

## *Thalassoma bifasciatum* (Bluehead Wrasse)

Family: Labridae (Wrasses)

Order: Perciformes (Perch and Allied Fish)

Class: Actinopterygii (Ray-finned Fish)



**Fig. 1.** Bluehead wrasse, *Thalassoma bifasciatum*.

[<http://www.reef2reef.com/forums/fish-discussion/129403-saltwater-fish-day-bluehead-wrasse.html>,  
downloaded 29 March 2015.]

**TRAITS.** A saltwater species with a scaleless blue head, two, thick, black, vertical stripes separated by a white stripe and green to blue-green scaled body (Fig. 1). Length: adults 9cm; young 6cm. Shape: blunt snout; shape similar to a “compressed cigar”; adult/terminal phase crescent caudal fin; young/initial and juvenile phase truncate caudal fin; two canine teeth on upper and lower jaws, single row of conical teeth located on the margin that become longer at the front of the mouth. Colour: juvenile phase thin, black, lateral stripe between yellow back and white belly (Fig. 2); initial phase yellow head and body above the white belly with two brown, square-like spots behind the eye and no mid-lateral stripe (Fig. 3) or white bars that break up the mid-lateral stripe into set of blotches (Fig. 4).

**DISTRIBUTION.** Abundant in Atlantic Ocean, Bahamas, Caribbean Sea, Gulf of Mexico, South and northern South America and West Indies (Fig. 5).

**HABITAT AND ACTIVITY.** Found in coral reefs, sandy bottoms, rocky flats and seagrass; constantly swims above the reef and found in depths over 30m. Juveniles are located within the tentacles of sea anemones, purposely avoiding direct contact. Habitats are normally stable unless coral reefs are temporarily disturbed and damaged by mankind and/or natural occurrences. Strictly diurnal, reef fish (Robertson and Sheldon, 1979); they forage along the bottom of the sea bed or water current. At dusk they search for sleeping holes within the reef to avoid being victims of crepuscular predators. The species activity changes significantly with transition from day to night (Colton and Alerizon, 1981).

**FOOD AND FEEDING.** They are and carnivores; they mainly feed on zooplankton, crustaceans, molluscs, worms, shrimp, krill, motile invertebrates, eggs of smaller fish and ectoparasites from larger fish. The initial phase males and females form large feeding groups and they hunt by feeding on the surface of coral reefs when currents are strong, and above the reefs when currents are low.

**POPULATION ECOLOGY.** They are mainly found in related, abundant groups that do not have distinct territories but roam freely within the ocean. The number of males depends on the size of the reef. Large coral reefs have equal proportions of initial and terminal phase males; this increases the chances of initial phase males mating with the females since they are less aggressive than the terminal males. As a result of their aggressive nature, terminal phase males are more abundant in smaller coral reefs than initial males, guarding a small number of females.

The recruitment of juveniles is a foreshadowing of the future adult population. The overall population size of this particular species can be determined by the production of juveniles and deaths and not by the size and/or resources of the reef (Victor, 1983). Removal of terminal phase males temporarily disturbs the male to female equilibrium within the population. Initial phase males and females alter their physical colour, latter is colour and sex, in order to become terminal males to balance the male to female ratio. Initial phase females display terminal male behaviour within minutes; bodily colours are changed in a day, becoming distinctly visual in four days and swift transition from ovaries to testes, producing functional, mature sperm in less than eight days (Warner and Swearer, 1991). They have longevity of two years; minority can live up to three years however this is rare.

**REPRODUCTION.** Females produce high number of eggs daily and sporadically. Mating sites are can be protected by terminal phase males that pair with females, or small groups of males consisting of 5-15 males that group mate with females (Warner, 1995). The initial phase males have larger testes than terminal phase males and they participate in large spawning groups. The females swim to these groups and release eggs in a "spawning rush". The initial phase males swim next to a female, when she discharges her egg, in order to maximize the chances of fertilization. Apart from positioning, the initial phase males also engage in "sperm competition" which is the releasing of large amounts of sperm in order to increase the probability of fusion between the eggs and sperms; hence resulting in a high number of offspring.

In the West Indies, reproduction for this species occurs seasonally, normally between January and August however depending on the location, the pattern of spawning may change intraspecifically. Spawning is also highly impacted by lunar (moon) positions and movements of the sea tides (von Herbing and Hunte, 1991) which coincide. These species specifically choose full and new moons for increased spawning, for they cause optimum tides that are satisfactory

for reproduction. Daily spawning frequently occurs prior to ebb tides; ebb tides are the periods between high and low tide during which water flows away from the shore. The speed of the current may not be fast but increases the duration of the offshore current and depth of the water; decreasing predation by reef-associated organism during spawning (von Herbing and Hunte, 1991). Annually, at new moon, larvae rest on reefs sporadically; settlement increases from August to December. For the first three days deaths of larvae and juveniles are extremely high on the reef (Victor, 1986).

**APPLIED ECOLOGY.** According the World Conservation Union (IUCN) *Thalassoma bifasciatum* is not considered an endangered species however their habitats, once damaged, can result in local endangerment of the species. They are no threat to mankind or other species. As a result of their small size and poor edibility they are of no interest to fisheries however their brightly coloured scales make them popular pets.

#### REFERENCES

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**Fig. 2.** Juvenile bluehead wrasse, *Thalassoma bifasciatum*.

[<http://www.fishdb.co.uk/img6/Fish2367.jpg> downloaded 30 March 2015]



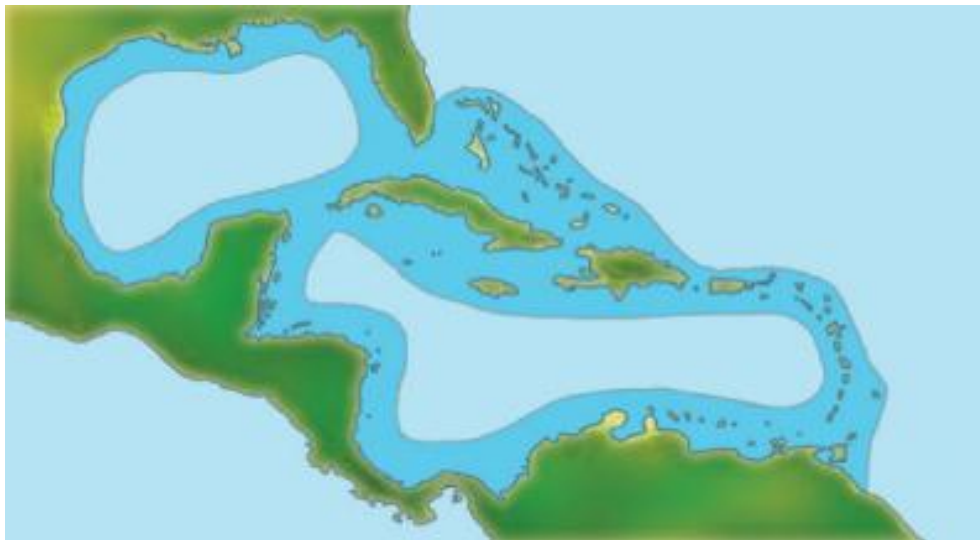
**Fig. 3.** Initial phase bluehead wrasse.

[<http://www.marinelifephotography.com/fishes/wrasses/thalassoma-bifasciatum-female.jpg>  
downloaded 30 March 2015]



**Fig. 4.** Initial phase bluehead wrasse, alternative pattern.

<http://www.wetwebmedia.com/WrassePix/Thalassoma/T.%20bifasciatum%20Init%20phase%203%20COZ.JPG>  
downloaded 30 March 2015]



**Fig. 5.** Geographical range of the bluehead wrasse.

[http://community.oceana.org/sites/default/files/explore/creatures/maps/Bluehead\\_Wrasse\\_Map.jpg](http://community.oceana.org/sites/default/files/explore/creatures/maps/Bluehead_Wrasse_Map.jpg)  
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