Newsletter N°5

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iseca
INFORMATION SYSTEM ON THE EUTROPHICATION OF OUR COASTAL AREAS

"Investing in your future"
Crossborder cooperation programme
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(European Regional Development Fund)

www.ISECA.eu

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 IVa 2 Seas Zone (Belgium, England, France and the Netherlands).

Feedback

. 20th March 2014 : during the World Water Day, Nausicaá held a public debate under the ISECA project. The event focused on the following question: "In which way can actions and measures taken in the past improve coastal water quality and limit eutrophication?". Seventy persons discovered the phenomenon of coastal eutrophication and asked a large number of questions to the invited speakers which indicates that the subject is both worrying as exciting the general public. The speakers included a marine scientist (Alain LEFEBVRE, IFREMER), a representative of the Water Agency (Ludovic LEMAIRE), a representative of the water treatment industry (Jean-Paul PENNAMEN, VEOLIA), a representative of the agricultural sector (Daniel TROLLE, GABNOR) and industry (Jean-Louis DESMEDT, ECOVER) and a consumer representative (Célia POTDEVIN, CLVC).

. 8th June 2014 : World Ocean Day. On this occasion and in the framework of the ISECA project, Nausicaá proposed a spectacle entitled " les coquillages s'incrustent assez " (June 6th) and organized a workshop (June 7th) on plankton with special emphasis on eutrophication, containing activities on fishing and microscopic observations, the marine phytoplankton *Phaeocystis* and the importance of water quality.

Agenda

. From 18th to 20th June 2014: 2nd Marine and Coastal Policy Forum at Plymouth University. PML (Plymouth Marine Laboratory), a scientific partner in ISECA, will participate and present a poster entitled: "*Earth observation tools for Monitoring Coastal Eutrophication*". Abstract: "*Coastal water colour is an indicator of the phytoplankton and the amount of suspended matter of marine waters. At a regional scale, changes in coastal water colour are detectable by satellites. Therefore, satellite products could be useful to monitor the anomalous growth of phytoplankton or eutrophication in coastal areas at a scale which is relevant for the Marine Strategy Framework Directive (MSFD). Within the INTERREG IVa 2Seas program, the project ISECA also addresses the use of ocean colour for monitoring coastal eutrophication. A Web-based Application Server (WAS) has been developed to integrate, in a user-friendly manner, indicators of eutrophication derived from remote sensing, in-situ measurements and model simulations to demonstrate the complementary purposes and usefulness of these information sources.*

. From Monday 30th June to Tuesday 1st July 2014: The Final Event of the ISECA project will be held at Nausicaá, Boulogne-sur-Mer, France. The event will focus on coastal water quality (mainly in the Channel and the North Sea areas) in relationship with eutrophication and important project outcomes will be presented. Plenary sessions will be held and address eutrophication: definition, the causes, consequences, means of detection and monitoring, legislation, public perception, solutions and perspectives. On the second day, two workshops will be organized: one concerning the functionalities and use of the Web Application Server (WAS) that has been developed during the project and another one dealing with ISECA information and education activities to raise awareness on the subject. Field trips will close this meeting (visits at choice): Ifremer laboratory with a presentation of Marel-Carnot high frequency instrumented station, the local water-treatment plant (Séliane) or Nausicaá exhibition. The event is aimed at policy makers, scientists, environmental educators and the general public. In addition to the ISECA project partners, scientific experts including Alain LEFEBVRE and Francis GOHIN -IFREMER (France), Stephen MALCOLM and Rodney FORSTER -CEFAS (UK), Andris ANDRUSAITIS -BONUS Programme (Finland), Jacco KROMKAMP -NIOZ (Netherlands), Christiane LANCELOT -ULB (Belgium) will enrich the conference giving a presentation on their expertise. All plenary sessions will be translated in direct (French-English). **For more details on this event, please visit our website** http://www.iseca.eu/en/

. 1st July 2014 (afternoon): last semestrial progress meeting for the ISECA project, at Nausicaá.

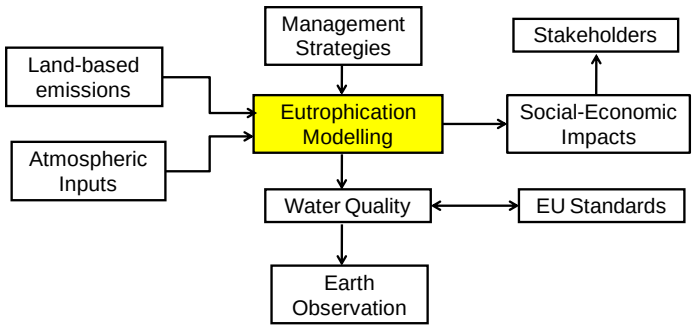
Science

Modelling marine and coastal eutrophication

Nutrients originate from wastewater, farming, industries and atmospheric deposition and find their way to the coastal waters and sea through river systems. Eutrophication or a high amount of nutrients in the water column can cause strong algal blooms. Such blooms are annoying for beach recreation and can, depending on the temperature of the water and other factors, cause oxygen depletion. Reduced oxygen availability causes stress on the ecosystem and even high fish mortality.

Eutrophication has the growing attention of the European Union, and regional and national authorities, and has been studied extensively during the past decades. The quality of marine waters is monitored continuously by means of water samples or in-situ data and satellite observation or remote sensing. Nevertheless, the occurrence of bloom events is difficult to predict, and more understanding of the effectiveness of different management strategies is needed.

Scientific models are valuable tools in addition to field and satellite data because they can be used to analyse the causes and consequences of eutrophication in the mid- and long-term or forecast sudden bloom events. Integrated models are the first choice for long-term predictions, because eutrophication is the result of complex interactions between human activities, hydrodynamics, and ecological processes (cf. scheme on the right). With models, it is possible to find out which sources contribute most to the loading of nutrients to the coastal waters under various scenarios. We can also compare the risk of a spring algal bloom following different nutrients levels in the water.



Zoom

The Flemish Institute for Technological Research (VITO) is an ISECA partner based in Belgium. VITO carries out customer -oriented contract research and develops innovative products and processes in the fields of energy, environment and materials, for the public and private sector. The aim to protect the environment and encourage the sustainable use of energy and raw materials is central to all VITO projects.

The theme of marine and coastal eutrophication that ISECA tackles, is highly relevant to the research activities of the Environmental Modelling Unit of VITO. These focus on the availability of space, clean air, safe drinking water, unpolluted rivers and the conservation of soil and the marine environment.

The VITO contributions to the project consists of the design, implementation and testing of a web-based information platform, the Web Application Server or WAS. The WAS integrates Earth Observation (EO) and in-situ data with model forecasts on eutrophication-related indicators for the 2Seas territory (Southern North Sea and English Channel). VITO also computed spatial distributions of coastal eutrophication indicators related to land-based mitigation strategies aimed at reducing the nutrient loads from the Scheldt basin . The WAS also provides access to a generic model library of reusable components to model eutrophication. https://www.vito.be/





Some pictures of the 20th March public debate and the 2014 World Ocean Day at Nausicaá
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With the participation of :