Newsletter 4

iseca
INFORMATION SYSTEM ON THE EUTROPHICATION OF OUR COASTAL AREAS

2 Mers Seas Zeeën INTERREG IV A
"Investing in your future"
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A cross discipline and cross border integrated project on coastal eutrophication offering information, education and science to stakeholders and the public at large in the Interreg 2 Seas Zone (Belgium, England, France and the Netherlands).

Editorial

ISECA biannual meeting in Medway (England) – 9th and 10th of July 2013

This summer, ISECA partners met at the University of Medway, in the east of London. The campus, with its vast laboratories and research facilities, is part of the University of Greenwich, one of our ISECA partners. In this historic monument built in 1903, everyone has been able to present the project's progress and the goals for the next semester. Major scientific advances have been made and many events will punctuate the project until spring 2014. At that time, a meeting bringing together all relevant stakeholders will be organized to close the project. To have more information, please read our next newsletters!

World Oceans Day at Nausicaá (Boulogne) - June 8, 2013

Each year aquariums, science centres, museums, associations and educational institutions on the marine environment celebrate the World Oceans Day on the 8th of June. During this festive day, many games, artistic workshops, conferences and movies are disseminated.

In this context, Nausicaá organized a workshop on the 8th of June. Visitors were able to "fish" the plankton and then analyse it to highlight the presence of microalgae. Microalgae grow better and faster when an excess of nutrients (such as phosphates and nitrates) are present in the water. This phenomenon is called eutrophication and can result in algal blooms.

Visitors had also the opportunity to meet scientists from IFREMER (French Research Institute for Exploitation of the Sea), they realized how much the technological revolution allows very speed and precise analysis but also more regular knowledge of the marine environment.






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Science

Phaeocystis and foaming beaches

Have you seen foam on the beach in spring and wondered what it is and where it is coming from? The foam is caused by a unicellular alga called *Phaeocystis globosa*. This is a small alga and it varies from 3 to 7 micrometer in diameter (a micrometer is 1 thousands of a millimeter). How can such a small alga form so much foam? This is because the cells organize themselves into large spherical colonies which can be several mm in diameter and which are easily visible by the naked eye. If you fill a bucket with seawater when the sea starts foaming, you can easily see them. These colonies often float near the surface and they can grow very fast, causing large "blooms" (i.e. a high biomass).

When the bloom is developing, the colonies of *Phaeocystis* are nicely spherical. Most of the cells are actually arranged at the periphery of the colony, which is a mucus-like watery ball. Because the colonies are so large, they are hardly eaten by "grazers" like copepods (small crustaceans) and unicellular grazers ("microzooplankton"). This is one of the reason why they can form such large blooms. However, when they have depleted the nutrients in the water, the colonies deform and start to disintegrate. At this point a part sinks to the bottom and another part is attacked by special viruses, causing the cells to fall apart (lysis). During this decaying phase, the foam is released and when the wind conditions are right, it can form huge quantities on the beach.



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Fortunately the foam is not toxic for human but it can have harmful effects on the ecosystem. Fishermen, however, do not like *Phaeocystis* as the colonies can clog their nets. Because of their unwanted effects, *Phaeocystis* is often included in the group of Harmfull Algal Blooms (HABs).

Zoom

NIOZ

NIOZ, Royal Netherlands Institute for Sea Research, is an ISECA partner based in Netherlands. It is the national oceanographic institution for the Netherlands. Its mission is to gain and communicate scientific knowledge on seas and oceans for the understanding and sustainability of our planet. To this end, NIOZ facilitates and supports fundamental as well as applied marine research and education in the Netherlands and Europe. In addition, the department of 'Marine Research Facilities' supports the seagoing research for institutes and universities in the Netherlands.



Under ISECA, the main role of NIOZ is the one of end user, hence it will evaluate the products developed in the project. In addition it advises on the development of products using its expertise. NIOZ also monitors phytoplankton and primary production in the Dutch estuaries and the Wadden Sea using its research vessels "Luctor" (Delta) and "Navicula" (Wadden Sea).

Agenda

Information days in Plymouth, England – 3th to 5th of September 2013

EMSEA *(European Marine Science Educators Association)* is a non-profit organization promoting education on the marine environment in Europe. It organizes a conference in Plymouth in September in order to network teachers and other information multipliers to facilitate the exchange of experiences on the marine education theme. During this event, ISECA partners will hold a booth to promote the project, its issues and the tools created.

With the participation of: