

OCCURRENCE OF GARDEN'S BUTTERFLY FISH *CHAETODON GARDINERI* NORMAN, 1939 (FAMILY: CHAETODONTIDAE), IN COASTAL WATER OF PAKISTAN

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ABSTRACT

The paper represent the first record of *Chaetodon gardineri* Norman, 1939 recognized as Garden's butterfly fish from Pakistani coast . Two samples were obtained from the west coast of Baluchistan near Astola Island of Pakistan on 2nd and 11th September 2016, respectively. This paper provides a short description with photographs of the sample and distribution.

Key words: Garden's butterfly fish, *Chaetodon gardineri*, Chaetodontidae, Astola, Pakistan.

INTRODUCTION

Chaetodon gardineri (Norman) was described with the other spell *Chaetodon gardineri* by Norman in 1939 from Muscat Oman, holotype housed in British museum of natural history. Its common name is Garden's butterfly fish.

Family Chaetodontidae (Butterfly fishes) comprised 3 genera and 4 species in Pakistan (Psomadakis *et al.*, 2015) which was found in shallow coastal water. *Chaetodon gardineri* has the characteristic features having deeply compressed body, tube like snout, concave dorsal head profile and large black area posterior part of the body with oblique orange lining in yellow background.

MATERIALS AND METHODS

Samples of these species were collected from Karachi fish harbor on September 06th and 16th 2016. Relevant information regarding capturing, location, net used, and depth were also collected. Measurement of body part of different areas and supportive photographs for identification were obtained and sent to taxonomical experts. After verification of first record, specimens was fixed in 10 % formalin solution in the museum of Marine Fisheries Department, Karachi, Government of Pakistan.

DESCRIPTION

Specimen showed features of deep oval body (Fig.1.a & Fig.1.b) which is strongly compressed in cross section, (Fig.2) small terminal protractile mouth (Fig.3) dorsal profile head extremely concaved, tube like snout, (Fig.4) ,scale stenoid, teeth setiform arranged in brush like bands in jaws, continued dorsal fin without notch between spinus and soft parts of dorsal fin, membrane between the front spines incised, dorsal fin semi rounded with 12 spines and 22 rays (Fig.5), Anal 3 spine and 18 soft rays,(Fig.6) eye small, 25 scale in vertical series 6 from first dorsal to origin of lateral line, ground color slightly yellow with faint narrow dark orange lines on lower body running along the slanting rows of scale (Fig.7) . Ocular black band almost as broad as the eye with yellow thin posterior margin disappearing below eye (Fig.4) continued in lower area of cheek forming a blotch on breast (Fig.8), a blackish area covers the most part of the dorsal fin crosses the back part of the body and discontinue on basal area of anal rays, dorsal fin with a yellow margin which is continued in soft part of the dorsal fin with narrow line separating this with black area , anal fin with similar yellow border and inframarginal dark line. Caudal fin yellow slightly rounded with an orange stripe and black posterior margin, pectoral and pelvic fins pale, opercular membrane orange (Fig.8). A wide black band starting near the black area of caudal peduncle moves slightly upwards to the head ending almost in the mid body which is faded in first specimen collected on 6-9-16 (Fig.1a) and prominent in second specimen collected on 16-9-16 (Fig.1b)

These morphometric and meristic characters of this specimen are reconciled by John Murray (1933-34) and Randall (1995); therefore it is assigned to the species *Chaetodon gardineri*.

Chaetodon selene closest member of this family (cheatodontidae) not found in Pakistani waters which occurs in western Pacific Ocean having less black area on the body and lacking of blotch on breast.



Fig. 1a. *Chaetodon gardineri*



Fig. 1b. *Chaetodon gardineri*

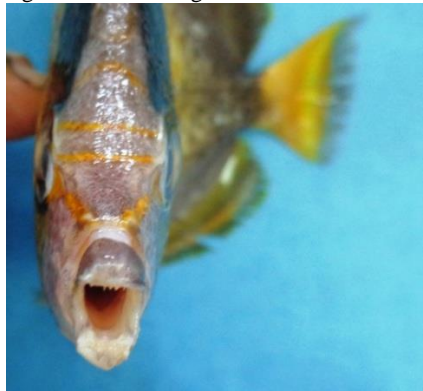


Fig. 2. Compressed body



Fig. 3. Small terminal mouth.



Fig. 4. Head concave & tube like body

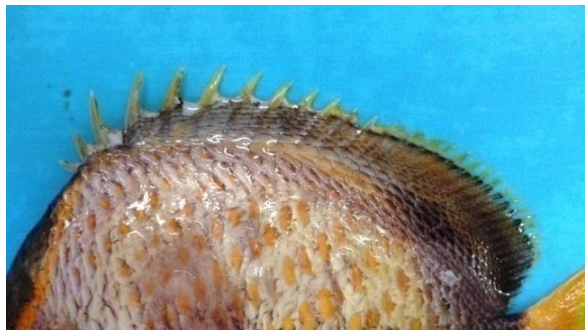


Fig. 5. Continue dorsal fin



Fig. 6. Anal fin



Fig. 7. Orange oblique lines



Fig. 8. Bloch on breast



Fig. 9. Black bar

DISRTIBUTION

Chaetodon gardenri found from Indonesia to Yemen and Persian Gulf including Thailand, Andaman Island, Myanmar, India and Srilanka

Geographical range in western Indian Ocean, 30° E - 80° E; 45° S - 30° N and in Eastern Indian Ocean 77°E - 150°E; 55°S - 24°N.

No previous record which showed occurrence of this species from Pakistani waters. This article provides the first recorded verification of its availability from Pakistani waters.



Fig. 9. Distribution map of *Chaetodon gardineri*.

DISCUSSION

Chaetodontidae (Butterfly fishes) means bristle tooth fish these fishes belong to the order Perciformes, fishes of this order originated more than 65 million year ago during cretaceous period. Butterfly fishes are bright colored, have perch like oval shape, sharp spine in front half of dorsal fin and are found among tropical reefs around the world but are abundant in the Indo-Pacific oceanic area. Now there are about 120 described species of this family most of them belong to genus *Chaetodon*. Mostly they are corallivorous (Feeds on coral polyps) but some depends on bottom living invertebrate, sponge, polychaete, sea anemones, zooplankton and Algae.

Day (1878). reports 16 species of family Chaetodontidae from Indian Ocean, *Chaetodon plebeius*, *C.xanthocephalus*, *C.falacula*, *C.pictus*, *C.vagabundus*, *C.mertencil*, *C.auriga*, *C.kieinii*, *C.guttatissimus*, *C.vittatus*, *C.unimaculatus*, *C.collaris*, *C.lunula*, *C.melanotus*, *C.octofasciatus* and *C.oligacanthus*. Most detailed of family Chaetodontidae, describe by Moazzam *et al.* (2009) with the reference of past work done by Jalil and Khaliluddin (1972, 1980) Hoda (1985) and Hussain (2003) which reported 4 species *Chaetodon collare*, *C.lunula*, *Hanicochus acuminatus* and *Parachaetodon ocellatus*, they further discussed on the availability of fifteen species of this family of 3 genera i.e. *Chaetodon auriga*, *C.collare*, *C. falcula*, *C.jayakari*, *C.kleinii*, *C.lunula*, *C.nigropunctatus*, *C.octofasciatus*, *C.plebeius*, *C.trifasciatus*, *C.vagabundus*, *C.xanthcephalus*, *Henichus acuminatus*, *H.monoceros* and *Parachaetodon ocellatus*. Recently (Psomadakis *et al.*, 2015) reported 4 species *Chaetodon collare*, *C.pictus*, *Heniochus acuminatus* and *Roa jaykari* but nobody listed *Chaetodon gardineri* in Pakistan. Now *Chaetodon gardineri* is an additional species described from Pakistan water.

Species is omnivorous depends on food like algae and bottom living animals. Maximum size of this species reported in various papers, articles, and websites is 17 cm whereas second specimen found on 16th September was 18 cm. Depth range is from 2 to 91 m but most common is 15 to 25 m.

This species was found near the Astola Island which has been declared as the first ever coral reef ecosystem of Pakistan.

Like other butterfly fishes color pattern of this species and of other family members confused the predator, species are diurnal, energetic during daytime and look for protection among crevices in the reef and rocky

outcroppings. Oval shaped body along with a protruding snout allows them to stir among the rocks on a coral reef and helps them find food within the rocks and crannies.

Species moves like flitting, darting motion and fish spawns at the dusk (when the visibility is low) to increase the survival rate of her eggs.

Larva has bony plates which provide protection from other animals. Gut is coiled several times. Two interiorly directed processes in swim bladder. Large fish, sharks, snappers and eels often prey on butterfly fish. Flesh is not poisonous but not used as food because of smaller size.

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