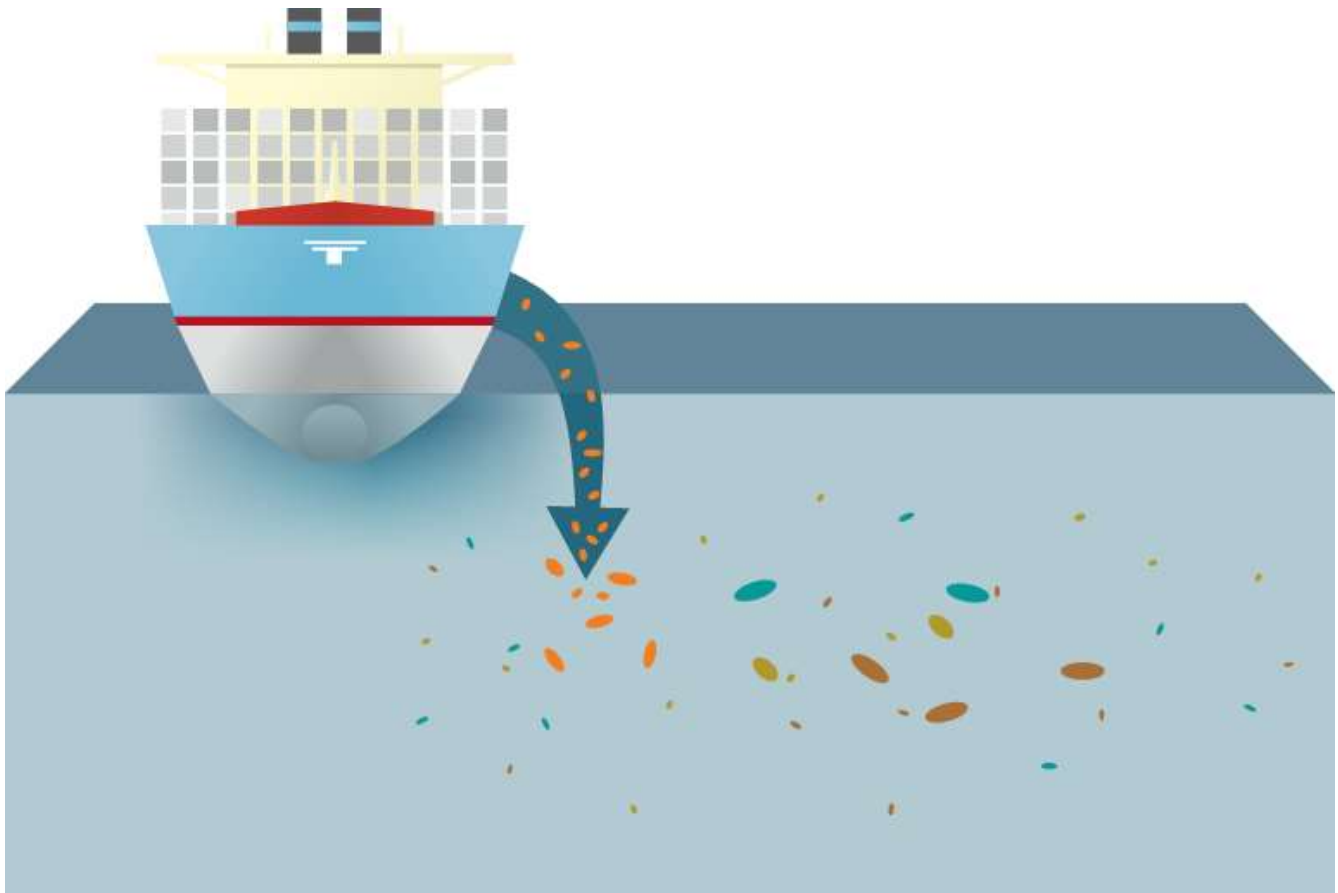




Industrial Defined Problem

Invasive aquatic species are one of the greatest threats to the world's oceans, and can cause extremely severe environmental, economic and public health impacts.

When ships dock their cargo at a port use a huge amount of ballast water. This water is often taken on in the coastal waters in one region after ships discharge waste water or unload cargo. The water is discharged at the next port of call, wherever more cargo is loaded. Historically, ships used to take on ballast in the form of sand, but this is likely to have transported many non-native plants over here in the past



A container can carry 100,000 m³ ballast water, which can contain a shocking 10,000 species, from bacteria and viruses to crabs and fish. The ballast water has created problems in countries like New Zealand where tanks carry animals and plants that kill ecosystems, a form of cholera previously arrived via ballast water in [Peru](#) in 1991, killing more than 10,000 people over the following three years. Ballast water pollution has made a major economic damage to aquatic ecosystems, along with serious human health issues including death.

So, come up with a better ship design or solution to this never ending problem.

The better solution will be awarded. The solutions will be judged by our esteemed professors.