

Examination of possible environmental cues of manta ray aggregation in a bay and selected islet in Calauit Island, Palawan, Philippines

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Abstract

Manta rays (*Manta* spp.) are planktivorous large marine vertebrates found in tropical and subtropical waters. It has been shown that several factors affect the aggregation patterns of manta rays including moon phase, tidal phase, temperature, chl-a, zooplankton density. Known regular aggregation have been studied in places like Mozambique, Ningaloo reef in Australia, and Komodo Marine park in Indonesia. In the Philippines, some preliminary studies on manta ray aggregation have been conducted in Masbate, Bohol, and Malapascua. These studies mainly associated the manta rays with zooplankton density and species composition. Interestingly, there have been unpublished reports of manta ray aggregation in Calauit Island, Palawan. A video was recently taken by a researcher from UP-Diliman showing an occurrence of manta ray aggregation inside a semi-enclosed bay. Key local informants in the area reported that manta rays are more likely to be spotted during the "habagat" (Southwest monsoon) season inside Illultuk Bay in sync with alleged pronounced increase in "alamang" (*Acetes* spp.) density. Furthermore, there are reports of manta ray sightings all year round in adjacent islets of Calauit Island, Palawan. This study aims to examine the drivers of manta ray aggregation in select islets (Manlalayag, Tabak, Elet) and inside the Illultuk bay. Specifically, the goals of the study are to: (1) assess the physicochemical parameters (temperature, conductivity, salinity) and biological parameters (zooplankton density in individuals/m³) of water using CTD and a 200um zooplankton net, both when manta rays are spotted and otherwise (2) evaluate if there are significant differences in the mentioned parameters across stations (Manlalayag, Tabak, Elet and inside Illultuk Bay) and across months (May, June, July, September, October, March), (3) determine the most significant driver of their presence or aggregation. It is possible that the aggregation of the mantas in this area may be affected by more localized systems than large scale systems.

Keywords: manta ray aggregation, physicochemical drivers, zooplankton density, monsoon