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## SHORT COMMUNICATION

## RECORD BODY SIZE FOR THE RED LIONFISH, *PTEROIS VOLITANS* (SCORPAENIFORMES), IN THE SOUTHERN GULF OF MEXICO

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**KEY WORDS:** Cayo Arenas, Campeche bank, Yucatan Peninsula, coral reef, Mexico

### INTRODUCTION

Non–native species are those that have been transported, via human actions, from one continent and introduced into another (Lockwood et al. 2007). In the 1980s, red lionfish, *Pterois volitans* (Linnaeus, 1758), traded in the US aquarium industry from the Pacific Ocean, was introduced into the coral reefs off Florida’s coast by aquarium hobbyists (Morris and Whitfield 2009). It is unknown how this introduction occurred, but after more than 20 years the red lionfish population is widespread, occupying a large portion of the Western Atlantic (Schofield 2010) where it represents a threat to the marine ecosystem (Green et al. 2012). The population appears impossible to eradicate since it can live to depths up to 100 m, where individuals consume native small crustaceans and reef fish (Morris and Akins 2009, Green et al. 2012).

Relatively nothing is known regarding biological aspects of the red lionfish in the southern Gulf of Mexico (GOM), despite this being the area of the GOM where lionfish were first detected in late 2009 (Aguilar–Perera and Tuz–Sulub 2010). The present note aims to document the presence of a large–bodied *P. volitans* whose size is the maximum ever recorded in the GOM.

### METHODS

During April to July 2010, we hosted workshops for local lobster–diver fishers from the northern coast of the Yucatan Peninsula, Mexico (Aguilar–Perera et al. 2012), and provided them with information on lionfish biology and the chronology of its invasion in the region. These workshops aimed to educate participants on how to collect and document any lionfish they may encounter. On 8 August 2011 at 1400 h, a local diver–fisher speared a large specimen at 33 m in waters off Cayo Arenas (22°07’25”N, 91°23’24”W). Cayo Arenas is a key located on the Campeche Bank 167 km off the northwestern Yucatan Peninsula, Mexico, in the southern GOM. The collected specimen was brought to the laboratory where it was taxonomically identified following Schultz (1986), measured (mm total length, TL) and

weighed (g total weight, TW). Its body cavity was inspected and stomach contents analysed.

### RESULTS AND DISCUSSION

The specimen captured in Cayo Arenas was identified as *Pterois volitans* based on meristics (XIII–11 dorsal fin, III–7 anal fin), measured 390 mm TL, and weighed 1,090 g TW (Figure 1). When inspecting its digestive tract and stomach, two fish prey were found: *Haemulon* spp. (47 mm TL) and *Eugerres* spp. (33 mm TL). The lionfish was a female, but its gonads (7 g) were not reproductively active; however, there was presence of mesenteric fat in the body cavity, which may



**Figure 1.** Red lionfish (*Pterois volitans*; 390 mm TL) caught off Cayo Arenas in August 2011 by a diver–fisher in the southern Gulf of Mexico.

be indicative of the onset of reproduction.

The specimen caught off the Cayo Arenas exhibited the maximum body size ever recorded for *Pterois volitans* in the GOM. During late 2009, a local diver–fisher captured the first red lionfish off the northern coast of the Yucatan Peninsula, Mexico (Aguilar–Perera and Tuz–Sulub 2010); however, this fish was relatively small (137 mm TL) compared to most lionfish off the eastern US coast and The Bahamas. The large body size record (390 mm TL) now documented in this work endorses the fact that individuals of *P. volitans* have no problems finding food resources in the GOM. Since 2010, local fishers have captured an increasing number of *P. volitans* (n = 445; 90 to 274 mm TL) off the northern Yucatan Peninsula (Aguilar–Perera et al. 2012).

**TABLE 1.** Maximum body size records for the red lionfish, *Pterois volitans*, in the western Atlantic and Pacific Oceans, including the new record in the Gulf of Mexico (GOM). TL = Total length.

Country	Locality	TL (mm)	References
Bahamas	Unknown	420	Morris and Akins (2009)
Turks & Caicos	South Caicos	277	Claydon et al. (2009)
USA	North Carolina	450	Whitfield et al. (2007)
	Florida	474	James Morris (Pers. Comm.)
Cuba	Archipelago de Sabana–Camagüey	170	Chevalier et al. (2008)
Mexico	Cayo Arenas (GOM)	390	This study
Honduras	Roatan Marine Park	381	Biggs and Olden (2011)
Bonaire	Unknown	295	Poole and College (2010)
Venezuela	Gran Roque, Los Roques Archipelago National Park	220	Lasso–Alcalá and Posada (2010)
Colombia	Ratón Place, San Andrés Island	235	González et al. (2009)
Pacific Ocean	Unknown	380	Randall et al. (1990)

In the Western Atlantic, *P. volitans* show larger body sizes than those in their native Pacific Ocean (Table 1). Maximum recorded body sizes in the western Atlantic are 474 mm TL (J. Morris, pers. comm., National Marine Fisheries Service, Beaufort, NC) and 450 mm TL (Whitfield et al. 2007), whereas 380 mm TL is the largest reported length from the Pacific (Randall et al. 1990). Fast growth and high abundance are two common traits displayed by invasive spe-

cies (Morris and Whitfield 2009), and the presence of larger lionfish in the GOM and western Atlantic than in the lionfish's native Pacific suggests that growth, survival and/or longevity may be enhanced in non–native waters. Those life–history characteristics, the species' broad range of prey items (Morris and Akins 2009), and the apparent absence of known predators indicate that *P. volitans* are indeed a threat to the marine ecosystem.

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