NATURE IN SINGAPORE 2013 **6**: 31–37
Date of Publication: 19 March 2013

MORE NOTEWORTHY FISHES OBSERVED IN THE SINGAPORE STRAITS

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ABSTRACT. — Nine species of fish photographed on coral reefs in the sea around the islands south of Singapore Island are featured. *Diademichthys lineatus*, *Myripristis amaena*, and *Chaetodon adiergastos* are recorded from Singapore apparently for the first time. The occurrence of *Pomacentrus moluccensis* and *Sphaeramia nematoptera*, are confirmed with photographic evidence. Records of *Amphiprion perideraion*, *Dascyllus trimaculatus*, *Scarus ghobban*, and *Scarus rivulatus*, species rarely observed in Singapore waters, are also documented.

KEY WORDS. — marine fishes, new records, rare species, coral reef, Singapore

INTRODUCTION

Nine species of fish observed and photographed on coral reefs around the islands south of Singapore (Fig. 1) are featured in this article. Three of these are recorded from Singapore apparently for the first time. They are *Diademichthys lineatus*, *Myripristis amaena*, and *Chaetodon adiergastos*. Their presence in local waters is, however, not unexpected as all are known from the surrounding area. The occurrence of the lemon damsel, *Pomacentrus moluccensis*, and the pajama cardinalfish, *Sphaeramia nematoptera*, in Singapore territorial waters are presently supported with photographic evidence. Four other species featured are rarely observed in Singapore waters.

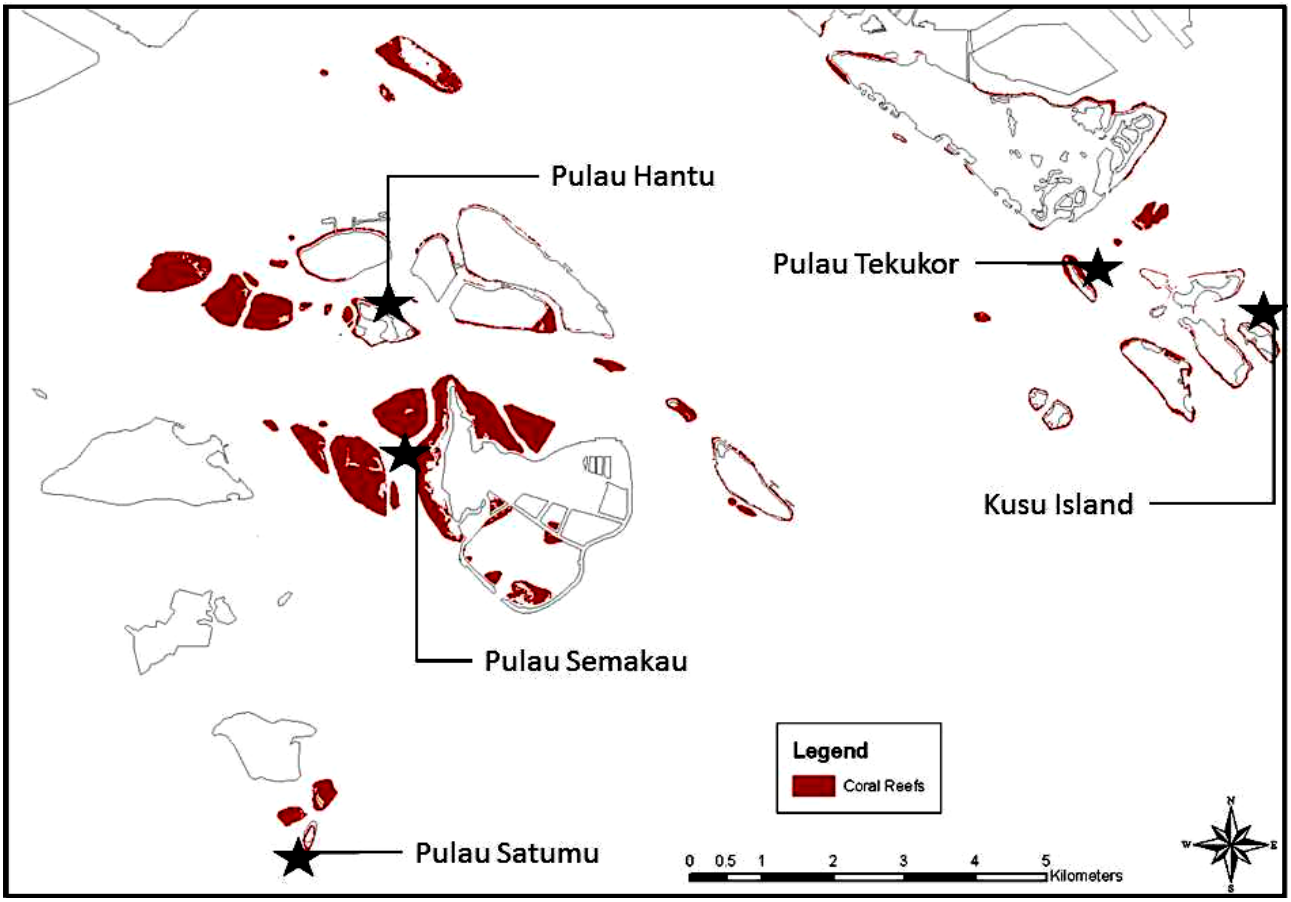

Fig. 1. Coral reefs in the western Singapore Straits, where the fish were observed and photographed.

All images presented of the fishes were captured in-situ with a Panasonic DMC-FX01, and Canon's Powershot S70, S95 or G12 (with an external strobe YS-110), housed in their respective underwater casings. Unless otherwise stated, the specimen size is expressed as total length (TL) measured from snout tip to distal edge of caudal fin. As they were neither captured nor restrained, the sizes of the specimens shown on the photographs are estimated. Preserved specimens examined for comparative purposes are from the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research at the National University of Singapore.

RECORDS AND OBSERVATIONS

Diademichthys lineatus (Sauvage), urchin clingfish
Family Gobiescosidae
(Fig. 2)

Record. — One example of about 30 mm TL, photographed with its host urchin, a *Diadema setosum*, at Terumbu Pempang Tengah on 27 Jul.2012.

Diagnosis. — Distinguished by its long spatulate snout and slender body. Reddish or brown with a pair of yellow stripes on upper half of the head and body. Lives in close association with long-spined sea urchins or branching corals of sheltered reefs (Lieske & Myers, 1994). Juvenile fish eat pedicellariae and sphaeridia of the host *Diadema* and commensal copepods; adult fish eat burrowing bivalves in corals as well as tube feet of their host and eggs of a commensal shrimp (Sakashita, 1992).

Remarks. — This is a new record for Singapore of the family Gobiescosidae, as well as of the order Gobiescosiformes.

Myripristis amaena (Castelnau), brick soldierfish
Family Holocentridae
(Fig. 3)

Record. — One example of about 200 mm TL was photographed off Pulau Satumu on the night of 12 Apr.2012.

Diagnosis. — This species is distinguished from its congeners by having distinctive bright red head and snout, being silvery white ventrally at the operculum and cheek, predominantly red fins with no white borders, and absence of any striped pattern on the body (Randall & Greenfield, 1996). Adults are benthopelagic, inhabiting reef flats and seaward slopes to depths of more than 52 m where it is found in groups in caves and under ledges (Myers, 1991; Mundy, 2005).

Remarks. — The brick soldierfish is a new record for Singapore.

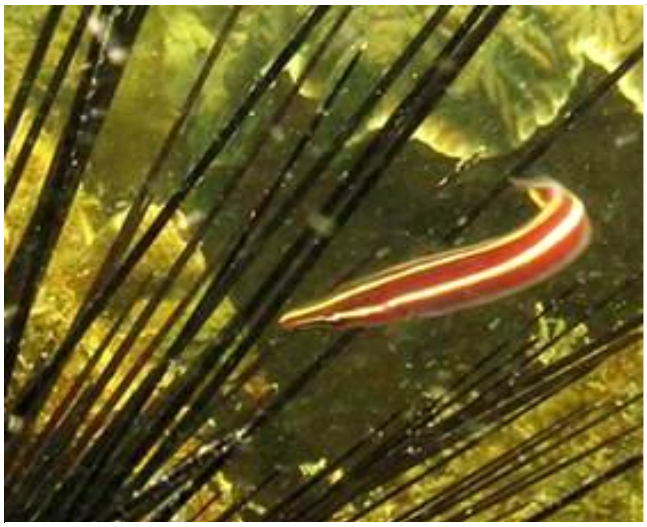

Fig. 2. *Diademichthys lineatus* of about 30 mm TL, with host urchin at Terumbu Pempang Tengah on 27 Jul.2012. (Photograph by: Jeffrey Low).

Fig. 3. *Myripristis amaena* of about 200 mm TL, off Pulau Satumu on the night of 12 Apr.2012. (Photograph by: Jeffrey Low).

Chaetodon adiergastos Seale, panda butterflyfish
Family Chaetodontidae
(Fig. 4)

Record. — One adult of about 200 mm TL photographed off Kusu Island on 14 Aug.2011.

Diagnosis. — This species is distinguished from other butterflyfish by its unique colour pattern: sides of body white with diagonal brown stripes; dorsal, caudal, anal and pelvic fins yellow; face with a broad black band covering the eye, and a black spot on the forehead. Inhabits coral reefs and occurs in pairs or groups, usually near soft coral (Lieske & Myers, 1994).

Remarks. — The panda butterflyfish is a new record for Singapore.

Pomacentrus moluccensis Bleeker, lemon damsel
Family Pomacentridae
(Fig. 5)

Records. — One adult of about 60 mm TL photographed off Pulau Satumu on 11 Oct.2008. Another of similar size sighted at the same location on 29 Sep.2012.

Diagnosis. — Distinguished from other damselfish occurring in the area by its uniformly bright-yellow body, and anal fin with a distinctive black distal margin. Adults inhabit clear lagoons and seaward reefs among branching corals, where they can occur in small aggregations, and feed mainly on algae and planktonic crustaceans (Allen, 1991).

Remarks. — Although this distinctive species was listed by Low & Chou (1992) as occurring in Singapore, it was not mentioned by Sin et al. (1994). Its presence in Singapore is now confirmed with photographs.

Sphaeramia nematoptera (Bleeker), pajama cardinalfish
Family Apogonidae
(Fig. 6)

Records. — Photographed off Pulau Hantu on 14 Mar.2009 and 2 Jul.2011, and off Semakau Landfill on 15 May 2011 (Fig. 4) and 26 Jul.2012. All individuals were adults of approximately 100 mm TL.

Diagnosis. — The species is distinctively coloured and distinguished from other apogonids by its deep body, red eyes, yellow head, and a broad black band on the middle of its body followed by a pinkish hindquarters with brown spots (Kuiter & Tonozuka, 2001). Forms aggregations among the branches of the corals *Porites nigrescens* and *Porites cylindrica* in sheltered bays and lagoons (Myers, 1991; Kuiter & Tonozuka, 2001).

Remarks. — This popular aquarium fish (Myers, 1999) was reported by Low & Chou (1992), and mentioned in Ng & Wee (1994), as a vulnerable species in Singapore. Until now, its occurrence in Singapore waters had not been substantiated by photographs or specimens.

Amphiprion perideraion Bleeker, pink anemonefish
Family Pomacentridae
(Fig. 7)

Records. — One adult of about 90 mm TL photographed off Pulau Tekukor on 2 Oct.2012 (Fig. 6). Another adult observed at Kusu Island on 10 Nov.2012.

Diagnosis. — Distinguished from other *Amphiprion* species in having transparent fins, and a pinkish body with a white stripe following the dorsal contour from snout to caudal peduncle, and one white vertical stripe behind the eye. It inhabits lagoons and seaward reefs where it is commensal with several species of anemones, usually *Heteractis magnifica* (Myers, 1991; Fautin & Allen, 1992).

Remarks. — Recorded from Singapore by Low & Chou (1992) and Sin et al. (1994), most likely based on a 54.5 mm SL specimen (ZRC 12935) collected from Pulau Salu on 8 Sep.1977. This appears to be a rare species in Singapore waters.

Fig. 4.*Chaetodon adiergastos* of about 200 mm TL, off Kusu Island on 14 Aug.2011. (Photograph by: Jeffrey Low).

Fig. 5. *Pomacentrus moluccensis* of about 60 mm TL, off Pulau Satumu on 11 Oct.2008. (Photograph by: Jeffrey Low).

Fig. 6. *Sphaeramia nematoptera* of about 100 mm TL, off Semakau Landfill on 15 May.2011. (Photograph by: Jeffrey Low).

Fig. 7. *Amphiprion perideraion* of about 90 mm TL, above host anemone off Pulau Tekukor on 2 Oct.2012. (Photograph by: Jeffrey Low).

Dascyllus trimaculatus (Rüppell), three-spot dascyllus
Family Pomacentridae
(Fig. 8)

Records. — Photographed off the Sisters Islands (Pulau Subar Darat and Pulau Subar Laut) on 20 Apr.2011, Kusu Island on 14 Aug.2011 (Fig. 7), and 10 Nov.2012, and Pulau Hantu on 11 Nov.2012. Sightings in 2011 were of juveniles, between 10–20 mm TL. Recent sightings at Kusu Island and Pulau Hantu were of adults, between 80–100 mm TL.

Diagnosis. — Juveniles (around 20 mm TL) uniformly black with a round white blotch on the forehead, upper sides, and at the junction of the body and the caudal peduncle; all fins black except the pectoral fin and outer portion of the soft dorsal fin which are transparent. Adults are distinctly disc-shaped, lack the white spot on the forehead, and the spots on upper sides become reduced or absent; and scales grey with black margins. Juveniles are gregarious and often commensal with large sea anemones, sea urchins, or small coral heads, while adults inhabit coral and rocky reefs where they feed on algae and planktonic crustaceans (Allen, 1986, 1991; Kuiter & Tonozuka, 2001).

Remarks. — Recorded from Singapore by Low & Chou (1992), and later by Sin et al. (1994). The adults observed at Pulau Hantu and Kusu Island in 2012 were associated with anemones (*Heteractis magnifica*), and pairs were defending their respective turfs from intruders.

Scarus ghobban Forsskål, blue-barred parrotfish
Family Scaridae
(Fig. 9)

Record. — One adult of about 400 mm TL, photographed off Pulau Satumu on the night of 12 Apr.2012.

Diagnosis. — This species is distinguished from other scarids by its unique colour pattern (particularly individuals in the primary phase): distinctive yellow and blue bars on the sides; light green dorsally on head and body; scales with narrow pink edges; side of body progressively more salmon-coloured ventrally; a broad irregular green band from corner of mouth across lower cheek linking to a narrow blue-green band from along edge of lower lip, and a broader green band across the chin. Adults inhabit lagoon and seaward reefs, sometimes entering silty and murky environments, and feed on algae scraped from rocks and corals (Randall, 1986; Myers, 1991; Humann & Deloach, 1993).

Remarks. — Previously recorded from Singapore by Herre & Myers (1937, as *Scarus dussumieri*), Fowler (1938, as *Callyodon dussumieri*, *Callyodon ghobban*, and *Callyodon pyrrostethus*), de Beaufort (1940, as *Callyodon dussumieri* and *Callyodon ghobban*) and Low & Chou (1992, as *Scarus ghobban*). This species is rarely observed in Singapore waters.

Scarus rivulatus Valenciennes, surf parrotfish
Family Scaridae
(Fig. 10)

Records. — Two males, of about 450 mm TL off Pulau Satumu on 15 Dec.2010 (Fig. 12), on the night of 10 Apr.2012.

Diagnosis. — Adult males of this species are distinguished from other parrotfish by their yellow pectoral fins and orange cheeks. Females are plain grey with pale lines along the abdomen (Kuiter & Tonozuka, 2001). Inhabits rocky and coral reefs and forms schools of about 40 individuals, grazing on benthic algae and corals (Schroeder, 1980).

Remarks. — Previously recorded by Fowler (1938 as *Callyodon fasciatus*) and de Beaufort (1940, as *Callyodon fasciatus*). This seems to be a rarely observed species in Singapore waters.

DISCUSSION

Two of the new records for Singapore are cryptic in nature. The soldierfish, *Myripritis amaena*, which is nocturnal in habits, may well have been overlooked. The urchin clingfish, while not so cryptic, is particularly hard to notice, given its small size, and the tendency of most divers to stay away from sea urchins. The usually murky waters around Singapore also do not give divers enough confidence to get near these prickly creatures.

Fig. 8. *Dascyllus trimaculatus* juvenile (about 20 mm TL) at left, sharing host anemone with a clownfish (*Amphiprion ocellaris*) off Kusu Island on 14 Aug.2011. (Photograph by: Jeffrey Low).

Fig. 9. *Scarus ghobban* of about 400 mm TL, off Pulau Satumu on the night of 12 Apr.2012. (Photograph by: Jeffrey Low).

Fig. 10. *Scarus rivulatus*, male of about 450 mm TL with two rabbitfish (*Siganus virgatus*) off Pulau Satumu on 15 Dec.2010. (Photograph by: Jeffrey Low).

The butterflyfish, *Chaetodon adiergastos*, however, might be a released aquarium pet. Many butterflyfish are popular ornamental fishes. The island where it was observed is the site of a Buddhist temple, and animal release is a tradition that continues even in modernised Singapore. This assessment is further supported by four years of fish surveys at the site (pers. obs.), which had not recorded this species; nor has it been seen again since. However, the panda butterflyfish occurs naturally in adjacent areas where it seems to prefer waters with greater visibility, and the occasional individual is likely to stray into Singapore territory.

Of the remaining six species, all have been previously recorded in Singapore. However, the occurrence of the lemon damselfish, *Pomacentrus moluccensis*, and the pyjama cardinalfish, *Sphaeramia nematoptera*, were, until now, not supported by actual specimens or photographic evidence. While *Pomacentrus moluccensis* remains an uncommon species, we now know that *Sphaeramia nematoptera* is more common than previously thought.

ACKNOWLEDGEMENTS

The author would like to thank Kelvin Lim of the, for his comments on the manuscript, granting access to some of the references used, and locating the specimens within the Zoological Reference Collection, Raffles Museum of Biodiversity Research, National University of Singapore. The map was kindly supplied by Rachel Lim.

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