

## *Sparisoma chrysopteryum* (Redtail Parrotfish)

Family: Scaridae (Parrotfish)

Order: Perciformes (Perch and Allied Fish)

Class: Actinopterygii (Ray-finned Fish)



**Fig. 1.** Redtail parrotfish, *Sparisoma chrysopteryum*.

[<http://reefguide.org/pixhtml/redtailparrot8.html>, downloaded 5 March 2015]

**TRAITS.** The Scaridae (parrotfish) family is characterized and named according to their dentition, which consists of an array of teeth tightly arranged in their parrot-like beaks (Fig. 1) which aid in the grinding of the calcified algal corals they feed on (Paxton and Eschmeyer, 1998). A mature male redtail parrotfish can reach a maximum length of 46cm but is commonly approximately 25cm. Juvenile redtail parrotfish are mottled (Fig. 2) to camouflage with seagrasses on which they graze until they reach sexual maturity. They then lose their mottled pattern and take on a blue coloration (Hawkins, 2004). Adult males have orange or red dorsal and anal fins, with a dark saddle-shaped band at the upper end of their pectoral fin base and a pale saddle-shaped band on the apex of the caudal peduncle (tail base) (Fig.1) (Smith, 1997).

**DISTRIBUTION.** Found in the western Atlantic Ocean, spanning the Caribbean Basin, from the Bahamas and south Florida to Venezuela. Native to the coasts of Anguilla, Barbados, Belize, Puerto Rico, Trinidad and Tobago and the British Virgin Islands, among others (Rocha et al., 2016).

**HABITAT AND ACTIVITY.** Parrotfish are found in coral reef and seagrass habitats of a depth between 1-20m (Rocha et al., 2016). They migrate from their reef habitats to seagrass beds or mangroves for spawning (Colin, 1996). These mangroves and seagrass beds act as nursery sites for the mottled, juvenile-stage redbtail parrotfish as they provide the species with an abundance of shelter and food. At maturity, the parrotfish permanently leave their nursery to inhabit neighbouring coral reefs. Studies show that the juvenile-stage are exclusively found in bays with mangroves and/or seagrass beds and are rarely found in coral reefs (Nagelkerken et al., 2002). They are diurnal and follow a specific route during the day and return to their refuges during the evening when they nestle in rocky coral cavities and secrete a mucus like cocoon where they sleep till the next day (Ogden and Buckman, 1973).

**FOOD AND FEEDING.** Parrotfish, though usually classified as herbivorous, are considered to be the most significant consumers of both coral algae and sponges within the benthic region of tropical waters as they are the most abundant and forage-intensive populations within the ecosystem. They have been documented to have feeding rates as high as 16,000 and 28,000 bites per day for terminal-phase and juvenile fish, respectively (Dunlap and Pawlik, 1998). They use their beak-like dentition to rend algae from coral and sediment-covered rocky surfaces (Fig. 3), and use their pharyngeal mill teeth to break down the hard calcareous substratum into fine sediment which is deposited on the seabed (Ogden and Buckman, 1973).

**POPULATION ECOLOGY.** Scarids typically form foraging groups which can contain up to 500 individuals including other species which may join the group as it moves through a particular locality. These groups are usually formed by late morning and are confined to specific routes (Ogden and Buckman, 1973).

**REPRODUCTION.** Most members of the Scaridae family are sequential hermaphrodites which are usually born as females but can change into males upon reaching maturity. Within the *Sparisoma* genus, which includes the redbtail parrotfish, all members are born female and only a relatively small portion of the population sexually differentiate into males upon reaching sexual maturity, however many females of the population remain sexually undifferentiated, i.e. female, no matter which phase of maturity they have reached (Hawkins, 2004). They are pelagic spawners which produce and release free floating, buoyant eggs into the water which settle onto the underlying coral (Smith, 1997). Fertilization of eggs occurs externally with no indication of direct parental care, however groups of the largest males in the territory fiercely defend spawning sites (Hawkins, 2004).

**BEHAVIOUR.** Parrotfish are typically known for their complex social behaviours. Mating occurs in territories with a terminal-stage adult male co-existing with several females which make up a harem (Smith, 1997). It is suggested that the larger males in multi-male territories have an advantage in reproductive success as well having a crucial role of protecting the territory as they tend to be more aggressive (Roff et al., 2011). Studies suggest that parrotfish are capable of being

highly adaptive in terms of their social strategies in response to factors such as territory size, predation, resource availability and population density (Hawkins 2004).

**APPLIED ECOLOGY.** According to the assessment done by the IUCN, *Sparisoma chrysopterum*, is classified in the Least Concern (LC) category with no ongoing species-specific conservation initiatives (Rocha et al., 2016). Though there are no significant threats to the redbelt parrotfish, its distribution overlaps with protected marine area and has been documented that there is a severe decline in population sizes in reefs in close proximity to densely populated areas such as in Haiti and Jamaica. In addition, loss of coral reefs, though the long-term effects of habitat loss on the parrotfish population size has not been properly studied, proves to be a cause for concern (Rocha et al., 2016).

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**Fig. 2.** Juvenile-stage redbtail parrotfish, *Sparisoma chrysopterum*.

[<http://www.mexfish.com/mexico/wp-content/uploads/F242-Redtail-Parrotfish.jpg>, downloaded 8 March 2015]



**Fig. 3.** Redtail parrotfish foraging on coral substratum.

[<http://www.virtualcoralreefdive.com/IMAGES/COMPETITION/overRedtailParrotf.jpg>, downloaded 8 March 2015]

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