Ships move over 80% of the world’s commodities, and they transfer approximately 3 to 5 billion tons of ballast water worldwide each year.

The introduction of invasive marine species into new environments through the discharge of the ship’s ballast water, or by being attached to the ship’s hull and via other vectors, has been identified as one of the four greatest threats to the world’s oceans.

These unwanted invaders, taken in at one port, and discharged in another, may seriously disturb and disrupt the ecological balance and economy. Some of these species spread and increase in numbers very quickly, and can prove to be very detrimental to the local ecosystem. Newly introduced pathogens may cause diseases and death in humans.

**Automated Ballast Exchange System (ABES)**

Nordic Flow Control’s Automated Ballast Exchange System (ABES) is a program that exchanges the ballast water in any type of vessel while taking vessel stability and strength into consideration; incorporating real time monitoring facilities to ensure that the vessel is in the safest condition at all times. This program is applicable to all kinds of vessels, and is customised to suit the particular design of the vessel.

**Key Features**

- BM, SF, GM can be computed online and real time monitoring is possible
- Ballastling and deballasting sequences can be executed automatically
- Comprehensive overview for the tanks, valves, pumps, stability and strength
- Predefined ballast exchange conditions
- Before going into online mode, the ship condition can be simulated
- Primary alarm at certain level of BM strength & stability, trim and list
- User can create new conditions
- User can enter pump rate, ON/OFF status, ballasting or deballasting function for ballast pumps (loaders) from a pre-entered list
- As user selects each tank for a loader, the programme will list out user-selected tank’s present content, total weight and weight changed
- Tank and Exchange Reports can be generated through software

**Tank Report**

The initial condition of all tanks and the loaders with their rates are printed out.

**Exchange Report**

All tanks and properties at various stages of exchange are shown

- Two modes of execution: Semi-Automatic or Fully-Automatic

**Semi-Automatic mode**

User can do the ballast exchange sequence by sequence

**Fully-Automatic mode**

Entire ballast exchange sequence is done with a single click of the Auto Process button