Metrics for Assessing the Potential Effects of Echo Sounders on Marine Mammals

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SUMMARY

Marine mammals rely on sound for communication and echolocation. Research has shown that anthropogenic noise can disrupt their signals, leading to behavioral changes, communication disturbances, temporary or permanent hearing damage, and even injuries from exposure to high-intensity sound. From 1963 to 2008, there were more than 16 instances of marine mammals stranding due to military sonar. However, there is limited research focusing on commercial sonar, such as the multibeam echo sounder. Understanding how echo sounder sonar emissions can affect marine mammals is crucial, especially in areas designated as Important Marine Mammal Areas (IMMA). In Malaysia, these areas are inhabited by dolphins, porpoises, and dugongs throughout the country. This paper will investigate the metrics used to assess the potential impact of sonar on marine mammals, specifically focusing on the widely used multibeam echo sounder for bathymetric surveys. This paper will also propose adopting improved survey practices to create new industry standards for hydrographic surveying, especially when mapping Malaysia's waters with MBES, aiming to minimize harm to our remarkable marine life.