

1997

## Range Extension of *Mobula tarapacana* into the Northwestern Gulf of Mexico

Jeff Childs  
*Texas A&M University*

DOI: 10.18785/goms.1501.05

Follow this and additional works at: <https://aquila.usm.edu/goms>

---

### Recommended Citation

Childs, J. 1997. Range Extension of *Mobula tarapacana* into the Northwestern Gulf of Mexico. *Gulf of Mexico Science* 15 (1). Retrieved from <https://aquila.usm.edu/goms/vol15/iss1/5>

This Article is brought to you for free and open access by The Aquila Digital Community. It has been accepted for inclusion in *Gulf of Mexico Science* by an authorized editor of The Aquila Digital Community. For more information, please contact [Joshua.Cromwell@usm.edu](mailto:Joshua.Cromwell@usm.edu).

portunid crab *Callinectes sapidus* Rathbun. Bull. Mar. Sci. 39:269–278.

SWOFFORD, D. L., AND R. M. SELANDER. 1981. BIOSYS-1: a FORTRAN program for the comprehensive analysis of electrophoretic data in population genetics and systematics. J. Hered. 72:281–283.

TRACEY, M. L., K. NELSON, D. HEDGECOCK, R. A. SCHLESSER, AND M. L. PRESSICK. 1975. Biochemical genetics of lobsters: genetic variation and the structure of American lobster (*Homarus americanus*) populations. J. Fish. Res. Board Can. 32:2091–2101.

NICOLE J. BERTHELEMY-OKAZAKI AND ROBERT K. OKAZAKI, *Department of Biological Sciences, Southeastern Louisiana University, SLU 736, Hammond, Louisiana 70402.*

---

*Gulf of Mexico Science*, 1997(1), pp. 39–40  
© 1997 by the Marine Environmental Sciences  
Consortium of Alabama

**RANGE EXTENSION OF *MOBULA TARAPACANA* INTO THE NORTHWESTERN GULF OF MEXICO.**—During the second week of August 1993, what appeared to be a pair of manta rays (*Manta birostris*) were videotaped in the daytime swimming at a depth of 24 m over the coral reef on the West Flower Garden Bank (WFGB) (27°52'N, 093°49'W) in the northwestern Gulf of Mexico. Upon careful inspection of this video footage, one animal was identified as *M. birostris*, and the second was determined to be *Mobula tarapacana*, the first occurrence recorded for this region of the western North Atlantic.

The timing of this observation coincided with the annual mass spawning of corals (August and September; e.g., Hagman et al., 1997), and the warmest bottom temperatures (mid-July to mid-September) at the Flower Garden Banks National Marine Sanctuary (FGBNMS) (K. J. P. Deslarzes, pers. comm.). The horizontal visibility over the reef and the average bottom temperature for the observation day were 25 m and 29.5 C, respectively. The WFGB comprises 40.4 ha of submerged reefs that crest at 19 m. The bank has approximately 130 m of relief. The East Flower Garden Bank and the WFGB contain the northernmost coral reefs on the North American continental shelf and are sites of extensive biogenic coral communities (46% live cover; Gittings et al., 1992) of Caribbean origin that have developed atop two salt domes (Bright et al., 1974).

***Mobula tarapacana* at the Flower Garden Banks.**—The August 1993 video footage of the ray in question showed a medium-sized mobulid ray (2.1 m estimated disc width) with a long neck, short caropteres, and a relatively short filamentous tail (approximately 0.9 m). The dorsal surface was dark brown, and the ventral surface was white, with dark blotching and gray shading along the trailing margin of the pectoral and pelvic fins. No white coloration was evident on the dorsal fin or tail, and no caudal spine was apparent. A cigar-shaped fleshy appendage appeared to protrude from the dorsal surface near the base of the dorsal fin, extending approximately 10 cm beyond the pelvic fins. I believe this to be an ectoparasite, possibly an echeneid, and not a vestigial spine. The video also recorded a *Remora remora* attached to the mobula's dorsal surface above the left eye.

Based on the observed morphological characters, this animal is best identified as *Mobula tarapacana*. Its size is twice that known for *Mobula hypostoma*, which also frequents the Flower Garden Banks earlier in the year (unpubl. data). *Mobula japonica* and *M. mobular*, two medium to large mobulids thought possibly to range into the western North Atlantic, each possess a caudal spine, and a very long tail with a row of white denticles along both sides to the tip (Notarbartolo-di-Sciara 1987). Morphological characteristics of the observed individual (long neck, short caropteres, a relatively short filamentous tail, no evident white denticles on the side along the tail, and no caudal spine) all negate the identification of this animal as *M. japonica* or *M. mobular*. The long neck is characteristic of *M. tarapacana*, relative to other mobulid rays.

This *M. tarapacana* was observed swimming approximately 3 m above and 1.5 m behind the *M. birostris* (1.8 m estimated disc width, 0.8 m tail length), passing 2 m directly above the diver, and the two animals continued swimming in their original direction.

Another sighting of *M. tarapacana* at the WFGB was made on 21 Aug. 1995, when divers observed a single individual over a 6.5-hr time interval (1200 to 1830 hr) swimming within a 0–18 m depth range and close to the mooring line of their dive boat. This individual, recorded on video, is a medium-sized mobulid ray (2.1 m disc width) with a narrow mouth, short caropteres, a long neck, and a very truncated filamentous tail (estimated at 10 cm). Its dorsal surface was green and its ventral side bore dark shading. The video of this animal, however, is of poor quality. This sighting also coincided

with annual temperature maxima and the coral mass spawning. I believe the occurrence of *M. tarapacana* with the annual mass spawning of corals at these banks to be potentially important. Mass spawning by corals at the Flower Garden Banks is a significant environmental event in the region and may be in part responsible for the seasonal habitat association of several planktivorous elasmobranchs occurring there during this period.

*Mobula tarapacana* in the western Atlantic.—Notarbartolo-di-Sciara and Hillyer (1989) were first to observe *M. tarapacana* in the western North Atlantic. Their identification of mobulids from aerial observations made between Puerto la Cruz and Isla Margarita, Venezuela, was based on morphological characters. They observed *M. tarapacana* primarily over deep waters (>200 m), between April and November, with observations being most numerous in July. Notarbartolo-di-Sciara and Hillyer (1989) thought that this biologically productive area served as an important feeding habitat for mobulid rays. The only mobula species known to occur in the western North Atlantic prior to the first observation of *M. tarapacana* were *Mobula hypostoma* and, possibly, *Mobula mobular* (Bigelow and Schroeder, 1953; Notarbartolo-di-Sciara 1987).

The observations of *M. tarapacana* at the WFGB reported here are the northernmost confirmed sightings in the western North Atlantic Ocean. Yet, monthly underwater observations conducted since 1992 at the FGBNMS indicate that *M. tarapacana* is rare at the WFGB coral reef and would probably be best observed during the warmest weeks of the year at the FGBNMS, around the time when corals are spawning en masse. Like the area Notarbartolo-di-Sciara and Hillyer (1989) studied in Venezuela, the WFGB possibly serves as an important feeding habitat for mobulid rays including *M. birostris*, *M. hypostoma*, and *M. tarapacana*.

*Acknowledgments.*—I would like to thank Ken Deslarzes, Joseph DiFlavio, Steve Gittings, John McEachran, Giuseppe Notarbartolo-di-Sciara, Christy Pattengill, and Brice Semmens for their assistance in reporting these observations. This work was supported in part by a National Undersea Research Center (NURC) grant and a Texaco Fellowship, both made available through the Flower Gardens Fund of the Gulf of Mexico Foundation.

#### LITERATURE CITED

- BIGELOW, H. B., AND W. C. SCHROEDER. 1953. Sawfishes, guitarfishes, skates and rays, p. 480–514. In: Fishes of the western North Atlantic. J. Tee Van, C. M. Breder, A. E. Parr, W. C. Schroeder, and L. P. Schultz (eds.). Sears Foundation for Marine Research, New Haven, CT.
- BRIGHT, T. J., J. W. TUNNEL, L. H. PEQUEGNAT, T. E. BURKE, C. W. CASHMAN, D. A. CROPPER, J. P. RAY, R. C. TRESSLER, J. TEERLING, AND J. B. WILLS. 1974. Biotic zonation on the West Flower Garden Bank, p. 4–54. In: Biota of the West Flower Garden Bank. T. J. Bright and L. H. Pequegnat (eds.). Gulf Publ. Co., Houston, TX.
- GITTINGS, S. R., K. J. P. DESLARZES, D. K. HAGMAN, AND G. S. BOLAND. 1992. Reef coral populations and growth on the Flower Garden Banks, north-west Gulf of Mexico. Proc. 7th Intl. Coral Reef Symp. Guam 1:90–96.
- HAGMAN, D. K., S. R. GITTINGS, G. S. BOLAND, AND K. J. P. DESLARZES. 1997. Mass spawning in the Caribbean: an unfolding puzzle of variation by species, climate and geographic location. Proc. 8th Intl. Coral Reef Symp. Panama.
- NOTARBARTOLO-DI-SCIARA, G. 1987. A revisionary study of the genus *Mobula* Rafinesque, 1810 (Chondrichthyes: Mobulidae) with the description of a new species. Zool. J. Linn. Soc. 91:1–91.
- , AND E. V. HILLYER. 1989. Mobulid rays off eastern Venezuela (Chondrichthyes, Mobulidae). Copeia 3:607–614.
- JEFF CHILDS, *Wildlife and Fisheries Sciences Department, Texas A&M University, College Station, Texas 77843-2258.*

---

Gulf of Mexico Science, 1997(1), pp. 40–45  
© 1997 by the Marine Environmental Sciences  
Consortium of Alabama

**DIFFERENTIATION OF POSTLARVAE OF *PENAEUS AZTECUS* AND *PENAEUS DUORARUM* FROM THE GULF OF MEXICO USING ISO-ELECTRIC FOCUSING.**—Commercial landings of wild penaeid shrimp in the U.S.A. have been relatively stable over the past 5 yr, whereas consumption of and demand for shrimp continue to increase (Rosenberry, 1995). Although much of the additional demand has been met by farm-reared shrimp from abroad, there has also been increased pressure placed on our endemic wild stocks. Consequently, natural populations must be carefully managed to prevent overfishing and depletion. Management of wild shrimp populations requires accurate assessments of population numbers and recruitment information. Management practices would be facilitated by the accurate identification of commercially important species at all life history stages.

The shrimp industry in the Gulf of Mexico is based primarily on three species of the family