California Fish and Game 103(4): 173-176; 2017

New depth record of the Thorny stingray (*Urotrygon rogersi,* Jordan & Starks, 1895) in the Gulf of California, Mexico

Alejandro Acevedo-Cervantes, Juana López-Martínez*, Eloisa Herrera-Valdivia, Manuel O. Nevárez-Martínez and Jesús Rodríguez-Romero

Tecnológico Nacional de México Campus Guaymas. Km 4 Carr. Al Varadero Nacional S/N, Sector las Playitas. Guaymas, Sonora, 85425, México. (AAC)

Centro de Investigaciones Biológicas del Noroeste S.C., Km. 2.35 Carretera a Las Tinajas, S/N Colonia Tinajas, Guaymas, Sonora, 85460, México. (JLM, EHV)

Instituto Nacional de Pesca, Centro Regional de Investigación Pesquera, Guaymas Sonora, México. Calle 20 Sur 605, Colonia La Cantera, Guaymas, Sonora 85430, Mexico, (MONM)

Centro de Investigaciones Biológicas del Noroeste, S.C., Av. Instituto Politécnico Nacional 195, Playa Palo de Santa Rita Sur, La Paz, B.C.S C.P. 23096, Mexico, (JRO)

**Correspondent:* jlopez04@cibnor.mx

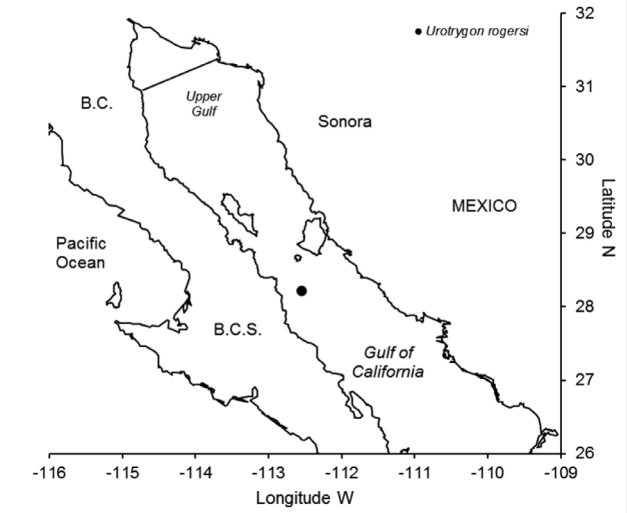
Key words: depth record, Thorny stingray, *Urotrygon rogersi*, Gulf of California Mexico

The thorny stingray, *Urotrygon rogersi* (Order Myliobatiformes, Family Urotrygonidae) is a benthic-demersal species endemic to the eastern Pacific Ocean with a distribution from Magdalena Bay, Baja California Sur, Mexico, into the Gulf of California and south to Ecuador (Robertson and Allen 2008). This species is not of fishing importance, however it is common in the Gulf of California as part of the marine fauna of the Cortes and Panamic Provinces (Acevedo-Cervantes et al. 2009; López-Martínez et al. 2010). *U. rogersi* inhabits soft lime and sandy clay bottoms, frequently buried for long periods. The distinctive characteristics of the thorny stingray are a poisonous spine and dorsal denticules arranged in parallel lines, pointed snout, light brown color with no distinctive marks (McEachran 1995). Information is available related to sexual maturity and reproductive cycle (Mejía-Falla et al. 2014; Mejía-Falla and Navia-Cortés 2012), and feeding habits (Navia-López 2009). Castro-Aguirre et al. (1999) described thorny stingrays as being a stenohaline species, typically reported in the neritic zone, most frequently from 2 to 15 m in depth. The occurrence of *U. rogersi* had been recorded to a maximum depth of 30 m (Robertson and Allen 2002), and is frequently found amongst the by-catch fauna from deep-sea shrimping nets. This study documents the new depth record of the thorny stingray caught while bottom trawling, extending its presence to 235 m, which is 205 m deeper than previously reported (Robertson and Allen 2002). Identified by the *IUCN Red List* as "Data-Deficient," this contribution provides new knowledge of the distribution of the thorny stingray. Conservation and management will benefit as a result for this demersal fish in a deep zone scarcely explored.

The specimens were caught on a research cruise on-board the B/O BIP XII in the Gulf of California in September 2005. This prospection had the purpose of locating potentially exploitable crustacean species for commercial purposes in the deep-seas (depths from 50 to 340 fathoms). The project was developed by Centro de Investigaciones Biológicas del Noroeste (CIBNOR).

Samples were taken with a bottom trawl 40 m long, with 5-cm mesh size, operated astern at variable depths from 230 to 460 m. Fishing hauls lasted one hour of effective trawling. Temperature and oxygen in the water column were measured with a CTD (Conductivity, Temperature and Depth) SEALOGGER SBE-25 (Bellevue, Washington, USA). After each haul, the corresponding samples were taken and preserved frozen for on-land processing in the Fisheries Laboratory at CIBNOR, Guaymas, Mexico. Upon landing, the thorny stingray specimens were separated and identified following McEachran (1995), Robertson and Allen (2002), and Nelson (2006). Each specimen was measured for total and disc length using a conventional ichthyometer to 1-mm precision and weight using a conventional balance of 0.1 g precision. Reference organisms were fixed with 10% formaldehyde and preserved in 70% ethanol.

The two thorny stingrays caught in the middle of the Gulf of California (28°13'1" N; 112°33'3" W) at a depth 235 m (Figure 1) measured 225 and 210 mm total length (160 and 140 mm disc length) and weight of 53.2 and 44.3 g, respectively. The bottoms where these two specimens were caught showed ripples of sand, mud, and small hard substrate.



Mexico (28° 13' 1" N, 112° 33' 3" W).

FIGURE 1.—Area of the stingray *Urotrygon rogersi* caught in Gulf of California, Mexico (28° 13' 1" N, 112° 33' 3" W).

In this study the two specimens of *U. rogersi* (Figure 2A, 2B) were caught at deeper waters than historically recorded (30 m), increasing the reported bathymetric distribution notably by at least 200 m. The depth amplitude in the species also allowed adding information regarding temperature and dissolved oxygen requirements, a function of the thermocline, records that are generally lower than in the coastal zone (Acevedo

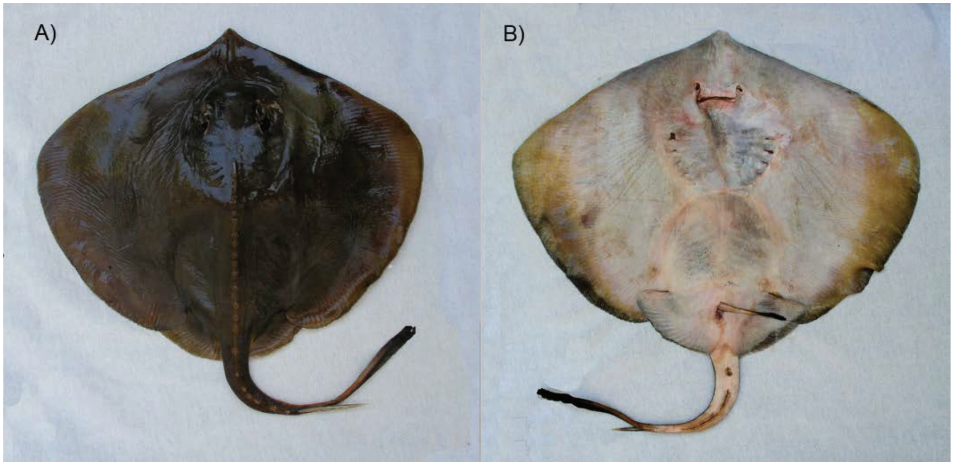


FIGURE 2.—Dorsal view (a) and ventral view (b) of *Urotrygon rogersi* caught in Gulf of California.

et al. 2009). The temperature and dissolved oxygen recorded in the zone where the thorny stingrays were caught (12°C and 2 mg/L respectively) indicate that this species has the capacity to be more tolerant (Figure 3). Robertson and Allen (2002; 2008) had documented that *U. rogersi* was generally found at depths from 2 to 30 m in sandy bottoms, whereas López-Martínez et al. (2010) documented *U. rogersi* being distributed along the continental shelf, and often found in shrimp nets. Coastal species that are distributed along the continental shelf will benefit when at depths greater than those of the shrimp trawls, giving them, perhaps a fraction of the population, the opportunity to avoid the effects of this activity, also benefiting their conservation.

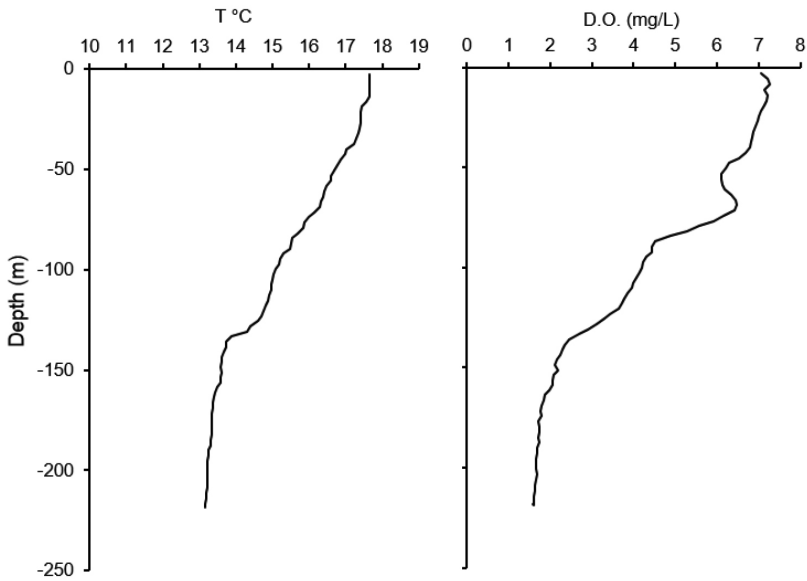


FIGURE 3.—Temperature (°C) and dissolved oxygen (mg/L) profiles of the species caught area.

Our study indicates that *U. rogersi*, previously recorded as typical of the coastal zone, is a species capable of penetrating other deeper areas. This kind of information is of vital relevance for a catalogued species with little knowledge.

Acknowledgments

This research was financed by the projects SAGARPA-CONACYT 2003-02-024 and EP. The authors acknowledge the Fisheries Laboratory particularly Rufino Morales-Azpeitia. We thank Diana Fischer for English edition.

Literature Cited

Acevedo-Cervantes, A., J. López-Martínez, E. Herrera-Valdivia, and J. Rodríguez-Romero. 2009. Análisis de la abundancia, dominancia y diversidad de la comunidad de peces demersales de profundidad de 90 a 540 metros en el Golfo de California, México. Interciencia 34(9): 660-665.

Castro-Aguirre, J.L., H. Espinosa, and J. Schmitter-Soto. 1999. Ictiofauna estuarina, lagunar y vicaria de México. Limusa, México.

López-Martínez, J., E. Herrera-Valdivia, J. Rodríguez-Romero, and S. Hernández-Vázquez. 2010. Peces de la fauna de acompañamiento en la pesca industrial de camarón en el Golfo de California, México. International Journal of Tropical Biology and Conservation 58(2): 925-942.

Mc Eachran, J.D. 1995. Urolophidae. Rayas redondas. Pages 786-792 *in* W. Fischer, F. Krupp, W. Schneider, C. Sommer, K.E. Carpenter and V. Niem, editors. Guía FAO para Identificación de especies para los fines de la pesca. Pacífico Centro-Oriental. 3 Vols. FAO, Rome, Italy.

Mejía-Falla, P.A., and A.F. Navia-Cortés. 2012. Reproductive parameters of *Urotrygon rogersi* (Batoidea: Urotrygonidae) a species with a trianual reproductive cycle in the eastern tropical Pacific Ocean. Journal of Fish Biology 79: 1-121.

Mejía-Falla, P.A., E. Cortés, A.F. Navia, and F.A. Zapata. 2014. Age and growth of the Round Stingray *Urotrygon rogersi*, a particularly fast-growing and short-lived elasmobranch. PLoS ONE 9 (4): e96077.

Navia-López, F. 2009. Hábitos alimentarios, relaciones tróficas e importancia ecológica de *Urotrygon rogersi* (Elasmobranchii: Batoidea) en la zona central del Océano Pacífico colombiano. Tesis de Maestría. Universidad del Valle. Santiago de Cali, Colombia.

Nelson, J.S. 2006. Fishes of the World. 4th ed. Canada. John Wiley & Sons, Inc. New Jersey, USA.

Robertson, D.R, and G.R. Allen. 2002. Shore fishes of the Tropical Eastern Pacific: in Information System. CD-ROM. Smithsonian Tropical Research Institute, Balboa, Panama, Available from: http://mc.manuscriptcentral.com/mbdr.

Robertson, D.R. and G. Allen. 2008. Peces costeros del Pacífico Oriental Tropical: Un sistema de información en línea. Versión 1.0. Balboa, Panamá: Instituto Smithsonian de Investigaciones Tropicales. Available from: www.stri.org/sftep.

Received: 01 June 2017
Accepted: 15 November 2017
Associate Editor was P. Reilly