

Potential threats of harmful algal blooms and ciguatera fish poisoning in the marine tourism park of Gili Matra islands, Indonesia

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Anthropogenic activities have been causing environmental quality degradation and damage to the seagrass beds, and coral reefs ecosystem of the Gili Matra, West Nusa Tenggara. Such conditions could trigger the occurrence of toxic harmful algal blooms (HABs), which cause diseases such as ciguatera fish poisoning (CFP). Although CFP cases have not been reported in Indonesia, toxic benthic dinoflagellate species have been reported and studied in several areas in the country, including in Gili Matra and Lombok. Therefore, we aimed to identify and assess the potential threat of toxic benthic HABs, which could also cause CFP. Several potentially harmful benthic dinoflagellates, such as *Ostreopsis ovata*, *Ostreopsis lenticularis*, *Prorocentrum lima*, *Prorocentrum emarginatum*, and *Prorocentrum concavum*, were identified from macroalgal and seagrass beds of the three Gili Matra islands (Gili Trawangan, Gili Meno, and Gili Air), with density up to 500 cells.m⁻². Planktonic cells of potential HABs species, such as *Tripos fusus*, *Tripos furca*, *Pseudo-nitzschia* spp., *Dinophysis caudata*, *Chattonella* spp., *Alexandrium* spp., and *Trichodesmium erythraeum*, were also found in the water surrounding the Gili Matra islands. Aside from *T. erythraeum* and *Pseudo-nitzschia* spp., the other potentially harmful species were found in very low density (<10 cells.l⁻¹). So far, the potential threat of benthic HABs and CFP in Gili Matra are low. Even so, a potential economic loss of between 1.5 billion to over 4 billion rupiahs (approx. 100,000 to 300,000 USD) could occur if there were HAB or CFP cases that resulted in the closure of fishing and ecotourism activities on the island.