

## Atlantic Blue Ports Newsletter #6

March 2021

The Atlantic Blue Ports project aims to improve the port based services for the discharge and treatment of ships effluents including oil and ballast water. The project's goal is to create awareness and motivation to stop discharge at sea using the Atlantic Area as a support platform to prototype, test, demonstrate and communicate activities. The project has gathered together a consortium of 28 partners and associated stakeholders representing ports, PRF operators, public authorities, SMEs and universities from across the Atlantic Area.

For more information on the project, its aims and objectives, achievements and partners please visit [www.atlanticblueports.com](http://www.atlanticblueports.com)

### Newsletter Overview

Sea Water Monitoring – updates from the Port of Seville – University of Seville

Ballast water discharge assessment in the Port of Las Palmas de Gran Canarias – ULPGC

Biological Risk Assessment tool - Bentley

Ballast Water Exchange and Scrubber Waste - Captain Michael McCarthy

Join us via our interest group

Sea Water Monitoring update from the Port of Seville – University of Seville



Ballast water sampling taking place images 1 & 2

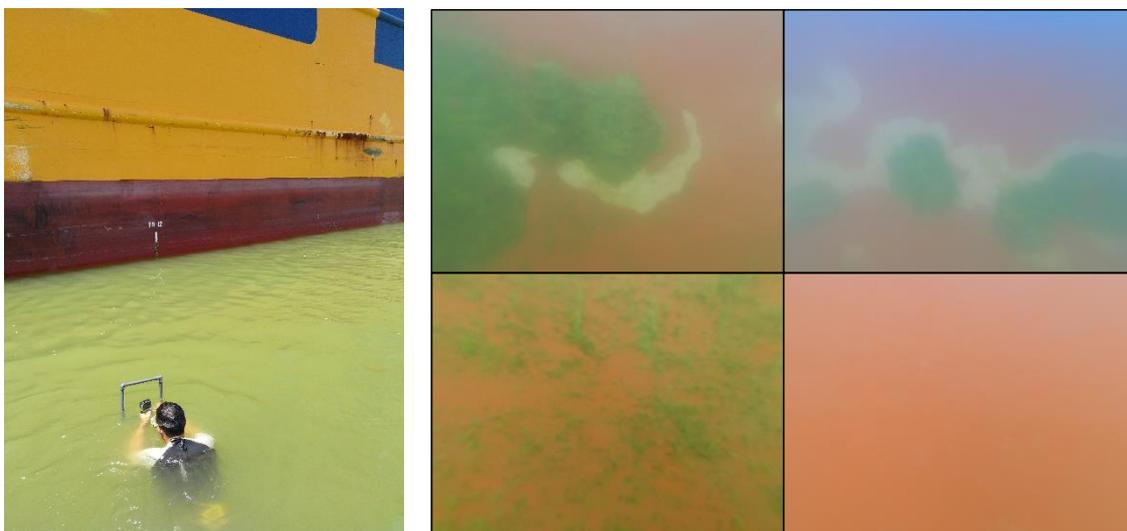
The invasion of exotic species is currently the second most common cause of species extinction and its management represents one of the greatest challenges for the conservation of terrestrial, marine and freshwater biodiversity. Unlike terrestrial invasions, marine invasions are almost impossible to eradicate due to the high connectivity of water masses and the accelerated increase in human activities in the marine ecosystem. This means that preventing their introduction is the most important mitigation measure. Although Spain has one of the most advanced regulations to prevent and control invasive species, it is still necessary to prioritise actions in areas where invasive species have the most impact on biodiversity, such as port areas.

In order to contain the problem of biological invasions due to maritime traffic, effective treatment of the two main vectors, ballast water and biofouling, is essential. Current solutions to the problem of invasive species in untreated ballast water discharge have been totally unsatisfactory. Most solutions focus on the species that travel attached to the vessels and gear that has been in contact with contaminated waters, with the focus being on cleaning them thoroughly. In the spirit of 'working with nature', the study by the University of Seville, which was carried out over 2 years, was to find out the real potential that the Port of Seville has to combat the invasion of exotic species through osmotic shock treatments (images 1 & 2).

The results of the tests undertaken in the preliminary phase of the study concluded that the effect of the osmotic shock treatment reduced the viable organisms and allowed the concentration levels of plankton to reduce to levels required by regulation D-2 of the International Convention for the control of ballast water and sediment management from ships treaty adopted by the International Maritime Organisation (IMO).

Similar results were found for biofouling (images 3 & 4). Despite the need to new tests, the xxx confirmed that on a vessel with a periodic tour (once a week) between a marine port and a freshwater port, the settlement of 'biofouling-forming' is difficult.

These results, from the University of Seville, highlight the need to build communications between the scientific research and the authorities with responsibility for the regulation and management of these species. It is also important that continued high level research takes place regarding invasive alien species and that more communication, promotion and awareness of the problems and issues is undertaken.

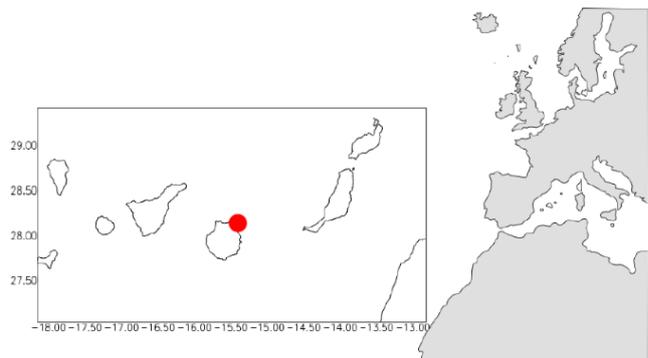


Images 3 & 4 showing biofouling testing and samples

## Ballast water discharge assessment in the Port of Las Palmas de Gran Canaria – ULPGC

The University of Las Palmas de Gran Canaria has been engaged in a study of ballast water discharge profiles in the port of Las Palmas collecting data between 2018 and 2020, as part of the environmental risk and quality assessment research for the Atlantic Blueports project.

The [port of Las Palmas](#) is a commercial port receiving mostly containers, oil tankers and refueling operations. Located in the North East of Gran Canaria, its privileged geographical position as a central point between Europe, Africa and America, makes it one of the most important ports in the Mid-Atlantic and a vital port for the distribution of goods in Spain.



The importance of quantifying the amount of ballast water (BW) released in the port is twofold: (1) to estimate in advance the volume of BW that would need to be managed (e.g. dimension of BW treatment equipment) and (2) to determine the profile of the port, and the vessels with higher potential of introduction of non-indigenous species, NIS (volume and frequency).

During the three-year period (2018-2020), more than 30,000 vessel calls were registered with cargo operations, coming from almost 120 different countries and more than 800 ports around the world. The ballast water loaded was at least three times higher than the volume unloaded, with a majority of ballast water operations in tankers and bunkers. The obtained discharge profile was in line with the exportation profile of the port of Las Palmas. These results will facilitate the implementation of the Ballast Water Management Convention (IMO, 2007) providing a simple assessment tool for the identification of vessels with a higher risk to introduce NIS potentially invasive species.





<http://tecnobioambiental.ulpgc.es/>

## Biological Risk Assessment Tool – Bentley Systems

In the framework of the Atlantic BluePorts project, Bentley Systems has developed a risk assessment tool to help risk experts, national authorities, seaport administrators and ship owners perform risk assessment studies analyzing and supporting ballast water management in European ports.

The tool makes use of the concept of “Same Risk Area”, an area-based approach that considers the extent of natural dispersion of aquatic invasive species potentially present in ballast water. It identifies the natural connectivity of species-of-concern due to natural hydrodynamic dispersion within a wider area and it can be used by administrations as a decision-support tool to grant area-based exemptions to ships trading in short sea shipping.

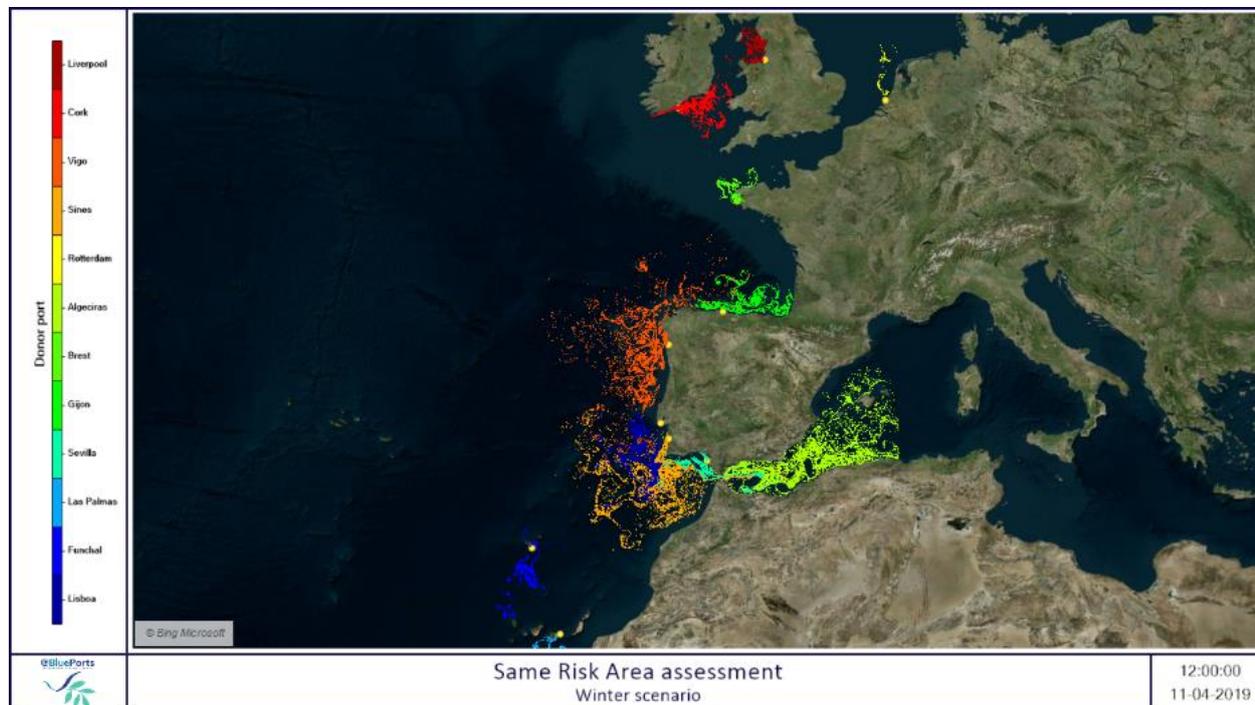
The tool is based on a Lagrangian (particle tracking) model capable of simulating the natural dispersion of the target species transported by sea currents that have been calculated by validated hydrodynamic models (e.g. CMEMS - EU Copernicus **M**arine **E**nvironment **M**onitoring **S**ervice).

A pilot risk assessment study was carried out covering a group of relevant seaports located in the Atlantic Area, most of which are partners in this project, namely: Lisbon, Sines and Funchal (Portugal), Las Palmas, Algeciras, Sevilla, Vigo and Gijon (Spain), Brest(France), Liverpool (UK), Cork (Ireland) and Rotterdam (The Netherlands) (see Figure 1).



Figure 1 - Donor ports considered in the risk assessment study

Two meteo-oceanographic scenarios were designed representing winter and summer conditions and using 2019 CMEMS - IBI model data.



**Figure 2 - Color coded representation of particles emitted from the 12 different donor ports after ~100 days of simulation over the winter scenario**

Both scenarios represent a period of 3 months, where based on the sea currents, the model calculates the transport and trajectory of Lagrangian particles continuously emitted from each donor port. The particles represent potential invasive species during their larval stage. Thus the simulation period takes into account the 3 months representing the seasonal meteo-oceanographic conditions plus the duration of the larval period.

The risk assessment tool then processes the results and calculates an aggregated cumulative density of particles in the study area during the period of the simulation and verifies if particles emitted from a donor port arrive (naturally transported by sea currents) in the vicinity of the other ports. If they don't arrive, then there is low natural connectivity (between the 2 ports, for that species and season). In this case, the represented species is potentially invasive if present in untreated ballast water in a ship traveling from the donor port to the receiving port. On the other hand, if the natural connectivity is high, this means that there's a high probability that the species is already present in the donor and receiving port due to natural transport processes and thus cannot be seen as an invasive species.

The risk assessment tool and modeling methodology is therefore important for helping regulators to have the necessary information not only to determine exemptions in ballast water treatment in ports with high connectivity index but to especially to identify and justify treatment in low connectivity ports.

## Ballast Water Exchange and Scrubber Waste – Captain Michael McCarthy

The aim of the Atlantic Blue Ports project is to motivate the maritime community to stop discharge at sea of marine pollutants such as contaminated ballast water and non-compliant scrubber waste. Our project addresses an important environmental challenge in consensus to the "Blue Port Services" for 2020 and beyond. It also supports the ESSF, PRF working groups coordinated by EMSA and DG Move, ports, shipping companies and member states to reach consensus on appropriate port services and to translate it into acceptable and applicable regulations.

Designing and investing in "ideal" port reception and treatment facilities requires the support of national, regional, trans-national communities and influential bodies, to create awareness, and consensus on the need/solution. The demand is growing for such port services especially for scrubber waste and contaminated ballast waters as the overall cost of on board treatment and discharge is prohibitive, leading to the temptation to discharge at sea.

The International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) entered into force on September 8, 2017 having been adopted by the International Maritime Organization (IMO) in 2004. Shipboard ballast water management systems must be approved by national authorities, according to a process developed by IMO and must undergo a strict approval procedure and be verified by IMO. The aim is to stop the spread of potentially invasive aquatic species in ships ballast water and requires vessels to manage their ballast water to remove, render harmless, or avoid the uptake or discharge of aquatic organisms and pathogens within ballast water and sediments to the marine environment.

In May 2018, ESPO published its position paper on the Port Reception Facilities for ship waste (ESPO 2017 Sustainability Report European) stating "for European ports, ship waste has been one of the main environmental priorities and ports believe that better enforcement of the obligation for ships to deliver waste at shore are welcome". "Member States shall allow the use of emission abatement methods by ships of all flags in their ports, territorial seas, exclusive economic zones and pollution control zones, as an alternative to using marine fuels that meet the requirements of Articles 4a and 4b, subject to paragraphs 2 and 3 of this Article". The emission abatement methods shall comply with the criteria specified in the instruments referred to in Annex II. For exhaust gas cleaning systems the criteria for use are: Resolution MEPC.184(59) adopted on 17 July 2009.

The meeting of the IMO Marine Environment Protection Committee (MEPC 75) was held remotely on the 16-20th November 2020. A statement was issued that the IMO considers exhaust gas scrubbers to be an acceptable means of reducing vessels sulphur 2 emissions and ensuring compliance with MARPOL Annex VI. A separate guideline *Resolution MEPC.259(68)*, specifies the requirements for the verification, testing, survey and certification of scrubber systems and sets out the criteria for discharging scrubber wash water into the sea. Although exhaust gas scrubbers are an accepted abatement technology to meet IMO's SOx emission rules for 2020, their use is not accepted globally. Many states and some coastal states and ports have implemented local regulations with more stringent requirements that restrict or completely prohibit the discharge of wash water from open loop scrubbers or prohibit the use of scrubbers, creating misconceptions surrounding the true environmental impact of these systems.

## Summary:

The International Maritime Organization (IMO) is the global regulator of shipping, however the implementation of many IMO regulations are being nationally and regionally interpreted or not being adhered to. Although IMO's *EGCS Guidelines* have established wash water discharge and monitoring criteria to safeguard against environmental damage, coastal states and ports throughout the world have implemented local regulations with more stringent requirements that restrict or completely prohibit the discharge of wash water from open loop scrubbers or prohibit the use of scrubbers.

This is damaging the IMO's Reputation. Ship owners have already made significant financial investments in these systems. All ports aim at setting high standards for environmental friendly shipping in their port and to reach this goal through monitoring and assessments of the long term environmental impacts of the use of exhaust gas scrubbers.

## Contact us / join us

The project partners have created an interest group for anyone interested in the project. Joining the group is not engaging: any organisation can join to monitor the activities, to contribute to the studies of the Interest Group or to ask for implementing more concrete actions such as tests, recommendations to the IMO and EU decision making bodies, or to submit any idea that would help implementing the EU and international regulations related to ship effluents and waste. Join the interest group [here](#).

## Contacts:

- ⇒ The coordinator: [fabienne.vallee@brest.port.fr](mailto:fabienne.vallee@brest.port.fr)
- ⇒ The management board: [contact@blueportservices.com](mailto:contact@blueportservices.com)

## Project Partners:



# Partnership

