

Annual Report 2009

FLANDERS MARINE INSTITUTE VLIZ

*for everyone fascinated
by the sea and the coast*

www.vliz.be

Ostend, April 2010



with the support of:



Vlaamse overheid



Preface	5
VLIZ in figures	6
VLIZ in a timeline	7
UNESCO/IOC Project Office for IODE in figures	8
UNESCO/IOC Project Office for IODE in a timeline	9
Core tasks and structure	10
Achievements in 2009	15
• Coordination	16
• Infodesk	44
• Marine Library	62
• Figures&Policy	70
• Facilities	80
• Data centre	90
• UNESCO/IOC Project Office for IODE	108
Annexes	115
• Financial Statement	116
• Performance & Other Indicators	118
• Summary Evaluation Management Agreement 2005-2009	133
• Organisational Chart	145
• VLIZ Contact Information & Colophon	149
VLIZ Collected Reprints 2009	151

2009 was a festive year for the Flanders Marine Institute (VLIZ). Ten years ago, in 1999, VLIZ was founded by the Flemish Community, the province of West Flanders and the Research Foundation – Flanders.

In retrospect, this has been a timely and visionary decision. Timely because the importance of the seas and oceans – and therefore of marine scientific research as well – has greatly increased over the past decade. Visionary because the model used turned out to be a bull's-eye. This 'VLIZ model' – the framework within which the institution operates – means that VLIZ does not carry out any research itself, but actively supports the researchers at the universities, the scientific institutions and the administrations. As a result, VLIZ as a new player has not been considered to be a competitor, but rather a supporting, networking and integrating platform. VLIZ is as it were an instrument for the benefit of the scientific community which only rolls out those activities that are a real help to researchers. The basic principle is that we do the things for which researchers themselves cannot or will not make time or set aside means, so that they can devote their time more efficiently to the actual scientific research.

The marine scientific landscape in Flanders and Belgium is complex: it is highly fragmented yet multidisciplinary, and has a complex financing. These unique characteristics result in a need for central support. Research benefits greatly from the combination of forces, of information, of data and the like. During the past decade VLIZ has invested a great deal in this. It is in the interest of Flanders, the marine researchers and VLIZ itself that we as a marine research community will present ourselves even more in the future as a "distributed super institute" which bears comparison with the large oceanographic centres in the neighbouring countries and which as a whole is more than the sum of its parts.

We have conceived the celebration of 10 years of VLIZ primarily as a celebration of the marine sciences and the marine scientific community in Flanders and Belgium. A film was made which shows the Flemish marine sciences in all their diversity. In 27 powerfully illustrated stories, the book "Onze Kust Anders Bekeken" (Our Coast from a different Point of View) proves that marine research is not just necessary for policy, but can also produce nice pictures and inspiring facts and insights that stimulate the imagination. The solemn academic ceremony of 27 November was preceded by the tenth edition of the annual VLIZ Young Scientists' Day. With nearly 300 participants and 150 poster presentations, this was the biggest edition ever. The book of abstracts consequently offers an almost all-embracing image of Flemish research in the year 2009. The quality and diversity of the presented research was impressive. This abundance holds great promise for the future and proves that the marine sciences are very vivid and that Flanders is equipped to face up to future challenges and seize marine opportunities.

In any case, VLIZ has the ambition to continue supporting this work in the future.

Paul Breynne

Governor of West Flanders
Chairman of the VLIZ

Jan Mees

Manager of VLIZ

VLIZ in figures

66.151

Number of downloads from OMA, the Open Marine Archive

234

Number of sailing days within the scope of marine scientific research

7.349 (20 Gb)

Number (and volume) of archived datasets in the Marine Data Archive

2.656

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

22

Number of formal cooperation agreements

2.936

Number of seastats online

25.000

Number of images in VLIZ photo galleries

4.972

Number of subscribers to the journal 'De Grote Rede'

160.000

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

3.692.082

Turnover of VLIZ (EUR)

VLIZ in a timeline

A selection of major events in 2009



JANUARY

Press release:
turning point in fisheries
(21.01)



FEBRUARY

Executive Board Marine
Board in Ostend (11.02)



MARCH

Young Scientists' Day 2009
(06.03)



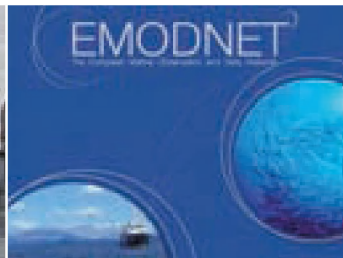
MARCH

Ename Symposium
(18-20.03)



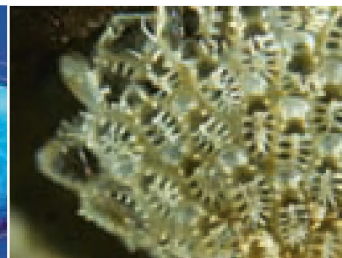
MARCH

International Seabird Group
Conference (27-30.03)



MAY

Start EMODNET: VLIZ
coordinates biological share
and participates in chemical
share (15.05)



JUNE

Presentation book:
Bryozoa – Hans De Blauwe
(22.06)



JULY

Launch of website
"A century of Belgian marine
fisheries": historical fisheries
statistics



SEPTEMBER

EURASLIC-IAMSLIC Conference
(27.09-02.10)



OCTOBER

First IODE-Seminar:
Flemish scientists meet the
world experts visiting the
IOC Project Office for IODE
(19.10)



NOVEMBER

Presentation book:
Our Coast – Jan Seys
(10.11)



NOVEMBER

Celebration 10 years of VLIZ
(26-27.11)

UNESCO/IOC Project Office for IODE in figures

8

Number of organised training courses
(duration of 1-3 weeks)

158

Number of students

65

Number of nationalities represented on
the courses

169

Number of both short- and longterm
guest researchers

1.598

Number of nights spent by trainees and
experts

105

Number of dynamic websites hosted

12

Number of available servers

1.282

Subscribers to the Project Office mailing
list system

40

Number of computers available for
training courses

7

Number of employees for 'IOC Project
Office for IODE' at the end of 2009

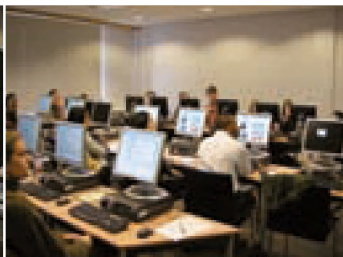
UNESCO/IOC Project Office for IODE in a timeline

A selection of major events in 2009



FEBRUARY

Steering Committee Ocean Teacher discusses plan of work and calendar courses in Ostend (09-13.02)



MARCH

Training 'Marine Data Management' for Belgian M.Sc. students MareLac, ECOMAMA en EMBC in Ostend (16-19.03)



MAY

IODE organizes '20th Session of the IOC Committee on International Oceanographic Data and Information Exchange' in Beijing (04-08.05)



JUNE

OceanTeacher Academy starts with specialized training 'website development for data- and information centers' (15-26.06)



SEPTEMBER

IODE and VLIZ are hosts for the 35th IAMS LIC Conference (27.09-01.10).



OCTOBER

Flemish scientists meet world experts visiting Project Office Ostend: first 'IODE-Seminar' (17.10)



NOVEMBER

Steering Committee OBIS meets in Ostend to prepare integration of OBIS in IODE (18-20.11)



DECEMBER

IODE, NOAA and EUMETSAT co-organise 'Training Course on the Use of Satellite Wind and Wave Products for Marine Forecasting' in Ostend (14-18.12)

Core tasks and structure

In 2009 the Flanders Marine Institute (VLIZ) celebrated its 10th anniversary. Since its creation in 1999, the VLIZ has evolved into the **central coordination and information platform for marine scientific research in Flanders**. VLIZ also 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 subsidy 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, which are 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 (VMDC). 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. VMDC is an integral part of 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 present this expertise both in Belgium and abroad.
- Managing an information desk that provides objective scientific information to scientists and policymakers 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 financing of the accommodation and support of the IODE Project Office of the Intergovernmental Oceanographic Commission of UNESCO (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 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, complemented with the activities of the UNESCO/IOC Project Office for IODE. These six units correspond to the main menu sections on the VLIZ website.

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



Achievements in 2009

an overview

Coordin



Coordination



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

- ❑ INNOVOCEAN SITE
- ❑ PERSONNEL POLICY
- ❑ NETWORKING
- ❑ COOPERATION AGREEMENTS
- ❑ SCIENTIFIC AWARDS
- ❑ MEMBERSHIP

Celebration of 10th anniversary of VLIZ

At the end of November a major celebration was held in Ostend. The Flanders Marine Institute celebrated its 10th anniversary with a two-day event in Thermae Palace. On Thursday 26 November there was an evening programme for the public at large. On Friday 27 November during the day, the 10th VLIZ Young Scientists' Day took place for all marine scientists from Flanders and surroundings. In the evening followed the solemn academic ceremony on the occasion of our 10th anniversary.

10 years of VLIZ: celebration in Ostend

Provincial governor Paul Breyne, also chairman of VLIZ, welcomes everyone to the solemn academic ceremony on the occasion of the 10th anniversary of the creation of the Flanders Marine Institute. On 26 and 27 November numerous VLIZ sympathisers were present in Thermae Palace for an interesting two-day event concerning marine and coastal research in Flanders.



On Thursday evening 26 November we invited teachers, guides, the subscribers to our magazine 'De Grote Rede' and other interested citizens to an accessible, yet interesting evening programme on the sea in Thermae Palace in Ostend: **Zee® fascinerend**. On the basis of their personal history and research, four experts held a clear lecture about a few of the most pressing issues regarding the sea: the pros and cons of eating fish (Isabelle Sioen), marine pollution (Colin Janssen), the historical location of the Belgian coastline (Johan Termote) and a number of surprising stories from Jan Seys' new book 'Onze kust anders bekeken' (Our Coast from a different Point of View). The full house visibly enjoyed it! Afterwards they were offered a drink.



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On Friday 27 November all scientists from Flanders and surroundings were welcome in Thermae Palace for the **10th VLIZ Young Scientists' Day**. With 278 participants this was the most successful edition of our marine meeting day ever. On this special anniversary edition we wanted to draw attention to the diversity of Belgian marine research by means of a very elaborate poster exhibition and short 'pitching' presentations.

Out of 150 poster abstract submissions, 30 researchers were selected to give a lucid explanation of their work in a short plenary presentation. This presentation could take 5 minutes at most. The specific assignment was an exercise in science communication: "How do you ensure that a broad public appreciates your research and how do you convince them of its relevance to society?".



© VLIZ - Decler

A critical jury of science journalists and science communicators judged this exercise. They gave many pointers about the way to best communicate your message to the public at large. The jury consisted of: Liesbeth Gijsel – editor-in-chief of EOS Magazine; Sooike Stoops – science communicator for VIB; Jan Seys – science communicator of VLIZ and honorary chairman; Lieven Scheire – science populariser for Woestijnvis; and Pieter Van Dooren – science communicator for ITM. The attending audience could judge the presentations as well.



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Winners selected by the professional jury:

1. Michiel Claessens - Microplastics in our seas: an invisible danger?
2. Steven Degraer - Are trammel net fisheries a cure for the disease called fisheries impact? or... "the WAKO story"
3. Frederik De Laender - Ecosystems under stress: how well do they function?

Winners selected by the public jury:

1. Michiel Claessens - Microplastics in our seas: an invisible danger?
2. Liesbeth Weijs - The fin whale from Antwerp: a toxicological perspective
3. Klaas Pauly - Capturing the coast from above. Cheap Aerial Photography with a kite

After the presentations everyone got the chance to view all poster submissions during a poster session and competition of an hour and a half, to judge these posters on form and content, and to meet the researchers responsible for the presented work. The attending audience could vote for the best scientific poster.



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Winners of the poster competition:

1. Wim Van Neer & Anton Eryvynck - 'Shifting baselines'. The archaeology of the North Sea fish
2. Klaas Pauly - Kite aerial photography for monitoring remote nature reserves: a test case in a green turtle breeding area on Masirah Island (Oman)
3. Fiddy Semba Prasetya - The effect of floating net cage aquaculture on the community structure of phytoplankton in Djuanda Reservoir, West Java – Indonesia

We concluded this Young Scientists' Day with the presentation of the VLIZ scientific awards: the VLIZ North Sea Award and the VLIZ Thesis Awards (see below).



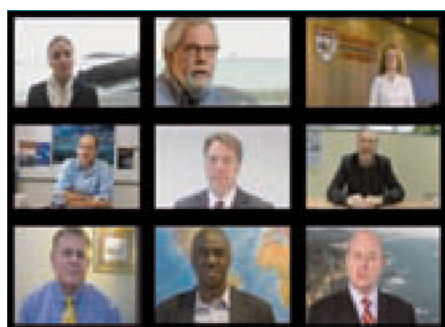
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For this two-day event, a small **photo exhibition** on marine scientific research in Belgium from the period before the creation of VLIZ (1950-2000) was organized with the cooperation of researchers from all over Belgium. These photos as well as other images remain available in the photo gallery 'Our coast' on the VLIZ website: www.vliz.be/vmdcdata/photogallery/sea.php?album=1289.



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Some 300 attendants were present on the evening of 27 November for the festive **solemn academic ceremony** on the occasion of the 10th anniversary of VLIZ. Provincial governor Paul Breyne extended a hearty welcome as chairman of the Board of Directors. Prof Dr Colin Janssen – chairman of the Scientific Committee of the VLIZ – sketched the marine scientific research in Flanders. Rudy Herman from the Flemish Government Department of Economy, Science and Innovation spoke about VLIZ as a coordination centre for international oceanographic research. General manager Jan Mees gave an overview of the milestones in the VLIZ activities over the first decade of our existence. Jan Cornelis, Deputy Chief of Staff of the Flemish competent minister Ingrid Lieten, finally provided a first insight into the results of the evaluation VLIZ underwent in the course of the year.



© VLIZ

The official programme with lectures was interspersed with short **video messages** by renowned marine scientists from all over the world. They showed what social relevance and needs marine scientific research has. They also considered the importance of a small region such as Flanders in marine research. We listened to video messages from Lars Horn (Research Council of Norway & Marine Board-ESF), Shubha Sathyendranath (Plymouth Marine Laboratory, UK), Carlo Heip (NIOO & NIOZ, the Netherlands), Richard W. Spinrad (NOAA, USA), Ed Hill (National Oceanography Centre, UK), Lesley Rickards (British Oceanographic Data Centre, UK), Jan de Leeuw (NIOZ, the Netherlands), Mika Odido (IODE, Kenya), Niamh Connolly (Nanyang Technological University, Singapore), Greg Reed (Australian Oceanographic Data Centre, Australia), Murray Brown (Phoenix Training Consultants, USA), Vladimir Vladymyrov (IBSS, Ukraine) and Kostas Nittis (Hellenic Centre for Marine Research, Greece), among others. If you want to listen to these video messages, go to www.vliz.be/events/vlizgotmail.

In 2009, VLIZ worked on an interesting, English-language **short film** (17 minutes) about marine and coastal research in Flanders. This production had its premiere during the solemn academic ceremony. All invited guests received a copy on DVD, but you can also watch the movie online via the VLIZ website: http://www.vliz.be/vmdcdata/photogallery/movies_research.php The film starts with the fact that although the Belgian part of the North Sea is small, it is one of the most intensively studied regions in the world. The Flemish coast has served as a field laboratory since the middle of the 19th century. Nowadays, there are more than 1,500 active Flemish marine experts. They conduct research in Flanders as well as in

VLIZ produces a film about marine research in Flanders



The English-language film "Marine and coastal research in Flanders" had its premiere during the solemn academic ceremony. In this 17-minute film VLIZ promotes the diversity, quality and relevance of coastal and marine research carried out in our region by approximately 1,500 marine experts.

many other places around the world. Their work ranges from fieldwork and laboratory experiments to the development of models to fill in the gaps in our knowledge.

Evaluation of the 2005-2009 management agreement

Within the scope of the renewal of the management agreement between VLIZ, the department of Economy, Science and Innovation (EWI) of the Flemish government and the province of West Flanders, a comprehensive evaluation was carried out in 2009. The framework and evaluation questions were established by the Flemish government, but the evaluation itself was carried out by the firm IDEA Consult. They had to check whether VLIZ has achieved the objectives and tasks formulated in the 2005-2009 management agreement and how Flanders has benefited from this.

The evaluation was oriented towards:

- the operation as to contents/science: the role of VLIZ with regard to facilitating marine scientific research, managing a Flanders Marine Data and Information Centre and the science popularisation activities, etc.
- the organisational operation: personnel policy, ICT policy, functioning of the administrative bodies, etc.
- the financial operation: appropriation of subsidies and reporting on this matter, external financing, etc.

The evaluation was based on various methods:

- A thorough analysis of the available documents and data (both publicly available and supplied by VLIZ) was carried out, supplemented with interviews and thematic workshops with VLIZ employees and a survey of the stakeholders.
- The operation of VLIZ was benchmarked with the usual practices of a number of European research institutes (note: contrary to the latter, VLIZ is not authorised to carry out the investigation itself).
- A team of four international experts carried out a peer review in June 2009. This process resulted in a separate report with conclusions and recommendations. These are discussed in detail in the box on page 132.
- Customers were surveyed concerning the operation of VLIZ as to contents/science.
- Pupils, teachers and the public at large were surveyed to check whether VLIZ and its products are known within the scope of scientific popularisation.

The Flemish government asked VLIZ to draw up a self-evaluation report beforehand and to develop a new strategy for the forthcoming five years in a 2010-2014 draft policy plan. In addition, the auditors had the annual reports and the annual audit of the application of funds at their disposal.

The evaluation resulted in a comprehensive final report with annexes and a concise management summary with conclusions and recommendations. These are discussed in detail in the box on pages 133 to 141.

Self-evaluation report in preparation for the evaluation of 2005-2009 management agreement

In preparation for the evaluation of the 2005-2009 management agreement, the Flemish government instructed VLIZ to draw up a self-evaluation report and to develop a draft policy plan with the new strategy to be pursued for the 2010-2014 period. The operation of VLIZ was subsequently audited in detail by an external firm (IDEA Consult) and a panel of international experts.



VLIZ PR and branding



VLIZ

A **celebration logo** (left) "10 years of VLIZ" was developed for this jubilee year. A self-adhesive anniversary sticker (right) was added to the existing printed matter.



A new **VLIZ brochure** was printed in Dutch and English, consisting of a folder and inserts in which the operation of each department as well as other activities (databases, projects, educational products ...) can be explained separately. The brochure can be 'personalised' according to the target audience. The layout of the brochure served as a basis for the production of 9 **panels** (A1 format) which briefly explain the operation of VLIZ. This is handy at an exhibition or any other public event.

At events, it is hard for passers-by not to notice the **VLIZ beach flags**.



Just before summer, a **VLIZ beach bag** was developed. Very handy to take along your 'Zeekrant' newsletter, isn't it?



Is there any way the promotional gift for a data centre could be more appropriate? A **4Gb VLIZ memory stick!**

Scientists and sea lovers will never be cold again at the coast and at sea with the **VLIZ fleece** and accompanying **buff** (a modern and multifunctional windproof headgear/scarf).

Paper and reusable **shopping bags** printed with the VLIZ logo are intended to prevent more plastic (in the seas and oceans).

The VLIZ headquarters at Wandelaarkaai were thoroughly renovated

The entry and entrance hall of VLIZ were converted into a spacious, airy lobby with reception desk. The ground floor of the three adjacent warehouses was converted into and furnished as a marine library.



© VLIZ

Addendum to 2005-2009 management agreement

In 2008 and 2009, VLIZ received an additional investment subsidy from the Flemish Government Department of Economy, Science and Innovation (EWI). This subsidy amounted to 1.1 million EUR a year and was used in 2009 to (1) purchase the warehouse complex at Halve Maan in the port of Ostend; (2) renovate the VLIZ headquarters at Wandelaarkaai; and (3) purchase scientific equipment for the new research vessel RV Simon Stevin (CTD with carousel and multibeam – more information in Facilities chapter).

Staff

At the end of 2009, VLIZ employed a total number of 42 staff (35.27 FTE), including 17.64 permanent and 17.63 temporary employees. The number of scientific and administrative personnel amounted to 24.70 and 10.57 respectively.

In 2009, many new employees started working at VLIZ: Elien Dewitte (since 19/01/2009), Michiel T'Jampens (since 15/02/2009), Liesbeth Lyssens (since 01/03/2009), Daphnis De Pooter (since 01/08/2009), Heike Lust, Filip Waumans (both since 10/08/2009), Sophie D'hondt, Michiel Smits (both since 01/09/2009) and Annelies Scholaert (15/09/2009). In the course of this year, temporary employees Meggy Bauwens (01/07/2009-30/09/2009) and Johan Mares (01/03/2007-10/11/2009) left our institution.

On 1 January 2009, An Vanhoorne succeeded Nora Roelandt as administrative assistant for financial and personnel management. On 10 August, Heike Lust started working as VLIZ information manager, a new position within the VLIZ marine library after the departure of Jan Haspeslagh as librarian at the end of 2008.

In the summer of 2009, a total of 17 student employees worked for VLIZ for a period of 1 month each. In the past year, 5 trainees and 1 thesis student were active at our institute.

Overview of VLIZ personnel at the end of December 2009

General operation, coordination and maintenance



Jan Mees

VLIZ general manager



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 (from 01.01.09)*



Chedi Minkailova

VLIZ & UNESCO maintenance



Angela Diaz

*VLIZ & Marine Board
maintenance*

Communication & Information



Jan Seys

*communication &
information manager*



Evy Copejans

educational assistant



Nancy Fockedeey

scientific assistant



Michiel Smits

*educational assistant
(from 01.09.09)*

Data Centre



Francisco (Tjess) Hernandez

data centre general manager



Ward Appeltans

data centre project manager



Simon Claus

scientific assistant



Nathalie De Hauwere

scientific assistant



Wim Decock

scientific assistant



Klaas Deneudt

data centre project manager



Elien Dewitte

*scientific assistant
(since 19.01.09)*



Sofie D'hondt

*scientific assistant
(since 01.09.09)*



Annelies Goffin

scientific assistant



Liesbeth Lyssens

*IT specialist & developer
(since 01.03.09)*



Roeland T'Jampens

IT specialist & developer



Leen Vandepitte

scientific assistant



Ruth Vandepitte

*administrative assistant -
information & data*



Bart Vanhoorne

IT specialist & developer



Marie-Line Villers

IT specialist & developer



Filip Waumans

IT specialist & developer

Research infrastructure



André Cattrijsse
research infrastructure
manager



Michiel T'Jampens
marine technician
(since 15.02.09)

Library

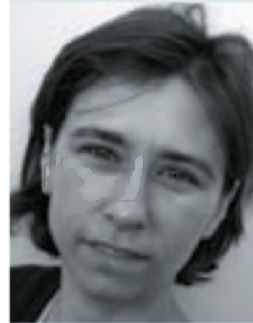


Heike Lust
information manager
(since 10.08.09)



Chilekwa Chisala
assistant librarian

Scheldt Information Centre - Flanders



Bregje Beyts
SIC - Flanders manager

Figures & Policy



**Ann-Katrien
Lescrauwaet**
figures & policy manager



Heidi Debergh
scientific assistant



Daphnis De Pooter
scientific assistant
(since 01.08.09)



Annelies Scholaert
scientific assistant
(since 15.09.09)



Sara Behiels
project assistant
(since 01.03.09)

UNESCO/IOC Project Office for IODE



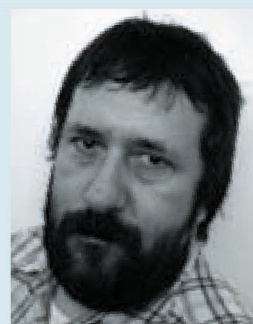
Kristin de Lichtervelde
administrative assistant
UNESCO/IOC



Annelies Groen
administrative assistant
UNESCO/IOC



Wouter Rommens
training course coordinator
UNESCO/IOC



Marc Van Crombrugge
IT specialist & developer
UNESCO/IOC

Marine Board – European Science Foundation



Dina Eparkhina
administrative assistant
MB-ESF

Students, trainees and student employees active at VLIZ in 2009

Students

Elisabeth Van Peteghem	<i>MareLac, UGent</i>	<i>M.Sc. student (2008-2009)</i>
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Trainees

Ludwig Hemeleers	<i>ULB - M.Sc. Biologie</i>	<i>trainee data centre</i>
Dorothy Nyingi	<i>National Museum of Kenya, Ichthyology Section, Nairobi, Kenya</i>	<i>trainee data centre</i>
Tomas Tytgat	<i>St Vesalius Instituut, Oostende</i>	<i>trainee facilities</i>
Wim Verduyn	<i>Arteveldehogeschool - B.Sc. Hoger Onderwijs</i>	<i>trainee infodesk – education</i>
Mano Vandemoortel	<i>HoWest - Toegepaste informatica</i>	<i>trainee data centre</i>

Student employees

Sylvie Braekevelt, Cindy De Jonge, Elisabeth de Lichtervelde, Daphnis De Pooter, Sofie D'hondt, Naomi Geeraert, Freija Hauquier, Simon Hernandez, Bénédicte Maes, Kristof Plovie, Yusuf Sarker, Sara Spanhove, Nega Tassie, Wouter Van Putte, Floor Vandevenne, Elke Vangampelaere, Thomas Vannecke

Social events with the VLIZ personnel



There was a great deal of sweat as well as sports fun during the traditional indoor soccer duels against ILVO - Fisheries. Other sports are also organised alternately during lunch break, such as basketball, volleyball, badminton, table tennis and running laps around the Sluice Dock



Ten years ago, on 1 October, Jan Mees began his first working day at VLIZ. To commemorate this and to thank him for his enthusiasm, a breakfast was secretly organised. His colleagues gave Jan a personalised morning newspaper.



Due to the busy schedule in spring – within the scope of the self-evaluation and the preparations for '10 years of VLIZ' – we had lost sight of the organisation of a New Year's celebration. It almost became a Midsummer Night's celebration (5 June 2009), but that did not make it less fun!



Teambuilding indeed: moving the collection of the marine library to the new location on the ground floor went very smoothly thanks to the many helping hands.



Summer is invariably concluded with a VLIZ barbecue for all InnovOcean employees (28 August 2009).



Participation in the sports day for Flemish civil servants (17 September 2009).

Sustainability at VLIZ

VLIZ seeks to promote sustainability, and also applies this principle to its own operation. Roeland T'Jampens was appointed energy officer. He is looking for energy-saving solutions and urges VLIZ employees to behave in a more sustainable way. Some examples:

Transport



VLIZ stimulates its employees to use **public transport**. Full reimbursement is provided of train, bus and tram season tickets for commuter traffic.



VLIZ provides a **cycle allowance** for employees who cycle to work. The City of Ostend provides free bicycles that can be borrowed at the Ostend railway station.

Energy



The InnovOcean site underwent an **energy audit** and obtained an energy performance certificate for public buildings. Notwithstanding the reasonable result of 165.01 kWh/m (compared to the indicator of 281 kWh/m for comparable buildings), VLIZ intends to continue investing in energy-saving measures.



VLIZ switched over to 100% green energy supplier Lampiris and thus saves money for future 'green investments'.

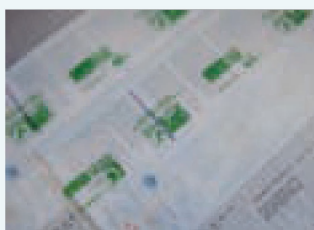


When buying or replacing hardware, VLIZ always opts for the greenest alternatives on the market. At the InnovOcean site we work e.g. with **recto-verso printers** and **'green ethernet switches'**, whereby the ports in the offices only use electricity for activated computers. In addition, **energy-saving servers** are purchased and the principle of **'virtual servers'** is used. This way the number of active servers was reduced from 20 to 3 in 2009.

Resources and water



VLIZ uses **recycled eco-paper** for all of its publications (De Grote Rede, annual report) and FSC-labeled paper for everyday use.



As from 2009, VLIZ opts for sending the 'De Grote Rede' magazine in an envelope made of **biodegradable polythene film**. We also opted for pens made of **maize starch**, which makes them 80% biodegradable.



In 2009, VLIZ switched over to **environment-friendly cleaning products** and hygienic soaps.



Besides the usual selective collection of used paper and glass, we also collect used toner cartridges for **recycling**. The proceeds go to Natuurpunt and the Centre for Bird Revalidation in Ostend.

Social



VLIZ calls in the Oesterbank **sheltered workshop** in case of voluminous mailings. It provides biofruit for all employees, supplied through a **social support project** for the mentally disabled.

Members

VLIZ is a membership organisation. Everyone who is interested in marine and coastal research can – individually or collectively – join as a supporting member. This membership includes the participation in the VLIZ members' day where a copy of the annual report is handed over; subscription to the journal 'De Grote Rede' and electronic publications (VLIZ Library Acquisitions List and VLIZINE newsletter); incorporation of the scientific articles of members into the annual 'VLIZ Collected Reprints' (available in digital form in the VLIZ annual report as from 2008); occasional other VLIZ publications (special publications, books, posters ...); a subscription to the annual Zeekrant; substantial discounts for congresses and seminars organised by VLIZ and other VLIZ publications; free access to the services of the multimedia centre and the data centre; reduced rates for photocopies; and reduced rates for prints of scientific posters. At the end of 2009, VLIZ had a total of 250 members, including 182 individual members, 27 students, 33 institutional members and 8 honorary members.



© VLIZ - Moenhout

On 12 June 2009, VLIZ organised the second edition of the members' day, on which members and other people from the VLIZ network were able to come into contact with each other. On the 2009 members' day the 2008 annual report and the 2009 Zeekrant were officially presented to all attendants. The day was concluded with a sunny reception.

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. VLIZ grants one North Sea Award (1000 EUR) and two Thesis Awards Marine Sciences (2x 500 EUR) every year. The 2008 scientific awards were officially presented and granted at the 2009 Young Scientists' Day. The 2009 scientific awards were granted early this one time during the celebration of "10 years of VLIZ" on 27 November 2009.

VLIZ Scientific Awards 2008

Student Steven De Meester from the Environmental Toxicology research group at Ghent University won one of the **VLIZ Thesis Award Marine Sciences 2008** for his thesis 'Voorkomen en potentiële effecten van microplastics in de Belgische kustwateren' (Appearance and potential effects of microplastics in the Belgian coastal area). Elisabeth Robert from the VUB (General Botany and Nature Management) won the second Thesis Award for her thesis 'Hydraulische architectuur van Avicennia marina (Forssk.) Vierh. langsheen een ecologische gradiënt in Gazi Bay (Kenia) - 2006-2007' (Hydraulic architecture of Avicennia marina along an ecological gradient in Gazi Bay, Kenya).



© VLIZ - Decler

Dr Els Verfaillie won the **VLIZ North Sea Award 2008** with her doctoral thesis 'Development and validation of spatial distribution models of marine habitats, in support of the ecological valuation of the seabed' (Renard Center of Marine Geology, Ghent University).



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At the VLIZ Young Scientists' Day of 6 March 2009 the **VLIZ Poster Awards 2009** (value of 125 EUR) were presented as well. Out of a total of 41 posters, the professional jury selected the poster of Griet Neukermans, Emilien Bernard, Bouchra Nechad, Didier Ramon, Pierre-Yves Deschamps and Kevin Ruddick: *'Geostationary ocean colour feasibility study: mapping suspended matter with SEVIRI'*. The audience chose the poster of Steven De Meester, Michiel Claessens and Colin Janssen *'Appearance and potential effects of microplastics in the Belgian coastal area'*.

VLIZ Scientific Awards 2009



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The **VLIZ Thesis Awards Marine Sciences 2009** went to Dennis De Ryck for his study *'Verspreiden en vestigen: experimenten over processen van verspreiding en vestiging van hydrochore mangrovepropagulen'* (Dispersal and establishment: experiments on dispersal and establishment processes of hydrochorous mangrove propagules) and Thomas Verleye for *Het Holocene paleomilieu van de zuidwestelijke Zwarte Zee: een reconstructie aan de hand van dinoflagellatencysten en andere palynomorfen* (The Holocene paleoenvironment of the southwestern Black Sea: a reconstruction by means of dinoflagellate cysts and other palynomorphs).



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The **VLIZ North Sea Award 2009** went to Dr Mieke Mathys for her doctoral thesis *'The Quaternary geological evolution of the Belgian Continental Shelf, southern North Sea'*. These awards were presented at the celebration on the occasion of the 10th anniversary of VLIZ on 27 November 2009. The audience chose to grant the **VLIZ Poster Award 2010** to the poster of Wim Van Neer and Anton Eryck (*'Shifting baselines – The archaeology of the North Sea fish'*).

Because of the abundance of posters (more than 150) and the busy schedule, no professional Poster Award was presented on this anniversary edition of the VLIZ Young Scientists' Day.

Launch of the Prize Dr Edouard Delcroix 2010



In 2009 non-profit organisations HYDRO and VLIZ made a new call for the international scientific **Prize Dr Delcroix 2010**. This award, created in honour of Belgian orthopaedic surgeon and pioneer in thalassotherapy Dr Edouard Delcroix (1891-1973), is granted to a researcher or research team for an original scientific study on the marine environment within the scope of possible medical applications. As from now this award will be organised every three years instead of every two years, yet will have a value of 25,000 EURO (instead of 12,500 EURO).

Cooperation agreements and networks

Cooperation with national and international universities, research institutions and individual research groups is continuously enhanced by concluding cooperation agreements (see list below). VLIZ also participates in national and international networks and takes care of the image of Flemish marine and coastal research (see list below)

National and international cooperation agreements

On 5 February 2009 the Flemish Environment Agency (VMM) entered into a **new cooperation agreement** regarding the development and management of databases in connection with the monitoring of transitional and coastal waters.

On 17 December 2009 a **renewed cooperation agreement** began with the Institute for Forestry and Nature Research (INBO). Although a general cooperation agreement had already been concluded between VLIZ and INBO in 2007, formal and more detailed arrangements were made with this new agreement to adapt access to the data and information systems, and bring about the transfer of knowhow concerning data management and information systems.

At the end of 2009 the three-year Ocean-Ukraine project came to an end. With this project the Department of Foreign Affairs of the Flemish government financed an intense cooperation between VLIZ, the Institute for Biology of the Southern Seas (IBSS) and the Marine Hydrophysical Institute (MHI) in Ukraine. The icing on the cake was a **'Memorandum of Understanding'** concluded on 30 November 2009 between VLIZ and the Oceanological Center of the National Academy of Sciences in Ukraine, so that further cooperation certainly is on the agenda in next few years.

Since it was created, VLIZ has entered into a total of **22 (inter)national cooperation agreements** with universities, research institutions and administrations. This number does not include the respective management agreements (2005-2009) with the Department of Economy, Science and Innovation, and with the Province of West Flanders. As well as the two other agreements with the Department of Economy, Science and Innovation: (1) structural partner within the 'Science Information and Innovation' Action Plan (2007-2009) and (2) the investment subsidy (2008-2009).

'Memorandum of Understanding' with OC-NASU from Ukraine

On the occasion of the 10th anniversary of VLIZ, a cooperation agreement was entered into with the Oceanological Center of the National Academy of Sciences Ukraine (OC-NASU). This agreement is based on the excellent bilateral cooperation which VLIZ has developed so far with Ukrainian marine research institutes within the Ocean-Ukraine project of the Flemish Department of Foreign Affairs of the Flemish government.



Overview of the national and international cooperation agreements (state of affairs at the end of 2009)

UNIVERSITIES

- Universiteit Gent, 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
- Universiteit Hasselt, 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 & dr. F. Dahdouh-Guebas – Mangroves
- Université Libre de Bruxelles, prof. dr. F. Dahdouh-Guebas – mangroves

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
- Research Institute for Nature and Forest (INBO) – adaptation of access to data and information systems and transfer of know-how on data management and information systems
- The MUMM department of the RBINS – cooperation with regard to Zeeleeuw and Belgica

FLEMISH AUTHORITIES

- 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 Monitoring Network Flemish Banks
- Agency for Maritime & Coastal Services, Coastal Division – management of greenhouses for dune research in De Haan
- Agency for Maritime & Coastal Services, Coastal Division – organisation of Sluice Dock management committee, management of data and 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
- Flemish Environment Agency (VMM) – development and management of databases in connection with the monitoring of transitional and coastal waters

In addition, the management agreements between VLIZ and the financing authorities are also to be considered national cooperation agreements:

- Department of Economy, Science and Innovation (EWI) – 2005-2009 management agreement
- Province of West Flanders – 2005-2009 management agreement
- Department of Economy, Science and Innovation (EWI) – structural partner of the ‘Science Information and Innovation’ Action Plan for 2007-2009
- Departement of Economy, Science and Innovation (EWI) – investment subsidy 2008-2009

INTERNATIONAL RESEARCH INSTITUTIONS

- Oceanological Center of the National Academy of Sciences in Ukraine – stimulate the cooperation in marine sciences

Overview of the national and international networks (state of affairs at the end of 2009)

NATIONAL NETWORKS

- VLIZ Scientific Committee
- editorial board and etymological expert team Grote Rede
- presidency of the Executive Committee and Consultative Group of the Coordination Centre on Integrated Coastal Zone Management (CC-ICZM)
- member of the Platform for Science Communicators (SciCom)
- 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 Flanders Marine vzw

INTERNATIONAL NETWORKS:

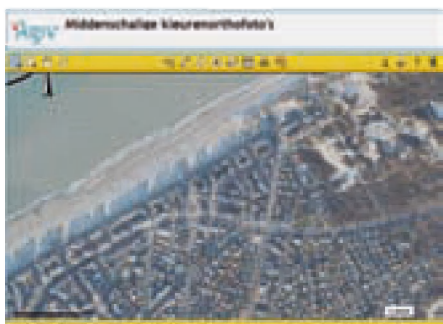
- member of the IODE data centre network (UNESCO/IOC)
- host of the UNESCO/IOC Project Office for IODE
- member of the Partnership for Observation of the Global Oceans (POGO)
- member of the POGO News & Information Group
- representative of the Research Foundation – Flanders in the Marine Board of the European Science Foundation (ESF)
- member of the executive committee of the Marine Board
- member of the Marine Board Communications Network (MBCN)
- member of the European Centre for Information on Marine Science and Technology (EurOcean)
- member of the European Marine Research Stations Network (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 Sciences Libraries and Information Centres (IAMSLIC)
- national input centre of Aquatic Sciences and Fisheries Abstracts (AFSA) of the Food and Agriculture Organisation (FAO)
- member of the European Census of Marine Life (EuroCoML)

- member and data center of MarBEF+, the European network of '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)
- partner 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 Scheldt Information Centre – Flanders (SIC)



VLIZ Tour of Flanders

With the 'VLIZ Tour of Flanders' we want to stimulate cooperation with research groups and administrations in a proactive manner. The intention is to visit the marine research groups and administrations with a VLIZ delegation on a regular basis (every 3 to 5 years). During these visits the delegation detects expectations and needs and checks what VLIZ can do for the group. The information databases and library files are updated as well. In the course of 2009 we visited six research groups and / or administrations.



Date	Name of research group / administration / organisation
13 February	Agency for Geographical Information Flanders (AGIV)
23 February	National Center for Scientific Research - Laboratory of Oceanology and Geosciences (LOG) - Wimereux, France
9 March	University of Antwerp - Department of Transport and Spatial Economy
22 June	Ghent University - Laboratory of Aquaculture (ARC)
15 October	University of Antwerp - Ecosystem Management research group (ECOBIE)
15 October	University of Antwerp - Ecophysiology, Biochemistry and Toxicology research group (EBT)

Launch of FlandersMarine vzw

As a maritime cluster organisation of companies and knowledge centres, FlandersMarine intends to be the driving force behind sustainable growth of the Flemish maritime economy. The Flemish region already has a great deal of knowhow and activity with regard to marine / maritime sciences and technology. Take, for example, dredging works, port management, offshore wind energy, shipping, sand extraction, fisheries, aquaculture, environmental and engineering consultancy, and authoritative knowledge and experience concerning marine sciences.

The aim of FlandersMarine is to support marine and maritime knowledge development, promote networking and knowledge transfer between researchers and companies, enhance the visibility of Flemish marine and maritime expertise, and economically utilise the knowledge present in Flanders by means of marketable products and services.

At the end of 2008 FlandersMarine was given the green light amid great interest. Meanwhile, further research was carried out regarding the importance of the maritime sectors in Flanders, the European framework and the concrete needs of companies. All this was compiled in a brochure. At a second consortium meeting on 23 March 2009 the consortium agreement was signed by several actors, including VLIZ.

In the summer of 2009 the non-profit organisation FlandersMarine vzw was established. VLIZ helped to start it up in the capacity of chairman, a position held by Jan Mees. Afterwards the initiating, catalysing and guiding role of VLIZ was finished. In the second half of 2009 management was turned over to the new chairman, Jan Strubbe (Honorary Director General of the Administration of Waterways and Marine Affairs [AWZ]). The secretariat of FlandersMarine is and remains located in the buildings on the InnovOcean site, but apart from that VLIZ is only involved as a partner.

At present, financial support has been found with Flanders in Action (ViA) and the IWT (Institute for the Promotion of Innovation by Science and Technology in Flanders) to develop FlandersMarine as a maritime cluster. The 'Flanders Marine: Out of the box!' project investigates how the financing of FlandersMarine can be ensured in a structural manner and how a marine / maritime competence pool can be developed ('Flanders Maritime Region of Knowledge'). A comparison is made with existing marine competence pools abroad or to the competence pools that exist in Flanders within other disciplines/sectors (FlandersBio, FlandersFood ...). The competence pool may create a favourable climate for the stimulation of marine / maritime companies.



POGO website



Since 2007, VLIZ has been a member of the 'Partnership for Observation of the Global Oceans' (POGO), an international forum of large international oceanographic institutes (e.g. Woodshole Oceanographic Institution, NOAA, Scripps, Saphos, NIOZ, IFREMER). VLIZ is also an active member of the 'News & Information Group' of POGO and was responsible for revamping the POGO website. The website was officially presented at the Annual Meeting in Concepción, Chile (5-8 January 2009) and was received positively by the members. The official transfer of the website took place on the occasion of a visit by the Executive Director of POGO, Dr Trevor Platt, and a delegation of the POGO secretariat to VLIZ. On the occasion of this visit, Dr Trevor Platt gave a lecture on ocean observations at the Young Scientists' Day on 6 March 2009.

Read more? www.ocean-partners.org

Marine Board – European Science Foundation



The task of the Marine Board (MB-ESF) is to stimulate cooperation between important European marine institutes, research councils and funding agencies, and to develop strategies for marine research in Europe. Through the organisation of networking events and the publication of strategic documents, it plays an important role in the numerous marine scientific challenges (such as climate change, marine biodiversity, fisheries and aquaculture, and sea management) Europe is facing today. The Marine Board members include 30 institutes, science foundations and academies from 19 European countries. Belgium is represented within the Marine Board by the Research Foundation Flanders and the Foundation for Scientific Research of the French Community. Since May 2006 Jan Mees has been the Vice-Chairman of the Executive Board. In addition, Jan Seys is active in the 'Marine Board Communications Panel'. Since 2008 VLIZ has provided support to the secretariat, located on the InnovOcean site in Ostend.



In June 2009 Dr Niall McDonough became the Marine Board's new Executive Scientific Secretary. He replaced Dr Niamh Connolly, who had held this position from 2002 to March 2009. Niall McDonough had previously worked on the International Cooperation Programme of the Irish Marine Institute. He became head of the secretariat in June 2009. In addition, three scientific employees (Maud Evrard, Aurélien Carbonnière and Jan-Bart Calewaert) work there. Flanders supports the secretariat with an administrative assistant (Dina Eparkhina).

In 2009 the Marine Board organised many meetings in the secretariat buildings in Ostend; a number of special guests also visited these buildings (see table). Further information on the Marine Board can be found on its website www.esf.org/marineboard.

Meetings

11 February	Marine Board Executive Committee Meeting
13 May	Marine Board Executive Committee Meeting with ESF Directors of Science and Strategy Development and Finances
24 November	FP7 Coordinated Support Action Cooperation between the Communities of European MARine and MARitime REsearch and Science (EMAR2RES) - Kick-off Meeting
17-20 November	FP 7 Coordinated Action on Research Activities on life in Extreme Environments – Workshop on synthetic European Roadmap and Steering Committee Meeting

Visits

25 February	Waddah Saab – Coordinator of the Implementation of the EU Marine and Maritime Research Strategy, European Commission DG RTD
27 February & 3 September	Marc Heppener – New ESF Director of Science and Strategy Development
18 March	Telmo Carvalho – Executive Director EurOcean internet portal for marine science and technology
20 March	European Social Fund
1 April	Valery N. Eremeev and Vladimir Vladymyrov – UAS, IBSS, MHI Juan Baztan Marine Sciences For Society (NGO)

Projects

In 2009 VLIZ received external funding for coordination, communication and/or data management in 31 projects (11 projects ended in 2009, 15 started in 2009 and 5 continued in 2009). Most of these projects were carried out in cooperation with research groups.

List of major projects and their funding channels

UNESCO

GLOSS – *Global Sea Level Observing System Network*

The Flemish Marine Data Centre develops and maintains the 'Sea Level Station Monitoring Facility' (www.vliz.be/gauges), where 293 tide gauges from all oceans in the world are read in realtime, for this initiative by the Intergovernmental Oceanographic Commission (IOC).

Catalogue of Marine Life (CoML) / Sloan Foundation

FILLING the GAPS in WoRMS (I & II)

Duration I: 01.05.2009 - 28.02.2010; Duration II: 01.10.2009 - 30.09.2010

Completing the global marine species register for the Crustacea, parasitic worms and marine molluscs groups.

EU - FP6 and FP7

MarBEF – *Marine Biodiversity and Ecosystem Functioning EU Network of Excellence*

Duration: 01.02.2004 - 31.04.2009

VLIZ was responsible for the IT of this European Network of Excellence (www.marbef.org), which unites 94 institutes and nearly a thousand marine scientists in Europe. Within the scope of this project **EuroBIS** was started up, which collects distribution data of marine species from the European waters. After conclusion of MarBEF, this initiative will be kept permanently operational in VLIZ and further put into service in EMODNET (see below).

ENCORA – *European Network on Coastal Research*

Duration: 01.02.2006 - 01.02.2009

VLIZ provided IT support to this European initiative (www.encora.eu) and accommodated the secretariat of the Belgian network for coastal research BeNCoRe (www.bencore.be) until the end of January 2009. Within this project VLIZ developed the **Coastal & Marine WIKI**, an internet encyclopedia by and for professionals with up-to-date quality information on the coast and sea (www.coastalwiki.org)

In the meantime this wiki has been complemented with a portal on toxicology (within the scope of INRAM), a portal on European marine biodiversity (within the scope of MarBEF) and a portal on the assessment of coastal systems (SPICOSA).

SeaDataNet – *A Pan-European Infrastructure for ocean and marine data management*

Duration: 01.04.2006 - 31.03.2012

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 forwards the data and metadata captured in Flanders.

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 VMDC coordinates the marine part of this project and manages the website (www.eu-nomen.eu/pesi).

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

Duration: 11.03.2009 - 31.12.2011

VLIZ was subcontracted by the 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.

EUROFLEETS – *Towards an Alliance of European Research Fleets*

Duration: 01.09.2009 - 31.08.2013

A network of 24 European research institutions that want to deploy their vessels and research infrastructure more efficiently and develop them via a central system in order to gain access to the European research vessels. VLIZ coordinates a recommendation for an ecological European regional research fleet and contributes to the development of a strategic view of the European research fleet.

EMODNET – *European Marine Observation and Data Network*

Duration: 15.05.2009 - 15.05.2012

Lot 3 (biology) and lot 4 (chemistry)

Pilot projects to determine how a European marine observation and data network should be developed in order to support the new European integral marine strategy in an optimal manner. VLIZ is responsible for the biological pilot project. 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 pilot project of EMODNET.

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' (CoL). VLIZ gives advice and represents the World Register of Marine Species (WoRMS) there.

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.

AS-MADE

Duration: 01.07.2009 - 30.06.2011

Evaluation of marine waste in the area of the Belgian continental shelf: occurrence and effects.

NIOO-KNAW (Netherlands)

NIOO-KNAW (I & II) – Netherlands Institute of Ecology

Duration of phase I: 01.03.2008 - 01.03.2009;

Duration of phase II: 01.09.2009 - 31.08.2010

Project for the optimisation of data management and data storage for the NIOO, the development of a data portal (<http://data.nioo.knaw.nl>) and the provision of data management training to their scientific employees.

Federal science policy

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

Duration of phase I: 15.12.2006 - 31.01.2009;

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 manages the generated data.

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

Duration of phase I: 15.12.2006 - 31.01.2009;

Duration of phase II: 31.01.2009 - 31.01.2011

VLIZ is involved in data management and in the development of the project website (www.vliz.be/projects/inram).

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

Duration: 01.01.2007 - 31.01.2009

VLIZ is responsible for the science communication of the project (including project website www.vliz.be/projects/Quest4D and brochure).

ScarMarbin (II) – Regional OBIS node for the Antarctic

Duration: 01.02.2009 - 31.01.2010

VLIZ is responsible for developing and maintaining the website (www.scarmarbin.be).

Federal Public Service for the Environment, Marine Environment Service

BEQI – Benthic ecosystem quality index

Duration: 01.11.2008 - 30.06.2009

Agreement on the communication of results concerning the condition of invertebrate benthos in coastal waters (www.vliz.be/projects/beqi)

Flemish government, Flemish Department of Foreign Affairs

OCEAN-UKRAINE – Strengthening the oceanographic data management and operational forecast services at IBSS and MHI, Ukraine

Duration: 01.03.2007 - 30.11.2009

Bilateral project with two marine institutes in Ukraine (MHI and IBSS) to promote the exchange of expertise with regard to oceanographic data management, 'data rescue' of marine data of the southern seas and the development of a GRID infrastructure.

Flemish government, Waterwegen en Zeekanaal (W&Z)

OMES (phase III) – Research on the Environmental Effects of the Sigma plan

Duration: 16.07.2008 - 15.10.2009

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

Flemish government, Maritime Access division

SCHELDEMONITOR (2009 & 2010) – *Flemish-Dutch knowledge platform for research and monitoring of the Scheldt estuary*

Duration of 2009 phase: 01.12.2008 - 30.11.2009;

Duration of 2010 phase: 01.12.2009 - 30.11.2010

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

SCHELDT INDICATORS

Duration: 01.01.2009 - 30.06.2010

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.

Flemish government, department of Economy, Science and Innovation (EWI)

Planet Ocean – *e-learning project concerning the oceans for young people aged 16 to 19.*

Digital learning platform (www.planeetzee.org) for youngsters from the 4th to 7th grade of secondary education with 21 learning modules and a competition element. A class can win an expedition with the research vessel Zeeleeuw as a first prize.

Ik Heb Een Vraag – *online science information portal*

VLIZ is one of the partners who develop and maintain the website (www.ikhebeen-vraag.be), which answers multidisciplinary science questions asked by the general public.



Info



Infodesk



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

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

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

Organisation of seminars, workshops, symposia and other events







In 2009 VLIZ organised, co-organised and facilitated 25 events related to marine and coastal research: 3 international symposia/conferences, 6 international meetings/workshops and 16 local events (seminars, press conferences, an inauguration or launch, a prize award ceremony, a solemn academic ceremony). A total number of 2,656 people attended these events.

Press conference: 'Keerpunt in de Vlaamse Visserij' (Turning Point in Flemish Fisheries)

The Institute for Agricultural and Fisheries Research (ILVO-Fisheries) presented the results of their technical fisheries research amid great interest. Several fishermen came to speak about the practice of sustainable fishing.



Overview of events (co)organised by VLIZ in 2009

	<p>21 January 2009</p> <p>Press conference: 'Keerpunt in de Vlaamse Visserij' (Turning Point in Flemish Fisheries) InnovOcean site, Ostend (176 participants) <i>Despite the global fishing crisis, the Institute for Agricultural & Fisheries Research (ILVO-Fisheries) is convinced that Flemish fishing sector has a bright future. Scientific research plays its part here with the development of alternative fishing gear.</i></p> <p>co-organisation in cooperation with ILVO-Fisheries www.vliz.be/pers/09.01.21_KeerpuntVisserij.php</p>
	<p>7 February 2009</p> <p>Steering towards a museum port for Ostend InnovOcean site, Ostend (130 participants) <i>Seminar on the plans for the area around the Ostend Maritime Site and the future museum port of Ostend.</i></p> <p>co-organisation in cooperation with Oostende Oosteroever project secretariat www.oostendeoosteroever.be/museumhaven</p>
	<p>6 March 2009 *</p> <p>VLIZ Young Scientists' Day 2009 Provinciehuis Boeverbos, Bruges (158 participants) <i>Annual marine meeting for 'young' researchers from the North Sea region. Dr Trevor Platt, Executive Director of POGO, was our special guest.</i></p> <p>www.vliz.be/EN/intro&id=439</p>
	<p>19-20 March 2009</p> <p>5th Annual Ename International Colloquium: Responding to Global Climate Change InnovOcean site, Ostend (60 participants) <i>International colloquium focusing on the challenges to the preservation of heritage caused by climate change.</i></p> <p>co-organisation in cooperation with Ename Center for Public Archaeology and Heritage Presentation, the Flemish Heritage Institute (VIOE) and the Province of East Flanders www.vliz.be/NL/Home&id=413</p>
	<p>27-30 March 2009</p> <p>Seabird Group 10th International Conference Provinciaal Hof, Bruges (102 participants) <i>10th international conference of the Seabird Group in which the latest research results were presented.</i></p> <p>co-organisation in cooperation with Seabird Group and Institute for Forestry and Nature Research (INBO) www.vliz.be/events/seabirdconference2009 www.vliz.be/vmdcdata/photogallery/index.php?album=1070</p>
	<p>24 April 2009 *</p> <p>Press conference: Planet Ocean expedition DAB Fleet, Ostend (50 participants) <i>The winning class of the new educational project 'Planet Ocean' returns from its expedition and is full of stories.</i></p> <p>co-organisation in cooperation with DAB Fleet Division, SHE Consultancy, Studio Bal Gehakt www.vliz.be/vmdcdata/photogallery/planetzee.php</p>

* VLIZ as main organisator

© VLIZ



21 April 2009

CLIMAR - Evaluation of climate change impacts and adaptation responses for marine activities

InnovOcean site, Ostend (27 participants)

Workshop on how marine activities will have to adapt to the altering conditions brought about by climate change.

co-organisation in cooperation with ILVO-Fisheries, MUMM, Maritime Institute, Arcadis Belgium and Flanders Hydraulics Research

© VLIZ



23 April 2009

FlandersMarine Consortium

InnovOcean site, Ostend (120 participants)

Meeting of the cluster of companies, government authorities and researchers active in the marine and maritime industry in Flanders: signature of the consortium agreement.

co-organisation in cooperation with FlandersMarine
www.vliz.be/vmdcdata/photogallery/index.php?album=1120

© ERVO



25-26 April 2009

Finals of the 14th Geo-Olympiade

InnovOcean site, Ostend (13 participants)

Finals of the Flemish school competition in the field of geography for the fifth and sixth year of secondary education.

co-organisation in cooperation with Geography Teachers Association (VLA)
www.geo-olympiade.be

© VLIZ



13-15 May 2009

Annual ERVO meeting

Copenhagen, Denmark (28 participants)

Annual meeting of the European Research Vessel Operators (ERVO) group.

co-organisation in cooperation with ERVO, DTU-Aqua
www.eurocean.org/np4/ervo



15 May 2009

Book presentation: Yesterday's Sea

InnovOcean site, Ostend (190 participants)

What did our sea look like in the past? The historical ecology of the southern North Sea reconstructed on the basis of experiences and memories of retired Flemish fishermen.

co-organisation in cooperation with the Province of West Flanders
www.west-vlaanderen.be/kwaliteit/Leefomgeving/dezeevantoen

* VLIZ als hoofdorganisator



8-9 June 2009

EMODNET Biological Lot - Kick-off Meeting

InnovOcean site, Ostend (14 participants)

Official start of the European Marine Observation and Data Network (EMODNET), and in particular of the pilot project concerning European biological databases.

co-organisation in cooperation with ICES, GBIF, OBIS, EurOBIS, MarBEF, PANGAEA, IBSS, SEADATANET, IODE and ESF/MB



12 June 2009 *

VLIZ members' day, including Zeekrant 2009 press conference

InnovOcean site, Ostend (50 participants)

VLIZ presents the 2008 annual report to its members. The second edition of the free summer newspaper is also officially launched.

co-organisation in cooperation with the Province of West Flanders
www.vliz.be/vmdcdata/photogallery/index.php?album=1178



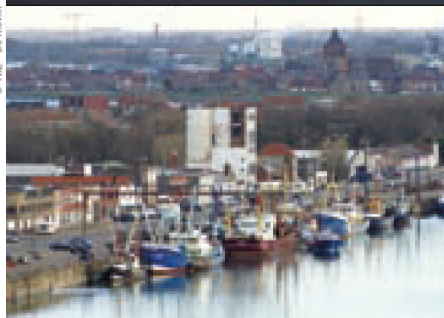
22 June 2009 *

Book presentation: 'Mosdiertjes van de zuidelijke bocht van de Noordzee' (Bryozoans of the Southern Bight of the North Sea)

InnovOcean site, Ostend (70 participants)

Launch of the Bryozoa identification work for Belgium and the Netherlands written by Hans De Blauwe and published by VLIZ.

www.vliz.be/NL/Home/&p=show&id=486



6 July 2009

Consultation of the Green Paper on the Common Fisheries Policy

InnovOcean site, Ostend (80 participants)

Flemish fishermen and other interested parties can voice their opinion on the European fisheries policy reforms.

co-organisation in cooperation with Agriculture and Fisheries Department, Agriculture and Fisheries Policy division



25 August 2009

Shrimp day

InnovOcean site, Ostend (50 participants)

Special day to promote the freshly caught North Sea shrimp.

co-organisation in cooperation with VLAM



27 September – 1 October 2009

35th IAMS LIC annual Conference & 13th biennial EURA SLIC Conference: Confluence of ideas – evolving to meet the challenges of global change

Provinciaal Hof, Bruges & InnovOcean site, Ostend (88 participants)

In 2009 this annual meeting of international marine and aquatic libraries focuses on innovative, customised services.

co-organisation in cooperation with IAMS LIC, EURASLIC, IOC

© IODE



19 October 2009

IODE Seminar I: Metocean Modeling to deal with Coastal Hazards - Linking Sea and Sky

InnovOcean site, Ostend (45 participants)

Local scientists are introduced to guests of the Project Office for IODE: specialists in linking ocean and weather models to assess coastal threats.

co-organisation in cooperation with UNESCO/IOC Project Office for IODE

www.vimeo.com/album/173113

© VLIZ



21 October 2009

Presentation of the book 'Schatten en Scheepswrakken' (Treasures and Shipwrecks)

InnovOcean site, Ostend (60 participants)

In their book, Dirk and Tomas Termote map the wrecks in the North Sea.

co-organisation in cooperation with Davidsfonds

© VLIZ



10 November 2009

Presentation of the book 'Onze kust anders bekeken' (Our Coast from a different Point of View)

De Nachtegaal, De Panne (85 participants)

Marine scientist Jan Seys and photographer Misjel Decler immerse you in 27 mysteries relating to the Belgian coast, so that we see the coast in a different light.

co-organisation in cooperation with Nature and Forest Agency (ANB), Coast Division, VNBC De Nachtegaal

© VLIZ - Decler



24-25 November 2009

EFARO meeting

InnovOcean site, Ostend (20 participants)

VLIZ supports this meeting of directors of the European research institutes involved in fisheries and aquaculture research in Ostend.

co-organisation in cooperation with ILVO - Fisheries, EFARO



26 November 2009 *

10 years of VLIZ - Zee(r) fascinerend

Thermae Palace, Ostend (431 participants)

Theme evening for VLIZ sympathisers with four lectures on marine subjects which occupy many people.

www.vliz.be/events/vliz10y/zeeprogramma.php



27 November 2009 *

10 years of VLIZ - Special edition of VLIZ Young Scientists' Day

Thermae Palace, Ostend (278 participants)

Anniversary edition of the annual meeting day for all scientists from Flanders and surroundings.

www.vliz.be/NL/Home/&p=show&id=837



27 November 2009 *

10 years of VLIZ – Solemn academic ceremony

Thermae Palace, Ostend (320 participants)

Festive solemn academic ceremony on the occasion of the 10th anniversary of VLIZ.

www.vliz.be/vmdcdata/photogallery/index.php?album=1335



14 December 2009

IODE Seminar II: Satellite Wind and Wave Products for Marine Forecasting

InnovOcean site, Ostend (11 participants)

Local scientists are introduced to guests of the Project Office for IODE: specialists in the use of satellite measurements of wind and waves for marine forecasting. co-organisation in cooperation with UNESCO/IOC Project Office for IODE

www.vimeo.com/album/180084

Issue 25 of 'De Grote Rede' published with retro look



On the occasion of the 10th anniversary of VLIZ, only articles with a historical dimension were included in the 25th issue of 'De Grote Rede': Belgian marine sciences then and now, a century of offshore fishing statistics, coal washed ashore, and the history of the once famous Ostendaise oyster.

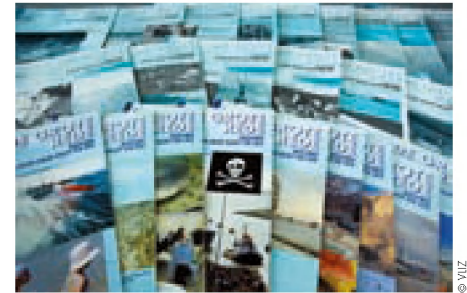
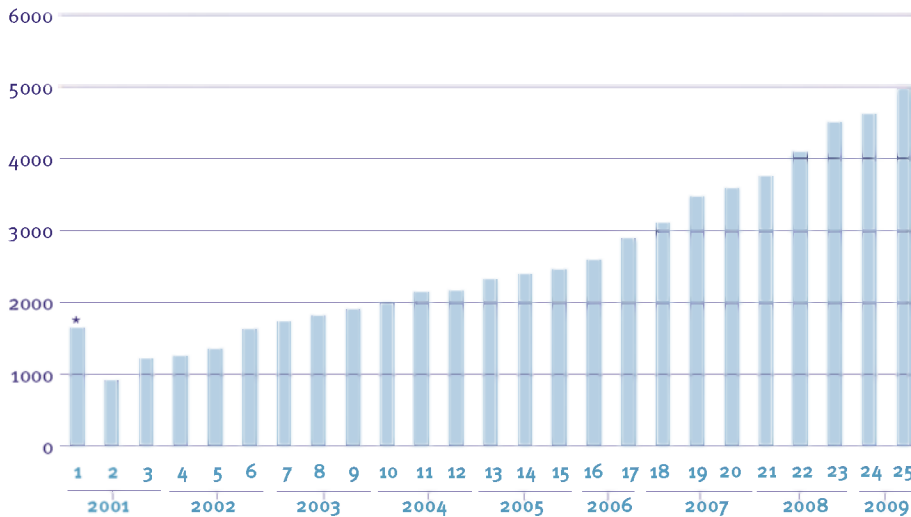
Participation in public events

VLIZ participates in several public events every year (see table). In addition, VLIZ employees give numerous presentations on the sea and/or the activities of VLIZ.

Date		Target group
11 March 2009	'Fascinating professional secondary education: for pupil and teacher', KULeuven, Campus Kortrijk	Professional secondary education
17 April, 4-5, 15 and 25 May 2009	Educational round trips with the Zeeleeuw within the scope of the Week of the Sea (10). Horizon Educatief and the Nature and Environmental Education department (NME) of the Province of West Flanders	Primary education
21-24 May 2009	Fisheries Day in Blankenberge, Blankenberge harbour	Public at large
27 September 2009	Natuur.happening: East Bank of Ostend, Natuurpunt Middenkust	Public at large
14 November 2009	Congress of the Science Teachers Association (VELEWE), Ghent	Science teachers
25 November 2009	2009 NME-Benelux conference 'Education for Sustainable Development', NME-Benelux, Ostend	Educators
etc.	Speeches for target groups by VLIZ employees	Public at large, teachers, NME...

Publications

The number of subscribers to **'De Grote Rede'** – the magazine on the Belgian coast and the adjacent sea – had increased to 4,972 by the end of 2009. This information magazine is now printed in 6,000 copies. It is produced by some 40 editors experienced in research or in coastal zone policy. They work every day in the most diverse coastal and marine disciplines.



The number of subscribers to 'De Grote Rede' has increased steadily. Since the start of the second 2004-2009 management agreement we have gained nearly 3,000 new subscribers, 467 of whom in the course of 2009, a year in which only two issues appeared.

(*: the first issue was sent to 1,639 addresses with an invitation to subscribe)

Biodiversity of bryozoans in the southern North Sea collected in the latest VLIZ publication

The expertise of Hans De Blauwe on Bryozoa has been published: identification keys, unique photographic material and information on no less than 179 species

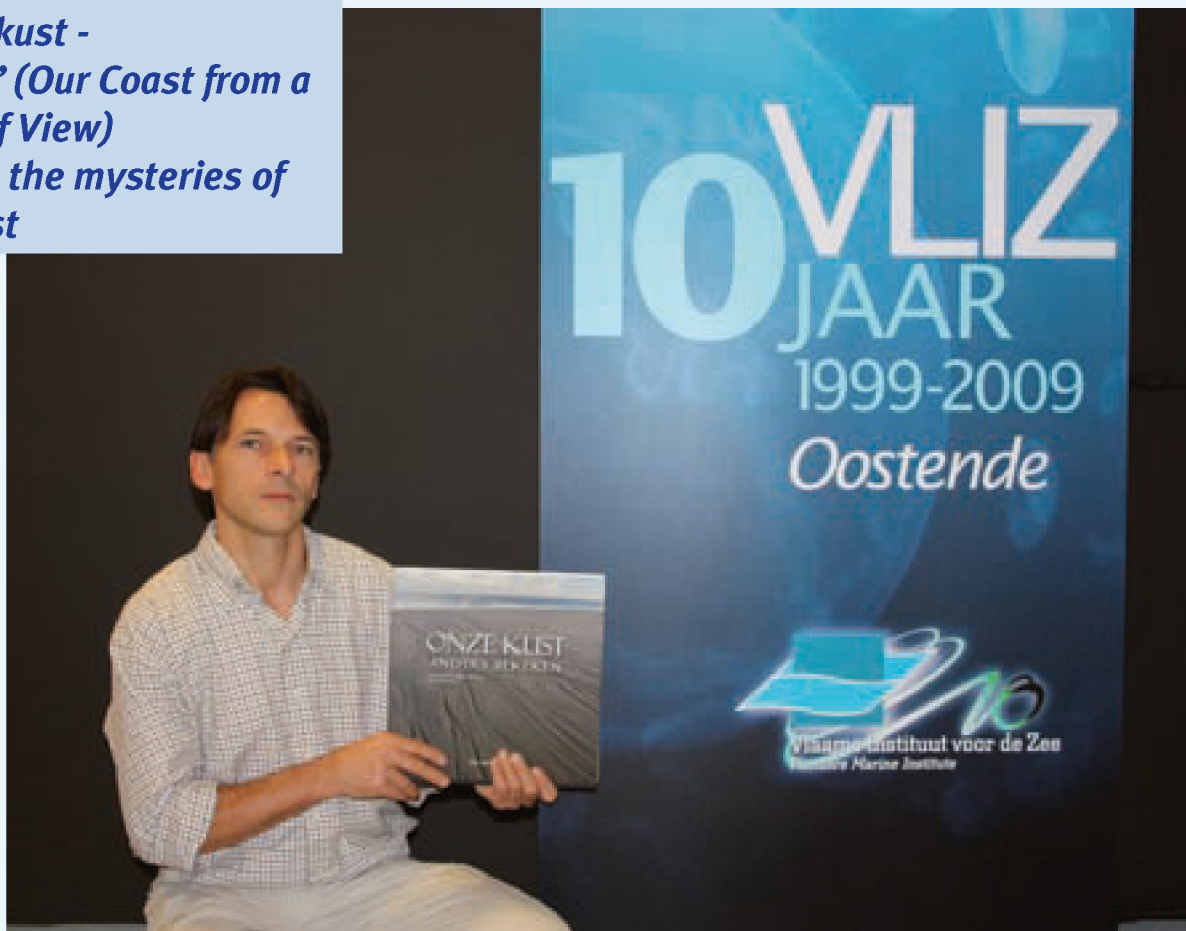


VLIZ also publishes the electronic newsletter **VLIZINE**, which reports on VLIZ activities as well as on the activities of marine research and policy groups in Flanders. The publication is mainly intended for coastal and marine scientists and other interested coastal actors. The publication contains announcements of future events, references to recent publications, vacancies and news on fairs and funds as well as on recent and historical Flemish marine research, and other marine news. It is compiled on the basis of information collected by VLIZ and complemented by 'contact points' within various research groups. In the busy year 2009 the digital newsletter appeared every two or three months (5 issues containing 114 news items). At the end of 2009 VLIZINE had 1,019 subscribers.

In addition, VLIZ also released various **other publications** on its own initiative. In 2009, 3 'Special publications' (filling 388 pages), 4 reports and 1 book appeared. Additionally, VLIZ collaborated on 3 co-publications: 2 books and 'De Zeekrant'. VLIZ contributed actively to 2 publications of the Scheldt Information Centre. In total, 5 of these publications were aimed at the general public.




The book 'Onze kust - Anders bekeken' (Our Coast from a different Point of View) immerses you in the mysteries of the Belgian coast

Jan Seys and photographer Misjel Decler shed light on the varied and extensive research of over a hundred marine and coastal experts in 27 beautifully illustrated stories. An absolute must for those who want to see the Belgian coast from a different point of view!







Overview of non-regular VLIZ publications in 2009

VLIZ Special publications (ISSN 1377-0950)

	<p>nr. 41: Mees J. & Seys J. (Eds) – 2009 VLIZ Young Scientists' Day, Brugge, Belgium, 6 March 2009: book of abstracts. <i>VLIZ Special Publication 41. Vlaams Instituut voor de Zee, Oostende, België.</i> 99pp</p>
	<p>nr. 42: Stienen E., Ratcliffe N., Seys J., Tack J., Mees J. & Dobbelaere I. (Eds) – 2009 Seabird Group 10th International Conference, Brugge, 27-30 March 2009. <i>VLIZ Special Publication 42. Vlaams Instituut voor de Zee, Oostende, België. Communications of the Research Institute for Nature and Forest – INBO.M.2009.1. Research Institute for Nature and Forest (INBO), Brussels, Belgium.</i> 68pp</p>
	<p>nr. 43: Mees J. & Seys J. (Eds) – 2009 10th VLIZ Young Scientists' Day. Special edition at the occasion of 10 years VLIZ, Oostende, Belgium, 27 November 2009: book of abstracts - An overview of marine research in Belgium anno 2009. <i>VLIZ Special Publication 42. Vlaams Instituut voor de Zee, Oostende, België.</i> 221pp</p>

Various publications – Reports

	<p>Mees J. et al. (Eds) – 2009 VLIZ Jaarboek 2008. Voor al wie gefascineerd is door de zee en de kust. <i>Vlaams Instituut voor de Zee (VLIZ), Oostende, Belgium.</i> 128pp ISBN 978-90-812900-4-3</p>
	<p>Mees J. et al. (Eds) – 2009 VLIZ Annual Report 2008. Supporting marine and coastal research in Flanders. <i>Flanders Marine Institute (VLIZ), Oostende, Belgium.</i> 128pp ISBN 978-90-812900-5-0</p>
	<p>Anon. – 2009 VLIZ Collected Reprints: marine and coastal research in Flanders, 38 (2008). <i>Flanders Marine Institute (VLIZ), Oostende, Belgium.</i> [CD-rom].</p>
	<p>Cattrijsse A. – 2009 Jaarverslag Zeeleeuw 2008. <i>Vlaams Instituut voor de Zee (VLIZ), Oostende, Belgium.</i> 28pp</p>

Various publications – Others



De Blauwe H. – 2009

Mosdierdjes van de Zuidelijke bocht van de Noordzee: Determinatiewerk voor België en Nederland. *Vlaams Instituut voor de Zee (VLIZ): Oostende, Belgium.* 445 pp.
ISBN 978-90-812-9003-6.

VLIZ Co-Publications



Rappé G. – 2008

De Zee van Toen: Een historisch-ecologische verkenning van de zuidelijke Noordzee (1930-1980), uit de mond van Vlaams vissers. *Provincie West-Vlaanderen, Brugge, Belgium.* 463 pp.



Seys J. – 2009

Onze kust anders bekeken. *Het Bronzen Huis: Antwerpen, Belgium.* 190 pp.
ISBN 978-90-7966-900-4



Seys J. & Copejans E. (Eds) – 2009

Zeekrant 2009. *Jaarlijks uitgave van het Vlaams Instituut voor de Zee en de Provincie West-Vlaanderen, Oostende, België.* 8pp

VLIZ contributions to publications for the public at large



Scheldekrant 7 – 2009



Water birds along the Zeeschelde

Identification card Scheldt Information Centre

Leaflets and other materials

2009 calendar – photographs of the Flemish coast
2009 tide book
Poster Prize dr. Eduard Delcroix 2010

Discover the underwater world on your PC via SeaOnScreen

VLIZ cooperated with the 'Sea-OnScreen' foundation to make the underwater environment of the Scheldt more visible for the general public. By moving your mouse across the image, you will discover the different aspects of the Belgian part of the Scheldt Estuary, the Western Scheldt and the river mouth, including the research conducted there.



Infodesk 'Our Coast'

Every year the VLIZ infodesk receives numerous requests for information, documents, contact information of persons involved in marine scientific research etc. In 2009 the VLIZ infodesk answered and registered a total of 199 questions, 34 of which from the press.

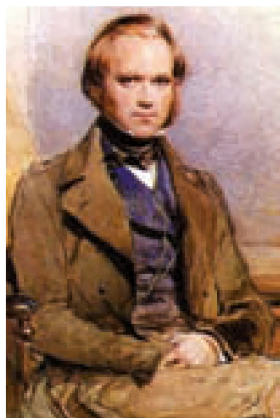
The most interesting questions and answers are subsequently stored in the 'Our Coast' information portal of the VLIZ website, so that they can be consulted freely by the public at large. At the end of 2009 a total of 654 questions and answers could be found online (565 in Dutch and 89 in English). Employees of the infodesk also participate in the online science information portal 'ikhebeenvraag.be'.

Through cooperation with the Figures & Policy department, 689 relevant **seastats** and 18 new **information sheets** were added to the VLIZ website in 2009 (also see the section Marine Library and Figures & Policy). Both are intended for the public at large and for policy makers. Alien species in het Belgian part of the North Sea are treated in 15 of these information sheets offered at http://www.vliz.be/EN/Figures_Policy/Figures_Policy_Non-invasive_species. The project website www.wetenschatten.be contains a total of 5 information sheets that describe the life and work of historical Belgian marine scientists.

VLIZ is a partner of the **SeaOnScreen** consortium. In cooperation with the Dutch research institutions and associations EcoMare, NIOZ, IMARES Wageningen, NAM, NIOO and Stichting De Noordzee, information on the Scheldt, North Sea and Wadden Sea is made available to students and the public at large through the websites www.zeeinzicht.nl (in Dutch) and www.seaonscreen.org (in English). VLIZ assisted in the development of a new module which specifically maps the ecosystem of the Scheldt estuary (incl. the Belgian coastal area).

Educational activities

Educational research project 'PLANET OCEAN'



As from 1 September 2009 young people can consult the e-learning platform www.planetzee.org again, where marine scientists present their most recent research in 21 learning modules. A new **learning module on Darwin** and the tree of life was added on the occasion of the international Darwin Year 2009. Classes that participate in the competition Planet Ocean 2010 and send in a log of their activities have the chance of boarding the Zeeleeuw for a week in 2010.



The Planet Ocean 2008-2009 edition was won by 9 students from the St.Michielsinstituut in Schoten (Belgium) headed by Peter Arnauw. Their prize was an unforgettable **expedition** on board the Zeeleeuw (20-24 April 2009). You can follow their adventures at www.vliz.be/vmdccdata/photogallery/planetzee.php. The 2nd and 3rd prize went to Pius X College from Tessenderlo (Belgium) headed by Joris Billen and KA Voskeslaan from Ghent (Belgium) headed by Mieke Eggermont respectively. A total of 19 classes participated in the **2008-2009 competition**.

Structural partner within the scope of the 'Science Information and Innovation' Action Plan

Education is given a central role in making youngsters more aware of the goods, services and problems of the oceans. In its capacity of structural partner of the Flemish Government (within the scope of the **Science Information and Innovation** action plan of the Flemish Government Department of Economy, Science and Innovation) VLIZ is glad to assist! As a matter of fact, the marine theme offers a wide range of opportunities which will fascinate and motivate teachers and students alike. The sea is furthermore perfectly suited for a cross-curricular and/or cross-level approach.

The different products and activities specifically aimed at education are brought together in the educational section of the website www.vliz.be/educatie. This section offers teachers, pupils and students, coastal guides and the public at large a wide range of digital teaching packages, movies, pictures, educational activities on the sea and the coast, interesting didactic tools, publications and links to other websites.

Schools are kept informed of what is going on in coastal and marine sciences through newsletters, participation in internet fora and all kinds of publicity channels. In addition, the presence of VLIZ at education-oriented events offers an ideal opportunity to hear what the needs of individual teachers are. VLIZ also organises seminars to which experts are invited to give lectures on specific themes. A core task is keeping contact with the network of educational associations, centres and teaching staff on a permanent basis and to provide educational support both upon request and at its own initiative. VLIZ works together with several educational actors covering marine and coastal matters to attune planned activities wherever possible. Individual teachers and students alike are involved in the educational activities wherever possible. Students following teacher training can do a work placement at VLIZ.

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 half a day scientific excursion at sea. Aboard the Zeeleeuw, children and youngsters participate in numerous scientific samplings under the supervision of experts. In April two secondary-education classes from a gymnasium in Prague embarked on an unforgettable introduction to Flemish marine sciences.



© VLIZ

In June 2009 some 300 Flemish schools received a free **poster package** consisting of five posters from the 'Fauna and Flora at the Belgian coast' series to be hung in the school's corridors or in the biology classroom



© VLIZ

The annual **Zeekrant** newspaper is intended to provide coastal tourists with all kinds of petty details on a wide range of marine-related subjects, like seasickness, seals at the Belgian coast, coral graveyards, stormy weather at sea, the smell of fish, what people have in common with fish and many more subjects. This summer newspaper is distributed once every year – with a circulation of 100,000 copies – along the entire coast and is freely available at all visitor centres, libraries and tourist offices at the Belgian coast. The Zeekrant can also be browsed online at www.zeekrant.be. The second edition was presented at the VLIZ members' day (12 June 2009).



© VLIZ – Keesveld

At the 15th **Congress for Science Teachers** (15 November 2009 in Ghent) VLIZ presented the book 'Onze kust anders bekeken' (Our Coast from a different Point of View) and was responsible for a stand. A total of approximately 700 science teachers visited the congress.

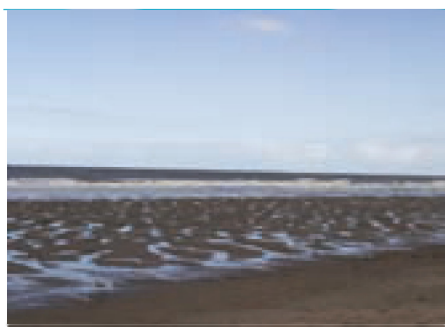


© VLIZ

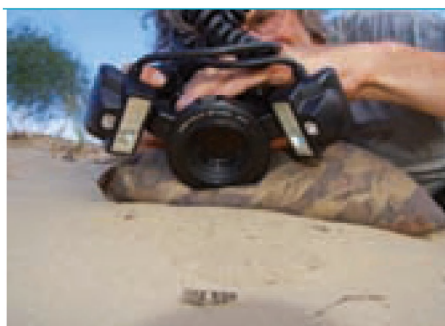


Making marine information available in a modern and visually appealing form is essential to support education. For this reason, VLIZ takes action to further develop a series of **informative movies** about coastal and maritime activities, always in close cooperation with Flemish marine researchers and policy makers. The production is carried out by an external production company Bi-oS. The following productions were launched in the course of 2009:

- Seal rescue center Blankenberge: how washed-up seal pups are rehabilitated
- Porpoise rehabilitation center, Harderwijk (the Netherlands): getting better at the clinic for wild porpoises from the North Sea
- Alternative fishing techniques: how Belgian fishermen start fishing with gill nets
- Alternative fishing techniques: how the Institute for Agricultural and Fisheries Research (ILVO) and Belgian fishermen examine the catch of cuttlefish with pots
- Marine and coastal research in Flanders: the various research activities of more than 1,500 marine experts in Flanders; a production on the occasion of the 10th anniversary of VLIZ



VLIZ develops **digital educational packages** on themes from various fields of study (geography, biology, chemistry, physics ...) which are attuned to the different curricula. They consist of a PowerPoint presentation, accompanying notes for teachers, and related exercises/experiments. At the end of 2009, a total of 29 educational packages on marine and coastal subjects were online. They can be downloaded free of charge. In 2009 three teaching packages on 'Fish and other sea creatures', 'Molluscs' and 'The tides' were specifically developed.



Marine and coastal **images** may be useful to teachers, pupils and students, but also to researchers. On its website VLIZ offers various photo galleries with numerous images for non-commercial use. At the end of 2009 this media gallery contained nearly 25,000 pictures (overview at <http://images.vliz.be>). The gallery features pictures on the activities at the Flemish coast, marine research, Belgian fisheries, pictures and stamps with marine animals and plants...



Marine L



Marine Library



© VLIZ - Decler

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

- ❑ EVERYTHING THERE IS TO KNOW ABOUT THE SEA
- ❑ LARGEST MARINE COLLECTION
- ❑ DIGITAL LIBRARY
- ❑ OPEN ACCESS

Publications available through the Marine Library

The VLIZ Marine Library manages the most extensive **collection** of marine scientific literature in Belgium. It is a modern, partly virtual information centre operating both on behalf of the Flemish marine scientists (and their international partners) at universities, scientific institutions and scientific regulatory bodies, and on behalf of interested private individuals.

The core of the collection consists of recent work and historic publications of Flemish and Belgian marine researchers. The library also collects all documents and multimedia materials on the Southern Bight of the North Sea, the Belgian coastal area, the Flemish dunes, polders, and estuaries. The collection is complemented with all relevant international literature and multimedia materials supporting Flemish marine research. A special corner has been provided for the public at large with general publications on the marine environment.

VLIZ also ensures the disclosure of all **information** behind the publications: information on the authors, researchers and organisations publishing marine literature. This is done through the IMIS information system (also see p. 97). Information and data managers collaborate closely on the management of the catalogue, so that all relevant marine information becomes visible in the search results.

In 2009 the total number of titles in the IMIS literature module grew by 13,671 units to 132,515. At the moment 25,821 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. A total of 10,074 publications deal with an aspect of the Southern Bight of the North Sea, while 15,731 titles were written by (a) Belgian author(s). The collection of **Belgian marine theses** currently comprises 1,420 titles. Out of the over 130,000 references described in the IMIS literature module, 85% (113,058) are physically present in the Marine Library; as for the remaining 15%, we know in what other library the title is available. The number of references increased by 9,796 titles over the course of 2009.

Relocation of the Marine Library

The ground floors of three warehouses on the InnovOcean site were converted into and equipped as a more accessible Marine Library.



The Open Marine Archive (OMA) is growing and is used ever more!

At the end of 2009 a total of 5,300 titles written by Belgian marine scientists were offered in full text through OMA. These documents were downloaded more than 66,000 times in 2009.



© iStockPhoto - S. Weiss

Service

The VLIZ Marine Library attempts to collect and make accessible as many publications as possible in the above field. In September 2009 the Marine Library was relocated to a brand-new location on the ground floor, which makes the collection even more accessible.

It is not possible to borrow materials, but all documents can be consulted in the library and if needed copied or scanned. The Marine Library also organises a **document delivery** service. All titles from the Marine Library, as well as from sources that are not present in our collection and are more difficult to find, can be requested through this service.

In 2009 we received 431 requests for document delivery. This number decreases every year, probably because an increasing number of documents are available online through the Open Marine Archive (OMA – see next section) and through other similar initiatives all over the world. We were able to supply 417 references (or 96.5% of all requests), half of which came from our own collection. The other publications were mainly obtained through networks such as Euraslic and Iamslic (free of charge), Antilope/Impala and Subito Germany (at a charge).

The **Open Marine Archive** (OMA) wants to make the scientific output of the Flemish marine scientists available in full text through the VLIZ website in a completely legal manner. This way we promote the visibility, distribution and use of Flemish/Belgian marine research as much as possible. OMA contains peer-reviewed articles, pre-print versions, articles from local magazines, press cuttings, scientific posters, reports, congress reports, theses, pictures, videos etc. Internet users worldwide can freely read and download these publications. At the end of 2009, OMA comprised 5,300 titles. The number of downloads increased to 66,151 in 2009.

This is done through the OMA website (www.vliz.be/EN/Marine_Library/Library_OMA) or through (possibly thematic) harvesters of open archives compatible with OMA (Google Scholar, AVANO, OAlster, Aquatic Commons).

A total of 287 subscribers receive a weekly list of all publications added to the collection in the previous week ([VLIZ Library Acquisitions List](#)). VLIZ annually compiles the scientific articles of Flemish marine researchers in the [VLIZ Collected Reprints](#) and exchanges these articles with the publications of 155 marine centres worldwide. The publication consolidates international contacts and improves the image of Flemish marine research. The VLIZ Collected Reprints is the continuation of the IZWO Collected Reprints (Vol. 1, 1970-vol. 28, 1998). Edition 37 from 2007 was the first edition published on a CD instead of in book form and was distributed by means of the VLIZ Annual Report. The CD compiles the references of publications that appeared in that year, and establishes a link to the full text in the Open Marine Archive. The digital version of previous editions (vol. 1–36) has also been made available through OMA in the meantime. The CD of volume 39 (2009) is enclosed in the current 2009 annual report.

Cooperation within projects and networks

The Marine Library is active in various fields, contributes to projects and joins various regional, national and international networks.

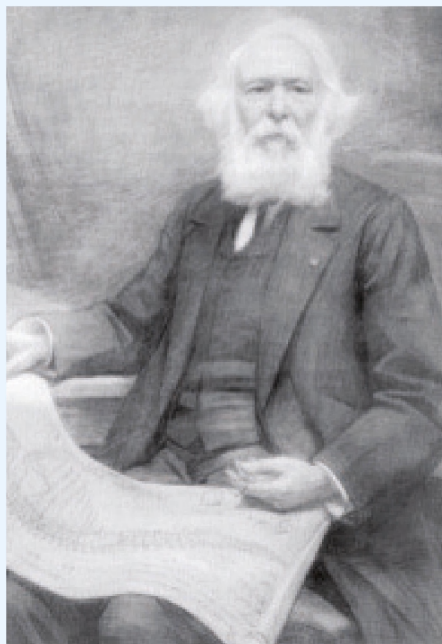
In Belgium the VLIZ library supports the [Felnet](#) project (Flanders Environmental Libraries Network) and is a member of the Flemish Association for Libraries, Archives and Documentation Centres (VVBAD) and of the Flemish Research Libraries Council ([VOWB](#)). VLIZ also collaborates with the [IOC](#) (Intergovernmental Oceanographic Commission) of UNESCO. The Marine Library acts as the input centre for all Belgian marine publications in the [ASFA](#) database (Aquatic Science and Fisheries Abstracts) of FAO. In 2009 we added 396 Belgian references to this database.

Since 2008 the Marine Library has been collaborating on the project '[Wetenschatten – vier eeuwen kustonderzoek in beeld](#)' (Scientific Treasures, four centuries of coastal research in the picture). This project was developed with the support of the Province of West Flanders within the programme for permanent disclosure of Immaterial Cultural Heritage. The Wetenschatten-website (www.wetenschatten.be) is mainly aimed at the general public interested in the history of the Belgian coastal and marine research, and discloses the numerous illustrations (photographs, drawings, plans, maps, etc.) from the publications produced over time. In each case, the images are provided with general information and a short description of the contents. In 2009 the archive was enlarged with 939 additional images, which makes for a total of 2,036 images. The website furthermore features information sheets on important Belgian marine scientific researchers. In 2009 three sheets were added on the life and work of Philippe Dautzenberg, Pierre-Joseph Van Beneden and Jean Massart (see box).

VLIZ Wetenschappen

Historical figures from marine scientific research. VLIZ Information Sheets.
Flanders Marine Institute (VLIZ), Ostend, Belgium

Overview of information sheets published in 2008 and 2009:



© Hamoir [2002]

126: Pierre-Joseph Van Beneden
(1809 - 1894)



© Héggh [1920]

127: Alphonse Meunier
(1857 - 1918)



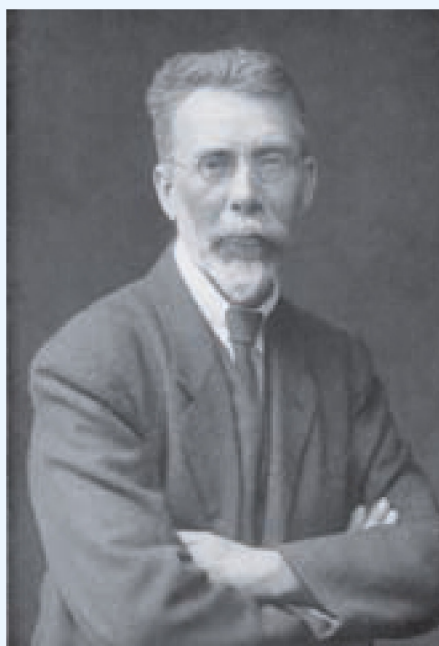
© Anon. [1925]

128: August de Maere-Limnander
(1826 - 1900)



© Lamy [1935]

129: Philippe Dautzenberg
(1849 - 1935)



© Marchal [1927]

130: Jean Massart
(1865 - 1925)

The VLIZ library is a member of the European ([EURASLIC](#)) and international ([IAMSLIC](#)) associations of aquatic and marine libraries. In 2009 the 35th annual IAMSLIC (International Association of Aquatic and Marine Sciences Libraries and Information Centers) conference and the 13th biennial EURASLIC (European Association of Aquatic Sciences Libraries and Information Centres) conference were held jointly between 27 September and 1 October 2009. The event, partly sponsored by UNESCO/IOC Project Office for IODE and VLIZ, was organised in Provinciaal Hof in Bruges and attended by more than 80 participants from all over the world. The central theme was 'Confluence of Ideas: Evolving to meet the challenges of global change'. The way in which aquatic libraries can adapt to the challenges of our time was discussed in this conference; these challenges include publishing data, data management, cooperation and marketing of the library or information centre.

2009 IAMSLIC/EURASLIC conference held in Bruges



From 27 September to 1 October 2009 more than 80 participants, all employees of marine and aquatic libraries throughout the world, came together in Bruges. The event was organised and sponsored by UNESCO/IOC Project Office for IODE and the Flanders Marine Institute.



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Figures &



Figures & Policy



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

- ❑ POLICY INDICATORS
- ❑ A CENTURY OF SEA FISHERIES
- ❑ ALIEN SPECIES
- ❑ SEASTATS
- ❑ MARINE SCIENTIFIC LANDSCAPE
- ❑ MARINE SCIENCES HISTORY

Development of sustainability indicators for the Scheldt estuary

VLIZ was instructed to select 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.



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Policy support

The provision of policy-relevant information is one of the main tasks of VLIZ. This is done at the request of the user (policy level, scientists, specific target groups or interested private individuals), but it can also be directed from current policy and research questions or future scenarios.

Recovery and integration of historical data and time series increase the objective outlook on the current ecological condition of marine and tidal ecosystems. Greater administrative openness and the need for assessment of socially feasible objectives ensure that this kind of policy-supporting information and data receives attention. However, linking time series together – across methods, measurement periods and administrative boundaries – requires specific research and tuning. Meanwhile, the ‘Figures&Policy’ department has acquired the knowledge and experience to translate extensive databases and time series within the scope of specific policy targets.

For this purpose the ‘Figures&Policy’ department works closely together with the network of Flemish marine scientists and relies on good internal cooperation with the VLIZ data centre, Marine Library and infodesk. The geographic target areas of the ‘Figures&Policy’ department are the Belgian part of the North Sea, the Flemish coastal area and adjoining estuaries. The southern North Sea and the European waters provide a broader frame of reference.

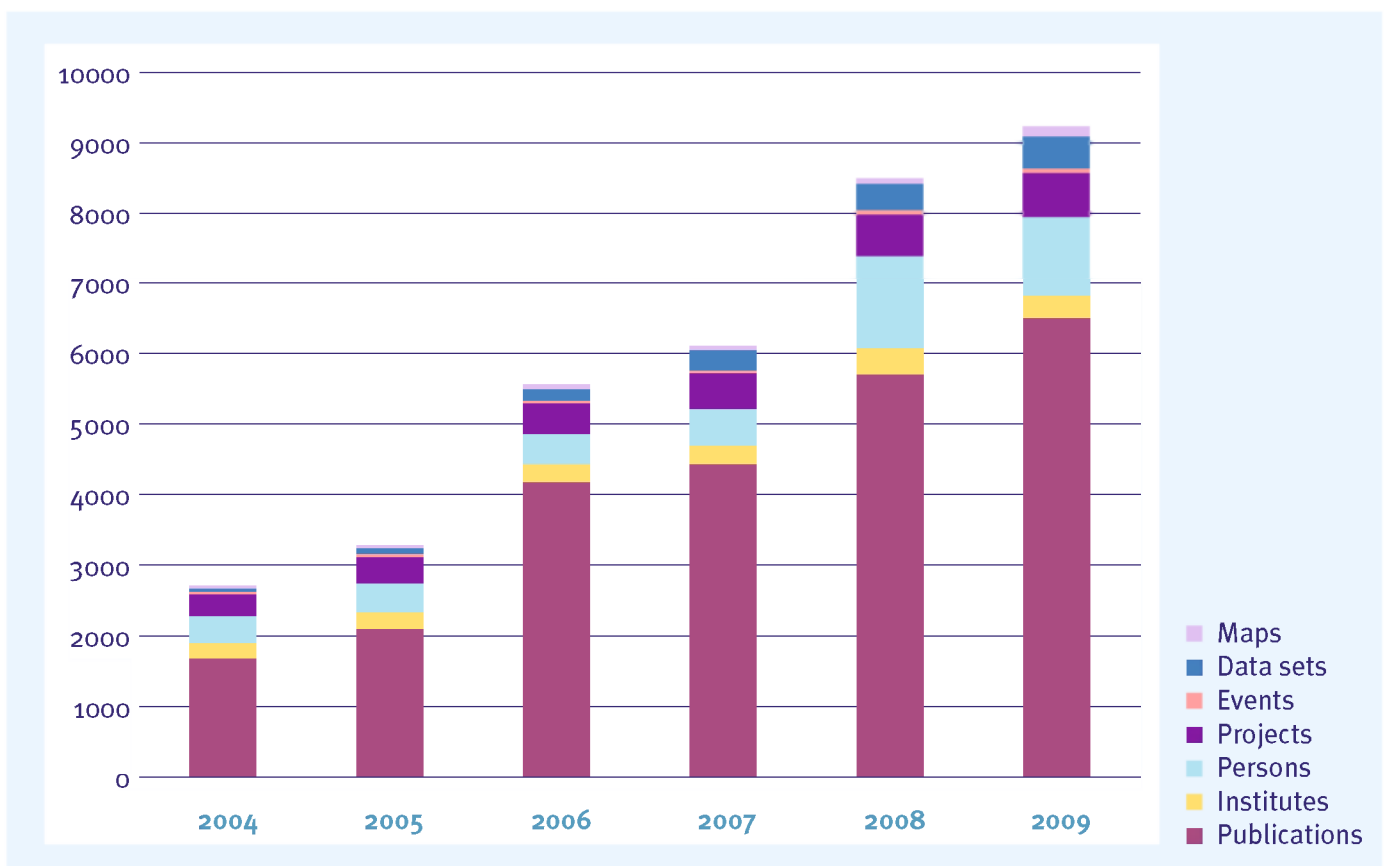
In addition, it is the responsibility of the ‘Figures&Policy’ department to monitor the European developments with regard to integrated coastal zone management (ICZM) and marine / maritime policy and, if desired, to support these developments from the perspective of the marine sciences in cooperation with the research community.

The VLIZ ‘Figures&Policy’ department recognises the Coordination Centre for Integrated Coastal Zone Management (CC-ICZM) as the main point of contact for the integration of plans and policies in the Belgian coastal area. 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.

Policy indicators

Under the authority of the Maritime Access division (Mobility and Public Affairs Department of the Flemish government), VLIZ selected a set of indicators to monitor policy-relevant issues within the scope of the long-term vision and targets for the **Scheldt estuary**. The order was specifically issued by the working group ‘Research and Monitoring / Natural quality’ and is carried out in close consultation with scientists and the policy level. In a first phase a set of approximately 45 measurements regarding the cross-border Scheldt estuary was approved. These measurements and indicators primarily relate to the principal issues of safety, naturalness and accessibility, yet also relate to other functions such as recreation and tourism, fisheries and agriculture, living and working. In a second phase these indicators were completed with data and technical and explanatory descriptions (technical and information sheets, graphs, maps). The indicator set will be made available in 2010 on the ScheldeMonitor website (www.scheldemonitor.org).

The **ScheldeMonitor** is a Flemish-Dutch knowledge and information system supporting research and monitoring on the Scheldt estuary. As an initiative of the Maritime Access division (Mobility and Public Affairs Department of the Flemish government) and the Dutch Ministry of Waterways and Public Works, the ScheldeMonitor has developed into the largest information centre on the Scheldt available online. This policy-supporting system can be searched for institutes (318), persons (1,118), projects (635), events (62), maps (139), data sets (449) and publications (6,512).



A century of sea fisheries in Belgium

Despite its relatively poor contribution to the Belgian Gross National Product, it is impossible to imagine the coastal and marine landscape without the fisheries industry. It nevertheless appears that **historical fisheries statistics**, reflecting the socioeconomic importance and scale of fisheries in Belgium, have been published very dispersedly and only fragmentarily available. With the project 'A century of sea fisheries in Belgium', VLIZ started to inventory, standardise and integrate all available historical data and scientific information on sea fisheries in Belgium. In a first stage the data concerning the landings volumes and landing values of the different fish species were dealt with. The available data were tracked, digitised, described, quality checked, standardised and integrated in a continuous time series from 1929 to today. In the course of 2009 the results were made available online through the VLIZ website at www.vliz.be/EN/Figures_Policy/Figures_Policy_Belgian_Sea_Fisheries.

Through an interactive application, the historical data and information sources can be consulted digitally. Different types of time series have been drawn up for every commercial fish species which reflect the annual landing volumes and landing values for each harbour and fishing ground as well as the evolution of the average price (nominal and inflation-adjusted values) in a continuous time series as from 1929.

These time series are part of a broader framework which has to make possible the reconstruction of the historical context of the Flemish sea fisheries. The contribution from other disciplines (history, economics, social sciences, local knowledge) is necessary to create this broader framework. Owing to a short and straight shoreline, the relatively small size of the fleet and the limited number of landing points (harbours and fish auctions) in Belgium, it is possible to paint a fairly complete picture of the landing / catch statistics and fishing efforts, especially as from the early 20th century, through this historical reconstruction.

The project is an example of the usefulness of data management and interdisciplinary cooperation within the current scientific method. 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 and the State Archives in Bruges.

In 2009 VLIZ also started to collect and integrate detailed historical data on the offshore fishing fleet. The available images of individual ships in the photo gallery are supplemented with official data concerning the ship's characteristics and information about the shipowner and shipyard.



© Collectie D. Moeyart

VLIZ Alien Species Consortium – 2009

Alien species in the Belgian part of the North Sea and adjacent estuaries.

VLIZ Information Sheets. *Flanders Marine Institute (VLIZ), Oostende, Belgium*

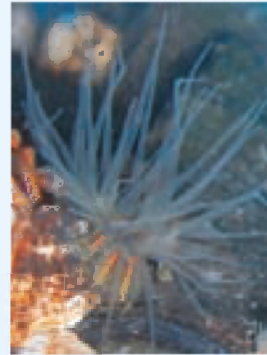
Overview of information sheets published in 2009:



20: Shipworms: great shipworm - *Teredo navalis* and shipworm - *Psiloteredo megotara*



21: Swim bladder nematode - *Anguillicola crassus*



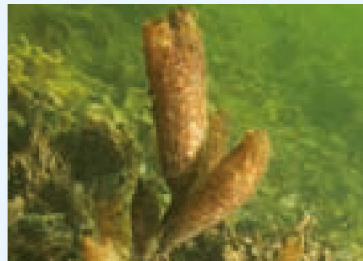
22: Green anemone - *Haliplanella lineata*



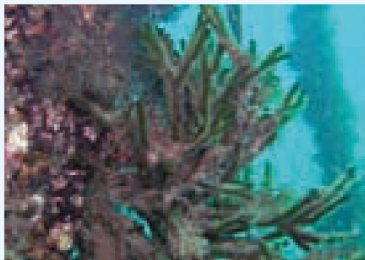
23: Australian tubeworm - *Ficopomatus enigmaticus*



24: Atlantic croaker - *Micropogonias undulatus*



25: Leathery sea squirt - *Styela clava*



26: Green sea fingers - *Codium fragile fragile*



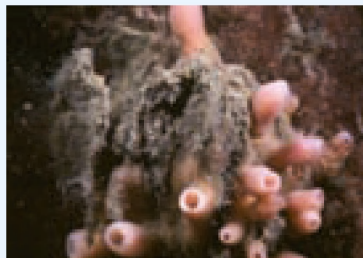
28: Common Rangia - *Rangia cuneata*



29: The bryozoan *Bugula stolonifera*



30: The bryozoan *Tricellaria inopinata*



31: The sponge *Haliclona (Soestella) xena*



34: Asian shrimp - *Palaemon macrodactylus*



32: The rotifer *Keratella tropica*



33: Japanese skeleton shrimp - *Caprella mutica*

Alien species

Together with a consortium of experts who work at various research institutions, VLIZ updates the **list of alien species** that have been identified in marine and brackish waters along the Belgian coast and in adjacent estuaries (www.vliz.be/EN/Figures_Policy/Figures_Policy_Non-invasive_species). The list includes only those species that have established populations and/or that are sighted repeatedly and in large numbers. Sporadic vagrants are not included in the list.

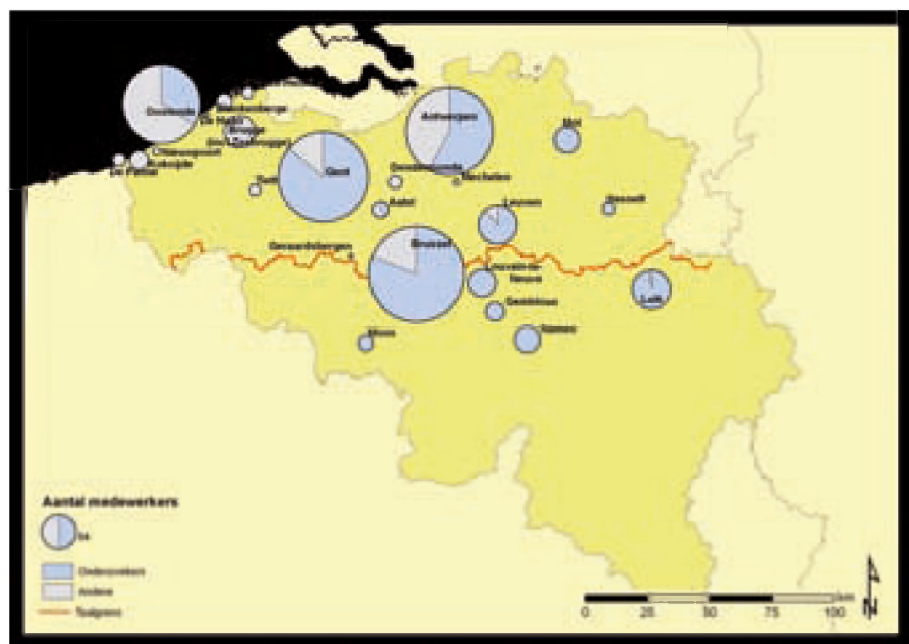
An information sheet is drawn up for each of the alien species in the list (downloadable as PDF in Dutch). The sheets contain information on the life cycle and ecology of the species, the manner of introduction and distribution, potential or observed impact of the species on the environment and possible measures.

The information focuses on the local situation (Flanders – Belgium) within a European and international context. Correct taxonomic information is supplied through a link to the World Register of Marine Species (WoRMS; also see p. 102). Pictures, distribution maps and relevant links to sources and other websites supplement the information for the user.

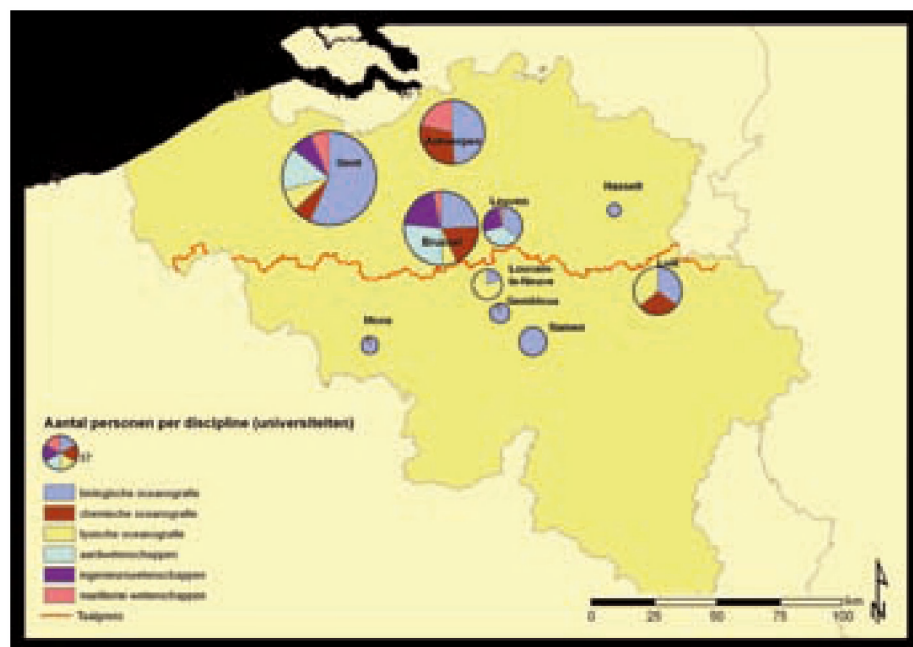
In 2008 the first 19 information sheets of these alien marine and coastal species were published on the VLIZ website. In 2009 another 15 species got their own 'ID card' (see box). At the end of 2009 the list included 67 alien marine and estuarine species. The results are taken into account at the evaluation of the (potential) impact of non-native marine and estuarine species within the scope of national and European policy measures. This project would not have been possible without the input and continuous cooperation of experts and the support of VLIZ (Data Centre, infodesk and Figures&Policy departments).

Seastats

The **Seastats** section of the VLIZ website (www.vliz.be/cijfers_beleid/zeecijfers/index.php) collects objective statistics and facts about all kinds of sea-related topics for general use. A useful instrument for people looking for scientifically reliable statistics or for an introduction to a report or presentation. You can look for specific statistics by clicking one of the nine principal sections on the interactive start page. Then you can choose from more than 45 subsections. You can also type in a keyword through the search function in this bilingual web application (Dutch/English). A correct indication of the source and a direct link to the online available source document is provided for every stat. Often there is a link to a 'infodesk-question' with a more extensive answer as well. The Seastats website was launched end 2007 with a total of 1,500 statistics. Now it comprises 2,936 statistics.



Share and location of employees in research groups that conduct marine and coastal scientific research in Belgium. Belgian universities, federal and Flemish institutions have been included. The size of the 'pie' reflects the number of active scientists involved. The colour indicates the share of employees working at research groups at universities and institutes (dark) and companies, museums and visitor centres, local government institutions or (inter) national non-governmental organizations (light blue).



Share (in number of employees) of the various marine research disciplines at the Belgian universities.

Marine scientific landscape

The principal task of VLIZ is mapping the marine scientific landscape in Flanders and Belgium. In 2009 the inventory was further updated and mapped. For this purpose the existing data of approximately 250 marine institutions and research groups in the IMIS database were checked and complemented. The number of research groups and marine researchers is large, the research disciplines are varied, yet at the same time very scattered across Flanders and Belgium. This highlights the need for communication and structural support of the cooperations.

An analysis of the main financing sources (European, federal, Flemish and other) of marine research in Belgium was carried out too by means of specific inquiries into financing instruments (regional, national and European) and coordinating information systems. This analysis offers an updated view of previous statistics published in 2001.

History of Belgian marine sciences

In addition to the current diversity of marine scientific research, Flanders/Belgium can also build on a rich historical heritage in marine sciences. VLIZ wishes to inventory and document the work of marine scientists and prominent figures. This concerns researchers who achieved international renown, but also scientists who remained relatively unknown or who fell into oblivion despite the relevance of their research. Some of their CVs have already been written and put online in an information sheet (see 'Wetenschatten' in the chapter 'Marine Library'). Their marine and coast-related publications are being disclosed as much as possible through the library.

Fac



ilities

Facilities



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

- ❑ RESEARCH VESSEL 'ZEELEEUW'
- ❑ RIB ZEEKAT
- ❑ GREENHOUSES FOR DUNE RESEARCH
- ❑ EQUIPMENT
- ❑ MONITORING

RIB 'Zeekat' was deployed for 273 hours, mainly for scientific diving

RIB 'Zeekat' was frequently deployed for scientific diving tasks in 2009: to inventory wrecks and monitor the hard substrates in the Thornton Bank wind farm.



© Louis Meirfaen

RV Zeeleeuw and RIB Zeekat

The '**Zeeleeuw**' can be deployed as a research vessel in the Belgian and adjacent coastal waters and in the Scheldt estuary. Fleet Division of the Internally Autonomous Agency for Maritime and Coastal Services (MDK) ensures the operation of 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. The research vessel 'Zeeleeuw' is available for the Flemish and international marine research community. If necessary, Flemish scientists can also use other vessels of the Flemish fleet for marine scientific research. '**Zeekat**' is an RIB (Rigid Inflatable Boat) that can be used from Zeeleeuw but can also be operated autonomously.

The total number of sailing days with Zeeleeuw, the RIB Zeekat or third ships of Fleet Division as coordinated by VLIZ is given in the table below.

Number of days at sea for research purposes:	2004	2005	2006	2007	2008	2009
R/V 'Zeeleeuw'	155	151	122	150	162	166
RIB 'Zeekat'	37	45	35	51	39	32
'third' vessels: Ter Streep, Veeremans, Scheldewacht, Parel I and Scaldis	3	44	41	38	37	36
Total number of days at sea for research purposes	195	240	188	239	238	234

In calendar year 2009 a total of 234 days were spent at sea for scientific research, 166 of which with Zeeleeuw, 32 with Zeekat and 36 with other ships of Fleet Division. Zeeleeuw sailed a total of 1,690 hours for research and educational purposes, while the RIB was deployed for a total of 273 hours, especially for scientific diving. In 2009 a total of 810 persons boarded one of the vessels: 397 scientists, 413 students and other passengers.

The RV 'Zeeleeuw' is used for numerous research projects and for monitoring in the coastal waters, but also offers possibilities for educational projects such as 'Planet Ocean' and 'Week of the Sea', and demonstrations for students (see table).

Research and educational projects with RV 'Zeeleeuw' in 2009

Research groups	Research projects	# trips
VLIZ	Monitoring Belgian part of the North Sea	10
	Equipment trials	5
UGent – Marine Biology	WESTBANKS	3
	Equipment trials	1
	Artificial reefs I	2
	Artificial reefs II	27
	EUTROF - OSPAR eutrofication assessment	3
UGent – Lab Protistology	Monitoring EU Water Framework Directive	13
UGent – Lab Nematology	Acoela and Nemertodermatida in the Belgian part of the North Sea	3
UGent – RCMG	Small scale sediment dynamics	9
UA – ECOBE	Polluents in sediments Western Scheldt	1
KULeuven – Animal Biodiversity and systematics	WESTBANKS	1
UHasselt – Zoology: Biodiversity & Toxicology	Rhabdocoele fauna of the Belgian part of the North Sea	3
ULB – Lab Biologie Marine	MICROMET – Microbial diversity and metal fluxes in contaminated North Sea sediments	3
INBO	Monitoring marine and coastal birds Flanders	44
ILVO-Fisheries	Pelagics Belgian part of the North Sea	22
	EUTROF - OSPAR eutrofication assessment	4
	Micropollutants in North Sea shrimp	2
	WAKO-II	3
BMM	Ensis - Ecosystem Sensitivity to Invasive Species	1
	Monitoring hard substrates wind farms	10
	Monitoring EU Water Framework Directive	4
VIOE	Archeological evaluation of ship wrecks	5

Educational projects	Tochten
Week of the Sea	6
Planeet Ocean	5
Hogere Zeevaartschool Antwerpen	1
UA – Ecophysiology, Biochemistry and Toxicology	1
UHasselt – Biodiversity, Phylogeny and Population biology	1
UGent – M.Sc. Marine Biodiversity and Conservation (EMBC)	1
UGent – M.Sc. Marine and Lacustrine Sciences (MareLac)	3
KULeuven – M.Sc. Biology	1
Centre for Nature and Environmental Education (CVN)	1

During the trip a computer network on board the RV 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. At the end of 2009 the database contained 6,569,633 records. The system also helps to plan cruises and to register ship activities.

New research vessel ‘Simon Stevin’

At the end of 2007 Minister-President Kris Peeters and Minister Patricia Ceysens disclosed the plans of the Flemish Government with regard to the construction of the new Flemish research vessel RV Simon Stevin, which is to replace RV Zeeleeuw in the short term. The negotiations with regard to the funding of this new coastal vessel as well as the purchase of new land-based facilities (see next section) have in the meantime been completed successfully.

In close cooperation with Fleet Division the specifications of the new research vessel Simon Stevin were finalised. Thanks to the results of an earlier survey and feasibility study by VLIZ among scientists, and a recent intensive survey by the Scientific Committee of VLIZ, we are certain that the specifications are fully supported by the Flemish marine scientific community and that Simon Stevin will be an optimal instrument to meet as many research needs as possible.

In the spring of 2009, just before the Flemish elections, the funding for the ship's construction was confirmed by the Flemish government. In the autumn of 2009 Fleet Division and VLIZ drew up specifications and published them internationally, which resulted in two tenders received. Both tenders were declared invalid, however, because they were too expensive or did not meet the construction requirements. In 2010 a new round of talks would be started with both shipyards.

Educational excursions on board Zeeleeuw: an additional asset for marine and maritime trainings

In 2009, Zeeleeuw went on approx 20 educational excursions and thus supports a great deal of marine-related MSc courses in Flanders. Guides and students of primary and secondary education can also sail on board the ship within the scope of certain projects; in this case within the scope of Planet Ocean 2009.



2008-2009 investment subsidy

In 2008 and 2009, VLIZ received an additional investment subsidy from the Flemish Government Department of Economy, Science and Innovation (EWI). The subsidy amounted to € 1.1 million a year. In 2009 these funds were used to purchase the warehouse complex at Halve Maan in the port of Ostend; to renovate the VLIZ headquarters at Wandelaarkaai (see Coordination chapter); and to purchase scientific equipment for the new research vessel RV Simon Stevin.

The purchase of the land-based facilities at Halve Maan in the port of Ostend at walking distance from the VLIZ main buildings at Wandelaarkaai was finalised in January 2009. The entire complex, consisting of 4 hangars, exterior space and a dwelling, was bought in one single stage. A building application was filed with the city of Ostend for renovation: waterproofing, a new surrounding wall, passages between the hangars. The final construction permit still had not been granted at the end of 2009.

In 2009 the investment subsidy was also used to purchase scientific equipment for the new research vessel to be constructed: a CTD with carousel and a multibeam echosounder. For the latter, specifications were drawn up and 4 tenders were received. VLIZ set up an advisory working group with experts from the sand extraction fund, Ghent University-RCMG, Flemish Hydrography, MUMM etc. to determine the brand and type. The apparatus with the best results, the highest resolution and modular frequency turned out to be Kongsberg 2040. The new data shall remain comparable to data previously collected on RV Belgica and Ter Streep.

Equipment

The VLIZ manages a wide range of marine scientific facilities that can be used by the marine science community: see table. In the VLIZ buildings researchers can furthermore make use of (temporary) storage of samples and sampling materials. In the Infrastructure module of the IMIS information system an inventory is made of marine research equipment and infrastructure present at VLIZ and other research centres in Flanders (www.vliz.be/imis/imis.php?module=infrastruct).

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

■ Physico-chemical parameters

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

■ Water sampling

- Niskin bottle
- GO-FLO
- Van Dorn bottle

■ Sediment sampling

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

■ Biological sampling

- Van Veen grab
- Reineck Box Corer
- Hamon grab
- Midi corer
- Beam trawl
- Ottertrawl
- Neuston net
- IKMT net
- WP2 plankton net
- Trawl plankton net
- Bongo net
- Plankton net
- Plankton pump
- Hyperbenthic sledge
- Passive Acoustic Monitoring (PAM) System

■ Miscellanea

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

■ Storage space

- Ware houses
- Freezers
- Cold store - Core Repository

Projects

In August 2002 VLIZ started **monitoring** 10 stations in the Belgian part of the North Sea. Every month water samples are taken and CTD measurements are made with 'Zeeleeuw'. The samplings allow to measure turbidity, nutrient content and chlorophyll-a concentrations. The samples are processed by a group of partners (www.vliz.be/monitoring/partners.php). The data are available for use by other researchers. This way VLIZ hopes to be able to provide coastal research with the necessary long-term information and data. In the long run a time series of data will be collected that should contribute to improved management of the Belgian coastal waters. This monthly monitoring was also continued in 2009. More information on the project and the results so far can be found on the website www.vliz.be/monitoring.



VLIZ monitoring dates in 2009

26 January 2009	28 July 2009
23 February 2009	20 August 2009
30 March 2009	14 September 2009
27 April 2009	16 October 2009
18-19 May 2009	30 November 2009
22 June 2009	18 December 2009

André Cattrijsse, research infrastructure manager at VLIZ, became chairman of **ERVO** (European Research Vessels Operators – www.eurocean.org/np4/ervo) in 2009. He was responsible for the co-organisation of the ERVO meeting in Copenhagen, Denmark on 14 and 15 May 2009. At this annual informal meeting 28 research vessel operators and managers from 14 countries came together to exchange experiences, share information and examine opportunities for cooperation. Through this networking ERVO hopes to be able to provide improved service to the research community and to develop standard protocols.





During a meeting attended by approx 100 European scientists and operators of research vessels in Paris from 22 to 24 September, the go-ahead was given for the **EUROFLEETS** project – “Towards an alliance of European research fleets” (www.eurofleets.eu). It assembles an important group of key actors in European marine research. Marine research institutes, universities and SMEs from 16 European countries deploy their research vessels and research infrastructure in this network. VLIZ is one of the 24 partners. It will participate in the development of a strategic view of the European research fleet and contribute to the set-up of a system to gain access to the research vessels that work outside the traditional national framework. VLIZ also plays a coordinating part in drawing up recommendations to preserve future European regional research vessels.



Data



Data centre



Read more
www.vliz.be/EN/Data_Centre




































- ❑ DATA AND INFORMATION CENTRE
- ❑ DOCUMENTING
- ❑ ARCHIVING
- ❑ INTEGRATING
- ❑ REDISTRIBUTING
- ❑ INTERNATIONAL STANDARDS
- ❑ SERVICE CENTRE
- ❑ WEBSITES



















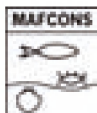
















The Flanders Marine Data and Information Centre (VMDC) employed 17 IT specialists and scientists at the end of 2009. The data centre supports scientists, policy makers and the public at large with regard to the various aspects of marine data management. Within this scope a knowledge system, a data archive, and several databases, registers and websites have been developed.














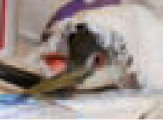



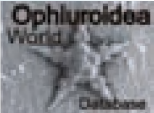

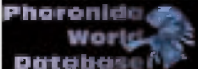








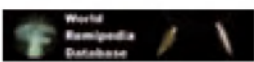




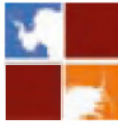

- VMDC developed the IMIS knowledge system to provide an as accurate as possible inventory of the Flemish marine scientific landscape. Information on data sets, publications, persons, institutions, projects, events, maps and infrastructure is stored in a structured manner in this system that can be searched online.
- Scientific data are unique and have to be prevented from being lost. For this reason VMDC developed the Marine Data Archive (MDA): a secure online data archive where scientists 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 place name register fulfils the same role for geographic names.
- The knowledge system, data archive, databases and registers are all disclosed through websites, but VMDC also develops websites as a means of communication for scientific projects and institutions (www.vliz.be/vmdcdata/wlist.php and list on page 93-96).
































VMDC is a member of a number of international data exchange networks, such as OBIS, GBIF, SeaDataNet, IODE, SMEBD, EMODNET, GLOSS, LifeWatch and PESI.

Overview of all websites developed and hosted by VLIZ:

10 th Seabird Group Conference	African Marine Atlas	Antactica expedition	ArctEco	ASFA
				
www.vliz.be/events/seabirdconference2009	www.africanmarineatlas.net	www.vliz.be/projects/ugent-arctica	www.marbef.org/projects/arcteco	www.vliz.be/events/asfa
BBDO	Het Belgica Genootschap	BeNCoRe	BEQI	Bewremabi
				
www.marbef.org/projects/bbdo	www.belgica-genootschap.be	www.bencore.be	www.beqi.eu	www.vliz.be/projects/bewremabi
BIOFUSE	BIOMARE	Brachiopoda	BWZee	Cetacea
				
www.marbef.org/projects/biofuse	www.biomareweb.org	www.marinespecies.org/brachiopoda	www.vliz.be/projects/bwzee	www.marinespecies.org/cetacea
Class@Desert	Class@Oceans	Class@Oceans II	CoCaRDE	COD
				
www.vliz.be/projects/classatdesert	www.vliz.be/projects/classatoceans	www.vliz.be/projects/classatoceansII	www.cocarde.eu	www.vliz.be/events/cod
Copepods	CPPS	Cumacea	DEEPSETS	DIMAS
				
www.marinespecies.org/copepoda	w2.vliz.be/vmdcdata/cpps	www.marinespecies.org/cumacea	www.marbef.org/projects/deepsets	www.vliz.be/projects/dimas
Dunes and Estuaries 2005	Duurzaamheidsbarometer voor de kust	EAS	Ecotox database	Ecotoxicology Wiki
				
www.vliz.be/events/de2005	www.vliz.be/projects/indicatoren	www.easonline.org	www.vliz.be/vmdcdata/ecotox	www.coastalwiki.org/coastal-wiki/Portal:Ecotox
ED North	ENCORA	ENDIS-RISKS	ERMS	ESPOL
				
www.vliz.be/projects/endis/EDNorth.php	www.encora.eu	www.vliz.be/projects/endis	www.marbef.org/data/erms	http://imis.cti.espol.edu.ec

EURASLIC	EurOBIS	Expeditie Zeeleeuw	FAQ	Foodwebio
				
www.euraslic.org	www.marbef.org/data/eurobis	www.expeditiezeleeuw.be	www.vliz.be/vmdcdata/faq	www.marbef.org/projects/foodwebio
GBIRM	Hydrozoa	IMERS	IMIS	INRAM
				
www.marbef.org/projects/gbirm	www.marinespecies.org/hydrozoa	www.vliz.be/vmdcdata/imers	www.vliz.be/imis	www.vliz.be/projects/inram
IOC Tsunami	Isopoda	Koers naar zee	Coastal Atlas	LargeNet
				
www.ioc-tsunami.org	www.marinespecies.org/isopoda	www.koersnaarzee.be	www.kustatlas.be	www.marbef.org/projects/largenet
LecoFish	Lifewatch	Macrobel	MAFCONS	Mangroves
				
www.lecofish.be	www.lifewatch.eu	www.vliz.be/vmdcdata/macrobel	www.mafcons.org	www.vliz.be/vmdcdata/mangroves
MANUELA	MarBEF	Marbena	MARBIOL	Marble
				
www.marbef.org/projects/manuela	www.marbef.org	www.vliz.be/marbena	www.marinebiology.ugent.be	www.vliz.be/marble
MARBOUND	MarFish	Marine Biodiversity Wiki (MarBEF coastal Wiki)	Marine Taxonomy Workshops	Maritime Archeology
				
www.vliz.be/vmdcdata/marbound	www.marbef.org/projects/marfish	www.marbef.org/wiki	www.marinespecies.org/workshop	www.maritieme-archeologie.be
MarPace	MARPLAN	MARS	MASDEA	MDA
				
www.marbef.org/projects/settlement	www.marbef.org/projects/marplan	www.marsnetwork.org	www.vliz.be/vmdcdata/masdea	mda.vliz.be

Monitoring Network Flemish Banks  www.vliz.be/EN/infodesk/MNFB_intro	Meeuwen in de stad  www.meeuwenindestad.be	MIDAS  www.vliz.be/vmdcdata/midas	MIMAC  www.vliz.be/projects/mimac	MRI e-conferentie  www.vliz.be/projects/mri
NARMS  www.vliz.be/vmdcdata/narms	NIOO data portaal  data.nioo.knaw.nl	Non-native (alien) species  www.vliz.be/EN/Figures_Policy/Figures_Policy_Non-invasive_species	NSBP  www.vliz.be/projects/mri	NSBS  www.vliz.be/vmdcdata/nsbs
OBI  www.vliz.be/events/obi	Ocean Data Portal  ezedm.vliz.be	Ocean-Ukraine  www.vliz.be/projects/ocean-ukraine	Oil victims winter 2003  www.vliz.be/olieslachtoffers	OMA  www.vliz.be/oma
OMES  www.vliz.be/projects/omes	Oostende Oosteroever  www.oostendeoosteroever.be	Ophiuroidea  www.marinespecies.org/ophiuroidea	PESI  www.eu-nomen.eu/pesi	Phoronida  www.marinespecies.org/phoronida
Placozoa  www.marinespecies.org/placozoa	Planet Ocean  www.planetoccean.eu www.planeteeze.org	POGO  www.ocean-partners.org	Porifera  www.marinespecies.org/porifera	Pycnabase  www.marinespecies.org/pycnobase
QUEST4D  www.vliz.be/projects/quest4D	RAMA  www.vliz.be/projects/rama	RAMS  www.scarmarbin.be/rams.php?p=search	Remipedia  www.marinespecies.org/remipedia	Rhabditophora  www.marinespecies.org/rhabditophora
Rosemeb  www.marbef.org/projects/rosemeb	SAIL  www.vliz.be/projects/sail	Sailcoast  www.sailcoast.eu	SCAR-MarBIN  www.scarmarbin.be	ScheldeMonitor  www.scheldemonitor.org

Sea Level Station Monitoring Facility	SMEBD	SPICOSA Wiki	Spuikom website	STARDUST
				
www.vliz.be/gauges	www.smebd.eu	www.coastalwiki.org/spicosa/Portal:SPICOSA	www.vliz.be/spuikom	www.vliz.be/projects/stardust
STARDUST 2	SWG	TISBE	To sea or not to sea	Trophos
				
www.vliz.be/projects/stardust2	www.strandwerkgroep.be	www.vliz.be/vmcddata/tisbe	www.vliz.be/marcol	www.vliz.be/projects/trophos
Tsunami Sea Level Station Monitoring Facility	URMO	VLIMAR	VLIZ	VLIZ' Educational pages
				
www.vliz.be/vmcddata/iode	www.marinespecies.org/urmo	www.vliz.be/vmcddata/vlimar	www.vliz.be	www.vliz.be/educatie
VLIZ photo gallery	VLIZ Marine Library	VOC Oostende	Vogelslachtoffers	Flanders Hydraulics Research
				
www.vliz.be/vmcddata/photogallery	www.vliz.be/EN/Marine_Library	www.vogelopvangcentrum.be	www.vliz.be/vogelslachtoffers	www.vliz.be/imis/waterbouwkundiglaboratorium
Westbanks	WETENSCHATTEN	WOD98	WOG	World Register of Marine Species
				
www.vliz.be/projects/westbanks	www.wetenschatten.be	www.vliz.be/vmcddata/wod98	www.vliz.be/projects/wog	www.marinespecies.org
Wreck site	Beach Nourishment	Seastats	Zeekrant	Zeeleeuw monitoring cruises
				
www.wrecksite.eu	www.vliz.be/projects/beachsup	www.vliz.be/cijfers_beleid/zeecijfers	www.zeekrant.be	www.vliz.be/monitoring
Starfish				
				
www.marinespecies.org/asteroidea				

Data systems

The data centre has developed a number of important data systems that have in the meantime 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. All information units are interconnected. The information system feeds several (inter)national (project) websites; consequently, the system also contains Dutch (ScheldeMonitor), European (Encora and MarBEF) and international (WoRMS) marine information. In addition, the literature module acts as a library system that can be used by both the VLIZ library and the information centre of the Hydraulic Laboratory and INBO.

Over the course of 2009 the number of documented data sets from various marine research disciplines within an international context increased to 1,498. Over 800 of these data sets can be requested through VLIZ. IMIS currently also contains the description of 18,416 persons, 7,656 institutes, 2,707 projects, 132,803 publications, 875 events, 976 maps and 50 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 2009 the number of references available in the Open Marine Archive (OMA) increased by about 800 publications to more than 5,300 at the end of 2009. The digital version of these publications is available free of charge through the website. Information in OMA is picked up by harvesters of the Open Archives Initiative (OAI), such as Google Scholar and AVANO.

**Total number of records
in IMERS is just under
1.5 million**

Measurement data of sampling campaigns carried out within different Belgian projects are integrated in the IMERS (Integrated Marine Environmental Readings and Samples) data system. The multidisciplinary data are integrated across time and space. This may provide scientists with new ideas.



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Measurement data of sampling campaigns carried out within different Belgian projects are integrated in 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. As in 2008, data from three projects – Westbanks, INRAM and OMES – were added to IMERS in 2009. These provided an increase of nearly 34,000 records, which brings the total number of records in IMERS to nearly 1.5 million.

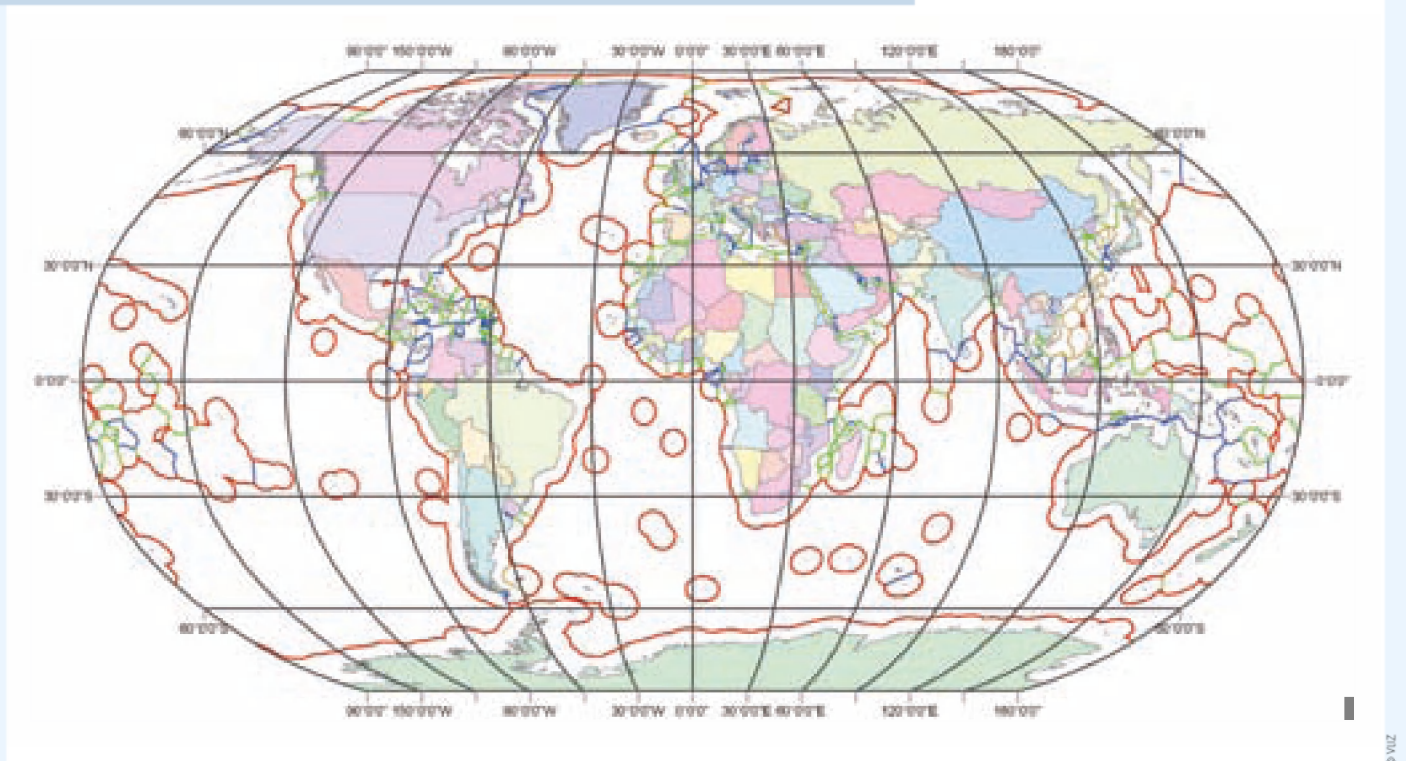
The **Marine Data Archive**, or MDA in short, is an online system specifically designed to allow scientists, research groups and project partners to archive and describe their data files in an external archive. Each file placed in the Archive is stored together with its metadata describing the contents 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. The number of archived and disclosed data sets in the Marine Data Archive increased to 7,349 by the end of 2009, totalling almost 20 GB of data. The number of registered archive users almost tripled in 2009, increasing from 91 in 2008 to 244 in 2009, originating from 91 institutions. The archive was used within the scope of 55 projects.

Aphia is a taxonomic list of marine species that comprises several geographical 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). Besides the correct scientific name, the register includes all previous names and misspellings found in references.

The **VLIMAR (VLiz MARine) Gazetteer** is an online list of geographic names linked to geographic information and maps of these locations. The purpose of the Gazetteer is to promote more univocal use of various geographic marine terms (seas, banks, bays...) in marine research. It is possible to search any geographic object through a search interface or to browse the tree structure. The geographic distribution of the VLIMAR Gazetteer is global, yet with focus on the Belgian part of the North Sea, the Scheldt estuary and the Southern Bight of the North Sea. In 2009 the database was extended with nearly 1,600 place names, which brings the total number of available place names to 28,430. A number of alternative classifications of seas and oceans were also made available. For instance, the Longhurst Provinces, the ICES Ecoregions and the Marine Ecoregions of the World (MEOW) can now be consulted through the tree structure and the corresponding shapefiles can be downloaded. The VLIMAR databank can be consulted free of charge at www.vliz.be/vmdcdata/vlimar.

The Maritime Boundaries Geodatabase MARBOUND contains the maritime boundaries and exclusive economic zones (EEZs) of countries worldwide. The database also contains all digital information on treaties regarding these boundaries. Users contribute to the further development and optimisation of this database by keeping us up to date on new boundary developments through the forum. The marine areas can be searched by means of a map or a specific search function, and downloaded as a shapefile or in Google Earth format. In 2009 new versions of the EEZs were uploaded in the database, so that the coastlines could be represented in greater detail.

Maritime Boundaries database used worldwide



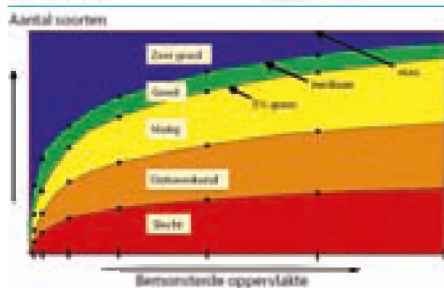
The maritime boundaries data set (MARBOUND) is used intensively all over the world, as it appeared from the evaluation of more than 2,000 downloads in 2009: e.g. for study tasks, school projects, preparation of construction projects at sea and environmental impact assessments. Google Earth and the Arctic Portal (www.arcticportal.org) offer EEZ boundaries from MARBOUND through their website.

It is also useful that changes compared with the previous situation are documented. The MARBOUND databank can be consulted free of charge at www.vliz.be/vmdcdata/marbound. In 2009 the European pilot project for the development of a European marine observation and data network (EMODNET) decided to always implement the boundaries and shapes of MARBOUND.

At the end of 2005 the data centre developed a **photo database** in which pictures can be stored and documented. Nearly 25,000 images were on display in 2009. The 58 photo galleries are website-specific and always divided into sections. Direct online input and description of new images is possible. Over the course of 2009 the collection of marine stamps (www.vliz.be/projects/mariene_postzegels/photo_gallery.php) was considerably enlarged to over 2,600 images. In the summer of 2009, images concerning marine research dating from before 2000 were collected through various channels and disclosed through www.vliz.be/vmdcdata/photogallery/sea.php?album=1289. In addition, VLIZ made an effort to make images of VLIZ events (symposia and conferences, seminars and workshops, public events) from the last 10 years available online (www.vliz.be/vmdcdata/photogallery/index.php).

Projects in 2009

In 2009 VLIZ developed various websites, performed communicative tasks and collected and disclosed numerous data within the context of various projects and cooperation agreements. Some examples:

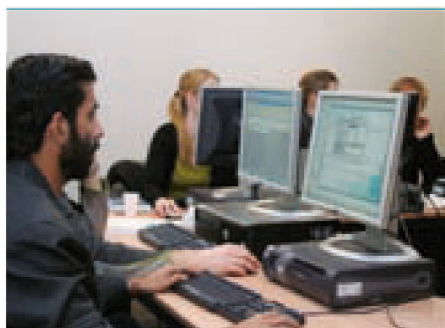


In cooperation with NIOO, ILVO and IMARES, VLIZ developed a user-friendly application to calculate the **BEQI index** (Benthic Ecosystem Quality Index). BEQI is a biological index that can calculate the ecological status of benthos (macrobenthos) in coastal and transitional waters in accordance with the European Water Framework Directive. The development of an online application makes the calculation module of this index more accessible to other institutions. You can upload data and conduct calculations to determine the BEQI score on the website www.beqi.eu. The application was developed by order of the Water Service in the Netherlands and the Federal Public Service for the Environment in Belgium.



Until recently, the **Scheldemonitor** (www.scheldemonitor.be) was mainly known as an information system containing all publications, projects and data sets with regard to research and monitoring in the Scheldt estuary. In the previous year important steps were made to develop Scheldemonitor further into a data portal in which actual measurement data can be looked up too. This **data portal** is developed by order of the Maritime Access division of the Flemish government and will become operational in the course of 2010.

The Scheldemonitor data portal is also put into service to make all data generated by the integrated monitoring programme MONEOS centrally available. MONEOS is developed by the Flemish and Dutch governments as a result of the deepening of the channel. The data portal is thus becoming an important policy-supporting instrument in the evaluation of the impact the deepening has.



The second stage of the project concerning the “Implementation of data and information management at the Netherlands Institute of Ecology (**NIOO-KNAW**)” began in 2009. Within this scope VLIZ assists the Centre for Estuarine and Marine Ecology as well as the aquatic and terrestrial research groups of the NIOO with their data management. Besides describing and archiving these ecological data sets and data series, great importance is also attached to the training of employees in good data management. On 20 October 2009, for instance, a **data archiving day** was organised, on which scientists were actively coached on site for one day in the process of good management and data storage.



The **Research Institute for Nature and Forest** (INBO) also extended its collaboration with VLIZ in 2009. For the development of their data centre, INBO will make use of the VLIZ systems to disclose and manage data and information by using the Marine Data Archive (MDA) and IMIS. The operational collaboration between VLIZ and INBO was framed as a three-year project. Within this scope, VLIZ will adapt its systems so that the entire scientific INBO data and information collection can be disclosed through the INBO website. VLIZ will assist the INBO staff with drawing up this catalogue, so that expertise and knowhow of the VLIZ data centre can be transferred to the future INBO data centre.

Within the scope of the INRAM (Integrated Risk Assessment and Monitoring of micro-pollutants in the Belgian coastal zone) federal research project, VLIZ developed a portal in the **Coastal Wiki** about the issue of **ecotoxicology** in collaboration with the Environmental Toxicology research group of Ghent University: www.coastalwiki.org/coastalwiki/Portal:Ecotox. It is aimed at the general public and pays particular attention to recent Belgian and Dutch marine ecotoxicological research. You are introduced to the various groups of toxic substances and their effects on marine and brackish-water organisms by means of approx. twenty 'case studies' at different levels within the food web. The online encyclopedia also provides an orderly list of the toxic substances enumerated under OSPAR and the Water Framework Directive as well as an explanation of the environmental standards and regulations.



The European **SPICOSA** (Science and Policy Integration for Coastal Assessment) project is centred around the integration of scientific research results and policy-relevant information for the assessment of coastal systems in the European marine region. SPICOSA has recently begun to use Coastal & Marine Wiki and a specific portal has been developed for this project (www.coastalwiki.org/spicosa/Portal:SPICOSA). The portal can also be accessed from the SPICOSA website and its purpose is to distribute own project information and results.



Coastal & Marine Wiki: a commonly used, reliable Internet encyclopedia

The Coastal & Marine Wiki (www.coastalwiki.org) contains the latest coastal and marine knowledge from the perspective of science, practice and policy. The information is constantly updated and improved by 411 registered experts. Together they have already put 1,397 articles online. The online encyclopedia got 6.5 million hits by 163,483 unique visitors in 2009. The Wiki principle is currently also applied in the MarBEF, SPICOSA and INRAM projects.



© CoastalWiki.org

World list of marine species gets about 1 million hits a month

With the World Register of Marine Species (WoRMS) VLIZ intends to develop the most authoritative global list of all published names of marine organisms in collaboration with taxonomic specialists from all over the world. In 2009 the number of hits on this website exceeded the figure of one million a month. On average more than 2,000 unique visitors are counted on a daily basis.

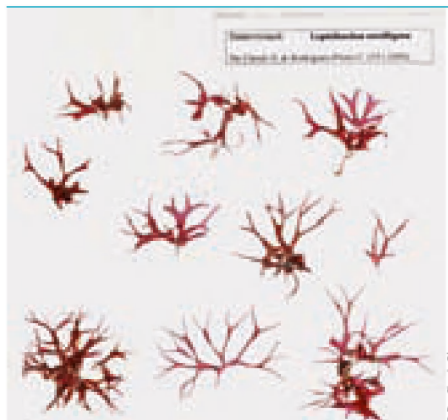


© Michael Heithaus



At the end of 2009 the **World Register of Marine Species - WoRMS** included more than 300,000 taxonomic names, 160,000 of which were valid, currently used species names. In 2009 a total of sixteen new world lists were added, including a list of whales and dolphins (Cetacea), starfish (Asteroidea), hydrozoans (Hydrozoa), branchiopods (Branchiopoda) and leeches (Hirudinea).

WoRMS database licences have now been granted to over 50 organisations from 17 countries in Africa, America, Australia and Europe free of charge. At least 8 organisations use the new dynamic Web Service for species data management (www.marinespecies.org/aphia.php?p=webservice). Arrangements are in force on data exchange of species names with 'Species 2000' for the 'Catalogue of Life', the 'Encyclopedia of Life', the 'Global Biodiversity Information Facility for the Global Names Index', the 'Barcode of Life' and 'GenBank'. The additional information included in WoRMS (images, distribution data, references and ecological information) is also supplied from WoRMS to the 'Encyclopedia of Life' and the 'Catalogue of Life' projects.

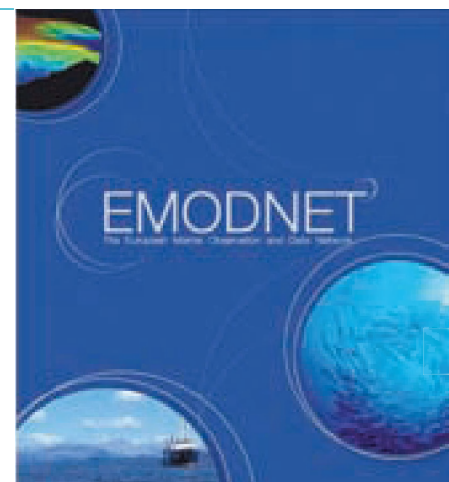


In addition to lists of species, the WoRMS database now provides online information on **specimens** as well. This function was developed in cooperation with the Phycology Research Group of Ghent University. The function allows scientists to input and make available online all information about every specimen in their collection, e.g. the exact location where and date when it was found, the collector and identifier, previous identifications, all sorts of facts and pictures. In 2009 the Phycology division provided as much as 33,000 specimen data of algae they had collected all over the world. The oldest specimen dates from 1853!

At the end of 2009 the three-year **Ocean-Ukraine project** came to an end. With this project the Department of Foreign Affairs of the Flemish government financed an intense cooperation between VLIZ, the Institute for Biology of the Southern Seas (IBSS) and the Marine Hydrophysical Institute (MHI) in Ukraine. This successful bilateral project produced many results. For instance, a hydrodynamic oceanographic model to predict waves and currents was installed on the VLIZ servers, open to users in the entire Black Sea region. In addition, a considerable amount of biological data – previously only available on paper – was made available online. Management of numerous valuable global data series is furthermore ensured in the future through the establishment of a dedicated data centre for IBSS. The icing on the cake was a **‘Memorandum of Understanding’** concluded on 30 October 2009 between VLIZ and the Oceanological Center of the National Academy of Sciences in Ukraine, so that further cooperation certainly is on the agenda in the next few years.

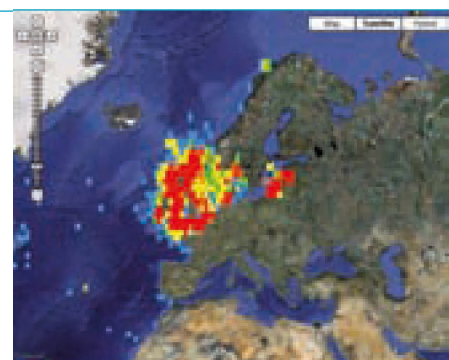


Reliable measurement data are needed to put the new European integral marine strategy into practice. The accessibility of data and related information deserves the necessary attention as well. To achieve this, the European Commission wishes to establish a **European marine observation and data network (EMODNET)**. To determine what such a network will look like in the future, five pilot projects (for biological, chemical, hydrological and geological data and for mapping habitats) have recently been started. VLIZ is responsible for the biological pilot project and is also involved in the chemical pilot project of EMODNET. Within the biological lot the data centre will not just offer biological marine data in a standard format and known quality, but also identify the gaps in the geographical coverage and time. Within this scope the data centre will make use of the already existing European EurOBIS atlas with distribution data of marine species.



The EMODNET pilot projects officially started on 15 May 2009. The kick-off meeting for the biological lot took place in Ostend on 8 and 9 June 2009. Within the biological part, there are 7 partners other than VLIZ: ICES, MarBEF, SeaDataNet, GBIF, PANGAEA, OBIS and IBSS.

EurOBIS, the European node of the international Ocean Biogeographic Information System (OBIS), is hosted and operated by VLIZ. EurOBIS collects distribution data of marine species from European waters. This initiative was started in 2004 within the scope of the European MarBEF (Marine Biodiversity and Ecosystem Functioning) project. Although the MarBEF project came to an end in April 2009, the VLIZ data centre carries on ensuring the continuous maintenance and further development of EurOBIS. In view of the strength and success of this data system, it is also put into service in the European pilot project EMODNET, which guarantees further growth in data and information.



In 2009 EurOBIS increased by approximately 3 million records to a total of over 7 million distribution data. This spectacular growth was made possible by the provision of data relating to the European bird surveys at sea (European Seabirds at Sea database or ESAS) and the supply of biogeographical data from ICES.



The objective of the European **SeaDataNet** project is to make various data sets available within one efficiently distributed data system (www.seadatanet.org). This concerns data sets collected by the Pan-European oceanographic research fleet and the new automated observation systems. VMDC is one of the 49 professional data centre partners and provided descriptions of 144 Flemish marine projects, 102 data sets and 71 institutions to the network in 2009. Furthermore, another 550 'Cruise Summary Reports' were supplied in standard format.



THESEUS (Innovative technologies for safer European coasts in a changing climate) is a 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. Eight study sites in Europe (Scheldt estuary, Venice Lagoon, Plymouth Sound, Gulf of Gdansk, Santander Bay, Varna Bay, Hamburg Port and Gironde) are scrutinised and analysed as to coastal defence techniques, policy and management, but also as to social, economic and environmental variables. In a final stage the ecological vulnerability, coastal defence and socio-economic aspects will be integrated and used in order to predict the situation in the short (2020), medium (2050) and long term (2080). The end result is a GIS tool which makes it possible to show the evolution of the study sites at the level of the three scenarios. VLIZ coordinates the dissemination of information and communication within THESEUS.



© University of Hawaii Sea Level Center

In collaboration with the IOC, VLIZ previously developed the **Sea Level Station Monitoring Facility** for the Global Sealevel Observing System (GLOSS). Through this website you can consult the status and rough (not quality-checked), real-time sea level measurements of nearly 300 GLOSS measuring stations. These are set up along the coasts of the Indian and Pacific Ocean, the Northeast Atlantic Ocean, the Mediterranean and the Caribbean Sea. This system is a quick tool to check the operation of all these measuring stations throughout the world and also allows a first inspection of the rough data stream.

In 2009 VLIZ was officially authorised to act as a **GLOSS data centre** for these real-time sea level measurements. This way the Flanders Marine Data Centre will assist the three other data centres designated by GLOSS: Permanent Service for Mean Sea Level (PSMSL), British Oceanographic Data Centre (BODC) and University of Hawaii Sea Level Centre (UHSLC). The plan to develop the global sea level station network in an even better and more stable manner was conceived at the GLOSS expert meeting (GE11) in Paris from 13 to 15 May 2009. As the communication of real-time data is becoming increasingly easy and economically feasible, the intention is to develop ever more measuring stations so as to be able to provide a measurement each minute.



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The Institute for Agricultural and Fisheries Research (ILVO – Fisheries), together with the Diversity and Systematics research group of Katholieke Universiteit Leuven, studies the genetic distribution of turbot and brill. To be able to optimally manage the large quantity of data, the data centre has developed a **genetic database** for storing microsatellite DNA information for both of these commercially important fish species.

The Research Institute for Nature and Forest (INBO) has been responsible for organising counts of washed-up **bird victims** and checking these data since 1992. INBO thus has a very extensive data set at its disposal, from which important information about chronic oil pollution at sea and consequently the ecological quality of the marine environment can be deduced. So far, availability of these data has been limited. Within the scope of the cooperation agreement between the Coastal Division, VLIZ and INBO, the decision was taken to make this wealth of information available in an interactive manner through the internet at www.vliz.be/vogelslachtoffers. On the website you can consult the results of these countings and set to work on the figures yourself. For instance, you can work out which particular birds were found on which strips of the Belgian coast during which periods. You can generate and print graphs on the basis of the figures. Besides this interactive application, the website also offers an overview of the history of the beached bird counts as well as a random selection from the known European literature on this topic.



© Diederik D'Hert

Within the scope of the **PESI** project (Pan-European Species directories Infrastructure, www.eu-nomen.eu/pesi), of which the data centre is one of the 40 partners, VLIZ participated in the international 'e-Biosphere 09 International Conference on Biodiversity Informatics' in London (1-3 June 2009). Participants were introduced to the latest developments in the field of 'Biodiversity Informatics' and could attend demonstrations of all sorts of projects and technical developments, including an explanation of the PESI project and the PESI web portal. After the conference there was a discussion forum, and VLIZ was one of the 34 invited guests. The latest ideas arising from the conference were discussed and put into a resolution, including the strategy with regard to 'Biodiversity Informatics' for the next decade.



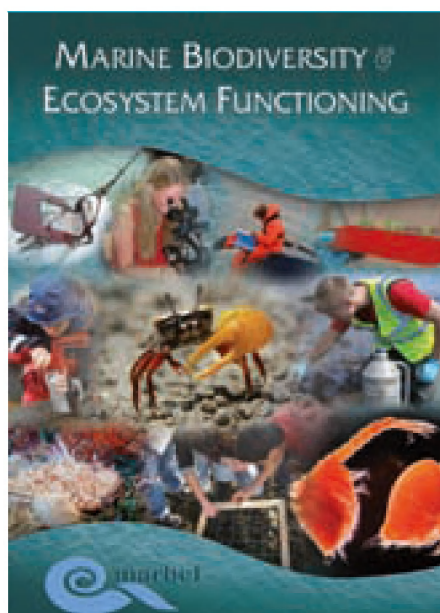
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Scientific journal publishes a special issue on the integrated MacroBen database

The MacroBen project (large-scale studies of the European benthos) developed a database in which all available biodiversity and distribution data were assembled relating to large zoobenthos living in soft sediments from the Arctic to the Black Sea. The results of this extensive data integration operation were published in a special issue of the authoritative scientific magazine Marine Ecology Progress Series (MEPS).



© UGent - MARBIO



The five-year **MarBEF** (Marine Biodiversity and Ecosystem Functioning) project ended on 30 April 2009. Within the scope of this project, the VLIZ data centre was responsible for the website and for the data integration. Thanks to the cooperation and trust within this community, more than 100 scientists made their data available, and the MarBEF consortium currently has the largest database of macrobenthos, meiobenthos and pelagic marine species in the world. By assembling all these data in integrated databases, researchers gained better insights into the patterns and processes that influence marine biodiversity. A number of results of these data integration operations have already been published in scientific journals. The role of VLIZ was to develop the database, to perform quality checks and to offer various statistical analysis instruments.

In addition to the scientific publications, the findings and discoveries within MarBEF were also disclosed to the general public through other channels. For instance, a portal on marine biodiversity was developed within Coastal & Marine Wiki for MarBEF in 2008 ([www.coastalwiki.org/coastalwiki/Portal:Marine Biodiversity](http://www.coastalwiki.org/coastalwiki/Portal:Marine_Biodiversity)). In 2009 it became possible to consult the summarising MarBEF final report completely online through Coastal Wiki. This report brings together all findings in a comprehensible manner and sheds light on the importance of future integrated research of the marine environment.



Project Office



UNESCO/IOC Project Office for IODE



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

The Flemish government supports the UNESCO/IOC Project Office for IODE through VLIZ. Within the scope of this special responsibility, VLIZ receives 100,000 EUR for taking care of the accommodation and support of the UNESCO/IOC Project Office for IODE. In addition, the Flemish government provides 500,000 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.

The Project Office is 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 ca. 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 105 dynamic websites across 12 servers (inclusive of virtual machines). At the end of 2009 the Project Office staff comprised 7 personnel members, 4 of which were on the VLIZ payroll.

Project Office for IODE staff

Peter Pissierssens	manager	UNESCO
Wouter Rommens	training course coordinator	VLIZ
Mark Van Crombrugge	IT specialist	VLIZ
Kristin de Lichtervelde	administrative assistant	VLIZ
Annelies Groen	documentalist	VLIZ (part-time)
Aditya Kakodkar	IT specialist	UNESCO
Mika Odido	regional programme coordinator	Visiting expert (long term)

Oceanographic data and information management training courses

A total of 8 training courses with a total number of 158 students from 53 different countries were organised at the UNESCO/IOC Project Office for IODE in 2009 (see table). The total number of person days amounted to 656 (person days: duration of the training x number of students).

Trainings courses 2009	Region	Data	#	Level
Oceanographic Data Management for University Students - Group I	Worldwide	16-17.03	18	B
Oceanographic Data Management for University Students - Group II	Worldwide	18-19.03	14	B
OceanTeacher Academy: Training Course on website development	Worldwide	15-26.06	11	B
OceanTeacher Academy: Training Course on Digital Asset Management	Worldwide	2-7.10	19	S
Training Course on the establishment of IODE Ocean Data Portal data providers	Belgium	13.10	6	S
MetOcean Modeling Jamboree-III	Worldwide	19-23.10	9	S
Technical training workshop on metadata and data management for Upgrade BlackSeaScene, Caspinfo and SeaDataNet	Europa, Black Sea and Caspian Sea countries	26-29.10	69	S
EUMETSAT/NOAA /IODE Training Course on the Use of Satellite Wind and Wave Products for Marine Forecasting	South America, South Africa, Asia	14-18.12	12	S

Level: B = Basic; A = Advanced; S = Specialised.

The participants came from the following countries: Albania, Algeria, Argentina, Australia, Azerbaijan, Bangladesh, Belgium, Benin, Brazil, Bulgaria, Canada, Chile, Cuba, Cyprus, Estonia, Latvia, Ethiopia, Fiji, Samoa, the Philippines, France, Georgia, Ghana, Greece, Iceland, India, Indonesia, Cameroon, Kazakhstan, Kenya, Croatia, Lebanon, Malaysia, Morocco, Mauritius, Mozambique, Namibia, Nigeria, Ukraine, Portugal, Romania, the Russian Federation, Senegal, Solomon Islands, Sri Lanka, Sudan, Tanzania, Togo, Turkey, Uruguay, Venezuela, Vietnam and South-Africa.

Guest researchers

A total of 10 scientific meetings were organised in Ostend in 2009 (see table). A total of 169 guest researchers from 27 different countries and 2 international organisations visited the office in Ostend. They stayed at the office for a period of one day to several months, resulting in a total number of person days of 457.

Meetings & Workshops 2009	Date	# ⁽¹⁾
4th Session of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices	27-30.01	12
OceanTeacher Academy Planning Workshop	9-13.02	6
JCOMM/IODE Jamboree-3 planning meeting	16-17.02	2
Second SCOR/IODE Workshop on Data Publishing	9-11.03	5
Workshop on the creation of the ODIN-PIMRIS web portal	16-20.03	6
Workshop on assessment of ocean information requirements for coastal management in Africa	30.03-02.04	27
ODINBlackSea Steering Group Meeting	15-16.09	7
African Marine Atlas Task Team	12-14.10	17
Second meeting of Joint Steering Group for the IODE Ocean Data Portal and the WIGOS Pilot Project for JCOMM	15-16.10	12
OBIS managers committee meeting + Strategy and Workplan meeting	16-20.11	19

⁽¹⁾ Teachers of trainings not included

Training courses in the spotlight

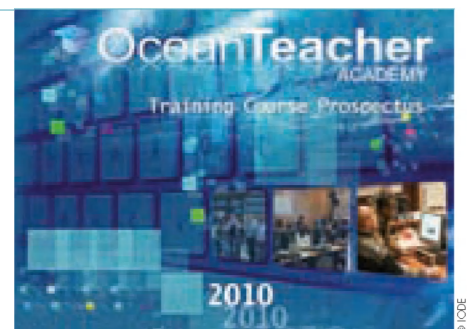
In 2009 IODE started organising open '**IODE seminars**'. During these scientific lectures, Flemish marine scientists are given the opportunity to come into contact with prominent international experts on oceanographic research. The first seminar (19 October 2009) entitled "MetOcean Modeling to deal with coastal hazards" dealt with the importance of oceanographic data in ocean-atmosphere models with the aim of predicting coast-related dangers such as storm tides and hurricanes. The second seminar (14 December 2009) entitled "Satellite wind and wave products for marine forecasting" provided an overview of several innovative satellite products to analyse and forecast wind and wave height. Both seminars were attended by approx fifteen Flemish marine scientists.



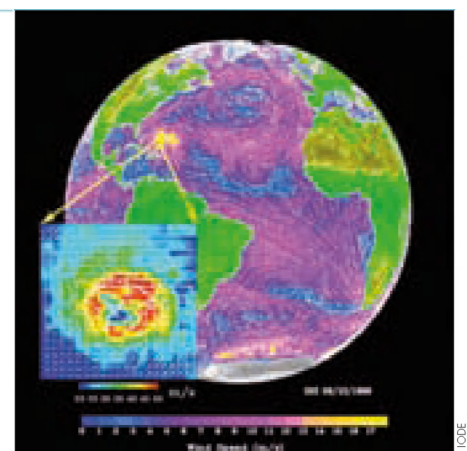
OBIS (Ocean Biogeographic Information System) manages over 22 million biological distribution data of marine organisms. These data are very important in view of the increasing threat to marine biodiversity due to climate change and human influence, and for sustainable management of oceans and seas. During the General Assembly of the UNESCO/IOC "25th Session of the IOC Assembly" in June 2009 the decision was taken to **integrate OBIS into IODE**. The OBIS Project office is currently located at Rutgers University (USA).



The **OceanTeacher Academy** (OTA) project is intended to offer a training programme on oceanographic data and information management in a structured manner. The training programme is aimed at all regional IODE networks (ODINs) and includes both basic courses for new staff members of data centres and specialised courses (permanent training). OceanTeacher Academy is supported by the Flemish government via FUST (Flanders UNESCO Science Trust Fund).



In December an **innovative training course** for staff members of meteorological services from the Southern Hemisphere (e.g. South Africa, Argentina) was organised in collaboration with NOAA (USA) and EUMETSAT. The use of data from QuickScat and other satellites was treated during this training course. On the basis of these data obtained from satellites, the wind and wave climate at sea can be deduced in near-real time and serve as a basis for meteorological forecasts. The system has already been used for a while in the North Atlantic, but now it has been made available for other locations as well. It is expected that weather forecasts and storm warnings at sea outside the Atlantic will improve considerably because of this.



Annexes

Financial statement

Performance & other indicators

Summary Evaluation Management Agreement 2005-2009

Organisational chart

VLIZ contact information

VLIZ Collected Reprints 39 (2009)

FINANCIAL STATEMENT

BALANCE SHEET AND PROFIT AND LOSS ACCOUNT

BALANCE PER 31 DECEMBER 2009 (KEUR)

Assets	31/12/04	31/12/05	31/12/06
Intangible fixed assets	1.05	0.52	0.00
Tangible fixed assets	298.22	499.52	606.40
Financial fixed assets	16.76	12.39	13.70
Amounts receivable within one year	88.23	179.29	237.41
Investments	0.17	0.00	0.00
Liquid assets	301.62	412.03	411.82
Prepayments and deferred income	228.26	80.74	40.76
Total	934.32	1,184.50	1,310.09

Liabilities	31/12/04	31/12/05	31/12/06
Allocated funds	85.78	95.78	95.78
Surplus brought forward	381.02	666.19	901.84
Provisions for liabilities and charges	0.00	25.00	21.35
Liabilities due after more than one year			
Liabilities due within one year	52.49	69.76	77.18
Prepayments and deferred income	415.03	327.78	213.94
Total	934.32	1,184.50	1,310.09

PROFIT AND LOSS ACCOUNT 2009 (KEUR)

Profits	31/12/04	31/12/05	31/12/06
Operating income	2,858.98	2,978.96	3,650.53
Financial income	0.21	0.52	2.52
Extraordinary income	0.00	0.00	0.00
Total	2,859.19	2,979.48	3,653.05

Losses	31/12/04	31/12/05	31/12/06
Remuneration and social security charges	1,073.67	1,273.51	1,540.74
Services and other goods	670.86	1,179.27	1,542.45
Provisions for liabilities and charges	0.00	25.00	-3.64
Depreciations	113.29	185.22	218.70
Financial charges	2.83	2.68	1.98
Other operating charges	980.39	17.61	117.17
Extraordinary charges	0.00	1.00	0.00
Total	2,841.04	2,684.31	3,417.40

Result	2004	2005	2006
Result of the financial year	18.16	295.17	235.65
Transfer to allocated funds	10.00	10.00	0.00
Profit and loss reserve brought forward as per 31/12	381.02	666.19	901.84

31/12/07	31/12/08	31/12/09
1.04	3.29	8.28
659.91	518.27	1,066.92
1.31	1.31	12.44
255.45	261.73	322.21
0.00	1,000.00	1,400.00
268.44	169.77	72.09
3.07	0.50	1.43
1,189.22	1,954.87	2,883.37

31/12/07	31/12/08	31/12/09
95.78	95.78	95.78
735.18	1,647.57	1,743.63
22.25	60.71	10.4
		713.73
184.61	123.79	319.83
151.40	27.02	0
1,189.22	1,954.87	2,883.37

31/12/07	31/12/08	31/12/09
3,172.79	4,692.35	4,478.92
4.80	2.91	11.45
0.00	18.45	0
3,177.59	4,713.71	4,490.37

31/12/07	31/12/08	31/12/09
1,712.93	2,008.63	2,331.31
1,302.59	1,312.18	1,433.79
0.90	38.45	-50.31
258.43	218.73	264.9
1.42	7.00	5.59
67.98	215.80	409.04
0.00	0.52	0
3,344.25	3,801.31	4,394.32

2007	2008	2009
-166.66	912.40	96.05
0.00	0.00	0.00
735.18	1,647.57	1,743.63

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 2009 (art. 9 §1 of the Management Agreement).

The income from external financing represented 95.04% of the fixed 1st + 2nd subsidy, 57.66% of the 1st + 2nd + 3rd + 4th + 5th subsidy and 37.62% of the fixed 1st + 2nd + 3rd + 4th + 5th + 6th subsidy in 2009 (art. 5 §2 of the Management Agreement).

Budgetary deviations from the 2009 budget (art. 9 §1 of the Management Agreement):

The following adjustments were made to the 2009 budget:

1) The investments of the data centre and the vehicle fleet and the operational costs of the vehicle fleet were transferred from the 1st subsidy (VLIZ) to the 6th subsidy (Investment Subsidy) in 2009.

2) The following subsidies were decreased:

1st subsidy (VLIZ): -3,000.00 EUR

3rd subsidy (IODE PO): -2,000.00 EUR

6th subsidy (Investment Subsidy): -22,000.00 EUR

PERFORMANCE & OTHER INDICATORS

VLIZ performance indicators overview table

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

Performance indicator	2004	2005	2006	2007	2008	2009
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	20	22
P2 Number of quality-checked records in the IMIS literature module	63,534	73,486	87,346	97,795	104,023	113,058
P3 Number of quality-checked records forwarded to the ASFA database	396	666	939	1.126	1.454	1.791
P4 Number of quality-checked records in the VLIZ databases	17,572,920	24,297,742	36,303,562	73,923,402	157,962,748	385,140,405
P5 Number and quality of informative publications for the public at large:						
· number of issues of 'De Grote Rede' (*)	3	3	2	3	3	2
· total number of pages of 'De Grote Rede' (*)	72	92	60	96	92	64
· number of subscribers to 'De Grote Rede'	2,193	2,386	2,892	3,585	4,505	4,972
· number of issues of 'VLIZINE' (*)	6	5	5	8	7	5
· total number of articles in 'VLIZINE' (*)	140	117	91	171	172	114
· number of subscribers to 'VLIZINE'	730	839	930	1,155	986	1.019
· number of other publications for the public at large made with the active cooperation of VLIZ (*)	5	3	10	7	10	5
· number of questions/answers added to the 'Our Coast' section of the VLIZ website	50	113	287	8	53	8
P6 Number of guest researchers using the 'IODE Project Office' expressed in terms of person days (*)	0	296	173	110	687 (\$)	457
P7 Actual number of sailing days spent on scientific research (*)	195	240	188	239	238	234
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	708 (\$)	656

(*): reported per calendar year

(\$): new method of calculation (more details in Annual Report 2008)

Performance indicators in more detail

The 8 performance indicators used to assess the performance of VLIZ in 2009 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.

On 5 February 2009 the Flemish Environment Agency (VMM) entered into a **new cooperation agreement** regarding the development and management of databases in connection with the monitoring of transitional and coastal waters.



On 17 December 2009 a **renewed cooperation agreement** began with the Institute for Forestry and Nature Research (INBO). Although a general cooperation agreement had already been concluded between VLIZ and INBO in 2007, formal and more detailed arrangements were made with this new agreement to adapt access to the data and information systems and bring about the transfer of knowhow concerning data management and information systems.

On 30 November 2009 a **'Memorandum of Understanding'** was concluded between VLIZ and the Oceanological Center of the National Academy of Sciences in Ukraine as a result of the ending Ocean-Ukraine project with the Institute for Biology of the Southern Seas (IBSS) and the Marine Hydrophysical Institute (MHI) in Ukraine.

Since it was created, VLIZ has entered into a total of 22 (inter)national cooperation agreements with universities, research institutions and administrations. This number does not include the respective management agreements (2005-2009) with the Department of Economy, Science and Innovation and with the Province of West Flanders. The two other agreements with the Department of Economy, Science and Innovation have not been included either: (1) structural partner within the 'Science Information and Innovation' Action Plan (2007-2009) and (2) the investment subsidy (2008-2009).

We have recorded an increase of the number of agreements by 12 since the entry into force of the new management agreement (2005-2009).
investeringsubsidie (2008-2009).

Overview of the (inter)national cooperation agreements (state of affairs at the end of 2009)

UNIVERSITIES

- Universiteit Gent, 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
- Universiteit Hasselt, 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 – hydrodynamics and sediment mechanics databases
- Vrije Universiteit Brussel, prof. dr. N. Koedam & dr F. Dahdouh-Guebas – mangroves
- Université Libre de Bruxelles, prof. dr. F. Dahdouh-Guebas – mangroves

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
- Research Institute for Nature and Forest (INBO) – adaptation of access to data and information systems and transfer of know-how on data management and information systems
- The MUMM department of the RBINS – cooperation with regard to Zeeleeuw and Belgica

FLEMISH AUTHORITIES

- 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 Monitoring Network Flemish Banks
- Agency for Maritime & Coastal Services, Coastal Division – management of greenhouses for dune research in De Haan
- Agency for Maritime & Coastal Services, Coastal Division – organisation of Sluice Dock management committee, management of data and 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
- Flemish Environment Agency (VMM) – development and management of databases in connection with the monitoring of transitional and coastal waters

INTERNATIONAL RESEARCH INSTITUTIONS

- Oceanological Center of the National Academy of Sciences in Ukraine – stimulate the cooperation in marine sciences

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

The integrated IMIS database is one of the databases developed by the VLIZ data centre. This Integrated Marine Data & Information System incorporates 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'.

New references are continuously added to the 'publication' module. It is this number of quality-checked records that is the subject of performance indicator 2. It comprises 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.

At the end of 2009 the IMIS literature module contained a total of 113,058 quality-checked records of marine or coastal publications. This is 9,035 more than at the end of 2008.

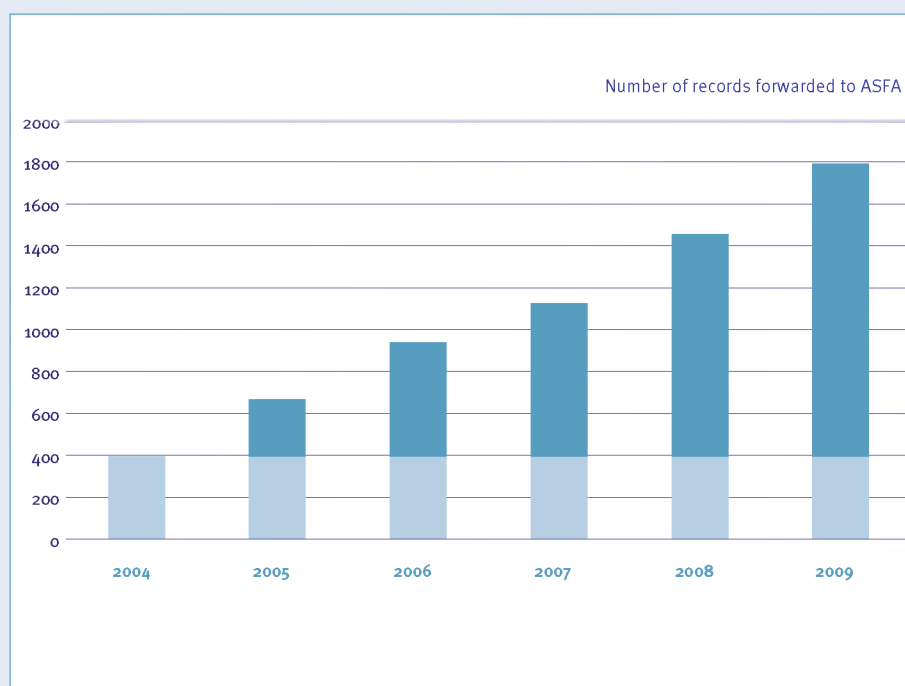
At the end of 2004 the total number of quality-checked literature records was 63,534. This is an increase of 49,524 units compared to the beginning of the term of the 2005-2009 management agreement.



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

By importing all Flemish/Belgian marine and aquatic-related references in the ASFA database, VLIZ promotes Flemish/Belgian marine research with an international scientific audience. After all, the 'Aquatic Sciences and Fisheries Abstracts' database of FAO (UN) represents the most comprehensive international source of information on aquatic and fisheries sciences. The VLIZ library loads both peer-reviewed articles and local grey literature (reports, theses...) into this database. The ASFA Advisory Board assesses the operation, contents and efficiency of the ASFA database on an annual basis. In 2009 VLIZ added 337 Flemish/Belgian marine references to the database, which gives a total of 1,791 records so far.

In 2004, the first year in which data were forwarded, VLIZ added 396 records. This means that 1.395 new records have been added since the start of the new management agreement (2005-2009).

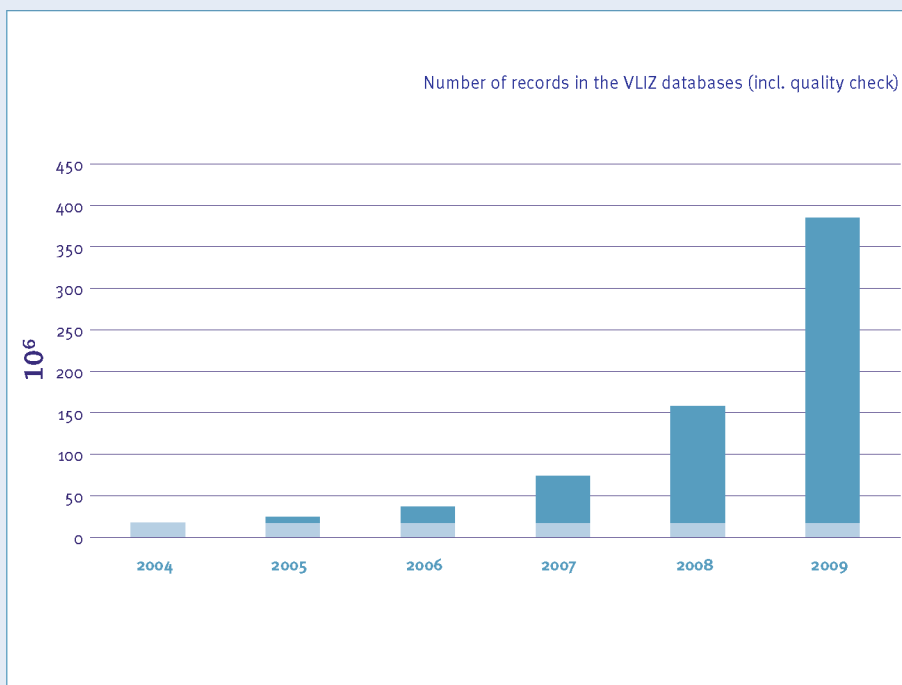


P4: Number of quality-checked records in the VLIZ databases

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

At the end of 2009 the total number of quality-checked unique records throughout all VLIZ databases amounted to 385,140,405. This is an increase by 244% compared to the number of records reported in the 2008 annual report.

In 2004 the number of records in the databases amounted to 17,572,920. This means that the number of records in the databases has increased by a factor of 22 since the beginning of the second management agreement (2005-2009).



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

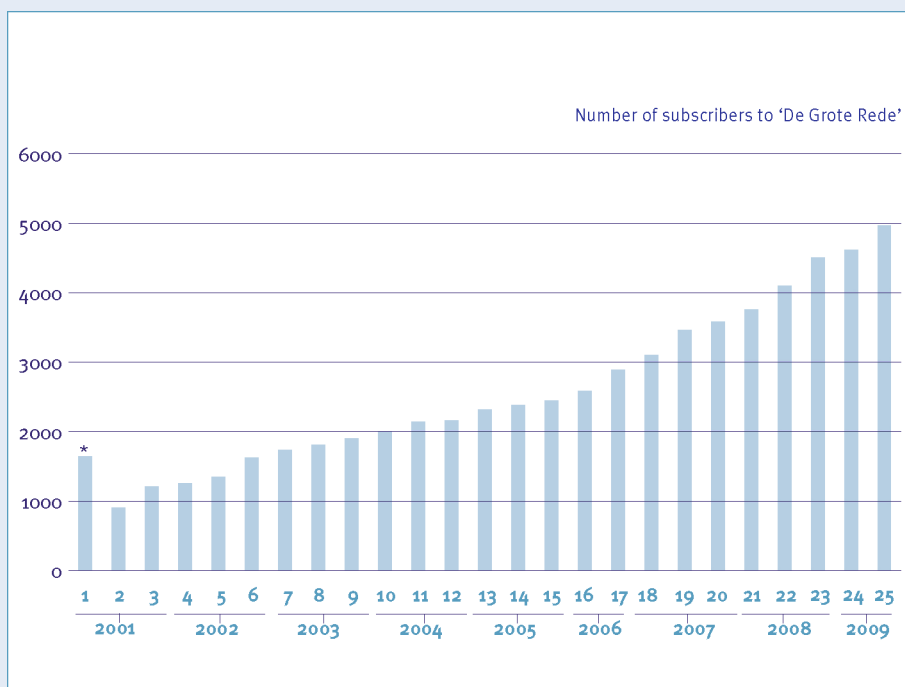
One of the responsibilities of the Flanders Marine Institute is to popularise and distribute marine scientific information towards various target groups. Within this scope we annually organise various seminars, workshops, symposia and information sessions and have developed an infodesk where everyone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

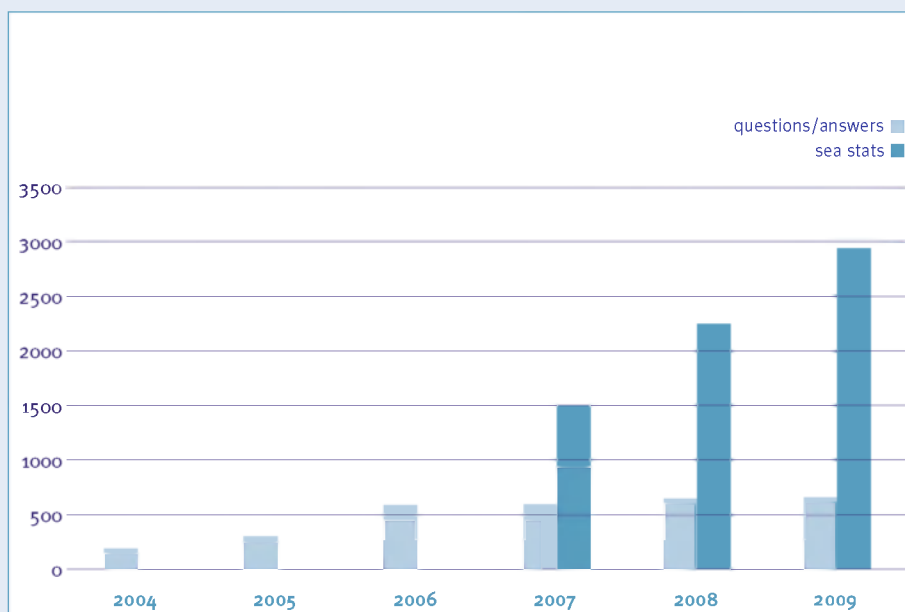
Informative publication	Indicator	2004	2005	2006	2007	2008	2009
'De Grote Rede'	number of issues	3	3	2	3	3	2
	total number of pages	72	92	60	96	92	64
	total number of leading articles	9	9	6	9	9	6
	total number of short articles	11	14	16	15	15	10
	number of short features	0	0	10	15	15	10
	number of marine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

In 2009:

- VLIZ published 2 issues of 'De Grote Rede', comprising a total of 64 pages, 6 leading articles, 10 short features, 10 short articles and 4 marine terms. We reached a total of 4,972 subscribers;
- VLIZ published 5 issues of the digital newsletter 'VLIZINE', comprising a total of 114 articles; the newsletter was sent to 1.019 e-mail addresses.
- VLIZ actively contributed to 5 other publications for the public at large;
- VLIZ added 8 questions/answers to the 'Our Coast' section on the VLIZ website; this means that a total of 565 questions and answers in Dutch and 89 in English can now be found online;
- VLIZ added 689 stats (incl. source and link) on marine and coastal affairs to the 'SeaStats' section on the VLIZ website.



The number of subscribers to the 'de Grote Rede' journal increases with every issue. In 2009 we welcomed 467 new subscribers. The number of subscribers has increased by 2,973 since the 2004-2009 management agreement took effect. (*: the first issue was sent to 1,639 addresses with an invitation to subscribe)

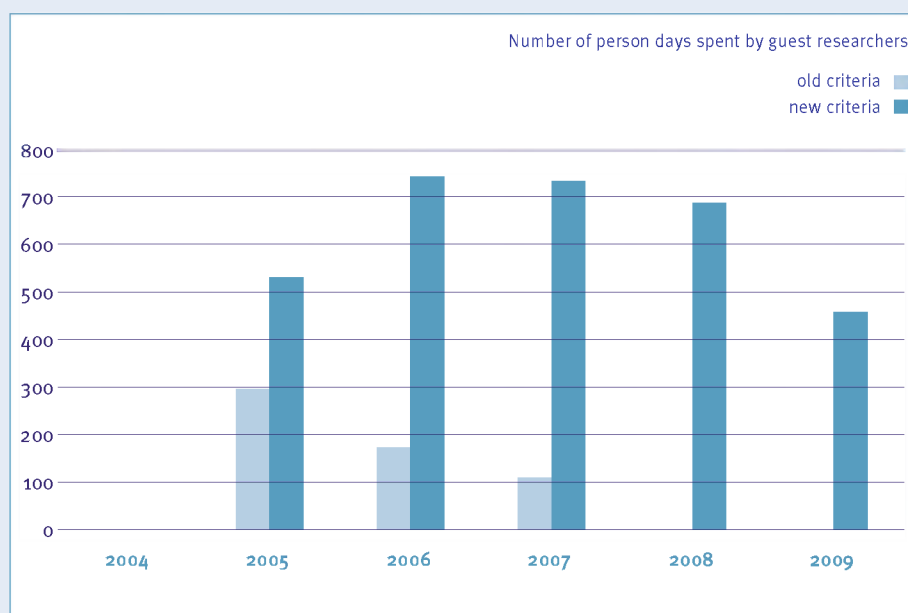


In 2009 a total of 689 reliable facts and figures were added to our 'SeaStats' database (www.vliz.be/cijfers_beleid/zeecijfers) and 8 questions/answers were added to the 'Our coast' section of the VLIZ website (www.vliz.be/vmdcdata/faq).

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

VLIZ functions as the instrument used by the Flemish Government to support the UNESCO/IOC Project Office for IODE. For that purpose VLIZ receives additional funding for accommodation, electricity, water, gas and internet costs (100,000 EUR in 2009) and channels an annual budget of 500,000 EUR to the Project Office for the organisation of training courses in the field of tsunami early warning systems and other sea-related phenomena.

In 2009 a total of 169 guest researchers from 27 different countries and 2 international organisations visited the 'Project Office for IODE' in Ostend. Depending on the assignment, their visits ranged from one day to several months, resulting in a total number of 457 person days⁽¹⁾.



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

A total of 10 scientific meetings were organised in Ostend in 2009 (see table). In addition, several experts worked at the Project Office for short or longer periods.

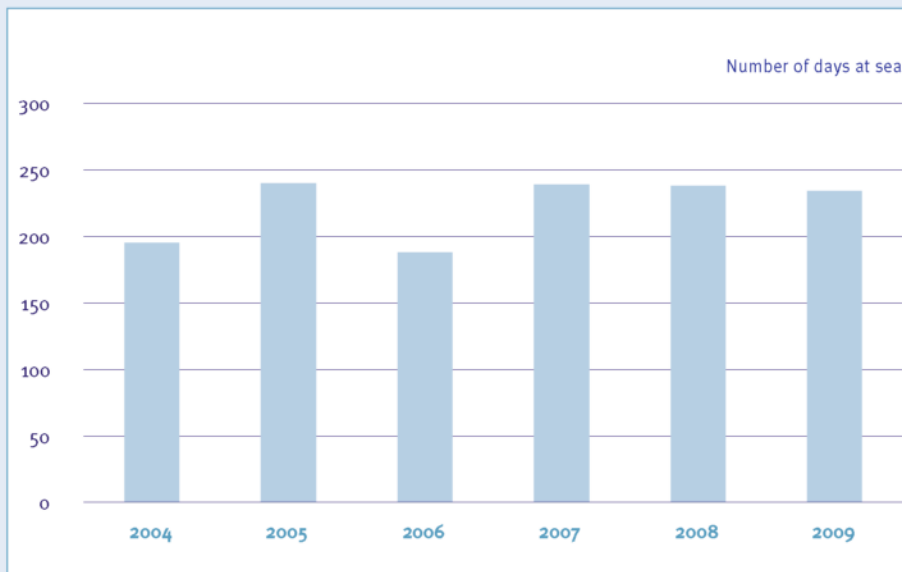
Meetings & Workshops 2009	Date	#
4th Session of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices	27-30.01	12
OceanTeacher Academy Planning Workshop	9-13.02	6
JCOMM/IODE Jamboree-3 planning meeting	16-17.02	2
Second SCOR/IODE Workshop on Data Publishing	9-11.03	5
Workshop on the creation of the ODIN-PIMRIS web portal	16-20.03	6
Workshop on assessment of ocean information requirements for coastal management in Africa	30.03-02.04	27
ODINBlackSea Steering Group Meeting	15-16.09	7
African Marine Atlas Task Team	12-14.10	17
Second meeting of Joint Steering Group for the IODE Ocean Data Portal and the WIGOS Pilot Project for JCOMM	15-16.10	12
OBIS managers committee meeting + Strategy and Workplan meeting	16-20.11	19

P7: Actual number of days at sea for scientific research

VLIZ concluded a cooperation agreement with Fleet Division, a division of the Internally Autonomous Agency for Maritime and Coastal Services (MDK), so as to be able to use 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.

In calendar year 2009 a total of 234 days were spent at sea on scientific research, 166 of which with Zeeleeuw, 32 with Zeekat and 36 with other ships of Fleet Division. Zeeleeuw sailed a total of 1,690 hours for research and educational purposes, while the RIB was deployed for a total of 273 hours, especially for diving assignments. In 2009 a total of 810 persons boarded one of the vessels (397 scientists, 413 students and other passengers).

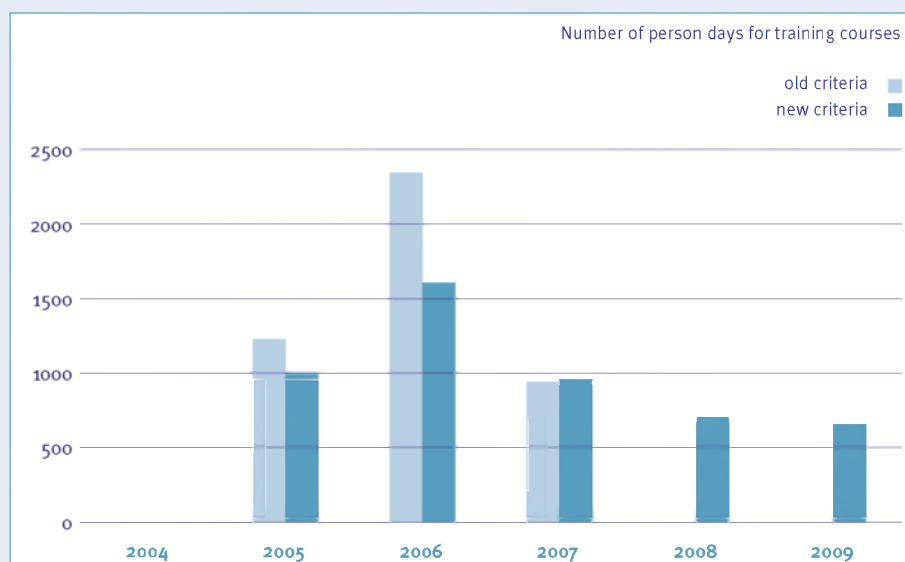
Aantal gerealiseerde vaardagen voor onderzoek op:	2004	2005	2006	2007	2008	2009
R/V 'Zeeleeuw'	155	151	122	150	162	166
RIB 'Zeekat'	37	45	35	51	39	32
'third' vessels: Ter Streep, Veeremans, Scheldewacht, Parel I en Scaldis	3	44	41	38	37	36
Total number of days at sea for research purposes	195	240	188	239	238	234



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

The aforesaid 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.

A total of 8 training courses with a total number of 158 students from 53 different countries were organised at the UNESCO/IOC Project Office for IODE in 2009. The total number of person days amounted to 656.



An overview of the training courses organised in 2008 with indication of the date and number of participants is given below:

Trainings courses 2009	Region	Data	#	Level
Oceanographic Data Management for University Students - Group I	Worldwide	16-17.03	18	B
Oceanographic Data Management for University Students - Group II	Worldwide	18-19.03	14	B
OceanTeacher Academy: Training Course on website development	Worldwide	15-26.06	11	B
OceanTeacher Academy: Training Course on Digital Asset Management	Worldwide	2-7.10	19	S
Training Course on the establishment of IODE Ocean Data Portal data providers	Belgium	13.10	6	S
MetOcean Modeling Jamboree-III	Worldwide	19-23.10	9	S
Technical training workshop on metadata and data management for Upgrade BlackSeaScene, Caspinfo and SeaDataNet	Europa, Black Sea and Caspian Sea countries	26-29.10	69	S
EUMETSAT/NOAA /IODE Training Course on the Use of Satellite Wind and Wave Products for Marine Forecasting	South America, South Africa, Asia	14-18.12	12	S

Level: B = Basic; A = Advanced; S = Specialised

The participants came from the following countries: Albania, Algeria, Argentina, Australia, Azerbaijan, Bangladesh, Belgium, Benin, Brazil, Bulgaria, Canada, Chile, Cuba, Cyprus, Estonia, Latvia, Ethiopia, Fiji, Samoa, the Philippines, France, Georgia, Ghana, Greece, Iceland, India, Indonesia, Cameroon, Kazakhstan, Kenya, Croatia, Lebanon, Malaysia, Morocco, Mauritius, Mozambique, Namibia, Nigeria, Ukraine, Portugal, Romania, the Russian Federation, Senegal, Solomon Islands, Sri Lanka, Sudan, Tanzania, Togo, Turkey, Uruguay, Venezuela, Vietnam, South-Africa.

Other indicators

Apart from the main activities 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 only given for illustrative purposes.

		2005	2006
About VLIZ			
Turnover of VLIZ (EUR)		2,528,646	2,746,084
Turnover without basic subsidy (external financing; 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
Info desk: 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 organized		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 ander websites hosted on the 'vliz.be' domain: total number of visits		***505,474	263,896
Number of hits/visitors to the VLIZ website and ander 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)	C	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	C	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 that made use of the Zeeleeuw		830	697
Number of references to VLIZ in scientific publications resulting from the use of the facilities	C	31	48
Number of records in the MIDAS database	C	3,506,515	4,037,139
Data centre			
Number of archived and disclosed datasets expressed in number of files	C	1,701	5,896
Number of archived and disclosed datasets expressed in total file size (in Gb)	C	1.83	6.22
Number of records in biological databases (Aphia, Eurobis, Macrobel, NSBP and Antobis)	C	2,823,778	5,951,961
Number of records in the IMIS 'Publications' module	C	87,545	99,792
Number of records in the IMIS 'Datasets module	C	500	714
Number of records in the IMIS 'Institutes' module	C	4,818	5,154
Number of records in the IMIS 'Conferences' module	C	447	493
Number of records in the IMIS 'Persons' module	C	9,757	11,635
Number of records in the IMIS 'Projects' module	C	1,266	1,376
Number of records in the IMIS 'Maps module	C	47	108
Number of records in the IMIS 'Infrastructure' module	C	0	41

2007	2008	2009
2,824,697	4,096,349	3,692,082
227,606	210,343	214,947
166,660	912,389	96,059
29.27	29.97	*35.27
238	248	250
29	25	31
17	18	**13
209	245	199
12	20	25
852	2,537	2,656
337	96	388
501,428	563,980	643,801
3,258,496	3,423,188	4,541,519
163	158	155
11,390	8,813	9,899
683	498	****431
2,800	4,500	5,300
10,598	22,845	66,151
96	96	97
1.036	927	*****810
60	78	123
4,773,200	5,487,262	6,569,633
6,534	6,843	7,349
11.02	12.12	19.61
16,169,975	21,243,488	‡21,002,506
110,631	119,958	132,515
1,044	1,208	1,498
6,542	7,368	7,656
653	795	875
14,359	17,026	18,416
1,906	2,196	2,707
899	919	976
46	46	50

- * = 17,64 permanent and 17,63 temporary FTE; 24,70 scientific and 10,57 administrative employees (work placements and 17 student employees not included)
- ** including 3 'VLIZ Special Publications', 4 reports and 1 book, 3 co-publications, 3 posters and an active contribution to 2 other publications
- *** 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.
- **** Out of 431 requests (358 from members, 73 from external persons), 417 references (97%) could be supplied; 250 (60%) from the Library's own collection, 167 from external sources (mainly via networks such as Euraslic and Iamslic (free of charge), Antilope/Impala and Subito - Germany (at a charge)).
- ***** 397 researchers + 413 students/passengers
- ‡ In 2009 the biological data bases grew with almost 4 million records, mainly in EurOBIS and APHIA. Performing a profound data quality control of diverse biological databases resulted in the revision and/or removal of a lot of (double) records, explaining the decrease in the number.
- C = cumulative

Summary of the 2005-2009 Management Agreement Evaluation

*Evaluation of VLIZ by international experts ('Review Panel')**

Conclusions

1. The general operation of VLIZ is assessed by the international Review Panel as "exceptional".
2. VLIZ has carried out an impressive amount of relevant work, especially in light of its modest capacity (budget and staff). Its output ensures high impact and awareness in Flanders and Belgium as well as in Europe and all over the world.

Recommendations

3. The 2010-2014 draft policy plan and the accompanying budget, drawn up by VLIZ at the request of the Flemish government to prepare the evaluation, is entirely supported by the Review Panel except for a few minor adjustments.
4. VLIZ has achieved a very high international reputation. Further development and consolidation of this international role should be brought about by the new 2010-2014 management agreement, including suitable performance indicators.
5. VLIZ developed international expertise and global leadership in marine-biological databases. This has huge potential in the acquisition of external research funding and makes Flanders reputable as a 'Region of Excellence' in science, technology & innovation. This competence should be recognised in the new 2010-2014 management agreement and supported by the necessary budgets.
6. The performance indicators currently used are mostly a standard for activity instead of quality or impact, and should be reconsidered.
7. Thanks to its international reputation, VLIZ could play a leading role in regional research, monitoring and assessment of activities in the southern North Sea and involve northern France, Belgium, the Netherlands and the east coast of England in it (cf. recommendations of the 1999-2003 evaluation).
8. The Review Panel is very much in favour of involving the VLIZ Scientific Committee and/or its thematic expert groups in the identification of research topics for a Flemish Marine Research Programme.
9. The recommendations resulting from the stakeholder surveys (carried out by IDEA Consult prior to September 2009) have to be implemented in the recommendations by the Review Panel identified above.

* Consisting of: Geoffrey O'Sullivan (Marine Institute, Ireland), Niamh Connolly (Nanyang Technological University, Singapore), Mark Costello (University of Auckland, New Zealand) en Peter Herman (Netherlands Institute of Ecology & Radboud University Nijmegen, the Netherlands).

Evaluation of VLIZ by IDEA Consult

Conclusions

Conclusions concerning 2005-2009 management agreement

1. Expectations and objectives of 2005-2009 management agreement have been achieved and surpassed

- All performance indicators have been achieved beyond all expectations on the basis of a coherent and systematic method, unprecedented dynamism, enthusiasm and customer-orientedness on the part of the employees.
- Positive appreciation by VLIZ in national and international scientific (and other) circles. The Flemish government and the province of West Flanders deserve compliments for their visionary attitude which led to the establishment of VLIZ.
- Good results have been achieved in the field of scientific popularisation. Nowadays VLIZ is not yet the central point of contact for marine and coastal sciences in Flanders, but it could/should be.

2. Management agreement is too much a complex of various addenda.

- The various addenda to the management agreement make both the subsidy application and the disbursement modalities too complex. VLIZ has nevertheless managed the different subsidies well.
- The flexibility of the competent authorities regarding the addenda in response to new developments and needs is admirable. However, simplification and integration of a number of agreements is desirable.

3. Self-evaluation by VLIZ provides a faithful picture of reality.

- In 2009 VLIZ drew up a self-evaluation report at the request of the Flemish government. According to the auditors, this provides a faithful picture of the actual performances in the last years.

Conclusions concerning internal operation

4. VLIZ is a well-performing yet at the same time vulnerable organisation

- VLIZ staff are customer-friendly, highly motivated, and have a sense of responsibility. The operation and support offered are very much appreciated by the various target groups.
- But the limited staffing of especially the small divisions is a cause for concern. They rely too heavily on some key figures who would jeopardise the continuity in case of departure. Combined with the heavy workload and insufficiently concrete contingency plans, this makes the whole organisation vulnerable.
- Although a great deal of measures have been taken over the last years in the field of Human Resource management, further development and professionalisation remain necessary due to the ever-growing organisation (drawing up of job profiles, decentralised evaluation, linking to conditions).

5. Sound management, but a 'brushup' is essential

- The management structure complies with the main principles of 'sound management' (in accordance with the Buysse II Code). Decisions are taken in mutual trust between the different executive bodies, and their operation is transparent. At the same time the Board of Directors evaluates its own operation insufficiently.
- The limited attendance of directors at board meetings, in particular of the Scientific Committee, is a problem. Especially because the Board of Directors nearly always relies on the decisions of this Scientific Committee, it is important that their judgment is representative and a sufficient number of members are present.
- The composition of the Scientific Committee and the Board of Directors has to be revised: Are the right members involved? Are they committed and do they operate in the interest of VLIZ?

- The information flow to the academic community through the members of the Scientific Committee leaves something to be desired. Even though this is only a shared responsibility of VLIZ, it undermines the operation of VLIZ in the long run. VLIZ may/should require more commitment from its members.

6. VLIZ is prudent with regard to financial policy and management

- The budget setting and accounting are done in a transparent and well-documented manner. The internal authorisation procedures to proceed to payment take place in accordance with the '4 eyes' principle, but are still followed in too informal a manner.
- The financial situation of VLIZ is particularly vulnerable. Increasing labour and fuel costs affect the financial statements. External funding amounts to 47.9% on average (cf. 7.5% minimum). Although the large share of external funding could be judged positive for VLIZ, this situation is threatening because it gives rise to concern within the organisation (many employees are paid with temporary means).
- The additional 2008-2009 investment subsidy provided VLIZ with the absolutely necessary financial breathing space. It seems necessary to continue providing additional means to keep the financial economy and continuity of the VLIZ services healthy in the future as well.
- VLIZ makes insufficient to no use of the possibility to charge a small sum for e.g. the organisation of events, the printing or sending of posters ...

7. IT policy is well developed and meets the needs

- The IT organisation of VLIZ is very efficient and effective both internally and externally. The data policy is strictly observed and sufficient measures are taken to maintain the integrity of the VLIZ environment and its databases.

Conclusions concerning communication policy

8. VLIZ communicates successfully in a broad and diversified manner

- Although VLIZ communicates intensively and successfully with the outside world, the formal communication strategy is only partly worked out.
- The largest target groups are clearly defined: the public at large (including a more general public of scientists), educators and policy makers. Each target group is approached differently. Thanks to the bottom-up orientation of the products and the entire operation, their content is well attuned to the target audience.
- The communication to policy makers now only takes place either indirectly or at the request of policy advisers. VLIZ lacks the mandate in this field to act as a central point of contact for marine and coastal sciences. Policy makers could make more use of the VLIZ services.
- The VLIZ services can and should be better known, certainly with regard to education. In this respect there are still considerable growth opportunities in the national market.
- Communication with the general public and education is mainly focused on Belgium and known nationally. Communication with policy makers takes the international context more into consideration.

Conclusions concerning scientific operation

9. The gap between VLIZ and scientific research is too wide

- VLIZ deserves praise for its achievements and the resulting international recognition and acknowledgement, which reflect on Flemish researchers.

- It has to be taken in to account that VLIZ does not conduct any research itself. It has gained international recognition through the support of research with excellent data and data management.
- VLIZ is not authorised to conduct research. This is not the case with all major international 'competitors'. This restriction makes it harder for VLIZ to take a stand at the international level, especially when it comes to influencing European research programme planning.
- In addition, it is increasingly difficult for VLIZ and its staff members to maintain a scientific profile, which is necessary to be able to compete at the international level for project financing.
- VLIZ argues in favour of the establishment of a Flemish marine research programme in which it could play a facilitating part through the organisation of thematic study groups / panels that would 'feed' the programme. Both IDEA Consult and the scientific community are in favour of this, on the express condition that the feasibility thereof is thoroughly tested in collaboration with the Flemish universities.

10. The 'competitors' of VLIZ conduct research themselves

- The institutions surveyed within the scope of international benchmarking (in the UK, the Netherlands and France) conduct research themselves and are thus able to play a part in the national and international research community. Historically, Flanders has always invested in excellent research universities, while the neighbouring countries started identifying and organising spearhead areas and dedicated research centres earlier on. The area of tension between universities and research institutions as we know it in Flanders is of no / less importance there.

11. Research activities of Flemish researchers are facilitated in an excellent way

- The surveyed researchers are very satisfied about the services offered by VLIZ (sufficient equipment and time at sea, excellent support as for data and information).
- The researchers are very satisfied about the participation they had in the new research vessel 'Simon Stevin' that is to be constructed.
- The greenhouses in the dunes of De Haan are still insufficiently used. This ought to improve in due time.
- The VLIZ data centre has developed into an internationally renowned centre that is at the top in Europe and a global player in networks and projects relating to data management and data collection. The data centre obtained a particularly strong position in biological data.
- The data centre is highly appreciated by researchers and other stakeholders in all its aspects. The databases are generally considered to be relevant, user-friendly, of high quality and complete. IMIS (Integrated Marine Information System) in particular is used very frequently and in all disciplines.
- The preservation and maintenance of existing databases is and remains a point of special interest. If the databases have been developed with external project financing, VLIZ has an insufficient budget to preserve and update the databases when the project has ended. In view of the importance of these databases for Flemish marine research, the competent authorities are responsible for ensuring their continuity (in a selective way).
- The library operation is highly appreciated. The collections are considered to be unique in Flanders and important in Europe.
- Digitisation is conducive to time gains and accessibility as well as to greater availability of grey literature. In view of its high cost, it is advisable, however, to investigate whether external funding should be sought to digitise grey literature.

12. Well-developed and valued networking and collaboration activities

- Scientists recognise they have been able to extend their national and international network through VLIZ, yet this has not necessarily led to more collaboration. However, VLIZ does contribute to the international visibility of Flemish research. But this could improve in the future provided that the gap between VLIZ and research is bridged further.
- VLIZ is well represented in the relevant forums, but there is room for improvement in local networking and involvement of local Flemish researchers. As for networking in connection with policy, the mandate of VLIZ is not clearly defined.
- VLIZ concludes cooperation agreements with research groups, universities and other actors in Flanders. The quantity of these agreements should always remain subordinate to their quality. Structural cooperation agreements at a 'high' level are essential in this respect, as is renewal.
- UNESCO/IOC Project Office for IODE and ESF/Marine Board value the services and collaboration with VLIZ and experience a positive impact of the proximity of VLIZ (as an expert and as the initiator of the InnovOcean site).

Conclusions concerning the relationship with policy area and policy context

13. Unclear mandate in national and international policy area

- There is no clear mandate as for which part VLIZ plays or can play in the policy landscape. VLIZ is therefore used insufficiently as a policy-supporting body. VLIZ is currently not the most important centre in Flanders when it comes to data flows and/or policy matters.

14. Complementary and in collaboration with other actors

- VLIZ always strives for complementarity, added value and collaboration in relation to other actors (such as ILVO, INBO, MUMM, Hydraulic Laboratory etc.). There is little overlap between the services of VLIZ and others.

15. Role in the creation of economic added value for Flanders

- By facilitating the establishment of FlandersMarine, VLIZ and its partners have taken an important step towards stimulating the creation of economic added value for the marine and related sectors. VLIZ is not 'directly' involved in this non-profit organisation, which is the right choice in view of the sensitive issues surrounding the economic valorisation of research results and arrangements between research institutions and universities.

Conclusions concerning 2010-2014 policy plan

16. Well-founded policy plan

- The policy plan proposed by VLIZ is well founded and contains the necessary details on the conditions needed to achieve the ambitions. The plan also takes into account the weaknesses (especially with regard to financing and staff).

17. Ambitious policy plan: prioritising required

- VLIZ is recommended to revise the proposed ambitious policy plan in view of the means placed at its disposal by the Flemish government and the province of West Flanders.
- The strong performance in the recent past may involve the risk of 'overreach' by the organisation. The right conditions and prerequisites need to be created to be able to continue growing 'sensibly' in a sustainable way.
- Prioritising in combination with a clear schedule will be needed to be able to continue working in a manageable way. It is also important to enhance the policy planning capacity by recruiting an additional policy adviser.

18. The policy plan takes into account national and international opportunities

- The opportunities identified by IDEA Consult return in the policy plan for the 2010-2014 period. There are clearly opportunities at the European level to advance further and thus contribute to European policy initiatives. This creates additional added value for Flanders and its scientists.

Conclusions concerning previous institutional evaluation

19. Conclusions and recommendations from previous institutional evaluation observed

- VLIZ has taken into account the recommendations and conclusions resulting from the 2000-2004 evaluation as much as possible. A limited number of recommendations have been observed partly or not at all because they were not supported by the scientific community and/or due to factors outside VLIZ.

Recommendations

Strategic recommendations for the Flemish government and the province of West Flanders

1. Continue investing in VLIZ: new 2010-2014 management agreement

- In view of the excellent performance of VLIZ and the future opportunities in the field of marine and coastal sciences, the Flemish government and the province of West Flanders are recommended to renew the management agreement. VLIZ is now indispensable for the good operation of marine research in Flanders and makes a strong contribution to the international image of Flemish marine scientists.

2. It is advisable and probably necessary to invest more

- Compared to other organisations in Belgium and abroad, VLIZ has a rather modest budget. The excellent performance is partly made possible by the inventiveness and professionalism of the employees. This situation is untenable, however.
- If Flanders wishes to capitalise on the investments made, additional investments will be required. VLIZ is now too dependent on external project means, which involves the risk of VLIZ undermining its own operation. If the external means are used to pay for basic activities, this is a reason to revise and increase the basic funding.
- VLIZ does not have a financial buffer and only half of its staff members are paid by means of subsidies. This is an unhealthy and/or untenable situation. Unforeseen circumstances cannot be addressed adequately.
- So as to continue ensuring that VLIZ is able to maintain its facilities (including the research infrastructure), the investment subsidies need to become regularly recurring so that the replacement investments are guaranteed.
- The funding for data management, the core activity of VLIZ, should enable VLIZ to manage the data obtained from local and international projects in an appropriate manner in the future too. This also applies to data sets developed within the scope of externally financed projects.

3. Streamlining the new management agreement to be concluded

- It is advisable to integrate the various current addenda into one arrangement with a clear flow of funding from the Flemish government in addition to a flow of funding from the province of West Flanders.
- The new management agreement to be concluded needs to be clearly formulated and contain measurable objectives and activities concerning various issues (SMART concept). Specific activities are required in relation to:
 - * communication,
 - * internal operation (incl. role and constitution of the executive bodies),
 - * international involvement,
 - * attuning / support of Flemish policy,
 - * involvement of VLIZ in valorisation and the creation of added value,
 - * etc.

In particular, rules will also have to be laid down regarding the appointment of members of the Scientific Committee.

- The management agreement needs to include more 'result indicators' rather than 'output indicators'. IDEA Consult will propose a set of 8 performance indicators (with subdivisions) for assessment of the overall operation. As for the science communication, 3 additional performance indicators and several objectives are proposed.

4. Give VLIZ clear mandates and convert these into strategic objectives

- The mandate concerning the international representation of VLIZ needs to be specified. VLIZ is a Flemish institution and thereby does not have a Belgian mandate in an international context. This is not always clear in the international field, however, and no distinction is made: VLIZ is often regarded as the Belgian Marine Institute. This is why it should be confirmed clearly in the new management agreement that the collaboration between VLIZ and the Belgian federal government is important within the context of the increasing importance of Europe.
- VLIZ should get a clear mandate with regard to the support of marine and maritime policy in Flanders and should thus be used more as a policy-supporting institution. Together with other actors VLIZ could help shape the policy.
- VLIZ should get a clear mandate when it comes to the creation of economic added value. After all, opportunities arise at the national and international level. FlandersMarine should continue to be supported by VLIZ, but the expectations in this respect should be clearly specified.

5. Recognise marine sciences as a key area for the future

- In view of the common ground with the other disciplines of environment, energy, health, food etc., the marine and coastal sciences are a key area for the future of Flanders.
- The reputation and excellence of VLIZ can be made use of at a higher level within the current and future priorities in Flanders. VLIZ fits into the context of strategic research centres (SRC). The collaboration with other SRCs should be stimulated in the future.

6. Feasibility of a Flemish marine research programme needs to be analysed

- It is in the interest of Flanders, Flemish researchers and VLIZ to anticipate the development of a Flemish research programme in case of declining federal 'earmarked' funding for marine sciences.
- From its neutral and independent position, VLIZ could have a study carried out concerning the costs and benefits linked to such a programme. It could also be investigated how VLIZ could facilitate the development and execution of the programme in collaboration with e.g. the Research Foundation – Flanders.
- The feasibility study should sort out how VLIZ could make possible the operation of new thematic scientific advisory committees to be established. Flemish and international experts should have a seat and work in these committees to supplement/replace the current Scientific Committee.
- The study also needs to consider whether it is correct that the development of a Flemish research programme will strengthen the position of VLIZ to increase the Flemish influence on international research programme planning.

7. Enable VLIZ to develop a 'scientific profile'

- In the scientific and research-driven environment in which VLIZ operates, it is extremely important to present a strong scientific CV. VLIZ is not authorised to conduct research itself, and should preserve its scientific character e.g. by being able to act as co-author of scientific publications.

8. VLIZ as the Flemish 'nerve centre' for marine and coastal data

- A broad framework needs to be developed so that data resulting from projects funded by the Flemish taxpayer ultimately end up in the VLIZ databases. VLIZ could then act as an intermediary for data delivery within the scope of international agreements. Not concluding such agreements undermines the strength and recognition of the VLIZ data centre.

Operational recommendations for VLIZ

1. *Attention to risk management*

- Contingency plans need to be developed so that (un)expected developments relating to subsidies and staff turnover (departure of key figures) are responded to in a practical way.

2. *Choices will be essential*

- Partly by attracting external funding, VLIZ has been able to extend its activities greatly, and once again the ambitions of VLIZ for the 2010-2014 period are high. It needs to be recognised, however, that such great achievements have their limits, especially when it comes to human capability. If the means do not increase sufficiently, VLIZ will be forced to make choices at an international level with regard to data, project ambitions, communication and education etc.

3. *Rationalisation of project financing*

- It does credit to VLIZ that it is capable of attracting a significant percentage of external funding through competitive projects and offering services. But at the same time this is a risky situation as the dependence on this kind of funding for cross-financing of basic activities has become too great. This will undermine the basic operation of VLIZ in the long run. If the basic activities are carried out with external funding, the subsidies for VLIZ need to be reconsidered. If this is not the case, VLIZ will have to be more selective in its involvement in external projects so as to pay sufficient attention to its basic activities.

4. *Develop an integral communication strategy*

- A comprehensive communication strategy needs to be developed; in the process, attention needs to be paid to the results of the surveys from this evaluation. Of special interest are the VLIZ branding and the visibility of Flemish researchers.
- Work could be done on further integration of science communication into the general communication. After all, many products can be used in a broader context than just education and vice versa.
- In collaboration with other actors (province of West Flanders) more work could be done for primary education.
- The proposition by VLIZ to visit classes itself does not seem efficient. It is better to address teachers by means of the appropriate forums.

5. *Professionalise and strengthen the organisation further*

- VLIZ needs to professionalise the Human Resources policy even further: develop job profiles, revise evaluation procedures, decentralise the evaluations.
- In order to ensure the continuity of the organisation and to guarantee the services, vulnerable positions need to have a 'backup' (note: they are not to be split up). Priority has to be given to the recruitment of a policy adviser who assists the general manager.
- Procedures regarding the authorisation of payments and the checking of invoices need to be formalised.

6. *Introduction of a management information system*

- A limited and flexible time registration system needs to be introduced to enable better monitoring of the different efforts and to serve as a management information system.

7. Rationalisation of cooperation agreements and strategy

- Cooperations need to be judged more on their added value for VLIZ and Flemish researchers. It seems advisable to conclude cooperation agreements at an institutional level. This way they can provide the framework in which project-specific arrangements with research groups are established. The renewal of existing cooperation agreements is therefore a point of particular interest.

8. Ask modest contributions to keep a lid on costs

- Costs have greatly increased for VLIZ over the last few years. VLIZ is advised to ask for modest contributions to keep a lid on the costs of catering at events, publications, etc. However, the use of revenues from advertisements is not advisable because of the neutral character of VLIZ.

9. Revise the composition and operation of the Scientific Committee

- The level of absence from the Scientific Committee is too high, which gives rise to concern about their commitment towards VLIZ. Some concrete proposals to improve the composition and operation are:
- Require a clear commitment from the members and their host institutions. Members need to be committed and there should not be any 'conflict of interest'. They have to guarantee that they will inform their colleagues well on (the result of) the meetings.
- Better specify the rules for selection and appointment of members. If certain members are continually absent, VLIZ needs to be able to take action.
- The agenda of the meetings can be subdivided further: take pure information out of the agenda and pass it on through parallel channels.
- Change the meeting locations more often. For instance, hold a 'strategic' meeting on a location in Belgium that is not (near) VLIZ on a yearly basis.
- A reason for absence is the limited 'research relevance' of the topics to be discussed. If VLIZ were to facilitate a Flemish research programme, interest would undoubtedly be higher. Even if this programme was introduced and if thematic advisory committees were used, clear, strict and transparent rules would still have to be specified and observed.

10. Revise the composition and operation of the Board of Directors

- The Board of Directors functions well, but does not have a very strategic character at the moment. The level of absence deserves particular attention in this case as well. The composition of the board should be revised and allow various stakeholders to nominate new members. Furthermore, the aforesaid practical suggestions for the Scientific Committee apply here as well. The board should have its own operation evaluated periodically.

11. Consolidate and develop the strengths relating to data in an intelligent manner

- The consolidation and development of the strong position of VLIZ with regard to biological data is important. This strong international position should be maintained and extended where possible. The Flemish government could play a part in this by developing a framework in which VLIZ is always the link in local and international data flows.
- VLIZ could be a pioneer in combining existing data (e.g. physical and chemical data) so as to be able to study the entire ecosystem in this manner. This needs to be done in consultation with other (inter)national institutions.
- The quest for patterns in the available data is a promising option. This 'data mining' could then lead to the formulation of new research hypotheses. But as this activity is very similar to research, this is only possible on condition that there is prior consultation with universities. Possible arrangements can be established in the cooperation agreements.
- On the basis of the current databases, possibly supplemented with other databases, active research can be done to develop new products that can be offered (inter)nationally.

12. Look for a purpose for the greenhouses in the dunes

- Although the greenhouses in the dunes do not cost VLIZ any money, the insufficient use of this installation is a cost for the Flemish taxpayer. This facility is unique in Flanders (and in most of Europe). It is advisable to look actively for a better and more intensive use. This could be done in collaboration with other actors and even at an international level.

13. Do not bury the 'treasures' of the library

- As indicated in the previous evaluation, it is important that the unique collections managed by the VLIZ library are not forgotten. However, it is not advisable that VLIZ promotes the collection to the general public, yet specific promotion could be useful. Investment in digitisation is crucial in this case.

14. Regular international benchmarking is necessary

- As no foreign experts have a seat in the executive bodies of VLIZ, it is useful and advisable that VLIZ matches itself regularly against foreign practices. Participation in Joint Programming, in which a limited investigation or benchmarking is inherent, also seems interesting in this respect.

15. Draw more international organisations to the InnovOcean site

- VLIZ currently facilitates the operation of IODE and ESF Marine Board at the InnovOcean site. In addition to the assets of VLIZ, this makes it possible to draw other international organisations to the site in Ostend as well. This requires a joint effort by VLIZ, the province of West Flanders and others.

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 Government 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 2009

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
- Mr *Jean Berlamont*, full professor, Katholieke Universiteit Leuven
- Mr *Yves Goosens*, general director of DAB Fleet division of MDK
- Mr *Jean Lanckneus*, marine geology consultant, Magelas NV
- Ms *Veerle Lories*, secretary general ad interim of the Department of Economy, Science and Innovation
- Ms *Ilse Hoet*, department manager of the Department of Mobility and Public Affairs
- Ms *Magda Vincx*, full professor, Ghent University

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

- Mr *Gunter Pertry*, member of the Provincial Executive
- Ms *Hilde Veulemans*, member of the Provincial Council

The three other members are:

- Mr *André De Raes*, assistant director of the 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

Wonen de vergaderingen bij:

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

General Assembly

The General Assembly is currently composed as follows (end 2009):

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

The eight voting members appointed by the Flemish Community 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
- Dr *Veerle Lories*, Department of Economy, Science and Innovation
- 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 *Gunter Pertry*, 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
- Mr *Frederik Colson* is entitled to vote in the General Assembly in his capacity as founding member.

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. raadgevende stem bijwonen.

Scientific Committee

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.

The composition of the Scientific Committee 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 2009 is presented below.

The Flanders Marine Institute (VLIZ):

- *Colin Janssen*, chairman, vice-chairman of the Board of Directors
- *Jan Mees*, general manager
- *Jan Seys*, rapporteur (replacement: *Nancy Fockedeys*)
- *Jean Berlamont*, Katholieke Universiteit Leuven, member of the Board of Directors
- *Jean Lanckneus*, marine geology consultant, member of the Board of Directors
- *Magda Vincx*, Ghent University, member of the Board of Directors (replacement: *Ann Vanreusel*)

Flemish universities and scientific institutions:

Two delegates from Katholieke Universiteit Leuven (KULeuven):

- *Filip Volckaert* (replacement: *Tine Huyse*)
- *Jaak Monbaliu* (replacement: *Erik Toorman*)

Three delegates from Ghent University (Ugent):

- *Gilbert Van Stappen* (replacement: *Patrick Sorgeloos*)
- *Frank Maes* (replacement: *An Cliquet*)
- *Wim Vyverman* (replacement: *Koen Sabbe*)

Two delegates from University of Antwerp (UA):

- *Patrick Meire* (replacement: *Stefan Van Damme* or *Eric Struyf*)
- *René Van Grieken*

Three delegates from Ghent University (Ugent):

- *Filip Meysman* (replacement: *Frank Dehairs*)
- *Nanette Daro*
- *Nico Koedam* (replacement: *Farid Dahdouh-Guebas*)

One delegate from Hasselt University (UHasselt):

- *Tom Artois* (replacement: *Nathalie Beenaerts*)

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

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

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

- *Kris Cooreman* (replacement: *Daan Delbare*)

One delegate from the Flemish Heritage Institute (VIOE):

- *Marnix Pieters* (replacement: *Anton Ervynck*)

The Flemish government:

One delegate from the Hydraulic Research Laboratory division of the Department of Mobility and Public Affairs:

■ *Frank Mostaert*

One delegate from the Hydraulic Research Laboratory division of the Department of Mobility and Public Affairs:

■ *Guido Dumon* (replacement: *Nathalie Balcaen*)

One delegate from the Department of Economy, Science and Innovation (EWI):

■ *Rudy Herman*

One delegate from the Environment, Nature & Energy policy area:

■ *Ruth Declerck* – International Environmental Policy division (AIM) (replacement: *Els Martens* – Nature and Forest Agency (ANB) – Central services)

The federal government:

One delegate from the Federal Science Policy Office:

■ *David Cox*

One delegate from the MUMM department of the Royal Belgian Institute for Natural Sciences (RBINS):

■ *Georges Pichot* (replacement: *Brigitte Lauwaert*)

This list is not exhaustive: the Board of Directors may invite representatives from other institutions and underrepresented research disciplines to join the Scientific Committee. If a specific problem arises, Belgian and/or foreign experts may be invited to attend one or several meetings.

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Colophon

This 2009 Annual Report of the Flanders Marine Institute (VLIZ) has been presented for approval to the Board of Directors and the General Assembly on 28 April 2009.

Coordination and final editing

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Nancy Fockedeey and Jan Seys – VLIZ Communication & Information

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Marine and coastal research in Flanders

Vol. 39 (2009)

Colophon

The annual VLIZ Collected Reprints are the continuation of the IZWO Collected Reprints (Vol. 1, 1970–vol. 28, 1998). They list the marine scientific articles of Flemish researchers published in the previous year. They are available online through the Open Marine Archive (OMA) of VLIZ, and from volume 37 on, through a CD as a supplement to the VLIZ Annual Report.

The CD enclosed in the 2009 Annual Report contains an overview of volume 39 (2009). Clicking on the 'OMA' link will lead you directly to the full version available in PDF format through the Open Marine Archive (OMA).

Users of this CD with no direct internet access can request paper copies of articles from this list by using the document delivery services of the VLIZ library. Publication exchange partners receive the full text of these and previous editions on simple request in exchange for their own publications. They also receive a copy of all VLIZ publications.

New exchange proposals are welcomed and should be directed to:

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