

## FIRST RECORD OF THE PARROTFISH *SCARUS VIRIDIFUCATUS* FROM THAILAND (THE ANDAMAN SEA) AND INDONESIA

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### ABSTRACT

The parrotfish *Scarus viridifucatus* (Smith), previously known only from the western Indian Ocean, is recorded from the Andaman coast of Thailand based on two terminal-phase male specimens. The species is also recorded for the first time from Bali and Sulawesi in Indonesia from underwater photographs and observations. It is sympatric with its closest relative, *S. spinus* (Kner) in Bali.

### INTRODUCTION

Smith (1956) described *Callyodon viridifucatus*, based on the terminal-phase, and *C. malindiensis*, based on the initial-phase, from Kenya, western Indian Ocean. The generic name *Callyodon* Gronov, 1763 is invalid and has been replaced by *Scarus* Forsskal, 1775 (International Commission on Zoological Nomenclature, Opinion 261: foot notes in Smith, 1956). In the review of western Indian Ocean Scarinae, Randall and Bruce (1983) adopted the name *viridifucatus* which has page priority for the species. This species is presently reported to be restricted to the western Indian Ocean with an easternmost extension to the Maldive Islands (Randall & Bruce, 1983; Bruce and Randall, 1984). The first author observed this species on several reefs in the Andaman Sea (*i.e.* Surin Islands, Similan Islands, Phi Phi Islands and in the vicinity of Phuket); however, no specimens were collected to confirm the identification. Recently two specimens of this species were collected by local fishermen near Phuket and brought to the Phuket Marine Biological Center for experiments on the physiology of parrotfish during "sleep" being conducted by Dr. John Fleng Steffensen and team. These two fishes represent the first record of the *Scarus viridifucatus* for Thailand. They were deposited in the Phuket Marine Biological Center Reference Collection (PMBC) and are the basis for the following description.

In correspondence with the second and third authors, it was learned that they observed and photographed *S. viridifucatus* at Bali and Sulawesi in Indonesia, thus extending the range of this parrotfish still farther east.

### *Scarus viridifucatus* (Smith, 1956)

(Figs. 1-2, Table 1)

*Callyodon viridifucatus* Smith, 1956: 9, 12, pl. 42, figs. B, I (type-locality, Shimoni, Kenya).

*Callyodon malindiensis* Smith, 1956: 9, 13, pl. 45, fig. H (type-locality, Malindi, Kenya).

Material examined: PMBC No. 10092-93: 202-240 mm TL; Phuket, Andaman Sea, collected by local fishermen off Rawai Beach, gill net, 15 March 1994.

Description: Median predorsal scales 4, about equal in size; 3 rows of cheek scales (upper row with 5 scales, middle row with 6 scales, and lower row with 2 scales); mouth inferior; teeth fused in upper and lower jaws to form smooth dental plates; lips almost covering dental plate with mouth closed; 2 canine teeth posteriorly on each side of both upper and lower dental plate (inclined posteriorly and the lower larger); head obtusely rounded anteriorly; body depth 2.59 and 2.61 in SL (PMBC 10092 and PMBC 10093, respectively), head length 2.94 and 2.94 in SL; snout length 2.75 and 2.89 in head, orbit

diameter 7.76 and 6.87 in head; caudal fin slightly emarginate, the caudal concavity 10.5 and 15.7 in head; pectoral fins with 14 rays (12 branched rays), 1.5 and 1.37 in head; pelvic fins 1.78 and 1.77 in head.

Colour when fresh (terminal males): body green to blue-green, the scales rimmed with salmon-pink; head dull green, shading to orangish ventrally, with a large area of brilliant blue-green on side of snout and anterior cheek (in front of orbit), and joining a transverse band of same colour on chin; extreme front of snout including median portion of upper lips salmon-pink; chin and most of lower lip salmon-pink, and lateral edge of lower lip blue-green; iris

orange; dental plates white; opercular edge in front of pectoral fins blue-green rimmed with light orange; dorsal and anal fins with a green basal band, median band of light orange, and a margin of blue; base of pectoral fins light orange; pectoral fins membrane pale, the rays blue-green (especially dorsally and basally), except for a streak of dull orange on fourth to sixth rays; basal scaled portion of caudal fin coloured like body, the unscaled part broadly green centrally, the lobes blue with a longitudinal band of salmon-pink; pelvics blue with a streak of orange, mostly on second and third rays and membrane between.

**Table 1.** Proportional measurements of 2 specimens of *Scarus viridifucatus* (Smith) expressed as a percentage of the Standard Length.

	Specimens	
	PMBC 10092	PMBC 10093
Standard length (mm)	194	162
Body depth	28.6	38.3
Body width	17.0	16.7
Head length	34.0	33.9
Snout length	12.3	11.7
Orbit diameter	4.4	4.9
Interorbital width	12.9	12.9
Caudal peduncle depth	15.6	16.6
Caudal peduncle length	13.4	13.4
Predorsal length	28.3	29.0
Precanal length	59.3	61.1
Prepelvic length	31.4	33.9
Length of first dorsal spine	10.3	10.5
Length of ninth dorsal spine	12.4	13.6
Length of longest dorsal ray	12.4	13.6
Length of third anal spine	10.3	11.1
Length of longest anal ray	11.8	13.6
Caudal fin length	25.2	22.8
Caudal concavity	3.2	2.2
Pectoral fin length	23.2	24.7
Pelvic fin length	19.11	9.4

Remarks: As in most scarid species, *S. viridifucatus* exhibits sexual dichromatism by having 2 distinct adult colour phases. The description provided herein is restricted to the terminal-phase (TP) fish since none of the initial-phase (IP) fish was collected. Randall and Bruce (1983) and Bruce and Randall (1984) described the colour pattern of IP fish.

This species is closely related to *Scarus spinus*

(Kner) from the central and western Pacific. The distinctive difference is in the head colouration of the terminal male phase. *S. spinus* lacks the distinctive blue-green patch antero-laterally on the head. Instead, it is broadly blue to blue-green over all of the snout and interorbital space, the nape green, and the cheek broadly yellow. The picture of *S. spinus* is illustrated in colour in Randall *et al.*, 1991.



*First record of the parrotfish *Scarus viridifucatus**



**Figure 1.** Specimen of *Scarus viridifucatus*, terminal phase, PMBC 10093, Phuket, Andaman Sea, Thailand.



**Figure 2.** Underwater photograph of *Scarus viridifucatus*, terminal phase, Bali (North-east), Indonesia (by Rudic H. Kuitert).





Figure 3. Underwater photograph of *Scarus spinus*, terminal phase, Bali (North-east), Indonesia (by John E. Randall).

Several species of fish show differences in colour from the Indian Ocean to the Pacific. Some of these, such as *Chaetodon unimaculatus* and *Naso lituratus* are still regarded as conspecific in the two oceans, while others such as five pairs of sibling species of *Siganus* are classified as separate species (Woodland, 1983; 1990). The finding of both species of a closely related pair together without evidence of extensive hybridization provides for separation of the two as species. Such was the case of *Acanthurus tristis* which was resurrected from the synonymy of *Acanthurus pyroferus* by Randall (1993) who observed both together at Bali. The same is true for *Scarus spinus* and *S. viridifucatus*, both of which occur together on the northeast coast of Bali (Figs. 2,3).

Fourteen species of parrotfishes were recorded from the Andaman Sea as a result of recent field work (Satapoomin, 1993): *Bolbometopon murica-*

*tum*, *Cetoscarus bicolor*, *Scarus frenatus*, *S. ghabban*, *S. niger*, *S. prasiognathos*, *S. quoyi*, *S. rubroviolaceus*, *S. russelli*, *S. scaber*, *S. tricolor*, *Chlorurus sordidus*, *C. strongylocephalus*, and *C. troschelii* (these three species were reclassified from *Sscarus* to *Chlorurus* by Bellwood, 1994). During visits to the Surin Islands in May and December 1993, Similan Islands in December 1993, and Phi Phi Islands in February 1994, 4 additional species, namely *Calotomus carolinus*, *Hipposcarus harid*, *Chlorurus capistratoides* and *Scarus* sp.1 were encountered. On 12 March 1994, Dr. Mark Westneat, of the Field Museum of Natural History, Chicago, USA, succeeded in collecting specimens of *Scarus* sp.1 at Surin Islands which is a new species. With the addition of *S. viridifucatus* to the Andaman coast of Thailand, the total number of scarids known from the area is raised to 19.

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