

2013

ANNUAL REPORT



2013

ANNUAL REPORT



Established in 1999, the Flanders Marine Institute (VLIZ) has evolved into the central coordination and information platform for marine scientific research in Flanders.

VLIZ is a centre for marine and coastal research; it also promotes and supports the international image of Flemish marine scientific research and international marine education as a partner in various projects and networks.



The VLIZ annual report 2013

8 PREFACE

10 2013 HIGHLIGHTS

26 VLIZ ORGANISATION

34 VLIZ DIVISIONS

36 Coordination

40 Research Infrastructure

46 Data Centre

52 Library

56 Communication

60 Policy Information

64 SUPPORT TO INTERNATIONAL
ORGANISATIONS

74 KEY PERFORMANCE INDICATORS

82 Colophon

Ostend, May 2014.

Annexes

Only available in digital format: downloadable from the VLIZ website www.vliz.be/en/vliz-annual-report

- 3 Financial statement
- 5 Other indicators
- 19 National and international networks
- 21 External financing projects
- 27 Scientific equipment and infrastructure
- 29 2013 events
- 32 2013 publications



Dear reader,

This is the Flanders Marine Institute's 2013 annual report. It provides a concise overview of our activities. In 2013 the VLIZ website got a complete makeover, both as to contents and as to layout. All basic information concerning VLIZ as well as background information on numerous projects can be consulted on this website. This enables us to discuss in this annual report only those accomplishments of VLIZ which were of particular significance in the past year.

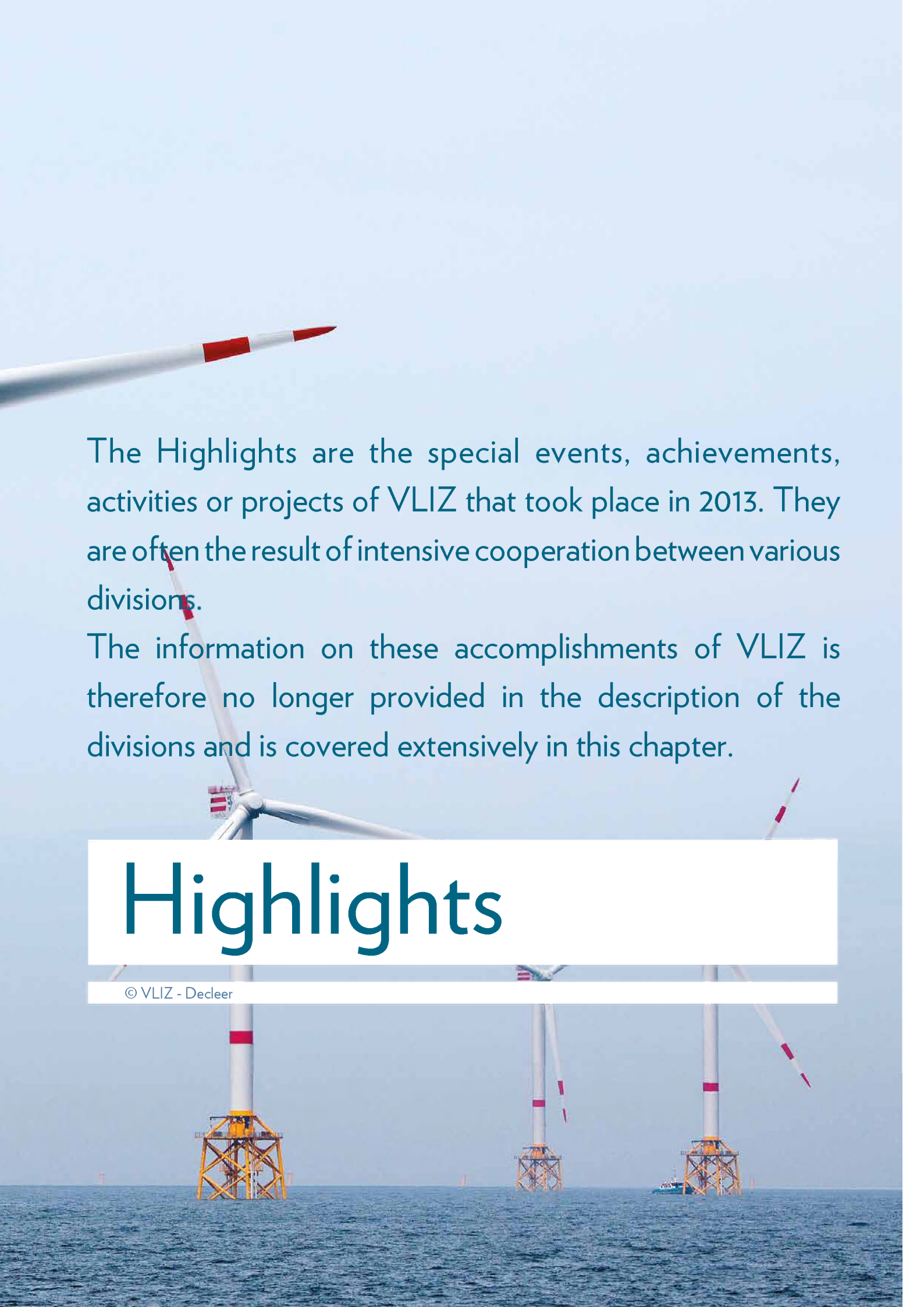
One of the characteristics of VLIZ is that we often achieve the most success and make the greatest difference when our various divisions work closely together. After all, the whole is often greater than the sum of its parts. A lot of events, projects, publications, etc. take shape thanks to this synergy. As from this year, these achievements will be discussed extensively in the first chapter, entitled '2013 Highlights'. We hope you agree with this. In my view, they illustrate the diversity of the VLIZ activities and a number of new trends which will probably gain importance over the coming years. A few examples are the pursuit of more 'ocean literacy' in our society, more intensive international cooperation, investments in major research infrastructures and databases, and the combination and conversion of research into policy-relevant products such as the Compendium for Coast and Sea. Of course, the different divisions will also be discussed in separate chapters which will shed light on their mostly specific achievements. Information on the international organisations supported by VLIZ, our Key Performance Indicators and an overview of the VLIZ organisation have also been included in this year's report. The richly illustrated figures in the digitally available annexes provide an overview of VLIZ's general operation. In addition, the lists of networks, projects, infrastructure, events and publications give an outline of our overall activities.

We hope you enjoy reading this annual report!

Jan Mees

General Director of VLIZ





The Highlights are the special events, achievements, activities or projects of VLIZ that took place in 2013. They are often the result of intensive cooperation between various divisions.

The information on these accomplishments of VLIZ is therefore no longer provided in the description of the divisions and is covered extensively in this chapter.

Highlights

Flanders and the Netherlands embark on collaboration



THE SIGNING CEREMONY OF THE COOPERATION AGREEMENT BETWEEN VLIZ AND NIOZ took place in Ostend on 9 January. Left to right: Henk Brinkhuis, Jan Mees, Pier Vellinga, Colin Janssen and Magda Vincx.

© VLIZ - Verhaeghe

The Flanders Marine Institute (VLIZ) and the Royal Netherlands Institute for Sea Research (NIOZ) entered into a formal cooperation agreement in 2013. VLIZ aims to further enhance and formalise cooperation with national and international universities, research institutions and individual research groups by concluding cooperation agreements. NIOZ is the leading national oceanographic institution in the Netherlands. This collaboration and pooling of resources will give considerable impetus to marine research in the southern North Sea and beyond.

For over a century, NIOZ has conducted fundamental and applied scientific research to gather knowledge about estuaries, seas and ocean basins. The institution supports research and education in marine sciences in the Netherlands as well as Europe. NIOZ has about 350 employees, spread over its main site on the island of Texel and a satellite site in Yerseke. Since its foundation in 1876 as a 'Zoological Station', it has gained a very strong national and international reputation in the

various branches of oceanography. To conduct research NIOZ operates four ships, including the ocean-going vessel RV Pelagia.

The conclusion of this cooperation agreement will enable VLIZ to share its specific expertise in data and information management and communication with NIOZ. The agreement is also aimed at maximising the compatibility of research equipment and will result in joint investments to develop new technologies.

The cooperation agreement was formally signed in Ostend on 9 January by General Director Henk Brinkhuis (NIOZ) and General Director Jan Mees (VLIZ), chairmen of the respective Boards Pier Vellinga (NIOZ) and Carl Decaluwé (VLIZ), vice-chairman Colin Janssen (VLIZ) and Magda Vincx (member of the Board of Directors of VLIZ and NIOZ, and member of the VLIZ Scientific Committee). The competent Dutch and Belgian administrations were represented by Raymond Schorno (NWO) and Rudy Herman (EWI).

Marine Art

Marine science sets sail to the art world

VLIZ coordinated 'Marine Art', a project in which marine researchers from Marine@UGent (an interdisciplinary research consortium consisting of 30 marine research groups) visited The Academy for Visual Arts of Ghent to introduce art teachers and their students to marine sciences. Their aim was to increase the students' knowledge of the oceans, their power of observation and their interest in the sea and ocean so as to inspire them in the creative process. Afterwards, the students created one or several works at their own pace.

A total of 1,250 students (aged between 6 and 70) of this academy for part-time arts education participated in the project: 64 classes from low, middle and high level as well as 100 individual high-level students. From October 2012 to January 2013, a total of 65 introduction sessions were organised by 45 scientists from the Marine@UGent consortium and VLIZ. Photographs of the many sessions organised and facts about the creative process were posted on the MarineArt Facebook page over the course of the project.

Over 300 works of art were shown to the general public at the 'Marine Art' exhibition in the University forum and Technicum buildings of Ghent University between 2 and 6 February. A wide variety of art disciplines could be discovered. Artists represented marine life by means of drawings, paintings, sculptures, graphics works, mixed media, ceramics, illustrations and comic strips, photographs and animations. An accompanying flyer provided information on the 23 scientific topics that were a source of inspiration. Covering an area of 2,000 square metres, the exhibition was visited by approximately 8,000 visitors. Simultaneously with the exhibition, Ghent University organised a children's university about the sea in association with VLIZ for children aged 9 to 12 on Sunday morning 3 February.

On the occasion of World Oceans Day, the Marine Art exhibition was repeated in Fort Napoleon from 15 May to 9 June. Herita made the heritage site on the East Bank of Ostend available for this event.

A selection of artworks created within the scope of the Marine Art project was displayed in a unique setting. Following the exhibition, various workshops for primary schools were organised by Horizon Educatief with the cooperation of VLIZ. A number of lectures for the public at large were organised by Marine@UGent and VLIZ on 6 June within the scope of World Oceans Day.

The project was concluded with the publication of the book 'Marine Art – Marine science sets sail to the art world', which was officially presented during the second EMSEA conference, which was aimed at promoting Ocean Literacy in Europe (Plymouth, September 2013). The publication provides insight into the work-in-progress and the final result displayed at the exhibitions. Quotes and pictures of the art students, their teachers and the participating scientists give an impression of the atmosphere of this unique project.



THE ART AND SCIENCE PROJECT 'MARINE ART' brought scientists and art students together. The interactive learning process inspired the students to create unique marine artworks.

VLIZ Young Marine Scientists' Day 2013



THE POSTER SESSION IS A TRADITION AT THE VLIZ YOUNG MARINE SCIENTISTS' DAY. – It provides many young marine and coastal scientists with the opportunity to share their research results with those present.

© VLIZ - Verhaeghe

The thirteenth edition of the VLIZ Young Marine Scientists' Day was attended by 303 mostly young marine and coastal scientists. This outstanding turnout confirms that the annual networking and information event has become a must for anyone interested in marine and coastal research. The event took place at KHBO Bruges on Friday 15 February 2013. In the course of the day, about 100 starting scientists got the opportunity to present their research results through pitch presentations, posters and demonstrations. This way, they exhibited the quality and multidisciplinary of marine and coastal research in Flanders/Belgium. The programme also included keynote speeches by experienced marine scientists. Prof. Ann Vanreusel (UGent – MarBio) explained the challenges of deep sea research, dr. Enok Wakwabi (KMFRI, Kenya) shed light on the research conducted at the Kenya

Marine & Fisheries Research Institute and prof. Jan Mees (VLIZ) expounded the cooperation agreement concluded between VLIZ and KMFRI.

As every year, the public voted for the best speaker and poster. Maarten Soetaert (UGent – ILVO) received the award for best speaker for his pitch presentation 'The impact of electrotrawls on marine organisms'. Elisabeth Debusschere (UGent – ILVO – MUMM) was awarded for her poster presentation 'Pilot study on the impact of impulse noise on sea bass larvae'.

Within the context of its coordinating role VLIZ aims at encouraging marine and coastal scientific research, for example by granting



THE LAUREATES OF THE VLIZ SCIENTIFIC AWARDS RECEIVED THEIR PRIZE ON THE VLIZ YOUNG MARINE SCIENTISTS' DAY 2013. Left to right: Colin Janssen (chairman of VLIZ Scientific Committee), Maarten Soetaert (public award for best pitch presentation), Kevin Ruddick (substituting for Griet Neukermans, VLIZ North Sea Award 2012 laureate), Elisabeth Debusschere (public award for best poster presentation), Peter Troch (substituting for Nicolas Loosveldt and Kenneth Vannieuwenhuysse, VLIZ Thesis Award for Marine Sciences 2012 laureates), Jan Mees (general director of VLIZ), Nico Koedam (substituting for Joachim Teunen, VLIZ Thesis Award for Marine Sciences 2012 laureate), Ann Vanreusel (UGent - MarBio) and Enok Wakwabi (KMFRI, Kenya).

© VLIZ - Verhaeghe

awards for meritorious scientific studies conducted by starting scientists. The VLIZ North Sea Award (1,000 EUR) is granted for post-graduate or post-doctoral research while two theses are awarded with the VLIZ Thesis Awards for Marine Sciences (2 x 500 EUR). These awards are traditionally presented at the VLIZ Young Marine Scientists' Day. The North Sea Award 2012 was won by dr. Griet Neukermans for her doctoral thesis 'Optical in situ and geostationary satellite-borne observations of suspended particles in coastal waters'. The Thesis Awards for Marine Sciences 2012 went to Joachim Teunen for his master thesis 'Migratory birds and the suitability of wetlands along the west coast of Greece: a preliminary analysis' and to Nicolas Loosveldt and Kenneth Vannieuwenhuysse for their joint master thesis 'Experimental validation of empirical design of a scour

protection around monopoles under combined wave and current loading'.

The summarised contributions of all participants and the winners of the VLIZ awards are bundled in a Book of abstracts (VLIZ Special Publication 63). This publication provides an overview of the current marine scientific research in Flanders and the neighbouring regions.

An overview of the winners, abstracts, posters and photographs is available on the VLIZ Young Marine Scientists' Day website: www.vliz.be/jcd/en.

Donation of RV Zeeleeuw to Kenya



THE FORMAL FAREWELL CEREMONY FOR RV MTAFITI TOOK PLACE ON 23 AUGUST. – The ceremony was attended by representatives from KMFRI, VLIZ, the Kenyan and Flemish governments as well as governor of West Flanders Carl Decaluwé and honorary governor Paul Breyne.

© VLIZ - Verhaeghe

RV Zeeleeuw, originally a pilot tender (°1977), was converted into a VLOOT dab research vessel in 2001, and had a change of use after the brand-new research vessel Simon Stevin was put into service. The ship was donated to the Republic of Kenya within the scope of the cooperation agreement concluded between VLIZ and the Kenya Marine and Fisheries Research Institute (KMFRI) in 2012.

The Kenyan government accepted the donation after a technical inspection of RV Zeeleeuw by a delegation of the Kenyan Ministry of Fisheries in 2012. The transfer of the research vessel was officially ratified on 3 May 2013 when Mr Mutua Kilaka (Financial Secretary at the National Treasury of the Republic of Kenya) signed the final documents. The transfer of the vessel was made possible thanks to the support of the governor of West Flanders and chairman of VLIZ, Carl Decaluwé, and the Flemish Minister for Mobility and Public Works, Hilde Crevits.

The ship came under the Kenyan flag and was renamed RV Mtafiti, which means 'researcher' in Swahili. The ship was thoroughly overhauled at the IDP shipyard in Ostend from June to August 2013; the overhaul was financially supported by the Kenyan Ministry of Fisheries. A few test trips were made as well. RV Mtafiti was formally sent off with pomp and circumstance on 23 August. The ceremony took place at the IDP shipyard and was attended by governor of West Flanders Carl Decaluwé and honorary governor Paul Breyne as well as representatives from KMFRI, VLIZ and the Kenyan and Flemish governments. A few days later, on 31 August, the ship left the port of Ostend without further ado. A 29-strong crew from the Kenyan navy ensured the safety during the transit. After a voyage of about 7,000 km along the ports of Vigo, Almeria, Malta, Port Said and Djibouti, the ship arrived at her new home base of Mombasa on 25 October.



RV MTAFITI WAS THOROUGHLY OVERHAULED at the IDP shipyard in Ostend from June to August 2013. A few test trips were made as well.

© VLIZ - Verhaeghe

RV Mtafiti is managed in Kenya by KMFRI, which will also fit the ship's operation in with the broader regional context, as this is the first time a permanent ocean-going research platform is made available on the East African coast in the extensive area between Somalia and Mozambique. KMFRI will support and coordinate the deployment of RV Mtafiti in the Western Indian Ocean together with the Western Indian Ocean Marine Science Association (WIOMSA). The arrival of this oceanographic research vessel provides a major impetus for marine research.

Within the scope of the cooperation agreement, VLIZ will coordinate and facilitate the further course of the ship's translocation. In addition, VLIZ will provide assistance in the provision and installation of scientific equipment on board as well as the training of IT workers, scientific assistants and students. This way, the research vessel will

reinforce the cooperation between Belgium and Kenya in the field of marine research, technology and education.

LifeWatch



LIFEWATCH LAUNCHED A HIGH-TECH SENSOR NETWORK FOR BIRDS IN 2013. – This picture shows a herring gull equipped with a lightweight, solar-powered GPS tag. Equipping birds with GPS tags makes advanced monitoring of habitat use and migration patterns possible.

© VLIZ - Decler

The LifeWatch project aims to develop a virtual European biodiversity laboratory by 2017. This biodiversity infrastructure will consist of observation stations, databases, web services and modelling tools. Several European countries (Spain, Italy, the Netherlands, Hungary, Romania, Sweden, Greece and Belgium) have committed themselves to developing the central and regional LifeWatch components. LifeWatch is currently in the development stage (2012-2016), in which the member states fund their project activities themselves.

Flanders contributes to the central LifeWatch infrastructure by creating a Taxonomic Backbone. To this end, different existing taxonomic databases are being combined, geared to one another and completed with missing information.

The World Register of Marine Species (WoRMS) and the European Ocean Biogeographic Information System (EurOBIS), both developed and managed by VLIZ, are examples of databases which are part of this functional tool to support biodiversity research.

In 2013 efforts were made to reach an administrative agreement concerning the Taxonomic Backbone. In June, VLIZ hosted an international workshop organised by the Freshwater Animal Diversity Assessment (FADA). Options for collaboration and data exchange were explored between marine (WoRMS) and freshwater (FADA) taxonomic registers. Following the FADA workshop, experts from these and other databases held the council meeting of the Society for the Management of Electronic Biodiversity Data (SMEBD).

Several web services of the Taxonomic Backbone have become operational since 2013. These enable scientists to perform taxonomic basic quality checks on their data files. In 2013 several grants were issued to close identified gaps in the World Register of Marine Species. The following groups were successfully completed in cooperation with the responsible editors: Monogenea, Digenea, Ostracoda, fish, Ophiuroidea and Thecostraca.

As a regional contribution to LifeWatch, Flanders is developing a marine (VLIZ) and a freshwater-terrestrial (INBO) observation station. Within the scope of the marine observation station, monitoring campaigns take place with RV Simon Stevin on a monthly basis. VLIZ employees take samples of water, sediment, macrobenthos, zooplankton and seawater parameters at nine stations near the coast. In addition, eight stations are sampled seasonally according to an offshore-inshore gradient.

The observatory was expanded with the establishment of a laboratory at the Ostend Marine Station (for further details see the Research Infrastructure chapter). This laboratory supports the LifeWatch monitoring activities, the installation and maintenance of equipment and the extension of the macrobenthos and plankton sample collection.

New measuring equipment was purchased for the marine observatory. A flow cytometer, a video plankton recorder, a sediment profile camera and a nutrient analyser will be used aboard RV Simon Stevin as a supplement to the LifeWatch cruises as from 2014.

Another component of the observatory is the development of a sensor network for monitoring fish and birds. Tagging-tracking systems for monitoring fish in the Belgian part of the North Sea were purchased in 2013. GPS tagging of large birds started in the same year. This project is one of the four projects of the INBO freshwater-terrestrial observatory with a marine component. The other projects are habitat monitoring by means of a drone, drawing up a management plan for eel, and ground water modelling.

The high-tech sensor network for birds makes advanced monitoring of habitat use and migration patterns of herring gull (*Larus argentatus*), lesser black-backed gull (*Larus fuscus*) and western marsh harrier (*Circus aeruginosus*) possible. For this purpose, birds are equipped with lightweight, solar-powered GPS tags. The tags register data regarding the birds' activity and GPS position over time and transmit these data to ground stations if a connection can be made with them. The data are transmitted from the base station and centralised in a virtual laboratory, which allows researchers to reconstruct individual birds' flight paths and behaviour.

In addition, webcams were installed near nests of herring gulls in Ostend and near nests of lesser black-backed gulls in Zeebrugge. The webcams make it possible to observe nesting behaviour in detail.

A total of 3 ground stations, 11 aerials and 37 GPS loggers (22 for lesser black-backed gulls, 5 for herring gulls and 10 for western marsh harriers) were used in 2013.

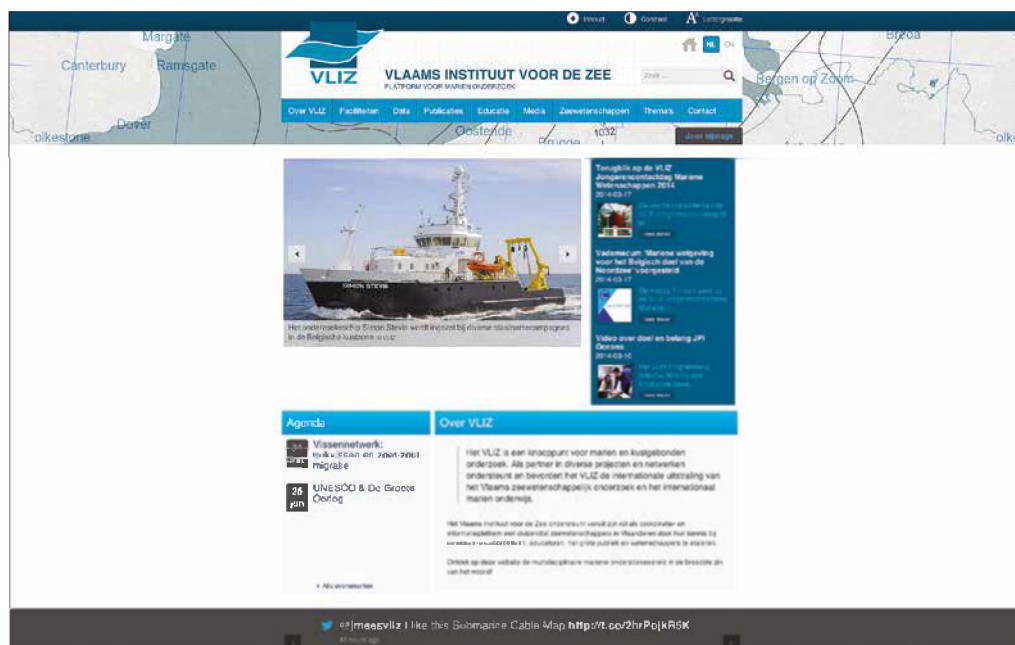
The scientific analysis of the data concerning gulls is carried out by the Research Institute for Nature and Forest (INBO) and Ghent University. VLIZ is responsible for the installation, maintenance and data flows of the sensor network.

The first results of the bird sensor network were presented to the press on 18 June. The remarkable flight paths of tagged 'crisp eating' lesser black-backed gulls attracted much attention from the national press (news item in the newscasts of VRT and Radio 1 as well as in several national and local newspapers).

Data archaeology constitutes an important activity during the development stage of LifeWatch. The databases managed by VLIZ and INBO are further supplemented by historical data sets. The inventory of publications with interesting data sets from the Belgian Marine Bibliography was started in 2012. Over 100 data sets were digitised and archived. In 2013 the focus shifted to the data sets coming from the past Kenyan-Belgian cooperation. This way, 57 data sets were made available again to the scientific community. The data sets were described in IMIS, stored in the Marine Data Archive (MDA) and integrated in national and international data systems.

The data portal www.lifewatch.be was officially launched on 15 February 2013. The website provides general information on the LifeWatch activities as well as access to various web services. Users are able to upload their own observation and biodiversity data and choose from different data services to analyse the data. The current web services such as those relating to taxonomy, geography, tidal reduction calculation and validation of data formats were optimised in 2013. In addition, a new tool was developed. This offers users who are not logged in the opportunity to get an idea of what the services include by means of a demo file.

New VLIZ website, an innovative outlook on a fascinating sea



WWW.VLIZ.BE

© VLIZ

The VLIZ website underwent a total makeover in 2013. Both the layout and contents were altered. A style was chosen that reflects a fresh, contemporary and scientific appearance with pictures and the VLIZ colours occupying centre stage. As to the contents of the website, the divisional arrangement was abandoned and a more spontaneous access to data, media and publications was opted for.

The facilities provided by VLIZ, educational packages and information on the marine scientific landscape in Flanders and Belgium were also given a more central place. Completely new is the thematic portal, which provides a wealth of information for anyone who wants to find out more about the coast and sea. The integration of a 'doormat' furthermore provides quick links to information not directly disclosed in the main menu. The rearrangement of the contents is aimed at making information available to various target groups as quickly as possible.

A selection of the products made available:

- **Marine knowledge themes:** a wide range of literature, summary articles, visual material, expertise etc. concerning themes such as climate, fisheries and aquaculture, ocean life, pollution and human health, archaeology and maritime heritage, and tsunamis. www.vliz.be/en/do-you-want-know-more-about-coast-and-sea
- **Pictures and movies:** over 70,000 photographs, nearly 5,000 stamps and dozens of movies on the sea and coast are freely available through this portal, including over 20,000 illustrations from historical publications. www.vliz.be/en/pictures-and-movies

- **Scientific articles:** Over 10,000 scientific publications can be downloaded free of charge for personal use through the Open Marine Archive. www.vliz.be/en/open-marine-archive
- **Maps:** all sorts of old and recent maps and nautical charts can be consulted here. www.vliz.be/en/maps
- **Databases with an international dimension:** an abundance of biological, geographical and physical data can be consulted here. A few examples are the World Register of Marine Species (WoRMS) and the nearly real-time data of 725 sea level measuring stations worldwide (Sea Level Station Monitoring Facility). www.vliz.be/en/request-data
- **Educational materials:** the section 'Education' includes a special portal for teachers and guides which provides access to files, assignments, events and the online learning platform 'Planeet Zee' (Planet Ocean).
- **Compendium for Coast and Sea:** who conducts what type of research in Belgium? The portal 'Marine sciences' provides an overview of the marine scientific landscape made up by over 1,000 researchers associated with the 83 marine research groups present in Belgium. www.vliz.be/en/institutes
- **Research vessel Simon Stevin:** the general characteristics of the ship, the technical specifications and the sailing schedule can be consulted through this portal. www.vliz.be/en/rv-simon-stevin
- **Keep yourself informed of VLIZ:** there are plenty of options (Facebook, Twitter, RSS feeds, VLIZINE digital newsletter, etc.) to keep yourself posted on VLIZ's activities and new marine knowledge that has become available. www.vliz.be/en/keep-yourself-informed

The Great War and the Sea

The sea played a crucial part in World War I. A part to which too little attention has been paid. For this reason, and on the occasion of the centenary of the First World War, VLIZ has dedicated a special issue (36) of the *De Grote Rede* magazine to this topic. In addition to thirteen leading articles and seven one-page sections, this issue also contains a few explanatory maps, a glossary and the etymological explanation of the principal toponyms of the Flemish front area. Various aspects on the interface between the Belgian coast/sea and WW I are discussed in this publication, e.g. fisheries, accessibility of the beaches, marine sciences, coastal defence, the raids on Zeebrugge and Ostend, and the Paardenmarkt ammunition dump site. In collaboration with numerous authors and experts, VLIZ sheds light on the multifaceted military history of the Belgian coast and territorial waters as well as on many unknown or 'forgotten' facts in this publication.

For the moment, the special issue 'The Great War and the Sea' is only available in Dutch, but it will be published in English, French and German in 2014.

On 8 November, 300 people participated in the seminar 'The Great War and the Sea', which took place at Staf Versluyscentrum in Bredene. The seminar was based on the expertise brought together on the occasion of the special issue. By means of presentations, the different authors shed light on their respective articles. Each participant received a free copy of the extensive issue of 'De Grote Rede' dedicated to 'The Great War and the Sea'.



SUMMER OF 1913. – Archduke Franz Ferdinand of Austria-Hungary (left) and King Albert I of Belgium (right) in the dunes of Raversijde (Ostend – Belgium). At the time, nobody could suspect what they and millions of other people would go through only one year later.

© Queen Elisabeth – Royal Palace Archives

Compendium for Coast and Sea



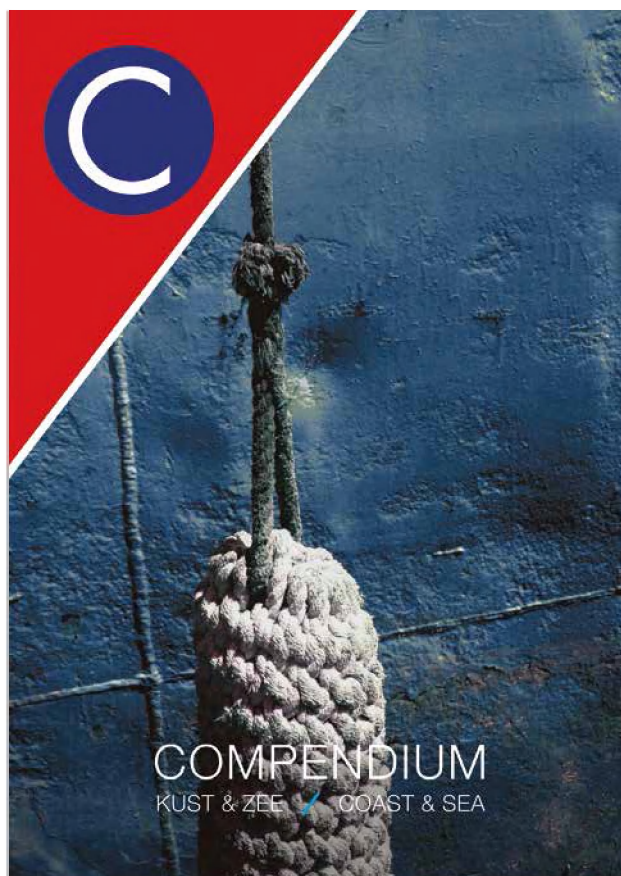
THE COMPENDIUM FOR COAST AND SEA was officially launched in the Flemish Parliament on 14 November 2013. Left to right: Dirk Van Melkebeke, Rudy Herman, Ann-Katrien Lescrauwaet, Jan Mees, Ingrid Lieten, Carl Decaluwé.

© VLIZ

The Compendium for Coast and Sea is an integrated information document on the socio-economic, environmental and institutional aspects of the coast and sea in Flanders and Belgium. It compiles objective, up-to-date and scientifically founded information and data from Flemish/Belgian marine and maritime research. It covers all marine, maritime, estuarine and coastal research, including policy-supporting research and research aimed at practical applications and sectors. The Compendium's integrated and cross-boundary character (including the boundary between land and sea) contributes to increased communication within and from the fragmented marine scientific landscape and also increases the visibility and accessibility of marine research. This way, the Compendium serves as a tool in support of a sustainable and Integrated Maritime Policy and Integrated Coastal Zone Management.

The Compendium for Coast and Sea is a collective effort launched by VLIZ. Its mission, objectives and end products are monitored by a steering committee of experts from the research community, government and civil society organisations. This expert group is supported by the Compendium Secretariat (VLIZ, Policy Information division) and collaborates closely with VLIZ's Scientific Board as well as a network of co-authors and readers in order to develop the Compendium.

The Compendium for Coast and Sea includes an extensive background document consisting of an overview of the marine scientific landscape (Chapter 1) and a summary of the knowledge with regard to various uses of the coast and sea as well as integrating topics such as Integrated Coastal Zone Management, Marine Spatial Planning and the Scheldt estuary (Chapter 2).



COMPENDIUM FOR
COAST AND SEA

© VLIZ

In addition, the knowledge document provides an overview of the relevant legislation and policy tools as well as an explanation of the interface between marine science and policy (Chapter 3).

The brochure 'Belgian Marine Research – an overview' is based on Chapter 1 of the Compendium for Coast and Sea. This brochure is aimed at disclosing information provided by Belgian research groups which dedicate their research either partly or entirely to marine, coastal and/or estuarine research topics. The publication maps the available marine expertise at the level of individual marine research groups (MRGs). The MRGs are also disclosed online in the IMIS database (Integrated Marine Information System) of VLIZ.

The vademecum 'Marine policy instruments and legislation for the

Belgian part of the North Sea', linked to Chapter 3 of the Compendium for Coast and Sea, will be published in 2014.

The most recent versions of the texts (updated periodically) can be downloaded from the website www.compendiumkustenzee.be. The Compendium is published in English and Dutch. The sources included in the document are made publicly available as much as possible via VLIZ's integrated marine information system (IMIS).

The Compendium for Coast and Sea was officially launched in the Flemish Parliament on 14 November 2013 in the presence of Flemish Minister for Innovation Ingrid Lieten, governor of West Flanders Carl Decaluwé and secretary-general of the Department of Economy, Science and Innovation Dirk Van Melkebeke.

Seminar

‘History of Belgian sea fisheries: fishing in the past’



THE SEMINAR ‘HISTORY OF SEA FISHERIES: FISHING IN THE PAST’ SHEDS LIGHT ON THE RICH HISTORY OF BELGIAN SEA FISHERIES. – This picture shows the landing of herring at the Nieuwpoort fish market. Source: Beun, J., Dumon, J., Lelièvre, W. and Moeyaert, D. (2006). *De Nieuwpoortse visserij*. VVV Nieuwpoort.

© VLIZ photo gallery / Unknown

Some 140 historians, archaeologists, ecologists, heritage experts, sociologists and fisheries biologists gathered at the InnovOcean site for the ‘History of Belgian Sea Fisheries’ seminar on 29 November 2013. The biennial seminar is organised by VLIZ in cooperation with the National Fisheries Museum of Oostduinkerke, the Flanders Heritage Agency and Flanders’ Agricultural Marketing Board with the support of the GIFS project. This seminar is aimed at shedding light on the rich history of Belgian sea fisheries. The fourth edition of this multidisciplinary seminar focused on the history of coastal fisheries and brown shrimp.

During the morning session dedicated to coastal fisheries, several speakers provided an overview of the various aspects of the policies adopted and the consequences thereof for the development of inshore fishing in Flanders/Belgium.

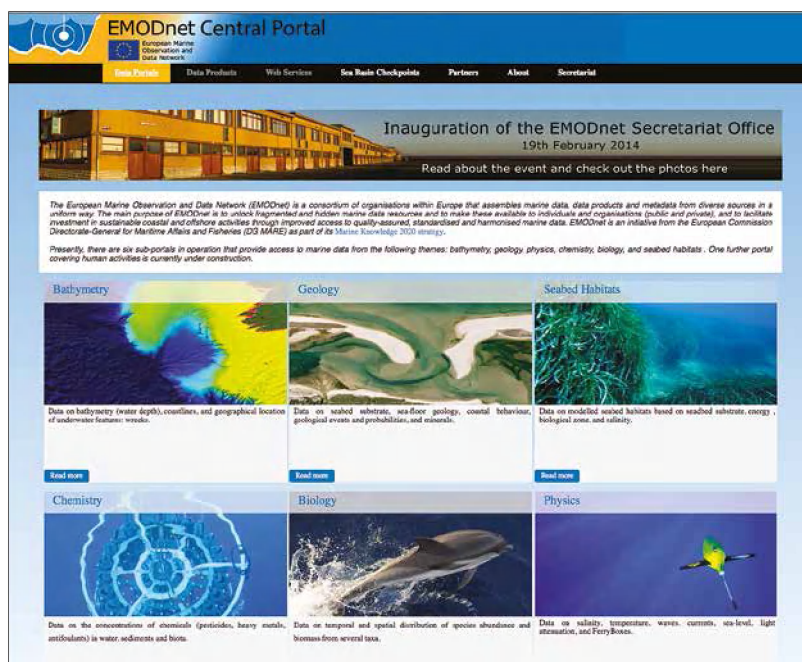
The afternoon started with the interactive session ‘De Cierk’. This forum

provided about 10 speakers with the opportunity to present interesting and obscure stories from the history of (coastal) fisheries by means of objects, images or quotes. The seminar was concluded with a session on the brown shrimp. Its biology, different fishing techniques, management and preservation and processing methods were discussed as well as the importance of shrimp in trade and local gastronomy over the past centuries.

Following this event, Georges Verleene presented his book ‘Nele: bouw van een replica van een Oostendse tweemastsloep’ (*Nele: construction of a replica of an Ostend two-master*).

VLIZ compiled all information from this seminar in a book of abstracts, which can be found together with the presentations, movies, photos and an evaluation on the website: www.vliz.be/events/zevisserij (only available in Dutch).

EMODnet



WWW.EMODNET.EU

© EMODnet

The European Marine Observation and Data Network (EMODnet) is an initiative from the European Commission Directorate-General for Maritime Affairs and Fisheries (DG MARE) combining a wide range of European marine observations. Its main purpose is to centralise marine observation data and derived data products, and make these freely available to scientists as well as public and private organisations. This provides them with the opportunity to work more efficiently and save resources, which in turn can be used to create jobs and stimulate innovation. This research infrastructure is part of the European initiative 'Marine Knowledge 2020'.


In 2013 the Data Centre division started the development of the central data portal (www.emodnet.eu). It combines seven thematic data portals (bathymetry, geology, physics, chemistry, biology, seabed habitats and human activities) created in a series of preparatory actions. Together with the coordinators of the various thematic networks, VLIZ has improved the interoperability of the data portals. This means that an integration between data products from different portals will be possible in the future. New in this stage of EMODnet are the regional checkpoints developed for the central data portal. Various data from one regional sea will be collected under these checkpoints, which will make it possible to come up with an answer to questions from certain case studies, e.g. 'What zone in the North Sea is suitable for the construction of wind farms?' In 2013 the development of the North Sea and the Mediterranean Sea portal was started. The Steering Committee met in the offices of

JPI Oceans (Brussels) in December to discuss the expansion of the central portal.

As coordinator, VLIZ organised the kick-off meeting of the second stage of the biology portal (www.emodnet.eu/biology) in September 2013. The meeting was attended by 39 people from 24 different European institutes which make their data available and provide scientific expertise. The biology portal is aimed at making distribution and abundance data concerning European marine species accessible. To this end, one of the work packages gathers ecological data and information as to the life cycle of marine species (this will be included in ERMS/WoRMS). A second work package digitises historical data and a third one develops data products with abundance data. In addition, EurOBIS and WoRMS are used to make distribution data available through the biology data portal.

The chemistry portal has entered the second stage as well. VLIZ contributes to this by providing chemical data (pH, pigments, and nutrients) collected during LifeWatch cruises.

The EMODnet secretariat was established in September 2013. The Flemish government made an offer to the European Commission to house the secretariat at the InnovOcean site. The secretariat coordinates and provides general support to the development of the central portal, monitors the various EMODnet projects and takes care of the communication. The official opening will take place in February 2014.



VLIZ is administered by the Board of Directors and consults the Scientific Committee for its scientific support tasks. The General Assembly provides assistance in managerial and administrative decisions.

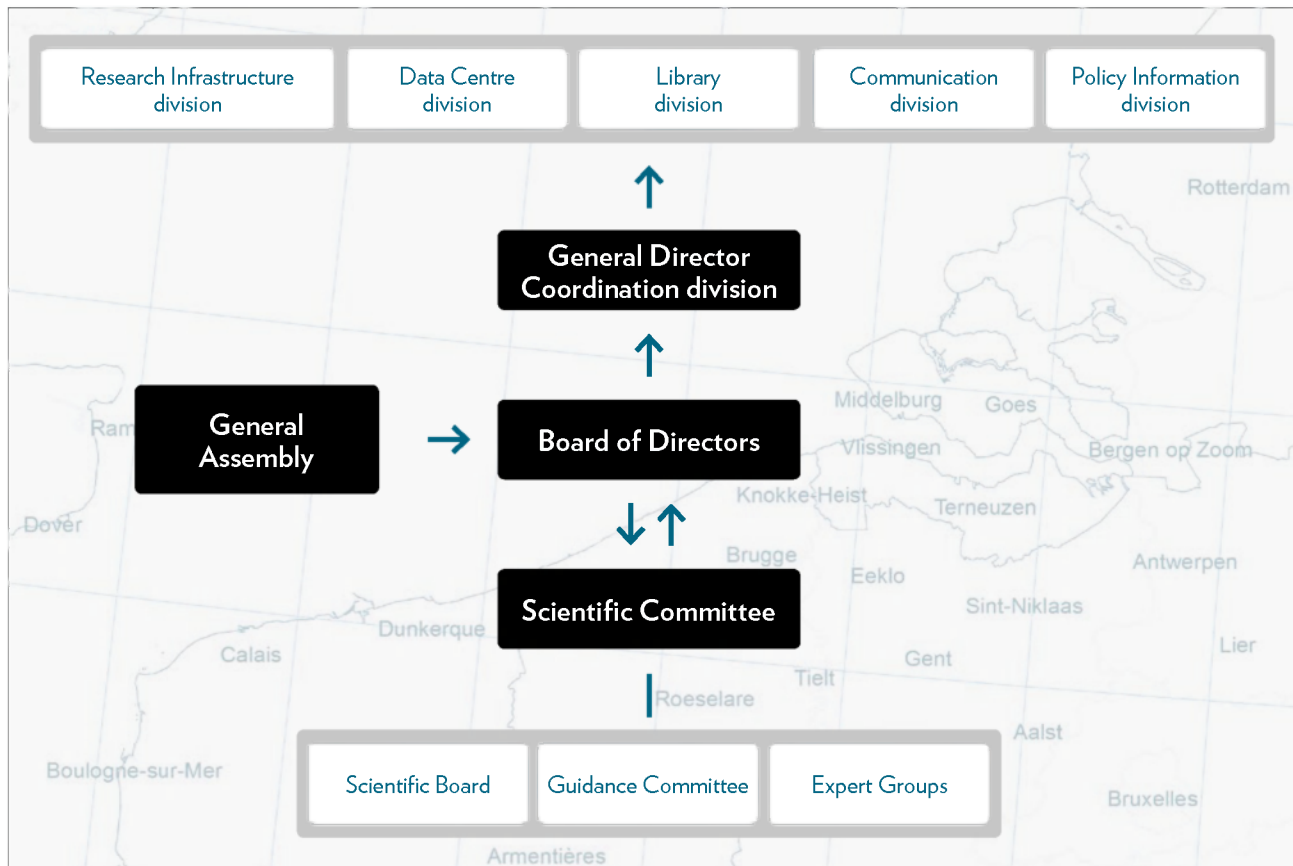
VLIZ organisation

www.vliz.be/en/organisation



VLIZ organisation

The Flanders Marine Institute (VLIZ) is an autonomous institute with the legal status of a non-profit organisation under Belgian law that receives an annual allowance from the Flemish Community and from the Province of West Flanders. VLIZ is administered by a Board of Directors. The General Director ensures the coordination of daily operations with the assistance of the Coordination division. To perform and assess its scientific support tasks, VLIZ consults a permanent team of scientists several times a year. This Scientific Committee then advises the Board of Directors. If required, the Board of Directors can convene a General Assembly for specific managerial and administrative decisions.



Composition of the Board of Directors

at the end of 2013

Pursuant to the articles of association, the Board of Directors is composed of 14 members.

Carl Decaluwé, governor of West Flanders, is **the chairman**.

Eight members were nominated by the Flemish government:

- Colin Janssen, Ghent University, vice-chairman
- Paul Breyné, honorary governor
- Jean Berlamont, Katholieke Universiteit Leuven
- Yves Goossens, VLOOT dab (Agency for Maritime and Coastal Services – MDK)
- Ilse Hoet, Department of Mobility and Public Works
- Brenda Utterwulghé, Blauwvoet bvba
- Philip Van Avermaet, Department of Economy, Science and Innovation
- Magda Vincx, Ghent University

The two members nominated by the province of West Flanders are:

- Guido Decorte, member of the Provincial Executive (secretary)
- Anthony Dumarey, member of the Provincial Council

The three other members are:

- Ann Overmeire, Innovation, Provincial Development Agency of West Flanders
- Paul Gerard, AG Haven Oostende
- Willy Versluys, fishing vessel owner

The government commissioners are:

- Luc Gobin, on behalf of the Flemish Minister for Finance
- Marie Claire Van de Velde, on behalf of the Flemish Minister for Science Policy

Attend the meetings:

- Rudy Herman, Department of Economy, Science and Innovation
- Jan Mees, General Director of VLIZ
- Tina Mertens, VLIZ policy officer
- Ingrid Dobbelaere, VLIZ executive secretary and rapporteur

Composition of the General Assembly

at the end of 2013

Carl Decaluwé, governor of West Flanders, is **the chairman**.

The ten voting members appointed by the Flemish Community are:

- Patric Jacobs, Ghent University
- Willy Baeyens, Vrije Universiteit Brussel
- Jean Berlamont, Katholieke Universiteit Leuven
- Ernest Schockaert, Hasselt University
- René Van Grieken, University of Antwerp
- Magda Vincx, Ghent University
- Philip Van Avermaet, Department of Economy, Science and Innovation
- Ulrike Vanhessche, Coast Guard secretariat (MDK)
- Ilse Hoet, Port and Water Policy division (MOW)
- Jan Strubbe, honorary director-general of the Waterways and Marine Affairs Administration

The four voting members appointed by the province of West Flanders are:

- Guido Decorte, member of the Provincial Executive
- Bart Naeyaert, member of the Provincial Executive
- Patrick Braet, Provincial Treasurer
- Jan Denys, principal of the Mercator Maritime Institute

The member appointed by the Research Foundation – Flanders (FWO) is:

- Elisabeth Monard, secretary general of the Research Foundation – Flanders

The members of the Board of Directors of VLIZ have the right to attend the General Assembly with an advisory vote.

Scientific Board

at the end of 2013

The Scientific Board consists of 14 effective and 14 substitute members. Its composition was approved by the Board of Directors on 27 October 2010.

The chairman is the vice-chair of the Board of Directors:

- Colin Janssen

Two delegates from Ghent University:

- Magda Vincx (substitute: David Van Rooij)
- Patrick Sorgeloos (substitute: Julien De Rouck)

Two delegates from Katholieke Universiteit Leuven:

- Filip Volckaert (substitute: Ilaria Coscia)
- Jaak Monbaliu (substitute: Erik Toorman)

One delegate from Vrije Universiteit Brussel:

- Loreto De Brabandere (substitute: Marc Kochzius)

One delegate from the University of Antwerp:

- Patrick Meire (substitute: Gudrun De Boeck)

One delegate from Hasselt University:

- Tom Artois (substitute: Natalie Beenaerts)

One delegate from the Institute for Agricultural and Fisheries Research (ILVO):

- Hans Polet (substitute: Bart Sonck)

One delegate from the Research Institute for Nature and Forest (INBO):

- Jurgen Tack (substitute: Eric Stienen)

One delegate from the Flemish Institute for Technological Research (VITO):

- Roger Dijkmans (substitute: Bart Deronde)

One delegate from the Flemish Environment Agency (VMM):

- Steven Vinckier (substitute: Marleen Van Steertegem)

One delegate from the Flanders Heritage Agency:

- Marnix Pieters (substitute: Tom Lenaerts)

One delegate from Flanders Hydraulics Research:

- Frank Mostaert (substitute: Toon Verwaest)

Attend the meetings:

The general director and a rapporteur from the Flanders Marine Institute (VLIZ):


- Jan Mees, General Director
- Jan Seys (substitute: Nancy Fockedeey)
- Tina Mertens

A representative of the Department of Economy, Science and Innovation:

- Rudy Herman



© VLIZ



In addition to the highlights of the year, many other projects, activities, events and publications should be considered as well. As these are mostly the achievements of a specific division, they are discussed in the respective chapters.

VLIZ divisions

www.vliz.be/en/divisions



Coordination

The Coordination division oversees the daily operations of VLIZ and constitutes the communication link with all other partners of the InnovOcean site in Ostend. The Coordination division concludes cooperation agreements with Flemish research groups and administrations, and integrates the activities of VLIZ into national and international networks.

www.vliz.be/en/general-director-and-coordination-division

COORDINATION DIVISION. From front to rear, left to right: Delphine Vanhaecke, Ingrid Dobbelaere, Petra Willaert, An Vanhoorne, Nathalie Keersebilck, Fien De Raedemaecker, Jan Mees, Angel Muñoz-Piniella and Tina Mertens.

© VLIZ - de Witte





VLIZ IS ADMINISTERED BY A BOARD OF DIRECTORS, WHICH IS ADVISED BY THE SCIENTIFIC COMMITTEE. – The chairmen of both administrative bodies always attend official events such as the ceremony to inaugurate RV Mtafiti. Left to right: Colin Janssen (chairman of the Scientific Board of VLIZ), Eliud Keter (major at the Kenya Navy), governor Carl Decaluwé (chairman of the Board of Directors of VLIZ), Micheni Ntiba (secretary of the Kenyan Ministry of Fisheries), Millie Odhiambo (Kenyan MP) and Adan Madamed Nooru (Kenyan MP).

© VLIZ - Verhaeghe

The Flanders Marine Institute (VLIZ) is an autonomous institute with the legal status of a non-profit organisation under Belgian law that receives an annual allowance from the Flemish Community and from the Province of West Flanders. VLIZ is administered by a Board of Directors. The General Director ensures the coordination of daily operations with the assistance of the Coordination division. To perform and assess its scientific support tasks, VLIZ consults a permanent team of scientists several times a year. This Scientific Committee then advises the Board of Directors. If required, the Board of Directors can convene a General Assembly for specific managerial and administrative decisions.

Investment subsidy. In addition to the basic amount of € 2.732 million, VLIZ receives an annual investment subsidy of € 1.1 million. This additional amount is made available by the department of Economy, Science and Innovation (EWI) of the Flemish government and has been included in the Covenant for the 2012-2016 period. In 2013 this subsidy was largely used for funding the further development of the Ostend Marine Station as well as the purchase of scientific equipment.

Board of Directors. VLIZ is administered by a Board of Directors. It convened five times in 2013 (25 April, 26 June, 30 August, 7 November and 18 December). The Board of Directors is composed of 14 members. In 2013, a representative of the province of West Flanders was replaced: Mr Anthony Dumarey succeeded Ms Hilde Veulemans. The composition of the Board of Directors is discussed in the chapter 'VLIZ Organisation'.



VLIZ DELEGATIONS VISIT RESEARCH GROUPS AND ADMINISTRATIONS in Flanders and the wider region to exchange information on our activities, proactively promote partnerships and optimise the current cooperation. This picture shows VLIZ visiting the Flemish Institute for Technological Research (VITO).

© VLIZ

The **General Assembly** consists of the effective or voting members of VLIZ, who control the institution's policy through this highest ruling organ. The General Assembly is convened at least once a year and presided by the chairman of the Board of Directors. In 2013 the General Assembly was held on 25 April together with a meeting of the Board of Directors.

The **Scientific Committee** consists of a Scientific Board, a Guidance Committee and various Expert Groups.

The Scientific Board is a compact steering committee that reports to the Board of Directors. It consists of 14 effective and 14 substitute members. Its composition was approved by the Board of Directors on 27 October 2010. The Scientific Board met four times in 2013. The session of 29 March was held at the Flemish Institute for Technological Research (VITO) in Mol. The session in June was combined with the annual meeting of the Scientific Guidance Committee. The other two Scientific Board sessions took place at Het Pand – UGent on 25 October and 13 December.

The Guidance Committee is convened once a year by VLIZ for a plenary session open to all marine scientists (independent academic staff, postgraduates and executives). The Guidance Committee meeting in Ostend on 21 June 2013 was attended by 54 marine scientists from the most diverse disciplines.

Staff. On 31 December 2013 VLIZ employed 67 staff members, who accounted for 60.85 full-time equivalents (FTEs). Nearly half of them were part of the permanent staff (31.84 FTEs), the rest were employed on a temporary basis. Scientific employees accounted for 37.78 FTEs, while 24.19 FTEs were devoted to support work (including 10.06 FTEs of administrative staff, 7.43 FTEs of IT workers and 1.26 FTEs of maintenance staff). During the summer months, 42 students were employed at VLIZ, accounting for 3.31 FTEs. During the previous calendar year, 7 students did a work placement at different VLIZ divisions.

Members. VLIZ is a membership organisation. Anyone who is interested in marine and coastal research can individually or collectively join as a supporting member to become part of the Flemish marine

TRAINEES ACTIVE AT VLIZ IN 2013

Evy Maertens	University College Ghent	Policy Information trainee
Oke Thies Nommensen	University of Antwerp	Data Centre trainee
Yoni Vandeputte	Catholic University College of Bruges-Ostend	Education trainee
Bram Van de Veire	Catholic University College of Bruges-Ostend	Education trainee
Daan Van de Vijver	Artevelde University College	Education trainee
Lyvain Verkouille	Catholic University College of Bruges-Ostend	Education trainee
Linda Buame	Ghent University	Data Centre trainee
Adam Fazackerley	University of Bath	JPI Oceans trainee

STUDENT EMPLOYEES ACTIVE AT VLIZ IN 2013

Andries Maaïke	Halsberghe Ruben	Papaimitriou Irina	Vancraeynest Freek
Baker Julia	Haspeslagh Louise	Pillu Dries	Vanhooren Amber
Ballesteros Redondo Laura	Hernandez Lisa	Pissierssens Jeffrey	Velleman Jules
Bloeyaert Wouter	Hernandez Simon	Roelofs Stijn	Verbeke Anneke
Bossier Sieme	Leerschool Anna-Roos	Rouzeré Julie	Verduyn Lieselot
De Blende Stephanie	Mogensen Tess	Semeraro Alexia	Verhaegen Lisanne
De Blick Yves	Morsa Nina	Spanhove Marieke	Verhelst Pieterjan
de Lichtervelde Astrid	Mortier Julien	Steenkiste Gregory	Vermeiren Serge
Decock Elien	Muniz Piniella Angel	Storms Simon	Versteeg Muriel
Degrande Sophie	Nollet Jeroen	Torrez Pieter	
Deschutter Yana	Pankaj Pant	Van den Dries Jolien	

research community. At the end of 2013 the Flanders Marine Institute had a total of 287 members, including 215 individual members, 35 students, 26 institutional members and 11 honorary members.

agreements modelled after the agreement with Marine@UGent is specifically advocated for all universities. VLIZ visited the University of Antwerp and VITO in 2013.

Cooperation agreements. Cooperation with national and international universities, research institutions and individual research groups is further enhanced by concluding cooperation agreements. In 2013 the optimisation of the cooperation agreement with the Coastal Division was initiated. An international cooperation agreement was concluded with the Royal Netherlands Institute for Sea Research (NIOZ). You can read more on this topic under the highlight in question. An exhaustive list of the national and international cooperation agreements concluded by VLIZ since its foundation can be found at the web page www.vliz.be/en/cooperation-agreements.

Networks, committees and expertise. One of VLIZ's most important tasks is to network with people from different backgrounds who are active in marine and coastal sciences. Every year VLIZ organises numerous events to achieve this. VLIZ is also active in numerous national and international formal networks. A complete list of the events and networks is included in the digital annex to this annual report.

Tour of Flanders. VLIZ delegations visit research groups and administrations in Flanders and the wider region to exchange information on our activities, proactively promote partnerships and optimise the current cooperation. The development of framework cooperation

Research Infrastructure

The **Research Infrastructure** division provides logistical support to marine researchers by ensuring the management, maintenance and operational support of the research facilities and equipment.

www.vliz.be/en/research-infrastructure-division

RESEARCH INFRASTRUCTURE DIVISION. Left to right: Michiel T'Jampens, Thanos Gkritzalis, Wim Versteeg and André Cattrijsse.

© VLIZ





RV SIMON STEVIN

© VLIZ - Decler

RV Simon Stevin. The multidisciplinary coastal research vessel had been in service for one year on 24 May 2013. During its first full operational year, 134 trips were carried out, accounting for 147 scientific sailing days actually spent at sea (or 97% of the time at sea made available by VLOOT dab). Seven of these were continuous trips, including three two-day, two three-day and two four-day sailing trips. The ship was deployed for a total of 1,423 hours for sampling throughout the Belgian part of the North Sea, the Western Scheldt and the Dutch continental shelf (near the Maasvlakte area).

Scientists and passengers. A total of 748 people sailed on board RV Simon Stevin in 2013, including 433 scientists and 315 students. Sixteen marine research groups made use of RV Simon Stevin for a total of 24 different projects (see table for details). The vessel made 25 day trips for educational or demonstration purposes, e.g. for the Mobility and Public Works Committee of the Flemish Parliament, for the Provincial Executive of West Flanders, for the Centre for Nature and Environmental Education (CVN), within the scope of the Week of the Sea and Planeet Zee (Planet Ocean), and for training courses at the Antwerp Maritime Academy as well as the universities of Brussels (biology), Ghent (biology, geology, environmental toxicology), Hasselt (biology) and KULAK (biology).

Increased operating budget. In 2013 the department of Economy, Science and Innovation decided to add € 400,000 to VLIZ's operating budget as from 2014 in order to make increased deployment of RV Simon Stevin possible and meet the growing demand for time at sea.

Measuring and sampling equipment. The wide range of marine scientific measuring and sampling equipment VLIZ puts at the disposal of the marine research community was extended in 2013. A pCO₂ analyser was installed on board RV Simon Stevin in collaboration with the University of Liège within the scope of the ICOS project, which is aimed at monitoring greenhouse gas concentrations.

A Sediment Profile Imaging (SPI) camera, a Video Plankton Recorder (VPR) and a flow cytometer were purchased. The SPI camera is a device which takes in situ pictures of the cross section of the upper layer of the seabed, which provides information on the relationship between sediment and organisms. The Video Plankton Recorder is a sampling device which is towed by the research vessel and automatically screens the plankton by means of in situ pictures and real-time image analysis. The flow cytometer is installed in the flow-through system of RV Simon Stevin. The device continuously collects images and measures a set of physical parameters of every particle in the water sample, which makes it possible to determine the species of the microplankton.

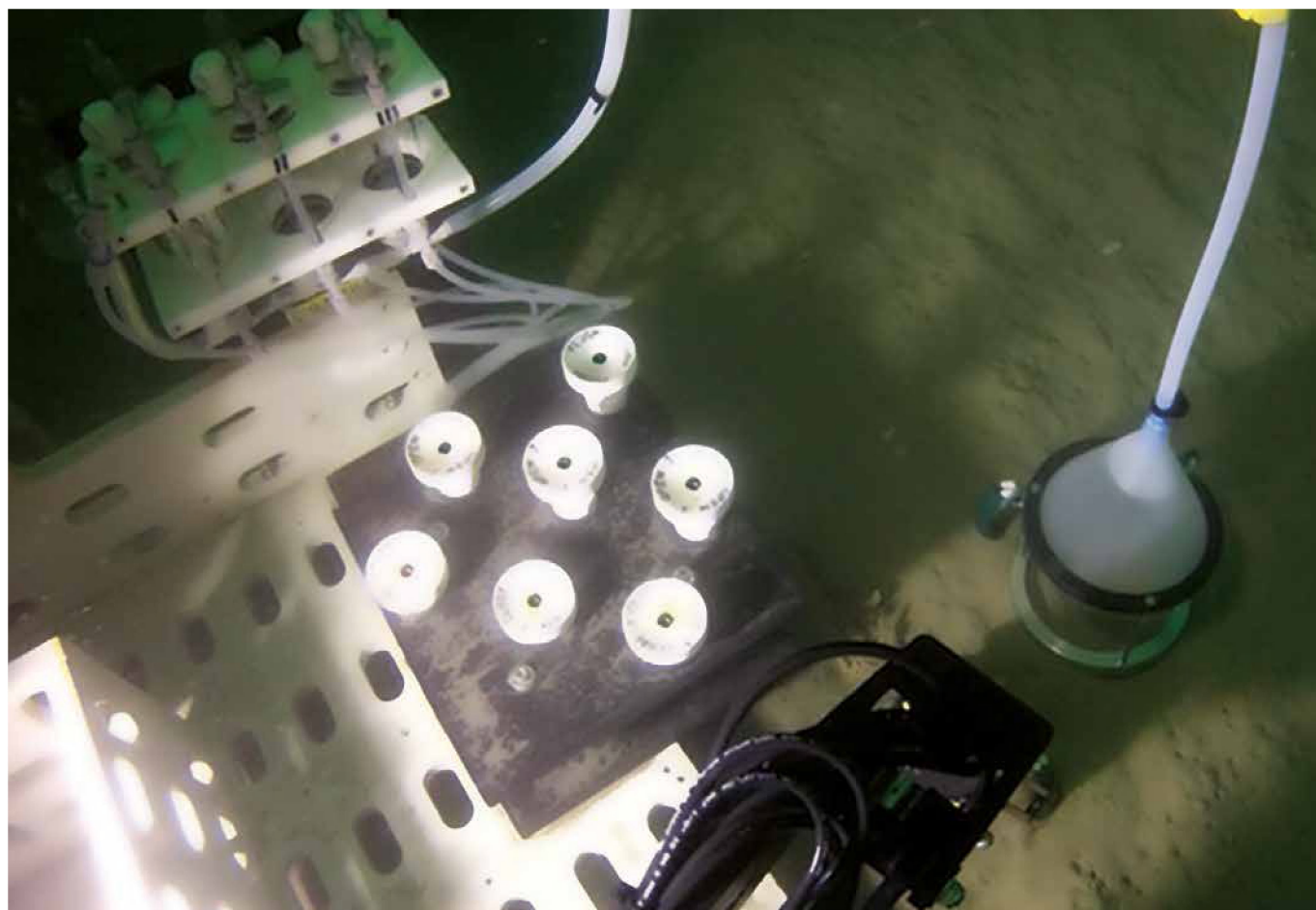
A satellite connection on board RV Simon Stevin provides marine scientists with permanent access to the Internet and the opportunity to transmit data in real time. It also enables VLIZ staff to program the electronic equipment carried on board and solve any problems remotely (e.g. from the VLIZ offices).

The Facebook page 'RV Simon Stevin' had about 450 followers at the end of 2013. The contents of this social medium is supplied by the marine scientists who make use of the research vessel. Their brief reports supplemented with appealing photos provide insight into the daily operations on board and illustrate the fieldwork of marine researchers.

The monthly monitoring cruises with RV Simon Stevin in the Belgian part of the North Sea have been part of the LifeWatch project since 2013. For more information, see the highlight 'LifeWatch'.

THE REMOTELY OPERATED VEHICLE GENESIS was deployed to examine methane infiltration at the bottom of the Dogger Bank (North Sea).

© VLIZ-NIOZ



RESEARCH PROJECTS WHICH MADE USE OF RV SIMON STEVIN IN 2013

		# OF DAYS AT SEA
VUB - ANCH	Biogeochemical behaviour of pollutants	1
VLIZ	Monitoring of porpoises	7
VLIZ	LifeWatch cruises	11
VLIZ	2012-2013 Planeet Zee Expedition	4
VLIZ	Multibeam survey	3
Ghent University - RCMG	SeArch: archaeological heritage in the North Sea & Flanders Heritage Agency	6
Ghent University - Marine Biology	Macrobenthos in permeable subtidal sediments	1
Ghent University - Marine Biology	The importance of artificial hard substrates in the North Sea for the ecology of the ichthyofauna (artificial reefs II)	8
Ghent University - Marine Biology	Biotic interactions between size classes	1
Ghent University - ECOTOX	Transfer of toxins from algae to molluscs	2
Ghent University - Veterinary Medicine	Electrofishing: determination of the safety margins for marine organisms and the optimum pulse for catching sole (<i>Solea solea</i>)	3
Ghent University - Veterinary Medicine	Impact of electrofishing	1
MOW - WL	Shoreface nourishments as measure	4
INBO	Monitoring of seabirds	17
ILVO - Fisheries	Species separation in beam-trawl fishing	4
ILVO - Fisheries	Understanding connectivity patterns in marine fishes for sustainable management (FISHCONNECT)	18
ILVO - Fisheries	Pelagic fisheries and zooplankton	9
ILVO - Fisheries	Microplastics	6
ILVO - Fisheries	Demersal Young Fish Survey (DYFS)	6
ILVO - Fisheries	Benthic ecosystem fisheries impact study (BENTHIS)	2
FPS Economy Continental Shelf Service	Sand extraction monitoring	2
MUMM	WaTUr – sediment transport and concentration	6
MUMM	Small scale sediments	1
MUMM	Monitoring of Water Framework Directive	3



THE OSTEND MARINE STATION. – The OMS houses a laboratory where e.g. macrobenthos samples collected during LifeWatch cruises are analysed. These samples are put at the disposal of the research community.

Ostend Marine Station. After the completion of the renovation works, the OMS could be equipped in 2013. A laboratory was installed in one of the four warehouses within the scope of the European biodiversity project LifeWatch. The laboratory consists of a sieving area which also contains storage for the sample collection as well as a - 80°C freezer on the one hand and a 'dry' area on the other. The latter includes three worktables with two high-quality binocular microscopes and a ZooSCAN system to identify the plankton automatically. 'Warehouse 3' serves as storage for data and research equipment. VLIZ installed a back-up server as well as a technical workshop for maintenance of ROV Genesis and other equipment in this warehouse.

ROV Genesis. The unmanned underwater vehicle Genesis was deployed during three international expeditions in 2013. In April, ROV Genesis was used on board RV Pelagia to support the installation of optical measurement equipment (Lander or Optical Modules) in the Mediterranean Sea. In June, ROV Genesis was used on board RV Belgica at the West Iberian Margin to map the intensity of fishing, among other things. In September, the unmanned underwater vehicle was deployed once more on board RV Pelagia to measure methane infiltration at the bottom of the Dogger Bank (North Sea). VLIZ and the Royal Netherlands Institute for Sea Research (NIOZ) concluded a cooperation agreement concerning the deployment and use of ROV Genesis in 2013. NIOZ mainly provides technical support for repairs to and maintenance of ROV Genesis. The deployment of the unmanned underwater vehicle on Dutch (RV Pelagia), Belgian (RV Belgica, RV Simon Stevin) and international research vessels was also laid down in the agreement.



REMOTELY OPERATED VEHICLE GENESIS

© VLIZ-NIOZ

Data Centre

The **Data Centre** division provides assistance, technologies and tools to scientists and policy makers to support marine data management. Within international networks VLIZ participates in the development of data infrastructures and promotes the flow of marine data from Belgium.

www.vliz.be/en/data-centre-division

DATA CENTRE DIVISION. From front to rear, left to right: Elien Dewitte, Leen Vandepitte, Carolien Knockaert, Ruth Vandepitte, Paula Oset Garcia, Nathalie De Hauwere, Joram Declerck, Klaas Deneudt, Robin Houthoofd, Simon Claus, Annelies Goffin, Stefanie Dekeyzer, Francisco Hernandez, Wim Decock, Roeland T'Jampens, Lennert Tyberghein, Jan Reubens, Francisco Souza Dias, Pieter Maes, Filip Waumans, Bruno Pinto Vitorino, Bart Vanhoorne. Not shown in the picture: Daphnis De Pooter, Liesbeth Lyssens, Jonas Mortelmans, Aina Trias Verbeeck.

© VLIZ - Verhaeghe





THE WORLD REGISTER OF MARINE SPECIES IS THE LEADING TAXONOMIC REFERENCE LIST FOR MARINE ORGANISMS.

The register already includes 220,000 valid species names. In 2013 the list of Holothuroidea (sea cucumbers) was supplemented with the help of taxonomic experts. This is a picture of *Holothuria tubulosa*.

© Roberto Pillon

World Register of Marine Species – WoRMS. This taxonomic database is an authoritative and comprehensive list of names of marine organisms. The highest priority is given to valid scientific names, but other names (synonyms and vernacular names) are included as well.

By the end of 2013 the register contained over 490,000 names, including more than 220,000 valid species names. 94% of the available taxonomic information has now been validated by editors. No fewer than 250 taxonomic experts from all over the world have actively contributed to the verification and supplementation of the register. Thanks to their contribution, WoRMS is the leading taxonomic reference list for marine species. Identifying and closing taxonomic gaps is a continuous effort. The following groups were covered in 2013: Dicyemida (parasites living in the renal appendages of cephalopods), marine Staphylinidae (rove beetles), Kinorhyncha (mud dragons), Holothuroidea (sea cucumbers) and viruses. In addition, VLIZ processed over 250 publications to contribute to the Amphipoda species list. Both taxon names and information as to distribution and species were registered on that account.

The WoRMS website (www.marinespecies.org) underwent a makeover in 2013. Users can now clearly see at a glance whether or not information has been checked by editors.

In 2013 the WoRMS steering committee elected a new chairman (Geoff Boxshall), vice-chairman (Jan Mees) and several new steering committee members.

WoRMS and the Catalogue of Life (CoL) reinforced their cooperation in 2013. The accession of VLIZ to the 'CoL Global Team' and the 'CoL Editorial Board' enables VLIZ to actively contribute to the scientific basis and the products of this biodiversity initiative.

Marine Regions. This standardised data system makes geographic information on marine place names and maps freely available on the website www.marineregions.org. It integrates geographic information on seas, ocean basins and undersea features, and indicates the boundaries of marine areas throughout the world. Since 2013 Marine Regions has shown, for instance, the marine Natura 2000 areas, the UNESCO Marine World Heritage sites and the boundaries of the OSPAR regions.

National Geographic Magazine made use of Marine Regions data for the article 'The new age of exploration – New America' in the issue of November 2013. For this purpose, the data centre created maps indicating the exclusive economic zones of the United States, France, Australia, Russia, the United Kingdom and New Zealand.

On account of their expertise, Marine Regions became an observer in 2013 of the 'Sub-Committee on Undersea Feature Names' (SCUFN), a working group which operates under the International Hydrographic Organisation (IHO). SCUFN ensures the approval of names of undersea features. Information on the geological and physical characteristics of these features is linked to their name. Marine Regions contributes to this function.

European Ocean Biogeographic Information System. EurOBIS publishes distribution data of marine species found in European marine waters or collected by European researchers outside European marine waters. The mark of 16 million distribution records was surpassed in 2013. These data are available online via www.eurobis.org. VLIZ hosts EurOBIS, keeps the website operational and actively looks for new data sets that may provide a contribution.

As EurOBIS, VLIZ undertakes several central tasks within the international OBIS community. OBIS is part of UNESCO's Intergovernmental Oceanographic Commission within the scope of the International Oceanographic Data and Information Exchange (IODE) programme. The Data Centre division performs taxonomic quality checks for all 17 regional nodes. This means that the taxon names from all OBIS data sets are compared to the World Register of Marine Species (WoRMS). In addition, VLIZ manages the metadata of all OBIS data sets, which number over 1,000 worldwide.

Sea Level Monitoring System. This system, developed and maintained by the data centre, serves over 757 tide gauges throughout the world and shows the current tide height (virtually in real time) of each tide gauge. The website and the real-time data service attracted 118,057 visitors in 2013, processed 51,287,445 page requests and thus distributed no fewer than 597 GB data online.

Micro B3. Microbial biodiversity, bioinformatics and biotechnology are the pillars of this European FP7 project. In this project, the data centre contributes to improved linking of data from molecular, biodiversity and abiotic databases. In addition, Micro B3 makes use of RV Simon Stevin twice a year. On these occasions, VLIZ takes seawater samples in preparation for the pilot action 'Ocean Sampling Day 2014'. These samples serve to form an image of the microbial community present in seawater.



MARINE REGIONS DATA served as a basis for maps of the exclusive economic zones of the United States, France, Australia, Russia, the United Kingdom and New Zealand shown in the National Geographic article 'The new age of exploration – New America' (November 2013).

© National Geographic

ScheldeMonitor. Since 2008 VLIZ has performed one of the core tasks of the ScheldeMonitor project by centralising and archiving data from research and monitoring activities in the Scheldt estuary. Thanks to these activities, the ScheldeMonitor data portal includes physical, chemical, morphological and biotic parameters as well as various map layers (GIS). This way, VLIZ supports the long-term monitoring and research programme MONEOS as well as different reports drawn up with regard to this.

In 2011, a T2009 report was started up which provides an insight into the condition of the Scheldt estuary prior to 2009. 2009 is the reference year for the evaluation of future interventions in the estuary and the connected policy. In 2013 the Data Centre division finalised a complete T2009 data archive.

A survey concerning the user-friendliness of the ScheldeMonitor portal, carried out in 2013, resulted in a new perspective on the operation of the website. A visualisation of graphs, GIS maps and efficient download tools will be given priority during the reorganisation of the portal interface, which will begin in 2014.

At the end of 2013, the Belgian Federal Science Policy Office approved two projects which will start in 2014 within the scope of the BRAIN-be framework programme. **AQUARES** (Aquatic species Register Exchange and Services) will focus on information exchange between the taxonomic databases WoRMS, FADA (Freshwater Animal Diversity Assessment) and SCAR-MarBIN (Scientific Committee on Antarctic Research – Marine Biodiversity Information Network). To this end, a set of web services will be developed and quality checks will be performed. The integration activities between these registers will contribute to the Taxonomic Backbone of LifeWatch.

Within the scope of **4DEMON** (Four Decades of Belgian Marine Monitoring) RBINS, ILVO, Ghent University, VLIZ and the University of Liège collaborate to digitise historical data relating to the contamination of sediment, eutrophication and acidification, and make an inventory of the Belgian part of the North Sea.



MÁIRE GEOGHEGAN-QUINN, EUROPEAN COMMISSIONER FOR RESEARCH, INNOVATION AND SCIENCE, WAS INTERVIEWED FOR THE MERMAID PROJECT. – She stressed the importance of the project's contribution to the development of a thriving maritime economy in combination with sustainable conservation of the marine environment.

© VLIZ

MERMAID. This FP7 project focuses on the planning, construction and operation of innovative offshore platforms which combine functions such as energy extraction, aquaculture and logistics. VLIZ coordinates the work package of dissemination and communication. In 2013, preparations were made for a promotional film concerning the project. A film crew went to the Netherlands, Norway and Denmark to interview scientists and film aquaculture and wind energy activities. VLIZ also got the unique opportunity to interview Máire Geoghegan-Quinn, European Commissioner for Research, Innovation and Science. The Commissioner stressed the importance of the MERMAID project's contribution to the development of a thriving maritime economy in combination with sustainable conservation of the marine environment.





ABOUT 80 PUBLICATIONS WERE CREATED WITHIN THE THESEUS PROJECT.

– The booklet 'Coastal protection: smart ideas, sustainable solutions' informs the general public on coastal protection and flooding. The Dutch-language version focuses on the situation for Belgium.

© THESEUS

THESEUS. This EU FP7 project investigates innovative coastal defence techniques within the context of rising sea levels and increasing flood risks in coastal areas.

The project was completed in 2013 with a closing conference organised by VLIZ. About a hundred participants attended the THESEUS Science Policy Interface conference, which took place in the Royal Belgian Institute of Natural Sciences in Brussels on 18 October. The final results of this conference include a position paper on the subjects of risk assessment, risk reduction and integration of science and policy. Another end product to which VLIZ actively contributed was the publication 'Coastal protection: smart ideas, sustainable solutions'. This booklet informs the general public on coastal protection and flooding. It is available in four languages. The Dutch-language version focuses on the situation for Belgium. Additional attention is paid to the Scheldt estuary and in particular to the Dendermonde area.

THESEUS resulted in about 80 publications in total. The most striking publication is the one by Temmerman et al. 'Ecosystem-based coastal defence in the face of global change' which appeared in *Nature*. An overview of the project's scientific findings was furthermore published as a special issue of the Coastal Engineering journal entitled 'Coasts@Risks: THESEUS, a new wave in coastal protection'.

KMFRI. VLIZ carried out a data archaeology exercise within the scope of the cooperation agreement with the Kenya Marine and Fisheries Research Institute. Attention was paid to the 1986-1999 period, as later data sets were already digitally available with the responsible research groups. A total of 960 publications were identified, from which 57 data sets were digitised. The data sets include species lists and counts of Kenyan marine fauna and flora as well as data regarding abiotic parameters. These are now available online via www.vliz.be/kenya/data-and-publications.

Library

The **VLIZ Library** manages the most extensive collection of marine scientific literature in Belgium. It is the central point of contact for marine information for scientists, policymakers and the public at large.

www.vliz.be/en/library-division

LIBRARY DIVISION. Left to right: Zohra Bouchti, Heike Lust, Chilekwa Chisala and Jan Haspeslagh.

© VLIZ - Verhaeghe





THE LIBRARY COLLECTION is available to everyone. The catalogue can be searched online, but a visit to the actual library is also possible.

© VLIZ

Belgian Marine Bibliography. The Belgian Marine Bibliography (BMB) constitutes the core of the library collection. It is the reference list of all publications on the Flemish coast and the Belgian part of the North Sea as well as all other marine, estuarine and coastal publications written by Belgian authors and scientists as well as foreign scientists affiliated with a Belgian institution.

Belgian Open Marine Archive. The Open Marine Archive (OMA) aims to archive as many digital full text files from the BMB as possible and make them freely available online. OMA's annual increase of at least 1,000 units is a performance indicator (for details see KPI 1). This highlights the great importance of this subcollection from the VLIZ library. In 2013 OMA was expanded with no fewer than 3,844 digital publications, an extra strong increase compared to the previous years. This gives a total of 16,102 publications in this open-access repository. The high number of downloads from OMA (194,947), 13,226 of which are unique titles, demonstrates that Internet users are finding their way to this archive. This means that no less than 82% of the collection was consulted in 2013.

Other literature in the collection. In addition to Belgian marine literature, the VLIZ library also continues to expand its collection with relevant international literature which supports marine research and projects inside and outside VLIZ. A total of 8,322 new acquisitions were added to the library collection in 2013. 25% of these acquisitions were paper publications, and 75% were digitally archived. The new acquisitions are itemised in the VLIZ Library Acquisitions List on a weekly basis and this list is sent to 280 subscribers by e-mail.

Services. The library collection is available to everyone. Users can search the catalogue and request publications via the VLIZ website (www.vliz.be/en/catalogue). Requests can also be made by e-mail or you can visit the actual library. In 2013 the library received the highest number of literature requests (986) since its inception in 1999. Half of the requests were made via the online catalogue, the other half by e-mail. The library service is not limited to the provision of literature from its own collection. Thanks to VLIZ's membership of the International Association of Aquatic and Marine Science Libraries and Information Centers, all international marine literature can be looked up and provided.

Zwin Bibliography. In 2013 the library finalised the 'Het Zwin' project. By order of the province of West Flanders, VLIZ provided a complete overview of all publications (literature, multimedia, maps, etc.) as to this nature reserve and its immediate surroundings. In addition, all unpublished data were listed and provided with a description. This research work resulted in 1,223 publications related to Het Zwin. This bibliography will be supplemented on the basis of the BMB in the future.

Book scanner. The VLIZ library purchased an Atiz BookDrive Pro book scanner in March 2013. Contrary to conventional scanners, books are placed in a V-shaped book cradle, which prevents damage to the publications. The BookDrive Pro primarily serves for digitising Belgian marine literature. The device is also used for scanning publications with specific characteristics such as oversized or undersized books, very fragile or rare copies, or historical works.



THE BOOK SCANNER offers great added value for digitising special publications included in the library collection.

© VLIZ - Verhaeghe



THE 'HET ZWIN' BIBLIOGRAPHY provides an overview of all publications relating to this nature reserve on the Belgian east coast and its immediate surroundings.

© Misjel Decler

Communication

The VLIZ **Communication** division aims to share knowledge with people fascinated by the sea. We try to achieve this central objective by disclosing high-quality marine information to very diverse target groups (young & old, professionals & the general public, local & international, education & research) and in different formats.

www.vliz.be/en/communication-division

COMMUNICATION DIVISION. Left to right: Jan Seys, Nancy Fockedeey, Evy Copejans and Karen Rappé.

© VLIZ - Verhaeghe





PEELING SHRIMP AND ORAL HISTORY. – Schoolchildren and seniors met during ‘Week van de Smaak’ (the Week of Taste). The seniors taught the children how to peel shrimp and told them about the way shrimp used to be caught and processed.

© VLIZ

Peeling shrimp and oral history. About a hundred schoolchildren (aged 9-10) and seniors from four residential care centres on the coast met on 14 and 19 November 2013 during ‘Week van de Smaak’ (the Week of Taste). The seniors taught the children how to peel shrimp and told them about the past. While peeling and tasting shrimp, the kids discovered the real taste of shrimp and learnt about traditional fishing methods, and how shrimp evolved from poor man’s food to a luxury product. This initiative to draw attention to flavour and gastronomy was supported by Katrien Vervaele, Nancy Fockedeij (VLIZ) and Chantal Bisschop (Centre for Agrarian History – CAG) in collaboration with vzw Promovis Nieuwpoort, which supplied the fresh shrimp. This action received a great deal of local and national (VRT newscast) media attention.

Ocean Literacy. It is crucial that all sections of society give their support to, are involved in and have some basic knowledge of the oceans. Various initiatives took place in 2013 to highlight the importance of Ocean Literacy for the European population. In June the European Marine Board, its communication panel EMBCP and VLIZ organised a workshop. Experts met to draw up recommendations for the European Commission’s DG Science and Innovation. These recommendations were needed to increase the importance of Ocean Literacy in the Horizon 2020 Programme and create added value with regard to transatlantic cooperation. In addition, the participants formulated evaluation criteria for communication, education and outreach in the marine scientific research projects of Horizon 2020.

During the EC high-level event ‘The Atlantic, A Shared Resource’ (Marine Institute – Galway) and on the occasion of ‘The 2nd Conference on Ocean Literacy in Europe’ (University of Plymouth), Jan Seys (VLIZ) mounted the platform to outline the evolution of Ocean Literacy in Europe and to highlight the importance of transatlantic collaboration with regard to this topic.

Artificial reefs. When offshore wind farms are constructed, it is necessary to preserve and wherever possible reinforce the natural habitat. For this purpose, the cabinet of the Belgian Minister for the North Sea installed two artificial reefs near the Belgian wind farms in 2013. With the support of the Belgian National Lottery, VLIZ is developing a semi-automatic marine observatory to monitor the biodiversity of these structures. Sensors will measure various seawater parameters, a transceiver system will record the movement patterns of fish around the artificial reefs and porpoise detectors will register and monitor the presence of porpoises and other dolphins.

Infodesk & Press. Once again, the VLIZ Infodesk received numerous questions (319) from interested citizens, companies, policy makers, scientists and educators in 2013. The national press also contacted VLIZ very regularly in search of information or visual materials. In case of general marine scientific questions, VLIZ provides the answer itself, while experts in specific fields are contacted in case of specialised questions.

VLIZ sent out seven press releases in 2013, which resulted in 55 press articles or reports, i.e. nearly half the 120 media items in which VLIZ was mentioned. The highlights in terms of press coverage were the Paardenmarkt ammunition dump site (25), the remarkable flight paths of tagged 'crisp eating' lesser black-backed gulls (14), the departure of RV Mtafiti (the Flemish research vessel donated to Kenya) (8), and the initiative 'Garnalen, pellen en vertellen' (Peeling shrimp and oral history) (8). VLIZ supported the 'Koppen' broadcast on plastic pollution in the North Sea, which resulted in 10 press articles. In addition, VLIZ was consulted for regularly recurring summer news items such as the great numbers of jellyfish on the coast, the sea sparkle bloom and gull nuisance. The demand for explanatory presentations on the sea, mainly delivered by the Communication division, remained high

in 2013. VLIZ reached no fewer than 2,364 listeners with 60 presentations. Participations in panel discussions (e.g. CEDA panel discussion – Ghent, 16 October, Climate Seminar – Ostend, 31 October) and marking of end-of-year dissertations (e.g. engineering course at KU Leuven – KHBO, project regarding energy atoll) remain regular activities performed by the Communication division.

Initiatives for teachers and guides. As a Structural Science Communication Partner of the Flemish government, VLIZ actively informs teachers and other educators on all topics connected with the sea. Two of the performance indicators (KPI 5 and KPI 6) indeed relate to this important specific task.

No fewer than 5 events accessible for teachers and other educators were organised or supported in 2013 (for details see KPI 5). The annual coastal guide seminar held in Bruges on 14 December 2013 was a success with a highly appreciated programme and 140 participants. The workshops and lectures provided within the scope of Marine Art, 'Wetenschappen-Wiskundedag' (Sciences-Maths Day), 'Week van de Smaak' (the Week of Taste) and the European Marine Science Educators Association Conference were also very well received. VLIZ also provided information for the development of a mobile beach lab, an initiative of the province of West Flanders. The beach lab's purpose is to make the invisible beach and marine life visible to interested visitors. VLIZ provided the inspiration for scientific tests concerning microplastics and eutrophication.

Finally, VLIZ developed eight new educational teaching packages in 2013 (3 learning modules and 5 practical exercises) on the sea and coast (for details see KPI 6). These were made available on the redesigned VLIZ website and on the revised digital learning platform 'Planeet Zee' (online in January 2014).

THE TELEVISION PROGRAMME 'KOPPEN' (ÉÉN) SHED LIGHT ON THE ISSUE OF PLASTIC POLLUTION IN THE NORTH SEA. – VLIZ and several Belgian marine scientists (Colin Janssen ECOTOX-UGent, Eric Stienen INBO, Jan Haelters MUMM and Thierry Janiaux Ulg) contributed to this news magazine topic.

© één





THE COMMUNICATION DIVISION PROVIDES A GREAT DEAL OF EXPLANATORY PRESENTATIONS. – This picture shows Nancy Fockedeey, who delivers a lecture on the occasion of World Oceans Day.

© VLIZ

WOI-munitiestort voor kust groter en giftiger dan gedacht ★★★★★

Munitiestort uit WO I is Heist giftiger dan gedacht

00:00 02:19

02 / 03

vr 06/11/2013 - 12:00 Een Maatvoet

Het WOI-munitiestort voor de kust van Heist bestaat vrijwel volledig uit gifgasgranaten. Dat blijkt uit nieuw onderzoek. Tot nu werd aangenomen dat de gifgasgranaten slechts een derde van het terrein innamen.

Op de zandbank Paardenmarkt is een belangrijke dumpsite van oorlogsmunitie uit Wereldoorlog I gesitueerd. Het is er verboden te vissen of het anker uit te werpen omdat er grote hoeveelheden granaten, deels geladen met gifgas, op en in de bodem liggen. Er ligt naar schatting 35.000 ton munitie op de zandbank.

Tot nu werd aangenomen dat een derde deel van de dumpsite door die gifgasgranaten werd ingenomen. Maar uit nieuw onderzoek van dr. Luc Vandeweyer (Rijksarchief) en dr. Tine Missaen (Universiteit Gent) blijkt nu dat de gedumpte munitie nog weliswaar vrijwel volledig uit gifgasgranaten bestaat.

Dat blijkt uit nooit eerder onderzochte dossiers van het Bestuur van het Zeezeven, van de Recuperatiedienst van het Belgische Leger en van het kabinet van de toenmalige Belgische minister van oorlog Masson.

Het onderzoek kreeg als titel "Immersion d'obus à gaz asphyxiants". Chemische munitie leverde het grootste gevaar op en kon niet aan land gecontroleerd tot ontgifting gebracht worden, de kans dat dampen door de wind opgevoerd zou worden was te groot.

De Puurdermunitie werd aangewezen als ideale stortplaats omdat het een "banc absorbant" betrof waarin de granaten zouden wegzinken en spoedig onder het silt zouden verdwijnen.

Het stort ligt op ongeveer 500 meter van het strand en is bijna onmogelijk te ruimen. Er is een baggemaatschappij nodig om de granaten op te schepen. Wetenschappers maken zich echter weinig zorgen. Het stort ligt veilig begraven onder een laag zand en de toestand wordt goed opgevolgd. Tot nu zijn er ook nog geen lekken geweest.

"WWI AMMUNITION DUMP SITE ON PAARDENMARKT BANK OFF HEIST BIGGER AND MORE TOXIC THAN PREVIOUSLY THOUGHT" received a great deal of media attention. – It was a news item in the VRT newscast.

© DE REDACTIE.BE

Policy Information

The **Policy Information** division supports a sustainable and scientifically founded coastal and marine policy by providing policy-relevant scientific information products and concentrates on coastal and marine professionals, scientists and policymakers as well as interested target groups within the general public.

www.vliz.be/en/policy-information-division

POLICY INFORMATION DIVISION. Left to right: Ann-Katrien Lescrauwaet, Marleen Roelofs, Thomas Verleye, Ruth Pirlet, Hans Pirlet.

© VLIZ - Verhaeghe





THE GIFS PROJECT IS AIMED AT THE INVESTIGATION OF THE SOCIO-ECONOMIC AND CULTURAL SIGNIFICANCE AND IMPORTANCE OF INSHORE FISHING IN THE SOUTHERN NORTH SEA AND THE CHANNEL. – This picture shows the fishing boat 'Dini' (O62) leaving the port of Ostend to fish for shrimp.

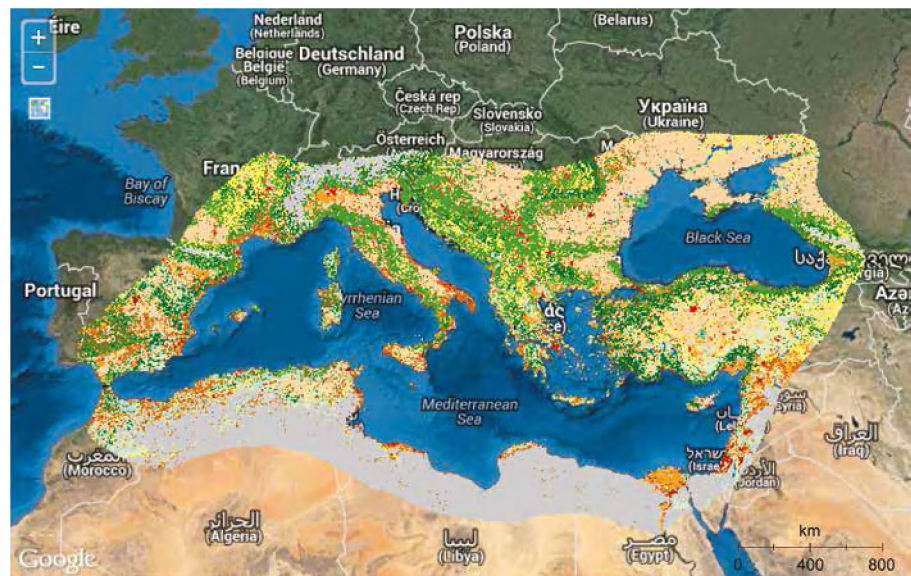
© Vince Bevan

The GIFS project (Geography of Inshore Fisheries and Sustainability) is aimed at the investigation of the socio-economic and cultural significance and importance of inshore fishing in the southern North Sea and the English Channel. In November 2013 a partner meeting and a stakeholder meeting took place at VLIZ. About 75 persons from the four partner countries (France, the Netherlands, the United Kingdom and Belgium) participated together with representatives from the fishing industry, the competent governmental institutions, research organisations, the European Commission and international non-governmental organisations. During these meetings the following items were on the agenda: discussion of the administrative and policy instruments (decisions taken by and for the industry) as well as mapping of the social, economic and cultural role played by inshore fisheries in coastal areas.

PEGASO – People for Ecosystem-based Governance in Assessing Sustainable development of Ocean and coast. This project is aimed at the development of integrated coastal zone management in the Mediterranean and the Black Sea. The Spatial Data Infrastructure (SDI) for the Mediterranean Sea, developed with the support of VLIZ, became fully operational in 2013. This tool makes standardised geographical data layers available to support integrated coastal zone management (ICZM) in line with the European INSPIRE directive. The SDI consists of local geoportals of the Mediterranean Sea. The next step will be to investigate how the Protocol for ICZM can be applied to the Black Sea.

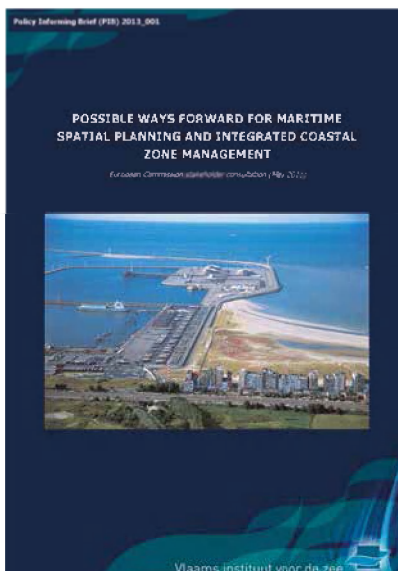
In 2013 the VLIZ Policy Information division contributed to the development of a set of indicators to support sustainable and integrated management of coastal and marine areas in the Mediterranean and the Black Sea. This core set of indicators meets the specific requirements (Article 27 of the Protocol on ICZM in the Mediterranean) for defining coastal zone management. These indicators are used for the development and maintenance of evaluation criteria with regard to the use and management of coastal areas. For this purpose, the PEGASO project used existing indicator sets developed by different institutes and projects as a basis. This process is also applied to the SDI.

PEGASO and SPINCAM (Southeast Pacific data and information network in support to integrated coastal area management) set up a cross-border partnership in 2013. An SDI was put in place for the Southeast Pacific region, from Panama to southern Chile. Experiences and formats concerning the use of indicators for coastal zone management were exchanged.



THIS LAND COVER MAP, DEVELOPED WITHIN THE PEGASO PROJECT, represents land use in the Mediterranean and Black Sea basins in 2011. Changes in land use can be studied by comparing this map to similar regional maps from other years, combined with the indicators which were calculated on a local scale.

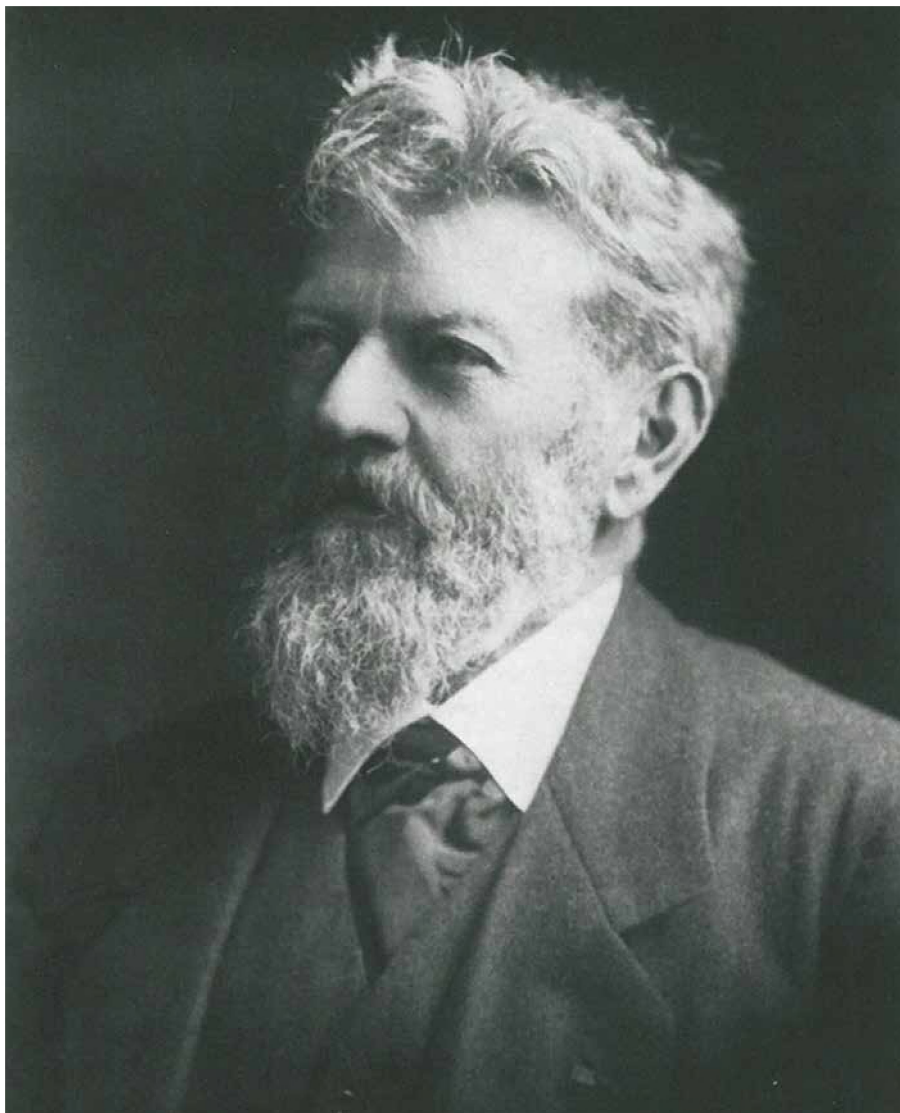
© PEGASO-project



THE POLICY INFORMING BRIEF 'EC Consultation on the possible ways forward for Maritime Spatial Planning and Integrated Coastal Zone Management in the EU' was published in 2013.

© VLIZ

Policy Informing Briefs (PIBs). VLIZ participates in public consultations of the European Commission (EC) as to specific marine policy questions and publishes summaries of such consultations in the form of Policy Informing Briefs, hereafter abbreviated as PIBs. The Policy Information division relies as much as possible on the expertise of coastal and marine scientists within the network of marine research groups in Belgium, and Flanders in particular, as well as within the international network. The PIB 'EC Consultation on the possible ways forward for Maritime Spatial Planning and Integrated Coastal Zone Management in the EU' was published in 2013.



JULIUS MAC LEOD (1857-1919) was a Belgian zoologist, botanist and professor at Ghent University. His main contribution to Belgian marine research is his studies on the reproductive organs of lower marine animals and teleosts as well as the development of Dutch scientific terminology for marine fauna. More information on this historical figure can be found in the fact sheet.

© Van Hees P. (1976)

Coastal Wiki. This Internet encyclopaedia (www.vliz.be/wiki) contains short articles with scientifically sound information on the coast and sea provided for and by marine and coastal experts. The portal 'History of Belgian oyster farming' was expanded in 2013. On this portal you can find information on the evolution of oyster farming along the Flemish coast as well as images and explanation as to all oyster farms that have ever existed in Belgium.

Marine Sciences History. Belgium still plays an important part in marine sciences thanks to prominent scientists as well as remarkable historical figures and events from the 18th, 19th and early 20th centuries. Knowledge about this unique scientific coastal heritage is aggregated in information products available on www.wetenschatten.be. Two fact sheets about Julius MacLeod and Louis Verhaeghe were added to the collection regarding historical figures in 2013. They shed light on the life of both scientists and the importance of their work for coastal and marine research. In addition, a fact sheet was drawn up and a De Grote Rede article was written on Belgian marine scientists during the First World War. For more information, see the highlight 'The Great War and the Sea'.





By order of the Flemish government, VLIZ supports several international organisations. This capitalises on VLIZ's international experience and reputation, and makes it possible to embed important European initiatives in Flanders.

Support to international organisations

www.vliz.be/en/international-mandates

European Marine Board secretariat

The European Marine Board provides a pan-European platform to its marine scientific member organisations to establish common research priorities, to promote marine scientific research and to close the gap between science and policy. VLIZ represents Flanders in the European Marine Board and was given the mandate by the Flemish government to accommodate and support the EMB secretariat.

www.vliz.be/en/european-marine-board-emb
www.marineboard.eu

The European Marine Board represented 36 member organisations from 19 countries in 2013.

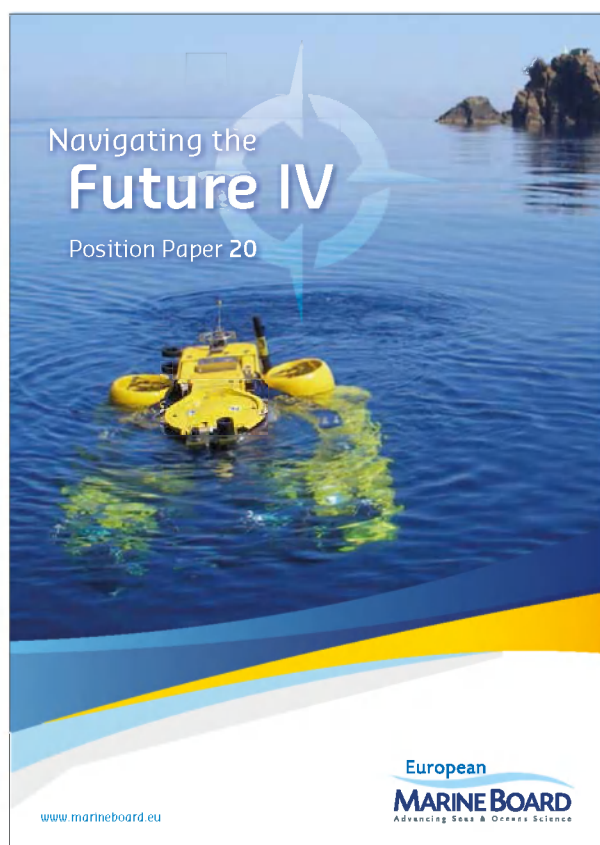
Expert groups. EMB brings European scientists and other experts together in order to draw up position documents on marine topics of strategic importance for Europe. Such position documents contain scientific recommendations and strategic policy suggestions which contribute to influencing the current and future national and European research agendas. Three new working groups were established in 2013; one on climate change, submerged landscapes and underwater archaeology (SUBLAND working group), one on valuing marine ecosystems (VALMARE working group) and one on deep-sea research.

Publications. The EMB publications are aimed at European and national research programme managers, strategic developers, policymakers and the marine research community. They analyse the state of affairs of the topic in question and provide a phased plan with concrete recommendations to improve European research. EMB issued four new publications in 2013:

- **Navigating the Future IV**
 This vision document deals with the principal societal challenges related to climate change, human health, food security, energy, and safe and sustainable use of marine space.
- **Achieving Ecologically Coherent Marine Protected Area Network in Europe: Science Needs and Priorities**
 This position paper covers the scientific needs and priorities necessary to inform, engage and empower stakeholders in planning networks of marine protected areas in Europe and beyond.
- **Linking Oceans and Human Health: A Strategic Research Priority for Europe**
 This position paper lists the scientific needs and priorities which are important for the development of a holistic and coherent transnational oceans and human health research effort in Europe.
- **Getting Ready for an Ice-free Arctic**
 EMB has been issuing a new type of publication, Science Commentary, since 2013. These are high-quality policy briefs dealing with subjects that are critical to the member organisations. 2013 saw the publication of the paper 'Getting Ready for an Ice-free Arctic', which called for a sustained marine observation and data system for the Arctic.

European projects. EMB takes part in framework programme projects of the European Commission to promote cooperation between European marine and maritime stakeholders as well as the joint identification of research priorities so as to avoid duplication. Highlights of the European projects in which EMB participated include: the second SEAS-ERA Forum, where the strategic research agendas for the three European sea basins (Atlantic Ocean, Mediterranean Sea and Black Sea) were presented, and the final conference of the CSA MarineBiotech project: 'Challenges and Opportunities for Marine Biotechnology in Europe'.

Seconded VLIZ staff: Dina Eparkhina



NAVIGATING THE FUTURE IV – This vision document deals with the principal societal challenges related to climate change, human health, food security, energy and sustainable use of marine space.

© EMB

EMODnet secretariat

EMODnet, the European Marine Observation and Data Network, aims to centralise the abundance of marine observations in Europe and make them optimally accessible for users such as government bodies, scientists and maritime companies, primarily so as to support sustainable growth and employment. The Flemish government has given a mandate to VLIZ to accommodate and support the EMODnet secretariat.

www.vliz.be/en/european-marine-observation-and-data-network-emodnet
www.emodnet.eu/about-secretariat

The EMODnet secretariat was established in September 2013 by order of the European Commission to provide high-level coordination and support to the development of the central EMODnet portal (www.emodnet.eu), monitor the various EMODnet projects, take care of internal and external communication, and provide users with feedback. It is administered by four employees of Seascope Consultants Ltd. The official opening will take place in Ostend in February 2014.

As part of an EMODnet support package, the Flemish government provides furnished office space at the InnovOcean site to house the secretariat. Annually, the Flemish government makes available € 180,000 for the accommodation of the secretariat as well as for investment through VLIZ in technical and scientific support to the development of the central data portal and accompanying data services. Read more about the tasks of VLIZ in the EMODnet project in the relevant highlight.



THE EMODNET-SECRETARIAT provides high-level coordination and support to the development of the central EMODnet portal, monitors the various EMODnet projects, takes care of internal and external communication, and provides users with feedback.

© VLIZ

JPI Oceans

The Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans) is a coordinating and integrating platform open to all European countries that invest in marine and maritime research. Its aim is to combine national research funds and structure cooperation in the field of research policy. The Flemish government has given a mandate to VLIZ to support the JPI Oceans secretariat.

www.vliz.be/en/jpi-healthy-and-productive-seas-and-oceans-jpi-oceans

www.jpi-oceans.eu

CSA Oceans. CSA (Coordination and Support Action) Oceans is a support action started up under the 7th framework programme of the European Union and aimed at making the JPI Oceans initiative operational. Within this project, VLIZ is responsible for communication and outreach. The Flemish government annually contributes € 200,000 to the support of the JPI Oceans initiative, and VLIZ seconded three employees to the JPI Oceans secretariat.

Pilot actions. JPI Oceans launched the first series of pilot actions in 2013. The first action investigates the ecological effects of microplastics on the marine environment. This includes the development of standardised analytical methods for research into and monitoring of microplastics and, in the next stage, the study of ecotoxicological effects of microplastics. The second pilot action focuses on the ecological impact of deep-sea mining. To this end, research campaigns will be carried out in areas where research into long-term consequences of this kind of disturbance is possible (e.g. the DISCOL area off the coast of Peru) or where deep-sea mining could take place (e.g. the Clarion-Clipperton Fracture Zone in the Pacific). Multi-use of research infrastructure for monitoring the North Sea is the topic of the third pilot action. Its purpose is to integrate the monitoring needs of various member states regarding the Common Fisheries Policy and the Marine Strategy Framework Directive wherever possible with current fish stock monitoring programmes.

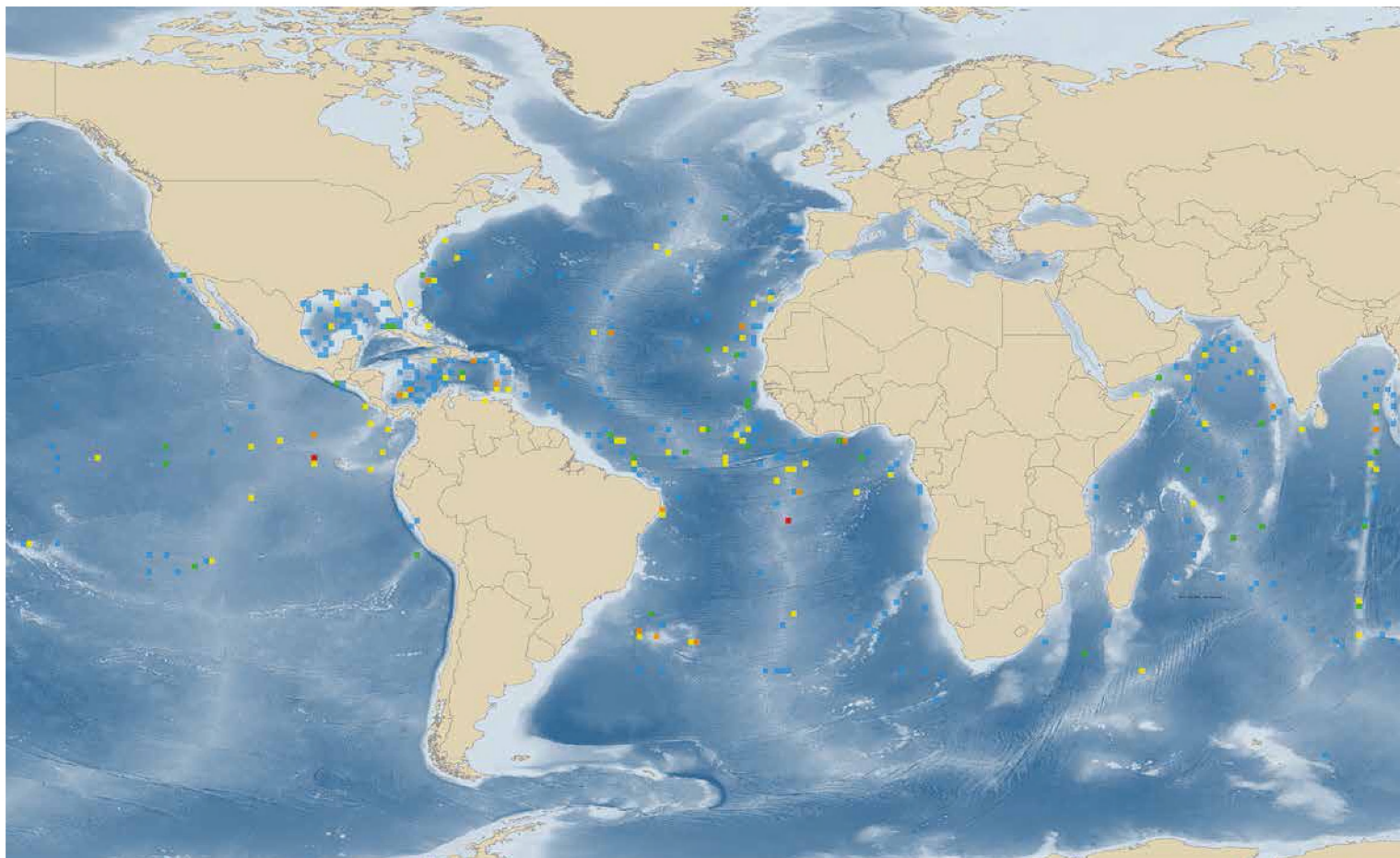
Strategic research and innovation agenda. The CSA Oceans consortium and the JPI Oceans secretariat carried out an extensive consultation in 2013 which contributed to the development of a strategic research and innovation agenda. The consultation consisted of three parts: a questionnaire sent to national research funding agencies and ministries, six consultation workshops for international stakeholders from the marine and maritime sector, and an online consultation open to the public at large. The results of the consultation will be released in 2014.

Seconded VLIZ staff: Wendy Bonne, Willem De Moor and Marie-Agnès Leroy-Danielsen.



IN 2013 JPI OCEANS LAUNCHED THE FIRST SERIES OF PILOT ACTIONS, including one on multi-use of research infrastructure for monitoring the North Sea. Its purpose is to integrate the monitoring needs of various member states regarding the Common Fisheries Policy and the Marine Strategy Framework Directive wherever possible with current monitoring programmes.

© VLIZ - Decler



UNESCO/IOC Project Office for IODE

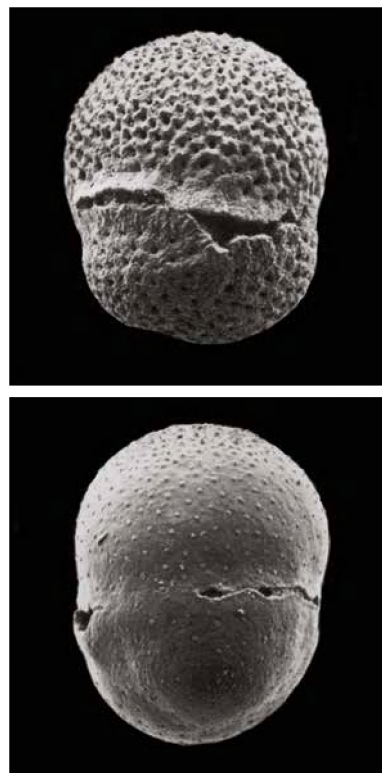
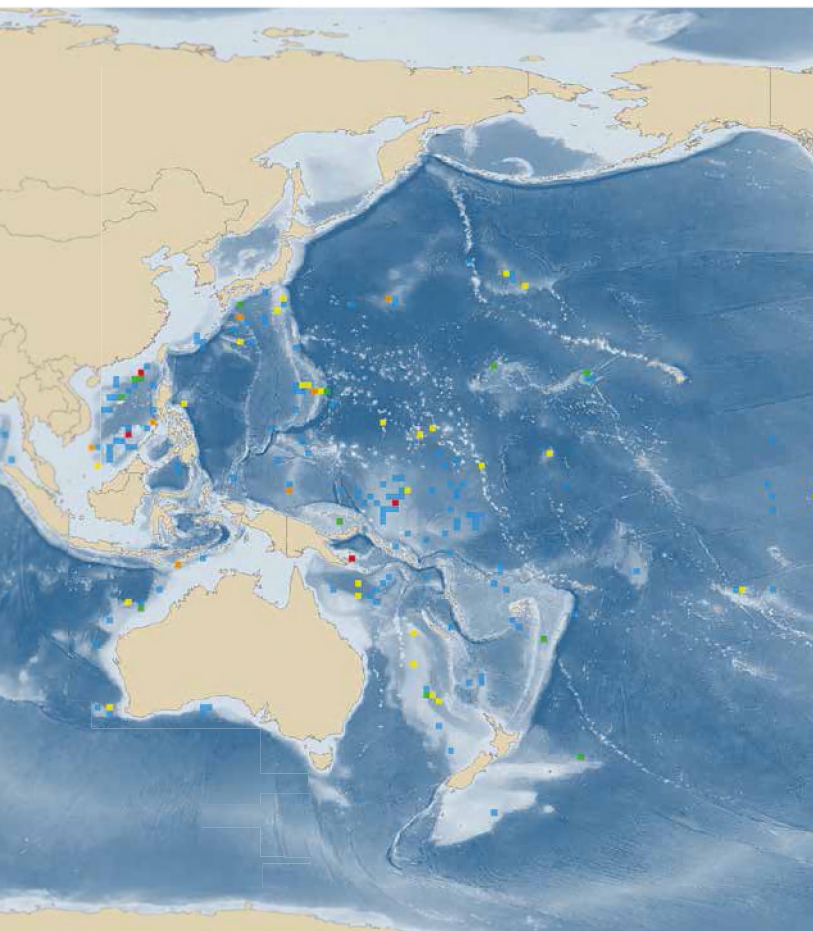
VLIZ has a special responsibility to accommodate and support the secretariat of the International Oceanographic Data and Information Exchange Programme (IODE) of UNESCO's Intergovernmental Oceanographic Commission (IOC). The UNESCO/IOC Project Office for IODE is the principal training centre of the IODE programme worldwide.

www.vliz.be/en/unescoioc-project-office-iode
www.iode.org

The Flemish government annually contributes approx € 250,000 to the operational support of the UNESCO/IOC Project Office for IODE, and VLIZ second three employees to the office under the supervision of Peter Pissierssens. Thanks to this support, Flanders contributes to the development of international coordination with regard to oceanography and to the promotion of sustainable use and development of coastal areas worldwide. In addition to the funds made available by the Flemish government through VLIZ, the Project Office also receives funds from UNESCO, the European Commission, the UNESCO/Flanders Fund-in-Trust for the support of UNESCO's activities in the field of Science (FUST), and individual IOC member states.

Training courses. The UNESCO/IOC Project Office for IODE in Ostend is primarily a training centre where oceanographic data and information managers can acquire knowledge and skills thanks to the OceanTeacher Academy Project (OTA). In 2013 the UNESCO/IOC Project Office for IODE organised eighteen training courses within the scope of the OTA project, six of which were held at the InnovOcean site in Ostend. A total of 458 participants from 73 countries took part in these training activities. A particular feature of these training courses is the commitment to ensuring an equal number of male and female participants.

Meeting place. The UNESCO/IOC Project Office for IODE in Ostend is also a meeting place where experts and data and information managers can discuss and develop IODE projects. Six international meetings were organised at the Project Office in 2013. However, the majority of meetings took place abroad in 2013 due to inconvenience caused by infrastructure works carried out in the adjoining port of Ostend. Two major events abroad were the Twenty-second Session of the IOC Committee on International Oceanographic Data and Information Exchange in Ensenada, Mexico and the 6th International Coastal Atlas Network Workshop in Canada. The complete list of meetings, workshops, conferences etc. can be consulted on the IODE calendar.



THE DISTRIBUTION OF THE TROPICAL FORAMINIFERAN *SPHAEROIDINELLA DEHISCENS* based on 20 data sets consisting of 5,874 records for the period 1953-1999, which can be consulted via the database of the Ocean Biogeographic Information System.

© Bruce Hayward

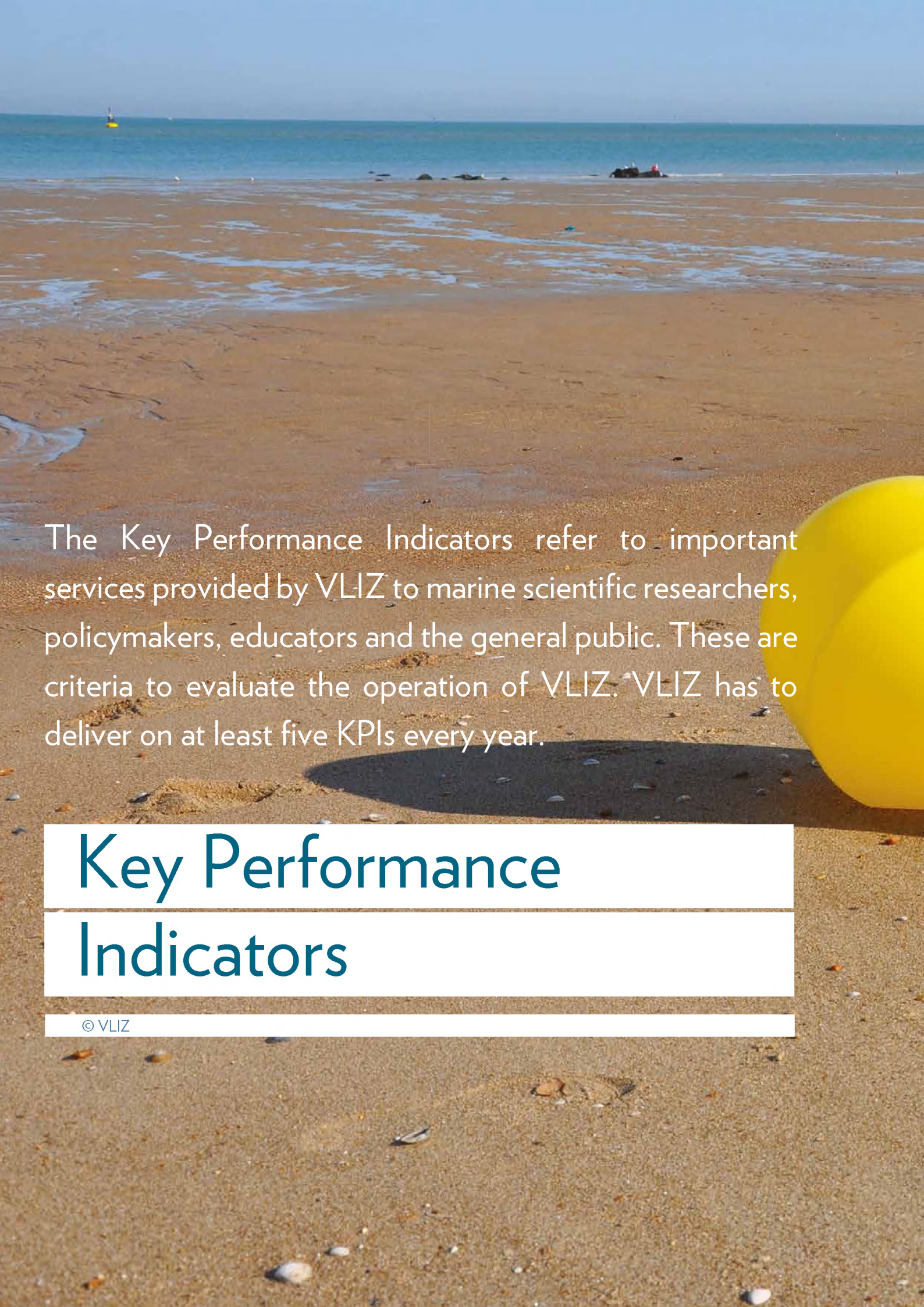
Ocean Biogeographic Information System. OBIS provides access to the largest online data system in the world for the distribution, diversity and abundance of marine biodiversity (www.iobis.org). In 2013 the OBIS team was expanded with a new data manager, Mike Flavell. The ever expanding data system experienced explosive growth in 2013. It consists of 1,374 data sets, whereby 37 million observations with a geographic frame of reference of 121,202 marine species are freely available on the Internet.

One of the highlights for IODE in 2013 was the inauguration of the **Partnership Centre for the IODE OceanDataPortal** in Obninsk (Russian Federation) on 10 September in the presence of IODE representatives and Dr Wendy Watson-Wright, Executive Secretary of the Intergovernmental Oceanographic Commission and Assistant Director General of UNESCO. The centre will contribute to the planning and coordination of the IODE Ocean Data Portal as well as the development and implementation thereof. The development of training programmes and the promotion of cooperation between data management experts are also part of the activities.

UNESCO/Flanders Fund-in-Trust for the support of UNESCO's activities in the field of Science (FUST).

Four FUST projects came to an end in 2013: the fourth phase of the Ocean Data and Information Network for Africa, the OceanTeacher Academy, the Southeast Pacific Data and Information Network in Support to Integrated Coastal Area Management, and the Caribbean Marine Atlas. Three new projects have already been approved by the FUST steering committee and will start in 2014. These include the continuation of the OceanTeacher Academy and the Caribbean Marine Atlas.

Seconded VLIZ staff: Kristin de Lichtervelde, Claudia Delgado and Mark Van Crombrugge.

A wide-angle photograph of a sandy beach meeting the ocean. The sand is light brown and wet, with some small shells scattered about. The ocean is a deep blue, and a small boat is visible in the distance. A large yellow beach ball is partially visible on the right side of the frame.

The Key Performance Indicators refer to important services provided by VLIZ to marine scientific researchers, policymakers, educators and the general public. These are criteria to evaluate the operation of VLIZ. VLIZ has to deliver on at least five KPIs every year.

Key Performance Indicators



KPI 1

Annual increase in data volume of the Open Marine Archive for Flanders (articles, reports and theses) of 1,000 units per year.

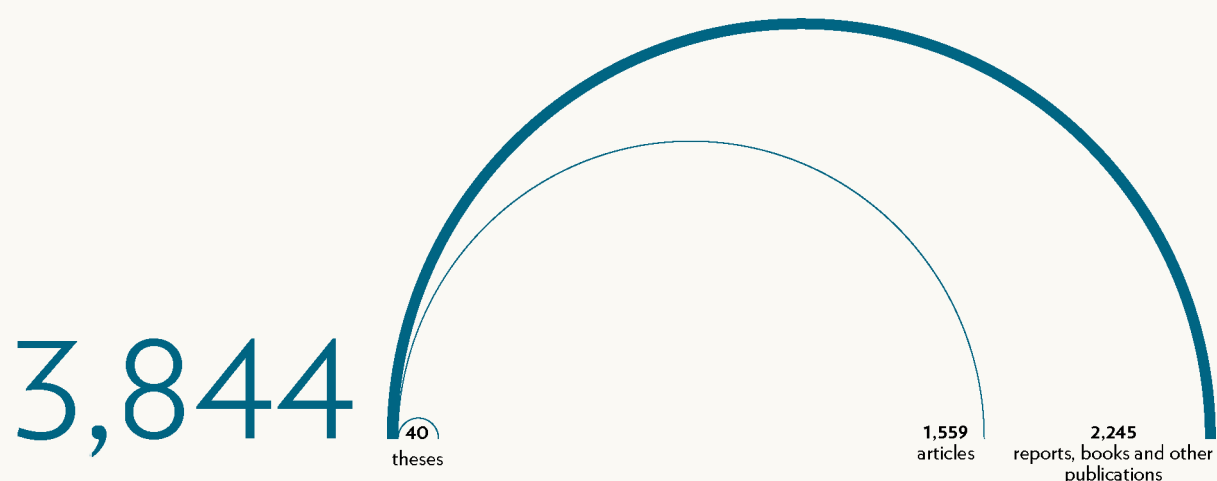
A key element of the VLIZ library collection is the Open Marine Archive (OMA), which makes publications on the Belgian coast written by Belgian marine scientists digitally available. OMA includes peer-reviewed articles as well as reports, theses, conference papers, scientific posters and publications intended for a general audience.

Internet users from all over the world can freely consult and download this wide range of publications from the VLIZ website (www.vliz.be/en/open-marine-archive). In addition, search engines such as Google Scholar give publications included in OMA a prominent ranking.

This way, Belgian marine research results attain maximum visibility and dissemination via the Internet, and the scientific communication as to these results is promoted.

A total of 3,844 new references were added to the Open Marine Archive in 2013. These references include 1,559 A1 articles, 40 theses and 2,245 reports, books and other publications.

NEW REFERENCES ADDED TO THE OPEN MARINE ARCHIVE



* For comparison: a total of 1,612 new references were added to the Open Marine Archive in 2012. These references included 711 A articles, 32 theses and 869 reports, books and other publications.

KPI 2

Yearly publication of at least five issues of the electronic newsletter 'VLIZINE' and three issues of 'De Grote Rede'.

One of the responsibilities of the Flanders Marine Institute is to popularise and distribute marine scientific information towards various target groups. The Communication division takes care of two regular publications: 'De Grote Rede' and the digital newsletter 'VLIZINE'.

VLIZINE provides practical information on research and policy supplied by and intended for Flemish marine scientists.

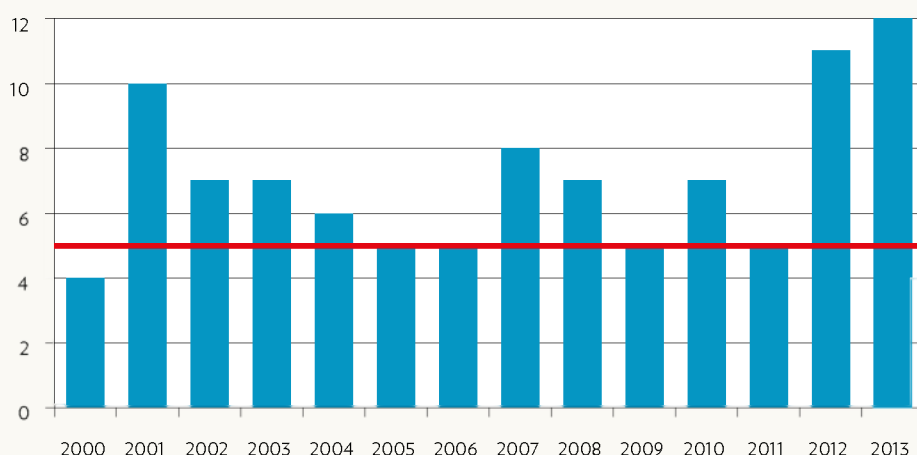
It also includes announcements of new projects and publications, events, doctorates, vacancies and fairs as well as interesting scientific facts on our coast, seas and oceans.

'De Grote Rede' is the information magazine on the coast and sea for the Flemish region and surrounding area. With three leading articles and nine standard features, 'De Grote Rede' provides its readers with a varied yet objective outlook on current knowledge about the coast, sea and ocean as well as an explanation of the conducted research and pursued policy.

Twelve issues of VLIZINE and three issues of 'De Grote Rede' appeared in 2013. Through these publications we reached 1,104 and 6,811 subscribers respectively.

Issue 36 of 'De Grote Rede' was an extra voluminous special issue dedicated to 'World War I and the Sea' and edited by several experts. In addition, a seminar was dedicated to this special issue (Bredene, 7 November 2013). For more information, see the highlight 'The Great War and the Sea'.

NUMBER OF ISSUES OF VLIZINE



NUMBER OF ISSUES OF DE GROTE REDE



KPI 3

At least 150 sailing days spent on scientific research and associated monitoring on a yearly basis.

VLIZ provides researchers with logistical support by ensuring the management, maintenance and operation of research infrastructure and equipment.

VLIZ has three vessels at its disposal for scientific research: RV Simon Stevin, RIB Zeekat and ROV Genesis.

If need be, other vessels, e.g. from the Flemish fleet, can be deployed for research and monitoring activities in the Scheldt estuary. The vessels Scaldis and Scheldewacht were used for this purpose in 2013.

RV Simon Stevin is deployed for academic coastal oceanographic research in the Southern Bight of the North Sea and the eastern part of the English Channel. It also serves as a training platform for students from marine sciences as well as maritime training courses.

ROV Genesis is an unmanned underwater vehicle used nationally and internationally on research vessels.

RIB Zeekat can be deployed from the research vessel Simon Stevin or from the shore, including in the Scheldt estuary. The reinforced keel is designed to run the vessel aground on tidal banks.

VLIZ coordinated a total of 220 actual scientific days at sea in the calendar year 2013, including 147 with RV Simon Stevin, 5 with RIB Zeekat, 26 with ROV Genesis and 42 with other vessels from VLOOT dab and the Maritime Access division.

2013 was the first full operational year of RV Simon Stevin. The ship was deployed for 1,423 hours in 2013 for sampling in the Belgian coastal waters, the Scheldt estuary and the Dutch continental shelf, or 97% of the time at sea made available by VLOOT dab.

NUMBER OF DAYS AT SEA

Vessels	2005	2006	2007	2008	2009	2010	2011	2012	2013
RV Simon Stevin								100*	147*
RV Zeeleeuw	151	122	150	162	166	151*	152*	57*	
RIB Zeekat	45	35	51	39	32	57	40	37	5
ROV Genesis								6	26
'Third' vessels	44	41	38	37	36	84	73	110	42
Total	240	188	239	238	234	292*	265*	310*	220*

* Continuous trips over consecutive days – including sampling at night – are counted as one unit in this table (2010: 7 continuous trips, 2011: 6 continuous trips, 2012: 6 continuous trips, 2013: 7 continuous trips).

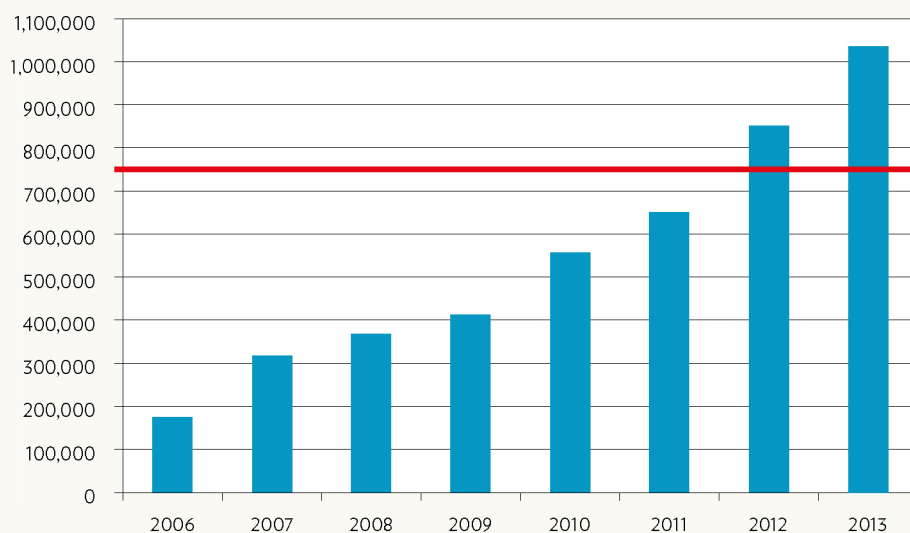
KPI 4

At least 750,000 unique visitors to the informative websites managed by VLIZ on a yearly basis.

One of the principal aims of VLIZ is to make the versatile and high-quality marine and coastal research in Flanders and the wider region more widely known. For this purpose we invest a great deal in making research results and derivative data products available on the Internet.

A total of 1,039,837 unique visitors consulted VLIZ's informative websites with the URL www.vliz.be in 2013. The most consulted pages were the IMIS database, the Coastal Wiki, the VLIZ homepage, the Sluice Dock website, the VLIZ photo gallery, the MIDAS database of RV Simon Stevin, the Wetenschatten website and the photo gallery 'A century of sea fisheries in Belgium'.

UNIQUE VISITORS TO THE VLIZ WEBSITES



KPI 5

The organisation of at least two initiatives (seminars, conferences, workshops, etc.) a year for teachers.

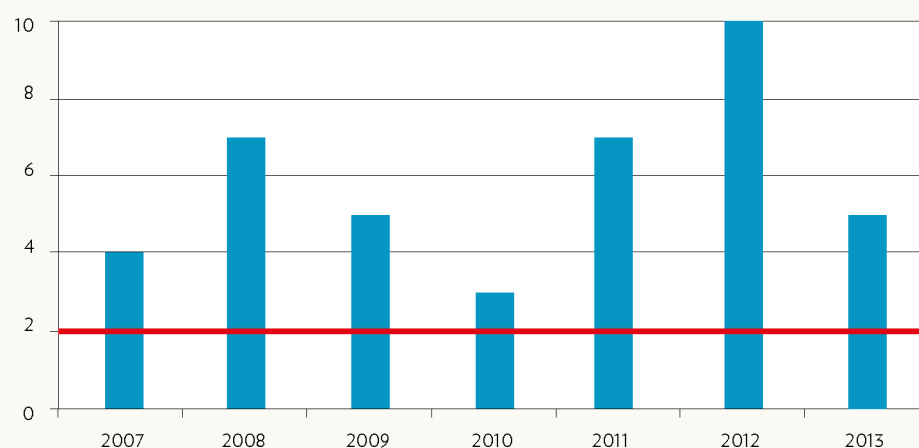
Since 2007, VLIZ has placed special focus on schools and other educational institutes by means of a Structural Partnership with the Flemish Government. Generally educational products such as practical exercises, posters, images, photo and film galleries as well as thematically arranged marine scientific information can be consulted on the VLIZ website. Specific learning modules for the second and third cycle of secondary education are available on the digital learning platform 'Planeet Zee' (Planet Ocean). These rich sources of information are presented to teachers and other educators (e.g. guides) during seminars, conferences or workshops.

VLIZ (co)organised 5 initiatives for teachers and other educators in 2013. These included:

INITIATIVES FOR TEACHERS AND OTHER EDUCATORS IN 2013

		LOCATION	ORGANISATION
07.01.2013 - 02.02.2013	Marine Art Workshops	The Academy for Visual Arts of Ghent	The Academy for Visual Arts of Ghent, Marine@UGent, with the cooperation of VLIZ
06.02.2013	'Wetenschappen-Wiskundedag' (Sciences-Maths Day) Workshop	KAHO Sint-Lieven, campus Dirk Martens, Aalst	KAHO Aalst with the cooperation of VLIZ
03.09.2013 - 05.09.2013	European Marine Science Educators Association Conference Workshop	Plymouth University, United Kingdom	EMSEA, MBA with the cooperation of VLIZ
14.11.2013 & 19.11.2013	'Week van de Smaak' (Week of Taste) Workshops	Nieuwpoort, De Panne, Ostend and Blankenberge	Katrien Vervaele (juvenile literature and maritime author), Centre for Agrarian History (CAG) with the cooperation of VLIZ
14.12.2013	Coastal guide seminar	InnovOcean site, Ostend	Nature and Environmental Education service of the province of West Flanders in cooperation with VLIZ

INITIATIVES FOR TEACHERS AND OTHER EDUCATORS



KPI 6

To develop and make available at least two educational teaching packages on the sea and coast a year.

In 2013, VLIZ developed 8 educational teaching packages on the sea and coast, including 3 learning modules and 5 practical tests. The learning modules, based on the final attainment levels for the second and third cycle of secondary education, are available on the digital learning platform Planeet Zee (www.planeetzee.be/lesmodules). The practical exercises can be carried out during science classes and can be consulted on the VLIZ website (www.vliz.be/en/exercises).

Planeet Zee learning module:

- Ocean acidification
- Sustainable fish consumption
- Plastic pollution in the oceans

Practical exercises:

- Determining one's position
- Seismic investigation of methane hydrates
- Determining the carbonate content of sand
- Algae tamagotchi
- Creating a seashell identification key

Colophon

This 2013 Annual Report of the Flanders Marine Institute (VLIZ) has been presented for approval to the Board of Directors and the General Assembly on 22 April 2014.

Coordination and final editing:

- Jan Mees – General Director of VLIZ
- Tina Mertens – VLIZ Coordination division
- Karen Rappé and Jan Seys – VLIZ Communication division

Many thanks to all who contributed to the completion of this document.

Cover photo:

The research vessel Simon Stevin. Copyright: VLIZ - Decler

Design:

Zoe©k - Marc Roets & Yves Moerman

Printing:

De Windroos

Availability:

This document is available as a PDF file on the VLIZ website.

To be quoted as follows:

Mees J., Mertens T., Rappé K. & Seys J. (Eds).

VLIZ Annual Report 2013 – Flanders Marine Institute (VLIZ), Ostend, Belgium. 2014.

ISBN 978-94-920430-2-3

D/2014/10.906/2



Annexes

3 FINANCIAL STATEMENT

5 OTHER INDICATORS

19 NATIONAL AND INTERNATIONAL NETWORKS

21 EXTERNAL FINANCING PROJECTS

27 SCIENTIFIC EQUIPMENT AND INFRASTRUCTURE

29 2013 EVENTS

32 2013 PUBLICATIONS



Balance Sheet and Income Statement

December 2013

BALANCE ON 31 DECEMBER 2013 (kEUR)

Assets	31-12-2012	31-12-2013
Intangible assets	23.84	30.93
Tangible fixed assets	4044.73	4937.82
Financial assets	5.51	0
Amounts receivable within one year	1299.36	490.32
Cash investments	1953.54	1238.62
Liquid assets	329.44	992.66
Deferred charges and accrued income	27.74	0
Total	7,684.16	7,690.35
Liabilities		
Allocated funds	375	375
Profit and losses brought forward	2535.34	1811.54
Capital grants	3170.4	3761.25
Provisions for liabilities and charges	0	0
Amounts payable after one year	1055.52	920.26
Amounts payable within one year	548.9	822.3
Deferred charges and accrued income	0	0
Total	7,685.16	7,690.35

The figures of the balance sheet and income statement include all subsidies received by VLIZ as stated in the management agreement or the covenant.

No surplus of the allocated subsidy was brought forward as a reserve in 2013 (art. 11 § 3 of the covenant).

Budgetary deviations from the 2013 budget (art. 11 § 3 of the covenant): none.

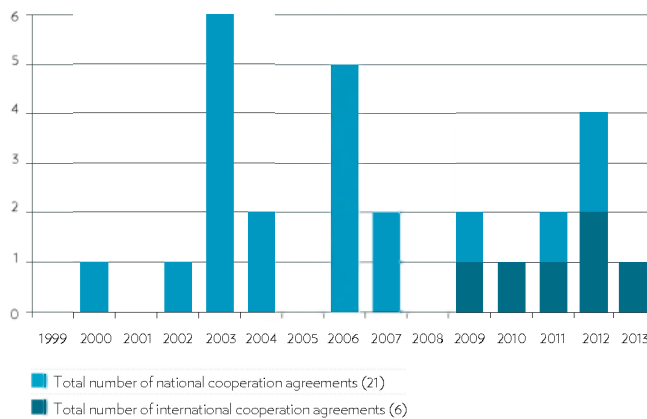
INCOME STATEMENT ON 31 DECEMBER 2013 (kEUR)

Income	31-12-2012	31-12-2013
Operating income	6246.07	6703.98
Financial income	404.96	522.94
Exceptional income	17.13	1.79
Total	6,668.16	7,228.71
Expenses		
Remuneration and social security	3469.18	4129.31
Services and other goods	1414.4	2139
Provisions for liabilities and charges	0	0
Depreciation	393.14	669.6
Financial expenses	5.32	10.83
Other operating expenses	778.37	982.6
Exceptional expenses	0.25	21.17
Total	6,060.66	7,952.51
Income		
Result for the financial year	607.50	-723.80
Transfer to allocated funds	375.00	0.00
Profit brought forward as of 31/12	2,535.34	1,811.54

Other Indicators

Coordination Division

NEW AGREEMENTS WITH MARINE RESEARCH GROUPS



A list of all agreements VLIZ made previously with marine research groups can be found in the annex to this annual report. No agreements have been renewed so far.

2013 ENVIRONMENTAL INDICATORS

PAPER CONSUMPTION

0.79

Number of packs of paper per staff member
A decline compared to 2012 (0.91)

TONER CONSUMPTION

0.84

Number of toners for printers and photocopiers used per staff member
An increase compared to 2012 (0.72)

GAS, WATER & ELECTRICITY CONSUMPTION



48,582m³

118,780kWh

123m³

The amounts in 2012: gas 38,838 m³, electricity 177,137 kWh, water 278 m³

COMMUTING

€50,684

Train, tram and bicycle allowances refunded to employees
A decline compared to 2012 (49,158 EUR)

NUMBER OF KILOMETRES OF VLIZ CARS AT THE END OF 2013

FIAT DOBLO

56,212

73,000

NISSAN NAVARA

62,313

76,742

FIAT SCUDO

24,713

33,384

0

10,000

20,000

30,000

40,000

50,000

60,000

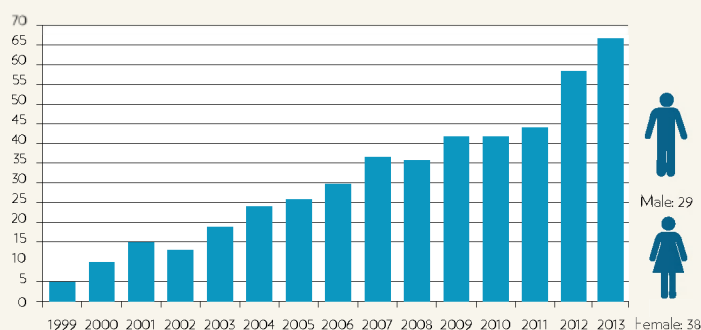
70,000

80,000

The number of kilometres driven up to the end of 2012
 The number of kilometres driven up to the end of 2013

2013 SOCIAL INDICATORS

NUMBER OF STAFF



FOREIGN ORIGIN

3

Number of people of foreign origin*

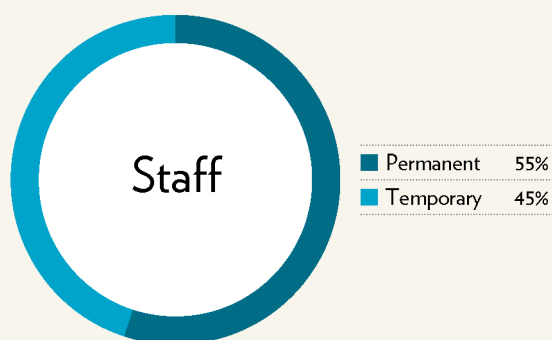
* Source: Wikipedia (Flemish perspective): any person living in the Flemish or Brussels Region, of whom at least one grandparent was born outside the European Union – excluding other Western and Northern European states, the US and Canada.

EMPLOYMENT DISABILITY

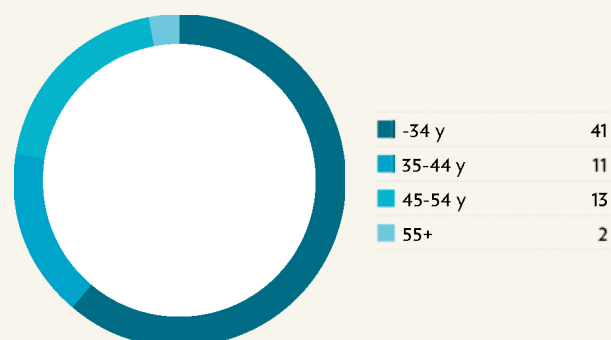
1

Number of people with an employment disability

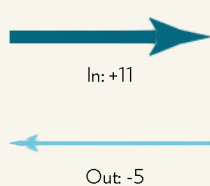
PERMANENT & TEMPORARY STAFF



AGE OF EMPLOYEES



STAFF TURNOVER



For comparison, in 2012: +16 in and -2 out

UNAVAILABILITY FOR WORK

23%

Total number of days of absence (= leave, illness ...) versus the total number of days to be performed

An increase compared to 2012 (20.5%)

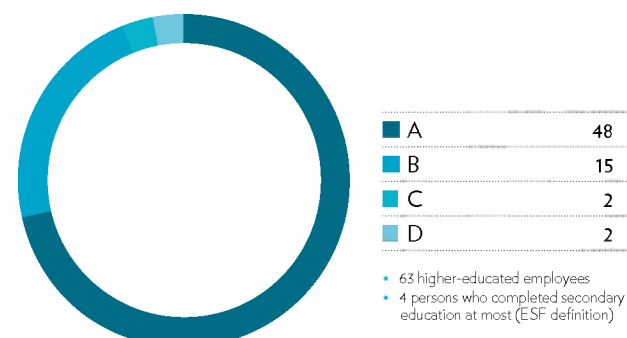
SICKNESS ABSENCE

1.89%

Number of days on which staff reported sick versus the total number of days to be performed

An increase compared to 2012 (1.4%)

LEVEL OF EDUCATION



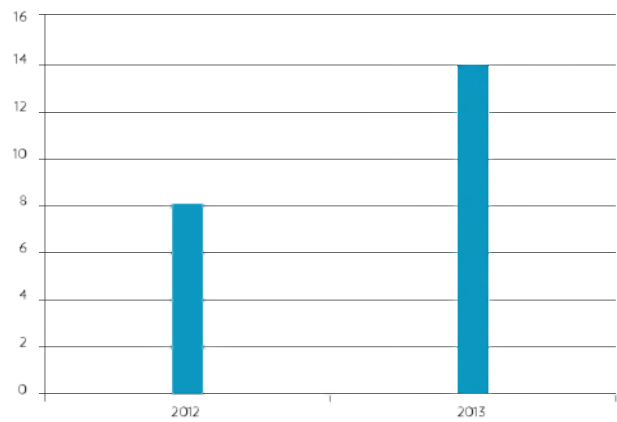
TRAINING COURSES

31

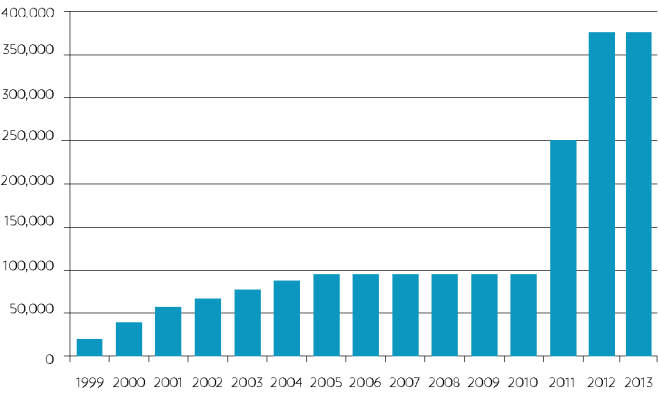
Total number of training courses taken by staff

An increase compared to 2012 (17)

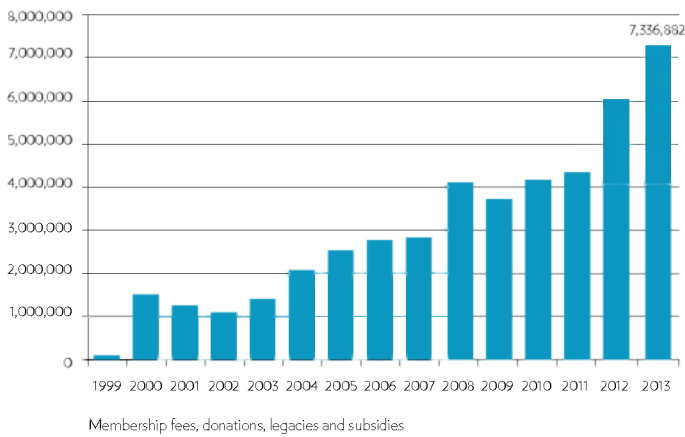
MENTION OF THE TERMS ‘SEA’, ‘MARINE’ OR ‘VLIZ’
IN POLICY-RELATED DOCUMENTS



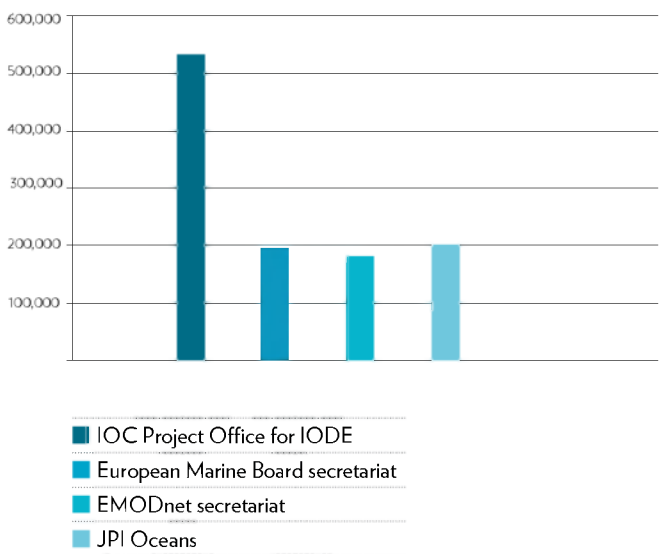
SOCIAL LIABILITIES (in euro)



VLIZ TURNOVER (in euro)

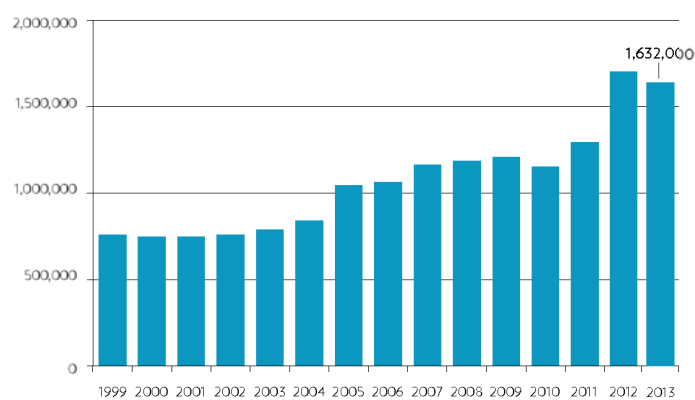


TURNOVER OF OTHER PARTNERS IN 2013 (in euro)



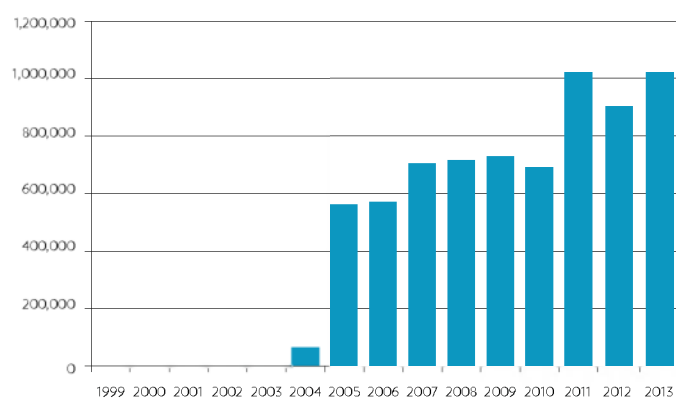
OVERVIEW OF SUBSIDIES

SUBSIDIES OF FLEMISH GOVERNMENT (in euro)



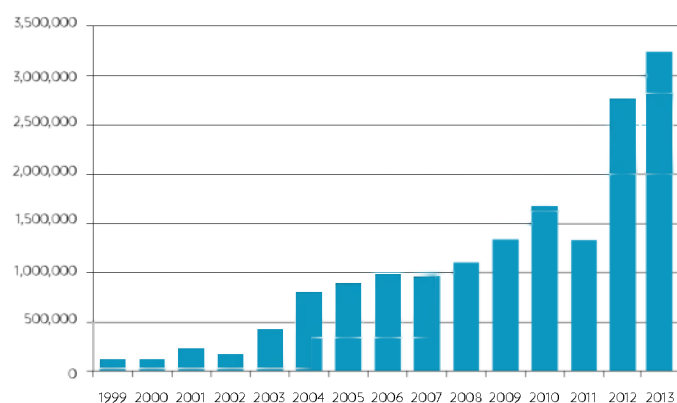
INTERNATIONAL SUBSIDIES

IOC PROJECT OFFICE FOR IODE, EMB, EMODNET SECRETARIAT, JPI OCEANS (in euro)

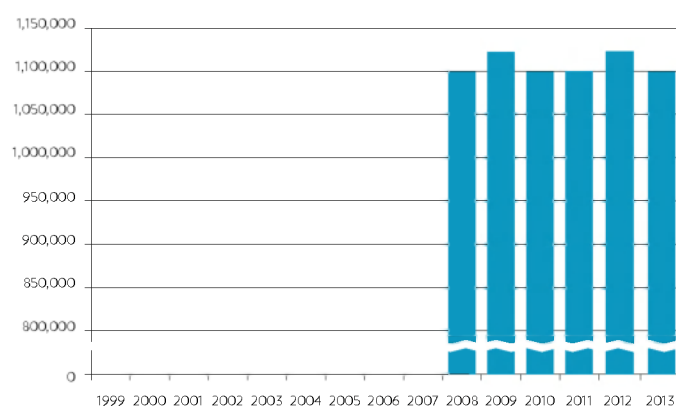


EXTERNAL FINANCING

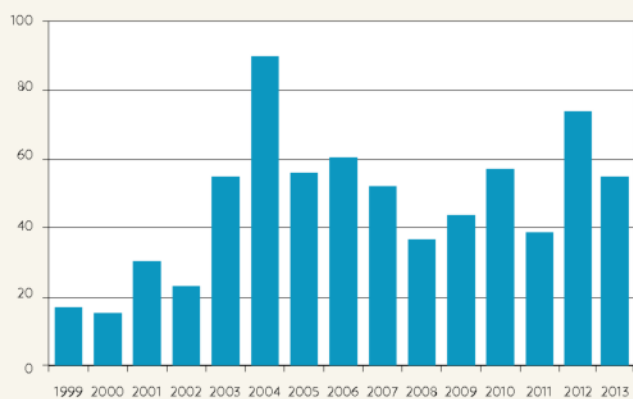
LifeWatch, province of West Flanders, national and international projects (in euro)



INVESTMENTS (in euro)

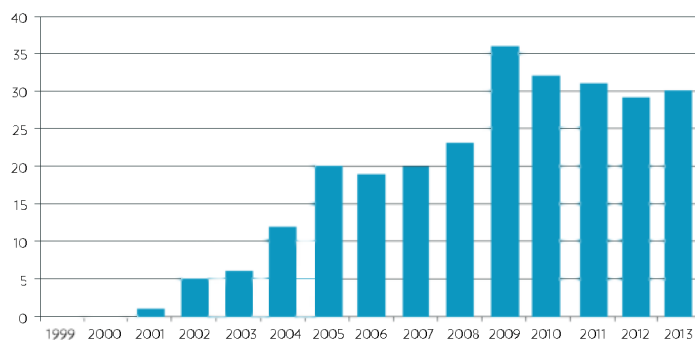


EXTERNAL FINANCING VERSUS OTHER FINANCING (in %)



Research Infrastructure division

NUMBER OF PUBLICATIONS ON VLIZ RESEARCH FACILITIES (RV SIMON STEVIN / RV ZEELEEUW AND GREENHOUSES)



SCIENTIFIC PROJECTS

110



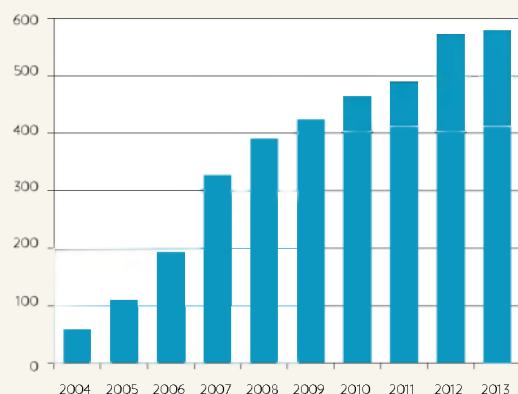
Number of scientific projects which have made use of
RV Simon Stevin / RV Zeeleeuw since 1999



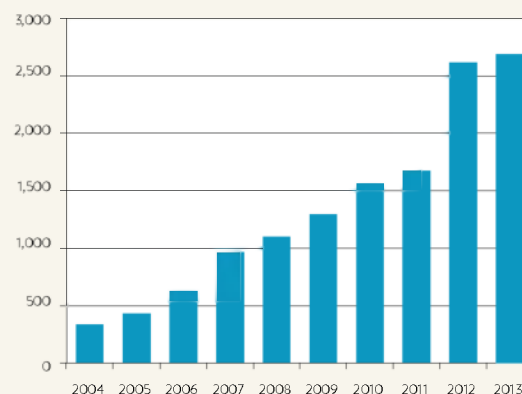
Data Centre division

ARCHIVED AND DISCLOSED DATA SETS

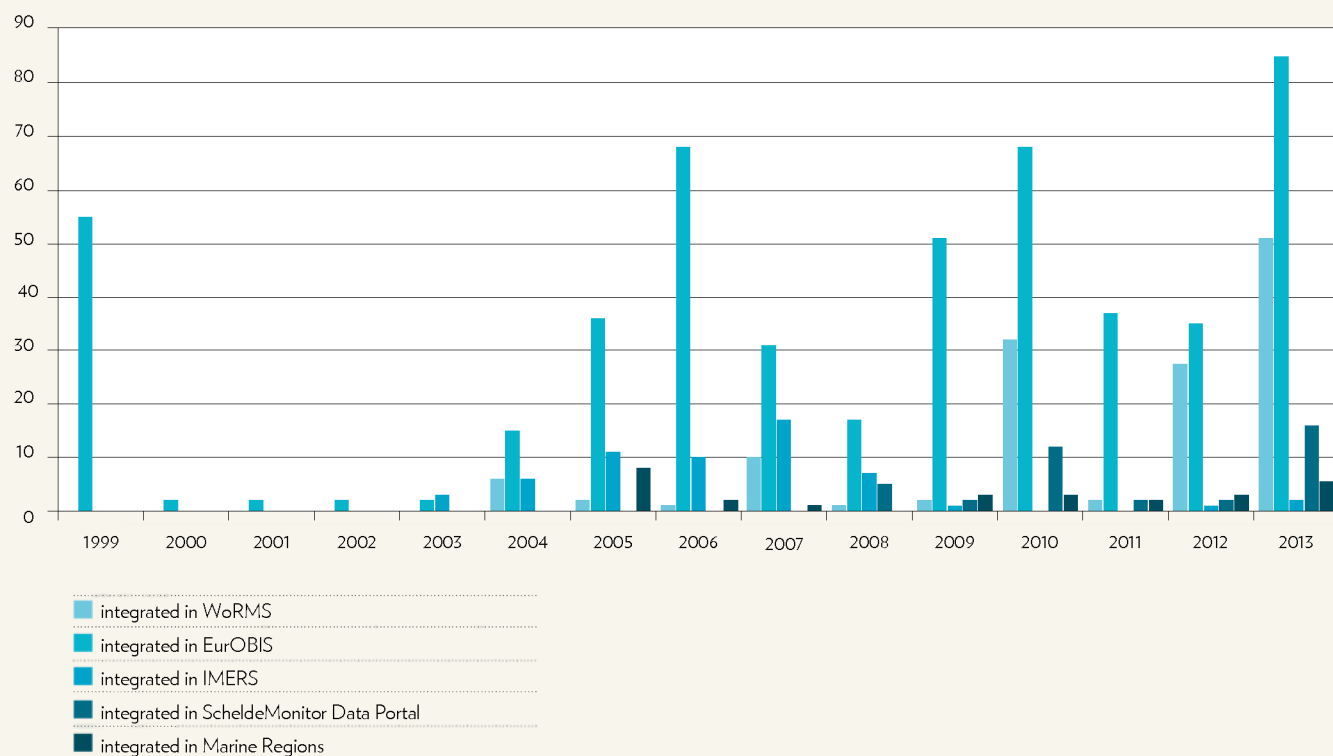
ARCHIVED DATA SETS



DISCLOSED DATA SETS



INTEGRATED DATA SETS



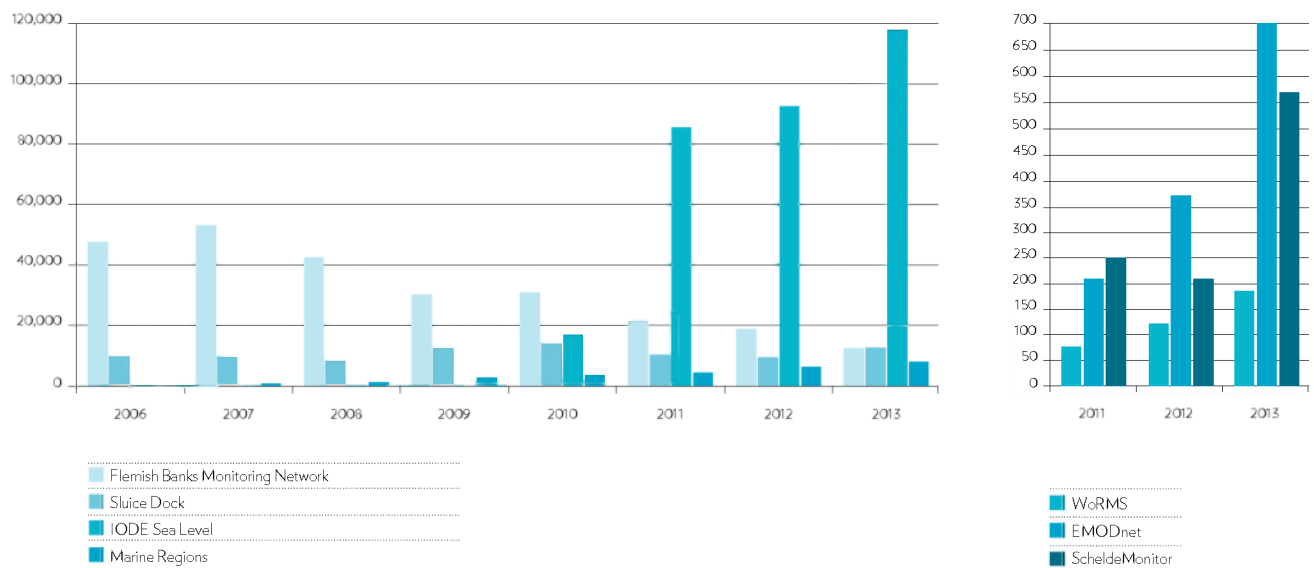
SUPPLIED DATA

174

Number of data requests (via data@vliz.be) in 2013

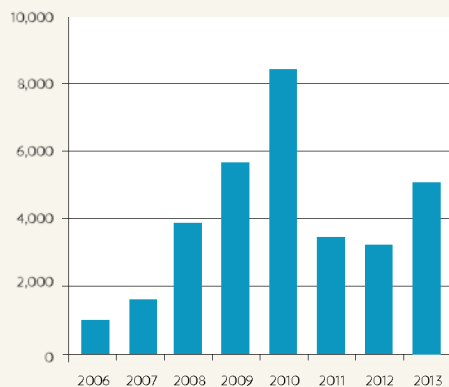
An increase compared to 2012 (111)

DOWNLOADS OF DATA



DOWNLOADS OF INFORMATIVE PRODUCTS

DE GROTE REDE



TEACHING PACKAGES

1,075

Since 01.11.2011



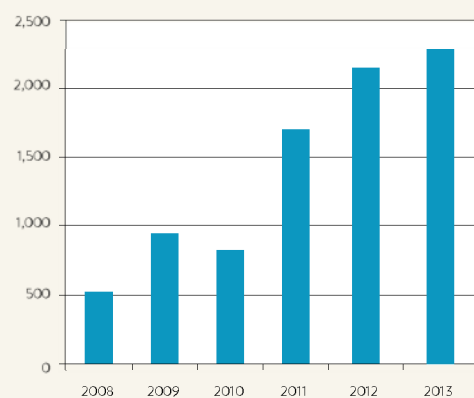
SIMON STEVIN PRODUCTS

42,568

Since 01.09.2012



ZEEKRANT



VIDEOS

206,120

2005-2013 period



PHOTOS

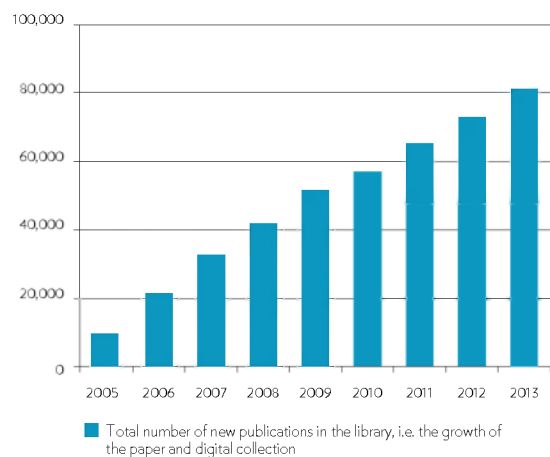
15,584,502

2005-2013 period

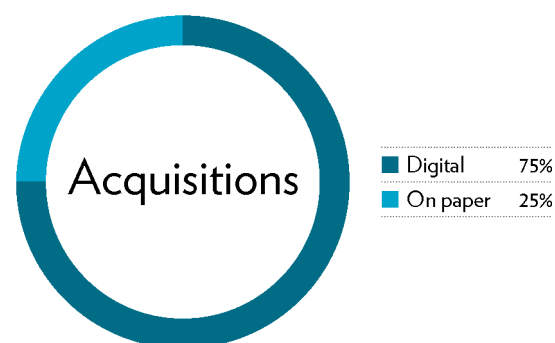


Library division

GROWTH OF LIBRARY COLLECTION

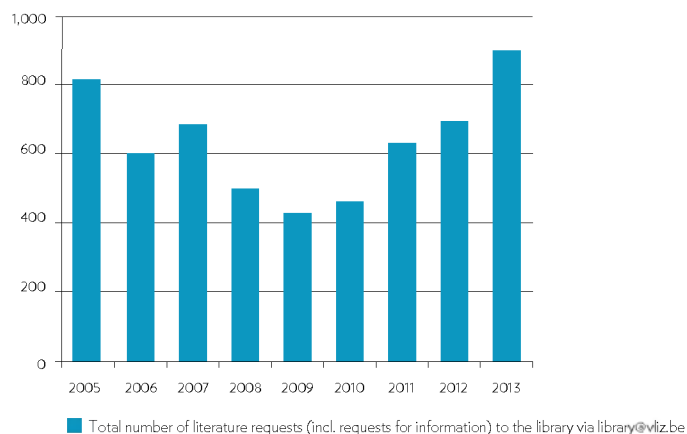


ACQUISITIONS IN 2013

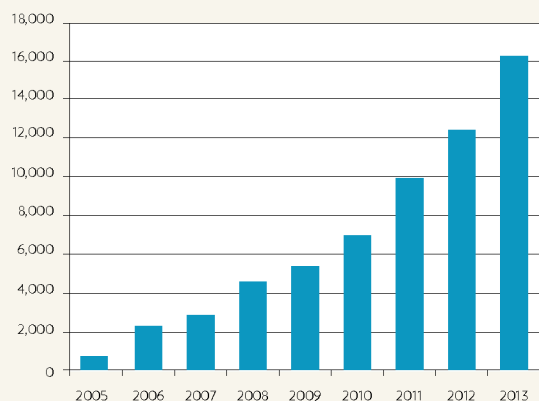


Percentages of 2012: 74% digital and 26% on paper

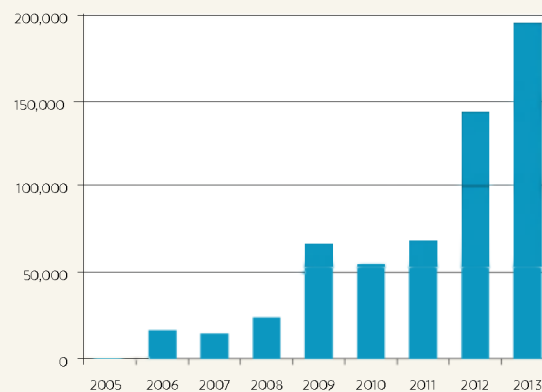
LITERATURE REQUESTS IN THE LIBRARY



REFERENCES IN THE OPEN MARINE ARCHIVE



TOTAL NUMBER OF DOWNLOADS FROM THE OPEN MARINE ARCHIVE



UNIQUE TITLES DOWNLOADED FROM THE OPEN MARINE ARCHIVE IN 2013

13,226



Total number of downloads in 2013

An increase compared to 2012 (10,197)

OTHER ITEMS FROM THE OPEN ACCESS COLLECTION

10,646



Unique titles downloaded in 2013

An increase compared to 2012 (7,995)

184,144

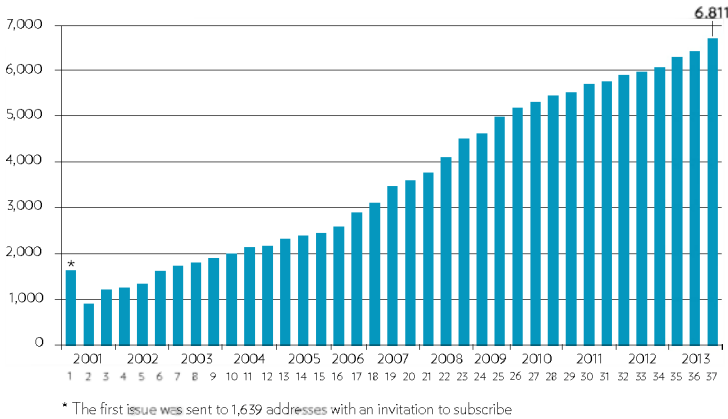


Total number of downloads in 2013

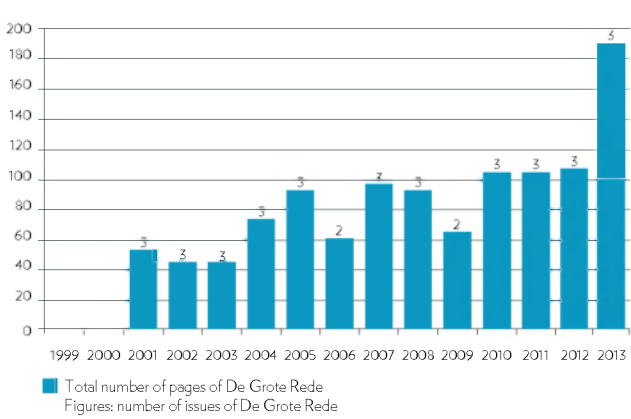
An increase compared to 2012 (140,790)

Communication division

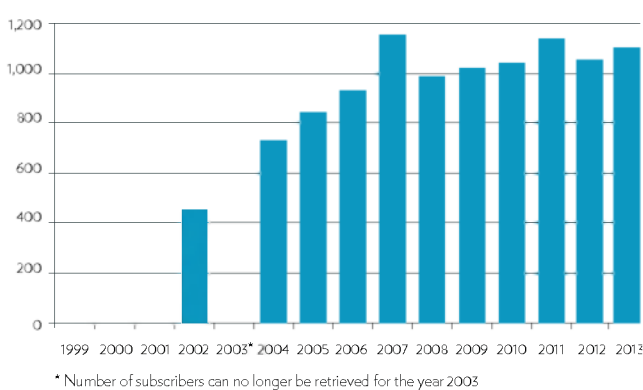
NUMBER OF SUBSCRIBERS TO DE GROTE REDE



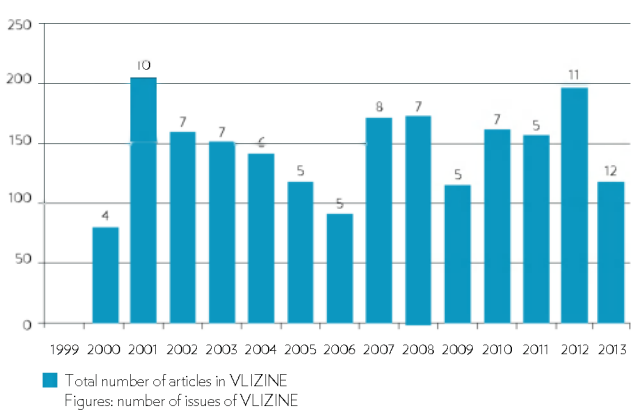
PAGES AND ISSUES OF DE GROTE REDE



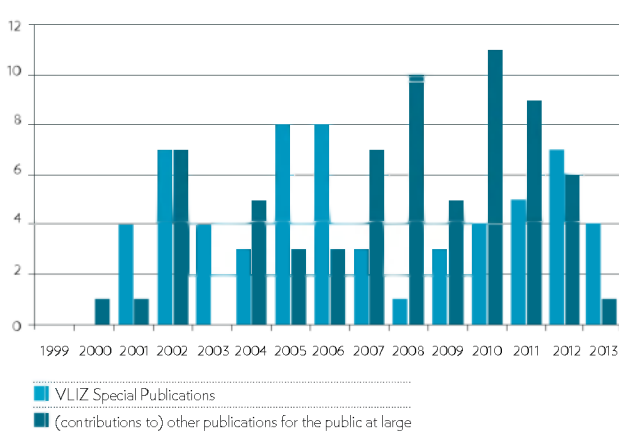
NUMBER OF SUBSCRIBERS TO VLIZINE



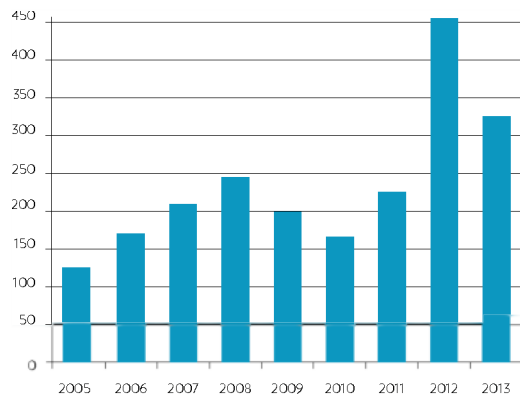
ARTICLES AND ISSUES OF VLIZINE



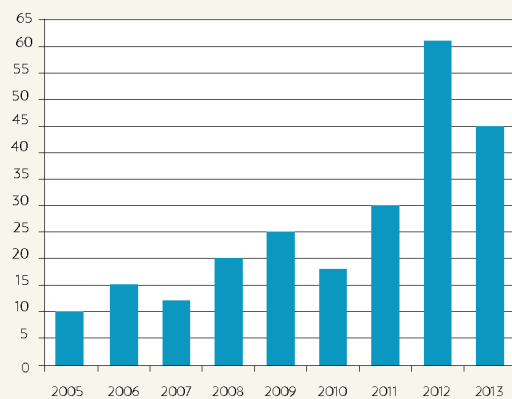
OTHER PUBLICATIONS



REQUESTS FOR INFORMATION ANSWERED BY VLIZ IN ITS ENTIRETY

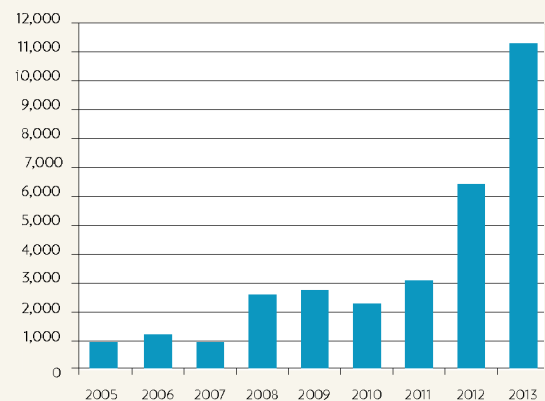


NUMBER OF EVENTS ORGANISED



■ Events (co)organised or facilitated by VLIZ

NUMBER OF PARTICIPANTS IN ORGANISED EVENTS



GENERAL PUBLIC REACHED BY MEANS OF LECTURES

60

Informative lectures in 2013

A decline compared to 2012 (72)

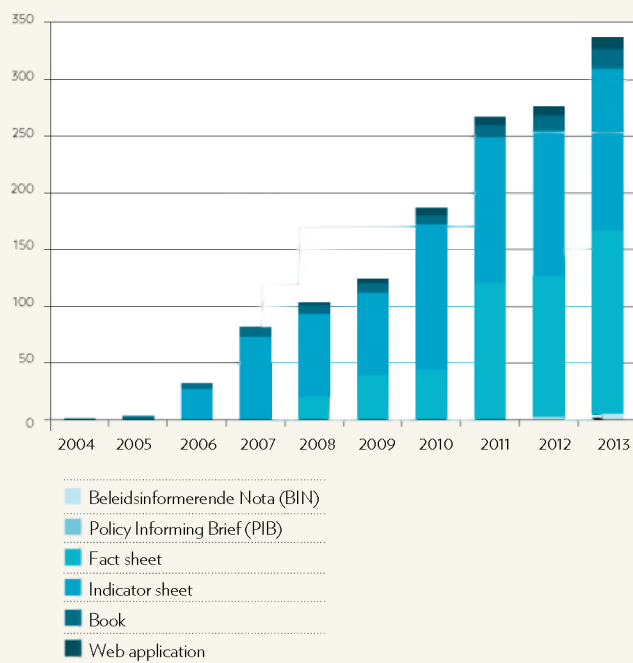
2,364

Members of the general public reached

A decline compared to 2012 (3,203)

Policy Information division

INFORMATION PRODUCTS



COOPERATION AGREEMENTS AS TO POLICY DEVELOPMENT AND SUPPORT



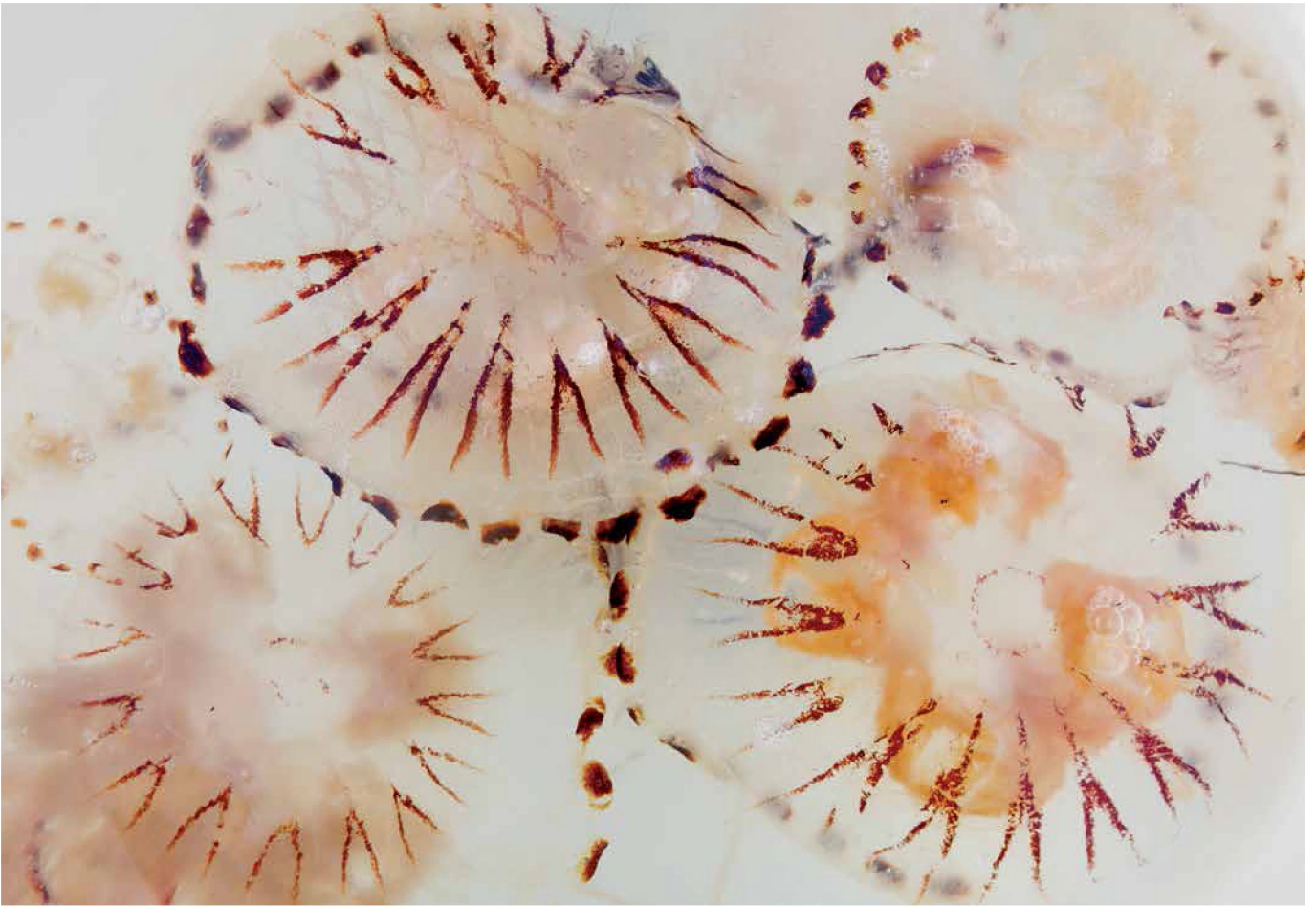
COMPENDIUM FOR COAST AND SEA 2013 INFORMATION PRODUCTS

164

(updated) sheets of marine research groups

32

thematic chapters of the various uses of the coast and sea



Networks in which VLIZ participates

National networks and advisory and consultative committees

A few examples of national networks in which VLIZ participates:

- Coordination Centre for Integrated Coastal Zone Management
- Coastal Consultation and Flood Team of the Province of West Flanders
- Science Information Network (WIN) of the Flemish government
- Flanders' Maritime Cluster vzw
- Flanders Bays steering committee
- Flemish Marine Biotechnology Platform
- Flemish Platform for Algae Research
- 'Stel je vraag.be' consortium (RBINS)
- Flemish Association for Libraries, Archives and Documentation Centres (VVBAD)
- the local group of Axis 4 of the Belgian Operational Programme for the Fisheries Industry and steering committee of Fish2know, Fish2know for Professionals, VALDUVIS, A l'Ostendaise, North Sea Chefs & fishermen, Het Grote Noordzeeviskookboek
- Advisory Committee of VNR Knokke-Heist & Westkust (ANB)
- Coastal Compass 2012 working group
- 'Surveillance, early warning and rapid response – IAS (Invasive Alien Species)' steering committee

International networks and advisory and consultative committees

A few examples of international networks in which VLIZ participates:

- IODE oceanographic data centre network (UNESCO/IOC) (IODC ODCN)
- Executive Council and General Assembly of the Intergovernmental Oceanographic Commission (IOC) of UNESCO
- Steering committee of the UNESCO/Flanders Fund-in-Trust for the support of UNESCO's activities in the field of Science (FUST)
- IAMSILIC/IODC Group of Experts on Marine Information Management
- ODE Group of Experts on Biological and Chemical Data Management and Exchange Practices
- Partnership for Observation of the Global Oceans (POGO)
- News & Information Group of the Partnership for Observation of the Global Oceans
- European Marine Board (representative of the Research Foundation – Flanders and the EMB Communications Panel) (EMB)
- European Marine Board Communications Panel (EMBCP)
- Joint Programming Initiative of Healthy and Productive Seas and Oceans (JPI Oceans)
- European Centre for Information on Marine Science and Technology (EurOcean)
- EuroMarine cluster (cluster of three European marine FP6 networks: EUR-OCEANS, MarBEF and Marine Genomics Europe) (Euromarine+)
- European network of Marine Biodiversity and Ecosystem Functioning (MARBEF+)
- European Network of Marine Research Institutes and Stations (MARS)
- European Research Vessel Organisation (ERVO)
- International Research Ship Operators (IRSO)
- European Association of Aquatic Sciences Libraries and Information Centres (EURASILIC)
- National Marine Educators Association (NMEA)
- European Marine Science Educators Association (EMSEA)
- European Census of Marine Life (EuroCoML)
- Society for the Management of European Biodiversity Data (SMEBD)
- Executive committee of the European Register of Marine Species (ERMS)

- ICES Working Group on Biodiversity Science (ICES – WGBIODIV)
- ICES Data and Information Group (ICES – DIG)
- ICES Working Group on the History of Fish and Fisheries (ICES – WGHIST)
- Steering committee of the World Register of Marine Species (WoRMS)
- Sea Data Network (SeaDataNet II)
- International Coastal Atlas Network (ICAN)
- Global Sea Level Observing System Network (GLOSS)
- Flemish-Dutch Scheldt Commission (VNSC)
- World Data System of the International Council for Science (ICSU-WDS)
- LifeWatch National Centers network (LiNC)
- European Marine Biodiversity Observatory System (EMBOS)
- Species 2000
- INSPIRE Thematic Working Group on Biogeographical Regions, Habitats and Biotopes and Species Distributions
- Coastal Wiki Editorial Board
- Steering Committee and Marine Observation and Data Expert Group (MODEG) within the European Marine Observation and Data Network (EMODnet)
- SeaWeb - Jury Concours Olivier Roelinger
- Catalogue of Life Global Team, Editorial Board, Board of Directors
- Occupational Fields Advisory Committee of Hogeschool Zeeland

In addition, VLIZ is represented in guidance groups and end-user committees of several research projects, including:

LECOFISH, CLIWAT, BEES - ECOPLAN.

Projects – external financing

VLIZ received external financing for coordination, communication and/or data management within the scope of 30 projects in 2013. Most of these projects were carried out in cooperation with research groups.

EU

BioVel – Biodiversity Virtual e-Laboratory

Duration: September 2011 – August 2014

BioVeL (www.biovel.eu) supports research on biodiversity by offering computerised tools to process large amounts of data. The research areas include ecological niche modelling, ecosystem functioning and taxonomy.

COCARDE – COld-water CARbonate Reservoir systems in Deep Environments

Duration: June 2011 – May 2016

COCARDE brings together geoscientists involved in research into 'ancient' and 'modern' carbonate mounds. Its objective is to gain new insights which may contribute to the knowledge of historical geology through the study of contemporary cold-water carbonate mounds.

CSA MarineBiotech – ERA-NET Preparatory Action in Marine Biotechnology

Duration: 01.10.2011 – 31.03.2013

The social and economic importance of marine biotechnology is steadily increasing. However, the current marine biotechnological landscape in Europe is highly fragmented and lacks coordination.

The European FP7 project 'CSA MarineBiotech' (www.marinebiotech.eu) is intended to realise common programmes and collaborations by preparing an ERA-NET in marine biotechnology. For this purpose, there is close collaboration with research funders and stakeholders in marine biotechnology from various European countries.

VLIZ coordinates the communication tasks within the CSA.

CSA Oceans – JPI Oceans Preparatory Action

Duration: 01.09.2012 – 31.08.2015

This FP7 support action is designed to make the transition from the start-up phase to the operational phase of JPI Oceans as smooth as possible. This 3-year action is specifically aimed at 1) supporting the operation of management structures to develop JPI Oceans; 2) promoting the realisation of a strategic research and innovation agenda (SRIA) as well as an implementation plan (iPlan) in line with the vision and objectives of JPI Oceans; and 3) proposing procedures and tools to further long-term cooperation within JPI Oceans. VLIZ coordinates the communication tasks within the CSA.

EMBOS – Development and implementation of a pan-European Marine Biodiversity Observatory System

Duration: 01.02.2011 – 01.02.2015

This COST project focuses on the coordination and management of a marine biological observation network linked to LifeWatch.

EMODnet – European Marine Observation and Data Network

Duration: 2013 – 2016

The European Marine Observation and Data Network (EMODnet) develops a data infrastructure to make marine data available so as to support scientists, policymakers and other end users within the scope of the new European maritime policy. VLIZ is responsible for the biological pilot project (bio.emodnet.eu). It will use the existing European atlas with distribution data of marine species (EurOBIS) as a basis and complete it. VLIZ is also involved in the chemical project of EMODnet. In addition, VLIZ is expanding the EMODnet Central Portal (www.emodnet.eu) which should provide access to the data products and data collected within the EMODnet thematic networks. The EMODnet secretariat is furthermore located at the InnovOcean site in Ostend.

EUROFLEETS – *Towards an Alliance of European Research Fleets*

Duration of phase 1: 01.09.2009 – 31.08.2013

Duration of phase 2: 01.03.2013 – 28.02.2017

A network of 24 European research institutes that want to deploy their vessels and research infrastructure more efficiently and develop a central system in order to gain access to other European research vessels (www.eurofleets.eu). VLIZ coordinates a recommendation for an ecological regional research fleet and contributes to the development of a strategic view of the European research fleet. Broadly speaking, EuroFleets II continues the tasks of EuroFleets I but has a different focus.

Within the second project, VLIZ continues to contribute to the strategic vision and to a generic design of regional research vessels. In addition, it needs to contribute to the organisation of training courses for young researchers and 'floating universities'. The main contribution of VLIZ consists in making RV Simon Stevin available to foreign researchers for a project in the Southern Bight of the North Sea.

EuroMarine – *Integration of European Marine Research Networks of Excellence*

Duration: 01.02.2011 – 30.01.2013

EuroMarine integrates three major European marine FP6 networks (EUR-OCEANS, MarBEF and Marine Genomics Europe) into one organisation: the EuroMarine Consortium. VLIZ integrates the data and develops / updates the website (www.euromarineconsortium.eu).

GIFS – *Geography of Inshore Fisheries and Sustainability*

Duration: 01.07.2011 – 30.06.2014

Aimed at exploring the socio-economic and cultural importance of inshore fisheries in the study area (Interreg 2 Seas) and developing a demonstration project with a view to strengthening the fishing community. VLIZ is responsible for the historical survey of inshore fisheries, its socio-economic importance, the link with integrated coastal zone policy, and the image of inshore fisheries in seaside tourism. Cooperation with the Coordination Centre for Integrated Coastal Zone Management is planned.

iMarine – *Data e-Infrastructure Initiative for Fisheries Management and Conservation of Marine Living Resources*

Duration: 01.11.2011 – 31.05.2013

This project is intended to create and maintain a data infrastructure to support the management of fisheries and other natural resources according to the principles of the ecosystem approach.

ISECA – *Information System on the Eutrophication of our Coastal Areas*

Duration: 01.07.2011 – 30.06.2014

This Interreg project (www.iseca.eu) is aimed at creating an information platform concerning eutrophication in the Channel area. It should include an information system (with regard to the actors in this study area), data and communication products as well as an evaluation tool for monitoring the water quality by means of earth observations.

KNEU – *Developing a Knowledge Network for EUropean expertise on biodiversity and ecosystem services to inform policymaking economic sectors*

Duration: 01.11.2010 – 30.10.2013

VLIZ develops the website (www.biodiversityknowledge.eu) with an integrated information system for external and internal communication of the Network of Knowledge (NoK) for European expertise on biodiversity and ecosystem services.

MERMAID

Duration: 01.01.2012 – 31.12.2015

MERMAID will develop concepts for the next generation of offshore platforms which can be used for multiple purposes, including energy extraction, aquaculture and platform-related transport. MERMAID will examine new concepts which combine various functions. VLIZ is responsible for project dissemination & outreach, and organises a high-level end user conference, among other things. Belgian end users include DEME, De Nul, Flanders' Maritime Cluster and Versluys. VLIZ takes care of the communication within the MERMAID project.

Micro B3

Duration: 01.01.2012 – 31.12.2015

Micro B3 intends to develop innovative bioinformatic approaches and a legal framework to make large-scale data on marine viral, bacterial, archaeal and protists genomes and metagenomes accessible for marine ecosystems biology and to define new targets for biotechnological applications.

MARBIGEN - *Supporting research potential for MARine Biodiversity and GENomics in the Eastern Mediterranean*

Duration: 01.11.2010 – 30.04.2014

Within the scope of this project, VLIZ will be part of the Board of External Advisors and provide training courses to employees of the Institute of Marine Biology and Genetics (IMBG) in Crete with regard to data management of marine biodiversity information.

Marine Regions - *Towards a standard for georeferenced marine names*

Duration: continually

Website: www.marineregions.org

Marine Regions is a standardised geographic data system which makes geographic information on marine place names and maps freely available. It integrates geographic information on seas, oceans and undersea features, and indicates the boundaries of various marine areas throughout the world. The website www.marineregions.org now makes it possible to easily locate the Exclusive Economic Zones (EEZs) as well many marine place names worldwide. 'Marine Regions' integrates the data and information from the VLIMAR Gazetteer (place name register) and the MARBOUND database (EEZ boundaries). Both global data systems have been developed by the Flanders Marine Institute and have demonstrated their added value for many users over the past few years. By combining both databases, the different target groups will undoubtedly be served even better.

PEGASO - *People for Ecosystem Based Governance in Assessing Sustainable Development of Ocean and Coast*

Duration: 01.02.2010 – 31.01.2014

Within this consortium, VLIZ collaborates on the development of a 'spatial data infrastructure' and the preparation of indicators, scenarios and socio-economic evaluations for the Mediterranean Sea and the Black Sea. As data and information coordinator, VLIZ is responsible for ensuring the flow of (meta)data and information between partners and end users, e.g. through the website www.pegasoproject.eu.

Sea for Society

Duration: 01.06.2012 – 30.11.2015

This project will develop modalities for stakeholder participation with regard to the concept of Blue Society. Surveys and consultations of target groups will be organised in different European regions by means of developed protocols. The project is coordinated by Nausicaa, and VLIZ is participating as a member of EurOcean. Especially at a later stage of the project, VLIZ will collaborate on the organisation of stakeholder meetings in Belgium.

SeaDataNet 2 – A pan-European Infrastructure for ocean and marine data management

Duration of SeaDataNet2: 01.10.2011 – 30.09.2015

Professional data centres from 35 countries collaborate to make the data sets collected by the pan-European oceanographic research fleet and the new automated observation systems available within one efficiently distributed data system (www.seadatanet.org). VLIZ supplies the (meta)data and information collected in Flanders.

THESEUS – Innovative technologies for safer European coasts in a changing climate

Duration: 01.12.2009 – 30.11.2013

Collaboration between coastal engineers and marine ecologists from more than 30 European research groups who study coastal defence with combined efforts, with a focus on the sea level rise. VLIZ coordinates the dissemination of information and communication.

WoRMS – World Register of Marine Species

Duration: continually

Website: www.marinespecies.org

The World Register of Marine Species aims to provide an authoritative and comprehensive list of names of marine organisms, including information on synonymy. While highest priority goes to valid names, other names in use are included so that this register can serve as a guide to interpret taxonomic literature.

Fisheries & Oceans Canada

CaRMS – The Canadian Register of Marine Species

Duration: continually

VLIZ coordinates the quality control of the Canadian marine species register and ensures the maintenance and further development of the database and website (www.marinespecies.org/carms).

The province of West Flanders

Zwin project

Duration: 01.10.2012 – 30.06.2013

The task of VLIZ in the Zwin project is:

- The creation of an online database structure.
- The collection and disclosure of the contents of all published materials related to the Zwin nature reserve in line with the criteria established in consultation with the province of West Flanders.
- An exploratory analysis of unpublished materials with proposed disclosure of these materials. A distinction is made between materials whose disclosure takes priority and other materials whose disclosure does not take priority in consultation with the province of West Flanders.

Flemish government, Waterways and Sea Canal (W&Z)

OMES – *Research on the environmental effects of the SIGMA plan*

Phase VI: 01.02.2012 – 30.04.2013

Phase VII: 01.02.2013 – 30.04.2014

VLIZ is responsible for the integrated OMES database and ensures its dissemination through the OMES website (www.vliz.be/projects/omes).

Flemish government, Maritime Access division

ScheldeMonitor – *Flemish-Dutch knowledge platform for research and monitoring of the Scheldt estuary*

Duration of phase 2011: 01.12.2010 – 31.12.2011; extended to 31.12.2013

The website www.scheldemonitor.org offers information and, since 2010, data as well in support of the cross-border monitoring and research in the Scheldt estuary.

Hercules Foundation

LifeWatch – *Flemish contribution to LifeWatch.eu*

Duration: continually since 2012

The Flemish contributions to the LifeWatch infrastructure (www.lifewatch.be) are coordinated by the Research Institute for Nature and Forest (INBO) and, as far as the marine component is concerned, by the Flanders Marine Institute (VLIZ). Flanders contributes to the central LifeWatch infrastructure by creating a Taxonomic Backbone. Marine, freshwater and terrestrial observatories are developed regionally, as are different biodiversity data systems, web services and models.

ICOS – *Integrated Carbon Observing System*

Duration: continually since 2012

Website: www.icos-infrastructure.eu

ICOS will provide the long-term observations required to understand the present state and predict future behaviour of the global carbon cycle and greenhouse gas emissions. VLIZ performs the oceanographic measurements which Flanders will transfer to ICOS through the University of Antwerp. Within this scope, VLIZ performs measurements aboard RV Simon Stevin, will have devices installed on ferries which operate along the Chilean coast, and investigates the possibilities to find a 'ship of opportunity' which regularly sails from Belgium to America or South Africa. Over the past year, the ICOS instrumentarium was expanded with an atmospheric CO₂ sensor, a nutrient analyser, a fast repetition fluorometer, a pH sensor and a CO₂ sensor to be installed on a measurement buoy. The laboratory equipment required to calibrate all measurements and maintain the sensors is provided as well. Within the scope of ICOS, VLIZ collaborates with NIOZ-Yerseke and the University of Liège (Alberto Borges).

UNESCO

GLOSS – Sea Level Station Monitoring Facility

Duration: continually since 2008

A worldwide service for real-time sea level monitoring by means of measuring stations in cooperation with GLOSS (Global Sea Level Observing System) and IOC (Intergovernmental Oceanographic Commission).

Belgian National Lottery

North Sea Observatory – ‘Sustainable Development’ call by the Belgian National Lottery

Duration: May 2013 – December 2014

Website: www.vliz.be/en/artificial-reefs

Development of a semi-automatic marine observatory located at the Belgian offshore wind farms to monitor the biodiversity of the installed artificial reefs and seal haul-out sites. VLIZ implements the project and coordinates the steering group meetings in which the purchase of equipment and the monitoring plan are discussed. The following parties are represented in the steering committee: cabinet of Minister Vande Lanotte, VLIZ, RBINS, INBO, Ghent University, Dredging International.

IWT – Strategic Basic Research

SeArch

Archaeological Heritage in the North Sea

Duration: 2013-2016

Website: www.sea-arch.be

Development of an efficient assessment methodology and proposals for a sustainable management in Belgium. VLIZ is one of the six partners and in charge of the work package concerning ‘outreach and guidance’ (WP 3). Within this scope, VLIZ ensures the layout and distribution of several information products as well as the organisation of a number of workshops and seminars. VLIZ also provides support in terms of the setup of the website.

Scientific equipment and infrastructure

Overview of scientific equipment and infrastructure for scientific research made available by VLIZ.

Physico-chemical parameters

- RV Simon Stevin and De Haan weather stations
- CTD CTD48M
- CTD SBE-19plus
- CTD SBE-19plusV2
- Seabird SBE43 oxygen sensor
- Fluorometer
- LISST-100
- OBS-3
- Secchi disk
- Thermosalinograph
- Cohesive Strength Meter (CSM)

Water sampling

- Niskin 10 litre bottle
- Niskin 5 litre bottle
- GO-FLO
- Carrousel Water Sampler (6 Niskin 4 litre bottles and accompanying CTD SBE19plusV2)

Sediment sampling

- Van Veen grab
- Reineck Box Corer
- Bowers & Connolly Multi-Corer
- Hamon grab

Biological sampling

- Apstein Plankton Net
- Bongo net
- Neuston net
- MIK net
- WP2 plankton net
- Trawl plankton net
- Plankton pump
- Hyperbenthic sledge
- 3-metre beam trawl
- Otter trawl
- Pelagic otter trawl
- Van Veen grab
- Reineck Box Corer
- Hamon grab
- Bowers & Connolly Multi-Corer
- Hydrophone / Passive Acoustic Monitoring (PAM system)

Miscellanea

- Compressor for filling diving cylinders
- Sieving table
- Fish sorting table
- Wilson Automated Siever
- DGPS hand-held unit
- Mini ROV (incl. video camera)
- Underwater photo camera
- Tripod
- Underwater Diver Receiver
- Bird tracking camera
- Web cameras
- Microscopes
- Video camera
- Biological laboratory
- ROV Genesis

Storage space

- Warehouses
- Freezers
- Cold store – Core Depository
- Cryo freezer (-80°C)

Events organised, co-organised and facilitated by VLIZ in 2013

45 EVENTS – 11,324 PARTICIPANTS

DATE	TITLE	LOCATION	NUMBER OF PARTICIPANTS	APPLICANT	ROLE OF VLIZ	TYPE
21.01.2013	Flanders Heritage Agency & cabinet meeting	InnovOcean site, Ostend	15	Flanders Heritage Agency	facilitator	meeting
2-6.02.2013	Marine Art project exhibition	UGent – University Forum, Ghent	3000	VLIZ in collaboration with Marine@UGent	co-organiser	exhibition
3.02.2013	Children's University	UGent – University Forum, Ghent	100	VLIZ in collaboration with Marine@UGent and The Academy for Visual Arts of Ghent	co-organiser	workshop
14.02.2013	VLIZ mini-symposium on the Southern North Sea 2013	KHBO, Bruges	77	VLIZ	organiser	seminar
15.02.2013	VLIZ Young Marine Scientists' Day 2013	KHBO, Bruges	303	VLIZ	organiser	seminar
11-12.03.2013	CSA MarineBiotech closing conference	KVAB, Brussels	145	European Marine Board in collaboration with VLIZ	co-organiser	conference (international)
20.03.2013	Retirement celebration for Luc Van Damme & Paul Hanssens	InnovOcean site, Ostend	100	Department of Mobility and Public Works – Maritime Access	facilitator	celebration
15-17.04.2013	MARID IV (Marine and River Dune Dynamics)	Provinciaal Hof, Bruges	96	MUMM in collaboration with FPS Economy, VLIZ, Belgian Navy, Flemish Hydrography, UGent and Wat-Lab.	co-organiser	conference (international)
23.04.2013	FlanSea press conference	InnovOcean site, Ostend	80	UGent and Port of Ostend	facilitator	press conference
16.05-8.06.2013	Marine Art exhibition	Fort Napoleon, Ostend		HERITA in collaboration with VLIZ and Marine@UGent	co-organiser	exhibition
17.05.2013	Marine Art vernissage attended by Minister Johan Vande Lanotte	Fort Napoleon, Ostend	100	HERITA in collaboration with VLIZ and Marine@UGent	organiser	vernissage
23.05.2013	UPV seminar: 'De zee gemeten'	InnovOcean site, Ostend	24	Uitstraling Permanente Vorming vzw	co-organiser	seminar
23.05.2013	'North Sea Master Plan' press conference by Minister Johan Vande Lanotte	InnovOcean site, Ostend	15	Cabinet of the Belgian Minister for the North Sea	facilitator	press conference
25-26.05.2013	Ostend at Anchor	VLOOT dab, Ostend	1820	VLOOT dab in collaboration with VLIZ	active participant	open house day
29-30.05.2013	European Fisheries Control Agency (EFCA) meeting	InnovOcean site, Ostend	30	Department of Agriculture & Fisheries	facilitator	meeting
6.06.2013	World Oceans Day	Fort Napoleon, Ostend	55	VLIZ in collaboration with HERITA and Marine@UGent	co-organiser	open house day
7.06.2013	Marine@UGent mini-symposium	InnovOcean site, Ostend	57	Marine@UGent	facilitator	seminar

DATE	TITLE	LOCATION	NUMBER OF PARTICIPANTS	APPLICANT	ROLE OF VLIZ	TYPE
13.06.2013	Gen4Wave	InnovOcean site, Ostend	100	Flanders Maritime Cluster	facilitator	info session
18.06.2013	LifeWatch – gulls press conference	InnovOcean site, Ostend	43	VLIZ in collaboration with INBO	co-organisier	press conference
18-20.06.2013	FADA workshop	InnovOcean site, Ostend	17	VLIZ in collaboration with MUMM and UGent	co-organisier	workshop
20.06.2013	Society for the Management of Electronic Biodiversity Data Annual General Meeting	InnovOcean site, Ostend	6		co-organisier	meeting
21.06.2013	Guidance Committee – Scientific Committee	InnovOcean site, Ostend	55	VLIZ	organisier	meeting
25-26.06.2013	Ocean Literacy Workshop H2020	InnovOcean site, Ostend	21	European Marine Board in collaboration with VLIZ	co-organisier	workshop
9.07.2013	Zeetex seminar 'Maritime innovation by textiles'	InnovOcean site, Ostend	107	VLIZ in collaboration with Centexbel, Flanders' Maritime Cluster, Uptex, Pôle AQUIMER	facilitator	seminar
16.07.2013	Workshop 'ex ante evaluation of the Belgian Operational Programme' within the scope of the European Maritime and Fisheries Fund	InnovOcean site, Ostend	40	Technum nv in collaboration with VLIZ	facilitator	workshop
23.08.2013	Departure of RV Mtafiti ceremony	IDP shipyard, Ostend	95	VLIZ	organisier	ceremony, press conference
29.08.2013	Joint Committee on sea fisheries	InnovOcean site, Ostend	10	Joint Committee on sea fisheries	facilitator	meeting
10.09.2013	Beach and dune wildlife seen through a binocular microscope	InnovOcean site, Ostend	18	Horizon educatief	facilitator	workshop
22.09.2013	Vlaamse Havendag (Flemish Open Port Day) – offshore job fair 'Draai mee op Zee'	InnovOcean site, Ostend	3000		facilitator	open house day
18.10.2013	THESEUS Science Meets Policy (SPI) Event	RBINS, Brussels	101	VLIZ in collaboration with University of Bologna	organisier	conference (international)
23.10.2013	Contact moment for schools concerning educational heritage project	InnovOcean site, Ostend	25	UNESCO, WG Education	facilitator	info session
31.10.2013	'100 jaar kust en klimaat' (100 years of coast and climate) seminar	InnovOcean site, Ostend	80	Interreg Project 'Neem de mensen mee'	co-organisier	seminar
8.11.2013	'The Great War and the Sea' seminar	Staf Versluyscentrum, Bredene	302	VLIZ	organisier	seminar
14 & 19.11.2013	'Week van de smaak' (Week of Taste) – Peeling shrimp and oral history	residential care centres on the coast	150	Centre for Agrarian History in collaboration with Katrien Vervaele, VLIZ and vzw Promovis Nieuwpoort	co-organisier	workshop
14.11.2013	Launch of Compendium for Coast and Sea	Flemish Parliament, Brussels	64	VLIZ	organisier	book presentation

DATE	TITLE	LOCATION	NUMBER OF PARTICIPANTS	APPLICANT	ROLE OF VLIZ	TYPE
14.11.2013	Metropolitan coastal landscape	InnovOcean site, Ostend	70	Ruimte Vlaanderen, Research and Monitoring division	facilitator	info session
18-22.11.2013	Sustainable Fish @ UGent	UGent, Ghent		Marine@UGent, with the cooperation of VLIZ, The North Sea Foundation and WWF	co-organisier	open house day
20-22.11.2013	Alien species in the NE Atlantic Ocean	ILVO, Ostend	62	ILVO in cooperation with VLIZ, MUMM and UGent	facilitator	seminar
24.11.2013	Science Day: RV Simon Stevin open to the public	Foxtrot, Ostend	427	VLIZ in collaboration with VLOOT dab, Technopolis and EWI	co-organisier	open house day
25-29.11.2013	GIFS partner meeting and GIFS stakeholder meeting	InnovOcean site, Ostend	74	VLIZ	organisier	meeting
25.11.2013	'Coastal safety in Ostend' info session	InnovOcean site, Ostend	32	Grenzeloze Schelde vzw	facilitator	info session
26.11.2013	Press conference by the Minister for the North Sea: underwater heritage/wrecks	InnovOcean site, Ostend	30	Cabinet of the Belgian Minister for the North Sea	facilitator	press conference
29.11.2013	Seminar 'History of Sea Fisheries: Fishing in the Past'	InnovOcean site, Ostend	138	VLIZ	organisier	seminar
29.11.2013	Presentation of the book 'Bouw van de Oostendse tweemastsloep Nele' by Georges Verleene	InnovOcean site, Ostend	100	Georges Verleene	facilitator	book presentation
14.12.2013	Coastal guide seminar	InnovOcean site, Ostend	140	Nature and Environmental Education service of the province of West Flanders in cooperation with VLIZ	co-organisier	seminar

2013 publications

De Grote Rede

- **Issue 35** (June 2013) – with leading articles on algal bloom, Leffinge-Oude Werf: artificial dwelling hills in the coastal polders, and underwater features of the North Sea.
- **Issue 36** (November 2013) – special issue ‘The Great War and the Sea’ with 15 leading articles on various aspects of WWI and the sea, 7 one-page sections on the same topic, and toponyms of the principal places in the front area.
- **Issue 37** (December 2013) – with leading articles on Ten Duinen abbey, ocean acidification and energy atolls.

VLIZINE

A total of 12 issues of the e-newsletter ‘VLIZINE’ appeared in 2013 including a total of 114 articles.

VLIZ Library Acquisitions

A total of 35 Library Acquisitions lists were forwarded by e-mail in 2013.

Zeekrant 2013

This eight page annual publication of the Flanders Marine Institute and the province of West Flanders is printed in 75,000 copies. The publication was launched on 6 June 2013 on the occasion of World Oceans Day.

Social Media

Facebook pages:

- RV Simon Stevin
- Shrimp
- Marine Art

Twitter:

twitter.com/jmeesvliz

Books

VLIZ checked the scientific validity of a new Studio 100 children’s book on the sea: Piet Piraat Wonderwaterwereld 2 (published in the autumn of 2013).

VLIZ Special Publications

- **No. 63:** Mees, J.; Seys, J. (Ed.) (2013). [Book of abstracts - VLIZ Young Scientists' Day](#). Brugge, Belgium, 15 February 2013. VLIZ Special Publication, 63. Vlaams Instituut voor de Zee (VLIZ): Ostend. xii, 168 pp.
- **No. 64:** Mees, J.; De Raedemaeker, F.; McDonough, N.; Calewaert, J.-B. (Ed.) (2013). [Marine biotechnology in the European research area: Challenges and opportunities for Europe](#). Final CSA MarineBiotech Conference. Royal Flemish Academy of Belgium for Science and the Arts, Brussels, Belgium, 11 - 12 March 2013. VLIZ Special Publication, 64. Flanders Marine Institute (VLIZ): Ostend. viii, 60 pp.
- **No. 65:** Van Lancker, V. and Garlan, T. (Ed.) (2013). MARID 2013. [Fourth International Conference on Marine and River Dune Dynamics](#). Bruges, Belgium, 15 - 17 April 2013. Royal Belgian Institute of Natural Sciences and SHOM. VLIZ Special Publication 65 - Flanders Marine Institute (VLIZ). Oostende, Belgium. 338 pp. ISSN 1377-0950. ISBN 978-2-11-128352-7
- **No. 66:** Robbens, J.; Derveaux, S.; Hostens, K.; Fockedeey, N.; Kerckhof, F.; Degraer, S.; De Troch, M.; Vincx, M. (Ed.) (2013). [Non-indigenous species in the North-East Atlantic](#). Ostend, 20 - 22 November 2013: Book of abstracts. VLIZ Special Publication, 66. Institute for Agricultural and Fisheries Research (ILVO) / Flanders Marine Institute (VLIZ): Ostend. x, 50 pp.

Fact sheets

Historical figures:

- VLIZ Wetenschappen (2013). Louis Verhaeghe. [Wetenschappen - Historische figuren van het zeewetenschappelijk onderzoek](#). VLIZ Information Sheets, 138. Flanders Marine Institute (VLIZ): Ostend. 9 pp.
- VLIZ Wetenschappen (2013). Julius Mac Leod. [Wetenschappen - Historische figuren van het zeewetenschappelijk onderzoek](#). VLIZ Information Sheets, 139. Flanders Marine Institute (VLIZ): Ostend. 11 pp.
- VLIZ Wetenschappen (2013). Belgische zeewetenschappers tijdens WOI. [Wetenschappen - Historische figuren van het zee-wetenschappelijk onderzoek](#). VLIZ Information Sheets, 140. Flanders Marine Institute (VLIZ): Ostend. 18 pp.

Teaching packages

Planeet Zee learning modules on the following topics: ocean acidification, sustainable fish consumption, plastic pollution in the oceans.

Practical exercises on the following topics: determining one's position, seismic investigation of methane hydrates, determining the carbonate content of sand, algae tamagotchi, creating a seashell identification key.

Short films

- Interview with alderman Kris Vandecasteele from Nieuwpoort, seminar on the History of Sea Fisheries, 29 November 2013
- PEGASO project: video tutorials
 - PEGASO SDI status: Introducing Mapviewer
 - Selection and application of the PEGASO ICZM Indicators

Scientific A1 publications (co-)written by VLIZ employees

- Costello, M.J.; Bouchet, P.; Boxshall, G.; Fauchald, K.; Gordon, D.; Hoeksema, B.W.; Poore, G.C.B.; Van Soest, R.W.M.; Stöhr, S.; Walter, T.C.; Vanhoorne, B.; Decock, W.; Appeltans, W. (2013). [Global coordination and standardisation in marine biodiversity through the World Register of Marine Species \(WoRMS\) and related databases](#). PLoS One 8(1): e51629. 20 pp.
- Lescauwaet, A.-K.; Fockede, N.; Debergh, H.; Vincx, M.; Mees, J. (2013). [Hundred and eighty years of fleet dynamics in the Belgian sea fisheries](#). Rev. Fish Biol. Fish. 23(2): 229-243.
- Lescauwaet, A.-K.; Torreele, E.; Vincx, M.; Polet, H.; Mees, J. (2013). [Invisible catch: A century of bycatch and unreported removals in sea fisheries, Belgium 1929-2010](#). Fish. Res. 147: 161-174.
- Moore, M.N.; Depledge, M.H.; Fleming, L.; Hess, P.; Lees, D.; Leonard, P.; Madsen, L.; Owen, R.; Pirlet, H.; Seys, J.; Vasconcelos, V.; Viarengo, A. (2013). [Oceans and Human Health \(OHH\): a European perspective from the Marine Board of the European Science Foundation](#) (Marine Board-ESF). Microb. Ecol. 65(4): 889-900.
- Van Cauwenberghe, L.; Claessens, M.; Vandegehuchte, M.B.; Mees, J.; Janssen, C.R. (2013). [Assessment of marine debris on the Belgian Continental Shelf](#). Mar. Pollut. Bull. 73(1): 161-169.
- Van Cauwenberghe, L.; Vanreusel, A.; Mees, J.; Janssen, C.R. (2013). [Microplastic pollution in deep-sea sediments](#). Environ. Pollut. 182: 495-499.
- Vandepitte, L.; Waumans, F.; Tyberghein, L.; Vanhoorne, B.; Hernandez, F. (2013). [Marine biogeographic data in EurOBIS: assessing their quality, completeness and fitness for use](#), in: (2013). [IMDIS 2013 International Conference on Marine Data and Information Systems](#) 23-25 September, 2013 - Lucca (Italy). Bollettino di Geofisica Teorica ed Applicata: an International Journal of Earth Sciences, 54 (Supplement): 26-28.
- Deneudt, K.; Jensen, H.M.; Vanhoorne, B.; Vandepitte, L.; Claus, S.; Hernandez, F. (2013). [Making SeaDataNet more fit for handling biological data](#), in: (2013). [IMDIS 2013 International Conference on Marine Data and Information Systems](#) 23-25 September, 2013 - Lucca (Italy). Bollettino di Geofisica Teorica ed Applicata: an International Journal of Earth Sciences, 54 (Supplement): 42-43.
- Claus, S.; Souza Dias, F.; Vanhoorne, B.; De Hauwere, N.; Hernandez, F. (2013). [Marine Regions: towards a standard for georeferenced marine names](#), in: (2013). [IMDIS 2013 International Conference on Marine Data and Information Systems](#) 23-25 September, 2013 - Lucca (Italy). Bollettino di Geofisica Teorica ed Applicata: an International Journal of Earth Sciences, 54 (Supplement): 200-202.

A selection of publications (co-)written by VLIZ employees

(except for regular VLIZ publications and peer-reviewed publications)

- As chairman of the European Marine Board Communications Panel, Jan Seys cooperated with the rest of the panel and the EMB secretariat to write the chapter on 'Ocean Literacy' in:
European Marine Board (2013). [Navigating the Future IV](#). European Marine Board Position Paper, 20. European Marine Board: Ostend. ISBN 978-90-820931-0-0. 202 pp.
- Lescauwaet, A.-K. (2013). [Belgian fisheries: ten decades, seven seas, forty species: Historical time-series to reconstruct landings, catches, fleet and fishing areas from 1900](#). PhD Thesis. Ghent University (UGent): Gent. xiii, 242 pp.
- Lescauwaet, A.K., Pirlet, H., Verleye, T., Mees, J., Herman, R. (Eds.) (2013). [Compendium for Coast and Sea 2013: integrating knowledge on the socio-economic, environmental and institutional aspects of the Coast and Sea in Flanders and Belgium](#). Ostend, Belgium, p. 342. ISBN: 978-90-820731-5-7
- Goffin, A.; Fockede, N.; Seys, J.; Tavernier, I. (Ed.) (2013). [Marine art: Marine science sets sail to the art world](#). Flanders Marine Institute/Ghent University: Ostend & Ghent. 143 pp.
- VLIZ (2013). [Policy-informing brief: EC Consultation on the possible ways forward for Maritime Spatial Planning and Integrated Coastal Zone Management in the EU](#). VLIZ Policy-informing brief, PIB 2013_001. Ostend. 10 pp.

VLIZ acknowledged

VLIZ was mentioned in the 'acknowledgements' of 11 peer-reviewed publications and 91 non-peer-reviewed publications.



Flanders Marine Institute

InnovOcean site
Wandelaarkaai 7
B-8400 Oostende, Belgium

Phone: +32 [0]59 34 21 30
Fax: +32 [0]59 34 21 31
e-mail: info@vliz.be
www.vliz.be