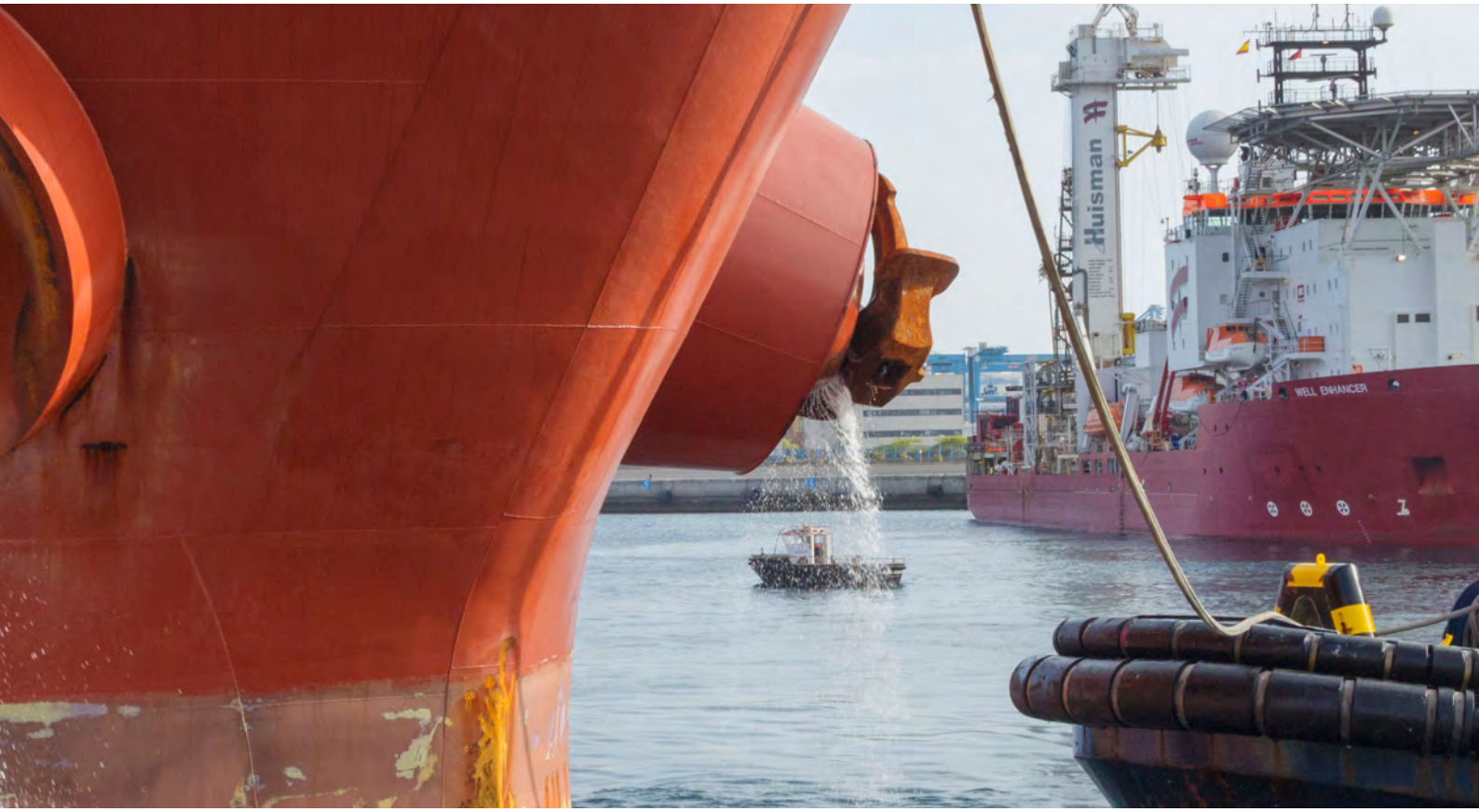
BallastWISE

Portable system for ballast water compliance monitoring

PATENT filed for international patent PENDING



WHY DO YOU NEED A BALLAST WATER MONITORING SYSTEM?

The Ballast water convention requires that all ships in international traffic manage their ballast water. According to the IMO D2 and the US Coast Guard standards ballast water discharge may contain no more than:

- 10 live organisms/m^3 >50µm
- 10 living organisms/ml in the size range 10-50µm

Monitoring and maintaining compliance with the ballast water discharge standards requires reliable and rapid testing equipment for detection of live organisms in ballast water discharge to ensure proper function of the ballast water treatment system, and prevents unnecessary delays by port state control.

WHAT CAN BALLASTWISE DO FOR YOU?

BallastWISE is a rugged, portable system monitoring all kind of live organisms in the 10-50µm and the >50µm size class in samples from ballast water discharge or intake.

BallastWISE measures all live organisms in the 10-50µm and >50µm size classes, it requires no chemicals, or lab skills. Just add water and get the results within minutes.

BallastWISE is ideal for Port state control, for ship operators and for producers of ballast water treatment systems who wish to monitor the performance of ballast-water treatment systems.

MicroWISE

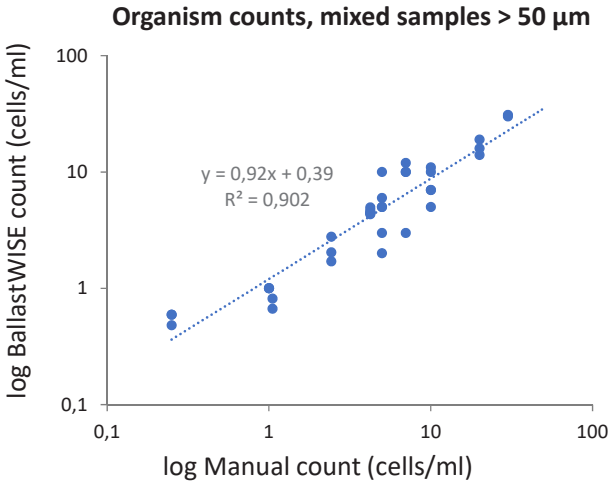
HOW DOES IT WORK?

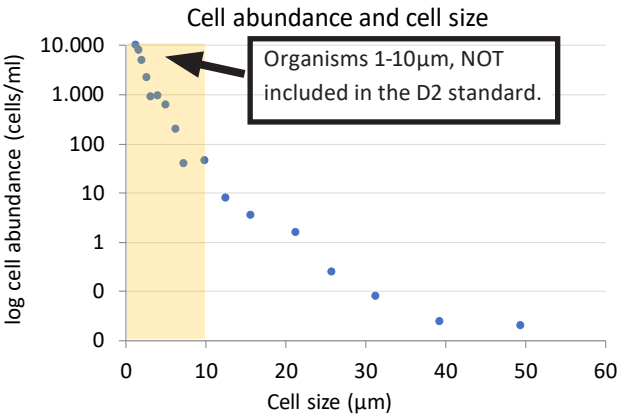
The BallastWISE method is based on image analytical detection of individual organisms as well as fluorescence from chlorophyll (chl*a*) content in individual organisms (patent pending). Combining the two methods, ensures detection of a very large fraction of live organisms, given the fact that most heterotrophic organisms (those which contain no chl*a*) are motile*. BallastWISE test results are in good agreement with manual counts.

BallastWISE is able to analyze samples for live organisms in the 10-50µm and the >50µm without any tampering or addition of chemicals.

Most compliance test systems are base on bulk chl*a* measurements in the 10-50µm size class, using fluorescent light for detection of algae. These methods detect only a fraction of live organisms in ballast water, and are not sufficiently accurate for compliance monitoring. Organisms other than algae and organisms >50µm are ignored.

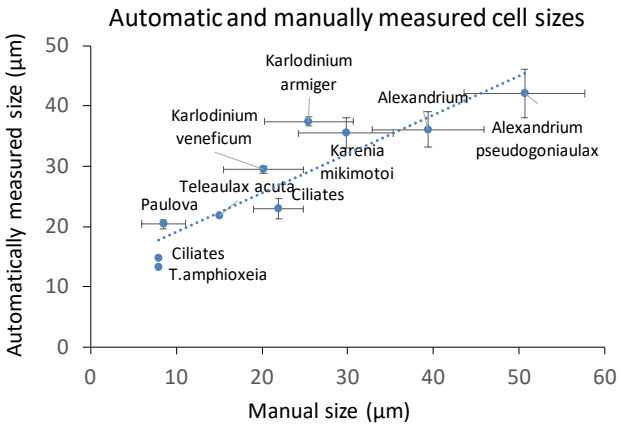
The D2 standard limits the number of live organisms according to size. Size distribution of marine micro-organisms shows that the number of organisms 1-10µm, not included in the D2 standard is significant, which makes size an important factor. BallastWISE cell measurements are in good agreement with microscopic size measurements.





Size distribution of marine micro-organisms.

After: Maranon E. (2015) Annu. Rev. Mar. Sci. 2015. 7:241–64



BENEFITS

- Rapid analysis
- Rugged and portable device
- No special laboratory skills are required
- No addition of chemicals or sample preparation is required
- Measures each organism size individually in order to size fraction correctly
- Measures all motile organisms in the 10-50µm and >50µm size classes as well as organisms that contain chlorophyll in the 10-50µm size class.
- See for yourself: Fluorescing- and motile organisms can be viewed on the computer through the cameras as the analysis progresses
- The use of replaceable and disposable low cost chambers avoids contamination and fouling

*BallastWISE is a patent pending technology which uses high resolution and sensitive video cameras, state of the art image analysis algorithms, new generation light emitting diodes, and a powerful mini computer. It is the only method that mimics the highly respected method of manual fluorescence microscopy combined with image analysis and size fractionation based on the sizes of organisms individually.

MicroWISE

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