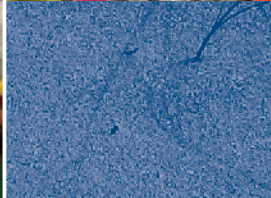


FLANDERS MARINE INSTITUTE VLIZ

Annual Report 2011



*supporting marine and coastal
research in Flanders*

Annual Report 2011

FLANDERS MARINE INSTITUTE VLIZ

*for everyone fascinated
by the sea and the coast*

www.vliz.be

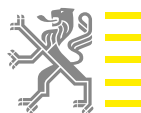
Ostend, April 2012



with the support of:



Vlaamse overheid



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Preface

The Annual Report 2011 of the Flanders Marine Institute provides you with a brief overview of our activities in the past year. This overview is not exhaustive: we deliberately emphasise new initiatives, highlights and a few eye-catchers per department. For more extensive information on the numerous internal and external projects and the continuous progress of our many data systems, please refer to our website www.vliz.be.

The present annual report is the last one in the current format and in the style we have used since 2005. As from 2012 the annual report will be different both as to form and as to content. This is intended to mark three changes in the evolution of VLIZ:

Firstly, the Flemish government decided on 23 December 2011 to establish a new covenant with VLIZ for the 2012-2016 period. The province of West Flanders will also enter into a subsidies agreement with VLIZ for the same period. This is very good news for our institution. Our operating framework is outlined, and our strategic and operational objectives are refreshed in the covenant. This involves important additional assignments, arrangements and attendant reporting obligations. Next year we will examine this matter at length, but for the moment we will describe the objectives and assignments since these were negotiated and decided in 2011:

VLIZ remains a scientific institution which does not undertake any research activities itself. Our mission continues to be the support of marine scientific research in the broadest sense among existing research groups within the knowledge institutions. We can also initiate research projects in collaboration with these research groups.

The strategic objectives of VLIZ have been slightly reformulated and include:

- 1. Promoting Flemish marine scientific research and related coastal research and education.*
- 2. Promoting the international impact of Flemish marine scientific research as well as international marine education.*
- 3. Acting as a catalyst and point of contact – on an international level as well – in the field of marine sciences.*
- 4. Promoting the visibility of Flemish marine scientific research to the public at large (popularisation and sensitisation).*
- 5. Providing scientific information on the sea, the coast and tidal systems to policy makers so that they can use this information to develop and support their policy with regard to marine affairs.*

Our operational objectives include:

- 1. Facilitating a network of marine scientists and other persons concerned by offering a platform (in the form of the Scientific Committee), contributing to integrated projects and networks, organising meetings, conferences and scientific awards, issuing publications, mapping the relevant expertise in Flanders permanently, and promoting and providing this expertise in Belgium as well as abroad.*
- 2. Accommodating and supporting international organisations such as the UNESCO/IOC Project Office for IODE and the Marine Board – ESF secretariat at the InnovOcean site in Ostend.*

3. *Facilitating marine scientific research and providing logistic support by making use of research vessels (such as 'Zeeleeuw' and at a later stage 'Simon Stevin') for scientific investigation and associated monitoring, and by purchasing, extending, maintaining, using and managing other common research equipment and infrastructure (incl. land-based facilities).*
4. *Managing and further developing the Flanders Marine Data and Information Centre (FMDC).*
5. *Managing an information desk for educators and the general public. This desk is also responsible for the promotion of Flemish marine scientific research (science popularisation) by means of exhibitions, open house days, publications, websites, seminars, workshops and symposia.*
6. *Managing the Marine Library multimedia centre: collecting, disclosing and redistributing marine scientific information. The multimedia centre is responsible for developing the form and contents of the Flemish Open Marine Archive.*
7. *Supporting a sustainable and scientifically founded policy for the coastal area, the marine areas and the adjacent estuaries by providing policy-relevant scientific information. Within this scope, VLIZ will ensure the production of the 'Compendium for Coast and Sea'.*

Our initial additional assignments are:

1. *representing the Flemish government in the Belgian delegation at the Executive Board and the General Assembly of UNESCO's Intergovernmental Oceanographic Commission (IOC)*
2. *participating in the steering committee of the Flanders UNESCO Trust Fund to support the scientific activities of the UNESCO Science Programme (FUST)*
3. *representing the Flemish government in the Belgian delegation at European thematic working groups such as the Thematic Working Group on Marine Research Infrastructures and other initiatives concerning marine sciences*

Secondly, the government decided at the same meeting of 23 December 2011 to invest in the Flemish participation in several European research infrastructures of the so-called ESFRI list or 'European Strategy Forum on Research Infrastructures'. One of these, LifeWatch, is very important for VLIZ. As from 2012, we will develop a Flemish observatory for biodiversity and contribute to the data architecture of the central European system with subsidies from the Hercules Foundation and in collaboration with INBO. This long-term project will enable us to consolidate and expand our expertise and worldwide reputation regarding biological databases.

Finally, 2011 was the last full year in which Paul Breyne held the position of chairman. He was the first chairman of VLIZ, and at the start of 2012 he was made honorary governor of West Flanders and honorary chairman of our association. So there are plenty of reasons to change and refresh certain things, and to move up a gear for the benefit of marine scientists and everyone who has a passion for the coast and the sea.

Jan Mees

General Manager of VLIZ

VLIZ in figures

68,185

Number of downloads from OMA, the Open Marine Archive

265

Number of days at sea for marine scientific research

10,297 (35.3 Gb)

Number (and volume) of archived and disclosed data sets in the Marine Data Archive

3,010

Number of participants in events organised or co-organised by VLIZ

10 million

Number of hits received by the Coastal Wiki website in 2011

42,561

Number of pictures in the VLIZ image archives

5,739

Number of subscribers to the 'De Grote Rede'

212,000

Number of species in the World Register of Marine Species - WoRMS

4,349,052

Turnover of VLIZ (EUR)

18 million

Number of measurement data (and GIS map layers) in the ScheldeMonitor data portal

VLIZ in a timeline

a selection of major events in 2011



FEBRUARI

Celebration of 10th anniversary of Zeeleeuw (07.02)



APRIL

Beginning of the construction of the new Flemish research vessel Simon Stevin in Romania (01.04)



MAY

Coastal defence in the spotlight: event 'Moet er nog zand zijn' (24.05) and special issue of De Grote Rede (N° 30)



JUNE

VLIZ celebrates 'World Oceans Day' with an evening programme of interesting lectures for the general public (08.06)



JULY

Blueprint and roadmap as the formal launch of the Compendium for Coast and Sea



AUGUST

All marine theses have been scanned and made available online



SEPTEMBER

CLAMER conference in Brussels on the effects of climate in the oceans (14-15.09)



OCTOBER

Presentation of the book 'Wetenschap van de zee' (19.10)



NOVEMBER

VLIZ is recognised as an ICSU world data centre



NOVEMBER

'Vissen in het verleden' (Fishing in the past) – seminar on the history of Belgian fisheries (25.11)



DECEMBER

Simon Stevin is shipped to the Netherlands for finishing (05-20.12)



DECEMBER

The Flemish government invests in the sea and decides to establish a new covenant with VLIZ (26.12)

UNESCO/IOC Project Office for IODE in figures

9

Number of organised training courses

202

Number of students

53

Number of nationalities represented in the courses

99

Number of both short- and long-term guest researchers

1,903

Number of nights spent by trainees and experts

82

Number of dynamic websites hosted

13

Number of available servers

774

Number of subscribers to the Project Office's mailing list system

40

Number of computers available for training courses

7

Number of employees for 'IOC Project Office for IODE' in 2011

UNESCO/IOC Project Office for IODE in a timeline

a selection of major events in 2011



© IODE

JANUARI

GE-BICH-V: 5th session of IODE expert group on biological and chemical data management (17-20.01)



© IODE

FEBRUARY

ODIN AFRICA training course on coastal and marine atlases (14-18.02)



© NASA

MARCH

Training workshop of the Black Sea SCENE research infrastructure in Ostend (01-04.03)



© IODE

MARCH

50th anniversary of IODE: international conference and 21st IODE session in Liège



© IODE

MAY

OceanTeacher training session on precautions against catastrophes and subsequent reconstruction (23-27.05)



© IODE

SEPTEMBER

OceanTeacher basic course on marine data management (12-16.09)



© Liz O'Dea

JUNE

IOC training for policy makers and professionals on marine spatial planning (30.05-01.06)



© IODE

AUGUST

Launch of The Coastal Atlas 2 during the International Coastal Atlas Network ICAN in Ostend (31.08-02.09)



© IODE

SEPTEMBER

CoastGIS 2011 conference and technical exhibition on marine spatial planning (05-08.09)



© IODE

NOVEMBER

Outreach and communication training in the OceanTeacher Academy (07-11.11)



© IODE

DECEMBER

EUMETSAT/IODE training: marine forecasts on the basis of wind and wave data supplied by satellites (05-09.12)



© IODE

DECEMBER

First meeting of the IODE steering committee for OBIS in Ostend (08-09.12)

VLIZ: Core tasks and structure

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 also a centre for marine and coastal research and serves as an international point of contact in this respect. As VLIZ does not have a mandate to conduct research itself, it has the opportunity to perform a whole range of scientific support tasks such as managing a data centre, providing logistic assistance to researchers, managing a marine library, coordinating and networking and offering a range of marine information to various target groups. By concluding cooperation agreements with Flemish research groups and authorities this support can be developed further and be integrated into national and international networks.

Strategic objectives

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. The strategic objectives and activities are defined in five-year management agreements with the financing authorities (1999-2004; 2005-2009). VLIZ has the following **four strategic objectives**:

- Promoting Flemish coastal and marine scientific research.
- Promoting the international image of Flemish coastal and marine scientific research and serving as an international point of contact in this field.
- Promoting the visibility of Flemish coastal and marine scientific research to the public at large by means of popularisation and sensitisation.
- Providing scientific information on the sea, the coast and on tidal systems to policy makers, whether or not upon request, so that they can use this information to develop their policy with regard to marine affairs.

Principles and preconditions

- VLIZ is an institute with a clearly scientific character, but does not undertake any research activities itself (to avoid competition with research groups).
- VLIZ has a multidisciplinary character and supports all marine research disciplines.
- VLIZ supports marine scientific research in the broadest sense, which means that 'sea' not only refers to the open water and the seabed but also to all tidal and coastal systems.
- All areas where Flemish marine scientists are or were active are part of the field of activity of VLIZ.
- The information provided by VLIZ is scientifically founded (usually reference to experts or through consultation of the network of experts; great care is always taken to quote their input).
- VLIZ promotes an integrated approach (integration of research disciplines, sectors, land-sea, international cooperation).
- VLIZ is completely autonomous and neutral.
- The basic principles of VLIZ are administrative openness and public consultation.

- VLIZ promotes sustainability (the three pillars of sustainable management are environment, economy and social atmosphere).

Main activities

Within this coordinating and supportive role it is possible to distinguish five main activities, complemented with two additional tasks which concern the operation of, respectively, the UNESCO/IOC Project Office for IODE and the Secretariat of the Marine Board of the European Science Foundation, both supported by the Flemish Government through VLIZ:

- Supporting marine scientific research by making use of the research vessel 'Zeeleeuw' and other research equipment and infrastructure for common use within the scope of marine scientific research. VLIZ also contributes to the (inter)national planning, management and efficient use of marine research infrastructure.
- Managing and further developing the Flanders Marine Data and Information Centre (FMDC). The centre collects different kinds of data, implements international standards and distributes data in Belgium and abroad. Within this context the centre processes and provides access to external data, and collects its own data. FMDC is an integral part of several international networks and contributes to the development of international standards for managing and exchanging data and information.
- Managing a multimedia centre that is developing a collection of marine scientific and coastal literature and multimedia.
- Facilitating a network of marine scientists and other persons concerned by offering a platform (in the form of the Scientific Committee), organising meetings, congresses and conferences and issuing publications. A core task of VLIZ is to map expertise in Flanders on a permanent basis and to make this expertise available both in Belgium and abroad.
- Managing an information desk that provides objective scientific information to scientists and policy makers in Flanders and abroad as well as to teachers, students and interested citizens in Flanders. The information desk answers all questions and furthermore provides information of its own accord by responding to current events and promoting Flemish marine scientific research through exhibitions and open house days, through publications and the website and by organising and co-organising seminars, workshops and symposia.
- Last but not least, VLIZ has a special responsibility to take care of the follow-up and management of the funds made available for accommodation and support of the IODE Project Office of UNESCO's Intergovernmental Oceanographic Commission (UNESCO/IOC Project Office for IODE) and of the Secretariat of the Marine Board of the European Science Foundation (MB-ESF). For UNESCO this also concerns the support of training courses for foreign students and experts in oceanographic data management with special attention paid to the development and operation of early tsunami warning systems and other ocean-related natural phenomena.

Geographic scope

The Flanders Marine Institute focuses its activities on all marine and tidal systems. In this context we concentrate on the actors and activities in the Southern Bight of the North Sea with special emphasis on the Belgian part of the North Sea, the Flemish coastal area and adjacent areas (the Channel, the Delta area and the Scheldt estuary). This does not only concern the open sea but also the seabed, the beach, the mud flats, the salt marshes, the dunes, the estuaries and the hinterland with the maritime polders. In addition, all tidal systems studied by Flemish marine research groups all over the world (tropical coastal systems, the deep sea, polar areas etc.) fall within the scope of interest of VLIZ.

Internal structure

As far as internal structure is concerned, this subdivision into main activities translates into six operational units within VLIZ. These six departments correspond to the main menu sections on the VLIZ website:

- Coordination department ('About VLIZ')
- Infodesk department
- Marine Library department
- Figures & Policy department
- Facilities department
- Data Centre department



Achievements in 2011

an overview

Coordin



Coordination



© Eddy Baete

Read more?
www.vliz.be/EN/About_VLIZ

- ❑ INNOV OCEAN SITE
- ❑ PERSONNEL POLICY
- ❑ NETWORKING
- ❑ COOPERATION AGREEMENTS
- ❑ MEMBERSHIP
- ❑ PROJECTS

Establishment of a new covenant

For VLIZ 2011 was the year of continued negotiations on a new management agreement. The previous management agreement was in force from 2005 to 2009. In 2009 VLIZ underwent an external audit, which turned out to be very positive. In 2010 the Flemish government included VLIZ in the decree on the organisation and financing of the science and innovation policy areas in Flanders (dated 30 April 2009). This provided VLIZ with increased legal certainty and enabled the organisation to conclude a new management agreement (covenant) with the Flemish Government.

On 26 December 2011, Flemish Minister for innovation Ingrid Lieten announced that the Flemish government would enter into a five year covenant with VLIZ, so that the latter could continue its activities: to network, inform, support and disseminate the knowledge of 1500 marine scientists in Flanders. In addition, this covenant would provide the opportunity to embed two important European initiatives in Flanders, namely the European Marine Observation and Data Network (EMODnet) and the Joint Programming Initiative for Healthy and Productive Seas and Oceans (JPI Oceans). The new five year covenant became effective on 1 January 2012.

Board of Directors

This year, the principal task of the Board of Directors of VLIZ was to steer the preparation of the covenant with the Flemish government and with the province of West Flanders in the right direction. For instance, two additional strategic meetings were planned (on 14.01.2011 and on 27.04.2011) to discuss the direction VLIZ needed to take in the medium and long term (time horizon: 2030). The composition of the Board of Directors can be consulted in the annexes to this annual report 2011.

Scientific Committee

The Scientific Committee advises the Board of Directors of VLIZ on all scientific activities and scientific support activities, and assists VLIZ in the formulation of high-quality and scientifically founded advice.

First official trip of the Scientific Board

On 17 March 2011 the Scientific Board of VLIZ visited Flanders Hydraulics Research in Borgerhout. After an interesting tour of the various laboratories they passed to the order of the day.



© VLIZ

First meeting of the Guidance Committee on 16 June 2011

The radical reform of the Scientific Committee forces VLIZ to convene a Guidance Committee on a yearly basis so that the Scientific Board enters into dialogue with a broad group of marine scientists with regard to important new or planned activities. The Guidance Committee meeting, organised for the first time on 16 June 2011, was attended by an interdisciplinary group of marine scientists.



© VLIZ

In 2010 the structure of the Scientific Committee was radically reformed and it now consists of three interconnected and mutually reinforcing components: 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. For the composition of the Scientific Board, please refer to the annexes to this annual report. The Scientific Board convened three times in 2011. On the occasion of the meeting of 17 March, the Scientific Board visited Flanders Hydraulics Research in Borgerhout. The meeting in June was combined with the annual meeting of the Scientific Guidance Committee.

The **Guidance Committee** is to be convened by VLIZ once a year for a plenary session open to all marine scientists (independent academic staff, postgraduates and executives). The Guidance Committee assembled for the first time in Ostend on 16 June 2011; this meeting was attended by a group of 48 marine scientists from a wide range of disciplines. The agenda consisted of the presentation of the annual report 2010, feedback to the Board of Directors (with particular attention to the vision meetings) and some explanation as to the reform of the Scientific Committee. In addition, there were a few presentations on topical subjects and activities. Ann-Katrien Lescrauwaet threw light on the new initiative 'Compendium for Coast and Sea'. André Cattrijsse gave a presentation on different aspects of the research infrastructure (construction of Simon Stevin, land-based facilities, excess demand for time at sea aboard Zeeleeuw and liability during scientific excursions to wind farms). Afterwards, Rudy Herman introduced a few new European initiatives (JPI 'Oceans' and ESFRI infrastructures) to the attendants.

Expert Groups may be established as part of the Scientific Committee at the invitation of the Board of Directors or at the suggestion of the Scientific Board. These thematic working groups consist of the most relevant experts from Belgium and abroad. An expert group may have a limited life span or be of a more permanent nature. The chairman of an expert panel will report directly to the Scientific Board. A VLIZ employee will provide support as secretary-reporter. In 2011 the Compendium for Coast and Sea Expert Group was created (see chapter Figures&Policy).

Investment subsidy

As from 2008, VLIZ has received an additional investment subsidy of € 1.1 million from the Flemish Government Department of Economy, Science and Innovation (EWI) (provided for by an addendum to the 2005-2009 management agreement). A sum of € 500,000 was set aside for funding the new research vessel Simon Stevin in 2011. Apart from that, the subsidy was primarily used for the alteration of the land-based facilities and the purchase of sampling equipment.

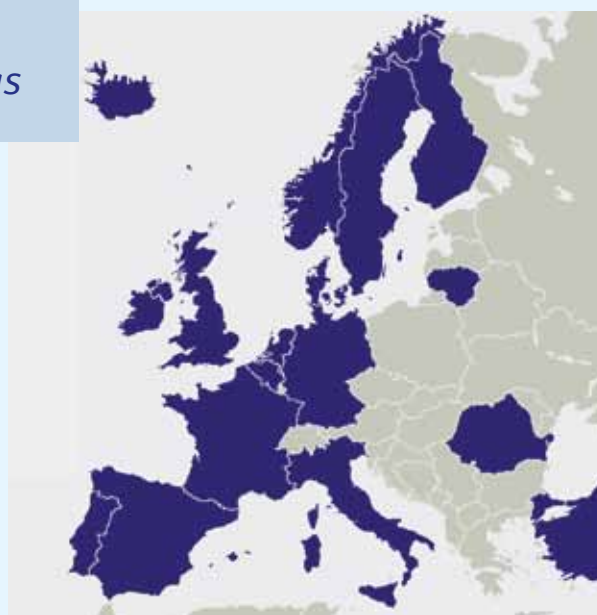
JPI Oceans

At the start of 2008 the Council of the European Union presented a new concept: Joint Programming Initiatives (JPI), intended to encourage member states to combine national research funds in a number of strategic areas so as to further structure cooperation in the field of research policy. By working together within the framework of a JPI, it is possible to tackle societal challenges more effectively. Healthy and productive seas and oceans are one of the ten selected societal challenges for which a JPI was established (in May 2010). From the start, this JPI, also called 'JPI Oceans', was further developed by a core group representing Belgium, Norway and Spain. In September 2010 an executive secretariat was set up in Brussels for the day-to-day operation of the initiative. Together with a delegation from the Interim Management Board, the secretariat is responsible for an inventory of the national research funds for marine and maritime research. This inventory made clear that the 17 participating countries spend nearly € 1.8 billion on marine and maritime research.

Flanders invests in a pan-European research policy initiative for healthy and productive seas

JPI OCEANS

By combining national research funds, it is possible to tackle important societal challenges more effectively. At the end of 2011, the Flemish government decided to invest in the Joint Programming Initiative 'Healthy and Productive Seas and Oceans' (JPI Oceans) (other participating countries are in dark blue).



© JPI Oceans

Staff

On 31 December 2011, VLIZ employed 44 staff in total, who accounted for 39.44 full-time equivalents (FTEs). About half of them are permanent staff (21.21 FTEs), the other half are temporary staff. The scientific employees account for 22.09 FTEs, while 17.35 FTEs are dedicated to support activities (including 10.34 FTEs for administrative staff, 5.75 FTEs for IT workers and 1.26 FTEs for maintenance staff). During the summer months, 26 students were employed at VLIZ, who accounted for a total of 0.75 FTEs. On 20 October 2011 VLIZ participated once more in 'Zuiddag'; on this occasion 11 students from the third cycle of secondary education worked in aid of a project in the South for a day. In the previous calendar year, 8 students did a work placement within different VLIZ departments.

Overview of VLIZ personnel at the end of December 2011

Board



Jan Mees

VLIZ managing director

General operation, coordination and maintenance



Ingrid Dobbelaere

*administrative assistant –
contact & management
secretariat*



Nathalie Keersebilck

*administrative assistant –
projects*



Dominique Milh

*administrative assistant –
reception & general support*



An Vanhoorne

*administrative assistant –
financial & personnel
management*



Chedi Minkailova

VLIZ & UNESCO maintenance



Angela Diaz

VLIZ & Marine Board maintenance

Data Centre



Francisco (Tjess) Hernandez

data centre general manager



Ward Appeltans

data centre project manager



Simon Claus

scientific assistant



Nathalie De Hauwere

scientific assistant



Daphnis De Pooter

*scientific assistant
(since 14.06.2011)*



Joram Declerck

IT specialist & developer



Wim Decock

scientific assistant



Klaas Deneudt

data centre project manager



Elien Dewitte

scientific assistant



Annelies Goffin

scientific assistant



Liesbeth Lyssens

IT specialist & developer



Roeland T'Jampens

IT specialist & developer



Leen Vandepitte

scientific assistant



Ruth Vandepitte

*administrative assistant –
information & data*



Bart Vanhoorne

IT specialist & developer



Filip Waumans

IT specialist & developer

Library



Heike Lust

information manager



Chilekwa Chisala

assistant librarian



Jan Haspeslagh

librarian



Zohra Bouchti

*scientific assistant
(since 17.10.2011)*

Research infrastructure



André Cattrijsse

*research infrastructure
manager*



Michiel T'Jampens

marine technician

Figures&Policy



**Ann-Katrien
Lescrauwaet**

figures & policy manager



Heidi Debergh

scientific assistant



Hans Pirlet

scientific assistant

Communication & Information



Jan Seys

*communication & information
manager*



Evy Copejans

educational assistant



Nancy Fockedey

scientific assistant



Karen Rappé

scientific assistant

Flemish-Dutch Scheldt Commission – Communication**Bregje Beyst***VNSC – Flanders manager***Sara Behiels***project assistant***UNESCO/IOC Project Office for IODE****Kristin de Lichtervelde-Goossens***administrative assistant***Claudia Delgado***training coordinator
(since 17.01.2011)***Marc Van Crombrugge***IT specialist & developer***Marine Board – European Science Foundation****Dina Eparkhina***administrative assistant***JPI Oceans****Willem De Moor***advisor (since 9.08.2011)***Trainees and student employees active at VLIZ in 2011****Stagiairs**

Ashley Haeck

*Ghent University–BSc agricultural engineer/environmental technology**Figures&Policy trainee*

Bert Kesteloot

*KHBO Brugge**education trainee*

Louis Luyten

*Artesis University College Antwerp**education trainee*

Thomas Rouzere

*Howest-Simon Stevin Brugge**data centre trainee*

Nadine Speleman

*KHBO Brugge**education trainee*

Samuel Van de Walle

*Ghent University–MSc EMBC**education trainee*

Aina Trias Verbeeck

*Universitat de Barcelona & University of Antwerp**VLIZ trainee*

Gerlien Verhaegen

*UCL–MSc Biology**Figures&Policy trainee***Student employees**

Elien Bogaerts, Damiën Bolinius, Laurine Burdorf, Eline De Blende, Astrid de Lichtervelde, Elisabeth de Lichtervelde, Maarten De Rijcke, Korneel De Rynck, Nick Eloot, Eline Haspeslagh, Louise Haspeslagh, Pauline Hernandez, Simon Hernandez, Nathalie Lambrecht, Louis Luyten, Ruth Pirlet, Kristof Plovie, Michel Ranschaert, Vikki Scholdis, Tineke Seys, Karen Soenen, Noemi Van Bogaert, Sophie Van de Putte, Amber Vanhooren, Aina Trias Verbeek, Ruben Verkempynck

Zuiddag 20 October 2011

Elien Beyls, Lieze De Crock, Nikki Dekindt, Jonas Dewaele, Matthias Forceville, Bart Laridon, Floris Laridon, Ulrike Nelis, Elise Roseel, Ellen Soetens, Peter Verdru

Excursion of VLIZ staff to the Westhoek area

As there will be a lot of initiatives over the coming years in connection with the commemoration of the Great War, the VLIZ staff went on an excursion to the Westhoek area on 27 February to explore possible links between the First World War and the sea.



© Nathalie Keersebilck

Internal communication

In order to optimise internal communication between VLIZ staff from various departments (and with staff from other institutes who work at the InnovOcean site) several initiatives have been developed. The **management team** assembles on a monthly basis; on this occasion the general manager and the heads of department take strategic decisions. At the monthly **Com&Sea** meetings, communication activities from the different departments are discussed and aligned to each other. A **staff meeting** is organised twice a year, where the practical operation of VLIZ is explained to all staff members. In addition, **VLIZ seminars** are organised several times a year on Friday afternoon, where staff members can present the content of their activities, new projects, visits to conferences etc. to their colleagues. And finally there is the four-monthly **I-News InnovOcean Gazette**, an electronic newsletter with information about and for staff, the agenda of activities at the InnovOcean site, press reports on the InnovOcean site, messages from the management, etc. This way everyone should be informed!

Members

VLIZ is a membership organisation. Everyone who is interested in marine and coastal research can individually or collectively join as a supporting member to become part of the Flemish marine research community. At the end of 2011, VLIZ had a total of 262 members, including 190 individual members, 32 students, 28 institutional members and 12 honorary members.

Cooperation agreements

Cooperation with national and international universities, research institutions and individual research groups is continuously enhanced by concluding cooperation agreements. A complete list of the national and international cooperation agreements VLIZ has concluded since its foundation can be found in the annexes (performance indicator P1).

In October 2010 a Vietnamese delegation visited VLIZ at the request of the Flemish Department of Foreign Affairs. On this occasion they would have liked to sign a Memorandum of Understanding to create a general framework for possible collaboration in the field of marine sciences; eventually the memorandum was signed on 15 March 2011 when a delegation of the **Vietnamese Academy of Science and Technology** (VAST) visited Ghent. One of the signatories was Dirk Van Melkebeke, Secretary General of the department of Economy, Science and Innovation (EWI), which involves a nice mandate on the part of the Flemish government.

On 6 September 2011 the cooperation agreement between VLIZ and the **UNESCO/IOC Project Office for IODE** was renewed on the occasion of the attendance of Wendy Watson-Wright, Executive Secretary of the IOC and Assistant Director General of UNESCO, at the CoastGIS 2011 conference in Ostend.

At the end of 2011 the cooperation agreement between VLIZ and the Research Institute for Nature and Forest (**INBO**) was renewed. The IMIS information system of VLIZ was adapted to make it accessible and available from the INBO website (<http://informatiecentrum.inbo.be/>). In addition to a digital library catalogue, the IMIS information system includes a description of employees, projects, maps and data sets. It is kept up to date by INBO employees. VLIZ also provides technical and explanatory support during the preparation of a data and information catalogue, including an overview of the biodiversity data and information available at INBO.

Within the scope of the current cooperation agreement with the Institute for Agricultural and Fisheries Research (**ILVO – Fisheries**), the environmental monitoring group entered over 230,000 macrobenthos and epibenthos data into the database VLIZ developed for this purpose. In addition, VLIZ also offered support to the Fisheries Biology and Environmental Monitoring sections in reporting ILVO data to national and international organisations (IDOD database of the Belgian Federal Science Policy Office, Fishframe).

Framework for collaboration with Vietnam in the field of marine sciences

On 15 March 2011, VLIZ and EWI signed a MoU with the Vietnamese Academy of Science and Technology. This creates a general framework for possible collaboration with Vietnamese research institutes in the field of marine sciences.



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Networks, committees and expertise

One of the principal tasks of VLIZ is to create a network for people from various places who work in marine and coastal sciences. Every year VLIZ organises numerous events for this purpose (see Infodesk Chapter for an overview). In addition, VLIZ participates in numerous national and international formal networks including:

NATIONAL NETWORKS:

- VLIZ Scientific Committee
- editorial team and etymological team of 'Grote Rede'
- member of the Executive Committee and Consultative Group of the Coordination Centre for Integrated Coastal Zone Management (CC-ICZM)
- member of the Science Information Network (WIN) of the Flemish government
- member of the Flanders Environmental Library Network (FELNET)
- member of the Flemish Association for Libraries, Archives and Documentation Centres (VVBAD)
- member of the Flemish Research Libraries Council (VOWB)
- member of the Board of Directors of Flanders' Maritime Cluster
- member of the Board of Directors of the Flanders Knowledge Center Water vzw (VLAKWA)

INTERNATIONAL NETWORKS:

- member of the IODE data centre network (UNESCO/IOC)
- host of the UNESCO/IOC Project Office for IODE
- member of the Partnership for Observation of the Global Oceans (POGO)
- member of the POGO News & Information Group
- representative of the Research Foundation – Flanders in the Marine Board of the European Science Foundation (ESF)
- member of the executive committee of the Marine Board
- member of the Marine Board Communications Panel (MBCP)
- member of the European Centre for Information on Marine Science and Technology (EurOcean)
- member of the European Network of Marine Research Institutes and Stations (MARS)
- member of the European Research Vessel Organisation (ERVO)
- member of the European Federation of Marine Science and Technology Societies (EFMS)
- member of the European Association of Aquatic Sciences Libraries and Information Centres (EURASLIC)
- member of the International Association of Aquatic and Marine Science Libraries and Information Centres (IAMSLIC)
- member of the National Marine Educators Association (NMEA)
- member of the European Census of Marine Life (EuroCoML)
- member and data centre of MarBEF+, the European network concerning Marine Biodiversity and Ecosystem Functioning
- member of the Society for the Management of European Biodiversity Data (SMEBD)
- member of the executive committee of the European Register of Marine Species (ERMS)
- member of the ICES Study Group on Biodiversity Science (SGBIODIV)
- member of the steering committee of the World Register of Marine Species (WoRMS)
- partner of the Sea Data Network (SeaDataNet)
- member of the International Coastal Atlas Network (ICAN)
- partner of the Global Sea Level Observing System Network (GLOSS)
- coordinator of the European node (EurOBIS) of the Ocean Biogeographic Information System (OBIS) of the Census of Marine Life (CoML)
- host of the Flemish-Dutch Scheldt Commission (VNSC-Communication)

VLIZ employees furthermore participate in various (temporary and project-related) **advisory and consultative committees**, including:

- East Bank of Ostend steering committee
- Flanders Bays steering committee
- Advisory committee of Nature and Forest Agency (ANB) East Coast
- Flanders Aquaculture Platform
- Blue Biotech mission to Chin-Dao, China
- Coastal Consultation of the province of West Flanders
- Flood Team of the province of West Flanders
- Marine Spatial Planning working group (CC-ICZM)
- Update of the digital Coastal Atlas 2011
- Local Group of Axis 4 of the Belgian Operational Programme for the Fisheries Industry
- Workshop on the impact of harbours on the marine environment (Marine Environment Service)
- Marine Strategy Framework Directive workshop (Marine Environment Service)
- Surveillance, early warning and rapid response – IAS (Invasive Alien Species)
- Occupational Fields Advisory Committee of Hogeschool Zeeland
- EU hearings (22.11.2011: Making the CFP work for Low Impact Fisheries; 12.10.2011: Marine renewable energies in Europe MRE; 01.12.2011: Towards EU action regarding maritime safety)
- Communication advice to JPI Oceans
- ICES study group on history of fish and fisheries
- IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices GE-BICH
- Guidance groups and end-user committees of several research projects (incl. Belcolour-II, LECOFISH, CLIWAT, BEES, ECOPLAN, WAKO-II)
- Several award, competition and vacancy juries
- Several doctoral and master's thesis juries
- Moderator of 'Groot Oceanendebat', Ghent University, at the CLIMAR seminar

Scheldt Information Centre becomes VNSC-Communication

The Flemish-Dutch Scheldt Commission (VNSC) has been created to promote cooperation between Flanders and the Netherlands in the Scheldt area as prescribed by various Scheldt treaties. Good flood protection, optimum accessibility for ships and the conservation of the natural ecosystem are the principal common objectives. The Netherlands and Flanders therefore drew up the 'Ontwikkelingsschets 2010' (Scheldt Estuary Development Outline 2010) as a step towards a sustainable and vital Scheldt estuary.

VNSC's head office is located in Bergen op Zoom (the Netherlands), but the Flemish communication employees (Bregje Beyst and Sara Behiels) are facilitated and accommodated by VLIZ. VNSC-Communication takes care of both internal and external communication for the Flemish-Dutch Scheldt Commission. Their job responsibilities include: communicating on the activities of VNSC, serving as an information portal with regard to everything relating to the river Scheldt, and supporting Flemish-Dutch collaboration e.g. through the Scheldt guide network and communication network. VNSC-Communication is primarily aimed at education and information services, but is also accessible to the general public through the Scheldt portal. The means of communication include the website www.vnsc.eu, the Scheldekrant publication, the digital newsletter Scheldenieuwsbrief, the annual VNSC Scheldt symposium, the Scheldt teaching packages and the website www.scheldelessen.be.

VLIZ Tour of Flanders

We want to exchange information on all our activities and proactively stimulate possible collaborations by means of visits by a VLIZ delegation to research groups and administrations in Flanders and the wider region within the scope of the 'VLIZ

VLIZ constructs website for the Flanders Aquaculture platform



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VLIZ constructed an informative website to make the informal network of actors in Flemish aquaculture more visible. On 24 March 2011 the platform visited the InnovOcean site in Ostend for a network meeting.

10 years of Coordination Centre for Integrated Coastal Zone Management celebrated on 20 September

For 10 years CC-ICZM has stimulated and promoted sustainable and integrated management of the Belgian coastal zone. VLIZ has supported the cooperation agreement between different authorities (the provincial, Flemish and Belgian federal governments) from the beginning. We were therefore happy to join the celebration!



© CDK (Foto Jan)

Tour of Flanders'. We try to detect the expectations and needs of the group visited. We subsequently investigate what services VLIZ specifically needs to develop with regard to this group. The opportunity is taken to update the IMIS information database as far as staff, publications, projects and data sets are concerned. In 2011 we contacted eight research groups, administrations or organisations.

Date	Name of research group / administration / organisation
7 February 2011	Federal Public Service Health, Food Chain Safety and Environment; Directorate-General Environment; Marine Environment Service
15 February 2011*	Rederscentrale
21 February 2011*	Flemish-Dutch Scheldt Commission – Communication, Flanders
28 February 2011	Ghent University – Renard Center for Marine Geology (RCMG)
10 May 2011	Institute for Marine Resources and Ecosystem Studies (IMARES) – Yerseke office
24 August 2011	University College West Flanders (HOWEST), Kortrijk
18 October 2011*	SYNTRA West
20 October 2011	MAS – Museum aan de Stroom, Antwerp

* visit to VLIZ

VLIZ presentations & guided tours of the InnovOcean site

VLIZ has organised visits to the InnovOcean site in Ostend for numerous organisations, associations and societies from Belgium and abroad. This way people can become acquainted with the activities of the institutions located here. This opportunity is also taken to make Flemish marine and coastal research more widely known through presentations and/or classes on the sea and coast. The latter is often done by VLIZ employees on location. In 2011 different VLIZ employees gave a total of approx 30 lectures, guided tours, presentations and classes, e.g. for a delegation from the North Sea Program/North Sea Commission Annual Conference, students from Erasmus Mundus in Marine Biodiversity and Conservation (Ghent University), staff of the VUB-APNA laboratory, VTI Oostende, HoTech Oostende, Orde der Prinsen, Sint-Pieterscollege Blankenberge, Kinkhoorn, Volkshogeschool Oostende, Natuurpunt De Haan, Heemkundige Kring De Plate, Damesvereniging Ieper, Uitstraling Permanente Vorming (UPV), Koperen Passer, JNM, Koninklijke Maatschappij Ex-onderofficieren Oostende, Vlaamse Club, UPV Koksijde, OKRA Antwerpen, Natuurpunt Middenkust, Marine Day for teachers, communication class for M.Sc. in Biology (Ghent University), data management training for Centre for Environmental Sanitation (Ghent University) and IODE Training Black Sea SCENE project. This way we reached over 2500 people.

East Bank of Ostend steering committee

Jan Mees and Jan Seys are part of the East Bank of Ostend steering committee. This advisory committee engages in the development and organisation of the East Bank of Ostend and is chaired by Johan Vande Lanotte. On 20 June a press conference was held at the InnovOcean site for the launch of the 'Project Oosteroeverduinen' brochure. On 6 September 2011 a steering committee meeting was arranged in the VLIZ offices. The possibility to create a 'marine garden' next to the port of Ostend's new eastern breakwater was one of the topics discussed. This way nature education on the biodiversity of hard substrates in intertidal areas could safely take place. The project is developed in collaboration with MDK and Flemish scientists.

Installation of 'marine garden' discussed at East Bank of Ostend steering committee

On 6 September, the steering committee convened in our offices under the chairmanship of Johan Vande Lanotte. The possible development of nature education activities on the eastern breakwater, where groups can safely study the biodiversity of hard substrates, was on the agenda.



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Overview of research into and monitoring of chemical pollution in Europe's seas



Position Paper 16

Monitoring Chemical Pollution in Europe's Seas

Programmes, Practices and Priorities for Research

November 2011



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A pan-European study group of the Marine Board, chaired by Belgian marine ecotoxicologist Colin Janssen, dealt with the status of and gaps in the research into and monitoring of chemical pollution in Europe's seas.

Marine Board – European Science Foundation

The five-man team led by Niall McDonough ensured the organisation of the first **SEAS-ERA Strategic Forum** (www.marineboard.eu/external-projects/seas-era) on 7 September 2011 and the second **MARCOM+ Open Forum** (www.marineboard.eu/external-projects/marcom) on 8 September, both in Brussels. Together with VLIZ, the Marine Board organised the scientific top conference **CLAMER – Living with a Warming Ocean** (see Infodesk Chapter) in Brussels on 14 and 15 September. The Marine Board secretariat (www.marineboard.eu), located at the InnovOcean site in Ostend, also organised three international meetings in its Ostend offices in 2011.

Formal meetings and events in Ostend in 2011

19-20.04.2011	EU FP7 EMAR RES workshop on <i>Identifying Areas of Common Interest</i> , series 3 – organised by the Marine Board
06-07.06.2011	EC Expert Group on Marine Research Infrastructures meeting – hosted by the Marine Board
15-16.06.2011	Marine Board Working Group on <i>Marine Microbial Biology</i> wrap-up meeting – organised by the Marine Board.

In 2011 the Marine Board published the summary conference report of the **EurOCEAN 2010** meeting (12-13 October 2010, Ostend) concerning the major challenges for marine research in the decade to come. The report includes the Ostend Declaration in which the participants of the conference launch an appeal for a marine-oriented future for Europe. The final report of the FP7 project CLAMER entitled **Climate Change Research Results** was published and provides a comprehensive synthesis of European research into the effects of climate change on the marine environment. Within the same project, the Marine Board also drew up an inventory of EU-funded

marine research projects concerning climate change ([CLAMER Inventory Report of European Marine Climate Change Research](#)) and 5 fact sheets regarding important effects of climate change in the seas and oceans ([CLAMER Policy Fact Sheets](#)). The Marine Board position paper [Monitoring Chemical Pollution in Europe's Seas](#) was published in December 2011. It provides an overview of the current monitoring programmes for chemical pollution in European seas and describes the challenges for future research into chemical pollution. All Marine Board publications can be downloaded free of charge at www.marineboard.eu/publications.

VLIZ general manager Jan Mees represents the Research Foundation – Flanders within the Marine Board and acts as vice-chairman within the Executive Committee (until May 2011). Jan Seys (VLIZ Communication & Information Manager) is chairman of the Marine Board Communications Panel (MBCP), which convened in Tallinn from 9 to 13 May 2011 and in Trieste on 25 and 26 October. The panel's main objective is to assist members in the promotion of and communication on marine sciences in Europe and to exchange best practices regarding events and communication techniques. Further information on the Marine Board can be found on its new website www.esf.org/marineboard.

Scientific awards

Within the context of its coordinating role VLIZ aims at encouraging marine and coastal scientific research, for example by granting awards for meritorious scientific studies. Since 2000 VLIZ has granted one North Sea Award (€ 1000) and two Thesis Awards (2x € 500) for theses every year. The 2010 scientific awards were officially presented and granted at the 2011 Young Scientists' Day.

2010 VLIZ Scientific Awards

Dr Marijn Rabaut won the [VLIZ North Sea Award 2010](#) for his doctoral thesis '*Lanice conchilega*, fisheries and conservation: towards an ecosystem approach to marine management'. The [VLIZ Thesis Award 2010](#) laureates were Thomas Vandorpe for his Master's thesis (M.Sc. in Geology, Ghent University) 'Seismic stratigraphy of Plio-Pleistocene deposits on the shelf edge SW off Mallorca, Spain' and Quinten Vanhellemont for his Master's thesis (MareLac, Ghent University): 'Use of MODIS imagery for the assessment of the variability in intertidal microphytobenthos biomass at regional and global scales'. These awards were presented at the VLIZ Young Scientists' Day 2011 (25.02.2011).

Delcroix Prize 2010

On 4 March 2011 the French biomedical scientist Dr Eric Honoré was awarded the 'Prize Dr Edouard Delcroix 2010' in Ostend. He received € 25,000 for his meritorious in-depth research on the beneficial impact of fish-derived polyunsaturated fatty acids (PUFAs) on cardiovascular diseases. The beneficial effects of marine polyunsaturated fatty acids (n-3 PUFAs) on cardiovascular disease mortality have long been recognised. The work of Dr Honoré has now demonstrated how PUFAs influence the molecular gating mechanisms of ion channels, thus providing a better understanding of how to make use of PUFAs in our daily lives. He has shown that the docosahexaenoic acid DOHA (C22:6 omega 3), obtained from fish oil, inhibits specific voltage-gated potassium (Kv) ion channels. By contrast, the mechano-gated TREK-1 K2P ion channel is directly opened by DOHA, resulting in cell hyperpolarisation and decreased excitability.

VLIZ scientific awards presented at VLIZ Young Scientists' Day 2011

*From left to right: Jan Mees,
Quinten Vanhellemont (VLIZ
Thesis Award 2010), Marijn
Rabaut (VLIZ North Sea
Award 2010), Thomas
Vandorpe (VLIZ Thesis Award
2010) and Colin Janssen.*



Research on fish-derived beneficial fatty acids wins Delcroix Prize 2010

*On 4 March 2011 the French biomedical scientist Dr Eric
Honoré was awarded the 'Prize Dr Edouard Delcroix 2010' for
his meritorious in-depth research on the beneficial impact of fish-
derived polyunsaturated fatty acids (PUFAs) on cardiovascular
diseases.*



Projects – external financing

In 2011 VLIZ received external funding for coordination, communication and/or data management in 30 projects. Most of these projects were carried out in cooperation with research groups.

EU

4D4LIFE – *Distributed Dynamic Diversity Databases for Life*

Duration: 01.05.2009 - 30.04.2012

Development of a data infrastructure for the distributed biodiversity database 'Catalogue of Life' (www.4d4life.eu). VLIZ gives advice and represents the World Register of Marine Species (WoRMS).

CLAMER – *Climate Change and Marine Ecosystem Research Results*

Duration: 01.04.2010 - 30.09.2011

VLIZ is responsible for the communication package. It needs to ensure the preparation and content of the web portal (www.clamer.eu), and the organisation of an international conference with pre-event and side-events in European aquariums and marine institutes in the summer of 2011. Other project partners ensure the production of an HD documentary, an extensive brochure and international press releases.

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.

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 of lot 3 (biology): 15.05.2009 - 15.05.2012

Duration of lot 4 (chemistry): 24.06.2009 - 24.06.2012

Pilot projects to determine how a European marine observation and data network should be developed in order to optimally support the new European integral marine strategy. 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 further complete it. VLIZ is also involved in the chemical project of EMODnet.

EUROBASIN – *Base Scale Analysis, Synthesis and Integration*

Duration: 01.05.2011 - 30.04.2012

Aimed at better understanding the processes that influence ecosystems in the North Atlantic Ocean on the basis of recent and historical data and in collaboration with partners from Europe, Canada and the United States. VLIZ's task is to trace historical data on plankton and fish within the study area.

EUROFLEETS – *Towards an Alliance of European Research Fleets*

Duration: 01.09.2009 - 31.08.2013

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.

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 develop 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 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.

LIFEWATCH – *e-science and technology infrastructure for biodiversity data*

Duration: 11.03.2009 - 31.12.2011

VLIZ was subcontracted by the Institute for Nature and Forest Research (INBO) to develop the website of this IT platform for biodiversity research (www.lifewatch.eu) and to provide news and information from the marine research community.

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.

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 co-ordinator, 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.

PESI – Pan-European Species directories Infrastructure

Duration: 01.05.2008 - 30.04.2011

The VLIZ data centre collaborates with 40 partners to develop one web portal of all European species. The FMDC coordinates the marine part of this project and manages the website (www.eu-nomen.eu/pesi).

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

Duration of SeaDataNet1: 01.04.2006 - 31.03.2011

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.

Fisheries & Oceans Canada

CaRMS – The Canadian Register of Marine Species

Duration: continuous

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).

Belgian Federal Science Policy

ANTABIF – The Antarctic Biodiversity Information Facility

Duration: 01.09.2009 - 31.12.2011

VLIZ ensures IT developments within the project (www.biodiversity.aq).

AS-made – Evaluatie van marien afval in de zone van het Belgisch Continentaal Plat

Duration: 01.07.2009 - 30.06.2011

VLIZ constructs and maintains the project website (www.vliz.be/projects/as-made) as well as a database that centralises all data concerning marine waste in the Belgian part of the North Sea (collected within the scope of volunteer and scientific projects).

INRAM (II) – Integrated Risk Assessment and Monitoring of micropollutants in the Belgian coastal zone

Duration of phase II: 31.01.2009 - 31.01.2011

VLIZ is involved in data management, in reporting to the Federal IDOD database and in the development of the project website (www.vliz.be/projects/inram).

QUEST4D (II) – Quantification of Erosion and Sedimentation patterns to Trace the natural versus anthropogenic sediment dynamics

Duration of phase II: 31.01.2009 - 31.01.2011

VLIZ further maintains the project website (www.vliz.be/projects/Quest4D).

WESTBANKS (II) – Understanding benthic, pelagic and air-borne ecosystem interactions in shallow coastal seas

Duration of phase II: 15.12.2008 - 31.01.2011

VLIZ is responsible for the science communication of the project (project website www.vliz.be/projects/westbanks and international conference) and manages the generated data.

Flemish government, Waterwegen en Zeekanaal (W&Z))

OMES (fase V) – *Research on the environmental effects of the SIGMA plan*

Duration: 01.04.2011 - 30.04.2012

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 (2011 & 2012) – *Flemish-Dutch knowledge platform for research and monitoring of the Scheldt estuary*

Duration of 2011 phase: 01.12.2010 - 31.12.2011; prolonged until 31.12.2012

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.

IDO-SCHELDE – *Indicators of Sustainable Development for the Scheldt estuary*

Duration: 01.01.2009 - 31.05.2011

Development of a set of indicators to follow up on policy-relevant issues within the scope of the long-term vision and target definition for the Scheldt estuary (www.scheldemonitor.be/indicatoren.php).

Flemish government, Coastal Division

Kustcodex – *Digital legal inventory of the coastal area*

Implementation contract: 2011-2012

The Coastal Division commissioned the further development of the current 'Coastal Zone Codex' into a multifunctional and completely digital policy tool. In collaboration with Kluwer and Hemmis, VLIZ needs to develop the Coastal Codex into an online and freely available compendium of international treaties, European regulations, laws, decrees and rules of regional, provincial and municipal authorities in the Flemish and Belgian coastal area.

Flemish government, Flemish Department of Foreign Affairs

FOCA – *Ferries Observando Canales Australes*

Duration: 01.04.2010 – 30.01.2012

Real-time oceanographic parameters from the South-East Pacific, measured along fixed ferry routes, are made freely available. VLIZ supports this project by means of data systems, data management and data storage, and by making computing capacity available.

Flemish government, Research Institute for Nature and Forest (INBO)

2011-2012 implementation contract – *Development of information and data centre of INBO*

Duration: 01.12.2011 – 30.11.2012

The MDA and IMIS data and information systems were adapted in such a way that they can be accessed and used by INBO. Collective work was also carried out on an initial overview of biodiversity data and information present at INBO.

Info



Infodesk



Read more?
www.vliz.be/EN/Infodesk

- ❑ ORGANISATION OF EVENTS
- ❑ PUBLICATIONS
- ❑ INFODESK
- ❑ WEBSITE
- ❑ EDUCATION
- ❑ SCIENCE COMMUNICATION

Overview of events (co)organised by VLIZ in 2011

9 February 2011

Celebration of 10th anniversary of Zeeleeuw

InnovOcean site, Ostend (100 participants)

Organisation: VLIZ and DAB Fleet

www.vliz.be/NL/home/&p=show&id=2277

11 February 2011

ILVO: an ocean of opportunity

InnovOcean site, Ostend (120 participants)

Organisation: ILVO-Fisheries, supported by VLIZ

25 February 2011

VLIZ Young Marine Scientists' Day 2011

Oud Sint-Jan site, Bruges (333 participants)

Organisation: VLIZ

www.vliz.be/NL/Home/&p=show&id=2372

4 March 2011

Presentation of the Dr Edouard Delcroix Prize

Former Royal Villa, Ostend (47 participants)

Organisation: HYDRO vzw, in collaboration with VLIZ

www.vliz.be/EN/intro.htm/&p=show&id=2350

22 March 2011

The North Sea, field lab for marine protection

KULeuven (153 participants)

Organisation: VLIZ, in collaboration with MPAs working group of MB-ESF, Belspo, MarBiol-Ghent University, Aquatic ecology-KULeuven, INBO and MUMM

www.vliz.be/projects/westbanks/symposium

24 March 2011

Flanders Aquaculture – Startup of an aquaculture business within the Flemish context

InnovOcean site, Ostend (45 participants)

Organisation: ARC-Ghent University, supported by VLIZ

www.aquacultuurvlaanderen.be

1 April 2011

Press presentation: Deus Ex Machina – special issue on nautical literature

InnovOcean site, Ostend (50 participants)

Organisation: Deus Ex Machina, supported by VLIZ

8 April 2011

Book presentation: 'Naar Island' – Katrien Vervaele

InnovOcean site, Ostend (50 participants)

Organisation: Lannoo, supported by VLIZ

6 May 2011

Press conference regarding the 2011 Planet Ocean Expedition

DAB Fleet, Ostend (19 participants)

Organisation: VLIZ, in cooperation with DAB Fleet

www.planeetzee.org/photogallery.php

12 and 24 May 2011

Socio-economic analysis of the use and cost of degradation of the Belgian marine waters

InnovOcean site, Ostend (42 participants)

Organisation: Marine Environment Service, supported by VLIZ

18 May 2011

Seminar on marine sciences in the classroom

RBINS, Brussels (75 participants)

Organisation: VLIZ and VELEWE

24 May 2011

Moet er nog zand zijn: een wetenschappelijke kijk op de kustlijn van morgen (a scientific view of tomorrow's coastline)

Staf Versluys centrum, Bredene (218 participants)

Organisation: VLIZ, in cooperation with Kustwerkgroep Natuurpunt

26 May 2011

Seminar on coastal biodiversity

InnovOcean site, Ostend (77 participants)

Organisation: UPV, in cooperation with VLIZ

6-7 June 2011

Marine Research Infrastructures Expert Group

InnovOcean site, Ostend (20 participants)

Organisation: VLIZ, in cooperation with MB-ESF and EWI

8 June 2011

World Oceans Day 2011: The Sea of Tomorrow, incl. presentation of Zeekrant 2011

KHBO Brugge (200 participants)

Organisation: VLIZ

www.vliz.be/NL/HOME/&p=show&id=2502

20 June 2011

Press conference: Launch of the 'Project Oosteroeverduinen' brochure

InnovOcean site, Ostend (25 participants)

Organisation: East Bank of Ostend steering committee, supported by VLIZ

30 June 2011

Seminar: Passive fishing and mariculture within Flemish wind farms?

InnovOcean site, Ostend (62 participants)

Organisation: ILVO-Fisheries, supported by VLIZ

31 August 2011

Proposals to reform the Common Fisheries Policy

InnovOcean site, Ostend (55 participants)

Organisation: Agriculture & Fisheries, supported by VLIZ

8 September 2011

OECD Scoping Workshop Marine Biotechnology

InnovOcean site, Ostend (20 participants)

Organisation: VLIZ, in cooperation with EWI

5-8 September 2011

CoastGIS 2011

InnovOcean site, Ostend (120 participants)

Organisation: Corila and EUCC, with the cooperation of Project Office for IODE and VLIZ

www.coastgis.info

14-15 September 2011

CLAMER conference 'Living with a warming ocean'

Palais des Académies / Paleis der Academiën, Brussels (145 participants)

Organisation: VLIZ, with the cooperation of MB-ESF

www.clamer.eu

19-22 September 2011

EuroFleets – General Assembly & Mid-term review

Thermae Palace, Ostend (70 participants)

Organisation: MUMM, with the cooperation of VLIZ

21 September 2011

LECOFISH Workshop

InnovOcean site, Ostend (24 participants)

Organisation: MI-Ghent University, supported by VLIZ

13 October 2011

Super storms and how to protect ourselves

Kursaal, Ostend (336 participants)

Organisation: Econopolis, Callebout & Co, DEME, Mobility and Public Works
Department of the Flemish government, with the cooperation of VLIZ

19 October 2011

Book presentation: De wetenschap van de zee (The Science of the Sea)

InnovOcean site, Ostend (80 participants)

Organisation: VLIZ, in cooperation with ACCO Uitgeverij

www.zeewetenschappen.be

25 October 2011

Workshop on the impact of harbours on the marine environment

InnovOcean site, Ostend (44 participants)

Organisation: Marine Environment Service, supported by VLIZ

18 November 2011

Presentation of old nautical chart

Town hall, Blankenberge (200 participants)

Organisation: St-Pieterscollege Blankenberge, in collaboration with municipality of Blankenberge and VLIZ

25 November 2011

Seminar: Vissen in het verleden, een multidisciplinaire kijk op de geschiedenis van de Belgische zeevisserij (Fishing in the past, a multidisciplinary view of the history of Belgian fisheries)

InnovOcean site, Ostend (121 participants)

Organisation: VLIZ and Flanders Heritage Agency

www.vliz.be/events/zeevisserij

10 December 2011

Coastal guides day

Provinciehuis Boeverbos, Bruges (120 participants)

Organisation: Nature and Environmental Education service of the province of West Flanders, in cooperation with VLIZ

Through the organisation of events, the issue of a wide range of publications and the provision of multimedia educational resources the VLIZ Infodesk wants to bring marine and coastal sciences closer to the different target groups of scientists, educators and the public at large. VLIZ is also a structural partner of the Flemish government (department of Economy, Science and Innovation) within the scope of the 'Science Information and Innovation Action Plan', where VLIZ has the specific responsibility of developing marine educational resources.

Organisation of seminars, workshops, symposia and other events

In 2011 VLIZ organised, co-organised and facilitated 30 events related to marine scientific or coastal research (see table). It concerns 4 international symposia/conferences, 3 international meetings/workshops and 23 local events (seminars, press conferences, an inauguration or launch, a prize award ceremony, a solemn ceremony). A total number of 3,000 people attended these events.

Below you will find a brief discussion of some of the events organised or co-organised by VLIZ.

On Wednesday 9 February 2011 the Flemish research vessel **RV Zeeleeuw** celebrated its **10th anniversary**. During a celebration in Ostend, attended by approx 100 users and sympathisers, the ship's history and its importance for scientific and educational activities were highlighted (also see facilities chapter).

On Friday 25 February, 333 marine scientists from Flanders and beyond met at the eleventh edition of the **VLIZ Young Marine Scientists' Day** at the Oud-Sint Jan site in Bruges. The day was filled with surprising features and an extensive poster session. In this manner the participants were presented a nice overview of the latest, current marine and coastal research. The audience could vote for the best speaker and poster. The VLIZ Awards laureates said a few words as well.

The presentation of the **Dr Edouard Delcroix Prize 2010** was organised in Ostend on 4 March 2011. During the award ceremony, attended by some 50 guests, the French biomedical scientist Dr Eric Honoré received € 25,000 for his meritorious research on the beneficial impact of fish-derived polyunsaturated fatty acids (PUFAs) on cardiovascular disease (see Coordination chapter).

The symposium **The North Sea, field lab for marine protection** took place in Leuven on 22 March 2011 as the final event for the federal research project WestBanks. Scientists from various North Sea countries outlined the state of the marine protected areas in their respective countries as well as the scientific efforts to support this policy. During the debate they also discussed the gaps, needs and opportunities relating to research on the implementation of protected areas in the North Sea. The conference was organised in close cooperation with the Marine Protected Areas working group of the Marine Board.

Young Scientists' Day 2011: an sparkling networking event

Due to the overwhelming number of attendants, our annual networking event for marine scientists from Flanders and beyond had to be moved to a different location.



© VLIZ (Verhaeghe)

On Wednesday afternoon 18 May 2011, VLIZ and the Science Teachers Association (VeLeWe) invited all Flemish science teachers to the **Marine Sciences in the Classroom seminar** at the Museum of Natural Sciences in Brussels to explain how marine research can add zest to lessons. Topics such as scuba diving, bioluminescence with sea-fireflies and plastic pollution are excellent ways to acquire scientific knowledge if subjects such as gas laws, enzymes or synthetic materials come up in class.

On 24 May 2011 Flemish and Dutch scientists came to Centrum Staf Versluys in Bredene to expound their views on the future of the North Sea, as it will be reshaped and will lose its dynamism due to various interventions within the scope of initiatives to better protect the coastline from rising sea levels. The **Moet er nog zand zijn** seminar combined the scientific knowledge in this field. The final conference of the Belgian climate and marine project 'CLIMAR: Evaluation of climate change impacts and adaptation responses for marine activities' took place at the same location on the day after the seminar.

At the request of Uitstraling Permanente Vorming vzw (UPV), VLIZ formulated a programme on the **biodiversity of our coast**. This seminar was held at the InnovOcean site on 26 May. Experts who study and develop policies on the diversity of the seas, beaches, dunes and polders gave some interesting lectures.

World Oceans Day is celebrated every 8 June. This day was officially recognised by the United Nations and is intended to raise public awareness of the problems that occur in our seas and oceans and their importance to us. For the second consecutive time VLIZ organised an evening programme on 8 June, this time within the scope of the European CLAMER project. The constantly changing 'sea of tomorrow' was discussed in a few interesting lectures.

The **CoastGIS 2011** conference (from 5 to 8 September) was organised by the Consortium for Coordination of Research Activities Concerning the Venice Lagoon System (CORILA) and the Coastal & Marine Union (EUCC). A total of 120 experts assembled at the InnovOcean site for an international conference on marine spatial planning. A technical exhibition featuring important operational players in the field of geographical information systems (GIS) and coastal management was held in an adjacent marquee. VLIZ provided logistical support to the organisation (see IODE chapter).

Needs and opportunities concerning protected areas in the North Sea

Scientists and policy makers from several North Sea countries outline the state of the marine protected areas in their respective countries as well as the scientific policy support.



© VLIZ (Trias verbeeck)

A scientific view of tomorrow's coastline

Seminar on the view of Flemish and Dutch researchers on rising sea levels and the planned protection of the North Sea coast.



© VLIZ (Decleer)

Studies have shown that the Belgian coast is insufficiently protected against super storms, which may result in flooding of the entire coastal area and the hinterland. The economic damage could run into billions of euros and the number of casualties could be in the thousands. The conference ‘**Super storms and how to protect ourselves**’ (13 October 2011, Kursaal of Ostend) demonstrated the need for an effective and efficient coastal protection policy by means of gripping testimonies of national and international experts. VLIZ acted as press contact for the organisers: the Flemish government, DEME, Econopolis and Callebout & Co.

A nautical chart painted in 1890 that was used in the former fishery school of Blankenberge remained hidden from the outside world for decades. The chart has been reissued and is a real gem. On Friday evening 18 November the **Blankenberge Fishing Chart** was unveiled at the town hall of Blankenberge. The municipality, the schools of St-Pieterscollege and St-Jozefshandelsschool and VLIZ presented the chart in all its aspects. A reproduction of the chart was published for a broad public. The chart illustrates numerous toponyms of sandbanks and channels that have become obsolete. The name of one sandbank, **Lodewijkbank**, has found its way into modern nautical charts and will replace the formerly unnamed ‘Bank with no name’ as from 2012.

On Friday 25 November 2011 the Flanders Heritage Agency and VLIZ organised the seminar ‘**Vissen in het verleden**’ (Fishing in the past), which offered a multidisciplinary view on the history of Belgian fisheries. The sessions on government interference in fishing throughout the centuries and on the history of the Belgian plaice fishing fleet alternated with an interactive session in which some 10 speakers discussed ‘Surprising stories from the past’ by means of objects, images or quotes (also see Figures&Policy chapter). The seminar’s book of abstracts reveals what these professional experts, (former) fishermen, local historians and collectors dug up from the past.

Super storms and how to protect ourselves

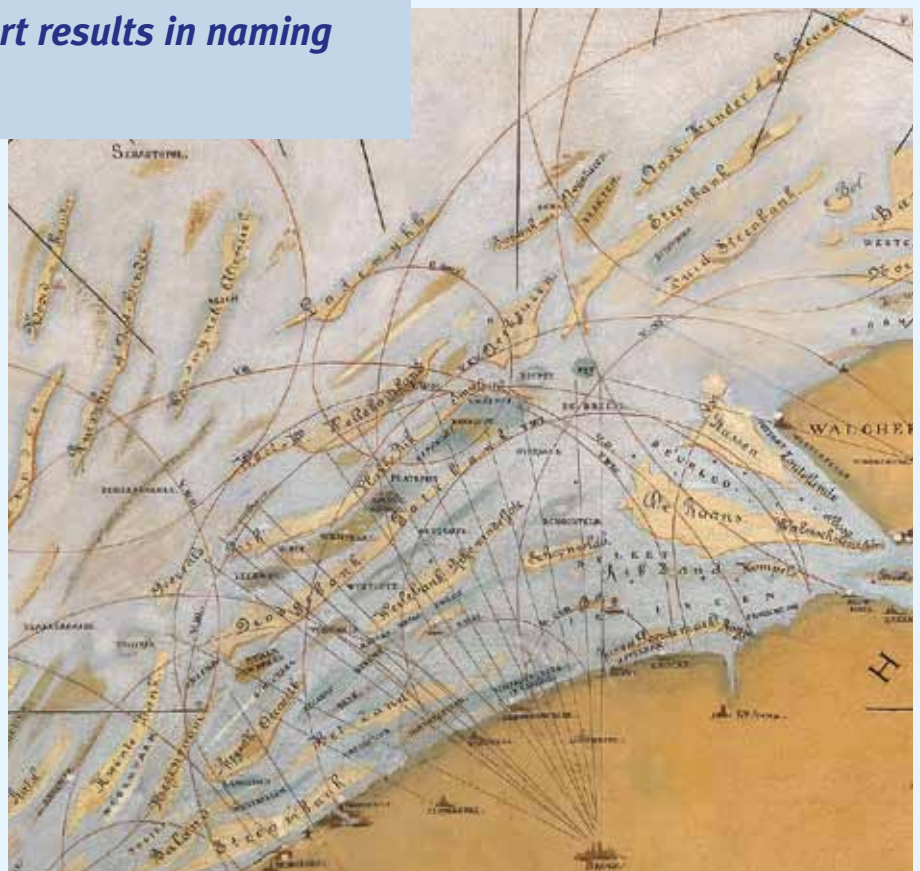
The gripping testimony of Ray Nagin, mayor of New Orleans at the time of the devastating hurricane Katrina, demonstrated the importance of thinking ahead of adequate coastal defence and a contingency plan.



© Studio Dann

Rediscovery of nautical chart results in naming of Lodewijkbank

The Blankenberge nautical chart unveiled on 18 November illustrates numerous toponyms that have become obsolete. One name, **Lodewijkbank**, will be included in modern nautical charts and will replace the formerly unnamed 'Bank with no name' as from 2012.



© VLIZ

On 17 December 2011, VLIZ and the Nature and Environmental Education service of the province of West Flanders organised a **Seminar for Coastal Guides** for the second time. That Saturday morning, nature guides, city guides and harbour guides were welcomed at the council chamber of Provinciehuis Boeverbos in Bruges for fascinating lectures on the sea and the coast, and received information on several practical matters of interest to guides.

Educational excursions and public events

Every year VLIZ organises a few educational excursions and participates in several events for the general public. In addition, VLIZ employees give numerous presentations on the sea and/or the activities of VLIZ (see Coordination chapter).

2-6 May 2011

2011 Planet Ocean expedition

Zeeleeuw (19 participants)

Organisation: VLIZ, in cooperation with DAB Fleet, SHE Consultancy and Studio Bal Gehakt

www.planeetzee.org/photogallery.php

10 May 2011

MOS educational excursion

Zeeleeuw (22 participants)

Organisation: VLIZ, in cooperation with VLIZ and DAB Fleet

www.lne.be/doelgroepen/onderwijs/mos

30-31 May and 1 June 2011

Week of the Sea educational excursions

Zeeleeuw (70 participants)

Organisation: VLIZ, in cooperation with Horizon Educatief, the province of West Flanders and DAB Fleet

www.weekvandezee.be

28-29 May 2011

Ostend at Anchor 2011

DAB Fleet, Ostend

Organisation: DAB Fleet, in cooperation with VLIZ

25 June 2011

Flemish Harbours Open House Day: Zeebrugge

Port of Zeebrugge (852 visitors)

Organisation: VLIZ and DAB Fleet

25 June 2011

Flemish Harbours Open House Day: Ostend

Marquee on the East Bank of Ostend

Organisation: MDK, with the cooperation of VLIZ

4 November 2011

Antwerp Book Fair: workshop for teachers

19 November 2011

Conference of the Science Teachers Association

Antwerp

Organisation: VeLeWe

Various educational excursions for M.Sc. and B.Sc. students from marine and maritime disciplines

Zeeleeuw

(also see Facilities chapter)

In school year 2010-2011 the e-learning project Planet Ocean (www.planeeetzee.org) was won by Sint-Janscollege from Poperinge headed by Sabien Dessein. From 2 to 6 May 2011, 17 students were able to experience five days of working as a marine scientist and crew member aboard the Zeeleeuw and other Flemish vessels.

In school year 2010-2011 students from Stella-Matutinacollege in Lede won the environmental education (**Milieu zorg Op School or MOS**) contest for the third cycle of general secondary education on the topic of 'research competencies and the environment'. They won an educational trip with the Zeeleeuw on 9 May 2011.

Together with Horizon Educatief, VLIZ actively participates in the **Week of the Sea** (an initiative of the province of West Flanders) on a yearly basis by offering several one-day scientific excursions at sea. On 30 May, 31 May and 1 June children and youngsters went on board the Zeeleeuw to participate in numerous scientific samplings under the supervision of experts.

Publications

'**De Grote Rede**', the periodical on the Belgian coast and the adjacent sea, is created by over 30 editors, who all work in research or on coastal zone policy in the most diverse coastal and marine disciplines (www.vliz.be/EN/Infodesk/Infodesk_GR). From issue 29 onwards, the new column 'Zeegevoel' deals with the relationship between man and sea. The periodical appeared 3 times in 2011 and was sent to 5,739 addresses.

In 2011 VLIZ published 5 issues (156 items) of the electronic newsletter **VLIZINE**, which reports on VLIZ activities as well as on the activities of marine research and policy groups in Flanders (www.vliz.be/EN/infodesk/Infoloket_Archief_Vlizine). The e-zine is sent to 1,140 addresses.

Special issue of De Grote Rede on sea-level rise

Special issue 30 dealt with sea-level rise and the safety of the Flemish coast. This topic fitted in with several events relating to this theme (co)organised by VLIZ. The periodical is currently sent to 5,739 addresses free of charge 3 times a year.



Class from Poperinge wins challenging North Sea expedition

In the Planet Ocean 2011 competition, 17 students from Sint-Janscollege had the most creative entry with the most varied content. They won a real scientific expedition aboard the Zeeleeuw.



© VLIZ (Copejans)

***Second edition of 'Koers naar Zee'
(Off to the Sea) guide published***



This guide for secondary education teachers lists all excursion possibilities on the Belgian coast and was sent to all secondary schools in Flanders.

© VLIZ

With the annual publication **Zeekrant**, VLIZ and the province of West Flanders want to provide coastal tourists with all kinds of interesting facts on a wide range of marine-related subjects. This issue contains articles on tsunamis, the Heist sandbank, porpoises, mermaids, tuna fishing and much more. This summer newspaper is distributed once every year – with a circulation of 75,000 copies – along the entire coast and is freely available at all visitor centres, libraries and tourist offices on the Belgian coast. The Zeekrant can also be browsed online at www.zeekrant.be. The fourth issue was presented on World Oceans Day (8 June 2011).

VLIZ has drawn up digital **fact sheets** within the scope of various projects. For instance, 30 new fact sheets were drawn up in 2011 within the scope of the 'Alien species in the Belgian part of the North Sea' project, so that fact sheets on all 68 alien species are currently available (see Figures&Policy chapter). In addition, 5 fact sheets were drawn up within the scope of documenting historical marine scientific figures.

Acco, an educational publishing company, approached VLIZ to create a publication aimed at secondary education science teachers. Educational assistant Evy Copejans and Michiel Smits took up the challenge to write a handbook that deals with the main principles and concepts of marine sciences and that is relevant for use in science classes. On 19 October, the book entitled '**De wetenschap van de zee: over een onbekende wereldoceaan**' was presented in Ostend.

‘De wetenschap van de zee’ (The Science of the Sea): handbook for science teachers

VLIZ drew up a handbook that deals with the main principles and concepts of marine sciences. Practical exercises are available at the accompanying website www.zeewetenschappen.be.



Accompanying the book is a website (www.zeewetenschappen.be) which offers practical exercises linked with subjects treated in the book. The book was purchased by the Science Teachers Association (VeLeWe) and the Biology Education Association (VOB) as a gift to their 1200 members.

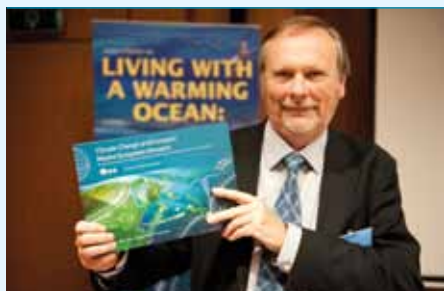
VLIZ and the Coastal Environmental Education Centre of the province of West Flanders compiled a new edition of the **‘Koers naar zee’** (Off to the Sea) guide. This guide for secondary education teachers lists all excursion possibilities on the Belgian coast. At the end of 2011 VLIZ sent this publication free of charge to all secondary schools in Flanders.

In addition, VLIZ produces various other publications, either on its own initiative or in cooperation with others. For instance, 5 ‘special publications’ (358 pages in total), 4 reports and 35 fact sheets were published in 2011. VLIZ also actively contributed to 3 co-publications and 3 publications by commercial publishing companies. In total, 9 of these (co-)publications were aimed at the general public.

CLAMER – Climate Change & Marine Ecosystem Research Results

Communication activities within the scope of the European FP7 project

The European FP7 project CLAMER (2010-2011) was intended to compile the current scientific knowledge concerning the effects of climate change on the European seas and to disclose this knowledge to scientists, policy makers and the public at large. In addition, a survey was conducted in 10 European countries to investigate whether the general public is sufficiently aware of the effects of climate change on the seas. VLIZ was responsible for the communication package within the CLAMER project and contributed actively to the promotion of knowledge transfer e.g. by creating a website and a Facebook page, by organising interactive events in aquariums and marine institutes all over Europe, and by creating the CLAMER documentary ‘Living with a warming ocean’.



The CLAMER **brochure** ‘Climate change and European Marine Ecosystem Research’ is specifically written to inform the general public on the principal findings of the CLAMER project. The booklet, consisting of 53 pages, is organised around 12 remarkable illustrations by Glynn Gorick. On the basis of different themes, these images explain how climate change affects the marine environment. Each illustration is accompanied by background information.



In the course of the project, three press releases were created by Terry Collins & Associates in collaboration with researchers. The **press releases** were picked up by leading news agencies and radio stations, published in dozens of magazines and newspapers (e.g. The Times, The Independent, The Sunday Telegraph, El Mundo, Aftonbladet, The Irish Examiner) and posted as hundreds of online messages.



The international **CLAMER conference** ‘Living with a warming ocean: European research and public perception of climate change impacts in the marine environment’ took place at the Royal Flemish Academy of Belgium for Sciences and the Arts in Brussels on 15 September 2011, and was preceded by a pre-event on the evening of 14 September.



A Book of abstracts (VLIZ special publication 52) was compiled in preparation for the CLAMER conference. After the conference more extensive summaries of the presentations and the findings of the workshops were collected in the **Proceedings** (VLIZ special publication 53).



A 57 minute **documentary entitled** ‘Living with a warming ocean’ provides an overview of the perception, knowledge and adaptation of European citizens with regard to the effects of climate change on the seas. This documentary was created by Jean-Yves Collet from Com on Planet. It premiered during the pre-event of the CLAMER conference.



The CLAMER **website** (www.clamer.eu) had over 12,000 unique visitors between January and November 2011, which amounted to 478,795 hits. The website received 4,044 visitors during the apotheosis of the CLAMER project in September 2011. The most frequently consulted pages were the library, the photo and video gallery, the documentary, the page with information on the conference and the brochure.



European aquariums and 11 marine research institutes participated in the **marine climate change side-events**. The participating institutes and aquariums were encouraged to organise events concerning climate change in the European seas themselves: evening lectures, workshops, open laboratory days, etc.



Participants attending the side-events received a promotional package consisting of a quiz, a trailer of the documentary and an **information panel**. A few 'marine climate facts' were listed in the local language on this panel as well as an appeal to visitors to take part in a video competition. The participating aquariums estimate that about 1.5 million visitors saw the information panel in the months of June and July.



The participants in the **video competition** were invited to describe in 1 minute how climate change affects their local sea. The competition resulted in over 40 entries from seven European countries. The winners Jelmer Bot and Emile Druif, two students from the secondary school 'De Hogeberg' in Texel (the Netherlands), were invited to show their video entitled 'Surfing on climate change' at the CLAMER conference.



A 'Clamer Side-Events' **Facebook page** was created as well. During the side-events a CLAMER team visited several aquariums and marine institutes to offer support. The account of this trip, consisting of photographs and interviews with the aquariums' employees and visitors, could be consulted on the Facebook page.



On 8 June 2012, during **World Oceans Day**, VLIZ organised an evening of lectures on the topic 'The sea in a changing climate' in Bruges within the scope of the CLAMER side-events.

Overview of VLIZ publications in 2011

VLIZ Special publications (ISSN 1377-0950)



nr. 50: 2011

Indicatoren voor het Schelde-estuarium. *VLIZ Special Publication, 50. Flanders Marine Institute (VLIZ): Ostend. ISBN 978-90-817451-0-9. 165 p*



nr. 51: Slabbinck B. et al. (Ed.) – 2011

Moet er nog zand zijn: een wetenschappelijke kijk op de kustlijn van morgen. Bredene, België, 24 mei 2011: Referatenbundel van de studiedag. *VLIZ Special Publication, 51. VLIZ Special Publication, 51. Flanders Marine Institute (VLIZ) / Natuurpunt: Ostend. ISBN 978-90-817451-2-3. 31 pp*



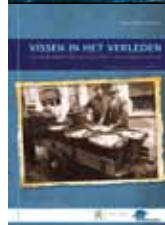
nr. 52: Mees J. et al. (Eds) – 2011

Living with a warming ocean: European research and public perception of climate change impacts in the marine environment. International CLAMER Conference. Royal Flemish Academy of Belgium for Science and the Arts, Brussels, Belgium, 14-15 September 2011. Book of Abstracts. *VLIZ Special Publication, 52. Flanders Marine Institute (VLIZ): Ostend. ISBN 978-90-817451-3-0. 15 pp*



nr. 53: Mees J. et al. (Eds) – 2011

Proceedings International CLAMER Conference. Living with a Warming Ocean: European Research and Public Perception of Climate Change Impacts in the Marine Environment. Royal Flemish Academy of Belgium for Science and the Arts, Brussels, 14 & 15 September 2011. *VLIZ Special Publication 53 – Flanders Marine Institute (VLIZ). Ostend, Belgium. 35 pp*



nr. 54: Lescrauwaet A.-K. et al. (Eds) – 2011

Abstractenboek studiedag 'Vissen in het verleden. Een multidisciplinaire kijk op de geschiedenis van de Belgische zeevisserij'. *VLIZ Special Publication, 54. Flanders Marine Institute (VLIZ): Ostend. ISBN 978-90-817451-5-4. 112 pp*

Various publications – Reports



Mees J. et al. (Eds) – 2011

VLIZ Jaarboek 2010. Voor al wie gefascineerd is door de zee en de kust. *Flanders Marine Institute (VLIZ), Ostend, Belgium. 160 pp*
ISBN 978-90-812900-9-8



Mees J. et al. (Eds) – 2011

VLIZ Annual Report 2010. Supporting marine and coastal research in Flanders. *Flanders Marine Institute (VLIZ), Ostend, Belgium. 160 pp*
ISBN 978-90-812900-6-7



Anon. – 2010

VLIZ Collected Reprints: marine and coastal research in Flanders, 40 (2010). *Flanders Marine Institute (VLIZ), Ostend, Belgium. [CD-ROM].*



Cattrijsse A. – 2011

Jaarverslag Zeeleeuw 2010. *Flanders Marine Institute (VLIZ), Ostend, Belgium. 26 pp*

Various publications – Other



De Grote Rede 29



De Grote Rede 30



De Grote Rede 31

VLIZ contributions to publications for the public at large



2011

Woordkramerij 2. Woorden die de taal liever kwijt is dan rijk. Klara & Uitgeverij Vrijdag, Antwerp, Belgium.

120 pp

ISBN 978-94-6001-108-5



Jef Nys – 2011

Met Jommeke naar zee

Various publications – Other



Copejans E. *et al.* (Eds) – 2011

Zeekrant 2011: jaarlijkse uitgave van het Vlaams Instituut voor de Zee en de provincie West-Vlaanderen. *Flanders Marine Institute (VLIZ)/province of West Flanders: Ostend. 8 pp*



Copejans E. & Smits M. – 2011

De Wetenschap van de zee, over een onbekende wereldoceaan, Flanders Marine Institute, ACCO uitgeverij, Leuven, 176 pp, ISBN 978-90-3348-412-4



Copejans E. *et al.* – 2011

Koers naar zee: excursiegids voor het secundair onderwijs. Een overzicht van leermiddelen en activiteiten aan de kust rond de thema's natuur, milieu, wetenschap en technologie. 2nd edition. Province of West Flanders / Flanders Marine Institute (VLIZ): Bruges. 78 pp

Leaflets and other materials

Flyer 'World Oceans Day'
Planet Ocean postcard – 2011-2012 edition
'De Wetenschap van de Zee' postcard
2011 calendar – Climate change in European seas
2011 tide book

The VLIZ website

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. All websites within the VLIZ.be domain taken together were visited 1,091,231 times in 2011. This is the first time we reached one million visits. A total of 17,274,807 pages were consulted.

Infodesk 'Our Coast'

In 2011 the VLIZ infodesk received 225 specialised requests for marine information, documents or contact information of persons involved in marine scientific research. These requests come from private individuals, students and teachers, companies, the government and scientists from Belgium and abroad. The press requested detailed information from us 34 times.

Listeners national radio station Klara come up with a translation of 'seafood'

During the 2011 Easter holidays, listeners of the morning programme 'Espresso' looked for a good Dutch translation of the English word 'seafood'. 'Zeekost', 'zeewild' and 'zeeoogst' were among the winners.



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VLIZ in the press

In 2011 VLIZ sent out 15 official press releases (see table) and 3 press alerts at the time of the publication of the 'De Grote Rede' information magazine. As always, they were eagerly taken up by the media. Journalist Terry Collins was called upon to distribute 3 international press releases within the scope of the CLAMER project. His news items were picked up by at least 200 news sites in 19 countries. In 2011, VLIZ collaborated in several TV and radio programmes. Through the different news pages of the VLIZ website, 24 news items in Dutch and 10 news items in English were posted relating to our activities in 2011. Some of these messages were picked up and spread by means of (digital) newsletters and e-zines of other organisations and institutes in Belgium and abroad.

Educational activities and products

Presentation to and visit of students from secondary teacher training in biology, **KHBO** VLIZ, Ostend (15 participants)

During the **Flemish Harbours Open House Day** on 25 June, 850 interested visitors were given a guided tour of the port of Zeebrugge aboard the Zeeleeuw while they became acquainted with Flemish marine research.

On 4 November, Evy Copejans gave a lecture for teachers at the **Antwerp Book Fair** on the book 'De Wetenschap van de Zee' (The Science of the Sea).

The VLIZ education division was presented to **teachers in training** from secondary teacher training in biology, KHBO (25 May 2011). Teachers from the VTI Oostende and

HoTech Oostende vocational training schools became acquainted with lessons on the sea during their **teachers' training day** at the InnovOcean site in Ostend on 10 and 14 October 2011 respectively.

Together with biology teacher Michiel Smits, VLIZ provided two 'Sea Lab' workshops at the **17th Congress of Science Teachers** in Antwerp on 19 November 2011. A total of 620 science teachers visited the congress.

On Sunday 21 November the '**Dag van de Wetenschap**' (Science Day) kicked off the Flemish Science Week. On this occasion the Flemish research vessel Zeeleeuw moored at the port of Ghent. Several marine scientists from Ghent university, DAB Fleet and the Flanders Marine Institute gave expert explanation as to their research activities through numerous instructive experiments and demonstrations aboard the Zeeleeuw.

VLIZ developed a new **practical website** accompanying the book 'De Wetenschap van de Zee' for secondary education teachers. On the website www.zeewetenschappen.be you will find many assignments, experiments and fieldwork. The website includes the following teaching packages:

- Dissection manual for herring, mussel and shark (practical)
- Osmoregulation (practical)
- Ocean acidification (practical)
- Extraction of water from rock (practical)
- Underwater pressure (practical)
- Excursion to the 'De Westhoek' nature reserve (fieldwork)
- Preparation of a shell identification key (fieldwork)
- Determination of primary production (practical)
- Sound under water (practical)
- Salt crystal growing competition (practical)

The e-learning project **Planet Ocean** (www.planeteezee.org) was extended with a new learning module on Mercator and maritime cartography.

Within the scope of the thesis of trainee Louis Luyten (Artesis University College Antwerp), a **teaching package** was developed that fits in with the final attainment levels of fieldwork for secondary education geography teachers (GO!): Geographic fieldwork in the dunes of the Westhoek nature reserve.

Making reliable information available in a modern and visually appealing form is essential to support education. For this reason, VLIZ continues to create informative **movies** about coastal and maritime activities, always in close cooperation with Flemish marine scientific researchers and policy makers. The production is carried out by external production company Bi-oS. The following productions were launched in 2011:

- Video manual for dissection (mussel, dogfish and herring)
- Animation on the life of the endangered European eel
- Video manual for the experiment 'Microplastics are forever'



Marine L



Marine Library



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Read more?
www.vliz.be/EN/Marine_Library

- ❑ ALL KNOWLEDGE OF THE SEA
- ❑ LARGEST MARINE COLLECTION
- ❑ DIGITAL LIBRARY
- ❑ OPEN ACCESS

The comprehensive collection of marine scientific information in the VLIZ library is accessible to scientists and policy makers, marine educators and the general public. The core of the collection consists of recent and historical works by Belgian marine scientists, supplemented with literature and multimedia materials on the Southern Bight of the North Sea, the Belgian coastal area, the Flemish dune and polder belt and estuaries. The collection is further supplemented with literature and multimedia materials that are relevant to Belgian marine research.

Collection: offer and figures

The most important part of the Marine Library's collection is the **Open Marine Archive (OMA)** where the work of Belgian marine scientists is freely available. OMA contains peer-reviewed articles, pre-print versions, articles from local magazines, press cuttings, scientific posters, reports, conference reports, theses, pictures, videos etc.

Internet users from all over the world can freely consult and download all these publications through the VLIZ website (www.vliz.be/NL/marine_library_OMA). OMA records are ranked high in the search results thanks to open archive harvesters such as Google Scholar, AVANO and OAlster. This way we optimally promote the visibility, distribution and use of Belgian marine research results.

At the end of 2011, OMA included 9,863 titles and 68,185 downloads from this digital document collection.

Digitalisation of the entire marine theses collection

All marine doctoral theses are now freely available through the Open Marine Archive; we can supply other theses in digital format upon simple request.



© Cuvelliers Els (2011), Vanhellemont Quinten (2009), Braeckman Ulrike (2011) and Vandenbroucke Thomas (2010)

The complete **catalogue** of the VLIZ library increased by 12,968 new titles in 2011. This brings the total number of titles to 173,241. At the moment, 30,378 of these titles pertain to the Belgian Marine Bibliography (BMB), the leading reference list of all publications on the Flemish coast and all other marine literature written by Belgian authors and scientists.

At the end of 2011 the **BMB** contained 1748 Belgian marine theses. In 2011 the VLIZ library's entire marine theses collection was digitalised. All doctoral theses were made freely available through the Open Marine Archive. Other theses can be supplied in digital format upon simple request addressed to the VLIZ library.

In addition to the BMB and OMA cores, the expansion of our collection is also determined by the ongoing marine projects and subjects discussed within and outside VLIZ.

For instance, the gathering and disclosure of all relevant **legislative texts on Belgian fisheries** was started in 2011 within the scope of the project 'A century of sea fisheries in Belgium' headed by the Figures & Policy department. In time this should result in a complete historical overview of the legal corpus concerning fisheries in our region. At the end of 2011 all Belgian laws and decrees on fisheries published since 1830 were made available digitally in IMIS. Together with the fisheries legislation from the time of the United Kingdom of the Netherlands (1815-1830), this legal bibliography is also made available through the project page www.vliz.be/NL/Cijfers_Beleid/Belgische_Zeevisserij.

Historical overview of the legal corpus concerning fisheries in Belgium



On 25 November 2011 the complete list of available Belgian legislative texts on fisheries was presented and explained by Jan Haspeslagh at the seminar 'Vissen in het verleden' (Fishing in the past).

Service

All the above publications are collected, catalogued and made available digitally as far as is possible. A considerable part of the collection is therefore freely accessible on the Internet. All titles can be searched by means of the literature catalogue in the IMIS information system (www.vliz.be/imis). Printed copies can also be consulted at the library and can be copied or scanned.

In addition to the VLIZ library catalogue, the catalogues of the libraries of the Research Institute for Nature and Forest (INBO) and Flanders Hydraulics Research are disclosed by means of the IMIS information system.

All titles from the Marine Library as well as works that are not present in our collection and are more difficult to find can be requested through the Marine Library's document delivery service. In 2011 we received 630 requests for document delivery. We were able to meet 99% of all requests. Over half of all references could be supplied from our own collection. The other publications were mainly obtained through networks such as Iamslic, Antilope and Subito Germany.

A total of 287 subscribers receive a weekly list of all publications added to the collection in the previous week, the **VLIZ Library Acquisitions List**, by e-mail. For ten years the Marine Library contributed to the creation and management of the **Aquatic Sciences and Fisheries Abstracts database** (ASFA) of FAO. By inputting Belgian marine and aquatic publications to the ASFA database, VLIZ promoted this research to an international scientific public. Since 2002 more than 8,000 unique references – both peer reviewed articles and local grey literature (reports, theses etc.) – have been disclosed. However, due to the development and success of the Open Marine Archive and the ever improving online dissemination and searchability of literature records via the IMIS database, the decision was taken in 2011 not to use any additional resources for the double input of literature records to the ASFA database. This way, more attention can be paid to the completeness and disclosure of the contents of literature in the VLIZ library's online catalogue.

For this reason it was decided to also discontinue the VLIZ Collected Reprints as from 2011. This annual publication (vol. 29, 1999 – vol. 40, 2010) was the continuation of the former IZWO Collected Reprints (vol. 1, 1970 – vol. 28, 1998). The series included a list and reprint of the scientific articles published in that calendar year by Flemish marine scientists. It was a tool to exchange international publications with libraries and scientific institutions. From volume 37 (2007) onwards, the VLIZ Collected Reprints were published on CD as an annex to the VLIZ Annual Report. As the dissemination of the Flemish marine scientific output now goes very smoothly via the Open Marine Archive, it is no longer advisable to provide this annual publication.

Cooperation within networks and projects

In Belgium the Marine Library of VLIZ is a member of the Flemish Association for Libraries, Archives and Documentation Centres (**VVBAD**) and of the Flemish Research Libraries Council (**VOWB**). Furthermore, the VLIZ library is a member of the European (**EURASLIC**) and international (**IAMSLIC**) associations of aquatic and marine libraries. The VLIZ library collaborates with the Intergovernmental Oceanographic Commission (**IOC**) of UNESCO as well.

Since 2008 the Marine Library has been collaborating on the **'Wetenschappen - vier eeuwen kustonderzoek in beeld'** (Scientific Treasures, four centuries of coastal research in pictures) project. This project was developed with the support of the province of West Flanders within the programme for permanent disclosure of Immaterial Cultural Heritage. The Wetenschappen website (www.wetenschappen.be) discloses the

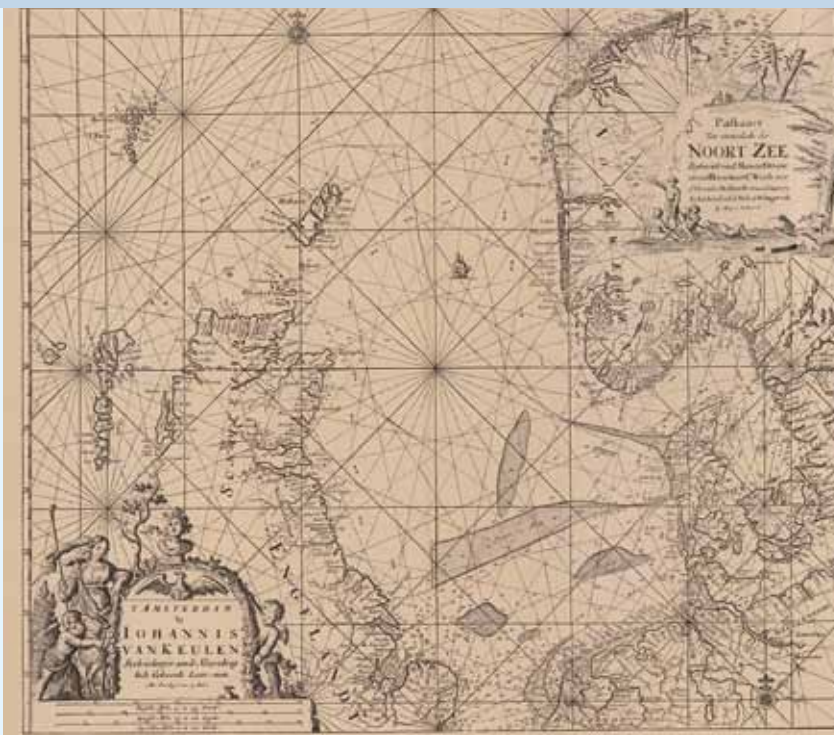
numerous illustrations from publications produced over time by Belgian coastal and marine research. Each of these images are provided with general information and a short description of the contents. In 2011 the archive was enlarged with 747 additional images, which makes for a total of 3659 images. This year additional attention was paid to charts from marine atlases by Lucas Waghenar, Willem Janszoon Blaeu and the Van Keulen brothers.

Apart from that...

In October 2011 the library team was temporarily reinforced with a scientific assistant (Zohra Bouchti) in order to improve the disclosure of the contents of marine publications and to manage correct CVs of Flemish marine scientists and research institutions.

In 2012 we will continue to focus on further digitalisation, the Open Marine Archive and the supply of correct information.

Many charts from marine atlases have been digitalised



© Van Keulen (1728)

In 2011 additional attention was paid to charts from marine atlases such as 'De Nieuwe Groote Ligtende Zee-Fakkel' by the Van Keulen brothers within the scope of the Wetenschappen project.

Figures &



Figures & Policy



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Read more?

www.vliz.be/EN/Figures_Policy

- ❑ COMPENDIUM FOR COAST AND SEA
- ❑ POLICY INDICATORS
- ❑ THEMATIC PROJECTS AND PRODUCTS
- ❑ SEASTATS

Figures&Policy intends to support a sustainable and scientifically founded coastal and marine policy by providing policy-relevant scientific information. The products of Figures&Policy are aimed at coastal and marine professionals, scientists and policy makers as well as at certain other interested target groups within the general public. Figures&Policy primarily focus on the Belgian part of the North Sea, the Flemish coast and adjacent estuaries, while the southern North Sea and the European waters offer a broader frame of reference. After all, it is impossible to set the Belgian marine and coastal area apart from the developments with regard to marine and maritime policy in Europe and the conservation and sustainable use of the seas and oceans worldwide. The Figures&Policy division works closely together with the network of Flemish marine scientists and internally with the VLIZ data centre, Marine Library and Infodesk.

Compendium for Coast and Sea

There is a growing demand in the marine and maritime world for scientifically founded and updated information in response to social demands and problems. This information is often only partly available, highly fragmented, industry-related and/or not very accessible.

By creating a **Compendium for Coast and Sea**, VLIZ intends to compile all this objective and scientifically founded information and data from Flemish marine and maritime research in one information document. This will include both socio-economic, ecological and institutional aspects of the coast and sea in Flanders and Belgium. The Compendium's integrated and cross-border character (it also crosses the boundary between land and sea) will contribute to increased communication within the fragmented marine scientific landscape, and will increase the visibility and accessibility of marine scientific research. This way the Compendium will also serve as an instrument in the pursuit of an Enduring and Integrated Maritime Policy and Coastal Zone Management.

VLIZ started the 'Compendium for Coast and Sea' initiative in October 2010. In 2011 the Blueprint for the Compendium was further developed on the basis of a bilateral inquiry process involving over 60 experts from marine and maritime policy and marine sciences. This blueprint was approved by the Scientific Board and the Board of Directors of VLIZ in June 2011 and can be consulted on our website (www.vliz.be/docs/Compendium/Blueprint_Compendium.pdf). The roadmap, the communication strategy and the terms of reference were developed as well, and the composition of the expert group that will monitor and direct the Compendium for Coast and Sea was determined. These documents can also be found on the Compendium's preliminary web page (www.vliz.be/NL/Cijfers_Beleid/Compendium).

The Compendium for Coast and Sea consists of three main parts. The first part offers an overview of the marine scientific landscape and deals with the history of marine sciences, the science policy, a bibliometric study, financial flows etc. In 2011 the data and information flows within VLIZ were streamlined and updated so as to produce the correct figures for this chapter. In addition, an internationally accepted framework was developed for reporting and benchmarking with regard to the Flemish/Belgian marine scientific landscape.

The second part of the Compendium presents the use of the sea in thematic fact sheets. In 2011 relevant sources (scientific publications, reports, project reports, MERs, legal sources, time series, useful websites ...) were collected per theme and placed in a context. The aim is to create a showcase in which the available knowledge and expertise are compiled and reference is made to underlying research.

The third part van het Compendium for Coast and Sea deals with the interface between science and policy.

A first edition of the Compendium is planned in late 2013 and will consist of an extensive background document, a focus report, a summary and several derived communication products, both in Dutch and in English. The aim is to publish a printed publication every five years. A website is also developed as an interactive data and information carrier with relevant sources and time series that are updated every five years.

Policy indicators

Indicators are increasingly used as an instrument for the exploration, planning, implementation and evaluation of policies. Moreover, they are very useful as a link between policies and scientific research.

Indicators of the Long-Term Vision 2030 for the Scheldt estuary

The Flemish government asked VLIZ to develop an **indicator set** which clearly reflects the overall condition of the Scheldt estuary and allows a long-term vision of the trends and evolutions, in cross-border consultation with scientists and policy makers. For instance, the indicator set can be used to follow up on policy-relevant issues within the scope of the long-term vision and the 2030 target for the Scheldt estuary.

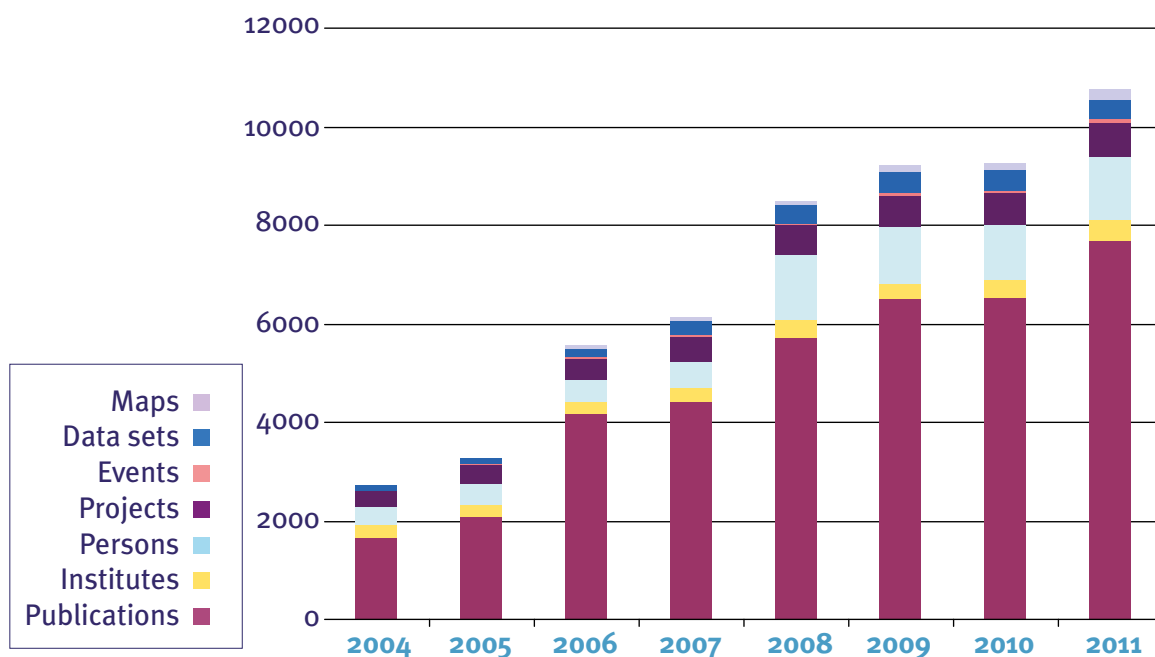
The indicators fit in with the main themes of Safety, Nature and Accessibility of the Working Group on Research & Monitoring of the Flemish-Dutch Scheldt Commission (VNSC). The indicators were embedded in the ScheldeMonitor website (www.scheldemonitor.be/indicatoren.php) where they are linked to data, publications, graphs and tables, data providers and authors. The technical sheets and fact sheets of the indicators can be consulted integrally as well. The fact sheets of the indicators were collected and published as VLIZ special publication 50: 'Indicatoren voor het Schelde-estuarium' (Indicators for the Scheldt estuary) launched and presented at the VNSC Scheldt symposium on 23 June 2011.

Fact sheets of Scheldt estuary indicators collected and published

Fact sheets of the set of indicators to follow up on policy-relevant issues within the scope of the long-term vision and 2030 target for the Scheldt estuary collected in an easy-reference publication.



The **ScheldeMonitor** (www.scheldemonitor.be) is the Flemish-Dutch knowledge and information system supporting research and monitoring of the Scheldt estuary. An initiative of the Maritime Access division (Mobility and Public Works Department of the Flemish government) and the Dutch Ministry of Waterways and Public Works, the ScheldeMonitor has developed into the largest **virtual information centre** available online. Since 2011 the Scheldemonitor has been sponsored by and used to support the objectives of the Flemish-Dutch Scheldt Commission (VNSC). This policy-supporting system can be searched for institutes (406), persons (1286), projects (693), events (63), maps (187), data sets (398) and publications (7704).



Integrated coastal zone management

VLIZ recognises the Coordination Centre for Integrated Coastal Zone Management (CC-ICZM) as the main point of contact for integrated management of the coastal area in Belgium. VLIZ is a supporting partner of the CC-ICZM and participates in the meetings of the Executive Committee. In its capacity as a partner VLIZ provides technical and scientific support to the CC-ICZM within the scope of the fulfilment of its mission.

For instance, support was provided in 2011 within the scope of the **C-SCOPE** project (www.cscope.eu) which aims to create a 'seamless coastal and marine planning framework'. A framework in which a holistic bottom-up approach is used and which meets the requirements of both professional and non-professional users results in less development conflicts at a local level. Within the scope of this project, a **Maritime Spatial Planning working group** (MSP) was established. Made up of independent experts, academics and scientists (including VLIZ employees), the working group's aim is to formulate recommendations concerning MSP in Belgium and in particular as to the case study 'Bay of Heist'. A number of products were developed: an inventory of the Belgian situation regarding MSP (www.cscope.eu/files/results/marine-mgmt-plan/belgium/inventory-MSP-belgium.pdf), a position paper on the future-oriented approach to spatial planning at sea (www.cscope.eu/files/results/marine-mgmt-plan/belgium/position-paper-2011-EN.pdf), and a final report including the experiences with the project concerning integrated planning on land and at sea in two case studies, including the Bay of Heist (Belgium).

VLIZ chairs working group for Coastal Atlas update

The working group (chaired by VLIZ) responsible for the second edition of the Coastal Atlas completed an updated website as well as a new printed version in 2011.



In 2010-2011 Figures&Policy was involved in the update of the **Coastal Atlas** (www.kustatlas.be) within the C-SCOPE project; VLIZ chaired the working group and contributed actively to the sections research, monitoring and education of the group. This atlas, whose website was updated and which appeared in a new printed version in 2011, offers an overview of the way in which coastal and marine space is used (now with interactive maps and possibilities to export images, graphs and maps as a PDF file or GIS data, links to sustainability indicators for the coast ...).

VLIZ serves as a data centre for the **Coastal Barometer**, a set of sustainability indicators for the Belgian coast. In 2011 these indicators were updated and embedded in the Coastal Atlas. The preparations for a new edition of the **Coastal Compass** publication, in which an expert group takes a close look at trends in the indicators, started as well (expected to be ready in 2012).

Finally, VLIZ supported several CC-ICZM activities such as **De Kust Kijkt verder** and the **AS-MADE** project concerning marine debris in 2011.

Integrated coastal zone management in the Mediterranean and Black Sea

In the **PEGASO** project, 24 partners from 15 countries take up the challenge to reach a common approach to the development of integrated coastal zone management in the Mediterranean and Black Sea region in line with the ICZM Protocol for the Mediterranean Sea. Its task includes the construction of an ICZM Platform that connects research results and policy demands; the refinement of efficient and user-friendly instruments for performing sustainability evaluations in the coastal area; the implementation of a Spatial Data Infrastructure (SDI) for the organisation and standardisation of spatial data. In 2011 VLIZ made a concrete contribution to the development of the SDI, the survey of partners as to current and future capacities for the development of local *geonodes* (which are part of the global SDI) and the preparation of guidelines and a methodological basis.

VLIZ participates in integrated coastal zone management in the Mediterranean and Black Sea

By means of the PEGASO project, 24 partners from 15 countries intend to reach a common approach to the development of integrated coastal zone management in the Mediterranean and Black Sea region.



© Pegaso

According to the ICZM protocol for the Mediterranean Sea, the parties concerned undertake to determine a set of indicators for integrated coastal zone management and to update them frequently so that the use and management of coastal areas in this region can be evaluated. Within the scope of the PEGASO project, VLIZ is co-responsible for the selection, foundation and implementation of a set of indicators for the Mediterranean and Black Sea. This set has already been tested in terms of the needs of the current European policy tools (such as the European ICZM recommendation, the European Marine Strategy Framework Directive and the European Integrated Maritime Policy, the Habitats Directive and Birds Directive ...). In a next stage the relevance and applicability of these (spatially explicit) indicators will be tested for the whole region both at a local and (sub)national level, and at the level of the entire regional sea. VLIZ also ensures the development and maintenance of the project website (www.pegasoproject.eu).

Coastal zone management in South America based on VLIZ expertise

Within the scope of ICZM, Figures&Policy also provided support to the **SPINCAM** project in 2011. Five countries (Panama, Colombia, Ecuador, Peru and Chile) collaborate on the development of common indicators for integrated coastal zone management on the western coasts of South America. The SPINCAM project is a collaboration between IOC/UNESCO and the member states of the Permanent Commission for the South Pacific (CPPS) with co-financing from the Flanders-UNESCO Trust Fund.

The **FOCA** project (in full: Development of an innovative environmental monitoring network for the sustainable development of the Chilean fjords) collects information on the carrying capacity of a huge marine system in the Chilean fjords (2000 km). The project is co-financed by the Chilean Fund for Scientific Research (FONDICYT). Since 2005 VLIZ, which started bilateral cooperation in the field of marine sciences with Chile in the 2005-2009 work plan, has provided support to the research group of the FOCA project located at the Pontificia Universidad Católica in Santiago de Chile. In 2011 they carried out monthly surveys on ferries (ferrybox) and collected continuous data for physicochemical oceanographic parameters. Two project employees paid a working visit to Ostend in March 2011.

Thematic projects and products

History of marine sciences

In addition to the current diversity of marine scientific research, Flanders en Belgium can also build on a rich historical heritage in marine sciences. Important scientists and prominent historical figures and events from the 18th, 19th and early 20th centuries made sure that Belgium still plays an important part in marine sciences today. This concerns researchers who achieved international renown, but also scientists who remained unknown or who fell into oblivion despite the relevance of their research.

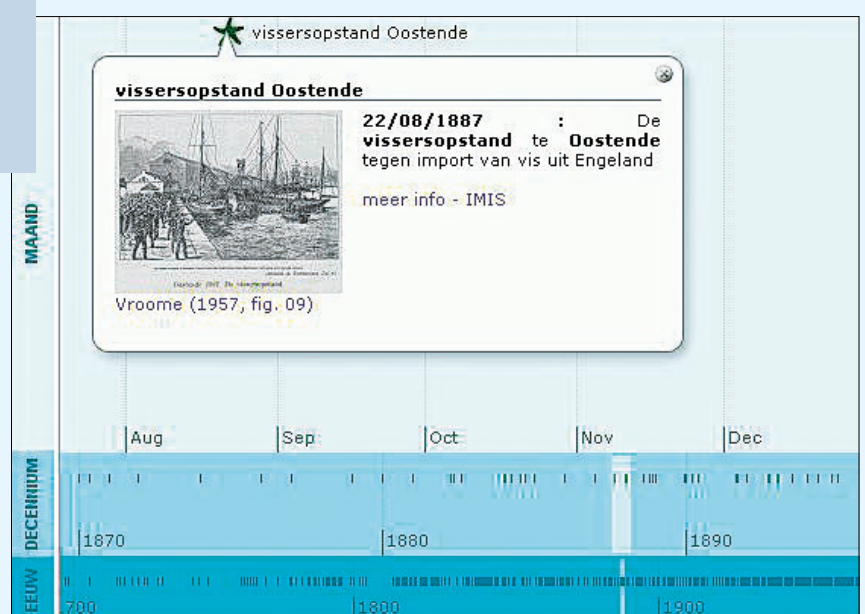
In 2011 new fact sheets were drawn up on the work and life of a few of these **remarkable scientists**: Gustave Gilson, Alphonse Renard, Paul Pelseneer, Simon Stevin and Edouard Van Beneden. Over 250 data and relevant information were input in preparation for a **timeline** to reconstruct the history of marine scientific research in Flanders and Belgium, focussing on scientists and their research, important events and the institutional framework. For more information please visit www.vliz.be/EN/Figures_Policy/Figures_Policy_Marine_Sciences_History.

History of sea fisheries

The historical context of Belgian sea fisheries is of vital importance if you want to describe the cultural heritage of the Belgian coastal community. The VLIZ initiative **A century of sea fisheries in Belgium** (www.vliz.be/EN/Figures_Policy/Belgian_Sea_Fisheries) brings together data and information from different sources

Timeline facilitates navigation through the history of sea fisheries

To reconstruct the history of Belgian sea fisheries, a timeline was created allowing to navigate through time in search of information on fisheries legislation, fishing vessels, fishing gear and facts



and disciplines. These results have been achieved thanks to the cooperation of the Institute for Agricultural and Fisheries Research (ILVO – Fisheries), the Sea Fisheries Service (Agriculture and Fisheries Department of the Flemish government), the Provincial Archive of the Province of West Flanders, the Hendrik Conscience Heritage Library in Antwerp, the Central State Archives in Brussels, the Flanders Heritage Agency and the State Archives in Bruges.

An extra dimension was added to the project in 2011. To reconstruct the history of Belgian (Flemish) sea fisheries (events, legislation, technological changes etc.), a **timeline** was created (www.vliz.be/cijfers_beleid/zeevisserij/timeline_intro.php) allowing to navigate through time in search of relevant fisheries legislation, information on fishing vessels or fishing gear, and remarkable historical facts. When was ice used for the first time as a preserver in Belgian sea fisheries? When did the traditional Iceland cod fishery finally come to an end? In what periods were Flemish fishermen granted subsidies for fishing on herring? These and other questions are answered with one click of the mouse. For every item in the timeline the user is referred to the source document. Another important effort in 2011 concerned the complete and digital disclosure of fisheries-related **Belgian laws and royal decrees** since 1830. The long-term aim is to offer a complete historical overview of fisheries legislation going back in time as far as is relevant. The overview can be found at www.vliz.be/cijfers_beleid/zeevisserij/laws_acts.php, and the collection of over 280 laws is an integral part of the time line as well.

Within the scope of this project VLIZ inventories, digitalises, standardises and integrates all available historical data and scientific information on sea fisheries in Belgium. For instance, annual totals of the **landings and value** of the different fish species were made available through the website in previous years: www.vliz.be/cijfers_beleid/zeevisserij/list.php. In 2011 these data were considerably extended with monthly data on Belgian landings in Belgian ports by fishing area. This resulted in a quality-controlled data set with no less than 344,000 available records for 1941 – 1944, 1947, 1949 – 1977 and 1980 – 1981.

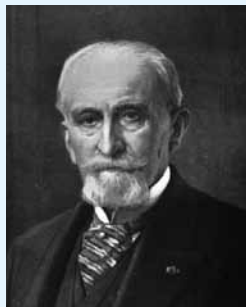
For certain fish species (cod, sole, plaice etc.), this data set also contains information by size category. These data will be made available on the website in the future.

Because of the rapid changes in the **Belgian fishing fleet** it is not all that obvious to follow the characteristics or lifetime of a given ship from its construction to the moment the ship is taken out of service. In 2009 and 2010, VLIZ collected information on the characteristics of individual sloops, boats and ships. Recognised and reliable

Historical figures from marine scientific research – 2011

VLIZ Wetenschappen (Scientific Treasures) - *Historical figures from marine scientific research. VLIZ Information Sheets. Flanders Marine Institute (VLIZ): Ostend, Belgium*

Overview of information sheets published in 2011:



125: Gustave Gilson



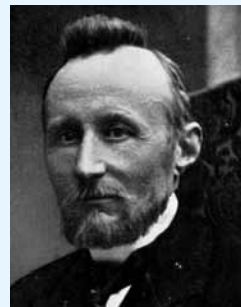
131: Simon Stevin



132: Alphonse Renard



133: Edouard Van
Beneden



134: Paul Pelseneer

Seminar on the history of Belgian sea fisheries

On 25 November 120 interested people met in Ostend for a seminar on the history of Belgian sea fisheries. The audience consisted of a unique mix of professional experts, (former) fishermen, local historians and collectors.



© VLIZ

sources were mapped and described for that purpose, and this information was standardised and collected in a Belgian fishing fleet database. In 2011 this database was supplemented with additional sources and their quality was checked further.

On 25 November 2011 VLIZ and the Flanders Heritage Agency organised the seminar **'Vissen in het verleden'** (Fishing in the past), which offered a multidisciplinary view on the history of Belgian fisheries. The results of this seminar were collected in a book of abstracts that can be found on the following website together with presentations, movies, a photoreport and an evaluation: www.vliz.be/events/zeevisserij/pres.htm.

Within the scope of the history of sea fisheries, VLIZ also participated in **the ICES Study Group on the History of Fish and Fisheries** in 2011. This study group brings fishery scientists, historians and marine biologists together and is aimed at an improved insight into the long-term dynamics of fish populations, fishing fleets and fishing techniques. The results are used to develop references for the management, recovery and preservation of marine resources and ecosystems. As from the end of 2011, VLIZ will co-chair this study group.

Finally, the **GIFS project** (Geography of Inshore Fisheries and Sustainability – www.gifsproject.eu) was launched in December 2011. This Interreg IVA 2 Seas project with partners from England, France, the Netherlands and Flanders is aimed at investigating the socio-economic and cultural importance of coastal fishing. This way, these elements are to be explicitly included as more general objectives in the fisheries and maritime policy, coastal renewal strategies and sustainable development of coastal communities. Figures&Policy is the leading partner for the sub-activities 'coastal management and inshore fisheries' and 'inshore fisheries in the present and past'.

Alien species

The non-indigenous species in marine and brackish waters along the Belgian coast and in the adjacent estuaries are identified and described in detail in the fact sheets of the project **'Alien species'** in the Belgian part of the North Sea and adjacent estuaries'. This is an example of provision of policy-relevant information at the level of Flanders/Belgium in which VLIZ (Data Centre, Infodesk and Figures&Policy divisions) offers support to and collaborates with a consortium of experts from

various research institutions. The results from this project are used for the evaluation of the (possible) impact of alien marine and estuarine species within the scope of national and European policy measures.

The **list** of alien species includes only those species that have established populations and/or that are sighted repeatedly and in large numbers. Sporadic vagrants are not included. At the end of 2011 the list included 68 non-indigenous marine and estuarine species. A total of 30 new species files were created in 2011, so that **fact sheets** of all 68 alien species are currently available. The sheets contain information on the life cycle and ecology of the species, the manner of introduction and distribution, possible or observed impact of the species on the environment and possible measures. The information focuses on the local situation (Flanders – Belgium) within a European and international context. In 2011 the policy context relating to alien species at an international, European and national level was updated as well. All information on the list of ‘Alien species in the Belgian part of the North Sea and adjacent estuaries’ and the policy context can be found at www.vliz.be/wiki/Niet-inheemse_soorten_Belgisch_deel_Noordzee_en_aanpalende_estuaria. The efforts of the VLIZ Alien Species Consortium are actively consulted and used by the working group: ‘Surveillance, early warning and rapid response – IAS (Invasive Alien Species)’ (INBO/ANB).

Seastats

Objective statistics and facts about all kinds of sea-related topics for general use can be found on the Seastats section of the VLIZ website: www.vliz.be/cijfers_beleid/zeecijfers/index.php. A correct indication of the source and a direct link to the online available source document is provided for every stat. In 2011 efforts were made to update existing seastats and to add new figures. This way a total of 4101 seastats are now available with relevant information.

Alien species on the Belgian coast extensively documented

At the end of 2011 an extensive fact sheet was made available for all 68 alien species established on the Belgian coast or adjacent estuaries, and the policy framework was described in detail.



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Read more?
www.vliz.be/EN/Logistic_Support

- ❑ RESEARCH VESSEL 'ZEELEEUW'
- ❑ CONSTRUCTION OF NEW RESEARCH VESSEL 'SIMON STEVIN'
- ❑ RIB 'ZEEKAT'
- ❑ GREENHOUSES FOR DUNE RESEARCH
- ❑ LAND-BASED FACILITIES
- ❑ EQUIPMENT
- ❑ MONITORING

VLIZ provides researchers with logistical support by ensuring the management, maintenance and manipulation of research infrastructure and equipment. André Catrijsse and a marine technician are responsible for the coordination of the scientific and educational programme of the Flemish research vessel Zeeleeuw, the rigid inflatable boat (RIB) Zeekat and the use of a large collection of measuring and sampling equipment (employable on the Zeeleeuw or for use on other research vessels). In addition, VLIZ makes greenhouses for experimental work (De Haan) and storage space (Ostend) available. Since 2002, VLIZ has provided a monthly monitoring trip along 9 stations in the Belgian part of the North Sea.

In 2011 this team spent a great deal of time and energy on preparing and following up the construction of the new research vessel Simon Stevin and the alteration of the land-based facilities at Halve Maan on the East Bank of Ostend. The tenth anniversary of Zeeleeuw was celebrated as well.

Tenth anniversary of research vessel Zeeleeuw

On Wednesday 9 February 2011 the Flemish research vessel RV Zeeleeuw celebrated its 10th anniversary. During a celebration in Ostend, attended by approx 100 users and sympathisers, the ship's history and its importance for scientific and educational activities were highlighted.

Ten years ago one of the Flemish government's pilot boats began its second life. After alterations, funded by the former Waterways & Marine Affairs (AWZ) and Science & Innovation (AWI) administrations, the research vessel Zeeleeuw took to the sea again, yet this time on a scientific mission. After a decade and 80,000 nautical miles, the many discoveries and adventures of nearly 1000 researchers and over 4000 students, teachers and guides who embarked testify to a particularly rich and interesting ten years of RV Zeeleeuw. DAB FLEET (RV Zeeleeuw's manager) and VLIZ (the coordinator of scientific work on board) looked back on this eventful period.

Celebration of tenth anniversary of research vessel Zeeleeuw

Ten years of deployment of RV Zeeleeuw for marine research and educational activities were celebrated on 9 February 2011.



© Yves Goossens

Scientific and educational excursions

The research vessel **Zeeleeuw** is at the disposal of the local and international marine research community. DAB Fleet (Agency for Maritime and Coastal Services, MDK) operates the Zeeleeuw, pays the operational costs and provides the crew. VLIZ takes care of the coordination of the scientific programme and manages the research equipment.

In 2011 RV Zeeleeuw was deployed for 1382 hours of sampling in Belgian coastal waters and the Scheldt estuary, or 94% of the time at sea made available by Fleet Division. A total of 152 trips were made for various projects (see table), including 6 continuous trips (spread over two consecutive days, measurements at night included).

Number of days at sea	2004	2005	2006	2007	2008	2009	2010	2011
R/V 'Zeeleeuw'	155	151	122	150	162	166	151*	152*
RIB 'Zeekat'	37	45	35	51	39	32	57	40
'third' vessels	3	44	41	38	37	36	84	73
Total	195	240	188	239	238	234	292*	265*

** continuous trips spread over consecutive days — including measurements at night — are counted as one unit in this table (2010: 7 continuous trips, 2011: 6 continuous trips)*

In 2009 and 2010 there was serious concern about the excess demand for the research vessel Zeeleeuw for monitoring tasks at the request of the federal government (mainly in view of the concessions for wind farms and the Water Framework Directive). Consequently, the number of sailing hours budgeted by the Flemish government on a yearly basis was far exceeded and from the second half of 2010 onwards priority was given to trips for scientific research programmes over monitoring trips (see Annual Report 2010). After some consideration, this problem was dealt with in 2011: the more routine monitoring is now preferably carried out with the federal research vessel Belgica; monitoring measurements that are also used for research are conducted with the Zeeleeuw (particularly within the scope of the doctoral theses by Jan Reubens and Delphine Coates from Ghent University, and Nicolas Vanermen from INBO).

In 2011 a total of 1005 persons sailed on board the Zeeleeuw, including 391 scientists and 614 other passengers (pupils, students, divers etc.). Nineteen different research groups made use of the Zeeleeuw within the scope of 16 projects (see table). Education and demonstration were the principal objective in 33 of the 152 trips (22%).

If necessary, **other vessels from the Flemish fleet** can also be used for marine scientific research in addition to RV Zeeleeuw. In 2011 this was principally the case for research and monitoring activities on the river Scheldt: 75 trips were carried out on board the Veeremans, Scheldewacht, Parel I and Scaldis.

The **Zeekat** is an RIB (rigid inflatable boat) that can operate both from the Zeeleeuw and autonomously, e.g. in shallow waters or between the pylons of wind farms. In 2011 this boat was deployed for 40 trips (mainly for diving trips in wind farms and work in the port of Zeebrugge and on the river Scheldt).

Research and educational projects with RV 'Zeeleeuw' in 2011

Research projects		Trips
VLIZ	Monitoring in the Belgian part of the North Sea	12
VLIZ	Monitoring of porpoises	3
VLIZ	Equipment trials	3
Ghent University – Marine Biology	The importance of artificial hard substrates in the North Sea to the ecology of the ichthyofauna	36
Ghent University – Marine Biology	Macrobenthos of permeable sediments in wind farms at sea	3
Ghent University – Marine Biology	The structuring role of biotic interactions between different size categories for the activity of marine seabeds	11
Ghent University – ECOTOX	AS-MADE – Assessment of Marine Debris on the Belgian Continental Shelf: occurrence and effects	6
Ghent University – ECOTOX	Pilot project on microplastics	1
Ghent University – ECOTOX & PAE	Toxicity of <i>Pseudo-nitzschia</i>	1
ULB – Marine Biology Lab	MICROMET – Microbial diversity and metal fluxes in contaminated North Sea sediments	1
INBO	Monitoring of seabirds	31
ILVO – Fisheries	Wind farms as spawning grounds and nursery grounds	1
ILVO – Fisheries	MEMO – Invasive comb jelly <i>Mnemiopsis leidyi</i>	14
ILVO – Fisheries	Micropollutants in brown shrimp	1
VIOE	Archaeological evaluation of wrecks	8
MUMM	Monitoring of hard substrates in wind farms	1
MUMM	Monitoring of Water Framework Directive	1
MUMM	Monitoring of Paardenmarkt sandbank	1
HOWEST	Recovery of High Altitude Balloon	1

In calendar year 2011 a total of 265 days spent at sea on scientific research were coordinated by VLIZ, 152 of which with the Zeeleeuw, 40 with the Zeekat and 73 with other ships of DAB Fleet.

During the trip a computer network on board the Zeeleeuw registers the navigation data as well as meteorological and oceanographic (physicochemical) data. These data are kept and managed in the **MIDAS database**, which stands for Marine Information and Data Acquisition System (www.vliz.be/vmdcdata/midas). At the end of 2011 the database contained 8,703,620 records. MIDAS also helps to plan cruises and to register ship activities. In 2011 the servers and IT to operate MIDAS on board the Zeeleeuw were modernised.

Educational trips	trips
VLIZ and DAB Fleet: Planet Ocean	6
VLIZ & Horizon Educatief: Week of the Sea	4
VLIZ: Ghent University delegation	1
VLIZ: CVN nature guides	1
VLIZ: Winners of MOS (environmental education) competition	2
Antwerp Maritime Academy	1
VUB – M.Sc. in Biology	5
Ghent University – M.Sc. Marine Biodiversity and Conservation (EMBC)	2
Ghent University – M.Sc. in Biology	5
Ghent University – M.Sc. in Geology	2
University of Antwerp – M.Sc. in Biology	1
KULAK – B.Sc. in Biology	1
KULeuven – M.Sc. in Biology	1
VUB – M.Sc. in Chemistry	1

Recovery of high-altitude weather balloon with Zeeleeuw and Zeekat

Students from University College West Flanders designed components and electronic applications for the payload of a weather balloon. This balloon landed at sea and was recovered with the research vessel Zeeleeuw and RIB Zeekat.



© HOWEST/UIT

New research vessel 'Simon Stevin'

The Flemish government invests 11.5 million EUR in the construction of a new Flemish research vessel to replace the Zeeleeuw. Plans for the construction of the Simon Stevin – as the ship will be christened – date from 2007. In 2010 the Flemish government could award the construction to the Dutch shipbuilder Damen Shipyards Gorinchem following an international invitation to tender. On 1 April 2011 the latter began constructing the body (i.e. the hull, engines, winches, pumps etc.) at their shipyard in Galatzî, Romania. The progress of construction is shown in the box below and can also be viewed in the series of photographs in the VLIZ photo gallery: www.vliz.be/vmdcdata/photogallery/index.php?album=2215

The new Flemish research vessel Simon Stevin in the making...



© Damen Shipyards

autumn of 2010: Damen Shipyards fine-tunes the design and creates an artist's impression



© Damen Shipyards

spring of 2011: Damen Shipyards finishes the design and conducts stability tests with models



© VLIZ

1 April 2011: start of construction



© VLIZ

June 2011: the 'bulb' of the ship



© VLIZ

June 2011: bow with cabins for scientists and the bow thruster room



© VLIZ

June 2011: bow with name 'Simon Stevin'



© DAB Viscot

August 2011: superstructure



© Damen Shipyards

August 2011: assembly



© DAB Viscot

September 2011: completely assembled in a dry dock in Romania

On 4 December 2011 the body of the Simon Stevin was lifted from the water at the shipyard in Romania and loaded onto the heavy lift ship MS Paula (SAL Heavy Lift GmbH). The ship then set off to the Netherlands by way of the Black Sea and the Mediterranean Sea making a stopover in Tarragona. On 16 December the ship arrived in Rotterdam, whereupon the Simon Stevin was towed to Maaskant Shipyards (Damen Group) at Stellendam for finishing. According to the information provided by the shipyard the vessel could be completed by the end of May 2012.



© DAB Visor

September 2011: afterdeck



© Maaskant

21 October 2011 (4pm): the launching. An exciting moment...



© Damen Shipyards

4 December 2011: Simon Stevin is lifted on MS Paula



© Hillewaert

5 December 2011: Transport of the ship from Romania to Rotterdam



© Decler

December 2011: towing to the shipyard in Stellendam



© Maaskant

December 2011: drydock at Stellendam



© WIZ

Engine room



© Maaskant

Steering console



© WIZ

Saloon

Investment subsidy

Since 2008, VLIZ has received an additional investment subsidy of € 1.1 million a year from the Flemish Government Department of Economy, Science and Innovation (EWI). A sum of € 500,000 was set aside for **funding** the new research vessel Simon Stevin and accessories in 2010 and 2011 (and also during the coming years). In addition, this subsidy was used to carry out the first stage of renovation of the **land-based facilities** at the Halve Maan site in the port of Ostend in 2011.

Land-based facilities: extension of Marine Station in Ostend

In May 2011 the renovation of the land-based facilities at the Halve Maan site in the port of Ostend began. In this first stage, structural work was carried out (e.g. treatment of concrete cancer and façade renovation) and the roof structure was replaced and painted. The work will continue until mid-2012. The installation of new utility pipes and cables, levelling of the construction site and the installation of a new fence have been planned. In the next stage, the interior fittings of these land-based facilities – consisting of 4 sheds, an outdoor space and an adjacent house – need to be specified further depending on the needs of VLIZ and the marine scientific community. In the meantime, an (internal) study group set to work to give the complex, which is to be converted into a real marine station on the Flemish coast, a first functional interpretation.

Equipment

VLIZ manages a wide range of marine scientific sampling equipment, measuring instruments and storage capacity that can be used by the marine research community (see table).

During works on the Western Scheldt in 2011 we lost the Acoustic Doppler Current Profiler (ADCP). The device could not be recovered. The LISST-100 was severely damaged as well. During a break-in at the land-based facilities the console of the mini ROV was stolen.

In 2011 new electronic equipment was purchased for the Passive Acoustic Monitoring Systeem (PAM). A user-friendly windlass and winch were also purchased for this instrument. In addition, the Seabird CTD was equipped with a new oxygen sensor (SBE43).

De Haan Greenhouses

The Nieuwmunster dunes in the municipality of Zuienkerke (near De Haan) accommodate a greenhouse complex that can be used for research related to coastal vegetation (dunes, salt marshes, polders). The complex consists of 5 greenhouses, 3 of which can be heated, 6 seed beds, a 6 ha area and annexes with limited accommodation possibilities and an elementary laboratory.

Since 2000 a cooperation agreement with the Coastal Division of MDK (Flemish government) had been in place to use the greenhouses and surrounding grounds free of charge for conducting scientific experiments and measurements. Additional support was also provided by a caretaker. In 2010 the Coastal Division wished to discontinue this right of free use. However, various research groups (including INBO, ANB, Ghent University-TEREC, University of Antwerp-MITAC) argued in favour of preserving this greenhouse complex for scientific research.

On 26 January VLIZ therefore entered into a new cooperation agreement with the Coastal Division of MDK, whereby a concession transfer was arranged. VLIZ can permanently offer the greenhouses to researchers, yet has to bear the operational costs. In 2011 the greenhouses were used (again), albeit to a very limited extent, in particular by the group of prof Hoffmann and prof Bonte (Ghent University-TEREC and INBO) and by MITAC staff (University of Antwerp).

Monitoring in the Belgian part of the North Sea

Since August 2002 VLIZ has sampled 9 fixed stations in the Belgian part of the North Sea with RV Zeeleeuw on a monthly basis. During this monitoring, water samples are taken and CTD measurements are performed. The samplings allow to measure turbidity, nutrient content and chlorophyll *a* concentrations in cooperation with the research groups performing the analyses.

This way VLIZ hopes to provide coastal research with the necessary long-term data and to collect a time series of information which should contribute to improved management of the Belgian coastal waters. More information on the project and the results so far can be found on the website www.vliz.be/monitoring.

VLIZ monitoring dates in 2011

17 January 2011	18 July 2011
21 February 2011	16 August 2011
17 March 2011	20 September 2011
18 April 2011	17 October 2011
23 May 2011	17 November 2011
20 June 2011	15 December 2011

Ghent University delegation sails on board the Zeeleeuw

On 7 February Ghent marine scientists accompanied by rector Van Cauwenberge sailed on board the Zeeleeuw within the scope of the preparation of a new cooperation agreement with Ghent University. From left to right: Jan Seys (VLIZ), Colin Janssen (Ghent University-ECOTOX), David Van Rooij (Ghent University-RCMG), Magda Vincx (Ghent University-MarBioI), Kurt Defranq (cultural adviser), Patrick Sorgeloos (Ghent University-Aquaculture), Paul Van Cauwenberge (rector of Ghent University), Jan Mees (VLIZ), Tom Rappé (DAB Fleet), André Cattrijse (VLIZ), Giovanni Terryn (DAB Fleet), Yves Goossens (DAB Fleet).



© Yves Goossens

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

■ **Physicochemical parameters**

- Zeeleeuw and De Haan weather stations
- Acoustic Doppler Current Profiler (ADCP)
- CTD CTD48M
- CTD SBE-19
- CTD SBE-19plus
- CTD SBE-19plusV2
- Fluorimeter
- LISST-100
- OBS-3
- Secchi disk
- Thermosalinograph
- Oxygen probe YSI-85
- Cohesive Strength Meter (CSM)

■ **Water sampling**

- Niskin bottle 10 litres
- Niskin bottle 5 litres
- GO-FLO
- Van Dorn bottle
- Carousel Water Sampler (6 Niskin 4 litres and accompanying CTD SBEplusV)

■ **Sediment sampling**

- Van Veen grab
- Reineck Box Corer
- Bowers & Connolly Multicorer
- 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 Multicorer
- Hydrophone / Passive Acoustic Monitoring (PAM system)

■ **Miscellanea**

- Compressor for filling diving cylinders
- Sieving table
- Fish sorting table
- Wilson Automated Siever
- Tough Book Laptop
- DGPS hand-held unit
- Mini ROV (incl. video camera)
- Underwater photo camera
- Tripod
- Underwater Diver Receiver

■ **Storage space**

- Warehouses
- Freezers
- Cold store – Core Depository

In the spotlight

On 7 February 2011 RV Zeeleeuw sailed with a special **delegation of Ghent University**, including rector Paul Van Cauwenberge. The Ghent marine scientists got a special demonstration by DAB Fleet en VLIZ staff. Their visit was part of the preparation of a new cooperation agreement between VLIZ and the consortium of various marine research groups working at Ghent University (Marine@UGent).

Until mid-2011 André Cattrijsse was chairman of **ERVO** (European Research Vessels Operators – www.eurocean.org/np4/ervo). The purpose of this network of research vessel operators and managers from 13 European countries is to exchange experiences, share information and examine opportunities for cooperation. The 13th ERVO meeting took place at the Institute for Coastal Marine Environment (CNR) in Oristano, Italy from 10 to 11 May 2011.

In 2011 the European FP7 project **EUROFLEETS** 'Towards an alliance of European research fleets' entered its third and penultimate year. VLIZ takes the lead in cooperating with the Southampton Oceanography Centre for the preparation of guidelines to make the current fleet as well as the research vessels to be constructed in the future environmentally friendly. The consortium's third general assembly met in Thermae Palace, Ostend on 20 and 21 September. MUMM organised and VLIZ sponsored the meeting.

The Electronics and Informations Technology (ELIT) group of University College West Flanders (**HOWEST**) launched a High Altitude Balloon at Wevelgem airport on 29 September 2011. It contained a payload of components and electronic applications designed by students. The balloon reached an altitude of 30km after which it exploded. A few hours later the payload landed at sea by means of a parachute and was picked up by the Zeeleeuw.

Zeeleeuw open to the public in Zeebrugge during Flemish Harbours Open House Day

At the Flemish Harbours Open House Day on 25 June, 850 interested visitors were given a guided tour of the port of Zeebrugge aboard the Zeeleeuw while they became acquainted with Flemish marine research.



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Data



Data Centre



Read more?
www.vliz.be/EN/Data_Centre

- ☐ DATA AND INFORMATION CENTRE
- ☐ DOCUMENTATION
- ☐ ARCHIVING
- ☐ INTEGRATION
- ☐ REDISTRIBUTION
- ☐ INTERNATIONAL STANDARDS
- ☐ SERVICE CENTRE
- ☐ WEBSITES

The Flanders Marine Data and Information Centre (FMDC) supports scientists, policy makers and the public at large with regard to the various aspects of **marine data management**. Within this scope a knowledge system, a data archive, and several databases, registers and websites have been developed and maintained. The data centre also ensures the dissemination of Flemish marine data and information by means of exchange within national and international networks and projects. In 2011 the data centre employed 15 IT specialists en scientists.

- FMDC developed the IMIS **knowledge system** to provide an as accurate as possible picture of the Flemish marine scientific landscape. Information on data sets, publications, persons, institutions, projects, events, maps and infrastructure is stored in this system in a structured manner. This system can be searched online at www.vliz.be/imis.
- Scientific data are unique and need to be protected against loss. We therefore developed the Marine **Data Archive** (MDA), a secure online data archive where researchers can archive and describe their data files and, if desired, share them with others.
- **Integrated databases** (IMERS, EurOBIS, Scheldemonitor data portal...) are used to collect data of Belgian, European and international projects and measurement campaigns. After a thorough quality check and standardisation most data are made available online.
- **Registers of marine species and place names** support the quality check. The Aphia taxonomic register contains the names of all known marine species and is used worldwide as a standard list by numerous organisations. The VLIMAR register fulfils the same role for geographic names.
- The knowledge system, data archive, databases and registers are always disclosed through **websites**, but we also develop websites as a means of communication for scientific projects and institutions (www.vliz.be/vmdcdata/wlist.php).
- FMDC is a member of a number of international data exchange **networks**, such as OBIS, GBIF, SeaDataNet, IODE, SMEBD, EMODnet, GLOSS, LifeWatch and PESI.

Data systems

The data centre has developed and maintained a number of important data systems that have been used in numerous projects and websites.

The **IMIS** information system (or 'Integrated Marine Information System') provides a most detailed picture of the Flemish marine scientific landscape. IMIS contains information on persons, institutions, literature, projects, events, data sets, maps and infrastructure, and all information units can be interlinked. The information system feeds several (inter)national (project) websites; consequently, the system also contains Dutch (ScheldeMonitor), European (Encora, MarBEF and EMODnet) and international (WoRMS) marine information. In addition, the literature module functions as a library system that can be used by both the VLIZ library and the information centre of Flanders Hydraulics Research (FHR) and the Research Institute for Nature and Forest (INBO).

In the course of 2011, the number of documented data sets from various marine research disciplines within an international context increased to 2,113. Furthermore, IMIS now contains the description of 23,074 persons, 9,441 institutes, 3,374

projects, 167,579 publications, 2,360 events, 2,711 maps and 55 research devices and infrastructures.

VLIZ joined the Open Archives Initiative (OAI) in 2007 and launched the **Open Marine Archive** (OMA) to make the Flemish-Belgian marine scientific output available online. In 2011 the number of references available in the Open Marine Archive (OMA) increased by nearly 3,000 publications to 9,863. The digital versions of these publications are freely available at the VLIZ website, and are picked up by harvesters of the Open Archives Initiative (OAI). In 2011 we saw 68,185 downloads of OMA publications.

Measurement data of sampling campaigns carried out within different Belgian projects are integrated into the **IMERS** (Integrated Marine Environmental Readings and Samples) data system. IMERS is also the instrument used to provide data to the IDOD database of MUMM (with regard to the quality of the marine environment) as contractually defined by the Belgian Federal Science Policy Office for North Sea projects financed by the latter. In 2011 IMERS was extended by over 300,000 records, mainly from the INRAM and OMES projects as well as the Macrodat collection of Ghent University, Marine Biology section. This brings the total number of records in IMERS to 1.9 million.

The **Marine Data Archive**, or MDA in short, is an online system specifically designed to allow scientists, research groups and project partners to archive and describe their data files in an external archive. Each file archived in the MDA is stored together with the metadata describing the contents of the file. Access to the data files can be private, be shared by a specific group of people within an institute or project or be open to all registered system users. User rights are regulated by an account-based registration procedure. Some sixty new registered users joined in 2011, which brought the total to 352, all of them coming from 153 institutes. The Marine Data Archive was used within the scope of 97 projects. The number of archived and disclosed data sets in the MDA increased to 10,297, totalling 35,3 GB of data by the end of 2011.

Aphia is a taxonomic database of marine species that comprises several regional registers as well as several world lists of various taxonomic groups. It was originally a local initiative for storing and distributing information on marine species in the Belgian part of the North Sea, but since then it has evolved into a global database (WoRMS, see below).

Photographs and videos can be stored and documented in the **photo database**. In 2011 it contained over 42,561 images, which means an increase by about 10,500 images compared to the end of 2010. The 78 photo galleries are shown on different websites developed by VLIZ, and direct online input and description of new visual material is possible. For an overview of all photo and video galleries managed by VLIZ, go to: images.vliz.be.

Projects in 2011

Within the scope of projects and cooperation agreements, VLIZ created several websites in 2011. The data centre also collected a great deal of new data and information, and made them available through its own websites and other channels. An overview:

In 2009 the first official version of the **ScheldeMonitor data portal** was put online. This portal was created thanks to funding from the Maritime Access division of the Mobility and Public Works department and provides access to a wide range of physical, chemical and biological data concerning the Scheldt estuary. Both in situ measurement data and derived data products and geographical information (GIS) are available at the portal. The data portal experienced rapid growth in 2011. At present, some 18 million measurement data and over 100 GIS map layers can be consulted through the data portal.

Within the scope of the ScheldeMonitor project, the data portal has been used by the Flemish-Dutch Scheldt Commission (www.vnsc.eu) and its Working Group on Research & Monitoring (R&M Working Group) to redistribute the data collected within the integrated monitoring programme of the Scheldt estuary. This concerns hydrodynamic and morphodynamic, ecological and physicochemical data collected by the measuring divisions of the Flemish and Dutch governments. The integrated provision of these data brings considerable added value to the process of evaluating the development of the Scheldt estuary as a multifunctional estuarine water system.

In recent years, a methodology was elaborated to **evaluate** the development of the Scheldt estuary on the basis of integrated system monitoring at the behest of the Flemish-Dutch Scheldt Commission. In 2011 this methodology was updated and improved with a view to the first application in 2012. VLIZ assisted in this assignment as a subcontractor of the Dutch DELTARES institute together with the University of Antwerp, Ecosystem Management Research Group (UA-ECOB), the Research Institute for Nature and Forest (INBO) and the Netherlands Institute of Ecology, Centre for Estuarine and Marine Ecology (NIOO-KNAW, CEME).

ScheldeMonitor data portal experienced rapid growth in 2011

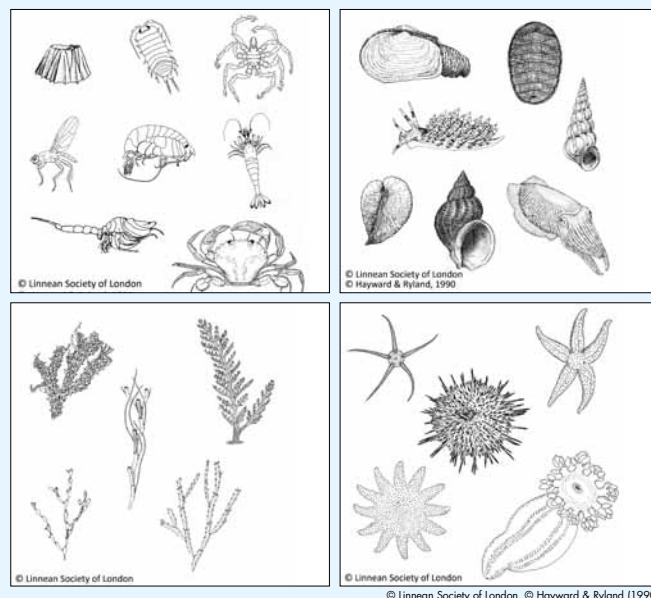
The ScheldeMonitor data portal provides access to 18 million physical, chemical and biological in situ data concerning the Scheldt estuary as well as over 100 GIS map layers.



© Van Ginderdeuren

Belgian Register of Marine Species (BeRMS) contributes to national species list

VLIZ is responsible for the marine contribution to the national species list managed by the Royal Belgian Institute of Natural Sciences (RBINS). The Belgian Register of Marine Species currently contains 2,212 species.



The Belgian Register of Marine Species (**BeRMS**) now has an online application in Dutch as well: www.vliz.be/vmdcdata/berms. In 2010 the English version was put online as a regional species database within the World Register of Marine Species (WoRMS) and a report also appeared. Now you can use a convenient click system to get an overview of all marine and brackish water species ever observed in Belgian waters, each with their Dutch name and a short explanation of the taxonomic groups they belong to. In the future this register will be supplemented with the known species from the adjacent coastal area (mudflats, tidal marshes and coastal dunes). The Belgian Register of Marine Species currently contains 2,212 species.

After the launch of the Belgian marine species list in 2010, **Waarnemingen.be** asked permission to integrate this list into their website application. This collaboration can only be to our mutual advantage: for instance, the list of marine species on the website www.waarnemingen.be is now much more complete, and if a species has not been included in the BeRMS list yet, it immediately becomes clear.

In the autumn of 2011 a first overview of marine species from BeRMS was included in the **national species list** managed by the RBINS (Royal Belgian Institute of Natural Sciences). Updates will be passed on regularly to the RBINS to keep the marine section of this national list as up-to-date as possible.

At the end of 2011 the World Register of Marine Species (**WoRMS**) (www.marinespecies.org) contained over 445,000 taxonomic names, including more than 212,000 valid species names. In 2011 a total of 35,219 taxa were added, including 30,056 species and subspecies (including synonyms). WoRMS is now 90% complete with the biggest gaps in the groups of the gastropods, parasitic nematodes, Digenea, Ostracoda, Bacillariophyceae and Cyanobacteria. Some 25,000 species names were updated by over 100 taxonomists in the course of 2011; 9% of all species still need to be validated.

World Register of Marine Species and EurOBIS praised at World Conference on Marine Biodiversity

At the World Conference on Marine Biodiversity in Aberdeen (Scotland), the World Register of Marine Species (WoRMS) and EurOBIS were mentioned many times as important sources of information.



Frequent use of the world register can be deduced from the number of hits and the use of the online taxon match tool. In 2011 the website had 31 million hits from 632,000 unique visitors (IP address) and 5,142 lists were uploaded to match them to WoRMS by means of the taxon match tool, which means an average of 14 lists a day. WoRMS is also picked up by Google Scholar: the world register has over 500 quotations, including over 100 quoted publications.

Within the scope of the European project **PESI** (Pan-European Species directories Infrastructure), VLIZ was responsible for the development of a data portal (www.eunomen.eu/portal). This website offers information on all species found in Europe (in 21 European languages). Not just marine species, but also all terrestrial and aquatic species. At present, you can find nearly half a million scientific and vernacular names in 88 languages of more than 210,000 species and over 6 million distribution data. The portal integrates data from the largest European species registers: Fauna Europaea (FaEu) for all European land and freshwater animals, Euro+Med Plantbase (E+M) for the vascular plants of Europe and the Mediterranean, the European Register of Marine Species (ERMS) for marine and coastal species, and the European component of the Index Fungorum (IF) for fungi. These registers continue to exist separately, but every year they are combined into the PESI database, whereby the data are also available through one portal. In addition to taxonomic information, the PESI website offers distribution data, pictures, literature, the conservation status etc. of every species as well as links to other websites such as the national registers of species, red lists and databases such as the Biodiversity Heritage Library for literature and the DNA databases of Barcode of Life and GenBank. The PESI portal also makes it possible to check the spelling and validity of (a list of) species names and to standardise them by means of an online 'Taxon Match Tool'.

In 2011 the European Marine Observation and Data Network (**EMODnet**) developed a series of thematic data portals to support scientists, policy makers and other end users within the scope of the new European maritime policy. VLIZ created an online biological data portal (<http://bio.emodnet.eu/portal>) and formulated recommendations for a future operational system for Europe which was launched on 3 March 2011. Over 14 million biological European distribution data have been made available through EMODnet's biological data portal. Various important European monitoring data such as the international beam trawl monitoring, continuous plankton monitoring and European seabird and marine mammals monitoring data are easily and freely available in this manner. Derivative data products such as distribution maps of European marine species or aggregate abundance data can be downloaded through the same portal.

Scientific EMODnet workshop in Crete defines data products

From 25 to 27 October 2011 a group of European experts assembled at the Hellenic Centre for Marine Research (HCRM) to discuss the biological data products to be developed that provide well-organised information on the distribution and trends of marine biodiversity.

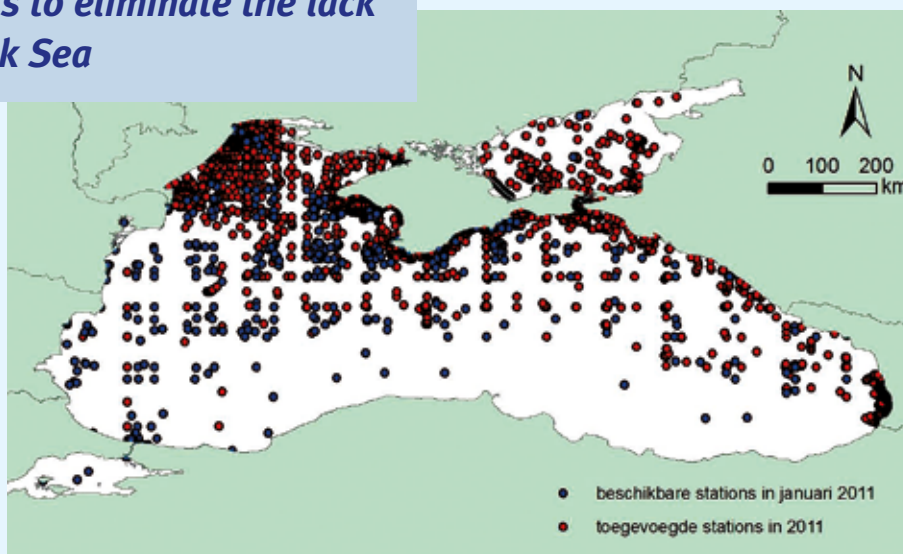


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EurOBIS, the European node of the international Ocean Biogeographic Information System (www.eurobis.org), is hosted and operated by VLIZ. EurOBIS makes distribution data of marine species in Europe freely available online. The data system is also used in the European biological pilot project EMODnet, which certainly benefits the increase in data and information in EurOBIS. It had previously been observed that the availability of data concerning the Black Sea and the Mediterranean was rather low in comparison with the rest of the European waters. In 2011 major efforts were made to eliminate the lack of data and information concerning the Black Sea. In close collaboration with the Institute of Biology of the Southern Seas (IBSS) of the National Academy of Sciences of Ukraine, 15 data sets were digitalised, quality checked and made available through EurOBIS. This resulted in an increase of nearly 110,000 distribution records spread over the entire Black Sea and over different groups (plankton, benthos, algae and marine mammals). A similar exercise was started for the Mediterranean Sea in partnership with the Hellenic Centre for Marine Research (HCRM) at the end of 2011. Cooperation with the Global Biodiversity Information Facility (GBIF) was established as well. As a result, 12 data sets and over 67,000 records were added to EurOBIS in 2011.

EurOBIS makes great efforts to eliminate the lack of data concerning the Black Sea

Numerous data sets regarding the Black Sea were input to EurOBIS in close collaboration with IBSS (Ukraine) in 2011.



© EurOBIS

EuroMarine network deals with pan-European research questions

Since many marine research questions can only be answered by means of a multidisciplinary and pan-European approach, the internationally competitive network EuroMarine was established, which brings leading marine scientists from 120 European research institutes together.



© Bengt Lundkvist

SeaDataNet2 is aimed at the management and further development of a pan-European infrastructure to manage, index and provide access to marine data sets and data products collected through research, boat trips and other measurement activities. This research infrastructure project within the scope of the seventh EU framework programme was launched in October 2011 and has a term of 4 years. SeaDataNet2 is coordinated by IFREMER and brings 40 national oceanographic data centres from 35 countries together, all bordering the European seas. Its objective is to interconnect these data centres in order to offer integral online access to a comprehensive collection of multidisciplinary in situ and remote sensing marine data, metadata and data products. VLIZ contributes to the SeaDataNet infrastructure by supplying information and metadata as to the research activities of Flemish marine scientists and the resulting marine data sets managed by VLIZ. VLIZ is part of the steering committee and the technical task force of SeaDataNet2 and also plays a key part in this project with regard to the management and exchange of marine biodiversity data.

The number of articles in **Coastal Wiki** continued to grow in 2011. At present, the Coastal Wiki encyclopaedia contains 1,541 information pages and is used in various FP7 projects such as THESEUS and PEGASO. Website statistics also show that the number of visitors is considerable: 10 million hits by 328,139 unique visitors in 2011.

The North Atlantic Ocean and its neighbouring shallow seas are of crucial importance for the ecological, economic and social health of Europe and North America. The ecosystems of this huge basin support commercial fisheries and play an important role in greenhouse gas absorption. Together with partners from Canada and the United States, the **EURO-BASIN** (European Basin-scale Analysis, Synthesis & Integration) project takes up the challenge to better understand this basin's ecosystem processes (e.g. natural climate change, anthropogenic pressure etc.). This requires both historical and recent information. VLIZ's task is to trace historical abundance and biomass data concerning plankton and fish for the study area.

More knowledge of genes, species and ecosystems should result in a better future for all beings living in the seas and oceans. However, many marine research questions can only be answered by means of a multidisciplinary pan-European approach. Examples of such an approach are research at a molecular level or integrated ecological, physical and biogeochemical ecosystem analyses. Three major European marine research networks (EUR-OCEANS, MarBEF and Marine Genomics Europe) joined forces in 2011 to become the internationally competitive network **EuroMarine**.

This network brings leading marine researchers from 120 European research institutes together. VLIZ develops and manages the EuroMarine website (www.euromarineconsortium.eu) and will interlink the data systems of the different

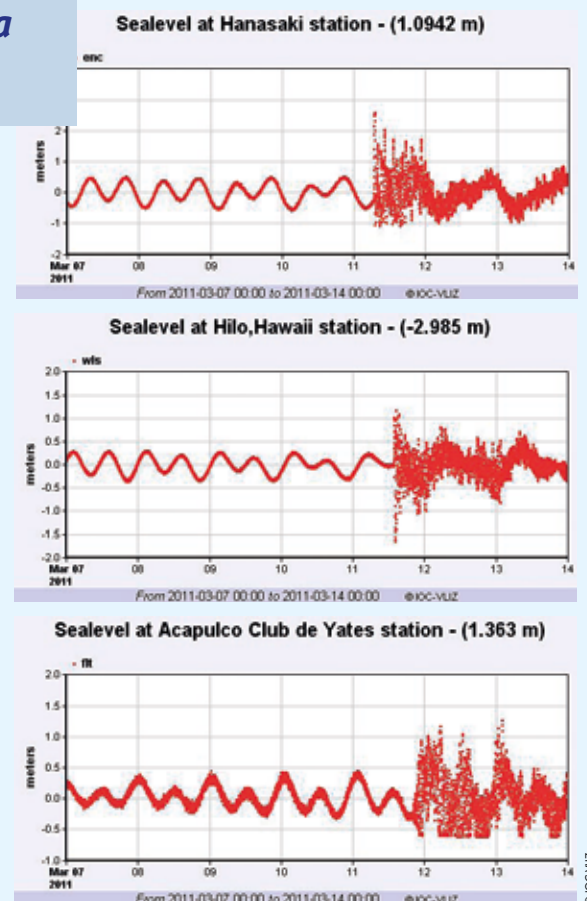
networks. The planning phase has a duration of two years and is funded by the European Commission. In this period the EuroMarine Consortium will develop a strategy to determine research priorities and provide a platform to exchange information and data. This should result in a new generation of multidisciplinary marine scientists. The kick-off meeting was held in Gothenburg, Sweden from 21 to 23 March 2011.

The cross-border project **ISECA** – Information System on the Eutrophication of our Coastal Systems – aims to improve the exchange of information on and scientific insights into the eutrophication of coastal waters in the English Channel and the southern part of the North Sea. The project is supported by the INTERREG IV A 2 Seas programme (www.interreg4a-2mers.eu) and is a partnership between Flemish, Dutch, French and British knowledge partners. The project began in June 2011 and has a duration of three years. VLIZ develops an information portal for ISECA that will provide access to an information system, a Wiki, a media gallery as well as to satellite and in situ data that will be used as a basis for a future monitoring programme for water quality in the area. VLIZ will collaborate with NAUSICAA for the communication of the project towards the general public.

iMarine stands for ‘Data e-Infrastructure Initiative for Fisheries Management and Conservation of Marine Living Resources’ and is an FP7 project building on D4Science I+II. Its purpose is to create a data infrastructure to support ecosystem management for fisheries and other natural marine resources. iMarine will specifically focus on 3 cases: (1) attuning of fishery data flows within Europe; (2) definition of ‘vulnerable marine ecosystems’ on the basis of data in FAO and OBIS; and (3) mapping tropical tuna fishing. The iMarine kick-off meeting was held in Pisa from 16 to 18 November 2011.

KNEU – Developing a Knowledge Network for European expertise on biodiversity and ecosystem services to inform policy making and economic sectors – is a EU project coordinated by the Helmholtz Centre for Environmental Research (Germany). The project aims to build an information network concerning biodiversity to support policy makers and other social actors. This is quite a challenge since the knowledge

Japanese tsunami visible in Ostend through Sea Level Station Monitoring Facility



A tsunami alert and a tsunami soon followed the seaquake that hit Japan on 11 March. The progress of the tidal wave was visible through the Sea Level Station Monitoring Facility. The adjoining diagram shows the sea level fluctuation between 7 and 14 March in Hanasaki, Japan (top), Hilo, Hawaii (middle) and Acapulco, Brazil (bottom).

of this topic is highly diffuse. The KNEU kick-off meeting took place in Brussels on 10 February 2011 and the website developed by VLIZ was presented on this occasion: www.biodiversityknowledge.eu.

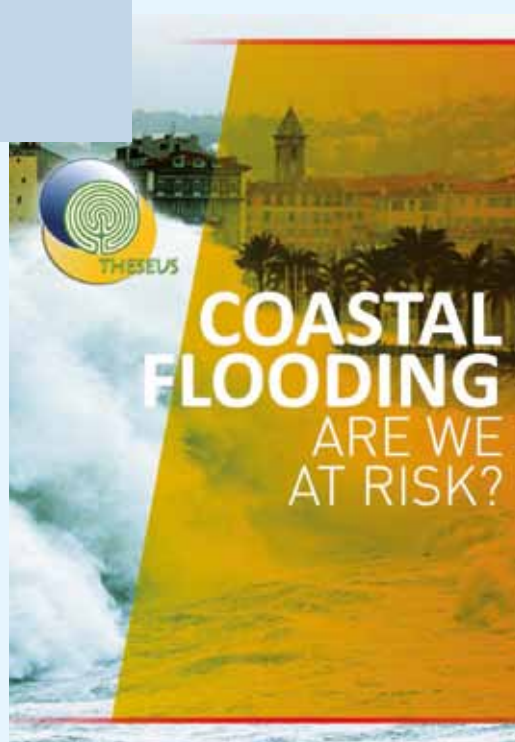
The **Sea Level Station Monitoring Facility** was established in partnership with GLOSS (Global Sea Level Observing System) and IOC (Intergovernmental Oceanographic Commission). Within the GLOSS network, the VLIZ data centre ensures the monitoring of the status as well as the management of real-time data from 531 tide gauges. The measurements can be followed in real time at the website www.ioc-sealevelmonitoring.org. On average, the website receives about 40,000 hits a day. On Saturday 12 March 2011, the day after the tsunami in Japan, the website got 3 million hits.

The FP7 project **THESEUS**, which stands for 'Innovative technologies for safer European coasts in a changing climate', is now halfway. The project develops a systematic approach to the reduction of risks to people and the coastal habitat under changing climatic conditions. In 2011 a first version of the GIS software was developed to support coastal defence plans. What is special about the package is that it ensures integration of the ecological remedial measures, hydromorphodynamic techniques and actions to limit the impact on society and the economy. VLIZ takes care of the communication within this project. In 2011 several newsletters, a DVD and a brochure for the general public were created and can be downloaded at: www.theseusproject.eu/index.php?option=com_content&view=article&id=55&Itemid=40.

After 50 years of entrusting data to a limited number of isolated centralised world data centres, ICSU decided to create a distributed world data system in 2008: the **World Data System** (www.icsu-wds.org). By making use of new Internet technologies, ICSU is able to better distribute the responsibilities concerning the management and exchange of scientific information between several data centres around the world

Brochure on coastal floods in the context of climate change

Within the scope of the THESEUS project, VLIZ created a brochure for the general public which outlines the problems and risks of coastal floods in the context of climate change.



VLIZ recognised with international certification as a world data centre



The efforts of the VLIZ data centre with regard to the management of marine data were rewarded with an international certification within the World Data System of the International Council for Science (ICSU). As a result, VLIZ is now an official member of a network of 28 world data centres.

while adhering to strict quality standards. This always involves multidisciplinary earth observation data with a wide geographical coverage: measurements by scientists but also by satellites, sensors, all sorts of buoys etc. Out of 28 world data centres recognised by ICSU, only four manage marine data, including VLIZ since 2011. The entry of the VLIZ data centre into this group of world data centres was subject to a rigorous evaluation. The argumentation of the evaluators' favourable opinion reads as follows: "VLIZ has a well-organised data centre with an international reputation and a good scientific background. VLIZ has a very serious approach to data collection, management, curation and distribution."

In 2011 the data centre also organised several **training activities**. For instance, a 'Documentation and Archiving' training course was organised for 'Technology for Integrated Water Management' students from the Centre for Environmental Sanitation (Ghent University). Furthermore, the data centre contributed to the training workshop for the Upgrade Black Sea SCENE project and immersed participants in the different data management techniques.

UNESCO/IOC Project



UNESCO/IOC Project Office for IODE

Office for IODE



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- ❑ OCEANOGRAPHIC DATA AND INFORMATION MANAGEMENT
- ❑ INTERNATIONAL TRAINING COURSES
- ❑ EXPERT MEETINGS
- ❑ THINK TANK
- ❑ INNOVATIVE TECHNOLOGIES
- ❑ WEB-BASED

IODE programme's 50th anniversary celebrated in Liège

Scientific conference (Liège, 22-23 March) on the occasion of the 50th anniversary of IOC/UNESCO's International Oceanographic Data and Information Exchange programme.



© IODE

Since 2005 the Flemish government has subsidised the UNESCO/IOC Project Office for IODE in Ostend, supporting its accommodation and operation (including training courses in marine data and information management). This way Flanders makes an important contribution to the development of international oceanography and to the promotion of the sustainable use and development of coastal areas all over the world.

The Project Office in Ostend is a centre that operates within the International Oceanographic Data and Information Exchange (IODE) programme of UNESCO's Intergovernmental Oceanographic Commission (IOC). Since 1961 the IODE programme has ensured that the exchange of oceanographic data between member states is promoted. Currently a worldwide network has been established consisting of 80 National Oceanographic Data Centres (NODC) which together collect millions of marine observations, check their quality and archive data to make them available to researchers. The economic advantage of exchanging biological, chemical and physical information between member states is huge. A very concrete product of such collaboration between IODE data centres is the tsunami warning system based on international sea level measurements. Another one of IODE's activities is making oceanographic literature available, especially in developing countries.

In 2011 the IODE programme celebrated its **50th anniversary**. On this occasion a scientific conference on the exchange of oceanographic information took place in Liège on 21 and 22 March 2011. Jan Mees (VLIZ) gave an explanation of the developments in EMODnet to 100 attendants. For more information please go to www.iode2011.be.

Oceanographic data and information management training courses

The UNESCO/IOC Project Office for IODE in Ostend is primarily a training centre where data and information managers can acquire the necessary knowledge and skills to function within the international context of oceanography and marine sciences.

In 2011 the UNESCO/IOC Project Office for IODE organised 9 training activities within the Ocean Teacher Academy (see table). A total of 202 students from 53 different countries attended this training (see annexes for a list). The students stayed in Ostend for a total number of 908 person days (person days: duration of the training x number of students).

2011 training courses	Date	#
ODINAFRICA Training Course on Coastal and Marine Atlases	14-18.2.2011	8
Upgrade Black Sea SCENE Training Workshop	01-04.03.2011	68
OceanTeacher Academy Course DM: Introduction to Marine GIS	16-20.05.2011	16
OceanTeacher Academy Course MIM: Training Course on Disaster Planning and Recovery	23-27.05.2011	16
IOC/UNESCO Marine Spatial Training Course	30.05-01.06.2011	17
OceanTeacher Academy Course DM: Basic Marine Data Management	12-16.09.2011	19
OceanTeacher Academy Course MIM: Training Course on Data Curation for Information Professionals and in-depth Digitization Practicum	26-30.09.2011	16
OceanTeacher Academy Course DM/MIM: Training Course on Outreach and Communication Tools	07-11.11.2011	16
EUMETSAT/IODE Training Course on Applications of Satellite Wind and Wave Products for Marine Forecasting	05-09.12.2011	26

MIM: Marine Information Management; DM: Data Management
(Bron: www.iode.org → IODE Calendar)

Renewal of cooperation agreement between UNESCO/IOC Project Office for IODE and VLIZ

On the occasion of the CoastGIS 2011 conference in Ostend, the cooperation agreement for the 'UNESCO/IOC Project Office for IODE' between VLIZ and IOC was renewed on 6 September. This is Wendy Watson-Wright, IOC Executive Secretary and Assistant Director-General of UNESCO together with Jan Mees, VLIZ Managing Director.



Guest researchers

The UNESCO/IOC Project Office for IODE in Ostend is also a **meeting place** for researchers to work out common projects and to test new technologies and developments.

A total of 11 scientific meetings and workshops were organised in 2011 (see table). A total of 99 guest researchers visited the office. They stayed there for a period of one day to 19 days, resulting in a total number of person days of 343.

Meetings & Workshops in 2011	Date	#
GE-BICH-V: 5 th Session of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices	17-20.01.2011	16
ICAN-V: International Coastal Atlas Network Conference	30.08-02.09.2011	53
SG-OBIS-I: First Session of the IODE Steering Group for OBIS	08-09.12.2011	17
Marine Spatial Planning training course preparatory meeting (Charles Ehler, Julian Barbieri)	03-04.02.2011	2
Preparatory meeting IODE XXI and celebration of 50th Anniversary of IODE (Bob Gelfeld)	27.02-27.03.2011	1
Tsunami Teacher courses in OceanTeacher Moodle platform (Laura Kong, Tammy Fukuji, Ingrid Pastor)	04-07.04.2011	3
ODINAFRICA online publishing library databases and web sites (J. Macharia, Awah-Nche, S. Ngete)	23.05-03.06.2011	3
JCOMM related meeting (Bob Keeley)	24-25.11.2011	1
Harmful Algal Bloom (HAB) training course preparatory meeting (Jacob Larsen)	20-22.06.2011	1
ICAN-V (Ramon Roach)	01-04.09.2011	1
Ocean Docs (Marc Goovaerts, Denys Slipetskyy)	July-August 2011	2

(Bron: www.iode.org → IODE Calendar)

Infrastructure and staff

The training rooms of the UNESCO/IOC Project Office for IODE are equipped with 40 PCs for training courses or visiting experts. On the ground floor the Project Office features a conference room with a capacity of approx 150 persons. The upper floor boasts two training rooms, staff offices as well as a smaller meeting room with video conferencing facilities (8 persons). The UNESCO/IOC Project Office for IODE hosts 82 (dynamic and static) websites across 13 servers (inclusive of 9 virtual machines). At the end of 2011 the IODE project office staff in Ostend consisted of 7 members, 4 of whom were on the VLIZ payroll (see table for status on 31.12.2011).

Naam	Functie	
Peter Pissierssens	Manager IOC Project Office for IODE	→ UNESCO
Mika Odido	Regional Programme Coordinator	→ UNESCO
Claudia Delgado	Training Coordinator	→ VLIZ
Mark Van Crombrugge	IT Specialist	→ VLIZ
Aditya Naik Kakodkar	IT Specialist	→ UNESCO
Kristin de Lichtervelde	Administrative Assistant	→ VLIZ
Annelies Groen	Documentalist	→ VLIZ (part-time)

Meeting of IODE data and information centres worldwide at XXIst IODE session

After the celebration of the IODE programme's 50th anniversary, the XXIst IODE session was held (23-26 March) in which all IODE data and information centres attuned their 2011-2013 work plan.



IODE project office and VLIZ host CoastGIS 2011 in Ostend

The international CoastGIS 2011 conference on marine and coastal spatial planning, accompanied by a technical exhibition, was organised at the InnovOcean site in Ostend in September.



© IODE (Van Crombrugge)

Events & projects in the spotlight

In addition to the international conference on the occasion of the IODE programme's 50th anniversary and the 21st IODE session in Liège (see above), the UNESCO/IOC Project Office for IODE (co)organised the fifth international meeting of the International Coastal Atlas Network and the international CoastGIS 2011 conference which both took place in Ostend in 2011.

In the days following the international conference on the occasion of the IODE programme's 50th anniversary, the **XXIst IODE session** was held (Liège, 23-26 March) in which all IODE data and information centres presented and established their work plan for the 2011-2013 period. Francisco Hernandez and Klaas Deneudt represented VLIZ's Flanders Marine Data Centre at the session.

From 31 August to 2 September the UNESCO/IOC Project Office for IODE hosted the fifth international meeting of the **International Coastal Atlas Network** (ICAN).

The **CoastGIS 2011** conference (from 5 to 8 September; www.coastgis.info) was organised by the Consortium for Coordination of Research Activities Concerning the Venice Lagoon System (CORILA) and the Coastal & Marine Union (EUCC). Over 120 experts from 30 countries gathered in the building of the UNESCO/IOC Project Office for IODE and VLIZ in Ostend for an international conference on marine and coastal spatial planning. At the same time, Geomares organised a technical exhibition featuring important operational players in the field of geographical information systems (GIS) and coastal management in an adjacent marquee.



Annexes

Financial statement

Performance & other indicators

Organisational chart

VLIZ contact information

FINANCIAL STATEMENT

BALANCE SHEET AND INCOME STATEMENT

BALANCE ON 31 DECEMBER 2011 (KEUR)

Activa	31-12-04	31-12-05	31-12-06	31-12-07
Intangible assets	1.05	0.52	0.00	1.04
Tangible fixed assets	298.22	499.52	606.4	659.91
Financial assets	16.76	12.39	13.70	1.31
Amounts receivable within one year	88.23	179.29	237.41	255.45
Cash investments	0.17	0.00	0.00	0.00
Liquid assets	301.62	412.03	411.82	268.44
Deferred charges and accrued income	228.26	80.74	40.76	3.07
Total	934.32	1,184.50	1,310.09	1,189.22

Liabilities	31-12-04	31-12-05	31-12-06	31-12-07
Allocated funds	85.78	95.78	95.78	95.78
Profit and losses brought forward	381.02	666.19	901.84	735.18
Capital grants				
Provisions for liabilities and charges	0.00	25.00	21.35	22.25
Amounts payable after one year				
Amounts payable within one year	52.49	69.76	77.18	184.61
Deferred charges and accrued income	415.03	327.78	213.94	151.40
Total	934.32	1,184.50	1,310.09	1,189.22

2011 INCOME STATEMENT (KEUR)

Income	31-12-04	31-12-05	31-12-06	31-12-07
Operating income	2,858.98	2,978.96	3,650.53	3,172.79
Financial income	0.21	0.52	2.52	4.80
Exceptional income	0.00	0.00	0.00	0.00
Total	2,859.19	2,979.48	3,653.05	3,177.59

Expenses	31-12-04	31-12-05	31-12-06	31-12-07
Remuneration and social security	1,073.67	1,273.51	1,540.74	1,712.93
Services and other goods	670.86	1,179.27	1,542.45	1,302.59
Provisions for liabilities and charges	0.00	25.00	-3.64	0.90
Depreciation	113.29	185.22	218.7	258.43
Financial expenses	2.83	2.68	1.98	1.42
Other operating expenses	980.39	17.61	117.17	67.98
Exceptional expenses	0.00	1.00	0.00	0.00
Total	2,841.04	2,684.31	3,417.40	3,344.25

Result	2004	2005	2006	2007
Result for the financial year	18,16	295,17	235,65	-166,66
Transfer to allocated funds	10.00	10.00	0.00	0.00
Profit brought forward as of 31/12	381.02	666.19	901.84	735.18

31-12-08	31-12-09	31-12-10	31-12-11
3.29	8.28	12.38	10.13
518.27	1,066.92	977.66	1,096.55
1.31	12.44	11.13	4.00
261.73	322.21	369.15	331.79
1,000.00	1,400.00	2,211.43	2,725.07
169.77	72.09	326.75	548.29
0.50	1.43	13.63	29.48
1,954.87	2,883.37	3,922.13	4,745.31

31-12-08	31-12-09	31-12-10	31-12-11
95.78	95.78	95.78	250.00
1,647.57	1,743.63	2,173.68	2,052.83
		540.19	512.19
60.71	10.40	0.00	0.00
	713.73	822.66	1,579.16
123.79	319.83	289.82	351.13
27.02	0.00	0.00	0.00
1,954.87	2,883.37	3,922.13	4,745.31

31-12-08	31-12-09	31-12-10	31-12-11
4,692.35	4,478.92	4,406.15	4,628.18
2.91	11.45	159.76	59.11
18.45	0.00	4.10	26.84
4,713.71	4,490.37	4,570.01	4,714.13

31-12-08	31-12-09	31-12-10	31-12-11
2,008.63	2,331.31	2,476.27	2,676.96
1,312.18	1,433.79	1,342.33	1,494.85
38.45	-50.31	-10.40	0.00
218.73	264.90	226.24	232.19
7.00	5.59	5.00	4.37
215.80	409.04	100.52	272.38
0.52	0.00	0.00	0.00
3,801.31	4,394.32	4,139.96	4,680.75

2008	2009	2010	2011
912.40	96.05	430.05	33.38
0.00	0.00	0.00	250.00
1,647.57	1,743.63	2,173.68	2,052.83

The figures of the balance sheet and the income statement contain all six subsidies received by VLIZ.

No surplus of the allocated subsidy was brought forward as a reserve in 2011 (art. 9 §1 of the Management Agreement).

The income from external financing represented 88.13% of the fixed 1st + 2nd subsidy, 54.94% of the fixed 1st + 2nd + 3rd + 4th + 5th subsidy and 36.33% of the fixed 1st + 2nd + 3rd + 4th + 5th + 6th subsidy in 2011 (art. 5 §2 of the Management Agreement).

Budgetary deviations from the 2011 budget (art. 9 §1 of the Management Agreement): none

PERFORMANCE & OTHER INDICATORS

VLIZ performance indicators overview table

(pursuant to the Management Agreement and the work plan for the 2005-2009 period):

Performance indicator	2004	2005	2006	2007
P1 Number and quality of cooperation agreements concluded with institutional actors in the field of marine scientific research in Belgium and abroad	10	13	17	19
P2 Number of quality-checked records in the IMIS literature module	63,534	73,486	87,346	97,795
P3 Number of quality-checked records forwarded to the ASFA database	396	666	939	1,126
P4 Number of quality-checked records in the VLIZ databases (in 106)	17.6	24.3	36.3	73.9
P5 Number and quality of informative publications for the public at large:				
- number of issues of 'De Grote Rede' (*)	3	3	2	3
- total number of pages of 'De Grote Rede' (*)	72	92	60	96
- number of subscribers to 'De Grote Rede'	2,193	2,386	2,892	3,585
- number of issues of 'VLIZINE' (*)	6	5	5	8
- total number of articles in 'VLIZINE' (*)	140	117	91	171
- number of subscribers to 'VLIZINE'	730	839	930	1,155
- number of other publications for the public at large made with the active cooperation of VLIZ (*)	5	3	10	7
- number of questions/answers added to the 'Our Coast' section of the VLIZ website	50	113	287	8
P6 Number of guest researchers using the 'IODE Project Office' expressed in terms of person days (*)	0	296	173	110
P7 Actual number of sailing days spent on scientific research (*)	195	240	188	239
P8 Number of training activities organised within the scope of the additional assignment described in article 4, expressed in number of person days (*)	0	1,227	2,348	942

(*): reported per calendar year

(\$): new counting method (see Annual Report 2008 for further details)

2008	2009	2010	2011
20	22	23	24
104,023	113,058	116,382	126,611
1,454	1,791	1,866	discontinued
158.0	385.1	566.2	876.7
3	2	3	3
92	64	104	104
4,505	4,972	5,433	5,739
7	5	7	5
172	114	161	156
986	1,019	1,041	1,140
10	5	11	9
53	8	17	discontinued
687 (\$)	457	604	343
238	234	292	265
708 (\$)	656	953	908

Performance indicators in more detail

The 8 performance indicators used to assess the performance of VLIZ in 2011 are discussed in more detail below.

P1: Number and quality of cooperation agreements concluded with institutional actors in the field of marine scientific research in Belgium and abroad

The cooperation with Belgian and foreign universities, research institutes and individual research groups is extended even further through the conclusion of cooperation agreements.



In October 2010 a Vietnamese delegation visited VLIZ at the request of the Flemish Department of Foreign Affairs. On this occasion they would have liked to sign a Memorandum of Understanding to create a general framework for possible collaboration in the field of marine sciences; eventually the memorandum was signed on 15 March 2011 when a delegation of the **Vietnamese Academy of Science and Technology** (VAST) visited Ghent. One of the signatories was Dirk Van Melkebeke, Secretary General of the department of Economy, Science and Innovation (EWI), which involves a nice mandate on the part of the Flemish government.

Since it was created, VLIZ has entered into a total of **24 (inter)national cooperation agreements** with universities, research institutions and administrations. This number does **not include** the management agreements with the department of Economy, Science and Innovation, and with the province of West Flanders.

Overview of the **24 (inter)national cooperation agreements** concluded between VLIZ and institutional actors in the field of marine scientific research in Belgium and abroad.

AGREEMENTS WITH BELGIAN UNIVERSITIES

- Ghent University, Department of Biology – biodiversity databases
 - Prof Dr M. Vincx – meiobenthos/macrobenthos/hyperbenthos/epibenthos
 - Prof Dr E. Coppejans & Prof Dr O. De Clerck – macroalgae
 - Prof Dr W. Vyverman – Protista
 - Prof Dr A. Vanreusel – meiobenthos of the deep sea and Antarctica
 - Prof Dr K. Sabbe – microphytobenthos
- Hasselt University, Prof Dr E. Schockaert & Prof Dr T. Artois – biodiversity/taxonomic databases
- Katholieke Universiteit Leuven
 - Prof Dr J. Berlamont & Prof Dr J. Monbaliu – hydrodynamics and sediment mechanics databases
 - Prof Dr F. Ollevier & Prof Dr F. Volckaert – marine and estuarine biology databases
- Vrije Universiteit Brussel, Prof Dr N. Koedam & Prof Dr F. Dahdouh-Guebas – mangroves
- Université Libre de Bruxelles, Prof Dr F. Dahdouh-Guebas – mangroves
- University of Antwerp, Prof Dr P. Meire – environmental effects on the Belgian part of the Scheldt Estuary (OMES)

AGREEMENTS WITH FLEMISH AND NATIONAL RESEARCH INSTITUTIONS

- Flemish Heritage Institute (VIOE) – maritime archaeology and nautical heritage
- Institute for Agricultural and Fisheries Research, Animal Science Unit, Fisheries Research Area (ILVO-Fisheries) – monitoring data and fisheries biological data
- Research Institute for Nature and Forest (INBO) – information exchange and data management with regard to marine and coastal research
- MUMM division of the Royal Belgian Institute of Natural Sciences (RBINS) – operational coordination of RV Zeeleeuw and RV Belgica
- Flemish Environment Agency (VMM) – monitoring of transitional and coastal waters

AGREEMENTS WITH FLEMISH ADMINISTRATIONS

- Waterways and Marine Affairs Administration (AWZ) – disclosure and exchange of scientific information and use of the measurement data of tidal systems
- Agency for Maritime & Coastal Services, Coastal Division – redistribution of data from Flemish Banks Monitoring Network
- Agency for Maritime & Coastal Services, Coastal Division – management of greenhouses for dune research in De Haan
- Agency for Maritime & Coastal Services, Coastal Division – chairmanship of consultation platform, management of measurement data and Sluice Dock website
- Agency for Maritime and Coastal Services, DAB Fleet – management of the Zeeleeuw research vessel
- Agency for Maritime and Coastal Services, Coastal Division, and Research Institute for Nature and Forest (INBO) – monitoring of Flemish beaches

AGREEMENTS WITH INTERNATIONAL RESEARCH INSTITUTIONS

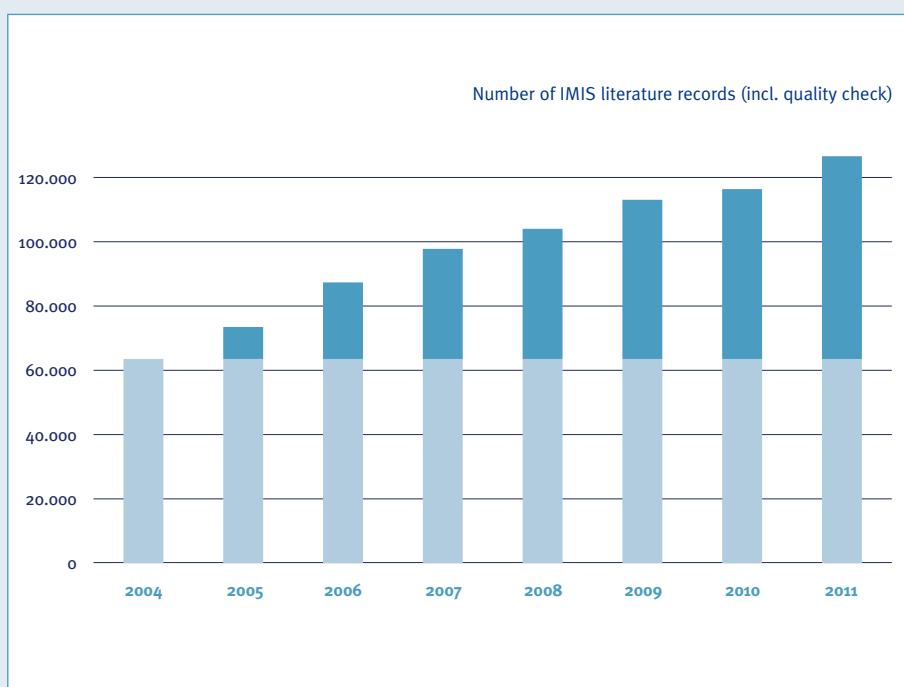
- Oceanological Center of the National Academy of Sciences in Ukraine – stimulate collaboration in the field of marine sciences
- Vietnamese Academy of Science and Technology (VAST) – stimulate collaboration in the field of marine sciences

P2: Number of quality-checked records in the IMIS literature module

The IMIS information database is one of the data systems developed by the VLIZ data centre. This Integrated Marine Data & Information System maps all marine and coastal expertise in Flanders/Belgium (and surroundings) and makes it accessible online. IMIS is a coherent modular system built around 'persons', 'institutes', 'projects', 'infrastructure', 'conferences', 'data sets', 'maps', 'journals' and 'publications'.

The Marine Library continuously adds new references to the 'publication' module. Performance indicator P2 indicates the number of quality-checked records added to the IMIS module. These include all titles present in the VLIZ Library (books, reports, articles, PDFs) as well as all titles of which we know where the user can acquire a copy.

Last year 10,229 records were added to the IMIS literature module resulting in a total of 126,611 records at the end of 2011. This means the number of literature records has doubled since the end of 2004 (reference level at the start of the 2005-2009 management agreement).

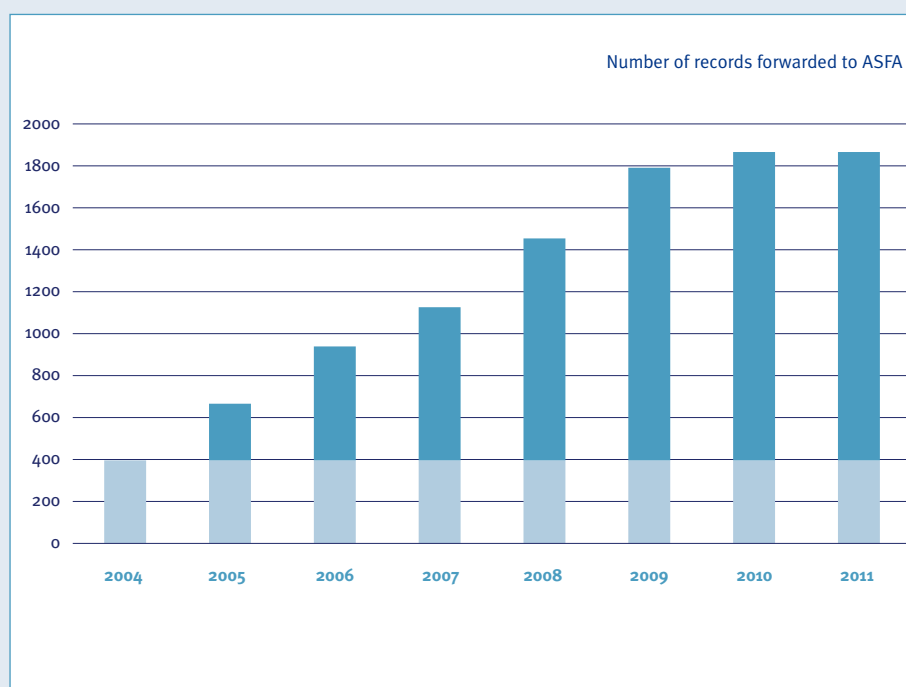


P3: Number of quality-checked records forwarded to the ASFA database

For ten years the VLIZ library contributed to the creation and management of the Aquatic Sciences and Fisheries Abstracts database (ASFA). Through ASFA, FAO, the driving force behind this initiative, mainly aims to provide a platform to information centres that lack the necessary funds and infrastructure to distribute their published information worldwide via their own channels.

In 2002 collaboration on this database was a logical step for VLIZ since Belgian marine publications were still not sufficiently made available on the Internet at that time. By inputting Flemish/Belgian marine and water-related publications to the ASFA database, VLIZ promoted this research with an international scientific public. Since 2002 the VLIZ library made over 8,000 unique references, both peer-reviewed articles and local grey literature (reports, theses etc.), available through the ASFA database.

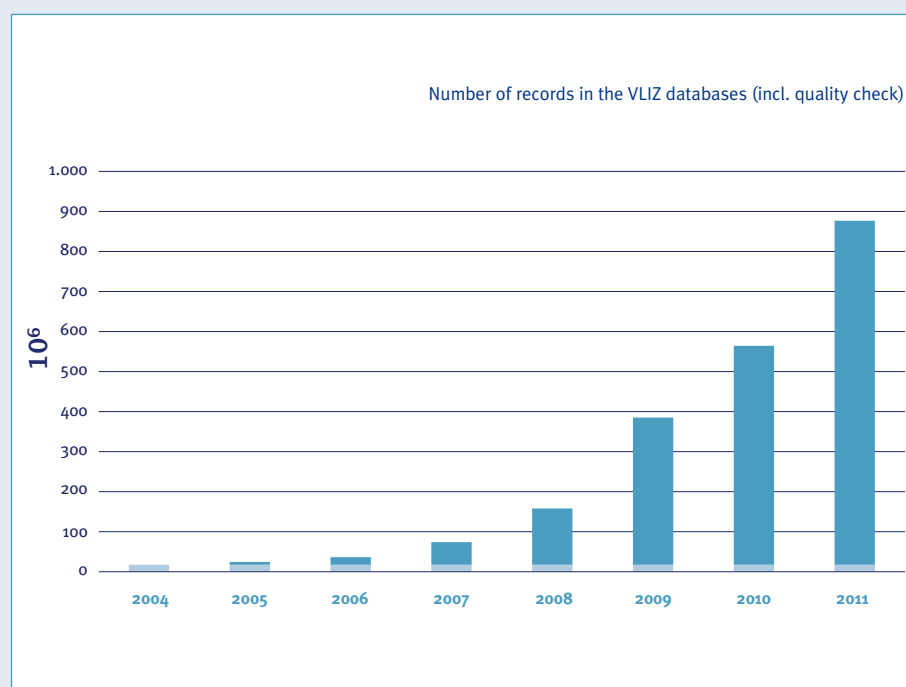
In view of the Open Marine Archive's strong growth and the ever improving online dissemination and searchability of literature records via VLIZ's IMIS database, the decision was taken in 2011 not to use any additional resources for the double input of literature records to the ASFA database. This way, more attention can be paid to the completeness and disclosure of the contents of literature in the VLIZ library's online catalogue.



P4: Number of quality-checked records in the VLIZ databases

VLIZ manages several dozens of marine and coastal databases, which are stored on the VLIZ servers and put at the disposal of marine researchers and users after a quality check.

At the end of 2011 the total number of quality-checked unique records throughout all VLIZ databases amounted to 876,743,976. This is an increase by 50% compared to the number of records reported in the annual report of 2010. This increase is mainly due to the continuous flow of data from the tide gauges worldwide within the Sea Level Monitoring System.



P5: Number and quality of informative publications for the public at large

One of the responsibilities of the Flanders Marine Institute is to popularise and distribute marine scientific information towards various target groups. Within this scope we annually organise various seminars, workshops, symposia and information sessions and have developed an Infodesk where everyone can ask marine and coast-related questions.

Additionally, the VLIZ Communication department issues two regular publications ('De Grote Rede' and the digital newsletter 'VLIZINE') and contributes to other publications, a large number of which are also intended for the public at large.

Since 2007, VLIZ has placed special focus on schools and other educational institutes by means of a Structural Partnership with the Flemish Government.

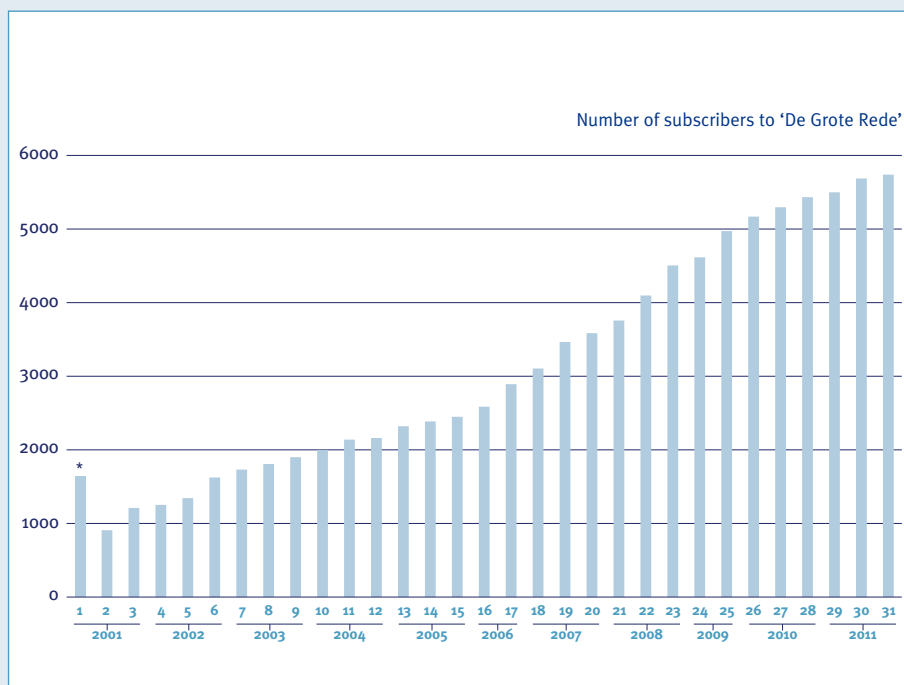
Most of our products are offered through the VLIZ website: educational packages, photo and film galleries, the 'Our Coast' questions & answers database and the 'Seastats' section, to mention only a few examples.

Informative publication	Indicator	2004	2005	2006	2007	2008	2009	2010	2011
'De Grote Rede'	number of issues	3	3	2	3	3	2	3	3
	total number of pages	72	92	60	96	92	64	104	104
	total number of leading articles	9	9	6	9	9	6	9	9
	total number of short articles	11	14	16	15	15	10	14	11
	number of short features	0	0	10	15	15	10	17	21
	number of marine terms explained	4	6	4	6	6	4	6	6
	number of subscribers	2,139	2,386	2,892	3,585	4,505	4,972	5,433	5,739
'VLIZINE'	number of issues	6	5	5	8	7	5	7	5
	total number of articles	140	117	91	171	172	114	161	156
	number of subscribers	730	839	930	1,155	986	1,019	1,041	1,140
Other publications for the public at large with contributions from VLIZ	number of publications	5	3	10	7	10	5	11	9
Questions/answers regarding marine/coastal matters, disclosed via 'Our Coast' section on VLIZ website	newly introduced	50	113	287	8	53	8	17	discontinued
	total number online	185	298	585	593	646	654	671	discontinued
Figures regarding marine/coastal matters disclosed via 'SeaStats' section on VLIZ website	total number online	0	0	0	1,500	2,247	2,936	2,970	4,101

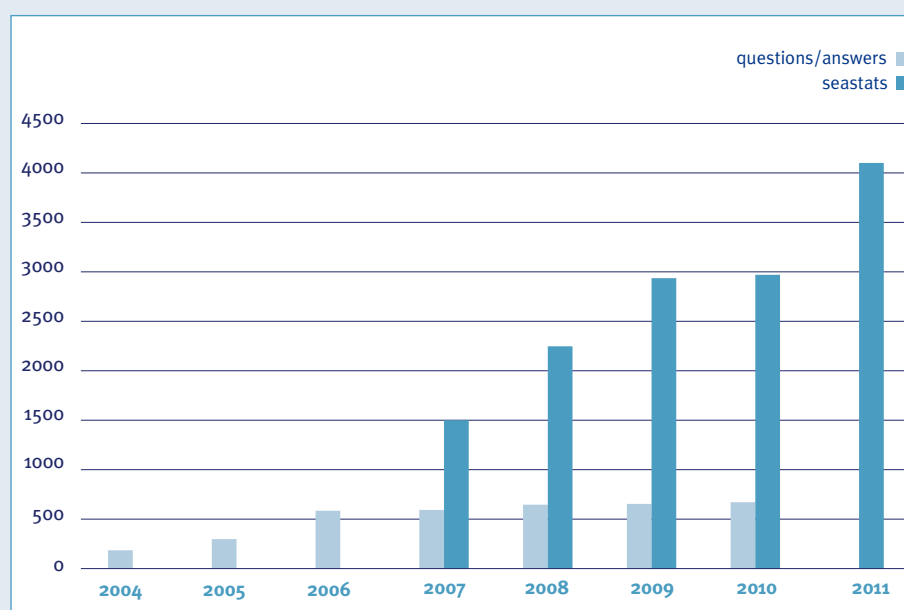
In 2011:

- VLIZ published 3 issues of 'De Grote Rede', comprising a total of 104 pages, 6 leading articles, 21 short features, 11 short articles and 6 marine terms. We reached a total of 5,739 subscribers;
- VLIZ published 5 issues of the digital newsletter 'VLIZINE', comprising a total of 156 articles; the newsletter was sent to 1,140 e-mail addresses.
- VLIZ actively contributed to 9 other publications for the public at large;

- VLIZ did not add any questions/answers to the 'Our Coast' section on the VLIZ website (this initiative was discontinued);
- VLIZ added 1131 stats (incl. source and link) on marine and coastal affairs to the 'SeaStats' section on the VLIZ website.



'De Grote Rede' appeared 3 times in 2011 and was sent to 5,739 addresses.
 (*: the first issue was sent to 1,639 addresses with an invitation to subscribe)



In 2011 the decision was taken to discontinue the questions and answers in the 'Our Coast' section. A number of questions were even taken offline as the information had become obsolete. In 2011 efforts were made to update existing seastats and to add new figures. A total of 4101 seastats are now available with accompanying information (www.vliz.be/cijfers_beleid/zeecijfers).

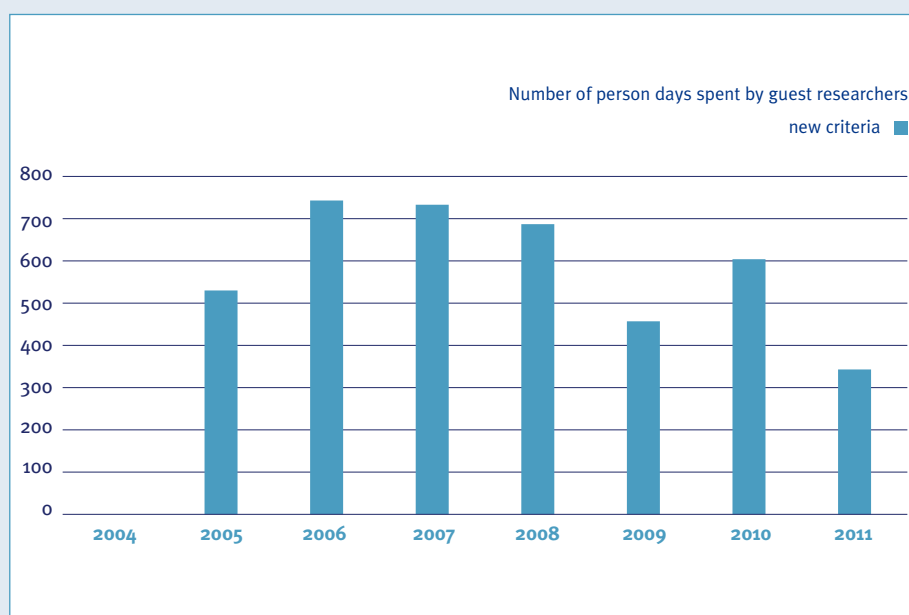
P6: Number of guest researchers using the UNESCO/IOC Project Office for IODE, expressed in terms of person days

The Flemish government supports the UNESCO/IOC Project Office for IODE through VLIZ. Within the scope of this special task, VLIZ receives additional funds to pay the rent, electricity/water/gas and Internet expenses of the project office (79,000 EUR in 2011). In addition, the Flemish government provides 445,000 EUR a year to organise training courses for foreign students and experts in oceanographic data management with special attention to the development and operation of early warning systems for tsunamis and other ocean-related natural disasters.

In 2011, 99 guest researchers visited the Project Office for IODE in Ostend for 11 scientific meetings and workshops (see table), resulting in a total of 343 person days.

Meetings & Workshops in 2011	Datum	#
GE-BICH-V: 5 th Session of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices	17-20.01.2011	16
ICAN-V: International Coastal Atlas Network	30.08-02.09.2011	53
SG-OBIS-I: First Session of the IODE Steering Group for OBIS	08-09.12.2011	17
Marine Spatial Planning training course preparatory meeting (Charles Ehler, Julian Barbieri)	03-04.02.2011	2
Preparatory meeting IODE XXI and celebration of 50th Anniversary of IODE (Bob Gelfeld)	27.02-27.03.2011	1
Tsunami Teacher courses in OceanTeacher Moodle platform (Laura Kong, Tammy Fukuji, Ingrid Pastor)	04-07.04.2011	3
ODINAFRICA online publishing library databases and web sites (J. Macharia, Awah-Nche, S. Ngete)	23.05-03.06.2011	3
JCOMM related meeting (Bob Keeley)	24-25.11.2011	1
Harmful Algal Bloom (HAB) training course preparatory meeting (Jacob Larsen)	20-22.06.2011	1
ICAN-V (Ramon Roach)	01-04.09.2011	1
Ocean Docs (Marc Goovaerts, Denys Slipetsky)	July-August 2011	2

(Source: www.iode.org → IODE Calendar)



(1) Instructors within the scope of training activities have not been included.

P7: Actual number of days at sea for scientific research

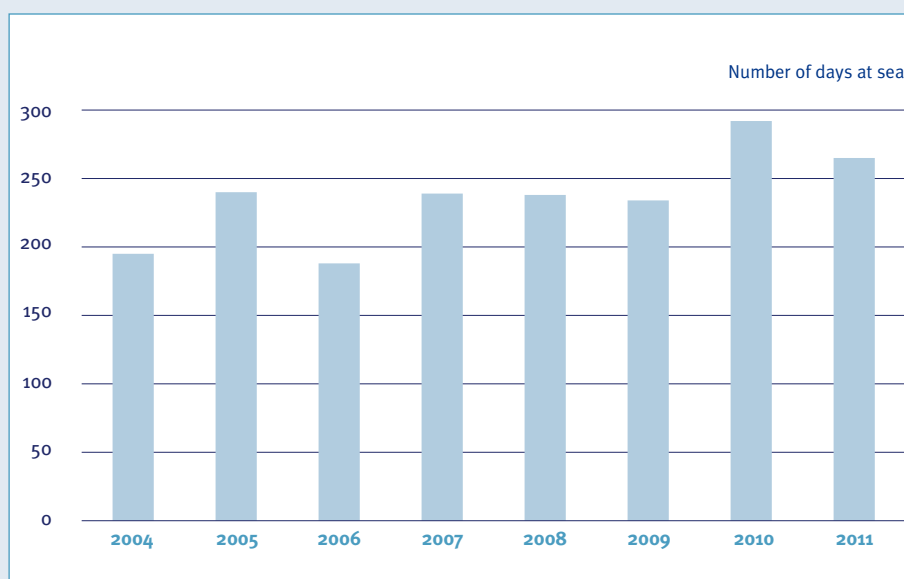
VLIZ concluded a cooperation agreement with DAB Fleet, a division of the Internally Autonomous Agency for Maritime and Coastal Services (MDK), so as to deploy the research vessel 'Zeeleeuw' (and, if necessary, other vessels of the Flemish fleet) for marine scientific research. In order to evaluate the performance of the scientific trips with marine scientists as organised by VLIZ, the actual number of days at sea spent on scientific research was suggested as an indicator. This number includes the trips with the Zeeleeuw, with the RIB Zeekat as well as with any other vessels of the Flemish fleet.

Number of days at sea*	2004	2005	2006	2007	2008	2009	2010	2011
R/V 'Zeeleeuw'	155	151	122	150	162	166	151*	152*
RIB 'Zeekat'	37	45	35	51	39	32	57	40
'third' vessels	3	44	41	38	37	36	84	73
Total	195	240	188	239	238	234	292*	265*

* continuous trips spread over consecutive days – including samplings at night – are counted as one unit in this table (2010: 7 continuous trips, 2011: 6 continuous trips)

In calendar year 2011 a total of 265 days spent at sea on scientific research were coordinated by VLIZ, 152 of which with the Zeeleeuw, 40 with the Zeekat and 73 with other ships of DAB Fleet. Out of 190 originally planned trips, 152 were actually carried out (6 of which were continuous trips of consecutive days including nights). Eventually, Zeeleeuw sailed for 1382 hours (or 94% of available time).

In 2011 a total of 1005 persons sailed on board the Zeeleeuw, including 391 scientists and 614 other passengers (pupils, students, divers etc.). Nineteen different research groups made use of the Zeeleeuw within 16 projects. Education and demonstration were the principal objective in 33 of the 152 trips (22%).



P8: Number of training activities organised within the scope of the additional assignment described in article 4, expressed in number of person days

The above-mentioned article 4 specifies the special responsibility of VLIZ to support the UNESCO/IOC Project Office for IODE. While performance indicator P6 relates to the number of experts and guest researchers using this project office in Ostend, expressed in number of person days, P8 specifically refers to the training courses organised at the office.

In 2011 the UNESCO/IOC Project Office for IODE organised 9 training activities within the Ocean Teacher Academy (see table). A total of 202 students from 53 different countries attended this training*. The total number of person days amounted to 908.



An overview of the training courses organised in 2011 with indication of the date and number of participants is given below.

Opleidingen 2011	Datum	#
ODINAFRICA Training Course on Coastal and Marine Atlases	14-18.2.2011	8
Upgrade Black Sea SCENE Training Workshop	01-04.03.2011	68
OceanTeacher Academy Course DM: Introduction to Marine GIS	16-20.05.2011	16
OceanTeacher Academy Course MIM: Training Course on Disaster Planning and Recovery	23-27.05.2011	16
IOC/UNESCO Marine Spatial Training Course	30.05-01.06.2011	17
OceanTeacher Academy Course DM: Basic Marine Data Management	12-16.09.2011	19
OceanTeacher Academy Course MIM: Training Course on Data Curation for Information Professionals and in-depth Digitization Practicum	26-30.09.2011	16
OceanTeacher Academy Course DM/MIM: Training Course on Outreach and Communication Tools	07-11.11.2011	16
EUMETSAT/IODE Training Course on Applications of Satellite Wind and Wave Products for Marine Forecasting	05-09.12.2011	26

MIM: Marine Information Management; DM: Data Management (Source: www.iode.org → IODE Calendar)

* The participants came from the following countries: Angola, Argentina, Australia, Barbados, Belgium, Benin, Bulgaria, the Comoros, Cuba, Cyprus, DR Congo, Germany, Ecuador, Egypt, El Salvador, France, Ghana, Georgia, Grenada, Greece, Guinea, India, Indonesia, Israel, Italy, Ivory Coast, the Cayman Islands, Cameroon, Kazakhstan, Kenya, Croatia, Latvia, Madagaskar, Malaysia, Mexico, Mozambique, Namibia, the Netherlands, Nigeria, Ukraine, Peru, Poland, Romania, the Russian Federation, Senegal, Spain, Thailand, Togo, Turkey, the Turks and Caicos Islands, the United States, Venezuela and Vietnam.

Other indicators

Apart from the main activities (see Annex 'Main activities and activities scheduled for 2005-2009') and from the performance indicators discussed above, additional indicators can be contemplated to get a clearer picture of the achievements of VLIZ during the past year. Contrary to the 8 performance indicators, these indicators have no binding effect and are given for illustrative purposes only.

	2005	2006
About VLIZ		
Turnover of VLIZ (EUR)	2,528,646	2,746,084
Turnover without basic subsidy (external funding; in EUR)	408,815	667,292
Financial result of VLIZ (EUR)	285,170	235,653
Personnel (FTE permanent & temporary)	28.75	29.38
Number of association members	265	248
Number of projects carried out by VLIZ in cooperation with research groups	27	28
Infodesk: communication & information		
Number of 'Special' and 'other' publications of VLIZ	12	16
Number of questions asked/answered by e-mail/phone	125	170
Number of events organised	10	15
Number of participants in organised events	890	1117
Number of 'Special Publications' pages	1.465	953
Number of hits/visitors to the VLIZ website and other websites hosted on the 'vliz.be' domain: total number of visits	505,474	\$263,896
Number of hits/visitors to the VLIZ website and other websites hosted on the 'vliz.be' domain: total number of pages consulted	2,131,950	2,371,833
Marine Library		
Number of exchange subscriptions with the VLIZ Collected Reprints (resulting in at least the same number of journal or series titles in the VLIZ library)	163	163
Number of new publications in the library (references)	9,952	11,446
Number of requested references in the library	815	598
Number of titles offered online via the Open Marine Archive	524	2,221
Number of titles downloaded via the Open Marine Archive	-	12,487
Percentage of questions answered successfully	99	98
Facilities		
Number of researchers/students/passengers who made use of the Zeeleeuw	830	697
Number of references to VLIZ in scientific publications following the use of the facilities	31	48
Number of records in the MIDAS database	3,506,515	4,037,139
Data Centre		
Number of archived and disclosed datasets expressed in number of files	1,701	5,896
Number of archived and disclosed datasets expressed in total file size (in Gb)	1.83	6.22
Number of records in the IMIS 'Publications' module	87,545	99,792
Number of records in the IMIS 'Datasets' module	500	714
Number of records in the IMIS 'Institutes' module	4,818	5,154
Number of records in the IMIS 'Conferences' module	447	493
Number of records in the IMIS 'Persons' module	9,757	11,635
Number of records in the IMIS 'Projects' module	1,266	1,376
Number of records in the IMIS 'Maps' module	47	108
Number of records in the IMIS 'Infrastructure' module	0	41

2007	2008	2009	2010	2011
2,824,697	4,096,349	3,692,082	4,125,751	4,349,052
227,606	210,343	214,947	275,386	246,201
166,660	912,389	96,059	430,047	33,378
29.27	29.97	35.27	36.62	*39.44
238	248	250	245	262
29	25	31	30	30
17	18	13	15	**15
209	245	199	167	225
12	20	25	17	30
852	2,537	2,656	2,170	3,010
337	96	388 3	87	358
501,428	563,980	643,801	829,045	1,091,231
3,258,496	3,423,188	4,541,519	3,722,787	17,274,807
163	158	155	152	+
11,390	8,813	9,899	5,534	7,907
683	498	431	461	***630
2,800	4,500	5,300	6,890	9,863
10,598	22,845	66,151	53,818	68,185
96	96	97	97	99
1,036	927	810	879	****1005
60	78	123	165	194
4,773,200	5,487,262	6,569,633	7,704,497	8,703,620
6,534	6,843	7,349	9,562	10,297
11.02	12.12	19.61	28.40	35.30
110,631	119,958	132,515	160,273	167,579
1,044	1,208	1,498	1,985	2,113
6,542	7,368	7,656	8,965	9,441
653	795	875	2,287	2,360
14,359	17,026	18,416	21,180	23,074
1,906	2,196	2,707	3,196	3,374
899	919	976	2,666	2,711
46	46	50	55	55

- * 21.21 permanent and 18.23 temporary FTE; 22.09 scientific and 17.35 administrative employees (work placements and student employees not included)
- ** 'including 5 'VLIZ Special Publications', 4 reports, 3 co-publications and contributions to 3 other publications.
- *** VLIZ was able to supply 99% of the 630 requests submitted to the library. More than half came from the VLIZ collection. The other publications were mainly obtained through networks such as IAMSILIC, Antilope/ Impala and Subito Germany.
- **** 391 researchers + 614 students and other passengers
- \$ The current VLIZ website was launched on 20 March 2006. In 2005 different software was used to count the number of visitors and the results cannot be compared.
- + VLIZ Collected Reprints was discontinued in 2011

ORGANISATIONAL CHART

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 subsidy from the Flemish Community and from the province of West Flanders. Pursuant to the articles of association, VLIZ installed a Board of Directors, a General Assembly and a Scientific Committee as executive bodies at the time of its establishment in 1999. The latter advises the Board of Directors on the scientific feasibility and desirability of decisions

Board of Directors - end 2011

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

Chairman of the Board of Directors is *Mr Paul Breyne*, governor of West Flanders

Eight members were nominated by the Flemish government:

- *Mr Colin Janssen*, professor, Ghent University, vice-chairman
- *Ms Marie-Claire Van der Stichele-De Jaegere*, honorary member of the Provincial Executive, secretary (resigned)
- *Mr Jean Berlamont*, full professor, Katholieke Universiteit Leuven
- *Mr Yves Goosens*, general director of DAB Fleet division of MDK
- *Ms Ilse Hoet*, head of the Port and Water Policy division, Mobility and Public Works department
- *Ms Brenda Utterwulghe*, Blauwvoet bvba
- *Ms Magda Vincx*, full professor, Ghent University
- *Mr Philip Van Avermaet*, head of the Research division, department of Economy, Science and Innovation

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

- *Mr Guido Decorte*, member of the Provincial Executive
- *Ms Hilde Veulemans*, member of the Provincial Council

The three other members are:

- *Ms Ann Overmeire*, innovation coordinator, Provincial Development Agency of West Flanders
- *Mr Paul Gerard*, managing director of AG Haven Oostende
- *Mr Willy Versluys*, fishing vessel owner

The government commissioners are:

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

Attend the meeting:

- *Mr Rudy Herman*, researcher of the department of Economy, Science and Innovation
- *Mr Jan Mees*, general manager of VLIZ and rapporteur

General Assembly - end 2011

The General Assembly is currently composed as follows (end 2011):

Chairman of the General Assembly is Mr *Paul Breyne*, governor of West Flanders

The ten voting members appointed by the Flemish government are:

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

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

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

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

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

The members of the Board of Directors of VLIZ have the right to attend and participate in the General Assembly but are not entitled to vote.

Scientific Committee – end 2011

The Scientific Committee advises the Board of Directors on all scientific and research-supporting activities organised by VLIZ and supports VLIZ in the formulation of qualitative and scientifically sound advice. In 2010 it was given a new structure consisting of three interconnected and mutually reinforcing components: a Scientific Board, a Guidance Committee and various Expert Groups.

The composition of the **Scientific Board** reflects the inter-university and interdisciplinary character of VLIZ. Attention is also paid to good cooperation with the Flemish administrations and the federal government in this respect. The composition of the Scientific Committee at the end of 2011 is presented below.

Chairman:

- *Colin Janssen*, vice-chairman of the Board of Directors

Two representatives of Ghent University (UGent):

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

Two representatives of Katholieke Universiteit Leuven (KULeuven):

- *Filip Volckaert*
- *Jaak Monbaliu*

A representative of Vrije Universiteit Brussel (VUB):

- *Frank Dehairs* (substitute: *Marc Kochzius*)

A representative of the University of Antwerp (UA):

- *Patrick Meire* (substitute: *Gudrun De Boeck*)

A representative of Hasselt University (UHasselt):

- *Tom Artois* (substitute: *Natalie Beenaerts*)

A representative of the Institute for Agricultural and Fisheries Research (ILVO):

- *Kris Cooreman* (substitute: *Bart Sonck*)

A representative of the Research Institute for Nature and Forest (INBO):

- *Jurgen Tack* (substitute: *Eric Stienen*)

A representative of the Flemish Institute for Technological Research (VITO):

- *Roger Dijkmans* (substitute: *Bart Deronde*)

A representative of the Flemish Environment Agency (VMM):

- *Steven Vinckier* (substitute: *Marleen Van Steertegem*)

A representative of the Flemish Heritage Institute (VIOE):

- *Marnix Pieters* (substitute: *Tom Lenaerts*)

A representative of the Flanders Hydraulics Research (FHR):

- *Frank Mostaert* (substitute: *Toon Verwaest*)

Attend the meetings:

- *Jan Mees*, general manager of VLIZ
- *Jan Seys* (substitute: *Nancy Fockedey*), rapporteur
- *Rudy Herman*, representative of the department of Economy, Science and Innovation (EWI)

VLIZ Contact Information

Flanders Marine Institute
VLIZ - InnovOcean site
Wandelaarkaai 7 (pakhuis 48)
8400 Oostende
Belgium

Phone: +32 (0)59 34 21 30
Fax: +32 (0)59 34 21 31
E-mail: info@vliz.be
URL: www.vliz.be

Colophon

This 2011 Annual Report of the Flanders Marine Institute (VLIZ) has been presented for approval to the Board of Directors and the General Assembly on 17 April 2012.

Coordination and final editing

Jan Mees – general manager of VLIZ
Nancy Fockedeij and Jan Seys – VLIZ Communication & Information

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