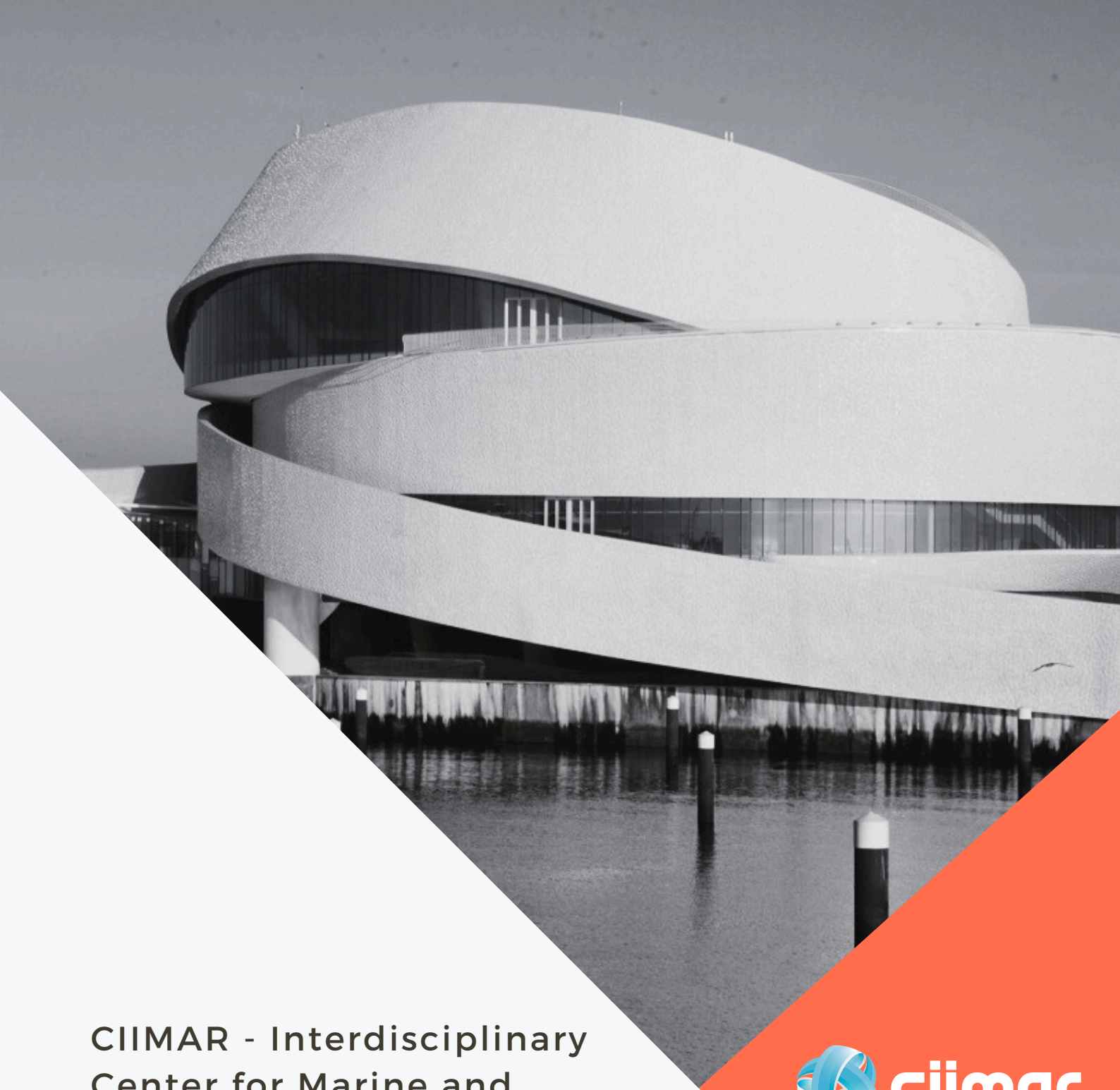

CIIMAR - Interdisciplinary Center for Marine and Environmental Research

EDUCATIONAL PROGRAMME

2025 / 2026

LECTURES

ONLINE OR IN PERSON (AT SCHOOL OR AT CIIMAR)

3rd Cycle and Secondary

THEMES

- Plastic Oceans: Pollution of the Ocean and Marine Litter.
- Marine Biodiversity - Protection and Conservation
- Climate Change.
- Water Footprint and the Importance of Water.

VISITS TO CIIMAR

3rd Cycle and Secondary

Visit to CIIMAR facilities, to get to know the work developed by the different research areas that compose CIIMAR. This visit allows a closer connection to the research of excellence developed in the areas of Marine and Environmental Sciences, allowing the knowledge of innovative themes and techniques in these areas of knowledge.

FIELD TRIPS

IN AN EXTERNAL LOCATION TO BE ARRANGED

ADAPTABLE TO THE VARIOUS EDUCATIONAL LEVELS

THEMES

- Biodiversity between tides.
- Help clean your beach.
- There is life in the Ponds.

HANDS-ON ACTIVITIES & GAMES

ONLINE OR IN PERSON (AT SCHOOL OR AT CIIMAR))

THE 5 SENSES OF THE OCEAN

- **Kindergarten and 1st cycle:** Through the five senses of the human body, this activity challenges students to see, hear, smell, feel and taste the ocean and thus get to know it in a different and comprehensive way, exploring not only the enormous diversity of life that is present in the ocean, but also its physical characteristics.

DISCOVERING THE OCEAN

- **1st cycle:** This activity begins with a short talk about the importance of the Ocean, during which some of the most iconic species and interesting facts about the Ocean will be presented. Next, the pupils will take part in a team game, in which each team will have to answer several questions about what they have just learnt, focusing on the importance and services that the Ocean provides to humanity, as well as marine biodiversity.

ADVENTURE IN THE WORLD OF AQUACULTURE

NEW

- **1st and 2nd cycle:** What is aquaculture? Why is it important? How is it done and which species are most commonly produced in these systems for farming and breeding aquatic organisms? This activity will answer all these questions... and much more. The activity begins with a short discussion on all these topics and then, to put the knowledge they have learned into practice, students are challenged to participate in a board game, which promises to add a little luck to this knowledge test.

WHAT IS A FISH? AND HOW CAN FISH SWIM?

In this activity, students will be introduced to the main characteristics of fish, allowing them to understand the advantages of these physiological adaptations for the way of life of these animals.

- **1st cycle:** simplified approach to the physiological characteristics of fish and a short practical activity on the mechanisms of fish swimming.
- **2nd and 3rd cycle:** In addition to addressing the physiological characteristics of fish and conducting practical activities on fish swimming mechanisms, examples of some fish with more peculiar characteristics will also be discussed in order to deepen the notion and concept of 'fish'.

LIFE IN FRESH WATER

- **2nd and 3rd cycle:** This activity focuses on freshwater bodies, addressing their importance and main threats, with an emphasis on the biodiversity present in these wetlands. In a game similar to the traditional 'Guess Who?', participants will have to identify the different groups of living beings, as well as the different species present in the wetlands of the city of Porto. The aim of this game is to raise awareness of the biodiversity of wetlands and sensitise participants to the importance of these organisms in maintaining the balance of freshwater ecosystems.

ALGAES? WHAT ARE THEY AND WHAT ARE THEY GOOD FOR?!

- **2nd and 3rd cycle:** In this activity, students will learn a little about the biodiversity of algae that populate our coastline and learn the main aspects of their biology. Through a short game, they will also learn that algae are very important resources and have a wide variety of applications, even being present in many everyday products.

HOW DOES OCEAN ACIDIFICATION OCCURS?

- **2nd, 3rd cycle and secondary:** In this activity, students will investigate the phenomenon of ocean acidification and how it occurs, addressing the consequences of ocean acidification for marine life, especially shellfish. Concepts related to climate change and the increase of carbon dioxide in the atmosphere, as well as the greenhouse effect, will also be discussed.

DOES THE WATER MOVES?!

- **3rd cycle and secondary:** This activity allows students to explore the concept of water mass, focusing on its different physical characteristics, such as salinity and temperature, and analysing how these characteristics influence the movement of water masses in the ocean. In this way, students will understand not only the phenomena that affect the movement of water masses in the ocean, but also their importance for fishery resources and the consequences of climate change on the modification of ocean currents.

OTOLITHS: THE IDENTITY CARD OF FISH

- **3rd cycle and secondary:** This activity allows participants to learn about otoliths, which are very important and unique structures found in fish, located in their brains. Participants will learn about the functions of these structures for fish, but also about the diverse biological information collected by scientists, such as estimating the age of a fish. During the activity, otoliths will be extracted from some fish specimens and their age will be estimated, focusing in particular on their application in marine resource management.

WHAT GIVES COLOR TO ALGAE?

- **3rd cycle and secondary:** In this activity, students will learn a little about the biodiversity of algae that populate our coastline and learn the main aspects of their biology. In addition, through paper chromatography of different macroalgae (green, red, brown), the pigments that make up the different algae will be separated and identified, and the distinctive characteristics of each group tested will be analysed.

BIODIVERSITY AND WATER QUALITY

- **3rd cycle and secondary:** In this activity, participants are invited to be researchers for a day, having to plan a water quality study. Through this activity, participants will understand that the biodiversity of water bodies can be an excellent indicator of water quality and will have to use their creativity to solve some of the problems that freshwater aquatic ecosystems currently face. The aim is to raise participants' awareness of the different roles that biodiversity can play on our planet.

MICROPLASTICS: WHAT DO OUR MUSSELS EAT?

- **3rd cycle and secondary:** This activity aims to study the existence of microplastics in the digestive system of a marine organism found on most of our beaches: the mussel. The formation and origin of microplastics will also be discussed, as well as the origin of various types of marine litter and the consequences of its presence in the marine environment, both for marine animals and for humanity. It also aims to raise awareness of the need to reduce the production and consumption of plastics and the care that must be taken in separating and disposing of different types of waste.

ESCAPING THE CURRENT: A SCIENTIFIC MISSION TO MONITOR AND PROTECT CETACEANS

NEW

- **3rd cycle and secondary:** Step into the role of a marine researcher and embark on a thrilling mission to protect some of the ocean's most extraordinary inhabitants – whales and dolphins.
In this Escape Room, your goal is to complete five scientific challenges inspired by the EMPHATIC project, which uses non-invasive techniques to study and monitor dolphin and whale populations.
Work as a team, follow the evidence, and discover how real-world research helps conserve marine life.

NEXUS ISLAND

- **3rd cycle and secondary:** This game takes place in a hypothetical island setting, where our participants take on the role of researchers and are responsible for exploring the biodiversity present in different parts of the island. During the game, an event occurs that destabilises this biodiversity, challenging students to use their critical thinking and observation skills to find the cause of this event and come up with possible solutions. It explores the concepts of biodiversity, interconnections, ecosystem services, blue biotechnology, bioremediation, phytoremediation, among others.

TALKS WITH A SCIENTIST

ONLINE ACTIVITIES CARRIED OUT BY CIIMAR RESEARCHERS
(depending on the chosen topic and the researcher's availability)

Activity carried out through videoconference:

- Talk/debate between the researcher and students (question and answer session).

THEMES

- Marine artificial reefs: what they are and their use for studying biodiversity.
- Cyanobacteria and Microalgae: sources of natural products with various biotechnological applications.
- Study and monitoring of cetaceans as a tool for marine conservation.
- Drones and Science: Use of technological tools for the study of coastal ecosystems..
- The importance and technological innovations of modern and sustainable Aquaculture.
- From the deep of our sea: biodiversity management and conservation at the planet's frontier.
- Marine Forests! What are they and what is the importance of Marine Forests and Grasslands.
- Bioremediation and phytoremediation for maintaining good environmental conditions. NEW
- Duplication and gene loss in animal evolution. NEW

PONDS CONSTRUCTION

PONDS WITH LIFE PROJECT

The construction of ponds in a school environment is intended to encourage the whole school community to discover, value and investigate ponds and their biodiversity. As well as contributing to the knowledge of the biodiversity and importance of these habitats, it is also intended to raise awareness and mobilize the school and local community to preserve the ponds as reservoirs of biodiversity and living laboratories.

The budget for Ponds construction is provided after reviewing the request and the conditions of the construction site.

TEACHER'S TRAINING ACTION

PONDS WITH LIFE - A TOOL FOR PEDAGOGICAL EXPLORATION AND CONSERVATION OF BIODIVERSITY

This training action allows for the development of skills in the construction and management of ponds, important habitats for biodiversity and excellent educational resources. It is an extremely timely topic, given the relevance of ponds in water management and biodiversity conservation, increasingly relevant in the face of climate change. It is a very dynamic training course, with both theoretical and practical components.

Accredited Training of 25h (1 credit) or 15h (0,6 credits).
Conditions and budget for the Training Action under consultation.

PRICE LIST

- 35€ - activity developed at CIIMAR* (Visit to CIIMAR, Hands-on Activity or Lecture, including online)

- 50€ - activity developed outside or at the school (Hands-on Activity, Field trip or Lecture)
  Note: This value applies to travel within the Metropolitan area of Porto. Outside this area values apply upon request.

- 50€ - Visit to CIIMAR + Lecture or Hands-on Activity (held at CIIMAR).

- **Talks with a Scientist** - Free activity, subject to the scheduling and availability of researchers.

*Activities developed at CIIMAR are limited to groups with a **maximum number of about 25 participants**

Note: **From January 2026 onwards**, the activities of the Educational Programme, with the exception of the Guided Tour of CIIMAR, will take place at a new CIIMAR centre located in Matosinhos (Avenida D. Afonso Henriques, nº 1785). The Guided Tour of CIIMAR will remain at the Cruise Terminal building at the Port of Leixões (Avenida General Norton de Matos).

REGISTRATION

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Registration Form

More Information