

**Migratory Behavior and Spawning Site Fidelity of Male Tiger Grouper (*Mycteroperca tigris*)
Based on Acoustic Tagging at a Spawning Site on Little Cayman, Cayman Islands**

Comportamiento Migratorio y Fidelidad del Sitio de Desove del Tiger Grouper (*Mycteroperca tigris*) Basado en el Marcado Acústico en un Sitio de Desove en Little Cayman, Cayman Islands

**Comportement Migratoire et Fidélité au Site de Fraie du Mérrou Tigre Mâle
(*Mycteroperca tigris*) sur la Base d'un Marquage Acoustique
sur une Frayère de Little Cayman, Cayman Islands**

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Extended Abstract

Tiger Grouper (*Mycteroperca tigris*) aggregate to spawn around the winter full moons (typically in January and February) in the central Caribbean. Like other aggregating grouper species in the Caribbean, fisheries target Tiger Grouper during spawning, and prior studies have documented rapid declines in aggregations due to harvest (Matos-Caraballo and Posada 2000). However, in a regional context, it is not clear how localized aggregation fisheries impact Tiger Grouper populations, because the catchment area of such aggregations is not known.

As part of the Grouper Moon Project in the Cayman Islands (Whaylen et al. 2004, Semmens et al. 2007) we acoustically tagged male aggregating Tiger Grouper during the 2015 spawning season at the west end Little Cayman multi-species fish spawning aggregation (FSA). We deployed 10 Vemco V9 transmitters by epoxying them to Floy BFIM-69 Billfish Tags, and subsequently affixing the Billfish Tags to Tiger Grouper by pole spear. All fish were tagged over a 3-day period following the full moon in February. Using an array of hydrophones surrounding the island, we subsequently tracked the movements of tagged fish over a 13-month period (the duration of the transmitter life).

The majority of tagged fish attended the aggregation site for 1 - 2 weeks beginning on the full moons of February, March, and April, with a minority of tagged fish attending in May. While 2 of the 10 tagged fish traveled between 5 - 11 km to attend the aggregations each month (returning to presumed home territories between aggregations), the majority of tagged males appeared to have home territories within 2 km of the aggregation site. The male Tiger Grouper that traveled the farthest distance (11 km) in 2015 appeared to attend a different aggregation site closer to its presumed home territory in January 2016.

Our findings suggest that male Tiger Grouper typically spawn in the Cayman Islands over multiple lunar cycles between January and May, inclusive. However, unlike larger-bodied grouper attending the west end FSA (e.g. Nassau Grouper, Yellowfin Grouper), it appears that Tiger Grouper establish multiple aggregations around the Little Cayman shelf, and typically only attend aggregations near (within 2 km) their home territories (Whaylen et al. 2004, Semmens et al. 2007). Because we only tagged male Tiger Grouper (rather than the smaller, less conspicuous females of the species), it remains unclear to what extent the spawning behaviors exhibited by males mirror the behaviors of females.

KEYWORDS: Fish spawning aggregation, Vemco, acoustic tagging

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