Urobatis jamaicensis (Yellow Stingray)

Family: Urotrygonidae (Round Stingrays)
Order: Rajiformes (Rays and Sawfish)
Class: Chondrichthyes (Cartilaginous Fish)

Fig. 1. Yellow stingray, *Urobatis jamaicensis.*

[http://www.fishbase.org/Photos/PicturesSummary.php?StartRow=1&ID=2581&what=species&TotRec=5, downloaded 27 January 2016]

TRAITS. The yellow stingray is relatively small compared to other species of stingray as it grows to a maximum width of around 35cm and a length of 66cm, and possesses a round body like other species belonging to the Urotrygonidae family. It has a venomous spine located before the caudal fin at the tip of its tail (Piercy, 2016). The yellow stingray's coloration is highly variable but is normally with reticulated dark green/brownish spots against a pale background (Fig. 1) or yellowish gold spots against a brown background (Spieler et al., 2013). Like all rays, the yellow stingray's jaws are located on the underside of the body, with papillae, which are small dermal tissue bumps on the floor of the mouth, important for manipulation of food (Piercy, 2016). They are docile towards divers but the venomous spine can deliver a painful wound if the ray is stepped on (Wikipedia, 2016).

DISTRIBUTION. The yellow stingray occurs in patchy distributions in the western Atlantic Ocean ranging from North Carolina to the northern part of South America (Fig. 2) (Spieler et al., 2013). This species also occurs in the Gulf of Mexico and is widespread throughout the Caribbean (Fahy, 2004).

HABITAT AND ACTIVITY. The yellow stingray, like all rays, is a benthic species meaning that they live at the lowest level of a body of water. These rays inhabit areas such as bays and lagoons, in the intertidal zone ranging from around 1m of water to a maximum depth of 25m (Piercy, 2016). Like most species of stingray belonging to the family Urotrygonidae, *Urobatis jamaicensis* are usually inactive during the day where most of their time is spent at the bottom of the sea. Activity increases significantly during crepuscular periods (Fahy, 2004). Furthermore, research has shown that they generally remain within a home range of approximately 22,000 m^2 or 2 ha (Young, 1993).

REPRODUCTION. The yellow stingray is an aplacental species with a short gestation period of around 5-6 months (Fahy et al., 2007). Like other rays, they are viviparous in nature where the young individual is developed inside the mother and born live. The fetal nutrition for this species is matrotrophic in that the developing individual is nurtured by the yolk of the egg and later by uterine milk secreted by the mother (Carrier et al., 2012). The yellow stingray has been documented to be able to produce as much as seven young. Fahy et al. (2007) reported that brood size in general increases during the spring/summer reproductive cycles and in larger females. During mating, the male stingray engages in biting the female disc margin to allow for the proper orientation, where the male aligns himself abdomen to abdomen and the clasper is then inserted into the female cloaca (Piercy, 2016).

FOOD AND FEEDING. Being a benthic species, the yellow stingray's diet consists of prey found on the ocean floor. Although the diet of these species of stingray is poorly documented, the general diet includes nereid (polychaete) worms, benthic crustaceans such as crab, shrimp and lobster, molluscs such as bivalves, as well as some bony fish (Piercy, 2016). Like other elasmobranchs, the yellow stingray is equipped with electrical sensors called ampullae of Lorenzini to detect the electric field given off by prey. If the prey is buried, the stingray positions itself above the prey to extract it from the substrate, and then crush and consume it with the use of the ventrally located mouth containing approximately thirty teeth (National Geographic, 2016). The yellow stingray has also been known to attract prey by creating an environment for small fish to hide by lifting its snout (Piercy, 2016). Additionally, like other rays belonging to the Urotrygonidae family, these rays are able to change colour due to special light-reflecting pigments in cells called chromatophores, which enables them to match the environment to avoid predators as well as to deceive prey (Fig. 3) (Aquarium Domain, 2016).

PARASITISM. Like other marine animals, the yellow stingray is subjected to both endoparasitic and ectoparasitic infections. Some endoparasitic infections are caused by different tapeworms such as *Acanthobothrium cartagenensis* and *Phyllobothrium kingae* (Piercy, 2016). Additionally, marine leeches such as *Branchellion torpedinis* (Fig. 4) are an example of parasites associated with the yellow stingray. It has been noted that in addition to blood loss by parasites, other health factors due to this parasitic interaction may include impaired anti-predator behaviour, decreased foraging for food, and reduction in growth as well as fecundity mainly

brought on by energy deficiency and tissue damage (Marancik et al., 2012). Furthermore, these rays are often predisposed to certain bacterial infections due to the exposure of the attachment site caused by the leech to the external environment.

REFERENCES

Aquarium Domain. 2016. Yellow Stingray Aquarium Husbandry, General Care and Feeding. Accessed March 8, 2016. http://www.aquariumdomain.com/viewSpeciesMarine.php?id=209

Carrier, J.C, Musick, J.A. and Heithaus, M.R. 2012. Biology of Sharks and Their Relatives. 2nd ed. Edited by Jeffery C. Carrier, John A. Musick and Michael R. Heithaus. Florida: CRC Press.

Fahy, D.P. 2004. Diel Activity Patterns, Space Utilization, Seasonal Distribution and Population Structure of the Yellow Stingray, *Urobatis jamaicensis* (Cuvier 1817,) in South Florida with Comments on Reproduction. Nova Southern University. Retrieived from NSUWorks, Oceanographic Center. (121). Accessed March 5, 2016. http://nsuworks.nova.edu/occ_stuetd/121.

Fahy, D.P, Spieler, R.E. and Hamlett, W.C. 2007. Preliminary Observations on the Reproductive Cycle and Uterine Fecundity of the Yellow Stingray, *Urobatis jamaicensis* (Elasmobranchii: Mylioba tiformes: Urolophidae) in Southeast Florida, U.S.A. Raffles Bulletin of Zoology: 131 -139.

Marancik, D.P, Dove, A.D. and Camus, A.C. 2012. Experimental infection of yellow stingrays *Urobatis jamaicensis* with the marine leech *Branchellion torpedinis.* **18**: 51– 60. Accessed March 8, 2016. https://www.researchgate.net/profile/Alistair_Dove2/publication/232225195

National Geographic. 2016. *Stingray*. Accessed March 7, 2016. http://animals.nationalgeographic.com/animals/fish/stingray/

Piercy, A. 2016. FLMNH Ichthyology Department: Yellow Stingray. FLMNH Ichthyology Department: Yellow Stingray. Accessed February 03, 2016. http://www.flmnh.ufl.edu/fish/discover/species-profiles/urobatis-jamaicensis.

Spieler, R. E, Fahy, D.P., Sherman, R.L., Sulikowski, J.A. and Quinn, P.T. 2013. The Yellow Stingray, *Urobatis jamaicensis* (Chondrichthyes Urotrygonidae): Synoptic Review. *Caribbean Journal of Science*. **1**: 67-97.

Young, R. F. 1993. Observation of the Mating Behavior of the Yellow Stingray, *Urolophus jamaicensis*. *Copeia* 1993 (3): 879–80. doi:10.2307/1447257.

Wikipedia. 2016. Yellow stingray. https://en.wikipedia.org/wiki/Yellow_stingray

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Fig. 2. Yellow stingray geographic distribution.

[https://en.wikipedia.org/wiki/Yellow_stingray#/media/File:Urobatis_jamaicensis_rangemap.png, downloaded 2 March 2016]

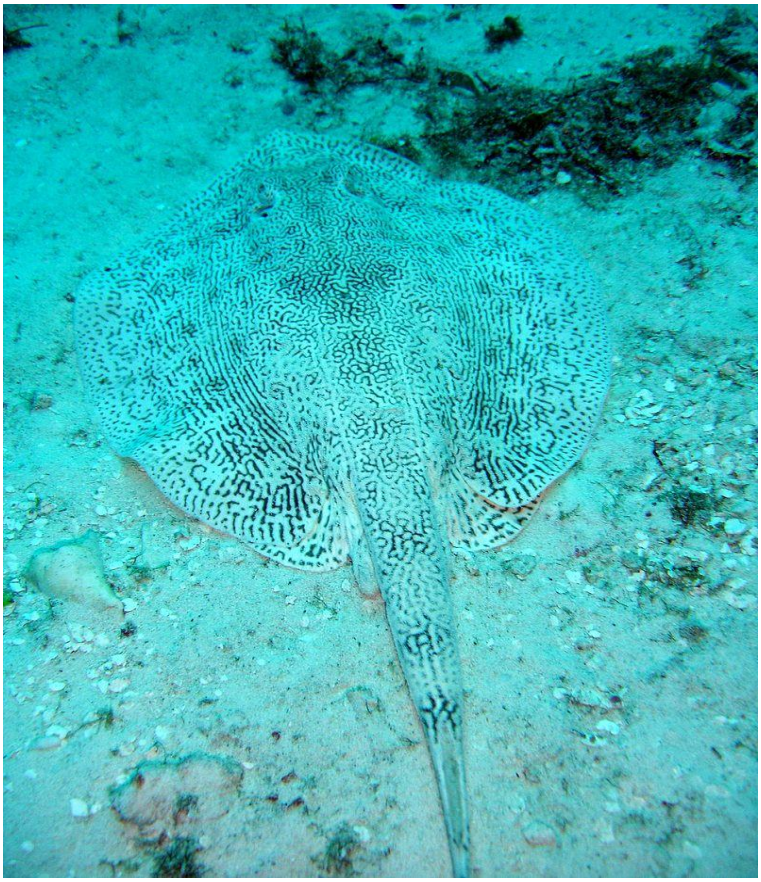

Fig. 3. Yellow stingray blended into the surroundings due to chromatophores in the skin.

[https://en.wikipedia.org/wiki/Yellow_stingray#/media/File:Yellow_stingray_cozumel3.jpg, downloaded 2 March 2016]

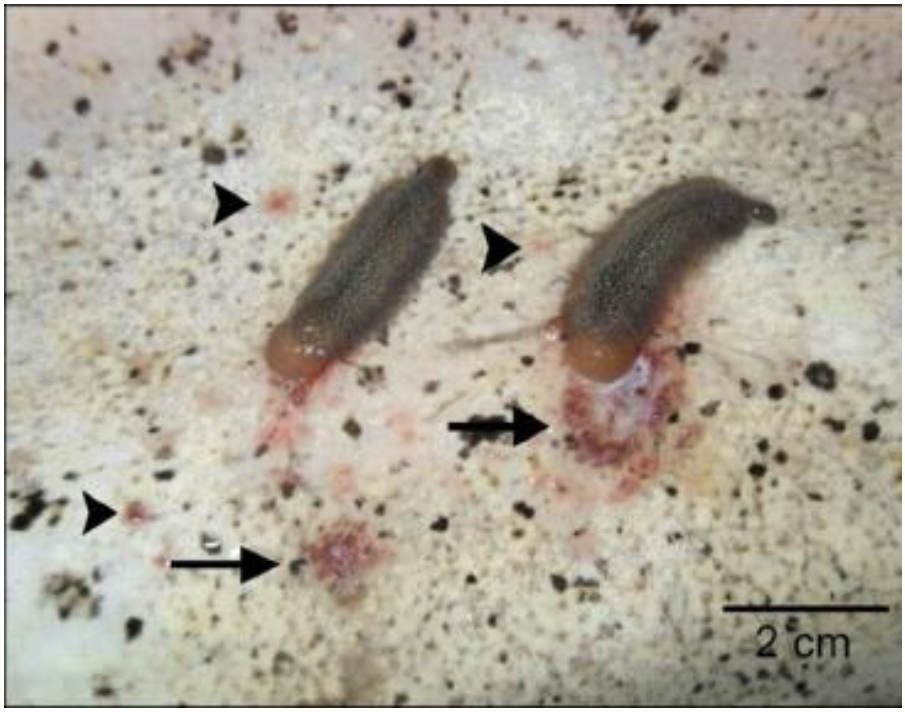

Fig. 4. Yellow stingray affected by the marine leech *Branchellion torpedinis.*

[https://www.researchgate.net/figure/232225195_fig1_Fig-1-Infestation-of-yellow-stingrays-Urobatis-jamaicensis-by-the-marine-leech, downloaded 2 March 2016]