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Short Note

Opportunistic Feeding by Reef Fishes on Spawned Gametes During Broadcast Spawning of *Tridacna squamosa* and *Tridacna gigas* in Camiguin Island, Philippines

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Reef fishes have been documented to opportunistically feed on excreted gametes and feces from giant clams, primarily on the largest species, *Tridacna gigas* (Neo et al., 2015), including the planktivore *Spratelloides delicatulus* (Maboloc & Mingoa-Licuanan, 2011) and several species of reef fishes (Gumanao et al., 2023). We report on observations of reef fish feeding on gametes of giant clam species in Camiguin Island, Philippines. On 1 December 2018 (16:00 to 17:00), a pair of giant clams *Tridacna squamosa* Lamarck, 1819 (~15cm away from each other) and several *T. gigas* were observed spawning naturally in a shallow (~0.5-0.8 m depth) area within Kibila Cove, a conservation area managed by the Cantaan Centennial Multipurpose Cooperative (CCMPCI), a community-based conservation organisation. This spawning event occurred during low tide, notably 6-days prior to the new moon (7 December 2018). Surrounding the spawning giant clams were extensive fire coral (*Millepora* spp.) and patches of branching corals (*Acropora* spp.). A trophic mobbing of reef fishes residing nearby (e.g., damselfishes) was observed, which is the first documented case for *T. squamosa*. This event, similar to the observations by Gumanao et al. (2023) in Samal Island in Southern Mindanao for *T. gigas*, highlights the role of conserved giant clams as alternative food sources to reef fishes aside from habitat restoration and enhancement (Cabaitan et al., 2008).

The incident was documented by videos by the first author (AB) and screenshots were generated for Fig. 1. A few seconds prior to the forceful release of gametes, the excurrent siphon contracted, then a damselfish *Pomacentrus grammorhynchus* hovered above the clam, and rapidly consumed the slow-moving stream of escaping ova from the siphon (Fig. 1A–C). In two instances, an individual damselfish *Chrysiptera oxycephala* bit the contracted excurrent siphon, and during the forceful release of the whitish jet of gametes, this opportunistic feeder moved away from the jet to avoid the upward current of gametes but quickly returned to feed. Aside from *P. grammorhynchus* and *C. oxycephala*, the other species of fish observed to feed right after each release of gametes included *Premnas biaculeatus* and *Pomacentrus moluccensis*.

Several individuals of other reef fish species, namely *Amphiprion frenatus*, *Chaetodon rafflesi*, *Cheilodipterus quenquilineatus*, *Labroides dimidiatus*, *Lutjanus argentimaculatus*, *Neopomacentrus cyanomus, Pomacentrus pavo, Sphaeramia nematoptera*, and *Thalassoma lunare* also approached the vicinity of the feeding fish but were not seen actively feeding on the excreted gametes. Simultaneously, several *Tridacna gigas* located nearby within an extensive sandy seagrass bed mainly *Enhalus acoroides* were also observed spawning with less concentrated gametes. While a few reef fishes namely *Dischistodus perspicillatus*, *Choerodon anchorago, Lutjanus decussatus,* and *Pomacentrus grammorhynchus* (Fig. 1D) approached *T. gigas* following gamete ejection, they did not seem to feed actively. These observations highlight the reproductive behaviour of giant clams and their role as episodic source of food sources during spawning events, thereby supporting the role of giant clams in reef trophic dynamics and emphasizing the need for further studies to carefully monitor the frequency, magnitude, and possible ecological consequences of spawning-associated feeding interactions (Neo et al., 2015).

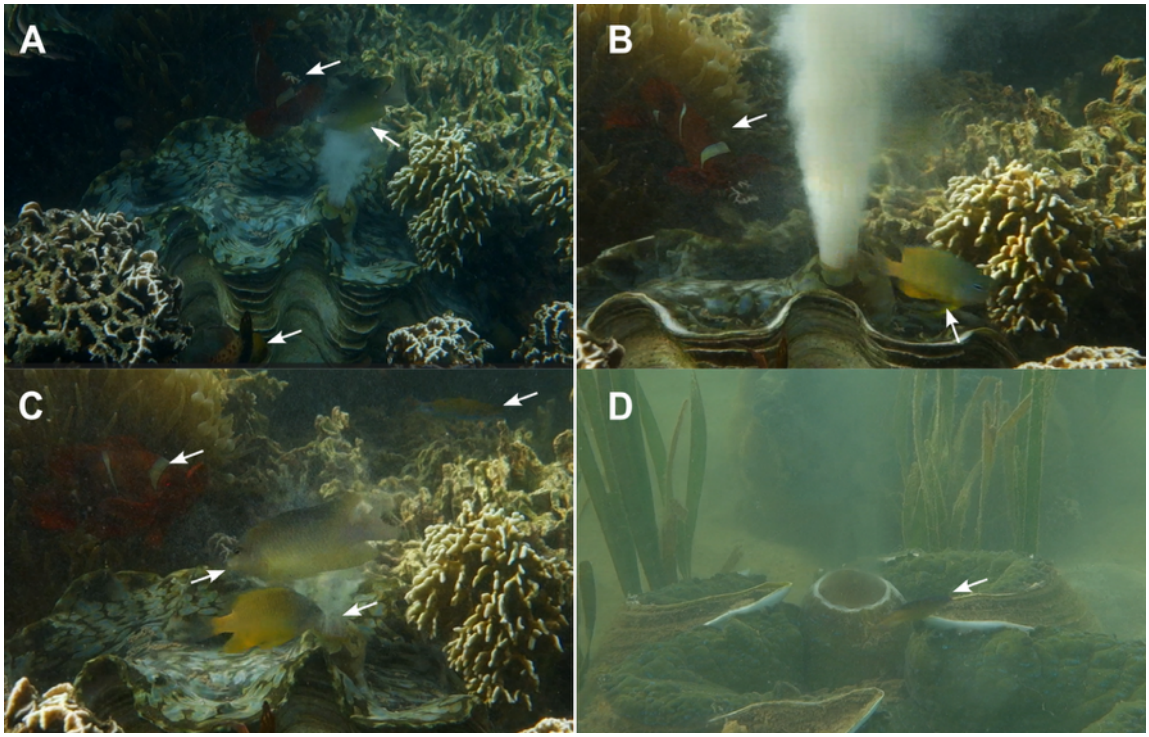

Figure 1: Reef fishes (pointed in arrows) feeding on spawned gametes of the giant clams *Tridacna squamosa* (**A–C**) and *T. gigas* (**D**) at Camiguin Island, Philippines on 1 December 2018. **A.** Damselfishes *Premnas biaculeatus* and *Pomacentrus grammorhynchus* feeding on the initial release of gametes **B**. Forceful ejection of gametes by the giant clam, displacing *P. biaculeatus* and *C. oxycephala*. **C**. *P. grammorhynchus* joined the feeding group after forceful release of gametes by the giant clam. **D.** *Tridacna gigas*, located ~20m from the spawning *T. squamosa*, releasing its gametes and approached by *Pomacentrus grammorhynchus*.

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DECLARATIONS

Research permit(s). Only observations and videos taken, no samples collected. Coral reef survey was part of the monitoring of community-based conservation project site assessment without any intention to collect specimen(s).
Ethical approval/statement. Not applicable.
Generative AI use. We declare that generative AI was not used in this study nor in the writing of this article.

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