

MUNICIPALITIES, THE MISSING LINK BETWEEN MARINE SCIENCE AND ITS COMMUNICATION WITH THE PUBLIC – CASCAIS CASE STUDY

Andreia Rijo ¹, Ana Ferreira ^{1,2}, Sara Faria ¹ & Sara Saraiva ¹

¹ Cascais Ambiente - Environment Municipal Company of Cascais, Complexo Multiserviços, Estrada de Manique no.1830, 2645-550 Alcabideche, Portugal

² Marine and Environmental Sciences Centre (MARE), Department of Life Sciences, University of Coimbra, Portugal

CASCAIS

Cascais is a municipality surrounded by sea and highly dependent on the sun and sea tourism activities that are responsible for the main portion of the 466 000 visitors every year. Its 30 km of a particular and biologically rich coastline takes part of the 5 000 km of the European Long Distance Path E9 – The Coastal Path along the Atlantic Ocean.

Marine science can be very appealing and it is not unusual for common people to be overwhelmed when a scientist is talking about his field work and his discoveries. However, the challenge is to transform a simple conversation into marine science communication, explaining in an accessible way several facts and concepts behind the science, promoting the link between our day to day tasks and the importance of this science in our current life and future generations. The concepts are complex and many times not easily perceived by the majority of the population that uses the ocean for leisure and feeding purposes.

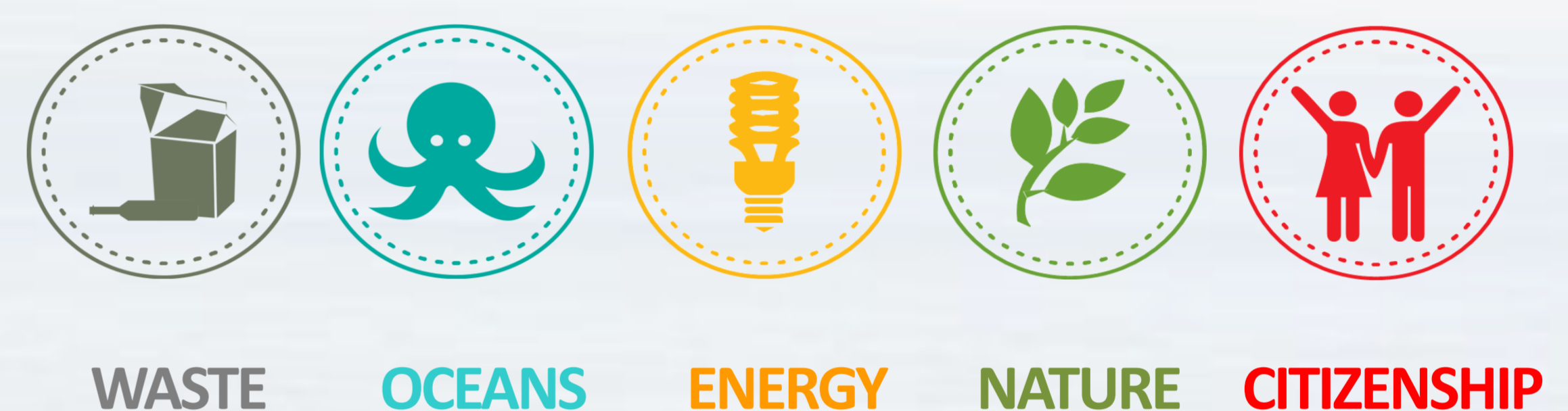
Cascais Municipality focuses heavily in communication and efforts to improve its services. This work intends to present several practical examples of marine science communication addressed to different target audiences.

CASCAIS AMBIENTE

Since 2007 the municipal environmental strategy created different agencies and started a new environmental program focused on marine conservation and biodiversity protection for different target audiences. In 2012 the new municipal strategy integrated those agencies in one called CASCAIS AMBIENTE (Environment Municipal Company of Cascais).

Depending on the target audience, CASCAIS AMBIENTE created several imaginative solutions to interact with our population and visitors. Some examples are public conferences, social networking, theatre plays, educational program or even comic books.

Subjects of Environmental Education and Awareness Program



SCHOOLS – Education and Awareness

The ENVIRONMENTAL EDUCATION AND AWARENESS PROGRAM OF CASCAIS was first presented in 2012 and encompasses all school levels ranging from pre-school to secondary school. It concerns different subjects such as Oceans, Nature, Energy, Waste and Citizenship and results from the collaboration between the scientific community and our municipality in accordance with school curriculum. With this program we wanted to create a new behavioral model enhancing the balance between man and environment promoting the adoption of a more sustainable attitude.

During 2015/2016 school year the environmental education task group of CASCAIS AMBIENTE performed **808 activities** for 20 304 students. Those activities were carried out in classrooms, municipal educational centers and outdoor spaces of Cascais and the majority of which were related to **OCEANS** (265 activities) and **NATURE** (235 activities).

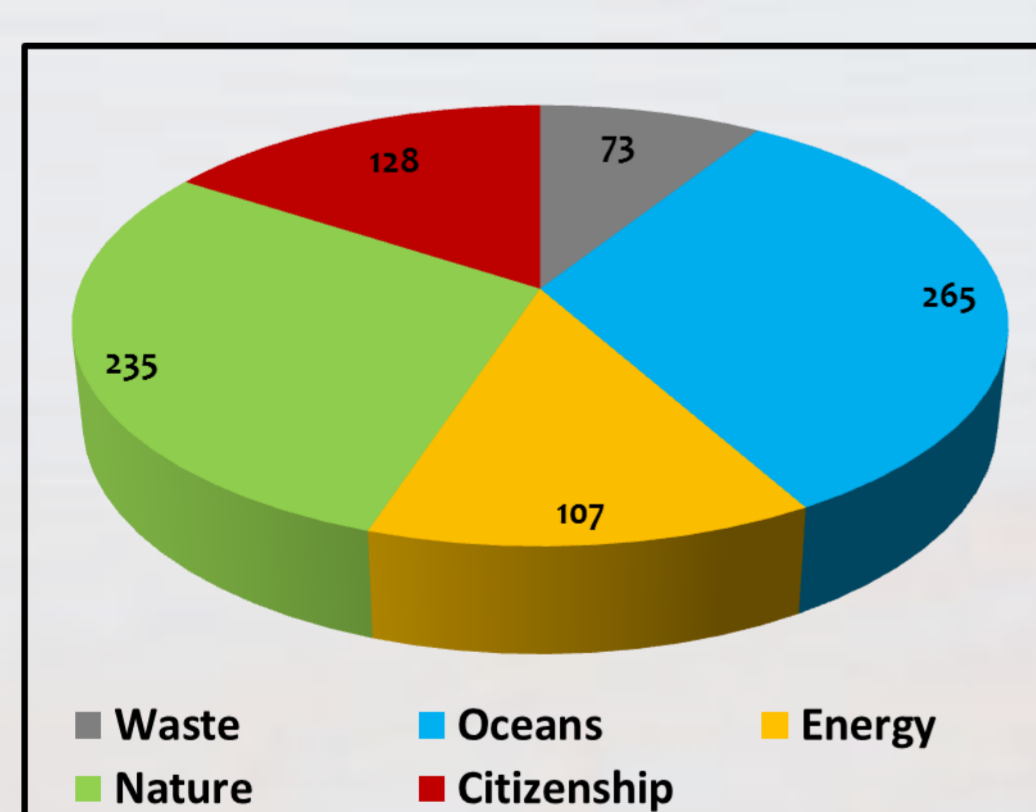


Fig. 1 – Total number of activities carried out in 2015/2016

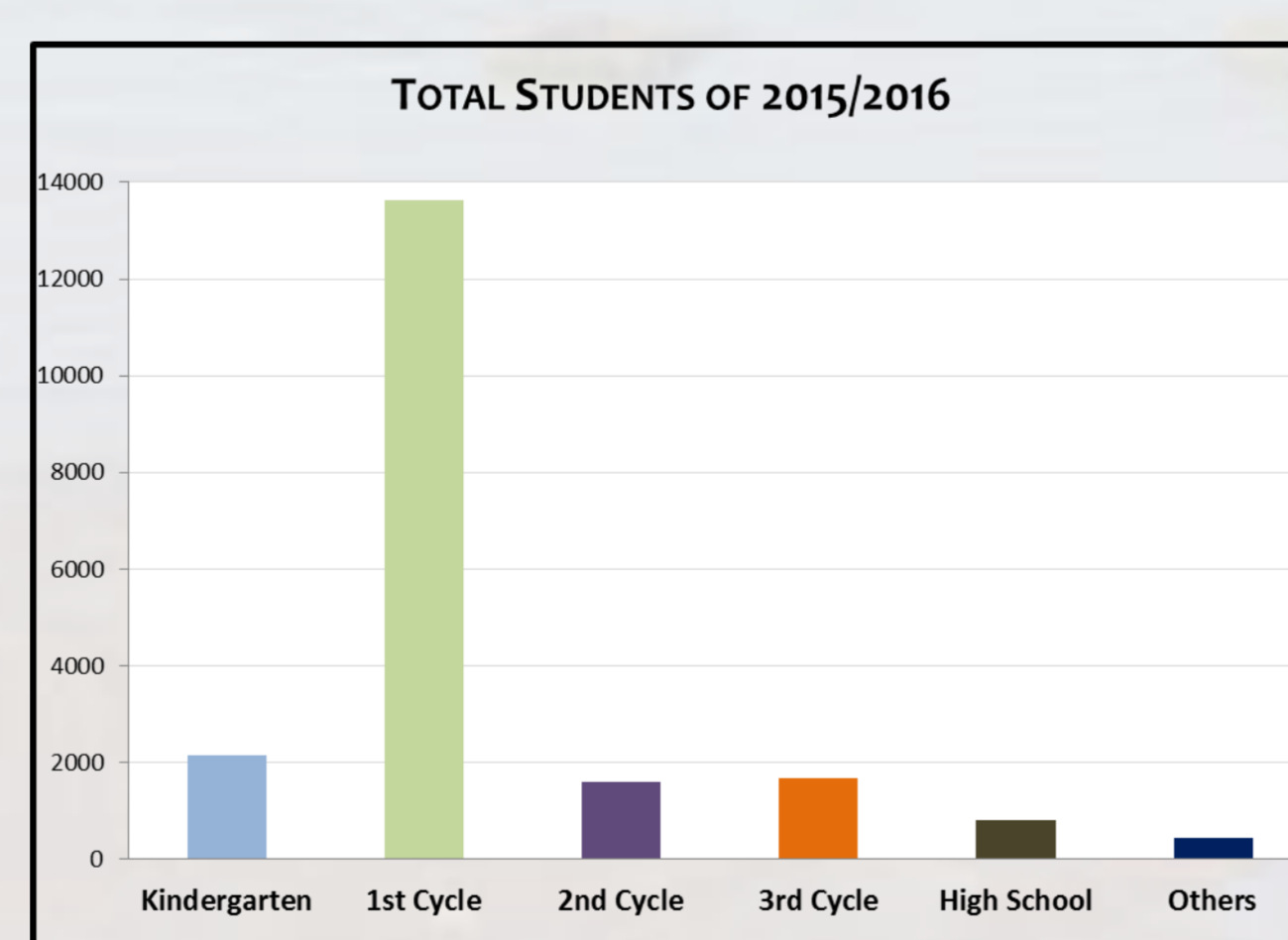


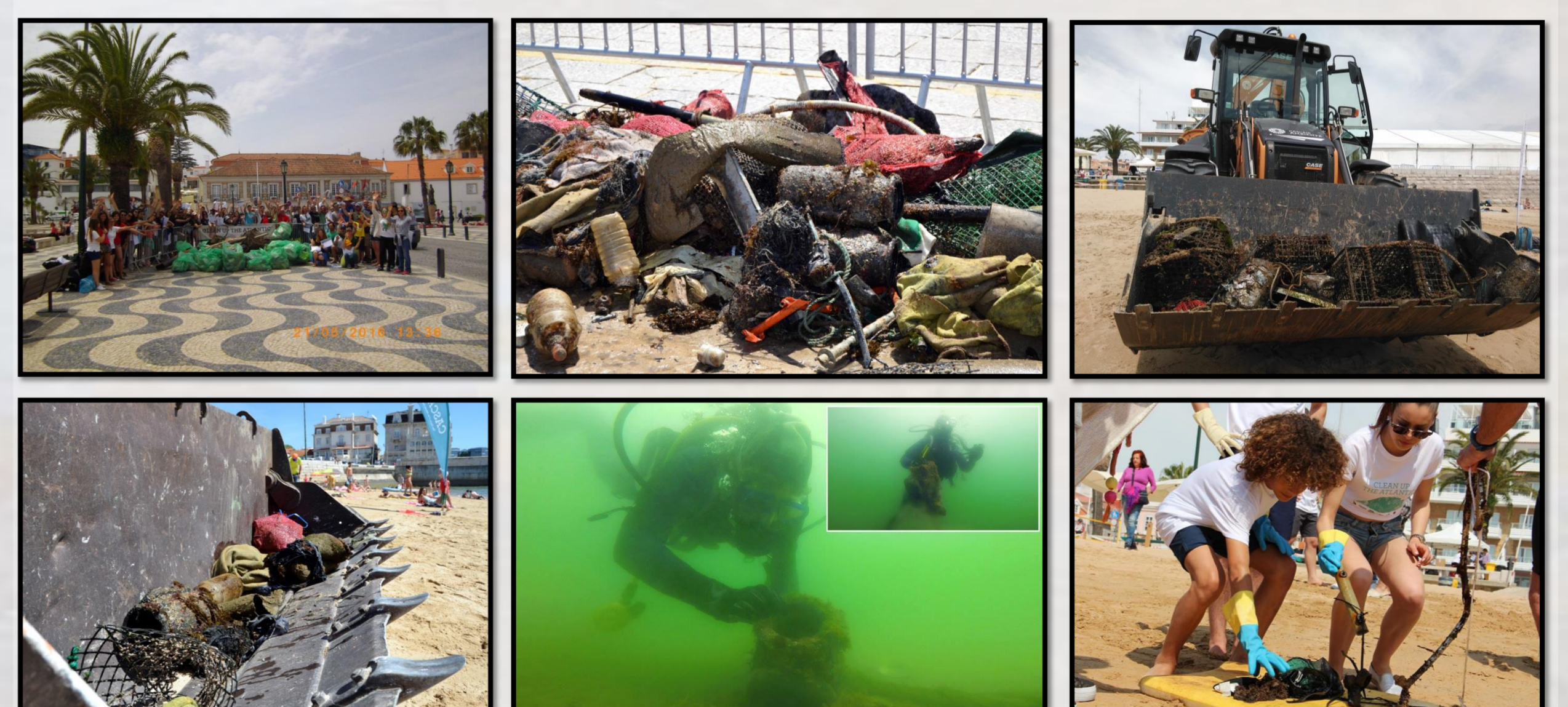
Fig. 2 - Total number of students covered in 2015/2016

SOCIETY – Volunteer Programs

CLEAN UP THE ATLANTIC is an annual awareness event where scuba divers are invited to clean a small part of Atlantic Ocean near Cascais center simultaneous with coastline clean up event with other volunteers. The main objectives of this campaign are:

- Alert the population to the problem of maritime pollution and its consequences;
- Raise public awareness of the necessity of oceanic cleaning and its protection;
- Remove a significant amount of marine debris in the ocean and coastline.

Since the first edition in 2008 more than 1100 volunteers helped to collect over **9 tons** of marine debris.



In **2016** the most items collected in the ocean clean up were fishing traps, ropes, tires, clothes. The most curious items were a pair of glasses and a drum of a washing machine.

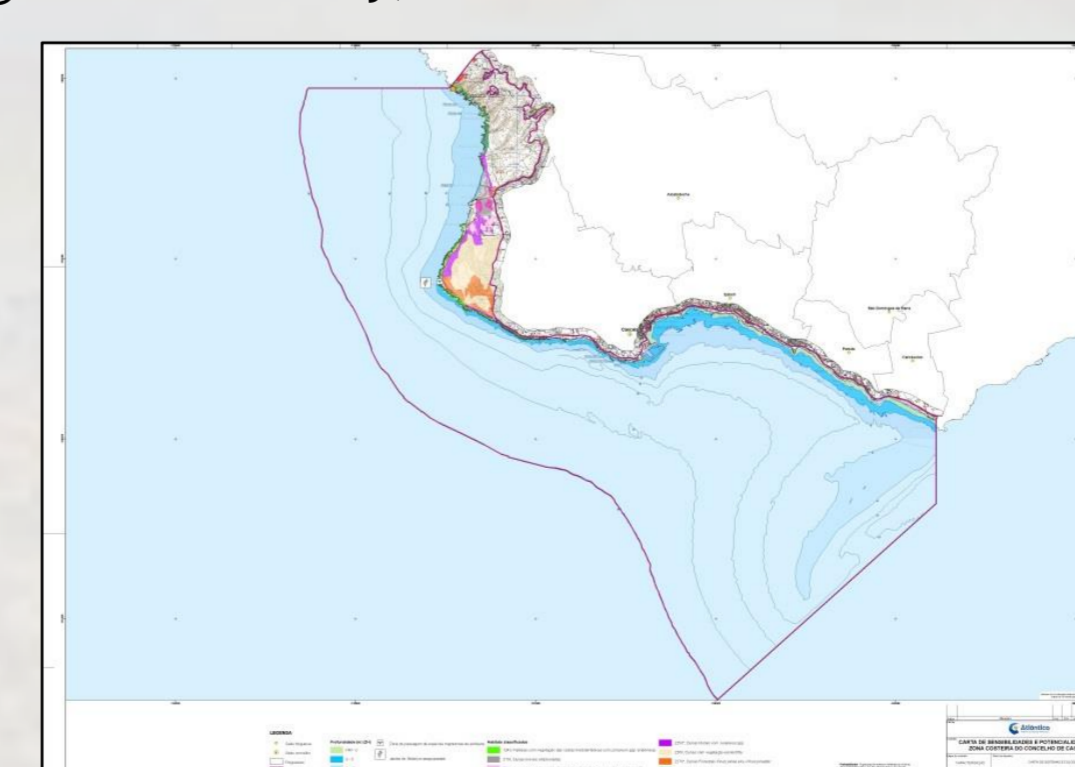
SCIENCE – Monitoring Campaigns

In 2007 Cascais had no systematized information about its marine area and coastline thus arose the project **AQUASIG CASCAIS** financed by QREN (2007-2013). The final result of this project is a management instrument in a GIS environment showing a compilation of biologic and physics data collected during monitoring campaigns. It provides several types of information systemized in GIS maps, linked with Google Ocean, such as the definition, identification and location of areas with great ecological sensitivity, coastline or underwater potential., support information for maritime activities or coastal management decisions.

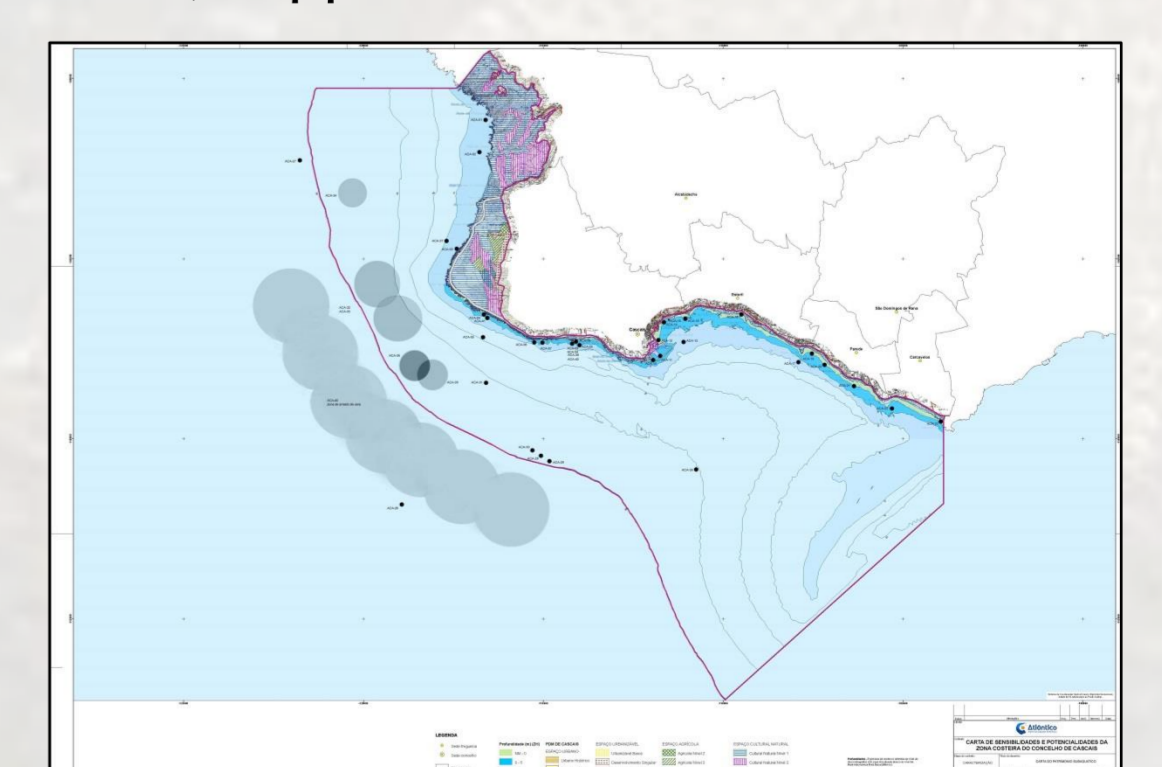


Map 1 – Intervention Area

Legend:
See range
4 miles – reaching the bathymetric -50m
Hinterland
≈450 m – the limit of coastal domain



Map 2 – Ecological Systems



Map 3 – Underwater archaeology