

Pomacentrus pavo (Bloch, 1787)

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IDENTIFICATION

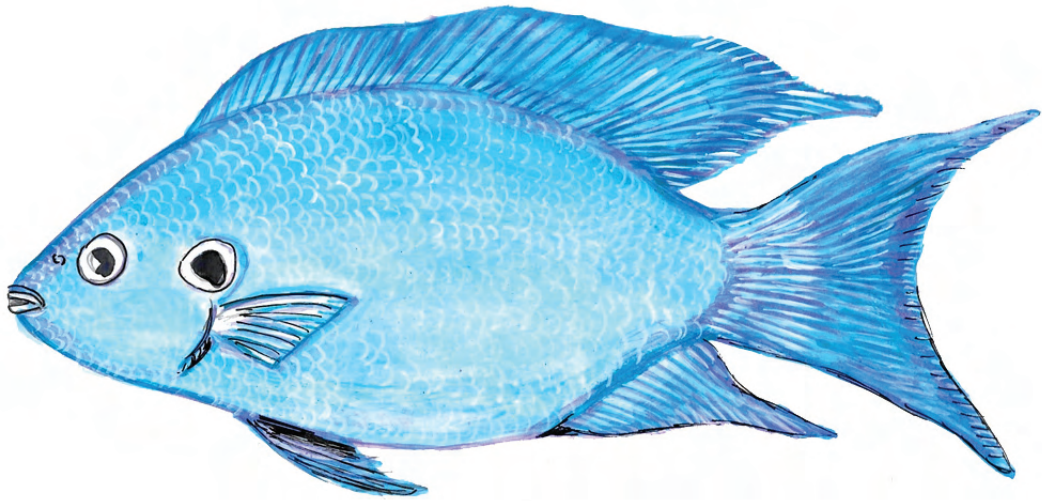
Order	: Perciformes
Family	: Pomacentridae
Common/FAO Name (English)	: Sapphire damsel



Local names: Pachakkotti (Malayalam)

MORPHOLOGICAL DESCRIPTION

The Sapphire damsel has 13 dorsal spines and 13-14 dorsal soft rays. There are 2 anal spines and 12-14 anal soft rays. Body colour is variable from metallic green to light blue. A small and usually distinct greenish ear spot is found. The tail is yellowish, especially when young. The head is with blue vermiculations and the body depth is 2.4-2.6 in standard length.



PROFILE

GEOGRAPHICAL DISTRIBUTION

The sapphire damselfish is a small fish found in the tropical and temperate waters, throughout the world oceans. The species is distributed in the Indo-Pacific region ranging from east Africa to the Tuamotu Islands, north to Taiwan and south to Lord Howe Island. It is also reported from Maldives and along the coast of India from Lakshadweep Islands.

HABITAT AND BIOLOGY

It is a marine, reef-associated, non-migratory fish and a common inhabitant of isolated coral heads and patches of rubble on sandy lagoons and channel floors varying in depth from 1.5 to 12 m. It is usually seen in groups and commonly found around jetty structures. It is oviparous with distinct pairing observed during breeding. The eggs are demersal and adhere to the substrate. The males guard and aerate the eggs. Studies from India have reported that the size at first maturity ranges from 41 to 50 mm and females to be the dominant sex (sex ratio of 1:0.58). Spawning season is from March to May in India. Fecundity varies from 700 to 2,396 eggs.

BREEDING IN CAPTIVE CONDITIONS

Technology for breeding and seed production of sapphire damsel, *Pomacentrus pavo* has been developed by researchers of Mandapam R. C. of CMFRI. Wild collected fishes were stocked in broodstock tanks. The fishes were fed *ad libitum* with boiled mussel meat. Spawning started two months after introducing them to the breeding tank. Spawning was almost continuous throughout the period. The largest fish was the nest guarding male and the others were females. Multiple spawning was noticed. Spawning usually took place early in the morning. Occasionally spawning took place in late night hours. The spawning frequency and the number of eggs laid were very low initially but gradually increased. The number of spawning events ranged from 0 to 14 with an average of 7.4 ± 1.24 spawning events per month. Usually spawning occurred in every 3-4 days during normal breeding periods. Initially, number of eggs laid was 400 per spawning. Afterwards it increased to a maximum of 3,788, with an average of 2656 ± 78.74 eggs per spawning. Clutch size was fairly consistent after the initial spawning. During the 16 month period the total number of eggs laid was estimated to be 3,27,450. The incubation period was four days generally but occasionally extended to the fifth day. Hatching took place in the evening, 1 to 2 h after sunset.

LARVAL REARING

The newly hatched larvae were collected and stocked in larval rearing tanks. The hatchlings were pelagic with a single fin fold and movable jaws. Complete yolk exhaustion took place in 2-3 days after hatching. The total length and maximum mouth gape of the hatchlings of the species are 2.08 mm and 189 μm respectively. Green water system was adopted for larval rearing. The early larvae were found to feed on ciliates present in the microalgal debris for initial few days. Later they were fed with finely smashed ovaries and tissues of the mussel filtered through bolting silk of appropriate mesh size. As they grew they were fed with freshly hatched *Artemia nauplii* and *Moina micrura* till metamorphosis. Larval duration ranged from 37 to 41 days. Water exchange was done in the morning and evening @ 50 % initially and increasing to 100 % later.

FOOD AND FEEDING

It is omnivorous ; feeding on zooplankton and filamentous algae.

GROWTH RATE

Information not available

DISEASES AND CONTROL MEASURES

Lipoid liver disease and steatitis has been reported in captive sapphire damsels. The possible contributing factors are vitamin E deficiency/depletion, rancid feed and chronic stress.

PRODUCTION, MARKET AND TRADE

PRODUCTION

Information not available

MARKET AND TRADE

It is one of the most popular aquaria species in commercial and private operations and is one of the top ten most traded species globally.

CHALLENGES TO MARICULTURE

Although captive breeding and larviculture have been successfully carried out, mass scale hatchery production needs to be standardized.

FUTURE PROSPECTS

Pomacentrus pavo is one of the best species in the marine aquaria. Captive breeding and larviculture have been successfully carried out in India. Mass scale hatchery production can pave way for a sustainable marine ornamental fish trade in the near future.

SUGGESTED READING

Allen, G. R. 1991. Damselfishes of the World, Aquarium Systems, Mentor, Ohio, USA, 271 pp.

Anand, P. E. V. and Pillai, N. G. K. 2002. Reproductive biology of some common coral reef fishes of the Indian EEZ. J. Mar. Biol. Ass. India, 44(1&2): 122-135.

Froese, R. and Pauly, D. 2016. *Pomacentrus pavo* in FishBase. January 2016.

Randall, J. E. and Anderson, C. 1993. Annotated checklist of the epipelagic and shore fishes of the Maldives Islands. Ichthyol. Bull. of the J. L. B. Smith Inst. of Ichthyol., (59): 1-47.

Tanaka, Y., Yamada, K., Hayakawa, Y. and Watanabe, D. 2004. Reproduction and rearing of the damselfish, *Pomacentrus pavo*, in the aquarium. Bull. Inst. Oceanic Res. Develop., Tokai Univ., 25: 1-12.

Wabnitz, C., Taylor, M., Green, E. and Razak, T. 2003. From Ocean to Aquarium. UNEP - WCMC, Cambridge, UK, 66 pp.

Weisman, J. L. and Miller, D. L. 2006. Lipoid liver disease and steatitis in a captive sapphire damsel, *Pomacentrus pavo*. Acta Ichthyol. Piscat., 36(2): 99-104.

www.marinespecies.org. Accessed on 18.10.2017.