

SAME RISK AREA (SRA) ASSESSMENT BETWEEN PORT OF MANILA AND PORT OF CEBU THROUGH BIOINVASION MODELLING

ABSTRACT

Biological invasions pose a severe hazard to ecosystems globally, frequently as a result of human behavior. Non-indigenous species threaten biodiversity and human trade; they are also acknowledged as one of the most serious threats to native biodiversity and ecosystem processes. Ports are most susceptible areas to marine bioinvasions, due to their being anthropized or artificial marine environments, and the heavy maritime shipping traffic that occur there. The International Maritime Organization's (IMO) Ballast Water Management Convention (BWMC) aims to prevent the spread of harmful aquatic organisms and pathogens caused by ballast water movement through ports around the world. As of 2017, 60 countries has acceded to it, with the Philippines signing on in 2018. In so doing, the countries need to comply to strict discharge standards, requiring for ballast water to be treated before it is discharged. This means that ship owners in international trade need to install costly treatment technology in each vessel. The BWMC, however, does provide an opportunity for granting exemptions to ships that operate on specified routes between harbors in 2 or more countries. This can granted by establishing the same risk area (SRA) concept. The same risk area concept refers to an area-based approach for the risk assessment of aquatic invasive species that considers the extent of natural dispersal. The objective of the study is to establish SRAs on a local setting. The Ports of Manila and Cebu are selected as study sites. A list of marine non-indigenous species (MNIS) will be created, ecological community structure similarities and dissimilarities assessed, and a bioinvasion model will be generated for selected species with the use of Delft3D. The selected species have existing ecological and life history parameters from the literature. Based on this model, SRA categories will be established. The categories will be used for SRA application in the Port of Manila and Port of Cebu. This will determine if ships in either ports can be allowed

to operate without installing on-board ballast water treatment technologies, and thus ease regulatory and financial burden to ship owners and port operators. Equally important is that MNIS spread between regions will be curtailed.