

## *Pristis microdon* (Largetooth Sawfish)

Family: Pristidae (Sawfish)

Order: Rajiformes (Rays and Sawfish)

Class: Chondrichthyes (Cartilaginous Fish)



**Fig. 1.** Largetooth sawfish, *Pristis microdon*.

[<http://news.nationalgeographic.com/news/2011/06/110616-sawfish-snout-sixth-sense-animals-environment-science/>, downloaded 07 November 2011]

**TRAITS.** The Atlantic largetooth sawfish is sometimes considered as the same species as the Pacific largetooth sawfish *Pristis microdon*, and sometimes as a separate species *P. perotteti*. According to Last and Stevens (1994) the sawfish is a highly modified and elongated ray that tends to have more characteristics similar to that of a shark rather than a ray with respect to its body form and features. These unique medium-sized creatures belong to the family Pristidae and tend to have body lengths from 3 m up to an astonishing 7 m. They possess blade-like rostrums that has lateral, rostral teeth (denticles) set into the socket. Each rostrum contains around 18-23 equally spaced pair of teeth expanding at the base up from the rostrum (around 18-20 in females and 20-23 in males) (Seitz 2011). Gill openings can be found on the ventral surface of the head, with broad-based triangular pectoral fins and tall, pointed dorsal fins (positioned forward of the first dorsal fin is the origin of the pelvic fin). They have caudal fins of a small lower lobe and a concave posterior edge (Last and Stevens 1994). They are also sluggish and slow swimming. Coloration: They have a yellowish-grey or brown dorsal surface, a dirty cream ventral surface, and their rostral teeth tend to appear a dirty cream or yellow.

**ECOLOGY.** Largetooth sawfishes can be found in both the Atlantic and the Pacific Oceans. They have been labelled as a marine/estuarine species that tends to favour the mud bottoms of freshwater areas as well as the upper reaches of the estuaries where they spend their first 1-4

years. After the wet season they can be found in marine waters but during this time once mature enough they go to breed by entering freshwater/estuarine areas (Peverell 2005). They may be seen in shallow waters if they are feeding but are mostly found in waters deeper than 1 m (Wilson 1999). According to Allen (1982) they feed on shoaling fish, molluscs and crustaceans.

**ACTIVITY.** Strictly nocturnal, sawfishes sleep during the day and hunt at night. Newborns tend to hunt in shallow areas compared to older and larger sawfishes. However it has been seen that larger individuals moved into shallower waters in the afternoon and deeper waters at dawn. This could be a countermeasure to help avoid predation or even related to their foraging activities (Whitty et al 2008).

**FORAGING BEHAVIOUR.** Sawfishes move around in groups of about 4-5. Their main diet would include fishes and benthic invertebrates. Sawfishes use their rostrum in order to obtain this food; they also have sense organs which aid in obtaining food in sandy/muddy bottoms. They move it in a slashing gesture from side-to-side when attaching/stunning schools of fish as well as for extracting animals such as molluscs and small crustacean from the benthic sediments (Allen 1982). Whitty et al (2008) found that there was a difference in diet among the different age classes of sawfish which led to a difference in habitat utilization. It could be noted that accessible prey found in shallow waters differed greatly between the daytime and night-time. On nights where more moonlight was available it could also be seen that larger sawfish utilized deeper waters since prey were more visible or to avoid predation while hunting (Whitty et al 2008).

**COMMUNICATION.** A recent study by Babara Wueringer (National Geographic 2011), who is a sensory neurobiologist at the University of Queensland, stated that sawfish have a sixth sense located at the base of the rostrum which aids in hunting and mutilating prey. She explains by saying that along the length of the rostrum there are pores located that aid in movement detection as well as detection of the electric-fields of nearby prey. This is what helps when fishing for dinner in the mud bottoms of rivers/estuaries.

**SEXUAL BEHAVIOUR.** Peverell (2004) stated that this long-lived sawfish with a life span of about 40 years achieved sexual maturity at about 7 years and was a viviparous specie where reproduction lead to 1-12 young being born. Gestation periods last about 5 months and litters can be produced every other year. It is thought that parturition occurs late in the rainy season (December-March) as seen in the case at the Gulf of Carpentaria in Australia. They are probably born tail first, with their rostral teeth not fully erupted and until birth, covered in a sheath of tissue so as not to injure the mother. After birth their rostral teeth will develop to its actual size in proportion to their rostrum length (Seitz 2011).

**JUVENILE BEHAVIOUR.** Juveniles tend to spend their first 1-4 years inhabiting freshwater and estuarine areas upon which they later head out to marine waters and come back when they are mature and ready to mate in the wet season. Upon birth (5 months after copulation) they are about 50 cm in length (Wilson 1999). Most females tend to give birth to infants around the same time which allows newborns to instinctively travel in groups/schools which helps prevent predation as they journey upriver (Whitty et al 2008). Sawfish over a year old would rarely be

seen in shallow waters compared to younger ones who would spend most of the day there; larger individuals would move to deeper waters to hunt.

**ANTIPREDATOR BEHAVIOUR.** It should be noted that adult largetooth sawfishes have little or no natural enemies, however that does mean younger/smaller individuals are safe since they can still become the prey of sharks and crocodiles (Sietz 2011). They pose no danger to humans unless they are disturbed/provoked in their natural habitat or suprised. Their only problem would be that they are easily entangled in gillnet fishing since their largetooth-studded saws become easily hooked to net gear. This renders them helpless and even in packs nothing can be done to help them escape these nets once caught. They are often targeted because of their high quality meat and valuable fins and rostrum that can be used for international trade; they have even been caught for the purpose of being a trophy specimen. This has been seen as the major reason to their decline in populations (Compagno et al 2006).

## REFERENCES

- Allen, G.R. (1982). *A Field Guide to Inland Fishes of Western Australia*. Perth, Western Australia: University of Western Australia Press.
- Compagno, L.J.V., Cook, S.F. & Fowler, S.L. 2006. *Pristis microdon*. In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on **17 November 2011**.
- Last, P.R. & J.D. Stevens (1994). *Sharks and Rays of Australia*. Melbourne, Victoria: CSIRO.
- National Geographic, 2011. Sawfish *Snout has Sixth Sense, Splits Prey in Half*- featuring Barbara Wueringer, a sensory neurobiologist at the University of Queensland in Australia.  
<http://news.nationalgeographic.com/news/2011/06/110616-sawfish-snout-sixth-sense-animals-environment-science/>
- Peeverell, S., N. Gribble & H. Larson (2004). 'Sawfish'. In: *National Oceans Office, Description of Key Species Groups in the Northern Planning Area*. [Online]. Hobart, Tasmania: Commonwealth of Australia. Available from: <http://www.environment.gov.au/coasts/mbp/publications/north/pubs/n-key-species.pdf>.
- Peeverell, S. (2005). Distribution of Sawfishes (Pristidae) in the Queensland Gulf of Carpentaria, Australia - with notes on sawfish ecology. *Environmental Biology of Fishes*. 73:391-402.
- Seitz, J.C. *Freshwater Sawfish* Ichthyology at the Florida Museum of Natural History  
<http://www.flmnh.ufl.edu/fish/Gallery/Describe/Freshwatersawfish/Freshwatersawfish.htm>
- Whitty, J.M., D.L. Morgan, D.C. Thorburn, T. Fazeldean & S.C. Peeverell (2008). Tracking the movements of Freshwater Sawfish (*Pristis microdon*) and Northern River Sharks (*Glyphis* sp. C) in the Fitzroy River. Centre for Fish & Fisheries Research (Murdoch University) report to the Department of the Environment, Water, Heritage and the Arts, Australian Government. Available from: <http://www.environment.gov.au/coasts/publications/pubs/freshwater-sawfish-northern-river-shark.pdf>.
- Wilson, D. (1999). Freshwater sawfish *Pristis microdon*. *Australia New Guinea Fishes Association A-Z Notebook of Native Freshwater Fish (Australia New Guinea Fishes Association Bulletin)*. 41.

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