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RESEARCH ARTICLE

Intertidal fishes of La Réunion, southwestern Indian Ocean, with special reference to tidal pools

Ronald Fricke[1], Christophe Cadet[2] & Jean-Pascal Quod[3]

Abstract

Intertidal fishes may be very abundant and play an important role in their ecosystems, but knowledge of their ecology is still very limited in many tropical regions. Within this context, data for intertidal fishes at La Réunion, southwestern Indian Ocean, were compiled from different sources, and intertidal resident species were examined in tidal pools. A total of 323 fish species were reported from intertidal habitats, including 65 permanent intertidal resident species. Volcanic rock pools were dominated by two species, *Bathygobius fuscus* (Rüppell, 1830) and *Istiblennius edentulus* (Forster & Schneider in Bloch & Schneider, 1801). Their abundance increased with decreasing pool size, peaking in pools with a surface area between 1–2 m^2 during the lowest ebb-tide level. This 'overcrowding effect' may be linked to the absence of predators in these very small pools. Comparison of the present data with the results of a 1995–1999 survey in the same area suggests a decline of resident species during the last decades, probably linked to human influences such as eutrophication and water pollution. Approximately two-thirds of the intertidal species were shared with the neighbouring island of Mauritius, while one-third was different. This difference may be due to the dominance of relatively fresh lava rocks in the tidal pools of La Réunion, while the Mauritius tidal pools are dominantly formed by coralline rock or eroded lava rock. The studied tidal pool fish fauna also includes 22 new records of fishes from La Réunion: *Zebrasoma desjardinii* (Bennett, 1836) (family Acanthuridae); *Antennarius indicus* Schultz, 1964 (family Antennariidae); *Apogon dammermani* Weber & Beaufort, 1929 (family Apogonidae); *Atherinomorus pinguis* (Lacepède, 1803) (family Atherinidae); *Tylosurus melanotus* (Bleeker, 1850) (family Belonidae); *Entomacrodus vermiculatus* (Valenciennes, 1836), *Mimoblennius rusi* Springer & Spreitzer, 1978 and *Omobranchus elongatus* (Peters, 1855) (family Blenniidae); *Bathygobius meggitti* (Hora & Mukerji, 1936), *Cabillus lacertops* (Smith, 1959), *Eviota punyit* Tornabene, Valdez & Erdmann, 2016, *E. sodwanaensis* Greenfield & Winterbottom, 2016, *Fusigobius inframaculatus* (Randall 1994) and *F. pallidus* (Randall, 2001) (family Gobiidae); *Plicomugil labiosus* (Valenciennes, 1836) (family Mugilidae); *Gymnothorax pseudothyrsoideus* (Bleeker, 1853) (family Muraenidae); *Scarus rubroviolaceus* Bleeker, 1847 (family Scaridae); *Parascorpaena aurita* (Rüppell, 1838), *Scorpaenodes corallinus* Smith, 1957, *Scorpaenodes possi* Randall & Eschmeyer, 2002, and *Scorpaenopsis macrochir* Ogilby, 1910 (family Scorpaenidae); *Enneapterygius ventermaculus* Holleman, 2007 (family Tripterygiidae). *Plicomugil* Schultz, 1953 (Mugilidae) also represents a new genus record from La Réunion.

K e y w o r d s : fish inventory, intertidal fish residents, new records, Teleostei, tidal pools.

Zusammenfassung

Fische der Gezeitenzone können sehr zahlreich sein, und spielen in ihrem Ökosystem eine wichtige Rolle, aber in vielen tropischen Regionen ist ihre Ökologie wenig erforscht. In diesem Kontext wurden Daten der Fische der Gezeitenzone von La Réunion aus verschiedenen Quellen zusammengetragen, und die Arten in Gezeitentümpeln wurden genauer untersucht. Insgesamt wurden 323 Fischarten in der Gezeitenzone von La Réunion gefunden, darunter 65 permanente und obligatorische Bewohner. Vulkanische Gezeitentümpel wurden von *Bathygobius fuscus* (Rüppell, 1830) und *Istiblennius edentulus* (Forster & Schneider, in Bloch & Schneider 1801) dominiert. Sie waren in kleinen Gezeitentümpeln besonders häufig, besonders in Tümpeln mit einer Oberfläche von 1–2 m^2 bei extremem Niedrigwasser. Dieser 'Überbevölkerungseffekt' ist möglicherweise mit der Abwesenheit von Predatoren in diesen sehr kleinen Tümpeln korreliert. Ein Vergleich der aktuellen Daten mit einer Untersuchung in 1995–1999 weist auf einen Rückgang der permanenten Bewohner hin, der möglicherweise mit anthropogenen Einflüssen korreliert ist, wie Eutrophikation und Meeresverschmutzung. Im Vergleich mit der Nachbarinsel Mauritius sind etwa zwei Drittel der Gezeitenfischfauna zwischen den beiden Inseln identisch, während sich das restliche Drittel unterscheidet. Dieser Unterschied ist möglicherweise durch das Vorherrschen relativ frischer Lavatümpel in La Réunion begründet, während die Gezeitentümel in Mauritius vor allem aus korallinem Felsen oder erodierten Lavafelsen bestehen. Die Fauna der Gezeitentümpel enthält außerdem 22 Neufunde für La Réunion: *Zebrasoma desjardinii* (Bennett, 1836) (Familie Acanthuridae); *Antennarius indicus* Schultz, 1964 (Familie Antennariidae); *Apogon dammermani* Weber & Beaufort, 1929 (Familie Apogonidae); *Atherinomorus pinguis* (Lacepède, 1803) (Familie Atherinidae); *Tylosurus melanotus* (Bleeker, 1850) (Familie Belonidae); *Entomacrodus vermiculatus* (Valenciennes, 1836), *Mimoblennius rusi* Springer & Spreitzer, 1978 und *Omobranchus elongatus* (Peters,

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1855) (Familie Blenniidae); *Bathygobius meggitti* (Hora & Mukerji, 1936), *Cabillus lacertops* (Smith, 1959), *Eviota punyit* Tornabene, Valdez & Erdmann, 2016, *E. sodwanaensis* Greenfield & Winterbottom, 2016, *Fusigobius inframaculatus* (Randall 1994) und *F. pallidus* (Randall, 2001) (Familie Gobiidae); *Plicomugil labiosus* (Valenciennes, 1836) (Familie Mugilidae); *Gymnothorax pseudothyrsoideus* (Bleeker, 1853) (Familie Muraenidae); *Scarus rubroviolaceus* Bleeker, 1847 (Familie Scaridae); *Parascorpaena aurita* (Rüppell, 1838), *Scorpaenodes corallinus* Smith, 1957, *Scorpaenodes possi* Randall & Eschmeyer, 2002 und *Scorpaenopsis macrochir* Ogilby, 1910 (Familie Scorpaenidae); *Enneapterygius ventermaculus* Holleman, 2007 (Familie Tripterygiidae). *Plicomugil* Schultz, 1953 (Mugilidae) repräsentiert auch den Neufund einer Gattung aus La Réunion.

Introduction

Intertidal species occupy the narrow band of near-shore habitats between the tidemarks of seas and oceans (Horn et al. 1999). Fishes occurring in the intertidal zone represent numerous different families and constitute a rather inhomogeneous group. Some of these fishes visit the near-shore habitats only briefly, mainly to forage. Others inhabit the intertidal zone during part of their life cycle, e.g., the juvenile phase, whereas a third group of fishes having highly specific adaptations in terms of behaviour and physiology spend their entire life in intertidal habitats (Arndt & Fricke 2019).

In a first worldwide overview of intertidal fishes, Chotkowski et al. (1999) recorded 702 species representing 110 genera in one chondrichthyan and 20 teleost families. This large number of species is based mainly on the North Atlantic, northeastern Pacific, South African and New Zealand regions. Chotkowski et al.'s review included only one study each from the Western Central Atlantic, Indian Ocean, subtropical Australia, Central Indo-Pacific, and South-east Pacific, and two studies from the Eastern Indo-Pacific. The level of knowledge of intertidal fish communities in many tropical regions, e.g., in the Eastern tropical Atlantic and Western Indian Ocean, has not changed since then. Possible reasons for this limited knowledge are the low importance of intertidal fishes for fisheries, their occurrence in extremely shallow waters, their small size, and their sometimes secluded way of live. The species in question are rarely recognized by divers and hardly considered by shore visitors.

Furthermore, intertidal fishes are found in large numbers of species and may reach high abundances. Based on their quantitative occurrence, it can be inferred that they make an important contribution to the intertidal food web as herbivores or predators. Though quantitative analyses of food webs including intertidal fishes are still scarce, we know that the diversity of herbivores is higher in tropical zones than in temperate regions, and that intertidal fishes may have a strong influence on algal diversity and algal abundance in temperate as well as tropical areas (see Horn & Ojeda [1999] for a summary). For example, herbivorous fishes accounted for 20–30% of the fish communities in terms of abundance in temperate rocky reefs of Australia (Jones & Andrew 1990), and 20% of total intertidal fish abundance (or 51% of total fish biomass) in temperate Chile (Stepien 1990), while 81.6% of the fish biomass at a South African tropical intertidal reef consisted of herbivorous fishes and omnivorous fishes with a notable herbivorous portion of their diet (Berry et al. 1982). Bennett et al. (1983) concluded that intertidal fishes play an important role in material turnover in their ecosystems. More detailed knowledge of these communities, especially in tropical ecosystems, would provide a deeper insight on the ecology of marine shallow water environments. Since tidal pools, estuaries, and other intertidal habitats are located nearshore, they are vulnerable to human impacts such as eutrophication, pollution, disturbance, or habitat destruction. Therefore, better knowledge and monitoring of intertidal fishes would open new opportunities in applied ecology, e.g., by using these fishes as ecological indicators for environmental pollution and climate change.

In a detailed study of the intertidal fishes of Mauritius Island (situated 175 km northeast of La Réunion), a total of 292 intertidal species were reported (Arndt & Fricke 2019), including 62 permanent intertidal residents.

In this context and facing the lack of knowledge about these ecosystems in La Réunion island, the aim of the present study is to make available a first compilation of data on fish species occurring in the intertidal zone in La Réunion. Based on this spatially referenced species list, the intertidal resident species will be determined in this paper.

Study area

The island of La Réunion is located in the western Indian Ocean (Fig. 1), 685 km east of Madagascar, between 20°53′S and 21°23′S as well as between 55°12′E and 55°50′E. Together with Mauritius and Rodrigues, it forms the Mascarene Archipelago. La Réunion has a total shoreline of 215 km (Bourmaud et al. 2005) and has steep island slopes due to its relatively recent volcanic origin, allowing a small fringing coral reef area with a narrow lagoon only on parts of the west coast (Pichon 1971; Tourrand et al. 2013). The fringing reef is disrupted by rocky shores and cliffs. Sea surface temperatures vary seasonally, with a minimum mean surface temperature of 23.7 °C in August and a maximum of 27.7 °C in February (Tourrand et al. 2013), but can reach more than 31 °C on the reef flat (Cuet 1989). The dominant current patterns are from east to west, influenced by the southeast trade winds, which are stronger during the winter months than during the summer (Piton & Taquet 1992). Tides occur semi-diurnally, with a mean tidal range of 0.95 m during

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spring time and 0.1 m during neap time (Tourrand et al. 2013).

Despite its small size, La Réunion has a high diversity of coastal habitats. Beside sandy beaches, mostly connected to the reef lagoon, there are estuaries of 24 rivers and streams, including 13 permanent ones (Le Gourriérès 1961). Coastal parts directly exposed to wave action reveal gravel beaches or basaltic cliffs. The latter coastal sections comprise a number of tidal pools that represent, together with reef crest pools and estuaries, most of the intertidal habitats.

Characterization of tidal pool sites

Three groups of tidal pools were examined at 16 localities on the west, east, and south coasts of La Réunion island (Fig. 2). The tidal pools in Boucan-Canot (BC), L'Hermitage les Bains (HB), Trois-Bassins (TB), and Saint-Leu (SL) are located within the shallow lagoon (depth 0.1–2.0 m). In these areas, nearshore platforms of lava tuff substrate form shelves with crevices and pools, resulting in ranges of tidal pool habitats. During flood and ebb, the water streams moderately in and out of the pools, which are mostly characterized by sandy bottoms. The other pools directly face the open sea, and are thus exposed to stronger wave action. At these sites, the water streams in with more physical power during high tides. Among these, the pools at Grande Anse (GA) and Manapany-les-Bains (MB) are artificially created swimming pools in former tidal pool areas, which still function as natural tidal pools. Both of these were already in this condition in 1995, when the study started.

The pools were visited in September 1995 (RF), December 1998/January 1999 (RF), February 2020 (RF, JPQ), October/November 2022 (RF, JPQ), 2010–2022 (CC), and continuously from January 2016 to March 2023 as part of the CUMARO Phase 1 project (JPQ). The following characterization of the studied tidal pools refers to the condition in October/November 2022. Information concerning surface area and depth refers to the condition at the lowest ebb-tide level.

West coast

Cap de La Houssaye (CH) (Fig. 3). About 20 pools are located at the black volcanic rock point of Cap La Houssaye, a famous diving site close to the sandy bay of Saint-Paul. The three examined pools have a total surface of 800 m^2, mostly shallow (10 cm) except for the main pool below the cliff (maximum depth 1.2 m), with a bottom of bare black volcanic rock and boulders. The main pool receives water influx only from swells. Coordinates of the southern, principal pool: 21°01′5.86″S, 55°14′16.23″E.

Boucan-Canot (BC) (Fig. 4). Five shallow pools are located close to the artificial swimming pool on the rocky volcanic point (Cap Champagne), located on the sheltered side of the point, opposite the swell direction, with a total surface of 120 m^2 and a maximum depth of 20 cm. The bottom consists of black volcanic rock covered with brown algae (predominantly *Sargassum* spp.) and with a few live coral colonies. In summer, during low tide and poor swell conditions, these pools are strongly affected by heat stress. Coordinates of the southern, principal pool: 21°01′35.56″S, 55°13′33.32″E.

In addition, pools on the adjacent reef crest 130 m east-northeast of Cap Champagne were sampled at extremely low tide; these pools had a maximum depth of 1.2 m and a bottom of coralline rock and gravel, with live corals and few brown algae. Coordinates of the collection site: 21°01′34.78″S 55°13′36.14″E.

L'Hermitage les Bains (HB) (Fig. 5). The fringing reef of L'Hermitage-les-Bains is located on the west coast, comprising reef flats with tidal pools (with a depth of 0.1–0.5 m) which are isolated from the open sea during low tide. These habitats are considered as highly patrimonial, with diverse fish and invertebrate communities supported by live corals dominated by *Acropora* Oken, 1815 colonies and a bottom of carbonate gravel. They are now in the core zone of the Natural Marine Reserve of La Réunion (established 5 Mar. 2007) and can no longer be accessed. Coordinates of the examined pool: 21°04′44.67″S, 55°13′11.49″E.

Trois Bassins (TB) (Figs. 6–7). Located on the coast of Trois Bassins and close to a river mouth that seasonally releases fresh water into the ocean, this system comprises five connected pools which are separated from the open ocean by a volcanic rocky bar that allows swell to feed the pools with sea water (Fig. 6). This black volcanic pool complex is considered the most important and diverse on the west coast of La Réunion (unpublished data), with a total surface of 1,500 m^2. Various habitats are found here, including rocky flats that emerge at low tides, and deep pools with a depth of 3 m or more with a bottom of round boulders or hard substrate communities dominated by hard corals and macroalgae. Coordinates of the southern, principal pool: 21°07′35.28″S, 55°15′50.61″E.

A system of deep volcanic rock pools 1.6 km northwest of TB was also sampled (Fig. 7). The main pool consists of two basins, the first with a depth of 0.5 m at low tide, the second with a depth of 2.5 m. The shallower pool is covered by brown and green algae, the deeper pool has a substrate of black rock and gravel, the rocks covered by hard corals, macroalgae, and a few live corals (genus *Acropora*). Coordinates of the principal pool: 21°06′54.61″S, 55°15′17.71″E.

Pointe des Chateaux (PC) (Fig. 8). A large tidal pool is situated 100 m southeast of Pointe des Chateaux, approximately 2.4 km northwest of Saint-Leu. The examined pool has an estimated total surface of 170 m^2, with a maximum depth of 1.5 m; it continues with channels towards the reef crest of the fringing coral reef. The bottom consists of volcanic and coralline rock, boulders, gravel, brown algae, and dead and live corals. Coordinates of the principal pool: 21°09′01.29″S, 55°16′22.60″E.

Saint-Leu (SL) (Fig. 9). Rock pools were sampled 1.3 km south of Saint-Leu in 1995 and 2022; these pools were situated on a boulder field at the mouth of Ravine du Cap, on the reef flat near the end of the fringing reef, with a total surface of about 400 m^2, a depth of 10–30 cm, and a bottom of sand, gravel, and boulders. In 1995, they contained numerous sea urchins and were in sub-optimal condition, pointing to some degree of eutrophication from the former sugar factory at Stella Matutina; in 2022, the water and habitat quality appeared much improved. Coordinates of the main pool: 21°11′04.94″S 55°17′10.27″E (Fig. 9).

Another reef top pool area was sampled 1.6 km south of Saint-Leu in 1998; it was situated at the reef crest of the fringing reef, with a total surface of about 300 m^2 and a maximum depth of 1.2 m. The bottom consisted of volcanic and coralline rock, sand, gravel, few live corals, few algae, and hosted numerous sea urchins. Coordinates of sampled intertidal area: 21°11′15.33″S 55°17′10.90″E.

Pointe au Sel (PS) (Fig. 10). Several tidal pools are located on the northern side of Pointe au Sel, approximately 2.2 km south of Saint-Leu. The examined pools have a total surface of 60 m^2, are mostly shallow (10–30 cm depth) except for the main pool (maximum depth 1 m), and have a bottom of bare black volcanic rock, boulders, and black gravel, with little vegetation of brown macroalgae. The main pool receives a significant underground freshwater influx. Coordinates of the principal pool: 21°12′06.79″S, 55°16′51.97″E

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Etang Salé (ES) (Fig. 11). Located along an 800 m rocky shore close to Le Gouffre de l'Etang Salé, four main pools were examined during several explorations. These pools have a total surface area of 1100 m^2 and a maximum depth of 4 m at low tide. The pool bottoms are covered by bare rocky substrate with seasonal brown algae communities (dominated by *Cystoseira myrica*). The water flow in these pools strongly depends on swell conditions. On the opposite, northern side of Etang Salé lies a rocky point north of a black sandy beach, with a tidal pool of 2000 m^2 and a maximum depth of 50 cm at low tide. The bottom is covered with black sand or rubble, and rock substrate with coral and algal communities. Coordinates of the southern-central pool: 21°16′47.30″S, 55°20′19.24″E.

East coast

Sainte-Rose (SR). Small tidal pools were sampled 100 m east of Saint-Rose harbour. The total surface is estimated at 15 m^2, with maximum depths of 0.3 m. The pools are exposed to high surf throughout the year. The bottom consists of black volcanic substrate covered with few brown macroalgae. Coordinates of the main pool: 21°07′29.80″S, 55°47′21.33″E.

Pointe Corail (PC) (Fig. 12). Located on the volcanic southeast coast at Sainte-Rose, Pointe Corail is a 150 m long rocky point which harbours a complex of numerous tidal pools submitted to strong swell conditions most of the year. The total surface is estimated at 400 m^2, with depths of 0.1–0.5 m except the southern pool (1.2 m). The bottom consists of black volcanic substrate except the southern pool, where black sand has accumulated. Coordinates of the main pool: 21°08′21.12″S, 55°49′03.00″E.

Port Ango (PA) (Fig. 13). Located on the volcanic southeast coast at Sainte-Rose, Port Ango is a 180 m long rocky coastline with two complexes of numerous tidal pools separated by a rocky point, with a total surface estimated at 1,370 m^2. These pools are shallow (0.1–0.6 m deep) and subjected to strong swell conditions most of the time. They are dominated by macroalgae, with scarce colonies of hard corals observed mainly in the southern complex. Coordinates of the southern pool: 21°09′00.78″S, 55°49′38.56″E.

Coulée de Lave 1977 (CL) (Fig. 14). 600 m south of the southern end of the lava flows that reached the ocean in 1977, a large pool of 190 m^2 is located below the hiking track that leads from Anse des Cascades to Coulée de Lave 1977, close to a number of other, small pools. The main pool has a maximum depth of 2 m, with rich species diversity as the pool is protected from the south-easterly swells that hit the coastline throughout the year. Coordinates of the main pool: 21°10′14.79″S, 55°50′00.03″E.

South coast

Grande Anse (GA) (Fig. 15). On the southern part of the white sandy beach of Plage Grande Anse, an artificial swimming pool was created on the fringing reef a few decades ago, offering excellent conditions for marine life to develop. The total surface of the pool is 4,100 m^2, and large live coral colonies have grown on volcanic rock boulders together with the associated fauna and flora. The maximum depth of the central pool is 2 m, with sand and hard substrate. Coordinates of the pool: 21°22′12.58″S, 55°32′53.76″E.

Manapany-les-Bains (MB) (Fig. 16). In the rocky bay of Manapany-les-Bains, an artificial swimming pool was created. This pool, which has a surface of 2,700 m^2 and a maximum depth of 2 m, is affected by a significant underground freshwater inflow that reduces the development of marine communities in the inshore parts of the pool. The bottom of the pool consists of black sand and rubble; the rocks towards the ocean are covered with brown algae and few hard corals. Coordinates of the pool: 21°22′24.05″S, 55°35′17.35″E.

Vincendo (VI). Situated south of the mouth of Vincendo River is a volcanic cape with numerous shallow tidal pools, with an estimated pool surface of 3,100 m^2. These pools with hard, black volcanic rock substrates were explored during low tide and no swell conditions. The benthic live cover of flora and fauna was low due to heavy hydrodynamic conditions (and seasonal freshwater flows). The maximum depth was 0.5 m. Coordinates of the pool: 21°22′45.11″S, 55°40′37.09″E.

Saint-Philippe (SP) (Fig. 17). The pool of Saint-Philippe is located on the south coast of La Réunion, frequently affected by heavy south-west swell all year long, which makes this pool difficult to explore. Located 100 m west of the 'harbour' wharf, the pool surface is 1,870 m^2, with water depths varying from 0.1 to 2.5 m. Two deep pools were sampled in 1998, with a substrate of black volcanic rock, boulders, brown algae, and few live corals. Additional, small pools occur on the southern part of this coastline. Coordinates of the sampled main pool: 21°21′51.93″S, 55°45′59.33″E.

Methods

Data compilation

In order to get a complete list of intertidal fish species of La Réunion, all available literature was searched, extracting data on fishes recorded from intertidal habitats and their localities. Beside the published records from La Réunion (Fricke 1999; Fricke et al. 2009), data from Europa Island (Fricke et al. 2013), Glorieuses Islands (Durville & Chabanet 2009), Mauritius (Arndt & Fricke 2019), and several further places were also considered for those species that are known from La Réunion but for which published intertidal records from La Réunion were lacking so far. Additionally, material from the following museum collections was included: USNM (National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA), SNMS (Staatliches Museum für Naturkunde, Stuttgart, Germany) and MNHN (Muséum National d'Histoire Naturelle, Paris, France). The complete list of species and sources is given in the Results (Table 1). Collection acronyms follow Fricke & Eschmeyer (2022). Family authorships are according to Van der Laan et al. (2014); genus and species classification follows Fricke et al. (2022). New records from La Réunion are species recently found as new or previously misidentified species; in the latter case, previous records/synonymies are provided.

Fishes may occur in the intertidal zone for quite different reasons, or in various periods of their life. Therefore, it is necessary to classify different 'types' of intertidal fishes (Arndt & Fricke 2019). The definition of these terms follows Thomson & Lehner (1976) and Griffiths (2003):

R – *permanent residents*, spending most of their life (juvenile to adult) in tidal pools or the intertidal zone. They are often highly adapted for intertidal life by possessing specialized behavioural or physiological adaptations.

O – *opportunists* (also *secondary* or *temporary residents*), living in the intertidal zone/tidal pools during specific life history stages or seasons. They are also widely distributed in the subtidal zone.

T – *transients* (or *tidal visitors*), using the intertidal zone, including tidal pools, transiently for foraging. They may end up accidentally trapped in pools as the tide goes out.

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Table 1. List of intertidal fish species with their residency status and references to their tidal pool records in La Réunion. Genus and species classification follows Fricke et al. (2022); references in parentheses refer to species that occur in La Réunion but were recorded in tidal pools elsewhere. Abbreviations of residency status: O – opportunists, also known as secondary or temporary residents; R – permanent intertidal residents (R* - permanent volcanic rock pool inhabitant); T – transients or visitors. Abbreviations of tidal pools: BC – Boucan-Canot; CH – Cap de La Houssaye; CL – Coulée de lave; ES – Etang Salé; GA – Grande Anse; HB – L'Hermitage-les-Bains; MB – Manapany-les-Bains; PA – Port Ango; PC – Pointe Corail; PCH – Pointe des Chateaux; PS – Pointe au Sel; SL – Saint-Leu; SP – Saint-Philippe; SR – Sainte-Rose; TB – Trois Bassins; VI – Vincendo.

Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Acanthuridae Bonaparte, 1835 – Surgeonfishes, Unicornfishes				
Acanthurus blochii Valenciennes, 1835 (Fig. 18)	O	GA	(Fricke 1999; Yoshigou 2004)	
Acanthurus guttatus Forster in Bloch & Schneider, 1801) (Fig. 19)	O	CL, ES, PC	(Yoshigou 2004)	
Acanthurus lineatus (Linnaeus, 1758) (Fig. 20)	O	TB	(Lee 1980; Fricke 1999; Ntiba et al. 1993; Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Europa Island at SMF.	
Acanthurus nigrofuscus (Forsskål in Niebuhr, 1775)	O	BC, PCH	Fricke 1999 (Lee 1980; Yoshigou 2004; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Loyalty Islands, Cook Islands and Hawaiian Islands at SMNS.	SMNS 20841 (1, BC), 21063 (2, PCH)
Acanthurus polyzona (Bleeker, 1868) (Fig. 21)	O	BC, CH, CL, ES, PA, PC, PCH, PS, SL, SP, SR, TB, VI	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius Island at USNM.	MNHN 1988-0448 (2, CH), SMNS 20695 (3, CH), 20773 (14, VI), 20832 (11, BC), 20968 (25, SL), 21103 (10, PCH), 27125 (3, SR), USNM 345774 (7, S)
Acanthurus triostegus (Linnaeus, 1758) (Fig. 22)	O	BC, CH, CL, ES, GA, PA, PC, PCH, PS, SL, SR, TB	Fricke 1999; Fricke et al. 2009 (Lee 1980; Yoshigou 2004; Arndt & Fricke 2019) Remark: O according to Durville & Chabanet (2009) and Cox et al. 2011; R according to Sindorf et al. 2015. Tidal pool material from Rodrigues at SMNS, from Mauritius at USNM, from Europa Island at SMF, from Western Australia and Hawaiian Islands at SMNS.	MNHN 1988-0449 (28, CH), SMNS 17062 (13, SL), 20691 (7, CH), 20831 (52, BC), 20985 (11, SL), 21098 (7, PCH), 27116 (2, TB), 27126 (13, SR), USNM 345775 (4, PS)
Acanthurus xanthopterus Valenciennes, 1835	O		(Lee 1980; Fricke 1999; Ntiba et al. 1993; Arndt & Fricke 2019) Remark: Tidal pool material from New Caledonia at SMNS.	
Ctenochaetus striatus (Quoy & Gaimard, 1825) (Figs. 23, 24)	O	CH, CL, PS, TB	Fricke 1999; Fricke et al. 2009 (Lee 1980; Yoshigou 2004; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	USNM 345791 (2, PS)
Naso unicornis (Forsskål in Niebuhr, 1775) (Fig. 25)	O	CH, CL, ES	(Fricke 1999; Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Europa Island at SMNS.	
Zebrasoma desjardinii (Bennett, 1836) (Fig. 26)	O	CH	Fricke 1999, as *Z. velifer* (non Bloch 1795)	

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Zebrasoma scopas (Cuvier, 1829)	O	HB	Fricke 1999 (Yoshigou 2004)	SMNS 20886 (2, HB)
Ambassidae Klunzinger, 1870 – Asiatic glassfishes				
Ambassis natalensis (Lacepède, 1802)	T	SL	Fricke 1999, as *A. ambassis*; Keith et al. 1999 as *A. gymnocephalus*; Fricke et al. 2009 Remarks: Found in estuaries, occasionally also in tidal pools. Estuarine material from Mauritius at BMNH.	SMNS 17094 (1, SL)
Anguillidae Rafinesque, 1810 – Freshwater eels				
Anguilla bicolor McClelland, 1841	T		Keith et al. 1999; Fricke 1999 (Arndt & Fricke 2019) Remark: freshwater, estuarine and marine.	
Anguilla marmorata Quoy & Gaimard, 1824	T		Keith et al. 1999; Fricke 1999 (Arndt & Fricke 2019) Remark: freshwater, estuarine and marine.	
Anguilla mossambica (Peters, 1852)	T		Keith et al. 1999 (Fricke 1999) (Arndt & Fricke 2019) Remark: freshwater, estuarine and marine.	
Antennariidae Jarocki, 1822 – Frogfishes				
Abantennarius coccineus (Lesson, 1831) (Fig. 27)	O	PC	(Fricke 1999, Fricke et al. 2009, as *Antennarius coccineus*)	
Antennarius commerson (Anonymous, 1798) (Fig. 28)	O	TB	(Fricke 1999; Fricke et al. 2009; Arndt & Fricke 2019)	
Antennarius hispidus (Bloch & Schneider, 1801) (Fig. 29)	O	CH, PC, PCH	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Loyalty Islands at SMNS.	SMNS 21079 (1, PCH)
Antennarius indicus Schultz, 1964 (Fig. 30)	O	CH	**New record** for La Réunion and the Mascarenes.	
Antennarius pictus (Shaw, 1794) (Fig. 31)	O	CH, ES	Fricke 1999; Fricke et al. 2009	
Antennarius striatus (Shaw, 1794)	O	BC, VI	Fricke 1999 (Arndt & Fricke 2019)	SMNS 20867 (2, BC)
Antennatus tuberosus (Cuvier, 1817) (Fig. 32)	O	ES	Fricke 1999; Fricke et al. 2009	
Histrio histrio (Linnaeus,1758) (Fig. 33)	O	CH, ES	Fricke 1999; Fricke et al. 2009	
Apogonidae Günther, 1859 – Cardinalfishes				
Apogon caudicinctus Randall & Smith, 1988	O	PCH, PS, SP	Fricke 1999 (Arndt & Fricke 2019) Remark: Material from Mauritius tidal pools at USNM.	SMNS 20750 (1, SP), 21094 (1, PCH), USNM 345777 (2, PS)

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Apogon dammermani Weber & Beaufort, 1929 (Fig. 34)	O	ES	**New record** from La Réunion, based on specimen photographed at Etang Salé by Christophe Cadet.	
Apogon semiornatus Peters, 1876 (Fig. 35)	O	ES, SL	Fricke 1999 (Fricke et al. 2013) Remark: Tidal pool material from Europa Island at SMF.	SMNS 20993 (4, SL)
Apogonichthys ocellatus (Weber, 1913) (Fig. 36)	O	BC, ES, PCH	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 20876 (1, BC), 21096 (1, PCH)
Nectamia savayensis (Günther, 1872)	O	HB, PS	Fricke 1999; Fricke et al. 2009	SMNS 20922 (5, HB), USNM 345778 (1, PS)
Ostorhinchus aureus (Lacepède, 1802)	O	BC	Fricke 1999 (Arndt & Fricke 2019)	SMNS 20864 (4, BC)
Ostorhinchus taeniophorus (Regan, 1908) (Fig. 37)	O	CH, ES, GA, PC, PCH, PS, SL, SP, TB	Fricke 1999; Fricke et al. 2009 (Fricke et al. 2013; Arndt & Fricke 2019) Remark: R according to Sinford et al. (2015). Tidal pool material from Mauritius at USNM, from Europa Island at SMF.	SMNS 17035 (2, SL), 17055 (8, SL), 20680 (3, GA), 20703 (1, CH), 20746 (1, SP), 20877 (23, BC), 20963 (50, SL), 21076 (7, PCH), 27117 (3, TB), USNM 345776 (3, PS)
Pristiapogon fraenatus (Valenciennes, 1832)	O	BC, GA, HB, PCH, SL	Fricke 1999; Fricke et al. 2009 (Ntiba et al. 1993; Arndt & Fricke 2019)	MNHN 1988-0433 (1, CH), SMNS 17069 (2, SL), 20647 (1, SL), 20682 (1, GA), 20715 (1, GA), 20868 (1, BC), 20928 (6, HB), 20991 (3, SL), 21093 (2, PCH)
Pristiapogon kallopterus (Bleeker, 1856) (Fig. 38)	O	CH, ES, HB	Fricke 1999 Remark: Tidal pool material from Loyalty Islands at SMNS.	MNHN 1988-0434 (1, CH), SMNS 20888 (3, HB)
Pristiapogon taeniopterus (Bennett, 1836) (Fig. 39)	O	ES	(Fricke et al. 2009)	
Siphamia mossambica Smith, 1955	O		(Fricke et al. 2009; Arndt & Fricke 2019) Remark: Only recorded from subtidal habitats at La Réunion.	
Atherinidae Risso, 1827 -- Silversides				
Atherinomorus lacunosus (Forster, 1801)	T	BC, SL	Fricke 1999; Kimura et al. 2007	SMNS 20821 (1, BC), 20941 (2, SL)
Atherinomorus pinguis (Lacepède, 1803) (Fig. 40)	T	HB, TB	**New record** from La Réunion. Fricke 1999 as *A. lacunosus* (non Forster 1801).	SMNS 20898 (16, HB)
Aulostomidae Rafinesque, 1815 – Trumpetfishes				
Aulostomus chinensis (Linnaeus, 1766) (Fig. 41)	T	CH, GA, PS, SL, TB	Fricke 1999; Fricke et al. 2009 (Yoshigou 2004; Arndt & Fricke 2019) Remark: Tidal pool material from Loyalty Islands and Hawaiian Islands at SMNS.	SMNS 17057 (2, SL), 20949 (4, SL), USNM 345779 (1, PS)

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Balistidae Rafinesque, 1810 – Triggerfishes				
Rhinecanthus aculeatus (Linnaeus, 1758)	O		(Fricke et al. 2009; 2013, Arndt & Fricke 2019) Remark: R according to Sindorf et al. (2015). Tidal pool material from Europa Island at SMF. At La Réunion recorded from subtidal areas only.	
Sufflamen chrysopterum (Bloch & Schneider, 1801) (Fig. 42)	T	ES	Fricke 1999 as *S. chrysopterus*; Fricke et al. 2009	
Belonidae Bonaparte, 1835 – Needlefishes				
Tylosurus melanotus (Bleeker, 1850) (Fig. 43)	T	ES	**New record** from la Réunion and the Mascarenes.	
Blenniidae Rafinesque, 1810 – Blennies				
Alticus monochrus Bleeker, 1869	**R***	BC, SP, SL, SR	Fricke 1999; Fricke et al. 2009 (Bhikajee 1996; Fricke et al. 2013; Arndt & Fricke 2019) Remarks: On rocks in the surge zone and outside water, occasionally in tidal pools, 0-1 m (Bhikajee 1996, USNM material from Mauritius). Temporarily in tidal pools, e.g. resting during day and at night) Bhikajee & Green 2002; Bhikajee et al. 2006).	SMNS 20752 (1, SP), 20830 (2, BC), 21114 (2, SR), 27136 (1, SR)
Antennablennius bifilum (Günther, 1861) (Fig. 44)	**R***	BC, CL, GA, SL	Fricke 1999; Fricke et al. 2009 (Fricke et al. 2013; Roux 2013; Arndt & Fricke 2013) Remark: Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF.	SMNS 17043 (5, SL), 17086 (2, SL), 20672 (3, GA), 20859 (5, BC), 20977 (2, SL), 21373 (1, BC)
Aspidontus taeniatus Quoy & Gaimard, 1824	O	BC	Fricke 1999, as *A. taeniatus tractus* (Yoshigou 2004; Arndt & Fricke 2019, *as Aspidontus tractus*)	SMNS 20873 (1, BC)
Blenniella chrysospilos (Bleeker, 1857)	**R**	ES, SL	Fricke 1999 (Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius and Loyalty Islands at SMNS, from Europa Island at SMF.	SMNS 17038 (5, SL), 27724 (5, SL)
Blenniella cyanostigma (Bleeker, 1849)	**R***	CH, PS, SL	Fricke 1999	SMNS 20705 (3, CH), 20989 (2, SL), 27112 (1, PS)
Blenniella gibbifrons (Quoy & Gaimard, 1824) (Fig. 45)	**R***	BC, CH, ES, GA, SL, VI	Fricke 1999 (Cox et al. 2011; Fricke et al. 2013; Arndt & Fricke 2019) Remark: R according to Cox et al. 2011). Tidal pool material from Rodrigues at SMNS, from Mauritius at SMNS and USNM, from Europa Island at SMF.	SMNS 17091 (1, SL), 20706 (3, CH), 20720 (1, GA), 20860 (1, BC), 20986 (5, SL)
Blenniella periophthalmus (Valenciennes, 1836) (Fig. 46)	**R***	ES, SL, SR	Fricke 1999 (Lee 1980; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM, from Rodrigues at SMNS, from Europa Island at SMF.	SMNS 17096 (1, SL), 20955 (19, SL), 27127 (7, SR)

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Cirripectes castaneus (Valenciennes, 1836)	O	PCH	Fricke 1999 (Yoshigou 2004; Arndt & Fricke 2019) Remark: Tidal pool material from Loyalty Islands at SMNS.	SMNS 21064 (8, PCH)
Cirripectes gilberti Williams, 1988 (Fig. 47)	O	ES	Couëdel et al. 2023	
Cirripectes polyzona (Bleeker, 1868)	O	ES, HB	Fricke 1999 (Yoshigou 2004)	SMNS 20934 (1, HB)
Cirripectes quagga (Fowler & Ball, 1924)	O	SP	Fricke 1999 (Arndt & Fricke 2019)	SMNS 20743 (1, SP)
Cirripectes randalli Williams, 1988 (Fig. 48)	?**R***	BC, GA, SP, TB	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 20670 (1, GA), 20727 (11, SP), 20823 (4, BC)
Cirripectes stigmaticus Strasburg & Schultz, 1953	O	SL	Fricke 1999, Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Loyalty Islands at SMNS.	SMNS 17068 (1, SL), 27723 (1, SL)
Cirrisalarias bunares Springer, 1976	O	SL	Williams & Springer 2022 (Fricke 1999; Arndt & Fricke 2019)	SMNS 27728 (1, SL)
Damania anjouanae (Fourmanoir. 1955)	**R***		(Fricke 1999; Fricke et al. 2009) Remark: Tidal pool material from Rodrigues at SMNS.	
Dodekablennos fraseri Springer & Spreitzer, 1978	**R***	CH	Fricke 1999	MNHN 1995-0002 (1, CH)
Enchelyurus kraussi Klunzinger. 1871	**R***		(Fricke 1999; Fricke et al. 2009; Arndt & Fricke 2019) Remark: Tidal pool material from Western Australia at SMNS.	
Entomacrodus epalzeocheilos (Bleeker, 1859) (Fig. 49)	**R***	BC, CH, SP, SR, VI	Fricke 1999, Fricke et al. 2009 (Arndt & Fricke 2019) Remark: in intertidal areas, e.g. reef flats exposed to waves, rocky shores and tidal pools (Allen & Erdmann 2012). Tidal pool material from Mauritius at USNM.	SMNS 20740 (2, SP), 20781 (5, VI), 20824 (2, BC), 21113 (1, SR)
Entomacrodus lemuria Springer & Fricke, 2000	**R**	BC	Fricke 1999, as *Entomacrodus* sp.; Springer & Fricke 2000; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 20827 (holotype, BC), 21372 (4, BC)
Entomacrodus striatus (Valenciennes, 1836) (Figs. 50, 51)	**R***	BC, CH, ES, GA, PA, PC, PCH, SL, SP	Fricke 1999; Fricke et al. 2009 (Lee 1980; Arndt & Fricke 2019) Remark: „Accidental visitor“ (= T) according to Murase (2013). Tidal pool material from Mauritius at USNM.	MNHN 1988-0446 (4, CH), SMNS 20676 (1, GA), 20747 (8, SP), 20820 (36, BC), 21080 (2, PCH), 27727 (1, SL)
Entomacrodus vermiculatus (Valenciennes, 1836) (Fig. 52)	**R***	SP, TB	**New record** from La Réunion; (Arndt & Fricke 2019) Remark: Adults are found in the intertidal area, actively shuttling back and forth between rock pools and air (Martin & Bridges 1999). Tidal pool material from Mauritius at USNM.	
Exallias brevis (Kner, 1868) (Fig. 53)	T	GA, HB, TB	Fricke 1999 (Yoshigou 2004)	SMNS 20921 (1, HB), 21173 (1, HB)

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Istiblennius bellus (Günther, 1861) (Fig. 54)	**R***	BC, CH, CL, SL, SP, SR, VI	Fricke 1999 (Arndt & Fricke 2019) Remark: Adults in intertidal flats and rock shores (Allen & Erdmann 2012). Dominant species at SL. Tidal pool material from Mauritius at SMNS and USNM.	MNHN 1995-0001 (3, CH), SMNS 20689 (15, CH), 20739 (1, SP), 20775 (7, VI), 20954 (2, SL), 21112 (2, SR), 27715 (69, SL)
Istiblennius dussumieri (Valenciennes, 1836)	**R***		(Fricke 1999; Durville & Chabanet 2009; Tsering et al. 2012; Kwun et al. 2017; Arndt & Fricke 2019) Remark: Rocky shorelines and mangrove areas (Springer & Williams, 1994). R according to Durville & Chabanet (2009) and Murase (2013). Tidal pool material from Mauritius at SMNS, from Rodrigues, Maldives, Taiwan and Loyalty Islands at SMNS.	
Istiblennius edentulus (Forster & Schneider, 1801) (Fig. 55)	**R***	BC, CH, CL, ES, GA, MB, PA, PCH, PS, SL, SP, SR, TB	Fricke 1999, Fricke et al. 2009 (Lee 1980; Yoshigou 2004; Durville & Chabanet 2009; Fricke et al. 2013; Griffiths 2003; Arndt & Fricke 2019) Remark: Intertidal, may remain out of water under rocks or seaweeds (Martin & Bridges 1999; Kuiter & Tonozuka 2001). Tidal pool material from Mauritius at SMNS and USNM, from Rodrigues, Western Australia and Fiji at SMNS, from Europa Island at SMF.	MNHN 1988-0447 (11, CH), SMNS 17034 (7, SL), 17067 (5, SL), 20681 (2, GA), 20685 (20, CH), 20774 (9, VI), 20826 (34, BC), 20953 (44, SL), 21062 (6, PCH), 21120 (1, MB), 27111 (4, PS), 27118 (1, TB), 27128 (2, SR), USNM 345803 (13)
Istiblennius spilotus Springer & Williams, 1994	**R**	SL, VI	Fricke 1999, Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS, from Rodrigues at SMNS.	SMNS 17037 (14, SL), 17082 (2, SL)
Mimoblennius lineathorax Fricke, 1999 (Fig. 56)	**R**	ES, SL	Fricke 1999; Fricke et al. 2009	SMNS 27725 (3, SL)
Mimoblennius rusi Springer & Spreitzer, 1978	**R**	SL	**New record** from La Réunion. (Fricke 1999; *Arndt & Fricke 2019)	SMNS 27726 (4, SL)
Omobranchus elongatus (Peters, 1855)	**R**	SL	**New record** from La Réunion.	SMNS 27722 (2, SL)
Omobranchus fasciolatus (Valenciennes, 1836)	**R**	BC	Fricke 1999	SMNS 20845 (9, BC)
Salarias fasciatus (Bloch, 1786)	**R**	HB	Fricke 1999 (Lee 1980; Arndt & Fricke 2019) Remark: Intertidal (Kuiter & Tonozuka 2001), R according to Sindorf et al. 2015). Tidal pool material from Taiwan at SMNS; from Western Australia and Northern Territory/Australia at SMNS. Only recorded from sudtidal habitats at La Réunion.	SMNS 21175 (2, HB)
Bothidae Smitt, 1892 – Left-eye flounders				
Bothus mancus (Broussonet, 1782) (Fig. 57)	O	GA, PC, SL	Fricke 1999; Fricke et al. 2009 (Lee 1980; Ntiba et al. 1993; Yoshigou 2004; Durville & Chabanet 2009; Arndt & Fricke 2019)	SMNS 17087 (1, SL), 20667 (1, GA), 20947 (1, SL)
Bothus pantherinus (Rüppell, 1830) (Fig. 58)	O	BC, PC, PS, SL	Fricke 1999 (Ntiba et al. 1993; Arndt & Fricke 2019)	SMNS 20844 (1, BC), 20948 (1, SL), USNM 345827 (1, PS)

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Callionymidae Bonaparte, 1831 – Dragonets				
Diplogrammus infulatus Smith, 1963	**R**		(Fricke 1999; Fricke et al. 2013, 2016; Arndt & Fricke 2019) Remark: Tidal pool material from Europa Island at SMF.	
Carangidae Rafinesque, 1815 – Jacks and Pompanos				
Caranx ignobilis (Forsskål, 1775)	T		(Fricke 1999; Yoshigou 2004) Remark: Tidal pool material from Western Australia at SMNS.	
Caranx melampygus Cuvier, 1833 (Fig. 59)	T	TB	(Fricke 1999; Yoshigou 2004)	
Caranx sexfasciatus Quoy & Gaimard, 1825	T	PS	Fricke 1999 (Yoshigou 2004)	USNM 345781 (5, PS)
Chaetodontidae Rafinesque, 1815 – Butterflyfishes				
Chaetodon auriga Forsskål in Niebuhr, 1775	O	BC	Fricke 1999 (Arndt & Fricke 2019)	SMNS 20862 (1, BC)
Chaetodon dolosus Ahl, 1923 (Fig. 60)	T	ES	Fricke 1999; Fricke et al. 2009	
Chaetodon kleinii Bloch, 1790 (Fig. 61)	T	CL		
Chaetodon lunula (Lacepède, 1802) (Fig. 62)	T	BC, CH, CL, ES, PA, PCH, PS, SL, SP, TB	Fricke 1999; Fricke et al. 2009 (Lee 1980; Yoshigou 2004; Durville & Chabanet 2009; Fricke et al. 2013; Roux 2013; Arndt & Fricke 2019) Remarks: R according to Sindorf et al. (2015); T according to Cox et al. (2011) and Murase (2013). Tidal pool material from Mauritius at USNM, from Rodrigues and Hawaiian Islands at SMNS, from Europa Island at SMF.	MNHN 1988-0438 (1, CH), SMNS 17059 (1, SL), 20697 (2, CH), 20850 (5, BC), USNM 345782 (1, PS)
Chaetodon melannotus Bloch & Schneider, 1801	T	HB	Fricke 1999	SMNS 20911 (2, HB)
Chaetodon meyeri Bloch & Schneider, 1801 (Fig. 63)	T	GA	(Fricke 1999)	
Chaetodon trifascialis Quoy & Gaimard, 1825	T	HB	Fricke 1999	SMNS 20899 (2, HB)
Chaetodon trifasciatus Park, 1797 (Fig. 64)	T	GA, TB		
Chaetodon vagabundus Linnaeus, 1758 (Fig. 65)	?T	CH, CL, GA, PCH	Fricke 1999 (Lee 1980; Yoshigou 2004; Arndt & Fricke 2019)	SMNS 21091 (1, PCH)
Heniochus monoceros Cuvier, 1831 (Fig. 66)	T	CH, TB	Fricke 1999 (Yoshigou 2004)	MNHN 1988-0435 (1, CH)

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Cirrhitidae Macleay, 1841 – Hawkfishes				
Cirrhitichthys guichenoti (Sauvage, 1880) (Fig. 67)	T	ES, PS	(Fricke 1999)	USNM 345785 (10, PS)
Paracirrhites arcatus (Cuvier, 1829) (Fig. 68)	T	SP		
Clinidae Swainson, 1837 – Clinids				
Springeratus polyporatus Fraser, 1972	**R***	PS	Fricke 1999	USNM 345820 (7, PS)
Congridae Kaup, 1856 – Conger eels				
Conger cinereus Rüppell, 1871 (Fig. 69)	O	BC, CH, GA, PCH, PS, SL, SP	Fricke 1999; Fricke et al. 2009 (Lee 1980; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF, from Western Australia and Loyalty Islands at SMNS.	MNHN 1988-0425 (5, CH), SMNS 20686 (4, CH), 20748 (1, SP), 20811 (8, BC), 20966 (4, SL), 21068 (3, PCH), USNM 345786 (8, PS)
Creediidae Waite, 1899 – Sand burrowers				
Chalixodytes tauensis Schultz, 1943	O	BC, SL	Fricke 1999, as *C. chamaeleontoculis*; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 17083 (6, SL), 20852 (13, BC), 20995 (9, SL)
Limnichthys nitidus Smith, 1958	O	SL	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS.	SMNS 17046 (3, SL)
Dinematichthyidae Whitley, 1928 – Viviparous brotulas				
Mascarenichthys heemstrai Schwarzhans & Møller, 2007	**R***	PCH	Schwarzhans & Møller 2007; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 21084 (1, PCH)
Diodontidae Bonaparte, 1835 – Porcupinefishes				
Diodon hystrix Linnaeus, 1758	T	GA	Fricke 1999; Fricke et al. 2009	
Eleotridae Bonaparte, 1835 – Sleepers				
Eleotris fusca (Bloch & Schneider, 1801)	**R**	ES	Fricke 1999; Keith et al. 1999 (Arndt & Fricke 2019) Remark: Found in estuaries.	UF 240028 (1)
Eleotris mauritiana Bennett, 1832	**R**		Fricke 1999; Keith et al. 1999 (Arndt & Fricke 2019) Remark: Found in estuaries.	

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Hypseleotris cyprinoides (Valenciennes, 1837)	**R**		(Keith et al. 1999; Arndt & Fricke 2019) Remarks: Inhabiting freshwater streams, also entering estuaries (Froese & Pauly 2022).	
Ophiocara porocephala (Valenciennes, 1837)	**R**		(Keith et al. 1999; Fricke et al. 2009; Arndt & Fricke 2019) Remark: In estuaries, river mouths and freshwater creeks, upstream from the tidal zone (Allen 1991; Rainboth 1996)	
Engraulidae Gill, 1861 - Anchovies				
Stolephorus commersonii Lacepède, 1803 (Fig. 70)	T	GA	(Fricke 1999)	
Epinephelidae Bleeker, 1874 – Coral groupers				
Cephalopholis argus Schneider, 1801 (Fig. 71)	O	CH, CL	Fricke 1999; Fricke et al. 2009 (Lee 1980; Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remarks: T according to Murase (2013). Juveniles are found in tidal pools (Heemstra & Randall 1993). Tidal pool material from Mauritius at USNM; from Europa Island at SMF.	MNHN 1988-0429 (1, CH)
Cephalopholis boenak (Bloch, 1790)	O		(Fricke 1999, Arndt & Fricke 2019) Remark: Tidal pool material from Taiwan at SMNS.	
Cephalopholis urodeta (Forster, 1801)	O		(Fricke 1999; Yoshigou 2004; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	
Epinephelus coeruleopunctatus (Bloch, 1790)	O		(Lee 1980; Fricke et al. 2009; Arndt & Fricke 2019) Remarks: Juveniles are found in tidal pools (Heemstra & Randall 1993). Tidal pool material from Western Australia at SMNS.	
Epinephelus hexagonatus (Forster in Bloch & Schneider, 1801) (Fig. 72)	O	BC, CH, ES, GA, SL	Fricke 1999; Fricke et al. 2009 (Lee 1980; Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF.	MNHN 1988-0430 (1, CH), SMNS 17072 (3, SL), 20840 (7, BC), 20949 (5, SL)
Epinephelus marginatus (Lowe, 1839 (Fig. 73)	O	ES		
Epinephelus merra Bloch, 1793 (Fig. 74)	O	CH, CL, ES, GA, SL, SP, VI	Fricke 1999; Fricke et al. 2009 (Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Europa Island at SMF.	MNHN 1988-0431 (8, CH), SMNS 20726 (3, SP), 20777 (1, VI), 27706 (6, SL)
Epinephelus rivulatus (Valenciennes, 1830)	O		(Fricke 1999; Roux 2013; Arndt & Fricke 2019)	
Epinephelus spilotoceps Schultz, 1953	O		(Fricke 1999; Fricke et al. 2009; Arndt & Fricke 2019) Remark: Tidal pool material from Australia at SMNS.	

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Epinephelus tauvina (Fabricius in Niebuhr, 1775)	O	PS, SL	Fricke 1999; Fricke et al. 2009 (Lee 1980 as *E. tauvia*; Yoshigou 2004; Arndt & Fricke 2019) Remarks: Juveniles are found in tidal pools (Heemstra & Randall 1993). Tidal pool material from Mauritius at SMNS and USNM, from Rodrigues at SMNS.	SMNS 17049 (3, SL), 21207 (1, SL), USNM 345828 (4, PS)
Epinephelus tukula Morgans, 1959	O		(Fricke et al. 2009; Arndt & Fricke 2019) Remarks: Juveniles may be found in tidal pools (Heemstra & Randall 1993).	
Fistulariidae Stark, 1828 – Flutemouths				
Fistularia commersonii Rüppell, 1838 (Fig. 75)	T	BC, GA, PC, SL	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 17053 (3, SL), 20668 (1, GA), 20819 (4, BC), 20940 (3, SL)
Gobiesocidae Bleeker, 1859 – Clingfishes				
Lepadicyathus minor (Briggs, 1955)	**R**	HB	Fricke 1999, as *Lepadichthys minor*	SMNS 20909 (2, HB)
Gobiidae Cuvier, 1816 – Gobies				
Asterropteryx semipunctata Rüppell, 1830	O		(Fricke 1999; Fricke et al. 2013; Arndt & Fricke 2019) Remark: T according to Murase (2013). Tidal pool material from Mauritius and Western Australia at SMNS.	
Awaous commersoni (Schneider in Bloch & Schneider, 1801)	O		Fricke 1999; Keith et al. 1999, as *Awaous nigripinnis* (Arndt & Fricke 2019) Remark: Found in estuaries.	
Bathygobius coalitus (Bennett, 1832) (Fig. 76)	**R***	ES, PA, BC, PC, SL, VI	Fricke 1999; Fricke et al. 2009 (Cox et al. 2011; Murase 2015; Roux 2013; Arndt & Fricke 2019) Tidal pool material from Rodrigues at SMNS, and from Mauritius at USNM.	SMNS 20778 (11, VI), 20879 (1, BC), 20975 (21, SL)
Bathygobius cocosensis (Bleeker, 1854) (Fig. 77)	**R***	CH, ES, PA, SR, VI	Fricke 1999; Fricke et al. 2009 (Cox et al. 2011; Griffiths 2003; Murase 2015; Roux 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius, Rodrigues, Japan and Cook Islands at SMNS.	SMNS 20692 (3, CH), 20787 (2, VI), 27129 (9, SR)
Bathygobius cotticeps (Steindachner, 1879)	**R**	SL	Fricke 1999; Fricke et al. 2009 (Cox et al. 2011; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Rodrigues and Taiwan at SMNS (Fricke 1999), from Europa Island at SMF.	SMNS 21205 (2, SL), 27717 (1, SL)
Bathygobius cyclopterus (Valenciennes, 1837)	**R***	MB	Fricke 1999	SMNS 21119 (1, MB)

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Bathygobius fuscus (Rüppell, 1830) (Fig. 78)	**R***	BC, ES, PC, PS, SL, SR, TB, VI	Fricke 1999; Fricke et al. 2009 (Lee 1980; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius, Taiwan, Queensland and Northern Territory/Australia, Western Australia and Fiji at SMNS, from Europa Island at SMF.	SMNS 20779 (23, VI), 20976 (13, SL), 27113 (2, PS), 27119 (1, TB), 27128 (30, SR), 27141 (1, TB), 27716 (34, SL)
Bathygobius meggitti (Hora & Mukerji, 1936) (Fig. 79)	**R**	BC, ES	**New record** from La Réunion and the Mascarenes.	
Bathygobius niger Smith, 1960	**R**	SL	Fricke 1999, as *Bathygobius smithi*	SMNS 17041 (1, SL), 27089 (2, SL)
Cabillus lacertops (Smith, 1959) (Fig. 80)	O	ES, PC	**New record** from La Réunion.	
Cabillus tongarewae (Fowler, 1927)	O	HB	Fricke 1999	SMNS 20919 (1, HB)
Callogobius flavobrunneus (Smith, 1958)	**R***	SL, SP	Fricke 1999 (Arndt & Fricke 2019) Remark: *Callogobius* sp listed as R by Griffiths (2003). Tidal pool material from Mauritius at USNM.	SMNS 20758 (1, SP), 20979 (3, SL)
Callogobius sclateri (Steindachner, 1879)	**R**	HB	Fricke 1999 (Lee 1980)	SMNS 20929 (4, HB)
Cotylopus acutipinnis Guichenot, 1863	O		Fricke 1999, as *Cotylopus* sp.; Keith et al. 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Found in estuaries.	
Eviota distigma Jordan & Seale, 1906	?O	HB	Fricke 1999 (Arndt & Fricke 2019) Remarks: Tidal pool material from Western Australia and Loyalty Islands at SMNS.	SMNS 20910 (2, HB)
Eviota nigripinna Lachner & Karnella, 1980	?O	SP	Fricke 1999 (Arndt & Fricke 2019)	SMNS 20755 (1, SP)
Eviota prasina (Klunzinger, 1871) (Fig. 81)	**R***	BC, CH, CL, HB, PCH, SL	Fricke 1999; Fricke et al. 2009 (Fricke et al. 2013; Kwun et al. 2017; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF, from Maldives at SMNS.	SMNS 20704 (2, CH), 20786 (1, VI), 20835 (27, BC), 20906 (25, HB), 20988 (20, SL), 21092 (14, PCH)
Eviota punyit Tornabene, Valdez & Erdmann, 2016	O	HB	**New record** from La Réunion. Fricke 1999, as *Eviota sebreei* (non Jordan & Seale 1906).	SMNS 21177 (1, HB)
Eviota sodwanaensis Greenfield & Winterbottom, 2016	O	SL	**New record** from La Réunion and the Mascarenes.	SMNS 20984 (1, SL), 27719 (1, SL)
Fusigobius inframaculatus (Randall, 1994) (Fig. 82)	O	CH	**New record** from La Réunion, based on a photograph from Cap de La Houssaye by Jean-Pascal Quod.	
Fusigobius pallidus (Randall, 2001) (Fig. 83)	O	ES	**New record** from La Réunion and the Mascarenes, based on photograph from Etang Salé by Christophe Cadet.	
Fusigobius maximus (Randall, 2001)	?O	HB	Fricke et al. 2009 (Kuiter & Tonozuka 2001; Arndt & Fricke 2019) Remarks: On tidal reef flats and shallow lagoons. Tidal pool material from Mauritius at SMNS	SMNS 21174 (1, HB)
Glossogobius giuris (Hamilton, 1822)	T		Fricke 1999; Keith et al. 1999, as *G. giurus* (Arndt & Fricke 2019) Remarks: Found in estuaries.	

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Gnatholepis anjerensis (Bleeker, 1851)	O	HB, SL	Fricke 1999 (Cox et al. 2011; Arndt & Fricke 2019) Remark: R according to Cox et al. 2011 and Sindorf et al. 2015. Only juveniles in Mauritian tidal pools (Arndt & Fricke 2019). Tidal pool material from Taiwan at SMNS.	SMNS 20936 (8, HB), 20971 (40, SL)
Gnatholepis cauerensis (Bleeker, 1853)	O	HB, SL	Fricke 1999 (Arndt & Fricke 2019) Remark: R according to Sindorf et al. 2015.	SMNS 20937 (4, HB), 20987 (10, SL)
Gobiodon citrinus Rüppell, 1838	O	HB	Fricke 1999 Remark: Tidal pool material from Western Australia at SMNS.	SMNS 20935 (2, HB)
Gobiodon rivulatus (Rüppell, 1830)	O	BC, HB	Fricke 1999 (Krishnan et al. 2015; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 20871 (1, BC), 20924 (11, HB)
Hetereleotris aporus (Hoese & Winterbottom, 1979)	?O	BC, PCH, SL	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 17088 (1, SL), 20874 (5, BC), 21082 (2, PCH)
Hetereleotris georgegilli Gill, 1998	O	BC, PCH	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 20878 (1, BC), 21108 (1, PCH)
Hetereleotris margaretae Hoese, 1986	O	HB	Fricke 1999	SMNS 20904 (1, HB)
Hetereleotris zanzibarensis (Smith, 1958)	O	BC, HB, PCH, SL, SP	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 20751 (2, SP), 20833 (3, BC), 20925 (2, HB), 20980 (1, SL), 21085 (3, PCH), 21107 (1, PCH)
Istigobius decoratus (Herre, 1927) (Fig. 84)	O	BC, CH, CL, ES, PS, SR, TB	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Taiwan, Western Australia and Queensland/Australia at SMNS.	SMNS 27137 (1, SR), USNM 3445804 (5, PS)
Paragobiodon modestus (Regan, 1908)	**R**	HB	Fricke 1999	SMNS 20917 (1, HB)
Periophthalmus kalolo Lesson, 1831	**R**		(Fricke 1999; Fricke et al. 2009; Arndt & Fricke 2019) Remarks: No detailed locality published from Mauritius (Fricke 1999). Active at low tide and hunt in the intertidal zone for invertebrates (Martin & Bridges 1999).	
Priolepis cincta (Regan, 1908) (Fig. 85)	O	BC, ES, PS, SL, SP, VI	Fricke 1999; Fricke et al. 2009 (Yoshigou 2004; Fricke et al. 2013; Roux 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Rodrigues and Cook Islands at SMNS, from Europa Island at SMF.	SMNS 17084 (2, SL), 20744 (3, SP), 20785 (1, VI), 20872 (1, BC), 20992 (1, SL), USNM 345813 (3, PS)
Priolepis semidoliata (Valenciennes, 1837)	?O	BC, CH, PCH, SL, SP	Fricke 1999 (Arndt & Fricke 2019) Remark: R according to Murase (2013). Tidal pool material from Mauritius at SMNS and USNM, from Northern Territory/Australia, Queensland/Australia, Western Australia and Loyalty Islands at SMNS.	SMNS 20693 (2, CH), 20754 (10, SP), 20836 (7, BC), 20996 (2, SL), 21095 (1, PCH)
Sicyopterus lagocephalus (Pallas, 1770)	O		Fricke 1999; Keith et al. 1999 (Arndt & Fricke 2019) Remark: Found in estuaries.	

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Stenogobius polyzona (Bleeker, 1867)	T		Fricke 1999; Keith et al. 1999 (Arndt & Fricke 2019) Remark: Found in estuaries.	UF 23995 (1), 239956 (1)
Valenciennea sexguttata (Valenciennes, 1837)	O		(Fricke 1999; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	
Grammistidae Bleeker 1857 – Soapfishes				
Grammistes sexlineatus (Thunberg, 1792) (Fig. 86)	O	BC, CH, CL, ES, SL, SP, TB	Fricke 1999 (Lee 1980; Yoshigou 2004; Fricke et al. 2013; Sindorf et al. 2015; Arndt & Fricke 2019) Remark: T according to Murase (2013). Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF, from Western Australia and Loyalty Islands at SMNS.	MNHN 1981-1201 (1, CH), 1988-0432 (1, CH), SMNS 20839 (2, BC), 20942 (1, SL)
Pogonoperca punctata (Valenciennes, 1830) (Fig. 87)	O	CH	Fricke 1999; Fricke et al. 2009	
Pseudogramma polyacantha (Bleeker, 1856)	O		(Fricke et al. 2009, Arndt & Fricke 2019) Remark: Tidal pool material from Rodrigues and Loyalty Islands at SMNS.	
Holocentridae Bonaparte, 1833 – Squirrelfishes, Soldierfishes				
Myripristis berndti Jordan & Evermann, 1903 (Fig. 88)	O	ES, TB	(Fricke 1999; Yoshigou 2004)	
Myripristis seychellensis Cuvier, 1829	O		(Fricke 1999; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	
Neoniphon sammara (Fabricius in Niebuhr, 1775) (Fig. 89)	O	ES	(Fricke 1999; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	
Sargocentron diadema (Lacepède, 1802)	O	CH, HB	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Loyalty Islands at SMNS.	MNHN 1988-0427 (1, CH), SMNS 20892 (1, HB)
Sargocentron punctatissimum (Cuvier, 1829) (Fig. 90)	O	CH, ES, GA, PC, PS, SL, SP, TB	Fricke 1999; Fricke et al. 2009 (Yoshigou 2004; Arndt & Fricke 2019) Remark: *Sargocentron* sp was listed as O by González-Murcia et al. (2016). Tidal pool material from Mauritius at SMNS and USNM, from Cook Islands and Hawaiian Islands at SMNS.	MNHN 1988-0428 (9, CH), SMNS 17048 (2, SL), 17080 (6, SL), 20688 (1, CH), 20728 (4, SP), 20962 (1, SL), 21075 (2, PCH), 27707 (10), USNM 345814 (5, PS)
Kuhliidae Jordan & Evermann, 1896 – Flagtails				
Kuhlia caudavittata (Lacepède, 1802) (Figs. 91, 92)	O	BC, CH, CL, ES, GA, PA, PC, PS, SL, SP, SR, TB, VI	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius and Rodrigues at SMNS.	MNHN 1988-0436 (1, CH), SMNS 17040 (1, SL), 17077 (1, SL), 20690 (44, CH), 20737 (16, SP), 20780 (39, VI), 20851 (5, BC), 20967 (10, SL), 21116 (1, SR), 27114 (5, PS), 27131 (42, SR)

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Kuhlia mugil (Forster in Bloch & Schneider, 1801) (Figs. 92, 93)	O	BC, CH, CL, ES, GA, PA, PC, PCH, PS, SL, SP, SR, TB, VI	Fricke 1999 (Bennett 1987; Yoshigou 2004; Durville & Chabanet 2009; Fricke et al. 2013; Roux 2013; Kwun et al. 2017; Arndt & Fricke 2019) Remark: R according to Sindorf et al. 2015, but T according to Griffiths (2003) and Murase (2013). Tidal pool material from Mauritius at SMNS and USNM, from Rodrigues and Cook Islands at SMNS, from Europa Island at SMF.	MNHN 1988-0435 (16, CH); SMNS 17076 (11, SL), 20677 (1, GA), 20696 (8, CH), 20757 (2, SP), 20790 (9, VI), 20829 (83, BC), 20960 (25, SL), 21089 (15, PCH), 21115 (1, SR), 27132 (33, SR), 27709 (5); USNM 345805 (6, PS)
Kuhlia rupestris (Lacepède, 1802)	O		Fricke 1999; Keith et al. 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Found in estuaries.	
Kyphosidae Jordan, 1887 – Sea chubs				
Kyphosus vaigiensis (Quoy & Gaimard, 1825) (Fig. 94)	O	CL, ES, GA, TB	(Fricke 1999)	
Labridae Cuvier, 1816 – Wrasses				
Anampses meleagrides Valenciennes, 1840	T		(Fricke 1999; Yoshigou 2004; Arndt & Fricke 2019)	
Cheilinus oxycephalus Bleeker, 1853	T	PS	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	USNM 345783 (3, PS)
Cheilinus trilobatus Lacepède, 1801 (Fig. 95)	T	TB	(Fricke 1999)	
Coris aygula Lacepède, 1801 (Figs. 96, 97)	T	CL, ES, GA, PA, PS, SR, TB, VI	Fricke 1999; Fricke et al. 2009 (Yoshigou 2004; Arndt & Fricke 2019) Remark: Tidal pool material from Loyalty Islands at SMNS.	SMNS 20678 (2, GA), 20749 (1, SP), 20784 (1, VI), USNM 345788 (2, PS)
Coris cuvieri (Bennett, 1831)	T		(Fricke et al. 2009)	
Coris formosa (Bennett, 1830)	T		(Fricke et al. 2009, as *C. frerei*)	
Gomphosus caeruleus Lacepède, 1801 (Fig. 98)	T	BC, HB, PC	Fricke 1999, as *G. caeruleus caeruleus* (Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Europa Island at SMF.	SMNS 20930 (1, HB)
Halichoeres hortulanus (Lacepède, 1801) (Fig. 99)	T	CH, CL, TB	(Fricke 1999; Yoshigou 2004; Fricke et al. 2013; Sindorf et al. 2015; Arndt & Fricke 2019) Remarks: T according to Sindorf et al. (2015). Remark: Tidal pool material from Europa Island at SMF.	
Halichoeres lamarii (Valenciennes, 1839) (Figs. 100, 101, 102)	T	BC, CL, ES, GA, PCH, PS, SL, TB	Fricke 1999, as *H. marginatus*; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: T according. to Murase (2013); González-Murcia et al. (2016) listed species of *Halichoeres* as O or T. Tidal pool material from Mauritius at SMNS and USNM, from Rodrigues at SMNS.	SMNS 17032 (17, SL), 17056 (6, SL), 20707 (1, GA), 20869 (1, BC), 20970 (2, SL), 21073 (5, PCH), 27120 (2, TB), 27142 (1, TB), USNM 345801 (3, PS)

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Halichoeres nebulosus (Valenciennes, 1839)	T	SL	(Lee 1980; Fricke 1999; Fricke et al. 2013; Arndt & Fricke 2019) Remark: T according to Murase (2013). Tidal pool material from Mauritius at USNM, from Europa Island at SMF, from Loyalty Islands at SMNS.	SMNS 27708 (1, SL)
Halichoeres scapularis (Bennett, 1832)	T	HB	Fricke 1999 (Fricke et al. 2013; Sindorf et al. 2015; Arndt & Fricke 2019) Remark: Tidal pool material from Europa Island at SMF.	SMNS 20896 (1, HB)
Labroides dimidiatus (Valenciennes, 1839)	T	GA, TB	Fricke 1999 (Lee 1980; Yoshigou 2004; Sindorf et al. 2015; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 20718 (1, GA)
Novaculoides macrolepidotus (Bloch, 1791)	T	ES	(Bourjon & Fricke 2016)	
Stethojulis albovittata (Bonnaterre, 1788)	T	BC, GA, HB, PCH, PS, SL, TB	Fricke 1999; Fricke et al. 2009 (Durville & Chabanet 2009; Arndt & Fricke 2019) Remark: O according to Durville & Chabanet (2009); *Stethojulis sp* was listed as T by Cox et al. (2011). Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF.	SMNS 17033 (2, SL), 17066 (5, SL), 20675 (2, GA), 20714 (1), 20838 (13, BC), 20894 (4, HB), 20956 (46, SL), 21077 (8, PCH), 21222 (1, SL), 27121 (1, TB), USNM 345823 (7, PS)
Thalassoma amblycephalus (Bleeker, 1856)	T	CH, ES, HB, SL, SP, VI	Fricke 1999 (Lee 1980; Yoshigou 2004, as *T. amblycephala*; Fricke et al. 2013; Arndt & Fricke 2019, as *T. amblycephalum*) Remark: R according to Sindorf et al. (2015), but T according to Murase (2013). Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF, from Japan and Loyalty Islands at SMNS.	SMNS 17093 (1, SL), 20694 (1, CH), 20745 (1, SP), 20788 (1, VI), 20914 (1, HB)
Thalassoma genivittatum (Valenciennes, 1839) (Fig. 103)	T	BC, CH, CL, ES, HB, PS, TB	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM.	SMNS 20875 (1, BC), 20897 (3, HB), USNM 345825 (5, PS)
Thalassoma hardwicke (Bennett, 1830) (Fig. 104)	T	CH, CL, HB	(Fricke 1999; Lee 1980; Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF, from Loyalty Islands and Tonga at SMNS.	SMNS 20931 (1, HB)
Thalassoma purpureum (Forsskål in Niebuhr, 1775) (Fig. 105)	T	BC, CH, CL, ES, PA, PC, SP, SR, TB	Fricke 1999 (Lee 1980; Yoshigou 2004; Durville & Chabanet 2009; Arndt & Fricke 2019) Remark: O according to Durville & Chabanet (2009); T according to Cox et al. (2011). Tidal pool material from Mauritius at SMNS and USNM.	MNHN 1988-0443 (15, CH), SMNS 27133 (1, SR)
Thalassoma quinquevittatum (Lay & Bennett, 1839)	T	PS	Fricke 1999; Fricke et al. 2009, as *T. hebraicum* (Lee 1980; Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remarks: Tidal pool material from Europa Island at SMF.	USNM 345826 (1, PS)

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Thalassoma trilobatum (Lacepède, 1801) (Fig. 106)	T	BC, CH, RS, SL, SP, SR, TB, VI	Fricke 1999 (Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM, from Rodrigues, Cook Islands and Hawaiian Islands at SMNS, from Europa Island at SMF.	SMNS 17039 (9, SL), 17071 (5, SL), 20687 (17, CH), 20741 (10, SP), 20789 (15, VI), 20837 (1, BC), 20990 (1, SL), 21117 (1, SR)
Monacanthidae Nardo, 1843 – Filefishes				
Cantherhines dumerili (Hollard, 1854) (Fig. 107)	O	PC	(Fricke 1999; Yoshigou 2004)	
Cantherhines pardalis (Rüppell, 1837) (Fig. 108)	O	GA	Fricke 1999; Fricke et al. 2009	
Paramonacanthus pusillus (Rüppell, 1829)	O	BC	Fricke 1999	SMNS 20842 (1, BC)
Pervagor aspricaudus (Hollard, 1854)	O	HB	Fricke 1999	SMNS 20882 (1, HB)
Pervagor janthinosoma (Bleeker, 1854)	O	HB	Fricke 1999	SMNS 20883 (4, HB)
Moringuidae Gill, 1885 – Spaghetti eels				
Moringua ferruginea Bliss, 1883	?O	HB, PCH	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM.	SMNS 20885 (1, HB), 21065 (2, PCH)
Moringua javanica (Kaup, 1856)	?O	BC, HB, PCH, PS, SL, SP	Fricke 1999 (Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Rodrigues and Hawaiian Islands at SMNS, from Europa Island at SMF.	SMNS 20735 (1, SP), 20822 (18, BC), 20884 (3, HB), 20961 (1, SL), 21066 (4, PCH), USNM 345806 (8, PS)
Mugilidae Jarocki, 1822 – Mullets				
Agonostomus telfairii Bennett, 1832	T		Keith et al. 1999; Fricke 1999 (Arndt & Fricke 2019) Remark: Found in estuaries.	
Chelon melinopterus (Valenciennes, 1836)	T		(Fricke 1999, as *Liza melinoptera*; Fricke et al. 2009; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS.	
Crenimugil crenilabis (Forsskål in Niebuhr, 1775) (Fig. 109)	T	CH, CL, ES, PA, TB, VI	Fricke 1999 (Harrison & Senou 1999; Fricke et al. 2009; Arndt & Fricke 2019) Remarks: Also in tidal pools (Harrison & Senou 1999). Tidal pool material from Taiwan at SMNS.	SMNS 20783 (4, VI), 20952 (51, SL)
Crenimugil seheli (Fabricius, 1775)	T		Fricke 1999, as *Moolgarda seheli*; Keith et al. 1999, as *Valamugil seheli* (Ntiba et al. 1993; Arndt & Fricke 2019) Remark: Found in estuaries and tidal pools. Tidal pool material from Northern Territory/ Australia at SMNS.	
Ellochelon vaigiensis (Quoy & Gaimard, 1825)	T	SL, SP	Fricke 1999, as *Liza vaigiensis* Remark Tidal pool material from Western Australia and Queensland/Australia at SMNS.	SMNS 17092 (1, SL), 20756 (1, SP)

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Moolgarda cunnesius (Valenciennes, 1836)	T		Fricke 1999; Keith et al. 1999, as *Valamugil cunnesius* Remark: Found in estuaries.	
Mugil cephalus Linnaeus, 1758	T		Fricke 1999; Keith et al. 1999 (Tsering et al. 2012; Kwun et al. 2017; Arndt & Fricke 2019) Remark: Found in estuaries and tidal pools. Intertidal material from Mauritius at USNM. Tidal pool material from Western Australia and New South Wales/Australia at SMNS.	
Osteomugil robustus (Günther, 1861)	T		Fricke 1999; Keith et al. 1999, as *Valamugil robustus* (Arndt & Fricke 2019) Remark: Found in estuaries.	
Plicomugil labiosus (Valenciennes, 1836)	T	SR	**New record** for La Réunion. (Kwun et al. 2017)	SMNS 27134 (8, SR)
Mullidae Rafinesque, 1815 – Goatfishes				
Mulloidichthys flavolineatus (Lacepède, 1801) (Fig. 110)	O	BC, CH, GA, PC, PS, SL	Fricke 1999 (Yoshigou 2004; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Cook Islands at SMNS.	MNHN 1988-0437 (4, CH), SMNS 17061 (1, SL), 20816 (1, BC), USNM 345807 (2, PS)
Mulloidichthys vanicolensis (Valenciennes, 1831) (Fig. 111)	O	PS, TB	Fricke 1999 (Yoshigou 2004; Arndt & Fricke 2019)	SMNS 17090 (1, SL), USNM 345808 (1, PS)
Parupeneus barberinus (Lacepède, 1801)	O	BC, SL	Fricke 1999 (Lee 1980; Ntiba et al. 1993; Arndt & Fricke 2019)	SMNS 20870 (1, BC), 20994 (3, SL)
Parupeneus ciliatus (Lacepède, 1802) (Fig. 112)	O	BC, CL, ES, PCH, PS, SL, TB	Fricke 1999 (Yoshigou 2004; Arndt & Fricke 2019) Remark: Tidal pool material from Taiwan at SMNS.	SMNS 20866 (5, BC), 20950 (50, SL), 21078 (2, PCH), USNM 345830 (1, PS)
Parupeneus macronemus (Lacepède, 1801)	O	TB	(Ntiba et al. 1993; Arndt & Fricke 2019)	
Parupeneus trifasciatus (Lacepède, 1801) (Fig. 113)	O	BC, CH, ES, GA, HB, PCH, TB	Fricke 1999, as *P. bifasciatus*; Fricke et al. 2009 (Arndt & Fricke 2019)	MNHN 1981-1210 (1, CH), SMNS 20857 (8, BC), 20915 (1, HB), 21081 (1, PCH)
Muraenidae Rafinesque, 1815 – Moray eels				
Anarchias seychellensis Smith, 1962	**R***	CH, ES, PCH, SL, SP	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Hawaiian Islands at SMNS.	SMNS 17036 (1, SL), 17052 (1, SL), 20684 (4, CH), 20730 (3, SP), 20946 (8, SL), 21072 (1, PCH)
Echidna nebulosa (Ahl, 1789) (Fig. 114)	**R***	BC, CH, PA, PC, PS, SL	Fricke 1999 (Lee 1980; Fricke et al. 2013; Sindorf et al. 2015; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Europa Island at SMF.	MNHN 1988-0424 (1, CH), SMNS 27701 (2, SL), USNM 345794 (1, PS)

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Echidna polyzona (Richardson, 1845) (Fig. 115)	**R***	BC, ES, GA, PCH, TB	Fricke 1999 (Lee 1980; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Fiji at SMNS.	SMNS 20880 (1, BC), 21104 (1, PCH), USNM 345795 (1, PS)
Enchelycore pardalis (Temminck & Schlegel, 1846) (Fig. 116)	**R**	GA, VI	Fricke 1999; Fricke et al. 2009	
Gymnothorax buroensis (Bleeker, 1857) (Fig. 117)	**R**	CH, ES, HB	(Fricke 1999; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Europa Island at SMF. At La Réunion known from intertidal area on reef crest, L'Hermitage-les Bains.	SMNS 20889 (1, HB)
Gymnothorax chilospilus Bleeker, 1864	**R***	GA, PCH, PS, SL	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 20669 (1, GA), 20813 (1, BC), 21070 (1, PCH), 27705 (1, SL), USNM 345797 (6, PS)
Gymnothorax elegans Seale, 1917	**R**	SP		
Gymnothorax enigmaticus McCosker & Randall, 1982	O	SL	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 27704 (2, SL)
Gymnothorax eurostus (Abbott, 1860) (Fig. 118)	O	ES, PS, SL, SP	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 17029 (1, SL), USNM 345798 (2, PS)
Gymnothorax fimbriatus (Bennett, 1832)	O	ES, SL	(Lee 1980; Fricke et al. 2009; Arndt & Fricke 2019) Remark: Tidal pool material from Rodrigues at SMNS.	SMNS 17028 (1, SL)
Gymnothorax flavimarginatus (Rüppell, 1830 (Fig. 119)	O	CH, PCH, PS, SL, SP, TB, VI	Fricke 1999 (Lee 1980; Yoshigou 2004; Arndt & Fricke 2019) Remark: Young specimens in tidal pools (Fricke et al. 2009). Tidal pool material from Mauritius at USNM.	SMNS 20683 (2, CH), 20736 (2, SP), 20776 (1, VI), 21069 (3, PCH), 27703 (1, SL), USNM 345799 (2, PS)
Gymnothorax griseus (Lacepède, 1803) (Fig. 120)	?O	CL, HB, SL, TB	Fricke 1999 (Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Rodrigues at SMNS, from Europa Island at SMF.	SMNS 20881 (1), 20965 (1, SL)
Gymnothorax javanicus (Bleeker, 1859)	O		Fricke et al. 2009 (Arndt & Fricke 2009)	
Gymnothorax johnsoni (Smith, 1962)	O	SL, SP	Fricke 1999 (Arndt & Fricke 2019)	SMNS 17051 (1, SL), 20732 (1, SP), 20946 (1, SL)
Gymnothorax margaritophorus Bleeker, 1864	O	HB, PCH	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Loyalty Islands at SMNS.	SMNS 20890 (1, HB), 21071 (1, PCH)
Gymnothorax meleagris (Shaw, 1795) (Fig. 121)	O	BC, CH, GA, SL, TB, VI	Fricke 1999; Fricke et al. 2009 (Lee 1980; Yoshigou 2004, as *G. meleaglis*; Arndt & Fricke 2013) Remark: Tidal pool material from Mauritius at SMNS.	SMNS 20814 (4, BC), 20944 (1, SL)

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Gymnothorax pictus (Ahl, 1789)	**R**		(Lee 1980; Fricke 1999; Yoshigou 2004; Durville & Chabanet 2009; Fricke et al. 2009, 2013; Arndt & Fricke 2019) Remarks: Juvenile and adult specimens in tidal pools (Durville & Chabanet 2009); R according to Durville & Chabanet (2009) and Sindorf et al. (2015). Tidal pool material from Europa Island at SMF. At La Réunion recorded from subtidal areas only.	
Gymnothorax pseudothyrsoideus (Bleeker, 1853) (Fig. 122)	O	GA	**New record** from La Réunion and the Mascarenes.	
Gymnothorax rueppellii (McClelland,1844) (Fig. 123)	O	BC, CH, ES, GA, PCH, PS, SP	Fricke 1999; Fricke et al. 2009 (Yoshigou 2004, as *G. rueppelliae*; Fricke et al. 2013; Arndt & Fricke 2019) Remarks: Young specimens in shallow water and tidal pools (Fricke et al. 2009). Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF.	SMNS 20738 (1, SP), 20812 (5, BC). 21074 (1, PCH), USNM 345800 (1, PS)
Gymnothorax undulatus (Lacepède, 1803)	O	HB, SL	Fricke 1999; Fricke et al. 2009 (Lee 1980; Arndt & Fricke 2019) Remarks: Young specimens in shallow water and tidal pools (Fricke et al. 2009). Tidal pool material from Rodrigues, Western Australia and Loyalty Islands at SMNS.	SMNS 17063 (1, SL), 20895 (1, HB)
Uropterygius concolor Rüppell, 1838	O	PA, SL	(Fricke 1999)	SMNS 27702 (1, SL)
Uropterygius macrocephalus (Bleeker, 1864)	O		(Fricke 1999; *Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	
Ophichthidae Günther, 1870 – **Snake eels**				
Leiuranus semicinctus (Lay & Bennett, 1839)	O		(Fricke 1999; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Cook Islands at SMNS.	
Muraenichthys schultzei Bleeker, 1857	O		(Fricke 1999; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	
Myrichthys maculosus (Cuvier, 1816)	O	BC, SL	Fricke 1999 (Lee 1980; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Europa Island at SMF.	SMNS 20828 (1, BC), 20938 (2, SL)
Scolecenchelys robusta Hibino & Kimura, 2015	**R***	CH, PCH, PS, SP	Fricke 1999, as *Muraenichthys laticaudatus* (*Arndt & Fricke 2019) Remarks: Taxonomy follows Hibino & Kimura (2016). Tidal pool material from Mauritius at SMNS and USNM.	MNHN 1988-0426 (2, CH), SMNS 20733 (1, SP), 20734 (1, SP), 21817 (holotype, SP), 21067 (2, PCH), USNM 345809 (3, PS)
Yirrkala tenuis (Günther, 1870)	T		Keith et al. 1999; Fricke 1999 (Arndt & Fricke 2019) Remarks: Found in estuaries.	

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Ophidiidae Rafinesque, 1810 – Cusk-eels				
Brotula multibarbata Temminck & Schlegel, 1846	T		(Roux 2013; Arndt & Fricke 2019)	
Ostraciidae Rafinesque, 1810 – Boxfishes				
Ostracion cubicus Linnaeus, 1758 (Fig. 124)	T	BC, CH, HB, TB	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	MNHN 1988-0423 (5, CH), SMNS 20848 (5, BC), 20908 (1, HB)
Pempheridae Bleeker, 1859 – Sweepers				
Pempheris bruggemanni Randall & Victor, 2015 (Fig. 125)	**R**	ES, HB	Fricke 1999, as *P. oualensis* (non Cuvier 1831)	SMNS 21172 (1, HB)
Plesiopidae Günther, 1861 – **Longfins, Roundheads**				
Plesiops coeruleolineatus Rüppell, 1835 (Fig. 126)	**R***	GA, HB, PS, TB	Fricke 1999 (Lee 1980; Kwun et al. 2017; Arndt & Fricke 2019) Remark: Under rubble and stones in flood basins and pools (Kuiter & Tonozuka 2001, Masuda & Allen 1993). Tidal pool material from Mauritius at USNM.	SMNS 20711 (1, GA), 20927 (2, HB), USNM 345812 (2, PS)
Plotosidae Bleeker, 1858 – Eel catfishes				
Plotosus lineatus (Thunberg, 1787)	O	HB, PCH	Fricke 1999; Fricke et al. 2009 (Kwun et al. 2017; Sindorf et al. 2015; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Loyalty Islands at SMNS.	SMNS 20926 (20, HB), 21086 (220, PCH)
Polynemidae Rafinesque, 1815 – Threadfins				
Leptomelanosoma indicum (Shaw, 1804)	T		(Fricke et al. 2009; Arndt & Fricke 2019) Remarks: Inshore, including tidal pools, estuaries and lower reaches of streams (Fricke et al. 2009). No detailed locality published from Mauritius so far.	
Polydactylus plebeius (Broussonet, 1782) (Fig. 127)	T	SL, TB	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 17054 (11, SL)
Pomacanthidae Jordan & Evermann, 1898 – Angelfishes				
Pomacanthus imperator (Bloch, 1787) (Fig. 128)	O	PA	(Yoshigou 2004)	

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Pomacanthus semicirculatus (Cuvier, 1831)	O		(Lee 1980; Fricke et al. 2009; Arndt & Fricke 2019) Remark: T according to Murase (2013). Tidal pool material from Taiwan and Western Australia at SMNS.	
Pomacentridae Bonaparte, 1831 – Damselfishes				
Abudefduf margariteus (Cuvier, 1830)	O	SL, PS	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 17060 (1, SL), USNM 345769 (2, PS)
Abudefduf septemfasciatus (Cuvier, 1830) (Fig. 129)	O	CH, ES, PS, TB	Fricke 1999 (Lee 1980; Durville & Chabanet 2009; Kwun et al. 2017; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Queensland/Australia at SMNS.	USNM 345770 (5, PS)
Abudefduf sexfasciatus (Lacepède, 1801)	O	PS	Fricke 1999 (Sindorf et al. 2015; Kwun et al. 2017; Arndt & Fricke 2019) Remarks: R according to Sindorf et al. 2015; all species of *Abudefduf* are O according to Cox et al. 2011. Tidal pool material from Taiwan and Western Australia at SMNS.	USNM 345771 (1, PS)
Abudefduf sordidus (Forsskål in Niebuhr, 1775) (Fig. 130)	O	BC, CH, CL, ES, PA, PC, PCH, PS, SL, SP, SR, TB, VI	Fricke 1999. Fricke et al. 2009 (Lee 1980; Beckley 1985; Yoshigou 2004; Tsering et al. 2012; Kwun et al. 2017; Arndt & Fricke 2019) Remark: O according to Durville & Chabanet (2009); T according to Murase (2013). Tidal pool material from Mauritius at SMNS and USNM; from Rodrigues, Taiwan and Hawaiian Islands at SMNS, from Europa Island at SMF.	SMNS 17050 (3, SL), 20700 (1, CH), 20782 (4, VI), 21100 (1, PCH), 27115 (1, PS), 27135 (15, SR), USNM 345772 (1, PS)
Abudefduf sparoides (Quoy & Gaimard, 1825) (Fig. 131)	O	BC, CH, ES, GA, PS, SL, SP, SR, TB	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: R according to Sindorf et al. 2015. Tidal pool material from Mauritius at USNM, from Rodrigues at SMNS, from Europa Island at SMF.	SMNS 17064 (1, SL), 20719 (11, GA), 20853 (15, BC), 20978 (8, SL), USNM 345773 (2, PS)
Abudefduf vaigiensis (Quoy & Gaimard, 1825) (Fig. 132)	O	BC, CH, CL	Fricke 1999 (Lee 1980; Yoshigou 2004; Durville & Chabanet 2009; Fricke et al. 2013; Roux 2013; Kwun et al. 2017; Arndt & Fricke 2019) Remarks: O according to Lieske & Myers (2004) and Durville & Chabanet (2009); R according to Sindorf et al. (2015); T according to Griffiths (2003), T according to Murase (2013). Tidal pool material from Europa Island at SMF.	SMNS 20849 (1, BC)
Chromis atripectoralis Welander & Schultz, 1951	O	HB	Fricke 1999	SMNS 20901 (5, HB)
Chromis viridis (Cuvier, 1830)	O		(Fricke et al. 2009; Arndt & Fricke 2019)	
Chrysiptera biocellata (Quoy & Gaimard, 1825)	O		Fricke 1999 (Durville & Chabanet 2009; Sindorf et al. 2015; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	

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Chrysiptera brownriggii (Bennett, 1828) Figs. 133, 134)	O	CH, CL, GA, SP, TB	Fricke 1999, as *C. leucopoma* (Fricke et al. 2013; Arndt & Fricke 2019) Remark: R according to Sindorf et al. (2015), T according to Murase (2013). Tidal pool material from Europa Island at SMF, from Cook Islands at SMNS.	SMNS 20708 (1, GA)
Chrysiptera glauca (Cuvier, 1830)	O	CH, ES, GA, PCH, SL, TB	Fricke 1999; Fricke et al. 2009 (Lee 1980; Yoshigou 2004; Durville & Chabanet 2009; Fricke et al. 2013; Arndt & Fricke 2019) Remark: O according to Durville & Chabanet (2009); R according to Sindorf et al. (2015); T according to Murase (2013). Tidal pool material from Mauritius at USNM, from Europa Island at SMF.	MNHN 1988-0440 (2, CH), SMNS 17078 (6, SL), 20674 (2, GA), 20847 (13), 20951 (66, SL), 21097 (2, PCH), 27712 (8 SL)
Chrysiptera unimaculata (Cuvier, 1830) (Fig. 135)	O	BC, CH, CL, PC, SL, SR	Fricke 1999 (Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Europa Island at SMF.	MNHN 1988-0441 (1, CH), SMNS 17075 (10, SL), 20863 (2, BC), 27138 (2, SR), USNM 345784 (4, PS)
Dascyllus abudafar (Fabricius in Niebuhr, 1775)	O	HB	Fricke 1999; Fricke et al. 2009, as *D. aruanus* (non Linnaeus, 1758)	SMNS 20891 (21, HB)
Plectroglyphidodon dickii (Liénard, 1839) (Fig. 136)	O	GA, HB, TB	Fricke 1999 (Yoshigou 2004)	SMNS 20932 (1, HB)
Plectroglyphidodon imparipennis (Vaillant & Sauvage, 1875)	O	BC, CH, GA, SL, SP	Fricke 1999 (Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remarks: R according to Cox et al. 2011. Tidal pool material from Mauritius at USNM; from Europa Island at SMF, from Hawaiian Islands at SMNS.	SMNS 17044 (3, SL), 17070 (8, SL), 20679 (1, GA), 20702 (2, CH), 20865 (11, BC), 27714 (2, SL)
Plectroglyphidodon johnstonianus Fowler & Ball, 1924	O	GA, HB	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 20709 (1, GA), 20923 (4, HB)
Plectroglyphidodon phoenixensis (Schultz, 1943)	O	PH	(Fricke 1999; Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Europa Island at SMF.	
Plectroglyphidodon randalli Allen, 1991 (Fig. 137)	O	CH, CL, GA, TB	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 17065 (4, SL), 20701 (1, CH), 20713 (1, GA)
Pomacentrus agassizii Bliss, 1883 (Fig. 138)	O	CL, ES, GA, HB, SL, SR, TB	Fricke 1999 (Arndt & Fricke 2019) Remark: Usually single specimens, but dominant species at SL. Tidal pool material from Mauritius at SMNS.	SMNS 20710 (1, GA), 20900 (1, HB), 20964 (17, SL), 27122 (1, TB), 27139 (1, SR), 27710 (26, SL)
Pomacentrus caeruleus Quoy & Gaimard, 1825	O		(Fricke 1999; Sindorf et al. 2015; Arndt & Fricke 2019)	
Pomacentrus trichrourus Günther, 1867	O	BC, CH, GA, HB, PC, SL, SP	Fricke 1999	SMNS 20698 (4, CH), 20717 (1, GA), 20742 (3, SP), 20846 (13, BC), 20902 (1, HB), 20981 (2, SL)
Stegastes lacrymatus (Quoy & Gaimard, 1825)	O	SL	Fricke et al. 2009, as *Plectroglyphidodon lacrymatus*	SMNS 27713 (10, SL)

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Stegastes limbatus (Cuvier, 1830)	**R***	BC, CH, HB, PCH, SL, SP	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM, from Rodrigues at SMNS.	SMNS 17030 (32, SL), 20731 (15, SP), 20825 (14, BC), 20905 (17, HB), 20957 (51, SL), 21087 (3, PCH)
Stegastes luteobrunneus (Smith, 1960) (Fig. 139)	O	CL, HB, PS	Fricke 1999, as *S. fasciolatus*; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: *Stegastes* sp = O according to González-Murcia et al. (2016). Tidal pool material from Mauritius at USNM.	SMNS 20893 (1, HB), USNM 345821 (6, PS)
Stegastes nigricans (Lacepède, 1802) (Fig. 140)	O	BC, CH, ES, GA, PCH, SP, TB	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Rodrigues at SMNS.	MNHN 1988-0442 (3, CH), SMNS 20716 (1, GA), 20729 (3, SP), 20943 (33, SL), 21088 (3, PCH)
Stegastes pelicieri Allen & Emery, 1985	O	BC, HB, PS	Fricke 1999 (Arndt & Fricke 2019)	SMNS 20854 (1, BC), 20907 (3, HB), USNM 345822 (1, PS)
Stegastes punctatus (Quoy & Gaimard, 1825)	O	HB, SL	Fricke 1999 (Arndt & Fricke 2019) Remark. Tidal pool material from Loyalty Islands at SMNS.	SMNS 20903 (8, HB), 20982 (3, SL)
Pseudochromidae Müller & Troschel, 1849 – Dottybacks, Eel blennies				
Anisochromis mascarenensis Gill & Fricke, 2001	**R**	HB, SL	Gill & Fricke 2001; Fricke et al. 2009	SMNS 20933 (2, HB), 27720 (1, SL)
Haliophis guttatus (Forsskål in Niebuhr, 1775)*	**R**		(Durville & Chabanet 2009; Arndt & Fricke 2019)	
Scaridae Rafinesque, 1810 – Parrotfishes				
Chlorurus sordidus (Fabricius in Niebuhr, 1775)	O	CL, PC, TB	Fricke 1999; Fricke et al. 2009	SMNS 27711 (1, SL)
Chlorurus strongylocephalus (Bleeker, 1855)	O	HB	Fricke 1999	SMNS 20918 (2, HB)
Scarus ghobban Fabricius in Niebuhr, 1775	O	PCH, SP	Fricke 1999 (Arndt & Fricke 2019)	SMNS 21090 (1, PCH)
Scarus rubroviolaceus Bleeker, 1847 (Fig. 141)	O	TB	**New record** from La Réunion. (Yoshigou 2004)	
Scorpaenidae Risso, 1827 – Scorpionfishes				
Caracanthus madagascariensis (Guichenot, 1869) (Fig. 142)	?O	GA	(Fricke 1999; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	
Dendrochirus zebra (Cuvier, 1829) (Fig. 143)	T	CH, PS, TB	(Fricke 1999; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM.	MNHN 1988-0455 (1, CH), USNM 345792 (2, PS)
Parascorpaena aurita (Rüppell, 1838) (Fig. 144)	?O	ES, GA	**New record** from La Réunion.	
Parascorpaena mcadamsi (Fowler, 1938) (Fig. 145)	?O	ES	(Fricke 1999)	

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Pterois antennata (Bloch, 1787) (Fig. 146)	T	GA, PC, TB	(Fricke 1999)	
Pterois miles (Bennett, 1828) (Fig. 147)	T	CH, CL, ES, GA, PC, TB	Fricke 1999 (Ntiba et al. 1993; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	MNHN 1988-0455 1, CH)
Scorpaenodes corallinus Smith, 1957 (Fig. 148)	?O	ES, GA	**New record** from La Réunion and the Mascarenes,	
Scorpaenodes guamensis (Quoy & Gaimard, 1824)	?O	HB, PCH, PS, TB	Fricke 1999; Fricke et al. 2009 (Lee 1980; Yoshigou 2004; Fricke et al. 2013; Arndt & Fricke 2019) Remark: Tidal pool material from Europa Island at SMF.	SMNS 20920 (2, HB), 21061 (3, PCH), USNM 345818 (3, PS)
Scorpaenodes parvipinnis (Garrett, 1864)	?O	SL	Fricke 1999 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS, from Europa Island at SMF.	SMNS 17045 (1, SL)
Scorpaenopsis gibbosa (Bloch & Schneider, 1801) (Fig. 149)	?O	ES, PCH, SL	Fricke 1999 (Arndt & Fricke 2019)	SMNS 17081 (1, SL), 20974 (1, SL), 21083 (1, PCH)
Scorpaenopsis macrochir Ogilby, 1910 (Fig. 150)	?O	TB	**New record** for La Réunion.	
Scorpaenopsis possi Randall & Eschmeyer, 2002 (Fig. 151)	?O	TB	**New record** for La Réunion.	
Sebastapistes mauritiana (Cuvier, 1829)	**R***	BC, CH, GA, HB, PCH, SL, TB	Fricke 1999 (Yoshigou 2004, as *Sebastichtis mauritian*, Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM.	SMNS 17031 (8, SL), 17058 (6, SL), 20699 (1, CH), 20712 (3, GA), 20818 (24, BC), 20916 (4, HB), 20969 (16, SL), 21099 (3, PCH)
Sebastapistes strongia (Cuvier, 1829) (Fig. 152)	?O	GA	(Fricke 1999; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS.	
Sebastapistes tinkhami (Fowler, 1946) (Fig. 153)	?O	ES, TB	(Fricke 1999; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	
Taenianotus triacanthus Lacepède, 1802 (Fig. 154)	O	TB		
Siganidae Richardson, 1837 – Rabbitfishes				
Siganus argenteus (Quoy & Gaimard, 1825)	O	TB	Fricke 1999; Fricke et al. 2009	
Synanceiidae Swainson, 1839 – Stonefishes				
Synanceia verrucosa Bloch & Schneider, 1801	?O		(Fricke 1999; Fricke et al. 2009; Arndt & Fricke 2019) Remark: Tidal pool material from Rodrigues at SMNS.	

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Soleidae Bonaparte, 1833 – Soles				
Aseraggodes diringeri (Quéro, 2007) (Fig. 155)	?T	CH	Fricke et al. 2009	
Syngnathidae Bonaparte, 1831 – Seahorses, Pipefishes				
Choeroichthys valencienni Kaup, 1856	?O		(Fricke 1999; Fricke et al. 2009; Arndt & Fricke 2019)	
Corythoichthys flavofasciatus (Rüppell, 1838) (Fig. 156)	?T	BC, GA, PS	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 20855 (3, BC), USNM 345790 (2, PS)
Corythoichthys schultzi Herald, 1953 (Fig. 157)	?T	TB		
Doryrhamphus bicarinatus Dawson, 1981 (Fig. 158)	?T	PCH, PS, TB	Fricke 1999, as *D. excisus*; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 17074 (1, SL), 20861 (4, BC), 21101 (3, PCH), USNM 345793 (1, PS)
Halicampus mataafae (Jodan & Seale, 1906)	?O		(Fricke et al. 2009; Arndt & Fricke 2019)	
Hippocampus jayakari Boulenger, 1900 (Fig. 159)	?O	GA	Fricke 1999, as *H. histrix* (non Kaup 1856); Fricke et al. 2009	
Microphis millepunctatus (Kaup, 1856)	**R**		Fricke 1999; Keith et al. 1999 (Arndt & Fricke 2019) Remark: Found in estuaries (Dawson 1986). Intertidal material from Mauritius at USNM.	
Nannocampus pictus (Duncker, 1915)	?T	BC	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS.	SMNS 20843 (5, BC)
Phoxocampus belcheri (Kaup, 1856)	?T		Fricke 1999 (Arndt & Fricke 2019) Remark: T according to Murase (2013). Tidal pool material from Mauritius at USNM.	
Synodontidae Gill, 1861 – Lizardfishes				
Saurida gracilis (Quoy & Gaimard, 1824) (Fig. 160)	?O	CH, CL, GA, PS, SL, TB	Fricke 1999 (Ntiba et al. 1993; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	SMNS 17079 (1, SL), USNM 345831 (6, PS)
Synodus binotatus Schultz, 1953	?T	BC, ES, HB, SL	Fricke 1999	SMNS 20858 (3, BC), 20887 (6, HB), 20958 (3, SL)
Synodus dermatogenys Fowler, 1912	?T	PS	Fricke 1999 (Fricke et al. 2013) Remark: Tidal pool material from Europa Island at SMF.	USNM 345832 (2, PS)
Synodus variegatus (Lacepède, 1803)	?T	SL	Fricke 1999 (Arndt & Fricke 2019)	SMNS 17047 (1, SL), 17073 (1, SL), 20959 (1, SL)

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Tetraodontidae Bonaparte, 1831 – Pufferfishes				
Arothron hispidus (Linnaeus, 1758) (Fig. 161)	O	CH, ES	Fricke 1999, Fricke et al. 2009	
Arothron meleagris (Anonymous, 1798) (Fig. 162)	O	ES, TB	Fricke 1999, Fricke et al. 2009	
Arothron nigropunctatus (Bloch & Schneider, 1801) (Fig. 163)	O	ES, TB	Fricke 1999, Fricke et al. 2009	
Canthigaster amboinensis (Bleeker, 1864) (Fig. 164)	O	CH, CL, ES, GA, PC, SR	Fricke 1999; Fricke et al. 2009 (Yoshigou 2004; Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at SMNS and USNM, from Hawaiian Islands at SMNS.	MNHN 1988-0457 (1, CH), SMNS 20671 (1, GA), 27140 (1, SR)
Canthigaster janthinoptera (Bleeker, 1855)	O	HB, SL	Fricke 1999; Fricke et al. 2009 (Yoshigou 2004; Arndt & Fricke 2019)	SMNS 20913 (1, HB), 20972 (1, SL)
Canthigaster natalensis (Günther, 1870) (Fig. 165)	O	CL, ES, PS, TB	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019) Remark: Tidal pool material from Mauritius at USNM.	USNM 345780 (1, PS)
Canthigaster solandri (Richardson, 1845)	O		(Fricke 1999; Fricke et al. 2009; Sindorf et al. 2015; Arndt & Fricke 2019) Remark: May occur in intertidal areas (Fricke et al. 2009), such as reef flats (Froese & Pauly 2018) and intertidal seagrass meadows. Tidal pool material from Loyalty Islands and Cook Islands at SMNS.	
Canthigaster valentini (Bleeker, 1853) (Fig. 166)	O	HB, SL, TB	Fricke 1999; Fricke et al. 2009 (Yoshigou 2004; Arndt & Fricke 2019)	SMNS 20911 (1, HB), 20973 (1, SL)
Tripterygiidae Whitley, 1931 – Triplefins				
Enneapterygius elegans (Peters, 1876) (Fig. 167)	**R***	PCH, SL, SP, TB	Fricke 1999; Fricke et al. 2009 (Arndt & Fricke 2019)	SMNS 17042 (4, SL), 17085 (7, SL), 20753 (2, SP), 21109 (7, PCH)
Enneapterygius gruschkai Holleman, 2005 (Fig. 168)	**R***	ES, GA, PCH, TB	Fricke et al. 2009	SMNS 21106 (4, PCH), 27123 (4, TB), 27144 (15, TB)
Enneapterygius philippinus (Peters, 1868) (Fig. 169)	**R***	BC, ES, GA, HB, MB, PC, PCH, SL, TB	Fricke 1999; Fricke et al. 2009 (Fricke et al. 2013; Arndt & Fricke 2019) Remark: T according to Murase (2013). Tidal pool material from Mauritius at SMNS and USNM, from Europa Island at SMF.	SMNS 16998 (2, GA), 20834 (20, BC), 20983 (23, SL), 21102 (1, PCH), 21105 (6, PCH), 27145 (1, TB), 21176 (2, HB)
Enneapterygius tutuilae Jordan & Seale, 1906	?**R**		(Fricke 1999; Fricke et al. 2009; Arndt & Fricke 2019) Tidal pool material from Loyalty Islands at SMNS.	
Enneapterygius ventermaculus Holleman, 2007 (Fig. 170)	**R**	MB, SL	**New record** for La Réunion.	SMNS 21043 (1, MB), 21118 (2, MB), 27721 (6, SL)

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Families and species	Status	Tidal pool	Sources and remarks	Museum material from the intertidal zone of La Réunion
Helcogramma alkamr Holleman, 2007 (Fig. 171)	**R***	ES, GA, SL	Fricke et al. 2009, as *H. obtusirostris* (Arndt & Fricke 2019) Remarks: In high energy intertidal environments (Holleman 2007).	SMNS 16997 (1, GA), 16999 (1, GA), 17095 (1, SL), 20673 (1, GA)
Helcogramma fuscopinna Holleman, 1982	**R**		(Fricke 1999; Fricke et al. 2009; Arndt & Fricke 2019)	
Zanclidae Bleeker, 1876 – Moorish idols				
Zanclus cornutus (Linnaeus, 1758) (Fig. 172)	O	CL, ES, PC	(Fricke 1999, as *Z. canescens*; Yoshigou 2004; Fricke et al. 2009)	

Table 2. Permanent resident species in volcanic rock pools at La Réunion. Location of records: CH – Cap de la Houssaye; CL – Coulée de lave; ES – Etang Salée; GA – Grande Anse; MB – Manapany-les-Bains; PA – Port Ango; PC – Pointe Corail; PCH – Pointe des Chateaux; PS – Pointe au Sel; SL – Saint-Leu; SP – Saint-Philippe; SR – Sainte-Rose; TB – Trois Bassins; VI – Vincendo.

Species	Family	N (pools)	Locations	Remarks
Istiblennius edentulus (Forster & Schneider in Bloch & Schneider, 1801)	Blenniidae	13	BC, CH, CL, ES, GA, MB, PA, PCH, PS, SL, SP, SR, TB	Very abundant species throughout, including shallow and deep pools.
Bathygobius fuscus (Rüppell, 1830)	Gobiidae	8	BC, ES, PC, PS, SL, SR, TB, VI	Locally very abundant (SR, VI); also occurring in the smallest and shallowest pools.
Entomacrodus striatus (Valenciennes, 1836)	Blenniidae	8	CH, ES, GA, PA, PC, PCH, SL, SP	Few individuals, locally common, in moderately deep pools and reef top pools, on rocks and boulders covered with algae.
Enneapterygius philippinus (Peters, 1868)	Tripterygiidae	7	ES, GA, MB, PC, PCH, SL, TB	Few individuals, locally common (BC); on rocks covered with algae.
Blenniella gibbifrons (Quoy & Gaimard, 1824)	Blenniidae	6	BC, CH, ES, GA, SL, VI	Few individuals; usually in deeper pools, on rocks with algae growth.
Echidna nebulosa (Ahl, 1789)	Muraenidae	6	BC, CH, PA, PC, PS, SL	Single individuals in crevices of deeper pools, or on reef top pools; a pair in a shallow pool at SL.
Istiblennius bellus (Günther, 1861)	Blenniidae	6	CH, CL, SL, SP, SR, VI	Few specimens to locally abundant (CH).
Bathygobius coalitus (Bennett, 1832)	Gobiidae	5	ES, PA, PC, SL, VI	Locally very abundant (SL, VI); also occurring in the smallest and shallowest pools.
Bathygobius cocosensis (Bleeker, 1854)	Gobiidae	5	CH, ES, PA, SR, VI	Few individuals; may occur in small tidal pools,
Echidna polyzona (Richardson, 1845)	Muraenidae	5	BC, CH, ES, PCH, TB	Single individuals in crevices of deeper pools, or reef top pools.

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Species	Family	N (pools)	Locations	Remarks
Entomacrodus epalzeocheilos (Bleeker, 1859)	Blenniidae	5	BC, CH, SP, SR, VI	Few individuals; on rocks covered with algae.
Sebastapistes mauritiana (Cuvier in Cuvier & Valenciennes, 1829)	Scorpaenidae	5	CH, GA, PCH, SL, TB	Few individuals in deeper pools; abundant in reef top pools (BC, SL).
Anarchias seychellensis Smith, 1962	Muraenidae	4	CH, PCH, SL, SP	Few individuals; usually in crevices of deeper pools.
Enneapterygius elegans (Peters, 1876)	Tripterygiidae	4	PCH, SL, SP, TB	Few individuals on rocks covered with algae.
Enneapterygius gruschkai Holleman, 2005	Tripterygiidae	4	ES, GA, PCH, TB	Few individuals on rocks covered with algae.
Eviota prasina (Klunzinger, 1871)	Gobiidae	4	CH, CL, PCH, SL	Locally very abundant (BC, HB, PCH, SL), on encrusted rocks.
Gymnothorax chilospilus Bleeker, 1864	Muraenidae	4	GA, PCH, PS, SL	Single or few individuals in crevices of deeper pools.
Scolecenchelys robusta Hibino & Kimura, 2015	Ophichthidae	4	CH, PCH, PS, SP	Few individuals in crevices of deeper pools.
Stegastes limbatus (Cuvier in Cuvier & Valenciennes, 1830)	Pomacentridae	4	CH, PCH, SL, SP	Locally very common (BC, SP, SL) near large boulders, defending their territory aggressively.
Antennablennius bifilum (Günther, 1861)	Blenniidae	3	CL, GA, SL	Few individuals; usually in deeper pools, on rocks with algae growth.
Blenniella cyanostigma (Bleeker, 1849)	Blenniidae	3	CH, PS, SL	Few individuals; usually in deeper pools, n rocks with algae growth.
Blenniella periophthalmus (Valenciennes in Cuvier & Valenciennes, 1836)	Blenniidae	3	ES, SL, SR	Few individuals, locally common, in deeper pools or reef top pools, on rocks with algae growth.
Plesiops coeruleolineatus Rüppell, 1835	Plesiopidae	3	GA, PS, TB	Few individuals in crevices of deeper pools.
Alticus monochrus Bleeker, 1869	Blenniidae	2	SP, SR	Always single individuals in a pool, whereas numerous individuals were active on the seaward rocks.
Callogobius flavobrunneus (Smith, 1958)	Gobiidae	2	SL, SP	Few individuals.
Helcogramma alkamr Holleman, 2007	Tripterygiidae	2	GA, SL	Single individuals on rocks in exposed pools.
Bathygobius cyclopterus (Valenciennes in Cuvier & Valenciennes, 1837)	Gobiidae	1	MB	A single individual.
Dodekablennos fraseri Springer & Spreitzer 1978	Blenniidae	1	CH	Rare; single individual; deep, exposed pool.
Entomacrodus vermiculatus (Valenciennes in Cuvier & Valenciennes, 1836)	Blenniidae	1	TB	Rare; deep pool; on rocks covered with algae.
Mascarenichthys heemstrai Schwarzhans & Møller 2007	Dinematichthyidae	1	PCH	Single individual in crevices of deep, exposed pool.
Springeratus polyporatus Fraser, 1972	Clinidae	1	PS	Few individuals in crevices of a deeper pool.

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The assignment to one of these categories was established on the basis of literature references such as Murase (2013) and Sindorf et al. (2015), the authors' observations, and information about size as well as developmental stage of the examined fishes in different studies such as Ntiba et al. (1993), Durville & Chabanet 2009, Ghanbarifardi & Malek (2009), Gonzalez-Murcia et al. (2016), and Arndt & Fricke (2019). It is worth mentioning that there are no generally used or standardized abbreviations of the aforementioned categories in the existing literature, e.g., 'PR' means partial resident in Cox et al. (2011), but permanent resident in Sindorf et al. (2015). Permanent resident species are treated in more detail (Table 2), as these data are of special importance for habitat conservation. When prioritizing pools, it is important to take permanent residents into account, as this habitat is obligatory for them.

Field examination of fishes in tidal pools

The fishes of all selected tidal pools (see description above) were examined repeatedly since October 1995. The examination time was determined by the tides, usually starting half an hour before low tide and ending half an hour after low tide. Qualitative surveys of fish species in the pools were conducted by collection with anesthetics (clove oil) and visual census, at low tide. The pools were also repeatedly visited at night. Photographs for later analyses were taken during visual censuses. During the surveys at low tide, the number of permanent resident species was counted to estimate their abundance (Gibson 1999). The total number of fish specimens in each pool was also counted/estimated. Other species representing secondary residents or transients were simply photographed and registered without counting. All fish species observed in the tidal pools are included in Table 1.

Results and discussion

Diversity of tidal-pool fishes

A total of 323 fish species from La Réunion are reported from intertidal habitats (Table 1). Among these are approximately 63 transients, 177 opportunists, and 65 permanent residents. The families with most species occurring in the intertidal zone include Gobiidae (42 species), Blenniidae (31 species), Labridae (20 species), Muraenidae (21 species), and Scorpaenidae (17 species). The category of some species, here provisionally listed as opportunists, could not be determined with certainty as not enough data were available. Moray eels (Muraenidae), gobies (Gobiidae), blennies (Blenniidae), roundheads (Plesiopidae), kelp blennies (Clinidae), triplefin blennies (Tripterygiidae), dragonets (Callionymidae), and also snake eels (Ophichthidae) include permanent intertidal residents that may spend their whole life in tidal pools. A few permanent resident species, including *Damania anjouanae* (Blenniidae), *Enchelyurus kraussii* (Blenniidae), *Istiblennius dussumieri* (Blenniidae), *Diplogrammus infulatus* (Callionymidae), *Gymnothorax pictus* (Muraenidae), *Haliophis guttatus* (Pseudochromidae), *Enneapterygius tutuilae* (Tripterygiidae), and *Helcogramma fuscopinna* (Tripterygiidae), are known from subtidal waters at La Réunion, but were recorded from tidal pools elsewhere.

Table 1 does not include several of the pelagic species and fishes that usually forage in open water or near the water surface (e.g., anchovies, herrings, carangids, barracudas, or needlefishes), though they can often be observed visiting intertidal habitats, especially mangrove creeks, during the juvenile stage (Bianchi 1985; Whitehead 1985; Whitehead et al. 1988; Aguilar-Perera & Appeldoorn 2007). Ntiba et al. (1993) recorded several representatives of the above-mentioned families in intertidal mangrove creeks in Kenya, e.g., *Herklotsichthys quadrimaculatus* (Rüppell, 1837), *Spratelloides delicatulus* (Bennett, 1832), *Gnathanodon speciosus* (Forsskål, 1775), *Trachinotus baillonii* (Lacepède, 1801), *Trachinotus blochii* (Lacepède, 1801), *Chanos chanos* (Fabricius in Niebuhr, 1775), *Hemirhamphus far* (Fabricius in Niebuhr, 1775), *Lobotes surinamensis* (Bloch, 1790), *Sphyraena barracuda* (Catesby, 1771), and *Sphyraena jello* Cuvier, 1829. All of these species are known to occur at La Réunion (Fricke 1999), but most have so far not been recorded from intertidal habitats of the island.

The tidal pool fish fauna presented here also includes 22 new records of fishes from La Réunion (see Table 1): *Zebrasoma desjardinii* (Bennett, 1836) (family Acanthuridae), previously known from the island but misidentified; *Antennarius indicus* Schultz, 1964 (family Antennariidae); *Apogon dammermani* Weber & Beaufort, 1929 (family Apogonidae); *Atherinomorus pinguis* (Lacepède, 1803) (family Atherinidae); *Tylosurus melanotus* (Bleeker, 1850) (family Belonidae); *Entomacrodus vermiculatus* (Valenciennes, 1836), *Mimoblennius rusi* Springer & Spreitzer, 1978, and *Omobranchus elongatus* (Peters, 1855) (family Blenniidae); *Bathygobius meggitti* (Hora & Mukerji, 1936), *Cabillus lacertops* (Smith, 1959), *Eviota punyit* Tornabene, Valdez & Erdmann, 2016, *E. sodwanaensis* Greenfield & Winterbottom, 2016, *Fusigobius inframaculatus* (Randall, 1994), and *F. pallidus* (Randall, 2001) (family Gobiidae); *Plicomugil labiosus* (Valenciennes, 1836) (family Mugilidae); *Gymnothorax pseudothyrsoideus* (Bleeker, 1853) (family Muraenidae); *Scarus rubroviolaceus* Bleeker, 1847 (family Scaridae); *Parascorpaena aurita* (Rüppell, 1838), *Scorpaenodes corallinus* Smith, 1957, *Scorpaenodes possi* Randall & Eschmeyer, 2002, and *Scorpaenopsis macrochir* Ogilby, 1910 (family Scorpaenidae); *Enneapterygius ventermaculus* Holleman, 2007 (family Tripterygiidae).

Permanent residents in volcanic rock pools

A total of 32 permanent residents were found, predominantly in volcanic rock pools (Table 2) as opposed to coralline rock pools (part of the coral reef), where much

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fewer permanent residents were found. Species numbers in the volcanic rock pools increased in proportion to the surface area of stones (rocks) covering the pool bottom. The pools with the highest number of residents were SL (19 species), PCH (13 species), CH (12 species), SP and TB (9 species each), PS (8 species), and SR (7 species). The most speciose families in volcanic rock pools were Blenniidae (11 species), followed by Gobiidae (6 species), Muraenidae (5 species), and Tripterygiidae (4 species).

Istiblennius edentulus was the most widespread resident species in volcanic rock pools (found in 13 pools), followed by *Bathygobius fuscus* and *Entomacrodus striatus* (8 pools), *Enneapterygius philippinus* (7 pools), and *Istiblennius bellus* (6 pools).

The abundance of *B. fuscus* decreased with increasing pool depth and increasing pool surface; it occupied very shallow areas of the pools, often very crowded during the lowest ebb-tide level. A similar 'overcrowding effect' was observed in *I. edentulus*, with a negative correlation between its abundance and pool surface area during low tide. Furthermore, there was a close relation between the abundance of *I. edentulus* and the algae cover on one hand, and between *B. fuscus* and pools with a long period of isolation during the tidal cycle on the other. The starry moray (*Echidna nebulosa*) and the ebony gregory (*Stegastes limbatus*) occur in large pools with a supply of boulders.

Comparison with other W Indian Ocean islands

Few publications have dealt specifically with intertidal fishes in the Western Indian Ocean. Durville & Chabanet (2009) found a total of 32 fish species in intertidal rockpools on the Glorieuses Islands north of the Mozambique Channel. The authors classified 19 of these species as 'typical population' also occurring during as adults in these habitats, whereas the remaining 13 species were observed as juveniles only. The examined pools were located high in the infralittoral zone, thus more or less isolated during long periods of the tidal cycle, and they had a surface area of approximately 2 m^2 during low tide, similar to the present study. Several taxa listed as permanent or temporary residents by Durville & Chabanet (2009) were confirmed in La Réunion pools, e.g., the temporary residents *Kuhlia mugil*, *Chaetodon lunula*, *Stethojulis albovittata*, *Thalassoma purpureum*, *Acanthurus triostegus*, *Chrysiptera biocellata*, *Chrysiptera glauca*, three species of *Abudefduf*, and the permanent resident *Istiblennius edentulus*. In contrast to our findings at La Réunion, Durville & Chabanet (2009) found juveniles and adults of the moray eel *Gymnothorax pictus* and several adults of the eel blenny *Haliophis guttatus* in their small pools. For the authors, these species met the criteria of 'typical' for intertidal pools, i.e., the species represented permanent residents in the Glorieuses Islands tidal pools. *Gymnothorax pictus* and *H. guttatus* seem to be rare in La Réunion, and no records from tidal pools have been published so far. However, Beckley (1985) confirmed that eel blennies may represent permanent intertidal residents and may occur in tidal pools in large numbers (Arndt & Fricke 2009).

Sindorf et al. (2015) recorded 55 species during an examination of intertidal fishes in a national park in Kenya, 21 of which were permanent residents. Twenty-five of these species also occur in La Réunion tidal pools; however, we assigned several of them to different resident categories (see remarks in Table 1). Five wrasses and seven damselfishes occurred in both Kenyan and La Réunion tidal pools, but not a single permanent resident of either gobies or blennies.

Two tidal pool studies refer to sites in the northern Indian Ocean. Ghanbarifardi & Malek (2009) examined pool communities along the Iranian coast (Persian Gulf and Gulf of Oman). The large majority of fish (93.5%) represented permanent residents of gobies and blennies; three species of either family were most abundant. The remaining 6.5% comprised eight species from six families, all of which are temporary residents. None of the abundant species along the Iranian coast occur in La Réunion (Ghanbarifardi & Malek 2009, table 2). Tsering et al. (2012) published a study from Goa (India). All of the examined pools were small (surface < 1 m^2), but their depth ranged from 0.1–0.7 m. Seven fish species were recorded altogether, including gobies, blennies, and *Abudefduf sordidus*, which may represent permanent residents, but information referring to this category was not given by the authors. The pools from Goa were dominated by *Istiblennius dussumieri*, while in La Réunion the dominant species was *I. edentulus*.

Arndt & Fricke (2019) examined the intertidal fish fauna of the neighbouring island of Mauritius. They recorded a total of 292 fish species, with 62 species representing permanent intertidal residents. These numbers are lower than those at La Réunion, which has 28 species more than Mauritius. Although the majority of fish species are also found in the tidal pools of La Réunion, there were quite some differences. In the family Blenniidae, both islands share 23 species (77%), including 16 permanent residents (64 %), while 7 species (23%) are different, including 6 residents (20%). The two islands share 32 species (80%) of Gobiidae, including 6 permanent residents (15%); 14 species (35%) are different, including 4 permanent residents (10%). Similar figures were observed for Muraenidae and Tripterygiidae. Approximately two-thirds of the intertidal species are identical at La Réunion and Mauritius, while one-third is different. This difference may be due to the dominance of relatively recent lava rocks in tidal pools of La Réunion, while Mauritius tidal pools are dominantly formed by coralline rock or eroded lava rocks. We observed differences even in the most abun-

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dant tidal pool species. At Mauritius, *Bathygobius coalitus*, *Istiblennius edentulus*, and *I. bellus* were the most common species in shallow tidal pools, while *Bathygobius fuscus* was rare. At La Réunion, *Bathygobius fuscus* was dominant and much more common than *B. coalitus*, and *Istiblennius edentulus* was common, while *I. bellus* was usually rare (except at Saint-Leu, where it was the dominant species).

In the present field study, the total number of permanent intertidal residents was low compared to the results of Durville & Chabanet (2009) or Sindorf et al. (2015), but similar to those reported for Mauritius by Arndt & Fricke (2019). This low number of residents could be due to the low depth and small size of several of the examined pools. Arndt & Fricke (2019) observed a decrease in tidal pool species at Mauritius between 1995 and 2018; they supposed there were fundamental reasons, e.g., environmental change due to eutrophication and industrial sewage, including heavy metal pollution, effects of eutrophication due to a high input of nitrate, and effects due to increasing population and tourism. At La Réunion, there seems to be a similar decrease of tidal pool species, although this may be difficult to quantify. A total of 44 species recorded subtidally from La Réunion have been reported from tidal pools elsewhere, but were not found in the intertidal region in La Réunion; this equals 15.4% of the total intertidal species.

A comparably low number of resident species does not necessarily mean low abundances of fish. Especially in smaller pools, the abundance of permanent resident species was quite high, with an average of 5.98 individuals/m^2 and a maximum value of 10 individuals/m^2 for *Bathygobius fuscus* at Sainte-Rose (SR). The abundance increased with decreasing pool size, peaking in pools with a surface area between 1–2 m^2 during lowest ebb-tide level. Lundquist & Pinkerton (2008), who examined tidal pools in New Zealand, estimated an abundance of 10 fish/m^2 across their intertidal study area, Bennett & Griffiths (1984) counted an average of 7.42 individuals per m^2 in South Africa, while in Central America, Gonzáles-Murcia et al. (2016) found mean total abundances of between 5 fish/m^2 in high shore pools and 12 fish/m^2 in pools at lower shore sections in El Salvador, but opportunists and transients were included in these studies.

Fish diversity in relation to tidal pool size

Larger tidal pools usually have more algae cover due to a lower abundance of herbivores, e.g., blennies. It is thus not surprising that these larger pools, which contain more algal and rock ledge cover, host a larger and more diverse population of fish. Pool depth, volume, and the variety of microhabitats such as the presence of shells, pebbles, and rock ledges strongly influence richness and total abundance of fish (Mahon & Mahon 1994; White et al. 2015). White et al. (2015) examined very small pools with an area of 20 cm^2 to 8 m^2 in New South Wales (Australia) and included all 27 recorded fish species in their analysis. In the present study, we used another approach focusing on the diversity of permanent residents. The species number increased with pool size. However, the results show that specific pool microhabitats are associated with the occurrence and abundance of particular species. After the exclusion of fundamental oceanographic parameters, because lagoon or wave-exposed open sea sites affected stone and sand coverage of examined pools differently, features like algae cover and the presence of boulders contributed mainly to the occurrence of certain permanent residents. We observed that the abundance of the two most common species, *B. fuscus* and *I. edentulus*, was negatively correlated with pool surface area, and that of *B. fuscus* also with pool depth. Deep and large pools tend to contain predators (White et al. 2015), and shallow and small pools with a long isolation period during the tidal cycle obviously may be beneficial for these permanent residents. This 'overcrowding effect' may be linked to the absence of predators in these very small pools. Comparison of the present data with results of a survey made in the same area in 1995–1999 suggests that a decline of resident species occurred during the last decades, probably linked to human influences such as eutrophication and water pollution.

Importance of pools for temporary residents

It is well known that a large number of intertidal fishes stay in intertidal habitats only temporarily and that most of them shelter in these narrow and more or less isolated habitats as juveniles but move to deeper water as adults. This can be observed in mangrove areas (Nagelkerken et al. 2000; Laegdsgaard & Johnson 2001; Ikejima et al. 2003; Mumby et al. 2004; Jaxion-Harm et al. 2012) and estuaries (Miller et al. 1985; Able 2005; Vasconcelos et al. 2008; Figueiredo & Pessanha 2016), in which vegetated habitats within estuaries tend to harbour higher densities of many fish species compared to unvegetated substrates (Sogard 1992; Arndt & Fricke 2019).

Tidal pools also offer shelter for juvenile temporary residents (Mahon & Mahon 1994; Gibson & Yoshiyama 1999, Durville & Chabanet 2009; Ghanbarifardi & Malek 2009; Murase 2015; Sindorf et al. 2015; Gonzalez-Murcia et al. 2016). In La Réunion, we identified 205 temporary residents (71.9% of all intertidal species in the study area, see Table 1). Wrasses (Labridae), gobies (Gobiidae), damselfishes (Pomacentridae), groupers (Serranidae), moray eels (Muraenidae), and surgeonfishes (Acanthuridae) comprise temporary residents that can be found most frequently in tidal pools of La Réunion.

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Conclusions

A considerable portion of littoral fishes occur in the intertidal environment and the present study yielded a large number of intertidal species in La Réunion. However, knowledge of the local distribution and ecology of these species is still fragmentary. Intertidal habitats are prone to human influences. Comparison of past and present data from La Réunion suggests a decline of intertidal residents over the last decades. A more detailed knowledge of intertidal communities and more long-term data could enable us to use intertidal fishes as indicators of environmental change and human impact. Our observations suggest a decline of intertidal residents over the last decades. As coastal habitats are strongly impacted by urbanization and anthropogenic activities, intertidal fish communities can serve as indicators of coastal environmental change. For this reason, a future monitoring of tidal pool communities and a more detailed analysis, e.g., with respect to the distribution of feeding types in the communities and to the linking of community parameters to parameters of water quality is highly desirable, not only in La Réunion but also elsewhere.

The results of this study increase our knowledge of intertidal communities in the Western Indian Ocean and could inspire further research towards use of intertidal species for monitoring and applied approaches in environmental research. As a relatively large number of fish species live exclusively in volcanic rock pools, and other species need them as shelter for juveniles, this special habitat needs more attention in marine and coastal conservation.

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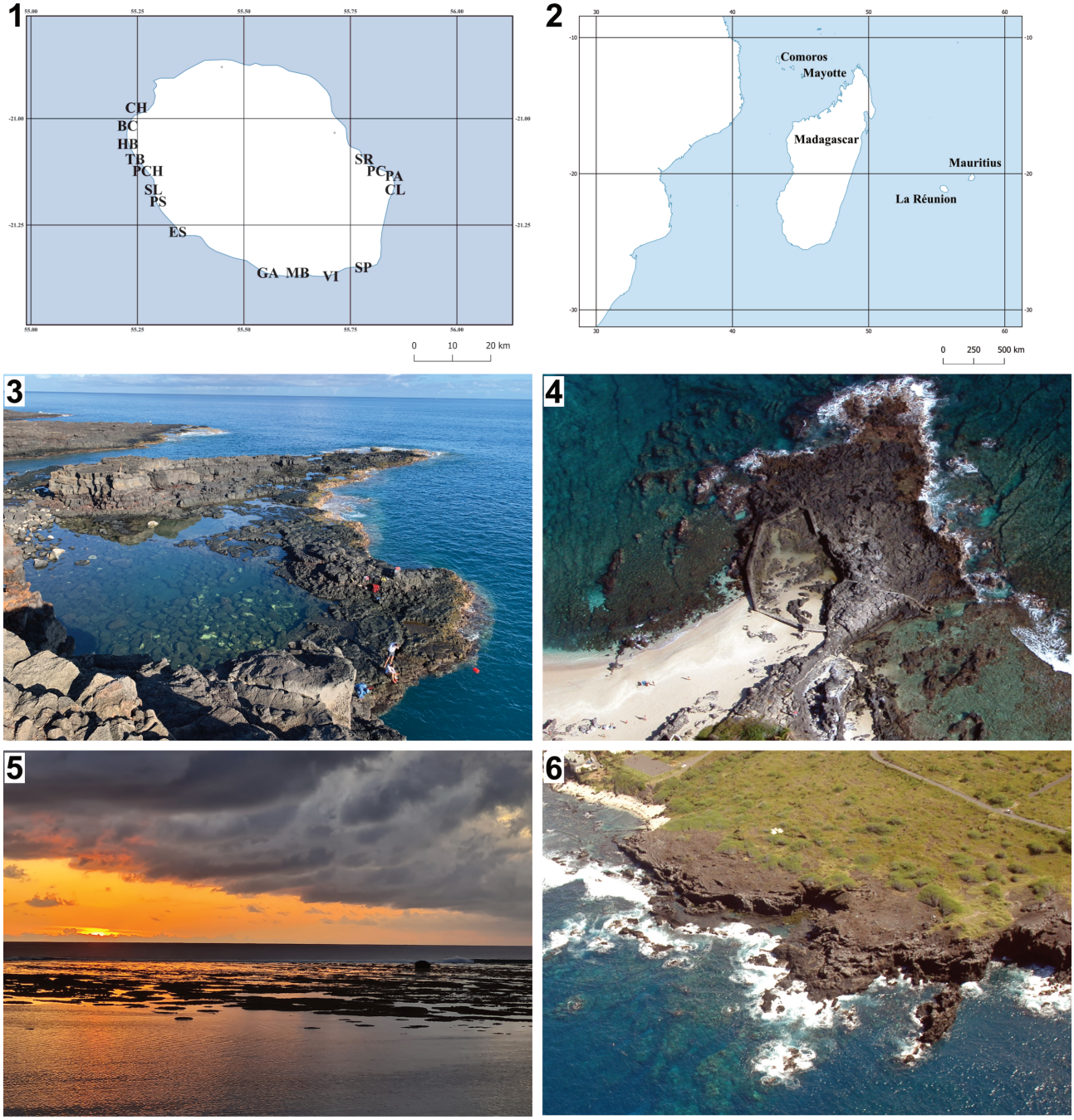

Figs. 1–6. Islands in the southwestern Indian Ocean and examined tidal pools. **1**. Islands in the southwestern Indian Ocean, indicating the relative position of the Comoros, Madagascar, Mayotte, La Réunion and Mauritius. **2**. Location of examined tidal pools in La Réunion. BC – Boucan-Canot; CH – Cap de La Houssaye; CL – Coulée de lave; ES – Etang Salé; GA – Grande Anse; HB – L'Hermitage-les-Bains; MB – Manapany-les-Bains; PA – Port Ango; PC – Pointe Corail; PCH – Pointe des Chateaux; PS – Pointe au Sel; SL – Saint-Leu; SP – Saint-Philippe; SR – Sainte-Rose; TB – Trois Bassins; VI – Vincendo. **3**. Cap de La Houssaye (CH), large tidal pool. Photograph: Jean-Pascal Quod. **4**. Boucan-Canot (BC), tidal pools. Photograph: Jean-Pascal Quod. **5**. L'Hermitage-les-Bains (HB), reef top pools at extremely low tide, 8 November 2022. Photograph: Ronald Fricke. **6**. Trois Bassins west (TB), tidal pools. Photograph: Ronald Fricke.

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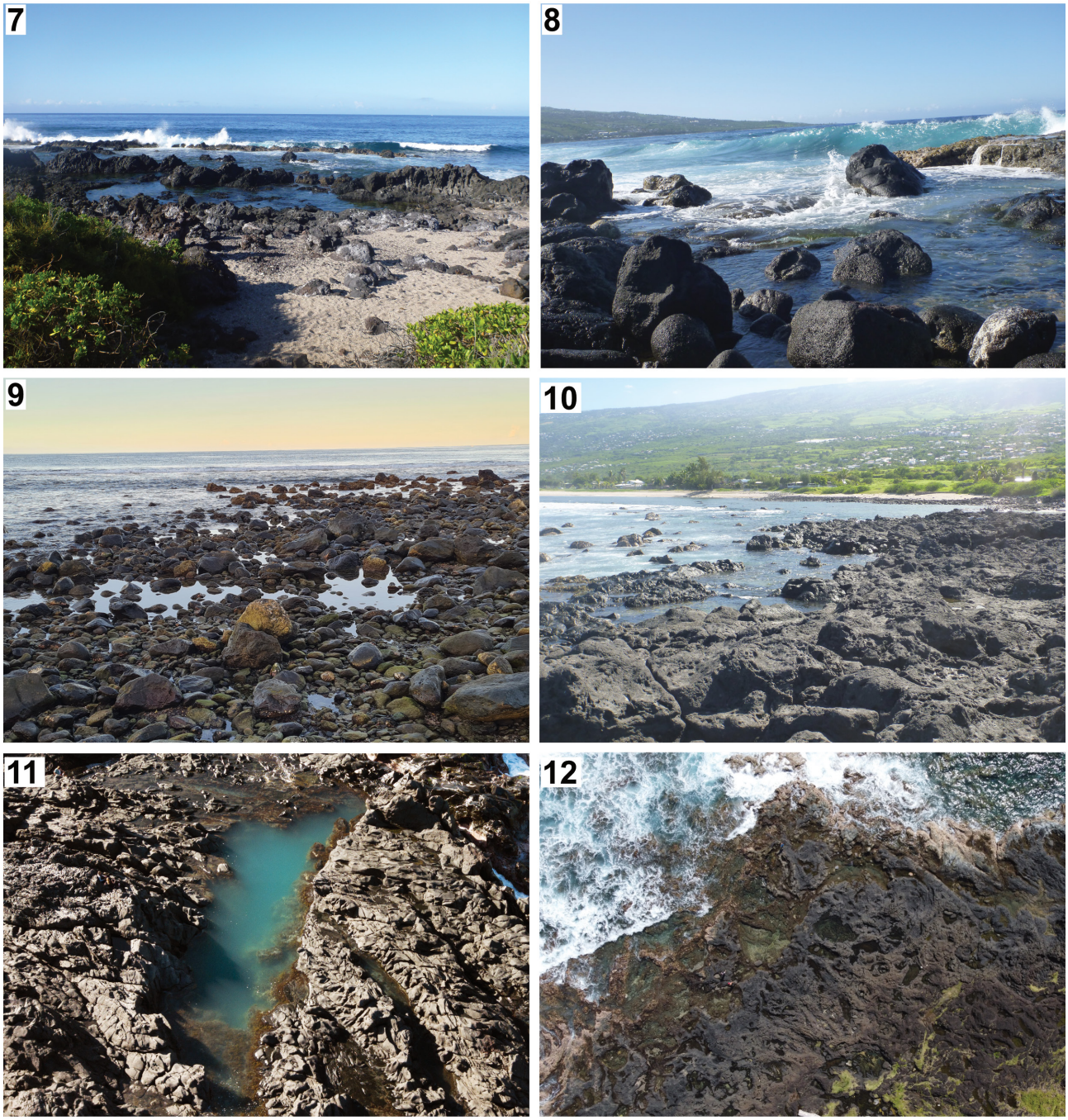

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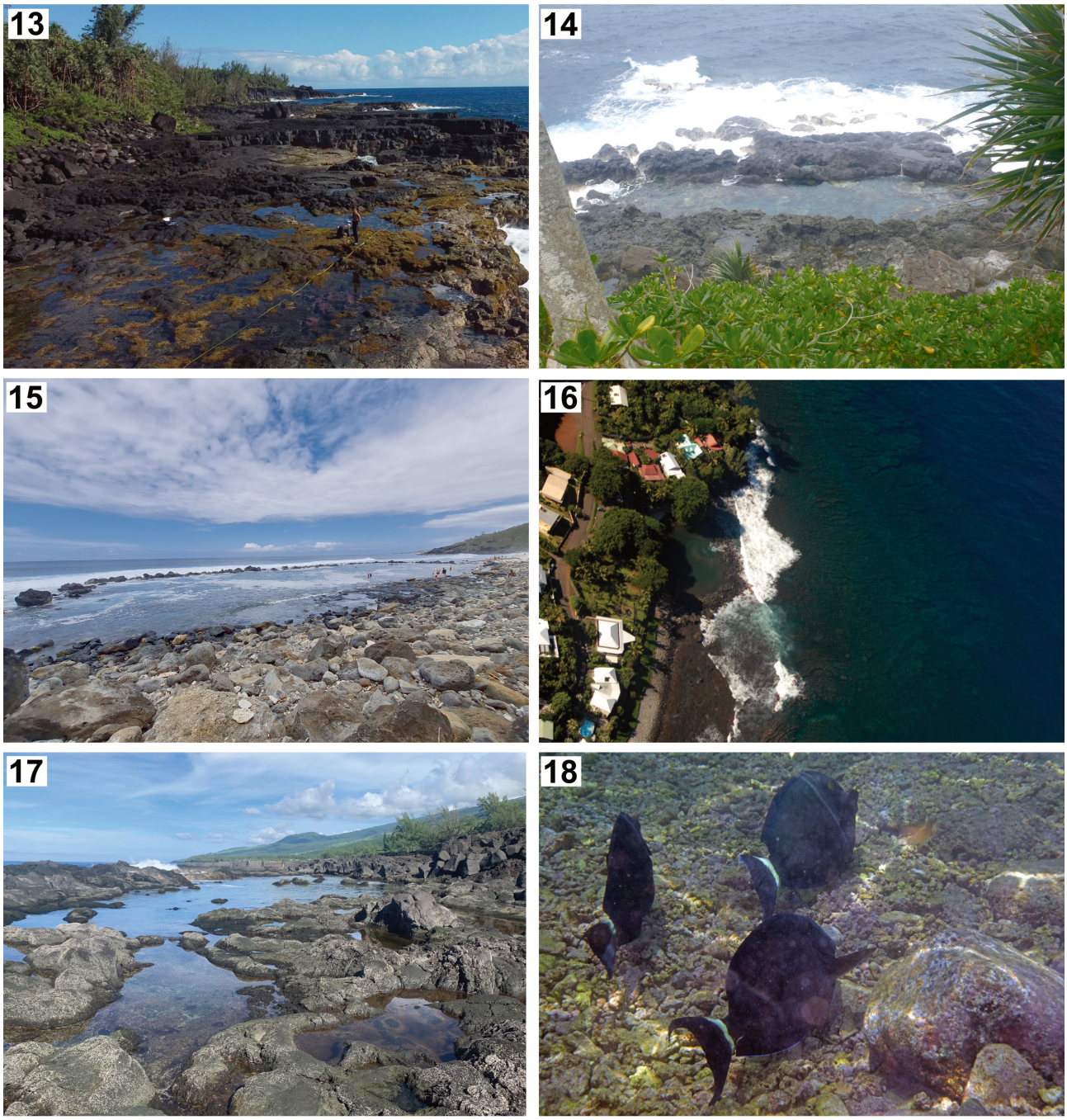

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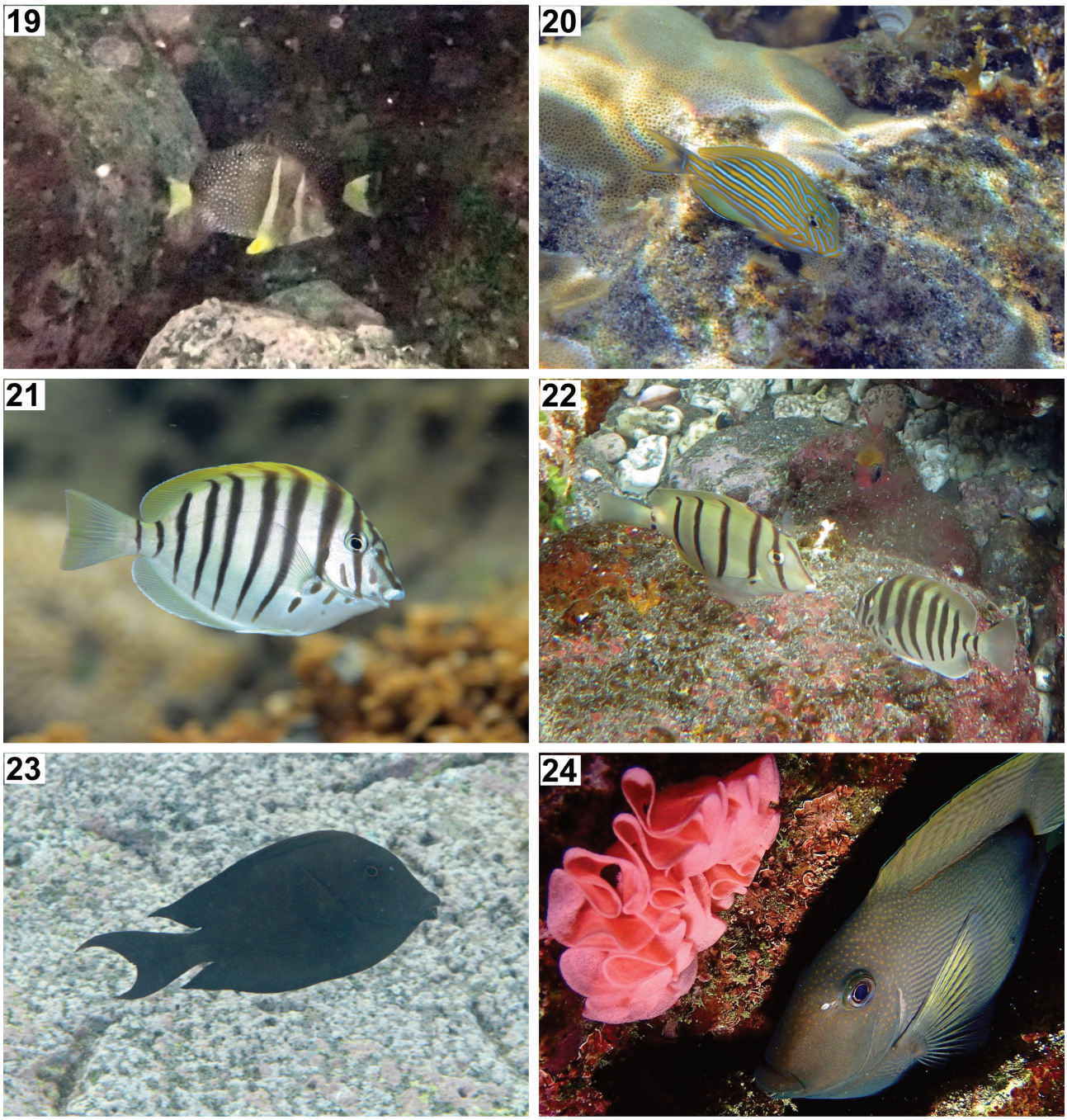

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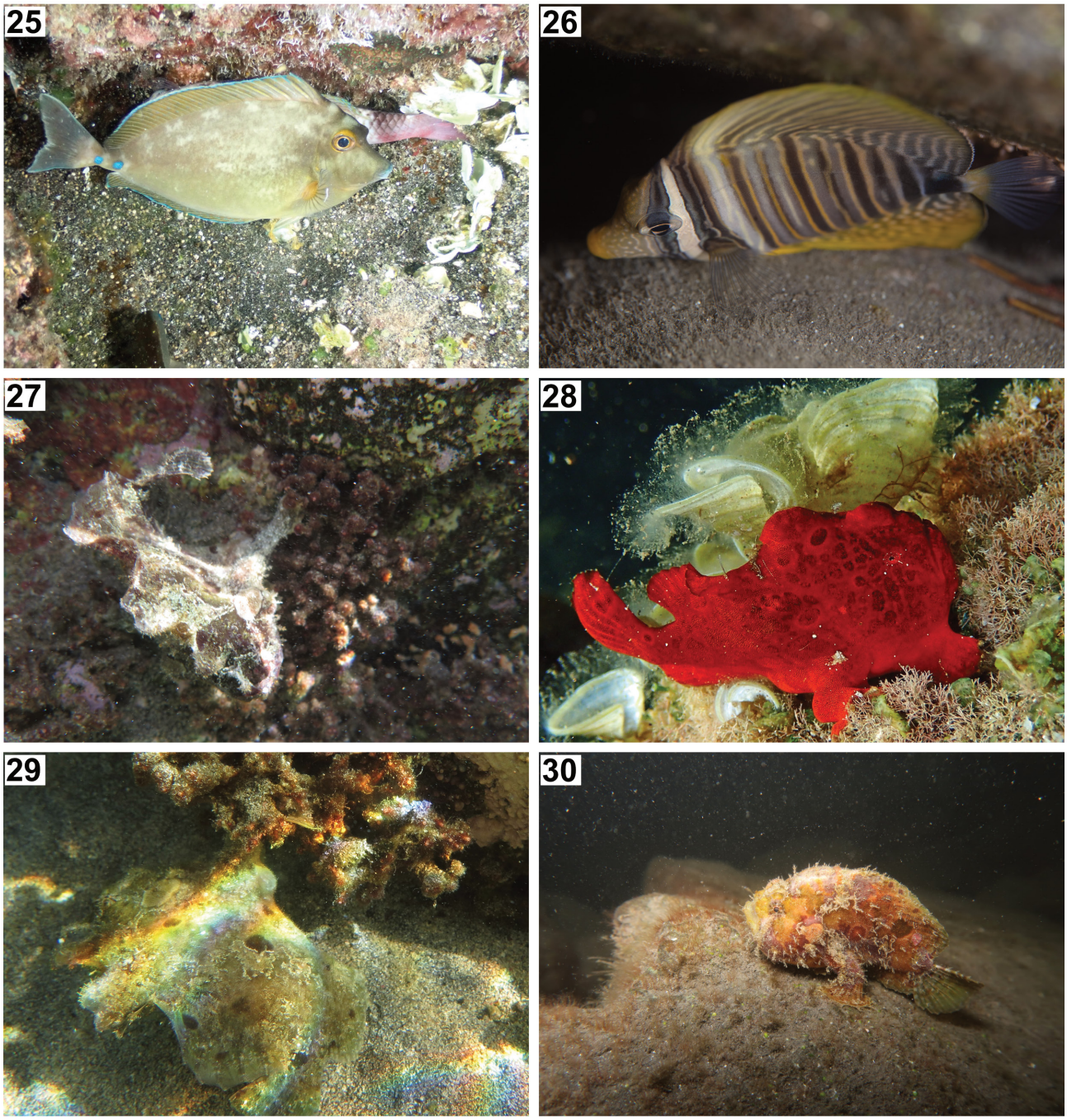

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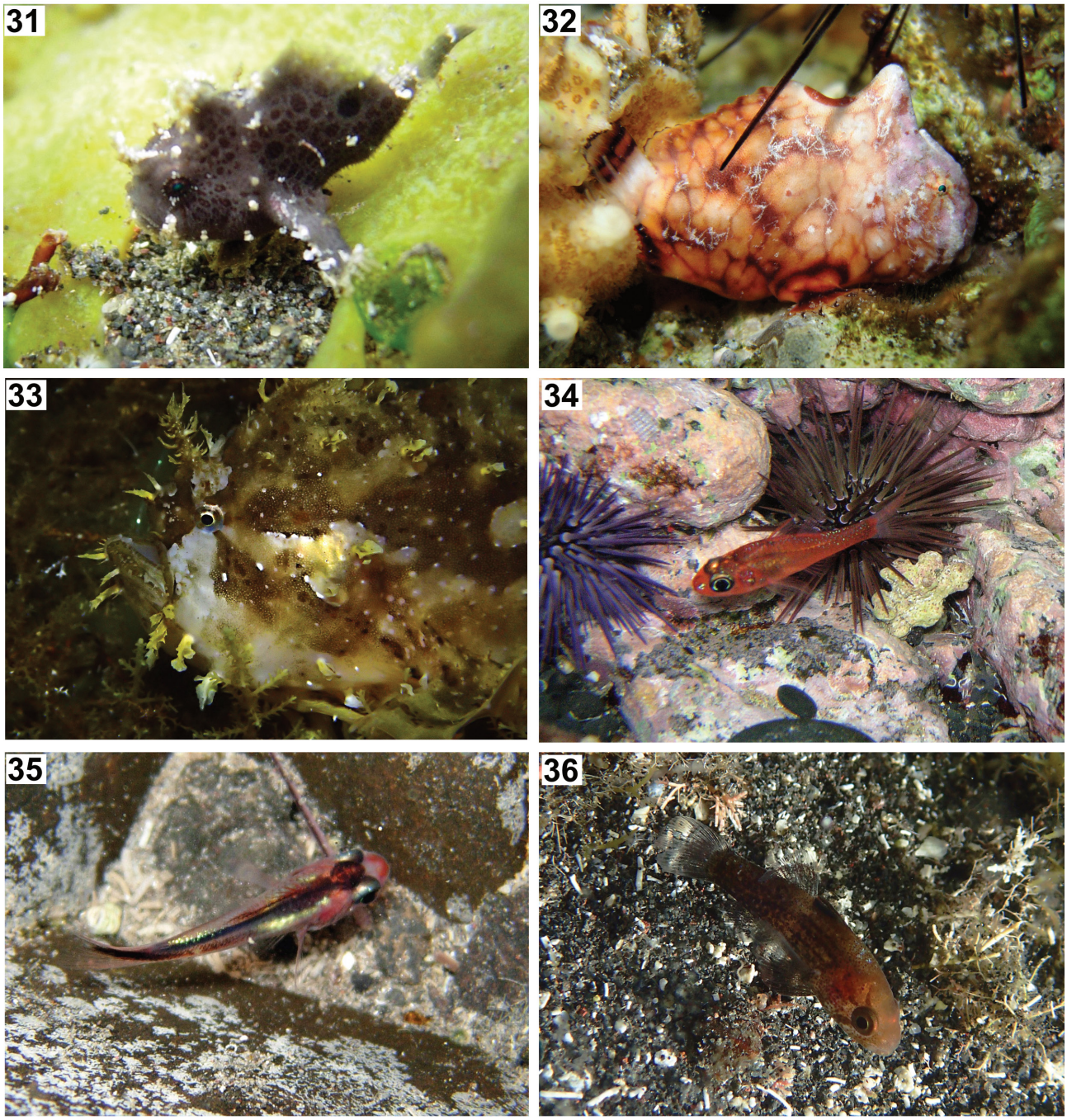

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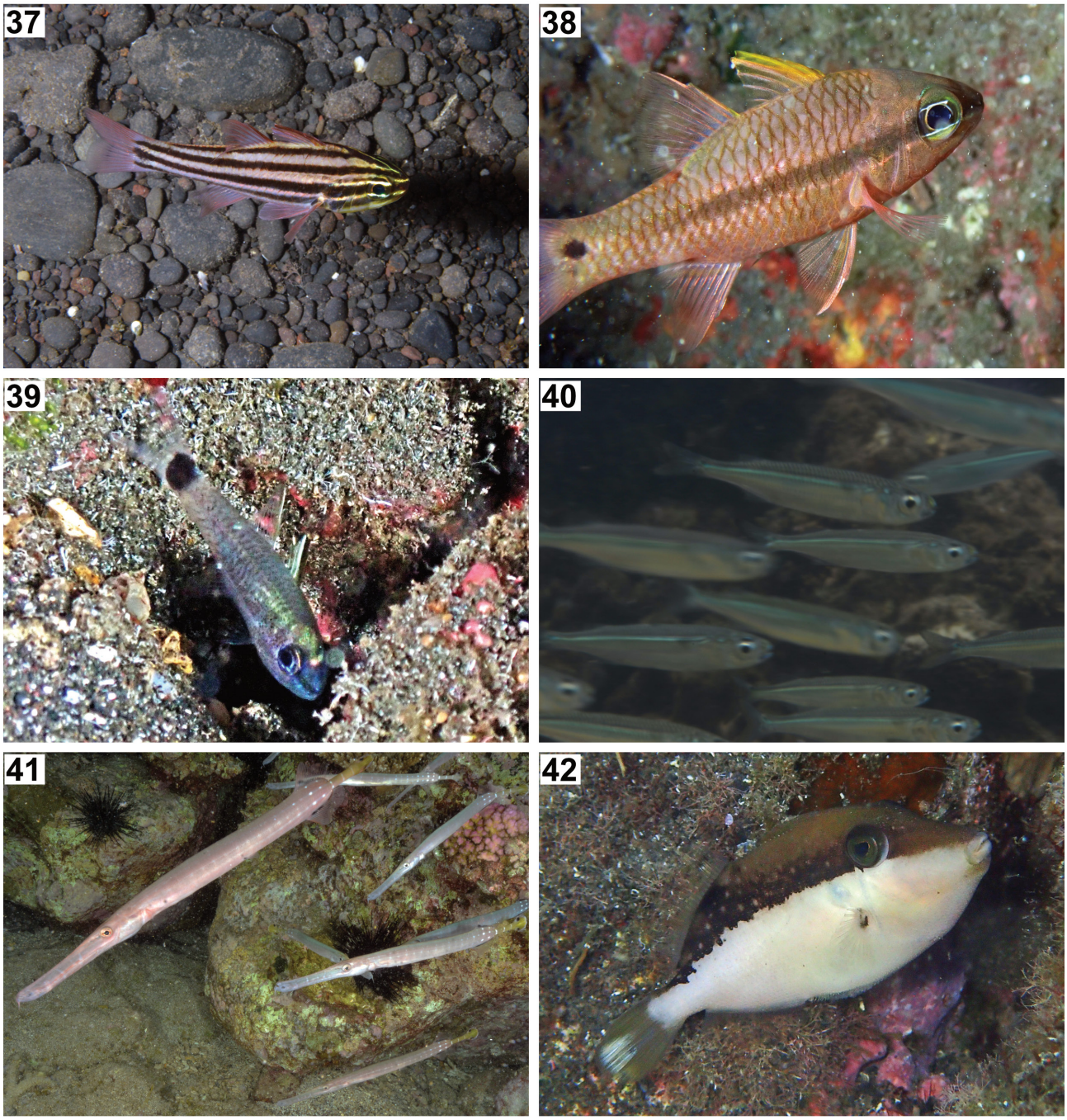

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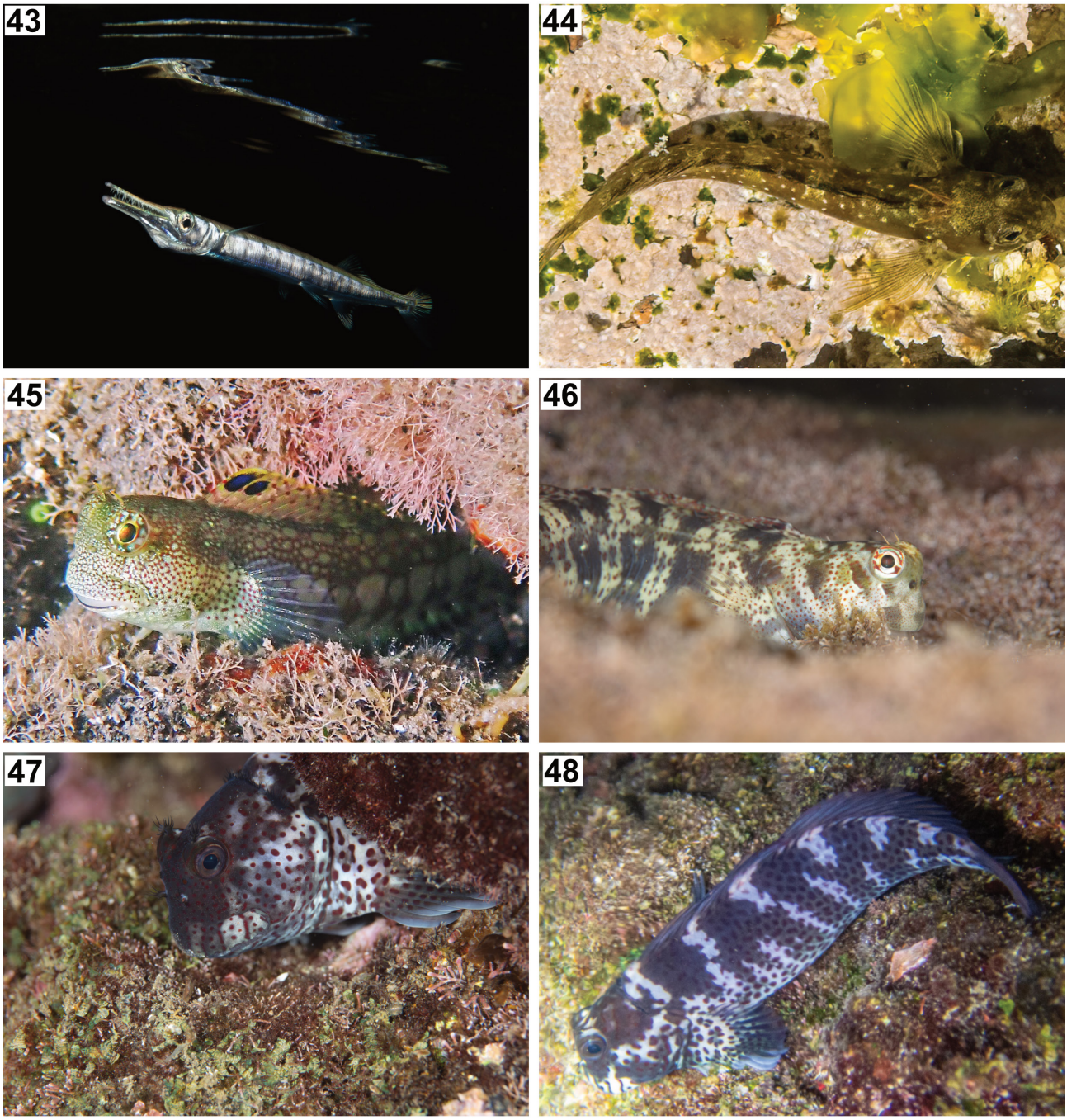

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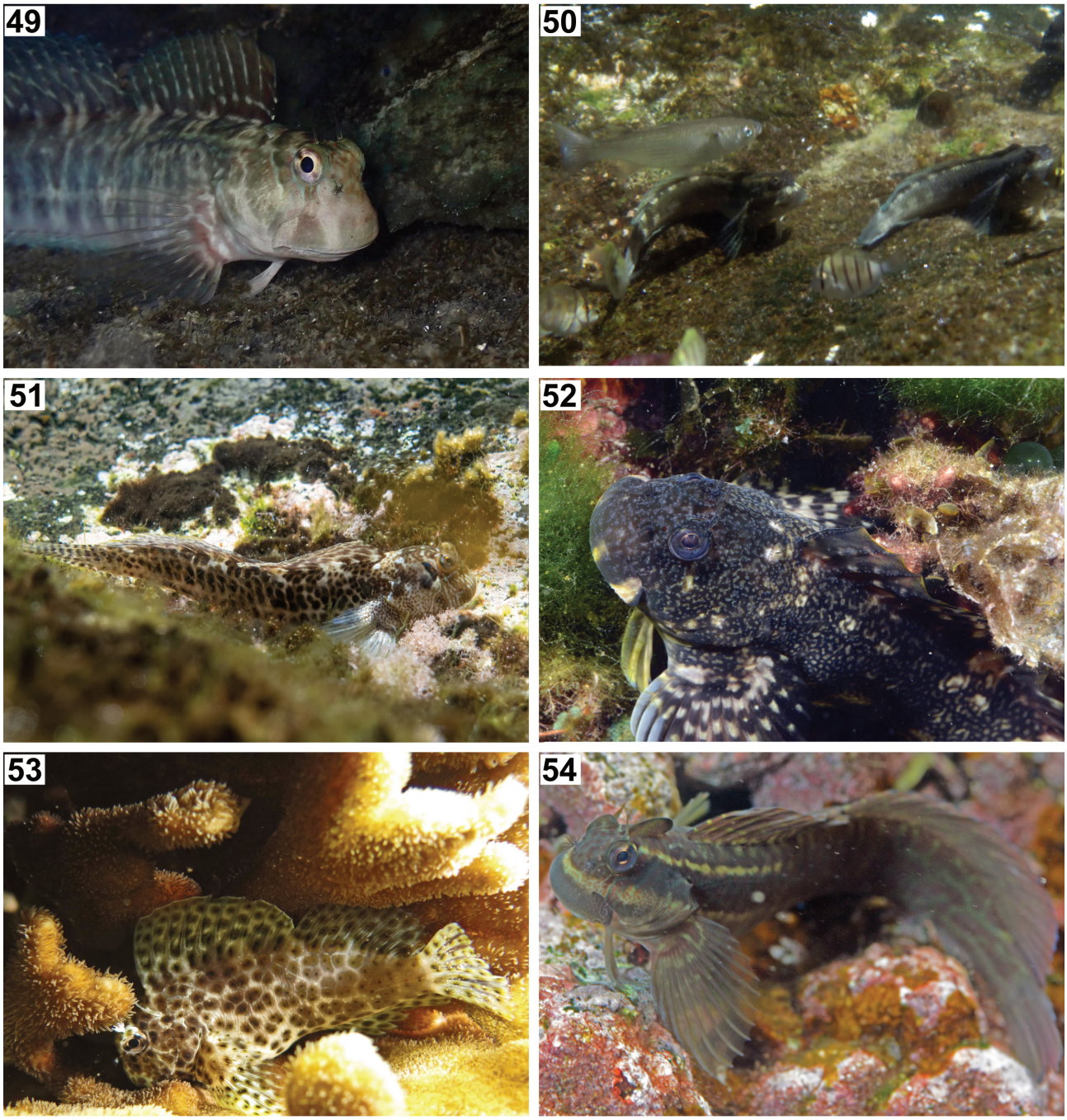

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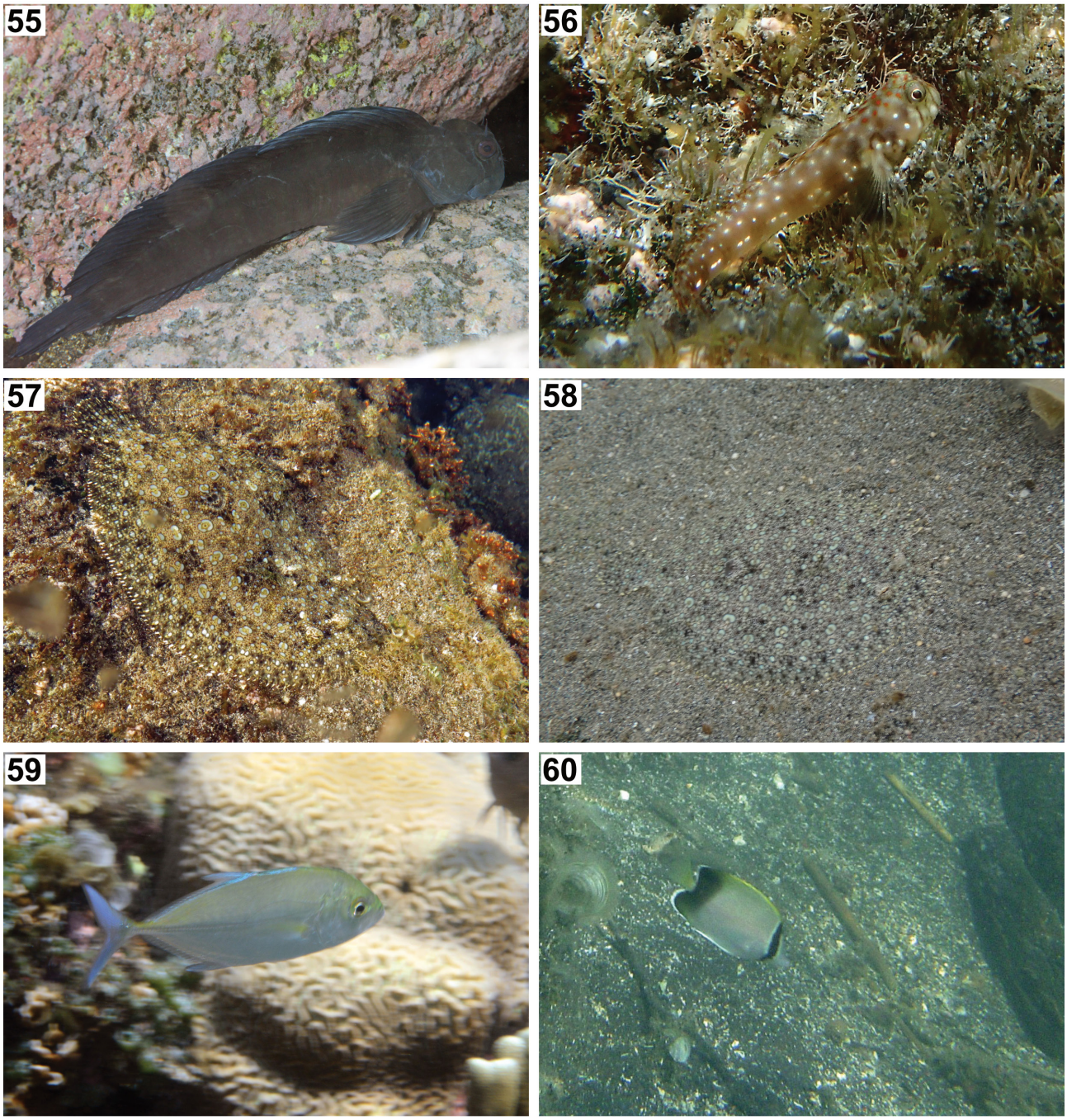

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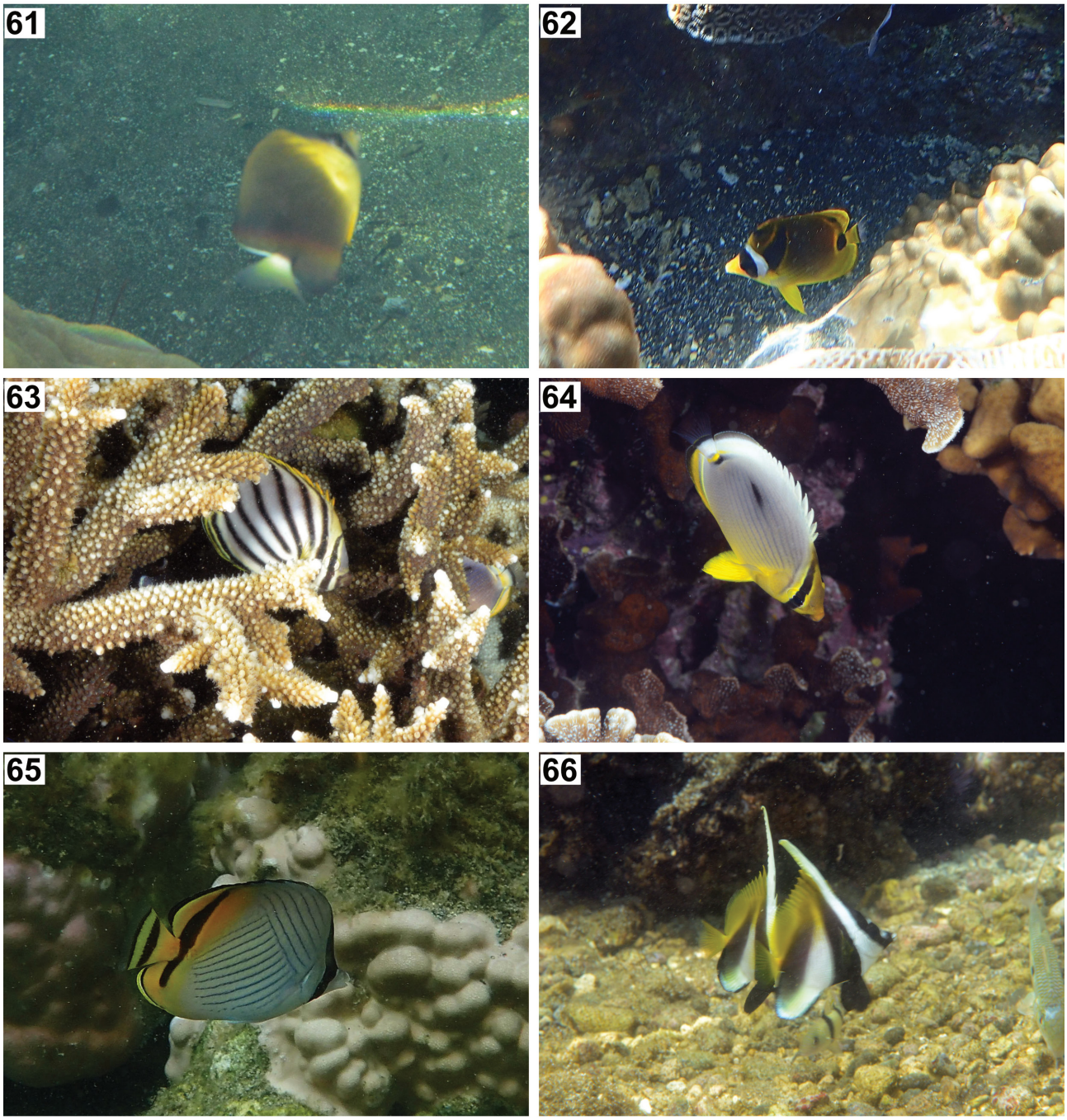

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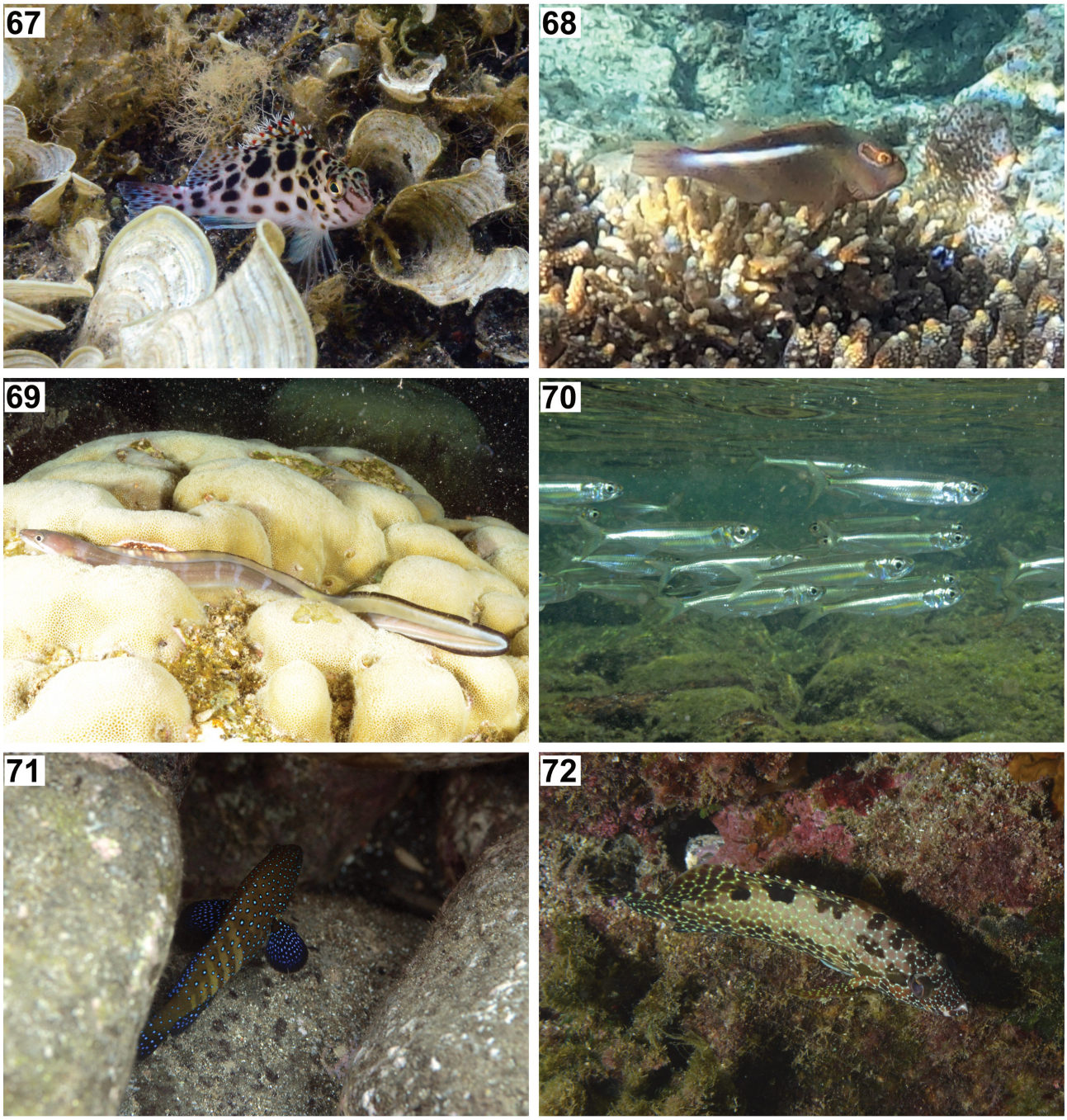

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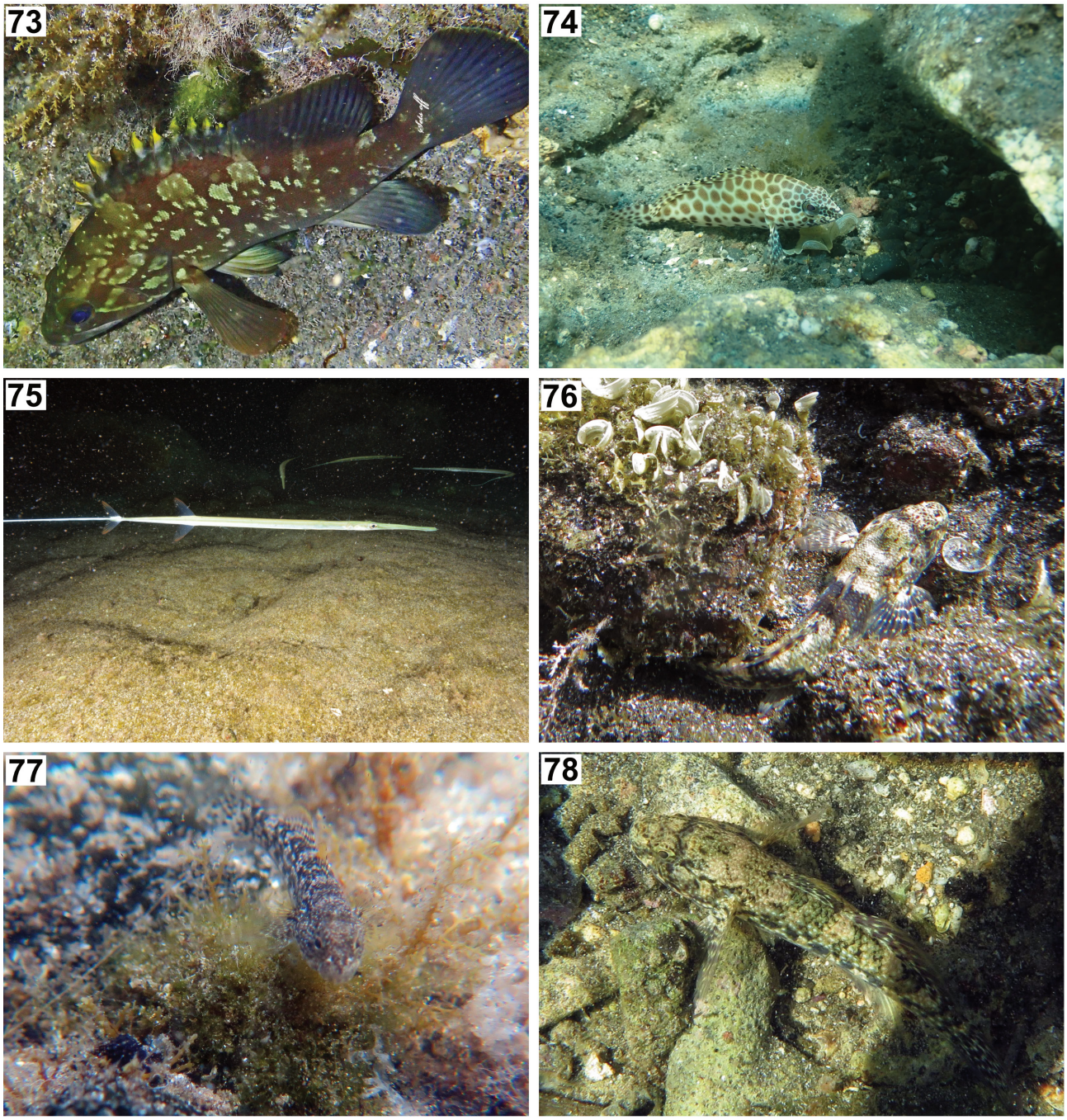

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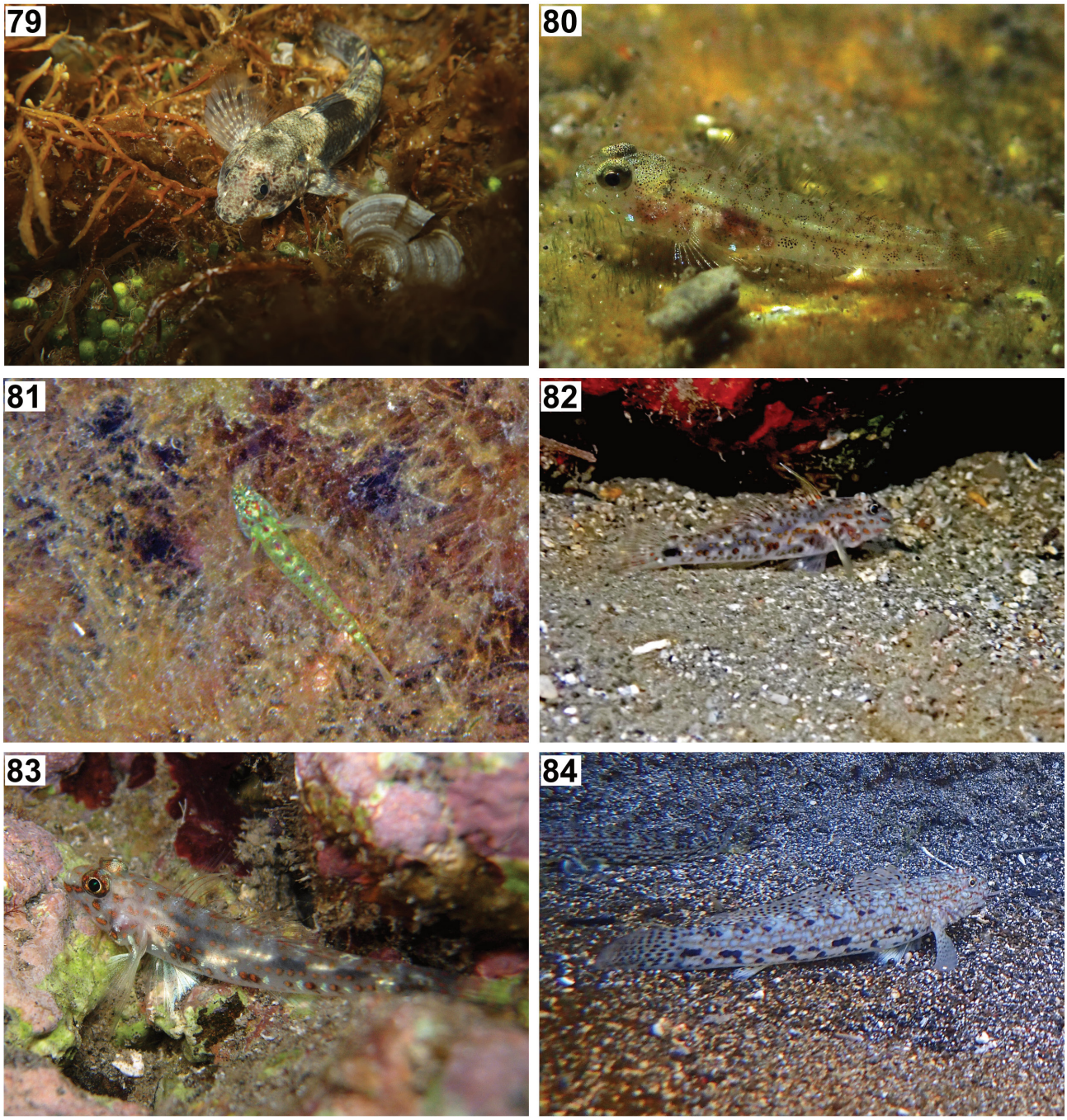

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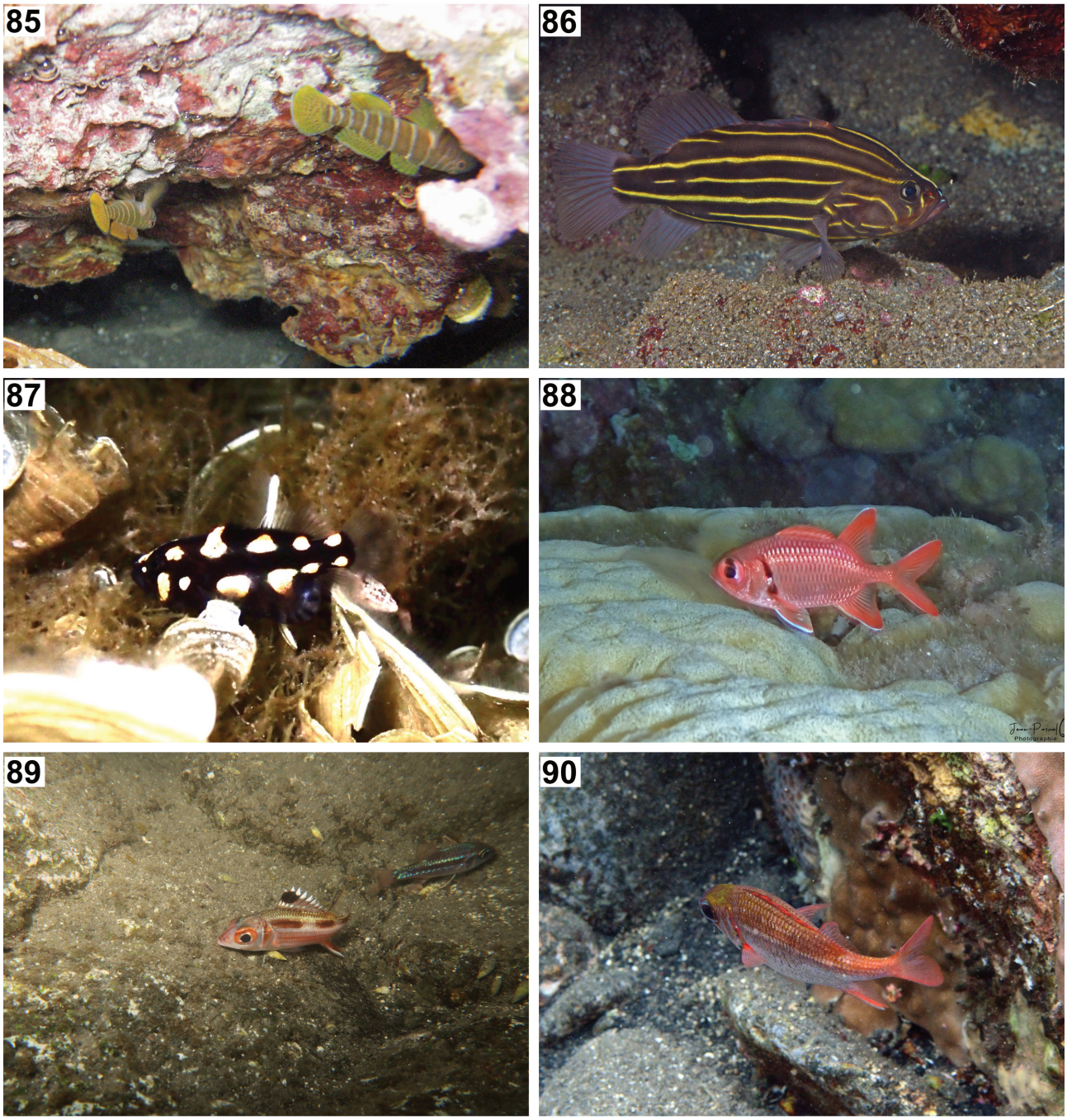

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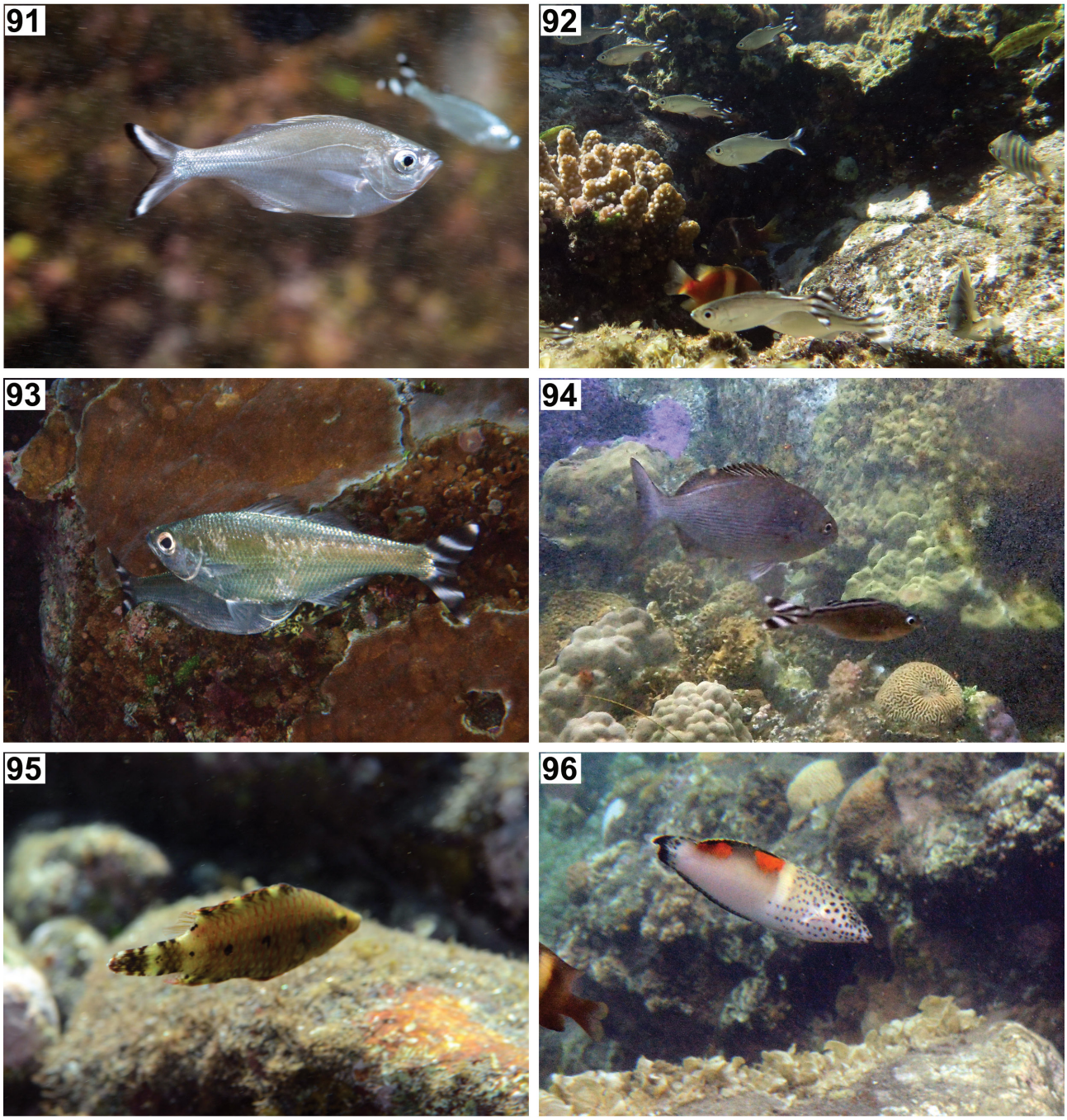

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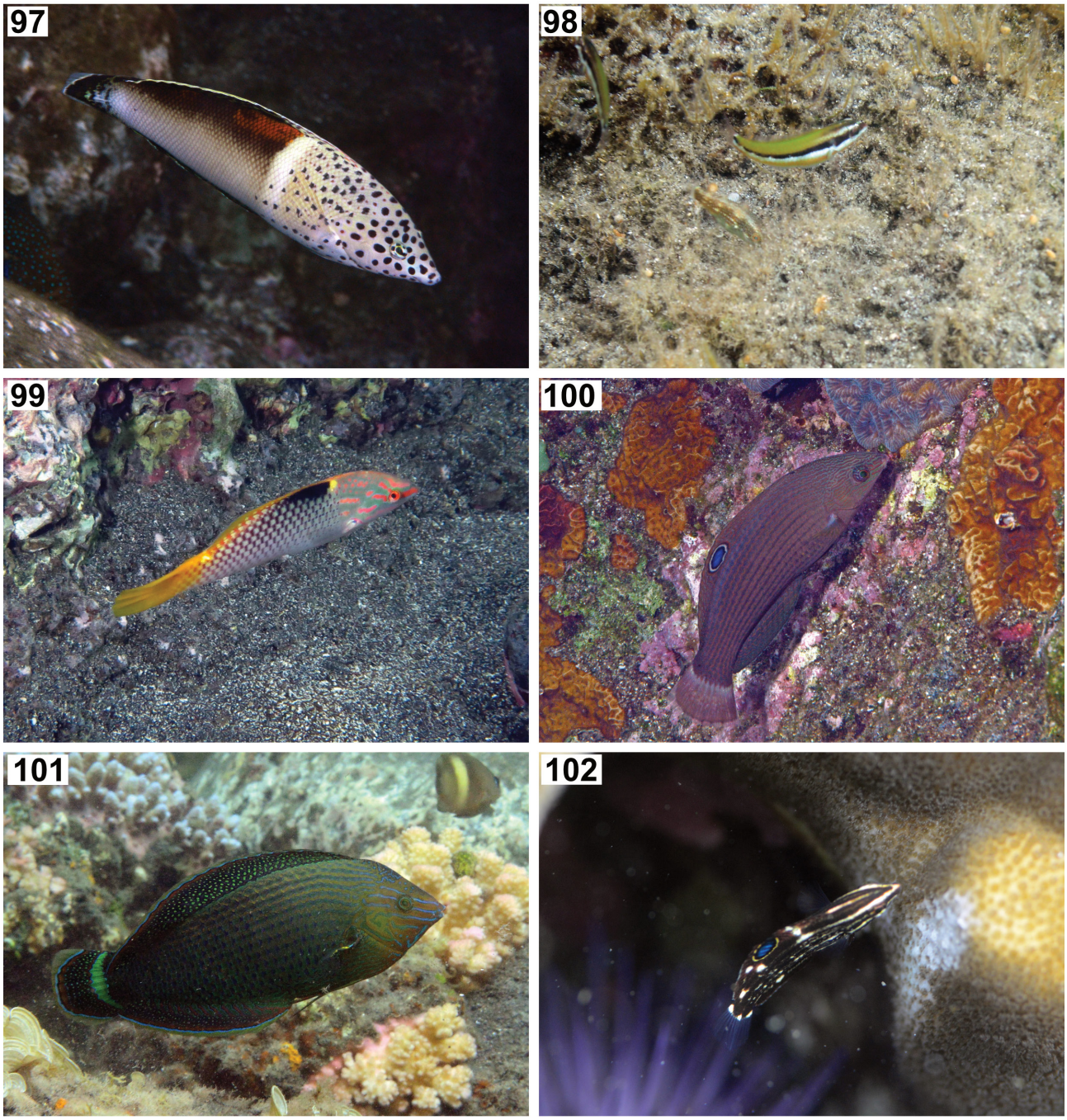

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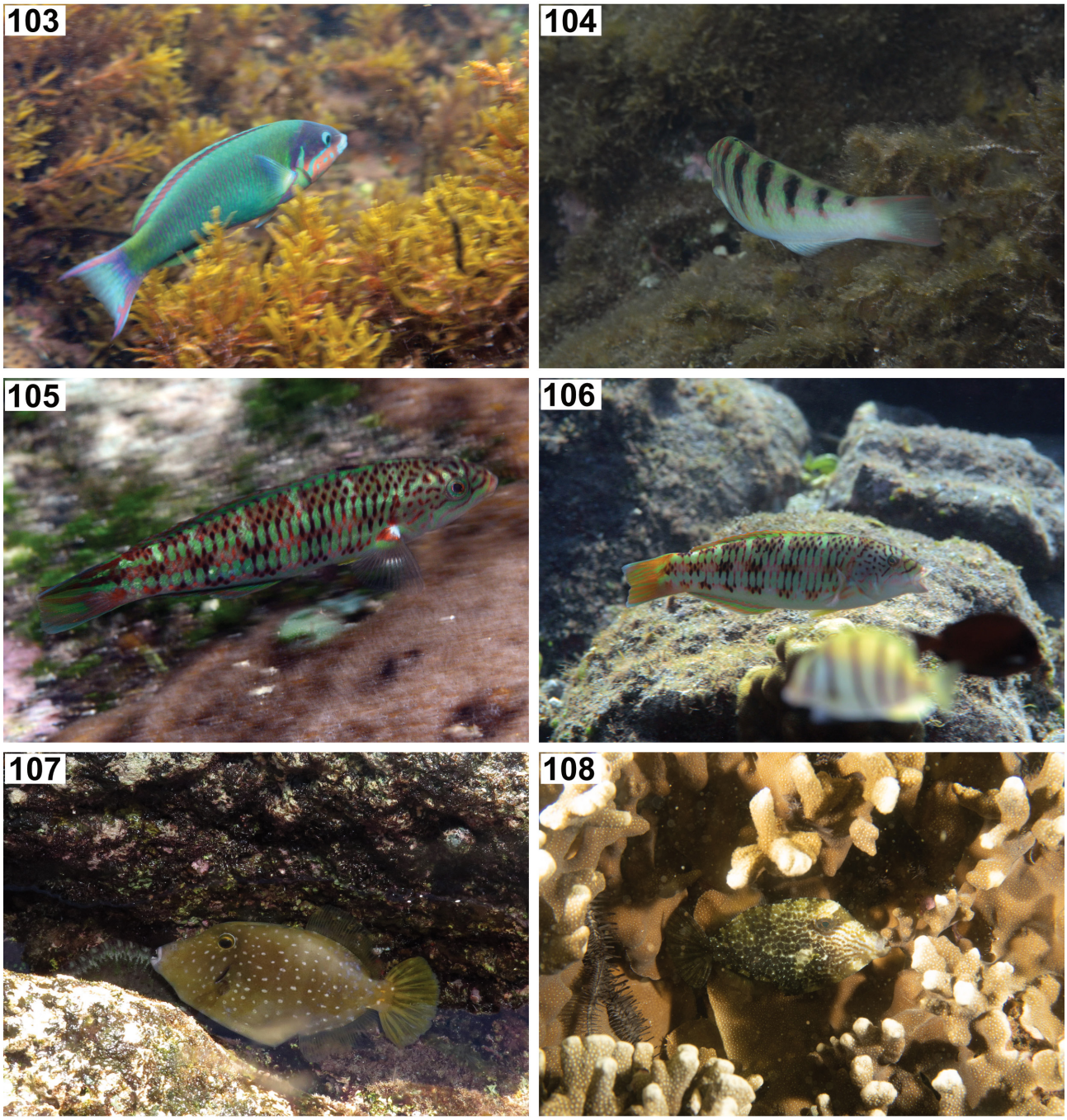

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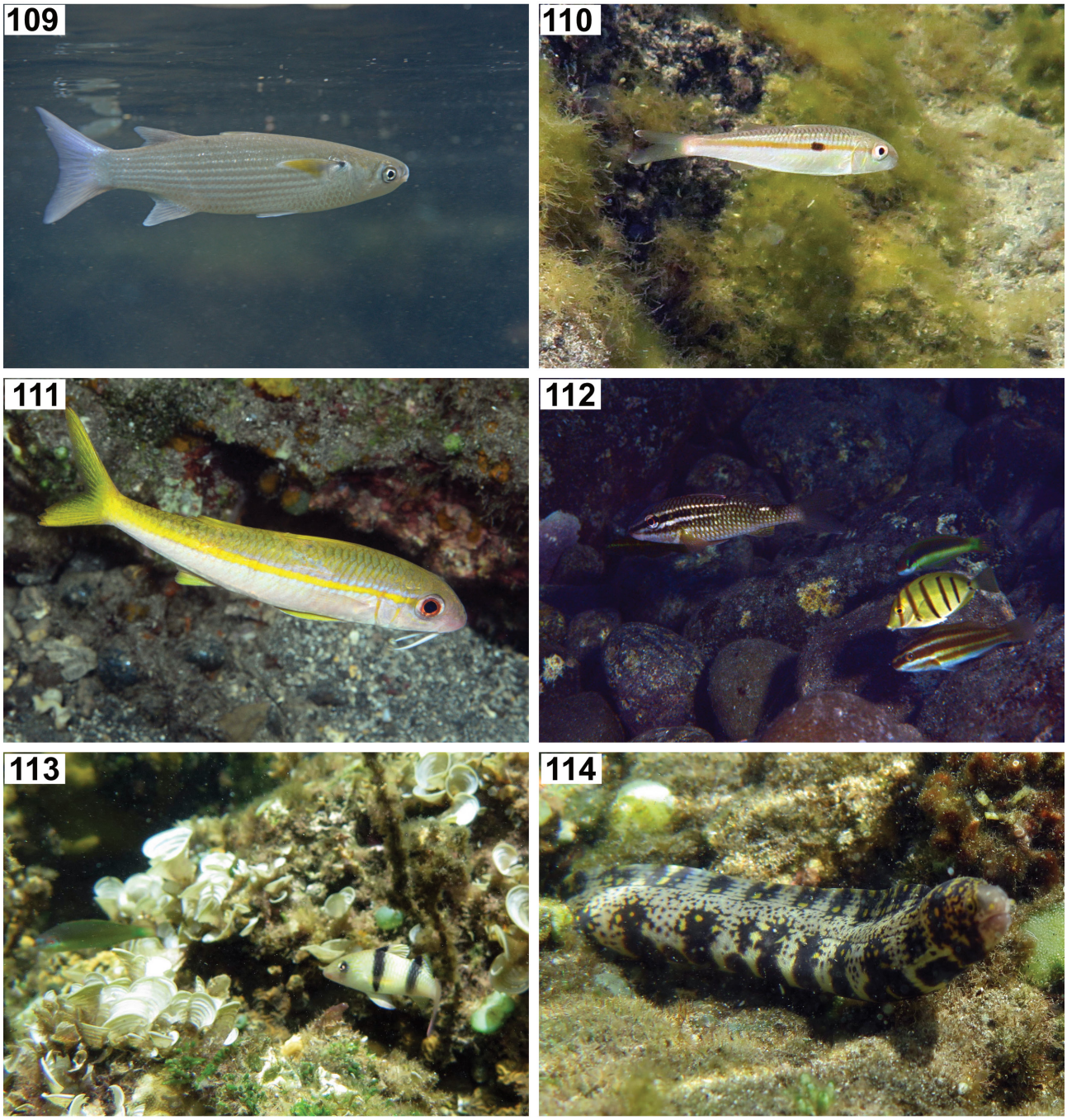

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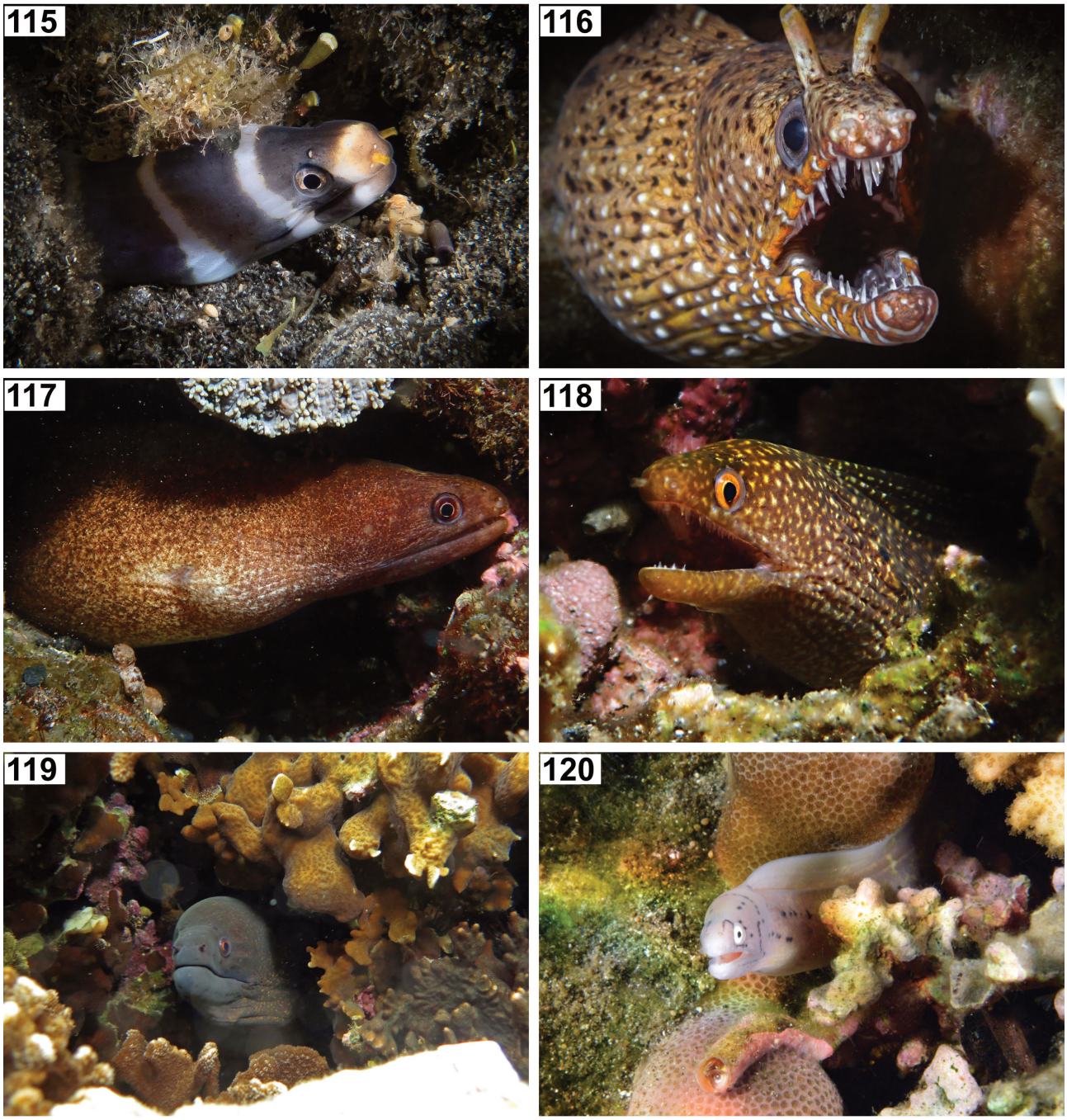

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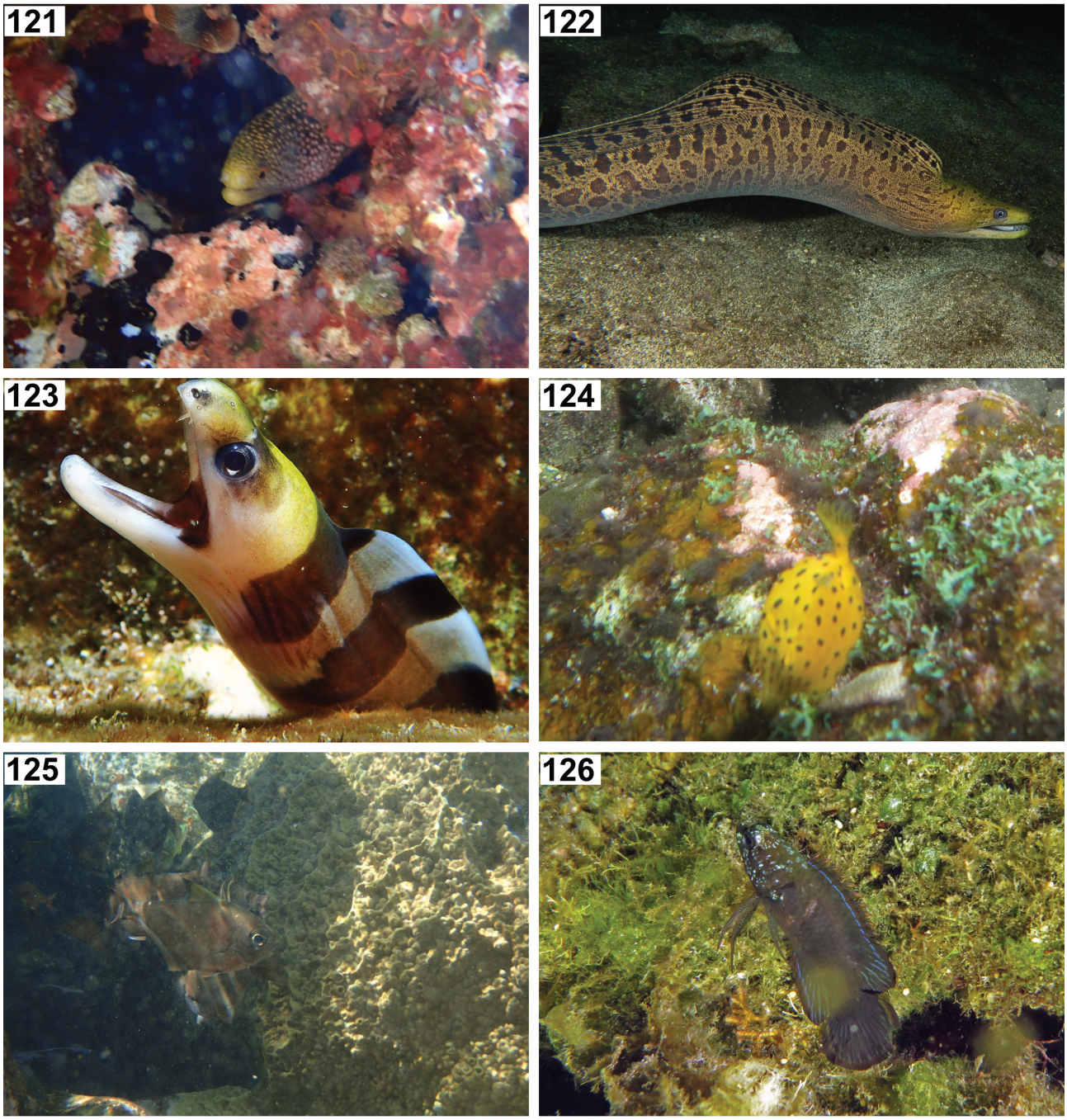

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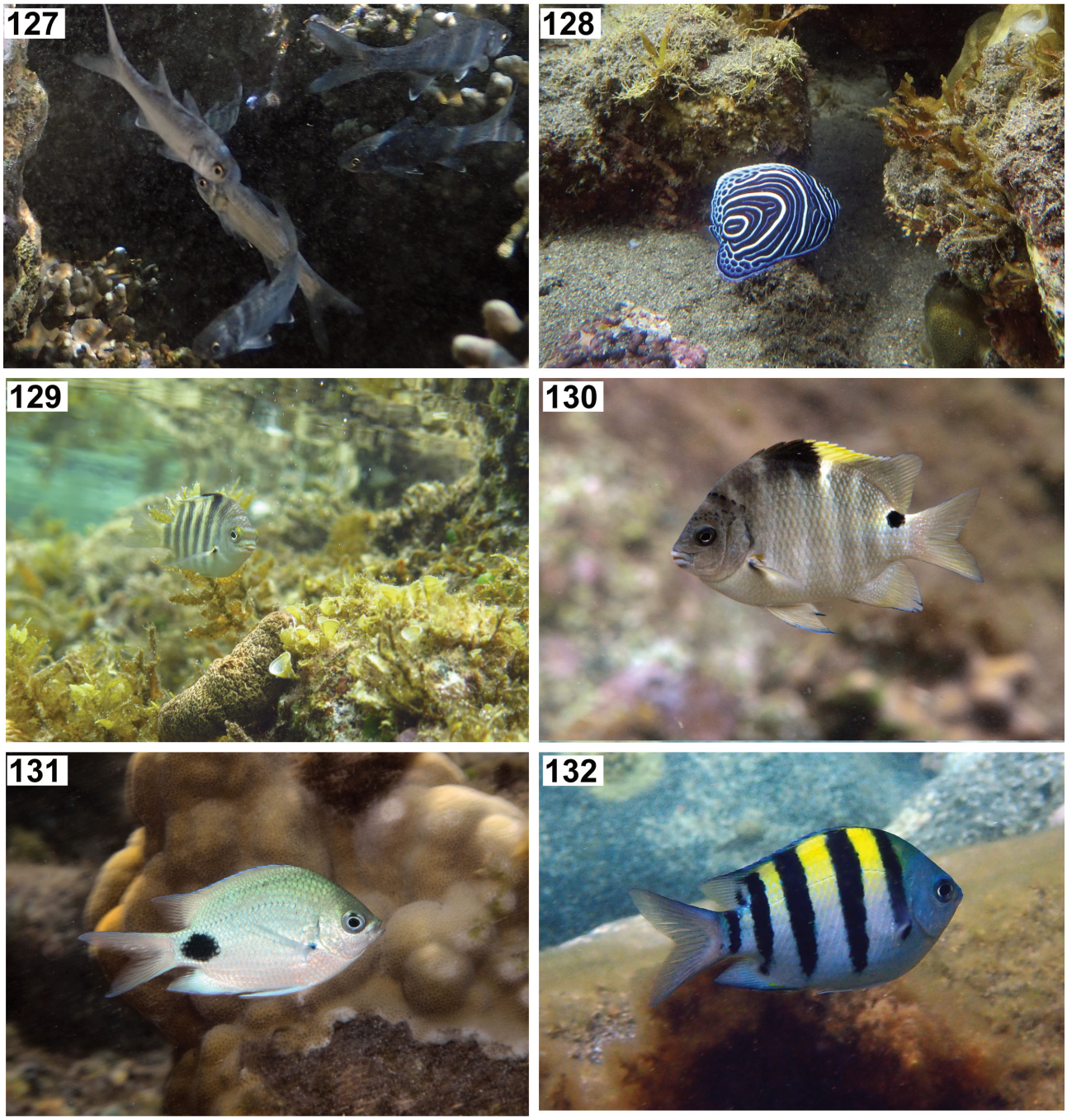

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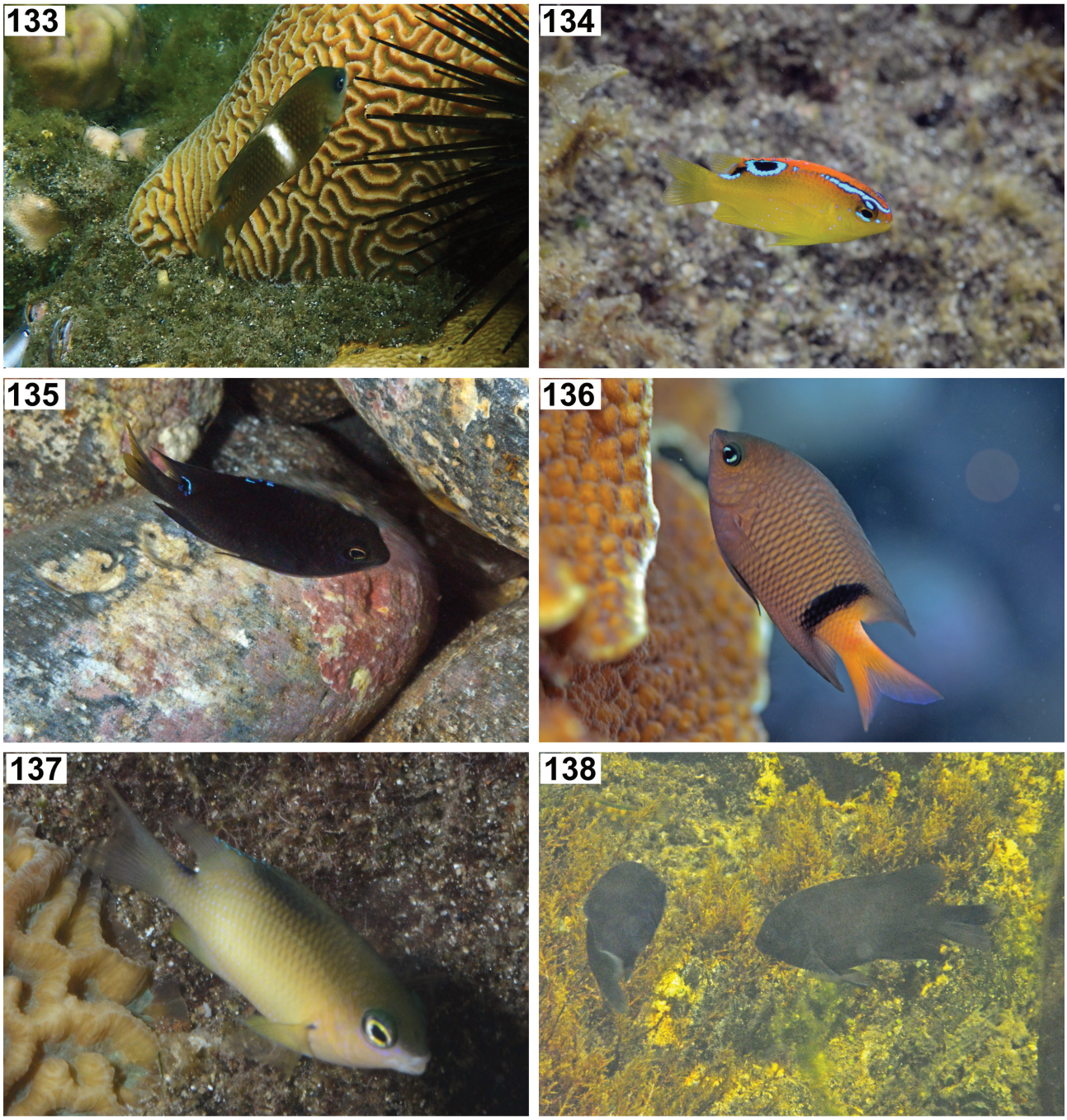

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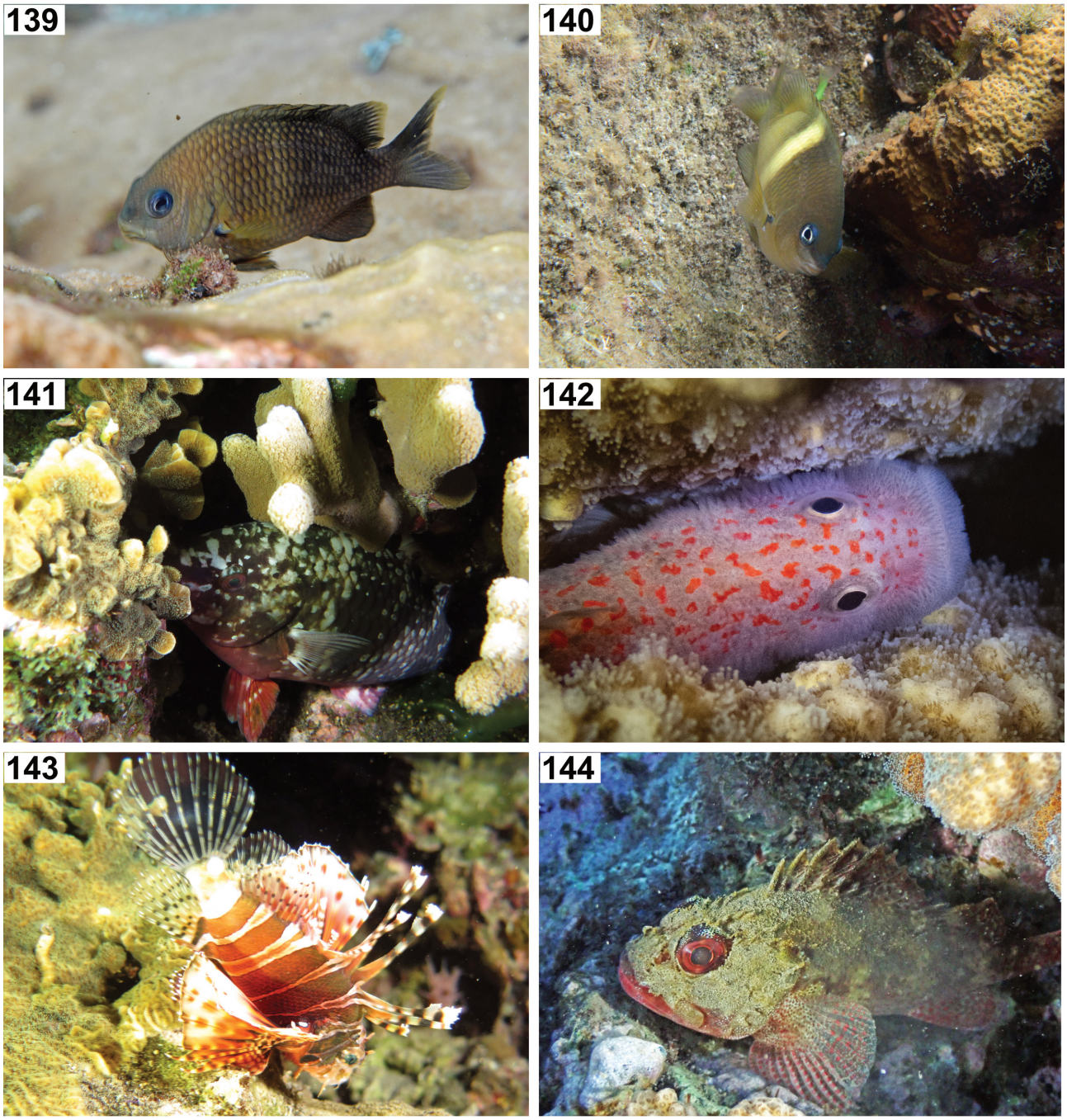

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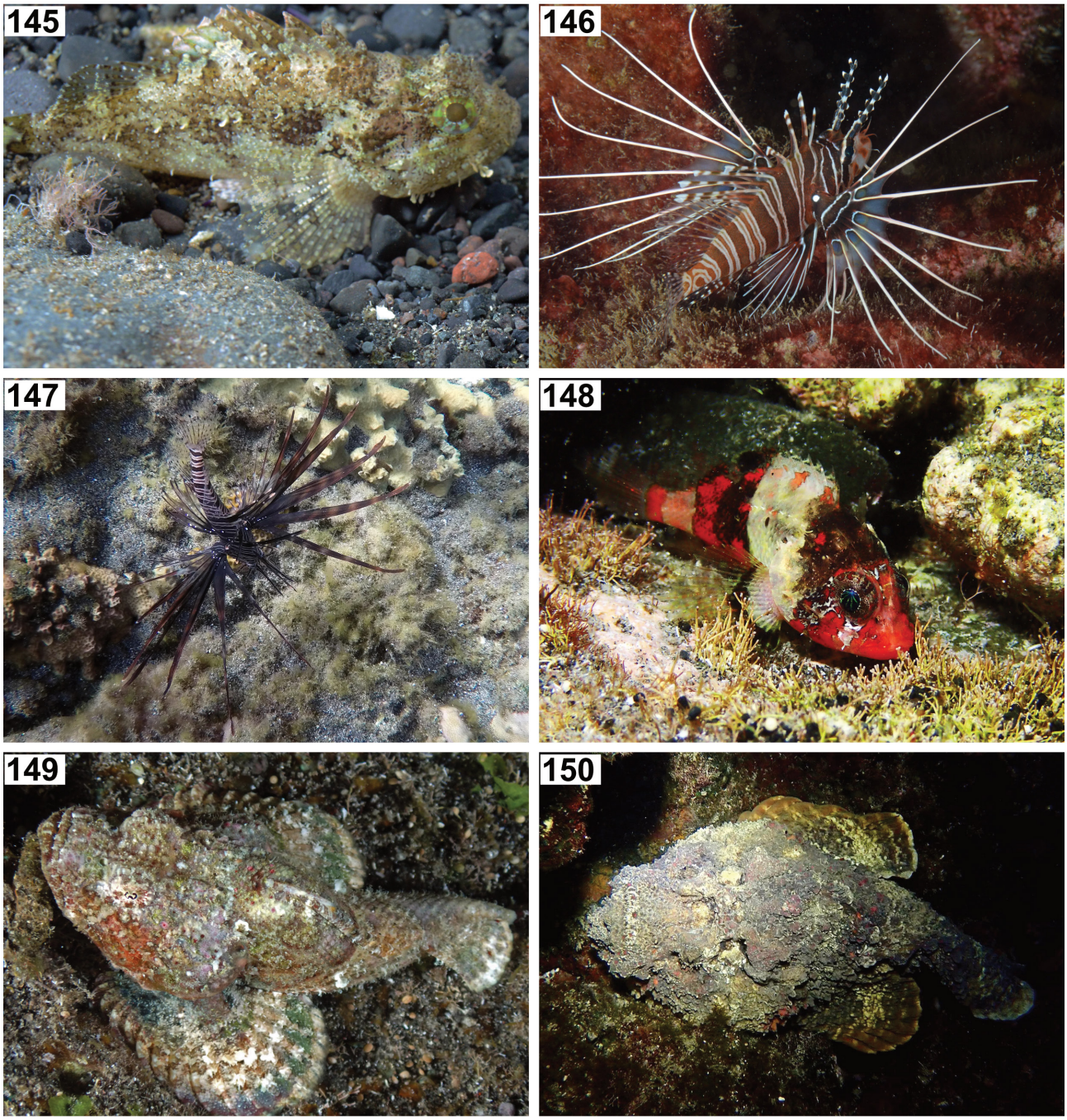

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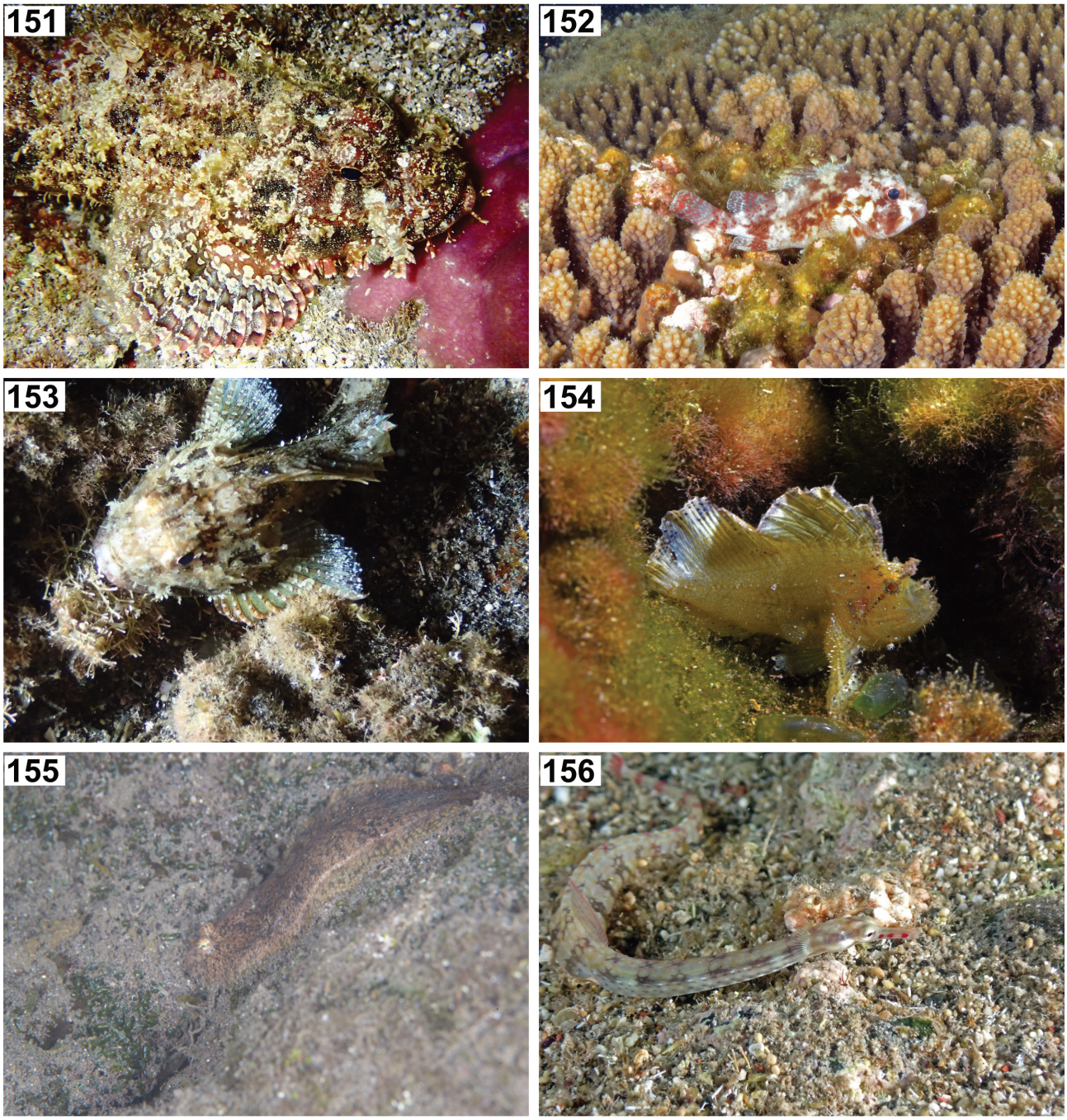

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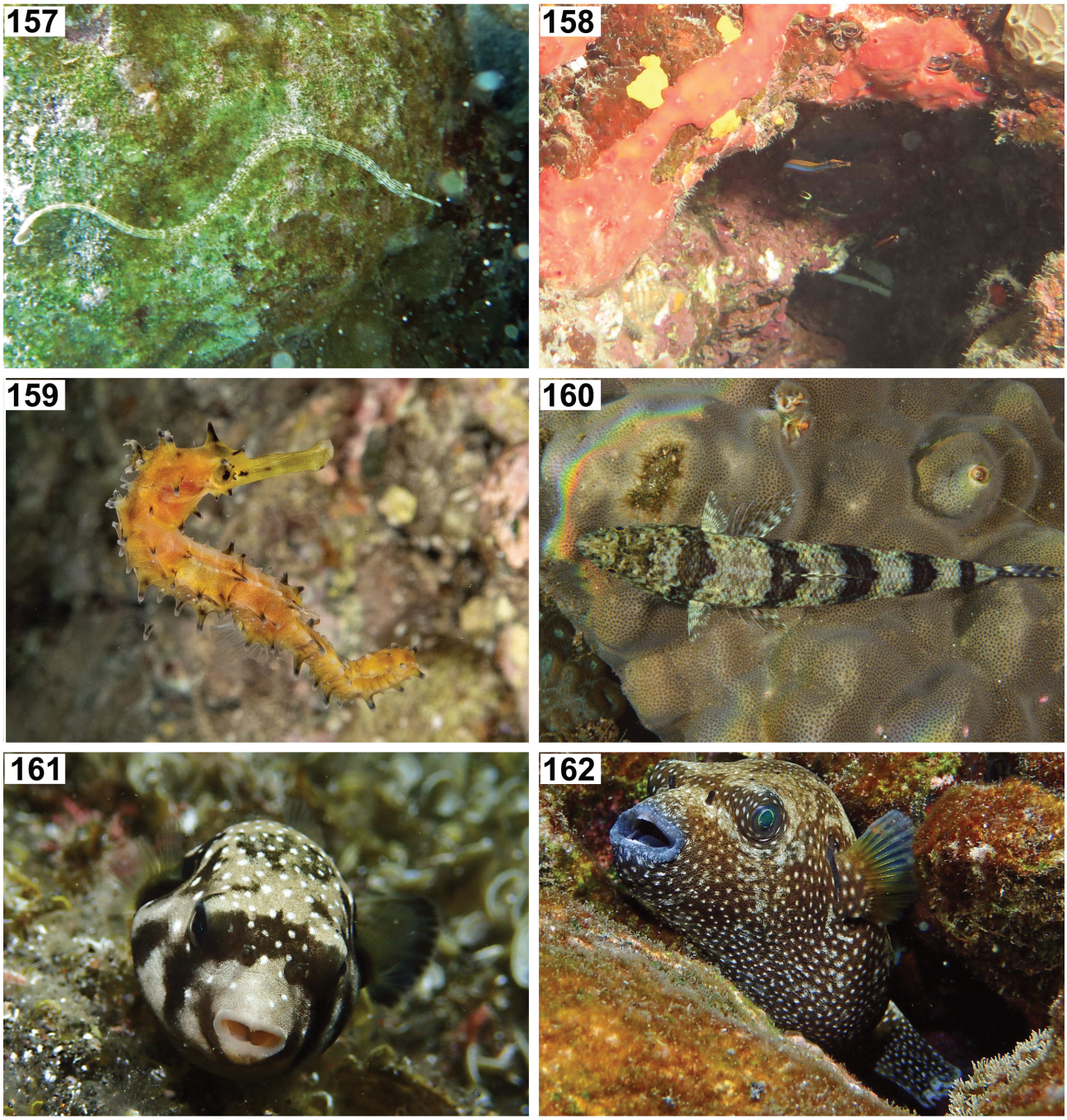

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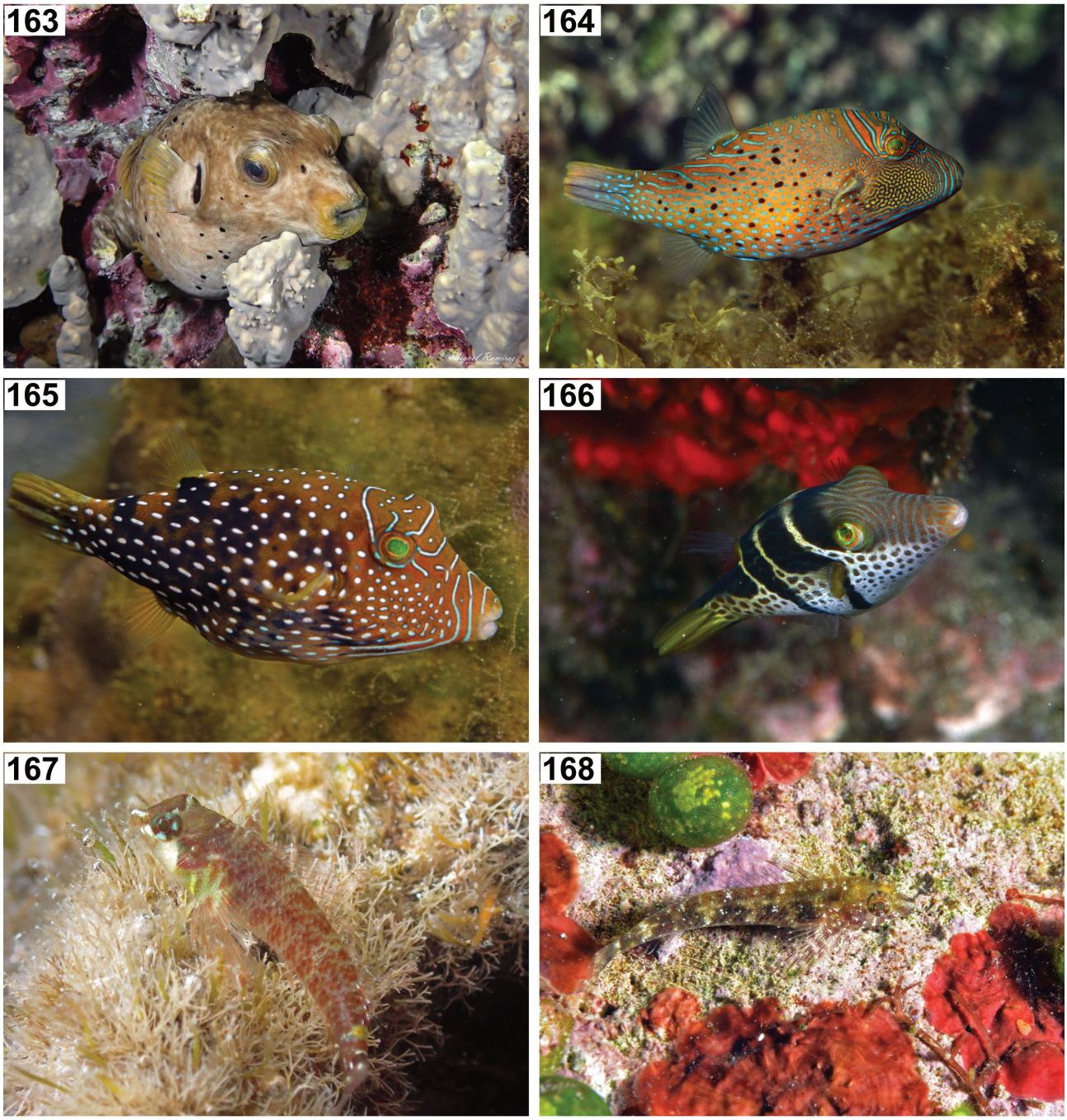

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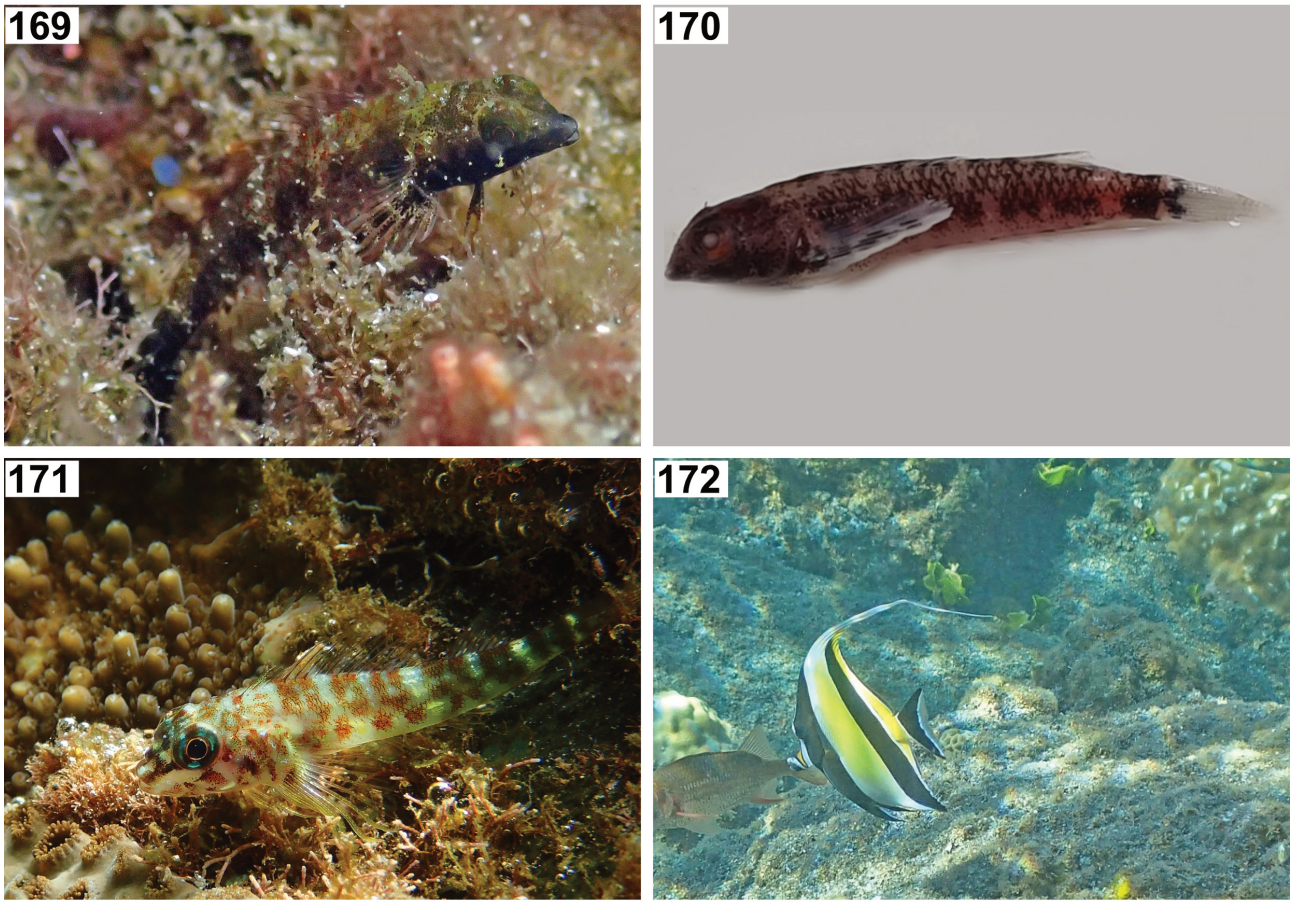

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