

## *Rhinoptera bonasus* (American Cownose Ray)

Family: Myliobatidae (Eagle and Manta Rays)

Order: Rajiformes (Rays and Sawfish)

Class: Chondrichthyes (Cartilaginous Fish)



**Fig. 1.** American cownose ray, *Rhinoptera bonasus*.

[<http://www.pilotonline.com/news/local/environment/would-you-eat-a-cownose-ray-virginia-hopes-so/article.html>, downloaded 20 February 2016]

**TRAITS.** Cownose rays are heavy, disc-like fish with broad pectoral fins forming pointed wing-like structures. The tail is longer than the disc-like body, bearing numerous serrated spines near its base that are covered with a weak poison (Allen and Robertson, 1994). The broad head is slightly elevated and has two distinct lobes. The ventral mouth is small and contains 11-13 rows of flat, plate-like teeth. The dorsal side of the ray is brown to olive in colour while the ventral side is white or yellowish-white (Barker, 2006). The cownose ray at birth measures 27-45cm in width, can grow up to 112cm in width and weigh 22kg or more (Florida Museum of Natural History, 2016).

**DISTRIBUTION.** Found in temperate and tropical seas and estuaries along the eastern and western Atlantic Ocean (Fig. 2). In the west they range from New England to the Gulf of Mexico, and from Venezuela to Brazil, including Trinidad and Tobago (Baldassin et al., 2008).

**HABITAT AND ACTIVITY.** Known to inhabit brackish and marine waters of depths to 22m, and can be found near coastal lagoons, estuaries, bays and reefs (Fig. 3). This species is known for making long migrations to different parts of the ocean. Migration patterns in the Atlantic are

to the north in late spring and to the south in late fall. Factors that influence seasonal migrations include temperature, salinity and sun orientation (Florida Museum of Natural History, 2016).

**FOOD AND FEEDING.** The diet of *Rhinoptera bonasus* mainly consists of bottom-dwelling crabs, lobsters, bony fish, and molluscs (Fisher, 2010). They locate food using electro-receptive detection, then use their pectoral fins and a combination of sucking and venting water and sediment through the gill to filter out their prey. With the assistance of the two lobes under the head, food is brought towards the mouth and crushed by teeth plates and the soft tissue digested and shell fragments expelled from the mouth.

**POPULATION ECOLOGY.** The cownose ray is a pelagic and gregarious species that forms large schools consisting of thousands of members (Fig. 4). A study conducted in the Gulf of Mexico showed that females live up to 16 years and males up to 18 years, males and females both take 4-5 years to reach sexual maturity, at a disc width of 65-70cm in females and 64-70cm in males, and the mean size of a pup at birth was 35cm (Neer and Thompson, 2005). Even though the cownose ray can grow very large, they are eaten by sharks and other large fish (Allen, 1996).

**REPRODUCTION.** The mode of reproduction is via aplacental viviparity where the eggs develop and hatch within the maternal body with initially the yolk being its food source but eventually a milky white uterine secretions provides its later nutrition (Neer and Thompson, 2005). Up to six embryos are found to make full term in one female. Although the gestation time of the cownose ray is unknown, it is believed to be between 11-12 months, while some evidence suggests that the cownose may have two gestation periods, each of 5-6 months (Neer and Thompson, 2005). The mating season is from June to October, when females are seen swimming with their pectoral fins projecting from the water indicating that their hormonal state is appropriate for mating. The male would follow a female, occasionally jumping out of the water, and grasping her fin with his mouth to initiate mating (Florida Museum of Natural History, 2016). No reported evidence for parental care of this species is found as much nurturing of the young is done inside of the womb, the offspring are relatively large at birth and are able to feed and fend for themselves (Allen, 1996).

**APPLIED ECOLOGY.** According the International Union of Conservative Nature (IUCN), this species is listed as near threatened due heavy and unregulated fishing in Central and South America. Also due its late development and low productivity, this limits their ability to recover from population decline and increases susceptibility to over exploitation. In the USA, they are captured as bycatch in pound nets, shrimps trawls and haul seines (Barker, 2006).

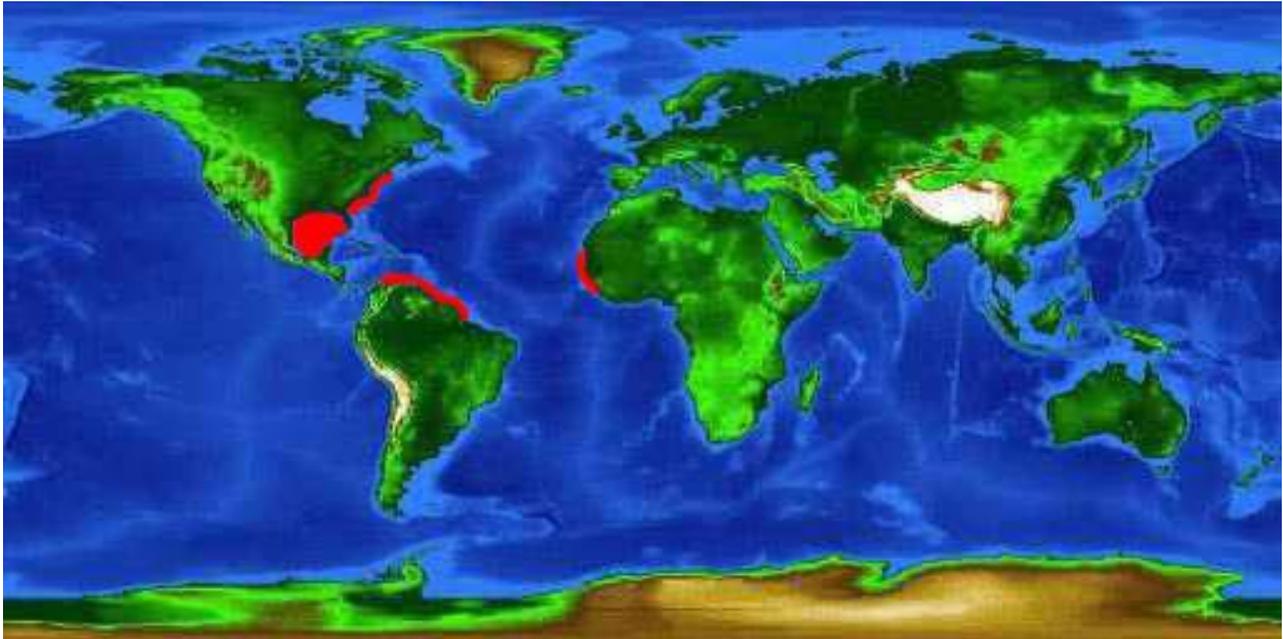
## REFERENCES

- Allen, G., and Robertson, D. (1994). Fishes of the Tropical Eastern Pacific, Honolulu: University of Hawaiian Press.
- Allen, T. (1996). Shadows in the Sea: The Sharks, Skates and Rays. New York: Lyons and Buford.
- Baldssin, P., Gallo, H., and Azveedo.V.G. (2008). Reproduction of Cownose Ray, *Rhinoptera bonasus*, in captivity and new-born care. **63**:1-2.
- Barker, A.S. (2006). *Rhinoptera bonasus*. [http:// www.iucnredlist.org](http://www.iucnredlist.org), downloaded 25 February 2016.
- Fisher, R. (2010). Life History, trophic ecology and prey handling by cownose ray, *Rhinoptera bonasus* from Chesapeake Bay. Virginia Institute of Marine Biology.
- Florida Museum of Natural History. (2016). Cownose Rays. <http://www.flmnh.ufl.edu/index.php>, downloaded 26 February 2016.

Neer, J., and Thompson, B. (2005). Life history of cownose ray, *Rhinoptera bonasus*, in the northern Gulf of Mexico, with comments on geographic variability in life history traits. **78**:1-2

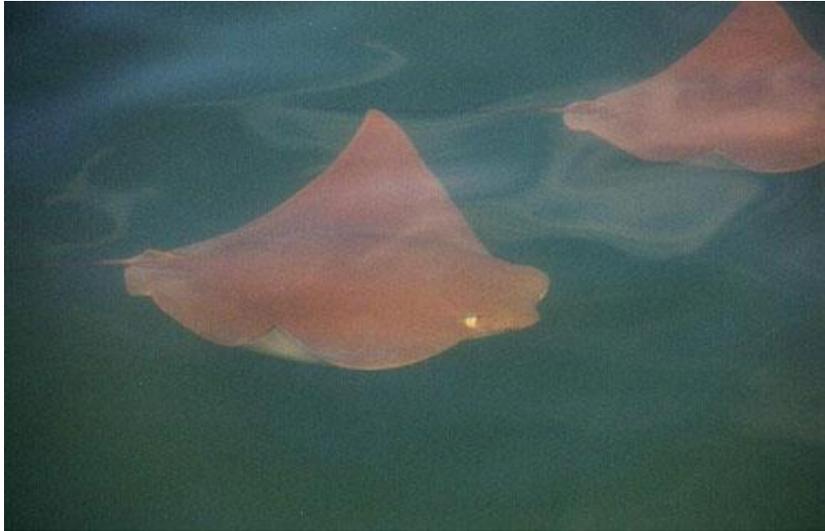
Author: Sade Bishop

Posted online: 2016



**Fig. 2.** American cownose ray geographic distribution.

[<http://www.flmnh.ufl.edu/index.php>, downloaded 20 February 2016]



**Fig. 3.** Typical habitat of cownose ray.

[<http://www.flmnh.ufl.edu/index.php>, downloaded 21 February 2016]



**Fig. 4.** Migration of American cownose rays.

[<http://www.flmnh.ufl.edu/index.php>, downloaded 21 February 2016]