

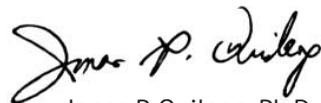
FROM THE EDITOR

In less than six months, it will be two years since the first few cases of infection from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) had been reported in Wuhan, China. Since then, a number of SARS-CoV-2 variants have come and gone, but we are still dealing with the threat posed by the Delta Variant, which has severely affected many countries including the Philippines in recent months. Thanks to science, a number of vaccines against the coronavirus disease 2019 (COVID-19) have been developed and proven effective in preventing and reducing the number of severe cases, hospitalizations, and deaths. In the Philippines alone, as of this writing, 10 vaccines have been approved for use and around 24 million (representing around 22% of the population) have been fully vaccinated. Gradually, mobility restrictions are being eased, and hopefully there will be no more new variants of concern that will arise so that we can all go back to normalcy again.

In this issue, we feature three research articles. The first research article is from the group of Dr. Lemnuel Aragonés of the Institute of Environmental Science and Meteorology, University of the Philippines Diliman (UPD). Aragonés and his team simulated explosions from dynamite fishing in order to analyze the underwater noise that is generated and infer its possible effects on marine mammals. These marine mammals include dolphins and whales. Although dynamite fishing, also known as blast fishing, is illegal, fishermen in some localities in the Philippines stealthily resort to this destructive fishing method, which kills not only large fishes but also small ones, including larvae, juveniles and other organisms that are close to the blast site. If done near coral reefs, dynamite fishing may kill corals and splinter coral colonies. The underwater noise produced by dynamite fishing also negatively affects marine mammals that make use of underwater sound for their foraging behavior, communication, and orientation. Aragonés et al. inferred from the results of their study that marine mammals within 150 m of the explosion may suffer injuries such as acoustic trauma and disorientation even from a single pulse. These results highlight the importance of instilling into local fishermen the negative effects of dynamite fishing. Efforts to achieve this can be initiated by appropriate government agencies and non-governmental organizations involved in environmental and animal protection, particularly of marine mammals.

The second research article is from the group of John Vincent Pleto of the Institute of Biological Sciences, University of the Philippines Los Baños. Pleto et al. studied the effects of probiotics on the water quality and on the growth performance and health of milkfish that are grown in ponds that are supplied with polluted water from the Marilao-Meycauayan-Obando River System. The application of probiotics is an established practice in aquaculture. This practice is aimed at improving gut health and water quality, which would eventually result in improved growth performance and higher yield. Pleto and his co-workers used commercially available probiotics that consist of a strain of the bacterium *Bacillus*. Their analysis also showed the presence of bacteria belonging to the genera *Chlorobium* and *Chlorobaculum*. Although they failed to detect these bacteria in the guts of milkfish sampled at two months and at four months of culture, they found that ponds treated with probiotics generally had better water quality and that milkfish grown in these ponds had higher survival rates and better feed conversion efficiencies.

The third article is by Lu Kevin Ong from the Institute of Mathematics, UPD. Ong used probability distributions known as recombination models to describe binary interactions in a particle system. In his paper, Ong introduced some definitions and ideas to prove propagation of chaos for this particle system.



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