or described (Table 2).

TABLE 2

Species identified or described since their listing in Myers & Donaldson (2003), in phylogenetic order.

Solenostomus sp. A is *Solenostomus halimeda* Orr, Fritzsche & Randall, 2002
Pseudochromidae n. genus, n. sp. B is *Lubbockichthys myersi* Gill & Edwards, 2006 (holotype, Guam)
Parupeneus sp. A is *Parupeneus insularis* Randall & Myers, 2002 (paratypes, Guam)
Owstonia n. sp. is *Owstonia ignota* Smith-Vaniz & Johnson, 2016 (holotype)
Pseudojuloides sp. A is *Pseuodjuloides pluto* Tea, Greene, Earle & Gill, 2020 (paratypes, Maug)
Xyrichtys n. sp. A is *Novaculops halsteadi* (Randall & Lobel, 2003) (paratypes, Guam)
Coryphopterus sp. D is a young *Fusigobius neophytus*
Amblyeleotris n. sp. B is *Amblyeleotris fasciata* (Herre, 1953)
Trimma n. sp. A is *Trimma milta* Winterbottom, 2002
Trimma n. sp. D is *Trimma xanthum* Winterbottom & Hoese, 2015
Trimma n. sp. E is *Trimma maiandros* Hoese, Winterbottom & Reader, 2011 (paratypes, Guam)
Trimma n. sp. G is *Trimma preclarum* Winterbottom, 2006, also erroneously reported as *Trimma sheppardi* by Myers & Donaldson (2003)
Trimma n. sp. K is *Trimma fasciatum* Suzuki, Sakaue & Senou, 2012
Asterorhombus n. sp. is *Asterorhombus filifer* Hensley & Randall, 2003

In addition, *Pterygotrigla* sp. of Myers (1988) and Myers & Donaldson (1996) have been identified as two species, *Pterygotrigla megalops* (Fowler, 1938) and *Pterygotrigla multiocellata* (Matsubara, 1937), respectively, based on information in Richards (1999) in Carpenter & Niem (1999). *Pseudanthias flavicauda* of Myers & Donaldson (2003) has been collected and described as *Pseudanthias tequila* Gill, Tea & Senou, 2017. *Chromis analis* of Kami (1975) and Myers & Donaldson (2003) has been reidentified as *Chromis circumaurea* Pyle, Earle & Greene, 2008. Both species, however, occur in the Marianas and the real *C. analis* is reported herein. The paratype of *Plectranthias kamii* Randall, 1980 from Guam has been reidentified as *Plectranthias clavatus* Wada & Senou, 2024, and records of *Plectranthias kamii* from the Marianas appear to be based on that paratype (Wada & Senou 2024).

The inclusion of two species, *Pteroidichthys amboinensis* and *Parapercis altipinnis* (as *Parapercis* n. sp. A) in Myers & Donaldson (2003), may have been erroneous. Both records were based on photographs thought to have been taken at Saipan, but the predominantly brown sand background seems highly unusual for a raised limestone island that lacks rivers. *Pteroidichthys amboinensis* is otherwise unknown from mid-oceanic locations

and only two other species in the genus are known from them: *P. norohnai* (Saya de Malha Bank) and *P. caussei* (Marquesas Islands). *Parapercis altipinnis* is otherwise known only from Cebu and Bali. Until the origin of these photographs can be verified we consider the Saipan records doubtful.

Four taxa previously reported from the Marianas based upon specimens collected or photographs are under study as potential new species. All 4 are gobioids (Table 3).

TABLE 3

Taxa listed in Myers & Donaldson (2003) now under study as potentially new species.

Eleotris sp. A Myers & Donaldson (2003); photograph from Guam only, collection pending
Sicyopus sp. A Myers & Donaldson (2003); also photographed at Saipan
Stiphodon sp. C Myers & Donaldson (2003); also photographed at Saipan
Stenogobius sp. C Myers & Donaldson (2003); also photographed at Saipan

Carangoides hedlandensis of Myers & Donaldson (2003) was listed on the basis of a juvenile specimen that cannot be distinguished definitively from *C. caeruleopinnatus*. We therefore remove *C. hedlandensis* from the list of species known from the Marianas.

Additional undescribed taxa from shallow reef waters in the Marianas that have been photographed include at least one species each of *Oplopomus* and *Hazeus*. The collection of fresh material and tissue samples of fishes currently identified as *Aseraggodes melanostictus* (Peters, 1877) and *Soleichthys heterorhinos* (Bleeker, 1856) is required to establish their true identities. Recent and ongoing molecular studies of numerous other species in the Marianas once considered to be widespread and variable are revealing that they represent complexes of species. In some cases, the Marianas population has an available name that will be resurrected from synonymy and in others it represents an undescribed species.

The new discoveries documented here, combined with taxonomic and nomenclatural changes, have eroded the usefulness of all earlier works on Mariana Islands fishes. The senior author is preparing a new edition of Micronesian Reef Fishes at present, in addition to other works providing more detailed information on new distribution records for fishes elsewhere in the region. In addition, TJD is leading a project funded by NSF-EPSCoR at the University of Guam that includes intensive collecting at various depths and mtDNA barcoding of specimens in order to increase knowledge of cryptic fish diversity in the Marianas. An updated summary and biogeographic analysis of all the shore fishes of the Marianas as well as other islands in Micronesia will be given in one or more of these works.

Methods

This paper covers not only inshore and epipelagic fishes, those species that either exclusively inhabit these realms or regularly visit them but is expanded to include the rariphotic as well as altiphotic and mesophotic zones according to the terminology of Baldwin et al. (2018) and bathyal and upper bathyal according to Watling et al. (2013). We do not place a lower depth limit to the rariphotic zone and also include species of the upper bathyal zone that belong to lineages consisting predominately of shorefishes, regardless of their known depth ranges. Each of the new records listed in Myers & Donaldson (2003) is reviewed and supporting information including photographs are provided herein. Subsequent new and more recent records are treated similarly. We also include a few occurrences of species that represent noteworthy range extensions within the Mariana Islands. The photographs vary widely in quality, so their inclusion is based purely on enough of the subject being documented to ascertain its identity. For each species, a brief account is given that includes a description of primarily visual characters useful for identification, along with notes on local abundance, ecology and geographic distribution. All photographic records from below 250 m are from videos taken by the ROV *Deep Discoverer* from the NOAA ship *Okeanos Explorer* during NOAA's 2016 Deepwater Exploration of the Marianas Expedition. The island or bank,

cruise and cruise leg (EX1605L), dive number, depth (m), temperature at depth (°C), and coordinates (latitude and longitude) are given for the observations in the text. The island or bank, depth, cruise, cruise leg, and dive number are given in the figure captions.

Species are presented phylogenetically by family in the sequence of most recent works on Mariana Islands fishes (Myers & Donaldson 2003), with the exception that some family assignments and family names have been updated to reflect current taxonomy. For this reason, the families are not placed in the current ordinal level sequence used by Eschmeyer's Catalog of Fishes (COF: https://researcharchive.calacademy.org/research/ichthyology/catalog/SpeciesByFamily.asp), whereas the placement of species within families and subfamilies is. The placement of parrotfishes (formerly family Scaridae) within the Labridae is particularly challenging. We regard the scarine lineage as closest to the cheiline lineage and we are arbitrarily designating it as an unranked tribe placed immediately after it. We are also maintaining the functional groups within the subfamily Gobiinae as used in Myers & Donaldson (2003).

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Species Accounts

HEXANCHIDAE (SIXGILL SHARKS)

Hexanchus nakamurai Teng, 1962. Reported from Guam on the basis of a female taken by hook and line by Nate Flores at a depth of 274 m off Rota Bank, Guam (Fig. 2A). The head has been retained for deposition at UGM. Distinguished from all other sharks in the region by having 6 gill slits and a single dorsal fin, and from *Hexanchus griseus* by having a distinctly larger eye and more pointed snout. A rarely encountered demersal shark of continental and insular shelves and upper slopes known from depths of 90 to 702 m. Known from scattered locations including northern South Africa to Kenya, Madagascar, the Mascarene Islands, Philippines, Taiwan, Palau, Great Barrier Reef, and Atlantic Ocean.

RHINCODONTIDAE (WHALE SHARK)

Rhincodon typus (Smith, 1828). Initially reported from Guam on the basis of photographs examined but not retained (Myers & Donaldson 2003). Subsequently documented in the eastern part of the Commonwealth of the Northern Mariana Islands (CNMI) EEZ by satellite telemetry of an individual tagged in Panama that travelled over 20,000 km during a span of 841 days, the longest recorded migration of the species to date (Guzman et al. 2018).

ODONTASPIDIDAE (SAND TIGER SHARKS)

Odontaspis ferox (Risso, 1810). Three individuals were recorded from between 352 and 490 m in water of 7.8–15.4°C at Zealandia Bank (EX1605L1, dive 12; 16.901–16.899°N, 145.897°E), Pagan (EX1605L3, dive 02; 18.181°N, 145.820°E) and Maug (EX1605L3, dive 03; 20.049°N, 145.233°E; Fig. 2B). An inshore species of temperate waters that encroaches into the tropics primarily in outer-shelf to upper-slope waters within a known depth range of 10 to 1015 m. In the western Pacific, known from Taiwan to southern Japan, southeastern Australia, New Caledonia, and the Kermadec Islands; also in the Hawaiian Islands.

ALOPIIDAE (THRESHER SHARKS)

Alopias superciliosus (Lowe, 1841). Reported here on the basis of a young individual caught at a depth of about 366 m at Rota Banks by Jimmy Snaer Badong (Fig. 2C). The fish was snagged in the tail by deep-bottom fishing gear. It had been cut up before a measurement and weight were taken, but, based on items in the photograph, it appears to be between 2.1 and 2.3 m TL. Distinguished from the two other thresher shark species by its extremely large, dorsally tilted eyes. This is the first direct evidence of the species within the 200-mile EEZ of Guam and the CNMI. Circumglobal in coastal and oceanic waters from the surface to a depth of 723 m, but usually below 100 m.

CARCHARHINIDAE (REQUIEM SHARKS)

Negaprion acutidens **(**Rüppell, 1837). Reported here on the basis of a photograph posted on the Facebook group "History of Guam in pictures" of a young female individual caught by set net in Talofofo Bay during an annual community atulai (*Selar crumenophthalmus*) roundup in the 1980s (Fig. 2D). The species is clearly identified by its two falcate dorsal fins of nearly equal height, as well as falcate anal and pectoral fins, and the general shape of the head and teeth that are visible. This represents the only known occurrence of this species in the Mariana Islands. It is unknown if there is a permanent population present, but large sharks such as these are known to occasionally transit hundreds of miles over deep ocean basins between islands or atolls. Widespread Indo-Pacific from the Red Sea and Natal, South Africa to the Tuamotu and Gambier Islands, including Palau and the Marshall Islands in Micronesia.

Figure 2. A. *Hexanchus nakamurai*, 133 cm TL, fished from 274 m depth, Rota Banks (B. Tibbatts); B. *Odontaspis ferox*, 333 m depth, Maug, EX1605L3, dive 03 (NOAA Ocean Exploration); C. *Alopias superciliosus*, estimated at between 2.1 and 2.3 m TL, hooked at a depth of approximately 366 m, Rota Banks, Guam (J. S. Badong); D. *Negaprion acutidens*, female estimated at 1.4 cm TL, captured by set net in Talofofo Bay, Guam during an annual atulai roundup sometime during the 1980s (Facebook group "History of Guam in pictures"); E. *Echinorhinus cookei*, estimated at between 2.4 and 3 m in TL, hooked at a depth of approximately 335 m off Umatac, Guam (from video clip by J. Chapin); F. *Pateobatis fai*, 3 m depth, Piti, Guam (B. Tibbatts); G. *Taeniurops meyeni*, site unknown, Guam (J. Boggs).

ECHINORHINIDAE (BRAMBLE SHARKS)

Echinorhinus cookei Pietschmann, 1928. Reported from Guam from video frames of a male taken by hook-and-line by Jeremie Chapin at a depth of 335 m off Umatac, Guam and subsequently released (Fig. 2E). It was estimated to be between 2.4 and 3 m TL. A rarely encountered demersal shark of continental and insular shelves and upper slopes of the tropical and temperate Pacific. Known from scattered locations including the Philippines, Palau, Kosrae, Papua New Guinea, New Zealand, Tonga; Howland, Line, Cook and Hawaiian Islands; Cross Seamount; and California, Mexico, and Peru. Known from depths of 4 to 1,100 m, but in less than 200 m only in cooler water areas of New Zealand and the Americas.

DASYATIDAE (STINGRAYS)

Himantura cf. *leoparda* (Manjaji-Matsumoto & Last, 2008). Reported from Farallon de Medinilla as the honeycomb stingray, *H. uarnak*, by Smith & Marx (2016) on the basis of a single close sighting of a very large adult of an estimated 200-cm disc width. Although no photographs were taken, Smith (pers. comm. to RFM) described the ray as having a honeycomb pattern of ocellate rather than solid spots, a trait characteristic of adults of *H. australis*, *H. leoparda*, and *H. undulata*. Provisionally identified as *H. leoparda* based on the known geographic range being closest to the Mariana Islands (Last et al. 2016). Characterized by a pale gray, nearly white, dorsal surface with closely spaced dark spots in juveniles that become pale-centered with darker spots peripherally in large adults. Formerly lumped with the largely solid-spotted *H. uarnak*. *Himantura uarnak* has been reported from Micronesia at Palau (Abe 1939), Ifalik and Kapingamarangi (Rofen, unpublished report, with specimens now presumably at CAS), as well as sightings elsewhere in the Federated States of Micronesia (FSM). In light of recent taxonomic changes, any Micronesian specimens of the complex should be reexamined. *Himantura leoparda* is known from Natal, South Africa and Sri Lanka east to Papua New Guinea, north to the Ryukyu Islands, south to New Caledonia.

Pateobatis fai (Jordan & Seale, 1906). Initially reported from Guam as *Himantura fai* on the basis of a 206-cm TL specimen with a disc width of 83 cm that was examined but not photographed nor retained (Myers & Donaldson 1996). Subsequently it was reported on the basis of photographs of another specimen, also not retained (Myers & Donaldson 2003). As this species had not yet been photographed in Micronesia, Myers (1999) used a photograph taken in Kenya to illustrate it, but that is likely another closely related species. Subsequently photographed by T. Allen off Toguan Bay, Guam at a depth of about 24 m and by BT at a depth of 3 m near the Piti Observatory (Fig. 2F). It is characterized by a uniform gray to pinkish-gray color and a long whip-like tail lacking dermal flaps. Red Sea and South Africa to the Marquesas and Gambier Islands, north to the Ryukyu Islands, south to New Caledonia.

Taeniurops meyeni (Müller & Henle, 1841). Previously reported from Guam as *Taeniura melanospilos* (Amesbury & Myers 1982, Myers 1988) on the basis of sightings. Documented here from photographs taken at Guam, off Tumon Bay at an unknown site by J. Boggs (Fig. 2G) and a visual sighting in 2009 on coral pavement off Orote Point, Guam at a depth of 20 m by TJD in 2009. Also captured on BRUV footage from Galvez Bank, Rota, and Saipan Anchorage at depths of 33 to 60 m and the most common ray observed at Farallon de Medinilla by Smith & Marx (2016).

Urogymnus asperrimus (Bloch & Schneider, 1801). Reported from Guam on the basis of sightings by Tim Rock (Myers & Donaldson 2003). Subsequently photographed at a depth of 4 m in Achang Reef Flat Marine Preserve, Guam, by DRB (Fig. 3A) and posted on the website guamreeflife.com. A large distinctive species characterized by numerous thorn-like denticles covering the entire dorsal surface, a patch of dense plate-like denticles on the central portion of the disc and tail, a cylindrical tail that lacks a spine or dermal folds, and brown to gray or nearly black color, sometimes with scattered pale spots. Red Sea and South Africa to Fiji, north to the Ryukyu Islands, south to New Caledonia; also in the Gulf of Guinea, West Africa.

Figure 3. A. *Urogymnus asperrimus*, 4 m depth, Asgadao Bay, Achang Reef Flat Marine Preserve, Guam (D. Burdick); B. *Urogymnus granulatus*, 10 m depth, Piti, Guam (D. Burdick); C. *Myroconger* sp. cf *gracilis*, 354 m depth, Pagan, EX1605L3, dive 02 (left) and 330 m depth, crater on outer edge of cone of Maug, EX1605L3, dive 03 (NOAA Ocean Exploration); D. *Myroconger* sp. cf *seychellensis*, 301 m depth, Santa Rosa Reef, EX1605L1, dive 02 (left) and 365 m depth, Santa Rosa Reef, EX1605L1, dive 02 (NOAA Ocean Exploration); E. Myrocongridae or Chlopsidae unid. sp., putative male, 342 m depth, Supply Reef. EX1605L3, dive 06. (NOAA Ocean Exploration); F. *Enchelycore kamara*, site unknown, Guam, low resolution rendition of film scan (T. Allen); G. *Gymnothorax neglectus*, 762 mm TL, fished from 270 m depth, Haputo, Guam (R. F. Myers) and *in situ* at 337 m depth, Supply Reef, EX1605L3, dive 06 and 374 m depth, Eifuku Seamount, EX1605L3, dive 08 (NOAA Ocean Exploration); H. *Gymnothorax* sp. A, approximately 55 cm TL, 279 m depth, Supply Reef, EX1605L3, dive 06¦both frames of the same individual (NOAA Ocean Exploration).

Urogymnus granulatus (MacLeay, 1883). Initially reported from Guam as *Himantura granulata* by Myers & Donaldson (2003) from photographs taken by RFM of an individual in captivity at Underwater World Guam. Subsequently photographed at a depth of 10 m, off Piti, Guam by DRB (Fig. 3B) and posted on the website www.guamreeflife.com. It is characterized by a black dorsal surface with scattered, small, white spots that extend to the basal portion of a long, white, whip-like tail that lacks dermal flaps. Red Sea and Comoro Islands to Vanuatu, north to the Philippines, high islands of the Federated States of Micronesia (FSM) and Guam, south to New Caledonia.

MYROCONGRIDAE (THIN EELS)

Myroconger cf. *gracilis* Castle, 1991. Recorded at a depth of 354 m in 12.9°C water at Pagan (EX1605L3, dive 02; 18. 181°N, 145.820°E) and 330 m in 15.3°C water at Maug (EX1605L3, dive 03; 20.049°N, 145.233°E) (Fig. 3C). The identification is provisional, provided by J. McCosker and K. Tighe. *Myroconger gracilis* is known from the Kyushu-Palau Ridge (26.775°N, 135.338°E to 26.773°N, 135.347°E) at depths of 320 to 640 m.

Myroconger cf. *seychellensis* Karmovskaya, 2006. Recorded at depths of 301 and 365 m in 7.9–11.1°C water at Santa Rosa Reef (EX1605L1, dive 02; 12.732°N, 144.272°E; 12.732°N, 144.276°E) (Fig. 3D). The identification is provisional, it is potentially a new species identified by J. McCosker, D. Smith, and K. Tighe. *Myroconger seychellensis* is known from a 450-mm TL specimen taken at a depth of 200 m in the Seychelles (5°57'S, 57°27'E). The Pacific Ocean species seen in the Marianas has also been recorded at Pao Pao Seamount in the Tokelau Seamounts, Howland Island, and Jarvis Island (on the NOAA ship *Okeanos Explorer* survey), as well at Palmyra Atoll and Kingman Reef (BCM, pers. obs. from a submersible).

Myrocongridae or Chlopsidae, undetermined sp. Recorded at a depth of 342 m in 15.6°C water at Supply Reef (EX1605L3, dive 06; 20.154°N, 145.105°E) (Fig. 3E). The identification is provisional, according to K. Tighe (pers. comm.). The shape of the head and snout appear different from that of *Myroconger* cf. *gracilis* (above), although other aspects are similar. The large eye is a metamorphosed trait of males of chlopsid and myrocongrid eels.

MURAENIDAE (MORAY EELS)

Subfamily Muraeninae

Enchelycore kamara Böhlke & Böhlke, 1980. Reported from Guam from a specimen discovered in a mixed lot of locally collected fishes in the UGM fish collection as they were being relocated (Myers 1999). Another specimen estimated to be about 30 cm TL was found dead on a reef flat by T. Allen and photographed but not retained. The low-resolution scan is reproduced here (Fig. 3F). The only species in the genus with moderately large dark spots, some vertically elongate, on a brown background. Otherwise known only from the Ryukyu Islands, Palau, and Tongareva, Cook Islands.

Gymnothorax neglectus (Tanaka, 1911). Initially reported from Guam as *Lycodontis nuttingi* by Myers & Shepard (1980) based on a 699-mm TL specimen fished from a depth of 238 m at Table Rock off northwestern Guam. A 762-mm specimen was subsequently fished from a depth of 270 m off Haputo, Guam (Fig. 3G left). Two individuals of what we believe to be this species were recorded from depths of 337 to 374 m in 13.7–15.8°C water at Supply Reef (EX1605L3, dive 06; 20.153°N, 145.105°E) and Eifuku Seamount (EX1605L3, dive 08; 21.413°N, 144.145°E) respectively (Fig. 3G). A very fresh specimen fished from below 200 m off Palau is identical in appearance to a specimen from Japan illustrated in Masuda et al. (1984, Plate 28H). Reported from depths of less than 200 m in Taiwan and Japan. Otherwise reported from the Andaman Sea coast of Thailand and Fiji.

Gymnothorax sp. A. Recorded from depths of 279 to 280 m in 16.6°C water at Supply Reef (EX1605L3, dive 06; 20.151°N, 145.101°E) (Fig. 3H). It is a possibly undescribed species with a color pattern very close to

Figure 4. A. *Channomuraena vittata*, 126 mm TL, from 17 m depth, Umatac, Guam, freshly dead (above) and living specimen (R. F. Myers); B. *Scolecenchelys gymnota*, 1.5 m depth, Tanguisson Pt., Guam (D. Burdick); C. *Gorgasia galzini*, approximately 50 cm of body visible, 15 m depth, Obyan, Saipan (H. Kimura); D. *Gorgasia preclara*, approximately 15 cm of body visible, 60 m depth, The Grotto, Saipan (H. Kimura); E. *Gorgasia taiwanensis*, about 13 m depth, Pagan (V. Brown); F. *Guentherus katoi*, 338 m depth, Esmeralda Bank, EX1605L1, dive 18 (NOAA Ocean Exploration); G. Ateleopodidae, either *Ateleopus* or *Ijimaia* sp., 339 m depth, Esmeralda Bank, EX1605L1, dive 18 (NOAA Ocean Exploration).

that of *Gymnothorax niphostigmus* from Taiwan and Vietnam (Huang et al. 2019), and *G. intesi* from Taiwan and northwestern Australia to French Polynesia.

Subfamily Uropterygiinae

Channomuraena vittata Richardson, 1845. Reported from Guam on the basis of a 126-mm TL specimen captured by T. Allen from under a piece of metal on sand at a depth of 17 m off Umatac Bay (Myers & Donaldson 2003). Photographed in captivity (Fig. 4A) and then deposited in the UGM fish collection. Characterized by a large mouth, small eyes set far forward, and a pattern of broad dark bars that may be blotch-like and irregular in small individuals. A large and highly secretive species rarely encountered, and usually only seen at night. Known from scattered, mostly insular tropical to warm-temperate localities throughout the Indo-Pacific and Atlantic Oceans.

OPHICHTHIDAE (SNAKE EELS)

Scolecenchelys gymnota (Bleeker, 1857). Photographed at a depth of 1.5 m off Tanguisson Point, Guam by DRB (Fig. 4B) and posted on the website guamreeflife.com. It is characterized by the combination of an extremely slender body (body depth 30 to 50 in the length) and an acute snout with the rear margin of the eye forward of the rictus of the mouth. Rarely seen, typically at night, and generally taken only at rotenone stations. Southern Oman and South Africa to Pitcairn, north to southern Japan and Johnston Atoll, south to the Loyalty Islands.

CONGRIDAE (CONGER EELS)

Subfamily Heterocongrinae (Garden Eels)

Gorgasia galzini Randall, Castle & Randall, 1999. Initially reported from Guam as *Gorgasia* sp. (Myers & Shepard 1980, Myers 1988) and subsequently photographed at a depth of 15 m off Obyan, Saipan by H. Kimura (Fig. 4C). Identified in the field by a combination of dark lips, a dark area on the upper rim of the eye, and numerous distinct dark speckles. Widespread western central Pacific from Micronesia (Ngulu, Yap, Pohnpei [G.R. Allen, pers. comm.]) and Enewetak, as well as the Marianas to the Society and Marquesas Islands.

Gorgasia preclara Böhlke & Randall, 1981. Previously known from Guam (Myers & Donaldson 1996) and recorded from Saipan (Myers & Donaldson 2003) from a photograph taken at a depth of 60 m off The Grotto, Saipan by H. Kimura (Fig. 4D). Easily identified by its unique color pattern of alternating copper-colored and white bands. Included here, as these are not readily apparent in the published black-and-white photograph of the Guam specimen. Widespread in the Indo-Pacific from scattered localities from the Red Sea (S. Bogorodsky, pers. comm.) and Maldives to Fiji, north to the Ryukyu Islands, south to the Great Barrier Reef.

Gorgasia taiwanensis Shao, 1986. Photographed at a depth of about 13 m off Pagan, CNMI by Valerie Brown (Fig. 4E). The dark lips and dark-rimmed eye, as well as the unusually tall dorsal-fin characteristics of the species are clearly visible. Its closest relative in the region, *Gorgasia galzini*, may exhibit dark lips and a dark area on the upper rim of the eye but has numerous distinct dark speckles. Previously known only from Taiwan and southern Japan.

ATELEOPODIDAE (JELLYNOSE FISHES)

Guentherus katoi Senou, Kuwayama & Hirata, 2008. A single individual was recorded at a depth of 338 m in 10.8°C water at Esmeralda Bank (EX1605L1, dive 18; 15.032°N, 145.222°E; Fig. 4F). Previously reported from southern Japan at depths of 320–353 m.

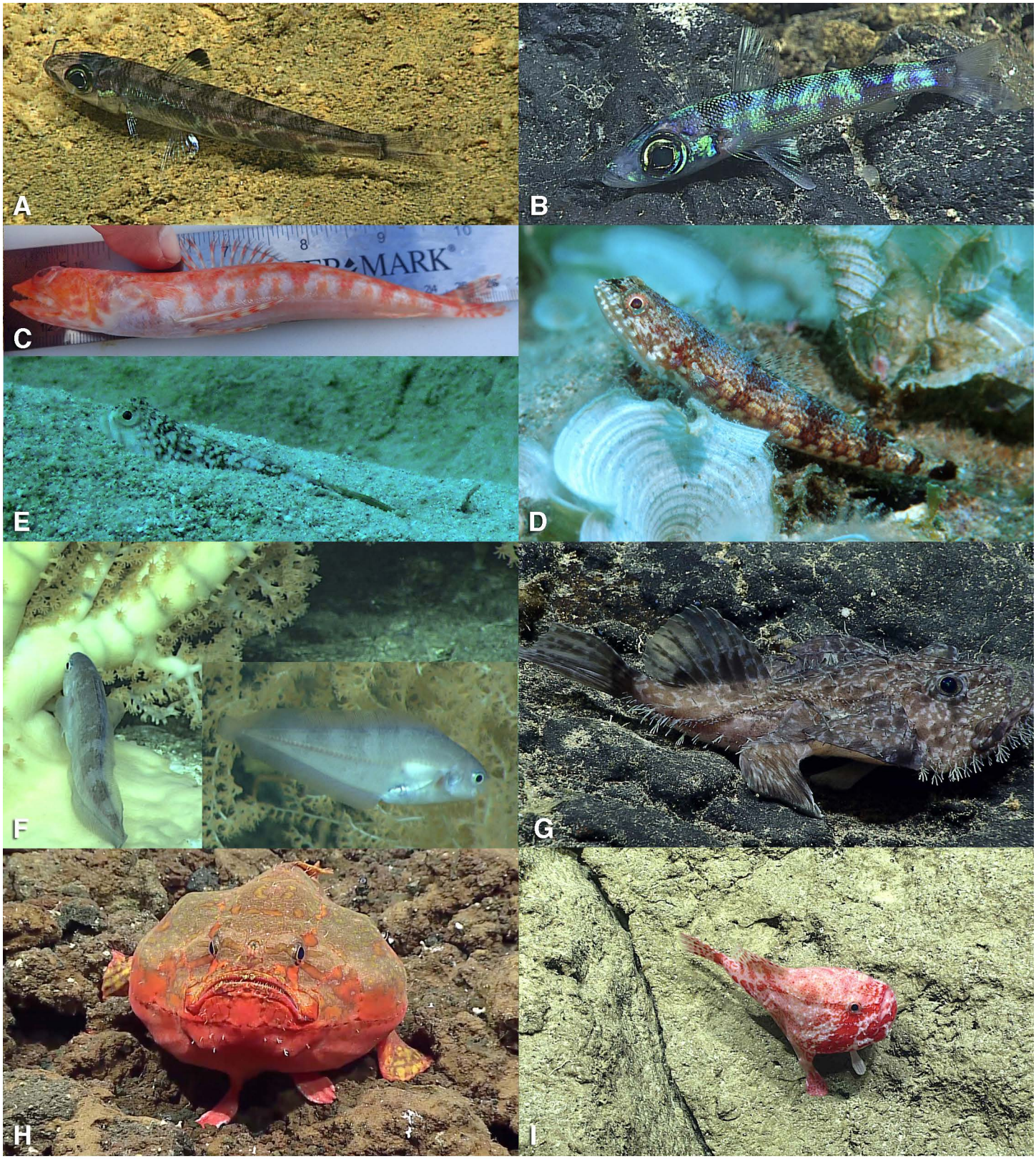

Figure 5. A. *Paraulopus* sp., 258 m depth, Ahyi Seamount, EX1605L3, dive 05 (NOAA Ocean Exploration); B. *Chlorophthalmus* sp., 533 m depth, Farallon de Medinilla, EX1605L3, dive 01 (NOAA Ocean Exploration); C. *Synodus fasciapelvicus*, about 137 mm SL from 120 m depth, Hagåtña, Guam (B. Tibbatts); D. *Synodus jaculum*, about 24 m depth, Toguan Bay (T. Allen); E. *Trachinocephalus trachinus*, 15 m depth, Hotel Wharf, Apra Harbor, Guam (D. Burdick); F. *Benthocometes australiensis*, 320 m depth, Santa Rosa Reef. EX1605L1, dive 01 (NOAA Ocean Exploration); G. *Lophiodes miacanthus*, 602 m depth, Zealandia Bank, EX1605L1, dive 12 (NOAA Ocean Exploration); H. *Chaunax umbrinus*, 343 m depth, Pagan, EX1605L3, dive 02 (NOAA Ocean Exploration); I. *Chaunax reticulatus*, 459 m depth, Santa Rosa Reef, EX1605L1, dive 02 (NOAA Ocean Exploration).

Ateleopus or *Ijimaia* sp. A single individual was recorded at a depth of 339 m in 9.4°C water at Esmeralda Bank (EX1605L1, dive 18; 15.033°N, 145.225°E; Fig. 4G) during the same dive when *Guentherus katoi* was observed. Identification of the genus is not possible because the fish was viewed dorsally, preventing observing the characters that distinguish the genera *Ateleopus, Ijimaia*, and *Parateleopus* from one another (Kaga et al. 2015, 2022). We assume that it was not a *Parateleopus*, because the two species of that genus are not known east of Indonesia. Both *Ateleopus* and *Ijimaia* have been recorded from the nearby Kyushu-Palau Ridge, with the species there unidentified (Mochizuki 1982). This and the aforementioned observation of *Guentherus katoi* are the first records of this family from Micronesia.

PARAULOPIDAE (GRINNERS)

Paraulopus sp. A single individual was recorded at a depth of 258 m in 17.6°C water at Ahyi Seamount (EX1605L3, dive 05; 20.436°N, 145.031°E; Fig. 5A). About 15 species of *Paraulopus* are known from various Indo-west-Pacific locations at depths of 150–1015 m.

CHLOROPHTHALMIDAE (GREENEYES)

Chlorophthalmus sp. One or more unidentified species were recorded at depths of 460 to 564 m in 5.6–8.1°C water at Santa Rosa Reef (EX1605L1, dives 01 and 02; 12.859°N, 144.305°E) and Farallon de Medinilla (EX1605L1, dive 17 and EX1605L3, dive 01; 16.138°N, 146.080°E; 15.795°N, 146.013°E; 15.796°N, 146.012°E; 15.797°N, 146.012°E; Fig. 5B). These small benthic fishes are rarely sampled but may be locally abundant in rariphotic to upper-bathyal depths. They feed on small crustaceans, fishes, and squids, and are important forage for larger predatory fishes.

SYNODONTIDAE (LIZARDFISHES)

Synodus sp. Reported here from a specimen approximately 137 mm SL fished from a depth of 120 m off Hagatna, Guam (Fig. 5C) and retained by UGM, but unavailable for further examination at this time. The prominent white bands on the pelvic fins are shared by *S. fasciapelvicus* Randall, 2009, but the Guam specimen is deeper red in color, a characteristic of specimens from deep water. *Synodus fasciapelvicus* is known from Indonesia and the Philippines in depths of 5 to 35 m (Randall 2009, Allen and Erdmann 2024).

Synodus jaculum Russell & Cressey, 1979. Initially reported from Guam in Myers (1999) without comment, but later reported based on a photograph (Myers & Donaldson 2003) taken at a depth of about 24 m off Toguan Bay by T. Allen (Fig. 5D). The photograph used in Myers (1999) was taken at Bali since no photographs taken in Micronesia were then available. The species is characterized by a large dark spot extending across the top of the caudal peduncle. Gulf of Aden and South Africa to the Line, Marquesas and Society Islands, north to southern Japan, south to New Caledonia.

Trachinocephalus trachinus (Temmink & Schlegel, 1846). Photographed at a depth of 15 m off Hotel Wharf, Apra Harbor, Guam by DRB (Fig. 5E) and posted on the website guamreeflife.com. The large eyes positioned far forward on the head, a feature distinctive of this genus, are clearly visible. This represents its first known occurrence in Micronesia. Widespread throughout most of the Indo-Pacific, though absent from the balance of Micronesia and points directly east except the Hawaiian Islands.

OPHIDIIDAE (CUSK EELS)

Benthocometes australiensis Nielsen, 2010. Recorded at a depth of 320 m in 10.1°C water at Santa Rosa Reef (EX1605L1, dive 01; 12.855°N, 144.306°E; Fig. 5F). This represents its first known occurrence in Micronesia. Identified by its body shape and color pattern matching full-lateral views of the same species photographed at

Figure 6. A. *Halieutaea* sp. cf *coccinea*, 263 m depth, Farallon de Medinilla, EX1605L1, dive 17 (NOAA Ocean Exploration); B. *Halieutaea* sp. cf *fitzsimonsi*, 263 m depth, Esmeralda Bank, EX1605L1, dive 18 (NOAA Ocean Exploration); C. *Gephyroberyx japonicus*, 343 m depth, Esmeralda Bank, EX1605L1, dive 18 (NOAA Ocean Exploration); D. *Hoplostethus* sp. cf *crassispinus*, 473 m depth, Esmeralda Bank, EX1605L1, dive 18 (NOAA Ocean Exploration); E. *Centroberyx druzhinini*, 286 m depth, Supply Reef, EX1605L3, dive 06 (NOAA Ocean Exploration); F. *Ostichthys archiepiscopus* (lower left) with *Centroberyx druzhinini*, 291 m depth, Supply Reef, EX1605L3, dive 06 (NOAA Ocean Exploration); G. *Pristilepis oligolepis*, 274 m depth, Uracas, EX1605L3, dive 05 (NOAA Ocean Exploration); H. *Sargocentron dorsomaculatum*, 4 m depth, Piti, Guam, with erect dorsal fin showing the distinctive black blotch (left) and showing lavender sheen of scale row centers (D. Burdick).

Jarvis Island, Line Islands, during a later NOAA *Okeanos Explorer* survey. Reported from the Indian Ocean off northwestern Australia and the northwestern Pacific off southwestern Japan at 320–394 m (Mizumachi & Endo 2019), but also known from unpublished ROV and submersible observations in the Line Islands at 415–444 m. All observations of this species *in situ* have found it in close association with branched corals.

LOPHIIDAE (GOOSEFISHES)

Lophiodes miacanthus (Gilbert, 1905). Recorded at a depth of 602 m in 6.4°C water at Zealandia Bank (EX1605L1, dive 12; 16.903°N, 145.899°E; Fig. 5G). Identification confirmed by H.-C. Ho and J. Caruso (pers. comm.). The present record is the first for Micronesia, although there are unpublished NOAA *Okeanos Explorer* survey records from Wake Atoll as well as Jarvis Island in Polynesia. Known from the Hawaiian Islands, Wallis and Futuna, New Caledonia, the Kyushu-Palau Ridge, Taiwan, Japan, and provisionally from Indonesia at 241–591 m.

CHAUNACIDAE (SEA TOADS)

Chaunax cf. *umbrinus* Gilbert, 1905. Recorded at a depth of 343 m in 12.5°C water at Pagan (EX1605L3, dive 02; 18.179°N, 145.819°E; Fig. 5H). Identification confirmed by H.-C. Ho. It is identified by a distinctive pattern of yellow and orange blotches on a tan dorsal surface and a pink-red underside. Otherwise known from the Hawaiian Islands and Emperor Seamounts at depths of 183–400 m.

Chaunax reticulatus Ho, Roberts & Stewart, 2013. Recorded at a depth of 459 m in 7.0°C water at Santa Rosa Reef (EX1605L1, dive 02; 12.733°N, 144.270°E; Fig. 5I). Identification confirmed by H.-C. Ho (pers. comm.). It is identified by a distinctive pattern of small and large, close-set, angular red spots. Otherwise known from northern New Zealand, New Caledonia, and Howland Island at depths of 359–950 m.

OGCOCEPHALIDAE (BATFISHES)

Halieutaea cf. *coccinea* Alcock, 1889. Recorded at a depth of 263 m in 18.9°C water at Farallon de Medinilla (EX1605L1, dive 17; 16.134°N, 146.081°E; Fig. 6A). This represents a rare mid-oceanic occurrence for the species. Identification confirmed by H.-C. Ho (pers. comm.). *Halieutaea coccinea* is known from depths of 300–1125 m in the Indo-west Pacific from South Africa to New Caledonia and the Philippines.

Halieutaea cf. *fitzsimonsi* (Gilchrist & Thompson, 1916). Recorded from depths of 242 to 263 m in 15.4–15.5°C water at Esmeralda Bank (EX1605L1, dives 18 and 19; 14.963°N, 145.262°E; 15.035°N, 145.225°E; Fig. 6B). Identification confirmed by H.-C. Ho (pers. comm.). The three individuals recorded represent rare mid-oceanic occurrences for the species. *Halieutaea fitzsimonsi* is known from depths of 20 to 500 m, primarily on outer continental shelves and upper slopes from South Africa (type locality) and western India to Vanuatu, north to southern Japan, south to northwestern Australia, but the Pacific populations may be a different species (H.-C. Ho, pers. comm., 9 May 2020).

TRACHICHTHYIDAE (ROUGHIES)

Gephyroberyx japonicus (Döderlein, 1883). Several individuals were recorded at depths of 286 to 549 m in 6.6–16.5°C water at Supply Reef (EX1605L3, dive 06; 20.151°N, 145.106°E; 20.151°N, 145.106°E), Pagan (EX1605L3, dive 02; 18.180°N, 145.820°E), Zealandia Bank (EX1605L1, dive 12; 16.900°N, 145.898°E; 16.902°N, 145.899°E) and Esmeralda Bank (EX1605L1, dive 18; 15.030°N, 145.223°E; 15.032°N, 145.225°E; 15.032°N, 145.224°E) (Fig. 6C). Reported elsewhere from southern Japan, the Philippines, Palau, and the Emperor Seamounts at depths of 200 to 650 m.

Hoplostethus cf. *crassispinus* Kotlyar, 1980. At least two individuals were recorded at depths of 457 to 473 m in 7.4–7.5°C water at Esmeralda Bank (EX1605L1, dive 18; 15.030°N, 145.223°E; Fig. 6D). Identification provisional, the species is possibly undescribed. *Hoplostethus crassispinus* is known from the Kyushu-Palau Ridge and northern Hawaiian Ridge at depths of 160 to 600 m.

BERYCIDAE (ALFONSINOS)

Centroberyx druzhinini (Busakhin, 1981). Several individuals of one or more species of the genus were recorded at depths of 286 to 291 m in 16.1–16.5°C water at Supply Reef (EX1605L3, dive 06; 20.1512–20.1515°N, 145.1058–145.1061°E; Fig. 6E). Reported elsewhere from depths of 60 to 300 m. Previously known from Madagascar, southern Japan, and Fiji.

HOLOCENTRIDAE (SOLDIERFISHES and SQUIRRELFISHES)

Subfamily Myripristinae

Ostichthys archiepiscopus (Valenciennes, 1862). Recorded from depths of 262 and 291 m in 18.1 and 16.1°C water at Farallon de Medinilla (EX1605L1, dive 17; 16.134°N, 146.981°E) and Supply Reef (EX1605L3, dive 06; 20.151°N, 145.0106°E; Fig. 6F). The identification is provisional and based on visible features. It differs from the superficially similar *O. sandix* by having fewer scale rows above the middle of the lateral line (2 ½ vs. 3 ½) and white scale centers that are visibly more distinct. Earlier reports of *O. archiepiscopus* from Guam (Myers 1999, p. 296, Myers & Donaldson 2003) were based on a specimen later verified as *O. sandix*. Otherwise known from few specimens from the Mascarene Islands (W. Indian Ocean), and the Ryukyu, Ogasawara, Hawaiian and Society Islands.

Pristilepis oligolepis (Whitley, 1941). Recorded from a depth of 274 m in 16.7°C water at Uracas (EX1605L3, dive 05; 20.436°N, 145.031°E; Fig. 6G). Visually distinguished from *Ostichthys* species by its more convex forehead. This is the first Micronesian record of this anti-tropical species. Previously recorded from Reunion, Western Indian Ocean, western Australia, southern Japan, the Ryukyu, Ogasawara and Hawaiian Islands in the North Pacific, and Lord Howe, Kermadec, and Easter Island in the South Pacific from depths of 9 to 348 m.

Subfamily Holocentrinae

Sargocentron dorsomaculatum (Shimizu & Yamakawa, 1979). Photographed at a depth of 4 m off Piti, Guam by DRB (Fig. 6H) and posted on the website guamreeflife.com. An extremely secretive species, normally seen only at night and known primarily from rotenone stations. Characterized by a prominent black spot between the first two dorsal-fin spines. Otherwise known only from the Caroline (Palau, Chuuk, Pohnpei and Kosrae) and Ryukyu Islands (Amami Island).

Sargocentron ensiferum (Jordan & Evermann, 1903). Initially reported on the basis of specimens observed among Guam bottomfish catches but not retained (Myers 1999). A 146-mm SL specimen fished from a depth of 45 m off Orote Pt. by T. Pitlik, Guam was subsequently photographed and deposited in the UGM collection (Fig. 7A). The color pattern is red with yellow stripes dorsally and white stripes ventrally and a yellow-orange dorsal fin with a red margin. Generally deeper dwelling than most other members of the genus, though occasionally in a little as 18 m in the Hawaiian Islands. Widespread in the western and central Pacific from the Paracel Islands, South China Sea to Pitcairn, north to Hawaiian Islands and southern Japan.

Sargocentron melanospilos (Bleeker, 1858). Photographed at a depth of 11 m on a coral knoll in Apra Harbor, Guam by D. Snyder (Fig. 7B) during an environmental survey conducted in 2011. Characterized by highly reflective golden scales with brassy margins and prominent black spots, one each at the mid-base of the caudal

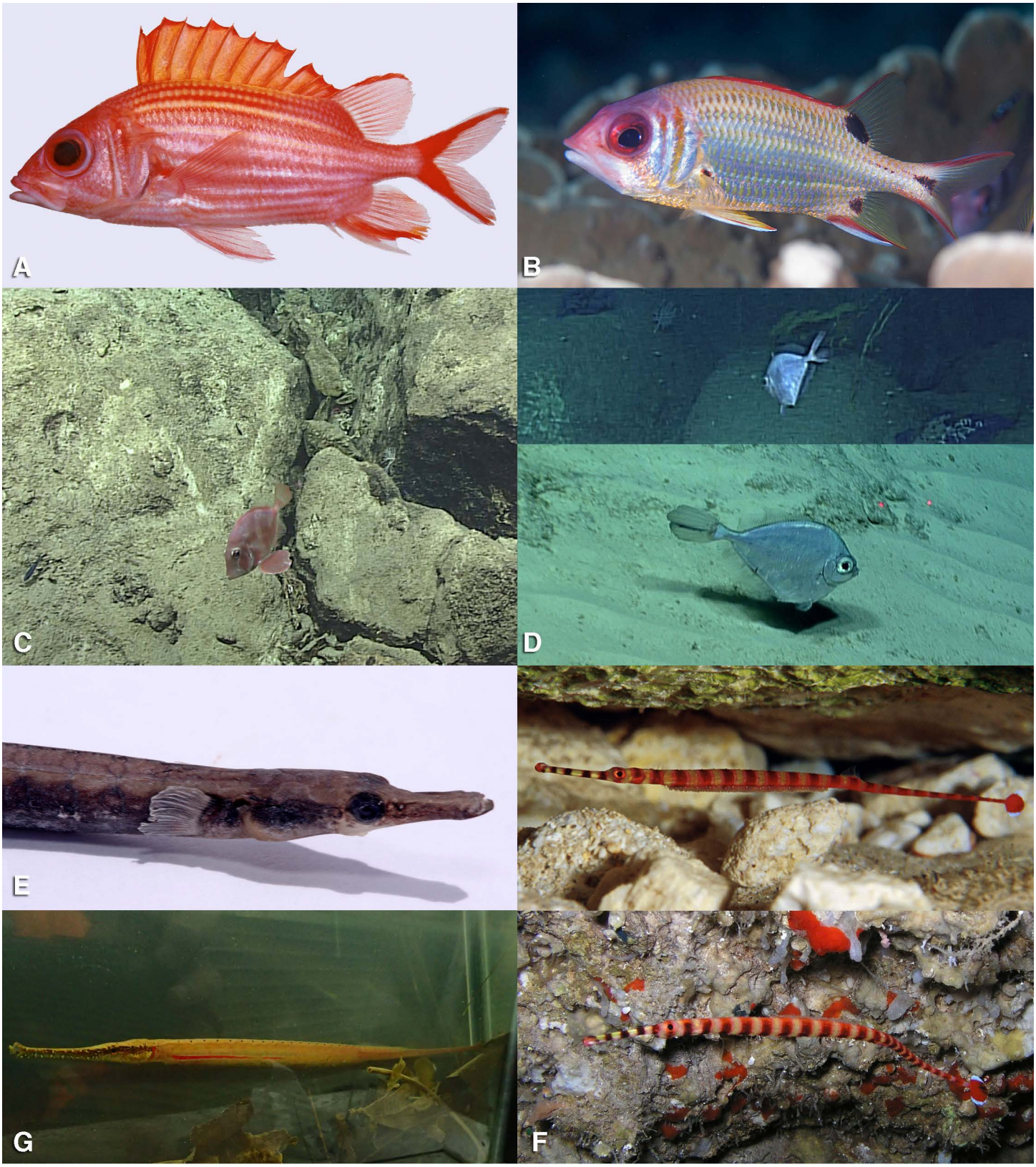

Figure 7. A. *Sargocentron ensiferum*, 146 mm SL, hook and line from a depth of 45 m, Orote Pt., Guam (T. Pitlik); B. *Sargocentron melanospilos*, 11 m depth, Apra Harbor, Guam (D. Snyder); C. *Cyttopsis rosea* or *Stethopristis eos*, 439 m depth, Santa Rosa Reef, EX1605L1, dive 01 (NOAA Ocean Exploration); D. *Grammicolepis brachiusculus*, 313 m depth, Santa Rosa Reef, Guam EX1605L1, dive 01 (upper) and from a similar depth off Wake Atoll, EX1606, dive 11, shown here to better illustrate the species (NOAA Ocean Exploration); E. *Coelonotus leiaspis*, female 162 mm TL, Ylig River, Guam (B. Tibbatts); F. *Dunckerocampus naia*, egg-brooding male, 15 m depth, Asan, Guam (upper; T. Allen) and female, site unknown, Guam (J. Boggs); G. *Microphis brachyurus*, female about 20 cm TL collected 60 m upstream in the Matague River, Piti, Guam (B. Tibbatts).

fin, bases of the soft-rayed dorsal and anal fins, and the pectoral-fin axil. This species is relatively uncommon and localized throughout its range. Widespread in the Indo-west Pacific from East Africa to the Samoa Islands and Tonga, north to southern Japan, south to New Caledonia.

PARAZENIDAE (PARAZENS)

Cyttopsis rosea (Lowe, 1843) or *Stethopristis eos* Gilbert, 1905. Recorded from a depth of 439 m in 7.7°C water at Santa Rosa Reef (EX1605L1, dive 01; 12.857°N, 144.306°E; Fig. 7C). Available imagery does not reveal enough to distinguish between the two. *Cyttopsis rosea* attains 22 cm SL and is reported from the Gulf of Aden and South Africa to southern Japan and western Australia at depths of 35 to 600 m. A specimen of *Stethopristis eos* has recently been reported from a depth of 519 m on the Ritto Seamount (21°46'49.4"N 142°02'15.0"E) in the Western Mariana Ridge to the northwest of Uracas. It attains at least 12.4 cm SL and is otherwise known from the Hawaiian Islands (Pailolo Channel and Hancock Seamount) and Sala y Gomez Ridge (Koeda et al. 2024) at depths of 343 to 686 m.

GRAMMICOLEPIDIDAE (TINSELFISHES)

Grammicolepis brachiusculus Poey, 1873. Recorded from a depth of 313 m in 9.9°C water at Santa Rosa Reef (EX1605L1, dive 01; 12.855°N, 144.306°E; Fig. 7D). Circumglobal in tropical seas, except for the eastern Pacific, at depths of 300 to 1026 m, although there are no records from the central Indian Ocean and records from the central Pacific Ocean are few. The nearest known occurrences to the Marianas are Palau, where a specimen has recently been collected, and Wake Atoll.

SYNGNATHIDAE (PIPEFISHES and SEAHORSES)

Subfamily Nerophinae

Coelonotus leiaspis (Bleeker, 1853). Initially listed from Guam on the basis of a collected specimen (Myers & Donaldson 2003) without further information. Reported here based on a 162-mm TL specimen collected in the Ylig River by BT (Fig. 7E). Currently known from the Hagatna, Ylig, and Ugum Rivers. Characterized by a well developed caudal fin with 9 rays, 16–18 trunk rings, and the male brood area under the trunk. Differs from *M. brachyurus* (below) by having indistinct opercular, lateral, and inferior trunk ridges and lacking distinctive markings. An estuarine species that penetrates freshwater of the lower reaches of rivers and streams. Generally, absent from atolls and coral reefs. Widespread in the Indo-west Pacific from Madagascar to Fiji, north to southern Japan, south to New Caledonia.

Dunckerocampus naia Allen & Kuiter, 2004. Initially recorded from Guam as *Dunkerocampus* n. sp. A (Myers & Donaldson 2003) based on a photograph taken by T. Allen at a depth of about 15 m off Asan (Fig. 7F). Also photographed in a cave off Talofofo by DRB. Formerly confused with the superficially similar *D. dactyliophorus* which differs by having a caudal fin with a white central stripe and complete white margin. Both species are relatively uncommon in the Marianas. Western Pacific from northeastern Kalimantan to Fiji, north to southern Japan.

Microphis brachyurus (Bleeker, 1853). Reported here on the basis of 7 specimens from 18–20 cm TL collected 60 m upstream in the Matague River, Piti, Guam by BT (Fig. 7G). Characterized by a well developed caudal fin with 9 rays, 20–22 trunk rings, a male brood area under the trunk, white spots on the sides of the snout, and very small, pale spots on the body. Differs from *M. leiaspis* by having more trunk rings and distinct opercular, lateral, and inferior trunk ridges, as well as distinctive snout and body markings. A coastal freshwater species typically found in the lower reaches of streams and rivers. Widespread in the Indo-west Pacific, from Sri Lanka to the Society Islands, north to southern Japan, south to New Caledonia.

Figure 8. A. *Halicampus macrorhynchus*, approximately 7 cm TL, 10 m depth, Laulau, Saipan (left; H. Kimura) and approximately 12 cm TL, 4 m depth, Piti, Guam (D. Burdick); B. *Hippocampus colemani*, approximately 2 cm TL, among *Halimeda* on vertical surfaces at 6 -14 m depth, Wing Beach, Saipan (R. Wallace); C. *Fistularia petimba*, 1,326 mm FL (excluding caudal filament), hook and line from approximately 244 m depth, east coast of Guam (B. Tibbatts); D. *Bembradium roseum*, 380 m depth, Farallon de Medinilla, EX1605L1, dive 17 (NOAA Ocean Exploration); E. *Idiastion pacificum*, 293 m, Farallon de Medinilla, EX1605L1, dive 17 (upper) and Supply Reef, EX1605L3, dive 06 (NOAA Ocean Exploration); F. *Neomerinthe* sp. A, 397 m depth, Santa Rosa Reef, EX1605L1, dive 01 (NOAA Ocean Exploration); G. *Neomerinthe* sp. B, 293 m depth, Pagan (NOAA Ocean Exploration).

Subfamily Syngnathinae

Halicampus macrorhynchus Bamber, 1915. Recorded from Saipan (Myers & Donaldson 2003) based on a photograph taken at a depth of 10 m off Laulau by H. Kimura (Fig. 8A). Subsequently observed and photographed at a depth of 4 m in the culverts connecting Tepungan Channel to the Piti Power Plant channel, Guam (Fig. 51). A highly cryptic species characterized by an anterolateral series of long, frond-like dermal flaps on the head and body that are especially pronounced in juveniles. Widespread Indo-west Pacific from the Red Sea to Fiji, north to southern Japan, south to the Great Barrier Reef.

Hippichthys spicifer (Rüppell, 1838). Reported from Guam based on specimens collected by H.K. Larson among *Nypa* palms at the mouth of the Pago River (Myers & Donaldson 2003). Characterized by discontinuous superior trunk and tail ridges, continuous inferior trunk and tail ridges, 2 or 3 anal-fin rays, pouch plates with an inverted closure, modally 15 tail rings, 51–57 total rings and the dorsal fin originating on the tail. An estuarine species that penetrates freshwater of the lower reaches of rivers and streams. Generally absent from atolls and coral reefs. Widespread in the Indo-west Pacific from the Red Sea and South Africa to Samoa and Tonga, north to southern Japan, south to New Caledonia.

Hippocampus colemani Kuiter, 2003. Reported from Saipan based on photographs taken off Wing Beach by Robert Wallace (Fig. 8B). Provisionally identified by a combination of minute size, highly compressed head and body, smooth skin lacking noticeable rings or tubercles, and a distinctive color pattern. It should be noted that some individuals of *H. pontohi* have a similar color pattern but differ by having a noticeable coronet, a less compressed and narrower body with rings and tubercles more apparent. Known from two specimens collected at Lord Howe Island and numerous photographs taken at Papua New Guinea and across Indonesia to Taiwan and the Ryukyu Islands (Short et al. 2018). More specimens across its known distribution are needed to determine if more than one species is involved.

FISTULARIIDAE (CORNETFISHES)

Fistularia petimba Lacepede, 1808. Recorded from Guam on the basis of a 1326-mm FL specimen (excluding caudal filament) taken by hook and line at a depth of approximately 244 m off the east coast of Guam and photographed by BT on 5 October 2008 (Fig. 8C). The specimen was not retained. A second specimen taken by hook and line at a similar depth near Galvez Banks on 26 October 2014 was photographed but kept by the fisherman. Earlier reports of this species from the Marianas (Fowler 1945, Schultz in Schultz et al. 1953) are based on misidentifications of the common shallow-water cornetfish *F. commersonii* (Fritzsche 1976). Identified by a median row of keeled scales in front of and behind the dorsal and anal fins that is absent in *F. commersonii,* as well as by a red to brown color without blue marks. Known from the depth range of 10 to 250 m, but generally below 40 m in tropical waters. Widespread in the Indo-Pacific from the Red Sea and South Africa to the Hawaiian Islands and Fiji, north to central Japan, south to southern Australia.

PLECTROGENIIDAE (STINGER FLATHEADS)

Bembradium roseum Gilbert, 1905. Recorded from a depth of 380 m in 11.9°C water at Farallon de Medinilla (EX1605L1, dive 17; 16.136°N, 146.081°E; Fig. 8D). Reported from depths of 138 to 800 m at scattered locations from Madagascar to Chile, north to southern Japan and the Hawaiian Islands.

SCORPAENIDAE (SCORPIONFISHES)

Idiastion pacificum Ishida & Amaoka, 1992. Recorded from depths of 267 to 319 m in 15.5. 19.5°C water at Farallon de Medinilla (EX1605L1, dive 17; 16.133 °N, 146.080 °E) and Supply Reef (EX1605L3, dive 06; 20.153°N, 145.105°E) (Fig. 8E). The identification is provisional and provided by H. Motomura (pers. comm.)

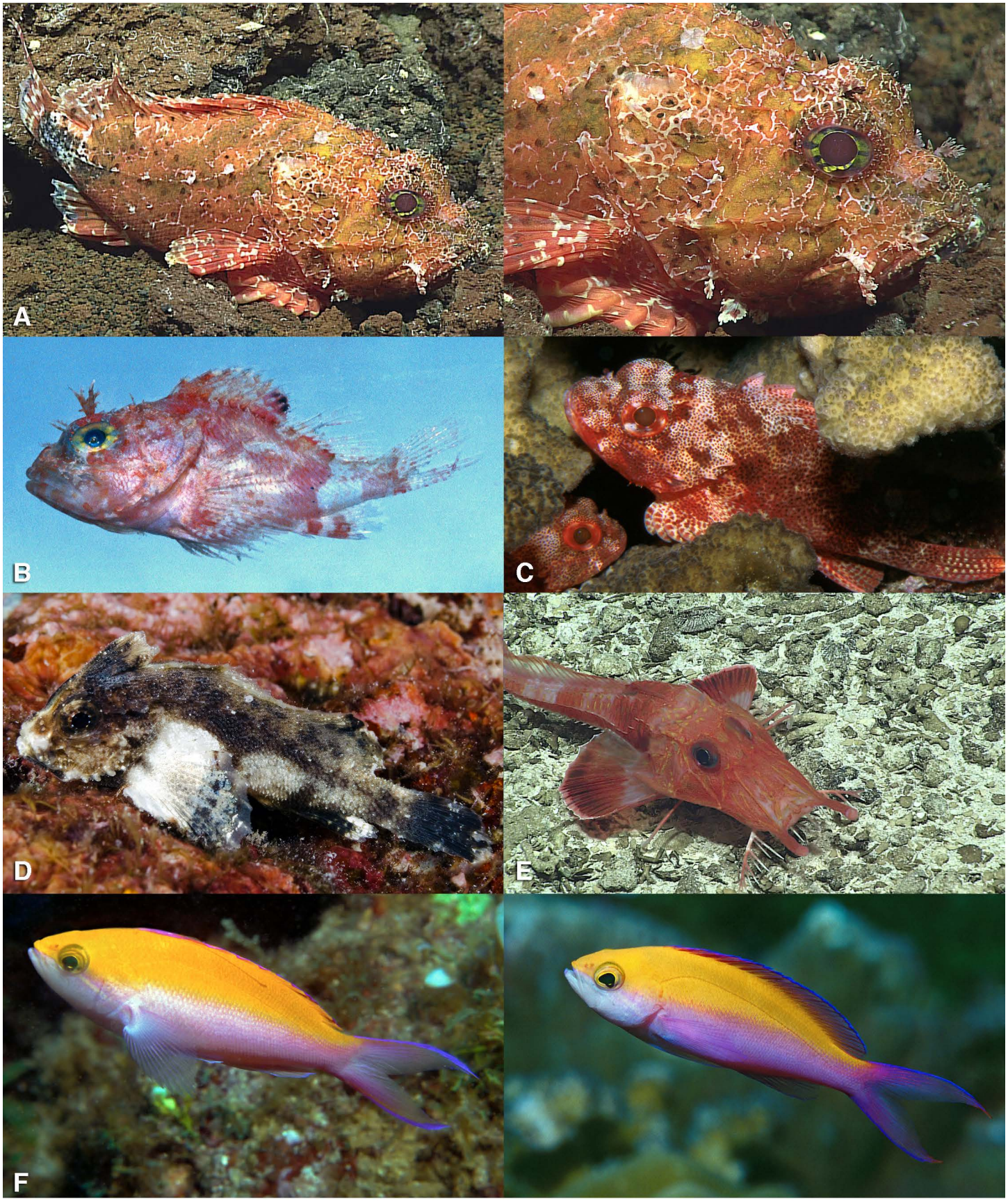

Figure 9. *Scorpaena pepo* with detail of head (right), 346 m depth, Pagan, EX1605L3, dive 02 (NOAA Ocean Exploration); B. *Scorpaena* sp. A, 27 mm SL, 82 to 128 m depth, Haputo, Guam (R. F. Myers); C. *Sebastapistes tinkhami*, approximately 4 cm TL, 5 m depth, Tinian Grotto, Tinian (H. Kimura); D. *Cocotropus* sp., about 7 m depth, Tanguisson Pt., Guam (D. Burdick); E. *Scalicus engyceros*, 508 m depth, Farallon de Medinilla, EX1605L1, dive 17 (NOAA Ocean Exploration); F. *Nemanthias bicolor*, putative male (left; R. F. Myers) and subadult female (T. Allen), 24 m depth, Toguan Bay, Guam.

Reported from widely scattered locations in the Pacific (Kyushu-Palau Ridge and the Emperor Seamounts) from depths of 355 to 430 m.

Neomerinthe sp. A. Likely an undescribed species, recorded from depths of 357 to 448 m in 7.3–11.6°C water at Santa Rosa Reef (EX1605L1, dive 01; 12.856°N, 144.306°E; Fig. 8F) and Esmeralda Bank (EX1605L1, dive 18; 15.030°N, 145.223°E; 15.032°N, 145.224°E). The identification to genus is provided by H. Motomura (pers. comm.).

Neomerinthe sp. B. An unidentified species recorded from a depth of 293 m in 15.5°C water at Pagan (EX1605L3, dive 02; 18.177°N, 145.818°E; Fig. 8G). The identification to genus is provided by H. Motomura (pers. comm.).

Scorpaena pepo Motomura, Poss & Shao, 2007. Recorded from depths of 315 to 346 m in 12.4 15.2°C water at Pagan (EX1605L3, dive 02; 18.178°N, 145.818°E; 18.178°N, 145.819°E; Fig. 9A). The identification is provisional and provided by H. Motomura (pers. comm.). A potential example of a warm temperate species of moderate depths confined to deeper water at lower latitudes. Previously known from northeastern Taiwan and southwestern Japan at depths of 110 to 200 m.

Scorpaena sp. A. Likely an undescribed species known from a single 27-mm specimen dredged from a depth of 82 to 128 m off Haputo, Guam (Fig. 9B). The identification to genus is provisional pending examination of the specimen or collection of fresh material. Likely a dwarf species due to the black spot on the outer rear of the spinous dorsal fin, a character indicative of mature males.

Sebastapistes tinkhami (Fowler, 1946). Recorded from Saipan as *S. coniorta* (Myers & Donaldson 2003) based on a photograph taken by H. Kimura (Fig. 9C). This photograph was actually taken at nearby Tinian. The color pattern is highly variable, but usually has some combination of large, irregular, pale blotches and numerous fine to variable dark spots. This identification was confirmed by H. Motomura (pers. comm.). The record of *S. coniorta* from Wake Atoll (Randall 1996) is also based on a misidentification of *S. tinkhami*, the former being a Hawaiian endemic. Closely associated with *Pocillopora* corals. Widespread Indo-Pacific from northern South Africa to the Pitcairn group, north to southern Japan, south to New Caledonia and Rapa.

APLOACTINIDAE (VELVETFISHES)

Cocotropus sp. A possibly undescribed species recorded from Guam on the basis of a photograph of a fish approximately 5 cm TL taken by DRB at a depth of 7 m off Tanguisson Point, Guam and posted on the website guamreeflife.com as *Cocotropis* cf. *larvatus* (Fig. 9D). This species most noticeably differs from *C. larvatus* by having shorter anterior dorsal-fin spines. It most closely resembles *Cocotropus microps*, a species known with certainty only from southern Queensland and New South Wales, Australia (Johnson 2004). Photographs taken at Kwajalein, Marshall Islands, and possibly Indonesia at Sanghihe Islands and Flores (as *Paraploactis kagoshimensis* and *Paraploactis* sp. 3; Kuiter & Tonozuka 2001), may also be of this species. Close examination of a collected specimen and perhaps a revision of the genus may be required to more precisely determine its identity.

PERISTEDIIDAE (ARMORED SEAROBINS)

Scalicus engyceros (Günther,1872). Two individuals were recorded at depths of 505 and 508 m in 7.1–16.1°C water at Farallon de Medinilla (EX1605L1, dive 17; 15.797°N, 146.011°E; 16.139°N, 146.078°E; Fig. 9E). The identification is provisional. Known from few locations, from the Comoro Islands, East China Sea, Kyushu-Palau Ridge, and Johnston Atoll, Hawaiian Islands and Emperor Seamounts at depths of 101 to 660 m.

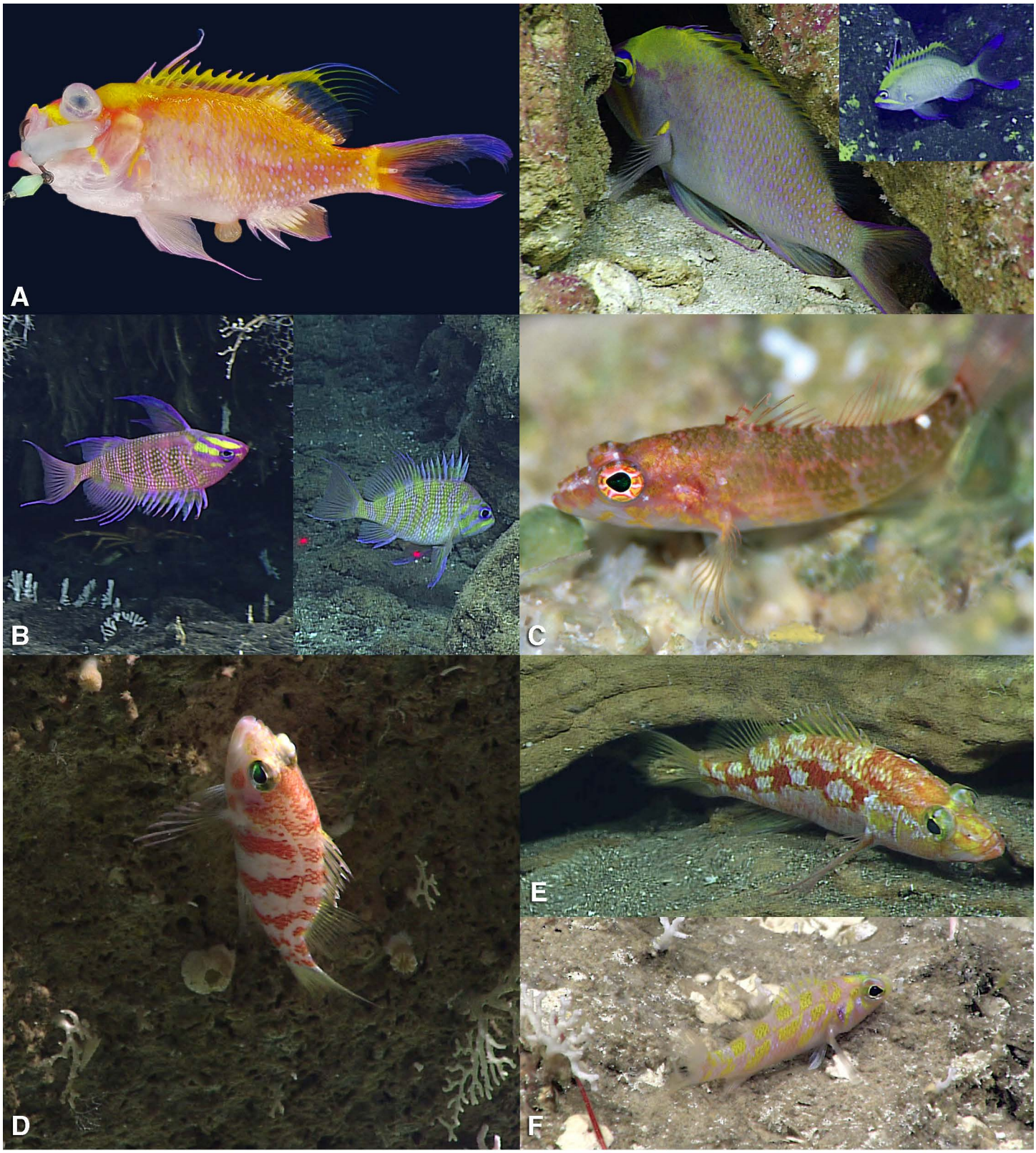

Figure 10. A. *Odontanthias unimaculatus*, hook and line below 200 m, Guam (left; E. Cruz, NMFS), sheltering at 263 m depth, Farallon de Medinilla, EX1605L1, dive 17 (right), and swimming close above the bottom, 280 m depth, Supply Reef, EX1605L3, dive 06 (inset; NOAA Ocean Exploration); B. *Odontanthias* sp. A, putative males, approximately 14 cm SL, 355 m depth, Zealandia Bank, EX1605L1, dive 12 (left) and 12 cm SL, 340 m depth, Esmeralda Bank, EX1605L1, dive 18 (NOAA Ocean Exploration); C. *Plectranthias longimanus*, 15 m depth, The Grotto, Saipan (H. Kimura); D. *Plectranthias rubrifasciatus*, 259 m depth, Farallon de Medinilla, EX1605L1, dive 17 (NOAA Ocean Exploration); E. *Plectranthias wheeleri*, 366 m depth, Supply Reef, EX1605L3, dive 06 (NOAA Ocean Exploration); F. *Plectranthias xanthomaculatus*, 347 m depth, Farallon de Medinilla, EX1605L1, dive 17 (NOAA Ocean Exploration).

ANTHIADIDAE (ANTHIASES)

Nemanthias bicolor (Randall, 1979). Recorded from Guam (Myers & Donaldson 2003) on the basis of photographs taken by T. Allen and RFM at a depth of 24 m off Toguan Bay (Fig. 9F), showing a small colony consisting of juveniles, females, and one or more adult males associated with a cluster of low-profile patch reefs on a nearly flat rubble and sand bottom. Also recorded by BRUV in a similar habitat at a depth of 70 m off Achang, Guam by SJL. Characterized by a color pattern of yellow-orange above, lavender-pink below, and pronounced second and third dorsal-fin spines, the second becoming elongate in adult females and both spines longer and filamentous in males. Widespread Indo-Pacific from the Mascarene Islands to the Hawaiian and Society Islands, north to southern Japan, south to New Caledonia.

Odontanthias unimaculatus (Tanaka, 1917). Reported on the basis of a specimen fished from deep water off Guam but kept by the fisherman (Fig. 10A left) and numerous individuals recorded from depths of 256 to 299 m in 16.2–19.3°C water at Farallon de Medinilla (EX1605L1, dive 17; 16.133°N, 146. 079°E) and Supply Reef (EX1605L3, dive 06; 20.151°N, 145.106°E) (Fig. 10A right). Identified by the combination of D X,14 and A III,7 and a unique color pattern (Randall & Heemstra 2006). Data on the depth of collection elsewhere is sparse, ranging from 179 to 192 m. Otherwise known from southern Japan, the Ogasawara Islands, Taiwan, and Lubang Island, Philippines.

Odontanthias sp. A. Six individuals were recorded from depths of 319 to 355 m in 9.7–15.5°C water at Santa Rosa Reef north (EX1605L1, dive 02; 12.732°N, 144.275°E), Esmeralda Bank (EX1605L1, dive 18; 15.032°N, 145.224°E), Zealandia Bank (EX1605L1, dive 12; 16.899°N, 145.897°E), and Maug (EX1605L3, dive 03; 20.049°N, 145.233°E) (Fig. 10B). Identified by pale yellow bars and distinctly dark-edged scales. The largest individuals have the longest dorsal-fin filaments and brightest colors, a characteristic typical of males of this genus. Also recorded from American Samoa during a subsequent NOAA *Okeanos Explorer* survey. This apparently new species appears to replace *O. borbonius* at depths below 300 m in areas where they are sympatric.

Plectranthias longimanus (Weber, 1913). Recorded here from Saipan based on a photograph (Fig. 10C) taken at a depth of 15 m inside The Grotto by H. Kimura. Differs from the similar *P. nanus* in details of coloration and by having fewer pectoral-fin rays (usually 12 vs. 14 or more; 11 or 12 are seen in the image) and fewer pored lateral-line scales. Rarely seen alive, most specimens are collected with ichthyocides. Widespread in the Indo-west Pacific primarily in continental areas from eastern Africa to Fiji, north to southern Japan, south to New Caledonia and Tonga including Palau, Yap, Ulithi, Saipan, and Wake Island in Micronesia.

Plectranthias rubrifasciatus Fourmanoir & Randall, 1979. Recorded from Guam on the basis of a specimen briefly examined but subsequently lost and destroyed (Myers & Donaldson 1996). Two individuals recorded from depths of 259 to 260 m in 17.2–19.0°C water at Farallon de Medinilla (EX1605L1, dive 17; 16.133°N, 146.079°E; 16.132°N, 146.078°E; Fig. 10D) represent the first published images of living individuals of the species. The fin-ray and scale-row counts, as well as the color pattern of the lost specimen and the color patterns of individuals in the NOAA *Okeanos Explorer* survey images, closely match the counts and pigmentation of the holotype, taken in New Caledonia from a crab pot set at a depth of approximately 100 m. Additional specimens have been identified from Palau (R. Winterbottom, pers. comm.) and Mururoa in the Tuamotu Archipelago.

Plectranthias wheeleri Randall, 1980. Four individuals were recorded from depths of 322 to 360 m in 12.6–16.0°C water at Pagan (EX1605L3, dive 02; 18.181°N x145.820°E) and Supply Reef (EX1605L3, dive 06; 20.153°N x145.105°E; Fig. 10E). Identified by a unique color pattern that very closely matches that of freshly collected specimens by H. Motomura (pers. comm.) and Wada et al. (2018). Otherwise known from eastern Indonesia (Sulawesi and Tanimbar), the Loyalty Islands, Taiwan, and southern Japan.

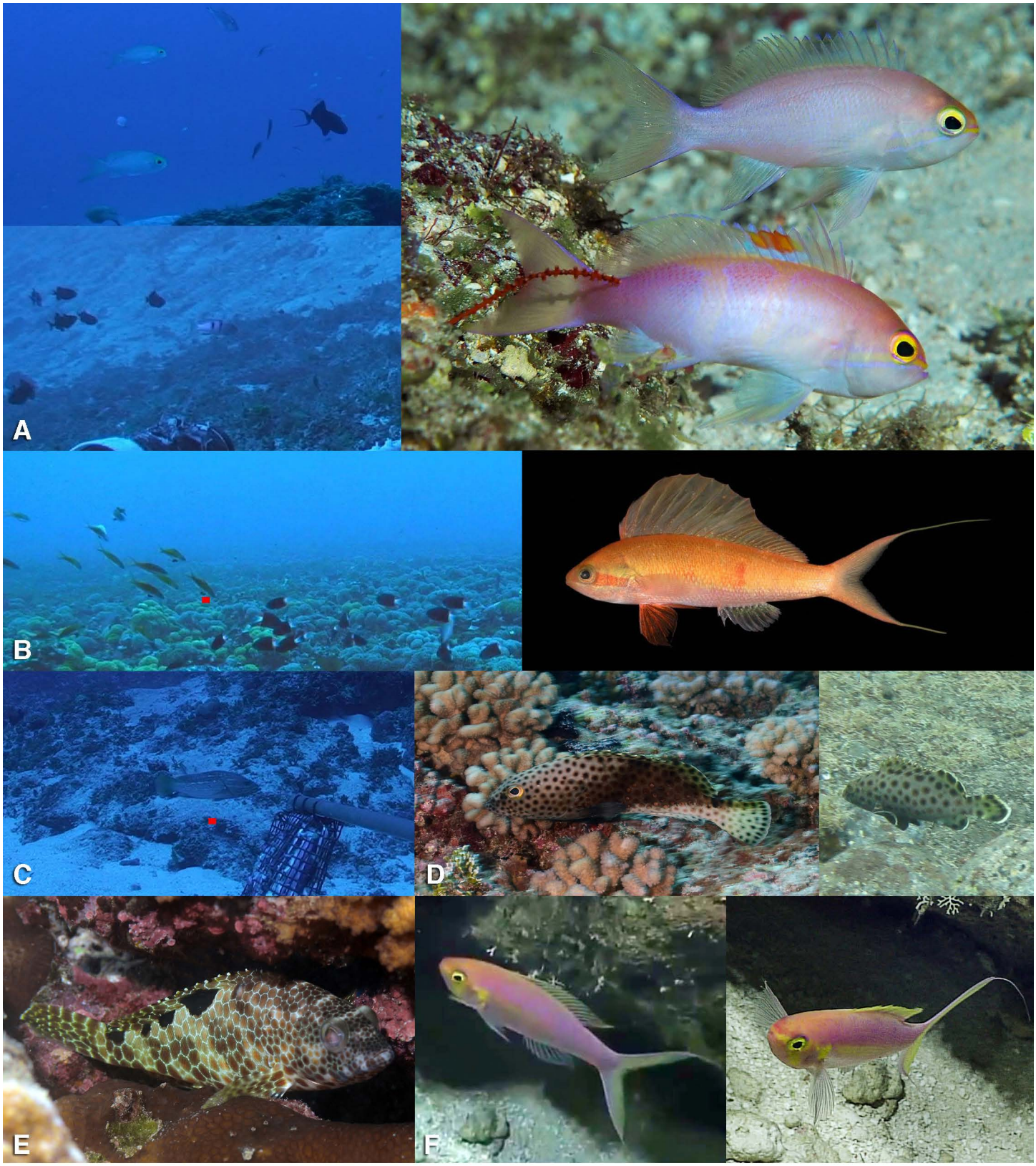

Figure 11. A. *Pseudanthias* sp. cf *engelhardi*, BRUV frames at 73 m depth, Tumon Bay, Guam, showing females (upper left) and male (lower left), respectively (S. Lindfield), and male (lower fish) with female photographed at Kwajalein for comparison (S. Jaswinski); B. *Rabaulichthys* sp., 66 m depth, Saipan Anchorage, Saipan, BRUV frame (S. Lindfield) and male specimen of this or a closely related species from Kwajalein (B. Greene); C. *Epinephelus leucogrammicus*, 40 m depth, Rota, BRUV frame (S. Lindfield); D. *Epinephelus macrospilos*, about 12 m depth, Pati Pt., Guam (left; D. Burdick) and juvenile, about 13 m depth, Pagan (V. Brown); E. *Epinephelus spilotoceps*, 2 m depth, Tumon Bay, Guam (D. Burdick); F. *Symphysanodon katayamai*, 258 m depth, Farallon de Medinilla, EX1605L1, dive 17, two frames of the same individual (NOAA Ocean Exploration).

Plectranthias xanthomaculatus Wu, Randall & Chen, 2011. Two individuals were recorded from depths of 290 and 347 m in 10.6–11.5°C water at Santa Rosa Reef (EX1605L1, dive 02; 12.732°N, 144.277°E) and Farallon de Medinilla (EX1605L1, dive 17; 16.135°N, 146.081°E; Fig. 10F). Identified by a unique color pattern that very closely matches that of the two known specimens of this species taken at a depth of 200 to 223 m off southwestern Taiwan and the Amami Islands, East China Sea (Okamoto & Motomura 2017).

Pseudanthias cf. *engelhardi* (Allen & Starck, 1982). Recorded by BRUV from a depth of 73 m off Tumon Bay, Guam by SL (Fig. 11A left). Identification provisional, it is possibly a new species. The putative male has a red bar extending beneath a red blotch on the spinous portion of the dorsal fin, followed by another beneath the anterior part of the soft-rayed portion. The dorsal-fin spot and second bar may be absent in smaller males and the spot and both bars are absent in putative females. Reported from Palau as *P. engelhardi* where it occurs at depths below 53 m (Myers 1999, Plates 31F & 32G), the former misidentified as the female of *P. calloura*. Specimens of what appear to be the same species have been collected and photographed at Kwajalein by B. Greene and photographed by Stan Jazwinski (Fig. 11A right). *Pseudanthias engelhardi* is otherwise known from Papua New Guinea and the Great Barrier Reef to Fiji and Tonga.

Rabaulichthys sp. Recorded by BRUV from the Saipan Anchorage at depths of 66 to 81 m (Fig. 11B). Although the extremely wide field of view and low light levels are insufficient to show fine details, the elevated dorsal fin and dark pelvic fins characteristic of males are clearly visible. Appears closest to *R. altipinnis* of New Britain, West Papua, and the Coral Sea, but it could be conspecific with a male bearing extremely long caudal filaments collected at Kwajalein, Marshall Islands by Brian Greene, which may be undescribed. Specimens of the genus dredged from Condor Bank, Caroline Islands are in too poor a condition to be identified to species (Randall & Walsh 2010).

EPINEPHELIDAE (Groupers)

Epinephelus leucogrammicus (Valenciennes, 1828). Initially reported as *Anyperodon leucogrammicus* from Alamagan, CNMI, on the basis of sightings during visual surveys (Myers & Donaldson 1996). Recorded from Guam and Rota by BRUV; a still frame from Rota at a depth of 40 m is shown here (Fig. 11C). Characterized by an elongate body uniformly covered with small red spots, young individuals also with a series of 4 narrow, white stripes that break up with age. We follow Ma & Craig (2018) in subsuming *Anyperodon* within *Epinephelus*. Widespread Indo-Pacific from the Red Sea and eastern Africa to the Samoa, Cook and Phoenix Islands, north to the Ryukyu Islands, south to New Caledonia.

Epinephelus macrospilos (Bleeker, 1855). Photographed at a depth of about 12 m off Pati Point, Guam by DRB (Fig. 11D) and posted on the website guamreeflife.com. Also photographed at a depth of 13 m at Pagan by V. Brown. Characterized by slightly snub-nosed appearance, projecting lower jaw, and round dark spots with a few of the more crowded spots slightly hexagonal. The individual from Guam is displaying a color pattern associated with territoriality or courtship. Uncommon to rare throughout Micronesia. South Africa to the Line and Marquesas Islands, north to southern Japan, south to New Caledonia.

Epinephelus spilotoceps Schultz, 1953. Photographed at a depth of about 2 m off Gun Beach, Tumon Bay Marine Preserve, Guam by DRB (Fig. 11E) and posted on the website guamreeflife.com. Also identified on video footage taken by SJL at depths of 30 and 43 m at Saipan Bank and Saipan. Characterized by a series of 4 distinct, black, saddle-like spots on the back, with the first largest and extending onto the dorsal fin, and the last on the caudal peduncle. Uncommon in Micronesia. East Africa to the Line and southern Cook Islands, north to the Philippines and Marshall Islands, south to New Caledonia.

Figure 12. A. *Symphysanodon maunaloae*, 337 m depth, Esmeralda Bank, EX1605L1, dive 18 (left) and 348 m depth, Pagan, EX1605L3, dive 02 (NOAA Ocean Exploration); B. *Grammatonotus macrophthalmus*, 364 m depth, Zealandia Bank, EX1605L1, dive 12 (NOAA Ocean Exploration); C. *Grammatonotus xanthostigma*, 321 m depth, crater on side of Eifuku Seamount, EX1605L3, dive 08 (NOAA Ocean Exploration); D. *Grammatonotus* sp. A, approximately 4 cm TL, 291 m (left) and 301 m depth, Maug, EX1605L3, dive 03 (NOAA Ocean Exploration); E. *Cirrhitops hubbardi*, 12 m depth, Maug (D. Burdick); F. *Lubbockichthys* sp. cf *multisquamatus*, from 60 m depth, Agrihan (P. Schuup); G. *Pseudoplesiops wassi*, approximately 4 cm TL, 30 m depth, Blue Hole, Guam (D. Burdick).

SYMPHYSANODONTIDAE (SLOPEFISHES)

Symphysanodon katayamai Anderson, 1970. Recorded from a depth of 258 m in 19.3°C water at Farallon de Medinilla (EX1605L1, dive 17; 16.133°N, 146.080°E; Fig. 11F). The identification is based on color pattern combined with morphological features visible in the photograph. Previously reported from depths of 60 to 183 m. Slopefishes are fast-swimming planktivores of the continental shelf, upper continental slopes, and submarine ridges, as well as insular reef slopes (Anderson & Springer 2005, Quéro et al. 2009). West-central Pacific from Taiwan, Sulawesi, southern Japan, Palau, and the Hawaiian Islands.

Symphysanodon maunaloae Anderson, 1970. Initially reported from the Marianas from stomach contents of *Pristipomoides zonatus* fished from Pathfinder Reef (15.5°N, 143.1°E) (Seki & Callahan 1988, Myers & Donaldson 2003), without any basis for identification. Recorded here from a depth of 337 m in 11.6°C water at Esmeralda Bank (EX1605L1, dive 18; 15.032°N, 145.224°E), 326–345 m in 15.2–15.9°C water at Maug (20.042–20.048°N, 145.232–145.233°E), 311–383 m in 13.6–16.3°C water at Eifuku Seamount (21.413 21.414°N, 144.144–144.145°E), and 348 m in 12.6°C water at Pagan (EX1605L3, dive 02; 18.180°N, 145.820°E) (Fig. 12A). The identification is based on the color pattern combined with morphological features visible in the photograph. They generally occur in groups and shelter in crevices when approached, and are important prey of groupers, amberjacks, and deep-water snappers. West-central Pacific from the Philippines to the Tuamotu Islands, north to the Kyushu-Palau Ridge, Emperor Seamounts, and Hawaiian Islands (Anderson & Springer 2005).

CALLANTHIIDAE (GROPPOS)

Grammatonotus macrophthalmus Katayama, Yamamoto & Yamakawa, 1982. Recorded from depths of 362 to 428 m in 10.2–13.4°C water at Zealandia Bank (EX1605L1, dive 12; 16.899°N, 145. 897°E; Fig. 12B), Pagan (EX1605L3, dive 02; 18.181°N, 145.820°E), and Maug (EX1605L3, dive 03; 20.051°N, 145.214°E). Collected elsewhere at depths of 300 to 510 m in waters of 9.1–14.0°C. Identification provisional based on the color pattern. *Grammatonotus macrophthalmus* is known from specimens taken from the Kyushu-Palau Ridge and Ogasawara Islands. Photographs of similar *Grammatonotus* taken in the northwestern Hawaiian Islands have been re-identified as *G. ambiortus* Prokofiev, 2006 (Prokofiev 2018), although the status of that species was questioned by Anderson et al. (2018).

Grammatonotus xanthostigma Anderson & Johnson, 2017. Recorded at a depth of 321 m in 16.3°C water in a crater on side of Eifuku Seamount (EX1605L3, dive 08; 21.414°N, 144.144°E; Fig. 12C). Although Anderson et al. (2018) left the identification of the species in this photograph open, everything visible closely matches what is seen in the photograph of the somewhat-faded fresh holotype of *G. xanthostigma*, collected at a depth of 142 m off Pohnpei. The characteristic split in the midline of the caudal-fin tip is not visible in the fish shown here due to the slight compression of the mid-fin rays. We suggest that they are conspecific, although the collection of specimens would be necessary for confirmation.

Grammatonotus sp. A. Recorded at depths of 291 and 301 m in 16.1–16.2°C water at Maug (EX1605L3, dive 03; 20.15°N, 145.11°E; Fig. 12D). This unidentified species most closely resembles a specimen collected in the Hawaiian Islands (Randall 2007, p. 200) that may be an undescribed species (Anderson et al. 2018). Larger individuals of what appear to be this species have been photographed from a submersible at Palau by P. Colin. It is also possible that these are juvenile or initial-stage adult individuals of a described species.

CIRRHITIDAE (HAWKFISHES)

Cirrhitops hubbardi (Schultz, 1943). Photographed at a depth of 12 m at Maug by DRB (Fig. 12E). Easily identified by its unique color pattern. Most collections are from less than 8 m in high-energy, exposed seaward reefs. Otherwise known from the Ryukyu Islands to the Ogasawara, Zunan and Izu Islands in the northwestern

Pacific, and from Howland and Baker Islands, the Line and Phoenix Islands south to Rarotonga, and the Austral Islands through the Tuamotu Islands east to Ducie Island in the central Pacific.

PSEUDOCHROMIDAE (DOTTYBACKS)

Lubbockichthys cf. *multisquamatus* (Allen, 1987). Initially recorded from Pagan as Pseudochromidae new genus sp. A (Myers 1999, p. 122, Plate 48H) on the basis of a specimen collected at a depth of 60 m, but illustrated with a photograph taken at Palau believed at the time to represent the same species. Apparent differences in color as well as body depth indicate that these represent different species. A specimen collected at a depth of 60 m off Agrihan by P. Schuup and deposited at the UG fish collection could not be located, but was photographed (Fig. 12F). Allen & Erdmann (2012, 2024) suggest that *L. multisquamatus* represents a complex of species and they plan a genetic study.

Pseudoplesiops wassi Gill & Edwards, 2003. Initially recorded from Saipan as *Pseudochromis* sp. A (Myers & Donaldson 2003), based on a photograph taken by H. Kimura. Also photographed at Tinian by Y. Miyamoto and at a depth of 30 m inside the Blue Hole, Guam by DRB (Fig. 12G). The identification is provisional since they are a close match to fish in underwater photographs taken at Fiji and other areas where specimens have been photographed prior to collection and identification. Secretive, collected with the aid of ichthyocides. Scattered records from western Pacific from Pohnpei to American Samoa, and south to Tonga. *Pseudoplesiops* sp. 1 (UGM6211) of Myers & Shepard (1980) is not identifiable to any known species nor assignable to a subfamily. Until the specimen can be located and re-examined, it is considered unidentifiable. (D I, 24; A 14, P 18, pored LL count of 29+6).

PRIACANTHIDAE (BIGEYES; GLASSEYES)

Pristigenys refulgens (Valenciennes, 1862). Recorded from the Marianas Islands based on a 120-mm SL specimen fished from a depth of about 182 m off Guam (Fig. 13A left), initially identified as *P. niphonia* (Myers & Donaldson 2003). Also recorded at depths of 256 to 275 m in 13.1–19.5°C water at Esmeralda Bank (EX1605L1, dive 18; 15.035°N, 145.225°E) and Farallon de Medinilla (EX1605L1, dive 17; 16.133°N, 146.080°E; 16.132°N, 146.078°E; and 16.132°N, 146.077°E) (Fig. 13A upper right). Resurrected from synonymy with *P. niphonia* by Iwatsuki et al. (2012). Characterized by a well-defined black margin on the soft-rayed portions of the dorsal, anal and caudal fins that is lacking in *P. niphonia*. This is the only known occurrence of either species from an insular Pacific locality. Red Sea and South Africa to Indonesia and Guam, north to southern Japan.

APOGONIDAE (CARDINALFISHES)

Subfamily Apogoninae

Cercamia melanogaster Allen, Erdmann & Mahardini, 2015. Initially reported from Guam as *C. eremia* based on an underwater photograph by B. Henke, but illustrated by one of that species taken in New Britain (Myers 1999). Henke's photograph is reproduced here along with another by DRB taken at a depth of about 13 m off Gun Beach, Tumon Bay Marine Preserve, Guam and posted on the website guamreeflife.com (Fig. 13B). Identification confirmed by G.R. Allen. Observed only at night. A mostly transparent species otherwise known from West Papua, Indonesia, and Milne Bay, Papua New Guinea. Photographs taken at Kwajalein, Marshall Islands also appear to be of this species (Myers & Johnson, in prep)..

Cheilodipterus singapurensis (Bleeker, 1860). Recorded from Guam based on a photograph taken at a depth of 9 m in Apra Harbor, Guam (Fig. 13C). Identified by a small white spot below the last dorsal-fin ray that may become obscure in large adults; juveniles are otherwise similar to *C. isostigmus* and *C. quinquelineatus*, adults have wider and more diffuse dark stripes and a darker ground color than other species. Rarely seen and secretive

Figure 13. A. *Pristigenys refulgens*, 120 mm SL, hook and line from a depth of about 182 m, Guam (upper; R. F. Myers) and 275 m depth, Farallon de Medinilla, EX1605L1, dive 17 (NOAA Ocean Exploration); B. *Cercamia melanogaster*, mouth-brooding males, approximately 4 cm TL, Guam, site unknown (upper; B. Henke) and 13 m depth, Gun Beach, Tumon Bay (D. Burdick); C. *Cheilodipterus singapurensis*, two views of the same individual, approximately 10 cm TL, 9 m depth, Apra Harbor, Guam (R. F. Myers); D. *Fowleria vaiulae*, approximately 4 cm TL, 4 m depth, Tepungen Channel, Piti, Guam (R. F. Myers); E. *Ostorhinchus apogonides*, 24 m depth, Toguan Bay, Guam (T. Allen); F. *Ostorhinchus dispar*, approximately 6 cm TL, 20 m depth, The Grotto, Saipan (H. Kimura).

by day, when it shelters among corals of sheltered coastal and lagoon reefs. Sumatra and Malay Peninsula to the Marshall Islands and New Caledonia, north to the Ryukyu Islands.

Fowleria vaiulae (Jordan & Seale, 1906). Recorded from the Mariana Islands without annotation by Myers & Donaldson (2003) based on underwater photographs by T. Allen. Subsequently photographed by DRB on the website guamreeflife.com and RFM at depths of 4 to 5 m off Piti, Guam (Fig. 13D). A small cryptic species normally seen only at night, characterized by 6 to 8 pale bars and 3 to 4 dark bands radiating from the eye. Red Sea and South Africa to the Society Islands, north to southern Japan, south to New Caledonia.

Ostorhinchus apogonides (Bleeker, 1856). Initially recorded from Guam as *Apogon apogonides* by Myers (1999) based on observations by T. Allen, but a photograph taken at Bali was used to illustrate the species. Myers & Donaldson (2003) confirmed the Guam record based on a photograph taken by T. Allen at a depth of 24 m at Toguan Bay (Fig. 13E). A small aggregation of this species has also been photographed at Pagan by V. Brown. An uncommon species in the Marianas, associated with low-profile patch reefs on open sand. Characterized by an orange-yellow color with a pair of pale blue bars through the eye and operculum, followed by a series of small bluish spots on the sides. Red Sea and South Africa to the Society Islands, north to southern Japan, south to New Caledonia.

Ostorhinchus dispar (Fraser & Randall, 1976). Recorded from Saipan (Myers & Donaldson 2003) based on a photograph by H. Kimura (Fig. 13F). A small, semi-transparent species distinguished by a prominent white spot on the caudal peduncle atop a black spot with a dark-red rear margin. Inhabits steep outer reef slopes below 15 m. Indonesia to Fiji, north to the Ryukyu Islands, south to Vanuatu.

Subfamily Pseudaminae

Pseudamia gelatinosa Smith, 1955. Recorded from Guam on the basis of an underwater photograph taken by I. Elliot and T. Allen printed on the inside rear jacket of Myers (1999). Allen's photograph was misidentified as *P. hayashii* and is reproduced here (Fig. 14A). The species is characterized by multiple rows of tiny, dark-edged, copper-colored spots interspersed with larger spots on a semi-transparent bronze background, and a large dusky spot on the upper caudal peduncle. Seen only at night. Red Sea and South Africa to Rapa, north to southern Japan, south to New Caledonia.

Pseudamia zonata Randall, Lachner & Fraser, 1985. Recorded from Saipan as *P. zonatus* (Myers & Donaldson 2003) based on a photograph by H. Kimura (Fig. 14B). The only species of the genus with broad black bars beneath the first dorsal fin and below the rear of the second dorsal fin. Hovers in the inner reaches of caves that are nearly devoid of light. Bali to Fiji, north to the Ryukyu Islands, south to New Caledonia.

EPIGONIDAE (DEEPWATER CARDINALFISHES)

Although the family has not previously been reported from the Marianas, *Epigonus* species appear to be the most abundant fishes in upper bathyal, high-relief habitats in the region. At least 35 species are known from the Indo-Pacific, primarily in upper bathyal waters, but a few occur in rariphotic to lower mesophotic zones and one species from Palau, *E. cavaticus*, occurs as shallow as 20 m deep within the darkest recesses of caves. There were 190 observations (514 individuals) of *Epigonus* species by ROV during the NOAA *Okeanos Explorer* survey on the Marianas. Time limitations prevented photographing more than a few individuals for identification purposes, but 4 morphotypes that we consider corresponding with distinct species could be distinguished. All that were identifiable were *Epigonus* types A and B, except for a single individual each of *Epigonus* types C and D (Fig. 14C).

MALACANTHIDAE (SAND TILEFISHES)

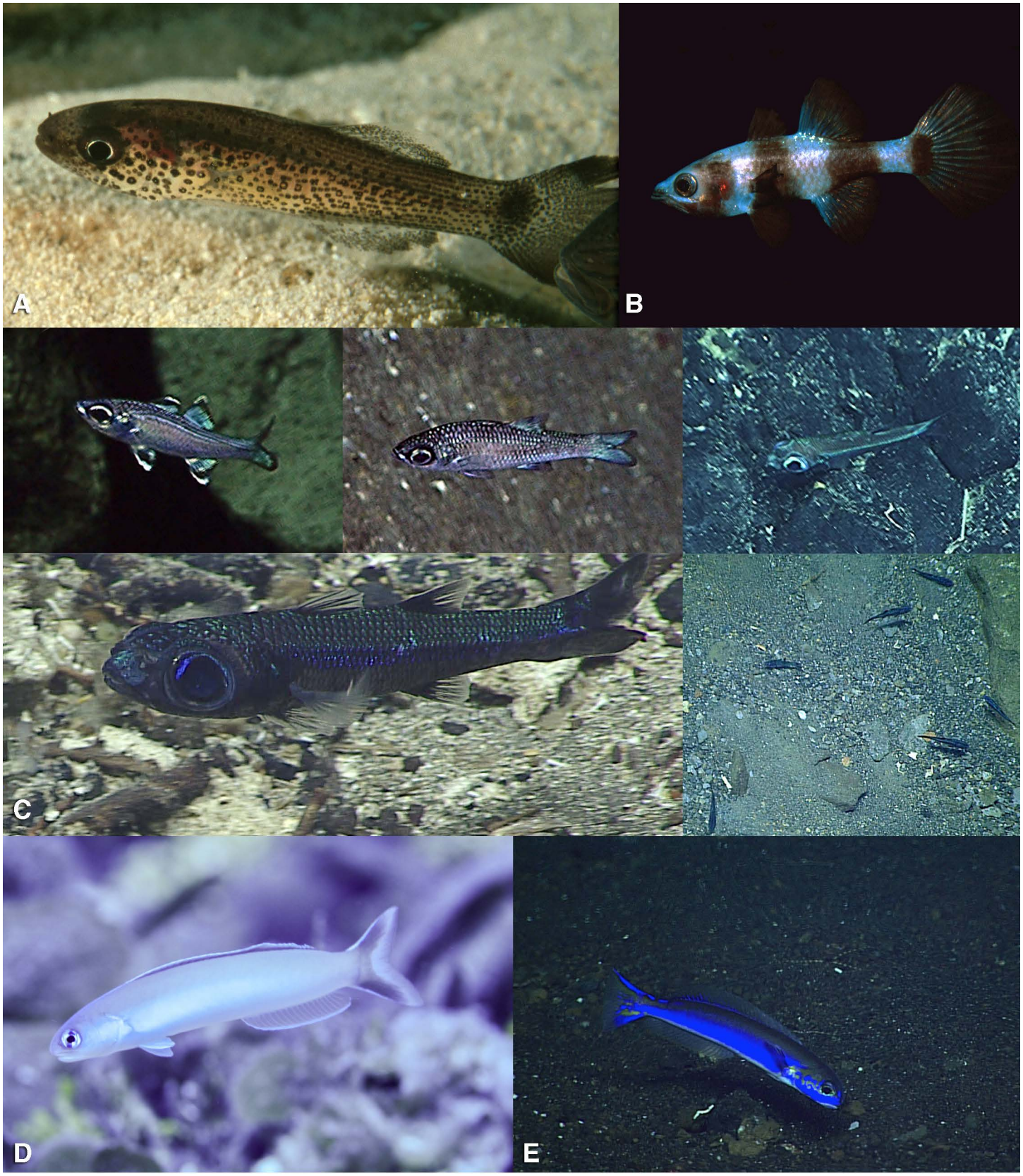

Figure 14. A. *Pseudamia gelatinosa*, Guam (I. Elliot); B. *Pseudamia zonata*, approximately 8 cm TL, 15 m depth, The Grotto, Saipan (H. Kimura); C. *Epigonus* putative species recorded in the Marianas, upper row: *Epigonus* sp. A, 477 m depth, Santa Rosa Reef, EX1605L1, dive 01; *Epigonus* sp. B, 453 m depth, Maug crater, EX1605L3, dive 03; *Epigonus* sp. C, 613 m depth, Santa Rosa Reef, EX1605L1, dive 01; lower row: *Epigonus* sp. D, 633 m depth, Zealandia Bank, EX1605L1, dive 12; unidentified species of *Epigonus* aggregating close above the bottom in 297-330 m, Ahyi Seamount, EX1605L3, dive 05 (NOAA Ocean Exploration); D. *Hoplolatilus cuniculus*, 30 m depth, Santa Rosa Reef (D. Burdick); E. *Hoplolatilus* sp. A., 249 m depth, Esmeralda Bank crater, EX1605L1, dive 19 (NOAA Ocean Exploration).

Hoplolatilus cuniculus Randall & Dooley, 1974. Recorded from Guam based on a photograph taken by DRB at a depth of 30 m at Santa Rosa Reef on 31 Aug 2021 (Fig. 14D). The fish was one of a pair seen hovering close above a rubble patch. Although image quality is poor due to the strobe failing to fire, it is sufficient to determine the species. Easily identified by its nearly uniform-gray color with dusky caudal-fin lobes and a pale blue trim on the dorsal and anal fins and upper and lower edges of the caudal fin. Known from depths of 25 to 115 m. Gulf of Aden and northern South Africa to the Gambier Islands north to southwestern Japan, south to New Caledonia.

Hoplolatilus sp. A. Four individuals were recorded between 243 and 249 m in 15.4–17.0°C water in the crater of Esmeralda Bank (EX1605L1, dive 19; 14.961–14.963°N, 145.262°E; Fig. 14E). An apparently undescribed species identified by a color pattern unlike that of any known species.

LUTJANIDAE (SNAPPERS)

Etelis radiosus Anderson, 1981. An individual of approximately 80 cm FL was recorded from a depth of 359 m off Maug (EX1605L3, dive 03; 20.050°N, 14.232°E; Fig. 15A). Visually distinguished from *E. coruscans* by the shape of the caudal fin, which has a notch in the middle of the distal margin and dorsal lobe that does not become filamentous with age. This is the first documented occurrence in Micronesia outside of Palau. Known from a depth range of 90 to 360 m. Sri Lanka to the Society Islands, north to the Ryukyu Islands, south to New Caledonia.

LETHRINIDAE (EMPERORS)

Monotaxis heterodon (Bleeker, 1854). Recorded from Guam based on a 245-mm FL specimen from Guam retained by the NMFS Guam field office and photographs of a juvenile and subadult taken in Apra Harbor by DRB (Fig. 15B). Differs from the very similar *M. grandoculis* by having 12.5 instead of 13.5 scale rows between the lateral line and anal-fin origin, having narrower white bars (when visible), lacking an ocular bar in juveniles, and lacking black spots at the base of the soft-rayed parts of the anal and dorsal fins. Maximum size is also smaller, 35 vs. 60 cm TL. Less common than *M. grandoculis* in most areas. Seychelles to Fiji, north to the Philippines and Micronesia, south to New Caledonia.

CHAETODONTIDAE (BUTTERFLYFISHES)

Chaetodon burgessi Allen & Starck, 1973. Collected at a depth below 30 m in the Blue Hole, Guam by L. Goldman (then at Underwater World Guam and later UGM) in 2004. The specimen was subsequently photographed by BT (Fig. 15C) and deposited in the UGM collection, but is not yet cataloged. This confirms reports of sightings of *C. burgessi* paired with *C. flavocoronatus* at the same location. Identified by its unique color pattern. Closely related to *C. flavocoronatus* and *C. tinkeri*. Putative hybrids are documented between both of those species and *C. burgessi* (R.L. Pyle, pers. comm.; see discussion under *C. tinkeri* below). Its rarity in the Marianas suggests that it is a waif, recruited from stable populations in the Caroline Islands. Otherwise known from Bali to Fiji and Tonga, north to the Philippines and across southern Micronesia from Palau and the FSM to Kwajalein and Majuro.

Chaetodon rafflesii Bennett, 1830. Photographed off Piti, Guam by J. Boggs (Fig. 15D). The absence of other occurrences combined with its absence from islands to the north as well as the northern Marshall Islands suggest that this individual was a waif. Easily recognized by its pale-yellow color with a crosshatch pattern formed by dusky scale margins. Sri Lanka to the Tuamotu Islands, north to southern Japan, south to New Caledonia.

Chaetodon tinkeri Schultz, 1951. Photographed at a depth of about 40 m in the Blue Hole off Orote Peninsula, Guam by N. Boggs (Fig. 15E). This individual was paired with *C. flavocoronatus*, the endemic species of the complex in the Mariana Islands. Identification provisional, based on the absence of the yellow crown that is characteristic of *C. flavocoronatus*. Its rarity in the Marianas suggests that it is a waif, but the possibility remains

Figure 15. A. *Etelis radiosus*, approximately 80 cm TL, 359 m depth, Maug, EX1605L3, dive 03, two views of the same fish (NOAA Ocean Exploration); B. *Monotaxis heterodon*, 245 mm FL specimen from Guam (left; E. Cruz, NMFS), juvenile approximately 5 cm TL, 8 m depth, Outhouse Beach, Apra Harbor, Guam (D. Burdick), and subadult, 8 m depth, Outhouse Beach, Apra Harbor, Guam (D. Burdick); C. *Chaetodon burgessi* collected from below 30 m, Blue Hole, Orote Peninsula, Guam by personnel of Underwater World Guam (B. Tibbatts); D. *Chaetodon rafflesii*, Piti, Guam (J. Boggs); E. *Chaetodon tinkeri*, 40 m depth, Blue Hole, Orote Peninsula, Guam (N. Boggs).

that it represents a genetic outlier or possible hybrid based on the duskiness of the nape, a trait generally not seen in *C. tinkeri*. Reports of *C. burgessi*, which has a well defined partial black bar on the nape, in the same location and also paired with *C. flavocoronatus* have been confirmed by the collection of a specimen (above). Putative hybrids between one or both of the three species have been photographed at Palau, Majuro, and Tarawa, Gilbert Islands. They are reported to occur regularly at Tarawa (R.L. Pyle, pers. comm.), but are rare elsewhere, suggesting that in most areas the genetic integrity of the locally more-common parent species is maintained. In the absence of an appropriate genetic study that suggests otherwise, we regard all three species as valid, with *C. flavocoronatus* the more common Mariana Islands endemic and the other two species rarely present. Marshall Islands to the Tuamotu Islands, north to the Hawaiian Islands, south to Rarotonga.

Heniochus diphreutes Jordan, 1903. Initially reported from Guam (Myers & Donaldson 2003) based on juvenile specimens photographed and collected from a depth of 24 m off Toguan Bay by T. Allen (Fig. 16A). Differs from the very similar *H. acuminatus* by having a slightly shorter snout, a more rounded breast, and in slight differences in the terminal position of the bar on the anal fin. Also differs in behavior, with juveniles often associated with isolated shelter on open sand, schooling at all sizes, and a preference for deeper, cooler water. Red Sea and South Africa to Fiji, north to southern Japan and the Hawaiian Islands, south to the Kermadec Islands.

Prognathodes guyotensis (Yamamoto & Tameka, 1982). Recorded at a depth of 275 m in 13.1°C water at Esmeralda Bank (EX1605L1, dive 18; 15.035°N, 145.225°E; Fig. 16B). Identified by its elongate dorsal-fin spines and relatively long snout combined with a unique color pattern. A lower-rariphotic zone species that barely ranges into lower mesophotic depths, with a known depth range of 126 to 342 m, the shallower depth based on observations at Palau (P. Colin, pers. comm.). Originally described from the Kyushu-Palau Ridge and subsequently collected or photographed at the Maldive and Ogasawara Islands, and New Caledonia.

Roa uejoi Matsunuma & Motomura, 2022. Previously known from the Mariana Islands based on a single lot of specimens collected off Tarague, Guam (as *Chaetodon modestus* by Kami (1975); as *C. excelsa* by Myers & Donaldson (2003) and described as a new species by Matsunuma & Motomura (2022). Recorded here at a depth of 257 m in 19.1°C water at Farallon de Medinilla (EX1605L1, dive 17; 16.133°N, 46.0780°E; Fig. 16C), representing a range extension to the opposite end of the Mariana Islands.

POMACANTHIDAE (ANGELFISHES)

Centropyge bicolor (Bloch, 1787). Initially recorded from Guam based on a reliable sighting (Myers 1988), subsequently photographed by DRB at a depth of 15 m off Anae Island and posted on the website guamreeflife.com (Fig. 16D). Easily identified by its unique color pattern of deep-navy-blue posteriorly and abruptly yellow anteriorly with a navy-blue band through and above eye and a yellow caudal fin. Further observations are needed to determine if the Guam occurrences represent waifs, rare temporary colonizations, or a more permanent population. Sumatra to American Samoa and Tonga, north to southern Japan, south to Elizabeth and Middleton Reefs, Australia.

Centropyge fisheri (Snyder, 1904). Recorded from Saipan as *Centropyge flavicauda* Fraser-Brunner, 1933 (Myers & Donaldson 2003) based on a photograph taken at a depth of 25 m off Wing Beach by H. Kimura (Fig. 16E). Identified by its small adult size, elongate body, and color pattern, typically deep navy blue with cyan fin margins and a yellowish caudal fin. The Hawaiian population is distinguished by an orange-yellow wash on the head, caudal peduncle, and fins; this color form is occasionally seen elsewhere, but not genetically distinct. An easily overlooked inhabitant of coral-reef rubble patches that hides when approached. East Africa to Tuamotu Islands, north to southern Japan and Hawaiian Islands, south to New Caledonia.

Genicanthus takeuchii Pyle, 1997. Recorded here from Farallon de Pajaros (Uracas), northern Mariana Islands based on photographs taken by A. Gray at a depth of 27 m (Fig. 17A). Also observed off Pagan. Forms small

Figure 16. A. *Heniochus diphreutes*, 24 m depth, Toguan Bay, Guam, clockwise from lower left: cluster of juveniles, juvenile, and subadult (T. Allen); B. *Prognathodes guyotensis*, 275 m depth, Esmeralda Bank, EX1605L1, dive 18 (NOAA Ocean Exploration); C. *Roa uejoi*, 257 m depth, Farallon de Medinilla, EX1605L1, dive 1718 (NOAA Ocean Exploration); D. *Centropyge bicolor*, 15 m depth, Anae I., Guam (D. Burdick); E. *Centropyge fisheri*, approximately 5 cm TL, 25 m depth, Wing Beach, Saipan (H. Kimura).

haremic groups along steep reef slopes subject to currents and upwelling. A sexually dimorphic species easily identified by unique male and female color patterns of irregular, vertically oriented, black spots on the upper sides of juveniles and females and narrow, oblique, black stripes on the upper body of males. Otherwise known only from the Ogasawara Islands and Minami-Tori-Shima (Marcus Island), Japan at depths of 20 to 55 m.

Pomacanthus sexstriatus (Cuvier, 1831). Photographed at a depth of 1 m in Tumon Bay, Guam by DRB (Fig. 17B) and posted on the website guamreeflife.com. Easily identified by its unique color pattern. This solitary adult was first reported on 29 September 2012 and photographed there on 1 October, but not monitored thereafter and was not seen the following February. The absence of this species in Micronesia north or east of Ifalik combined with its availability in the ornamental fish trade (typically as a juvenile), suggest that this occurrence could be the result of an intentional release. It is also possible that this was the result of natural recruitment, but in either case it seems unlikely that this species has a stable reproducing population in the Marianas. Known from the Chagos and Maldive Islands to the Loyalty Islands, north to the Ryukyu Islands, and south to New Caledonia.

KYPHOSIDAE (RUDDERFISHES; SEA CHUBS)

Kyphosus ocyurus (Jordan & Gilbert, 1882). Recorded from Guam as *Sectator ocyurus* without comment (Myers 1999) based on a 324-mm SL specimen speared among an aggregation of other more typical *Kyphosus* species (Fig. 17C). The fisherman sold it to the Guam Fishermen's Cooperative. A second specimen was photographed at a Guam fish market on 1 July 2016. Easily identified by its nearly fusiform body and color pattern of blue and yellow bands and yellow fins. A highly derived species adapted to a pelagic existence, formerly in the monotypic genus *Sectator* but genetically nested within *Kyphosus* (Knudsen & Clements 2016). A common coastal pelagic species of the tropical eastern Pacific, also known from the Indo-Pacific at the Marquesas Islands, where common, and from occasional occurrences as far west as Palau and the Ogasawara Islands.

POMACENTRIDAE (DAMSELFISHES)

Abudefduf caudobimaculatus Okada & Ikeda, 1939. Resurrected from synonymy with *A. vaigiensis* based on molecular and morphological evidence (Wibowo et al. 2017), with new material from Guam (Wibowo et al. 2018). Visually nearly identical to *A. vaigiensis* but differs in the position and upper extent of the fourth body bar and by usually having one or more small isolated dark spots at the base of the caudal fin (Fig. 17D). Often in mixed aggregations with *A. vaigiensis* which renders detection difficult and separation in visual censuses practically impossible. Widespread from the Western Indian Ocean to the Western Pacific but confirmed from few locations, including Glorieuses Island, Taiwan, Ryukyu Islands (type locality), Taiping Island (South China Sea), West Papua, Guam, and Lord Howe Island.

Amblypomacentrus tricinctus (Allen & Randall, 1974). Initially recorded from Guam (as *Chrysiptera tricincta*) based on a photograph taken at a depth of 18 m off Toguan Bay by T. Allen (Myers & Donaldson 2003). As the species had previously been observed, but not yet photographed, the image used in Myers 1999 (p. 182, Plate 101C) was one taken at Bali that was thought to be the same species but subsequently identified as the allopatric *C. kuiteri* Allen & Rajasuriya, 1995. Subsequently it was collected from the site where it was originally photographed as well as photographed at a depth of 25 m off Wing Beach, Saipan by H. Kimura (Fig. 17E). Identified by the combination of three black bars on white that bears an uncanny resemblance to the deeper bodied *Dascyllus aruanus*. This is not a case of mimicry as the two typically do not occur in the same habitat. A small solitary species that remains close to open sand and rubble bottoms. Disjunct distribution with a southern population from the Great Barrier Reef to Sydney east to American Samoa and Tonga and a northern one from southern Japan, the Ryukyu and Ogasawara Islands to Ngulu and Yap (G.R. Allen, pers. comm.). Replaced by *C. kuiteri* from Sri Lanka to Bali and north to Brunei.

Amphiprion frenatus Brevoort, 1856. Photographed at a depth of 3 m off Piti, Guam by DRB (Fig. 17F) and BT. This lone individual was found in a cluster of *Entacmaea quadricolor* anemones inhabited by its

Figure 17. A. *Genicanthus takeuchii*, female (left) and male, 27 m depth, Farallon de Pajaros (A. Gray); B. *Pomacanthus sexstriatus*, 1 m depth, Tumon Bay, Guam (D. Burdick); C. *Kyphosus ocyurus*, 324 mm SL, speared off the east coast of Guam (R. F. Myers); D. *Abudefduf caudobimaculatus*, 4 m depth, Guam (N. Boggs); E. *Amblypomacentrus tricinctus*, living specimen from 18 m depth, Toguan Bay, Guam (T. Allen); F. *Amphiprion frenatus*, 3 m depth, Piti, Guam (D. Burdick); G. *Chromis analis*, 35 m depth, Flemming Pt., Tinian (H. Kimura).

close allopatric relative, *A. melanopus*. Easily identified by its brilliant orange color that extends onto the pelvic fins (except the leading edge of the spine), typical of males. Females, derived from sex-reversed males, become dark maroon with brighter fins except the pelvic fins which turn completely dark and more closely resemble adult *A. melanopus* whose pelvic fins are always dark (except those of small juveniles which may be red distally). While the possibility remains that this could be the result of an aquarium release, it may also be a case of natural recruitment of an occasional waif which tends to occur more frequently during El Nino years. The nearest occurrence of *A. frenatus* to Guam is Helen Atoll where the species is also quite rare. Eastern Sumatra and Gulf of Thailand to eastern Borneo north to the Ryukyu and Ogasawara Islands.

Chromis analis (Cuvier, 1830). Earlier records of this species from the Marianas are based on a single collection of 5 specimens from a depth of 146 m off Haputo, Guam (Kami 1975) that we have re-identified as *C. circumaurea* Pyle, Earle & Greene, 2008 based on having XIV dorsal-fin spines. Recorded here based on a photograph taken at Tinian by H. Kimura (Fig. 17G). Variable in color from nearly uniform yellow to pale brown with yellow vertical fins, except distally on the spinous portion of the dorsal fin, but easily separable from *C. circumaurea* by having XIII fin spines. Reported from depths of 10 to 70 m; deeper records are attributable to *C. circumaurea*. Widespread W. Pacific from western Indonesia to Tonga, north to southern Japan, south to New Caledonia.

Chromis circumaurea Pyle, Earle & Greene, 2008. Provisionally reported from the Mariana Islands based on an unconfirmed sighting and video clip (Pyle et al. 2008). Its presence confirmed here based on Guam specimens originally reported as *C. analis* having XIV dorsal-fin spines (Fig. 18A). Reported from depths of 98 to 146 m at the Philippines (Batangas), Yap, Pohnpei, Mariana, and Marshall Islands (Enewetak).

Pycnochromis leucura Gilbert, 1905. Recorded from Saipan (Myers & Donaldson 2003) based on a photograph by H. Kimura at a depth below 40 m (Fig. 18B). Characterized by its dark bluish grey to nearly black color with black soft dorsal and anal-fin margins, a partially yellow pelvic fin, and a white caudal fin. BRUV footage of a large aggregation of what we believe is this species was taken at a depth of 66 m at Saipan Anchorage. Other species with a similar color pattern, *P. caudalis* and *P. delta*, tend to occur in smaller groups closer to the bottom off steep slopes. Known from the depth range of 20 to 122 m. The paucity of records for much of the equatorial Indo-Pacific may be due to its predilection for deep water as well as its superficial resemblance to other white-tailed species. Madagascar to the Marquesas and Hawaiian Islands, north to southern Japan, south to New Caledonia.

LABRIDAE (WRASSES)

Tribe Hypsigenyini

Bodianus bilunulatus (Lacepède, 1801). Recorded here on the basis of a photograph taken at a depth of 13 m at Farallon de Pajaros by A. Gray (Fig. 18C). Easily identified by its distinctive color pattern, with the initial phase shown here. Inhabits seaward reef slopes generally below 15 m to about 160 m. Rare in Micronesia where it is also known from Palau to Satawal. Widespread in the Indo-west Pacific from eastern Africa to New Caledonia and the Loyalty Islands, north to southern Japan.

Bodianus thoracotaeniatus Yamamoto, 1982. Recorded from a depth of 362 m in 12.9°C water off Pagan (EX1605L3, dive 02; 18.181°N, 145.820°E; Fig. 18D), and identified by its distinctive color pattern. Among the deeper dwelling species of *Bodianus* and the only one not yet reported from less than 200 m. Known otherwise from the Kyushu-Palau Ridge and Taiwan at depths of 320 to 395 m.

Polylepion russelli (Gomon & Randall, 1975). Initially recorded from Anatahan (Myers 1988, Myers & Donaldson 1996). A photograph of a 23-cm specimen at the Guam Fishermen's Cooperative by BT represents the first known occurrence of this species in the southern Mariana Islands (Fig. 18E). It was taken by hook-and-line at a reported depth of 182 m off Luminao Reef. A narrow-bodied species characterized by a pink color with three

Figure 18. A. *Chromis circumaurea*, size unavailable, from 146 m depth, Haputo, Guam, 27 May 1971 (Guam Division of Aquatic and Wildlife Resources); B. *Pycnochromis leucura*, approximately 4 cm TL, 30 m depth, The Grotto, Saipan (H. Kimura); C. *Bodianus bilunulatus*, 13 m depth, Farallon de Pajaros (A. Gray); D. *Bodianus thoracotaeniatus*, 362 m depth in 12.9°C water, Pagan, EX1605L3, dive 02 (NOAA Ocean Exploration); E. *Polylepion russelli*, 23 cm TL, 182 m depth, Luminao Reef, Guam (B. Tibbatts); F. *Oxycheilinus bimaculatus*, juvenile, ca. 5 cm TL, Toguan Bay, Guam (upper; T. Allen) and adults, ca. 9 cm TL, Piti, Guam (J. Boggs); G. *Oxycheilinus orientalis*, approximately 8 cm TL, 20 m depth, Wing Beach, Saipan (upper; H. Kimura) and 24 m depth, Toguan Bay, Guam (T. Allen).

broad yellow stripes. Known from a few specimens taken from depths of 92 to 318 m at Christmas Island (Indian Ocean), the Hawaiian Islands, and Society, Mariana, and Ryukyu Islands. Also captured on video by ROV from the NOAA *Okeanos Explorer* survey at Rose Atoll (American Samoa) and a seamount in the Tokelau Exclusive Economic Zone.

Tribe Cheilini

Oxycheilinus bimaculatus (Valenciennes, 1840). Initially recorded from Guam based on sightings (Myers 1988, Myers & Donaldson 1996). Subsequently photographed at Toguan Bay (Myers & Donaldson 2003) by T. Allen and at Piti by J. Boggs (Fig. 18F) at depths of 24 and 4 m, respectively, and later by BRUV taken by SJL at a depth of 73 m off Tumon Bay. Distinguished from the superficially similar *O. orientalis* by its deeper body, shorter and more rounded snout, and lanceolate caudal fin in adults; both species often display a broad, dark mid-lateral band with a series of lighter patches created by pale scale margins. South Africa and Gulf of Oman to Rapa, north to southern Japan and the Hawaiian Islands, south to Lord Howe Island.

Oxycheilinus orientalis (Günther, 1862). Recorded from Guam and Saipan (Myers & Donaldson 2003) based on photographs taken by T. Allen at a depth of 24 m off Toguan Bay, Guam and by H. Kimura at a depth of 20 m off Wing Beach, Saipan (Fig. 18G). The earlier record of Myers and Donaldson (1996) was based on a misidentification of a juvenile *O. unifasciatus*. Distinguished from *O. bimaculatus* by its narrower body, longer and more acute snout, and truncate caudal fin, as well as fixed details of the color pattern. Red Sea and eastern Africa to American Samoa, north to the Ryukyu Islands, south to New Caledonia.

Tribe Scarini

Chlorurus japanensis (Bloch, 1789). Reported from the Marianas with a photograph at a depth of 5 m off Harmon and Pati Point, Guam by SJL (Fig. 19A). Identified by a distinctive color pattern of initial and terminal phases. Not seen elsewhere around Guam. Although this species may have gone unrecognized during surveys and collecting activities prior to the 1980s, it was never recorded by DAWR creel surveys, nor seen by knowledgeable observers until these photographs were taken. The presence of males and females at both sites is indicative of a stable reproducing population and the localized nature of its occurrence is consistent with observations elsewhere in Micronesia. Java to American Samoa and Tonga, north to the Ryukyu Islands and south to Vanuatu.

Scarus chameleon Choat & Randall, 1986. Recorded from Guam (Myers & Donaldson 2003) on the basis of a photograph of a late initial or early terminal-phase individual taken off Orote Peninsula by T. Allen (Fig. 19B). Despite its poor quality, the photograph, taken from a considerable distance, shows enough details to confirm its identity. Furthermore, the photographer confirmed its identity based on his observation of presumably the same. fish at the same site on more than one occasion. The lack of other observations from Guam or anywhere in Micronesia north or east of Ulithi suggests that this individual could be a waif. Vietnam to the Tuamotu islands, north to the Ryukyu Islands, south to Elizabeth and Middleton Reefs, Australia.

Scarus niger Forsskål, 1775. Initially listed from Guam on the basis of sightings by T. Allen (Myers & Donaldson 2003). Its presence confirmed here on the basis of photographs of at least three individuals on two different occasions and locations by DRB (Fig. 19C). The presence of both initial and terminal-phase individuals at the same time and location during April 2021 is indicative of a breeding population. Red Sea and eastern Africa to the Gambier Islands, north to the Ryukyu Islands, south to Lord Howe Island and Rapa.

Scarus spinus (Kner, 1868). Recorded from Guam (Myers & Donaldson 2003) based on a photograph of a terminal-phase individual taken off Orote Peninsula by T. Allen (Fig. 19D). Despite its poor quality, the photograph, taken from a considerable distance, shows enough details to confirm its identity. Furthermore, the photographer confirmed its identity based on his observation of presumably the same individual on more than one occasion.

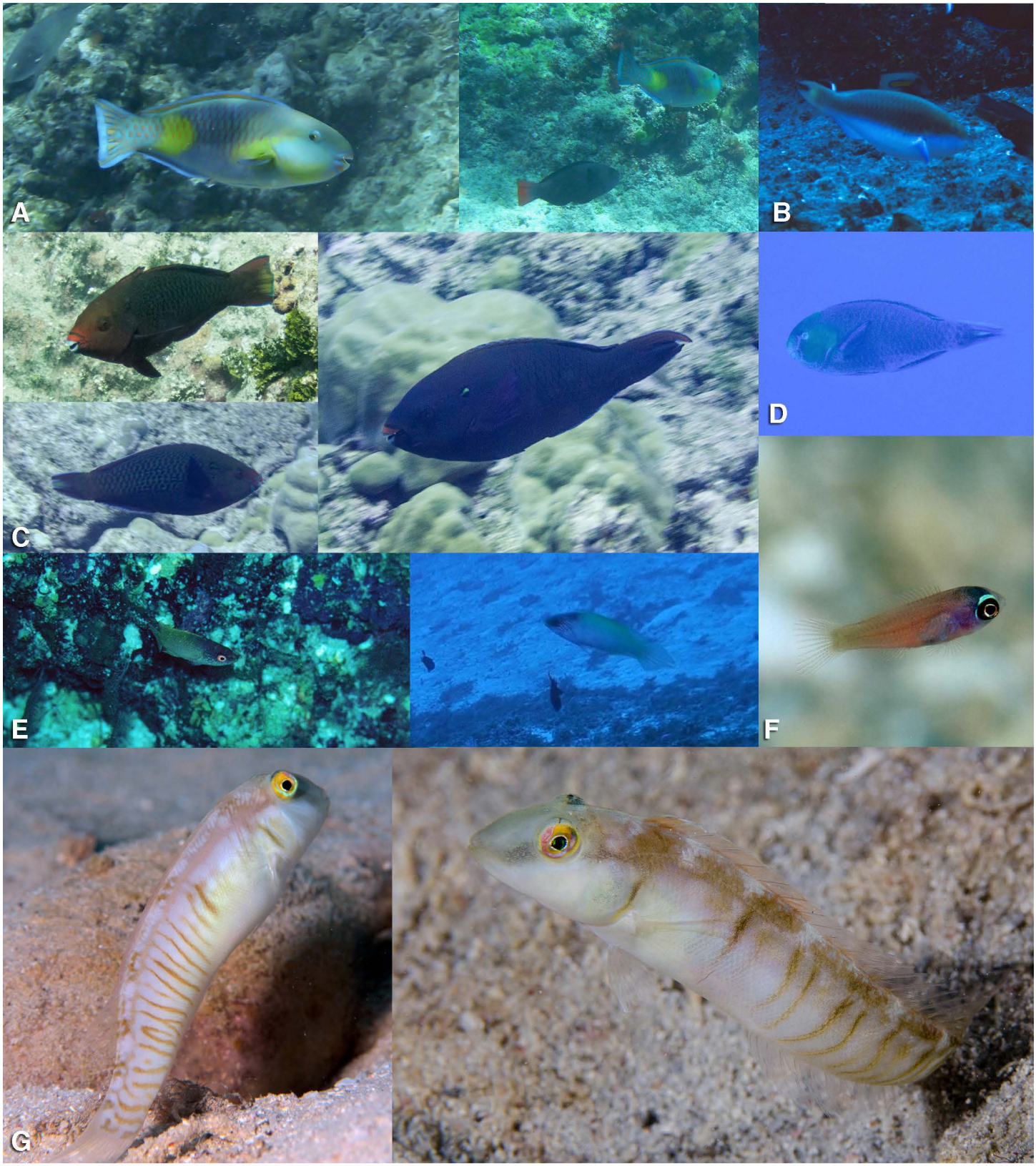

Figure 19. A. *Chlorurus japanensis*, terminal phase (left) and initial phase in association with terminal phase, 5 m depth, Pati Point, Guam (S. Lindfield); B. *Scarus chameleon*, late initial to early terminal phase, Orote Peninsula, Guam (T. Allen); C. *Scarus niger*, late initial phase, 10 m depth, Hap's Reef, Guam (upper left) and early (lower left) and late terminal phase (right), 12 m depth, west end of Luminao Reef, Guam (D. Burdick); D. *Scarus spinus*, terminal phase, Orote Peninsula, Guam (T. Allen); E. *Cirrhilabrus rhomboidalis*, subadult ca. 5 cm TL, 65 m depth, Saipan (left; Y. Miyamoto) and terminal male, ca. 8 cm TL, 70 m depth, Tumon Bay, Guam (BRUV frame by S. Lindfield); F. *Paracheilinus bellae*, juvenile approximately 2 cm TL, 42 m depth, Saipan (Y. Miyamoto); G. *Cymolutes torquatus*, initial phase ca. 8 cm TL (left) and 11 cm TL, 12-18 m depth, Outhouse Beach, Apra Harbor, Guam (D. Burdick).

Its small size and widespread distribution throughout most of the rest of Micronesia suggest that its occurrence would be expected and that it is not a waif. Vietnam and Java to the Line and Samoan Islands, north to the Ryukyu Islands, south to Elizabeth and Middleton Reefs, Australia.

Tribe Pseudocheilini

Cirrhilabrus rhomboidalis Randall, 1988. Recorded from Tinian based on a photograph of a juvenile taken at a depth of 60 m off Flemming Pt. by H. Kimura (Myers & Donaldson 2003). Another juvenile was photographed at a depth of 65 m at Saipan by Y. Miyamoto and adults were subsequently captured by BRUV at Galvez Bank, Guam, and Saipan Anchorage at depths of 59 to 90 m (Fig. 19E). Identified by a unique color pattern of blue and yellow with fine yellow reticulations and a strongly lanceolate caudal fin in males. Occurs in aggregations over current-swept rubble bottoms and steep slopes. As shallow as 18 m off pinnacle reefs and atolls between Chuuk and Yap, but typically below 60 m elsewhere. A Micronesian endemic now known from Palau, Yap, Ulithi, Ifalik, Puluwat, Satawal, Lamotrek, Olimaro, Chuuk, Pohnpei, Kosrae, Kwajalein, and the southern Mariana Islands.

Paracheilinus bellae Randall, 1988. Reported from Saipan by Allen et al. (2016) presumably based on sightings or photographs as no material from there was cited. Photographs of a juvenile of about 1 cm TL taken at a depth of 42 m by Y. Miyamoto are provisionally identified as this species, the only species of its genus known from Micronesia (Fig. 19F). Juveniles identified by a reddish body color combined with an incomplete pale blue ring around the upper part of the eye, a juvenile character of several species of *Paracheilinus*. Known from Micronesia (Helen Atoll, Palau, Yap, Ngulu, Ifalik, Olimaro, Kwajalein) and the Ryukyu Islands.

Tribe Novaculini

Cymolutes torquatus (Valenciennes, 1840). Initially listed from Saipan on the basis of sightings by H. Kimura (Myers & Donaldson 2003). Its presence in the Marianas confirmed here on the basis of photographs of at least two individuals taken at a depth of 15 m in Apra Harbor, Guam by DRB (Fig. 19G). Easily distinguished from *C. praetextatus* by a series of irregular narrow dusky bars on both initial and terminal phases. Eastern Africa to the Society Islands, north to southern Japan, south to southeastern Australia.

Novaculops halsteadi (Randall & Lobel, 2003). Initially reported from the Marianas as *Xyrichtys* n. sp. A based on three juvenile to initial-phase specimens 24–49 mm SL collected at a depth of 21 m off Guam and a terminal-phase fish photographed at a depth of 15 m off Wing Beach, Saipan by H. Kimura (Myers & Donaldson 2003; Fig. 20A) since the species was concurrently being described as *X. halsteadi* with the Guam specimens designated paratypes. Subsequently reassigned to the genus *Novaculops* (Randall, 2013). Distribution in the Marianas here extended north to Pagan on the basis of photographs taken at a depth of 13 m by V. Brown (Fig. 20B). A member of the razorfish tribe Novaculini identified by the unique color pattern of both initial and terminal phases. Normally found below 20 to at least 91 m. Known also from scattered localities across the western and central Pacific: Eastern Borneo, Halmahera, D'Entrecasteaux Islands (type locality), Vanuatu, New Caledonia, Society Islands, and Wake Atoll.

Tribe Julidini

Coris dorsomacula Fowler, 1908. Recorded from Saipan (Myers & Donaldson 2003) based on a photograph of the initial phase taken at a depth of 25 m off Wing Beach, Saipan by H. Kimura (Fig. 20C). Subsequently photographed at Pagan by V. Brown (Fig. 20B; the fish at the far right of the frame). Identified by distinctive juvenile, initial, and terminal color phases. Generally rare at depths of less than 30 m in the Marianas. Bali, Brunei, and Spratley Islands to Tonga, north to southern Japan, south to Australia at Elizabeth and Middleton Reefs.

Figure 20. A. *Novaculops halsteadi*, terminal phase male ca. 10 cm TL, 15 m depth, Wing Beach, Saipan (left; H. Kimura); B. *Novaculops halsteadi*, terminal phase (upper center) and initial phase (far left) with initial phase *Coris dorsomacula* (far right) and two initial phase *Halichoeres hartzfeldii* (lower fishes, represent-ing the first record for the far northern Marianas), 13 m depth, Pagan (V. Brown); C. *Coris dorsomacula*, ca. 10 cm TL, 25 m depth, Wing Beach, Saipan (H. Kimura); D. *Halichoeres chrysus*, initial phase, site unknown, Guam (T. Allen); E. *Halichoeres melasmapomus*, approximately 10 cm TL, 30 m depth, Flemming Pt., Tinian (H. Kimura); F. *Hologymnosus annulatus*, terminal phase specimen, site unknown, Guam (upper; T. Allen) and juvenile ca. 6 cm TL with juvenile *H. doliatus* (right), 10 m depth, Obyan, Saipan (H. Kimura).

Halichoeres chrysus Randall, 1981. Recorded from Guam (Myers & Donaldson 2003) based on a photograph taken by T. Allen (Fig. 20D). Identified by a predominantly bright yellow color at all sizes, the initial phase with two or three ocelli on the dorsal fin and another at the upper caudal-fin base and the terminal phase with a black mark at the front of the dorsal fin and a greenish head with yellow-orange bands. Possibly a rare waif in the Mariana Islands, although known from nearly all neighboring island groups. Java and Philippines to the Phoenix Islands and Tonga, north to southern Japan, south to New Caledonia.

Halichoeres melasmapomus Randall, 1980. Initially recorded from Guam based on a sighting by J.E. Randall (Myers 1988). Subsequently recorded from Tinian based on a photograph taken by H. Kimura (Myers & Donaldson 2003). Another photograph taken by him at Tinian is included here (Fig. 20E) and the Guam record is validated based on a photograph taken by T. Allen. Identified by the large black ocellus at the end of the operculum present in initial as well as terminal phases. Cocos-Keeling Island and Java to Pitcairn, north to the Ryukyu and Ogasawara Islands, south to central Great Barrier Reef.

Hologymnosus annulatus (Lacepède, 1801). Recorded from Guam (Myers & Donaldson 2003) based on a terminal-phase specimen collected by T. Allen (Fig. 20F), as well as underwater photographs taken by him at depths of 18 to 24 m off Orote Point, Guam and at Saipan by H. Kimura (Fig. 20F). Identified by the distinctive color patterns of juvenile, initial and terminal phases. Red Sea to Pitcairn, north to southern Japan, south to Elizabeth and Middleton Reefs, Australia.

Pseudocoris aurantiofasciata Fourmanoir, 1970. Captured on video at a depth of 43 m off Rota by SL and photographed at depths of 15 m at Asuncion by DJB and 20 m at Maug by Andrew Gray (Fig. 21A). Initial phase greenish brown with a pale-yellowish snout, and the terminal phase with numerous narrow dusky bars on sides, often with a single narrow white bar above mid-anal fin or a larger pale area posteriorly and filamentous caudal lobes. A fast-moving planktivore usually in roving groups of several initial-phase fish and a terminal male. Rarely encountered due to its typical occurrence at depths below 25 m above exposed current-swept areas. The only other Micronesian localities it is known from are Palau, Fais Atoll (at a depth of 91 m), and Wake Atoll. Known from scattered locations from the eastern Indian Ocean (Christmas Island and Cocos-Keeling Islands), Papua New Guinea, Indonesia, Philippines, Micronesia, and Marshall Islands, north to the Pacific coast of southern Japan and Wake Island, south to the Coral Sea, and eastward to the Cook Islands, Tuamotu Archipelago, and the Line Islands (Randall et al. 2015).

Pseudojuloides splendens Victor, 2017. Initially recorded from Guam as *P. cerasinus* based on sightings off Agat Bay (Myers 1988), subsequently validated by photographs (Myers & Donaldson 2003) taken by T. Allen at depths below 24 m off Toguan Bay (Fig. 21B). Based on molecular and morphological evidence, Victor (2017) demonstrated that populations of *P. cerasinus* outside of the Hawaiian Province represent distinct species, with *P. splendens* in the western and central Pacific east to American Samoa and Tonga, and *P. polynesica* in the balance of Polynesia east to the Tuamotu Islands. Identified by the terminal-phase color pattern. Widespread in the western and central Pacific from Vietnam and Bali to American Samoa, north to southern Japan and south to Lord Howe Island.

Stethojulis trilineata (Bloch & Schneider, 1801). Initially recorded from Saipan (Myers & Donaldson 2003) and later from Guam based on unverified sightings by knowledgeable observers. Its presence confirmed here by photographs of a terminal male taken in 1–2 m of water off Faifai Beach, Guam by BT (Fig. 21C). Terminal phase easily identified by its unique pattern of blue stripes. The status of this species' population in the southern Marianas is uncertain. Known individuals should be closely observed to see if they interact with initial-phase females, which would indicate the presence of a breeding population. Widespread in the Indo-west Pacific from the Maldives to the Samoa Islands, south to eastern Australia, north to southern Japan.

Figure 21. A. *Pseudocoris aurantiofasciata*, clockwise from left: initial phase, 20 m depth, Maug (A. Gray), early terminal phase, 15 m depth, Asuncion (D. Burdick), and terminal phase, 43 m depth, Rota (BRUV frame by S. Lindfield); B. *Pseudojuloides splendens*, initial phase (left) and terminal phase, 24 m depth, Toguan Bay, Guam (T. Allen); C. *Stethojulis trilineata*, terminal phase, 2 m depth, Faifai Beach, Guam (B. Tibbatts); D. *Parapercis fuscolineata*, 328 m, Santa Rosa Reef, EX1605L1, dive 02 (NOAA Ocean Exploration); E. *Parapercis schauinslandi*, 24 m depth, Toguan Bay, Guam (T. Allen).

PINGUIPEDIDAE (SANDPERCHES)

Parapercis fuscolineata Fourmanoir, 1985. Recorded from a depth of 328 m in 9.0°C water at Santa Rosa Reef (EX1605L1, dive 02; 12.732°N, 144.274°E; Fig. 21D). Identified by the color pattern of yellowish above with a broad dark stripe though the eye, ending in a large dark spot on the upper caudal base, and white below. Reported from depths of 170 to 355 m. Known from the Philippines, southern Japan, Solomon Islands, Vanuatu, and New Caledonia.

Parapercis schauinslandi (Steindachner, 1900). Recorded from Guam by Myers (1999) based on photographs taken by T. Allen at a depth of 24 m off Toguan Bay (Fig. 21E). As these were not available in time for inclusion in that work, a photograph taken at Bali was used instead. Subsequently photographed off Saipan by H. Kimura. Identified by its distinctive color pattern of large, square, red spots in offset rows that may form diagonal bars. South Africa to Pitcairn, north to southern Japan and Hawaiian Islands, south to New Caledonia.

HEMEROCOETIDAE

Pteropsaron longipinnis Allen & Erdmann, 2012. Recorded from Saipan in the family Percophidae as "unid. genus sp. A" by Myers & Donaldson (2003) on the basis of a photograph taken at a depth below 50 m by H. Kimura (Fig. 22A). Smith & Johnson (2007) assigned the percophid subfamily Hemerocoetinae, which includes *Pteropsaron*, within the family Trichonotidae, but subsequent phylogenetic analysis by Thacker et al. (2015) showed that it is more distantly related and they elevated the subfamily to family status, now placed in the Order Acropomatiformes.Visual identification based on the appearance being identical to *P. longipinnis*, identified by its nearly uniform, opalescent-white color with a series of 11 or 12 pale-brown spots along the back and a red patch on top of the eyes. Sexually dimorphic, the first dorsal fin of males is extremely long and filamentous, while that of females is considerably shorter and black except for the basal fifth. Also photographed at Palau by H. Nagano. Described from specimens collected at Cenderawasih Bay, West Papua and Lembata Island, Indonesia.

Pteropsaron sp. Recorded from a depth of 256 m in 19.0°C water at Farallon de Medinilla (EX1605L1, dive 17; 16.133°N, 146.079 °E; Fig. 22B). An unidentified species clearly distinct from *P. longipinnis* on the basis of visible features.

PERCOPHIDAE (DUCKBILLS)

Chrionema chryseres Gilbert, 1905. Recorded from depths of 307–411 m in waters of 10.3–15.0°C, at Santa Rosa Reef (EX1605L1, dive 02; 12.732°N, 144.275°E; Fig. 22C), Zealandia Bank (EX1605L1, dive 12; 16.900°N, 145.898°E), Supply Reef (20.154°N, 145.105°E), and Ahyi Seamount (EX1605L3, dive 06; 20.432°N, 145.028°E). Identified visually by numerous short yellow streaks and blotches. Distinguished from the similar *C. chlorotaenia* by having only a slightly dusky, instead of black, upper lip and membrane between the first two dorsal-fin spines (Iwamoto & Staiger 1976, Nakabo 2002). A rariphotic and upper bathyal species that occurs as shallow as 183 m in the Hawaiian Islands (Randall 2007). Widespread but known from few specimens from the Philippines, Taiwan, southern Japan, Papua New Guinea, New Caledonia, and the Hawaiian Islands.

TRIPTERYGIIDAE (TRIPLEFINS)

Enneapterygius cheni Wang, Shao & Shen, 1996. Reported here on the basis of photographs taken at a depth of 4 m off Piti, Guam by DRB and posted on the website guamreeflife.com (Fig. 22D). Identification provisional pending collection of specimens. We follow Shibukawa et al. (2004) and Chiang & Chen (2008) in recognizing *E. cheni* as distinct from *E. niger*, with the latter confined to the southern hemisphere. Northern Luzon through Taiwan and the Ryukyu Islands to southern Japan and presumably also Pohnpei and the Marianas in Micronesia.

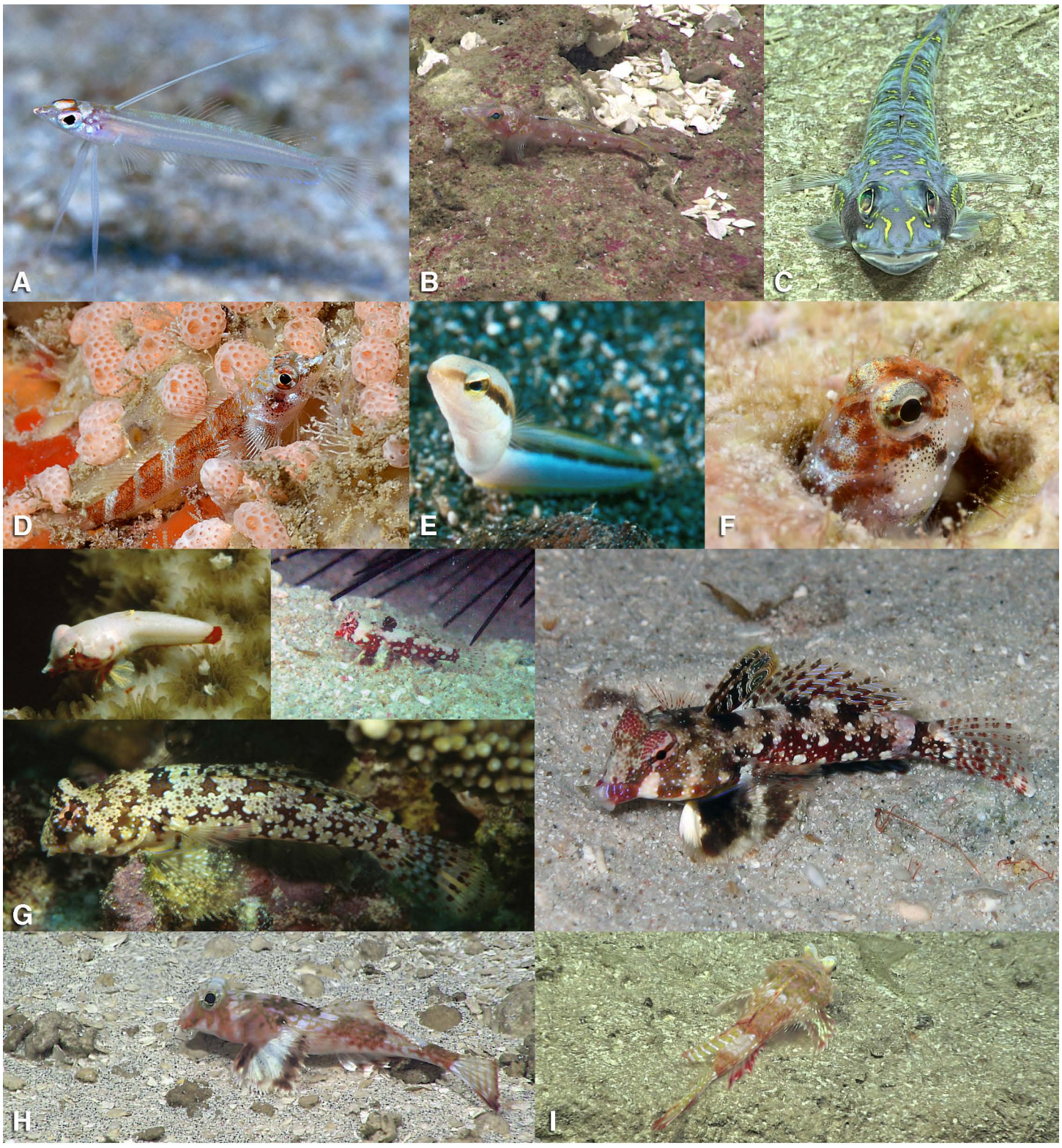

Figure 22. A. *Pteropsaron longipinnis*, approximately 5 cm TL, 60 m depth, The Grotto, Saipan (H. Kimura); B. *Pteropsaron* sp., 256 m depth, Farallon de Medinilla, EX1605L1, dive 17 (NOAA Ocean Exploration); C. *Chrionema chryseres*, 307 m depth, Santa Rosa Reef, EX1605L1 dive 02 (NOAA Ocean Exploration); D. *Enneapterygius cheni*, approximately 2.5 cm TL, 4 m depth, Piti, Guam (D. Burdick); E. *Aspidontus dussumieri*, 24 m depth, off Toguan Bay, Guam (T. Allen); F. *Nanosalarias nativittatus*, about 6 m depth, Tanguisson Pt., Guam (D. Burdick); G. *Synchiropus moyeri* (clockwise from upper left): newly recruited juvenile, approximately 1 cm TL, 10 m depth, Wing Beach, Saipan (H. Kimura); juvenile approximately 2 cm TL, Guam (J. Boggs); young male approximately 4 cm TL, Guam (C. Ordelheid); male approximately 5 cm TL with first dorsal fin folded, 5 m depth, Tanapag, Saipan (H. Kimura); H. *Synchiropus* sp. cf *orstom*, 443 m depth, Farallon de Medinilla, EX1605L1 dive 17 (NOAA Ocean Exploration); I. *Synchiropus* sp., 348 m depth, Santa Rosa Reef, EX1605L1 dive 02 (NOAA Ocean Exploration).

BLENNIIDAE (BLENNIES)

Tribe Nemophini

Aspidontus dussumieri (Valenciennes, 1836). Recorded from Guam based on sightings by T. Allen (Myers & Donaldson 2003), subsequently photographed at a depth of 24 m off Toguan Bay (Fig. 22E). Easily distinguished from its only congener, *A. taeniatus*, by its shorter snout, near-terminal mouth, and color pattern. Red Sea and South Africa to the Tuamotu Islands, north to southern Japan, south to New Caledonia.

Tribe Salariini

Nanosalarias nativittatus (Regan, 1909). Photographed at a depth of about 6 m off Tanguisson Point, Guam by DRB and posted on the website guamreeflife.com (Fig. 22F) as *Glyptoparus delicatulus*. Identified by details of color including the absence of the distinctive narrow, dark, oblique streak behind the eye, a feature visible on correctly identified *G. delicatulus* on websites. Andaman Islands to American Samoa, north to southern Japan, south to New Caledonia.

CALLIONYMIDAE (DRAGONETS)

Synchiropus moyeri Zaiser & Fricke, 1985. Recorded from the Marianas on the basis of a photograph taken at a depth of 5 m off Tanapag, Saipan by H. Kimura (Myers & Donaldson 2003), as well another of a tiny recruit that we provisionally identify as this species, and a juvenile and young adult subsequently photographed at Guam by J. Boggs and C. Ordelheid (Fig. 22G). Based on available photographs, newly recruited juvenile *S. moyeri* and *S. ocellatus* are either visually indistinguishable or those of the latter may have been misidentified. Adults are less similar in appearance to *S. ocellatus* and tend to be predominantly red instead of brown, with males bearing a pair of small ocelli near the top of the sail-like first dorsal fin rather than three or four. A better visual character is needed due to the variable nature of dorsal-fin patterns of males. Bali and Philippines to Papua New Guinea, north to southern Japan, south to the Great Barrier Reef.

Synchiropus cf. *orstom* Fricke, 2000. Recorded from a depth of 443 m at Farallon de Medinilla (EX1605L1, dive 17; 16.137°N, 146.080°E; Fig. 22H). Most closely resembles *S. orstom* Fricke, 2000, a species thus far known only from the Norfolk Ridge and New Hanover at depths of 370 to 496 m (R. Fricke, pers. comm.).

Synchiropus sp. An unidentified species recorded from a depth of 348 m in 8.3°C water at Santa Rosa Reef (EX1605L1, dive 02; 12.732°N, 144.273°E; Fig. 22I). Identification confirmed by R. Fricke (pers. comm.). Other images that may also represent this species were taken at a depth of 243 m in 14.5°C water in the crater of Esmeralda Bank (EX1605L1, dive 19; 14.961°N, 145.263°E) and in the Line Islands.

GOBIIDAE (GOBIES)

Subfamily Gobionellinae

Awaous ocellaris (Broussonet, 1782). Known from Guam based on specimens collected in the Bile River by B.T. (Fig. 23A) and from Saipan based on an underwater photograph by H. Kimura. Identification provisional, as the genus is in need of revision. Small individuals have a characteristic white-edged, black ocellus at the rear base of the dorsal fin that becomes reduced to a small spot in large males. In fresh and brackish waters. India to the Society Islands, north to southern Japan, south to the Austral Islands.

Figure 23. A. *Awaous ocellaris*, putative young female about 4 cm TL, from Bile River, Guam (B. Tibbatts); B. *Amblyeleotris arcupinna*, approximately 10 cm TL, 25 m depth, Laulau, Saipan (H. Kimura); C. *Amblyeleotris latifasciata*, approximately 8 cm TL, 25 m depth, Laulau, Saipan (H. Kimura); D. *Amblyeleotris ogasawarensis*, 24 m depth, Toguan Bay, Guam (T. Allen); E. *Amblyeleotris periophthalma*, adult (left) and newly settled juvenile, 21 m depth, Toguan Bay, Guam (T. Allen); F. *Amblyeleotris wheeleri*, 24 m depth, Toguan Bay, Guam (T. Allen); G. *Amblyeleotris yanoi*, approximately 7 cm TL, 25 m depth, Laulau, Saipan (H. Kimura); H. *Cristatogobius lophius*, Umatac Bay, Guam (T. Allen).

Subfamily Gobiinae

Fossorial goby species, shrimp-associated:

Amblyeleotris arcupinna Mohlmann & Munday, 1999. Initially recorded from the Mariana Islands as *Amblyeleotris* sp. A in an appendix list (Myers 1999, p. 302) and later as *Amblyeleotris* n. sp. A (Myers & Donaldson 2003) based on a photograph taken at a depth of 25 m off Laulau, Saipan by H. Kimura (Fig. 23B) and at a depth of 24 m off Toguan Bay, Guam by T. Allen (image not available). Visually identified by a dark arc-shaped mark on the first dorsal fin. South Africa and Comoro Islands to Papua New Guinea, north to the Philippines.

Amblyeleotris latifasciata Polunin & Lubbock, 1979. Recorded from Saipan (Myers & Donaldson 2003) based on a photograph taken at a depth of 25 m off Laulau by H. Kimura (Fig. 23C). Identified visually by its unique color pattern. The occurrence of this species at Saipan was unexpected given its apparent absence at Palau and other points between the Marianas and East Indian region. Andaman Islands to West Papua, north to the Philippine and south to the Lesser Sunda Islands.

Amblyeleotris ogasawarensis Yanagisawa, 1978. Recorded from Guam by Myers & Donaldson (2003) based on photographs taken by T. Allen at a depth of 24 m off Toguan Bay (Fig. 23D) and from Saipan on the basis of a photograph taken by H. Kimura and verified by RFM. Visually most similar to *A. steinitzi*, differing by usually having narrow dusky bars on the upper parts of pale interspaces, a pale upper caudal-fin margin and lacking tiny yellow spots on the dorsal fin, features that may not be apparent in young or unusually pale individuals. Philippines to the Ogasawara Islands, north to southern Japan, Line Islands, and Milne Bay, Papua New Guinea,

Amblyeleotris periophthalma (Bleeker, 1853). Recorded from Guam by Myers & Donaldson (2003) based on a photograph taken by T. Allen at a depth of 21 m off Toguan Bay (Fig. 23E). Identified by its unique color pattern. Uncommon at depths below 20 m in the Marianas. Gulf of Oman and East Africa to the Samoa Islands and Tonga, north to southern Japan, south to New Caledonia.

Amblyeleotris wheeleri (Polunin & Lubbock, 1977). First listed from Guam by Myers (1999) who used a photograph taken at Palau to illustrate the species. Its presence is verified here on the basis of photographs taken at a depth of 24 m off Toguan Bay by T. Allen (Fig. 23F). Randall (2004) regarded *A. wheeleri* as a synonym of the superficially similar *A. fasciata* (Herre, 1953) and described *A. katherine* for the narrow-barred species from the Pacific Islands. The inadequate description of *A. fasciata* by Herre (1953), which lacked an illustration, combined with the temporary loss of the type specimen contributed to this confusion. Hoese & Larson (2006) corrected this by resurrecting *A. wheeleri* from the synonymy of *A. fasciata* and regarding *A. katherine* as a synonym of *A. fasciata*, and Randall & Jaafar (2009) further clarified the distinction. The two species differ on the basis of pelvic-fin structure and details of coloration. *Amblyeleotris wheeleri* has relatively broad red bars and small blue as well as yellow spots in the interspaces whereas *A. fasciata* lacks blue spots. The width of its red bars is usually narrower than those of *A. wheeleri,* but in some individuals they may be as broad. Future work including the collection of tissue samples is desirable as *A. wheeleri* has not yet been collected in the Marianas. The two species are sympatric only in the insular west Pacific from Micronesia to American Samoa and Tonga. Widespread Indo-west Pacific from the Red Sea and South Africa to American Samoa and Tonga, north to southern Japan, south to New Caledonia. *Amblyeleotris fasciata* occurs farther east to the Tuamotu Islands and south to Niue and the Austral Islands and a photograph taken at Maug by V. Brown extends its range to the far northern Marianas.

Amblyeleotris yanoi Aonuma & Yoshino, 1996. Recorded from Saipan (Myers & Donaldson 2003) based on a photograph taken by H. Kimura (Fig. 23G). Identified by diffuse broad orange bars and broad, blue-edged oblique yellow bands on the caudal fin. Bali and Philippines to Papua New Guinea and Fiji, north to southern Japan and Micronesia.

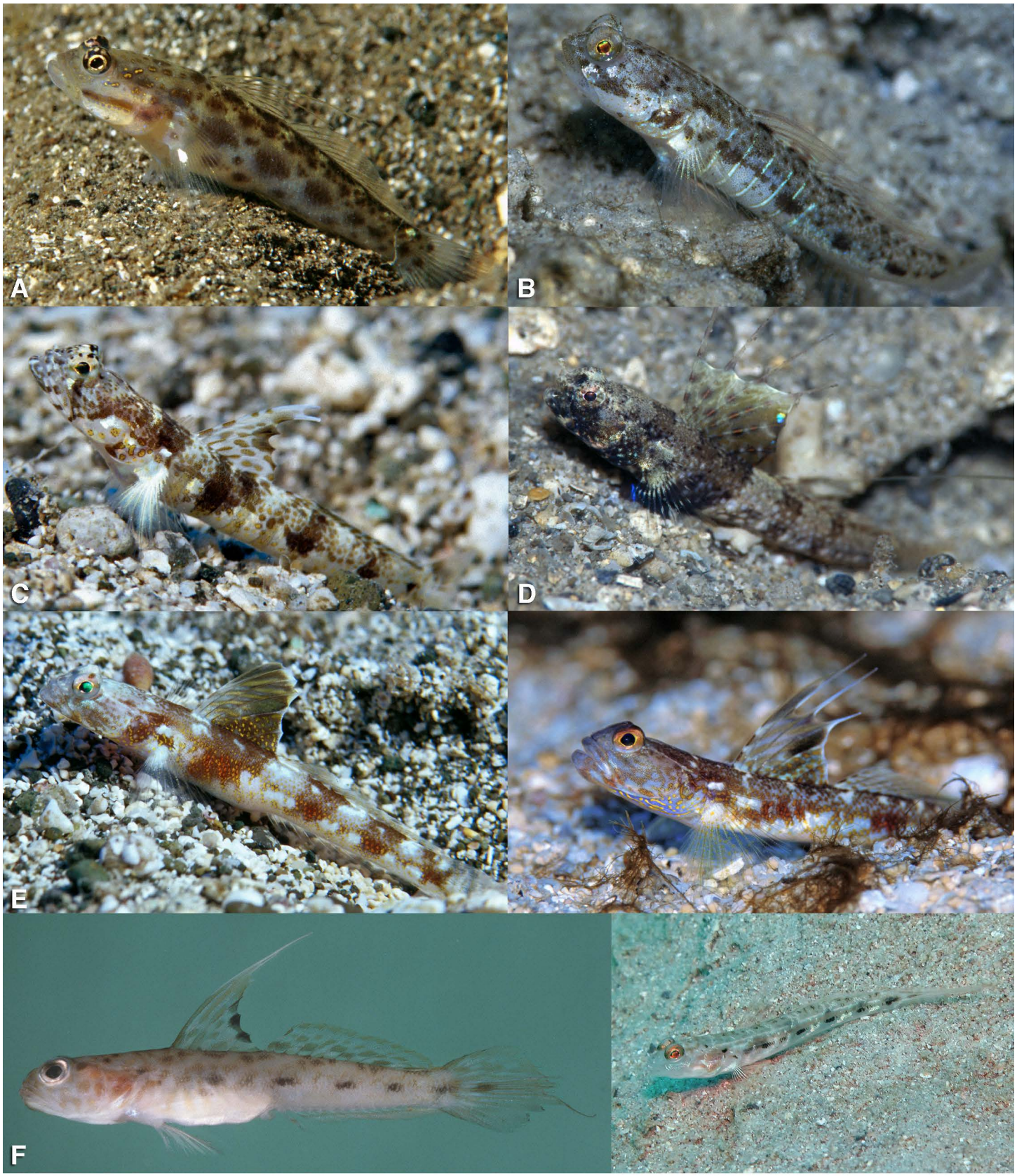

Figure 24. A. *Ctenogobiops mitodes*, male, site unknown, Guam (T. Allen); B. *Psilogobius prolatus*, putative male approximately 3 cm TL, 2 m depth, Tanapag, Saipan (H. Kimura); C. *Tomiyamichthys alleni*, 24 m depth, Toguan Bay, Guam (T. Allen); D. *Tomiyamichthys nudus*, approximately 4 cm TL, 20 m depth, Laulau, Saipan (H. Kimura); E. *Tomiyamichthys* sp. A, putative female, 24 m depth, Toguan Bay, Guam (left; T. Allen) and putative male, 25 m depth, Laulau, Saipan (H. Kimura); F. *Tomiyamichthys tanyspilus*, BPBM 37218, 31 mm SL, from 27 m depth (left; J. E. Randall) and 18 m depth, Apra Harbor, Guam (V. Bonito).

Cristatogobius lophius Herre, 1927. Photographed by T. Allen in Umatac Bay, Guam (Fig. 23H) and from a depth of 2 m in a man-made channel in Apra Harbor by J. Boggs. Identified by a distinctive fleshy crest in front of the first dorsal fin. Inhabits burrows constructed by an alpheid shrimp in soft bottoms of estuaries and coastal waters near river mouths. Gulf of Thailand and Borneo north to the Yaeyama Islands and east to Palau, Pohnpei, and Guam.

Ctenogobiops mitodes Randall, Shao & Chen, 2007. Recorded from Guam as *C. aurocingulus* based on a photograph by T. Allen (Myers & Donaldson 2003) and subsequently reidentified as *C. mitodes* (Fig. 24A). Differs from *C. pomastictus* Lubbock & Polunin by having an elongate second dorsal-fin spine as an adult, 46–52 scales in longitudinal series on the body instead of 55 or more, and one instead of two rows of dark spots on the cheek. Re-examination of photographs from Guam revealed that most initially identified as *C. pomastictus* are actually *C. mitodes*, indicating that the latter is the more common of the two. Known from the South China Sea (Pratas Reef) and Flores, across Micronesia and New Guinea to Fiji, south to New Caledonia.

Psilogobius prolatus Watson & Lachner, 1985. Recorded from Saipan (Myers & Donaldson 2003) based on a photograph taken by H. Kimura (Fig. 24B). Subsequently photographed at a depth of about 10 m in Apra Harbor, Guam by DRB and posted on the website guamreeflife.com. Identification provisional pending collection of specimens. Published photographs show that the three described species of *Psilogobius* have similar color patterns consisting of a mid-lateral series of dark blotches on the sides with additional, usually smaller, dark blotches above, and 3 to 7 narrow white bars on the anterior sides behind the pectoral fin, which may be faint or broken up to nearly absent in subadults and females. The first dorsal fin of male *P. mainlandi* is tall and sail-like without any spines being produced into a filament whereas the first dorsal fin of adults of both sexes in the other two species is pointed or produced into a filament consisting of the second or third dorsal-fin spines. In all individuals photographed in the Marianas, as well as Palau and Majuro, where the first dorsal fin is extended, it is pointed or filamentous. *P. prolatus* is known from the Cocos-Keeeling Islands, Ryukyu Islands and Great Barrier Reef; *P. mainlandi* from the Hawaiian Islands and *P. randalli* from the Red Sea.

Tomiyamichthys alleni Iwata, Ohnishi & Hirata, 2000. Recorded from Guam and Saipan (Myers & Donaldson 2003) based on photographs taken by T. Allen at a depth of 24 m off Toguan Bay (Fig. 24C) and by H. Kimura at a depth of 25 m off Laulau (not saved), respectively. Erroneously recorded as *T. oni* from Guam and Saipan (Myers & Donaldson 2003) and from Palau (Myers 1999, Plate 154E) where it is sympatric with *T. oni*. Also photographed at Majuro. Identified by a triangular first dorsal fin with the first 2 spines longest and a distinctive pattern of dark brown spots, many with gold centers. Andaman Sea to Fiji, north to southern Japan, south to Bali and Flores in Indonesia.

Tomiyamichthys nudus Allen & Erdmann, 2012. Recorded from Saipan as *Flabelligobius* sp. B (Myers & Donaldson 2003) based on a photograph taken at a depth of 20 m off Laulau by H. Kimura (Fig. 24D). Identified by its sail-like dorsal fin with the first 4 spines extending as filaments. An unexpected range extension to an insular location. Otherwise known from Brunei, Sabah, northeastern Kalimantan, Raja Ampat Islands, and Papua New Guinea.

Tomiyamichthys sp. A. Recorded from Guam and Saipan as *Flabelligobius* sp. A and *Tomiyamichthys oni* (Myers & Donaldson 2003) on the basis of photographs taken at a depth of 24 m off Toguan Bay by T. Allen (Fig. 24E left) and at a depth of 25 m off Laulau by H. Kimura (Fig. 24E right), respectively. Also photographed at Palau (Myers 1999, Plate 154F) and Majuro by S. Yoshi. Identified by a distinctive shape and color pattern of the first dorsal fin with the second through fourth spines filamentous in males, combined with a color pattern of large brown blotches with patches of tiny yellow spots and larger, irregular, pale spots dorsally on sides. An undescribed species currently designated as *Tomiyamichthys* sp. 2 by Allen & Erdmann (2012), and by Shibukawa & Iwata who are revising the genus. Otherwise known from the Ryukyu Islands, Bali, and Samoa.

Figure 25. A. *Vanderhorstia dorsomacula*, approximately 5 cm TL, 25 m depth, Laulau, Saipan (H. Kimura); B. *Acentrogobius suluensis*, Tanapag Harbor, Saipan (H. Kimura); C. *Asterropteryx spinosa*, site unknown, Guam. Photograph by T. Allen); D. *Bathygobius coalitus*, site unknown, Guam (J. Boggs); E. *Bryaninops yongei*, site unknown, Guam (T. Allen); F. *Callogobius flavobrunneus*, two views of the same fish, 5 m depth, Piti, Guam (D. Burdick); G. *Callogobius hasseltii*, two views of the same fish, about 10 m depth, Outhouse Beach, Apra Harbor, Guam (D. Burdick); H. *Discordipinna vibrissa*, about 25 mm SL, 13 depth, Apra Harbor, Guam (P. Hackney); I. *Drombus triangularis*, Umatac Bay, Guam (T. Allen).

Tomiyamichthys tanyspilus Randall & Chen, 2009. Known from Guam on the basis of one specimen collected from a depth of 27 m in Apra Harbor by J.E. Randall and another individual photographed there at a depth of 18 m by V. Bonito (Fig. 24F). A species closley related to *T. lanceolatus* that is identified by a lanceolate caudal fin, a series of dark dashes on the sides, and ctenoid scales posteriorly. The fish in photographs taken in Palau identified as *Vanderhorstia lanceolata* (Myers 1999, Plate 155H & I) may also be this species. Otherwise known from eastern Indonesia (Flores and West Papua) and Timor Leste.

Vanderhorstia dorsomacula Randall, 2007. Recorded from Saipan as *Vanderhorstia* n. sp. C (Myers & Donaldson 2003) based on a photograph taken at a depth of 25 m off Laulau by H. Kimura (Fig. 25A). Identified by its distinctive color pattern, with the female having a dark spot in the middle of the first dorsal fin. Bali and Philippines to New Britain and Marshall Islands (Majuro), north to the Ryukyu Islands.

Non-fossorial goby species:

Acentrogobius suluensis (Herre, 1927). Reported from Guam and Saipan (Myers & Donaldson 2003), based on photographs taken in Umatac Bay by T. Allen and Tanapag Harbor by H. Kimura (Fig. 25B), respectively. Identified by the series of 4 dark blotches and the caudal-peduncular spot contained within a pair of narrow, parallel, dark, mid-lateral lines. Inhabits fine sand and mud bottoms of protected inshore waters. Rodrigues and Bali to Fiji and Rapa, north to the Ryukyu Islands.

Asterropteryx spinosa (Goren, 1981). Photographed at Guam by T. Allen (Fig. 25C). Although the full-resolution photograph and scans are presumed lost, enough features are visible in this low-resolution image to identify it as this widespread species with a reasonable degree of confidence. Visually identified by the combination of color pattern, body shape, and elongate second dorsal-fin spine. Seychelles to Tonga, north to southern Japan, south to New Caledonia.

Bathygobius coalitus (Bennett, 1831). Photographed at Guam by J. Boggs (Fig. 25D). Identification provisional based on features visible in the photograph. Inhabits rocky tidal pools. South Africa to the Hawaiian and Marquesas Islands, north to southern Japan, south to New Caledonia.

Bryaninops yongei (Davis & Cohen, 1969). Reported from Guam (Myers & Donaldson 2003), based on a photograph taken by T. Allen (Fig. 25E). Subsequently observed during underwater surveys at a depth of 25 m off Orote Peninsula and Neji Island by TJD. Lives exclusively on the whip coral *Cirrhipathes anguina*. Red Sea and East Africa to the Hawaiian Islands and Rapa, north to southern Japan, south to New Caledonia.

Callogobius flavobrunneus (Smith, 1958). Photographed at a depth of 5 m off Piti, Guam by DRB and posted on the website guamreeflife.com as *C.* cf. *sclateri* (Fig. 25F). Identification provisional and based on color pattern features visible in the photographs. Red Sea and East Africa to the Great Barrier Reef, north to the Ryukyu Islands.

Callogobius hasseltii (Bleeker, 1851). Photographed at a depth of about 10 m in Apra Harbor, Guam by DRB and posted on the website guamreeflife.com as *C.* cf. *hasseltii* (Fig. 25G). Identification is based on color-pattern features visible in the photographs. India and Sri Lanka to the Phoenix Islands and Tonga, north to the southern Japan, south to the Great Barrier Reef.

Discordipinna vibrissa Allen & Erdmann, 2024. Recorded from Guam based on photographs taken of at least two individuals at a depth of 13 m off "Outhouse Beach" in Apra Harbor, Guam by P. Hackney (Fig. 25H). At least one photograph of a younger individual taken at the same Guam location has been posted on social media, indicating that this small cryptic species has at least a small population in the area. Otherwise known from the Ryukyu Islands, Malaysia (Mabul), Indonesia (Sulawesi and Raja Ampat Islands), Papua New Guinea (Milne Bay), and Fiji.

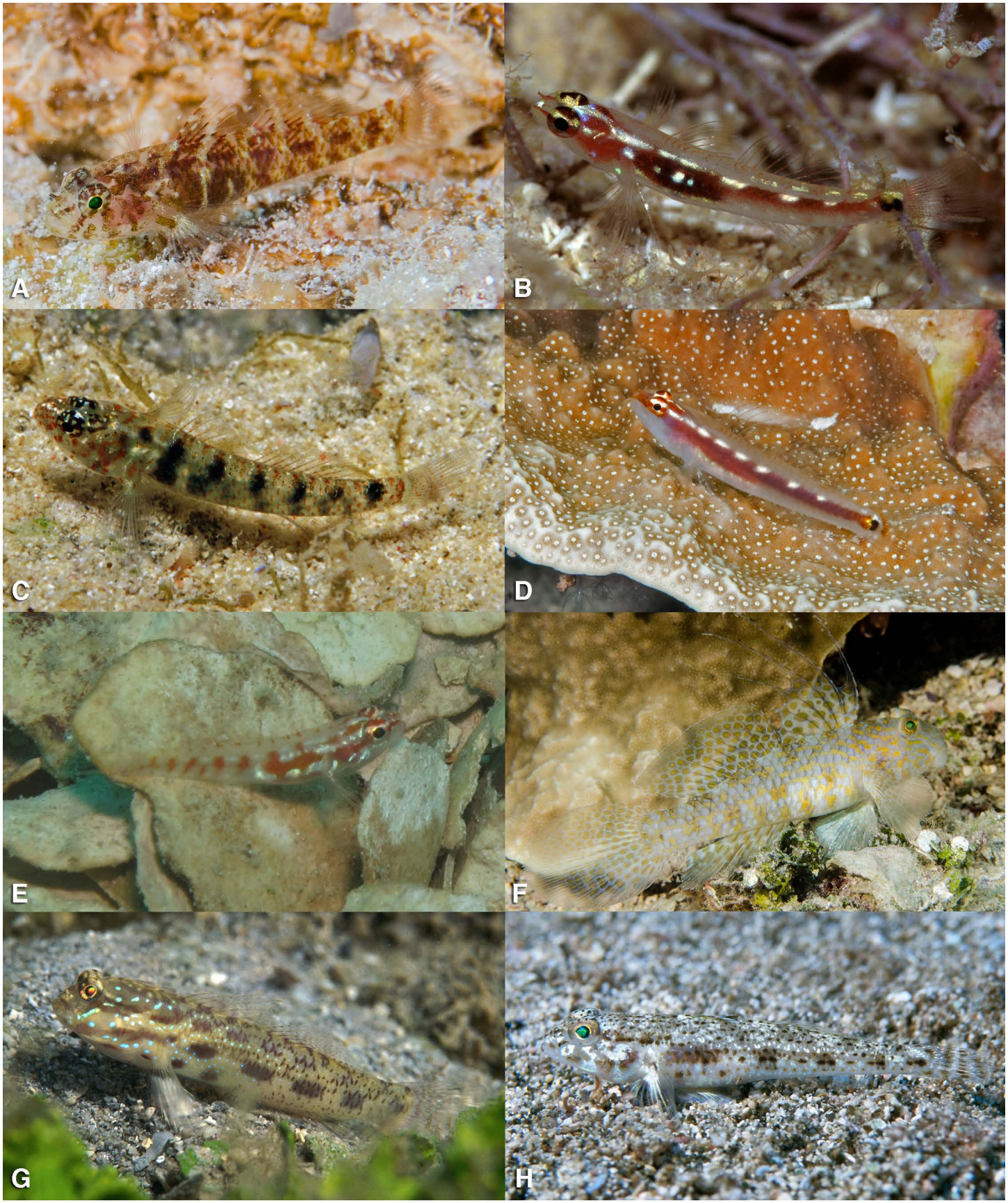

Figure 26. A. *Eviota korechika*, about 25 mm TL, 8 m depth, Outhouse Beach, Apra Harbor, Guam (D. Burdick); B. *Eviota oculineata*, Saipan (upper; H. Kimura); C. *Eviota prasina*, approximately 2 cm TL, tidal pool, eastern coast of Saipan (H. Kimura); D. *Eviota punyit*, 10 m depth, Apra Harbor, Guam (R. F. Myers); E. *Eviota sigillata*, different individuals, Apra Harbor, Guam (V. Bonito); F. *Exyrias akihito*, approximately 10 cm TL, 15 m depth, Apra Harbor, Guam (D. Burdick); G. *Gladiogobius brevispinis*, site not given, Guam (T. Allen); H. *Hazeus maculipinna*, outer Umatac Bay, Guam (T. Allen).

Drombus triangularis (Weber, 1909). Photographed in Umatac Bay, Guam by T. Allen (Fig. 25I). Resembles a *Bathygobius* except it lacks filamentous upper pectoral-fin rays and it tends to have more fine pale spots and pale blotches than most *Bathygobius*. Inhabits fine sand to mud bottoms of reef flats, bays, seagrass flats, and mangrove areas. East Africa to Queensland, north to the Philippines and Palau.

Eviota korechika Shibukawa & Suzuki, 2005. Reported from Guam on the basis of a photograph taken at a depth of 8 m in Apra Harbor, Guam by DRB and posted on the website guamreeflife.com (Fig. 26A). Identified by its distinctive pattern of dusky brown bars on the head, a pair of brown bands on the pectoral-fin base, dark scale margins, and 2 or 3 rows of dark spots on the first dorsal fin of males. Sri Lanka, Brunei, and Philippines to New Ireland, north to the Ryukyu Islands, south to northwestern Australia.

Eviota oculolineata Tornabene, Greenfield & Erdmann, 2021. Reported from Saipan as *E. cometa* (Myers & Donaldson 2003) on the basis of a photograph taken by H. Kimura (Fig. 26B) and subsequently photographed in Apra Harbor, Guam by V. Bonito (not shown, on file woth RFM). Identified by the combination of a brown mid-lateral stripe with white dashes on its dorsal edge, ending in a black hour-glass-shaped mark, the eye with yellow stripes, and 3–5 white spots above the anal-fin base. Inhabits sand bottoms of coral reefs. Formerly included with the genetically distinct *Eviota cometa* which has red eyes without yellow stripes and may be restricted to silty habitats in Fiji and Tonga (Tornabene et al. 2021). Bali and Philippines to Tonga, north to the Ryukyu Islands, south to the Loyalty Islands.

Eviota prasina (Klunzinger, 1871). Reported from Saipan (Myers & Donaldson 2003) based on a photograph taken by H. Kimura (Fig. 26C). Identification provisional, visually distinguished in life from *E. distigma* by having a more-dorsally located caudal-peduncular spot, less-prominent vertically aligned twin spots at the base of the pectoral fin and inconspicuous red spots rather than larger, prominent, dark spots along the base of the dorsal fins. Inhabits nearshore algae-covered rubble and dead-reef areas. Red Sea to Loyalty Islands, north to southern Japan and Cheju-do (Korea), south to Elizabeth and Middleton Reefs.

Eviota punyit Tornabene, Erdmann & Pezold, 2016. Photographed at a depth of 10 m in Apra Harbor, Guam (Fig. 26D). Identified by a reddish-brown, mid-lateral band with a series of white dashes along its upper edge, a few white spots below, and a black spot partially outlined in white on the caudal peduncle. Recently distinguished from the very similar and broadly sympatric *E. sebreei* based on molecular as well as color differences (Tornabene et al. 2016). Red Sea and Comoro Islands to American Samoa, north to the Ryukyu Islands, south to New Caledonia.

Eviota sigillata Jewett & Lachner, 1983. Photographed by V. Bonito (Fig. 26E) and observed by RFM in Apra Harbor, Guam. Although the resolution is poor, the photographs depict a fish that appears to be visually identical with *E. sigillata* from Palau and elsewhere. Identity should be confirmed by collection of specimens. Widespread in the Indo-Pacific from Madagascar to Tonga, north to the Ryukyu and Ogasawara Islands, south to the Great Barrier Reef.

Exyrias akihito Allen & Randall, 2005. Photographed at a depth about 15 m at the base of the coral slope of Dogleg Reef, Apra Harbor, Guam by DRB (Fig. 26F). Easily distinguished from *E. bellissimus* by color pattern as well as more deeply incised first-dorsal-fin membranes. Bali and Philippines to Papua New Guinea and Marshall Islands (Myers et al., in prep), north to the Yaeyama Islands, south to the northern Great Barrier Reef.

Gladiogobius brevispinis Shibukawa & Allen, 2007. Recorded from Guam as *G. ensifer* (Myers & Donaldson 2003) based on photographs taken by T. Allen (Fig. 26G). Subsequently photographed by DRB and posted on the website guamreeflife.com as *G. ensifer*. Distinguished from *G. ensifer* by having a pale blue diagonal streak sometimes slightly "S" shaped rather than tiny spots below the eye (the central part of this streak is very pale in the example shown). Java, Bali, Hainan, Yaeyama Islands, and from Palau to Chuuk and Guam in Micronesia.

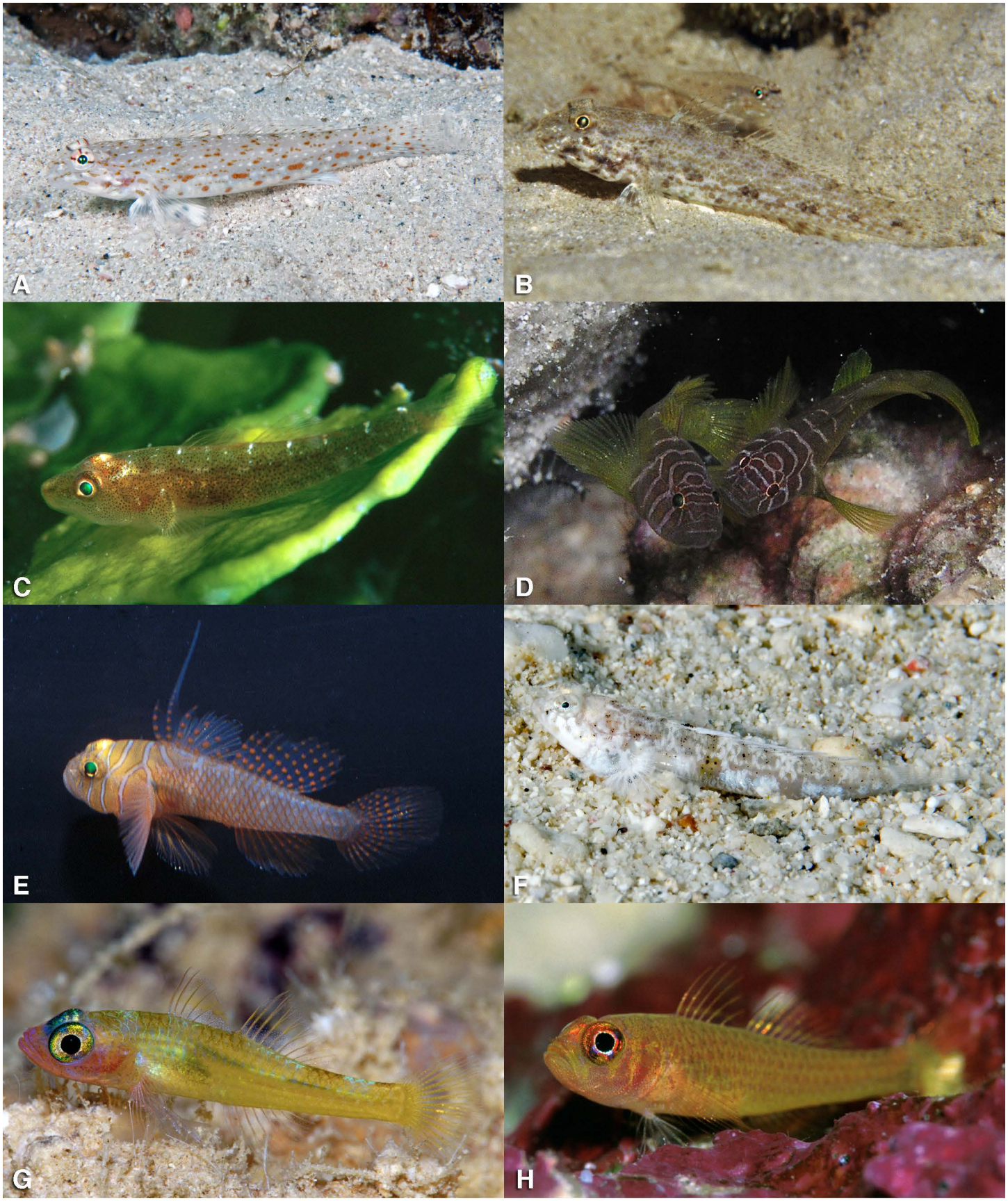

Figure 27. A. *Istigobius rigilius*, 4 m, Tepungan Channel, Guam (R. F. Myers); B. *Macrodontogobius wilburi*, Apra Harbor, Guam (T. Allen); C. *Pleurosicya mossambica*, 18 m depth, Umatac, Guam (T. Allen); D. *Priolepis semidoliata*, Guam, site unknown (J. Boggs); E. *Priolepis vexilla*, collected specimen, 3 to 13 m depth, Apra Harbor, Guam (T. Allen); F. *Silhouettea capitlineata*, approximately 3 cm TL, 3 m depth, off Piti, Guam (D. Burdick); G. *Trimma fasciatum*, approximately 3 cm TL, 3 m depth, The Grotto, Saipan (H. Kimura); H. *Trimma milta*, approximately 2 cm TL, 15 m depth, The Grotto, Saipan (H. Kimura).

Hazeus maculipinna Randall & Goren, 1993. Photographed off Umatac, Guam by T. Allen (Fig. 26H). Based on features visible in the photograph, this species closely matches the the fish identified as *H. maculipinna* in Allen & Erdmann (2024, p. 1127). Visually distinguished from the largely sympatric *H. profusus* by having horizontal rows of dark spots on the upper body. Otherwise known from the Maldives, Philippines, and West Papua.

Istigobius rigilius (Herre, 1953). Photographed in Apra Harbor and Tepungan Channel, Guam by T. Allen and RFM (Fig. 27A). Identified visually by a combination of orange and small white spots vs. darker brown spots in most other *Istigobius*. Pratas Reef (South China Sea), northeastern Borneo and Philippines to Tonga, north to the Ryukyu Islands, south to New Caledonia.

Macrodontogobius wilburi Herre, 1936. Recorded from Guam (Myers & Donaldson 2003) based on photographs taken by T. Allen (Fig. 27B). The fish photographed in Palau used to depict this species in Myers (1999, Plate 162F) is *Ancistrogobius dipus*. Identified by a dense network of brown spots forming a honeycomb pattern, several pairs of darker brown spots along the mid-lateral scale row, and a darker-brown patch on cheek. Red Sea to American Samoa and the Line Islands, north to the Ryukyu Islands, south to Lord Howe Island.

Pleurosicya mossambica Smith, 1959. Reported from Guam and Saipan (Myers & Donaldson 2003), based on photographs taken at a depth of 18 m off Umatac by T. Allen (Fig. 27C). Identified by a dense sprinkling of tiny dark spots and areas of white spots and short streaks along the back and sides. Red Sea and South Africa to Tonga and the Marquesas Islands, north to southern Japan, south to Lord Howe Island.

Priolepis semidoliata (Valenciennes, 1837). Photographed at Guam by J. Boggs and DRB at a depth of 5 m off Piti, Guam (Fig. 27D) and Saipan by H. Kimura (pers. comm.). Identification is based on a comparison with the color patterns of specimens positively identified as this species. The specimen that is the basis of the original Guam record (Kami 1971) should be re-examined in light of the numerous similar species that have been described since then, with some based in part on material originally identified as *P. semidoliata*. Widespread from the Red Sea to the Pitcairn group, north to southern Japan and Johnston Atoll, south to Norfolk and the Austral Islands.

Priolepis vexilla Winterbottom & Burridge, 1993. Collected from a depth of 3 to 13 m in Apra Harbor, Guam and photographed alive by T. Allen (Fig. 27E). Subsequently photographed by DRB at a depth of about 8 m off Outhouse Beach, Apra Harbor, and posted as *Priolepis* cf. *inhaca* on the website guamreeflife.com. Identified by a combination of narrow pale bars and curved lines on the head, dark-edged scales on the body, small orange spots on the vertical fins, and an elongate second dorsal-fin spine. Found in crevices. Otherwise known only from Mauritius, Indonesia, and the Philippines.

Silhouettea capitlineata Randall, 2008. Reported here based on a photograph taken at a depth of 2–3 m off Piti, Guam by DRB (Fig. 27F). Identification provisional pending collection of a specimen. Distinctive among the region's marine gobiids by the combination of upturned eyes, a dorsal fin with a large black spot and partial white margin and by having more soft anal-fin rays (12) than dorsal-fin rays (10 or 11). The color pattern of white blotches and scattered small black spots of various sizes also closely matches that of a paratype (Randall 2008; Fig. 6). Previously known only from the Marshall Islands (Enewetak and Majuro), and recently discovered at Ayau Atoll, West Papua (Allen & Erdmann 2024).

Trimma fasciatum Suzuki, Sakaue & Senou, 2012. Reported from Saipan as *Trimma* n. sp. K (Myers & Donaldson 2003) based on photographs taken by H. Kimura at a depth of 3 m in the Grotto (Fig. 27G) and as *Trimma* sp. (Hayashi & Shiratori 2003, Suzuki et al. 2012). In life, primarily yellow with a pinkish-red head and pale blue highlights around the head, eyes, and scale margins forming three broad saddles to bars. Known otherwise from Palau, Kume-jima (Ryukyu Islands), West Papua, and Christmas Island (Indian Ocean).

Figure 28. A. *Trimma xanthum*, depth not given, The Grotto, Saipan (H. Kimura); B. *Gunnellichthys curiosus*, 18 m depth, Toguan Bay, Guam (T. Allen); C. *Gunnellichthys viridescens*, Toguan Bay, Guam (T. Allen); D. *Ptereleotris rubristigma*, approximately 13 cm TL, 25 m depth, Laulau, Saipan (H. Kimura); E. *Platax pinnatus*; subadult, 30 m depth, seaplane ramp, Apra Harbor, Guam (J. Seisa); F. *Acanthurus maculiceps*, 2 m depth, Merizo, Guam (B. Tibbatts); G. *Acanthurus mata*, 18 m depth, Toguan Bay, Guam (T. Allen); H. *Naso caeruleacauda*, 12 m depth, Outhouse Beach, Apra Harbor, Guam (D. Burdick); I. *Naso lopezi*, from a catch of speared fish landed at Agat, Guam (B. Tibbatts).

Trimma milta Winterbottom, 2002. Reported from Saipan as *Trimma* n. sp. A (Myers & Donaldson 2003) based on a photograph taken at a depth of 15 m in the Grotto by H. Kimura (Fig. 27H). Yellow to orange with an orange-red anterior head; may have a silvery-blue iris with an oblique dark band on either side. Secretive within crevices of coral rock walls and rubble at depths of 9 to 26 m. Sulawesi and Philippines to the Society Islands, north to the Yaeyama and Hawaiian Islands, south to the Loyalty Islands.

Trimma xanthum Winterbottom & Hoese, 2015. Reported from Saipan as *Trimma* sp. D (Myers & Donaldson 2003) based on photographs taken by H. Kimura in the Grotto (Fig. 28A). Relatively deep-bodied, differs from the similar *Trimma sheppardi* by lacking a distinct dark spot on the upper edge of the operculum and in details of the color pattern on the head. Known from Timor Sea (Ashmore Reef), Palau, Marshall Islands, and Fiji, but likely more widespread (Winterbottom & Hoese 2015).

MICRODESMIDAE (WORMFISHES and DARTFISHES)

Subfamily Microdesminae (Wormfishes)

Gunnellichthys curiosus Dawson, 1968. Reported from Guam and Saipan (Myers & Donaldson 2003) based on a photograph taken at a depth of 18 m off Toguan Bay, Guam by T. Allen (Fig. 28B) and others taken off Saipan by H. Kimura that were examined but not scanned. Identified by broad orange mid-lateral and mid-dorsal stripes, the former ending in a black spot with pale blue upper and lower edges. Hovers above a burrow in sand and rubble bottoms in areas exposed to currents. Kenya to the Hawaiian and Society Islands, north to southern Japan and south to New Caledonia.

Gunnellichthys viridescens Dawson, 1968. Reported from Saipan (Myers & Donaldson 2003) based on a photograph taken by H. Kimura. Also photographed off Toguan Bay, Guam by T. Allen (Fig. 28C). Identified by a blue-edged orange stripe running from the lower jaw through the eye and along the upper side and through the middle of the caudal fin. Hovers above a burrow in sand and rubble in areas exposed to currents. Arabian Gulf and Comoro Islands to American Samoa, north to southern Japan and south to New Caledonia.

Subfamily Ptereleotrinae (Dartfishes)

Ptereleotris rubristigma Allen, Erdmann & Cahyani, 2012. Reported from Guam and Saipan as *Ptereleotris* sp. A (Myers & Donaldson 2003) based on photographs taken by T. Allen and by H. Kimura, respectively, with the latter taken at a depth of 25 m off Laulau, Saipan (Fig. 28D). Identified by bluish-grey color with broad dark band on lower sides extending to mid caudal fin, red spot on the pectoral-fin base, a rounded caudal fin, and a filamentous second-dorsal-fin spine. *Ptereleotris brachyptera* has a red bar at the pectoral-fin base but low first dorsal fin with no filamentous spines. Hovers over sand-rubble bottoms of seaward reef slopes at depths of 15 to 60 m. Otherwise known from Bali and West Papua, Indonesia.

EPHIPPIDAE (SPADEFISHES)

Platax pinnatus (Linnaeus, 1758). Reported here based on a photograph of a subadult taken at a depth of 30 m off the seaplane ramp in Apra Harbor, Guam by Jasper Seisa on 31 May 2022 (Fig. 28E). Identified by remnants of the distinctive juvenile color phase remaining along the front margin of the pelvic fins, combined with a convex snout profile. The strikingly distinctive juveniles have never been reported in the Mariana Islands despite being easily identifiable. This occurrence is likely the result of a rare recruitment event from islands to the southwest where it occurs from Palau to Ifalik. Widespread in the Indo-west Pacific from eastern Africa to Vanuatu and New Caledonia, north to southern Japan, south to southeastern Australia.

Figure 29. A. *Naso minor*, below 30 m depth, Orote Point (left; T. Allen) and at 17 m depth off Talofofo Bay, Guam (D. Burdick); B. *Naso thynnoides*, approximately 20 m depth, Farallon de Pajaros (A. Gray); C. *Scomberomorus commerson*, 135 cm FL, Talofofo Bay, Guam (L. Raymundo); D. *Epinnula pacifica*, 613 mm FL, fished from 213 m depth off Haputo, Guam (N. Flores); E. *Rexea* sp. cf *nakamurai*, 353 m depth, Uracas, EX1605L3, dive 05 (NOAA Ocean Exploration); F. *Benthodesmus* sp., hovering vertically in a head-up posture, 630 m depth, Zealandia Bank, EX1605L1, dive 12 (NOAA Ocean Exploration); G. *Antigonia capros*, 311 m depth, Santa Rosa Reef, EX1605L1, dive 02 (left) and 335 m depth, Maug, EX1605L3, dive 03 (NOAA Ocean Exploration); H. *Antigonia* sp. A, 300 m depth, Santa Rosa Reef, EX1605L1, dive 02 (NOAA Ocean Exploration).

ACANTHURIDAE (SURGEONFISHES and UNICORNFISHES)

Subfamily Acanthurinae (Surgeonfishes)

Acanthurus maculiceps (Ahl, 1923). Initially reported from Guam as a sighting (Myers & Donaldson 2003), confirmed here on the basis of a photograph taken by BT at a depth of 2 m off Merizo, Guam (Fig. 28F). Easily identified by its unique color pattern featuring distinct white spots on the face that become smaller and morph into narrow wavy pinstripes posteriorly along the sides. Widespread but generally uncommon from the Maldives to the Line Islands with waifs reported from the Hawaiian Islands, north to southern Japan and south to New Caledonia.

Acanthurus mata Cuvier, 1829. Recorded from Guam (Myers & Donaldson 2003) based on a photograph taken by T. Allen at a depth of 18 m off Toguan Bay (Fig. 28G). Identified by the shape of a yellowish patch through the eye and narrow dark stripes, more prominent in small individuals. Unusual for the genus by aggregating high in the water column and feeding primarily on zooplankton. Several small individuals were observed on more than one occasion by T. Allen. Often overlooked due to its propensity to swim away from the observer and resemblance to other species when viewed from a distance. Red Sea and South Africa to the Line, Marquesas, and Society Islands, north to southern Japan, south to Elizabeth and Middleton Reefs, Australia.

Subfamily Nasinae (Unicornfishes)

Naso caeruleacauda Randall, 1994. Photographed at a depth of about 12 m off Outhouse Beach, Apra Harbor, Guam by DRB (Fig. 28H) and posted on the website guamreeflife.com. A hornless unicornfish identified by its single small keel-like caudal blade and near-truncate blue caudal fin. Easily overlooked due to its habit of schooling with other superficially similar species. Madagascar and East Andaman Sea to Papua New Guinea, north to the Philippines, south to the Great Barrier Reef.

Naso lopezi Herre, 1927. Recorded from Guam (Myers & Donaldson 2003) based on a photograph taken by T. Allen and presumed lost. Subsequently captured on video by SJL at a depth 73 m off Rota and photographed among a catch of speared fish landed at Agat, Guam (Fig. 28I). Identified by a narrow fusiform body, pale lower sides, and numerous small dark spots dorsally. A schooling planktivore of outer reef slopes below 20 m. Andaman Sea at Similan Islands (Myers 1999, Plate 177A) to Tonga, north to southern Japan, south to New Caledonia.

Naso minor (Smith, 1966). Recorded from Guam (Myers & Donaldson 2003) based on a photograph taken off Orote Point by T. Allen and subsequently photographed at a depth of 17 m off Talofofo Bay, Guam by DRB (Fig. 29A, left & right respectively). A small *Naso* identified by single caudal spine surrounded by dark patch, yellow caudal fin and abruptly pale lower half. Solitary or in small groups that swim in mid-water and feed on zooplankton. Often overlooked due to its small size and propensity to swim away from the observer. Eastern Africa to the Solomon Islands, north to Taiwan, and south to the Great Barrier Reef.

Naso thynnoides (Valenciennes, 1835). Initially recorded from specimens collected at Guam and Tinian by Myers & Donaldson (2003). Reported here from Farallon de Pajaros at the far northern end of the Marianas based on a photograph taken by A. Gray (Fig. 29B). East Africa to the Tuamotu Archipelago, north to southern Japan and Johnston Atoll, and south to the Great Barrier Reef and Tonga.

SCOMBRIDAE (TUNAS and MACKERELS)

Scomberomorus commerson (Lacepède, 1800) Recorded from Guam based on a 135-cm FL specimen caught by hook and line from a kayak in Talofofo Bay Guam on 5 August 2023. The fish was caught by surface lure in about 15 m of water by Jason Boyd and was photographed and measured (Fig. 29C). Often confused with

the narrower-bodied, less compressed wahoo (*Acanthocybium solandri*) by divers. The first Micronesian record outside of the Palau Islands where common. Generally solitary along outer reef slopes from the surface to a depth of 200 m. Red Sea and South Africa to Wallis and the Samoa Islands, north to southern Japan, south to eastern Australia and Tonga.

GEMPYLIDAE (SNAKE MACKERELS)

Epinnula pacifica Ho, Motomura, Hata & Jiang, 2017. Recorded from Guam based on a 613-mm FL specimen fished from a depth of 213 m off Haputo by Nate Flores (Fig. 29D). Identification is based on visible features including position of bifurcating lateral line that runs close to the upper and lower sides of the body, length of the pectoral fin, and shape of the soft dorsal and anal fins; also attains a much larger size than *Neoepinnula orientalis*, the only other species in the area with a similar body shape and lateral line pattern. Likely benthomesopelagic with a known depth range of 185 to 300 m. Otherwise known from Taiwan, southern Japan, northern New Zealand, and Hawaii.

Rexea cf. *nakamurai* Parin, 1989. Recorded from a depth of 353 m in 15.4°C water at Uracas (EX1605L3, dive 05; 20.432°N, 145.028°E; Fig. 29E). Identification to species not possible, the visible features most similar to *R. nakamurai* but also consistent with *R. prometheoides*. Species of *Rexea* are epi- and mesobenthopelagic over rock and sand bottoms. The most likely candidate, *R. nakamurai*, is known from the Mascarene Plateau, Sumatra, Kyushu-Palau Ridge, and Hawaiian Islands in 90 to 420 m and *R. prometheoides* is known from upper continental slopes of the western Pacific in 200 to 550 m.

TRICHIURIDAE (CUTLASSFISHES)

Benthodesmus sp. Two individuals were recorded from depths of 630 and 639 m in 6.4°C water at Zealandia Bank (EX1605L1, dive 12; 16.903°N, 145.899°E; Fig. 29F). Identification to species not possible without specimens. These are the first records of this family from the Marianas. Included here because several species in this genus may occur in as little as 200 m, and *Benthodesmus oligoradiatus* in as little as 100 m.

ANTIGONIIDAE (BOARFISHES)

Antigonia capros Lowe, 1843. Recorded from depths of 311 to 354 m in 10.3–15.2°C water at Santa Rosa Reef (EX1605L1, dive 02; 12.732°N, 144.275°E) and Maug (EX1605L3, dive 03; 20.050°N, 145.232°E; Fig. 29G). Identification is based on dorsal and anal soft-ray counts of approximately 35 and 32–33, respectively (exact count not resolved) as seen in the photographs here. Other videos of what appear to be the same species but of insufficient resolution to determine fin-ray counts were taken at depths of 311 to 363 m in 9.7–15.2°C water at Santa Rosa Reef (EX1605L1, dives 01 and 02; 12.732°N, 144.275°E; 12.855°N, 144.306°E), Esmeralda Bank (EX1605L1, dive 18; 15.032°N, 145.223°E; 15.032°N, 145.224°E), Zealandia Bank (EX1605L1, dive 12; 16.899°N, 145.897°E), Pagan (EX1605L3, dive 02; 18.1781°N, 145.818°E), and Supply Reef (EX1605L3, dive 06; 20.153°N, 145.105°E). The barred pattern seen in life may be lost in death, making the general appearance of photographed specimens misleading (Randall 2007). In life, very similar in appearance to *Antigonia eos* Gilbert, 1905 as depicted in photographs and video, but that species has fewer soft dorsal and anal-fin rays (30–33 and 28–30, respectively). *Antigonia eos* is known only from the Hawaiian Islands and Emperor Seamounts at depths of 19 to 600 m. *Antigonia capros* is cosmopolitan in temperate and tropical seas at depths of 50 to 900 m. Gill & Leis (2019) resurrected the family Antigoniidae for this genus, finding that its inclusion in the Caproidae rendered that family non-monophyletic.

Antigonia sp. A. Recorded from a depth of 300 m in 11.2°C water at Santa Rosa Reef (EX1605L1, dive 02; 12.732°N, 144.276°E; Fig. 29H). Identification to species not possible without a specimen, but pale-yellow color

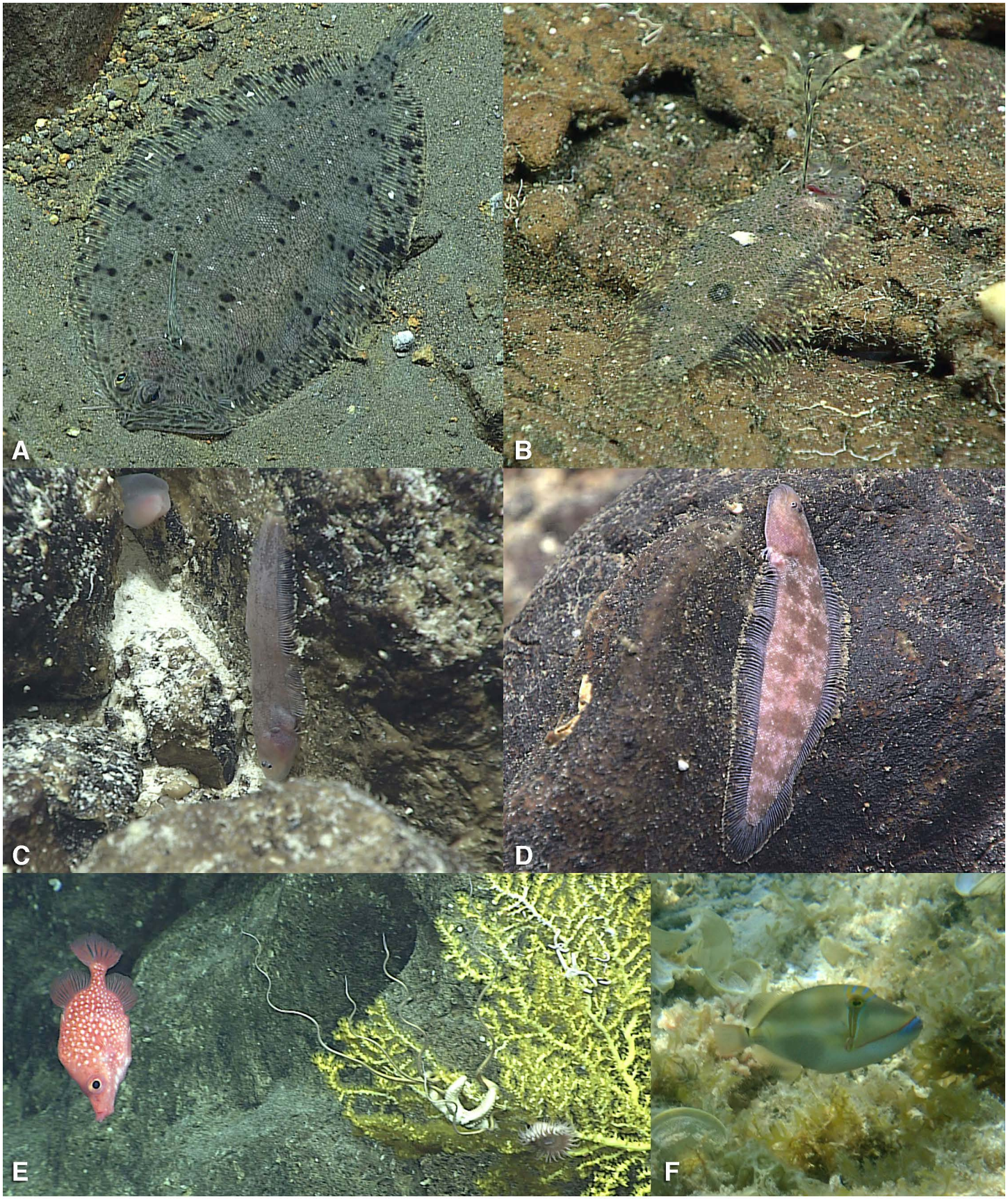

Figure 30. A. *Kamoharaia megastoma*, 281 m depth, Uracas, EX1605L3, dive 05 (NOAA Ocean Exploration); B. *Samariscus* sp., 309 m depth, Supply Reef, EX1605L3, dive 06 (NOAA Ocean Exploration); C. *Symphurus* sp. A, 574 m depth, Santa Rosa Reef, EX1605L1, dive 02 (NOAA Ocean Exploration); D. *Symphurus* sp. B, 495 m depth, Esmeralda Bank, EX1605L1, dive 18 (NOAA Ocean Exploration); E. *Hollardia goslinei*, 473 m depth, Santa Rosa Reef, EX1605L1, dive 01 (NOAA Ocean Exploration); F. *Rhinecanthus verrucosa* juvenile, 1 m depth, Family Beach, Apra Harbor, Guam (B. Tibbatts).

is distinctive. This may have been a xanthic individual of *A. capros,* but that cannot be determined from the image. Myers & Donaldson (1996) identified a 44-mm SL specimen of *A. malayana* from Guam based on fin-ray and scale counts [DVIII,29; AIII, 26; P 13 (11, ii); LS 61; GR 4+12] but the live color was not seen.

BOTHIDAE (LEFTEYE FLOUNDERS)

Kamoharaia megastoma (Kamohara, 1936). Recorded from a depth of 281 m in 16.8°C water at Ahyi Seamount (EX1605L3, dive 05; 20.435°N, 145.031°E; Fig. 30A). Identified by the characteristic jaw morphology and color pattern. Otherwise known from southern Indonesia, northwestern Australia, the Philippines, Vanuatu, Taiwan, and southern Japan at depths of 15 to 800 m.

SAMARIIDAE (CRESTED FLOUNDERS)

Samariscus sp. Recorded from a depth of 309 m in 16.1°C water at Supply Reef (EX1605L3, dive 06; 20.152°N, 145.105°E; Fig. 30B). This individual, a male with a raised pectoral fin, exhibits a color pattern very similar to that of *S. triocellatus* Woods, 1966, matching the positions of dark ocelli and pale blotches on the eyed surface, but differs in the poorly developed basicaudal ocellus. We hesitate to call it *S. triocellatus* because all known occurrences of that species are from coral reef environments of less than 30 m. It remains curious, however that the widespread *S. triocellatus* is known from Palau and the Marshall Islands but remains otherwise unrecorded for the Marianas. *S. triocellatus* is known from South Africa to the Hawaiian Islands and Pitcairn Group, north to the Izu Islands, south to Elizabeth and Middleton Reefs (off eastern Australia).

CYNOGLOSSIDAE (TONGUE SOLES)

Symphurus sp. A. Recorded from a depth of 574 m in 6.0°C water at Santa Rosa Reef (EX1605L1, dive 02; 12.732°N, 144.269°E; Fig. 30C). Light brown without distinct blotches, spots, or bars. Identifications of *Symphurus* species are not possible without the collection of specimens. Two other species in the region are distinctively blotched. The only positively identified species, *S. thermophilus* Munroe & Hashimoto, 2008, has a series of dark irregular blotches or crossbands on its dorsal surface. It is known from depths of 239 to 733 m in the vicinity of hydrothermal vents in the Marianas (21.3°N, 144.2°E at 414 m, 15.7°C water), Ogasawara, and Kermadec Islands. An astonishing 15,312 *S. thermophilus* were observed in depths of 353–433 m in 12.1–15.1°C water inside the active volcanic crater of Daikoku Seamount (EX1605L3, dive 09; 21.325°N, 144.192°E), the location from which the species had been previously reported. No other fish species were observed at that site and it was the only location where *S. thermophilus* was seen.

Symphurus sp. B. Two individuals were recorded from depths of 528 and 495 m in 7.2–7.3°C water at Esmeralda Bank (EX1605L1, dive 18; 15.029°N, 145.223°E; Fig. 30D). Pale pinkish tan with irregular darker blotches on dorsal surface, vertical fin rays pale with pale yellow tips. Identification to species is not feasible without the collection of specimens.

TRIACANTHODIDAE (SPIKEFISHES)

Hollardia cf. *goslinei* Tyler, 1968. Recorded from a depth of 473 m at Santa Rosa Reef (EX1605L1, dives 01 and 02; 12.857°N, 144.306°E) and from 286 and 650 m at Zealandia Bank (EX1605L1, dive 12; 16°53′N, 145°51′E; Fig. 30E). It is identified by a distinctive pattern of white spots on a red background. The identification to species is provisional because it is not known if the population in the Hawaiian Islands is the same species as the populations in the Marianas and other central Pacific island groups. Known from the Hawaiian Islands at depths of 275 to 515 m, with additional observations by submersible and ROV from Wake Atoll, the Phoenix Islands seamounts, Jarvis Island, Palmyra Atoll, Kingman Reef, and Johnston Atoll.

Figure 31. A. *Xanthichthys mento* female, Farallon de Pajaros (A. Gray); B. *Cantherhines fronticinctus*, 30 m depth, Blue Hole, Guam (T. Allen); C. *Pervagor aspricaudus*, approximately 7 cm TL, 15 m depth, near Grand Hotel, Saipan (H. Kimura); D. *Sphoeroides pachygaster*, hook and line from a depth of about 120 m off Hagåtña, Guam (B. Wong).

BALISTIDAE (TRIGGERFISHES)

Rhinecanthus verrucosa (Linnaeus, 1758). Observed and photographed at a depth of 1 m off Family Beach, Apra Harbor, Guam (Fig. 30F). It is identified by the distinctive dark blotch on the lower side behind the pectoral fin. Inhabits shallow protected nearshore reefs to a depth of 20 m. More common along continental coasts than on oceanic reefs. Indo-west Pacific from eastern Africa to New Caledonia, north to southern Japan.

Xanthichthys mento (Jordan & Gilbert, 1882). Observed and photographed at a depth of about 20 m off Farallon de Pajaros by by A. Gray (Fig. 31A). It is identified by its distinctive sexually dimorphic color pattern. A planktivore of seaward slopes at depths of 6 to 131 m, but generally below 30 m at lower latitudes. Antitropical from southern Japan, Minami-tori-shima, Wake Atoll, Hawaiian Islands, Clipperton Atoll and Revillagigedo Islands north to southern California in the northern Pacific and Rapa, Pitcairn group, and Easter Island in the southeastern Pacific.

MONACANTHIDAE (FILEFISHES; LEATHERJACKETS)

Cantherhines fronticinctus (Günther, 1867). Initially recorded from Guam based on a sighting by RFM. (Myers 1988) detailed in Myers & Donaldson (1996). Subsequently photographed by T. Allen at a depth of about 30 m in the Blue Hole, Guam (Fig. 31B). It is identified visually by converging dusky stripes that may be obscured by mottled shades of brown. Inhabits steep seaward reef slopes, typically in deeper water than the other two *Cantherhines* species known from the Marianas. Northeastern South Africa to Tonga, north to southern Japan, and south to Lord Howe Island.

Pervagor aspricaudus (Hollard, 1854). Recorded from Saipan (Myers & Donaldson 2003) based on a photograph taken at a depth of 15 m south of the harbor near the former Grand Hotel (now Crowne Plaza Hotel) by H. Kimura (Fig. 31C). It is visually identified by a yellow-orange posterior region and caudal fin, an orange ring around the outer portion of the eye, and the absence of a dark bar through the gill opening. Often overlooked due to its secretive nature and its close resemblance to other species. Comoro Islands to the Hawaiian and Society Islands, north to southern Japan, south to New Caledonia and the Austral Islands.

TETRAODONTIDAE (PUFFERS)

Sphoeroides pachygaster (Müller & Troschel, 1848). Caught by hook and line from a depth of about 120 m off Hagatna, Guam by B. Wong (Fig. 31D). It is greyish brown with slightly darker irregular blotches and pale ventrally. Ranges in depth from 10 to 480 m but usually below 115 m and occasionally caught by deep-water bottom fishing in Palau, where they are discarded as handling them causes itching, maybe a symptom of severe toxicity (M. Thijssen-Etpison, pers. comm.). These are the first documented occurrences in Micronesia. Otherwise known from scattered, primarily continental localities across the tropical and subtropical Indo-Pacific and Atlantic Oceans.