

The World Maritime Day 2016! (29 September)

“Shipping: Indispensable to the world”

International Maritime Organization:

“If you look around you, you are almost certain to see something that either has been or will be transported by sea”

“Around 80 per cent of global trade by volume and over 70 per cent of global trade by value are carried by sea and handled by ports worldwide”

“There are more than 50,000 merchant ships trading internationally, transporting every kind of cargo. The world fleet is registered in over 150 nations and manned by more than a million seafarers of virtually every nationality”

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It's an evidence that shipping is a very important transport to maintain our life like we know, but in fact, this method of transport has some consequences and impacts in the environment. To understand this relationship and its future consequences, our researcher **Patrício Ramalhosa** is currently participating in a project with the Ocean Observatory of Madeira (OOM) that involves the compilation and analysis of maritime traffic data in the Madeira archipelago, to complement the study of marine biological invasions by non-indigenous species (NIS) in this Island system.

Because today is the “**World Maritime Day**” and our work is focused on non-indigenous species which are being introduced primarily via shipping, we thought it could be interesting to extend this subject. In this context, here is an interesting interview with Patrício Ramalhosa: (Thanks Patrício!)



- **What is the name of your project?**

The title of my project is "Ship traffic and Marine Biological Invasions" -M1420-01-0145-FEDER-000001-OOM which is part of a research fellowship from the Ocean Observatory of Madeira (OOM) financed by ARDITI.

- **What is the main objective of your project?**

The main objective of my project is to collect and compile a database from all maritime traffic done in Madeira Island up to date. This data is mostly kept in old handwritten books and my goal is to pass all this information into digital format (spreadsheets).

- **Although the biological contamination by fouling probably have started long before (at the time of the great discoverers, or before), since which years there are official records of maritime traffic in the Autonomous Region of Madeira (RAM)?**

Our oldest official record dates to 16th June 1935 until 1950. Unfortunately, from the 1950 until 1974 there is missing record book. Then again we have data from 1974 until date with the exception again of a missing record from 1986-1987.

- **How far have you gone with the data so far?**

I have been working on this database for the past 2 years and I am still in 1993, so basically I have introduced 35 years in to digital format. Unfortunately the process of copying all the information from paper to digital takes a long time but in the end it will be rewarding. However some of the most current data is already available online at the OOM website (<http://oomdata.arditi.pt/serv/visor/vismad.php>) where the data was transformed into lines (theoretical track journeys) from last port arrivals to Madeira Island.

- **What are the answers that your work will give in the future? (If initially is expected to have an answer)**

It is widely known that shipping is one of the main vectors that introduce non-indigenous species into new ecosystems. These species are transported around the world in ballast water tanks and as fouling species in the hulls of boats. Thus, many of these species are invasive and may play a potential threat to the native marine biodiversity. Therefore, it is very important for us as researchers to not only monitor constantly the marinas and ports for the arrival of these species but also to know which are the last ports that these vessels are coming from before arriving to Madeira.

As biologists, we look for answers and evidences thus, once we detected and identify a non-indigenous species in Madeira, we track backwards the potential route taken (i.e. via stepping stones) of that particular species, before arriving to Madeira based on the literature search of previous occurrence records and if possible, identify the native origin of that species.

In the near future with this database, we will be able to report the number of ships that have arrived to Madeira island by date (year, months or day); nationality; type of vessel (commercial cargo, passengers, navy, fishing, tankers and recreational vessels); last calling port (dock, ocean or land regions) and performed statistical analysis on these database. Consequently, we could track and be aware of the most potential routes for the spread of non-indigenous species and/or invasive species based on the literature searches and therefore is crucial to create and update this database from all maritime vessels arriving to Madeira Island.

- **Can you give us an example of a biological invasion that has most called your attention? Why?**

In general, I think that all examples of NIS in Madeira have called my attention. Because it is important to early detect and monitor them, and consequently evaluate the species progress in our waters. Despite that, so far we do not have any major invasion species occurring on the island that might be causing a great deal of destruction of habitats and/or overcoming other native species. I think is too soon to evaluate this but we are on the right track with the studies that have been done so far.

Since 2006, Dr. Canning-Clode has been studying and monitoring the marina of Quinta do Lorde, in Caniçal and in his study he identified 16 new introduced species of which 9 were new to Madeira island. Most importantly, the number of these introduced species was related to the increased arrival of recreational vessels to that marina.

In recent years, the Madeira Archipelago has been the site of a comprehensive monitoring programme of marine NIS in all four main marinas of Madeira (Calheta, Funchal, Quinta do Lorde and Porto Santo). As a result, several new species have been detected mostly bryozoans, tunicates, sponges, polychaetes and crustaceans. (For more info see Wirtz and Canning-Clode 2009; Canning-Clode et al. 2013; Ramalhosa et al. 2014; Ramalhosa and Canning-Clode 2015; Ramalhosa et al 2016) including previously un-described species (Souto et al. 2015).