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A SCIENTIFIC NOTE ON THE PRESENCE OF DINOFLAGELLATE PERIDINIUM QUINQUECORNE ABÉ IN THE GULF OF MONTIJO, PANAMA

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ABSTRACT
Between April 14 and 22, 2009, the Aquatic Resources Authority (ARAP) and the National Environment Authority (ANAM) reported the occurrence of massive fish kill between Puerto San Antonio (17N 0475382-UTM 0867216) and the mouth of San Pablo River (17N 0478225-UTM 0867609) in the gulf of Montijo. The affected areas were Membrillal and Palitos Island, Pajarón, Pixbae and Zurrones (Fig.1). Affected fishes were mostly corvine and sardine. Samples of water were collected by local fishermen and transported for identification to the biology laboratories of the University of Panamá at Veraguas. No scientific criterion was applied to the collecting and transport of samples. Samples revealed the presence *of Peridinium quinquecorne* Abé on floating detritus.

KEYWORDS
Red tide, harmful algal bloom (HAB), massive fish kill, dinoflagellates.

RESUMEN
Entre el 14 y el 22 de abril de 2009, la Autoridad de los Recursos Acuáticos (ARAP) y la Autoridad Nacional del Ambiente (ANAM), reportaron la ocurrencia de un episodio de muerte masiva de peces entre el puerto San Antonio (17N 0475382-UTM 0867216) y la desembocadura del río San Pablo (17N 0478225-UTM 0867609) en el golfo de Montijo. Las áreas afectadas fueron las islas Palitos y Membrillal, Pajarón, Pixbae y Zurrones (Fig. 1). Los peces afectados fueron principalmente corvinas y sardinas. Las muestras de agua fueron recolectadas por pescadores

locales y transportadas a los laboratorios de biología de la Universidad de Panamá en Veraguas. Las muestras revelaron la presencia de *Peridinium quinquecorne* Abé en el detrito flotante.

PALABRAS CLAVES
Mareas rojas, floraciones de algas nocivas, FAN, muerte masiva de peces, dinoflagelados.

P .quinquecorne is an armored dinoflagellate characterized by four prominent antapical spines and angular shape (Fig. 2). Balech (1974) transferred the species to *Protoperidinium* genus as *Protoperidinium quinquecorne* but taxonomically its generic position is still controversial. The thecal plate arrangement is pp, x, 3', 2a, 7'', 5c, 5''', 2'''', 4s. *P. quinquecorne* has a wide geographical distribution in neritic and estuarine waters, forming blooms in different areas of the world. Gárate-Lizárraga et al. (2006) reported frequent blooms in Bahía de La Paz, Baja California Sur between May and July and Proença et al. (2006) reported it at Balneário Camboriú, Santa Catarina, Brazil. Faust et al. (2005) identified *P. quinquecorne* in floating detritus at Douglas Cay and The Lair in Belize also forming red tides too. Horstmann (1980) stated that *P. quinquecorne* tolerate temperatures up to 30°C and forms blooms in eutrophic and polluted brackish environment which tend to disappear when temperatures drop sharply. Blooms of *P. quinquecorne* can be associated with low dissolved oxygen levels in the water and can cause fish kill in confined areas because there is no oxygen left for the fish to use (Gárate-Lizárraga and Muñetón-Gómez, 2008). This scientific note is the first report of *Peridinium quinquecorne* Abé in the gulf of Montijo, but it remains to be demonstrated if the massive fish kill observed was caused by this organism.

Fig.1. Areas affected by massive fish kill in the gulf of Montijo, Panamá. (Source: Water Center for the Humid Tropics of Latin America and the Caribbean, CATHALAC).

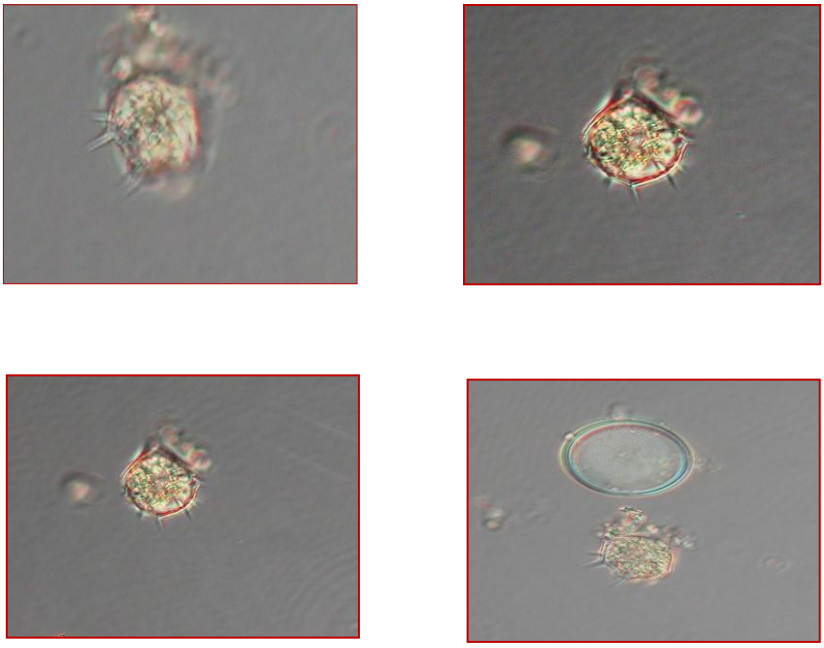

Fig.2. The armored dinoflagellate *Peridinium quinquecorne* Abé as observed in water samples of affected areas.

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