Haemulon flavolineatum (French Grunt)

Family: Haemulidae (Grunts)
Order: Perciformes (Perch and Allied Fish)
Class: Actinopterygii (Ray-finned Fish)

Fig. 1. French grunt, *Haemulon flavolineatum.*
[https://en.wikipedia.org/wiki/Haemulon_flavolineatum, downloaded 5 March 2016]

TRAITS. The French grunt has a tapered, almond-shaped body. It has a silvery-blue base colour with characteristically distinct bright yellow stripes which run horizontally or diagonally, depending on their position above or below the lateral line sensory organ (Fig. 1). Scales present below the lateral line are twice as large as those above the lateral line, which is a characteristic feature found only in this grunt. On the underside of the head there are yellow spots, and all fins are yellow. The inside of the mouth is bright red-orange, and the teeth are conical in shape, arranged in bands, and lacking canines. At reproductive maturity the French grunt can reach up to an average of 15-25cm, with maximum lengths of 30.5cm. Juvenile French grunts are different to mature grunts in that their bodies are lighter in colour with distinct black or dark brown horizontal stripes (Fig. 2) and a black spot at the base of the caudal fin.

DISTRIBUTION. The French grunt is found throughout the Caribbean Sea and in the western Atlantic from Bermuda and South Carolina to the coast of Brazil (Fig. 3) (Randall, 1967).

HABITAT AND ACTIVITY. The French grunt can be found during the daytime in sheltered, shallow water, coral reef areas, most notably surrounding elkhorn corals (Fig. 4). Found predominantly at depths up to 60m in warm waters of 25-27^{o}C. The youngest juveniles of *Haemulon flavolineatum* use both seagrass and mangroves as habitat, however as they grow in age and size they show inclination for the mangrove habitat alone (Verweij et al., 2006). Since seagrass beds and mangroves are the main feeding and foraging grounds, islands which lack these habitats or have little of these areas see less of this type of grunt.

FOOD AND FEEDING. The adult *H. flavolineatum* is a nocturnal feeder. At night it has been observed that they leave their daytime habitat where they separate from their schools, moving to nearby seagrass beds and mangrove areas to feed and forage solitarily on macro-invertebrates, benthic crustaceans and polychaetes. Juveniles however feed predominantly during the day and feed on copepods, crab larvae, amphipods and shrimp.

POPULATION ECOLOGY. *Haemulon flavolineatum* is not only abundant throughout the Caribbean Sea but it is also noted to be one of the most economically and ecologically important species of reef fish. Like many other types of reef fish, the French grunt displays schooling behaviour during daylight hours where they drift in sheltered coral reef areas in schools which can number in the thousands. They often travel in these groups together with their larger close relative, the blue striped grunt, *Haemulon sciurus*. They do however move away from schools during dusk and night hours and remain solitary during the night time for foraging and feeding. This species of grunt can live up to the age of 8 years.

REPRODUCTION. They spawn at night during spring and summer. In warm climates, however, spawning can occur year round. It seems that temperature along with light cycle has a large influence on spawning activity. French grunts are pelagic spawners. Pairs rise together in a "spawning ascent", at the top of which the female releases thousands of spherical, floating eggs slightly less than 1mm in diameter (Barden et al., 2014). When they finish the planktonic stage, after 15 days as larvae, they move into sheltered nursery areas such as shallow reefs and seagrass beds, which are the preferred feeding sites for juvenile grunts.

BEHAVIOUR. The French grunt is named due to its ability to make grunting sounds by grinding its pharyngeal teeth together, and amplification of the sound occurs by using its swim bladder. This grunting behaviour occurs as an anti-predatory mechanism and has also been observed during mating. This is a form communication. During the daytime, *Haemulon flavolineatum* drift in groups in sheltered areas, displaying schooling behaviour. Juveniles spend their time hiding in seagrass beds and sand flats. Antipredator behaviour consists of four stages: evasion, approach, attack, and return (Hein, 1996). Many reef fish when threatened by a predator will go into shelter or holes to hide; instead of doing this, the French grunt will move closer together in groups. They then surround the predator, proceeding to move behind it. Individuals behind the predator would approach slowly from behind and nip at the tail of large predator fish. This would be repeated by other individual French grunts. If the predator were to attack, the French grunts would evade the predator and escape the area.

APPLIED ECOLOGY. The French grunt is a very popular and abundant species of fish. It conservation status has not been assessed by the IUCN, World Conservation Union. They are

primarily harvested as fish food, and are commonly used as display fish in many aquariums. It also has been accepted as a candidate for aquaculture.

REFERENCES

Barden, K.P., Wittenrich, M.L., and Cassiano, E.J. (2014). Candidate Species for Marine Ornamental Aquaculture: French Grunt, Haemulon flavolineatum. http://edis.ifas.ufl.edu/fa186, downloaded 6 March 2016.

Hein, R.G. (1996). Mobbing Behavior in Juvenile French Grunts (Haemulon flavolineatum). *Copeia.* **1996.4:** 989-991.

Randall, J.E. (1967). Food habits of reef fishes of the West Indies. *Studies in Tropical Oceanography*. **5:** 665–847.

Verweij, M., Nagelkerken, I., Wartenbergh, S., Pen, I., and Velde, G. (2006). Caribbean mangroves and seagrass beds as daytime feeding habitats for juvenile French grunts, Haemulon flavolineatum. *Marine Biology.* **149**: 1291-1299.

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Fig. 2. Juvenile French grunt, *Haemulon flavolineatum.*

[http://reefguide.org/carib/frenchgrunt.html, downloaded 5 March 2016]

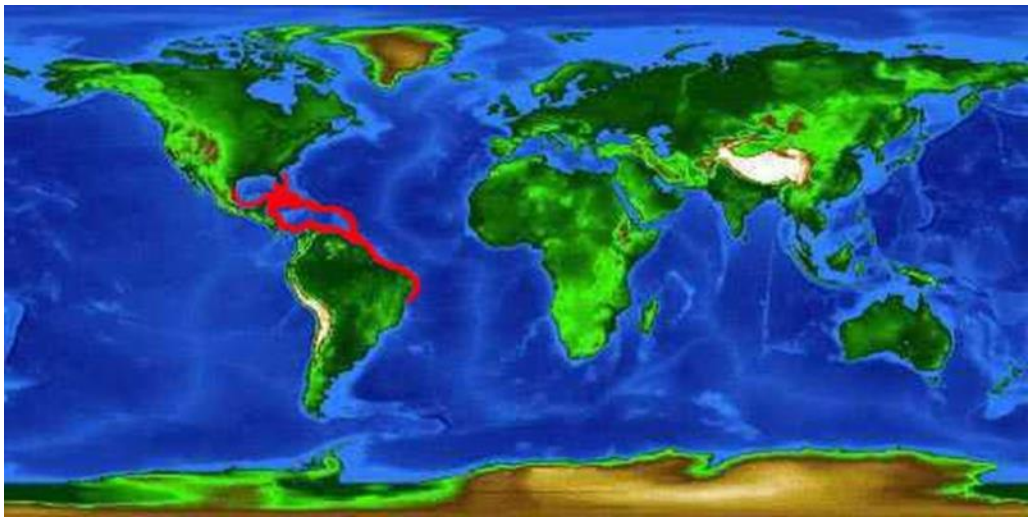

Fig. 3. Distribution map for French grunt, *Haemulon flavolineatum.*

[https://www.flmnh.ufl.edu/fish/discover/species-profiles/haemulon-flavolineatum, downloaded 5 March 2016]

Fig. 4. *Haemulon flavolineatum* schooling under elkhorn coral.

[http://www.destination-magazines.com/wp-content/uploads/2015/10/DSC1347-300x199.jpg, downloaded 5 March 2016]